City of Loveland

Contact Verification and Receipt of SOP Documents

I, _____, certify that I have received the Standard Operating Procedures (SOPs) for Permanent Stormwater Quality Control Measure Documents.

The following is my contact information that the City of Loveland shall use to contact me regarding inspection and maintenance requirements on the Permanent Stormwater Quality Control Measures on my site.

Name (Please print): _____

Company (Please print): _____

Address: _____

Phone Number: _____

E-mail: _____

Location of Stormwater Facility: N. of U.S. Highway 34, S. of Kinston Parkway, W. of N County Road 3 and E of Centerra Parkway

Are there any other personnel who should be notified of changes to the above noted document? ☑ Yes ☐ No

If you answered yes above, please provide us with their contact information below:

Name	Bill Irwin	Gloria Lee	Sage Cabrera
Address		5970 Greenwood Plaza Blvd. Greenwood Village, CO 80111	2480 W. 26th Street, Unit B225, Denver, CO 80211
Phone	303-356-6052	303-353-3617	720-330-3224
E-mail	B.Irwin001&gmail.com	gloria.lee@merrick.com	sage.cabrera@merrick.com
Company	W.L. Irwin Consulting, Inc.	Merrick & Company	Merrick & Company

I understand and agree to comply with City of Loveland requirements pertaining to the Permanent Stormwater Quality Control Measures on my site. I understand that I will be responsible for inspection and maintenance of said structures as is outlined in the SOPs (Standard Operating Procedures) provided for this site.

Signature:_____ Date: 9/6/2022

Revised: February 18, 2020

STANDARD OPERATING PROCEDURES: STORMWATER CONTROL FACILITIES

FOR

CE WELL PAD

LOVELAND, COLORADO

Prepared For:

The City of Loveland on behalf of MRG, LP

Prepared By:

Merrick & Company
5970 Greenwood Plaza Blvd.
Greenwood Village, CO 80111
(303) 751-0741

Project No. 6512023610

September 2022

Table of Contents

Appendices

PERMANENT STORMWATER CONTROL FACILITIES STANDARD OPERATING PROCEDURES (SOP)

I. Compliance with Permanent Stormwater Control Facilities Maintenance Requirements

MRG, LP will have the responsibility for ensuring that stormwater control facilities installed with the construction of CE Well Pad are properly maintained. Stormwater control facilities must meet the development function requirements of City and Loveland and State of Colorado, as designed in the approved CCP documents. The maintenance responsibility may be assigned to a contractor by MRG, LP. If responsibilities are assigned to a contractor for maintenance, it is MRG, LP's responsibility to make the selected contractor and company aware of their responsibilities regarding stormwater control facilities maintenance.

II. Inspection & Maintenance

CE Well Pad has been constructed with grass swales and storm infrastructure. Stormwater quality features consist of stilling basin, level spreader and sediment basin. See Appendix A for maps of the Permanent Stormwater Quality Facilities for CE Well Pad.

Inspections shall be conducted bi-annually (6 months) as a minimum for all detention ponds, sedimentation ponds or extended detention ponds. All storm sewer systems will be inspected annually (12 months) as a minimum. An inspection form has been included in Appendix B.

Record of inspection and maintenance forms shall be kept on file with MRG, LP and, if required, copies will be provided to City of Loveland or other governmental agencies.

III. Preventative Measures to Reduce Maintenance Costs

Pollution prevention is the most effective way to maintain stormwater control facilities. Pollutants include sediment, trash & debris, chemicals, runoff from stored materials, illicit discharges into the storm drainage system and home construction.

Effective maintenance programs need to include measures to address potential contaminants. Doing so will save money and time in the long run. Key components to an effective maintenance program include:

- Guidance for the proper disposal of hazardous wastes and chemicals. Use State of Colorado or EPA absorbents to soak up drippings and dispose of them properly depending on the contaminant.
- Routinely scheduled sweeping of paved surfaces.
- Requirements to re-vegetate disturbed and bare areas to maintain vegetative stabilization.

IV. Employee Training

It is a requirement for all personnel of contracted firms that will be providing inspection and maintenance to be trained properly. In addition, periodic inspection and maintenance refresher trainings on this SOP will be conducted. Training is required for the following:

- Inspection and Maintenance of: Street, Curb and Gutter, Storm Sewer and Culverts, Ponds and Catch Basins.
- Personnel to be trained per this written procedure. Information regarding how to avoid and report spills to be presented during the training.

V. Standard Procedures

These standard procedures are applicable for Street and Curb and Gutter activities. These activities include concrete and asphalt installation, maintenance, repair and replacement, and painting and striping. Procedures involving the maintenance of streets and curbs and gutters have the potential to impact stormwater quality. Materials involved in these activities should be handled with care, used efficiently and as intended, and disposed of properly.

When services are contracted, this written procedure should be provided to the contractor so they have proper operational procedures. In addition, the contract should specify that the contractor is responsible for abiding by all applicable municipal, state, and federal codes and laws.

Standard Procedure:

- Obtain all applicable federal, state and local permits for construction projects.
- The Colorado Stormwater Construction General permit applies to construction sites disturbing one acre or more, or less than one acre but part of a larger common plan of development.
    - A larger common plan of development is defined as contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under one plan.
- City of Loveland's Grading, Erosion, and Sediment Control (GESC) program requires all projects (including all City projects), *regardless of the amount of disturbance* to obtain a permit through the GESC program or a waiver after demonstration of zero or minimal impact.
- A dewatering permit may be required if construction activities require the removal and discharge of groundwater offsite.
- A U.S. Army Corps of Engineers (USACE) Section 404 Permit may be needed if work will be conducted in or impact Waters of the United States (Waters of the U.S.), including wetlands and creeks.
- Where practical, non-structural controls will be used. These include phased construction, dust control, good housekeeping practices, and spill prevention and response procedures.
- Best management practices (BMPs) will be implemented as appropriate and will be inspected and maintained in accordance with approved design criteria, manufacturer's recommendations, or industry standards.
- Wash out mixers, delivery trucks, or other equipment in designated washout areas only.
    - Locate concrete washout, portable toilets and material storage away from storm drain inlets.

- Material stockpiles shall not be stored in stormwater flow lines. Temporary sediment control will be used during temporary, short-term placement while work is actively occurring.
- Protect storm drain inlets and drains with curb socks, rock berms, inlet protection, or drain covers/mats prior to any maintenance activity.
- When saw cutting, ensure that no slurry enters the storm drain. Contractor to let the slurry dry, sweep it up and properly dispose of the sweepings.
- Do not perform concrete or asphalt patch work during wet conditions whenever possible.
    - Leaking or deteriorated material containers should be properly discarded and replaced per the Spill Prevention Control and Countermeasure Plan.
- Store materials in containers under cover when not in use and away from any storm drain inlet.
- Monitor equipment for leaks and use drip pans as necessary.
- Sweep or vacuum the roadway once maintenance activities are complete.

VI. Spill Prevention and Response

Spill Prevention Control and Countermeasures (SPCC) Plans have procedures for spill response related to petroleum fuels, oils, and lubricants (POLs). Proper spill response planning and preparation enables employees and contractors to effectively respond to problems and minimize the discharge of pollutants to the storm sewer system. City of Loveland is required under the MS4 General Permit to create and implement an Illicit Discharge Detection and Elimination (IDDE) Program designed to address any non-stormwater discharges to the storm sewer system.

This written procedure should be provided to the contractor so they have proper operating procedures when services are contracted with MRG, LP. In addition, the contract should specify that the contractor is responsible for abiding by all applicable municipal, state and federal codes, laws and regulations.

SPCC Plan

Materials Handling:

The contractor shall inspect and certify equipment and vehicles daily to ensure petroleum, oils, and lubricants (POL) are not leaking onto the soil or pavement. The contractor shall have ready approved absorbent material or containers of sufficient capacity to contain any POL leak that can be reasonably foreseen. All materials resulting from POL leakage control and cleanup shall be property of the contractor, removed from the site and properly disposed of.

On-site fueling will not be allowed near any storm sewer infrastructure, drainage ditches, waterways, wetlands, or environmentally sensitive area. Any spills resulting from vehicle fueling or maintenance shall follow protocols identified in this SPCC Plan.

Job Site:

- Keep work areas neat and well organized.
- Maintain a Material Safety Data Sheet (MSDS) for each hazardous chemical.
    - Follow the Outdoor Material Storage SOP
- Provide tight fitting lids for all containers.
- Keep containers clearly and properly labeled.
    - Labels should provide name and type of substance, stock number, expiration date, health hazards, handling suggestions, first aid information, and when applicable, whether the contents are "used" and to be recycled or "hazardous waste" and to be disposed of properly.
- Store containers, drums and bags away from direct traffic routes to prevent accidental spills.
- Inspect storage containers regularly for signs of leaking or deterioration.
- Replace or repair leaking or deteriorating storage containers.
- Use care to avoid spills when transferring materials from one container to another.
- Use powered equipment or get assistance when moving materials to and from a storage area. Use care to prevent puncturing containers with the equipment.
- Do not wash down or hose down any outdoor work areas or trash/waste container storage areas except where wash water is captured and discharged into the sanitary sewer (if approved).
- Conduct periodic inspections to ensure that materials and equipment are being properly handled, disposed/recycled, and stored correctly.
- Provide adequate spill kits or lockers with sufficient equipment and supplies necessary for each work area where the potential for spills or leaks may occur.
- Inspect each spill kit or locker regularly and after each spill response. Replace any spent supplies or repair any equipment that is worn or not suitable for service.
- Stock adequate personal protective equipment.

Minor Spill Response:

A "Minor Spill" is defined as one that poses no significant threat to human health or the environment. These spills generally involve an identified (reasonably known) material, and a spilled volume of less than five gallons. In addition, minor spills have the following characteristics:

- The spill material is easily stopped or controlled at the time of the spill.
- The spill is localized.
- The spilled material is not likely to reach surface water or groundwater.
- There is little danger to human health.
- There is little danger of fire or explosion.

In the event of a minor spill on-site, the following procedures shall be followed:

- Report the information to the City of Loveland Stormwater Group upon the incident.
- If necessary, physically contain the spill to prevent further migration.

- Utilize appropriate spill kits to properly clean the spill and dispose spent supplies at approved locations.

Major Spill Response:

A "Major Spill" is defined as one involving a spill in which the spill material (known or unknown) is spilled and cannot be safely and/or adequately controlled or cleaned up by on-site personnel. Major spills also have the following characteristics:

- The spill is large enough to spread beyond the immediate spill area.
- The spilled material enters surface water or groundwater (regardless of spill size).
- The spill requires special training and equipment to clean up.
- The spilled material is a threat to human health.
- Or, there is a danger of fire or explosion.

In the event of a major spill, the following procedures shall be followed:

- Immediately evacuate the spill site. Move any people to safe distance away from the spill, and establish a perimeter (using traffic cones, flagging, vehicle equipment, etc.) to prevent any people from getting too close to the spill.
- The Fire Department shall be called for medical assistance if anyone is injured, and Emergency Services will be called for emergency spill response.
- The reporting contractor employee shall contact their Supervisor and the City of Loveland Risk Management Department (970.962.3323) to provide details regarding the spill.
- The Colorado Department of Public Health and Environment (CDPHE) Emergency Spill Line (877.518.5608) shall be called to provide details regarding the spill.
- Documentation of spill notifications shall be kept using the Spill Notification Form
- The Contractor or persons in charge of the work or equipment that caused the spill will coordinate proper clean up of the site using approved spill kits and handling and disposal methods for the type of material spilled.
- Petroleum releases of 25 gallons or more (or that can cause a sheen on nearby surface waters) from regulated above ground or underground fuel storage tanks must be reported to the State Oil inspector *within 24 hours*. This includes spills from fuel pumps.
- Any release that has or may impact Waters of the U.S. (which includes surface water, ground water and dry gullies or storm sewers leading to surface water), *no matter how small*, must be reported immediately to the CDPHE as per Section 25-8-601 of the Colorado Revised Statutes.

Spill Reporting:

- A spill of any chemical, oil, petroleum product, or sewage that enters Waters of the U.S. (that includes surface water, ground water, and dry gullies and storm sewers leading to surface water) must be reported immediately to CDPHE.
- Release of substance directly into a storm drain, or onto a parking lot or roadway as part of a storm sewer leading to surface water, is reportable.

  - However, if the material can be contained and cleaned within the storm sewer system to the degree that a subsequent flow in the storm sewer will not flush the substance to the Waters of the U.S., it may not need to be reported.
- Contact the appropriate identified response authority within the City, County, State or other designated representative and be prepared to provide details as needed to report the spill.

VII. Inspection and Maintenance of: Concrete, Asphalt, Storm Sewer and Culverts, Ponds and Catch Basins, and Grass Swales

Concrete Inspection and Maintenance

- Minimize the drift of chemical cure on windy days by using the curing compound sparingly (without jeopardizing final product) and applying it close to the concrete surface.
- Ensure there is a concrete truck washout area available or require the contractor to wash out at the batch plant.
- Whenever possible, recycle concrete rubble. Otherwise, dispose of it as solid waste.

Asphalt Inspection and Maintenance

- Sweep to minimize sand and gravel from new asphalt from getting into storm drains, streets, and creeks.
- Do not allow asphaltic concrete grindings, pieces, or chunks used in embankment or shoulder backing to enter any storm drain or watercourses. Apply temporary perimeter controls. Install silt fence until the structure is stabilized or permanent controls are in place.
- Whenever possible, recycle broken asphalt. If recycling is not feasible, dispose of as solid waste.
- Drainage inlet structures shall be covered with inlet protection during application of seal coat, tack coat, slurry seal, and/or fog seal.

Storm Sewer and Culvert Inspection and Maintenance

- Inflow points need to be free of sediment, debris, weeds, and woody growth. Inflow points cannot have erosion occurring or structural damage to the pipe structure. It needs to be verified that riprap is not displaced or undercut by erosion.
- A vacuum truck is used to collect all debris and sediment (and any water used in the jetting process) at the end of the culver or pipe.
- Properly dispose of all accumulated debris, sediment and water at an approved disposal location.

Ponds and Sediment Basin Inspection and Maintenance

- During the production phase of the project a sediment basin is proposed on the interim working pad surface. Any accumulation on the working pad surface during storm events shall be removed from site via vacuum truck.

- Any Inflow points need to be free of sediment, debris, weeds, and woody growth. Inflow points cannot have erosion occurring or structural damage to the pipe structure. It needs to be verified that riprap is not displaced or undercut by erosion.
- Forebays need to be free of sediment and debris. All structural components must be in good working condition and if a drain pipe or weir is in place, it must be draining properly.
- If a trickle channel is present, it must be free of sediment, debris, weeds and woody growth. It needs to be in good working order without breaks or cracks in the concrete and no erosion outside the channel.
- If a micropool is in place, it must be free of sediment, debris, weeds, woody growth, mosquitoes and petroleum sheens. No erosion present.
- Outlet Works need to be clean and not plugged. Ensure orifice plates are installed per approved plans. Make sure there is no sediment, debris, weeds or woody growth present. Ensure no erosion is occurring.
- Upper Stage or (dry storage area of pond), ensure there is no erosion or bare ground.
    - All bare areas or areas where vegetation has died, needs to be re-vegetated.
    - There should be no standing water or boggy areas – this would indicate the pond is not draining per design.
    - There should be no sediment accumulation.
    - All trash must be removed from ponds.
- There should be nothing stored in pond areas, including unwanted critters living in the pond.
- A shovel, backhoe or similar equipment may be used to clean out accumulated debris and sediment from catch basins and ponds depending upon size of the structure. A vacuum truck may be used on smaller structures.
- During removal activities, debris should be loaded out from the site as soon as possible and disposed at an approved location. Temporary storage of removed debris should be minimized, but if necessary, debris should be stored away from the water (pond or catch basin) and outside of any existing flowlines with BMPs in place to prevent stormwater from coming in contact with the debris and potentially remobilizing the debris.

<u>Grass Swale Inspection and Maintenance</u>

- Side slopes and bottom of swale must be free of sediment, debris, weeds, woods growth, erosion, and trash.
    - The swale must have a uniform vegetative cover. Any bare spots must be re-vegetated.
    - There should be no standing water or boggy areas – this would indicate the swale is not draining per design.
- Inflow points must be free of erosion, sediment accumulation, weeds, woody growth, and trash.
- Riprap should not be displaced and there should be no erosion around riprap. If riprap appears displaced or erosion around riprap is evident, notify MRG, LP
- There should be no structural damage to the pipe works.
- There should be nothing stored or built-in swales. There should be no burrowing animals or pests.

- If an underdrain system is in place, ensure that it is draining properly. Evidence of a clogged system would be standing water.

References

1. City of Loveland Stormwater Standards
2. Urban Storm Drainage Criteria Manual; Mile High Flood District.
3. Colorado Department of Public Health and Environment, Storm Sewer Systems.

Appendices

Appendix A - Permanent Stormwater Quality Control Measures Exhibit

PORTION OF OUTLOT P
MILLENNIUM EAST 10TH SUBDIVISION

LOC
PS
GS
SB
WORKING PAD SURFACE
DRAINAGE DITCH / GRASS SWALE
ACCESS ROAD
30.00' PIPELINE CORRIDOR
SECTION LINE
EXISTING OVERHEAD ELECTRIC
14' UTILITY EASEMENT
EXISTING ELECTRIC STRUCTURE
80' WAPA EASEMENT
OIL AND GAS LOCATION / PROPERTY LINE
INTERIM WORKING PAD SURFACE
WELLHEAD
480'
680'
COUNTY ROAD 3
EXISTING 23' GRAVEL ROAD
EXISTING FIBER OPTIC STRUCTURE
50' ROW WEST OF SECTION LINE
CONCRETE EMERGENCY SPILLWAY
EXISTING ELECTRIC STRUCTURE
STILLING BASIN
LEVEL SPREADER
BURIED RIPRAP
¼ SECTION LINE
OIL AND GAS LOCATION / PROPERTY LINE
PORTION OF OUTLOT P
MILLENNIUM EAST 10TH SUBDIVISION
PORTION OF OUTLOT B
MILLENNIUM EAST 16TH SUBDIVISION

PERMANENT CONTROL MEASURES LEGEND:

- OIL AND GAS LOCATION
- WORKING PAD SURFACE
- INTERIM WORKING PAD SURFACE
- DRAINAGE DITCH / GRASS SWALE
- LOC — LIMIT OF CONSTRUCTION
- PS — PERMANENT SEEDING
- GS — GRASS SWALE
- SB — SEDIMENT BASIN

N

60' 0 30' 60' 120'
1" = 60' HOR.

REV	REVISION DESCRIPTION	DATE	CHND	CHKD	APPR
A	ISSUED FOR REVIEW	9/1/2022	TVG	SWC	TS

CALL BEFORE YOU DIG
811
Know what's below.
Call before you dig.

CITY APPROVAL
ACCEPTED BY: _____
CITY ENGINEER (or Designee) DATE

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TITLE

MRG, LP OIL AND GAS CE PAD

CITY OF LOVELAND, COLORADO

CIVIL CONSTRUCTION PLANS

PERMANENT STORMWATER QUALITY CONTROL MEASURES

JOB NUMBER 65120236-10
DATE 9/1/2022
SHEET 1 of 1

Appendix B - Inspection and Maintenance Forms

EXTENDED DETENTION BASIN
INSPECTION FORM

FACILITY ID NUMBER: _____ **DATE:** _____ **TIME:** _____ ☐ A.M. ☐ P.M.

SUBDIVISION/BUSINESS ADDRESS: _____

INSPECTOR(S): _____

WEATHER: _____ **DATE OF LAST RAINFALL:** _____ **AMOUNT:** _____ **INCHES**

PROPERTY CLASSIFICATION: ☐ **Residential** ☐ **City** ☐ **Commercial** ☐ **Other:** _____
(Please Check One)

REASON FOR INSPECTION: ☐ **Routine** ☐ **Complaint** ☐ **After a Significant Rainfall Event**
(Please Check One)

INSPECTION SCORING - For each feature inspection item, insert one of the following scores: N/A = Not applicable 0 = No deficiencies identified 1 = Monitor (potential for future problem exists) 2 = Routine maintenance identified 3 = Minor maintenance identified 4 = Major maintenance identified 5 = Immediate repair is necessary

FEATURES

1.) INFLOW POINTS
- _____ Riprap Displaced
- _____ Erosion Present/Outfall Undercut
- _____ Sediment Accumulation
- _____ Structural Damage (pipe, end-section, etc.)
- _____ Woody Growth/Weeds Present

2.) FOREBAY
- _____ Sediment/Debris Accumulation
- _____ Concrete Cracking/Failing
- _____ Drain Pipe/Wier Clogged (not draining)
- _____ Wier/Drain Pipe Damage

3.) TRICKLE CHANNEL (LOW-FLOW)
- _____ Sediment/Debris Accumulation
- _____ Concrete/Riprap Damage
- _____ Woody Growth/Weeds Present
- _____ Erosion Outside Channel

4.) BOTTOM STAGE (MICRO-POOL)
- _____ Sediment/Debris Accumulation
- _____ Woody Growth/Weeds Present
- _____ Bank Erosion
- _____ Mosquitoes/Algae Treatment
- _____ Petroleum/Chemical Sheen (report to supervisor immediately, if present)

5.) OUTLET WORKS
- _____ Trash Rack/Well Screen Clogged
- _____ Structural Damage (concrete, steel, subgrade)
- _____ Orifice Plate(s) Missing/Not Secure
- _____ Manhole Access (cover, steps, etc.)
- _____ Woody Growth/Weeds Present

6.) EMERGENCY SPILLWAY
- _____ Riprap Displaced
- _____ Erosion Present
- _____ Woody Growth/Weeds Present
- _____ Obstruction/Debris

7.) UPPER STAGE (DRY STORAGE)
- _____ Vegetation Sparse
- _____ Woody Growth/Undesirable Vegetation
- _____ Standing Water/Boggy Areas
- _____ Sediment Accumulation
- _____ Erosion (banks and bottom)
- _____ Trash/Debris
- _____ Maintenance Access

8.) MISCELLANEOUS
- _____ Encroachment in Easement Area
- _____ Graffiti/Vandalism
- _____ Public Hazards
- _____ Burrowing Animals/Pests
- _____ Other _____

INSPECTION SUMMARY/ADDITIONAL COMMENTS: _____

EXTENDED DETENTION BASIN (EDB)
MAINTENANCE FORM

FACILITY ID NUMBER: _____ **COMPLETION DATE:** _____

SUBDIVISION NAME: _____

CREW MEMBER(S): _____

MAINTENANCE CATEGORY: ☐ **Routine Work** ☐ **Restoration Work** ☐ **Rehabilitation Work**
(Please Select One)

MAINTENANCE ACTIVITIES PERFORMED

ROUTINE WORK

- ☐ **MOWING:**
- ☐ **TRASH/DEBRIS REMOVAL:**
- ☐ **OUTLET WORKS CLEANING (TRASH RACK/WELL SCREEN):**
- ☐ **WEED CONTROL (HERBICIDE APPLICATION):**
- ☐ **MOSQUITO TREATMENT:**
- ☐ **ALGAE TREATMENT:**

RESTORATION WORK

- ☐ **SEDIMENT REMOVAL:**
  - ☐ Forebay
  - ☐ Trickle Channel
  - ☐ Inflow(s)
- ☐ **EROSION REPAIR:**
  - ☐ Inflow Point
  - ☐ Trickle Channel
- ☐ **VEGETATION REMOVAL/TREE THINNING:**
  - ☐ Inflow(s)
  - ☐ Trickle Channel
  - ☐ Upper Stage
  - ☐ Bottom Stage
- ☐ **REVEGETATION:**
- ☐ **JET-VAC/CLEARING DRAINS:**
  - ☐ Forebay
  - ☐ Outlet Works
  - ☐ Inflow(s)

REHABILITATION WORK

- ☐ **SEDIMENT REMOVAL (DREDGING):**
  - ☐ Bottom Stage
  - ☐ Upper Stage
- ☐ **EROSION REPAIR:**
  - ☐ Outlet Work
  - ☐ Upper Stage
  - ☐ Bottom Stage
  - ☐ Spillway
- ☐ **STRUCTURAL REPAIR:**
  - ☐ Inflow(s)
  - ☐ Outlet Works
  - ☐ Forebay
  - ☐ Trickle Channel
- ☐ **OTHER:** _____

ESTIMATED TOTAL MAN HOURS: _____

EQUIPMENT/MATERIAL USED: _____

_____

_____

COMMENTS/ADDITIONAL INFORMATION: _____

_____

_____

_____

_____

LID INSPECTION FORM

Facility ID Number: _____ **LID PBMP:** _____ **Date:** _____ **Time:** _____ ☐ **a.m.** ☐ **p.m.**

Subdivision Name/Business Address: _____

Inspector(s): _____

Weather: _____ **Date of Last Rainfall:** _____ **Amount:** _____**Inches**

Property Classification: ☐ **Residential** ☐ **City** ☐ **Commercial** ☐ **Other:** _____
(Please Check One)

Reason for Inspection: ☐ **Routine** ☐ **Complaint** ☐ **After a Significant Rainfall Event**
(Please Check One)

INSPECTION SCORING - For each feature inspection item, insert one of the following scores: N/A = Not applicable
0 = No deficiencies identified 1 = Monitor (potential for future problem exists) 2 = Routine maintenance identified
3 = Minor maintenance identified 4 = Major maintenance identified 5 = Immediate repair is necessary

FEATURES / **LID PBMP** / **LID PBMP Components**	**Porous Landscape Detention (PLD)**	• Lid Pond (LP)	• Rain Garden (RG)	• Green Roof (GR)	• Tree Filter (TF)	• Bio-retention Cell (BRC)	**Disconnected Roof Gutters& Downspouts**	**Grass Buffer (GB)**	**Grass Swale (GS)**	**Porous Pavements**	• Porous Asphalt Pavement (PAP)	• Porous Concrete Pavement (PCP)	• Permeable Pavers (PPs)
1.) Bottom & Side Slopes													
_____ Sediment/Debris Accumulation													
_____ Vegetative Cover													
_____ Erosion Present													
_____ Standing Water/Boggy Areas													
2.) Bottom Stage (Micro Pool)													
_____ Sediment/Debris Accumulation													
_____ Woody Growth/Weeds Present													
_____ Bank Erosion													
_____ Mosquitoes/Algae Treatment													
_____ Petroleum/Chemical Sheen (report to supervisor immediately, if present)													
3.) Embankments													
_____ Vegetation Sparse													
_____ Erosion Present													
4.) Emergency Spillway													
_____ Riprap Displaced													
_____ Erosion Present													
_____ Woody Growth/Weeds Present													
_____ Obstruction (Trash, Debris, etc.)													
5.) Filter Media													
_____ Infiltration Rate Check													
_____ Sediment Removal													
_____ Filter Clogged/Damaged													
6.) Forebay													
_____ Sediment/Trash/Debris Accumulation													
_____ Concrete Cracking/Failing													
_____ Drain Pipe/Weir Clogged (not draining)													
_____ Drain Pipe/Weir Damaged													

FEATURES	**LID PBMP**	**Porous Landscape Detention (PLD)**	• Lid Pond (LP)	• Rain Garden (RG)	• Green Roof (GF)	• Tree Filter (TF)	• Bio-retention Cell (BRC)	**Disconnected Roof Gutters& Downspouts**	**Grass Buffer (GB)**	**Grass Swale (GS)**	**Porous Pavements**	• Porous Asphalt Pavement (PAP)	• Porous Concrete Pavement PCP)	• Permeable Pavers (PPs)
LID PBMP Components														
7.) Grade Control														
_____ Erosion Present														
_____ Structural Damage														
8.) Inflow Points														
_____ Riprap Displaced														
_____ Erosion Present/Outfall Undercut														
_____ Structural Damage (pipe, end-section, etc.)														
_____ Woody Growth/Weeds Present														
_____ Sediment Accumulation														
9.) Irrigation														
_____ Bare Spots														
_____ Broken Sprinkler Heads														
10.) Landscaping														
_____ Woody Growth/Weeds Present														
_____ Landscape Condition														
11.) Level Spreader														
_____ Erosion Present														
_____ Structural Damage														
_____ Unlevel/Uneven Distribution of Flow														
12.) Miscellaneous														
_____ Encroachment in Easement Area														
_____ Graffiti/Vandalism														
_____ Public Hazards														
_____ Pavement Condition (spalling, cracking, etc.)														
_____ Burrowing Animals/Pests														
_____ Maintenance Access														
13.) Outlet Works/Overflow														
_____ Trash Rack/Well Screen Clogged														
_____ Structural Damage (concrete, steel, sub-grade)														
_____ Orifice Plate(s) (missing/not secure)														
_____ Manhole Access (cover, steps, etc.)														
_____ Woody Growth/Weeds Present														
14.) Trickle Channel (low-flow)														
_____ Sediment/Debris Accumulation														
_____ Concrete/Riprap Damage														
_____ Woody Growth/Weeds Present														
_____ Erosion Outside Channel														
15.) Under Drain System														
_____ Evidence of Clogged System (standing water/not draining)														
16.) Upper Stage Dry Storage														
_____ Vegetation Sparse														
_____ Woody Growth/Undesirable Vegetation														
_____ Standing Water/Boggy Areas														
_____ Sediment Accumulation														
_____ Erosion (banks and bottom)														
_____ Trash/Debris														

Inspection Summary/Additional Comments: _____

LID Maintenance Form

Facility ID Number: _____ **LID PBMP:** _____ **Date:** _____ **Time:** _____ ☐ **a.m.** ☐ **p.m.**

Subdivision Name/Business Address: _____

Inspector(s): _____

Weather: _____ **Date of Last Rainfall:** _____ **Amount:** _____ **Inches**

Maintenance Category: (Please Check One) ☐ **Routine Work** ☐ **Restoration Work** ☐ **Rehabilitation Work**

Maintenance Activities Performed

Routine Work

- ☐ Trash/Debris Removal
- ☐ Outlet Works Cleaning (Trash Rack/Well Screen)
- ☐ Weed Control (Herbicide Application)
- ☐ Mowing
- ☐ Algae Treatment
- ☐ Mosquito Treatment

Restoration Work

- ☐ Sediment Removal
  - ☐ Forebay
  - ☐ Trickle Channel
  - ☐ Inflow(s)
  - ☐ Buffer Strip
  - ☐ Outlet Works
  - ☐ Filter Media
  - ☐ Swale Bottom
  - ☐ Side Slope
- ☐ Erosion Repair
  - ☐ Buffer Strip
  - ☐ Embankments
  - ☐ Trickle Channel
  - ☐ Swale Bottom
  - ☐ Inflow Point(s)
  - ☐ Outlet Works
  - ☐ Grade Control/ Level
  - ☐ Spreader
- ☐ Vegetation Removal/Tree Thinning
  - ☐ Inflow Point(s)
  - ☐ Trickle Channel
  - ☐ Upper Stage
  - ☐ Bottom Stage
- ☐ Revegetation
  - ☐ Buffer Strip
  - ☐ Embankments
  - ☐ Swale Bottom
  - ☐ Side Slope
- ☐ Jet-Vac/Clearing Drains
  - ☐ Forebay
  - ☐ Inflow Point(s)
  - ☐ Outlet Works
  - ☐ Underdrain System

Rehabilitation Work

- ☐ Bottom Stage
- ☐ Upper Stage
- ☐ Swale Bottom
- ☐ Inflow Point(s)
- ☐ Filter Media
- ☐ Erosion Repair
  - ☐ Bottom Stage
  - ☐ Buffer Strip
  - ☐ Embankments
  - ☐ Inflow Point(s)
  - ☐ Outlet Works
  - ☐ Side Slope
  - ☐ Spillway
  - ☐ Swale Bottom
- ☐ Structural Repair
  - ☐ Inflow Point(s)
  - ☐ Outlet Works
  - ☐ Forebay
  - ☐ Trickle Channel
  - ☐ Underdrain
  - ☐ Level Spreader
  - ☐ Filter Media
- ☐ Other _____

Estimated Total Man Hours: _____

Equipment/Material Used: _____

Comments/Additional Information: _____

This Maintenance Form shall be kept for a period of five years and available upon request of City personnel.