

AGENDA

La Vergne Stormwater Appeals and Advisory Board
February 3, 2025 at 5:00 PM

- Call meeting to order.
- Determine quorum.

ORDER OF BUSINESS

1. Approve Minutes: August 5, 2024 Public Hearing and August 5, 2024 Regular Meeting.
2. Public Comment Period.

NEW BUSINESS

3. Motion to Hold Two Meetings Each Year in February and August.
4. Recommendation to the Board of Mayor and Aldermen to Add the Proposed Sinkhole Protection Language to the Stormwater Management Ordinance.
5. Discussion - Stormwater Monitoring (E. Coli and Visual Stream Assessments).

ADJOURN

MINUTES OF THE PUBLIC HEARING OF THE STORMWATER APPEALS AND ADVISORY BOARD OF THE CITY OF LA VERGNE, TENNESSEE HELD ON AUGUST 5, 2024, AT LA VERGNE CITY HALL, LA VERGNE, TENNESSEE.

Call to Order

The August 5, 2024 Public Hearing of the Stormwater Appeals and Advisory Board of the City of La Vergne, Tennessee was called to order at 6:07 p.m. at La Vergne City Hall by Chairman Earl Garvin, Jr.

Board Members Present

Members present: Chairman Earl Garvin, Jr, Vice-Chairman Mary Jane Skinner, Jeff Moss, and Lee Hoagland. Alderman Dennis Waldron, Ashley Bruley, and Stacey Lanker were absent.

ORDER OF BUSINESS

1. Adoption of the Stormwater Management Plan.

No one spoke.

ADJOURNMENT

Chairman Garvin, Jr declared the public hearing adjourned at 6:08 p.m.

Chairman

City Recorder

Approved: _____

MINUTES OF THE CITY OF LA VERGNE STORMWATER APPEALS AND ADVISORY BOARD HELD ON AUGUST 5, 2024 AT LA VERGNE CITY HALL, LA VERGNE, TENNESSEE.

The City of La Vergne Stormwater Appeals and Advisory Board met on August 5, 2024 in La Vergne City Hall starting at 6:09 p.m. The meeting was called to order by Chairman Earl Garvin, Jr.

BOARD MEMBERS PRESENT

Members were present: Chairman Earl Garvin, Jr., Vice-Chairman Mary Jane Skinner, Lee Hoagland, and Jeff Moss. Alderman Dennis Waldron, Ashley Bruley, and Stacey Lanker were absent.

STAFF MEMBERS PRESENT

Staff members present: City Attorney Evan Cope, Executive Assistant Juliet Williams, City Engineer Gary Lide, Stormwater Coordinator Alex Thomspson, and Jerry Davenport, Media Services.

OTHER BUSINESS

1. Approve Minutes of the August 7, 2023 Meeting.

A motion, made by Vice-Chairman Mary Jane Skinner, seconded by Jeff Moss, to approve the minutes of the August 7, 2023 meeting, was adopted with all voting AYE.

2. Public Comment

No one spoke.

3. Motion to Nominate and Elect a Chairman for a One Year Term.

Chairman Garvin turned the meeting over to City Attorney Evan Cope. He opened the floor for nominations.

A motion, made by Mary Jane Skinner, seconded by Jeff Moss, to nominate and elect Earl Garvin, Jr. as Chairman for a one-year term, was adopted following a roll-call vote.

Mary Jane Skinner	AYE
Earl Garvin	AYE
Jeff Moss	AYE
Lee Hoagland	AYE

4. Motion to Nominate and Elect a Vice-Chairman for a One Year Term.

A motion, made by Chairman Garvin, seconded by Jeff Moss, to nominate and elect Mary Jane Skinner, as Vice-Chairman for a one-year term, was adopted following a roll-call vote.

Mary Jane Skinner	AYE
Earl Garvin	AYE
Jeff Moss	AYE
Lee Hoagland	AYE

NEW BUSINESS**5. Discussion – Meeting Schedule**

Ms. Alex Thompson explained the need to meet twice a year instead of annually.

Mr. Cope explained that this item would be voted on at the next meeting.

No action was taken.

6. Discussion – Stormwater Management Plan and Annual Report.

Ms. Thompson explained the Stormwater plan and gave the annual report.

Vice-Chairman Skinner asked about the ponds and keeping them clean. A discussion ensued.

A motion, made by Alderman Dennis Waldron, seconded by Vice-Chairman Skinner, to give a favorable recommendation to the Board of Mayor and Aldermen, was adopted with all voting AYE.

7. Recommendation to the Board of Mayor and Aldermen – Adopt the Stormwater Management Plan.

Ms. Thompson gave her report.

A motion, made by Vice-Chairman Skinner, seconded by Lee Hoagland, to give a favorable recommendation to the Board of Mayor and Aldermen to adopt the Stormwater Management Plan, was adopted with all voting AYE.

8. Recommendation to the Board of Mayor and Aldermen – Additional Sinkhole Protection Requirements in the Stormwater Management Ordinance.

Mr. Lide gave his report. He explained the ordinance and the need for it. Chairman Garvin made comments about the ordinance. A discussion ensued.

A motion was made by Vice-Chairman Skinner, seconded by Lee Hoagland, to give a favorable recommendation to the Board of Mayor and Aldermen to revise the Stormwater Management ordinance.

Mr. Hoagland and Mr. Moss made comments about the dumping problem.

The motion was adopted with all voting AYE.

9. Discussion – Streambank Stabilization Project next to the Library.

Mr. Lide gave his report and explained the project. A discussion ensued.

No action was taken.

Adjournment

There being no further business to come before this meeting, Chairman Garvin declared the meeting adjourned at 7:00 p.m.

Chairman

City Recorder

Approved: _____

Stormwater Appeals and Advisory Board Report

Meeting: February 3, 2025



Item #: 3. **Motion to Hold Two Meetings Each Year in February and August.**

Presented By: Alexandra Thompson

Summary: Two meetings would provide increased engagement between the Board and staff and better involvement in stormwater projects and programs. Financial cost is roughly three hours of overtime for three non-exempt city employees which is a cost of approximately \$1,500 per year for the additional meeting.

Background Information: Once per year meetings have required very lengthy meetings and have been somewhat problematic for attendance.

Staff Recommendation: Staff recommends two meetings per year.

Stormwater Appeals and Advisory Board Report

Meeting: February 3, 2025



Item #: 4.	Recommendation to the Board of Mayor and Aldermen to Add the Proposed Sinkhole Protection Language to the Stormwater Management Ordinance.
Presented By:	Gary Lide, City Engineer
Summary:	This is the follow-up to presentation from the 05 August 2024 meeting regarding sinkholes and regulation improvements needed to protect the citizens of La Vergne from inappropriate filling of sinkhole drainage features of the City drainage system. Financial impact to the city: none noted.
Background Information:	Due to regulatory changes at the federal and state levels, protections for the citizen's from inappropriate filling of drainage features has fallen to the city level. This revision is for the purpose of filling that regulatory void.
Staff Recommendation:	Send a favorable recommendation to the Board of Mayor and Aldermen to revise the Stormwater Management Ordinance.

CHAPTER 6 STORMWATER MANAGEMENT ORDINANCE¹

Sec. 14-601. General provisions.

- (1) *Title.* This chapter shall be known as the "Stormwater Management Ordinance" for the City of La Vergne, Tennessee.
- (2) *Applicability and jurisdiction.* The stormwater management ordinance shall govern all properties within the limits of the City of La Vergne, Tennessee.
- (3) *Purpose.* It is the purpose of this ordinance to:
 - (a) Protect, maintain, and enhance the environment of the City of La Vergne and the public health, safety, and the general welfare of the citizens of the city, by controlling discharges of pollutants to the stormwater system and to maintain and improve the quality of the receiving waters into which the stormwater outfalls flow, including, without limitation, lakes, rivers, streams, ponds, wetlands, and groundwater of the city.
 - (b) Enable the City of La Vergne to comply with the National Pollution Discharge Elimination System permit (NPDES) and applicable regulations, 40 C.F.R. § 122.26 for stormwater discharges.
 - (c) Allow the City of La Vergne to exercise the powers granted in Tennessee Code Annotated, § 68-221-1105 or as amended by the State of Tennessee, which provides that, among other powers cities have with respect to stormwater facilities, is the power by ordinance or resolution to:
 - (i) Exercise general regulation over the planning, location, construction, and operation and maintenance of stormwater facilities in the city, whether or not owned and operated by the city;
 - (ii) Adopt any rules and regulations deemed necessary to accomplish the purposes of this statute, including the adoption of a system of fees for services and permits;
 - (iii) Establish standards to regulate the quantity of stormwater discharged and to regulate stormwater contaminants as may be necessary to protect water quality;

¹Ord. No. 2023-23, § II, adopted October 10, 2023, amended Chapter 6 in its entirety to read as herein set out. Former Chapter 6, §§ 14-601—14-612, pertained to similar subject matter, and derived from 1994 Code, § 14-601—14-612; Ord. #2005-23, Oct. 2005; Ord. #2007-18, June 2007; Ord. #2011-25, Oct. 2011; Ord. #2021-35, Feb. 2022.

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- (iv) Review and approve plans and plats for stormwater management in proposed subdivisions or commercial developments;
 - (v) Suspend or revoke permits when it is determined that the permittee has violated any applicable ordinance, resolution, or condition of the permit;
 - (vi) Regulate and prohibit discharges into stormwater facilities of sanitary, industrial, or commercial sewage or waters that have otherwise been contaminated; and
 - (vii) Expend funds to remediate or mitigate the detrimental effects of contaminated land or other sources of stormwater contamination, where public or private.

(4) *Authority.*

- (a) The City of La Vergne shall have right-of-entry upon the property subject to this ordinance and any permit or document issued hereunder. The City of La Vergne shall be provided ready access to all parts of the premises for the purposes of inspection, monitoring, sampling, inventory, records examination and copying, and the performance of any other duties necessary to determine compliance with this ordinance.
 - (b) Where a property, site or facility has security measures in place that require proper identification and clearance before entry into its premises, the owner or occupier shall make necessary arrangements with its security personnel so that, upon presentation of suitable identification, the City of La Vergne will be permitted to enter without delay for the purposes of performing specific responsibilities.
 - (c) The City of La Vergne shall have the right to operate and maintain on the person's property such devices as are necessary to conduct sampling and metering of the owner or occupier's stormwater operations or discharges.
 - (d) Any temporary or permanent obstruction to safe and easy access to the areas to be inspected and/or monitored shall be removed promptly by the owner or occupier at the written or verbal request of the City of La Vergne. The costs of clearing such access shall be borne by the person.
 - (e) The City of La Vergne may reserve the right to determine and impose inspection schedules necessary to enforce the provisions of this ordinance.
- (5) *Duty to provide information.* The owner/operator shall furnish to the City of La Vergne any information that is requested to determine compliance with this ordinance or other information.
- (6) *Exemptions.* The following activities are exempt from the provisions of this chapter and requirements of providing stormwater management:
- (a) Agricultural land management activities;
 - (b) Any emergency activity that is immediately necessary for the protection of life, property, or natural resources; and

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- (c) Developments that do not disturb more than one (1) acre of land. This exception does not apply to sites that disturb less than one (1) acre but are part of a common plan of development or sale that comprises of at least one (1) acre of cumulative land disturbance. This exemption does not apply to any discharge of sediment or other form of water pollution that may leave a small site, or if in the discretion of the City of La Vergne, the land disturbance activity poses a threat to water, public health, or safety.
- (7) *Savings provision.* This ordinance shall not be construed as altering, modifying, vacating, or nullifying any rights of obligations obtained by any person, firm or corporation through approval of a preliminary plat by the City of La Vergne Planning Commission or through the approval of any land disturbance permit or any other lawful action of the city prior to the adoption of this ordinance.

(Ord. No. 2023-23, § II, 10-10-2023)

Sec. 14-602. Definitions.

For the purpose of this ordinance, the following definitions shall apply: Words used in the singular shall include the plural, and the plural shall include the singular; words used in the present tense shall include the future tense. The word "shall" is mandatory and not discretionary. The word "may" is permissive. Words not defined in this section shall be construed to have the meaning given by common and ordinary use.

- *Agricultural land management activities.* The practice of cultivating the soil, producing crops, and raising livestock for the preparation and marketing of the resulting products.
- *As-built drawing.* See record drawing.
- *Best management practices (BMPs).* Schedules of activities, prohibitions of practices, maintenance procedures, structural and non-structural practices, and other management practices to prevent or reduce the discharge of pollutants to waters of the state. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage, leaks, sludge or waste disposal, or drainage from raw material storage. BMPs include source control practices (non-structural BMPs) and engineered structures designed to treat runoff.
- *Buffer.* See Water Quality Riparian Buffer
- *Building permit.* A general permit issued authorizing any owner, authorized agent, or contractor to construct, enlarge, alter, repair, move, demolish, or change the occupancy of a building or structure, or to perform any or to cause any such work to be done.
- *City Inspector* means a person that has successfully completed (has a valid certification from) the "Fundamentals of Erosion Prevention and Sediment Control Level I" course:

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- (a) This person performs inspections on behalf of the city to check compliance with the city's requirements and performs enforcement activities.
 - (b) This person does not do the functions of an "Inspector" defined herein.
 - *Clearing* refers to removal of vegetation and disturbance of soil prior to grading or excavation in anticipation of construction activities. Clearing may also refer to wide area land disturbance in anticipation of non-construction activities. Clearing, grading, and excavation do not refer to clearing of vegetation along existing or new roadways, highways, dams or power lines for sight distance or other maintenance and/or safety concerns, or cold planing, milling, and/or removal of concrete and/or bituminous asphalt roadway pavement surfaces. The clearing of land for agricultural purposes is exempt from federal stormwater NPDES permitting in accordance with Section 401(1)(1) of the 1987 Water Quality Act and state stormwater NPDES permitting in accordance with the Tennessee Water Quality Control Act of 1977 (T.C.A. 69-3-101 et seq.).
 - *Common plan of development or sale*. Broadly defined as any announcement or documentation (including a sign, public notice or hearing, sales pitch, advertisement, drawing, permit application, zoning request, computer design) or physical demarcation (including boundary signs, lot stakes, surveyor markings) indicating construction activities may occur on a specific plot. A common plan of development or sale identifies a situation in which multiple areas of disturbance are occurring on contiguous areas. This applies because the activities may take place at different times, on different schedules, by different operators.
 - *Construction site operator* means any person associated with a construction project that meets either of the following two criteria:
 - (a) This person has operational or design control over construction plans and specifications, including the ability to make modifications to those plans and specifications. This person is typically the owner or developer of the project or a portion of the project and is considered the primary permittee.
 - (b) This person has day-to-day operational control of those activities at a project which are necessary to implement compliance with a SWPPP for the site or other permit conditions. This person is typically a contractor or a commercial builder who is hired by the primary permittee and is considered a secondary permittee.

It is anticipated that at different phases of a construction project, different types of parties may satisfy the definition of the "construction site operator."

- *Control measure* refers to any Best Management Practice (BMP) or other method used to prevent or reduce the discharge of pollutants to waters of the state.
- *Critical service road*. Any road or street which serves as a primary egress route for one hundred fifty (150) or more residential units, one hundred fifty thousand (150,000) square feet or more of office building space, forty thousand (40,000) square feet or more of retail

building space, or three hundred thousand (300,000) square feet or more of industrial building space. Or any combination of the above which adds up to one thousand five hundred (1,500) trips per day (TPD) calculated as follows: ten (10) TPD per residential unit; ten (10) TPD per one thousand (1,000) square feet office space; thirty-eight (38) TPD per one thousand (1,000) square feet retail space; and five (5) TPD per one thousand (1,000) square feet industrial space.

- *CWA or The Act* means Clean Water Act of 1972, amended in 1977 or the Federal Water Pollution Control Act (33 U.S.C. 1251, et seq.).
- *Design storm* is the estimated design rainfall amounts, for any return period interval (i.e., 1-yr, 2-yr, 5-yr, 25-yr, etc.) in terms of either 24-hour depths, or intensities for any duration, as defined by Precipitation-Frequency Atlas of the United States. Atlas 14. Volume 2. Version 3.0 U.S. Department of Commerce National Oceanic and Atmospheric Administration (NOAA), National Weather Service, Hydrometeorological Design Studies Center, Silver Springs, Maryland or its digital product equivalent.
- *Director* means the director, or authorized representative, of the Division of Water Resources of the State of Tennessee Department of Environment & Conservation.
- *Discharge or discharge of a pollutant* refers to the addition of pollutants to waters from a source.
- *Discharge of stormwater associated with construction activity*. Refers to stormwater point source discharges from areas where soil disturbing activities (e.g., clearing, grading, excavation), or construction materials or equipment storage or maintenance (e.g., earth fill piles, fueling, waste material) are located.
- *Disturbed area* means the total area presented as part of the development (and/or of a larger common plan of development) subject to being cleared, graded, or excavated during the life of the development. The area cannot be limited to only the portion of the total area that the site-wide owner/developer initially disturbs through the process of various land clearing activities or in the construction of roadways, sewers and water utilities, stormwater drainage structures, etc., to make the property marketable.
- *Division* means the Division of Water Resources of the State of Tennessee Department of Environment and Conservation.
- *Easement*. An acquired privilege or right of use or enjoyment that a person, party, firm, corporation, City of La Vergne or other legal entity has in the land of another.
- *Enforcement response plan (ERP)* is a set of procedures which present the permittee's potential responses to violations and address repeat violations through progressive enforcement as needed to achieve compliance. These enforcement responses should be commensurate with the nature of the violation and must include enforcement responses progressing up to the maximum civil and criminal penalties as described in Tennessee Code Annotated, § 69-3-101, et seq. The enforcement response procedures or methods

must address all violations of prohibitions and requirements applicable to this permit that are contained in the permittee's statutes, codes or other control mechanisms as well as other violations of the permit. The enforcement response procedures or methods documentation must be referenced by or included in the permittee's statutes, codes or other control mechanisms. The enforcement responses may include actions such as written notices, citations with administrative penalties, stop work orders, withholding of plans approvals or other authorizations, or any other administrative judicial action.

- *Erosion*. The removal of soil particles by the action of water, wind, ice, or other geological agents, whether naturally occurring or acting in conjunction with or promoted by anthropogenic activities or effects.
- *Erosion prevention and sediment control plan*. A written plan (including drawings or other graphic representations) that is designed to minimize the accelerated erosion and sediment runoff at a site during construction activities.
- *Exceptional Tennessee waters*. Surface waters designated by the Division as having the characteristics set forth in Tennessee Rules, Chapter 0400-40-03-.06(4). Characteristics include waters within parks or refuges, scenic rivers, waters with threatened or endangered species, waters that provide specialized recreational opportunities, waters within areas designated as lands unsuitable for mining, waters with naturally reproducing trout, waters with exceptional biological diversity and other waters with outstanding ecological or recreational value.
- *Illicit connections* means any man-made conveyance connecting an illicit discharge directly to a municipal separate storm sewer.
- *Illicit discharge* is defined in 40 CFR § 122.26(b)(2) and refers to any discharge to a municipal separate storm sewer that is not entirely composed of stormwater, except discharges authorized under an NPDES permit (other than the NPDES permit for discharges from the MS4) and discharges resulting from firefighting activities.
- *Improved sinkhole*. A natural surface depression that has been altered in order to direct fluids into the hole opening. Improved sinkhole is a type of injection Well regulated under the Underground Injection Control (UIC) program. Underground injection constitutes an intentional disposal of waste waters in natural depressions, open fractures, and crevices, such as those commonly associated with weathering of limestone.
- *Inspector*. A person with one (1) of the following qualifications:
 - (a) A valid certification for the "Fundamentals of Erosion Prevention and Sediment Control Level I" course,
 - (b) A licensed professional engineer or landscape architect,
 - (c) A Certified Professional in Erosion and Sediment Control (CPESC), or

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- (d) Successfully completed the "Level II Design Principles for Erosion Prevention and Sediment Control for Construction Sites" course.

An inspector performs and documents the required inspections, paying particular attention to time-sensitive permit requirements such as stabilization and maintenance activities. An inspector may also have the following responsibilities:

- (a) Oversee the requirements of other construction-related permits, such as an Aquatic Resources Alteration Permit (ARAP) or Corps of Engineers permit for construction activities in or around waters of the state.
 - (b) Update field SWPPPs.
 - (c) Conduct pre-construction inspection to verify that undisturbed areas have been properly marked and initial measures have been installed.
 - (d) Inform the permit holder of activities that may be necessary to gain or remain in compliance with the Tennessee Department of Environment and Conservation (TDEC) Construction General Permit (CGP) and other environmental permits.
- *Linear project.* A land disturbing activity as conducted by an underground/overhead utility or highway department, including, but not limited to, any cable line or wire for the transmission of electrical energy; any conveyance pipeline for transportation of gaseous or liquid substance; any cable line or wire for communications; or any other energy resource transmission ROW or utility infrastructure, e.g., roads and highways. Activities include the construction and installation of these utilities within a corridor. Linear project activities also include the construction of access roads, staging areas and borrow/spoil sites associated with the linear project. Land disturbance specific to the development of residential and commercial subdivisions or high-rise structures is not considered a linear project.
 - *Land disturbing activity.* Any activity on property that results in a change in the existing soil cover (both vegetative and non-vegetative) and/or the existing soil topography. Land-disturbing activities include, but are not limited to, development, re-development, demolition, construction, reconstruction, clearing, grading, filling, and excavation.
 - *Maintenance.* Any activity that is necessary to keep a stormwater facility in good working order so as to function as designed. Maintenance shall include complete reconstruction of a stormwater facility if reconstruction is needed in order to restore the facility to its original operational design parameters. Maintenance shall also include the correction of any problem on the site property that may directly impair the functions of the stormwater facility.
 - *Maintenance agreement.* A document recorded in the land records that acts as a property deed restriction, and which provides for long-term maintenance of stormwater control measures.

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- *Monitoring*. Refers to tracking or measuring activities, progress, results, etc., and can refer to non-analytical monitoring for pollutants by means other than 40 CFR § 136 (and other than state- or federally established protocols in the case of biological monitoring and assessments), such as visually or by qualitative tools that provide comparative values or rough estimates.
 - *Municipal separate storm sewer system (MS4)*. Defined in 40 CFR § 122.26(b)(8) to mean a conveyance or system of conveyances (e.g., roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) that are:
 - (a) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribal organization or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States;
 - (b) Designed or used for collecting or conveying stormwater;
 - (c) Not a combined sewer; and
 - (d) Not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR § 122.2.
 - *Notice of intent (NOI)*. Intent to be covered by the Construction General Permit
 - *Operator*. Any person who owns, leases, operates, controls, or supervises a source.
 - *Ordinary high-water mark or top of bank*. The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. Both of these terms are of a highly technical nature and the division realizes that, in practice, a certain degree of best professional judgement will be used to establish buffer boundaries.
 - *Peak flow*. The maximum instantaneous rate of flow of water at a particular point resulting from a storm event.
 - *Permanent stabilization*. All soil disturbing activities at the site have been completed and one (1) of the three (3) following criteria is met:
 - (a) A perennial, preferably native, vegetative cover with a uniform (i.e., evenly distributed, without large bare areas) density of at least seventy percent (70%) has been established on all unpaved areas and areas not covered by permanent structures, and all slopes and channels have been permanently stabilized against erosion.

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- (b) Equivalent permanent stabilization measures such as the use of riprap; permanent geotextiles; hardened surface materials including concrete, asphalt, gabion baskets or Reno mattresses have been employed.
 - (c) For construction projects on land used for agricultural or silvicultural purposes, permanent stabilization may be accomplished by returning the disturbed land to its preconstruction agricultural or silvicultural use.
- *Person*. Any and all persons, natural or artificial, including any individual, firm or association and any municipal or private corporation organized or existing under the laws of this or any other state or country.
 - *Point source or outfall* means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include introduction of pollutants from non-point source agricultural or silvicultural activities, including stormwater runoff from orchards, cultivated crops, pastures, range lands, forest lands or return flows from irrigated agriculture or agricultural stormwater runoff. In short, outfall is a point where runoff leaves the site as a concentrated flow in a discrete conveyance.
 - *Priority area*. An area where land use or activities generate highly contaminated runoff, with concentrations of pollutants in excess of those typically found in stormwater.
 - *Priority construction activity* shall be at a minimum, those construction activities discharging directly into, or immediately upstream of, waters of the state recognized as unavailable parameters for siltation or Exceptional Tennessee Waters.
 - *Record drawings* means drawings depicting conditions as they were actually constructed.
 - *Redevelopment* means the alteration of developed land that disturbs one (1) acre or more, or less than an acre if part of a larger common plan of development.
 - *Registered engineer and registered landscape architect*. An engineer or landscape architect certified and registered by the State Board of Architectural and Engineer Examiners pursuant to Tennessee Code Annotated, § 62-202 to practice in Tennessee.
 - *Runoff* means that portion of the precipitation on a drainage area that is discharged from the area into the municipal separate stormwater system.
 - *Sediment*. Solid material, both inorganic (mineral) and organic, that is in suspension, is being transported, or has been moved from its site of origin by wind, water, gravity, or ice as a product of erosion.
 - *Sediment basin*. A temporary best management practice consisting of an embankment constructed across a wet weather conveyance, an excavation that creates a basin or by a combination of both.

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- *Sedimentation* means the action or process of forming or depositing sediment.
 - *Significant contributor*. Defined as a source of pollutants where the volume, concentration, or mass of a pollutant in a stormwater discharge can cause or threaten to cause pollution, contamination, or nuisance that adversely impact human health or the environment and cause or contribute to a violation of any applicable water quality standards for receiving water.
 - *Sinkhole* means a depression or cavity in the ground providing a route for surface water to flow subsurface.
 - *Steep slope*. Means a natural or created slope of thirty-five percent (35%) grade or greater. Designers of sites with steep slopes must pay attention to stormwater management in the SWPPP to engineer runoff around or over a steep slope so as not to erode the slope. In addition, site managers should focus on erosion prevention of the slopes and stabilize the slopes as soon as practicable to prevent slope failure or sediment discharges from the project.
 - *Stormwater* means rainfall runoff, snow melt runoff, and surface runoff and drainage.
 - *Stormwater appeals and advisory board*. The body which has been delegated the authority by the Board of Mayor and Alderman of the City of La Vergne to hear appeals concerning decisions made by the city administrator or his designee as to the interpretation of the meaning of this code.
 - *Stormwater control measures (SCMs)*. Permanent practices and measures designed to reduce the discharge of pollutants from new development projects or redevelopment projects.
 - *Stormwater discharge-related activities* means activities that cause, contribute to or result in point source stormwater pollutant discharges. These activities may include excavation, site development, grading and other surface disturbance activities; and activities to control stormwater including the siting, construction and operation of best management practices (BMPs).
 - *Stormwater management facilities*. The drainage structures, conduits, ditches and all device appurtenances by means of which stormwater is collected, transported, pumped, treated or disposed of.
 - *Stormwater management plan*. A written compilation of the elements of the Stormwater Management Program. It is considered a single document, even though it actually consists of separate, stand-alone components.
 - *Stormwater management program*. A comprehensive program to manage the quality of stormwater discharged from the municipal separate storm sewer system.
 - *Stormwater pollution prevention plan (SWPPP)*. A written site-specific plan required that includes a narrative pollution prevention plan and graphical erosion and sediment control plan. In its basic form, the plan contains a site map, a description of construction activities

that could introduce pollutants to stormwater runoff, a description of measures or practices to control these pollutants, and erosion and sediment control plans and specifications. It must be prepared and submitted before construction begins. In order to effectively reduce erosion and sedimentation impacts, Best Management Practices (BMPs) must be designed, installed, and maintained during land disturbing activities. The SWPPP shall be prepared in accordance with the Tennessee Erosion and Sediment Control Handbook

- *Stream*. A surface water that is not a wet weather conveyance. Includes lakes, wetlands, and other non-linear surface waters.
- *Temporary stabilization*. Achieved when vegetation or non-erodible surface has been established on the area of disturbance and construction activity has temporarily ceased. Under certain conditions, temporary stabilization is required when construction activities temporarily cease. However, if future construction activity is planned, permit coverage continues.
- *Top of bank*. See ordinary high-water mark.
- *Total maximum daily load (TMDL)* means the sum of the individual wasteload allocations for point sources and load allocations for nonpoint sources and natural background (40 CFR 130.2(I)). TMDL is a study that quantifies the amount of a pollutant in a stream, identifies the sources of the pollutant and recommends regulatory or other actions that may need to be taken in order for the stream to cease being polluted. TMDLs can also be described by the following equation: $TMDL = \text{sum of non-point sources (LA)} + \text{sum of point sources (WLA)} + \text{margin of safety}$
- *Water quality riparian buffer*. A permanent strip of natural perennial vegetation adjacent to a stream, and river, wetland, pond, or lake that contains dense vegetation made up of grass, shrubs, and/or trees. The purposed of a water quality riparian buffer is to maintain existing water quality by minimizing the risk of any potential sediments, nutrients, or other pollutants reaching adjacent surface waters and to further prevent negative water quality impacts by providing canopy over adjacent waters.
- *Waters of the state or waters* means any and all water, public or private, on or beneath the surface of the ground, which are contained within, flow through or border upon Tennessee or any portion thereof, except those bodies of water confined to and retained within the limits of private property in single ownership which do not combine or effect a junction with natural surface or underground waters.
- *Waters with unavailable parameters*. Any segment of surface waters that has been identified by the Division as failing to support one (1) or more classified uses. Unavailable parameters exist where water quality is at, or fails to meet, the levels specified in water quality criteria in Rule 0400-40-03-.03, even if caused by natural conditions. In the case of a criterion that is a single response variable or is derived from measurement of multiple response variables, the unavailable parameters shall be the agents causing water quality to be at or

failing to meet the levels specified in criteria. Resources to be using in making this determination include biennial compilations of impaired waters, databases of assessment information, updated GIS coverages, and the results of recent field surveys.

- *Watershed*. All the land area that contributes runoff to a particular point along a waterway.
- *Wasteload allocation (WLA)*. The portion of a receiving water's loading capacity that is allocated to one (1) of its existing or future point sources of pollution (40 CFR § 130.2(h)).
- *Wet weather conveyance*. Man-made or natural watercourses, including natural watercourses that have been modified by channelization, that meet the following:
 - (a) The conveyance carries flow only in direct response to precipitation runoff in its immediate locality.
 - (b) The conveyance's channels are at all times above the groundwater table.
 - (c) That flow carried by the conveyance is not suitable for drinking water supplies.
 - (d) Hydrological and biological analyses indicate that, due to naturally occurring ephemeral or low flow under normal weather conditions, there is not sufficient water to support fish, or multiple populations of obligate lotic aquatic organisms whose life cycle includes an aquatic phase of at least two (2) months (Tennessee Rules, Chapter 0400-40-3-.04(3)).

(Ord. No. 2023-23, § II, 10-10-2023)

Sec. 14-603. Stormwater system design: construction and permanent stormwater management; performance standards.

- (1) *Objectives*. The objectives of this Ordinance are:
- (a) To protect human life and health.
 - (b) To minimize the need for rescue and relief efforts associated with flooding.
 - (c) To eliminate any non-allowable discharges to the City of La Vergne's Municipal Separate Storm Sewer System (MS4) that impact water quality.
 - (d) To help maintain a stable tax base by providing for the sound use and development of flood-prone areas in such a manner as to maximize beneficial use without increasing flood hazard potential or diminishing the quality of the natural stormwater resources.
 - (e) To minimize prolonged business interruptions.
 - (f) To minimize damage to public facilities and utilities such as water and gas mains; electric, telephone, and sewer lines; and streets and bridges located in flood plains.
 - (g) To ensure a functional public and private stormwater quantity and quality management system that will not result in excessive maintenance costs.

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- (h) To encourage the use of natural and aesthetically pleasing design that maximizes preservation of natural areas.
 - (i) To guide the construction of stormwater management facilities by developing comprehensive master plans to address stormwater quantity and quality.
 - (j) To encourage preservation of floodplains, floodways, and open spaces to protect and benefit the community's quality of life and natural resources.
 - (k) To encourage community stewardship of the City of La Vergne's water resources and their impacts on the community character and quality of life.
- (2) *Applicability.* This section shall be applicable to all land development, including, but not limited to, site plan applications, subdivision applications, land disturbance application, and grading applications. In the event of a discrepancy between the required calculations listed within this document and any similar requirements listed within another City of La Vergne documents (such as the Subdivision Regulation or the Zoning Ordinance), the required calculations listed herein shall prevail. The requirements in this section shall apply to any new development or redevelopment site that meets one (1) or more of the following criteria:
- (a) New development or redevelopment that involves land disturbance activity of one (1) acre or more;
 - (b) New development or redevelopment that involves land disturbance activity of less than one (1) acre but part of a common plan of development or sale that is one (1) acre or more;
 - (c) New development or redevelopment less than one (1) acre of total land disturbance may also be required to obtain authorization under this ordinance if:
 - (i) The City Engineer has determined that the stormwater discharge from a site is causing, contributing to, or is likely to contribute to a violation of a state water quality standard;
 - (ii) The City Engineer has determined that the stormwater discharge is, or is likely to be a significant contributor of pollutants to waters of the state; or
 - (iii) Any new development or redevelopment, regardless of size, that is defined by the City Engineer to be a priority construction site.
 - (d) Other options:
 - (i) Change in elevation of property.
 - (ii) Any land disturbance that requires coverage under a TDEC CGP.
 - (iii) Any disturbance that requires coverage under a TDEC ARAP.
 - (e) Any modification to an existing sinkhole that receives drainage from more than one property requires a Land Disturbance Permit regardless of the area of disturbance.

Modifications would include filling, covering, increasing, or decreasing flow into the sinkhole, etc. In addition, any sinkhole or injection well receiving stormwater run-off must be treated as an outfall for the purposes of determining water quality requirements. All water quality requirements of this ordinance must be met prior to stormwater entering the throat of the sinkhole or the inlet of the injection well.

- (3) *General requirements.* Stormwater at applicable development and redevelopment shall be managed in accordance with the requirements contained within this section.
- (a) Any discharge of stormwater or other fluid to an improved sinkhole or other injection well, as defined, must be authorized by permit or rule as a Class V underground injection well under the provisions of Tennessee Department of Environment and Conservation (TDEC) Rules, Chapter 1200-4-6.
- (b) Stormwater design or BMP manuals.
- (i) *Adoption.* The city adopts as its MS4 stormwater design and Best Management Practices (BMP) manuals for construction stormwater management and permanent stormwater management, the following publications, which are incorporated by reference in this ordinance as if fully set out herein:
- (A) Tennessee Erosion and Sediment Control Handbook; most current edition.
- (B) Tennessee Permanent Stormwater Management and Design Guidance Manual; most current edition.
- (C) Tennessee Guide to the Selection and Design of Stormwater Best Management Practices (BMPs)
- (D) Metro Nashville Stormwater Management Manual Volume 5, Low Impact Development; most current edition.
- (E) And/or a collection of city-approved BMP(s) and SCM(s).
- (ii) The publications listed above include a list of acceptable BMPs and SCMs, including the specific design criteria and operation and maintenance requirements.
- (4) *Stormwater quality.* To implement the objectives of this ordinance, the following general stormwater quality policy statements shall apply:
- (a) There shall be no distinctly visible floating scum, oil, or other matter contained in the stormwater discharge.
- (b) The stormwater discharge must not cause an objectionable color contrast in the receiving stream.
- (c) The design storm for water quality treatment design shall be the 1-year, 24-hour design storm event.

- (d) The water quality treatment volume (WQTV) is the portion of the runoff generated from impervious surfaces at a new development or redevelopment project from the design storm. SCMs must be designed, at a minimum to achieve an overall treatment efficiency of eighty percent (80%) TSS removal from the WQTV. The quantity of the WQTV that must be provided from a new development or redevelopment depends on the type of treatment provided, as established in the following table:

Water Quality Treatment Volume and the Corresponding SCM Treatment Type for the 1-year, 24-hour design storm		
<i>SCM Treatment Type</i>	<i>WQTV</i>	<i>Notes</i>
Infiltration, evaporation, transpiration, and/or reuse	Runoff generated from the first 1 inch of the design storm	Examples include, but are not limited to bioretention, stormwater wetlands, and infiltration systems
Biologically active filtration, with an underdrain	Runoff generated from the first 1.25 inches of the design storm	To achieve biologically active filtration, SCMs must provide minimum of 12 inches of internal water storage.
Sand or gravel filtration, settling ponds, extended detention ponds, and wet ponds	Runoff generated from the first 2.5 inches of the design storm or the first 75% of the design storm, whichever is less	Examples include, but are not limited to, sand filters, permeable pavers, and underground gravel detention systems. Ponds must provide forebays comprising a minimum of 10% of the total design volume. Existing regional detention ponds are not subject to the forebay requirement.
Hydrodynamic separation, baffle box settling, other manufactured treatment devices (MTDs), and treatment trains using MTDs	Maximum runoff generated from the entire design storm	flow-through MTDs must provide an overall treatment efficiency of at least 80% TSS reduction

- (e) Treatment trains using MTDs shall use the following calculation:

$$R = A + B - (A \times B) / 100$$

Where:

R = total TSS percent removal from application of both SCMs

A = the TSS percent removal rate applicable to the first SCM

B = the TSS percent removal rate applicable to the second SCM
TSS removal rates for MTD must be evaluated using industry-wide standards
TSS removal rates for other SCMs must be from published reference literature

- (f) Treatment trains using infiltration, evaporation, transpiration, reuse, or biologically active filtration followed by sand or gravel filtration, settling ponds, extended detention ponds or wet ponds may subtract the treated WQTV of the upstream SCMS from the WQTV of the downstream SCMs.
 - (g) SCMs must be designed to provide full treatment capacity within seventy-two (72) hours following the end of the preceding rain event for the life of the new development or redevelopment project.
 - (h) Calculations demonstrating compliance with this section must be submitted with the Concept Plan for subdivisions and planned developments. They must be submitted with the Site Plan for all other developments.
 - (i) Incentive standard: The following types of development or redevelopment shall receive a twenty percent (20%) reduction in the water quality treatment volume for any one (1) of the following conditions:
 - (i) Redevelopment projects (including, but not limited to, brownfield redevelopment); and
 - (ii) Vertical density (floor to area ratio of at least two (2), or at least eighteen (18) units per acre)
- (5) *Stormwater quantity.* To implement the objectives of this ordinance, the following general stormwater quantity policy statements shall apply:
- (a) New development shall meet a stormwater quantity level of service defined by:
 - (i) Designing road catch basins and connecting culverts to convey the 25-year, 24-hour design storm runoff.
 - (ii) Designing bridges, culverts, channels, and cross drains to pass the 25-year, 24-hour design storm runoff. Calculations shall also be provided for the 100-year, 24-hour design storm.
 - (iii) Stormwater infrastructure shall be designed in a way that:
 - (A) Critical service roads must maintain at least eight feet (8') clear with less than one inch (1") of water at the deepest point within the eight feet (8') during the 25-year, 24-hour design storm and not be inundated by more than three inches (3") of water over an eight foot (8') width during the 100-year, 24-hour design storm.
 - (B) Other new roads shall be designed to have no more than six inches (6") of road overtopping at the 25-year, 24-hour design storm event.

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- (b) Re-development activities will be required to follow stormwater quantity requirements.
 - (c) The following hydraulic calculations are required to be submitted:
 - (i) For Concept Plans:
 - (A) Detention methodology and sizing
 - (B) Outlet Control structure design calculations
 - (C) TR-55 method is the City standard, but other methods may be accepted with pre-approval from the City Engineer
 - (D) Soil Type Analysis (including map)
 - (E) Curve Number Calculations (including map)
 - (F) Time of Concentration Calculations (including map)
 - (G) Pre-development (existing conditions), hydrograph-based peak flow calculations for the 2-, 5-, 10-, 25-, 50-, 100-year, 24-hour design storms (including hydrographs)
 - (H) Post-development (proposed conditions WITHOUT detention or other means of peak flow reduction), hydrograph-based peak flow calculations for the 2-, 5-, 10-, 25-, 50-, and 100-year, 24-hour design storms (including hydrographs)
 - (I) Post-development (proposed conditions WITH detention or other means of peak flow reduction), hydrograph-based peak flow calculations for the 2-, 5-, 10-, 25-, 50-, 100-year, 24-hour design storms (including hydrographs)
 - (J) Provide a table comparing the peak flow rates resulting from the above three (3) hydrograph calculations
 - (ii) For Subdivision Construction Drawings:
 - (A) Curb capacity calculations for the 25-year, 24-hour storm (TDOT methodology)
 - (B) Curb inlet capacity calculations for the 25-year, 24-hour design storm including calculations showing bypass-flow (TDOT methodology)
 - (C) Pipe capacity calculations for the 25-year, 24-hour design storm (whether pipe is inlet-, outlet-, or pipe-controlled must be clearly stated) (TDOT methodology)
 - (D) Velocity calculations in all open channels and ditches (worst case slopes shall be used) which supports that the surface treatment proposed for the channel or ditch can handle the velocities (TDOT methodology)
 - (iii) For Site Plans:

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- (A) Detention methodology and sizing
 - (B) Outlet control structure design calculations
 - (C) TR-55 method is the City standard but other methods may be accepted with pre-approval from the City Engineer
 - (D) Soil Type Analysis (including map)
 - (E) Curve Number Calculations (including map)
 - (F) Time of concentration calculations (including map)
 - (G) Pre-development (existing conditions), hydrograph-based peak flow calculations for the 2-, 5-, 10-, 25-, 50-, 100-year, 24-hour design storms (including hydrographs)
 - (H) Post-development (proposed conditions WITHOUT detention or other means of peak flow reduction), hydrograph-based peak flow calculations for the 2-, 5-, 10-, 25-, 50-, and 100-year, 24-hour design storms (including hydrographs)
 - (I) Post-development (proposed conditions WITH detention or other means of peak flow reduction), hydrograph-based peak flow calculations for the 2-, 5-, 10-, 25-, 50-, 100-year, 24-hour design storms (including hydrographs)
 - (J) Provide a table comparing the peak flow rates resulting from the above three (3) hydrograph calculations
 - (K) Pipe capacity calculations for the 25-year, 24-hour design storm (whether pipe is inlet-, outlet- or pipe-controlled must be clearly stated) (TDOT methodology)
 - (L) Open channels and ditches must be sized to handle the 25-year, 24-hour storm
 - (M) Velocity calculations in all open channels and ditches (worst cast slopes shall be used) which supports that the surface treatment proposed for the channel or ditch can handle the velocities (TDOT methodology)
- (d) No land disturbance activities, whether by private or public action, shall be performed in a manner that will negatively impact stormwater quantity whether by flow restrictions, increased runoff, or by diminishing channel or floodplain storage capacity.
 - (e) All site designs shall control the post-development peak, flow rates of stormwater discharge associated with 2-, 5-, 10-, 25-, 50-, and 100-year, 24-hour design storms to the pre-development peak flow rates. 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.

- (f) Hydrologic and hydraulic design calculations for the predevelopment and post-development conditions for the 2-, 5-, 10-, 25-, 50-, and 100-year, 24-hour design storms shall be provided to the City of La Vergne. These calculations must show that the proposed stormwater management measures are capable of controlling runoff from the site in compliance with this ordinance.
- (g) If hydrologic or topographic conditions warrant greater control than that provided by the minimum control requirements, the City of La Vergne may impose any and all additional requirements deemed necessary to control the volume, timing, and rate of runoff.
- (h) To protect stream channels from degradation, specific channel protection criteria shall be provided.
- (i) At the discretion of the City of La Vergne, stormwater discharges may be subject to additional performance criteria, or may need to utilize or restrict certain stormwater management practices.
- (j) Prior to or during the site design process, applicants for land disturbance permits shall consult with the City of La Vergne to determine if they are subject to additional stormwater design requirements.
- (k) Bare soil channels and ditches will not be allowed unless the channel is excavated into rock up to six inches (6") deeper than the 10-year, 24-hour design peak flow depth. In all channels or ditches, sod or seeding with erosion control mat will be the minimum requirement up to six inches (6") deeper than the 10-year, 24-hour design peak flow depth. In the event that flow velocities for the 5-year, 24-hour design storm exceed four and one-half (4.5) feet/second, a liner (e.g., riprap, bioengineered liner, or concrete) will be required.
- (l) All pipe or control structure outlets where the headwater depth divided by the pipe diameter at the inlet is greater than 1.5 must have a riprap apron at the outlet. A concrete energy- dissipating headwall will not be sufficient on their own.
- (m) Catch basins, curb inlets, stormwater junction boxes and other confined spaces into which city personnel may need to enter in the future for maintenance activities shall not be more than ten feet (10') in depth from top of casting to invert out.
- (n) For drainage easements which contain pipes or culverts, the width of the required drainage easement shall be based on the following table:

Depth of Pipe (Feet to bottom of outside of pipe)	Width of Easement
0 feet to 8 feet	20 feet
8.1 feet to 12 feet	28 feet

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12.1 feet to 16 feet	36 feet
Deeper than 16.1 feet	50 feet

- (o) For drainage easements which contain open channels, the minimum width of the required easement will be the width of flow in the channel calculated for the 100-year/24-hour storm.

(Ord. No. 2023-23, § II, 10-10-2023)

Sec. 14-604. Land disturbance permit.

- (1) *General.* The land disturbance permit (permit) is to be obtained by the owner(s) or owner(s) designee(s) for a development or redevelopment of over one (1) acre, or less than one (1) acre if it meets the criteria of Part 14-603(2)(b) and 14-603(2)(c) of this chapter~~part of a larger plan of common development or sale that comprises of at least one (1) acre of cumulative land disturbance.~~ The land disturbance permit is designed to track all applicable land disturbance activities and ensure they are monitored for compliance for erosion prevention and sediment controls, the absence of illicit discharges leaving the site, and compliance with the city's TDEC NPDES MS4 general permit along with any applicable TDEC construction general permits, TDEC Aquatic Resources Alteration Permits (ARAP), and any other relevant permits. Tracking of these activities allows inspection, and in cases of non-compliance, enforcement actions to be taken.
- (2) *Land disturbance permit application.*
- (a) Application for a land disturbance permit shall require the following be submitted to the City Engineer for review and approval:
- (i) The Notice of Intent (NOI) required by TDEC for coverage under the "Tennessee General Permit for Stormwater Discharges from Construction Activities."
 - (ii) The Notice of Coverage (NOC) proving coverage under the "Tennessee General Permit for Stormwater Discharges from Construction Activities."
 - (iii) Stormwater Pollution Prevention Plan (SWPPP)
 - (iv) Separate sheets, at a scale not to exceed one inch (1") equal to fifty feet (50'), for pre-construction, construction, and post-construction stormwater BMPs. For site disturbances less than or equal to five (5) acres, at least two (2) separate EPSC plan sheets shall be developed. At least two (2) stages shall be identified, with associated EPSC measures addressed. The plan stages shall be addressed separately in plan sheets, with each reflecting the conditions and EPSC measures necessary to manage stormwater runoff, erosion, and sediment during the initial land disturbance (initial grading) and the conditions and EPSC measures necessary to manage stormwater, erosion and sediment at final grading. For site

disturbances more than five (5) acres at least three (3) separate EPSC sheets shall be developed. Three (3) stages shall be identified. The first plan sheet should reflect the conditions and EPSC measures necessary to manage stormwater runoff during the initial land disturbance (initial grading). The second plan sheet shall reflect the conditions the EPSC measures necessary to manage stormwater runoff from interim land disturbance activities. The third plan sheet shall reflect the conditions and EPSC measures necessary to manage stormwater runoff erosion, and sediment at final grading.

- (v) Name of applicant.
- (vi) Business or residence address of applicant.
- (vii) Name, address and telephone number of the owner of the property of record in the office of the assessor of property.
- (viii) Address and legal description of subject property including the tax reference number and parcel number of the subject property.
- (ix) 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 prevention and sediment control plan.
- (x) A statement indicating the nature, extent, and purpose of the land disturbing activities including the size of the area for which the permit shall be applicable and a schedule for the starting and completion dates for the land disturbing activity.
- (xi) Construction sequencing including a statement that indicates only disturbance necessary to install the initial erosion and sediment control measures per the approved plans shall be completed prior to initial inspection by the city.
- (xii) Where the property has drainage or modification of a sinkhole, the applicant shall obtain the appropriate permit(s) from the Tennessee Department of Environment and Conservation.
- (xiii) Further, the disturbance, filling, mitigation, renovation, capping, coverage, or any other modification of a sinkhole that accepts drainage from more than one property must obtain a Land Disturbance Permit from the City of La Vergne under this ordinance regardless of disturbed area.
- (xiv) 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 La Vergne from imposing additional development requirements and conditions, commensurate with this chapter on the development of the property covered by those permits.

(xiv) Additional information and calculations as deemed necessary by the City Engineer.

- (3) *Review and approval of land disturbance permit application.* The City Engineer will review each application for a land disturbance permit to determine its conformance with the provisions of this chapter. No development plans will be released until the land disturbance permit has been approved. The City Engineer shall provide one (1) of the following responses in writing:
- (a) Approval of the permit application;
 - (b) Pre-construction meeting needed prior to approval of the permit application;
 - (c) 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
 - (i) If the City Engineer has granted conditional approval of the permit, the applicant shall submit a revised plan that conforms to the conditions established by the City Engineer. However, the applicant shall be allowed to proceed with his land disturbing activity so long as it conforms to conditions established by the City Engineer.
 - (d) Denial of the permit application, indicating the reason(s) for the denial.
- (4) *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.
- (5) *Performance bonds.*
- (a) The City of La Vergne shall 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 SCM(s) approved under the permit. 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 La Vergne. Alternatively, the City of La Vergne shall have the right to estimate the cost of construction.
 - (b) The performance security or performance bond shall be released in full only upon submission of record drawings and written certification by a registered professional engineer licensed to practice in Tennessee that the SCM(s) has been installed in accordance with the approved plan and other applicable provisions of this chapter.

The City Engineer or city inspector will make a final inspection of the SCM(s) to ensure that it is in compliance with the approved plan and the provisions of this chapter. 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 Engineer.

- (6) *Land disturbance permit fees.* The land disturbance permit fees shall be as set forth in the fee schedule adopted with the annual budget.
- (7) *Inspection and enforcement.* The requirements of this chapter shall be enforced by the City Engineer or his designee who shall inspect all the work, land disturbance or construction involved.
 - (a) If the designee finds any person, firm, or entity engaged in land disturbing activities without having obtained a required land disturbance permit, he shall issue a stop order. In addition, if anyone is found conducting or to have conducted land disturbing activities in violation of this chapter or any approved plan, the city inspector may require compliance or refuse to approve further work and/or issue a stop work order pending a hearing before the Stormwater Appeals and Advisory Board.
 - (b) If the City Engineer or his designee determines that significant erosion or related problems are occurring on a graded site despite approved protective practices, he shall require the permit holder to take additional corrective actions to protect the adversely affected area. The specifications of the additional measures shall be part of the amended erosion prevention and sediment control plan.
 - (c) If it is determined that the permit holder has failed to comply with the approved plan, the city inspector shall immediately serve upon the owner, developer, or contractor, a correction notice setting forth the measures needed to come into compliance and specifying a time for such compliance. Failure to comply within the time specified shall subject permittee to revocation of the permit, and he shall be deemed in violation of the chapter requirements and subject to the penalties provided therein.
 - (d) Stormwater discharges coming from a permitted site with an objectionable color contrast to receiving waters are also in violation of this Chapter of the municipal code.
- (8) *General criteria.* The following general criteria are minimum requirement for controlling erosion and sedimentation from land-disturbing activities and should be satisfied in each approved erosion prevention and sediment control plan. No permit issued using the general criteria is intended to restrict the use of other innovative practices or modifications to the specified practices if such practices are thoroughly described and detailed and approved given as part of a supplement to the approved plan prior to installation.
 - (a) The design, inspection, and maintenance of BMPs as described in the Stormwater Pollution Prevention Plan (SWPPP) must be prepared in accordance with good engineering practices and at a minimum, shall be consistent with the requirements

and recommendations contained in the current edition of the Tennessee Erosion and Sediment Control Handbook. In addition, all control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications (where applicable). All control measures selected must be able to slow runoff so that rill and gully formation is prevented.

- (b) The construction phase erosion prevention and sediment controls shall be designed to eliminate (or minimize if complete elimination is not possible) the dislodging and suspension of soil in water. Sediment controls shall be designed to retain mobilized sediment on site to the maximum extent practicable.
- (c) Construction site operators must control wastes such as discarded building materials, concrete truck washouts, chemicals, litter, and sanitary waste at the construction site to avoid adverse impacts to water quality.
- (d) *Establishment of permanent vegetation.* A permanent vegetative cover shall be established on disturbed areas not otherwise permanently stabilized. The City may use the developer's performance bond to install appropriate vegetation.
- (e) *Protection of adjacent properties.* Properties adjacent to the site of the land disturbance shall be protected from sediment deposition. This may be accomplished by preserving a well vegetated buffer strip around the lower perimeter of the land disturbance, by installing perimeter controls such as sediment barriers, filters, sediment traps, or sediment basins, or by a combination of such measures. Vegetated buffer strips may not be used alone.
- (f) *Cut and fill slopes.* Cut and fill slopes must be designed and constructed in a manner which will minimize erosion. Consideration must be given to the length and steepness of the slope, the soil type, upslope drainage area, groundwater conditions, and other applicable factors. Slopes which are found to be eroding excessively within one (1) year of the construction completion must be provided with additional slope stabilizing measures until the problem is corrected. The following guidelines are provided to aid site planners and plan reviewer in developing an adequate design.
 - (i) Topsoil for the area should be stockpiled and then used for replacement on the graded area.
 - (ii) Roughened soil surfaces are generally preferred to smooth surface slopes.
 - (iii) Diversions should be constructed at the top of long steep slopes which have significant drainage areas above the slope. Diversions or terraces may also be used to reduce the slope length.
 - (iv) Concentrated stormwater should not be allowed to flow down or out of fill slopes unless contained within an adequate temporary or permanent channel, flume, or slope drain structure.

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- (v) Wherever a slope face crosses a water seepage plane which endangers the stability of the slope, adequate drainage or other protection should be provided.
 - (g) *Protection of stormwater inlets.* All stormwater inlets which are made operable during construction shall be protected.
 - (h) *Work in stream channel.* A permit must be obtained from TDEC for work in a stream. Work must be conducted in accordance with permit requirements.
 - (i) *Underground utility construction.* The construction of underground utility lines shall be subject to the following criteria:
 - (i) No more than five hundred feet (500') of open trench shall be allowed at one (1) time.
 - (ii) Where consistent with safety and space considerations, excavated materials are to be placed on the uphill side of trenches.
 - (iii) Trench dewatering devices shall discharge in a manner which will not adversely affect flowing streams, drainage systems, or offsite properties.
 - (j) *Construction access routes.* Off-site vehicle tracking of sediments and the generation of dust shall be minimized. A stabilized construction access (a point of entrance/exit to a construction site) shall be described and implemented to reduce the tracking of mud and dirt onto roads by construction vehicles. Where sediment is transported onto a public or private road surface, the roads, shall be cleaned thoroughly at the end of each day or more often if deemed necessary. Sediment shall be removed from the roads by shoveling or sweeping and be transported to a sediment-controlled disposal area. Street washing shall be allowed only after sediment is removed in this manner.
 - (k) *Disposition of temporary measures.* All temporary erosion prevention and sediment control measures shall be disposed of within thirty (30) days after permanent site stabilization is achieved or after the temporary measures are no longer needed, unless otherwise authorized by the City Engineer or his designee. Trapped sediment and other disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.
 - (l) *Maintenance.* All temporary and permanent erosion prevention and sediment control measures shall be maintained and repaired as needed by the property owner or contractor to ensure continued performance of their intended function, as determined by the City Engineer or his designee.
 - (m) *Off-site sediment.* If sediment escapes the permitted area, off-site accumulations of sediment that have not reached a stream must be removed at a frequency sufficient to minimize off-site impacts (e.g., fugitive sediment that has escaped the construction site and has collected in a street must be removed so that it is not subsequently washed into storm drains and streams by the next rain and/or so that it does not pose

a safety hazard to users of public streets). A land disturbance permit does not authorize access to private property. Arrangements concerning the removal of sediment on adjoining property must be settled by the permittee with the adjoining landowner.

- (n) *Sediment removal.* Sediment should be removed from sediment traps, silt fences, sediment basins, and other sediment controls as recommended in the Tennessee Erosion and Sediment Control Handbook and must be removed when design capacity has been reduced by fifty percent (50%).
- (o) *Removal of vegetation.* Pre-construction vegetative ground cover shall not be destroyed, removed, or disturbed more than fourteen (14) days prior to grading or earth moving unless the area is seeded and/or mulched or temporary cover is installed.
- (p) Clearing and grubbing must be held to the minimum necessary for grading and equipment operation. Existing vegetation at the site should be preserved to the maximum extent practicable.
- (q) Erosion prevention and sediment control measures must be in place and functional before earth moving operations begin and must be constructed and maintained throughout the construction period. Temporary measures may be removed at the beginning of the workday but must be replaced at the end of the workday.
- (r) *Temporary stabilization.* Stabilization measures shall be initiated as soon as possible in portions of the site where construction activities have temporarily or permanently ceased. Temporary or permanent soil stabilization at the construction site must be completed no later than fourteen (14) days after the construction activity in that portion of the site has temporarily or permanently ceased (seven (7) days for slopes of thirty-five percent (35%) or steeper). In the following situations temporary stabilization measures are not required:
 - (i) Where the initiation of stabilization measures is precluded by snow cover or frozen ground conditions or adverse soggy ground conditions, stabilization measures shall be initiated as soon as practicable; or
 - (ii) Where construction activity on a portion of the site is temporary ceased and earth disturbing activities will be resumed within fourteen (14) days or seven (7) days for slopes of thirty-five percent (35%) or steeper.
- (s) *Design of erosion and sediment control measures.* Erosion prevention and sediment control measures shall be designed to minimize erosion and maximize sediment removal resulting from a 2-year, 24-hour design storm, as a minimum. When clay and other fine particles are present at the construction site, chemical treatment may be used to minimize the amount of sediment being discharged. For construction sites discharging into a water with unavailable parameters due to siltation/sedimentation

or Exceptional Tennessee Waters shall be designed to minimize erosion and maximized sediment removal resulting from a 5-year, 24-hour design storm.

- (t) *Sediment basins.* For an on-site outfall which receives drainage from ten (10) or more acres, a sediment basin that will provide treatment for a calculated volume of runoff from a 2-year, 24-hour design storm and runoff from each acre drainage or equivalent control measures as specified in the Tennessee Erosion and Sediment Control Handbook, shall be provided until final stabilization of the site. For construction sites discharging into a water with unavailable parameters due to siltation/sedimentation or Exceptional Tennessee Waters, a sediment basin shall be provided for drainage areas of five (5) acres or more acres that will provide treatment for a calculated volume of runoff from a 5-year, 24-hour design storm and runoff from each acre drainage or equivalent measures as specified in the Tennessee Erosion and Sediment Control Handbook. The design drainage area includes both disturbed and undisturbed portions of the site or areas adjacent to the site, all draining through a common outfall.
- (u) *Sediment traps.* For construction sites discharging into a water with unavailable parameters due to siltation/sedimentation or Exceptional Tennessee Waters, a sediment trap shall be provided for drainage areas of 3.5 to 4.9 acres that will provide treatment for a calculated volume of runoff from a 5-year, 24-hour design storm and runoff from each acre drainage or equivalent measures as specified in the Tennessee Erosion and Sediment Control Handbook.
- (v) *Dewatering.* Muddy water to be pumped from excavation and work areas must be held in settling basins or filtered or chemically treated prior to its discharge into surface waters. Water must be discharged through a pipe, well-grassed or lined channel or other equivalent means so that the discharge does not cause erosion and sedimentation. Discharged water must not cause an objectionable color contrast with the receiving stream.

(Ord. No. 2023-23, § II, 10-10-2023)

Sec. 14-605. Permanent stormwater management: operation, maintenance, and inspection.

- (1) *Record drawings.* All applicants are required to submit record drawings for any stormwater management 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.
- (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 stabilize. Stabilization measures shall be initiated as soon as possible in portions of the site where construction activities have temporarily or permanently ceased. Temporary or permanent soil stabilization

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- at the construction site (or a phase of the project must be completed not later than fourteen (14) days after the construction activity in that portion of the site has temporarily or permanently ceased. In the following situations, temporary stabilization measures are not required:
- (i) Where the initiation of stabilization measures is precluded by snow cover or frozen ground conditions or adverse soggy ground conditions, stabilization measures shall be initiated as soon as practicable; or
 - (ii) Where construction activity on a portion of the site is temporarily ceased, and earth disturbing activities will be resumed within fourteen (14) days.
- (b) Permanent stabilization means that all soil disturbing activities at the site have been completed and one (1) of three (3) following criteria is met:
- (i) A perennial, preferably native, vegetative cover with a uniform (i.e., evenly distributed, without large bare areas) density of at least seventy percent (70) has been established on all unpaved areas and areas not covered by permanent structures, and all slopes and channels have been permanently stabilized against erosion.
 - (ii) Equivalent permanent stabilization measures such as the use of riprap; permanent geotextiles; hardened surface materials including concrete, asphalt, gabion baskets, or reno mattresses have been employed.
 - (iii) For construction projects on land used for agricultural or silvicultural purposes, permanent stabilization may be accomplished by returning the disturbed land to its preconstruction agricultural or silvicultural use.
- (c) 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) *Stormwater system long-term operation and maintenance.*
- (a) The maintenance responsibilities for all permanent stormwater runoff control facilities shall be the responsibility of the owner.
 - (b) An engineer shall provide a stormwater infrastructure long- term operation and maintenance plan with an opinion of probable costs and schedule, subject to approval by the City Engineer for all permanent stormwater structures. The long-term operation and maintenance plan shall be in writing, shall be in recordable form, and shall, in addition to any other terms deemed necessary by the City Engineer, contain a provision permitting inspection at any reasonable time by the City Engineer or his

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- designee of the facilities deemed critical to the public welfare and be recorded with the County registrar.
- (c) The long-term maintenance plan and agreement will be submitted to the City Engineer during the plans review process.
 - (d) For a subdivision, the long-term maintenance agreement shall be submitted to the County registrar and recorded by the Developer prior to the recording of the Final Plat.
 - (e) For a Site Plan, the long-term maintenance agreement shall be submitted to the County registrar and recorded prior to the issuance of a Certificate of Occupancy.
 - (f) The City of La Vergne will have the authority to maintain facilities not properly maintained and to recover costs associated with the maintenance from the owner.
 - (g) Upon approval of the stormwater management facilities by the City Engineer, the facility owner shall demonstrate the ability to garner and apply the financial resources necessary for long-term maintenance requirements. The funding mechanism shall be in a form approved by the City of La Vergne. The city will only approve funding mechanism(s) for long-term maintenance responsibilities that can be demonstrated to be permanent or transferable to another entity with equivalent longevity.
 - (h) If a responsible party fails or refuses to meet the design or maintenance standards required for stormwater facilities under this ordinance, the City of La Vergne, 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 La Vergne shall notify in writing the party responsible for maintenance of the stormwater management facility. Upon receipt of that notice, the responsible person shall have ten (10) days to effect 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 La Vergne may take necessary corrective action. The cost of any action by the City of La Vergne under this section shall be charged to the responsible party.
- (4) *Water quality riparian buffers.* The goal of the water quality riparian buffer is to preserve undisturbed vegetation that is native to the streamside habitat in the area of the project. Vegetated, preferably native, water quality riparian buffers protect water bodies by providing structural integrity and canopy cover, as well as stormwater infiltration, filtration, and evapotranspiration.
- (a) A permanent and construction water quality riparian buffer zone (setback measured from the top of bank) shall be required along all streams as defined in this ordinance, for new development and redevelopment projects as outlined below:

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- (i) The water quality riparian buffer shall be defined as the area contained within a boundary established sixty feet (60') measured perpendicular from the top of bank; around the perimeter of a stream, pond or lake measured perpendicular to the contour at which normal pool is located around; and around the perimeter of a wetland.
 - (ii) Stormwater discharges should enter the water quality riparian buffer as sheet flow, not as concentrated flow, where site conditions allow.
 - (iii) Activities allowed between thirty feet (30') to sixty feet (60') from the top of bank:
 - (A) For waterways that are NOT identified by the State of Tennessee either as having unavailable parameters for siltation/ sedimentation or as being an Exceptional Tennessee Water:
 - 1. Public greenways, biking trails, and walking trails;
 - 2. Private walking and biking trails can also be approved by the City Engineer upon review of a study demonstrating the vegetation protection methods to be used for the trails, the hydraulic measures required to pass water through the trail without violating any requirements of this ordinance, the long-term maintenance plan for the trail, and demonstrating the value to the community of the path. The ability to tie a path to the present or planned public greenway system will be considered as a significant criteria for approval;
 - 3. Infiltration-based SCMs such as infiltration trenches and biofiltration basins may be allowed on a case-by-case basis if approved in writing by the City Engineer. This can only be approved if such SCMs improve the biodiversity or aesthetic appearance of the buffer areas. Economics or constructability of a development cannot be used as criteria for allowing an SCM to be place in the buffer;
 - 4. Road and utilities crossings. Private drives and private utility crossings may also be approved by the City Engineer upon review of a complete submittal demonstrating that there is no feasible alternate route;
 - 5. Linear utilities; and
 - 6. The City Engineer may determine that other limited uses are in the best interest of the overall water quality of the City of La Vergne.

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7. Economics or constructability of a development cannot be used as a criteria for allowing such a use to be placed in the buffer.
- (B) In the event that a stream IS identified by the State of Tennessee either as having unavailable parameters for siltation/ sedimentation or as being an Exceptional Tennessee Water, the activities listed above are permitted no closer than thirty feet (30) from the top of bank. However, there must be an average of sixty feet (60') of water quality riparian buffer through the development. The riparian buffer must be measured to the interior edge of the activity listed above. If the construction encompasses both sides of a stream, buffer averaging can be applied to both sides, but each side must average the sixty feet (60') criterion independently.
- (iv) Water quality riparian buffers shall be protected during development activities. The water quality riparian buffers shall be clearly marked during construction activities.
- (v) Water quality riparian buffers shall be recorded on the plat. Site development plans and plats prepared for recording shall:
- (A) Define the boundaries of the water quality riparian buffer on the subject property.
- (B) Provide a note stating: "There shall be no clearing, grading, construction, or disturbance of vegetation in the water quality riparian buffer except as permitted by the City of La Vergne."
- (C) In the event that a protective covenant is required, a note must be provided to reference any protective covenants governing water quality riparian buffers stating: "Water quality riparian buffers shown hereon are subject to protective covenants which may be found in the county records, and which restrict disturbance and use of these areas."
- (5) *Sinkhole and/or injection well policy.*
- (a) A TDEC injection well permit is required for any use or modification of an injection well.
- (b) (b) A Land Disturbance Permit is required for any disturbance, filling, modifying, etc. of any sinkhole which accepts stormwater drainage from more than one property regardless of disturbed area
- (c) Drainage calculations and support drawings shall be submitted for any development in or around sinkholes. These calculations must be signed and sealed by a registered professional engineer in the State of Tennessee and must include, at a minimum, the following:

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- (i) Drawing showing the onsite and offsite stormwater management channels that discharge to a sinkhole or injection well.
 - (ii) Drawing showing the area inundated by the 100-year/24-hour storm event in the pre-developed condition and the post-developed condition.
 - (iii) A proposed grading plan demonstrating that development (placement of habitable structures or structures that may cause a water quality concern) will not occur within the area inundated by the 100-year/24-hour stormwater event.
 - (iv) Drawings and details showing how the water quality requirements of this ordinance will be met prior to stormwater entering the throat of the sinkhole.
 - (v) Calculations comparing pre-development and post-development flows entering the throat of the sinkhole or injection well for the storm events listed in (d) below. Detention may be used to control post-developed flows and must be quantified in the calculations.
 - (vi) Calculations supporting the elevations used for the drawing described in item (ii) above.
 - (vii) The contributing drainage area for the sinkhole or injection well shall be delineated on a map to show basin wide contours.
 - (viii) Calculations and drawings demonstrating the area of inundation and elevations for the 100-year/24-hour storm in the event that the sinkhole or injection well is completely blocked and allowing no flow.
- (de) Post-developed flows and volume shall not exceed pre-developed flow and volumes entering into a sinkhole for the 2-year, 5-year, 10-year, 25-year, 50-year, and 100-year/24-hour storm events for a development or redevelopment.
- (ed) Any "capping" of a sinkhole shall be done under the direction and approval of the City Engineering Department. Drainage formerly entering the capped sinkhole shall be accounted by providing stormwater calculations showing equal conveyance capacity by an alternative outfall.
- (fe) Any alternative stormwater management measure requested in lieu of the sinkhole/injection well policy requirements shall be presented to the La Vergne Stormwater Appeals Board.
- (g) Any filling, capping, or change in capacity of a sinkhole which increases flood depth or flood coverage for the 100-year/24-hour stormwater event on other properties will not be allowed.
- (h) Any filling, capping, or change in capacity of a sinkhole which redirects flow to or through a neighboring property will not be allowed.

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- (i) Any modification or alteration of a sinkhole which, in the opinion of the City Engineer, increased the potential for pollutant inflow into the uppermost aquifer or the subterranean stormwater system will not be allowed.

(Ord. No. 2023-23, § II, 10-10-2023)

Sec. 14-606. Existing locations and ongoing developments.

- (1) *Requirements for 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 shall be vegetated or covered using guidelines specified in the manuals adopted in this chapter and on a schedule acceptable to the City Engineer.
 - (b) Trash, junk, rubbish, etc. shall be cleared from streams, ditches, and other stormwater conveyances.
 - (c) 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:
 - (i) Ponds;
 - (ii) Constructed wetlands;
 - (iii) Infiltration systems;
 - (iv) Filtering systems;
 - (v) Open channel.
- (2) *Requirements for existing problem locations.* Based upon the regulations in place at the time SCMs were constructed, the City Engineer 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 La Vergne may, to the extent authorized by state and federal law, establish inspection programs to verify that all stormwater management facilities, including those built before 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; 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; 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.

(Ord. No. 2023-23, § II, 10-10-2023)

Sec. 14-607. Inspections.

Inspections shall be performed to ensure that vegetation, erosion and sediment control measures and other protective measures identified in the site plan are kept in good and effective operating condition.

(1) *Inspections by the owner or responsible party.*

- (a) Inspections as required by the CGP.
- (b) Submission of inspection documentation upon request by the City Engineer.
- (c) Construction stormwater management BMPs must be inspected and certified that the BMPs are in accordance with the approved plans, prior to granting building permit on sites requiring a land disturbance permit.
- (d) Post-construction SCMs must be inspected and certified that the SCMs are in accordance with the approved plans prior to release of surety.
- (e) Routine inspections of all SCMs built after the adoption of this ordinance shall be conducted on an annual basis at a minimum by the responsible party. These inspections shall be conducted by a person familiar with the control measures implemented on site. Owners or operators shall maintain documentation of these inspections and submit annually to the City Engineer.
- (f) Comprehensive inspection of all stormwater management facilities and practices built or implemented after the adoption of this ordinance shall be conducted once every five (5) years at a minimum by the responsible party. Such inspections must be conducted by either a professional engineer or landscape architect, licensed in the State of Tennessee and submitted to the City Engineer. Complete inspection reports for these five (5) year inspections shall include:
 - (i) Facility type,
 - (ii) Inspection date,
 - (iii) Latitude and longitude and nearest street address,
 - (iv) SCM owner information (e.g. name, address, phone number, and email),
 - (v) A description of current SCM conditions including, but not limited to: green infrastructure practices, grassy areas, forested areas, buffer areas, growing vegetation and soil properties; inlet and outlet channels and structures; embankments, slopes, and safety benches; spillways, weirs, and other control structures; and any sediment and debris accumulation,

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- (vi) Photographic documentation of SCMs, and
 - (vii) Specific maintenance items or violations that need to be corrected by the SCM owner along with deadlines and reinspection dates.
- (2) *City of La Vergne inspections.* City inspections may include, but are not limited to, the following:
- (a) An initial erosion prevention and sediment control inspection to verify initial BMP measures have been installed per the approved plan set prior to grading activities;
 - (b) A bury inspection prior to burial of any underground drainage structure that is intended to be submitted by the Developer for acceptance from the City;
 - (c) Erosion prevention and sediment control inspections as necessary to ensure effective control of erosion and sedimentation;
 - (d) A final inspection to verify work has been completed and create punch list of tasks to be completed prior to final inspection;
 - (e) An acceptance inspection when all work, including installation of SCMs, has been completed; and
 - (f) Periodic inspections to ensure SCMs are being maintained.
- (Ord. No. 2023-23, § II, 10-10-2023)

Sec. 14-608. Illicit discharges.

- (1) *Prohibition of illicit discharges.*
- (a) Pursuant to the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) program administered by the TDEC illicit discharges to the MS4 are being defined as illegal. This is accomplished by identifying allowable non-stormwater discharges into the MS4 in the best interest of the City of La Vergne, Tennessee.
 - (b) Non-stormwater discharge means any discharge to the municipal separate storm sewer system except as permitted by subsection (2) of this section.
 - (c) Except as hereinafter provided, all non-stormwater discharges into the municipal separate storm sewer system are prohibited and declared to be unlawful.
- (2) *Allowable stormwater discharges.*
- (a) Unless the City of La Vergne, TDEC, EPA or other regulatory agency has identified them as a source of pollutants to the "Waters of the State of Tennessee," the following non-stormwater discharges into the MS4 are lawful:
 - (i) Water line flushing or other potable water sources;

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- (ii) Landscape irrigation or lawn watering with potable water;
 - (iii) Diverted stream flows;
 - (iv) Rising ground water;
 - (v) Groundwater infiltration to storm drains;
 - (vi) Pumped groundwater;
 - (vii) Foundation or footing drains;
 - (viii) Crawl space pumps;
 - (ix) Air conditioning condensation;
 - (x) Springs;
 - (xi) Non-commercial washing of vehicles;
 - (xii) Natural riparian habitat or wet-land flows;
 - (xiii) Swimming pools (if dechlorinated—typically less than one (1) PPM chlorine);
 - (xiv) Firefighting activities;
 - (xv) Any other uncontaminated water source;
 - (xvi) Discharges specified in writing by the City of La Vergne as being necessary to protect public health and safety; and
 - (xvii) Dye testing as an allowable discharge if the City of La Vergne has so specified in writing.
- (b) Discharges authorized by the CGP, which comply with section 1.2.3 of the same:
- (i) Dewatering of collected stormwater and groundwater discharged in accordance with Section 4.1.3 of the CGP (filtering or chemical treatment may be necessary prior to discharge);
 - (ii) Waters used to wash vehicles (of dust and soil, not process materials such as oils, asphalt or concrete) where detergents are not used and detention and/or filtering is provided before the water leaves site;
 - (iii) Water used to control dust in accordance with CGP section 5.5.3.7;
 - (iv) Potable water sources, including waterline flushings, from which chlorine has been removed to the maximum extent practicable;
 - (v) Routine external building washdown that does not use detergents or other chemicals;
 - (vi) Uncontaminated, non-turbid groundwater or spring water;
 - (vii) Foundation or footing drains where flows are not contaminated with pollutants (process materials such as solvents heavy metals, etc.);

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- (viii) Fire hydrant flushings; and
 - (ix) Pavement wash waters, provided spills or leaks or other toxic or hazardous substances have not occurred (unless all spill material has been removed) and where soaps, solvents, and detergents are not used.
- (3) *Prohibition of illicit connections.* The construction, use, maintenance or continued existence of illicit connections to the municipal separate storm sewer system is prohibited. This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.
- (4) *Reduction of stormwater pollutants by the use of stormwater control measures.* Any person responsible for a property or premises, which is, or may be, the source of an illicit discharge, will be required to implement, at the person's expense, the SCMs necessary to prevent the further discharge of pollutants to the municipal separate storm sewer system. Compliance with all terms and conditions of a valid NPDES permit authorizing the discharge of stormwater associated with industrial activity, to the extent practicable, shall be deemed in compliance with the provisions of this section. Discharges from existing SCMs that have not been maintained and/or inspected in accordance with this ordinance shall be regarded as illicit.
- (5) *Notification of spills.* Notwithstanding other requirements of law, as soon as any person responsible for a facility or operation, or responsible for emergency response for a facility or operation has information of any known or suspected release of materials which are resulting in, or may result in, illicit discharges or pollutants discharging into stormwater, the municipal separate storm sewer system, the person shall take all necessary steps to ensure the discovery, containment, and cleanup of such release. In the event of such a release of hazardous materials the person shall immediately notify emergency response agencies of the occurrence via emergency dispatch services. In the event of a release of non-hazardous materials, the person shall notify the City Engineer or his designee in person, email, or by telephone no later than the next business day. Notifications in person, email or by telephone shall be confirmed by written notice addressed and emailed, mailed, or faxed to the City Engineer or his designee within three (3) business days of the notice. If the discharge of prohibited materials emanates from a commercial or industrial establishment, the owner or operator of such establishment shall also retain an on-site written record of the discharge and the actions taken to prevent its recurrence. Such records shall be retained for at least three (3) years.
- (6) *No illegal dumping allowed.* No person shall dump or otherwise deposit outside an authorized landfill, convenience center or other authorized garbage or trash collection point, any trash or garbage of any kind or description on any private or public property, occupied or unoccupied, inside the city.
- (7) *Priority areas.* The City Engineer is authorized to regulate priority areas. Upon written notification by the City Engineer, the property owner or designated facility manager of a

priority area shall, at their expense, implement necessary controls and/or best management practices to prevent discharge of contaminated stormwater to municipal separate storm sewer system. The City Engineer may require the facility to maintain inspection logs or other records to document compliance with this paragraph.

(Ord. No. 2023-23, § II, 10-10-2023)

Sec. 14-609. Enforcement.

- (1) *Enforcement authority.* The City Engineer or his designee shall have the authority to issue notices of violation and citations, and to impose the civil penalties provided in this section guided by the Enforcement Response Plan (ERP).
- (2) *Notification of violation.*
 - (a) *Written notice.* Whenever the City Engineer or other appropriate city official finds that any permittee or any other person discharging stormwater has violated or is violating this ordinance or a permit or order issued hereunder, the City Engineer or his designee may serve upon such person written notice of the violation. Within ten (10) days of this notice, an explanation of the violation and a plan for the satisfactory correction and prevention thereof, to include specific required actions, shall be submitted to the City Engineer. Submission of this plan in no way relieves the discharger of liability for any violations occurring before or after receipt of the notice of violation.
 - (b) *Consent orders.* The City of La Vergne is empowered to enter into consent orders, assurances of voluntary compliance, or other similar documents establishing an agreement with the person responsible for the noncompliance. Such orders will include specific action to be taken by the person to correct the noncompliance within a time period also specified by the order. Consent orders shall have the same force and effect as administrative orders issued pursuant to subsections (d) and (e) below.
 - (c) *Show cause meeting.* Any person who has been notified under item (a) above may request a show cause meeting. This request must be made in writing to the City Engineer and include reasoning why enforcement action should not be taken. The City Engineer will serve notice specifying the time and place for the meeting. The notice of the meeting shall be served personally or by registered or certified mail (return receipt requested) at least ten (10) days prior to the hearing.
 - (d) *Compliance order.* When the City Engineer or his designee finds that any person has violated or continues to violate this ordinance or a permit or order issued hereunder, the City Engineer or his designee may issue an order to the violator directing that, following a specific time period, adequate structures, devices, be installed or procedures implemented and properly operated. Orders may also contain such other requirements as might be reasonably necessary and appropriate to address the

noncompliance, including the construction of appropriate structures, installation of devices, self-monitoring, and management practices.

- (e) *Cease and desist orders.* When the City Engineer or his designee finds that any person has violated or continues to violate this ordinance or any permit or order issued hereunder, the City Engineer or his designee may issue an order to cease and desist all such violations and direct those persons in noncompliance to:
 - (i) Comply forthwith; or
 - (ii) Take such appropriate remedial or preventive action as may be needed to properly address a continuing or threatened violation, including halting operations and terminating the discharge.
 - (iii) *Conflicting standards.* Whenever there is a conflict between any standard contained in this ordinance and in the BMP manual adopted by the City of La Vergne under this ordinance, the strictest standard shall prevail.

(Ord. No. 2023-23, § II, 10-10-2023)

Sec. 14-610. Penalties.

- (1) *Violations.* Any person who shall commit any act declared unlawful under this ordinance, who violates any provision of this ordinance, who violates the provisions of any permit issued pursuant to this ordinance, or who fails or refuses to comply with any lawful communication or notice to abate or take corrective action by the City of La Vergne, shall be guilty of a civil offense.
- (2) *Penalties.* Under the authority provided in Tennessee Code Annotated, § 68-221-1106, the City of La Vergne declares that any person violating the provisions of this ordinance may be assessed a civil penalty by the City of La Vergne of not less than fifty dollars (\$50.00) and not more than five thousand dollars (\$5,000.00) per day for each day of violation. Each day of violation shall constitute a separate violation.
- (3) *Measuring civil penalties.* In assessing a civil penalty, the City of La Vergne may consider:
 - (a) The harm done to the public health or the environment;
 - (b) Whether the civil penalty imposed will be a substantial economic deterrent to the illegal activity;
 - (c) The economic benefit gained by the violator;
 - (d) The amount of effort put forth by the violator to remedy this violation;
 - (e) Any unusual or extraordinary enforcement costs incurred by the City of La Vergne;
 - (f) The amount of penalty established by ordinance or resolution for specific categories of violations; and

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- (g) Any equities of the situation which outweigh the benefit of imposing any penalty or damage assessment.
 - (4) *Recovery of damages and costs.* In addition to the civil penalty in section 14-610(2), the City of La Vergne may recover:
 - (a) All damages proximately caused by the violator to the City of La Vergne, which may include but not be limited to any reasonable expenses incurred in investigating violations of, and enforcing compliance with, this ordinance, or any other actual damages caused by the violation including attorney's fees.
 - (b) The costs of the City of La Vergne's maintenance of stormwater facilities when the user of such facilities fails to maintain them as required by this ordinance.
 - (5) *Other remedies.* The City of La Vergne may bring legal action to enjoin the continuing violation of this ordinance, and the existence of any other remedy, at law or equity, shall be no defense to any such actions.
 - (6) *Remedies cumulative.* The remedies set forth in this section shall be cumulative, not exclusive, and it shall not be a defense to any action, civil or criminal, that one (1) or more of the remedies set forth herein has been sought or granted.
 - (7) *False reports.* False reporting of stormwater issues to the City of La Vergne is a violation. In the event that three (3) false reports (whether in the same location or varied locations) are made to the city by or on behalf of the same individual, that individual will be subject to a five hundred dollar (\$500.00) fine. For each false report after the third, the fine will be five hundred dollars (\$500.00) per additional false report. A report will be determined to be false if a field inspection is made by the City of La Vergne officials and the report is found to be either non-existent or exaggerated.

(Ord. No. 2023-23, § II, 10-10-2023)

Sec. 14-611. Appeals.

Pursuant to Tennessee Code Annotated, § 68-221- 1106(d), any person aggrieved by the imposition of a civil penalty, decision or damage assessment as provided by this ordinance may appeal said penalty, decision or damage assessment to the City of La Vergne's Stormwater appeals and advisory board.

- (1) *Appeals to be in writing.* The appeal shall be in writing and filed with the City of La Vergne clerk within fifteen (15) days after the civil penalty and/or damage assessment is served in any manner authorized by law.
- (2) *Public hearing.* Upon receipt of an appeal, the City of La Vergne's Stormwater Administrative Board shall hold a public hearing within thirty (30) days. Ten (10) days prior notice of the time, date, and location of said hearing shall be published in a daily newspaper of general circulation. Ten (10) days notice by registered mail shall also be

provided to the aggrieved party, such notice to be sent to the address provided by the aggrieved party at the time of appeal. The decision of the City of La Vergne's Stormwater Administrative Board shall be final.

- (3) *Appealing decisions of the City of La Vergne.* Any alleged violator may appeal a decision of the City of La Vergne's Stormwater Administrative Board pursuant to the provisions of Tennessee Code Annotated, title 27, chapter 8.

(Ord. No. 2023-23, § II, 10-10-2023)

Sec. 14-612. Severability.

Should any article, section, subsection or provision of this Comprehensive Stormwater Management Ordinance be declared by a court of competent jurisdiction to be unconstitutional or invalid, such decision shall not affect the validity of the ordinance as a whole or any part thereof other than the part declared to be unconstitutional or invalid, each article, section, clause and provision being declared severable. If any provisions of this ordinance and any other provisions of law impose overlapping or contradictory regulations or contain any restrictions covering any of the same subject matter, that provision which is more restrictive or imposes higher standards or requirements shall govern.

(Ord. No. 2023-23, § II, 10-10-2023)

Stormwater Appeals and Advisory Board Report

Meeting: February 3, 2025



Item #: 5.	Discussion - Stormwater Monitoring (E. Coli and Visual Stream Assessments).
Presented By:	Alexandra Thompson
Summary:	This is a summary of the Visual Stream Assessments conducted on Finch Branch, Hurricane Creek, and Rock Springs Branch and the E. Coli sampling that was conducted on Finch Branch and Hurricane Creek. There is no financial cost of this item at this time.
Background Information:	Per the State Small MS4 permit, the City is required to conduct stormwater monitoring in the form of Visual Stream Assessments on waterways that are impaired for siltation, pathogens, or nutrients. The City is required to conduct E. Coli testing on all of the waterways that are listed as impaired for pathogens. This is a presentation of the result of the required monitoring.
Staff Recommendation:	Discussion item.

January 2, 2025

Alex Thompson
Stormwater Coordinator
City of La Vergne
5175 Murfreesboro Road
La Vergne, TN 37086

Delivered via electronic mail to: athompson@laveragnetn.gov

Dear Ms. Thompson:

Subject: 2024 Visual Stream Assessment (VSA)
MS4 Permit – Non-Analytical Stream Monitoring
City of La Vergne, Rutherford County, Tennessee
CEC Project 342-286.0001

Civil & Environmental Consultants, Inc. (CEC) performed a Visual Stream Assessment (VSA) of Finch Branch (TN 05130203003T_0200), Hurricane Creek (TN05130203036_1000), Rock Springs Branch (TN05130203010_0310), and West Branch Hurricane Creek (TN05130203036_0200), for the City of La Vergne (City) according to our proposal dated May 13, 2024. The VSA was conducted between October 30 and November 13, 2024, using the Maryland Department of Natural Resources' Stream Corridor Assessment Survey (2001).

VSA survey locations have been logged into a geodatabase. Each location includes completed data fields, GPS location, and a photo (due to limited connectivity in some areas, photos may not be available for some locations). The geodatabase is included on the USB flash drive provided. The total mileage assessed for each stream is included in Table 1. If CEC encountered conditions that did not permit field crews to access a portion of a stream (i.e., "No Trespassing" signs, property owner asking field crews to leave property, gated community, etc.), CEC then documented the location and nature of the conditions. Figure 1 illustrates an overview of collected VSA data points.

Table 1. Stream Miles Assessed for Permit Year 3.

Permit Year 1 Streams for Assessment	Miles
Finch Branch (TN05130203003T_0200)	4.85
Hurricane Creek (TN05130203036_1000)	4.80
Rock Springs Branch (TN05130203010_0310)	1.05
West Branch Hurricane Creek (TN05130203036_0200)	0.85
Total	11.55

Section 4.6.1.1. of the MS4 Permit (Permit) states that “permittees shall develop and implement a monitoring and assessment program that provides data and information to identify pollutant sources and aids in determining the effectiveness of the stormwater management program.”

Section 4.2.1 (Public Education and Outreach) of the current Permit states that the objective of the public education/outreach program is to “reduce or eliminate behaviors and practices that cause or contribute to the impacts of stormwater discharges on water bodies.” The program is intended to reach the general public, engineering and development communities, and employees.

CEC’s MS4 stream monitoring data and report can be utilized to engage with the above-mentioned audiences, thereby contributing to the requirements of Section 4.2.2 of the Permit, which states, “Permittees must develop and implement a program for public involvement/participation.” Elements of the program may include participation opportunities such as local stormwater management work groups, riparian plantings, or stream clean-up events.

There were a few locations of concern that CEC wanted to bring to the City’s attention. These locations are described as follows:

Finch Branch

1) Trash Dumping and Fish Barrier northeast of Kendrick Court

A small dump site comprised of tires and a fish barrier are located approximately 250 feet northeast of Kendrick Court. The trash dumping is comprised of old tires along the left descending bank. The fish barrier is comprised of fallen trees and brush. CEC recommends that the City inspect the locations to determine if corrective action is needed with regards to the restricted stream flow. This could also be an opportunity for Public Education and

Outreach regarding trash dumping near streams. These points are listed as a “Trash Dumping” object (Object ID 1) and a “Fish Barrier” object (Object ID 4) in the geodatabase provided. Refer to Figure 1.

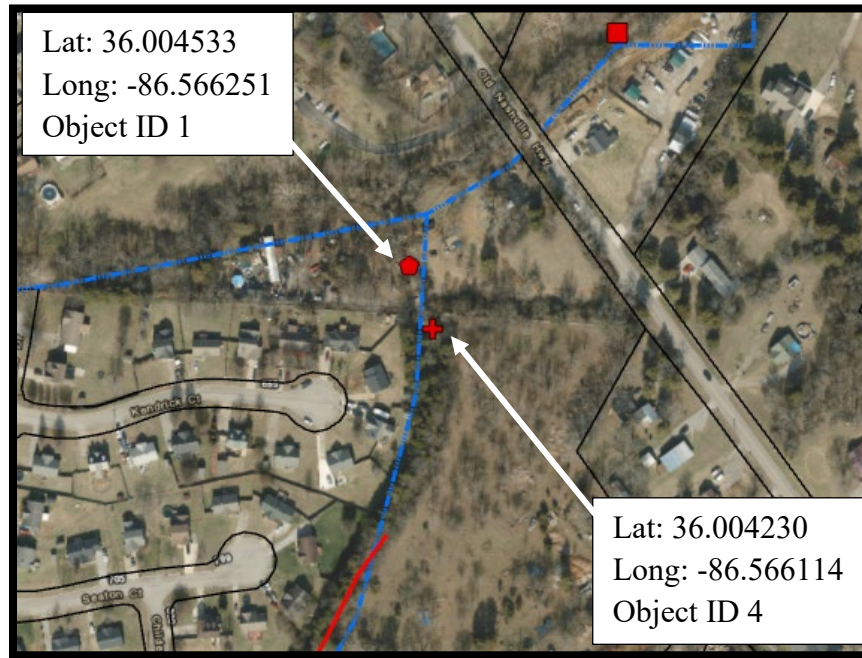


Photo 1 - Aerial View of Trash Object and Fish Barrier
(Red Pentagon Indicates Trash Dumping Location; Red Plus Indicates Fish Barrier Location)



Photo 2 - View of the Trash Dumping (Tires)



Photo 3 - View of the Trash Dumping (Tires)



Photo 4 - View of the Fish Barrier

2) Unusual Conditions or Comments near Greenwood Drive

CEC personnel noted two instances of silt fence left behind after a construction project located approximately 70 feet southeast of Greenwood Drive. CEC recommends the City inspect the locations and consider having the contractor remove the silt fence from the streambank since the construction activities are complete. These points are an “Unusual Condition or Comment” (Object ID 5 and 12) in the geodatabase provided. Refer to Figure 1.

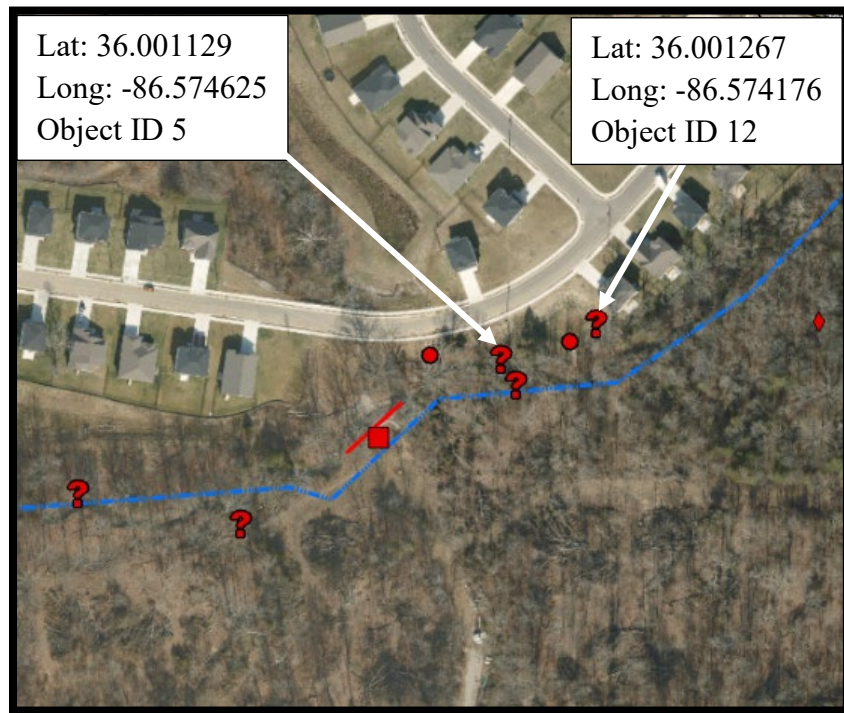


Photo 5 - Aerial View of Unusual Condition or Comments
(Red Question Marks Indicate Unusual Condition or Comment Locations)



Photo 6 - View of the Unusual Condition and Comment (Object ID 5)



Photo 7 - View of the Unusual Condition and Comment (Object ID 12)



Photo 8 - View of the Unusual Condition and Comment (Object ID 12)

3) Channel Alteration south of Jefferson Pike

CEC personnel noted evidence of driving through a stream that might be a construction crossing located approximately 170 feet south of Jefferson Pike. This action has caused erosion and greatly reduced vegetation and buffer on either side of the stream. CEC suggests that the City inspect the location to determine if corrective action is needed. This point is a “Channel Alteration” point (Object ID 5) in the geodatabase provided. Refer to Figure 1.

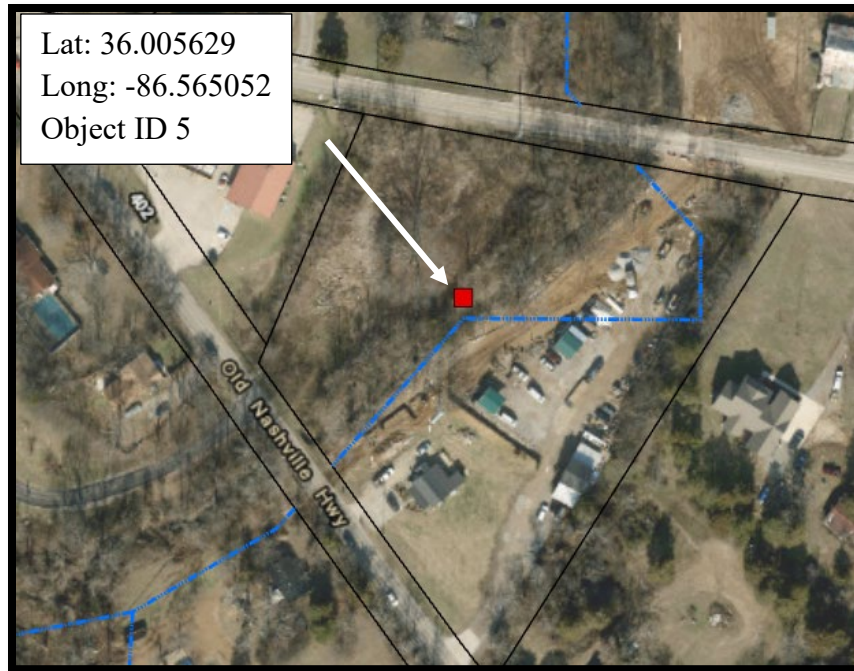


Photo 9 - Aerial View of Channel Alteration
(Red Square Indicates Channel Alteration Location)



Photo 10 - View of the Channel Alteration

Hurricane Creek

1) Pipe Outfall and Erosion near Mickey Katz Circle

A pipe outfall was observed within the stream channel off of Mickey Katz Circle. The pipe discharges directly to the stream and appears to be partially blocked. The erosion site, with approximately 50 feet of exposed bank poses a potential threat to infrastructure. CEC recommends that the City investigate the pipe outfall and erosion site to determine if repair or maintenance are needed. These points are a “Pipe Outfall” point (Object ID 29) and an “Erosion Site” point (Object ID 7) in the geodatabase provided. Refer to Figure 2.

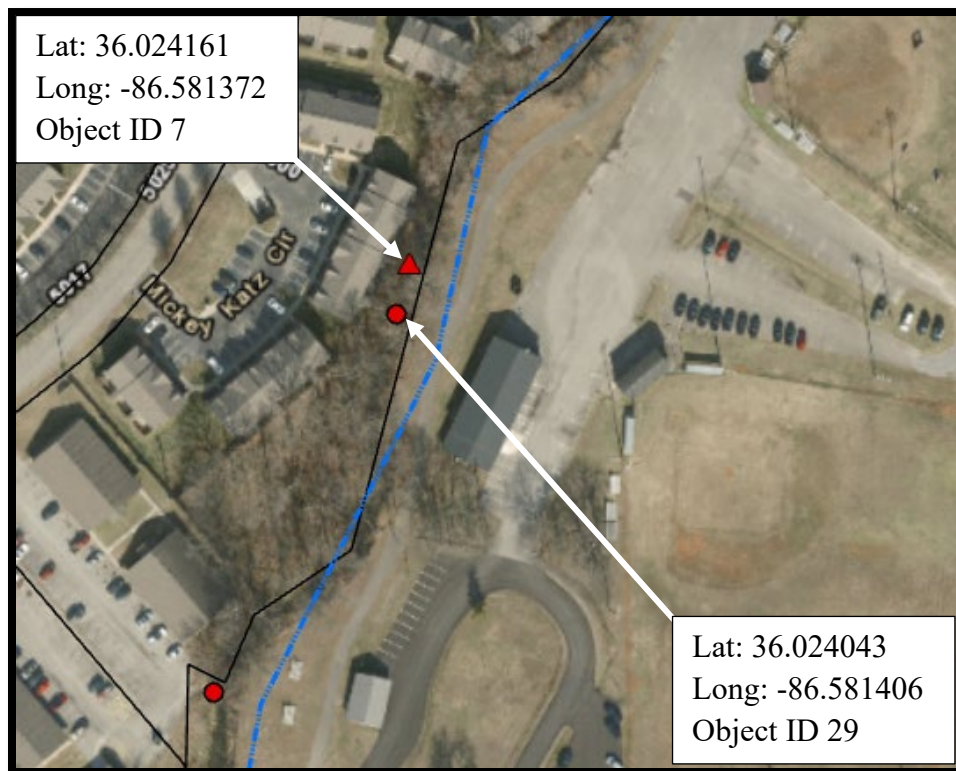


Photo 11 - Aerial View of Pipe Outfall and Erosion Site
(Red Circle Indicates Pipe Outfall and Red Triangle Indicates Erosion Site)



Photo 12 - View of the Pipe Outfall



Photo 13 - View of Erosion Site

2) Erosion southwest of Old Nashville Highway

CEC field personnel noted an erosion site during the field survey that was located roughly 780 feet southwest of Old Nashville Highway. The erosion site is approximately 150 feet in length with an average exposed bank height of 5 feet. Mowing to the top of the streambank greatly reduces the vegetative buffer and increases bank instability promoting erosion. CEC recommends that the City inspect the location to determine if corrective action is required. This could also be used as an educational opportunity on channel alteration impacts and mowing practices that preserve a vegetative buffer. This point is an “erosion” point (Object ID 4) in the geodatabase provided. Refer to Figure 2.

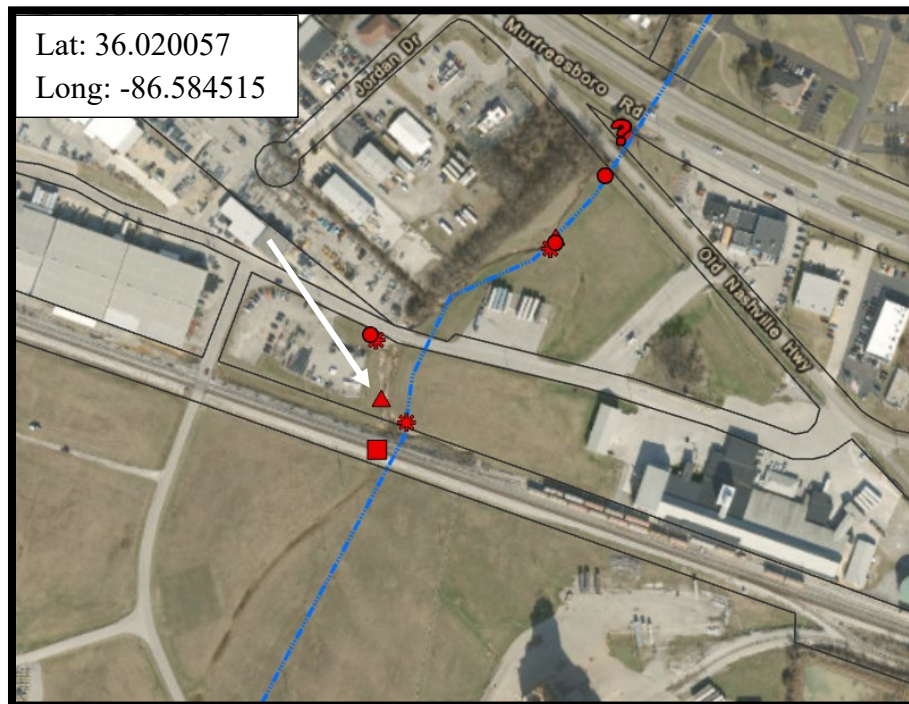


Photo 14 - Aerial View of Erosion Site
(Red Triangle Indicates Erosion Location)



Photo 15 - View of the Erosion

Rock Spring Branch

1) Impacts of In/Near Stream Construction east of Waldron Road

CEC personnel noted that Rock Spring Branch has evidence of heavy sediment deposit near a residential construction site. The area also has inadequate buffer zones on both sides of the stream, approximately 3000 feet long. CEC recommends that the City inspect the location to determine if corrective action is needed. This could also be a good opportunity for an educational event on proper erosion and sediment control on construction sites. These points are labeled as an “Unusual Condition or Comment” point (Object ID 24), “In/Near Stream Construction” point (Object ID 4), and “Inadequate Buffer” line (Object ID 18) in the geodatabase provided. Refer to Figure 3.

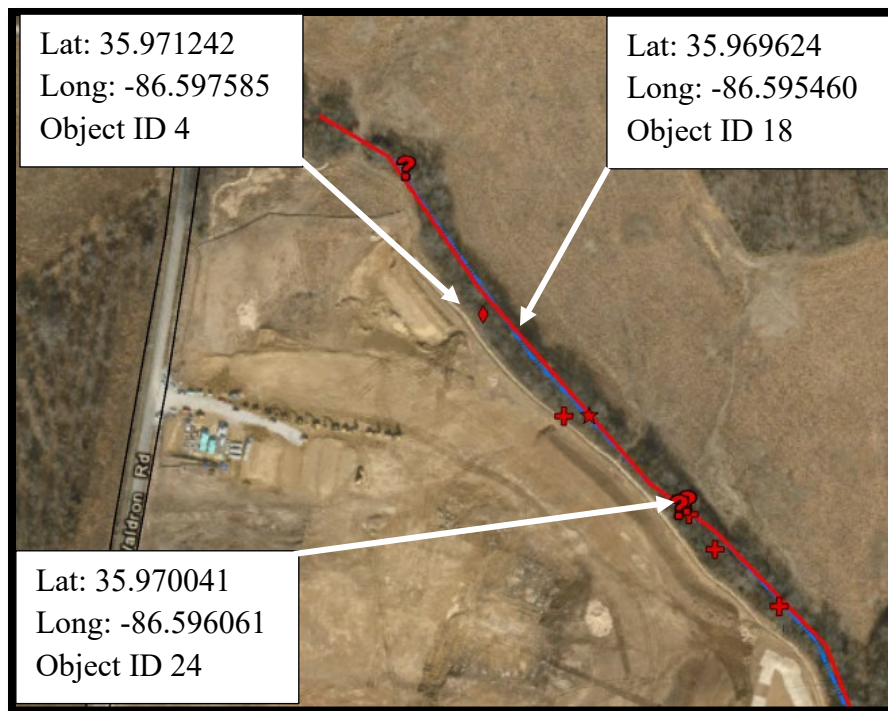


Photo 16 - Aerial View of the In/Near Stream Construction, Inadequate Buffer, and Unusual Condition)
(Red Diamond Indicates In/Near Stream Construction, Red Line Indicates Inadequate Buffer, and Red Question Mark Indicates Condition Location.)



Photo 17 - View of the In/Near Stream Construction



Photo 18 - View of the Unusual Condition



Photo 19 - View of the Unusual Condition



Photo 20 - View of the Inadequate Buffer

2) Fish Barrier northwest of Inglenook Drive

CEC personnel noted a fish barrier located approximately 200 feet northwest of Inglenook Drive. The fish barrier is comprised of fallen trees and brush which are restricting stream flow. CEC recommends that the City inspect the location to determine if corrective action is needed. This point is listed as a “Fish Barrier” (Object ID 11) in the geodatabase provided. Refer to Figure 3.

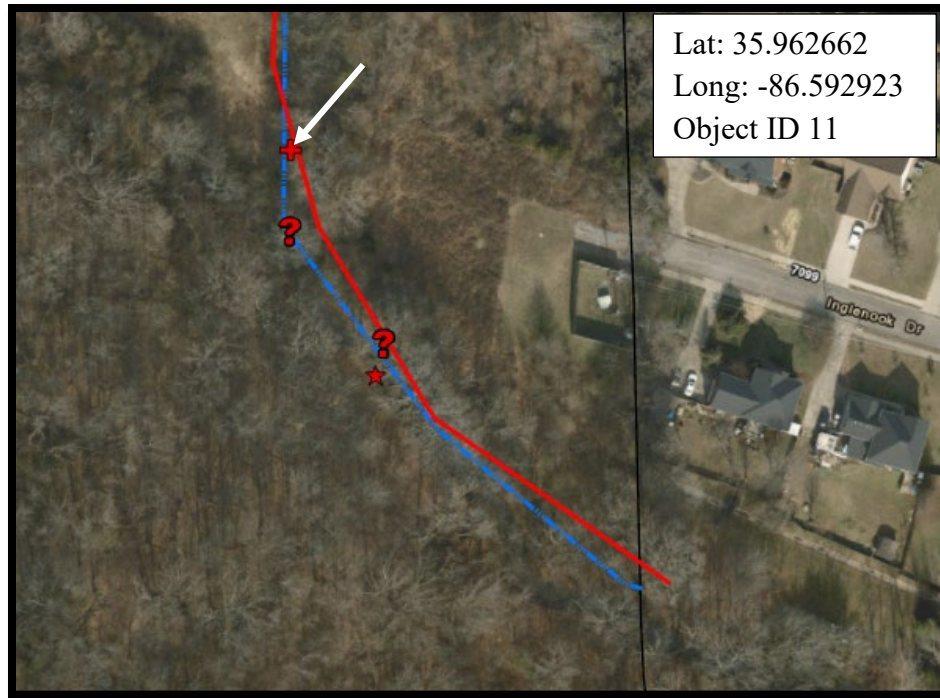


Photo 21 - Aerial View of the Fish Barrier
(Red Plus Indicates Fish Barrier)



Photo 22 - View of the Fish Barrier

West Branch Hurricane Creek

1) Inadequate Buffer south of JP Hennessey Drive

CEC personnel noted approximately 100 feet of inadequate buffer on both sides of West Branch Hurricane Creek near JP Hennessey Drive. Lack of buffer can contribute to streambank erosion and habitat loss, including a deficit of shade for macroinvertebrate benthic organisms. CEC recommends that the City inspect the location to determine if corrective action is needed. This point is labeled as an “Inadequate Buffer” line (Object ID 10) in the geodatabase provided. Refer to Figure 4.

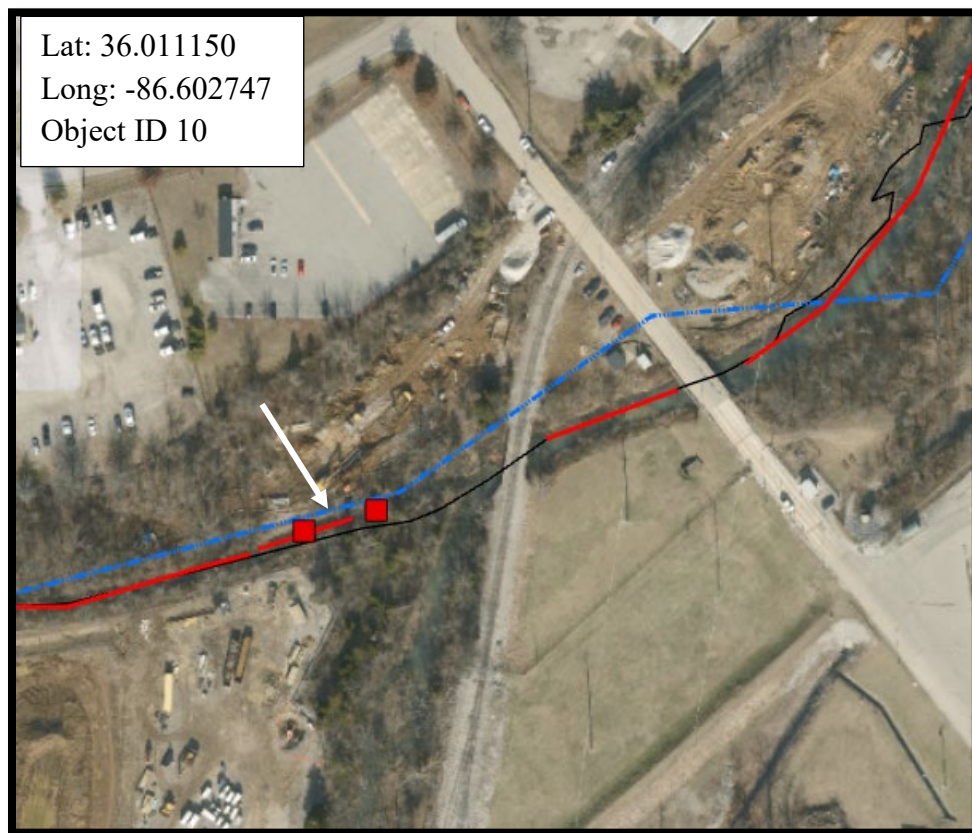


Photo 23 - Aerial View of Inadequate Buffer
(Red Line Indicates Inadequate Buffer)



Photo 24 - View of the Inadequate Buffer



Photo 25 - View of the Inadequate Buffer

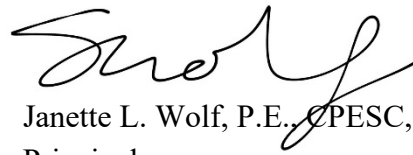
CEC appreciates this opportunity to perform this VSA and provide this summary report. Please contact Christine Guy-Baker (cguybaker@cecinc.com) or Lindsay Wilson-Kokes (lwilsonkokes@cecinc.com) at 615-333-7797 if you should have any questions regarding this deliverable.

Sincerely,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.



Christine L. Guy-Baker, P.E., CFM
Project Manager



Janette L. Wolf, P.E., CPESC, CPSWQ
Principal

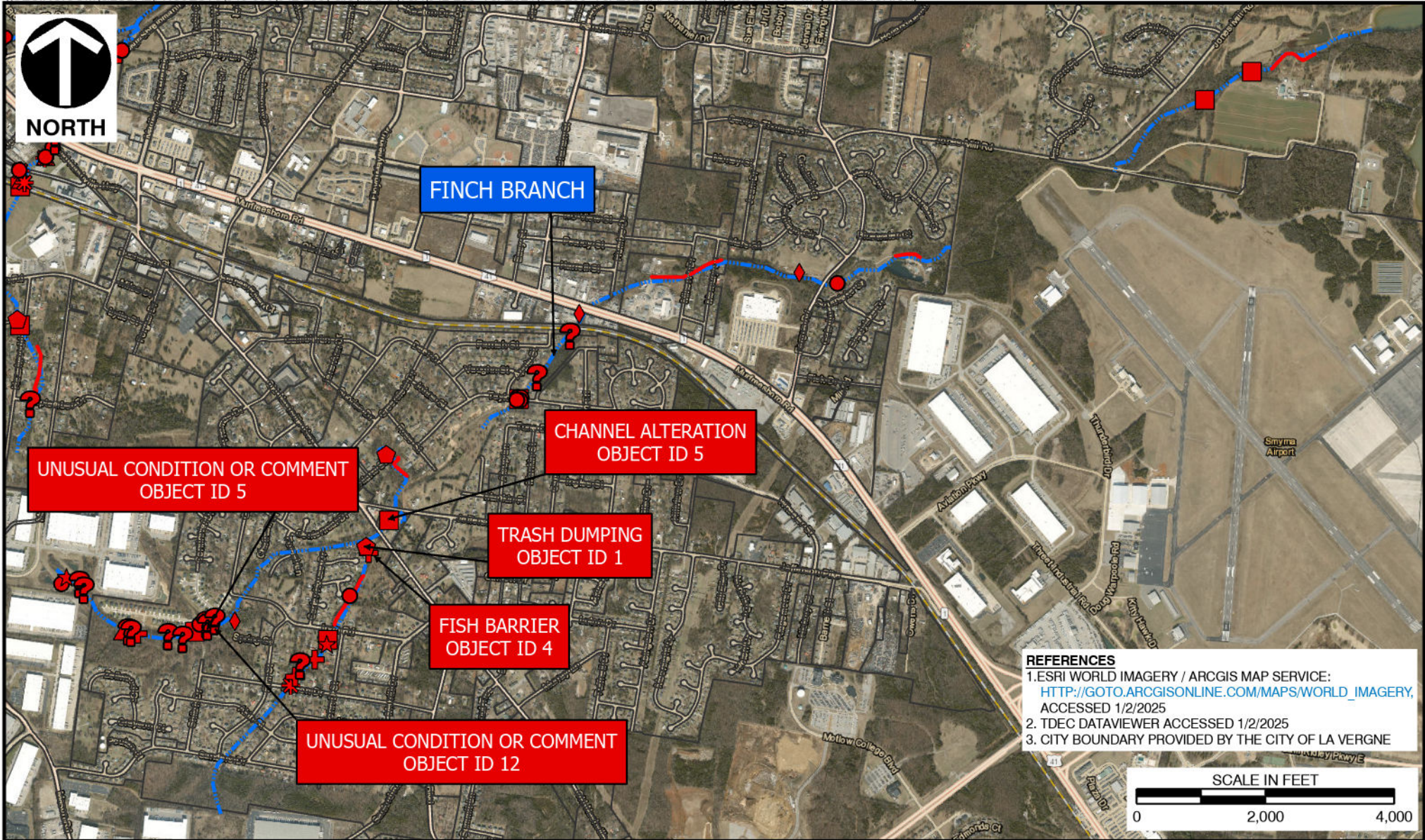


Lindsay Wilson-Kokes, TNQHP-IT
Project Manager

Enclosures: Appendix A – Figures
Figure 1 – Finch Branch
Figure 2 – Hurricane Creek
Figure 3 – Rock Spring Branch
Figure 4 – West Branch Hurricane Creek
Appendix B – Maryland Department of Natural Resources' Stream Corridor
Assessment Survey Definitions
USB Flash Drive

APPENDIX A

FIGURES



REFERENCES
 1. ESRI WORLD IMAGERY / ARCGIS MAP SERVICE:
[HTTP://GOTO.ARCGISONLINE.COM/MAPS/WORLD_IMAGERY](http://GOTO.ARCGISONLINE.COM/MAPS/WORLD_IMAGERY),
 ACCESSED 1/2/2025
 2. TDEC DATAVIEWER ACCESSED 1/2/2025
 3. CITY BOUNDARY PROVIDED BY THE CITY OF LA VERGNE



?	UNUSUAL CONDITION OR COMMENT	*	EXPOSED PIPE
★	TRASH DUMPING	▲	EROSION SITE
★	REPRESENTATIVE SITE	■	CHANNEL ALTERATION
●	PIPE OUTFALL	—	INADEQUATE BUFFER
◆	IN, NEAR STREAM CONSTRUCTION	—	STREAMS
+	FISH BARRIER	—	CITY OF LA VERGNE BOUNDARY

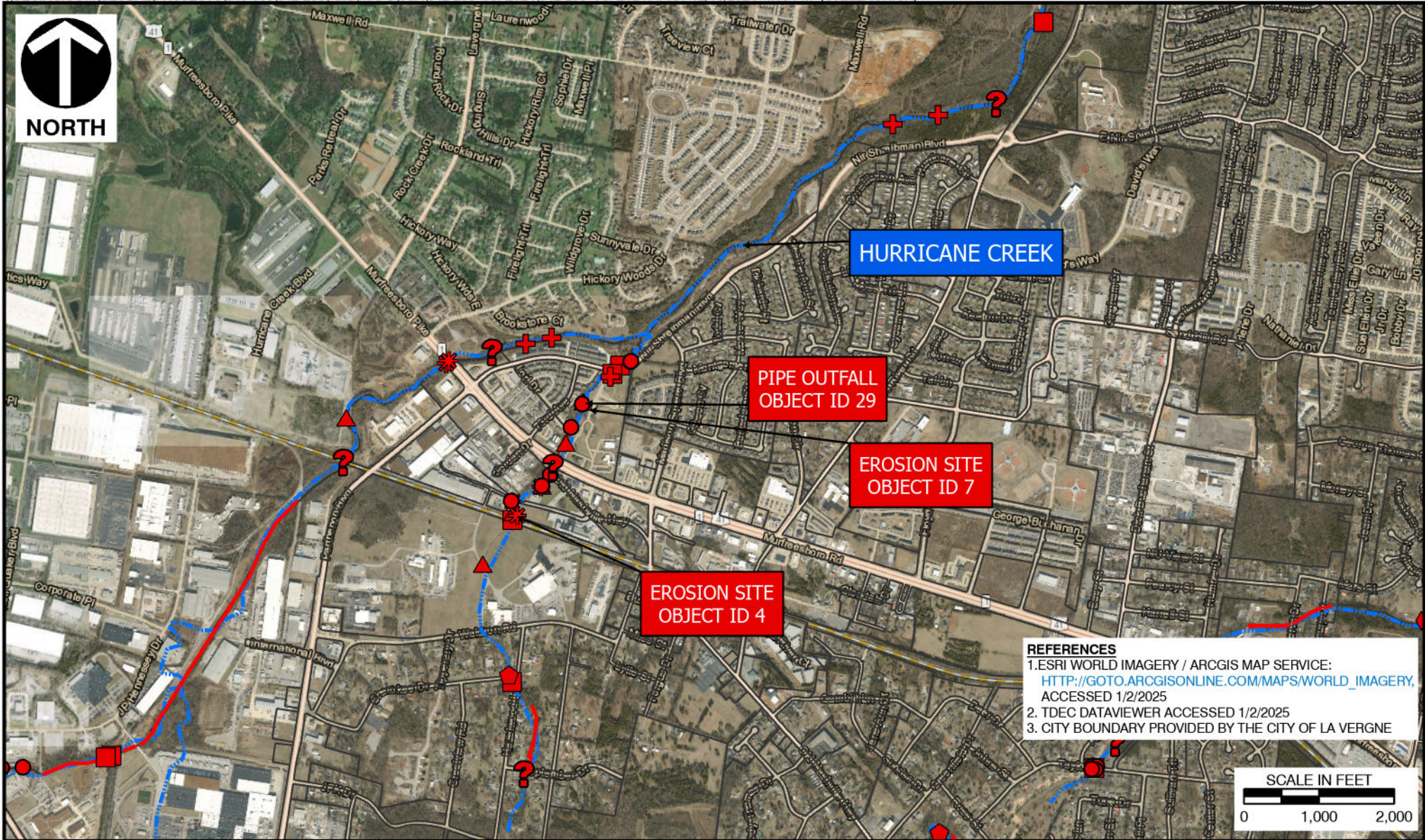
CEC
 Civil & Environmental
 Consultants, Inc.

117 Seaboard Lane
 Suite E-100
 Franklin, TN 37067
 Ph: 615.333.7797 · 800.763.2326
www.cecinc.com

**AREAS OF CONCERN
 VISUAL STREAM ASSESSMENT SURVEY
 PERMIT YEAR 3
 CITY OF LA VERGNE**

FINCH BRANCH

DRAWN BY:	CEJ	CHECKED BY:	LWK	APPROVED BY:	JLW*	FIGURE NO:	1
DATE:	1/2/2025	SCALE:	1"=2,100'	PROJECT NO:	342-286.0001		



REFERENCES
 1. ESRI WORLD IMAGERY / ARCGIS MAP SERVICE:
[HTTP://GOTO.ARCGISONLINE.COM/MAPS/WORLD_IMAGERY](http://GOTO.ARCGISONLINE.COM/MAPS/WORLD_IMAGERY),
 ACCESSED 1/2/2025
 2. TDEC DATAVIEWER ACCESSED 1/2/2025
 3. CITY BOUNDARY PROVIDED BY THE CITY OF LA VERGNE

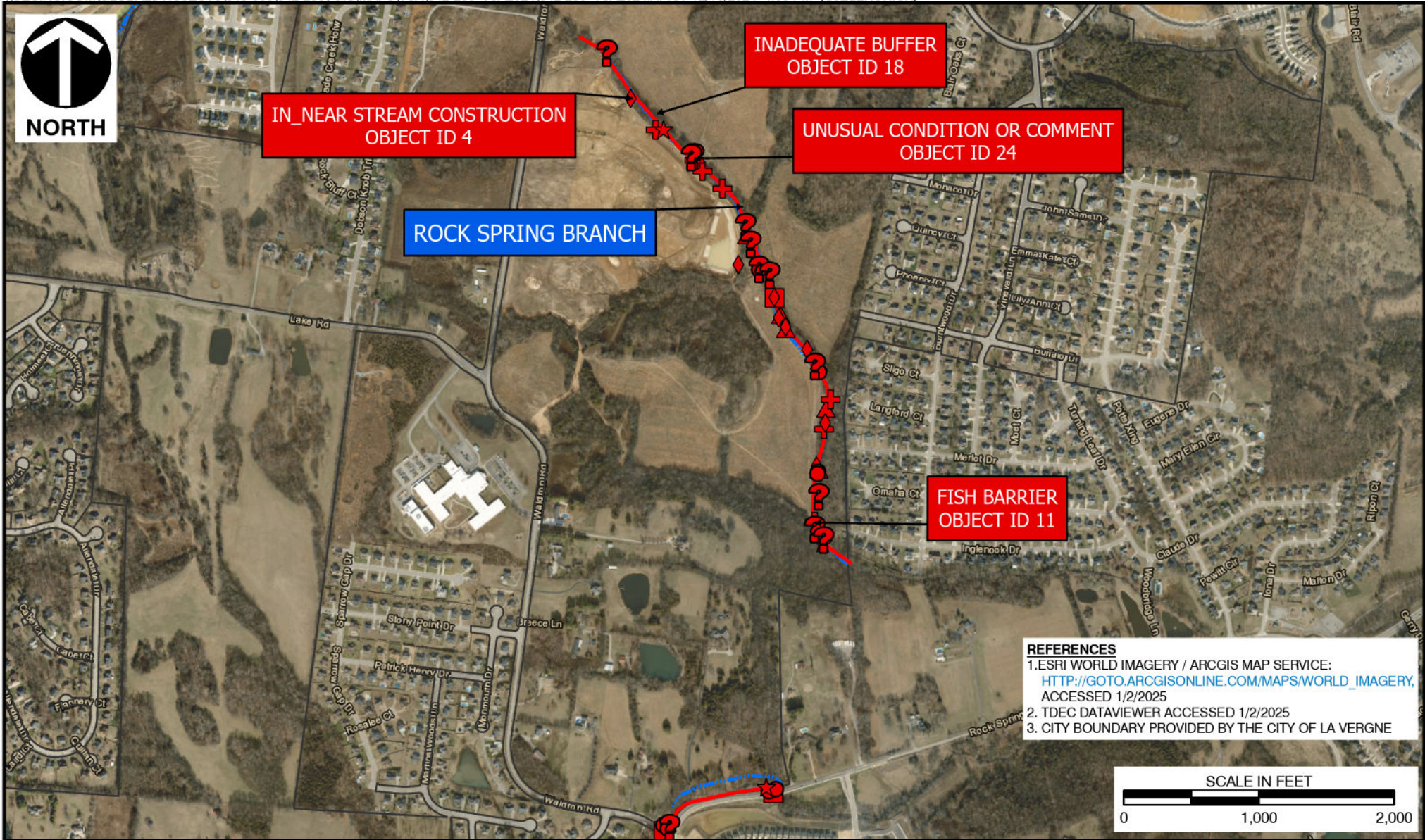
?	UNUSUAL CONDITION OR COMMENT	*	EXPOSED PIPE
△	TRASH DUMPING	△	EROSION SITE
★	REPRESENTATIVE SITE	■	CHANNEL ALTERATION
●	PIPE OUTFALL	—	INADEQUATE BUFFER
◆	IN, NEAR STREAM CONSTRUCTION	—	STREAMS
+	FISH BARRIER	—	CITY OF LA VERGNE BOUNDARY



Civil & Environmental Consultants, Inc.

117 Seaboard Lane
 Suite E-100
 Franklin, TN 37067
 Ph: 615.333.7797 · 800.763.2326
www.cecinc.com

AREAS OF CONCERN VISUAL STREAM ASSESSMENT SURVEY PERMIT YEAR 3 CITY OF LA VERGNE HURRICANE CREEK			
DRAWN BY:	CEJ	CHECKED BY:	LWK
DATE:	1/2/2025	SCALE:	1"=1,800'
APPROVED BY:	JLW*	PROJECT NO:	342-286.0001
FIGURE NO:		2	



REFERENCES
 1. ESRI WORLD IMAGERY / ARCGIS MAP SERVICE:
[HTTP://GOTO.ARCGISONLINE.COM/MAPS/WORLD_IMAGERY](http://GOTO.ARCGISONLINE.COM/MAPS/WORLD_IMAGERY),
 ACCESSED 1/2/2025
 2. TDEC DATAVIEWER ACCESSED 1/2/2025
 3. CITY BOUNDARY PROVIDED BY THE CITY OF LA VERGNE

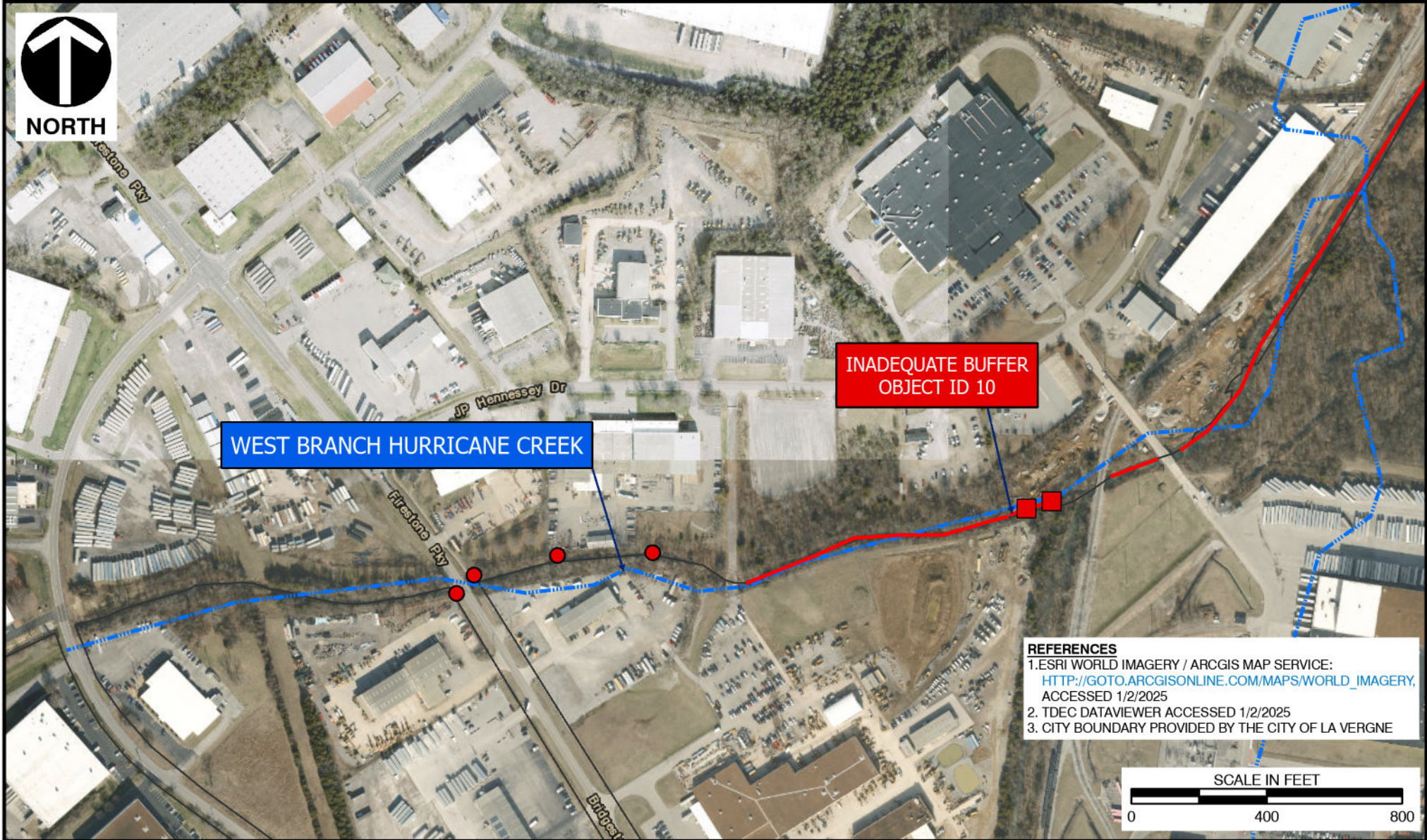
?	UNUSUAL CONDITION OR COMMENT	*	EXPOSED PIPE
+	TRASH DUMPING	▲	EROSION SITE
★	REPRESENTATIVE SITE	■	CHANNEL ALTERATION
●	PIPE OUTFALL	—	INADEQUATE BUFFER
◆	IN_NEAR STREAM CONSTRUCTION	—	STREAMS
+	FISH BARRIER	—	CITY OF LA VERGNE BOUNDARY



Civil & Environmental Consultants, Inc.

117 Seaboard Lane
 Suite E-100
 Franklin, TN 37067
 Ph: 615.333.7797 · 800.763.2326
www.cecinc.com

AREAS OF CONCERN VISUAL STREAM ASSESSMENT SURVEY PERMIT YEAR 3 CITY OF LA VERGNE ROCK SPRING BRANCH			
DRAWN BY:	CEJ	CHECKED BY:	LWK
DATE:	1/2/2025	SCALE:	1"=1,000'
APPROVED BY:	JLW*	FIGURE NO:	3
PROJECT NO:	342-286.0001		



LEGEND ? UNUSUAL CONDITION OR COMMENT ★ REPRESENTATIVE SITE ● PIPE OUTFALL ◆ IN_NEAR STREAM CONSTRUCTION ✚ FISH BARRIER ✱ EXPOSED PIPE ▲ EROSION SITE ■ CHANNEL ALTERATION — INADEQUATE BUFFER --- STREAMS □ CITY OF LA VERGNE BOUNDARY	CEC Civil & Environmental Consultants, Inc. 117 Seaboard Lane Suite E-100 Franklin, TN 37067 Ph: 615.333.7797 · 800.763.2326 www.cecinc.com	AREAS OF CONCERN VISUAL STREAM ASSESSMENT SURVEY PERMIT YEAR 3 CITY OF LA VERGNE WEST BRANCH HURRICANE CREEK
	DRAWN BY: CEJ DATE: 1/2/2025	CHECKED BY: LWK SCALE: 1"=400' APPROVED BY: JLW* PROJECT NO: 342-286.0001 FIGURE NO: 4

APPENDIX B

MARYLAND DEPARTMENT OF NATURAL RESOURCES' STREAM CORRIDOR ASSESSMENT SURVEY DEFINITIONS

MARYLAND DEPARTMENT OF NATURAL RESOURCES' STREAM CORRIDOR ASSESSMENT SURVEY DEFINITIONS¹

1. *Channel Alteration:* Channelization refers to the once common practice of dredging, straightening, and/or widening stream channels in an attempt to reduce flooding or to lower ground water table. Survey teams should look not only for stream reaches that are in concrete channels but for any areas where the stream has been significantly altered. A good indication of this is an unusually straight stream channel for a fairly long stretch. Channel alteration does not include road crossing unless a significant amount of stream channelization has occurred either upstream of downstream of the road crossing.
2. *Erosion Site:* Erosion is a natural process and necessary to maintain good aquatic habitat in a stream. Too much erosion, however, can have the opposite effect, destabilizing stream banks, destroying in-stream habitat and causing significant sediment pollution problems downstream. Severe erosion problems occur when either a stream's hydrology and/or sediment supply have been significantly altered. When conducting the SCA survey, you are primarily interested in identifying unstable stream reaches that are experiencing a significant amount of erosion along the stream's banks.
3. *Exposed Pipes:* Exposed pipes are any pipes that are either in the stream or along the stream's immediate banks that could be damaged by a high flow event. It does not include pipe outfalls where only the open end of the pipe is exposed. Exposed pipes do include: 1) manhole stacks in or along the stream's banks; 2) pipes that are exposed along the stream's banks; 3) pipes that run under the stream's bed and have been exposed by stream down-cutting; and 4) pipes that are built over a stream but are low enough that they could be affected by occasional high storm flows. Pipes that are placed along the support beams of a bridge or suspended high enough above the stream to not be affected by very large storm events should not be included in this survey unless they are leaking.
4. *Pipe Outfalls:* Pipe outfalls include any pipes or small manmade channels that discharge into the stream through the stream corridor. Pipe outfalls are considered a potential environmental problem in the survey because they can carry uncontrolled runoff and pollutants such as oil, heavy metals, and nutrients to a stream system. Any pipes or manmade channels that are designed to discharge into the stream are considered pipe outfalls and must be included in the survey. This includes pipes with openings outside of the immediate stream corridor, but which discharge into a channel which eventually enters the stream.
5. *Fish Barrier:* Fish migration barriers are anything in the stream that significantly interferes with the upstream movement of fish. Unimpeded upstream movement is important for resident fish species, many of which also move both up and down stream during different parts of their life cycle. Fish blockages can be caused by man-made structures such as dams or road culverts, and by natural features such as waterfalls or beaver dams.
6. *Inadequate Buffer:* Forested stream buffers are very important for maintaining healthy streams. Forest buffers help shade the stream, preventing excessive solar heating, and the

roots stabilize the stream banks. Forest buffers remove nutrients, sediment and other pollutants from runoff, while the leaves of trees are a major component of the stream's food web. Because of the importance of stream buffers, not only in maintaining healthy streams, but also in reducing nutrient loading to the stream. For the purpose of this study, a buffer is generally considered inadequate if it is less than 50 feet wide from the edge of the stream.

7. *In/Near Stream Construction:* In or near stream construction data sheets are used to document the locations of major disturbances located in or near the stream corridor at the time of the survey. If construction is seen in or near the stream, indicate the location on the survey map and look at the general condition of the stream near and downstream of the construction site. Survey teams should be on alert for evidence of inadequate sediment control measures or if sediment pollution from the site has affected the stream.
8. *Trash Dumping:* The trash dumping data sheets are used to record the location of places where large amounts of trash have been dumped inside the stream corridor or to note places where trash tends to accumulate. The main purpose of identifying where trash is being dumped in or near the stream is so that steps can be taken to limit access to these areas by vehicles if possible. A second reason for noting trash dumping sites is to assist community volunteer groups looking for possible sites to do stream clean-ups.
9. *Unusual Condition or Comment:* The unusual condition or comment data sheets are used by survey teams to record the location of anything out of the ordinary or to provide some additional written comments on a specific problem.
10. *Representative Site:* Representative site data sheets are used to document the general condition of both in-stream habitat and the condition of the adjacent stream corridor.

Reference:

- 1: "Stream Corridor Assessment Survey: SCA Survey Protocols." Watershed Restoration Division & Coastal Watershed Services, Maryland Dept. of Natural Resources.

January 14, 2025

Mr. Gary Lide, Director of Engineering
City of La Vergne
5093 Murfreesboro Road
La Vergne, Tennessee 37086
Delivered via electronic mail to: glide@laveragnetn.gov

Dear Mr. Lide:

Subject: Professional Services
Analytical Stream Monitoring, *E. coli* Sampling
City of La Vergne, Rutherford County, Tennessee
CEC Project 342-286.0002

Civil & Environmental Consultants, Inc. (CEC) performed *E. coli* sampling on Hurricane Creek (TN05130203036_1000) and Finch Branch (TN05130203003T_0200) for the City of La Vergne (City) per our proposal dated May 13, 2024.

The General Water Quality Criteria of Tennessee, which establishes thresholds for the various use classifications for streams in Tennessee, lists a geometric mean exceedance of **126 cfu/100 mL** as impairment for recreational use. In other words, exceeding an *E. coli* concentration of 126 cfu/100 mL for the geometric mean indicates the stream does not meet the recreational use classification. The *E. coli* threshold for the recreational use classification is the lowest allowable *E. coli* threshold for designated uses. Hurricane Creek and Finch Branch are identified as waters with unavailable parameters for pathogens. Tables 1 and 2 include the 2024 geometric mean for the sampling location at Hurricane Creek and Finch Branch, respectively, and the 2020 geometric mean for comparison.

Table 1. Hurricane Creek (TN05130203036_1000) *E. coli* Sampling Results

Hurricane Creek Sampling Location	2020 Geometric Mean (cfu/100mL)	2024 Geometric Mean (cfu/100mL)
Hurricane-6	464.9	322.2

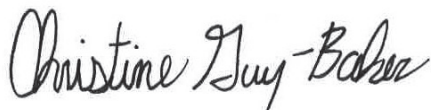
Table 2. Finch Branch (TN05130203003T_0200) *E. coli* Sampling Results

Finch Branch Sampling Location	2020 Geometric Mean (cfu/100mL)	2024 Geometric Mean (cfu/100mL)
Finch-4	798.2	1250.6

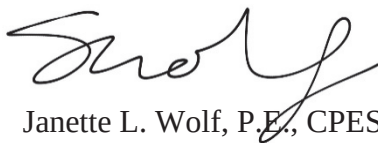
Please contact Christine Guy-Baker at 615-333-7797 or cguybaker@cecinc.com if you should have any questions regarding this deliverable.

Sincerely,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.



Christine L. Guy-Baker, P.E., CFM
Project Manager



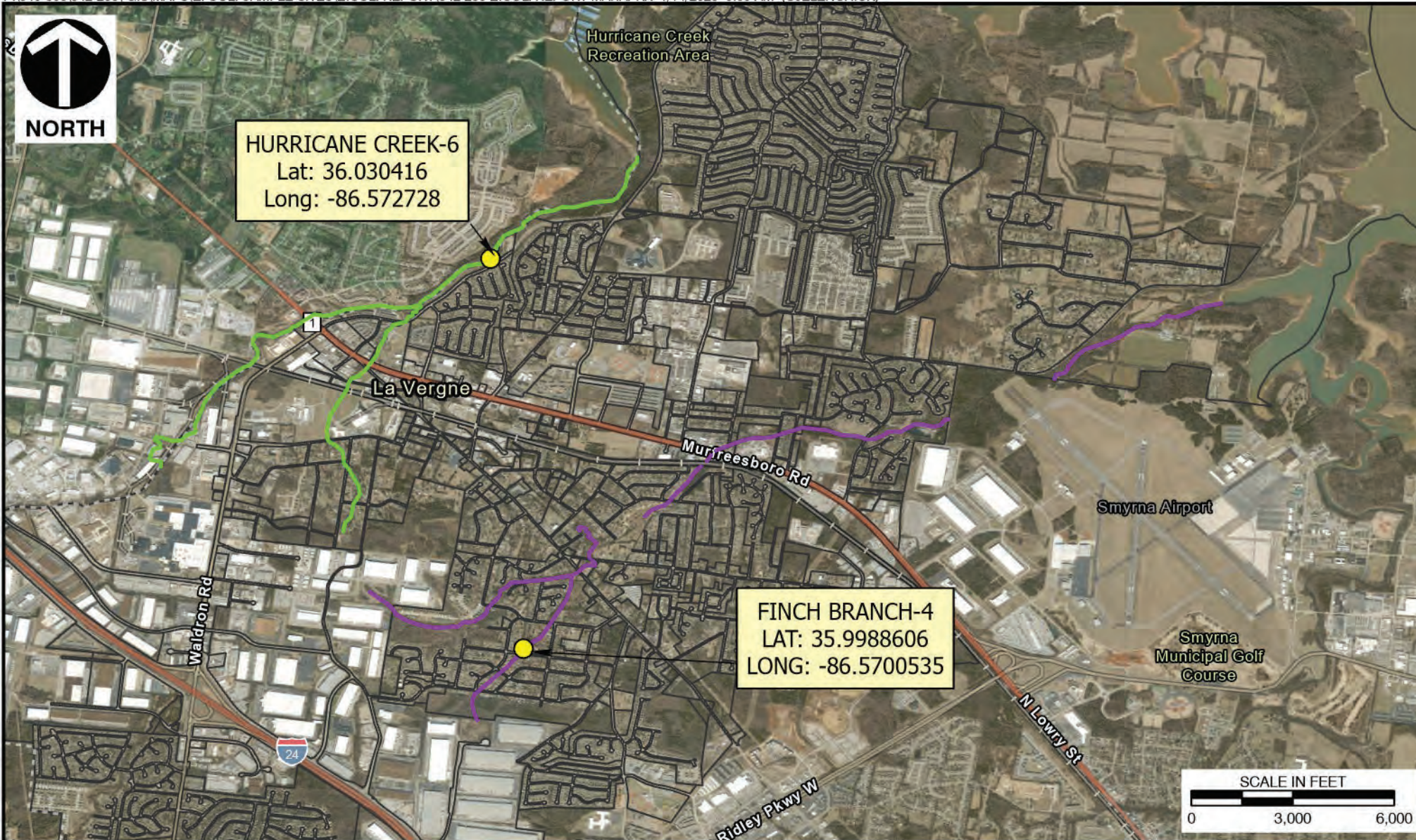
Janette L. Wolf, P.E., CPESC, CPSWQ, CESSWI
Principal

Enclosures: Attachment A – Figure 1 – Sample Location Sites Map
Attachment B – Summary of Sampling Results
Attachment C – Field Data Sheets and Location Photos
Attachment D – Lab Results

Cc: Alexandra Thompson, City of LaVergne, athompson@laveragnetn.gov

ATTACHMENT A

FIGURE 1 – SAMPLE LOCATION SITES MAP



LEGEND

- SITE LOCATION
- FINCH BRANCH
- HURRICANE CREEK

REFERENCES

- ESRI WORLD IMAGERY / ARCGIS MAP SERVICE:
[HTTP://GOTO.ARCGISONLINE.COM/MAPS/WORLD_IMAGERY](http://GOTO.ARCGISONLINE.COM/MAPS/WORLD_IMAGERY),
ACCESSED 1/14/2025
- TDEC DATAVIEWER ACCESSED 1/14/2025



Civil & Environmental
Consultants, Inc.

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Franklin, TN 37067
Ph: 615.333.7797 · 800.763.2326
www.cecinc.com

CITY OF LA VERGNE
E. COLI SAMPLING
LA VERGNE, RUTHERFORD COUNTY, TN

HURRICANE CREEK AND FINCH BRANCH
SAMPLE LOCATION SITE MAP

DRAWN BY:	CEJ	CHECKED BY:	LWK	APPROVED BY:	JLW*	FIGURE NO:
DATE:	1/14/2025	SCALE:	1"=4,000'	PROJECT NO:	342-286.002	1

ATTACHMENT B

SUMMARY OF SAMPLING RESULTS

La Vergne E. coli Monitoring 2024

CEC Project# 342-286
August 2024

Stream	Date	8/5/2024	8/12/2024	8/14/2024	8/22/2024	8/26/2024	Minimum	Arithmetic Mean	Maximum
	Weather	Sunny, 92°F	Partly Cloudy, 75°F	Mostly Cloudy, 89°F	Sunny, 92°F	Sunny, 92°F			
	Personnel	LWK; SM	LWK; JP	LWK; KH	LWK; CJ	LWK; KH			
Finch Branch	Sample Time	9:55 AM	10:10 AM	9:40 AM	8:40 AM	9:25 AM	N/A	N/A	N/A
	Temp (°C)	22.2	21.2	21.7	19.9	22.1	19.9	21.4	22.2
	DO (mg/L)	10.78	8.80	6.92	9.33	6.01	6.01	8.37	10.78
	pH	7.66	7.89	7.86	7.22	7.80	7.22	7.69	7.89
	Cond. (µS/cm)	473.0	520.0	523.0	472.2	443.3	443.3	486.3	523.0
	Area (ft ²)	3.19	2.71	2.98	2.56	2.14	2.14	2.72	3.19
	Flow (ft ³ /s)	0.64	ERROR*	0.18	0.41	0.13	0.13	0.34	0.64
	E. coli (MPN/100mL)	1732.9	686.7	613.1	1732.9	2419.6	613.1	1437.0	2419.6
									Geometric Mean 1250.6

*Flow meter error.

Stream	Date	8/5/2024	8/12/2024	8/14/2024	8/22/2024	8/26/2024	Minimum	Arithmetic Mean	Maximum
	Weather	Sunny, 93°F	Sunny, 75°F	Sunny, 92°F	Sunny, 92°F	Sunny, 92°F			
	Personnel	LWK; SM	LWK; JP	LWK; KH	LWK; CJ	LWK; KH			
Hurricane Creek	Sample Time	10:50 AM	11:10 AM	10:30 AM	10:00 AM	10:20 AM	N/A	N/A	N/A
	Temp (°C)	25.3	22.2	23.5	20.0	23.0	20.0	22.8	25.3
	DO (mg/L)	8.39	7.30	4.36	8.78	5.41	4.36	6.85	8.78
	pH	7.84	8.18	8.18	7.54	8.01	7.54	7.95	8.18
	Cond. (µS/cm)	596.0	586.0	621.0	577.0	516.0	516.0	579.2	621.0
	Area (ft ²)	73.6	66.2	65.2	66.6	64.3	64.3	67.2	73.6
	Flow (ft ³ /s)	20.42	5.12	6.19	9.08	10.91	5.12	10.34	20.42
	E. coli (MPN/100mL)	224.7	298.7	365.4	410.6	344.8	224.7	328.8	410.6
									Geometric Mean 322.2

ATTACHMENT C

FIELD DATA SHEETS AND SITE PHOTOS



E. COLI SAMPLING FIELD INFORMATION LOG

Civil & Environmental Consultants, Inc. 117 Seaboard Lane Suite E-100 Franklin, Tennessee 37067

STREAM NAME	Finch Branch Site #4	DATE/WEATHER	8/5/24, Sunny, 92°F
SAMPLES TAKEN	4 (1:10 and No Dilution)	EVENT FREQUENCY	1 of 5
NOTES	35.9988606, -86.5700535	FIELD REPRESENTATIVE	LWK and SM

Time Collected	°C	DO (mg/L)	pH	Conductivity (µs/cm)	Flow Area (sq ft)	Flow (cfs)
9:55	22.2	10.78	7.66	473.0	3.19	0.64

STREAM CROSS SECTION MEASUREMENTS					STREAM CROSS SECTION DIAGRAM				
Station (ft)	Depth of Water (ft)	Velocity (ft/s)	Area (sq ft)	Flow (cfs)					
0	0.00	0.00	0.00	0.00					
1	0.23	0.02	0.12	0.00					
2	0.21	0.04	0.22	0.01					
3	0.32	0.00	0.27	0.00					
5	0.38	0.28	0.70	0.20					
7	0.40	0.35	0.78	0.27					
9	0.23	0.26	0.63	0.16					
11	0.10	0.00	0.33	0.00					
12	0.10	0.00	0.10	0.00					
13	0.00	0.00	0.05	0.00					
14	0.00	0.00	0.00	0.00					
15	0.00	0.00	0.00	0.00					







E. COLI SAMPLING FIELD INFORMATION LOG

Civil & Environmental Consultants, Inc. 117 Seaboard Lane Suite E-100 Franklin, Tennessee 37067

STREAM NAME	Finch Branch Site #4	DATE/WEATHER	8/12/24, Partly Cloudy, 75°F
SAMPLES TAKEN	2 (No Dilution)	EVENT FREQUENCY	2 of 5
NOTES	35.9988606, -86.5700535. Flow meter was giving an error in the readings. The float method was attempted but was not feasible.	FIELD REPRESENTATIVE	LWK and JP

Time Collected	°C	DO (mg/L)	pH	Conductivity (µs/cm)	Flow Area (sq ft)	Flow (cfs)
10:10	21.2	8.80	7.89	520.0	2.71	ERROR

STREAM CROSS SECTION MEASUREMENTS					STREAM CROSS SECTION DIAGRAM									
Station (ft)	Depth of Water (ft)	Velocity (ft/s)	Area (sq ft)	Flow (cfs)										
0	0.00	ERROR; NO DATA AVAILABLE	0.00	N/A										
1	0.18		0.09	N/A										
2	0.30		0.24	N/A										
3	0.28		0.29	N/A										
5	0.30		0.58	N/A										
7	0.33		0.63	N/A										
9	0.20		0.53	N/A										
11	0.10		0.30	N/A										
12	0.00		0.05	N/A										
13	0.00		0.00	N/A										
14	0.00		0.00	N/A										
15	0.00		0.00	N/A										







E. COLI SAMPLING FIELD INFORMATION LOG

Civil & Environmental Consultants, Inc. 117 Seaboard Lane Suite E-100 Franklin, Tennessee 37067

STREAM NAME	Finch Branch Site #4	DATE/WEATHER	8/14/2024, Mostly cloudy, 89°F
SAMPLES TAKEN	4 (No Dilution and Duplicate)	EVENT FREQUENCY	3 of 5
NOTES	Multiple readings recorded for DO due to fluctuation (6.60, 6.97, and 7.20). The average was reported.		
		FIELD REPRESENTATIVE	LWK and KH

Time Collected	°C	DO (mg/L)	pH	Conductivity (µs/cm)	Flow Area (sq ft)	Flow (cfs)
9:40	21.7	6.92	7.86	523.0	2.98	0.18

STREAM CROSS SECTION MEASUREMENTS					STREAM CROSS SECTION DIAGRAM									
Station (ft)	Depth of Water (ft)	Velocity (ft/s)	Area (sq ft)	Flow (cfs)										
0	0.00	0.00	0.00	0.00										
1	0.20	0.06	0.10	0.01										
2	0.28	0.03	0.24	0.01										
3	0.28	0.01	0.28	0.00										
5	0.30	0.12	0.58	0.07										
7	0.35	0.14	0.65	0.09										
9	0.20	0.00	0.55	0.00										
11	0.22	0.00	0.42	0.00										
12	0.05	0.00	0.14	0.00										
13	0.00	0.00	0.03	0.00										
14	0.00	0.00	0.00	0.00										
15	0.00	0.00	0.00	0.00										





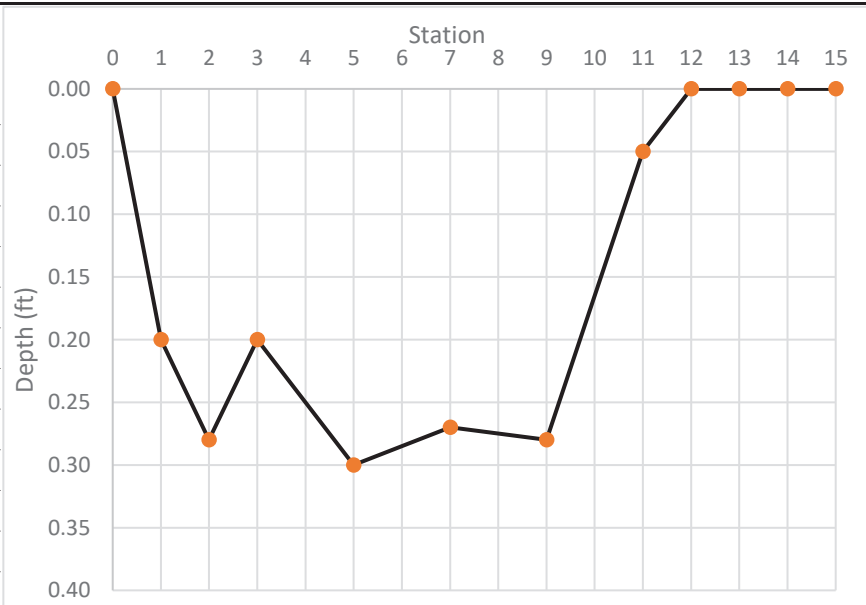


E. COLI SAMPLING FIELD INFORMATION LOG

Civil & Environmental Consultants, Inc. 117 Seaboard Lane Suite E-100 Franklin, Tennessee 37067

STREAM NAME	Finch Branch Site #4	DATE/WEATHER	8/22/2024, Mostly cloudy, 70°F
SAMPLES TAKEN	2 (No Dilution)	EVENT FREQUENCY	4 of 5
NOTES	35.9988606, -86.5700535	FIELD REPRESENTATIVE	LWK and CJ

Time Collected	°C	DO (mg/L)	pH	Conductivity (µs/cm)	Flow Area (sq ft)	Flow (cfs)
8:40	19.9	9.33	7.22	472.2	2.56	0.41

STREAM CROSS SECTION MEASUREMENTS					STREAM CROSS SECTION DIAGRAM									
Station (ft)	Depth of Water (ft)	Velocity (ft/s)	Area (sq ft)	Flow (cfs)										
0	0.00	0.00	0.00	0.00										
1	0.20	0.00	0.10	0.00										
2	0.28	0.00	0.24	0.00										
3	0.20	0.00	0.24	0.00										
5	0.30	0.02	0.50	0.01										
7	0.27	0.40	0.57	0.23										
9	0.28	0.31	0.55	0.17										
11	0.05	0.00	0.33	0.00										
12	0.00	0.00	0.03	0.00										
13	0.00	0.00	0.00	0.00										
14	0.00	0.00	0.00	0.00										
15	0.00	0.00	0.00	0.00										







E. COLI SAMPLING FIELD INFORMATION LOG

Civil & Environmental Consultants, Inc. 117 Seaboard Lane Suite E-100 Franklin, Tennessee 37067

STREAM NAME	Finch Branch Site #4	DATE/WEATHER	8/26/2024, Sunny, 82°F
SAMPLES TAKEN	2 (No Dilution)	EVENT FREQUENCY	5 of 5
NOTES	35.9988606, -86.5700535	FIELD REPRESENTATIVE	LWK and KH

Time Collected	°C	DO (mg/L)	pH	Conductivity (µs/cm)	Flow Area (sq ft)	Flow (cfs)
9:25	22.1	6.01	7.80	443.3	2.14	0.13

Stream Cross Section Measurements					Stream Cross Section Diagram
Station (ft)	Depth of Water (ft)	Velocity (ft/s)	Area (sq ft)	Flow (cfs)	
0	0.00	0.00	0.00	0.00	
1	0.15	0.00	0.08	0.00	
2	0.23	0.00	0.19	0.00	
3	0.17	0.00	0.20	0.00	
5	0.25	0.08	0.42	0.03	
7	0.30	0.13	0.55	0.07	
9	0.20	0.05	0.50	0.03	
11	0.00	0.00	0.20	0.00	
12	0.00	0.00	0.00	0.00	
13	0.00	0.00	0.00	0.00	
14	0.00	0.00	0.00	0.00	
15	0.00	0.00	0.00	0.00	





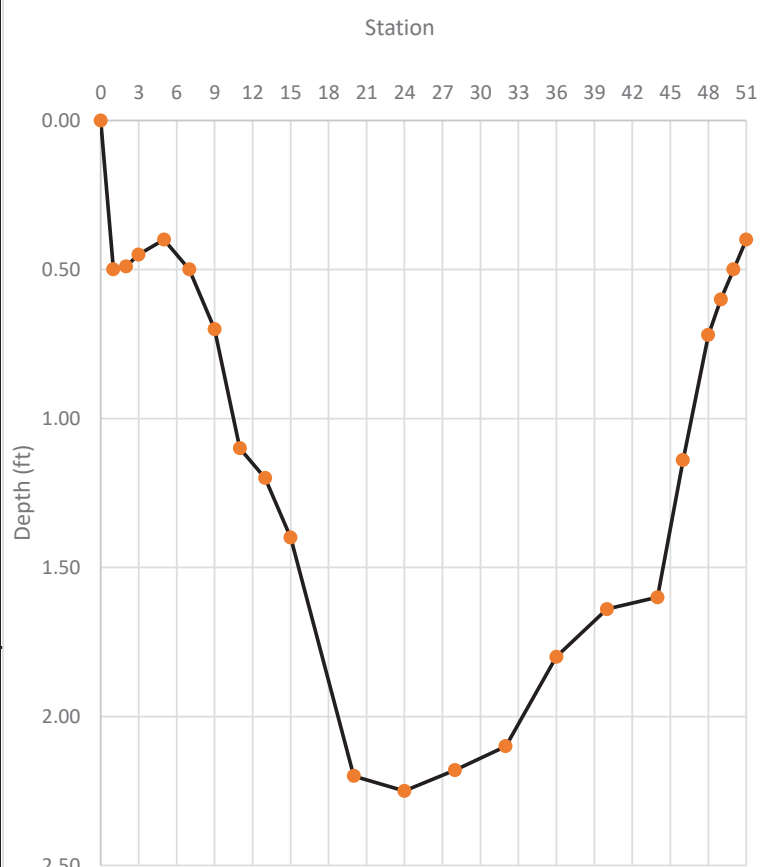


E. COLI SAMPLING FIELD INFORMATION LOG

Civil & Environmental Consultants, Inc. 117 Seaboard Lane Suite E-100 Franklin, Tennessee 37067

STREAM NAME	Hurricane Creek (Site #6)	DATE/WEATHER	8/5/24, Sunny, 93°F
SAMPLES TAKEN	4 (1:10 & No Dilution)	EVENT FREQUENCY	1 of 5
NOTES	36.030416, -86.572728	FIELD REPRESENTATIVE	LWK and SM

Time Collected	°C	DO (mg/L)	pH	Conductivity (µs/cm)	Flow Area (sq ft)	Flow (cfs)
10:50	25.3	8.39	7.84	596.0	73.6	20.42

STREAM CROSS SECTION MEASUREMENTS					STREAM CROSS SECTION DIAGRAM	
Station (ft)	Depth of Water (ft)	Velocity (ft/s)	Area (sq ft)	Flow (cfs)		
0	0.00	0.00	0.00	0.00		
1	0.50	0.18	0.25	0.05		
2	0.49	0.38	0.50	0.19		
3	0.45	0.38	0.47	0.18		
5	0.40	0.32	0.85	0.27		
7	0.50	0.19	0.90	0.17		
9	0.70	0.29	1.20	0.35		
11	1.10	0.36	1.80	0.65		
13	1.20	0.36	2.30	0.83		
15	1.40	0.35	2.60	0.91		
20	2.20	0.36	9.00	3.24		
24	2.25	0.41	8.90	3.65		
28	2.18	0.32	8.86	2.84		
32	2.10	0.25	8.56	2.14		
36	1.80	0.17	7.80	1.33		
40	1.64	0.17	6.88	1.17		
44	1.60	0.17	6.48	1.10		
46	1.14	0.13	2.74	0.36		
48	0.72	0.29	1.86	0.54		
49	0.60	0.25	0.66	0.17		
50	0.50	0.36	0.55	0.20		
51	0.40	0.24	0.45	0.11		







E. COLI SAMPLING FIELD INFORMATION LOG

Civil & Environmental Consultants, Inc. 117 Seaboard Lane Suite E-100 Franklin, Tennessee 37067

STREAM NAME	Hurricane Creek (Site #6)	DATE/WEATHER	8/12/24, Sunny, 75°F
SAMPLES TAKEN	2 (No Dilution)	EVENT FREQUENCY	2 of 5
NOTES	36.030416, -86.572728	FIELD REPRESENTATIVE	LWK and JP

Time Collected	°C	DO (mg/L)	pH	Conductivity (µs/cm)	Flow Area (sq ft)	Flow (cfs)
11:10	22.2	7.30	8.18	586.0	66.2	5.12

STREAM CROSS SECTION MEASUREMENTS					STREAM CROSS SECTION DIAGRAM	
Station (ft)	Depth of Water (ft)	Velocity (ft/s)	Area (sq ft)	Flow (cfs)		
0	0.10	0.00	0.00	0.00		
1	0.27	0.00	0.19	0.00		
2	0.37	0.08	0.32	0.03		
3	0.30	0.07	0.34	0.02		
5	0.25	0.00	0.55	0.00		
7	0.35	0.04	0.60	0.02		
9	0.72	0.06	1.07	0.06		
11	1.05	0.07	1.77	0.12		
13	1.13	0.11	2.18	0.24		
15	1.37	0.09	2.50	0.23		
20	2.12	0.14	8.73	1.22		
24	2.12	0.14	8.48	1.19		
28	2.01	0.08	8.26	0.66		
32	1.99	0.09	8.00	0.72		
36	1.50	0.07	6.98	0.49		
40	1.52	0.02	6.04	0.12		
44	1.41	0.00	5.86	0.00		
46	0.64	0.00	2.05	0.00		
48	0.57	0.00	1.21	0.00		
49	0.33	0.00	0.45	0.00		
50	0.43	0.00	0.38	0.00		
51	0.05	0.00	0.24	0.00		







E. COLI SAMPLING FIELD INFORMATION LOG

Civil & Environmental Consultants, Inc. 117 Seaboard Lane Suite E-100 Franklin, Tennessee 37067

STREAM NAME	Hurricane Creek (Site #6)	DATE/WEATHER	8/14/2024, Cloudy, 83°F
SAMPLES TAKEN	2 (No Dilution)	EVENT FREQUENCY	3 of 5
NOTES	36.030416, -86.572728	FIELD REPRESENTATIVE	LWK and KH

Time Collected	°C	DO (mg/L)	pH	Conductivity (µs/cm)	Flow Area (sq ft)	Flow (cfs)
10:30	23.5	4.36	8.18	621.0	65.2	6.19

STREAM CROSS SECTION MEASUREMENTS					STREAM CROSS SECTION DIAGRAM	
Station (ft)	Depth of Water (ft)	Velocity (ft/s)	Area (sq ft)	Flow (cfs)		
0	0.15	0.00	0.00	0.00		
1	0.18	0.00	0.17	0.00		
2	0.38	0.06	0.28	0.02		
3	0.30	0.04	0.34	0.01		
5	0.29	0.06	0.59	0.04		
7	0.35	0.06	0.64	0.04		
9	0.70	0.02	1.05	0.02		
11	1.05	0.03	1.75	0.05		
13	1.15	0.07	2.20	0.15		
15	1.35	0.08	2.50	0.20		
20	2.10	0.11	8.63	0.95		
24	2.06	0.15	8.32	1.25		
28	2.00	0.13	8.12	1.06		
32	1.97	0.08	7.94	0.64		
36	1.50	0.08	6.94	0.56		
40	1.48	0.11	5.96	0.66		
44	1.41	0.08	5.78	0.46		
46	0.60	0.05	2.01	0.10		
48	0.50	0.00	1.10	0.00		
49	0.40	0.00	0.45	0.00		
50	0.20	0.00	0.30	0.00		
51	0.00	0.00	0.10	0.00		





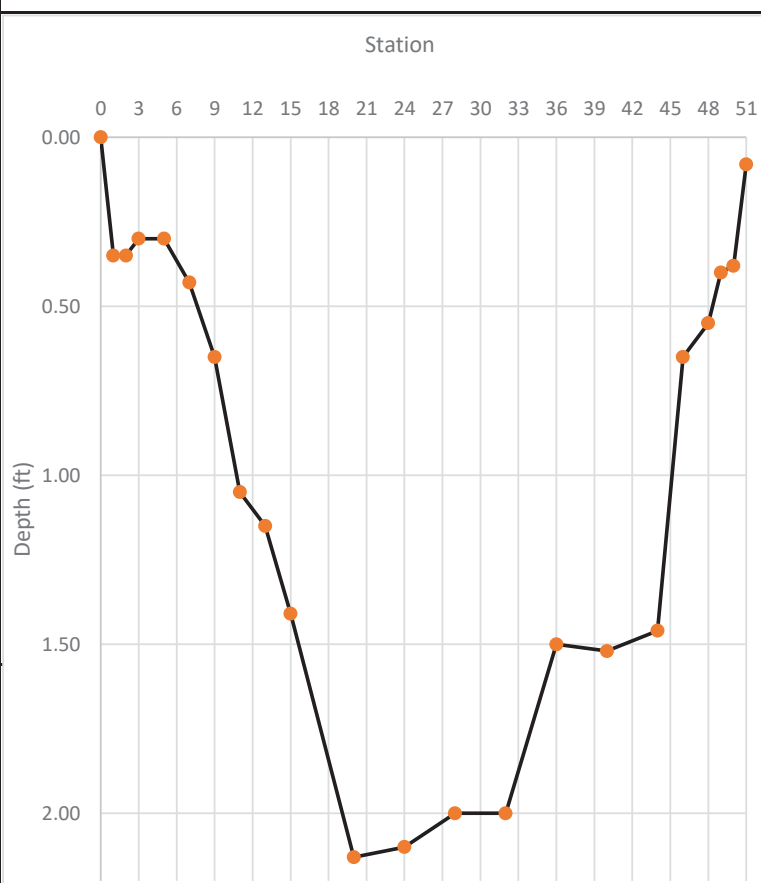


E. COLI SAMPLING FIELD INFORMATION LOG

Civil & Environmental Consultants, Inc. 117 Seaboard Lane Suite E-100 Franklin, Tennessee 37067

STREAM NAME	Hurricane Creek (Site #6)	DATE/WEATHER	8/22/2024, Cloudy, 74°F
SAMPLES TAKEN	4 (No Dilution and Duplicate)	EVENT FREQUENCY	4 of 5
NOTES	36.030416, -86.572728	FIELD REPRESENTATIVE	LWK and CJ

Time Collected	°C	DO (mg/L)	pH	Conductivity (µs/cm)	Flow Area (sq ft)	Flow (cfs)
10:00	20.0	8.78	7.54	577.0	66.6	9.08

STREAM CROSS SECTION MEASUREMENTS					STREAM CROSS SECTION DIAGRAM	
Station (ft)	Depth of Water (ft)	Velocity (ft/s)	Area (sq ft)	Flow (cfs)		
0	0.00	0.00	0.00	0.00		
1	0.35	0.00	0.18	0.00		
2	0.35	0.00	0.35	0.00		
3	0.30	0.00	0.33	0.00		
5	0.30	0.04	0.60	0.02		
7	0.43	0.01	0.73	0.01		
9	0.65	0.03	1.08	0.03		
11	1.05	0.13	1.70	0.22		
13	1.15	0.11	2.20	0.24		
15	1.41	0.12	2.56	0.31		
20	2.13	0.18	8.85	1.59		
24	2.10	0.19	8.46	1.61		
28	2.00	0.17	8.20	1.39		
32	2.00	0.13	8.00	1.04		
36	1.50	0.14	7.00	0.98		
40	1.52	0.14	6.04	0.85		
44	1.46	0.11	5.96	0.66		
46	0.65	0.05	2.11	0.11		
48	0.55	0.02	1.20	0.02		
49	0.40	0.00	0.48	0.00		
50	0.38	0.00	0.39	0.00		
51	0.08	0.00	0.23	0.00		





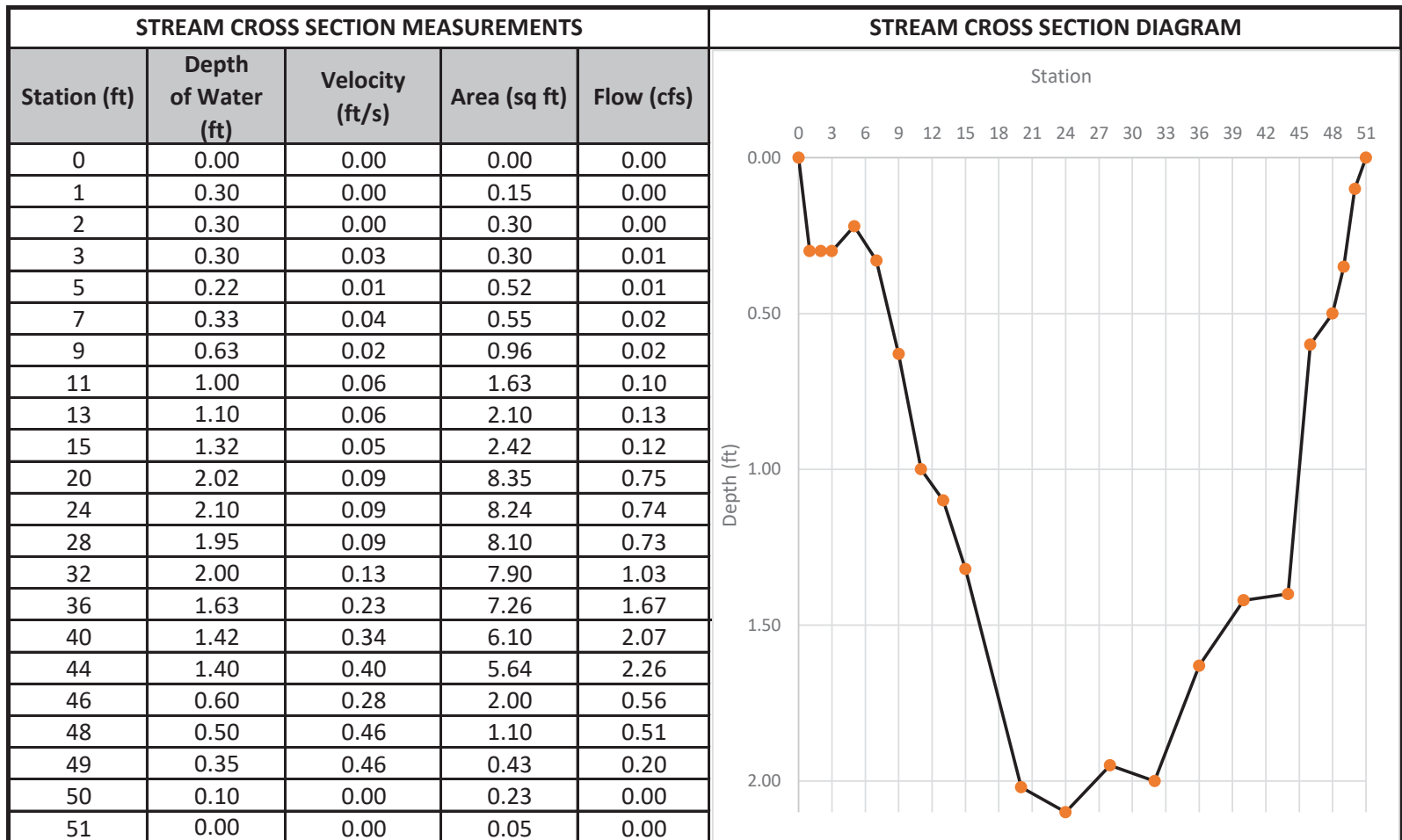


E. COLI SAMPLING FIELD INFORMATION LOG

Civil & Environmental Consultants, Inc. 117 Seaboard Lane Suite E-100 Franklin, Tennessee 37067

STREAM NAME	Hurricane Creek (Site #6)	DATE/WEATHER	8/26/2024, Sunny, 89°F
SAMPLES TAKEN	2 (No Dilution)	EVENT FREQUENCY	5 of 5
NOTES	36.030416, -86.572728	FIELD REPRESENTATIVE	LWK and KH

Time Collected	°C	DO (mg/L)	pH	Conductivity (µs/cm)	Flow Area (sq ft)	Flow (cfs)
10:20	23.0	5.41	8.01	516.0	64.3	10.91







ATTACHMENT D

LABORATORY RESULTS

Civil & Environmental Consultants - TN

Sample Delivery Group: L1763686

Samples Received: 08/05/2024

Project Number: 342-286

Description: La Verne

Report To: Lindsay Wilson-Kokes

117 Seaboard Ln.

Suite E100

Franklin, TN 37067

Entire Report Reviewed By:

Chris McCord
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

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SAMPLE SUMMARY

FINCH BRANCH L1763686-01 WW

Collected by
Lindsay
Wilson-Kokes

Collected date/time
08/05/24 09:55

Received date/time
08/05/24 11:56

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223 B-2016	WG2336645	1	08/06/24 11:41	08/06/24 11:41	BGE	Mt. Juliet, TN

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

FINCH BRANCH (10X) L1763686-02 WW

Collected by
Lindsay
Wilson-Kokes

Collected date/time
08/05/24 09:55

Received date/time
08/05/24 11:56

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223 B-2016	WG2336645	1	08/06/24 11:41	08/06/24 11:41	BGE	Mt. Juliet, TN

FIELD BLANK L1763686-03 WW

Collected by
Lindsay
Wilson-Kokes

Collected date/time
08/05/24 11:00

Received date/time
08/05/24 11:56

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223 B-2016	WG2336645	1	08/06/24 11:41	08/06/24 11:41	BGE	Mt. Juliet, TN

HURRICANE CREEK L1763686-04 WW

Collected by
Lindsay
Wilson-Kokes

Collected date/time
08/05/24 10:50

Received date/time
08/05/24 11:56

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223 B-2016	WG2336645	1	08/06/24 11:41	08/06/24 11:41	BGE	Mt. Juliet, TN

HURRICANE CREEK (10X) L1763686-05 WW

Collected by
Lindsay
Wilson-Kokes

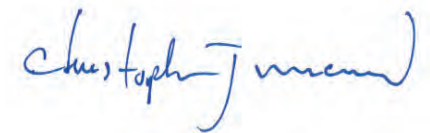
Collected date/time
08/05/24 10:50

Received date/time
08/05/24 11:56

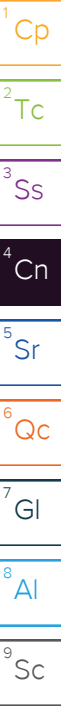
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223 B-2016	WG2336645	1	08/06/24 11:41	08/06/24 11:41	BGE	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris McCord
Project Manager



Microbiology by Method 9223 B-2016

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	1732.9		1	08/06/2024 11:41	WG2336645

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Microbiology by Method 9223 B-2016

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	1119.9		1	08/06/2024 11:41	WG2336645

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Microbiology by Method 9223 B-2016

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	<1		1	08/06/2024 11:41	WG2336645

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Microbiology by Method 9223 B-2016

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	224.7		1	08/06/2024 11:41	WG2336645

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Microbiology by Method 9223 B-2016

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	410.6		1	08/06/2024 11:41	WG2336645

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4105543-1 08/06/24 11:41

Analyte	MB Result MPN/100ml	MB Qualifier	MB MDL MPN/100ml	MB RDL MPN/100ml
E.Coli	<1			

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

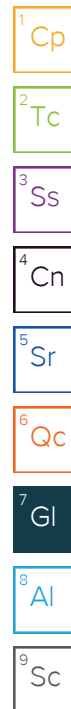
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
SDG	Sample Delivery Group.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.



ACCREDITATIONS & LOCATIONS

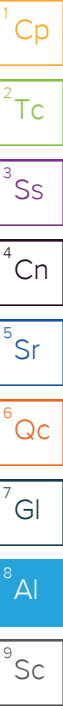
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Civil & Environmental Consultants - TN

117 Seaboard Ln.
Suite E100
Franklin, TN 37067

Report to:
Lindsay Wilson-Kokes

Accounts Payable
117 Seaboard Ln.
Suite E100
Franklin, TN 37067

Email To: lwilsonkokes@cecinc.com

Project Description:

La Vergne

City/State

Collected:

La Vergne,
TN

Please Circle:

PT MT CT ET

Phone: 615-333-7797

Client Project #

342-286

Lab Project #

CEC-E COLI

Collected by (print):

Lindsay Wilson-Kokes

Site/Facility ID #

P.O. #

Collected by (signature):

[Signature]

Rush? (Lab MUST Be Notified)

___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

8/11/24

No.
of
Cntrs

Packed on Ice N ___ Y ___

Sample ID

Comp/Grab

Matrix *

Depth

Date

Time

No.
of
Cntrs

NORTH FORK SUGGS TX

Finch Branch

* Finch Branch (10x)

FIELD BLANK

Hurricane Creek

* Hurricane Creek (10x)

* Matrix:

SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other

Remarks:

* Use 10x dilution for these two samples.

pH ___ Temp ___

Flow ___ Other ___

Samples returned via:

___ UPS ___ FedEx ___ Courier CLT

Tracking #

Relinquished by: (Signature)

[Signature]

Relinquished by: (Signature)

Relinquished by: (Signature)

Date:

8/5/24

Time:

1056

Received by: (Signature)

[Signature]

Received by: (Signature)

[Signature]

Received for lab by: (Signature)

[Signature]

Trip Blank Received: Yes / No

TDAP HCL / MeOH
TBR

Temp: °C Bottles Received:

23.3 ± 3 = 2.6 10

Date: Time:

8/5/24 1156

Sample Receipt Checklist

COC Seal Present/Intact: ☒ NP Y ___ N ___
COC Signed/Accurate: ☒ Y ___ N ___
Bottles arrive intact: ☒ Y ___ N ___
Correct bottles used: ☒ Y ___ N ___
Sufficient volume sent: ☒ Y ___ N ___

If Applicable
VOA Zero Headspace: ☒ Y ___ N ___
Preservation Correct/Checked: ☒ Y ___ N ___
RAD Screen <0.5 mR/hr: ☒ Y ___ N ___

[Signature]

If preservation required by Login: Date/Time

Hold: Condition:

NCF / ☒ OK



MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody
constitutes acknowledgment and acceptance of the
Pace Terms and Conditions found at:
<https://info.pacelabs.com/hubfs/pas-standard-terms.pdf>

SDG # L1763686

C064

Acctnum: CEC

Template: T249597

Prelogin: P1064466

PM: 526 - Chris McCord

PB: 3.21.24 BK

Shipped Via: Courier

Remarks Sample # (lab only)

-01

-02

-03

-04

-05



ANALYTICAL REPORT

August 19, 2024

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Civil & Environmental Consultants - TN

Sample Delivery Group: L1766371
Samples Received: 08/12/2024
Project Number: 342-286
Description: La Vergne

Report To: Lindsay Wilson-Kokes
117 Seaboard Ln.
Suite E100
Franklin, TN 37067

Entire Report Reviewed By:

Mark W. Beasley
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

ACCOUNT:

Civil & Environmental Consultants - TN

PROJECT:

342-286

SDG:

L1766371

DATE/TIME:

08/19/24 15:43

Page 128 of 173

1 of 11

TABLE OF CONTENTS

Cp: Cover Page	1	¹ Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	² Tc
Cn: Case Narrative	4	
Sr: Sample Results	5	³ Ss
FINCH BRANCH L1766371-01	5	
HURRICANE CREEK L1766371-02	6	⁴ Cn
FIELD BLANK L1766371-03	7	⁵ Sr
Qc: Quality Control Summary	8	
Microbiology by Method 9223 B-2016	8	⁶ Qc
Gl: Glossary of Terms	9	⁷ Gl
Al: Accreditations & Locations	10	⁸ Al
Sc: Sample Chain of Custody	11	⁹ Sc

SAMPLE SUMMARY

FINCH BRANCH L1766371-01 WW

Collected by
Lindsay Wilson-K

Collected date/time
08/12/24 10:10

Received date/time
08/12/24 11:56

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223 B-2016	WG2341280	1	08/13/24 11:51	08/13/24 11:51	BGE	Mt. Juliet, TN

HURRICANE CREEK L1766371-02 WW

Collected by
Lindsay Wilson-K

Collected date/time
08/12/24 11:10

Received date/time
08/12/24 11:56

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223 B-2016	WG2341280	1	08/13/24 11:51	08/13/24 11:51	BGE	Mt. Juliet, TN

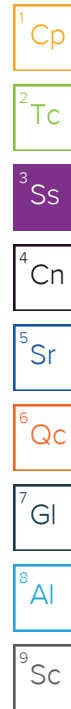
FIELD BLANK L1766371-03 WW

Collected by
Lindsay Wilson-K

Collected date/time
08/12/24 11:15

Received date/time
08/12/24 11:56

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223 B-2016	WG2341280	1	08/13/24 11:51	08/13/24 11:51	BGE	Mt. Juliet, TN

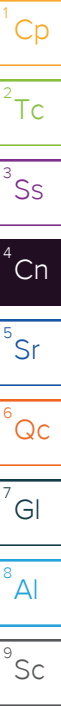


CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Mark W. Beasley
Project Manager



Microbiology by Method 9223 B-2016

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/100ml			date / time	
E.Coli	686.7		1	08/13/2024 11:51	WG2341280
Coliform,Total	>2419.6		1	08/13/2024 11:51	WG2341280

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Microbiology by Method 9223 B-2016

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/100ml			date / time	
E.Coli	298.7		1	08/13/2024 11:51	WG2341280
Coliform,Total	>2419.6		1	08/13/2024 11:51	WG2341280

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Microbiology by Method 9223 B-2016

Analyte	Result MPN/100ml	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	<1		1	08/13/2024 11:51	WG2341280
Coliform,Total	<1		1	08/13/2024 11:51	WG2341280

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4107665-1 08/13/24 11:51

Analyte	MB Result MPN/100ml	<u>MB Qualifier</u>	MB MDL MPN/100ml	MB RDL MPN/100ml
E.Coli	<1			
Coliform,Total	<1			

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

GLOSSARY OF TERMS

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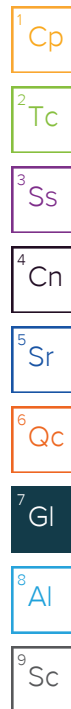
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
SDG	Sample Delivery Group.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
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Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.



ACCREDITATIONS & LOCATIONS

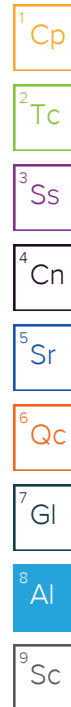
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Company Name/Address:

Civil & Environmental Consultants - TN

117 Seaboard Ln.
Suite E100
Franklin, TN 37067

Report to:
Lindsay Wilson-Kokes

Billing Information:

Accounts Payable
117 Seaboard Ln.
Suite E100
Franklin, TN 37067

Email To: lwilsonkokes@cecinc.com

Project Description:

La Vergne

City/State

La Vergne, TN

Please Circle:

PT MT CT ET

Phone: 615-333-7797

Client Project #

342-286

Lab Project #

CEC-E COLI

Collected by (print):

Lindsay Wilson-Kokes

Site/Facility ID #

P.O. #

Collected by (signature):

Lindsay Wilson-Kokes

Rush? (Lab MUST Be Notified)

___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

No.

Packed on Ice N ___ Y ☒

Cntrs

Sample ID

Comp/Grab

Matrix *

Depth

Date

Time

NORTH FORK SUGGS LK

Finch Branch

G

WW

Ø

8/12/24

1010

2

X

DUPLICATE

Hurricane Creek

1

WW

1

1110

2

X

FIELD BLANK

1

WW

1

1145

2

X

* Matrix:

SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - Waste Water
DW - Drinking Water
OT - Other

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:

___ UPS ___ FedEx ___ Courier CH

Tracking #

Relinquished by: (Signature)

Lindsay Wilson-Kokes

Date:

8/12/24

Time:

1156

Received by: (Signature)

Received by: (Signature)

Received for lab by: (Signature)

Trip Blank Received: Yes / No

HCL / MeOH
TBRTemp: °C
21.6-24.4

Bottles Received:

6

Date:

8-12-24

Time:

1156

If preservation required by Login: Date/Time

Hold:

Condition:
NCF / OK

Sample Receipt Checklist

COC Seal Present/Intact: NP Y ___ N ___
COC Signed/Accurate: Y Y ___ N ___
Bottles arrive intact: Y Y ___ N ___
Correct bottles used: Y Y ___ N ___
Sufficient volume sent: Y Y ___ N ___
If Applicable
VOA Zero Headspace: Y Y ___ N ___
Preservation Correct/Checked: Y Y ___ N ___
RAD Screen <0.5 mR/hr: Y Y ___ N ___

SDG #

L1766 371

C201

Acctnum: CEC

Template: T249597

Prelogin: P1064467

PM: 526 - Chris McCord

PB: 3-21-24 BK

Shipped Via: Courier

Remarks

Sample # (lab only)

Chain of Custody

Page ___ of ___



MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody
constitutes acknowledgment and acceptance of the
Pace Terms and Conditions found at:
<https://info.pacelabs.com/hubfs/pas-standard-terms.pdf>



ANALYTICAL REPORT

August 21, 2024

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Civil & Environmental Consultants - TN

Sample Delivery Group: L1767163
Samples Received: 08/14/2024
Project Number: 342-286
Description: La Vergne

Report To: Lindsay Wilson-Kokes
117 Seaboard Ln.
Suite E100
Franklin, TN 37067

Entire Report Reviewed By:

Chris McCord
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

ACCOUNT:

Civil & Environmental Consultants - TN

PROJECT:

342-286

SDG:

L1767163

DATE/TIME:

08/21/24 19:38

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SAMPLE SUMMARY

FINCH BRANCH L1767163-01 WW

Collected by
Lindsay Wilson-K

Collected date/time
08/14/24 09:40

Received date/time
08/14/24 11:24

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223 B-2016	WG2342907	1	08/15/24 10:54	08/15/24 10:54	BGE	Mt. Juliet, TN

HURRICANE CREEK L1767163-02 WW

Collected by
Lindsay Wilson-K

Collected date/time
08/14/24 10:30

Received date/time
08/14/24 11:24

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223 B-2016	WG2342907	1	08/15/24 10:54	08/15/24 10:54	BGE	Mt. Juliet, TN

DUPLICATE L1767163-03 WW

Collected by
Lindsay Wilson-K

Collected date/time
08/14/24 00:00

Received date/time
08/14/24 11:24

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223 B-2016	WG2342907	1	08/15/24 10:54	08/15/24 10:54	BGE	Mt. Juliet, TN

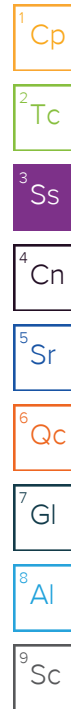
FIELD BLANK L1767163-04 WW

Collected by
Lindsay Wilson-K

Collected date/time
08/14/24 10:40

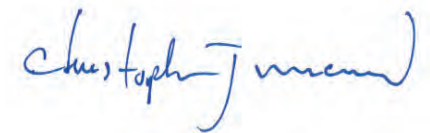
Received date/time
08/14/24 11:24

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223 B-2016	WG2342907	1	08/15/24 10:54	08/15/24 10:54	BGE	Mt. Juliet, TN

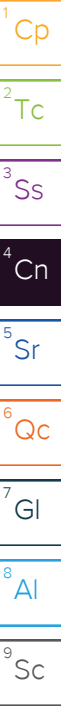


CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris McCord
Project Manager



Microbiology by Method 9223 B-2016

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	613.1		1	08/15/2024 10:54	WG2342907

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Microbiology by Method 9223 B-2016

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	365.4		1	08/15/2024 10:54	WG2342907

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Microbiology by Method 9223 B-2016

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	866.4		1	08/15/2024 10:54	WG2342907

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Microbiology by Method 9223 B-2016

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	<1		1	08/15/2024 10:54	WG2342907

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4109558-1 08/15/24 10:54

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	MPN/100ml		MPN/100ml	MPN/100ml
E.Coli	<1			

L1767052-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1767052-02 08/15/24 10:54 • (DUP) R4109558-2 08/15/24 10:54

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	MPN/100ml	MPN/100ml		%		%
E.Coli	<1	<1	1	0.000		20

L1767086-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1767086-01 08/15/24 10:54 • (DUP) R4109558-3 08/15/24 10:54

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	MPN/100ml	MPN/100ml		%		%
E.Coli	<1	<1	1	0.000		20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

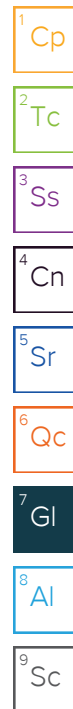
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.



ACCREDITATIONS & LOCATIONS

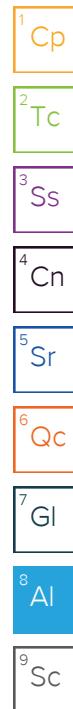
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Civil & Environmental Consultants - TN

117 Seaboard Ln.
Suite E100
Franklin, TN 37067

Report to:

Lindsay Wilson-Kokes

Project Description:

La Vergne

Phone: 615-333-7797

City/State

Collected: La Vergne, TN

Please Circle:

PT MT CT ET

Client Project #

342-286

Lab Project #

CEC-E COLI

Collected by (print):

Lindsay Wilson-Kokes

Site/Facility ID #

P.O. #

Collected by (signature):

Lindsay Wilson-Kokes

Rush? (Lab MUST Be Notified)

___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Immediately

Packed on Ice N ___ Y ☒Pres
Chk

Analysis / Container / Preservative

Chain of Custody Page ___ of ___



MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody
constitutes acknowledgment and acceptance of the
Pace Terms and Conditions found at:
<https://info.pacelabs.com/hubs/pas-standard-terms.pdf>

SDG #

L1767163

Tab

G118

Acctnum: CEC

Template: T249596

Prelogin: P1064463

PM: 526 - Chris McCord

PB: 3/21/24 CAM

Shipped Via: Courier

Remarks

Sample # (lab only)

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cnts
NORTH FORK SUGGS 10X Finch Branch	Grab	WW	Ø	8/14/24	0940	2
NORTH FORK SUGGS 10X Hurricane Creek	1	WW	1	1	1030	2
NORTH FORK SUGGS 100X Duplicate	1	WW	1	1	1040	2
FIELD BLANK	1	WW	1	1	1040	2

E. coli Microbiological

* Matrix:

SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - Waste Water
DW - Drinking Water
OT - Other

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:

___ UPS ___ FedEx ___ Courier CIT

Tracking #

Relinquished by: (Signature)

Lindsay Wilson-Kokes

Date:

8/14/24

Time:

1124

Received by: (Signature)

S. Peak

Trip Blank Received: Yes/No

HCL/MeOH

TBR

Temp: °C Bottles Received:

8/14/24 3:10:33.4 8

Sample Receipt Checklist

COC Seal Present/Intact: ☒ Y ☐ NCOC Signed/Accurate: ☒ Y ☐ NBottles arrive intact: ☒ Y ☐ NCorrect bottles used: ☒ Y ☐ NSufficient volume sent: ☒ Y ☐ N

If Applicable

VOA Zero Headspace: ☐ Y ☐ NPreservation Correct/Checked: ☐ Y ☐ NRAD Screen <0.5 mR/hr: ☒ Y ☐ N

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

S. Peak

Date: Time:

8-14-24 1124

Hold:

Condition:

NCF / OK



ANALYTICAL REPORT

September 03, 2024

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Civil & Environmental Consultants - TN

Sample Delivery Group: L1770240
Samples Received: 08/22/2024
Project Number: 342-286
Description: La Vergne

Report To: Lindsay Wilson-Kokes
117 Seaboard Ln.
Suite E100
Franklin, TN 37067

Entire Report Reviewed By:

Chris McCord
Project Manager

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Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

ACCOUNT:

Civil & Environmental Consultants - TN

PROJECT:

342-286

SDG:

L1770240

DATE/TIME:

09/03/24 17:41

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Sr: Sample Results	5	³ Ss
FINCH BRANCH L1770240-01	5	
DUPLICATE L1770240-02	6	⁴ Cn
FIELD BLANK L1770240-03	7	⁵ Sr
HURRICANE CREEK L1770240-04	8	
Qc: Quality Control Summary	9	⁶ Qc
Microbiology by Method 9223 B-2016	9	
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Sc: Sample Chain of Custody	12	⁹ Sc

SAMPLE SUMMARY

FINCH BRANCH L1770240-01 WW

				Collected by Lindsay Wilson	Collected date/time 08/22/24 08:40	Received date/time 08/22/24 10:51
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223 B-2016	WG2348403	1	08/23/24 08:48	08/23/24 08:48	HMH	Mt. Juliet, TN

DUPLICATE L1770240-02 WW

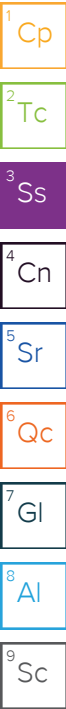
				Collected by Lindsay Wilson	Collected date/time 08/22/24 00:00	Received date/time 08/22/24 10:51
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223 B-2016	WG2348403	1	08/23/24 08:48	08/23/24 08:48	HMH	Mt. Juliet, TN

FIELD BLANK L1770240-03 WW

				Collected by Lindsay Wilson	Collected date/time 08/22/24 10:08	Received date/time 08/22/24 10:51
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223 B-2016	WG2348403	1	08/23/24 08:48	08/23/24 08:48	HMH	Mt. Juliet, TN

HURRICANE CREEK L1770240-04 WW

				Collected by Lindsay Wilson	Collected date/time 08/22/24 10:00	Received date/time 08/22/24 10:51
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223 B-2016	WG2348403	1	08/23/24 08:48	08/23/24 08:48	HMH	Mt. Juliet, TN

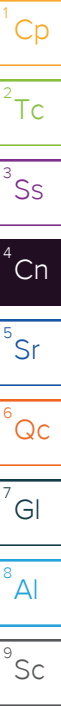


CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris McCord
Project Manager



Microbiology by Method 9223 B-2016

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	1732.9		1	08/23/2024 08:48	WG2348403

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Microbiology by Method 9223 B-2016

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	387.3		1	08/23/2024 08:48	WG2348403

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Microbiology by Method 9223 B-2016

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	<1		1	08/23/2024 08:48	WG2348403

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Microbiology by Method 9223 B-2016

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	410.6		1	08/23/2024 08:48	WG2348403

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4113549-1 08/23/24 08:48

Analyte	MB Result MPN/100ml	<u>MB Qualifier</u>	MB MDL MPN/100ml	MB RDL MPN/100ml
E.Coli	<1			

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

GLOSSARY OF TERMS

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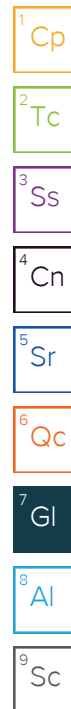
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

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Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

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ACCREDITATIONS & LOCATIONS

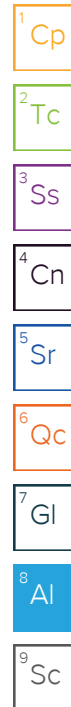
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.





ANALYTICAL REPORT

September 03, 2024

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Civil & Environmental Consultants - TN

Sample Delivery Group: L1771457
Samples Received: 08/26/2024
Project Number: 342-286
Description: La Vergne

Report To: Lindsay Wilson-Kokes
117 Seaboard Ln.
Suite E100
Franklin, TN 37067

Entire Report Reviewed By:

Chris McCord
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

ACCOUNT:

Civil & Environmental Consultants - TN

PROJECT:

342-286

SDG:

L1771457

DATE/TIME:

09/03/24 17:41

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1 of 11

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Cn: Case Narrative	4	
Sr: Sample Results	5	³ Ss
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HURRICANE CREEK L1771457-02	6	⁴ Cn
FIELD BLANK L1771457-03	7	⁵ Sr
Qc: Quality Control Summary	8	
Microbiology by Method 9223 B-2016	8	⁶ Qc
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Al: Accreditations & Locations	10	
Sc: Sample Chain of Custody	11	⁸ Al
		⁹ Sc

SAMPLE SUMMARY

FINCH BRANCH L1771457-01 WW

Collected by
Lindsay Wilson

Collected date/time
08/26/24 09:25

Received date/time
08/26/24 11:14

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223 B-2016	WG2350672	1	08/27/24 11:39	08/27/24 11:39	NAH	Mt. Juliet, TN

HURRICANE CREEK L1771457-02 WW

Collected by
Lindsay Wilson

Collected date/time
08/26/24 10:20

Received date/time
08/26/24 11:14

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223 B-2016	WG2350672	1	08/27/24 11:39	08/27/24 11:39	NAH	Mt. Juliet, TN

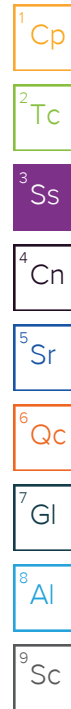
FIELD BLANK L1771457-03 WW

Collected by
Lindsay Wilson

Collected date/time
08/26/24 10:27

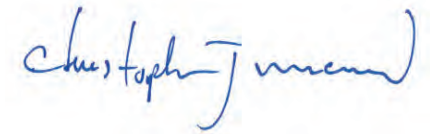
Received date/time
08/26/24 11:14

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223 B-2016	WG2350672	1	08/27/24 11:39	08/27/24 11:39	NAH	Mt. Juliet, TN

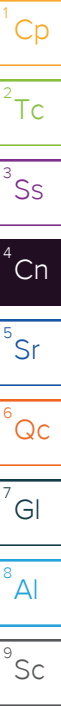


CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris McCord
Project Manager



Microbiology by Method 9223 B-2016

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	2419.6		1	08/27/2024 11:39	WG2350672

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Microbiology by Method 9223 B-2016

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	344.8		1	08/27/2024 11:39	WG2350672

- 1Cp
- 2Tc
- 3Ss
- 4Cn
- 5Sr
- 6Qc
- 7Gl
- 8Al
- 9Sc

Microbiology by Method 9223 B-2016

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	<1		1	08/27/2024 11:39	WG2350672

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4114683-1 08/27/24 11:39

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	MPN/100ml		MPN/100ml	MPN/100ml
E.Coli	Negative			

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

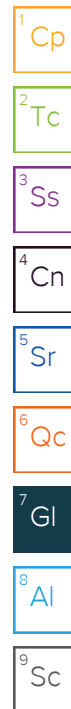
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
SDG	Sample Delivery Group.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

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