



**MAINTENANCE & INSPECTION PROGRAM
FOR
BLOCK 236, LOTS 6.18 & 6.19
DENNIS TOWNSHIP
CAPE MAY COUNTY, NJ**

EDA #10793

A handwritten signature in black ink, appearing to read 'J. Maffei', is written over a horizontal line.

**Joseph H. Maffei, PE, PP
N.J.P.E. License #37894**

1/12/20

Date

**SCHEDULE A
MAINTENANCE AND INSPECTION PROGRAM
INFILTRATION BASINS**

Applicant/Owner:

Clark Edward, LLC
c/o of Clark Edward
111 East 9th Street
Ocean City, NJ 08226
609-335-1544

RESPONSIBILITY

It shall be the responsibility of the current applicant/owner to maintain and inspect the proposed stormwater basins. Responsibility for the maintenance and inspection of the stormwater basins shall be clarified in the property deeds.

A. General Maintenance – Infiltration Basin #2A

Block 236, Lots 6.18 & 6.19
Stormwater Basin
Easting (x) 427202
Northing (y) 127334

Outfall Structure
Easting (x) 427241
Northing (y) 127246

All infiltration basin components expected to receive and/or trap debris and sediment must be inspected for clogging and excessive debris and sediment accumulation at least four times annually, as well as after every storm exceeding one (1) inch of rainfall. Such components may include bottoms, riprap or gabion aprons, and inflow points. This applies to both surface and subsurface infiltration basins.

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

B. Vegetated Areas

Mowing and/or trimming of vegetation must be performed on a regular schedule based on specific site conditions. Grass should be mowed at least once a month during the growing season. Vegetated areas must also be inspected at least annually for erosion and scour. The structure must be inspected for unwanted tree growth at least once a year.

When establishing or restoring vegetation, bi-weekly inspections of vegetation health should be performed during the first growing season or until the vegetation is established. Once established, inspections of vegetation health, density and diversity should be performed at least twice annually during both the growing and non-growing season.

If vegetation has greater than 50 percent damage, the area should be reestablished in accordance with the original specifications and the inspection requirements presented above.

All use of fertilizers, mechanical treatments, pesticides and other means to assure optimum vegetation health must not compromise the intended purpose of the infiltration basin. All vegetation deficiencies should be addressed without the use of fertilizers and pesticides whenever possible.

All vegetated areas should be inspected at least annually for unwanted growth, which should be removed with minimum disruption to the remaining vegetation and basin subsoil.

C. Structural Components

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

D. Stormwater Inlets and Manholes

All stormwater inlets and stormwater manholes shall be inspected annually for accumulated sediment, trash and debris. Inlets and manholes shall also be inspected for any damage and structural deterioration. All sediment, trash and debris shall be removed from the structures. Any damaged inlets and manholes shall be repaired in kind. Any structures that cannot be repaired shall be removed and replaced.

E. Other Maintenance Criteria

The bottom sand layer in a surface infiltration basin should be inspected at least monthly as well as after every storm exceeding one (1) inch of rainfall. The permeability rate of the soil below the basin may also be retested periodically. If the 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.

SCHEDULE OF REGULAR INSPECTION AND TASKS

<u>Description</u>	<u>Inspection Times</u>
• Inspection of Infiltration Components	4 times annually as well as after every storm exceeding one (1) inch of rainfall
• Mowing of Grass	Once a month
• Inspection of Vegetated Areas	Annually
• Inspection of Bottom Sand Layer In the infiltration basin	Monthly, as well as after every storm exceeding One (1) inch of rainfall

COST ESTIMATE OF MAINTENANCE TASKS	
Mowing of Grass	\$500.00 Annually
Annual Tilling of Sand Bottom and Replacement of 6" Sand Bottom (as required)	\$1,500.00
Outlet Control Structures	\$500.00
Inspection by Engineer	\$750.00
Total Cost per Year	\$3,250.00

The responsible party shall be required to keep detailed logs of all preventative and corrective maintenance performed at the stormwater management measure.

Maintenance Equipment Required:

- Mowing of Grass - Lawn Mower, Gasoline
- Tilling of Sand Bottom - Light Mechanical Tilling

F. Recommended Corrective Response to Sedimentation of Basin Bottom

Upon sedimentation of basin bottom, all water shall be removed from the basin by way of mechanical pump. This water shall be discharged at outfall structure. Sediment removal should take place when the basin is thoroughly dry. Removal shall be accomplished with light mechanical equipment minimize compaction of the soil. All sediment shall be disposed in compliance with all applicable local, state and federal regulations. A new 6" deep sand layer shall be installed on the basin bottom using light mechanical equipment.

Originals or copies of manufactured warranties on pertinent measure components shall be included in the Maintenance Plan.

As-Built construction plans of the stormwater management measure and copies of pertinent construction documents such as laboratory test results, permits and completion certificates shall be included in the maintenance plan.

G. Required Maintenance Plan Procedures

Once the Maintenance Plan is completed, the NJDEP Stormwater Management Rules require that the following procedures be followed:

1. Copies of the maintenance plan must be provided to the owner and operator of the stormwater management measure. Copies must also be submitted to all reviewing agencies as part of each agency's approval process. In addition, a copy should be provided to the local mosquito control or extermination commission upon request.
2. The title and date of the Maintenance Plan and the name, address and telephone number of the person with stormwater management measure maintenance responsibility as specified in the plan must be recorded on the deed of the property on which the measure is located. Any change in this information due, for example to a change in property ownership, must also be recorded on the deed.
3. The person with maintenance responsibility must evaluate the Maintenance Plan for effectiveness at least annually and revise as necessary.
4. A detailed, written log of all preventative and corrective maintenance performed at the stormwater management measure must be kept, including a record of all inspections and copies of maintenance-related work orders.
5. The person with maintenance responsibility must retain and, upon request, make available the maintenance plan and associated logs and other records for review by a public entity with administrative, health, environmental, or safety authority over the site. An inspection, maintenance and repair report shall be submitted to the Township of Dennis annually.

Long-Term Maintenance

In order to ensure proper function of all basins, every 5 years, each basin bottom shall be scarified to a depth of 6" to remove sediments and silts. Then 6" of K-5 sand material must be added to the basin bottom.

A 10-Year inspection/maintenance program shall consist of the following:

- Annual visual inspection of outlet structures and subsurface infiltration basin.
- Mowing of the grass regularly to ensure the aesthetic quality of the site.
- Fertilizing and liming bi-annually.
- Every five (5) years, each basin shall be scarified to a depth of 6" to remove sediments and silts.
- A performance bond in the form of two (2) year maintenance guarantee shall be required to ensure proper maintenance of the proposed basin. The amount of the guarantee shall be approved by the Township of Dennis.

Permanent financing of the inspection, maintenance and repair of stormwater BMP's shall be the responsibility of the property owner.

INSPECTION LOG FORM

Infiltration Basin #2A

Applicant/Owner:

Clark Edward, LLC
c/o Clark Edward
111 East 9th Street
Ocean City, NJ 08226
609-335-1544

Block 236, Lots 6.18 & 6.19	
Stormwater Basin	Outfall Structure
Easting (x) 427202	Easting (x) 427241
Northing (y) 127334	Northing (y) 127246

Date of Inspection: _____

Inspection performed by the following person or entity:

Description of Inspection performed:

Recommendations:

MAINTENANCE BASIN
Infiltration Basin #2A

Applicant/Owner:

Clark Edward, LLC
c/o Clark Edward
111 East 9th Street
Ocean City, NJ 08226
609-335-1544

Block 236, Lots 6.18 & 6.19
Stormwater Basin
Easting (x) 427202
Northing (y) 127334

Outfall Structure
Easting (x) 427241
Northing (y) 127246

Date Maintenance Performed: _____

Maintenance performed by the following person or entity:

Description of Maintenance performed:

Recommendations:

**SCHEDULE A
MAINTENANCE AND INSPECTION PROGRAM
INFILTRATION BASINS**

Applicant/Owner:

Clark Edward, LLC
c/o of Clark Edward
111 East 9th Street
Ocean City, NJ 08226
609-335-1544

RESPONSIBILITY

It shall be the responsibility of the current applicant/owner to maintain and inspect the proposed stormwater basins. Responsibility for the maintenance and inspection of the stormwater basins shall be clarified in the property deeds.

A. General Maintenance – Infiltration Basin #5

Block 236, Lots 6.18 & 6.19
Stormwater Basin
Easting (x) 427341
Northing (y) 127663

Outfall Structure
Easting (x) 427324
Northing (y) 127646

All infiltration basin components expected to receive and/or trap debris and sediment must be inspected for clogging and excessive debris and sediment accumulation at least four times annually, as well as after every storm exceeding one (1) inch of rainfall. Such components may include bottoms, riprap or gabion aprons, and inflow points. This applies to both surface and subsurface infiltration basins.

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

B. Vegetated Areas

Mowing and/or trimming of vegetation must be performed on a regular schedule based on specific site conditions. Grass should be mowed at least once a month during the growing season. Vegetated areas must also be inspected at least annually for erosion and scour. The structure must be inspected for unwanted tree growth at least once a year.

When establishing or restoring vegetation, bi-weekly inspections of vegetation health should be performed during the first growing season or until the

vegetation is established. Once established, inspections of vegetation health, density and diversity should be performed at least twice annually during both the growing and non-growing season.

If vegetation has greater than 50 percent damage, the area should be reestablished in accordance with the original specifications and the inspection requirements presented above.

All use of fertilizers, mechanical treatments, pesticides and other means to assure optimum vegetation health must not compromise the intended purpose of the infiltration basin. All vegetation deficiencies should be addressed without the use of fertilizers and pesticides whenever possible.

All vegetated areas should be inspected at least annually for unwanted growth, which should be removed with minimum disruption to the remaining vegetation and basin subsoil.

C. Structural Components

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

D. Stormwater Inlets and Manholes

All stormwater inlets and stormwater manholes shall be inspected annually for accumulated sediment, trash and debris. Inlets and manholes shall also be inspected for any damage and structural deterioration. All sediment, trash and debris shall be removed from the structures. Any damaged inlets and manholes shall be repaired in kind. Any structures that cannot be repaired shall be removed and replaced.

E. Other Maintenance Criteria

The bottom sand layer in a surface infiltration basin should be inspected at least monthly as well as after every storm exceeding one (1) inch of rainfall. The permeability rate of the soil below the basin may also be retested periodically. If the 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.

SCHEDULE OF REGULAR INSPECTION AND TASKS

<u>Description</u>	<u>Inspection Times</u>
• Inspection of Infiltration Components	4 times annually as well as after every storm exceeding one (1) inch of rainfall
• Mowing of Grass	Once a month
• Inspection of Vegetated Areas	Annually
• Inspection of Bottom Sand Layer In the infiltration basin	Monthly, as well as after every storm exceeding One (1) inch of rainfall

COST ESTIMATE OF MAINTENANCE TASKS	
Mowing of Grass	\$500.00 Annually
Annual Tilling of Sand Bottom and Replacement of 6" Sand Bottom (as required)	\$1,500.00
Outlet Control Structures	\$500.00
Inspection by Engineer	\$750.00
Total Cost per Year	\$3,250.00

The responsible party shall be required to keep detailed logs of all preventative and corrective maintenance performed at the stormwater management measure.

Maintenance Equipment Required:

- Mowing of Grass - Lawn Mower, Gasoline
- Tilling of Sand Bottom - Light Mechanical Tilling

F. Recommended Corrective Response to Sedimentation of Basin Bottom

Upon sedimentation of basin bottom, all water shall be removed from the basin by way of mechanical pump. This water shall be discharged at outfall structure. Sediment removal should take place when the basin is thoroughly dry. Removal shall be accomplished with light mechanical equipment minimize compaction of the soil. All sediment shall be disposed in compliance with all

applicable local, state and federal regulations. A new 6" deep sand layer shall be installed on the basin bottom using light mechanical equipment.

Originals or copies of manufactured warranties on pertinent measure components shall be included in the Maintenance Plan.

As-Built construction plans of the stormwater management measure and copies of pertinent construction documents such as laboratory test results, permits and completion certificates shall be included in the maintenance plan.

G. Required Maintenance Plan Procedures

Once the Maintenance Plan is completed, the NJDEP Stormwater Management Rules require that the following procedures be followed:

1. Copies of the maintenance plan must be provided to the owner and operator of the stormwater management measure. Copies must also be submitted to all reviewing agencies as part of each agency's approval process. In addition, a copy should be provided to the local mosquito control or extermination commission upon request.
2. The title and date of the Maintenance Plan and the name, address and telephone number of the person with stormwater management measure maintenance responsibility as specified in the plan must be recorded on the deed of the property on which the measure is located. Any change in this information due, for example to a change in property ownership, must also be recorded on the deed.
3. The person with maintenance responsibility must evaluate the Maintenance Plan for effectiveness at least annually and revise as necessary.
4. A detailed, written log of all preventative and corrective maintenance performed at the stormwater management measure must be kept, including a record of all inspections and copies of maintenance-related work orders.
5. The person with maintenance responsibility must retain and, upon request, make available the maintenance plan and associated logs and other records for review by a public entity with administrative, health, environmental, or safety authority over the site. An inspection, maintenance and repair report shall be submitted to the Township of Dennis annually.

Long-Term Maintenance

In order to ensure proper function of all basins, every 5 years, each basin bottom shall be scarified to a depth of 6" to remove sediments and silts. Then 6" of K-5 sand material must be added to the basin bottom.

A 10-Year inspection/maintenance program shall consist of the following:

- Annual visual inspection of outlet structures and subsurface infiltration basin.
- Mowing of the grass regularly to ensure the aesthetic quality of the site.
- Fertilizing and liming bi-annually.
- Every five (5) years, each basin shall be scarified to a depth of 6" to remove sediments and silts.
- A performance bond in the form of two (2) year maintenance guarantee shall be required to ensure proper maintenance of the proposed basin. The amount of the guarantee shall be approved by the Township of Dennis.

Permanent financing of the inspection, maintenance and repair of stormwater BMP's shall be the responsibility of the property owner.

INSPECTION LOG FORM

Infiltration Basin #5

Applicant/Owner:

Clark Edward, LLC
c/o Clark Edward
111 East 9th Street
Ocean City, NJ 08226
609-335-1544

Block 236, Lots 6.18 & 6.19	
Stormwater Basin	Outfall Structure
Easting (x) 427341	Easting (x) 427324
Northing (y) 127663	Northing (y) 127646

Date of Inspection: _____

Inspection performed by the following person or entity:

Description of Inspection performed:

Recommendations:

MAINTENANCE BASIN
Infiltration Basin #5

Applicant/Owner:

Clark Edward, LLC
c/o Clark Edward
111 East 9th Street
Ocean City, NJ 08226
609-335-1544

Block 236, Lots 6.18 & 6.19
Stormwater Basin
Easting (x) 427341
Northing (y) 127663

Outfall Structure
Easting (x) 427324
Northing (y) 127646

Date Maintenance Performed: _____

Maintenance performed by the following person or entity:

Description of Maintenance performed:

Recommendations:

**SCHEDULE A
MAINTENANCE AND INSPECTION PROGRAM
INFILTRATION BASINS**

Applicant/Owner:

Clark Edward, LLC
c/o of Clark Edward
111 East 9th Street
Ocean City, NJ 08226
609-335-1544

RESPONSIBILITY

It shall be the responsibility of the current applicant/owner to maintain and inspect the proposed stormwater basins. Responsibility for the maintenance and inspection of the stormwater basins shall be clarified in the property deeds.

A. General Maintenance – Infiltration Basin #5A

Block 236, Lots 6.18 & 6.19	
Stormwater Basin	Outfall Structure
Easting (x) 427448	Easting (x) 427418
Northing (y) 127615	Northing (y) 127597

All infiltration basin components expected to receive and/or trap debris and sediment must be inspected for clogging and excessive debris and sediment accumulation at least four times annually, as well as after every storm exceeding one (1) inch of rainfall. Such components may include bottoms, riprap or gabion aprons, and inflow points. This applies to both surface and subsurface infiltration basins.

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

B. Vegetated Areas

Mowing and/or trimming of vegetation must be performed on a regular schedule based on specific site conditions. Grass should be mowed at least once a month during the growing season. Vegetated areas must also be inspected at least annually for erosion and scour. The structure must be inspected for unwanted tree growth at least once a year.

When establishing or restoring vegetation, bi-weekly inspections of vegetation health should be performed during the first growing season or until the vegetation is established. Once established, inspections of vegetation health,

density and diversity should be performed at least twice annually during both the growing and non-growing season.

If vegetation has greater than 50 percent damage, the area should be reestablished in accordance with the original specifications and the inspection requirements presented above.

All use of fertilizers, mechanical treatments, pesticides and other means to assure optimum vegetation health must not compromise the intended purpose of the infiltration basin. All vegetation deficiencies should be addressed without the use of fertilizers and pesticides whenever possible.

All vegetated areas should be inspected at least annually for unwanted growth, which should be removed with minimum disruption to the remaining vegetation and basin subsoil.

C. Structural Components

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

D. Stormwater Inlets and Manholes

All stormwater inlets and stormwater manholes shall be inspected annually for accumulated sediment, trash and debris. Inlets and manholes shall also be inspected for any damage and structural deterioration. All sediment, trash and debris shall be removed from the structures. Any damaged inlets and manholes shall be repaired in kind. Any structures that cannot be repaired shall be removed and replaced.

F. Other Maintenance Criteria

The bottom sand layer in a surface infiltration basin should be inspected at least monthly as well as after every storm exceeding one (1) inch of rainfall. The permeability rate of the soil below the basin may also be retested periodically. If the 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.

SCHEDULE OF REGULAR INSPECTION AND TASKS

<u>Description</u>	<u>Inspection Times</u>
• Inspection of Infiltration Components	4 times annually as well as after every storm exceeding one (1) inch of rainfall
• Mowing of Grass	Once a month
• Inspection of Vegetated Areas	Annually
• Inspection of Bottom Sand Layer In the infiltration basin	Monthly, as well as after every storm exceeding One (1) inch of rainfall

COST ESTIMATE OF MAINTENANCE TASKS	
Mowing of Grass	\$500.00 Annually
Annual Tilling of Sand Bottom and Replacement of 6" Sand Bottom (as required)	\$1,500.00
Outlet Control Structures	\$500.00
Inspection by Engineer	\$750.00
Total Cost per Year	\$3,250.00

The responsible party shall be required to keep detailed logs of all preventative and corrective maintenance performed at the stormwater management measure.

Maintenance Equipment Required:

- Mowing of Grass - Lawn Mower, Gasoline
- Tilling of Sand Bottom - Light Mechanical Tilling

F. Recommended Corrective Response to Sedimentation of Basin Bottom

Upon sedimentation of basin bottom, all water shall be removed from the basin by way of mechanical pump. This water shall be discharged at outfall structure. Sediment removal should take place when the basin is thoroughly dry. Removal shall be accomplished with light mechanical equipment minimize compaction of the soil. All sediment shall be disposed in compliance with all

applicable local, state and federal regulations. A new 6" deep sand layer shall be installed on the basin bottom using light mechanical equipment.

Originals or copies of manufactured warranties on pertinent measure components shall be included in the Maintenance Plan.

As-Built construction plans of the stormwater management measure and copies of pertinent construction documents such as laboratory test results, permits and completion certificates shall be included in the maintenance plan.

G. Required Maintenance Plan Procedures

Once the Maintenance Plan is completed, the NJDEP Stormwater Management Rules require that the following procedures be followed:

1. Copies of the maintenance plan must be provided to the owner and operator of the stormwater management measure. Copies must also be submitted to all reviewing agencies as part of each agency's approval process. In addition, a copy should be provided to the local mosquito control or extermination commission upon request.
2. The title and date of the Maintenance Plan and the name, address and telephone number of the person with stormwater management measure maintenance responsibility as specified in the plan must be recorded on the deed of the property on which the measure is located. Any change in this information due, for example to a change in property ownership, must also be recorded on the deed.
3. The person with maintenance responsibility must evaluate the Maintenance Plan for effectiveness at least annually and revise as necessary.
4. A detailed, written log of all preventative and corrective maintenance performed at the stormwater management measure must be kept, including a record of all inspections and copies of maintenance-related work orders.
5. The person with maintenance responsibility must retain and, upon request, make available the maintenance plan and associated logs and other records for review by a public entity with administrative, health, environmental, or safety authority over the site. An inspection, maintenance and repair report shall be submitted to the Township of Dennis annually.

Long-Term Maintenance

In order to ensure proper function of all basins, every 5 years, each basin bottom shall be scarified to a depth of 6" to remove sediments and silts. Then 6" of K-5 sand material must be added to the basin bottom.

A 10-Year inspection/maintenance program shall consist of the following:

- Annual visual inspection of outlet structures and subsurface infiltration basin.
- Mowing of the grass regularly to ensure the aesthetic quality of the site.
- Fertilizing and liming bi-annually.
- Every five (5) years, each basin shall be scarified to a depth of 6" to remove sediments and silts.
- A performance bond in the form of two (2) year maintenance guarantee shall be required to ensure proper maintenance of the proposed basin. The amount of the guarantee shall be approved by the Township of Dennis.

Permanent financing of the inspection, maintenance and repair of stormwater BMP's shall be the responsibility of the property owner.

INSPECTION LOG FORM

Infiltration Basin #5A

Applicant/Owner:

Clark Edward, LLC
c/o Clark Edward
111 East 9th Street
Ocean City, NJ 08226
609-335-1544

Block 236, Lots 6.18 & 6.19	
Stormwater Basin	Outfall Structure
Easting (x) 427448	Easting (x) 427418
Northing (y) 127615	Northing (y) 127597

Date of Inspection: _____

Inspection performed by the following person or entity:

Description of Inspection performed:

Recommendations:

MAINTENANCE BASIN

Infiltration Basin #5A

Applicant/Owner:

Clark Edward, LLC
c/o Clark Edward
111 East 9th Street
Ocean City, NJ 08226
609-335-1544

Block 236, Lots 6.18 & 6.19
Stormwater Basin
Easting (x) 427448
Northing (y) 127615

Outfall Structure
Easting (x) 427418
Northing (y) 127597

Date Maintenance Performed: _____

Maintenance performed by the following person or entity:

Description of Maintenance performed:

Recommendations:

