ADOT Maintenance Standard Operating Procedures for Storm Water Control

Maintenance and Operations
Division Alaska Department of Transportation &
Public Facilities

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Contents

Abbreviations

ADEC	Alaska Department of Environmental Conservation
ADOT&PF	Alaska Department of Transportation and Public Facilities (also known as DOT)
ARDSA	Anchorage Roads and Drainage Service Area
AST	Alaska State Troopers
BMP	best management practice
CBD	Central Business District
CBERRRSA	Chugiak Birchwood Eagle River Rural Road Service Area
DOT	Alaska Department of Transportation and Public Facilities (also known as ADOT&PF)
EPA	U.S. Environmental Protection Agency
LRSA	Limited Road Service Area
MOA	Municipality of Anchorage
M&O	Maintenance and Operations Division (DOT&PF)
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
OGS	Oil and Grit Separator
PWA	Public Works Administration
RMSA	Road Maintenance Service Areas
RRSA	Rural Road Service Area
SA	Service Area
SMD	Street Maintenance Department (MOA)
SOPs	Standard Operating Procedures
WMS	Watershed Management Section

Alaska Department of Transportation (ADOT&PF)
Standard Operating Procedures

SOPs

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Inlets/Catchbasins

RESOURCE NEEDS

DEFINITIONS:
Catch basins are subsurface concrete basins that receive water through a metal or slotted grate. These basins can also be round concrete chambers, manholes, which contain flow control and/or water quality devices. The catch basin's primary function is to convey flow while filtering debris and sediment to prevent these items from transferring and clogging the piped collection system downstream.

PERMIT REFERENCES:
DOT performs annual inspection and cleaning of catchbasins and inlet control measures to meet permit requirements (3.4.4.1).

ACTIVITY DESCRIPTION:
Inlet and catch basin inspection and maintenance is a contracted service. A contract for these services is negotiated with the Contractor. Contractor is responsible for inspection and maintenance of inlets and catch basins in accordance with the terms and conditions set forth in the contract. Once complete, the Contractor sends an invoice specifying activities performed to include a daily work log detailing where inspections and maintenance was performed along with any special notes for DOT to take action on. When invoices are received, a DOT foreman visually inspects the sites for work completion. DOT supervisor or foreman reviews contractor daily logs, records and special notes from inspections that require DOT to take action.

INSPECTION CRITERIA:

1. The depth of sediment accumulation is noted in the field notes. If sediment depths are greater than ½ the capacity then maintenance is required.
2. The structure is checked for structural integrity and/or damage for the following items:
    - A. Inlet condition is flowing and free from any blockages
    - B. Evidence of infiltration including drips or water flowing into structure at joints and/or grouting and evidence of discoloration above the sump indicating former water intrusion.
    - C. Cracks and deterioration of the structure or grouting including rotting of concrete structure, exposure of rebar or structural matting, discontinuous sections in the grout.
    - D. Structural integrity including barrel sections is in good alignment, grade rings show no evidence of cracking, lifting, or movement.
    - E. Signs of abrasion and/or corrosion and deterioration of pipes

MAINTENANCE CRITERIA:

1. Remove sediment using vactor truck. If repairs and/or maintenance are required, the contractor will document them.
2. The conditions will be put on the DOT work log for prioritization and scheduling.
    - A. Remove inlet blockage
    - B. Record and/or photograph infiltration condition for DOT work log.
    - C. Record and/or photograph cracks and deterioration for DOT work log.
    - D. Record and/or photograph structural integrity for DOT work log.
    - E. Record and/or photograph corrosion or abrasion for DOT work log.

INSPECTION SCHEDULE:
Routine inspection is completed on an annual basis for each catch basin.

MAINTENANCE SCHEDULE:
Maintenance is performed as determined by the amount of sediment accumulation. Maintenance requirements are logged after inspection, noted, and prioritized on the DOT work log, and maintenance activities are completed as warranted by the priority assigned.

Inlets/Catchbasins

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

Pollution prevention and good housekeeping procedures are conducted in accordance with the terms and conditions set forth in the contract, including the following:

Train field crews annually and provide frequent verbal reminders on how to operate the equipment and what to look for during routine inspections prior to the field season.

Keep training records that include attendees, date, and description of training.

Check all vehicles, including vactor trucks, used for stormwater infrastructure inspection and maintenance for operational condition, leaks, and deficiencies prior to the contractor starting work. For equipment inspection and maintenance, the contractor should:

- Place drip pans under equipment parts that may leak. Empty drip pans when they are more than ½ full.
- Clean up all drips and leaks immediately
- Empty fuel and oil filters where drips can not reach stormwater
- Do not wash equipment or pavement surrounding equipment where wash water can enter storm drains

Check fittings associated with the vactor truck prior to starting operation of the vactor truck to remove accumulated sediment material.

Remove all litter and debris found during the inspection procedure. Dispose of litter/debris from the site in solid waste containers located at the DOT yard.

Sediment and debris collected in the vactor truck are transferred to the snow disposal site and used to regrade the site or a paid disposal of material is made through Anchorage Sand and Gravel Company. If sediment is spilled or released during collection or disposal clean the area thoroughly and immediately.

Manholes/Pipe Inspection/Weirs

RESOURCE NEEDS

DEFINITIONS:
Manholes allow surface access to underground utilities and piping conveyances for inspection and maintenance operations. Pipes within the storm water system convey storm water flow to receiving bodies of water. Weirs installed within manholes provide flow control.

PERMIT REFERENCES:
This SOP was prepared according to the permit requirements (3.4.4.1).

ACTIVITY DESCRIPTION:
Manhole/pipe/weir inspection and maintenance is a contracted service. A contract for these services is negotiated with the Contractor. Contractor is responsible for inspection and maintenance of manholes/pipes/weirs in accordance with the terms and conditions set forth in the contract. Once complete, the Contractor sends an invoice specifying activities performed to include a daily work log detailing where inspections and maintenance was performed along with any special notes for DOT to take action on. When invoices are received, a DOT foreman visually inspects the sites for work completion. DOT supervisor or foreman reviews contractor daily logs and records and special notes from inspections that require DOT to take action.

INSPECTION CRITERIA:

1. The depth of sediment accumulation is noted in the field notes. If sediment depths are greater than ½ the capacity then maintenance is required.

2. The structure is checked for structural integrity and/or damage for the following items:
    A. Evidence of infiltration including drips or water flowing into structure at joints and/or grouting, and evidence of discoloration above the sump indicating former water intrusion.
    B. Cracks and deterioration of the structure or grouting including rotting of concrete structure, exposure of rebar or structural matting, discontinuous sections in the grout.
    C. Structural integrity including barrel sections is in good alignment, grade rings show no evidence of cracking, lifting, or movement.
    D. Signs of abrasion and/or corrosion and deterioration of pipes

3. Measure the depth of sediment accumulation in the upstream and downstream pipes.

MAINTENANCE CRITERIA:

1. Remove sediment in manhole or pipes using vactor truck.

2. If repairs and/or maintenance are required, record the condition and transfer to the DOT work log for prioritization and scheduling.
    A. Record and/or photograph infiltration condition for DOT work log
    B. Record and/or photograph cracks and deterioration for DOT work log.
    C. Record and/or photograph structural integrity for DOT work log.
    D. Record and/or photograph corrosion or abrasion for DOT work log.

3. If the sediment level in pipes is more than ½ full, schedule the pipes to be jetted and cleaned. Please see Pipe Jetting/Cleaning SOP for detail.

INSPECTION SCHEDULE:
Routine inspection of manholes and associated weirs and pipes are completed on an annual basis.

MAINTENANCE SCHEDULE:
Maintenance is performed as identified during inspections.

Manholes/Pipe Inspection/Weirs

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

Pollution prevention and good housekeeping procedures are conducted in accordance with the terms and conditions set forth in the contract, including the following:

Train field crews annually and provide frequent verbal reminders on how to operate the equipment and what to look for during routine inspections prior to the field season.

Keep training records that include attendees, date, and description of training.

Check all vehicles, including vactor trucks, used for stormwater infrastructure inspection and maintenance for operational condition, leaks, and deficiencies prior to starting work. For equipment inspection and maintenance:

- Place drip pans under equipment parts that may leak. Empty drip pans when they are more than ½ full.
- Clean up all drips and leaks immediately
- Empty fuel and oil filters where drips can not reach stormwater
- Do not wash equipment or pavement surrounding equipment where wash water can enter storm drains

Check fittings associated with the vactor truck prior to starting operation of the vactor truck to remove accumulated sediment material.

Remove all litter and debris found during the inspection procedure. Dispose of litter/debris from the site in solid waste containers located at the DOT yard.

Sediment and debris collected in the vactor truck are transferred to the snow disposal site and used to regrade the site or a paid disposal of material is made through Anchorage Sand and Gravel Company. If sediment is spilled or released during collection or disposal clean the area thoroughly and immediately.

Pipe Jetting and Cleaning

RESOURCE NEEDS

DEFINITIONS:
Pipe jetting and cleaning is the process of bending a high pressure water nozzle through a pipe, beating debris and sediment from the pipe. Sediment and debris is collected and removed through an access point via vactor truck.

PERMIT REFERENCES:
This SOP was prepared according to the permit requirements (3.4.4.1).

ACTIVITY DESCRIPTION:
Pipe jetting and cleaning is a contracted service. A contract for these services is negotiated with the Contractor. Contractor is responsible for inspection and maintenance of manholes/pipes/weirs in accordance with the terms and conditions set forth in the contract. Once complete, the Contractor sends an invoice specifying activities performed to include a daily work log detailing where inspections and maintenance was performed along with any special notes for DOT to take action on. When invoices are received, a DOT foreman visually inspects the sites for work completion. DOT supervisor or foreman reviews contractor daily logs and records and special notes from inspections that require DOT to take action.

INSPECTION CRITERIA:

1. The depth of sediment accumulation is noted in the field notes. If sediment depths are greater than ½ the depth the pipe is cleaned by jetting.
2. The structure is checked for structural integrity and/or damage for the following items:
    - A. Evidence of infiltration including drips or water flowing into structure at joints.
    - B. Cracks and deterioration of the structure.
    - C. Structural integrity is in good alignment, with no evidence of shifting, shearing, cracking, lifting, or movement.
    - D. Signs of abrasion and/or corrosion.

MAINTENANCE CRITERIA:

1. Remove sediment using vactor truck. Place a downstream bladder of floating boomto collect water and sediment to ensure sediment plumes are not released into receiving water. Dispose of sediment from the vactor truck at the sedimentation basin at the contractor's yard.
2. If repairs and/or maintenance are required, record the condition and transfer to the DOT work log for prioritization and scheduling.
    - A. Record and/or photograph infiltration condition for DOT work log
    - B. Record and/or photograph cracks and deterioration for DOT work log.
    - C. Record and/or photograph structural integrity for DOT work log.
    - D. Record and/or photograph corrosion or abrasion for DOT work log.

INSPECTION SCHEDULE:
Pipes are inspected during routine manhole inspections (see SOP for Manhole Inspection of Pipes and Weirs).

MAINTENANCE SCHEDULE:
Maintenance is performed as identified during inspections.

Pipe Jetting and Cleaning

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

Pollution prevention and good housekeeping procedures are conducted in accordance with the terms and conditions set forth in the contract, including the following:

Train field crews annually and provide frequent verbal reminders on how to operate the equipment and what to look for during routine inspections prior to the field season.

Keep training records that include attendees, date, and description of training.

Check all vehicles, including vactor trucks, used for stormwater infrastructure inspection and maintenance for operational condition, leaks, and deficiencies prior to starting work. For equipment inspection and maintenance:

- Place drip pans under equipment parts that may leak. Empty drip pans when they are more than ½ full.
- Clean up all drips and leaks immediately
- Empty fuel and oil filters where drips can not reach stormwater
- Do not wash equipment or pavement surrounding equipment where wash water can enter storm drains

Check fittings associated with the vactor truck prior to starting operation of the vactor truck to remove accumulated sediment material.

Remove all litter and debris found during the inspection procedure. Dispose of litter/debris from the site in solid waste containers located at the DOT yard.

Sediment and debris collected in the vactor truck are transferred to the snow disposal site and used to regrade the site or a paid disposal of material is made through Anchorage Sand and Gravel Company. If sediment is spilled or released during collection or disposal clean the area thoroughly and immediately.

Check Dams

RESOURCE NEEDS

DEFINITIONS:
Check dams are used to slow the velocity of concentrated stormwater, to prevent erosion in an unlined channel or vegetative swale. Check dams catch sediment from the channel and are typically constructed out of rock but can also be constructed from gravel, sandbags, logs or treated lumber.

PERMIT REFERENCES:
DOT performs inspection and cleaning of manholes/pipes/weirs to meet permit requirements (3.4.4.1)

ACTIVITY DESCRIPTION:
A detailed inspection is completed of each check dam and minor cleaning, such as litter pick-up, is completed as part of the inspection routine. Check dams are visually inspected for sediment accumulation and signs of deterioration, or evidence of previous overtopping or flooding. If sediment accumulation prevents the check dam from functioning properly, then sediment buildup is removed. If repairs are required, the location and condition is reported to the DOT Supervisor upon return from the field activities. The Supervisor will assign the repair to daily field crews as needed.

INSPECTION CRITERIA:

1. The depth of sediment accumulation at the check dam is noted in the field notes. If sediment depths are greater than 1/3 the height of the check dam maintenance is needed. The accumulation of sediment and evidence of previous flooding or channel overtopping is checked to ensure functionality of the check dam.

2. The condition of the check dam structure
    A. Check for signs of structural deterioration including loss of rock structure, and/or crumbling.
    B. Check for signs of scour on the downstream side of the check dam.

MAINTENANCE CRITERIA:

1. If the sediment and debris level behind the check dam is greater than 1/3 the height of the dam, remove sediment to restore capacity. To keep it functioning properly, the sediment and/or debris is removed.

2. If repairs and/or maintenance are required, record the condition and transfer to the DOT work log for prioritization and scheduling.
    A. Record and/or photograph structural condition for DOT work log.
    B. Record and/or photograph scour condition for DOT work log.

INSPECTION SCHEDULE:
Check dams are inspected as needed or when reported to be causing a problem.

MAINTENANCE SCHEDULE:
Maintenance is performed on an as needed basis. Typically maintenance requirements are reported to the DOT Supervisor and maintenance activities are completed as warranted by the priority assigned.

Check Dams

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

Train field crews annually and provide frequent verbal reminders on how to operate the equipment and what to look for during routine inspections prior to the field season.

Keep training records that include attendees, date, and description of training.

Check all vehicles, including vactor trucks, used for stormwater infrastructure inspection and maintenance for operational condition, leaks, and deficiencies prior to starting work. For equipment inspection and maintenance:

- Place drip pans under equipment parts that may leak. Empty drip pans when they are more than ½ full.
- Clean up all drips and leaks immediately
- Empty fuel and oil filters where drips can not reach stormwater
- Do not wash equipment or pavement surrounding equipment where wash water can enter storm drains

Remove all litter and debris found during the inspection procedure. Dispose of litter/debris from the site in solid waste containers.

Sediment and debris collected during check dam maintenance are transferred to the snow disposal site and used to regrade the site or a paid disposal of material is made through Anchorage Sand and Gravel Company. If sediment is spilled or released during collection or disposal clean the area thoroughly and immediately.

Prevent tracking on roadways from the work area and sweep to remove any tracked sediment.

Oil and Grit Separators

RESOURCE NEEDS

DEFINITIONS:
Oil and grit separators (OGS) are structural Best Management Practice (BMPs) designed to remove hydrocarbons and sediment from runoff. Runoff passes through these compartments to separate grit, oil and sediment before continuing in the downstream conveyance system.

PERMIT REFERENCES:
This SOP was prepared according to the permit requirements (3.4.4.1).

ACTIVITY DESCRIPTION:
A detailed inspection is completed of each OGS and minor cleaning, such as litter pick-up, is completed as part of the normal inspection routine. A list of OGSs is developed and given to a contractor to inspect. Contractors inspect and prepare the vehicle fleet, including vactor trucks, to perform the inspection of the assigned structures. Vehicle fleets, including vactor trucks, are driven to the structure and crews start the inspection procedure. Each structure is visually inspected for signs of cracks, breaks, displacement, infiltration, or deterioration. Vactor trucks are used to remove the sediment and clean the OGSs. Sediment and liquid collected during cleaning activities is transported and disposed of at transfer stations owned and operated by the Anchorage Water and Wastewater Utility (AWWU). Any testing or reporting requirements are completed in accordance with the agreement of AWWU to accept this additional waste stream into the sanitary sewer system.

The contractor records the date each OGS was inspected and cleaned. If repairs are required for the OGS structure, the location and condition is reported to the DOT Supervisor upon return from the field activities. The information collected in the field is prioritized for repair or additional work. If the field inspection notes indicate repairs need immediate attention, the DOT Supervisor assigns this repair to daily field crews.

INSPECTION CRITERIA:

1. The depth of sediment accumulation is noted in the field notes.

2. The structural components of the OGSs are checked to ensure proper flow conveyance.
    - A. Evidence of infiltration including drips or water flowing into structure at joints and/or grouting, and evidence of discoloration above the sump indicating former water intrusion.
    - B. Cracks and deterioration of the structure or grouting including rotting of concrete structure, exposure of rebar or structural matting, discontinuous sections in the grout.
    - C. Structural integrity including barrel sections is in good alignment, grade rings show no evidence of cracking, lifting, or movement.
    - D. Signs of abrasion and/or corrosion are inspected

MAINTENANCE CRITERIA:

1. All Sediment and debris in the OGS are removed via vactor truck.

2. If repairs and/or maintenance are required, record the condition and transfer to the DOT work log for prioritization and scheduling.
    - A. Record and/or photograph infiltration condition for DOT work log
    - B. Record and/or photograph cracks and deterioration for DOT work log.
    - C. Record and/or photograph structural integrity for DOT work log.
    - D. Record and/or photograph corrosion or abrasion for DOT work log.

INSPECTION SCHEDULE:
Each OGS is inspected annually.

MAINTENANCE SCHEDULE:
Sediment and debris are removed on an annual basis.

Other maintenance needs are performed as identified during inspection.

Oil and Grit Separators

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES
Train field crews annually and provide frequent verbal reminders on how to operate the equipment and what to look for during routine inspections prior to the field season. Keep training records that include attendees, date, and description of training. Check all vehicles, including vactor trucks, used for stormwater infrastructure inspection and maintenance for operational condition, leaks, and deficiencies prior to starting work. For equipment inspection and maintenance: • Place drip pans under equipment parts that may leak. Empty drip pans when they are more than ½ full. • Clean up all drips and leaks immediately • Empty fuel and oil filters where drips can not reach stormwater • Do not wash equipment or pavement surrounding equipment where wash water can enter storm drains Check fittings associated with the vactor truck prior to starting operation of the vactor truck to remove accumulated sediment material. Remove all litter and debris found during the inspection procedure. Dispose of litter/debris from the site in solid waste. Sediment and debris collected in the vactor truck are transferred to the sanitary sewer system using the Anchorage Water and Wastewater receiving stations. AWWU has permitted this discharge to the sanitary sewer system. If sediment is spilled or released during collection or disposal clean the area thoroughly and immediately. Prevent tracking on roadways from the work area and sweep to remove any tracked sediment.

Outfalls

RESOURCE NEEDS

DEFINITIONS:
Outfalls are the discharge points where storm water enters the receiving body of water at the end of a storm water conveyance system.

PERMIT REFERENCES:
DOT performs inspection and cleaning of outfalls to meet permits requirements (3.4.4.1)

ACTIVITY DESCRIPTION:
Outfall inspection is performed between June 1st and August 30th as part of the dry weather screening program conducted by Watershed Management Services. Outfall inspection and maintenance is performed by DOT, if repairs are required. DOT then prioritizes repairs as simple or complex. Simple repairs are recorded on the DOT maintenance work log and are generally repaired within a year. DOT assigns complex repairs as part of engineering capital improvement projects.

INSPECTION CRITERIA:	**MAINTENANCE CRITERIA:**
1. Check for litter, rubbish, and debris around the outfall area. 2. The outfall is inspected to ensure flow conveyance and functionality. The outfall site is inspected for signs of: a. Sediment accumulation and localized erosion b. Exposed soil material with no vegetative cover 3. Evidence of illicit discharges should be checked and may include the following items: • Odor • Color • Clarity • Floatables • Deposits/stains • Vegetation condition • Structural condition • Biology	1. Sediment and debris in and around the outfall is removed. 2. If repairs are required, the condition is reported and prioritized for completion with other maintenance activities. 3. Watershed Management Services should be contacted if any illicit discharges are suspected as noted during inspection.
INSPECTION SCHEDULE: Each outfall is inspected once every two years.	**MAINTENANCE SCHEDULE:** Maintenance needs are performed on an as needed basis.

Outfalls

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES
Check all vehicles used for stormwater infrastructure inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the DOT yard. For equipment inspection and maintenance: • Place drip pans under equipment parts that may leak. Empty drip pans when they are more than ½ full. • Clean up all drips and leaks immediately • Empty fuel and oil filters where drips can not reach stormwater • Do not wash equipment or pavement surrounding equipment where wash water can enter storm drains Remove all litter and debris found during the inspection procedure. Dispose of litter/debris from the site in solid waste containers located at the DOT yard. During inspection and maintenance of outfalls, precaution is taken to prevent disturbance of the receiving water body and any best management practices in place to provide treatment or protection to the receiving water body which may include but is not limited to straw waddles, silt fence, jute matting.

Tree and Brush Removal

RESOURCE NEEDS

PERMIT REFERENCES:
This SOP was prepared according to the permit requirements (3.4.4.1).

ACTIVITY DESCRIPTION:
Tree and brush removal and maintenance is mostly a contracted service as DOT has a limited capability to do some smaller scale brush removal. DOT foreman perform the inspections. A contract for these services is negotiated with the Contractor. Contractor is responsible for inspection and maintenance of tree and brush removal in accordance with the terms and conditions set forth in the contract. Once complete, the Contractor sends an invoice specifying activities performed. When invoices are received, a DOT foreman visually inspects the sites for work completion. DOT crews remove brush as dictated by the foreman based on inspections or other methods of notifications of problem areas.

INSPECTION CRITERIA:
1. Crews inspect tree and brush encroachment during inspections of other maintenance activities. If during inspections site distance can be improved, trimming or brush removal may be recommended. Also, crews look for tree and brush encroachment that may cause an obstruction for flow conveyance within the storm water conveyance system.

MAINTENANCE CRITERIA:
1. Trim tree and brush material to improve site distance or clear obstruction for flow conveyance. As material is cut, chipped and spread over the existing vegetative portion of the right-of-way.

INSPECTION SCHEDULE:
Tree and brush removal is provided as needed or in response to a resident or agency request.

MAINTENANCE SCHEDULE:
Tree and brush removal is provided on an as needed basis.

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

Check all vehicles used for stormwater infrastructure inspection and maintenance for operational condition, leaks, and deficiencies prior to starting work. For equipment inspection and maintenance:

- Place drip pans under equipment parts that may leak. Empty drip pans when they are more than ½ full.
- Clean up all drips and leaks immediately
- Empty fuel and oil filters where drips can not reach stormwater
- Do not wash equipment or pavement surrounding equipment where wash water can enter storm drains

Remove all litter and debris found during the inspection procedure. Dispose of litter/debris from the site at a solid waste facility.

Pick up and dispose of clippings, leaves, sticks, branches, mulching, or other collected vegetation from all impermeable surfaces (driveways, sidewalks, trails, roadsides, etc.) that could runoff into stormdrain collection systems.

Do not dispose of vegetation into waterways or storm drainage systems.

During tree and brush removal prevent disturbance of the receiving water body and any best management practices in place to provide treatment or protection to the receiving water body which may include but is not limited to straw waddles, silt fence, jute matting.

Prevent tracking on roadways from the work area and sweep to remove any tracked sediment.

Drywells

RESOURCE NEEDS

DEFINITIONS:
Drywells are facilities that collect and infiltrate storm water runoff into the ground.

PERMIT REFERENCES:
This SOP was prepared according to the permit requirements (3.4.4.1).

ACTIVITY DESCRIPTION:
An inspection is completed of each drywell and minor cleaning, such as litter pick-up, is completed as part of the inspection routine. The inspection and maintenance of outfalls requires accurate record keeping. This task is completed by using MOA's GIS mapping system to inventory the drainage structures. The DOT Supervisor prints out grid maps identifying the drywells and assigns maintenance crews to inspect the structures on the map. Crews inspect and prepare the equipment fleet needed to perform the inspection of the assigned structures. Each drywell is visually inspected for sediment buildup, structural deterioration, and evidence of infiltration.

INSPECTION CRITERIA:

1. The depth of sediment accumulation is noted in the field notes. If sediment build-up appears to prevent proper infiltration the drywell is cleaned.
3. The structure is checked for structural integrity and/or damage for the following items:
    A. Dry well is clear and free from plugging
    B. Cracks and deterioration of the structure or grouting including rotting of concrete structure, exposure of rebar or structural matting, discontinuous sections in the grout.
    C. Structural integrity is in good alignment, showing no evidence of cracking, lifting, or movement.
    D. Signs of abrasion and/or corrosion

MAINTENANCE CRITERIA:

1. Remove sediment using vactor truck.
2. If repairs and/or maintenance are required, record the condition and transfer to the DOT work log for prioritization and scheduling.
    A. Record and/or photograph plugging condition for DOT work log
    B. Record and/or photograph cracks and deterioration for DOT work log.
    C. Record and/or photograph structural integrity for DOT work log.
    D. Record and/or photograph corrosion or abrasion for DOT work log.

INSPECTION SCHEDULE:
Drywell inspection is performed on an annual basis.

MAINTENANCE SCHEDULE:
Drywell maintenance is performed as identified through inspections.

Drywells

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

Train field crews annually and provide frequent verbal reminders on how to operate the equipment and what to look for during routine inspections prior to the field season.

Keep training records that include attendees, date, and description of training.

Check all vehicles, including vactor trucks, used for stormwater infrastructure inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the DOT yard. For equipment inspection and maintenance:

- Place drip pans under equipment parts that may leak. Empty drip pans when they are more than ½ full.
- Clean up all drips and leaks immediately
- Empty fuel and oil filters where drips can not reach stormwater
- Do not wash equipment or pavement surrounding equipment where wash water can enter storm drains

Check fittings associated with the vactor truck prior to starting operation of the vactor truck to remove accumulated sediment material.

Remove all litter and debris found during the inspection procedure. Dispose of litter/debris from the site in solid waste containers located at the DOT yard.

Sediment and debris collected in the vactor truck are transferred to the snow disposal site and used to regrade the site or a paid disposal of material is made through Anchorage Sand and Gravel Company. If sediment is spilled or released during collection or disposal clean the area thoroughly and immediately.

Pothole Repair

RESOURCE NEEDS

DEFINITIONS:
Potholes are formed when moisture penetrates cracks in the road surface. Cold weather freezes the water, which causes an expansion further cracking the pavement surface. Dirt and gravel are forced out of the crack by vehicular traffic eventually forming a pothole.

PERMIT REFERENCES:
This SOP was prepared according to the permit requirements (3.4.4.1).

ACTIVITY DESCRIPTION:
DOT has established programs to maintain and repair roads within the DOT service area and provide a best management mechanism to reduce road debris. These programs include a year-round pothole repair service.

Potholes are repaired year-round using asphalt. During the winter months, when asphalt plants are shut down, DOT prepares batches of asphalt within the DOT M&O yard. Crews inspect and prepare the vehicle fleet needed to make road repairs before leaving the DOT M&O yard. They travel to the site and make necessary repairs. Crews log and track areas of pothole repairs and approximate quantity of asphalt used. A supervisor collects field notes that log and track the potholes repaired.

INSPECTION CRITERIA:	**MAINTENANCE CRITERIA:**
1. Potholes are reported to DOT M&O by motorist. A DOT foreman inspects, verifies and records the condition on a Complaint/Request Slip.	1. Crews fill pothole at locations indicated on the Complaint/Request Slip.
INSPECTION SCHEDULE:	**MAINTENANCE SCHEDULE:**
Potholes reported to DOT M&O are verified and recorded within 24 hours	Potholes are repaired within 24 hours of DOT M&O inspection.

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

Train field crews annually and provide frequent verbal reminders on how to operate the equipment and what to look for during routine inspections prior to the field season.

Keep training records that include attendees, date, and description of training.

Check all vehicles, including vactor trucks, used for stormwater infrastructure inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the DOT yard. For equipment inspection and maintenance:

- Place drip pans under equipment parts that may leak. Empty drip pans when they are more than ½ full.
- Clean up all drips and leaks immediately
- Empty fuel and oil filters where drips can not reach stormwater
- Do not wash equipment or pavement surrounding equipment where wash water can enter storm drains

Remove all litter and debris found during the inspection procedure. Dispose of litter/debris from the site in solid waste containers. Prevent tracking on

roadways from the work area and sweep to remove any tracked sediment.

Vegetated Swales

RESOURCE NEEDS

DEFINITIONS:
Vegetated swales are gently sloping depressions planted with vegetation that allow stormwater runoff to be treated before entering the flow conveyance system. The vegetation slows the runoff flow, allowing the water to be filtered and, in some cases, infiltrated into the ground.

PERMIT REFERENCES:
This SOP was prepared according to the permit requirements (3.4.4.1).

ACTIVITY DESCRIPTION:
Vegetated swales are periodically inspected, and maintained, when improper functioning becomes evident. Crews inspect and prepare the equipment fleet needed to perform the inspection. After vehicles are driven to the location, the swale is visually inspected for sediment accumulation, vegetation that inhibits drainage conveyance, signs of erosion, channeling, or signs of flooding. If repairs are required, the location and condition is recorded and reported to the DOT Supervisor upon return from the field activities. The Supervisor collects field notes from the daily inspection activities and transfers the information collected in the field to the DOT work log. Needed repairs are cataloged and prioritized over the winter season and assigned for repair or additional work for the following season. If the field inspection notes repairs need immediate attention, the DOT Supervisor assigns this repair to daily field crews.

INSPECTION CRITERIA:

1. Look for trash, debris, or large objects and sediment that could obstruct water flow.
2. Look for vegetation impeding drainage, laying over, or matted down.
3. Inspect for signs of channeling, erosion, and previous flooding to assess the functionality of the swale.

MAINTENANCE CRITERIA:

1. Remove trash, debris, or sediment from swale. Dispose of at the DOT yard.
2. Conduct mulch-mowing (see Mowing SOP). Set mulching blade to 3-6 inches for mowing operations.
3. If signs of channeling, erosion, or flooding are present indicating sediment transfer through the swale, record and transfer to the DOT work log for prioritization and scheduling for repairs.
   A. Record and/or photograph condition for DOT work log
   B. Consider adding energy dissipation rock, check dams, or stabilizing vegetation to minimize sediment transfer and slow water velocity within the swale

INSPECTION SCHEDULE:
Swale inspection is performed on an as needed basis, as evidence of improper functioning is noticed or reported.

MAINTENANCE SCHEDULE:
Maintenance is performed based on inspection results.

Vegetated Swales

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

Train field crews annually and provide frequent verbal reminders on how to operate the equipment and what to look for during routine inspections prior to the field season.

Keep training records that include attendees, date, and description of training.

Check all vehicles used for stormwater infrastructure inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the DOT yard. For equipment inspection and maintenance:

- Place drip pans under equipment parts that may leak. Empty drip pans when they are more than ½ full
- Clean up all drips and leaks immediately
- Empty fuel and oil filters where drips can not reach stormwater
- Do not wash equipment or pavement surrounding equipment where wash water can enter storm drains

Remove all litter and debris found during the inspection procedure. Dispose of litter/debris from the site in solid waste containers.

Pick up and dispose of clippings, leaves, sticks, branches, mulching, or other collected vegetation from all impermeable surfaces (driveways, sidewalks, trails, roadsides, etc.) that could runoff into stormdrain collection systems.

Do not dispose of vegetation into waterways or storm drainage systems.

Take precaution to prevent disturbance of the receiving body water if any is nearby. If disturbance occurs, stabilize areas with exposed soil to prevent sediment transfer to receiving water bodies and use any best management practices in place to provide treatment or protection to the receiving water body which may include but is not limited to straw waddles, silt fence, jute matting until re-vegetation is established.

Prevent tracking on roadways from the work area and sweep to remove any tracked sediment.

If repairs are made to the side slopes of the swale, re-seed to re-establish vegetation on slopes and minimize sediment accumulation in the swale and provide temporary best management practices may be needed to protect the receiving system until vegetation has occurred.

Snow Removal and Disposal Practices

RESOURCE NEEDS

DEFINITIONS:
Snow removal and disposal refers to the clearing of snow from the road surface, the temporary storage of plowed snow in the road right-of-way (ROW), and the removal and disposal of accumulated snow from the road ROW at DOT owned snow storage facilities.

PERMIT REFERENCE:
DOT has prepared this standard operating procedure to meet the permit requirement of section (3.4.4.1)

ACTIVITY DESCRIPTION:
The roads are continuously plowed and sanded during a snow event to maintain a safe mode of travel for motorist. After a snowfall event, roads are plowed continuously following an event in a plow-out mode that cleans up all adjacent areas. Crews inspect and prepare the vehicle fleet needed to plow the snow before leaving the DOT M&O yard. Typically snow is plowed onto and stored on the adjacent road ROW, until the available storage is used up and prevents crews from future plowing. Once road storage is full, crews remove the snow via graders, blowers and loaders into haul trucks that dump the snow at DOT snow disposal sites. At the disposal site snow is removed from the haul trucks and moved to form lifts of snow, in an effort to maximize snow storage capacity within the disposal site.

INSPECTION CRITERIA:	**MAINTENANCE CRITERIA:**
1. Roadways are inspected after a snow fall event. 2. Graders and blowers remove accumulated snow in ROW when storage is no longer available.	1. Snow is plowed and pushed into the adjacent ROW. 2. Accumulated snow is removed from the ROW via graders, blowers, loaders and contracted haul trucks and taken to designated snow disposal sites.
INSPECTION SCHEDULE: Plowing begins after snowfall events, as needed.	**MAINTENANCE SCHEDULE:** Maintenance is performed in accordance with criteria specified, as needed.

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

Train field crews annually and provide frequent verbal reminders on how to operate the equipment and what to look for during routine inspections prior to the field season.

Keep training records that include attendees, date, and description of training.

Check all vehicles used for stormwater infrastructure inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the DOT yard. For equipment inspection and maintenance:

- Place drip pans under equipment parts that may leak. Empty drip pans when they are more than ½ full.
- Clean up all drips and leaks immediately
- Empty fuel and oil filters where drips can not reach stormwater
- Do not wash equipment or pavement surrounding equipment where wash water can enter storm drains

Snow Disposal Site Maintenance

RESOURCE NEEDS

DEFINITIONS:
DOT owns and maintains two snow disposal sites. These sites are used to store snow that is removed from stored snow from plowing operations accumulated in the road right-of-way.

PERMIT REFERENCES:
DOT has prepared this standard operating procedure to meet the permit requirement of section (3.4.4.1).

ACTIVITY DESCRIPTION:
Snow removed from the road surface by DOT crews is brought to one of the DOT snow storage sites. Snow is removed from the haul trucks and placed as a lift of snow. Equipment compacts snow to stabilize it for then next lift.

All snow disposal sites are operated in accordance with their own Storm Water Pollution Prevention Plan which specifies the Best Management Practices employed at the site, and defines the monitoring and maintenance of the stormwater control measures.

All snow disposal sites have BMPs in place to capture run off before it enters the storm water conveyance system. During summer months BMPs are implemented to maintain storage sites and ensure proper functioning for winter and spring months. This may include the following: grading the site to drain, maintaining swales, inspecting and cleaning oil and grit separators, inspecting and maintaining sedimentation basins. All of these BMPs have individual SOPs developed for the inspection and maintenance procedures. During spring and summer months, crews collect litter at the snow disposal sites.

INSPECTION CRITERIA:	**MAINTENANCE CRITERIA:**
1. Sites are inspected for litter 2. Site BMPs are inspected in accordance with appropriate SOPs	1. Crews collect litter and dispose of waste in solid waste containers 2. Site BMPs are maintained in accordance with applicable SOP
INSPECTION SCHEDULE: Litter control is provided year round, especially as sites begin to thaw. Snow disposal site BMPs are inspected year round.	**MAINTENANCE SCHEDULE:** Litter is collected as needed. BMPs are maintained as needed.

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

Train field crews annually and provide frequent verbal reminders on how to operate the equipment and what to look for during routine inspections prior to the field season.

Keep training records that include attendees, date, and description of training.

Road Deicing Practices and Storage

RESOURCE NEEDS

DEFINITIONS:

Deicing refers to the placement of materials to a road surface in reaction to a winter event once snow and ice have bonded to the road surface. These materials add traction to the surface or assist in the removal of snow and ice from the road surface.

PERMIT REFERENCE:

DOT has prepared this standard operating procedure to meet the permit requirement of section (3.4.4.1).

ACTIVITY DESCRIPTION:

Road deicing practices are not used to prevent ice build-up on roads and streets in most cases. DOT uses salt exclusively to keep the sand stockpile from freezing. A mixture of 5% (by weight) salt to sand ratio is used to achieve this result. DOT does maintain a small stockpile of salt in a cold storage building that can be used to make hot sand or be used as straight salt for conditions like freezing rain events. Hot sand is applied when very slick conditions occur and, if conditions permit, a brine solution may be applied to roads and streets. The brine solution is a mixture of salt and water and can be applied to the sand in the trucks or applied directly onto the road surface. The most effective temperature range for brine to work is 20 F or above. If brine is applied to sand it keeps the sand from freezing in the trucks, improves adhesion to the road surface, and melts the ice faster on the road. If temperatures are too low magnesium chloride can also be applied to sand or directly on the roadway surfaces. The process is the same as brine use stated above. Calcium Chloride works at temperatures 15 F or above. Crews inspect and prepare the vehicle fleet needed for sanding practices before leaving the DOT M&O yard. The inspection and application of the salt and hot sand requires accurate record keeping. Crews track the areas of where salt and hot sand have been applied and approximately how much has been used. This data is loaded into the Maintenance Management System database.

INSPECTION CRITERIA:	**MAINTENANCE CRITERIA:**
1. Roads are inspected for ice.	1. If deicing conditions are warranted, hot sand or salt is applied to streets and roads to help mitigate icing conditions.
INSPECTION SCHEDULE:	**MAINTENANCE SCHEDULE:**
Road deicing practices are performed as needed.	Maintenance is performed as needed.

Road Deicing Practices and Storage

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

Train field crews annually and provide frequent verbal reminders on how to operate the equipment and what to look for during routine inspections prior to the field season.

Keep training records that include attendees, date, and description of training.

Check all vehicles used for chemical application for operational condition, leaks, and deficiencies prior to leaving the DOT yard. For equipment inspection and maintenance:

- Place drip pans under equipment parts that may leak. Empty drip pans when they are more than ½ full.
- Clean up all drips and leaks immediately
- Empty fuel and oil filters where drips can not reach stormwater
- Do not wash equipment or pavement surrounding equipment where wash water can enter storm drains

Minimize application of de-icing and anti-icing agents to extent possible.

SALT STORAGE:

Salt is stored in the DOT M&O yard and covered with visqueen when delivered. Divert drainage away from the salt. Collect run-off during spring thaw to avoid entrance into the storm drainage conveyance system. Leftover salt is stored in a cold storage facility in the DOT M&O yard.

When the sand is delivered salt is mixed into the sand by loader bucket to achieve a 5%, by weight, salt to sand ratio to keep the stockpile from freezing.

Hot sand is prepared in the DOT M&O yard prior to application. Salt is mixed into the sand by loader bucket to achieve a desired ratio by the operator that is dependent on the conditions.

Loader buckets of salt and hot sand are transferred to the deicing application equipment in the DOT M&O yard. When the salt and hot sand is transferred to the application equipment used for deicing applications, precaution is taken to avoid overloading the application equipment.

Flow Conveyance System and Stream Thawing

RESOURCE NEEDS

PERMIT REFERENCES:
DOT has prepared this standard operating procedure to meet the permit requirement of section (3.4.4.1).

ACTIVITY DESCRIPTION:
Pipe and ditch thawing is performed when flooding occurs as a result of blockages of a flow conveyance system or stream from freezing. Problems may be most evident during the spring during break-up or rainstorm events. Typically maintenance personnel are notified of a problem from residents. Crews inspect and prepare the vehicle fleet needed for thawing practices, before leaving the DOT M&O yard. Areas with a known history of freezing problems are monitored more frequently.

Thawing is performed via portable steam boiler truck, of which DOT owns and operates. The boiler has several versatile fittings that can be used to thaw sections of frozen conveyance systems or streams. The type of fitting used for thawing is unique to the drainage problem.

INSPECTION CRITERIA:	**MAINTENANCE CRITERIA:**
1. Conveyance systems and streams are inspected for flooding of ROW or private property or blocked drainage anticipation of creating hazardous drainage conditions or in response to a customer compliant.	1. If thawing is warranted, a steam boiler is used to mitigate the drainage problem.
INSPECTION SCHEDULE: During spring break-up, DOT crews monitor roads and streets for drainage concerns. The general public informs personnel of drainage issues.	**MAINTENANCE SCHEDULE:** Thawing practices are performed as drainage conditions warrant.

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

Keep training records that include attendees, date, and description of training.

Check all vehicles used for thawing for operational condition, leaks, and deficiencies prior to leaving the DOT yard. For equipment inspection and maintenance:

- Place drip pans under equipment parts that may leak. Empty drip pans when they are more than ½ full.
- Clean up all drips and leaks immediately
- Empty fuel and oil filters where drips can not reach stormwater
- Do not wash equipment or pavement surrounding equipment where wash water can enter storm drains

Prevent tracking on roadways from the work area and sweep to remove any tracked sediment.

Aggregate Application and Storage

RESOURCE NEEDS

PERMIT REFERENCE:
DOT has written this standard operating procedure to meet the permit requirement of section (3.4.4.1).

ACTIVITY DESCRIPTION:
After a snowfall event roads and streets are plowed and an aggregate mixture of 5% (by weight) salt to sand ratio is applied to help vehicle traction. The sand is used for aggregate traction and is applied during and after snow has been plowed. The 5% salt is added to the sand stockpile in an effort to keep the sand from freezing.

Crews inspect and prepare the vehicle fleet needed to apply the aggregate. Before leaving the DOT M&O yard, sand is loaded into the sanders. Additional salt is mixed into the sand by loader bucket to achieve the desired ratio in the event conditions require a hot sand mixture. Crews leave the yard and apply the aggregate. Areas with a known history of icing problems are monitored more frequently.

INSPECTION CRITERIA:
1. Accumulation of snow during and after snow fall event requiring plowing
2. Diminished traction on the road surface

MAINTENANCE CRITERIA:
1. Aggregate is applied to areas of inspected concern
2. Aggregate is applied after snow has been plowed from the roads

INSPECTION SCHEDULE:
During and after snowfall events, as needed.

MAINTENANCE SCHEDULE:
During and after snowfall events as needed.

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

Keep training records that include attendees, date, and description of training.

Check all vehicles used for aggregate application are checked for operational condition, leaks, and deficiencies prior to leaving the DOT yard. For equipment inspection and maintenance:

- Place drip pans under equipment parts that may leak. Empty drip pans when they are more than ½ full
- Clean up all drips and leaks immediately
- Empty fuel and oil filters where drips can not reach stormwater
- Do not wash equipment or pavement surrounding equipment where wash water can enter storm drains

AGGREGATE STORAGE:
Store aggregate inside a building designed to keep aggregates from freezing if available.

Aggregate, well graded sand, is stored at the DOT M&O yard. Salt is added to the aggregate in an effort to keep the sand from freezing. Hot sand is prepared in the DOT M&O yard prior to application. Salt is mixed into the sand by loader bucket to achieve a desired ratio for the present condition.

Loader buckets of hot sand are transferred to the deicing application equipment in the DOT M&O yard. Prevent overloading the trucks with aggregate and spilling excessive aggregate onto the ground.

Contaminated Materials

RESOURCE NEEDS

PERMIT REFERENCE:
DOT has written this standard operating procedure to meet the permit requirement of section (3.4.4.1).

ACTIVITY DESCRIPTION:
Any contaminated materials spills or releases within the DOT M&O yard are reported immediately to appropriate personnel within the agency. Once appropriate personnel have been notified the material is handled in accordance with the agency's hazardous materials operating policy.

Within the DOT service area, contaminated materials handling is a contracted service. A contract for these services is negotiated with the Contractor. Contractor is responsible for the handling of contaminated materials set forth in the contract. Once complete, the Contractor sends an invoice specifying activities performed. When invoices are received, a DOT foreman visually inspects the sites for work completion.

INSPECTION CRITERIA:	**MAINTENANCE CRITERIA:**
Inspection of contaminated material is performed by appropriate personnel with proper training.	Maintenance is performed in accordance with the agency's hazardous materials operating policy.
INSPECTION SCHEDULE:	**MAINTENANCE SCHEDULE:**
Inspection is performed on an as needed or reported basis.	Maintenance is performed as needed.

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

Prepare spill plans for all areas where there is oil storage of 1,320 gallons or more (including fuels).

Keep chemicals stored indoors within secondary containment, in the proper storage cabinets.

Clean up small spills or drips immediately.

Provide and post notification procedures with contact information and phone numbers.

Train all personnel on response procedures. Keep training records.

Litter Control

RESOURCE NEEDS

PERMIT REFERENCE:
DOT has written this standard operating procedure to meet the permit requirement of section (3.4.4.1).

ACTIVITY DESCRIPTION:
Litter is collected as part of good housekeeping procedures set forth for the inspection and maintenance activities performed by DOT personnel.

Litter along the road system is collected by volunteer groups and agencies.

Litter is collected in trash bags and then set in the right-of-way. Bags are situated in the right-of-way away from drainage structures and flow paths. Appropriate personnel collect the trash bags and dispose of it properly in solid waste containers or hauled to a solid waste facility.

INSPECTION CRITERIA:	**MAINTENANCE CRITERIA:**
1. Litter is monitored by DOT personnel who determine when maintenance activities are performed. 2. Volunteer groups choose areas within the service area to collect litter.	1. Where litter is found during routine inspections, personnel collect and dispose of it in trash bags. Trash bags are disposed of at the DOT M&O yard or a disposal facility. 2. Volunteer groups collect litter along roadsides in trash bags. Bags of litter are set in the right-of-way, away from areas of drainage conveyance. The bags of litter are picked up and disposed of properly in solid waste containers or hauled to a solid waste facility.
INSPECTION SCHEDULE: Litter control is part of the good housekeeping procedures set forth in the inspection and maintenance activities performed by DOT personnel. Volunteer groups pick-up litter within designated service areas three times during the year.	**MAINTENANCE SCHEDULE:** Litter is collected when encountered during routine inspections and other street maintenance work activities. Volunteer groups schedule litter pick-up throughout the spring and summer season.

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

Pick up litter collected in trash bags in a timely manner.

Do not place trash bags within 10 feet of streams or stormwater inlets.

Mowing

RESOURCE NEEDS
ACTIVITY DESCRIPTION: Mowing is performed by DOT and through a contracted service. A schedule is developed and inspections performed to direct mowing activities. A contract for these services is negotiated with the Contractor to perform mowing in the Anchorage Bowl area where the larger tractor type mowers cannot be utilized. The contractor is responsible for the act of mowing in accordance with the terms and conditions set forth in the contract. Once complete, the Contractor sends an invoice specifying activities performed. When invoices are received, a DOT foreman visually inspects the sites for work completion.

INSPECTION CRITERIA: 1. Mowing inspections conducted concurrently with stormwater infrastructure/road repair inspection and maintenance activities.	**MAINTENANCE CRITERIA:** 1. Mowing needs are coordinated and performed by DOT or a Contractor.
INSPECTION SCHEDULE: Inspection is performed as needed on a reported basis as part of the inspection and maintenance activities performed by DOT personnel.	**MAINTENANCE SCHEDULE:** Maintenance is performed as needed by DOT and the Contractor.

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES
Check all vehicles used for mowing for operational condition, leaks, and deficiencies prior to leaving the DOT yard. For equipment inspection and maintenance: • Place drip pans under equipment parts that may leak. Empty drip pans when they are more than ½ full • Clean up all drips and leaks immediately • Empty fuel and oil filters where drips can not reach stormwater • Do not wash equipment or pavement surrounding equipment where wash water can enter storm drains Remove litter and debris prior to mowing activities. Take any litter collected back to the DOT yard and dispose in solid waste container. Use a mulching blade to leave clippings in place. Cease mowing activities within 10 feet of entry points to the stormwater conveyance system. Do not expose soils when mowing (for instance, mow no shorter than 1/3 of grass blade height).

Infiltration Devices and Constructed Wetlands

RESOURCE NEEDS

DEFINITIONS:
Infiltration devices and constructed wetlands are areas designed to treat stormwater runoff and reduce the amount of water entering a receiving water body.

PERMIT REFERENCES:
This SOP was prepared according to the permit requirements (3.4.4.1).

ACTIVITY DESCRIPTION:
Infiltration devices and constructed wetlands are periodically inspected and maintained on an as needed basis, when improper functioning is observed. Crews inspect and prepare the equipment fleet needed to perform the inspection. Vehicles are driven to the location and crews visually inspect for sediment accumulation, vegetation overgrowth that inhibits drainage, conveyance, and signs of erosion. If repairs are required, the location and condition are reported to the DOT Supervisor upon return from the field activities. The Supervisor collects and assigns repairs or additional maintenance activities as needed.

INSPECTION CRITERIA:

1. Look for sediment, trash, debris, or large objects that could obstruct water flow.
2. Look for vegetation impeding drainage, such as vegetation that is laying over or matted down.
3. Inspect for signs of channeling, erosion, short-circuiting and previous flooding to assess the functionality of the wetland or infilitration device.
4. Inspect for damage to private property, the right of way, or the roadway.
5. If any of these signs are noted, record and transfer to the DOT work log for prioritization and scheduling for repairs.

MAINTENANCE CRITERIA:

1. Remove sediment, trash or debris from swale. Dispose of at the DOT yard.
2. Remove vegetative overgrowth by hand (when practical) to reduce damage to wetland feature.
3. If signs of channeling, erosion, or flooding are present indicating sediment transfer through the wetland, record and transfer to the DOT work log for prioritization and scheduling for repairs.
    A. Record and/or photograph condition for DOT work log

INSPECTION SCHEDULE:
Inspection is performed as needed, as evidence of improper functioning is noted or reported.

MAINTENANCE SCHEDULE:
Maintenance is performed based on inspection results.

Infiltration Devices and Constructed Wetlands

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES
Train field crews annually and provide frequent verbal reminders on how to operate the equipment and what to look for during routine inspections prior to the field season. Keep training records that include attendees, date, and description of training. Check all vehicles used for stormwater infrastructure inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the DOT yard. For equipment inspection and maintenance: • Place drip pans under equipment parts that may leak. Empty drip pans when they are more than ½ full. • Clean up all drips and leaks immediately • Empty fuel and oil filters where drips can not reach stormwater • Do not wash equipment or pavement surrounding equipment where wash water can enter storm drains Remove all litter and debris found during the inspection procedure. Dispose of litter/debris from the site in solid waste containers located at the DOT yard. Do not dispose of vegetation into waterways or storm drainage systems. Stabilize areas with exposed soil to prevent sediment transfer to receiving water bodies and use any best management practices in place to provide treatment or protection to the receiving water body which may include but is not limited to straw waddles, silt fence, jute matting until re-vegetation is established.

Drainage Ditch Maintenance

DEFINITIONS:
Cleaning and shaping ditches to restore proper cross-section and flow line, and to ensure proper drainage of the roadway and adjacent roadway.

PERMIT REFERENCES:
This SOP was prepared according to the permit requirements (3.4.4.1).

ACTIVITY DESCRIPTION:
Drainage ditches are periodically inspected and maintained on an as needed basis, when improper functioning becomes evident. Crews inspect and prepare the equipment fleet needed to perform the inspection. Vehicles are driven to the location and crews start the inspection procedure. The ditch is visually inspected for sediment accumulation, vegetation overgrowth that inhibits drainage conveyance, signs of erosion, channeling, or signs of flooding. If repairs are required, the location and condition is manually recorded and reported to the DOT foreman upon return from the field activities. Repairs are noted and prioritized for repair or additional work. If the field inspection notes indicate repairs need immediate attention, the DOT foreman assigns this repair to daily crews. DOT also utilizes a federally funded maintenance program to perform drainage and ditch maintenance. Road segments are nominated based on seasonal inspections and submitted to the list for the next season.

INSPECTION CRITERIA:

1. Look for trash, debris, or large objects that could obstruct water flow.
2. Look for vegetation impeding drainage, laying over, or matted down.
3. Inspect for signs of channeling, erosion, and previous flooding to assess the functionality of the swale.

MAINTENANCE CRITERIA:

1. Remove trash or debris from drainage structure. Dispose of at the DOT yard.
2. Conduct mulch-mowing (see Mowing SOP). Set mulching blade to 3-6 inches for mowing operations.
3. If signs of channeling, erosion, or flooding are present indicating sediment transfer through the drainage structure, record and transfer to the DOT work log for prioritization and scheduling for repairs.
    A. Record and/or photograph condition for DOT work log
    B. Consider adding energy dissipation rock, check dams, or stabilizing vegetation to minimize sediment transfer and slow water velocity within the swale

INSPECTION SCHEDULE:
DOT foreman, crew, other agencies, and general public monitor drainage structures year-round for problems with most inspections and work occurring during the summer. The problems are most apparent during the spring when the ice and snow are melting or during rainstorms. DOT personnel are periodically contacted and made aware of problem areas by the general public. In most events maintenance workers responding to problems are able to discern whether the drainage structure needs repairs. DOT also utilizes a federally funded program for ditch maintenance. Road segments are inspected throughout the summer season and the segments in need of drainage maintenance are recorded and then submitted for the next season's program.

MAINTENANCE SCHEDULE:
Drainage structures causing significant damage to the road, ROW, or private property are taken care of as soon as practicable. Structures that have been problematic either during the winter or the spring are scheduled for cleaning and repair on an as needed basis during the summer months. DOT also utilizes a federally funded program for drainage and ditch maintenance. Each year entire road segments are nominated for the list and therefore cleaned and reshaped under this program.

Drainage Ditch Maintenance

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

Train field crews annually and provide frequent verbal reminders on how to operate the equipment and what to look for during routine inspections prior to the field season.

Keep training records that include attendees, date, and description of training.

Check all vehicles used for stormwater infrastructure inspection and maintenance for operational condition, leaks, and deficiencies prior to starting work. For equipment inspection and maintenance:

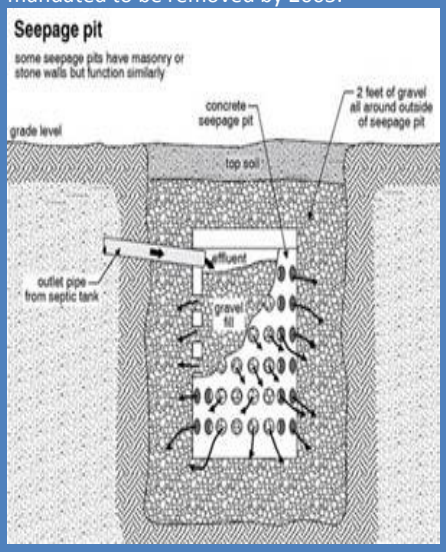
- Place drip pans under equipment parts that may leak. Empty drip pans when they are more than ½ full.
- Clean up all drips and leaks immediately
- Empty fuel and oil filters where drips can not reach stormwater
- Do not wash equipment or pavement surrounding equipment where wash water can enter storm drains

Remove all litter and debris found during the inspection procedure. Dispose of litter/debris from the site in solid waste containers.

Prevent tracking on roadways from the work area and sweep to remove any tracked sediment. Do not dispose of vegetation into waterways or storm drainage systems.

Stabilize areas with exposed soil to prevent sediment transfer to receiving water bodies and use any best management practices in place to provide treatment or protection to the receiving water body which may include but is not limited to straw waddles, silt fence, jute matting until re-vegetation is established.

Class V wells were declared illegal in 2000 by the EPA and determined to be in violation of the Clean Water Act. All Class V wells were mandated to be removed by 2005.



When developing a SPCC plan and BMPs for a site the following criteria should be taken into consideration:

BMP Selection & Plan Design

- Minimize Exposure
- Good Housekeeping
- Maintenance
- Spill Prevention and Response Procedures
- Erosion and Sediment Controls
- Management of Runoff
- Salt Storage Piles or Piles Containing Salt
- Sector-specific Requirements
- Employee Training
- Non-stormwater Discharges
- Waste, Garbage, and Floatable Debris
- Dust Generation and Vehicle Tracking of Industrial Materials
- Numeric Effluent (liquid waste/sewage) Limits Based on Effluent Limit Guidelines
- Additional Controls to Address Impaired Waters

1.0 Introduction

The Department of Transportation and Public Facilities (DOT&PF) has been mandated by the EPA to remove any underground injection wells located at DOT&PF highway maintenance stations. In order to keep the drains in the facilities operating, a holding tank or retention pond has been installed at each location. The collection systems will capture snowmelt in the drains from the state equipment fleet.

Drains located in the bays at the stations collect snowmelt from equipment. The water travels through trench drains into an oil/water separator (OWS). The OWS has multiple chambers that allow sediment and trace pollutants to filter out. After the water travels through the multiple chambers, it then empties directly into a holding tank or into a lift station to be transferred to a retention pond.

2.0 Spill Prevention Countermeasure Control (SPCC) Plans

Each highway maintenance station has a SPCC Plan because of the amount of oil (oil includes all fluids) storage at the station (1,320 gallons or more) and/or proximity to Waters of the U.S. SPCC Plans cover all aspects of oil storage: storage, maintenance, containment, disposal, spills and emergency situations. Each plan provides specific details of each station and how each issue mentioned above is handled at the station. Plans are reviewed annually for minor changes and re-written every 5 years.

3.0 Best Management Practices (BMPs)

BMPs for the highway maintenance stations are used to keep oil, debris, sediment and pollutants from entering the drain system. BMPs are put in place and have become a standard operating procedure for all DOT&PF highway maintenance stations.

Containment areas for 55 gallon drums are located under a roof, protected from precipitation. If the containment area is outside, it is required to be under cover, on an impermeable surface and have a locked fence surrounding the enclosure. Proper signage to warn personnel of what is stored there should be located at the entrance. Active drums used inside of the station are stored on portable secondary containment to keep drips and small leaks contained. All drums should be labeled with the type of material inside of the drum.

Spill kits are located at key conspicuous locations within the highway maintenance stations. The kits have enough material to clean-up a small spill and contain a large one. Small spills are picked up with absorbent pads or a dry absorb compound. Once the material has been absorbed and the pad or absorbent is dry it is disposed of in a trash container.

Floors in the highway maintenance station are kept clean and free of debris. The floors are cleaned daily by sweeping. Any spills are cleaned up with dry clean up methods. Any collected debris is picked up and disposed of in a proper trash container. If there is a larger spill and drains are threatened, booms should be placed to contain the spill and keep it from entering the drains.

Used oil is disposed of in a facility heating unit or is contracted to be taken to an oil disposal facility. Lids on oil containers and 55 gallon drums are kept secure. If the container is being actively used, the lid is secured at the end of each work day.

4.0 Inspections

There are monthly inspections and one annual inspection per SPCC requirements (Appendix A: Sample Forms). The monthly inspections are a general inspection of all areas of the station. The Monthly SPCC Inspection, which includes a visual OWS inspection, is performed by M&O personnel at each station. If there is a sheen or oil on the surface of the water, it needs to be marked as a “Repair” or “R” on the inspection form. Any repairs need to be forwarded to facilities so their personnel can address the issue. To “repair” an oil sheen in an OWS, an absorbent pad should be placed on the surface of the water. Once the pad has absorbed the oil or sheen it should be removed and placed somewhere to dry. Once it has completely dried, it can be disposed of in a trash container. All issues marked as needing repair should be addressed prior to the next inspection; not including remote locations. If parts are needed and have to be ordered, then the repair is made within two inspections (Appendix B: OWS Inspection Point Highlighted).

A monthly SPCC inspection is required for any site that has an combined oil storage capacity of 55 gallon drums or larger containers that equals 1,320 gallons, or the site is located next to a Water of the U.S.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY - REGION III
1650 Arch Street (3HS32)
Philadelphia, Pennsylvania 19103-2029

ACKNOWLEDGMENT AND RECORD OF SPCC/FRP INSPECTION

SPCC CASE NUMBER:_____ FRP REGIONAL ID#:_____ DATE:_____

TO: Regina A. Starkey, SPCC Coordinator (3HS32)
CC: Linda J. Ziegler, FRP Coordinator (3HS32) (only if FRP applicable)

Inspector's Printed Name/Signature _____ /_____
Inspection Team Members/Signature _____
Name/Location of Facility: _____
Address: _____
City _____ County _____ State _____ Zip _____
Facility Contact/Title: _____
Telephone Number: _____
Name of Owner/Operator: _____
Address: _____
City _____ State _____ Zip _____
Telephone Number: _____
Synopsis of business operations: _____
_____
_____
Route of entry and estimated distance to waterway: _____
_____
Acknowledgment:
I acknowledge that an SPCC/FRP inspection of this facility was conducted on the _____ day of _____, 20___.
Facility Representative Printed Name/Signature _____ /_____

NOTE: During this inspection, the owner/operator of the facility was asked to provide an extra copy of the SPCC Plan, which will be submitted with this report to the SPCC Coordinator.
- An extra copy of the SPCC Plan was provided to the inspector (Y/N).
- If no, the owner/operator of the facility has been asked to send a copy of the SPCC Plan, if available, via certified mail, return receipt requested, within 14 days of the date of this inspection to the SPCC Coordinator (mail code 3HS32) at the address on this letterhead (Y/N).
- A copy of the Office of Enforcement and Compliance Assurance information sheet was provided to the facility (Y/N).

[Original of this page to SPCC coordinator, copy to facility representative]

New environmentally friendly spill clean-up products are being developed and should be considered for use by large organizations. Not only is it easy to use, it can be disposed of directly into the normal trash collection service which cuts costs for an organization.

Water collection systems called holding tanks are being installed to replace the seepage pits or leach fields attached to facility drains.
The tanks allow the water to be collected and beneficially used by various stations, like making brine for winter road maintenance or dust suppression during summer months.

Retention ponds with liners will also be installed at some DOT maintenance stations. These allow the drain water to evaporate naturally and have no negative environmental effects.

The annual inspection is a more in-depth inspection of each aspect of oil storage at a facility. Each fuel tank is numbered and has an individual in-depth inspection during the annual inspection. Areas that only need to be inspected annually, like tank signs, are included in this inspection. The Annual SPCC Inspection should be performed with more scrutiny since there are items on the inspection form that are only inspected once-a-year.
All inspection records are kept in the SPCC binder in the "Completed Inspections" section. The section is divided into years and all inspections are placed in the year they were performed. If any spills occurred in that year, the Department of Environmental Conservation Spill Reporting Form is also placed in the binder and Section 2.2.3 of the station's SPCC Plan must be updated.

5.0 Use of Holding Tank or Retention Pond Water

Water that has a beneficial use can be re-used as long as there are no contaminants in the water (Appendix C: DEC Memo). Snowmelt collected in the holding tank or retention pond is considered a type of water that is able to be re-used by DOT&PF. For example, using brine is a benefit to the public by increasing road safety during winter months. Using the water in an application that benefits the public is considered a "beneficial use" (Appendix D: DEC Email of Approval).

The snowmelt collected in the holding tank or retention pond would be transferred to the brine tank to mix with salt and make a de-icer or anti-icing agent. The brine is applied in conjunction with sand from the plow trucks to increase sand adherence to the roadways. The brine solution can also be directly applied to roads to improve road conditions under certain circumstances. If brine or dust suppression isn't needed, then the water will be left in the holding tank for storage or in the retention pond to naturally evaporate. The systems should have enough capacity to hold water in between snow events.

The holding tank or retention pond water can also be used for dust suppression. If the tank or pond is full at the end of the winter season, the water will be utilized on dirt roads or applied on road embankments to enhance vegetation growth. Embankments close to water will be avoided (see DEC Memo in Appendix C).

If a holding tank reaches maximum capacity, M&O will empty the holding tank into a truck and transport it to a retention pond in the area. Water will only be added to retention ponds that have enough capacity to handle the additional water. DOT is also working with the local waste water utilities and KPB landfill to have the option of disposing of snowmelt runoff at their facility. See updated KPB RD&D Landfill permit from DEC in Appendix C.

This re-use of water benefits the public by creating better traction on icy roadways, prevents ice build-up, and keeps the cost of roadway maintenance lower because not as much sand is used.

Dust suppression on roadways helps to keep the air cleaner and keeps dirt roads in better driving condition.

If water in the retention ponds isn't evaporating fast enough or is reaching the maximum level of the retention pond, an aerator can be installed to improve evaporation.