Tennessee Department of Environment and Conservation
Division of Water Resources
William R. Snodgrass Tennessee Tower,
312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

Phase II Small Municipal Separate Storm Sewer System (MS4) Annual Report

1. MS4 Information

Name of MS4: City of Greenbrier		MS4 Permit Number: TNS077810
Contact Person: Carla Caughey		Email Address: ccaughey@greenbriertn.org
Telephone: (615) 643-4531		MS4 Program Web Address: http://greenbriertn.org
Mailing Address: 790 W. College St.		
City: Greenbrier	State: TN	ZIP code: 37073

What is the current population of your MS4? 6,898 (2020 census)

What is the reporting period for this annual report? July1 2020 to June 30 2021

2. Discharges to Waterbodies with Unavailable Parameters or Exceptional Tennessee Waters (Section 3.1)

A. Does your MS4 discharge into waters with unavailable parameters (previously referred to as impaired) for pathogens, nutrients, siltation or other parameters related to stormwater runoff from urbanized areas as listed on TN's most current 303(d) list and/or according to the on-line state GIS mapping tool (tdeconline.tn.gov/dwr/)? If yes, attach a list. ☒ Yes ☐ No

B. Are there established and approved TMDLs (http://www.tn.gov/environment/article/wr-ws-tennessees-total-maximum-daily-load-tmdl-program) with waste load allocations for MS4 discharges in your jurisdiction? If yes, attach a list. ☒ Yes ☐ No

C. Does your MS4 discharge to any Exceptional Tennessee Waters (ETWs - http://environment-online.tn.gov:8080/pls/enf_reports/f?p=9034:34304:4880790061142)? If yes, attach a list. ☐ Yes ☒ No

D. Are you implementing specific Best Management Practices (BMPs) to control pollutant discharges to waterbodies with unavailable parameters or ETWs? If yes, describe the specific practices: The City's Buffer Zone policy was amended to be consistent with the permit. All new constructionprojects are required to have a pre-construction meeting between their project team and a city official to ebsure that EPSC plans meet the regulations put forth by the City and their TDEC Erosion Prevention & Sediment Control Handbook prior to a permit being issued for the project. Active jobsites are required to be inspected at least once a month to ensure compliance with the permit requirements and to identfy any illicit discharges (by employee with TDEC EPSC Level 1 certification). If found out of compliance , the City will issue an official NOV and penalities deemed appropriate. ☒ Yes ☐ No

3. Public Education/Outreach and Involvement/Participation (Sections 4.2.1 and 4.2.2)

A. Have you developed a Public Information and Education plan (PIE)? ☒ Yes ☐ No

B. Is your public education program targeting specific pollutants and sources, such as Hot Spots? If yes, describe the specific pollutants and/or sources targeted by your public education program: Every year the focus will be on construction site stormwater and eudcating developers and contractors on the importance of proper BMP installation and maintenance in addition our public eudcation targets many household pollutants such as animal waste, cleaning products, and vehicle fluids. ☒ Yes ☐ No

C. Do you have a webpage dedicated to your stormwater program? If yes, provide a link/URL: http://greenbriertn.org ☒ Yes ☐ No

D. Summarize how you advertise and publicize your public education, outreach, involvement and participation opportunities: Stormwater educational information is provided online, on water bille, and is mailed in letters. Stormwater pamphlets are availablefor the public at City Hall.

E. Summarize the public education, outreach, involvement and participation activities you completed during this reporting period: The City maintains a webpage for easy access to stormwater informational material. The City is also a member of TNSA who host monthly meetings which enable members of the stormwater community to come together and discuss relevant topics and current issues. The City hosted the First Annual Tree Givaway on March 19th 2021 with a very positive turnout giving away an estimated 150+ trees and 100 pamphlets about "Grasscycling". The City distributed public information eudcation during four city wide events and activity books and crayons. Please see attached informational material.

F. Summarize any specific successful outcome(s) (e.g., citizen involvement, pollutant reduction, water quality improvement, etc.) fully or partially attributable to your public education and participation program during this reporting period: The City of Greenbrier held two city wide clean-up days this 20-21 permit cycle where the city collected and properly disposed of hazardous waste, chemicals, and trash that would have otherwise been illegally dumped into streams or other water features. The City successfully collaborated with Dr. Taylor and his team from Western Kentucky University to implement effective analytical monitoring and bioassessment of Carrs Creek, Unnamed Contributary (Dorris Rd.), Pole Bridge Branch Creek, and War Trace Creek (not tested due to lack of water). See attached of WKU's Bacteriological and Bioassessment reports.

4. Illicit Discharge Detection and Elimination (Section 4.2.3)

A. Have you developed and do you continue to update a storm sewer system map that shows the location of system outfalls where the municipal storm sewer system discharges into waters of the state or conveyances owned or operated by another MS4? ☒ Yes ☐ No

B. If yes, does the map include inputs into the storm sewer collection system, such as the inlets, catch basins, drop structures or other defined contributing points to the sewershed of that outfall, and general direction of stormwater flow? ☒Yes ☐ No

C. How many outfalls have you identified in your storm sewer system? #6

D. Do you have an ordinance, or other regulatory mechanism, that prohibits non-stormwater discharges into your storm sewer system? ☒Yes ☐ No

E. Have you implemented a plan to detect, identify and eliminate non-stormwater discharges, including illegal disposal, throughout the storm sewer system? If yes, provide a summary: Inspections and screenings are performed by the Building and Codes Department by a certified TDEC Level 1 EPSC. Our IDDE plan includes procedures for identification of hot spots within the City. 29 hotspot inspections were performed during the 20-21 permit cycle along with dry weather screening of stormwater outfalls, an eudcation component for municipal employees (ilicit discharge training by OHM Advisiors June 2021) business owners/operators,and the general public. All of these componets together have aided in proper identification and elimination of illicit discharge. ☒ Yes ☐ No

F. How many illicit discharge related complaints were received this reporting period? #4

G. How many illicit discharge investigations were performed this reporting period? #4

H. Of those investigations performed, how many resulted in valid illicit discharges that were addressed and/or eliminated? #4

5. Construction Site Stormwater Runoff Pollutant Control (Section 4.2.4)

A. Do you have an ordinance or other regulatory mechanism requiring:

Construction site operators to implement appropriate erosion prevention and sediment control BMPs consistent with those described in the TDEC EPSC Handbook? ☒ Yes ☐ No

Construction site operators to control wastes such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste? ☒ Yes ☐ No

Design storm and special conditions for unavailable parameters waters or Exceptional Tennessee Waters consistent with those of the current Tennessee Construction General Permit (TNR100000)? ☒ Yes ☐ No

B. Do you have specific procedures for construction site plan (including erosion prevention and sediment BMPs) review and approval? ☒ Yes ☐ No

C. Do you have sanctions to enforce compliance? ☒ Yes ☐ No

D. Do you hold pre-construction meetings with operators of priority construction activities and inspect priority construction sites at least monthly? ☒ Yes ☐ No

E. How many construction sites disturbing at least one acre or greater were active in your jurisdiction this reporting period? #4

F. How many active priority and non-priority construction sites were inspected this reporting period? #4

G. How many construction related complaints were received this reporting period? 0

6. Permanent Stormwater Management at New Development and Redevelopment Projects (Section 4.2.5)

A. Do you have a regulatory mechanism (e.g. ordinance) requiring permanent stormwater pollutant removal for development and redevelopment projects? If no, have you submitted an Implementation Plan to the Division? ☒ Yes ☐ No ☒ Yes ☐ No

B. Do you have an ordinance or other regulatory mechanism requiring:

Site plan review and approval of new and re-development projects? ☒ Yes ☐ No

	A process to ensure stormwater control measures (SCMs) are properly installed and maintained?	☒ Yes	☐ No
	Permanent water quality riparian buffers? If yes, specify requirements: The City has adopted the TN CGP requirements for buffers.	☒ Yes	☐ No

C. What is the threshold for development and redevelopment project plans plan review (e.g., all projects, projects disturbing greater than one acre, etc.)? Progects disturbing greater than 1/4 acre or less than 1/4 acre if part of a larger development. Also, all activities proposing a borrow area are required to submit a plan for review.

D. How many development and redevelopment project plans were reviewed for this reporting period? #5

E. How many development and redevelopment project plans were approved? #5

F. How many permanent stormwater related complaints were received this reporting period? #4

G. How many enforcement actions were taken to address improper installation or maintenance? #4

H.	Do you have a system to inventory and track the status of all public and private SCMs installed on development and redevelopment projects?	☒ Yes	☐ No
I.	Does your program include an off-site stormwater mitigation or payment into public stormwater fund? If yes, specify. _____	☐ Yes	☒ No

7. Stormwater Management for Municipal Operations (Section 4.2.6)

A. As applicable, have stormwater related operation and maintenance plans that include information related to maintenance activities, schedules and the proper disposal of waste from structural and non-structural stormwater controls been developed and implemented at the following municipal operations:

Streets, roads, highways?	☒ Yes	☐ No
Municipal parking lots?	☒ Yes	☐ No
Maintenance and storage yards?	☒ Yes	☐ No
Fleet or maintenance shops with outdoor storage areas?	☒ Yes	☐ No
Salt and storage locations?	☐ Yes	☒ No
Snow disposal areas?	☐ Yes	☒ No
Waste disposal, storage, and transfer stations?	☒ Yes	☐ No

B.	Do you have a training program for employees responsible for municipal operations at facilities within the jurisdiction that handle, generate and/or store materials which constitute a potential pollutant of concern for MS4s?	☒ Yes	☐ No
	If yes, are new applicable employees trained within six months, and existing applicable employees trained and/or retrained within the permit term?	☒ Yes	☐ No

8. Reviewing and Updating Stormwater Management Programs (Section 4.4)

A. Describe any revisions to your program implemented during this reporting period including but not limited to:

Modifications or replacement of an ineffective activity/control measure. The City of Greenbrier has been more proavtive with Public informationand outreach, also annual illicit discharge training for employees and during our city wide clean-up day the city hosted 20 volunteers to pick up trash and litter from highway whereas 55 bags of trash and litter were collected.

Changes to the program as required by the division to satisfy permit requirements. Public and employee eudcation was implimented as well as analytical monitering and bacteriological study of streams.

Information (e.g. additional acreage, outfalls, BMPs) on newly annexed areas and any resulting updates to your program. No areas have been annexed this reporting this permit cycle.

B. In preparation for this annual report, have you performed an overall assessment of your stormwater management program effectiveness? If yes, summarize the assessment results, and any modifications and improvements scheduled to be implemented in the next reporting period. Fot the next permit cycle we will continue to focus our public information eudcation on the following groups: general housekeeping activities, owners of permanet BMP's, contractors, developers, long term quality impacts, auto repair shops, and landscape companies. Our consulting engineers have developed a GIS Storm Sewer map which can be found on our city website http://greenbriertn.org. ☒ Yes ☐ No

9. Enforcement Response Plan (Section 4.5)

A. Have you implemented an enforcement response plan that includes progressive enforcement actions to address non-compliance, and allows the maximum penalties specified in TCA 68-221-1106? If no, explain. _____ ☒ Yes ☐ No

B. As applicable, identify which of the following types of enforcement actions (or their equivalent) were used during this reporting period; indicate the number of actions, the minimum measure (e.g., construction, illicit discharge, permanent stormwater management), and note those for which you do not have authority:

Action	Construction	Permanent Stormwater	Illicit Discharge	In Your ERP?	
Verbal warnings	#0	#0	#0	☒ Yes	☐ No
Written notices	#0	#0	#4	☒ Yes	☐ No
Citations with administrative penalties	#0	#0	#0	☒ Yes	☐ No
Stop work orders	#0	#0	#0	☒ Yes	☐ No
Withholding of plan approvals or other authorizations	#0	#0	#0	☒ Yes	☐ No
Additional Measures	#0	#0	#0	Describe: N/A	

C. Do you track instances of non-compliance and related enforcement documentation? ☒ Yes ☐ No

D. What were the most common types of non-compliance instances documented during this reporting period? Illicit discharge.

10. Monitoring, Recordkeeping and reporting (Section 5)

A. Summarize any analytical monitoring activities (e.g., planning, collection, evaluation of results) performed during this reporting period. Analytical monitoring performed May 2021-July 2021

B. Summarize any non-analytical monitoring activities (e.g., planning, collection, evaluation of results) performed during this reporting period. Inspection site visits to active construction sites are performed on a routine basis with a TDEC Level 1 certicfication.

C. If applicable, are monitoring records for activities performed during this reporting period submitted with this report. ☒ Yes ☐ No

11. Certification

This report must be signed by a ranking elected official or by a duly authorized representative of that person. See signatory requirements in sub-part 6.7.2 of the permit.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Lanny Adcock, Mayor
Printed Name and Title

Signature

9/13/21
Date

Annual reports must be submitted by September 30 of each calendar year (Section 5.4) to the appropriate Environmental Field Office (EFO), identified in the table below:

EFO	Street Address	City	Zip Code	Telephone
Chattanooga	1301 Riverfront Pkwy, Suite 206	Chattanooga	37402	(423) 634-5745
Columbia	1421 Hampshire Pike	Columbia	38401	(931) 380-3371
Cookeville	1221 South Willow Ave.	Cookeville	38506	(931) 520-6688
Jackson	1625 Hollywood Drive	Jackson	38305	(731) 512-1300
Johnson City	2305 Silverdale Road	Johnson City	37601	(423) 854-5400
Knoxville	3711 Middlebrook Pike	Knoxville	37921	(865) 594-6035
Memphis	8383 Wolf Lake Drive	Bartlett	38133	(901) 371-3000
Nashville	711 R S Gass Boulevard	Nashville	37216	(615) 687-7000

- **APPENDIX A: DISCHARGES TO WATERBODIES WITH UNAVAILABLE PARAMETERS OR EXCEPTIONAL TENNESSEE WATERS**

SUPPORTING MATERIALS

ID305B	WATER_NAME	LOCATION	WATER_TYPE	WATER_SIZE	CAUSE_NAME	TMDL_PRIORITY	SOURCE_NAME
TN05130206002_0100	Dunbar Cave Creek	MONTGOMERY CO	RIVER	2.7	Sedimentation/Siltation	L	Municipal (Urbanized High Density Area)
TN05130206002_0100	Dunbar Cave Creek	MONTGOMERY CO	RIVER	2.7	Physical substrate habitat alterations	L	Municipal (Urbanized High Density Area)
TN05130206002_0200	Elk Fork Creek	ROBERTSON CO	RIVER	3.9	Alteration in stream-side or littoral vegetative covers	L	Unrestricted Cattle Access
TN05130206002_0200	Elk Fork Creek	ROBERTSON CO	RIVER	3.9	Alteration in stream-side or littoral vegetative covers	L	Grazing in Riparian or Shoreline Zones
TN05130206002_0200	Elk Fork Creek	ROBERTSON CO	RIVER	3.9	Sedimentation/Siltation	L	Grazing in Riparian or Shoreline Zones
TN05130206002_0300	Spring Creek	ROBERTSON CO	RIVER	12.25	Sedimentation/Siltation	L	Grazing in Riparian or Shoreline Zones
TN05130206002_0300	Spring Creek	ROBERTSON CO	RIVER	12.25	Nitrate/Nitrite (Nitrite + Nitrate as N)	L	Grazing in Riparian or Shoreline Zones
TN05130206002_0300	Spring Creek	ROBERTSON CO	RIVER	12.25	Escherichia coli	L	Grazing in Riparian or Shoreline Zones
TN05130206002_0400	Buzzard Creek	ROBERTSON CO	RIVER	11	Escherichia coli	NA	Grazing in Riparian or Shoreline Zones
TN05130206002_0700	Seven Springs	MONTGOMERY CO	RIVER	1.1	Sedimentation/Siltation	L	Municipal (Urbanized High Density Area)
TN05130206002_0700	Seven Springs	MONTGOMERY CO	RIVER	1.1	Nitrate/Nitrite (Nitrite + Nitrate as N)	L	Municipal (Urbanized High Density Area)
TN05130206002_1000	Red River	MONTGOMERY CO	RIVER	2.4	Nutrient/Eutrophication Biological Indicators	L	Sanitary Sewer Overflows (Collection System Failures)
TN05130206002_1000	Red River	MONTGOMERY CO	RIVER	2.4	Other anthropogenic substrate alterations	L	Site Clearance (Land Development or Redevelopment)
TN05130206002_1000	Red River	MONTGOMERY CO	RIVER	2.4	Sedimentation/Siltation	L	Site Clearance (Land Development or Redevelopment)
TN05130206002_1000	Red River	MONTGOMERY CO	RIVER	2.4	Sedimentation/Siltation	L	Non-irrigated Crop Production
TN05130206002_1000	Red River	MONTGOMERY CO	RIVER	2.4	Escherichia coli	NA	Sanitary Sewer Overflows (Collection System Failures)
TN05130206002_2000	Red River	MONTGOMERY CO	RIVER	22.9	Nitrates	L	Grazing in Riparian or Shoreline Zones
TN05130206002_2000	Red River	MONTGOMERY CO	RIVER	22.9	Nitrate/Nitrite (Nitrite + Nitrate as N)	L	Grazing in Riparian or Shoreline Zones
TN05130206002_3000	Red River	ROBERTSON CO	RIVER	17.5	Nitrates	L	Non-irrigated Crop Production
TN05130206002_3000	Red River	MONTGOMERY CO	RIVER	17.5	Nitrates	L	Non-irrigated Crop Production
TN05130206002_4000	Red River	ROBERTSON CO	RIVER	4.5	Nitrates	L	Non-irrigated Crop Production
TN05130206002_5000	Red River	ROBERTSON CO	RIVER	3.3	Nitrates	L	Non-irrigated Crop Production
TN05130206002_5000	Red River	ROBERTSON CO	RIVER	3.3	Alteration in stream-side or littoral vegetative covers	L	Grazing in Riparian or Shoreline Zones
TN05130206002_5000	Red River	ROBERTSON CO	RIVER	3.3	Physical substrate habitat alterations	L	Grazing in Riparian or Shoreline Zones
TN05130206002_5000	Red River	ROBERTSON CO	RIVER	3.3	Physical substrate habitat alterations	L	Non-irrigated Crop Production
TN05130206002_5000	Red River	ROBERTSON CO	RIVER	3.3	Escherichia coli	L	Dairies (Outside Milk Parlor Areas)
TN05130206003_0100	Chambers Spring Branch	ROBERTSON CO	RIVER	4.3	Sedimentation/Siltation	L	Grazing in Riparian or Shoreline Zones
TN05130206003_0100	Chambers Spring Branch	ROBERTSON CO	RIVER	4.3	Sedimentation/Siltation	L	Unrestricted Cattle Access
TN05130206003_0100	Chambers Spring Branch	ROBERTSON CO	RIVER	4.3	Alteration in stream-side or littoral vegetative covers	L	Grazing in Riparian or Shoreline Zones
TN05130206003_0100	Chambers Spring Branch	ROBERTSON CO	RIVER	4.3	Alteration in stream-side or littoral vegetative covers	L	Unrestricted Cattle Access
TN05130206003_0300	Peppers Branch	ROBERTSON CO	RIVER	4.2	Alteration in stream-side or littoral vegetative covers	L	Grazing in Riparian or Shoreline Zones
TN05130206003_0300	Peppers Branch	ROBERTSON CO	RIVER	4.2	Sedimentation/Siltation	L	Grazing in Riparian or Shoreline Zones
TN05130206003_1100	Wartrace Creek	ROBERTSON CO	RIVER	0.72	Low flow alterations	NA	Upstream Impoundments (e.g., PI-566 NRCS Structures)
TN05130206003_1100	Wartrace Creek	ROBERTSON CO	RIVER	0.72	Temperature, water	L	Upstream Impoundments (e.g., PI-566 NRCS Structures)
TN05130206003_1150	Wartrace Creek	ROBERTSON CO	RIVER	6.32	Alteration in stream-side or littoral vegetative covers	L	Municipal (Urbanized High Density Area)
TN05130206003_1150	Wartrace Creek	ROBERTSON CO	RIVER	6.32	Sedimentation/Siltation	L	Municipal (Urbanized High Density Area)
TN05130206003_1200	Black Branch	ROBERTSON CO	RIVER	1.87	Other anthropogenic substrate alterations	L	Municipal (Urbanized High Density Area)
TN05130206003_1300	Carr Creek	ROBERTSON CO	RIVER	2.9	Escherichia coli	NA	Sanitary Sewer Overflows (Collection System Failures)
TN05130206003_1320	Unnamed Trib to Carr Creek	ROBERTSON CO	RIVER	1.6	Temperature, water	L	Municipal Point Source Discharges
TN05130206003_1320	Unnamed Trib to Carr Creek	ROBERTSON CO	RIVER	1.6	Nitrate/Nitrite (Nitrite + Nitrate as N)	L	Municipal Point Source Discharges
TN05130206003_1320	Unnamed Trib to Carr Creek	ROBERTSON CO	RIVER	1.6	Phosphorus (Total)	L	Municipal Point Source Discharges
TN05130206003_1320	Unnamed Trib to Carr Creek	ROBERTSON CO	RIVER	1.6	Escherichia coli	NA	Municipal Point Source Discharges
TN05130206003_1350	Carr Creek	ROBERTSON CO	RIVER	7.8	Escherichia coli	L	Sanitary Sewer Overflows (Collection System Failures)
TN05130206003_1355	Carr Creek	ROBERTSON CO	RIVER	11.3	Phosphorus (Total)	L	Sanitary Sewer Overflows (Collection System Failures)
TN05130206003_1355	Carr Creek	ROBERTSON CO	RIVER	11.3	Nitrate/Nitrite (Nitrite + Nitrate as N)	L	Sanitary Sewer Overflows (Collection System Failures)
TN05130206003_1355	Carr Creek	ROBERTSON CO	RIVER	11.3	Escherichia coli	NA	Sanitary Sewer Overflows (Collection System Failures)
TN05130206003_1550	Millers Creek	ROBERTSON CO	RIVER	3.5	Sedimentation/Siltation	L	Site Clearance (Land Development or Redevelopment)

Table 4 NPDES Permitted WWTFs in Impaired Subwatersheds or Drainage Areas

NPDES Permit No.	Facility	Design Flow [MGD]	Receiving Stream
TN0020621	Greenbrier STP	0.74	Unnamed Trib to Carr Creek at Mile 10.3
TN0020656	Clarksville STP	25	Cumberland River at Mile 125.0
TN0021296	Fort Campbell STP	4	Little West Fork Creek at Mile 10.4
TN0021865	Portland STP	1.9	Summers Branch at Mile 8.6
TN0024961	Springfield STP	3.4	Sulphur Fork at Mile 23.2
TN0058076	Jo Byrns School	0.025	Unnamed Trib to Sturgeon Creek at Mile 2.4
TN0059404	White House STP	1.4	Frey Branch at Mile 2.2

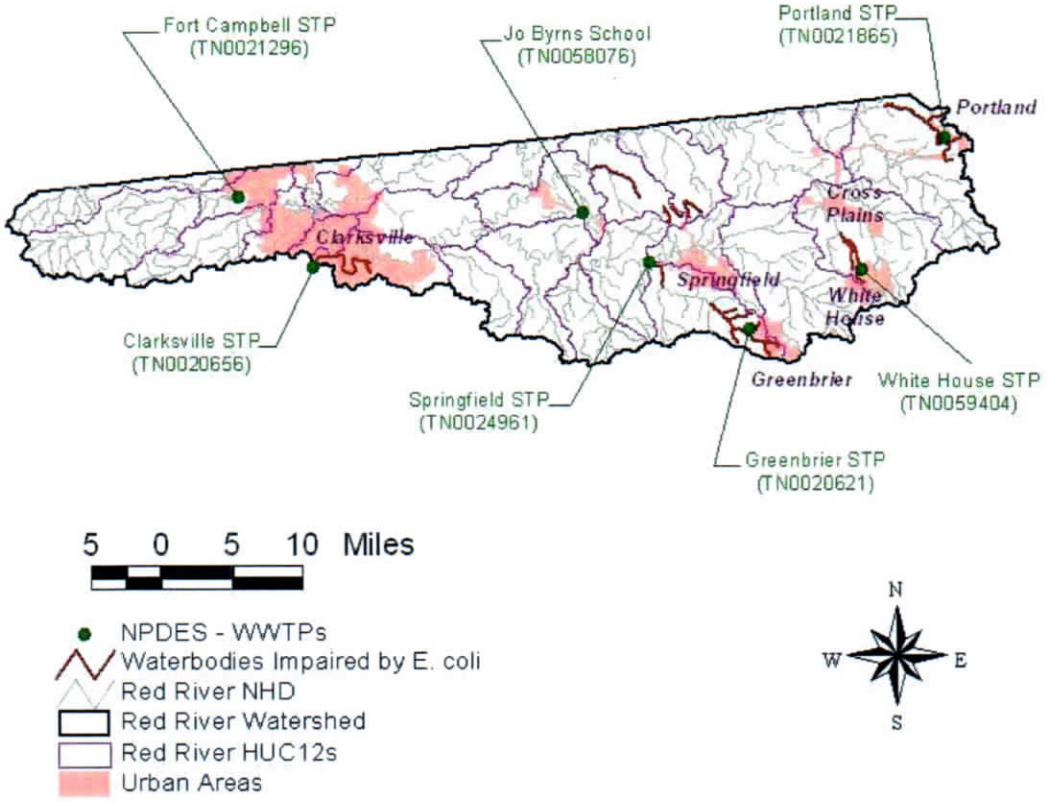


Figure 6. NPDES Regulated Point Sources in and near Impaired Subwatersheds and Drainage Areas of the Red River Watershed.

Table 8. TMDLs, WLAs, & LAs expressed as daily loads for Impaired Waterbodies in the Red River Watershed (HUC 05130206)

HUC-12 Subwatershed (05130206__) or Drainage Area (DA)	Impaired Waterbody Name	Impaired Waterbody ID	TMDL	MOS	WLAs			LAs
					WWTFs [a]	Leaking Collection Systems	MS4s [c]	
			[CFU/day]	[CFU/day]	[CFU/day]	[CFU/day]	[CFU/day/acre]	[CFU/day/acre]
0101 (DA)	Summers Branch	TN05130206024 – 0150	$2.30 \times 10^{10} * Q$	$2.30 \times 10^{9} * Q$	6.767×10^{10}	0	$1.046 \times 10^{6} * Q - 3.418 \times 10^{6}$	$1.046 \times 10^{6} * Q - 3.418 \times 10^{6}$
0201 (DA)	Frey Branch	TN05130206010 – 0321	$2.30 \times 10^{10} * Q$	$2.30 \times 10^{9} * Q$	4.986×10^{10}	0	NA	$6.766 \times 10^{6} * Q - 1.630 \times 10^{7}$
0401	Buzzard Creek	TN05130206002 – 0400	$1.20 \times 10^{10} * Q$	$1.20 \times 10^{9} * Q$	NA	NA	NA	$6.966 \times 10^{5} * Q$
0407 (DA)	Seven Springs	TN05130206002 – 0700	$2.30 \times 10^{10} * Q$	$2.30 \times 10^{9} * Q$	NA	NA	$7.494 \times 10^{7} * Q$	$7.494 \times 10^{7} * Q$
0407	Red River	TN05130206002 – 1000	$2.30 \times 10^{10} * Q$	$2.30 \times 10^{9} * Q$	4.719×10^{11} [b]	0	$2.289 \times 10^{4} * Q - 9.454 \times 10^{2}$	$2.289 \times 10^{4} * Q - 9.454 \times 10^{2}$
0503	Carr Creek	TN05130206003 – 1200	$2.30 \times 10^{10} * Q$	$2.30 \times 10^{9} * Q$	2.636×10^{10}	0	$9.698 \times 10^{5} * Q - 1.235 \times 10^{6}$	$9.698 \times 10^{5} * Q - 1.235 \times 10^{6}$
	UT to Carr Creek	TN05130206003 – 1220	$2.30 \times 10^{10} * Q$	$2.30 \times 10^{9} * Q$	2.636×10^{10}	0	$1.250 \times 10^{7} * Q - 3.051 \times 10^{7}$	$1.250 \times 10^{7} * Q - 3.051 \times 10^{7}$
	Carr Creek	TN05130206003 – 1255	$2.30 \times 10^{10} * Q$	$2.30 \times 10^{9} * Q$	2.636×10^{10}	0	$2.547 \times 10^{6} * Q - 3.243 \times 10^{6}$	$2.547 \times 10^{6} * Q - 3.243 \times 10^{6}$

Notes: NA = Not Applicable.
Q = daily instream mean flow

a. WLAs for WWTFs are expressed as E. coli loads (CFU/day). Future WWTFs must meet instream water quality standards at the point of discharge as specified in their NPDES permit.
b. The WLA listed is for the subwatershed and is equal to the sum of the WLAs for the individual facilities. WLAs for individual WWTFs corresponds to existing E. coli permit limits at facility design flow.
c. Applies to any MS4 discharge loading in the subwatershed.

Table E-11. Summary of TMDLs, WLAs, & LAs expressed as daily loads for Impaired Waterbodies in the Red River Watershed (HUC 05130206)

Waterbody Description	Hydrologic Condition			Flow[a]	PLRG	TMDL	MOS	WLAs			LAs
	Flow Regime	PDFE Range	Flow Range					WWTFs [b]	LCS	MS4s	
		[%]	[cfs]	[cfs]	[%]	[CFU/d]	[CFU/d]	[CFU/d]	[CFU/d]	[CFU/d/ac]	[CFU/d/ac]
Summers Branch Waterbody ID: **TN05130206024 – 0150** HUC-12: 0101	High Flows	0 – 10	46.88 – 209.9	79.99	60.8	1.840×10^{12}	1.840×10^{11}	6.767×10^{10}	0	8.021×10^{7}	8.021×10^{7}
	Moist	10 – 40	14.86 – 46.88	21.73	60.8	4.998×10^{11}	4.998×10^{10}			1.930×10^{7}	1.930×10^{7}
	Mid-Range	40 – 70	7.99 – 14.86	11.12	NA	2.558×10^{11}	2.558×10^{10}			8.208×10^{6}	8.208×10^{6}
	Low Flows	70 – 100	2.94 – 7.99	4.89	4.6	1.125×10^{11}	1.125×10^{10}			1.695×10^{6}	1.695×10^{6}
Frey Branch Waterbody ID: **TN05130206010 – 0321** HUC-12: 0201	High Flows	0 – 10	8.70 – 31.94	13.16	NA	3.027×10^{11}	3.027×10^{10}	4.986×10^{10}	NA	NA	7.275×10^{7}
	Moist	10 – 40	3.98 – 8.70	5.04	45.6	1.159×10^{11}	1.159×10^{10}				1.780×10^{7}
	Mid-Range	40 – 70	2.92 – 3.98	3.38	NR	7.774×10^{10}	7.774×10^{9}				6.572×10^{6}
	Low Flows	70 – 100	2.17 – 2.92	2.46	10.5	5.658×10^{10}	5.658×10^{9}				3.471×10^{6}
Buzzard Creek Waterbody ID: **TN05130206002 – 0400** HUC-12: 0401	High Flows	0 – 10	63.76 – 285.99	109.84	NR	1.318×10^{12}	1.318×10^{11}	NA	NA	NA	7.652×10^{7}
	Moist	10 – 40	16.67 – 63.76	26.87	NR	3.224×10^{11}	3.224×10^{10}				1.872×10^{7}
	Mid-Range	40 – 70	6.67 – 16.67	11.26	13.2	1.351×10^{11}	1.351×10^{10}				7.844×10^{6}
	Low Flows	70 – 100	0 – 6.67	2.54	16.0	3.048×10^{10}	3.048×10^{9}				1.769×10^{6}
Seven Springs Waterbody ID: **TN05130206002 – 0700** HUC-12: 0407	High Flows	0 – 10	1.65 – 7.88	2.86	NR	6.578×10^{10}	6.578×10^{9}	NA	0	2.143×10^{8}	2.143×10^{8}
	Moist	10 – 40	0.45 – 1.65	0.74	NR	1.702×10^{10}	1.702×10^{9}			5.545×10^{7}	5.545×10^{7}
	Mid-Range	40 – 70	0.18 – 0.45	0.29	NR	6.670×10^{9}	6.670×10^{8}			2.173×10^{7}	2.173×10^{7}
	Low Flows	70 – 100	0.01 – 0.18	0.08	25.0	$1,840 \times 10^{9}$	$1,840 \times 10^{8}$			5.995×10^{6}	5.995×10^{6}
Red River Waterbody ID: **TN05130206002 – 1000** HUC-12: 0407	High Flows	0 – 10	5023.1 – 15,235	7,338.5	NA	1.688×10^{14}	1.688×10^{13}	4.719×10^{11}[c]	0	1.675×10^{8}	1.675×10^{8}
	Moist	10 – 40	1733.1 – 5023.1	2,549.2	NA	5.863×10^{13}	5.863×10^{12}			5.784×10^{7}	5.784×10^{7}
	Mid-Range	40 – 60	1021.2 – 1733.1	1,364.3	NA	3.138×10^{13}	3.138×10^{12}			3.071×10^{7}	3.071×10^{7}
	Dry	60 – 90	270.3 – 1021.2	597.44	NA	1.374×10^{13}	1.374×10^{12}			1.316×10^{7}	1.316×10^{7}
	Low Flows	90 – 100	82.04 – 270.3	200.80	NA	4.618×10^{12}	4.618×10^{11}			4.075×10^{6}	4.075×10^{6}
Carr Creek Waterbody ID: **TN05130206003 – 1200** HUC-12: 0503	High Flows	0 – 10	96.20 – 429.43	164.21	60.8	3.777×10^{12}	3.777×10^{11}	2.636×10^{10}	0	1.580×10^{8}	1.580×10^{8}
	Moist	10 – 40	26.49 – 96.20	41.26	NR	9.490×10^{11}	9.490×10^{10}			3.878×10^{7}	3.878×10^{7}
	Mid-Range	40 – 70	11.75 – 26.49	18.69	NR	4.299×10^{11}	4.299×10^{10}			1.689×10^{7}	1.689×10^{7}
	Low Flows	70 – 100	1.14 – 11.75	5.22	14.9	1.201×10^{11}	1.201×10^{10}			3.827×10^{6}	3.827×10^{6}
ut to Carr Creek Waterbody ID: **TN05130206003 – 1220** HUC-12: 0503	High Flows	0 – 10	4.98 – 18.34	7.73	NA	1.778×10^{11}	1.778×10^{10}	2.636×10^{10}	0	1.547×10^{8}	1.547×10^{8}
	Moist	10 – 40	2.22 – 4.98	2.84	NA	6.532×10^{10}	6.532×10^{9}			3.753×10^{7}	3.753×10^{7}
	Mid-Range	40 – 70	1.58 – 2.22	1.86	NA	4.278×10^{10}	4.278×10^{9}			1.405×10^{7}	1.405×10^{7}
	Low Flows	70 – 100	1.14 – 1.58	1.30	NA	2.990×10^{10}	2.990×10^{9}			6.366×10^{5}	6.366×10^{5}

Table E-11 (cont'd). Summary of TMDLs, WLAs, & LAs expressed as daily loads for Impaired Waterbodies in the Red River Watershed (HUC 05130206)

Waterbody Description	Hydrologic Condition			Flow[a]	PLRG	TMDL	MOS	WLAs			LAs
	Flow Regime	PDFE Range	Flow Range					WWTFs [b]	LCS	MS4s	
		[%]	[cfs]	[cfs]	[%]	[CFU/d]	[CFU/d]	[CFU/d]	[CFU/d]	[CFU/d/ac]	[CFU/d/ac]
Carr Creek Waterbody ID: **TN05130206003 – 1255** HUC-12: 0503	High Flows	0 – 10	36.85 – 160.60	62.13	60.8	1.429×10^{12}	1.429×10^{11}	2.636×10^{10}	0	1.550×10^{8}	1.550×10^{8}
	Moist	10 – 40	10.68 – 36.85	16.15	60.8	3.715×10^{11}	3.715×10^{10}			3.788×10^{7}	3.788×10^{7}
	Mid-Range	40 – 70	5.08 – 10.68	7.75	NR	1.783×10^{11}	1.783×10^{10}			1.649×10^{7}	1.649×10^{7}
	Low Flows	70 – 100	1.14 – 5.08	2.65	7.2	6.095×10^{10}	6.095×10^{9}			3.505×10^{6}	3.505×10^{6}

Notes: NA = Not Applicable.
NR = No Reduction Required.
PLRG = Percent Load Reduction Goal to achieve TMDL.
LCS = Leaking Collection Systems
Shaded Flow Zone for each waterbody represents the critical flow zone.

a. Flow applied to TMDL, MOS, and allocation (WLA[MS4] and LA) calculations. Flows represent the midpoint value in the respective hydrologic flow regime.
b. WLAs for WWTFs are expressed as E. coli loads (CFU/day). All current and future WWTFs must meet water quality standards at the point of discharge as specified in their NPDES permit; at no time shall concentration be greater than the appropriate E. coli standard (487 CFU/100 mL or 941 CFU/100 mL).
c. The WLA listed is for the Subwatershed and is equal to the sum of the WLAs for the individual facilities. WLAs for individual WWTFs correspond to existing E. coli permit limits at facility design flow.

- **APPENDIX B: PUBLIC EUDCATION/OUTREACH AND INVOLVEMENT/PARTICIPATION**

SUPPORTING MATERIALS

GREENBRIER FALL CLEAN-UP DAY

Please separate items to be thrown away, such as tires, wood, metal, paint, antifreeze and oil from general debris.

NO propane tanks, shingles, asbestos, dirt, rocks or ashes will be accepted.
NO scavenging of scrap metals will be allowed.

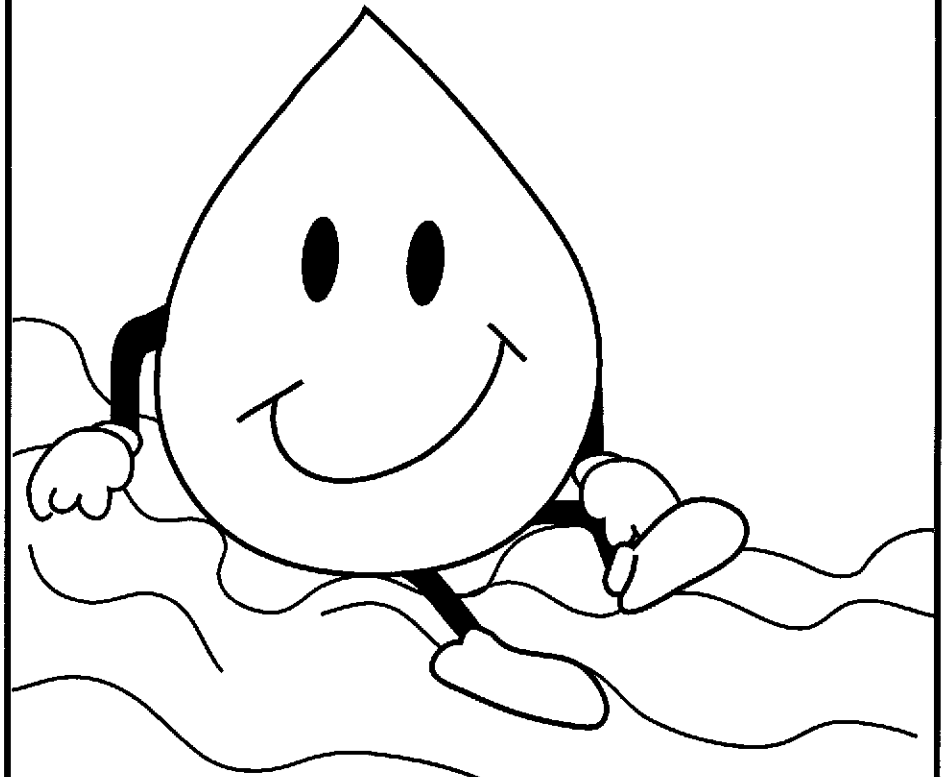
Elderly or disabled residents can make arrangements for pick-up with City Hall staff (615)643-4531.

For residents of the City of Greenbrier only

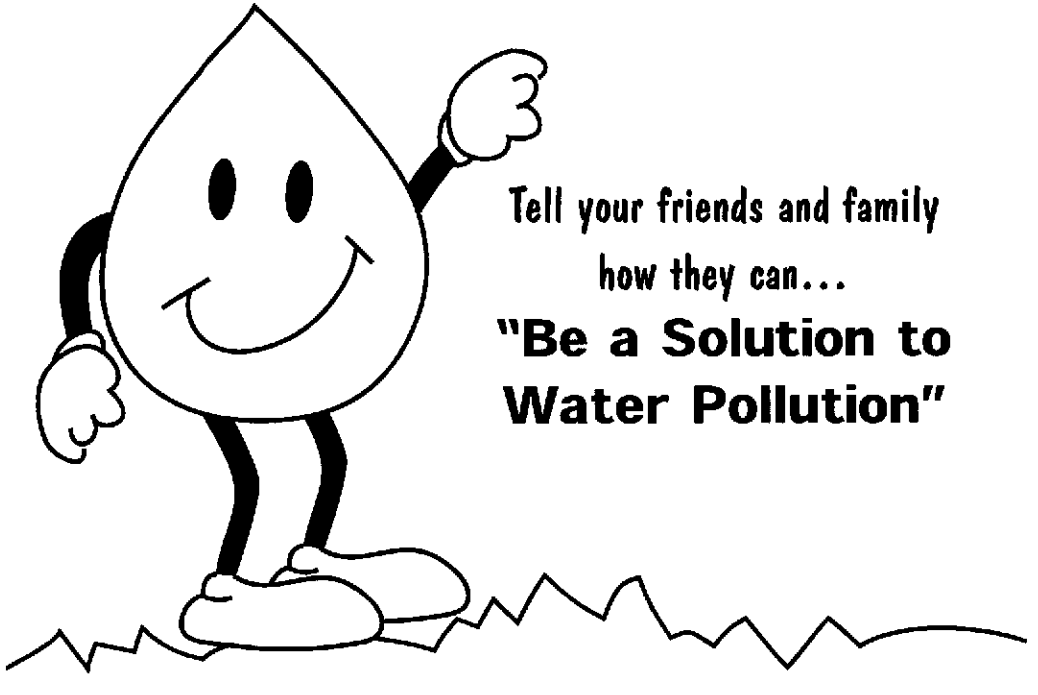
NOTE: CDC and Department of Health guidelines will be followed, including social distancing and wearing masks (if a distance of 6 feet cannot be maintained throughout the interaction).

Be a Solution to Water Pollution

ACTIVITY BOOK



Have you ever walked next to a stream and seen trash floating in the water? Do you know how it gets there? Every time it rains, the water runs off the land and picks up pollutants such as dirt, oil, pet waste, litter, trash, pesticides and fertilizers. This polluted water flows into street drains and ditches that eventually drain to waterways. Never dump anything that you would not want to drink or swim in on the ground, in the street or down a storm drain. It will go into a river, lake or stream.



Tell your friends and family how they can...

"Be a Solution to Water Pollution"

Good job! Ask your parent, teacher or troup leader to help you cut out your badge.

CERTIFICATE OF COMPLETION

This certifies that

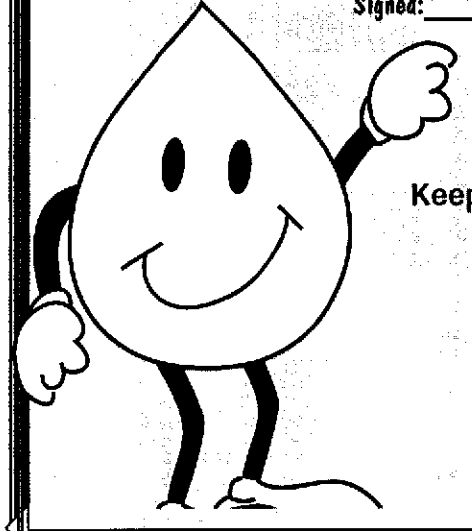
_____

(Write your name here)

has completed this activity book and earned a Clean Water Badge. Good job!

Signed: _____

Raindrop

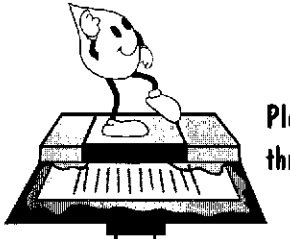


Keep It Clean, Drains to Stream

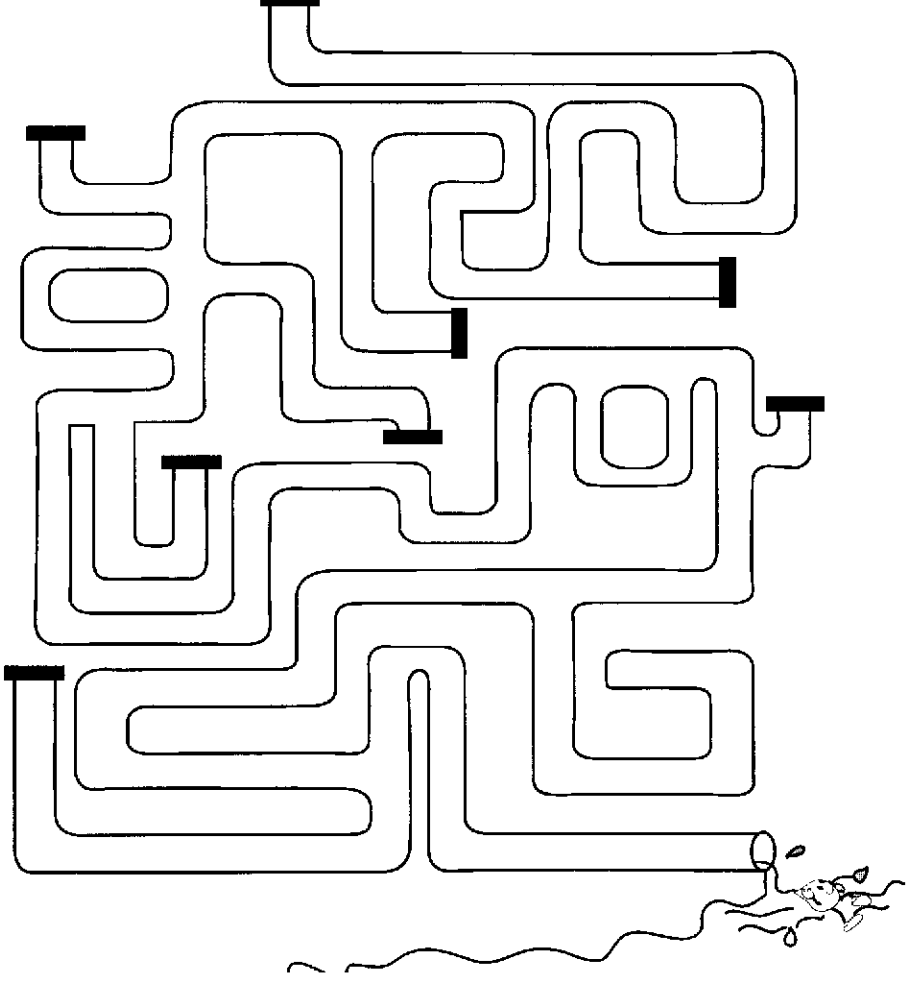
Please Recycle

Can you find all of the things in the creek that do not belong?

Waterdrops go through an amazing journey to get to streams and creeks.

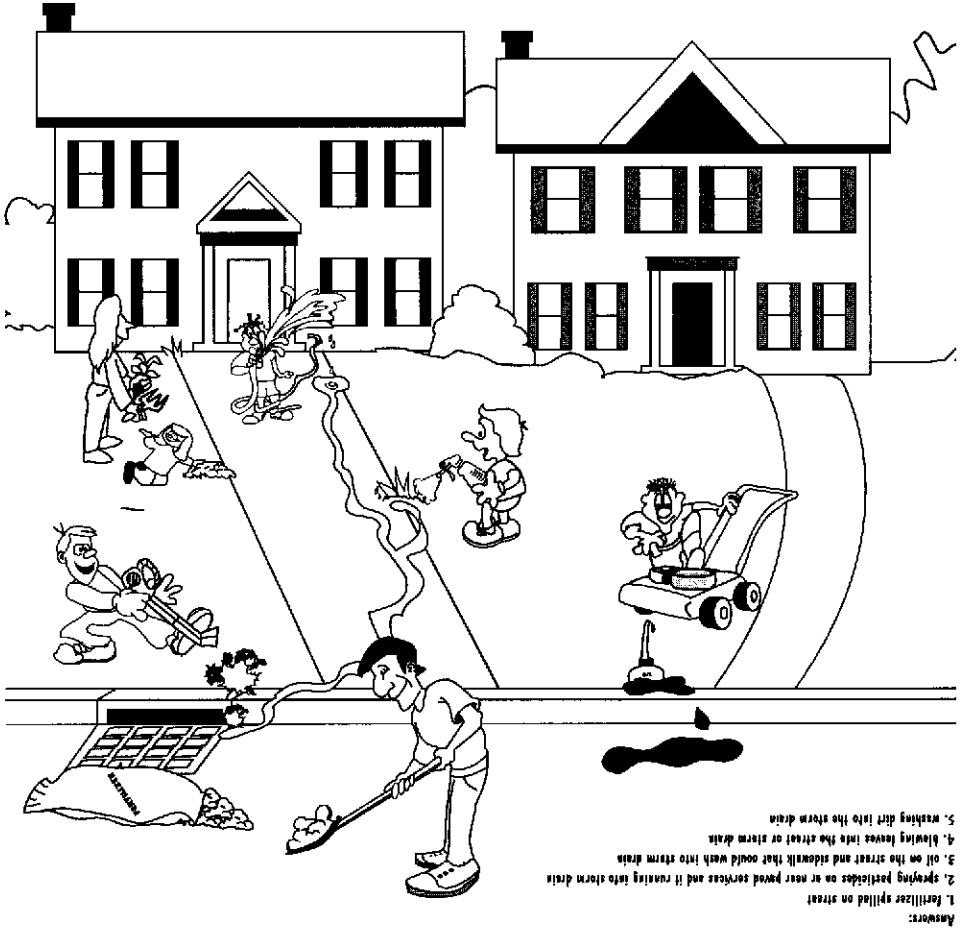


Please help this raindrop to find his way home through the drain and into the nearest river.



Working in the garden or on a lawn is a fun activity to do with grown-ups. When helping to clean a yard, remember not to dump anything down a storm drain or in the street. Can you find what is wrong with this picture?

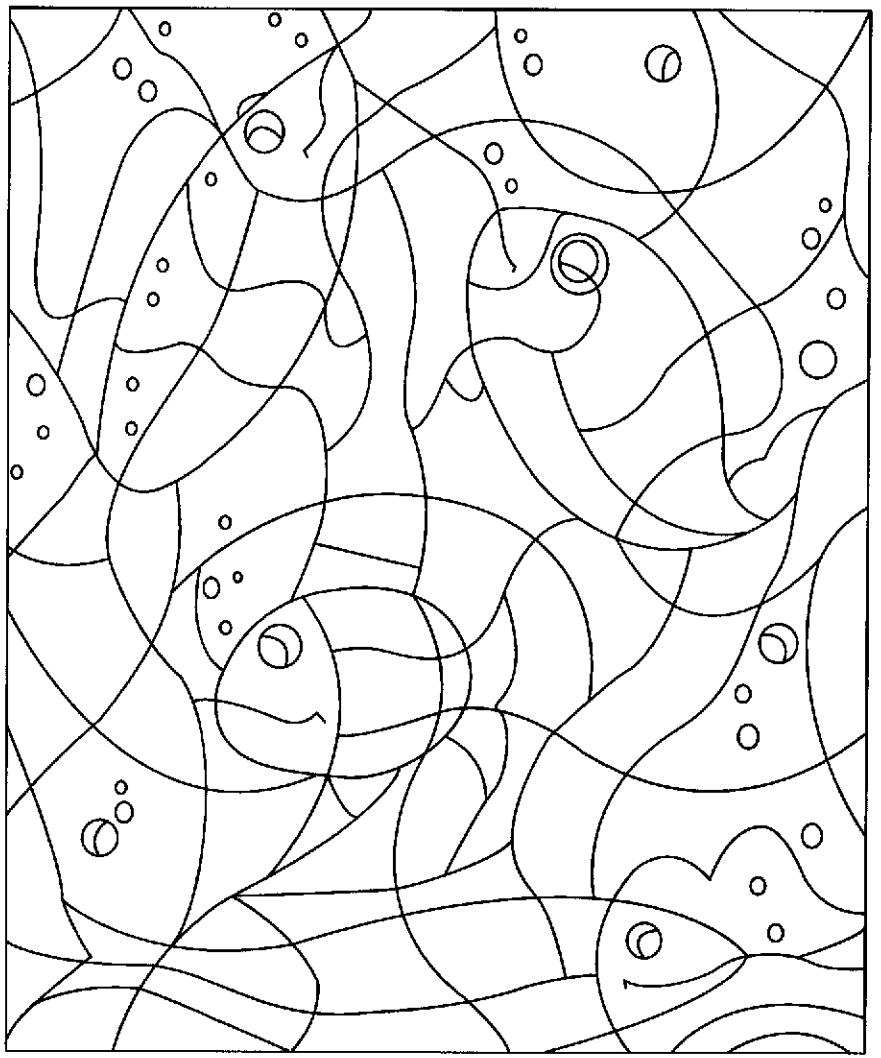
Circle the mistakes that the people in this drawing are making.



Answers:
1. fertilizer spilled on street
2. spraying pesticides on or near paved surfaces and it running into storm drain
3. oil on the street and sidewalk that could wash into storm drain
4. blowing leaves into the street or storm drain
5. washing dirt into the storm drain

Fish and other aquatic life rely on clean water. Plastic bags, oil, other chemicals and other pollutants cause harm to fish.

Find the fish and color them in.



It is important to cleanup after your dog. Every time it rains, "poop" is collected by rainwater and dumped into a nearby storm drain or into a river, lake or stream. Carry a plastic or paper bag with you to pick-up after dogs and throw it in the trash.

THE WATER CYCLE

Water is always being recycled through our environment. It moves through the air, vegetation and earth. This continuous movement is called the water cycle. It starts when water from lakes, ponds, or the ocean is warmed by the sun and **evaporates** into water vapor. This invisible vapor rises into the atmosphere where it cools and changes back into water droplets, or **condensation.** Water changes into little drops by "condensing" or "squeezing together" in the air, and we get clouds.

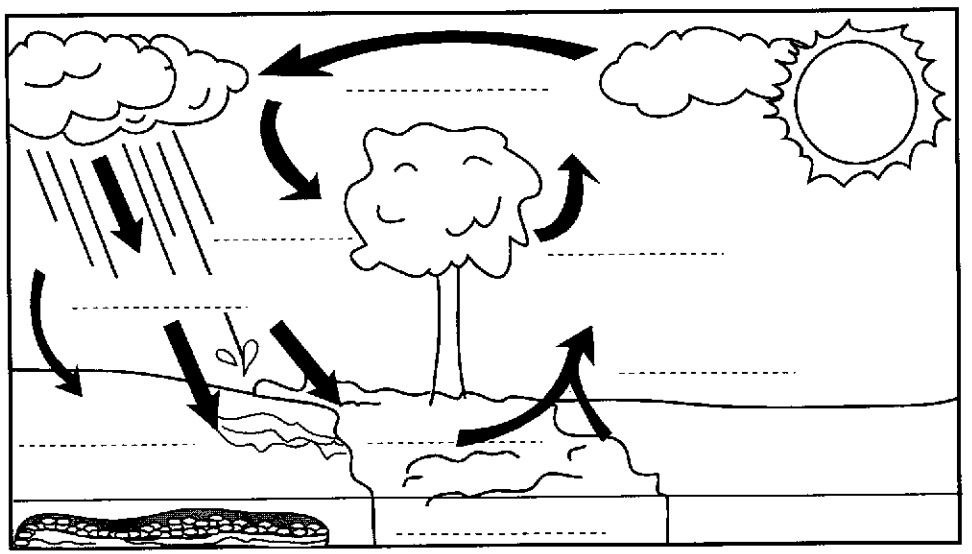
Another way that water vapor travels in the air is through **transpiration.** Transpiration is how plants lose water out of their leaves. When the sun shines on plants, tiny drops of water are released into the air.

As more water vapor cools into the clouds, the water droplets that form the clouds become larger and larger. When the droplets get big enough, they drop down to the ground as rain, or **precipitation.** Rain either soaks into the ground (**infiltration**) and becomes groundwater or it runs off the land and drains into rivers, lakes and streams(**runoff**).

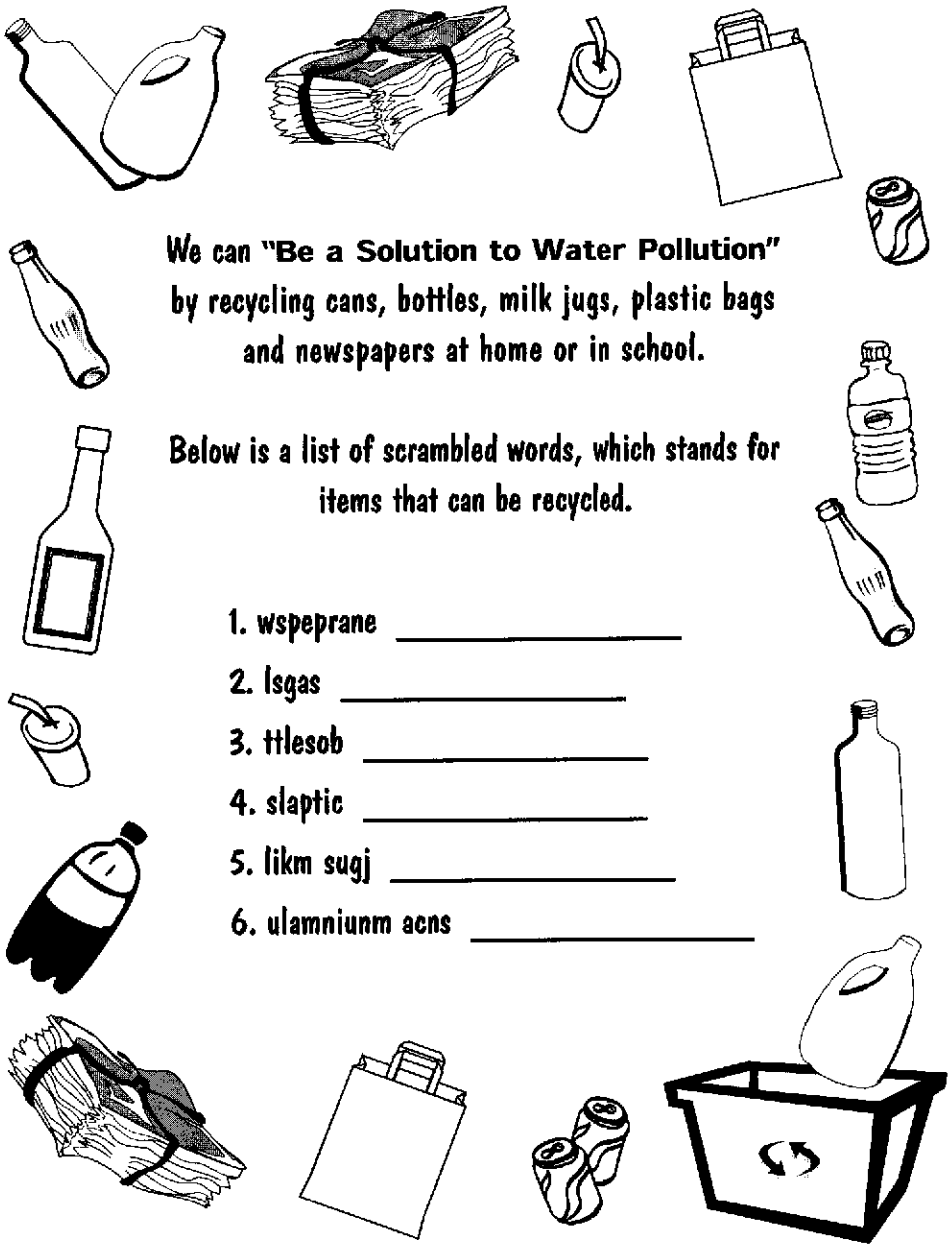
As water falls to earth in various forms of precipitation, plants intercept or catch some of the water before it falls to the ground. This is called **interception.**

Groundwater is under the ground and in the soil. It is the water that plants and animals use to drink. Some water will seep through the ground and flow into a river, lake or stream and help keep them filled with water. The cycle repeats over and over again.

Label the steps of the water cycle on this drawing by filling in the blanks with the words below..



condensation	evaporation	infiltration	runoff
transpiration	interception	precipitation	groundwater



We can "Be a Solution to Water Pollution" by recycling cans, bottles, milk jugs, plastic bags and newspapers at home or in school.

Below is a list of scrambled words, which stands for items that can be recycled.

1. wspeprane _____
2. lsgas _____
3. ttlesob _____
4. slaptic _____
5. likm sugj _____
6. ulamniunm acns _____

Answers: 1. newspaper, 2. glass, 3. bottles, 4. plastic, 5. milk jugs, 6. aluminum cans

Grasscycling

The environmental benefits include:

1. Reducing the amount of fertilizer needed (because nutrients from clippings are returned to the soil),

2. Improving moisture-retention, and

3. Decreasing soil temperatures in the summer months

Most common misconceptions:

- Grasscycling causes thatch build–up.

No! Studies have shown that grass roots are the primary cause of thatch, not grass clippings. And, a small amount of thatch is actually beneficial. It serves as a mulch, preventing water evaporation and soil compaction.

- Grasscycling spreads lawn disease.

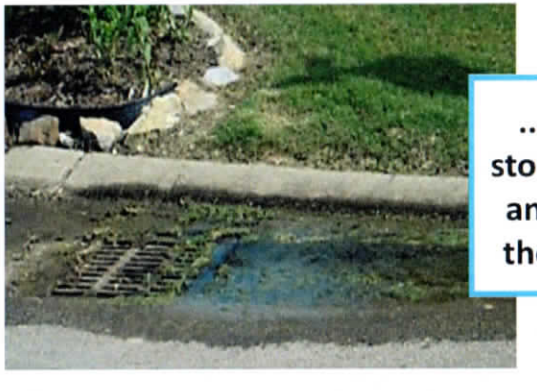
No! The primary cause of disease spread is improper watering and fertilizing. If a disease is present, infestation will occur whether you are grasscycling or not.

- My lawn will look bad.

No! Grasscycling will give you a healthier looking lawn if it is mowed, watered, and fertilized properly.

Grasscycling is not new. Many parks and golf courses have been practicing grasscycling successfully for years.

From the yard to the street.....



...to the storm drain and on to the creek.

The ONLY substance allowed to enter the Storm Drain is CLEAN WATER, NEVER Grass Clippings!

PROTECTING YOUR STORM DRAIN, PROTECTS YOUR WATER!

THE ONLY SUBSTANCE ALLOWED TO ENTER THE STORM DRAIN IS CLEAN WATER, NEVER GRASS CLIPPINGS!

790 W. College St.
Greenbrier, TN 37073

Mow it High
GRASSCYCLING
...Let it Lie!

DON'T TRASH GRASS

An Educational Brochure developed by the Department of Stormwater Management and Code Enforcement for the City of Greenbrier

Information is not meant to be comprehensive and may change without notice.

Where do your grass clippings end up?

GRASSCYCLING is a relatively low-cost strategy to reduce the disposal of organics. Residents and businesses are encouraged to leave the grass clippings on the lawn instead of bagging and disposing of them.

Residents and businesses are also encouraged to *grasscycle* away from any and all public ways and storm drains. Grass clippings that enter the road, driveway, storm drains and sidewalks will be washed to a waterway; this is also a Stormwater violation in which you could be fined.

EPA estimates that grass clippings account for 50% of all yard trimmings, so *grasscycling* could address the estimated 8.8 thousand tons of clippings generated in Tennessee.

How does something as natural as grass hurt the stream?

This is a legitimate question as most folks don't understand how grass clippings can damage a stream.

Never Mow into the road.

To understand the problem you must first think about what happens when organic matter such as grass clippings begin to decompose. Grass clippings or other yard waste smothers natural vegetation and can add excessive nutrients to the creek. When the yard waste decays it introduces high nutrient levels, which reduces oxygen levels in the water, harming aquatic life in the creek. The material can also float downstream, lodge against trees, and become a major obstruction to Stormwater flows. Current Federal and State regulations prohibit the discharge, dumping or release of potential pollutants into watercourses. This does includes grass clippings and yard waste.

Why should I protect the Storm Drains?

Millersville's storm drain system was designed to prevent flooding by transporting excess rainwater from city streets. Since the storm drain system contains no filter, untreated storm water is released into our waterways. Storm water pollution occurs when untreated contaminated water (urban runoff) drains from city streets into the creeks.

Did you know that the largest source of storm water pollution is residents? Through the conduct of daily activities, the general public releases various pollutants into the storm drain. Urban runoff is the largest source of unregulated pollution to our waterways. The most common pollutants released into storm drains are:

- ⇒ Fuel and motor oil leaking from cars
- ⇒ Household cleaning products
- ⇒ Improperly disposed paint and paint thinners
- ⇒ Paper, cups, and other litter
- ⇒ Yard waste and fertilizers
- ⇒ Animal waste left from household pets

Failure to Meet or Maintain Design or Maintenance Standards

If a responsible party fails or refuses to meet the design or maintenance standards, the Stormwater Manager, after reasonable notice, may choose to begin levying fines of not less than $50.00, or more than $5,000.00, assessed each day the violation continues or may choose to correct a violation of the design standards or maintenance needs by ordering corrective action to be performed by the city or others until all necessary work to place the facility in proper working condition is completed.

STORMWATER

- SLOW IT DOWN
- SPREAD IT OUT
- SOAK IT IN

City of Greenbrier

CLEAN WATER
IS
EVERYONE'S BUSINESS!

City of Greenbrier
Stormwater Dept.

INFORMATIONAL BROCHURE

PERMANENT BMP'S

Contact Information:

Phone: 615-643-4531

Fax: 615-643-0357

790 W. College St.

Greenbrier, TN 37073

What are Permanent BMP's?

"BMP" is an acronym for Best Management Practices. "Permanent" simply means these practices will remain on the site even after it is stable. One type BMP may be an erosion prevention practice, or a sediment control practice, or it may serve both purposes at the same time. BMP's are designed to remove pollutants from urban runoff and control water quantity before it reaches our streams.

Examples of permanent BMP's are:

1. **Buffer Zone**—A strip of undisturbed, original vegetation, enhanced or restored existing vegetation, or the re-establishment of vegetation surrounding an area of disturbance or bordering streams, ponds, wetlands, or lakes.
2. **Diversion**—a channel of compacted soil constructed above, across, or below a slope, with a supporting earthen ridge on the lower side. A diversion consists of two components: the ridge and the channel.
3. **Gabion**—Large, multi-celled, welded wire or rectangular revetments, retaining walls, abutments, check dams, etc.
4. **Riprap**—Erosion-resistant ground cover of large, loose angular stone with a geotextile or granular underlining.
5. Storm Drain Outlet Protection—paved and/or riprapped channel treatment, placed below storm drain outlets.
6. **Rain Garden**—a planted depression that allows rainwater runoff from impervious urban areas like roofs, driveways, walkways, parking lots, etc.
7. **Stormwater filtration systems**—consist mainly of a pretreatment, or sedimentation area, and the filter area. Runoff first enters the sedimentation area where the runoff velocity is reduced allowing larger pollutant particles to drop out. When the stormwater leaves the sedimentation area, it is spread evenly over the filter bed, where it flows downward through the filter media. As the stormwater flows through the filter, the filtration media trap and absorb pollutants present in the stormwater.
8. **Dry Extended Detention Basin**—Underground detention facilities are structural BMPs designed to provide temporary storage of stormwater runoff for quantity control purposes. The systems are typically installed beneath parking lots, streets, and parks
9. **Wet Detention ponds**—consists of a permanent pool, temporary pool, and a forebay. The permanent pool prevents particles that have settled to the pond bottom from re-suspending when runoff flows into the pond. The temporary pool is storage above the permanent pool which is utilized to control runoff during a storm event. A separate smaller pond, called a forebay, is placed upstream of the main pond to trap suspended solids in the runoff before it enters the main pond.

As Built Plans

All applicants are required to submit actual as built plans for any structures located on-site after final construction is completed along with any changes to the Operations and Maintenance Plan submitted with the application. Significant changes must be approved by the Stormwater Manager. The plan must show the final design specifications for all stormwater management facilities and must be sealed by a registered professional engineer licensed to practice in Tennessee.

Recorded Plat

The location of the Stormwater facilities and best management practices, the recorded location of the Covenants document, and inspection and maintenance guidance that outlines the property owners responsibility shall be shown on a plat that is recorded in the Office of the County Register of Deeds.

Landscaping Operations and Maintenance Plan

Must be submitted with the final design describing the vegetative stabilization and management techniques to be used at a site after construction is completed. This plan will explain not only how the site will be stabilized after construction, but who will be responsible for the maintenance of vegetation at the site and what practices will **be employed to ensure that** adequate vegetative cover is preserved.

Inspections

Routine inspections are the responsibility of the property owner, or the owner/s of the Stormwater management facilities.

Records

Parties responsible for the operation and maintenance of a stormwater management facility shall make records of the installation of the stormwater facility, and of all maintenance and repairs to the facility, and shall retain the records for at least ten years. These records shall be made available to the Stormwater Manager during inspection of the facility and at other reasonable times upon request.

Appeal Process

There is an appeal process if you feel that you have been unfairly accused.

DID YOU KNOW?

In 2001, there were an estimated 6.5 million dogs in the United States. That's 6.3 billion pounds of poop per year!!

It would take a scoop 300 feet wide and 800 feet deep to dispose of all of that poop!

* Source: U.S. Pet Ownership and Demographics Source Book by the American Veterinary Medical Association.

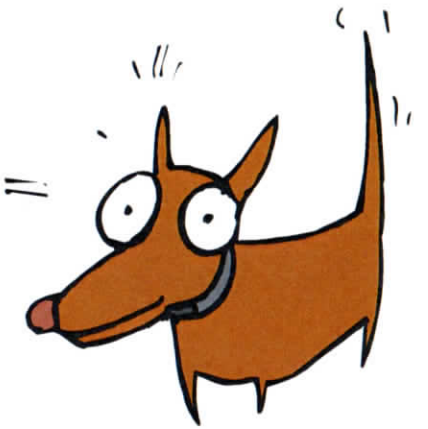
COMMERCE • COMMUNITY • EDUCATION

GREENBRIER

Tennessee

1937

Pick It Up...



It's Your Doodie!

THE PROBLEM

Pet waste can contaminate our rivers, lakes and streams. Pet waste contains harmful bacteria such as E. Coli and fecal coliform. Waters that contain a high amount of bacteria such as E. Coli are unfit for human contact. A single gram of pet waste contains an average of 23 million fecal coliform bacteria, some of which can cause disease in humans.

- Pet waste decays, using up dissolved oxygen and releasing compounds that are harmful to fish and other animals that rely on water.
- Pet waste contains nutrients that can cause excessive algae growth in a river or lake, upsetting the natural balance.

I WANT TO BE A RESPONSIBLE PET OWNER, BUT DOES THIS MEAN I HAVE TO PICK UP AFTER MY PET?

The bad news is...

Yes, you do have to "scoop the poop" but it's a small price to pay to protect our water quality.

The good news is...

Whether in your yard or walking your dog, you can easily do the right thing. Purchase a "pooper scooper" or simply use a plastic bag. Many parks and apartment complexes provide special posts with "pet mitts" or bags to help you clean up after your dog. When finished, just place the waste in a garbage can. Everyone will be happier when you pick up after your pet!

WHY SHOULD I PICK IT UP?

Pet waste left on sidewalks, streets, yards or other open areas can be washed away and carried by rainwater into storm drains to nearby rivers, lakes and streams and cause many problems.

ARE YOU A DO-IT-YOURSELFER?

YOU CAN PUT THE BRAKES ON WATER POLLUTION

Did You Know?

Each year millions of gallons of used motor oil are disposed of improperly: dripped, spilled or poured directly onto the ground or down storm drains.

It only takes four quarts, or about one oil change, of used motor oil to foul one million gallons of drinking water.

Many brake pads contain metals that wear away a little by little. The metal breaks down into dust each time you apply the brakes. Brake pads can contain as much as 20 percent copper, which is toxic to aquatic life at the base of the food chain. They also contain lead and zinc. (Source: US EPA)

BE A SOLUTION TO WATER POLLUTION.

COMMERCE ✪ COMMUNITY ✪ EDUCATION
GREENBRIER
Tennessee
1937

Stormwater Management
790 W. College St.
Greenbrier, TN 37073
(615) 643-4531
www.

PUT THE BRAKES ON WATER POLLUTION

TIPS FOR MAINTAINING OR REPAIRING YOUR VEHICLE AT HOME

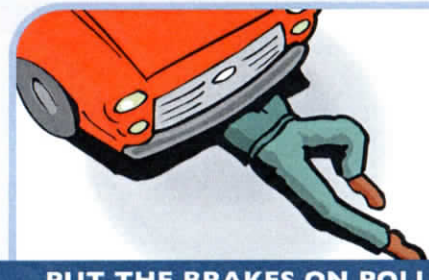
BY PREVENTING FLUIDS FROM REACHING THE STREET OR STORM DRAIN, YOU CAN PREVENT STORMWATER POLLUTION AND HELP PROTECT OUR RIVERS, LAKES AND STREAMS.

BE AWARE OF WHERE YOU WORK

- Any drips or spills on the ground can be carried away by rainwater to a storm drain and into a nearby river, lake or stream.
- Choose to work on a flat concrete surface where you can easily clean up accidental spills. Remember the phrase "keep it clean, drains to stream" when you work on paved surfaces.
- Never work on a vehicle in the street or near a storm drain.

FOLLOW THESE TIPS WHEN CHANGING YOUR OIL OR OTHER VEHICLE FLUIDS

- Use funnels or pumps when handling liquid products or wastes to avoid spills.
- Capture vehicle fluids in separate drip pans or containers. Properly recycle used oil, antifreeze and other vehicle fluids. Do not mix vehicle fluids.
- Use plastic tarps and drip pans if a car is leaking. Pour the oil collected on tarp back into a drip pan.
- Drain and recycle used oil filters. Poke holes in the filer and let it drain into your oil pan for several hours before you recycle.
- As an alternative, you can use kitty litter, sawdust or oil absorbent to clean spills. Apply it to the spill, sweep it up and dispose of the waste in the trash.
- If spills occur, use an absorbent pad to clean the spill. Squeeze the pad to wring out excess liquids. Place the used pad in a plastic bag and then dispose in the trash.
- Collect your used motor oil, antifreeze and oil filters in separate containers for transport to a nearby recycling station. Tires and batteries are some other items that can be recycled.



PUT THE BRAKES ON POLLUTION WHEN REPLACING BRAKE PARTS

- Many brake pads contain copper, which wears off as the pads wear and contributes to stormwater pollution.
- Don't hose down brake pads, rotors or drums.
- Use shop cloths to wipe as much brake dust as possible from the rotors and drums before using brake cleaner fluid. The shop cloths can be laundered and reused.
- Recycle cleaner fluid by using a drip pan. Reuse collected cleaner to clean rotors and drums.

WASH YOUR CAR AT A NEARBY CAR WASH

- Wash water from washing your car at home can contain detergents, metals, oil, sediment and other debris that can pollute nearby rivers, lakes and streams.
- For spot cleaning, wipe the vehicle with a damp cloth instead of washing it.
- Take your vehicle to a commercial car wash that recycles water. This will prevent detergents and other contaminants from being washed down a storm drain or drainage ditch.

DID YOU KNOW THE FOLLOWING CAN BE RECYCLED?

- Transmission fluid
- Used tires
- Brake fluid
- Used oil filters
- Car batteries
- Antifreeze
- Used motor oil

For the location nearest you, visit
earth911.com

• APPENDIX C: ILLICIT DISCHARGE DETECTION/ELIMINATION AND HOTSPOT INSPECTIONS

SUPPORTING MATERIALS

ILLICIT DISCHARGE REPORT FORM

Date: _____

Name: _____

Department: _____

Phone: _____

What type of incident do you wish to report? (check all that apply)

- ☐ Dumping Down a Storm Drain
- ☐ Suspicious Discharge from a Pipe into a Stream
- ☐ Unusual Color or Smell of Water in Stream
- ☐ Suspicious Suds or other Substances Floating on Water
- ☐ Construction Runoff

Where did the incident take place?

Address (if applicable): _____

Name of Closest Cross Street: _____

Name of Body of Water Impacted: _____

Please provide a brief description of the illicit discharge and the area affected:

_____

_____

_____

_____

Date of the Incident: _____ **Time of the Incident:** _____

Pictures attached? ☐ Yes ☐ No

Please send this form along with any additional information and photographs to:

Alex West
790 W. College Street
Greenbrier, TN 37073

DOMETIC

SUPPORTING MATERIALS

ILLICIT DISCHARGE REPORT FORM

Date: 03-18-21

Name: Dometic

Department: _____

Phone: 615-420-0602

What type of incident do you wish to report? (check all that apply)

- ☐ Dumping Down a Storm Drain
- ☐ Suspicious Discharge from a Pipe into a Stream
- ☒ Unusual Color or Smell of Water in Stream
- ☐ Suspicious Suds or other Substances Floating on Water
- ☐ Construction Runoff

Where did the incident take place?

Address (if applicable): 1178 Kelly Willis Rd.

Name of Closest Cross Street: Industrial Dr.

Name of Body of Water Impacted: Red River

Please provide a brief description of the illicit discharge and the area affected:

After a Heavy rain event Open Metal Bins Leaked into a retention Pond a Cloudy liquid

Date of the Incident: 03-18-21 **Time of the Incident:** _____

Pictures attached? ☒ Yes ☐ No

Please send this form along with any additional information and photographs to:

Alex West
790 W. College Street
Greenbrier, TN 37073

CITY OF GREENBRIER

P. O. BOX 466 • 790 W. COLLEGE STREET
GREENBRIER, TENNESSEE 37073
PHONE (615) 643-4531 • FAX (615) 643-0357

March 18th, 2021

Dometic

1178 Kelly Willis Road

Greenbrier Tn, 37073

Subject: **Notice of Violation (Illicit Discharge)**

Dometic

1178 Kelly Willis Road

Greenbrier, Robertson County, TN

Dear Daniel King or whom it may concern,

The City of Greenbrier was contacted on March 17th, 2021 about an illicit discharge on the ground and in the retention pond. The city did an onsite inspection on March 18th, 2021 and noted that a cloudy liquid was in fact being discharged on the ground. The spill appeared to be coming from the metal bins on the loading dock area back right side of the property. This is a violation of the City of Greenbrier Storm Water ordinance. This violation is an illicit discharge and needs to be handled immediately. I will be doing a follow up visit on April 1st, 2021 to make sure the issue at hand was handled.

During the site visit the City observed the following items that require attention:

- Leaking metal bins.
- Retention pond with sufficient amount of cloudy water.

The items listed above are not an all-inclusive list of items that were observed on site.

Please Submit the following items to the City of Greenbrier within the specified timeframe:

1. Immediately remove illicit discharge from storm drain and cover trash bins. Within 10 days of receipt of this letter, provide time-stamped photographic documentation showing issues above have been resolved.
2. Within 10 days of receipt of this letter,

Failure to remedy these violations within the specified timeframes may result in further actions, which will include a stop work order for the entire property, no more issuance of permits for the entire property, and monetary penalties of at least fifty ($50) and no more

than five thousand ($5,000) dollars per day the violation remains. If you have any questions regarding this correspondence, please contact me at (615) 642-0544 or by E-mail at awest@greenbriertn.org.

Sincerely,

Alex West

Facility Name:	Site Location:
Dometic	Robertson County
Photo No.	**Date:**
1 & 2	03/18/2021

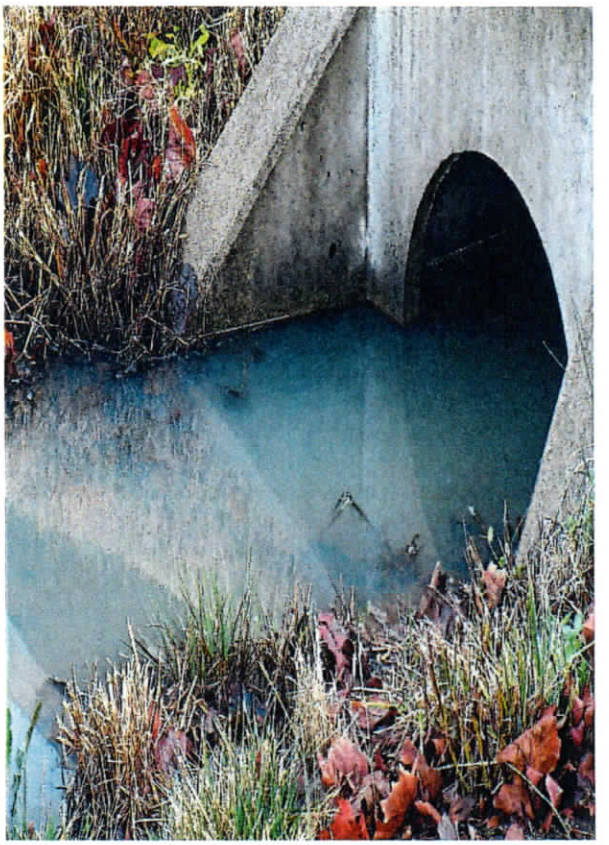
Description:

Illicit Discharge from metal bins. Loading dock area.

Facility Name:	Site Location:
Dometic	Robertson County
Photo No.	**Date:**
3	03/18/2021

Description:

Cloudy water in retention pond.
Industrial drive side.



From:	Daniel King
Sent:	Thu Mar 18 2021 11:12:12 GMT-0500 (Central Daylight Time)
To:	Carla Caughey; Alex West
Subject:	RE: Notice of Violation
Attachments:	EnviroGuard Info Sheet.pdf

Thank you for the information and sorry to make introductions this way. I'm the new EHS Manager for the Dometic site and have been working on this issue, although I know it's not a new issue for your department and this facility to address. The material is being pumped as we speak from the basin and the attached Enviroguard (pivoting model) was ordered back in January. They will be covered immediately with the short term solution, pictures will be taken and I will follow up with pictures once the pivoting units are delivered. Below is the email from our recycler indicating delivery time frames next week.

"I'M sorry I have been out of the office for a few daysi talked with them this morning they said they should be finished on the 26th and will let me know on a delivery date but as soon as iget them letterd and take delivery your there next stop thank you im just at the manufactures mercy"

Lee Shrum
Shrum Auto Salvage, LLC
615-859-9496

Sorry again for the inconvenience and I will make sure this is remedied moving forward.

Sincerely,

Daniel King
EHS/Lean Coordinator
Cell 615-420-0602
daniel.king@Dometic.com
Dometic North America, 1178 Kelly Willis Road, 37073 Greenbrier, TN United States
dometic.com

From: Carla Caughey <ccaughey@greenbriertn.org>
Sent: Thursday, March 18, 2021 9:26 AM
To: Daniel King <daniel.king@Dometic.com>
Cc: Alex West <awest@greenbriertn.org>
Subject: Notice of Violation
Importance: High

Dear Mr. King, Attached is a copy of the Notice of Violation (Illicit Discharge) that was mailed on 03/18/2021. If you have any questions please contact Alex West (615) 643-4531.

Carla Caughey
City of Greenbrier
Property Standards
629-867-7979

From:	Daniel King
Sent:	Thu Mar 18 2021 16:58:29 GMT-0500 (Central Daylight Time)
To:	Carla Caughey
Cc:	Alex West
Subject:	RE: Notice of Violation
Attachments:	PXL_20210318_213056371.jpg; PXL_20210318_213205376.jpg; PXL_20210318_212511651.jpg; Time Stamp.JPG

Good Afternoon,

I'm apparently struggling with how to date and time stamp my photos so I wanted to get these to you ASAP as verification of today's cleanup activities. If you right click on them, you can click on properties and it will show the date and time stamp that way. I've screen-shotted that to verify. In total we pumped approximately 300 gallons of rain water containing the white milky residue from the rolloff, cleaned any residual spill containment and added spill containment to prevent any further drippings from entering the stormwater. The units will be tarped until the 26th when the hard covered units arrive. Verification of that will also be sent shortly after arrival and again, sorry for the inconvenience.

Daniel King
EHS/Lean Coordinator
Cell 615-420-0602
daniel.king@Dometic.com
Dometic North America, 1178 Kelly Willis Road, 37073 Greenbrier, TN United States
dometic.com

From: Carla Caughey <ccaughey@greenbriertn.org>
Sent: Thursday, March 18, 2021 1:05 PM
To: Daniel King <daniel.king@Dometic.com>
Subject: RE: Notice of Violation

Dear Mr. King,
Thank you for your prompt response of the matter.

Sincerely,

Carla Caughey
City of Greenbrier
Property Standards
629-867-7979

-----Original message-----
From: Daniel King <daniel.king@Dometic.com>
Sent: Thursday 18th March 2021 11:12
To: Carla Caughey <ccaughey@greenbriertn.org>; Alex West <awest@greenbriertn.org>
Subject: RE: Notice of Violation

Thank you for the information and sorry to make introductions this way. I'm the new EHS Manager for the Dometic site and have been working on this issue, although I know it's not a new issue for your department and this facility to address. The material is being pumped as we speak from the basin and the attached Enviroguard (pivoting model) was ordered back in January. They will be covered immediately with the short term solution, pictures will be taken and I will follow up with pictures once the pivoting units are delivered. Below is the email from our recycler indicating delivery time frames next week.

"I'M sorry I have been out of the office for a few daysi talked with them this morning they said they should be finished on the 26th and will let me know on a delivery date but as soon as iget them letterd and take delivery your there next stop thank you im just at the manufactures mercy"

Lee Shrum
Shrum Auto Salvage, LLC
615-859-9496

Sorry again for the inconvenience and I will make sure this is remedied moving forward.

Sincerely,

DOMETIC

3/26/2021

City of Greenbrier
Attn: Alex West
P.O. Box 466
Greenbrier, TN 37073

Re: **Notice of Violation (Illicit Discharge)**
Dometic – 1178 Kelly Willis Rd
3/18/2021

Dear Mr. West,

In an email dated 3/18/2021, received by mail on 3/21/21, Dometic Corp Greenbrier was made aware of a discharge of cloudy liquid from leaking metal bins that had impacted our detention pond on the southeast corner of the property. The letter required immediate action to address the discharge along with longer term countermeasures necessary within 10 days of the letter to prevent future discharges. As such, the following timeline of events has occurred:

3/18/21 – All cloudy liquid and associated rainwater was pumped immediately into totes and drums and containment was placed under the leaking metal roll-off to prevent further discharge during rain. Confirmatory pictures were taken of the containerized material and clean discharge. Please see pictures PXL_20210318_212511651, PXL_20210318_213056371 and PXL_20210318_213205376 as documentation.

3/23/21 – After all material had been removed, additional residual material present in the sewer was witnessed and also pumped to prevent additional impact and further clarify the water. The leak point of the roll-off was also sealed with silicone to prevent any potential loss of material.

3/25/21 – During a rain event on Thursday, discharge at the same location was photographed (PXL_202103232_151611645) to further confirm no white residue was present during rain or coming from the suspect roll-off (PXL_20210325_150654928

These corrective actions were intended to provide immediate response measure to prevent impact to the environment. Additionally Dometic has been in the process of remedying the process indefinitely. Attached to this letter, please also find the following:

1. EnviroGuard Hard Roll-Off Covers – As noted by the quote date, Dometic began the process of hard cover procurement in December of 2020. Due to longer than anticipated lead times, this process has taken longer than anticipated. As noted in the attached email from Lee Shrum, the anticipated delivery of the roll-offs with attached hard covers is 3/26/2021, after which he will deliver them to our site for ongoing use. The units utilize permanently attached hard covers which are manually slid on and off to prevent rainwater infiltration. Confirmation of their receipt will be forwarded once received and in place.

2. Exterior Covering – Attached, please find the drawing labeled Proposed Awning Construction. This external awning will be designed to permanently fix stormwater issues with the roll offs and is currently pending final quote before construction.

3. Dewatering Pumps – In the event of rainwater presence in a roll off due to a cover being forgotten or removed, a dewatering system has been developed to remove any water from the tanks to be treated externally (PXL_20210326_191638916).

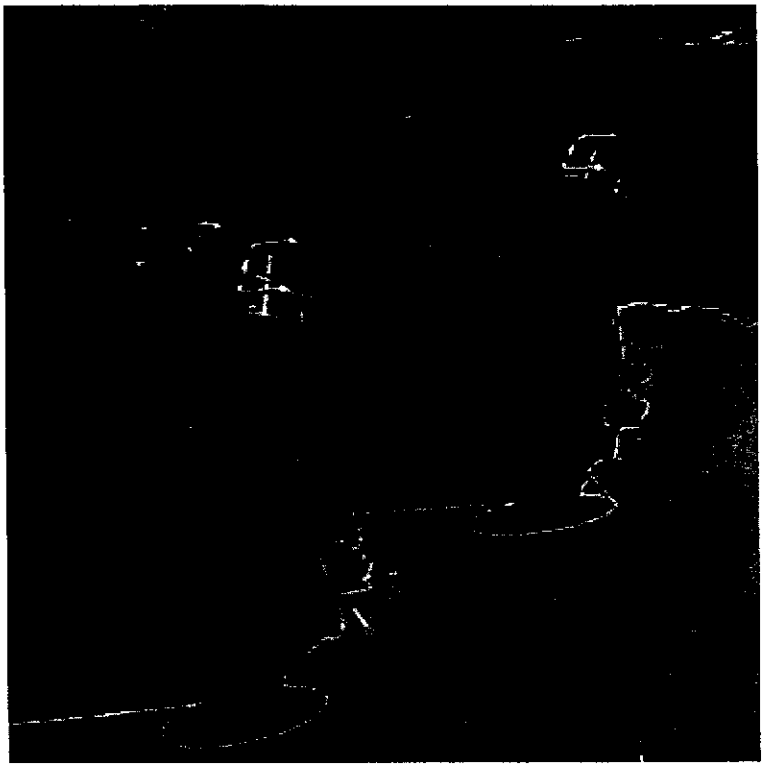
Until the receipt of the hard covered units in the upcoming days, Dometic will continue to monitor the roll offs closely, dewater and dispose of any material as needed and ensure the cloudy material does not continue to be a problem. Tarps have been purchased and used intermittently, but due to the design of the rolloff, they have a tendency to collect rainwater more so than prevent it.

If you need any additional information or documentation, please don't hesitate to ask. As stated, follow up photographic documentation will follow immediately after to confirm countermeasures are in place. You may contact me at your convenience at 615-863-7041 or by email at Daniel.king@dometic.com.

Sincerely,

Daniel A. King

EHS/Lean Coordinator



FRANKLIN CENTER

SUPPORTING MATERIALS

ILLICIT DISCHARGE REPORT FORM

Date: May 25th 2021

Name: Carla Caughey

Department: Codes

Phone: _____

What type of incident do you wish to report? (check all that apply)

- [x] Dumping Down a Storm Drain
- [ ] Suspicious Discharge from a Pipe into a Stream
- [ ] Unusual Color or Smell of Water in Stream
- [x] Suspicious Suds or other Substances Floating on Water
- [ ] Construction Runoff

Where did the incident take place?

Address (if applicable): 2354 Hwy 41 S.

Name of Closest Cross Street: Behind Franklin Center (Alley)

Name of Body of Water Impacted: Red River

Please provide a brief description of the illicit discharge and the area affected:

Grease from trap running into storm drain

B, C, D,

Date of the Incident: May 25th 2021 **Time of the Incident:** 3:09 PM

Pictures attached? [ ] Yes [ ] No

Please send this form along with any additional information and photographs to:

Alex West
790 W. College Street
Greenbrier, TN 37073

2246 OLD GREENBRIER PK

SUPPORTING MATERIALS

ILLICIT DISCHARGE REPORT FORM

615 - 681 - 9676 Classe

Date: May 27th 2021

Name: Carla Cawsey

Department: _____

Phone: _____

What type of incident do you wish to report? (check all that apply)

- ☐ Dumping Down a Storm Drain
- ☐ Suspicious Discharge from a Pipe into a Stream
- ☐ Unusual Color or Smell of Water in Stream
- ☐ Suspicious Suds or other Substances Floating on Water
- ☐ Construction Runoff

Where did the incident take place?

Address (if applicable): 2246 Old Greenbrier Pk

Name of Closest Cross Street: _____

Name of Body of Water Impacted: _____

Please provide a brief description of the illicit discharge and the area affected:

Septic Tank Overflow

Date of the Incident: _____ **Time of the Incident:** _____

Pictures attached? ☐ Yes ☐ No

Please send this form along with any additional information and photographs to:

Alex West
790 W. College Street
Greenbrier, TN 37073

CITY OF GREENBRIER

P. O. BOX 466 • 790 W. COLLEGE STREET
GREENBRIER, TENNESSEE 37073
PHONE (615) 643-4531 • FAX (615) 643-0357

May 27th, 2021

Emily Clouse

2246 Old Greenbrier Pike

Greenbrier Tn, 37073

Subject: **Notice of Violation (Illicit Discharge)**

2246 Old Greenbrier Pike

Greenbrier, Robertson County, TN

Dear Emily Clouse or whom it may concern,

The City of Greenbrier was contacted on May 27th, 2021 about an illicit discharge on the ground. The city did an onsite inspection on May 27th, 2021 and noted that the area in question was a moist area with no grass on it and is thought to be where the septic tank was located. The city has requested that the home owner seek a professional to locate and inspect the septic tank on the property. Illicit discharge of sewage is a violation of the City of Greenbrier Storm Water ordinance. A violation of an illicit discharge will need to be handled immediately. I will be doing a follow up visit on June 1st, 2021 to make sure the issue at hand was handled.

During the site visit the City observed the following items that require attention:

: A moist area of ground void of any grass above septic tank area.

The items listed above are not an all-inclusive list of items that were observed on site.

Please Submit the following items to the City of Greenbrier within the specified timeframe:

1. Immediately seek a professional to locate and inspect for over filled or leaking septic tank.
2. Within 10 days of receipt of this letter, provide time-stamped photographic documentation showing issues above have been resolved.

Failure to remedy these violations within the specified timeframes may result in further actions, which will include a stop work order for the entire property, no more issuance of permits for the entire property, and monetary penalties of at least fifty ($50) and no more than five thousand ($5,000) dollars per day the violation remains. If you have any questions

regarding this correspondence, please contact me at (615) 642-0544 or by E-mail at awest@greenbriertn.org.

Sincerely,

Alex West

Facility Name:	Site Location:
2246 Old Greenbrier Pike	Robertson County
Photo No.	**Date:**
1	05/27/2021

Description:

Potential illicit Discharge.

WATERSHED:	SUBWATERSHED: N/A		UNIQUE SITE ID:
DATE: __/__/____	ASSESSED BY:	CAMERA ID: —	PIC#: —
MAP GRID: USGS	LAT __°____'____" LONG __°____'____"		LMK #

A. SITE DATA AND BASIC CLASSIFICATION

Name and Address: _____

_____

_____

SIC code (if available): _____

NPDES Status: ☐ Regulated ☐ Unregulated ☐ Unknown

Category: ☐ Commercial ☐ Industrial ☐ Institutional ☐ Municipal ☐ Transport-Related

Miscellaneous: ☐ Golf Course ☐ Marina ☐ Animal Facility

Basic Description of Operation: _____

	INDEX*
B. VEHICLE OPERATIONS ☐ **N/A** *(Skip to part C)*	**Observed Pollution Source?** ☐
B1. Types of vehicles: ☐ Fleet vehicles ☐ School buses ☐ Other: _____	
B2. Approximate number of vehicles: _____	
B3. Vehicle activities *(circle all that apply)*: Maintained Repaired Recycled Fueled Washed Stored	○
B4. Are vehicles stored and/or repaired outside? ☐ Y ☐ N ☐ Can't Tell Are these vehicles lacking runoff diversion methods? ☐ Y ☐ N ☐ Can't Tell	○
B5. Is there evidence of spills/leakage from vehicles? ☐ Y ☐ N ☐ Can't Tell	○
B6. Are uncovered outdoor fueling areas present? ☐ Y ☐ N ☐ Can't Tell	○
B7. Are fueling areas directly connected to storm drains? ☐ Y ☐ N ☐ Can't Tell	○
B8. Are vehicles washed outdoors? ☐ Y ☐ N ☐ Can't Tell Does the area where vehicles are washed discharge to the storm drain? ☐ Y ☐ N ☐ Can't Tell	○
C. OUTDOOR MATERIALS ☐ **N/A** *(Skip to part D)*	**Observed Pollution Source?** ☐
C1. Are loading/unloading operations present? ☐ Y ☐ N ☐ Can't Tell If yes, are they uncovered *and* draining towards a storm drain inlet? ☐ Y ☐ N ☐ Can't Tell	○
C2. Are materials stored outside? ☐ Y ☐ N ☐ Can't Tell If yes, are they ☐ Liquid ☐ Solid Description: _____ Where are they stored? ☐ grass/dirt area ☐ concrete/asphalt ☐ bermed area	○
C3. Is the storage area directly or indirectly connected to storm drain (circle one)? ☐ Y ☐ N ☐ Can't Tell	○
C4. Is staining or discoloration around the area visible? ☐ Y ☐ N ☐ Can't Tell	○
C5. Does outdoor storage area lack a cover? ☐ Y ☐ N ☐ Can't Tell	○
C6. Are liquid materials stored *without* secondary containment? ☐ Y ☐ N ☐ Can't Tell	○
C7. Are storage containers missing labels or in poor condition (rusting)? ☐ Y ☐ N ☐ Can't Tell	○
D. WASTE MANAGEMENT ☐ **N/A** *(Skip to part E)*	**Observed Pollution Source?** ☐
D1. Type of waste *(check all that apply)*: ☐ Garbage ☐ Construction materials ☐ Hazardous materials	○
D2. Dumpster condition *(check all that apply)*: ☐ No cover/Lid is open ☐ Damaged/poor condition ☐ Leaking or evidence of leakage (stains on ground) ☐ Overflowing	○
D3. Is the dumpster located near a storm drain inlet? ☐ Y ☐ N ☐ Can't Tell If yes, are runoff diversion methods (berms, curbs) lacking? ☐ Y ☐ N ☐ Can't Tell	○
E. PHYSICAL PLANT ☐ **N/A** *(Skip to part F)*	**Observed Pollution Source?** ☐
E1. Building: Approximate age: _____ yrs. Condition of surfaces: ☐ Clean ☐ Stained ☐ Dirty ☐ Damaged	○
Evidence that maintenance results in discharge to storm drains (staining/discoloration)? ☐ Y ☐ N ☐ Don't know	○

*Index: ○ denotes potential pollution source; ☐ denotes confirmed polluter (evidence was seen)

E2. Parking Lot: Approximate age _____ yrs. Condition: ☐ Clean ☐ Stained ☐ Dirty ☐ Breaking up
Surface material ☐ Paved/Concrete ☐ Gravel ☐ Permeable ☐ Don't know ○

E3. Do downspouts discharge to impervious surface? ☐ Y ☐ N ☐ Don't know ☐ None visible
Are downspouts directly connected to storm drains? ☐ Y ☐ N ☐ Don't know ○

E4. Evidence of poor cleaning practices for construction activities (stains leading to storm drain)? ☐ Y ☐ N ☐ Can't Tell ○

F. TURF/LANDSCAPING AREAS ☐ **N/A** *(skip to part G)* **Observed Pollution Source?** ☐

F1. % of site with: Forest canopy ____% Turf grass _____ % Landscaping ____% Bare Soil ____% ○

F2. Rate the turf management status: ☐ High ☐ Medium ☐ Low ○

F3. Evidence of permanent irrigation or "non-target" irrigation ☐ Y ☐ N ☐ Can't Tell ○

F4. Do landscaped areas drain to the storm drain system? ☐ Y ☐ N ☐ Can't Tell ○

F5. Do landscape plants accumulate organic matter (leaves, grass clippings) on adjacent impervious surface? ☐ Y ☐ N ☐ Can't Tell ○

G. STORM WATER INFRASTRUCTURE ☐ **N/A** *(skip to part H)* **Observed Pollution Source?** ☐

G1. Are storm water treatment practices present? ☐ Y ☐ N ☐ Unknown If yes, please describe: _____ ○

G2. Are private storm drains located at the facility? ☐ Y ☐ N ☐ Unknown
Is trash present in gutters leading to storm drains? If so, complete the index below. ○

Index Rating for Accumulation in Gutters

	Clean				Filthy
Sediment	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Organic material	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Litter	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

G3. Catch basin inspection – Record SSD Unique Site ID here: _____ Condition: ☐ Dirty ☐ Clean

H. INITIAL HOTSPOT STATUS - INDEX RESULTS

☐ Not a hotspot (fewer than 5 circles and no boxes checked) ☐ Potential hotspot (5 to 10 circles but no boxes checked)
☐ Confirmed hotspot (10 to 15 circles and/or 1 box checked) ☐ Severe hotspot (>15 circles and/or 2 or more boxes checked)

Follow-up Action:
- ☐ Refer for immediate enforcement
- ☐ Suggest follow-up on-site inspection
- ☐ Test for illicit discharge
- ☐ Include in future education effort
- ☐ Check to see if hotspot is an NPDES non-filer
- ☐ Onsite non-residential retrofit
- ☐ Pervious area restoration; complete PAA sheet and record Unique Site ID here: _____
- ☐ Schedule a review of storm water pollution prevention plan

Notes:

WATERSHED: Red River	**SUBWATERSHED:** N/A		**UNIQUE SITE ID:**
DATE: 12/29/20	**ASSESSED BY:** Carla	**CAMERA ID:** —	**PIC#:** —
MAP GRID: USGS	**LAT** 36° 25' 8.5" **LONG** 86° 47' 49"		**LMK #** —

A. SITE DATA AND BASIC CLASSIFICATION

Name and Address: Autowire 2337 Industrial Dr Greenbrier Tn. 37073

SIC code (if available): _____

NPDES Status: ☐ Regulated ☐ Unregulated ☐ Unknown

Category: ☐ Commercial ☒ Industrial ☐ Institutional ☐ Municipal ☐ Transport-Related

Miscellaneous: ☐ Golf Course ☐ Marina ☐ Animal Facility

Basic Description of Operation: Machine Shop

INDEX*

B. VEHICLE OPERATIONS ☐ **N/A** *(Skip to part C)* — **Observed Pollution Source?** ☐

B1. Types of vehicles: ☒ Fleet vehicles ☐ School buses ☐ Other: _____

B2. Approximate number of vehicles: 7

B3. Vehicle activities *(circle all that apply)*: Maintained Repaired Recycled Fueled Washed Stored — ○

B4. Are vehicles stored and/or repaired outside? ☒ Y ☐ N ☐ Can't Tell — ○
Are these vehicles lacking runoff diversion methods? ☐ Y ☒ N ☐ Can't Tell

B5. Is there evidence of spills/leakage from vehicles? ☐ Y ☒ N ☐ Can't Tell — ○

B6. Are uncovered outdoor fueling areas present? ☐ Y ☒ N ☐ Can't Tell — ○

B7. Are fueling areas directly connected to storm drains? ☐ Y ☒ N ☐ Can't Tell — ○

B8. Are vehicles washed outdoors? ☐ Y ☒ N ☐ Can't Tell — ○
Does the area where vehicles are washed discharge to the storm drain? ☐ Y ☐ N ☐ Can't Tell

C. OUTDOOR MATERIALS ☒ **N/A** *(Skip to part D)* — **Observed Pollution Source?** ☐

C1. Are loading/unloading operations present? ☐ Y ☐ N ☐ Can't Tell — ○
If yes, are they uncovered *and* draining towards a storm drain inlet? ☐ Y ☐ N ☐ Can't Tell

C2. Are materials stored outside? ☐ Y ☐ N ☐ Can't Tell If yes, are they ☐ Liquid ☐ Solid Description: _____ — ○
Where are they stored? ☐ grass/dirt area ☐ concrete/asphalt ☐ bermed area

C3. Is the storage area directly or indirectly connected to storm drain (circle one)? ☐ Y ☐ N ☐ Can't Tell — ○

C4. Is staining or discoloration around the area visible? ☐ Y ☐ N ☐ Can't Tell — ○

C5. Does outdoor storage area lack a cover? ☐ Y ☐ N ☐ Can't Tell — ○

C6. Are liquid materials stored *without* secondary containment? ☐ Y ☐ N ☐ Can't Tell — ○

C7. Are storage containers missing labels or in poor condition (rusting)? ☐ Y ☐ N ☐ Can't Tell — ○

D. WASTE MANAGEMENT ☒ **N/A** *(Skip to part E)* — **Observed Pollution Source?** ☐

D1. Type of waste *(check all that apply)*: ☐ Garbage ☐ Construction materials ☐ Hazardous materials — ○

D2. Dumpster condition *(check all that apply)*: ☐ No cover/Lid is open ☐ Damaged/poor condition ☐ Leaking or evidence of leakage (stains on ground) ☐ Overflowing — ○

D3. Is the dumpster located near a storm drain inlet? ☐ Y ☐ N ☐ Can't Tell — ○
If yes, are runoff diversion methods (berms, curbs) lacking? ☐ Y ☐ N ☐ Can't Tell

E. PHYSICAL PLANT ☐ **N/A** *(Skip to part F)* — **Observed Pollution Source?** ☐

E1. Building: Approximate age: 5 yrs. Condition of surfaces: ☐ Clean ☐ Stained ☐ Dirty ☐ Damaged — ○
Evidence that maintenance results in discharge to storm drains (staining/discoloration)? ☐ Y ☐ N ☐ Don't know — ○

*Index: ○ denotes potential pollution source; ☐ denotes confirmed polluter (evidence was seen)

E2. Parking Lot: Approximate age 5 yrs. Condition: ☐ Clean ☐ Stained ☐ Dirty ☐ Breaking up
Surface material ☒ Paved/Concrete ☐ Gravel ☐ Permeable ☐ Don't know ○

E3. Do downspouts discharge to impervious surface? ☐ Y ☒ N ☐ Don't know ☐ None visible
Are downspouts directly connected to storm drains? ☐ Y ☐ N ☐ Don't know Ret Pond ○

E4. Evidence of poor cleaning practices for construction activities (stains leading to storm drain)? ☐ Y ☒ N ☐ Can't Tell ○

F. TURF/LANDSCAPING AREAS ☐ **N/A** *(skip to part G)* **Observed Pollution Source?** ☐

F1. % of site with: Forest canopy ____% Turf grass ____% Landscaping 50 % Bare Soil ____% ○

F2. Rate the turf management status: ☐ High ☒ Medium ☐ Low ○

F3. Evidence of permanent irrigation or "non-target" irrigation ☐ Y ☒ N ☐ Can't Tell ○

F4. Do landscaped areas drain to the storm drain system? ☒ Y ☐ N ☐ Can't Tell ○

F5. Do landscape plants accumulate organic matter (leaves, grass clippings) on adjacent impervious surface? ☐ Y ☒ N ☐ Can't Tell ○

G. STORM WATER INFRASTRUCTURE ☒ **N/A** *(skip to part H)* **Observed Pollution Source?** ☐

G1. Are storm water treatment practices present? ☐ Y ☐ N ☐ Unknown If yes, please describe: _____ ○

G2. Are private storm drains located at the facility? ☐ Y ☐ N ☐ Unknown
Is trash present in gutters leading to storm drains? If so, complete the index below. ○

Index Rating for Accumulation in Gutters

	Clean				Filthy
Sediment	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Organic material	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Litter	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

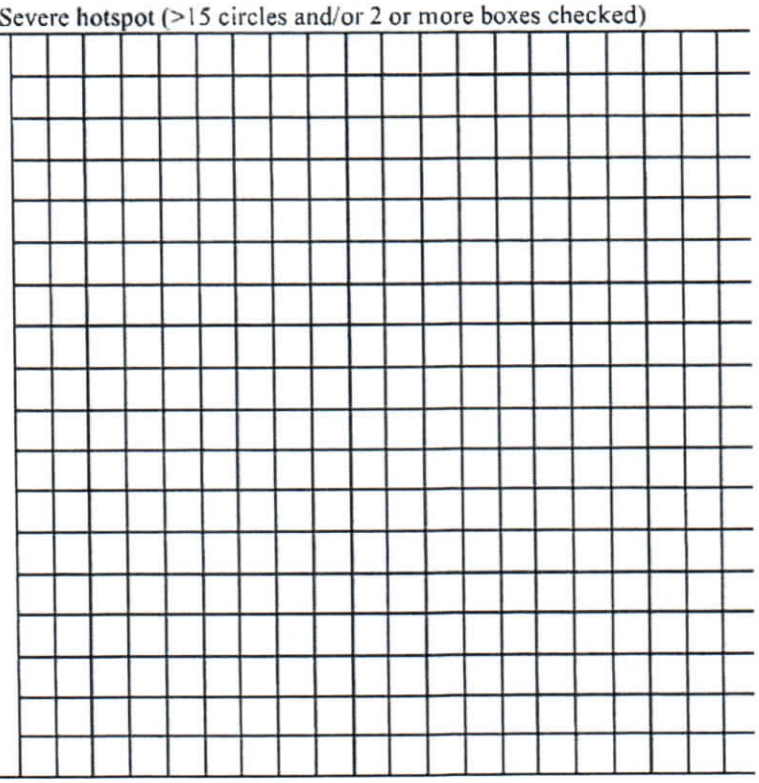
G3. Catch basin inspection – Record SSD Unique Site ID here: _____ Condition: ☐ Dirty ☐ Clean

H. INITIAL HOTSPOT STATUS - INDEX RESULTS

☐ Not a hotspot (fewer than 5 circles and no boxes checked) ☐ Potential hotspot (5 to 10 circles but no boxes checked)
☐ Confirmed hotspot (10 to 15 circles and/or 1 box checked) ☐ Severe hotspot (>15 circles and/or 2 or more boxes checked)

Follow-up Action:
- ☐ Refer for immediate enforcement
- ☐ Suggest follow-up on-site inspection
- ☐ Test for illicit discharge
- ☐ Include in future education effort
- ☐ Check to see if hotspot is an NPDES non-filer
- ☐ Onsite non-residential retrofit
- ☐ Pervious area restoration; complete PAA sheet and record Unique Site ID here: _____
- ☐ Schedule a review of storm water pollution prevention plan

Notes:



Hotspot Site Investigation **HSI**

WATERSHED: Red River	**SUBWATERSHED:** N/A		**UNIQUE SITE ID:**
DATE: 12/15/20	**ASSESSED BY:** Carla	**CAMERA ID:** —	**PIC#:** —
MAP GRID: USGS	**LAT** 36°26'39" **LONG** 86°43'45"		**LMK #**

A. SITE DATA AND BASIC CLASSIFICATION

Name and Address: Clean Harbors 2805 old Hwy Greenbrier Tn. 37073

Category: ☒ Commercial ☐ Industrial ☐ Institutional ☐ Municipal ☐ Transport-Related
Miscellaneous: ☐ Golf Course ☐ Marina ☐ Animal Facility

SIC code (if available): _____

Basic Description of Operation: _____

NPDES Status: ☐ Regulated ☐ Unregulated ☒ Unknown

INDEX*

B. VEHICLE OPERATIONS ☐ **N/A** *(Skip to part C)* — **Observed Pollution Source?** ☐

B1. Types of vehicles: ☒ Fleet vehicles ☐ School buses ☐ Other: Tractor Trailors

B2. Approximate number of vehicles: 15

B3. Vehicle activities *(circle all that apply)*: Maintained Repaired Recycled Fueled Washed Stored — ○

B4. Are vehicles stored and/or repaired outside? ☒ Y ☐ N ☐ Can't Tell — ○
Are these vehicles lacking runoff diversion methods? ☐ Y ☒ N ☐ Can't Tell

B5. Is there evidence of spills/leakage from vehicles? ☐ Y ☒ N ☐ Can't Tell — ○

B6. Are uncovered outdoor fueling areas present? ☐ Y ☒ N ☐ Can't Tell — ○

B7. Are fueling areas directly connected to storm drains? ☐ Y ☒ N ☐ Can't Tell — ○

B8. Are vehicles washed outdoors? ☐ Y ☒ N ☐ Can't Tell — ○
Does the area where vehicles are washed discharge to the storm drain? ☐ Y ☐ N ☐ Can't Tell

C. OUTDOOR MATERIALS ☐ **N/A** *(Skip to part D)* — **Observed Pollution Source?** ☐

C1. Are loading/unloading operations present? ☒ Y ☐ N ☐ Can't Tell — ○
If yes, are they uncovered *and* draining towards a storm drain inlet? ☐ Y ☒ N ☐ Can't Tell

C2. Are materials stored outside? ☐ Y ☐ N ☒ Can't Tell If yes, are they ☐ Liquid ☐ Solid Description: _____ — ○
Where are they stored? ☐ grass/dirt area ☐ concrete/asphalt ☒ bermed area

C3. Is the storage area directly or indirectly connected to storm drain (circle one)? ☐ Y ☒ N ☐ Can't Tell — ○

C4. Is staining or discoloration around the area visible? ☐ Y ☒ N ☐ Can't Tell — ○

C5. Does outdoor storage area lack a cover? ☐ Y ☒ N ☐ Can't Tell — ○

C6. Are liquid materials stored *without* secondary containment? ☐ Y ☒ N ☐ Can't Tell N/A — ○

C7. Are storage containers missing labels or in poor condition (rusting)? ☐ Y ☒ N ☐ Can't Tell — ○

D. WASTE MANAGEMENT ☐ **N/A** *(Skip to part E)* — **Observed Pollution Source?** ☐

D1. Type of waste *(check all that apply)*: ☒ Garbage ☐ Construction materials ☐ Hazardous materials — ○

D2. Dumpster condition *(check all that apply)*: ☐ No cover/Lid is open ☐ Damaged/poor condition ☐ Leaking or evidence of leakage (stains on ground) ☐ Overflowing 2 (Look Good) 1yr old — ○

D3. Is the dumpster located near a storm drain inlet? ☒ Y ☐ N ☐ Can't Tell — ○
If yes, are runoff diversion methods (berms, curbs) lacking? ☐ Y ☒ N ☐ Can't Tell

E. PHYSICAL PLANT ☐ **N/A** *(Skip to part F)* — **Observed Pollution Source?** ☐

E1. Building: Approximate age: 40 yrs. Condition of surfaces: ☒ Clean ☐ Stained ☐ Dirty ☐ Damaged — ○
Evidence that maintenance results in discharge to storm drains (staining/discoloration)? ☐ Y ☒ N ☐ Don't know — ○

*Index: ○ denotes potential pollution source; ☐ denotes confirmed polluter (evidence was seen)

E2. Parking Lot: Approximate age 1 No yrs. Condition: ☒ Clean ☐ Stained ☐ Dirty ☐ Breaking up
Surface material ☐ Paved/Concrete ☒ Gravel ☐ Permeable ☐ Don't know

E3. Do downspouts discharge to impervious surface? ☐ Y ☐ N ☐ Don't know ☐ None visible Same
Are downspouts directly connected to storm drains? ☒ Y ☐ N ☐ Don't know

E4. Evidence of poor cleaning practices for construction activities (stains leading to storm drain)? ☐ Y ☐ N ☐ Can't Tell

F. TURF/LANDSCAPING AREAS ☒ **N/A** *(skip to part G)* — **Observed Pollution Source?** ☐

F1. % of site with: Forest canopy ____% Turf grass ____% Landscaping ____% Bare Soil ____%

F2. Rate the turf management status: ☐ High ☐ Medium ☐ Low

F3. Evidence of permanent irrigation or "non-target" irrigation ☐ Y ☐ N ☐ Can't Tell

F4. Do landscaped areas drain to the storm drain system? ☐ Y ☐ N ☐ Can't Tell

F5. Do landscape plants accumulate organic matter (leaves, grass clippings) on adjacent impervious surface? ☐ Y ☐ N ☐ Can't Tell

G. STORM WATER INFRASTRUCTURE ☐ **N/A** *(skip to part H)* — **Observed Pollution Source?** ☐

G1. Are storm water treatment practices present? ☐ Y ☐ N ☐ Unknown If yes, please describe: _____

G2. Are private storm drains located at the facility? ☒ Y ☐ N ☐ Unknown
Is trash present in gutters leading to storm drains? If so, complete the index below.

Index Rating for Accumulation in Gutters

	Clean				Filthy
Sediment	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Organic material	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Litter	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

G3. Catch basin inspection – Record SSD Unique Site ID here: _____ Condition: ☐ Dirty ☐ Clean

H. INITIAL HOTSPOT STATUS - INDEX RESULTS

☐ Not a hotspot (fewer than 5 circles and no boxes checked) ☐ Potential hotspot (5 to 10 circles but no boxes checked)
☐ Confirmed hotspot (10 to 15 circles and/or 1 box checked) ☐ Severe hotspot (>15 circles and/or 2 or more boxes checked)

Follow-up Action:
- ☐ Refer for immediate enforcement
- ☐ Suggest follow-up on-site inspection
- ☐ Test for illicit discharge
- ☐ Include in future education effort
- ☐ Check to see if hotspot is an NPDES non-filer
- ☐ Onsite non-residential retrofit
- ☐ Pervious area restoration; complete PAA sheet and record Unique Site ID here: _____
- ☐ Schedule a review of storm water pollution prevention plan

Notes:

WATERSHED: Red River	SUBWATERSHED: N/A	UNIQUE SITE ID:
DATE: 12/07/20	ASSESSED BY: Carla C. CAMERA ID: —	PIC#: —
MAP GRID: USGS	LAT 36° 23' 14" LONG 86° 47' 39"	LMK #

A. SITE DATA AND BASIC CLASSIFICATION

Name and Address: T H H Nursery 2275 Hwy 41 South Greenbrier Tn.

Category: ☑ Commercial ☐ Industrial ☐ Institutional ☐ Municipal ☐ Transport-Related
Miscellaneous: ☐ Golf Course ☐ Marina ☐ Animal Facility

SIC code (if available): _____

NPDES Status: ☐ Regulated ☐ Unregulated ☐ Unknown

Basic Description of Operation: _____

	INDEX*
B. VEHICLE OPERATIONS ☐ N/A *(Skip to part C)*	**Observed Pollution Source?** ☐
B1. Types of vehicles: ☐ Fleet vehicles ☐ School buses ☐ Other: _____	
B2. Approximate number of vehicles: _____	
B3. Vehicle activities *(circle all that apply)*: Maintained Repaired Recycled Fueled Washed Stored	○
B4. Are vehicles stored and/or repaired outside? ☐ Y ☐ N ☐ Can't Tell Are these vehicles lacking runoff diversion methods? ☐ Y ☐ N ☐ Can't Tell	○
B5. Is there evidence of spills/leakage from vehicles? ☐ Y ☐ N ☐ Can't Tell	○
B6. Are uncovered outdoor fueling areas present? ☐ Y ☐ N ☐ Can't Tell	○
B7. Are fueling areas directly connected to storm drains? ☐ Y ☐ N ☐ Can't Tell	○
B8. Are vehicles washed outdoors? ☐ Y ☐ N ☐ Can't Tell Does the area where vehicles are washed discharge to the storm drain? ☐ Y ☐ N ☐ Can't Tell	○
C. OUTDOOR MATERIALS ☐ N/A *(Skip to part D)*	**Observed Pollution Source?** ☐
C1. Are loading/unloading operations present? ☐ Y ☒ N ☐ Can't Tell If yes, are they uncovered *and* draining towards a storm drain inlet? ☐ Y ☐ N ☐ Can't Tell	○
C2. Are materials stored outside? ☒ Y ☐ N ☐ Can't Tell If yes, are they ☐ Liquid ☒ Solid Description: (Top Soil) Where are they stored? ☒ grass/dirt area ☐ concrete/asphalt ☐ bermed area	○
C3. Is the storage area directly or indirectly connected to storm drain (circle one)? ☐ Y ☒ N ☐ Can't Tell	○
C4. Is staining or discoloration around the area visible? ☐ Y ☒ N ☐ Can't Tell	○
C5. Does outdoor storage area lack a cover? ☒ Y ☐ N ☐ Can't Tell	○
C6. Are liquid materials stored *without* secondary containment? ☐ Y ☒ N ☐ Can't Tell	○
C7. Are storage containers missing labels or in poor condition (rusting)? ☐ Y ☒ N ☐ Can't Tell	○
D. WASTE MANAGEMENT ☐ N/A *(Skip to part E)*	**Observed Pollution Source?** ☐
D1. Type of waste *(check all that apply)*: ☒ Garbage ☐ Construction materials ☐ Hazardous materials	○
D2. Dumpster condition *(check all that apply)*: ☐ No cover/Lid is open ☐ Damaged/poor condition ☐ Leaking or evidence of leakage (stains on ground) ☐ Overflowing	○
D3. Is the dumpster located near a storm drain inlet? ☐ Y ☒ N ☐ Can't Tell If yes, are runoff diversion methods (berms, curbs) lacking? ☐ Y ☐ N ☐ Can't Tell	○
E. PHYSICAL PLANT ☐ N/A *(Skip to part F)*	**Observed Pollution Source?** ☐
E1. Building: Approximate age: 26 yrs. Condition of surfaces: ☐ Clean ☐ Stained ☐ Dirty ☐ Damaged	○
Evidence that maintenance results in discharge to storm drains (staining/discoloration)? ☐ Y ☒ N ☐ Don't know	○

*Index: ○ denotes potential pollution source; ☐ denotes confirmed polluter (evidence was seen)

E2. Parking Lot: Approximate age 26 yrs. Condition: ☑ Clean ☐ Stained ☐ Dirty ☐ Breaking up Surface material ☐ Paved/Concrete ☒ Gravel ☑ Permeable ☐ Don't know	○
E3. Do downspouts discharge to impervious surface? ☐ Y ☐ N ☐ Don't know ☐ None visible Are downspouts directly connected to storm drains? ☐ Y ☒ N ☐ Don't know	○
E4. Evidence of poor cleaning practices for construction activities (stains leading to storm drain)? ☐ Y ☑ N ☐ Can't Tell	○
F. TURF/LANDSCAPING AREAS ☒ **N/A** *(skip to part G)* — **Observed Pollution Source?** ☐	
F1. % of site with: Forest canopy ____% Turf grass ____ % Landscaping ____% Bare Soil ____%	○
F2. Rate the turf management status: ☐ High ☐ Medium ☐ Low	○
F3. Evidence of permanent irrigation or "non-target" irrigation ☐ Y ☑ N ☐ Can't Tell	○
F4. Do landscaped areas drain to the storm drain system? ☐ Y ☐ N ☐ Can't Tell	○
F5. Do landscape plants accumulate organic matter (leaves, grass clippings) on adjacent impervious surface? ☐ Y ☐ N ☐ Can't Tell	○
G. STORM WATER INFRASTRUCTURE ☒ **N/A** *(skip to part H)* — **Observed Pollution Source?** ☐	
G1. Are storm water treatment practices present? ☐ Y ☐ N ☐ Unknown If yes, please describe: _____	○
G2. Are private storm drains located at the facility? ☐ Y ☐ N ☐ Unknown Is trash present in gutters leading to storm drains? If so, complete the index below.	○

Index Rating for Accumulation in Gutters

	Clean				Filthy
Sediment	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Organic material	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Litter	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

G3. Catch basin inspection – Record SSD Unique Site ID here: _____ Condition: ☐ Dirty ☐ Clean

H. INITIAL HOTSPOT STATUS - INDEX RESULTS

☐ Not a hotspot (fewer than 5 circles and no boxes checked) ☐ Potential hotspot (5 to 10 circles but no boxes checked)
☐ Confirmed hotspot (10 to 15 circles and/or 1 box checked) ☐ Severe hotspot (>15 circles and/or 2 or more boxes checked)

Follow-up Action:

- ☐ Refer for immediate enforcement
- ☐ Suggest follow-up on-site inspection
- ☐ Test for illicit discharge
- ☐ Include in future education effort
- ☐ Check to see if hotspot is an NPDES non-filer
- ☐ Onsite non-residential retrofit
- ☐ Pervious area restoration; complete PAA sheet and record Unique Site ID here: _____
- ☐ Schedule a review of storm water pollution prevention plan

Notes:

• APPENDIX D: CONSTRUCTION SITE STORMWATER RUNOFF POLLUTANT CONTROL

SUPPORTING MATERIALS

SECTION 3. LAND DISRURBANCE PERMITS.

(1). When required.

(a) Every person will be required to obtain a land disturbance permit from the City of Greenbrier in the following cases:

(1) Land disturbing activity disturbs one-forth (1/4) or more acres of land;

(2) Land disturbing activity of less than one-forth (1/4) acre of land if such activity is part of a larger common plan of development that affects one-forth (1/4) or more acre of land;

(3) Land disturbing activity of less than one-forth (1/4) acre of land, if in the discretion of the City of Greenbrier such activity poses a unique threat to water, or public health or safety;

(4) The creation and use of borrow pits.

(2). Building permit. No building permit shall be issued until the applicant has obtained a land disturbance permit where the same is required by this ordinance.

(3). Exemptions. The following activities are exempt from the permit requirement:

(a) Any emergency activity that is immediately necessary for the protection of life, property, or natural resources.

(b) Existing nursery and agricultural operations conducted as a permitted main or accessory use.

(c) Any logging or agricultural activity that is consistent with an approved farm conservation plan or a timber management plan prepared or approved by the State of Tennessee.

(d) Additions or modifications to existing single family structures.

(4). Application for a land disturbance permit.

(a) Each application shall include the following:

(1) Name of applicant;

(2) Business or residence address of applicant;

(3) Name, address and telephone number of the owner of the property of record in the office of the assessor of property;

(4) Address and legal description of subject property including the tax reference number and parcel number of the subject property;

(5) Name, address and telephone number of the contractor and any subcontractor(s) who shall perform the land disturbing activity and who shall implement the erosion and sediment control plan;

(6) A statement indicating the nature, extent and purpose of the land disturbing activity including the size of the area for which the permit shall be applicable and a schedule for the starting and completion dates of the land disturbing activity.

(7) Where the property includes a sinkhole, the applicant shall obtain from the Tennessee Department of Environment and Conservation appropriate permits.

(8) The applicant shall obtain from any other state or federal agency any other appropriate environmental permits that pertain to the property. However, the inclusion of those permits in the application shall not foreclose the City of Greenbrier from imposing additional development requirements

and conditions, commensurate with this ordinance, on the development of property covered by those permits.

(b) Each application shall be accompanied by:

(1) A sediment and erosion control plan as described in §5(5).

(2) A stormwater management plan as described in §5(4), providing for stormwater management during the land disturbing activity and after the activity has been completed.

(3) Each application for a land disturbance permit shall be accompanied by payment of land disturbance permit and other stormwater management fees, which shall be set by resolution or ordinance.

(5). Review and approval of application.

(a) The Building and Codes Official will review each application for a land disturbance permit to determine its conformance with the provisions of this ordinance. Within 7 days after receiving an application, the Building and Codes Official shall provide one of the following responses in writing:

(1) Approval of the permit application;

(2) Approval of the permit application, subject to such reasonable conditions as may be necessary to secure substantially the objectives of this ordinance, and issue the permit subject to these conditions; or

(3) Denial of the permit application, indicating the reason(s) for the denial.

(b) If the City of Greenbrier has granted conditional approval of the permit, the applicant shall submit a revised plan that conforms to the conditions established by the City of Greenbrier. However, the applicant shall be allowed to proceed

with his land disturbing activity so long as it conforms to conditions established by the City of Greenbrier.

(c) No development plans will be released until the land disturbance permit has been approved.

(6). Permit duration.

Every land disturbance permit shall expire and become null and void if substantial work authorized by such permit has not commenced within one hundred eighty (180) calendar days of issuance, or is not complete within eighteen (18) months from the date of the commencement of construction.

(7). Notice of construction.

The applicant must notify the Building and Codes Official ten (10) working days in advance of the commencement of construction. Regular inspections of the stormwater management system construction shall be conducted by the Building and Codes Official. All inspections shall be documented and written reports prepared that contain the following information:

(1) The date and location of the inspection;

(2) Whether construction is in compliance with the approved stormwater management plan;

(3) Variations from the approved construction specifications;

(4) Any violations that exist.

(8). Performance bonds.

(a) The City of Greenbrier may, at its discretion, require the submittal of a performance security or performance bond prior to issuance of a permit in order

to ensure that the stormwater practices are installed by the permit holder as required by the approved stormwater management plan. The amount of the installation performance security or performance bond shall be the total estimated construction cost of the structural BMPs approved under the permit plus any reasonably foreseeable additional related costs, e.g., for damages or enforcement. The performance security shall contain forfeiture provisions for failure to complete work specified in the stormwater management plan. The applicant shall provide an itemized construction cost estimate complete with unit prices which shall be subject to acceptance, amendment or rejection by the City of Greenbrier. Alternatively the City of Greenbrier shall have the right to calculate the cost of construction cost estimates.

(b) The performance security or performance bond shall be released in full only upon submission of as-built plans and written certification by a registered professional engineer licensed to practice in Tennessee that the structural BMP has been installed in accordance with the approved plan and other applicable provisions of this ordinance. The Building and Codes Official will make a final inspection of the structural BMP to ensure that it is in compliance with the approved plan and the provisions of this ordinance. Provisions for a partial pro-rata release of the performance security or performance bond based on the completion of various development stages can be made at the discretion of the City of Greenbrier.

SECTION 4. STORMWATER SYSTEM DESIGN AND MANAGEMENT STANDARDS.

(1) Stormwater design or BMP manual.

(a) Adoption. The municipality adopts as its stormwater design and best management practices (BMP) manual the following publications, which are incorporated by reference in this ordinance as is fully set out herein:

(1) TDEC Sediment and Erosion Control Manual

(2) TDEC Manual for Post Construction

(b) This manual includes a list of acceptable BMPs including the specific design performance criteria and operation and maintenance requirements for each stormwater practice. The manual may be updated and expanded from time to time, at the discretion of the governing body of the municipality, upon the recommendation of the City of Greenbrier, based on improvements in engineering, science, monitory and local maintenance experience. Stormwater facilities that are designed, constructed and maintained in accordance with these BMP criteria will be presumed to meet the minimum water quality performance standards.

(2). General performance criteria for stormwater management. Unless granted a waiver or judged by the City of Greenbrier to be exempt, the following post construction performance criteria shall be addressed for stormwater management at all sites:

(a) All site designs shall control the peak flow rates of stormwater discharge associated with design storms specified in this ordinance or in the BMP manual and reduce the generation of post construction stormwater runoff to pre-construction levels. These practices should seek to utilize pervious areas for stormwater treatment and to infiltrate stormwater runoff from driveways,

sidewalks, rooftops, parking lots, and landscaped areas to the maximum extent practical to provide treatment for both water quality and quantity.

(b) To protect stream channels from degradation, specific channel protection criteria shall be provided as prescribed in the BMP manual.

(c) Stormwater discharges to critical areas with sensitive resources (i.e., cold water fisheries, shellfish beds, swimming beaches, recharge areas, water supply reservoirs) may be subject to additional performance criteria, or may need to utilize or restrict certain stormwater management practices.

(d) Stormwater discharges from "hot spots" may require the application of specific structural BMPs and pollution prevention practices.

(e) Prior to or during the site design process, applicants for land disturbance permits shall consult with the City of Greenbrier to determine if they are subject to additional stormwater design requirements.

(f) The calculations for determining peak flows as found in the BMP manual shall be used for sizing all stormwater facilities.

(3). Minimum control requirements.

(a) Stormwater designs shall meet the multi-stage storm frequency storage requirements as identified in the BMP manual unless the City of Greenbrier has granted the applicant a full or partial waiver for a particular BMP under § 4.

(b) If hydrologic or topographic conditions warrant greater control than that provided by the minimum control requirements, the City of Greenbrier may impose any and all additional requirements deemed necessary to control the volume, timing, and rate of runoff.

(4). Stormwater management plan requirements. The stormwater management plan shall include sufficient information to allow the City of Greenbrier to evaluate the environmental characteristics of the project site, the potential impacts of all proposed development of the site, both present and future, on the water resources, and the effectiveness and acceptability of the measures proposed for managing stormwater generated at the project site. To accomplish this goal the stormwater management plan shall include the following:

(a) Topographic Base Map: A 1" = 50 feet topographic base map of the site which extends a minimum of 25 feet beyond the limits of the proposed development and indicates:

(1) Existing surface water drainage including streams, ponds, culverts, ditches, sink holes, wetlands; and the type, size, elevation, etc., of nearest upstream and downstream drainage structures;

(2) Current land use including all existing structures, locations of utilities, roads, and easements;

(3) All other existing significant natural and artificial features;

(4) Proposed land use with tabulation of the percentage of surface area to be adapted to various uses; drainage patterns; locations of utilities, roads and easements; the limits of clearing and grading;

(5) Proposed structural BMPs;

(6) A written description of the site plan and justification of proposed changes in natural conditions may also be required.

(b) Calculations: Hydrologic and hydraulic design calculations for the pre-development and post-development conditions for the design storms specified in the BMP manual. These calculations must show that the proposed stormwater management measures are capable of controlling runoff from the site in compliance with this ordinance and the guidelines of the BMP manual. Such calculations shall include:

(1) A description of the design storm frequency, duration, and intensity where applicable;

(2) Time of concentration;

(3) Soil curve numbers or runoff coefficients including assumed soil moisture conditions;

(4) Peak runoff rates and total runoff volumes for each watershed area;

(5) Infiltration rates, where applicable;

(6) Culvert, stormwater sewer, ditch and/or other stormwater conveyance capacities;

(7) Flow velocities;

(8) Data on the increase in rate and volume of runoff for the design storms referenced in the BMP manual; and

(9) Documentation of sources for all computation methods and field test results.

(c) Soils Information: If a stormwater management control measure depends on the hydrologic properties of soils (e.g., infiltration basins), then a soils report shall be submitted. The soils report shall be based on on-site boring logs or soil pit profiles

and soil survey reports. The number and location of required soil borings or soil pits shall be determined based on what is needed to determine the suitability and distribution of soil types present at the location of the control measure.

(d) Maintenance and Repair Plan: The design and planning of all stormwater management facilities shall include detailed maintenance and repair procedures to ensure their continued performance. These plans will identify the parts or components of a stormwater management facility that need to be maintained and the equipment and skills or training necessary. Provisions for the periodic review and evaluation of the effectiveness of the maintenance program and the need for revisions or additional maintenance procedures shall be included in the plan. A permanent elevation benchmark shall be identified in the plans to assist in the periodic inspection of the facility.

(e) Landscaping Plan: The applicant must present a detailed plan for management of vegetation at the site after construction is finished, including who will be responsible for the maintenance of vegetation at the site and what practices will be employed to ensure that adequate vegetative cover is preserved. Where it is required by the BMP, this plan must be prepared by a registered landscape architect licensed in Tennessee.

(f) Maintenance Easements: The applicant must ensure access to the site for the purpose of inspection and repair by securing all the maintenance easements needed. These easements must be binding on the current property owner and all subsequent owners of the property and must be properly recorded in the land record.

(g) Maintenance Agreement:

(1) The owner of property to be served by an on-site stormwater management facility must execute an inspection and maintenance agreement that shall operate as a deed restriction binding on the current property owner and all subsequent property owners.

(2) The maintenance agreement shall:

(a) Assign responsibility for the maintenance and repair of the stormwater facility to the owner of the property upon which the facility is located and be recorded as such on the plat for the property by appropriate notation.

(b) Provide for a periodic inspection by the property owner for the purpose of documenting maintenance and repair needs and ensure compliance with the purpose and requirements of this ordinance. The property owner will arrange for this inspection to be conducted by a registered professional engineer licensed to practice in the State of Tennessee who will submit a sealed report of the inspection to the City of Greenbrier. It shall also grant permission to the city to enter the property at reasonable times and to inspect the stormwater facility to ensure that it is being properly maintained.

(c) Provide that the minimum maintenance and repair needs include, but are not limited to: the removal of silt, litter and other debris, the cutting of grass, grass cuttings and vegetation removal, and the

replacement of landscape vegetation, in detention and retention basins, and inlets and drainage pipes and any other stormwater facilities. It shall also provide that the property owner shall be responsible for additional maintenance and repair needs consistent with the needs and standards outlined in the BMP manual.

(d) Provide that maintenance needs must be addressed in a timely manner, on a schedule to be determined by the City of Greenbrier.

(e) Provide that if the property is not maintained or repaired within the prescribed schedule, the City of Greenbrier shall perform the maintenance and repair at its expense, and bill the same to the property owner. The maintenance agreement shall also provide that the City of Greenbrier stormwater utility's cost of performing the maintenance shall be a lien against the property.

(3) The municipality shall have the discretion to accept the dedication of any existing or future stormwater management facility, provided such facility meets the requirements of this ordinance, and includes adequate and perpetual access and sufficient areas, by easement or otherwise, for inspection and regular maintenance. Any stormwater facility accepted by the municipality must also meet the municipality's construction standards and any other standards and specifications that apply to the particular stormwater facility in question.

(h) Sediment and Erosion Control Plans:

The applicant must prepare a sediment and erosion control plan for all construction activities that complies with §5(5) below.

(5). Sediment and erosion control plan requirements.

The sediment and erosion control plan shall accurately describe the potential for soil erosion and sedimentation problems resulting from land disturbing activity and shall explain and illustrate the measures that are to be taken to control these problems. The length and complexity of the plan is to be commensurate with the size of the project, severity of the site condition, and potential for off-site damage. The plan shall be sealed by a registered professional engineer licensed in the state of Tennessee. The plan shall also conform to the requirements found in the BMP manual, and shall include at least the following:

(a) Project Description - Briefly describe the intended project and proposed land disturbing activity including number of units and structures to be constructed and infrastructure required.

(b) A topographic map with contour intervals of five (5) feet or less showing present conditions and proposed contours resulting from land disturbing activity.

(c) All existing drainage ways, including intermittent and wet-weather. Include any designated floodways or flood plains.

(d) A general description of existing land cover. Individual trees and shrubs do not need to be identified.

(e) Stands of existing trees as they are to be preserved upon project completion, specifying their general location on the property. Differentiation shall be made between existing trees to be preserved, trees to be removed and proposed planted

trees. Tree protection measures must be identified, and the diameter of the area involved must also be identified on the plan and shown to scale. Information shall be supplied concerning the proposed destruction of exceptional and historic trees in setbacks and buffer strips, where they exist. Complete landscape plans may be submitted separately. The plan must include the sequence of implementation for tree protection measures.

(f) Approximate limits of proposed clearing, grading and filling.

(g) Approximate flows of existing stormwater leaving any portion of the site.

(h) A general description of existing soil types and characteristics and any anticipated soil erosion and sedimentation problems resulting from existing characteristics.

(i) Location, size and layout of proposed stormwater and sedimentation control improvements.

(j) Proposed drainage network.

(k) Proposed drain tile or waterway sizes.

(l) Approximate flows leaving site after construction and incorporating water run-off mitigation measures. The evaluation must include projected effects on property adjoining the site and on existing drainage facilities and systems. The plan must address the adequacy of outfalls from the development: when water is concentrated, what is the capacity of waterways, if any, accepting stormwater off-site; and what measures, including infiltration, sheeting into buffers, etc., are going to be used to prevent the scouring of waterways and drainage areas off-site, etc.

• APPENDIX E: PERMANENT STORMWATER MANAGEMENT AT NEW DEVELOPMENT AND REDEVELOPMENT PROJECTS

SUPPORTING MATERIALS

(m) The projected sequence of work represented by the grading, drainage and sedimentation and erosion control plans as related to other major items of construction, beginning with the initiation of excavation and including the construction of any sediment basins or retention facilities or any other structural BMP's.

(n) Specific remediation measures to prevent erosion and sedimentation run-off. Plans shall include detailed drawings of all control measures used; stabilization measures including vegetation and non-vegetation measures, both temporary and permanent, will be detailed. Detailed construction notes and a maintenance schedule shall be included for all control measures in the plan.

(o) Specific details for: the construction of rock pads, wash down pads, and settling basins for controlling erosion; road access points; eliminating or keeping soil, sediment, and debris on streets and public ways at a level acceptable to the City of Greenbrier. Soil, sediment, and debris brought onto streets and public ways must be removed by the end of the work day by machine, broom or shovel to the satisfaction of the City of Greenbrier. Failure to remove the sediment, soil or debris shall be deemed a violation of this ordinance.

(p) Proposed structures; location (to the extent possible) and identification of any proposed additional buildings, structures or development on the site.

(q) A description of on-site measures to be taken to recharge surface water into the ground water system through infiltration.

SECTION 5. POST CONSTRUCTION.

(1). As built plans.

All applicants are required to submit actual as built plans for any structures located on-site after final construction is completed. The plan must show the final design specifications for all stormwater management facilities and must be sealed by a registered professional engineer licensed to practice in Tennessee. A final inspection by the City of Greenbrier is required before any performance security or performance bond will be released. The City of Greenbrier shall have the discretion to adopt provisions for a partial pro-rata release of the performance security or performance bond on the completion of various stages of development. In addition, occupation permits shall not be granted until corrections to all BMP's have been made and accepted by the City of Greenbrier.

(2). Landscaping and stabilization requirements.

(a) Any area of land from which the natural vegetative cover has been either partially or wholly cleared by development activities shall be revegetated according to a schedule approved by the City of Greenbrier. The following criteria shall apply to revegetation efforts:

(1) Reseeding must be done with an annual or perennial cover crop accompanied by placement of straw mulch or its equivalent of sufficient coverage to control erosion until such time as the cover crop is established over ninety percent (90%) of the seeded area.

(2) Replanting with native woody and herbaceous vegetation must be accompanied by placement of straw mulch or its equivalent of sufficient coverage to control erosion until the plantings are established and are capable of controlling erosion.

(3) Any area of revegetation must exhibit survival of a minimum of seventy-five percent (75%) of the cover crop throughout the year immediately following revegetation. Revegetation must be repeated in successive years until the minimum seventy-five percent (75%) survival for one (1) year is achieved.

(b) In addition to the above requirements, a landscaping plan must be submitted with the final design describing the vegetative stabilization and management techniques to be used at a site after construction is completed. This plan will explain not only how the site will be stabilized after construction, but who will be responsible for the maintenance of vegetation at the site and what practices will be employed to ensure that adequate vegetative cover is preserved.

(3). Inspection of stormwater management facilities. Periodic inspections of facilities shall be performed as provided for in §5(4)(g)(2)(b).

(4). Records of installation and maintenance activities. Parties responsible for the operation and maintenance of a stormwater management facility shall make records of the installation of the stormwater facility, and of all maintenance and repairs to the facility, and shall retain the records for at least 7 years. These records shall be made available to the City of Greenbrier during inspection of the facility and at other reasonable times upon request.

(5). Failure to meet or maintain design or maintenance standards. If a responsible party fails or refuses to meet the design or maintenance standards required for stormwater facilities under this ordinance, the City of Greenbrier, after reasonable notice, may correct a violation of the design standards or maintenance needs by performing all necessary work

to place the facility in proper working condition. In the event that the stormwater management facility becomes a danger to public safety or public health, the City of Greenbrier shall notify in writing the party responsible for maintenance of the stormwater management facility. Upon receipt of that notice, the responsible person shall have 30 days to affect maintenance and repair of the facility in an approved manner. In the event that corrective action is not undertaken within that time, the City of Greenbrier may take necessary corrective action. The cost of any action by the City of Greenbrier under this section shall be charged to the responsible party.

SECTION 6. WAIVERS.

(1). General.

Every applicant shall provide for post construction stormwater management as required by this Ordinance, unless a written request is filed to waive this requirement. Requests to waive the stormwater management plan requirements shall be submitted to the City of Greenbrier for approval.

(2). Conditions for waiver. The minimum requirements for stormwater management may be waived in whole or in part upon written request of the applicant, provided that at least one of the following conditions applies:

(a) It can be demonstrated that the proposed development is not likely to impair attainment of the objectives of this ordinance.

(b) Alternative minimum requirements for on-site management of stormwater discharges have been established in a stormwater management plan that has been approved by the City of Greenbrier.

(c) Provisions are made to manage stormwater by an off-site facility. The off-site facility must be in place and designed to provide the level of stormwater control that is equal to or greater than that which would be afforded by on-site practices. Further, the facility must be operated and maintained by an entity that is legally obligated to continue the operation and maintenance of the facility.

(3). Downstream damage, etc. prohibited. In order to receive a waiver, the applicant must demonstrate to the satisfaction of the City of Greenbrier that the waiver will not lead to any of the following conditions downstream:

(a) Deterioration of existing culverts, bridges, dams, and other structures;

(b) Degradation of biological functions or habitat;

(c) Accelerated streambank or streambed erosion or siltation;

(d) Increased threat of flood damage to public health, life or property.

(4). Land disturbance permit not to be issued where waiver requested. No land disturbance permit shall be issued where a waiver has been requested until the waiver is granted. If no waiver is granted, the plans must be resubmitted with a stormwater management plan.

SECTION 7. EXISTING LOCATION AND DEVELOPMENTS.

(1). Requirements for all existing locations and developments.

The following requirements shall apply to all locations and development at which land disturbing activities have occurred previous to the enactment of this ordinance:

(a) Denuded areas must be vegetated or covered under the standards and guidelines specified in the BMP manual and on a schedule acceptable to the City of Greenbrier.

(b) Cuts and slopes must be properly covered with appropriate vegetation and/or retaining walls constructed.

(c) Drainage ways shall be properly covered in vegetation or secured with rip-rapp, channel lining, etc., to prevent erosion.

(d) Trash, junk, rubbish, etc. shall be cleared from drainage ways.

(e) Stormwater runoff shall be controlled to the extent reasonable to prevent pollution of local waters. Such control measures may include, but are not limited to, the following:

(1) Ponds

(a) Detention pond

(b) Extended detention pond

(c) Wet pond

(d) Alternative storage measures

(2) Constructed wetlands

(3) Infiltration systems

(a) Infiltration/percolation trench

(b) Infiltration basin

(c) Drainage (recharge) well

(d) Porous pavement

(4) Filtering systems

(a) Catch basin inserts/media filter

(b) Sand filter

(c) Filter/absorption bed

(d) Filter and buffer strips

(5) Open channel

(a) Swale

(2). Requirements for existing problem locations. The City of Greenbrier shall in writing notify the owners of existing locations and developments of specific drainage, erosion or sediment problem affecting such locations and developments, and the specific actions required to correct those problems. The notice shall also specify a reasonable time for compliance.

(3). Inspection of existing facilities. The City of Greenbrier may, to the extent authorized by state and federal law, establish inspection programs to verify that all stormwater management facilities, including those built before as well as after the adoption of this ordinance, are functioning within design limits. These inspection programs may be established on any reasonable basis, including but not limited to: routine inspections; random inspections; inspections based upon complaints or other notice of possible violations; inspection of drainage basins or areas identified as higher than typical sources of sediment or other contaminants or pollutants; inspections of businesses or industries of a type associated with higher than usual discharges of contaminants or pollutants or with discharges of a type which are more likely than the typical discharge to cause violations of the municipality's NPDES stormwater permit; and joint inspections with other agencies inspecting under environmental or safety laws. Inspections may include, but are not limited to: reviewing maintenance and repair records; sampling discharges, surface water, groundwater, and material or water in drainage control facilities; and evaluating the condition of drainage control facilities and other BMPs.

(4). Corrections of problems subject to appeal. Corrective measures imposed by the stormwater utility under this section are subject to appeal under §11 of this ordinance.

SECTION 8. ILLICIT DISCHARGES.

(1). Scope.

This section shall apply to all water generated on developed or undeveloped land entering the municipality's separate storm sewer system.

(2). Prohibition of illicit discharges.

No person shall introduce or cause to be introduced into the municipal separate storm sewer system any discharge that is not composed entirely of stormwater. The commencement, conduet or continuance of any non-stormwater discharge to the municipal separate storm sewer system is prohibited except as described as follows:

(a) Uncontaminated discharges from the following sources:

(1) Water line flushing or other potable water sources,

(2) Landscape irrigation or lawn watering with potable water,

(3) Diverted stream flows,

(4) Rising ground water,

(5) Groundwater infiltration to storm drains,

(6) Pumped groundwater,

(7) Foundation or footing drains,

(8) Crawl space pumps,

(9) Air conditioning condensation,

(10) Springs,

(11) Non-commercial washing of vehicles,

• APPENDIX F: CONSTRUCTION SITE STORMWATER INSPECTION

SUPPORTING MATERIALS

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)

Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

Site or Project Name: Greenbrier Auto, US Hwy 41, Greenbrier, TN		**NPDES Tracking Number: TNR** 243755
Primary Permittee Name: David Sanford		Date of Inspection: 9/7/20
Current approximate disturbed acreage: 2.33 Acres	Has rainfall been checked/documented daily? ☐ Yes ☐ No	Name of Inspector: Wade Pearson
Current weather conditions:		Inspector's Training Certification Number: 143348

Please check the box if the following items are on-site:

☑ Notice of Coverage (NOC) ☑ Stormwater Pollution Prevention Plan (SWPPP) ☑ Twice-weekly inspection documentation
☑ Site contact information ☑ Rain Gage ☑ Off-site Reference Rain Gage Location: KTNGREEN61

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly: If "No," describe below in Comment Section		
1. Are all applicable EPSCs installed and maintained per the SWPPP?	☑ Yes	☐ No
2. Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?	☑ Yes	☐ No
3. Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?	☑ Yes	☐ No
4. Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?	☑ Yes	☐ No
5. If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
6. If construction activity at any location has temporarily/permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If "No," describe below each location and measures taken to stabilize the area(s)	☑ Yes	☐ No
7. Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
8. If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If "No," describe below the measures to be implemented to address deficiencies.	☑ N/A ☐ Yes	☐ No
9. Have all previous deficiencies been addressed? If "No," describe remaining deficiencies in Comment section. ☐ Check if deficiencies/corrective measures have been reported on a previous form.	☑ Yes	☐ No

Comment Section. If the answer is "No" for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

Rainfall Amounts
ON SITE / OFF SITE
Ø / Ø

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.8.2 (g) and 7.7.2 of the CGP)

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Inspector Name and Title: Wade Pearson	Signature: Wade Pearson	Date: 9/8/20
Primary Permittee Name and Title:	Signature:	Date:

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)

Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

Site or Project Name: Greenbrier Auto, US Hwy 41, Greenbrier, TN	**NPDES Tracking Number: TNR** 243755
Primary Permittee Name: David Sanford	Date of Inspection: 9/10/20
Current approximate disturbed acreage: 2.33 Acres; Has rainfall been checked/documented daily? ☐ Yes ☐ No	Name of Inspector: Wade Pearson
Current weather conditions:	Inspector's Training Certification Number: 143348

Please check the box if the following items are on-site:

☑ Notice of Coverage (NOC) ☑ Stormwater Pollution Prevention Plan (SWPPP) ☑ Twice-weekly inspection documentation
☑ Site contact information ☑ Rain Gage ☑ Off-site Reference Rain Gage Location: KTNGREEN61

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly: If "No," describe below in Comment Section		
1. Are all applicable EPSCs installed and maintained per the SWPPP?	☑ Yes	☐ No
2. Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?	☑ Yes	☐ No
3. Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?	☑ Yes	☐ No
4. Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?	☑ Yes	☐ No
5. If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
6. If construction activity at any location has temporarily/permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If "No," describe below each location and measures taken to stabilize the area(s)	☑ Yes	☐ No
7. Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
8. If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If "No," describe below the measures to be implemented to address deficiencies.	☑ N/A	☐ Yes ☐ No
9. Have all previous deficiencies been addressed? If "No," describe remaining deficiencies in Comment section. ☐ Check if deficiencies/corrective measures have been reported on a previous form.	☑ Yes	☐ No

Comment Section. If the answer is "No" for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

Rainfall Amounts
ON SITE / OFF SITE
Ø / Ø

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.8.2 (g) and 7.7.2 of the CGP)

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Inspector Name and Title: Wade Pearson	Signature: Wade Pearson	Date: 9/10/20
Primary Permittee Name and Title:	Signature:	Date:

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)

Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

Site or Project Name: Greenbrier Auto, US Hwy 41, Greenbrier, TN	**NPDES Tracking Number: TNR 243755**
Primary Permittee Name: David Sanford	Date of Inspection: 9/14/20
Current approximate disturbed acreage: 2.33 Acres — Has rainfall been checked/documented daily? ☐ Yes ☐ No	Name of Inspector: Wade Pearson
Current weather conditions:	Inspector's Training Certification Number: 143348

Please check the box if the following items are on-site:

☑ Notice of Coverage (NOC) ☑ Stormwater Pollution Prevention Plan (SWPPP) ☑ Twice-weekly inspection documentation
☑ Site contact information ☑ Rain Gage ☑ Off-site Reference Rain Gage Location: KTNGREEN61

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly: If "No," describe below in Comment Section		
1. Are all applicable EPSCs installed and maintained per the SWPPP?	☑ Yes	☐ No
2. Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?	☑ Yes	☐ No
3. Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?	☑ Yes	☐ No
4. Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?	☑ Yes	☐ No
5. If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
6. If construction activity at any location has temporarily/permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If "No," describe below each location and measures taken to stabilize the area(s)	☑ Yes	☐ No
7. Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
8. If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If "No," describe below the measures to be implemented to address deficiencies.	☑ N/A ☐ Yes	☐ No
9. Have all previous deficiencies been addressed? If "No," describe remaining deficiencies in Comment section. ☐ Check if deficiencies/corrective measures have been reported on a previous form.	☑ Yes	☐ No

Comment Section. If the answer is "No" for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

Rainfall Amounts
ON SITE / OFF SITE
Trace / 0.01"

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.8.2 (g) and 7.7.2 of the CGP)

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Inspector Name and Title: Wade Pearson	Signature: Wade Pearson	Date: 9/14/20
Primary Permittee Name and Title:	Signature:	Date:

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)

Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

Site or Project Name: Greenbrier Auto, US Hwy 41, Greenbrier, TN		**NPDES Tracking Number: TNR** 243755
Primary Permittee Name: David Sanford		Date of Inspection: 9/17/20
Current approximate disturbed acreage: 2.33 Acres	Has rainfall been checked/documented daily? ☐ Yes ☐ No	Name of Inspector: Wade Pearson
Current weather conditions:		Inspector's Training Certification Number: 143348

Please check the box if the following items are on-site:

☑ Notice of Coverage (NOC) ☑ Stormwater Pollution Prevention Plan (SWPPP) ☑ Twice-weekly inspection documentation
☑ Site contact information ☑ Rain Gage ☑ Off-site Reference Rain Gage Location: KTNGREEN61

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly: If "No," describe below in Comment Section		
1. Are all applicable EPSCs installed and maintained per the SWPPP?	☑ Yes	☐ No
2. Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?	☑ Yes	☐ No
3. Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?	☑ Yes	☐ No
4. Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?	☑ Yes	☐ No
5. If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
6. If construction activity at any location has temporarily/permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If "No," describe below each location and measures taken to stabilize the area(s)	☑ Yes	☐ No
7. Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
8. If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If "No," describe below the measures to be implemented to address deficiencies.	☑ N/A ☐ Yes	☐ No
9. Have all previous deficiencies been addressed? If "No," describe remaining deficiencies in Comment section. ☐ Check if deficiencies/corrective measures have been reported on a previous form.	☑ Yes	☐ No

Comment Section. If the answer is "No" for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

Rainfall Amounts
ON SITE / OFF SITE
Ø / Ø

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.8.2 (g) and 7.7.2 of the CGP)

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Inspector Name and Title: Wade Pearson	Signature: Wade Pearson	Date: 9/17/20
Primary Permittee Name and Title:	Signature:	Date:

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)

Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

Site or Project Name: Greenbrier Auto, US Hwy 41, Greenbrier, TN		**NPDES Tracking Number: TNR 243755**
Primary Permittee Name: David Sanford		Date of Inspection: 9/21/20
Current approximate disturbed acreage: 2.33 Acres	Has rainfall been checked/documented daily? ☐ Yes ☐ No	Name of Inspector: Wade Pearson
Current weather conditions:		Inspector's Training Certification Number: 143348

Please check the box if the following items are on-site:

☑ Notice of Coverage (NOC) ☑ Stormwater Pollution Prevention Plan (SWPPP) ☑ Twice-weekly inspection documentation
☑ Site contact information ☑ Rain Gage ☑ Off-site Reference Rain Gage Location: KTNGREEN61

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly: If "No," describe below in Comment Section		
1. Are all applicable EPSCs installed and maintained per the SWPPP?	☑ Yes	☐ No
2. Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?	☑ Yes	☐ No
3. Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?	☑ Yes	☐ No
4. Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?	☑ Yes	☐ No
5. If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
6. If construction activity at any location has temporarily/permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If "No," describe below each location and measures taken to stabilize the area(s)	☑ Yes	☐ No
7. Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
8. If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If "No," describe below the measures to be implemented to address deficiencies.	☑ N/A ☐ Yes	☐ No
9. Have all previous deficiencies been addressed? If "No," describe remaining deficiencies in Comment section. ☐ Check if deficiencies/corrective measures have been reported on a previous form.	☑ Yes	☐ No

Comment Section. If the answer is "No" for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

Rainfall Amounts
ON SITE / OFF SITE
Ø , Ø

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.8.2 (g) and 7.7.2 of the CGP)

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Inspector Name and Title: Wade Pearson	Signature: Wade Pearson	Date: 9/21/20
Primary Permittee Name and Title:	Signature:	Date:

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)

Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

Site or Project Name: Greenbrier Auto, US Hwy 41, Greenbrier, TN		**NPDES Tracking Number: TNR** 243755
Primary Permittee Name: David Sanford		Date of Inspection: 9/24/20
Current approximate disturbed acreage: 2.33 Acres	Has rainfall been checked/documented daily? ☐ Yes ☐ No	Name of Inspector: Wade Pearson
Current weather conditions:		Inspector's Training Certification Number: 143348

Please check the box if the following items are on-site:

☑ Notice of Coverage (NOC) ☑ Stormwater Pollution Prevention Plan (SWPPP) ☑ Twice-weekly inspection documentation
☑ Site contact information ☑ Rain Gage ☑ Off-site Reference Rain Gage Location: KTNGREEN61

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly: If "No," describe below in Comment Section		
1. Are all applicable EPSCs installed and maintained per the SWPPP?	☑ Yes	☐ No
2. Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?	☑ Yes	☐ No
3. Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?	☑ Yes	☐ No
4. Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?	☑ Yes	☐ No
5. If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
6. If construction activity at any location has temporarily/permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If "No," describe below each location and measures taken to stabilize the area(s)	☑ Yes	☐ No
7. Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
8. If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If "No," describe below the measures to be implemented to address deficiencies.	☑ N/A ☐ Yes	☐ No
9. Have all previous deficiencies been addressed? If "No," describe remaining deficiencies in Comment section. ☐ Check if deficiencies/corrective measures have been reported on a previous form.	☑ Yes	☐ No

Comment Section. If the answer is "No" for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

Rainfall Amounts
ON SITE / OFF SITE
Trace / Ø

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.8.2 (g) and 7.7.2 of the CGP)

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Inspector Name and Title: Wade Pearson	Signature: Wade Pearson	Date: 9/24/20
Primary Permittee Name and Title:	Signature:	Date:

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)

Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

Site or Project Name: Greenbrier Auto, US Hwy 41, Greenbrier, TN		**NPDES Tracking Number: TNR 243755**
Primary Permittee Name: David Sanford		Date of Inspection: 9/28/20
Current approximate disturbed acreage: 2.33 Acres	Has rainfall been checked/documented daily? ☐ Yes ☐ No	Name of Inspector: Wade Pearson
Current weather conditions:		Inspector's Training Certification Number: 143348

Please check the box if the following items are on-site:

☑ Notice of Coverage (NOC) ☑ Stormwater Pollution Prevention Plan (SWPPP) ☑ Twice-weekly inspection documentation
☑ Site contact information ☑ Rain Gage ☑ Off-site Reference Rain Gage Location: KTNGREEN61

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly: If "No," describe below in Comment Section		
1. Are all applicable EPSCs installed and maintained per the SWPPP?	☑ Yes	☐ No
2. Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?	☑ Yes	☐ No
3. Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?	☑ Yes	☐ No
4. Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?	☑ Yes	☐ No
5. If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
6. If construction activity at any location has temporarily/permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If "No," describe below each location and measures taken to stabilize the area(s)	☑ Yes	☐ No
7. Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
8. If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If "No," describe below the measures to be implemented to address deficiencies.	☑ N/A ☐ Yes	☐ No
9. Have all previous deficiencies been addressed? If "No," describe remaining deficiencies in Comment section. ☐ Check if deficiencies/corrective measures have been reported on a previous form.	☑ Yes	☐ No

Comment Section. If the answer is "No" for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

Rainfall Amounts
ON SITE / OFF SITE
Ø / Ø

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.8.2 (g) and 7.7.2 of the CGP)

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Inspector Name and Title: Wade Pearson	Signature: Wade Pearson	Date: 9/28/20
Primary Permittee Name and Title:	Signature:	Date:

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)

Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

Site or Project Name: Greenbrier Auto, US Hwy 41, Greenbrier, TN	**NPDES Tracking Number: TNR** 243755
Primary Permittee Name: David Sanford	Date of Inspection: 10/1/20
Current approximate disturbed acreage: 2.33 Acres; Has rainfall been checked/documented daily? ☐ Yes ☐ No	Name of Inspector: Wade Pearson
Current weather conditions:	Inspector's Training Certification Number: 143348

Please check the box if the following items are on-site:

☑ Notice of Coverage (NOC) ☑ Stormwater Pollution Prevention Plan (SWPPP) ☑ Twice-weekly inspection documentation
☑ Site contact information ☑ Rain Gage ☑ Off-site Reference Rain Gage Location: KTNGREEN61

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly: If "No," describe below in Comment Section		
1. Are all applicable EPSCs installed and maintained per the SWPPP?	☑ Yes	☐ No
2. Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?	☑ Yes	☐ No
3. Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?	☑ Yes	☐ No
4. Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?	☑ Yes	☐ No
5. If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
6. If construction activity at any location has temporarily/permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If "No," describe below each location and measures taken to stabilize the area(s)	☑ Yes	☐ No
7. Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
8. If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If "No," describe below the measures to be implemented to address deficiencies.	☑ N/A ☐ Yes	☐ No
9. Have all previous deficiencies been addressed? If "No," describe remaining deficiencies in Comment section. ☐ Check if deficiencies/corrective measures have been reported on a previous form.	☑ Yes	☐ No

Comment Section. If the answer is "No" for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

Rainfall Amounts
ON SITE / OFF SITE
Ø / Ø

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.8.2 (g) and 7.7.2 of the CGP)

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Inspector Name and Title: Wade Pearson	Signature: Wade Pearson	Date: 10/1/20
Primary Permittee Name and Title:	Signature:	Date:

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)

Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

Site or Project Name: Greenbrier Auto, US Hwy 41, Greenbrier, TN	**NPDES Tracking Number:** TNR 243755
Primary Permittee Name: David Sanford	Date of Inspection: 10/5/20
Current approximate disturbed acreage: 2.33 Acres — Has rainfall been checked/documented daily? ☐ Yes ☐ No	Name of Inspector: Wade Pearson
Current weather conditions:	Inspector's Training Certification Number: 143348

Please check the box if the following items are on-site:

☑ Notice of Coverage (NOC) ☑ Stormwater Pollution Prevention Plan (SWPPP) ☑ Twice-weekly inspection documentation
☑ Site contact information ☑ Rain Gage ☑ Off-site Reference Rain Gage Location: KTNGREEN61

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly: If "No," describe below in Comment Section		
1. Are all applicable EPSCs installed and maintained per the SWPPP?	☑ Yes	☐ No
2. Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?	☑ Yes	☐ No
3. Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?	☑ Yes	☐ No
4. Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?	☑ Yes	☐ No
5. If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
6. If construction activity at any location has temporarily/permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If "No," describe below each location and measures taken to stabilize the area(s)	☑ Yes	☐ No
7. Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
8. If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If "No," describe below the measures to be implemented to address deficiencies.	☑ N/A ☐ Yes	☐ No
9. Have all previous deficiencies been addressed? If "No," describe remaining deficiencies in Comment section. ☐ Check if deficiencies/corrective measures have been reported on a previous form.	☑ Yes	☐ No

Comment Section. If the answer is "No" for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

Rainfall Amounts
ON SITE / OFF SITE
Ø / Ø

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.8.2 (g) and 7.7.2 of the CGP)

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Inspector Name and Title: Wade Pearson	Signature: Wade Pearson	Date: 10/5/20
Primary Permittee Name and Title	Signature:	Date:

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)

Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

Site or Project Name: Greenbrier Auto, US Hwy 41, Greenbrier, TN		**NPDES Tracking Number: TNR 243755**
Primary Permittee Name: David Sanford		Date of Inspection: 10/8/20
Current approximate disturbed acreage: 2.33 Acres	Has rainfall been checked/documented daily? ☐ Yes ☐ No	Name of Inspector: Wade Pearson
Current weather conditions:		Inspector's Training Certification Number: 143348

Please check the box if the following items are on-site:

☑ Notice of Coverage (NOC) ☑ Stormwater Pollution Prevention Plan (SWPPP) ☑ Twice-weekly inspection documentation
☑ Site contact information ☑ Rain Gage ☑ Off-site Reference Rain Gage Location: KTNGREEN61

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly: If "No," describe below in Comment Section		
1. Are all applicable EPSCs installed and maintained per the SWPPP?	☑ Yes	☐ No
2. Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?	☑ Yes	☐ No
3. Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?	☑ Yes	☐ No
4. Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?	☑ Yes	☐ No
5. If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
6. If construction activity at any location has temporarily/permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If "No," describe below each location and measures taken to stabilize the area(s)	☑ Yes	☐ No
7. Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
8. If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If "No," describe below the measures to be implemented to address deficiencies.	☑ N/A ☐ Yes	☐ No
9. Have all previous deficiencies been addressed? If "No," describe remaining deficiencies in Comment section. ☐ Check if deficiencies/corrective measures have been reported on a previous form.	☑ Yes	☐ No

Comment Section. If the answer is "No" for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

Rainfall Amounts
ON SITE / OFF SITE
Ø / Ø

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.8.2 (g) and 7.7.2 of the CGP)

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Inspector Name and Title: Wade Pearson	Signature: Wade Pearson	Date: 10/8/20
Primary Permittee Name and Title:	Signature:	Date:

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)

Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

Site or Project Name: Greenbrier Auto, US Hwy 41, Greenbrier, TN		**NPDES Tracking Number: TNR** 243755
Primary Permittee Name: David Sanford		Date of Inspection: 10/12/20
Current approximate disturbed acreage: 2.33 Acres	Has rainfall been checked/documented daily? ☐ Yes ☐ No	Name of Inspector: Wade Pearson
Current weather conditions:		Inspector's Training Certification Number: 143348

Please check the box if the following items are on-site:

☑ Notice of Coverage (NOC) ☑ Stormwater Pollution Prevention Plan (SWPPP) ☑ Twice-weekly inspection documentation
☑ Site contact information ☑ Rain Gage ☑ Off-site Reference Rain Gage Location: KTNGREEN61

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly: If "No," describe below in Comment Section		
1. Are all applicable EPSCs installed and maintained per the SWPPP?	☑ Yes	☐ No
2. Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?	☑ Yes	☐ No
3. Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?	☑ Yes	☐ No
4. Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?	☑ Yes	☐ No
5. If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
6. If construction activity at any location has temporarily/permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If "No," describe below each location and measures taken to stabilize the area(s)	☑ Yes	☐ No
7. Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
8. If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If "No," describe below the measures to be implemented to address deficiencies.	☑ N/A ☐ Yes	☐ No
9. Have all previous deficiencies been addressed? If "No," describe remaining deficiencies in Comment section. ☐ Check if deficiencies/corrective measures have been reported on a previous form.	☑ Yes	☐ No

Comment Section. If the answer is "No" for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

Rainfall Amounts
ON SITE / OFF SITE
1.4" / 1.29"

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.8.2 (g) and 7.7.2 of the CGP)

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Inspector Name and Title: Wade Pearson	Signature: Wade Pearson	Date: 10/12/20
Primary Permittee Name and Title:	Signature:	Date:

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)

Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

Site or Project Name: Greenbrier Auto, US Hwy 41, Greenbrier, TN		**NPDES Tracking Number: TNR** 243755
Primary Permittee Name: David Sanford		Date of Inspection: 10/15/20
Current approximate disturbed acreage: 2.33 Acres	Has rainfall been checked/documented daily? ☐ Yes ☐ No	Name of Inspector: Wade Pearson
Current weather conditions:		Inspector's Training Certification Number: 143348

Please check the box if the following items are on-site:

☑ Notice of Coverage (NOC) ☑ Stormwater Pollution Prevention Plan (SWPPP) ☑ Twice-weekly inspection documentation
☑ Site contact information ☑ Rain Gage ☑ Off-site Reference Rain Gage Location: KTNGREEN61

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly: If "No," describe below in Comment Section		
1. Are all applicable EPSCs installed and maintained per the SWPPP?	☑ Yes	☐ No
2. Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?	☑ Yes	☐ No
3. Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?	☑ Yes	☐ No
4. Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?	☑ Yes	☐ No
5. If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
6. If construction activity at any location has temporarily/permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If "No," describe below each location and measures taken to stabilize the area(s)	☑ Yes	☐ No
7. Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
8. If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If "No," describe below the measures to be implemented to address deficiencies.	☑ N/A ☐ Yes	☐ No
9. Have all previous deficiencies been addressed? If "No," describe remaining deficiencies in Comment section. ☐ Check if deficiencies/corrective measures have been reported on a previous form.	☑ Yes	☐ No

Comment Section. If the answer is "No" for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

Rainfall Amounts
ON SITE / OFF SITE
Ø / Ø

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.8.2 (g) and 7.7.2 of the CGP)

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Inspector Name and Title: Wade Pearson	Signature: Wade Pearson	Date: 10/15/20
Primary Permittee Name and Title:	Signature:	Date:

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)

Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

Site or Project Name: Greenbrier Auto, US Hwy 41, Greenbrier, TN		**NPDES Tracking Number: TNR 243755**
Primary Permittee Name: David Sanford		Date of Inspection: 10/9/20
Current approximate disturbed acreage: 2.33 Acres	Has rainfall been checked/documented daily? ☐ Yes ☐ No	Name of Inspector: Wade Pearson
Current weather conditions:		Inspector's Training Certification Number: 143348

Please check the box if the following items are on-site:

☑ Notice of Coverage (NOC) ☑ Stormwater Pollution Prevention Plan (SWPPP) ☑ Twice-weekly inspection documentation
☑ Site contact information ☑ Rain Gage ☑ Off-site Reference Rain Gage Location: KTNGREEN61

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly: If "No," describe below in Comment Section		
1. Are all applicable EPSCs installed and maintained per the SWPPP?	☑ Yes	☐ No
2. Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?	☑ Yes	☐ No
3. Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?	☑ Yes	☐ No
4. Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?	☑ Yes	☐ No
5. If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
6. If construction activity at any location has temporarily/permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If "No," describe below each location and measures taken to stabilize the area(s)	☑ Yes	☐ No
7. Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
8. If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If "No," describe below the measures to be implemented to address deficiencies.	☑ N/A ☐ Yes	☐ No
9. Have all previous deficiencies been addressed? If "No," describe remaining deficiencies in Comment section. ☐ Check if deficiencies/corrective measures have been reported on a previous form.	☑ Yes	☐ No

Comment Section. If the answer is "No" for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

Rainfall Amounts
ON SITE / OFF SITE
Ø / Ø

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.8.2 (g) and 7.7.2 of the CGP)

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Inspector Name and Title: Wade Pearson	Signature: Wade Pearson	Date: 10/9/20
Primary Permittee Name and Title:	Signature:	Date:

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)

Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

Site or Project Name: Greenbrier Auto, US Hwy 41, Greenbrier, TN	**NPDES Tracking Number: TNR 243755**
Primary Permittee Name: David Sanford	Date of Inspection: 10/22/20
Current approximate disturbed acreage: 2.33 Acres; Has rainfall been checked/documented daily? ☐ Yes ☐ No	Name of Inspector: Wade Pearson
Current weather conditions:	Inspector's Training Certification Number: 143348

Please check the box if the following items are on-site:

☑ Notice of Coverage (NOC) ☑ Stormwater Pollution Prevention Plan (SWPPP) ☑ Twice-weekly inspection documentation
☑ Site contact information ☑ Rain Gage ☑ Off-site Reference Rain Gage Location: KTNGREEN61

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly: If "No," describe below in Comment Section.		
1. Are all applicable EPSCs installed and maintained per the SWPPP?	☑ Yes	☐ No
2. Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?	☑ Yes	☐ No
3. Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?	☑ Yes	☐ No
4. Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?	☑ Yes	☐ No
5. If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
6. If construction activity at any location has temporarily/permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If "No," describe below each location and measures taken to stabilize the area(s).	☑ Yes	☐ No
7. Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
8. If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If "No," describe below the measures to be implemented to address deficiencies.	☑ N/A ☐ Yes	☐ No
9. Have all previous deficiencies been addressed? If "No," describe remaining deficiencies in Comment section. ☐ Check if deficiencies/corrective measures have been reported on a previous form.	☑ Yes	☐ No

Comment Section. If the answer is "No" for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

Rainfall Amounts
ON SITE / OFF SITE
Ø / Ø

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.8.2 (g) and 7.7.2 of the CGP)

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Inspector Name and Title: Wade Pearson	Signature: Wade Pearson	Date: 10/22/20
Primary Permittee Name and Title:	Signature:	Date:

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)

Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

Site or Project Name: Greenbrier Auto, US Hwy 41, Greenbrier, TN	**NPDES Tracking Number: TNR 243755**
Primary Permittee Name: David Sanford	Date of Inspection: 10/26/20
Current approximate disturbed acreage: 2.33 Acres — Has rainfall been checked/documented daily? ☐ Yes ☐ No	Name of Inspector: Wade Pearson
Current weather conditions:	Inspector's Training Certification Number: 143348

Please check the box if the following items are on-site:

☑ Notice of Coverage (NOC) ☑ Stormwater Pollution Prevention Plan (SWPPP) ☑ Twice-weekly inspection documentation
☑ Site contact information ☑ Rain Gage ☑ Off-site Reference Rain Gage Location: KTNGREEN61

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly: If "No," describe below in Comment Section		
1. Are all applicable EPSCs installed and maintained per the SWPPP?	☑ Yes	☐ No
2. Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?	☑ Yes	☐ No
3. Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?	☑ Yes	☐ No
4. Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?	☑ Yes	☐ No
5. If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
6. If construction activity at any location has temporarily/permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If "No," describe below each location and measures taken to stabilize the area(s)	☑ Yes	☐ No
7. Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
8. If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If "No," describe below the measures to be implemented to address deficiencies.	☑ N/A ☐ Yes	☐ No
9. Have all previous deficiencies been addressed? If "No," describe remaining deficiencies in Comment section. ☐ Check if deficiencies/corrective measures have been reported on a previous form.	☑ Yes	☐ No

Comment Section. If the answer is "No" for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

Rainfall Amounts
ON SITE / OFF SITE
0.6" / 0.5"

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.8.2 (g) and 7.7.2 of the CGP)

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Inspector Name and Title: Wade Pearson	Signature: Wade Pearson	Date: 10/26/20
Primary Permittee Name and Title:	Signature:	Date:

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)

Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

Site or Project Name: Greenbrier Auto, US Hwy 41, Greenbrier, TN	**NPDES Tracking Number: TNR** 243755
Primary Permittee Name: David Sanford	Date of Inspection: 10/29/20
Current approximate disturbed acreage: 2.33 Acres — Has rainfall been checked/documented daily? ☐ Yes ☐ No	Name of Inspector: Wade Pearson
Current weather conditions:	Inspector's Training Certification Number: 143348

Please check the box if the following items are on-site:

☑ Notice of Coverage (NOC) ☑ Stormwater Pollution Prevention Plan (SWPPP) ☑ Twice-weekly inspection documentation
☑ Site contact information ☑ Rain Gage ☑ Off-site Reference Rain Gage Location: KTNGREEN61

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly: If "No," describe below in Comment Section		
1. Are all applicable EPSCs installed and maintained per the SWPPP?	☑ Yes	☐ No
2. Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?	☑ Yes	☐ No
3. Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?	☑ Yes	☐ No
4. Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?	☑ Yes	☐ No
5. If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
6. If construction activity at any location has temporarily/permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If "No," describe below each location and measures taken to stabilize the area(s)	☑ Yes	☐ No
7. Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
8. If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If "No," describe below the measures to be implemented to address deficiencies.	☑ N/A ☐ Yes	☐ No
9. Have all previous deficiencies been addressed? If "No," describe remaining deficiencies in Comment section. ☐ Check if deficiencies/corrective measures have been reported on a previous form.	☑ Yes	☐ No

Comment Section. If the answer is "No" for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

Rainfall Amounts
ON SITE / OFF SITE
Ø / Ø

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.8.2 (g) and 7.7.2 of the CGP)

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Inspector Name and Title: Wade Pearson	Signature: Wade Pearson	Date: 10/29/20
Primary Permittee Name and Title:	Signature:	Date:

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)

Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

Site or Project Name: Greenbrier Auto, US Hwy 41, Greenbrier, TN	**NPDES Tracking Number: TNR** 243755
Primary Permittee Name: David Sanford	Date of Inspection: 11/2/20
Current approximate disturbed acreage: 2.33 Acres; Has rainfall been checked/documented daily? ☐ Yes ☐ No	Name of Inspector: Wade Pearson
Current weather conditions:	Inspector's Training Certification Number: 143348

Please check the box if the following items are on-site:

☑ Notice of Coverage (NOC) ☑ Stormwater Pollution Prevention Plan (SWPPP) ☑ Twice-weekly inspection documentation
☑ Site contact information ☑ Rain Gage ☑ Off-site Reference Rain Gage Location: KTNGREEN61

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly: If "No," describe below in Comment Section		
1. Are all applicable EPSCs installed and maintained per the SWPPP?	☑ Yes	☐ No
2. Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?	☑ Yes	☐ No
3. Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?	☑ Yes	☐ No
4. Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?	☑ Yes	☐ No
5. If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
6. If construction activity at any location has temporarily/permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If "No," describe below each location and measures taken to stabilize the area(s)	☑ Yes	☐ No
7. Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
8. If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If "No," describe below the measures to be implemented to address deficiencies.	☑ N/A ☐ Yes	☐ No
9. Have all previous deficiencies been addressed? If "No," describe remaining deficiencies in Comment section. ☐ Check if deficiencies/corrective measures have been reported on a previous form.	☑ Yes	☐ No

Comment Section. If the answer is "No" for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

Rainfall Amounts
ON SITE / OFF SITE
Ø / Ø

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.8.2 (g) and 7.7.2 of the CGP)

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Inspector Name and Title: Wade Pearson	Signature: Wade Pearson	Date: 11/2/20
Primary Permittee Name and Title:	Signature:	Date:

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)

Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

Site or Project Name: Greenbrier Auto, US Hwy 41, Greenbrier, TN		**NPDES Tracking Number: TNR 243755**
Primary Permittee Name: David Sanford		Date of Inspection: 11/5/20
Current approximate disturbed acreage: 2.33 Acres	Has rainfall been checked/documented daily? ☐ Yes ☐ No	Name of Inspector: Wade Pearson
Current weather conditions:		Inspector's Training Certification Number: 143348

Please check the box if the following items are on-site:

☑ Notice of Coverage (NOC) ☑ Stormwater Pollution Prevention Plan (SWPPP) ☑ Twice-weekly inspection documentation
☑ Site contact information ☑ Rain Gage ☑ Off-site Reference Rain Gage Location: KTNGREEN61

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly: If "No," describe below in Comment Section			
1.	Are all applicable EPSCs installed and maintained per the SWPPP?	☑ Yes	☐ No
2.	Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?	☑ Yes	☐ No
3.	Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?	☑ Yes	☐ No
4.	Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?	☑ Yes	☐ No
5.	If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
6.	If construction activity at any location has temporarily/permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If "No," describe below each location and measures taken to stabilize the area(s)	☑ Yes	☐ No
7.	Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
8.	If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If "No," describe below the measures to be implemented to address deficiencies.	☑ N/A ☐ Yes	☐ No
9.	Have all previous deficiencies been addressed? If "No," describe remaining deficiencies in Comment section. ☐ Check if deficiencies/corrective measures have been reported on a previous form.	☑ Yes	☐ No

Comment Section. If the answer is "No" for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

Rainfall Amounts
ON SITE / OFF SITE
Ø / Ø

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.8.2 (g) and 7.7.2 of the CGP)

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Inspector Name and Title: Wade Pearson	Signature: Wade Pearson	Date: 11/5/20
Primary Permittee Name and Title:	Signature:	Date:

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)

Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

Site or Project Name: Greenbrier Auto, US Hwy 41, Greenbrier, TN		**NPDES Tracking Number: TNR 243755**
Primary Permittee Name: David Sanford		Date of Inspection: 11/9/20
Current approximate disturbed acreage: 2.33 Acres	Has rainfall been checked/documented daily? ☐ Yes ☐ No	Name of Inspector: Wade Pearson
Current weather conditions:		Inspector's Training Certification Number: 143348

Please check the box if the following items are on-site:

☑ Notice of Coverage (NOC) ☑ Stormwater Pollution Prevention Plan (SWPPP) ☑ Twice-weekly inspection documentation
☑ Site contact information ☑ Rain Gage ☑ Off-site Reference Rain Gage Location: KTNGREEN61

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly: If "No," describe below in Comment Section		
1. Are all applicable EPSCs installed and maintained per the SWPPP?	☑ Yes	☐ No
2. Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?	☑ Yes	☐ No
3. Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?	☑ Yes	☐ No
4. Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?	☑ Yes	☐ No
5. If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
6. If construction activity at any location has temporarily/permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If "No," describe below each location and measures taken to stabilize the area(s)	☑ Yes	☐ No
7. Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
8. If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If "No," describe below the measures to be implemented to address deficiencies.	☑ N/A ☐ Yes	☐ No
9. Have all previous deficiencies been addressed? If "No," describe remaining deficiencies in Comment section. ☐ Check if deficiencies/corrective measures have been reported on a previous form.	☑ Yes	☐ No

Comment Section, If the answer is "No" for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

Rainfall Amounts
ON SITE / OFF SITE
Ø / Ø

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.8.2 (g) and 7.7.2 of the CGP)

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Inspector Name and Title: Wade Pearson	Signature: Wade Pearson	Date: 11/9/20
Primary Permittee Name and Title:	Signature:	Date:

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)

Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

Site or Project Name: Greenbrier Auto, US Hwy 41, Greenbrier, TN	**NPDES Tracking Number: TNR** 243755
Primary Permittee Name: David Sanford	Date of Inspection: 11/12/20
Current approximate disturbed acreage: 2.33 Acres / Has rainfall been checked/documented daily? ☐ Yes ☐ No	Name of Inspector: Wade Pearson
Current weather conditions:	Inspector's Training Certification Number: 143348

Please check the box if the following items are on-site:

☑ Notice of Coverage (NOC) ☑ Stormwater Pollution Prevention Plan (SWPPP) ☑ Twice-weekly inspection documentation
☑ Site contact information ☑ Rain Gage ☑ Off-site Reference Rain Gage Location: KTNGREEN61

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly: If "No," describe below in Comment Section		
1. Are all applicable EPSCs installed and maintained per the SWPPP?	☑ Yes	☐ No
2. Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?	☑ Yes	☐ No
3. Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?	☑ Yes	☐ No
4. Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?	☑ Yes	☐ No
5. If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
6. If construction activity at any location has temporarily/permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If "No," describe below each location and measures taken to stabilize the area(s)	☑ Yes	☐ No
7. Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
8. If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If "No," describe below the measures to be implemented to address deficiencies.	☑ N/A ☐ Yes	☐ No
9. Have all previous deficiencies been addressed? If "No," describe remaining deficiencies in Comment section. ☐ Check if deficiencies/corrective measures have been reported on a previous form.	☑ Yes	☐ No

Comment Section. If the answer is "No" for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

Rainfall Amounts
ON SITE / OFF SITE
0.1" / 0.12"

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.8.2 (g) and 7.7.2 of the CGP)

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Inspector Name and Title: Wade Pearson	Signature: Wade Pearson	Date: 11/12/20
Primary Permittee Name and Title:	Signature:	Date:

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)

Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

Site or Project Name: Greenbrier Auto, US Hwy 41, Greenbrier, TN		**NPDES Tracking Number: TNR 243755**
Primary Permittee Name: David Sanford		Date of Inspection: 11/16/20
Current approximate disturbed acreage: 2.33 Acres	Has rainfall been checked/documented daily? ☐ Yes ☐ No	Name of Inspector: Wade Pearson
Current weather conditions:		Inspector's Training Certification Number: 143348

Please check the box if the following items are on-site:

☑ Notice of Coverage (NOC) ☑ Stormwater Pollution Prevention Plan (SWPPP) ☑ Twice-weekly inspection documentation
☑ Site contact information ☑ Rain Gage ☑ Off-site Reference Rain Gage Location: KTNGREEN61

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly: If "No," describe below in Comment Section.		
1. Are all applicable EPSCs installed and maintained per the SWPPP?	☑ Yes	☐ No
2. Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?	☑ Yes	☐ No
3. Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?	☑ Yes	☐ No
4. Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?	☑ Yes	☐ No
5. If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
6. If construction activity at any location has temporarily/permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If "No," describe below each location and measures taken to stabilize the area(s)	☑ Yes	☐ No
7. Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
8. If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If "No," describe below the measures to be implemented to address deficiencies.	☑ N/A ☐ Yes	☐ No
9. Have all previous deficiencies been addressed? If "No," describe remaining deficiencies in Comment section. ☐ Check if deficiencies/corrective measures have been reported on a previous form.	☑ Yes	☐ No

Comment Section. If the answer is "No" for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

Rainfall Amounts
ON SITE / OFF SITE
.2" / .15"

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.8.2 (g) and 7.7.2 of the CGP)

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Inspector Name and Title: Wade Pearson	Signature: Wade Pearson	Date: 11/16/20
Primary Permittee Name and Title:	Signature:	Date:

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)

Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

Site or Project Name: Greenbrier Auto, US Hwy 41, Greenbrier, TN	**NPDES Tracking Number: TNR** 243755
Primary Permittee Name: David Sanford	Date of Inspection: 11/19/20
Current approximate disturbed acreage: 2.33 Acres — Has rainfall been checked/documented daily? ☐ Yes ☐ No	Name of Inspector: Wade Pearson
Current weather conditions:	Inspector's Training Certification Number: 143348

Please check the box if the following items are on-site:

☑ Notice of Coverage (NOC) ☑ Stormwater Pollution Prevention Plan (SWPPP) ☑ Twice-weekly inspection documentation
☑ Site contact information ☑ Rain Gage ☑ Off-site Reference Rain Gage Location: KTNGREEN61

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly: If "No," describe below in Comment Section		
1. Are all applicable EPSCs installed and maintained per the SWPPP?	☑ Yes	☐ No
2. Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?	☑ Yes	☐ No
3. Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?	☑ Yes	☐ No
4. Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?	☑ Yes	☐ No
5. If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
6. If construction activity at any location has temporarily/permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If "No," describe below each location and measures taken to stabilize the area(s)	☑ Yes	☐ No
7. Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
8. If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If "No," describe below the measures to be implemented to address deficiencies.	☑ N/A ☐ Yes	☐ No
9. Have all previous deficiencies been addressed? If "No," describe remaining deficiencies in Comment section. ☐ Check if deficiencies/corrective measures have been reported on a previous form.	☑ Yes	☐ No

Comment Section. If the answer is "No" for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

Rainfall Amounts
ON SITE / OFF SITE
Ø / Ø

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.8.2 (g) and 7.7.2 of the CGP)

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Inspector Name and Title: Wade Pearson	Signature: Wade Pearson	Date: 11/19/20
Primary Permittee Name and Title:	Signature:	Date:

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)

Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

Site or Project Name: Greenbrier Auto, US Hwy 41, Greenbrier, TN		**NPDES Tracking Number: TNR 243755**
Primary Permittee Name: David Sanford		Date of Inspection: 11/23/20
Current approximate disturbed acreage: 2.33 Acres	Has rainfall been checked/documented daily? ☐ Yes ☐ No	Name of Inspector: Wade Pearson
Current weather conditions:		Inspector's Training Certification Number: 143348

Please check the box if the following items are on-site:

☑ Notice of Coverage (NOC) ☑ Stormwater Pollution Prevention Plan (SWPPP) ☑ Twice-weekly inspection documentation
☑ Site contact information ☑ Rain Gage ☑ Off-site Reference Rain Gage Location: KTNGREEN61

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly: If "No," describe below in Comment Section		
1. Are all applicable EPSCs installed and maintained per the SWPPP?	☑ Yes	☐ No
2. Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?	☑ Yes	☐ No
3. Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?	☑ Yes	☐ No
4. Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?	☑ Yes	☐ No
5. If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
6. If construction activity at any location has temporarily/permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If "No," describe below each location and measures taken to stabilize the area(s)	☑ Yes	☐ No
7. Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
8. If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If "No," describe below the measures to be implemented to address deficiencies.	☑ N/A ☐ Yes	☐ No
9. Have all previous deficiencies been addressed? If "No," describe remaining deficiencies in Comment section. ☐ Check if deficiencies/corrective measures have been reported on a previous form.	☑ Yes	☐ No

Comment Section: If the answer is "No" for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

Rainfall Amounts
ON SITE / OFF SITE
0" / 0"

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.8.2 (g) and 7.7.2 of the CGP)

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Inspector Name and Title: Wade Pearson	Signature: Wade Pearson	Date: 11/23/20
Primary Permittee Name and Title:	Signature:	Date:

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)

Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

Site or Project Name: Greenbrier Auto, US Hwy 41, Greenbrier, TN		**NPDES Tracking Number: TNR** 243755
Primary Permittee Name: David Sanford		Date of Inspection: 11/26/20
Current approximate disturbed acreage: 2.33 Acres	Has rainfall been checked/documented daily? ☐ Yes ☐ No	Name of Inspector: Wade Pearson
Current weather conditions:		Inspector's Training Certification Number: 143348

Please check the box if the following items are on-site:

☑ Notice of Coverage (NOC) ☑ Stormwater Pollution Prevention Plan (SWPPP) ☑ Twice-weekly inspection documentation
☑ Site contact information ☑ Rain Gage ☑ Off-site Reference Rain Gage Location: KTNGREEN61

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly: If "No," describe below in Comment Section		
1. Are all applicable EPSCs installed and maintained per the SWPPP?	☑ Yes	☐ No
2. Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?	☑ Yes	☐ No
3. Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?	☑ Yes	☐ No
4. Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?	☑ Yes	☐ No
5. If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
6. If construction activity at any location has temporarily/permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If "No," describe below each location and measures taken to stabilize the area(s)	☑ Yes	☐ No
7. Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
8. If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If "No," describe below the measures to be implemented to address deficiencies.	☑ N/A ☐ Yes	☐ No
9. Have all previous deficiencies been addressed? If "No," describe remaining deficiencies in Comment section. ☐ Check if deficiencies/corrective measures have been reported on a previous form.	☑ Yes	☐ No

Comment Section. If the answer is "No" for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

Rainfall Amounts
ON SITE / OFF SITE
Trace / Trace

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.8.2 (g) and 7.7.2 of the CGP)

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Inspector Name and Title: Wade Pearson	Signature: Wade Pearson	Date: 11/26/20
Primary Permittee Name and Title:	Signature:	Date:

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)

Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

Site or Project Name: Greenbrier Auto, US Hwy 41, Greenbrier, TN		**NPDES Tracking Number: TNR** 243755
Primary Permittee Name: David Sanford		Date of Inspection: 11/30/20
Current approximate disturbed acreage: 2.33 Acres	Has rainfall been checked/documented daily? ☐ Yes ☐ No	Name of Inspector: Wade Pearson
Current weather conditions:		Inspector's Training Certification Number: 143348

Please check the box if the following items are on-site:

☑ Notice of Coverage (NOC) ☑ Stormwater Pollution Prevention Plan (SWPPP) ☑ Twice-weekly inspection documentation
☑ Site contact information ☑ Rain Gage ☑ Off-site Reference Rain Gage Location: KTNGREEN61

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly: If "No," describe below in Comment Section			
1.	Are all applicable EPSCs installed and maintained per the SWPPP?	☑ Yes	☐ No
2.	Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?	☑ Yes	☐ No
3.	Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?	☑ Yes	☐ No
4.	Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?	☑ Yes	☐ No
5.	If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
6.	If construction activity at any location has temporarily/permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If "No," describe below each location and measures taken to stabilize the area(s)	☑ Yes	☐ No
7.	Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If "No," describe below the measures to be implemented to address deficiencies.	☑ Yes	☐ No
8.	If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If "No," describe below the measures to be implemented to address deficiencies.	☑ N/A ☐ Yes	☐ No
9.	Have all previous deficiencies been addressed? If "No," describe remaining deficiencies in Comment section. ☐ Check if deficiencies/corrective measures have been reported on a previous form.	☑ Yes	☐ No

Comment Section. If the answer is "No" for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

Rainfall Amounts
ON SITE / OFF SITE
.9" / .79"

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.8.2 (g) and 7.7.2 of the CGP)

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Inspector Name and Title: Wade Pearson	Signature: Wade Pearson	Date: 11/30/20
Primary Permittee Name and Title:	Signature:	Date:

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)
Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-TDEC (8332)

Notice of Termination (NOT) for General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

This form is required to be submitted when requesting termination of coverage from the CGP. The purpose of this form is to notify the TDEC that either all stormwater discharges associated with construction activity from the portion of the identified facility where you, as an operator, have ceased or have been eliminated; or you are no longer an operator at the construction site. Submission of this form shall in no way relieve the permittee of permit obligations required prior to submission of this form. Please submit this form to the local DWR Environmental Field Office (EFO) address (see table below). For more information, contact your local EFO at the toll-free number 1-888-891-8332 (TDEC).

Type or print clearly, using ink.

Site or Project Name: Greenbrier Auto (2.33 acres)	**NPDES Tracking Number: TNR** 243755
Street Address or Location: US Hwy 41,	County(ies): Robertson

Name of Permittee Requesting Termination of Coverage: Inspector, Wade Pearson Cert # 143348			
Permittee Contact Name: David Sanford	Title or Position: Owner		
Mailing Address: 2552 Highway 41 South	City: Greenbrier	State: TN	Zip: 37073
Phone: 615-643-4444	E-mail: sales@greenbrierautos.com		

Check the reason(s) for termination of permit coverage:

☒	Stormwater discharge associated with construction activity is no longer occurring and the permitted area has a uniform 70% permanent vegetative cover OR has equivalent measures such as rip rap or geotextiles, in areas not covered with impervious surfaces.
☐	You are no longer the operator at the construction site (i.e., termination of site-wide, primary or secondary permittee coverage).

Certification and Signature: (must be signed by president, vice-president or equivalent ranking elected official)

I certify under penalty of law that either: (a) all stormwater discharges associated with construction activity from the portion of the identified facility where I was an operator have ceased or have been eliminated or (b) I am no longer an operator at the construction site. I understand that by submitting this notice of termination, I am no longer authorized to discharge stormwater associated with construction activity under this general permit, and that discharging pollutants in stormwater associated with construction activity to waters of the United States is unlawful under the Clean Water Act where the discharge is not authorized by a NPDES permit. I also understand that the submittal of this notice of termination does not release an operator from liability for any violations of this permit or the Clean Water Act.

For the purposes of this certification, elimination of stormwater discharges associated with construction activity means that all stormwater discharges associated with construction activities from the identified site that are authorized by a NPDES general permit have been eliminated from the portion of the construction site where the operator had control. Specifically, this means that all disturbed soils at the portion of the construction site where the operator had control have been finally stabilized, the temporary erosion and sediment control measures have been removed, and/or subsequent operators have obtained permit coverage for the site or portions of the site where the operator had control.

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Permittee name (print or type):	Signature:	Date:
David Sanford (Wade Pearson, Insp.# 143348)	Wade Pearson	12/4/20

EFO	Street Address	Zip Code	EFO	Street Address	Zip Code
Memphis	8383 Wolf Lake Drive, Bartlett, TN	38133	Cookeville	1221 South Willow Ave.	38506
Jackson	1625 Hollywood Drive	38305	Chattanooga	1301 Riverfront Parkway, Ste. 206	37402
Nashville	711 R S Gass Boulevard	37243	Knoxville	3711 Middlebrook Pike	37921
Columbia	1421 Hampshire Pike	38401	Johnson City	2305 Silverdale Road	37601

- **APPENDIX G: EMPLOYEE TRAINING**

SUPPORTING MATERIALS

Illicit Discharge

June 16th (1 hr. Training SW Public Works)

Name	Department
Alex West	Planning & Codes
Sonny Hill	Water Dept.
Carla Caughey	Codes
Austin Wallace	Parks
Bo Robinson	?
Justin Hardway	
Joey Rhoten	Parks Hmmm?
Jared Naylse	huhhhh?
Trey Burnette	water dept.
Jason Harrington	Water
Rory Osborne	Parks
T.J Patel	Water

- **APPENDIX H: FALL 2020 CLEANUP DAY NUMBERS**

SUPPORTING MATERIALS

GREENBRIER FALL CLEAN-UP DAY

Please separate items to be thrown away, such as tires, wood, metal, paint, antifreeze and oil from general debris.

NO shingles asbestos, dirt, rocks or ashes will be accepted.
NO scavenging of scrap metals will be allowed.

Elderly or disabled residents can make arrangements for pick-up with City Hall staff (615)643-4531.

For residents of the City of Greenbrier only

NOTE: CDC and Department of Health guidelines will be followed, including social distancing and wearing masks (if a distance of 6 feet cannot be maintained throughout the interaction).

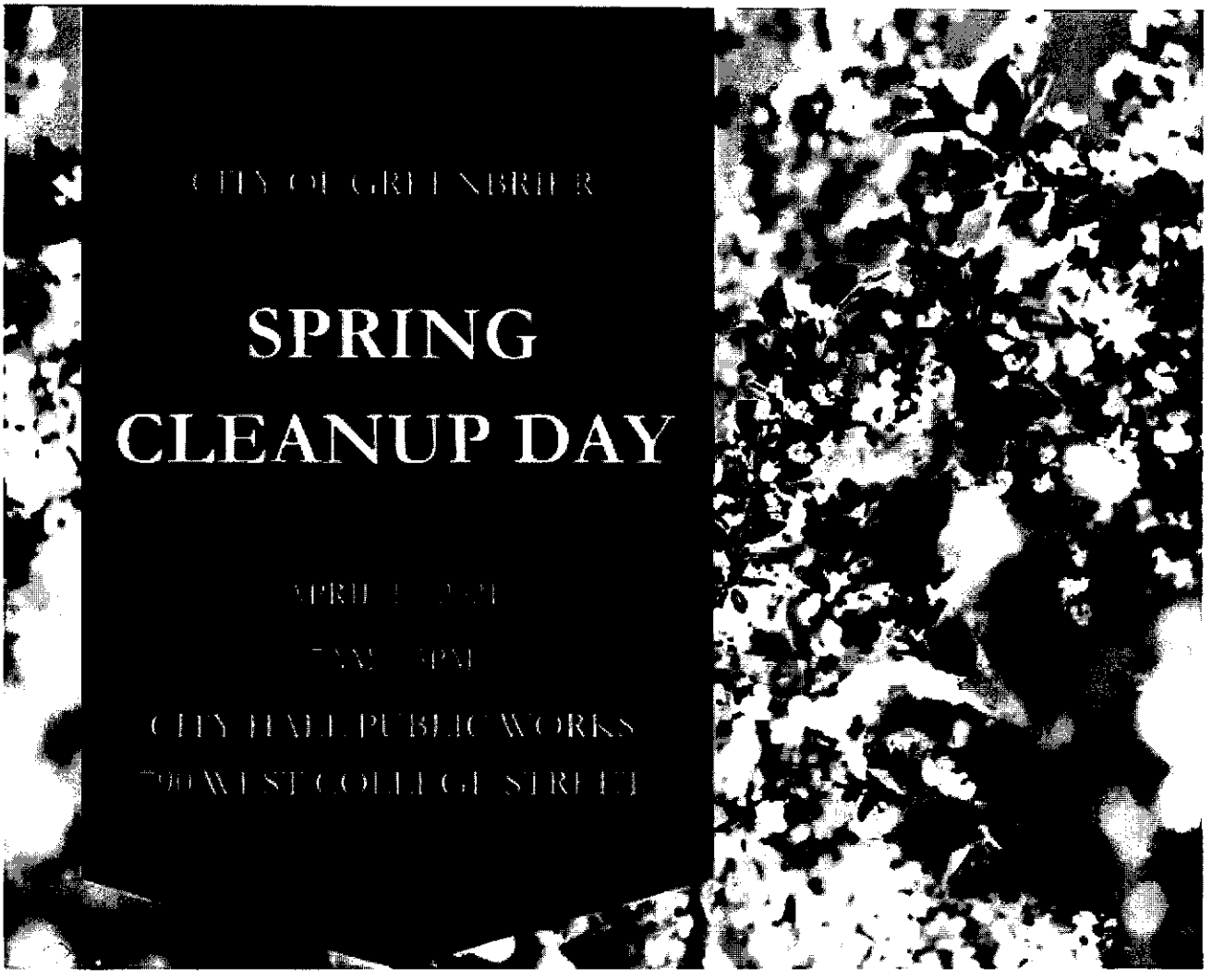
Cleanup Day October 3, 2020

Numbers for Cleanup Day

1. 46.69 Tons of Trash
2. 16.55 Tons of Metal
3. 604 Tires & 105 Tires with Rims = Grand Total of 709
4. (4) Drum of Aerosol Paint Cans, Pesticide, and Hot Products.
5. (1) 55 Gallon Drum of Hazardous Chemicals
6. (4) 55 Gallon Drums of Oil
7. (11) Boxes of Paint at 27 Sqft. A Piece

- **APPENDIX I: SPRING 2021 CLEANUP DAY NUMBERS AND VOLUNTEER LIST/WAIVER**

SUPPORTING MATERIALS



Bring all unwanted items to city hall public works and City, Hudgins Disposal, Clean Harbors, and Hulls Environmental Services employees will be glad to help you unload.

THE CITY OF GREENBRIER WOULD LIKE TO SAY THANK YOU TO THIS YEAR'S SPONSORS:

HUDGINS DISPOSAL, CLEAN HARBORS, SHRUMS AUTO SALVAGE, AND HULLS ENVIRONMENTAL SERVICES.

FOR RESIDENTS OF THE CITY OF GREENBRIER ONLY. PROOF OF RESIDENCY WILL BE NEEDED TO ENTER.

THINGS TO KNOW

PLEASE SEPARATE ITEMS TO BE THROWN AWAY, SUCH AS TIRES, WOOD, METAL, PAINT, ANTIFREEZE, AND OIL FROM GENERAL DEBRIS.

NO SHINGLES, PROPANE TANKS, ASBESTOS, DIRT, ROCKS, OR ASHES WILL BE ACCEPTED.
NO SCAVENGING OF SCRAP METALS WILL BE ALLOWED.

ELDERLY OR DISABLED RESIDENTS CAN MAKE ARRANGEMENTS FOR PICK-UP WITH CITY HALL STAFF AT (615) 643-4531.

Cleanup Day April 17, 2021

Numbers for Cleanup Day

1. 42.21 Tons of Trash
2. 9.83 Tons of Metal
3. 5.83 Tons of Tires
4. (1) Drum of Aerosol Paint Cans
5. (1) 55 Gallon Drum of Hazardous Chemicals + 10 gallons
6. 330 Gallons of Oil
7. (16) Boxes of Paint at 27 Sqft. A Piece
8. (2.5) 55 Gallon Drum of Non-Flammable Liquids
9. (1.5) Containers of Pesticides
10. (4) 55 Gallon Drums of Bleach
11. (2) 55 Gallon Drums of Miscellaneous Chemicals
12. 17 Batteries
13. 55 Bags of Trash was picked up by volunteers along Old Greenbrier Pike.

11,660 lbs tires

19,660 lbs metal

City of Greenbrier

Waiver & Release from Liability

Project Location: Louise Martin Park
Date: 4-17-2021 **Time:** 1:30 pm

I understand that I am volunteering for activities through the City of Greenbrier ("**Greenbrier**"). I understand that as a volunteer, I may be involved in physical activities that have a potential risk of injury. I assume this risk. I agree that I will perform activities that I am comfortable doing and follow all instructions.

I hereby release and discharge the City of Greenbrier and all of their affiliates, officers, directors, employees, agents and volunteers from any claim, demand or cause of action that may be asserted by or on behalf of me as a result of my volunteering for activities through the City of Greenbrier. I agree to be responsible for my behavior and to indemnify the City of Greenbrier, and all of their affiliates, officers, directors, employees, agents and volunteers from any damages or liabilities arising out of my activities as a volunteer through the City of Greenbrier.

Volunteers shall at all times indemnify and save harmless the City of Greenbrier and their agents and officers, from responsibilities, damage, or liability arising from the exercise of the privileges granted under designated programs.

By signing this form, I confirm that no compensation was received for the performance of activities under this proposal. I grant the City of Greenbrier and their partners the irrevocable right to use photographs and video or audio recordings of me made while volunteering, in any medium, without pay.

	Print First and Last Name (Please Print)	Signature (Participant or Parent/Guardian if under 18)	Request for Certificate?
1	Alex Hollingsworth	18	✓
2	Haley Stewart-Brown		✓
3	Kendall Searcy		✓
4	Renee Downs		
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City of Greenbrier

Waiver & Release from Liability

Project Location: _____
Date:_____ **Time:**_____

I understand that I am volunteering for activities through the City of Greenbrier ("Greenbrier"). I understand that as a volunteer, I may be involved in physical activities that have a potential risk of injury. I assume this risk. I agree that I will perform activities that I am comfortable doing and follow all instructions.

I hereby release and discharge the City of Greenbrier and all of their affiliates, officers, directors, employees, agents and volunteers from any claim, demand or cause of action that may be asserted by or on behalf of me as a result of my volunteering for activities through the City of Greenbrier. I agree to be responsible for my behavior and to indemnify the City of Greenbrier, and all of their affiliates, officers, directors, employees, agents and volunteers from any damages or liabilities arising out of my activities as a volunteer through the City of Greenbrier.

Volunteers shall at all times indemnify and save harmless the City of Greenbrier and their agents and officers, from responsibilities, damage, or liability arising from the exercise of the privileges granted under designated programs.

By signing this form, I confirm that no compensation was received for the performance of activities under this proposal. I grant the City of Greenbrier and their partners the irrevocable right to use photographs and video or audio recordings of me made while volunteering, in any medium, without pay.

	Print First and Last Name (Please Print)	Signature (Participant or Parent/Guardian if under 18)	Request for Certificate ?
1	Karin Jones		NO
2	Nikki Little		NO
3	Heather Henderson		No
4	Michelle Austin		NO
5	Beth Baldock		NO
6	Tammy Wilson		NO
7	Paige Kerr		NO
8	Phyllis Pawlowski		NO
9			NO
10	Kim Childers		NO
11	Kate Beard		
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City of Greenbrier

Waiver & Release from Liability

Project Location: Old Greenbrier Hwy by Ridgtop Auto
Date: 4/17/21 **Time:** 8am - 12pm

I understand that I am volunteering for activities through the City of Greenbrier ("Greenbrier"). I understand that as a volunteer, I may be involved in physical activities that have a potential risk of injury. I assume this risk. I agree that I will perform activities that I am comfortable doing and follow all instructions.

I hereby release and discharge the City of Greenbrier and all of their affiliates, officers, directors, employees, agents and volunteers from any claim, demand or cause of action that may be asserted by or on behalf of me as a result of my volunteering for activities through the City of Greenbrier. I agree to be responsible for my behavior and to indemnify the City of Greenbrier, and all of their affiliates, officers, directors, employees, agents and volunteers from any damages or liabilities arising out of my activities as a volunteer through the City of Greenbrier.

Volunteers shall at all times indemnify and save harmless the City of Greenbrier and their agents and officers, from responsibilities, damage, or liability arising from the exercise of the privileges granted under designated programs.

By signing this form, I confirm that no compensation was received for the performance of activities under this proposal. I grant the City of Greenbrier and their partners the irrevocable right to use photographs and video or audio recordings of me made while volunteering, in any medium, without pay.

	Print First and Last Name (Please Print)	Signature (Participant or Parent/Guardian if under 18)	Request for Certificate?
1	Sarah Christopher	Sarah Christ	
2	Jacob Christopher	Sarah Chris	
3	Andrew Christopher	Sarah Chris	
4	Walter Johnson	Walter Johnson	
5	Julian Farmer	Sarah Christopher	
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- **APPENDIX J: 1st ANNUAL TREE GIVEAWAY DAY**

SUPPORTING MATERIALS


SHORTLEAF PINE
Pinus echinata
Canopy tree
Height: 60-100 ft
Spread: 20-35 ft
Full sun
Prefers dry to moist soil
Competes best in low nutrient soil
Monoecious - male and female
Plant 25 ft from power lines
2 needles in a cluster
Link to native range and more information:
https://plants.usda.gov/core/profile?symbol=PIEC2


RED MULBERRY
Morus rubra
Understory
Height: 40-60 ft
Spread: 35-40 ft
Partial/full sun
Prefers dry to moist soil
Usually, Dioecious (but can be monoecious) - b
and female - may need to plant 2 to reproduce
Yellow flowers and catkins in early spring
Edible berries
Fruit may stain surfaces
Link to native range and more information:
hhttps://plants.usda.gov/core/profile?symbol=CERCI2


EASTERN REDBUD
Cercis canadensis
Understory
Height: 15-30 ft
Spread: 25-35 ft
Prefers full sun, will tolerate partial shade
Prefers moist soil types - Drought tolerant
Monoecious- male and female
Edible pink/purple flowers bloom in early spring
A popular tree for urban settings
Link to native range and more information:
hhttps://plants.usda.gov/core/profile?symbol=CERCI2


NORTHERN RED OAK
Quercus rubra
Canopy tree
Height: 90ft
Spread: 55ft
Full/partial sun
Drought tolerant
Monoecious - male and female
Acorn bearing - wildlife food
Plant 40ft from homes and power lines
Link to native range and more information:
https://plants.usda.gov/core/profile?symbol=QURU

CITY OF GREENBRIER

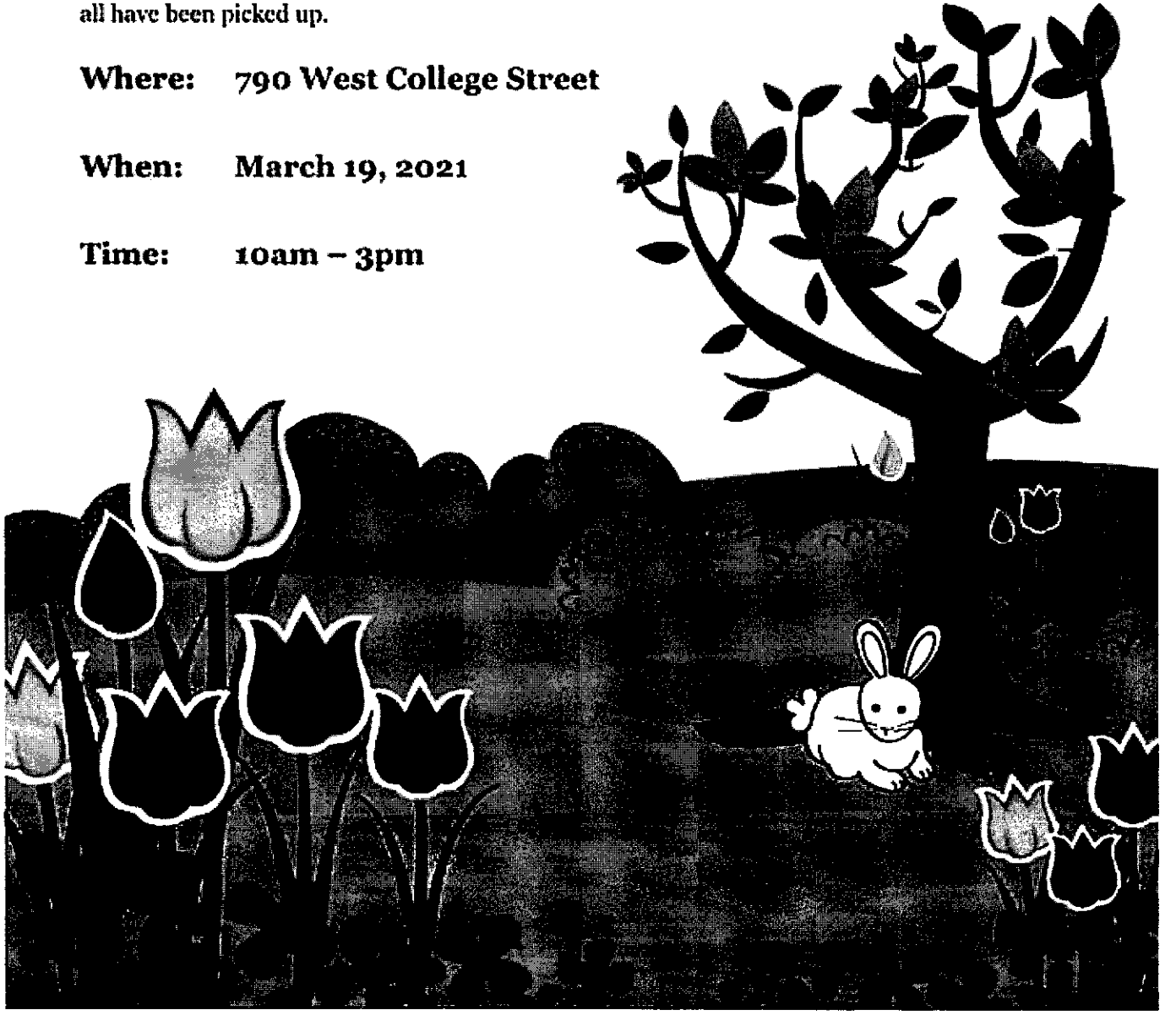
1st Annual Tree Giveaway Day

The City will be giving away 100 trees to citizens on a first come first serve basis. The trees will be located under the pavilion located on the side of City Hall from 10:00 am – 3:00 pm or until all have been picked up.

Where: **790 West College Street**

When: **March 19, 2021**

Time: **10am – 3pm**




TENNESSEE
TREE DAY

- **APPENDIX K: BACTERIOLOGICAL STUDY OF STREAMS WITHIN THE CITY OF GREENBRIER, TN MS4**

SUPPORTING MATERIALS

Bacteriological Study of Streams within the City of Greenbrier, TN MS4

Report for Compliance with

2016 NPDES General Permit for Discharges from Small Municipal Separate Storm Sewer Systems

July 15, 2021

Photo of Carr Creek at Dorris Road (photo by R.Taylor)

This project was completed by

Western Kentucky University, Center for Environmental and Workplace Health, in partnership with the City of Greenbrier Stormwater Management

Authors:
Dr. Ritchie D. Taylor, PhD, MS
Jacqueline R. Basham, MPH, ASP

Western Kentucky University
College of Health and Human Services
Center for Environmental and Workplace Health

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EXECUTIVE SUMMARY

In summary, *E. coli* levels within the City of Greenbrier's MS4 jurisdiction were found to be above acceptable levels for *E. coli* in Carr Creek and Pole Bridge Branch as compared to the Tennessee Water Quality Criteria for recreation use. The Unnamed Tributary had a geometric mean E. coli level well below the criteria. Geometric mean *E. coli* concentrations for Carr Creek ranged from 264 MPN per 100 ml to 720 MPN per 100 ml at Carrs Creek Blvd. These results suggest that the source of E. coli contamination in Carr Creek originates within the City of Greenbrier's MS4. In addition, the elevated *E. coli* levels detected in Pole Bridge Branch are indicated to originate from the Ridgetop, TN jurisdiction.

This study indicates that further research is needed within the watersheds of the City of Greenbrier's MS4 jurisdiction to further appraise the relationship between *E. coli*, water quality, stream flow, and precipitation. Research may be used to further document the site-specific nature of this relationship and delineate the extent of *E. coli* contamination under either dry-weather or wet-weather conditions. It is clear from this study that there are illicit discharges entering Carr Creek. One source could be sanitary sewer overflows or illicit discharge of untreated wastewater.

INTRODUCTION

As part of the mission of academic excellence through community engaged research and innovation, Western Kentucky University (WKU) Center for Environmental and Workplace Health (CEWH) assisted the City of Greenbrier, Tennessee in a project to conduct a bacteriological study on streams within its Small Municipal Separate Storm Sewer Systems (MS4s) jurisdiction. Specifically, the bacteriological study focused on those stream segments listed for "*Escherichia coli*" (TDEC, 2016). This project was conducted in compliance with standards for analytical monitoring set forth by of the Tennessee Department of Environment and Conservation (TDEC) for Small MS4s (TDEC, 2016).

The purpose of the study was to assess the *Escherichia coli* (*E. coli*) concentrations in 303(d) listed streams within the City of Greenbrier's MS4, in particular Carr Creek and an Unnamed Tributary at the Wastewater Treatment Plant (WWTP). In addition, Pole Branch was sampled during this study due to its location within the City of Greenbrier and close proximity to a subdivision. Another stream, Wartrace Creek, was to be sampled. However, this stream was dry throughout the study period within the jurisdiction of Greenbrier, TN and could not be sample. Carr Creek and the Unnamed Tributary at the WWTP were included in this study as each are listed in the 2020 303(d) List for "*E. coli*" impairment with "Sanitary Sewer Overflows"" indicated as the source of impairment (TDEC, 2020).

This bacteriological study had the objectives that met the requirements of the City's general Municipal Separate Storm Sewer System (MS4) permit (TDEC, 2016). Objectives of the study included the following:

- Completion of bacteriological monitoring at stream sites within the Greenbrier's MS4.
- Conduct bacteriological sampling at five stream sites within the City of Greenbrier's MS4 (TDEC, 2011).
- Collect *In situ* water quality monitoring at all bacteriological sampling sites during the sampling period.
- Document site observations for each monitoring site for the study period (TDEC, 2011).
- Collaboration with a laboratory that follows 40 CFR 136 for *E. coli* analysis of surface water samples. In this study, WKU's HydroAnalytical conducted all *E. coli* sample analysis. HydroAnalytical is certified in the State of Kentucky for *E. coli* analysis in drinking water and wastewater.
- Assessment of results to evaluate concentrations of *E. coli* for streams within the City of Greenbrier's MS4 jurisdiction as compared to the Tennessee water quality criteria.
- Preparation of a report of the information collected and results.

METHODS

Methods of the bacteriological study and associated measurements were conducted in agreement with TDEC methods (TDEC, DWPC, 2018). Bacteriological monitoring included the collection of water samples for the analysis of *E. coli*, water quality measurements during the study period, USGS gage height and precipitation observations in a nearby watershed, and observations of stream conditions. Samples were collected by a WKU graduate and undergraduate student with oversight by the principal and co-principal investigator. Analysis of water samples for *E. coli* was performed at the WKU's HydroAnalytical certified laboratory. This laboratory followed all required procedures for surface water samples collected for *E. coli* analysis and is a drinking water certified laboratory by the State of Kentucky.

Bacteriological Monitoring and Analysis

Specified requirements for the collection of water samples for the determination of E. coli concentrations was performed in stream segments where E. coli had been identified as the cause of impairment and other segments within the City of Greenbrier's stormwater MS4. These stream segments were documented as impaired due to discharges from an MS4 area (TDEC, 2020). In these stream segments, as specified in the general NPDES permit, bacteriological sampling is required during each five year permit cycle (TDEC, 2016). Specifically, water samples were collected and analyzed by a certified laboratory for *E. coli* according to TDEC procedures (TDEC, DWPC, 2018). The streams sampled, as shown in Figure 1, included three sites on Carr Creek, one location on Pole Bridge Branch, and one location on the Unnamed Tributary just upstream from the WWTP. Wartrace Creek was not included in the study as it was dry during the study period.

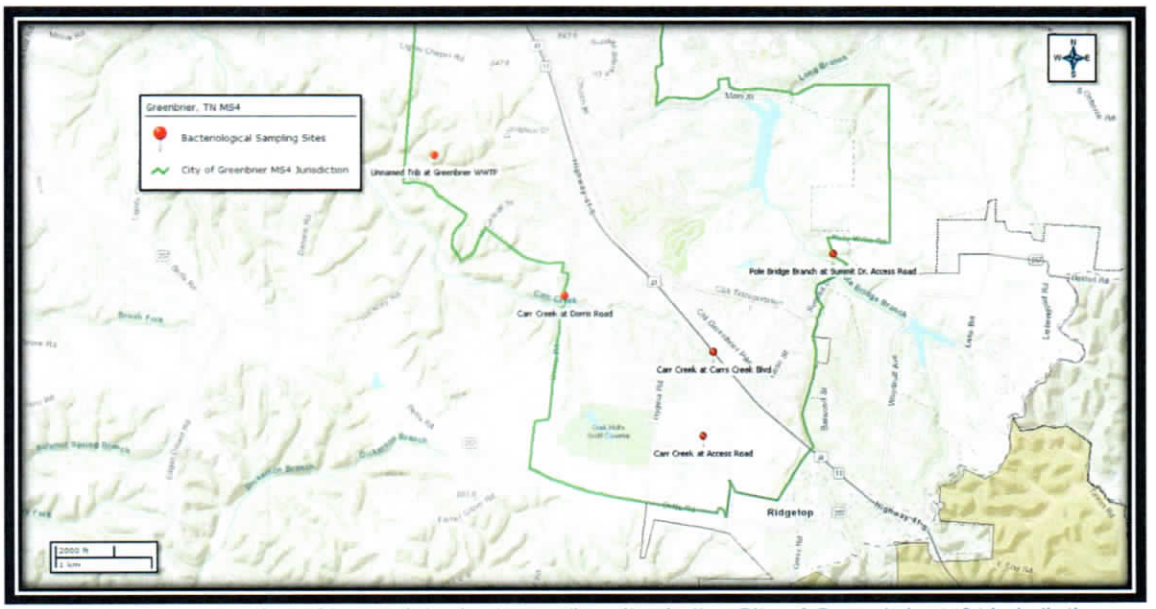

Figure 1. Location of bacteriological sampling sites in the City of Greenbrier MS4 jurisdiction

Water samples for *E. coli* analysis were collected between May 17 and June 10, 2021 for all streams and locations. A series five water samples were collected at each sampling location over the sampling period for each site (Figure 1). Collection of five water samples for *E. coli* analysis was performed at each site in accordance TDEC procedures (TDEC, DWPC, 2018). This methodology allows for the determination of the geometric mean of *E. coli* concentrations, based on at least five samples in a 30-day period, at each monitoring site.

Samples were water column samples collected at the center of channel within each stream segment monitored. Included in each sampling run was the collection of a duplicate, trip blank, and field blank. Bottles used for collection were sterilized and sealed. A chain of custody was completed for each sampling date. All samples were preserved on ice immediately upon collection and transported to the laboratory, meeting all holding times. Chain of custody forms were used to document the sample collection, transport, and analysis process (Appendix 1)

Sample analysis was performed by WKU's HydroAnalytical Laboratory located in Bowling Green, KY at the WKU Center for Research and Development. This laboratory is a certified laboratory for *E. coli* analysis in drinking water and wastewater by the State of Kentucky. Also, methods used meet all requirements for surface water *E. coli* sample analysis per the EPA requirements specified in 40 CFR 136. Results of *E. coli* analysis were recorded and the sample handling documented on the Chain of Custody forms by laboratory personnel. All samples were analyzed with the IDEXX 51-Well Quanti Tray system, using the Colilert reagent, and according to standard procedures to determine the Most Probable Number of *E. coli* colonies per 100 ml (TDEC, DWPC, 2018).

Water Quality

Water quality measurements were collected at each sample site during the sampling period. These measurements included dissolved oxygen (mg/L), pH (s.u.), specific conductance (µs/cm), temperature (°C), and turbidity (NTU), as per standard TDEC protocols (2011). A YSI multi-probe water quality probe and interface was used to measure water quality. Additional observations included general stream conditions.

The water quality meter was calibrated at the beginning of the sampling day. All calibrations were recorded in a bound field book. It should be noted that water quality was collected during each *E. coli* sampling run. Water quality was collected throughout the sampling period to produce representative samples to characterize stream conditions.

USGS Gage Height, Stream Flow and Precipitation

To ensure that all samples were collected during a dry-weather event, no samples were collected within 48 hours of a significant storm event, greater than 0.1 inches of rain, as recorded at the Greenbrier

WWTP. Storm events were also evaluated as producing changes in stream flow as indicated by increased gage height (feet) measured for the United States Geological Survey (USGS) station on Mansker Creek (USGS 03426387 Mansker Creek at Hwy 41 near Millersville, TN) (United States Geological Survey, 2016). In this manner, local storm events were monitored according to rainfall gauge data at the Greenbrier WWTP and regional streamflow assessed based on the Mansker Creek USGS gaging station.

Data for the USGS gaging station can be found at the web site for Mansker Creek (United States Geological Survey, 2016). Additionally, a rain gauge operated by the USGS at the site measured precipitation, as well. No samples for *E. coli* analysis were collected within 48 hours of a significant measured precipitation event (>0.1 inches of rainfall), as well.

RESULTS

Results of the study are presented in this section report. Analysis of *E. coli* samples resulted in the determination of geometric mean concentrations for sampling sites, based on at least five samples per site. These values were compared against the Tennessee water quality criteria for *E. coli* the streams sampled in the MS4 jurisdiction.

E. coli Concentrations

Results of laboratory analysis of *E. coli* for the sampling sites in this study can be found in Table 1. A geometric mean was calculated for the *E. coli* concentrations for each sampling site, consisting of five measurements per site. Geometric mean values for five sample series at the stream sites ranged from a low of 22 MPN/100 ml to a high of 720 MPN/100 ml. A couple of the individual samples collected from Carr Creek were greater than 941 MPN/100 ml.

Table 1. E. coli concentrations and water quality for stream sampling sites within the City of Greenbrier MS4 jurisdiction, including geometric mean E. coli values (MPN/100 ml)

Sampling Location Description	Longitude	Latitude	Date	Time	E. Coli Sample ID	E. Coli Result (MPN/100 mL)	pH	Conductivity (us/cm)	Temperature (Celcius)	DO (mg/L)	DO (%)	Turbidity (ntu)	TDS (mg/L)
Carr Creek at Subdivision Access Road	-86.79092	36.40277	5/17/21				7.29	360	16.87	7.63	79.6	7.55	233
			5/25/21	12:23	WKUCC001	86	7.35	223	20.18	5.57	61.6	3.87	145
			5/27/21	10:47	WKUCC001	1203	7.05	239	19.41	5.54	60.2	3.5	155
			6/1/21	10:35	WKUCC001	345	7.52	222	16.39	7.29	74.3	3.19	144
			6/8/21	10:41	WKUCC001	365	7.56	205	21.02	6.74	75.8	6.94	133
			6/10/21	10:34	WKUCC001	517	7.14	200	20.71	6.85	75.5	7.72	130
E. coli Geometric Mean (MPN/100ml)						368							
Carr Creek at Carrs Creek Blvd	-86.789722	36.410556	5/25/21	12:46	WKUCC003	1986	8.24	373	22.14	9.92	113.9	1.9	243
			5/27/21	11:02	WKUCC002	727	7.89	412	20.43	9.45	105	2.92	268
			6/1/21	10:45	WKUCC002	276	7.96	376	17.28	10.33	107.6	2.13	244
			6/8/21	10:55	WKUCC003	727	7.82	333	20.23	9.18	101.2	3.27	216
			6/10/21	10:46	WKUCC003, WKUCC004	670	7.59	322	19.43	8.7	94.7	4.45	209
E. coli Geometric Mean (MPN/100ml)						720							
Carr Creek at Dorris Road	-86.80716	36.41574	5/17/21				7.77	484	17.32	8.82	92.2	5.74	315
			5/25/21	13:01	WKUCC004, WKUCC005	303	7.94	304	20.74	7.95	88.8	4.88	198
			5/27/21	11:20	WKUCC004	197	7.79	321	19.45	8.52	92.1	4.91	209
			6/1/21	10:59	WKUCC003	291	7.86	297	16.69	9.41	96.7	2.48	193
			6/8/21	11:21	WKUCC004	411	7.99	277	20.96	8.34	93.5	4.84	180
			6/10/21	11:00	WKUCC005	179	7.82	273	20.63	7.91	88.2	3.61	178
E. coli Geometric Mean (MPN/100ml)						264							
Pole Bridge Branch at Summit Drive Acce	-86.7758	36.41972	5/18/21				7.97	459	18.11	7.17	75.9	1.88	298
			5/25/21	10:51	WKUPB001	133	7.53	269	20.05	8.15	89.9	2.01	175
			5/27/21	10:03	WKUPB001	119	7.26	288	19.55	8.62	93.9	6.06	187
			6/1/21	09:50	WKUPB001, WKUPB002	125	7.42	274	17.3	8.76	91.3	1.38	178
			6/8/21	09:52	WKUPB001	157	7.73	262	20.78	8.53	95.2	2.32	170
			6/10/21	09:56	WKUPB001	145	7.39	246	21.1	6.42	72.3	2.31	160
E. coli Geometric Mean (MPN/100ml)						135							
Unnamed Tributary at Greenbrier WWTP	-86.82216	36.4289	5/18/21				7.35	721	15.48	6.98	70.1	0.94	468
			5/25/21	11:53	WKUUT001	7	7.42	412	17.82	5.67	59.8	2.06	268
			5/27/21	10:28	WKUUT001, WKUUT002	26	7.16	436	17.59	4.77	49.9	1.42	283
			6/1/21	10:18	WKUUT001	19	7.34	418	15.76	6.42	64.6	0.87	272
			6/8/21	10:18	WKUUT001	38	7.48	414	18.35	6.27	66.8	1.2	269
			6/10/21	10:18	WKUUT001	40	7.25	388	18.48	5.76	61.5	2	252
E. coli Geometric Mean (MPN/100ml)						22							

5/25/2021 *WKUCC002 Field Blank
5/27/2021 *WKUCC003 Field Blank *WKUTB001 Trip Blank
6/1/2021 *WKUCC004 Field Blank
6/8/2021 *WKUUT002 Field Blank *WKUTB001 Trip Blank
6/10/2021 *WKUCC002 Field Blank *WKUTB001 Trip Blank

Water Quality

Water quality data were recorded in the field. Data for water quality are summarized in Table 1. Parameters for water quality included temperature (°C), dissolved oxygen (mg/L), pH (s.u.), specific conductance (µs/cm), and turbidity (NTU). Measurements were conducted each sampling date.

USGS Gage Height and Precipitation

Data for the USGS gaging station can be found at the web site for Mansker Creek (United States Geological Survey, 2016). Additionally, a rain gauge operated by the City of Greenbrier at the WWTP site measured precipitation. Rainfall information was utilized to determine sampling dates.

Determination of precipitation and stream flow increases was critical to this study. Mansker Creek gage height and precipitation was used as the indicator of wet-weather conditions that would preclude sampling, as was rain events over 0.1 inches at the WWTP. A gage height of less than 1.80 feet was typically found to indicate that the regional streams were not under the influence of storm events. However, precipitation data at the Greenbrier WWTP was evaluated to insure a correct determination.

DISCUSSION

The main points of discussion are the results of the E. coli analysis and water quality monitoring. *E. coli* concentrations were found to exceed the primary recreation use geometric mean standard of 126 colony forming units (cfu) per 100 ml for all sampling locations on Carr Creek and the one sampling location on Pole Bridge Branch. One sample from Carr Creek at the Subdivision Access (-86.79092, 36.40277) and one sample from Carr Creek at Carrs Creek Blvd was observed to exceed the secondary contact recreation criterion for *E. coli* of 941 cfu per 100 ml.

E. coli Analysis

According to the 2020 303d list, Carr Creek and the Unnamed Trib near the WWTP, within the City of Greenbrier's MS4 jurisdiction, are listed as impaired due to *E. coli*. The source of impairment is cited as "Sanitary Sewer Overflows". Sampling was used to assess the current concentrations of E. coli in jurisdictional streams during dry-weather periods and within the summer months of May and June. Accordingly, impairment due to elevated *E. coli* concentrations was detected at all Carr Creek sampling locations (geometric means of 368, 720, and 264 MPN per 100 ml) and in Pole Bridge Branch (135 MPN per 100ml) as compared to the primary contact recreation E. coli criterion of 126 cfu per 100 ml.

These results for *E. coli* concentrations confirm previous impairments found for Carr Creek, as evidenced by the listing on the 2020 303d list. Contamination was found to begin at the upstream jurisdictional boundary of Carr Creek in the City of Greenbrier and to the most downstream extent within the MS4 for Carr Creek at Dorris Road. Thus, the pollution of Carr Creek was confirmed within the City of Greenbrier's MS4.

The probable cause, as indicated in the 2020 303d list, is sanitary sewer overflows or other illicit discharges. A priority of the visual assessment will be to assess potential sources of contamination. However, the elevated *E. coli* concentrations found in Pole Bridge Branch near the Summit Drive access road may be originating from the City of Ridgetop, TN. The Pole Bridge Branch sampling location was near Greenbrier's MS4 jurisdictional boundary, where Pole Bridge Branch first flows from Ridgetop, TN into the City of Greenbrier boundaries.

The intent of this study was to collect and assess dry-weather stream samples for elevated *E. coli*. A further component was to evaluate the potential for illicit discharges within City of Greenbrier MS4 jurisdiction, as indicated by an elevated *E. coli* geometric mean at a sampling location greater than the Tennessee *E. coli* water quality criteria for primary and secondary contact. The results, with observed elevated concentrations of *E. coli*, can be used to direct future sampling to determine sources of *E. coli* contamination during dry weather.

It was found that *E. coli* levels of the Unnamed Tributary at the Greenbrier WWTP streams was well within acceptable limits for *E. coli*, with a geometric mean of 22 MPN per 100 ml. An important note is that this sampling site was just upstream from the Greenbrier WWTP. As such, this sample site was to assess watershed-based sources of contamination in the Unnamed Tributary. Results indicated that there was not a source of E. coli detected upstream from the WWTP. The listing of the Unnamed Tributary in the 2020 303d list was due to sanitary sewer overflows from the Greenbrier WWTP. This source of contamination should continue to be evaluated to eliminate wastewater releases to the Unnamed Tributary.

Water Quality

Water quality parameters were within acceptable limits based on the Tennessee water quality standards (Table 2). It should be noted that turbidity (NTU) was the greatest and varied the most for the Carr Creek sites, as compared to other sampling locations. This may indicate an increased pollution load due to illicit discharges in the watershed or other activities. Continued observance of turbidity should constitute a further water quality variable to study to better evaluate sources of *E. coli*.

USGS Gage Height and Precipitation

Time constraints related to sample holding times did not allow for stream flow to be measured at each site during water sampling events. Previous reconnaissance had indicated that all streams sampled do respond to storm events. Therefore, precipitation measured at the Greenbrier WWTP was evaluated preceding each sampling event to ensure no rainfall greater than 0.1 inches in the 48 hours prior to the even. Additionally, data for the USGS gaging station on Mansker Creek near Goodlettsville, TMN was evaluated each day to assess the gage height and precipitation. This analysis produced consistent results for determining dry-weather periods. It was found that Mansker Creek indicated dry-weather conditions with a gage height of 1.80 ft or less. Likewise, precipitation (inches) showed a direct impact on gage height and was monitored to insure no sampling was done within 48 hours of a storm event. Future studies should follow this protocol. Also, further study is needed to determine the response of *E. coli* levels to storm events and identify sources of contamination during wet-weather conditions. A site specific framework may be needed for MS4's to determine when local

streams are under the influence of storm events, and elevated *E. coli* due to wet-weather flows.

CONCLUSION

In summary, *E. coli* levels within the City of Greenbrier's MS4 jurisdiction were found to be above acceptable levels for *E. coli* in Carr Creek and Pole Bridge Branch as compared to the Tennessee Water Quality Criteria for recreation use. The Unnamed Tributary had a geometric mean E. coli level well below the criteria. Geometric mean *E. coli* concentrations for Carr Creek ranged from 264 MPN per 100 ml to 720 MPN per 100 ml at Carrs Creek Blvd. These results suggest that the source of E. coli contamination in Carr Creek originates within the City of Greenbrier's MS4. In addition, the elevated *E. coli* levels detected in Pole Bridge Branch are indicated to originate from the Ridgetop, TN jurisdiction.

This study indicates that further research is needed within the watersheds of the City of Greenbrier's MS4 jurisdiction to further appraise the relationship between *E. coli*, water quality, stream flow, and precipitation. Research may be used to further document the site-specific nature of this relationship and delineate the extent of *E. coli* contamination under either dry-weather or wet-weather conditions. It is clear from this study that there are illicit discharges entering Carr Creek. One source could be sanitary sewer overflows or illicit discharge of untreated wastewater.

A method is needed to be developed that can be used by MS4s to assess the site specific nature of streams and E. coli to elucidate the timing of contamination events, dry-weather or wet-weather conditions. Additionally, there may be a latent period that a storm event produces water quality changes in a stream, this condition may persist for greater than 48 hours. A Previous study by the PI showed that water quality conditions in stormwater receiving streams may be impacted for up to five or more days. Thus, monitoring only after a 48-hour period since the

last rainfall may preclude that sampling is being conducted when a stream is influenced by stormwater runoff. Research is needed to address the following:

- **Evaluate long-term water quality** and assess water quality measures as a means to determine when Carr Creek is under the influence of storm events.
- Assess measures such as turbidity as additional tools to determine stormwater compliance within the City of Greenbrier's MS4 jurisdiction.
- Evaluate land use and illicit discharge sources within the Carr Creek Watershed to determine the sources of elevated *E. coli* concentrations. A partnership should be initiated with the City of Ridgetop, TN to evaluate the source of *E. coli*. Results indicate that there may be an illicit discharge upstream from the Greenbrier MS4 on Pole Bridge Branch.

REFERENCES

TDEC. (2010). NPDES General Permit for Discharges from Small Municipal Separate Storm Sewer Systems. Nashville, TN: Tenneessee Department of Environment and Conservation.

TDEC. (2011). Quality System Standard Operating Procedure for Macroinvertebrate Stream Surveys. Nashville, TN: TDEC.

TDEC. (2016). *Final Version of 2014 303(d) List.* Nashville, TN: Tennessee Department of Environment and Conservation.

TDEC, DWPC. (2011). Quality System Standard Operating Procedure for Chemical and Bacteriological Sampling of Surface Water. Nashville, TN: TDEC.

United States Geological Survey. (2016, September 20). *USGS 03426387 MANSKER CREEK AT HWY 41 NEAR MILLERSVILLE, TN*. Retrieved September 25, 2016, from USGS National Water Information System: http://waterdata.usgs.gov/nwis/uv?site_no=03426387

APPENDICES

APPENDIX 1

Bacteriological Samples Chain of Custody and Results

Analysis Report

Project: 0521039

ATTN: Ritchie Taylor **WKU EOHS**	**1906 College** **Bowling Green, Kentucky, 42101**

Dear Ritchie Taylor,

The enclosed report includes the analytical results for the samples received by our Laboratory on 05/25/2021.

HydroAnalytical is a state certified commercial stormwater, wastewater and drinking water laboratory (KY Lab#:00035). All KPDES compliance sample analyses are performed in accordance with the methodology provisions of 40 CFR 136 and the Kentucky Division of Water, Energy and Environment Cabinet (unless otherwise stated).

To view our scope of work, research capabilities and past projects, education and outreach, sampling instructions, and additional forms and documents, please visit our website at www.HydroAnalytical.com.

If you have any questions regarding the content of this report or would like information on additional services we can provide you, please call us at (270) 745 - 5287 or email us at HydroAnalytical@wku.edu.

This report includes:

I. Definitions
II. Data Flags
III. Project Notes
IV. Analytical Results
V. Laboratory Field Services and Analytical Methods
VI. Chain of Custody

Report Generated — Lea Mitchell, Lab Technician — 05/27/2021 Date

Report Approved — Ethan Givan, Laboratory Manager — 05/27/2021 Date

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I.

Laboratory	Quality Control	Standard Unit
Laboratory	Millions of Gallons	Too Numerous to Count
Method	Milligrams per Liter	Instrument Performance Check
Minimum	Most Probable	Less than
Not Applicable	Micrograms per	Greater than

/A g/L Liter

II. Data

See Data Notes

Reported result is

Reported result was obtained from the analysis of a sample

The target analyte exceeded the calibration curve of the

The analysis was conducted

The reported result is an estimated value. The target analyte was detected in the sample above the current method detection limit (MDL), however the result is below the established minimum reportable level (MRL).

The target analyte was not detected in the sample at or above the Lab's current method detection limit (MDL).

One or more quality control criteria were not met during the analysis of the sample. See the Data Notes section for details. Recollection of the sample may be necessary per the client's discretion or the laboratory's request.

III. Project: 0521039 Data Notes

No notes for this project.

DMR Entry

If the customer has requested the results of this report be entered into NetDMR, the results were entered under the

Permit #: _____ Date of data entry: _____

IV. Analytical Results

ite ID: Trip Blank		Ma trix: queous		Time Collected: 05/25/2 021 0919			Time Received: 05/25/20 21 1440		
Analy sis	esult	nit	RL	DL	Fla g	Metho d	Time Analyzed	ab ID	nalyst
E. coli	1	MP N/100mL		/A		Colilert- 18®	05/25/2021 1526	0 5252184	G

ite ID: WKU PB001		Ma trix: queous		Time Collected: 05/25/2 021 1103			Time Received: 05/25/20 21 1440		
Analy sis	esult	nit	RL	DL	Fla g	Metho d	Time Analyzed	ab ID	nalyst
E. coli	33	MP N/100mL		/A		Colilert- 18®	05/25/2021 1526	0 5252185	G

ite ID: WKU UT001		Ma trix: queous		Time Collected: 05/25/2 021 1159			Time Received: 05/25/20 21 1440		
Analy sis	esult	nit	RL	DL	Fla g	Metho d	Time Analyzed	ab ID	nalyst
E. coli		MP N/100mL		/A		Colilert- 18®	05/25/2021 1526	0 5252186	G

ite ID: WKU CC001		Ma trix: queous		Time Collected: 05/25/2 021 1231			Time Received: 05/25/20 21 1440		
Analy sis	esult	nit	RL	DL	Fla g	Metho d	Time Analyzed	ab ID	nalyst
E. coli	6	MP N/100mL		/A		Colilert- 18®	05/25/2021 1526	0 5252187	G

IV. Analytical Results

ite ID: CC002	WKU		Ma trix: queous			Time Collected:		05/25/2 021 1229	Time Received:		05/25/20 21 1440
sis	**Analy**	**esult**	**nit**	**RL**	**DL**	**g**	**Fla d**	**Metho**	**Time Analyzed**	**ab ID**	**nalyst**
coli	E.	**1**	MP N/100mL		/A		18®	Colilert- 1526	05/25/2021	0 5252188	G

ite ID: CC003	WKU		Ma trix: queous			Time Collected:		05/25/2 021 1245	Time Received:		05/25/20 21 1440
sis	**Analy**	**esult**	**nit**	**RL**	**DL**	**g**	**Fla d**	**Metho**	**Time Analyzed**	**ab ID**	**nalyst**
coli	E.	**986**	MP N/100mL		/A		18®	Colilert- 1526	05/25/2021	0 5252189	G

ite ID: CC004	WKU		Ma trix: queous			Time Collected:		05/25/2 021 1302	Time Received:		05/25/20 21 1440
sis	**Analy**	**esult**	**nit**	**RL**	**DL**	**g**	**Fla d**	**Metho**	**Time Analyzed**	**ab ID**	**nalyst**
coli	E.	**61**	MP N/100mL		/A		18®	Colilert- 1526	05/25/2021	0 5252190	G

ite ID: CC005	WKU		Ma trix: queous			Time Collected:		05/25/2 021 1303	Time Received:		05/25/20 21 1440
sis	**Analy**	**esult**	**nit**	**RL**	**DL**	**g**	**Fla d**	**Metho**	**Time Analyzed**	**ab ID**	**nalyst**
coli	E.	**45**	MP N/100mL		/A		18®	Colilert- 1526	05/25/2021	0 5252191	G

V. Laboratory Analytical and Field Services

HydroAnalytical Lab aims to provide innovative, high quality water resource and hydrologic analytical services to ensure clean and safe water for public health and support research on water quality and quantity. Our facility offers progressive, customizable services in general chemistry, metals, microbiology through field sampling and laboratory analyses for wastewater, stormwater, groundwater, and industrial testing.

HydroAnalytical also takes pride in offering EPA-certified microbiological testing for drinking water and wastewater. We are proud to serve south- central Kentucky and the surrounding region's water analysis needs. If you have questions or would like a quote for laboratory analyses or field services please email the lab at HydroAnalytical@wku.edu

We are also able to offer additional analytical and field based services beyond those listed below upon request.

General Chemistry	Certified Method
Alkalinity (Bicarbonate, Total)	SM 2320 B-2011
Ammonia - Nitrogen	Hach 10205
Atrazine (Non-Certified)	EPA 4670
BOD/CBOD (5-Day)	SM 5210 B-2011
Bromide	SM 4110 B-2011
Chloride	SM 4110 B-2011
Chlorine, Free (Non-Certified)	SM 4500 Cl G-2011
Chlorine, Total Residual	SM 4500 Cl G-2011
Chlorophyll a (Non-Certified)	EPA 445.0
COD	Hach 8000
Dissolved Oxygen	SM 4500 O G-2011
Fluoride	SM 4110 B-2011
Hardness, Total	SM 2340 C-2011
Hardness, Total (Calculated, Non-Certified)	EPA 200.7 Rev 4.4
Hexavalent Chromium	Hach 8023
Nitrate / Nitrate (as N)	SM 4110 B-2011
Nitrate + Nitrite (as N)	SM 4110 B-2011 or Hach 10206
Nitrite / Nitrite (as N)	SM 4110 B-2011
Nitrogen, Total	Calculation
Nitrogen, Total Kjeldahl (TKN)	Hach 10242
Oil and Grease, Total	EPA 1664 A Stepsaver
Ortho-Phosphate / Ortho-Phosphate (as P)	SM 4110 B-2011
pH	SM 4500 H+B-2011
Phosphorus, Total	Hach 10210
Settleable Solids	SM 2540 F-2011
Specific Conductance	SM 2510 B-2011
Specific Gravity	SM 2710 F-2011
Sulfate	SM 4110 B-2011
Temperature	SM 2550 B-2011
Total Carbon (Non-Certified)	SM 5310 B-2011
Total Dissolved Solids	SM 2540 C-2011
Total Inorganic Carbon (Non-Certified)	SM 5310 B-2011
Total Organic Carbon	SM 5310 B-2011
Total Solids	SM 2540 B-2011
Total Suspended Solids	SM 2540 D-2011
Turbidity (Non-Certified)	SM 2130 B-2011

V. Laboratory Analytical and Field Services

Metals by ICP-OES	Certified Method
Aluminum	EPA 200.7 Rev 4.4 1994
Antimony	EPA 200.7 Rev 4.4 1994
Arsenic	EPA 200.7 Rev 4.4 1994
Barium	EPA 200.7 Rev 4.4 1994
Beryllium	EPA 200.7 Rev 4.4 1994
Cadmium	EPA 200.7 Rev 4.4 1994
Calcium	EPA 200.7 Rev 4.4 1994
Chromium	EPA 200.7 Rev 4.4 1994
Cobalt	EPA 200.7 Rev 4.4 1994
Copper	EPA 200.7 Rev 4.4 1994
Iron	EPA 200.7 Rev 4.4 1994
Lead	EPA 200.7 Rev 4.4 1994
Lithium (Non-Certified)	EPA 200.7 Rev 4.4 1994
Magnesium	EPA 200.7 Rev 4.4 1994
Manganese	EPA 200.7 Rev 4.4 1994
Mercury (Non-Certified)	EPA 200.7 Rev 4.4 1994
Molybdenum	EPA 200.7 Rev 4.4 1994
Nickel	EPA 200.7 Rev 4.4 1994
Potassium	EPA 200.7 Rev 4.4 1994
Selenium	EPA 200.7 Rev 4.4 1994
Silver	EPA 200.7 Rev 4.4 1994
Sodium	EPA 200.7 Rev 4.4 1994
Strontium (Non-Certified)	EPA 200.7 Rev 4.4 1994
Sulfur (Non-Certified)	EPA 200.7 Rev 4.4 1994
Thallium	EPA 200.7 Rev 4.4 1994
Tin (Non-Certified)	EPA 200.7 Rev 4.4 1994
Titanium (Non-Certified)	EPA 200.7 Rev 4.4 1994
Vanadium	EPA 200.7 Rev 4.4 1994
Zinc	EPA 200.7 Rev 4.4 1994

Microbiological	Certified Method
Total Coliform/*E. coli* @ 35 °C (Presence/Absence)	SM 9223 B (Colilert-18) - 2011
Total Coliform/*E. coli* @ 35°C (MPN)	SM 9223 B (Colilert-18) - 2011
Fecal Coliform @ 44.5°C (Non-Certified)	SM 9223 B (Colilert-18) - 2011
Heterotrophic Plate Count	SM 9215 B-2011

Field Services	Certified Method
pH	SM 4500 H+B-2011
Temperature	SM 2550 B-2011
Dissolved Oxygen	SM 4500 O G-2011
Specific Conductance	SM 2510 B-2011
Flow (field measurement)	USGS 3-A8
Flow (calculated)	USDA TR-55
Silt Density Index	Meter
Turbidity (Non-Certified)	SM 2130 B-2011

HydroAnalytical - Chain of Custody Record

H2YDRO analytical | WKU

2413 Nashville Road #B1088 | Bowling Green, KY 42101 | 270-745-5287

Customer Contact and Billing Information

Company: WKU EOHS | Email: ritchie.taylor@wku.edu | Address:
Phone: | City: Greenbrier | State: TN | Zip Code: | PO#:
Special Instructions:

Legend for Sample Data Entry

Collection Method	Matrix	Container Type	Preservation
(G - Grab) C - Composite	S - Soil/Solid (A - Aqueous)	(P - Plastic) G - Glass; VOA - VOA vial with septa; GA - Glass, Amber	S - H2SO4 pH<2; N - HNO3 pH<2; H - HCl pH<2; (ST - Na2S2O3); SH - NaOH pH>9; Ice - Cooled < 6°C

All containers per Table II of 40 CFR Part 136 unless noted otherwise

Date	Time	Method	Sample Identification	Matrix	Container Type	Number of Containers	Preservation	Requested Analysis
5/25/21	[illegible]	G	Trip Blank	A	P	1	ST	E. coli
5/25/21	11:03	G	WKU PB001	A	P	1	ST	↓
5/25/21	11:54	G	WKU VT001	A	P	1	ST	↓
5/25/21	12:31	G	WKU LL001	A	P	1	ST	↓
5/25/21	12:29	G	WKU LL002	A	P	1	ST	↓
5/25/21	12:45	G	WKU CC003	A	P	1	ST	↓

Signature of Sampler: [signature] | Print Name of Sampler: Jacqueline Basham

Relinquished by	Date / Time	Received by	Date / Time
[signature] Representing:	Date: 5-25-21 Time:	[signature] Representing: +A	Date: 5/25/21 Time: 1440
[signature] Representing: +A	Date: 5/25/21 Time: 1445	WW [signature] Representing:	Date: 5/25/21 Time: 1445
WW [signature] Representing:	Date: 5/25/21 Time: 1449	[signature] Representing: #1	Date: 5/25/21 Time: 1449
Representing:	Date: Time:	Representing:	Date: Time:

Requested Turn-Around Time (Check One)

- ☐ Standard (14 working days)
- ☐ Rush (5-7 working days)
- ☐ 24 Hours [illegible]

- ☐ Compliance Samples
- ☐ Boil Water Advisory
- ☐ Investigative/Monitoring (non-compliance)
- ☐ DMR Entry Request

Sections Below for Lab Use Only

Lab Project #: 0521039
Sample Temp. at Receipt (°C): 20.0

Sample Notes	Bottle Code	Volume	A/U
			A U
			A U
			A U
			A U
			A U
			A U

DOW-BGRO Notification:
PWS Notified:
DOW RTCR Mgr Notification:
Client Contact Notification:
Analysis Report Sent:
Invoiced:

☐ After-Hours Charge ☐ Rush Charge

VI. Chain of Custody

VI. Chain of Custody

HYDRO analytical WKU

2413 Nashville Road #B1088 | Bowling Green, KY 42101 | 270 - 745 - 5267

HydroAnalytical - Chain of Custody Record

Customer Contact and Billing Information

Company: WKU EOHS   Email: [illegible]   Address:
Phone: City: Greenbrier   State: TN   Zip Code: PO#:
Special Instructions:

Legend for Sample Data Entry

Collection Method	Matrix	Container Type	Preservation
G - Grab; C - Composite	S - Soil/Solid; A - Aqueous	P - Plastic; VOA - VOA vial with septa; G - Glass; GA - Glass, Amber	S - H2SO4 pH<2; H - HCl pH<2; SH - NaOH pH>9; N - HNO3 pH<2; ST - Na2S2O3; Ice - Cooled <6°C

All containers per Table II of 40 CFR Part 136 unless noted otherwise

Date	Time	Method	Sample Identification	Matrix	Container Type	Number of Containers	Preservation	Requested Analysis
5/25/21	[illegible]	G	WKUCC004	A	P	1	ST	E. coli
5/25/21	[illegible]	G	WKUCC005	A	P	1	ST	↓

Signature of Sampler: [signature]   Print Name of Sampler: Jacqueline Bertram

Relinquished by	Date/Time	Received by	Date/Time
[signature]	5-25-21	[signature] Representing: HA	5/25/2021 1440
[signature] Representing: HA	5/25/21 1445	WKU [illegible]	5/25/2021 1445
WKU [illegible]	5/25/21 1449	[signature] Representing: [illegible]	5/25/2021 1449

Requested Turn-Around Time

- ☐ Standard (14 working days)
- ☐ Rush (5-7 working days)
- ☐ 24 Hours

- ☐ Compliance Samples
- ☐ Bad Water Advisory
- ☐ Investigation Monitoring (non-compliance)
- ☐ DMR Entry Request

Sections Below for Lab Use Only

Lab Project #: 0521089
Sample Temp. at Receipt (°C): 20.0

Sample Notes | Bacteriological Samples

DOW-BGRD Notification:
PWS Notified:
DOW RTCR Mgr Notification:
Client Contact Notification:
Analysis Report Sent:
Invoiced:

☐ After-Hours Charge   ☐ Rush Charge

Analysis Report

Project: 0521042

ATTN: Ritchie Taylor **WKU EOHS**	**1906 College** **Bowling Green, Kentucky 42101**

Dear Ritchie Taylor,

The enclosed report includes the analytical results for the samples received by our Laboratory on 05/27/2021.

HydroAnalytical is a state certified commercial stormwater, wastewater and drinking water laboratory (KY Lab#:00035). All KPDES compliance sample analyses are performed in accordance with the methodology provisions of 40 CFR 136 and the Kentucky Division of Water, Energy and Environment Cabinet (unless otherwise stated).

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If you have any questions regarding the content of this report or would like information on additional services we can provide you, please call us at (270) 745 - 5287 or email us at HydroAnalytical@wku.edu.

This report includes:

I. Definitions
II. Data Flags
III. Project Notes
IV. Analytical Results
V. Laboratory Field Services and Analytical Methods
VI. Chain of Custody

Report Generated — Morgan Miller, Laboratory Analyst — 05/28/2021 Date

Report Approved — Ethan Givan, Laboratory Manager — 06/01/2021 Date

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I.

	Laboratory	Quality Control	Standard Unit
	Laboratory	Millions of Gallons	Too Numerous to Count
	Method	Milligrams per Liter	Instrument Performance Check
	Minimum	Most Probable	Less than
	Not Applicable	Micrograms per	Greater than
/A	g/L	Liter	

II. Data

See Data Notes

Reported result is

Reported result was obtained from the analysis of a sample

The target analyte exceeded the calibration curve of the

The analysis was conducted

The reported result is an estimated value. The target analyte was detected in the sample above the current method detection limit (MDL), however the result is below the established minimum reportable level (MRL).

The target analyte was not detected in the sample at or above the Lab's current method detection limit (MDL).

One or more quality control criteria were not met during the analysis of the sample. See the Data Notes section for details. Recollection of the sample may be necessary per the client's discretion or the laboratory's request.

III. Project: 0521042 Data Notes

No notes for this project.

DMR Entry

If the customer has requested the results of this report be entered into NetDMR, the results were entered under the

Permit #: _____ Date of data entry: _____

IV. Analytical Results

ite ID: TB001	WKU	Ma trix: queous	Time Collected:	05/27/2 021 0848	Time Received:	05/27/20 21 1233

sis	Analy	esult	nit	RL	DL	g	Fla d	Metho	Time Analyzed	ab ID	nalyst
coli	E.	1	MP N/100mL		/A		18®	Colilert-1529	05/27/2021	0 5272183	G

ite ID: PB001	WKU	Ma trix: queous	Time Collected:	05/27/2 021 1009	Time Received:	05/27/20 21 1233

sis	Analy	esult	nit	RL	DL	g	Fla d	Metho	Time Analyzed	ab ID	nalyst
coli	E.	19	MP N/100mL		/A		18®	Colilert-1529	05/27/2021	0 5272184	G

ite ID: UT001	WKU	Ma trix: queous	Time Collected:	05/27/2 021 1028	Time Received:	05/27/20 21 1233

sis	Analy	esult	nit	RL	DL	g	Fla d	Metho	Time Analyzed	ab ID	nalyst
coli	E.	0	MP N/100mL		/A		18®	Colilert-1529	05/27/2021	0 5272185	G

ite ID: UT002	WKU	Ma trix: queous	Time Collected:	05/27/2 021 1029	Time Received:	05/27/20 21 1233

sis	Analy	esult	nit	RL	DL	g	Fla d	Metho	Time Analyzed	ab ID	nalyst
coli	E.	1	MP N/100mL		/A		18®	Colilert-1529	05/27/2021	0 5272186	G

IV. Analytical Results

ite ID: CC001	WKU		Ma trix: queous			Time Collected:	05/27/2 021 1048	Time Received:	05/27/20 21 1233	
sis	Analy	esult	nit	RL	DL	g	Fla d	Metho	Time Analyzed	ab ID	nalyst
coli	E.	203	MP N/100mL		/A		18®	Colilert-1529	05/27/2021	0 5272187	G

ite ID: CC002	WKU		Ma trix: queous			Time Collected:	05/27/2 021 1103	Time Received:	05/27/20 21 1233	
sis	Analy	esult	nit	RL	DL	g	Fla d	Metho	Time Analyzed	ab ID	nalyst
coli	E.	27	MP N/100mL		/A		18®	Colilert-1529	05/27/2021	0 5272188	G

ite ID: CC003	WKU		Ma trix: queous			Time Collected:	05/27/2 021 1105	Time Received:	05/27/20 21 1233	
sis	Analy	esult	nit	RL	DL	g	Fla d	Metho	Time Analyzed	ab ID	nalyst
coli	E.	1	MP N/100mL		/A		18®	Colilert-1529	05/27/2021	0 5272189	G

ite ID: CC004	WKU		Ma trix: queous			Time Collected:	05/27/2 021 1121	Time Received:	05/27/20 21 1233	
sis	Analy	esult	nit	RL	DL	g	Fla d	Metho	Time Analyzed	ab ID	nalyst
coli	E.	97	MP N/100mL		/A		18®	Colilert-1529	05/27/2021	0 5272190	G

V. Laboratory Analytical and Field Services

HydroAnalytical Lab aims to provide innovative, high quality water resource and hydrologic analytical services to ensure clean and safe water for public health and support research on water quality and quantity. Our facility offers progressive, customizable services in general chemistry, metals, microbiology through field sampling and laboratory analyses for wastewater, stormwater, groundwater, and industrial testing.

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We are also able to offer additional analytical and field based services beyond those listed below upon request.

General Chemistry	Certified Method
Alkalinity (Bicarbonate, Total)	SM 2320 B-2011
Ammonia - Nitrogen	Hach 10205
Atrazine (Non-Certified)	EPA 4670
BOD/CBOD (5-Day)	SM 5210 B-2011
Bromide	SM 4110 B-2011
Chloride	SM 4110 B-2011
Chlorine, Free (Non-Certified)	SM 4500 Cl G-2011
Chlorine, Total Residual	SM 4500 Cl G-2011
Chlorophyll a (Non-Certified)	EPA 445.0
COD	Hach 8000
Dissolved Oxygen	SM 4500 O G-2011
Fluoride	SM 4110 B-2011
Hardness, Total	SM 2340 C-2011
Hardness, Total (Calculated, Non-Certified)	EPA 200.7 Rev 4.4
Hexavalent Chromium	Hach 8023
Nitrate / Nitrate (as N)	SM 4110 B-2011
Nitrate + Nitrite (as N)	SM 4110 B-2011 or Hach 10206
Nitrite / Nitrite (as N)	SM 4110 B-2011
Nitrogen, Total	Calculation
Nitrogen, Total Kjeldahl (TKN)	Hach 10242
Oil and Grease, Total	EPA 1664 A Stepsaver
Ortho-Phosphate / Ortho-Phosphate (as P)	SM 4110 B-2011
pH	SM 4500 H+B-2011
Phosphorus, Total	Hach 10210
Settleable Solids	SM 2540 F-2011
Specific Conductance	SM 2510 B-2011
Specific Gravity	SM 2710 F-2011
Sulfate	SM 4110 B-2011
Temperature	SM 2550 B-2011
Total Carbon (Non-Certified)	SM 5310 B-2011
Total Dissolved Solids	SM 2540 C-2011
Total Inorganic Carbon (Non-Certified)	SM 5310 B-2011
Total Organic Carbon	SM 5310 B-2011
Total Solids	SM 2540 B-2011
Total Suspended Solids	SM 2540 D-2011
Turbidity (Non-Certified)	SM 2130 B-2011

V. Laboratory Analytical and Field Services

Metals by ICP-OES	Certified Method
Aluminum	EPA 200.7 Rev 4.4 1994
Antimony	EPA 200.7 Rev 4.4 1994
Arsenic	EPA 200.7 Rev 4.4 1994
Barium	EPA 200.7 Rev 4.4 1994
Beryllium	EPA 200.7 Rev 4.4 1994
Cadmium	EPA 200.7 Rev 4.4 1994
Calcium	EPA 200.7 Rev 4.4 1994
Chromium	EPA 200.7 Rev 4.4 1994
Cobalt	EPA 200.7 Rev 4.4 1994
Copper	EPA 200.7 Rev 4.4 1994
Iron	EPA 200.7 Rev 4.4 1994
Lead	EPA 200.7 Rev 4.4 1994
Lithium (Non-Certified)	EPA 200.7 Rev 4.4 1994
Magnesium	EPA 200.7 Rev 4.4 1994
Manganese	EPA 200.7 Rev 4.4 1994
Mercury (Non-Certified)	EPA 200.7 Rev 4.4 1994
Molybdenum	EPA 200.7 Rev 4.4 1994
Nickel	EPA 200.7 Rev 4.4 1994
Potassium	EPA 200.7 Rev 4.4 1994
Selenium	EPA 200.7 Rev 4.4 1994
Silver	EPA 200.7 Rev 4.4 1994
Sodium	EPA 200.7 Rev 4.4 1994
Strontium (Non-Certified)	EPA 200.7 Rev 4.4 1994
Sulfur (Non-Certified)	EPA 200.7 Rev 4.4 1994
Thallium	EPA 200.7 Rev 4.4 1994
Tin (Non-Certified)	EPA 200.7 Rev 4.4 1994
Titanium (Non-Certified)	EPA 200.7 Rev 4.4 1994
Vanadium	EPA 200.7 Rev 4.4 1994
Zinc	EPA 200.7 Rev 4.4 1994

Microbiological	Certified Method
Total Coliform/*E. coli* @ 35 °C (Presence/Absence)	SM 9223 B (Colilert-18) - 2011
Total Coliform/*E. coli* @ 35°C (MPN)	SM 9223 B (Colilert-18) - 2011
Fecal Coliform @ 44.5°C (Non-Certified)	SM 9223 B (Colilert-18) - 2011
Heterotrophic Plate Count	SM 9215 B-2011

Field Services	Certified Method
pH	SM 4500 H+B-2011
Temperature	SM 2550 B-2011
Dissolved Oxygen	SM 4500 O G-2011
Specific Conductance	SM 2510 B-2011
Flow (field measurement)	USGS 3-A8
Flow (calculated)	USDA TR-55
Silt Density Index	Meter
Turbidity (Non-Certified)	SM 2130 B-2011

VI. Chain of Custody

HydroAnalytical - Chain of Custody Record

HYDRO analytical | WKU

2413 Nashville Road #61066 | Bowling Green, KY 42101 | 270 - 745 - 5287

Customer Contact and Billing Information

Company: WKU EOHS | Email: ritchie.taylor@wku.edu | Address:
Phone: | City: Greenbrier | State: TN | Zip Code: | PO#:
Special Instructions:

Requested Turn-Around Time (Check One)
- ☐ Standard (14 working days)
- ☐ Rush (5-7 working days)
- ☐ 24 Hours (certain analytes only - Contact Lab before sampling)

- ☐ Compliance Samples
- ☐ Boil Water Advisory
- ☐ Investigative/Monitoring (non-compliance)
- ☐ DMR Entry Request

Legend for Sample Data Entry

Collection Method [1]	Matrix [2]	Container Type [3]		Preservatives [4]		
G - Grab	S - Soil/Solid	P - Plastic	VOA - VOA vial with septa	S - H2SO4 pH <2	H - HCl pH <2	SH - NaOH pH > 9
C - Composite	A - Aqueous	G - Glass	GA - Glass, Amber	N - HNO3 pH <2	ST - Na2S2O3	Ice - Cooled < 6°C

All containers per Table II of 40 CFR Part 136 unless noted otherwise.

Sections Below for Lab Use Only

Lab Project #: 052042
Sample Temp. at Receipt (°C): 6.1°C

Sample Collection (Times are CST unless noted) Date	Time	Method [1]	Sample Identification	Matrix [2]	Container Type [3]	Number of Containers	Preservative [4]	Requested Analysis	Sample Notes (If rejected, indicate a reason)	Bacteriological Samples Bottle Code	Volume	A / U
5/27/21	8:48	G	WKUTB001	A	P	1	ST	E.coli		C20	>100mL 100mL <100mL	A U
5/27/21	10:04	G	WKUPB001	A	P	1	ST			C60	>100mL 100mL <100mL	A U
5/27/21	10:28	G	WKUUT001	A	P	1	ST			C60	>100mL 100mL <100mL	A U
5/27/21	10:29	G	WKUUT002	A	P	1	ST			C20	>100mL 100mL <100mL	A U
5/27/21	10:48	G	WKUCC001	A	P	1	ST			C20	>100mL 100mL <100mL	A U
5/27/21	11:03	G	WKUCC002	A	P	1	ST			C20	>100mL 100mL <100mL	A U

Signature of Sampler: Jacqueline Basham **Print Name of Sampler:** Jacqueline Basham

Relinquished by	Date	Time	Received by	Date	Time
Jacqueline Basham	5-27-21	12:30			1233
Representing: WKU EOHS			Representing: HA		
Relinquished by:	5/27/21	1246	Received by: WW Emp	5/27/21	1246
Representing: HA			Representing: HA		
Relinquished by: FG	5/27/21	1452	Received by:	5/27/21	1452
Representing: HA WW Emp			Representing: HA		
Relinquished by:	Date:		Received by:	Date:	
Representing:	Time:		Representing:	Time:	

DOW-BGRO Notification:
PWS Notified:
DOW RTCR Mgr Notification:
Client Contact Notification:
Analysis Report Sent:
Invoiced:

☐ After-Hours Charge ☐ Rush Charge

VI. Chain of Custody

HydroAnalytical - Chain of Custody Record

HYDRO analytical | WKU

2413 Nashville Road #61088 | Bowling Green, KY 42101 | 270 - 745 - 5287

Customer Contact and Billing Information

Company: WKU EcHS | Email: ritchie.taylor@wku.edu | Address:
Phone: | City: Greenbrier | State: TN | Zip Code: | PO#:
Special Instructions:

Requested Turn-Around Time (Check One)
- ☐ Standard (14 working days)
- ☐ Rush (5-7 working days)
- ☐ 24 Hours (Certain analytes only - Contact Lab before sampling)

- ☐ Compliance Samples
- ☐ Boil Water Advisory
- ☐ Investigative/Monitoring (non-compliance)
- ☐ DMR Entry Request

Legend for Sample Data Entry

Collection Method [1]	Matrix [2]	Container Type [3]		Preservatives [4]		
G - Grab	S - Soil/Solid	P - Plastic	VOA - VOA vial with septa	S - H2SO4 pH <2	H - HCl pH <2	SH - NaOH pH > 9
C - Composite	A - Aqueous	G - Glass	GA - Glass, Amber	N - HNO3 pH <2	ST - Na2S2O3	Ice - Cooled < 6°C

All containers per Table II of 40 CFR Part 136 unless noted otherwise.

Sections Below for Lab Use Only

Lab Project #: DS21042
Sample Temp. at Receipt (°C): 6.1°

Sample Collection (Times are CST unless noted) Date	Time	Method [1]	Sample Identification	Matrix [2]	Container Type [3]	Number of Containers	Preservative [4]	Requested Analysis	Sample Notes (If rejected, indicate a reason)	Bacteriological Samples (Accept (A) / Unaccept (U)) Bottle Code	Volume	A / U
5/27/21	11:05	G	WKUCCCC3	A	P	1	ST	E.coli		CR	>100mL	A
5/27/21	11:24	G	WKUCCCC4	A	P	1	ST			CR	>100mL	A
											>100mL	A
											>100mL	A
											>100mL	A
											>100mL	A

Signature of Sampler: Jacqueline Bonham | Print Name of Sampler: Jacqueline Bonham

Relinquished by	Date	Received by	Date
Jacqueline Bonham	5-27-21		5/27/21
Representing: WKU EcHS	Time: 12:30	Representing: TDA	Time: 1233
Relinquished by:	Date: 5/27/21	Received by: WW Engr	Date: 5/27/21
Representing: TDA	Time: 1246	Representing: TDA	Time: 1246
Relinquished by:	Date:	Received by:	Date:
Representing:	Time:	Representing:	Time:
Relinquished by:	Date:	Received by:	Date:
Representing:	Time:	Representing:	Time:

DOW-BGRO Notification:
PWS Notified:
DOW RTCR Mgr Notification:
Client Contact Notification:
Analysis Report Sent:
Invoiced:

☐ After-Hours Charge ☐ Rush Charge

Analysis Report

Project: 0621002

ATTN: Ritchie Taylor **WKU EOHS**	**1906 College** **Bowling Green, Kentucky 42101**

Dear Ritchie Taylor,

The enclosed report includes the analytical results for the samples received by our Laboratory on 06/01/2021.

HydroAnalytical is a state certified commercial stormwater, wastewater and drinking water laboratory (KY Lab#:00035). All KPDES compliance sample analyses are performed in accordance with the methodology provisions of 40 CFR 136 and the Kentucky Division of Water, Energy and Environment Cabinet (unless otherwise stated).

To view our scope of work, research capabilities and past projects, education and outreach, sampling instructions, and additional forms and documents, please visit our website at www.HydroAnalytical.com.

If you have any questions regarding the content of this report or would like information on additional services we can provide you, please call us at (270) 745-5287 or email us at HydroAnalytical@wku.edu.

This report includes:

I. Definitions
II. Data Flags
III. Project Notes
IV. Analytical Results
V. Laboratory Field Services and Analytical Methods
VI. Chain of Custody

Report Generated Morgan Miller, Laboratory Analyst — 06/09/2021 Date

Report Approved Ethan Givan, Laboratory Manager — 06/10/2021 Date

To follow us on social media for lab news and updates, click on the links below!

I.

	Laboratory	Quality Control	Standard Unit
	Laboratory	Millions of Gallons	Too Numerous to Count
	Method	Milligrams per Liter	Instrument Performance Check
	Minimum	Most Probable	Less than
	Not Applicable	Micrograms per	Greater than
/A	g/L	Liter	

II. Data

See Data Notes

Reported result is

Reported result was obtained from the analysis of a sample

The target analyte exceeded the calibration curve of the

The analysis was conducted

The reported result is an estimated value. The target analyte was detected in the sample above the current method detection limit (MDL), however the result is below the established minimum reportable level (MRL).

The target analyte was not detected in the sample at or above the Lab's current method detection limit (MDL).

One or more quality control criteria were not met during the analysis of the sample. See the Data Notes section for details. Recollection of the sample may be necessary per the client's discretion or the laboratory's request.

III. Project: 0621002 Data Notes

No notes for this project.

DMR Entry

If the customer has requested the results of this report be entered into NetDMR, the results were entered under the

Permit #: _____

Date of data entry: _____

IV. Analytical Results

ite ID: Blank	Trip		Ma trix: queous			Time Collected:	06/01/2 021 0854	Time Received:	06/01/20 21 1209
sis	**Analy**	**esult**	**nit**	**RL**	**DL**	**g**	**Fla d**	**Metho**	**Time Analyzed**	**ab ID**	**nalyst**
coli	E.	**1**	MP N/100mL		/A			Colilert-18®	06/01/2021 1546	0 6012182	G

ite ID: PB001	WKU		Ma trix: queous			Time Collected:	06/01/2 021 0953	Time Received:	06/01/20 21 1209
sis	**Analy**	**esult**	**nit**	**RL**	**DL**	**g**	**Fla d**	**Metho**	**Time Analyzed**	**ab ID**	**nalyst**
coli	E.	**42**	MP N/100mL		/A			Colilert-18®	06/01/2021 1546	0 6012183	G

ite ID: PB002	WKU		Ma trix: queous			Time Collected:	06/01/2 021 0954	Time Received:	06/01/20 21 1209
sis	**Analy**	**esult**	**nit**	**RL**	**DL**	**g**	**Fla d**	**Metho**	**Time Analyzed**	**ab ID**	**nalyst**
coli	E.	**08**	MP N/100mL		/A			Colilert-18®	06/01/2021 1546	0 6012184	G

ite ID: UT001	WKU		Ma trix: queous			Time Collected:	06/01/2 021 1018	Time Received:	06/01/20 21 1209
sis	**Analy**	**esult**	**nit**	**RL**	**DL**	**g**	**Fla d**	**Metho**	**Time Analyzed**	**ab ID**	**nalyst**
coli	E.	**9**	MP N/100mL		/A			Colilert-18®	06/01/2021 1546	0 6012185	G

IV. Analytical Results

ite ID: CC001 WKU			Ma trix: queous				Time Collected:	06/01/2 021 1035	Time Received:	06/01/20 21 1209	
sis	**Analy**	**esult**	**nit**	**RL**	**DL**	**g**	**Fla d**	**Metho**	**Time Analyzed**	**ab ID**	**nalyst**
coli	E.	**45**	MP N/100mL		/A		18®	Colilert- 1546	06/01/2021	0 6012186	G

ite ID: CC002 WKU			Ma trix: queous				Time Collected:	06/01/2 021 1046	Time Received:	06/01/20 21 1209	
sis	**Analy**	**esult**	**nit**	**RL**	**DL**	**g**	**Fla d**	**Metho**	**Time Analyzed**	**ab ID**	**nalyst**
coli	E.	**76**	MP N/100mL		/A		18®	Colilert- 1546	06/01/2021	0 6012187	G

ite ID: CC003 WKU			Ma trix: queous				Time Collected:	06/01/2 021 1059	Time Received:	06/01/20 21 1209	
sis	**Analy**	**esult**	**nit**	**RL**	**DL**	**g**	**Fla d**	**Metho**	**Time Analyzed**	**ab ID**	**nalyst**
coli	E.	**91**	MP N/100mL		/A		18®	Colilert- 1546	06/01/2021	0 6012188	G

ite ID: CC004 WKU			Ma trix: queous				Time Collected:	06/01/2 021 1100	Time Received:	06/01/20 21 1209	
sis	**Analy**	**esult**	**nit**	**RL**	**DL**	**g**	**Fla d**	**Metho**	**Time Analyzed**	**ab ID**	**nalyst**
coli	E.	**1**	MP N/100mL		/A		18®	Colilert- 1546	06/01/2021	0 6012189	G

V. Laboratory Analytical and Field Services

HydroAnalytical Lab aims to provide innovative, high quality water resource and hydrologic analytical services to ensure clean and safe water for public health and support research on water quality and quantity. Our facility offers progressive, customizable services in general chemistry, metals, microbiology through field sampling and laboratory analyses for wastewater, stormwater, groundwater, and industrial testing.

HydroAnalytical also takes pride in offering EPA-certified microbiological testing for drinking water and wastewater. We are proud to serve south- central Kentucky and the surrounding region's water analysis needs. If you have questions or would like a quote for laboratory analyses or field services please email the lab at HydroAnalytical@wku.edu

We are also able to offer additional analytical and field based services beyond those listed below upon request.

General Chemistry	Certified Method
Alkalinity (Bicarbonate, Total)	SM 2320 B-2011
Ammonia - Nitrogen	Hach 10205
Atrazine (Non-Certified)	EPA 4670
BOD/CBOD (5-Day)	SM 5210 B-2011
Bromide	SM 4110 B-2011
Chloride	SM 4110 B-2011
Chlorine, Free (Non-Certified)	SM 4500 Cl G-2011
Chlorine, Total Residual	SM 4500 Cl G-2011
Chlorophyll a (Non-Certified)	EPA 445.0
COD	Hach 8000
Dissolved Oxygen	SM 4500 O G-2011
Fluoride	SM 4110 B-2011
Hardness, Total	SM 2340 C-2011
Hardness, Total (Calculated, Non-Certified)	EPA 200.7 Rev 4.4
Hexavalent Chromium	Hach 8023
Nitrate / Nitrate (as N)	SM 4110 B-2011
Nitrate + Nitrite (as N)	SM 4110 B-2011 or Hach 10206
Nitrite / Nitrite (as N)	SM 4110 B-2011
Nitrogen, Total	Calculation
Nitrogen, Total Kjeldahl (TKN)	Hach 10242
Oil and Grease, Total	EPA 1664 A Stepsaver
Ortho-Phosphate / Ortho-Phosphate (as P)	SM 4110 B-2011
pH	SM 4500 H+B-2011
Phosphorus, Total	Hach 10210
Settleable Solids	SM 2540 F-2011
Specific Conductance	SM 2510 B-2011
Specific Gravity	SM 2710 F-2011
Sulfate	SM 4110 B-2011
Temperature	SM 2550 B-2011
Total Carbon (Non-Certified)	SM 5310 B-2011
Total Dissolved Solids	SM 2540 C-2011
Total Inorganic Carbon (Non-Certified)	SM 5310 B-2011
Total Organic Carbon	SM 5310 B-2011
Total Solids	SM 2540 B-2011
Total Suspended Solids	SM 2540 D-2011
Turbidity (Non-Certified)	SM 2130 B-2011

V. Laboratory Analytical and Field Services

Metals by ICP-OES	Certified Method
Aluminum	EPA 200.7 Rev 4.4 1994
Antimony	EPA 200.7 Rev 4.4 1994
Arsenic	EPA 200.7 Rev 4.4 1994
Barium	EPA 200.7 Rev 4.4 1994
Beryllium	EPA 200.7 Rev 4.4 1994
Cadmium	EPA 200.7 Rev 4.4 1994
Calcium	EPA 200.7 Rev 4.4 1994
Chromium	EPA 200.7 Rev 4.4 1994
Cobalt	EPA 200.7 Rev 4.4 1994
Copper	EPA 200.7 Rev 4.4 1994
Iron	EPA 200.7 Rev 4.4 1994
Lead	EPA 200.7 Rev 4.4 1994
Lithium (Non-Certified)	EPA 200.7 Rev 4.4 1994
Magnesium	EPA 200.7 Rev 4.4 1994
Manganese	EPA 200.7 Rev 4.4 1994
Mercury (Non-Certified)	EPA 200.7 Rev 4.4 1994
Molybdenum	EPA 200.7 Rev 4.4 1994
Nickel	EPA 200.7 Rev 4.4 1994
Potassium	EPA 200.7 Rev 4.4 1994
Selenium	EPA 200.7 Rev 4.4 1994
Silver	EPA 200.7 Rev 4.4 1994
Sodium	EPA 200.7 Rev 4.4 1994
Strontium (Non-Certified)	EPA 200.7 Rev 4.4 1994
Sulfur (Non-Certified)	EPA 200.7 Rev 4.4 1994
Thallium	EPA 200.7 Rev 4.4 1994
Tin (Non-Certified)	EPA 200.7 Rev 4.4 1994
Titanium (Non-Certified)	EPA 200.7 Rev 4.4 1994
Vanadium	EPA 200.7 Rev 4.4 1994
Zinc	EPA 200.7 Rev 4.4 1994

Microbiological	Certified Method
Total Coliform/*E. coli* @ 35 °C (Presence/Absence)	SM 9223 B (Colilert-18) - 2011
Total Coliform/*E. coli* @ 35°C (MPN)	SM 9223 B (Colilert-18) - 2011
Fecal Coliform @ 44.5°C (Non-Certified)	SM 9223 B (Colilert-18) - 2011
Heterotrophic Plate Count	SM 9215 B-2011

Field Services	Certified Method
pH	SM 4500 H+B-2011
Temperature	SM 2550 B-2011
Dissolved Oxygen	SM 4500 O G-2011
Specific Conductance	SM 2510 B-2011
Flow (field measurement)	USGS 3-A8
Flow (calculated)	USDA TR-55
Silt Density Index	Meter
Turbidity (Non-Certified)	SM 2130 B-2011

VI. Chain of Custody

HydroAnalytical - Chain of Custody Record

HYDRO analytical | WKU

3413 Nashville Road #61066 | Bowling Green, KY 42101 | 270 - 745 - 5287

Requested Turn-Around Time (Check One)
- [x] Standard (14 working days)
- [ ] Rush (5-7 working days)
- [ ] 24 Hours (Certain analytes only - Contact Lab before sampling)

Customer Contact and Billing Information

Company: WKU EOHS Email: ritchie.taylor@wku.edu Address:

Phone: City: Greenbrier State: TN Zip Code: PO#:

Special Instructions:

- [ ] Compliance Samples
- [ ] Boil Water Advisory
- [ ] Investigative/Monitoring (non-compliance)
- [ ] DMR Entry Request

Legend for Sample Data Entry

Collection Method [1]	Matrix [2]	Container Type [3]		Preservatives [4]		
G - Grab	S - Soil/Solid	P - Plastic	VOA - VOA vial with septa	S - H2SO4 pH <2	H - HCl pH <2	BH - NaOH pH > 9
C - Composite	A - Aqueous	G - Glass	GA - Glass, Amber	N - HNO3 pH <2	ST - Na2S2O3	Ice - Cooled < 6°C

All containers per Table II of 40 CFR Part 136 unless noted otherwise.

Sections Below for Lab Use Only

Lab Project #: 0621002

Sample Temp. at Receipt (°C): 14.0°

Sample Collection (Times are CST unless noted) Date	Time	Method [1]	Sample Identification	Matrix [2]	Container Type [3]	Number of Containers	Preservative [4]	Requested Analysis	Sample Notes (If rejected, indicate a reason)	Bacteriological Samples (Aerobic ph.) Bottle Code	Volume	A / U
6-1-2021	9:54	G	Trip Blank	A	P	1	ST	E. coli		CZ0	100mL	A U
	9:53		WKUPB001			1				CZ0	100mL	A U
	9:54		WKUPB002			1				CZ0	100mL	A U
	10:19		WKUUT001			1				CZ0	100mL	A U
	10:35		WKUCC001			1				CZ0	100mL	A U
	10:46		WKUCC002			1				CZ0	100mL	A U

Signature of Sampler: Jacqueline Basham Print Name of Sampler: Jacqueline Basham

Relinquished by	Date	Time	Received by	Date	Time
Jacqueline Basham	6-1-2021	12:07		6/1/2021	1209
Representing: WKU			Representing: KHA		
Relinquished by:	Date: 6/1/2021	Time: 1216	Received by: WW Ford	Date: 6/1/2021	Time: 1216
Representing: KHA			Representing:		
Relinquished by: WW Ford	Date: 6/1/2021	Time: 1449	Received by:	Date: 6/1/2021	Time: 1449
Representing:			Representing: KHA		
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Representing:			Representing:		

DOW-BGRO Notification:

PWS Notified:

DOW RTCR Mgr Notification:

Client Contact Notification:

Analysis Report Sent:

Invoiced:

- [ ] After-Hours Charge
- [ ] Rush Charge

Visit us at www.hydroanalytical.com

VI. Chain of Custody

HydroAnalytical - Chain of Custody Record

HYDRO analytical

WKU

2413 Nashville Road #61066 | Bowling Green, KY 42101 | 270 - 745 - 5287

Requested Turn-Around Time (Check One)
- ☐ Standard (14 working days)
- ☐ Rush (5-7 working days)
- ☐ 24 Hours Certain analyses only - Contact Lab before sampling

Customer Contact and Billing Information

Company: WKU ECHS Email: ritchie.taylor@wku.edu Address:

Phone: City: Greenville State: KY Zip Code: PO#:

Special Instructions:

- ☐ Compliance Samples
- ☐ Boil Water Advisory
- ☐ Investigative/Monitoring (non-compliance)
- ☐ DMR Entry Request

Legend for Sample Data Entry

Collection Method [1]	Matrix [2]	Container Type [3]	Preservatives [4]
G - Grab	S - Soil/Solid	P - Plastic; VOA - VOA vial with septa	S - H_2SO_4 pH <2; H - HCl pH <2; SH - NaOH pH > 9
C - Composite	A - Aqueous	G - Glass; GA - Glass, Amber	N - HNO_3 pH <2; ST - $Na_2S_2O_3$; Ice - Cooled < 6°C

All containers per Table II of 40 CFR Part 136 unless noted otherwise.

Sections Below for Lab Use Only

Lab Project #: 06 21007

Sample Temp. at Receipt (°C): 14.0

Sample Collection (Times are CST unless noted) Date	Time	Method [1]	Sample Identification	Matrix [2]	Container Type [3]	Number of Containers	Preservative [4]	Requested Analysis	Sample Notes (If rejected, indicate a reason)	Bacteriological Samples Accept (A) / Unaccept (U) Bottle Code	Vol./Time	A / U
6-1-21	10:59	G	WKUCC003	A	P		ST	E.coli		CW	<100mL 100mL <100mL	A U
	11:00		WKUCC004							CZ01	<100mL 100mL <100mL	A U
											<100mL 100mL <100mL	A U
											<100mL 100mL <100mL	A U
											<100mL 100mL <100mL	A U
											<100mL 100mL <100mL	A U

Signature of Sampler: Jacqueline Basham **Print Name of Sampler:** Jacqueline Basham

Relinquished by	Date	Received by	Date
Jacqueline Basham	6-1-2021		6/1/2021
Representing: WKU	Time: 12:07	Representing: HA	Time: 1209
Relinquished by: HA	Date: 6/1/2021	Received by: WW Fed Ex	Date: 6/1/2021
Representing:	Time: 1216	Representing:	Time: 1216
Relinquished by:	Date:	Received by:	Date:
Representing:	Time:	Representing:	Time:
Relinquished by:	Date:	Received by:	Date:
Representing:	Time:	Representing:	Time:

DOW-BGRO Notification:

PWS Notified:

DOW RTCR Mgr Notification:

Client Contact Notification:

Analyses Report Sent:

Invoiced:

☐ After-Hours Charge ☐ Rush Charge

Analysis Report

Project: 0621026

ATTN: Ritchie Taylor **WKU EOHS**	**1906 College** **Bowling Green, Kentucky 42101**

Dear Ritchie Taylor,

The enclosed report includes the analytical results for the samples received by our Laboratory on 06/08/2021.

HydroAnalytical is a state certified commercial stormwater, wastewater and drinking water laboratory (KY Lab#:00035). All KPDES compliance sample analyses are performed in accordance with the methodology provisions of 40 CFR 136 and the Kentucky Division of Water, Energy and Environment Cabinet (unless otherwise stated).

To view our scope of work, research capabilities and past projects, education and outreach, sampling instructions, and additional forms and documents, please visit our website at www.HydroAnalytical.com.

If you have any questions regarding the content of this report or would like information on additional services we can pro you, please call us at

(270) 745 - 5287 or email us at HydroAnalytical@wku.edu

This report includes:

I. Definitions
II. Data Flags
III. Project Notes
IV. Analytical Results
V. Laboratory Field Services and Analytical Methods
VI. Chain of Custody

Morgan Miller

Report Generated

Morgan Miller, Laboratory Analyst

06/15/2021
Date

Report Approved

Ethan Givan, Laboratory Manager

06/16/2021
Date

To follow us on social media for lab news and updates, click on the links below!

I.

	Laboratory Fortified	Quality Control	Standard Unit
	Laboratory	Millions of Gallons	Too Numerous to Count
	Method Detection	Milligrams per Liter	Instrument Performance Check
	Minimum	Most Probable	Less than
	Not Applicable	Micrograms per	Greater than
/A	g/L	Liter	

II. Data

See Data Notes

Reported result is

Reported result was obtained from the analysis of a sample

The target analyte exceeded the calibration curve of the

The analysis was conducted in

The reported result is an estimated value. The target analyte was detected in the sample above the current method detection limit (MDL), however the result is below the established minimum reportable level (MRL).

The target analyte was not detected in the sample at or above the Lab's current method detection limit (MDL).

One or more quality control criteria were not met during the analysis of the sample. See the Data Notes section for details. Recollection of the sample may be necessary per the client's discretion or the laboratory's request.

III. Project: 0621026 Data Notes

No notes for this project.

DMR Entry

If the customer has requested the results of this report be entered into NetDMR, the results were entered under the

Permit #: _____ Date of data entry: _____

IV. Analytical Results

ite ID: PB001	WKU	Mat rix: queous	Time Collected: 06/08/2021 0952	Time Received: 06/08/2021 1300

sis	Analy	esult	nit	RL	DL	g	Fla d	Metho	Time Analyzed	ab ID	nalyst
coli	E.	57	M PN/100mL		/A			Colilert-18®	06/08/2021 1449	0 6082187	M

ite ID: UT001	WKU	Mat rix: queous	Time Collected: 06/08/2021 1018	Time Received: 06/08/2021 1300

sis	Analy	esult	nit	RL	DL	g	Fla d	Metho	Time Analyzed	ab ID	nalyst
coli	E.	8	M PN/100mL		/A			Colilert-18®	06/08/2021 1449	0 6082188	M

ite ID: UT002	WKU	Mat rix: queous	Time Collected: 06/08/2021 1022	Time Received: 06/08/2021 1300

sis	Analy	esult	nit	RL	DL	g	Fla d	Metho	Time Analyzed	ab ID	nalyst
coli	E.	1	M PN/100mL		/A			Colilert-18®	06/08/2021 1449	0 6082189	M

ite ID: CC001	WKU	Mat rix: queous	Time Collected: 06/08/2021 1041	Time Received: 06/08/2021 1300

sis	Analy	esult	nit	RL	DL	g	Fla d	Metho	Time Analyzed	ab ID	nalyst
coli	E.	65	M PN/100mL		/A			Colilert-18®	06/08/2021 1449	0 6082190	M

ite ID: C002	WKU	Mat rix: queous	Time Collected: 06/08/2021 1043	Time Received: 06/08/2021 1300

sis	Analy	esult	nit	RL	DL	g	Fla d	Metho	Time Analyzed	ab ID	nalyst
coli	E.	65	M PN/100mL		/A			Colilert-18®	06/08/2021 1449	0 6082191	M

IV. Analytical Results

ite ID: CC003 WKU			Mat rix: queous			Time Collected: 021 1055 06/08/2		Time Received: 21 1300 06/08/20		
sis Analy	esult	nit	RL	DL	g Fla	d	Metho	Analyzed Time	ab ID	nalyst
coli E.	27	M PN/100mL		/A		18®	Colilert-1449	06/08/2021	0 6082192	M

ite ID: TBOO1 WKU			Mat rix: queous			Time Collected: 021 0851 06/08/2		Time Received: 21 1300 06/08/20		
sis Analy	esult	nit	RL	DL	g Fla	d	Metho	Analyzed Time	ab ID	nalyst
coli E.	1	M PN/100mL		/A		18®	Colilert-1449	06/08/2021	0 6082193	M

ite ID: CC004 WKU			Mat rix: queous			Time Collected: 021 1121 06/08/2		Time Received: 21 1300 06/08/20		
sis Analy	esult	nit	RL	DL	g Fla	d	Metho	Analyzed Time	ab ID	nalyst
coli E.	11	M PN/100mL		/A		18®	Colilert-1449	06/08/2021	0 6082194	M

V. Laboratory Analytical and Field Services

HydroAnalytical Lab aims to provide innovative, high quality water resource and hydrologic analytical services to ensure clean and safe water for public health and support research on water quality and quantity. Our facility offers progressive, customizable services in general chemistry, metals, microbiology through field sampling and laboratory analyses for wastewater, stormwater, groundwater, and industrial testing.

HydroAnalytical also takes pride in offering EPA-certified microbiological testing for drinking water and wastewater. We are proud to serve south- central Kentucky and the surrounding region's water analysis needs. If you have questions or would like a quote for laboratory analyses or field services, please email the lab at HydroAnalytical@wku.edu

We are also able to offer additional analytical and field based services beyond those listed below upon request.

General Chemistry	Certified Method
Alkalinity (Bicarbonate, Total)	SM 2320 B-2011
Ammonia - Nitrogen	Hach 10205
Atrazine (Non-Certified)	EPA 4670
BOD/CBOD (5-Day)	SM 5210 B-2011
Bromide	SM 4110 B-2011
Chloride	SM 4110 B-2011
Chlorine, Free (Non-Certified)	SM 4500 Cl G-2011
Chlorine, Total Residual	SM 4500 Cl G-2011
Chlorophyll a (Non-Certified)	EPA 445.0
COD	Hach 8000
Dissolved Oxygen	SM 4500 O G-2011
Fluoride	SM 4110 B-2011
Hardness, Total	SM 2340 C-2011
Hardness, Total (Calculated, Non-Certified)	EPA 200.7 Rev 4.4
Hexavalent Chromium	Hach 8023
Nitrate / Nitrate (as N)	SM 4110 B-2011
Nitrate + Nitrite (as N)	SM 4110 B-2011 or Hach 10206
Nitrite / Nitrite (as N)	SM 4110 B-2011
Nitrogen, Total	Calculation
Nitrogen, Total Kjeldahl (TKN)	Hach 10242
Oil and Grease, Total	EPA 1664 A Stepsaver
Ortho-Phosphate / Ortho-Phosphate (as P)	SM 4110 B-2011
pH	SM 4500 H+B-2011
Phosphorus, Total	Hach 10210
Settleable Solids	SM 2540 F-2011
Specific Conductance	SM 2510 B-2011
Specific Gravity	SM 2710 F-2011
Sulfate	SM 4110 B-2011
Temperature	SM 2550 B-2011
Total Carbon (Non-Certified)	SM 5310 B-2011
Total Dissolved Solids	SM 2540 C-2011
Total Inorganic Carbon (Non-Certified)	SM 5310 B-2011
Total Organic Carbon	SM 5310 B-2011
Total Solids	SM 2540 B-2011
Total Suspended Solids	SM 2540 D-2011
Turbidity (Non-Certified)	SM 2130 B-2011

V. Laboratory Analytical and Field Services

Metals by ICP-OES	Certified Method
Aluminum	EPA 200.7 Rev 4.4 1994
Antimony	EPA 200.7 Rev 4.4 1994
Arsenic	EPA 200.7 Rev 4.4 1994
Barium	EPA 200.7 Rev 4.4 1994
Beryllium	EPA 200.7 Rev 4.4 1994
Cadmium	EPA 200.7 Rev 4.4 1994
Calcium	EPA 200.7 Rev 4.4 1994
Chromium	EPA 200.7 Rev 4.4 1994
Cobalt	EPA 200.7 Rev 4.4 1994
Copper	EPA 200.7 Rev 4.4 1994
Iron	EPA 200.7 Rev 4.4 1994
Lead	EPA 200.7 Rev 4.4 1994
Lithium (Non-Certified)	EPA 200.7 Rev 4.4 1994
Magnesium	EPA 200.7 Rev 4.4 1994
Manganese	EPA 200.7 Rev 4.4 1994
Mercury (Non-Certified)	EPA 200.7 Rev 4.4 1994
Molybdenum	EPA 200.7 Rev 4.4 1994
Nickel	EPA 200.7 Rev 4.4 1994
Potassium	EPA 200.7 Rev 4.4 1994
Selenium	EPA 200.7 Rev 4.4 1994
Silver	EPA 200.7 Rev 4.4 1994
Sodium	EPA 200.7 Rev 4.4 1994
Strontium (Non-Certified)	EPA 200.7 Rev 4.4 1994
Sulfur (Non-Certified)	EPA 200.7 Rev 4.4 1994
Thallium	EPA 200.7 Rev 4.4 1994
Tin (Non-Certified)	EPA 200.7 Rev 4.4 1994
Titanium (Non-Certified)	EPA 200.7 Rev 4.4 1994
Vanadium	EPA 200.7 Rev 4.4 1994
Zinc	EPA 200.7 Rev 4.4 1994

Microbiological	Certified Method
Total Coliform/*E. coli* @ 35 °C (Presence/Absence)	SM 9223 B (Colilert-18) - 2011
Total Coliform/*E. coli* @ 35°C (MPN)	SM 9223 B (Colilert-18) - 2011
Fecal Coliform @ 44.5°C (Non-Certified)	SM 9223 B (Colilert-18) - 2011
Heterotrophic Plate Count	SM 9215 B-2011

Field Services	Certified Method
pH	SM 4500 H+B-2011
Temperature	SM 2550 B-2011
Dissolved Oxygen	SM 4500 O G-2011
Specific Conductance	SM 2510 B-2011
Flow (field measurement)	USGS 3-A8
Flow (calculated)	USDA TR-55
Silt Density Index	Meter
Turbidity (Non-Certified)	SM 2130 B-2011

VI. Chain of Custody

HydroAnalytical - Chain of Custody Record

HYDRO analytical | WKU

2413 Nashville Road #61066 | Bowling Green, KY 42101 | 270 - 745 - 5287

Requested Turn-Around Time (Check One)
- ☐ Standard (14 working days)
- ☐ Rush (5-7 working days)
- ☐ 24 Hours (Certain analytes only - Contact Lab before sampling)

Customer Contact and Billing Information

Company: WKU EOHS Email: ritchie.taylor@wku.edu Address:

Phone: City: Greenbrier State: TN Zip Code: PO#:

Special Instructions:

- ☐ Compliance Samples
- ☐ Boil Water Advisory
- ☐ Investigative/Monitoring (non-compliance)
- ☐ DMR Entry Request

Legend for Sample Data Entry

Collection Method [1]	Matrix [2]	Container Type [3]	Preservatives [4]
G - Grab	S - Soil/Solid	P - Plastic	VOA - VOA vial with septa	S - H2SO4 pH <2	H - HCl pH <2	SH - NaOH pH > 9
C - Composite	A - Aqueous	G - Glass	GA - Glass, Amber	N - HNO3 pH <2	ST - Na2S2O3	Ice - Cooled < 6°C

All containers per Table II of 40 CFR Part 136 unless noted otherwise.

Sections Below for Lab Use Only

Lab Project #: 062021026

Sample Temp. at Receipt (°C): 13.9°

Sample Collection (Times are CST unless noted)			Sample Identification	Matrix [2]	Container Type [3]	Number of Containers	Preservative [4]	Requested Analysis	Sample Notes (If rejected, indicate a reason)	Bacteriological Samples (Accept (A) / Unaccept (U))		
Date	Time	Method [1]								Bottle Code	Volume	A / U
6-3-21	9:52	G	WKUPB001	A	P	1	ST	E.coli		C20	100mL	A
	10:18		WKUUT001			1				C20	100mL	A
	10:22		WKUUT002			1				C20	100mL	A
	10:41		WKUCC001			1				C20	100mL	A
	10:43		WKUCC002			1				C20	100mL	A
	10:59		WKUCC003			1				C20	100mL	A

Signature of Sampler: Jacqueline Basham **Print Name of Sampler:** Jacqueline Basham

Relinquished by	Date	Received by	Date
Jacqueline Basham	06-08-2021	[illegible]	6-8 2021
Representing: WKU EOHS	Time: 12:58	Representing: HA	Time: 1300
Relinquished by: [illegible]	Date: 06-08-21	Received by: WW Fridge	Date: 06-08-21
Representing: HA	Time: 1307	Representing: HA	Time: 1307
Relinquished by: WW Fridge	Date: 6/8/21	Received by: Morgan Mellon	Date: 6/8/21
Representing: HA	Time: 1400	Representing: HA	Time: 1400
Relinquished by:	Date:	Received by:	Date:
Representing:	Time:	Representing:	Time:

DOW-BGRO Notification:

PWS Notified:

DOW RTCR Mgr Notification:

Client Contact Notification:

Analysis Report Sent:

Invoiced:

☐ After-Hours Charge ☐ Rush Charge

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VI. Chain of Custody

HydroAnalytical - Chain of Custody Record

H2YDRO analytical | WKU

2413 Nashville Road #61066 | Bowling Green, KY 42101 | 270 - 745 - 5287

Customer Contact and Billing Information

Company: WKU EOHS Email: ritchie.taylor@wku.edu Address:

Phone: City: Greenbrier State: TN Zip Code: PO#:

Special Instructions:

Requested Turn-Around Time (Check One)

- ☐ Standard (14 working days)
- ☐ Rush (5-7 working days)
- ☐ 24 Hours (Certain analytes only - Contact Lab before sampling)

- ☐ Compliance Samples
- ☐ Boil Water Advisory
- ☐ Investigative/Monitoring (non-compliance)
- ☐ DMR Entry Request

Legend for Sample Data Entry

Collection Method [1]	Matrix [2]	Container Type [3]		Preservatives [4]		
G - Grab	S - Soil/Solid	P - Plastic	VOA - VOA vial with septa	S - H2SO4 pH <2	H - HCl pH <2	SH - NaOH pH > 9
C - Composite	A - Aqueous	G - Glass	GA - Glass, Amber	N - HNO3 pH <2	ST - Na2S2O3	Ice - Cooled < 6°C

All containers per Table II of 40 CFR Part 136 unless noted otherwise.

Sections Below for Lab Use Only

Lab Project #: 062026

Sample Temp. at Receipt (°C): 13.9

Sample Collection (Times are CST unless noted) Date	Time	Method [1]	Sample Identification	Matrix [2]	Container Type [3]	Number of Containers	Preservative [4]	Requested Analysis	Sample Notes (If rejected, indicate a reason)	Bacteriological Samples Accept (A) / Unacceptable (U) Bottle Code	Volume	A / U
6-8-21	8:51	G	WKUTB001	A	P	1	ST	E. coli		C20	>10.0mL, 100mL, <100mL	A U
	11:21		WKUCC004							C20	>10.0mL, 100mL, <100mL	A U
											>10.0mL, 100mL, <100mL	A U
											>10.0mL, 100mL, <100mL	A U
											>10.0mL, 100mL, <100mL	A U
											>10.0mL, 100mL, <100mL	A U

Signature of Sampler: Jacqueline Basham **Print Name of Sampler:** Jacqueline Basham

Relinquished by	Date	Received by	Date
Jacqueline Basham	06-08-2021	[illegible]	6-8-2021
Representing: WKU EOHS	Time: 12:58	Representing: HA	Time: 1300
Relinquished by: [illegible]	Date: 06-08-21	Received by: WW Fridge	Date: 06-08-21
Representing: HA	Time: 1307	Representing: HA	Time: 1307
Relinquished by: WW Fridge	Date: 6/8/21	Received by: Morgan Mills	Date: 6/8/21
Representing: HA	Time: 1400	Representing: HA	Time: 1400
Relinquished by:	Date:	Received by:	Date:
Representing:	Time:	Representing:	Time:

DOW-BGRO Notification:

PWS Notified:

DOW RTCR Mgr Notification:

Client Contact Notification:

Analysis Report Sent:

Invoiced:

☐ After-Hours Charge ☐ Rush Charge

Analysis Report

Project: 0621028

ATTN: Ritchie Taylor **WKU EOHS**	**1906 College** **Bowling Green, Kentucky 42101**

Dear Ritchie Taylor,

The enclosed report includes the analytical results for the samples received by our Laboratory on 06/10/2021.

HydroAnalytical is a state certified commercial stormwater, wastewater and drinking water laboratory (KY Lab#:00035). All KPDES compliance sample analyses are performed in accordance with the methodology provisions of 40 CFR 136 and the Kentucky Division of Water, Energy and Environment Cabinet (unless otherwise stated).

To view our scope of work, research capabilities and past projects, education and outreach, sampling instructions, and additional forms and documents, please visit our website at www.HydroAnalytical.com.

If you have any questions regarding the content of this report or would like information on additional services we can provide you, please call us at (270) 745-5287 or email us at HydroAnalytical@wku.edu.

This report includes:

I. Definitions
II. Data Flags
III. Project Notes
IV. Analytical Results
V. Laboratory Field Services and Analytical Methods
VI. Chain of Custody

Report Generated Morgan Miller, Laboratory Analyst — 06/15/2021 Date

Report Approved Ethan Givan, Laboratory Manager — 06/16/2021 Date

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I.

	Laboratory	Quality Control	Standard Unit
	Laboratory	Millions of Gallons	Too Numerous to Count
	Method	Milligrams per Liter	Instrument Performance Check
	Minimum	Most Probable	Less than
	Not Applicable	Micrograms per	Greater than
/A	g/L	Liter	

II. Data

See Data Notes

Reported result is

Reported result was obtained from the analysis of a sample

The target analyte exceeded the calibration curve of the

The analysis was conducted

The reported result is an estimated value. The target analyte was detected in the sample above the current method detection limit (MDL), however the result is below the established minimum reportable level (MRL).

The target analyte was not detected in the sample at or above the Lab's current method detection limit (MDL).

One or more quality control criteria were not met during the analysis of the sample. See the Data Notes section for details. Recollection of the sample may be necessary per the client's discretion or the laboratory's request.

III. Project: 0621028 Data Notes

No notes for this project.

DMR Entry

If the customer has requested the results of this report be entered into NetDMR, the results were entered under the

Permit #: _____ Date of data entry: _____

IV. Analytical Results

ite ID: TB001	WKU	Ma trix: queous	Time Collected:	06/10/2 021 0854	Time Received:	06/10/20 21 1200

Analysis	Result	Unit	RL	DL	Flag	Method	Time Analyzed	Lab ID	Analyst
E. coli	1	MPN/100mL		/A		Colilert-18®	06/10/2021 1534	0 6102181	G

ite ID: PB001	WKU	Ma trix: queous	Time Collected:	06/10/2 021 0956	Time Received:	06/10/20 21 1200

Analysis	Result	Unit	RL	DL	Flag	Method	Time Analyzed	Lab ID	Analyst
E. coli	45	MPN/100mL		/A		Colilert-18®	06/10/2021 1534	0 6102182	G

ite ID: UT001	WKU	Ma trix: queous	Time Collected:	06/10/2 021 1018	Time Received:	06/10/20 21 1200

Analysis	Result	Unit	RL	DL	Flag	Method	Time Analyzed	Lab ID	Analyst
E. coli	0	MPN/100mL		/A		Colilert-18®	06/10/2021 1534	0 6102183	G

ite ID: CC001	WKU	Ma trix: queous	Time Collected:	06/10/2 021 1034	Time Received:	06/10/20 21 1200

Analysis	Result	Unit	RL	DL	Flag	Method	Time Analyzed	Lab ID	Analyst
E. coli	17	MPN/100mL		/A		Colilert-18®	06/10/2021 1534	0 6102184	G

ite ID: CC002	WKU	Ma trix: queous	Time Collected:	06/10/2 021 1035	Time Received:	06/10/20 21 1200

Analysis	Result	Unit	RL	DL	Flag	Method	Time Analyzed	Lab ID	Analyst
E. coli	1	MPN/100mL		/A		Colilert-18®	06/10/2021 1534	0 6102185	G

IV. Analytical Results

ite ID: CC003	WKU		Ma trix: queous			Time Collected:	06/10/2 021 1046	Time Received:	06/10/20 21 1200	
sis	**Analy**	**esult**	**nit**	**RL**	**DL**	**g**	**Fla d**	**Metho**	**Time Analyzed**	**ab ID**	**nalyst**
coli	E.	**27**	MP N/100mL		/A		18®	Colilert- 1534	06/10/2021	0 6102186	G

ite ID: CCOO4	WKU		Ma trix: queous			Time Collected:	06/10/2 021 1041	Time Received:	06/10/20 21 1200	
sis	**Analy**	**esult**	**nit**	**RL**	**DL**	**g**	**Fla d**	**Metho**	**Time Analyzed**	**ab ID**	**nalyst**
coli	E.	**13**	MP N/100mL		/A		18®	Colilert- 1534	06/10/2021	0 6102187	G

ite ID: CC005	WKU		Ma trix: queous			Time Collected:	06/10/2 021 1100	Time Received:	06/10/20 21 1200	
sis	**Analy**	**esult**	**nit**	**RL**	**DL**	**g**	**Fla d**	**Metho**	**Time Analyzed**	**ab ID**	**nalyst**
coli	E.	**79**	MP N/100mL		/A		18®	Colilert- 1534	06/10/2021	0 6102188	G

V. Laboratory Analytical and Field Services

HydroAnalytical Lab aims to provide innovative, high quality water resource and hydrologic analytical services to ensure clean and safe water for public health and support research on water quality and quantity. Our facility offers progressive, customizable services in general chemistry, metals, microbiology through field sampling and laboratory analyses for wastewater, stormwater, groundwater, and industrial testing.

HydroAnalytical also takes pride in offering EPA-certified microbiological testing for drinking water and wastewater. We are proud to serve south- central Kentucky and the surrounding region's water analysis needs. If you have questions or would like a quote for laboratory analyses or field services please email the lab at HydroAnalytical@wku.edu

We are also able to offer additional analytical and field based services beyond those listed below upon request.

General Chemistry	Certified Method
Alkalinity (Bicarbonate, Total)	SM 2320 B-2011
Ammonia - Nitrogen	Hach 10205
Atrazine (Non-Certified)	EPA 4670
BOD/CBOD (5-Day)	SM 5210 B-2011
Bromide	SM 4110 B-2011
Chloride	SM 4110 B-2011
Chlorine, Free (Non-Certified)	SM 4500 Cl G-2011
Chlorine, Total Residual	SM 4500 Cl G-2011
Chlorophyll a (Non-Certified)	EPA 445.0
COD	Hach 8000
Dissolved Oxygen	SM 4500 O G-2011
Fluoride	SM 4110 B-2011
Hardness, Total	SM 2340 C-2011
Hardness, Total (Calculated, Non-Certified)	EPA 200.7 Rev 4.4
Hexavalent Chromium	Hach 8023
Nitrate / Nitrate (as N)	SM 4110 B-2011
Nitrate + Nitrite (as N)	SM 4110 B-2011 or Hach 10206
Nitrite / Nitrite (as N)	SM 4110 B-2011
Nitrogen, Total	Calculation
Nitrogen, Total Kjeldahl (TKN)	Hach 10242
Oil and Grease, Total	EPA 1664 A Stepsaver
Ortho-Phosphate / Ortho-Phosphate (as P)	SM 4110 B-2011
pH	SM 4500 H+B-2011
Phosphorus, Total	Hach 10210
Settleable Solids	SM 2540 F-2011
Specific Conductance	SM 2510 B-2011
Specific Gravity	SM 2710 F-2011
Sulfate	SM 4110 B-2011
Temperature	SM 2550 B-2011
Total Carbon (Non-Certified)	SM 5310 B-2011
Total Dissolved Solids	SM 2540 C-2011
Total Inorganic Carbon (Non-Certified)	SM 5310 B-2011
Total Organic Carbon	SM 5310 B-2011
Total Solids	SM 2540 B-2011
Total Suspended Solids	SM 2540 D-2011
Turbidity (Non-Certified)	SM 2130 B-2011

V. Laboratory Analytical and Field Services

Metals by ICP-OES	Certified Method
Aluminum	EPA 200.7 Rev 4.4 1994
Antimony	EPA 200.7 Rev 4.4 1994
Arsenic	EPA 200.7 Rev 4.4 1994
Barium	EPA 200.7 Rev 4.4 1994
Beryllium	EPA 200.7 Rev 4.4 1994
Cadmium	EPA 200.7 Rev 4.4 1994
Calcium	EPA 200.7 Rev 4.4 1994
Chromium	EPA 200.7 Rev 4.4 1994
Cobalt	EPA 200.7 Rev 4.4 1994
Copper	EPA 200.7 Rev 4.4 1994
Iron	EPA 200.7 Rev 4.4 1994
Lead	EPA 200.7 Rev 4.4 1994
Lithium (Non-Certified)	EPA 200.7 Rev 4.4 1994
Magnesium	EPA 200.7 Rev 4.4 1994
Manganese	EPA 200.7 Rev 4.4 1994
Mercury (Non-Certified)	EPA 200.7 Rev 4.4 1994
Molybdenum	EPA 200.7 Rev 4.4 1994
Nickel	EPA 200.7 Rev 4.4 1994
Potassium	EPA 200.7 Rev 4.4 1994
Selenium	EPA 200.7 Rev 4.4 1994
Silver	EPA 200.7 Rev 4.4 1994
Sodium	EPA 200.7 Rev 4.4 1994
Strontium (Non-Certified)	EPA 200.7 Rev 4.4 1994
Sulfur (Non-Certified)	EPA 200.7 Rev 4.4 1994
Thallium	EPA 200.7 Rev 4.4 1994
Tin (Non-Certified)	EPA 200.7 Rev 4.4 1994
Titanium (Non-Certified)	EPA 200.7 Rev 4.4 1994
Vanadium	EPA 200.7 Rev 4.4 1994
Zinc	EPA 200.7 Rev 4.4 1994

Microbiological	Certified Method
Total Coliform/*E. coli* @ 35 °C (Presence/Absence)	SM 9223 B (Colilert-18) - 2011
Total Coliform/*E. coli* @ 35°C (MPN)	SM 9223 B (Colilert-18) - 2011
Fecal Coliform @ 44.5°C (Non-Certified)	SM 9223 B (Colilert-18) - 2011
Heterotrophic Plate Count	SM 9215 B-2011

Field Services	Certified Method
pH	SM 4500 H+B-2011
Temperature	SM 2550 B-2011
Dissolved Oxygen	SM 4500 O G-2011
Specific Conductance	SM 2510 B-2011
Flow (field measurement)	USGS 3-A8
Flow (calculated)	USDA TR-55
Silt Density Index	Meter
Turbidity (Non-Certified)	SM 2130 B-2011

VI. Chain of Custody

HydroAnalytical - Chain of Custody Record

HYDRO analytical | WKU

2413 Nashville Road #61066 | Bowling Green, KY 42101 | 270 - 745 - 5287

Customer Contact and Billing Information

Company: WKU - EOHS | Email: ritchie.taylor@wku.edu | Address:

Phone: | City: Greenbrier | State: TN | Zip Code: | PO#:

Special Instructions:

Requested Turn-Around Time (Check One)

- ☐ Standard (14 working days)
- ☐ Rush (5-7 working days)
- ☐ 24 Hours (Certain analytes only - Contact Lab before sampling)

- ☐ Compliance Samples
- ☐ Boil Water Advisory
- ☐ Investigative/Monitoring (non-compliance)
- ☐ DMR Entry Request

Legend for Sample Data Entry

Collection Method [1]	Matrix [2]	Container Type [3]	Preservatives [4]
G - Grab	S - Soil/Solid	P - Plastic	VOA - VOA vial with septa	S - H2SO4 pH <2	H - HCl pH <2	SH - NaOH pH > 9
C - Composite	A - Aqueous	G - Glass	GA - Glass, Amber	N - HNO3 pH <2	ST - Na2S2O3	Ice - Cooled < 6°C

All containers per Table II of 40 CFR Part 136 unless noted otherwise.

Sections Below for Lab Use Only

Lab Project #: 0621038

Sample Temp. at Receipt (°C): 6.5°C

Sample Collection (Times are CST unless noted) Date	Time	Method [1]	Sample Identification	Matrix [2]	Container Type [3]	Number of Containers	Preservative [4]	Requested Analysis	Sample Notes (If rejected, indicate a reason)	Bacteriological Samples (Accept (A) / Unacceptable (U)) Bottle Code	Volume	A / U
6-10-21	8:54	G	WKUTB001	A	P	1	ST	E. coli		C20	100mL	A / U
	9:56		WKUPB001			1				C20	>100mL	A / U
	10:18		WKUUT001			1				C20	>100mL	A / U
	10:34		WKUCC001			1				C20	>100mL	A / U
	10:35		WKUCC002			1				C20	>100mL	A / U
	10:46		WKUCC003			1				C20	>100mL	A / U

Signature of Sampler: Jacqueline Basham | Print Name of Sampler: Jacqueline Basham

Relinquished by	Date	Time	Received by	Date	Time
Jacqueline Basham	6-10-21	11:58		6/10/2021	1200
Representing: WKU EOHS			Representing: HA		
Relinquished by:	6/10/21	1208	Received by: WW Ent	6/10/2021	1208
Representing:			Representing:		
Relinquished by: WW Ent	6/10/21	1449	Received by:	6/10/2021	1449
Representing:			Representing: HA		
Relinquished by:	Date:		Received by:	Date:	
Representing:	Time:		Representing:	Time:	

DOW-BGRD Notification:

PWS Notified:

DOW RTCR Mgr Notification:

Client Contact Notification:

Analysis Report Sent:

Invoiced:

☐ After-Hours Charge ☐ Rush Charge

Visit us at www.hydroanalytical.com

VI. Chain of Custody

HydroAnalytical - Chain of Custody Record

HYDRO analytical | WKU

2413 Nashville Road #61066 | Bowling Green, KY 42101 | 270 - 745 - 5287

Requested Turn-Around Time (Check One)
- ☐ Standard (14 working days)
- ☐ Rush (5-7 working days)
- ☐ 24 Hours (certain analytes only - Contact Lab before sampling)

Customer Contact and Billing Information

Company: WKU - EGHS | Email: ritchie.taylor@wku.edu | Address:
Phone: | City: Greenbrier | State: TN | Zip Code: | PO#:
Special Instructions:

- ☐ Compliance Samples
- ☐ Boil Water Advisory
- ☐ Investigative/Monitoring (non-compliance)
- ☐ DMR Entry Request

Legend for Sample Data Entry

Collection Method [1]	Matrix [2]	Container Type [3]		Preservatives [4]		
(G) - Grab	S - Soil/Solid	(P) - Plastic	VOA - VOA vial with septa	S - H2SO4 pH <2	H - HCl pH <2	SH - NaOH pH > 9
C - Composite	(A) - Aqueous	G - Glass	GA - Glass, Amber	N - HNO3 pH <2	(ST) - Na2S2O3	Ice - Cooled < 6°C

All containers per Table II of 40 CFR Part 136 unless noted otherwise.

Sections Below for Lab Use Only

Lab Project #:
Sample Temp. at Receipt (°C): 6.5°C

Sample Collection (Times are CST unless noted) Date	Time	Method [5]	Sample Identification	Matrix [2]	Container Type [3]	Number of Containers	Preservative [4]	Requested Analysis	Sample Notes (If rejected, indicate a reason)	Bacteriological Samples (Accept (A) / Unaccept (U)) Bottle Code	Volume	A / U
6-10-21	10:47	G	WKUCCC04	A	P	1	ST	E.coli		C20	(100mL) 100mL <100mL	(A) U
6-10-21	11:00	G	WKUCCC05	A	P	1	ST	E.coli		C20	(100mL) 100mL <100mL	(A) U
											>100mL 100mL <100mL	A U
											>100mL 100mL <100mL	A U
											>100mL 100mL <100mL	A U
											>100mL 100mL <100mL	A U

Signature of Sampler: Jacqueline Basham | Print Name of Sampler: Jacqueline Basham

Relinquished by / Representing	Date / Time	Received by / Representing	Date / Time
Jacqueline Basham / WKU EGHS	6-10-21 / 11:58	[signature] / HA	6/10/2021 / 1200
[signature] / HA	6/10/21 / 1208	[signature] / WW Eng	6/10/2021 / 1208
WW Eng	6/10/2021 / 1449	[signature] / HA	6/10/2021 / 1449

DOW-BGRO Notification:
PWS Notified:
DOW RTCR Mgr Notification:
Client Contact Notification:
Analysis Report Sent:
Invoiced:

☐ After-Hours Charge ☐ Rush Charge

• APPENDIX L: BIOASSESSMENT OF STREAMS WITHIN THE CITY OF GREENBRIER, TN

SUPPORTING MATERIALS

Bioassessment of Streams within the City of Greenbrier, TN

Report for Compliance with 2016 NPDES General Permit for Discharges from Small Municipal Separate Storm Sewer Systems

July 14, 2021

Photo of Carr Creek at Dorris Road (photo by R. Taylor)

Prepared by:

WKU

This project was completed by

The Center for Environmental and Workplace Health at

Western Kentucky University in partnership with the

City of Greenbrier, Stormwater Management

Authors

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College of Health and Human Services

Center for Environmental and Workplace Health

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INTRODUCTION

As part of the mission of academic excellence through research, innovation, and community engagement, the WKU Center for Environmental and Workplace Health has assisted the City of Greenbrier, Tennessee in a project to conduct bioassessments on streams within its Small Municipal Separate Storm Sewer Systems (MS4s) jurisdiction. Specifically, the bioassessments focused on those stream segments listed for unavailable parameters for "siltation and/or habitat alteration", "habitat alteration", and/or "nutrients" (TDEC, 2016). This project was conducted in compliance with standards for analytical monitoring set forth by of the Tennessee Department of Environment and Conservation (TDEC) for Small MS4s (TDEC, 2016).

The purpose of the study was to assess the health of the watersheds within the City of Greenbrier's MS4, in particular Carr Creek, an Unnamed Tributary to Carr Creek at the Greenbrier WWTP, and Pole Bridge Branch. Specifically, Carr Creek has unavailable parameters for "nutrients", the Unnamed Tributary has unavailable parameters for "nutrients" and "temperature", and Pole Bridge Branch is not listed. Wartrace Creek was not included in the study although it is listed in the 2020 303(d) List for "sedimentation/siltation", "flow regime alteration", "alteration in stream-side or littoral vegetative covers", and "temperature" with "Dam or Impoundment" and "Municipal High Density Area" indicated as the source (TDEC, 2020). Throughout the study period Wartrace Creek did not have sufficient flow to collect samples. This bioassessment study had the following objectives that met the requirements of the City's general permit (TDEC, 2016). Objectives of the study included the following:

- Completion of biological monitoring at stream sites within the City of Greenbrier's MS4 jurisdiction.
    - Conduct biological monitoring, bioassessments, at stream sites within the City of Greenbrier's MS4 by Semi-Quantitative Single Habitat (SQSH) Method for macroinvertebrates (TDEC, 2017).
    - *In situ* Water quality monitoring at all biological sampling sites for each sample collected.

- Evaluation of habitat at each monitoring sites (TDEC, 2017) as part of the protocol.

- Preparation of a report of the information collected and results.

METHODS

Methods for the bioassessment and associated measurements were conducted in agreement with TDEC methods (TDEC, 2017) (TDEC, 2017). Biological monitoring included macroinvertebrate semi-quantitative sampling, water quality measurements, and habitat assessment. Laboratory analysis of the bioassessment samples was performed by Pennington and Associates, Inc. located in Cookeville, TN.

Biological Monitoring and Habitat Assessment

Specified requirements for biological sampling are to be performed in stream segments where a loss of biological integrity or unavailable parameters for nutrients was identified and the MS4 has been determined to be the source of siltation and/or habitat alteration and/or nutrients (TDEC, 2020). In these stream segments, as specified in the general NPDES permit, the Semi-Quantitative Single Habitat (SQSH) Method was performed to conduct biological stream sampling (TDEC, 2017). Specifically, Semi-Quantitative Riffle Kick (SQKICK) samples were collected according to Protocol G in Streams listed as having a loss of biological integrity and impaired for siltation and/or habitat alteration in the City of Greenbrier's MS4 (TDEC, 2020). The streams sampled included two sites on Carr Creek, at Access Road and at Dorris Road (the site at Carrs Creek Blvd was not sampled for macroinvertebrates), the Unnamed Tributary to Carr Creek upstream from the Greenbrier WWKP, and Pole Bridge Branch at Summit Drive Access Road (Figure 1). Again, Wartrace Creek was included in the study as did not have sufficient flow to collect a sample even though it is a listed stream (TDEC, 2020).

Bioassessment samples were collected on May 18, 2021. SQKICK samples were collected at the sampling locations shown in Figure 1. Collected samples were evaluated in the field to ensure that the required 160-240 organisms would be achieved after sorting. SQKICK samples were taken in appropriate riffle habitats located in each sampling reach, according to the TDEC methodology (TDEC, 2017). A kick net was used for sample collection. At each location a semi-quantitative sample for macroinvertebrates was collected with the SQKICK method (TDEC, 2017). A visual habitat assessment and field evaluation was done at each location to quantify the physical condition of each stream reach. Habitat assessments were recorded on the appropriate forms (TDEC, 2017).

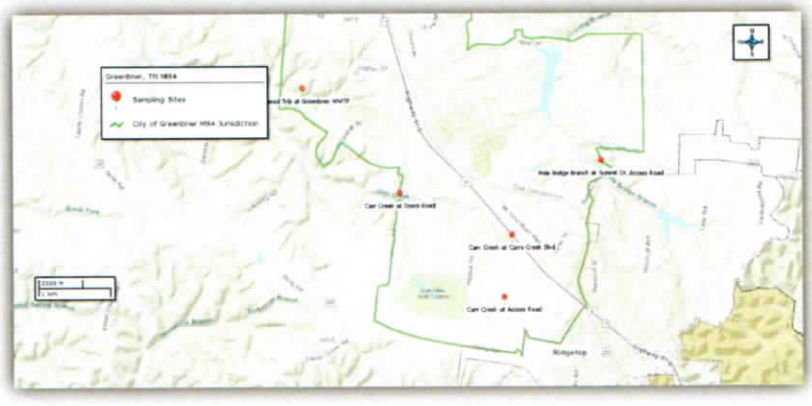

Figure 1. Location of bioassessment monitoring sites in Greenbrier MS4 jurisdiction

Water Quality

Water quality measurements were collected at each sample site to include dissolved oxygen (mg/L), pH (s.u.), specific conductance (µs/cm), temperature (°C), and turbidity (NTU), as per standard TDEC protocols (2011). A YSI multi-probe water quality probe and interface was used to measure water quality. Measurements taken were recorded in a bound field notebook. The meter was calibrated at the beginning and end of the sampling day pursuant to standard methods (TDEC, DWPC, 2011).

Subsampling of Macroinvertebrate Samples

All laboratory analysis of the macroinvertebrate samples was conducted by Pennington and Associates, Inc. or Cookeville, TN. In general, sorting required that samples were cleaned of major debris and macroinvertebrates were removed from the sample. The general procedure was to reduce semi-quantitative samples to 160 – 240 organisms and produce a subsample. To begin, each sample was placed in a 500-micron sieve and rinsed. Once a sample was cleaned, it was moved to a gridded subsampler for collection of the required organisms. Each grid within the subsampler was numbered (TDEC, 2017).

Grids for sampling were determined by selecting four grids randomly. All material and organisms were removed from each randomly selected grid in sequential order until a subsample of 160-240 organisms was achieved. The subsample was then sorted to remove

organisms. If a subsample was determined to have more than the 240 organisms quota, then the sample was again subsampled until the 160-240 organisms quota was achieved.

Material from each subsample was then repeatedly transferred to a petri dish to sort organisms from the subsample. Macroinvertebrates were removed using a dissecting microscope. Organisms sorted from the subsamples were preserved and stored in vials for later taxonomic identifications.

Macroinvertebrate Taxonomy

Macroinvertebrate identifications followed taxonomic procedures specified in the TDEC (TDEC, 2017) procedure and was completed to the genus level. Organisms were identified following the appropriate keys. Macroinvertebrates were identified to the appropriate taxonomic level and all organisms of a genus (family) were placed in a specific vial. A label indicating the sample ID, date, and organism was placed in each vial. All data for taxonomic identifications were recorded on a bench sheet and stored in a database.

Following taxonomic identifications, macrovertebrate data analysis was completed for each sampling site based on biometrics calculated from the raw benthic data (TDEC, 2017). Metrics followed those specified by TDEC (TDEC, 2017). All data were then reduced to produce a Tennessee Macroinvertebrate Index (TMI) score. In this way, results were used to compare to the standard of 32 for meeting the biocriteria requirement. Also, data reduction allows that the sites can be evaluated.

Commented [RT1]: Check this out with the scores

RESULTS

Results of the study are presented in this section and in the appendices to the report. Analysis of taxonomic identifications resulted in determination of TMI scores to compare to biocriteria for Ecoregion 71e (Western Pennyroyal Karst Plain).

Water Quality and Habitat Assessments

Habitat Assessment and Field Data Forms are presented in Appendix 1. Scores for habitat assessments were compiled from the visual stream assessment. These data represent information for the entire study reaches. Habitat assessments were conducted within the 100-m study reaches as well as throughout the stream corridor. Compiled data provide a more detailed representation of the habitat throughout the stream segments in the City of Greenbrier's jurisdiction and all assessments followed TDEC (TDEC, 2017).

Macroinvertebrate Sorting and Taxonomic Identifications

Results of macroinvertebrate analysis to species level, as conducted by Pennington and Associates, Inc., are shown in Table 1 below. Each sample was sorted and identifications conducted according to TDEC procedures (TDEC, 2017).

Biometrics and TMI

Biometrics were calculated according to TDEC methods (TDEC, 2017). Results of these calculations are shown in Table 2. Taxa Richness values ranged from 12 to 30 and EPT Richness was 2, 11, 7, and 2, for Carr Creek, at Access Road and at Dorris, the Unnamed Tributary to Carr Creek upstream from the Greenbrier WWKP, and Pole Bridge Branch at Summit Drive Access Road (Figure 1). These values showed variation between sites and were some of the lowest metric scores for the sites. Metric values for % Clinger showed low scores for Pole Bridge Branch. Also, Carr Creek at the Access Road and Pole Bridge Branch showed low scores for Taxa Richness and EPT Richness. Variations in metrics calculated were within an acceptable range, as shown by the TMI ranks of 4 or greater.

Table 1. Species level macroinvertebrate for SQKICK Sites in the City of Greenbrier MS4 Jurisdiction

PAI ID NO				34747	34748	34749	34750
STATION				Greenbrier 001CC	Greenbrier 002CC	UT @ WWTP	Pole Bridge Branch Creek
DATE				5/18/21	5/18/21	5/18/21	5/18/21
FRACTION				1/19	1/14	3/32	5/125
SPECIES	**T.V.**	**F.F.G.**	**CL**				
PLATYHELMINTHES							
Turbellaria		P					
Tricladida		P					
Planariidae	6.3	O					
Girardia (Dugesia) tigrina	7.1	P				1	
Phagocata sp.	6.3						1
MOLLUSCA							
Gastropoda							
Basommatophora							
Physidae	8.7						
Physella sp.	8.8	CG		7			
ANNELIDA							
Clitellata							
Oligochaeta	8	CG					
Tubificida							
Naididae		CG					
Naidinae	8	CG			7	12	1
Chaetogaster sp.	7	P		13			
Nais sp.	8.7	CG		3	8	66	
Slavina appendiculata	8.4	CG		34			
Tubificinae w.o.h.c.	10	CG		3			
ARTHROPODA							
Arachnoidea							
Acariformes	5.5						
Hygrobatidae	5.5						
Hygrobates sp.	5.5					1	
Crustacea							
Isopoda	7.4						
Asellidae	7.8	SH					
Lirceus sp.	7.4	CG			8	13	156
Amphipoda	7.2	CG					
Crangonyctidae	7.2						
Crangonyx sp.	7.2	CG					1
Decapoda	6						
Cambaridae	6					2	
Faxonius sp.	2.7	SH			2		
Insecta							
Ephemeroptera							
Baetidae	6	CG					
Acentrella sp.	2.5	CG		3		6	
Diphetor hageni	1.2	CG			2		
Caenidae	6	CG					
Caenis sp.	6.8	CG			5		
Ephemerellidae		SC	CL				
Eurylophella sp.	4	SC	CL		1		
Heptageniidae	3	SC	CL		4		3
Leucrocuta sp.	2	SC	CL			1	
Maccaffertium sp.	3.1	SC	CL		1		
Maccaffertium mediopunctatum	3.1	SC	CL		4		
Maccaffertium terminatum	3.1	SC	CL		1		
Stenonema femoratum	6	SC	CL		3		
Stenacron interpunctatum	3.5	SC	CL		14		
Stenacron sp.	3.5	SC	CL			3	1
Leptophlebiidae	2.5	CG			1		
Odonata							
Coenagrionidae	8	P					
Argia sp.	8.3	P					1
Plecoptera							
Leuctridae	6	SH					
Leuctra sp.	1.0	SH	CL		8	27	
Hemiptera							
Veliidae		P					
Rhagovelia obesa		P			1		
Trichoptera							
Hydropsychidae	4.1	FC	CL			6	
Cheumatopsyche sp.	6.6	FC	CL	1	6	2	11
Philopotamidae	3.2	FC	CL				
Chimarra sp.	3.3	FC	CL			1	
Chimarra aterrima	3.3	FC	CL		1		
Dolophilodes distinctus	1	FC	CL		1		
Polycentropodidae	3.88	FC	CL				
Cernotina sp.	4		CL			1	
Coleoptera							
Dytiscidae	6.4	P			1		
Elmidae	4.61	CG	CL				
Stenelmis sp.	5.60	SC	CL				1
Psephenidae	3.2	SC	CL				
Ectopria nervosa	4.3	SC	CL		1		2
Psephenus herricki	2.3	SC	CL		2		
Diptera							
Chironomidae							
Chironomus sp.	9.3	CG			2		
Conchapelopia sp.	8.4	P		7	4	2	
Cricotopus sp.	8.7	CG		53	8	10	2
Cricotopus sp.	7.44		CL	9	6	1	
Dicrotendipes *cultriger*	8	CG		5			
Limnophyes sp.	7.4	CG		1			
Microtendipes pedellus gp.	4.6	CG	CL		7		1
Nanocladius distinctus	7.4	CG		1			
Parametriocnemus sp.	3.8	CG		17		1	
Phaenopsectra obediens gp.	6.85	SC	CL		3		
Phaenopsectra punctipes gp.	6.85	SC	CL	1			
Polypedilum aviceps	4.1	SH		1	8	3	
Polypedilum flavum	4.1	SH		5	4	4	1
Polypedilum illinoense gp.	4.1	SH				2	
Potthastia longimana	5.4	CG		2			
Stempellinella fimbriata	5.6	CG			3		
Rheotanytarsus exiguus gp.	6.5	FC	CL	4	4		
Tanytarsus sp.	6.6	FC		12			
Thienemannimyia *wena*	6.4	CG			1		
Tvetenia paucunca	3.58	CG		16	39	14	
Zavrelia sp.	6.1	CG			1		
Sciomyzidae	6			1			
Simuliidae	4.7	FC	CL				
Simulium sp.	4.9	FC	CL	13			
TOTAL NO. OF ORGANISMS				207	169	179	182
TOTAL NO. OF TAXA				23	33	22	13

Table 2. Genus level identifications, TMI metrics, and TMI calculation

Fish ID NO			54747		54748		54749		54750	
STATION			Greenbrier RD2CC		Greenbrier RD2CC		UT @ WWTP		Pete Bridge Branch Creek	
DATE			5/18/21		5/18/21		5/18/21		5/18/21	
FRACTION			1/16		1/16		5/32		5/125	
SPECIES	T.V.	F.F.G.	CL							
PLATYHELMINTHES										
Turbellaria		P								
Tricladida		P								
Planariidae	5.3	G								
Girardia sp.	7.1	P					1			
Phagocata sp.	5.3								1	
MOLLUSCA										
Gastropoda										
Basommatophora										
Physidae	8.7									
Physella sp.	8.8	CG		7						
ANNELIDA										
Clitellata										
Oligochaeta	8	CG								
Tubificida										
Naididae		CG								
Naidinae	9	CG				7		13		1
Chaetogaster sp.	7	P		13						
Nais sp.	8.7	CG		1		8		68		
Slavina sp.	8.4	CG		34						
Tubificinae w.o.h.c.	10	CG		3						
ARTHROPODA										
Arachnoidea										
Acariformes	5.5									
Hygrobatidae	5.5									
Hygrobates sp.	5.5							1		
Crustacea										
Isopoda	7.4									
Asellidae	7.9	SH								
Lirceus sp.	7.4	CG				6		13		134
Amphipoda	7.2	CG								
Crangonyctidae	7.2									
Crangonyx sp.	7.2	CG								1
Decapoda	6									
Cambaridae	6							2		
Faxonius sp.	6.7	SH				2				
Insecta										
Ephemeroptera										
Baetidae	6	CG								
Acentrella sp.	2.5	CG		3				4		
Diphetor sp.	1.2	CG				2				
Caenidae	8	CG								
Caenis sp.	8.8	CG				3				
Ephemerellidae		SC	CL							
Eurylophella sp.	4	SC	CL			1				
Heptageniidae	3	SC	CL							
Leucrocuta sp.	2	SC	CL					1		
Maccaffertium sp.	3.1	SC	CL			7				
Stenonema sp.	3	SC	CL			4				
Rhithrogena sp.	2.5	SC	CL			18		3		4
Leptophlebiidae	2.5	CG				1				
Odonata										
Coenagrionidae	8	P								
Argia sp.	8.5	P								1
Plecoptera										
Leuctridae	2	SH								
Leuctra sp.	1.5	SH	CL			8		27		
Trichoptera										
Hydropsychidae	4.1	PC	CL							
Cheumatopsyche sp.	5.5	PC	CL	1		5		8		11
Philopotamidae	2.2	FC	CL							
Chimarra sp.	3.3	FC	CL			1		1		
Dolophilodes sp.	1	FC	CL			1				
Polycentropodidae	3.66	FC	CL							
Cernotina sp.	4		CL					1		
Coleoptera										
Dytiscidae	8.4	P				1				
Elmidae	4.41	CG	CL							
Stenelmis sp.	5.88	SC	CL							1
Psephenidae	3.3	SC	CL							
Ectopria nervosa	4.2	SC	CL			1				2
Psephenus herricki	2.2	SC	CL			2				
Diptera										
Chaoboridae										
Chaoborus sp.	8.3	CG				2				
Corynoneura sp.	6.4	P		7		4		3		
Cricotopus sp.	7.7	CG		33		9		10		2
Dicrotendipes sp.	7.44		CL	9		6		1		
Dicrotendipes sp.	8	CG		5						
Limnophyes sp.	7.4	CG		1						
Micropsectra sp.	6.6	CG	CL			7				1
Nanocladius sp.	7.4	CG		1						
Parametriocnemus sp.	7.5	CG		17				1		
Phaenopsectra sp.	6.25	SC	CL	1		1				
Polypedilum sp.	6.1	SH		4		18		8		1
Prodiamesa sp.	5.4	CG		2						
Stempellinella sp.	5.5	CG				1				
Rheocricotopus sp.	6.5	FC	CL	4		4				
Tanytarsini sp.	6.8	FC		13						
Thienemanniella sp.	6.4	CG				1				
Tvetenia sp.	3.55	CG		14		29		14		
Zavrelia sp.	6.1	CG				1				
Sciomyzidae	6			1						
Simuliidae	6.7	FC	CL							
Simulium sp.	6.9	FC	CL	13						
				Metric Score	TMI Score	Metric Score	TMI Score	Metric Score	TMI Score	Metric Score	TMI Score
TOTAL NO. OF ORGANISMS				207		164		179		182	
TOTAL NO. OF TAXA				22	4	30	6	19	4	12	2
EPT				2	0	13	6	7	4	3	0
%OC				87.92%	0	63.96%	2	64.25%	2	2.75%	6
%EPT-CHEUM				1.45%	0	27.38%	4	21.79%	3	2.20%	0
HCBI				6.39	4	5.04	6	5.18	4	7.18	2
%TRUTOL				35.75%	6	28.57%	6	60.89%	2	93.41%	0
% CLINGERS-CHEUM				13.04%	0	56.21%	4	16.99%	2	6.46%	0
TMI Total					14		34		20		10

Target TMI = 32

Scores for biometrics were used to calculate the total TMI score for each site. The target TMI score for each site in Ecoregion 71e is 32. The TMI scores calculated for the sites were 14 for Carr Creek at the Access Road, 34 for Carr Creek at Dorris Road, 20 for the Unnamed Tributary to Carr Creek, and 10 for Pole Bridge Branch. The lower scores reflect the lower ranks for Taxa Richness, EPT Richness, % EPT-CHEUM, % Clingers-CHEUM, and % TNUTOL, with some scores for Carr Creek at the Access Road and Pole Bridge Branch being 0. TMI scores for all sites sampled, except Carr Creek at Dorris Road, were below the Target TMI of 32. This site had a Total TMI of 34.

DISCUSSION

The primary points of discussion are the results for the biometric and TMI scores. Taxa Richness, EPT Richness, % EPT-CHEUM, % Clingers-CHEUM, and % TNUTOL, with some scores for Carr Creek at the Access Road and Pole Bridge Branch being 0. Data for Carr Creek at the Access Road, the Unnamed Tributary to Carr Creek, and Pole Bridge Branch suggest there is impairment for macroinvertebrate biodiversity. Carr Creek and the Unnamed Tributary stream segments have been listed as impaired for macroinvertebrate biodiversity due to siltation and habitat alteration (TDEC, 2020). These results also suggest that Pole Bridge Branch has unavailable parameters. According to the 2020 303(d) list for Tennessee, a source of impairment is discharges from the City of Greenbrier's MS4 (TDEC, 2020).

Scores for TMI reflect the lower values observed for Taxa Richness, EPT Richness, % EPT-CHEUM, % Clingers-CHEUM, %OC, and % TNUTOL for Carr Creek at the Access Road, the Unnamed Tributary to Carr Creek, and Pole Bridge Branch (Table 2). An influencing factor in these metrics calculated as a percentage or relative value was the fact that a proportion of samples had tolerant species. The lowest TMI score was **Pole Bridge Branch followed by Carr Creek at the Access Road**. Both of these sites had some metric scores of 0.

Another sensitive metric in the bioassessment evaluation, as shown in Table 2, was % Clingers (Barbour, Gerritsen, Snyder, & Stribling, 1999). Scores for % Clingers ranked lower with exception to Carr Creek at Dorris Road. All sites were compared to the TDEC scores from a reference site for Ecoregion 71e found in the TDEC methodology. This metric reflects environmental adaptations of macroinvertebrates, specifically indicating a presence of species that construct shelters (Barbour, Gerritsen, Snyder, & Stribling, 1999). Decreased values of this habitat metric indicate that a perturbation had impacted stream habitat. It is expected that this metric will be reduced when the habitat may not be adequate to support clinger taxa. Thus, there may be a greater level of sediment and siltation. Habitat scores were not indicative of the results of the bioassessment study. More information should be reviewed to determine sensitive habitat parameters. **Future bioassessments should evaluate this relationship more**

closely to assess if other habitat metrics are sensitive throughout the watershed in conjunction with bioassessment results.

TMI scores did not meet target scores for Ecoregion 71e, with the exception of Carr Creek at Dorris Road. The TMI scores calculated for the sites were 14 for Carr Creek at the Access Road, 34 for Carr Creek at Dorris Road, 20 for the Unnamed Tributary to Carr Creek, and 10 for Pole Bridge Branch. The greatest TMI score, 34, was for Carr Creek at Dorris Road. Further research is needed to distinguish the metrics that are sensitive in this watershed and should be used to direct mitigation strategies. **These sampling results show that research is needed to address if habitat scores and selected macroinvertebrate metrics provide a better indication of habitat perturbations, and the influence of discharges from Small MS4s, in the watersheds within the City's jurisdiction.**

CONCLUSION

In summary, **the calculated biometrics that proved to be the most sensitive for indicating habitat perturbations to macroinvertebrates collected in this study via the SQKICK method were Taxa Richness, EPT Richness, % EPT-CHEUM, % Clingers-CHEUM, %OC, and % TNUTOL** (TDEC, 2017). As a result of these metrics, TMI scores for sites sampled within the City's MS4 jurisdiction did not meet the biocriteria target score of 32 for Ecoregion 71e, **with exception of Carr Creek at Dorris Road.** The TMI scores calculated for the sites were 14 for Carr Creek at the Access Road, 34 for Carr Creek at Dorris Road, 20 for the Unnamed Tributary to Carr Creek, and 10 for Pole Bridge Branch. **Thus, the influence of the City of Greenbrier's MS4 needs to be assessed in greater detail to determine stream segments that may increase perturbations on the system.**

This study indicated that research is needed within the watersheds of the City of Greenbrier's MS4 jurisdiction to further appraise habitat and biological diversity. Research will further document impacts to water quality and biological diversity, assess sources of stressors, and evaluate metrics sensitive to determining and ranking steam segments for mitigation. Specifically, research is needed to address the following:

- **To evaluate habitat scores and macroinvertebrate metrics** that corresponds to these scores to assess the best indication of habitat perturbations, and the influence of discharges from Small MS4s, in the watersheds within the City's jurisdiction.
- **To determine the influence of upstream impacts** on habitat changes and biological diversity within the City of Greenbrier's MS4 jurisdiction.
- **To assess the spatial habitat conditions in stream reaches** within the MS4 jurisdiction and assess the variability of biological diversity within individual stream reaches.
- **To document water quality conditions** that may cause temporal and spatial impacts to biological diversity.

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APPENDICES