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:

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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 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=0.99x3.2x0.25=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.

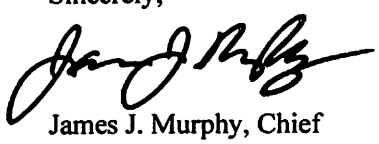
Table 1 NSBB®-HVT Models

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,



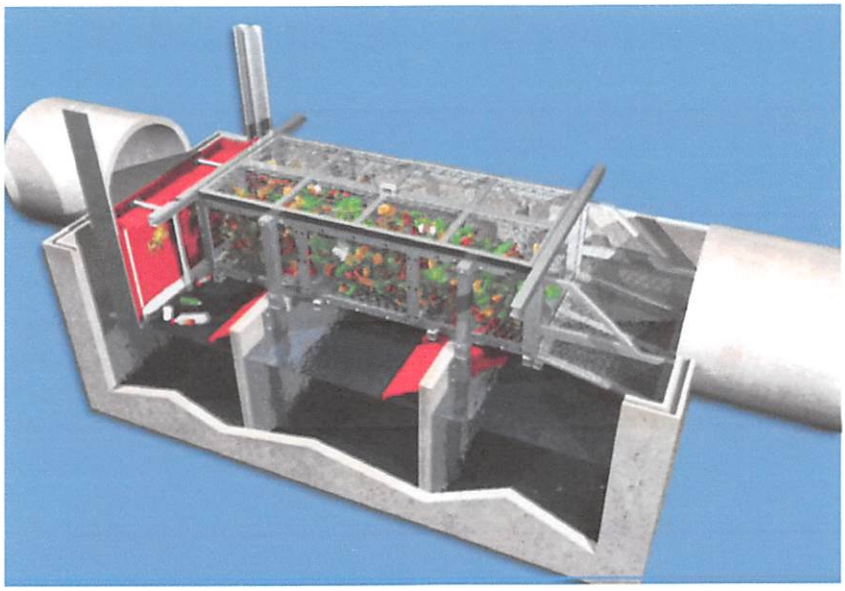
James J. Murphy, Chief
Bureau of Nonpoint Pollution Control

Attachment: Maintenance Plan

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

Operation, Maintenance, Inspection and Cleaning Manual - New Jersey

Nutrient Separating Baffle Box®



DATE: _____

NSBB MODEL: _____

JOB LOCATION: _____

Suntree Technologies, Inc. ®, 798 Clearlake Road, Suite 2, Cocoa, FL 32922 (321) 637-7552

WWW.SUNTREETECH.COM

READ THE FOLLOWING INFORMATION, WARNINGS AND INSTRUCTIONS BEFORE INSPECTING, PERFORMING MAINTENANCE OR CLEANING THIS STORMWATER TREATMENT DEVICE

This manual is intended to explain the specifics of the Suntree Technologies Inc® Nutrient Separating Baffle Box®, and to review the common aspects of the 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 if this manual and are subject to change based on new processes and procedures. Suntree Technologies, Inc. assumes no responsibility and will be held harmless for any injuries, fines, penalties or losses that occur involving any procedure in this manual or other non-addressed actions taken. The Nutrient Separating Baffle Box performance is based on the procedures being followed in this manual. Non-Compliance with these measures will be the responsibility of the owner.

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Section 1

GENERAL INFORMATION

The Nutrient Separating Baffle Box is a key component of your stormwater management program. To maintain proper operation, maintenance of these units is important. The Nutrient Separating Baffle Box manufactured by Suntree Technologies, Inc. contains patented and patent pending technologies to effectively treat stormwater. The NSBB is highly effective in capturing total suspended solids (TSS), total phosphorus (TP), total nitrogen (TN), organics, trash, litter, oils and grease. Independent testing has shown the NSBB is capable of capturing up to 95% trash and litter, up to 95% of TSS, up to 90% Organics and up to 60% TP.

Local and State regulations may require inspections and cleanings every 90 days for any BMP (Best Management Practice). Suntree Technologies, Inc. recommends inspections be conducted four (4) times a year. This will allow the NSBB to obtain the best pollutant removal efficiency.

Functional Description

DURING THE STORM EVENT

The inflow pipe is recommended to be the same size as the outflow pipe.

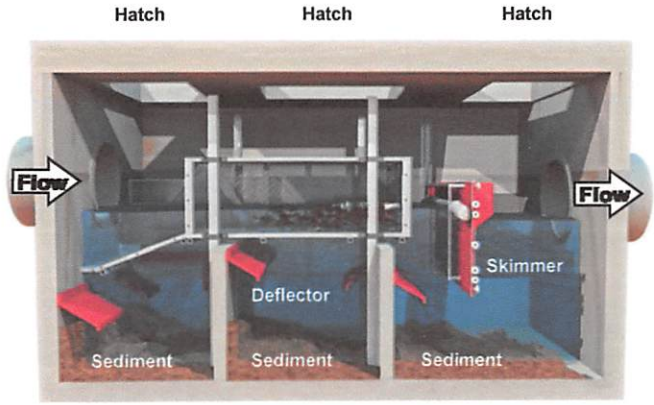
Turbulence defectors prevent captured sediment from re-suspending.

THE SYSTEM STAYS HEALTHY!

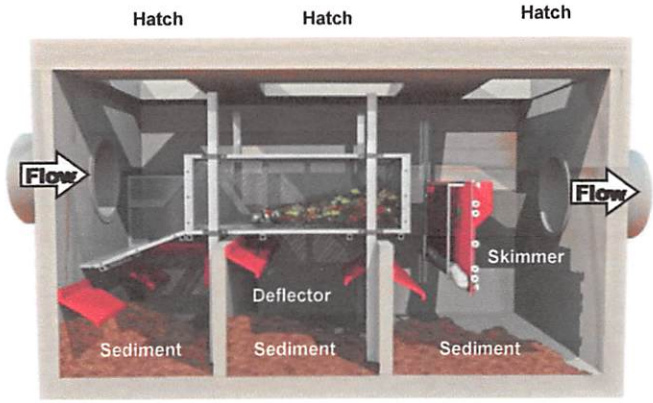
AFTER THE STORM EVENT

Nutrient pollutant load is not lost to static water and flushed out during the next storm event.

Separating organic matter from the static water prevents bacterial buildup.



Nutrient rich vegetation and litter are captured in filtration screen system.



Vegetation and litter is stored above the static water and dries out between storm events.

With the organic pollutant load separated from the water, the system does not go septic.

* During servicing, the screen system has hinged doors to give easy access to the sediment collected in the lower chambers.

Visit www.suntreetech.com for in depth information on all of our products.

Section 2

INSPECTION INFORMATION

Suntree Technologies recommends the following inspection guidelines: After installation and the site has stabilized inspections should be conducted after every runoff event for the first Thirty (30) days. To insure that the Nutrient Separating Baffle Box obtains optimal pollutant removal efficiencies, subsequent inspections of sediment accumulation should be conducted a minimal of four (4) times per year. In the event the sediment accumulation equals or exceeds 50% of the Minimum Sediment Storage Volume (fig 2.1) then all accumulated sediment must be removed. All inspections must be documented (fig 2.2).

Typical Inspection Procedures:

1: Visually inspect the unit from the surface.

2: Open access points (i.e. Manhole Covers or Hatches) and secure properly.

3: A visual inspection should be made of the basket screen system to determine the capacity of debris.

4: A visual inspection should be done of the sediment chambers. This may require opening the bottom doors of the screen system (if possible).

5: A visual inspection should be made of the overall condition of the vault. Typically joint areas as well as inflow and outflow pipe grout areas.

Section 2

2.1 Approximate Dimensions and Characteristics of New Jersey NSBB Models

NSBB-HVT Model No.	Inside Length (L), ft	Inside Width (W), ft	Partition Height (PH), ft	Partition Thickness (PT), in	Floor Area (FA)[1], ft^2	Maximum Sediment Storage Volume, ft^3	Depth from Top of Baffles to Maximum Sediment Storage Depth, ft.	Depth from Top of Baffles to Maximum Sediment Storage Depth, in.
2-4	4.00	2.00	2.70	0.75	7.75	7.75	1.7	20.4
3-6	6.00	3.00	3.00	1.50	17.3	17.3	2.0	24.0
3-8	8.00	3.00	3.00	1.50	23.3	23.3	2.0	24.0
4-8	8.00	4.00	3.00	3.00	30.0	30.0	2.0	24.0
5-10	10.00	5.00	4.10	3.00	47.5	47.5	3.1	37.2
6-12	12.00	6.00	4.80	3.50	68.5	68.5	3.8	45.6
6-13.75	13.75	6.00	5.40	3.50	79.0	79.0	4.4	52.8
7-14	14.00	7.00	5.50	4.00	93.3	93.3	4.5	54.0
7-15	15.00	7.00	5.90	4.00	100	100	4.9	58.8
8-14	14.00	8.00	6.20	4.00	107	107	5.2	62.4
8-16	16.00	8.00	6.20	4.00	123	123	5.2	62.4
9-18	18.00	9.00	6.90	6.00	153	153	5.9	70.8
10-17	17.00	10.00	7.60	6.00	160	160	6.6	79.2
10-20	20.00	10.00	7.60	6.00	190	190	6.6	79.2

Section 2

2.2 Inspection Checklist and Maintenance Guidance

Nutrient Separating Baffle Box

(To be completed at time of inspection or maintenance)

Location: _____

Owner Name: _____

Address: _____

Phone: _____

Date_____ **Time** _____ **Site Conditions** _____

Inspection Items	Condition	Recommended Interval	Comments
1. Access Openings		Quarterly	
2. Screen System		Quarterly	
3. Rear Skimmer and Storm Boom		Quarterly	
4. Sediment Chambers		Quarterly	
5. Vault Condition		Quarterly	

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

Maintenance Items	Approximate Volume Collected	Date	Comments
1. Screen System			
2. Sediment Chambers			

1. After opening access vacuum out screen system—estimate volume collected.
2. After cleaning screen system—open bottom doors and vacuum out sediment chambers—estimate volume collected.

Notes

Visit www.suntreetech.com for in depth information on all of our products.

Section 3

CAUTION!! ANY SERVICE WORK CONDUCTED IN TRAFFIC AREAS MUST MEET ALL DOT GUIDELINES FOR ROADWAY WORK AND ADDITIONAL SAFETY PROCEDURES WILL BE NESSESSARY

SERVICE INFORMATION

Maintenance activities including the removal of captured sediment 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 Top Doors or SunGlide® Hinged Doors. These top doors open to gain access to the debris captured by the screen system. The screen 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 removal. Although not every circumstance can be covered in this manual, a situation may arise when the structure needs to be entered. Servicing can be preformed without the need for specialized tools.

CAUTION!! All OSHA confined space requirements should be met while cleaning NSBB structures.

TYPICAL SERVICE PROCEDURES:

Step 1: Open the access openings on top of the Baffle Box. These access openings are typically manhole covers, hatches, or grates.

Step 2: Vacuum the debris captured by the screen system to expose the sediment collection chambers.

Step 3: Open the bottom doors to the basket system to expose the sediment collection chambers. These doors are provided with eyebolts to attach a hook to lift open the doors which will hinge off to the side (fig 3.1).

Step 4: Vacuum each of the lower sediment chambers until they are empty.

Step 5: After cleaning the sediment chambers close the bottom screen doors of the screen system. Lower / Slide the top doors and assure they lock correctly (if equipped with SunGlide® Lids).

Step 6: When all maintenance work is completed, close the access covers or hatches.

Section 3

Minimum Equipment Requirements:

A standard vacuum truck is required for the servicing of the Nutrient Separating Baffle Box. Safety equipment will be determined by local, state and federal guidelines.

Structural Components:

The structural components 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 unassembled and removed from the Nutrient Separating Baffle Box for servicing or replacement. For replacement parts and instructions please contact us at:

Suntree Technologies, Inc.®

798 Clearlake Road, Suite 2

Cocoa, FL 32922

Ph: (321) 637-7552

www.suntreetech.com

Section 3

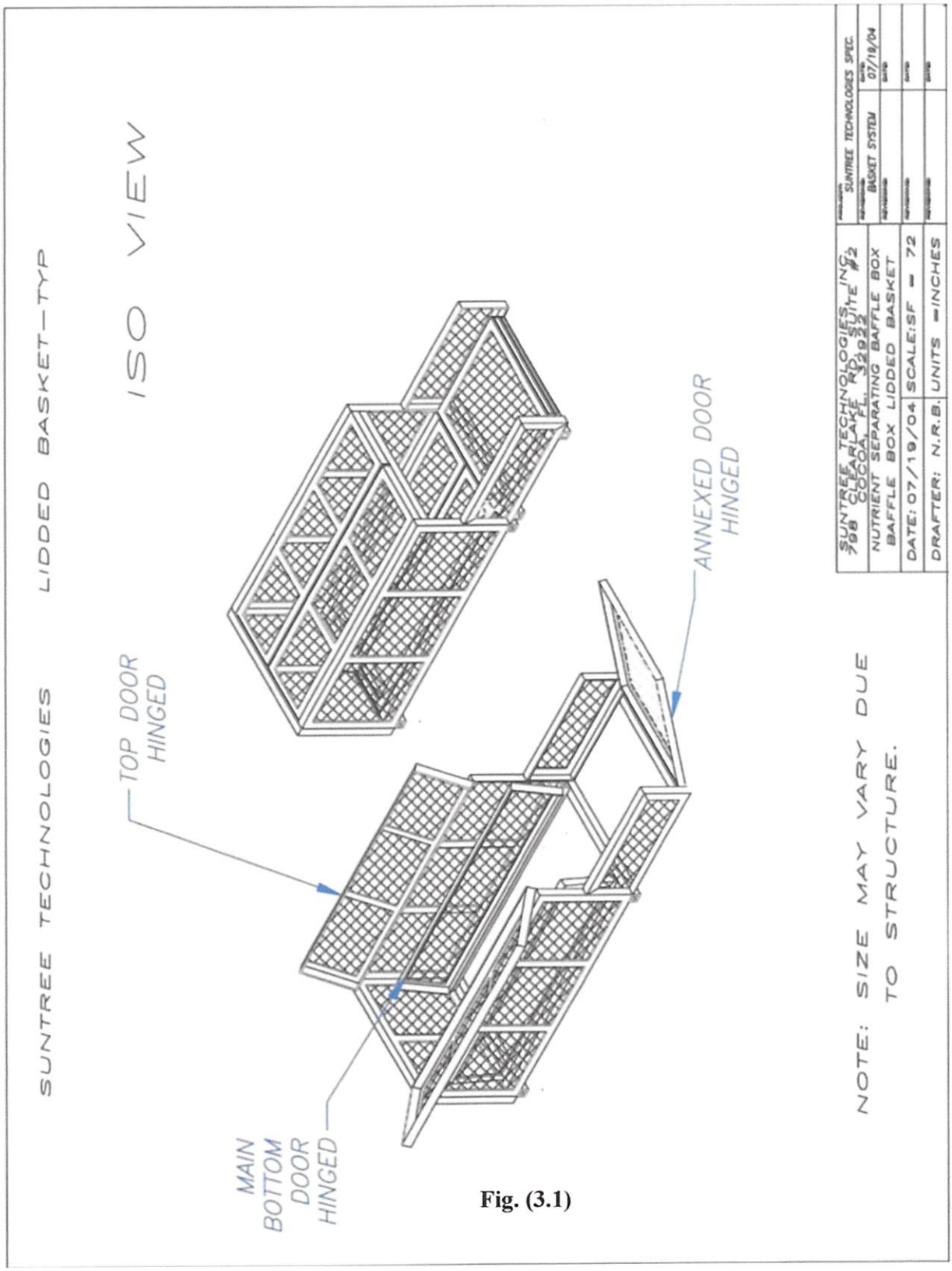


Fig. (3.1)

Section 4

PARTS INFORMATION

Job Specific Information

Section 4

PARTS INFORMATION

Job Specific Information

PARTS INFORMATION

Job Specific Information

Suntree Technologies, Inc.® 798 Clearlake Road, Suite 2 Cocoa, FL 32922

(321) 637-7552

PARTS INQUIRIES

Contact Information:

Contact Person: Martin Koivu

Tel: (321) 637-7552

Fax: (321) 637-7554

Mobile (321) 288-7249

Email: martin@suntreetech.com

Visit www.suntreetech.com for in depth information on all of our products.

Section 5

WARRANTY INFORMATION

Suntree Technologies, Inc.® products are engineered and manufactured with the intent of being a permanent part of the infrastructure. Suntree Technologies warranties it's products to be free from manufactures defects for a period of five (5) years from the date of purchase. Suntree Technologies warranties that the materials used to manufacture it's products will be able to withstand and remain durable to environmental conditions for a period of five (5) years from the date of purchase. If a warranty claim is made and determined to be valid, Suntree Technologies will replace or repair the product, at the discretion of Suntree Technologies. Warranty claims must be submitted, evaluated, and approved by Suntree Technologies for the claim to be determined to be valid. All warranty work and/or corrective actions must be authorized by Suntree Technologies prior to work beginning not covered by this warranty. There are no warranties either expressed or implied other than what is specifically specified herein. Abusive treatment, neglect, or improper use of the Nutrient Separating Baffle Box manufactured by Suntree Technologies will not be covered by this warranty.

Below is the list of products covered by this warranty:

- Grate Inlet Skimmer Box®
- Nutrient Separating Baffle Box®
- Nutrient Separating Screen System
- Turbulence Deflector System
- Curb Inlet Basket®
- Hydrocarbon Flume Filter
- Trash Flume Filter
- Golf Green Filter

Suntree Technologies, Inc.® 798 Clearlake Road, Suite 2 Cocoa, FL 32922

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WARRANTY INQUIRIES

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