

Attachment 1

Proprietary Best Management Practice (BMP) Registration Statement

Complete this form and submit it along with supporting documents to the Virginia Department of Environmental Quality (Department) at BMPClearinghouse@deq.virginia.gov. If approved by the Department, the device will be assigned a total phosphorus (TP) removal efficiency and listed on the Virginia Stormwater BMP Clearinghouse.

- 1. Proprietary BMP / Manufactured Treatment Device (MTD) Name** (as it is to appear on the Virginia Stormwater BMP Clearinghouse): Nutrient Separating Baffle Box (NSBB) with Hydro-Variant Technology Stormwater Treatment Device by Suntree Technologies, Inc.

Note: Suntree Technologies, Inc. was acquired by Oldcastle Infrastructure in 2019

- 2. Company Name:** Oldcastle Infrastructure
Mailing Address: 7000 Central Parkway, Suite 800
City: Atlanta
State: GA Zip: 30328

- 3. Contact Name** (of person to be listed on the Virginia Stormwater BMP Clearinghouse):
Jay Holtz, PE
Mailing Address: 7000 Central Parkway, Suite 800
City: Atlanta
State: GA Zip: 30328
Phone number: 971-271-0796
Fax number: None
E-mail address: jay.holtz@oldcastle.com
Web address: oldcastleinfrastructure.com

- 4. Treatment Type**
 - Hydrodynamic Structure
 - Filtering Structure
 - Manufactured Bioretention System
Provide Infiltration Rate (in/hr):
 - Other (describe):

- 5. Certification** (check all that apply and submit all certification letters from TAPE and/or NJDEP):
 - TAPE**
 - TP (include Technical Evaluation Report if applying for greater than 50% TP removal efficiency)
 - TSS
 - NJDEP (TSS)**

6. Proprietary BMP History:

How long has this specific model/design been on the market? 2005

7. Maintenance:

What is the generic inspection and maintenance plan/procedure? (Attach necessary documents): Inspect NSBB at 6-month intervals. If maintenance is required as indicated by a buildup of trash and debris in the screen basket or sediment in the sump, use a vacuum truck to empty the basket of debris and the sump of standing water and accumulated sediment. Maintenance frequency will depend on actual pollutant loading however owners can typically expect at least 12 months of service from a NSBB unit before maintenance is required. The NSBB Operation and Maintenance Manual is attached.

Is the maintenance procedure and/or are materials/components proprietary?

- Yes, proprietary
- No, not proprietary

8. Comments

Include any additional explanations or comments: The NJDEP Certification letter and O&M Manual are attached.

9. Certification

Signed by the company president or responsible officer of the organization:

“I certify that all information submitted is to the best of my knowledge and belief true, accurate, and complete.”

Signature:  _____

Name: Jay Holtz, PE

Title: Director of Regulatory Management

Date: 1/4/2022



State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Bureau of Nonpoint Pollution Control

Division of Water Quality

401-02B

Post Office Box 420

Trenton, New Jersey 08625-0420

609-633-7021 Fax: 609-777-0432

http://www.state.nj.us/dep/dwq/bnpc_home.htm

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

BOB MARTIN
Commissioner

November 3, 2016

Tom Happel, President
Suntree Technologies, Inc.
798 Clearlake Rd
Cocoa, FL 32922

Re: MTD Lab Certification
Nutrient Separating Baffle Box® (NSBB) with Hydro-Variant Technology Stormwater
Treatment Device by Suntree Technologies, Inc.

TSS Removal Rate 50%

Dear Mr. Happel:

The Stormwater Management rules under N.J.A.C. 7:8-5.5(b) and 5.7 (c) allow the use of manufactured treatment devices (MTDs) for compliance with the design and performance standards at N.J.A.C. 7:8-5 if the pollutant removal rates have been verified by the New Jersey Corporation for Advanced Technology (NJCAT) and have been certified by the New Jersey Department of Environmental Protection (NJDEP). Suntree Technologies Inc. has requested an MTD Laboratory Certification for the Nutrient Separating Baffle Box® with Hydro-Variant Technology (NSBB®) stormwater treatment device.

The verification is subject to the "Procedure for Obtaining Verification of a Stormwater Manufactured Treatment Device from New Jersey Corporation for Advance Technology" dated January 25, 2013. The applicable protocol is the "New Jersey Laboratory Testing Protocol to Assess Total Suspended Solids Removal by a Hydrodynamic Sedimentation Manufactured Treatment Device" dated January 25, 2013.

NJCAT verification documents submitted to the NJDEP indicate that the requirements of the aforementioned protocol have been met or exceeded. The NJCAT letter also included a recommended certification TSS removal rate and the required maintenance plan. The NJCAT Verification Report with the Verification Appendix (dated October 2016) for this device is published online at <http://www.njcat.org/verification-process/technology-verification-database.html>.

The NJDEP certifies the use of the Nutrient Separating Baffle Box® with Hydro-Variant Technology (NSBB®) stormwater treatment device by Suntree Technologies, Inc. at a TSS removal rate of 50% when designed, operated, and maintained in accordance with the information provided in the Verification Appendix and the following conditions:

1. The maximum treatment flow rate (MTFR) for the manufactured treatment device (MTD) is calculated using the New Jersey Water Quality Design Storm (1.25 inches in 2 hrs) in N.J.A.C. 7:8-5.5.
2. The NSBB® stormwater treatment device shall be installed using the same configuration reviewed by NJCAT and shall be sized in accordance with the criteria specified in item 6 below.
3. This NSBB® stormwater treatment device cannot be used in series with another MTD or a media filter (such as a sand filter) to achieve an enhanced removal rate for total suspended solids (TSS) removal under N.J.A.C. 7:8-5.5.
4. Additional design criteria for MTDs can be found in Chapter 9.6 of the New Jersey Stormwater Best Management Practices (NJ Stormwater BMP) Manual which can be found on-line at www.njstormwater.org.
5. The maintenance plan for a site using this device shall incorporate, at a minimum, the maintenance requirements for the NSBB® stormwater treatment device. A copy of the maintenance plan is attached to this certification. However, it is recommended to review the maintenance website at [http://www.suntreetech.com/files/Documents/Products/Nutrient-Separating-Baffle-Box/O&M%20Manual%20-%20New%20Jersey%20\(3\).pdf](http://www.suntreetech.com/files/Documents/Products/Nutrient-Separating-Baffle-Box/O&M%20Manual%20-%20New%20Jersey%20(3).pdf) for any changes to the maintenance requirements.
6. Sizing Requirements:

The example below demonstrates the sizing procedure for the NSBB®:

Example: A 0.25 acre impervious site is to be treated to 50% TSS removal using a NSBB®. The impervious site runoff (Q) based on the New Jersey Water Quality Design Storm was determined to be 0.79 cfs.

Maximum Treatment Flow Rate (MTFR) Evaluation:

The site runoff (Q) was based on the following:

time of concentration = 10 minutes

i=3.2 in/hr (page 5-8, Fig. 5-3 of the NJ Stormwater BMP Manual)

c=0.99 (runoff coefficient for impervious)

$Q=ciA=0.99 \times 3.2 \times 0.25 = 0.79$ cfs

Given the site runoff is 0.79 cfs and based on Table 1 below, the NSBB® Model 3-6 with an MTFR of 1.4 cfs would be the smallest model approved that could be used for this site that could remove 50% of the TSS from the impervious area without exceeding the MTFR.

The sizing table corresponding to the available system models is noted below. Additional specifications regarding each model can be found in the Verification Appendix under Table A-1 and Table A-2.

Table 1 NSBB®-HVT Models

NSBB-HVT Model No.	Inside Length. (feet)	Inside Width, (feet)	Depth Below Invert, (feet)	Maximum Treatment Flow Rate (MTFR), cfs	50% Maximum Sediment Storage Volume, (ft ³)	Sediment Removal Interval (months)
2-4	4.00	2.00	2.7	0.62	3.88	44.5
3-6	6.00	3.00	3.00	1.40	8.63	44.0
3-8	8.00	3.00	3.00	1.87	11.6	44.5
4-8	8.00	4.00	3.00	2.49	15.0	43.0
5-10	10.00	5.00	4.10	3.89	23.8	43.6
6-12	12.00	6.00	4.80	5.60	34.3	43.7
6-13.75	13.75	6.00	5.40	6.42	39.5	44.0
7-14	14.00	7.00	5.50	7.62	46.7	43.7
7-15	15.00	7.00	5.90	8.17	50.2	43.9
8-14	14.00	8.00	6.20	8.71	53.3	43.7
8-16	16.00	8.00	6.20	9.96	61.3	44.0
9-18	18.00	9.00	6.90	12.60	76.5	43.4
10-17	17.00	10.00	7.60	13.22	80.0	43.2
10-20	20.00	10.00	7.60	15.56	95.0	43.6
12-21	21.00	12.00	9.00	19.60	120	43.7
12-24	24.00	12.00	9.00	22.40	138	44.0

Be advised a detailed maintenance plan is mandatory for any project with a Stormwater BMP subject to the Stormwater Management Rules, N.J.A.C. 7:8. The plan must include all of the items identified in the Stormwater Management Rules, N.J.A.C. 7:8-5.8. Such items include, but are not limited to, the list of inspection and maintenance equipment and tools, specific corrective and preventative maintenance tasks, indication of problems in the system, and training of maintenance personnel. Additional information can be found in Chapter 8: Maintenance of the New Jersey Stormwater Best Management Practices Manual.

If you have any questions regarding the above information, please contact Mr. Titus Magnanao of my office at (609) 633-7021.

Sincerely,



James J. Murphy, Chief
Bureau of Nonpoint Pollution Control

Attachment: Maintenance Plan

cc: Chron File
Richard Magee, NJCAT
Vince Mazzei, DLUR
Ravi Patraju, NJDEP
Gabriel Mahon, BNPC
Titus Magnanao, BNPC

NSBB[®] Nutrient Separating Baffle Box[®]

Operation and Maintenance Manual

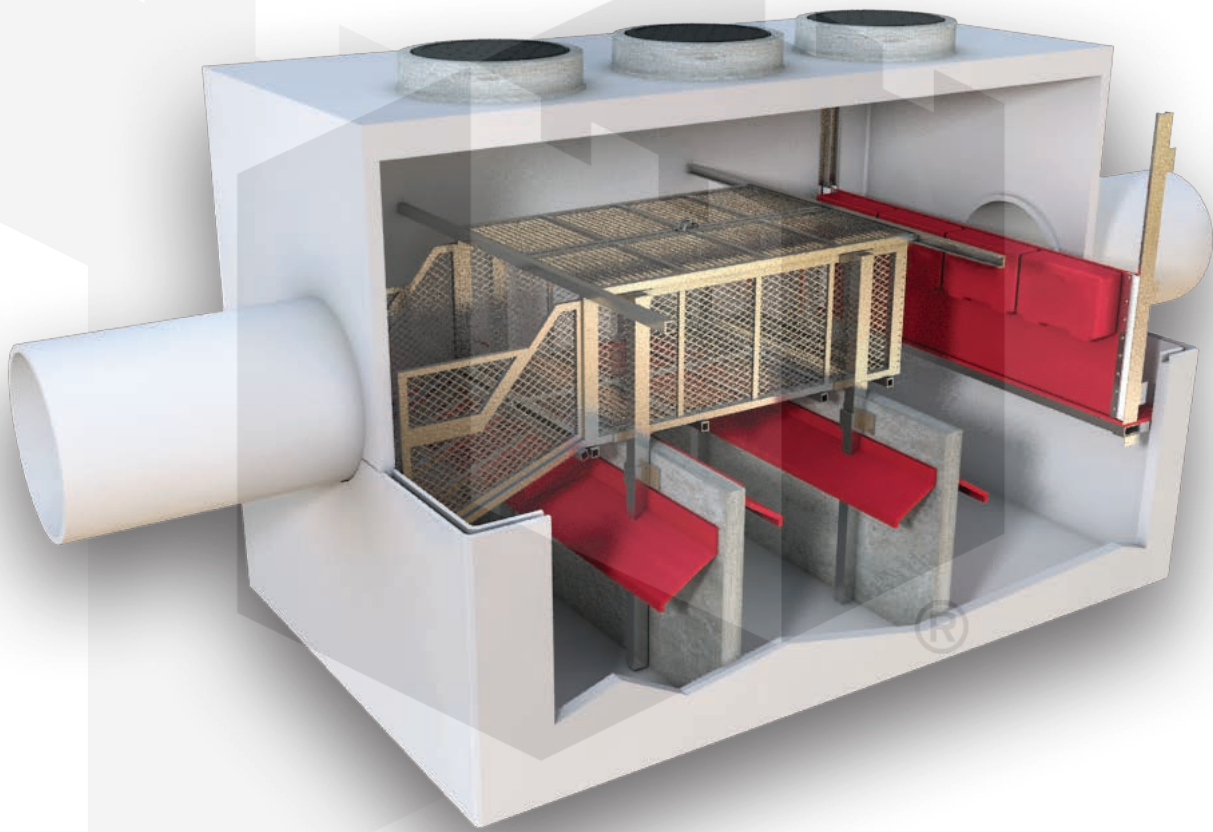


TABLE OF CONTENTS

WARNING	2
GENERAL INFORMATION	3
INSPECTION INFORMATION	4
INSPECTION CHECKLIST	5
NSBB® COMPONENTS	6
REQUIREMENTS AND PARTS	7
SERVICE SUMMARY	8
SCREEN MAINTENANCE	9
CHAMBER MAINTENANCE	10
POST SERVICING PROTOCOL	10
WARRANTY	11
CONTACT INFORMATION	11

WARNING

Read the Following Information, Instructions and Warnings Before Inspecting, Cleaning or Performing Maintenance on this Stormwater Treatment Device.

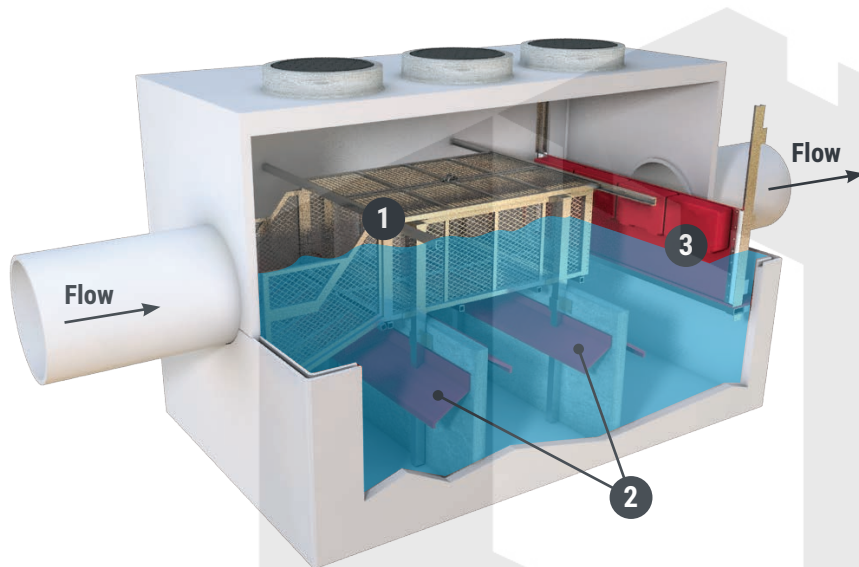
This manual is intended to explain the specifics of the Oldcastle Infrastructure Nutrient Separating Baffle Box and to review the aspects of existing regulations and safety procedures. It is the responsibility of all personnel to familiarize themselves with, understand and comply with all applicable local, state and federal laws before attempting to inspect or service this unit. All precautions and procedures in this manual are current at the time of printing but are subject to change based on the development of new processes and procedures. Oldcastle Infrastructure assumes no responsibility and is not accountable for any injuries, fines, penalties or losses that occur involving any procedure in this manual or other unaddressable actions taken. The Nutrient Separating Baffle Box performance is based on the procedures being followed in this manual. Non-Compliance with the outlined measures will be the responsibility of the owner.

GENERAL INFORMATION

The Nutrient Separating Baffle Box (NSBB) is a key component of your stormwater management program. To maintain proper operation, maintenance of these units is essential. The NSBB designed and manufactured by Oldcastle Infrastructure contains patented technologies to treat and manage stormwater. The NSBB is highly effective in capturing Nitrogen, Phosphorus, Total Suspended Solids, organics, trash, oils and grease. Independent testing has shown the NSBB is capable of capturing up to 95% of trash, 90% of Total Suspended Solids, 20% of nitrogen and 19% of phosphorus. Oldcastle Infrastructure recommends inspections be conducted semi-annually for the first year and annually thereafter for optimal removal efficiency.

During Storm Event

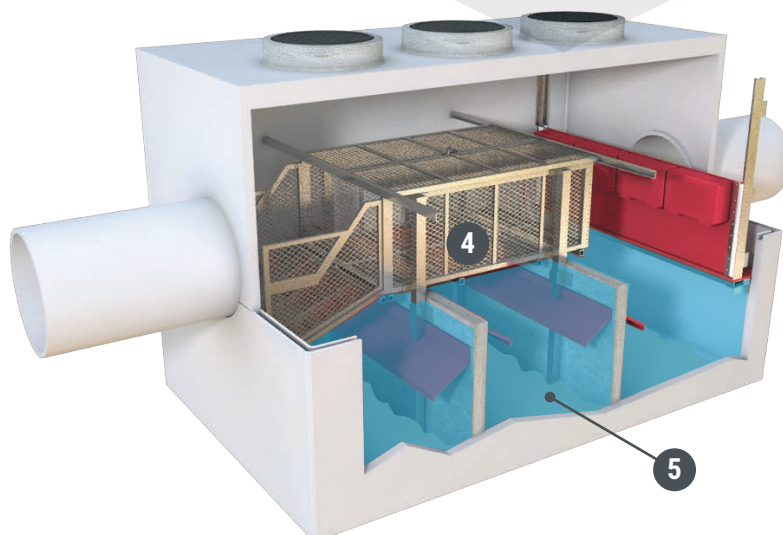
Nutrient rich organics and litter are captured in the screen system.



1. Runoff filters through the screen and skimmer leaving pollutants behind. Left over runoff evaporates over time.
2. Turbulence deflectors prevent captured sediment from becoming resuspended.
3. Hydrocarbons and other floating debris are trapped upstream of the floating skimmer.

After Storm Event

Debris dry out between storm events while pollutants are stored above the static water. As a result, the system does not turn septic.



4. Nutrient pollutant load is not lost to static water and will not be flushed out during the next storm event.
5. Separating organic matter from the static water prevents bacterial buildup.

INSPECTION INFORMATION

Oldcastle Infrastructure recommends the following guidelines for inspection: After installation and the site has stabilized, post construction inspections should be conducted after every runoff event. To ensure the Nutrient Separating Baffle Box obtains optimal pollutant removal efficiencies, subsequent sediment accumulation inspections should be conducted a minimum of every six (6) months. In the event the sediment accumulation equals or exceeds 80% of the minimum sediment storage volume (Fig 1), then all accumulated sediment must be removed.

Fig 1: Nutrient Separating Baffle Box® (NSBB®) Sizing Summary

STANDARD SIZING								
MODEL	STRUCTURE SIZE (FT X FT)	MAX PIPE SIZE (IN)	MIN RIM TO INVERT DEPTH ^(a) (FT)	SUMP DEPTH (FT)	SEDIMENT STORAGE ^(b) (CF)	TREATMENT FLOW RATES		MAX PEAK FLOW ^(e) (CFS)
						50% REMOVAL, 75 MICRON NJCAT ^(c) (CFS)	80% REMOVAL, 150 MICRON ^(d) (CFS)	
NSBB-48	4 x 8	24	4.17	3.0	15.0	2.49	4.60	29
NSBB-510	5 x 10	30	5.08	4.1	23.8	3.89	8.03	37
NSBB-612	6 x 12	36	5.17	5.0	34.3	5.60	12.70	69
NSBB-816	8 x 16	48	6.00	6.2	61.3	9.96	26.00	114
NSBB-1020	10 x 20	60	7.08	7.6	95.0	15.56	45.40	202
NSBB-1224	12 x 24	72	8.83	9.0	138.0	22.40	71.70	296

TRASH CAPTURE SIZING								
MODEL	STRUCTURE SIZE (FT X FT)	MAX PIPE SIZE (IN)	MIN RIM TO INVERT DEPTH ^(a) (FT)	SUMP DEPTH (FT)	SUMP VOLUME (CF)	SCREEN VOLUME	5MM TRASH CAPTURE ^(f) (CFS)	MAX PEAK FLOW ^(g) (CFS)
NSBB-48-TC	4 x 8	24	4.17	3.0	88.1	25.8	28.80	25
NSBB-612-TC	6 x 12	36	5.17	3.0	204.1	54.5	42.80	64
NSBB-816-TC	8 x 16	48	6.00	3.0	360.0	124.6	72.00	108

(a) Minimum Rim to Invert Depth based on Max Pipe Size listed. For depths less than minimum contact Soln Engr for design assistance.

(b) Sump depth for all Trash Capture approved model sizes is 3.0' typical.

(c) 50% Maximum Sediment Storage Volume per NJCAT verification.

(d) Based on NJCAT verification for 50% removal of D50 = 75 micron.

(e) Based on AET Tech, LLC Technical Memo (Smith, 7/20/18). Contact Soln Engr for alternative particle size treatment flows.

(f) Based on empty 5mm Screen Basket.

(g) Based on a Hydraulic Grade Line at 6" above maximum pipe size. For smaller pipe sizes confirm capacity with Soln Engr.

INSPECTION PROCEDURE

- | Inspect the unit from surface.
- | Open access points (Manhole / Hatch) and secure properly.
- | Visually inspect screen system to determine overall debris accumulation.
- | Inspect sediment chambers under screen system.
- | Inspect condition of joints and inflow / outflow pipe grout areas.

INSPECTION CHECKLIST

Inspection Checklist and Maintenance Guidance: Nutrient Separating Baffle Box.
To be completed at Time of Inspection or Maintenance.

OWNER NAME

LOCATION

ADDRESS

PHONE

DATE & TIME

SITE CONDITIONS

INSPECTION ITEMS	RECOMMENDED INTERVAL	COMMENTS
Access Openings	Semi-annually	
Screen System	Semi-annually	
Skimmer	Semi-annually	
Sediment Chambers	Semi-annually	
Vault Condition	Semi-annually	

1. Inspection items are to determine accessibility into Nutrient Separating Baffle Box.
2. Inspect screen system for debris volume and broken parts.
3. Inspect sediment chambers for estimated quantity.
4. Inspect general condition of vault for any clogged areas.

MAINTENANCE ITEMS	VOLUME COLLECTED	DATE	COMMENTS
Screen System			
Sediment Chambers			

1. Inspection items are to determine accessibility into Nutrient Separating Baffle Box.
2. After cleaning screen system, open bottom doors and vacuum out sediment chambers. (Estimate Volume Collected)

NSBB[®] COMPONENTS

Component Descriptions

The Nutrient Separating Baffle Box is a multi stage, self contained treatment system. Each subsequent component in the system protects prior stages from clogging. These stages include screening, separation and hydrocarbon absorption.

- | Screening is provided by a rectangular basket system which is suspended above the static water level of the sedimentation chambers. The screening filter has a storage capacity of several cubic yards depending on the model. The primary function of the basket is to capture gross solids like trash and nutrient rich debris. The screening system contains debris and provides a dry storage state to prevent nutrient leaching and contamination of static water, causing a septic state.
- | Sediment Separation is facilitated by three settling chambers each with a capacity of several cubic yards depending on the model. These chambers work to target smaller sediments and particulate metals.



View of Nutrient Separating Baffle Box and SkimBoss Upflow Filter

REQUIREMENTS & PARTS

Minimum Equipment Requirements

The use of a vacuum truck is required for servicing of the Nutrient Separating Baffle Box. Service crews are recommended to check all local, state and federal guidelines for servicing and disposal of any collected debris and sediments.

Structural Components

The structural components of the NSBB are designed to have a life span of several decades. Structural inspections are not required unless stipulated in guidelines set by the local municipality, state or federal agencies.

Replacement Parts

All interior components are designed and sized to be assembled and removed from the NSBB for servicing or for parts replacement. This can easily be accomplished via the access ports atop the structure. For any replacement parts or further instructions please contact:

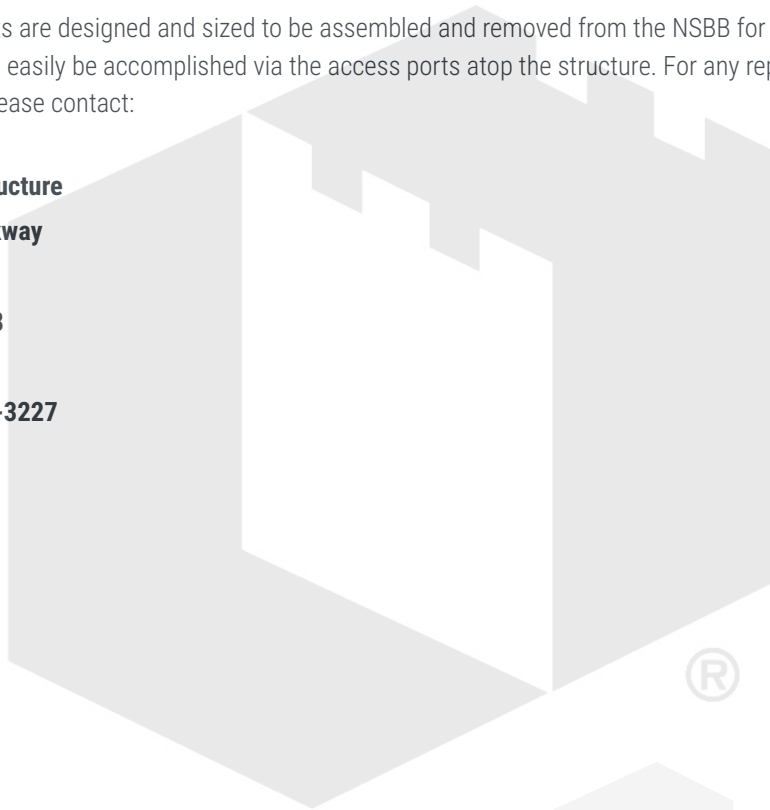
Oldcastle Infrastructure

7000 Central Parkway

Suite 800

Atlanta, GA 30328

Phone: (888) 965-3227



SERVICING SUMMARY

Service Information

Maintenance activities include the removal of captured sediments and debris. Maintenance can be performed from outside the NSBB through access points such as manhole covers or hatches installed in the vault surface above the sediment chambers. During maintenance, the screen system may have either SunGlide™ Sliding Doors or Hinged Doors.

These top doors open to gain access to the debris captured by the screen system. This system also has bottom doors that open to give access to the sediment collected in the settling chambers. A vacuum truck is required for debris and sediment removal. Although not every circumstance can be covered in this manual, a situation may arise where the structure needs to be entered. Servicing does not require specialized tools.

Caution!

Any Service Work done in traffic areas must meet all DOT Roadway Work guidelines and necessary safety procedures.

Warning!

All OSHA confined space requirements must be met while cleaning any of the Nutrient Separating Baffle Box structures.

Service Procedure

1. Open the access openings (Manhole, Hatch or Grate) on the top of the Baffle Box.
2. Vacuum the debris captured by the screen system to expose the sediment collection chambers.
3. Open the bottom doors to the basket system to expose the sediment collection chambers. These doors have eyebolts to attach the service tool in order to open the bottom doors which hinge off to the side.
4. Vacuum each sediment chamber until they are empty.
5. After cleaning the sediment chambers close the bottom screen doors of the screen system. Lower or Slide the top doors and assure they lock correctly (if equipped with SunGlide Lids).
6. When all maintenance work is completed, be sure to close the access covers or hatches.

Note

All vacuum servicing of NSBB components can be done with the use of any vacuum truck designed for catch basin cleaning.

When possible, maintenance should be performed from the surface level.

SCREEN MAINTENANCE

Screen Maintenance Procedure

The Nutrient Separating Baffle Box Screen Basket is recommended to be inspected every 6 months and cleaned every 12 months.

1. Remove all manhole covers (or open hatches or grates) to gain access to the screening basket.
2. Remove all trash, litter, debris, organics and sediments captured by the screened basket either manually or with the use of a vacuum truck. The vacuum hose will not damage the screen.
3. Remove vacuum hose and replace manhole covers or hatch doors.
4. Transport all debris, trash, litter, organics and sediments to an approved disposal facility in accordance with local and state requirements.

Note

The screen basket must be cleaned before vacuuming each sediment separation chamber.

The bottom of the screen basket is designed with three hinged panels that are lifted vertically to access each separation chamber.



Nutrient Separating Baffle Box with trash / debris collected inside the screening system basket.

CHAMBER MAINTENANCE

Separation Chamber Maintenance Procedure

The Nutrient Separating Baffle Box Hydrodynamic Separation Chambers are recommended to be inspected every six (6) months and cleaned every twelve (12) months.

1. Remove all manhole covers (or open hatches or grates) to gain access to the separation chambers.
2. Lower vacuum truck hose into the first separation chamber through the screening basket closest to the inflow pipe. Pressure washing may be needed to remove compacted sediments.
3. Repeat this process in each separation chamber.
4. Remove vacuum hose and lower hinged panels of screening basket back to a horizontal position.



Open lower screen panels to remove sediments via vacuum truck.

POST SERVICING PROTOCOL

After completing inspection or maintenance, the service operator should prepare a record of service. The record should include maintenance activities performed, amount and description of debris collected and system condition.

- | The owner will retain the service / inspection record for a minimum of five (5) years from the date of maintenance, or in accordance to specified EPA / DEP requirements.
- | All records should be made available to the governing municipalities for inspection upon request at any time.
- | Transport all debris, trash, litter, organics and sediments to an approved facility for disposal in accordance with local and state requirements.



Nutrient Separating Baffle Box with collected trash, organics and debris inside the screened basket system ready for disposal.

WARRANTY

Warranty Information

Oldcastle Infrastructure products are engineered and manufactured with the intent of being a permanent part of the infrastructure. Oldcastle Infrastructure warrants its products to be free from manufacturing defects for a period of 5 years from the purchase date. In the event a warranty claim is made and determined to be valid, Oldcastle Infrastructure will replace or repair the product at their own discretion. Warranty claims must be submitted, evaluated and approved by Oldcastle Infrastructure for the claim to be determined valid. All warranty work must be authorized by Oldcastle Infrastructure prior to work beginning not covered by this warranty. There are no warranties expressed or implied other than what is specified herein. Abusive treatment, neglect or improper use of the Nutrient Separating Baffle Box will not be covered by this warranty.

CONTACT INFORMATION

General Inquires

For additional information concerning installation, general usage, maintenance products, warranties or replacement parts please contact:

Oldcastle Infrastructure

7000 Central Parkway

Suite 800

Atlanta, GA 30328

Phone: (888) 965-3227

