Mr. Leo Cosentini California State Water Resources Control Board P.O. Box 100 Sacramento, CA 95812-0100

RE: Application for Trash Treatment Control Device, SiteSaver®

Dear Mr. Cosentini,

Enclosed is StormTrap®, LLC's application for the SiteSaver® Stormwater Treatment System for use as a Trash Treatment Control Device. Supporting information for this application is submitted in accordance with the California State Water Resources Control Board document titled, *Trash Treatment Control Device Certification and Fact Sheet Update Requirements*. This application is comprised of the following sections:

- 1) Cover Letter
- 2) Table of Contents
- 3) Physical Description
- 4) Installation Guidance
- 5) Operation and Maintenance Information
- 6) Vector Control Accessibility
- 7) Reliability Information
- 8) Field/Lab Testing Information and Analysis

Thank you for the opportunity to review this application. Please feel free to contact myself if you have any questions or require any additional information upon your review of the materials.

Sincerely,

Dan Fajman

General Manager- Water Quality

StormTrap, LLC



Section 1 – Cover Letter

Section 1.A – Device product name and general description

SiteSaver is a manufactured treatment device, developed by StormTrap, LLC that improves the quality of stormwater runoff. SiteSaver is designed to remove trash and debris from stormwater using a netting or metallic screening mechanism in conjunction with an inclined plate insert, weirs, and baffles.

Stormwater enters the device and must pass through the netting or screening mechanism which contains trash and debris 5mm and greater.

Section 1.B – Corporate Info

StormTrap Corporate Officer: Nathan Olds Chief Executive Officer StormTrap, LLC. 815-941-4549 x155 nolds@stormtrap.com

StormTrap authorized representative:
Dan Fajman
General Manager – Water Quality
StormTrap, LLC.
815-941-4549 x245
815-341-9890 (direct)
dfajman@stormtrap.com

Section 1.C – Owner's Website

The website for StormTrap, LLC. can be located at www.stormtrap.com. The landing page for SiteSaver is www.stormtrap.com/products/sitesaver/.

Section 1.D – Device manufacturing location

StormTrap currently utilizes numerous independent fabrication facilities strategically located throughout the United States. Selection of a fabricator is based upon which facility will provide the most timely and cost-effective delivery to customers at the time an order is placed.

Section 1.E – Brief summary of field/lab results that demonstrate the device functions as described

SiteSaver's trash removal mechanism utilizes a netting or screening (basket) device. The nominal opening size for the netting or screening material is 4.7mm which allows capture of trash and debris 5mm and greater.

Full scale laboratory testing pertaining specifically to trash has not been performed.

Section 1.F – A brief summary of device limitations

SiteSaver is an engineered system designed to meet site-specific requirements. StormTrap staff will work with the specifying engineer to ensure proper sizing is applied.



SiteSaver units are typically placed on a level, 6" foundation of stone aggregate and then backfilled with aggregate. Native soils can also be used as backfill material provided that StormTrap engineers review the soil characteristics prior to installation to confirm that the native material conforms to the backfill specifications.

There are no specific drainage slope limitations provided that both the inlet and outlet pipe elevations are identical, and the inflow velocity has been evaluated. No driving head is required for the device to function. When utilizing a netting bag to contain floating debris, it is recommended that the inflow velocity be below 5 ft/sec. If the inflow velocity exceeds 5 ft/sec a basket screen is needed in lieu of the netting bag. Contact StormTrap for design options to accommodate larger inflow velocities.

SiteSaver systems can be installed either inline or offline. Inline systems are designed to convey both the WQTFR as well as the peak flows within the device whereas offline systems only convey the WQTFR. If an offline system is utilized, additional structures such as a divergence structure upstream of the device as well as a convergence structure downstream of the device would be required. Divergence and convergence structures are typically supplied by others.

As with all trash containment devices, routine maintenance should be undertaken in order to assure the device functions as designed. SiteSaver units should be inspected and maintained following the recommendations and guidelines in the SiteSaver Inspection and Maintenance Instruction Manual. Within the first year of operation, quarterly inspections are recommended to gauge debris accumulation and to develop a more accurate maintenance schedule.

SiteSaver units can also be installed with remote monitoring technology that measure the current capacity of the trash contained within the system. The advantage of remote monitoring is reduction of physical inspections required. If a remote monitoring device is used, proper maintenance of the device, such as replacement of batteries, solar cell maintenance, etc., needs to be completed to ensure functionality of the remote monitoring technology.

During design, consideration of maintenance activities should be evaluated to ensure that maintenance equipment can easily access the device. Designing with maintenance in mind ensures that the quality of maintenance is maximized, and the cost of maintenance is minimized.

Section 1.G – Description or list of locations where the device has been installed

Currently there are approximately 10 SiteSaver units installed in California. They are located in Los Angeles (5), Palm Springs (2), San Diego (2), and Coarsegold (1). Contact info for SiteSaver devices installed in Los Angeles, Cathedral City, and San Diego can be found in **Table 1**, below.

Table 1: SiteSaver Unit Owners

Owner	Owner Address	Project City	Project Address
Union Pacific Railroad	1400 Douglas Street, Omaha NE 68179	Los Angeles	750 Lamar Street
Augua Caliente Band of Cahuila Indians	PO Box 3275, Palm Springs CA 92263	Cathedral City	68960 East Palm Canyon Drive
Southwestern Community College District	900 Otay Lakes Road, Chula Vista CA 91901	San Diego	8100 Gigantic Street

Section 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.

Da Fo	2/23/2021
Dan Fajman, General Manager- Water Quality	Date



Section 2 – Table of Contents

56	ection 1 – Cover Letter	1
	Section 1.A – Device product name and general description	1
	Section 1.B – Corporate Info	1
	Section 1.C – Owner's Website	1
	Section 1.D – Device manufacturing location	1
	Section 1.E – Brief summary of field/lab results that demonstrate the device functions as described	1
	Section 1.F – A brief summary of device limitations	1
	Section 1.G – Description or list of locations where the device has been installed	2
	Section 1.H – Certification Statement	2
Se	ection 2 – Table of Contents	4
	Table of Figures	6
	Table of Tables	6
Se	ection 3 – Physical Description	7
	Section 3.A – Trash Capture	7
	Section 3.B – Peak Flows/Trash Volumes	8
	Section 3.C – Hydraulic Capacity	8
	Section 3.D – Comparison Table	9
	Section 3.E – Design Drawings	9
	Section 3.F – Alternative Configurations	9
	Section 3.G – Internal Bypass	9
	Section 3.H – Previously Trapped Trash	9
	Section 3.I – Calibration Feature	. 10
	Section 3.J – Photos	. 10
	Section 3.K – Material Type	. 10
	Section 3.L – Design Life	. 10
Se	ection 4 – Installation Guidance	. 10
	Section 4.A – Standard Device Installation Procedures	. 10
	Section 4.B – Installation Limitations and/or Non-Standard Installation Procedures	. 10



Section 4.C – Methods for diagnosing and correcting installation errors
Section 5 – Operations and Maintenance Information
Section 5.A – Inspection procedures and frequency considerations
Section 5.B – Description of maintenance frequency related to hydraulic capacity at different levels of trash capture volumes
Section 5.C – Maintenance Procedures, including procedures to clean the trash capture screen
Section 5.D – Essential equipment and materials for proper maintenance activities 12
Section 5.E – Description of the effects of deferred maintenance on device structural integrity, performance, odors, etc
Section 5.F – Repair Procedures for the Device's structural and screening components 13
Section 6 – Vector Control Accessibility
Section 6.A – Date Submitted to MCVAC
Section 6.B – Vector Control Accessibility Description
Section 6.C – MVCAC Letter of Verification
Section 7 – Reliability Information
Section 7.A – Estimated design life of Device components before major overhaul 15
Section 7.B – Warranty Information
Section 7.C – Customer support information
Section 8 – Field/Lab Testing Information and Analysis
Section 8.A -5 mm screening Field/Lab Testing that demonstrates device functionality 15
Section 8.B – Not including a 5 mm screen
Appendix A – SiteSaver Design Drawings
Appendix B – SiteSaver Material Specifications
Appendix C - SiteSaver Installation Manual and Installation Photographs
Appendix D - SiteSaver Operations and Maintenance Manual
Appendix E – SiteSaver Warranty
Appendix F – MCVAC Verification Letter



Table of Figures

igure 1: SiteSaver Rendering	. 7
Table of Tables	
able 1: SiteSaver Unit Owners	. 2
able 2: Trash Collection Device Configurations	8
able 3: Trash Collection Capacity vs Hydraulic Capacity	. 9



Section 3 – Physical Description

Section 3.A – Trash Capture

SiteSaver is a manufactured treatment device, that improves the quality of stormwater runoff by containing and removing trash and floating debris from stormwater. SiteSaver uses an insert housed within a precast concrete structure, operates based upon movement of the water and gravitational effects, and contains no moving parts.

Stormwater enters through an inflow pipe and exits through an outflow pipe that is placed at the same elevation. Upon entering the system, the stormwater is directed through a netting bag or screening basket to contain all debris 5 mm or greater in size. Deflector plates are attached to the wall of the inlet opening and the netting or screening basket to ensure that all water must pass through the trash containment device (net or screening basket). Note: In Figure 1 below, the deflector plate has been omitted for clarity of the other components. For use in California, SiteSaver models will have netting openings or screen openings 4.7 mm in size.

Each inclined plate has a correlating column of four equally sized and spaced perforations on the inlet and outlet which allows water to flow uniformly within the inclined plates. The stormwater then travels through a perforated weir prior to discharge via the outlet pipe. During flow events that exceed the capacity of the inclined plates, the weir at the outlet also acts as an internal bypass. Finally, a hinged baffle is also attached to the weir to decrease resuspension of captured pollutants that settle to the floor of the system.

Figure 1 shows a rendering of a SiteSaver device with individual components labeled.

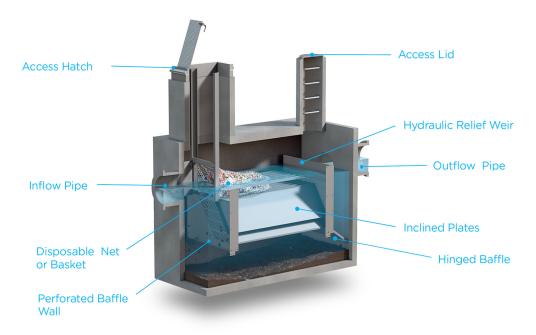


Figure 1: SiteSaver Rendering

The component within SiteSaver that traps the particles that are 5 mm or greater is the trash containment device which is comprised of either a netting bag or screening basket mentioned and depicted above. For SiteSaver, sizing for particle removal 5 mm or greater and sizing for suspended sediment capture are independent and should be evaluated separately.



This application will focus on the trash containment components within SiteSaver. If suspended sediment capture is the primary goal for a device, the suspended sediment water quality flow rate is smaller compared to the trash water quality flow rate. Contact StormTrap, LLC to assist with design requirements pertaining to suspended sediment removal.

Section 3.B – Peak Flows/Trash Volumes

The maximum trash capture capacity for the SiteSaver is based upon the calculated volume of the trash capture device (net or screen). The capacities of the various configurations are listed below in **Table 2**.

Table 2: Trash Collection Device Configurations

Trash Device Configurations		Trash Device Width (ft)	Trash Device Height (ft)	Trash Device Length (ft)	Water Quality Flow Rate (cfs) ¹	Reccomended Maximum Design Velocity (fps) ²	Trash Capacity (ft ³) ³
ing rations	30" x 30" Net, 5mm Openings- 6' Length	2.50	2.50	6.00	31.25	5.0	37.5
Netting Configurations	30" x 30" Net, 5mm Openings- 8' Length	2.50	2.50	8.00	31.25	5.0	50.0
Metallic Screening Configurations	Trash Basket, 5mm Screen- Removable	2.50	2.50	3.42	62.50	10.0	21.4
	Trash Basket, 5mm Screen- Fixed XL	5.00	2.50	8.00	125.00	10.0	100.0

 1 Water Quality Flow Rate = Trash Device Width x Trash Device Height x Recommended Maximum Design Velocity

² When using netting configurations it is recommended that the maximum design velocity should not exceed 5 ft/sec

³ Trash Capacity = Trash Device Width x Height x Length

Section 3.C – Hydraulic Capacity

Table 3, below provides the hydraulic capacity when the device is empty and at several intervals of trash capture volumes up to the device's maximum trash capture volume. There are no alternative configurations that would deviate from the hydraulic capacity values listed in **Table 3**. Hydraulic flow capacity for all configurations is calculated using the following formula: Net Flow = Device Length – (Device Length x Percent Blockage) x Cross Sectional Open Area x Design Velocity.

The device length is dependent on the configuration selected. For example, a net can either have a 6' length or 8' length. The cross-sectional open area is the surface area of a net or basket that contains 4.7 mm openings. The cross-section open area varies depending on if a net or basket is utilized. The strands in a net are smaller than the thickness of the metal in a basket. It should also be noted that within the cross-sectional area calculation for a net, expansion of netting was not accounted for within the calculation to provide a more conservative calculation. The design velocity varies depending on if a net or basket is utilized. For example, as stated in Table 2, a netting design velocity is 5 ft/sec and a basket is 10 ft/sec.



Table 3: Trash Collection Capacity vs Hydraulic Capacity

SiteSaver Hydraulic Capacity								
	30" x 30" Net, 5mm Openings - 8ft		30" x 30" Net, 5mm Openings - 6ft		Trash Basket, <5mm Openings - Removable		Trash Basket, <5mm Openings - Fixed XL	
Percent Blockage (Net)	Net Flow (cfs) Internal Bypass (cfs)		Net Flow (cfs)	Internal Bypass (cfs)	Net Flow (cfs)	Internal Bypass (cfs)	Net Flow (cfs)	Internal Bypass (cfs)
10%	31.25	0.00	31.25	0.00	31.25	0.00	31.25	0.00
20%	31.25	0.00	31.25	0.00	31.25	0.00	31.25	0.00
30%	31.25	0.00	31.25	0.00	31.25	0.00	31.25	0.00
40%	31.25	0.00	31.25	0.00	31.25	0.00	31.25	0.00
50%	31.25	0.00	31.25	0.00	31.25	0.00	31.25	0.00
60%	31.25	0.00	31.25	0.00	31.25	0.00	31.25	0.00
70%	31.25	0.00	31.25	0.00	31.25	0.00	31.25	0.00
80%	31.25	0.00	23.63	7.62	31.25	0.00	31.25	0.00
85.0%	23.63	7.62	17.72	13.53	26.15	5.10	31.25	0.00
90.0%	15.76	15.49	11.82	19.43	17.43	13.82	31.25	0.00
95.0%	7.88	23.37	5.91	25.34	8.72	22.53	30.61	0.64
100.0%	0.00	31.25	0.00	31.25	0.00	31.25	0.00	31.25

Section 3.D – Comparison Table

Table 2, above, contains the peak flow rates and recommended maximum trash capture volumes for all SiteSaver models as it pertains to trash removal. Standard SiteSaver units are available with 4, 7, 12, or 18 plate configurations. Trash capture is independent of the number of inclined plates within the unit. I.E., a STSS-4 (SiteSaver 4 plate) that utilizes a netting configuration will have the same peak trash removal flow rate and trash capture volume as a STSS-18 (SiteSaver 18 plate) that utilizes a netting configuration.

Section 3.E – Design Drawings

Standard drawings can be found in **Appendix A**, pages 16-30.

Section 3.F – Alternative Configurations

SiteSaver is not offered in any alternative configurations that would alter the trash capture capabilities or installation requirements. Configuration selection (netting vs basket) is dependent upon the anticipated velocities to be encountered as well as maintenance preferences of the owner or end user. For example, if the velocities are anticipated to be less than 5 ft/sec, a net or basket configuration would be acceptable. If the velocity exceeds 5 ft/sec, a basket is required.

Section 3.G – Internal Bypass

SiteSaver systems are designed with an internal bypass for trash. The trash bypass is comprised of deflector plates located upstream of the net or screening basket to assure that inflow must travel through the trash containment device. The deflector plates are sized so they surround (are wider than) the inlet pipe and the plates are taller than the net or screening basket. If the trash containment device is completely full or the flows are in excess of the designed capacity, then the flow is bypassed.

Section 3.H – Previously Trapped Trash

The trash capture devices (net or screen basket configurations) within the SiteSaver use openings that are 4.7 mm to eliminate debris from escaping the device. Although unlikely, if the openings in a net break, previously captured trash could be re-introduced into the effluent stream. To mitigate the potential for an opening to break, the design velocities of the influent pipe must be evaluated and planning routine maintenance is also needed to



ensure the trash capacity is not exceeded. When evaluating configurations, ensure the influent pipe velocity does not exceed the recommended design velocities listed in **Table 2**. If the pipe velocities exceed the recommended values, it is suggested to place the system in an offline configuration.

Another consideration to reduce the potential for a net opening to break is to ensure the trash capacity is not exceeded. Excess trash within a netting bag may increase the potential for a netting bag to tear when being removed during maintenance.

Section 3.1 – Calibration Feature

SiteSaver does not include or require an adjustable calibration feature.

Section 3.J – Photos

Appendix C, pages 42-45 contain SiteSaver installation photographs.

Section 3.K – Material Type

SiteSaver systems are housed within precast reinforced concrete structures. The internal metal components are comprised of either marine-grade galvanized aluminum or stainless steel, if brackish water is anticipated. If a netting configuration is utilized, the netting material is a knotless knitted nylon net which is secured to a wooden or plastic frame.

Appendix B, pages 31-38 contains example SiteSaver specifications.

Section 3.L – Design Life

SiteSaver systems are designed and manufactured for a life expectancy in excess of 25+ years.

Section 4 – Installation Guidance

Section 4.A – Standard Device Installation Procedures

<u>Appendix C</u>, pages 39-41 contains procedures and considerations for installing SiteSaver devices.

Section 4.B – Installation Limitations and/or Non-Standard Installation Procedures

If during installation, it is determined that site conditions vary from the design criteria listed in the SiteSaver drawings and specifications, contact StormTrap for site-specific recommendations and techniques.

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

StormTrap has a representative meet with the installing contractor prior to delivery for a preconstruction meeting and a StormTrap representative will be on site during the installation to ensure units are delivered and installed correctly. If an error occurs, the StormTrap representative will work with the installing contractor to ensure the unit is installed correctly.

Section 5 – Operations and Maintenance Information



Section 5.A – Inspection procedures and frequency considerations

<u>Appendix D</u>, pages 46-51 contain inspection procedures and inspection frequency considerations for SiteSaver devices.

Regular inspections are recommended to ensure that the system is functioning as designed. Please contact your StormTrap representative if you have any questions regarding the inspection and maintenance of the SiteSaver system.

SiteSaver does not require entry into the system for maintenance; however, it is prudent to note that prior to entry into any underground storm sewer or underground structure, appropriate OSHA and local safety regulations and guidelines should be followed. SiteSaver systems are recommended for inspection whenever upstream and downstream catch basins and stormwater pipes of the stormwater collection system are inspected or maintained. This will economize the cost of the inspection if it is done at the same time. Within the first year of operation, quarterly inspections are recommended to gauge debris accumulation and to develop a more accurate maintenance schedule. If inspected on an annual basis, the inspection should be conducted before the stormwater season begins to ensure that the system is functioning properly for the upcoming storm season. Inspections should be done such that a sufficient time has lapsed since the most recent rain event to allow for a static water condition. Visually inspect the system at all manhole and access opening locations. For debris accumulation, visually inspect the netting or screening basket to determine the capacity. For sediment accumulation, utilize a sediment pole to measure and document the amount of sediment accumulation. To determine the amount of sediment in the system first insert the pole to the top of the sediment layer and record the depth. Then, insert the pole to the bottom of the system and record the depth. Finally, inspect the inlet pipe opening to ensure that the silt level or any foreign objects are not blocking the pipe.

SiteSaver units can also be installed with remote monitoring technology that measures the current capacity of the trash contained within the system to decrease the amount of physical inspections required. If a remote monitoring device is used, proper maintenance of the device, such as replacement of batteries, solar cell maintenance, etc., needs to be completed to ensure functionality of the remote monitoring technology.

Section 5.B – Description of maintenance frequency related to hydraulic capacity at different levels of trash capture volumes

As shown in **Table 3**, hydraulic capacity is not affected until the device reaches 70%-90% of the trash capture volume, depending on the configuration utilized. When the trash volume exceeds the specified capacity, bypass may occur due to occlusion of the netting or basket. It is recommended that maintenance occurs prior to reaching 70%-90% of the trash volume to ensure bypass does not occur.

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

<u>Appendix D</u>, pages 46-51 contain maintenance procedures and a description of necessary equipment and materials to maintain SiteSaver devices.

Maintenance should be done such that a sufficient time has lapsed since the most recent rain event to allow for a static water condition for the duration of the maintenance process. For floatable debris removal when a netting bag is utilized, remove the netting bag by lifting the bag by the netting frame and move it upwards along the netting support frame. Once the



netting component is fully removed from the system, it should be properly disposed of per local, state, and federal guidelines and regulations. Typically, the netting component can be disposed of in a common dumpster receptacle.

For floatable debris removal when a removable basket is utilized, remove the screening basket by lifting the basket and move it upwards along the support frame. Once the screening basket is fully removed from the system, empty the basket into a dumpster receptacle by either tipping the unit so the debris falls out the mouth of the basket or release the bottom latch in the basket to drop the debris into the receptacle.

For floatable debris removal when a fixed basket is utilized, a vacuum truck, or similar trailer mounted equipment can be used to remove the debris. Lift the top section of the screening basket to access the inside of the basket. Take the vacuum hose and remove all debris from inside of the basket. Sewer jetting equipment or a spray lance can be used to force debris to the vacuum hose.

For sediment removal, the SiteSaver is designed with clear access at both the inlet and outlet. A vacuum truck, or similar trailer mounted equipment, can be used to remove the sediment, hydrocarbons, and water within the unit. For more effective removal it is recommended to use sewer jetting equipment or a spray lance to force the sediment to the vacuum hose. When the floor is sufficiently cleaned, fill the system back to its normal water elevation (to the pipe inverts).

Finally, for netting or removable basket configurations, install a new net assembly or place the removable basket back into place by sliding the netting frame down the support frame and ensure the netting lays in a way that the netting is not restricted. If the bottom latch is released in the removable basket configuration during maintenance, ensure that the latch is secured prior to placing the basket back into the system. For fixed basket configurations ensure that the top of the basket is closed and secured.

Secure the access openings and properly dispose of the sediment and trash per local, state, and federal guidelines. Proof of inspections and maintenance is the responsibility of the owner. All inspection reports and data should be kept on site or at a location where they will be accessible for years in the future. Some municipalities require these inspection and cleaning reports to be forwarded to the proper governmental permitting agency on an annual basis. Refer to your local and national regulations for any additional maintenance requirements and schedules not contained herein. Inspections and maintenance should be a part of the standard operating procedure.

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

Maintenance should be done utilizing proper personal protective equipment such as: safety glasses, hard-hat, gloves, first aid kit, traffic cones, etc. In addition to PPE materials, if a netting configuration is utilized, it is recommended to use lifting equipment (gaff hooks, crane, hoist, or boom truck) that is rated and capable of lifting the netting material filled with trash and debris completely from the system and into a trash receptable. If a basket configuration is utilized, a vacuum truck or similar type equipment is recommended to remove trash and debris. In any configuration.



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

Maintenance frequency considerations are highly dependent on site-specific loading conditions and rainfall frequency. Quarterly inspections within the first year of installation will assist with establishing an accurate maintenance cycle to ensure the device maintenance is not unintentionally deferred. If maintenance is delayed to the point where the debris in the system exceeds the trash capacity of the device, performance may become affected and maintenance will become more difficult.

Section 5.F – Repair Procedures for the Device's structural and screening components If any SiteSaver components need to be repaired and/or modified in any way, contact StormTrap for assistance.

Section 6 – Vector Control Accessibility

Section 6.A – Date Submitted to MCVAC

The application was submitted for vector control accessibility design verification via email to the Mosquito Vector Control Association of California (MVAC) <u>Trashtreatment@mvcac.org</u> on February 23, 2021 and a MCVAC verification letter was issued on March 18, 2021.

Section 6.B – Vector Control Accessibility Description

The SiteSaver device most closely resembles a baffle box configuration that was depicted in the "Trash Capture Device Designs for Mosquito Control Design Guidelines" prepared by the MVCAC. SiteSaver does contain a permanent pool of water within the device; however, it does not contain multiple chambers, nor does it have a perimeter bypass. Figure 1 has been inserted into this section and a video of the unit has also been provided and can be accessed at the following link for ease of visualization:

https://stormtrap.box.com/s/zqhpd0s7md3stfmrdgninxbdhtgm8be6



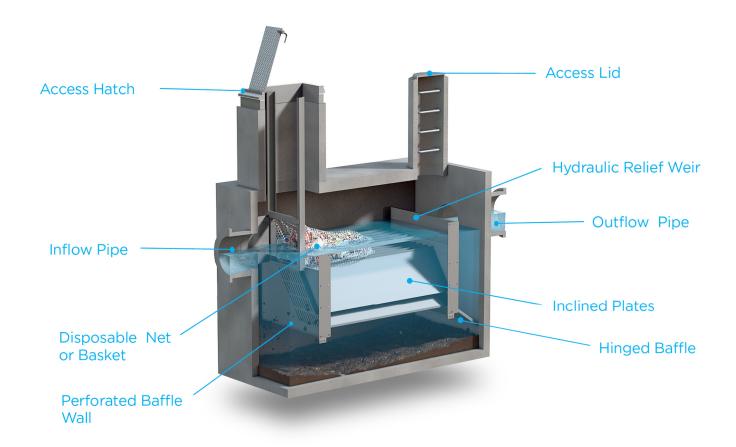


Figure 2: SiteSaver Rendering

SiteSaver utilizes two access openings. The access opening closest to the inlet, denoted as access hatch in the figure above, has an opening dimension of 42" x 42". This opening provides 12.25 ft² of unobstructed view into the unit. The access opening closest to the outlet, denoted as access lid in the figure above, is a round opening and the diameter of the opening is dictated by the city or municipalities typical frame dimensions (typically dimensions ranges between 24" to 36" in diameter). This opening provides at a minimum, 3.14 ft² of unobstructed view into the unit. In both cases, the unobstructed viewing area provides a line of sight to the bottom of the unit and has been calculated using the area of the said opening. It should be noted that additional area can be viewed at either access opening depending on the viewing angle/peripherals of the individual and the depth of the unit.

Access lids can be equipped with lifting assistance mechanisms to ease opening of lids. To minimize mosquito access, sealed access opening covers that use blind pick holes or solid inserts can be utilized. Mosquito exclusion devices installed under the lid can also be installed to further prevent mosquito migration into the device.



During vector control inspection, no components within the device need to be moved. Since the device is comprised of one chamber, typically only one access opening needs to be opened for unobstructed viewing or treatment of the entire device's footprint and depth. If a unit is installed deeper than typical depths, (i.e., pipe invert is 10' or greater from finished grade) it may be necessary to open both access openings for better visibility since the angle of visibility becomes more acute as depth increases.

Section 6.C – MVCAC Letter of Verification

Appendix F, pages 55-Placeholder until MVCAC letter is issued.

Section 7 – Reliability Information

Section 7.A – Estimated design life of Device components before major overhaul

SiteSaver systems are designed and manufactured for a life expectancy in excess of 25+ years.

Section 7.B – Warranty Information

Appendix E, pages 52-54 contains the SiteSaver warranty information. StormTrap provides a five-year limited warranty on SiteSaver devices.

Section 7.C – Customer support information

Local StormTrap representatives are available to provide customer support. A list of StormTrap representatives and the regions that they support can be found at: http://stormtrap.com/contact-list/.

Section 8 – Field/Lab Testing Information and Analysis

Section 8.A – 5 mm screening Field/Lab Testing that demonstrates device functionality

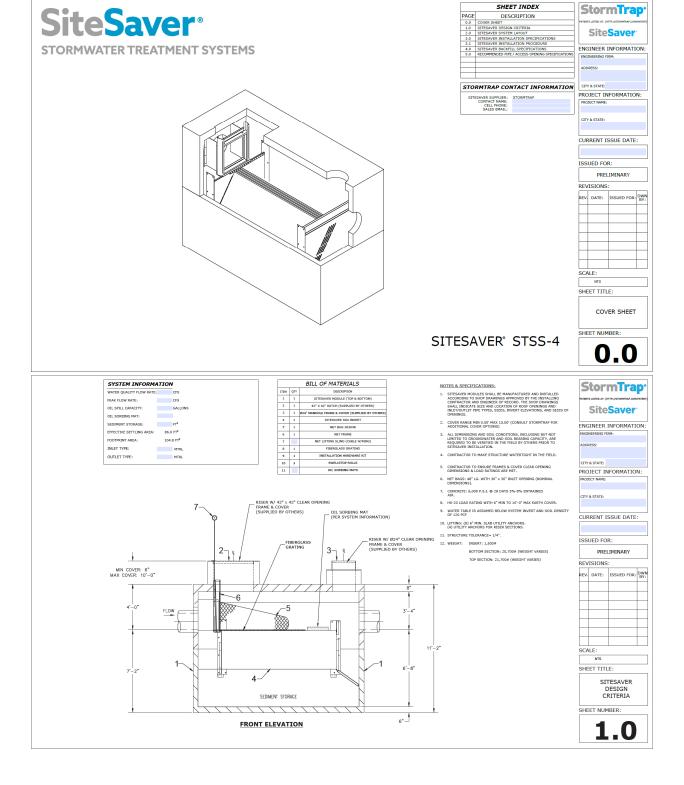
SiteSaver currently does not have field or lab testing information and analysis specifically related to trash capture.

Section 8.B – Not including a 5 mm screen

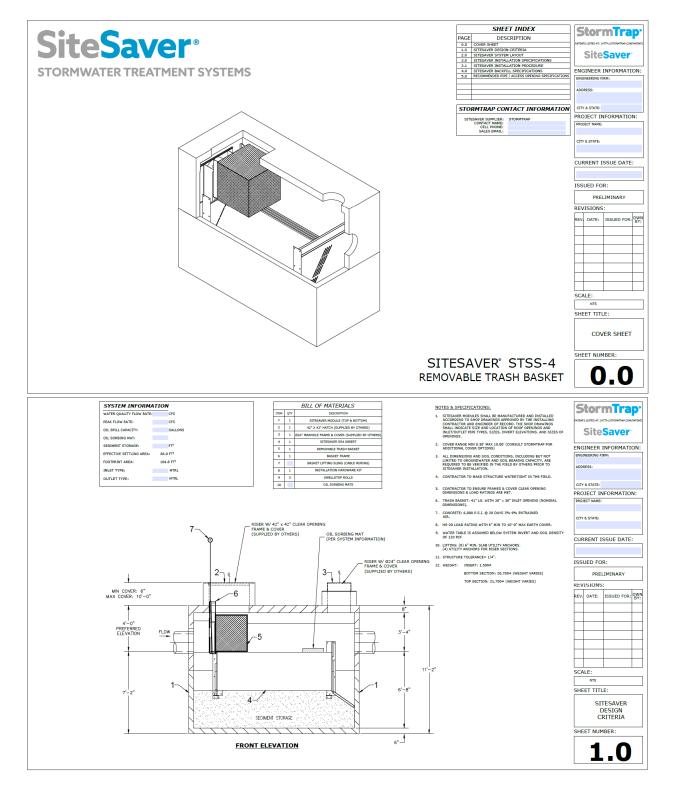
Not Applicable to a SiteSaver unit.



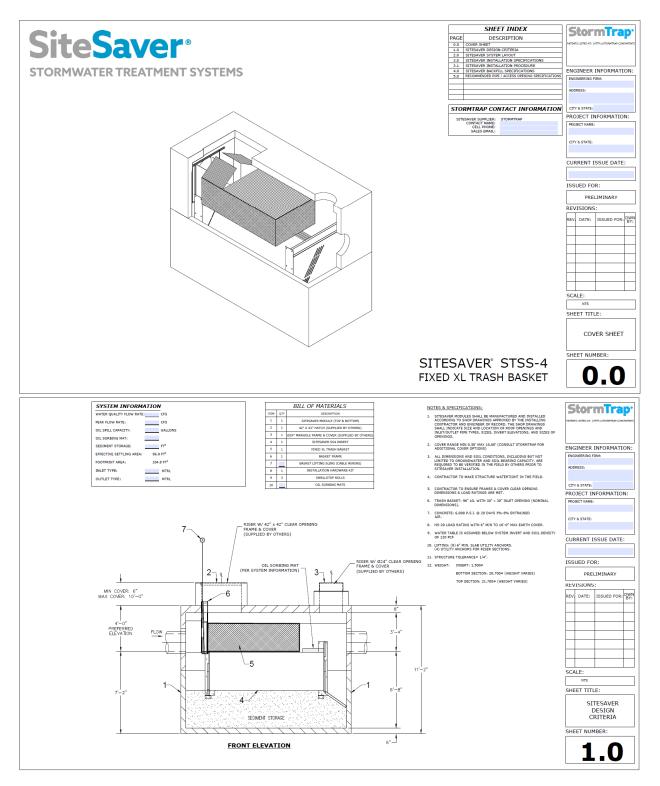
Appendix A – SiteSaver Design Drawings



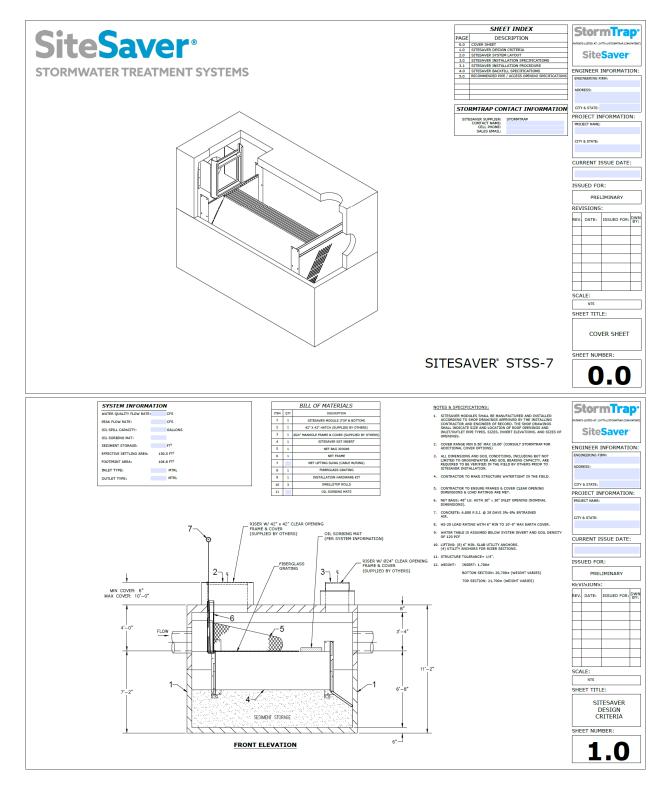




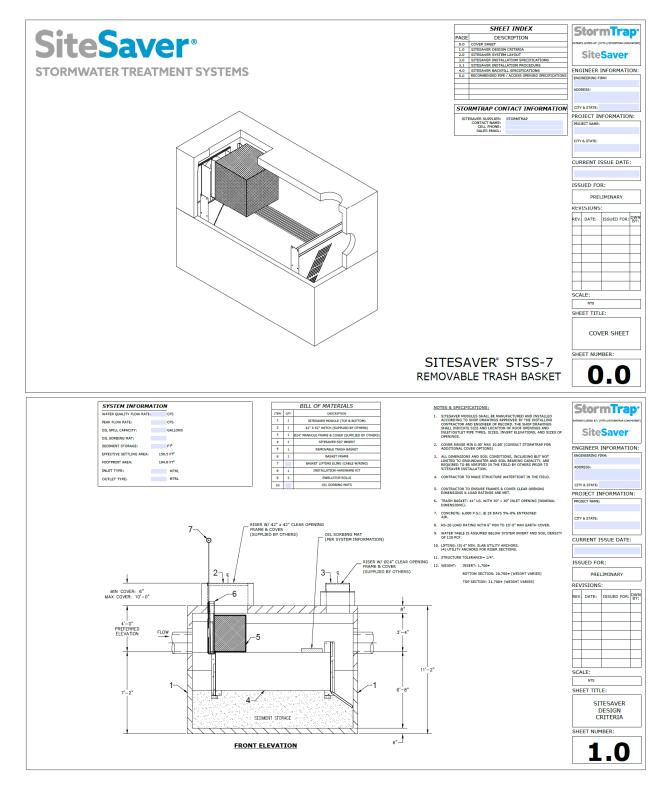




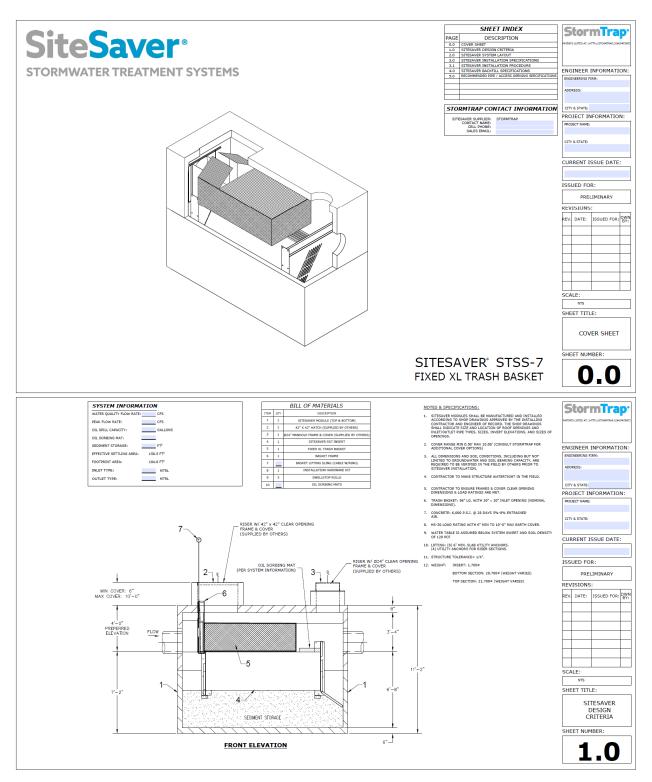




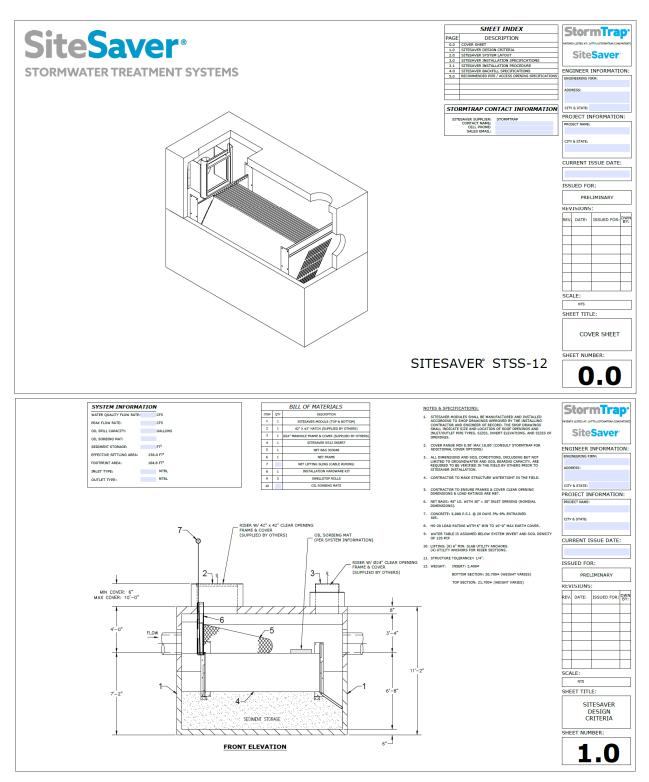




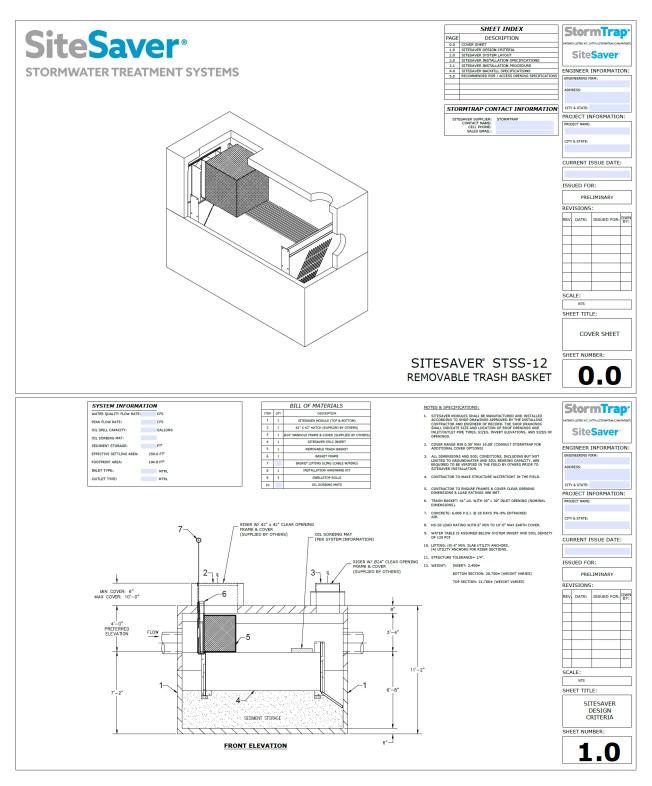




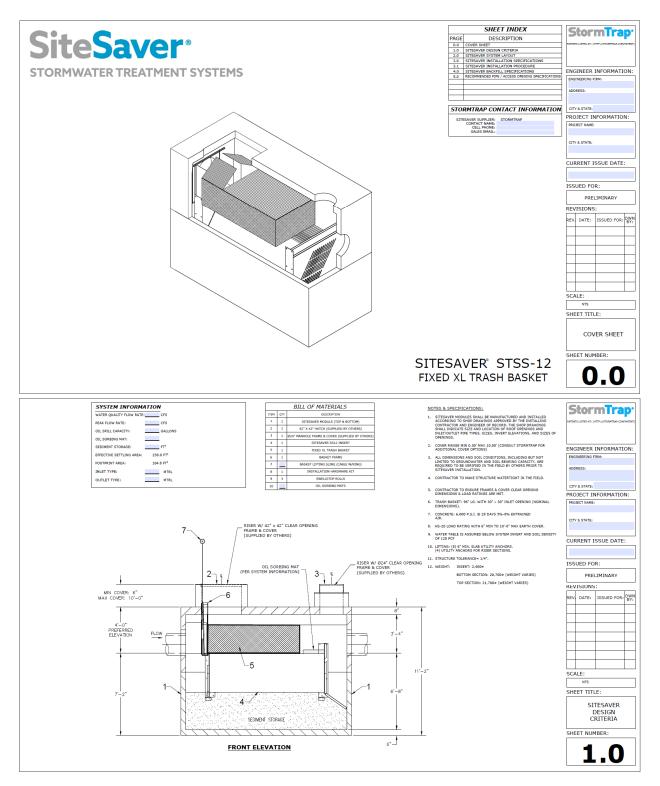




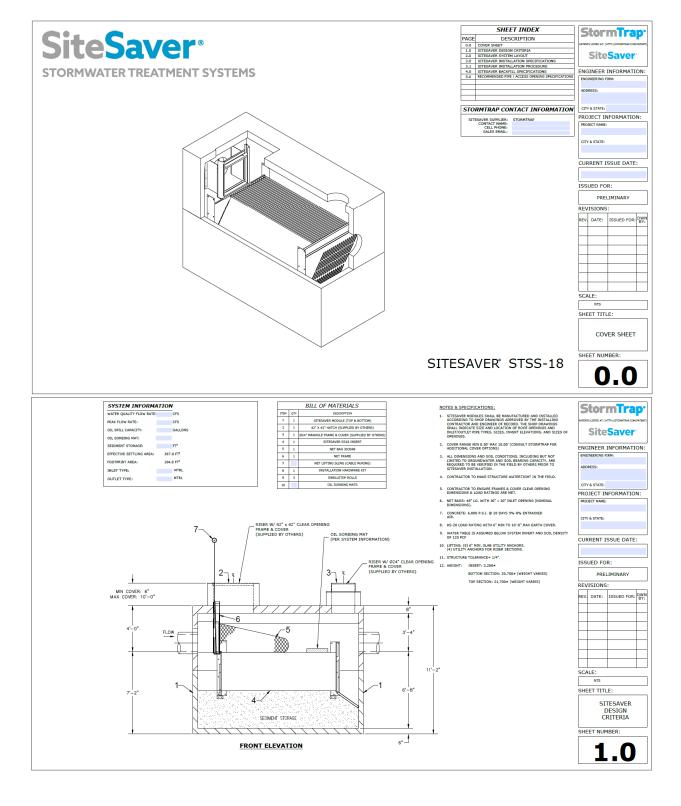




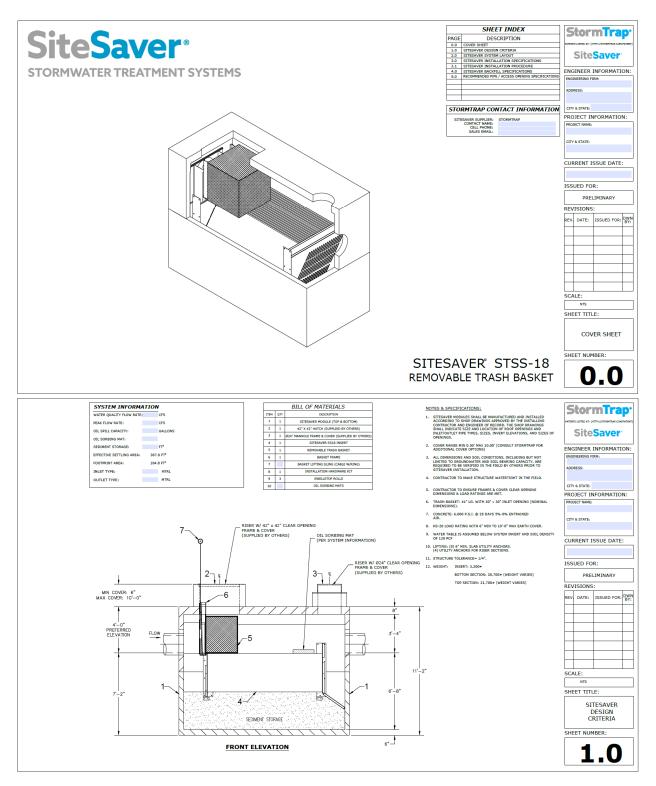




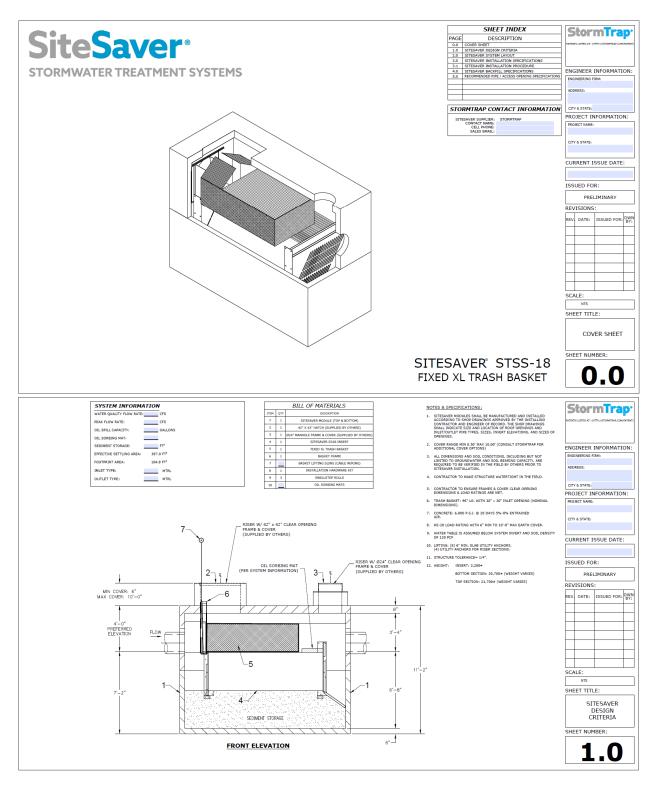




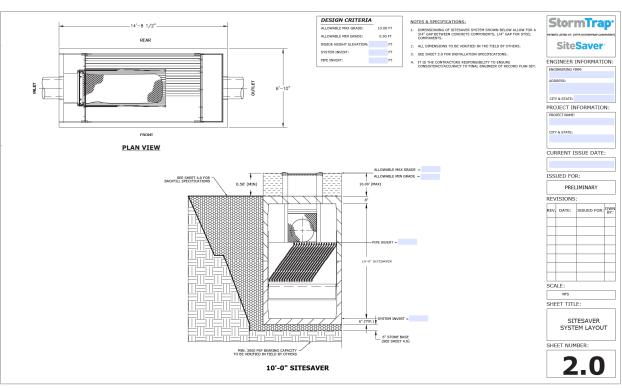


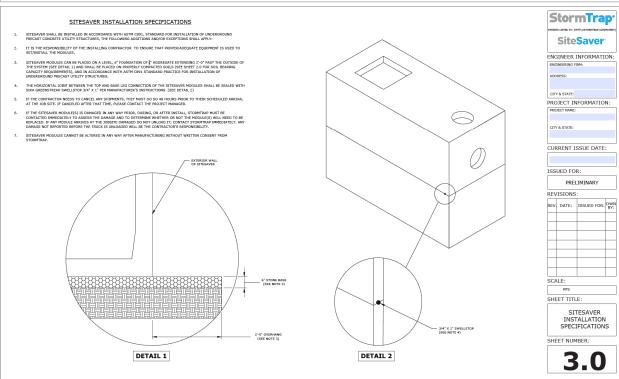




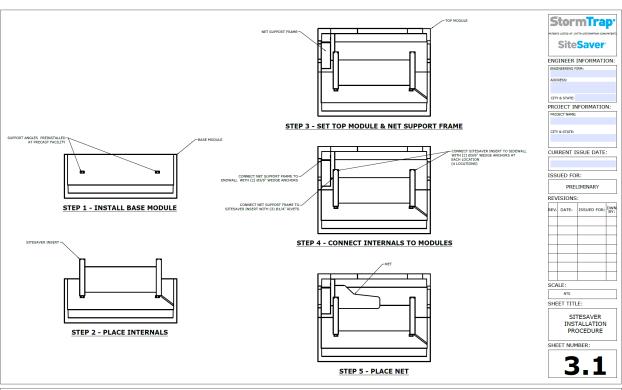












				-
	ZONE CHART		SITESAVER ZONE INSTALLATION SPECIFICATIONS/PROCEDURES	StormTrap
ZONES	ZONE DESCRIPTIONS	REMARKS	 THE FILL PLACED AROUND THE SITESAVER MODULES MUST DEPOSITED ON BOTH SIDES AT THE SAME TIME 	PATENTS LISTED AT: [HTTP://STORHTRAP.COM/PATEN
ZONE 1	FOUNDATION AGGREGATE	#5 (2") AGGREGATE (SEE NOTE 4 FOR DESCRIPTION)	and to approximately the same elevation, at no time shall the fill behind one side walle be more than 2"-0" highert han the fill on the opposite side. Backrill, shall either be compacted and/or vibrated to ensure that backrill aggregate/stone material is well seated and properly inter	SiteSaver*
ZONE 2	BACKFILL	#5 (2") AGGREGATE (SEE NOTE 4 FOR DESCRIPTION)	LOCKED. CASE SHALL BET BURRENT OR REPORT ANY WINDSHIGS ACTION AGAINST THE STRUCTURE. AND ALL SIGHES WITHIN THE BARE ON DE BLOCATILLE MINIST BET STREPHO OR SEPARATIO FOR REPORT WINDSHIPS ACTION, BAJOSTILL MATERIUL SHALL BES (CLAM), CULSHED, MANUFAL HOW, S. (AMSHIP) MANUFAL GORGEATE. IF MATERIANT IS SUSCEPTIBLE TO MINISTRATION, COMPRIN WITH GENTON, ENGINEER AND PROVIDE TO MATERIANT IS SUSCEPTIBLE TO MINISTRATION, COMPRIN WITH GENTON, ENGINEER AND PROVIDE AND PROVIDED THE STREPH STRUCTURE OF THE STRUCTURE OF	ENGINEER INFORMATION
ZONE 3	FINAL COVER OVERTOP	MATERIALS NOT TO EXCEED 120 PCF	PROTECTION AS REQUIRED.	ADDRESS:
			 DURNING PLACEMENT OF MATERIAL, OMERTOR THE SYSTEM, AT NO TIME SHALL MACHINERY BE USED OMERTOR THAT GREEDES THE GESIED UNITATIONS OF THE SYSTEM, WHEN PLACED THATERIAL OWER, DO MATERIAL SHALL BE PLACED SUCH THAT THE DIRECTION OF PLACEMENT IS PARALLEL WITH THE OMERALL LIANSTITUDINAL DIRECTION OF THE SYSTEM WHENEVER POSSIBLE. 	CITY & STATE:
			 THE FILL PLACED OVERTOP THE SYSTEM SHALL BE PLACED AT A MINIMUM OF 6" LIFTS, AT NO TIME SHALL MACHINERY OR VEHICLES GREATER THAN THE DESIGN 1-52 LOQUING CRITERIA TRAVEL OVERTOP THE SYSTEM WITHOUT THE MINIMUM DESIGN OVERGE. IF TRAVEL SACRESMY OVERTOP THE SYSTEM WITHOUT THE SYSTEM WITHOUT THE SYSTEM WIGHT OF THE SYSTEM WITHOUT THE SYSTEM WITH THE SYSTEM	PROJECT INFORMATION: PROJECT NAME:
			TO ACHEVING THE MINIMAN DESIGNA COVER, IT MAY BE RESESSARY TO REDUCE THE ULTIMATE LOAD/BURDED OF THE OPERATION MAINERYS OA STO TO DE CESSED THE DESIGNATOR OF THE SYSTEM, IS SOME CASES, IN ORDER TO ACHEVE REQUIRED COMPACTION, HAND COMPACTION MAY BE RECESSARY IN ORDER NOT TO SKICKED THE ALLOTTED DISCISION LOAD TO STORM THE OFFICE THE OFFICE OF THE OFFICE THE OFFICE OF THE OFFICE THE OFFICE	CITY & STATE:
			 FREE DRAINING AGGREGATE - 80% AGGREGATE RETAINED ON §" SIEVE MAJORITY OF AGGREGATE SIZE BETWEEN §" AND 1" ONLY 5% OF MATERIAL PASSING #200 SIEVE NO FINES. 	
			•	CURRENT ISSUE DATE:
GEOFABRIC/GEOTEXTILE- OR EQUAL (SEE NOTE 1)	\			
			GEOFABRIC/GEOTEXTILE OR EQUAL (SEE NOTE 1)	ISSUED FOR:
			or Education (note to the 1)	PRELIMINARY
E				REVISIONS:
				REV DATE: ISSUED FOR: DIP OF THE PROPERTY OF T
STEPPED OR SERRATED APPLICABLE OSHA REQUIREM (SEE BACKFILL NO	IENTS	BACKFILL D	<u>etail</u>	4.0



StormTrap

SiteSaver ENGINEER INFORMATION:

RECOMMENDED ACCESS OPENING SPECIFICATION

1. A TYPICAL ACCESS OPENING FOR THE SITESAVES SYSTEM ARE 2"-0" IN DIAMETER AND 42" X 42" SQUARE, CONSULT STORMTRAP FOR ALTERNATE OPENING SIZES AND LOCATIONS ALL OPENINGS MUST RETAIN AT LEAST 1"-0" OF CLEARANCE FROM THE END OF THE SITESAVER MODULE UNLESS NOTED OTHERWISE. ALL ACCESS OPENINGS TO BE LOCATED AS SHOWN UNLESS OTHERWISE SPECIFED.

2.SITESAVER LIFTING INSERTS MAY BE RELOCATED TO AVOID INTERFERENCE WITH ACCESS OPENINGS OR THE CENTER OF GRAVITY OF THE MODULE AS NEEDED.

ACCESS OPENINGS SHOULD BE LOCATED IN ORDER TO MEET THE APPROPRIATE
MUNICIPAL REQUIREMENTS. STORMTRAP RECOMMENDS AT LEAST TWO ACCESS OPENINGS
PER SYSTEM FOR ACCESS AND INSPECTION.

4. USE PRECAST ADJUSTING RINGS AS NEEDED TO MEET GRADE. STORMTRAP RECOMMENDS FOR COVER 2" TO USE PRECAST BARREL OR CONE INSPECTIONS.

RECOMMENDED PIPE OPENING SPECIFICATION

1. MINIMUM EDGE DISTANCE FOR AN OPENING ON THE OUTSIDE WALL SHALL BE NO LESS THAN 1'-0".

 MAXIMUM OPENING SIZE TO BE DETERMINED BY THE MODULE HEIGHT. PREFERRED OPENING SIZE 0 30° OR LESS. ANY OPENING NEEDED THAT DOES NOT FIT THIS CRITERIA SHALL BE BROUGHT TO THE ATTENTION OF STORMTRAP FOR REVIEW.

3. CONNECTING PIPES SHALL BE INSTALLED WITH STRUCTURAL GRADE CONCRETE OR HIGH STRENGTH, NON-SHRINK GROUT WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI SHALL BE USED (SEE PIPE CONNECTION DETAIL).

4. THE ANNULAR SPACE BETWEEN THE PIPE AND THE HOLE SHALL BE FILLED WITH HIGH STRENGTH NON-SHRINK GROUT.

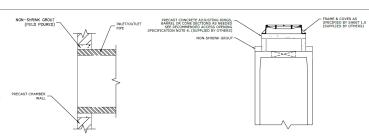
RECOMMENDED PIPE INSTALLATION INSTRUCTIONS

1. CLEAN AND LIGHTLY LUBRICATE ALL OF THE PIPE TO BE INSERTED INTO SITESAVER.

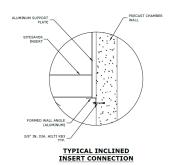
2. IF PIPE IS CUT, CARE SHOULD BE TAKEN TO ALLOW NO SHARP EDGES. BEVEL AND LUBRICATE LEAD END OF PIPE.

3. ALIGN CENTER OF PIPE TO CORRECT ELEVATION AND INSERT INTO OPENING.

NOTE: ALL ANCILLARY PRODUCTS RECOMMENDED AND SHOWN ON THIS SHEET ARE RECOMMENDATIONS ONLY AND SUBJECT TO CHANGE PER THE INSTALLING CONTRACTOR.



PIPE CONNECTION DETAIL



RISER DETAIL



5.0

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Appendix B – SiteSaver Material Specifications

The section must be carefully reviewed and edited by the Engineer to meet the requirements of the project and local building code. Coordinate this section with other specification sections and the Drawings.

EXAMPLE SPECIFICATIONS

PART 1-GENERAL

1.1 DESCRIPTION

- **A.** This work shall consist of installing a SiteSaver®, generally referred to as a Manufactured Treatment Device (MTD), for the purification of stormwater run-off at each location as shown on the contract plans. The unit shall treat the water quality design storm flow and drain excess flows as specified on the contract drawings.
- **B.** The MTD shall include at least one or more treatment systems for floatable suspended solids capture with net(s) or screening basket(s). Sorption materials and baffles sorb hydrocarbons and detain the hydrocarbons at the listed capacity. Sorption materials are accessible for immediate removal by an oil spill response team in the event of a significant spill. During water quality flow events, the MTD shall retain matter that exceeds the opening size of the trash treatment device (netting bags or screening baskets) such as trash, debris, litter cigarette butts, etc. The inclined cell settler supports the netting bag or screening basket and facilitates efficient settling of sediment. Sediment accumulates on the floor of the MTD. During excess water quality flow conditions, excess flow shall be drained across the hydraulic relief weir(s) to the exit pipe. This product is produced by StormTrap, LLC. (815) 941-4663.
- **C.** External by-pass structures can be utilized with SiteSaver however external by-pass structures are not required.
- **D.** All flow is directed into the netting bag or screening basket. The netting bag or screening basket can hold sorption material to capture oil and grease. The oil sorption material contained in the netting bag can sorb oil sheen and grease. Oil sorption materials can also be located outside of the netting bag or screening device and secured to the SiteSaver structure. The net opening size determines the size of captured floatable trash and debris.
- E. The inclined plate separator shall operate based on the hydrostatic pressure differential between the inlet and outlet pipe. The flow is split in proportion to the number of inclined plate cells. The cells treat the water in parallel and combine the flows at the orifice baffle. The inclined plate cell surfaces facilitate sliding of the sediment to the device floor where it is protected from wash-out from subsequent flows.
- F. The oil bunker chamber, the sediment hopper and recombination effluent chamber shall be accessible through removable covers and hatches at grade. Removal of floatable material, hydrocarbons, and sediment occurs from the access opening above the oil bunker. Water and the settled solids and floating particulates are removed by a vacuum truck. No confined space entry shall be required for removal of captured pollutants. Refer to the SiteSaver Manufacturer's Instruction Manual for more detailed maintenance instructions and procedures.
- **G.** Captured sediment storage shall be not less than 0.7 Ft3/Ft2 of device floor area. Refer to the SiteSaver drawings for unit specific storage capacities.



H. Oil Storage is dependent upon selection of optional hydrocarbon accessories. Refer to the SiteSaver drawings for unit specific storage capacities.

1.2 RELATED SECTIONS

- A. Section XXXXX
- B. Section XXXXX
- C. Section XXXXX
- D. Section XXXXX

1.3 REFERENCES

- **A.** ASTM International (ASTM):
 - **a.** A-615/615M Standard specification for deformed and plain billet-steel bars for concrete reinforcement
 - **b.** C-857 Standard practice for minimum structural design loading for underground precast concrete utility structures
 - c. C-858 Standard specification for underground precast concrete utility structures
 - **d.** C-891 Standard practice for installation of underground precast concrete utility structures
 - **e.** C-990 Standard specification for joints for concrete pipe, manholes, and precast box sections using preformed flexible joint sealants
- **B.** American Concrete Institute (ACI):
 - a. 318 Building code requirements for structural concrete
- **C.** Federal Specifications (FS):
 - a. FS-SS-S-210 Sealing Compound, Preformed Plastic for Expansion Joints and Pipe Joints

1.4 DESIGN REQUIREMENTS

- A. Precast concrete modular storm water detention: ASTM C 858
- B. Minimum Structural Design Loading: ASTM C 857.
 - a. Total Cover:
 - i. Minimum: As indicated on the Drawings.
 - ii. Maximum: As indicated on the Drawings.
 - **b.** Concrete chamber shall be designed for AASHTO HS-20 wheel load and applicable impact.
 - c. Minimum Soil Pressure:
 - i. As indicated on the Drawings.
 - **d.** Vertical and lateral soil pressures shall be determined using:
 - i. Groundwater: At or below invert of system.
 - ii. Soil density is assumed to be 120 pcf.

1.5 SUBMITTALS

A. Comply with Section 01330 (01 33 00) - Submittal Procedures, except shop drawings shall be 11 inches by 17 inches.



- **B.** Product Data: Submit manufacturer's product data and installation instructions.
- **C.** Shop Drawings:
 - **a.** Submit manufacturer's shop drawings, including plans, elevations, sections, and details, indicating layout, dimensions, foundation, cover, and joints.
 - **b.** Indicate size and location of roof openings and inlet and outlet pipe openings.
 - **c.** Indicate sealing of joints.
- **D.** Certification by a Professional Engineer licensed in the State of installation shall be submitted that the MTD meets or exceeds the structural design standards listed in this specification and local codes.

1.6 DELIVERY, STORAGE, AND HANDLING

- **A.** Delivery of Accessories: Deliver to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Storage of Accessories:
 - a. Store in accordance with manufacturer's instructions.
- C. Handling: Protect materials during handling and installation to prevent damage.

PART 2- PRODUCTS

2.1 MANUFACTURER

A. StormTrap, 1287 Windham Parkway, Romeoville, IL 60446. Phone (815) 941-4663. Fax (331) 318-5347. Website www.stormtrap.com.

2.2 QUALITY ASSURANCE

- **A.** The in-line netting floatables collection system shall be a product of an established firm experienced and qualified in the manufacture and design of such systems and who can demonstrate adequate installation and performance of similar systems elsewhere. An established supplier or firm must:
 - **a.** Have a minimum of five (5) years' experience in the manufacture/design of such systems;
 - **b.** Have undertaken physical modeling hydraulic studies of their debris collection and sedimentation systems to substantiate head loss requirements and have documented test results available for review by the engineer or owner;
 - **c.** Have a minimum of ten (10) floatables collection systems in service for a minimum of 2 years with satisfactory performance. For each installation, the Contractor shall provide:
 - i. Location and owner,
 - ii. Installation date,
 - iii. Contact person and telephone number,
 - iv. Model number of the system or the capacity.

2.3 MATERIALS AND DESIGN

- **A.** Precast concrete stormwater modules:
 - **a.** Size: As indicated on the drawings
 - **b.** Concrete:



- i. Minimum compressive strength: 6,000 psi at 28 days
- ii. Entrained air content: 5 to 8 percent
- c. Reinforcing bars: ASTM A 615, Grade 60
- d. Cover for reinforcing bars: ACI 318
- **B.** Concrete accessories:
 - a. Joint Tape:
 - i. ASTM C 990
 - ii. 7/8-inch diameter, preformed mastic joint sealer
 - iii. Approved by manufacturer
 - **b.** Joint Wrap:
 - i. 8-inch wide sealant with protective release paper
 - ii. Approved by manufacturer
- **C.** Access openings:
 - a. Size: As indicated on the drawings
 - i. Hatches intended for net maintenance shall have a minimum clear opening as specified on the drawings or the width of the net frame plus 6-inches or more.
 - **ii.** Hatches shall be provided with a lockable latch and lift springs or cylinders and prop up mechanism to hold the hatch doors in opened position
 - iii. Circular manhole covers shall be bolt down lids
 - **b.** Size and locations approved by manufacturer
- **D.** Pipe openings:
 - **a.** Size: As indicated on the drawings
 - i. Pipe openings shall maintain a minimum of 1'-0" clearance from a vertical edge of the SiteSaver modules
 - **b.** Size and locations approved by manufacturer
- **E.** Disposable nets:
 - **a.** Disposable nets shall be constructed of a knotless knitted mesh synthetic material with openings as indicated on the drawings mounted on a one piece molded plastic tapered frame, sized to permit rapid installation and removal from the floatables collection system without contact with the floatables captured in the net.
 - b. The composition, denier, and the method of knitting of the mesh material shall be such that the finished mesh material has a minimum tensile strength of 250 pounds and a minimum elongation of 100% in the direction of the fabric wales and a minimum tensile strength of 220 pounds and a minimum elongation of 100% in the direction of the fabric courses. The tensile strength shall be determined by an independent accredited testing laboratory of The American Association for Laboratory Accreditation using ASTM Test Procedure #5034-95 using an Instron® Testing Machine. The testing laboratory must be accredited for technical competence in the field of Mechanical Testing and be certified to perform tensile and strength tests.
 - c. The Manufacturer shall provide certified copies of these test results at the request of the ENGINEER. The material shall be stable over the temperature range of –20 to +115 degrees Fahrenheit without melting, deforming or otherwise suffering loss of the mechanical and chemical properties contained in this specification.



- **d.** The material shall be unaffected by chemical pH from 4.5 to 7.5 as determined using the American Association of Textiles Chemists and Colorists pH Test Procedure.
- **e.** The net frame shall be constructed of wood or a single piece molded from high density polyethylene plastic with lifting holes formed into the tapered frame. The net frame shall be a 30-inch square molded frame.

F. Screening Baskets

- **a.** The screening baskets shall be constructed of materials of adequate size and type to withstand anticipated loads per the structural calculations
- **b.** The opening size of the screening baskets shall be sized as indicated on the drawings
- **G.** Mounting and Support System and Guide Rails:
 - a. The mounting system, lifting units, guide rails, and support members shall be constructed of materials of adequate size and type to withstand anticipated loads per the structural calculations.
 - **b.** The mounting and support system, guide rails, and drain screen shall be installed in the concrete channel surfaces, horizontal and vertical as designed using bolts, nuts, and washers of adequate size and numbers to withstand the anticipated loads.
 - i. All mounting will be "drill-in" type anchors and drilled into the sidewalls and floor of the containment chamber.
 - ii. The mounting system will be designed for the impact by the peak flow rate.
 - **c.** The guide rails shall extend from the top of the net support frame to the bottom of the lid.
 - **d.** If not factory assembled, the manufacturer shall supply all necessary hardware required to install the mounting and support system to the concrete housing. This hardware shall be of the same materials of construction as the mounting and support system.
 - **e.** Calculations to document that the design meets the bid requirements shall be provided by the CONTRACTOR with the Submittals.
 - **f.** The mounting and support system area shall be kept to a minimum and shall direct flow into the open mouth of the nets or screening baskets to the maximum extent practical.

2.4 PERFORMANCE

- **A.** The inlet pipe shall discharge the storm water into the net or basket cavity located above the inclined plate area. Liquids and particles lighter than the density of water float on the water surface. Emulsified oils are not captured and are not part of the floatable mass. The heavy fraction of the solids shall settle to floor of the device.
- **B.** Gross pollutants and particles larger than the net or screen opening size cross the primary weir and enter the net or basket cavity above the incline cell settler insert where the net or basket traps floatables that exceed the net opening size. Smaller matter discharges into the inclined cells below.
- **c.** The solids and water between the inclined cell plate walls flows from the inlet towards the hydraulic relief weir located near the outlet pipe. During this process, solids shall settle and slide down towards the bottom of each plate cell and sink to the device floor. The purified water continues to the exit pipe.



D. The particles that shall be removed in the inclined cell plate walls shall be silt, fine sand, and sand. The typical density of these particles is 2400 kg/M3 [150lbs/ft3], and their size between 2 microns and 1000 microns.

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a.	Water quality flow	CFS
b.	Peak flow	CFS
c.	Hydrocarbon capacity	Gallons
d.	Sedimentation capacity	Ft ³ .
e.	Effective settling area	Ft ²
f.	Net/Screen Opening size	4.7 mm (For all projects located in CA)

PART 3-INSTALLATION

3.1 EXAMINATION

- **A.** Examine area to receive the manufactured treatment device. Notify the engineer if area is not acceptable. Do not begin installation until unacceptable conditions have been corrected.
- **B.** Verify in field before installation, dimensions and soil conditions, including but not limited to groundwater and soil bearing capacity.

3.2 INCLINED PLATE SEPARATOR FABRICATION

- **A.** Fabrication of the inclined plate hydrodynamic separator water quality device shall be in strict accordance with the design.
- **B.** If field installation is applicable, the inclined plate hydrodynamic separator water quality device shall be provided with mounting brackets for installation into the precast concrete structure with mounting anchors. Refer to installation guide for more detailed installation guidelines and procedures

3.3 PRECAST MODULAR STORMWATER STRUCTURES

- **A.** Stormwater modules shall be manufactured according to shop drawings approved by the installing contractor and engineer. The shop drawings shall indicate size and location of roof openings and pipe openings.
- **B.** Excavation shall be as specified in Section 02300 (31 00 00)
- **c.** Modules shall be installed in accordance with manufacturer's instructions and ASTM C 891-09, standard practice for installation of underground pre-cast concrete utility structures. The following additions and/or exceptions shall apply:
 - **a.** Specifications on the engineer's drawings shall take precedence
 - **b.** Modules shall be placed on a level pad of 3/4" aggregate that extends 2'-0" past the outside of the system, per ASTM C891-09
 - c. Modules shall be placed such that the maximum space between adjacent modules does not exceed 3/4". If the space exceeds 3/4", the modules shall be reset with appropriate adjustment made to line and grade to bring the space into specification



- **d.** The perimeter horizontal joint of the modules shall be sealed with preformed mastic joint sealer according to ASTM C891-09, 8.8 and 8.12.
- e. All exterior joints between adjacent modules shall be sealed with pre-formed, cold-applied, self-adhering elastomeric resin bonded to a woven highly puncture resistant polymer wrap conforming to ASTM C891-09 and shall be 0'-8" wide with integrated primer sealant as approved by manufacturer. The adhesive exterior joint wrap shall be installed according to the following installation instructions:
 - i. Use a brush or wet cloth to thoroughly clean the outside surface at the point where the joint wrap is to be applied
 - ii. A release paper protects the adhesive side of the joint wrap. Place adhesive tape (Butyl side down) around the structure, removing the release paper as you go. Press the joint wrap firmly against the module surface when applying.
- **D.** Modules shall be backfilled in accordance with manufacturer's instructions and ASTM C 891-09, standard practice for installation of underground pre-cast concrete utility structures. The following additions and/or exceptions shall apply:
 - **a.** The fill placed around the device must be deposited on both sides at the same time and to approximately the same elevation. At no time shall the fill behind one side wall be more than 2'-0" higher than the fill on the opposite side.
 - **b.** Backfill shall be compacted to 95% standard proctor density or otherwise specified by engineer.
 - **c.** Care shall be taken to prevent any wedging action against the structure, and all slopes bounding or within the area to be backfilled must be stepped or serrated to prevent wedge action.
 - **d.** Care shall also be taken as not to disrupt the joint wrap from the joint during the backfill process.
 - e. Backfill material shall be clean, crushed, angular No.5 (AASHTO M43) aggregate.
- **E.** Align the center of pipe to correct elevation and insert into opening. The annular space between the pipe and the opening shall be filled with non-shrink grout.
- **F.** Use precast adjusting rings as needed to meet grade. For cover over 2'-0" it is recommended to use a precast barrel or cone section.
- **G.** The contractor is responsible to ensure the selected water tight solution performs as specified by the manufacturer.
- **H.** Do not use modules that are damaged, as determined by manufacturer.

3.4 MANUFACTURER INSTALLATION TECHNICAL ASSISTANCE

A. At the time and place of installation of any SiteSaver®, StormTrap, LLC. will provide a Product Liaison on site to offer installation advice to the installation contractor if reasonable notification (approximately two-week notice) of the install date is given.

3.5 OPERATION AND MAINTENANCE

A. The maintenance of the SiteSaver® is the responsibility of the Owner. Each site has unique site conditions. It is the responsibility of the Owner to establish a schedule according to the



conditions of the specific SiteSaver location. Failure maintain the device can lead to reduced flow capacity and blockage due to collected pollutants. It is strongly recommended that the Owner follow the prescribe maintenance specifications and procedures published by StormTrap, LLC.

End of Section



Appendix C - SiteSaver Installation Manual and Installation Photographs

SiteSaver Installation Guide/Pre-Construction Form

Recommended Tools to Have Onsite

- Adjustable 4-way chains or slings and/or swivel appropriately sized for lifting components
- Clevis/clutches (x4) to connect lifting chains/slings to lifting hardware (provided) or utility hooks
- Utility hooks (x4) needed for placement of internal plate components
- Manhole ladder
- Hammer drill with ½" concrete bit to anchor internal plate components to concrete vault
- Drill with ¼" bit to connect net support frame to internal plate components
- Impact drill with ½" extended socket for concrete wedge anchors
- Hammer 2lb. for concrete wedge anchors
- Caulk gun
- Proper PPE protection (i.e. gloves when handling aluminum components)

Installation Procedure

1. Preconstruction Meeting

- Prior to delivery, the installing contractor is responsible to arrange with StormTrap a preconstruction site meeting. It is recommended that all involved parties participate in the meeting. It is also recommended that the preconstruction meeting be completed prior to preparation of the subbase. Any installation questions/concerns as well as shipping logistics/sequencing should be discussed and determined at this time. The objective of the preconstruction meeting is as follows:
 - i. Determine an acceptable delivery time and date as well as provide StormTrap with any specific delivery instructions
 - ii. Verify that the equipment used to set/install the system is adequate. It is the responsibility of the installing contractor to ensure the equipment is adequate. StormTrap will provide the necessary information regarding weight and size of the components in order to assist the contractor to make an informed decision.
 - iii. Review this document with the contractor and address any questions/concerns prior to the components arriving onsite.

2. Site Preparation Excavation

 In addition to the overall system dimensions, the sub base of the system will extend beyond the dimensions of the SiteSaver system. Refer to the approved SiteSaver drawings for sub base requirements and system dimensions.

3. Site Preparation Foundation

- SiteSaver modules shall be placed on a bed of clean, crushed, angular stone as detailed in the approved drawings.
- Both the aggregate and geogrid (if required) shall be installed with a minimum 2'-0" overhand beyond the limits of the SiteSaver system (refer to SiteSaver approval drawings for depth of subgrade and specifications as subbase preparation can vary from project to project).



- Refer to the approved SiteSaver drawings for the required minimum soil pressure.
- Soil strengths are to be verified in the field by others.

4. Delivery

- StormTrap will do everything possible to maintain trucking schedule, however, StormTrap is not responsible for trucks that are late due to Acts of God (traffic, weather, etc). Therefore, StormTrap cannot guarantee load times
- A \$65.00 per hour detention fee will be charged for any trucks being held on site longer than an hour past their scheduled delivery time.
- If the contractor needs to cancel any shipments, they must do so 72 hours prior to their scheduled arrival at the job site. If canceled after that time a partial or full load of freight will be charged to the installing contractor). Please contact your account representative or StormTrap at 815-941-4663.
- BEFORE removing any units from the flatbeds, the contractor is responsible to inspect and verify that the units have arrived in an undamaged state.
 StormTrap will not accept any backcharges or returns for the product once it is removed from the mode of transportation.
 - i. If the SiteSaver components are damaged StormTrap, LLC must be contacted immediately to assess the damage and to determine whether or not the components will need to be replaced.
 - ii. If any unit arrives at the job site damaged do not unload it; contact StormTrap immediately. Any damage not reported before the truck is unloaded will be the contractor's responsibility. Photos should be emailed and documented.
- SiteSaver units cannot be altered in any way after manufacturing without written consent from StormTrap, LLC.

5. Lifting

- All the precast units are supplied with cast-in lifting anchors to enable safe
 handling. To prevent stress and possible concrete cracking, all units must be
 handled using the cast-in lifting anchors and associated lifting clutches.
 Installers should use approved lifting equipment only. It is the installing
 contractor's responsibility to ensure the lifting clutches are available on site.
 The lifting points of anchors are clearly shown on the StormTrap drawings.
- Wherever possible, all components should be lifted from the delivery truck and set directly onto the prepared subgrade. If temporary storage of the components is required onsite, they should be placed carefully on level, even ground. Modules should not be stacked on top of each other.
- Take care not to strike the modules or components together when unloading or lowering occurs. Be aware of pinch hazard at all times and don't walk or work under suspended loads.

6. Sequencing of Offloading and Installation

- The components should be offloaded in the following order:
 - i. Remove the internals from the base module and set to the side
 - ii. Offload and set the base module
 - iii. Reconnect to the internals and place in the base module in the final location
 - iv. Offload and set the top module



- v. Connect internals to top module using supplied anchors
- vi. Connect net frame to internals and top module using supplied anchors, nuts, bolts, and washers

7. Installation Step-by-Step Guide

See Figures Below

8. Backfill Procedure

- The remaining backfill placed around the perimeter of the SiteSaver units must be deposited on both sides at the same time and to approximately the same elevation. At no time shall the fill behind one sidewall be more than 2′-0″ higher than the fill on the opposite side. Backfill shall be compacted to 95% standard proctor density or otherwise specified by the engineer or approved SiteSaver drawings. Care shall be taken to prevent any wedging action against the structure, if shoring is not utilized, all slopes bounding or within the area to be backfilled must be stepped or serrated to prevent wedge action. Recommended backfill to consist of ¾″ coarse aggregate stone or approved equal and shall conform to the specified density/lateral saturated pressure requirements specified on the approved drawings.
- Top or fill material can consist of a variety of materials including but not limited to stone, clay, ¾" with or without fines and not to exceed the specified backfill density requirements
- When compaction is to be completed overtop the SiteSaver system, vibratory action shall be disengaged at all times. Equipment above the system shall not exceed the minimum loading requirements shown in the approved SiteSaver drawings.
- After the minimum required amount of cover is placed over top of the system, the standard designed loads can be utilized over the system.

9. Contact Information

- StormTrap PM Name
- StormTrap PM Phone Number
- StormTrap PM Email Address

I understand the above reviewed SiteSaver installation procedures and agree to adhere to these points and the approved SiteSaver drawings. Any discrepancies found should be brought to StormTrap's attention.

Accepted By	/:		
Name:			
Signature: _			
Date:			



Inspect the Components

Inspect the Top and Base Modules, Internal Components, Waterproofing Material, Lifting and Installation Hardware





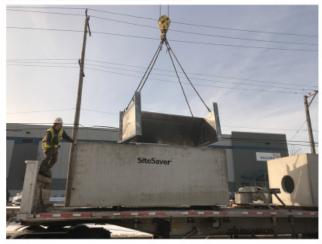






Offload Internals and Set Aside

Use Utility Hooks to Offload Internals and Temporarily Set Aside





42



Set Base Module

Use Provided Lifting Hardware to Offload Base Module





Apply Waterstop

Place Waterstop Along the Perimeter of the Base Module







Set Internal Components

Use Utility Hooks to Slowly Lower Internal Components onto the Wall Angles in Base Module (Hinged Component is on Outlet Side)





Set Top Module

Use Provided Lifting Hardware to Slowly Lower Top Module onto the Base Module (Square Opening to Inlet Side)





*When setting top module care should be taken to prevent any damage to the internal components



Anchor Internals & Net Frame

Use Supplied Wedge Anchors to Connect Internals and Net Frame to Top Module









Appendix D - SiteSaver Operations and Maintenance Manual SiteSaver® Manufacturer's Instruction Manual

Regular inspections are recommended to ensure that the system is functioning as designed. Please contact your Authorized SiteSaver Representative if you have questions regarding the inspection and maintenance of the SiteSaver system. SiteSaver does not require entry into the system for maintenance; however, it is prudent to note that prior to entry into any underground storm sewer or underground structure, appropriate OSHA and local safety regulations and guidelines should be followed.

Inspection Scheduling

The frequency of inspections and maintenance is dependent on site specific loading conditions and rainfall frequency. Within the first year of operation, it is recommended that the unit be inspected quarterly to determine the rate of pollutant accumulation in order to develop a more accurate maintenance schedule. SiteSaver systems are recommended for inspection whenever the upstream and downstream catch basins and stormwater pipes of the stormwater collection system are inspected or maintained. This will minimize the cost of the inspection if it is done at the same time. If checked on an annual basis, the inspection should be conducted before the stormwater season begins to ensure that the system is functioning properly for the upcoming storm season.

Inspection Process

Inspections should be done such that a sufficient time has lapsed since the most recent rain event to allow for a static water condition. Visually inspect the system at all manhole and access opening locations. For debris accumulation, visually inspect the netting or screening basket components (if utilized) to determine the bag or basket capacity. Nets or baskets



containing only minor quantities of debris may be retained in place. It is recommended to replace the nets or clean the screening baskets when they appear 1/2 - 2/3 full. Failure to replace nets and/or remove floatables from bypass screening (if applicable) will lead to hydraulic relief, drain down deficiencies, and decrease the long-term functionality of the system.

For sediment accumulation, utilize either a sludge sampler or a sediment pole to measure and document the amount of sediment accumulation. To determine the amount of sediment in the system with a sludge sampler follow the manufacturer's instructions. If utilizing a sediment pole, first insert the pole to the top of the sediment layer and record the depth. Then, insert the pole to the bottom of the system and record the depth. The difference in the two measurements corresponds to the amount of sediment in the system. Finally, inspect the inlet pipe opening to ensure that the silt level or any foreign objects are not blocking the pipe.

SiteSaver units can also be installed with remote monitoring technology that measures the current capacity of trash and debris contained within the system and reports the data to any internet device to decrease the amount of physical inspections required. If a remote monitoring device is used, proper maintenance of the device, such as replacement of batteries, cleaning sensor, etc. needs to be completed to ensure functionality of the remote monitoring technology.

Maintenance Process - Debris Removal

Maintenance should be done utilizing proper personal protective equipment such as: safety glasses, hard-hat, gloves, first aid kit, etc. Maintenance should occur only when a sufficient time has lapsed since the most recent rain event to allow for a static water condition for the duration of the maintenance process.



In the case that only trash and floatables need to be removed, and a netting configuration or a removable screening basket is utilized, a vacuum truck is not required. However, a vacuum truck is required if a fixed screening basket configuration is utilized. If the maintenance event is to include oil removal and or sediment removal a vacuum truck or similar equipment would be needed.

Maintenance Process – Debris Removal for Netting Configurations

For floatable debris removal when a netting bag is utilized, lift the netting bag by the frame, moving it upwards along the netting support frame. To ease lifting the nets to the surface, gaff hooks or a service vehicle (crane/hoist/boom truck) may be used. Slowly raise the netting frame allowing water in the net to drain as it is raised to allow it to drip dry. Once the netting component is fully removed from the system, it should be properly disposed of per local, state, and federal guidelines and regulations. Typically, the netting component can be disposed of in a common dumpster receptacle.



Maintenance Process - Debris Removal for Removable Basket Configurations

For floating debris removal when a removable basket is utilized, remove the screening basket by lifting the basket slowly moving it upwards along the support frame. Once the screening basket is fully removed from the SiteSaver system, empty the basket into a dumpster

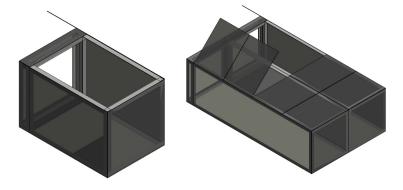


receptacle by either tipping the unit so the debris falls out the mouth of the basket or release the bottom latch in the basket. The latch opens the bottom section of the basket to drop debris into the receptacle. After the basket has been emptied, ensure that all latches are secured prior to placing the basket back into the SiteSaver system. Place the basket back into the SiteSaver system by sliding the netting frame down the support frame.

Removable basket configurations can also be maintained without removing the screening basket from the SiteSaver. If electing to perform maintenance without removing the basket, see the maintenance process for debris removal for fixed basket configurations below.

Maintenance Process – Debris Removal for Fixed Basket Configurations

For floatable debris removal when a fixed basket is utilized, a vacuum truck, or similar trailer mounted equipment can be used to remove the debris. Unlatch the top section of the screening basket and lift to access the inside of the basket. Take the vacuum hose and remove all debris from inside of the basket. After the basket has been emptied, ensure that the top section of the screening basket is closed, and all latches are secured.



Maintenance Process - Sediment Removal

For sediment removal, the SiteSaver is designed with clear access at both the inlet and outlet. A vacuum truck, or similar trailer mounted equipment, can be used to remove the sediment, hydrocarbons, and water within the unit. For more effective removal, it is recommended to use sewer jetting equipment or a spray lance to force the sediment to the vacuum hose.



When the floor is sufficiently cleaned, fill the system back to its normal water elevation (to the pipe inverts).

Maintenance Process - Net Replacement

Install a new net assembly by sliding the netting frame down the support frame and ensure the netting lays over the plate assembly such that the netting is not restricted. To order additional disposable nets, contact your local SiteSaver representative. New nets come with tie wraps temporarily holding the net material to the frame component for easy handling and storage. It is not recommended to remove the tie wraps until the net is ready to be installed. The frame is tapered from top (widest part) to bottom and is also tapered from front (towards the sewer) to back. Cut the tie wraps that secures the netting material to the frame for shipment and lower the net down the guide rails. If debris has accumulated in the net support frame, remove the objects so the new net seats fully in the channel when installed.

When lowering the net, the following details should be exercised when placing the net:

- Watch the lowering to make sure that there are no unexpected entanglements.
- Be careful not to let the toe of the net get caught under the frame when it reaches the bottom of the support frame. This is typically accomplished by holding the toe of the net until after the net has started to prop into place.
- Ensure the netting lays over the plate assembly such that the netting is not restricted.





Maintenance Process – Clean Up, Disposal, and Documentation

Complete a post maintenance inspection to ensure that all components have been replaced and are properly secured within the SiteSaver device. It is a good practice to take time stamped photographs after every maintenance event to include within maintenance logs. After verifying all components, secure the access openings and ensure proper disposal of all pollutants removed during maintenance per local, state, and federal guidelines.

Proof of inspections and maintenance is the responsibility of the owner. All inspection reports and data should be kept on site or at a location where they will be accessible for years in the future. Some municipalities require these inspection and cleaning reports to be forwarded to the proper governmental permitting agency on an annual basis. Refer to your local and national regulations for any additional maintenance requirements and schedules not contained herein. Inspections should be a part of the standard operating procedure. It is good practice to keep records of rainfall events between maintenance events and the weight of material removed, even if no report is required.



Appendix E – SiteSaver Warranty

SITESAVER® WARRANTY

8.1 Warranty Statements

- 1. StormTrap LLC warrants to the Purchaser that the SiteSaver® modules, when installed strictly in accordance with StormTrap LLC's written installation instructions, are of the quality set forth in the specifications published by StormTrap LLC for such module for a warranty period of 5 years. The warranty period shall commence starting the last day of installation of any module.
- 2. StormTrap LLC further warrants to the Purchaser that the products to be delivered hereunder shall be free of defects in materials and workmanship in normal use and service for a warranty period of 5 years.

8.2 Limits to Warranty

1. This is a Limited Warranty that applies solely to SiteSaver® modules and is exclusive and in lieu of all other warranties (whether expressed, implied, or statutory). EXCEPT AS SET FORTH IN THE WARRANTY STATEMENTS, STORMTRAP LLC MAKES NO EXPRESS OR IMPLIED WARRANTY THAT THE PRODUCTS SOLD HEREUNDER ARE OF MERCHANTABLE QUALITY, ARE FIT FOR ANY PARTICULAR PURPOSE, COMPLY WITH REQUIREMENTS OF ANY SAFETY CODE OR COMPLY WITH THE LAWS AND REGULATIONS OF ANY STATE, MUNICIPALITY OR OTHER JURISDICTION.

8.3 Limits to Beneficiaries and Damages and Claims

1. This limited warranty is given only to the Purchaser. It may not be assigned to any party other than Purchaser and there are no third party beneficiaries to this limited warranty.



- 2. IN NO EVENT SHALL STORMTRAP LLC BE LIABLE FOR SPECIAL,
 INDIRECT, ECONOMIC, INCIDENTAL, EXEMPLARY, PUNITIVE OR
 CONSEQUENTIAL DAMAGES, AND STORMTRAP LLC SHALL NOT BE
 LIABLE FOR PENALTIES OR LIQUIDATED DAMAGES, INCLUDING LOSS
 OF PRODUCTION AND PROFITS, LABOR AND MATERIALS, OVERHEAD
 COSTS, OR ANY LOSS OR EXPENSE INCURRED BY THE PURCHASER OR
 ANY THIRD PARTY.
- 3. StormTrap LLC's obligation under this warranty shall not include any freight or transportation charges or costs of installation.
- 4. STORMTRAP LLC'S TOTAL LIABILITY TO PURCHASER SHALL IN NO EVENT EXCEED THE PURCHASE PRICE OF THE SITESAVER® MODULES IN RESPECT TO WHICH ANY CLAIM UNDER THIS WARRANTY ARISES, OR FOR ANY AND ALL CLAIMS ARISING OUT OF ANY CAUSE WHATSOEVER, WHETHER BASED IN CONTRACT, NEGLIGENCE OR OTHER TORT STRICT LIABILITY OR OTHERWISE.
- 5. THIS LIMITED WARRANTY IS THE EXCLUSIVE REMEDY FOR
 PURCHASER WITH RESPECT TO THE SITESAVER® MODULES. StormTrap
 LLC not be liable to the Purchaser or to any third party for any other product
 liability claims; claims arising from design, shipment, or installation of the
 SiteSaver® modules, or the cost of other goods or services related to the
 purchase and installation of the SiteSaver® modules.

8.4 Limitations Due to Installation, Handling and Use

- 1. For this Limited Warranty to apply, the SiteSaver® modules must be installed in accordance with all conditions required by state and local codes; all other applicable laws and regulations; and StormTrap LLC's written installation instructions.
- 2. This warranty shall not apply to any SiteSaver® modules which have been subjected to damage from abuse or mishandling, or which have been repaired or modified by anyone other than StormTrap LLC.



2. Excluded from this limited warranty are damages due to alteration, accident, misuse, abuse or neglect; the SiteSaver® modules being subject to conditions which are not permitted by StormTrap LLC's design criteria or installation instructions; such as but not limited to failure to maintain the minimum cover or exceed the maximum cover to grade set forth in the design criteria or installation instructions; failure to install within tolerance and set true to line and grade as set forth in the specifications or installation instructions; the placement of improper bedding or backfill materials; improper installation, bedding, or backfill techniques; failure of the product due to improper application or improper sizing; or any other event not caused by StormTrap LLC.

8.5 No Other Expressed Warranty

- 1. Except as specified herein, no other expressed warranty is given and no affirmation on Seller's part or on the part of Seller's representatives or agents, by work or act, shall constitute a warranty.
- 2. No representative of StormTrap LLC has the authority to change this Limited Warranty in any manner or to extend this Limited Warranty, unless written confirmation is provided by an officer of StormTrap LLC.

8.6 Remedies

1. If a breach of this warranty shall become apparent to the purchaser, the purchaser has the responsibility to provide StormTrap LLC with prompt written notice of the alleged breach at StormTrap LLC's company headquarters. This notice shall be provided within 30 days of the discovery of the alleged defect and shall describe it in detail. AS THE SOLE AND EXCLUSIVE REMEDY TO PURCHASER FOR SUCH BREACH, STORMTRAP LLC AGREES TO PROVIDE REPLACEMENT MODULES OR REPAIR THOSE MODULES DETERMINED BY STORMTRAP, LLC TO BE DEFECTIVE AND COVERED BY THIS LIMITED WARRANTY. Removal and/or installation of the replacement modules is the responsibility of the purchaser and specifically excluded by StormTrap LLC.



Appendix F - MCVAC Verification Letter





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

StormTrap, LLC 1287 Windham Parkway Romeoville, IL 60446

March 18, 2021

Dear Mr. Fajman,

Thank you for the submission of the StormTrap SiteSaver full trash capture device 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 StormTrap SiteSaver 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 StormTrap SiteSaver 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:

- 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.
- 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

If all