## POST-CONSTRUCTION OPERATIONS AND MAINTENANCE (O&M) MANUAL

for

### MARK'S HOME MARKETPLACE

MHM Group 299 S John Street Angola, IN 46703

Submitted to the

#### **CITY OF ANGOLA**

210 North Public Square Angola, Indiana, 46703

Prepared by:



More than a Project™

6219 South East Street Indianapolis, IN 46227 www.wesslerengineering.com

### **IMPORTANT**

This document is for informational purposes and is not intended to replace the site-specific O&M Manual. This document is a sample **ONLY** and not intended to be a cut and paste template. An O&M Manual that includes guidance on inspection, maintenance, cleaning repair, etc. is to be developed by the design engineer for each specific project and must meet all applicable design standards. Refer to Chapter 11 of the City of Angola Stormwater Technical Standards Manual.

O&M Manual content must meet the minimum requirements of the City of Angola ordinance and standards; however, this guidance document includes recommendations for inspection and maintenance that exceed the minimum requirements. Each project site shall include any additional inspection and maintenance provisions as deemed necessary by the designer and/or manufacturer's recommendations.

## **TABLE OF CONTENTS**

1.0	Site a	Site and Owner Information						
	1.1	Site Ir	nformation	1				
	1.2	Owne	Owner Information					
		1.2.1	Trained Individual	1				
2.0	Ackr	owledg	ement Statement	2				
		2.1.1	Right of Entry Statement	2				
3.0	Inspe	ection ar	nd Maintenance	3				
4.0	Storr	nwater l	Infrastructure	4				
	4.1	Storm	Sewer Pipe	4				
		4.1.1	Inspection and Maintenance Frequency	4				
		4.1.2	Maintenance Procedure	4				
		4.1.3	Remediation	4				
	4.2	Culve	erts and End Sections	4				
		4.2.1	Inspection and Maintenance Frequency	4				
		4.2.2	Maintenance Procedure	4				
		4.2.3	Remediation	5				
	4.3	Manh	ole, Inlet and Catch Basin Sump Structures	5				
		4.3.1	Inspection and Maintenance Frequency	5				
		4.3.2	Maintenance Procedure	5				
		4.3.3	Remediation	5				
	4.4	Open	Conveyances	5				
		4.4.1	Inspection and Maintenance Frequency	6				
		4.4.2	Maintenance Procedure	6				
		4.4.3	Remediation	6				
5.0	Dry l	Detentio	on Basin	7				
	5.1	Introduction						
	5.2	Inlet a	and Outlet Structures	7				
		5.2.1	Inspection and Maintenance Frequency	7				
		5.2.2	Maintenance Procedure	7				

		5.2.3	Remediation	7
	5.3	End S	ections	
		5.3.1	Inspection and Maintenance Frequency	8
		5.3.2	Maintenance Procedure	8
		5.3.3	Remediation	8
	5.4	Emba	nkment and Spillway	8
		5.4.1	Inspection and Maintenance Frequency	8
		5.4.2	Maintenance Procedure	8
		5.4.3	Remediation	9
	5.5	Deten	tion Basin Surface	9
		5.5.1	Inspection and Maintenance Frequency	9
		5.5.2	Maintenance Procedure	9
		5.5.3	Remediation	9
6.0	Appe	ndices.		.10

#### 1.0 SITE AND OWNER INFORMATION

#### 1.1 Site Information

Maps and site plans depicting the site stormwater infrastructure and post-construction stormwater BMP(s) are included in **Appendix A**. Details and specifications for the stormwater infrastructure and post-construction stormwater management BMP(s) are included in **Appendix B**. The site location is included below:

Mark's Home Marketplace 299 S John Street Angola, IN 46703

#### 1.2 Owner Information

The property owner is responsible for the operation, inspection and maintenance of the stormwater infrastructure and post-construction stormwater management BMP(s) according to this manual. Additionally, the property owner is responsible for all costs associated with maintaining the stormwater infrastructure and post-construction stormwater management BMP(s). Current contact information for the owner is provided below:

MHM Group 299 S John Street Angola, IN 46703

Mark Anthony 444-441-4411 MarkA@MHMGroup.com

In the event of an ownership change, the responsibility for operation, maintenance and inspection of the stormwater infrastructure and post-construction stormwater management BMP(s) shall be assumed by the new owner. It is the responsibility of the preceding owner to provide the O&M Manual to the new owner. In addition, the City of Angola must be notified of any changes in ownership, major repairs, or failure in writing within 30 days at the address below:

City of Angola Attn: MS4 Coordinator 210 N. Public Square Angola, IN 46703

#### 1.2.1 Trained Individual

The property owner may assign responsibility for operation, inspection, maintenance of the stormwater infrastructure and post-construction stormwater management BMP(s). Employee training shall be conducted so that these individuals are aware of proper procedures and practices. Contact information and responsibilities of these individuals shall be maintained by the property owner.

#### 2.0 **ACKNOWLEDGEMENT STATEMENT**

Owner hereby attests that the operation and maintenance commitments contained within this document are true and will be completed. The signed and approved O&M manual must be recorded with the property by the County Recorder's office. The O&M manual must be provided to future parties who will assume responsibility for the operation and long-term maintenance of the post-construction stormwater measure(s).

#### 2.1.1 Right of Entry Statement

Owner hereby acknowledges the City of Angola has the right to enter the property and inspect the stormwater infrastructure and post-construction stormwater management BMP(s), as necessary.

(Signature)	(Date)
(Printed)	(Company)
(Title)	
STATE OF INDIANA )	S.
COUNTY OF STEUBEN )	<i>5</i> .
appeared	Notary Public in and for said County and State, personally Owner subscribed and sworn before thi of
(Commission Expiration Date)	(County of Residence)
(Signature)	
(Printed Name)	

#### 3.0 INSPECTION AND MAINTENANCE

Inspection and maintenance of the stormwater infrastructure and post-construction stormwater management BMP(s) are required to ensure the measures are operating properly. Operation and maintenance procedures and practices must be reviewed and assessed annually.

Inspections must be documented with an inspection checklist and completed <u>checklists must</u> be maintained by the owner for perpetuity. Inspection dates, facility components inspected, facility condition, and any maintenance performed or repairs made must be documented. Documentation must be produced upon the request of the City of Angola within 48-hours of the request.

Inspections and maintenance must be completed by a person with sufficient operational knowledge of the post-construction stormwater management BMPs, design, and function. A maintenance schedule is included in **Appendix C**. Inspection checklists are included in **Appendix D**.

Areas to be inspected and maintained include:

- Stormwater Infrastructure including pipes, inlets, manholes, catch basin sumps, end sections and open conveyances
- Dry Detention Basin

Volume control facilities and post-construction stormwater management BMPs shall be inspected semi-annually and after significant rainfall events exceeding 1.5-inches, or per the manufacturer's recommendations, whichever is more stringent.

#### 4.0 STORMWATER INFRASTRUCTURE

#### 4.1 Storm Sewer Pipe

These components consist of the pipes that convey stormwater throughout the site and ultimately to the City of Angola Municipal Separate Storm Sewer System (MS4).

#### 4.1.1 Inspection and Maintenance Frequency

Inspection of storm sewer pipes is only required when problems are suspected.

Inspection and maintenance of storm sewer pipes requires special equipment and training. Contact a sewer or plumbing contractor to inspect, repair, or clean pipelines, as needed.

#### 4.1.2 Maintenance Procedure

Clean pipes when sediment accumulation is observed. Minimize sediment and debris discharges from pipes to the storm sewer when cleaning the pipe(s). Install downstream debris traps (where applicable) before cleaning and then remove material.

Use mechanical methods to remove root obstructions from inside storm sewer pipes. Do not use root-dissolving chemicals. If root intrusion is a problem, remove the vegetation over the line.

Repair or replace pipes damaged by deterioration or deformation when a dent or break closes more than 20 percent of the pipe diameter.

#### 4.1.3 Remediation

Contact the City of Angola prior to any repairs. Repair, replace, and clean any damaged or clogged pipes or structures to their originally designed condition and elevation.

#### 4.2 Culverts and End Sections

Pipe end sections can be found at the end of the pipes entering basins, outfall structures and/or at the ends of culvert pipes. End sections may include trash guards to collect debris and to prevent people and animals from accessing the pipes. Debris and yard waste may collect and clog at these points preventing water from entering the system and causing flooding.

#### 4.2.1 Inspection and Maintenance Frequency

<u>Pipe end sections must be inspected and cleaned a minimum of semi-annually.</u> Pipe end sections should be visually observed during routine maintenance, such as mowing.

#### 4.2.2 Maintenance Procedure

Inspect pipe end sections and culverts for debris build up, eroding soil, and accumulating sediment. Keeping the pipe end sections and culverts cleared of debris and litter will help maintain capacity and avoid excess flooding.

Visually check structures for signs of damage. Repair any damages that prevent structures from functioning as designed.

All clearing should be performed in a way that ensures removed sediment and water is not discharged back into the storm sewer pipe.

#### 4.2.3 Remediation

Repair, replace, and clean any damaged or clogged end sections and culverts to their originally designed condition and elevation.

#### 4.3 Manhole, Inlet and Catch Basin Sump Structures

These components consist of the manholes, which provide access to the underground storm sewer, and the inlet and catch basin sump structures that convey stormwater to the storm sewer pipes.

Inspection and maintenance of storm sewer manholes, inlets and catch basin sump structures requires special equipment and training. Contact a sewer or plumbing contractor to inspect, repair, or clean structures, as needed.

#### 4.3.1 Inspection and Maintenance Frequency

Visually inspect manholes, inlets and catch basin sump structures for damage, displacement, and blockage or restricted stormwater flow by any debris or sediment. <u>Inlets, manholes and catch basin sump structures must be inspected and cleaned a minimum of semi-annually.</u>

#### 4.3.2 Maintenance Procedure

Remove all debris, trash, or other material restricting stormwater flow and dispose of properly. Catch basin sump structures shall be cleaned of accumulated sediment, trash or debris when the sump is more than 50% full. Sediment should be removed when the structure is completely dry.

Visually check structures for signs of damage. Repair any damages that prevent structures from functioning as designed.

All clearing should be performed in a way that ensures removed sediment and water is not discharged back into the storm sewer pipe.

#### 4.3.3 Remediation

Repair, replace, and clean any damaged or clogged pipes or structures to their originally designed condition and elevation.

#### 4.4 Open Conveyances

Open conveyances consist of swales or open channels that convey stormwater.

#### 4.4.1 Inspection and Maintenance Frequency

Inspection of open conveyances <u>must be inspected a minimum of semi-annually and/or after</u> significant rainfall events exceeding 1.5 inches or more.

Visually inspect for debris build up and accumulated sediment. Debris, sediment and yard waste may collect and reduce the capacity of open conveyances.

Check slopes for erosion or scour protection displacement. Check for evidence of burrowing/tunneling animals and establishment of trees and woody vegetation.

<u>Pest control measures must be implemented to address insects, rodents, and other pests.</u>
<u>Natural pest control is preferred over chemical treatments.</u>

#### 4.4.2 Maintenance Procedure

Remove debris, sediment, and trash that have accumulated. Keeping the spillway cleared of debris and litter will help maintain capacity and avoid excess flooding during high flow events.

Visually check for signs of damage. Repair any damages that prevent conveyances from functioning as designed. Utilize mowing, pruning, and/or herbicides to prevent establishment of trees and woody vegetation within the open conveyance. <u>Vegetation must be maintained on a regular basis.</u>

#### 4.4.3 Remediation

Repair open conveyances to their originally designed condition.

#### 5.0 DRY DETENTION BASIN

#### 5.1 Introduction

The dry detention basin post-construction stormwater management BMP provides detention and allows settling of sediment and other materials before the water leaves the site via the outfall. Maintenance and inspections are required to ensure that the post-construction stormwater management BMP is installed and operating properly. The dry detention basin's components and their inspection and maintenance schedules are detailed in the following subsections.

A maintenance schedule is included in **Appendix C**. An example checklist is included in **Appendix D**.

#### **5.2** Inlet and Outlet Structures

These components consist of the inlets and outlets that convey stormwater to and from the dry detention basin.

Inspection and maintenance of inlets, pipes and structures requires special equipment and training. Contact a sewer or plumbing contractor to inspect, repair, or clean structures, as needed.

#### 5.2.1 Inspection and Maintenance Frequency

Visually inspect pipes and structures for damage, displacement, and blockage or restricted stormwater flow by any debris or sediment. <u>Inlets, outlets, and other drainage structures must be inspected and cleaned a minimum of semi-annually and/or after significant rainfall events exceeding 1.5 inches or more.</u>

#### 5.2.2 Maintenance Procedure

Remove all debris, trash, or other material restricting stormwater flow and dispose of properly. Sediment should be removed when the dry detention basin is completely dry.

#### 5.2.3 Remediation

Repair, replace, and clean any damaged or clogged pipes or structures to their originally designed condition and elevation.

#### 5.3 End Sections

Pipe end sections can be found on the end of the pipes entering the dry detention basin. End sections may include trash guards to collect debris and to prevent people and animals from accessing the pipes. Debris and yard waste may collect and clog at these points preventing water from entering the system and causing flooding.

#### 5.3.1 Inspection and Maintenance Frequency

Pipe end sections <u>must be inspected and cleaned a minimum of semi-annually and/or after significant rainfall events exceeding 1.5 inches or more</u>. Pipe end sections should be visually observed during routine maintenance, such as mowing.

#### 5.3.2 Maintenance Procedure

Inspect pipe end sections for debris build up, eroding soil, and accumulating sediment. Ensure that grass clippings, leafy debris, and litter have not been blown into the post-construction stormwater BMP. Keeping the pipe end sections cleared of debris and litter will help maintain capacity and avoid excess flooding.

Visually check structures for signs of damage. Repair any damages that prevent structures from functioning as designed.

All clearing should be performed in a way that ensures removed sediment and water is not discharged back into the pipe.

#### 5.3.3 Remediation

Repair, replace, and clean any damaged or clogged culverts or end sections to their originally designed condition and elevation.

#### 5.4 Embankment and Spillway

The embankment and spillway consists of the side slopes of the dry detention basin and emergency spillway that discharges stormwater when the capacity of the dry detention basin is exceeded.

#### 5.4.1 Inspection and Maintenance Frequency

Inspection of the embankment and spillway <u>must be inspected a minimum of semi-annually and/or after significant rainfall events exceeding 1.5 inches or more</u>. Check embankment slopes for erosion or scour protection displacement. Check for evidence of burrowing/tunneling animals and establishment of trees and woody vegetation.

<u>Pest control measures must be implemented to address insects, rodents, and other pests.</u>
<u>Natural pest control is preferred over chemical treatments.</u>

#### 5.4.2 Maintenance Procedure

Remove debris, sediment, and trash that have accumulated. Keeping the spillway cleared of debris and litter will help maintain capacity and avoid excess flooding during high flow events.

Visually check for signs of damage. Repair any damages that prevent structures from functioning as designed. Utilize mowing, pruning, and/or herbicides to prevent establishment of trees and woody vegetation within the embankment and spillway. Vegetation must be maintained on a regular basis.

#### 5.4.3 Remediation

Repair embankment or spillway to their originally designed condition and elevation.

#### 5.5 Detention Basin Surface

The detention basin surface consists of the storage area and bottom of the dry detention basin.

#### 5.5.1 Inspection and Maintenance Frequency

Inspection should be performed monthly until the complete establishment of vegetation. Pay attention to bare areas where seed has washed away or failed to establish. After the establishment of vegetation inspections <u>must be conducted a minimum of semi-annually</u> and/or after significant rainfall events exceeding 1.5 inches or more.

Dry detention basins are designed to completely drain following a rain event and are normally dry between rain events. If the basin's drawdown time, the time it takes for the basin to be completely dry, is greater than 48 hours, it could indicate a potential issue with the basin's design or drainage system. A relatively short drawdown time (24 to 48 hours) is necessary to maintain storage volume for the next rain event, reduce flooding, and prevent water stagnation.

Visually check for evidence of burrowing/tunneling animals and establishment of trees and woody vegetation. <u>Pest control measures must be implemented to address insects, rodents, and other pests.</u> Natural pest control is preferred over chemical treatments.

#### 5.5.2 Maintenance Procedure

Remove debris, sediment, and trash that have accumulated. Sediment should be removed, at a minimum, when storage volume is reduced by 25%. Depth of sediment must be measured against original surface elevations. Sediment removed, deemed non-hazardous, may be taken to a landfill or potentially used onsite as a soil amendment. Keeping the dry detention basin cleared of debris and litter will help maintain capacity and avoid ponding.

Visually check for signs of damage. Repair any damages that prevent structures from functioning as designed. Utilize mowing, pruning, and/or herbicides to prevent establishment of trees and woody vegetation within the dry detention basin.

Once grass is completely established, it must be maintained at a minimum height of four inches to control weeds. <u>Native vegetation planting must have "No Mow" or other appropriate signage</u>. Vegetation must be maintained on a regular basis.

#### 5.5.3 Remediation

Repair dry detention basin to its originally designed condition and elevations. This practice will help prevent water stagnation.

#### **6.0 APPENDICES**

These appendices contain maps, site plans, and details and specifications for the stormwater infrastructure and post-construction stormwater management BMP(s), a maintenance activity schedule, and checklists meant to guide the process and documentation of inspections and maintenance of the BMP. The checklists identify areas that require ongoing maintenance and the minimum frequency of inspections that should be completed.

Appendix A Site Maps

Appendix B Site Plans and Post-Construction Stormwater Management BMP Details/Specifications

Appendix C Maintenance Activity Schedule

Appendix D Inspection and Maintenance Checklist(s)

Appendix E Stormwater Management BMPs Maintenance Agreement

## APPENDIX A SITE MAPS

#### **SITE MAPS**

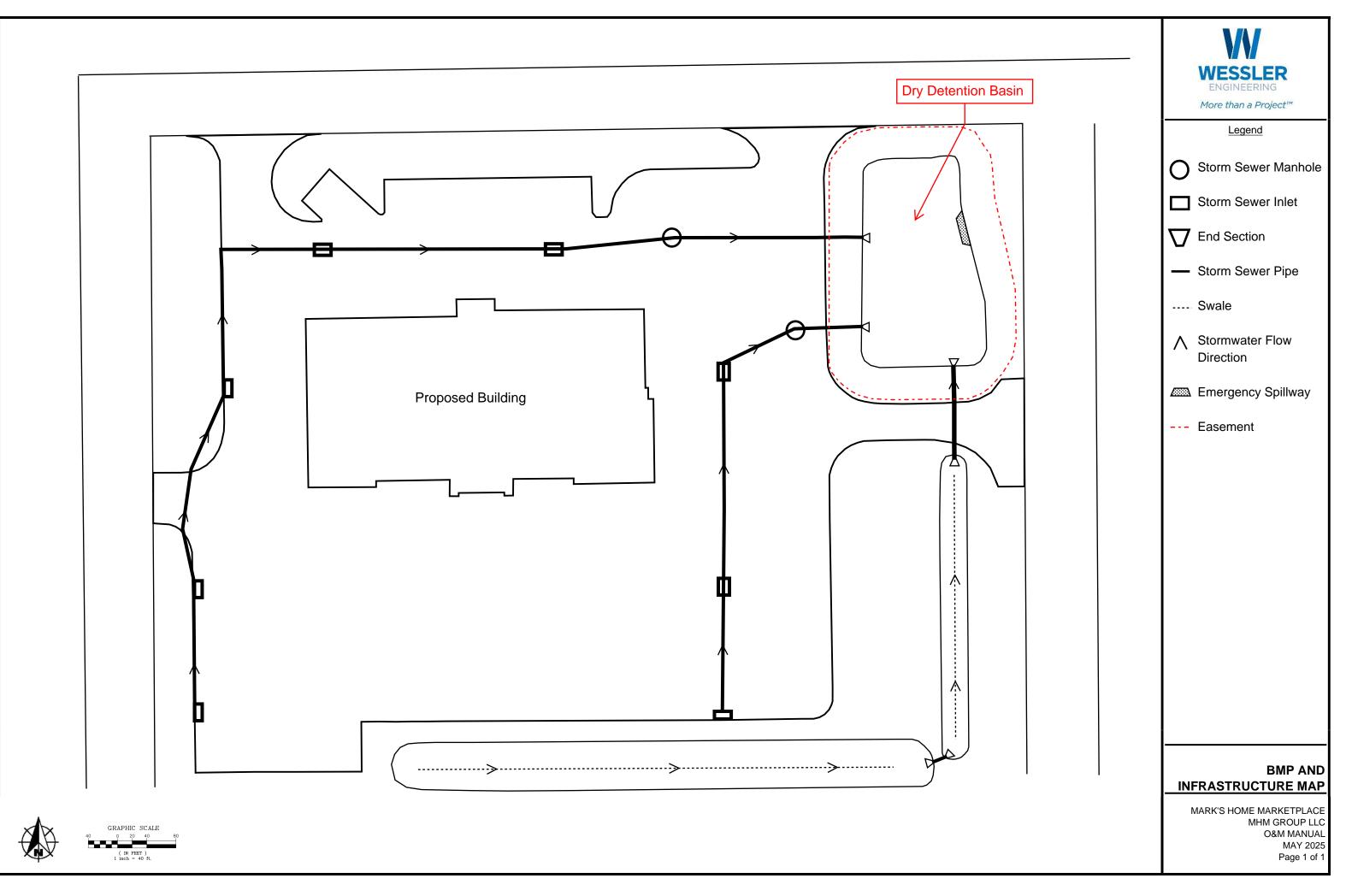
**Stormwater Infrastructure and BMP Map** (example)

Flood Routing Map (not included)

#### Site Map Guidance

Site maps included in the O&M Manual must be drawn to scale on  $8.5" \times 11"$  or  $11" \times 17"$  sized paper and clearly indicate the following:

- The location of the stormwater management facilities and BMPs.
- Plan and cross-section details, showing applicable features.
- The flow of stormwater through the site, including an overview of the stormwater's path through the onsite stormwater facilities and BMPs.
- Dimensions, outlets/discharge points and outfall locations, drainage patterns, stormwater runoff flow directions, the extent and depth (elevation) of high-water levels, flood routing path, signage, connecting structures, weirs, invert elevations, structural controls used to control stormwater flows, and other relevant features.
- Documentation of drainage easement(s) around the stormwater management facilities and BMPs. The documentation must be in graphic format.



## **APPENDIX B**

## SITE PLANS AND BMP DETAILS/SPECIFICATIONS

(Intentionally left blank)

# APPENDIX C MAINTENANCE ACTIVITY SCHEDULE

STORMWATER INFRASTRUCTURE					
Maintenance Activity	Dates for Completion	Frequency			
Storm Sewer Pipe					
Inspect for blockages and sediment or debris accumulation.	As needed when problems are suspected	Semi-annually			
Schedule maintenance as needed to clean, remove blockages, and repair damages.	As needed following inspections	As needed			
Culverts and End Sections					
Inspect stone/rip rap/erosion control blanket at end sections for displacement or loss of material & for erosion around the material.	June November	Semi-annually			
Inspect for sediment and debris accumulation.	June November	Semi-annually			
Remove and dispose of sediment, debris, trash, etc. appropriately.	As needed following inspections	As needed			
Manhole, Inlet and Catch Basin Sump Structures					
Inspect for ponding and improper drainage.	June November	Semi-annually			
Remove trash, debris, and sediment appropriately.	As needed following inspections	As needed			
Inspect for structural damage, missing/displaced manhole covers and/or inlet grates.	June November	Semi-annually			
Inspect catch basin sump structures for sediment and debris accumulation.	June November	Semi-annually			
Remove trash, debris, and sediment when the sump is more than 50% full.	As needed following inspections	As needed			
Schedule maintenance as needed to clean, remove blockages, and repair damages.	As needed following inspections	As needed			
Open Conveyances					
Inspect for ponding and improper drainage.	June November	Semi-annually and following significant rain events (≥1.5-inches)			
Remove trash, debris, and sediment appropriately.	As needed following inspections	As needed			
Inspect for establishment of vegetation, erosion, and bare soil.	June November	Semi-annually and following significant rain events (≥1.5-inches)			

STORMWATER INFRASTRUCTURE (continued)						
Maintenance Activity	Dates for Completion	Frequency				
Open Conveyances (continued)						
Inspect vegetation monthly until initial establishment of vegetation.	January	Monthly until initial				
	February	establishment of				
	March	vegetation, then				
	April	reduce to semi-				
	May	annually				
	June	-				
	July					
	August					
	September					
	October					
	November					
	December					
Inspect for animal damage and establishment of trees or woody	June	Semi-annually				
vegetation.	November					
	As needed					
Schedule maintenance as needed to clean and repair damages.	following	As needed				
	inspections					

DRY DETENTION BASIN					
Maintenance Activity	Dates for Completion	Frequency			
End Sections					
Inspect stone/rip rap/erosion control blanket at inlets/outlets for displacement or loss of material & for erosion around the material.	January April July October	Quarterly and as needed			
Inspect for sediment and debris accumulation.	January April July October	Quarterly and as needed			
Remove and dispose of sediment, debris, trash, etc. appropriately.	As needed following inspections	As needed			
Embankment and Spillway					
Inspect for ponding and improper drainage.	January February March April May June July August September October November December	Monthly and as needed			
Remove trash, debris, and sediment appropriately.	As needed following inspections	As needed			
Inspect for establishment of vegetation, erosion, bare soil, and improper grades.	January April July October	Quarterly and as needed			
Inspect for animal damage and establishment of trees or woody vegetation.	June November	Semi-annually			
Inspect for ponding and improper drainage.	January February March April May June July August September October November December	Monthly and as needed			

DRY DETENTION BASIN (continued)						
Maintenance Activity	Dates for Completion	Frequency				
BMP Surface						
Remove trash, debris, and sediment appropriately.	As needed following inspections	As needed				
Inspect for establishment of vegetation, erosion, bare soil, and improper grades.	January April July October	Quarterly and as needed				
Inspect vegetation monthly until initial establishment of vegetation.	January February March April May June July August September October November December	Monthly until initial establishment of vegetation, then reduce to quarterly				
Inspect for animal damage and establishment of trees or woody vegetation.	June November	Semi-annually				

## **APPENDIX D**

## **INSPECTION AND MAINTENANCE CHECKLIST(S)**

#### STORMWATER INFRASTRUCTURE INSPECTION & MAINTENANCE CHECKLIST

To be completed semi-annually or as needed to maintain the stormwater infrastructure.

Site Name					
Inspection Date:			Inspection Time:		
Date/Time of previous			Depth of	previous	
rainfall			rainfall:		
Inspector Name:			Inspector Tit	le:	
Inspector signature:					
		Satisfactory or			
Maintenance Item	ı	Unsatisfactory	Inspection		Notes
		(S/U)	Frequency		
Storm Sewer Pipe					
Inspect for blockages and sed	iment or		Semi-		
debris accumulation.			annually and as needed		
Schedule maintenance as no					
clean, remove blockages, and repair damages.			As needed		
Other:					
Culverts and End Secti	ons				
Inspect stone/rip rap/erosion			Semi-		
blanket at inlets/outlets for displacement or loss of material & for erosion around			annually and		
the material.			as needed		
Inspect for sediment and debris accumulation.			Semi- annually and		
			as needed		
Remove and dispose of sediment, debris, trash, etc. appropriately.			As needed		
Other:					

Maintenance Item	Satisfactory or Unsatisfactory (S/U)	Inspection Frequency	Notes		
Manhole, Inlet and Catch Basin Sump Structures					
Inspect for ponding and improper drainage.		Semi- annually and as needed			
Inspect for structural damage, missing/displaced manhole covers and/or inlet grates.		Semi- annually and as needed			
Inspect catch basin sump structures for sediment and debris accumulation.		Semi- annually and as needed			
Remove and dispose of sediment, debris, trash, etc. appropriately.		As needed			
Other:					
Open Conveyances					
Inspect for ponding and improper drainage.		Semi- annually and as needed			
Remove trash, debris, and sediment appropriately.		As needed			
Inspect for establishment of vegetation, erosion, bare soil, and improper grades.		Semi- annually and as needed			
Inspect for animal damage and establishment of trees or woody vegetation.		Semi- annually and as needed			
Other:					
Actions to be taken:					
To be completed by (Date):					

#### DRY DETENTION BASIN BMP INSPECTION & MAINTENANCE CHECKLIST

To be completed quarterly or as needed to maintain the dry detention basin.

Site Name					
BMP Name					
BMP Location					
Inspection Date:			Inspection T	ime:	
Date/Time of previous rainfall			Depth of rainfall:	previous	
Inspector Name:			Inspector Tit	le:	
Inspector signature:					
Maintenance Item		Satisfactory or Unsatisfactory (S/U)	Inspection Frequency		Notes
Inlet/Outlet Structures					
Inspect pipes and structures for functioning, damage, and displa			Quarterly and as needed		
Inspect for blockages and sediment or debris accumulation.			Quarterly and as needed		
Remove and dispose of sediment, debris, trash, etc. appropriately.			As needed		
Other:					
Culverts and End Secti	ons				
Inspect stone/rip rap/erosion control blanket at inlets/outlets for displacement or loss of material & for erosion around the material.			Quarterly and as needed		

Maintenance Item	Satisfactory or Unsatisfactory (S/U)	Inspection Frequency	Notes
Culverts and End Sections (continued)			
Inspect for sediment and debris accumulation.		Quarterly and as needed	
Remove and dispose of sediment, debris, trash, etc. appropriately.		As Needed	
Other:			
Storm Sewer Pipe			
Inspect for blockages and sediment or debris accumulation.		As Needed	
Schedule maintenance as needed to clean, remove blockages, and repair damages.		As Needed	
Other:			
Embankment and Spillway			
Inspect for ponding and improper drainage.		Monthly and as needed	
Remove trash, debris, and sediment appropriately.		As needed	
Inspect for establishment of vegetation, erosion, bare soil, and improper grades.		Quarterly and as needed	
Inspect for animal damage and establishment of trees or woody vegetation.		Twice per year	
Other:			

Maintenance Item	Satisfactory or Unsatisfactory (S/U)	Inspection Frequency	Notes			
BMP Surface						
Inspect for ponding and improper drainage.		Monthly and as needed				
Remove trash, debris, and sediment appropriately.		As needed				
Inspect for establishment of vegetation, erosion, bare soil, and improper grades.		Quarterly and as needed				
Inspect vegetation monthly until initial establishment of vegetation.		Monthly				
Inspect for animal damage and establishment of trees or woody vegetation.		Twice per year				
Other:						
Actions to be taken:						
To be completed by (Date):						

## **APPENDIX E**

## STORMWATER MANAGEMENT BMPS MAINTENANCE AGREEMENT

## **CITY OF ANGOLA**

### **Stormwater Management BMPs Maintenance Agreement**

THIS AGREEMENT is made this	day of	, 20, by
	of	
[Owner Name]	[Com	pany Name]
with principal offices located		,
	[Owner/Company Address]	
hereinafter "Owner".	-	-
	show, the Owner agrees	n on plans dated, s to install and maintain stormwater
management practice(s) (also known	· · · · · · · · · · · · · · · · · · ·	subject property, known as
	located at	,
[Property's Common Name]	[Prope	rty's Address]
hereinafter "Property" in accordance wi	ith Exhibit A. The Owner furthe	er agrees to the terms stated in this
document to ensure that the stormwater perpetuity. This Agreement includes the		nes serving the intended function in
Exhibit A: BMP Operation and Mainter	nance Manual ("Manual").	

Note: This agreement and all Exhibits shall be recorded at the Steuben County Recorder's Office with the original recorded document filed at the *City of Angola*'s Office, hereinafter "City".

Exhibit B: Deed.

Through this Agreement, the Owner hereby subjects the Property to the following covenants, conditions, and restrictions:

- 1. The Owner shall be solely responsible for the installation, maintenance, and repair of the stormwater management practices, drainage easements, and associated landscaping identified in the Manual. This includes, but is not limited to, all pipes and channels built to convey stormwater to the facility, as well as all structures including inlets, catch basins, manholes, outlet control structures, and other improvements; rip rap, detention areas above ground and buried facilities; and vegetation provided to control the quantity and quality of the stormwater.
- 2. The Owner, its successors, and assigns, shall inspect the stormwater management/BMP facility at a frequency recommended by the manufacturer of the stormwater structure, or, in the absence of manufacturer recommendations, shall inspect at least annually. The purpose of the inspection is to ensure safe and proper functioning of the facilities. The inspection shall cover the entire facilities, berms, outlet structure, pond areas, access roads, etc.
- 3. No alterations or changes to the stormwater management practice(s) identified in the Manual shall be permitted unless they are deemed to comply with this Agreement and are approved in writing by the City.
- 4. The Owner shall retain the services of a qualified individual or company to operate and ensure the maintenance of the stormwater management practice(s) identified in the Manual.

- 5. The Owner shall provide to the City records of inspections, maintenance, and repair of the stormwater management practices in accordance with the Manual within forty-eight (48) hours of the request. Such records must be maintained by the Owner for a period of five (5) years.
- 6. The City or its designee is authorized to access the property as necessary to conduct inspections of the stormwater management practices or drainage easements to ascertain compliance with the intent of this Agreement and the activities prescribed in the Manual. Upon written notification by the City, or its designee, of required maintenance or repairs, the Owner shall complete the specified maintenance or repairs within a reasonable time frame determined by the City. The Owner(s) shall be liable for the failure to undertake any maintenance or repairs so that the public health, safety and welfare shall not be endangered nor the road improvement damaged.
- 7. If the Owner fails to properly maintain the stormwater management practice(s) in accordance with the Manual and this Agreement, the City is authorized, but not required, to perform the specified inspections, maintenance, or repairs in order to preserve the intended functions of the practice(s) and prevent the practice(s) from becoming a threat to public health, safety, general welfare or the environment. In the case of an emergency, as determined by the City, no notice shall be required prior to the City performing emergency maintenance or repairs. The City may levy the costs and expenses of such inspections, maintenance, or repairs plus a ten percent (10%) administrative fee against the Owner. The City at the time of entering upon said stormwater management practice for the purpose of maintenance or repair may file a notice of lien in the office of the Steuben County Recorder's Office upon the property affected by the lien. If said costs and expenses are not paid by the Owner, the City may pursue the collection of same through appropriate court actions and in such a case, the Owner shall pay in addition to said costs and expenses all costs of litigation, including attorney fees.
- 8. The Owner hereby conveys to the City an easement over, on, and in the Property or otherwise grants perpetual access rights for the purpose of access to the stormwater management practice for the inspection, maintenance, and repair thereof, should the Owner fail to properly inspect, maintain, and repair the practice(s).
- 9. The Owner agrees that this Agreement shall be recorded and that the Property shall be subject to the covenants and obligations contained herein, and this Agreement shall bind all current and future owners of the property.
- 10. The Owner agrees in the event that the Property is sold, transferred, or leased to provide information to the new owner, operator, or lessee regarding proper inspection, maintenance, and repair of the stormwater management practice(s). The information shall accompany the first deed transfer and include this Agreement and all Exhibits. The transfer of this information shall also be required with any subsequent sale, transfer, or lease of the Property.
- 11. The Owner agrees that the rights, obligations, and responsibilities hereunder shall commence upon execution of the Agreement.
- 12. The Owner whose signatures appear below hereby represent and warrant that they have the authority and capacity to sign this agreement and bind the respective parties hereto.
- 13. The Owner, its agents, representatives, successors, and assigns shall defend, indemnify and hold the City harmless from and against any claims, demands, actions, damages, injuries, costs or expenses of any nature whatsoever, hereinafter "Claims", fixed or contingent, known or unknown,

arising out of or in any way connected with the design, construction, use, maintenance, repair or operation (or omissions in such regard) of the stormwater management practice(s) referred to in Exhibit A which are the subject of this Agreement. This indemnity and hold harmless shall include any costs, expenses, and attorney fees incurred by the City in connection with such Claims or the enforcement of this Agreement.

IN WITNESS WHEREOF, the Owner	has executed this Agreement on the	he day and year first above w	vritten.
Owner Signature	Date		
Printed Name	Company		
Title			
STATE OF INDIANA	) ) SS:		
BEFORE ME, the undersigned, a	•	•	
Owner subs	scribed and sworn before this	day of	, 20
Commission Expiration Date	County of Residence	ce	
Signature			
Printed Name			
WHEN SIGNED AND NOTARIZED	), RETURN ORIGINAL COPY T	O:	
City of Angola ATTN: MS4 210 N Public Square Angola, IN 46703			
"I affirm, under the penalties for page Security Number in this document,			Social
Prepared by: Kim E. Shoup, Ango	ola City Attorney		