

Stormwater Maintenance Report

Elk Cannabis Cultivation Facility

Block 44, Lot 4

Township of Elk

Gloucester County, New Jersey



Prepared For:

Country Roads Realty LLC
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Collingswood, NJ 08108

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PAUPL23001

STORMWATER MANAGEMENT MEASURES

MAINTENANCE PLAN

Development Name: Elk Cannabis Cultivation Facility

Address: Buck Road

Block(s) / Lot(s): _ Block 44, Lot 4

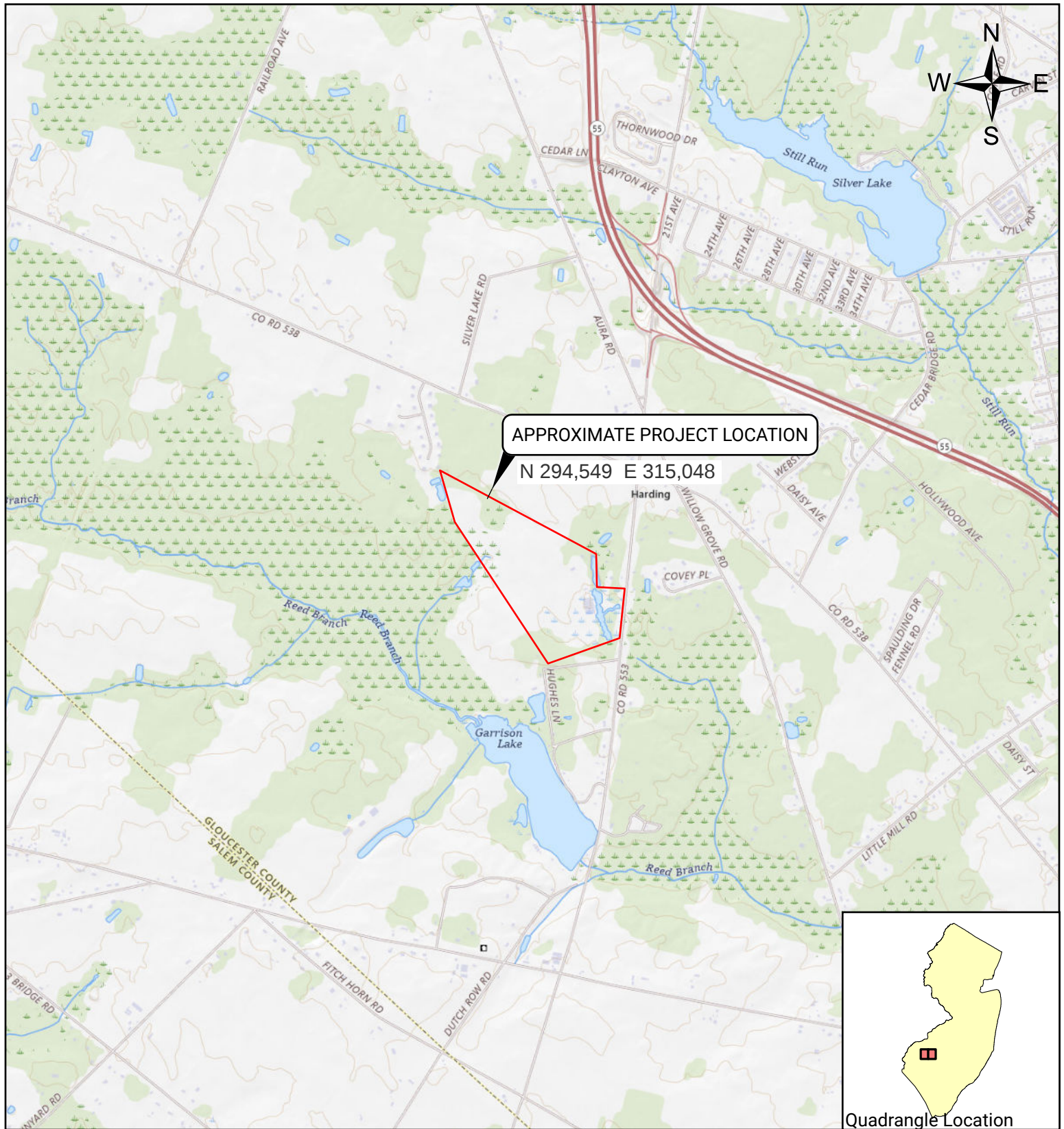
Township, County: Township of Elk, Gloucester County, NJ

Party Responsible for Maintenance:

Country Roads Realty, LLC
219 N Vineyards Blvd
Collingswood, NJ 08108
Attn: Paul Ploskonka
Phone: 732-618-7813

Prepared by: Pennonni Associates Date: 03/27/25

Last Revised on --/--/----



Legend

 Project Area

FIGURE 1
USGS MAP
of
ELK CANNABIS CULTIVATION FACILITY
at
730 BUCK ROAD
BLOCK 44 LOT 4
prepared for
COUNTRY ROADS REALTY LLC
E(x): 314,971 N(y): 294,488



0 2,000
Feet

TOWNSHIP OF ELK

GLOUCESTER COUNTY, NJ

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1.0 Project Overview

This Operation and Maintenance Manual has been prepared in support of the bioretention areas and stormwater facilities at Elk Cannabis Cultivation Facility Block 44, Lot 4, Elk Township, Gloucester County, New Jersey.

The responsibility for maintenance shall be dedicated to the property owner.

Owner:

Country Roads Realty, LLC
219 N Vineyards Blvd
Collingswood, NJ 08108
Attn: Paul Ploskonka
Phone: 732-618-7813

NJ State Plane Coordinates of each facility is indicated below:

Bioretention Basin #1	-	N 295,540	E 315,170
Spillway (O-1)	-	N 294,475	E 315,136
Bioretention Basin #2	-	N 294,371	E 315,086
Outlet Control Structure (OCS-2)	-	N 294,239	E 315,052
Bioretention Basin #3	-	N 294,497	E 314,907
Outlet Control Structure (OCS-3)	-	N 294,464	E 314,976
Bioretention Basin #4	-	N 295,013	E 314,381
Outlet Control Structure (OCS-4)	-	N 294,963	E 314,339
Vegetated Filter Strip 1	-	N 294,643	E 315,410
Vegetated Filter Strip 2	-	N 294,452	E 315,638

Each facility location relative to the site has been indicated on the Facility Location Map.

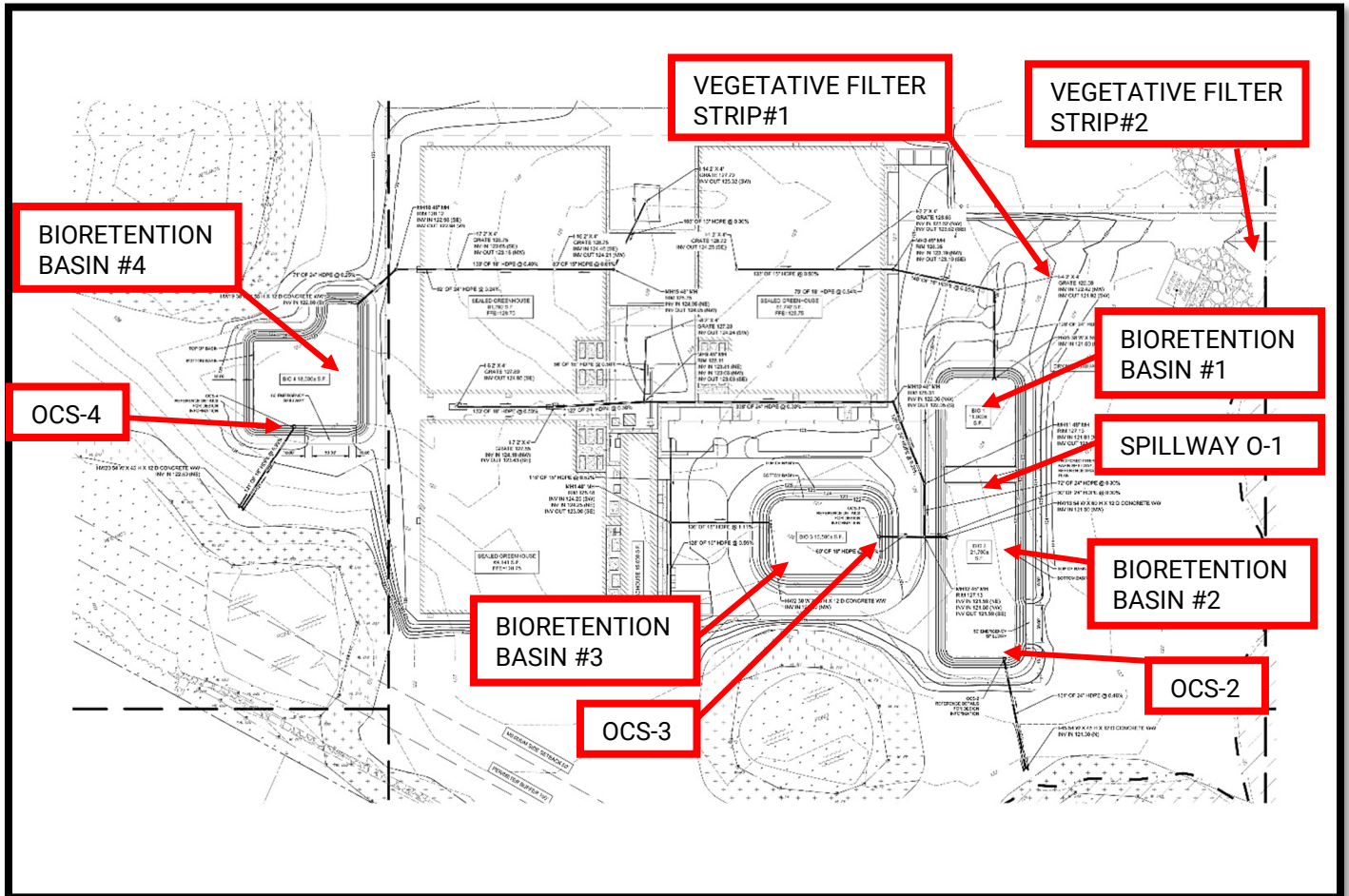
The inspection, maintenance and repair report shall be updated and kept on file at the Maintenance Office.

The maintenance plan and any future revision shall be recorded upon the deed of record for each property on which the maintenance described in the maintenance plan must be undertaken.

The person responsible for maintenance (as noted above) shall maintain a detailed log of all preventative and corrective maintenance for the structural stormwater management measures incorporated into the design of the development, including a record of all inspections and copies of all maintenance related work orders.

The person responsible for maintenance shall evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and deed as needed. The person responsible for maintenance shall retain and make available, upon request by any public entity with administrative, health, environmental or safety authority over the site, the maintenance plan and the documentation required.

FACILITY LOCATION MAP



2.0 Stormwater System Overview

The property is located along Buck Road, Block 44, Lot 4, Elk Township, Gloucester County, New Jersey.

Bioretention Basin #1

Basin #1 is a small scale bioretention basin with bottom elevation 121.50. The bioretention basin provides water quality treatment for portions of the entrance drive. The basin outlet consists of a 70-foot-wide grass spillway (el. 122.10). Bioretention basin #1 is interconnected with bioretention basin #2 for stormwater quantity control.

Bioretention Basin #2

Basin #2 consists of a small scale bioretention basin with bottom elevation 121.50. The basin is interconnected with bioretention basin #1. The outlet structure consists of a pre-cast concrete box with an 8-inch diameter orifice (el. 122.10), a 2-foot-wide rectangular weir (el. 123.00) and a grate (el. 124.60). Basin 2 discharges to pond 2. Bioretention basin 2 discharges through an 18" HDPE pipe with scour hole. A 50' wide emergency spillway (el. 124.00) is designed to route basin inflow (49.86 cfs) for the 100-year projected rainfall (year 2100).

Bioretention Basin #3

Basin #3 consists of a small scale bioretention basin with bottom elevation 121.50. The basin is located within the center of the proposed paved parking area. The basin provides water quality treatment and quantity control for the parking area and adjacent drives prior to discharging to Bioretention Basin #2. The outlet structure consists of a pre-cast concrete box with a 10-inch diameter orifice (el. 122.50), and a grate (el. 125.00).

Bioretention Basin #4

Basin #4 consists of a small scale bioretention basin with bottom elevation 122.80. The basin is located on the westerly side of the site. The outlet structure consists of a pre-cast concrete box with a 3-inch diameter orifice (el. 123.80), a 2.75-foot-wide rectangular weir (el. 124.00) and a grate (el. 126.30). Basin 4 discharges to pond 6. Bioretention basin 4 discharges through an 18" HDPE pipe with scour hole. A 50' wide emergency spillway (el. 125.00) is designed to route basin inflow (21.56 cfs) for the 100-year projected rainfall (year 2100).

3.0 Maintenance/Inspections

1. Immediate Maintenance

Immediate maintenance conditions demand immediate attention and must be performed under the supervision of a New Jersey licensed professional engineer. Immediate maintenance usually requires construction equipment and professional guidance. Immediate maintenance is characterized by the following:

- a. Severe side slope failure.
- b. Severe progressive erosion at culvert area.
- c. Pipe failure.
- d. Debris blockage.
- e. Missing/broken inlet grates, manhole covers, missing or damaged fencing

2. Corrective Maintenance

Corrective maintenance should be performed as soon as possible after an inspection. Corrective maintenance consists of the following:

- a. Clearing of trees and shrubs around the inflow and outflow pipes.
- b. Filling eroded areas or gullies and seeding to stabilize the area.
- c. Replacement of rip rap and/or conduit outlet protection.
- d. Repair missing or damaged fencing
- e. Removal of sediment from pipes and/or inlets

3. Continuing Maintenance

Continuing maintenance will occur on a regular basis and can be performed during the informal inspections. Continuing maintenance includes:

- a. Removing nuisance vegetation near culvert inflow/outflow locations.
- b. Filling small, eroded gullies.
- c. Removing accumulated trash and debris.
- d. Seeding grassed areas.

An inspection, maintenance and repair report will be updated and submitted annually to the Township.

4.0 General Maintenance

All facilities expected to receive and/or trap debris and sediment must be inspected for clogging and excessive debris and sediment accumulation at least four (4) times annually as well as after every storm exceeding one (1) inch of rainfall. Such components may include pipes, and inflow points.

5.0 Regular Maintenance Items

Regular maintenance items, as itemized in the checklist enclosed as Appendix B. includes the following items:

1. Removal and Disposal of Trash and Debris: Immediately following any significant rainfall event, and at least once every 3 months, all trash and debris should be removed from the impoundment area.
2. Sediment Removal and Disposal: Accumulated sediment should be removed before it threatens the operation of the facility. Sediment volume should be monitored on a quarterly basis to assure the outlets are not blocked.

Disposal of sediment should be in accordance with current Haddon Township standards and regulations of the New Jersey Department of Environmental Protection.

Corrective Maintenance

Corrective maintenance should be provided as soon as practicable after a situation that requires attention is reported. Corrective maintenance includes repair of damage caused by vandalism, removal of debris and sediment that threatens the operational capacity of the facility, and corrections of any problems that jeopardize the safety or operation of the facility.

Maintenance Inspection

An inspection of the facility should be made a minimum of once every year to determine the effectiveness of the maintenance work and the condition of the facility. In addition, an inspection should be made whenever a severe storm warning is issued to determine the readiness of the facility.

Records

Included in this report as Appendix B, are checklists and logs for use by maintenance personnel and inspectors. These should be utilized every time maintenance or inspection is performed on the facility. The reports should be appropriately filed and used to determine effectiveness of the existing maintenance and inspection schedules and used as a guide to revise the schedules as necessary to effectively maintain the operational integrity of the facility.

6.0 Best Management Practices (BMP's)

The NJDEP Stormwater Management Regulations (N.J.A.C. 7:8) have been adopted to address the adverse impacts of land development. The stormwater management measures taken to meet these requirements are collectively known as Best Management Practices (BMPs). BMPs can be non-structural, as in the disconnect of stormwater runoff, or structural, as in the construction of manufactured treatment devices discussed in this manual.

6.1 BIORETENTION AREAS

The following is taken from the Rain Garden Manual of New Jersey by the Rutgers Cooperative Extension Water Resources Program:

Definition

A bioretention area is a landscaped/grassed depression that captures, filters and infiltrates stormwater runoff. The rain garden/bioretention area removes nonpoint source pollutants from stormwater runoff while recharging groundwater.

Purpose

A bioretention area has two main goals. The first goal is to serve as a functional system to capture, filter and infiltrate stormwater runoff at the source and the second goal is to be an aesthetically pleasing garden/grass area.

Maintenance

1. Vegetation

Mowing and/or trimming of vegetation must be performed on a regular schedule based on specific site conditions. Vegetated areas must be inspected at least annually for erosion, scour and unwanted growth, which should be removed with minimum disruption to the bottom surface and remaining vegetation.

Grasses within the bioretention area must be carefully maintained so as not to compact the soil, and through handheld equipment. The vegetative cover should be maintained at 85%.

2. Sediment/Debris Removal

Sediment volume should be monitored on a quarterly basis to assure that the capacity of the basin is not adversely affected. Accumulated sediment should be removed before it threatens the operation or storage volume of the basin area.

Sediment removal should take place when the bioretention area is thoroughly dry. Disposal of debris, trash and sediment or other waste material should be done at suitable disposal/recycling sites and in compliance with all applicable local, state and federal waste disposal regulations.

Occasionally use a flat shovel to remove any excess sediment, leaves, or debris that may accumulate.

Grass clippings shall be collected and properly disposed of. Precautions must be taken to prevent planting bed soil compaction and sediment contamination by runoff.

3. Structural Components

All structural components must be inspected for cracking, erosion and deterioration at least annually. The 4" perforated underdrains shall be inspected for clogging.

4. Other Maintenance criteria

The maintenance plan must indicate the approximate time it would normally take to drain the maximum design storm runoff volume below the bottom of the basin. This normal drain or drawdown time should then be used to evaluate the infiltration area's actual performance.

If significant increases or decreases in the normal drain time are observed, the basin's bottom surface, subsoil and both groundwater and tailwater levels must be evaluated and appropriate measures taken to comply with the maximum drain time requirements and maintain the proper functioning of the infiltration area.

The bottom of a surface infiltration area should be inspected at least monthly as well as after each storm event exceeding one inch of rainfall. The permeability rate of the soil below the infiltration area may also be retested periodically.

If water fails to infiltrate 72 hours after the end of the storm, corrective measures must be taken. Annual tilling by light equipment can assist in maintaining infiltration capacity and break up clogged surfaces.

Bioretention Basins Infiltration Data

Basin	Variables			Drain Time	Bottom of Basin
Basin	Volume (CF)	Infiltration area (SF)	Permeability rate (in/hr)	Drain Time (hr)	Bottom of Basin (Elev)
BIO1*	3027	11521	6.00	0.53	121.50
BIO2*	6049	22622	6.00	0.53	121.50
BIO3*	10337	15105	2.00	4.11	121.50
BIO4*	19449	18828	1.00	12.40	122.80

* With safety factor of 2

Bioretention Basin #1 - Proposed Basin Parameters (Projected Rainfall Year 2100)

Storm (Year)	Peak Inflow (cfs)	Peak Outflow (cfs)	Storage Volume (cf)	Peak Elevations (ft)
2	7.66	2.01	10,453	122.72
10	13.29	10.08	17,554	123.27
100	31.47	23.66	29,377	124.13

Bioretention Basin #2 - Proposed Basin Parameters (Projected Rainfall Year 2100)

Storm (Year)	Peak Inflow (cfs)	Peak Outflow (cfs)	Storage Volume (cf)	Peak Elevations (ft)
2	8.41	0.82	20,600	122.72
10	21.28	2.41	34,265	123.27
100	46.96	9.47	56,552	124.14

Bioretention Basin #3 - Proposed Basin Parameters (Projected Rainfall Year 2100)

Storm (Year)	Peak Inflow (cfs)	Peak Outflow (cfs)	Storage Volume (cf)	Peak Elevations (ft)
2	8.64	0.54	17,599	122.94
10	13.80	1.83	25,713	123.41
100	28.26	3.50	50,571	124.70

Bioretention Basin #4 - Proposed Basin Parameters (Projected Rainfall Year 2100)

Storm (Year)	Peak Inflow (cfs)	Peak Outflow (cfs)	Storage Volume (cf)	Peak Elevations (ft)
2	6.28	0.01	20,437	123.85
10	10.04	0.48	26,083	124.12
100	21.28	6.27	40,861	124.81

6.2 VEGETATED FILTER STRIPS

Definition

A vegetative filter strip is a stable, evenly graded area designed to remove pollutants from the stormwater runoff that flows through it. Vegetative filter strips are intended to treat runoff generated from drainage areas that are uniformly graded, such as yards, parking lots and driveways, where runoff moves as sheet flow.

Maintenance

1. Vegetation

Bi-weekly inspections are required when establishing/restoring vegetation.

A minimum of one inspection during the growing season and one inspection during the nongrowing season is required to ensure the health, density and diversity of the vegetation.

Mowing/trimming within the filter strip for grass filter strips, must be performed on a regular schedule based on specific site conditions.

Vegetated areas must be inspected at least once annually for erosion, scour and unwanted growth; any unwanted growth should be removed with minimum disruption to the remaining vegetation.

Vegetative cover must be maintained at 85%; damage must be addressed through replanting in accordance with the original specifications.

All use of fertilizers, pesticides, mechanical treatments and other means to ensure optimum vegetation must not compromise the intended purpose of the filter strip.

2. Sediment/Debris Removal

Components expected to receive and/or trap debris and sediment must be inspected for clogging at least twice annually, as well as after every storm exceeding 1 inch of rainfall. These components may include vegetated areas, stone cutoffs and, in particular, the upstream edge of the filter strip where coarse sediment and debris accumulation could cause inflow to concentrate.

Sediment removal should take place when the filter strip is thoroughly dry and should not result in the loss of vegetation.

Disposal of debris, trash, sediment and other waste material must be done at suitable disposal/recycling facilities and in compliance with all applicable local, state and federal waste regulations.

All areas of the filter strip should be inspected for excess ponding after significant storm events, and corrective actions taken when excessive ponding occurs.

3. Structural Components

All structural components must be inspected, at least once annually, for cracking, subsidence, spalling, erosion and deterioration.

6.3 GRASS SWALES

Definition

A grass swale is a channel that is used to improve water quality and convey stormwater runoff. Pollutants are removed by settling and filtration through the grass.

Maintenance

1. Vegetation

Grasses within the swale area must be carefully maintained so as not to compact the soil, and through hand-held equipment. The vegetative cover should be maintained at 95%. Damage must be addressed through replanting in accordance with the NJ Standards for Soil Erosion and Sediment Control.

Grasses with the swale should be carefully maintained to fall within the required grass height range of 3 to 6 inches.

Vegetated areas should be inspected annually for unwanted growth, which should be removed with minimum disruption to the remaining vegetation. When establishing or restoring vegetation, biweekly inspections of vegetation health should be performed during the first growing season or until the vegetation is established.

3. Sediment/Debris Removal

Occasionally use a flat shovel to remove any excess sediment, leaves, or debris that may accumulate. Grass clippings shall be collected and properly disposed of.

Sediment removal should take place when the swale is thoroughly dry and should not result in loss of vegetation.

4. Structural Components

All structural components must be inspected for cracking, erosion and deterioration at least annually. Precautions must be taken to prevent planting bed soil compaction and sediment contamination by runoff.

6.4 STORMWATER INLETS AND PIPES

Definition

Inlet structures are box structures with grate openings to receive surface water which is then conveyed through the underground stormwater pipe system.

Purpose

The primary function of an inlet structure is to allow water to enter the storm drainage system. Inlets also serve as access points for cleaning and inspection.

Maintenance

1. Sediment Removal and Disposal

Inspect your structures every six months during the first year of operation to determine your site-specific rate of pollutant accumulation. Maintenance events may include inspection, floatable removal and sediment removal.

Regular removal of sediment and debris accumulated in outlet, inlet, cleanout and manhole structures is the best method to preventing clogging and failure of the storm sewer system and avoid costly repairs (i.e. no standing water).

Disposal of debris, trash and sediment or other waste material should be done at suitable disposal/recycling sites and in compliance with all applicable local, state and federal waste disposal regulations.

2. Other Maintenance criteria

Regular inspections of inlets and storm pipes should take place approximately three times per year, with additional inspections advised after major weather events. Inspection of the drainage flow paths should be performed to check for blockages. All drains must remain free of foreign objects.

Check condition of inlet and outlet components for cracking, loose grates or undermining.

Pipes should be checked for settlement at the joints, which may cause leakage and undermining of the system. Inspections in locations that are not easily accessible may be performed by video inspection of the system.

7.0 Safety of Inspection and Maintenance Personnel

Safety precautions should be taken when maintaining the stormwater management facilities. Extreme caution should be used when entering any areas of standing water, or confined spaces

Maintenance personnel may require training in maintenance tasks. Inspectors are expected to be dressed in protective clothing and use the appropriate equipment and safety gear in accordance with OSHA regulations and procedures when performing their tasks. Equipment should always be operated safely and in accordance with manufacturers specifications. Contact utility companies or NJ One Call (1-800-272-1000) before initiating any maintenance activity involving excavation.

8.0 Miscellaneous Items

Emergency Conditions

Recommended corrective responses to various emergency conditions that may be encountered at the stormwater management measure are to be determined on an as-needed basis after each subsequent inspection.

Specialized Stormwater Management Measures

Maintenance, repair, and replacement instructions for specialized, proprietary, and non-standard measure components, in addition to manufacturer's product installation guides and user manuals, have been included and referenced, if applicable, on the design plans for the project. Refer to specific product guides and user manuals for specific detail regarding the respective item.

Disposal and Recycling Sites

Approved disposal and recycling sites and procedures for sediment, trash, debris, and other material removed from the stormwater management measures during maintenance operations shall be utilized and have been referenced herein and on the design plans for the project.

As-Built Construction Plans

As-built construction plans of the stormwater management measures and copies of pertinent construction documents, such as laboratory test results, permits, and completion certificates are required for verification for the associated measures to function properly and in accordance with the approved design. As-built construction plans will be available through the responsible party denoted in the report.

Permits for Maintenance Activities

There are currently no permits required from the New Jersey Department of Environmental Protection for the maintenance activities associated with the proposed drainage system as outlined herein. However, compliance with all regulations and requirements pertaining to the disposal of sediment, trash, debris and other removed material is required.

Appendix A:



TOOLS AND EQUIPMENT

The following is a list of required inspection equipment for routine operation and maintenance procedures and inspections:

1. A clipboard, a pencil and the inspection checklist. The checklist is included in Appendix B.
2. A standard 6-foot collapsible ruler.
3. A camera. Photographs or observed portions of the basin will provide a measure of performance when comparing past and present maintenance practices or conditions.
4. A probe. A stiff light stick or rod with a blunt tip of sufficient strength to penetrate soil. The probe can provide information on condition below the surface of the basin bottom, such as depth and softness of a saturated area.
5. A weed whacker. Can be used to clear non-visible areas and to perform routine maintenance on basin embankments.
6. A flashlight. Can be used to observe the inside of outlet pipes and structural components.

Maintenance of the basin may include the use of equipment including the following:

1. Wheelbarrow, shovel.
2. Pole with skimmer or net.
3. Trash bag for removed floatables.
4. JetVac.
5. Ladder.

Sources of the following materials should be identified for immediate use of warranted repairs by the inspection:

1. A commercially or municipally owned JetVac is used to clean the storm sewer pipes

MAINTENANCE CATEGORIES

1. **Immediate Maintenance:** demands immediate attention and usually requires construction equipment and professional guidance. Immediate maintain is characterized by the following:
 - a. Blocked grate, outlet structure or pipes.
 - b. Foul odor.
 - c. Clogged drains
 - d. Surcharge of water from inlets
2. **Corrective Maintenance:** should be performed as soon as possible after an inspection. Corrective maintenance consists of the following:
 - a. Clearing of blocked grate, outlet structure or pipes.
 - b. Clogged drains
 - c. Cleaning of outlet structure
3. **Continuing Maintenance:** will occur on a regular basis and can be performed during the inspection or in accordance with the maintenance schedule outlined above. Continuing maintenance includes:
 - a. Removing accumulated trash and debris.
 - b. Cleaning of outlet structure

MAINTENANCE INSPECTION

An inspection of the facilities should be made a minimum of once every three months to determine the effectiveness of the maintenance work and the condition. In addition, an inspection should be made whenever a severe weather warning is issued to determine the readiness of the facilities.

Reports should be appropriately filed and used to determine the effectiveness of the existing maintenance and inspection schedules and used as a guide to revise the schedules as necessary to maintain the operational integrity.

Appendix B:



ENGINEER'S ESTIMATE OF MAINTENANCE COSTS BIORETENTION BASINS AND VEGETATIVE FILTER STRIPS ELK CANNABIS CULTIVATION FACILITY TOWNSHIP OF ELK GLOUCESTER COUNTY, NEW JERSEY						
						
Item #	Description	Rate	Unit	Total Units	Frequency Per Year	Item Total
1	General Maintenance	\$ 100.00	LS	6	6	\$3,600.00
2	Visual Inspection	\$ 100.00	LS	4	2	\$800.00
3	Trash and Debris Removal	\$ 250.00	LS	6	As Needed	\$1,500.00
4	Preventive Maintenance	\$ 200.00	LS	4	1	\$800.00
5	Corrective Maintenance	\$ 300.00	LS	6	1	\$1,800.00
6	Clean Subsurface Pipes (as Needed)	\$ 1,000.00	LS	1	1	\$1,000.00

TOTAL ANNUAL	\$9,500.00
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Inspection Checklist / Maintenance Actions Bioretention System

Checklist (circle one): Quarterly / Annual / Monthly / Special Event Inspection

Checklist No. _____ **Inspection Date:** _____

Date of most recent rain event: _____

Rain Condition (circle one):

Drizzle / Shower / Downpour / Other _____

Ground Condition (circle one):

Dry / Moist / Ponding / Submerged / Snow accumulation

	For Inspector		For Maintenance Crew	
Component No. Component Name	Inspection Item and Inspection Item No.		Result	Preventative / Corrective Maintenance Actions
A1 Pretreatment (Forebay) (if installed)	1	Scouring or erosion is present at inlet structure and/or riprap apron	Y__ N__	Check the flow diversion device before the inlet pipe and whether the bypass flow channel is clogged Work Order # _____
	2	Clogged pipes or excessive sediment in the forebay	Y__ N__	Remove sediment or debris
	3	Damaged outlet structure (e.g., cracking, subsidence, spalling, erosion, or deterioration)	Y__ N__	Repair or replace the outlet structure Work Order # _____
A2 Pretreatment (MTD)	1	MTD inspection (if installed)	Y__ N__	(If a MTD is used for pretreatment, see Maintenance Manual Provided by the manufacturer)

	For Inspector		For Maintenance Crew
Component No. Component Name	Inspection Item and Inspection Item No.	Result	Preventative / Corrective Maintenance Actions
			The observed drain time is approximately _____ hours. Remove any sediment buildup Check the soil permeability Till the soil bed with rotary tiller or disc harrow Replace the planting soil, if necessary Work Order # _____
	2	Excessive sediment, silt, or trash accumulation on basin bed Y__ N__	Clean pretreatment system Remove silt, sediment, and trash
	3	Erosion or channelization is present Y__ N__	Check whether the flow bypass or diversion device is clogged Re-grade the infiltration bed Work Order # _____

	For Inspector		For Maintenance Crew	
Component No. Component Name	Inspection Item and Inspection Item No.		Result	Preventative / Corrective Maintenance Actions
	4	Animal burrows/rodents are present	Y__ N__	Pest control Work Order # _____
Note:				
B Basin Bed	5	Uneven bed	Y__ N__	Use light equipment to resurface the bed Work Order # _____
	6	Evidence of sinkholes or subsidence	Y__ N__	Monitor for sinkhole development
C Vegetation	1	Large spot(s) showing bare soil	Y__ N__	Vegetative cover must be maintained at 85%. Revegetate the entire basin if 50% or more vegetation has been lost. Check Landscaping plan for guidance (if available) Work Order # _____

	For Inspector		For Maintenance Crew
Component No. Component Name	Inspection Item and Inspection Item No.	Result	Preventative / Corrective Maintenance Actions
D Bioretention System Embankment and Side Slopes	1 Signs of erosion, soil slide or bulges, seeps and wet spots, loss of vegetation, or erosion on the basin slope	Y___ N___	Check for excessive overland runoff flow through the embankment. Check for any sink hole development Direct the overland runoff to the forebay or pretreatment area Restabilize the bank Work Order # _____
	2 Overgrown perimeter vegetation	Y___ N___	Mow the vegetation on the perimeter of the embankment Work Order # _____ Note: Mowing of vegetation should only take place in the area outside the basin. Dense vegetation must be maintained in the basin.
E Outlet	1 Trash or debris accumulation more than 20%	Y___ N___	Clean and remove Determine source of trash and address to reduce future maintenance costs or basin failure

	For Inspector		For Maintenance Crew
Component No. Component Name	Inspection Item and Inspection Item No.	Result	Preventative / Corrective Maintenance Actions
	2	Trash rack is damaged or rusted greater than 50%	Y__ Repair or replace trash rack
		Trash rack is bent, loose, or missing parts	N__ Work Order # _____
	3	Outlet components (e.g., orifice plates or weir plate) skewed, misaligned, or missing	Y__ Repair or replace component
			N__ Work Order # _____
4	Discharge pipe apron is eroded or scoured	Y__ Restabilize the discharge riprap apron	
		N__ Work Order # _____	
Note:			
F Emergency Spillway	1	Trees or excessive vegetation present	Y__ Remove trees and roots, and restore berms if necessary
			N__ Work Order # _____
	2	Damaged structure	Y__ Repair
			N__ Work Order # _____

	For Inspector		For Maintenance Crew
Component No. Component Name	Inspection Item and Inspection Item No.		Result Preventative / Corrective Maintenance Actions
G Miscellaneous	1	Fence: broken or eroded parts	Y__ N__ Repair or replace Work Order # _____
	2	Gate: missing gate or lock	Y__ N__ Repair or replace Work Order # _____
	3	Sign/plate: tiled, missing, or faded	Y__ N__ Repair or replace Work Order # _____
	4	Excessive or overgrown vegetation blocking access to the basin	Y__ N__ Clear, trim, or prune the vegetation to allow access for inspection and maintenance Work Order # _____
Note:			

Follow Up Items (Component No. / Inspection Item No.):

Associated Work Orders: # _____, # _____, # _____, # _____, # _____

Inspector Name

Signature

Date

Report issues to the local authority and mosquito commission as required by local ordinances and regulatory authorities.

File this checklist in the Maintenance Log after performing maintenance

Preventative Maintenance Record

Corresponding Checklist No. _____
 Component No. _____, Inspection Item No. _____

Work Logs

Activities	Components	Date Completed
Sediment/debris removal Sediment removal should take place when the ground is thoroughly dry.	A – Filter Strip Area	
	C – Outlet (if applicable)	
Vegetation removal	B – Vegetation	

All use of fertilizers, pesticides, mechanical treatments, and other means to ensure optimum vegetation health must not compromise the intended purpose of the stormwater management measure. The fertilizer applied is _____ (type), and _____ (quantity per usage) is applied _____ (frequency of use).

Debris, sediment, and trash are handled (onsite / by _____ (contractor name) to disposal site _____). (See Part I: Maintenance Plan – Disposal Plan Section)

Crew member: _____ / _____ Date: _____
 (name/ signature)

Supervisor: _____ / _____ Date: _____
 (name/ signature)

File this Preventative Maintenance Record in the Maintenance Log after performing maintenance.

Corrective Maintenance Record

1. Work Order # _____ Date Issued _____

2. Issue to be resolved:

(e.g., Re-grading is required. Replanting is required.)

3. The issue was from Corresponding Checklist No. _____, Component No. _____
Inspection Item No. _____.

4. Required Actions

Actions	Planned Date	Date Completed
Revegetation		
Re-grading		

5. Responsible person(s):

6. Special requirements

- Time of the season or weather condition: _____
- Tools/equipment: _____
- Subcontractor (name or specific type): _____

Approved by _____/_____ Date _____
(name/signature)

Verification of completion by _____/_____ Date _____
(name/signature)

File this Corrective Maintenance Record in the Maintenance Log after performing maintenance.

Inspection Checklist / Maintenance Actions Vegetative Filter Strip

Checklist (circle one): Quarterly / Annual / Monthly / Special Event Inspection

Checklist No. _____ **Inspection Date:** _____

Date of most recent rain event: _____

Rain Condition (circle one):

Drizzle / Shower / Downpour / Other _____

Ground Condition (circle one):

Dry / Moist / Ponding / Submerged / Snow accumulation

	For Inspector		For Maintenance Crew	
Component No. Component Name	Inspection Item and Inspection Item No.	Result	Preventative / Corrective Maintenance Actions	
A Filter Strip Area	1	Standing water is present after the design drain time The observed drain time is approximately _____ hours.	Y__ N__ Remove excessive sediment/debris Check whether the outlet is clogged (if applicable) Re-grade the slope to allow the swale to drain within the design drain time. Revegetate if necessary If standing water is present longer than 5 days, report to mosquito commission. Work Order # _____	
	2	Excessive sediment, silt, or trash accumulation in filter strip	Y__ N__	Remove sediment, silt, and trash
	3	Erosion or channelization is present	Y__ N__	Check whether the incoming flow is concentrated before entering the filter strip. If concentrated, re-grade the edge of the filter strip to ensure sheet flow Install a stone cutoff trench to distribute the flow evenly Work Order # _____
	4	Animal burrows/rodents are present	Y__ N__	Pest control Work Order # _____
	5	Sediment and debris on the edge between the contributing drainage area and the vegetative filter strip	Y__ N__	Clear and remove sediment and debris
Note:				

	For Inspector		For Maintenance Crew
Component No. Component Name	Inspection Item and Inspection Item No.	Result	Preventative / Corrective Maintenance Actions
B Vegetation	1	Large spot(s) showing bare soil Y__ N__	Vegetative cover must be maintained at 85%. Revegetate the entire area if 50% or more vegetation has been lost. Check Landscaping plan for guidance (if available) Work Order # _____
	2	Grass clippings are not collected and removed Y__ N__	Remove the grass clippings
C Outlet (if applicable)	1	Trash or debris accumulation more than 20% Y__ N__	Clean and remove Determine source of trash and address to reduce future maintenance costs or BMP failure
	2	Trash rack is damaged or rusted greater than 50% Y__ N__ Trash rack is bent, loose, or missing parts	Repair or replace trash rack Work Order # _____
	3	Outlet components (e.g., orifice plates or weir plate) skewed, misaligned, or missing Y__ N__	Repair or replace component Work Order # _____
	4	Discharge pipe apron is eroded or scoured Y__ N__	Restabilize the discharge riprap apron Work Order # _____
	5	Standing water is present in the outlet structure longer than 72 hours Y__ N__	Clean out the standing water Work Order # _____
Note:			

Follow Up Items (Component No. / Inspection Item No.):

Associated Work Orders: # _____, # _____, # _____, # _____, # _____

Inspector Name

Signature

Date

Report issues to the local authority and mosquito commission as required by local ordinances and regulatory authorities.

File this checklist in the Maintenance Log after performing maintenance.

Preventative Maintenance Record

Corresponding Checklist No. _____
 Component No. _____, Inspection Item No. _____

Work Logs

Activities	Components	Date Completed
Sediment/debris removal Sediment removal should take place when the ground is thoroughly dry.	A – Filter Strip Area	
	C – Outlet (if applicable)	
Vegetation removal	B – Vegetation	

All use of fertilizers, pesticides, mechanical treatments, and other means to ensure optimum vegetation health must not compromise the intended purpose of the stormwater management measure. The fertilizer applied is _____ (type), and _____ (quantity per usage) is applied _____ (frequency of use).

Debris, sediment, and trash are handled (onsite / by _____ (contractor name) to disposal site _____). (See Part I: Maintenance Plan – Disposal Plan Section)

Crew member: _____ / _____ Date: _____
 (name/ signature)

Supervisor: _____ / _____ Date: _____
 (name/ signature)

File this Preventative Maintenance Record in the Maintenance Log after performing maintenance.

Corrective Maintenance Record

1. Work Order # _____ Date Issued _____

2. Issue to be resolved:

(e.g., Re-grading is required. Replanting is required.)

3. The issue was from Corresponding Checklist No. _____, Component No. _____
Inspection Item No. _____.

4. Required Actions

Actions	Planned Date	Date Completed
Revegetation		
Re-grading		

5. Responsible person(s):

6. Special requirements

- Time of the season or weather condition: _____
- Tools/equipment: _____
- Subcontractor (name or specific type): _____

Approved by _____/_____ Date _____
(name/signature)

Verification of completion by _____/_____ Date _____
(name/signature)

File this Corrective Maintenance Record in the Maintenance Log after performing maintenance.

CORRECTIVE MAINTENANCE RECORD

1. **Work Order #** _____ **Date Issued** _____

2. **Issue to be resolved:**

3. The issue was from **Corresponding Checklist** _____, **Component No.** _____
Inspection Item No. _____.

4. **Required Actions**

Actions	Planned Date	Date Completed

5. **Responsible person(s):**

6. **Special requirements**

- Time of the season or weather condition : _____
- Tools/equipment: _____
- Subcontractor (name or specific type): _____

Approved by _____/_____ **Date** _____
(name/signature)

Verification of completion by _____/_____ **Date** _____
(name/signature)

File this Corrective Maintenance Record in the Maintenance Log after performing maintenance.

CORRECTIVE MAINTENANCE RECORD

1. **Work Order #** _____ **Date Issued** _____

2. **Issue to be resolved:**

3. The issue was from **Corresponding Checklist** _____, **Component No.** _____
Inspection Item No. _____.

4. **Required Actions**

Actions	Planned Date	Date Completed

5. **Responsible person(s):**

6. **Special requirements**

- Time of the season or weather condition : _____
- Tools/equipment: _____
- Subcontractor (name or specific type): _____

Approved by _____/_____ **Date** _____
(name/signature)

Verification of completion by _____/_____ **Date** _____
(name/signature)

File this Corrective Maintenance Record in the Maintenance Log after performing maintenance.