LEE'S SUMMIT HIGH SCHOOL
EAST PARKING LOT
LEE'S SUMMIT, MISSOURI

NPDES Storm Water Pollution Prevention Plan for Storm Water Discharges Associated with Construction Activity

Prepared For:
LEE SUMMIT SCHOOL DISTRICT
502 SE Transport Drive
Lee's Summit, Missouri 64081

Estimated Construction Window Phase I: June 2024 to September 2024
Estimated Construction Window Phase II: June 2025 to September 2025

Kaw Valley Engineering, Inc.
Project No. C23D1880

March 2024

Owner's Certification

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

_____

Name / Date

_____

Title

Delegation of Authority

I, _____, hereby designate the person or specifically described position below to be a duly authorized representative for the purpose of overseeing compliance with environmental requirements, including the Missouri State Operating Permit, at the Lee's Summit High School construction site. The designee is authorized to sign any reports, stormwater pollution prevention plans and all other documents required by the permit.

By signing this authorization, I confirm that I meet the requirements to make such a designation, and that the designee above meets the definition of a "duly authorized representative."

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

Name: _____

Company: _____

Title: _____

Signature: _____

Date: _____

Table of Contents

1.0 Purpose of Plan 1

2.0 Site Evaluation 2
2.1 Topography and Drainage 2
2.2 Soils 2
2.3 Runoff Water Quality 2
2.4 Receiving Waters 2

3.0 Site Construction Plan 3
3.1 Construction Activities 3
3.2 Construction Sequence 3

4.0 Storm Water Management Plan 5
4.1 General Description of Storm Water Management System 5
4.2 Runoff Coefficient 5
4.3 Project Site 5
4.3.1 Stabilization Practices 5
4.3.2 Structural Practices 6

5.0 Potential Storm Water Pollutant Sources and Control Measures 7
5.1 Construction Silt and Dust 7
5.2 Offsite Sediment Tracking 7
5.3 Petroleum Products 7
5.4 Sanitary Wastes 7
5.5 Hazardous Wastes 8
5.6 Fertilizers 8
5.7 Paints 8
5.8 Concrete Trucks 8
5.9 Waste Materials 8
5.10 Allowable Non-Storm Water Discharges 8

6.0 Best Management Practices 9
6.1 Good Housekeeping 9
6.2 Hazardous Materials 9
6.3 Spill Prevention and Response 9

7.0 Inspection, Maintenance, and Reporting Procedures 11
7.1 Erosion and Sediment Controls 11
7.2 Non-Storm Water Controls 11
7.3 Reporting 12
Inspection Form 1: Erosion and Sedimentation Controls 13
Inspection Form 2: Non-Storm Water Source Controls 14
Inspection Form 3: Record of Plan Amendments 16

8.0 Certification of Compliance 17
8.1 Contractor Certifications 17
Contractor/Subcontractor Certification 18

9.0 Project Completion 19

Appendix A: Construction Activity Record
Appendix B: Completed Inspection Forms
Appendix C: Topographic and Aerial Maps
Appendix D: General Permit MORA16802
Appendix E: Erosion and Sediment Control Plan

1.0 Purpose of Plan

The purpose of this Construction Storm Water Pollution Prevention Plan is to demonstrate compliance with the requirements of the National Pollutant Discharge Elimination System (NPDES) for issuance of a General Permit for storm water discharges associated with construction activity. The General Permit requires the preparation and implementation of such a plan to prevent, as much as practicable, the release of pollutants in storm water runoff from the construction site to waters of the United States.

This Plan provides information about the Lee's Summit High School East Parking Lot project located at 400 SE Blue Parkway in Lee's Summit, Missouri. Administrative requirements and potential storm water and non-storm water pollutant sources are identified. Best management practices to prevent the discharge of non-storm water materials in storm water runoff are also described.

The 45.53-acre parcel is located on the north side of Blue Parkway, west of Missouri Highway 291. The project site currently consists of concrete hardscape, parking areas and driveways, and green space. A project location map follows as Figure 1.

Figure 1: Project Location Map, NOT TO SCALE

2.0 Site Evaluation

The following sections describe existing conditions at the site.

2.1 Site Location and Topography

The project site is located at 400 SE Blue Parkway in Lee's Summit, Missouri. The existing topography of the property slopes generally to the north. Elevations, as referenced to the National Geodetic Vertical Datum of 1929, range from approximately 1049 feet to 1030 feet.

Latitude: N 38° 54' 14"
Longitude: W 94° 21' 59"

2.2 Soils

A soils map has been provided for the site. The soils were identified according to the soil survey maps in the *NRCS Web Soil Survey*. The map indicates that the following soils exist on the site and include the following engineering characteristics and soil and water features information.

- **10082- Arisburg-Urban Land Complex, 1 to 5 percent slopes.** The surface water runoff class is medium. The water table is at a depth of about 18 to 36 inches. This somewhat poorly drained soil is not hydric and is classed in Hydrologic Group C. No seasonal water table is present.

2.3 Runoff Water Quality

No surface water quality data is available for the project site. However, due to the nature of the site, runoff could be expected to contain some suspended solids.

2.4 Receiving Waters

Runoff from the site flows by overland flow to the southeast corner of the site and ultimately drains to an unnamed tributary upstream of Lake Lotawana.

3.0 Site Construction Plan

The following sections describe the proposed development and site construction plan.

3.1 Construction Activities

The project will consist of a building addition, construction of an emergency drive and the expansion of the existing parking lot. The project site will require earthwork to support the planned development. Soil disturbing activities will include clearing, grubbing, rough grading, utility installation and placement of fill. The project construction entrances will be constructed as stabilized construction entrances to reduce tracking of soil onto the surrounding parking lots and roadways.

A record of the project site construction activities must be maintained as part of this Plan. Appendix A includes a form and instructions to record such information on an ongoing basis.

3.2 Construction Sequence

The project will be constructed generally following the sequence indicated below. All erosion control measures installed or maintained throughout construction are the responsibility of the SWPPP contact.

DESCRIPTION OF WORK - PRE-CONSTRUCTION AND PHASE I:

- Obtain review compliance and applicable permits.
- Hold pre-construction conference.
- Install perimeter erosion control measures, inlet protection downstream of demolition areas and tree protection fencing within clearing limits as applicable.
- Sawcut and remove pavement, flatwork and curbing at perimeter tie-ins. Coordinate work with Lee's Summit School District (LSSD). Maintain pedestrian and vehicular traffic access to campus as directed by LSSD.
- Provide stabilized construction into work area as required.as required.

DESCRIPTION OF WORK - PHASE II AND POST CONSTRUCTION:

- Rough grade site to proposed subgrade.
- Install or relocate utilities: storm, conduits for site lighting, telecom.
- Install erosion control measures around storm sewers and divert runoff to storm structures.
- Place aggregate base for parking areas.
- Install curb for parking areas.
- Install paving base course.
- Install additional erosion control measures at toes of slope adjacent to curb line as applicable.
- Install surface course on parking lot, walks and flatwork.
- Complete final grading and seed, sod or landscape within project limits as applicable.

- Final site cleanup.
- Maintain erosion control measures until site is stabilized.
- Inspect and reseed remaining disturbed areas, washouts, etc.
- Remove sediment buildup, reseed and stabilize as erosion control measures are removed.

4.0 Storm Water Management Plan

This storm water management plan was designed following EPA guidelines. Structural sediment control devices will be the main means of storm water management. Storm water sediment controls will be installed before any construction begins.

4.1 General Description of Storm Water Management System

The potential for storm water runoff pollution will be present during the construction of the site improvements. This risk will be minimized through the use of several control measures implemented before and during the construction sequence.

Structural measures are the main means of storm water management. Storm water control measures are described and shown on the Erosion Control Drawings.

Embankment slopes will be constructed on a 3' horizontal to 1' vertical slope (maximum). Construction activities will be restricted to within 20' outside of the farthest toe of slope or disturbed area. Erosion control blankets will be installed on slopes 4:1 or steeper or in areas of concentrated flow.

It will be the responsibility of the Construction Manager to revise the Erosion Control Plan Drawing if the location or types of control measures are changed in the field.

4.2 Runoff Coefficient

The SCS Curve Number method was used to determine the runoff coefficient for the project site. This method is based on the amount of impervious area of both the existing and proposed conditions.

4.3 Project Site

The surface water management during construction will be through the use of silt fence, inlet protection, and soil stabilization measures. The structural sediment control devices will remove suspended solids before entering the local private storm water system.

4.3.1 Stabilization Practices

Temporary and permanent stabilization methods will be used on the project site. Two major stabilization methods that will be used on the site are preserving existing vegetation where possible and disturbing only the area needed for project construction. Disturbed portions of the site will be stabilized within 7 days after construction activity has temporarily or permanently ceased, with two exceptions – when snow cover precludes construction or construction will resume within 21 days. Stabilization practices may include permanent seeding, mulching, geotextiles, sodding, or aggregate surfacing. Site access facilities (entrances/exits and parking areas) will be surfaced with aggregate to reduce sediment tracking.

4.3.2 Structural Practices

Temporary and permanent structural devices to divert, store, or limit runoff from disturbed areas will be used on the project site. Such devices may include silt fences, wattles catch basin inlet protection, outlet protection and erosion control blankets. Details of the structural control measures are shown on the Erosion Control Plan.

5.0 Potential Storm Water Pollutant Sources and Control Measures

Pollutants from various sources have the potential to enter the storm water system during project construction. A description of these potential pollutants and control measures to reduce the risk of storm water contamination is provided below.

5.1 Construction Silt and Dust

Construction of the project will generate silt and fugitive dust. Silt barriers (fences) will be installed perpendicular to the storm runoff on all disturbed slopes as shown on the Erosion Control Plan to control offsite discharges of silt. The silt barrier will be installed after the clearing and grubbing necessary for placement of the silt barrier is complete, but before the clearing and grubbing of the remaining work area is started. The silt barrier will remain in place until the up-slope surface is permanently stabilized. In some cases, linear sediment traps replace the function of the silt barrier. Filter bags will be installed around stormwater inlets as they are constructed. If construction in a particular area will cease temporarily, temporary soil stabilization will be implemented no more than 7 days after the construction has ceased unless activity will resume in that area within 21 days. Permanent stabilization will take place no later than 7 days after construction activities have permanently ceased in an area.

Fugitive dust may be generated during dry weather conditions. Dust control will be directed by the Construction Manager. Water sprays will be used for dust control.

5.2 Offsite Sediment Tracking

The adjacent streets to the project site will be kept relatively free of excess mud, dirt, and rock tracked from the project site. The site access drives will be constructed with a stabilized construction entrance to reduce tracking of sediment offsite. Should sediment or mud be tracked onto adjacent paved areas, it will be immediately removed.

5.3 Petroleum Products

Construction equipment will require diesel fuel and oil on a regular basis so the potential exists for spills or leaks. All onsite vehicles will be monitored for leaks and receive regular preventative maintenance to ensure proper operation and reduce the chance of leaks. No "*topping off*" of fuel tanks will be allowed to reduce the possibility of spills.

Petroleum products will be stored in clearly labeled and tightly sealed containers or tanks. Any asphalt used onsite will be applied according to the manufacturer's recommendations. Any soil contaminated by fuel or oil spills will be removed and disposed of at an approved disposal site by the Contractor.

5.4 Sanitary Wastes

A licensed sanitary waste management contractor will collect all construction or temporary sanitary wastes from portable units. The units will be maintained on a regular basis.

5.5 Hazardous Wastes

All hazardous waste materials will be disposed of according to local or state regulation or the manufacturer's recommendations. The Construction Manager who will also be responsible for their implementation will instruct site personnel of these regulations and recommendations.

5.6 Fertilizers

Fertilizers will be applied as recommended by the manufacturer. After application the fertilizer will be worked into the soil to limit exposure to storm waters. Fertilizers will be stored in a covered area or in watertight containers. Any partially used bags or containers will be properly sealed and stored to avoid spills or leaks.

5.7 Paints

All paint containers will be tightly sealed and properly stored to prevent leaks or spills. Paint will not be discharged to the storm water system. Unused paints will be disposed of according to local and/or state regulations. Spray painting will not occur on windy days and a drop cloth will be used collect and dispose of drips and over-spray associated with all painting activities.

5.8 Concrete Trucks

Concrete trucks will be allowed to discharge surplus concrete or drum wash water on the site in such a manner that prevents contact with storm waters discharging from the site. Dikes or barriers will be constructed around such an area to contain these materials until stable, at which time the materials will be disposed of in a manner acceptable to the Construction Manager.

5.9 Waste Materials

All construction waste material will be collected, deposited, and stored in metal dumpsters from a licensed solid waste management contractor. No construction waste materials will be buried onsite. Any burning will be conducted in accordance with local or state regulations. It is the responsibility of the Construction Manager to obtain any and all permissions and permits for burning if so locally allowed. All site personnel will be instructed of the proper waste disposal procedures by the Construction Manager.

5.10 Allowable Non-Storm Water Discharges

The following sources of non-storm water discharges from project construction activities may be combined with storm water discharges.

- Waters used to wash vehicles or to control dust
- Pavement wash waters not containing toxic or hazardous substances
- Uncontaminated dewatering discharges
- Fire fighting waters
- Vegetation watering
- Potable or spring water discharges

6.0 Best Management Practices

Chemicals, petroleum products, and other materials will be used and stored on the project site. Best Management Practices, such as good housekeeping measures, inspections, containment, and spill prevention practices will be used to limit contact between storm water and potential pollutants.

6.1 Good Housekeeping

The good housekeeping practices listed below will be followed to reduce the risk of potential pollutants entering storm water discharges. All construction personnel will be responsible for monitoring and maintaining housekeeping tasks or notifying the appropriate person of a problem.

- Store only enough product to do the job.
- Store all materials in a neat and orderly manner, in the appropriate containers and, if possible, under a roof or within an enclosure.
- Keep products in the original container with the original manufacturer's label.
- Do not mix products unless recommended by the manufacturer.
- Use all of a product before disposing of the container.
- Use and dispose of products according to the manufacturer's recommendations or the Construction Manager's direction.
- Perform regular inspections of the storm water system and the material storage areas.
- When and where appropriate, use posters, bulletin boards, or meetings to remind and inform construction personnel of required procedures.

6.2 Hazardous Materials

Storage areas for hazardous materials such as oils, greases, paints, fuels, and chemicals, must be provided with secondary containment to ensure that spills in these areas do not reach waters of the State. Contingencies for the proper disposal of contaminated soils shall be established (use of licensed hauler and approved landfill, for example) early in the construction period.

6.3 Spill Prevention and Response

In addition to the good housekeeping and hazardous materials storage procedures described above, spill prevention and cleanup practices will be as follows.

- Construction personnel will be informed of the manufacturer's recommended spill cleanup methods and the location of that information and cleanup supplies.
- Materials and equipment for the cleanup of a relatively small spill will be kept in the materials storage area. These facilities may include brooms, rags, gloves, shovels, goggles, sand, sawdust, plastic or metal trash containers, and protective clothing.
- All containers will be labeled, tightly sealed, and stacked or stored neatly and securely.

The spill response procedure will be as follows:

Step 1. Upon discovery of a spill, stop the source of the spill.
Step 2. Cease all spill material transfer until the release is stopped and waste removed from the spill site.
Step 3. Initiate containment to prevent spill from reaching State waters.
Step 4. Notify a Supervisor or the Construction Manager of the spill.
Step 5. The Construction Manager will coordinate further cleanup activities.
Step 6. Any significant spill of hazardous material will be reported to the appropriate state and or local agencies at the following numbers:

National Response Center	1-800-424-8802 (24 Hours)
State Contacts:	
MDNR	1-573-634-2436 (24 Hours)
Local Contacts:	
Emergency	911 (24 Hours)

Step 7. Review the construction storm water pollution prevention plan and amend if needed. Record a description of the spill, cause, and cleanup measures taken.

7.0 Inspection, Maintenance, and Reporting Procedures

Site inspection and facility maintenance are important features of an effective storm water management system. Qualified personnel will inspect disturbed areas of the site not finally stabilized, storage areas exposed to precipitation, all control measures, and site access areas to determine if the control measures and storm water management system are effective in preventing significant impacts to receiving waters.

7.1 Erosion and Sediment Controls

The following procedures will be used to maintain erosion and sedimentation controls.

- All control measures will be inspected at least once a week and after each rainfall event producing runoff and daily during prolonged rainfall periods.
- All measures will be maintained in good working order. If a repair is necessary, it will be made within 24 hours of the inspection.
- Sediment will be removed from the silt barriers when it has reached one-third of the height of the barrier.
- Silt barriers will be inspected for depth of accumulated sediment, tears, attachment to posts, and stability on a weekly basis.
- Sediment traps and basins shall be maintained as specified in contract documents.
- Temporary and permanent seeding and planting will be inspected for bare spots, washouts, and healthy growth.
- Inspect riprap and aggregate covered areas for bare spots and washouts.
- The Construction Manager will select individuals to be responsible for inspections, maintenance, repairs, and reporting. The designated individuals will receive the necessary training from the Construction Manager to properly inspect and maintain the controls in good working order.
- Inspection Form 1 will be completed after each inspection.
- The completed Inspection Forms will be kept with this Plan in Appendix B.

7.2 Non-Storm Water Controls

The following procedures will be used to maintain the non-storm water controls.

- All control measures will be inspected at least once a week and after each runoff producing rainfall event and daily during prolonged rainfall periods.
- All measures will be maintained in good working order. If a repair is necessary, it will be initiated within 24 hours of the inspection.
- The Construction Manager will select individuals to be responsible for inspections, maintenance, repairs, and reporting. The designated individuals will receive the necessary training from the Construction Manager to properly inspect and maintain the controls in good working order.
- Inspection Form 2 will be completed after each inspection.
- The completed Inspection Forms will be kept with this Plan in Appendix B.

7.3 Reporting

Two inspection forms are provided on the following pages for recording inspections and maintenance of the control measures: Erosion and Sedimentation Controls (Inspection Form 1), and Non-Storm Water Source Controls (Inspection Form 2). All disturbed areas and materials storage areas require inspection at least every 7 days and within 24 hours of a ½ inch or more rainfall. After each inspection, the inspector completes an inspection report and inserts that report in Appendix B of this Plan. Any required maintenance is initiated within 24 hours of the inspection.

A fully signed copy of this Plan and any supporting materials must be maintained at the project site from the date of project initiation to the date of final stabilization. All records and supporting documents will be compiled in an orderly manner and maintained for a period of three years following final stabilization.

The generation of reports, as part of the construction process and inspection or amendment procedures, provides accurate records that can be used to evaluate the effectiveness of this Plan and document the plans compliance. Changes in design or construction of the storm water management system are documented and included with the Plan to facilitate Plan review or evaluation. Four forms have been developed to assist the Construction Manager with record keeping activities.

- Record of Plan Amendments Form 3
- Construction Activity Record
- Erosion and Sedimentation Controls Inspection Form 1
- Non-Storm Water Source Controls Inspection Form 2

Plan amendments will be documented on the form in the front of this Plan and on the drawings. A record of construction activities will be maintained in Appendix A of this Plan. Completed inspection and maintenance forms will be kept in Appendix B of this Plan.

Inspection Form 1
Erosion and Sedimentation Controls

Visually inspect disturbed areas of the construction site that have not been finally stabilized. Inspections to be completed every 7 days and within 24 hours of a rainfall event of ½ inch or more. Maintenance to be performed within 24 hours of inspection.

Inspector: _____

Inspection Date: _____

Date of last rainfall: _____

Amount of last rainfall: _____inches

Report on the condition of the erosion and sedimentation controls installed at the construction site. Check for tears in silt barriers, for securely attached fabric to fence posts, and for depth of sediment in front of the silt barriers. The depth of sediment should not exceed one-third of the barrier height. Seeding/planting areas and rip/rap aggregate areas should be inspected for bare spots and washouts.

Area	Condition of Control	Maintenance Required/Completion Date

Inspection Form 2
Non-Storm Water Source Controls

Visually inspect material storage and construction areas. Inspections to be completed every 7 days and within 24 hours of a rainfall event of ½ inch or more. Maintenance to be performed within 24 hours of inspection.

Inspector: _____

Inspection Date: _____

Date of last rainfall: _____

Amount of last rainfall: _____inches

Construction Dust – Is there excessive dust at the site that requires watering?

_____

_____

Sediment Tracking – Are adjacent streets and paved areas mostly free from mud, dirt, or rock?

Is washdown required?_____

Are graveled areas adequately covered?_____

Petroleum/Chemical Products – Are spill containment structures secured? Product containers securely sealed?_____

Sanitary Waste – Do portable sanitary units need service?_____

Hazardous Waste – Are hazardous wastes stored and disposed of in compliance with state and local regulations?_____

Inspection Form 2
Non-Storm Water Source Controls
(Continued)

Construction Waste – Are all construction waste materials collected and stored in approved dumpsters? _____

Material Storage Areas Exposed to Precipitation – Are materials handled and stored in a manner to prevent leakage and prevent pollutants from entering the storm water system?
_____

Other Non-Storm Water Discharges – Are waters from line flushing, pavement washdown, and dewatering directed to the storm water system prior to discharge?
_____

Maintenance Required	Maintenance Completed Date

Inspection Form 3
Record of Plan Amendments

Lee's Summit High School Improvements

Storm Water Pollution Prevention Plan

INSPECTION AND MAINTENANCE REPORT FORM

CHANGES REQUIRED TO THE POLLUTION PREVENTION PLAN:

_____
_____
_____
_____
_____

REASONS FOR CHANGES:

_____
_____
_____
_____

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

SIGNATURE: _____ DATE: _____

8.0 Certification of Compliance

This Construction Storm Water Pollution Prevention Plan reflects best management practices and erosion and sedimentation control measures for storm water management as recommended by the Environmental Protection Agency.

8.1 Contractor Certifications

The Contractor Certification forms provided in this section and in the beginning of this report indicate that each contractor or subcontractor working on the project site understands the terms, conditions, and intent of the NPDES General Permit for Construction Storm Water Discharges Associated with Construction Activity and will implement the measures described in this Plan appropriate to his area of work.

All contractors and subcontractors must complete the two separate forms. If additional sheets are needed due to more subcontractors on site than sheets provided herein, additional sheets may be copied and inserted into booklet at the job site.

Contractor/Subcontractor Certification

I certify, under penalty of law, that I understand the terms and conditions of the National Pollutant Discharge Elimination System (NPDES) General Permit that authorizes Storm Water Discharges Associated with Construction Activity from the construction site identified as part of this certification.

I certify that I understand the terms and conditions of the Missouri Department of Natural Resources General Permit MORA16802 that authorizes storm water discharges associated with construction activity from the construction site identified as part of this certification. I have read and understand the General Permit and the eligibility requirements for coverage under the General Permit for storm water discharges from construction activities, including those requirements published in the project SWPPP. I agree that as a contractor, builder, regular supplier, or a support service company, I am responsible for installing and/or maintaining the appropriate pollution prevention measures that I am responsible for according to the agreement I have with the permittee.

I understand that continued coverage under this permit is contingent upon maintaining eligibility as provided for in the permit.

Date	Name/Title
	Firm
	Address
	Phone
	Nature of Contracted Service
	Construction Area(s)

9.0 Project Completion

Construction is considered complete when the project site is accepted by the Lee's Summit School District High School Design Team or School District in accordance with APWA specification section 2400.6. The Construction Manager may terminate construction erosion and sediment control measures at this time. A Notice of Termination should be submitted to the Missouri Department of Natural Resources requesting termination of the Construction Storm Water Pollution Prevention Plan Permit.

Permanent storm water control measures incorporated into the project site design include vegetated swales, aggregate surfacing of facility areas, culvert inlet/outlet protection, and a storm water retention basin.

Appendix A
Construction Activity Record

Construction Activity Record

An accurate and up-to-date record of construction activity must be maintained as a part of this Plan. Record the information below on an ongoing basis.

- Dates when major soil disturbing activities occur
- Dates when construction activities temporarily cease on a portion of the site
- Dates when construction activities permanently cease on a portion of the site
- Dates when stabilization measures are initiated

Date	Activity

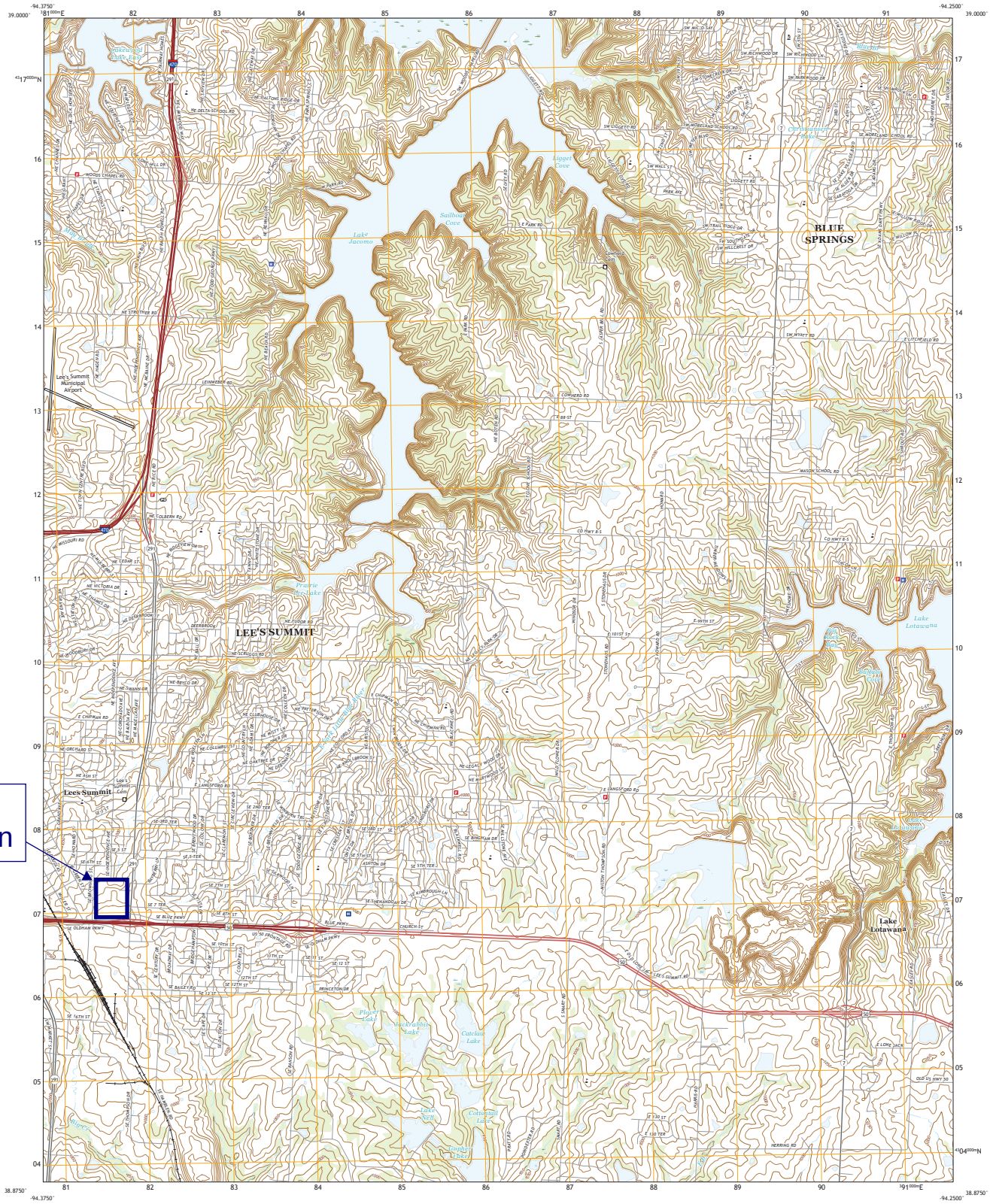
Appendix B
Completed Inspection Forms

Appendix C
Topographic and Aerial Maps

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

LAKE JACOMO QUADRANGLE
MISSOURI - JACKSON COUNTY
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 15S
This map is not a legal document. Boundaries may be
generalized for this map scale. Private lands within government
reservations may not be shown. Obtain permission before
entering private lands.

Imagery.....NAIP, June 2016 - October 2016
Roads.....U.S. Census Bureau, 2016
Names.....GNIS, 1980 - 2017
Hydrography.....National Hydrography Dataset, 2001 - 2016
Contours.....National Elevation Dataset, 2008
Boundaries.....Multiple sources; see metadata file 2014 - 2016
Public Land Survey System.....BLM, 2017
Wetlands.....FWS National Wetlands Inventory 1981 - 1983

MN
GN
MAG
1°30'
27 MILS
0°50'
15 MILS

UTM GRID AND 2017 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000 - m Square ID
UD
Grid Zone Designation
15S

SCALE 1:24 000

KILOMETERS 0 0.5 1 2
METERS 1000 500 0 1000 2000
MILES 0 0.5 1
FEET 1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the
National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.18

MISSOURI
QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 Independence
2 Blue Springs
3 Oak Grove
4 Lees Summit
5 Tarsney Lakes
6 Raymore
7 Pleasant Hill
8 Strasburg

ADJOINING QUADRANGLES

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

LAKE JACOMO, MO
2017

NGA REF NO. USGS X24K246
NGA 7 / 0 4 0 0 1 0 5 7 2 4 2 4 6

Lee's Summit High School

4/27/2020, 10:44:09 AM

1:9,028

0 0.05 0.1 0.2 mi

0 0.07 0.15 0.3 km

USGS The National Map: Orthoimagery. Data refreshed April, 2019.

USGS

USGS The National Map: Orthoimagery | Garrity, C.P., Soller, D.R. | USGS National Map 3D Elevation Program (3DEP) | USGS TNM - 3D Elevation Program (3DEP). Data Refreshed Weekly. |

Appendix D
General Permit MORA16802

Missouri Department of NATURAL RESOURCES
dnr.mo.gov
Michael L. Parson, Governor
Carol S. Comer, Director

Lee's Summit High School
MORA16802, Jackson County
Lee's Summit School District
302 SE Transport Road
Lee's Summit, MO 64081

Please find your Missouri State Operating Permit which authorizes land disturbance activities for Lee's Summit High School. This permit has been issued as requested and is based upon application then department.

Please note that prior to the beginning of land disturbance activities other permits may also be required. Especially note the requirements for a Missouri Department of Natural Resources 401 Water Quality Certification and the U.S. Army Corps of Engineers 404 permit. A 401 Certification is needed when placing material, or fill, into the jurisdictional waters of the Unites States. Examples are culverts under road crossings, riprap along stream banks and storm water outfall pipes. The term jurisdictional waters refers to large lakes, rivers, streams and wetlands, including those that don't always contain water.

The permitting and certification process is shared between the department and the U.S. Army Corps of Engineers. More details can be found at the US Army Corps of Engineer's Website at http://www.usace.army.mil/. Some of these activities are also described on page 2, item 3 of the permit.

This permit contains several requirements and should be thoroughly read and understood by you. If your permit requires environmental monitoring, copies of the necessary forms have been . In all future correspondence regarding your permit please reference your permit number as shown on page 1 of the permit.

Please contact the Water Pollution Enforcement and Compliance Unit if you would like to schedule an Environmental Assistance Visit (EAV) at 573-751-1300. During the visit, staff will review the requirements of the permit and answer any questions that you may have. Staff will also be available to walk the site to advise on Best Management Practices required by the permit. The department's regional office staff may also contact you to schedule an EAV.

If you were adversely affected by this decision, you may be entitled to an appeal before the Administrative Hearing Commission (AHC) pursuant to Sections 644.051.6 and 621.250, RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the administrative hearing commission. Contact information for the AHC is as follows: Administrative Hearing Commission, Third Floor, 131 West High Street, Jefferson City, MO 65101 (Mailing address: PO Box 1557, Jefferson City, MO 65102-1557), Phone: 573-751-2422, Fax: 573-751-5018, Website: www.oa.mo.gov/ahc.

Please be aware that this facility may also be subject to any applicable county or other local ordinances or restrictions.

Sincerely,

Water Protection Program

Chris Wieberg

Chris Wieberg
Director

CW

Lee's Summit High School
MORA16802

ePermitting Certification and Signature Document

Missouri State Operating General Permit number MORA16802 was issued on 10-19-2020 based on information entered into the Missouri Department of Natural Resources' electronic Permitting (ePermitting) system. Missouri Regulation 10 CSR 20-6.010(2)(B) requires that all applications for construction and operating permits be signed.

Lee's Summit High School, Jackson County
400 SE Blue Parkway
LEE'S SUMMIT, MO 64063
Total Permitted Area: 12.02 Acres
Total Number of Permitted Features: 2

Based upon the selection you made on the 'New Permit' screen; it was indicated that multiple polygons were drawn because the project is a linear project with multiple, separate disturbance areas.

Is any part of the area that is being disturbed in a jurisdictional water of the United States? If yes, you must also receive a Clean Water Act, Section 404 Permit for this site from the United States Army Corp of Engineers.
No

I understand there may be an established Local Authority Erosion Control Plan in the city or the unincorporated area of the county where land disturbance activities covered under this general permit will occur. (Note - you may want to contact your local authority to determine if there are any requirements).
Agreed

A Stormwater Pollution Prevention Plan (SWPPP) must be developed for this site. This plan must be developed in accordance with requirements and guidelines specified within the general permit for storm water discharges from land disturbance activities. The application will be considered incomplete if the SWPPP has not been developed.
Agreed

The above certifications were made electronically in the ePermitting system by:
Name: David Wood
Date: 10/19/2020

I certify that I am familiar with the information contained in the application, that to the best of my knowledge and belief such information is true, complete and accurate, and being granted this permit, I agree to abide by the Missouri Clean Water Law and all rules, regulations, orders and decisions, and terms of this permit, subject to any legitimate appeal available to an applicant under the Missouri Clean Water Commission.
Agreed

David Wood
Signature

10-19-2020
Date

STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

General Operating Permit

In compliance with the Missouri Clean Water Law, (chapter 644 R.S. Mo as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.:	MORA16802
Owner Address:	Lee's Summit School District 302 SE Transport Road Lee's Summit, MO 64081
Continuing Authority:	Lee's Summit School District 302 SE Transport Road Lee's Summit, MO 64081
Facility Name: Facility Address:	Lee's Summit High School 400 SE Blue Parkway LEE'S SUMMIT, MO 64063
Legal Description:	See Next Page
UTM Coordinates:	See Next Page
Receiving Stream:	See Next Page
First Classified Stream - ID#:	See Next Page
USGS# and Sub Watershed#:	See Next Page

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein.

FACILITY DESCRIPTION

All Outfalls - Construction or land disturbance activity (e.g., clearing, grubbing, excavating, grading, filling and other activities that result in the destruction of the root zone and/or land disturbance activity that is reasonably certain to cause pollution to waters of the state).

This permit authorizes only wastewater, including storm water, discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System, it does not apply to other regulated areas. This permit may be appealed in accordance with RSMo Section 644.051.6 and 621.250, 10 CSR 20-6.020, and 10 CSR 20-1.020.

Edward B. Galbraith

10-19-2020

Issue date

Edward B. Galbraith, Director, Division of Environmental Quality

Chris Wieberg

02/07/2022

Expiration date

Chris Wieberg, Director, Water Protection Program

Outfall Number:	001
Legal Description:	Sec. 08, T 47N, R 31W, Jackson County
UTM Coordinates:	381583.634 / 4306966.511
Receiving Stream:	(U)
First Classified Stream - ID#:	null (null) null
USGS# and Sub Watershed#:	10290108 - 0302

Outfall Number:	002
Legal Description:	Sec. 08, T 47N, R 31W, Jackson County
UTM Coordinates:	381479.813 / 4307400.666
Receiving Stream:	Tributary to Prairie Lee Lake (U)
First Classified Stream - ID#:	100K Extent-Remaining Streams (C) 3960.00
USGS# and Sub Watershed#:	10300101 - 0205

APPLICABILITY

1. This general permit authorizes the discharge of stormwater and certain non-stormwater discharges from land disturbance sites that disturb one or more acres or disturb less than one acre when part of a larger common plan of development or sale that will disturb a cumulative total of one or more acres over the life of the project. This general permit also authorizes the discharge of stormwater and certain non-stormwater discharges from smaller projects where the Missouri Department of Natural Resources (Department) has exercised its discretion to require a permit [10 CSR 20-6.200 (1)(B)].

   A Missouri State Operating Permit that specifically identifies the project must be issued before any site vegetation is removed or the site disturbed.

   Any site owner/operator subject to these requirements for stormwater discharges and who disturbs land prior to permit issuance from the Department is in violation of both State and Federal Laws.

   The legal owner of the property or the holder of an easement on the property, and operator on which the site is located are responsible for compliance with this permit.

2. This permit authorizes non-stormwater discharges from the following activities provided that these discharges are addressed in the permittee's specific Stormwater Pollution Prevention Plan (SWPPP) required by this general permit:
   a. De-watering activities if there are no contaminants other than sediment present in the discharge, and the discharge is treated as specified in Requirements, Section C.8.m. of this permit;
   b. Flushing water hydrants and potable water lines;
   c. Water only (i.e., without detergents or additives) rinsing of streets and buildings; and
   d. Site watering to establish vegetation.

3. This general permit does not authorize the placement of fill materials in flood plains, the obstruction of stream flow, directing stormwater across private property not owned or operated by the permittee, or changing the channel of a defined drainage course. This general permit addresses only the quality of the stormwater runoff and the minimization of off-site migration of sediments and other water contaminants.

4. This permit does not authorize land disturbance activity in jurisdictional waters of the United States as defined by the U.S. Army Corps of Engineers, unless the permittee has obtained the required Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers and its associated Section 401 Water Quality Certification from the department. Land disturbance activities may not begin in the affected waters of the United States until the required 404 permit and 401 certification have been obtained.

5. This general permit prohibits any discharge of wastewater generated from air pollution control equipment or the containment of scrubber water in lined ponds to waters of the state.

6. This general permit prohibits any discharge of sewage or pollutants to waters of the state including but not limited to:
   a. Any hazardous material, oil, lubricant, solid waste or other non-naturally occurring substance from the site, including fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance;
   b. Soaps or solvents used in vehicle and equipment washing;
   c. Hazardous substances or petroleum products from an on-site spill or handling and disposal practices;

APPLICABILITY (continued)

d. Wash and/or rinse waters from concrete mixing equipment including ready mix concrete trucks, unless managed by an appropriate control. Any such pollutants must be adequately treated and addressed in the SWPPP, and cannot be discharged to waters of the state;
e. Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;
f. Domestic wastewaters, including gray waters; or
g. Industrial stormwater runoff.

6. The Department reserves the right to revoke or deny coverage under this general permit to applicants for stormwater discharges from land disturbance activities at sites that have contaminated soils that will be disturbed by the land disturbance activity or where such materials are brought to the site to use as fill or borrow. A site-specific permit may be required to cover such activities.

7. Discharges to waters of the state shall not cause violations of the Water Quality Standards 10 CSR 20-7.031, including both specific and general criteria. If at any time the Department determines that the quality of waters of the state may be better protected by requiring the owner/operator of the permitted site to apply for a site-specific permit, the Department may require any person to obtain a site-specific operating permit [10 CSR 20-6.010(13)(C)].

   The Department may require the permittee to apply for and obtain a site-specific or different general permit if:
   a. The permittee is not in compliance with the conditions of this general permit;
   b. The discharge no longer qualifies for this general permit due to changed site conditions and/or regulations; or
   c. Information becomes available that indicates water quality standards have been or may be violated.

   The permittee will be notified in writing of the requirement to apply for a site-specific permit or a different general permit. When a site-specific permit or different general permit is issued to the authorized permittee, the applicability of this general permit to the permittee is automatically terminated upon the effective date of the site specific or different general permit.

8. Any owner/operator authorized by a general permit may request to be excluded from the coverage of the general permit and apply for a site-specific permit [10 CSR 20-6.010(13) (D)].

9. This operating permit does not affect, remove, or replace any requirement of the National Environmental Policy Act, the Endangered Species Act; the National Historic Preservation Act; the Comprehensive Environmental Response, Compensation and Liability Act; or the Resource Conservation and Recovery Act. Determination of applicability to the above mentioned acts is the responsibility of the permittee.

10. This permit does not supersede any requirement for obtaining project approval under an established local authority.

11. This permit is not transferable to other owners or operators.

EXEMPTIONS FROM PERMIT REQUIREMENTS

1. Facilities that discharge all stormwater runoff directly to a combined sewer system are exempt from stormwater permit requirements.

2. Land disturbance activity as described in 10 CSR 20-6.200(1) (B) and 10 CSR 20-6.010(1) (B) where water quality standards are not exceeded.

3. Oil and gas related activities as listed in 40 C.F.R § 122.26(a) (2) (ii) where water quality standards are not exceeded.

REQUIREMENTS

1. This permit is to ensure the design, installation and maintenance of effective erosion and sediment controls to minimize the discharge of pollutants. At a minimum, such controls must be designed, installed and maintained to:
   a. Control stormwater volume and velocity within the site to minimize soil erosion;
   b. Control stormwater discharges, including both peak flow rates and total stormwater volume, to minimize erosion at outlets and to minimize downstream channel and stream bank erosion;
   c. Minimize the amount of soil exposed during construction activity;
   d. Minimize the disturbance of steep slopes;
   e. Minimize sediment discharges from the site. Design, install and maintain erosion and sediment controls that address factors such as the amount, frequency, intensity and duration of precipitation, the nature of resulting stormwater runoff, and soil characteristics, including the range of soil particle size expected to be present on the site;
   f. Provide and maintain natural buffers around surface waters as detailed in 8.f, direct stormwater to vegetated areas to increase sediment removal and maximize stormwater infiltration and filtering, unless infeasible; and
   g. Minimize soil compaction and, unless infeasible, preserve topsoil.
   h. Capture or treat a 2-year, 24-hour storm event. A 2-year, 24-hour storm event shall be determined for the project location using the National Oceanic and Atmospheric Administration's National Weather Service Atlas 14 which can be located at http://hdsc.nws.noaa.gov/hdsc/pfds/.

2. Installation of Best Management Practices (BMP) necessary to prevent soil erosion at the project boundary must be complete prior to the start of all phases of construction.

3. Install sediment controls along any perimeter areas of the site that will receive pollutant discharges.
   a. Remove any sediment per the manufacturer's instructions or before it has accumulated to one-half of the above-ground height of any perimeter control.
   b. For sites where perimeter controls are infeasible, other practices shall be implemented to minimize discharges to perimeter areas of the site.

4. BMPs shall be maintained and remain in effective operating condition during the entire duration of the project, with repairs made within the timeframe specified elsewhere in this permit, until final stabilization has been achieved.

5. Minimize sediment trackout from the site.
   a. Restrict vehicle traffic to properly designed exit points.
   b. Use appropriate stabilization techniques at all points that exit onto paved roads.
   c. Remove any sediment that has been tracked out within the same business day or by the end of the next business day if trackout occurs on a non-business day.

REQUIREMENTS (continued)

6. The primary requirement of this permit is the development and implementation of a SWPPP which incorporates site specific practices to best minimize the soil exposure, soil erosion, and the discharge of pollutants. The permittee shall fully implement the provisions of the SWPPP required under this part as a condition of this general permit throughout the term of the land disturbance project. **The SWPPP must be developed prior to issuance of the permit and must be specific to the land disturbance activities at the site.** A permit must be issued before any disturbance of root zone of the existing vegetation or other land disturbance activities may begin. Either an electronic copy or a paper copy of the SWPPP must be accessible to anyone on-site at all times when land disturbance operations are in progress, or other operational activities that may affect the maintenance or integrity of the BMP structures and made available made available as specified under the Records Section of this permit.

7. The SWPPP must:
   a. List and describe all outfalls;
   b. Incorporate required practices identified below;
   c. Incorporate erosion control practices specific to site conditions;
   d. Provide for maintenance and adherence to the plan;
   e. Discuss whether or not a 404/401 Permit is required for the project; and
   f. Name the person responsible for inspection, operation and maintenance of BMPs.

   The purpose of the SWPPP is to ensure the design, implementation, management and maintenance of BMPs in order to prevent sediment and other pollutants in stormwater discharges associated with the land disturbance activities; compliance with the Missouri Water Quality Standards; and compliance with the terms and conditions of this general permit.

   The permittee shall select, install, use, operate and maintain appropriate BMPs for the permitted site. The following manuals are acceptable resources for the selection of appropriate BMPs. *Developing Your Stormwater Pollution Prevention Plan: A Guide for Construction Sites*, (Document number EPA 833-R-06-004) published by the United States Environmental Protection Agency (USEPA) in May 2007. This manual as well as other information, including examples of construction SWPPPs, is available at the USEPA internet site at https://www3.epa.gov/npdes/pubs/industrial_swppp_guide.pdf; and

   The latest version of *Protecting Water Quality: A field guide to erosion, sediment and stormwater best management practices for development sites in Missouri,* published by the Missouri Department of Natural Resources. This manual is available on the Department's internet site at: http://www.dnr.mo.gov/env/wpp/wpcp-guide.htm.

   The permittee is not limited to the use of these guidance manuals. Other guidance publications may be used to select appropriate BMPs. However, all BMPs should be described and justified in the SWPPP.

8. SWPPP Requirements: The following information and practices shall be provided for in the SWPPP:
   a. Nature of the Construction Activity: The SWPPP briefly must describe the nature of the construction activity, including:
      1) The function of the project (e.g., low density residential, shopping mall, highway, etc.);
      2) The intended sequence and timing of activities that disturb the soils at the site;
      3) Estimates of the total area expected to be disturbed by excavation, grading, or other construction activities including off-site borrow and fill areas; and
      4) A general map (e.g., United States Geological Survey quadrangle map, a portion of a city of county map, or other map) with enough detail to identify the location of the construction site and waters of the State within one mile of the site.

REQUIREMENTS (continued)

b. Site Map: The SWPPP must contain a legible site map showing the site boundaries and outfalls and identifying:
   1) Direction(s) of stormwater flow and approximate slopes anticipated after grading activities;
   2) Areas of soil disturbance and areas that will not be disturbed (or a statement that all areas of the site will be disturbed unless otherwise noted);
   3) Location of major structural and non-structural BMPs identified in the SWPPP;
   4) Locations where stabilization practices are expected to occur;
   5) Locations of off-site material, waste, borrow or equipment storage areas;
   6) Locations of all waters of the state (including wetlands);
   7) Locations where stormwater discharges to a surface water; and
   8) Areas where final stabilization has been accomplished and no further construction-phase permit requirements apply.

c. Site Description: In order to identify the site, the SWPPP shall include facility and outfall information. The SWPPP shall have sufficient information to be of practical use to contractors and site construction workers to guide the installation and maintenance of BMPs.

d. Selection of Temporary and Permanent BMPs: The permittee shall select appropriate BMPs for use at the site and list them in the SWPPP.

e. The SWPPP shall require existing vegetation and trees to be preserved where practical.

f. For surface waters of the state, defined as "all waters within the jurisdiction of this state, including all rivers, streams, lakes and other bodies of surface and subsurface water lying within or forming a part of the boundaries of the state which are not entirely confined and located completely upon lands owned, leased or otherwise controlled by a single person or by two or more persons jointly or as tenants in common, located on or adjacent to the site, the permittee must:
   1) Provide and maintain a 50-foot undisturbed natural buffer;
   2) Provide and maintain an undisturbed natural buffer that is less than 50 feet and is supplemented by erosion and sediment controls that achieve the sediment load reduction equivalent to a 50-foot undisturbed natural buffer; or
   3) If infeasible to provide and maintain an undisturbed natural buffer of any size, implement erosion and sediment controls to achieve the sediment load reduction equivalent to a 50-foot undisturbed natural buffer.
   4) Where you are retaining a buffer of any size, the buffer should be measured perpendicularly from any of the following points, whichever is further landward from the water:
      i. The ordinary high water mark of the water body, defined as the line on the shore established by fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, and/or the presence of litter and debris; or
      ii. The edge of the stream or river bank, bluff, or cliff, whichever is applicable.

g. Description of BMPs: The SWPPP shall include a description of both structural and non-structural BMPs that will be used at the site.

   The SWPPP shall provide the following general information for each BMP which will be used one or more times at the site:
   1) Physical description of the BMP;
   2) Site conditions that must be met for effective use of the BMP;
   3) BMP installation/construction procedures, including typical drawings; and
   4) Operation and maintenance procedures for the BMP.

REQUIREMENTS (continued)

The SWPPP shall provide the following information for each specific instance where a BMP is to be installed:
1) Whether the BMP is temporary or permanent;
2) Where, in relation to other site features, the BMP is to be located;
3) When the BMP will be installed in relation to each phase of the land disturbance procedures to complete the project; and
4) Site conditions that must be met before removal of the BMP if the BMP is not a permanent BMP.

h. Disturbed Areas: Slopes for disturbed areas must be defined in the SWPPP. A site map or maps defining the sloped areas for all phases of the project must be included in the SWPPP.

For soil disturbing activities that have been temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days:
1) The permittee shall construct BMPs to establish interim stabilization; and
2) Stabilization must be initiated immediately and completed within 14 calendar days.

For soil disturbing activities that have been permanently ceased on any portion of the site, final stabilization of disturbed areas must be initiated immediately and completed within 14 calendar days.

Allowances to the 14 day completion period for temporary and final stabilization may be made due to weather and equipment malfunctions. The use of allowances shall be documented in the SWPPP.

Interim stabilization shall consist of well-established and maintained BMPs that are reasonably certain to protect waters of the state from sediment pollution over an extended period of time. This may require adding more BMPs to an area than is normally used during daily operations. These BMPs may include a combination of sediment basins, check dams, sediment fences and mulch. The types of BMPs used must be suited to the area disturbed, taking into account the number of acres exposed and the steepness of the slopes. If the slope of the area is greater than 3:1 (three feet horizontal to one foot vertical) or if the slope is greater than 3% and greater than 150 feet in length, then the permittee shall establish interim stabilization within seven days of ceasing operations on that part of the site.

If vegetative stabilization measures are being implemented, stabilization is considered "installed" when all activities necessary to seed or plant the area are completed.

i. Installation: The permittee shall ensure the BMPs are properly installed at the locations and relative times specified in the SWPPP. Peripheral or border BMPs to control runoff from disturbed areas shall be installed or marked for preservation before general site clearing is started. Note that this requirement does not apply to earth disturbances related to initial site clearing and establishing entry, exit and access of the site, which may require that stormwater controls be installed immediately after the earth disturbance. For phased projects, BMPs shall be properly installed as necessary prior to construction activities. Stormwater discharges from disturbed areas which leave the site shall pass through an appropriate impediment to sediment movement such as a sedimentation basin, sediment traps and silt fences prior to leaving the land disturbance site. A drainage course change shall be clearly marked on a site map and described in the SWPPP.

j. Sedimentation Basins: The SWPPP shall include a sedimentation basin for each drainage area with ten or more acres disturbed at one time. The sedimentation basin shall be sized to treat a local 2-year, 24-hour storm. Accumulated sediment shall be removed from the basin when basin is 50% full. Utilize outlet structures that withdraw water from the surface when

REQUIREMENTS (continued)

discharging from basins and impoundments unless infeasible. Discharges from the basin shall not cause scouring of the banks or bottom of the receiving stream. The SWPPP shall require the basin be maintained until final stabilization of the disturbed area served by the basin.

Where use of a sediment basin is infeasible, the SWPPP shall evaluate and specify other similarly effective BMPs to be employed to control erosion and sediment delivery. These similarly effective BMPs shall be selected from appropriate BMP guidance documents authorized by this permit. The BMPs must provide equivalent water quality protection to achieve compliance with this permit. The SWPPP shall require both temporary and permanent sedimentation basins to have a stabilized spillway to minimize the potential for erosion of the spillway or basin embankment.

k. Pollution Prevention Measures: The SWPPP shall include BMPs for pollution prevention measures. At minimum such measures must be designed, installed, implemented and maintained to:
   1) Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge;
   2) Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, and other materials present on the site to precipitation and to stormwater;
   3) Minimize the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures. Included but not limited to the installation of containment berms and use of drip pans at petroleum product and liquid storage tanks and containers; and
   4) Prevent discharges from causing or contributing to an exceedance of water quality standards including general criteria.

l. Roadways: Where applicable, upon installation of or connection to roadways, all efforts should be made to prevent the deposition of earth and sediment onto roadways through the use of proper BMPs. Stormwater inlets susceptible to receiving sediment from the permitted land disturbance site shall have curb inlet protection. Where stormwater will flow off the end of where a roadway terminates, a sediment catching BMP such as gravel berm or silt fence shall be provided. Curb inlets shall be cleaned weekly or following a rainfall that generates a run-off.

m. Dewatering: Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, are prohibited unless managed by appropriate controls. The SWPPP shall include a description of any anticipated dewatering methods. An estimation of the volume of water discharged from these dewatering activities shall be kept with the SWPPP after each discharge has ended along with the type and maximum capacity (e.g., flow rate) of equipment used. The SWPPP shall call for specific BMPs designed to treat water pumped from trenches and excavations and in no case shall this water be pumped off-site without being treated by the specified BMPs.

9. Good housekeeping practices shall be maintained at all times to keep waste from entering waters of the state. Solid and hazardous waste management include providing trash containers and regular site cleanup for proper disposal of solid waste such as scrap building material, product/material shipping waste, food containers and cups, and providing containers and proper disposal of waste paints, solvents and cleaning compounds. The provision of portable toilets for proper disposal of sanitary sewage and the storage of construction materials should be kept away from drainage courses and low areas.

REQUIREMENTS (continued)

10. All fueling facilities present shall at all times adhere to applicable federal and state regulations concerning underground storage, above ground storage and dispensers.

11. Hazardous wastes that are transported, stored, or used for maintenance, cleaning, or repair shall be managed according to the provisions of the Missouri Hazardous Waste Laws and Regulations.

12. All paint, solvents, petroleum products, petroleum waste products and storage containers such as drums, cans, or cartons shall be stored according to BMPs. The materials exposed to precipitation shall be stored in watertight, structurally sound, closed containers. All containers shall be inspected for leaks or spillage during the inspection of BMPs.

13. Amending/Updating the SWPPP: The permittee shall amend and update the SWPPP as appropriate during the term of the land disturbance activity. The permittee shall amend the SWPPP at a minimum whenever the:
    a. Design, operation, or maintenance of BMPs is changed;
    b. Design of the construction project is changed that could significantly affect the quality of the stormwater discharges;
    c. Permittee's inspections indicate deficiencies in the SWPPP or any BMP;
    d. Department notifies the permittee in writing of deficiencies in the SWPPP;
    e. SWPPP is determined to be ineffective in minimizing or controlling erosion and sedimentation (e.g., there is visual evidence of excessive site erosion or excessive sediment deposits in streams or lakes); and/or
    f. Department determines violations of water quality standards may occur or have occurred.

14. An individual shall be designated by the permittee as the lead for environmental matters. The lead individual for environmental matters shall have a thorough and demonstrable knowledge of the site's SWPPP and sediment and erosion control practices in general. The lead individual for environmental matters or a designated inspector knowledgeable in erosion, sediment and stormwater control principles shall inspect all structures that function to prevent pollution of waters of the state.

15. Site Inspections Reports: The permittee (or a representative of the permittee) shall conduct regularly scheduled inspections. These inspections shall be conducted by a qualified person, one who is responsible for environmental matters at the site, or a person trained by and directly supervised by the person responsible for environmental matters at the site. For disturbed areas that have not been finally stabilized, all installed BMPs and other pollution control measures shall be inspected for proper installation, operation and maintenance. All stormwater outfalls shall be inspected for evidence of erosion or sediment deposition. When practicable the receiving stream shall also be inspected for 50 feet downstream of the outfall. Any structural or maintenance problems shall be noted in an inspection report and corrected as soon as possible but no more than seven calendar days after the inspection. All BMPs must be inspected in accordance to one of the two schedules listed below, and any changes to the frequency of inspections, including switching between the options listed below, must be documented in the SWPPP:
    a. At least once every seven calendar days and within 48 hours after any storm event equal to or greater than a 2-year, 24-hour storm has ceased during a normal work day and within 72 hours if the rain event ceases during a non-work day such as a weekend or holiday; or
    b. Once every 14 calendar days and within 24 hours of the occurrence of a storm event of 0.25 inches of precipitation or greater, or the occurrence of runoff from snowmelt. To determine if a storm event of 0.25 inches or greater has occurred on your site, you must either keep a properly maintained rain gauge on site, or obtain the storm event information from a weather station for your location.
        1) Inspections are only required during the project's normal working hours.

REQUIREMENTS (continued)

2) You must conduct an inspection within 24 hours once a storm event has produced 0.25 inches within a 24 hour period, even if the storm event is still continuing.
3) If you have elected to inspect every 14 calendar days and there is a storm event at your site that continues for multiple days, and each day of the storm produces 0.25 inches or more of rain, you are required to conduct an inspection within 24 hours of the first day of the storm and within 24 hours after the end of the storm.

The SWPPP must explain how the person responsible for erosion control will be notified when stormwater runoff occurs. If weather conditions prevent correction of BMPs within seven calendar days, the reasons for the delay must be documented (including pictures) and there must be a narrative explaining why the work cannot be accomplished within the seven day time period. The documentation must be filed with the regular inspection reports. The permittee shall correct the problem as soon as weather conditions allow. Areas on-site that have been finally stabilized must be inspected at least once per month.

A log of each inspection and copy of the inspection report shall be kept readily accessible and must be available upon request by the Department. Electronic logs are acceptable as long as reports can be provided in a timely manner. If inspection reports are kept off-site, your SWPPP must indicate where they are stored. The inspection report shall be signed by the permittee or by the person performing the inspection if duly authorized to do so. The inspection report is to include the following minimum information:

a. Inspector's name;
b. Date of inspection;
c. Observations relative to the effectiveness of the BMPs;
d. Actions taken or necessary to correct the observed problem; and
e. Listing of areas where land disturbance operations have permanently or temporarily stopped.

16. Notification to All Contractors: The permittee shall be responsible for notifying each contractor or entity (including utility crews and city employees or their agents) who will perform work at the site of the existence of the SWPPP and what action or precautions shall be taken while on-site to minimize the potential for erosion and the potential for damaging any BMP. The permittee is responsible for any damage a subcontractor may do to established BMPs and any subsequent water quality violation resulting from the damage.

17. Public Notification: The permittee shall post a copy of the public notification sign described by the Department at the main entrance to the site. The public notification sign must be visible from the public road that provides access to the site's main entrance. An alternate location is acceptable provided the public can see it and it is noted in the SWPPP. The public notification sign must remain posted at the site until the permit has been terminated.

OTHER DISCHARGES

1. Release of a hazardous substance must be reported to the department in accordance with 10 CSR 24-3.010. A record of each reportable spill shall be retained with the Stormwater Pollution Prevention Plan (SWPPP) and made available to the department upon request. The department may also require the submittal of a written or electronic report detailing measures taken to clean up the spill within five (5) days of the spill. Such a report must include the type of material spilled, volume, date of spill, date clean-up was completed, clean-up method, and final disposal method. If the spill occurs outside of normal business hours, or if the permit holder cannot reach regional office staff for any reason, the permit holder is instructed to report the spill to the department's 24 hour Environmental Emergency Response hotline at (573) 634-2436 at the earliest practicable moment after discovery. Leaving a message on a department staff member voice-mail does not satisfy this reporting requirement.

REQUIREMENTS (continued)

2. Removed substances: Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information.

SAMPLING REQUIREMENTS AND EFFLUENT LIMITATIONS

The Department may require sampling and reporting as a result of illegal discharges, compliance issues, complaint investigations, or other such evidence of contamination from activities at the site. If such an action is needed, the Department will specify in writing any sampling requirements, including such information as location, extent and parameters.

RECORDS

1. The permittee shall retain copies of this general permit, the SWPPP and all amendments for the site named in the State Operating Permit, results of any monitoring and analysis and all site inspection records required by this general permit. The records shall be accessible during normal business hours. The records shall be retained for a period of at least three years from the date of the Letter of Termination.

2. The permittee shall provide a copy of the SWPPP to the Department, USEPA, or any local agency or government representative if they request a copy in the performance of their official duties.

3. The permittee shall provide a copy of the SWPPP to those who are responsible for installation, operation, or maintenance of any BMP. The permittee, their representative, and/or the contractor(s) responsible for installation, operation and maintenance of the BMPs shall have a current copy of the SWPPP with them when on the project site.

LAND PURCHASE AND CHANGE OF OWNERSHIP

1. Federal and Missouri stormwater regulations [10 CSR 20-6.200(1) (B)] require a stormwater permit and erosion control measures for all land disturbances of one or more acres. These regulations also require a permit for less than one acre lots if the lot is part of a larger common plan of development or sale where that plan is at least one acre in size.

2. If the permittee sells any portion of the permitted site to a developer for commercial, industrial, or residential use, this land remains a part of the common sale and the new owner must obtain a permit prior to conducting any land disturbance activity. Therefore, the original permittee must amend the SWPPP to show that the property has been sold and therefore no longer under the original permit coverage.

3. Property of any size which is part of a larger common plan of development where the property has been stabilized and the original permit terminated will require application of a new land disturbance permit for any future land disturbance activity.

4. If the entire tract is sold to a single entity, then this permit shall be terminated when the new owner obtains a new land disturbance permit for the site.

5. If a portion of a larger common plan of development is sold to an individual for the purpose of building his or her own private residence, a permit is required if the portion of land sold is equal to or greater than one acre while no permit is required for less than one acre of land sold.

TERMINATION

1. This permit may be terminated when the project is stabilized. The project is considered to be stabilized when perennial vegetation, pavement, buildings, or structures using permanent materials cover all areas that have been disturbed. With respect to areas that have been vegetated, vegetation cover shall be at least 70% over 100% of the site. In order to terminate the permit, the permittee shall notify the Department by submitting Form H Request for Termination of a General Permit.

2. The Cover Page (Certificate Page) of the Master General Permit for Land Disturbance specifies the "effective date" and the "expiration date" of the Master General Permit. The "issued date" along with the "expiration date" will appear on the State Operating Permit issued to the applicant. This permit does not continue administratively beyond the expiration date.

3. Due to the nature of the electronic permitting system, a period of 60 days will be granted at the discretion of the department in order to apply for a new permit after the new version is effective. Applicants must maintain appropriate best management practices during the discretionary period.

DUTY TO REAPPLY

If the project or development completion date will be after the expiration date of this general permit, then the permittee must reapply to the Department for a new permit. This permit may be applied for and issued electronically once made available by the director in accordance with Section 644.051.10, RSMo.

MODIFICATION, REVOCATION, AND REOPENING

1. If at any time the Department determines that the quality of waters of the state may be better protected by reopening this permit, or revoking this permit and requiring the owner/operator of the permitted site to apply for a site-specific permit, the Department may revoke a general permit and require any person to obtain such an operating permit as authorized by 10 CSR 20-6.010(13) and 10 CSR 20-6.200(1) (B).

2. If this permit is reopened, modified or revoked pursuant to this Section, the permittee retains all rights under Chapter 536 and 644 Revised Statutes of Missouri upon the Department's reissuance of the permit as well as all other forms of administrative, judicial, and equitable relief available under law.

STANDARD CONDITIONS

These Standard Conditions incorporate permit conditions as required by 40 CFR 122.41 or other applicable state statutes or regulations. These minimum conditions apply unless superseded by requirements specified in the permit.

1. Other Information
   a. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information.

2. Duty to Comply
   a. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Missouri Clean Water Law and Federal Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

STANDARD CONDITIONS (continued)

3. Duty to Provide Information
   a. The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Department upon request, copies of records required to be kept by this permit.

4. Inspection and Entry
   a. The permittee shall allow the Department, or an authorized representative (including an authorized contractor acting as a representative of the Department), upon presentation of credentials and other documents as may be required by law, to:
      i. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;
      ii. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
      iii. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
      iv. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Federal Clean Water Act or Missouri Clean Water Law, any substances or parameters at any location.

5. Signatory Requirement
   a. All permit applications, reports required by the permit, or information requested by the Department shall be signed and certified. (See 40 CFR 122.22 and 10 CSR 20-6.010)
   b. The Federal Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than six (6) months per violation, or by both.
   c. The Missouri Clean Water Law provides that any person who knowingly makes any false statement, representation or certification in any application, record, report, plan, or other document filed or required to be maintained pursuant to sections 644.006 to 644.141 shall, upon conviction, be punished by a fine of not more than ten thousand dollars, or by imprisonment for not more than six months, or by both.

Missouri Department of Natural Resources
Fact Sheet
MO-RA00000

The Federal Water Pollution Control Act [Clean Water Act (CWA)] Section 402 of Public Law 92-500 (as amended) established the National Pollution Discharge Elimination System (NPDES) permit program. This program regulates the discharge of pollutants from point sources into the waters of the United States, and the release of stormwater from certain point sources. All such discharges are unlawful without a permit (Section 301 of the CWA). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. Missouri State Operating Permits (permit) are issued by the Missouri Department of Natural Resources (department) under an approved program, operated in accordance with federal and state laws (Federal CWA and Missouri Clean Water Law Section 644 as amended). Permits are issued for a period of five (5) years unless otherwise specified.

Per 40 CFR 124.56, 40 CFR124.8, and 10 CSR 20-6.020(1)(A)2., a Fact Sheet shall be prepared to give pertinent information regarding the applicable regulations, rationale for the development of effluent limitations and conditions, and the public participation process for the permit. A Fact Sheet is not an enforceable part of an MSOP.

This Fact Sheet is for a:

- ☐ Major
- ☐ Minor
- ☐ Industrial Facility
- ☐ Variance
- ☒ Master General Permit
- ☐ Permit with widespread public interest

Definitions

Common Promotional Plan: A plan undertaken by one (1) or more persons, to offer lots for sale or lease; where land is offered for sale by a person or group of persons acting in concert, and the land is contiguous or is known, designated or advertised as a common unit or by a common name or similar names, the land is presumed, without regard to the number of lots covered by each individual offering, as being offered for sale or lease as part of a common promotional plan.

Immediately: For the purposes of this permit, immediately should be defined as within 24 hours.

Infeasible: Infeasible means not technologically possible, or not economically practicable and achievable in light of best industry practices.

Larger Common Plan of Development or sale: A contiguous area where multiple separate and distinct construction activities are occurring under one plan.

Ordinary High Water Mark: The line on the shore established by fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation and/or the presence of litter and debris.

Peripheral: For the purposes of this permit, peripheral should be defined as the outermost boundary of the area that will be disturbed.

Permanently: For the purposes of this permit, permanently should be defined as any activity that has been ceased without any intentions of future disturbance.

Waters of the state: Section 644.016.1(27) RSMo. defines waters of the state as, "All waters within the jurisdiction of this state, including all rivers, streams, lakes and other bodies of surface and subsurface water lying within or forming a part of the boundaries of the state which are not entirely confined and located completely upon lands owned, leased or otherwise controlled by a single person or by two or more persons jointly or as tenants in common."

Part I – Facility Information

Facility Type:	Industrial Stormwater
Facility Description:	Construction or land disturbance activity (e.g., clearing, grubbing, excavating, grading, filling, and other activities that result in the destruction of the root zone and/or land disturbance activity that is reasonably certain to cause pollution to waters of the state).

This permit establishes a SWPPP requirement to minimize pollutants of concern from this type of facility or for all facilities covered under this permit. 10 CSR 20-6.200(6)(A)7. specifies that "general permits shall contain BMP requirements and/or monitoring and reporting requirements to keep the stormwater from becoming contaminated." Local conditions are not considered when developing conditions for a general permit. A facility may apply for a site-specific permit if they desire a review of site-specific conditions.

While drafting this permit for renewal, the department hosted four public meetings held on January 27, February 24, April 18, and May 19, 2016, which allowed stakeholders to voice concerns about conditions within the permit and submit comments during the period of initial stakeholder involvement. These concerns were taken into consideration when drafting the permit. In addition to these meetings, the department also held an informal review period for stakeholders to review the draft prior to the 30 day public comment period.

Part II – Receiving Stream Information

APPLICABLE DESIGNATIONS OF WATERS OF THE STATE:
Per Missouri Effluent Regulations (10 CSR 20-7.015), the waters of the state are divided into seven (7) categories. This permit applies to facilities discharging to the following water body categories:

Please mark all appropriate designated waters of the state categories of the receiving stream.

- ☒ Missouri or Mississippi River [10 CSR 20-7.015(2)]
- ☒ Lakes or Reservoirs [10 CSR 20-7.015(3)]
- ☒ Losing Streams [10 CSR 20-7.015(4)]
- ☒ Metropolitan No-Discharge Streams [10 CSR 20-7.015(5)]
- ☒ Special Streams [10 CSR 20-7.015(6)]
- ☐ Subsurface Waters [10 CSR 20-7.015(7)]
- ☒ All Other Waters [10 CSR 20-7.015(8)]

Missouri Water Quality Standards (10 CSR 20-7.031) defines the Clean Water Commission water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The receiving stream and/or 1st classified receiving stream's beneficial water uses shall be maintained in accordance with 10 CSR 20-7.031(4). The BMP requirement established by this permit are intended to be protective of all streams that fall within the categories of receiving water bodies indicated above. A general permit does not take into consideration site-specific conditions.

Part III – Applicability

Condition number 8 was expanded to include a more comprehensive list of state and federal requirements that must be taken into consideration.

If the proposed project encounters and will potentially affect a species of concern, please report it to the Missouri Department of Conservation and the United States Fish and Wildlife Service. For more information about requirements of the Endangered Species Act, please visit the following links:

1. To determine the potential for species of concern within or near a project, please visit the United States Fish and Wildlife Services' "Information, Planning and Conservation" website at http://ecos.fws.gov/ipac/.
2. If there are listed species in the county or township, check to see if critical habitat has been designated and if that area overlaps or is near the project area. Critical habitat designations and associated requirements may also be found at 50 CFR Parts 17 and 226. For additional information, use the map view tool at http://criticalhabitat.fws.gov/crithab/ to find data specific to your state and county.

The Missouri Department of Conservation's internet site for the Natural Heritage Review may be very helpful and can be found at the following link, http://mdcgis.mdc.mo.gov/heritage/newheritage/heritage.htm.

Part IV – Exemptions

Condition Number 2 was added to cite all state exemptions from permitting requirements, combining several previous cited exemptions into one condition and reference. This includes an exemption for linear construction where the entire disturbance, including clearing of land to access the linear disturbance, is less than two feet in width.

Condition Number 3 was added to cite federal regulations that exclude land disturbance projects as related to the installation or maintenance work for oil and gas related activities.

Part V – Rationale of Technology Based Limitations & Permit Conditions

303(d) List & Total Maximum Daily Load (TMDL):
Section 303(d) of the Federal CWA requires that each state identify waters that are not meeting Water Quality Standards and for which adequate water pollution controls have not been required. Water Quality Standards protect such beneficial uses of water as whole body contact, maintaining fish and other aquatic life, and providing drinking water for people, livestock, and wildlife. The 303(d) list helps state and federal agencies keep track of waters that are impaired but not addressed by normal water pollution control programs.

Anti-backsliding:
A provision in the Federal Regulations [CWA Section 303(d) (4); CWA Section 402(c); 40 CFR Part 122.44(I)] that requires a reissued permit to be as stringent as the previous permit with some exceptions.

☒ Applicable: Backsliding proposed in this permit conforms to the anti-backsliding provisions of Section 402(o) of the CWA and 40 CFR 122.44. The department has determined that technical mistakes were made in the previous permit [CWA 402(o)(2)(B)(ii)]. The Settleable Solids limitation was removed since has been determined to not be adequate in protecting water quality in all areas of the state. Increased technology based best management practices will protect water quality at a similar if not more protective level.

ANTIDEGRADATION:
Antidegradation policies ensure protection of water quality for a particular water body on a pollutant by pollutant basis to ensure Water Quality Standards are maintained to support beneficial uses such as fish and wildlife propagation and recreation on and in the water. This also includes special protection of waters designated as an Outstanding National Resource Water or Outstanding State Resource Water [10 CSR 20-7.031(3) (C)]. Antidegradation policies are adopted to minimize adverse effects on water. The department has determined that the best avenue forward for implementing the Antidegradation requirements into general permits is by requiring the appropriate development and maintenance of a SWPPP. The SWPPP must identify all Best Management Practices (BMPs) that are reasonable and effective, taking into account environmental impacts and costs. This analysis must document why no discharge or no exposure options are not feasible at the facility. This selection and documentation of appropriate control measures will then serve as the analysis of alternatives and fulfill the requirements of the Antidegradation Rule and Implementation Procedure 10 CSR 20-7.031(3) and 10 CSR 20-7.015(9)(A)5.

Any facility seeking coverage under this permit, which undergoes expansion or discharges a new pollutant of concern, must update their SWPPP and select new BMPs that are reasonable and cost effective. New facilities seeking coverage under this permit are required to develop a SWPPP that includes this analysis and documentation of appropriate BMPs. Renewal of coverage for a facility requires a review of the SWPPP to assure that the selected BMPs continue to be appropriate.

☒ Applicable: The main pollutant of concern in this permit is sediment. Compliance with the technology based limitations established in this permit for the protection of General Criteria, along with the evaluation and implementation of BMPs as documented in the SWPPP, meets the requirements of Missouri's Antidegradation Review [10 CSR 20-7.031(3), 10 CSR 20-7.031 Table A, and 10 CSR 20-7.015(9)(A)5].

STORMWATER POLLUTION PREVENTION PLAN (SWPPP):
In accordance with 40 CFR 122.44(3)(k) Best Management Practices (BMPs), BMPs are implemented to control or abate the discharge of pollutants when: (1) Authorized under Section 304(e) of the CWA for the control of toxic pollutants and hazardous substances from ancillary industrial activities: (2) Authorized under Section 402(p) of the CWA for the control of stormwater discharges; (3) Numeric effluent limitations are infeasible; or (4) The practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA.

In accordance with Developing Your Stormwater Pollution Prevention Plan, a Guide for Construction Sites (EPA 833-R-06-004; https://www3.epa.gov/npdes/pubs/sw_swppp_guide.pdf) published by the United States Environmental Protection Agency (EPA) in May 2007, BMPs are measures or practices used to reduce the amount of pollution entering waters of the state. BMPs may take the form of a process, activity, or physical structure. EPA developed resources and tools related to construction stormwater along with the BMPs to control and minimize stormwater (https://www.epa.gov/npdes/stormwater-discharges-construction-activities#resources). Along with EPA's resources and tools, the International Stormwater BMP database (www.bmpdatabase.org/index.htm) may provide guidance on BMPs appropriate for specific industries.

Additionally in accordance with Stormwater Management, a SWPPP is a series of steps and activities to (1) identify sources of pollution or contamination, and (2) select and carry out actions which prevent or control the pollution of stormwater discharges.

☒ Applicable: A SWPPP shall be developed and implemented for each site and shall incorporate required practices identified by the department with jurisdiction, incorporate erosion control practices specific to site conditions, and provide for maintenance and adherence to the plan.

The new permit has been revised to allow permittees to store SWPPP documents electronically as long as they can be provided in an expedient manner.

WATER QUALITY STANDARDS:
Per 10 CSR 20-7.031(4), General Criteria shall be applicable to all waters of the state at all times, including mixing zones. Additionally, 40 CFR 122.44(d)(1) directs the department to include in each NPDES permit conditions to achieve water quality established under Section 303 of the CWA, including state narrative criteria for water quality.

General Criteria. The following water quality criteria shall be applicable to all waters of the state at all times. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:

(1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits, or prevent full maintenance of beneficial uses;
(2) Waters shall be free from oil, scum, and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
(3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor, or prevent full maintenance of beneficial uses;
(4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal, or aquatic life;
(5) There shall be no significant human health hazard from incidental contact with the water;
(6) There shall be no acute toxicity to livestock or wildlife watering;
(7) Waters shall be free from physical, chemical, or hydrologic changes that would impair the natural biological community;
(8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment, and solid waste as defined in Missouri Solid Waste Law, Section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to Section 260.200-260.247, RSMo.

The settelable solids requirement was removed from this permit and was replaced with additional, more specific, BMP requirements. The settelable solids limit was determined not to be protective of all waters across the state, therefore, it was removed.

Additional BMPs added to the permit will provide for more consistency across the state. Examples of these BMPs include requirements to:

- Install and maintain perimeter controls along areas of the site that will receive pollutant discharges;
- Minimize sediment trackout from the site;
- Capture or treat runoff up to and including a 2-year, 24-hour storm event; and
- Direct stormwater to vegetated areas.

The minimum buffer width was increased from 25 feet to 50 feet. Studies have shown that a 50 foot vegetative buffer more adequately treats sediment from stormwater discharges. This appears to be standard in EPA's permit as well as in many other states.

In order to design controls that match the sediment removal efficiency of a 50- foot buffer, first you must know what this efficiency is for your site. The sediment removal efficiencies of natural buffers vary according to a number of site-specific factors, including precipitation, soil type, land cover, slope length, width, steepness, and the types of sediment controls used to reduce the discharge of sediment prior to the buffer.

Sediment removal efficiencies are based on the U.S. Department of Agriculture's RUSLE2 (Revised Universal Soil Loss Equation 2) model for slope profiles using a 100-foot long exposed slopes.

Sediment removal is defined as the annual sediment delivered at the downstream end of the 50-foot natural buffer (tons/yr/acre) divided by the annual yield from cleared area (tons/yr/acre).

Sediment removal is in part a function of (1) a perimeter control (i.e., silt fence) located between the disturbed portion of the site and the upland edge of the natural buffer and (2) stormwater flows traveling through a 50-foot buffer of undisturbed natural vegetation.

Additional guidance may be found at https://www.epa.gov/sites/production/files/2015-10/documents/cgp2012_appendixg.pdf.

Inspection frequencies: Site inspection frequencies have been changed from the previous permit based upon guidance from the US EPA and from stakeholder discussions. These frequencies will allow flexibility but will still allow for frequent enough inspections to ensure that all BMPs are adequately functioning.

Part VI – Effluent Limitations Determination

In this general permit, Technology-Based Effluent Limitations are established through the SWPPP and BMP requirements. Effective BMPs may have to be designed on a site-specific basis. The concurrent implementation of monitoring and benchmarks provides a tool for each facility to evaluate the effectiveness of BMPs to ensure protection of water quality.

Part VII – Land Purchase and Change of Ownership

A **"larger common plan of development or sale"** is a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under one plan. This term is used in conjunction with common promotional plan, as defined in §644, RSMo.

Any portion of a project that is sold to a developer is still considered part of a larger common plan of development or sale and will require a permit.

If a portion of a site is sold to an individual for the purpose of building his or her private residence:

- A permit is required if the portion of land sold is equal to or greater than one acre.
- A permit is not required if the portion of land sold is less than one acre.

Part VIII – Termination

The word 'plant density' was removed from the first paragraph since the department determined that percent of vegetative cover more accurately describes the vegetative requirements of this permit. This decision was made after discussion within the department and with stakeholders.

It is preferable that temporary BMPs such as sediment fence be removed prior to permit termination to eliminate potential solid waste issues that may occur as a result of unnecessary and unmaintained BMPs.

Part IX – Duty to Reapply

This section has been revised to reflect the current applicable statutes which require applicants to submit an application for coverage electronically as soon as they are made available by the director. The determination was made that facilities do not need to submit an application 30 days prior to expiration because this permit does not administratively continue. Additionally, due to limitations within the electronic system currently used to issue permits, the department will use its discretion to allow existing permit holders a period of 60 days to reapply after the new version of the permit is effective. The department will announce the availability status of the new permit and the process to reapply at least 30 days prior to the expiration of the existing permit.

Part X – Standard Conditions

This section was revised to only include the specific standard conditions that apply to this permit. All other conditions have been removed.

Part XI – Administrative Requirements

On the basis of preliminary staff review and applicable standards and regulations, the department, as administrative agent for the Missouri Clean Water Commission, proposes to issue a permit(s) subject to certain effluent limitations, schedules, and special conditions contained herein and within the permit. The proposed determinations are tentative pending public comment.

PUBLIC NOTICE:
The department shall give public notice that a draft permit has been prepared and its issuance is pending. Additionally, public notice will be issued if a public hearing is to be held because of a significant degree of interest or because of water quality concerns related to a draft permit. No public notice is required when a request for a permit modification or termination is denied; however, the requester and facility must be notified of the denial in writing.

The department must give public notice of a pending permit or of a new or reissued Missouri State Operating Permit. The public comment period is a length of time not less than thirty (30) days following the date of the public notice, during which interested persons may submit written comments about the proposed permit.

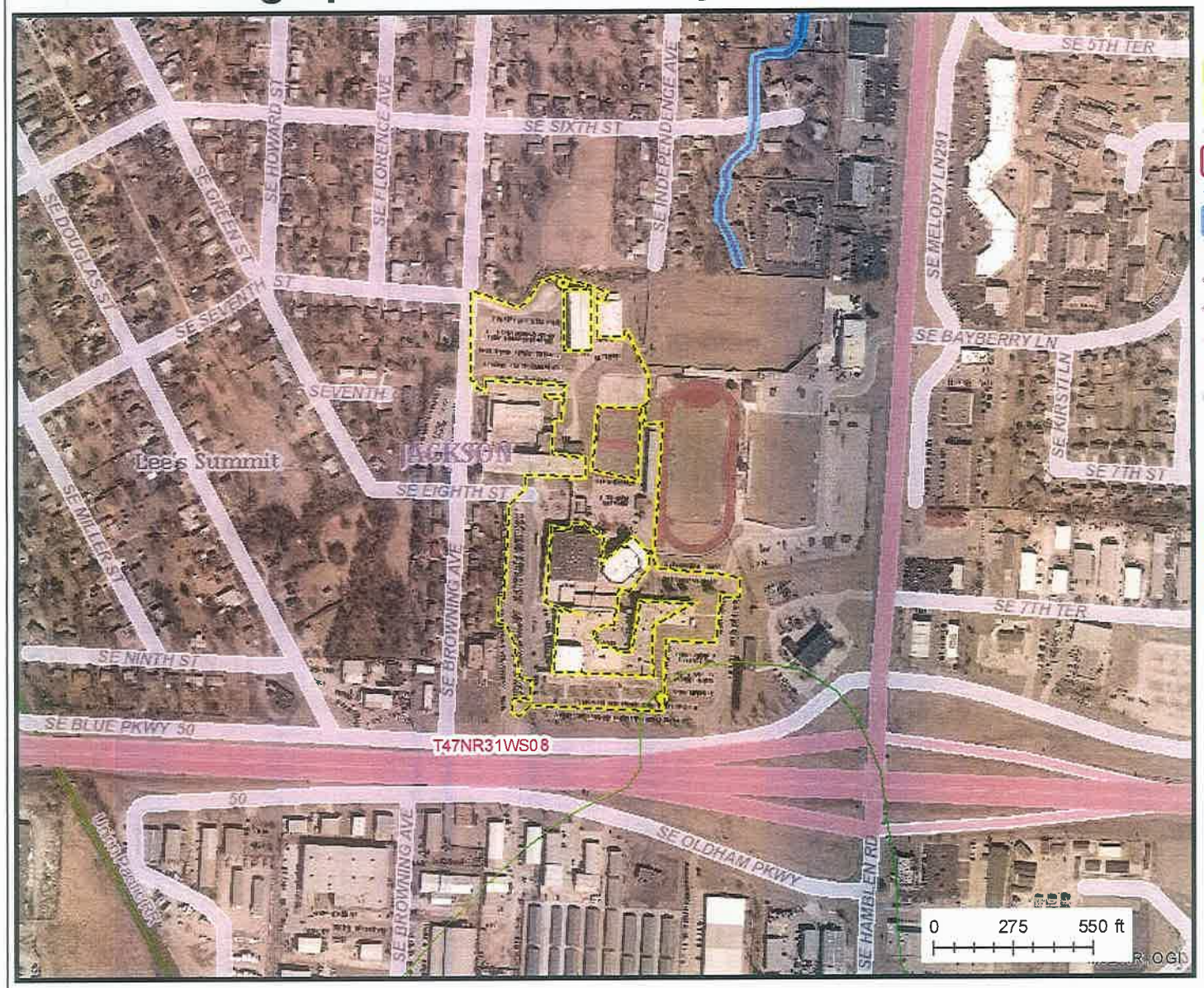
For persons wanting to submit comments regarding this proposed permit, please refer to the Public Notice page located at the front of this draft permit. The Public Notice page gives direction on how and where to submit appropriate comments.

☒ The Public Notice period seeking comments on this permit occurred from September 2, 2016 to October 3, 2016.

DATE OF FACT SHEET: 8/23/2016; REVISED 11/30/2016

COMPLETED BY:
CHRISTOPHER MILLER
ENVIRONMENTAL SPECIALIST
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION
(573) 526-3337
christopher.miller@dnr.mo.gov

MoDNR Geographic Information System Editor



Legend

- Land Disturbance Point
- Land Disturbance Area
- 12 Digit Watershed Boundaries
- Impaired Streams - 303(d)
- Impaired Lakes - 303(d)
- Stream Classifications and Use Designations
- Lake Classifications and Use Designations
- Public Land Survey System
- Interstates and U.S. highways
- State numbered routes
- State letttered routes
- ramps
- Major roads
- Minor roads
- Railroads
- County Boundaries
- Lake or Pond
- Lake or Pond / Intermittent
- Lake or Pond / Perennial
- Reservoir
- Swamp or Marsh
- Other; Artificial Path
- Canal or Ditch
- Stream or River
- Stream or River / Intermittent
- Stream or River / Perennial
- Municipalities Boundary
- Municipalities Fill

N

Printed: October 19, 2020

Disclaimer: Although this map has been compiled by the Missouri Department of Natural Resources, no warranty, expressed or implied, is made by the department as to the accuracy of the data and related materials. The act of distribution shall not constitute any such warranty, and no responsibility is assumed by the department in the use of these data or related materials.

Missouri
Department of
Natural Resources

STORMWATER DISCHARGES FROM THIS LAND DISTURBANCE SITE ARE AUTHORIZED BY THE MISSOURI STATE OPERATING PERMIT NUMBER:

ANYONE WITH QUESTIONS OR CONCERNS ABOUT STORMWATER DISCHARGES FROM THIS SITE, PLEASE CONTACT THE MISSOURI DEPARTMENT OF NATURAL RESOURCES AT

1-800-361-4827

MISSOURI DEPARTMENT OF NATURAL RESOURCES
Division of Environmental Quality Regional Offices

Kansas City Area

Kansas City Regional Office
500 NE Colbern Rd.
Lee's Summit, MO 64086-4710
816-251-0700 FAX: 816-622-7044

St. Louis Area

St. Louis Regional Office
7545 S. Lindbergh, Ste 210
St. Louis, MO 63125
314-416-2960 FAX: 314-416-2970

Northeast Area

Northeast Regional Office
1709 Prospect Drive
Macon, MO 63552-2602
660-385-8000 FAX: 660-385-8090

Southwest Area

Southwest Regional Office
2040 W. Woodland
Springfield, MO 65807-5912
417-891-4300 FAX: 417-891-4399

Southeast Area

Southeast Regional Office
2155 North Westwood Blvd.
Poplar Bluff, MO 63901
573-840-9750 FAX: 573-840-9754

Central Area

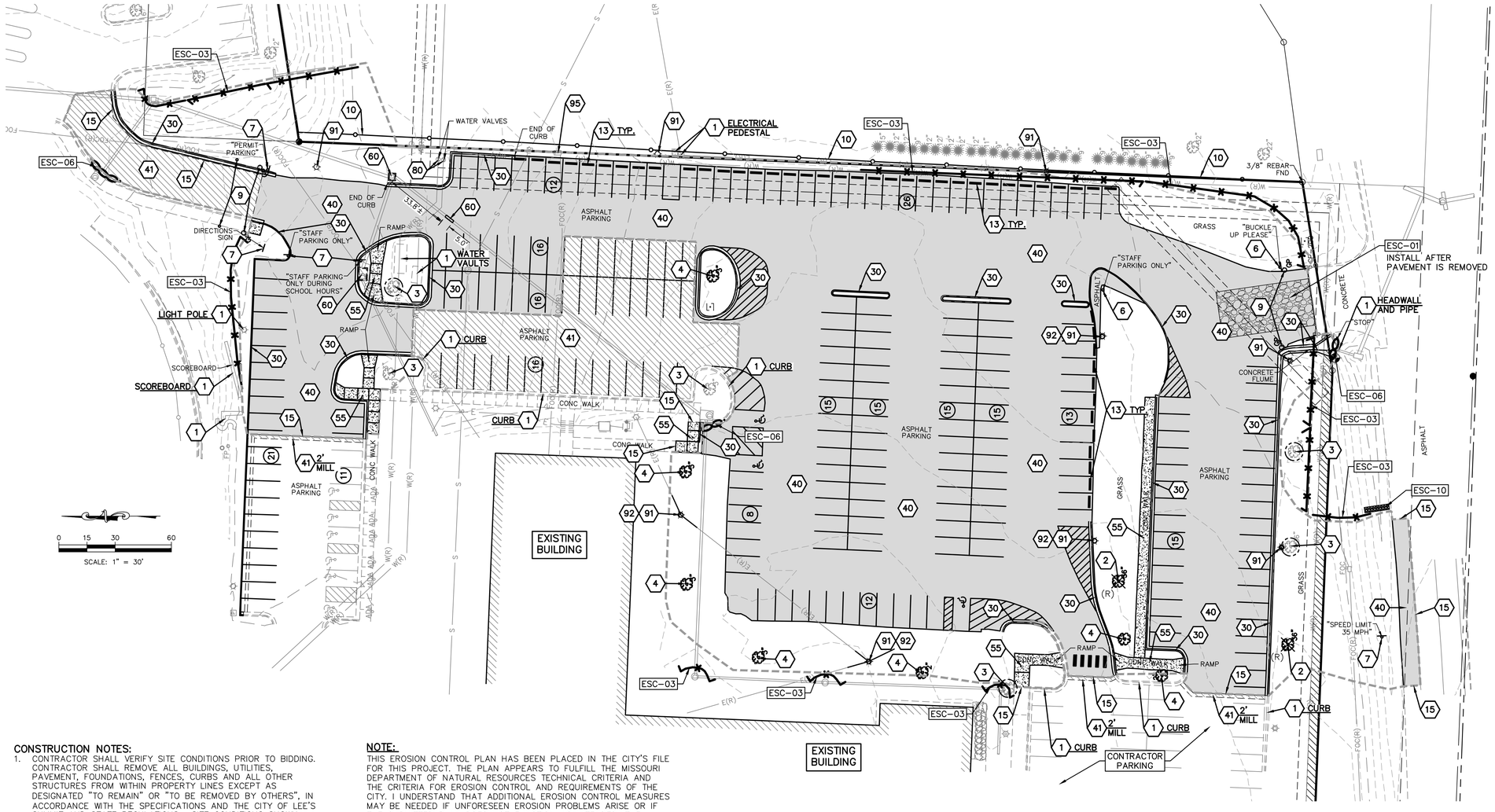
Department Central Offices
P.O. Box 176
Jefferson City, MO 65102-0176
573-751-3443

Central Field Operations
P.O. Box 176
Jefferson City, MO 65102-0176
573-522-3322 FAX: 573-522-3522

6/25/19

For more information on the departmei
visit dnr.mo.gov or call 800-361-4827

Appendix E
Erosion and Sediment Control Plan



LEGEND:

- CONTROL POINT
- BENCHMARK
- GATE POST
- CHAIN LINK FENCE
- WOOD FENCE
- BOLLARD
- STREET/TRAFFIC SIGN
- PAINTED DIRECTIONAL ARROW
- TURN LANE DIRECTION
- HANDICAP SYMBOL
- PARKING STALL COUNT
- HANDICAP SIGN
- HANDICAP RAMP
- WHEEL STOP
- FOC — UNDERGROUND FIBER OPTIC CABLE
- FOC(R) — UNDERGROUND FIBER OPTIC (FROM RECORDS)
- TELEPHONE PEDESTAL
- SANITARY SEWER MANHOLE
- STORM SEWER MANHOLE
- AI — AREA INLET
- CI — CURB INLET
- CO — SANITARY SEWER CLEAN OUT
- DS — DOWN SPOUT
- FD — FLOOR DRAIN
- FLARED END SECTION
- S — SANITARY SEWER LINE
- D — STORM SEWER LINE
- CMP — CORRUGATED METAL PIPE
- RCP — REINFORCED CONCRETE PIPE
- E(R) — UNDERGROUND ELECTRIC PER RECORD
- AIR CONDITIONER
- WALL MOUNTED ELECTRICAL OUTLET
- G — UNDERGROUND GAS
- GAS METER
- GAS VALVE
- GR — GAS RISER
- GAS LINE SIGN
- 950 — EXISTING GRADE 5' CONTOUR
- 939 — EXISTING GRADE 1' CONTOUR
- W — WATER LINE
- WATER METER
- WATER LINE GATE VALVE
- FIRE HYDRANT
- SPRINKLER CONTROL BOX
- WATER MANHOLE
- SV — SPRINKLER VALVE
- SIAMESE FIRE CONNECTOR
- CANOPY SUPPORT
- MB — MAIL BOX
- CONCRETE JOINT/CUT LINE
- BUSH
- DECIDUOUS TREE
- CONIFEROUS TREE
- TREE LINE
- FP — FLAG POLE
- T/E — TRASH ENCLOSURE
- L/S — LANDSCAPING AREA
- CONC — CONCRETE
- VCP — VITRIFIED CLAY PIPE
- DIP — DUCTILE IRON PIPE
- HDPE — HIGH DENSITY POLYETHYLENE
- WALL MOUNTED LIGHT
- WALL MOUNTED CAMERA
- E — UNDERGROUND ELECTRIC
- (2) OU — OVERHEAD UTILITY LINE (# OF LINES)
- P — PULL BOX
- LIGHT POLE
- UTILITY POLE
- UTILITY POLE W/ LIGHT
- UTILITY POLE W/ TRANSFORMER
- GUY ANCHOR
- W(R) — WATER LINE PER RECORD
- LW — LOWEST WIRE HEIGHT
- E — ELECTRIC METER
- E — UNDERGROUND ELECTRIC PEDESTAL
- SPEAKER BOX
- BB — BREAKER BOX
- G(R) — UNDERGROUND GAS PER RECORD
- S(R) — SANITARY SEWER LINE PER RECORD
- D(R) — STORM SEWER LINE PER RECORD
- ASPHALT PAVING TO BE REMOVED
- CONCRETE PAVING/SIDEWALKS TO BE REMOVED
- AREA TO BE MILLED

CONSTRUCTION NOTES:

1. CONTRACTOR SHALL VERIFY SITE CONDITIONS PRIOR TO BIDDING. CONTRACTOR SHALL REMOVE ALL BUILDINGS, UTILITIES, PAVEMENT, FOUNDATIONS, FENCES, CURBS AND ALL OTHER STRUCTURES FROM WITHIN PROPERTY LINES EXCEPT AS DESIGNATED "TO REMAIN" OR "TO BE REMOVED BY OTHERS", IN ACCORDANCE WITH THE SPECIFICATIONS AND THE CITY OF LEE'S SUMMIT AND STATE REGULATIONS. SITE CONDITIONS SHOWN WERE AS OF FEBRUARY 19, 2024.
2. ALL UTILITY PIPE LINES TO BE ABANDONED SHALL BE PLUGGED PER CITY AND STATE REGULATIONS.
3. DRIVES, PAVING AND OTHER STRUCTURES ON STREET OR HIGHWAY RIGHT-OF-WAY SHALL BE REMOVED AS NECESSARY TO CONSTRUCT IMPROVEMENTS SHOWN ON THESE PLANS. REMOVAL AND DISPOSAL SHALL BE IN CONFORMANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.
4. ALL PAVING WITHIN PROPERTY TO BE REMOVED AND DISPOSED OF IN CONFORMANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.
5. COORDINATE ELECTRICAL DEMO WITH E SERIES SHEETS.

WARRANTY / DISCLAIMER

THE DESIGNS REPRESENTED IN THESE PLANS ARE IN ACCORDANCE WITH ESTABLISHED PRACTICES OF CIVIL ENGINEERING FOR THE DESIGN FUNCTIONS AND USES INTENDED BY THE OWNER AT THIS TIME. HOWEVER, NEITHER KAW VALLEY ENGINEERING, INC NOR ITS PERSONNEL CAN OR DO WARRANTY THESE DESIGNS OR PLANS AS CONSTRUCTED, EXCEPT IN THE SPECIFIC CASES WHERE KAW VALLEY ENGINEERING PERSONNEL INSPECT AND CONTROL THE PHYSICAL CONSTRUCTION ON A CONTEMPORARY BASIS AT THE SITE.

SAFETY NOTICE TO CONTRACTOR

IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

NOTE:

THIS EROSION CONTROL PLAN HAS BEEN PLACED IN THE CITY'S FILE FOR THIS PROJECT. THE PLAN APPEARS TO FULFILL THE MISSOURI DEPARTMENT OF NATURAL RESOURCES TECHNICAL CRITERIA AND THE CRITERIA FOR EROSION CONTROL AND REQUIREMENTS OF THE CITY. I UNDERSTAND THAT ADDITIONAL EROSION CONTROL MEASURES MAY BE NEEDED IF UNFORESEEN EROSION PROBLEMS ARISE OR IF THE SUBMITTED PLAN DOES NOT FUNCTION AS INTENDED. THE REQUIREMENTS OF THIS PLAN SHALL RUN WITH THE LAND AND BE THE OBLIGATION OF THE LAND OWNER UNTIL SUCH TIME AS THE PLAN IS PROPERLY COMPLETED, MODIFIED OR VOIDED.

GENERAL NOTES:

1. REFER TO SHEET C495 FOR PERMANENT SEEDING/STABILIZATION REQUIREMENTS.
2. REFER TO APWA STANDARD ESC DRAWINGS FOR ADDITIONAL DETAILS AND SPECIFICATIONS.

DESCRIPTION OF WORK – PRE CONSTRUCTION AND PHASE I:

- OBTAIN REVIEW COMPLIANCE AND APPLICABLE PERMITS.
- HOLD PRE-CONSTRUCTION CONFERENCE.
- INSTALL PERIMETER EROSION CONTROL MEASURES, INLET PROTECTION DOWNSTREAM OF DEMOLITION AREAS AND TREE PROTECTION FENCING WITHIN CLEARING LIMITS AS APPLICABLE.
- SAWCUT AND REMOVE PAVEMENT, FLATWORK AND CURBING AT PERIMETER TIE-INS. COORDINATE WORK WITH LEE'S SUMMIT SCHOOL DISTRICT (LSSD). MAINTAIN PEDESTRIAN AND VEHICULAR TRAFFIC ACCESS TO CAMPUS AS DIRECTED BY LSSD.
- PROVIDE STABILIZED CONSTRUCTION INTO WORK AREA AS REQUIRED.

CAUTION – NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
THE CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AT LOCATIONS OF POSSIBLE CONFLICTS PRIOR TO ANY CONSTRUCTION.

DEMOLITION

1	TO REMAIN.
2	REMOVE TREES/BUSHES/LANDSCAPING/SITE FURNITURE. (COORDINATE WITH PROJECT LANDSCAPE PLAN)
3	TREES TO REMAIN. PROVIDE TREE PROTECTION FENCE AT DRIPLINE. A MINIMUM RADIUS OF 10' FROM TREE SHALL BE PROVIDED ANYWHERE WHERE PORTIONS OF DRIPLINE ARE NOT FENCED OFF, A LAYER OF MULCH (6" MINIMUM) SHALL BE PROVIDED TO PROTECT ROOT SYSTEM FROM DAMAGE.
4	RELOCATE SMALL CALIPER TREES. SEE SHEET C100.
6	SIGN TO BE REMOVED
7	SIGN TO BE RELOCATED
9	BOLLARD/SWING GATE TO BE REMOVED. BACKFILL AND COMPACT FOOTINGS.
10	REMOVE CHAINLINK FENCE AND POST. BACKFILL AND COMPACT FOOTINGS.
13	CONCRETE WHEEL STOP TO BE REMOVED.
15	SAW CUT LINE (FOR CONCRETE SAW CUT AT NEAREST CONTROL JOINT. FOR ASPHALT SAW CUT MINIMUM OF 6" FROM NEW CURB LINE). SEE SHEET C100 AND C200 FOR LIMITS.
30	CONTRACTOR TO REMOVE CONCRETE CURBS TO CONSTRUCT IMPROVEMENTS. SEE SHEET C100 AND C200 FOR LIMITS.
40	CONTRACTOR TO REMOVE ASPHALT PAVING AS REQUIRED TO CONSTRUCT IMPROVEMENTS.
41	CONTRACTOR TO MILL ASPHALT SURFACE, MINIMUM 2' OUTSIDE ASPHALT REMOVAL. REFER TO C100 AND C200 SHEETS FOR LIMITS. REFER TO SECTIONS A-A AND B-B ON SHEET C190.
55	CONTRACTOR TO REMOVE CONCRETE PAVING AND WALKS.
60	CONTRACTOR TO MODIFY, REMOVE AND/OR REROUTE STORM SEWER OR STRUCTURE. REFER TO C600 SHEETS FOR ADDITIONAL INFORMATION.
80	CONTRACTOR TO RESET EXISTING WATER VALVES TO GRADE. SEE SHEET C310.
91	REMOVE SITE LIGHTING REFER TO SITE ELECTRICAL PLAN. COORDINATE WITH EVERGY AS APPLICABLE.
92	REMOVE FIXTURE AND SALVAGE FOR REINSTALL.
95	CONTRACTOR TO MODIFY EXISTING FIBER OPTICS VAULT TO MEET NEW GRADE. SEE SHEET C310.

FOR THE FOLLOWING DETAILS REFER TO THE KC METROPOLITAN CHAPTER ADOPTED DIVISION III APWA STANDARD DRAWINGS FOR EROSION AND SEDIMENT CONTROL (2017 VERSION) ON SHEETS C490 AND C495.

ESC-01	CONSTRUCTION ENTRANCE
ESC-03	SEDIMENTATION FENCE
ESC-06	CURB INLET PROTECTION
ESC-10	ROCK DITCH CHECKS

EROSION & PROPOSED IMPROVEMENTS LEGEND:

- 1218 — EXISTING GROUND CONTOUR (1' INTERVALS)
- 1218 — PROPOSED FINISHED GROUND CONTOUR (1' INTERVALS)
- GRAVEL FILTER BAGS AND INLET PROTECTION (ESC-06 & ESC-07)
- OTPF FENCE (OTPF)
- SEDIMENTATION FENCE (ESC-03)
- LIMITS OF DISTURBANCE
- (R) — INDICATES TREE/SHRUB TO BE REMOVED
- CONSTRUCTION ENTRANCE AND STAGING (ESC-01)
- ROCK DITCH CHECK (ESC-10)

811 Know what's below. Call before you dig.

REV	DATE	DESCRIPTION	DDW	DSN	NJN	DWN	CHK
0	3/29/24	ISSUED FOR BID/CITY REVIEW					

STATE OF MISSOURI — DAVID D. WOOD — NUMBER PE-2011037427 — 3.29.24 — PROFESSIONAL ENGINEER

DAVID D. WOOD
ENGINEER
MO # 2011037427

14700 WEST 114TH TERRACE
LENEXA, KANSAS 66215
PH: (913) 894-5150
lx@kveng.com | www.kveng.com

KAW VALLEY ENGINEERING

KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES IN MISSOURI. STATE CERTIFICATE OF AUTHORITY # 2008042. EXPIRES 12/31/25

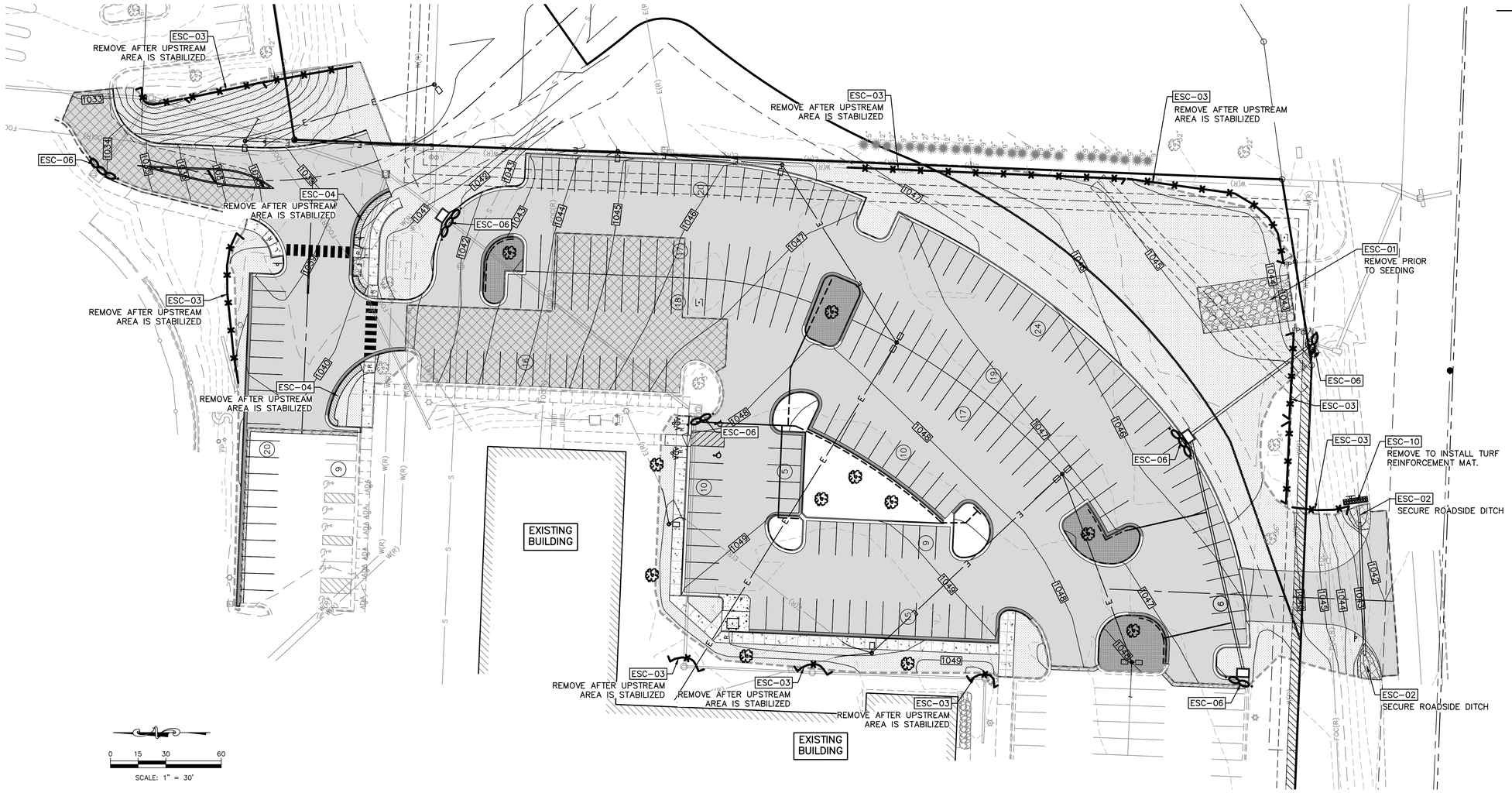
LEE'S SUMMIT HS - EAST PARKING LOT

400 SE BLUE PARKWAY
LE'S SUMMIT, MISSOURI 64063

CONSTRUCTION DOCUMENTS PHASE I
DEMOLITION & EROSION CONTROL PLAN PH I

PROJ. NO.	C23_1880
DESIGNER	DDW
DRAWN BY	NJN
CFN	1880DEMO
SHEET	C400
REV	0

THIS DRAWING SHALL NOT BE UTILIZED BY ANY PERSON, FIRM, OR CORPORATION IN WHOLE OR IN PART WITHOUT THE SPECIFIC PERMISSION OF KAW VALLEY ENGINEERING, INC.



LEGEND:

- CONTROL POINT
- BENCHMARK
- GATE POST
- CHAIN LINK FENCE
- WOOD FENCE
- BOLLARD
- STREET/TRAFFIC SIGN
- PAINTED DIRECTIONAL ARROW
- TURN LANE DIRECTION
- HANDICAP SYMBOL
- PARKING STALL COUNT
- ADA HANDICAP SIGN
- HRMP HANDICAP RAMP
- WHEEL STOP
- FOC UNDERGROUND FIBER OPTIC CABLE
- FOC(R) UNDERGROUND FIBER OPTIC (FROM RECORDS)
- TELEPHONE PEDESTAL
- SANITARY SEWER MANHOLE
- STORM SEWER MANHOLE
- AI AREA INLET
- CI CURB INLET
- CO SANITARY SEWER CLEAN OUT
- DS DOWN SPOUT
- FD FLOOR DRAIN
- FLARED END SECTION
- S SANITARY SEWER LINE
- D STORM SEWER LINE
- CMP CORRUGATED METAL PIPE
- RCP REINFORCED CONCRETE PIPE
- E(R) UNDERGROUND ELECTRIC PER RECORD
- AC AIR CONDITIONER
- WALL MOUNTED ELECTRICAL OUTLET
- G UNDERGROUND GAS
- GM GAS METER
- GV GAS VALVE
- GR GAS RISER
- GAS LINE SIGN
- 950 EXISTING GRADE 5' CONTOUR
- 939 EXISTING GRADE 1' CONTOUR
- W WATER LINE
- WM WATER METER
- WATER LINE GATE VALVE
- FIRE HYDRANT
- SPRINKLER CONTROL BOX
- WATER MANHOLE
- SV SPRINKLER VALVE
- SIAMESE FIRE CONNECTOR
- CANOPY SUPPORT
- MB MAIL BOX
- CONCRETE JOINT/CUT LINE
- BUSH
- DECIDUOUS TREE
- CONIFEROUS TREE
- TREE LINE
- FP FLAG POLE
- T/E TRASH ENCLOSURE
- L/S LANDSCAPING AREA
- CONC CONCRETE
- VCP VITRIFIED CLAY PIPE
- DIP DUCTILE IRON PIPE
- HDPE HIGH DENSITY POLYETHYLENE
- WALL MOUNTED LIGHT
- WALL MOUNTED CAMERA
- E UNDERGROUND ELECTRIC
- (2) OU OVERHEAD UTILITY LINE (# OF LINES)
- P PULL BOX
- LIGHT POLE
- UTILITY POLE
- UTILITY POLE W/ LIGHT
- UTILITY POLE W/ TRANSFORMER
- GUY ANCHOR
- W(R) WATER LINE PER RECORD
- LW LOWEST WIRE HEIGHT
- E ELECTRIC METER
- UNDERGROUND ELECTRIC PEDESTAL
- SPEAKER BOX
- BB BREAKER BOX
- G(R) UNDERGROUND GAS PER RECORD
- S(R) SANITARY SEWER LINE PER RECORD
- D(R) STORM SEWER LINE PER RECORD

EROSION & PROPOSED IMPROVEMENTS LEGEND:

- 1218 EXISTING GROUND CONTOUR (1' INTERVALS)
- 1218 PROPOSED FINISHED GROUND CONTOUR (1' INTERVALS)
- GRAVEL FILTER BAGS AND INLET PROTECTION (ESC-06 & ESC-07)
- OTPF FENCE (OTPF)
- SEDIMENTATION FENCE (ESC-03)
- LIMITS OF DISTURBANCE
- (R) INDICATES TREE/SHRUB TO BE REMOVED
- CONSTRUCTION ENTRANCE AND STAGING (ESC-01)
- WATTLE/BIODEGRADABLE LOG (ESC-04)
- ROCK DITCH CHECK (ESC-10)
- CW CONCRETE WASH AREA (ESC-01)
- LIMITS OF AREA TO BE PAVED – REFERENCE GRADING PLAN FOR CONSTRUCTION SPECIFICATIONS
- EROSION CONTROL BLANKET (ESC-02)

FOR THE FOLLOWING DETAILS REFER TO THE KC METROPOLITAN CHAPTER ADOPTED DIVISION III APWA STANDARD DRAWINGS FOR EROSION AND SEDIMENT CONTROL (2017 VERSION) ON SHEETS C490 AND C495.

- ESC-01 CONSTRUCTION ENTRANCE AND CONCRETE WASHOUT
- ESC-02 EROSION CONTROL BLANKETS AND TURF REINFORCEMENT MAT
- ESC-03 SEDIMENTATION FENCE
- ESC-06 CURB INLET PROTECTION
- ESC-10 ROCK DITCH CHECKS

FINAL ACCEPTANCE:

ALL DISTURBED AREAS SHALL BE PREPPED FOR SEEDING OR SODDING IN ACCORDANCE WITH CITY ADOPTED APWA CRITERIA. THE SITE DISTURBANCE PERMIT SHALL BE MAINTAINED IN AN OPEN STATUS UNTIL FINAL ACCEPTANCE PER CITY ADOPTED APWA SECTION 2400.6.

WARRANTY / DISCLAIMER

THE DESIGNS REPRESENTED IN THESE PLANS ARE IN ACCORDANCE WITH ESTABLISHED PRACTICES OF CIVIL ENGINEERING FOR THE DESIGN FUNCTIONS AND USES INTENDED BY THE OWNER AT THIS TIME. HOWEVER, NEITHER KAW VALLEY ENGINEERING, INC NOR ITS PERSONNEL CAN OR DO WARRANTY THESE DESIGNS OR PLANS AS CONSTRUCTED, EXCEPT IN THE SPECIFIC CASES WHERE KAW VALLEY ENGINEERING PERSONNEL INSPECT AND CONTROL THE PHYSICAL CONSTRUCTION ON A CONTEMPORARY BASIS AT THE SITE.

CAUTION – NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
THE CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AT LOCATIONS OF POSSIBLE CONFLICTS PRIOR TO ANY CONSTRUCTION.

SAFETY NOTICE TO CONTRACTOR

IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

NOTE:

THIS EROSION CONTROL PLAN HAS BEEN PLACED IN THE CITY'S FILE FOR THIS PROJECT. THE PLAN APPEARS TO FULFILL THE MISSOURI DEPARTMENT OF NATURAL RESOURCES TECHNICAL CRITERIA AND THE CRITERIA FOR EROSION CONTROL AND REQUIREMENTS OF THE CITY. I UNDERSTAND THAT ADDITIONAL EROSION CONTROL MEASURES MAY BE NEEDED IF UNFORESEEN EROSION PROBLEMS ARISE OR IF THE SUBMITTED PLAN DOES NOT FUNCTION AS INTENDED. THE REQUIREMENTS OF THIS PLAN SHALL RUN WITH THE LAND AND BE THE OBLIGATION OF THE LAND OWNER UNTIL SUCH TIME AS THE PLAN IS PROPERLY COMPLETED, MODIFIED OR VOIDED.

GENERAL NOTES:

1. REFER TO SHEET C495 FOR PERMANENT SEEDING/STABILIZATION REQUIREMENTS.
2. REFER TO APWA STANDARD ESC DRAWINGS FOR ADDITIONAL DETAILS AND SPECIFICATIONS.

DESCRIPTION OF WORK – PHASE II AND POST CONSTRUCTION:

- ROUGH GRADE SITE TO PROPOSED SUBGRADE.
- INSTALL OR RELOCATE UTILITIES: STORM, CONDUITS FOR SITE LIGHTING, TELECOM.
- INSTALL EROSION CONTROL MEASURES AROUND STORM SEWERS AND DIVERT RUNOFF TO STORM STRUCTURES.
- PLACE AGGREGATE BASE FOR PARKING AREAS.
- INSTALL CURB FOR PARKING AREAS.
- INSTALL PAVING BASE COURSE.
- INSTALL ADDITIONAL EROSION CONTROL MEASURES AT TOES OF SLOPE ADJACENT TO CURB LINE AS APPLICABLE.
- COMPLETE FINAL GRADING AND SEED/SOD AND LANDSCAPE PERIMETER AREAS (ESTABLISH VEGETATION).
- INSTALL SURFACE COURSE ON PARKING LOT, WALKS AND FLATWORK.
- COMPLETE FINAL GRADING AND SEED, SOD OR LANDSCAPE WITHIN PROJECT LIMITS AS APPLICABLE.
- FINAL SITE CLEANUP.
- MAINTAIN EROSION CONTROL MEASURES UNTIL SITE IS STABILIZED.
- INSPECT AND RESEED REMAINING DISTURBED AREAS, WASHOUTS, ETC.
- REMOVE SEDIMENT BUILDUP, RESEED AND STABILIZE AS EROSION CONTROL MEASURES ARE REMOVED.

Know what's **below.**
Call before you dig.

REV	DATE	DESCRIPTION	DSN	DWN	CHK
0	3/29/24	ISSUED FOR BID/CITY REVIEW	DDW	NJN	

STATE OF MISSOURI
DAVID D. WOOD
NUMBER
PE-2011037427
3/29/24
PROFESSIONAL ENGINEER

DAVID D. WOOD
ENGINEER
MO # 2011037427

14700 WEST 114TH TERRACE
LENEXA, KANSAS 66215
PH. (913) 894-5150
lx@kveng.com | www.kveng.com
KAW VALLEY ENGINEERING
KAW VALLEY ENGINEERING, INC., IS AUTHORIZED TO OFFER ENGINEERING SERVICES IN MISSOURI. STATE CERTIFICATE OF AUTHORITY # 2006042. EXPIRES 12/31/25

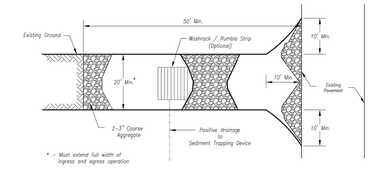
LEE'S SUMMIT HS - EAST PARKING LOT

400 SE BLUE PARKWAY
LE'S SUMMIT, MISSOURI 64063

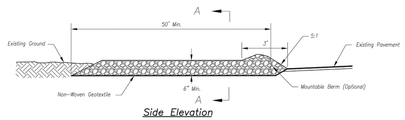
CONSTRUCTION DOCUMENTS PHASE I
EROSION CONTROL PLAN PH II

PROJ. NO.	C23_1880
DESIGNER	DDW
DRAWN BY	NJN
CFN	1880ECP
SHEET	C410
REV	0

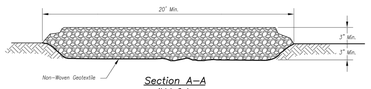
THIS DRAWING SHALL NOT BE UTILIZED BY ANY PERSON, FIRM, OR CORPORATION IN WHOLE OR IN PART WITHOUT THE SPECIFIC PERMISSION OF KAW VALLEY ENGINEERING, INC.



Plan View
Not to Scale



Side Elevation
Not to Scale



Section A–A
Not to Scale

Notes for Construction Entrance:

1. *Avoid locating on steep slopes, at curves on public roads, or downhill of disturbed area.*
2. *Remove all vegetation and other unsuitable material from the foundation area, grade, and crown for positive drainage.*
3. *If slope towards the public road exceeds 2%, construct a 6– to 8–inch high ridge with 3H:1V side slopes across the foundation approximately 15 feet from the edge of the public road to divert runoff from it.*
4. *Install pipe under the entrance if needed to maintain drainage ditches along public roads.*
5. *Place stone to dimensions and grade as shown on plans. Leave surface sloped for drainage.*
6. *Divert all surface runoff and drainage from the entrance to a sediment control device.*
7. *If conditions warrant, place geotextile fabric on the graded foundation to improve stability.*

Maintenance for Construction Entrance:

1. *Reshape entrance as needed to maintain function and integrity of installation. Top dress with clean aggregate as needed.*

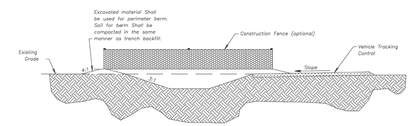
CONSTRUCTION ENTRANCE

Notes for Concrete Washout:

1. *Concrete washout areas shall be installed prior to any concrete placement on site.*
2. *Concrete washout area shall include a flat subsurface pit sized adequate for the volume of concrete washout waste. The slopes leading out of the subsurface pit shall be 3:1. The vehicle tracking pad shall be sloped towards the concrete washout area.*
3. *Vehicle tracking control is required at the access point to all concrete washout areas.*
4. *Signs shall be placed at the construction site entrance, washout area and elsewhere as necessary to clearly indicate the location(s) of the concrete washout area(s) to operators of concrete truck and pump rigs.*
5. *A one–piece impervious liner may be required along the bottom and sides of the subsurface pit in sandy or gravelly soils.*

Maintenance for Concrete Washout:

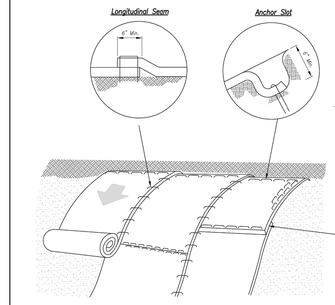
1. *Concrete washout materials shall be removed once the materials have filled the washout to approximately 75% full.*
2. *Concrete washout areas shall be enlarged as necessary to maintain capacity for wasted concrete.*
3. *Concrete washout water, wasted pieces of concrete and all other debris in the subsurface pit shall be transported from the job site in a water–tight container and disposed of properly.*
4. *Concrete washout areas shall remain in place until all concrete for the project is placed.*
5. *When concrete washout areas are removed, excavations shall be filled with suitable material (backfill and topsoil), any disturbed areas associated with the installation, maintenance, and/or removal of the concrete washout areas shall be stabilized.*



CONCRETE WASHOUT

Construction Entrance modified from 2015 Overland Park Standard Details for Erosion and Sediment Control; Concrete Washout modified from 2009 City of Great Bend Standard Drawings.

AMERICAN PUBLIC WORKS ASSOCIATION
Kansas City Metro Chapter
KANSAS CITY METRO CHAPTER
CONSTRUCTION ENTRANCE AND CONCRETE WASHOUT
STANDARD DRAWING NUMBER ESC–01
ADOPTED: 10/24/2016



Installation on Slopes

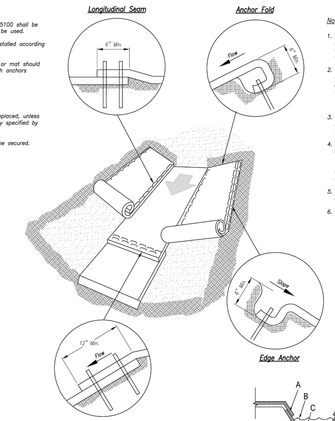
Splice Seam

General Notes:

1. *APWA Specifications 2150 and Design Guidance 5100 shall be referenced to select type of blanket or mat to be used.*
2. *Typical anchors and pattern/spacing shall be installed according to the manufacturers instructions.*
3. *LONGITUDINAL SEAMS: The edges of the blanket or mat should overlap each other a minimum of 6 inches, with anchors catching the edges of both blankets.*

Maintenance:

1. *Torn or degraded product shall be repaired or replaced, unless such degradation is within the functional longevity specified by the manufacturer.*
2. *Edges or seams that are loose or frayed shall be secured.*

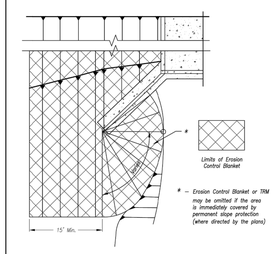


Edge Anchor

Splice Seam

Notes for Installation in Channels:

1. *Erosion Control Blankets and TRMs shall be laid in the direction of the flow, with the first course at the centerline of channel, where applicable. In order for the mat to be in contact with the soil, lay the mat loosely, avoiding stretching.*
2. *ANCHOR FOLD: The top of the mat should be folded under, buried and secured with wood or other approved anchors placed 6 inches apart. The top edge of the mat should be buried in a slot 6 inches wide x 6 inches deep, anchored in the bottom of the slot, backfilled, and the mat folded over the top as shown in detail.*
3. *SPLICE SEAM: When splices are necessary, overlap and a minimum of 12 inches in direction of water flow. Stagger splice seams.*
4. *CHECK SLOTS: Establish check slots transverse to slope every 30 feet. The slots should be 6 inches wide x 6 inches deep. The mat shall be cut to a length 12 inches beyond the slot. The top of the downstream mat shall be slotted in, secured and buried similar to the edge anchor fold. The upstream mat shall then cover the slot and be anchored as shown.*
5. *EDGE ANCHORS: Lay outside edge of mat into trench at top of the slope and anchor.*
6. *TERMINUS: The bottom edge of the mat shall be anchored.*



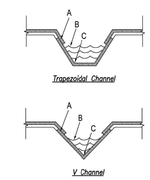
Partial Box Culvert Plan
Not to Scale

Installation Around Culvert Slope

Notes for Installation on Slopes:

1. *Erosion Control Blankets and TRMs shall be laid in the direction of the slope. In order for blanket to be in contact with the soil, lay blanket loosely, avoiding stretching.*
2. *ANCHOR SLOTS: The top of the blanket should be "slotted in" at the top of the slope and anchored in place with anchors 6 inches apart. The slots should be 6 inches wide x 6 inches deep with the blanket anchored in the bottom of the slot, then backfilled, tamped and seeded.*
3. *SPLICE SEAM: When splices are necessary, overlap end a minimum of 8 inches in direction of water flow. Stagger splice seams.*
4. *TERMINAL FOLD: The bottom edge of the blanket shall be turned under a minimum of 4 inches, then anchored in place with anchors 9 inches apart.*

* – *Erosion Control Blanket or TRM may be omitted if the area is immediately covered by permanent slope protection (where directed by the plans)*



Trapezoidal Channel

V Channel

Critical Points:

A – *Overlaps and seams;*

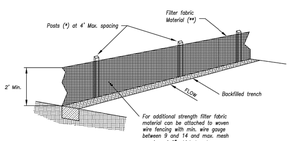
B – *Projected water line;*

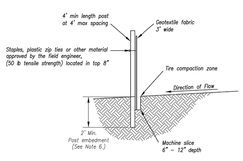
C – *Channel bottom / side slope vertices;*

Installation in Channels

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION
Kansas City Metro Chapter
KANSAS CITY METRO CHAPTER
EROSION CONTROL BLANKETS AND TURF REINFORCEMENT MATS
STANDARD DRAWING NUMBER ESC–02
ADOPTED: 10/24/2016





(*) *POSTS*
- *MIN. LENGTH 4'*
- *HARDWOOD 1 ¾" x 1 ¾"*
- *NO.2 SOUTHERN PINE 2 ¾" x 2 ¾"*
- *STEEL 1.33 LB/FT*

(**) – *Geotextile Fabric shall meet the requirements of AASHTO M288*

Notes:

1. *In order to contain water, the ends of the silt fence must be turned uphill (Figure A).*
2. *Long perimeter runs of silt fence must be limited to 1000'. Runs should be broken up into several smaller segments to minimize water concentrations (Figure A).*
3. *Long slopes should be broken up with intermediate rows of silt fence to slow runoff velocities.*
4. *Attach fabric to upstream side of post.*
5. *Install posts a minimum of 2' into the ground.*
6. *Trenching will only be allowed for small or difficult installation, where slicing machine cannot be reasonably used.*

SILT FENCE DETAILS
Not to Scale

Maintenance:

1. *Remove and dispose of sediment deposits when the deposit approaches ½ the height of silt fence.*
2. *Repair as necessary to maintain function and structure.*

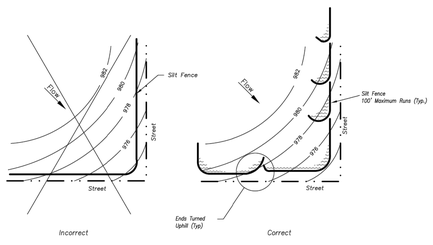
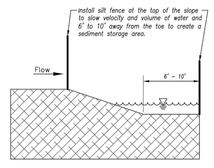
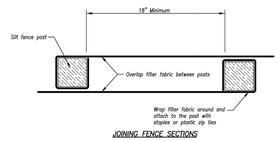


Figure A

SILT FENCE LAYOUT
Not to Scale

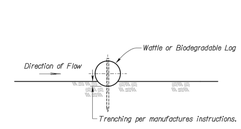




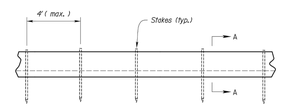
JOINING FENCE SECTIONS
Not to Scale

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION
Kansas City Metro Chapter
KANSAS CITY METRO CHAPTER
SILT FENCE
STANDARD DRAWING NUMBER ESC–03
ADOPTED: 10/24/2016



Section A–A



Typical Elevation

WATTLES AND BIODEGRADABLE LOG

Notes for Wattles and Biodegradable Log Slope Protection:

1. *The Slope barriers shall be placed along contour lines, with a short section turned upgrade at each end of the barrier. The maximum length of the slope barrier shall not exceed 250 feet, and the barrier ends need to be staggered.*
2. *Install wattles and biodegradable logs per manufacturer's instructions.*
3. *Spacing of stakes per manufacturer's instructions with 4' max. spacing. Length of stakes shall be a minimum of 2 times the diameter of the log with minimum of 24".*

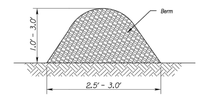


Figure 1
(Perimeter Control)

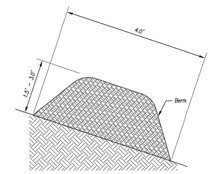


Figure 2
(Steep Slopes)

MULCH OR COMPOST FILTER BERMS

Notes for Mulch and Compost Filter Beam:

1. *The sediment control berm shall be placed uncompacted in a windrow at locations shown on the plans or as directed by the engineer.*
2. *Parallel to the base of the slope, or around the perimeter of other affected areas, construct a 1 to 3 foot high by 2.5 to 3 foot wide berm (see Figure 1). For maximum water treatment ability or for steep slopes, construct a 1.5 to 3 foot high trapezoidal berm that is a minimum of 4 feet wide at the base (see Figure 2). In extreme conditions, or where specified by the engineer, a second berm shall be constructed at the top of the slope. Engineer will specify berm requirements.*
3. *If berm is to be left as permanent or part of the natural landscape, the compost berm may be seeded during application for permanent vegetation.*
4. *Do not use compost or wood mulch berms in any runoff channels or concentrated flow areas.*
5. *Wood mulch shall consist of tree and shrub debris resulting from clearing and grubbing and shall be ground by the mechanical means such as a chipper, hammermill, tub grinder or other approved method. Mulch sizing varies with a maximum width of 2" and a maximum length of 10".*

Maintenance for Mulch and Compost Filter Beam:

1. *Berm shall be reshaped and material added as necessary to maintain function and dimensions.*
2. *Breaches in the berm shall be repaired promptly.*

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION
Kansas City Metro Chapter
KANSAS CITY METRO CHAPTER
WATTLES/BIODEGRADABLE LOG AND MULCH/COMPOST FILTER BERM
STANDARD DRAWING NUMBER ESC–04
ADOPTED: 10/24/2016

REV	DATE	DESCRIPTION	DDW	NJN	DWN	CHK
0	3/29/24	ISSUED FOR BID/CITY REVIEW			DSN	

STATE OF MISSOURI
DAVID D. WOOD
NUMBER PE-2011037427
3/29/24
PROFESSIONAL ENGINEER

DAVID D. WOOD
ENGINEER
MO # 2011037427

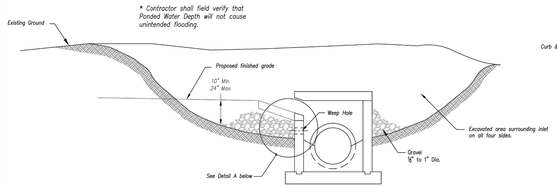
14700 WEST 114TH TERRACE
LENEXA, KANSAS 66215
PH. (913) 894-5150
lx@kveng.com | www.kveng.com
KAW VALLEY ENGINEERING
KAW VALLEY ENGINEERING, INC., IS AUTHORIZED TO OFFER ENGINEERING SERVICES BY THE MISSOURI STATE CERTIFICATE OF AUTHORITY # 000842. EXPIRES 12/31/25

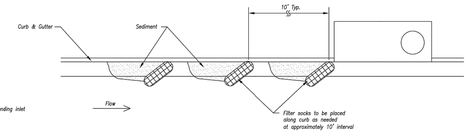
LEE'S SUMMIT HS - EAST PARKING LOT
400 SE BLUE PARKWAY
LE'S SUMMIT, MISSOURI 64063

CONSTRUCTION DOCUMENTS PHASE I
EROSION CONTROL DETAILS

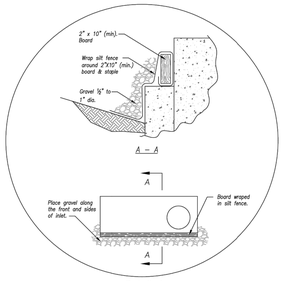
PROJ. NO.	C23_1880
DESIGNER	DDW
DRAWN BY	NJN
CFN	1880DET
SHEET	C490
REV	0

THIS DRAWING SHALL NOT BE UTILIZED BY ANY PERSON, FIRM, OR CORPORATION IN WHOLE OR IN PART WITHOUT THE SPECIFIC PERMISSION OF KAW VALLEY ENGINEERING, INC.





On Grade Curb Inlet Protection



Detail A

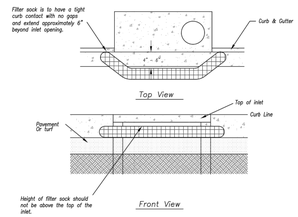
EARLY STAGE CURB INLET
(Open Box and Prior to Pouring Curb and Inlet Throat)

Notes:

1. Immediately following inlet construction and prior to construction of curb and inlet throat, protect inlet opening by installing 2" X 10" (min.) board wrapped in silt fence. Structures shall have excavated storage area on all four sides to allow settling of sediment (Early Stage Curb Inlet).
2. When inlet is completed and curb poured, filter socks or approved equal should be used (Late Stage Curb Inlet). Straw wattles are not approved for curb inlet use.
3. Contractor to field verify ponding water shall not create a traffic hazard.

Maintenance:

1. Remove deposited sediment from excavated storage areas when available storage has been reduced by 20%.
2. Remove deposited sediment from filter socks or similar when any accumulation of sediment is visible.
3. Repair or replace as necessary to maintain function and integrity of installation.

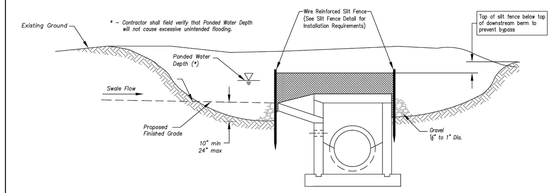


Sump Inlet Sediment Filter

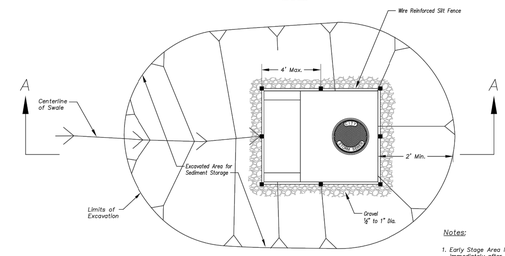
LATE STAGE CURB INLET
(After Pouring Curb and Inlet Throat)

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION
KANSAS CITY METRO CHAPTER
CURB INLET PROTECTION
STANDARD DRAWING NUMBER ESC-06
ADOPTED: 10/24/2016



Section A–A
Not to Scale

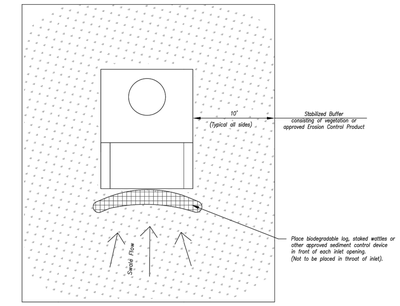


Plan
Not to Scale

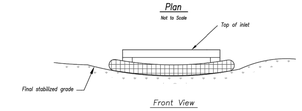
EARLY STAGE AREA INLET
(All open boxes and inlets not at final grade)

Notes:

1. Early Stage Area Inlet Sediment Barrier to be installed immediately after inlet or junction box is constructed.
2. Silt fence shall remain in place until excavated area is removed and Late Stage Area Inlet is being installed.
3. Backfill excavated area ONLY after final grading of the site. Stabilization of the site is to immediately follow.
4. Wire reinforced silt fence may be used in place of silt fence attached to wood frame.



Plan
Not to Scale



Front View

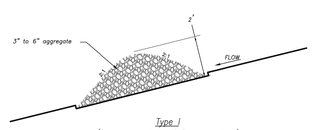
LATE STAGE AREA INLET
(Area inlets at final grade and existing inlets)

Maintenance:

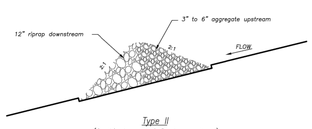
1. Remove deposited sediment from excavated storage areas when available storage has been reduced by 20%.
2. Remove deposited sediment from filter socks or similar when any accumulation of sediment is visible.
3. Repair or replace as necessary to maintain function and integrity of installation.

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION
KANSAS CITY METRO CHAPTER
AREA INLET AND JUNCTION BOX PROTECTION
STANDARD DRAWING NUMBER ESC-07
ADOPTED: 10/24/2016



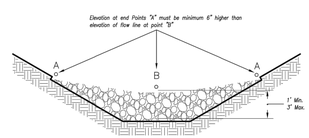
Type I
(2 Acres or less of Drainage Area)
Not to Scale



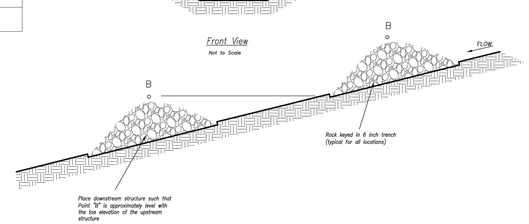
Type II
(2–10 Acres of Drainage Area)
Not to Scale

ROCK DITCH CHECK

Temporary Rock Ditch Check Spacing	
Ditch Centerline Slope (' % ')	Spacing Interval (Feet)
5.0	60
6.0	50
7.0	43
8.0	36
9.0	33
10.0	29
Note: Use this spacing only for Rock Ditch Checks.	



Front View
Not to Scale



Spacing Between Check Dams (all types)
Not to Scale

Notes:

1. Rock check dams shall be used only for drainage areas less that 10 acres unless approved by the City Engineer.
2. Use rock checks only in situations where the ditch slope exceeds 6%.

Maintenance:

1. Remove and dispose of sediment deposits when the deposit approaches ½ the height of the ditch check.
2. Replace and reshape as necessary to maintain function and integrity of installation.

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION
KANSAS CITY METRO CHAPTER
ROCK DITCH CHECKS
STANDARD DRAWING NUMBER ESC-10
ADOPTED: 10/24/2016

PERMANENT SEEDING:

DISTURBED AREAS ARE TO BE SEEDED AS NOTED. APPLICATION OF SEED SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. SEED MIX TO BE USED SHALL BE IN ACCORDANCE WITH APWA SPECIFICATION 2401.2 A1, SEEDING MIX # 1 (TURF AREAS) WITH THE FOLLOWING EXCEPTIONS. BLEND SHALL BE 90% FESCUE (THREEPART) AND 10% KENTUCKY BLUEGRASS.

PREPARATION OF THE SEED BED

UNLESS NOTED OTHERWISE ON THE LANDSCAPE PLANS AND SPECIFICATIONS ALL DISTURBED AREAS SHALL BE PREPPED FOR SEEDING AND SODDING IN ACCORDANCE WITH KANSAS CITY METROPOLITAN CHAPTER OF APWA SPECIFICATIONS SECTION 2406. THE AREA TO BE SEEDED SHALL BE THOROUGHLY TILLED TO A DEPTH OF AT LEAST THREE (3) INCHES BY DISCING, HARROWING OR OTHER APPROVED METHODS UNTIL THE SOIL IS WELL PULVERIZED. AFTER COMPLETION OF THE TILLING OPERATION, THE SURFACE SHALL BE CLEARED OF ALL STONES, STUMPS, OR OTHER OBJECTS LARGER THAN 1–1/2 INCHES IN DIAMETER, AND OF ROOTS, WIRE, GRADE STAKES, AND OTHER OBJECTS THAT MIGHT HINDER MAINTENANCE OPERATIONS.

REFERENCE APWA SPECIFICATIONS SECTION 2401.3 FOR ADDITIONAL INFORMATION.

PLACEMENT OF SEED

SEEDING SHALL BE ACCOMPLISHED BY HYDROSEEDING. REFERENCE APWA SECTION 2404. CONSTRUCTION SHALL COMPLY WITH SECTION 2404.3.

CONTRACTOR IS RESPONSIBLE FOR ONGOING MAINTENANCE, PROTECTION AND REPAIR OF TEMPORARY AND PERMANENT SEED AREAS. COORDINATE PLACEMENT OF INTERMEDIATE EROSION CONTROL MEASURES AS REQUIRED TO REDUCE CONCENTRATED FLOWS FROM RUNOFF.

REFERENCE APWA SPECIFICATIONS SECTION 2401.3 FOR ADDITIONAL INFORMATION RELATED TO PREPERATION OF SEEC BED FERTILIZATION AND MAINTENANCE PERIOD.

FINAL ACCEPTANCE

THE MDNR SITE DISTURBANCE PERMIT SHALL BE MAINTAINED IN AN "OPEN" STATUS UNTIL FINAL ACCEPTANCE IS PROVIDED BY THE OWNER IN ACCORDANCE WITH APWA SPECIFICATION SECTION 2400.6.

SEDIMENTATION AND EROSION CONTROL MEASURES:

TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL INCLUDE AS A MINIMUM, BUT NOT BE LIMITED TO:

1. TEMPORARY SEDIMENT FENCE– SILT FENCE WILL BE INSTALLED AS SHOWN ON THE DRAWING. THIS WILL SLOW RUNOFF VELOCITIES AND MINIMIZE EROSION OF THE SLOPES SHOWN ON THE PLANS.
2. TEMPORARY INLET PROTECTION.

PERMANENT SEDIMENTATION AND EROSION CONTROL MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO:

1. STABILIZATION OF PIPE INLETS AND OUTLETS WHERE INDICATED.
2. HYDROSEEDING OR LANDSCAPING OF ALL DISTURBED AREAS.

EROSION CONTROL NOTES:

1. PROPERTY LINE IS LIMIT OF DISTURBANCE EXCEPT AS SHOWN.
2. ALL DISTURBED AREAS SHALL BE STABILIZED WITH VEGETATION WITHIN 14 DAYS OF COMPLETION OF WORK. AS WORK PROGRESSES AROUND SITE, SURROUNDING AREAS SHALL BE TEMPORARILY SEEDED.
3. EROSION CONTROLS SHALL BE INSTALLED AND MAINTAINED BY CONTRACTOR.
4. TEMPORARY SEDIMENT FENCE OR WATTLES TO REMAIN UNTIL ADEQUATE VEGETATION IS ESTABLISHED.
5. MUD AND DEBRIS SHALL BE CLEANED UP AT THE CONCLUSION OF EACH WORKING DAY, OR AFTER EACH RAINFALL IF SILT IS PRESENT.
6. INSPECTION, MAINTENANCE AND REPAIR OF EROSION CONTROL DEVICES SHALL BE ONGOING THROUGHOUT THE LIFE OF CONSTRUCTION TO KEEP THE DEVICES IN OPERABLE CONDITION AT ALL TIMES. ADDITIONAL MEASURES SHALL BE INSTALLED AS REQUIRED BY ACTUAL FIELD CONDITIONS AND/OR OWNER'S INSPECTION AGENCY.

REV	DATE	DESCRIPTION	DDW	NJN	DSN	DWN	CHK
0	3/29/24	ISSUED FOR BID/CITY REVIEW					

STATE OF MISSOURI
DAVID D. WOOD
NUMBER
PE-2011037427
3/29/24
PROFESSIONAL ENGINEER

DAVID D. WOOD
ENGINEER
MO # 2011037427

14700 WEST 114TH TERRACE
LENEXA, KANSAS 66215
PH. (913) 894-5150
lx@kweng.com | www.kweng.com
KAW VALLEY ENGINEERING
KAW VALLEY ENGINEERING, INC., IS AUTHORIZED TO OFFER ENGINEERING SERVICES IN MISSOURI STATE CERTIFICATE OF AUTHORITY # 000842. EXPIRES 12/31/25

LEE'S SUMMIT HS - EAST PARKING LOT

400 SE BLUE PARKWAY
LE'S SUMMIT, MISSOURI 64063

CONSTRUCTION DOCUMENTS PHASE I
EROSION CONTROL DETAILS

PROJ. NO.	C23_1880
DESIGNER	DDW
DRAWN BY	NJN
CFN	1880DET
SHEET	C495
REV	0

THIS DRAWING SHALL NOT BE UTILIZED BY ANY PERSON, FIRM, OR CORPORATION IN WHOLE OR IN PART WITHOUT THE SPECIFIC PERMISSION OF KAW VALLEY ENGINEERING, INC.