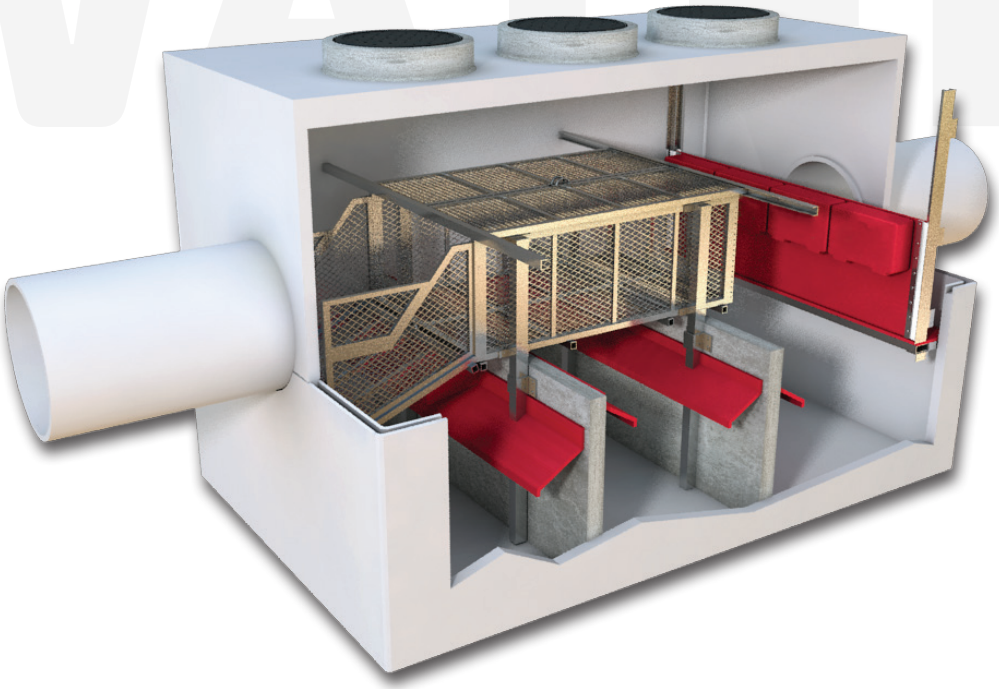
NUTRIENT SEPARATING BAFFLE BOX®

Installation Manual Version 1



Oldcastle Infrastructure™
A CRH COMPANY

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WARNING

Read the Following Information, Instructions and Warnings Before Inspecting or Installing this Stormwater Treatment Device.

This manual is intended to explain the installation specifics and safety procedures for the Oldcastle Infrastructure Nutrient Separating Baffle Box 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 install 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.

ORDERING INFORMATION

Order Placement

Oldcastle Infrastructure will begin NSBB™ fabrication upon receipt of the following customer documentation:

1 Approved drawings, signed by the Project Engineer or another entity having the same authority for approval

2 A signed copy of the Oldcastle Proposal documentation

3 Deposit of 25% of the order as down payment

4 Notice to Owner information regarding project details

Standard Terms & Conditions

1 All NSBB pricing is FOB point of origin with freight allowed to jobsite. Unloading & setting are based on NSBB size. Purchaser may cancel order due to project cancellation, but will be liable for payment as follows:

- 5% of total order if canceled prior to submittal approval
- up to 25% if order is canceled after submittal approval has been received by Oldcastle Infrastructure
- up to 75% if order has been released to manufacturing

Orders canceled for reasons besides project cancellation may be billed at greater amounts at the sole discretion of Oldcastle Infrastructure. Production of the NSBB will begin upon receipt of items listed in Order Placement. Oldcastle products are custom fabricated and are not return eligible. Purchaser agrees to provide suitable access to jobsite for delivery including traffic control and personnel. Allowable unloading time is two (2) hours. Delays caused by Purchaser past the two (2) hour period are subject to billing at the rate of $175.00 per hour minimum. Oldcastle will not accept back charges without prior written approval and cost validation. Purchaser agrees to provide a safe delivery site and comply with Federal, State, and Local safety requirements. The purchaser further agrees to hold Oldcastle Infrastructure harmless and to defend any and all actions, claims, suits and proceedings that may subject Oldcastle to liability due to Purchaser's failure to provide a safe delivery site.

2 All orders must be shipped within 30 days of manufacturing completion or else a storage charge of 5% per month of the selling price will be charged.

TRANSPORT & DELIVERY

Delivery Lead Times

- Upon order placement, please allow 4–6 weeks for delivery of the NSBB depending on fabrication time and work load.
- Delivery of NSBB 4-8, 5-10 and some 6-12 models can be accomplished via crane truck. Please allow 5 business days for delivery from the date of request and 10 business days for delivery via crane truck.

Delivery

Oldcastle Infrastructure will ensure delivery of the NSBB vault system to the installation site in accordance with the Installation Contractor or Distributor. Delivery and unloading of the NSBB vault is free of charge as long as excessive delay times are not incurred by the carrier.

Delivery of NSBB Models 4-8, 5-10 & 6-12

The crane truck will assist in setting the NSBB without additional costs unless:

- The unit weight-reach combination is exceeded
- The crane truck operation is obstructed by overhead wires, trees, site restrictions, etc.
- The crane truck has an inadequate soil base to safely support, operate and unload the NSBB.

Important

Some 6'-12' NSBB units can't be delivered on a crane truck due to weight restrictions.

Delivery of NSBB Models 8-14, 10-16 & 12-20

These models cannot be unloaded or transported via crane truck due to size and weight restrictions. Therefore, the Installation Contractor will require and is responsible for providing the necessary unloading / lifting materials, tools and apparatus at the time of installation.

Secure Unloading / Lifting of the NSBB requires:

- Spreader Bar
- 1 set of Lifting Hooks
- 1 set of Shackles
- Several Chains / Cables
- 1 set of Knuckles
- 1 set of Eye Bolts

UNLOADING

Unloading Responsibilities

If the installation contractor unloads the NSBB from the crane truck and decides to set the vault at a later time, then the contractor is responsible for providing a crane of sufficient weight capacity and reach (see fig1) to safely set the vault structure at the time of installation. The contractor must also provide sufficient chains and a spreader bar to unload NSBB models: 8-14, 10-16 and 12-20. Oldcastle Infrastructure™ will provide contractors with the appropriate lengths for both spreader bars and chains. Please contact your Oldcastle representative for additional inquires / information.

Site Preparation

The Installation Contractor is responsible for all installation site preparation and ensuring proper safety procedures and protocols are followed.

- The Installation Contractor is responsible for providing adequate and complete vault protection when the NSBB vault is installed prior to final site stabilization (landscaping, grass cover, final paving and street sweeping completed)
- Installation Contractors will adhere to all jurisdictional and / or OSHA safety rules in providing temporary shoring of the excavation zone.
- The Owner or Installation Contractor is responsible for appropriately barricading the Nutrient Separating Baffle Box from traffic in accordance with local codes.

Note

Please see project specific drawings for weights and lifting details about your site before unloading the NSBB vault. If you need additional lifting details or further assistance, contact Oldcastle Infrastructure at 321.637.7552

INSPECTION INFORMATION

Inspection Protocol

The Nutrient Separating Baffle Box is a key component of your stormwater management program. To ensure proper operation, preliminary inspection of the structural components upon delivery is essential to ensure that no damage occurred during shipping. The NSBB designed and manufactured by Oldcastle Infrastructure™ contains both patented and patent pending technologies to treat and manage stormwater.

Inspection of the NSBB unit and all parts contained in or shipped outside of the vault, are to be inspected at the time of delivery by both the site Engineer / Inspector and the Installation Contractor. Any non-conformance to approved drawings or damage to any part of the system must be documented on the NSBB shipping ticket. Damage to the unit during and after unloading shall be corrected at the expense of the Installation Contractor. Any necessary repairs to the Nutrient Separating Baffle Box must be brought into compliance with the Engineer / Inspector.

Local and State regulations may require inspections every 90 days. Oldcastle Infrastructure recommends inspections be conducted upon delivery, once the site has stabilized and every six (6) months thereafter for optimal operational efficiency.

INSTALLATION PROTOCOL

Necessary Materials Supplied by Oldcastle Infrastructure

- Concrete base unit with baffles and assembled screen system
- Concrete mid section(s) (if applicable)
- Concrete top section
- Butyl rubber sealing tape strips
- SkimBoss MAX Skimmer and StormBoom system
- Specified frames and grates, rings and cover or hatches

Installation Contractor Responsibilities

With the exception of finalizing the skimmer and StormBoom installation, the contractor is responsible for all work required to properly position and install the NSBB unit, sealing materials, pipes (including removal of structural reinforcing left in place by the precaster during shipping), risers, backfilling and installation of covers. The NSBB must be set at an elevation that allows the invert of the outflow pipe to be level with the top of the baffles.

The SkimBoss MAX and StormBoom system requires minor assembly after the lower, mid and top sections have been installed. This work is completed by Oldcastle Infrastructure personnel during initial box setting operations. Therefore, Oldcastle Infrastructure personnel must be on site during each installation. Please allow at least a 3 day lead time for installation personnel to be on site. The coordination of this procedure helps to prevent excessive crane or crane truck usage delays.

The standard fabrication of NSBB units provide 6 inch+ opening diameters, greater than the outside pipe diameters, enabling simple installation of new and retrofitted systems. Final pipe positions require the pipe ends must be set or cut flush with the interior wall of the vault. All pipes should be sealed within the NSBB walls in accordance with local code requirements.

INSTALLATION PROTOCOL

Necessary Materials Supplied by Oldcastle Infrastructure

1 Each NSBB vault is constructed based on the site locations and elevations of the sizes shown on the approved drawings. Any modification to the elevation or location must be the direction of and approved by the Engineer of Record.

2 The vault shall be placed on a level compacted sub-grade with a minimum 6 inch gravel base. Compact undisturbed sub-grade materials are to be in accordance with Geotechnical / Soils report. Unsuitable material below sub-grade must be replaced to the site engineer's approval.

3 Once the base section and risers are set, the installation contractor is responsible for grouting the baffles to form watertight chambers.

4 Pipe connections must be aligned and sealed to meet approved drawings with any necessary modifications to meet site conditions and local regulations. The correct connection (inlet / outlet) will be marked on the NSBB vault. The connections are to be flush with the interior walls of the vault and are not to protrude into the vault.

5 Once the vault is set, the NSBB system should be protected from construction runoff entering the vault. The Installation Contractor should provide a dry and clean working environment for the manufacturers' installation personnel to complete the installation of internal components.

6 Once the connections and baffles are grouted in, the manufacturers' installation personnel will install the internal components in accordance with Oldcastle Infrastructure specifications.

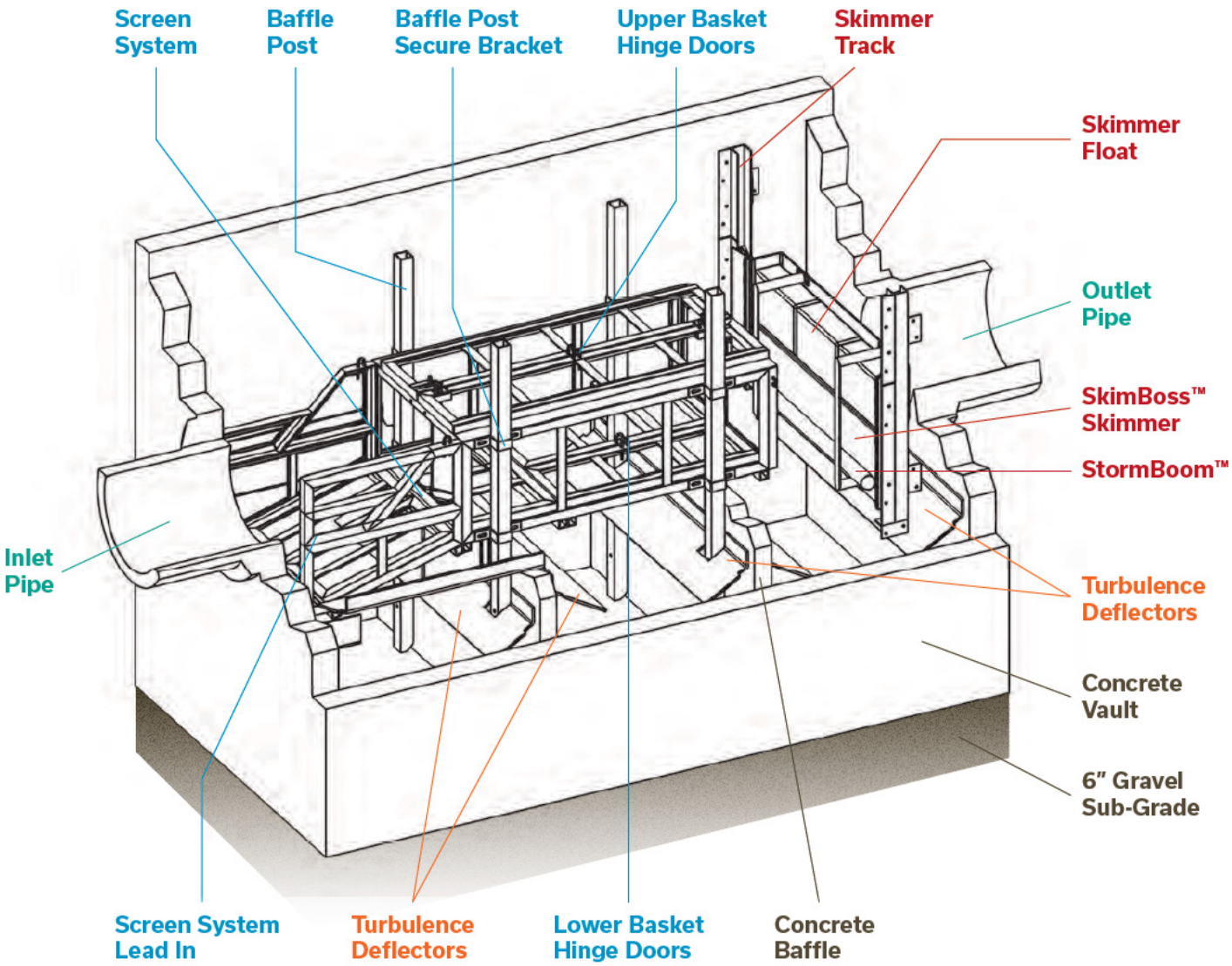
7 Backfilling should be performed carefully. Precast sections must be properly set to result in watertight joints. Installation of the NSBB vault must conform to ASTM specification C891 "Standard Practice for Installation of Underground Precast Utility Structures" unless specified otherwise in contract documents or local requirements.

Note

Prior to setting the vault sections, always refer to approved shop drawings to assure that the proper elevation, footprint and other conditions are met.

REFERENCE DIAGRAM

NSBB Installation Reference Diagram



INSTALLATION PROCEDURE

Protocol Descriptions

The Installation Contractor must provide all rigging and lifting apparatus, such as cables, chains, straps, knuckles, lifting hooks, shackles, eye bolts and spreader bars. It is the Installation Contractor's responsibility to provide suitable lifting equipment to unload the NSBB. Nutrient Separating Baffle Boxes are designed to be unloaded using the contractor's spreader bars.

1 **Unload and Set the Vault**

Off-load the Nutrient Separating Baffle Box and set into prepared hole with appropriate compacted sub-grade. (Sub-grade with a 6" minimum gravel base.)

2 **Apply Butyl Tape Seal**

Apply butyl tape seal along the risers and top of the vault section. Butyl tape seal will be provided with the vault.

INSTALLATION PROCEDURE

Protocol Descriptions

Prior to setting the top vault section, the manufacturer's installation crew will install the interior components of the Nutrient Separating Baffle Box. In the event the top section is set without first notifying the manufacturer, a fee of $3,000 per day will be assessed to offset the cost accrued by the installation crew for confined space entry.

3 **Set Risers and Vault Top**

Set the risers and top on the vault. The Installation Contractor is responsible for grouting the baffles to assure the chamber is watertight as well as grout the inflow and outflow connections flush and smooth with the interior of the vault.

4 **Connect Pipes**

The correct connection (inflow / outflow) will be indicated on the vault allowing for easy pipe connection.

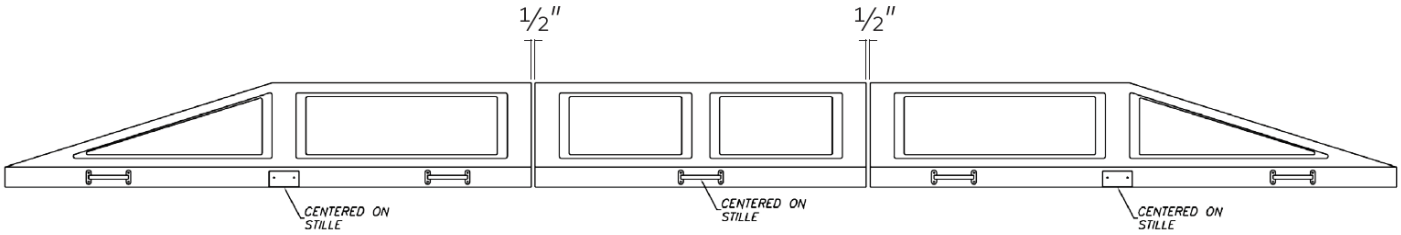
SUNVIEW COVER INSTALL

Lifter Installation

1 Verify all parts are on site and that the concrete's dimensions are within appropriate tolerance.

2 Decide which side of the box will be hinged and layout the observation covers location on the top of the box using chalk.

3 Allow ½" gap between lid sections.



4 Store some parts in the box on the floor of the screen including the center and end brackets, gas lifters, ½" expandable bolts, impact wrench with ¾" socket and sledge hammer.

5 Place cover sections over the hole, check that they are properly centered.

6 Shim the hinged edge of the lids up so that the hinge is flat on the concrete.

7 When the covers are placed over the baffle box, the hole's inside edges are obscured. Consider fastening only one tapcon in each section's end hinges.

8 Visually verify that the lid is centered over the hole and check that the lifter's pins on the outer ends are not obstructed by concrete. If the lids seem out of place they should be corrected at this point.

9 From the inside of the box, find the lid's vertical centerline relative to the cover sections and attach the center bracket slightly less than flush at the top, about ⅛" to ¼" down.

9 Attach center bracket

SUNVIEW COVER INSTALL

Sunview Observation Cover Installation Protocol

10 Attach a gas lifter to the cover on a center pin and position the lifter so that the large reservoir end is up.

11 Have someone on the outside lift the cover so that the lifter does not need to be compressed to line the pin up with the hole on the end of the lifter.

12 Attach the shaft end to the center bracket and carefully lower the lid down.

13 Repeat to attach the center lifter for the other section(s) of the cover.

14 The lifters' end brackets can only be located by measurements or by finding the ideal location while attached to the cover and lifter while open.

15 Attach the shaft end of the lifter to the correct end bracket.

16 Attach the large reservoir end to the lid's end bracket pin.

17 Have someone lift the lid all the way open to fully extend the lifter already attached to the lid's center brackets.

18 Move the dangling end bracket to a position on the baffle box wall or top edge. Find a location that keeps the ½" expandable bolts away from the edge of the concrete. Having an expandable bolt too close to the edge of the concrete may cause the concrete to split or fracture when tightened.

19 Mark the location of the hole and attach the end bracket. Repeat for remaining sections.

Cable Installation & Finishing

20 Visually verify that the lid is centered over the hole and check that the lifter's pins on the outer ends are not obstructed by concrete. If the lids seem out of place they should be corrected at this point.

21 From the inside of the box, find the lid's vertical centerline relative to the cover sections and attach the center bracket slightly less than flush at the top, about ⅛" to ¼" down.

20 Attach cable to bracket

SUNVIEW COVER INSTALL

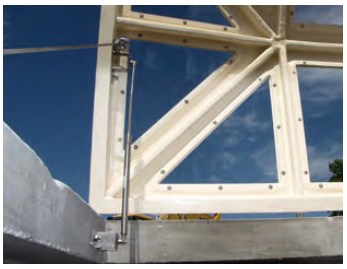
Cable Installation & Finishing

22 Mark this mounting position on the box for the bracket at the other end of the cable.

23 Before attaching the bracket, double check the cover movement and lift.

- Is the cover supported well by the lifters?
- When the wind blows from the back side of the cover will it fall down?
- Can the cover be lowered some to achieve a balanced position without collapsing?

24 It is important that the cover be supported well at the fully open position. If there isn't enough lift at the balanced position or fully open position, move the bracket closer to the hinge to allow more for lift.



24 Check & ensure the cover sections are sufficiently supported at the open position.

25 It is recommended that the remaining section's cables be positioned before mounting any cable brackets to the box. Repeat the same procedure as the first section.

26 Mount one cable bracket to the concrete box.

27 With the fully attached lid open, position the next section's bracket where it will be mounted.

28 Adjust the position of the other section brackets so that the lids are even when fully open.

29 With the covers lined up, mark and attach the remaining cable brackets to the concrete box.

30 Check the movement of the covers again, close the covers and position and attach the locking brackets to the top of the concrete vault structure.

29 Mark and attach remaining cable brackets and cables.

STORMBOOM INSTALL

StormBoom Installation Information

The Hydrocarbon Skimmer Panel is located below the rear access opening in the NSBB. The skimmer panel is equipped either with front brackets or an expanded metal screen face to contain the StormBoom. The StormBoom is designed to fit inside the expanded metal screen face of the skimmer panel. There is an oval shaped hole at the top of the skimmer panel for inserting or removing the StormBoom. Each StormBoom is equipped with rope ends to secure the boom in place after installation.

Note

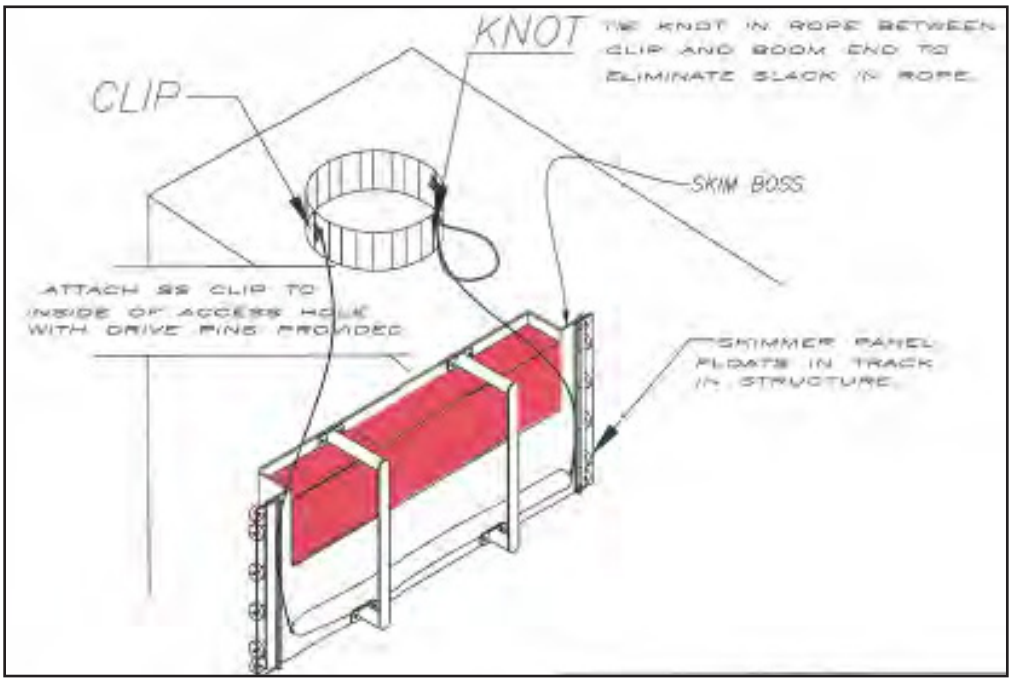
StormBooms are single booms for vaults up to 6' wide and are doubled in length to accommodate wider vault systems.

StormBoom Initial Installation Protocol

1 Thread one rope end of the StormBoom in one of the top panel holes. Each rope end will be on opposite ends of the panel and will be brought up to the rear access opening.

2 Rope ends need to attach to SS Eye straps anchored to the concrete at the inside rear access opening. The bottom of the StormBoom should be slightly "U-Shaped" and rest 6" from the bottom of the skimmer panel.

3 Double tie the rope ends to eliminate any slack.



SkimBoss floating skimmer with hydrocarbon boom attached with rope to SS Eye Strap ready for replacement.

SCREEN INSTALLATION

Installation Information

1 Install turbulence deflectors and baffle posts. Once bolt holes are drilled, clean bolt threads with a brush, apply anti seize compound and bolt deflectors in place.

2 The top of the deflector should be within 1” of the top of the baffle and centered between the interior walls.

3 Tape 3½” wooden blocks on the inside of the baffle posts resting on the baffles for screen basket installation preparation.

4 Attach the flow spreader to the center of the inflow side of the baffle wall using included SS wedge bolts. The top of the flow spreader and baffle wall should be even.

5 Set the basket on top of the baffles with the lead in end flush to the inflow wall and center the basket between the interior side walls.

6 Locate and install two legs for the basket using ½” x 1¾” SS bolts and locknuts to attach brackets to the frame.

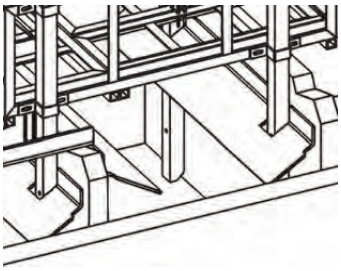
7 Use ½” x 8” SS bolts, plain nuts and fender washers to install the legs on the baffle walls.

8 SkimBoss Skimmer Panel is complete with mounting angles attached. The back side of the panel should be 11” from the outflow end of the wall and 30” from the floor of the vault. The mounting angles may be taken off of the skimmer and temporarily used as a template to mark where holes must be drilled in the vault walls.

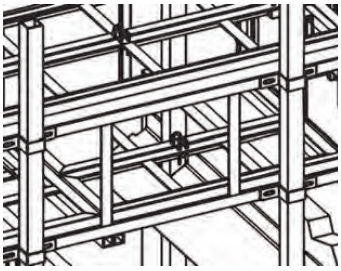
9 SS wedge bolts ½” x 4¼” are to be set in the vault walls to mount the panels. Tighten all bolts to complete work.

10 The StormBoom is pre installed inside of the skimmer panel. The boom rope ends exit the top of the panel holes and attach to SS Eye straps. The SS Eye straps should be attached to the inside of the rear access opening within the concrete.

11 Check all fasteners for tightness and doors for operation.



1 Install Turbulence Deflectors centered between Baffle Walls & Baffle Posts.



6 Attach post brackets

Note

Do not drill the ½” holes deeper than 3¼” or the bolts may not set properly.

SKIMMER INSTALLATION

SkimBoss Floating Skimmer Installation Protocol

1 The SkimBoss Floating Skimmer tracks are installed on the walls of the NSBB vault. Each SkimBoss Skimmer is complete with tracks of which are broken into two to four pieces per track depending on vault size.

2 The main track has an assembled length of either 1500mm (2 pieces) or 3000mm (3 pieces) depending on the size of the vault width.

3 The bottom of the main track has two holes and a set of double holes above on each side of the assembled track.

4 The two bottom holes require ½" x 2¾" wedge anchor bolts (included) to fasten the bottom of the track to the walls.

5 Only one fastener is required in one of each set of holes above the very bottom two. The bottom two holes each receive a bolt. The double holes provide an alternative location for the bolts in case rebar is encountered in the first hole location.

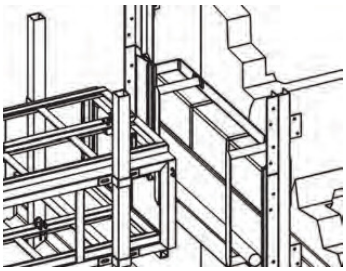
6 In order for each track to be close to parallel to each other, it is important to use exactly the same distance for the bottom of each track and that the tracks are set vertically.

7 Track extensions (if necessary) will be mounted above the main track and are marked to match corresponding locations of the main track.

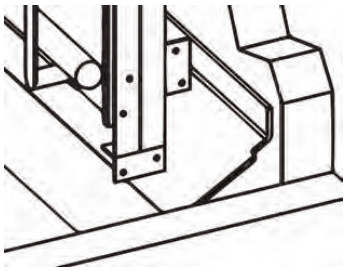
8 The top open edge of the track will face the direction from where the flow is coming from. One mounting bolt is required to be installed in the track at each location above the bottom four bolts.

9 Once the back section of each main track is bolted in place, then the skimmer can be lowered to the bottom of the track.

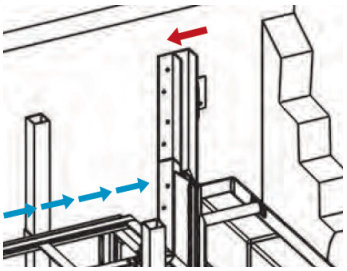
10 After the skimmer is set, bolt in the shorter upper front section of each track with two ½" x 2¾" SS wedge anchor bolts each. (Use one bolt per set of two holes) Tighten all bolts to finish work.



1 Install Skimmer Tracks



4 Anchor tracks to vault walls via ½" x 2¾" anchor bolts in the bottom holes.



8 The open track edge should face the inflow direction of incoming water flow.

REQUIREMENTS & PARTS

Minimum Equipment Requirements

Installation crews are recommended to check all local, state and federal guidelines for installation and maintenance prior to delivery. The Installation Contractor must provide all unloading and lifting apparatus, such as cables, straps, knuckles, lifting hooks, eye bolts, shackles and spreader bars.

Structural Components

The structural components of the NSBB are designed to have a life span of several decades. Structural inspections of the NSBB unit and all parts contained in or shipped outside of the vault are to be conducted at the time of delivery by the site Engineer / Inspector and Installation Contractor.

Replacement Parts

All interior components are designed and sized to be assembled and removed from the NSBB for installations, servicing or for parts replacement. This can easily be accomplished via the access ports atop the vault structure.

For any replacement parts or further instructions please contact Oldcastle Infrastructure

Oldcastle Infrastructure
798 Clearlake Road, Suite 2
Cocoa, Florida 32922

Phone: 321.637.7552
Fax: 321.637.7554
Web: www.oldcastleinfrastructure.com

Caution!

Any installation work done in traffic areas must meet all DOT Roadway Guidelines and necessary safety procedures.

Warning!

All OSHA confined space requirements must be met for internal installations in the event that the top of the vault is set without first notifying the manufacturer installation crew.

WARRANTY

Minimum Equipment Requirements

Oldcastle Infrastructure products are engineered and manufactured with the intent of being a permanent part of the infrastructure. Oldcastle Infrastructure warranties its products to be free from manufacturing defects for a period of five (5) years from the date of purchase.

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 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
798 Clearlake Road, Suite 2
Cocoa, Florida 32922

Phone: **321.637.7552**

Fax: **321.637.7554**

Web: **www.oldcastleinfrastructure.com**

Visit our website for in depth information on all of our products!