

Operation & Maintenance Manual

for:

Cosmopolitan at Somerset Town Center

Block: 385
Lot: 2.07
Township of Franklin
Somerset County, New Jersey

Prepared By:

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NOTES

- Any amendment or alteration to this manual (i.e.: change in ownership, the inclusion of third party maintenance agreements, a modification or addition to maintenance procedures) must be entered in this manual or attached as a rider to this manual, and complete copies submitted to all parties involved and, must be in compliance with the most current guidelines set forth by the New Jersey Department of Environmental Protection Stormwater Management Rules.
- This manual as outlined, or any amendment or alteration to this manual is to be recorded in the deed of record for the property. The deed shall state that any future sale of the property carries with it the responsibility of the new owner to comply with the conditions of this Operation and Maintenance Manual.
- In addition, this manual as outlined, or any amendment or alteration to this manual, must be made available upon request to the local mosquito control or extermination committee and any public entity with administrative, health, environmental, or safety authority over the site.
- The person or party responsible (as named above) for maintenance must maintain a detail log of all preventive and corrective maintenance for the structural stormwater management measures as described in this manual, including inspections and copies of all maintenance related work orders.
- The person or party responsible (as named above) for maintenance shall evaluate the effectiveness of the Operation and Maintenance Plan at least once per year and adjust the plan and the deed as needed.

STORMWATER MANAGEMENT MAINTENANCE

On site Stormwater Management Maintenance will be performed by:

- Levin properties, L.P.

MAINTENANCE RESPONSIBILITIES:

1. The above referenced party shall maintain a detailed log of all preventative and corrective maintenance for the stormwater management measures shown on the plans, including a record of all inspections and copies of all maintenance related work orders.
2. The person responsible for maintenance identified above shall evaluate the effectiveness of the maintenance plan at least once a year and adjust the plan as needed.
3. The person responsible for maintenance identified above 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 above.
4. Following is a list of specific areas requiring maintenance. For detailed information and schedules refer to the specific subsection for each item.
 - a. Stormwater Collection System Maintenance
 - b. Manufactured Treatment Device Maintenance
 - c. Lawn & Landscaped Area Maintenance

A. Stormwater Collection System Maintenance:

Schedule I-four times annually and after every storm exceeding 1 inch of rainfall

Schedule II-annually

Description:

Stormwater collection system maintenance involves routine periodic inspection of the storm collection system, the removal of accumulated sediment and debris, and the correction of any structural problems.

1) Inspection: General

- a. The contractor shall inspect all areas to verify that all work is being performed properly and as scheduled, locate potential problems, and correct unacceptable conditions. A brief verbal report is to be submitted to the owner. Problems requiring immediate attention shall be reported to the owner.

2) Inspection: Schedule I

- a. Inlets, conduit, outfalls and other conveyance elements: Inspect for and clear debris from the gratings, inlets and pipes. This is to prevent clogging of the inlets and subsequent backup of stormwater runoff. Any problems or defects shall be reported to the owner.

3) Inspection: Schedule II (annually)

- a. Visual inspection of all components of the onsite stormwater collection system. Inspect for and remove silt and sediment, litter and other debris from all inlets, gratings and drainage pipes. All inlets and manholes are to be vacuumed. (Frequency of vacuuming may be adjusted if maintenance records indicate that sediment and debris accumulation is insignificant). In the event that the accumulated material exceeds 10% of the pipe diameter, it must be flushed/vacuumed out of the system.

4) Prevention of Water Pollution

- a. The contractor's activities shall be performed by methods that will prevent entrance or accidental spillage of solid matter, contaminants, debris or other pollutants and wastes into the downstream conveyance system. Such pollutants and wastes include, but are not restricted to, refuse, garbage, cement, collected silt and sediment, etc. Disposal of debris and trash should be done only at suitable disposal/recycling sites and must comply with all applicable local, state and federal waste regulations.

B. Manufactured Treatment Device Maintenance:

Contech Engineered Solutions – Cascade Separator

Schedule A – first month

Schedule I - four times annually

Schedule III - annually

Description:

Manufactured treatment device maintenance involves routine periodic inspection of the storage system, the removal of accumulated sediment and debris, and the correction of any structural problems.

1) Inspection : General

- a) The Contractor shall inspect all areas to verify that all work is being performed properly and as scheduled, locate potential problems, and correct unacceptable conditions. A brief verbal report is to be submitted to the Owner. Problems requiring immediate attention shall be reported to the Owner.

2) Inspection : Schedule I (first month)

- a) New Installation: Check the condition of the unit after every runoff event for the first 30 days. Checking includes a visual inspection to ascertain that the unit is functioning properly and measuring the amount of deposition that has occurred in the unit. This can be done with a "dip stick" that is calibrated so the depth of deposition can be tracked. Based on the behavior of the unit relative to storm events, inspections can be scheduled on projections using storm events vs. pollutant buildup.

3) Inspection : Schedule II (four times annually)

- a) Ongoing Operation: Floatables should be removed and the sump cleaned when the sump is above 85% full. The contents of the sump and separation chamber can be removed using a vactor truck, clam bucket or other means.

4) Inspection : Schedule III (annually)

- a) At least once a year, the unit should be pumped down and the screen inspected for damage and to ensure that it is properly fastened. The screen should be power washed for the inspection.
- b) The treatment device is a confined space. Properly trained people equipped with required safety gear will be required to enter the unit to perform the detailed inspection.

5) Prevention of Water Pollution

- a) The contractor's activities shall be performed by methods that will prevent entrance or accidental spillage of solid matter, contaminants, debris or other pollutants and wastes into the downstream conveyance system. Such pollutants and wastes include, but are not restricted to, refuse, garbage, cement, collected silt and sediment, etc. Disposal of debris and trash should be done only at suitable disposal / recycling sites and must comply with all applicable local, state, and federal waste regulations.

6) Estimated Maintenance Costs:

- a) A Vactor truck is recommended for cleanout and can be easily accomplished in less than 30-40 minutes for most installations. Standard vactoring operations should be employed in the cleanout of the unit. Disposal of material from the unit should be in accordance with the local municipality's requirements.
- b) The clean-out cost is based on a typical four (4) hour minimum retail clean-out charge at \$125 per hour, resulting in a minimum cost of \$500 regardless if one or four treatment units were cleaned.

C. Lawn and Landscaped Area Maintenance:

Maintenance involves routine periodic inspection of the vegetation, fertilization, and the correction of erosion problems.

Schedule III – annually or as noted

Shrubs & Trees:	Between March 1 and April 15
Mowing:	As specified per BMP
Fertilize:	Fall - Between September 1 and October 15
Liming:	Between September 1 and October 15
Soil Testing:	Between September 1 and October 15
Pest & Disease Control:	As required
Overseeding:	Between September 1 and October 15 (As required)
Aeration:	Between September 1 and October 15 (As required)

1) Maintenance: General

- a) The Contractor shall inspect all areas to verify that all work is being performed properly and as scheduled, locate potential problems, and correct unacceptable conditions. A brief verbal report is to be submitted to the Owner. Problems requiring immediate attention shall be reported to the Owner.

2) Shrubs & Trees:

- a) These plants shall be maintained in a natural setting. No shearing is allowed, shrubs and trees will be hand-pruned to remove dead or diseased branches. Dead plant material shall be replaced in kind unless cultural requirements necessitate change. When planting within compacted slopes, excavate larger holes and backfill with a suitable planting medium.

3) Mowing:

- a) All clippings are to be raked, bagged and disposed off-site to prevent clogging of the outlet structure.

4) Fertilizer:

- a) Fall: Fertilizer analyses and rates are to be based on soil test results. Standard fertilizer blends rather than custom blends are assumed.

5) Liming:

- a) One application in the fall as required by a soil test. Minimum requirements - Lime with pulverized dolomite limestone at a rate of 100 lbs./1,000 s.f.

6) Soil Testing:

- a) The Contractor shall take soil samples from grassed areas for the following analysis: ph, available Mg, P, K, C, recommended nitrogen application. Copies of the analyses for

each area are to be furnished to the Owner. Samples shall be taken before liming and fertilization as noted on the schedule.

7) Turf Disease and Pest Control:

- a) As required. Submit to the Owner the following information before spraying:
 - i) -Targeted pests or diseases.
 - ii) -Materials and methods used.

8) Overseeding:

- a) Overseeding is scheduled, as required per field inspection; or a minimum of once every four (4) years. A variseeder or equal equipment should be used to overseed designated lawn areas. Seed type and rate per the following schedule.

- b) Seed type and rates for grass basin bottoms:
Lofts Reclaim Conservation Mix-Damp Formula

(At a rate of 5 lbs./1,000 s.f.)

- 45% Tall Fescue
- 10% Perennial Ryegrass
- 25% Poa Trivalis
- 10% Salty Alkaligrass
- 5% Redtop
- 5% Reed Canary Grass

- c) Seed type and rates for lawn areas, grass basin side slopes and berm:

SCS Seed Mix 16

- (3.5 lbs./1,000 s.f) Tall Fescue
- (0.4 lbs./1,000 s.f) Kentucky Bluegrass (blend)
- (0.4 lbs./1,000 s.f) Perennial Ryegrass (blend)

- d) Seed type and rates for low maintenance areas:

Lofts Reclaim Native Grass Mixture

(At a rate of 60lbs/acre)

- 30% Little Bluestem
- 20% Indiangrass
- 20% Azure Blue Fescue
- 15% Side Oats Grama
- 10% Big Bluestem
- 5% Switchgrass

9) Aeration:

- a) A coring with 3" minimum hollow tines should be used to aerate lawn areas, followed by a steel drag mat to disperse cores. Coring should be timed for adequate soil

moisture to insure proper penetration and plug removal. Coring should be done in conjunction with fertilization and/or liming and overseeding in the fall, once a year.

Inspection Log Entry

Date: _____ Performed By: _____

Manufactured Treatment Device

Checklist	Physical Condition*				Required Cleaning (y/n)	Description of Maintenance or Damage Report
	1	2	3	4		
Structure Integrity						
Accumulated Sediment						
Floatables						

Stormwater Collection System

Checklist	Physical Condition*				Required Cleaning (y/n)	Description of Maintenance or Damage Report
	1	2	3	4		
Frame and Casting						
Access Steps						
Interior Masonry						
Accumulated Sediment						
Scouring at Outfall						

Lawn and Landscaped Area Maintenance

Checklist	Physical Condition*				Required Cleaning (y/n)	Description of Maintenance or Damage Report
	1	2	3	4		
General turf condition						
General Landscape Condition						
Pests or Diseases						

Additional Notes: _____

* Denotes a rating table to describe the condition of item (1 being in excellent condition and 4 being in need of immediate repair).

