

Facility Stormwater Plan



City of Grandview, Missouri

Public Works Department

Project No. 106120

**Revision 0
10/15/2018**

Facility Stormwater Plan

prepared for

**City of Grandview, Missouri
Public Works Department**

Project No. 106120

**Revision 0
10/15/2018**

prepared by

**Burns & McDonnell Engineering Company, Inc.
Kansas City, MO**

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LIST OF ABBREVIATIONS

<u>Abbreviation</u>	<u>Term/Phrase/Name</u>
BMPs	Best Management Practices
HHW	Household Hazardous Waste
MS4	Municipal Separate Storm Sewer System
PCBs	Poly-chlorinated Biphenyls
SDS	Safety Data Sheet
SWMP	Stormwater Management Program

1.0 FACILITY DESCRIPTION AND CONTACT INFORMATION

This Facility Stormwater Plan (Plan) covers municipal operations and associated activities at the City of Grandview (City) Public Works Facility (Facility) located in Grandview, Missouri. Figure 1-1 shows the location of the Facility. This Plan has been prepared to satisfy requirements of article 4.2.6 *Pollution Prevention/Good Housekeeping for Municipal Operations* of Missouri State Operating Permit (MO-R040000) authorizing the discharge of stormwater from the City's Municipal Separate Storm Sewer System (MS4) and generally improve and preserve the quality of stormwater discharging from the Facility.

This Plan describes the Facility and its operations, identifies potential sources of stormwater pollution at the Facility, recommends appropriate stormwater management controls or best management practices (BMPs) to reduce the discharge of pollutants in stormwater runoff; establishes a Stormwater Pollution Prevention Team (Stormwater Team); provides for the periodic review of this Plan; and outlines the inspection, training, and documentation requirements. It should be noted that this Plan does not address Construction stormwater best management practices, as required when more than one acre is to be disturbed.

Facility Location:

Grandview Public Works Facility
7000 East 139th Street
Grandview, MO 64030
Jackson County

Latitude: 38°51'19" N

Longitude: 94°30'45" W

Source: Google Earth Professional © 2018 Google

Average Annual Precipitation: 41 inches

Receiving Water: Little Blue River and Longview Lake



Figure 1-1: Vicinity Map

1.1 Purpose of Plan

The purpose of this Plan is to assist the City's Public Works, Parks and Recreation, and Community Development Departments to operate and maintain the Public Works Facility (Facility) in a manner that is protective of stormwater quality and meets the intent of the MS4 Permit and the City's Stormwater Management Program (SWMP). Pollution Prevention/Good Housekeeping for municipal operations is one of six minimum control measures required by the permit and the SWMP. This Plan outlines the BMPs to be implemented at the Facility to reduce or eliminate pollutants in stormwater discharges associated with municipal operations. BMPs include managerial/administrative practices, structural controls, and non-structural controls.

The MS4 permit requires the City "*develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations*". This Plan is required to include the following components, which are applicable to the Public Works Facility:

- A training program to prevent and reduce stormwater pollution from the Public Works Facility;
- Maintenance BMPs, maintenance schedules, and long-term inspection procedures for controls to reduce floatable and other pollutants to the MS4 from the Public Works Facility;
- Controls for reducing or eliminating the discharge of pollutants from parking lots, maintenance and storage yards, fleet or maintenance shops with outdoor storage areas, and salt/sand storage locations and snow disposal areas the permittee operates at the Public Works Facility;
- Procedures for the proper disposal of waste removed from the City's MS4 including dredged materials, accumulated sediment, floatables, and other debris at the Public Works Facility;
- All paints, solvents, petroleum products and petroleum waste products (except fuels) shall be stored at the Public Works Facility so that these materials are not exposed to stormwater.

1.2 Facility Information

The Facility is approximately 5.6 acres of both impervious and pervious surfaces including a parking lot, training and administrative offices, and maintenance/storage facilities supporting the City's Public Works, Parks and Recreation, and Community Development Departments. Stormwater collected in the north parking area enters two grate inlets and discharges to the grassy swale that conveys flow west to east along the north edge of the property. Stormwater from the south parking area is conveyed through a curb cut to the grass swale on the south edge of the property. (See Figure 1-2)

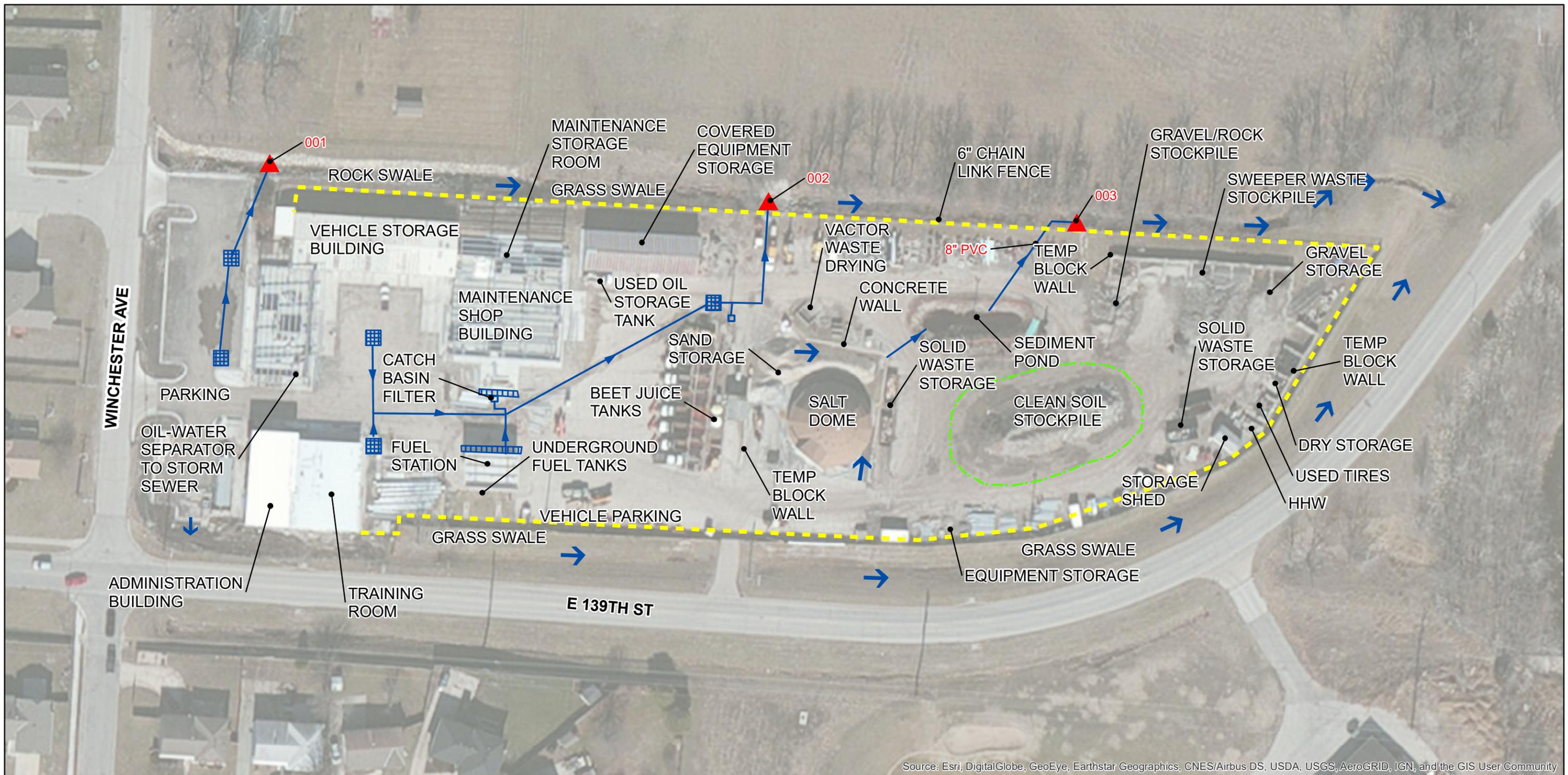
The Facility provides a maintenance facility, equipment storage, and materials storage, including:

- Public Works
 - Fueling station and underground fuel tanks
 - Fleet maintenance facility including maintenance fluid storage and distribution systems
 - Salt storage dome
 - Beet juice storage tanks to support streets deicing
 - Large equipment and vehicle parking/storage
 - Street sweeper debris storage
 - Street light and sign storage
 - Manhole and miscellaneous sewer material/equipment storage
- Parks and Recreation
 - Equipment storage including fertilizer/herbicide sprayers/tanks and mowers
 - Equipment maintenance facility
 - Material storage including fertilizer/herbicide
- Community Development
 - Material and equipment storage
 - Solid waste storage

Discharge Information

The Facility's stormwater runoff enters the Little Blue River at E. 139th Street, approximately 275 feet west of Byars Road, upstream of Longview Lake (Figure 1-1). Stormwater runoff from the north parking area discharges to end section 001 at the north swale via one 15" storm pipe (Figure 1-2). Paved surfaces near the administration building, maintenance shop building, and fueling facilities and unpaved areas near the covered equipment storage discharge to the north swale through one 24" storm pipe at end section 002. Stormwater runoff tributary to the contaminant pond discharges to the north swale via one 8" PVC pipe at end section 003. Stormwater runoff from the remaining surfaces discharge via overland flow to the swales located outside the perimeter fence on the northern, southern, and eastern edges of the property.

The Little Blue River is on the 2018 Section 303(d) List for *Escherichia coli*.



<p>Legend</p> <ul style="list-style-type: none"> Stormwater Flow Direction Arrow Discharge Point 6" Chain Link Fence Storm Pipe Grate Inlet Silt Fence Trench Drain 	<p style="text-align: center;">N</p> <p style="text-align: center;">0 30 60 120 Feet</p>			<p style="text-align: center;">Figure 1-2 Stormwater Facility Map</p> <p style="text-align: right;">October 2018</p>
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1.3 Contact Information

Facility Owner(s): City of Grandview Public Works Department
 1200 Main St
 Grandview, MO 64030
 (816) 316-4856

Facility Operator(s): City of Grandview Public Works Department
 1200 Main St
 Grandview, MO 64030
 (816) 316-4856

Other Contacts: City of Grandview Public Works Department (Streets and Sewers)

 City of Grandview Public Works Department (Fleet Maintenance)

 City of Grandview Community Development Department (Director)

 City of Grandview Parks & Recreation Department (Director)

1.4 Stormwater Pollution Prevention Team (Stormwater Team)

The Stormwater Team for the Facility consists of individuals that are responsible for all aspects of the development and implementation of this Plan, including but not limited to, developing, evaluating, maintaining, and revising this Plan, as well as meeting the reporting requirements of the MS4 permit.

Table 1-1 summarizes the Stormwater Team members and areas of responsibility.

Table 1-1: Stormwater Team Responsibilities

Position/Department	Stormwater Team Responsibility
City Engineer/Public Works	<p style="text-align: center;"><u>Stormwater Team Leader</u></p> Coordinate all stages of plan development and implementation, ensures reports are submitted, oversees employee training and recordkeeping
Defined by Stormwater Team Leader/Public Works Streets and Sewers	<p style="text-align: center;"><u>Stormwater Assistant</u></p> Spill response review, responsible for implementation of housekeeping program for areas of/and materials within Facility

Position/Department	Stormwater Team Responsibility
	outside of responsibility of Community Development and Parks & Recreation
Defined by Stormwater Team Leader/Public Works Fleet Maintenance	<p style="text-align: center;"><u>Stormwater Assistant</u></p> Spill response review, responsible for implementation of housekeeping program within Maintenance Shop Building and Vehicle Storage Building
Director/Community Development	<p style="text-align: center;"><u>Stormwater Assistant</u></p> Spill response review, responsible for implementation of housekeeping program for areas of/and materials within Facility utilized and/or stored by Community Development
Director/Parks & Recreation	<p style="text-align: center;"><u>Stormwater Assistant</u></p> Spill response review, responsible for implementation of housekeeping program for areas of/and materials within Facility utilized and/or stored by Parks & Recreation

The Stormwater Team Leader will assign additional team members or duties as needed to facilitate implementation of the Plan.

2.0 POTENTIAL POLLUTANT SOURCES

2.1 Inventory of Exposed Materials

Significant materials handled and stored on site, if spilled or exposed in a manner that could come into contact with stormwater are summarized in Table 2-1. Liquid chemicals, oils, and products pose a high potential risk for stormwater contamination and are stored indoors or within secondary containment areas that substantially reduce the risk of contaminating stormwater. During weekly stormwater inspections of the Facility, the status of spills, leaks, and other potential contamination are recorded in Appendix B.

Table 2-1: Inventory of Exposed Materials

Potential Pollutant Source	Potential Contaminant	Drainage Area Location	BMPs Employed
Fueling Area	Diesel and Unleaded Fuel	South Swale	<p>Non-Structural Housekeeping, Employee Training, Inspections, Preventative Maintenance Underground Storage Tank Plan</p> <p>Structural Paved Surfaces</p>
Salt Storage	Salt	Perimeter Swales	<p>Non-Structural Housekeeping, Employee Training Inspections, Preventative Maintenance</p> <p>Structural Covered storage Containment Wall Sediment Pond or Underground Tank</p>
Solid Waste Storage	Municipal-Type Trash and Non-Hazardous Waste	Perimeter Swales	<p>Non-Structural Housekeeping, Employee Training Inspections, Preventative Maintenance</p> <p>Structural Covered storage Containment Wall</p>
Dry Equipment Storage Areas	Metals, Oil & Grease, Particulates	Perimeter Swales	<p>Non-Structural Housekeeping, Employee Training Inspections, Preventative Maintenance</p> <p>Structural None</p>
Household Hazardous Waste Storage Areas	Metals, Oil & Grease, Particulates, Refrigerants	North and East Perimeter Swales	<p>Non-Structural Housekeeping, Employee Training Inspections, Preventative Maintenance</p> <p>Structural None</p>

Potential Pollutant Source	Potential Contaminant	Drainage Area Location	BMPs Employed
Street Sweepings Stockpile	Oil & Grease, Sediment, PCBs, Metals	North Swale	Non-Structural Housekeeping, Employee Training Inspections, Preventative Maintenance Structural None
Wash Area	Oil & Grease, Metals	North Swale	Non-Structural Off-site washing Structural Construct wash station or identify area with oil/water separator that dewateres to sanitary sewer
Vactor Waste Drying Area	Biological waste	North Swale	Non-Structural Dispose of vactor waste weekly after collection or as vactor waste containment area approaches storage capacity Structural Construct 4-sided vactor waste storage with freeboard and retractable coverage awning
Covered Equipment Storage	Metals, Oil & Grease, Particulates	North Swale	Non-Structural Housekeeping, Employee Training Inspections, Preventative Maintenance Structural Covered Storage
Maintenance Shop Building	Oil & Grease, Antifreeze, Fuel, Used Oil	North Swale	Non-Structural Housekeeping, Employee Training Inspections, Preventative Maintenance Structural Indoor Storage Oil/Water Separator Secondary Containment

Figure 1-2 depicts the significant materials exposed to stormwater, structural controls that are in place to prevent stormwater pollution, storm sewer inlets, storm pipes, and Facility drainage.

2.2 Significant Spills and Leaks

For the purposes of this Plan, a significant leak or spill is defined as:

- the release of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act or Section 102 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA),

- or the spill or leak of a chemical that reaches an outfall and adversely impacts stormwater quality.

A log used for documenting incidents (such as spills or other discharges) along with other information which may impact the quality and quantity of stormwater discharges is included on the Spill Log in Appendix A. Spills shall be documented within 24 hours of occurrence. Spill Log shall be reviewed quarterly and review shall be documented in .

2.3 Non-Stormwater Discharges

Non-stormwater discharges constitute all discharges into the storm drainage system that are not precipitation or snowmelt runoff. Some dry-weather discharges that may be present at the Facility and are authorized by Section 1.2.2.2 of the MS4 Permit include:

- Landscape irrigation and lawn watering,
- Discharges from potable water sources,
- Foundation or footing drains,
- Air conditioning condensate, and
- Discharges from emergency fire-fighting activities.

The Facility should be inspected and evaluated for the presence of dry-weather discharges on a minimum annual frequency. Any dry-weather discharges that are not authorized by the permit, shall be eliminated immediately upon discovery. Documentation regarding dry-weather evaluations and mitigation should be retained in Appendix B of this Plan.

3.0 STORMWATER MANAGEMENT CONTROLS

Pollutant control involves identifying and implementing BMPs. BMPs, when implemented properly, can effectively reduce the potential for release of pollutants into the environment and mitigate the impacts if a release were to occur. The City employs the following BMPs, including preventative maintenance and good housekeeping, with regard to chemical and materials management at the Facility to reduce the risk of spills and stormwater runoff contamination. Table 2-1 also summarizes the BMPs in place for each of the significant sources of stormwater contamination.

The City employs activity-specific BMPs 1 through 7. General Facility Practices (BMP 7) include non-structural BMPs that should be applied across the entire Facility:

- BMP 1: Oil and Chemical Storage Areas
- BMP 2: Equipment Laydown Areas
- BMP 3: Vehicle Storage, Maintenance, Cleaning, and Fueling
- BMP 4: Bulk Material Management
- BMP 5: Pesticide, Herbicide, and Fertilizer Storage/Application
- BMP 6: Building and Grounds Maintenance
- BMP 7: General Facility Practices
 - Preventive Maintenance
 - Good Housekeeping
 - Spill Prevention and Response Measures
 - Stormwater Management
 - Sediment and Erosion Control
 - Employee Training
 - Facility Inspections
 - Recordkeeping and Internal Reporting

3.1 BMP 1: Oil and Chemical Storage Areas

New and used oil, new and used antifreeze, and other maintenance chemicals such as hydraulic fluid, transmission fluid, grease, and others are stored at the Facility in fixed 240-gallon tanks and 55-gallon drums within the Maintenance Shop Building. Smaller containers including 5-gallon buckets, 1-gallon, pints, and quarts are stored throughout shelving units and within flammables cabinets.



**Maintenance Shop Building
Indoor Fluid Storage Area**

A portable 250-gallon oil storage tank is used during the community household hazardous waste (HHW) collection events to collect used oil from Grandview residents. Following each community HHW collection event, the collected used oil is recycled and the tank is stored empty until the next collection event.

Suggested Oil and Chemical Storage Techniques

1. Store oil and other liquid chemicals indoors to the extent practical to prevent contact with stormwater.
2. When indoor storage is not practical, store oils and chemicals under cover to prevent contact with stormwater.
3. Utilize sized secondary containment when oil and other liquid chemicals are stored outdoors or adjacent to doorways. Sized secondary containment should be large enough to contain the volume of the largest container plus a 25-percent safety factor to account for precipitation. Verify that secondary containment material of construction is chemically compatible with the materials stored within.
4. Clean collected debris and standing water and/or other fluids out of secondary containment basins regularly to allow the entire containment volume to be available for spill containment.



**Example Outdoor Drum
Containment Pallet
(Source: Interstate Products, Inc.)**

5. Store and transfer oils and chemicals over paved surfaces and in areas clear of traffic to prevent accidental damage to containers or spills.
6. Clean up spills and leaks immediately upon discovery and disposed of waste materials (i.e. adsorbent, stained soil, etc.) immediately and appropriately.
7. Accurately label all chemical storage containers and storage areas. Recycle or dispose of empty and/or decommissioned containers as soon as possible. These containers should be labeled “EMPTY” when stored temporarily.
8. Locate Safety Data Sheets (SDSs), spill response cleanup materials and spill response plans and procedures in a visible area in all areas where spills are likely to occur.
9. Immediately following its use, appropriately dispose of used absorbent material. Absorbent material left unattended becomes a stormwater contaminant.
10. Inventory management is essential in reducing the required oil and chemical storage space, minimizing potential for stormwater pollution, minimizing risk to employees and the Facility.

3.2 BMP 2: Equipment Laydown Areas

Used equipment, parts, and miscellaneous non-liquid items are stored within the Facility storage yard, primarily along the perimeter fencing and out of the drive areas. Management of equipment laydown and storage areas is essential to minimizing stormwater pollution potential. Only equipment and materials with an intended purpose or future use should be stored long-term at the Facility. Scrap metals, recyclables, and other material with intended short-term storage should be managed in accordance with BMP 4: Bulk Material Management.

Suggested Equipment Laydown Area Techniques

1. Drain liquids from all equipment that is stored long-term, including lubricating and hydraulic oils and fuels.
2. Store leaking equipment inside the building until repairs can be made.
3. Clean equipment or materials with a solid build up before storage or should be covered with a tarp when stored in the area.
4. Educate and train all staff on the appropriate and allowable items stored in equipment laydown and boneyard areas. It is each staff member's responsibility to be aware of equipment and materials that may pose a threat to stormwater.
5. Store equipment on pallets (and covered with tarps) to minimize contact with moisture and soil, minimizing corrosion to the containers. This technique is pertinent when storing materials with high corrosion potential.
6. Drums and portable tanks may be stored in the area if empty, properly labeled, and all openings are covered or otherwise closed.
7. Contain and clean up leaks or spills discovered in the equipment laydown as soon as possible.
8. The following materials are not permitted to be stored in equipment laydown and dry storage areas without proper containment:
 - Chemicals
 - Used tires
 - Used batteries
 - Household hazardous waste and municipal solid waste



Equipment Laydown Area



Equipment Laydown Area

3.3 BMP 3: Vehicle Storage, Maintenance, Cleaning, and Fueling

Vehicle storage, fleet maintenance, and vehicle and equipment fueling are all conducted at the Facility. The maintenance shop building provides a modern indoor maintenance space with dedicated oil, antifreeze, and hydraulic fluid storage tanks with internal distribution system to safely handle maintenance fluids.

Fueling of fleet vehicles is conducted on site at a fuel station with diesel and unleaded fuel stored in underground fuel tanks. Both tanks are registered with the Tanks Section of Missouri Department of Natural Resources' (MDNR) Hazardous Waste Program.



Fleet Fuel Station

Vehicles and equipment are parked along the southern perimeter fence of the Facility or in the parking area on the west side of the facility. Spills or leaks in either of these locations will drain to the northern or southern drainage swales; therefore, should be immediately cleaned up.

Small equipment, parts, and tool cleaning is conducted within a dedicated parts washer with solvent that is recycled. The City regularly contracts with solvent removal company Crystal Clean. Vehicles and large equipment should be washed offsite at a commercial carwash.

Suggested Vehicle Storage, Maintenance, Cleaning, and Fueling Techniques

1. Park and store vehicles and equipment on paved surfaces when practical. When vehicles and equipment are parked and stored on unpaved surfaces, conduct regular inspections for leaks and stains.
2. Stored or parked vehicles and equipment should have clean exterior surfaces. Clean oil, grease, and buildup from external surfaces prior to storage. Park vehicles and equipment away from drainage paths.



Equipment and vehicle maintenance is conducted indoors

3. Perform preventive and routine maintenance to keep vehicles and equipment in good working condition and free of leaks and drips.
4. Park equipment awaiting maintenance indoors when practical; place drip pans under equipment parked outdoors and inspect regularly.
5. Use biodegradable and environmentally safe products when possible and substitute with less hazardous chemicals when feasible.
6. Recycle solvents used in parts washers on a regular schedule, maintain documentation/invoices/manifests. ***Volume or weight of collected and disposed/recycled material should be documented and reported in Appendix C.***
7. Store all maintenance, cleaning, and other fluids and chemicals indoors or outdoors within secondary containment and under cover.
8. Store used maintenance fluids including oil and antifreeze indoors. Schedule pick up for recycling prior to tanks reaching full level.
9. Wash vehicles and equipment in a commercial car wash. Dry washing and cleaning techniques should be conducted on site.

3.4 BMP 4: Bulk Material Management

Bulk materials stored and managed at the Facility include: 1) clean materials including soil, gravel, and rock; 2) waste materials including solid waste, yard debris, used appliances and other HHW; and 3) recyclables including scrap metal, used tires, used oil and used batteries.

Clean materials, including stockpiles of soil, gravel, and rock are located on the east side of the Facility.

Multiple (typically 4) 40-cubic yard (yd³) solid waste storage containers are located at the Facility to temporarily store municipal solid waste before it is hauled to and disposed at the landfill. The containers have no lids; however, containers are covered prior to transit to disposal facility. The following HHW are collected at the Facility:



Solid Waste Storage Containers

- Yard debris
- Appliances including refrigerators, air conditioners, freezers, etc.
- Used tires
- Used oil
- Used batteries

Stockpiles of gravel, rock, clean soil, street sweeper debris, metals (signs, pipe, posts, etc.), and wood scrap are segregated with temporary block walls or in piles within the property. Recyclables including scrap metal, used batteries, used tires, used oil, and used antifreeze are temporarily stored on site until enough materials are collected for routine recycling. Used oil and antifreeze storage and handling procedures are included in BMP 1: Oil and Chemical Storage Areas.

Suggested Waste Material Management Techniques

1. Cover solid waste receptacles to minimize wind dispersion. Inspect facility on a regular basis for wind-blown materials and return to solid waste containers.
2. Utilize drain plugs to reduce potential of leachate from escaping waste receptacles.
3. Schedule solid waste and recyclable pick up such that containers are emptied before overfilling/overflowing. *Volume or weight of collected and disposed/recycled material should be documented and reported in Appendix C.*

4. Schedule for permanent removal of collected HHW including used tires, used batteries, and used appliances within a month of collection. ***Volume or weight of collected and disposed/recycled material should be documented and reported in Appendix C.*** HHW shall be covered or kept in an area that is not exposed to the elements until disposed of.
5. Schedule removal of used oil and used antifreeze on a regular basis to prevent overfilling. ***Volume or weight of collected and disposed/recycled material should be documented and reported in Appendix C.***
6. Store used batteries in a leak proof and precipitation resistant container.
7. Walk through waste management and storage areas on a regular basis. Address dispersion of stored materials immediately upon discovery.
8. Maintain Material Disposal Logs (Appendix C).

3.5 BMP 5: Pesticide, Herbicide, and Fertilizer Storage/Application

Pesticide, herbicide, and fertilizer application is applied by trained/certified staff and is conducted in accordance with manufacturer instructions. Facility personnel may apply herbicide on weeds on the property and within City limits. Bulk dry or liquid pesticides, herbicides, and fertilizer will be stored under cover or indoors.



Herbicide Sprayer

Suggested Pesticide, Herbicide, and Fertilizer Management Techniques

1. Store all concentrated (dry or liquid) pesticides, herbicides, and fertilizers indoors or under cover. Manage and minimize inventory to reduce amount of storage required.
2. Mix bulk chemicals in quantities that can be applied within a single work shift.
3. Apply pesticides, herbicides, and fertilizers in accordance with manufacturers recommendations and away from stormwater drainage courses.
4. Document herbicide, pesticide, and fertilizer inventory monthly and properly dispose of unused or expired product. Unused pesticides, herbicides, and fertilizers should be disposed in a safe manner according to manufactures suggested disposal methods. *Volume or weight of collected and disposed/recycled material should be documented and reported in Appendix C.*

3.6 BMP 6: Building and Grounds Maintenance

Building and grounds maintenance includes cleaning, maintenance, ice and snow removal, graffiti removal, street sweeping, vactoring, and other activities in support of grounds and facilities. Building and grounds maintenance activities are conducted at the Facility as well as at off-site locations.

Bulk road salt, sand and small containers of ice melt are stored on site for use during roadway and sidewalk deicing in the winter months. Bulk road salt is stored within the fully enclosed salt dome. Sand is stored in a loose pile near the salt dome. Beet juice is stored in plastic bulk storage tanks and ice melt is stored in 50-pound bags on pallets indoors or under the covered equipment storage .

Building maintenance including indoor floor mopping and pavement washing should be conducted in a manner that prevents the disposal or collection of wash waters in storm drains or stormwater drainage ways.



1



2



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Roadway and sidewalk deicers and anti-icers are stored at the Facility: 1) covered dome for road salt storage, 2) sand is stockpiled behind the dome, 3) beet juice is stored in plastic storage tanks, and 4) ice melt is stored in bags on a pallet and under cover .

Street sweeping wastes and vactor truck wastes from storm drain maintenance and cleaning activities should be disposed of within a week of collection, and kept covered until removed. Street sweepings typically include sediment, salt, leaves, broken glass, metal, plastics, and other litter and is often characterized by high levels of oils, fuels, PCBs, and metals including zinc, copper, and lead. Removal of these wastes from the streets has a positive impact on the catch basins and stormwater collection systems within the MS4.

Suggested Building and Grounds Maintenance Techniques

1. Store road salt, sand, beet juice and ice melt used for roadway and sidewalk deicing in a manner that prevents stormwater contact. During winter months these materials are stocked in greater quantities and handled more frequently; therefore, inspect storage areas more frequently. Close the salt dome door when not in use. Sweep road salt that has been spilled and/or tracked out of the dome regularly and return for future use.
2. Sweep up and dispose of unused ice melt previously dispensed on sidewalks or walkways once ice and snow clear. This material is easily tracked and washed into stormwater drainage ways during snow melt runoff or precipitation events.
3. Dispose of collected landscape wastes on a regular basis to prevent material from entering the stormwater drainage ways.
4. Following street sweeping activities, dispose of collected debris and waste in a landfill or other appropriate disposal facility within one week. Collected debris and waste shall be covered and protected from exposure to rainfall until it is disposed of. ***Volume or weight of collected and disposed material should be documented and reported in Appendix C.***
5. Within one week following vactor truck waste collection, dispose of wastes within the waste drying pit at Facility. While wastes are allowed to air dry, they should be fully contained within the basin walls and protected from exposure to rainfall. Remove dry material and dispose properly at the landfill. Inspect vactor waste drying pit regularly to ensure material is fully contained at all times. ***Volume or weight of collected and disposed material should be documented and reported in Appendix C.***
6. Never dispose mop water into storm inlets or onto paved surfaces. Train all staff to dispose of mop waters into sinks or mop basins that drain to the sanitary sewer.
7. Never wash down exterior paved surfaces with surfactants unless wash water is collected and disposed into the sanitary sewer. Perform dry cleaning techniques such as sweeping.
8. Provide green stormwater infrastructure to improve water quality draining from areas where industrial activities are performed and a high likelihood of pollutants exist.

3.7 BMP 7: General Facility Practices

3.7.1 Good Housekeeping

Good housekeeping includes ongoing activities involving cleanup of handling and storage areas on a regular day-to-day schedule by employees. Good housekeeping best management practices aimed at minimizing the risks of stormwater contamination include the following:

- Appropriately labeling containers as to the contents;
- Storing chemicals indoors/under cover to the extent practical;
- Inventory management and appropriate disposal of unused chemicals;
- Cleaning identified leaks, spills and drips;
- Sweeping solids overflowing dumpsters and replacing swept materials into the dumpsters.

3.7.2 Spill Prevention and Response Measures

The Facility has developed a Spill Response Plan in Appendix D. This plan describes steps taken by Public Works to keep staff safe and prepare for the arrival of Grandview Fire Department. Specifically, the Spill Response Plan identifies emergency contact information and locations where petroleum and/or chemicals are stored, and stormwater drainage information. Upon arrival of the Grandview Fire Department, the Incident Commander will take over all field decisions using their Hazardous Materials Standard Operating Procedures.

Spill kits to respond to liquid spills are located throughout the Facility specifically at the fuel station, storage shed, maintenance shop building, Parks & Recreation maintenance area adjacent to the vehicle storage building, and in the training room. Spill kit locations are provided on the Spill Response Plan.

3.7.3 Sediment and Erosion Control

Vegetative, structural, and/or stabilization measures will be implemented and maintained to prevent erosion in unpaved areas. Unpaved drive areas are compacted soil. If erosion is observed in unpaved or unvegetated areas, attempts will be made to stabilize the soil.

3.7.4 Employee Training

Annual training on this Plan is provided to all employees who have a role in implementing or maintaining activities identified in this Plan. Annual training includes general awareness and education on stormwater pollution prevention as well as the details and goals of this Plan, including the following,

- Proper material management and handling practices for oil, chemicals, and other materials used or commonly encountered at the Facility;

- Spill prevention methods;
- Location of materials and equipment necessary for spill clean-up;
- Spill clean-up techniques;
- Spill reporting procedures;
- Pesticide, herbicide, and fertilizer application procedures; and
- Familiarization with good housekeeping measures and BMPs.

Employees attending the training session will sign the attendance roster. Maintain training materials and attendance rosters in the Training Log, Appendix E, for a minimum of three years.

3.7.5 Facility Inspections

Perform monthly inspections and maintenance of stormwater management devices including catch basin filters, inlets, swales, end sections, outfalls, etc. Inspect monthly and perform preventive maintenance of all block containment walls, secondary containment basins, oil/water separators, etc.

Routine Facility inspections of potential pollutant sources including material handling and storage areas are conducted to determine the effectiveness of the pollution prevention measures and controls in place at the Facility. These inspections are conducted monthly. If feasible, conduct at least one inspection during a period when a stormwater discharge is occurring. During the inspection, look for signs of pollutants contacting stormwater, condition of housekeeping, and proper operation of sediment controls and containment areas. During each inspection, document unidentified discharges from the site, control measures needing repair or replacement, incidents of noncompliance, identification of any existing BMPs that are not being properly implemented, and additional control measures needed to prevent unauthorized materials from contact with stormwater.

The monthly Facility inspections will be documented on the Stormwater Inspection Form in Appendix F. Maintain completed forms for a minimum of three years.

The monthly Facility inspections will be used to determine the effectiveness of the BMPs outlined in this Plan. Implement tracking and follow-up procedures to document appropriate actions taken in response to the evaluation. If housekeeping in the areas inspected deteriorates over time, the Stormwater Team will discuss the issues and set a course of corrective action.

3.7.6 Recordkeeping and Internal Reporting

Adverse conditions noted during inspections will be brought to the attention of the Stormwater Team, so that prompt corrective action can be taken to minimize potential contamination. Initiate maintenance

activities required to resolve adverse conditions identified during the inspections and modify and/or update the Plan as appropriate. At a minimum, this Plan shall be reviewed annually.

Blank forms included in appendices are listed below. Review Stormwater Inspection Forms on an annual basis and update or modify whenever significant changes are made to the Facility. Maintain Training Logs and Stormwater Inspection Forms for a minimum of three years.

- Spill Log – Appendix A
- Facility Dry-Weather Discharges Documentation – Appendix B
- Material Disposal Logs – Appendix C
- Training Log (Training Materials and Attendance Rosters) – Appendix E
- Stormwater Inspection Form – Appendix F

4.0 PLAN REVISIONS

4.1 Review and Updating the Plan

This Plan will be updated and modified in a timely manner. Plan updates will be initiated when:

- A change in design, construction, operation, or maintenance that has a significant effect on the potential for the discharge of pollutants to waters of the State, or
- The monthly inspections by City staff indicate deficiencies in the Plan or BMPs, or
- Visual inspection of contributing areas, visual inspection of the stormwater discharges or monitoring of the stormwater discharges indicate the Plan appears to be ineffective in eliminating or significantly minimizing pollutants from sources identified in the Plan.

The Plan will be reviewed at least annually. All revisions to the Plan will be recorded on the form in Table 4-1. Changes in BMPs will be fully implemented as soon as possible.

Table 4-1: Summary of Plan Review and Updates

Review Date	Revision Description	Revised Section/Pages	Stormwater Team Leader Approval
October 2018	Full Stormwater Plan Development	Entire Plan	

APPENDIX A – SPILL LOG

Facility Stormwater Plan - Spill Log

Facility Information: City of Grandview, Public Works Facility
7000 East 139th Street
Grandview, MO 64030

Date of Spill	Time of Spill	Material Spilled	Estimated Quantity of Spilled Material	Discovered By	Describe Spill Response

APPENDIX B – FACILITY DRY-WEATHER DISCHARGES DOCUMENTATION

APPENDIX C – MATERIAL DISPOSAL LOGS

APPENDIX D – SPILL RESPONSE PLAN

Spill Response Plan

Grandview Public Works Facility

Emergency Contacts

Grandview Fire Department	Non-Emergency Dispatcher	(816) 316-4975
Grandview Fire/Police	Emergency	911

When a Spill/Leak/Release is observed:

1. Evacuate personnel from the immediate spill area.

2. Suppress all sources of ignition (turn off all nearby engines, etc.)

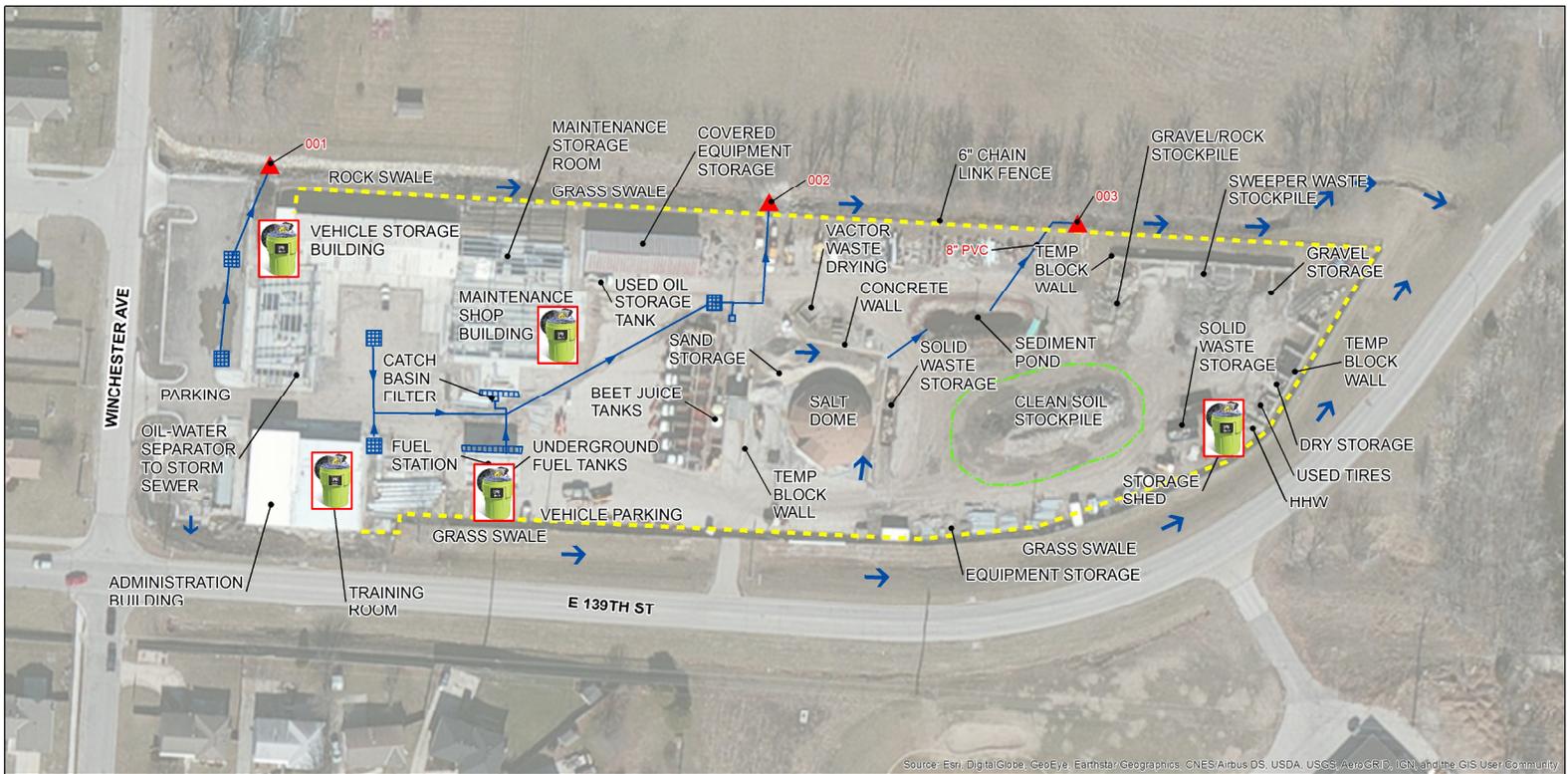
3. Identify spilled material and approximate volume or weight.

4. Contact **Fire Department** if **HAZMAT** Response is required.
Report: Location, hazardous material released, and current spill conditions. Have Safety Data Sheets available for responders.

A HAZMAT incident has potential of acute risk from contamination to citizens, patients, and responders.

5. Isolate/block/berm stormwater conveyance facilities and drains.

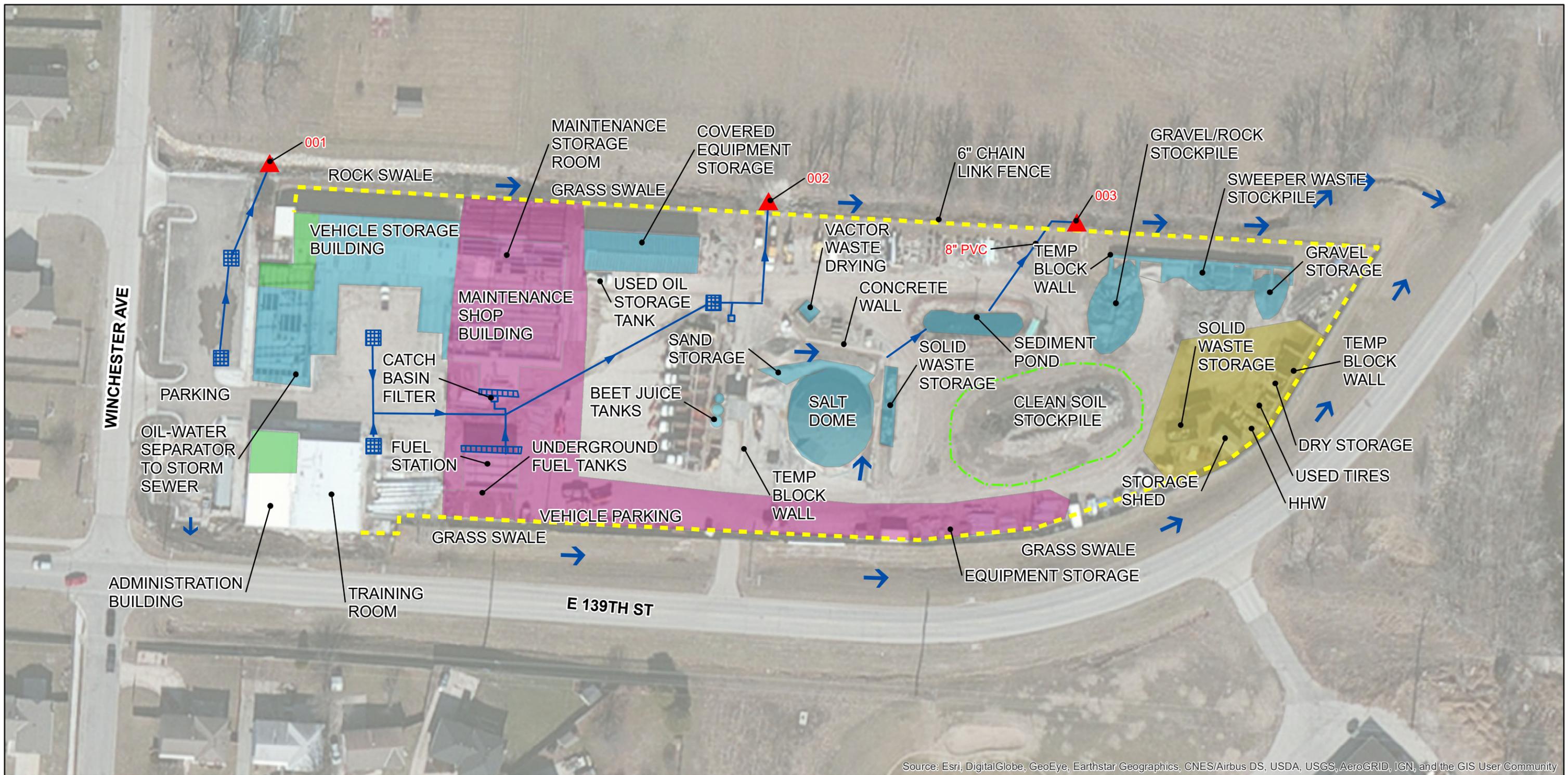
Document spill and response actions in Appendix A of the Facility Stormwater Plan.



<p>Legend</p> <ul style="list-style-type: none"> ➔ Stormwater Flow Direction Arrow ▲ Discharge Point --- 6" Chain Link Fence — Storm Pipe ■ Grate Inlet □ Silt Fence ▭ Trench Drain 	<p>N</p> <p>0 30 60 120 Feet</p>	<p>CITY OF GRANDVIEW SINCE 1912</p>	<p>BURNS & MCDONNELL</p>	<p>Figure 1-2 Stormwater Facility Map</p> <p>October 2018</p>
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APPENDIX E – TRAINING LOGS

APPENDIX F – STORMWATER INSPECTION FORMS



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

<p>Legend</p> <ul style="list-style-type: none"> Stormwater Flow Direction Arrow Discharge Point 6" Chain Link Fence Storm Pipe Grate Inlet Silt Fence Trench Drain 	<p>Inspection Responsibility</p> <ul style="list-style-type: none"> Community Development Parks & Recreation Public Works - Fleet Maintenance Public Works - Streets & Sewers <p>* All unmarked areas to be inspected by Public Works.</p>	<p style="text-align: center;">N</p> <p style="text-align: center;">0 30 60 120 Feet</p>			<p style="text-align: center;">Stormwater Facility Map Inspection Responsibility</p>
					<p>October 2018</p>

Facility Stormwater Plan - Stormwater Inspection Form
(to be completed monthly by Community Development)

Facility Information: City of Grandview, Public Works Facility 7000 East 139th Street Grandview, MO 64030			
Inspection Conducted by: _____		Date: _____	
Phone: _____		Time: _____ am/pm	
Email: _____			
Weather Conditions: _____			
General Facility	Yes	No	N/A
Is a hard copy of the Facility Stormwater Plan (Plan) available on site?			
Are manifests/records available for the following:			
Household Hazardous or Universal Waste(s) disposal/recycling			
Comments/Required Actions:			
BMP 1 - Oil and Chemical Storage Areas	Yes	No	N/A
Are Safety Data Sheets available on-site for all stored chemicals?			
Are all tanks and containers clean and free of rust or apparent damage?			
Are all tanks and containers labelled accurately? (Empty containers also)			
Are there any visible leaks, drips, or spills?			
Comments/Required Actions:			
BMP 2 - Equipment Laydown Areas	Yes	No	N/A
Are used tires present?			
Are used batteries present?			
Are oil drums and/or other chemical drums present?			
Is household hazardous waste present (i.e. paint, fluorescent bulbs, etc)?			
Comments/Required Actions:			
BMP 4 - Bulk Material Management	Yes	No	N/A
Household Hazardous Waste (HHW) storage area:			
Are HHW items disposed of as soon as possible?			
Are refrigerants removed from collected appliances?			
Have used tires been stored on site longer than 30 days?			
Are used batteries stored indoors?			
Comments/Required Actions:			

Facility Stormwater Plan - Stormwater Inspection Form
(to be completed monthly by Parks and Recreation)

Facility Information: City of Grandview, Public Works Facility 7000 East 139th Street Grandview, MO 64030			
Inspection Conducted by: _____		Date: _____	
Phone: _____		Time: _____ am/pm	
Email: _____			
Weather Conditions: _____			
General Facility	Yes	No	N/A
Is a hard copy of the Facility Stormwater Plan (Plan) available on site?			
Comments/Required Actions:			
BMP 1 - Oil and Chemical Storage Areas	Yes	No	N/A
Are Safety Data Sheets available on-site for all stored chemicals?			
Are all tanks and containers clean and free of rust or apparent damage?			
Are used oil/chemical tanks full and in need of recycling?			
Is secondary containment provided and free of fluids and debris?			
Are all tanks and containers labelled accurately? (Empty containers also)			
Are there any visible leaks, drips, or spills?			
Comments/Required Actions:			
BMP 3 - Vehicle Storage, Maintenance, Cleaning and Fueling	Yes	No	N/A
Are vehicle storage areas clean and free of leaks and/or stains?			
Are used oil filters and used oil disposed of appropriately?			
Are vehicles awaiting maintenance stored indoors or with appropriate drip pans, etc?			
Are unused vehicles drained of fluids when parked long-term?			
Are vehicles washed off-site or in a location that drains to an oil/water separator and sanitary sewer connection?			
Is parts washer solvent due to be recycled?			
Comments/Required Actions:			
BMP 4 - Bulk Material Management	Yes	No	N/A
Are clean materials stockpiled within designated storage area(s)?			
Comments/Required Actions:			

Facility Stormwater Plan - Stormwater Inspection Form
(to be completed monthly by Parks and Recreation)

BMP 5 - Pesticide, Herbicide, and Fertilizer Storage/Application	Yes	No	N/A
Are staff trained/certified in chemical application?			
Is herbicide, pesticide, and fertilizer inventory completed?			
Comments/Required Actions:			
BMP 7 - General Facility Practices			
7.2 - Good Housekeeping	Yes	No	N/A
Are stock chemicals stored indoors or under cover?			
Are unused, expired, or unnecessary chemicals or fluids stored on site?			
Are there any stains visible on pavement or soil?			
Comments/Required Actions:			
7.3 - Spill Prevention and Response Measures	Yes	No	N/A
Are spill response plans posted in the following locations:			
Vehicle Storage Building			
Are spill response kits stocked and available?			
Comments/Required Actions:			
7.6 - Facility Inspections			
When was the last Stormwater Inspection Form completed by Parks & Recreation?	Date: / /		
Comments/Required Actions:			
7.7 - Recordkeeping and Internal Reporting	Yes	No	N/A
Is the Spill Log up to date?			
Comments/Required Actions:			
Note any additional items of concern:			

Facility Stormwater Plan - Stormwater Inspection Form
(to be completed monthly by Public Works - Fleet Maintenance)

Facility Information: City of Grandview, Public Works Facility 7000 East 139th Street Grandview, MO 64030			
Inspection Conducted by: _____		Date: _____	
Phone: _____		Time: _____ am/pm	
Email: _____			
Weather Conditions: _____			
General Facility	Yes	No	N/A
Is a hard copy of the Facility Stormwater Plan (Plan) available on site?			
Are manifests/records available for the following:			
Used oil recycling			
Solvent (parts washer) recycling			
Comments/Required Actions:			
BMP 1 - Oil and Chemical Storage Areas	Yes	No	N/A
Are Safety Data Sheets available on-site for all stored chemicals?			
Are all tanks and containers clean and free of rust or apparent damage?			
Are used oil/chemical tanks full and in need of recycling?			
Is secondary containment provided and free of fluids and debris?			
Are all tanks and containers labelled accurately? (Empty containers also)			
Are there any visible leaks, drips, or spills?			
Comments/Required Actions:			
BMP 2 - Equipment Laydown Areas	Yes	No	N/A
Are equipment laydown areas clean and orderly?			
Is the ground surface free of leaks or stains? (Check under and around all equipment)			
Is there old and/or unused equipment to remove from the site?			
Are equipment surfaces are free of oil , rust, or other potential pollutants?			
Are used tires present?			
Are used batteries present?			
Are oil drums and/or other chemical drums present?			
Comments/Required Actions:			

Facility Stormwater Plan - Stormwater Inspection Form
(to be completed monthly by Public Works - Fleet Maintenance)

BMP 3 - Vehicle Storage, Maintenance, Cleaning and Fueling	Yes	No	N/A
Are vehicle storage areas clean and free of leaks and/or stains?			
Is fuel station free of leaks and/or stains?			
Are used oil filters and used oil disposed of appropriately?			
Are vehicles awaiting maintenance stored indoors or with appropriate drip pans, etc?			
Are unused vehicles drained of fluids when parked long-term?			
Is preventive maintenance performed to keep vehicles in good working condition?			
Are vehicles washed off-site or in a location that drains to an oil/water separator and sanitary sewer connection?			
Is parts washer solvent due to be recycled?			
Are maintenance fluid tanks full and needing to be recycled?			
Comments/Required Actions:			
BMP 6 - Building and Grounds Maintenance	Yes	No	N/A
Is floor mop water disposed in mop sinks only?			
Comments/Required Actions:			
BMP 7 - General Facility Practices			
7.2 - Good Housekeeping	Yes	No	N/A
Are stock chemicals stored indoors or under cover?			
Are unused, expired, or unnecessary chemicals or fluids stored on site?			
Are there any stains visible on pavement or soil?			
Do paved surfaces need to be swept to avoid loose debris from entering storm drainage system?			
Comments/Required Actions:			
7.3 - Spill Prevention and Response Measures	Yes	No	N/A
Are spill response plans posted in the following locations:			
Fuel Station			
Maintenance Shop Building			
Are spill response kits stocked and available?			
Comments/Required Actions:			

Facility Stormwater Plan - Stormwater Inspection Form
(to be completed monthly by Public Works - Streets and Sewers)

Facility Information: City of Grandview, Public Works Facility 7000 East 139th Street Grandview, MO 64030			
Inspection Conducted by: _____		Date: _____	
Phone: _____		Time: _____ am/pm	
Email: _____			
Weather Conditions: _____			
General Facility	Yes	No	N/A
Is a hard copy of the Facility Stormwater Plan (Plan) available on site?			
Comments/Required Actions:			
BMP 1 - Oil and Chemical Storage Areas	Yes	No	N/A
Are Safety Data Sheets available on-site for all stored chemicals?			
Are all tanks and containers clean and free of rust or apparent damage?			
Is secondary containment provided and free of fluids and debris?			
Are all tanks and containers labelled accurately? (Empty containers also)			
Are there any visible leaks, drips, or spills?			
Comments/Required Actions:			
BMP 3 - Vehicle Storage, Maintenance, Cleaning and Fueling	Yes	No	N/A
Are vehicle storage areas clean and free of leaks and/or stains?			
Are vehicles awaiting maintenance stored indoors or with appropriate drip pans, etc?			
Are unused vehicles drained of fluids when parked long-term?			
Comments/Required Actions:			
BMP 4 - Bulk Material Management	Yes	No	N/A
Solid waste dumpsters and storage areas:			
Are container lids closed?			
Are containers full and/or overtopped?			
Is leachate or fluids present outside of container?			
Has solid waste collected inside perimeter fence or in drainage swales?			
Are clean materials stockpiled within designated storage area(s)?			
Comments/Required Actions:			

Facility Stormwater Plan - Stormwater Inspection Form
(to be completed monthly by Public Works - Streets and Sewers)

BMP 6 - Building and Grounds Maintenance	Yes	No	N/A
Are street sweepings stockpiled on site?			
Is vector waste stockpiled on site?			
Is salt storage area clean and all salt contained within salt dome?			
Is floor mop water disposed in mop sinks only?			
Is ice melt (for sidewalk deicing) swept up when no longer in use?			
Comments/Required Actions:			
BMP 7 - General Facility Practices	Yes	No	N/A
7.1 - Preventative Maintenance	Yes	No	N/A
Is stormwater draining from the Facility appropriately?			
Are stormwater catch basins, inlets, swales, and outfalls free of debris?			
Are block containment walls, secondary containment basins, and oil/water separators clean?			
Comments/Required Actions:			
7.2 - Good Housekeeping	Yes	No	N/A
Are stock chemicals stored indoors or under cover?			
Are unused, expired, or unnecessary chemicals or fluids stored on site?			
Are there any stains visible on pavement or soil?			
Do paved surfaces need to be swept to avoid loose debris from entering storm drainage system?			
Comments/Required Actions:			
7.3 - Spill Prevention and Response Measures	Yes	No	N/A
Are spill response plans posted in the following locations:			
Training Room			
Is contact information on spill response plans correct and up to date?			
Are spill response kits stocked and available?			
Comments/Required Actions:			
7.4 - Sediment and Erosion Control	Yes	No	N/A
Is erosion observed in unpaved or unvegetated areas?			
Comments/Required Actions:			



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