Metro Nashville, Davidson County
Stormwater Management Plan

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Updates:

October, 2018
(Updates to internal SOPs, Program Changes from TDEC Compliance Inspection on the Construction Oversight Program)

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(Updates from TDEC Compliance Inspection on the IDDE Section)

Note: All Updates are Included in Appendix E. All these updates replace text in those sections of the Stormwater Management Plan.

SWMP Table of Contents

1.0 Introduction

The Metropolitan Government of Nashville/Davidson County (Metro) was recently issued a third iteration of the Phase 1 Municipal Separate Storm Sewer System (MS4) permit from the Tennessee Department of Environment and Conservation (TDEC). The MS4 permit requires Metro to implement various pollution prevention programs to minimize contaminants within the MS4 that would ultimately discharge to "Waters of the State". The Metro Water Services (MWS) National Pollutant Discharge Elimination System (NPDES) Section is responsible for developing and overseeing programs designed to maintain Metro's compliance with the MS4 Permit and improve the quality of receiving waters. In order to effectively and efficiently communicate Metro's water pollution prevention programs, the following Stormwater Management Plan (SWMP) has been created. The SWMP describes Metro's pollution prevention programs and strategies that have been and will continue to be deployed by various Metro departments. The SWMP will be reviewed and updated yearly during compilation of the MS4 Annual Report.

1.1 Contact Information

Any comments/questions regarding the SWMP, shall be directed to the MWS Stormwater NPDES Section. The NPDES Section's office is located at 1607 County Hospital Road, Nashville, TN 37218, can be contacted by phone at 615-880-2420, by fax at 615-880-2425, or by email at stormwaterquality@nashville.gov.

1.2 Jurisdiction and Legal Authority

Metro's MS4 jurisdiction encompasses the entire county with the exception of the following boundaries, as depicted on Figure 1:

A. City of Belle Meade;
B. City of Berry Hill;
C. City of Forest Hills;
D. City of Goodlettsville;
E. City of Oak Hill;
F. City of Ridgetop;
G. Tennessee Department of Transportation Road Right-of-way;
H. Other Phase II MS4 Permittees (i.e. Tennessee State University); and
I. Combined Sewer System (CSS) Watershed.

Metro's Legal Jurisdiction for implementing the SWMP programs can be found in Metro's Code of Laws: Title 15 Water, Sewers, and Other Public Services, Chapter 15.64 Stormwater Management. The Code of Laws is available at the following website:

http://library.municode.com/index.aspx?clientId=14214

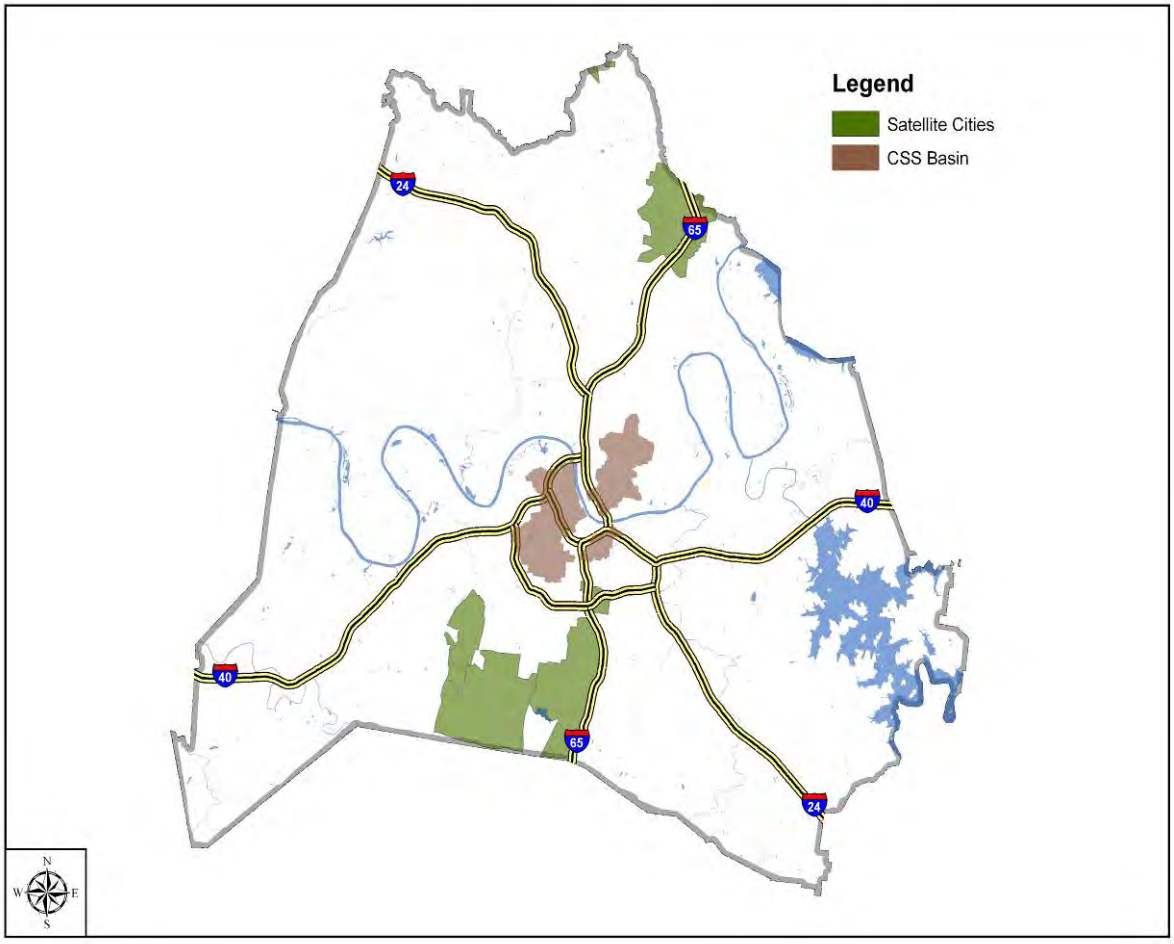


Figure 1 – Metro MS4 Jurisdiction

2.0 Stormwater Pollutants of Concern and General BMP Overview

While there are numerous biological and chemical pollutants that have the potential to contaminate stormwater runoff from the MS4, Metro Nashville's stormwater program has focused on some of the most common parameters to monitor and control. These parameters include sediment, pathogens (*E. coli*), nutrients, and oil and grease. Over the years, Metro has implemented various programs to minimize to the Maximum Extent Practical (MEP) the runoff of pollutants from private property to the MS4 and from the MS4 to "Waters of the State". The following paragraphs describe the pollutants in which specific Best Management Practices (BMP)s have been developed to minimize concentrations of runoff from the MS4. The specific BMP implementation strategies are detailed further in Section 3 (MS4 Permit Program Elements).

2.1 Sediment

2.1.1 Potential Stormwater Impacts

In general, sediment is one of the most damaging impacts to receiving streams from the MS4. Reducing the amount of sediment in stormwater runoff is important as sediment can also act as a transport mechanism for other pollutants such as nutrients, metals, etc. The unnatural loading of sediment in MS4 runoff would most likely come from the following types of land uses/activities:

A. Construction activity;

B. Agriculture operations;

C. Public and Private infrastructure Maintenance Operations; and

D. Erosion from private/public lands.

2.1.2 Stormwater BMPs

The main BMP Metro implements, to control sediment runoff from private properties to the MS4 is the construction oversight program. Metro's grading permit program requires all new development and major redevelopment that disturb more than 10,000 square feet (roughly ¼ acre) to obtain permits from the MWS Stormwater Department. Prior to obtaining the actual grading permit, sites are required to install controls designed to reduce sediment runoff from properties during the construction phase. Most sites with grading permits are also required to provide for permanent treatment of water quantity and quality, which will help to prevent future impacts from the built environment. In addition to overseeing the grading permit program, Metro has implemented specific SOPs within certain municipal maintenance departments that are designed to reduce the impact to the quality of stormwater runoff from maintenance activities. The other sources listed above are targeted through the Public Information/Education Plan (PIE) detailed in a separate section of this document.

2.2 Pathogens

2.2.1 Potential Stormwater Impacts

In general, pathogens are measured in the waterways using the typical indicator species of Escherichia coli (*E. coli*). The presence of abnormally high levels of pathogens within waterways is a concern for human exposure and public safety. The sources of pathogens within stormwater runoff from the MS4 usually either comes from human sewage, domesticated animal (pet or livestock) waste, or wildlife. Human sewage will contaminate stormwater runoff if septic systems or sewer collection systems fail. Domesticated animals, most notably pets, will contaminate stormwater runoff when the waste remains on the ground exposed to stormwater, especially when in close proximity to streams or other drainage features.

2.2.2 Stormwater BMPs

In regards to failing sewer infrastructure, large structural fixes are being implemented by the MWS Engineering and Overflow Abatement Program (OAP) Sections. The MWS Stormwater NPDES Watershed Group routinely coordinates with the sanitary sewer

sections to determine where sewer upgrades/improvements are being made as it relates to watershed impairments. In addition, the Watershed Group has developed a laboratory to perform host-specific deoxyribonucleic acid (DNA) fingerprints using the polymerase chain reaction (PCR) amplification process. Through use of the PCR analysis, it is MWS' goal to determine the source inputs (animal or human) of bacteria so that targeted pollution prevention programs can be implemented on a watershed basis.

2.3 Nutrients

2.3.1 Potential Stormwater Impacts

Nutrients in form of nitrogen and phosphorus compounds can greatly impact the quality of waterways receiving stormwater runoff. Increased nutrient levels can cause explosions in algae populations, which in turn, deplete the water of much-needed dissolved oxygen levels and thus lowering overall bio-diversity. Increased nutrient levels can result from natural deposits in soils and the groundwater connection to streams or it can result from unnatural inputs from the developed environment. One of the largest sources of nutrient levels in urban stormwater runoff is from the use or overuse of fertilizers, especially those fertilizers containing phosphorus compounds. Fertilizers, when applied improperly, can flow directly into streams. In addition to fertilizers, nutrient levels in stormwater runoff can be attributed to human and animal waste inputs.

2.3.2 Stormwater BMPs

While there are some structural BMPs that can be deployed to treat nutrient levels in stormwater runoff, finding the right areas to implement such BMPs and the overall costs limit the use of such measures. In general, Metro believes that infrastructure improvements designed in preventing sanitary sewer impacts to creeks will be the primary structural BMP to be deployed. In addition, Metro has initiated a vigorous campaign to perform targeted public education activities to geographic areas where nutrient runoff is a problem.

2.4 Oils and Grease

2.4.1 Potential Stormwater Impacts

Oils and grease (hydrocarbons) contaminate stormwater runoff and cause direct adverse impacts to aquatic organisms. The concentrations of oils in stormwater runoff are generally higher in commercial and industrial areas. As fluids drip from vehicles in parking lots or equipment at industrial facilities, they can contaminate stormwater runoff and accumulate in receiving water bodies. In addition to leaking vehicles, wrecks and spills of automotive fluids or, in some cases, intentional dumping of oil products can significantly increase the levels of oils and grease in stormwater runoff.

2.4.2 Stormwater BMPs

There are site specific controls that could be implemented to reduce the exposure of oils and grease to stormwater runoff. In regards to roadway spills, the Metro's Public Works Department and Office of Emergency Management oversee most spill response

activities to ensure responsible parties conduct the required remediation activities. When it comes to general housekeeping procedures to minimize oils and grease from running off parking lots, Metro will specifically target "hot areas" with public education materials. For intentional dumping activities, Metro has a robust illicit discharge enforcement program that works to eliminate discharges of non-stormwater materials such as oils and grease.

2.5 Other Pollutants

There are many other types of pollutants such as heavy metals like iron, lead, zinc, aluminum, chromium, etc. that can comprise the quality of stormwater runoff. Many of these other constituents of pollutants typically come from industrial-type properties. Metro has implemented an industrial inspection program, discussed further in this document, which will aid in fining and eliminating discharges of pollutants, as well as educate industrial facilities on proper housekeeping procedures. When it comes to future development, stormwater regulations are typically designed to provide sediment removal from stormwater runoff. Treating and reducing sediment will also help in removing other contaminants such as metals.

2.6 BMP Implementation Plan

Per the MS4 Permit, Metro is required to implement non-structural BMPs within the first year and structural BMPs within the first two years, which are designed to reduce pollutant loading numbers to water bodies with approved TMDLs. With the exception of pathogens, Metro firmly believes non-structural programs (i.e. public education, construction oversight program, industrial oversight program, IDDE program, development restrictions etc.) will be the most cost effective and productive programs needed to minimize pollutant loadings from the MS4 to "Waters of the State". Metro has already begun implementing the non-structural controls, such as sending mass educational mail outs and prioritizing field investigations in the geographical "hot areas" within certain watersheds.

Metro has initially identified one property on McCrory Creek in which space may be available for Metro to install a large structural stormwater BMP. Progress on this potential structural control will be reported in subsequent annual reports. Additionally, any structural improvements made to the separated and combined sanitary sewer systems will be reported within each year's annual report. In future years, Metro also intends to pursue watershed modeling options in an attempt to identify where specific structural BMPs can be implemented that will help in achieving pollutant loading reduction.

3.0 MS4 Permit Program Elements

The core MS4 Permit requirements are contained within this section. The following sections first provide a summary of specific permit requirements contained within the MS4 Permit, before providing explanations of how Metro accomplishes the requirements of each permit program element.

3.1 Public Education and Outreach

3.1.1 Public Education/Outreach Specific Requirements

Per this section of the permit, Metro is required to operate a program designed to educate the public on the impacts of stormwater discharges to water bodies and steps the public can take in reducing stormwater pollution. In addition to requiring general stormwater awareness education, this section also requires MWS to perform the following specific actions:

A. Develop an organized approach/plan for public education activities;

B. Target certain groups and areas known as "hot areas" where targeted education messages can be tailored;

C. Perform public education/outreach programs at a minimum of 6 large public events per calendar year; and

D. Establish a system for tracking all public education activities.

3.1.2 Metro's Program on Public Education/Outreach for the MS4 Permit

The following paragraphs describe Metro's programs that have been implemented to meet the above specific permit requirements:

A. MWS NPDES developed a stand-alone Public Information/Education (PIE) plan within the first year of the new permit cycle. The PIE plan details all of the MS4 Permit public education activities and identifies specific targeted groups and geographic "hot areas" in which pollutant-specific messages will be generated. The PIE plan can be amended at any time to make improvements in the public education program. The PIE plan is located in Appendix C of this document.

B. "Hot areas" were chosen during creation of the PIE plan based on land use and TMDL/303(d) status. For instance, in the sub-watersheds that have a TMDL approved for Nutrients, residential areas were chosen since they represent the most potential for impacts from fertilizer runoff. Likewise, commercial and industrial areas were chosen in those watersheds that were listed as being impaired for siltation, pathogens, and oil and grease.

C. NPDES has committed to participating in at least 6 large events per year. The initial PIE plan identified the following events in which MWS NPDES will provide stormwater education: Earth Day Festival, Dragon Boat Race, Catfish Rodeo, Lawn and Garden Show, Adventure Science Center CHOMP, and the Zoo Docents Meeting. These six events are subject to change each year as better opportunities may be presented.

D. Public education activities in relation to stormwater quality are performed by two departments within MWS. The MWS Stormwater NPDES Section performs most of the core education activities for the permit compliance program, however, the MWS Public Information Office assists in performing most of the outreach to local school systems.

3.2 Public Involvement/Participation

3.2.1 Public Involvement/Participation Specific Requirements

Under this program element, Metro is required to identify, prioritize and select opportunities for public involvement. Metro is required to detail how it solicits community involvement on such things as tree plantings, stream clean-ups, etc.

3.2.2 Metro's Actions on Public Involvement/Participation Specific Requirements

Metro solicits public involvement on activities that improve stormwater runoff in the following ways:

A. Adopt a Stream Program: MWS Public Information Office offers the ability for groups to adopt different segments of a stream. The adoption periods are for two years and the adoption process involves the groups performing at least one stream clean-up per year and the stenciling of storm drains that route to the adopted stream segment. Currently, there are 20 separate groups, ranging from neighborhood associations to local businesses that have adopted different stream segments within the county. Information on the 'adopt a stream" program can be found at*:* *http://www.nashville.gov/Water-Services/Community-Education/Volunteer.aspx*

B. Storm Drain Stenciling Program: In addition to the "adopt a stream" program, MWS offers the ability for various groups to sign up to perform storm drain stenciling. MWS provides all of the required materials to the various groups including the stencils that usually contain the following message: "No Dumping, Drains to the River".

C. Stormwater Management Committee Meetings: Metro also provides for public input/involvement on projects seeking variances from certain stormwater regulations. In particular the Stormwater Management Committee (SWMC) meetings are public noticed by the following methods:

1) Preparation and emailing of a public notice agenda to various individuals and entities including Metro Council members, members of the public media, the SWMC members, staff members from various Metro departments (MWS, Codes, Planning, Parks, etc.), staff members from various departments within TDEC, over 200 Neighborhood Organization contacts, several environmental organizations (Harpeth River Watershed Association, Cumberland River Compact, etc.), and the Applicants' representatives;

2) Preparation of Public Notice signs to be picked up and posted by Applicants prior to the meeting;

3) Posting of the Agenda on the Stormwater Division's website; and

4) Posting of the Agenda on the Metro Calendar of Events at www.nashville.gov

3.3 Illicit Discharge Detection and Elimination

3.3.1 IDDE Permit Requirements

Under this requirement, Metro is required to continue implementation of the existing illicit discharge detection and elimination (IDDE) program. The steps and procedures for the IDDE program should be identified within the Enforcement Response Plan (ERP). As such, Metro is required to maintain the existing illicit discharge code that is used as an enforcement mechanism to elliminate illicit discharges and allow for penalties to be issued that are consistent with Tennessee Code Annotated (TCA) 68-221-1106. Metro shall provide mechanisms to the general public that allows them to report suspected illicit discharges via website or hotline.

3.3.1.1 Spill Response Requirements

Metro's IDDE program shall also investigate and analyze spills as they occur. For spills occuring on industrial facilities, Metro is to require the facilities to have adequate spill, prevention, control and countermeasure (SPCC) plans and/or storm water pollution prevention plans (SWPPPs) in place. In addition, Metro is required to perform appropriate coordination with state agencies such as the Tennessee Emergency Management Agency (TEMA).

3.3.1.2 MS4 Mapping Requirements

MS4 drainage infrastructure specifically operated/maintained by Metro includes all drainage ways within public road right-of-way or publicly owned/operated facilities that convey stormwater to state-regulated streams. Under this section of the IDDE program, Metro is required to maintain the existing MS4 Geographic Information System (GIS) database. In particular, the GIS database shall be updated with all of the known MS4 outfalls and drainage areas contributing to those outfalls, including infrastructure such as inlets, pipes, and channels that are either owned or operated/maintained by Metro. The GIS database shall be considered up to date when updates to the GIS infrastructure are submitted to the GIS technician within 9 months of the changes occurring or when new MS4 infrastructure is discovered.

Per the MS4 Permit, Metro must maintain the following specific information within the inventory database.

A. The location of all known MS4 outfalls and drainage areas contributing to those outfalls that are operated by the permittee and that discharge within the permittee's jurisdiction to a receiving water;

B. The location (and name, where known to the permittee) of all waters receiving discharges from outfall pipes. Each mapped outfall must be given an individual alphanumeric identifier, which must be noted on the map. When possible, the outfalls must be located using a geographic position system (GPS) and photographs should be taken to provide baseline information and track operation & maintenance needs over time.

C. Inputs into the storm sewer system, such as the inlets, catch basins, drop structures or other defined contributing points to the storm sewer system serving that outfall.

D. The location and condition of major structural controls (retention basins, detention basins, major infiltration devices, etc.)

E. General direction of stormwater flow. Monitoring locations indentified under subarts 4.1 below and 4.2 below.

F. The map shall also indentify the following: priority areas with older infrastructure that are more likely to have illicit connections, industrial/commercial or mixed use areas, areas with past illicit discharges; areas with onsite sewage disposal systems, and areas upstream of sensitive waterbodies.

3.3.1.3 Illicit Discharge Education and Training Requirements

Metro is required to ensure staff that work within the IDDE program have adequate training. Specifically, all new employees working within the IDDE program must be trained within 1 year from the date of hiring. In addition, information on reporting illicit discharges must be contained on fleet vehicles.

3.3.1.4 Field Screening Program Requirements

Per the MS4 Permit, Metro is required to continue to implement the field screening program that randomly screens outfalls for purposes of finding non-stormwater discharges such as sanitary sewer leaks, water leaks, potential cross connections, or illicit discharges. Specific requirements of the field screening program include:

A. Updated GIS field screening database with commercial and industrial zoned ¼ mile grids identified to be screened.

B. Prioritization of areas for inspection and monitoring based on watershed or land uses or on previous field screening results, spills, complaints, illicit discharges, etc.

C. Updating illicit discharge identification procedures if necessary

D. Identification of potential discharges to MS4 or “Waters of the State”

E. Identification of means to screen for sanitary sewer seepage into the MS4.

*As the permit expired, Metro petitioned TDEC to change the field screening process to become more efficient in finding more stormwater runoff issues. Communications with TDEC describing the proposed changes are included within Appendix E.

3.3.1.5 Limitation of Sanitary Sewer Seepage Requirements

Under this program element, Metro is required to detail the procedures it undertakes to identify potential sanitary sewer leaks, overflows, or septic tank failures that discharge into the MS4. Metro is required to also detail how identified seepages and/or leaks are reported for correction.

3.3.2 Metro’s IDDE Program

Metro began implementing the IDDE program in the late 1990s when the first cycle of the Phase I Permit was issued. As a first step, Metro adopted the Non-stormwater Discharge Code, 15.64.205. Below is the current code in which Metro enforces under to prohibit illicit discharges to the MS4:

15.64.205 Non-stormwater discharges.

A. Definitions:
*"**Community waters**" means any and all rivers, streams, creeks, branches, lakes, reservoirs, ponds, drainage systems, springs, wetland, wells and other bodies of surface or subsurface water, natural or artificial, lying within or forming a part of the boundaries of the metropolitan government of Nashville and Davidson County.*

*"**Contaminant**" means any physical, chemical, biological or radiological substance or matter.*

*"**Director**" means the director of the metropolitan government of Nashville and Davidson County's department of public works, or his designee.*

*"**Discharge**" means any substance disposed, deposited, spilled, poured, injected, seeped, dumped, leaked, or placed by any means, intentionally or unintentionally, into community waters, the waters of the state, or any area draining directly or indirectly into the municipal stormwater system of the metropolitan government.*

*"**Metropolitan Government**" means the metropolitan government of Nashville and Davidson County.*

*"**Municipal separate storm sewer system of the metropolitan government**" means a conveyance, or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, and storm drains) designed or used for collecting or conveying stormwater; provided, however, that sanitary and combined sewers are not included in the definition of the municipal separate storm sewer system.*

*"**Non-stormwater discharge**" means any discharge to the municipal separate storm sewer system except as permitted by subsection C of this section.*

*"**Waters of the state**" means any water, surface or underground, lying within or forming a part of the boundaries of the metropolitan government of Nashville and Davidson County, over which the Tennessee Department of Environment and Conservation exercises primary control with respect to stormwater permits.*

B. Except as hereinafter provided, all non-stormwater discharges into community waters, into the waters of the state, or into the municipal separate storm sewer system of the metropolitan government are prohibited and are declared to be unlawful.

C. Unless the director has identified them as a source of contaminants to community waters, the waters of the state, or the municipal separate storm sewer system of the metropolitan government, the following discharges are permitted:

1. *Stormwater as defined in TCA Section 68-221-1102(5);*
2. *Water line flushing;*
3. *Landscape irrigation;*
4. *Diverted stream flows;*
5. *Rising groundwaters;*
6. *Uncontaminated groundwater infiltration (as defined at 40 CFR 35.2005(20)) to separate storm sewers;*
7. *Uncontaminated pumped groundwater;*
8. *Discharges from potable water sources;*
9. *Foundation drains;*

10. *Air conditioning condensate;*
11. *Irrigation water;*
12. *Springs;*
13. *Water from crawl space pumps;*
14. *Footing drains;*
15. *Lawn watering;*
16. *Individual residential car washing;*
17. *Flows from riparian habitats and wetlands;*
18. *Dechlorinated swimming pool discharges;*
19. *Street wash waters resulting from normal street cleaning operations;*
20. *Discharges or flows from emergency fire fighting activities.*

D. The director, with the approval of the mayor, shall have authority to implement this section by appropriate regulations. Such regulations may include but are not limited to provisions for inspection of points of origin of known or suspected non-permitted discharges by appropriate personnel of the metropolitan government.

E. Discharges pursuant to a valid and effective NPDES permit issued by the state of Tennessee are not prohibited by this section.

F. The provisions of this section, including subsection C of this section, shall not apply to sanitary or combined sewers, which are governed by Chapter 15.40 of the Metropolitan Code of Laws.

G. Violation of this section shall subject the violator to a civil penalty of not less than fifty dollars nor more than five thousand dollars per day for each day of violation. Each day of violation may constitute a separate violation.

(Ord. BL2001-642 § 2, 2001; Ord. 97-1016 §§ 1--7, 1998)

Metro maintains a website with specific information on how to report stormwater pollution to the proper authorities. Citizens can report water quality or maintenance concerns by filling out a form on Metro's website at the following link:

http://www.nashville.gov/Water-Services/Stormwater-Maintenance/Report-A-Concern.aspx

In addition, citizens can report issues by calling the MWS Stormwater, NPDES Office at 615-880-2420 or clicking the following email link: StormWaterQuality@Nashville.gov

3.3.2.1 Metro's MS4 Spill Response Summary

There are several different types of spills that occur and impact the MS4 or streams. For the most part, spills occur from one of the three types: roadway wrecks, private property spills/fires, and/or water or sewer infrastructure failures. Depending on the type and severity of spill, several Metro entities could be involved on spill response activities. Figure 2 provides a depiction of the various roles each Metro department performs in spill response activities.

Table 1 – Summary of Metro Spill Response Activities per the MS4 Permit

Spill Types	*Roadway Wreck/Spill*	*Private Property Spill/Fire (Industrial, Commercial, or Residential Properties)*	*Sewer or Water Infrastructure Failures*
Communication	1. Reported directly to emergency personnel 1st responders (Police and Fire). Perform initial assessment. Determine if Hazardous Materials responders are needed.	1. Reported directly to emergency personnel 1st responders (Police and Fire). Perform initial assessment. Determine if Hazardous Materials responders are needed. For some minor spills at industrial or commercial facilities, the MWS Stormwater NPDES is notified directly by the facility contacts.	1. Reported directly by citizens to OEM or the MWS dispatch office. When reported to OEM, the MWS Dispatch office is notified. The Public Works Street Services Division and emergency personnel are only notified when water or sewer infrastructure failures cause hazardous roadway conditions.
	2. Mayor's Office of Emergency Management (OEM) updated by 1st responders of field conditions. Communication includes information on spilled materials/etc. that may impact the MS4 and/or streams.	2. Mayor's Office of Emergency Management (OEM) updated by 1st responders of field conditions. Communication includes information on spilled materials/etc. that may impact the MS4 and/or streams.	2. MWS dispatchers notify MWS System Services Division (SSD) crews to repair lines and, in the event of sewage discharges, clean up lost material.
	3. OEM notifies appropriate spill response personnel such as the Metro Water Services (MWS) dispatchers. Communication includes updating the Tennessee Emergency Management Agency (TEMA) when incidents occur on access-controlled Tennessee Department of Transportation (TDOT) right-of-way or when spilled materials have been documented as discharging to streams, creeks, or rivers. MWS Stormwater NPDES is also notified by MWS dispatchers when discharges were noted as occurring to the MS4 and/or streams.	3. OEM notifies appropriate spill response personnel such as the Metro Water Services (MWS) dispatchers. Communication includes updating the Tennessee Emergency Management Agency (TEMA) when spills on private property have been documented as discharging to streams, creeks, or rivers. MWS Stormwater NPDES is also notified by MWS dispatchers when discharges were noted as occurring to the MS4 and/or streams.	3. MWS dispatchers notify MWS Stormwater NPDES in the event that sewage discharges are documented as discharging into streams, creeks, or rivers. In some instances MWS SSD personnel notify MWS Stormwater NPDES directly when sewage clean-up advice is needed.
	4. Spill responders provide updates back to OEM, who provides the necessary updates to TEMA and other agencies.	4. Spill responders provide updates back to OEM, who provides the necessary updates to TEMA and other agencies.	4. MWS SSD performs all necessary reporting/coordination to TDEC regarding sewage discharges.
Field Response	1. 1st responders will perform initial treatments of absorbent material that they have at their disposal.	1. 1st responders will perform initial treatments of absorbent material that they have at their disposal.	1. In the event of sewage spills, MWS SSD performs all clean-up activities pursuant to the Sewer Overflow Response Plan (SORP). (Note: The SORP is a guidance document on how to properly respond to sewage overflows that was created for compliance with the waste water treatment plant's individual NPDES permits.
	2. Spill response crews from the Public Works Street Services Division perform follow-up spill response activities when spills on Metro road right-of-ways are larger than what 1st responders can contain. Public Works crews place additional absorbent material/booms as needed until responsible parties complete the clean-up. For minor car wrecks where only small amounts of fluids are spilled on the roadway, Public Works will perform all the necessary clean-up. For most large spills involving spills from tractor trailers of commercial fleet vehicles, the trucking company or company's insurance firm is responsible for hiring the appropriate clean-up companies. When responsible parties can not be identified in a timely manner, OEM dispatches their clean-up contractor, with intentions of billing back the clean-up costs to the responsible parties.	2. Beyond the initial application of spill absorbents, when available, the spill clean-up activities that originate on private properties are the property owner's responsibility with applicable environmental remediation and reporting required.	
	3. In the event that medium to large sized quantities of materials reach storm drains and/or streams, the MWS Stormwater NPDES Office is contacted by MWS dispatchers. Upon response, NPDES documents the impacts to the MS4 and/or streams and performs follow-up communication with the responsible parties to ensure the spilled materials are cleaned-up appropriately.	3. In the event that medium to large sized quantities of materials reach storm drains and/or streams, the MWS Stormwater is contacted by MWS dispatchers. Upon response, NPDES documents the impacts to the MS4 and/or streams and performs follow-up communication with the responsible parties to ensure the spilled materials are cleaned-up appropriately.	2. MWS Stormwater NPDES responds when requested by MWS SSD. MWS provides advice on clean-up procedures and monitors the health of the creek for extremely impacting sewage spills.
Documentation	Each Metro department documents their spill response activities within there own spreadsheets or databases. NPDES documents spill response activities within the CityWorks database.	Each Metro department documents their spill response activities within there own spreadsheets or databases. NPDES documents spill response activities within the CityWorks database.	

3.3.2.2 Metro's MS4 Mapping/Inventory Program

The drainage infrastructure inventory updates are performed on an ongoing basis by a GIS technician located in the MWS Stormwater, Development and Review Section (DRS). Drainage system inventory updates are performed when changes to the infrastructure occurs, such as when private development alters the public drainage systems or when public agencies perform changes or upgrades to the public system as part of a maintenance project. In addition, there are instances when MWS Stormwater field staff discover MS4 infrastructure that is not mapped within the GIS database. Figure 2 details the process Metro undertakes in performing updates to the GIS database. In general, the GIS technician updates the database with any changes to Metro's Stormwater drainage infrastructure within 9 months of any changes being completed.

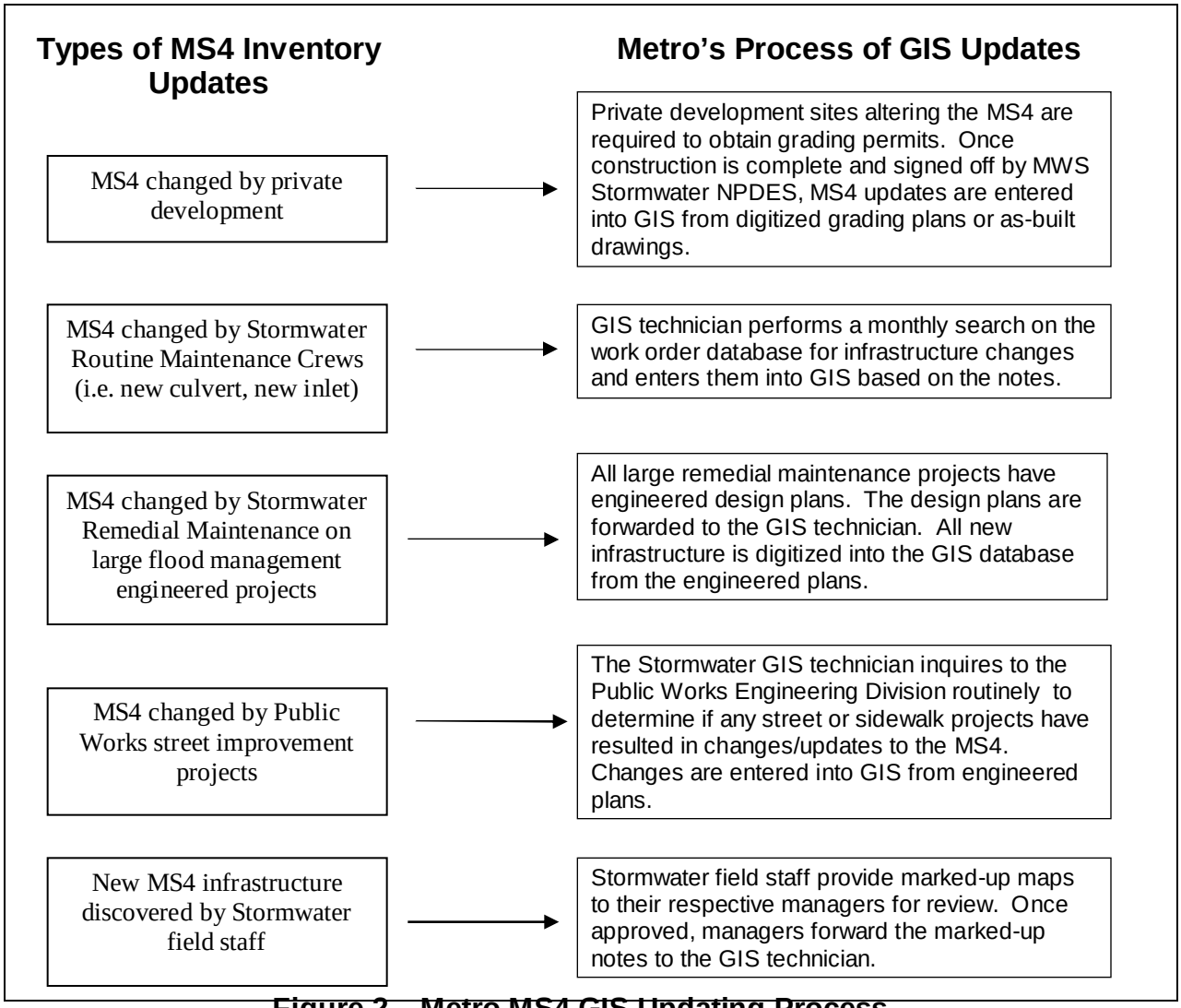


Figure 2 – Metro MS4 GIS Updating Process

Metro performs the following functions to meet the specific permit requirements listed in Section 3.3.1.2 above:

A. MWS Stormwater secured a contractor in 2013 to re-delineate/map MS4 outfalls within the GIS database. Each outfall point added or updated into the GIS database was delineated into one of three categories based on the following criteria:

   1) MS4 Permitted Outfall: Point at which MS4 stormwater drains to the "Waters of the State" layer. In many instances, MS4 drainage routes through private property before discharging to a stream. Despite the fact that the outfall pipe or channel is located on private property. If the outfall receives drainage from Metro roadways or other Metro properties, it was considered an MS4 Permitted outfall. In order to determine actual outfall points, the "Streams and Rivers" layer mapped by the Metro Planning Department was assumed to be the "waters of the State" layer. (This layer has proven to be the most accurate depiction of streams available.) An outfall point was mapped at every intersection point where MS4 drainage routes to "Waters of the State" regardless of whether the drainage structure is a pipe or channel;

   2) Private Outfall: Point at which private facilities drain directly to "Waters of the State" or the MS4. Note: Not all private drainage infrastructure has been inventoried within Metro's GIS, however, in cases where it has, an outfall point was created at the intersection of private drainage and the MS4 or "Waters of the state"; and

   3) Sub-MS4 Outfall: Point at which MS4 drainage area (generally greater than 5 acres) meets another MS4 drainage system. At the intersection of two or more MS4 drainage systems, "sub-MS4 outfalls" was designated on the smaller drainage system. Metro Planning Commission's drainage model layer should be used to determine MS4 drainage area.

   Of the above categories, the "MS4 Permitted Outfalls" that were mapped are the outfalls required to be inventoried per the permit. In addition to inventorying/delineating outfalls within Davidson County, MWS Stormwater also asked the contractor to create drainage area polygons for each outfall point. The drainage polygons were created using the 2-foot contour elevation lines.

B. All of the main stems of streams within Davidson County have been named within several GIS layers available to various Metro staff. In addition, each outfall point has been designated a unique identifying alphanumeric identification number. Not all of the outfall points were inventoried using GPS technology, but MWS Stormwater NPDES does have the technology to update future outfall points using GPS.

C. Metro's original GIS inventory project and all subsequent upgrades have included locations of all inputs into the storm sewer system, such as the inlets, catch basins, etc.

D. Metro recently created a separate layer within the GIS database for stormwater Best Management Practices (BMPs) that have been installed over the years by private and public development projects as required by Metro's grading permits. The layer is continually updated and efforts are currently underway to link the mapped structures to MWS Stormwater NPDES BMP inspection database.

E. All linear stormwater features such as channels and pipes were drawn into GIS from up-gradient to down-gradient directions, which allow flow arrows to be displayed.

F. Separate GIS polygon layers have been created, referred to as "hot areas" in the PIE plan. These areas were created based on their respective land use and watershed impairment status. The "hot areas" will be prioritized for increased inspection and public education urgency and frequency.

3.3.2.3 Metro's IDDE Staff Training Program

All staff that perform functions relating to Metro's IDDE program are located within the MWS Stormwater NPDES Section. All field staff within the NPDES Section have been through the TDEC Level I Erosion Prevention and Sediment Control Certification Workshop. It is the NPDES Section's policy to require all new field staff to receive the Level I training within 6 months of their hiring date. Field staff that perform functions specific to the IDDE program also attend various other workshops/trainings and view appropriate webinar trainings. Training records for each individual are kept within each inspector's training file. In addition, all new employees that perform IDDE functions receive on the job training from senior staff.

3.3.2.4 Field Screening Program Requirements

*Please note that as the permit expired, Metro petitioned TDEC to change the field screening process to become more efficient in finding stormwater runoff issues with commercial and industrial properties. Communications with TDEC describing the proposed changes are included within Appendix E. Also included, is a copy of the new Field Screening SOP that replaces the information below.

A. NPDES updated the ¼ mile grids to the most current land use data. Grids were selected that contained parcels with various land-use codes that can be generally considered as "industrial" or "commercial". There are a total of 2,092 grids that will be screened during this current permit cycle.

B. NPDES has selected the grids that are contained within the "hot areas" that will be screened first. All "hot areas" will be screened by June 31, 2014. The remaining grids will be screened by February 1, 2017, the end of the current permit cycle.

C. During the first two permit years of the new cycle, NPDES performed various groundwater screening tests throughout different locations of the county. NPDES utilized a Lamotte Colorimeter field testing device to run a variety of parameters that included chlorine, fluoride, iron, copper, etc. and field test kits to analyze detergents and phenols. Based on the findings and general

knowledge of Tennessee water quality standards, NPDES established baseline conditions of the various chemical parameters that were tested. NPDES was also able to conclude what the most beneficial tests to run in order to determine if dry weather flows are comprised of normal groundwater or a potential non-stormwater discharge such as a water leak, sewer leak, or illicit connection. As such, NPDES will complete the remaining field screening grids using the following procedures.

1) Print 11X17 map sheets of the grids to be screened. The map sheets will contain aerial photographs, road names, and stormwater infrastructure to screen. The map sheets will also contain an area for notes to be taken.
2) Prepare the field screening equipment (Lamotte colorimeter, YSI 85 Dissolved Oxygen/Conductivity Meter, cooler with ice, 100 ml sample containers, pH meter, and any necessary reagents). Note: (The YSI 85 and pH meter shall be calibrated and logged into the calibration logs each day the meter is used.) Memory cards for the camera should be cleared so that all pictures taken that day can be numbered on the grid sheets.
3) Wait 24 hours after qualifying rain events of more than 0.1 inches (County-wide). If the outfalls in the grid have no flow 24 hours after a rain event, then no water testing is needed and the normal 72 hour wait period does not apply. If flow is present during the initial 24 hour post rain screening, then the outfall must be revisited after 72 hours to test the flow.
4) If flow is present at the outfall 72 hours after the rain event, the flow should be tested for the following minimum parameters.
    a) Chlorine;
    b) Fluoride;
    c) Detergents;
    d) pH;
    e) Dissolved Oxygen;
    f) Conductivity;
    g) Temperature;
    h) Ammonia;
    i) Copper
    j) *E. coli* (Samples will be taken only when sulfur odors or thick algae is present suspicious of sanitary sewer discharges or if ammonia and fluoride levels are above the below action limits. Samples will be analyzed with NPDES IDEXX procedures.)

5) General notes of the outfall that was screened will be taken on the printed grid sheet maps. A photograph will be taken of all outfalls whether or not flow is present.

6) If testing results for the parameters are higher than the levels noted below, then a formal IDDE source tracking investigation shall be initiated with all documentation taking place within the Cityworks database. (Note: If *E. coli* numbers are the only numbers above the IDDE action levels, then a second sample shall be taken 24 hours later and analyzed. If the second sample is above the action level in Table 2, then an official investigation shall be implemented.)

Table 2 – Field Screening Parameter IDDE Investigation Action Levels

Parameter	**IDDE Action Levels**
Chlorine	> 0.02 mg/l
Fluoride	>0.75 mg/l
Detergents	>0.25 mg/l
Dissolved Oxygen	<5 mg/l
Conductivity	>600 µS/cm
pH	<6 and >9
Temperature	>30.5°C
Total Copper	>0.1 mg/l
Ammonia	>0.75 mg/l
E. coli	941 CFU/100ml

7) If testing results for the parameters are below levels of concern listed in Table 2, then the dry weather flow can be contributed to normal groundwater, unless other factors warrant additional investigation.

8) All field screening notes, sampling data, photographs will be entered into the field screening GIS geodatabase.

9) At a minimum, the LaMotte colorimeter shall be calibrated to standards for each parameter once per quarter.

D. The field screening procedures described above have been designed with the ultimate goal of delineating normal groundwater discharges to the MS4 from potential illicit discharges to the MS4 (i.e. water leak, sewer leak, cross connection, illegal dumping, etc.). When potential illicit discharges are discovered, an official investigation is opened and tracked through Metro's Cityworks database.

E. Metro uses a variety of different techniques to screen potential discharges of sanitary sewer to the MS4. Once sanitary discharges are confirmed, they are

routed to the appropriate agencies, such as MWS Dispatch for sewer mains, Health Department and Code Administration for private service laterals.

3.3.2.5 Limitation of Sanitary Sewer Seepage Requirements

Listed below are some of the main programs that help to screen potential sanitary sewer discharges.

A. Field Screening Program;

B. Stream Walk Program (Visual Stream Assessments);

C. Thermogragh Aerial Reconnaissance Program; and

D. Citizen Reports and follow-up IDDE investigations.

The thermograph program, in particular, is performed for the sole reason of detecting potential sanitary sewer and/or water leaks or faulty septic system leach fields. The thermograph program Metro performs involves utilizing the Police Department's helicopter to fly large streams with thermal infrared video/photography. NPDES personnel video record sections of creeks and look for thermal anomalies. NPDES personnel perform follow-up visits and sampling to determine if the anomaly is a result of a sanitary sewer discharge, water leak, or normal groundwater recharge points in the stream. The thermograph flights are performed in the winter months when ambient stream temperatures are low. There are some years during mild winters, when the thermograph flights can not be performed.

In addition to the above programs, NPDES works diligently to coordinate with other departments on eliminating sanitary sewer seepage into the MS4 and streams. Table 3 below provides an overall summary of the various roles Metro departments play in eliminating sanitary sewer discharges.

Table 3 – Sanitary Sewer Discharge Elimination Functions by Various Departments

Types of Sewage Discharges	Metro Agencies Involvement	Department Role
MWS Sewer Main Overflows/Breaks/Leaks	MWS System Services Division	Make necessary repairs to Metro's sewer main lines. Clean up discharged sewage materials through adherence to the MWS' Sewer Overflow Response Plan (SORP)
	MWS Engineering/Overflow Abatement Program	Performs large engineered projects designed to reduce/minimize the amount of wet weather/dry weather overflows from the separate sanitary sewer (SSS) and combined sanitary sewer (CSS) systems.
	MWS Environmental Compliance	Oversees the Fats, Oils, and Grease (FOG) program requiring Food Service Establishments (FSEs) to implement grease control equipment. Also performs general education activities relating to dumping of FOG products in the sanitary sewer.
	MWS Stormwater NPDES	Performs various screening programs that look for active discharges of sewage material into creeks or the MS4. Assist MWS SSD, when requested, on impact assessments of sewage discharges to the MS4 and or creeks.
Private Service Line Overflows/Breaks/Leaks	MWS System Services Division	Perform checks of sewer mains to ensure private service lateral issues are not caused by sewer main blockages.
	Health Department	Primary enforcement agency requiring private sanitary sewer discharges to be corrected and remediated for all FSEs.
	MWS Stormwater NPDES	Assess impacts of private sewage discharges to the MS4 or creeks. Secondary enforcement agency to the Health Department and Codes Department for sanitary sewer discharges from private FSEs and non-FSEs respectively.
	MWS Environmental Compliance	Perform education activities related to the FOG program when private service lines overflow due to grease concerns.
	Codes	Oversee code enforcement for installation and maintenance of private service laterals and provides primary enforcement to sanitary sewer discharges from private service laterals from non-FSE sites.
Septic System Failures	Health Department	Provide all Metro oversight and enforcement of private septic systems (installation and maintenance). Require failing septic systems to be remediated.
	MWS Stormwater NPDES	Screen for potential sewage discharges from septic system failures. Forward all private septic system failure issues to the Health Department.

3.4 Construction Site Stormwater Runoff Control

In general, the MS4 permit requires Metro to continue oversight of all construction activity within Metro's MS4 jurisdiction that are disturbing one or more acres of land. Metro shall oversee the construction activities of public and private development in order to prevent pollutants from running off into the MS4 or "Waters of the State".

3.4.1 Construction Stormwater Control Specific MS4 Permit Requirements

Metro is specifically required to maintain and enforce an ordinance that allows for penalties to be assessed that are consistent with TCA 68-221-1106. Any modifications needed to Metro's ordinance should be consistent with TDEC's General Construction Permit for construction stormwater runoff and must be implemented by February 2014. In addition, Metro's regulations and guidance for construction site BMPs shall be consistent with the TDEC EPSC Handbook. In addition to the general requirements of the construction stormwater control program, the following specific components shall be in place:

A. Site Inventory Requirements: Metro must maintain an active list or database of all private and public construction activities that are disturbing one or more acres of land. The inventory must include contact information and TDEC permitting tracking numbers.

B. Educational Materials: Metro must distribute educational materials to construction site operators and must provide public notice for all public projects (owned by Metro) that have a planned disturbance of greater than one acre. Metro must also provide information of training opportunities and make available appropriate outreach materials via the website, brochures, flyers, etc.

C. Waste Control Requirement for Construction Site Operators: Metro is to require all operators to control wastes such as discarded building materials, concrete wash-outs, etc. so as not to impact off site water quality.

D. Specific EPSC Reviews and Procedures: As part of verifying EPSC compliance on construction site operators, Metro must at a minimum, identify priority construction activities, hold pre-construction meetings with construction site operators, inspect priority construction sites once per month, and inspect non-priority construction activities once per quarter.

E. Provide for Public Input: Metro shall have mechanisms for public access to information on projects.

F. Procedures for Site Inspection: Metro is required to ensure procedures are in place for inspectors to evaluate and document the effectiveness of construction site BMPs and to enforce on non-compliance findings.

G. Staff Training: Construction site inspectors must maintain certification under the Tennessee Fundamentals of Erosion Prevention and Sediment Control, Level 1. All site plan reviewers must complete the Level 2 design course.

3.4.2 Metro's MS4 Construction Oversight Program

Metro has municipal code/ordinances specifically addressing stormwater management regulations within Davidson County, some of which have been in place more than three decades. The Municipal Code has been updated over the years to reflect changes in federal and state regulations as well as industry technologies. The current chapter within Metro Municipal Code that addresses stormwater regulations is *Chapter 15.64 - Stormwater Management*. Within *Section 15.64.204*, Metro is explicitly granted the ability to create stand-alone stormwater management regulations. As such, Metro created the original Stormwater Management Manual in 1979, which has been continually updated and expanded upon over the years. Section 3.3 of the Stormwater Management Manual specifically requires all development within the county that meets certain criteria to acquire grading permits from the MWS Stormwater Department. While there are some development categories exempt from obtaining grading permits, most public and private development activities are required to obtain grading permits if the area of proposed disturbance is greater than 10,000 square feet, they are proposing bringing more than 100 cubic yards of fill to the site, or if they are making major alterations to the MS4. The grading permit process requires permittees to attend pre-construction meetings in which they are granted temporary grading privileges to install the erosion and sediment controls. Actual grading permits are not issued until the erosion and sediment controls are inspected by MWS Stormwater NPDES construction inspectors.

Metro also provides oversight and review for some single family residential properties that disturb an area less than 10,000 square feet. For instance, properties flagged with the city's KIVA database as needing stormwater approval, are required to submit checklists that explain efforts to control erosion and sediment runoff prior to receiving stormwater sign-offs. MWS Stormwater DRS also perform numerous inspections of single family residential construction properties and initiate enforcement when illicit discharges of sediment are discovered. Currently, Metro is exploring options to create a separate mechanism to permit infill development such as the demolition and construction of single family residential properties.

Metro's regulations involving oversight of construction activity is consistent with TCA 68-221-1106. Metro has adapted the following ordinance *15.64.220 - Violations—Penalties*, which allows penalties to be assessed to non-compliant construction activities. It is important to note that non-compliant construction activities resulting in large illicit discharges of sediment to creeks can also receive enforcement actions for violations of *Metro Code 15.64.205 - Non-stormwater discharges*, allowing penalties to be assessed for up to $5,000 per day.

15.64.220 – Violations - Penalties.

A. *Any violation of this chapter shall be punishable by a civil penalty in an amount not to exceed five hundred dollars; provided, however, that any violation of* Section 15.64.205 *shall be punishable by a civil penalty of not less than fifty dollars nor more than five thousand dollars. For purposes of assessing civil penalties under this chapter, each day of violation shall constitute a separate violation.*

B. *In assessing a civil penalty, the following factors may be considered:*
   1. *The harm done to the public health or the environment;*
   2. *Whether the civil penalty imposed will be substantial economic deterrent to the illegal activity;*
   3. *The economic benefit gained by the violator;*
   4. *The amount of effort put forth by the violator to remedy this violation;*
   5. *Any unusual or extraordinary enforcement costs incurred by the municipality;*
   6. *The amount of penalty established by ordinance or resolution for specific categories of violations; and*
   7. *Any equities of the situation which outweigh the benefit of imposing any penalty or damage assessment.*

C. *The department may also assess damages proximately caused by the violator to the municipality which may include any reasonable expenses incurred in investigating and/or enforcing violations of this part, or any other actual damages caused by the violation.*

D. *In addition to all other remedies provided by law, the metropolitan government shall have the right to injunctive relief for any violation of this chapter*.

(Ord. BL2010-639 § 1, 2010; Ord. BL2001-642 § 3, 2001; Ord. 95-1329 § 11, 1995)

During the first year of the new permit, Metro reviewed the grading permit regulations and determined that they are consistent with TDEC's General Construction Permit for construction stormwater runoff. While there may be some slight differences in the permitting processes, Metro's requirements on construction activity are actually more stringent than TDEC's General Construction Permit for construction stormwater runoff. In addition, Metro's Volume IV lists specifications for EPSC BMPs that are consistent with the TDEC EPSC Handbook. Based on a review of Metro's stormwater regulations, Metro believes no adjustments are necessary.

Below is an explanation of Metro's program and how it meets the specific requirements detailed in the MS4 Permit.

A. Site Inventory Requirements: As mentioned above, Metro's grading permit regulations are much more stringent than TDEC's General Permit for construction site runoff, requiring sites disturbing more than 10,000 square feet (roughly ¼ of an acre) to acquire a grading permit. Many of Metro's grading permit sites are less than one acre and do not require TDEC permits.

For grading sites that are proposing more than 1 acre of disturbance, however, Metro requires under Section 4.2.3.2 - Volume I of the Stormwater Management Manual, (for all grading permit applicants proposing to disturb one acre or greater) to provide a Notice of Coverage for TDEC's General Permit for construction stormwater runoff prior to scheduling a pre-construction meeting. In addition, Metro requires all approved construction plans to be stamped and signed by a project representative that states the project is covered under TDEC's General Permit for construction stormwater runoff. Metro contains contact information and a list of all the active grading permit sites within the city's permitting database.

B. Educational Materials: Metro created numerous educational materials dedicated to construction site management. Some of the most important educational materials Metro has published, is the information describing Metro's development process, which can be accessed via Metro's website at: http://www.nashville.gov/Water-Services/Developers.aspx. In addition to providing guidelines and other information via the website, Metro also performs other construction stormwater educational activities, such as running slide shows on the local public access channel, providing educational materials to developers, contractors, etc. during pre-construction meetings, and routinely sending out emails about construction stormwater topics to large email groups. MWS Stormwater NPDES staff also presents Nashville's grading permit process at TDEC's Level 1 EPSC Workshop when it is held in Nashville. Metro provides a list of active Metro grading sites that were proposed to disturb an acre or more. The list is updated monthly using TDEC's permitting database. The list can be found at: http://www.nashville.gov/News-Media/News-Article/ID/1753/Public-Notice-of-Metro-Construction-Projects-Within-Davidson-County-Tennessee.aspx

C. Waste Control Requirement for Construction Site Operators: Metro requires all grading permitees to include on the Erosion and Sediment Control Plans a description of BMPs that specifically address on-site controls of litter and debris. Below is an excerpt from Volume I of the Stormwater Management Manual:

> ***Volume I-SWMM ~ 6.10.8 Litter and Construction Waste Materials***
>
> *Grading Permittees shall control site wastes such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary wastes at their construction site that may cause adverse impacts to water quality. "Control" shall constitute BMPs addressing the aforementioned site issues and should be being depicted on the EPSC sheet of the site's approved Grading Permit plan as well as being implemented and maintained on the project site as required to prevent pollution from being lost from the site.*

D. Specific EPSC Reviews and Procedures: Metro has taken the following approach to prioritizing construction sites for more frequent inspections. A permitted construction site will be considered a "Priority Construction Site (PCS)" if at any time there is active land disturbances or there is a stormwater pollution discharge potential. It will remain a PCS until the MWS inspector

determines that the site is stable and there are no discharge concerns. The location of these sites includes all active sites within Metro's MS4 jurisdiction, which includes sites discharging directly into, or immediately upstream of, waters the state recognizes as impaired (for siltation or habitat alteration) or Exceptional Tennessee Waters. NPDES Section construction site inspectors routinely reference maps of all the sites that drain to streams listed on the TDEC's 303(d) list as being impaired for siltation. NPDES enforcement policy also allows for elevated administrative penalties for construction sites draining to siltation-impaired streams

E. Provide for Public Input: Metro uses a KIVA city-wide database to document all development permit activities. The KIVA database is a web-based application and is available to the general public for search. The KIVA database can be accessed at the below link: https://permits.nashville.gov/kivanet/2/index.cfm

F. Procedures for Site Inspection: The MWS Stormwater NPDES Section performs all inspections and enforcements for grading permit sites relating to all EPSC BMPs. All inspections are documented within the KIVA database. NPDES maintains Standard Operating Procedures (SOPs) for the inspection process in which each construction site inspector is trained on. A copy of the Construction Inspection SOP can be found in Appendix E. All enforcement actions involving grading permits follow procedures outlined in the Enforcement Response Plan (attached in Appendix D.

G. Staff Training: All inspectors within the MWS Stormwater Department, including those that look at single family residential properties, are required to maintain the Level 1 EPSC certification. All new employees are required to sign up for the TDEC Level 1 workshop within 1 year of the hire date. In addition, all grading permit plan review engineers have been through the Level 2 Design Course.

3.5 Permanent Stormwater Management in New Development and Redevelopment

3.5.1 Permanent Stormwater General MS4 Permit Requirements

The MS4 Permit requires Metro to develop, implement, and enforce a program to address permanent (post-construction) stormwater runoff management from new development and significant redevelopment. The program should establish, protect, and maintain water quality buffer zones along streams for new development and redevelopment projects. Any changes necessary to Metro's code or regulations to meet provisions of this section of the MS4 Permit should be fully implemented January 31, 2016. The following paragraphs list specific requirements for permanent stormwater management in new development and redevelopment areas.

3.5.1.1 MS4 Requirements for Performance Standards

Metro is specifically required to develop standards that promote the use of runoff reduction (i.e. infiltration, evapotranspiration, rainfall harvesting, etc.) over standard treatment practices such as stormwater detention. In promoting runoff reduction, Metro should also develop criteria that allow sites that can not meet the runoff reduction requirements, to treat post construction runoff using alternative methods. Specific performance standards contained within the MS4 Permit are described below:

A. Runoff Reduction (infiltration or green infrastructure): Metro is to develop design standards that are designed to reduce runoff volumes by capturing 100% first inch of every rainfall event preceded by 72 hours of no measurable precipitation through infiltration, evapotranspiration, and/or harvesting. When development and redevelopment can not design to meet the runoff reduction of the first inch of rainfall based on the criteria that Metro develops, then traditional stormwater treatment practices could be allowed. Metro is also required to develop incentive standards for use of "green" type controls that may include providing up to a 30% reduction in volume of rainfall to be managed, while the total combination of credit volumes does not exceed 50% reduction.

B. Pollutant Removal: When development or redevelopment properties can not meet the design standards of 100% runoff reduction of the first inch of rainfall, Metro shall at a minimum require such developments to utilize traditional stormwater treatments that achieve at least a 80% reduction in total suspended solids (TSS). It is Metro's decision whether or not to allow off–site mitigation or payment into a stormwater fund dedicated to performing projects to improve stormwater quality.

C. Off-site Mitigation: Metro is to evaluate and make a determination that may allow development and redevelopment sites that can not perform the appropriate stormwater treatment on-site to perform off-site mitigation, so long as it occurs within the same United States Geological Survey (USGS) 12 digit hydrologic unit code (HUC). If Metro determines off-site mitigation could be performed, Metro is to identify priority areas create an inventory within specific watersheds in which off-site mitigation projects could be completed. In addition, Metro should create minimum standards for such off-site mitigation projects to follow.

D. Payment into Public Stormwater Project Fund: Metro is also required to evaluate and determine if creation of a public stormwater project fund will be an option for sites that can not manage stormwater onsite and find an adequate off-site mitigation project. If Metro decides to create a public stormwater fund, then the fund shall at a minimum require developments or redevelopments to pay 1.5 times the estimated cost of on-site runoff reduction controls. Any projects performed by the fund shall be dedicated to benefitting runoff quality.

3.5.1.2 MS4 Permit Requirements for Codes Review and Update

Metro is required to (within the first permit year) review local codes and ordinances using the EPA Water Quality Scorecard. Based on the findings, Metro shall consider making revision to policies, codes, and ordinances that may restrict applications of stormwater treatments such as rain gardens, curb extensions, planter gardens, porous pavements, water harvesting, etc. Metro shall either adjust the codes and ordinances to

remove such restrictions or provide justification as to why the restrictions were not changed. 3.5.1.3 MS4 Permit Requirements for Plan Review, Approval, and Enforcement

Metro is required to develop project review, approval and enforcement procedures that allow for the following options:

A. Pre-application meeting: Allow developers or their engineers to submit a pre-application comment plan or to schedule a pre-application meeting with appropriate MS4 staff;

B. Inter-department Consultations: Develop consultation process and a re-submittal process when an owner request changes to approved plans; and

C. Verification Process: Establish a process to verify permanent stormwater BMPs are installed correctly, that may include enforcement provisions for non-complying sites.

3.5.1.4 MS4 Permit Requirements for BMP Maintenance

Generally, Metro is required to have local ordinance or other enforceable properties are in place to ensure permanent stormwater BMPs are maintained in perpetuity. Such policies shall include development of a maintenance agreement that allows for transfers of responsibilities in leases and/or deeds. The maintenance agreement shall be an enforceable agreement and all enforcement provisions for post construction BMPs shall be detailed within the Enforcement Response Plan.

Metro is required to update the electronic GIS-based databases within the first year of the permit and submit a BMP Inspection and Maintenance Verification Plan in the first 6 months of the permit term. The Inspection and Maintenance Verification Plan shall be implemented and completed by the end of year 5 of the effective permit cycle. For post construction stormwater BMPs owned and operated by Metro, maintenance shall be documented with items such as photos, maintenance logs, contractor invoices, etc. The following paragraphs list specific oversight requirements Metro is to perform on permanent stormwater BMPs.

A. Verification of Maintenance Responsibilities: Metro should verify owners of permanent stormwater BMPs are performing necessary maintenance by establishing legal agreements with the responsible parties.

B. Inventory and Tracking of Management Practices: Metro is required to create an electronic database that tracks permanent stormwater BMPs (including Metro properties) inspection and maintenance status. The database can be linked to GIS and should include standard information such as property owner, location, date installed, description of the BMPs, coordinates or locations of BMPs, maintenance requirements, inspection information, etc.)

C. Owner/Operator Inspections: Metro shall require the owner/operator subject to new development or redevelopment to provide inspection and maintenance reports to Metro. The owner/operator inspections shall be performed by a qualified professional specified by the MS4 program or a Professional Engineer (P.E.) or Landscape Architect (L.A.). Inspection reports should be performed at least once ever five years and should include information such as the facility

type, inspection date, BMP location, owner information, BMP conditions, photographs, etc.

3.5.1.5 MS4 Permit Requirements for Watershed Protection

Metro is required to include specific watershed protection provisions when urban development or community plan(s) are updated. Some of the specific provisions include minimizing the amount impervious surfaces, preserving and protecting ecologically sensitive areas, establishing buffers along streams, implementing tree protection, etc.

3.5.2 Metro's Permanent Stormwater Control Program

Metro's stormwater management program requires all development or significant redevelop activities that are required to obtain a grading permit to install permanent stormwater BMPs designed for treatment of water quality and quantity. Metro's stormwater regulations also require water quality buffer protections along all community waters. The water quality buffers protections can have one or two zones; Zone 1 – No-disturb buffer and Zone 2 – Managed Vegetation Zone (no structures allowed). The defined water quality buffer widths are as follows:

A. Streams
    1) Streams draining < 100 acres: 30' from top of bank; Zone 1=30'
    2) Streams draining ≥ 100 acres, but < 1 square mile: 50' from top of bank; Zone 1=30' and Zone 2=20' FEMA studied streams, streams with a Local Flood Study, or
    3) Streams with a drainage area ≥ 1 square mile: 75' from the floodway, Zone 1=floodway + 50' and Zone 2=25'. MWS staff may allow a large undisturbed floodway to count towards the buffer requirement in consultation with Metro Parks and Greenways if the undisturbed area complies with the requirements of the floodplain overlay district and if staff determines that the undisturbed area would adequately serve water quality functions.
B. Ponds: Ponds with hydrologic connectivity (stream leading into/out of the pond or obvious spring input): 25' from normal water pool, with Zone 1 = 10' and Zone 2 = 15'
C. Wetlands: 25' from the wetland delineation line (accepted by USACOE, TDEC, or MWS), with no disturbance allowed within the 25'.

All stormwater-specific regulations for development and redevelopment can be found in Volumes 1 through 5 of the Stormwater Management Manual. The Stormwater Management Manual can be downloaded or viewed at the following website: http://www.nashville.gov/Water-Services/Developers/Stormwater-Review/Stormwater-Management-Manual.aspx The Stormwater regulations will be revised/updated to account for any changes deemed necessary from the specific requirements described in the following sections:

3.5.2.1 Metro's Program on Performance Standards

Metro finalized a new Volume 5 of the Stormwater Management Manual in June 2012. Volume V, which is also referred to as Nashville's Low Impact Development (LID)

Manual, provides specifications for green stormwater treatment approaches such as bioretention, permeable pavement, green roofs, etc. While, Metro's MS4 Permit mandates the use of runoff reduction requirements for new development and redevelopment by January 31, 2016, Metro Nashville has created an incentive program to promote the use of green stormwater treatment practices over traditional practices in the interim. Some of the incentives include waiving the plan review fees, allowing for reduced water quantity treatment, and giving a reduction of up to 75% of the property's monthly stormwater user fee.

Below are specific programs or measures Metro performs to meet the specific MS4 performance standards for permanent stormwater BMPs:

A. Runoff Reduction (infiltration or green infrastructure): Metro's LID Manual, Volume 5 of the Stormwater Management Manual, provides design specifications for a variety of permanent construction stormwater BMPs that can be used to meet the one inch runoff reduction requirement. Currently, Metro promotes the use of runoff reduction BMPs through providing the incentives described above. Metro is expected to implement the new policy of requiring developments and significant re-developments to perform runoff reduction prior to January 31, 2016.

B. Pollutant Removal: Once the runoff reduction stormwater treatment requirements are fully implemented, Metro will offer (when site conditions are not conducive to runoff reduction technologies) the option of traditional stormwater treatments to a minimum of 80% reduction in TSS. Metro intends to work with other middle Tennessee MS4 programs to develop consistent criteria developers and engineers will use to determine if the option of 80% TSS reduction can be utilized.

C. Off-site Mitigation: Metro's initial determination is to prohibit the use of off-site stormwater mitigation. As it currently stands, development and redevelopment projects can still utilize 80% TSS reduction and Metro believes there are very few instances where such technologies can not be utilized. Once the runoff reduction requirements are fully implemented, Metro intends to reevaluate the option to use off-site stormwater mitigation. If the use of off-site mitigation is allowed, Metro will include, at a minimum, the requirement to perform mitigation within the same HUC 12 watershed that the impacts are proposed. As part of the Watershed Management Program, Metro intends to identify priority areas within impaired watersheds where structural controls could be implemented to reduce pollutant loadings to receiving waters.

D. Payment into Public Stormwater Project Fund: Similar to the off-site mitigation option, Metro has decided against the creation of the public stormwater project fund at this time. This decision will be reevaluated when the runoff reduction requirements become fully implemented. If Metro determines at that point to pursue a public stormwater fund, specific standards will be implemented that include requirements of developing and redeveloping properties to pay 1.5 times the estimated cost of on-site runoff reduction controls.

3.5.2.2 Metro's Program for Codes Review and Update

Metro hired an outside consultant in 2012 to perform a review of the municipal codes and ordinances using the EPA Water Quality Scorecard. The results of the analysis were submitted in the Year 1 Annual Report. Metro will be reviewing the findings of the scorecard analysis and will determine by the end of year 4, which restrictions, if any, can be adjusted. Metro will provide explanations of any code adjustments or the reasons why codes were not adjusted in the Year 5 annual report.

3.5.2.3 Metro's Program on Plan Review, Approval, and Enforcement

Metro has developed internal processes that do allow for pre-application meetings, inter-department consultations, plan re-submittal processes, and permanent stormwater BMP installation verification. The overall plan submittal, review, and approval process for grading permits is summarized in Figure 3. All steps within the plan approval process are logged into Metro's citywide KIVA database. All Metro departments that are involved in issuing permits to development activities utilize the database and certain hierarchies are built into the database. For instance, parcels flagged by KIVA as having a potential community waters buffer requirement, must first be reviewed and verified if a stream is present prior to grading permit plans being reviewed and approved. The installation of all permanent stormwater BMPs has to be inspected and approved by MWS Stormwater NPDES construction inspectors and as-built certifications must be submitted and approved by MWS Stormwater plan review engineers prior to final sign-off from Metro. All the information required for grading permit plan reviews and sign-offs is located with in Appendix A of Volume 1 of the Stormwater Management Manual: http://www.nashville.gov/Portals/0/SiteContent/WaterServices/Stormwater/docs/SWMM/2012/vol1/09_Appendix_A.pdf

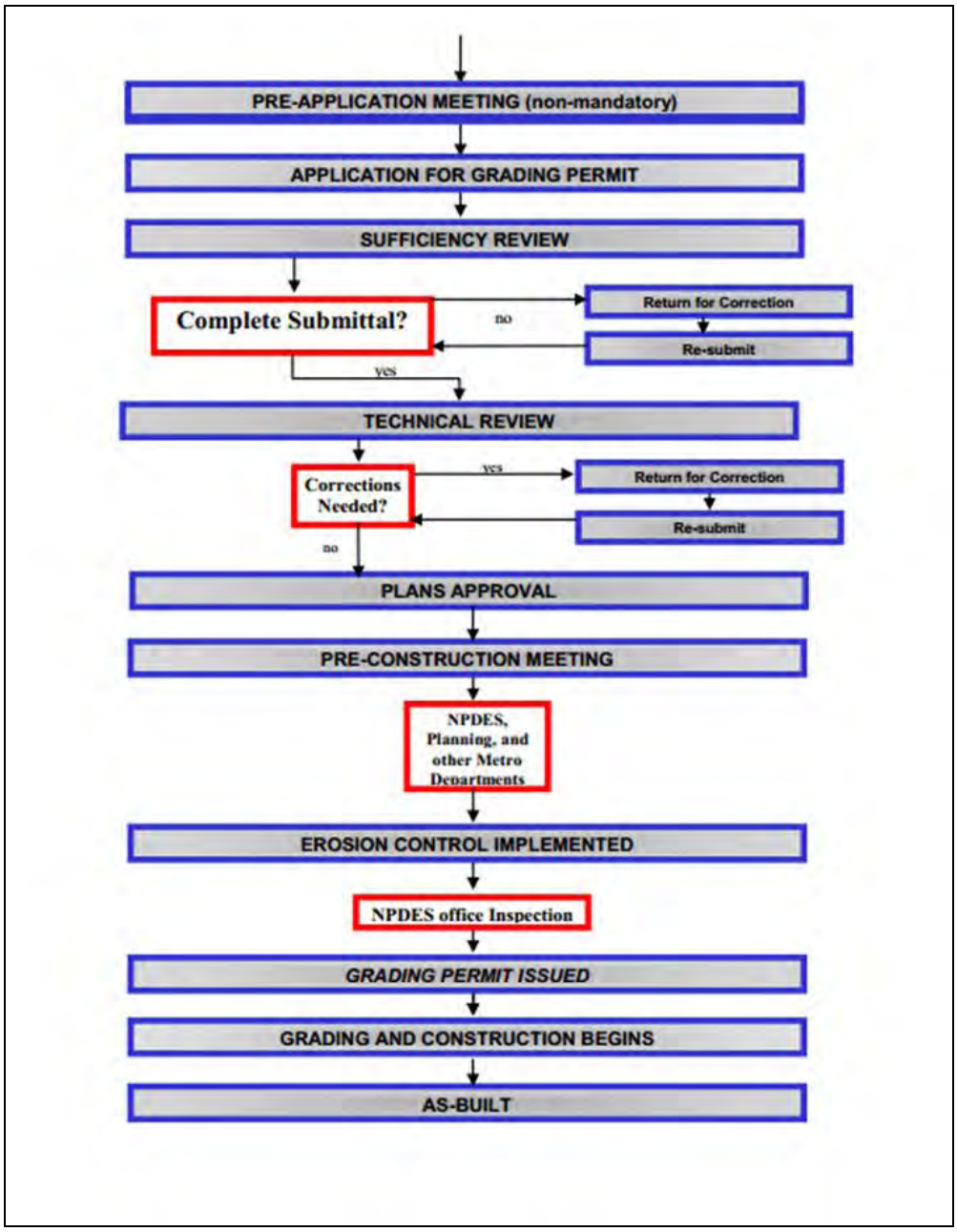


Figure 3 - Plans Review/Approval Process for Grading Permits

3.5.2.4 Metros Program for BMP Maintenance

Metro has a specific maintenance agreement in place for permanent stormwater BMPs that must be recorded at the Register of Deeds before a site is approved for a Pre-Construction Meeting. The maintenance agreements have been in place since BMPs were first required by Metro's grading permit, however, the maintenance agreement has been strengthened over the years to clarify responsibilities of property owners. The current version of the maintenance agreement consists of three main components:

A. Either an Inspection and Maintenance (I&M) Agreement, which includes an easement requirement, or a Declaration of Restrictions and Covenants

B. A long-term maintenance plan prepared by the design engineer; and
C. A system location map.

The owners of BMPs are required to submit annual reports to Metro on inspections and maintenance performed, and general condition of the structures. Enforcement procedures for permanent stormwater BMPs that are not properly inspected or maintained are detailed in the Enforcement Response Plan (ERP) attached in Appendix D.

Metro has several electronic databases it uses to track BMP installation and follow-up inspection/maintenance. The citywide KIVA database is utilized during the plan review and construction phase of BMPs. Information on each BMP is initially logged into the KIVA database by MWS plan review engineers. Once BMPs are installed, approved by MWS Stormwater NPDES inspectors, and the as-builts are approved by MWS Stormwater plan review engineers, the BMP structure is entered into the MS4 GIS database. In addition, the information on each BMP is entered into a Microsoft Access database for purposes of documenting future inspections and maintenance notes.

MWS Stormwater NPDES submitted a BMP Inspection and Maintenance Verification Plan to TDEC on June 27, 2013. Metro did not receive a response from TDEC on the proposed plan and therefore began implementation during the second permit year. A copy of the plan is attached in Appendix E. In summary, Metro will randomly select and inspect a minimum of 30 privately owned BMPs each year. The MWS Stormwater NPDES Section will request copies of inspection and maintenance records from all Metro Departments that own or operate structural BMPs each year. For sites that receive final approval of their stormwater BMP construction after the BMP Inspection and Maintenance Verification Plan went into effect on 8/29/12, Metro will review the annual inspection/maintenance reports that are submitted and will consider initiating enforcements for the owners/operators that have not submitted the required reports. Metro is revising the current regulations to require a more thorough inspection/maintenance report to be performed by a P.E., L.A., or a qualified professional as deemed by Metro once every 5 years.

3.5.2.5 Metro's Program for Watershed Protection

The MWS Stormwater NPDES Section has performed initial coordination with the Planning Department and has been assured that the MS4 Permit requirements will be considered in future community or land use plans. In addition, the MWS NPDES Section will be working on a Watershed Management Plan in one of the sub-watersheds. Development of the Watershed Management Plan will require coordination between the MWS NPDES Section and the Planning Department.

3.6 Pollution Prevention/Good Housekeeping for Municipal Operations

3.6.1 General MS4 Permit Requirements for Pollution Prevention/Good Housekeeping for Municipal Operations

Metro is required to implement various programs designed to minimize pollutant runoff from Metro properties and maintenance processes and private industrial/high-risk commercial properties. Some of the general MS4 Permit requirements include developing maintenance employee training programs, developing inspection procedures of various maintenance locations, providing oversight to high-risk commercial and industrial properties, performing necessary system maintenance such as street sweeping and inlet cleaning, etc. The following sections detail specific program requirements under this section of the MS4 Permit.

3.6.1.1 MS4 Permit Requirements for Separate Storm System Maintenance Activities

Under this section of the MS4 Permit, Metro is required to continue operation of the stormwater maintenance program for the publicly owned/operated stormwater drainage system. The maintenance activities shall be performed based on citizen complaints and general program knowledge of the drainage system. Maintenance activities shall be performed in an effort to minimize current and future impacts to water quality. In particular, Metro must guarantee that waste removed from the stormwater drainage system is not allowed to re-enter the system. Records shall be kept and maintained for all stormwater maintenance activities such as dates of service, locations serviced, and amount of material removed from the system. In addition, Metro is specifically required to perform inspections and necessary maintenance on the Dry Creek Detention facility and any other Metro-operated regional detention/treatment facility. Metro is also required to analyze the maintenance process priorities to include considerations such as the amount of waste removed from certain locations, frequency of back-up problems, danger to public safety, and amount of citizen complaints.

3.6.1.2 MS4 Permit Requirements for Municipal Activities and Operations

Metro is specifically required to perform a comprehensive review of all Metro Operations & Maintenance (O&M) facilities within the first year to determine if water quality issues are present. In addition to O&M facilities, Metro shall include inspections and reviews of other facilities that have the potential for pollutant runoff such as municipal landfills, west transfer facilities, salt storage facilities, etc. The program shall ensure that the Stormwater Pollution Prevention Plans (SWPPPs) or equivalent site management plans are in place for the maintenance facilities that requires frequent grounds inspections and good housekeeping measures. The plans shall identify potential pollutants that could runoff the properties and develop procedures to prevent such discharges.

3.6.1.3 MS4 Permit Requirements for Street Sweeping and Cleaning

Per the MS4 Permit, Metro is required to operate a program on ongoing basis to effectively sweep streets within the Urban Services District (USD) with the goal of preventing the discharge of materials into the storm drains. Metro is required to analyze the effectiveness of the program on an annual basis and adjust as necessary to achieve maximum sweeping effectiveness.

3.6.1.4 MS4 Permit Requirements for Flood Management

Within one year of the permit effective date, Metro shall develop a process to assess water quality impacts from large flood management projects. The process should be aimed at ensuring water quality impacts from flood management projects are minimized, while still accomplishing the objectives of the program.

3.6.1.5 MS4 Permit Requirements for Pesticide, Herbicide, and Fertilizer Application and Management

This requirements of this section of the permit is somewhat overlapping to the requirements described in Section 3.6.1.2, which requires Metro to develop SWPPPs or equivalent plans for Metro O&M facilities within the first year of the permit. Within the SWPPPs or site management plans, specific attention needs to be devoted to the following items:

A. Potential educational activities, permits, certifications, etc. for municipal employees that apply pesticides, herbicides, and fertilizers;

B. The possible use of integrated pest management measures that rely on non-chemical solutions;

C. Schedules for chemical applications that reduce impacts to water quality;

D. The proper disposal and storage of pesticides, herbicides, and fertilizers.

3.6.1.6 MS4 Permit Requirements for Contractor Oversight

Under this section of the MS4 Permit, contractors hired to perform municipal maintenance operations shall be held to the same standards of Metro municipal operations.

3.6.1.7 MS4 Permit Requirements for Monitoring and Controlling Industrial, Commercial, and High Risk Runoff

Under this permit requirement, Metro must develop a program to monitor and control, to the Maximum Extent Practicable (MEP), pollutants in runoff from the following industrial, commercial, and high risk runoff facilities and activities:

A. Municipal Landfills;

B. Hazardous Waste Treatment, Storage and Disposal Facilities;

C. Industries subject to reporting requirements under Superfund Amendment and Reauthorization Act (SARA), Title III, Section 313; and

D. Industrial and commercial facilities that Metro determines to be contributing a substantial loading of pollutants to the MS4.

Metro is required to develop and maintain a database of the above-mentioned categories that contains such items as the facility locations, receiving waterbody, Standard Industrial Code (SIC). Metro is required to inspect all of the above categories at least once every three years. Metro shall ensure that the industrial facilities implement BMPs, minimize exposure, follow good housekeeping practices, and manage stormwater runoff. Metro shall make sure inspectors are adequately trained and must maintain training records, which may include joint inspection performed with TDEC staff.

3.6.2 Metro's Program for Pollution Prevention/Good Housekeeping for Municipal Operations

Metro has implemented various oversight programs that are designed to prevent pollution from existing municipal O&M facilities as well as private industrial/high risk commercial properties. The sections below describe Metro's efforts to prevent pollution from discharging from these types of land-uses.

3.6.2.1 Metro's Separate Storm System Maintenance Activities

Most of the routine storm sewer system maintenance activities are performed by the MWS Stormwater Routine Maintenance Section (RoM). The type of maintenance activities performed by RoM includes inlet cleaning, ditch clearing/redefining, and culvert/bridge cleaning. The maintenance schedules are determined by various factors that include citizen complaints and known problem areas. RoM developed a rain route list of common stormwater infrastructure sites that clog with debris, leaves, gravel, and sediment on a frequent basis. Maintenance crews visit and clean out these structures prior to many large rain events. In addition to performing routine maintenance and cleaning of stormwater infrastructure, MWS Stormwater also operates a preventative maintenance program by aggressively sweeping public curb and gutter streets, which is discussed in more detail in a separate section. During the 1st permit year, MWS Stormwater NPDES worked with RoM to develop SOPs designed to minimize impacts to water quality from maintenance activities. Each SOP for stormwater infrastructure maintenance activities is attached within Appendix B.

RoM also set up a tracking system using the Cityworks database to track the amount of materials removed from the storm drainage system for reporting in each annual report. The tracking is based on the number of dump trucks of solid materials taken to the landfill for disposal. RoM is working to develop a tracking system for liquid waste disposal from vactor trucks during inlet cleaning.

3.6.2.2 Metro's review of Municipal Activities and Operations

A. Metro O&M Facilities: Metro does not operate a municipal landfill, as the Public Works Department contracts the hauling of domestic trash to landfills out of the county. There are two active construction and demolition landfills within the county, both of which are privately-operated. During the first year of the permit, the MWS Stormwater NPDES Section performed an inventory and review of all of the municipal O&M facilities. NPDES inspected each facility and developed a list of those that needed detailed SWPPPs (if they had a Tennessee Multi-Sector Permit (TMSP) for industrial stormwater discharges) or those that warranted a more simplified Runoff Management Plan (RMP). Depicted in Table 4, is a summary of the locations and status of Metro O&M facilities that Metro

Table 4 – List of Metro O&M Sites Requiring SWPPPs or RMPs

Note: This list does not include Metro O&M facilities that are located within the CSS drainage basins (outside of MS4 Jurisdiction

O&M Facility	Location	Metro Department	SWPPP or RMP Created
Cedar Hill Park Maintenance	860 Old Hickory Boulevard	Parks Department	RMP
Harpeth Hills Golf Course/Maintenance	7820 Coley Davis Road	Parks Department	RMP
McCabe Golf Course	4601 Murphy Road	Parks Department	RMP
Percy Warner Golf Course Maintenance	3150 McGavock Pike	Parks Department	RMP
Shelby Park Golf Course/Maintenance	1919 Fatherland Street	Parks Department	RMP
Ted Rhodes Golf Course/Maintenance Shop	1901 Ed Temple Boulevard	Parks Department	RMP
Two Rivers Park Maintenance	3150 McGavock Pike	Parks Department	RMP
Warner Park Maintenance	50 Vaughn Road	Parks Department	RMP
Public Works Headquarters	750 South 5th Street	Department of Public Works	RMP
West Service Center/Salt Bin	3800 Charlotte Avenue	Department of Public Works	RMP
Metro Transit Authority Bus Terminal	130 Nestor Street	Metro Transit Authority	RMP
Schools Transportation Bus Terminal	336 Woodycrest	Metro Nashville Public Schools	RMP
Stormwater Maintenance/NPDES/Environmental Compliance	1607 County Hospital Road	Metro Water Services, Stormwater	Site under construction. RMP will be completed once site is complete
Tennessee State Fairgrounds	500 Wedgewood Avenue	Metro Fairground Commission	RMP
Dry Creek Treatment Plant	61 Edenwold Road	Metro Water Services	SWPPP
Central Wastewater Treatment Plant	1600 Second Avenue North	Metro Water Services	SWPPP

determined to require either a SWPPP or a RMP. The actual SWPPPs and RMPs for each Metro O&M facility are located in Appendix A. The SWPPPs and RMPs list protective measures and SOPs to be implemented at each site to avoid impacts to water quality from house keeping procedures.

In addition, to the Metro O&M facilities that were identified as needing SWPPPs or RMPs, MWS Stormwater NPDES identified several other O&M sites that generally lack maintenance processes exposed to stormwater or are located within the Combined Sewer System (CSS) basin. The O&M sites with very few if any maintenance processes exposed to stormwater runoff are identified within Table 5. NPDES created a generic inspection form to be used by the facility's personnel in inspecting parking lots, etc. on a routine basis to ensure no fluids or other materials are spilled and exposed to stormwater. MWS Stormwater, NPDES will follow-up with the facilities listed in Table 5 to distribute the forms to ensure they are inspecting the outside areas for potential pollution problems.

Table 5 – List of Metro O&M Sites Not Requiring SWPPPs or RMPs

Metro O&M Facility	Location	Reason SWPPP or RMP Not Warranted
MDHA Maintenance Facility	701 South 6th Street	All maintenance activities performed indoors.
Parks Administration Building	511 Oman Street	Located within the CSS
Public Works East Center & Household Hazardous Waste Facility	943 East Trinity Lane	Located within the CSS
Public Works East Salt Bin	2068 Smith Springs Road	No maintenance processes located at the site. Just the salt bin, which is covered.
Police Department (Tow-in Lot)	1201 Freightliner Drive	No outside maintenance performed
Whites Creek Treatment Plant	1360 County Hospital Road	No exposed maintenance processes;Previously received No Exposure certification from TDEC.
Metro Fleet Center (Genesco Park)	1415 Murfreesboro Pike	All maintenance activities performed indoors.

Note: The salt bin located on Smith Springs Road is also inspected by MWS Stormwater NPDES once per quarter to ensure no salt is lost from the facility.

B. Metro O&M Activities: In addition to reviewing Metro's facilities, MWS Stormwater NPDES also performed a review of -common Metro maintenance activities. As such, NPDES created standard SOPs (attached in Appendix A)

that will be promoted to various departments about general maintenance practices for the following activities:

1) Pesticide, Herbicide, Fertilizer Application, Storage, and Disposal;
2) Petroleum Product Storage & Spill Clean-up;
3) Grass Clipping/Leaf Disposal;
4) Equipment Washing/General Maintenance Activities;
5) Bare Soil//Sand /Stockpile Management;
6) Pit Pumping/Dewatering;
7) Material Collection/Disposal; and
8) Work In and Around Creeks and Drainage Ditches.

In addition to the above-mentioned O&M processes, the Metro Department of Public Works (MDPW) has enacted certain BMPs designed to minimize impacts to stormwater runoff from deicing processes. Through the years MDPW has developed application methods that restrict the application of deicing materials to only what is required. Such technology includes the use of spreader control systems and automated pavement temperature recordings.

The spreader control system consists of a computer that dictates the salt spread rate based on a pre-set application rate (determined by the severity of weather conditions) that corresponds to truck speed. This means that as the trucks slow down or stop, the salt spreader slows or stops correspondingly - reducing the amount of salt that is wasted or over-applied. The spread rates used follow nationally recognized spread rates. This computer-aided system has resulted in a 25%annual reduction in salt use. In addition, MDPW has applies a brine solution at a continuous rate on the roadways of predetermined routes in anticipation of possible icy conditions. This further reduces the need to apply salt directly to roadways. Reducing direct salt application also helps prevent road damage due to salt application and creates a reduction in the possible consequences of water quality.

The automated pavement temperature readings data from five roadway sensor-sampling sites that supply real-time data (road surface temperature, moisture, subsurface sensor at 18 inches, salt brine percentage, and weather conditions including: temperature, wind speed, dew point, percent humidity) to the main Public Works office. Metro uses this information to determine when salt or brine application needs to begin (road surface temperature registers at or near 32° F) or when salt needs to be reapplied to roads that have already been salted (roadway salt solution percentage drops below the known level needed to prevent ice from forming/reforming).

3.6.2.3 Metro's Street Sweeping and Cleaning Program

In general, Metro sweeps an average of approximately 20,500 miles of streets within the Urban Services District (USD) each year. Street sweeping is performed by contractors managed by the MWS Stormwater Remedial Maintenance Section (ReM).
All street sweeping quantities such as miles of streets swept or estimated amount of material removed from the roadways are reported in the Annual Report at the conclusion of each Permit Year. ReM also performs an analysis each year on the effectiveness of the program and performs modifications as warranted.

As part of the street sweeping program, the following BMPs are implemented to ensure the street sweeping program is the most efficient and least impacting to stormwater quality. ReM has ensured the following BMPs have been implemented by the street sweeping contractor to prevent impacts to water quality/stormwater runoff during the sweeping and waste disposal processes.

A. Routes: Street sweeping routes are planned and executed on a performance basis to maximize the amount of material collected from the streets that would have otherwise drained to the stormwater drainage system. For instance, more frequently traveled roads or roads adjacent to certain land uses that are subject to a more-rapid deposition of debris/grit are swept more often than other roads that experience smaller traffic levels and are located in innocuous areas. While sweeping routes are usually pre-determined, there is flexibility that would allow problem streets to be swept upon request.

B. Material Disposal: Unless there are reasons to assume a hazardous substance was collected during the sweeping process, all collected material (liquid and solid) is taken to the local landfill for disposal. The ReM contractor routinely washes out the hopper of the sweeper trucks (after being emptied at the landfill) into a sanitary sewer wash bay at their facility, which routes to the sanitary sewer. The drains have screens that filter out solids, while allowing liquids to drain to the sewer. While a minor amount of water collected from the roadway during wet weather conditions may discharge from the overflow port, generally no liquid waste used as part of the sweeping process is discharged onto the roadways.

C. Machine Maintenance: All equipment maintenance procedures conducted by the contractors are conducted indoors or in such places where leaked or spilled fluids can be contained and captured. Any equipment washing is performed in designated wash bays that route to the sanitary sewer.

D. Spill Response: Each driver is trained routinely on the proper spill response techniques ranging from the proper agency notification to the proper containment and clean-up measures to be deployed in the event of a spill.

3.6.2.4 Metro's Flood Management Program and Water Quality

During the first year of the new permit, MWS Stormwater, NPDES coordinated with the MWS Stormwater ReM to develop a process that allowed for large flood control projects to be reviewed for water quality aspects prior to the design phase. As a result, it was determined that a Water Quality Impact Analysis Worksheet would be filled out and signed by a Professional Engineer (P.E.) prior to completing the project design. Most of ReM design work is contracted out. All contractors are required to complete the Water Quality Impact Analysis Worksheet. A copy of the worksheet is attached in Appendix E.

3.6.2.5 Metro's Program for Pesticide, Herbicide, and Fertilizer Application and Management

As mentioned in Section 3.6.2.2, MWS Stormwater, NPDES developed SOP's (Attached in Appendix A) for various maintenance practices, which include the application, storage, and disposal of pesticides, herbicides, and fertilizers. This SOP

was included within each RMP for Metro O&M facilities. NPDES will also be requesting O&M departments to train their field employees on each process SOP.

3.6.2.6 Metro's Contractor Oversight Program

Within the first year of the permit, MWS Stormwater NPDES worked with the Metro Department of Finance to include the following language within Metro contracts for construction and design projects:

> *All activities performed in under this contract shall be conducted in full compliance with Metro Code of Law §§ 15.64 et al (Stormwater Management) including §§ 15.64.205*
>
> *(http://www.nashville.gov/stormwater/illicit_discharge_ordinance.asp).*
>
> *This requirement pertains to Unlawful/Prohibited Discharges to the Metro Storm Sewer System/Community Waters. It prohibits the discharge of "wastewater" and "non-stormwater" discharges such as wash water, process wastewater, etc. into the Municipal Storm Sewer System (MS4) or into Community Waters. Any questions relating these provisions should be routed to the Metro Water Services NPDES Office at (615) 880-2420. This requirement shall apply to all Metro construction projects in the service area, including areas outside Davidson County.*
>
> *Contractor shall bear responsibility for all of Contractor's actions that cause MWS to violate project regulatory permits or Federal, State or local environmental regulations. Such permits and regulations may include, but are not limited to:*
>
> - *U.S. Army Corps of Engineers 404 Permits*
> - *TDEC Aquatic Resource Alteration Permits*
> - *TDEC Construction General Permits*
> - *Any State or Federal permits/approvals related to Threatened and Endangered Species*
> - *Metro Individual NPDES permits*
> - *Metro Code §15.64.205 - Metro Illicit Discharge Ordinance*
> - *Metro Stormwater Management Manual*
>
> *Contractor's responsibility shall include, but not be limited to, payment of all fines, assessments and/or civil penalties incurred due to Contractor's work, actions, design or installation and payment for any mitigation measures required due to the violation and cleanup associated with any violation.*

3.6.2.7 Metro's Program for Monitoring and Controlling Industrial, Commercial, and High Risk Runoff

*As the permit expired, Metro petitioned TDEC to change the Industrial Inspection process to become more efficient in finding stormwater runoff issues. Communications with TDEC describing the proposed changes are included within Appendix E.

A. Industrial Database: Metro has developed the following program to monitor and control runoff to the MS4 from private industrial and high risk runoff areas. The MWS Stormwater NPDES Section created a GIS/Microsoft Access database of industrial facilities that will be inspected. The database includes the following facilities that will be inspected once every 3 years:

   1) Hazardous Waste Treatment, Storage, and Disposal Facilities – Facilities recognized by EPA as performing Treatment, Storage, and Disposal (TSD) of hazardous waste. A list is obtained from the EPA Envirofacts website at: http://www.epa.gov/enviro/facts/rcrainfo/search.html

2) SARA Title III, Section 313 – Industrial facilities required to submit Tier II (Form R) reports because have certain chemicals as identified by the EPA in certain quantities. A list is downloaded from the EPA Envirofacts Website: http://www.epa.gov/enviro/facts/datadownloads.html

3) Substantial Loaders to the MS4 - Metro considers certain criteria in determining if industrial or high-risk commercial facilities are "substantial loaders" to the MS4. One of the following conditions should be present before a facility is added to the "substantial loader" list:

- Sampling results or visible evidence (i.e. photographs, witnessed discharges) of pollutants discharging from individual facilities.
- Repetitive citizen complaints of pollutants draining to the MS4.

There are no Municipally operated landfills located within Davidson County. The are two privately-operated Construction & Demolition (C&D) landfills within the county. The Metro Department of Public Works, Division of Solid Waste provides local oversight to the private landfills and to the closed former Municipal landfills. Also included within the industrial database, are industrial facilities permitted through the Tennessee Multi-Sector Permit (TMSP) for industrial stormwater discharges.

B. Industrial Inspections: Per the MS4 permit, Metro is only required to inspect industrial facilities that are either SARA Title III, Section 313, EPA recognized TSD facilities, and/or those facilities proven to be "substantial loaders" of pollutants to the MS4. Table 6 provides a list of industrial facilities (as of July 2013) that will be inspected within a 3 year period. MWS Stormwater NPDES will prioritize inspections of the facilities listed in Table 6 located within the geographic "hot areas" indentified within the PIE plan. Table 7 provides a list of all other active TMSP permitted facilities in Davidson County, not required to be inspected per the MS4 Permit. Metro intends to inspect a percentage of these facilities prior to the end of the permit term, focusing first on the facilities located within the geographic "hot areas".

Metro inspections of industrial facilities is a thorough process that includes a review of TMSP records, if permitted through TDEC, and a walk-around inspection of industrial processes exposed to stormwater. Each industrial facility is left with a written inspection report and/or a detailed follow-up letter. TDEC field office personnel are copied all inspection findings via email. The MWS Stormwater NPDES Section has one inspector that has been inspecting industrial facilities for over 8 years and has received proper training that include attending EPA training workshops and performing co-inspections with TDEC staff. MWS Stormwater NPDES is currently training additional inspectors internally to assist on industrial inspections.

Table 6 – List of Industrial Facilities Metro is Required to Inspect within 3 Year Period

Industry Name	Address	Industry Category
E. I. Dupont De Nemours & Co., Inc. -	1002 Industrial Road	SARA Title III, Sec. 313
Doodleco Inc. (Dba Superior Trim)	511 Bridgeway Ave	SARA Title III, Sec. 313
Quad Graphics Nashville	2947 Brick Church Pike	SARA Title III, Sec. 313
Ergon Terminaling, Inc. - Nashville	1114 Visco Drive	SARA Title III, Sec. 313
Nashville - Plant 1	1136 Second Ave N	SARA Title III, Sec. 313
Polar Technology Llc	1360 Foster Ave	SARA Title III, Sec. 313
Country Delite Farms Llc	1401 Church St	SARA Title III, Sec. 313
Bp Oil Company/Nashville Terminal	1409 51st Ave. N.	SARA Title III, Sec. 313
Harcros Chemicals Inc	1418 Poplar Ln	SARA Title III, Sec. 313
Triumph Aircraft Industries Inc	1431 Vultee Blvd	SARA Title III, Sec. 313
Whirlpool Corp	1714 Heil Quaker Blvd	SARA Title III, Sec. 313
Motiva Nashville Terminal	1717 61st Ave N	SARA Title III, Sec. 313
Exxon Mobil Corp Nashville Terminal	1741 Ed Temple Blvd	SARA Title III, Sec. 313
Cone Solvents Inc Nashville	1830 Linder Industrial Dr	SARA Title III, Sec. 313
Akzo Nobel Coatings Inc.	20 Culvert Street	SARA Title III, Sec. 313
North American Galvanizing Co.	200 32nd Ave. N.	SARA Title III, Sec. 313
Ashland Distribution	2315 Clifton Ave	SARA Title III, Sec. 313
Marathon Petroleum Company, LLC	2920 Old Hydes Ferry Road	SARA Title III, Sec. 313
Quebecor World Retail Group	2947 Brick Church Pike	SARA Title III, Sec. 313
Nashville Wire Products	295 Driftwood St	SARA Title III, Sec. 313
Palm International Sales	1717 JP Hennessey Dr	SARA Title III, Sec. 313
Land O'lakes Purina Feed LLC	3601 Trousdale Dr	SARA Title III, Sec. 313
Peterbilt Motors Company	430 Myatt Dr	SARA Title III, Sec. 313
Innophos, Inc.	4600 Centennial Blvd	SARA Title III, Sec. 313
A. Schulman, Inc.	481 Allied Drive	SARA Title III, Sec. 313
Greer Stop Nut	481 McNally Drive	SARA Title III, Sec. 313
Marathon Petroleum Company LLC	5 Main St	SARA Title III, Sec. 313
Afl Wire Products Dixie Wire	5901 California Ave	SARA Title III, Sec. 313
Fiberweb, Inc.	70 Old Hickory Blvd.	SARA Title III, Sec. 313
Warren Paint & Color Co	700 Wedgewood Avenue	SARA Title III, Sec. 313
Nashville Chemical & Equipment Co Inc.	7001 Westbelt Dr	SARA Title III, Sec. 313
Carlex Nashvlle Glass Plant	7200 Centennial Blvd	SARA Title III, Sec. 313
Springs Global Us-Nashville Plant	7201 Cockrill Bend Blvd.	SARA Title III, Sec. 313
Cumberland Terminals, Inc.	7260 Centennial Blvd.	SARA Title III, Sec. 313
Reddy Ice-Nashville	7261 Centennial Blvd	SARA Title III, Sec. 313
U S Smokeless Tobacco Manufacturing	800 Harrison St	SARA Title III, Sec. 313
CMC Rebar Nashville	852 Visco Dr Suite 101	SARA Title III, Sec. 313
Marathon Petroleum Company LLC	930 Youngs Lane	SARA Title III, Sec. 313
Purity Dairies	360 Murfreesboro Pike	SARA Title III, Sec. 313
Lawson Ready Mix	5915 River Road	SARA Title III, Sec. 313
Superior Trim	511 Bridgeway Ave	SARA Title III, Sec. 313
Worldcolor Retail Group	2947 Brick Church Pike	SARA Title III, Sec. 313
Perfection Molders	213 Connel Street	SARA Title III, Sec. 313
Hennessey Industries	1601 JP Hennessy Dr	SARA Title III, Sec. 313
Five Star Foods	2621 Euginia	SARA Title III, Sec. 313
Safety-Kleen Systems, Inc.	215 Whitsett Rd	TSD Facility
PSC Metals	710 S. 1st St.	Substantial Loader

Table 7 – List of TMSP/RMCP Sites the MS4 Permit does not Require Metro to Inspect

Industry Name	Address	Industry Category
Embraer Aircraft Maintenance Services,	10 Airways Blvd	TMSP
Nashville Recycling Co	10 Van Buren St.	TMSP
M & W Transportation Co., Inc.	101 Terminal Ct	TMSP
John Bouchard & Sons Co	1024 Harrison St.	TMSP
Ingram Materials Sand Yard	1030 Visco Drive	TMSP
BFI of Nashville	700 Murfreesboro Pike	TMSP
Birmingham-Nashville Express	317 Arlington Avenue	TMSP
Coca-Cola Bottling Co. of Nashville	407 Craighead Street	TMSP
Earthgrains Banking Co., Inc	2407 Franklin Pike	TMSP
Flex Sol Packaging Corp.	1105 Visco Drive	TMSP
John C. Tune Airport	110 Tune Airport Drive	TMSP
Essex Plastics Midwest, LLC D.B.A.	1105 Visco Drive	TMSP
Star Transportation	1125 Foster Avenue	TMSP
American Appliance Products - Madison	1129 Myatt Blvd	TMSP
Firstexpress Inc.	1135 Freightliner Drive	TMSP
The Mulch Company	1215 Everett Road	TMSP
Circle Delivery Service, Inc.	125 Caden Drive	TMSP
Rolling Frito-Lay Sales, LP - Nashville DC	130 Spence Ln.	TMSP
Howard Baer, Inc.	1301 Foster Ave	TMSP
Neely's Bend Inc.	1327 Neely's Bend Road	TMSP
First Response, Inc.	1411 S. Dickerson Pike	TMSP
Waste Management Truck Maintenance	1428 Antioch Drive	TMSP
Magellan Terminals Holdings LP	1441 51st Ave. N.	TMSP
Rivergate Auto Parts, Inc.	1471 N. Gallatin Rd	TMSP
Green Tree Processing	1501 Baptist World Center Dr.	TMSP
Dry Creek Wastewater Treatment Plant	1600 2nd Ave. N.	TMSP
Nashville Central STP	1600 2nd Ave. N.	TMSP
Nashville Wire Products	1604 County Hospital Rd	TMSP
Magellan Nashville I Terminal	1609 63rd Ave. N.	TMSP
Smitty's Auto Parts	1609 Bell Road	TMSP
Lone Star Industries,	1702 2nd Ave N	RMCP
Steel Summit Tennessee	1718 J.P. Hennessy Dr.	TMSP
FTEC, Inc. (Palfleet Truck)	1801 Lebanon Pike	TMSP
River Cement Sales	1818 Cement Plant Rd	RMCP
Metal Management Nashville, LLC	1840 Linder Industrial Drive	TMSP
Laager Investment	1845 Elm Hill Pike	TMSP
Federal Express - BNAA	1931 Air Lane Drive, Suite G	TMSP
Metro Salvage, Inc.	1975 Springfield Highway	TMSP
Sherman-Dixie Concrete Industries, Inc.	200 42nd Avenue N.	TMSP
Wikoff Color Corporation	214 Omonhundro Place	TMSP
Tennessee Commercial Warehouse	22 Stanley Street	TMSP
Tennessee Air National Guard	240 Knapp Boulelvard	TMSP
Hilltop Auto Salvage	2408 Dickerson Rd.	TMSP
Dicaperl Minerals Corp. (Chemrock)	2601 Osage Road	TMSP
Pull-A-Part, LLC	7114 Centennial Boulevard	TMSP
Besway Systems Inc	305 Williams Ave	TMSP
Advanced Composites (TN)	3050 Sidco Drive	TMSP

Table 7 – List of TMSP/RMCP Sites the MS4 Permit does not Require Metro to Inspect (Continued)

Industry Name	Address	Industry Category
Sequatchie Concrete Service, Inc.	306 Cowan St.	TMSP
CSX Intermodal, Inc - Nashville Terminal	3086 Sidco Dr	TMSP
TREW Industrial Wheels Inc.	310 Wilhagan Road	TMSP
AAA Industries Inc.	3141 Ambrose Ave	TMSP
BNE Properties, Inc.	317 Arlington Ave	TMSP
Lojac Danley Plant	3185 Franklin Limestone Rd	TMSP
Lee Brick and Block	3201 Franklin Limestone Road	TMSP
United Parcel Service - Nashville Whites Creek Pike	3205 Whites Creek Pike	TMSP
Paulo Products Company	3206 Ambrose Ave	TMSP
Waste Management C&D Recycle Center	3211 Franklin Limestone Road	TMSP
Tennessee Imports Auto Salvage	326 Oriel Avenue	TMSP
Fed Ex Ground - Nashville Knight Rd	3301 Knight Rd	TMSP
Truck Shine	332 Wilhagan Rd	TMSP
Central Pike Class IV Landfill	3530 Central Pike, Suite 105	TMSP
LoJac Hermitage Asphalt Plant	3552 Hermitage Industrial Drive	TMSP
N & S Inc.	361 Herron Drive	TMSP
Sherman-Dixie Concrete Industries, Inc.	3641 Central Pike	TMSP
John W. McDougall Co., Inc.	3731 Amy Lynn Drive	TMSP
Four Lane Auto Salvage Inc.	400 W Trinity Ln.	TMSP
Kohl & Madden Plant #1	404 Harding Ind. Dr.	TMSP
Southeastern Freight Lines, Inc.	4141 Murfreesboro Rd	TMSP
TRANSFLO Terminal Services, Inc. (Nashville)	426 Chestnut St	TMSP
Schreiber Foods, Inc.	4350 Hurricane Creek Blvd.	TMSP
Sadler Bros Trucking & Leasing Company, Inc.	436 Enos Reed Drive	TMSP
LoJac Nashville River Road Plant	4404 River Rd	TMSP
Cummings Signs Arch. and Banking Div.	4560 Trousdale Dr	TMSP
Clopay Plastics Products	463 Harding Industrial Drive	TMSP
Hamilton Machine Co Inc	464 Woodycrest Ave	TMSP
Waste Management of Tennessee-Nashville	4651 Amy Lynn Drive	TMSP
Lojac Downtown Plant	500 Cowan St	TMSP
USF Holland, Inc.	500 Oak Bluff Ln	TMSP
All State Auto Parts, Inc.	515 Nawakwa TL	TMSP
Truck Center, Inc.	518 Hagan Street	TMSP
Cherokee Marine Terminal	520 Cowan Street	TMSP
Nashville Machine Elevator Inc	520 Interstate Blvd S.	TMSP
Vintage Millworks Inc	525 Merritt Ave	TMSP
Nashville Machine Company	530 Woodycrest Ave	TMSP
Portland Express, Inc.	531 Woodycrest Avenue	TMSP
Servitech Industries, Inc.	550 Brick Chruch Park Drive	TMSP
VF Imagewear, Inc.	554 Hickory Hills Blde	TMSP
Clopay Advanced Printing	555 Harding Industrial Drive	TMSP
West Nashvlle Auto Recycling Inc.	5604 Centennial Blvd	TMSP
Grooms Engines	611 4th Ave. S.	TMSP
D & R Motors & Recycling	616 Durett Drive	TMSP
Vietti Foods Company, Inc.	636 Southgate Ave.	TMSP

Table 7 – List of TMSP/RMCP Sites the MS4 Permit does not Require Metro to Inspect (Continued)

Industry Name	Address	Industry Category
Quikrete - Nashville	6614 Robertson Road	TMSP
Bellar Auto Parts, Inc.	670 James Avenue	TMSP
Allied Waste	700 Murfreesboro Road	TMSP
Southland Brick and Block	3201 Franklin Limestone Rd	TMSP
United Parcel Service	705 Massman Drive	TMSP
Smurfit-Stone Container	707 19th Ave. N.	TMSP
Nashville VMF	707 Chestnut St	TMSP
Quality Plating	71 Fesslers Lane	TMSP
Techno-Aide, Inc.	7117 Centennial Blvd	TMSP
Pepsi Bottling Group	715 Thompson Lane	TMSP
Allied Systems Ltd - Nashville	743 Harding Place	TMSP
United Parcel Service - TCI	7525 Hickory Hills Court	TMSP
HMA Contractors Asphalt Plant #1	820 Ezell Pike	TMSP
Milan Express Co., Inc. - Nashville	825 Visco Dr	TMSP
Abernathy Truck Salvage, Inc.	865 W. Trinity Ln.	TMSP
ABF Freight System, Inc. - Nashville	890 Visco Dr	TMSP
Metro Nashville District Energy System	90 Peabody Street	TMSP
Lion Oil Company - Nashville	90 Van Buren Street	TMSP
Nashville Wilbert Burial Vault Co.	432 Woodycrest Ave	TMSP
GAF Materials Corp.	970 Fiberglass Road	TMSP
Vaughn Manufacturing Co	757 DOUGLAS AVE	TMSP
Jones Brothers, LLC	129 BUSH RD	TMSP
Hailey's Harbor, Inc.	3730 AMY LYNN DR	TMSP
Rogers Manufacturing Company	110 Transit Avenue	TMSP
Dixie Wire	5901 California Avenue	TMSP
Smyrna Ready Mix	3040 Brandau Road	RMCP
Metro Ready Mix - Basswood Drive	711 Basswood Drive	RMCP
Nashville Ready Mix - Cowan Ct.	1436 Cowan Street	RMCP
Metro Ready Mix Concrete	6677 River Road Pike	RMCP
All Star Recycling	460A Craighead Street	TMSP
Associated Wholesale Grocers	500 S Cartwright St	TMSP
ATI Metal Working Products	1 Teledyne Place	TMSP
Rogers Group (Asphalt Plant)	2827 Whites Creek Pike	TMSP
Shrum Auto Salvage		TMSP
IMI Ready Mix- Robertson Road	6616 Robertson Road	RMCP
Plasticycle	5801 Centennial Boulevard	TMSP
Nashville Ready Mix of West Nashville	5853 River Road	RMCP
Nashville Ready Mix, Inc. Baptist World	1326 Baptist World Center Drive	RMCP
Metro Ready Mix Concrete, Inc.	1020 Visco Drive	RMCP
IMI Ready Mix - Cowan Street	1433 Cowan Court	RMCP
Metro Ready Mix Concrete, 2nd Ave	1136 2nd Avenue North	RMCP
3M Old Hickory	400 Swinging Bridge Road	TMSP
Mid-South Wire	1070 Visco Drive	TMSP
Supreme Oil Central, Inc.	189 Spence Lane	TMSP
QRS River Hills Recycling Facility	630 Myatt Dr	TMSP

4.0 MS4 Monitoring Program

4.1 MS4 Permit Monitoring Requirements

Per the MS4 Permit, Metro is required to perform the following monitoring programs. All MS4 monitoring is performed primarily by the MWS Stormwater NPDES Watershed Group. The NPDES Watershed Group has obtained all the necessary equipment and laboratory contracts to perform the required monitoring, and the program has been reviewed and approved by personnel at TDEC.

4.1.1 MS4 Permit Requirements for Wet Weather Monitoring

*As the permit expired, Metro petitioned TDEC to stop requiring wet weather sampling as it has proven to be highly unproductive. Communications with TDEC describing the proposed changes are included within Appendix E.

The MS4 Permit requires Metro to collect wet weather samples from 5 separate homogeneous land-use outfalls for 3 storm events each year. A sample event shall involve collecting a first flush grab (within first 30 minutes of discharge) and another sample 1 hour after the first flush sample is collected. Attempts should be made to collect the 3 samples during different seasons. Over the years, monitoring associated with wet weather conditions has proven difficult to obtain due to the varying weather patterns and timing of storms. For years, when Metro is unable to collect all of the required samples, attempts will be made in future years to collect extra samples. The following minimum parameters should analyzed within each sample:

- *E. coli*
- Total Suspended Solids
- Total Dissolved Solids
- Total Ammonia Nitrogen
- Nitrite/Nitrate
- Oil and Grease
- Total Recoverable Copper
- Total Recoverable Nickel
- Biological Oxygen Demand
- Chemical Oxygen Demand
- Dissolved Phosphorus
- Total Phoshorus
- Total Kjeldahl Nitrogen
- Total Recoverable Chromium
- Total Recoverable Lead
- Total Recoverable Zinc.

At the end of the 5th permit year, Metro is required to calculate and report the average seasonal pollutant loadings (SPL) and event mean concentration (EMC) for each wet weather site.

4.1.2 MS4 Permit Requirements for In-Stream Ambient Monitoring

Metro is required to collect dry weather stream samples within various rotating watersheds as defined by Metro at a minimum of 4 times a year. The ambient sampling shall occur when there has been a preceding period of at least 72 hours of dry weather. The samples should consist of flow-weighted grabs and should be analyzed for the same parameters as required for the wet weather monitoring program.

4.1.3 MS4 Permit Requirements for Biological Monitoring

Metro is required to continue to perform a program of biological assessments of identified urban streams. The streams to be assessed should ideally work in conjunction with the ambient yearly rotating monitoring schedule. The assessment shall occur during the second and fourth quarters of each year and should follow protocol found in TDEC's Division of Water Pollution Control's Quality System Standard Operation Procedure for Macroinvertebrate Stream Surveys.

4.1.4 MS4 Permit Requirements for Watershed Characterization

Metro is required to continue a watershed management program that specifically characterizes discharges of *E. coli* and TSS through various monitoring programs. By year five of the permit cycle, Metro is required to develop a Watershed Management Plan (WMP) for a critical watershed within it's jurisdiction. The WMP shall incorporate components of analytical monitoring, assessment of monitoring data, design and implementation of BMPs to address specific pollutants of concern, master planning of critical impervious areas, and assessments of targeted BMP effectiveness. The WMP shall be drafted in a way that can be extrapolated to other watersheds within the county.

4.1.5 MS4 Permit Requirements for Industrial Monitoring

Metro is required to sample stormwater runoff once per permit year from a facility permitted through the TMSP or RMCP. Metro shall, at a minimum, run parameters that generally match what the facility is required to sample for per their permit.

4.1.6 MS4 Permit Requirements for Post Construction BMP Monitoring

Metro is required to collect a minimum of 5 wet weather samples from each the following post construction BMPs before the end of Year 5:

- Bioretention;
- Dry Detention;
- Proprietary Water Quality Unit;
- Green Roof;
- Wet Pond; and
- Pervious Pavement.

Metro is required, at a minimum, to perform analysis for each sample that include TSS, nutrients, and oil and grease for inlet and outlet sample points. For green roofs, bioretention, and pervious pavement BMPs, flow calculation reductions from inlet to outlet could be analyzed in lieu of the chemical parameters.

4.1.7 MS4 Permit Requirements for TMDL Monitoring

A. Pathogen TMDLs: For all streams listed in an approved TMDL as being impaired on the 303(d) list for pathogens, Metro is required to perform collect 5 in-stream

samples and flow measurements within a 30 day period between the months of June to September.

B. Nutrient/Sediment/Habitat Alteration TMDLs: For all streams listed in an approved TMDL as being impaired on the 303(d) list for Nutrients, Sediment, or Habitat Alteration, Metro is required to perform TDEC Semi-Quantitative Single Habitat (SQSH) biological samples once within a 5 year period. In addition, visual stream surveys should be performed throughout the entire HUC 12 subwatersheds of a stream segment listed in the TMDL once every 5 years. The visual stream surveys shall, at a minimum, be performed upstream and downstream of known MS4 outfalls

4.2 Metro's MS4 Wet Weather Monitoring Program

During the first year of the permit, wet weather events failed to produce adequate flows at several of the homogeneous land use outfalls listed within the proposed wet weather sampling portion of the MS4 Permit. MWS Stormwater NPDES coordinated with the TDEC Nashville Field Office to adjust the outfall locations. The current outfall sampling locations and schedule are depicted in Table 8

.

Table 8 – Metro's MS4 Permit Wet Weather Sampling Schedule

Type	Location	Coordinates	Waterbody	Frequency
Residential	Culvert street drain near the address of 841 Russleo Drive	-86.877607 36.138553	Cumberland River	3 storm events occurring at different seasons during each permit year
Commercial	Behind the Bellemeade Kroger Shopping Plaza	-86.85033132 36.12449873	Sugartree Creek	3 storm events occurring at different seasons during each permit year
Industrial	Intersection of Cockrill Bend Bvld. and West Belt Drive.	-86.87703781 36.17095549	Richland Creek	3 storm events occurring at different seasons during each permit year
Transportation	On the north side of Ashland City Highway near the address of 4882 Ashland City Highway	-86.9069884 36.21046404	Cumberland River	3 storm events occurring at different seasons during each permit year
Open/ Undeveloped	Entrance road to the trail head parking area of Bells Bend Park located off Old Hickory Boulevard.	-86.925799	Cumberland River	3 storm events occurring at different seasons during each permit year

Metro is committed to performing the wet weather sampling requirements as described within Section 4.1.1. If weather patterns prohibit sampling in certain years, Metro will attempt to make up samples in future years with the ultimate goal of collecting at least 15 separate wet weather samples at each homogenous land use.

4.2.1 Metro's MS4 In-Stream Ambient Monitoring Program

Metro also coordinated with TDEC to adjust the proposed in-stream ambient sampling watershed rotation schedule depicted within the MS4 Permit during the first year of the permit. Table 9 depicts the current in-stream ambient sampling schedule. Metro will continue to collected the MS4-prescribed samples at the various in-stream ambient locations.

Table 9 – Metro's MS4 Permit In-Stream Ambient Sampling Schedule

Year	Waterbody	Location	Frequency
1	Browns Creek Richland Creek Davidson	At least one sampling point within the main stem of the Creek.	4 dry weather sampling events per year
2	Whites Creek Mansker's Creek	At least one sampling point within the main stem of each Creek.	4 dry weather sampling events per year
3	Gibson Neeley's Dry Creek	At least one sampling point within the main stem of the Creek.	4 dry weather sampling events per year
4	Pages Branch Cooper Creek Harpeth River	At least one sampling point within the main stem of each river.	4 dry weather sampling events per year
5	Mill Creek Stones River	At least one sampling point within the main stem of each Creek.	4 dry weather sampling events per year

4.2.3 Metro's MS4 Biological Monitoring Program

Metro is committed to performing the MS4 Permit prescribed biological monitoring. The biological assessments will be performed to SQSH methods and the schedule of streams/watersheds to be assessed will mimic the in-stream ambient sampling program, as depicted in Table 9.

4.2.4 Metro's Watershed Characterization Program

The MWS Stormwater NPDES Watershed Group has been proactive over the previous permit cycles in collecting numerous *E. coli* and TSS samples from various watersheds, beyond what was required within the MS4 Permit. This data will be used in conjunction with future data collection to develop WMPs that can be used as a tool to reduce pollutant of concerns discharging to and from Metro's MS4. Metro will have the first WMP completed by Year 5 of the current permit cycle. The Watershed Group has initially chosen the Richland Creek watershed to develop the first detailed WMP, as it is completely located within the county, contains a wide array of land uses, and has active concerned citizen groups to partner with. The Richland Creek WMP will be written in a format that can be used as a template for future WMPs to be completed by Metro.

4.2.5 Metro's Industrial Monitoring Program

MWS Stormwater NPDES has already begun collecting samples from TMSP and RMCP sites at a frequency of once per year. Each sample is analyzed for parameters consistent to those described within the facility's TMSP or RMCP from TDEC. In most industrial sampling events, NPDES chooses to run extra chemical analysis that could include one of the following parameters:

- BOD (mg/l)
- COD (mg/l)
- Nitrate-Nitrite (mg/l)
- Oil & Grease (mg/l)
- Phosphorus, Total (mg/l)
- Kjeldahl Nitrogen, TKN (mg/l)
- Dissolved Solids (mg/l)
- Suspended Solids (mg/l)
- Iron (mg/l)
- DO mg/l
- DO %
- Specific Conductance (Us)
- pH
- temp C°
- *E. coli*
- Total Coliform
- Ammonia
- Metals
- Cyanide:
- TKN

4.2.6 Metro's Post Construction BMP Monitoring Program

Metro is committed to collecting inflow and outflow wet weather samples at each of the post construction BMPs described in Section 4.1.6. Metro has been working on identifying good representative post construction BMPs to sample and is expected to begin sampling the BMPs in the third year of the permit. Results will be reported in the Year 5 Annual Report.

4.2.7 Metro's TMDL Monitoring Program

A. Pathogen TMDLs: The MWS Stormwater NPDES Watershed Group has been very proactive in previous permit years in performing the required TMDL sampling for pathogens. For many of the watersheds, 5 days of flow-weighted *E. coli* samples were collected within a 30 day period, not just during the prescribed summer months, but also during the fall, winter and spring months. The Watershed Group will continue to, at a minimum, collect the TMDL required *E. coli* samples during the summer months.

B. Nutrient/Sediment/Habitat Alteration TMDLs: The Watershed Group will continue to perform SQSH biological assessments for stream reaches that are listed within approved TMDLs as being on the State's 303(d) impaired list for nutrient, sediment, and habitat alterations. The Watershed Group also performs visual stream assessments (stream walks) utilizing a modified version of the Natural Resource

Conservation Services (NRCS) Stream Visual Assessment Protocol to perform the visual stream assessments. Metro's current program is to perform visual stream assessments on all segments of streams depicted on TDEC's 303(d) list as being impaired for siltation, habitat alteration, and pathogens. In the past, Metro understood that the entire segments of the streams listed within an approved TMDL had to be walked and assessed/scored individually. With issuance of the new permit and coordination with TDEC, it is now understood that only segments with MS4 outfalls have to be walked and assessed/scored individually, which includes streams listed on the 303(d) list for siltation, habitat alteration, and pathogens whether or not they are listed within an approved TMDL. Metro will work proactively to meet the new permit requirement by altering the stream walk process, which may include eliminating large segments of rural streams where no MS4 outfalls are present.

SWMP Appendix A

RMPs or SWPPPs for Metro O&M Facilities

Note: The Appendices to each RMP and SWPPP were omitted for inclusion in this document.

Plans for each of these facilities were updated in 2020. Updates include contact info and changing weekly inspection forms to monthly inspection forms. For an updated copy of the plan, please contact Josh Hayes (josh.hayes@nashville.gov0

Metro Maintenance Facility
Site Runoff Management Plan

Metro Nashville Public Works
Improving the Quality of Life for Nashvillians and our Visitors

Public Works West Center & Salt Bin

3800 Charlotte Avenue
Nashville, TN 37209
615-405-1436

Prepared By:

METRO WATER SERVICES STORM WATER

Metro Water Services
Stormwater, NPDES Section
1607 County Hospital Road
Nashville, TN 37218

Created: May, 2013
Updates: October, 2018

1.0 OVERVIEW

1.1 INTRODUCTION

This Runoff Management Plan (RMP) covers all maintenance operations at the Public Works West Center Facility located at 3800 Charlotte Avenue. It has been developed as required under Metropolitan Nashville Davidson County's (Metro's) Municipal Separate Storm Sewer System (MS4) NPDES permit issued to Metro by the Tennessee Department of Environment and Conservation. This RMP identifies potential sources of storm water pollution at the facility and recommends appropriate best management practices (BMPs) or pollution control measures to reduce the discharge of pollutants in storm water runoff from the facility. The RMP shall be reviewed annually by maintenance personnel to determine the effectiveness of the plan and if any changes are necessary. It is the Public Works West Center personnel's responsibility to follow the procedures outlined in the plan and maintain appropriate documentation. If situations develop that require the plan to be altered, please contact the Metro Water Services, Stormwater NPDES Section at 615-880-2420 to update the plan.

1.2 OBJECTIVES

The goal of the RMP is to prevent impacts to surface waters from the stormwater runoff or illicit discharges from the Public Works West Center. The goal of only clean stormwater discharging from the facility will be accomplished by eliminating the exposure of pollutants during maintenance procedures and overall materials storage.

2.0 STORM WATER POLLUTION PREVENTION TEAM

The storm water pollution prevention team is responsible for developing, implementing, maintaining, and revising this RMP. Table 1 provides a list of team member(s) and their primary responsibilities of the SWPPP.

Table 1 – Storm Water Pollution Prevention Team

Name & Title	Phone	Responsibility
Phillip Jones Street Services Division- Technical Specialist 2	**615-862-8765**	**Making sure all Public Works Maintenance Facilities are following RMPs**
Jeff King Public Works West Center Site Manager	**615-405-1436**	**Making sure the site-specific RMP is followed and the appropriate documentation is in place at the Public Works West Center Location**

3.0 POTENTIAL SOURCES OF POLLUTANTS

Pollutants from Metro maintenance activities/facilities can include the following:

- Sand and/or soil flowing off-site from stockpile areas;
- Fertilizer, pesticides, fungicides, and herbicides;
- Detergents and other cleaning agents;
- Petroleum products or asphalt products from spills, leaking equipment, and/or washing equipment;
- Salt stockpiling area and salt brine tanks;
- Other general maintenance products such as paint, solvents, etc.

3.1 GENERAL MAINTENANCE ACTIVITIES

Maintenance activities, if not performed properly, can lead to significant impacts to stormwater runoff. The following maintenance activities have been identified as having the potential for impacting stormwater runoff and Standard Operating Procedures (SOPs) have been developed for each. In general, maintenance activities at all Metro facilities shall follow the below-listed SOPs, which are located in Appendix A of this document.

- Equipment Washing/General Maintenance Activities;
- Sand/Soil Stockpiling Activities; and

3.2 SITE-SPECIFIC MANAGEMENT PRACTICES

Each Metro facility that houses operations and maintenance activities is different. Some Metro facilities have many sensitive areas such as streams, storm drains, or ditches, while others have very few. The Public Works West Center Facility has drainage features which are in close proximity to key maintenance operations. Figure 1 depicts general stormwater drainage throughout the facility. All stormwater drainage features, including inlets, ditches, and streams shall be protected from pollutant runoff that could result from maintenance activities such as chemical spraying and general material storage.

The area within the Public Works West Center that poses the most threat of pollutant runoff is the area located near the salt bin storage building. Much of the back part of the property drains to the inlets located by the Public Works West Center as depicted on Figure 1. Potential materials exposed to stormwater runoff in this area consists of granular salt, salt brine solution tanks, oil containers, sand stockpiling, and heavy equipment storage. In addition to the back part of the property, the fueling station also poses a risk to stormwater runoff. The fuelling station should be routinely checked for leaks or spills. Any issues observed with the tanks shall be reported to the Office of Fleet Management at 862-5078. Any residue found on the ground should be cleaned up with absorbent material promptly. The critical sensitive areas are depicted on Figure 2.

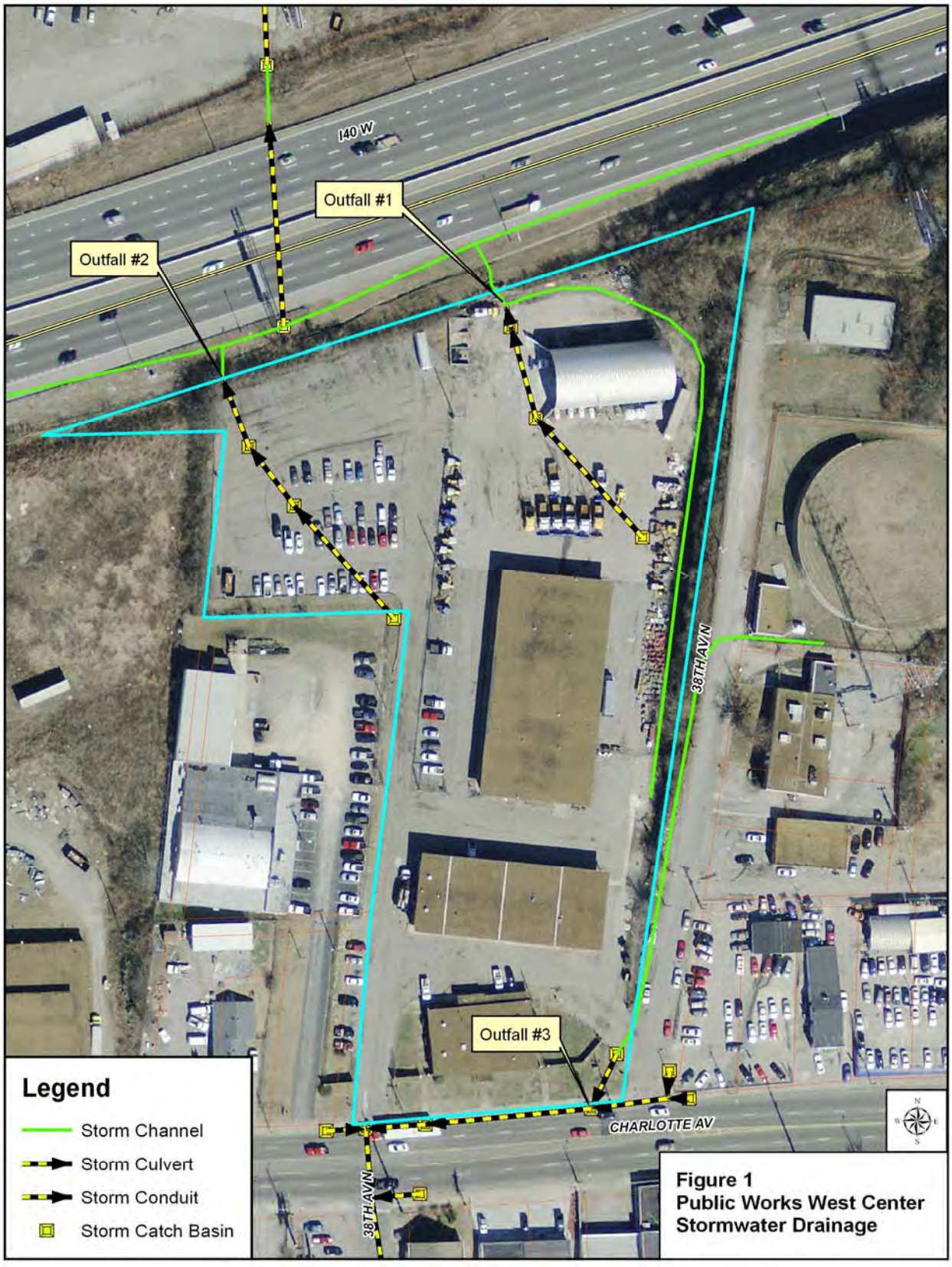


Figure 1
Public Works West Center
Stormwater Drainage

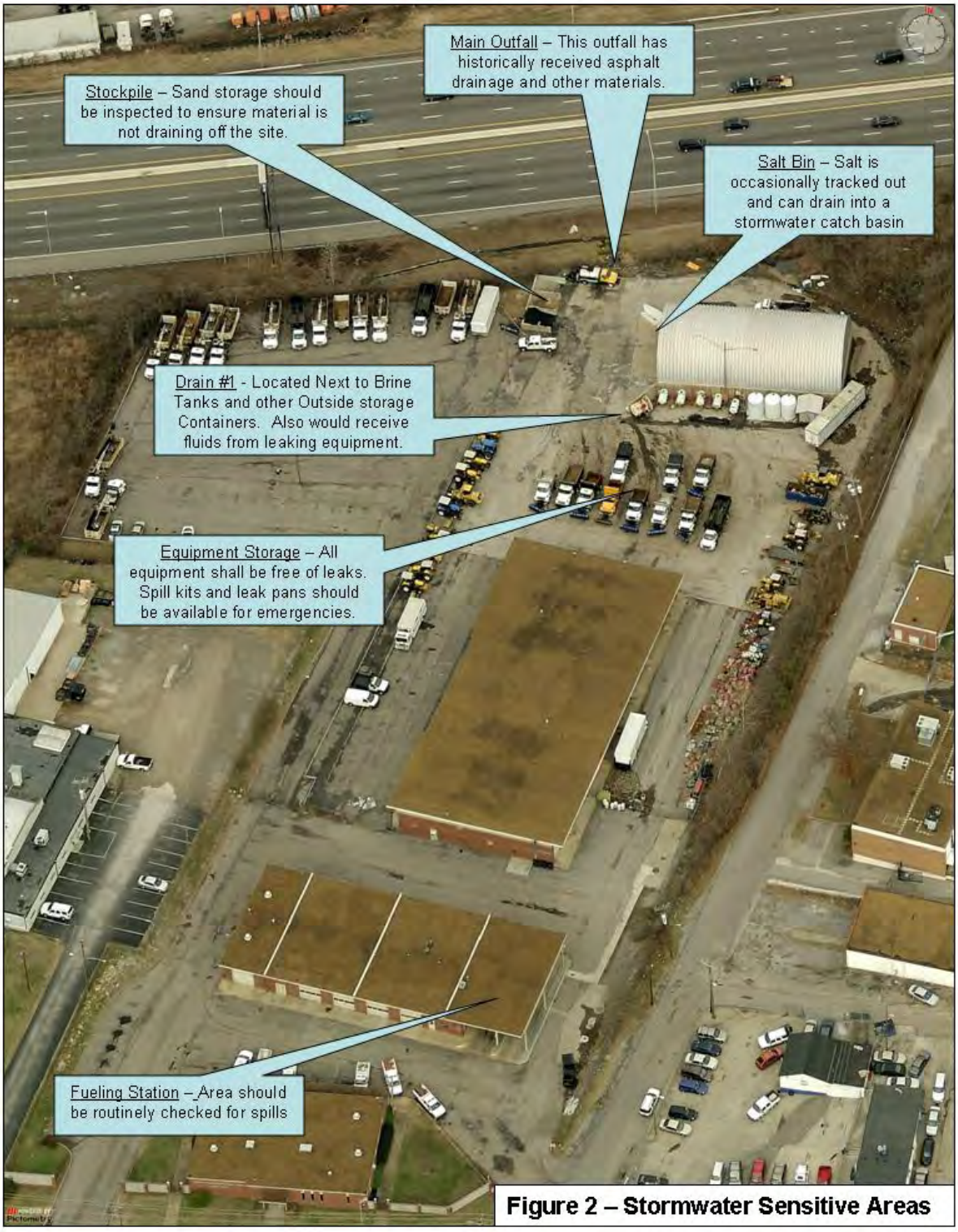


Figure 2 – Stormwater Sensitive Areas

4.0 SITE SPECIFIC BMP PLAN

In general, following the SOPs outlined in Appendix A shall prevent pollutants from entering the storm drain. Specific BMPs, however, shall be deployed, if persistent pollution problems are noted at any of the sensitive area inspections.

4.1 Weekly Inspections

The stormwater outfall points and sensitive areas identified on Figures 1 and 2 above should be inspected at least once per week (preferably prior to any large rain events). The inspections shall be documented on the template inspection forms within Appendix B and completed inspection forms shall be stored within Appendix C of this document for a period of at least 3 years. The weekly inspections shall pay specific attention to the following areas:

- Sand Stockpiles: The sand stockpile needs to be inspected for any evidence of sand discharging from or being tracked out of the containment area that can be washed into the nearby storm channel.
- Salt Bin: The salt bin and adjacent salt brine solution tanks should be inspected to determine if any product has been tracked out of or has leaked out onto the ground that can be washed off site during a rain event.
- Equipment Storage/Maintenance: Any place in which equipment is stored and/or maintained shall be inspected for oily residue on the ground or dripping fluids. Any observed product on the ground shall be cleaned up appropriately. Any active leaks in any equipment stored outside need to be immediately contained with catchment pans until the leak can be repaired.
- Fueling/Oil Storage Areas: Any fleet fueling areas or oil storage tanks/containers should be inspected for leaks or drips. Any oil product found exposed to stormwater contact shall be cleaned up immediately with proper absorbent materials. (Note: Sand is not an effective absorbent product). Absorbent material shall be swept up and properly disposed of.
- Chemical Storage (i.e..): Any maintenance chemicals such as fertilizers, paints, pesticides, cleaners, etc shall be stored indoors or under cover in a contained area. These areas should be inspected to ensure no materials are leaking out. Any leaks/spills shall be cleaned-up immediately.
- Dumpster/Disposal Areas: Any dumpsters shall be inspected to ensure no contents are leaking out onto the ground that can contact stormwater. Most dumpsters have plugs and lids. The lids should stay closed and the plugs should remain in.

4.2 Employee Training

It is imperative that all maintenance employees are properly trained on the SOPs located within Appendix A. Each year, management shall go over the SOPS with each employee and document the training with employee signatures on the form located within Appendix B.

Metro Maintenance Facility
Site Runoff Management Plan

Metro Nashville Public Works
Improving the Quality of Life for Nashvillians and our Visitors

Public Works 5th Street Maintenance Facility

750 South 5th Street
Nashville, TN 37209
615-862-8776

Prepared By:

METRO WATER SERVICES STORM WATER

Metro Water Services
Stormwater, NPDES Section
1607 County Hospital Road
Nashville, TN 37218

May, 2013

1.0 OVERVIEW

1.1 INTRODUCTION

This Runoff Management Plan (RMP) covers all maintenance operations at the Public Works 5th Street Facility' located at 750 South 5th Street. It has been developed as required under Metropolitan Nashville Davidson County's (Metro's) Municipal Separate Storm Sewer System (MS4) NPDES permit issued to Metro by the Tennessee Department of Environment and Conservation. This RMP identifies potential sources of storm water pollution at the facility and recommends appropriate best management practices (BMPs) or pollution control measures to reduce the discharge of pollutants in storm water runoff from the facility. The RMP shall be reviewed annually by maintenance personnel to determine the effectiveness of the plan and if any changes are necessary. It is the Public Works 5th Street Facility's personnel's responsibility to follow the procedures outlined in the plan and maintain appropriate documentation. If situations develop that require the plan to be altered, please contact the Metro Water Services, Stormwater NPDES Section at 615-880-2420 to update the plan.

1.2 OBJECTIVES

The goal of the RMP is to prevent impacts to surface waters from the stormwater runoff or illicit discharges from the Public Works 5th Street Facility. The goal of only clean stormwater discharging from the facility will be accomplished by eliminating the exposure of pollutants during maintenance procedures and overall materials storage.

2.0 STORM WATER POLLUTION PREVENTION TEAM

The storm water pollution prevention team is responsible for developing, implementing, maintaining, and revising this RMP. Table 1 provides a list of team member(s) and their primary responsibilities of the SWPPP.

Table 1 – Storm Water Pollution Prevention Team

Name & Title	Phone	Responsibility
Mike Ryman Street Services Division- Technical Specialist 2	**615-862-8765**	**Making sure all Public Works Maintenance Facilities are following RMPs**
Ernie Kurgan Public Works South 5th Street Part Supervisor	**615-862-8776**	**Making sure the site-specific RMP is followed and the appropriate documentation is in place at the Public Works South 5th Street Location**

3.0 POTENTIAL SOURCES OF POLLUTANTS

Pollutants from Metro maintenance activities/facilities can include the following:

- Sand and/or soil flowing off-site from stockpile areas;
- Fertilizer, pesticides, fungicides, and herbicides;
- Detergents and other cleaning agents;
- Petroleum products or asphalt products from spills, leaking equipment, and/or washing equipment;
- Salt stockpiling area and salt brine tanks;
- Other general maintenance products such as paint, solvents, etc.

3.1 GENERAL MAINTENANCE ACTIVITIES

Maintenance activities, if not performed properly, can lead to significant impacts to stormwater runoff. The following maintenance activities have been identified as having the potential for impacting stormwater runoff and Standard Operating Procedures (SOPs) have been developed for each. In general, maintenance activities at all Metro facilities shall follow the below-listed SOPs, which are located in Appendix A of this document.

- Pesticide, Herbicide, Fertilizer Application, Storage, and Disposal.
- Petroleum Product (including asphalt) Storage & Spill Clean-up
- Equipment Washing/General Maintenance Activities;
- Sand/Soil Stockpiling Activities; and
- Salt Storage and Brine Mixing Operations

3.2 SITE-SPECIFIC MANAGEMENT PRACTICES

Each Metro facility that houses operations and maintenance activities is different. Some Metro facilities have many sensitive areas such as streams, storm drains, or ditches, while others have very few. The Public Works South 5th Street Facility has drainage features which are in close proximity to key maintenance operations. Figure 1 depicts general stormwater drainage throughout the facility. All stormwater drainage features, including inlets, ditches, and streams shall be protected from pollutant runoff that could result from maintenance activities such as chemical spraying and general material storage.

The area within the Public Works South that poses the most threat of pollutant runoff is the area located near the salt bin storage building. Much of the back part of the property drains to the inlets located by the Public Works West Center as depicted on Figure 1. Potential materials exposed to stormwater runoff in this area consists of granular salt, salt brine solution tanks, oil containers, sand stockpiling, and heavy equipment storage. In addition to the back part of the property, the fueling station also poses a risk to stormwater runoff. The fuelling station should be routinely check for leaks or spills. Any issues observed with the tanks shall be reported to the Office of Fleet Management at 862-5078. Any residue found on the ground should be cleaned up with absorbent material promptly. The critical sensitive areas are depicted on Figure 2.

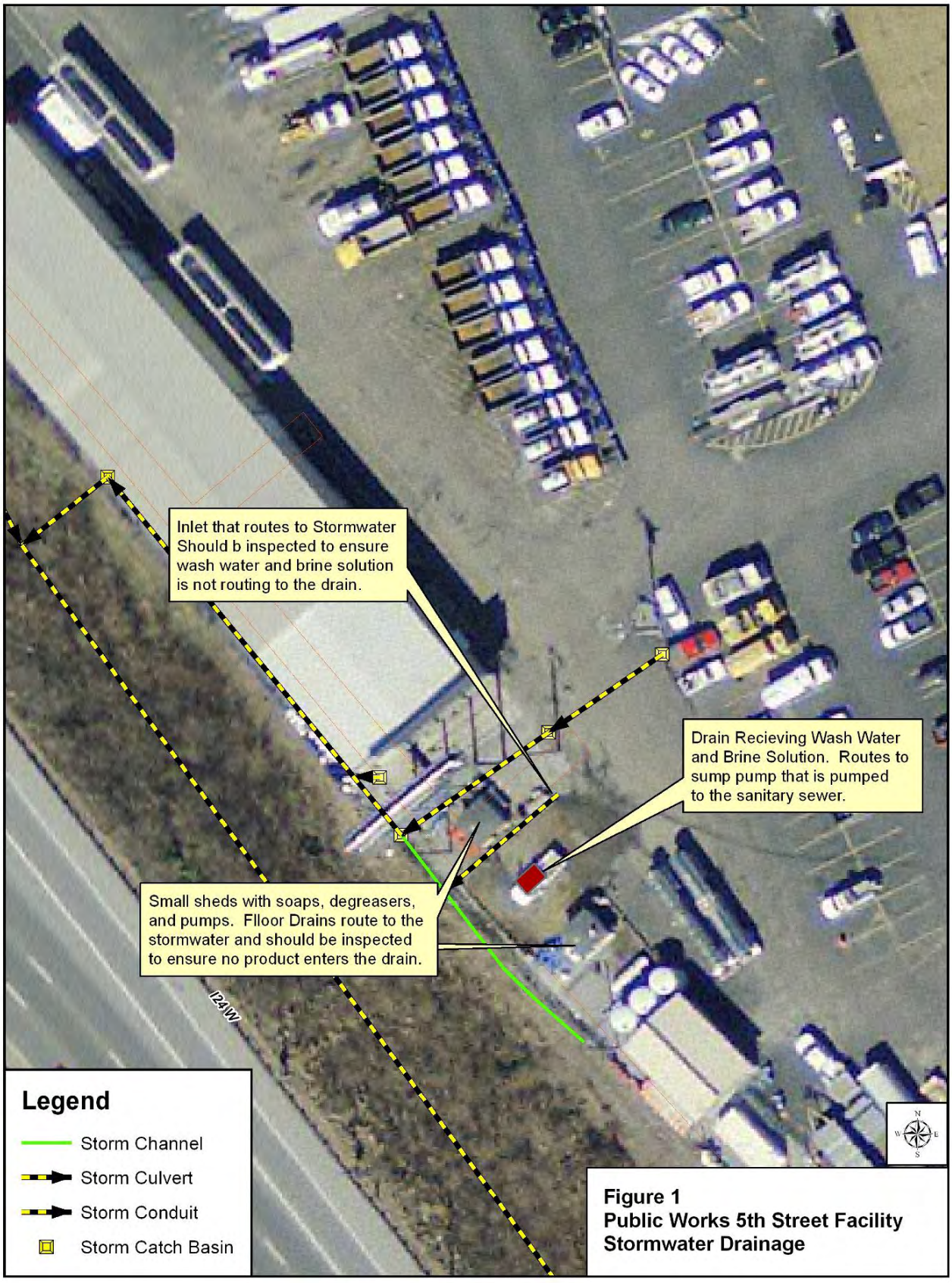


Figure 1
Public Works 5th Street Facility
Stormwater Drainage

Figure 2 – Stormwater Sensitive Areas

Areas to be inspected weekly

4.0 SITE SPECIFIC BMP PLAN

In general, following the SOPs outlined in Appendix A shall prevent pollutants from entering the storm drain. Specific BMPs, however, shall be deployed, if persistent pollution problems are noted at any of the sensitive area inspections.

4.1 Weekly Inspections

The stormwater outfall points and sensitive areas identified on Figures 1 and 2 above should be inspected at least once per week (preferably prior to any large rain events). The inspections shall be documented on the template inspection forms within Appendix B and completed inspection forms shall be stored within Appendix C of this document for a period of at least 3 years. The weekly inspections shall pay specific attention to the following areas:

- Salt Brine Tanks: The salt brine tanks should be inspected once a week during the active winter months.
- Equipment Storage/Maintenance: Any place in which equipment is stored and/or maintained shall be inspected for oily residue on the ground or dripping fluids. Any observed product on the ground shall be cleaned up appropriately. Any active leaks in any equipment stored outside need to be immediately contained with catchment pans until the leak can be repaired.
- Fueling/Oil Storage Areas: Any fleet fueling areas or oil storage tanks/containers should be inspected for leaks or drips. Any oil product found exposed to stormwater contact shall be cleaned up immediately with proper absorbent materials. (Note: Sand is not an effective absorbent product). Absorbent material shall be swept up and properly disposed of.
- Chemical Storage (i.e..): Any maintenance chemicals such as fertilizers, paints, pesticides, cleaners, etc shall be stored indoors or under cover in a contained area. These areas should be inspected to ensure no materials are leaking out. Any leaks/spills shall be cleaned-up immediately.
- Dumpster/Disposal Areas: Any dumpsters shall be inspected to ensure no contents are leaking out onto the ground that can contact stormwater. Most dumpsters have plugs and lids. The lids should stay closed and the plugs should remain in.

4.2 Employee Training

It is imperative that all maintenance employees are properly trained on the SOPs located within Appendix A. Each year, management shall go over the SOPS with each employee and document the training with employee signatures on the form located within Appendix B.

Metro Maintenance Facility
Site Runoff Management Plan

Metro Nashville Public Schools-School Bus Terminal

336 Woodycrest Avenue
Nashville, TN 37219
615-456-1719

Prepared By:

Metro Water Services
Stormwater, NPDES Section
1607 County Hospital Road
Nashville, TN 37218
615-880-2420

May, 2013

1.0 OVERVIEW

1.1 INTRODUCTION

This Runoff Management Plan (RMP) covers all maintenance operations at the Metro Nashville Public Schools (MNPS) Bus Maintenance Terminal located at 336 Woodycrest Avenue. It has been developed as required under Metropolitan Nashville Davidson County's (Metro's) Municipal Separate Storm Sewer System (MS4) NPDES permit issued to Metro by the Tennessee Department of Environment and Conservation. This RMP identifies potential sources of storm water pollution at the facility and recommends appropriate best management practices (BMPs) or pollution control measures to reduce the discharge of pollutants in storm water runoff from the facility. The RMP shall be reviewed annually by maintenance personnel to determine the effectiveness of the plan and if any changes are necessary. It is the MNPS personnel's responsibility to follow the procedures outlined in the plan and maintain appropriate documentation. If situations develop that require the plan to be altered, please contact the Metro Water Services, Stormwater NPDES Section at 615-880-2420 to update the plan.

1.2 OBJECTIVES

The goal of the RMP is to prevent impacts to surface waters from the stormwater runoff or illicit discharges from the MNPS Bus Maintenance Terminal. The goal of only clean stormwater discharging from the facility will be accomplished by eliminating the exposure of pollutants during maintenance procedures and overall materials storage.

2.0 STORM WATER POLLUTION PREVENTION TEAM

The storm water pollution prevention team is responsible for developing, implementing, maintaining, and revising this RMP. Table 1 provides a list of team member(s) and their primary responsibilities of the SWPPP.

Table 1 – Storm Water Pollution Prevention Team

Name & Title	Phone	Responsibility
Louis Burnette Supervisor of Maintenance and Operations	**615-862-4343**	**Making sure all MNPS maintenance activities are not impacting stormwater runoff.**
Dewayne Ferrell Department of Transportation Shop Foreman	**615-405-1436**	**Making sure the site-specific RMP is followed and the appropriate documentation is in place at the MNPS Bus Maintenance Terminal**

3.0 POTENTIAL SOURCES OF POLLUTANTS

Pollutants from Metro maintenance activities/facilities can include the following:

- Detergents and other cleaning agents;
- Petroleum products or asphalt products from spills, leaking equipment, and/or washing equipment;
- Salt stockpiling area and salt brine tanks;
- Other general maintenance products such as paint, solvents, etc.

3.1 GENERAL MAINTENANCE ACTIVITIES

Maintenance activities, if not performed properly, can lead to significant impacts to stormwater runoff. The following maintenance activities have been identified as having the potential for impacting stormwater runoff and Standard Operating Procedures (SOPs) have been developed for each. In general, maintenance activities at all Metro facilities shall follow the below-listed SOPs, which are located in Appendix A of this document.

- Pesticide, Herbicide, Fertilizer Application, Storage, and Disposal.
- Petroleum Product (including asphalt) Storage & Spill Clean-up
- Equipment Washing/General Maintenance Activities;

3.2 SITE-SPECIFIC MANAGEMENT PRACTICES

Each Metro facility that houses operations and maintenance activities is different. Some Metro facilities have many sensitive areas such as streams, storm drains, or ditches, while others have very few. The MNPS Bus Maintenance Terminal does not have drainage features such as streams on the property, as most of the drainage from the property sheet flows off the parking lot. Figure 1 depicts general stormwater drainage throughout the facility. The parking lot generally acts as the stormwater drainage and, therefore, should be protected from pollutant runoff that could result from maintenance activities or leaking fluids from parked buses.

The area within the MNPS School Bus Terminal that poses the most threat of pollutant runoff is the areas just north of the maintenance building and bus wash bay. Large containers of automotive fluids, detergents, etc. were stored outside in these areas. Any containers stored outside should be should be capped and inspected regularly for spills, leaks, or product residue on the outside of the containers or on the ground. If product is found exposed to stormwater runoff, then the proper clean-up procedures should be implemented immediately. Absorbent materials should always be used for automotive fluids. Any fueling stations located on the grounds should also be inspected routinely for leaks or spills. Oil absorbent material needs to be kept in close proximity to any fueling or oil storage containers. The critical sensitive areas are depicted on Figure 2.

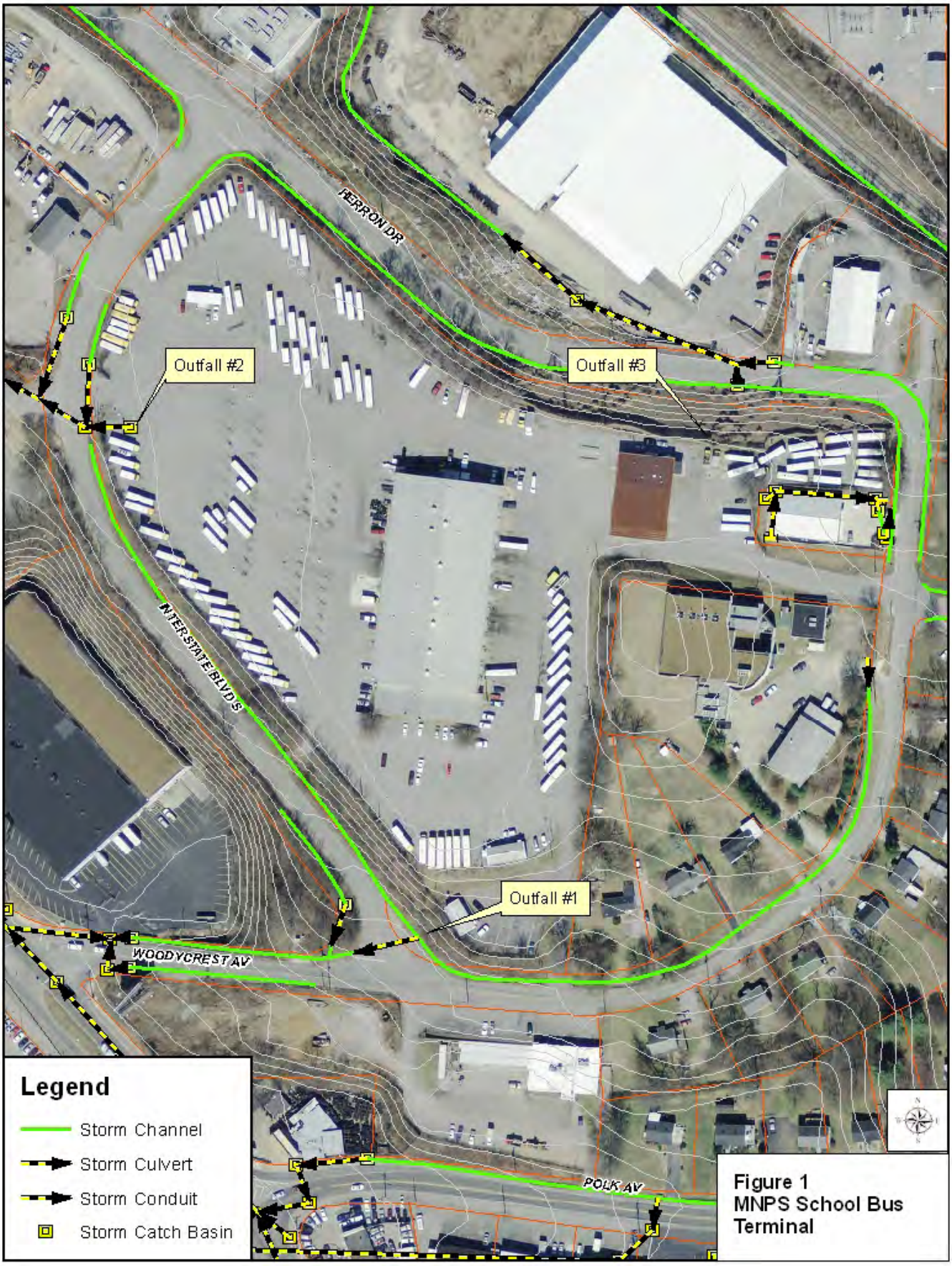


Figure 1
MNPS School Bus Terminal

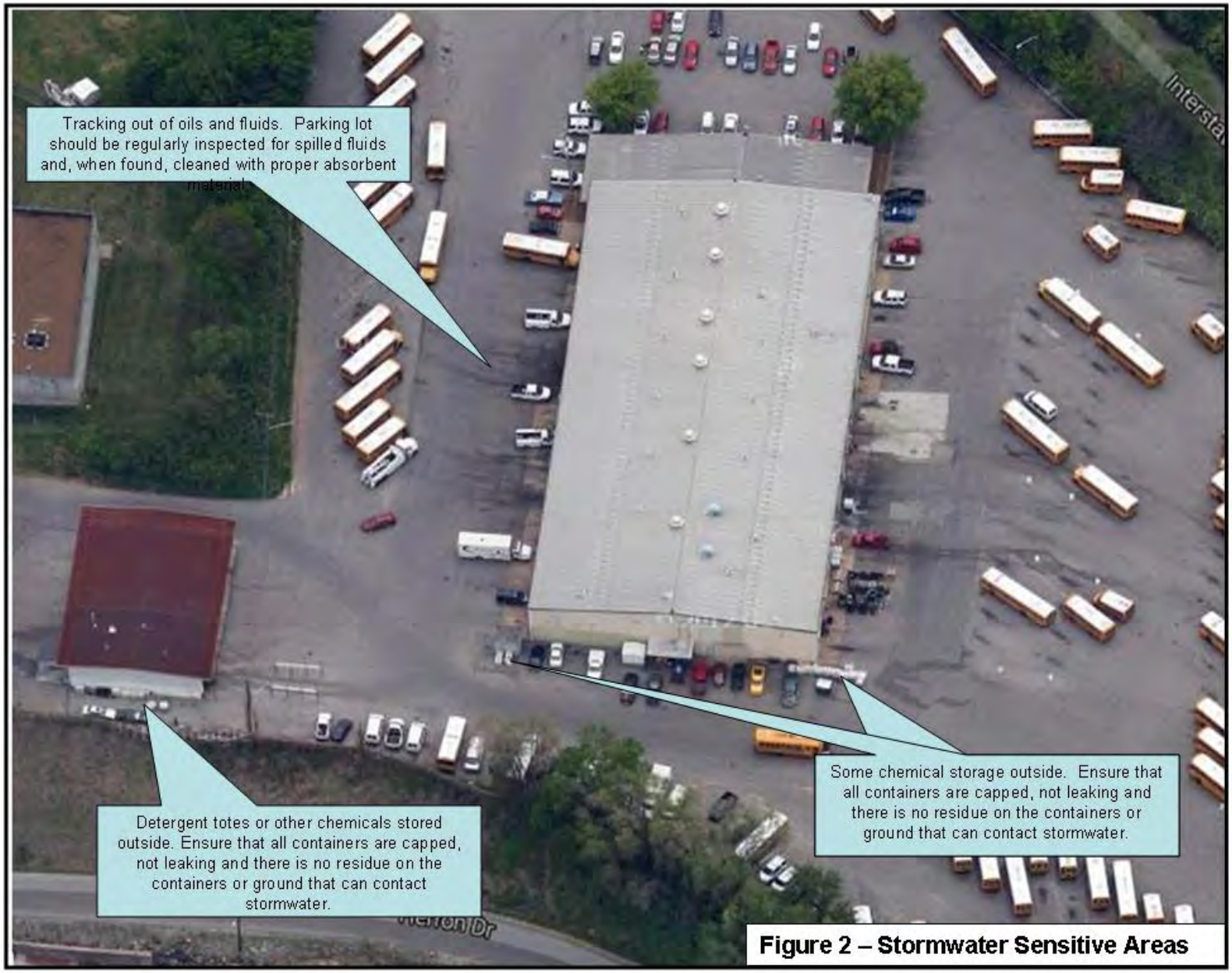


Figure 2 – Stormwater Sensitive Areas

4.0 SITE SPECIFIC BMP PLAN

In general, following the SOPs outlined in Appendix A shall prevent pollutants from entering the storm drain. Specific BMPs, however, shall be deployed, if persistent pollution problems are noted at any of the sensitive area inspections.

4.1 Weekly Inspections

The stormwater outfall points and sensitive areas identified on Figures 1 and 2 above should be inspected at least once per week (preferably prior to any large rain events). The inspections shall be documented on the template inspection forms within Appendix B and completed inspection forms shall be stored within Appendix C of this document for a period of at least 3 years. The weekly inspections shall pay specific attention to the following areas:

- Equipment Storage/Maintenance: Any place in which equipment is stored and/or maintained shall be inspected for oily residue on the ground or dripping fluids. Any observed product on the ground shall be cleaned up appropriately. Any active leaks in any equipment stored outside need to be immediately contained with catchment pans until the leak can be repaired.
- Fueling/Oil Storage Areas: Any fleet fueling areas or oil storage tanks/containers should be inspected for leaks or drips. Any oil product found exposed to stormwater contact shall be cleaned up immediately with proper absorbent materials. (Note: Sand is not an effective absorbent product). Absorbent material shall be swept up and properly disposed of.
- Chemical Storage (i.e..): Any maintenance chemicals such as fertilizers, paints, pesticides, cleaners, etc shall be stored indoors or under cover in a contained area. These areas should be inspected to ensure no materials are leaking out. Any leaks/spills shall be cleaned-up immediately.
- Dumpster/Disposal Areas: Any dumpsters shall be inspected to ensure no contents are leaking out onto the ground that can contact stormwater. Most dumpsters have plugs and lids. The lids should stay closed and the plugs should remain in.

4.2 Employee Training

It is imperative that all maintenance employees are properly trained on the SOPs located within Appendix A. Each year, management shall go over the SOPS with each employee and document the training with employee signatures on the form located within Appendix B.

Metro Maintenance Facility
Site Runoff Management Plan

Warner Parks Maintenance Facility

50 Vaughn Road
Nashville, TN 37221
615-862-8415

Prepared By:

Metro Water Services
Stormwater, NPDES Section
1607 County Hospital Road
Nashville, TN 37218

March, 2013

1.0 OVERVIEW

1.1 INTRODUCTION

This Runoff Management Plan (RMP) covers all maintenance operations at the Warner Parks Maintenance Facility. It has been developed as required under Metropolitan Nashville Davidson County's (Metro's) Municipal Separate Storm Sewer System (MS4) NPDES permit issued to Metro by the Tennessee Department of Environment and Conservation. This RMP identifies potential sources of storm water pollution at the facility and recommends appropriate best management practices (BMPs) or pollution control measures to reduce the discharge of pollutants in storm water runoff from the facility. The RMP shall be reviewed annually by maintenance personnel to determine the effectiveness of the plan and if any changes are necessary. It is the Warner Parks Maintenance Facility personnel's responsibility to follow the procedures outlined in the plan and maintain appropriate documentation. If situations develop that require the plan to be altered, please contact the Metro Water Services, Stormwater NPDES Section at 615-880-2420 to update the plan.

1.2 OBJECTIVES

The goal of the RMP is to prevent impacts to surface waters from the stormwater runoff or illicit discharges from the Warner Parks Maintenance Facility. The goal of only clean stormwater discharging from the facility will be accomplished by eliminating the exposure of pollutants during maintenance procedures and overall materials storage.

2.0 STORM WATER POLLUTION PREVENTION TEAM

The storm water pollution prevention team is responsible for developing, implementing, maintaining, and revising this RMP. Table 1 provides a list of team member(s) and their primary responsibilities of the SWPPP.

Table 1 – Storm Water Pollution Prevention Team

Name & Title	Phone	Responsibility
Mike Bays/Overall Metro Parks Maintenance Operations Supervisor	**615-862-8400**	**Making sure all Parks maintenance operations are compliant with RMPs**
Billy Powell/Warner Parks Maintenance Facility Supervisor	**615-862-8415**	**Making sure the site-specific RMP is followed and the appropriate documentation is in place at the Warner Parks Maintenance Facility**

3.0 POTENTIAL SOURCES OF POLLUTANTS

Pollutants from Metro operations and maintenance activities can include the following:

- Sand and/or soil flowing off-site from stockpile areas;
- Fertilizer, pesticides, fungicides, and herbicides;
- Detergents and other cleaning agents;
- Concentrated portions of grass clippings/leaves;
- Petroleum products from spills, leaking equipment, and/or washing equipment; and
- Other general maintenance products such as paint, solvents, etc.

3.1 GENERAL MAINTENANCE ACTIVITIES

Maintenance activities, if not performed properly, can lead to significant impacts to stormwater runoff. The following maintenance activities have been identified as having the potential for impacting stormwater runoff and Standard Operating Procedures (SOPs) have been developed for each. In general, maintenance activities at all Metro facilities shall follow the below-listed SOPs, which are located in Appendix A of this document.

- Pesticide, Herbicide, Fertilizer Application, Storage, and Disposal.
- Petroleum Product Storage & Spill Clean-up
- Grass Clipping Disposal
- Equipment Washing/General Maintenance Activities
- Bare Soil/Sand Management

3.2 SITE-SPECIFIC MANAGEMENT PRACTICES

Each Metro facility that houses operations and maintenance activities is different. Some Metro facilities have many sensitive areas such as streams, storm drains, or ditches, while others have very few. The Warner Parks Maintenance Facility has drainage features which are in close proximity to key maintenance operations. Figure 1 depicts general stormwater drainage throughout the golf course. All stormwater drainage features, including inlets, ditches, and streams shall be protected from pollutant runoff that could result from maintenance activities such as chemical spraying and general material storage.

The area within the Warner Parks Maintenance Facility that poses the most threat of pollutant runoff is the maintenance shop where materials and equipment are stored and maintained. The maintence shop and the critical sensitive areas are depicted within Figure 2. The following sensitive areas have been identified at the maintenance shop.

1. Above-Ground Fuel Tank - located near the maintenance shop. Any leaks/spills from the tank could lead to significant downstream pollution.

2. Oil Container/Drums – Located next to the shed which is near the maintenance shop. This container is not sheltered which can lead to an increased propensity to leak or spill.

Figure 1. Warner Park Maintenance Shop Sensitive Aquatic Areas

Figure 2. Warner Park Maintenance Shop Sensitive Areas

4.0 SITE SPECIFIC BMP PLAN

In general, following the SOPs outlined in Appendix A shall prevent pollutants from entering the storm drain. Specific BMPs, however, shall be deployed, at the sensitive areas identified within Figure 2.

4.1 Above-Ground Fuel Tank/Other Outside Equipment/Tanks

The large above-ground fuel tank and oil drum shall be inspected weekly to determine if there are any leaks or spills. The person performing the inspection shall look for wet oily substances on the ground or on the hose of the tank. Any discovered leaks or drips shall be repaired immediately. Any lost oil product shall be cleaned up promptly and properly with absorbent materials. A spill response kit shall be kept in close proximity to the tank area. In addition, the weekly inspection shall include looking at any equipment stored outside to determine if any oils are leaking.

4.2 Employee Training

It is imperative that all maintenance employees are properly trained on the SOPs located within Appendix A. Each year, management shall go over the SOPS with each employee and document the training with employee signatures on the form located within Appendix B.

Metro Maintenance Facility
Site Runoff Management Plan

Two Rivers Golf Course

2235 Two Rivers Parkway
Nashville, TN 37214
615-889-5953

Prepared By:

Metro Water Services
Stormwater, NPDES Section
1607 County Hospital Road
Nashville, TN 37218

February, 2013

1.0 OVERVIEW

1.1 INTRODUCTION

This Runoff Management Plan (RMP) covers all maintenance operations at Two Rivers Golf Course. It has been developed as required under Metropolitan Nashville Davidson County's (Metro's) Municipal Separate Storm Sewer System (MS4) NPDES permit issued to Metro by the Tennessee Department of Environment and Conservation. This RMP identifies potential sources of storm water pollution at the facility and recommends appropriate best management practices (BMPs) or pollution control measures to reduce the discharge of pollutants in storm water runoff from the facility. The RMP shall be reviewed annually by maintenance personnel to determine the effectiveness of the plan and if any changes are necessary. It is the Two Rivers Golf Course maintenance personnel's responsibility to follow the procedures outlined in the plan and maintain appropriate documentation. If situations develop that require the plan to be altered, please contact the Metro Water Services, Stormwater NPDES Section at 615-880-2420 to update the plan.

=1.2 OBJECTIVES

The goal of the RMP is to prevent impacts to surface waters from the stormwater runoff or illicit discharges from the Two Rivers Golf Course and maintenance facility. The goal of only clean stormwater discharging from the facility will be accomplished by eliminating the exposure of pollutants during maintenance procedures and overall materials storage.

2.0 STORM WATER POLLUTION PREVENTION TEAM

The storm water pollution prevention team is responsible for developing, implementing, maintaining, and revising this RMP. Table 1 provides a list of team member(s) and their primary responsibilities of the SWPPP.

Table 1 – Storm Water Pollution Prevention Team

Name & Title	Phone	Responsibility
Mike Bays/Overall Metro Parks Maintenance Operations Supervisor	**615-862-8400**	**Making sure all Parks maintenance operations are compliant with RMPs**
Phil Luckett/Metro Golf Course Maintenance Supervisor	**615-862-8400**	**Making sure the site-specific RMP is followed and the appropriate documentation is in place at all Golf Courses**
Brandon Denton/Two Rivers Golf Course Maintenance Supervisor	**615-889-5953**	**Making sure the site-specific RMP is followed and the appropriate documentation is in place at the Two Rivers Golf Course**

3.0 POTENTIAL SOURCES OF POLLUTANTS

Pollutants from Metro operations and maintenance activities can include the following:

- Sand and/or soil flowing off-site from stockpile areas;
- Fertilizer, pesticides, fungicides, and herbicides;
- Detergents and other cleaning agents;
- Concentrated portions of grass clippings/leaves;
- Petroleum products from spills, leaking equipment, and/or washing equipment; and
- Other general maintenance products such as paint, solvents, etc.

3.1 GENERAL MAINTENANCE ACTIVITIES

Maintenance activities, if not performed properly, can lead to significant impacts to stormwater runoff. The following maintenance activities have been identified as having the potential for impacting stormwater runoff and Standard Operating Procedures (SOPs) have been developed for each. In general, maintenance activities at all Metro facilities shall follow the below-listed SOPs, which are located in Appendix A of this document.

- Pesticide, Herbicide, Fertilizer Application, Storage, and Disposal.
- Petroleum Product Storage & Spill Clean-up
- Grass Clipping Disposal
- Equipment Washing/General Maintenance Activities
- Bare Soil/Sand Management

3.2 SITE-SPECIFIC MANAGEMENT PRACTICES

Each Metro facility that houses operations and maintenance activities is different. Some Metro facilities have many sensitive areas such as streams, storm drains, or ditches, while others have very few. The Two Rivers Golf Course and maintenance shop happens to have numerous drainage features, some of which are in close proximity to key maintenance operations. Figure 1 depicts general stormwater drainage throughout the golf course. All stormwater drainage features, including inlets, ditches, and streams shall be protected from pollutant runoff that could result from maintenance activities such as chemical spraying and general material storage.

The area within the Two Rivers Golf Course that poses the most threat of pollutant runoff is the maintenance shop where materials and equipment are stored and maintained. The maintence shop and the critical sensitive areas are depicted within Figure 2. The following sensitive areas have been identified at the maintenance shop.

1. Storm Inlet - located a few feet from stored equipment and other products such as used oil. Any leaks in equipment or spills of material such as used oil or other chemicals would route to this drain quickly.

2. Soil/Sand Stockpiles - sand stockpiling on the paved surface in front of the maintenance shop can easily flow off-site into a storm ditch.

3. Above-Ground Fuel Tank – located behind the maintenance shop. Any leaks/spills from the tank could lead to significant downstream pollution.

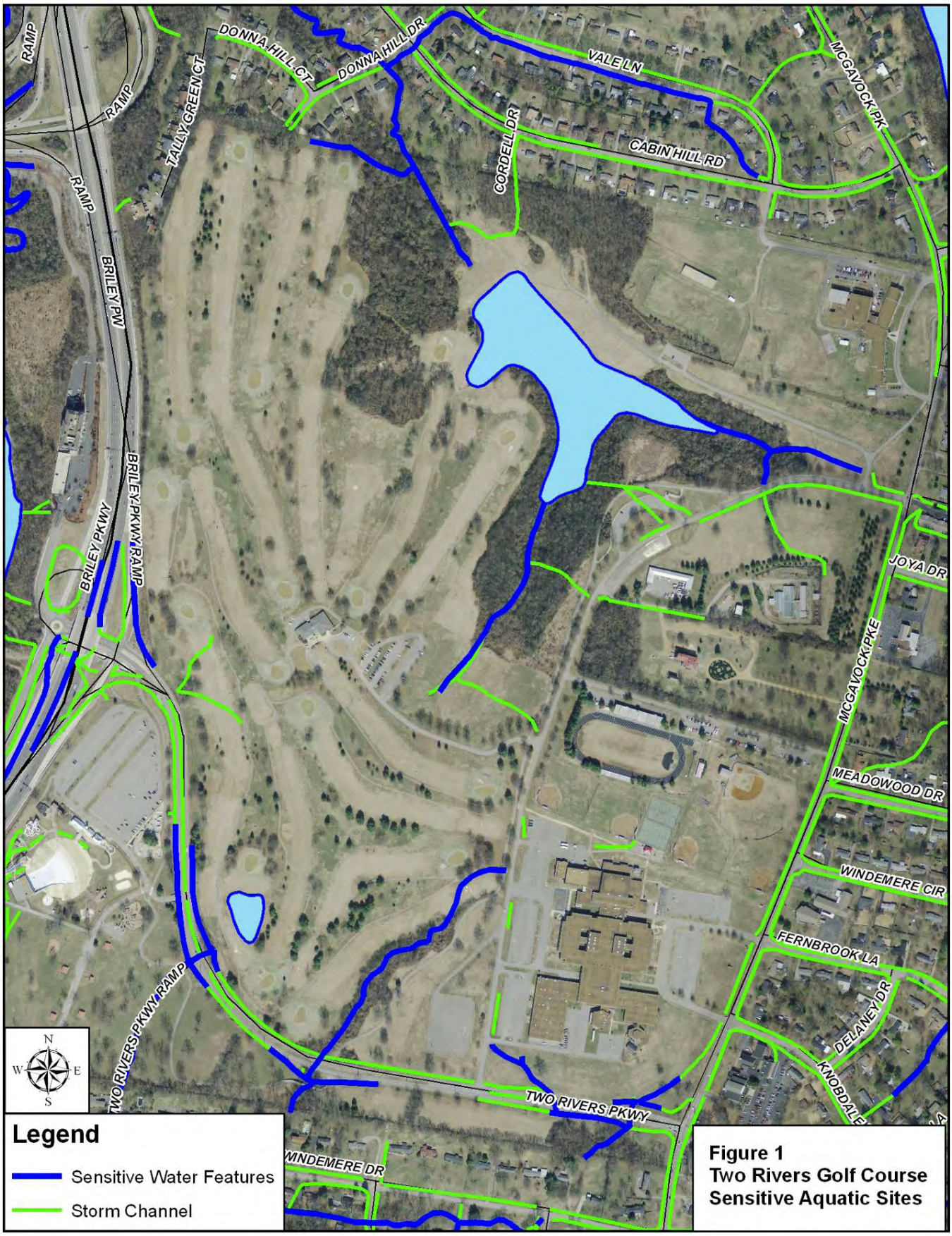

RAMP
DONNA HILL CT
DONNA HILL DR
VALE LN
MCGAVOCK PK
TALLY GREEN CT
CORDELL DR
CABIN HILL RD
RAMP
BRILEY PW
BRILEY PKWY
BRILEY PKWY RAMP
JOYA DR
MCGAVOCK PKE
MEADOWOOD DR
WINDEMERE CIR
FERNBROOK LA
DELANEY DR
KNOBDALE
TWO RIVERS PKWY RAMP
TWO RIVERS PKWY
WINDEMERE DR
N
W
E
S
Legend
Sensitive Water Features
Storm Channel
Figure 1
Two Rivers Golf Course
Sensitive Aquatic Sites

Figure 2
Two Rivers Maintenance Shop
Sensitive Areas

4.0 SITE SPECIFIC BMP PLAN

In general, following the SOPs outlined in Appendix A shall prevent pollutants from entering the storm drain. Specific BMPs, however, shall be deployed, at the sensitive areas identified within Figure 2.

4.1 Stormwater Inlet at the Maintenance Shop

Given the close proximity of this drain to equipment and maintenance fluids, extra protection shall be deployed at the inlet. The inlet shall be marked with a "no dumping" label so that all employees are aware that nothing besides clean stormwater can route to this drain. In addition, the site shall have a readily available supply of spill response supplies such as a cover to put over the drain in the event of a spill and oil absorbent material that can be used to clean up any spilled petroleum products.

The stormwater inlet, as well as the general maintenance grounds shall be inspected once per week by the designated personnel. The person performing the inspection shall look for oily residue, unusual staining or odor within the drain, and general exposed products kept outside that may need to be moved under cover. All inspections shall be logged on the inspection form contained in Appendix B of this document. All documented inspection forms shall be retained on-site in the maintenance office for a period of at least 3 years.

4.2 Stockpiled Soil and Sand

Any area where sand or soil is stockpiled in a manner that can mix with stormwater and drain off-site into an inlet, storm ditch, or stream shall be protected with perimeter controls. Perimeter controls can be trenched in silt fence, staked down weighted sediment tubes, or other suitable materials that allow stormwater to drain away while filtering out the sand and soil. Perimeter controls are not needed if the materials are stored in areas surrounded by established, thick vegetation, as the vegetation such as thick tall grass can act as a filter from stormwater runoff. Stockpiled areas shall also be inspected once per week using the same inspection form located in Appendix B. Some of the weekly inspections should occur during rain events to determine if materials are draining off the site.

4.3 Above-Ground Fuel Tank/Other Outside Equipment/Tanks

The large above-ground fuel tank shall be inspected weekly to determine if there are any leaks or spills. The person performing the inspection shall look for wet oily substances on the ground or on the hose of the tank. Any discovered leaks or drips shall be repaired immediately. Any lost oil product shall be cleaned up promptly and properly with absorbent materials. A spill response kit shall be kept in close proximity to the tank area. In addition, the weekly inspection shall include looking at any equipment stored outside to determine if any oils are leaking.

4.4 Employee Training

It is imperative that all maintenance employees are properly trained on the SOPs located within Appendix A. Each year, management shall go over the SOPS with each employee and document the training with employee signatures on the form located within Appendix B.

Metro Maintenance Facility
Site Runoff Management Plan

Ted Rhodes Golf Course

1901 Ed Temple Blvd.
Nashville, TN 37208
615-862-8473

Prepared By:

Metro Water Services
Stormwater, NPDES Section
1607 County Hospital Road
Nashville, TN 37218

March, 2013

1.0 OVERVIEW

1.1 INTRODUCTION

This Runoff Management Plan (RMP) covers all maintenance operations at Ted Rhodes Golf Course. It has been developed as required under Metropolitan Nashville Davidson County's (Metro's) Municipal Separate Storm Sewer System (MS4) NPDES permit issued to Metro by the Tennessee Department of Environment and Conservation. This RMP identifies potential sources of storm water pollution at the facility and recommends appropriate best management practices (BMPs) or pollution control measures to reduce the discharge of pollutants in storm water runoff from the facility. The RMP shall be reviewed annually by maintenance personnel to determine the effectiveness of the plan and if any changes are necessary. It is the Ted Rhodes Golf Course maintenance personnel's responsibility to follow the procedures outlined in the plan and maintain appropriate documentation. If situations develop that require the plan to be altered, please contact the Metro Water Services, Stormwater NPDES Section at 615-880-2420 to update the plan.

1.2 OBJECTIVES

The goal of the RMP is to prevent impacts to surface waters from the stormwater runoff or illicit discharges from the Ted Rhodes Golf Course and maintenance facility. The goal of only clean stormwater discharging from the facility will be accomplished by eliminating the exposure of pollutants during maintenance procedures and overall materials storage.

2.0 STORM WATER POLLUTION PREVENTION TEAM

The storm water pollution prevention team is responsible for developing, implementing, maintaining, and revising this RMP. Table 1 provides a list of team member(s) and their primary responsibilities of the SWPPP.

Table 1 – Storm Water Pollution Prevention Team

Name & Title	Phone	Responsibility
Mike Bays/Overall Metro Parks Maintenance Operations Supervisor	**615-862-8400**	**Making sure all Parks maintenance operations are compliant with RMPs**
Phil Luckett/Metro Golf Course Maintenance Supervisor	**615-862-8400**	**Making sure the site-specific RMP is followed and the appropriate documentation is in place at all Golf Courses**
Jerry Cook/Ted Rhodes Golf Course Maintenance Supervisor	**615-862-8473**	**Making sure the site-specific RMP is followed and the appropriate documentation is in place at the Ted Rhodes**

3.0 POTENTIAL SOURCES OF POLLUTANTS

Pollutants from Metro operations and maintenance activities can include the following:

- Sand and/or soil flowing off-site from stockpile areas;
- Fertilizer, pesticides, fungicides, and herbicides;
- Detergents and other cleaning agents;
- Concentrated portions of grass clippings/leaves;
- Petroleum products from spills, leaking equipment, and/or washing equipment; and
- Other general maintenance products such as paint, solvents, etc.

3.1 GENERAL MAINTENANCE ACTIVITIES

Maintenance activities, if not performed properly, can lead to significant impacts to stormwater runoff. The following maintenance activities have been identified as having the potential for impacting stormwater runoff and Standard Operating Procedures (SOPs) have been developed for each. In general, maintenance activities at all Metro facilities shall follow the below-listed SOPs, which are located in Appendix A of this document.

- Pesticide, Herbicide, Fertilizer Application, Storage, and Disposal.
- Petroleum Product Storage & Spill Clean-up
- Grass Clipping Disposal
- Equipment Washing/General Maintenance Activities
- Bare Soil/Sand Management

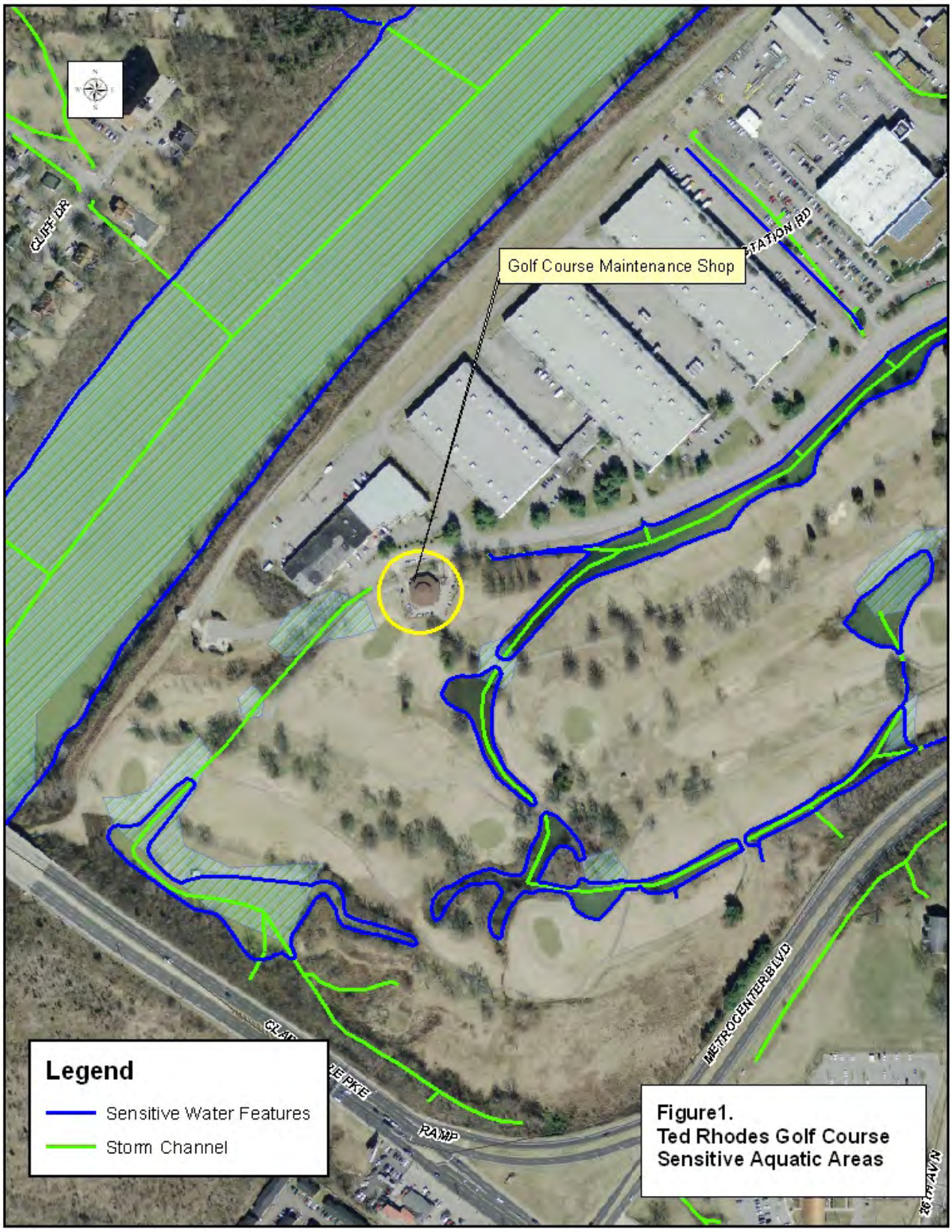
3.2 SITE-SPECIFIC MANAGEMENT PRACTICES

Each Metro facility that houses operations and maintenance activities is different. Some Metro facilities have many sensitive areas such as streams, storm drains, or ditches, while others have very few. The Ted Rhodes Golf Course and maintenance shop drains to the ponds at Metro Center and the Cumberland River. Any pollutants that wash off of the site could be potentially harmful to the receiving waters. Figure 1 depicts general stormwater drainage throughout the golf course. All stormwater drainage features, including inlets, ditches, and streams shall be protected from pollutant runoff that could result from maintenance activities such as chemical spraying and general material storage.

The area within the Ted Rhodes Golf Course that poses the most threat of pollutant runoff is the maintenance shop where materials and equipment are stored and maintained. The maintence shop and the critical sensitive areas are depicted within Figure 2. The following sensitive areas have been identified at the maintenance shop.

1. Soil/Sand Stockpiles - sand stockpiling on the paved surface in front of the maintenance shop can easily flow off-site into a storm ditch. .

2. Fuel Tanks and Equipment Storage – located in and around the maintenance shop. Any leaks/spills from the tank could lead to significant pollution to nearby bodies of water.


Golf Course Maintenance Shop
CLIFF DR
STATION RD
METROCENTER BLVD
RAMP
Legend
Sensitive Water Features
Storm Channel
Figure1.
Ted Rhodes Golf Course
Sensitive Aquatic Areas


N
W
E
S
Sand Piles
and Equipment
Figure 2.
Ted Rhodes Golf Course
Maintenance Shop
Sensitive Areas
Copyright ©2011 Pictometry International Corp.

4.0 SITE SPECIFIC BMP PLAN

In general, following the SOPs outlined in Appendix A shall prevent pollutants from entering the storm drain. Specific BMPs, however, shall be deployed, at the sensitive areas identified within Figure 2.

4.1 Stockpiled Soil and Sand

Any area where sand or soil is stockpiled in a manner that can mix with stormwater and drain off-site into an inlet, storm ditch, or stream shall be protected with perimeter controls. Perimeter controls can be trenched in silt fence, staked down weighted sediment tubes, or other suitable materials that allow stormwater to drain away while filtering out the sand and soil. Perimeter controls are not needed if the materials are stored in areas surrounded by established, thick vegetation, as the vegetation such as thick tall grass can act as a filter from stormwater runoff. Stockpiled areas shall also be inspected once per week using the same inspection form located in Appendix B. Some of the weekly inspections should occur during rain events to determine if materials are draining off the site.

4.2 Above-Ground Fuel Tank/Other Outside Equipment/Tanks

The large above-ground fuel tank shall be inspected weekly to determine if there are any leaks or spills. The person performing the inspection shall look for wet oily substances on the ground or on the hose of the tank. Any discovered leaks or drips shall be repaired immediately. Any lost oil product shall be cleaned up promptly and properly with absorbent materials. A spill response kit shall be kept in close proximity to the tank area. In addition, the weekly inspection shall include looking at any equipment stored outside to determine if any oils are leaking.

4.3 Employee Training

It is imperative that all maintenance employees are properly trained on the SOPs located within Appendix A. Each year, management shall go over the SOPS with each employee and document the training with employee signatures on the form located within Appendix B.

Metro Maintenance Facility
Site Runoff Management Plan

Shelby Golf Course

2021 Fatherland Street
Nashville TN 37206
615-862-8475

Prepared By:

Metro Water Services
Stormwater, NPDES Section
1607 County Hospital Road
Nashville, TN 37218

March, 2013

1.0 OVERVIEW

1.1 INTRODUCTION

This Runoff Management Plan (RMP) covers all maintenance operations at Shelby Golf Course. It has been developed as required under Metropolitan Nashville Davidson County's (Metro's) Municipal Separate Storm Sewer System (MS4) NPDES permit issued to Metro by the Tennessee Department of Environment and Conservation. This RMP identifies potential sources of storm water pollution at the facility and recommends appropriate best management practices (BMPs) or pollution control measures to reduce the discharge of pollutants in storm water runoff from the facility. The RMP shall be reviewed annually by maintenance personnel to determine the effectiveness of the plan and if any changes are necessary. It is the Shelby Golf Course maintenance personnel's responsibility to follow the procedures outlined in the plan and maintain appropriate documentation. If situations develop that require the plan to be altered, please contact the Metro Water Services, Stormwater NPDES Section at 615-880-2420 to update the plan.

1.2 OBJECTIVES

The goal of the RMP is to prevent impacts to surface waters from the stormwater runoff or illicit discharges from the Shelby Golf Course and maintenance facility. The goal of only clean stormwater discharging from the facility will be accomplished by eliminating the exposure of pollutants during maintenance procedures and overall materials storage.

2.0 STORM WATER POLLUTION PREVENTION TEAM

The storm water pollution prevention team is responsible for developing, implementing, maintaining, and revising this RMP. Table 1 provides a list of team member(s) and their primary responsibilities of the SWPPP.

Table 1 – Storm Water Pollution Prevention Team

Name & Title	Phone	Responsibility
Mike Bays/Overall Metro Parks Maintenance Operations Supervisor	**615-862-8400**	**Making sure all Parks maintenance operations are compliant with RMPs**
Phil Luckett/Metro Golf Course Maintenance Supervisor	**615-862-8400**	**Making sure the site-specific RMP is followed and the appropriate documentation is in place at all Golf Courses**
Scott Merritt/Shelby Golf Course Maintenance Supervisor	**615-862-8475**	**Making sure the site-specific RMP is followed and the appropriate documentation is in place at the Shelby**

3.0 POTENTIAL SOURCES OF POLLUTANTS

Pollutants from Metro operations and maintenance activities can include the following:

- Sand and/or soil flowing off-site from stockpile areas;
- Fertilizer, pesticides, fungicides, and herbicides;
- Detergents and other cleaning agents;
- Concentrated portions of grass clippings/leaves;
- Petroleum products from spills, leaking equipment, and/or washing equipment; and
- Other general maintenance products such as paint, solvents, etc.

3.1 GENERAL MAINTENANCE ACTIVITIES

Maintenance activities, if not performed properly, can lead to significant impacts to stormwater runoff. The following maintenance activities have been identified as having the potential for impacting stormwater runoff and Standard Operating Procedures (SOPs) have been developed for each. In general, maintenance activities at all Metro facilities shall follow the below-listed SOPs, which are located in Appendix A of this document.

- Pesticide, Herbicide, Fertilizer Application, Storage, and Disposal.
- Petroleum Product Storage & Spill Clean-up
- Grass Clipping Disposal
- Equipment Washing/General Maintenance Activities
- Bare Soil/Sand Management

3.2 SITE-SPECIFIC MANAGEMENT PRACTICES

Each Metro facility that houses operations and maintenance activities is different. Some Metro facilities have many sensitive areas such as streams, storm drains, or ditches, while others have very few. The Shelby Golf Course and maintenance shop is drains to a nearby water body. Any pollutants that wash off of the site could be potentially harmful to the receiving waters. Figure 1 depicts general stormwater drainage throughout the golf course. All stormwater drainage features, including inlets, ditches, and streams shall be protected from pollutant runoff that could result from maintenance activities such as chemical spraying and general material storage.

The area within the Shelby Golf Course that poses the most threat of pollutant runoff is the maintenance shop where materials and equipment are stored and maintained. The maintence shop and the critical sensitive areas are depicted within Figure 2. The following sensitive areas have been identified at the maintenance shop.

3. Soil/Sand Stockpiles - sand stockpiling on the paved surface in front of the maintenance shop can easily flow off-site into a storm ditch. .

4. Above-Ground Fuel Tank – located in front of the maintenance shop. Any leaks/spills from the tank could lead to significant downstream pollution.

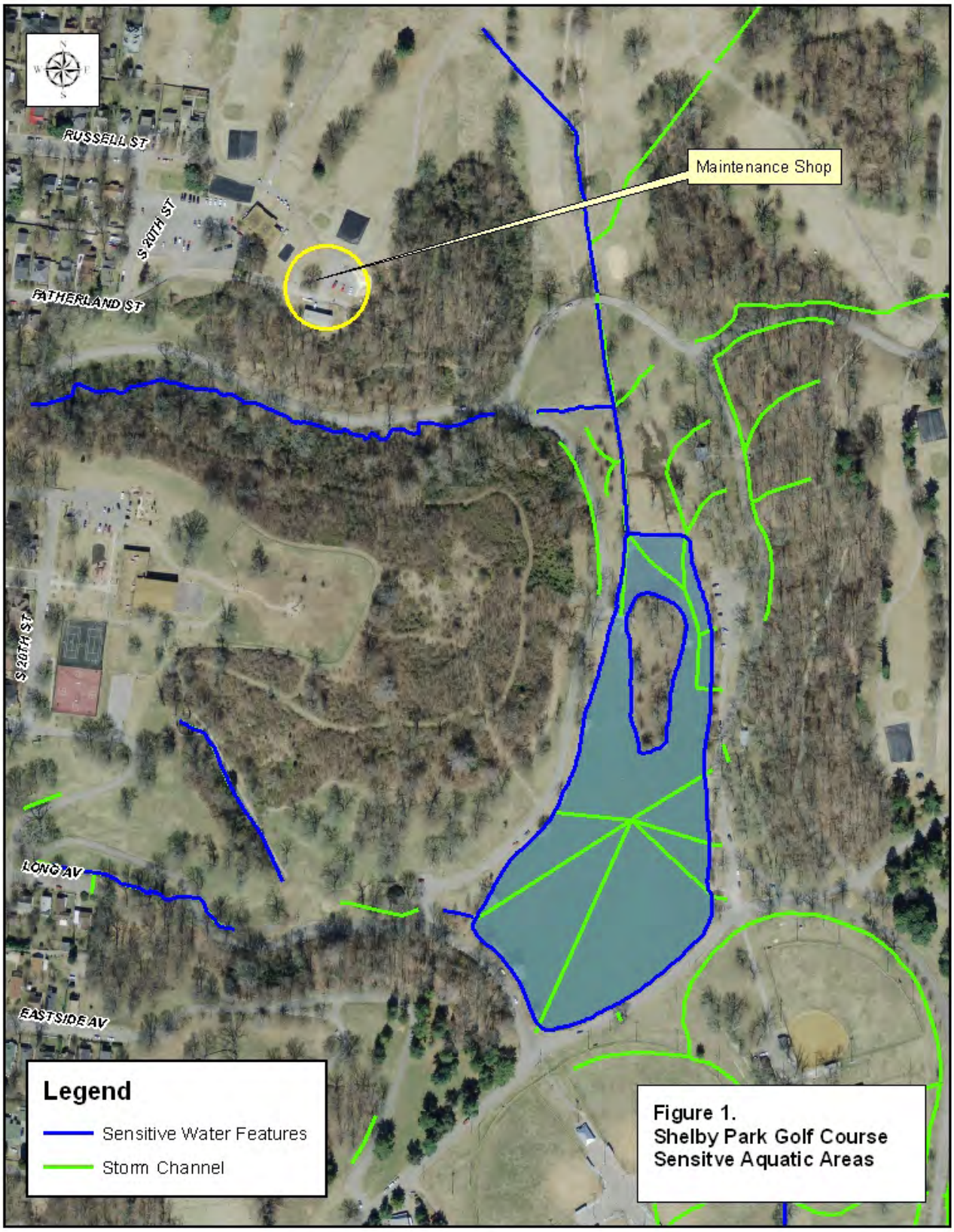

RUSSELL ST
S 20TH ST
FATHERLAND ST
Maintenance Shop
S 20TH ST
LONG AV
EASTSIDE AV
Legend
Sensitive Water Features
Storm Channel
Figure 1.
Shelby Park Golf Course
Sensitve Aquatic Areas

Figure 2.
Shelby Golf Course
Maintenance Shop
Sensitive Areas

4.0 SITE SPECIFIC BMP PLAN

In general, following the SOPs outlined in Appendix A shall prevent pollutants from entering the storm drain. Specific BMPs, however, shall be deployed, at the sensitive areas identified within Figure 2.

4.1 Stockpiled Soil and Sand

Any area where sand or soil is stockpiled in a manner that can mix with stormwater and drain off-site into an inlet, storm ditch, or stream shall be protected with perimeter controls. Perimeter controls can be trenched in silt fence, staked down weighted sediment tubes, or other suitable materials that allow stormwater to drain away while filtering out the sand and soil. Perimeter controls are not needed if the materials are stored in areas surrounded by established, thick vegetation, as the vegetation such as thick tall grass can act as a filter from stormwater runoff. Stockpiled areas shall also be inspected once per week using the same inspection form located in Appendix B. Some of the weekly inspections should occur during rain events to determine if materials are draining off the site.

4.2 Above-Ground Fuel Tank/Other Outside Equipment/Tanks

The large above-ground fuel tank shall be inspected weekly to determine if there are any leaks or spills. The person performing the inspection shall look for wet oily substances on the ground or on the hose of the tank. Any discovered leaks or drips shall be repaired immediately. Any lost oil product shall be cleaned up promptly and properly with absorbent materials. A spill response kit shall be kept in close proximity to the tank area. In addition, the weekly inspection shall include looking at any equipment stored outside to determine if any oils are leaking.

4.3 Employee Training

It is imperative that all maintenance employees are properly trained on the SOPs located within Appendix A. Each year, management shall go over the SOPS with each employee and document the training with employee signatures on the form located within Appendix B.

Metro Maintenance Facility
Site Runoff Management Plan

Percy Warner Golf Course

1221 Forest Park Drive
Nashville, TN 37205
615-352-3677

Prepared By:

Metro Water Services
Stormwater, NPDES Section
1607 County Hospital Road
Nashville, TN 37218

March, 2013

1.0 OVERVIEW

1.1 INTRODUCTION

This Runoff Management Plan (RMP) covers all maintenance operations at Percy Warner Golf Course. It has been developed as required under Metropolitan Nashville Davidson County's (Metro's) Municipal Separate Storm Sewer System (MS4) NPDES permit issued to Metro by the Tennessee Department of Environment and Conservation. This RMP identifies potential sources of storm water pollution at the facility and recommends appropriate best management practices (BMPs) or pollution control measures to reduce the discharge of pollutants in storm water runoff from the facility. The RMP shall be reviewed annually by maintenance personnel to determine the effectiveness of the plan and if any changes are necessary. It is the Percy Warner Golf Course maintenance personnel's responsibility to follow the procedures outlined in the plan and maintain appropriate documentation. If situations develop that require the plan to be altered, please contact the Metro Water Services, Stormwater NPDES Section at 615-880-2420 to update the plan.

1.2 OBJECTIVES

The goal of the RMP is to prevent impacts to surface waters from the stormwater runoff or illicit discharges from the Percy Warner Golf Course and maintenance facility. The goal of only clean stormwater discharging from the facility will be accomplished by eliminating the exposure of pollutants during maintenance procedures and overall materials storage.

2.0 STORM WATER POLLUTION PREVENTION TEAM

The storm water pollution prevention team is responsible for developing, implementing, maintaining, and revising this RMP. Table 1 provides a list of team member(s) and their primary responsibilities of the SWPPP.

Table 1 – Storm Water Pollution Prevention Team

Name & Title	Phone	Responsibility
Mike Bays/Overall Metro Parks Maintenance Operations Supervisor	**615-862-8400**	**Making sure all Parks maintenance operations are compliant with RMPs**
Phil Luckett/Metro Golf Course Maintenance Supervisor	**615-862-8400**	**Making sure the site-specific RMP is followed and the appropriate documentation is in place at all Golf Courses**
Darryl Lewis/Percy Warner Golf Course Maintenance Supervisor	**615-352-3677**	**Making sure the site-specific RMP is followed and the appropriate documentation is in place at the Percy Warner**

3.0 POTENTIAL SOURCES OF POLLUTANTS

Pollutants from Metro operations and maintenance activities can include the following:

- Sand and/or soil flowing off-site from stockpile areas;
- Fertilizer, pesticides, fungicides, and herbicides;
- Detergents and other cleaning agents;
- Concentrated portions of grass clippings/leaves;
- Petroleum products from spills, leaking equipment, and/or washing equipment; and
- Other general maintenance products such as paint, solvents, etc.

3.1 GENERAL MAINTENANCE ACTIVITIES

Maintenance activities, if not performed properly, can lead to significant impacts to stormwater runoff. The following maintenance activities have been identified as having the potential for impacting stormwater runoff and Standard Operating Procedures (SOPs) have been developed for each. In general, maintenance activities at all Metro facilities shall follow the below-listed SOPs, which are located in Appendix A of this document.

- Pesticide, Herbicide, Fertilizer Application, Storage, and Disposal.
- Petroleum Product Storage & Spill Clean-up
- Grass Clipping Disposal
- Equipment Washing/General Maintenance Activities
- Bare Soil/Sand Management

3.2 SITE-SPECIFIC MANAGEMENT PRACTICES

Each Metro facility that houses operations and maintenance activities is different. Some Metro facilities have many sensitive areas such as streams, storm drains, or ditches, while others have very few. The Percy Warner Golf Course and maintenance shop is not directly near a water body; however, any pollutants that wash off of the site could be potentially harmful downstream or to the groundwater. Figure 1 depicts general stormwater drainage throughout the golf course. All stormwater drainage features, including inlets, ditches, and streams shall be protected from pollutant runoff that could result from maintenance activities such as chemical spraying and general material storage.

The area within the Percy Warner Golf Course that poses the most threat of pollutant runoff is the maintenance shop where materials and equipment are stored and maintained. The maintence shop and the critical sensitive areas are depicted within Figure 2. The following sensitive areas have been identified at the maintenance shop.

5. Soil/Sand Stockpiles - sand stockpiling on the paved surface in front of the maintenance shop can easily flow off-site into a storm ditch. .

6. Above-Ground Fuel Tank – located behind the maintenance shop. Any leaks/spills from the tank could lead to significant downstream pollution.

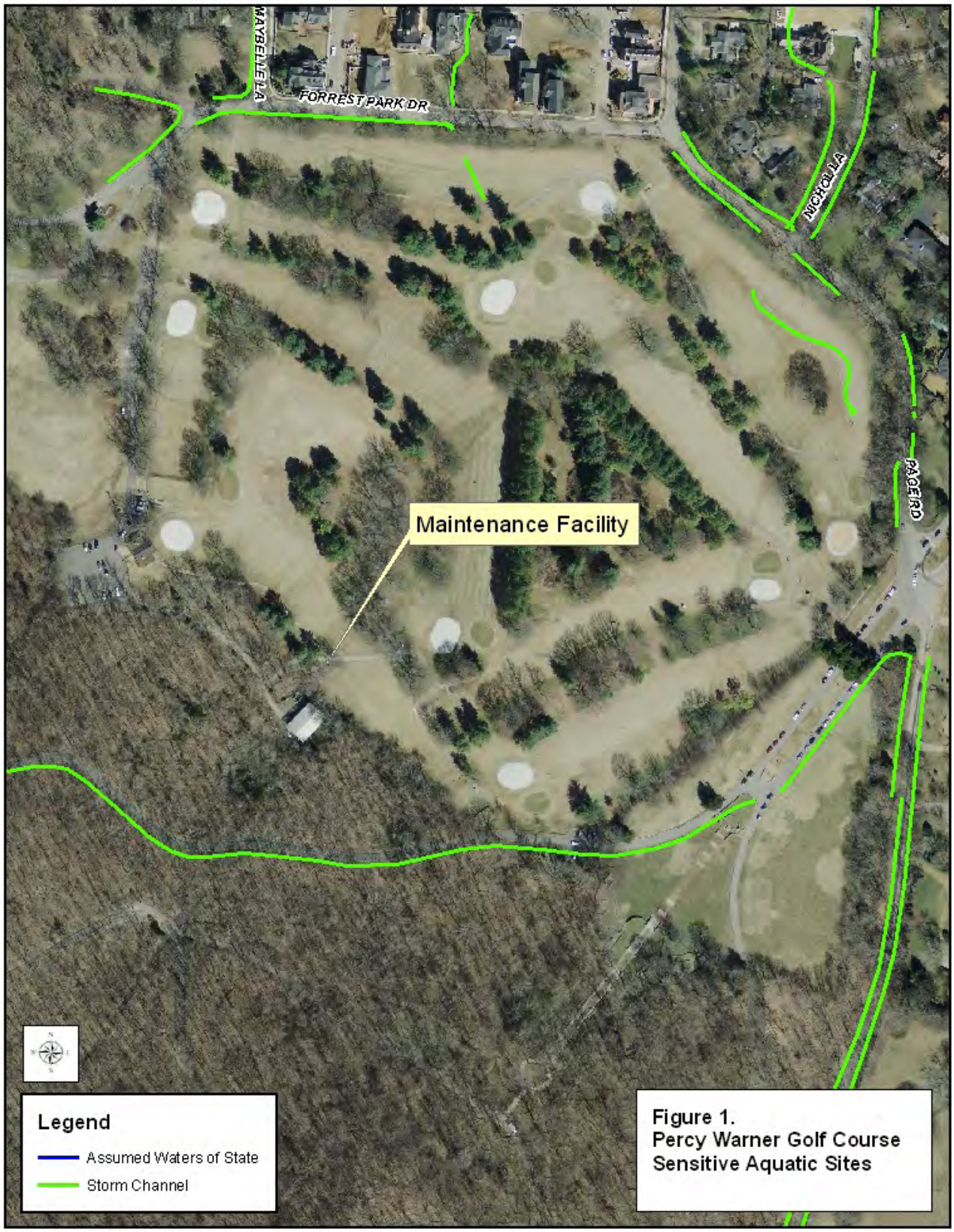

MAYBELLE LA
FORREST PARK DR
NICHOLLA
PAGE RD
Maintenance Facility
Legend
Assumed Waters of State
Storm Channel
Figure 1.
Percy Warner Golf Course
Sensitive Aquatic Sites

Figure 2.
Percy Warner Golf

4.0 SITE SPECIFIC BMP PLAN

In general, following the SOPs outlined in Appendix A shall prevent pollutants from entering the storm drain. Specific BMPs, however, shall be deployed, at the sensitive areas identified within Figure 2.

4.1 Stockpiled Soil and Sand

Any area where sand or soil is stockpiled in a manner that can mix with stormwater and drain off-site into an inlet, storm ditch, or stream shall be protected with perimeter controls. Perimeter controls can be trenched in silt fence, staked down weighted sediment tubes, or other suitable materials that allow stormwater to drain away while filtering out the sand and soil. Perimeter controls are not needed if the materials are stored in areas surrounded by established, thick vegetation, as the vegetation such as thick tall grass can act as a filter from stormwater runoff. Stockpiled areas shall also be inspected once per week using the same inspection form located in Appendix B. Some of the weekly inspections should occur during rain events to determine if materials are draining off the site.

4.2 Above-Ground Fuel Tank/Other Outside Equipment/Tanks

The large above-ground fuel tank shall be inspected weekly to determine if there are any leaks or spills. The person performing the inspection shall look for wet oily substances on the ground or on the hose of the tank. Any discovered leaks or drips shall be repaired immediately. Any lost oil product shall be cleaned up promptly and properly with absorbent materials. A spill response kit shall be kept in close proximity to the tank area. In addition, the weekly inspection shall include looking at any equipment stored outside to determine if any oils are leaking.

4.3 Employee Training

It is imperative that all maintenance employees are properly trained on the SOPs located within Appendix A. Each year, management shall go over the SOPS with each employee and document the training with employee signatures on the form located within Appendix B.

Metro Maintenance Facility
Site Runoff Management Plan

McCabe Golf Course

4601 Murphy Rd
Nashville, TN 37209
615-383-8262

Prepared By:

Metro Water Services
Stormwater, NPDES Section
1607 County Hospital Road
Nashville, TN 37218

March, 2013

Updated July, 2018

1.0 OVERVIEW

1.1 INTRODUCTION

This Runoff Management Plan (RMP) covers all maintenance operations at McCabe Golf Course. It has been developed as required under Metropolitan Nashville Davidson County's (Metro's) Municipal Separate Storm Sewer System (MS4) NPDES permit issued to Metro by the Tennessee Department of Environment and Conservation. This RMP identifies potential sources of storm water pollution at the facility and recommends appropriate best management practices (BMPs) or pollution control measures to reduce the discharge of pollutants in storm water runoff from the facility. The RMP shall be reviewed annually by maintenance personnel to determine the effectiveness of the plan and if any changes are necessary. It is the McCabe Golf Course maintenance personnel's responsibility to follow the procedures outlined in the plan and maintain appropriate documentation. If situations develop that require the plan to be altered, please contact the Metro Water Services, Stormwater NPDES Section at 615-880-2420 to update the plan.

1.2 OBJECTIVES

The goal of the RMP is to prevent impacts to surface waters from the stormwater runoff or illicit discharges from the McCabe Golf Course and maintenance facility. The goal of only clean stormwater discharging from the facility will be accomplished by eliminating the exposure of pollutants during maintenance procedures and overall materials storage.

2.0 STORM WATER POLLUTION PREVENTION TEAM

The storm water pollution prevention team is responsible for developing, implementing, maintaining, and revising this RMP. Table 1 provides a list of team member(s) and their primary responsibilities of the SWPPP.

Table 1 – Storm Water Pollution Prevention Team

Name & Title	Phone	Responsibility
Jerry Terfinko/Overall Metro Parks Maintenance Operations Supervisor	**615-862-8400 Ext. 72959**	**Making sure all Parks maintenance operations are compliant with RMPs**
Phil Luckett/Metro Golf Course Maintenance Supervisor	**615-862-8400**	**Making sure the site-specific RMP is followed and the appropriate documentation is in place at all Golf Courses**
Mark Littlejohn/McCabe Golf Course Maintenance Supervisor	**615-351-5812**	**Making sure the site-specific RMP is followed and the appropriate documentation is in place at the McCabe Golf Course**

3.0 POTENTIAL SOURCES OF POLLUTANTS

Pollutants from Metro operations and maintenance activities can include the following:

- Sand and/or soil flowing off-site from stockpile areas;
- Fertilizer, pesticides, fungicides, and herbicides;
- Detergents and other cleaning agents;
- Concentrated portions of grass clippings/leaves;
- Petroleum products from spills, leaking equipment, and/or washing equipment; and
- Other general maintenance products such as paint, solvents, etc.

3.1 GENERAL MAINTENANCE ACTIVITIES

Maintenance activities, if not performed properly, can lead to significant impacts to stormwater runoff. The following maintenance activities have been identified as having the potential for impacting stormwater runoff and Standard Operating Procedures (SOPs) have been developed for each. In general, maintenance activities at all Metro facilities shall follow the below-listed SOPs, which are located in Appendix A of this document.

- Pesticide, Herbicide, Fertilizer Application, Storage, and Disposal.
- Petroleum Product Storage & Spill Clean-up
- Grass Clipping Disposal
- Equipment Washing/General Maintenance Activities
- Bare Soil/Sand Management

3.2 SITE-SPECIFIC MANAGEMENT PRACTICES

Each Metro facility that houses operations and maintenance activities is different. Some Metro facilities have many sensitive areas such as streams, storm drains, or ditches, while others have very few. The McCabe Golf Course and maintenance shop happens to be in close proximity to Murphy Branch. Any pollutants that leave the site will drain to this water body. Figure 1 depicts general stormwater drainage throughout the golf course. All stormwater drainage features, including inlets, ditches, and streams shall be protected from pollutant runoff that could result from maintenance activities such as chemical spraying and general material storage.

The area within the McCabe Golf Course that poses the most threat of pollutant runoff is the maintenance shop where materials and equipment are stored and maintained. The maintenance shop and the critical sensitive areas are depicted within Figure 2. The following sensitive areas have been identified at the maintenance shop.

1. Soil/Sand Stockpiles - sand stockpiling on the paved surface in front of the maintenance shop can easily flow off-site into a storm ditch.

2. Above-Ground Fuel Tank – located behind the maintenance shop. Any leaks/spills from the tank could run off-site and end up in a Murphy Branch or Richland Creek.
3. Stormwater Conduit - located next to maintenance parking lot and drive. Materials leaving parking lot enter this drainage and will impact creek.

4.

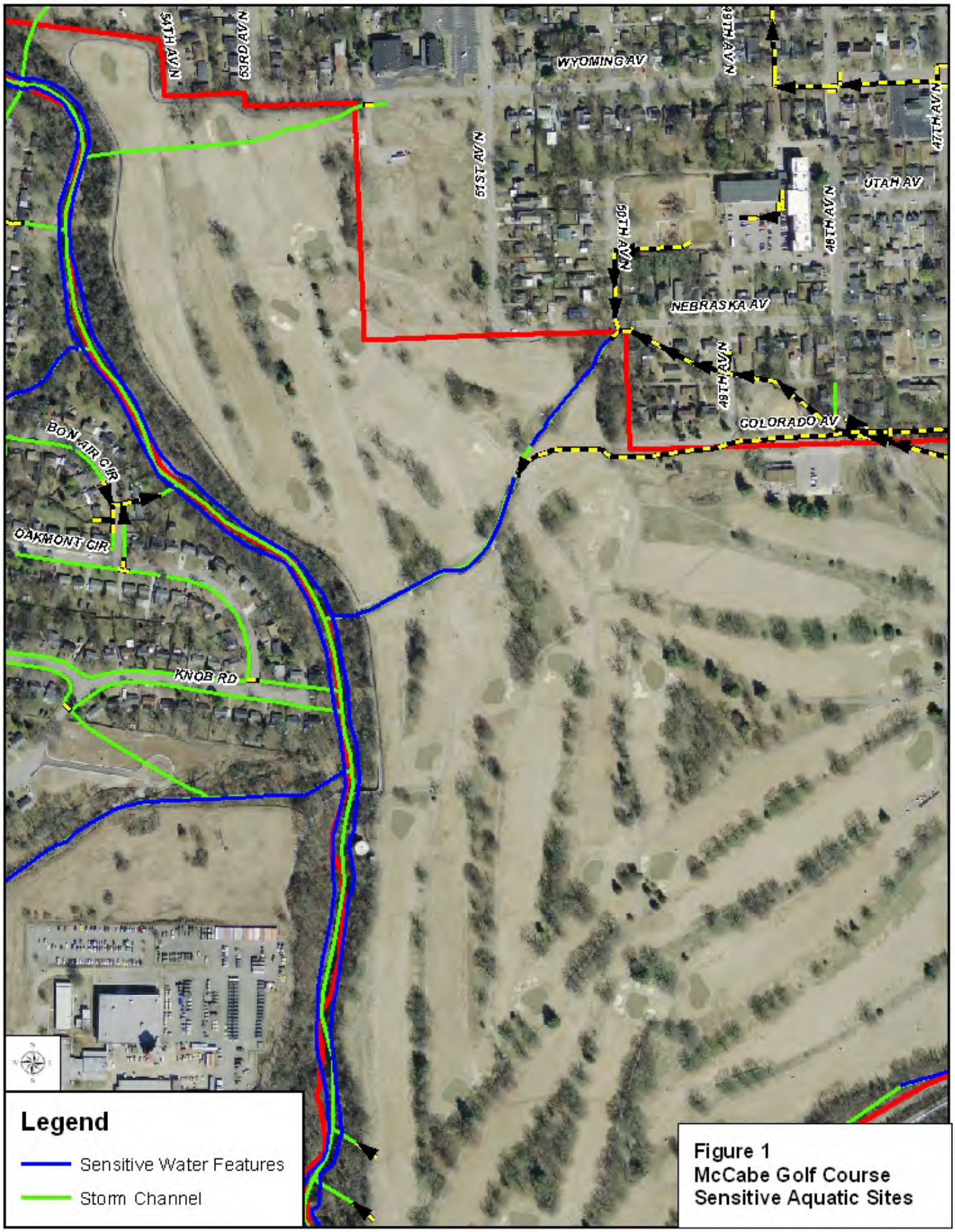


Figure 1
McCabe Golf Course
Sensitive Aquatic Sites

Figure 2
McCabe Maintenance Shop Sensitive Areas

4.0 SITE SPECIFIC BMP PLAN

In general, following the SOPs outlined in Appendix A shall prevent pollutants from entering the storm drain. Specific BMPs, however, shall be deployed, at the sensitive areas identified within Figure 2.

4.1 Stockpiled Soil and Sand

Any area where sand or soil is stockpiled in a manner that can mix with stormwater and drain off-site into an inlet, storm ditch, or stream shall be protected with perimeter controls. Perimeter controls can be trenched in silt fence, staked down weighted sediment tubes, or other suitable materials that allow stormwater to drain away while filtering out the sand and soil. Perimeter controls are not needed if the materials are stored in areas surrounded by established, thick vegetation, as the vegetation such as thick tall grass can act as a filter from stormwater runoff. Stockpiled areas shall also be inspected once per week using the same inspection form located in Appendix B. Some of the weekly inspections should occur during rain events to determine if materials are draining off the site.

4.2 Above-Ground Fuel Tank/Other Outside Equipment/Tanks

The large above-ground fuel tank shall be inspected weekly to determine if there are any leaks or spills. The person performing the inspection shall look for wet oily substances on the ground or on the hose of the tank. Any discovered leaks or drips shall be repaired immediately. Any lost oil product shall be cleaned up promptly and properly with absorbent materials. A spill response kit shall be kept in close proximity to the tank area. In addition, the weekly inspection shall include looking at any equipment stored outside to determine if any oils are leaking.

4.3 Employee Training

It is imperative that all maintenance employees are properly trained on the SOPs located within Appendix A. Each year, management shall go over the SOPS with each employee and document the training with employee signatures on the form located within Appendix B.

Metro Maintenance Facility
Site Runoff Management Plan

Harpeth Hills Golf Course

2424 Old Hickory Blvd
Nashville, TN 37221
615-373-8855

Prepared By:

Metro Water Services
Stormwater, NPDES Section
1607 County Hospital Road
Nashville, TN 37218

March, 2013

1.0 OVERVIEW

1.1 INTRODUCTION

This Runoff Management Plan (RMP) covers all maintenance operations at Harpeth Hills Golf Course. It has been developed as required under Metropolitan Nashville Davidson County's (Metro's) Municipal Separate Storm Sewer System (MS4) NPDES permit issued to Metro by the Tennessee Department of Environment and Conservation. This RMP identifies potential sources of storm water pollution at the facility and recommends appropriate best management practices (BMPs) or pollution control measures to reduce the discharge of pollutants in storm water runoff from the facility. The RMP shall be reviewed annually by maintenance personnel to determine the effectiveness of the plan and if any changes are necessary. It is the Harpeth Hills Golf Course maintenance personnel's responsibility to follow the procedures outlined in the plan and maintain appropriate documentation. If situations develop that require the plan to be altered, please contact the Metro Water Services, Stormwater NPDES Section at 615-880-2420 to update the plan.

1.2 OBJECTIVES

The goal of the RMP is to prevent impacts to surface waters from the stormwater runoff or illicit discharges from the Harpeth Hills Golf Course and maintenance facility. The goal of only clean stormwater discharging from the facility will be accomplished by eliminating the exposure of pollutants during maintenance procedures and overall materials storage.

2.0 STORM WATER POLLUTION PREVENTION TEAM

The storm water pollution prevention team is responsible for developing, implementing, maintaining, and revising this RMP. Table 1 provides a list of team member(s) and their primary responsibilities of the SWPPP.

Table 1 – Storm Water Pollution Prevention Team

Name & Title	Phone	Responsibility
Mike Bays/Overall Metro Parks Maintenance Operations Supervisor	**615-862-8400**	**Making sure all Parks maintenance operations are compliant with RMPs**
Phil Luckett/Metro Golf Course Maintenance Supervisor	**615-862-8400**	**Making sure the site-specific RMP is followed and the appropriate documentation is in place at all Golf Courses**
Mark Littlejohn/Harpeth Hills Golf Course Maintenance Supervisor	**615-373-8855**	**Making sure the site-specific RMP is followed and the appropriate documentation is in place at**

		the Harpeth Hills

3.0 POTENTIAL SOURCES OF POLLUTANTS

Pollutants from Metro operations and maintenance activities can include the following:

- Sand and/or soil flowing off-site from stockpile areas;
- Fertilizer, pesticides, fungicides, and herbicides;
- Detergents and other cleaning agents;
- Concentrated portions of grass clippings/leaves;
- Petroleum products from spills, leaking equipment, and/or washing equipment; and
- Other general maintenance products such as paint, solvents, etc.

3.1 GENERAL MAINTENANCE ACTIVITIES

Maintenance activities, if not performed properly, can lead to significant impacts to stormwater runoff. The following maintenance activities have been identified as having the potential for impacting stormwater runoff and Standard Operating Procedures (SOPs) have been developed for each. In general, maintenance activities at all Metro facilities shall follow the below-listed SOPs, which are located in Appendix A of this document.

- Pesticide, Herbicide, Fertilizer Application, Storage, and Disposal.
- Petroleum Product Storage & Spill Clean-up
- Grass Clipping Disposal
- Equipment Washing/General Maintenance Activities
- Bare Soil/Sand Management

3.2 SITE-SPECIFIC MANAGEMENT PRACTICES

Each Metro facility that houses operations and maintenance activities is different. Some Metro facilities have many sensitive areas such as streams, storm drains, or ditches, while others have very few. The Harpeth Hills Golf Course and maintenance shop is not directly near a water body, however any pollutants that wash off of the site could be potentially harmful downstream or to the groundwater. Figure 1 depicts general stormwater drainage throughout the golf course. All stormwater drainage features, including inlets, ditches, and streams shall be protected from pollutant runoff that could result from maintenance activities such as chemical spraying and general material storage.

The area within the Harpeth Hills Golf Course that poses the most threat of pollutant runoff is the maintenance shop where materials and equipment are stored and maintained. The maintence shop and the critical sensitive areas are depicted within Figure 2. The following sensitive areas have been identified at the maintenance shop.

1. Soil/Sand Stockpiles - sand stockpiling on the paved surface in front of the maintenance shop can easily flow off-site into a storm ditch.

Figure 1.
Harpeth Hills Golf Course
Sensitive Aquatic Sites

Figure 2.
Harpeth Hills Golf Course
Maintenance Shop
Sensitive Areas

4.0 SITE SPECIFIC BMP PLAN

In general, following the SOPs outlined in Appendix A shall prevent pollutants from entering the storm drain. Specific BMPs, however, shall be deployed, at the sensitive areas identified within Figure 2.

4.1 Stockpiled Soil and Sand

Any area where sand or soil is stockpiled in a manner that can mix with stormwater and drain off-site into an inlet, storm ditch, or stream shall be protected with perimeter controls. Perimeter controls can be trenched in silt fence, staked down weighted sediment tubes, or other suitable materials that allow stormwater to drain away while filtering out the sand and soil. Perimeter controls are not needed if the materials are stored in areas surrounded by established, thick vegetation, as the vegetation such as thick tall grass can act as a filter from stormwater runoff. Stockpiled areas shall also be inspected once per week using the same inspection form located in Appendix B. Some of the weekly inspections should occur during rain events to determine if materials are draining off the site.

4.2 Employee Training

It is imperative that all maintenance employees are properly trained on the SOPs located within Appendix A. Each year, management shall go over the SOPS with each employee and document the training with employee signatures on the form located within Appendix B.

Metro Maintenance Facility
Site Runoff Management Plan

Cedar Hill Park

860 West Old Hickory Blvd
Madison, TN 37115
615-865-1853

Prepared By:

Metro Water Services
Stormwater, NPDES Section
1607 County Hospital Road
Nashville, TN 37218

May, 2013

1.0 OVERVIEW

1.1 INTRODUCTION

This Runoff Management Plan (RMP) covers all maintenance operations at Cedar Hill Park. It has been developed as required under Metropolitan Nashville Davidson County's (Metro's) Municipal Separate Storm Sewer System (MS4) NPDES permit issued to Metro by the Tennessee Department of Environment and Conservation. This RMP identifies potential sources of storm water pollution at the facility and recommends appropriate best management practices (BMPs) or pollution control measures to reduce the discharge of pollutants in storm water runoff from the facility. The RMP shall be reviewed annually by maintenance personnel to determine the effectiveness of the plan and if any changes are necessary. It is the Cedar Hill Park's maintenance personnel's responsibility to follow the procedures outlined in the plan and maintain appropriate documentation. If situations develop that require the plan to be altered, please contact the Metro Water Services, Stormwater NPDES Section at 615-880-2420 to update the plan.

1.2 OBJECTIVES

The goal of the RMP is to prevent impacts to surface waters from the stormwater runoff or illicit discharges from the Cedar Hill Park and maintenance facility. The goal of only clean stormwater discharging from the facility will be accomplished by eliminating the exposure of pollutants during maintenance procedures and overall materials storage.

2.0 STORM WATER POLLUTION PREVENTION TEAM

The storm water pollution prevention team is responsible for developing, implementing, maintaining, and revising this RMP. Table 1 provides a list of team member(s) and their primary responsibilities of the SWPPP.

Table 1 – Storm Water Pollution Prevention Team

Name & Title	Phone	Responsibility
Mike Bays/Overall Metro Parks Maintenance Operations Supervisor	**615-862-8400**	**Making sure all Parks maintenance operations are compliant with RMPs**
Tommy Boner/Cedar Hill Park Maintenance Supervisor	**615-865-1853**	**Making sure the site-specific RMP is followed and the appropriate documentation is in place at the Two Rivers Golf Course**

3.0 POTENTIAL SOURCES OF POLLUTANTS

Pollutants from Metro operations and maintenance activities can include the following:

- Sand and/or soil flowing off-site from stockpile areas;
- Fertilizer, pesticides, fungicides, and herbicides;
- Detergents and other cleaning agents;
- Concentrated portions of grass clippings/leaves;
- Petroleum products from spills, leaking equipment, and/or washing equipment; and
- Other general maintenance products such as paint, solvents, etc.

3.1 GENERAL MAINTENANCE ACTIVITIES

Maintenance activities, if not performed properly, can lead to significant impacts to stormwater runoff. The following maintenance activities have been identified as having the potential for impacting stormwater runoff and Standard Operating Procedures (SOPs) have been developed for each. In general, maintenance activities at all Metro facilities shall follow the below-listed SOPs, which are located in Appendix A of this document.

- Pesticide, Herbicide, Fertilizer Application, Storage, and Disposal.
- Petroleum Product Storage & Spill Clean-up
- Grass Clipping Disposal
- Equipment Washing/General Maintenance Activities
- Bare Soil/Sand Management

3.2 SITE-SPECIFIC MANAGEMENT PRACTICES

Each Metro facility that houses operations and maintenance activities is different. Some Metro facilities have many sensitive areas such as streams, storm drains, or ditches, while others have very few. Cedar Hill Park happens to have one major drainage feature which could be impacted by runoff of pollutants from the maintenance shop due to the nature of the materials stored at the facility. Figure 1 depicts general stormwater drainage throughout the park. All stormwater drainage features, including inlets, ditches, and streams shall be protected from pollutant runoff that could result from maintenance activities such as chemical spraying and general material storage.

The area within the Cedar Hill Park that poses the most threat of pollutant runoff is the maintenance shop where materials and equipment are stored and maintained. The maintence shop and the critical sensitive areas are depicted within Figure 2. The following sensitive areas have been identified at the maintenance shop.

1. Soil/Sand Stockpiles - sand stockpiling on the paved surface in front of the maintenance shop can easily flow off-site into a storm ditch.

2. Oil Drums/containers – located in front of the maintenance shop. Lids were either not present or not secured properly. It is advisable that the oil drums are moved under shelter and oil absorbent kits are on-site for any accidental spills.

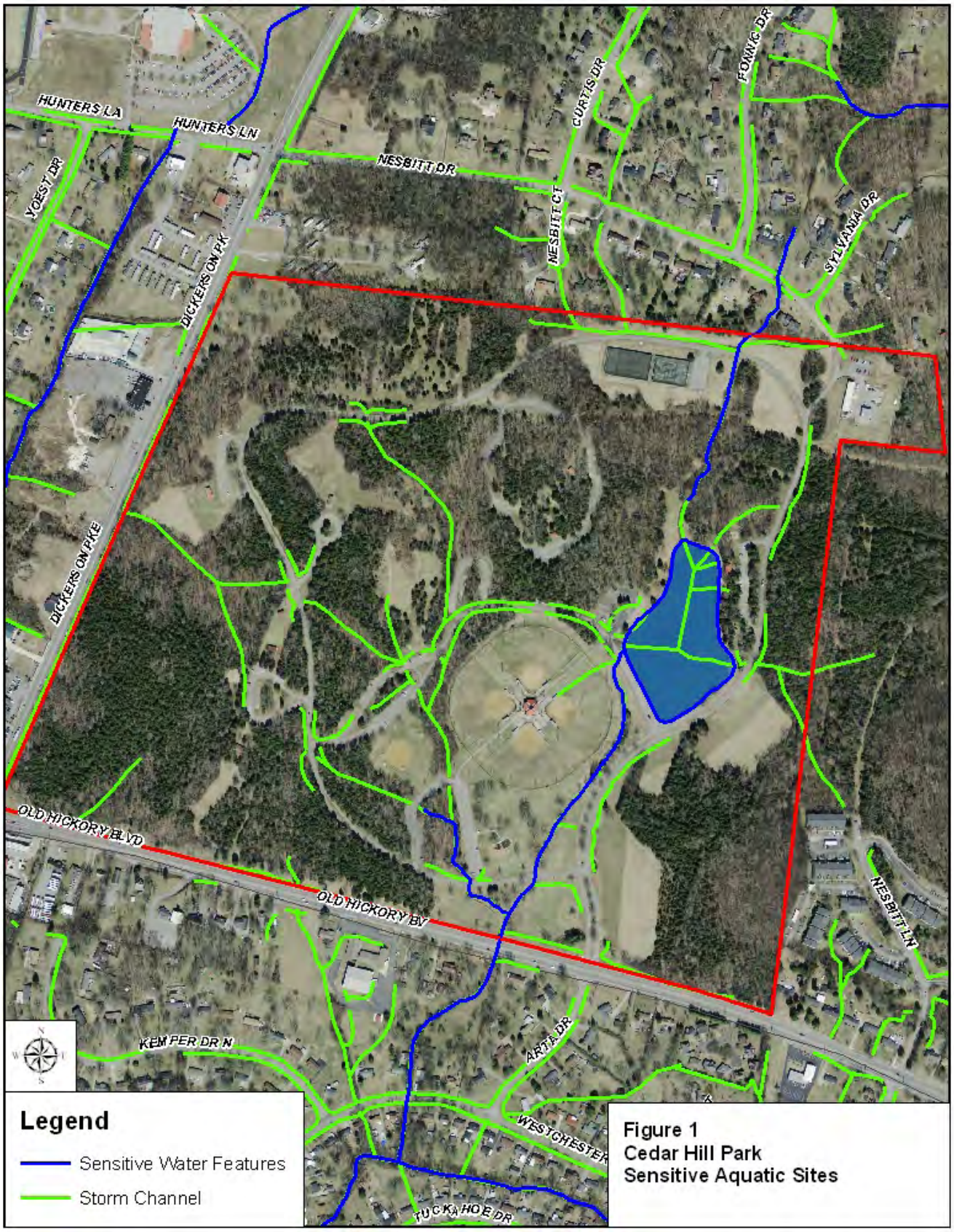

HUNTERS LA
HUNTERS LN
NESBITT DR
CURTIS DR
FONNIC DR
YOEST DR
DICKERSON PK
NESBITT CT
SYLVANIA DR
DICKERSON PIKE
OLD HICKORY BLVD
OLD HICKORY BV
NESBITT LN
KEMPER DR N
ARTA DR
WESTCHESTER
TUCKAHOE DR
Legend
Sensitive Water Features
Storm Channel
Figure 1
Cedar Hill Park
Sensitive Aquatic Sites

Figure 2. Cedar Hill Park Maintenance Shop
Sensitive Areas

4.0 SITE SPECIFIC BMP PLAN

In general, following the SOPs outlined in Appendix A shall prevent pollutants from entering the storm drain. Specific BMPs, however, shall be deployed, at the sensitive areas identified within Figure 2.

4.1 Stockpiled Soil and Sand

Any area where sand or soil is stockpiled in a manner that can mix with stormwater and drain off-site into an inlet, storm ditch, or stream shall be protected with perimeter controls. Perimeter controls can be trenched in silt fence, staked down weighted sediment tubes, or other suitable materials that allow stormwater to drain away while filtering out the sand and soil. Perimeter controls are not needed if the materials are stored in areas surrounded by established, thick vegetation, as the vegetation such as thick tall grass can act as a filter from stormwater runoff. Stockpiled areas shall also be inspected once per week using the same inspection form located in Appendix B. Some of the weekly inspections should occur during rain events to determine if materials are draining off the site.

4.2 Oil Drums and Containers

The oil drums and containers should be moved to an area with a roof. They should have secured lids that are in place when the drum is not being used. Weekly inspections should be done to ensure that there are no leaks or spills. The person performing the inspection shall look for wet oily substances on the ground. Any discovered leaks or drips shall be repaired immediately. Any lost oil product shall be cleaned up promptly and properly with absorbent materials. A spill response kit shall be kept in close proximity to the storage area. In addition, the weekly inspection shall include looking at any equipment stored outside to determine if any oils are leaking.

4.3 Employee Training

It is imperative that all maintenance employees are properly trained on the SOPs located within Appendix A. Each year, management shall go over the SOPs with each employee and document the training with employee signatures on the form located within Appendix B.

Metro Maintenance Facility
Site Runoff Management Plan

Metro Transit Authority – Bus Maintenance Shop

Nashville, TN 37209
615-862-6126

Prepared By:

Metro Water Services
Stormwater, NPDES Section
1607 County Hospital Road
Nashville, TN 37218

May, 2013

1.0 OVERVIEW

1.1 INTRODUCTION

This Runoff Management Plan (RMP) covers all maintenance operations at the Metro Transit Authority (MTA) Bus Maintenance Facility located at 130 Nestor Street. It has been developed as required under Metropolitan Nashville Davidson County's (Metro's) Municipal Separate Storm Sewer System (MS4) NPDES permit issued to Metro by the Tennessee Department of Environment and Conservation. This RMP identifies potential sources of storm water pollution at the facility and recommends appropriate best management practices (BMPs) or pollution control measures to reduce the discharge of pollutants in storm water runoff from the facility. The RMP shall be reviewed annually by maintenance personnel to determine the effectiveness of the plan and if any changes are necessary. It is the MTA maintenance personnel's responsibility to follow the procedures outlined in the plan and maintain appropriate documentation. If situations develop that require the plan to be altered, please contact the Metro Water Services, Stormwater NPDES Section at 615-880-2420 to update the plan.

1.2 OBJECTIVES

The goal of the RMP is to prevent impacts to surface waters from the stormwater runoff or illicit discharges from the MTA Bus Maintenance Facility. The goal of only clean stormwater discharging from the facility will be accomplished by eliminating the exposure of pollutants during maintenance procedures and overall materials storage.

2.0 STORM WATER POLLUTION PREVENTION TEAM

The storm water pollution prevention team is responsible for developing, implementing, maintaining, and revising this RMP. Table 1 provides a list of team member(s) and their primary responsibilities of the SWPPP.

Table 1 – Storm Water Pollution Prevention Team

Name & Title	Phone	Responsibility
Bruce Buck MTA Maintenance Manager	**615-862-6126**	**Making sure the site-specific RMP is followed and the appropriate documentation is in place at the MTA Bus Terminal**

3.0 POTENTIAL SOURCES OF POLLUTANTS

Pollutants from Metro maintenance activities/facilities can include the following:

- Detergents and other cleaning agents;
- Petroleum products or asphalt products from spills, leaking equipment, and/or washing equipment;
- Other general maintenance products such as paint, solvents, etc.
-

3.1 GENERAL MAINTENANCE ACTIVITIES

Maintenance activities, if not performed properly, can lead to significant impacts to stormwater runoff. The following maintenance activities have been identified as having the potential for impacting stormwater runoff and Standard Operating Procedures (SOPs) have been developed for each. In general, maintenance activities at all Metro facilities shall follow the below-listed SOPs, which are located in Appendix A of this document.

- Petroleum Product Storage & Spill Clean-up
- Equipment Washing/General Maintenance Activities;

3.2 SITE-SPECIFIC MANAGEMENT PRACTICES

Each Metro facility that houses operations and maintenance activities is different. Some Metro facilities have many sensitive areas such as streams, storm drains, or ditches, while others have very few. The MTA Bus Maintenance Facility has drainage features which are in close proximity to key maintenance operations. Figure 1 depicts general stormwater drainage throughout the facility. All stormwater drainage features, including inlets, ditches, and streams shall be protected from pollutant runoff that could result from maintenance activities such as chemical spraying and general material storage.

The area within the MTA Bus Maintenance Facility that poses the most threat of pollutant runoff is the area located near the bus wash bay. There exists the potential fro tracking out or leaking of cleaning agents as well as petroleum product. This area should be inspected all around the structure and any such product noted on the ground outside (exposed to stormwater) should be cleaned up properly. Simply washing down product on the parking lot is not an approved method of clean-up. Any lost product should be collected and properly disposed of. In addition to the wash bays, there is the potential for automotive fluids being tracked outside or leaks from buses parked in the parking lot. These areas should also be inspected routinely so any product on the ground, exposed to stormwater runoff could be properly cleaned. For any major spills, the Stormwater NPDES Section should be contacted at 615-880-2420.

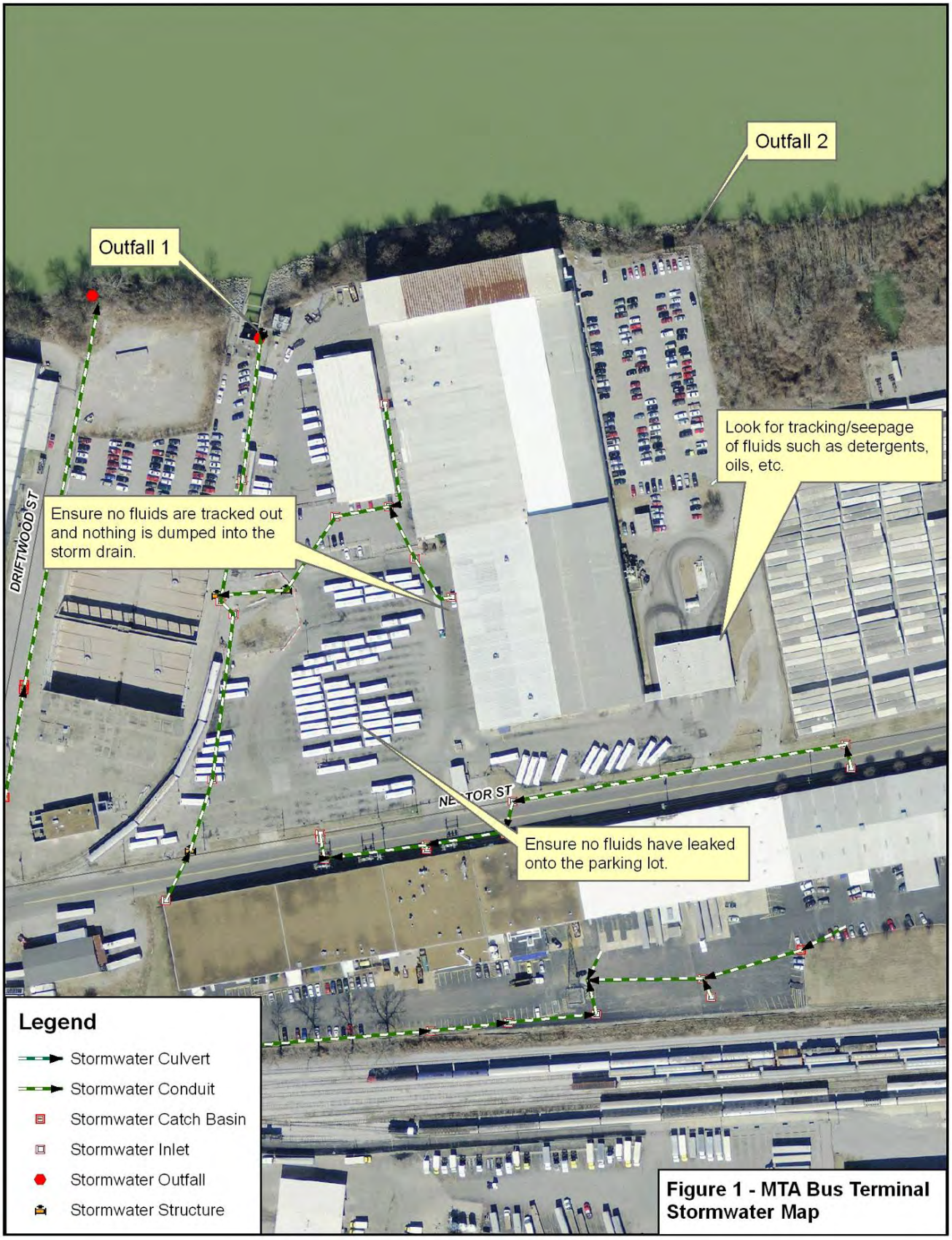


Figure 1 - MTA Bus Terminal Stormwater Map

4.0 SITE SPECIFIC BMP PLAN

In general, following the SOPs outlined in Appendix A shall prevent pollutants from entering the storm drain. Specific BMPs, however, shall be deployed, if persistent pollution problems are noted at any of the sensitive area inspections.

4.1 Weekly Inspections

The stormwater outfall points and sensitive areas identified on Figure 1 above should be inspected at least once per week (preferably prior to any large rain events). The inspections shall be documented on the template inspection forms within Appendix B and completed inspection forms shall be stored within Appendix C of this document for a period of at least 3 years. The weekly inspections shall pay specific attention to the following areas:

- Equipment Storage/Maintenance: Any place in which equipment is stored and/or maintained shall be inspected for oily residue on the ground or dripping fluids. Any observed product on the ground shall be cleaned up appropriately. Any active leaks in any equipment stored outside need to be immediately contained with catchment pans until the leak can be repaired.
- Fueling/Oil Storage Areas: Any fleet fueling areas or oil storage tanks/containers should be inspected for leaks or drips. Any oil product found exposed to stormwater contact shall be cleaned up immediately with proper absorbent materials. (Note: Sand is not an effective absorbent product). Absorbent material shall be swept up and properly disposed of.
- Chemical Storage (i.e..): Any maintenance chemicals such as fertilizers, paints, pesticides, cleaners, etc shall be stored indoors or under cover in a contained area. These areas should be inspected to ensure no materials are leaking out. Any leaks/spills shall be cleaned-up immediately.
- Dumpster/Disposal Areas: Any dumpsters shall be inspected to ensure no contents are leaking out onto the ground that can contact stormwater. Most dumpsters have plugs and lids. The lids should stay closed and the plugs should remain in.

4.2 Employee Training

It is imperative that all maintenance employees are properly trained on the SOPs located within Appendix A. Each year, management shall go over the SOPS with each employee and document the training with employee signatures on the form located within Appendix B.

Metro Maintenance Facility
Site Runoff Management Plan

Tennessee State Fairgrounds
625 Smith Ave.
Nashville, Tennessee

Prepared By:

Metro Water Services
Stormwater, NPDES Section
1607 County Hospital Road
Nashville, TN 37218

2013

1.0 OVERVIEW

1.1 INTRODUCTION

This Runoff Management Plan (RMP) covers all maintenance operations at the Tennessee State Fairgrounds and was developed as required under Metropolitan Nashville Davidson County's (Metro's) Municipal Separate Storm Sewer System (MS4) NPDES permit issued to Metro by the Tennessee Department of Environment and Conservation. This RMP identifies potential sources of storm water pollution at the facility and recommends appropriate best management practices (BMPs) or pollution control measures to reduce the discharge of pollutants in storm water runoff from the facility. The RMP shall be reviewed annually by maintenance personnel to determine the effectiveness of the plan and if any changes are necessary. It is the Tennessee State Fairgrounds maintenance personnel's responsibility to follow the procedures outlined in the plan and maintain appropriate documentation. If situations develop that require the plan to be altered, please contact the Metro Water Services, Stormwater NPDES Section at 615-880-2420 to update the plan.

1.2 OBJECTIVES

The goal of the RMP is to prevent impacts to surface waters from the stormwater runoff or illicit discharges from the Tennessee State Fairgrounds from. The goal of only clean stormwater discharging from the facility will be accomplished by eliminating the exposure of pollutants during maintenance procedures, special events, and overall materials storage.

2.0 STORM WATER POLLUTION PREVENTION TEAM

The storm water pollution prevention team is responsible for developing, implementing, maintaining, and revising this RMP. Table 1 provides a list of team member(s) and their primary responsibilities of the SWPPP.

Table 1 – Storm Water Pollution Prevention Team

Name & Title	Phone	Responsibility
David Lewis Maintenance Manager	**615.880.3715**	**Making sure all Fairgrounds maintenance operations are compliant with RMPs**

3.0 POTENTIAL SOURCES OF POLLUTANTS

Pollutants from Metro operations and maintenance activities can include the following:

- Sand and/or soil flowing off-site from stockpile areas;
- Fertilizer, pesticides, fungicides, and herbicides;
- Detergents and other cleaning agents;

- Animal wastes during the State Fair;
- Petroleum products from spills, leaking equipment, and/or washing equipment; and
- Other general areas such as dumpsters, special events, etc. .

3.1 GENERAL MAINTENANCE ACTIVITIES

Maintenance activities, if not performed properly, can lead to significant impacts to stormwater runoff. The following maintenance activities have been identified as having the potential for impacting stormwater runoff and Standard Operating Procedures (SOPs) have been developed for each. In general, maintenance activities at all Metro facilities shall follow the below-listed SOPs, which are located in Appendix A of this document.

- Pesticide, Herbicide, Fertilizer Application, Storage, and Disposal.
- Petroleum Product Storage & Spill Clean-up
- Equipment Washing/General Maintenance Activities
- Bare Soil/Sand Management

3.2 SITE-SPECIFIC MANAGEMENT PRACTICES

Each Metro facility that houses operations and maintenance activities is different. Some Metro facilities have many sensitive areas such as streams, storm drains, or ditches, while others have very few. The Tennessee State Fairgrounds has one major drainage feature (Browns Creek), which flows through the middle of the property and receives all of the facility's stormwater runoff. Figure 1 depicts general stormwater drainage throughout the park. All stormwater drainage features, including inlets, ditches, and streams shall be protected from pollutant runoff that could result from maintenance activities such as chemical spraying and general material storage.

The area within the Tennessee State Fairgrounds that poses the most threat of pollutant runoff is the livestock washing bays. In previous years, the drains within the indoor livestock washing bays were found to route to the outside stormwater drains. These drains are now temporarily plugged during events, so that the wash water can be pumped back to the sanitary sewer. Some of the other areas of potential concern for stormwater runoff are listed below and are depicted on the Figure 1.

1. Dumpster Areas located in front of the maintenance shop. Lids were either not present or not secured properly. It is advisable that the oil drums are moved under shelter and oil absorbent kits are on-site for any accidental spills.

2. Animal Staging Area: Animal staging areas should be cleaned regularly and inspected to ensure no waste product is draining to outside storm drains. If an outside storm drain is located directly near an animal staging area, then a temporary cover should be placed over the drain until the event is done and all adjacent animal waste is cleaned up.

3. Animal Waste Dumpsters: During livestock events, animal waste dumpsters are temporarily staged on-site. These dumpsters should be placed so that

stormwater does not cause any of the waste within the dumpster to leach out onto the ground.

4. Impervious Parking Lots: Parking lots should be routinely inspected to ensure no automotive fluids have dripped onto the parking areas that could wash off into storm drains.

5. Race Track: All drains within the race track shall be inspected to ensure that no automotive fluids, grit, or debris reaches the drains. Oil absorbent material shall be kept on-hand.

6. Soil/Sand Stockpiles: Any areas where soil or sand stockpiling occurs should be protected from discharging to a creek;.

7. Vendor Area: All vendor areas should be inspected during and immediately after events. Inspections shall focus on proper waste disposal and general area upkeep.

8. Animal Washing Bay: The interior animal washing bays shall be inspected prior to any events that involve washing in the bays. The inspections shall include determining if the temporary plug is in the pipe and the pump is in place to pump wash water back to the sanitary sewer.


Legend
Inlet
Outfall
Conduit
Channel
Figure 1 - Tennessee State Fairgrounds
Areas Of Concern
1 Main Dumpster Aea
2 Animal Staging Area
3 Animal Waste Dumpsters
4 Impervious Parking Lots
5 Race Track
6 Soil Stockpile Area
7 Vendor Area
8 Animal Washing Bay
Fairgrounds Property
N
W
E
S
Feet
0 250 500 1,000

4.0 SITE SPECIFIC BMP PLAN

In general, following the SOPs outlined in Appendix A shall prevent pollutants from entering the storm drain. Specific BMPs, however, shall be deployed, at the sensitive areas identified within Figure 1. The fairgrounds staff shall institute a weekly inspection routine in which the critical areas listed below and on Figure 1 are inspected and maintained, if necessary. All weekly inspections shall be documented on the form in

4.1 Livestock Waste and Wash Water Areas

As mentioned in Section 3, any livestock staging area, waste disposal area, and washing areas should not route contaminated discharges to the storm sewer. BMPs in the form of continual cleaning of livestock areas or covering drains located directly near livestock staging areas should be deployed. In addition, the drains within the internal wash bay, should be blocked and re-routed to a sanitary sewer drain during any event that involves washing activities.

4.2 Dumpsters, Grease Recycle Bins, etc…

During some of the large events at the fairgrounds, many vendors are on-site at any given time. Vendor areas should be routinely inspected to ensure all proper disposal methods are being followed. In addition, the dumpster storage areas, as depicted on Figure 1, should be inspected frequently, preferably before rain events to ensure that no spilled materials or leaking dumpsters have resulted in contaminants being left exposed to stormwater runoff on the pavement.

4.3 Parking areas/Race track

These areas shall be inspected frequently and automotive fluids exposed on impervious areas can wash off quickly into Browns Creek. Maintenance personnel shall have access to oil absorbent material in the event of a spill or leak anywhere on the fairgrounds property. Proper clean-up of automotive fluids involves placing absorbent on the spilled fluids and collecting the absorbent material for proper disposal. Simply placing down absorbent material and leaving it is not an acceptable clean-up option.

4.4 Employee Training

It is imperative that all maintenance employees are properly trained on the SOPs located within Appendix A and the required weekly inspections. Each year, management shall go over the SOPs with each employee and document the training with employee signatures on the form located within Appendix B.

Central Wastewater Treatment Plant
Storm Water Pollution Prevention Plan

Updated
2013

TABLE OF CONTENTS

GENERAL FACILITY INFORMATION

Name of Facility: Central Waste Water Treatment Plant

Facility Address: 1600 Second Ave North

Nashville, TN 37208

Facility Contact:

Name: Darryl Schutt

Title: Treatment Plant Manager

Telephone: 862-4900

Mailing Address: 1600 Second Ave North

Nashville, TN 37208

Owner: Metropolitan Government, Metro Water Services

Operator: Darryl Schutt

Standard Industrial classification (SIC) Code: 4952

Permit Information:

Type: (X) General ( ) Individual

Designated Name: David Tucker

Permit Number: TNR053258

Effective Date of Coverage: 03/1/02

Number of Storm Water Outfalls: 3

Receiving Waters: Cumberland River

Emergency Contact:

Name: Darryl Schutt, Claude Grant Jr., Carl Marsh

Telephone: 862-4900

1.0 OVERVIEW

1.1 INTRODUCTION

This storm water pollution prevention plan (SWPPP) covers the operations at Central Wastewater Treatment Plant. It has been developed as required under Tennessee's National Pollutant Discharge Elimination System (NPDES) general permit for storm water discharges. This SWPPP identifies potential sources of storm water pollution at the facility, recommends appropriate best management practices (BMPs) or pollution control measures to reduce the discharge of pollutants in storm water runoff, and provides for periodic review of this SWPPP. The SWPPP will be reviewed annually by plant personnel to determine the effectiveness and to determine if any changes are warranted.

1.2 OBJECTIVES

The goal of the SWPPP is to improve the quality of surface waters by reducing the amount of pollutants potentially contained in the storm water runoff being discharged from the Central Wastewater facility. The SWPPP will be a written document that will be followed by plant personnel to prevent stormwater contamination.

2.0 STORM WATER POLLUTION PREVENTION TEAM

The storm water pollution prevention team is responsible for developing, implementing, maintaining, and revising this SWPPP. The members of the team are familiar with the management and operations of the Central Wastewater Treatment Plant.

Table 1 provides a list of team member(s) of and their primary responsibilities of the SWPPP.

Table 1 – Storm Water Pollution Prevention Team

Name & Title	Responsibility
David Tucker, Assistant Director Darryl W. Schutt, Treatment Plant Manager	Implementation and execution
Claude Grant Jr.- Assistant Plant Manager Carl Marsh – Assistant Plant Manger	• Plan Implementation, • SWPPP training for other employees. • Quarterly inspections of outfalls during rain events, • Semi-Annual Comprehensive Site Evaluation, Annual Report
Josh Hayes - Metro Stormwater Division –NPDES Office rep	Plan Updates, resource assistance

3.0 OVERALL SITE DRAINAGE

3.1 SITE MAP

Figure 1 presents an aerial-based site map of the existing conditions, which includes storm drains and areas of potential pollutants to stormwater. Figure 2 depicts the drainage area of the plant differentiating the areas that drain to the sewer treatment plant verses the areas that drain to the river.

As depicted in the site maps, stormwater drainage, that eventually routes to the river, is discharged from for the Central Wastewater Treatment Plant property at five separate points. MWS will perform the required quarterly sampling/monitoring from these five points. Please note, that Outfall #3 receives very little runoff from the Central WWTP property and actually receives more roadway runoff than plant runoff. Also please note that Outfall #2 receives runoff from a neighboring industry. MWS will monitor the stormwater discharge from this industry during various rain events.


Outfall 1
Material Stockpile
Equipment Storage Area
Rubble Stockpile
Commercial Wash-out Pits
Vac Truck De-watering
Sludge Drying Area
Outfall 2
Sludge Drying Area
Outfall 5
Original Plant Effluent Line
Outfall 3
Outfall 4
FIGURE 1
Drainage to the Plant
Conduits
Inlets
Drainage to the River
Culvert
Conduit
Channel
Manhole/BMP
Outfall
Inlet
0 100 200 400 600 800
Feet
N
W
E
S


FIGURE 2
Legend
Drainage Delineation
Both
Plant
River
0 100 200 400 600 800
Feet

3.2 INVENTORY OF EXPOSED MATERIALS

During the initial site review, the following areas have been identified as potential sources of pollutants to stormwater runoff and should be managed appropriately to prevent the potential for contaminated stormwater runoff:

Chemical Storage/Unloading: All chemicals used in the treatment process, except large chlorine rail cars are stored indoors or in areas that drain to the treatment plant. Polymer Sodium Hypochlorite, Sodium Hydroxide, Petroleum Products (lubricants, oils, greases, kerosene) are delivered to the site by truck. Chlorine and sulfur dioxide are delivered by rail.

Material Storage: The System Services Division uses and stockpiles various materials such as gravel, soil, and asphalt milling. The location of the material storage areas is depicted on Figure 1. Since the soil stockpiling area poses a potential runoff threat to water quality, it is covered with plastic during periods it is not in use. There is one area where sludge from vacuum trucks is composted outside, however, the drainage in that area routes to a pit which is pumped back into the treatment works.

Equipment Storage: There are two main areas where equipment is stored on the facility. System Services stores equipment, pumps, trucks, backhoes, parts, etc. in their upper parking lot. This area has been identified as draining to the treatment works. Only minor maintenance of equipment is performed on the facility. Maintenance for the vehicle fleet is performed in the main Metro maintenance garage.

Dumpsters: There is one large roll-off dumpster used to dispose of scrap metal, etc. The only other dumpsters on the property receive mostly general office waste.

Wash-out Bays: There are two washout pits into which commercial waste haulers empty their waste and wash off their trucks. The drains associated with this wash-out pit have been verified as routing to the treatment works. Due to the nature of the wash-out pits being located near stormwater inlets, a risk of pollutant runoff exists.

Vactor Truck De-Watering Area: Stormwater and System Services vactor truck operators de-water the trucks in the designated area on the northeast of the plant. The area is designated with signage and the drainage for this area routes to the sanitary sewer (See Figure 1).

Sludge Drying Area: Wet sludge gathered in cleaning out both sanitary and storm sewer lines is mixed with wood chips for drying before being hauled to the landfill. The designated sludge drying areas are marked with signage and are depicted on Figure 1.

3.3 LIST OF PAST SPILLS AND LEAKS

The permit requires a listing of oil and other polluting materials that have been spilled or leaked over the three years prior to the completion of the plan be included in the plan. Also include the date, volume of materials, the exact location of each release, and the actions taken to clean up the materials and/or prevent exposure of the materials to storm water runoff or contamination of surface waters of the state. (If there have been no spills of polluting materials, state that in this section). Table 2 gives a listing of any spills and leaks.

Table 2 – Listing of Spills and Leaks reported within the last three years

DATE	MATERIAL	VOLUME	LOCATION	ACTIONS TAKEN

3.4 SUMMARY OF SAMPLING DATA

The permit does not require analytical sampling of stormwater discharges. The permit does, however, required quarterly visual examination of stormwater discharge quality. Examinations shall be made from both outfalls during daylight hours within the first 30 minutes (or as soon thereafter as practical, but not to exceed 1 hour) of when the runoff begins to discharge. The observations shall document color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution. All samples examined shall be taken for rain events of at least 72 hours from a previous rain event and that are greater than 0.1 inch of total rainfall. All visual examination forms are attached in Appendix A.

4.0 BEST MANAGEMENT PRACTICES

The permit requires the Central Wastewater Treatment Plant to manage the stormwater runoff through a combination of structural and non-structural BMPs.

4.1 Measures and Controls

- **Structural Controls**
  The new Biosolids Facility has an underground "post development" water quality vault through which stormwater routes before discharging from the site. Since the remainder of the plant was constructed prior to stormwater regulations being in place, there are no structural controls located on other areas of the plant. The potential retrofit of BMPs at the facility is considered as observed issues, site situations and circumstances warrant.

- **Non-structural Controls**
  The new Biosolids Facility has several stormwater runoff infiltration basins on that area of the property. No such non-structural controls exist on the older portions of the facility.

- **Good Housekeeping Practices**
  Good housekeeping practices are designed to maintain a clean and orderly work environment. This will reduce the potential for significant pollutants/materials to come contact with stormwater.

  The Central Wastewater Treatment Plant performs routine cleaning on all facility grounds to prevent trash and pollutants from draining off the site.

- **Preventative Maintenance**
  Preventive Maintenance involves the regular inspection, testing, and cleaning of facility equipment and operational systems to insure there are no leaks or spills. These inspections will help to uncover conditions which might lead to a release of pollutants or materials, thus allowing for maintenance to prevent such a release. The Central Wastewater Treatment Plant routinely inspects the potential pollutant source areas mentioned above. . Preventative maintenance inspection forms are included in Appendix C.

- **Spill Prevention and Response Procedures**
  The Central Wastewater Treatment Plant has trained personnel on proper clean-up of spills and leaks. Spills of oils and motor fluids are cleaned up with oil dry (absorbent) material. All oil absorbent material shall be swept up and disposed of in a trash receptacle. If sludge material is spilled, employees should immediately clean the material up and put back into the treatment system.

- **Semi-annual Comprehensive Inspections**
  Comprehensive inspections of the facility (equipment, plant areas, and structural controls) are required by the permit. These inspections must occur at least once every six months. Records of the inspections must be kept on file with the SWPPP. Inspection forms are attached in Appendix B.

- **Sedimentation Control Measures**
  Occasionally, soil disturbing activities or circumstances may present themselves. Whenever soil disturbing activities are undertaken, proper erosion prevention and sediment control BMPs will be installed prior to the work. The BMPs include the use of silt fence, check dams, erosion control matting and sediment traps as deemed necessary. All disturbed areas will be stabilized immediately following the completion of work.

- **Employee Training**
  Employee training will be a major component in ensuring the success of the facilities SWPPP. The more knowledgeable all employees are about the facility's SWPPP and what is expected of them, the greater the chance that the plan will be successful.

  The following is a description of the employee training programs that will be implemented. Employee sign-in sheets in Appendix C.

Topic	Employees Included	Frequency
Preventive Maintenance Inspections	All employees that are designated to perform the site inspections`	Once/Year
Spill Response – Notification	All maintenance employees	Once/2 Years
Good Housekeeping	All maintenance employees	Once/2 Years

5.0 NON-STORM WATER DISCHARGES

The permit requires that all discharge locations be evaluated for the presence of non-storm water discharges. Any unauthorized storm water dischargers must be eliminated, or covered under another National Pollutant Discharge Elimination System (NPDES) permit.

CERTIFICATION OF EVALUATION OF NON-STORM WATER DISCHARGES

I certify under penalty of law that the storm water drainage system in this SWPPP has been tested or evaluated for the presence of non-storm water discharges either by me, or under my direction and supervision. To the best of my knowledge and belief, the information submitted is true, accurate, and complete. And at the time this plan was completed no unauthorized discharges were present. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment for knowing violations.

_____ _____

(Signature) (Date)

_____ _____

(Printed Name) (Title)

6.0 RECORD KEEPING AND REPORTING

The permit requires that records of all preventive maintenance inspections, the semi-annual comprehensive site inspections, records of employee training sessions, and the annual report are to be retained at the Central Treatment Plant for at least three years after the permit coverage expires.

These records must be made available, upon request, to a representative of the Tennessee Department of Environment and Conservation (TDEC)

6.1 ANNUAL REPORT

The permit requires that the Central Wastewater Treatment Plant prepare an annual report discussing the effectiveness of the site's SWPPP. This report should include any changes that have been made, the reason for the changes, any spills that occurred, what actions were taken as result of the spill, inspection results, and any other information relevant to the SWPPP. The annual report is to be retained on site.

Dry Creek Wastewater Treatment Plant
Storm Water Pollution Prevention Plan

Revised:
November 2011

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GENERAL FACILITY INFORMATION

Name of Facility: Dry Creek Waste Water Treatment Plant

Facility Address: 61 Edenwold Road

Madison, TN 37115

Facility Contact:

Name: James Kenner

Title: Plant Manager

Telephone: 862-8577

Mailing Address: 61 Edenwold Road

Madison, TN 37115

Owner: Metropolitan Government, Metro Water Services

Operator: James Kenner

Standard Industrial classification (SIC) Code: 4952

Permit Information:

Type: (X) General ( ) Individual

Designated Name: James M. Tarpy

Permit Number: TNR053255

Effective Date of Coverage: 03/1/02

Number of Storm Water Outfalls: 1

Receiving Waters: Dry Creek

Emergency Contact:

Name: James Kenner

Telephone: 862-8577

1.0 OVERVIEW

1.1 INTRODUCTION

This storm water pollution prevention plan (SWPPP) covers the operations at Dry Creek Wastewater Treatment Plant. It has been developed as required under Tennessee's National Pollutant Discharge Elimination System (NPDES) general permit for storm water discharges. This SWPPP identifies potential sources of storm water pollution at the facility, recommends appropriate best management practices (BMPs) or pollution control measures to reduce the discharge of pollutants in storm water runoff, and provides for periodic review of this SWPPP. The SWPPP will be reviewed annually by plant personnel to determine the effectiveness and to determine if any changes are warranted.

1.2 OBJECTIVES

The goal of the SWPPP is to improve the quality of surface waters by reducing the amount of pollutants potentially contained in the storm water runoff being discharged from the Dry Creek Wastewater facility. The SWPPP will be a written document that will be followed by plant personnel to prevent stormwater contamination.

2.0 STORM WATER POLLUTION PREVENTION TEAM

The storm water pollution prevention team is responsible for developing, implementing, maintaining, and revising this SWPPP. The members of the team are familiar with the management and operations of the Dry Creek Wastewater Treatment Plant.

Table 1 provides a list of team member(s) of and their primary responsibilities of the SWPPP.

Table 1 – Storm Water Pollution Prevention Team

Name & Title	Responsibility
James Kenner	**Plant Manager**

3.0 POTENTIAL SOURCES OF POLLUTANTS

3.1 SITE MAP

Figure 1is an aerial-based site map depicting the existing conditions. . The map depicts the following features (as required by the permit).

- property boundaries;
- buildings and other permanent structures;
- storage or disposal areas for significant materials;
- storm water discharge outfalls;
- location of storm water inlets contributing to each outfall;
- outlines of drainage areas contributing to each outfall;
- location of NPDES permitted discharges other than storm water;
- structural runoff controls and storm water treatment facilities;
- areas of vegetation;
- areas of exposed and/or erodible soils;
- impervious surfaces (roof tops, asphalt, concrete);
- names and locations of receiving waters;
- locations where the following activities are exposed to storm water:
    - fixed fueling operations
    - vehicle and equipment maintenance and/or cleaning areas
    - loading/unloading areas
    - waste storage or disposal areas
    - liquid storage tanks
    - equipment operating areas
    - storage areas; and
- any other areas deemed appropriate.

As depicted in the site maps, stormwater drainage for the Dry Creek Wastewater Treatment Plant mostly routes to one primary outfall to Dry Creek (outfall 1). There is a small portion of the property (office building and parking lot), however, that routes to Gizzard Branch (outfall 2). Gizzard Branch is piped through the treatment plant property and the small amount of stormwater that does drain from the plant enters though inlets on the east side of the property.


Piped Gizzard Br.
Outfall 2
Dry Creek
Outfall 1
Plant Effluent Outfall
Cumberland River
Dry Creek Wastewater Treatment Plant
Figure 2 - Aerial Site Map
Feet
0 50 100 200
Approximate Inlet Locations
Approximate Drainage Boundary
Stormwater Outfall
Stormwater Sump/Pump

Figure 1

3.2 INVENTORY OF EXPOSED MATERIALS

The permit requires a general inventory of significant materials on site. For each significant material on site an evaluation is to be conducted to determine the potential for these materials to be contributed to the runoff being discharged from the facility. Areas to focus on may include:

- loading and unloading areas
- other material handling operations (fuel pumps, etc.)
- outdoor storage areas
- processes which generate dust or particulate matter
- roof vents, stacks, and blowers
- waste generating areas
- waste disposal practices
- maintenance and cleaning practices for vehicles and equipment
- any other areas deemed appropriate

There are very few materials at the Dry Creek Wastewater Treatment Plant that are exposed to stormwater. Most of the plant's chemicals and materials are stored indoors behind containment. Stormwater runoff from the plant's main industrial processes also (filter building, settling tanks, etc.) mostly drain to tank drainage rather than stormwater. Table 2 lists all areas were industrial materials may be exposed to the storm water runoff at any given time.

Table 2 – List of Exposed Industrial Materials

Type	Material	Method of Exposure	Outfall
Empty Drum Storage	Oil, fluids for pumps	Drums are mostly stored inside. Any drums or containers stored outside on a temporary basis are always capped and plugged and no exposed material are present.	1
Tank Storage	Nitrazyme for odor control	Large tank temporarily stored outside during renovations	1
Loading Area	Treatment Solids	Loading area is covered and contained by concrete curb	1

3.3 LIST OF PAST SPILLS AND LEAKS

The permit requires a listing of oil and other polluting materials that have been spilled or leaked over the three years prior to the completion of the plan be included in the plan. Also include the date, volume of materials, the exact location of each release, and the actions taken to clean up the materials and/or prevent exposure of the materials to storm water runoff or contamination of surface waters of the state. (If there have been no spills of polluting materials, state that in this section). Table 3 gives a listing of any spills and leaks.

Table 3 – Listing of Spills and Leaks reported within the last three years

DATE	MATERIAL	VOLUME	LOCATION	ACTIONS TAKEN

3.4 SUMMARY OF SAMPLING DATA

The permit does not require analytical sampling of stormwater discharges. The permit does, however, required quarterly visual examination of stormwater discharge quality. Examinations shall be made from both outfalls during daylight hours within the first 30 minutes (or as soon thereafter as practical, but not to exceed 1 hour) of when the runoff begins to discharge. The observations shall document observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution. All samples examined shall be taken for rain events of at least 72 hours from a previous rain event and that are greater than 0.1 inch of total rainfall. All visual examination forms are attached in Appendix A.

4.0 BEST MANAGEMENT PRACTICES

The permit requires the Dry Creek Wastewater Treatment Plant to manage the stormwater runoff through a combination of structural and non-structural BMPs.

4.1 Measures and Controls

- **Structural Controls**
  Most of the stormwater runoff from the treatment plant drains through a sump/pump station BMP located on Outfall 1. The stormwater collects in the sump area until water levels automatically activate a pump that pumps the water to Dry Creek. The pump siphons the water off from approximately 2 to 3 feet from the bottom, therefore, not discharging settled solids and floatable oils and materials. Plant personnel routinely clean out the collected solids in the bottom of the sump. Prior to discharging into the sump area, an underground water quality unit has been installed to treat stormwater runoff from the new digester complex and equalization basin area. This water quality unit allows sediment to settle out prior to draining to the sump area. The underground water quality unit is cleaned out when sediment levels accumulate to certain levels.

- **Non-structural Controls**
  The Dry Creek Wastewater Treatment Plant also utilizes non-structural controls as BMPs to reduce the amount of pollution contaminating surface waters. Non-structural controls focus on prevention to eliminate the problem at the source. The following controls for the site include structural controls, good housekeeping procedures, preventative maintenance, spill prevention and response procedures, erosion prevention and sediment control practices, semi-annual compliance inspections and routine inspections of designated areas, and employee training.

- **Good Housekeeping Practices**
  Good housekeeping practices are designed to maintain a clean and orderly work environment. This will reduce the potential for significant materials to come contact with storm water.

  The Dry Creek Wastewater Treatment Plant performs routine cleaning on all of the sites grounds to prevent trash and pollutants from draining off the site.

- **Spill Prevention and Response Procedures**
  The Dry Creek Wastewater Treatment Plant has trained personnel on proper clean-up of spills and leaks. Spills of oils and motor fluids are cleaned up with oil dry (absorbent) material and properly disposed of. If

sludge material is spilled during the loading process, employees immediately clean the material up with shovels and properly dispose of it.

- **Semi-annual Comprehensive Inspections**
  Comprehensive inspections of the facility (equipment, plant areas, and structural controls) are required by the permit. These inspections should occur at least once every six months. Records of the inspections should be kept on file with the SWPPP. Inspection forms are attached in Appendix B.

- **Sedimentation Control Measures**
  Occasionally, soil disturbing activities or circumstances may present themselves. Whenever soil disturbing activities are undertaken, proper erosion prevention and sediment control BMPs will be installed prior to the work. The BMPs include the use of silt fence, straw bales, check dams, erosion control matting and sediment traps as deemed necessary. All disturbed areas will be stabilized immediately following the completion of work.

- **Employee Training**
  Employee training will be a major component in ensuring the success of the facilities SWPPP. The more knowledgeable all employees are about the facility's SWPPP and what is expected of them, the greater the chance that the plan will be successful.

  The following is a description of the employee training programs that will be implemented. Training records are attached in Appendix C.

Topic	Employees Included	Frequency

5.0 NON-STORM WATER DISCHARGES

The permit requires that all discharge locations be evaluated for the presence of non-storm water discharges. Any unauthorized storm water dischargers must be eliminated, or covered under another National Pollutant Discharge Elimination System (NPDES) permit.

CERTIFICATION OF EVALUATION OF NON-STORM WATER DISCHARGES

I certify under penalty of law that the storm water drainage system in this SWPPP has been tested or evaluated for the presence of non-storm water discharges either by me, or under my direction and supervision. To the best of my knowledge and belief, the information submitted is true, accurate, and complete. And at the time this plan was completed no unauthorized discharges were present. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment for knowing violations.

_____ _____
(Signature) (Date)

_____ _____
(Printed Name) (Title)

6.0 RECORD KEEPING AND REPORTING

The permit requires that records of all preventive maintenance inspections, the semi-annual comprehensive site inspections, records of employee training sessions, and the annual report to be retained at the Dry Creek Treatment Plant for at least three years after the permit coverage expires.

These records must be made available, upon request, to a representative of the Tennessee Department of Environment and Conservation (TDEC

6.1 ANNUAL REPORT

The permit requires that the Dry Creek Wastewater Treatment Plant prepare an annual report discussing the effectiveness of the SWPPP. This report should include any changes that have been made, the reason for the changes, any spills that occurred, what actions were taken as result of the spill, inspection results, and any other information relevant to the SWPPP. The annual report is to be retained on site.

SWMP Appendix B

SOPs for Metro O&M Facilities/Activities

Metro Nashville Municipal Separate Storm Sewer System Permit
Municipal Standard Operating Procedures:

Policy No.:	MS4 - 01	**Metro Department:**	MWS Stormwater Routine Maintenance
Effective Date:	9/1/12	**Municipal Procedure:**	Open Channel Maintenance

SOP Purpose: To establish guidelines for performing maintenance on open-channel drainage ditches that prevent impacts to stormwater runoff during and after maintenance is complete.

Policy:

Control Measures During Maintenance:

1) Crew leader to assess whether or not erosion or sediment control measures are needed.
2) If "yes" is answered to the below questions, then erosion control measures should be deployed.
   A) Is substantial rain in the forecast prior to final stabilization?
   B) Will bare ground be left without stabilization (matting/seed and straw) for more than 15 days?
3) Erosion control measures should consist of a filter devices installed downstream of the project. The below devices are examples of what could be installed to direct all runoff through to filter out sediment. Any of the following filtering devices can be used:
   A) Weighted sediment tubes staked in ditch downstream of work.
   B) Gravel check dam with filter fabric in ditch downstream of work. (typically for larger projects)
   C) Straw bales staked in ditch downstream of work. (should only be used as a last resort if above two materials are not available)

Final Stabilization

1) After ditches are cleaned and graded to the final contours, permanent stabilization should occur as soon as possible, but no later than 15 days after work is completed. In most cases, stabilization of ditches should occur within a few days of the actual grade work. As stated above, ditches left bare longer than 15 days or during timeframe with forecasted rain, should have erosion controls installed downstream.
2) Appropriate material should be used for final stabilization. Stabilization techniques should be tailored to each circumstance. In most cases straw matting staked down with grass seed will be all that is required. However, in some cases where ditches have steep slopes and high velocity flows, other stabilization materials can be used in lieu of or in conjunction with straw matting.
   A) Appropriate-sized rock (rip rap).
   B) Geotextile matting.
   C) Concrete channel lining (only to be used in extreme circumstances where flow velocities or other factors warrant such an application.)

Note: All downstream erosion control devices should be removed once the ditch is stabilized.

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Metro Nashville Municipal Separate Storm Sewer System Permit
Municipal Standard Operating Procedures:

Policy No.:	MS4 - 02	**Metro Department:**	MWS Stormwater Routine Maintenance
Effective Date:	9/1/12	**Municipal Procedure:**	Inlet Maintenance
SOP Purpose:	To establish guidelines for performing maintenance on street inlets/catch basins that prevent impacts to stormwater runoff during and after maintenance is complete.		

Policy:

General MS4 Permit Requirements:

- Per the MS4 Permit, inlet/catch basin cleaning shall be performed in a manner that prevents sediment and other pollutants from washing downstream.
- All material cleaned out of the drain shall be collected and disposed of in proper locations.
- Estimates of material amounts removed from inlets/catch basins should be tracked and documented in the appropriate databases.

Inlet Cleaning Procedures:

1. Jetting of the inlets and pipes should be performed in a manner that allows the vacuuming of a majority of the liquids and/or solids. For example the high-pressure jet hose can be directed upstream toward the blockage or material to be cleaned, while simultaneously vacuuming up liquids and solids that drain back down to the inlet.
2. All collected material (including muddy rinse water) shall be taken to proper disposal facility. Since the collected material likely contains trash, sediment, oils, and other potential pollutants, all solid waste should be taken to the nearest landfill. De-watering of the Vactor trucks should occur at the Central Wastewater Treatment Plant to the designated drain that routes to the plant.
3. Upon completion of the inlet cleaning for each Work Order, the crew leader shall document on the form the number of loads taken to the landfill/treatment plant.
4. If unusual odors or stains are present within the inlets that would indicate potential illegal dumping, notify the MWS Stormwater NPDES Office at 880-2420 with specific information.

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Municipal Standard Operating Procedures:

Policy No.:	MS4 - 03	**Metro Department:**	MWS Stormwater Routine Maintenance
Effective Date:	9/1/12	**Municipal Procedure:**	Culvert/Bridge Maintenance
SOP Purpose:	To establish guidelines for performing maintenance on culverts or bridges that prevent impacts to stormwater runoff during and after maintenance is complete.		

Policy:

General MS4 Permit Requirements:

- Per the MS4 Permit, culvert/bridge cleaning shall be performed in a manner that prevents sediment and other pollutants from washing downstream.
- All material cleaned out of culverts or bridges should be collected and disposed of in proper locations.

Culvert Cleaning Procedures:

1. Crew leader to determine if excavation of gravel/sediment will occur within a potential State-regulated stream. If there is flowing water and it has been more than 7 days since the last rainfall event, and/or fish are present, then chances are that it is a State-regulated stream. The NPDES Office can be contacted to determine if the ditch is a stream (880-2420). If work is to be performed within a State-regulated stream, the following activity can be performed without seeking a permit.
   A. Removal of unconsolidated sediment (loose gravel, mud/sand) or dead limbs/trash. Flowing water should be temporarily damned or pumped/piped around during excavation activities. Please Note: Gravel/silt bars with trees and shrubs can not be removed without first seeking a permit from the State. (If the stream is located within the Mill Creek basin, then no excavation (even removing loose gravel with a shovel) can be performed without first contacting the NPDES office (615-880-2420).
2. Jetting of culverts shall only be performed when the resulting muddy rinse water is either captured (via vactor truck) or filtered with sediment control devices. Simply washing sediment, gravel, trash downstream could cause blockage at the next structure or could lead to a sudden influx of pollutants into a receiving water body.
   Sediment Capturing Technique
   Impacts downstream can be avoided by capturing as much material as possible using with a Vactor truck. All captured material shall be disposed of in the appropriate designated places.
   Sediment Filtering Technique
   Filtering the wash water downstream would be the easiest method of preventing impacts. In order to filter the flush water the following controls could be strategically placed within the ditch downstream of the culvert:
   A. Staked-in Reusable Weighted Sediment Tubes
   B. Gravel Check Dams
   C. Staked-in Straw Bales (if other materials aren't available)
3. After cleaning is complete, all sediment controls should be removed. Any sediment that settled out in front of the controls shall also be removed.

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Metro Nashville Municipal Separate Storm Sewer System Permit
Municipal Standard Operating Procedures:

Policy No.:	MS4 -04	**Metro Department:**	MWS Routine Maintenance Section
Effective Date:	4/1/12	**Municipal Procedure:**	Bridge Cleaning
SOP Purpose:	To establish guidelines for performing maintenance on bridges.		

Policy:

General MS4 Permit Requirements:

- Sediment or other pollutants cannot be discharged into the storm sewer or streams as a result of a maintenance activity.

Culvert Cleaning Procedures:

1. Crew leader to determine if excavation of gravel/sediment will occur within a State-regulated stream. If there is flowing water and it has been more than 7 days since the recent rainfall or there is aquatic life in the water, then chances are that it is a State-regulated stream. The Stormwater NPDES office 615-880-2420 can be contacted to determine if the drainage structure in question is a state-regulated stream.
2. If the drainage structure is determined to be a stream, then the following restrictions would apply:
   - Mill Creek Basin: No sediment/gravel can be excavated in the Mill Creek drainage basin without a proper permit from the Tennessee Department of Environment and Conservation (TDEC) or the U.S. Army Corps of Engineers. (The dispatcher should be able to tell via GIS/CityWorks if the project is located within the Mill Creek watershed). Dead limbs/trash can be removed as long as the stream bed is not disturbed.
   - All Other Drainage Basins: Loose sediment/gravel can only be removed within 100 feet upstream and downstream of the bridge. Removing sediment/gravel must be performed in a manner that separates flowing water from the excavated area.
     - For example: Sandbags wrapped in plastic can be place along side the flow line and the gravel bar to be removed during the excavation. Or, the stream can be temporarily dammed and piped around during the sediment/gravel excavation.
3. If the drainage structure is dry and not a stream, then procedures identified in the MS4-01 Open Channel Maintenance SOP should be followed for erosion controls/stabilization measures.

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Metro Nashville Municipal Separate Storm Sewer System Permit
Municipal Standard Operating Procedures:

Policy No.:	MS4 - 05	**Metro Department:**	Various Metro Departments Operations and Maintenance Divisions
Effective Date:	02/01/13	**Municipal Procedure:**	Pesticide, Herbicide, Fertilizer Application, Storage, and Disposal
SOP Purpose:	To establish guidelines that prevent impacts to surface water quality during the application, storage, and disposal of chemicals such as pesticides, herbicide, fungicides, and fertilizers.		

Policy:

1) Determine if chemical treatments are absolutely necessary or if other Integrated Pest Management (IPM) practices can be utilized in place of chemical treatments. Refer to the EPA website for IPM facts: (http://www.epa.gov/pesp/htmlpublications/ipm_fact_sheet.html)

2) Make sure proper licenses/certifications are secured from the Tennessee Department of Agriculture (http://www.tn.gov/agriculture/regulatory/licenses.shtml). Depending on the types of applications, certain certifications may be required.

3) Be sure to follow strict protocols during mixing and storing of chemicals such as:

A. Mix chemicals in designated areas away from streams, ponds, wetlands, ditches, or storm drains.

B. Never leave containers unattended during the filling process.

C. Never rinse out equipment or dump out unused product to an outside drain. ditch, or pavement that could easily wash into storm drains or ditches.

D. Always store chemical containers indoors in a contained environment.

4) Always follow the label instructions for proper mixing ratios, application methods, and disposal techniques. Mixing stronger ratios doesn't necessary improve product effectiveness, but can lead to damaging water quality impacts.

5) Always monitor the weather for outside applications. Applying various products prior to rain events will just waste the product and could lead to significant water quality impacts.

6) Maintain "do not spray" buffer zones around sensitive aquatic sites such as streams, ponds, wetlands and storm ditches, unless said chemicals are designed for the aquatic environment. (Refer to the Site's Specific Runoff Management Plan for locations of all storm drains, channels, and sensitive aquatic sites>)

7) Have a plan in place, in which all employees are trained, that detail prompt response/clean-up procedures, and agency notifications in the event of an accidental spill. The MWS Stormwater NPDES Office (615)-880-2420 can be contacted for guidance in determining proper clean-up procedures and agency notification.

8) Consider alternative approaches to fertilization such as mulching grass clippings to provide organic materials for soil enhancement.

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Metro Nashville Municipal Separate Storm Sewer System Permit
Municipal Standard Operating Procedures:

Policy No.:	MS4 - 06	**Metro Department:**	Various Metro Departments Operations and Maintenance Divisions
Effective Date:	02/01/13	**Municipal Procedure:**	Petroleum Product Storage & Spill Clean-up
SOP Purpose:	To establish guidelines preventing impacts to surface water quality during the use and storage of petroleum products and other automotive fluids.		

Policy:

Note: For purposes of this document, oil includes products are considered to be any of the following products:

- Motor Oil;
- Diesel Fuel;
- Gasoline/Ethanol;
- Transmission/Brake Fluid;
- Hydraulic Fluid; and
- Gear Oil, etc.

1) Management to determine if oil storage on the property is in such quantities that warrant a Spill Prevention Control & Countermeasure (SPCC) Plan. In general, above ground tanks with more than 1,320 gallons or underground tanks with over 42,000 gallons of storage capacity. For more information on SPCC plan requirements refer to the EPA's website: (http://www.epa.gov/osweroe1/docs/oil/spcc/spccbluebroch.pdf)

2) Maintain Spill Response Kits on site and readily available in the event of an accidental spill or leak from tanks or equipment. A proper Spill Response Kit should contain oil absorbent material, a tool to apply the absorbent, containment devices (i.e. drain covers, rubber dikes, oil absorbent booms) and tools such as brooms/shovels to clean up absorbent product after the oils have been absorbed. Please note that all absorbent materials and containment devices shall be retrieved and properly disposed of after the spill/leak is remediated.

3) Key maintenance staff shall perform routine weekly inspections of all equipment parked outside and any outside storage containers and tanks. Inspections shall be documented and kept on-site in the maintenance office. During the inspection, personnel shall look for fresh staining or wet oily sheens on pavement near equipment, distressed or dying vegetation underneath equipment, drips from hoses

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Municipal Standard Operating Procedures:

Policy No.:	MS4 - 07	**Metro Department:**	Various Metro Departments Operations and Maintenance Divisions
Effective Date:	02/01/13	**Municipal Procedure:**	Grass Clipping/Leaf Disposal
SOP Purpose:	To establish guidelines preventing impacts to surface water quality from the disposal of grass clippings, leaves, limbs, or other organic materials		

Policy:

1) Grass clippings, leaves, limbs, and other organic materials shall not be disposed of in storm ditches, streams, or in areas where such materials are at risk to be washed by stormwater runoff into stormwater conveyances or into waterways. Concentrated organic materials can cause clogging issues in downstream infrastructure as well as significant water quality impacts. Concentrated decaying organic matter can deplete streams and ponds of much needed dissolved oxygen levels and grass clippings/vegetation may still have attached chemicals that can leach into the water.

2) Organic materials shall be disposed of in the proper locations such as landfills, mulch facilities, or composting areas. For more information on setting up a compost visit the following website: (http://www.nashville.gov/Public-Works/Neighborhood-Services/Yard-Waste-Composting/Backyard-Composting.aspx)

3) When at all possible, grass clippings shall not be collected and should be mulched and discharged during the mowing process. The dead grass clippings spread over the mowed area will actually add nutrients back into the soil.

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Metro Nashville Municipal Separate Storm Sewer System Permit
Municipal Standard Operating Procedures:

Policy No.:	MS4 - 08	**Metro Department:**	Various Metro Departments Operations and Maintenance Divisions
Effective Date:	02/01/13	**Municipal Procedure:**	Equipment Washing/General Maintenance Activities
SOP Purpose:	To establish guidelines that prevent impacts to surface water quality during the washing or general maintenance of equipment.		

Policy:

1) Maintenance equipment such as mowers, tractors, trucks, golf carts, etc. shall not be washed in areas in which the wash water would discharge to a storm drain, ditch, pond, wetland, and/or stream. In most cases, equipment washing shall be performed in areas that that drain to the sanitary sewer system. These areas should be covered to prevent rain water from draining to the sanitary sewer. For general guidance on pressure washing visit the following website: (http://www.nashville.gov/Portals/0/SiteContent/WaterServices/Stormwater/docs/educational/Pressure%20Washing%20Guidance.pdf)
2) If proper wash areas with a sanitary drain are not available at the site, other methods can be deployed to prevent impacts to water quality such as installing containment dikes and collecting the wash water with pumps and containers. Collected wash water can be transported and discharged into an available sanitary sewer manhole/drain.
3) In some instances, wash water can be allowed to discharge into a dense stand of vegetation. In order to pursue discharge wash water to vegetative areas, the maintenance should request the MWS Stormwater NPDES Department at (615) 880-2420 to review the area and determine whether discharges to the areas will be acceptable. Several factors would need to be considered before wash water can be allowed to discharge to vegetated areas. Some factors include the proximity of the vegetated area to aquatic resources, the anticipated discharge volume, and the nature of the discharge. For instance wash water from equipment such as mowers and tractors would contain much higher levels of pollutants such as oils, mud, and detergents than simply rinsing off golf carts.
4) Maintenance of all small equipment such as mowers and golf carts shall be performed indoors. Maintenance of large equipment such as tractors if performed outside shall have all measures necessary deployed to contain any dripping fluids preventing them from contacting the ground and washing off site.
5) All collected/used motor oil or other fluids shall be stored indoors and in a manner that cannot leak or migrate to areas exposed to stormwater runoff. If necessary, secondary containment around oil/fluid drums such as containment pallets, shall be deployed if spillage and leaks are observed around such containers.
6) Used and damaged equipment such as gas tanks, engine blocks, batteries, radiators shall not be stored outside where they will be exposed to stormwater runoff. If there is no room to store such equipment indoors, such items should only be stored outside if they are covered/not contacting stormwater after all the equipment fluids have been drained.

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Municipal Standard Operating Procedures:

Policy No.:	MS4 - 09	**Metro Department:**	Various Metro Departments Operations and Maintenance Divisions
Effective Date:	02/01/13	**Municipal Procedure:**	Bare Soil//Sand /Stockpile Management
SOP Purpose:	To establish guidelines that prevent impacts to surface water quality from bare soils or stockpile areas of soil, sand, and other maintenance materials.		

Policy:

1) All stockpile areas should be protected in order to prevent materials from draining off-site into storm drains, ditches, wetlands, ponds, and/or streams. The types of controls needed may vary depending on a variety of factors, such as proximity to storm drains, channels, or other aquatic sites, types of materials stockpiled, and whether or not the materials are covered or exposed to stormwater. The MWS Stormwater NPDES Office can be contacted for guidance regarding stockpile controls.
2) Stockpiled soil areas that are not being used routinely should be temporarily stabilized with seed and straw.
3) All highly eroded areas on the property shall be protected with appropriate materials such as erosion control matting. This includes areas along ditches and streams.
4) Any re-graded relatively flat areas should be stabilized with seed and straw or sod covering immediately after achieving final grade.
5) Refer to the MWS' Stormwater Management Manual Specifications for the following stabilization techniques:
   - Temporary seeding re-graded/topsoil areas: http://www.nashville.gov/Portals/0/SiteContent/WaterServices/Stormwater/docs/SWMM/2009/4/swmanual30_vol4_tcp05.pdf
   - Erosion control matting applications on concentrated flow channels: http://www.nashville.gov/Portals/0/SiteContent/WaterServices/Stormwater/docs/SWMM/2009/4/swmanual35_vol4_tcp10.pdf
   - Silt fence perimeter controls around stockpiles: http://www.nashville.gov/Portals/0/SiteContent/WaterServices/Stormwater/docs/SWMM/2009/4/swmanual38_vol4_tcp13.pdf
   - Weighted sediment tube perimeter controls around stockpiles: http://www.nashville.gov/Portals/0/SiteContent/WaterServices/Stormwater/docs/SWMM/2009/4/swmanual39_vol4_tcp14.pdf

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Municipal Standard Operating Procedures:

Policy No.:	MS4 - 10	**Metro Department:**	MWS System Services Division
Effective Date:	4/1/12	**Municipal Procedure:**	Pit Pumping/Dewatering

SOP Purpose:

- To establish guidelines for performing de-watering of groundwater in pits without impacting water quality. Sediment or other pollutants can not be discharged into the storm sewer or streams as a result of a maintenance activity. (Note: These procedures are to be followed in normal/routine circumstances. There may be extreme events that warrant abandoning these procedures to maintain public safety.)

Policy:

Pit Pumping Procedures:

When water is encountered in an excavation pit and needs to be pumped out, the muddy water should be filtered by one of the following techniques: (Note, these methods do not apply to water contaminated with sewage material. Water contaminated with sewage can never be pumped to the storm drain or stream even if a filtering device is deployed).

Filter Bag: (Can be used when pumping is performed in an urban setting within paved streets, sidewalks, and/or parking lots) and there are no other ways to filter the pumped water)

1. Ensure all trucks dispatched with pumps have empty filter bags present. Empty bags can be obtained from MWS Stores.
2. Before starting pump, ensure the hose from the pump is connected to the filter bag. (If possible, the filter bag shall be placed on vegetation.)
3. Turn on pump and monitor flow trickling through the filter bag. If flow is clear, continue until flow starts to slow.
4. Once the flow starts to slow or the water discharging from the bag becomes murky, turn off the pump and start with a new bag.
5. You may dispose of the bag by either dumping it back into the trench for backfill material or hauling it to one of the permitted Metro fill sites.

Check Dams:: (Can be used when enough room is available on open ground or ditch that will allow controls to be installed to settle out sediment before draining to the stream.)

1. Build a crescent-shaped structure out of either staked-in sediment tubes. (There are various forms of sediment tubes (filled, recycled rubber tire chunks, recycled carpet fibers, etc.)
2. Place pump outlet hose so that water from the pit routes through the structure.
3. Turn on pump and monitor flow to ensure water draining through the structure is clear and is not bypassing around the structure. If not, turn off pump and install additional controls.
4. When finished, remove controls. Any settled-out sediment can be placed back into the pit/trench as backfill.

Inlet Protection:: (Can be used in urban area such as paved streets when a sediment filter bag is not available)

1. Locate the downstream inlet(s) on the street in which pump water would drain to.
2. Install either sandbags, or weighted sediment tubes around the inlet so that the muddy water has to drain through the devices prior to draining into the grate.
3. Turn on the pump and monitor the flow into the inlet to ensure it is clear.
4. Remove the inlet protection and collected sediment when finished.

Vegetation: (Can be used when pumping is performed in areas where dense vegetation (Grasses) are present and there is a distance of at least 100 feet from a stream or storm ditch.)

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Filter Bag Use

Sediment Tube used in a Ditch Setting

Sediment Tube used as Inlet Protection

Sediment Tube used on Open Ground

Sediment Tube used as Inlet Protection

Metro Nashville Municipal Separate Storm Sewer System Permit
Municipal Standard Operating Procedures:

Policy No.:	MS4 - 11	**Metro Department:**	MWS System Services Division
Effective Date:	4/1/12	**Municipal Procedure:**	Material Collection/Disposal
SOP Purpose:	➢ To establish guidelines for collecting and disposing of material during maintenance projects.		

Policy:

Disposal of Sewage Contaminated Material: (Note: if sewage contacts any portion of water or soil to be disposed of, then the entire amount of material shall be treated as being contaminated and in need of special disposal conditions.

5. All collected sewage material shall be disposed of in locations that route to the treatment plants. Under no circumstances can sewage contaminated material be discharged to the storm sewer system, open ground, or streams.
6. The designated disposal area for sewage contaminated material is located in the parking lot across from the Administration Building in the back corner of the lot. This area drains to sump pit that is pumped back to the treatment plant.
7. All rinsing of trucks/equipment shall occur in design areas that drain to the treatment plant. If a drain is labeled with a sign stating "No Dumping, Drains to River", then no material or wash material can be discharged to the drain. "Designated De-Watering Area" signs are posted in the area where vactor trucks should be emptied. Wet sludge material shall be placed in the designated areas with "Solids Drying Area" signs posted.

Disposal of Material (not contaminated by sewage): Material such as soil and rock does not have to be treated as contaminated material and can be disposed of at several locations.

1. In most cases, clean dirt and rock can be backfilled within the trenches/pits that were dug for the maintenance work. Excess, clean dirt /rock material can be disposed at one of the approved Metro Fill site located at the main Nashville Airport off of Elm Hill Pike. A small amount of asphalt millings can also be dumped at the Metro-approved fill site, but shall not exceed 15% of the load. Old pipes, trash, and other materials cannot be dumped at the approved fill sites.
2. Pipes, trash, or excess asphalt millings shall be taken to the appropriate landfills approved by each division.

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Metro Nashville Municipal Separate Storm Sewer System Permit
Municipal Standard Operating Procedures:

Policy No.:	MS4 - 12	**Metro Department:**	MWS System Services Division
Effective Date:	4/1/12	**Municipal Procedure:**	Work In and Around Creeks and Drainage Ditches

SOP Purpose:

- To establish guidelines for performing maintenance activities in and around creeks.

Policy:

If maintenance of a water and/or sewer line involves work within drainage channels then the following restrictions shall be considered.

State-regulated Stream:

Crew leader to determine if excavation of gravel/sediment will occur within a State-regulated stream. If there is flowing water and it has been more than 7 days since the recent rainfall or there is aquatic life in the water, then chances are that it is a State-regulated stream. The Stormwater NPDES office 615-880-2420 can be contacted to determine if the drainage structure in question is a state-regulated stream.

- Mill Creek Basin: No sediment/gravel can be excavated in the Mill Creek drainage basin without a proper permit from the Tennessee Department of Environment and Conservation (TDEC) or the U.S. Army Corps of Engineers. A map on the back page of this SOP depicts the Mill Creek Drainage basin. Managers also have access to the Mill Creek Watershed file through GIS if questions arise. Dead limbs/trash can be removed from aerial sewer crossings without seeking state and federal approval so long as the stream bed is not disturbed and no heavy equipment is driven through the stream channel.
- All Other Drainage Basins: Loose sediment/gravel can only be removed within 100 feet upstream and downstream of any aerial stream crossings without seeking permit approvals. Removing sediment/gravel, however, must be performed in a manner that separates flowing water from the excavated area.
  - For example: Sandbags wrapped in plastic can be place along side the flow line and the gravel bar to be removed during the excavation. Or, the stream can be temporarily dammed and piped around during the sediment/gravel excavation.

  All other larger-scale work such as replacing existing sewer/water lines requires both federal and state permits. The section manager shall be notified when large excavation work is to be performed within a state-regulated stream.

Storm Ditches

Proper downstream Erosion and Sediment control structures shall be deployed prior to any excavation in and around storm ditches. Erosion control measures should consist of a filter devices filter out sediment while letting clean water flow through the other side. Any of the following filtering devices can be used:

A) Weighted sediment tubes staked in ditch downstream of work.
B) Gravel check dam with filter fabric in ditch downstream of work. (typically for larger projects)
C) Straw bales staked in ditch downstream of work. (should only be used as a last resort if above two materials are not available)

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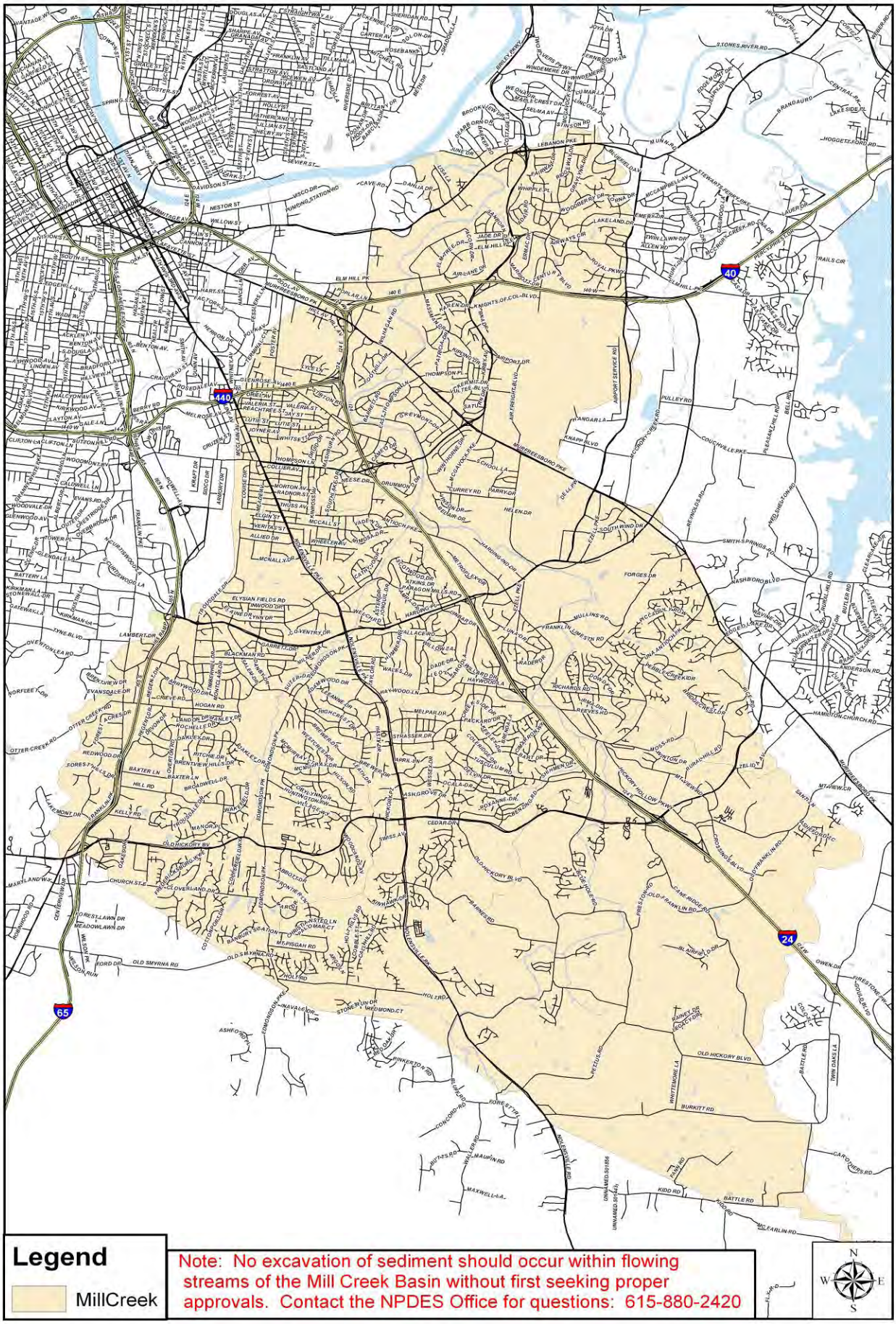
Legend
MillCreek
Note: No excavation of sediment should occur within flowing streams of the Mill Creek Basin without first seeking proper approvals. Contact the NPDES Office for questions: 615-880-2420
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Metro Nashville Municipal Separate Storm Sewer System Permit
Municipal Standard Operating Procedures:

Policy No.:	MS4 - 13	**Metro Department:**	Various Metro Departments Operations and Maintenance Divisions
Effective Date:	05/08/14	**Municipal Procedure:**	Disposal Cleaners/Paint/Other Potential Hazardous Waste

SOP Purpose: To establish guidelines that prevent impacts to surface water quality during general maintenance activities such as painting, cleaning, etc..

Policy:

1) Refer to labels for proper disposal of cleaning products, wash water, or other potential hazardous materials such as paints, solvents, etc.

2) Paints, solvents, cleaners (even if it's biodegradable, should never be disposed of outside to the ground or in a storm drain. This includes washing off equipment or containers. All wash water should be properly disposed of. In most cases, water-based paints can be disposed of in drains that route to the sanitary sewer. This includes the wash water from cleaning brushes or rollers. Oil based paints should <u>not</u> be dumped into any drains (stormwater or sanitary). Residual oil based paints should be left to dry prior to disposing in normal trash receptacles or should be taken to proper Hazardous Waste Disposal Facilities.

3) In most cases, mop water and other general (non-toxic) cleaning agents are safe to be disposed of into a drain that routes to the sanitary sewer. Many facilities have mop sinks or floor drains that are plumbed to the sanitary sewer. Mop water should never be dumped outside.

4) Other materials such as floor waxes or wax strippers should also not be disposed of outside. Proper disposal instructions should be clearly depicted on the labels.

Note: Discharges of cleaners, paints, solvents or other maintenance products to outside storm drains is damaging to receiving streams and is illegal. Individuals can be held liable for the discharge of these materials to the storm drainage system.

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Metro Nashville Municipal Separate Storm Sewer System Permit
Municipal Standard Operating Procedures:

Policy No.:	MS4 - 14	**Metro Department:**	Nashville Sports Authority (Nissan Stadium)
Effective Date:	7/1/15	**Municipal Procedure:**	Special Event Stormwater Pollution Prevention Guidelines

SOP Purpose: To establish guidelines that prevent impacts to the MS4 or the Cumberland River from Special Events at Nissan Stadium.

Policy:

1) Each Special Event shall designate an Event Monitor that will be responsible for the below activities:
   A. Ensuring procedures within this SOP are followed during the event to prevent impacts to stormwater runoff.
   B. Reporting accidental spills/releases of pollutants to a storm drain or river.
   C. Clean-up of any spills/accidental releases of pollutants to the storm drain or river.

2) Pre-Event Review/Planning
   A. The Event Monitor shall develop an event-specific strategy to endure pollutants don't drain from the facility to the storm sewer.
   B. As part of developing the event strategy, the representative shall review the drainage map (attached) to determine if potential pollution sources will be located near storm drains. Potential pollution sources could include the following:
      *Dumpsters, Grease Bins, Waste Containers
      *Event Products (i.e. color dye, fireworks, etc.)
      *Food Vendors, detergents, cleaning agents, etc.
   C. Material Safety Data Sheets (MSDS) shall be obtained to be kept on-site of any event product such as color dye, paints, or special cleaners.
   D. Event layout shall take into consideration stormwater drain locations with efforts made to prevent potential pollutants from being stored near these sensitive areas. In the event storm drains are located near potential pollution sources, measures such as drain covers should be deployed as preventative measures if rain occurs.

3) Event Management/Clean-up Activities
   A. During the event, the Event Monitor shall inspect the potential pollution sources described above to specifically look for non-stormwater substances draining to storm drains. Immediate actions should be taken in the event non-stormwater product is observed near or in storm drains.
   B. In the event of rain during the event, the Event Monitor shall deploy measures to prevent non-stormwater materials from entering the storm drain.
   C. Clean-up activities shall commence immediately following the conclusion of the event. No materials shall be flushed down to the storm drain. If washing of pavement or structures are necessary, the Event Monitor shall ensure the capture of rinse water before it routes to a storm drain. In order to route the rinse water to the sanitary sewer, the Event Monitor shall coordinate with the MWS Pre-treatment Section at 615-862-4590.

4) Accidental Spills/Releases
   A. In the event of an accidental spill in which product reaches a storm drain or the river, the event monitor shall deploy immediate measures to contain as much product as possible.
   B. After emergency containment measures are deployed, the Event Monitor shall notify State and Local agencies to report the spill contents and volume and the planned remediation efforts.
   State Agency = TEMA – (615-741-0001) - Local Agency = OEM (615-862-8530)

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Figure 1 - Nissan Stadium Overall Site Map

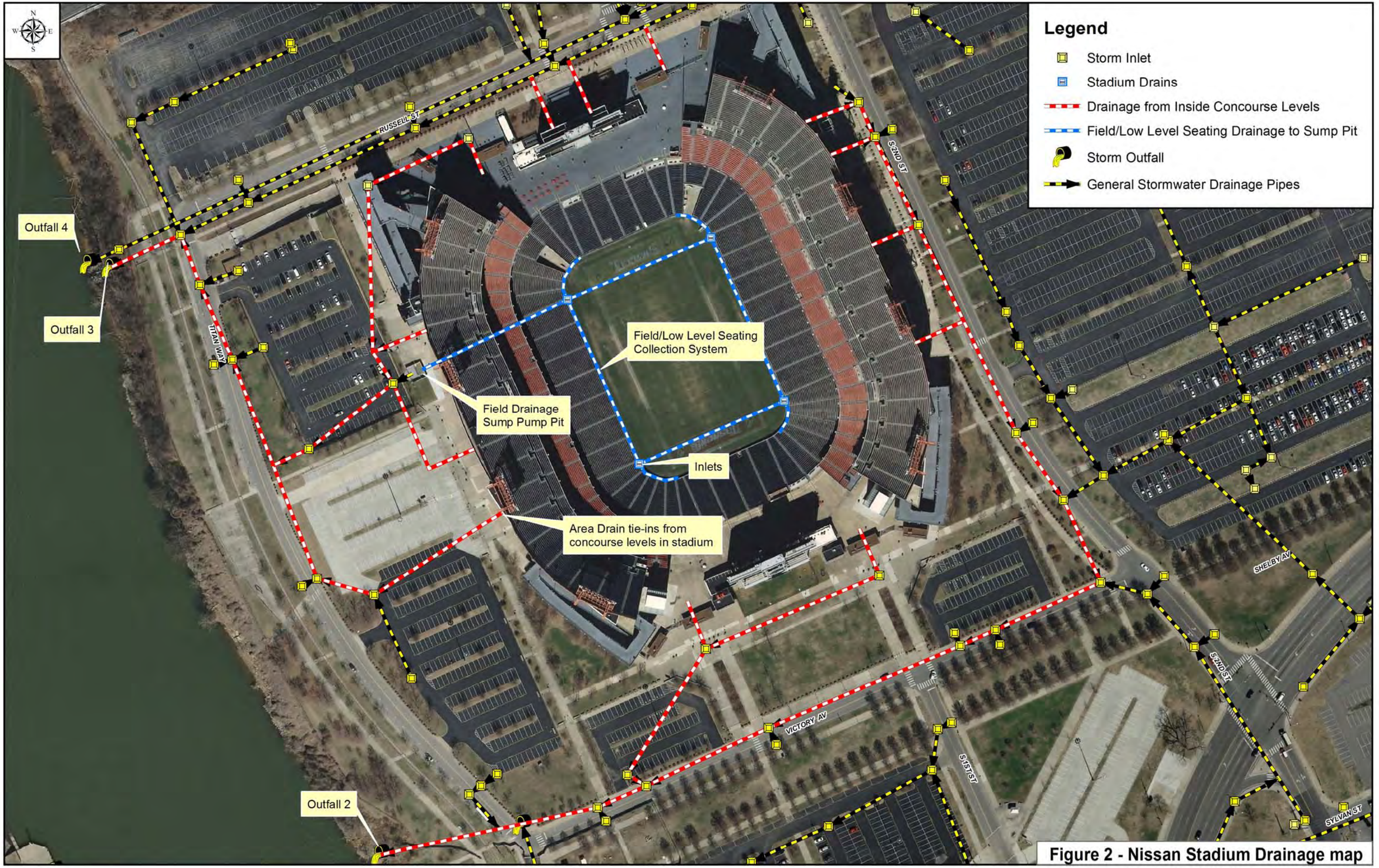

Figure 2 - Nissan Stadium Drainage map

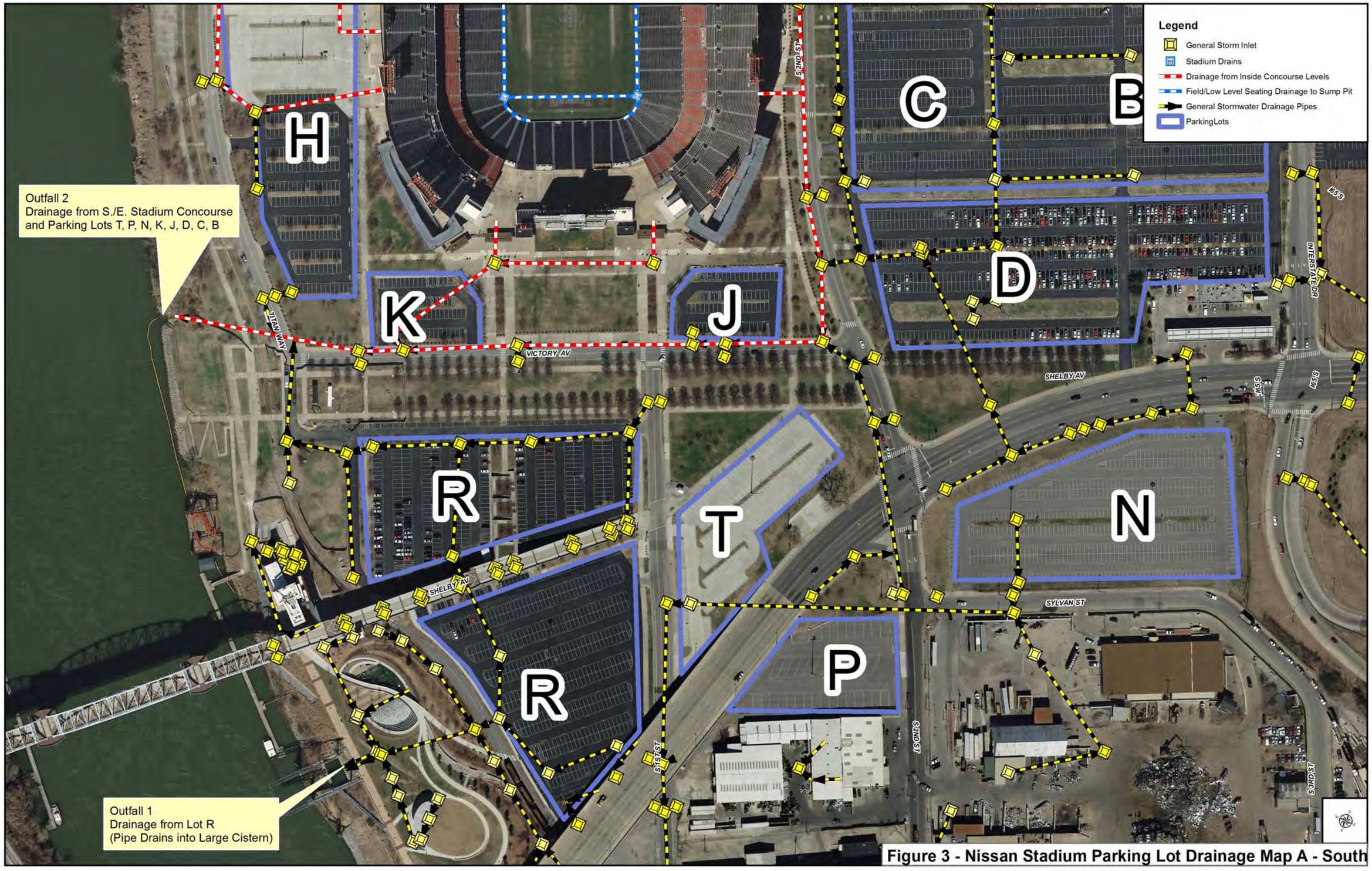

Figure 3 - Nissan Stadium Parking Lot Drainage Map A - South

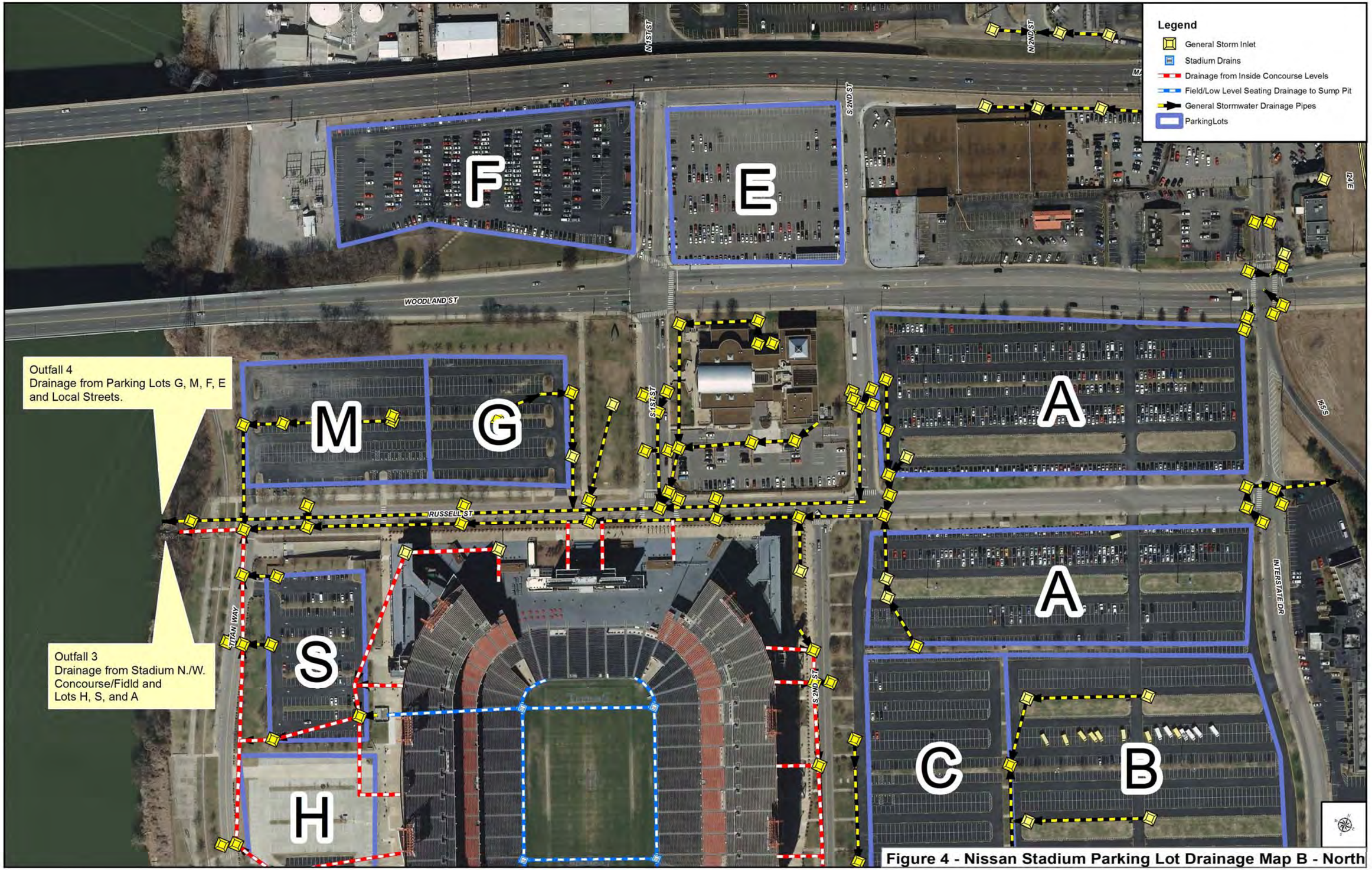

Figure 4 - Nissan Stadium Parking Lot Drainage Map B - North

Metro Nashville Municipal Separate Storm Sewer System Permit
Municipal Standard Operating Procedures:

Policy No.:	MS4 - 15	**Metro Department:**	Nashville Sports Authority (Nissan Stadium)
Effective Date:	2/1/16	**Municipal Procedure:**	Titan Game Day Operations/Day to Day Maintenance

SOP Purpose: To establish guidelines that prevent impacts to the MS4 or the Cumberland River from Titans Game Day Operations and Daily Stadium Maintenance Procedures. SOP applies to Sports Authority Lessee: Cumberland Stadium Inc., and their contracted vendors.

Policy: Note: All maintenance employees and contracted vendors shall review these procedures to ensure staff are adequately trained on proper maintenance procedures. All key management staff shall sign the attached employee training form.

1) Post-Game Clean-up Procedures

- No cleaning detergents, food or drink waste product, or other non-stormwater substances should be allowed to drain or be poured into the numerous area drains located throughout the various concourse and seating levels of the stadium. Photographs of typical area drains are depicted on page 2.
- Dry Cleanup shall be the first step in cleaning any of the areas that drain to the numerous area storm drains throughout the complex. Area storm drains are located on both concourse levels and within the outdoor stadium seating and a large trench drain surrounding the football field. Dry clean-up involves blowing or sweeping trash and debris into piles where it can be picked up and deposited in the trash.
- Mop Cleanup shall be the second step of spot cleaning thick deposits of food and/or drink spills. All mop water shall be disposed in the designated mop sinks.
- Pressure Wash Low Flow Nozzle cleanup should only occur after dry cleanup and mop cleanup of heavy deposits is completed. The pressure wash method should not incorporate detergents and efforts should be undertaken to minimize the volume of water used (i.e. low flow nozzles, etc.). In the event that detergents or other cleaners are needed to wash concourse or seating areas, contain and capture measures should be deployed to prevent wash water from draining to the area storm drains. Contain and capture practices usually involve blocking storm drains with covers and pumping the pooled wash water to sanitary sewer drains or to tanks that can be later dumped into sanitary sewer drains.

2) Normal Day to Day Maintenance Procedures

- The same measures described above should also apply to any other non-game day maintenance activities such as painting, stripping and waxing floors, carpet cleaning, etc.
- No paints, cleaners, other maintenance products should ever drain to or be poured into the stadium's area storm drains.

3) Accidental Spills/Releases

- In the event of an accidental spill in which product reaches a storm drain or the river, the event monitor shall deploy immediate measures to contain as much product as possible.
- After emergency containment measures are deployed, the Event Monitor shall notify State and Local agencies to report the spill contents and volume and the planned remediation efforts.
  - State Agency = TEMA – (615-741-0001) - Local Agency = OEM (615-862-8530)

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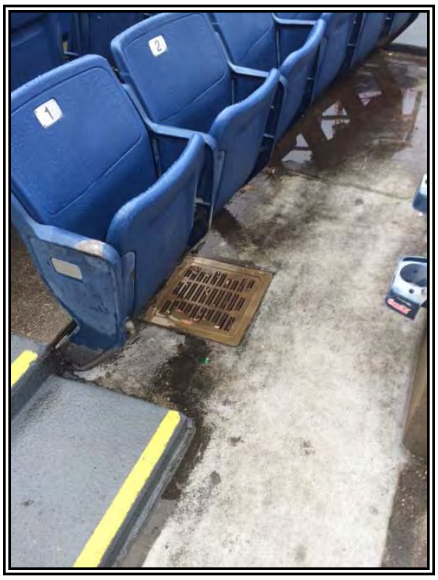
Typical Area Storm Drains within Nissan Stadium
Only rainwater should route to these drains. No cleaners or waste of any kind

Trench Storm Drain around Field



Lower Level Seating Storm Drain

Area Drain on Concourse Level

Mid and Upper Level Seating Storm Drain

Typical mop sink within Nissan Stadium that routes to the sanitary sewer
All waste product and detergent water should be disposed in these types of drains.

SWMP Appendix C

Public Information/Education Plan

Metro Nashville Municipal Separate Storm Sewer System Permit
Public Information & Education Plan
Created: August 2012
Updated: October 2016 – (New Personnel and Outreach Strategies)

1.0 INTRODUCTION:

With issuance of the third cycle of Metro Nashville's Municipal Separate Storm Sewer System (MS4) permit, there is an increased emphasis on the amount of public education and outreach Metro Water Services (MWS) will be responsible for overseeing. The first major undertaking will involve developing a detailed public information and education (PIE) plan. The PIE plan will outline the stormwater educational strategies, identify targeted educational approaches, and list specific yearly goals and accomplishments. A majority of MS4 permit items are coordinated and overseen by the MWS Stormwater NPDES Section, however, development and implementation of the PIE plan will be a joint effort between NPDES and MWS Public Information Section.

In the new permit, Stormwater is required to target specific "hot areas", which are defined in the permit as: "*an area where land use or activities generate highly contaminated runoff, with concentrations of pollutants in excess of those typically found in stormwater. Examples might include operations producing concrete or asphalt, auto repair shops, auto supply shops, large commercial parking areas and restaurants.*" The main goals of stormwater education activities will be to increase public awareness for purposes of eliminating illicit discharges and improper disposals, reducing nonpoint source pollutants through better land management practices (i.e. fertilizer, sediment, oil, etc), reducing overall runoff quantities through innovative development strategies, and ultimately improving water quality of receiving streams. In some of Nashville's sub-watersheds, public education will be the primary Best Management Practice (BMP) implemented for improving stormwater runoff quality, therefore, improving receiving water quality. For example, watersheds that are specifically listed as being impaired for nutrients (i.e. phosphorus and nitrogen) will be targeted for public education campaigns aimed at reducing non-point source runoff from fertilizer, pet waste, etc.

1.1 RESPONSIBLE PERSONNEL:

While the entire NPDES Section and MWS Public Relations Section will be contributing to implementing PIE plan objectives, specific personnel within each department have been identified to oversee certain aspects of the plan. Table 1 depicts general PIE plan objectives and responsible personnel.

Table 1 – PIE Plan Responsible Party

Personnel	PIE Plan Responsibility	Contact Information
Michael Hunt	• Reviews/Oversees PIE Plan objectives to be consistent MS4 permit requirements.	615-880-2420 michael.hunt@nasville.gov
Sonia Allman	• Reviews/Approves all distribution of public information/education materials.	615-862-4494 sonia.allman@nasvhille.gov
Julie Berbiglia	• Oversees school-specific education programs. • Oversees/coordinates all major public education events. • Oversees development of public educational materials	615-862-4506 julie.berbiglia@nashville.gov
Josh Hayes	• Reviews/Oversees PIE Plan objectives to be consistent MS4 permit requirements. • Assists with development of public education materials.	615-880-2420 Josh.hayes@nashville.gov
Beth Wilson	• Coordinates MS4 permit specific educational activities (industrial, commercial, construction education) • Assists with coordinating and participating in major public education events. • Documents public education events and activities for Annual Report submittals. • Coordinates targeted mail-outs and outbound calling public education activities. • Develops public education materials. • Assists in the updating of NPDES web pages	615-880-2420 Beth.Wilson@nashville.gov
Jennifer Harrman	• Promotion of education and outreach events on social media outlets • Assists in the updating of NPDES web pages	615-862-4521 Jennifer.harrman@nashville.gov

1.2 PIE PLAN GOALS AND TIMEFRAMES:

Goals for the PIE plan will be broken up into the following three main categories:

- Goal 1: Meet and/or exceed MS4 permit requirements
- Goal 2: Increase the fundamental understanding of water pollution for Nashville students, residents, businesses and municipal employees.
- Goal 3: Encourage use of better management practices that result in improved water quality of runoff from MS4 and private facilities within Metro's MS4 jurisdiction.

Measuring the success of each goal will involve different evaluation procedures. Goal 1 will be, perhaps, the easiest objective to measure. While some of the MS4 permit language is vague, there are some identified milestones and deadlines that can be assessed in each MS4 annual report for completeness. Table 2 depicts some of the major permit requirements and their desired timeframes. Assessing the effectiveness of the PIE plan in accomplishing

Goals 2 and 3 will be more difficult and are discussed in greater detail in Section 5 of this document.

Table 2 – Goal 1 (MS4 Permit Required Education) Objectives and Timeframes.

MS4 Permit Objectives	Completion Deadlines
Develop PIE Plan as part of overall Stormwater Management Plan	**December, 2012**
Perform adequate stormwater training for all pertinent Metro maintenance staff.	**July, 2013**
Implement educational programs at a minimum of 6 large public events per calendar year	**Annually 2012 - 2017**
Track and maintain records of public education and outreach activities	**Annually 2012 - 2017**
Assess the change in public awareness	**January, 2017**
Implement public notice programs for volunteer programs (i.e. tree plantings, stream clean-ups, illicit discharge detection identification & elimination, etc.)	**Annually 2012 - 2017**
Implement public notices for large Metro projects	**July, 2013**
Provide specific maintenance education to stormwater BMP owners	**February, 2017**
Hold a public meeting to go over each Annual Report	**Annually 2012 - 2017**

Note: Some of the deadlines are internal to NPDES, as actual MS4 permit deadlines are vague.

2.0 Targeted Audience Groups:

In order to accomplish the PIE plan objectives, the first step is to identify targeted audiences for which education delivery methods will be tailored towards. The targeted audience will be determined based on a variety of factors, some of which will include general land use, business/community types, geographical areas, previous complaints, and perceived educational needs.

2.1 School Groups/Youth Camps

School children and youth are perhaps one of the most important demographics to target for stormwater education, as they will shape the future of water quality within Metro. In

order to convey one consistent water quality message, the MWS Public Relations Section will lead all academic based education efforts. MWS will target 4th grade for primary distribution of stormwater educational activities.

2.2 Geographical "Hot Areas" within Metro

As discussed in Section 1, the new MS4 permit requires Metro to target "hot areas" as we designate. MWS NPDES will utilize its vast monitoring data, general knowledge from field investigations, and TDEC-designated watershed impairment status to aid in determining geographic "hot areas". Geographic "hot areas" will be delineated into three main categories based on overall land use associated pollutants of concern. Table 3 refers to the typical pollutants expected in runoff from each major urban land use category. For purposes of public education, the three major urban land use categories have been identified to target specific messages: Residential, Commercial, and Industrial.

Table 3 – Typical Pollutant Runoff form Major Land Use Categories

Major Land Use	Typical Pollutants	Typical Source	Resulting Water Quality Degradation to Target in Educational Messages
Residential	1. Nutrients 2. Sediment 3. Pathogens 4. Organics	1. Over-fertilization, Pet Waste, Human Waste and Detergents from failing septic systems. 2. Grading areas without maintained controls. Removing stream bank vegetation. 3. Failing septic systems, illegal cross-connections of sanitary and stormwater, and pet waste. 4. Dumping of leaves/grass clippings in conveyances	1. Increased algal blooms, depleted dissolved oxygen levels from decaying algae. 2. Reduced water clarity for aquatic plants, smothers aquatic life, transports other pollutants. 3. Potentially harmful to human health. 4. Decomposition depletes dissolved oxygen levels within streams.
Light Commercial	1. Hydrocarbons (Oil & Grease) 2. Trash 3. Nutrients 4. Sediment	1. High-traffic parking lot areas, leaking storage tanks, etc. 2. Poor grounds upkeep, especially in parking areas and around dumpsters. 3. Landscaping/golf courses. 4. Grading/developing without maintained controls. Removing stream bank vegetation.	1. Toxic to aquatic life and impact drinking water supplies. 2. Aesthetically displeasing, can block drainage pipes causing erosion, can be harmful to wildlife. 3. Increased algal blooms, depleted dissolved oxygen levels from decaying algae. 4. Reduced water clarity for aquatic plants, smothers aquatic life, transports other pollutants.
Industrial/ Heavy Commercial	1. Metals 2. Sediment 3. Hydrocarbons (Oil & Grease)	1. Exposed industrial processes/improper disposal. 2. Exposed industrial processes/improper disposal. Gravel parking lots with heavy truck traffic. 3. Equipment leakage, leaking storage containers, high-traffic pervious areas.	1. Acute or chronic toxic impacts to aquatic wildlife. 2. Reduced water clarity for aquatic plants, smothers aquatic life, transports other pollutants. 3. Toxic to aquatic life and impact drinking water supplies.

Table 4, below, provides a description of the designated geographic "hot areas" that have been identified thus far. The geographic "hot areas" will receive an increased amount of location/pollutant of concern-specific education. Figure 1 depicts the overall locations of the geographical-designated "Hot Areas". Individual maps of each geographic "hot area" can be found in Appendix A.

Table 4 – Geographical-Designated Hot Areas for Targeted Education

Area Name	Watershed	Land Use	Size (Acres)
Area 1	Browns Creek	Industrial/Heavy Commercial	2290
Area 2	Browns Creek	Residential	2294
Area 3	McCrory Creek	Residential	2068
Area 4	Harpeth River	Residential	497
Area 5	Harpeth River	Residential	4059
Area 6	Sugartree Creek	Residential	1486
Area 7	Bosley Springs Branch	Residential	1170
Area 8	Richland Creek	Industrial/Heavy Commercial	926
Area 9	Richland Creek	Light Commercial	731
Area 10	Mill Creek	Industrial/Heavy Commercial	1986
Area 11	Mill Creek	Industrial/Heavy Commercial	1460
Area 12	Sevenmile	Industrial/Heavy Commercial	207
Area 14	Hurricane Creek	Industrial/Heavy Commercial	1859
Area 15	W. Branch Hurricane Creek	Residential	717
Area 13	Mill Creek Upper	Light Commercial	810
Area 16	Whites Creek	Residential	1843
Area 17	Manskers Creek	Residential	2289
Area 18	Gibson and Dry Creek	Light Commercial	1211

2.3 Business Type/Community "Hot Areas"

There are certain types of businesses scattered throughout the county (not bound by geographic boundaries) in which MWS NPDES have found to have a high potential for polluted runoff. While some of the business-designated "hot areas" may overlap with the geographically-designated "hot areas", MWS will conduct additional targeted educational campaigns towards theses respective businesses. Business types that will be recipients of targeted education will include:

- Ready Mix Concrete Plants – focus on sediment runoff;
- Asphalt Mixing Plants – focus on sediment and oil & grease runoff;
- Recycling Centers – focus on sediment, metals, and trash runoff;
- Automotive Salvage Yards – focus on sediment and automotive fluid runoff;
- Large Automotive Repair Shops – focus on automotive fluid runoff; and
- Landscaping companies – focus on sediment runoff and application of pesticides, herbicides, fertilizers, and fungicides.

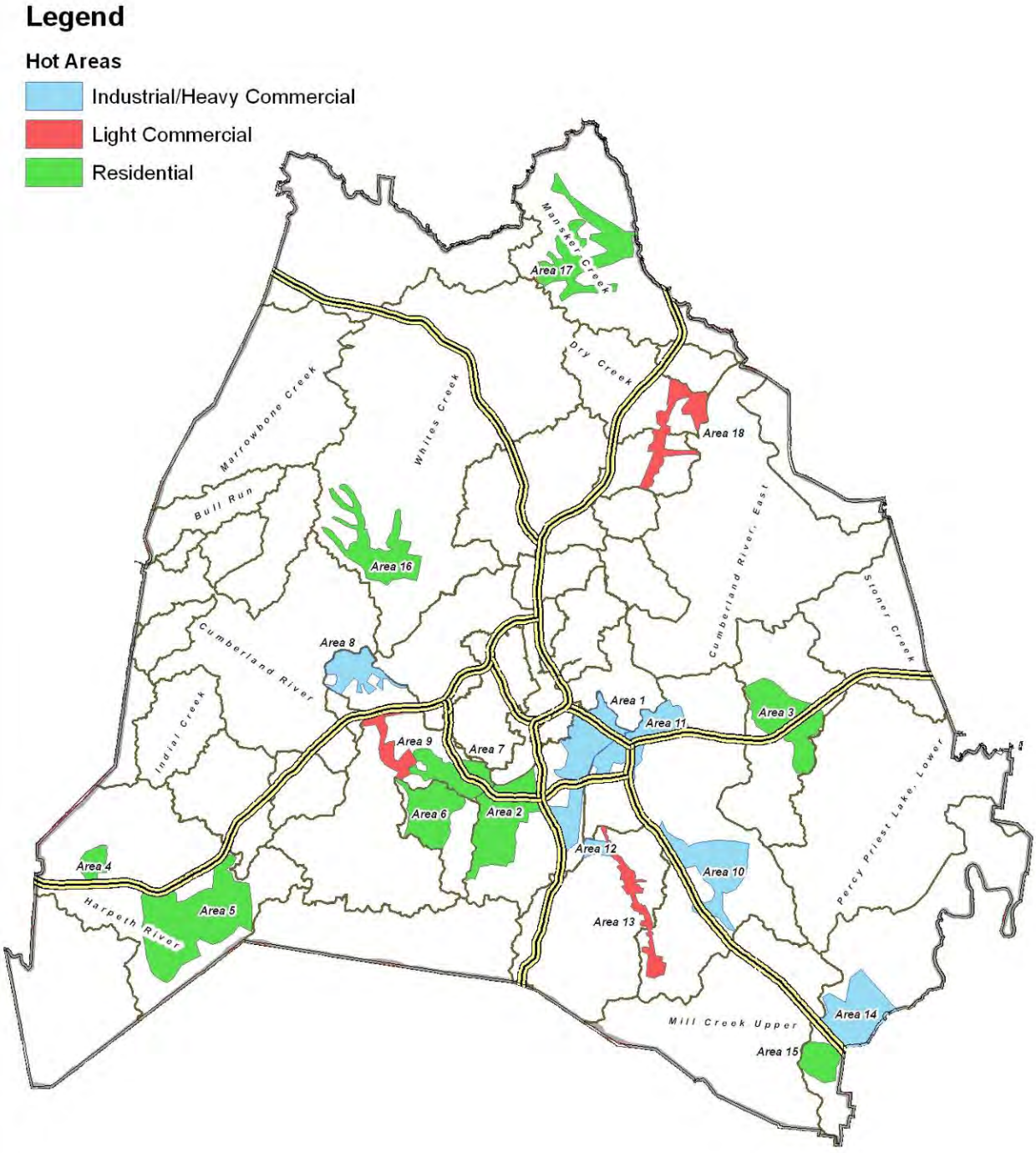


Figure 1 – Geographic-designated Hot Areas to Receive Extra Targeted Education

2.4 High Citizen Complaint Zones
MWS receives numerous complaints about a variety of issues throughout the county. Complaints range from people dumping materials in storm ditches (leaves, limbs, trash, etc.) to people discharging illegal substances to the storm system. Upon analysis of complaints, MWS may choose to target certain areas that may not be part of the above-defined geographic "hot areas" for problem-specific, localized education. This type of education will performed on a case by case basis.

2.5 Large Civic Educational Events
As prescribed in the MS4 permit, Metro is required to perform stormwater education at a minimum of six large public events per calendar year. MWS Stormwater will satisfy this requirement by participating in large community events that relate to environmental awareness. The following large civic events have been preliminarily identified for Metro to participate with a stormwater education component:

1. Nashville Lawn and Garden Show
2. Earth Day –Public Works
3. CMA Festival
4. Cumberland River Compact's WaterFest
5. Urban Runoff 5K
6. Tomato Festival

2.6 Post Construction Treatment Devices (SCM) Owners
Developing sites that meet certain thresholds within the county are required to install permanent stormwater treatment devices, otherwise referred to as Stormwater Control Measures(SCMs), that are usually designed to treat stormwater runoff for water quality and quantity purposes. Once the site is completely developed, the property owner becomes responsible for permanent maintenance of SCMs . Metro will specifically target owners of BMPs to achieve proper maintenance.

2.7 Grading Contractors/Development Community
The development community, including land developers and grading contractors, will be the target of specific educational outreach. Education geared toward the development community will be focused on the impacts of sediment runoff during construction and general pollutant runoff from pervious surfaces after construction is completed.

2.8 Municipal Maintenance Employees
All Metro departments with field maintenance staff will be a key target audience for distributing stormwater education materials. As prescribed in the MS4 permit, municipal maintenance employees shall be trained on potential stormwater impacts that could result from maintenance activities. In addition, municipal field staff shall be trained on identifying and reporting occurrences of illicit discharges.

2.9 General Metro Residency
Perhaps the most important constituency within Metro to educate for stormwater quality purposes is the general residents within Metro. While there may exist overlap within the above-described target areas, Metro will also implement techniques to try to reach the masses on more general terms.

3.0 Education Techniques for Targeted Audiences:

MWS will utilize a variety of tools to perform stormwater education. Education delivery methods will be designed to achieve maximum distribution to the targeted audiences. For example, educational efforts for the above-described "hot areas" may include mail-outs, outbound calling, coordinating with local non-profit watershed groups, and possibly holding community meetings. Table 5 matches the potential educational technique to the specific targeted audiences. As the MS4 public information plan proceeds, new techniques may be utilized for specific targeted audiences and the PIE Plan will be updated accordingly.

Table 5 – Educational Delivery Methods For Each Targeted Audience Group

Targeted Audience Group	Public Education/Outreach Technique
School Groups /Youth Camps	In-person presentations/demonstrations Distribution of educational materials designed for youth. (i.e. games, puzzles, tests, etc.)
Geographic-Designated "Hot Areas"`	Mail-outs (area-specific) Outbound calling (area-specific) Soliciting help from local non-profit watershed groups in distributing educational materials Co-host community meetings with local non-profit watershed groups
Community/Business Type "Hot Areas"	Mail-outs (business-specific) Handing out materials Hosting workshops
High Citizen Complaint Zones	Mail-outs (problem/complaint-specific) Outbound calling (problem/complaint specific)
Large Community Events	Staffing stormwater educational booths Performing stormwater demonstrations Handing out educational materials
Post Construction BMP Owners	Mail-outs Handing out materials/Drop in visits by NPDES
Grading Contractors/Development Community	Face to face during Grading Permit process Participate in TDEC's Level 1 EPSC Workshop
Municipal Maintenance Employees	In-person presentations/video Handing out materials
General Metro Residency (General Stormwater Education)	Channel 3 Public Service Announcements (PSAs) Public signage (vehicle decals, billboards, etc.) Website and social media information available and updated

4.0 Education Implementation Timeframe:

PIE Plan implementation will be based, first and foremost, on MS4 Permit deadlines. In order to keep track of stormwater education deadlines and responsibilities, a Public Education Matrix Table has been developed that will be the blueprint for yearly public

education activities. The Matrix Table incorporates at least one type of education activity geared toward each Targeted Audience Group.

Table 6 – Public Education Individual Task Matrix

Task	Public Education Activity	Education Deadline	Lead Staff
1	Complete PIE Plan	December 2012	Josh Hayes Julie Berbiglia
2	Give presentations at least 150 schools	Annually by June 31st (Starting in Permit Year 2)	Julie Berbiglia
3	Send mail-outs, perform outbound calling, work with local non-profit watershed groups to distribute educational materials, or host community meetings for at least 4 geographic "hot areas" focused on the issues important to those areas. (i.e. pet waste, fertilizer application education to residential areas)	February 2017	Josh Hayes Julie Berbiglia
4	Send Mail-outs to or personally visit to drop off educational materials to at least 25 designated Business Type/Community designated "hot areas". (i.e. applicators/distributors of pesticides, fertilizers, etc.)	February 2017	NPDES Staff
5	Co-host an industrial stormwater workshop with TDEC for all current TMSP sites.	By June 31, 2013	Josh Hayes
6	Send Mail-outs or perform outbound calling to high complaint zones as determined necessary	As Deemed Necessary	Sonia Allman Beth Wilson
7	Participate in or host at least 6 large community/civic events	Annually by June 31st (Starting in Permit Year 2)	Julie Berbiglia Beth Wilson
8	Send Mail-outs to critical post-construction BMP owners that were installed as per Metro's grading permit requirements to treat water quality and water quantity runoff.	February 2017	Josh Hayes Jane Wilson Rebecca Dohn
9	Give out stormwater educational materials at every pre-construction meeting for Grading Permits.	Annually by June 31st (Starting in Permit Year 1)	Dale Binder
10	Distribute stormwater educational materials to building permit applicants for single family homes	Annually by June 31st (Starting in Permit Year 1)	Kimberly Hayes
11	Present at all TDEC Level 1 EPSC workshops in Nashville.	As scheduled by TDEC	Dale Binder
12	Perform in-person training or provide maintenance personnel with stormwater educational materials	At least one Metro Department per year.	Josh Hayes Beth Wilson Michael Hunt
13	Air at least 6 PSAs on Metro's Channel 3	Annually by June 31st (Starting in Permit Year 2)	Veronica Logue Gillian Walshe-Langford
15	Provide opportunity for public participation/involvement for stormwater awareness projects (i.e. stream clean-ups, tree plantings, etc.)	Annually by June 31st (Starting in Permit Year 2)	Sonia Allman
16	Provide public notice for all large Metro construction projects (possibly web-site postings)	Annually by June 31st (Starting in Permit Year 2)	Michael Hunt Anna Kuoppamaki
17	Make updates to the stormwater website to reflect latest regulations, technology, etc.	As Deemed Necessary	Michael Hunt Anna Kuoppamaki Jennifer Harrman
18	Present each Annual Report to a public forum (i.e. Stormwater Management Committee or Stormwater Advisory Committee may suffice.	Annually by December 31st (Starting in Permit Year 1)	Michael Hunt Josh Hayes

PIE Task	06/31/12	12/31/12	06/31/13	12/31/13	06/31/14	12/31/14	06/31/15	12/31/15	06/31/16	12/31/16
1. Complete PIE Plan										
2. Give presentations at least 150 schools classes PY 1&2										
PY3										
PY4										
PY5										
3. Distribute educational materials to at least 4 geographic "hot areas" PY1&2										
PY3										
PY4										
PY5										
4. Send Mail-outs or personally visit at least 25 business "hot areas" PY1&2										
PY3										
PY4										
PY5										
5. Co-host an industrial stormwater workshop with TDEC for all current TMSP sites.										
6. Send Mail-outs or perform outbound calling to high complaint zones as determined necessary										
7. Participate in or host at least 6 large community/civic events PY1&2										
PY3										
PY4										
PY5										
8. Send Mail-outs to all known post-construction BMP owners										
9. Give out stormwater educational materials at every pre-construction meeting for Grading Permits.										
10 Distribute stormwater educational materials to building permit applicants for single family homes										
11. Present at all TDEC Level 1 EPSC workshops in Nashville.										
12. Perform stormwater training or provide maintenance personnel										
13. Air at least 6 PSAs on Metro's Channel 3 PY1 &2										
PY3										
PY4										
PY5										
14. Air at least 2 pollutant specific slideshows PY1&2										
PY3										
PY4										
PY5										
15. Provide opportunity for public participation/involvement for stormwater awareness projects										
16. Provide public notice for all large Metro construction projects (possibly web-site postings)										
17. Make updates to the stormwater website to reflect latest regulations, technology, etc.										
18. Present each Annual Report to a public forum PY1&2										
PY3										
PY4										
PY5										

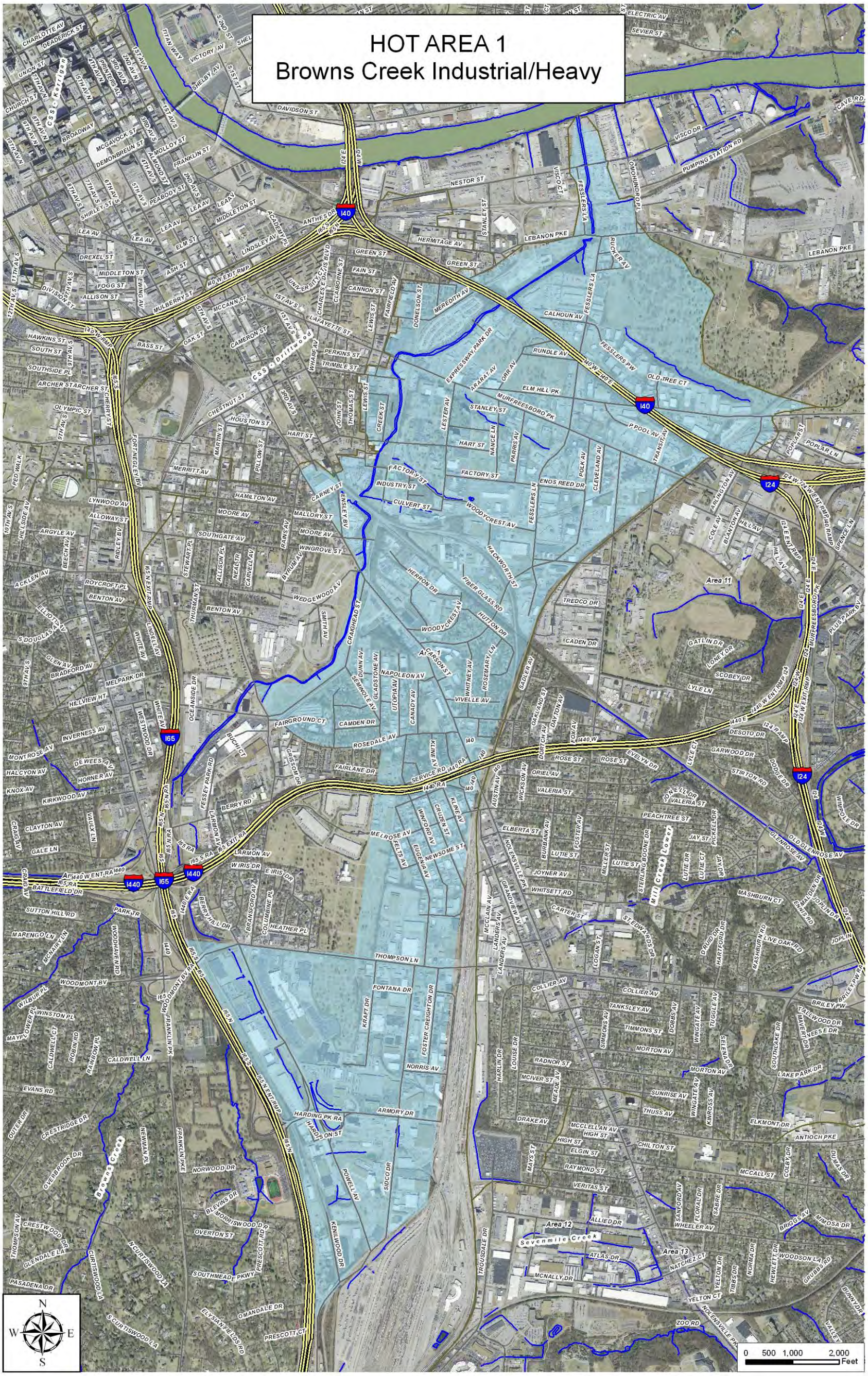
Note: PY = Permit Year

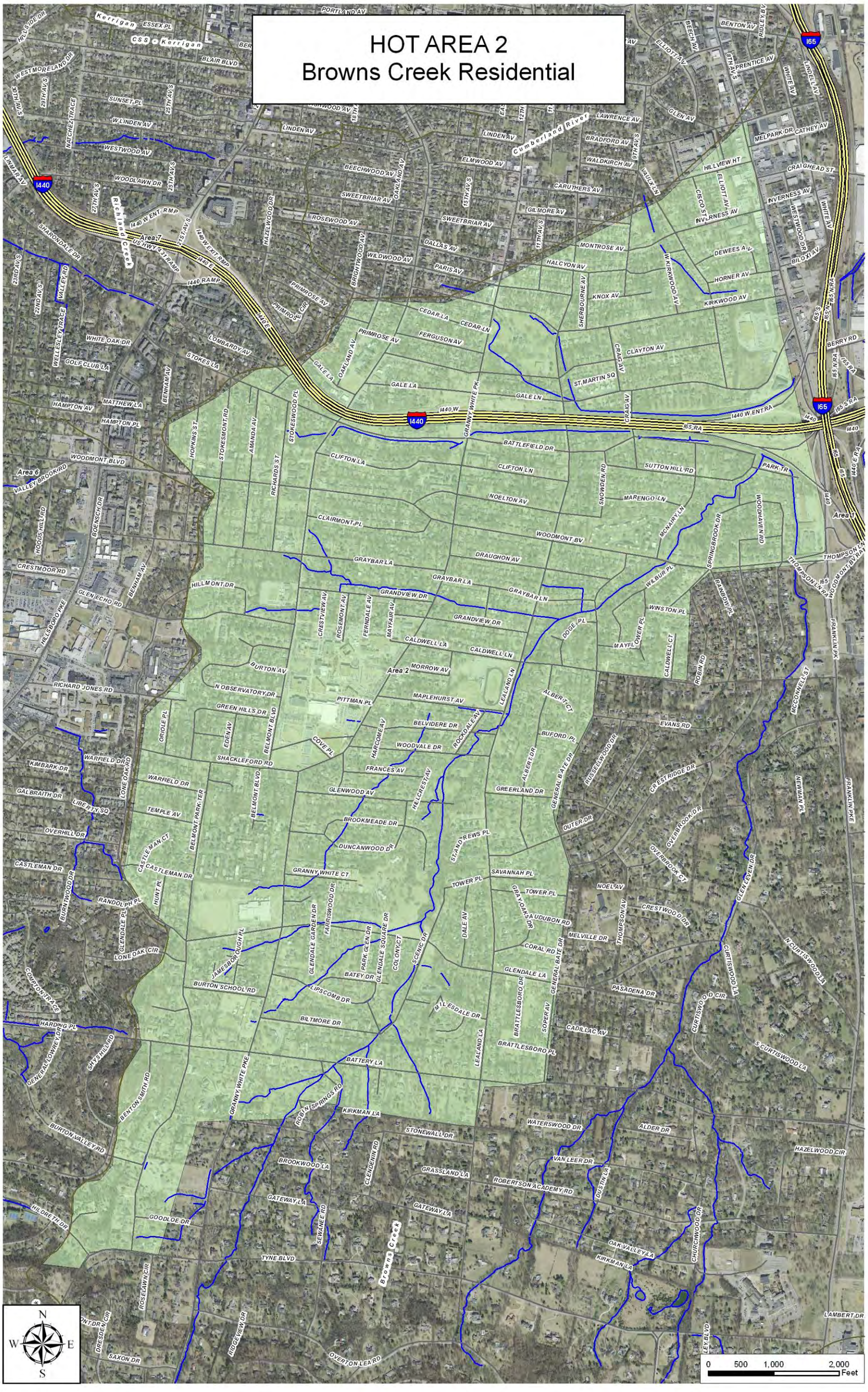
	Sonia Allman	Julie Berbiglia	Michal Hunt	Josh Hayes	Dale Binder	NPDES Staff	Beth Wilson	Kimberly Hayes
Color Key								

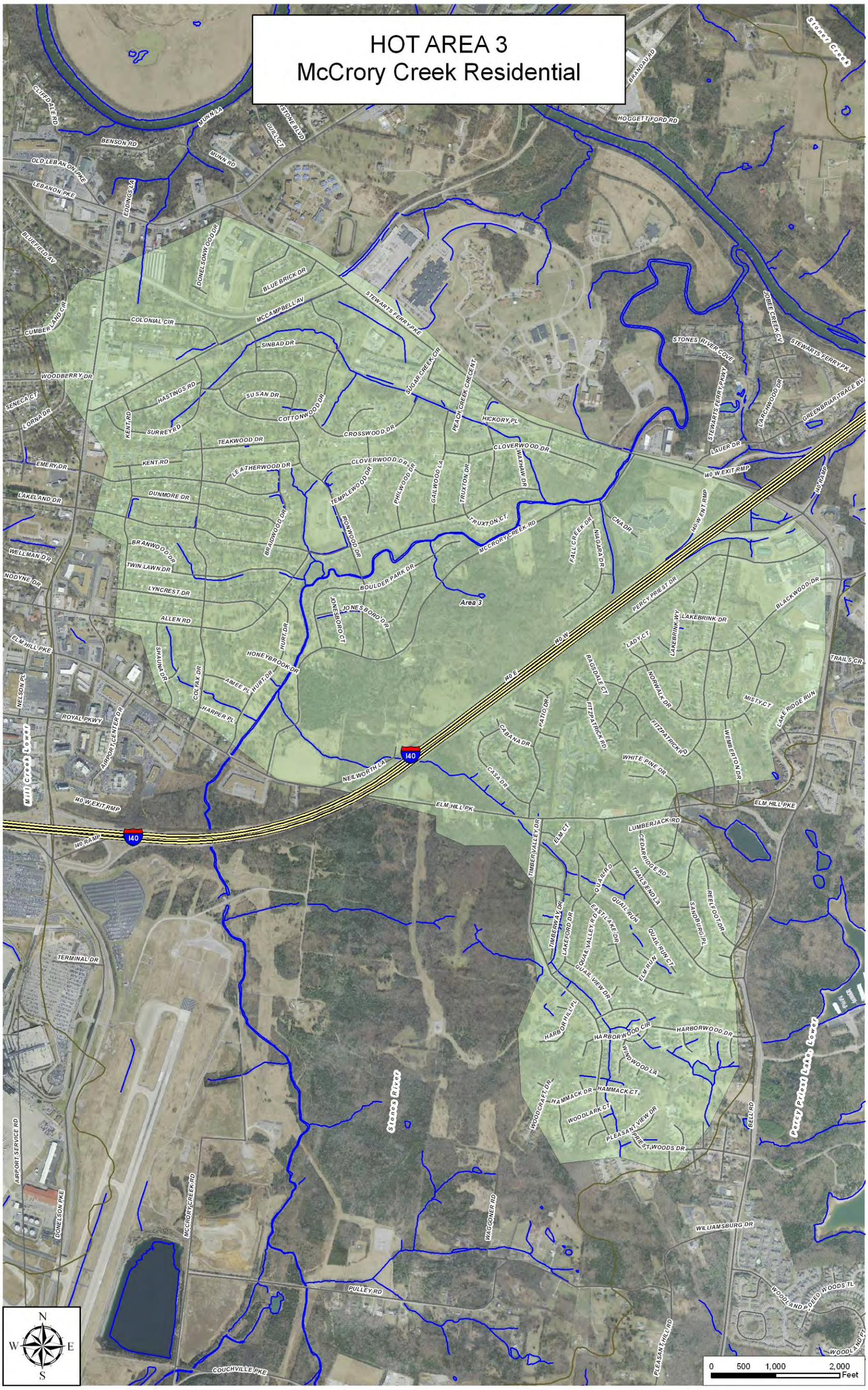
5.0 PIE Plan Effectiveness Assessment:

Throughout implementation of the PIE Plan, MWS will attempt to assess the effectiveness of the educational messages. Some potential assessment methods may include performing surveys to certain target audiences during presentations and analyzing monitoring data before and after targeted education has been performed.

PIE Plan
Attachment A
Individual Geographic "Hot Areas" Maps


HOT AREA 1
Browns Creek Industrial/Heavy
Area 11
Area 12
Area 13
Sevenmile Creek
Browns Creek
Mill Creek Lower
I40
I65
I24
I440
0 500 1,000 2,000
Feet


HOT AREA 2
Browns Creek Residential
Area 1
Area 2
Area 6
Area 7
Cumberland River
Richland Creek
Browns Creek
I440
I65
0 500 1,000 2,000
Feet
N
W
E
S


HOT AREA 3
McCrory Creek Residential
Area 3
I40
I40 W EXIT RMP
I40 RAMP
I40 W ENT RMP
I40 E
I40 W
Mill Creek Lower
Stones River
Percy Priest Lake, Lower
CLIFFDALE RD
BENSON RD
OLD LEBANON PKE
LEBANON PKE
MUNN LA
MUNN RD
GUILL CT
STONE BLVD
BRANDAU RD
HOGGETT FORD RD
Stoner Creek
EDDINGS LA
DONELSON WOOD DR
BLUEFIELD AV
BLUE BRICK DR
MCCAMPBELL AV
STEWARTS FERRY PKE
COLONIAL CIR
CUMBERLAND CIR
SINBAD DR
WOODBERRY DR
SENECA CT
LORNA DR
HASTINGS RD
KENT RD
SURREY RD
SUSAN DR
COTTONWOOD DR
SUGAR CREEK CIR
PEACH CREEK CRESCENT
HICKORY PL
CROSSWOOD DR
TEAKWOOD DR
CLOVERWOOD DR
LEATHERWOOD DR
EMERY DR
LAKELAND DR
DUNMORE DR
TEMPLEWOOD DR
PHILWOOD DR
GAILWOOD LA
TRUXTON DR
WAXHAW DR
TRUXTON CT
BRAIDWOOD DR
IRONWOOD DR
BRANWOOD DR
TWIN LAWN DR
WELLMAN DR
NODYNE DR
LYNCREST DR
ALLEN RD
BOULDER PARK DR
JONESBORO CT
JONESBORO DR
MCCRORY CREEK RD
FALL CREEK DR
NIAGARA DR
CNA DR
PERCY PRIEST DR
BLACKWOOD DR
LAKEBRINK DR
LAKEBRINK WY
LADY CT
TRAILS CR
RAGSDALE CT
NORWALK DR
MISTY CT
LAKE RIDGE RUN
PATIO DR
FITZPATRICK RD
FITZPATRICK RD
CABANA DR
CASA DR
WHITE PINE DR
WEMBERTON DR
NEILWORTH LA
ELM HILL PK
ELM HILL PKE
LUMBERJACK RD
ELM CT
TIMBER VALLEY DR
CEDAR RIDGE RD
TRAILS END LA
QUAIL RUN
QUAIL RUN CT
SANDBURG PL
REELFOOT DR
TIMBERWAY DR
LAKEFORD DR
QUAIL VALLEY RD
EASTLAKE DR
QUAIL VIEW DR
ELM RUN
HARBOR HILL PL
HARBORWOOD CIR
HARBORWOOD DR
WINDWOOD LA
WOODCRAFT DR
HAMMACK DR
HAMMACK CT
WOODLARK CT
PLEASANT VIEW DR
PRIEST WOODS DR
BELL RD
WILLIAMSBURG DR
WOODLAND PARK
WOODLAND PARK WOODS TL
WOODLAND PL
PLEASANT HILL RD
WAGGONER RD
PULLEY RD
COUCHVILLE PKE
TERMINAL DR
AIRPORT SERVICE RD
DONELSON PKE
HONEYBROOK DR
HURT DR
AIMEE PL
HURT DR
COLFAX DR
SHAUNA DR
HARPER PL
NELSON PL
ROYAL PKWY
AIRPORT CENTER DR
TERMINAL DR
STONES RIVER COVE
STEWARTS FERRY PKWY
STEWARTS FERRY PK
JOBEE CREEK CV
LARCHWOOD DR
GREENBRIAR TRACE BV
LAUER DR
N
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S
0 500 1,000 2,000
Feet


HOT AREA 4
Harpeth River Residential
HEATH RD
HIGHWAY 70 S
CANOE CT
BOUNDRY,RN
BOUNDARY,RN
RIVERVALLEY DR
VALLEYPARK DR
WESTFALL DR
TRADING POST CT
Area 4
SETTLERS CT
BONNET C
AIMES CT
BUCKSKIN CT
MIDDLEBROOK CR
TRACE CT
SETTLERS WY
BRIDGEWATER DR
RIVERPLACE DR
SPRINGHAVEN CT
BLUESTEM CT
DANIEL TC
SOMERHILL CT
LEXINGTON POINT DR
EXPLORER TL
CANYON CT
FARMINGTON PL
NEWSOM STATION RD
I40 W EXIT RMP
I40 W
I40 E
I40 RA
I40
Harpeth River
MCCRORY LN
N
W
E
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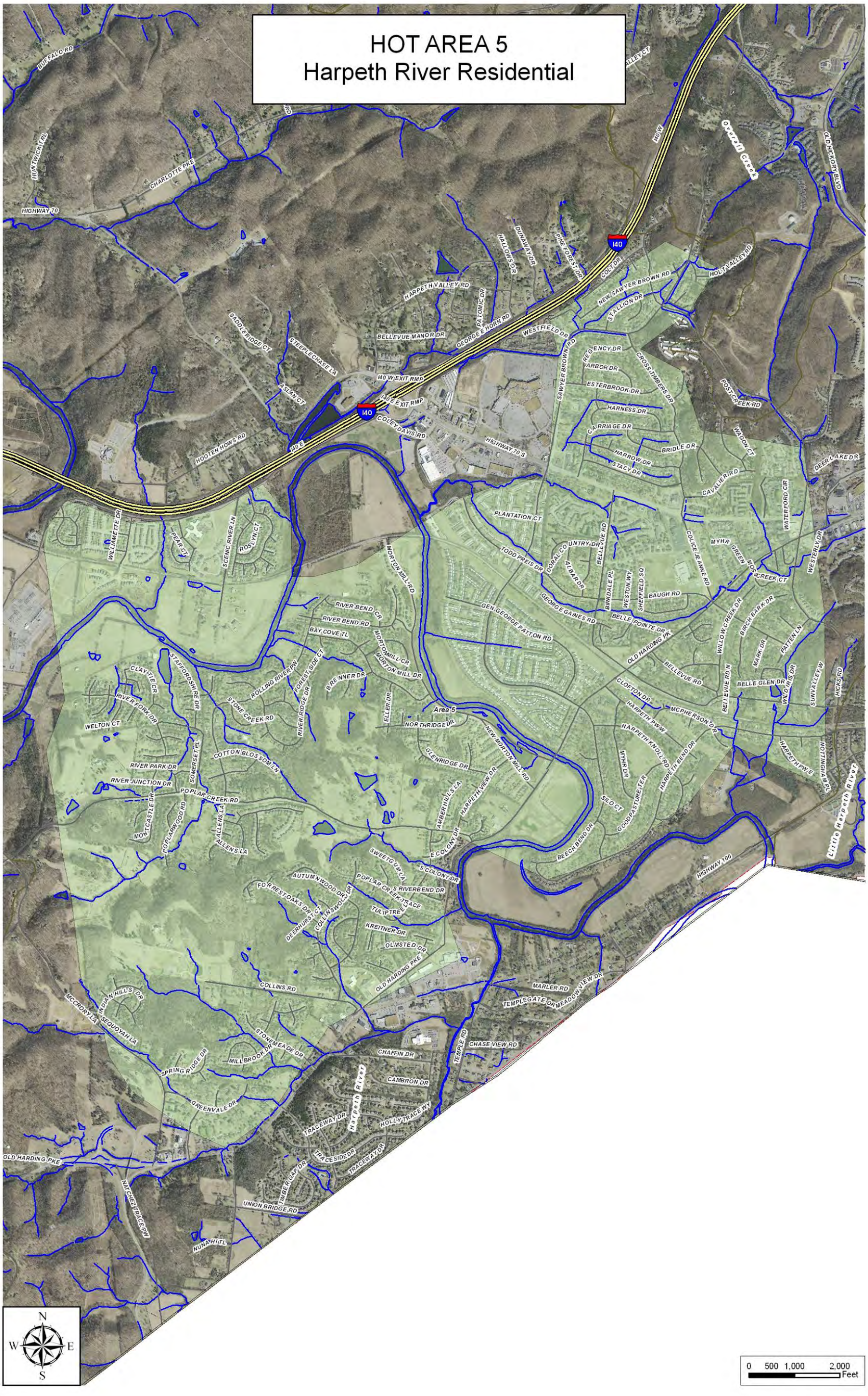
500
1,000
2,000
Feet


HOT AREA 5
Harpeth River Residential
BUFFALO RD
HUNTWICK TRL
CHARLOTTE PKE
HIGHWAY 70
I40 W
I40
Overall Creek
OLD HICKORY BLVD
DUNAWAY DR
HALLOWS DR
PINE FOREST DR
COLT DR
HARPETH VALLEY RD
PATOMIC DR
NEW SAWYER BROWN RD
HOLT VALLEY RD
STALLION DR
SADDLERIDGE CT
STEEPLECHASE LA
BELLEVUE MANOR DR
GEORGE E HORN RD
WESTFIELD DR
I40 W EXIT RMP
I40 E EXIT RMP
ASLAN CT
COLEY DAVIS RD
HOOTEN HOWS RD
I40 E
HIGHWAY 70 S
SAWYER BROWN RD
REGENCY DR
ARBOR DR
ESTERBROOK DR
CROSS TIMBERS DR
POST CREEK RD
HARNESS DR
CARRIAGE DR
BRIDLE DR
HARROW DR
STACY DR
WAGON CT
DEER LAKE DR
CAVALIER RD
WATERFORD CIR
PLANTATION CT
WILLIAMETTE DR
PEAR CT
SCENIC RIVER LN
ROSLYN CT
MORTON MILL RD
TODD PREIS DR
DORAL COUNTRY DR
BELLEVUE RD
ALBAR DR
BIRKDALE PL
WESTON WY
SHEFFIELD SQ
COLLICE JEANNE RD
MYHR
GREEN WEST CREEK CT
WESTERLY DR
BAUGH RD
GEORGE GAINES RD
BELLE POINTE DR
GEN GEORGE PATTON RD
RIVER BEND CIR
RIVER BEND RD
BAY COVE TL
MORTON MILL CIR
MORTON MILL DR
OLD HARDING PK
WILLOW CREEK DR
BIRCH BARK DR
MARK DR
PATTEN LN
CLAYTEE CIR
STAFFORDSHIRE DR
ROLLING RIVER PW
FOREST SIDE CT
BRENNER DR
RIVER RIDGE DR
ELLER DR
BELLEVUE RD
BELLE GLEN DR
WILDBRIAR DR
SUNVALLEY W
HICKS RD
RIVER FORK DR
STONE CREEK RD
Area 5
NORTHRIDGE DR
CLIFTON DR
MCPHERSON DR
HARPETH PW W
HARPETH PW E
WELTON CT
NEW MORTON MILL RD
GLENRIDGE DR
HARPETH KNOLL RD
HARPETH BEND DR
HIGHLAND MILL PL
COTTON BLOSSOM LN
RIVER PARK DR
SOMERSET PL
RIVER JUNCTION DR
POPLAR CREEK RD
MYHR DR
SILO CT
GOODPASTURE TER
MONTCASTLE DR
POPLARWOOD RD
ALLENS LA
AMBERHILL LA
HARPETH VIEW DR
BEECH BEND DR
E COLONY DR
S COLONY DR
SWEETGUM LA
HIGHWAY 100
Little Harpeth River
AUTUMNWOOD DR
POPLAR CREEK TRACE
S RIVERBEND DR
FOREST OAKS DR
COLLINSWOOD DR
TULIP TREE
DEERHURST CT
KREITNER DR
OLMSTED DR
OLD HARDING PKE
COLLINS RD
MARLER RD
MEADOW VIEW DR
TEMPLEGATE DR
MCCRORY LA
INDIAN HILLS DR
SEQUOYAH LA
STONEMEADE DR
MILLBROOK DR
SPRING RIDGE DR
GREENVALE DR
CHAFFIN DR
TEMPLE RD
CHASE VIEW RD
CAMBRON DR
Harpeth River
TRACEWAY DR
HOLLY TRACE WY
TRACESIDE DR
TIMBER GAP DR
NATCHEZ TRACE PW
NUNAHITL
UNION BRIDGE RD
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Feet


HOT AREA 6
Sugartree Creek Residential
Area 9
Area 7
Area 6
I440
BYRON AV
RICHARDSON AV
MARLBOROUGH AV
LANCASTER AV
OVERLOOK DR
32ND AV S
HILLSIDE DR
BLAIR BLVD
WESTMORELAND DR
29TH AV S
W LINDEN AV
NATCHEZ TRACE
WARWICK LA
SAVOY CIR
WESTLAKE DR
WHITWORTH BLVD
WYN OAK
SHARONDALE DR
VALLEY VISTA RD
RICHMEADE PL
BELLWOOD AV
WHITWORTH WY
MARLIN AV
SARATOGA DR
COMPTON RD
OLD CLUB CT
LINDEN SQ
WOODLAWN DR
SPRINGDALE DR
MEDIAL AV
NEW NATCHEZ TRACE
FORREST PARK AV
TIMBER LA
MEADOW DR
WESTMONT AV
STERLING RD
WORTHAM AV
OXFORD RD
23RD AV S
22ND AV S
VALLEY RD
WELLESLEY TRACE
GOLF CLUB LA
CHALMETTE CT
BOWLINGATE LA
SPERRY AV
OAKLAWN AV
WOODLEIGH DR
LYNNBROOK RD
CANTRELL AV
CANTRELL SQ
WILSON BLVD S
CRESCENT RD
HANOVER SQ
BRIGHTON PL
BRIGHTON RD
ROLLAND RD
CANTRELL AV
CARDEN AV
LEONARD AV
CRAIGHEAD
VINE CT
ENSWORTH AV
MONTGOMERY BELL AV
KIMPALONG AV
RIDGEFIELD DR
ENSWORTH PL
KENNER AV
WESTCHASE DR
BOSLEY SPRINGS RD
HARDING PIKE
WHITE BRIDGE PIKE
POST PL
WESTHAMPTON PL
IVYNWOOD TER
WEBSTER LA
REVERE PR
CONCORD PARK RD
2ND ST
SELMA AV
GLENSIDE AV
LILYWOOD RD
REDWING AV
SUNNYSIDE DR
PENDLETON AV
WALNUT DR
PROSPECT HILL
MOUL TRIE PARK
VALLEY FORGE AUBURN LA
WOODMONT CIR
CLEARVIEW DR
WILSON BLVD S
CANTRELL SQ
DARTMOUTH AV
FOXHALL RD
WIMBLEDON RD
RUTLAND PL
SCARSDALE RD
HILLDALE DR
HAMPTON AV
WOODMONT BLVD
FOXHALL CLOSE
UNNAMED 47746
SYCAMORE LA
ECHO HILL RD
BEAR RD
VALLEY BROOK PL
VALLEY BROOK RD
KNOLLWOOD RD
HOODS HILL RD
WOODMONT LA
TULANE CT
WYNDHAM PL
BURLINGTON PL
ARMISTEAD PL
CHARLESGATE CT
ABBOTT MARTIN RD
ROYAL OAKS DR
HONEYWOOD DR
ASHCROFT PL
DORCAS DR
SNEED TER
LONGWOOD PL
SUGARTREE PL
SUGARTREE RD
KENWAY RD
CROSS CREEK RD
CRESTMOOR RD
BEDFORD AV
CLEGHORN AV
GRN HILLS VILLAGE DR
BOVIEW LA
Sugartree Creek
ST JAMES PL
BOWRING PR
BOWRING PARK
VALLWOOD DR
GREENWICH PARK
CAYLOR DR
CROSS CREEK RD
BANDYWOOD DR
RICHARD JONES RD
WENTWORTH AV
DORCAS CT
COPELAND DR
GLEN EDEN DR
SIGNAL HILL DR
SKYLINE DR
WALLACE LA
BBOTTSFORD
BELGRAVE PR
WARFIELD LA
WARFIELD DR
JOHNSTONE CT
LEXINGTON GREEN
REDBUD DR
DORMAN DR
BALDWIN ARBOR
LEGEND HALL
HOBBS RD
HILLSBORO CIR
KIMBARK DR
WARFIELD DR
SNEED RD
TRIMBLE RD
STAMMER PL
CASTLEMAN DR
GALBRAITH DR
KIRTLAND RD
PARRAR AV
OVERHILL DR
HOOD AV
CASTLEMAN DR
WESTVIEW AV
ROYAL OAKS PL
IROQUOIS AV
ROQUOIS CT
SUNNYBROOK DR
ESTESWOOD DR
ESTES RD
COLEWOOD DR
JEFFERSON SQ
LINDAWOOD DR
TRIMBLE CT
SUMMIT RIDGE CT
BURTON HILLS BLVD
BELCARO CIR
LONG VIEW WY
SUMMERWIND CIR
SHYS HILL RD
CUMBERLAND PL
BELAIR WY
BOXMEER PL
ARKLAND PL
SEVEN HILLS BLVD
COMPTON TRACE
HARDING PL
HIGH ESTES
SHEFFIELD CT
FOREST PL
CLAYBORNE CT
ALMONTE CT
ABBEY WOOD DR
HUNTINGTON CIR
WARNER PL
Richland Creek
WAYLAND DR
INVERARAY
NORTHUMBERLAND
CASTLE RISING
KENILWORTH
HARDING HILL LA
HILLSBORO PKE
N STANFORD DR
TWINMONT CT
TODDINGTON DR
ASH VALLEY DR
TARA DR
CHALMERS DR
VILLA GREEN DR
GENERAL LOWREY DR
BURTON VALLEY RD
BENTON SMITH RD
HILDRETH DR
TYNEWOOD DR
S STANFORD DR
HARPETH HILLS DR
BEACON DR
LYNNWOOD BLVD
HEMINGWAY DR
WAYLAND CT
ALCOTT DR
EVERETT DR
CARLTON DR
YANCEY DR
ARCO DR
SKYMONT DR
HARDING PL
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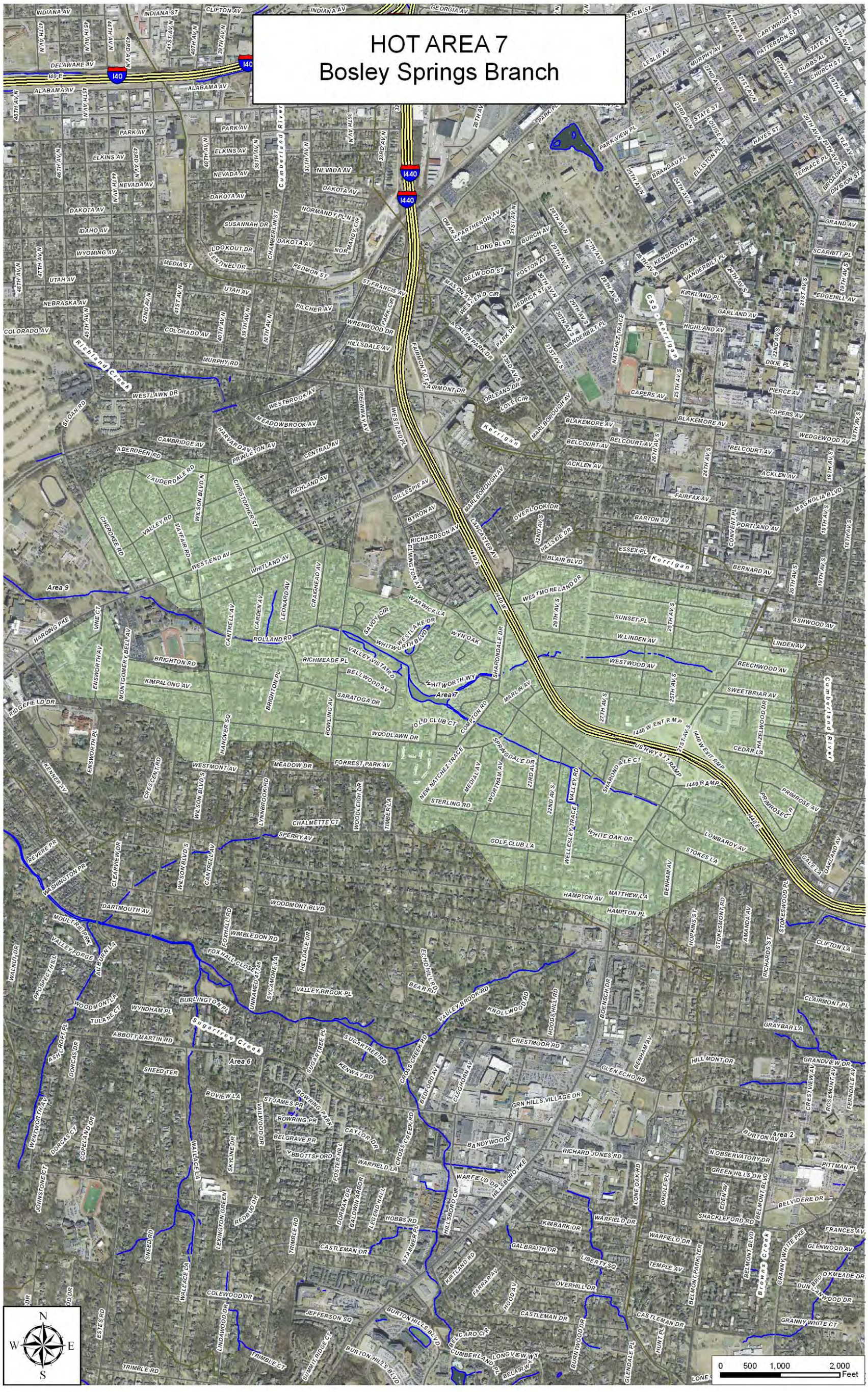
HOT AREA 7
Bosley Springs Branch
Area 9
Area 6
Area 7
Area 2
Richland Creek
Sugartree Creek
Browns Creek
Cumberland River
I40
I440
Kerrigan
N
W
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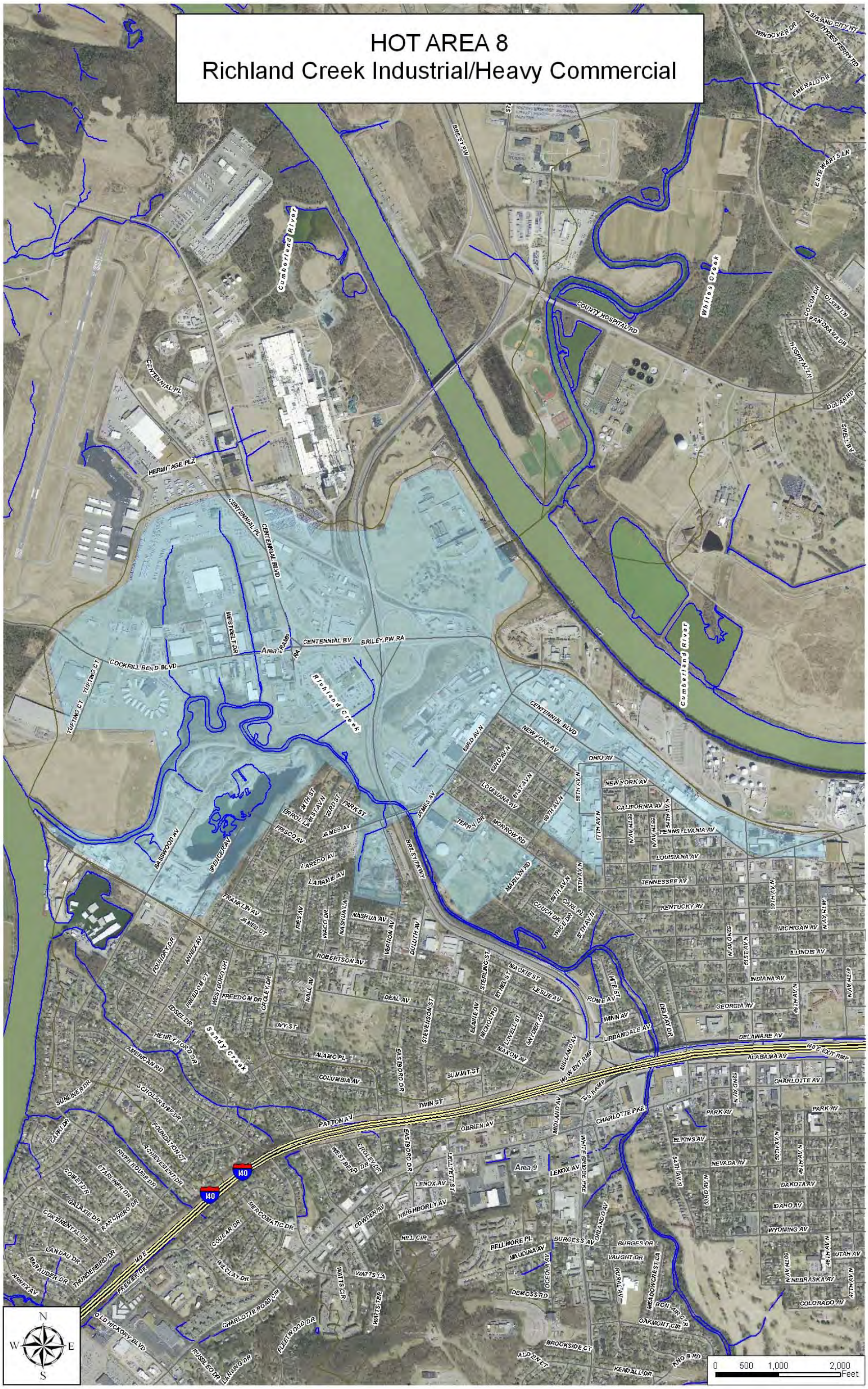
S
0 500 1,000 2,000
Feet


HOT AREA 8
Richland Creek Industrial/Heavy Commercial
Cumberland River
Whites Creek
COUNTY HOSPITAL RD
CENTENNIAL BLVD
CENTENNIAL PL
HERMITAGE PLZ
WESTBELT DR
Area 2 RAMP
CENTENNIAL BV
BRILEY PW RA
COCKRILL BEND BLVD
TUFTING CT
Richland Creek
BASSWOOD AV
SPENCER AV
CENTENNIAL BLVD
NEW YORK AV
OHIO AV
LOUISIANA AV
CALIFORNIA AV
PENNSYLVANIA AV
TENNESSEE AV
KENTUCKY AV
MICHIGAN AV
ILLINOIS AV
INDIANA AV
GEORGIA AV
DELAWARE AV
ALABAMA AV
CHARLOTTE AV
PARK AV
NEVADA AV
DAKOTA AV
IDAHO AV
WYOMING AV
UTAH AV
COLORADO AV
NEBRASKA AV
JAMES AV
PARK ST
ERROL LA
FRISCO AV
LAREDO AV
LARAMIE AV
FRANKLIN AV
JAMES CT
ROBERTSON AV
NASHUA AV
VERNON AV
DULUTH AV
MACKIE ST
LESLIE AV
DEAL AV
IVY ST
ALAMO PL
COLUMBIA AV
SUMMIT ST
TWIN ST
PATTON AV
O'BRIEN AV
LENOX AV
NEIGHBORLY AV
HILL CIR
BELLMORE PL
MAUDINA AV
BURGESS AV
BURGESS DR
VAUGHT DR
DEMOSS RD
WATTS LA
WATTS CIR
WATTS TER
MORROW RD
TERRY DR
MARLIN RD
COUCH DR
CARL PL
TRICE DR
WINN AV
URBANDALE AV
ROME AV
DELRAY DR
MAXON AV
LOVELL ST
SKYVIEW AV
ELAINE AV
NICHOLAS ST
STERLING ST
ET HELM ST
EASTBORO DR
WESTBEND DR
CROLEY DR
MIDLAND AV
WHITE BRIDGE PIKE
LELLYETT ST
Area 9
I-40 W ENT RMP
I-40 E EXIT RMP
I-40 RAMP
I-40
I-40 E
CHARLOTTE PKE
OLD HICKORY BLVD
CHARLOTTE ROAD CIR
PLEETWOOD DR
RUSSELL DR
LANSING DR
KENDALL DR
KNOB RD
BROOKSIDE CT
ALDEN CT
OAKMONT CIR
BON AIR CIR
MEADOWCREST LA
RURAL AV
OSCEOLA AV
MERCANTILE DR
COWDEN AV
COUGAR DR
WILCLAY DR
PREMIER DR
LANDAU DR
THUNDERBIRD DR
MARAUDER DR
ANNEX AV
CONTINENTAL DR
GALAXIE DR
RANCHERO DR
COMET DR
STARLINER DR
RIVER ROUGE DR
ACHIEVEMENT DR
FOUNDATION CT
CAPRI DR
SUNLINER DR
SCHOLARSHIP DR
HENRY FORD DR
AMERICAN RD
Sandy Creek
FREEDOM CT
FREEDOM DR
WESTBORO DR
CROLEY DR
NALL AV
FOUNDRY DR
ANNEX AV
JAMES CT
FRANKLIN AV
WACO DR
NASHUA LA
ERROL LA
6TH AV N
5TH AV N
4TH AV N
3RD AV N
2ND AV N
1ST AV N
N AV CNDS
N AV HLBS
ESTEMARY LN
EMERALD DR
WINDOVER DR
ASHLAND CITY HY
HYDES FERRY RD
COCOA DR
OLSEN LN
PANORAMA DR
HOSPITAL LN
DOLAN RD
SHELLEY
SMILEY AV
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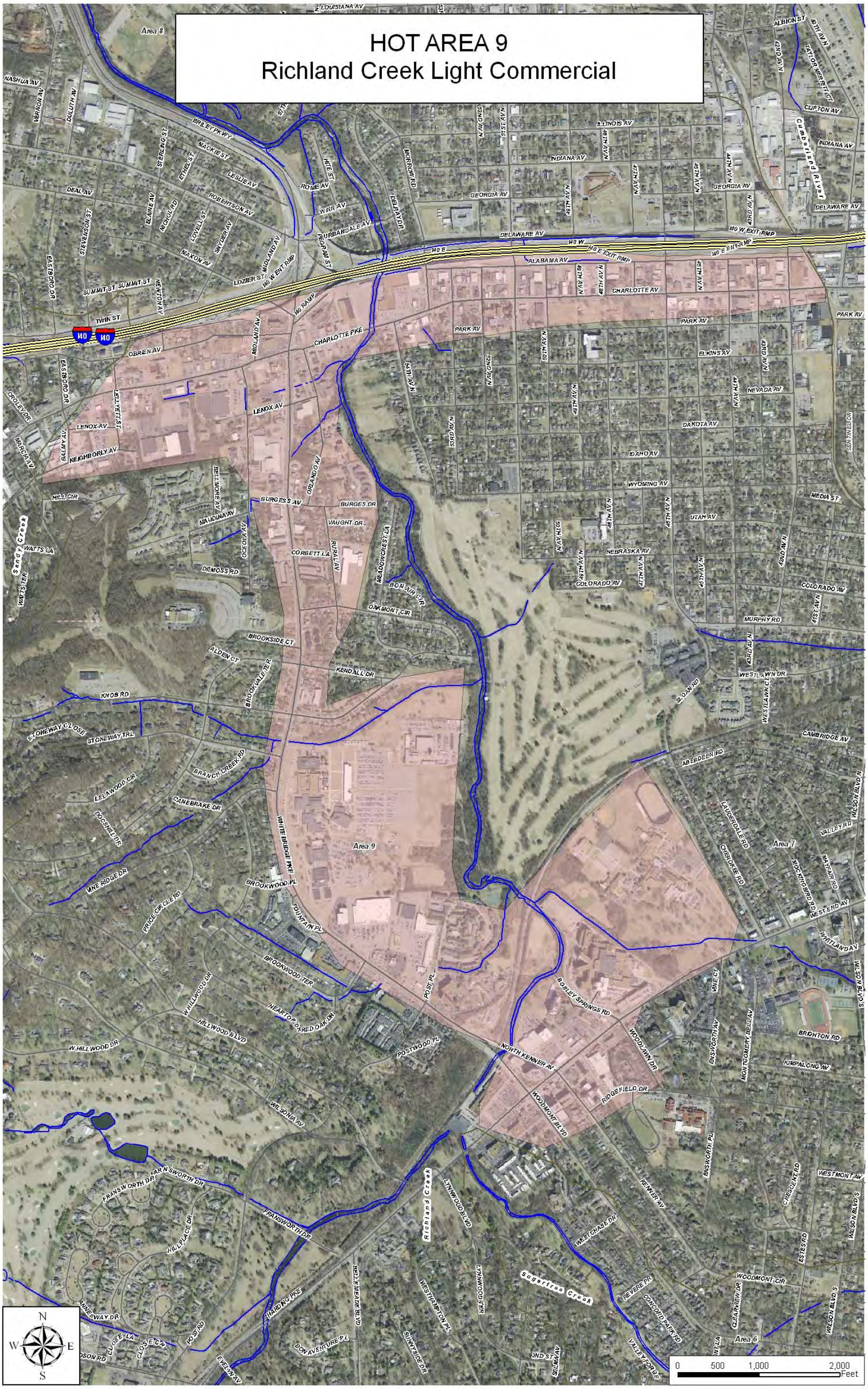
HOT AREA 9
Richland Creek Light Commercial
Area 8
Area 9
Area 7
Area 6
Richland Creek
Sugartree Creek
Sandy Creek
Cumberland River
I40
I40 W EXIT RMP
I40 E ENT RMP
I40 E EXIT RMP
I40 W ENT RMP
I40 RAMP
DELAWARE AV
ALABAMA AV
CHARLOTTE AV
PARK AV
CHARLOTTE PKE
OBRIEN AV
TWIN ST
SUMMIT ST
LOZIER ST
MAXON AV
BURBANDALE AV
WINN AV
ROME AV
DEAL AV
ROBERTSON AV
LESLIE AV
MACKIE ST
BRILEY PKWY
NASHUA AV
VERNON AV
DULUTH AV
STERLING ST
ETHEL ST
BLAINE AV
NICHOLS RD
LOVELL ST
SNYDER AV
MIDLAND AV
NEWTON AV
EASTBORO DR
STEVENSON ST
DELRAY DR
MORROW RD
HITE ST
BEGRAW ST
ILLINOIS AV
INDIANA AV
GEORGIA AV
DELAWARE AV
CLIFTON AV
ALBION ST
TAYLOR NEER RT CT
NEVADA AV
DAKOTA AV
IDAHO AV
WYOMING AV
UTAH AV
NEBRASKA AV
COLORADO AV
MEDIA ST
MURPHY RD
ELKINS AV
LENOX AV
NEIGHBORLY AV
CROLEY DR
MARCIA AV
BALMY AV
LELLYETT ST
MILL CIR
BELLEMONDE AV
MAUDINA AV
WATTS LA
WATTS TER
DEMOSS RD
OCEOLA AV
BURGESS AV
BURGES DR
VAUGHT DR
CORBETT LA
RURAL AV
ORLANDO AV
MEADOWCREST LA
BON AIR CIR
OAKMONT CIR
BROOKSIDE CT
ALDEN CT
BROOKVALE TER
KENDALL DR
KNOB RD
STONEWAY CLOSE
STONEWAY TRL
BRANCH CREEK RD
LELAWOOD CIR
CANEBRAKE DR
ROCKHILL DR
WHERIDGE DR
PRICE CIR
CLED RD
WHITE BRIDGE PKE
BROOKWOOD PL
FOUNTAIN PL
BROOKWOOD TER
POST PL
BOSLEY SPRINGS RD
NORTH KENNER AV
WOODLAWN DR
WOODMONT BLVD
RIDGEFIELD DR
WHILLWOOD DR
HILLWOOD BLVD
NEARTOP OAK DR
POSTWOOD PL
WILSONIA AV
FARNSWORTH DR
FRANSWORTH DR
HILL PLACE DR
HARDING PKE
BELLE MEADE BLVD
WESTHAMPTON PL
LYNNWOOD TER
LYNNWOOD BLVD
SUNNYSIDE DR
BONAVENTURE PL
EVELYN AV
POST RD
CLOSE LA
CLOSE CT
ANNESWAY DR
SLOAN RD
WESTLAWN CT
WESTLAWN DR
ABERDEEN RD
CAMBRIDGE AV
LAUDERDALE RD
CHEROKEE RD
MOCKINGBIRD RD
VALLEY RD
WESTEND AV
WHITLAND AV
WILSON BLVD N
WILSON BLVD S
BRIGHTON RD
KIMPALONG AV
ENSWORTH PL
ENSWORTH AV
MONTGOMERY BELL AV
VINE CT
WESTMONT AV
CRESCENT RD
ESTES RD
REMER AV
WEST CHASE DR
REVERE DR
CONCORD PARK RD
CLEARVIEW DR
WOODMONT CIR
MAYFAIR RD
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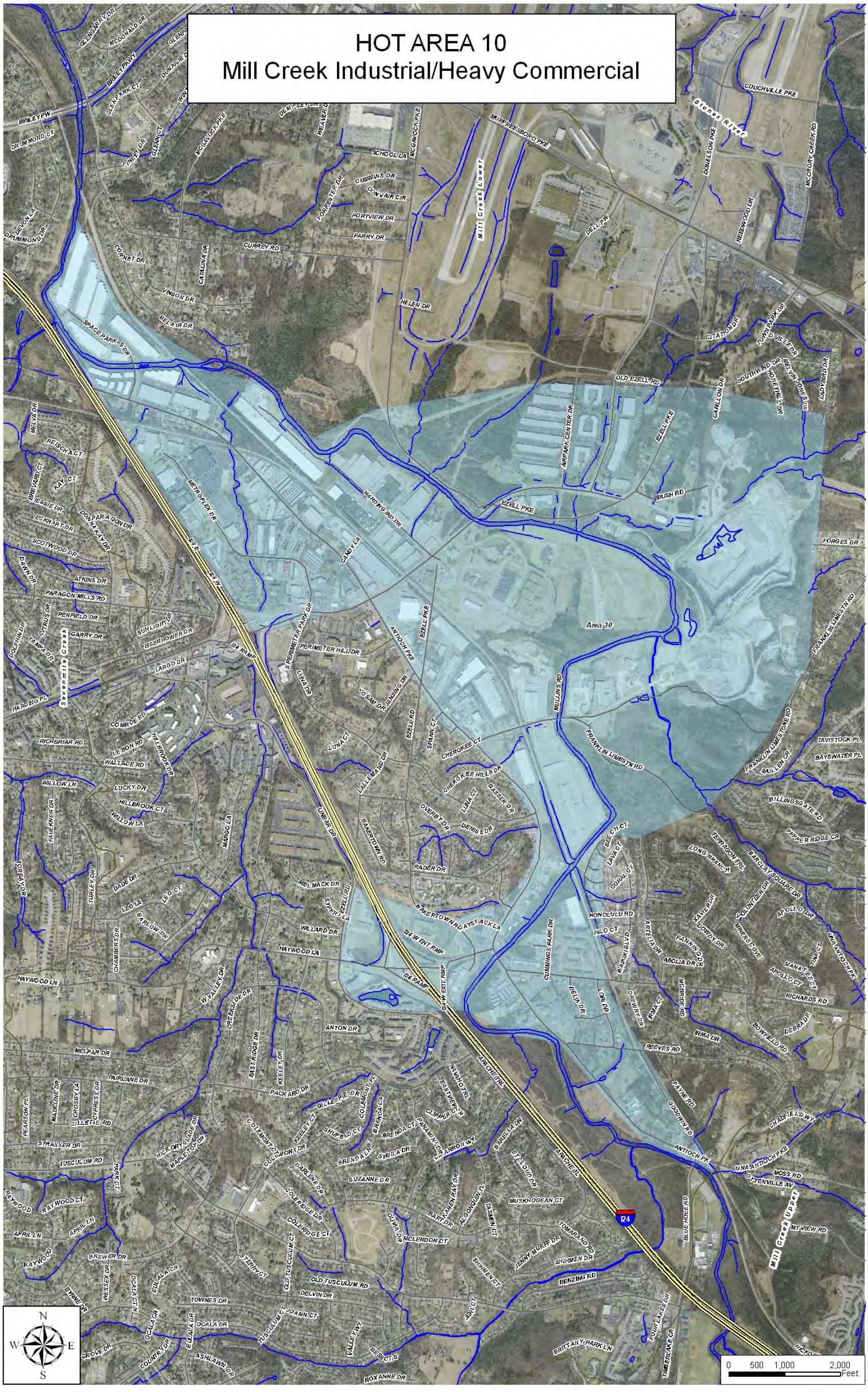
Feet


HOT AREA 10
Mill Creek Industrial/Heavy Commercial
Area 10
Mill Creek Lower
Stones River
Seven mile Creek
Mill Creek Upper
I24
N
W
E
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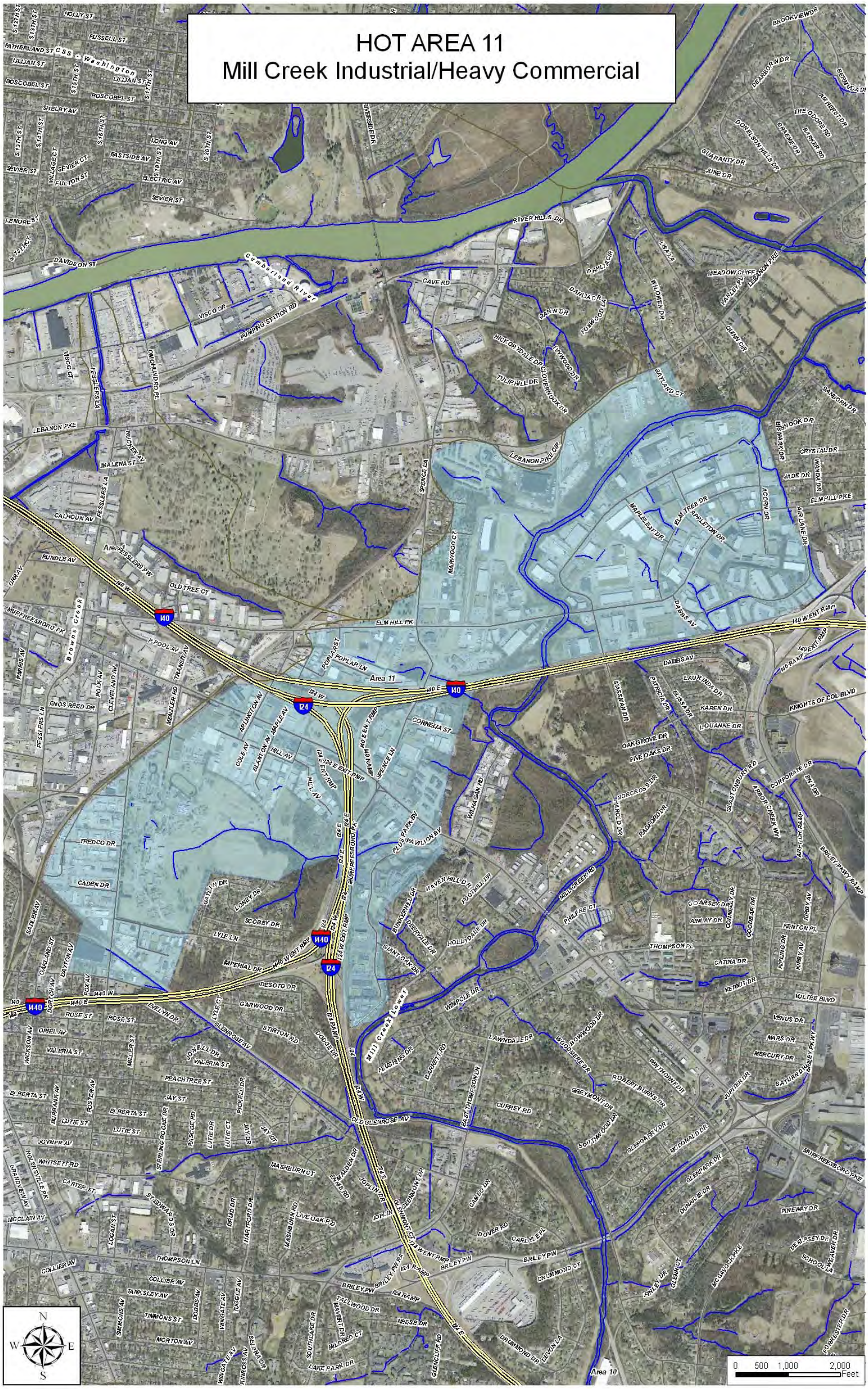
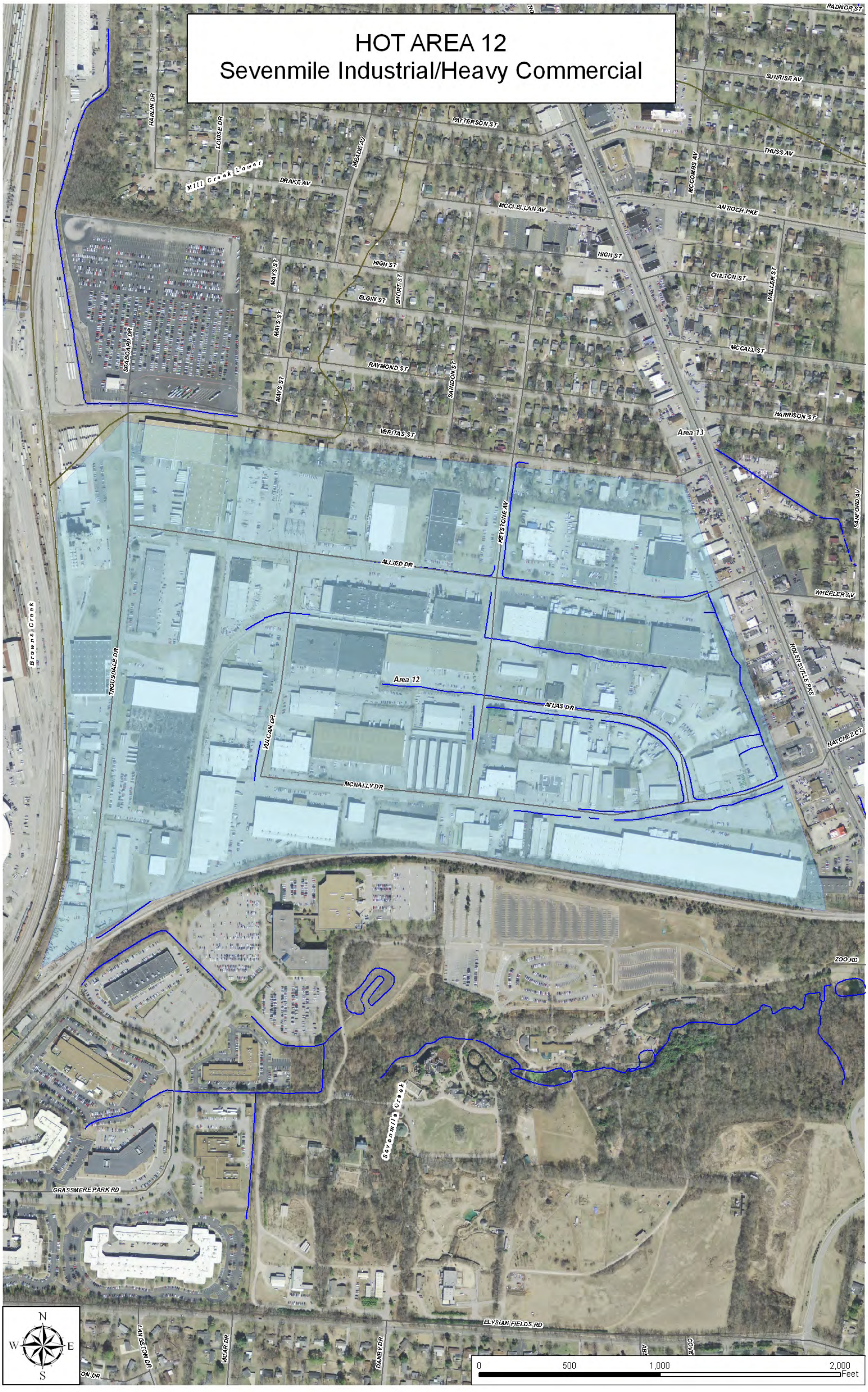
0 500 1,000 2,000
Feet


HOT AREA 11
Mill Creek Industrial/Heavy Commercial
Area 11
Area 10
Cumberland River
Mill Creek
Browns Creek
I-40
I-24
N
S
E
W
0 500 1,000 2,000
Feet


HOT AREA 12
Sevenmile Industrial/Heavy Commercial
RADNOR ST
SUNRISE AV
PATTERSON ST
THUSS AV
HARLIN DR
LOUISE DR
MEADE AV
Mill Creek Lower
DRAKE AV
MCCOMBS AV
MCCLELLAN AV
ANTIOCH PIKE
HIGH ST
MAYS ST
SHORT ST
ELGIN ST
CHILTON ST
WALLER ST
SEABOARD DR
RAYMOND ST
SANDON ST
MCCALL ST
HARRISON ST
VERITAS ST
Area 13
KEYSTONE AV
SANFORD AV
ALLIED DR
WHEELER AV
Browns Creek
TROUSDALE DR
Area 12
VULCAN DR
ATLAS DR
NOLENSVILLE PIKE
NATCHEZ CT
MCNALLY DR
ZOO RD
Sevenmile Creek
GRASSMERE PARK RD
ELYSIAN FIELDS RD
LAWSTON DR
MOAR DR
DANBY DR
N
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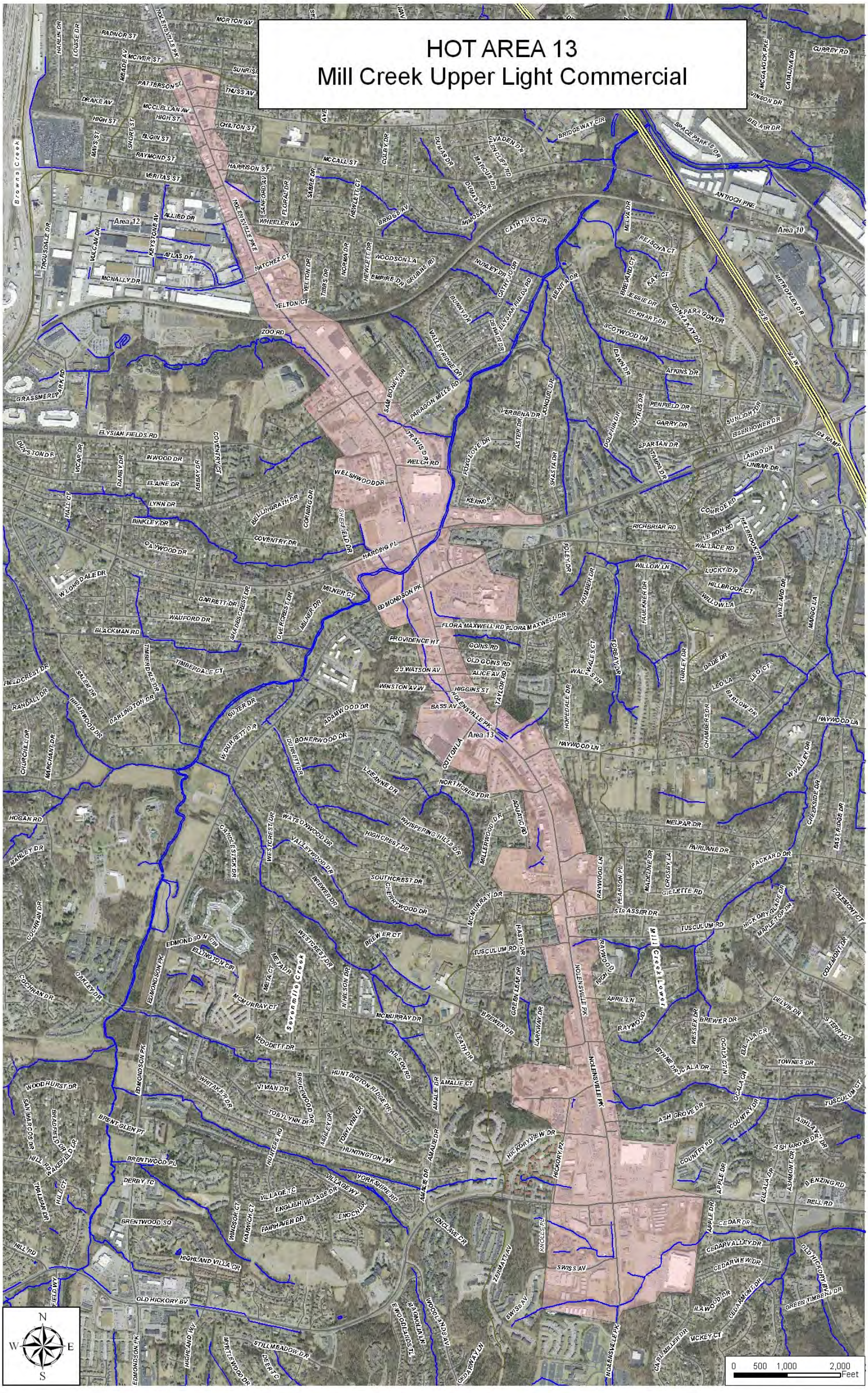
1,000
2,000
Feet


HOT AREA 13
Mill Creek Upper Light Commercial
Area 12
Area 10
Area 13
Browns Creek
Mill Creek Lower
MORTON AV
RADNOR ST
NOLENSVILLE PK
PATTERSON ST
THUSS AV
DRAKE AV
MCCLELLAN AV
HIGH ST
CHILTON ST
ELGIN ST
RAYMOND ST
HARRISON ST
MCCALL ST
VERITAS ST
ALLIED DR
WHEELER AV
BRIDGE AV
HEWLETT CT
COLBY DR
DUMAS DR
MARCUS DR
DUMAS DR
MIMOSA DR
GLENCLIFF RD
GLADEN DR
BRIDGEWAY CIR
SPACE PARK S DR
ANTIOCH PIKE
BELAIR DR
VINSON DR
MCGAVOCK PIKE
CATALINA DR
CURREY RD
CATHY JO CIR
MELVA DR
REISCHA CT
METROPLEX DR
I-24 E
I-24 W
KEYSTONE AV
VULCAN DR
TROUSDALE DR
ATLAS DR
MCNALLY DR
HATCHEZ CT
YELTON CT
YELTON DR
TIBBS DR
NORMA DR
WOODSON LA
EMPIRE DR
GRUBBS RD
CATHY JO DR
NUNLEY DR
BENTA DR
BREWARD CT
KAY CT
JESSIE DR
ECKHART DR
PARAGON DR
DONNA KAY DR
SCOTWOOD DR
DAWN DR
ATKINS DR
ZOO RD
GRASSMERE PARK RD
ELYSIAN FIELDS RD
DUNSTON DR
VICAR DR
DAWBY DR
INWOOD DR
ABBAY DR
COVENTRY CT
ELAINE DR
LYNN DR
HALL CT
BINKLEY DR
BELLINGRATH DR
CORNIGOR
COVENTRY DR
GAYWOOD DR
W LONGDALE DR
GARRETT DR
SHADYCREST DR
WAUFORD DR
BLACKMAN RD
TIMBERDALE CT
FIELDCREST DR
SALEM DR
TIMBERDALE DR
RANDALL DR
BRIARWOOD DR
DARLINGTON DR
CHURCHILL DR
MARCHANT DR
HOGAN RD
MANLEY DR
COCHRAN DR
OAKLEY DR
SAM BONEY DR
PARAGON MILLS RD
TRAVIS DR
WELCH RD
WELSHWOOD DR
KERN DR
SHEFFIELD DR
HARDING PL
MILNER CT
MILNER DR
OVERCREST DR
ED MONDSON PK
FLORA MAXWELL RD
PROVIDENCE HT
COINS RD
OLD COINS RD
JJ WATSON AV
WINSTON AV W
ALICE AV
HIGGINS ST
BASS AV
SUTER DR
ADAMWOOD DR
W DURRETT DR
DURRETT DR
BONERWOOD DR
LEANNE DR
NORTHCREST DR
COTTON LA
WESTCREST DR
WATSONWOOD DR
VALLEYWOOD DR
BREWER DR
SOUTHCREST DR
CHERRYWOOD DR
WHISPERING HILLS DR
HIGHCREST DR
MILLERWOOD DR
AQUATIC RD
MCMURRAY CT
MCMURRAY DR
MCMURRAY LN
EDMONDSON CIR
ELLINGTON CIR
EDMONDSON PK
MEIA CT
SAVENNAH CT
N HELSON DR
BREWER CT
WESTCREST DR
TUSCULUM RD
HASTY DR
GREEN LEAF DR
LARKWAY DR
NOLENSVILLE PK
RAYWOOD LN
APRIL LN
WESSEX DR
BREWER DR
DELVIN DR
STERRY CT
WOODETT DR
LEATH DR
HELSON RD
AMALIE DR
AMALIE CT
HUNTINGTON RIDGE DR
VIVIAN DR
BRUCEWOOD DR
TOBY LYNN DR
ASHLEY DR
TOBY LYNN CIR
HUNTERS RG
WHITAKE P DR
WOOD HURST DR
SAN MARCOS DR
BRADFIELD DR
WAKEFIELD DR
HILL CT
THALMAN DR
BRENT GLEN PT
BRENTWOOD PL
DERBY TC
BRENTWOOD SQ
HILL RD
HIGHLAND VILLA DR
OLD HICKORY BV
HIGHLAND WY
STILLMEADOW DR
DEER TC
WILLOW LN
LUCKY DR
HILLBROOK CT
WILLOW LA
WALLACE RD
LE BON RD
MELBROOK DR
RICHBRIAR RD
COMROE RD
LINBAR DR
LARGO DR
SPARTAN DR
TAMPA DR
FOXGLOVE DR
ASTER DR
SHASTA DR
DOLPHIN DR
CITRUS DR
GARRY DR
SUNLIGHT DR
EISENHOWER DR
PENFIELD DR
VERBENA DR
JONQUIL DR
I-24 RAMP
FOLEY DR
ROMBER DR
FAULKNER DR
WALKER DR
WALKER CT
TOBEY DR
TURLEY DR
DADE DR
LEO LA
LEO CT
BARLOW DR
CHAMBERS DR
HOPEDALE DR
WILLARD DR
MARGO LA
HAYWOOD LA
HAYWOOD LN
W VALLEY DR
CREEKSIDE DR
EASTRIDGE DR
MELPAR DR
FAIRLANE DR
PACKARD DR
MADELINE DR
CROSBY LA
GILLETTE RD
PEARSON PL
RAYWOOD LN
51R ASSER DR
TUSCULUM RD
HICKORY GLADE DR
MAPLETOP DR
COLEMONT DR
COLEMONT CT
TOWNES DR
OCALA CIR
OCALA CIN
OCALA DR
BELALA CR
ASH GROVE DR
COUNTRY DR
COUNTRY RD
ASHLAR DR
ASHMONT CR
BENZING RD
BELL RD
APPLE DR
CEDAR DR
CEDARVALLEY DR
CEDARVIEW DR
CEDARMONT DR
ILAWOOD DR
GREEN TIMBER DR
OLD HICKORY BLVD
SWISS AV
ZERMATT AV
KNOLLS PL
HICKORY PL
HICKORY VIEW DR
YORKSHIRE RD
VILLAGE WY
VILLAGE TC
ENGLISH VILLAGE DR
ENOCH DR
FAIRHAVEN DR
WINDSOR CT
HARWICH CT
AMALIE DR
DICLAVE DR
WOODLANDS AV
WOODLANDS TL
MAONOLIA LN
GREENWAY LN
CAPTMILLER DR
WCKEY CT
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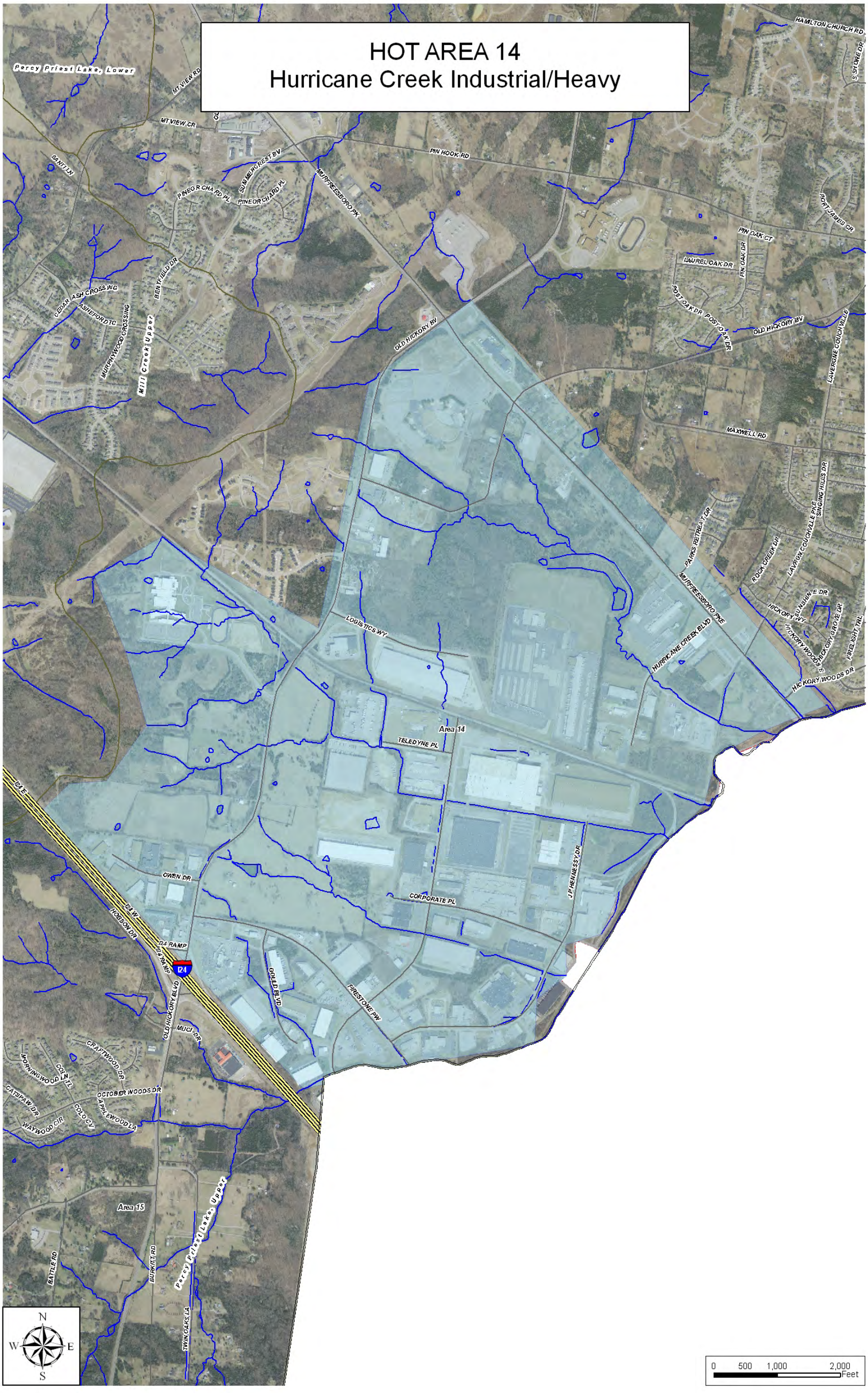
0 500 1,000 2,000
Feet


HOT AREA 14
Hurricane Creek Industrial/Heavy
Percy Priest Lake, Lower
Percy Priest Lake, Upper
Area 14
Area 15
MT VIEW RD
MT VIEW CR
SANTI LN
SUMMERCREST BV
PINEORCHARD PL
PINEORCHARD RD
PIN HOOK RD
MURFREESBORO PK
HAMILTON CHURCH RD
S SHORE DR
PORT JAMES CR
PIN OAK CT
PIN OAK DR
LAUREL OAK DR
POST OAK DR
OLD HICKORY BV
LAVERGNE COUCHVILLE PIKE
MAXWELL RD
SINGING HILLS DR
PARKS RETREAT DR
ROCK CREEK DR
HICKORY SUNSHINE DR
HICKORY WOODS DR
HICKORY GROVE DR
FIRELIGHT TRL
HURRICANE CREEK BLVD
LOGISTICS WY
TELEDYNE PL
OWEN DR
CORPORATE PL
J P HENNESSY DR
GOULD BLVD
FIRESTONE PW
I24 E
I24 W
I24 RAMP
HODSON DR
OLD HICKORY BLVD
MUCI DR
CRAFTWOOD DR
MORNINGWOOD LN
COLT CT
OCTOBER WOODS DR
CATSPAW DR
WAYWOOD CIR
COLD CV
APPLEWOOD LA
BATTLE RD
BURKITT RD
TWIN OAKS LA
CEDAR ASH CROSSING
ASHEFORD TC
MURPHYWOOD CROSSING
BENTFIELD DR
Mill Creek Upper
N
W
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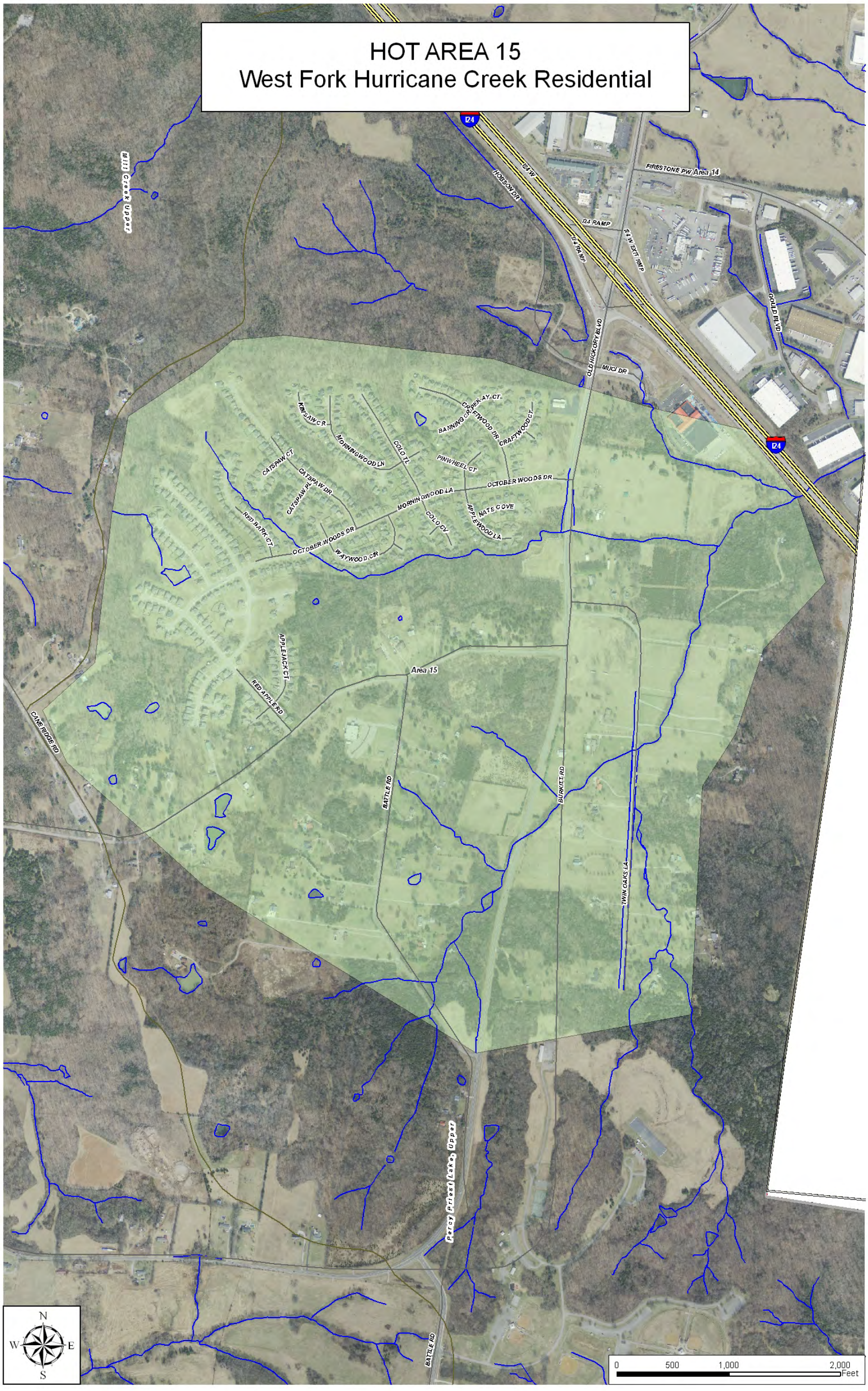
0 500 1,000 2,000
Feet


HOT AREA 15
West Fork Hurricane Creek Residential
I24
I24 W
HOBSON DR
I24 RAMP
I24 W EXIT RMP
FIRESTONE PW Area 14
GOULD BLVD
OLD HICKORY BLVD
MUCI DR
Mill Creek Upper
KINSAW CR
MORNINGWOOD LN
COLO TL
CREEK AY CT
BANNING CRAFTWOOD DR
CRAFTWOOD CT
PINWHEEL CT
CATSPAW CT
CATSPAW PL
CATSPAW DR
MORNINGWOOD LA
OCTOBER WOODS DR
NATE COVE
APPLEWOOD LA
COLO CV
RED BARK CT
OCTOBER WOODS DR
WAYWOOD CR
APPLEJACK CT
RED APPLE RD
Area 15
CANE RIDGE RD
BATTLE RD
BURKITT RD
TWIN OAKS LA
Percy Priest Lake, Upper
BATTLE RD
N
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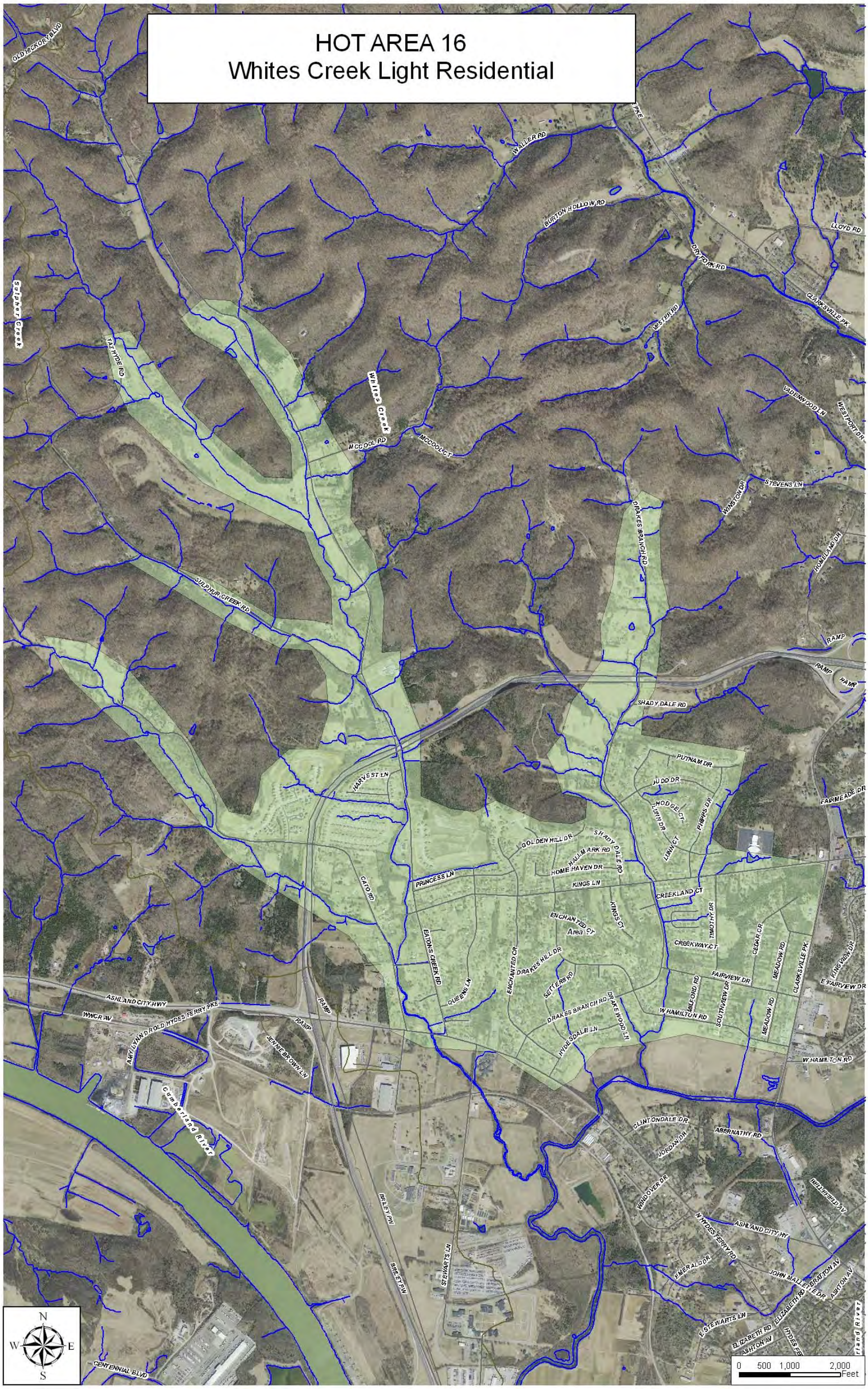
2,000
Feet


HOT AREA 16
Whites Creek Light Residential
OLD HICKORY BLVD
WALLER RD
BURTON HOLLOW RD
DRY FORK RD
LLOYD RD
CLARKSVILLE PK
VESTRY RD
Sulphur Creek
TAZ HYDE RD
Whites Creek
MCCOOL RD
MCCOOL CT
VADEMWOOD LN
WESTPORT DR
STEVENS LN
WINSTON DR
HOMELAND DR
DRAKES BRANCH RD
SULPHUR CREEK RD
RAMP
SHADY DALE RD
PUTNAM DR
JUDD DR
HODGE CT
LUNN DR
PHIPPS DR
LUNN CT
FAIRMEADE DR
HARVEST LN
GOLDEN HILL DR
HALLMARK RD
HOME HAVEN DR
SHADY DALE RD
PRINCESS LN
KINGS LN
CREEKLAND CT
CATO RD
ENCHANTED CT
Area 1
KINGS CT
TIMOTHY DR
CREEKWAY CT
CEDAR CR
MEADOW RD
CLARKSVILLE PK
E FAIRVIEW DR
KINGSVIEW DR
EATONS CREEK RD
DRAKES HILL DR
SETTERS RD
QUEENS LN
ENCHANTED CR
FAIRVIEW DR
MILFORD RD
SOUTHVIEW DR
MEADOW RD
DRAKES BRANCH RD
DRAKEWOOD LN
W HAMILTON RD
HYDESDALE LN
ASHLAND CITY HWY
WWC R AV
AMY LYNN D R
OLD HYDES FERRY PIKE
JENNIE BROWN LN
Cumberland River
BRILEY PW
STEWARTS LN
CLINTONDALE DR
JORDAN DR
ABERNATHY RD
WINDOVER DR
HERMITAGE AV
N HYDES FERRY RD
EMERALD DR
JOHN MALLETT BRATTON AV
ASHTON AV
E STEWARTS LN
ELIZABETH RD
CENTENNIAL BLVD
N
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E
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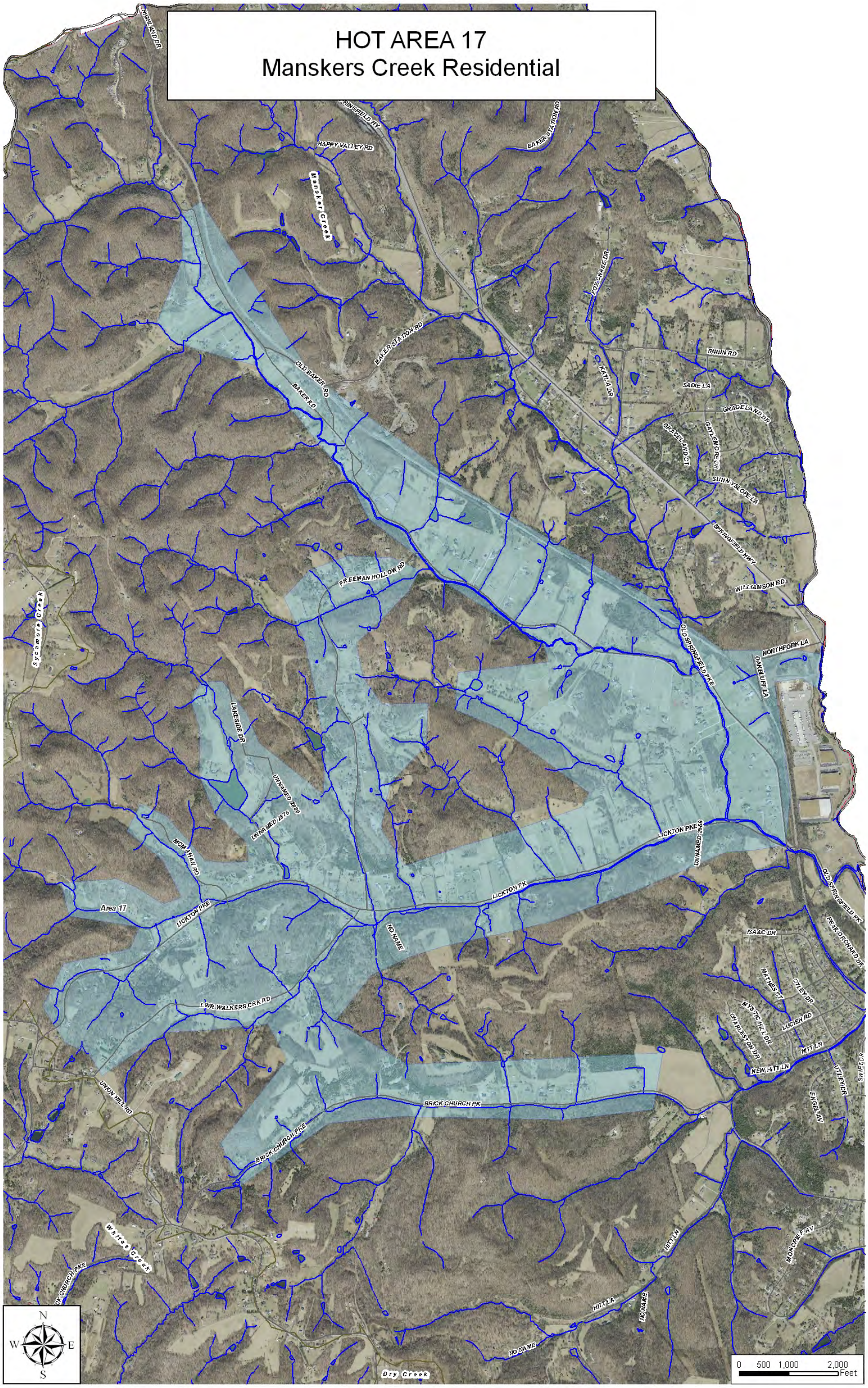
0 500 1,000 2,000
Feet


HOT AREA 17
Manskers Creek Residential
HIGHLAND DR
SPRINGFIELD PK
HAPPY VALLEY RD
BAKER STATION RD
Manskers Creek
FOX CHASE DR
BAKER STATION RD
TINNIN RD
KAYLA DR
SADIE LA
GRACELAND DR
GRACELAND CT
GAYLEMORE DR
SUNNYSLOPE LA
SPRINGFIELD HWY
WILLIAMSON RD
OLD BAKER RD
BAKER RD
FREEMAN HOLLOW RD
Sycamore Creek
OLD SPRINGFIELD PKE
NORTHFORK LA
OAKBLUFF LA
LAKESIDE DR
UNNAMED 2880
UNNAMED 2876
UNNAMED 2866
LICKTON PKE
MCMAHAN RD
Area 17
LICKTON PK
NO NAME
OLD SPRINGFIELD PK
PEAR ORCHARD DR
ISAAC DR
LWR WALKERS CRK RD
MATHES CT
UTLEY DR
MYSTIC HILL DR
LUCIEN RD
CHARLESTON DR
HITT LN
NEW HITT LN
SWIFT DR
ENGEL AV
UNION HILL RD
BRICK CHURCH PK
BRICK CHURCH PKE
Whites Creek
MONCREIF AV
HITT LA
NO NAME
Dry Creek
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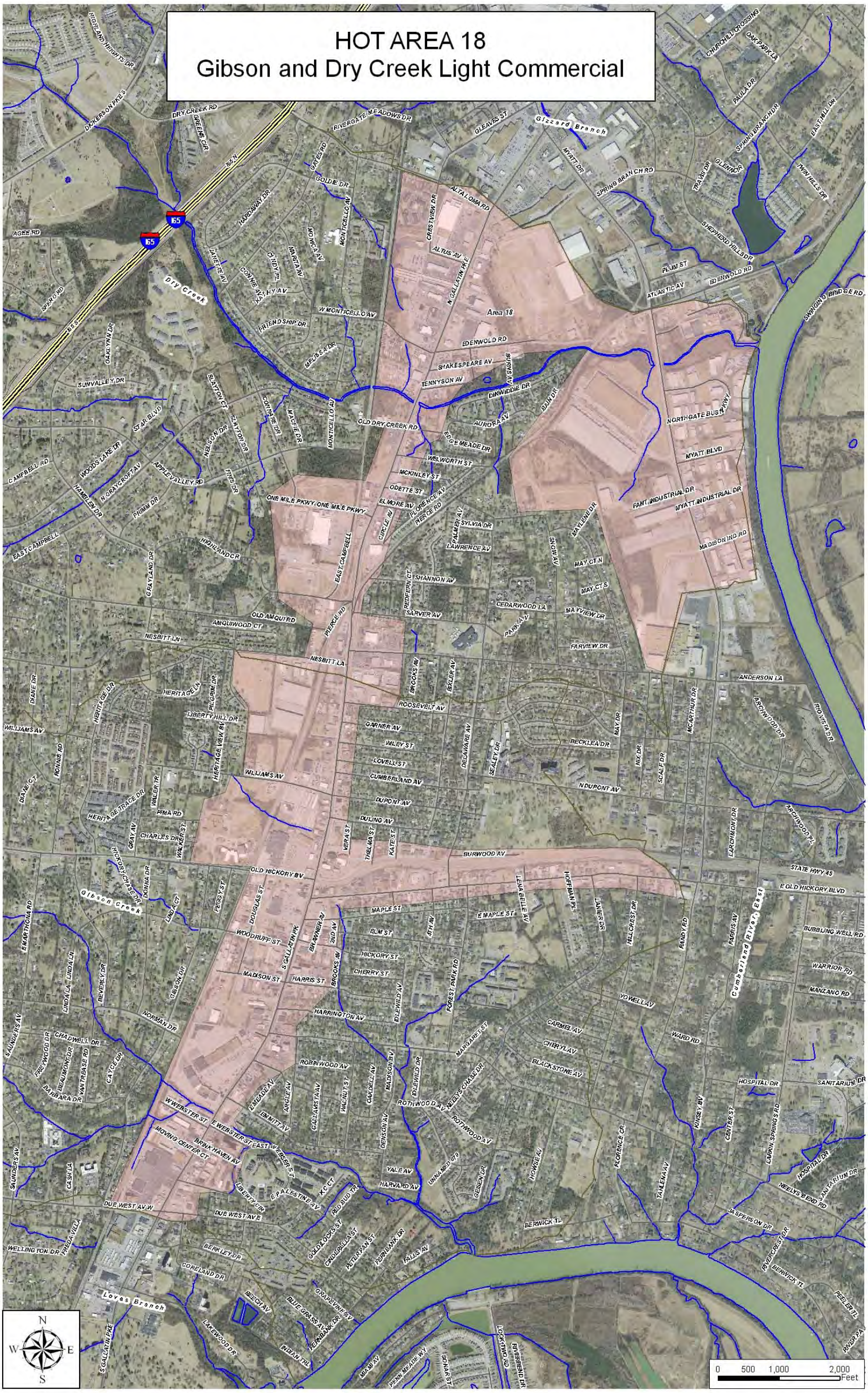
0 500 1,000 2,000
Feet


HOT AREA 18
Gibson and Dry Creek Light Commercial
Area 18
Dry Creek
Gibson Creek
Lovas Branch
Glzzard Branch
I65
DRY CREEK RD
RIVERGATE MEADOWS DR
GLEAVES ST
SPRING BRANCH RD
ALTA LOMA RD
EDENWOLD RD
W MONTICELLO AV
FRIENDSHIP DR
SHAKESPEARE AV
TENNYSON AV
DINWIDDIE DR
OLD DRY CREEK RD
NORTHGATE BUSINESS PARK
MYATT BLVD
FANT INDUSTRIAL DR
MYATT INDUSTRIAL DR
MADISON IND RD
ONE MILE PKWY
EAST CAMPBELL
OLD AMQUI RD
NESBITT LN
NESBITT LA
ANDERSON LA
ROOSEVELT AV
WILLIAMS AV
BECKLEA DR
N DUPONT AV
DUPONT AV
DULING AV
BURWOOD AV
OLD HICKORY BV
STATE HWY 45
E OLD HICKORY BLVD
MAPLE ST
E MAPLE ST
HICKORY ST
CHERRY ST
MADISON ST
HARRIS ST
HARRINGTON AV
WOODRUFF ST
CARMEL AV
CHERYL AV
BLACKSTONE AV
HOSPITAL DR
SANITARIUM DR
W WEBSTER ST
E WEBSTER ST
EAST WEBSTER ST
HARVARD AV
YALE AV
BERWICK TL
DUE WEST AV W
DUE WEST AVE
WELLINGTON DR
BERKLEY DR
CORELAND DR
LAKEWOOD DR
INDIAN TRL
BUBBLING WELL RD
WARRIOR RD
MANZANO RD
YOWELL AV
WARD RD
0 500 1,000 2,000 Feet

SWMP Appendix D

Enforcement Response Plan

SWMP Appendix E

Supplemental TDEC Coordination and Updates to SWMP since Original SWMP was Developed

- TDEC/Metro Communications on proposed program element changes
- Supplemental Updates to the SWMP based on verbal comments from TDEC during a May 16, 2018 Compliance Inspection
    - Specifically list that Erosion Prevention and Sediment Control (EPSC) is required for each site
    - Provide a Flow Chart detailing Staff Assignments to specific permit duties.
    - Describe how EPSC issues are handled for sites part of a larger common development in which is 75% built out and the Grading Permit is signed-off
- Major SOP updates since the original SWMP was developed.
    - Field Screening

      (PIE Plan and Enforcement Response Plan Updates are Included in Appendix C and D respectively)
- Supplemental Updates to the SWMP based on verbal comments from TDEC during a July 16, 2020 Compliance Inspection of the IDDE program
    - Revised Language in the SWMP IDDE section that further describes spill response activities and training for new staff.
    - Revised ERP with new language on timeframes for responding to illicit discharge complaints

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES
William R. Snodgrass - Tennessee Tower
312 Rosa L. Parks Avenue, 11th Floor
Nashville, Tennessee 37243-1102

June 9, 2016

Mr. Michael Hunt
Metro Water Services
Stormwater Division – NPDES
1607A County Hospital Rd.
Nashville, TN 37218

Re: MS4 Permit Visual Stream Assessment Modification Approval
NPDES Permit No. TNS068047

Dear Mr. Hunt,

Per your request, we have reviewed your attached proposal to modify the non-analytical monitoring requirements of your MS4 permit. We understand the difficulty of performing your visual stream assessment protocol on the listed portion of the Cheatham Reservoir (Cumberland River) due to its size and configuration, and believe the activities described in your proposal would be reasonable alternatives. As such, please except this correspondence as our approval to modify your non-analytical monitoring accordingly.

Thank you, and please let me know if you have any questions.

Sincerely,

Robert Karesh
Statewide Stormwater Coordinator
Department of Environment and Conservation
Division of Water Resources

Attachment: MS4 Permit Visual Stream Assessment Proposed Modification Request

cc: Erin O'Brien - Nashville EFO
Permit Section File - TNR100000

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
NASHVILLE ENVIRONMENTAL FIELD OFFICE
711 R. S. GASS BOULEVARD
NASHVILLE, TENNESSEE 37243
PHONE (615) 687-7000 STATEWIDE 1-888-891-8332 FAX (615) 687-7078

September 22, 2015

Mr. Michael Hunt, NPDES Program Manager
Department of Water and Sewerage Services
Stormwater Division, NPDES Office
1607 County Hospital Road
Nashville, TN 37218

Subject: NPDES Permit Number TNS068047
Nashville/Davidson County MS4
Nashville, Davidson County, Tennessee

Dear Mr. Hunt:

The Division of Water Resources (division) received your letter dated May 27, 2015, regarding proposed modifications to Nashville's MS4 Permit biological monitoring. In your letter you stated that Nashville (Metro) proposes to transition to collection Semi Quantitative Single Habitat (SQSH) biological samples for the MS4's ambient monitoring program, as is required under section 3.3.4. of the subject permit. Metro also proposes changing the MS4 biological monitoring reference site to match the reference site used by TDEC for Davidson County stream assessments: Little Marrowbone Creek, UT (Henry), River Mile 0.1, (Lat: 36.27212, Long: -86.9049). The division authorizes these changes.

In addition, the division received an email on September 3, 2015, requesting a modification to the allowed collection period for biological samples. Under section 3.3.4. of your current permit, you are required to collect macroinvertebrate samples during the second (October 1 through December 31) and fourth (April 1st through June 30th) quarter of each permit year.

The permit itself requires division approval of streams being sampled and the division approval of the sampling protocol. The proposed monitoring periods do not reduce the sampling frequency and are within the level of protocol approved by the division. Therefore, these conditions could have been written into the original permit at permit issue and qualify as minor modifications. In accordance with the provisions of "The Tennessee Water Quality Control Act" (Tennessee Code Annotated, Sections 69-3-101 through 69-3-120) the above referenced NPDES Permit is hereby modified by the Division of Water Resources. The continuance and/or reissuance of this NPDES Permit is contingent upon your meeting the conditions and requirements as stated therein.

This minor modification revises section 3.3.4., Biological Monitoring, of the subject permit, to read as follows:

> The permittee shall continue a program of biological assessments of identified urban streams. The permittee shall obtain approval from the division of the streams selected. Ideally, the biological assessments shall work in conjunction with the

ambient yearly rotating monitoring program with both chemical and biological assessments occurring on the same streams each year.

Macroinvertebrate sampling will occur twice a year, during the periods of July 1 through September 30 and March 1 through June 30, each permit year. The protocol for sampling shall be that found in TDEC's Division of Water Pollution Control's Quality System Standard Operation Procedure for Macroinvertebrate Stream Surveys. The level of protocol for each sampling must be approved by the Environmental Field Office Manager of the division. Results of biological monitoring shall be submitted with each Annual Report. Exceptions to the bioassessment requirement will be in the Mill Creek watershed during the second quarter of the permit year due to species facing extinction permit restrictions.

Please be advised that a petition for permit appeal may be filed, pursuant to T.C.A. Section 69-3-105, subsection (i), by the permit applicant or by any aggrieved person who participated in the public comment period or gave testimony at a formal public hearing whose appeal is based upon any of the issues that were provided to the commissioner in writing during the public comment period or in testimony at a formal public hearing on the permit application. Additionally, for those permits for which the department gives public notice of a draft permit, any permit applicant or aggrieved person may base a permit appeal on any material change to conditions in the final permit from those in the draft, unless the material change has been subject to additional opportunity for public comment. Any petition for permit appeal under this subsection (i) shall be filed with the Technical Secretary of the Water Quality, Oil and Gas Board within thirty (30) days after public notice of the commissioner's decision to issue or deny the permit. A copy of the filing should also be sent to TDEC's Office of General Counsel.

We appreciate the Metro Nashville MS4 Program's attention to this issue and to protecting water quality. If you have questions, please contact Ms. Erin O'Brien at (615) 687-7128 or by E-mail at *Erin.O'Brien@tn.gov*, or me at (615) 687-7119 or by E-mail at *Ann.Morbitt@tn.gov*.

Sincerely,

Ann Morbitt
Environmental Program Manager

cc: Mr. Wade Murphy, Division of Water Resources, Wade.Murphy@tn.gov
Compliance and Enforcement, Division of Water Resources
Planning and Standards, Division of Water Resources

uploaded jw
wmurphy or
Erin O'brien

METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY

DEPARTMENT OF WATER AND SEWERAGE SERVICES
Stormwater Division - NPDES
1607A County Hospital Road
Nashville, Tennessee 37218

TN DEPT OF ENVIRONMENT AND CONSERVATION
MAY 25 2016
DIV OF WATER RESOURCES
RECEIVED

May 24, 2016

Mr. Robert Karesh
Tennessee Department of Environment and Conservation
Division of Water Resources
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Blvd
Nashville, TN 37243

Subject: **MS4 Permit Visual Stream Assessment Proposed Modifications**
NPDES Permit No. TNS068047

Dear Mr. Karesh:

We are requesting a minor program modification to our MS4 Permit's Non-analytical monitoring, Section 4.2. The Cheatham Reservoir (aka Cumberland River) is considered impaired for pathogens on 994 acres or approximately 5.2 river miles. Due to the size and configuration of the river, it would be extremely difficult to follow our visual stream assessment protocol. There are other existing Metro and NPDES Office programs in place that serve to monitor activities and pathogen levels on the Cumberland River, and we request these serve as replacement for the aforementioned visual stream assessment requirement for the listed portion of Cheatham Reservoir.

First, as part of the Central WWTP permit, Metro Water Services Pretreatment Section Staff monitor *E. coli* levels on the river weekly at 2 locations on the Cumberland River at the Omohundro Water Treatment plant and also just downstream of the Clarksville Pike Roadway Bridge. During their sample collections, they also look for any outfalls of concern. If outfall concerns are identified, they notify NPDES Office staff to investigate. Periodically every year or so, NPDES Office staff accompany Pretreatment Section staff to conduct a "river run" via boat and look at each outfall on the river and perform sampling if the outfall discharge or surroundings evidence concern. Additionally, as part of our ongoing Thermograph program, the entire length of the Davidson County Portion of the Cumberland River was flown in 2015 and 4 sites were identified to investigate - none of which were found to be illicit discharges. This segment of the Cumberland River will continue to be flown as part of this program in future Thermograph flights and any identified outfall issues investigated.

If you have any questions, we would be happy to discuss or please feel free to call 615-880-2420.

Sincerely,

Michael Hunt
MWS Stormwater, NPDES Program Manager

cc: Erin O'Brien- TDEC, Division of Water Pollution Control-Nashville Environmental Field Office
Tom Palko- MWS Asst. Director Stormwater
Josh Hayes – MWS NPDES Program
Mary Bruce – MWS NPDES Program

MEGAN BARRY
MAYOR

METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY

DEPARTMENT OF WATER AND SEWERAGE SERVICES
STORMWATER DIVISION
NPDES OFFICE
1607 COUNTY HOSPITAL ROAD
Nashville, Tennessee 37218

January 31, 2017

Re: Nashville Phase 1 MS4 Permit Reissuance – TNS068047

Vojin Janjic | Manager, Water-Based Systems
Division of Water Resources
William R. Snodgrass Tennessee Tower, 11th Floor
312 Rosa L. Parks Ave, Nashville, TN 37243

Dear Mr. Janjic,

We are writing you to request specific clarification on the permit reissuance process for the Metropolitan Government of Nashville, Davidson County (Metro) Municipal Separate Storm Sewer System, which expires as of today, January 31, 2017. As we approach this reissuance process and period between expired permit and reissued permit, it is our intentions to propose the following path going forward to ensure MS4 Permit compliance is maintained throughout the transition period and to ensure coordination occurs between the Division and key Metro staff to incorporate changes to specific terms and conditions of the MS4 permit.

Transition Period:
As you are aware, most of the specific requirements of the MS4 permit are ongoing and do not have certain deadlines by which to be completed. Among these, include programs such as administering stormwater management regulations requirements for post-construction stormwater controls, overseeing a vigorous inspection and oversight program for construction activities, performing public education/public involvement activities, ensuring municipal maintenance operations are not impacting stormwater runoff, and implementation of various Illicit Discharged Detection and Elimination (IDDE) programs. Metro proposes to continue these ongoing programs as prescribed in the existing active permit until the new permit becomes effective.

There are some MS4 permit requirements, however, that list specific target dates or timeframes for the activities to be completed per Metro's active permit. Specific requirements within the MS4 permit that have declared deadlines are listed below:

- ***Dry Weather Outfall Screening***
  - *Screen one outfall within every ¼ mile commercial/industrial grid once per permit term.*
- ***Industrial Inspection/Monitoring Program***
  - *Inspect industrial high risk sites as identified by the MS4 permit (i.e. SARA Title 3, TSD sites, etc.) once every 3 years.*
- ***Post Construction Stormwater Control Measure (SCM) Inspection and Maintenance Oversight Program***
  - *Implement permittee-defined program by the end of year 5.*
- ***Various MS4 Permit-Prescribed Monitoring Activities.***
  - *Sampling programs (i.e. wet weather, ambient, visual stream assessments, etc.) prescribed in the permit to be completed on a 5 year permit term.*

It is our understanding through conversations with TDEC staff, that it may be late 2017 or possibly even next year, before our MS4 permit is reissued. With that said, we would like to propose the following compliance activities to be performed in the transition period.

- ***Dry Weather Outfall Screening***
  - *Test our newly proposed field screening protocol (i.e. screen 3 business/industrial sites for site management/housekeeping procedures in each ¼ commercial/industrial-zoned grid.) Transition period goal would be to screen at least 50 grids each year prior to the new permit being issued.*
- ***Industrial Inspection/Monitoring Program***
  - *Re-inspect only industrial sites in which issues were noted during the original inspections and/or those involved with compliant investigations. Identify and perform inspections on industrial facilities (not required to be inspected by the original MS4 permit (i.e. auto salvage lots, ready-mix facilities, etc. not identified as SARA Title 3 or TSD facilities)). A list of industrial facilities to be inspected would be sent to the TDEC Nashville Field Office. Goal would be to inspect 10 industrial facilities each year.*
- ***Post Construction Stormwater Control Measure (SCM) Inspection and Maintenance Oversight Program***
  - *Continue to respond to citizen complaints of SCM structures not being maintained properly. In addition, would inspect and enforce (if necessary) on at least 50 SCM structures per year. Currently and during the transition period, Metro will continue to build its SCM Inspection & Maintenance oversight process.*
- ***Various MS4 Permit-Prescribed Monitoring Activities.***
  - *Discontinue the following sampling activities until the new MS4 permit is issued:*
    - *Wet Weather Homogenous Land Use Sampling*
    - *Wet Weather SCM Discharge Grab Sampling*
    - *Wet Weather Industrial Sampling (1 TMSP/RMCP site per year).*

- *Continue routine ambient monitoring/sampling programs (ambient chemical/bacteriological sampling and visual stream assessments) as well as any site-specific sampling as required in the course of routine investigations. The MWS Stormwater NPDES Watershed Group would coordinate with TDEC Nashville Field Office staff on monitoring schedules (which watersheds they will be monitoring during the transition period).*

New Permit Coordination

As stated above, Metro is requesting coordination on developing specific terms and conditions of the reissued MS4 permit in an ongoing effort to improve our permit compliance activities. In particular there are several program activities that Metro is interested in modifying to make more efficient and effective. Some of these proposed changes would involve changes to MS4 permit requirements as well, if implemented. Specific changes Metro are requesting to individually listed permit requirements were included in Metro's most recent Annual Report submittal (see attachment). Metro is requesting specific meetings to be arranged between appropriate TDEC permit writer staff and MWS Stormwater NPDES personnel so that these proposed changes can be explored and discussed.

Sincerely,

Michael Hunt
Metro Water Services, Stormwater, NPDES
Program Manager

Encl. - Nashville Phase 1 MS4 Permit Application Section of MS4 Annual Report

CC:

April Grippo – TDEC Nashville Field Office
Jennifer Dodd – TDEC Central Office
John Leffew – TDEC Nashville Field Office

DAVID BRILEY
MAYOR

METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY

DEPARTMENT OF WATER AND SEWERAGE SERVICES
STORMWATER DIVISION
NPDES OFFICE
1607 COUNTY HOSPITAL ROAD
Nashville, Tennessee 37218

March 30, 2018

Re: Nashville Phase 1 MS4 Permit Reissuance – TNS068047

Vojin Janjic | Manager, Water-Based Systems
Division of Water Resources
William R. Snodgrass Tennessee Tower, 11th Floor
312 Rosa L. Parks Ave, Nashville, TN 37243

Dear Mr. Janjic,

We are writing you to provide an update to the Metropolitan Government of Nashville, Davidson County (Metro) Municipal Separate Storm Sewer System (MS4) permit compliance activities. As you are aware, Metro's MS4 permit expired on January 31, 2017 and prior to the expiration, Metro submitted several requests to alter specific permit compliance activities (See Attached letter dated January 31, 2017. As a follow-up to proposed MS4 permit compliance activities, Metro hosted a meeting with Jennifer Dodd and Karina Bynum from the Tennessee Department of Environment and Conservation to discuss the proposed changes. As a result of the meeting, TDEC provided positive feedback to the changes and requested Metro to provide an update on the proposed changes in the first quarter of 2018. The following paragraphs describe some of the already observed benefits to changes to MS4 permit compliance activities that were implemented during this transition period between permits. .

Summary Transition Period MS4 Compliance Changes:
The majority of the MS4 permit compliance programs have continued without adjustment as these activities are considered as ongoing within the MS4 permit. There are a few activities that were required to be completed by year 5 of the permit, which were completed, but Metro found to be very beneficial in identifying and eliminating stormwater pollution. As such, Metro proposed changes to the following programs:

If you need assistance or an accommodation, please contact Metro Water Services, at 615-862-4862, 1600 Second Avenue North, Nashville, Tennessee 37208.

- ***Dry Weather Outfall Screening***

  Previous MS4 Permit Requirements

  - *Screen one outfall within every 1/4 mile commercial/industrial grid once per permit term.*

  New More Efficient Proposed Field Screening Program

  - *Screen 3 business/industrial sites for site management/housekeeping procedures in each ¼ commercial/industrial-zoned grid.) Transition period goal would be to screen at least 50 grids each year prior to the new permit being issued.*

  Initial Findings:

  - *This process has proven to be much more effective than looking specifically at outfalls. In the few months of testing, several poor site management practices have been found such as improper management of dumpster pads and grease recycling bins. This has allowed Metro to be more effective and proactive in talking with these businesses to educate them on proper site management issues to prevent these exposed materials from washing off to the MS4 during a rain event. It is important to note that while we are looking at business practices within grids, we still spot check stormwater infrastructure to see if there is any suspicious dry weather, potentially "illicit discharge" flow.*

  Adjustments Made to New Approach

  - *The only adjustment made was going from screening 3 businesses within a ¼ mile grid to screening 3 businesses within a ½ mile grid. Upon implementing, we quickly realized that ¼ mile grids were too limiting and in many cases did not encompass multiple parcels that could be screened.*

- ***Industrial Inspection/Monitoring Program***

  Previous MS4 Permit Requirements

  - *Inspect industrial high risk sites as identified by the MS4 permit (i.e. SARA Title 3, TSD sites, etc.) once every 3 years.*

  New More Efficient Proposed Industrial Inspectino Program

  - *Re-inspect only industrial sites in which issues were noted during the original inspections and/or those involved with compliant investigations. Identify and perform inspections on industrial facilities (not required to be inspected by the original MS4 permit (i.e. auto salvage lots, ready-mix facilities, etc. not identified as SARA Title 3 or TSD facilities)). A list of industrial facilities to be inspected would be sent to the TDEC Nashville Field Office. Goal would be to inspect 10 industrial facilities each year.*

  Initial Findings:

  - *This process has proven to be much more effective as we have been able, during this transition period, to focus resources on industrial activities that have the highest potential for stormwater pollution such as Ready Mix Concrete facilities, chrome-plating facilities, etc. This new approach has allowed us to prioritize inspections and coordinate with TDEC field office staff as needed to perform co-inspections.*

Adjustments Made to New Approach
- *There are no proposed refinements to the new approach.*

- ***Post Construction Stormwater Control Measure (SCM) Inspection and Maintenance Oversight Program***

Previous MS4 Permit Requirements
- *Implement permittee-defined program by the end of year 5.*

New More Efficient Proposed SCM Inspection and Maintenance Oversight Program
- *Continue to respond to citizen complaints of SCM structures not being maintained properly. In addition, would inspect and enforce (if necessary) on at least 50 SCM structures per year. Currently and during the transition period, Metro will continue to build its SCM Inspection & Maintenance oversight process.*

Initial Findings:
- *Metros NPDES program has vastly expanded resources dedicated to ensuring post construction SCMs are being properly inspected and maintained. As it currently stands, Metro inspects an average of 75 SCM structures each month, which is well above the pace that we originally proposed. This new approach of focusing on NPDES program inspection findings and following-up with property owners on the proper maintenance has proven very beneficial to achieving maintenance on Post-Construction SCMs.*

Adjustments Made to New Approach
- *Metro is constantly evaluating the inspection and report documentation process and will continue to adjust the program, as necessary, to achieve the highest efficiency to ensure post-construction SCM structures are maintained properly.*

- ***Various MS4 Permit-Prescribed Monitoring Activities.***

Previous MS4 Permit Monitoring Requirements
- *Sampling programs (i.e. wet weather, ambient, visual stream assessments, etc.) prescribed in the permit to be completed on a 5 year permit term.*

New More Efficient Proposed MS4 Permit Monitoring Program
- *Discontinue the following sampling activities until the new MS4 permit is issued:*
  - *Wet Weather Homogenous Land Use Sampling*
  - *Wet Weather SCM Discharge Grab Sampling*
  - *Wet Weather Industrial Sampling (1 TMSP/RMCP site per year).*
- *Continue routine ambient monitoring/sampling programs (ambient chemical/bacteriological sampling and visual stream assessments) as well as any site-specific sampling as required in the course of routine investigations. The MWS Stormwater NPDES Watershed Group would coordinate with TDEC Nashville Field Office staff on monitoring schedules (which watersheds they will be monitoring during the transition period).*

Initial Findings:
- *Elimination of the wet weather monitoring has allowed for more resources to be spent on assessing streams for various impairments. Eight biological assessments have been performed on streams that Metro hadn't previously assessed. This provides a more comprehensive and up to date watershed assessment countywide and will additionally provide TDEC with more data than they would otherwise be able to collect. In addition to the biological assessment, nutrient samples are collected at the same time.*

- *Monitoring of 2 projects has been initiated and a total of 8 samples have been collected. Both of the projects are located on Cathy Jo Branch. One of the projects is a dam removal and the other is a retrofit to a stormwater outfall that reduced sheer flow during storm events. Samples were collected before work began and will continue in order to show the effectiveness of the projects.*
- *There have been 2 investigations within the past year as a result of our regular monitoring. Both of these investigations concluded that repairs needed to be made to sewers and thus we are preventing long term discharges to nearby streams.*

Adjustments Made to New Approach

- *There have not been adjustments made to the new approach. Projects are continually being considered for monitoring in order to show project effectiveness.*

Metro is requesting specific meetings to be arranged between appropriate TDEC permit writer staff and MWS Stormwater NPDES personnel so that these proposed changes can be explored and discussed.

Sincerely,

Michael Hunt
Metro Water Services, Stormwater, NPDES
Program Manager

Encl. - January 31, 2018 Letter to TDEC of Proposed Changes to MS4 Permit Compliance Activities. Attachment C of Year 5 MS4 Annual Report

CC:

April Grippo – TDEC Nashville Field Office
Jennifer Dodd – TDEC Central Office
Karina Bynum - TDEC Central Office
John Leffew – TDEC Nashville Field Office

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES
Nashville Environmental Field Office
711 R.S. Gass Boulevard
Nashville, TN 37216
Phone 615-687-7000 Statewide 1-888-891-8332 Fax 615-687-7078

May 31, 2018

Mr. Scott Potter
Director of Metro Water Services
1600 2nd Avenue North
Nashville, TN 37208

Certified Mail Receipt
7014 2870 0001 3600 2906

RE: Compliance Evaluation Inspection
Nashville/Davidson County Municipal Separate Storm Sewer System (MS4)
NPDES Permit Tracking Number TNS068047, Davidson County

Dear Mr. Potter:

On May 16, 2018, Karina Bynum, John Leffew and Ann Morbitt with the Division of Water Resources (division) met with Michael Hunt, Rebecca Dohn, Joshua Hayes, Dale Binder, Steve Mishu and Shawn Herman with Metro Water Services to perform a routine Compliance Evaluation Inspection. The inspection included a review of regulatory mechanisms, records, procedures and other documents related to the construction site stormwater runoff control program required under the NPDES Permit TNS068047 for Discharges from the MS4 owned and operated by the Metropolitan Government of Nashville (Metro).

The construction site stormwater runoff control program is well established, the staff is trained and certified, and the program implementation is compliant with the requirements of the NPDES Permit TNS068047. The division greatly appreciates the time and commitment from your staff in their preparation before and participation during the inspection. Their availability and knowledge of the program ensured it was conducted in an efficient manner.

Permit Review
The NPDES Permit TNS068047 for stormwater discharges from Metro MS4 was issued and became effective on February 1, 2012. The permit expired on January 31, 2018, and has been administratively extended until a new permit is issued.

Records Review
The MS4 permit requires Metro to continue to implement and enforce its existing construction site stormwater runoff control program. The implementation of the following required elements was reviewed:

- Regulatory mechanisms requiring erosion prevention and sediment control for land disturbance greater than one (1) acre or less than one (1) acre if part of a larger common plan

of development are published in the Volume 1 of the *Metro's Stormwater Management Manual.*

- An inventory of all construction sites is provided in the City Works tracking system. All active sites are identified as priority sites and pre-construction meetings for all priority sites are held.
- Education of construction site operators is provided during certification classes for Erosion Protection Sediment Control (EPSC) professionals that are held in the Nashville region. Pre-construction meetings for all priority sites assure EPSC Level 1 is held by on-site operators.
- Control of waste materials is addressed in the stormwater management plan and is required in Volume 1 of the *Metro's Stormwater Management Manual* (section 6.10.8).
- Site plan review and approval procedures are coordinated with the plans review group. Qualified staff reviews plans. The review includes approval of the EPSC design and water quality buffers.
- Site inspections are conducted monthly for all priority sites. Enforcement procedures and all required sanctions are identified in the Enforcement Response Plan (Appendix D of the Stormwater Management Plan) and are outlined in the regulatory mechanisms published in the Volume 1 of the *Metro's Stormwater Management Manual.*
- Public input may be provided by phone, web page or public notice announcements.

Construction Site Visit

Site inspection procedures were evaluated by performing a site visit at the Magnolia Farms Subdivision construction site (TNR241924 and TNR242096). The stormwater program inspector, Shawn Herman, demonstrated a good working knowledge of erosion prevention and sediment control practices, and performed a comprehensive inspection with appropriate documentation and on-site communication.

Again, we would like to thank Mr. Hunt and his staff for the assistance and courtesy extended to us during our inspection. If you have any questions or need additional information, please contact John Leffew at the Nashville Environmental Field Office by email at john.leffew@tn.gov or by telephone at (615) 687-7106, or you may contact me by email at april.grippo@tn.gov or by telephone at 615-687- 7018.

Sincerely,

April Grippo

April Grippo
Environmental Manager
Division of Water Resources
Nashville Environmental Field Office

e-cc: Mr. Michael Hunt, Michael.Hunt@nashville.gov - Metro Water Services
Mr. John Leffew, john.leffew@tn.gov- DWR Nashville EFO
Ms. Ann Morbitt, ann.morbitt@tn.gov – DWR statewide
Ms. Karina Bynum, karina.bynum@tn.gov – DWR statewide
Ms. Jessica Murphy, jessica.murphy@tn.gov – DWR Compliance and Enforcement

Specific Updates to SWMP Requested by TDEC in a May 16, 2018

1. ***TDEC Suggestion - Specifically list that Erosion Prevention and Sediment Control (EPSC) is required for each site.***

- **This addition will be added to Section 3.4.2 Bullet Item D.**

  Metro requires all grading permit sites to have a designated professional that has received the Level 1 EPSC training that will inspect the site twice a week and ensure all EPSC controls are maintained.

2. ***TDEC Suggestion – The MS4 should delineate specific permit assignments of staff within the SWMP.***

- **The following table will be added to Section 1 of the SWMP**
-

Major MS4 Compliance Task	MWS Departments Involved	Specific Personnel Involved (Inspectors and Engineers)
Public Education/ Public Involvement	• MWS Strategic Communications Department • Stormwater NPDES	• Sonia Allman, Jennifer Harman, Julie Berbiglia • Josh Hayes, Liz Stienstraw, Kalee Perry, Jessica Bell, Aujuah Jackson, Rebecca Dohn, Mary Bruce, Veronica Logue, Stephanie Petty, Dale Binder
Illicit Discharge Detection and Elimination	• Stormwater NPDES	• Josh Hayes, Dale Binder, Liz Stienstraw, Kalee Perry, Aujuah Jackson, Jessica Bell, Mary Bruce, Veronica Logue, Stephanie Petty
Construction Stormwater Oversight	• MWS Development Services • Stormwater NPDES	• Steve Mishu, Christian Thompson, Jennifer Knauf, Eli Anderson, Courtney Larson, Gabriel Moore, Paisley Morotta, Logan Boman, Kimberly Hayes, David Johnson, Jimmy Fitzgerald. • Dale Binder, Shawn Herman, Denice Johns, Katherine O'Hara, Lynda Kelly, Donald Erves, Ken Tranter, Leigh Nelson
Permanent Stormwater Control Measures Oversight of Inspection and maintenance	• Stormwater NPDES	• Josh Hayes, Liz Stienstraw, Kalee Perry, Howard Jackson, Aujuah Jackson, Jessica Bel, 2 Vacant Positions
Other Pollution Prevention Programs (Industrial Inspection, Feld Screening, Metro O&M Oversight	• Stormwater NPDES	• Josh Hayes, Liz Stienstraw, Aujuah Jackson, Jessica Bell, 2 Vacant Positions
Water Quality Monitoring	• Stormwater NPDES	• Mary Bruce, Veronica Logue, Stephanie Petty

3. ***<u>TDEC Suggestion</u> – Describe how EPSC issues are handled for sites part of a larger common development in which is 75% built out and the Grading Permit is signed-off.***

- **The following will be added to Section 3.4.2 of the SWMP narrative:**

  Metro has created a new Infill stormwater permit that provides oversight to single family residential construction for properties that are demolishing and rebuilding residences and expanding the net impervious footprint by 800 to 15,000 square feet. The Infill permit requires applicants to submit plans that depict EPSC measures that will be utilized during construction. Metro performs routine inspections on these properties to ensure the controls are being maintained.

Updated Field Screening SOP

MWS NPDES will perform field screening of 1/2 mile grids within the permit area that contain parcels with various land-use codes that can be generally considered "industrial" or "commercial". The primary goal of the field screening process will be to identify poor housekeeping practices by businesses that will lead to contaminated stormwater runoff (i.e. messy dumpster/grease bin areas, exposed soils/other materials that would easily drain off the site in a rain event. If present, NPDES personnel will look at up to 3 individual properties contained within the ½ mile grids. NPDES will print hard copies of each map and take hand-written notes, which will be later entered into the database. (Example Map Attached). When poor housekeeping practices are encountered, NPDES personnel will provide site representatives with educational materials. All actions will be tracked within the Field Screening GIS geodatabase. NPDES can screen businesses during wet or dry weather, however, if while screening, a suspicious flow is observed within a storm drain, NPDES will return to the site after 24 hours when the rain has ceased to use field equipment to measure the sample.

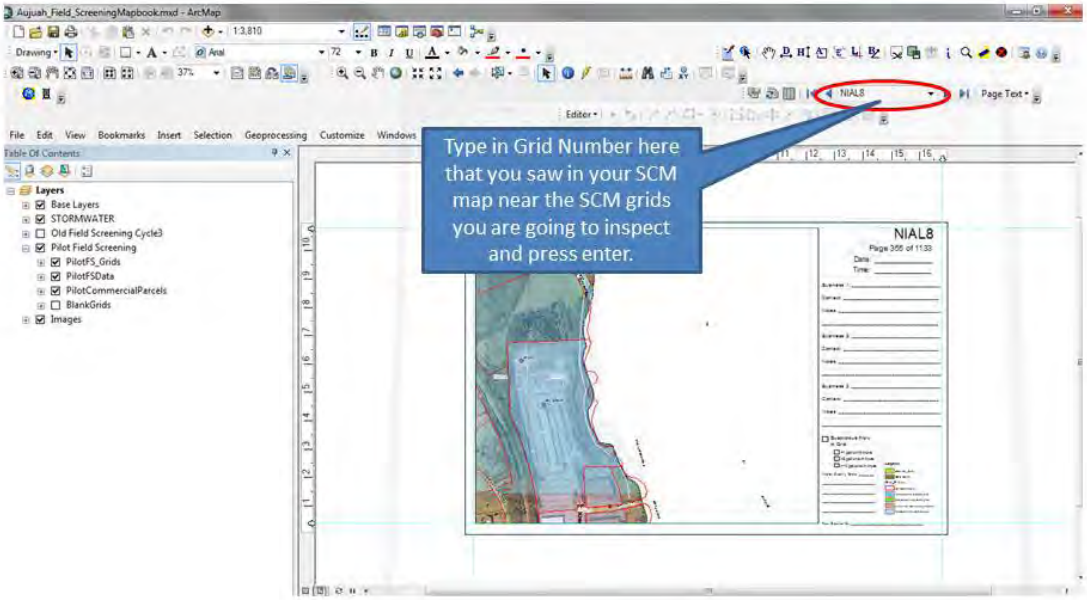
NPDES will utilize a LaMotte Smart2 Colorimeter field testing device to determine concentrations for chlorine and field test kits to analyze for detergents. In addition, NPDES will also measure, pH, dissolved oxygen (DO), and conductivity. NPDES has established baseline conditions for the various parameters found below in Table 1.

If there is no flow at 24 hours, or at the 72 hour return visit, no further testing will be required. A representative photo should be taken of each business and any suspicious flow. All pictures should be uploaded to the server under S:\NPDES\Permit\New Field Screening Pilot\Photos, saved with the name of the grid_ and an (A, B, C, etc. clarifier character for each business. Further action will only be required if test results are above IDDE Action levels described in Table 1 below.

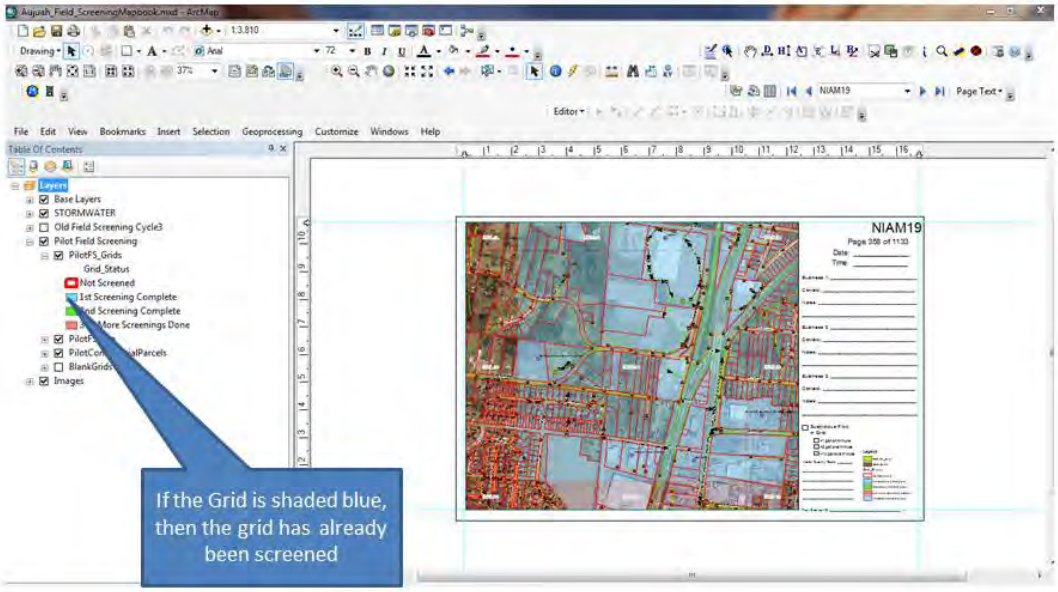
Table 1 – Field Screening Parameter IDDE Investigation Action Levels

Parameter	IDDE Action Levels
Chlorine	> 0.05 mg/l
Detergents	>0.25 mg/l
Dissolved Oxygen	<5 mg/l
Conductivity	>600 µS/cm
pH	<6 and >8
Temperature	>30.5°C
E. coli	941 CFU/100ml

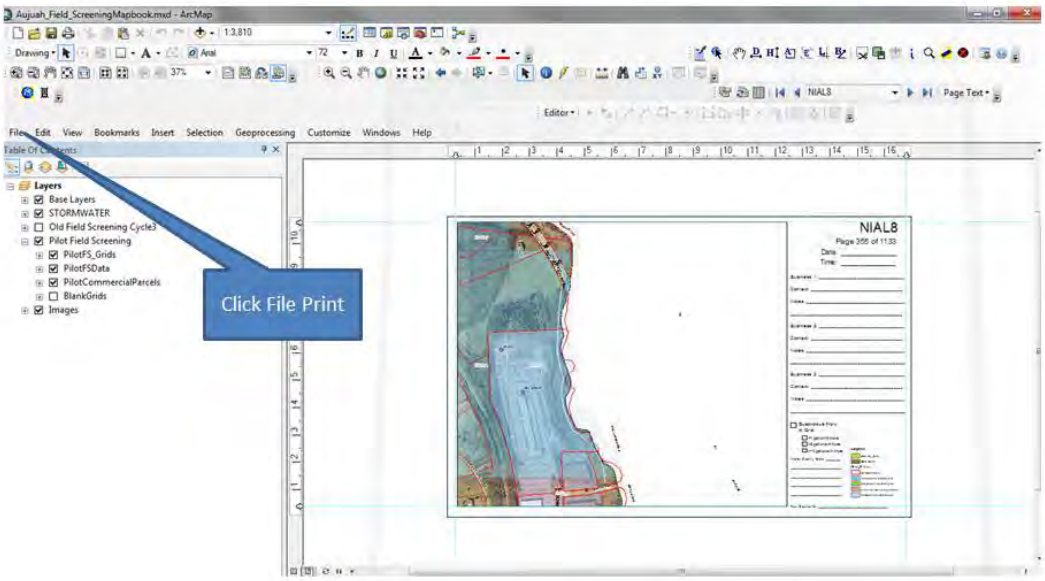
Field Screening – Locating your Grid



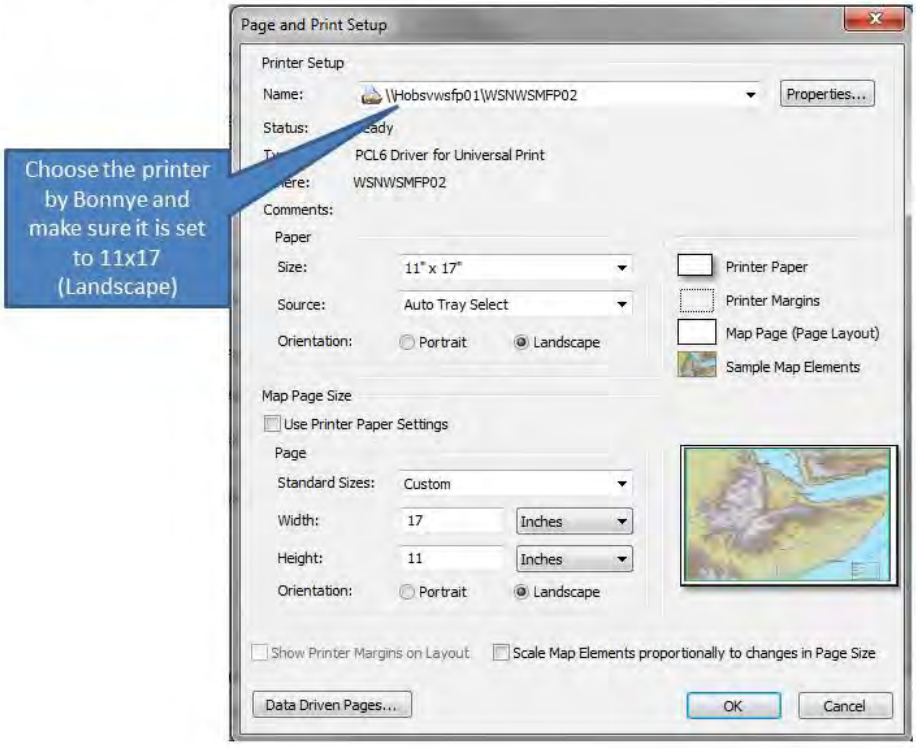
Field Screening – Locating your Grid



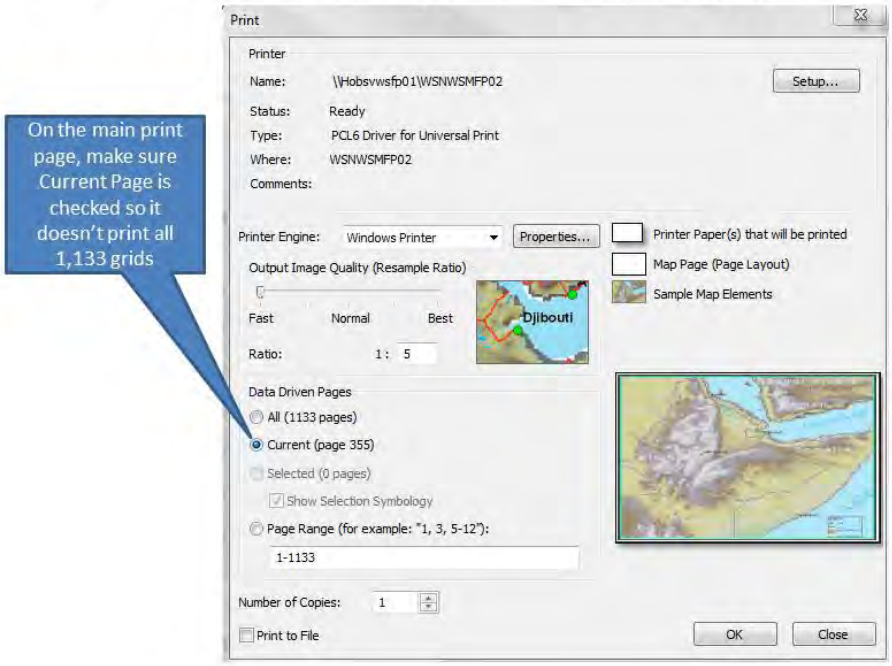
Field Screening – Printing your Grid



Field Screening – Printing your Grid

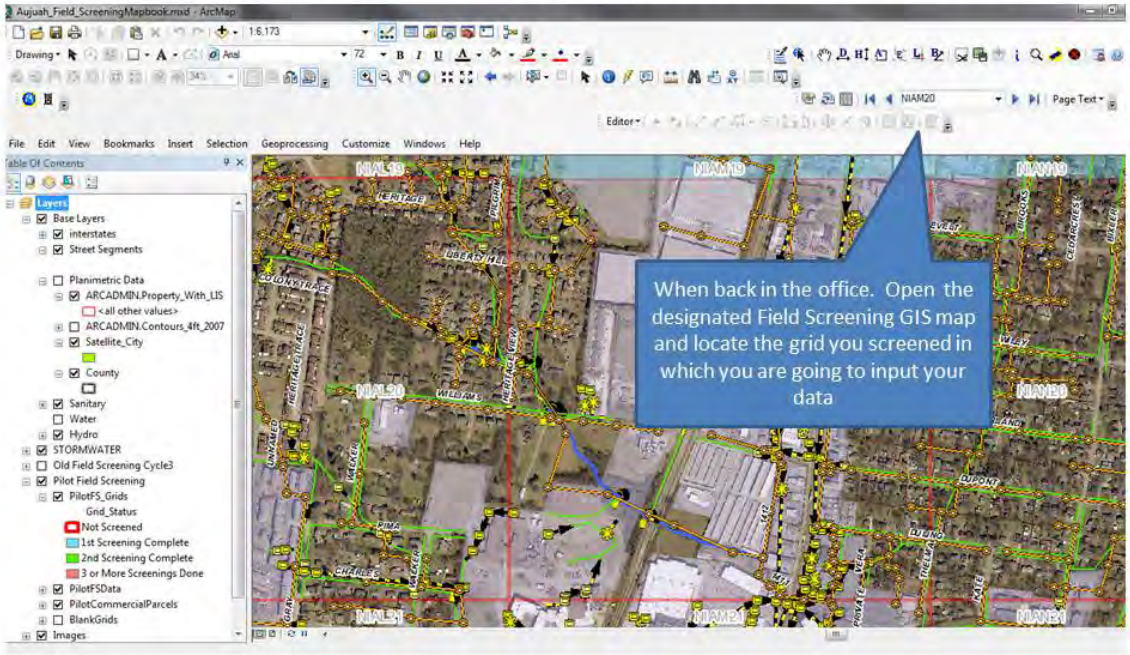


Field Screening – Printing your Grid



Field Screening – Doing the Fieldwork

Field Screening – Logging into the Database



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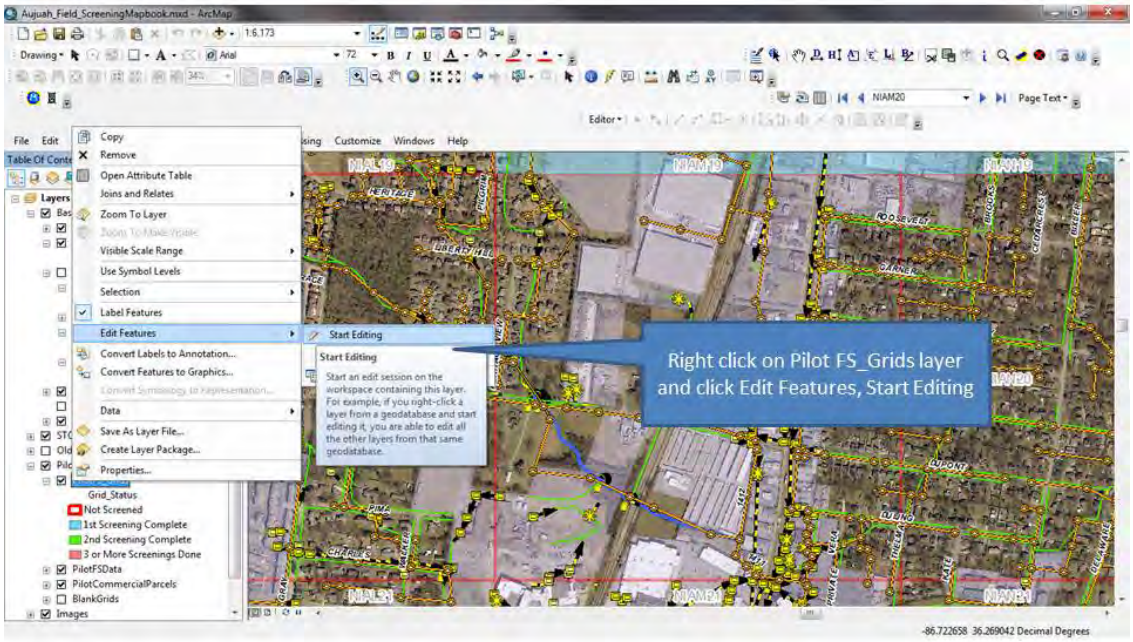

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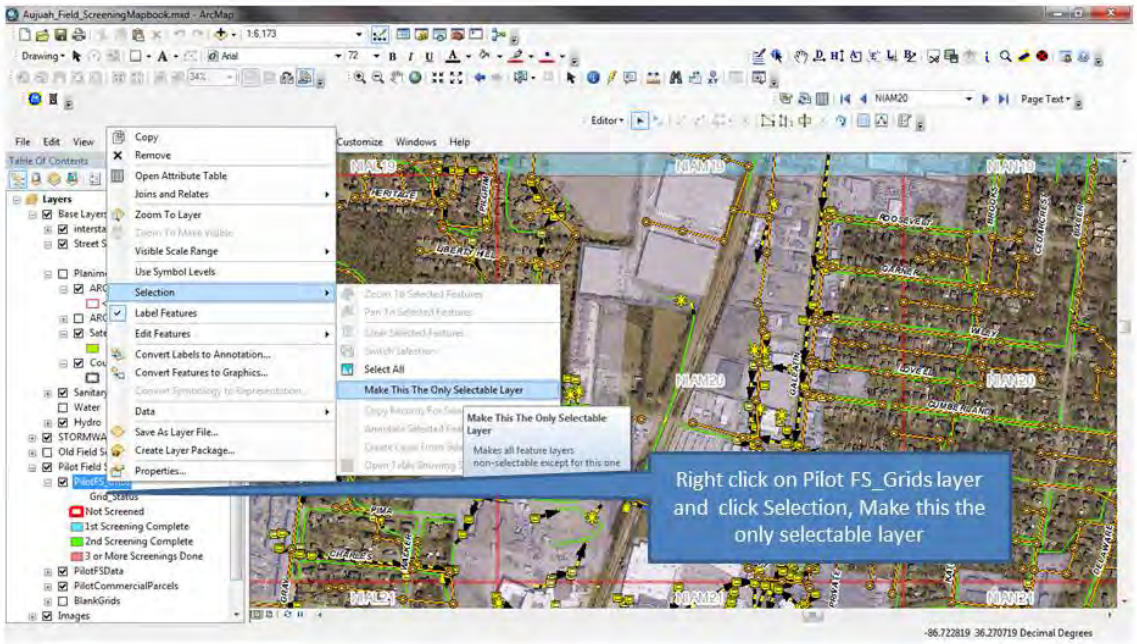

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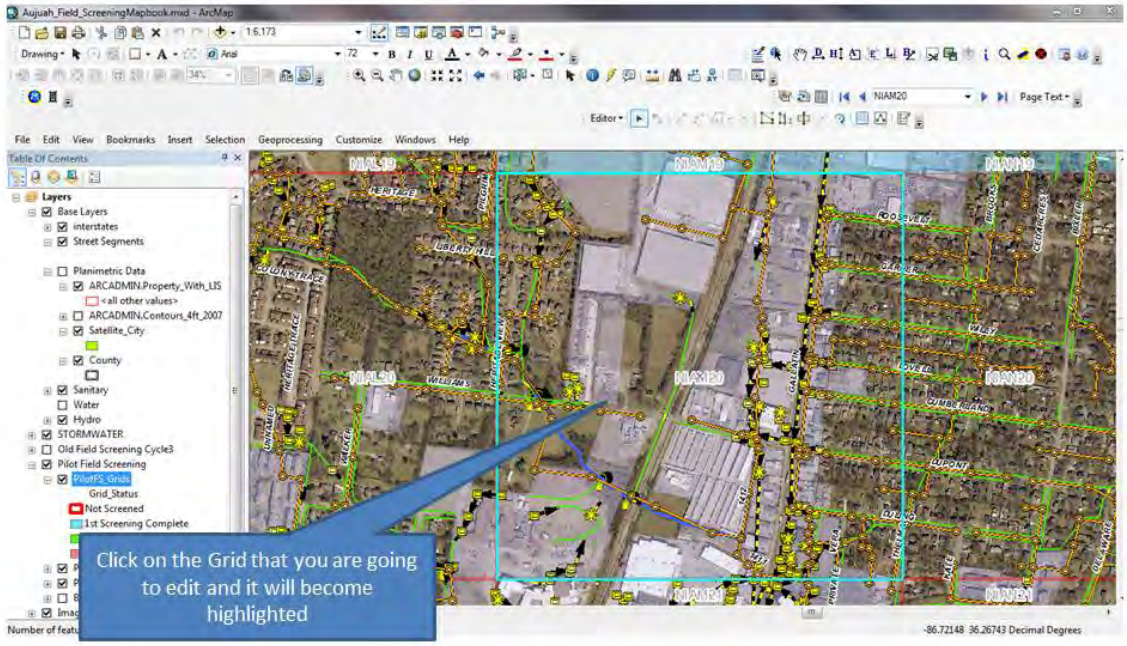

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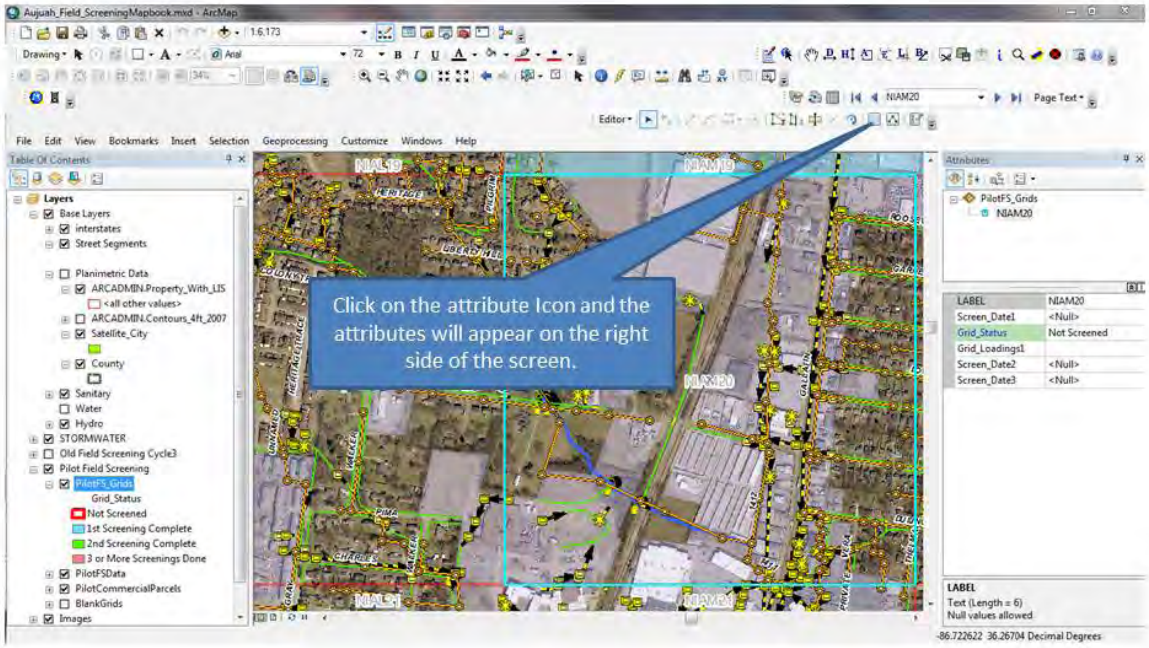

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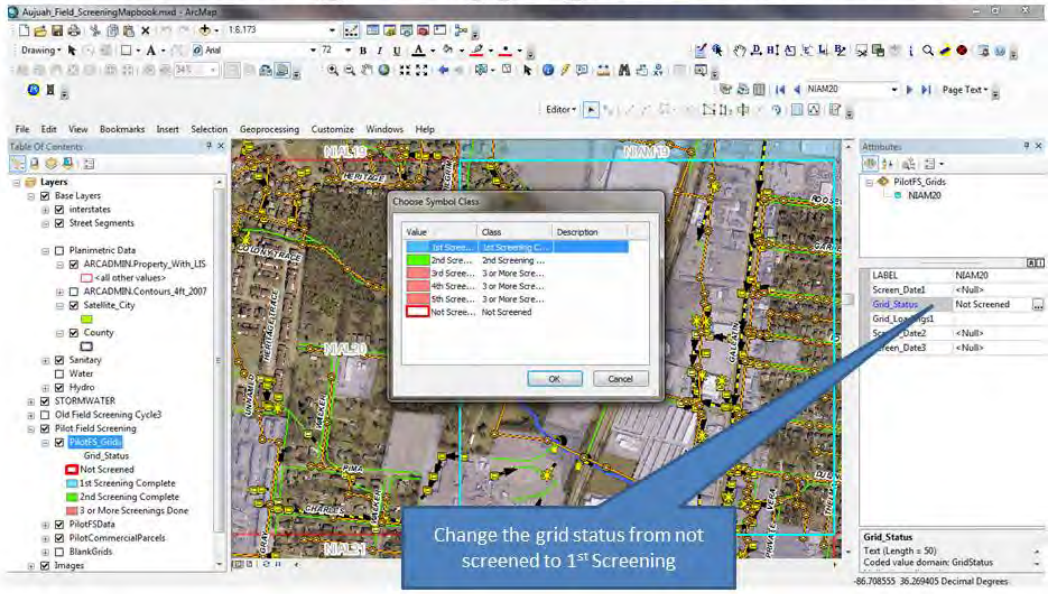

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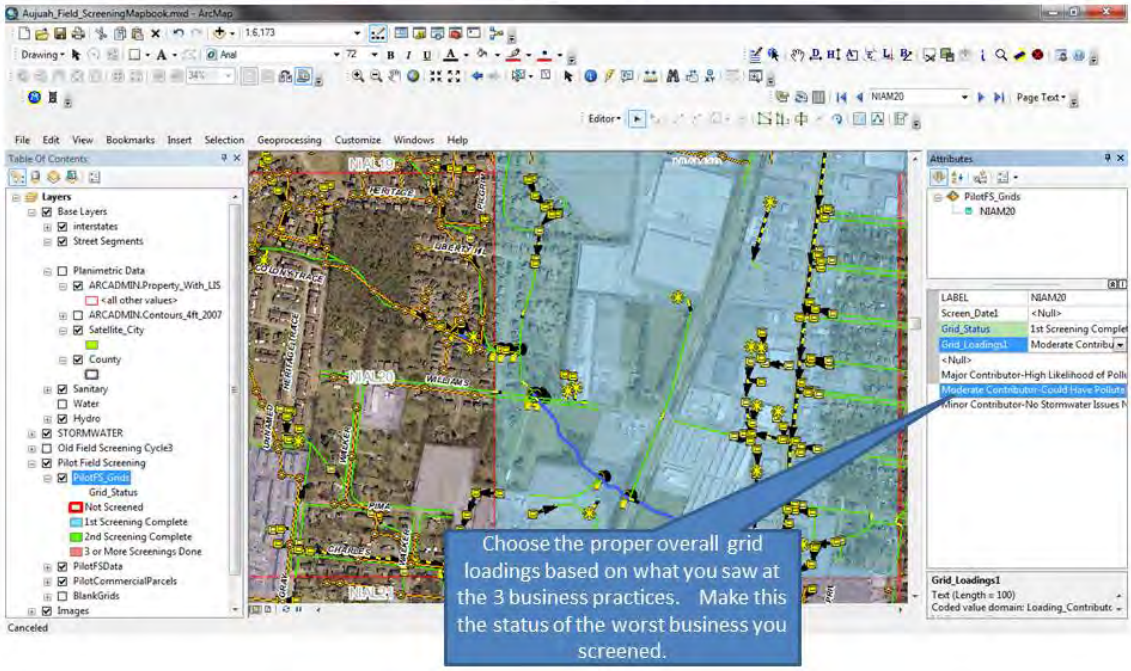

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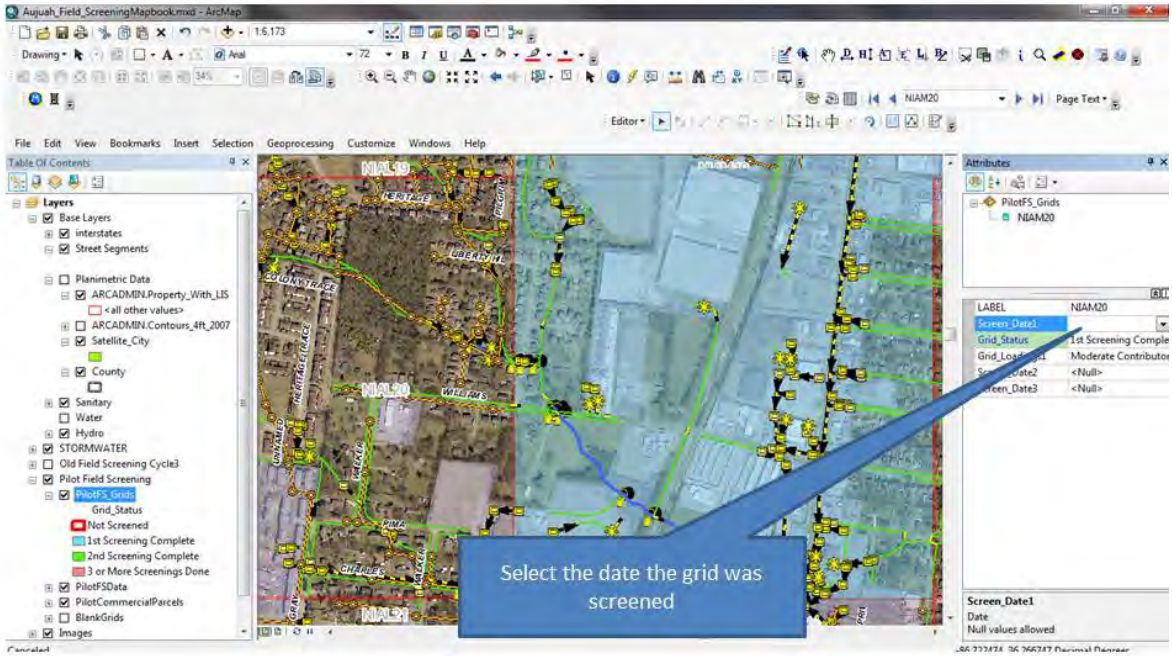

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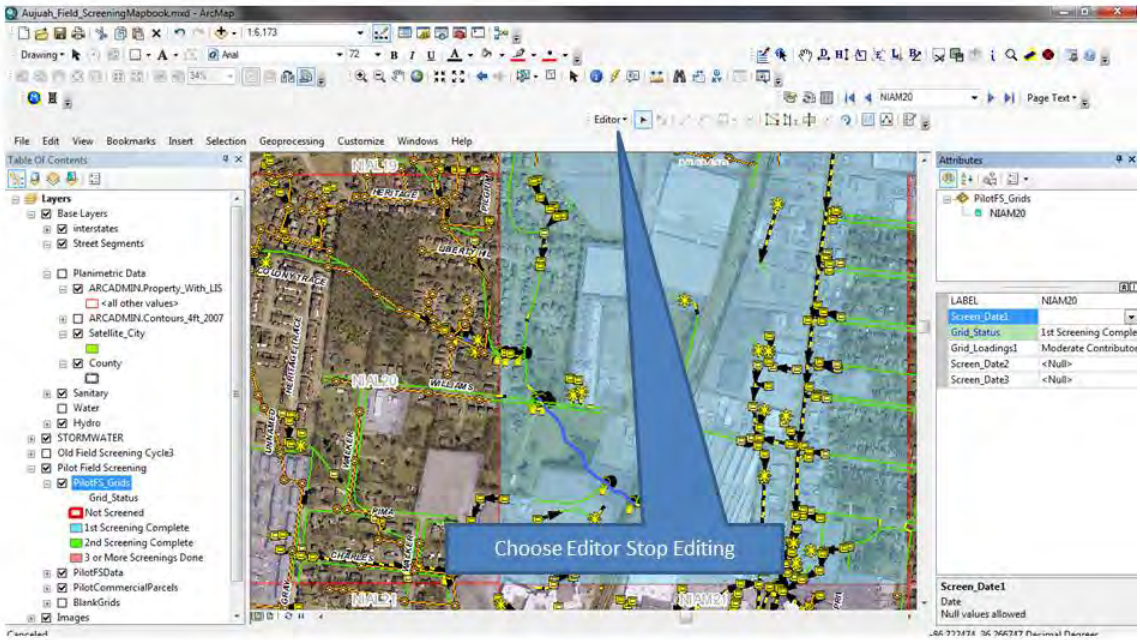

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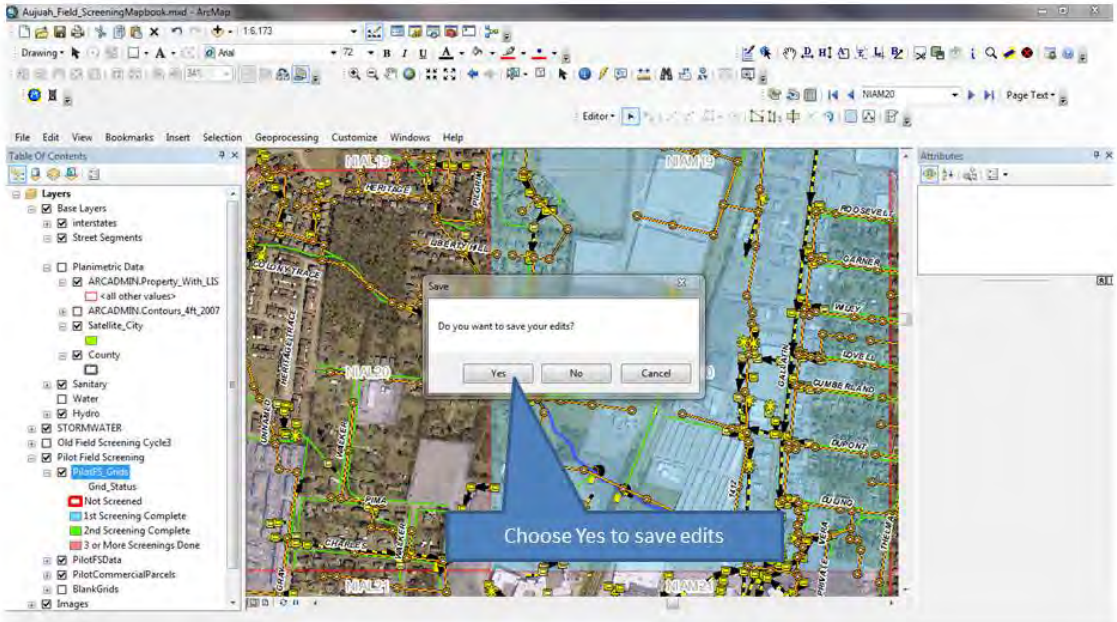

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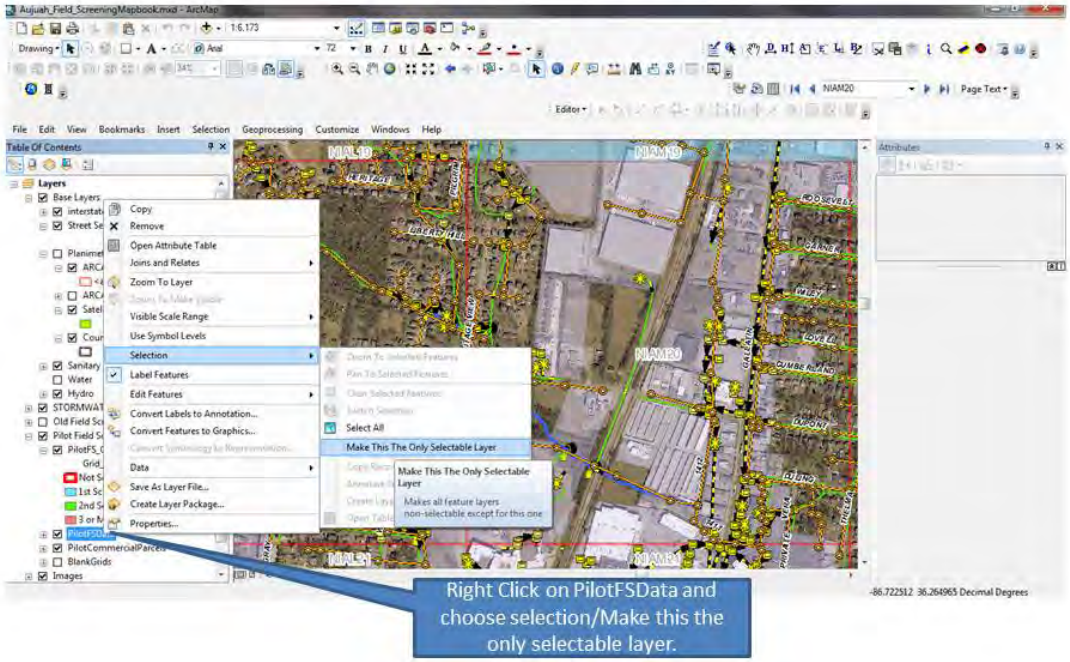

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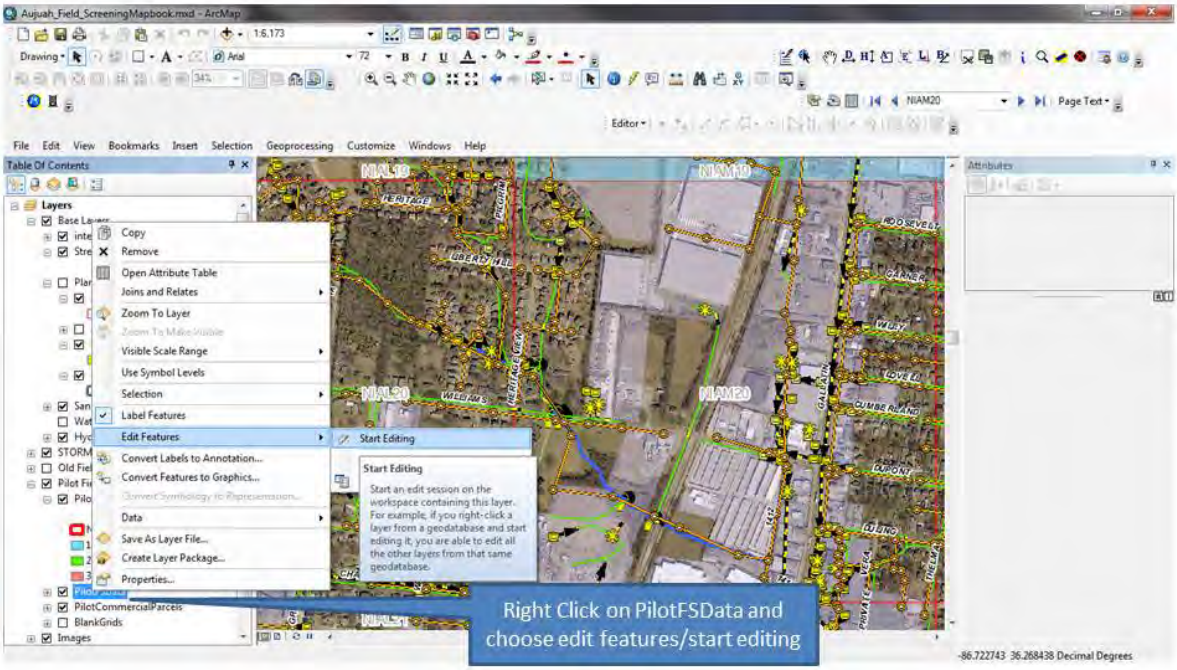

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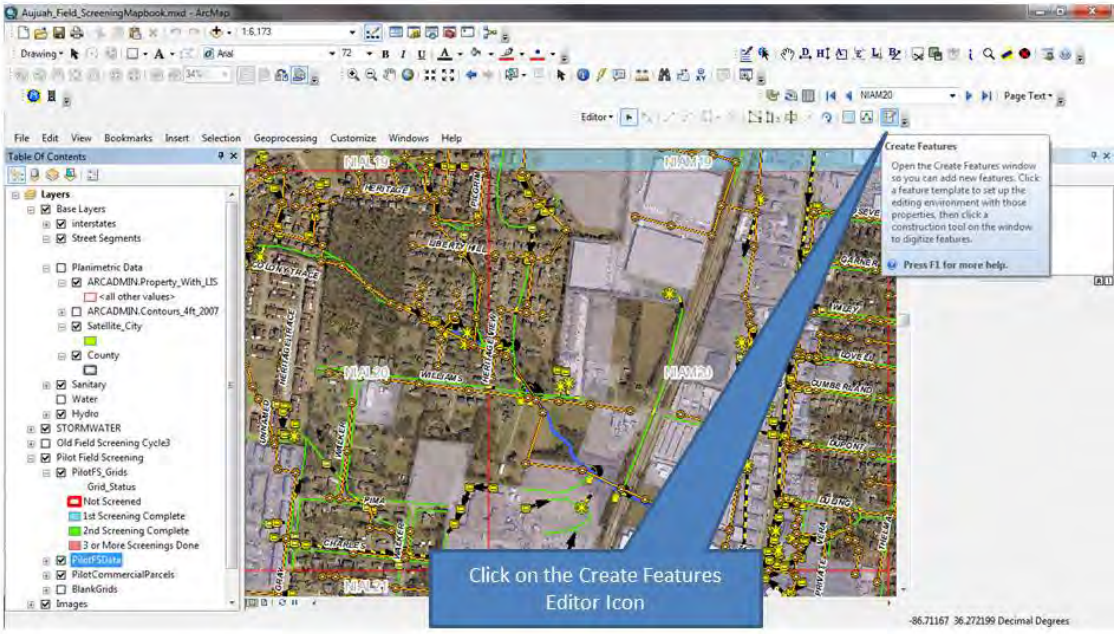

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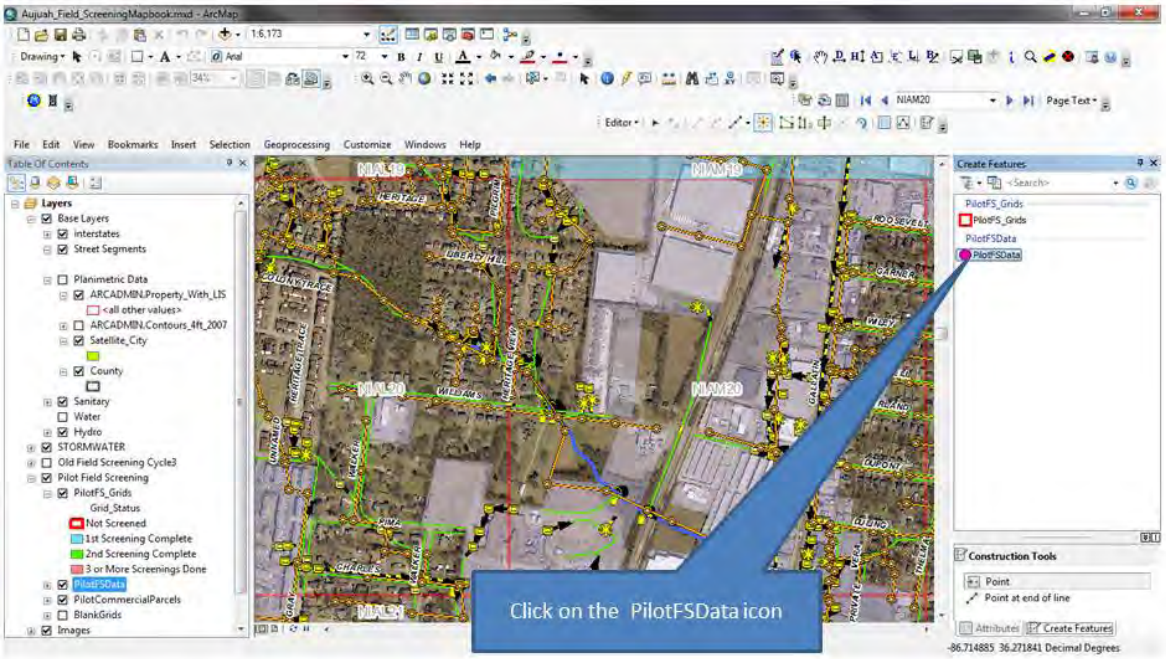

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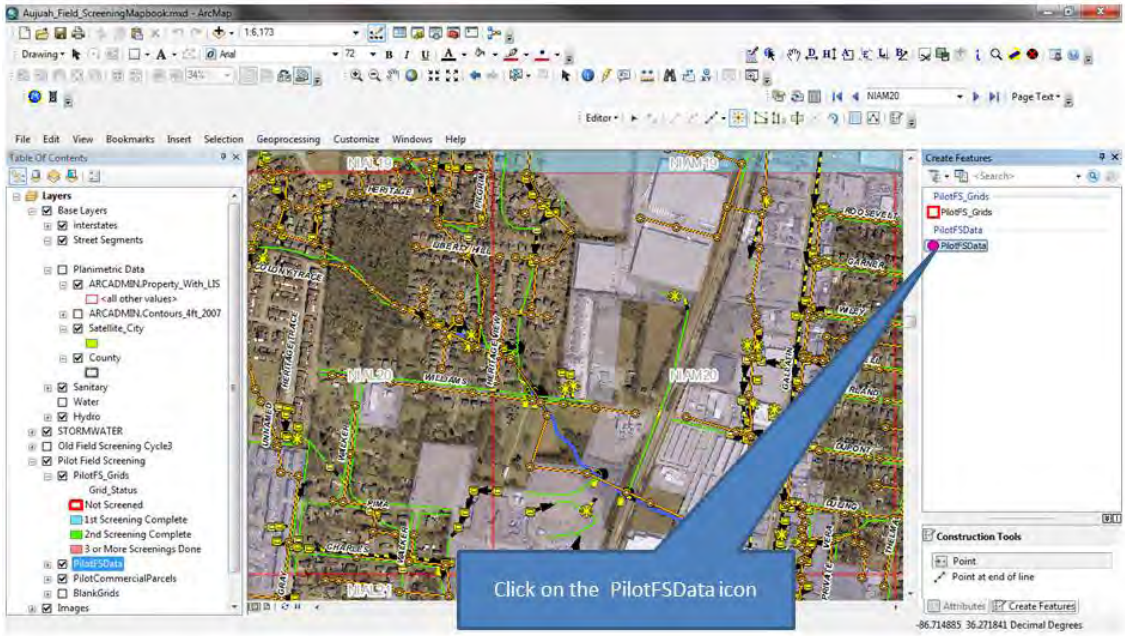

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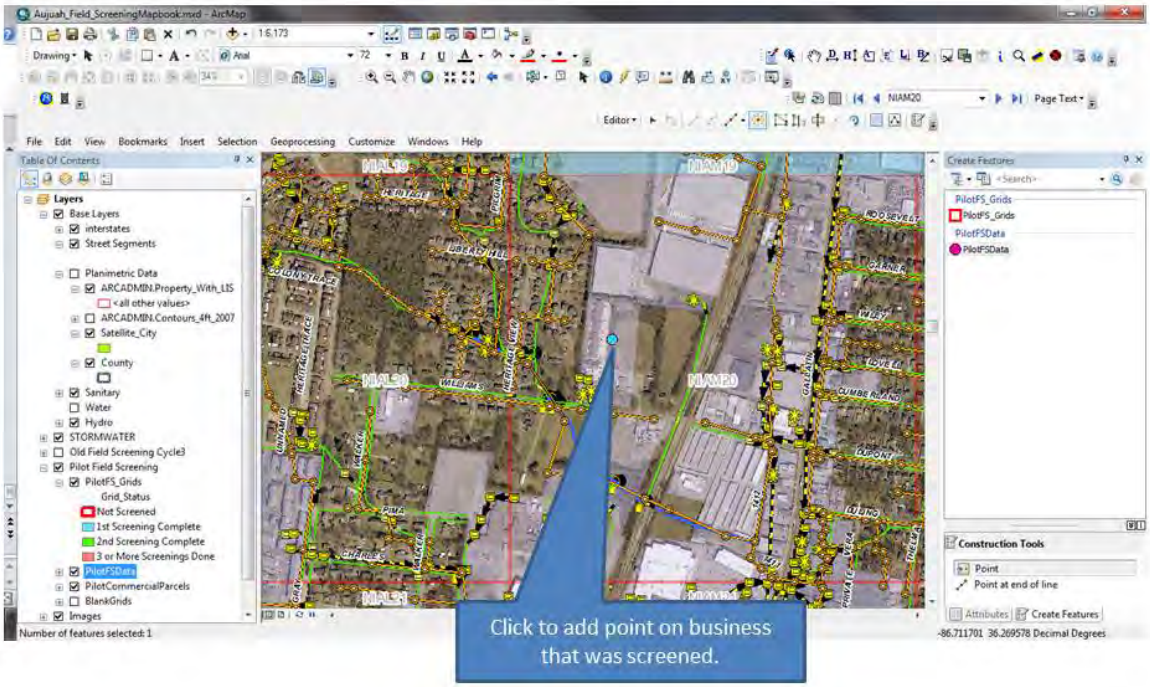

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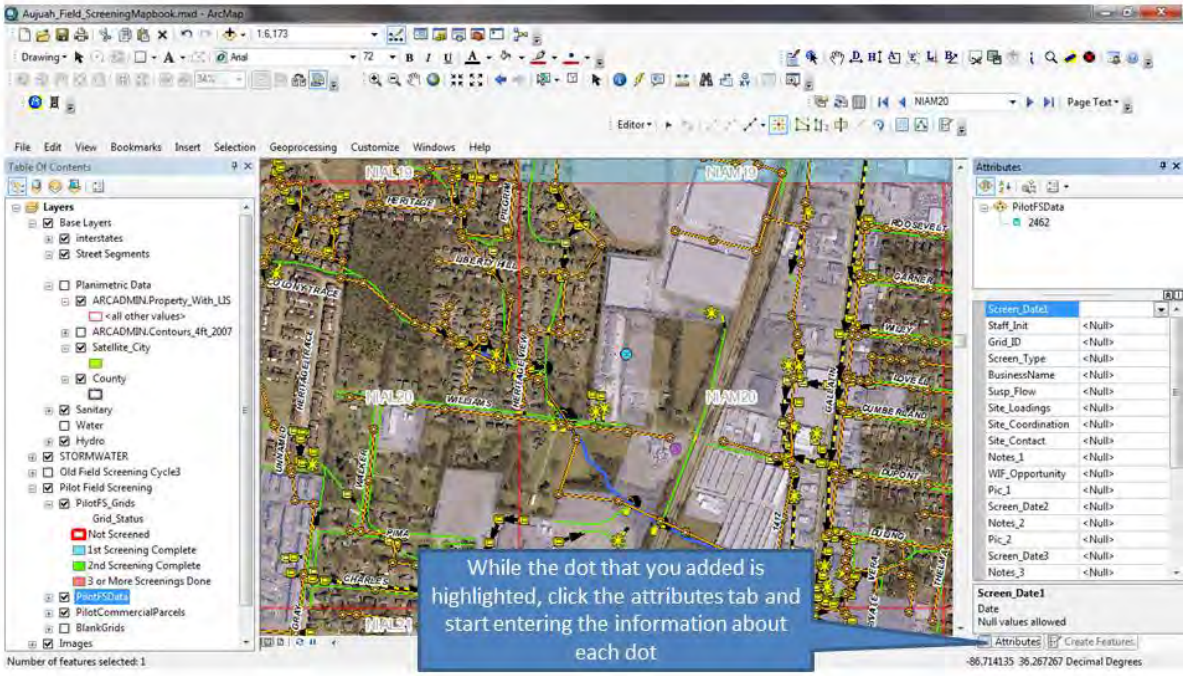

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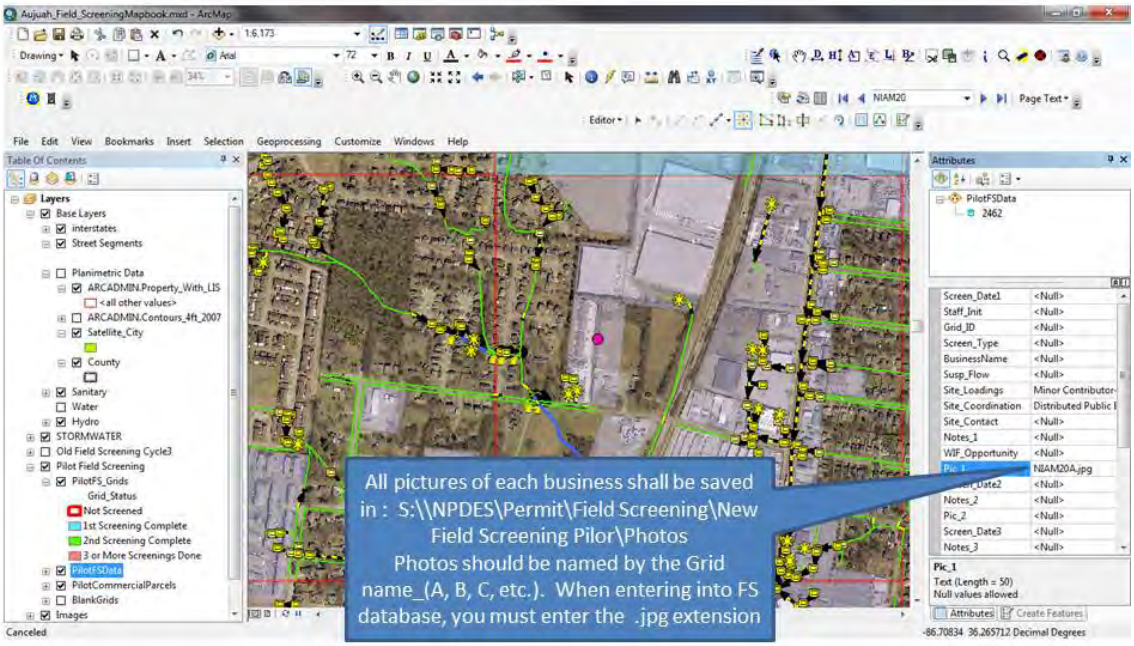

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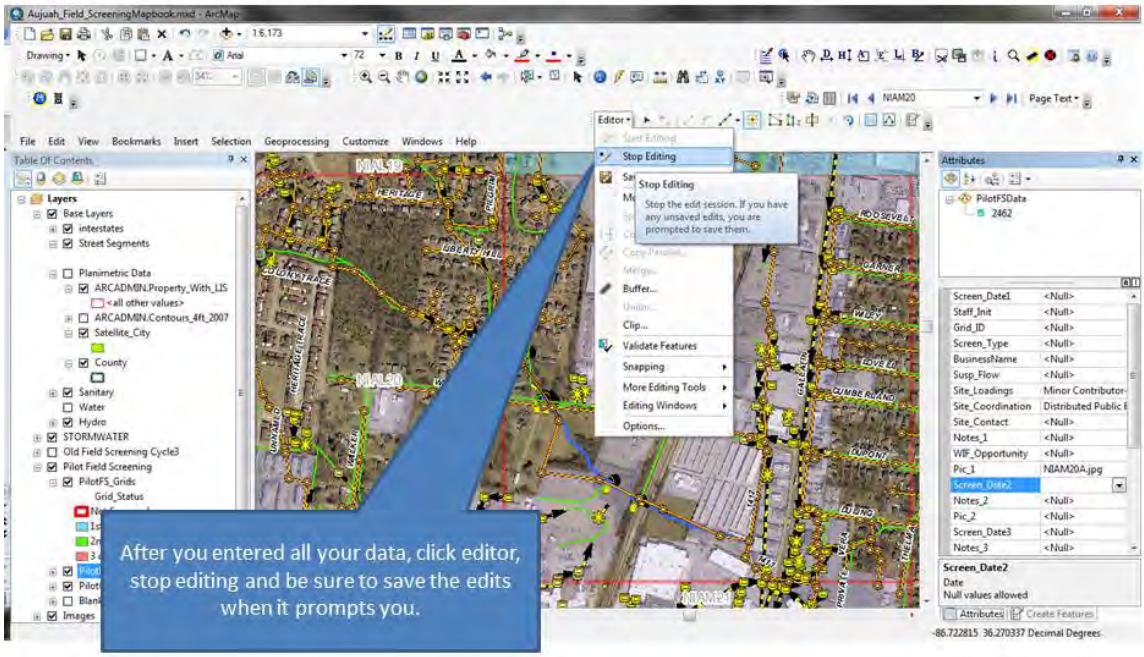

Specific Updates to SWMP Requested by TDEC in a July 16, 2020 IDDE Compliance Evaluation Inspection

1. ***TDEC Suggestion* - Specifically list within the Stormwater Management Plan how Metro will accomplish the following language in Section 3.2.3 of the MS4 Permit:**

   "*The program shall require the equivalent of spill, prevention, control and countermeasure (SPCC) and/or storm water pollution prevention plans (SWPPP) for industries previously identified as having spills or fugitive releases -that currently have no such plans***.."**

   - **The following section will be added to Section 3.3.2.1 Metro's MS4 Spill Response Summary.**

     Most of the spills that Metro is notified of involve incidents on Metro and TDOT roadways. In the rare occasion that Metro is notified of a spill at an industrial facilty that, by TDEC and EPA rules, should have a Spill Prevention, Control, and Countermeasure (SPCC) plan and/or a Stormwater Pollution Prevention Plan (SWPP), Metro will perform the following actions:

   - Require the facility to immediately take actions to remediate the spilled materials and submit a report of the clean-up measures that were undertaken within 2 business days.
   - The industrial facility will be forwarded to the Metro-designated industrial facility inspector to perform a formal industrial inspection of the facility within 30 days of the spill.
   - If the industrial inspection reveals that the facility lacks proper TMSP coverage or supporting TMSP documents or plans, Metro will notify TDEC of the non-compliance issue and require the site to obtain the proper coverage and develop the necessary plans. If the facility likely qualifies for non-exposure certification but contains oil storage of the amount required to have SPCC plans, Metro will direct the facility to prepare a SPCC plan per EPA regulations and to apply for non-exposure certification from TDEC.

2. ***TDEC Suggestion* – Metro should specifically address how they perform staff training for those individuals that are responsible for administering the IDDE programs.**

   - **The following section will be added to Section 3.3.1.3 Illicit Discharge Education and Training Requirements**

   All inspection staff within the Metro Water Services, Stormwater NPDES program are to receive the TDEC Level 1 EPSC training to assist in identifying illicit discharges associated with construction activities. Specific employees within the Metro Water Services, Stormwater, NPDES MS4 Permit Group are required to have

additional training focused on IDDE inspection and follow-up activities. The following is a summary additional training required for the MS4 Permit Group inspectors:

- The National Stormwater Center Certified Stormwater Inspector training or other equivalent training.
- Review of the following internal NPDES Office IDDE-Related SOPs and reference material.
    - Cityworks IDDE Documentation
    - Illicit Discharge Sampling
    - Stormwater NPDES Work Flow Process for Water Quality Complaint Routing
    - IDDE Complaint Response Documentation SOP
    - EPA illicit discharge investigation user's guide
    - Center of Watershed Protection -Illicit Discharge Detection Manual
    - National Urban Watershed Conference - Source Tracking of Inappropriate Discharges to Storm Drainage Systems
- At least five field training inspections with NPDES Senior staff.

C3&E4

Metro Nashville/Davidson County
Municipal Separate Storm Sewer System Permit
Enforcement Response Plan

Implemented by the:
MWS, Stormwater NPDES Office
1607 County Hospital Road
Nashville, TN 37218
615-880-2420

Created:
August, 2012

Updated:
November 15, 2016 - Added SCM Enforcement Section
November 22, Edited by Michael Hunt
August 2, 2017 DB updated due to ordinance BL2016-513
May 2, 2018 JH edited the SCM Enforcement Section
May9, 2018 JH revisions for MH Grammar Edits to SCM section
April 22, 2020 JH Revisions to IDDE Enforcement Procedures and Penalties and some Formatting
July 23, 2020 JH Revisions per Legal Comments and Comments from TDEC during the IDDE Compliance Evaluation Inspection

Introduction

The Stormwater National Pollutant Discharge Elimination System (NPDES) office is responsible for enforcing stormwater code. There are three distinct types of enforcement within the NPDES office. The first section of the Enforcement Response Plan (ERP) covers construction and development stormwater code violations. The second section of ERP covers stormwater code violation specific to illicit discharges regardless of whether they are from development properties or other sources. The final section explains the NPDES office enforcement measures for Post Construction Best Management Practice (BMP).

Section 1: Construction Related Violations:

1.1 NPDES Office EPSC Summary:

Adequate EPSC shall be required on Grading Permit erosion control plans prior to them being approved. Initial EPSC must be installed, inspected and approved prior to the grading permit being issued. Controls shall be proactively maintained (including required inspections by the permittee's EPSC Professional) during the project and until the site achieves final stabilization. EPSC that is found to be inadequate shall be upgraded by the permittee. EPSC inadequacies represent violations to Metro Code. Additionally, Metro NPDES permit obligations (per State and Federal statutes) require an effective Metro EPSC enforcement program to promote compliance.

1.2 General:

EPSC controls are expected to be installed and maintained per approved plans and associated specifications. Therefore, it is important that EPSC on approved plans be adequate. All site discharges are to be controlled in a manner that does not result in pollution.

If approved EPSC is found by NPDES staff to be inadequate once land disturbance activities commence, the permittee will be notified that enhanced BMPs are required.

Any infraction to Metro Code or the Metro Stormwater Management Manual (SWMM) is considered a separate violation that may be enforced upon.

1.3 Enforcement:

EPSC and maintenance of EPSC is the responsibility of the permittee per their Grading Permit requirements. EPSC maintenance records for a site should used if possible by NPDES staff to determine if enforcement is warranted (to delineate negligence vs. adequate controls that failed during latest rain event).

While weather (ongoing rain) is understood to impact some types of EPSC maintenance activities (i.e. heavy equipment use), it should not be considered to preclude all/interim

smaller scale EPSC maintenance efforts (such as using manpower to improve controls etc.).

Lack of EPSC BMP maintenance is a violation (per Metro SWMM). Illicit discharge of sediment due to inadequate EPSC is a violation.

1.4 Enforcement Tools:

Metro Code 15.64.020 grants the regulatory authority for the establishment of the SWMM. Under Metro Code 15.64.220(A), any violation of Chapter 15.64 regarding Stormwater Management, including a violation of the SWMM, is punishable by a civil penalty in an amount authorized by Tennessee Code Annotated, Section 68-221-1106. Each day of violation may constitute a separate violation (such as failure to maintain EPSC, illicit discharge and grading without a permit).

All compliance deadlines and requirements shall be clearly noted on all NOVs/SWOs. Deadlines should be set with the mentality that they will be enforced expeditiously.

Administrative penalty calculation should be based on the NPDES itemized penalty worksheet. A copy of this completed worksheet should be saved in the appropriate file.

The processing of stormwater bonds and grading U&O signoffs will be held until the site is in compliance. Additional grading permits will not be issued for other phases of the project if a portion of the site is in non-compliance. Site compliance status will be noted within the Cityworks database through flags or other notations.

All NOV/SWO's may be appealed by the person or entity upon which it was served. A hearing must be requested in writing to the issuing Director within ten (10) days of service of the NOV. If conditions under which a Stormwater Management Committee (SWMC) variance was approved are not met, a SWO may be issued. The SWO shall have a compliance deadline. If compliance is not achieved by the deadline, the matter will be taken to the SWMC for "show cause" hearing. The committee may rehear the variance with the possibility of revocation.

1.5 Documentation:

All inspections and associated contacts must be documented within the appropriate database (Cityworks or Cityworks PLL).

Photographs should be date stamped and/or noted in the inspector's field log and saved in the appropriate network file folder. Enough photographs should be taken to document the violation and the result of the violation. Photographs should be named by year-month-date-photo #. For July 10, 2012 photo 1 would be: 120710-1

1.6 Enforcement Categories:

Official Warnings (verbal or written): should be issued to EPSC professionals, Owners (holders of the Grading Permit), Contractors, and Developers verbally, via e-mail,

phone, and/or fax and should include the compliance deadline (that should take into consideration the next predicted rain event if the matter relates to possible sediment loss). These can be irrespective of when the last rain event occurred at the site. Official warnings are given for issues not rising to the level of enforcements outlined below. All warnings must stipulate the nature of the violation / potential violation and the required corrective action to include any deadlines. All correspondence should be documented in the appropriate database and any written document scanned/saved in the appropriate network file. It is not mandatory to give official warnings in advance of other categories of enforcements below. It is however suggested that the site be given as much notice as possible of any potential future site issues.

Notice of Non-Compliance (NON) (no penalty): issued to sites where EPSC is inadequate or in need of significant maintenance, but sediment loss has not been documented/observed at the site (but maintenance or upgrading is needed to prevent sediment loss during future rain events). If improvement is not made within 7 days or before the next rainfall the site may be subject to NOV with penalty. They may also be issued to smaller non-permitted sites such as single family residences in which there are no runoff issues.

NOV (with penalty): issued to sites where EPSC is inadequate or in need of significant maintenance, and sediment loss has been documented/observed at the site. They are issued to sites in which they have not met any past specified deadlines and are still in non-compliance from the warnings or NON listed above. They are also issued to sites found having general SWMM / grading permit violations as found under the itemized penalty worksheet.

To promote compliance, a penalty may be reduced in some instances, but no lower than 50 dollars, if it is documented that the site came into compliance prior to the deadline as stipulated by the conditions in the NOV. A typical reduction will be 50 percent of the original penalty. An example may be that the unpermitted fill was removed and the site was stabilized as required prior to the deadline. Any penalty reduction conditions will be clearly written on the NOV that is issued.

SWO (with penalty): Same conditions as NOV penalty in addition to; previously issued NOV compliance conditions have not been met within the stipulated deadline or site noncompliance issues necessitate immediate mitigation (items that must be corrected prior to other work proceeding at the site as the site is losing significant amounts of sediment as evidenced by downstream structures or conveyances). A SWO should be issued to all sites found to be grading without a permit.

Environmental Court: If an offender does not appeal but does not take the action required in a certified NOV/SWO letter or enforcement and/or is generally unresponsive to our requirements and deadlines despite our best efforts, the matter shall be taken to Metro Environmental Court. If they wish to dispute the NOV, they must file a timely appeal to the Director or his designee and then to the Stormwater Management Committee.

Enforcement Assistance Request to TDEC: TDEC receives an email notification of all Metro-issued construction site-related enforcements, however in addition, there may be occasions given the circumstances where TDEC needs to be notified for enforcement assistance. For violations relating directly to streams or the construction general permit TDEC should be immediately contacted. When a request for assistance is made, proper documentation must accompany the request. This documentation would include: photographs, copies of inspections, copies of correspondence, copies of enforcement actions taken, and a summary report.

Revocation: Upon notice and opportunity for a hearing, the Director of MWS may revoke any approval or grading permit issued under the provisions of the SWMM for any of the following reasons:

1. A false statement or misrepresentation of facts was made in the application or plans on which the permit or approval was based;
2. The developer or EPSC professional changes on a project without notifying MWS NPDES; or,
3. A permitted site has unpaid civil penalties that are delinquent by 60 days or more.

Penalty Multipliers: To promote compliance and to protect water quality, habitat, and floodplain storage penalty multipliers are incorporated within the itemized penalty worksheet.

Recording Enforcement Documents with Registrar of Deeds Office: If continued non-compliance becomes an issue, Metro Legal could be contacted for the potential to record the notice of violation, stop work order, or any other enforcement correspondence to the parcel(s) of the violation location. Please note that only certain documents are allowed to be recorded with the Register of Deeds and Metro Legal would review if those documents are acceptable. .

Withholding Approvals for Other Projects: We may as needed withhold approvals and grading permit issuance from any person, partnership, limited partnership, joint venture, corporation or any other type of business entity or related entity who has another grading permit project or building permit that is currently in violation of stormwater regulations. For purposes of this section, partnerships, limited partnerships, joint ventures, corporations or other type of business entities owned or operated by common person(s) or having common person(s) involved in the day-to-day operation of the business will be viewed as a related entity unless a significant change of control can be evidenced. This category will be used if there is continuous non-compliance and lack of response from the offender.

Overdue Penalty Collection: If penalties have not been paid in full by the specified deadline on the NOV then a written notice will be sent out reminding them of the overdue penalty within 14 days of missed deadline date. This notice along with the date of this notice should be documented in the database and on the NOV spreadsheet. If there are overdue penalties for a grading permit site, all future signoffs, bond requests and additional grading permits will not be processed by Stormwater staff until the penalties are paid. For penalties significantly overdue and found uncollectable, the parcel in which these penalties were assessed will be flagged with a hard hold by MWS

Development Services upon notice from NPDES Office of the specific need with supporting violation documentation. The flag will have comments noting the outstanding and overdue penalties. Overdue penalties in excess of $3000 will be sent to Metro Legal.

Table 1 – Grading Permit Violation Itemized Penalty Worksheet
Version Date: April-2020

Itemized Penalty Worksheet

Violation	Code / SWMM		Multiplie	Penalty	Total
Grading without a	15.64.140	yes = 1	0	$300.00	$0.00
development related	3.3	# of acres graded	0	$100.00	$0.00
(large quantity)					**$0.00**
Grading without a permit, non development related	15.64.140, 3.3	yes = 1	0	$50.00	$0.00
					$0.00
Failure to follow plan	4	yes = 1	0	$200.00	$0.00
					$0.00
Transporting fill to a non permitted site	6.10.8	yes = 1	0	$100.00	$0.00
					$0.00
Alterations in the 100yr floodplain	15.64.180, 5.5.6	yes = 1	0	$200.00	$0.00
					$0.00
Construction that may increase flooding	15.64.120	yes = 1	0	$200.00	$0.00
					$0.00
Water Quality Buffer	6.9	yes = 1	0	$200.00	$0.00
disturbance		habitat or sediment impaired stream yes = 1	0	$300.00	$0.00
		buffer disturbance >5,000 sqft yes = 1	0	$200.00	$0.00
					$0.00
Failure to install	2.7, 6.10	yes = 1	0	$100.00	$0.00
/ maintain epsc		# of separate failure locations	0	$50.00	$0.00
		# of acres with exposed soils	0	$50.00	$0.00
					$0.00
Illicit discharge of	15.64.205	yes = 1	0	$100.00	$0.00
sediment	6.10.3	# of separate discharge points	0	$50.00	$0.00
		in watershed of sediment impaired stream yes = 1	0	$200.00	$0.00
		directly in sediment impaired stream yes = 1	0	$300.00	$0.00
					$0.00
Failure to have epsc professional for gp site	4.3.3	yes = 1	0	$200.00	$0.00
					$0.00
Failure to provide copies of inspection	4.3.3, 4.4.3	yes = 1	0	$200.00	$0.00
					$0.00
Failure to post permit	4.4.1	yes = 1	0	$50.00	$0.00
					$0.00
Failure to control construction waste	6.10.8	yes = 1	0	$100.00	$0.00
					$0.00
Areas not stabilized	6.10.1	yes = 1	0	$50.00	$0.00
within 15 days	6.10.4	#of acres not stabilized	0	$50.00	$0.00
					$0.00
Occupying bldg without sw certifications	15.64.110, 3.9	yes = 1	0	$100.00	$0.00
					$0.00
# of previous violations		List dates of previous NOVs issued	0	$200.00	$0.00
for same issues		"			**$0.00**
				PENALTY TOTAL:	**$0.00**

Section 2: Illicit Discharge Violations:

2.1 NPDES Office Illicit Discharge Summary:

Metro's Non-Stormwater Discharge Code (15.64.205) specifically prohibits all non-stormwater discharges (except those exempted in the code) into community waters, into the waters of the state, or into the Municipal Separate Storm Sewer System (MS4). Additionally, the MS4 permit obligates Metro (per State and Federal statutes) to implement programs, including enforcement, that eliminate such discharges to streams and rivers. This section of the ERP details standard protocol to be followed for enforcement for violations to Metro's Non-Stormwater Discharge Code.

2.2 General Response and Timeframes:

The NPDES Office discovers illicit discharges to the MS4 system utilizing a variety of methods such as routine inspections, citizen complaints, proactive reconnaissance, etc. Some of the more typical illicit discharges include: wash water, sewage, industrial process wastewater discharges and contaminated runoff, paint, sediment, etc. Once discovered, the NPDES Office implements the below enforcement measures in order to gain compliance. In general the following timeframe for responding to complaints or discoveries of illicit discharges will be followed:

Investigation Timeframes:

- All emergency spills or complaints involving large active discharges/impacts to the MS4 or Community Waters should be investigated immediately, but at a minimum, within the same day.
- All other spills, water quality complaints, or other discoveries of potential illicit discharges should be investigated within 2 business days.
- All customers who leave their contact information should be notified within 2 business days of the investigation findings and follow-up actions that will be taken by the NPDES office. In some cases, the complainant should be contacted prior to the investigation to obtain any pertinent information that wasn't included in the original complaint.
- Upon discovery of active illicit discharges, responsible parties should be directed to eliminate the discharge immediately (within 24 hours). There are some instances where responsible parties for illicit discharges take more than 24 hours to confirm or repairs that have to done to eliminate the illicit discharge will take longer than 24 hours. In those cases, all communications or enforcement proceedings with the responsible parties should include specific timeframes that the illicit discharges should be eliminated by.

2.3 Enforcement Proceedings:

Calculation of the monetary penalties associated with illicit discharges can be assessed up to $5,000 per day, per Metro code. For the most part construction site violations are

to be calculated using the penalty calculation in Table 1; however, in significant sediment loss situations, the penalty calculation found in Table 2 below can be used. Enforcement can range from official warnings to issuance of Notices of Violations with Administrative Penalties.

2.4 Enforcement Categories/Steps

Public Education: In some instances, where the potential for contaminated stormwater runoff from the site is low, but there are exposed contaminants on the property, Metro will perform public education prior to issuing official enforcement. All public education communications are logged into the Public Involvement/Education (PIE) database.

Notice of Non-Compliance: Notices of Noncompliance (NONs) are to be issued during the discovery of *negligible* discharges to the MS4/community waters, especially when the discharge is unintentional (i.e. spill, sewer line break, etc.). Negligible discharges are determined by the Best Professional Judgment of the inspector, but are generally small amounts of pollutants that represent minor impacts to the MS4 or Community Waters. Usually, in these cases, the biggest threat to water quality is the potential for contaminated runoff during rain events, which makes it extremely important to issue warnings to the site to expedite compliance. In most cases, the warning should be written on the standard Notice of Noncompliance (NON) form or an official letter on Metro letterhead. The Notice of Noncompliance should include specific deadlines and compliance measures to be performed by the responsible party and should list what administrative penalty will be assessed with an NOV if compliance is not achieved by the expected date. Some examples of illicit discharge violations subject to issuances of NONs include, but are not limited to:

- Pressure washing with negligible impacts to the MS4 or Community Waters;
- Private sewer service line break or missing clean-out cap with negligible discharges to the MS4 or Community Waters ;
- Spills with minor amounts with negligible impacts to the MS4 or community waters;
- Materials exposed to stormwater runoff (messy dumpster pads, fats or grease on ground, open containers of oil, etc.);
- Dumping of non-stormwater materials that represent negligible impacts to the MS4 or Community Waters.

Notice of Violation (with administrative penalty): Notices of Violations (NOVs) with administrative penalties should be issued when intentional actions by individuals or entities are causing a *significant* impact to the MS4 or community waters. The inspector will utilize best professional judgment to determine if a discharge is resulting in a *Significant Impact* to the MS4 or Community Waters. Generally a *Significant Impact* means that the individual discharge is causing direct/measurable impact on the MS4 or receiving waters. Intentional actions can include knowingly dumping materials or prolonging remediation of discharged non-stormwater product after being notified by NPDES.

NOVs should also be issued when compliance is not achieved in the NON process, described above for discharges resulting in "negligible impacts" to the MS4 or community waters.

Every NOV issued will be accompanied with a completed penalty assessment worksheet. All issued NOVs will include the assessment of administrative penalties based on various factors delineated in Table 2. A NOV shall clearly state the required remediation for the violation and timeframe for compliance, which should be immediately (within 24 hours) unless extenuating circumstances exist. In most cases, the electronic NOV ticket shall be utilized; however, in some cases a formal letter on Metro letterhead can serve as the NOV. Some examples of illicit discharges that will be subject to a formal NOV include the following:

;

- Dumping of motor oil or other hazardous chemicals resulting in significant impact to the MS4 or community waters;
- Washing out paint brushes or other construction materials resulting significant impact to the MS4 or community waters;
- Discharge of pit pump water or wet saw cutting slurry resulting significant impact to the MS4 or community waters;
- Washing out concrete truck trays resulting significant impact to the MS4 or community waters;
- Discharge of industrial process water (without an NPDES permit) resulting significant impact to the MS4 or community waters;
- Significant amount of contaminated stormwater runoff from private property resulting significant impact to the MS4 or community waters.

Notice of Violation (NOV) (with daily penalties): to be issued only in rare cases when, for whatever the reason, the site refuses to comply with the first NOV and as a result, a substantial amount of non-stormwater material is being lost to the MS4 or community waters every day or every time it rains. In the cases where pollution only occurs every time it rains, the daily penalties shall only apply to the days rain occurs. Daily penalty amounts are to be calculated using Table 2.

Holding Future Development Permits: If an offender refuses to bring a site in to compliance and/or is unresponsive, a hard hold can be placed on the parcel in Cityworks to prevent any future permitting for that property until compliance is achieved;

Environmental Court: If an offender does not appeal but does not take the action required in a certified NOV/SWO letter or enforcement and/or is generally unresponsive to our requirements and deadlines despite our best efforts, the matter shall be taken to Metro Environmental Court, seeking an injunction. If they wish to dispute the NOV, they must file a timely appeal to the Director or his designee and then to the SWMC.

Enforcement Assistance Request to TDEC: TDEC receives an email notification of all Metro-issued -related enforcements, however in addition, there may be occasions given the circumstances, where TDEC needs to be notified for enforcement assistance. For

violations involving significant discharges to streams, TDEC should be immediately contacted. When a request for assistance is made, proper documentation must accompany the request. This documentation would include: photographs, copies of inspections, copies of correspondence, copies of enforcements taken, and a summary report. Note: TDEC shall also be notified if any discharges impact "Waters of the State"

2.5 Documentation:

All correspondence should be documented in the appropriate database (i.e.Cityworks) and any photographs, scanned-in field investigation notes, etc. should be stored within the appropriate project folder. For illicit discharge documentation not related to industrial inspections or grading permit sites, all project folders should be stored within the following directory: S:\Cityworks\NPDES\SR Project folder names within the directory shall follow the below example:

- County Hospital Road, 1607 (paint dumping)

There should always be a database entry of any official notification given to a site. In the event that the official notification is in the form of a verbal warning, the NPDES inspector shall note the verbal warning on the complaint investigation form and within the respective database.

Table 2 – Illicit Discharge Penalty Calculation Worksheet

Version Date: July-2020

Note: Biological health hazard is based on the potential damage the discharge can do to aquatic live in the stream.

Offender Category	Discharge Type	Penalty	Estimated Volume Multiplier <10 gallons = 1 10 to 100 gallons = 2 100 to 1,000 gallons = 3 > 1000 gallons = 5	Biological Health Hazard Multiplier Minor = 0 Major = 3	Prior Notice Multiplier No Prior Notice = 0 Prior Notice = 2	Penalty	Total
Accidental Spill/Discharge	Clean-up prolonged negligable impact to MS4 or Community Waters	$100.00				$100.00	$0.00
	Clean-up prolonged and significant impact to MS4 or Community Waters	$250.00				$250.00	$0.00
Private Residence	Household Chemicals (Paint, cleaners, oils, batteries, pesticides)	$100.00				$100.00	$0.00
	Food Waste/Grease	$100.00				$100.00	$0.00
	Significant Impact to the MS4 or Community Waters from Dumping of Grass Clipings/Organics	$50.00				$50.00	$0.00
	Sewage/Wash Water with Detergents	$100.00				$100.00	$0.00
	Sediment	$100.00				$100.00	$0.00
	Significant Impact to the MS4 or Community Waters from Chlorinated Pool Water Discharges	$50.00				$50.00	$0.00
Commercial/Industrial	Industrial Waste	$500.00				$500.00	$0.00
	Hazardous Chemicals (Paint, cleaners, oils, batteries, pesticides, floor wax, etc.)	$300.00				$300.00	$0.00
	FOG material	$100.00				$100.00	$0.00
	Significant Impact to MS4 or Community Watersf Mop water/Parking lot wash water with detergents	$100.00				$100.00	$0.00
	Other Contaminated Stormwater Runoff	$50.00				$50.00	$0.00
	Knowingly Discharging Sewage Materials	$250.00				$250.00	$0.00
	Dumpster leakage to MS4	$100.00				$100.00	$0.00
Construction Site Illicit	Concrete Washout	$500.00				$500.00	$0.00
	Pumped Sediment Water	$500.00				$500.00	$0.00
	Sediment Contaminated Runoff	$500.00				$500.00	$0.00
Typical Contractor-Related Discharges	Significant Discharge of Parking Lot/Building Wash Water with Detergents	$100.00				$100.00	$0.00
	Wastewater Discharges (Carpet cleaning, floor waxes, etc.)	$250.00				$250.00	$0.00
	Significant Discharges of Wet Saw Slurry/Pit Pumping Water with No Efforts to Treat the Water	$100.00				$100.00	$0.00
	Concrete Washout	$250.00				$250.00	$0.00
	Other (paint, motor oil, etc.)	$250.00				$250.00	$0.00
					Total Penalty (Not to Exceed $5,000)		$0.00

Section 3 : Post Construction SCM Maintenance Violations

3.1 General Considerations

Maintenance is required to ensure that post construction stormwater control measures (SCMs) continue to function as designed. The cleaning and/or repair of a SCM are the ultimate responsibility of the property owner. In some cases, management companies and HOAs perform the work or contract it out.

3.2 Enforcement Tools:

Metro Code 15.64.020 grants the regulatory authority for the establishment of the SWMM. Under Metro Code 15.64.220(A), any violation of Chapter 15.64 regarding Stormwater Management, including a violation of the SWMM, is punishable by a civil penalty not to exceed $500.00 dollars. Each day of violation may constitute a separate violation.

A Maintenance Document (MD) signed by the property owner must be submitted with the Grading Permit application. The MD includes either an Inspection and Maintenance (I&M) Agreement or a Declaration of Restrictions and Covenants. Both of these documents require that the property owner maintains their SCM(s), submits annual reports detailing inspection and maintenance activities, and grants Metro the ability to perform the SCM maintenance and collect reimbursement. Sites approved prior to the 2006 revision of the SWMM do not have the annual reporting requirement.

3.3 Non-Reporting Consequences:

As mentioned above, some of the new structures installed per the latest regulations require the owner to perform annual inspections and reporting. A site's reporting compliance status may be considered by NPDES as personnel prioritize inspections.

3.4 Site Follow-up, Coordination, and/or Enforcement:

NPDES bases all enforcement proceedings on the "field" conditions of SCM structures (conditions observed and documented by NPDES inspectors). NPDES provides a copy of the inspection form (in-person) when a representative is available at the property to receive it. In many cases, there are no representatives at the property with the SCM. When NPDES observes non-compliance issues that need follow-up actions, NPDES will attempt to locate either an email, phone number, and/or address for the responsible party and send a letter or email summarizing the inspection findings and required compliance actions. NPDES provides a reasonable timeframe (two or more months) to complete any compliance actions. After the compliance deadline expires, NPDES will re-inspect and determine if any compliance activities have taken place. If no activities have taken place, NPDES will issue a 10-day notice letter to the property owner that

states enforcement proceedings will be initiated if compliance actions are not completed and/or feedback is not received.

If, after the above described coordination efforts result in no compliance actions being taken, NPDES will initiate the SCM Enforcement Process. A standard Notice of Noncompliance (NON) form should be issued as a first enforcement step. The standard NON template should be utilized as the first step of enforcement and should be sent via certified mail. The NON will list the deficiency and give a timeline for compliance and will include a copy of the plans, photos of the structure and the maintenance document. If a site cannot meet their compliance deadline for a legitimate reason (e.g. weather, hardship), they may request an extension.

If compliance is not achieved by issuance of the NON, enforcement may then be elevated to an official Notice of Violation (NOV) with associated administrative penalties. The initial administrative penalty will be $100 per each structure with maintenance issues. If the site fails to comply with the initial NOV, a second and third NOV could be issued with an administrative penalty multiplier of 2.5 for each subsequent violation. (Not to exceed $500.00 per structure) If the site fails to comply after issuance of 3 NOVs, then the inspector must choose the best course of action from the following enforcement options:

- Environmental Court – Injunction;
- Placing a “Hard Hold” in Cityworks on any future permitting for that property;
- Recording Enforcement Documents with Registrar of Deeds Office; and
- Performing Maintenance with Metro Equipment and Billing the Property Owner.

SCM Notice of Noncompliance Template

Metro Water Services, Stormwater NPDES
1607 County Hospital Road
Nashville, TN 37218
Office: 615-880-2420
Fax: 615-880-2425
Email: mws.scm@Nashville.gov

NOTICE OF NON-COMPLIANCE

Business Name / Residential Property Location:

_____ Address/STANPAR:_____

Site Representative/Property Owner: _____ is hereby served with this Notice of Non-Compliance on: ____/____/____ for failure to maintain a **Stormwater Control Measure(s) (SCM)** per the Maintenance Agreement Instrument Number: _____ that was recorded with the **Deed** of the property. The **SCM(s)** on your property was installed during previous development/redevelopment activity, which obtained a Grading Permit from the Metro Water Services, Stormwater Division. The Grading Permit Number associated with your parcel's development activity was: _____. As a condition of the grading permit, the permanent **SCM(s)** was installed to prevent downstream flooding and stormwater pollution. Inspection and maintenance agreements, which were recorded with the **Deed** of your property, require the property owner (**not Metro**) to perform the required inspection and/or maintenance associated with the **SCM(s)** on your property, so that it continues to function as it was designed. A copy of the inspection and maintenance agreement for your parcel can be obtained from the Davidson County Register of Deeds website at the following link: http://www.registerofdeeds.nashville.org/recording/

Description of Non-compliance Maintenance Issues:

Required Corrective Actions to be Corrected By: _____

(Please note, failure to perform the required maintenance could lead to additional enforcement that may include the assessment of administrative penalties as defined in Metro's Code (Depicted on Next Page)

Notification Delivered Via: _____

This notice served by: _____ **Date and Time** ____/____/____ at ____:____ am/pm

Stormwater, NPDES Dry Detention Maintenance Policy Strategy

Policy Need	Initial findings of inspections of older Dry Detention Ponds has revealed that there are numerous ponds that are completely overgrown with mature tree species. In many cases, these ponds are not holding water and are draining within the design timeframe of 72 hours after a rain event. The main impact of the overgrown trees within the pond appears to be reduced stormwater storage. Requiring these mature trees to be removed may cause more damage to water quality that benefit gained to water quantity storage.
Policy	For dry detention ponds that are completely overgrown with mature tree species (individual specimens greater than 6 inch diameter), NPDES inspectors will use their Best Professional Judgement to determine if the overgrown vegetation will pose a threat to public safety, stormwater flooding, and/or downstream water quality conditions. Specific issues to note include the pond containing pooled or inundated water for a period substantially longer than 72 hours after a rain event, damaged or failing outlet structures and/or pipes, and severely eroded/wash-out areas on the pond banks. At a minimum, NPDES shall require all woody vegetation (regardless of the diameter size) growing within a 20-foot radius of the outlet structure to be removed without causing damage to the outlet structure. At a minimum, NPDES shall require any trees growing near inlets into the ponds that are causing water to back-up or form side channels to be removed. At a minimum, NPDES shall require all structurally-damaged pipes, outlet structures, etc. to be repaired. At a minimum, NPDES shall require obstructions preventing water from draining from the pond to be removed so that the pond effectively drains within a 72 hour period following a storm. At a minimum, NPDES shall require all severely eroded or wash-out areas to be repaired to prevent unnecessary sediment runoff and potentially failing pond banks.
Policy Date	Created 5/2/2018

Stormwater, NPDES Bioretention Maintenance Policy Strategy

Policy Need	Inspection results of Bioretention Basins has revealed numerous maintenance issues to be present sometimes as short as one year since grading permit sign-off. A vast majority of these basins do not receive the necessary (frequent) routine maintenance required to maintain the desired/designed plant cover or diversity as described in the site's specific Long-term Maintenance Plan. The below issues are commonly found during inspections: • Mulch completely washed out • Biomedia is compacted and negatively affecting infiltration rates • Erosion present at the curb-cuts or inlets • Over-mulching occurred, reducing the detention volume • Planted vegetation overtaken by recruitment invasive vegetation. • Signs that the bioretention basin is ponding water for extended periods. • Bioretention is being maintained as mowed grass with commercial mowers, likely compacting subsurface.
Policy	NPDES inspectors will use their Best Professional Judgement to determine the level of maintenance needs during their inspection, which will, in turn, determine the compliance follow-up steps to perform. The decision will be based solely on the functionality of the bioretention basin. The below guide should be used to determine the maintenance status of the bioretention: (Also refer to additional pages for some photo examples) • **Minor** – Vegetation or mulch problems exist, but still appears to be functioning as there are no signs in the basin overflowing or bypassing. ***No inspection letter needed, but if someone is present, talk to them about the issues***. - Overgrown with vegetation not planted - Mulch washed out • **Moderate** – Moderate to major erosion, minor sediment accumulation, or other vegetation management techniques observed, if left unchanged, could lead to major problems down the road, but overall, the basin appears to be functioning. ***Initial inspection letter to be sent, but if compliance is not achieved after two attempts, shall not elevate to enforcement.*** - Moderate erosion at curb cuts or inlets that could be adding sediment loads to the basin. - Basin being managed as a turf basin, possibly being mowed by commercial mowers compacting soil media. - Little to no vegetation present. • **Major** –It appears the basin is either bypassing, ponding water for extended periods of time, or water is routing directly to the overflow due to over mulching or other conditions. ***Inspection letter to be sent with a required timeframe for repairs. Failure to gain compliance after two formal communication attempts (letters, emails), shall be elevated to enforcement action.***
Policy Date	Created 9/30/2019

Example Photographs of some of the Issues and Rankings

<u>Minor Issues</u>:. Vegetation or mulch problems exist, but still appears to be functioning as there are no signs in the basin overflowing or bypassing.

Moderate Issues: Moderate to major erosion, minor sediment accumulation, or other vegetation management techniques observed, if left unchanged, could lead to major problems down the road, but overall, the basin appears to be functioning.