



1.0 Cover Letter

5/21/2021

BaySaver LLC is a wholly owned subsidiary of Advanced Drainage Systems (ADS) and we would like the name changed on the approved list of Trash Capture Hydrodynamic Separators to ADS.

The reason we are updating our approval is that we were asked to include the approval letter from MVCAC. The Barracuda has had no structural changes and we have included the letter in Appendix F. The Barracuda does not need to be review for certification by The California State Waterboard or by MVCAC.

1.A. General description of the device.

The Advanced Drainage Systems (ADS) Barracuda is a market-changing stormwater quality technology designed to remove suspended solids, floating debris and oil/grease by utilizing hydrodynamic vortex separation, gravitational settling, screening and absorption. When used as a trash capture device, the Barracuda Separator unit uses 4.8 mm perforated stainless steel screening as the dominant mechanism to trap the gross pollutant and prevent them from being transported to downstream receiving waters.

1.B. The applicant's contact information and location.

The ADS contact for this submittal:

Joe Chylik

Director of Product Segment

Advanced Drainage Systems, Inc.

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Hilliard, OH 43026

Ph: 614-658-0500

Email Joseph.chylik@ads-pipe.com

1.C. Manufacturer's Website Address

<https://www.adspipe.com/water-management-solutions/water-quality/separators/barracuda-hydrodynamic-separator>

1.D. The Device's manufacturing location.

ADS currently manufactures components of the Barracuda Separator in Ohio, and warehouses product in all four manufacturing and stocking locations in California. When we use concrete manholes, we typically contract with a local precast company (Californian based).

We have several ADS manufacturing facilities in the state of California in the cities of Bakersfield and Madera. We also have stocking yards in Benicia, and Perris California. ADS employs over 120 employees in the state of California at these four locations as well as remote locations for our sales and engineering teams.

Our reason is water.™



1.E. A brief summary of any field/lab testing results that demonstrate the device functions as described within the application.

The Advanced Drainage Systems Barracuda S4, a full scale and commercially available unit that has been tested by a third-party independent review for both sediment and trash removal efficiencies listed in this submittal. For the trash testing, three 15-minute Gross Pollutants (GP) retention test runs were conducted at flow rates ranging from 50% of MTRF to 200% of MTRF. The GP material used in the test represent those found in stormwater runoff, including cardboards, newspaper, cigarette butts, cloth, aluminum can, aluminum foil, plastic, Styrofoam and wood. No gross pollutant material was observed in the effluent or the discharge net. This retention test demonstrated that the Barracuda unit with the GP retention screen achieved 100% retention rate. Please refer to Appendix E for the supporting report titled *Laboratory Testing of the Barracuda for Gross Pollutants Retention*, August 02, 2018.

1.F. A brief summary of the device limitations, and operational, sizing, and maintenance considerations.

The ADS Barracuda Separator is an engineered stormwater treatment system designed to meet site-specific flow conditions. Each system is designed and sized according to anticipated flow rate, load rating, and system depth at the installation site. All site and design constraints are discussed during the design and manufacturing process. Soils characteristics, ground water and slope must be addressed during the pre-casting design process. The ADS engineering team will evaluate the design prior to specification for application on sites with steep slopes. Driving head will vary depending on the site specific configuration. Design support is given by ASD for each project, and site-specific drawings will be provided that show pipe inverts, finish surface elevation, and peak treatment and maximum flow rates through the ADS Barracuda to ensure no adverse impacts downstream and with respect to the hydraulic grade-line.

ADS Barracuda systems are sized according to the water quality treatment flow rate for a site. If a system is undersized, too much overflow will occur, and the system will not achieve the pollutant reduction goals. The oversized system will unnecessarily increase the cost of project and reduce the overall cost-effectiveness of the system. ADS will work with engineers, contractors and regulators to ensure the proper sizing.

The ADS Barracuda is available in various configurations and can be installed online or offline. For the offline system, an upstream divergence structure and a downstream convergence structure are needed to only treat flows up to the treatment flow rate with excessive flows bypassing around the unit. The online Barracuda system conveys both the treatment flow rate and the peak flow rates through the unit. An internal bypass weir removes the need for any external high-flow diversion structure in the on-line system. When bypass occurs, flow is routed directly from the treatment chamber to the outlet chamber (which is over the weir and prior to the effluent pipe), thus preventing any scour or loss of captured pollutants. In the event of bypass, trash and floatable debris will still be retained in the primary inletting side of the device if the overflow line remains below the top of the trash screen, see Appendix A for engineering drawings of Barracuda with trash screens. In some cases, inlet/outlet pipes with varying pipe angles can be accommodated as well as utilization of a grated inlet above the treatment bowl section of the unit.



ADS provides contractors with instructions prior to delivery, and onsite assistance is available from the installation technician during delivery and installations. Pick weights and lifting details are also provided prior to delivery to ensure that the contractor is able to prepare the appropriate equipment on site.

The ADS Barracuda requires periodic maintenance to continue operating at design efficiency. The maintenance process is comprised of the cleaning of the manhole with a vacuum truck. The system needs to be cleaned, when necessary, to ensure optimum performance, typically every 12-18 months. Vector control operations can be implemented on a more often basis depending on the local authority's requirements. The rate at which the system collects pollutants will depend more upon site activities than the size of the unit. Since storm water solids loads can be variable, it is possible that the maintenance cycle could be more or less than the projected duration for a given O&M cycle.

1.G. A description or list of locations, if any, where the device has been installed. Include the name and contact information of as many as three municipality(s) purchasing the device.

ADS has sold over 2000 Barracuda devices nationally since August 2017, when it was introduced to the US market. We have installed two units in the state of California. As of the date of this submittal, we have not sold a unit directly to a municipality. The two units in the state are located in Bellflower, CA (Los Angel and Ontario, CA (San Bernardino County).

1.H. Certification Statement

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations.



5/24/21
Date



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Appendix D	ADS/BaySaver Limited Warranty
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Appendix F	Vector Control Letters

***All Appendices are added as attachments.**



3.0 Physical Description

3.A. Trash Capture: Describe how the device traps particles 5 mm or greater.

The ADS Barracuda Hydrodynamic Separator (ADS Barracuda) is a manufactured stormwater treatment device that removes suspended solids, oils and floatables, including gross pollutants commonly found in stormwater runoff. There are no moving parts in Barracuda unit. Flows introduced to the separator unit first encounter the cone-shaped (vortex) device (commonly called the Barracuda Bowl) inside, which allows particles with greater density than the surrounding water to move to the center of the device, where they settle to the bottom. A weir prevents inflowing water from bypassing the vortex separator. The “teeth” affixed to the inside walls of the unit reduce the velocity of the water in the vortex flow pattern below the cone and effectively reduce re-suspension of sediment in the sump, allowing the accumulated sediment to be retained within the unit. For use in California, the Barracuda includes a 7.5 square foot 4.8 mm screen over the weir wall and a 10-inch diameter screened cylinder with screened cap on the top. Please refer to Figure 1 in the test report attached in Appendix E for a 3D drawing of the Barracuda design with screen.

The Barracuda Separator unit uses 4.8 mm perforated steel screening as the dominant mechanism to trap the GP and prevent them from being transported to downstream receiving waters. The cone incorporated with the perforated steel screen affixed to the weir wall functions as a storage chamber to allow continual capture of floatable gross pollutants, even during the peak flows. The suspended non-buoyant materials can settle to the bottom of the sump when flow diminishes. The top of the screened cylinder is capped horizontally and inserted into the outflow opening to prevent the trapped GP from escaping into the effluent chamber behind the weir wall.

The Barracuda screen structure will be sized according to the diameter of the opening in the effluent chamber, the manhole diameter, and length of the weir wall.

3.B. Peak Flows/Trash Volumes: Explain how the device is sized for varying peak flow rates and trash capture volumes.

Design drawings are included in Appendix A. examples of standard Barracuda drawings for Model S4, S6, and S8 are provided. We will ultimately have the S3, S5 and S10 as options for our Barracuda line but all will have an identical removal mechanics and trash components incorporated in their design.

3.C. Hydraulic Capacity:

3.C.1 Table of Hydraulic Capacity:

A Barracuda sizing chart is shown below in Table 1. Corresponding Treatment Flow Rates (TFR) and trash volume are listed for each model. Refer also to Appendix E for the trash retention report.

Table 1. Barracuda Trash Retention Sizing Chart

Model	Diameter (ft)	TFR (cfs)	Screen Area (ft ²)	Trash Volume (ft ³)
S3	3	1.70	11.2	1.2
S4	4	3.04	14.6	2.1
S5	5	4.74	18.0	3.3
S6	6	6.80	22.3	4.7
S8	8	12.16	30.3	8.4
S10	10	18.96	37.6	13.1

3.C.2 Methods or Equations Used:

A Barracuda S4 was tested in the laboratory at flow rates equal to 50%, 100%, and 200% of the Maximum Treatment Flow Rate.

3.C.3 Alternative Configurations Impacting Hydraulic Capacity:

N/A

3.D. Comparison Table: For all standard sizes, provide a table that includes the peak flow rates, and recommended maximum trash capture volume.

See Table 1 in Section 3.C.1 above.

3.E. Design Drawings: Provide design drawings for all standard sizes and, if any, alternative configurations.

See Appendix A for our engineering diagrams for installations.

3.F. Alternative Configurations: If the device includes alternative configurations, explain the purpose of each configuration and mandatory installation conditions.

N/A

3.G. Internal Bypass: If the device has an internal bypass, explain how the bypass function to only allow a bypass of flows exceeding the peak flow rate.

When bypass occurs internal to the Barracuda, flows will start to crest over the internal weir. This internal bypass weir removes the need for any external high-flow diversion structure in the on-line system. When bypass occurs, flow is routed directly from the treatment chamber to the outlet chamber, but the trash screen is at an elevated elevation to eliminate trash and debris from going over the system

and downstream, thus preventing any scour or loss of captured pollutants. In some cases, trash captured in the bottom sump could exit from the sump outlet opening, but due to the “capped” trash screen this lost would be limited to debris smaller than 4.8 mm in size.

3.H. Previously Trapped Trash: Explain the condition(s) under which the device reintroduces previously trapped trash.

The trash retention screen in the Barracuda uses 4.8 mm diameter perforations to prevent trash materials (5 mm or above) from escaping the swirl chamber and sump. The Barracuda screen structure is unlikely to reintroduce previously trapped trash unless there is a backflow condition or substantial “surcharge” that results in a water level above the top of the bowl screen within the unit. Such conditions would either re-introduce trash upstream of the storm conveyance system or overflow downstream of unit. The latter condition would be only possible in with an extreme storm event (i.e., 100yr event or greater).

3.I. Calibration Feature: If the device includes and adjustable calibration feature, describe how the calibration feature functions.

N/A

3.I. Photos: If any, provide device installation photos.

See Appendix B for several installation photos.

3.J. Material Type: Provide each material and material grade used to construct the device.

Barracuda systems are substantially constructed of high density polyethylene (HDPE) for the swirl bowl and weir, and stainless steel for the “teeth” and trash screens. The trash screen component is 14GA perforated stainless steel. The opening is uniformly 3/16 inch diameter (4.8 mm) to retain any trash materials 5 mm or larger. The shell or manhole material for the Barracuda will be made of polypropylene or concrete based on the diameter of the manhole and local specifications. All units are supplied with a standard cast iron frame and cover (solid or grated) for access. The size of the manhole opening is either 24” or 30” depending on local regulations.

3.K. Design Life: Provide the estimated design life.

The ADS Barracuda unit has an estimated design life of similar to concrete underground pipe and structures. Most DOTs give this a 75 to 100 year design life for concrete structures. According to the Florida Department of Transportation, ADS HP pipe (material the plastic manhole version is made out of polypropylene achieves a 100-year service life. The stainless steel components have a 225-year minimum design life when used in stormwater.

4.0 Installation Guidance

4.A. Device Installation Procedures: Standard device installation procedures including calibration instructions if applicable.

See Appendix B.

4.B. Device Installation Limitations: Description of device installation limitation and/or non-standard device installation procedures.

The ADS Barracuda Separator is delivered to the job site with internal components that are to be housed in a pre-cast concrete structure or an ADS polypropylene manhole (i.e., HP Manhole). During the pre-casting design process, soil characteristics including corrosiveness, top and lateral loading, and ground water must be addressed. The ADS Barracuda can be installed and will function in all soil types.

Installation is generally a straightforward process. Standard excavator equipment can be used in lieu of a crane given the system's lightweight and modular design. A crane might be advised for the S8 and S10 sizes, and Mar-Mac, Fernco or similar type flexible boots with stainless steel tension bands are used for pipe couplings to link the Barracuda to the conveyance stormwater line.

A copy of the geotechnical report along with surface loading requirements, and groundwater situation must be reviewed and verified during the design process by the engineer of record. Groundwater conditions do not affect the internal ADS Barracuda function and treatment performance. High groundwater may cause buoyancy, and an anti-floatation ballast can be added to the structure to counteract this for both plastic and concrete versions. Once the system is installed and operational, the water present in the sump area will counteract most buoyancy issues and will only need to be addressed during standard O&M procedures on site. If high groundwater is anticipated, the ADS Water Quality engineering team will evaluate the need for anti-buoyance measures and provide the guidance to address the concerns.

ADS Barracudas are traditionally designed for HS-20 loading. If a depth greater than 15 feet is required from final grade, the manhole structural design must be reviewed by the precast manufacturer. Contact the ADS Water Quality team if increasing load is expected.

ADS provides contractors with instructions prior to delivery, and onsite assistance is available from the installation technician during delivery and installations. Pick weights and lifting details are also provided prior to delivery to ensure that the contractor is able to prepare the appropriate equipment on site.

4.C. Methods for diagnosing and correcting installation errors.

The modular design of the system minimizes installation errors and there are no moving parts to be concerned about during the installation process. The installation process is a relatively simple process and installation instructions are included all material shipments to the jobsite.

HP manhole systems come with components pre-installed which minimizes installation errors. Concrete manhole systems are typically assembled in the field. ADS Water Quality technical personnel are available to visit the project site and coordinate a pre-construction meeting to minimize the potential for



installation errors in both the HP and Concrete Manhole options. To prevent systems from being installed backwards, both the inlet and outlet pipe stub-outs on all units are clearly labeled prior to shipment from fabrication facility.

The screen components to the Barracuda are factory installed and attached to the Barracuda bowl piece prior to being shipped to the job site.

Prior to the delivery of the Barracuda unit, the Contractor and Owner are provided with design drawings and fabrication drawings, which are signed off by the Contractor and design Engineer. These details have specific details for the installation of the Barracuda unit specified for the site. These “construction drawings will help to minimize any installation errors. Should an error be encountered, ADS should be contacted to advise on the necessary corrective action.



Figure 1: Barracuda Diagram and Pillow Bag Photo



5.0 Operation and Maintenance Information

5.A. Inspection procedures and frequency considerations.

Periodic inspection is needed to determine the need for and frequency of actual maintenance. An Owner should begin inspecting as soon as construction is complete and thereafter on an annual basis. Typically, the system needs to be cleaned every 1-3 years when sediment is the concern. Excessive oils, fuels or sediments may reduce/shorten the time of the maintenance cycle. Periodic inspection is important to the long-term performance of the Barracuda unit and trash considerations should be accounted for in the inspection timeline process.

To determine the sediment depth, the maintenance contractor should lower a stadia rod into the manhole until it contacts the top of the captured sediment and mark that spot on the rod. Then push the probe through to the bottom of the sump and mark that spot to determine sediment depth. Please refer the Appendix C Inspection and Maintenance Manual.

For Trash removal, depending on the site, it is recommended to inspect the unit every 3 months for the first year of operation and adjust based on the visual inspection. The removal of trash can be a subjective decision, but if little to no area (i.e., visually 90% of the swirl bowl side) is observed to be covered with trash under a static condition (i.e., water not moving in the unit), then it is recommended to remove the “free floating” trash from the unit using a skimmer device. The owner may choose to remove floating debris on a more frequent basis.

5.B. Description of maintenance frequency considerations related to the device’s hydraulic capacity at various levels of trash capture volumes.

If the downstream trash cap on the outlet side of the Barracuda bowl is observed to be 50% blocked by trapped debris, a total O&M with a drain down of the unit is recommended.

5.C. Maintenance procedures, including procedures to clean the trash capture screen.

Like any system that collects pollutants, the ADS Barracuda must be maintained for continued effectiveness. Maintenance is a simple procedure performed using a vacuum truck or similar equipment. The systems are designed to minimize the volume of water removed during routine maintenance, reducing disposal costs.

Contractors can access the pollutants stored in the manhole through the manhole cover. This allows them to gain vacuum hose access to the bottom of the manhole to remove sediment and trash. There is no confined space entry necessary for inspection or maintenance. The entire maintenance procedure typically takes from 1 to 3 hours, depending on the size of the system, the captured material, and the capacity of the vacuum truck. Recommended equipment include: a vactor truck with a boom and section of flexible hose (typically 3-5ft), skimmer equipment, and a pressure hose/wand. The pressure hose is used to help dislodge any substantial material attached to the trash screens within the unit.

Local regulations may apply to the maintenance procedure. Safe and legal disposal of pollutants is the responsibility of the maintenance contractor. Maintenance should be performed only by a qualified

contractor. In most O&M applications it is recommended to fill the unit back up with water to the effluent invert mark. Again, see Appendix C Inspection and Maintenance Manual.

5.D. Essential equipment and materials for proper maintenance activities.

Recommended equipment include: a vactor truck with a boom and section of flexible hose (typically 3-5ft), skimmer equipment, and a pressure hose/wand.

5.E. Description of the effects of deferred maintenance on device structural integrity, performance, odors, etc.

Delayed maintenance could diminish performance in terms of flow conveyance or effluent water quality if the trash and/or sediment retention capacity is exceeded. Blocking flow from excessive debris will lower the flow rate of unit and could cause the system to have an elevated hydraulic grade line, beyond the Civil Engineer's original design. Removal efficiencies of TSS could also decrease (worsen) as the unit continues to take on sediment and debris due to a loss of available storage area in the sump of the structure.

As far as the effects of delayed maintenance on the device's structural integrity, it would depend on the materials captured and the effect it could have on the unit's internal components. The HDPE bowl and the stainless steel teeth and screens are basically inert and non-reactive when coming into contact with traditional stormwater runoff. Delayed maintenance could result in anaerobic or anoxic conditions within the unit. Such conditions can promote the formation of hydrogen sulfide, which will degrade concrete, especially at the water line within the unit. These conditions can create noxious odors from the unit itself, as well.

5.F. Repair procedures for the device's structural and screening components.

For repair to be needed to an installed unit, something catastrophic would have had to happen for repair to be necessary. The manhole cone or top slab would have to be removed to replace the weir bowl. The rails and fins for the bottom section of the unit can be unbolted and replaced by drilling new anchors. Replacement parts are available from ADS.



6.0 Vector Control Accessibility

6.A Application Date

March 1, 2019

See Appendix F.

6.B Video

Video Link

<https://www.adspipe.com/resources/video-library>

Mosquito and Vector personnel can use manhole access point to visually inspect for mosquito and vector activity. This manhole access can be used as well to introduce the application of larvicide pellets, briquettes or liquid sprays. For Mosquito Vector Control personnel to access the bottom of the device, they will remove the manhole lid, from which they will have open access to the bottom sump of the structure through the Bowl center orifice (See Appendix A and C for details, information and photographs). For areas of the country that require mosquito and vector management, ADS will utilize manhole covers are solid and are sealed with gaskets. East Jordan Ironworks is the primary manhole cover supplier for ADS's Barracuda units. We will utilize "water tight" gasketed manhole covers for the California market. These types of manhole covers are typically used in the sanitary sewer market and are readily available in California (see link for such options).

<https://www.ejco.com/am/en/products/manholeCoversAndFrames>

6.C MVCAC Letter.

See Appendix F.



7.0 Reliability Information

7.A. Estimated design life of device components before major overhaul.

The ADS Barracuda has an estimated 75yr design life. This is based on the service life of the concrete manhole being the limiting factor. See section 3.J.

7.B. Warranty Information:

ADS provides a one-year limited warranty for each device (Appendix D).

7.C. Customer Support Information:

ADS has a nationwide support team with local field sales and engineering representatives and product managers. The local sales or engineering manager can be reached at 1-800-821-6710 or by accessing the ADS website at <https://www.adspipe.com/support/location-and-rep-finder>.



8.0 Field/Lab Testing Information and Analysis

8.A. Field/Lab Testing Information.

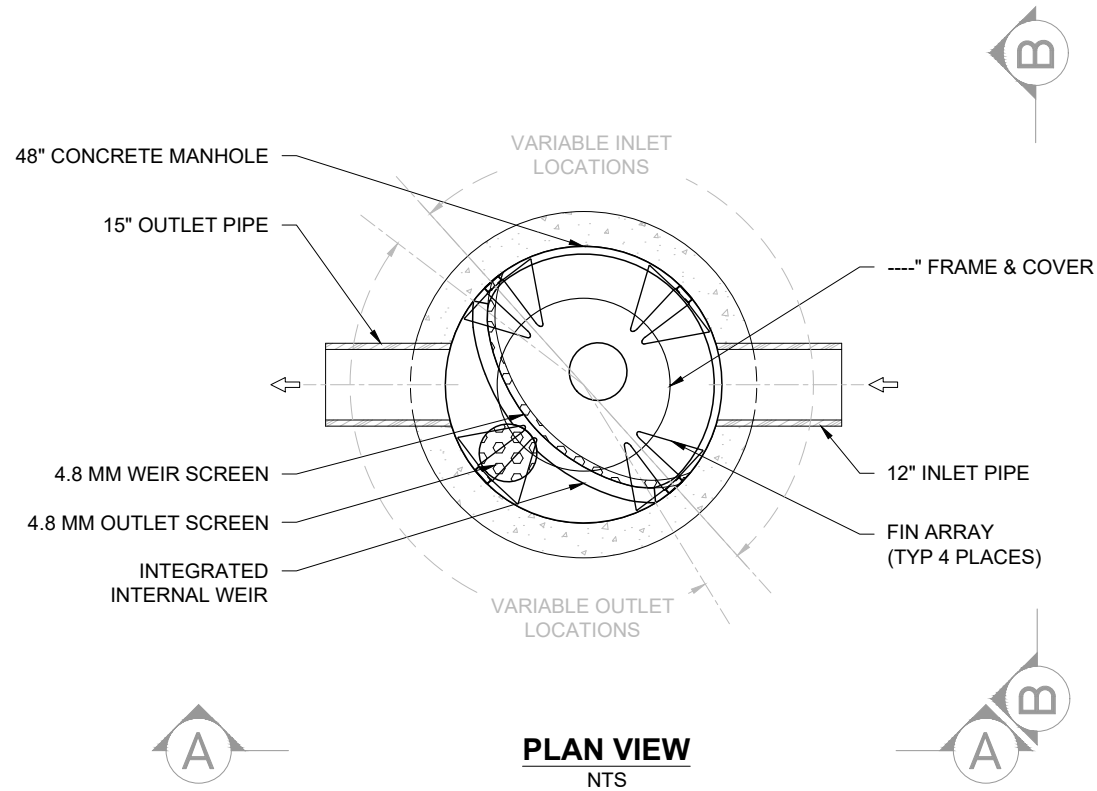
Appendix E includes the ADS/BaySaver testing report titled “*Laboratory Testing of BaySaver Barracuda for Gross Pollutant Retention*”. As a full scale and commercially available model, the ADS Barracuda S4 was tested in the presence of an independent observer, Boggs Environmental Consultants, to assess its capability of retaining gross pollutant that is 5 mm or greater. The S4 test unit utilized a GP retention screen (4.8-mm opening) to extend the weir wall 15 inches in height and incorporated a screened cylinder with cap on the top located at the 10-inch effluent opening to capture the GP material and prevent them from escaping the unit.

Three 15-minute GP retention test runs were conducted at flow rates ranging from 0.625 cfs to 2.50 cfs. The GP material used in the test represent those found in stormwater runoff, including cardboards, newspaper, cigarette butts, cloth, aluminum can, aluminum foil, plastic, Styrofoam and wood. The ratios and quantities of GP were based on the specification outlined in the Caltrans document titled “Laboratory Testing of Gross Solids Removal Devices” by Bassam A. Younis, Professor, Department of Civil and Environmental Engineering, UC Davis, May 2005, Report #CTSW-RT-05-73-18.1. This retention test demonstrated that the Barracuda unit with the GP retention screen achieved 100% retention rate and qualifies as a full-capture device under the California Trash TMDL.

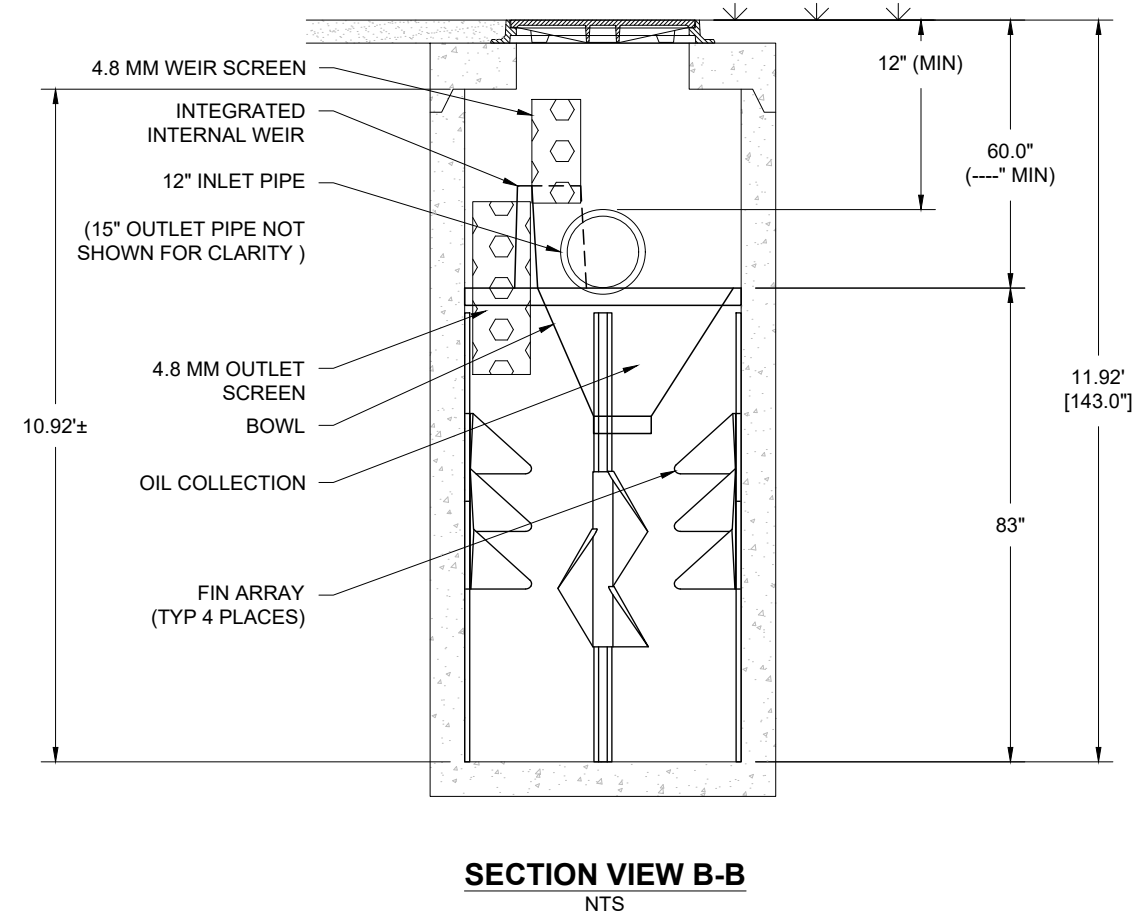
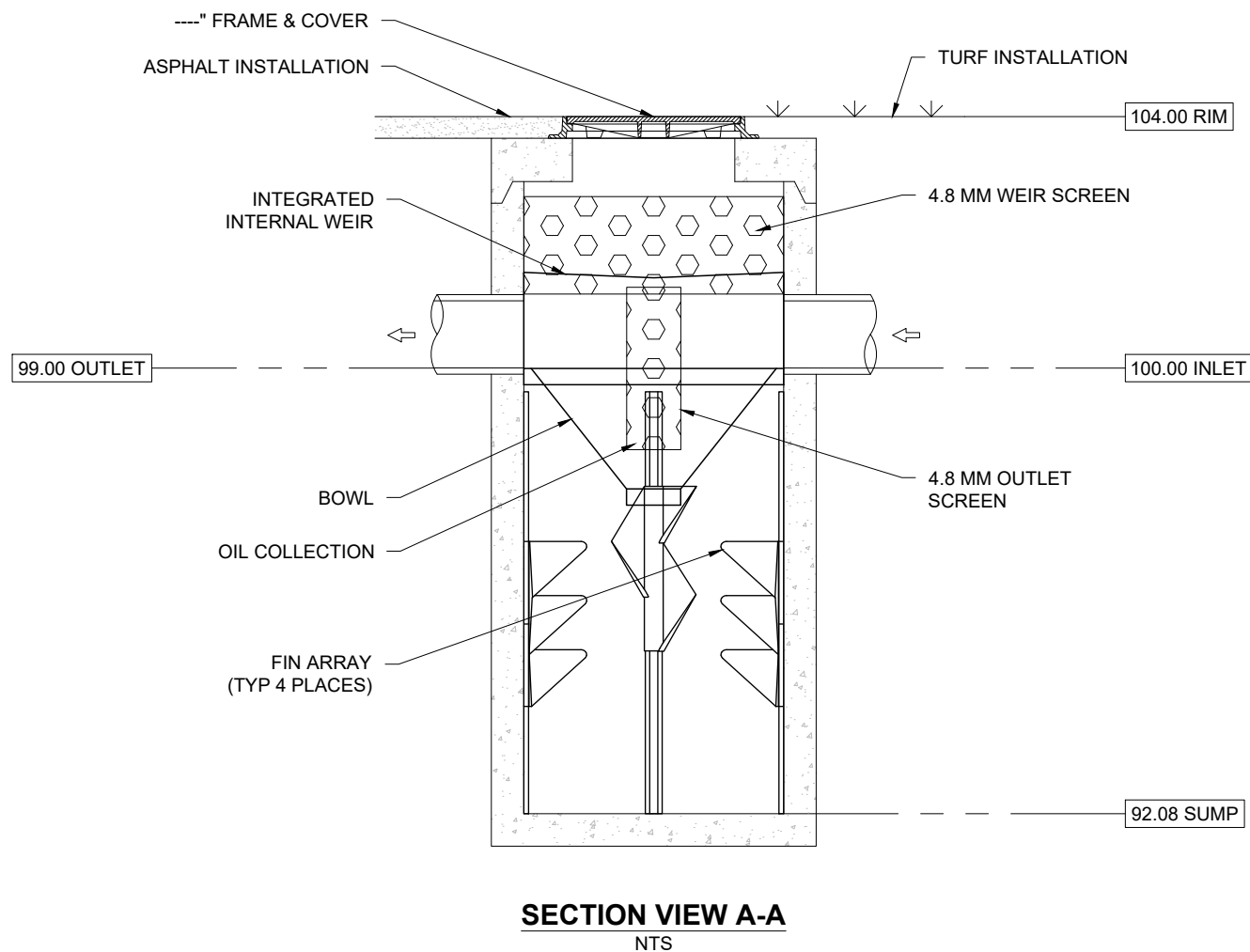
8.B. Field/Lab Testing Information for Device Without 5mm Screen

N/A

APPENDIX A



BARRACUDA S4	
UNIT ID	SW#1
PEAK FLOW RATE (CFS)	
TREATMENT FLOW RATE (CFS)	



BARRACUDA S4	
STANDARD DETAIL	
DATE: 10/20/17	DRAWN: EKH
PROJECT #:	CHECKED: ---

REV	DWN	CKD	DESCRIPTION

1030 Deer Hollow Drive
Mount Airy, MD 21771

1-800-BAYSAVER
1-800-229-7283

ADS
ADVANCED DRAINAGE SYSTEMS, INC.

4640 TRUEMAN BLVD
HILLIARD, OH 43026

NOT TO SCALE

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APPENDIX B

Installation Guide










BaySaver Barracuda® S4, S6, S8 Concrete Installation Guide

June 2020

This installation guide is reference for installing the Barracuda S4, S6, S8 Water Quality Units into a precast concrete structure in the field.

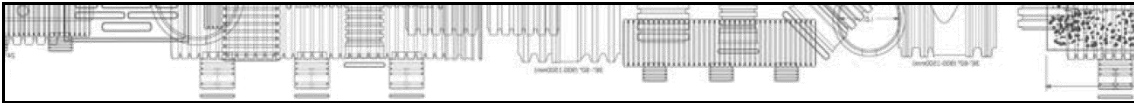
The components of the Barracuda Concrete Package are as follows:



S4	 (4) Stainless Steel Funnel Mounting Flanges	 (1) Roll of Conseal	 (14) Concrete Anchor ¼ x 2¼"
S6	 (4) Stainless Steel Funnel Mounting Flanges	 (3) Roll of Conseal	 (14) Concrete Anchor ¼ x 2¼"
S8	 (8) Stainless Steel Funnel Mounting Flanges	 (4) Roll of Conseal	 (18) Concrete Anchor ¼ x 2¼"

Please check that all components are on site. Below is a list of tools that may be required for installation.

- 1/4" Diameter Carbide Tipped Concrete Bit
- Standard Electrical or Battery Operated Drill
- Adjustable Wrench
- Marker for writing on the concrete wall
- Hammer Drill for Concrete (Fits the 1/4" Diameter Concrete Drill Bit)
- 7/16" Driver or deep socket for installation of provided ¼" Concrete Wedge Anchors.
- Hammer
- Level
- Ladder that will extend to bottom of the structure
- Safety Glasses
- Hard Hat
- Protective Gloves
- Site Drawings
- ADS Design Layout



Installation Instructions (These directions assume the manhole base and riser have been assembled, but that the top slab has not been set).

*Do not insert the inlet or outlet pipes until after the Barracuda internals have been installed. If pipes must be inserted in advance, the pipes should not protrude into the structure as they will interfere with installation of the bowl.

1. Mount the four sets of teeth vertically inside the manhole sump. Using the engineer's plans or the ADS layout, determine the correct orientation for the plastic funnel outlet hole in relation to the outlet pipe (Figures 1 and 4). The first set of teeth will be mounted under the center of the outlet hole. Mark that location with a plumb vertical line, this will serve as the "12 o' clock" landmark in the manhole. Repeat this process to mark lines at the 3, 6, and 9 o' clock positions for a total of four.
2. Each kit includes four sets of teeth. Two of these sets are stamped with the letters A and C. The other two sets are stamped B and D. The ADS layout will label each tooth set location with the letter A, B, C, or D (Figure 4). You will install each set of teeth in the correct location, with the indicated letter facing up (figure 3). See Table 1 for the correct elevation for the top anchor location of each tooth set, measured from the sump floor. For example, for an S4 Barracuda the top anchor of an A or D indicated set of teeth will be 50" off the sump floor. Mark the top anchor elevations on each of your four vertical lines (figure 2), noting that A or D sets of teeth will be at a different height than B or C sets.
3. To fasten the sets of the teeth to the manhole, use the $\frac{1}{4}$ " concrete drill bit and drill holes approximately 1.25" deep at your marked top anchor locations. Using a hammer, lightly tap the concrete anchors into the drilled holes (figure 3). Hang the tooth set on the top anchor with the correct letter facing up and use a locking nut to loosely secure the tooth set to the wall (do not fully tighten the locking nut at this point). With the set of teeth hanging from the top anchor, line up and mark the bottom anchor location and drill the hole. Then hammer the bottom anchor in place and secure the teeth with a lock nut. Use an adjustable or socket wrench to tighten the top and bottom locking nuts so that the teeth are firmly secured to the wall (figure 5). Use the same process for all four sets of teeth.



Figure 1



Figure 2



Figure 3

Figure 4

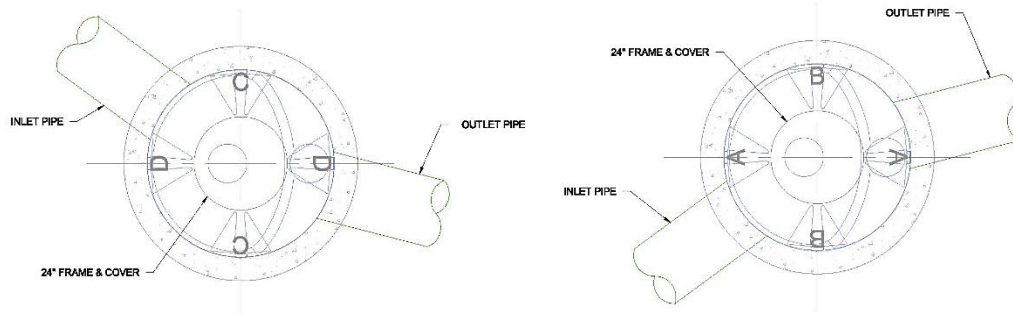


Figure 5

4. Next, you'll install mounting flanges for the Barracuda plastic funnel. These flanges need to be installed at the same height, as indicated by model in Table 1. For example, the anchor holes for S4 flanges should be drilled 77" from the sump floor. S4 and S6 models have four flanges and the need to be evenly spaced at 12, 3, 6, and 9 o'clock positions. S8 funnels require eight flanges that also need to be evenly spaced around the inside of the manhole. Use the same anchor procedure as before, using the 1/4" concrete drill bit to drill 1.25" deep holes. Hammer the anchors in place and use locking nuts to firmly secure the flanges (figure 6).
5. Lower the plastic funnel into the structure (figure 7), orienting the weir and outlet hole as depicted in the ADS layout (as identified in step 1). S6 and S8 units have eyebolts on the top of the funnel to assist in lifting. If the eyebolts are misplaced, S6 units have 3/8"-16 threads and S8 units utilize 1/2"-13 threads.
6. Next, you'll use Conseal to fill any gaps around the funnel. S6 and S8 units are provided with a metal funnel plug. This plug is placed in the funnel opening for worker safety and must be utilized ANYTIME SOMEONE ENTERS THE STRUCTURE. Unroll the Conseal and wedge it between the funnel and manhole to create a seal (figure 8). Conseal should also be used to seal between the vertical edges of the weir wall and the manhole. The plastic funnel can expand with high temperature. Installing the funnel during cooler parts of the day, or keeping the funnel shaded until installation can mitigate fitment issues. Once the Conseal is installed, the internal component installation is complete. The funnel plug may be discarded (if applicable), and the top slab can be set. If the application calls for a grated inlet, orient the slab so the grate is above the inlet (large bowl) side of the plastic funnel.

For maintenance details, please refer to the Barracuda Maintenance Manual. If the application requires a trash rack or oil boom, reference the appropriate supplementary installation instructions.



Figure 6



Figure 7



Figure 8

Table 1

	S4	S6	S8
Top Anchor Elevation from Sump Floor (A or D tooth indication)	50" (1270 mm)	58" (1475 mm)	74" (1880 mm)
Top Anchor Elevation from Sump Floor (B or C tooth indication)	60" (1525 mm)	68" (1725 mm)	90" (2285 mm)
Funnel Flange Anchor Elevation from Sump Floor	77" (1960 mm)	77" (1960 mm)	127" (3220 mm)

Note: distances can be +/- 1-2inches (25-50mm) from these locations for the A, D, B, and C teeth, but flange elevations should be adhered to as much as possible and can only be lowered a maximum of 1inch (25mm) from these values listed above. This guide is intended for field installations of Barracuda S4, S6, and S8 water quality units into precast manholes. For pre-casters installing internal components prior to jobsite delivery, contact ADS for possible modifications to component elevations.

APPENDIX C

Maintenance Guide

BaySaver Barracuda™

July 2017

One of the advantages of the BaySaver Barracuda is the ease of maintenance. Like any system that collects pollutants, the BaySaver Barracuda must be maintained for continued effectiveness. Maintenance is a simple procedure performed using a vacuum truck or similar equipment. The systems were designed to minimize the volume of water removed during routine maintenance, reducing disposal costs.

Contractors can access the pollutants stored in the manhole through the manhole cover. This allows them to gain vacuum hose access to the bottom of the manhole to remove sediment and trash. There is no confined space entry necessary for inspection or maintenance.

The entire maintenance procedure typically takes from 2 to 4 hours, depending on the size of the system, the captured material, and the capacity of the vacuum truck.

Local regulations may apply to the maintenance procedure. Safe and legal disposal of pollutants is the responsibility of the maintenance contractor. Maintenance should be performed only by a qualified contractor.

Inspection and Cleaning Cycle

Periodic inspection is needed to determine the need for and frequency of maintenance. You should begin inspecting as soon as construction is complete and thereafter on an annual basis. Typically, the system needs to be cleaned every 1-3 years.

Excessive oils, fuels or sediments may reduce the maintenance cycle. Periodic inspection is important.

Determining When to Clean

To determine the sediment depth, the maintenance contractor should lower a stadia rod into the manhole until it contacts the top of the captured sediment and mark that spot on the rod. Then push the probe through to the bottom of the sump and mark that spot to determine sediment depth.

Maintenance should occur when the sediment has reached the levels indicated in the Storage Capacity Chart.

BaySaver Barracuda Storage Capacities

Model	Manhole Diameter	Treatment Chamber Capacity	Standard Sediment Capacity (20" depth)	NJDEP Sediment Capacity (50% of standard depth)
S3	36"	212 gallons	0.44 cubic yards	0.22 cubic yards
S4	48"	564 gallons	0.78 cubic yards	0.39 cubic yards
S5	60"	881 gallons	1.21 cubic yards	0.61 cubic yards
S6	72"	1269 gallons	1.75 cubic yards	0.88 cubic yards
S8	96"	3835 gallons	3.10 cubic yards	1.55 cubic yards
S10	120"	7496 gallons	4.85 cubic yards	2.43 cubic yards

Maintenance Instructions

1. Remove the manhole cover to provide access to the pollutant storage. Pollutants are stored in the sump, below the bowl assembly visible from the surface. You'll access this area through the 10" diameter access cylinder.



2. Use a vacuum truck or other similar equipment to remove all water, debris, oils and sediment. See figure 1.
3. Use a high pressure hose to clean the manhole of all the remaining sediment and debris. Then, use the vacuum truck to remove the water.
4. Fill the cleaned manhole with water until the level reaches the invert of the outlet pipe.
5. Replace the manhole cover.
6. Dispose of the polluted water, oils, sediment and trash at an approved facility.
 - Local regulations prohibit the discharge of solid material into the sanitary system. Check with the local sewer authority for authority to discharge the liquid.
 - Some localities treat the pollutants as leachate. Check with local regulators about disposal requirements.
 - Additional local regulations may apply to the maintenance procedure.

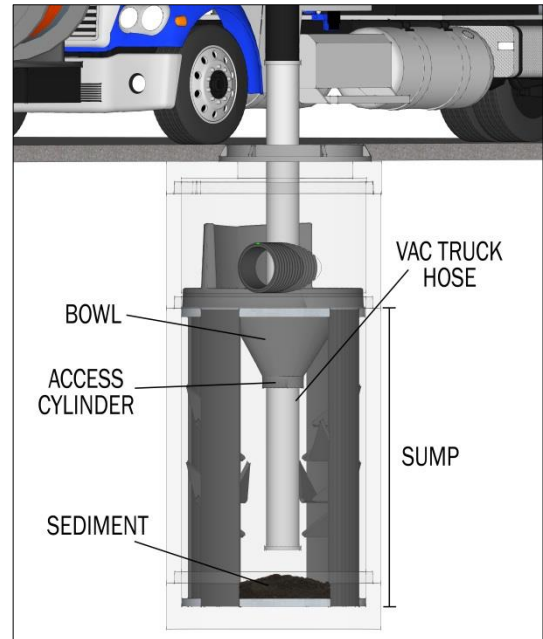


Figure 1



APPENDIX D



BaySaver Products Warranty

Manufacturer's Limited Warranty

All Products manufactured by BaySaver Technologies are warranted for a period of one (1) year to be free of any material and manufacturing defects. This applies only to Separators and Filter Cartridges manufactured by BaySaver Technologies and does not include Precast Concrete Components or other Components not Manufactured by BaySaver Technologies. This warranty is limited to providing a replacement unit (the same or equivalent) and does not include any installation or other costs associated with its replacement. This warranty does not extend to product defects or system failures due to improper installation, lack of maintenance, or improper system design.

APPENDIX E

LABORATORY TESTING OF BAYSAVER BARRACUDA FOR GROSS POLLUTANT RETENTION

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August 2, 2018

Laboratory Testing of BaySaver Barracuda for Gross Pollutant Retention

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I.) INTRODUCTION:

Gross Pollutants (GP) are large pieces of wash-off solid waste that is flushed through urban stormwater drainage systems. They are commonly referred as “trash” and floatable debris. According to the Caltrans document, “Laboratory Testing of Gross Solids Removal Devices (CTSW-RT-05-73-18.1), gross pollutants are defined as solid objects greater than 5 mm. GP generally consists of litter, debris and coarse materials including plastic, metal, paper, Styrofoam, wood and glass. GP should be captured before they clog the drainage network and degrade aquatic habitats downstream. This report outlines the laboratory testing methodologies and presents the testing results of gross pollutants retention testing for the BaySaver Barracuda unit. Boggs Environmental Consultants (BEC) was hired by Advanced Drainage Systems (ADS) in July of 2018, to serve as an independent observer of the entire test and evaluate the capability of GP retention by Barracuda S4, a full scale commercially available model.

The BaySaver Barracuda Hydrodynamic Separator (BaySaver Barracuda) is a manufactured stormwater treatment device that removes suspended solids and floatables, including gross pollutants commonly found in stormwater runoff. The device is an insert that can be installed in either Polypropylene structure or concrete vault, and consists of a cone (vortex separator), meshed screen and teeth (angular baffles in the sump area).

Flows introduced to the separator unit first encounter the cone-shaped (vortex) device inside, which allows particles with greater density than the surrounding water to move to the center of the device, where they settle to the bottom. A weir prevents inflowing water from bypassing the vortex separator. The teeth affixed to the inside walls of the unit reduce the velocity of the water in the vortex flow pattern below the cone and effectively reduce re-suspension of sediment in the sump, allowing the accumulated sediment to be retained within the unit. This test unit also includes a 7.5 square foot 5 mm screen over the weir wall and a 10-inch diameter screened cylinder with screened cap on the top. Diagrams of the Barracuda S4 Separator unit are provided in Figures 1 and 2.

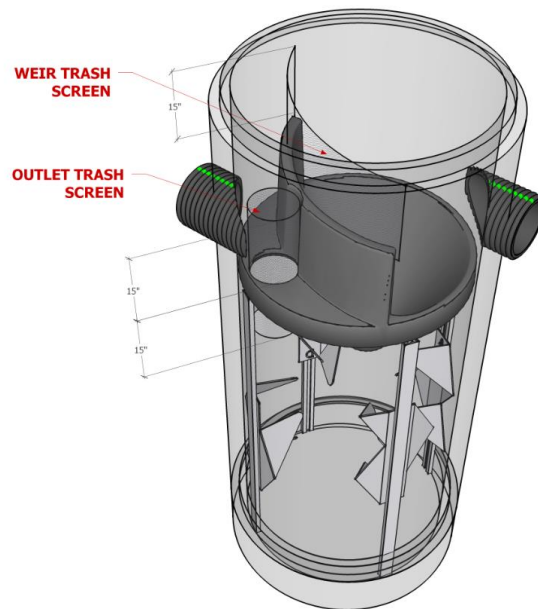


Figure 1: BaySaver Barracuda S4 Separator Test Unit

The Barracuda Separator unit uses 5mm perforated steel screening as the dominant mechanism to trap the GP and prevent them from being transported to downstream receiving waters. The cone incorporated with the perforated steel screen affixed to the weir wall functions as a storage chamber to allow continual capture of floatable gross pollutants, even during the peak flows. The suspended non-buoyant materials can settle to the bottom of the sump when flow diminishes. The top of the screened cylinder is capped horizontally and inserted into the outflow opening to prevent the trapped GP from escaping into the effluent chamber behind the weir wall. The total screened area in the tested Barracuda S4 design is 14.6 square foot. For larger Barracuda units the square footage of screen will increase (i.e., due to the increased diameter of the manholes).

The Barracuda Separator S4 (see plan and profile views detail, Figure 2) was tested at the Mid-Atlantic Storm Water Research Center (a subsidiary of BaySaver) in Mount Airy, Maryland, to confirm the retention rate of GP conducted under controlled conditions at each of three flow rates during the testing period July 18 through July 20, 2018. Flow rates were varied from 0.31 cfs to 2.5 cfs. Boggs Environmental Consultants (BEC) personnel were present for all testing, for the purpose of observation of all procedures and analyses, review of data collection, record keeping, calculations, and confirmation of the test procedures.

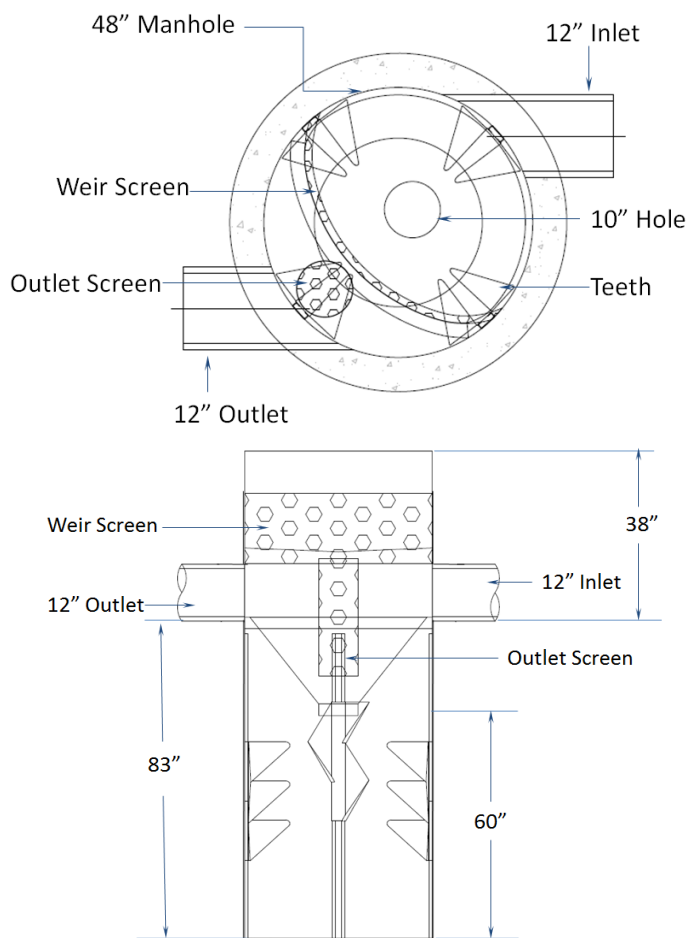


Figure 2: Views of the Barracuda S4 Separator Test Unit

II.) PROCEDURE

The setup, portrayed in Figures 3A and 3B below, consists of reservoir tanks, feed basin, pumps, flow control valves, discharge tank, Barracuda S4 Separator, flow meter, and temperature probe. For proper flow rate control, the separate feed supply is provided for both low flow rate tests and high flow rate tests.

Feed Supply For Low Flow Rate Tests (≤ 1 cfs, Figure 3A):

Feed water for the BaySaver Barracuda S4 Separator test unit is supplied from the “Frac” or holding storage Tank 1 through a Godwin 8-horsepower (hp) pump into the flow line at the top of Figure 3A. Flow rate is controlled using a throttling valve located on the discharge side of the pump.

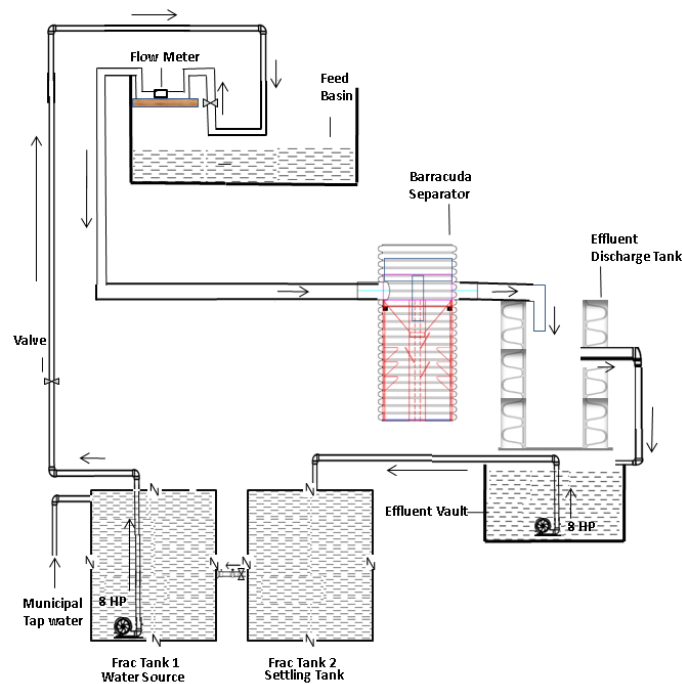


Figure 3A: Diagram of the Barracuda S4 Separator Test Facility for Low Flow Rate Tests

Feed Supply For High Flow Rate Tests (>1 cfs, Figure 3B):

Feed water for the BaySaver Barracuda S4 Separator test unit is supplied from Frac Tank 1 and metal tank, then into the Feed Basin, from which the 27hp Flygt Pump supplies the feed water to the influent pipe 18 feet upstream of the test unit. Flow rate is controlled by the throttling valve on the discharge side of the pump.

Process Description for All Flow Rate Tests:

For all testing, flow rate was measured using a FloCat MFE electromagnetic flow meter and recorded once per minute by a SeaMetrics DL76 data logger. The flow meter was installed approximately 33 feet upstream of the Barracuda S4 Separator in a “U” configuration, according to manufacturer recommendations to ensure a pipe-full condition.

August 2, 2018 BaySaver Technologies, LLC.

Laboratory Testing of BaySaver Barracuda for Gross Pollutant Retention

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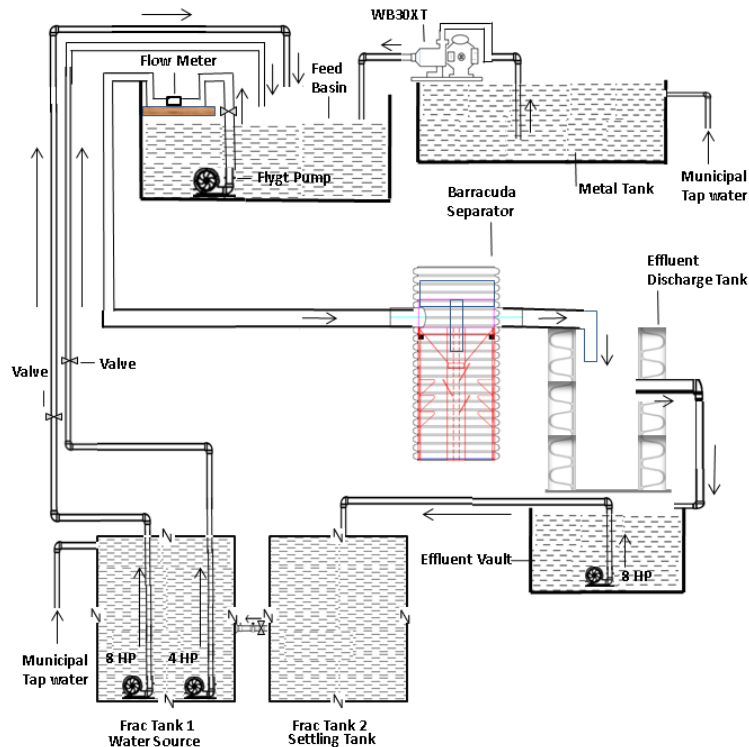


Figure 3B: Diagram of the Barracuda S4 Separator Test Facility for High Flow Rate Tests

As detailed earlier, the Barracuda S4 Separator Unit consists of a vortex separator with side wall “teeth,” as indicated in Figures 1 and 2. The Barracuda S4 unit is 121 inches in height and 48 inches in diameter. Influent and effluent piping to the Barracuda S4 unit are 12 inches in diameter and at approximately the same inlet/outlet elevations (approximately 73 inches above the unit floor). The total sedimentation area of this unit is 7.1 ft² and the maximum treatment flow rate (MTFR) was determined to be 1.25 cfs (561 gpm).

A polyethylene mesh net (1 mm opening) was placed at the end of the effluent pipe where the treated water discharges into the effluent discharge tank. A HOBO temperature probe was placed within the effluent discharge tank. Water temperature measurements were recorded once per minute during each test run.

III.) TEST GROSS POLLUTANTS MIX COMPOSITION

The test GP used for this testing program was a mixture of gross solids prepared by BaySaver. The types of the simulated GP and ratio of the test materials is based on the specification outlined in the Caltrans document titled, “Laboratory Testing of Gross Solids Removal Devices” by Bassam A. Younis, Professor, Department of Civil and Environmental Engineering, UC Davis, May 2005, Report #CTSW-RT-05-73-18.1. The recipe and preparation of test GP were under the supervision of the independent observer, Boggs Environmental Consultants. Table 1 below lists the simulated GP composition, based on the mass percentage of GP for each type recommended in the Caltrans document mentioned above. Table 2 below indicates the number of GP pieces for each of the three retention test

runs.

Table 1. Gross Pollutants Composition

Type of GP by Caltrans	GP mass % by Caltrans	Type of GP in test	GP mass % in test
Cardboard	11	Shredded Cardboard	11.4
Cigarette butts	14	Cigarette butts (new)	7.4
		Cigarette butts (used)	7.1
Cloth	7	Cloth strips	7.0
Metal (foil and molded)	8	Aluminum can strips	4.1
		Aluminum foil ball	2.0
		Aluminum foil strips	2.0
Paper	16	Shredded newspaper	16.2
Plastic-film	6	Plastic film strips	6.1
Plastic-moldable	22	Plastic cup strips	22.6
Styrofoam	4	Styrofoam peanuts	2.0
		Shredded Styrofoam cups	2.0
Wood	10	Wooden popsicle sticks	10.0
Sum			100.0

Table 2. Gross Pollutants in Pieces for Each Run

Type of GP in test	Run 1 # of pieces	Run 2 # of pieces	Run 3 # of pieces
Shredded Cardboard	25	50	75
Cigarette butts (new)	240	480	720
Cigarette butts (used)	67	134	201
Cloth strips	12	24	36
Aluminum can strips	18	36	54
Aluminum foil ball	12	24	36
Aluminum foil strips	12	24	36
Shredded newspaper	141	282	423
Plastic film strips	49	98	147
Plastic cup strips	82	164	246
Styrofoam peanuts	80	160	240
Shredded Styrofoam cups	16	32	48
Wooden popsicle sticks	22	44	66

IV.) GROSS POLLUTANTS RETENTION TEST

The GP retention test was conducted at three different flow rates: 50%, 100% and 200% of Maximum Treatment Flow Rate (MTFR) (0.625 cfs – 2.50 cfs). The tested GP material was contained in the three separate 5-gallon (0.67 cubic foot) buckets, based on the recipe listed in Table 2. For each of the three sequential GP retention runs, 5 gallons of GP material was preloaded into the standing water of the treatment area (influent side of cone and screen wall) prior to initiating flow. The standing water level in the unit before the commencement of test corresponds to the invert elevation of both influent and effluent piping. It should be noted that the three test runs were conducted on a cumulative GP loading basis. In other words, the second run included the 5 gallons of GP material from the first run and 5 gallons of GP material added for the second run. Likewise, the third run included the addition of 5 gallons of GP material and the 10 gallons of GP retained from the previous two runs. The entire test including GP material preparation, test setup, all three retention test runs and the GP inventory after the test was under the direct observation of Boggs Environmental Consultants (BEC). A copy of the BEC report for this GP retention testing program is attached at the end of this report.

GP Retention Run 1 at 0.625 cfs (50% MTFR)

Before the initiation of the run, the test unit was preloaded with 5 gallons of GP material consistent with the GP recipe given in Table 1 and 2. The preloaded GP content was stirred gently to ensure a reasonably even distribution of the test material across the treatment area of the swirl chamber (Figure 4).



Figure 4: Test GP material preloading for run 1

Following pre-loading the first 5 gallons of GP material, the test commenced by conveying municipal tap water from the Frac Tanks through the test unit at 50% MTRF. As mentioned previously, the flow rates were recorded continuously, once per minute and remained constant at the target 50% MTRF for 15 minutes in duration. The pump was deactivated after 15 minutes of the run. The run was considered complete when the circulation in the swirl chamber stopped, allowing the next run to begin. No GP material was observed in the effluent or captured in the discharge net after GP Retention Run 1's completion.

GP Retention Run 2 at 1.250 cfs (100% MTRF)

After the first run was completed, a second 5 gallons of GP material was added to the swirl chamber and stirred as described above (Figure 5). The floatables including Styrofoam peanuts, popsicle sticks, cigarette butts, and foam cups present on the water surface in the swirl chamber while some cardboards, plastic strips and new paper strips sank to the bottom of the cone. Flow was started and increased to achieve 100% of MTRF for the second GP Retention Run. Once the flow was stable, time-keeping started, and the run lasted 15 minutes. After two runs finished, no GP material was observed in the effluent during the test period. No GP material was captured in the discharge net after second run was completed.



Figure 5: Test GP material preloading for run 2

GP Retention Run 3 at 2.500 cfs (200%MTFR)

The third 5 gallons of GP material was poured into the treatment chamber and stirred (Figure 6). Some plastic films, foam cups, Styrofoam peanuts, cardboards, cigarette butts and newspaper strips attached loosely on the screen wall after the second retention run. Flow was increased until 200% of MTFR was reached and testing continued for 15 minutes. After three runs finished, no GP material was observed in the effluent or the discharge net.



Figure 6: Test GP material preloading for run 3

GP Retention Test Flow Rate and Water Temperature

For the three cumulatively loaded GP Retention Test Runs, the target flow rates were 0.625 cfs, 1.25 cfs and 2.50 cfs. The average flow rate during each test run was within $\pm 10\%$ of the target, with a maximum coefficient of variation (COV) of 0.03. The average test water temperature measured during three test runs was 79.1°F. Flow data and temperature results are summarized in Table 3 and Table 4. As intended, the system operated at relatively consistent driving head throughout the test process for each run. The system did not exceed the maximum available hydraulic head for the test unit, which is 38 inches from invert.

Table 3: Flow Rate for Barracuda S4 Separator GP Test

Run #	Target Flow Rate (cfs)	Max Flow Rate (cfs)	Min Flow Rate (cfs)	Ave Flow Rate (cfs)	COV
1	0.625	0.648	0.602	0.635	0.016
2	1.250	1.376	1.308	1.318	0.012
3	2.500	2.560	2.284	2.500	0.030
Mean					0.019

Table 4: Water Temperature for Barracuda S4 Separator GP Test

Run #	Measured Flow Rate (cfs)	Max Temp (°F)	Min Temp (°F)	Ave Temp (°F)	COV
1	0.635	79.7	77.1	78.5	0.011
2	1.318	79.9	79.4	79.6	0.002
3	2.500	79.6	78.4	79.1	0.006
Mean				79.1	0.006

Trash Inventory

After the completion of the three GP Retention Test Runs, the Barracuda S4 was drained of water, and the GP material for all three runs was inventoried and arranged by GP type as shown in the Figure 7 and Figure 8. The number of pieces of post-test materials for each type matched to those added in the three runs in total. Therefore, 100% of the GP that was added to the test unit was retained within the Barracuda unit during and after the three retention runs.



Figure 7A: Inventory of post-testing GP material by GP type



Figure 7B: Inventory of post-testing GP material by GP type

V.) CONCLUSIONS

The BaySaver Barracuda S4 GP retention testing was performed at the Mid-Atlantic Stormwater Research Center facility under the direction of an independent observer, Boggs Environmental Consultants. In addition to the standard S4 configuration, the S4 test unit utilized a GP retention screen (5-mm opening) to extend the weir wall 15 inches in height and incorporated a screened cylinder with cap on the top located at the 10 inch effluent opening to capture the GP material and prevent them from escaping the unit.

Three 15 minute GP retention test runs were conducted at flow rates ranging from 50% of MTRF to 200% of MTRF. The GP material used in the test represent those found in stormwater runoff, including cardboards, newspaper, cigarette butts, cloth, aluminum can, aluminum foil, plastic, Styrofoam and wood. The ratios and quantities of GP were based on the specification outlined in the Caltrans document titled “Laboratory Testing of Gross Solids Removal Devices” by Bassam A. Younis, Professor, Department of Civil and Environmental Engineering, UC Davis, May 2005, Report #CTSW-RT-05-73-18.1. This retention test demonstrated that the Barracuda unit with the GP retention screen achieved 100% retention rate and qualifies as a full-capture device under the California Trash TMDL.

All Barracuda pretreatment systems are designed according to site-specific conditions such that the design treatment capacity is not less than the peak flow resulting from a one-year, one-hour storm in the sub-drainage area based on the rational equation. The Barracuda system must be regularly inspected and serviced to continually maintain adequate flow through capacity. A Barracuda sizing chart is shown below in Table 5.

Table 5. Barracuda GP Retention Sizing Chart

Model	Diameter (ft)	MTRF (cfs)	Screen Area (ft²)
S3	3	0.70	11.2
S4	4	1.25	14.6
S5	5	1.95	18.0
S6	6	2.80	22.3
S8	8	5.00	30.3
S10	10	7.80	37.6

VI.) APPLICANT PROFILE

ADS and BaySaver Technologies' goal is to help keep public waterways safe from the harmful debris and pollutants associated with stormwater runoff. Through industry-leading innovation, quality technology, and unmatched customer service, we empower engineers to employ state-of-the-art a market-changing stormwater quality technology. Clean water is critical to quality of life. BaySaver Technologies is committed to protecting our water resources through continued innovation, extensive research, and quality products. We offer stormwater treatment systems that are engineered for easy installation, maximum versatility, and cost effectiveness.

The first BaySaver system, now known as the BaySeparator, was developed in 1997 as an answer to emerging local mandates that called for the removal of debris and pollutants from stormwater before its release to nearby rivers, lakes, and streams. Since then, through extensive research and comprehensive testing, the BaySaver technologies have continued to advance to meet the needs of designers and engineers. We now also offer the BayFilter and the Barracuda, both game-changing methods of stormwater protection that meet standards and exceed industry expectations.

The BaySaver Barracuda is a market-changing stormwater quality technology. This high performance vortex hydrodynamic separator is designed to remove total suspended solids, trash and debris, and hydrocarbons in order to protect our precious receiving waters. The Barracuda is also an outstanding value that offers multiple pipe configurations, and quick installation. We ensure simple maintenance and product longevity, so it's friendly to the environment as well as an owner's budget. Make sure to read up on all of our products to see which stormwater treatment system best suits your project needs. Our devotion to protecting water resources will always drive our continued innovation and development. We are proud to be leaders in our industry and a name you can count on for the most effective stormwater treatment systems on the market.

Comprehensive information about BaySaver and our products can be found at <http://www.baysaver.com/>

APPENDIX F



MVCAC

Mosquito and Vector Control Association of California

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One Capitol Mall, Suite 800 • Sacramento, CA 95814 • p: (916) 440-0826 • f: (916) 444-7462 • e: mvcac@mvcac.org

BaySaver Technologies, LLC.
1030 Deer Hollow Drive
Mount Airy, MD 21771
(301) 829-6470

March 15th, 2019

Dear Dan Figola,

Thank you for the submission of the BaySaver Barracuda for review by the Mosquito and Vector Control Association of California pursuant to the SWRCB Trash Treatment Control Device Application Requirements. The Association has reviewed the conceptual drawings for the BaySaver Barracuda and verifies that provisions have been included in the design that allow for full visual access to all areas for presence of standing water, and when necessary, allows for treatments of mosquitoes.

While this verification letter confirms that inspection and treatment for the purpose of minimizing mosquito production should be possible with the BaySaver Barracuda as presented, it does not affect the local mosquito control agency's rights and remedies under the State Mosquito Abatement and Vector Control District Law. For example, if the installed device or the associated stormwater system infrastructure becomes a mosquito breeding source, it may be determined by a local mosquito control agency to be a public nuisance in accordance with California Health and Safety Code sections 2060-2067.

“Public nuisance” means any of the following:

1. Any property, excluding water, that has been artificially altered from its natural condition so that it now supports the development, attraction, or harborage of vectors. The presence of vectors in their developmental stages on a property is prima facie evidence that the property is a public nuisance.
2. Any water that is a breeding place for vectors. The presence of vectors in their developmental stages in the water is prima facie evidence that the water is a public nuisance.

3. Any activity that supports the development, attraction, or harborage of vectors, or that facilitates the introduction or spread of vectors. (Heal. & Saf. Code § 2002 (j).)

Declaration of a facility or property as a public nuisance may result in penalties as provided under the Health and Safety Code. Municipalities and the vendors they work with are encouraged to discuss the design, installation, and maintenance of stormwater trash capture devices with their local mosquito control agency to reduce the potential for disease transmission and public nuisance associated with mosquito production.

Sincerely,



Bob Achermann,
MVCAC Executive Director