

December 01, 2020

Mr. Jaime Favila
California State Water Resources Control Board
Division of Water Quality
P.O. Box 100
Sacramento, CA 95812-0100
Jaime.Favila@waterboards.ca.gov

Re: Application for Trash Treatment Control Device Certification - BrightWater™ Connector Pipe Screen

Dear Mr. Favila,


BrightWater™ is pleased to submit this application for Certification of the BrightWater™ Connector Pipe Screen as a Full Capture Trash Treatment Control Device. Documentation for this application is being submitted in accordance with the California State Water Resources Control Board *Trash Treatment Control Device Certification and Fact Sheet Update Requirements* document dated *July 2020* that includes the following minimum requisite 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

A copy of this Application has been submitted to the Mosquito and Vector Control Association of California in accordance with Section 6.a of the Certification Requirements.

Please contact me with any questions or should additional information be required. Thank you for your consideration of this application.

Regards,



Marie Clifford
President

1. COVER LETTER

1.a. Device product name and general description;

The BrightWater™ Connector Pipe Screen (CPS) is a post-construction, stormwater Best Management Practice (BMP) designed to capture 100% of trash and debris 5mm and larger in size from stormwater systems. The device, which consists of a filtration screen and mounting framework, installs in front of the outlet pipe (connector pipe) of a curb inlet or drop inlet catch basin and screens for gross pollutants such as trash and debris effectively converting an existing or new catch basin into a treatment device. The CPS is an economical point source treatment system suitable for new and existing stormwater infrastructure

The device is available in standard configurations to fit outlet pipe sizes up to 36-inch diameter. Standard “U” shaped configurations are designed to fit in catch basins with centered outlets and “L” shaped configurations are designed to fit in catch basins with off-center and corner outlets. A mandatory Deflector Plate Assembly is available for applications with incoming flow directly above the Connector Pipe Assembly.

1.b. The name of the Device owner;

The name of the Device owner or if the Device is owned by a corporation, the name and position of the highest corporate officer (e.g., CEO or president). If the application is signed by the owner’s authorized representative (e.g., vice-president, department director, etc.), identify the name and position of the authorized representative. The contact information for the Device owner and authorized representative shall include the mailing address, email address, and telephone number;

The Device is owned by BrightWater™.

Corporate Contact:

Marie Clifford
President
BrightWater™
P.O. Box 85430
San Diego, California 92186
(619) 821-1558
mclifford@wearebrightwater.com

1.c. The owner or manufacturer’s website where the Device can be found on the internet;

www.wearebrightwater.com

1.d. The location of the Device manufacturing site;

BrightWater™ utilizes a combination of contract manufacturers and component suppliers to produce the Connector Pipe Screen stormwater treatment system. These partner facilities are located throughout the United States and BrightWater™ selects the facility used based on proximity to the project as well as other factors. The facilities utilized for any particular project are selected to provide the most cost effective and convenient solution.

BrightWater™ currently retains four partner manufacturing facilities strategically located throughout the country. The facility that serves the California market is located at 2285 Micro Place, Escondido, California 92029.

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

No field/lab/testing has been completed.

The BrightWater™ Connector Pipe Screen stormwater treatment system utilizes a screen that is made from perforated stainless steel mesh that has an aperture not greater than 3/16” (5mm). All design flows must pass through the screen ensuring capture of all particles 5mm in size or larger and as such testing is not compulsory.

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

The BrightWater™ Connector Pipe Screen is a pre-engineered filtration system designed to meet site-specific water quality treatment requirements. Conformance with the Engineer’s Plans and Specifications and the Manufacturer’s recommendations is essential to ensure proper operation and function of the Device.

The BrightWater™ Connector Pipe Screen mounting brackets, structural framing, hardware, and screen are manufactured using stainless steel components to provide for a long service life treatment system. The materials selected are intended to serve a wide variety of applications and are the most durable materials available for stormwater treatment devices. Conformance to installation recommendations are required to ensure the design service life of the Device is maintained.

BrightWater™ Connector Pipe Screens should be sized to meet site and region specific water quality objectives and requirements. Systems that are not designed and installed in conformance within the maximum treatment flow rate and maximum bypass flow rate limits can cause adverse hydraulic conditions. Additionally, non-conformance with the Device design limits may cause non-compliance with the water quality objectives and requirements.

All structural, post-construction Best Management Practices require routine and scheduled inspection and maintenance. Inspection and maintenance is facilitated by the design of the

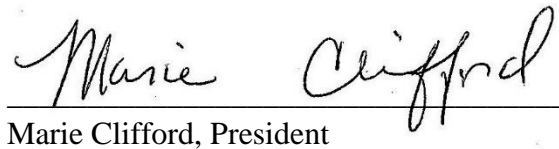
Device. The design of the Device allows for quick and easy inspection and maintenance. Project design considerations for maintenance frequency should be a consideration.

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, and

Installations of the Trash Capture version of this device are pending SWRCB Certification.

1.h. The application shall be signed by the owner or authorized representative (not the technical or sales representative) and include the following certification:

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.



Marie Clifford, President

12/01/2020
Date

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3. PHYSICAL DESCRIPTION

3.a. Trash Capture:

Describe how the Device traps all trash particles 5 mm or greater in size;

The Connector Pipe Screen is a passive, gravity-flow device with no moving parts. Operation is simple and efficient. Pollutant laden stormwater enters the curb opening and travels towards the outlet pipe (connector pipe) where the stormwater encounters the Connector Pipe Screen perforated mesh screen face. The CPS is installed in the catch basin such that all stormwater flows (of a prescribed size) must pass through the screen before exiting the catch basin. Stormwater is screened of all material 5mm and larger in size as the water passes through the screen. Once screened, the stormwater freely exits the catch basin through the outlet pipe. The trash and debris, 5mm in size and larger, remains in the catch basin on the upstream side of the Connector Pipe Screen. The Connector Pipe Screen is designed to treat flows up to the listed Maximum Treatment Flow Rate (MTRF) for that specific device. Peak flows in excess of the Maximum Treatment Flow Rate overtop the Connector Pipe Screen and flow unobstructed to the Outlet Pipe. (See Figure 1.)

In some instances, the outlet pipe may be located directly beneath of the catch basin curb

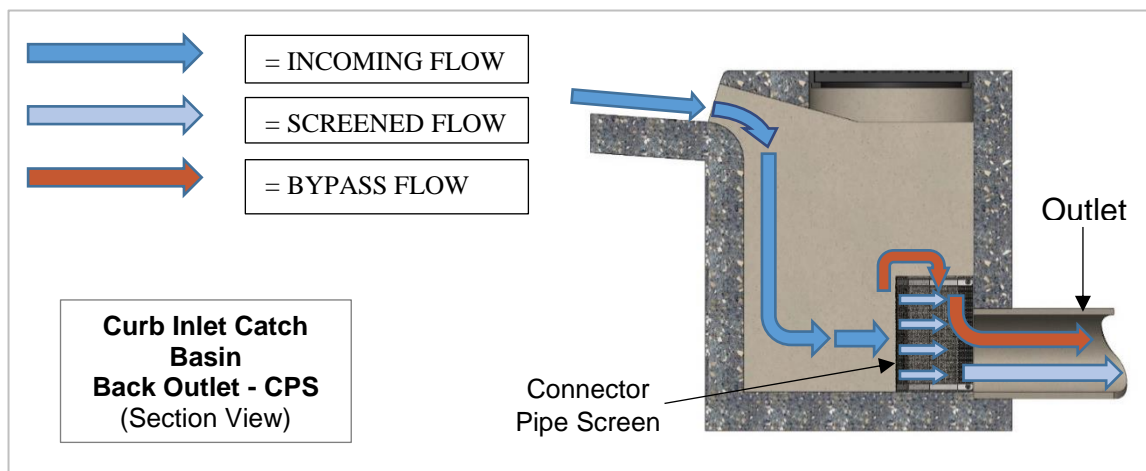


Figure 1 - Operation of Connector Pipe Screen

opening inlet or the catch basin being outfitted with the CPS is a drop inlet style with a grate. In either instance the incoming stormwater flows must be prevented from short-circuiting the Connector Pipe Screen. This is accomplished by installing a Deflector Plate Assembly to operate in conjunction with the Connector Pipe Screen. (See Figure 2.) With the Deflector Plate Assembly in place, pollutant laden stormwater enters the curb opening (or grated opening) and first encounters the Deflector Plate Assembly. The Deflector Plate Assembly diverts the water away from the CPS bypass opening. The stormwater then travels through the catch basin and towards the outlet pipe (connector pipe) where the stormwater encounters the Connector Pipe Screen perforated mesh screen face. The CPS is installed in the catch basin such that all stormwater flows (of a prescribed size) must pass

through the screen before exiting the catch basin. Stormwater is screened of all material 5mm and larger in size as the water passes through the screen. Once screened, the stormwater freely exits the catch basin through the outlet pipe. The trash and debris, 5mm

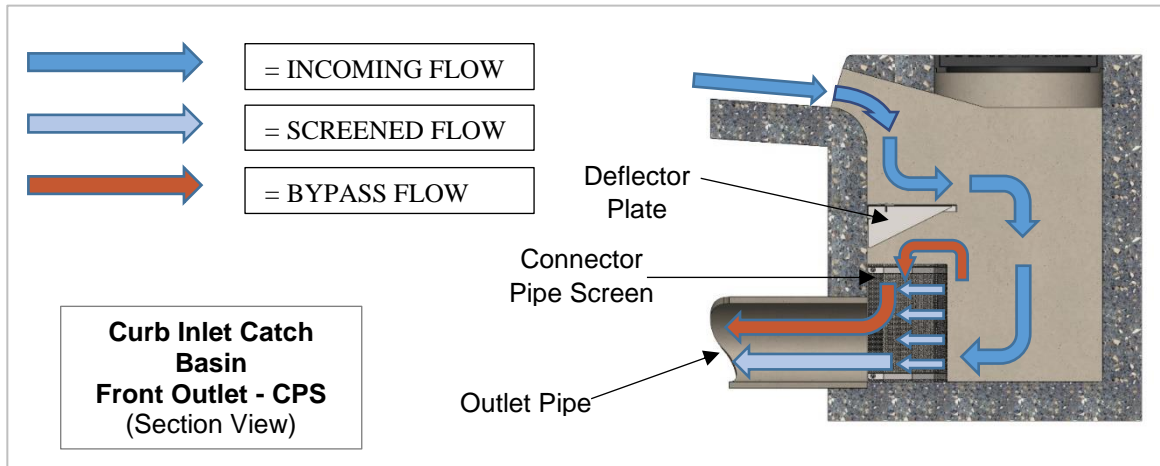


Figure 2 - Operation of Connector Pipe Screen with Deflector Plate Assembly

in size and larger, remains in the catch basin on the upstream side of the Connector Pipe Screen. The Connector Pipe Screen is designed to treat flows up to the listed Maximum Treatment Flow Rate (MTFR) for that specific device. Peak flows in excess of the Maximum Treatment Flow Rate overtop the Connector Pipe Screen and flow beneath of the Deflector Plate Assembly unobstructed to the Outlet Pipe. Consideration must be given to the location and elevation of the Deflector Plate Assembly with regard to necessary bypass and projection of incoming stormwater flows.

3.b. Peak Flows/Trash Volumes:

Explain how the Device is sized for varying peak flow rates and trash capture volumes.

The Device has two variable characteristics that all for sizing for varying peak flow rates and trash capture volumes. The width of the CPS and the height of the CPS can be varied to accommodate for various flow requirements and trash capture requirements. Wider CPS units and taller CPS units provide for increased screen area and thus increased hydraulic capacity. Table 3 and Table 4 in Section 3.c. list the most commonly utilized models of CPS units along with their respective screen widths, heights and areas. These tables should be utilized for selection of the appropriate CPS unit for a given application. The required Trash treatment flow rate and trash capture volume should first be determined and then the appropriate model selected so that the required treatment flow rate and trash capture volume does not exceed the listed capacity of the CPS unit. Consideration should be given to maintenance as well as reduced capacity for screen blockage.

3.c. Hydraulic Capacity:

- 1) For all standard sizes, provide a table of the hydraulic capacity (flow rate) when the Device is empty and at several intervals of trash capture volumes up to the Device’s recommended maximum trash capture volume;

Table 1 and Table 2 list standard models with treatment flow rates based on various levels of screen blockage. Please note that trash capture volume and screen blockage can be directly related but trash may not always be evenly distributed in the catch basin thus screen blockage was utilized as a more conservative approach.

Table 1

HYDRAULIC CAPACITY W/ SCREEN BLOCKAGE				
"U" CONFIGURATION				
Model Number	MTFR (Clean) ¹	MTFR (75% Open) ¹	MTFR (50% Open) ¹	MTFR (25% Open) ¹
Model No.	(cfs)	(cfs)	(cfs)	(cfs)
BWCPS-2112SU	2.79	1.81	0.99	0.35
BWCPS-2118SU	5.13	3.33	1.81	0.64
BWCPS-2124SU	7.89	5.13	2.79	0.99
BWCPS-2130SU	11.03	7.16	3.90	1.38
BWCPS-2136SU	14.50	9.42	5.13	1.81
BWCPS-2412SU	3.19	2.07	1.13	0.40
BWCPS-2418SU	5.86	3.81	2.07	0.73
BWCPS-2424SU	9.02	5.86	3.19	1.13
BWCPS-2430SU	12.61	8.19	4.46	1.58
BWCPS-2436SU	16.57	10.76	5.86	2.07
BWCPS-3612SU	4.78	3.11	1.69	0.60
BWCPS-3618SU	8.79	5.71	3.11	1.10
BWCPS-3624SU	13.53	8.79	4.78	1.69
BWCPS-3630SU	18.91	12.28	6.68	2.36
BWCPS-3636SU	24.86	16.14	8.79	3.11
BWCPS-4212SU	5.58	3.62	1.97	0.70
BWCPS-4218SU	10.25	6.66	3.62	1.28
BWCPS-4224SU	15.78	10.25	5.58	1.97
BWCPS-4230SU	22.06	14.33	7.80	2.76
BWCPS-4236SU	29.00	18.83	10.25	3.62
BWCPS-4812SU	6.38	4.14	2.25	0.80
BWCPS-4818SU	11.72	7.61	4.14	1.46
BWCPS-4824SU	18.04	11.72	6.38	2.25
BWCPS-4830SU	25.21	16.37	8.91	3.15
BWCPS-4836SU	33.14	21.53	11.72	4.14

This table lists commonly specified standard model sizes. Additional standard model sizes and custom sizes are available.

1. MTFR utilizes an orifice coefficient (C) of 0.60 and an approximated upstream/downstream head differential across the screen of 2/3 of the maximum screen height. The listed MTFR has a safety factor (SF) of 2X applied.

Table 2

HYDRAULIC CAPACITY W/ SCREEN BLOCKAGE				
"L" CONFIGURATION				
Model Number	MTFR (Clean)¹	MTFR (75% Open)¹	MTFR (50% Open)¹	MTFR (25% Open)¹
Model No.	(cfs)	(cfs)	(cfs)	(cfs)
BWCPS-2112L	2.27	1.48	0.80	0.28
BWCPS-2118L	4.17	2.71	1.48	0.52
BWCPS-2124L	6.43	4.17	2.27	0.80
BWCPS-2130L	8.98	5.83	3.18	1.12
BWCPS-2136L	11.81	7.67	4.17	1.48
BWCPS-2412L	2.60	1.69	0.92	0.32
BWCPS-2418L	4.77	3.10	1.69	0.60
BWCPS-2424L	7.35	4.77	2.60	0.92
BWCPS-2430L	10.27	6.67	3.63	1.28
BWCPS-2436L	13.49	8.76	4.77	1.69
BWCPS-3612L	3.90	2.53	1.38	0.49
BWCPS-3618L	7.16	4.65	2.53	0.89
BWCPS-3624L	11.02	7.16	3.90	1.38
BWCPS-3630L	15.40	10.00	5.44	1.92
BWCPS-3636L	20.24	13.15	7.16	2.53
BWCPS-4212L	4.54	2.95	1.61	0.57
BWCPS-4218L	8.35	5.42	2.95	1.04
BWCPS-4224L	12.85	8.35	4.54	1.61
BWCPS-4230L	17.96	11.67	6.35	2.25
BWCPS-4236L	23.61	15.34	8.35	2.95
BWCPS-4812L	5.19	3.37	1.84	0.65
BWCPS-4818L	9.54	6.20	3.37	1.19
BWCPS-4824L	14.69	9.54	5.19	1.84
BWCPS-4830L	20.53	13.34	7.26	2.57
BWCPS-4836L	26.99	17.53	9.54	3.37

This table lists commonly specified standard model sizes. Additional standard model sizes and custom sizes are available.

1. MTFR utilizes an orifice coefficient (C) of 0.60 and an approximated upstream/downstream head differential across the screen of 2/3 of the maximum screen height. The listed MTFR has a safety factor (SF) of 2X applied.

- 2) If the Device has alternative configurations that impact the hydraulic capacity, include a table of the hydraulic capacity for each Device configuration.

The Device does not have any alternative configuration that impact the hydraulic treatment capacity.

- 3) If Hydraulic capacities are calculated, provide the formulas used and at least one example of the completed calculations. If hydraulic capacity was observed through laboratory or field testing, provide the testing report.

The Device hydraulic capacities are calculated utilizing a similar method to the County of Los Angeles Department of Public works as detailed in “*Technical Report – Connector Pipe Screen Design – Full Capture TMDL Compliance Screen and Bypass Sizing Requirements – April 2006*”. The equation for treatment capacity and an example for one of the standard models is listed below:

$$Q_{MTFR} = \frac{C_d A \sqrt{2gh}}{SF}$$

Where

- Q_{MTFR} = Maximum Treatment Flow Rate (cfs)
 C_d = Discharge Coefficient (0.60) – Based on orifice size and shape
 A = Area of orifice (sf) – sum of the open area of the screen perforations based on 51% open area
 g = gravitational acceleration constant (32.2ft/s²)
 h = head (ft) acting on the orifice centerline (difference of head upstream vs downstream of the screen – approximated as 2/3 of the available screen height)
 SF = Factor of Safety applied to the flow rate

EXAMPLE:

BWCPS-2118SU

- Screen Width = 21in
 Screen Height = 18in [2/3 screen height = 12in (1ft)]
 Screen Length = 2.78ft
 Screen Area = 4.17ft²
 Net Open Screen Area = 2.13sf

$$Q_{MTFR} = \frac{0.60 * 2.13sf \sqrt{2 * \frac{32.2ft}{s^2} * 1ft}}{2}$$

$Q_{MTFR} = 5.13cfs$

The Factor of Safety of 2X is intended to account for variables in the installation of the Device as well as any screen blockage that may occur between maintenance cycles. The Factor of Safety may be increased or decreased at the Engineer's discretion based on site and storm drain system individual characteristics. All tables in this document and standard literature utilize a 2X Factor of Safety even Table 1 and Table 2 in Section 3.c. that specifically consider "additional" screen blockage.

3.d. Comparison Table:

For all standard sizes, provide a table that includes the peak flow rates, and recommended maximum trash capture volume;

Sizing charts for standard configuration and size BrightWater™ Connector Pipe Screens are shown below in Table 3 and Table 4. The sizing charts list the characteristics and capacities for the standard BrightWater™ Connector Pipe Screen models. This information includes model numbers, dimensions of the screen including screen area and open area, as well as the maximum treatment capacity (MTFR) for Full Capture trash removal and bypass capacities. Treatment and bypass flow rates assume certain standard conditions as listed in the footnotes for each table. These capacities are considerate of both resuspension of removed pollutants and screen blocking. A safety factor has been applied to the storage capacity and treatment capacity.

The Tables additionally list the maximum storage capacity for trash. Because the Connector Pipe Screen can be applied in new or retrofit applications and catch basin sizes vary there are many variable trash storage capacities values achievable. The table lists one scenario based on a common catch basin size for the Southern California area. Other catch basins will yield different trash storage capacities and will have to be calculated on an individual bases.

The Table includes the most commonly utilized standard sizes available. Other standard sizes are available as well as custom configurations. Characteristics and capacities for non-standard sizes will be determined on an as needed basis following the same guidelines and using the same empirically determined data for sizing of the standard configurations.

BrightWater™ Curb Inlet Filter Capacities and Characteristics Table

Table 3

STANDARD MODELS								
"U" CONFIGURATION								
Model Number	Screen Width ¹	Screen Height	Screen Length ²	Screen Area ³	Net Open Screen Area ⁴	Maximum Treatment Flow Rate ⁵	Trash Storage Capacity ⁶	Bypass Capacity ⁷
Model No.	(in)	(in)	(ft)	(ft ²)	(ft ²)	(cfs)	(yd ³)	(cfs)
BWCPS-2112SU	21	12	2.78	2.78	1.42	2.79	0.64	9.27
BWCPS-2118SU	21	18	2.78	4.17	2.13	5.13	0.96	9.27
BWCPS-2124SU	21	24	2.78	5.57	2.84	7.89	1.28	9.27
BWCPS-2130SU	21	30	2.78	6.96	3.55	11.03	1.60	9.27
BWCPS-2136SU	21	36	2.78	8.35	4.26	14.50	1.92	9.27
BWCPS-2412SU	24	12	3.18	3.18	1.62	3.19	0.63	10.59
BWCPS-2418SU	24	18	3.18	4.77	2.43	5.86	0.95	10.59
BWCPS-2424SU	24	24	3.18	6.36	3.24	9.02	1.27	10.59
BWCPS-2430SU	24	30	3.18	7.95	4.06	12.61	1.58	10.59
BWCPS-2436SU	24	36	3.18	9.54	4.87	16.57	1.90	10.59
BWCPS-3612SU	36	12	4.77	4.77	2.43	4.78	0.60	15.89
BWCPS-3618SU	36	18	4.77	7.16	3.65	8.79	0.91	15.89
BWCPS-3624SU	36	24	4.77	9.54	4.87	13.53	1.21	15.89
BWCPS-3630SU	36	30	4.77	11.93	6.08	18.91	1.51	15.89
BWCPS-3636SU	36	36	4.77	14.31	7.30	24.86	1.81	15.89
BWCPS-4212SU	42	12	5.57	5.57	2.84	5.58	0.59	18.54
BWCPS-4218SU	42	18	5.57	8.35	4.26	10.25	0.88	18.54
BWCPS-4224SU	42	24	5.57	11.13	5.68	15.78	1.17	18.54
BWCPS-4230SU	42	30	5.57	13.92	7.10	22.06	1.46	18.54
BWCPS-4236SU	42	36	5.57	16.70	8.52	29.00	1.76	18.54
BWCPS-4812SU	48	12	6.36	6.36	3.24	6.38	0.56	21.19
BWCPS-4818SU	48	18	6.36	9.54	4.87	11.72	0.85	21.19
BWCPS-4824SU	48	24	6.36	12.72	6.49	18.04	1.13	21.19
BWCPS-4830SU	48	30	6.36	15.90	8.11	25.21	1.41	21.19
BWCPS-4836SU	48	36	6.36	19.09	9.73	33.14	1.69	21.19

This table lists commonly specified standard model sizes. Additional standard model sizes and custom sizes are available.

2. The "Width" dimension indicates the distance from the inner most edges of the screen that span the connector pipe.
3. The "Screen Length" is the total perimeter dimension of the screen that encompasses the connector pipe.
4. The "Screen Area" is the product of the "Screen Length" and "Screen Height" with no consideration for open space.
5. The "Net Open Screen Area" is based on a 14Ga, 304SS Perforated Screen With 3/16" Hole Size And 45% Minimum Open Area.
6. MTR utilizes an orifice coefficient (C) of 0.60 and an approximated upstream/downstream head differential across the screen of 2/3 of the maximum screen height. The listed MTR has a safety factor (SF) of 2X applied.
7. The "Trash Storage Capacity" utilizes a catch basin size of 14'-0" X 3'-2" and a maximum trash level of 40% of the maximum screen height. Different size catch basins will yield different values for Trash Storage Capacity.
8. The "Bypass Capacity" assumes a maximum water elevation above the top of the screen of 1ft. The Bypass Capacity will vary with the water level above the top of the screen.

BrightWater™ Curb Inlet Filter Capacities and Characteristics Table

Table 4

STANDARD MODELS								
"L" CONFIGURATION								
Model Number	Screen Width ₁	Screen Height	Screen Length ²	Screen Area ³	Net Open Screen Area ⁴	Maximum Treatment Flow Rate ⁵	Trash Storage Capacity ₆	Bypass Capacity ₇
Model No.	(in)	(in)	(ft)	(ft ²)	(ft ²)	(cfs)	(yd ³)	(cfs)
BWCPS-2112L	21	12	2.27	2.27	1.16	2.27	0.64	7.55
BWCPS-2118L	21	18	2.27	3.40	1.73	4.17	0.95	7.55
BWCPS-2124L	21	24	2.27	4.53	2.31	6.43	1.27	7.55
BWCPS-2130L	21	30	2.27	5.67	2.89	8.98	1.59	7.55
BWCPS-2136L	21	36	2.27	6.80	3.47	11.81	1.91	7.55
BWCPS-2412L	24	12	2.59	2.59	1.32	2.60	0.63	8.63
BWCPS-2418L	24	18	2.59	3.89	1.98	4.77	0.95	8.63
BWCPS-2424L	24	24	2.59	5.18	2.64	7.35	1.26	8.63
BWCPS-2430L	24	30	2.59	6.48	3.30	10.27	1.58	8.63
BWCPS-2436L	24	36	2.59	7.77	3.96	13.49	1.89	8.63
BWCPS-3612L	36	12	3.89	3.89	1.98	3.90	0.60	12.94
BWCPS-3618L	36	18	3.89	5.83	2.97	7.16	0.90	12.94
BWCPS-3624L	36	24	3.89	7.77	3.96	11.02	1.19	12.94
BWCPS-3630L	36	30	3.89	9.71	4.95	15.40	1.49	12.94
BWCPS-3636L	36	36	3.89	11.66	5.95	20.24	1.79	12.94
BWCPS-4212L	42	12	4.53	4.53	2.31	4.54	0.58	15.10
BWCPS-4218L	42	18	4.53	6.80	3.47	8.35	0.86	15.10
BWCPS-4224L	42	24	4.53	9.07	4.62	12.85	1.15	15.10
BWCPS-4230L	42	30	4.53	11.33	5.78	17.96	1.44	15.10
BWCPS-4236L	42	36	4.53	13.60	6.94	23.61	1.73	15.10
BWCPS-4812L	48	12	5.18	5.18	2.64	5.19	0.55	17.25
BWCPS-4818L	48	18	5.18	7.77	3.96	9.54	0.83	17.25
BWCPS-4824L	48	24	5.18	10.36	5.28	14.69	1.10	17.25
BWCPS-4830L	48	30	5.18	12.95	6.61	20.53	1.38	17.25
BWCPS-4836L	48	36	5.18	15.54	7.93	26.99	1.65	17.25

This table lists commonly specified standard model sizes. Additional standard model sizes and custom sizes are available.

1. The "Width" dimension indicates the distance from the inner most edges of the screen that span the connector pipe.
2. The "Screen Length" is the total perimeter dimension of the screen that encompasses the connector pipe.
3. The "Screen Area" is the product of the "Screen Length" and "Screen Height" with no consideration for open space.
4. The "Net Open Screen Area" is based on a 14Ga, 304SS Perforated Screen With 3/16" Hole Size And 45% Minimum Open Area.
5. MTRF utilizes an orifice coefficient (C) of 0.60 and an approximated upstream/downstream head differential across the screen of 2/3 of the maximum screen height. The listed MTRF has a safety factor (SF) of 2X applied.
6. The "Trash Storage Capacity" utilizes a catch basin size of 14'-0" X 3'-2" and a maximum trash level of 40% of the maximum screen height. Different size catch basins will yield different values for Trash Storage Capacity.
7. The "Bypass Capacity" assumes a maximum water elevation above the top of the screen of 1ft. The Bypass Capacity will vary with the water level above the top of the screen.

3.e. Design Drawings:

Provide design drawings for all standard Device sizes and, if any, alternative configurations. (e.g. deflector screen, filter media, etc.)

Design drawings for all standard Devices and configurations are included in Appendix A.

3.f. Alternative Configurations:

If the Device includes alternative configurations, explain the purpose of each configuration and mandatory installation conditions (see 3c2) above;

The BrightWater™ Connector Pipe Screen can be supplied in a “U” configuration or an “L” configuration and both of these configurations can be supplemented with a Deflector Plate Assembly. The “U” and “L” configurations provide for different screen geometries to accommodate variable outlet pipe locations within the catch basin. The two configurations are designed to provide the most structurally sound and hydraulically efficient installation in different size and configurations of catch basins. Both “U” and “L” configurations must be supplied with a Deflector Plate Assembly when there is potential for short-circuiting of the treatment Device or unwanted bypass.

“U” Configuration

The “U” configuration Connector Pipe Screen is intended for installation in a curb inlet catch basin or a grated inlet catch basin where the outlet is located towards the center of one of the four walls of the catch basin. The Connector Pipe Screen is installed straddling

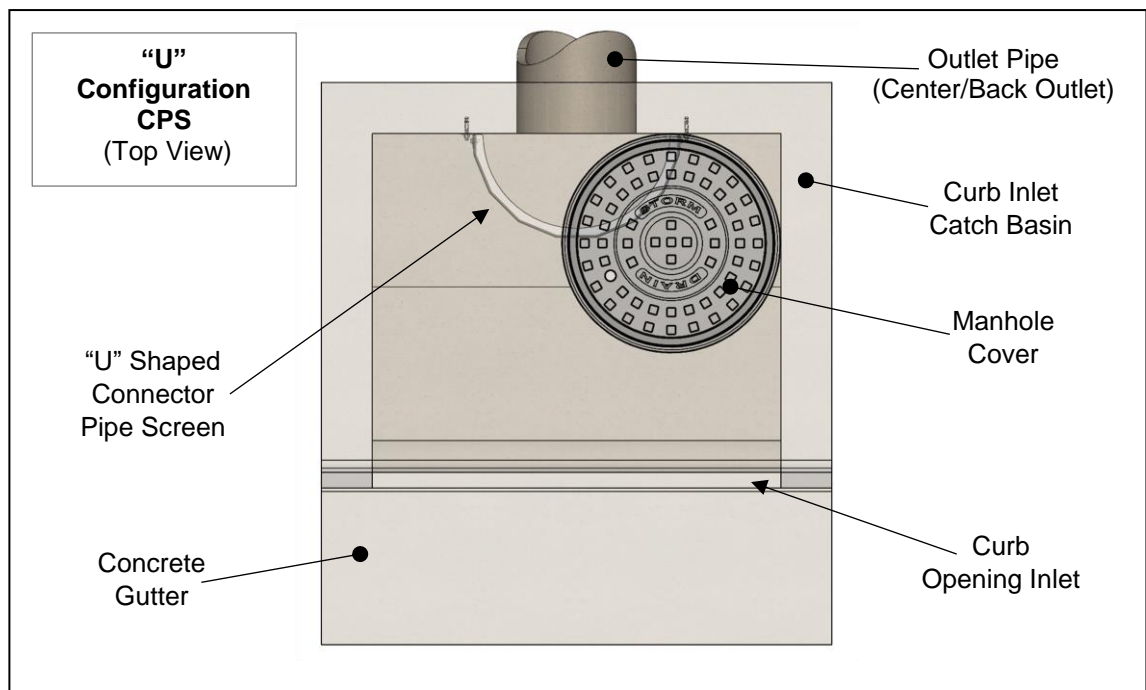


Figure 3 - "U" Configuration Connector Pipe Screen - Top View

the outlet pipe and only on the wall of the outlet pipe. (See Figure 3 and Figure 4.) The outlet pipe location can be offset from center but cannot be so far from center that the edge of the Connector Pipe Screen would need to be located in very close proximity (4-inches or less) to one of the perpendicular walls.

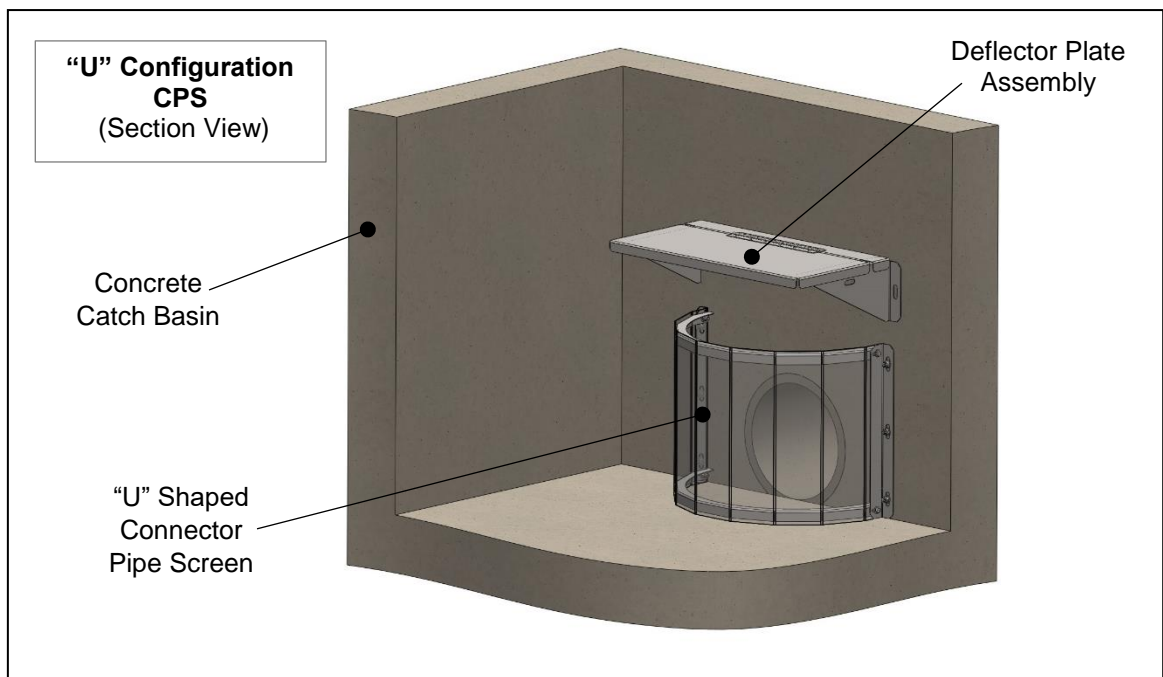


Figure 4 - "U" Configuration Connector Pipe Screen - Section View

The "U" Configuration Connector Pipe Screen can be supplemented with a Deflector Plate Assembly. The Deflector Plate Assembly must be implemented when the Connector Pipe Screen is installed directly beneath of a curb opening inlet or in a grated inlet catch basin where the incoming storm water could potentially bypass the Connector Pipe Screen and not receive screening for trash and debris. (See Figure 2, Section 3.a.) The incoming storm water first impacts the Lid of the Deflector Plate Assembly and the storm water is directed around the Connector Pipe Screen to the interior bottom of the catch basin where it can then proceed through the CPS Screen for removal of trash and debris. The Assembly has a hinged lid that can be raised for general inspection and maintenance as well as mosquito/vector inspection and maintenance. (See Figure 7.)

The Deflector Plate Assembly does not affect the Treatment Capacity of the Connector Pipe Screen. However, the Deflector Plate Assembly may affect the bypass capacity of the Connector Pipe Screen. Because the Deflector Plate Assembly is positioned directly above the Connector Pipe Screen, it can potentially be located in the path of bypass flows that will overtop the screen. Bypass capacity for standard models can be found in Section 3.d. Table 1 and Table 2. These bypass capacities are based on the Deflector Plate Assembly being positioned one foot above the top of the Connector Pipe Screen. Provided the Deflector Plate Assembly is not installed lower than one foot above the top of the Connector Pipe Screen, the bypass capacity will not be affected. The listed bypass capacities are considered to be minimum values based on the lowest practical installation of the Deflector Plate Assembly. Installation at values lower than one foot will require Engineer review.

“L” Configuration

The “L” configuration Connector Pipe Screen is intended for installation in a curb inlet catch basin or a grated inlet catch basin where the outlet is located off-center on one of the

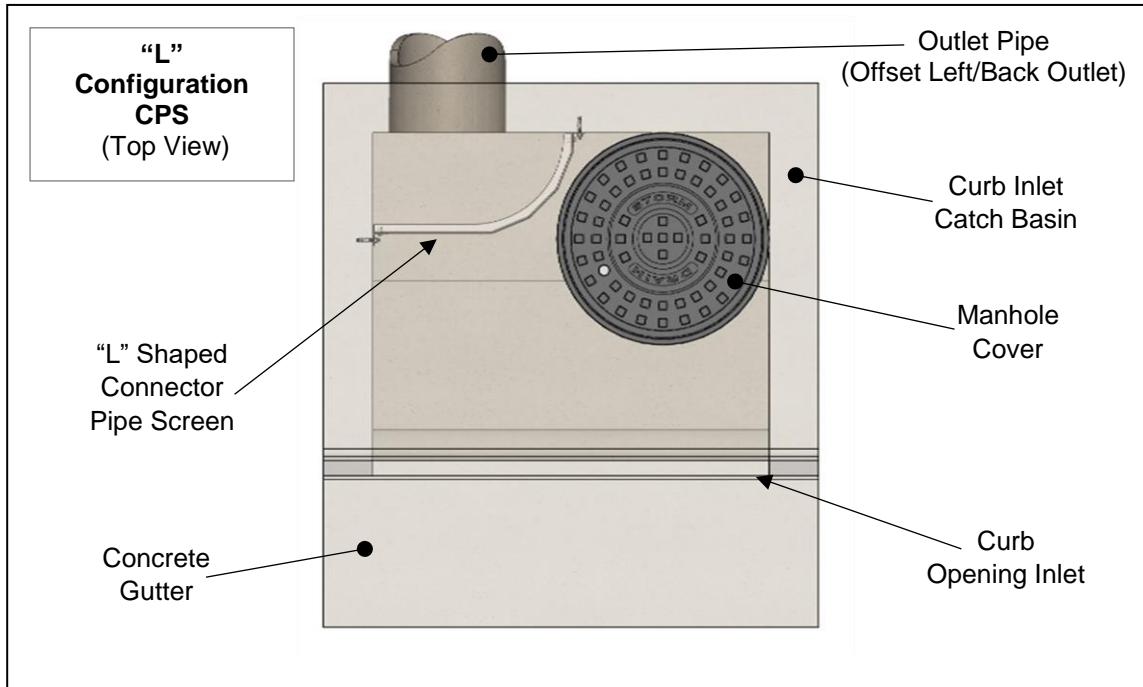


Figure 6 - "L" Configuration Connector Pipe Screen - Top View

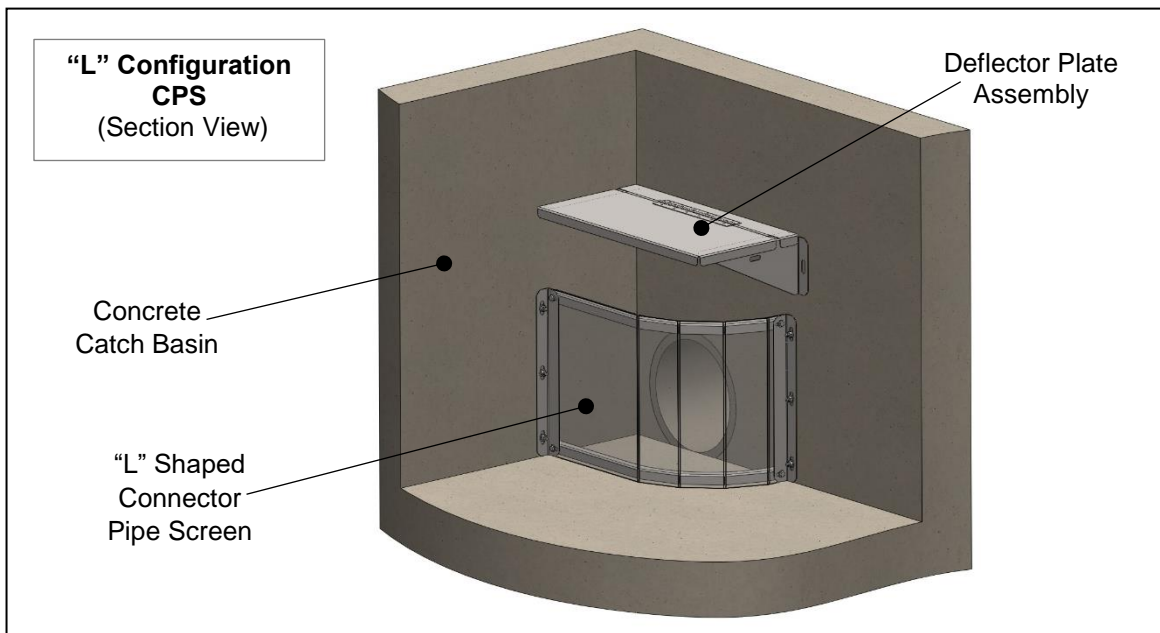


Figure 5 - "L" Configuration Connector Pipe Screen - Section View

four walls of the catch basin or in one of the four corners of the catch basin. The Connector Pipe Screen is installed straddling the outlet pipe and is designed to mount on perpendicular walls of the catch basin. (See Figure 5 and Figure 6.) The outlet pipe can be located in very close proximity or even directly in the corner of the catch basin. The geometry of the “L” Configuration Connector Pipe Screen allows the screen assembly to completely surround the opening to the outlet pipe and still be soundly connected to the catch basin

walls with no interference of flow into the pipe. In addition, the “L” Configuration allows for the same/similar hydraulic capacity despite the outlet proximity to the corners of the catch basin.

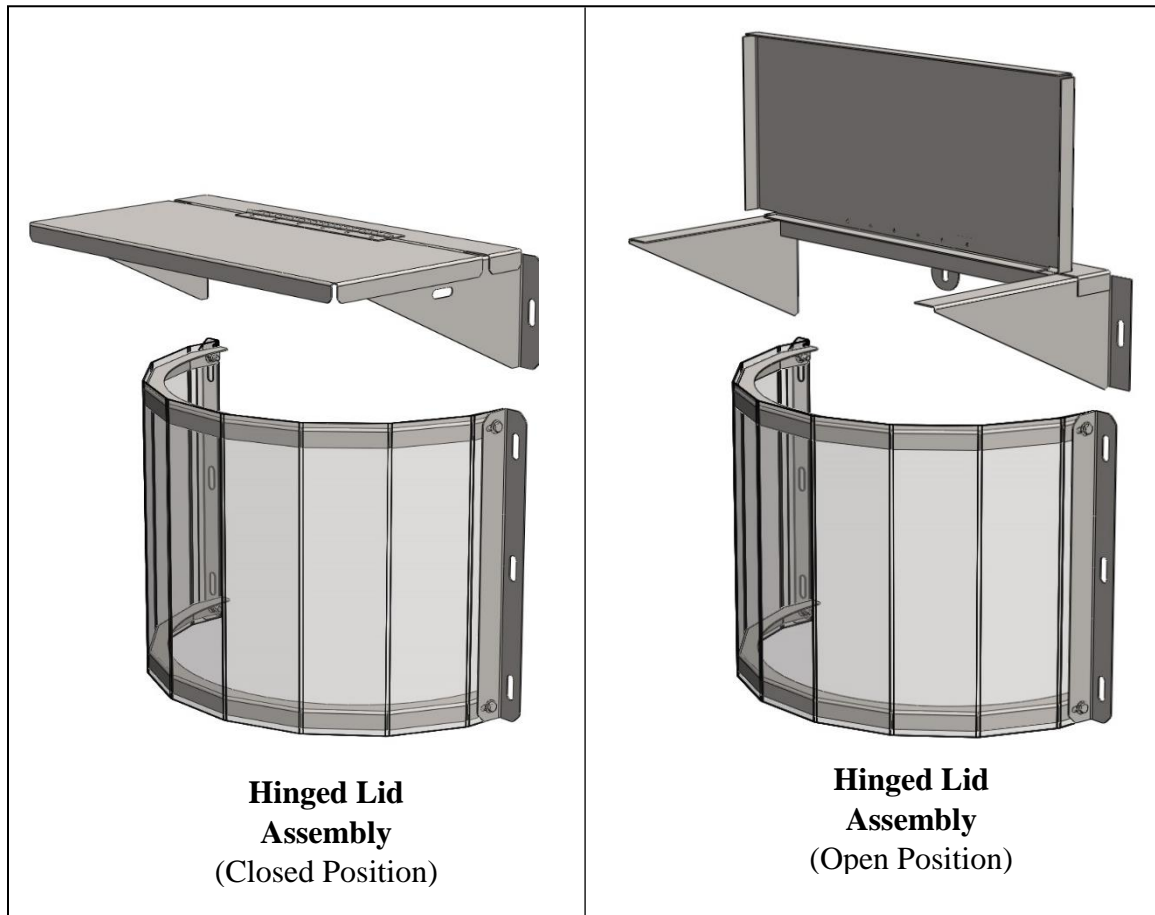


Figure 7 – “U” Configuration CPS w/ Deflector Plate Assembly Installed

The “L” Configuration Connector Pipe Screen can be supplemented with a Deflector Plate Assembly. The Deflector Plate Assembly must be implemented when the Connector Pipe Screen is installed directly beneath of a curb opening inlet or in a grated inlet catch basin where the incoming storm water could potentially bypass the Connector Pipe Screen and not receive screening for trash and debris. (See Figure 2, Section 3.a.) The incoming storm water first impacts the Lid of the Deflector Plate Assembly and the storm water is directed around the Connector Pipe Screen to the interior bottom of the catch basin where it can next proceed through the CPS Screen for removal of trash and debris. The Assembly has a hinged lid that can be raised for general inspection and maintenance as well as mosquito/vector inspection and maintenance. (See Figure 7.)

The Deflector Plate Assembly does not affect the Treatment Capacity of the Connector Pipe Screen. However, the Deflector Plate Assembly may affect the bypass capacity of the Connector Pipe Screen. Because the Deflector Plate Assembly is positioned directly above the Connector Pipe Screen, it can potentially be located in the path of bypass flows that will overtop the screen. Bypass capacity for standard models can be found in Section 3.d. Table 1 and Table 2. These bypass capacities are based on the Deflector Plate Assembly being positioned one foot above the top of the Connector Pipe Screen. Provided the

Deflector Plate Assembly is not installed lower than one foot above the top of the Connector Pipe Screen, the bypass capacity will not be affected. The listed bypass capacities are considered to be minimum values based on the lowest practical installation of the Deflector Plate Assembly. Installation at values lower than one foot will require Engineer review.

3.g. Internal Bypass

If the Device has an internal bypass, explain how the bypass functions to only allow a bypass of flows exceeding the peak flow rate;

The BrightWater™ Connector Pipe Screen is designed to capture trash, debris and sediment for “Full Capture” and “First Flush” sized storm events while also allowing larger flows from larger storm events to proceed uninterrupted by the presence of the Device. This is accomplished by way of features of the Connector Pipe Screen that allows for internal bypass.

Figure 1 and 2, in Section 3.a. illustrate the operation of the Connector Pipe Screen(s) in normal operation and bypass operation. All treated flows are intended to pass through the screen of the Connector Pipe Screen assembly. As the capacity of the screen is utilized, the water elevation will increase within the catch basin upstream of the screen until a point at which the water elevation is even with or above the top of the Connector Pipe Screen. At this moment the treatment system is in bypass. Storm water will continue to pass through the screen and storm water will continue to be treated but water will also be allowed to pass over the top of the screen un-treated. Provided the peak flow rate generated from the one-year, one-hour storm does not exceed the treatment capacity of the Connector Pipe Screen prior to bypass, the system will remain compliant.

3.h. Previously Trapped Trash:

Explain the condition(s) under which the Device reintroduces previously trapped trash (e.g., via the internal bypass);

The BrightWater™ Connector Pipe Screen has been designed to remove and permanently retain all trash and debris that is 5mm in size or larger. Conditions under which the Device can re-introduce previously trapped trash are listed below:

- If the Connector Pipe Screen is not regularly inspected and maintained and trash and debris are allowed to accumulate beyond the maximum trash capture capacity, conditions could develop that could cause trash to be re-introduced into the stormwater.
- Devices with broken or damaged screens, frames, or other components can cause improper function and conditions that would allow re-introduction of trash and debris into the stormwater.
- Improperly installed Devices or Devices improperly applied can cause adverse conditions that could re-introduce trash and debris into the stormwater.
- Re-introduction of floatables and neutrally buoyant materials can occur after the Connector Pipe Screen enters bypass. Because positive flow through the screen is still occurring, non-floatable material remains secured within the catch basin.

3.i. Calibration Feature:

If the Device includes an adjustable calibration feature, describe how the calibration feature functions.

The Device does not utilize an adjustable calibration feature and this Section is not applicable.

3.j. Photos:

If any, provide Device installation photographs;

Photographs of the Connector Pipe Screen are included below:



Figure 8 - CPS - Rear View



Figure 10 - CPS Installed - Top View



Figure 9 - CPS – Top/Side View



Figure 11– CPS – Side View



Figure 12 – CPS = Top/Front View



Figure 13 – CPS – Front View

3.k. Material Type:

Provide each material and material grade used to construct the Device (e.g. stainless steel, plastic, etc.); and

The Connector Pipe Screen is constructed from high strength, non-corrosive materials to provide for a long service life treatment system. A full technical specification for the Connector Pipe Screen is included in Appendix B of this submittal and includes all materials utilized along with reference specifications. For convenience, materials for critical components are listed below:

- **SCREEN** – The Connector Pipe Screen metal screen shall be made from a minimum of 14 gauge, perforated 304 stainless steel with a maximum hole size of 3/16” (5mm) and a minimum open area of 45% and shall conform to ASTM A240.
- **SUPPORTS** – The screen supports shall be made from a minimum of 14ga, 304 stainless steel angle conforming to ASTM A276.
- **BRACKETS** – The mounting brackets shall be made from a minimum of 14ga, 304 stainless steel angle conforming to ASTM A276.
- **PLATE ASSEMBLY** – The Deflector Plate Assembly shall be made from a minimum of 14ga, 304 stainless steel angle conforming to ASTM A276.
- **HARDWARE** – All mounting and assembly hardware shall be made from 304SS and shall conform to ASTM A193, F593 or F594.

3.l. Design Life:

Provide the estimated design life.

The estimated design (service) life for BrightWater™ Connector Pipe Screen is 25 to 50 years. The screen, brackets, hoops, and hardware are made using high strength, non-corrosive stainless steel to allow for extended service life. The design (service) life of the Connector Pipe Screen is dependent on the materials utilized as well as the proper application and maintenance of those materials.

4. INSTALLATION GUIDANCE

The installation guidance shall include:

4.a. Standard Device installation procedures including calibration instructions if applicable;

Installation requirements and procedures for the BrightWater™ Connector Pipe Screen detailed in the Connector Pipe Screen *Installation Guidelines* which have been included in Appendix C of this submittal. The guidelines include requirements and procedures for:

- Delivery
- Inspection
- Catch Basin preparation
- Installation

The BrightWater™ Connector Pipe Screen is an engineered storm water treatment system that arrives at the site pre-assembled minimizing installation time and effort. A critical part of the installation occurs well in advance of the installation of the Connector Pipe Screen and that is the manufacture of the Connector Pipe Screen system. Ensuring proper manufacture of the Connector Pipe Screen system helps ensure proper installation of the system and this begins with measuring the catch basin. Proper measurement provides an opportunity for BrightWater™ Engineering and Manufacturing to review the application and determine the most suitable design and application of the Device. Measurement charts for the BrightWater™ Connector Pipe Screen are included as part of this submittal in Appendix C. In addition, BrightWater™ personnel are available for a site visit to provide assistance with measurement of the catch basins.

Installation of the Connector Pipe Screen for Trash Capture in association with Full Capture programs, Trash TMDLs, or the Statewide Trash Amendment are often retrofit type applications. A thorough review of the existing conditions should be conducted and documented so that a proper recommendation and installation can be facilitated. Consideration must be given to any unique configurations for flow, treatment, and installation.

Confined space entry of the catch basin is likely required for the primary installation of the Curb Inlet Filter system. It is imperative the installer adhere to all jurisdictional and/or OSHA safety recommendations and requirements.

Post installation inspection of the Connector Pipe Screen is strongly advised. A representative from BrightWater™ is available for on-site inspection and the Owner is encouraged to be present. Inspection should determine if the Connector Pipe Screen was installed and is functioning properly. The inspection should also document the condition of the Connector Pipe Screen and catch basin. Each item should be in a new (or like new condition for the catch basin) and no defects should be present as a result of the installation. Any potential for mosquito or vector control should be documented and the responsible, local district be notified accordingly.

No calibration of the Connector Pipe Screen is required.

4.b. Description of Device installation limitations and/or non-standard Device installation procedures; and

Standard model BrightWater™ Connector Pipe Screens require minimal installation time and effort. The standard models are designed to fit a wide array of applications and catch basins. Some field conditions that may pose limitations on installation are noted below;

- Catch basins with uneven floors and walls.
- Catch basins with standing water.
- Catch basins with limited access.
- Catch basins with shallow depth or width.

If field conditions are encountered such as the above, a standard model Connector Pipe Screen may not be an option. A non-standard Device will be designed and manufactured as necessary considering the field conditions.

Non-standard units require minimal extra installation time and effort. As with standard units the Connector Pipe Screen assembly is bolted to the catch basin. Catch basins with uneven floors and walls may require custom sizes/shaped brackets or screens. Procedures for installation of these items is the same as standard. Shallow catch basins or catch basins with limited access may require two piece Connector Pipe Screen assemblies to allow the Device to be inserted into the catch basin. Two piece Connector Pipe Screens are installed in the same manner as a one piece but require assembly in the field.

4.c. Methods for diagnosing and correcting installation errors; and

BrightWater™ minimizes installations errors through design and manufacturing processes that ensure checks and balances with field conditions and Owner expectations. Should an installation error occur, BrightWater™ should be contacted immediately upon determination

of the error so a thorough diagnosis can be conducted and a proper corrective action implemented.

One of the first steps to diagnosing an installation error is to conduct a review of the installation checklist. After completion of installation, BrightWater™ recommends completion of an installation checklist for the Connector Pipe Screens. The checklist should include key criteria for determination of proper installation. This checklist should be reviewed in its entirety at the completion of the installation and kept as documentation of proper installation. If during the checklist review an error is determined, the documented error should be reported to BrightWater™ as well as the Owner and Engineer. The checklist should include key criteria such as:

- The catch basin is clean and free of trash and debris.
- The screen is properly installed and seated.
- There are no gaps around the screen or assembly larger than 5mm.
- The screen assembly is centered in relation to the outlet pipe and no part of the screen assembly blocks the outlet pipe.
- The screen, brackets, hoops and other components are not bent, broken or damaged.
- All debris from installation has been cleaned and removed.
- All components are free of sharp corners and edges.

Additionally the Connector Pipe Screens can be inspected after operation to determine proper function.

5. OPERATION AND MAINTENANCE INFORMATION

Operation and maintenance information shall include the following:

5.a. Inspection procedures and frequency considerations.

The BrightWater™ Connector Pipe Screen *Inspection and Maintenance Guide* is included with this submittal as Appendix D. This guide includes detailed requirements and recommendations for inspection, operation, and maintenance of the Connector Pipe Screen when used as a Full Capture Trash Treatment Control Device. A summary of the inspection requirements and recommendations are listed below:

Inspection Summary

- The inspection process is necessary to determine the required maintenance frequency and to determine proper operation of the Device.
- A thorough inspection program can minimize unnecessary maintenance.
- The first year inspection is more intensive than subsequent years and should consist of a minimum of three inspections.
- The second and subsequent years of inspection may be minimized based on data from the first year of inspection but should at a minimum occur twice annually.

Inspection Procedures

The BrightWater™ Connector Pipe Screen can be inspected without entry into the catch basin. The Inspection should begin by preparing and installing all safety measures followed by the inspection and documentation. Specific procedures for the inspection are detailed below:

- Adorn all PPE and prepare documentation equipment.
- Install all Work Zone safety equipment and conduct a brief safety meeting. Work Zone safety equipment should protect the inspector(s) from vehicular traffic and should also isolate and protect pedestrians and vehicles from the work zone.
- Remove the manhole cover utilizing the manhole puller/remover and safely set aside out of the way of the inspection operations and pedestrians or vehicles.
- Inspect the gutter, curb face, and curb opening. – The areas outside of the catch basin should be free from debris, obstructions and standing water. The presence of any of these conditions outside of the catch basin are potential indicators of maintenance that may be necessary for the Connector Pipe Screen. If any of these maintenance indicators are encountered they should be documented and, depending on severity, should be rectified through recommended maintenance. Maintenance may occur simultaneously with inspection provided the maintenance indicators have already been documented.
- Utilizing a flashlight, inspect the interior of the catch basin – Once outfitted with a Connector Pipe Screen, the interior of the catch basin is converted into a stormwater treatment device and acts as both the treatment and storage vessel for pollutants. Pollutants such as trash, debris, and sediment are expected to be captured inside of the catch basin. The presence of such pollutants are indicators the Device is operating as intended. Conversely, the lack of such pollutants present in the Device may be an indicator that the Device or stormwater system is not functioning as intended. The quantities of pollutants should be documented and compared with the maximum capacities for the Device and maintenance recommended as necessary.
- Inspect the area behind the CPS and the Connector pipe. - The area behind the Connector Pipe Screen and the Connector Pipe itself should be free from debris, obstructions, and standing water. The presence of any of these conditions downstream of the treatment Device are potential indicators of maintenance that may be necessary for the Connector Pipe Screen treatment system. If any of these maintenance indicators are encountered, they should be documented and depending on the severity, should be rectified through recommended maintenance. Maintenance may occur simultaneously with inspection provided the maintenance indicators have already been documented.
- Inspect the Connector Pipe Screen for physical or structural anomalies. – The CPS should be firmly mounted to the catch basin wall and floor and there should be no loose or missing hardware. No gaps in excess of 5mm should be present. Bent, Broken, or otherwise damaged structural components should be documented and maintained.
- Finalize the Documentation and Inspection Form – Photograph the conditions of interior and exterior of the catch basin and Connector Pipe Screen. Document the

inspection event utilizing the Treatment Device Inspection Form included with this manual or similar. The presence of standing water or vector such as mosquitos should be highlighted in the inspection form. The local vector control agency should be notified if mosquitos are present in the catch basin or treatment Device.

- Replace the manhole cover and remove all Work Zone Safety Equipment.
- *Confined Space Entry is typically not required for routine inspections of standard installations. Confined space entry protocol should be followed should circumstances require entry into the catch basin for inspection.*

5.b. Description of maintenance frequency considerations related to the Device's hydraulic capacity at various levels of trash capture volumes (see section 3.c above);

The BrightWater™ Connector Pipe Screen *Inspection and Maintenance Guide* is included with this submittal as Appendix D. This guide includes detailed requirements and recommendations for inspection, operation and maintenance of the Curb Inlet Filters when used as a Full Capture Trash Treatment Control Device. A summary of the maintenance requirements and recommendations are listed below:

BrightWater™ Connector Pipe Screen should be maintained on a routine and recurring basis. The frequency and timing of the maintenance can be variable based on the configuration of the Device, location of the Device within the drainage system, and the geographic region of installation. During the first year of operation, after initial installation, the Catch Basin Filter Insert may need to be maintained more frequently to create a baseline of understanding for operation of the Device. Subsequent years of operation may have reduced maintenance provided no anomalous events occur during the year.

- **First Year Maintenance** – A minimum of three maintenance visits in the first year are recommended. The first maintenance visit should occur on or around the start of the rainy season with the last maintenance visit occurring on or around the end of the rainy season. If the region of installation has no definitive rainy season, maintenance visits should be spaced evenly throughout the year. Maintenance visits may coincide with inspection visits.
- **Second Year and Subsequent Year Maintenance** – A minimum of two maintenance visits per year are recommended. The first maintenance visit should occur on or around the start of the rainy season and the final maintenance visit should occur on or around the end of the rainy season. If the region of installation has no definitive rainy season, maintenance visits should be spaced evenly throughout the year. If during the first year inspection the Device and/or location is determined have high pollutant loadings or atypical loadings of sediment, trash and debris, additional maintenance visits may be necessary. Maintenance visits may coincide with inspection visits.

As trash and debris are captured and retained by the Connector Pipe Screen there is the potential for reduced treatment and hydraulic capacity. (See section 3.c.) The Connector Pipe Screen should be specified such that the required design treatment capacity for the storm drain system is maintained within the system up to the Device's maximum trash capture volume. If the Device is specified to provide the design treatment capacity up until a trash capture volume at any level below the maximum trash capture volume then the Device will need to be maintained when this lower threshold is reached. This may translate into more frequent maintenance.

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

The BrightWater™ Connector Pipe Screen can be routinely maintained without entry into the catch basin for most applications. Maintenance should begin by preparing and installing all safety measures followed by Inspection and documentation. Specific procedures for Maintenance are detailed below:

- Adorn all PPE and prepare documentation equipment.
- Install all Work Zone safety equipment and conduct a brief safety meeting. Work Zone safety equipment should protect the maintenance personnel from vehicular traffic and should also isolate and protect pedestrians and vehicles from the work zone.
- Remove the manhole cover utilizing the manhole puller/remover and safely set aside out of the way of the inspection operations and pedestrians or vehicles.
- If during inspection it is determined the accumulated trash, debris, and sediment requires removal, an industrial vacuum should be utilized to remove the material. Using a reduced diameter suction hose, vacuum the trash, debris, and sediment from the interior of the catch basin. Figure 2 and Figure 3 illustrate typical maintenance scenarios. The suction hose is inserted through the manhole opening as illustrated in Figure 2 and Figure 3. The suction hose should be maneuvered around within the interior of the catch basin removing all trash, debris, and sediment. A pressure washing wand may be utilized to assist this process by freeing stubborn and clogged material from the screen of the Device. The suction hose should remain inside the catch basin at the front edge of the screen while the Device is being washed down.
- Trash and debris may accumulate on the top of the Deflector Plate Assembly. (See Figure 3.) This material should be removed during the maintenance visit by either utilizing the vacuum hose directly on top of the Deflector Plate or by utilizing the pressure washing wand to rinse the material from the Deflector Plate onto the floor of the catch basin where the vacuum hose can suck the material up.
- Removed trash, debris, and sediment should be disposed of following local, state, and federal guidelines. Typically this material is considered non-hazardous waste and can be disposed of in the standard waste stream. If oil and grease are determined to be present amongst the trash, debris, and sediment, the material should be disposed of following local, state, and federal guidelines. Depending on oil content, this material

may be classified as hazardous waste and should be disposed of according to local, state, and federal guidelines.

- Finalize the Documentation and Maintenance Form – Photograph the conditions of interior and exterior of the catch basin and Connector Pipe Screen. Document the maintenance event utilizing the Treatment Device Inspection Form included with this manual or similar. The presence of standing water or vector such as mosquitos should be highlighted in the maintenance form. The local vector control agency should be notified if mosquitos are present in the catch basin or treatment Device.
- Replace the manhole cover and remove all Work Zone Safety Equipment.

5.d. Essential equipment and materials for proper maintenance activities;

The following equipment and tools are recommended to facilitate maintenance of the BrightWater™ Connector Pipe Screen:

- Personal Protective Equipment (PPE) including but not limited to pants, long sleeve shirt, boots, gloves, eye protection, hearing protection, head protection, and high visibility safety vest.
- Work Zone safety equipment including but not limited to safety cones, street barricades, traffic control signage, and open manhole barricades.
- Manhole Hook/Removal Tool or similar.
- Flashlight.
- Tape Measure.
- Digital Camera.
- Small hand tools such as wrenches, screw drivers, and socket set.
- Industrial Vacuum (Truck mounted, trailer mounted, or portable)
- A treatment Device Inspection and Maintenance form for documenting the inspection visit. (A BrightWater™ Inspection and Maintenance form is included with this document.)

5.e. Description of the effects of deferred maintenance on Device structural integrity, performance, odors, etc.; and

Standardized maintenance frequencies that are suitable for most sites are detailed in Section 5.a. and 5.c. Maintenance frequency however is very site specific depending on pollutant loading. Records from inspections and prior maintenances should be periodically reviewed to assess the appropriateness of the prescribed maintenance frequency.

Delayed or deferred maintenance can cause diminished pollutant removal, re-entrainment of pollutants, in catch basin and upstream hydraulic impacts, and impacts to water quality.

The Connector Pipe Screen has been designed for structural loading of water, trash and debris with consideration given that the Device will be at the full trash capacity. This structural design includes a 2X Safety Factor. It is not anticipated that deferred or delayed maintenance will have any impact to the structural integrity of the Device.

The Connector Pipe Screen is designed to capture and retain trash and debris. This material in general can be odorous. Organic material that is wet and allowed to decompose may have increased odor. Deferred or delayed maintenance could exacerbate this effect.

5.f. Repair procedures for the Device’s structural components.

A requirement for repair or replacement of a structural component of the Connector Pipe Screen would be an anomalous condition. A BrightWater™ representative should be contacted and a site visit conducted to determine the most appropriate corrective action and necessary repair/replacement procedures.

6. VECTOR CONTROL ACCESSIBILITY

Vector Control accessibility shall include the following:

6.a. The date the Device application was submitted for vector control accessibility design verification via email to the Mosquito Vector Control Association of California (MVCAC <trashtreatment@mvcac.org>);

This application was submitted to the Mosquito and Vector Control Association of California directly after submittal to and receipt by the SWRCB.

6.b. Description and/or video link that demonstrates how mosquito vector control personnel can readily access the bottom of the storm water vault and/or Device for visual observation and mosquito treatment; and

The BrightWater™ Connector Pipe Screen is installed into existing and new catch basins. The installation requires little to no modifications of the catch basin and operation of the Connector Pipe Screen does not require nor should it create standing water. Connector Pipe Screens are installed in front of the connector pipe (outlet pipe) and are typically located within the line of sight of the manhole opening. The installed location of the Connector Pipe Screen does not physically or visually obstruct access to the catch basin.

While in operation, the Connector Pipe Screens are designed to be free of standing or constant pools of water upstream and downstream of the screen. In addition, screens are designed to have perforations along the bottom edge and no solid supports which allows any slow moving water to ultimately drain through the Device. Because of the absence of any standing water and because prolonged wet conditions are not anticipated, vector are not anticipated as a result of the installation and operation of the Connector Pipe Screens.

It should be noted that some catch basins may be inadequately constructed and may be prone to retaining water even in small amounts, which can be problematic for mosquito breeding. The preferred course of action is to repair any deficiencies that may cause standing water in a catch basin prior to installation of a Full Capture Device. In the event that repair of the catch basin has not occurred prior to installation of a Full Capture Device, it is critical that the deficient areas be visible and accessible by Vector/Mosquito Control personnel.

Figure 14 illustrates a typical installation of the BrightWater™ Connector Pipe Screen and the visual and physical access available to Mosquito and Vector Control personnel. The location of the Device does not impede Mosquito and Vector Control personnel visually or physically and is accessible for observation and treatment if necessary. The catch basin is equally

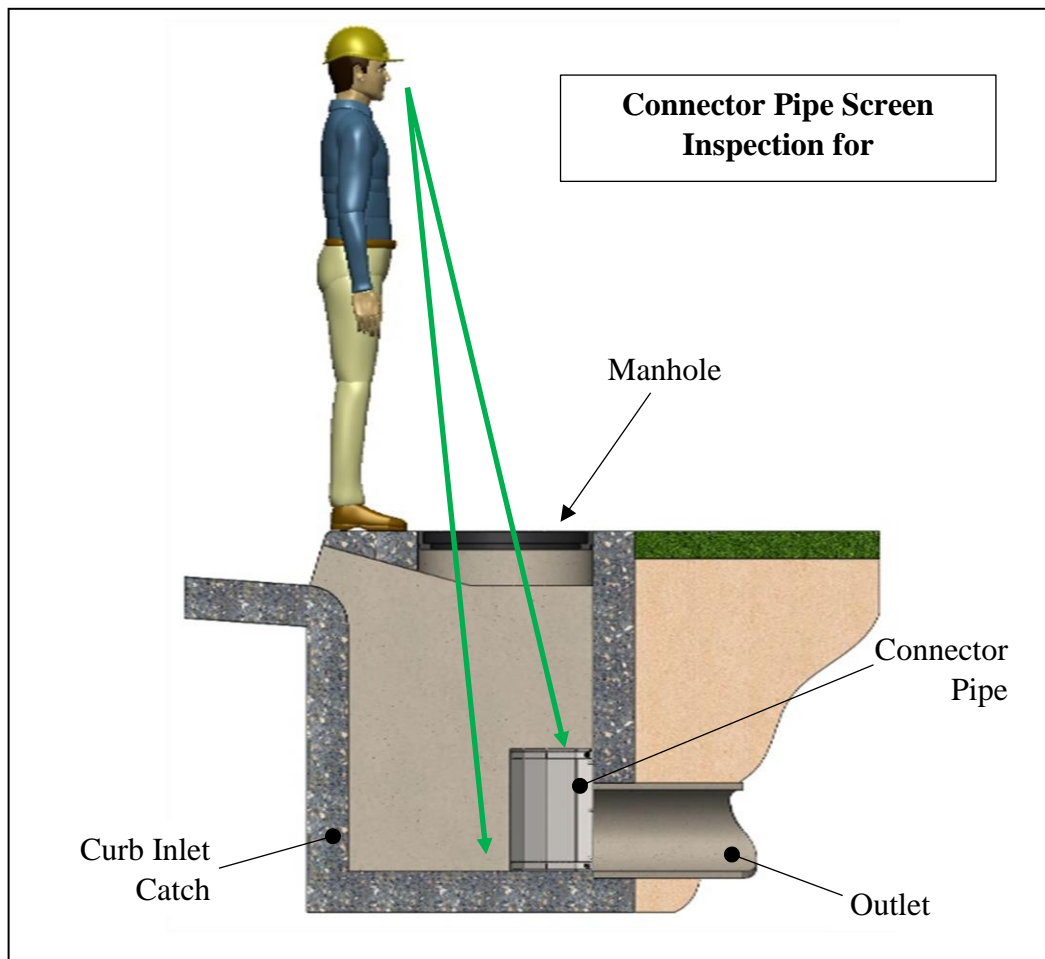


Figure 14 - Depiction of Catch Basin and Device Inspection for Mosquito/Vector

physically and visually accessible with the filter basket only occupying the front wall of the catch basin in an elevated position leaving the entirety of the floor and adjacent walls open. Inspection and treatment (if necessary) are thus unimpeded.

Figure 15 illustrates a typical installation of the BrightWater™ Connector Pipe Screen that includes the Deflector Plate Assembly. The Deflector Plate Assembly is necessary for applications where the incoming storm water has the potential to bypass the Connector Pipe

Screen treatment process. The Deflector Plate Assembly is positioned directly above the Connector Pipe Screen and as such has the potential to block visual and physical access available to Mosquito and Vector Control personnel. However, the Deflector Plate Assembly

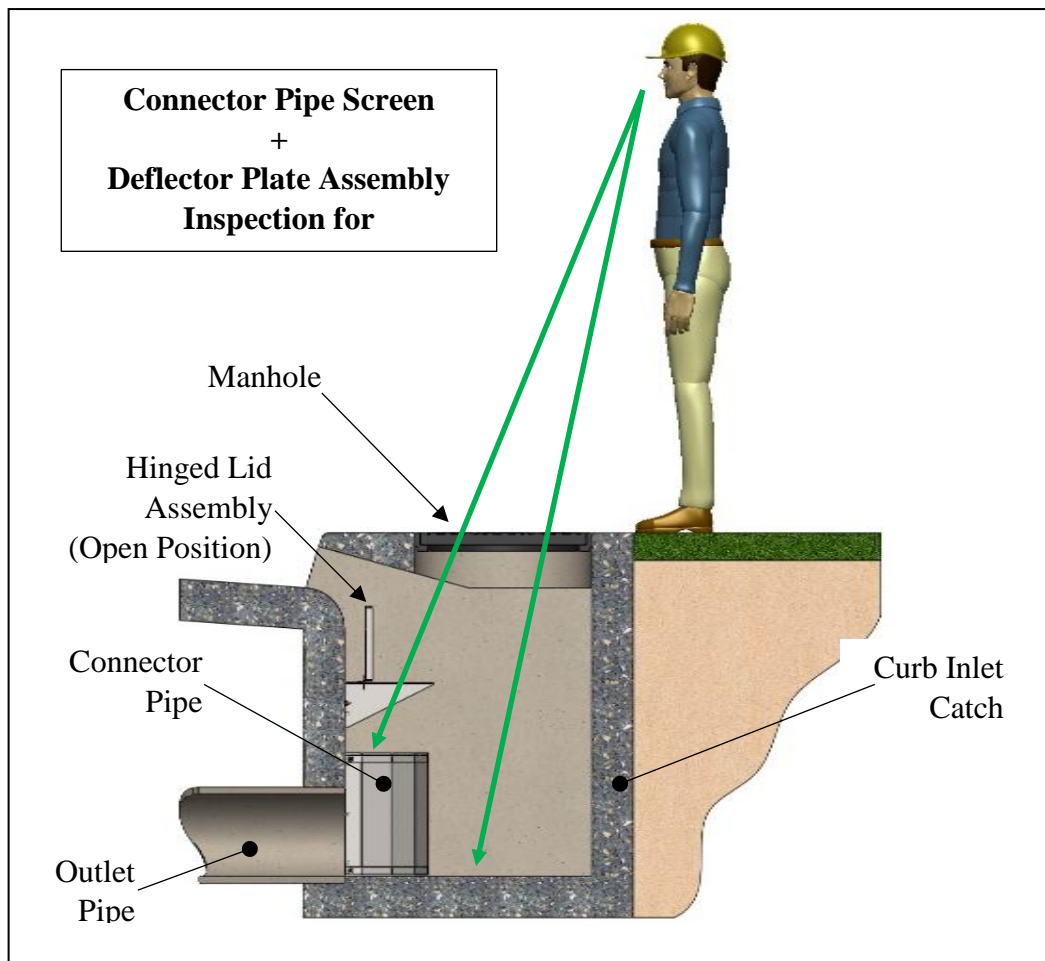


Figure 15 - Depiction of Catch Basin and Device + Deflector Plate Inspection for Mosquito/Vector

is equipped with a hinged lid. The lid can be raised without entering the catch basin and typically through access from the curb opening or manhole opening. Once the hinged lid is raised, the Device will not impede Mosquito and Vector Control personnel visually or physically and is accessible for observation and treatment if necessary.

6.c. The MVCAC Letter of Verification as an attachment to the application when it becomes available. This letter shall verify that the design allows full visual access for presence of standing water and treatment of mosquitoes when necessary. Table of contents shall note the MVCAC approval letter.

A letter of certification from the MVCAC was provided to the SWRCB and BrightWater™ on November 19, 2020 and a copy is included in Appendix E.

7. RELIABILITY INFORMATION

Reliability information shall include the following:

7.a. Estimated design life of Device components before major overhaul;

The estimated design (service) life for BrightWater™ Connector Pipe Screen is 25 to 50 years. The screen, hoops, brackets, and hardware material is made using high strength, non-corrosive stainless steel to allow for the extended service life. The design (service) life of the Connector Pipe Screen is dependent on the materials utilized as well as the proper application and maintenance of those materials.

7.b. Warranty Information; and

BrightWater™ provides a one year limited warranty for the Connector Pipe Screen. The details of the warranty can be located in the warranty document which has been included with this submittal in Appendix F.

7.c. Customer support information.

BrightWater™ is a California based company with corporate offices located in Southern California. Customer service contact information is provided below:

BrightWater™
P.O. Box 85430
San Diego, California 92186
Phone: (619) 821-1558
customerservice@wearebrightwater.com
www.wearebrightwater.com

8. FIELD/LAB TESTING INFORMATION AND ANALYSIS.

Field/lab testing information shall include:

8.a. For Devices with 5mm screening, any available field/lab testing information that demonstrates the Device functionality and performance; and

The BrightWater™ Connector Pipe Screen utilizes a 3/16" (5mm) screen for removal. Should any field/lab testing for trash removal be performed, results of the testing will be provided to the SWRCB upon completion.

8.b. If the Device does not include a 5mm screen, adequate field/lab testing information that demonstrates the Device captures trash particles of 5mm or greater.

This section is not applicable as the Device does contain a 5mm screen.

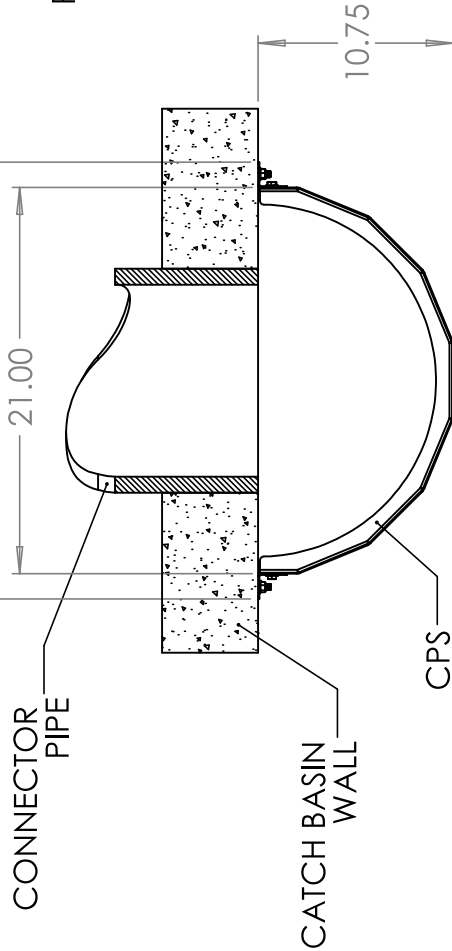
APPENDIX A (DRAWINGS)

STANDARD MODELS (21-INCH)

"U" CONFIGURATION

Model Number	Screen Width ¹ (in)	Screen Height (in)	Screen Length ² (ft)	Screen Area ³ (ft ²)	Net Open Screen Area ⁴ (ft ²)	Maximum Treatment Flow Rate ⁵ (cfs)	Trash Storage Capacity ⁶ (yd ³)	Bypass Capacity ⁷ (cfs)
BWCPS-2112U	21	12	2.78	2.78	1.42	2.79	0.64	9.27
BWCPS-2118U	21	18	2.78	4.17	2.13	5.13	0.96	9.27
BWCPS-2124U	21	24	2.78	5.57	2.84	7.89	1.28	9.27
BWCPS-2130U	21	30	2.78	6.96	3.55	11.03	1.60	9.27
BWCPS-2136U	21	36	2.78	8.35	4.26	14.50	1.92	9.27

This table lists commonly specified standard model sizes. Additional standard model sizes and custom sizes are available.
 1. The "Screen Width" is the total width of the screen.
 2. The "Screen Length" is the total perimeter dimension of the screen that encompasses the deflector pipe.
 3. The "Screen Area" is the product of the "Screen Length" and "Screen Height", with no consideration for open space.
 4. The "Net Open Screen Area" is the total area of the screen that is open to flow.
 5. MTRF utilizes an orifice coefficient (C) of 0.60 and an approximated upstream/downstream head differential across the screen of 2/3 of the maximum screen height. The listed MTRF has a safety factor (SF) of 2x applied.
 6. The "Trash Storage Capacity" utilizes a catch basin size of 14'-0" X 3'-2" and a maximum trash level of 40% of the maximum screen height. Different size catch basins will yield different values for Trash Storage Capacity.
 7. The "Bypass Capacity" assumes a maximum water elevation above the top of the screen of 1ft. The Bypass Capacity will vary with the water level above the top of the screen.



TOP SECTION VIEW - CPS/CATCH BASIN

SCALE: NTS

TITLE:

CONNECTOR PIPE SCREEN "U" CONFIGURATION

SCALE: 1:12 DO NOT SCALE DRAWING FINISH 304 STAINLESS STEEL

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DEFLECTOR
PLATE
ASSEMBLY

HINGED LID

SUPPORT
HOOPS

WALL
BRACKET

PERFORATED MESH
SCREEN

ISOMETRIC VIEW - CPS/DEFLECTOR PLATE

SCALE: NTS

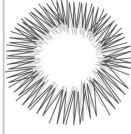
NOTES:

1. ALL COMPONENTS SHALL BE MANUFACTURED FROM GRADE 304 STAINLESS STEEL.
2. PERFORATED MESH SCREEN SHALL BE 14GA, 304 STAINLESS STEEL, 3/16" (5MM) MAX HOLE SIZE, 45% MINIMUM OPEN AREA.
3. THE DEFLECTOR PLATE ASSEMBLY MAY BE NECESSARY FOR APPLICATIONS WITH FLOW ENTERING DIRECTLY ABOVE THE CPS.

NAME	DATE
JGR	01/17/2020
IAM	01/24/2020
CMK	01/24/2020
EDK	02/04/2020
MAH	02/06/2020

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
 TOLERANCES:
 FRACTIONAL: ± 1/32
 ANGULAR: MACH ± 0.5 DEG BEND ± 1.0 DEG
 TWO PLACE DECIMAL ± 0.30
 THREE PLACE DECIMAL ± 0.020



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SIZE DWG. NO.

A BWCPS-U-0001

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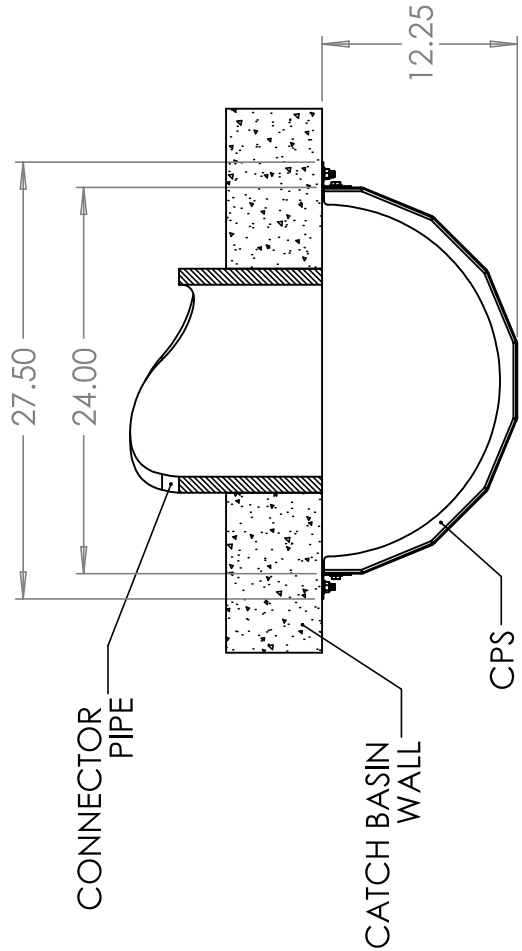
A SHEET 1 OF 5

STANDARD MODELS (24-INCH)

"U" CONFIGURATION

Model Number	Screen Width ¹ (in)	Screen Height (in)	Screen Length ² (ft)	Screen Area ³ (ft ²)	Net Open Screen Area ⁴ (ft ²)	Maximum Treatment Flow Rate ⁵ (cfs)	Trash Storage Capacity ⁶ (yd ³)	Bypass Capacity ⁷ (cfs)
BWCPS-2412U	24	12	3.18	3.18	1.62	3.19	0.63	10.59
BWCPS-2418U	24	18	3.18	4.77	2.43	5.86	0.95	10.59
BWCPS-2424U	24	24	3.18	6.36	3.24	9.02	1.27	10.59
BWCPS-2430U	24	30	3.18	7.95	4.06	12.61	1.58	10.59
BWCPS-2436U	24	36	3.18	9.54	4.87	16.57	1.90	10.59

This table lists commonly specified standard model sizes. Additional standard model sizes and custom sizes are available.
 1. The "Width" dimension indicates the distance from the inner most edges of the screen that span the connector pipe.
 2. The "Screen Length" dimension is the distance from the inner most edges of the screen that span the connector pipe.
 3. The "Screen Area" is the product of the "Screen Length" and "Screen Height" without consideration for open space.
 4. The "Net Open Screen Area" is based on a 14ga, 304SS Perforated Screen With 3/16" Hole Size And 45% Minimum Open Area.
 5. The "Maximum Treatment Flow Rate" is based on a 14ga, 304SS Perforated Screen With 3/16" Hole Size And 45% Minimum Open Area.
 6. The "Trash Storage Capacity" is based on a 14ga, 304SS Perforated Screen With 3/16" Hole Size And 45% Minimum Open Area.
 7. The "Bypass Capacity" assumes a maximum water elevation above the top of the screen of 1 ft. The Bypass Capacity will vary with the water level above the top of the screen.



TOP SECTION VIEW - CPS/CATCH BASIN

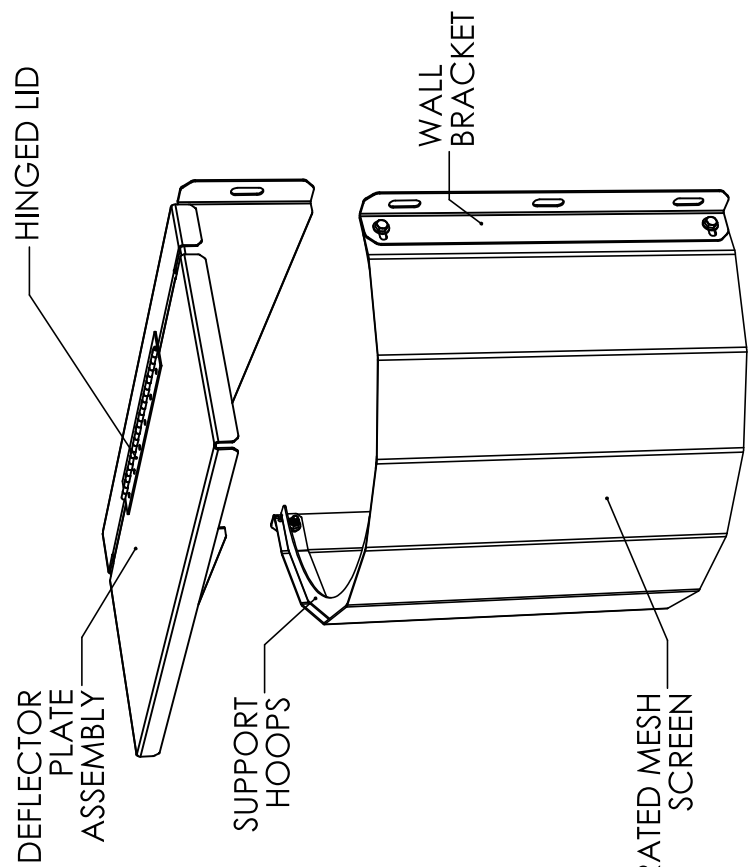
SCALE: NTS

TITLE:

CONNECTOR PIPE SCREEN "U" CONFIGURATION

SCALE: 1:12 DO NOT SCALE DRAWING FINISH 304 STAINLESS STEEL

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ISOMETRIC VIEW - CPS/DEFLECTOR PLATE

SCALE: NTS

NOTES:

1. ALL COMPONENTS SHALL BE MANUFACTURED FROM GRADE 304 STAINLESS STEEL.
2. PERFORATED MESH SCREEN SHALL BE 14GA, 304 STAINLESS STEEL, 3/16" (5MM) MAX HOLE SIZE, 45% MINIMUM OPEN AREA.
3. THE DEFLECTOR PLATE ASSEMBLY MAY BE NECESSARY FOR APPLICATIONS WITH FLOW ENTERING DIRECTLY ABOVE THE CPS.

NAME	DATE
JGR	01/17/2020
IAM	01/24/2020
CMK	01/24/2020
EDK	02/04/2020
MAH	02/06/2020

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
 TOLERANCES:
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 ANGULAR: MACH ± 0.5 DEG BEND ± 1.0 DEG
 TWO PLACE DECIMAL ± 0.30
 THREE PLACE DECIMAL ± 0.020



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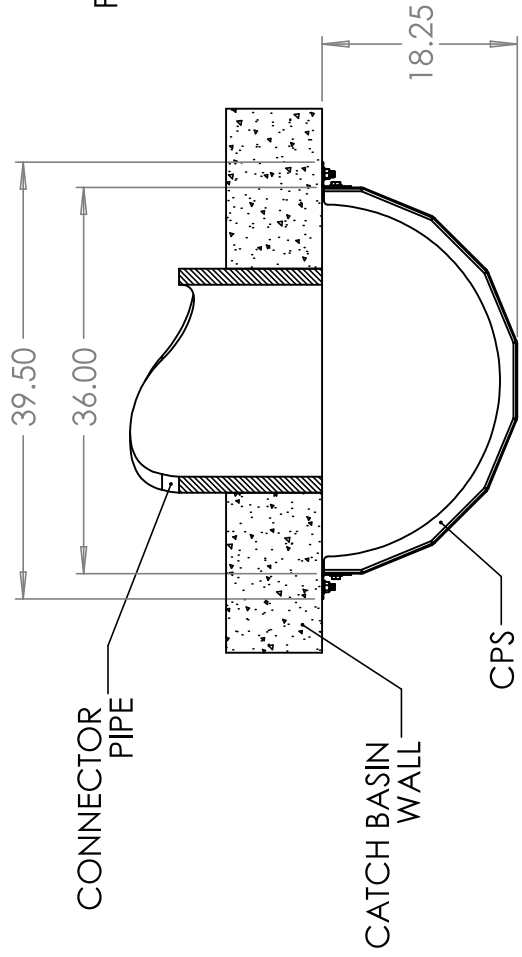
SHEET 2 OF 5

STANDARD MODELS (36-INCH)

"U" CONFIGURATION

Model Number	Screen Width ¹ (in)	Screen Height (in)	Screen Length ² (ft)	Screen Area ³ (ft ²)	Net Open Screen Area ⁴ (ft ²)	Maximum Treatment Flow Rate ⁵ (cfs)	Trash Storage Capacity ⁶ (yd ³)	Bypass Capacity ⁷ (cfs)
BWCPS-3612U	36	12	4.77	4.77	2.43	4.78	0.60	15.89
BWCPS-3618U	36	18	4.77	7.16	3.65	8.79	0.91	15.89
BWCPS-3624U	36	24	4.77	9.54	4.87	13.53	1.21	15.89
BWCPS-3630U	36	30	4.77	11.93	6.08	18.91	1.51	15.89
BWCPS-3636U	36	36	4.77	14.31	7.30	24.86	1.81	15.89

This table lists commonly specified standard model sizes. Additional standard model sizes and custom sizes are available.
 1. The "Width" dimension indicates the distance from the inner most edges of the screen that span the connector pipe.
 2. The "Screen Length" is the distance from the inner most edges of the screen that span the connector pipe.
 3. The "Screen Area" is the product of the "Screen Length" and "Screen Height" without consideration for open space.
 4. The "Net Open Screen Area" is based on a 14GA, 304SS Perforated Screen With 3/16" Hole Size And 45% Minimum Open Area.
 5. The "Maximum Treatment Flow Rate" is based on a 14GA, 304SS Perforated Screen With 3/16" Hole Size And 45% Minimum Open Area.
 6. The "Trash Storage Capacity" is based on a 14GA, 304SS Perforated Screen With 3/16" Hole Size And 45% Minimum Open Area.
 7. The "Bypass Capacity" assumes a maximum water elevation above the top of the screen of 1 ft. The Bypass Capacity will vary with the water level above the top of the screen.



TOP SECTION VIEW - CPS/CATCH BASIN

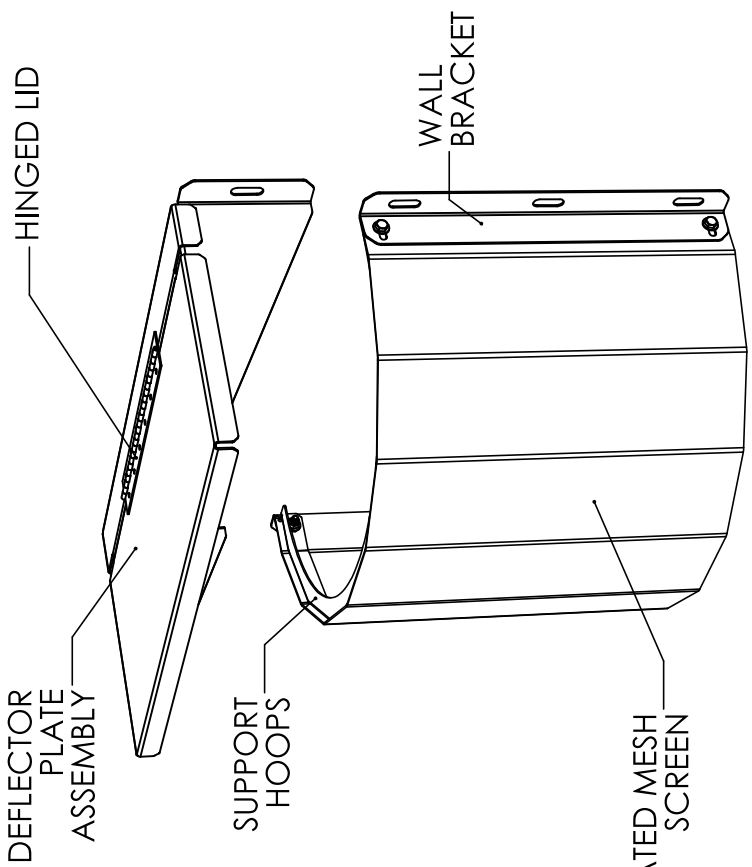
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TITLE:

CONNECTOR PIPE SCREEN "U" CONFIGURATION

SCALE: 1:12 DO NOT SCALE DRAWING FINISH 304 STAINLESS STEEL

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ISOMETRIC VIEW - CPS/DEFLECTOR PLATE

SCALE: NTS

NOTES:

- ALL COMPONENTS SHALL BE MANUFACTURED FROM GRADE 304 STAINLESS STEEL.
- PERFORATED MESH SCREEN SHALL BE 14GA, 304 STAINLESS STEEL, 3/16" (5MM) MAX HOLE SIZE, 45% MINIMUM OPEN AREA.
- THE DEFLECTOR PLATE ASSEMBLY MAY BE NECESSARY FOR APPLICATIONS WITH FLOW ENTERING DIRECTLY ABOVE THE CPS.

NAME	DATE
JGR	01/17/2020
IAM	01/24/2020
CMK	01/24/2020
EDK	02/04/2020
MAH	02/06/2020

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 TWO PLACE DECIMAL ± 0.30
 THREE PLACE DECIMAL ± 0.020



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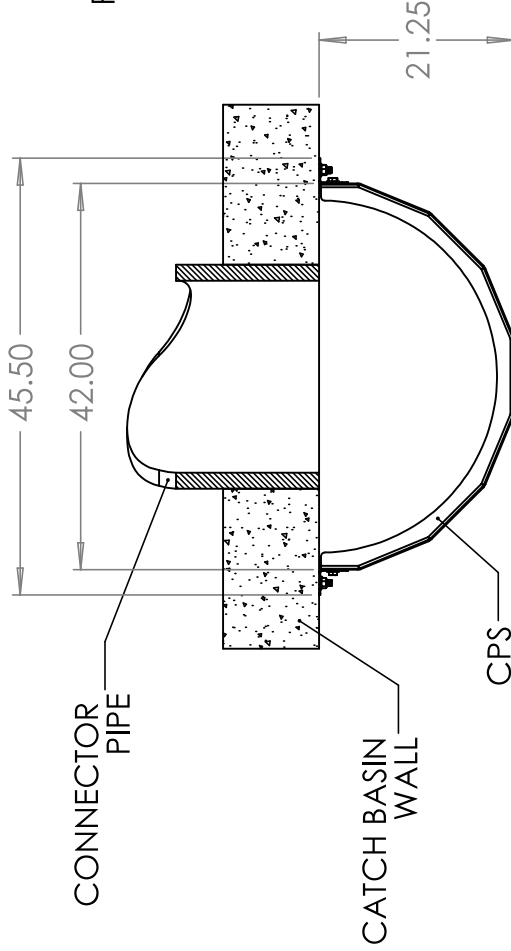
SHEET 3 OF 5

STANDARD MODELS (42-INCH)

"U" CONFIGURATION

Model Number	Screen Width ¹ (in)	Screen Height (in)	Screen Length ² (ft)	Screen Area ³ (ft ²)	Net Open Screen Area ⁴ (ft ²)	Maximum Treatment Flow Rate ⁵ (cfs)	Trash Storage Capacity ⁶ (yd ³)	Bypass Capacity ⁷ (cfs)
BWCPS-4212U	42	12	5.57	5.57	2.84	5.58	0.59	18.54
BWCPS-4218U	42	18	5.57	8.35	4.26	10.25	0.88	18.54
BWCPS-4224U	42	24	5.57	11.13	5.68	15.78	1.17	18.54
BWCPS-4230U	42	30	5.57	13.92	7.10	22.06	1.46	18.54
BWCPS-4236U	42	36	5.57	16.70	8.52	29.00	1.76	18.54

This table lists commonly specified standard model sizes. Additional standard model sizes and custom sizes are available.
 1. The "Width" dimension indicates the distance from the inner most edges of the screen that span the connector pipe.
 2. The "Screen Length" is the distance from the inner most edges of the screen that span the connector pipe.
 3. The "Screen Area" is the product of the "Screen Length" and "Screen Height" without consideration for open space.
 4. The "Net Open Screen Area" is based on a 14GA, 304SS Perforated Screen With 3/16" Hole Size And 45% Minimum Open Area.
 5. The "Maximum Treatment Flow Rate" is based on a 14GA, 304SS Perforated Screen With 3/16" Hole Size And 45% Minimum Open Area.
 6. The "Trash Storage Capacity" is based on a 14GA, 304SS Perforated Screen With 3/16" Hole Size And 45% Minimum Open Area.
 7. The "Bypass Capacity" assumes a maximum water elevation above the top of the screen of 1 ft. The Bypass Capacity will vary with the water level above the top of the screen.



TOP SECTION VIEW - CPS/CATCH BASIN

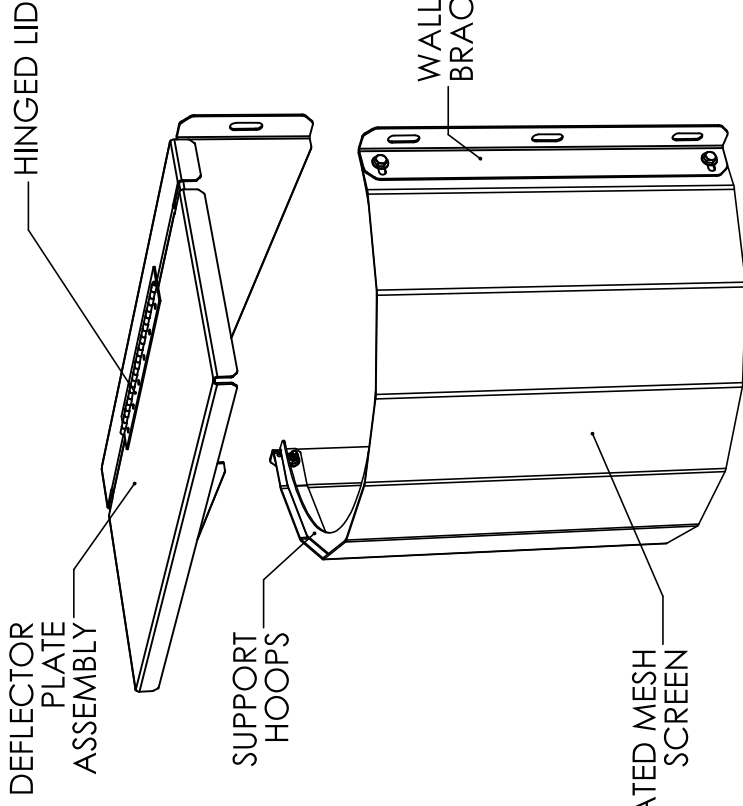
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TITLE:

CONNECTOR PIPE SCREEN "U" CONFIGURATION

SCALE: 1:12 DO NOT SCALE DRAWING FINISH 304 STAINLESS STEEL

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ISOMETRIC VIEW - CPS/DEFLECTOR PLATE

SCALE: NTS

NOTES:

- ALL COMPONENTS SHALL BE MANUFACTURED FROM GRADE 304 STAINLESS STEEL.
- PERFORATED MESH SCREEN SHALL BE 14GA, 304 STAINLESS STEEL, 3/16" (5MM) MAX HOLE SIZE, 45% MINIMUM OPEN AREA.
- THE DEFLECTOR PLATE ASSEMBLY MAY BE NECESSARY FOR APPLICATIONS WITH FLOW ENTERING DIRECTLY ABOVE THE CPS.

NAME	DATE
JGR	01/17/2020
IAM	01/24/2020
CMK	01/24/2020
EDK	02/04/2020
MAH	02/06/2020

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES

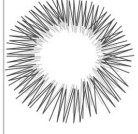
TOLERANCES:

FRACTIONAL: ± 1/32

ANGULAR: MACH ± 0.5 DEG BEND ± 1.0 DEG

TWO PLACE DECIMAL ± 0.30

THREE PLACE DECIMAL ± 0.020



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SIZE	DWG. NO.	REV
A	BWCPS-U-0001	A

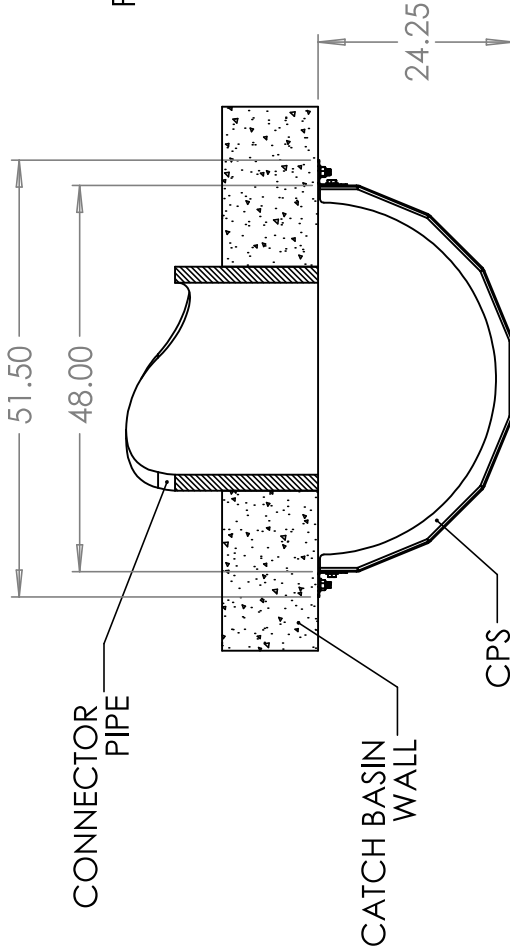
SHEET 4 OF 5

STANDARD MODELS (48-INCH)

"U" CONFIGURATION

Model Number	Screen Width ¹ (in)	Screen Height (in)	Screen Length ² (ft)	Screen Area ³ (ft ²)	Net Open Screen Area ⁴ (ft ²)	Maximum Treatment Flow Rate ⁵ (cfs)	Trash Storage Capacity ⁶ (yd ³)	Bypass Capacity ⁷ (cfs)
BWCPS-4812U	48	12	6.36	6.36	3.24	6.38	0.56	21.19
BWCPS-4818U	48	18	6.36	9.54	4.87	11.72	0.85	21.19
BWCPS-4824U	48	24	6.36	12.72	6.49	18.04	1.13	21.19
BWCPS-4830U	48	30	6.36	15.90	8.11	25.21	1.41	21.19
BWCPS-4836U	48	36	6.36	19.09	9.73	33.14	1.69	21.19

This table lists commonly specified standard model sizes. Additional standard model sizes and custom sizes are available.
 1. The "Width" dimension indicates the distance from the inner most edges of the screen that span the connector pipe.
 2. The "Screen Length" is the distance from the inner most edges of the screen that span the connector pipe.
 3. The "Screen Area" is the product of the "Screen Length" and "Screen Height" without consideration for open space.
 4. The "Net Open Screen Area" is based on a 14ga, 304SS Perforated Screen With 3/16" Hole Size And 45% Minimum Open Area.
 5. The "Maximum Treatment Flow Rate" is based on a 14ga, 304SS Perforated Screen With 3/16" Hole Size And 45% Minimum Open Area.
 6. The "Trash Storage Capacity" is based on a 14ga, 304SS Perforated Screen With 3/16" Hole Size And 45% Minimum Open Area.
 7. The "Bypass Capacity" assumes a maximum water elevation above the top of the screen of 1 ft. The Bypass Capacity will vary with the water level above the top of the screen.



TOP SECTION VIEW - CPS/CATCH BASIN

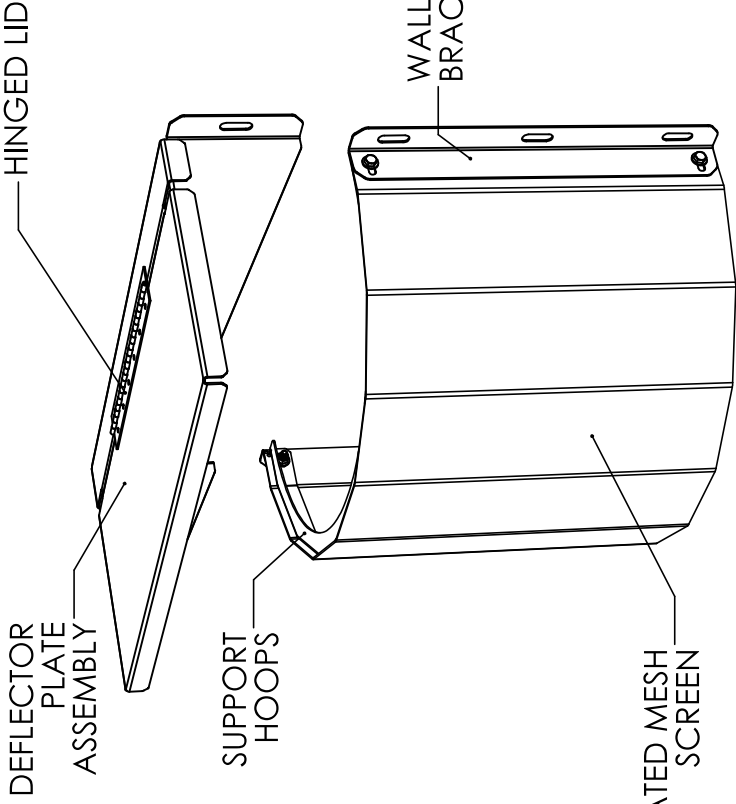
SCALE: NTS

TITLE:

CONNECTOR PIPE SCREEN "U" CONFIGURATION

SCALE: 1:12 DO NOT SCALE DRAWING FINISH 304 STAINLESS STEEL

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ISOMETRIC VIEW - CPS/DEFLECTOR PLATE

SCALE: NTS

NOTES:

1. ALL COMPONENTS SHALL BE MANUFACTURED FROM GRADE 304 STAINLESS STEEL.
2. PERFORATED MESH SCREEN SHALL BE 14GA, 304 STAINLESS STEEL, 3/16" (5MM) MAX HOLE SIZE, 45% MINIMUM OPEN AREA.
3. THE DEFLECTOR PLATE ASSEMBLY MAY BE NECESSARY FOR APPLICATIONS WITH FLOW ENTERING DIRECTLY ABOVE THE CPS.

NAME	DATE
JGR	01/17/2020
IAM	01/24/2020
CMK	01/24/2020
EDK	02/04/2020
MAH	02/06/2020

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
 TOLERANCES:
 FRACTIONAL: ± 1/32
 ANGULAR: MACH ± 0.5 DEG BEND ± 1.0 DEG
 TWO PLACE DECIMAL ± 0.30
 THREE PLACE DECIMAL ± 0.020



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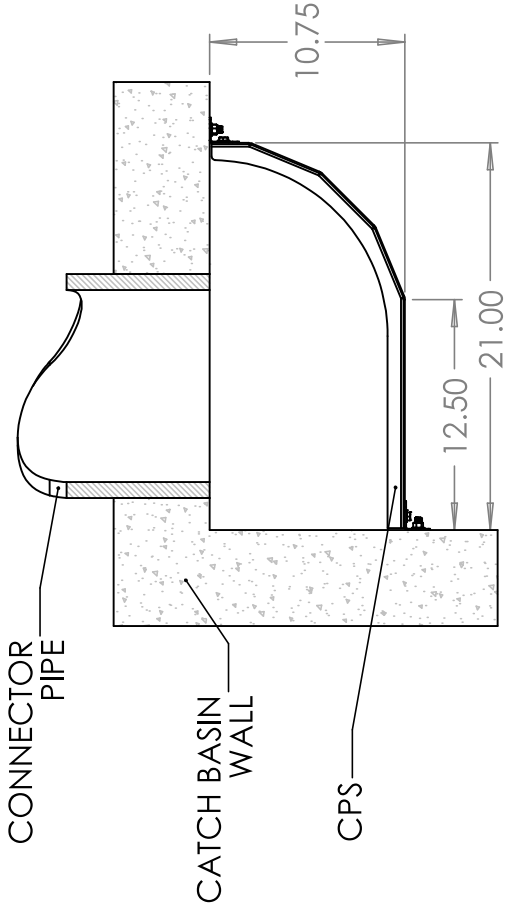
SIZE	DWG. NO.	REV
A	BWCPS-U-0001	A

STANDARD MODELS (21-INCH)

"L" CONFIGURATION

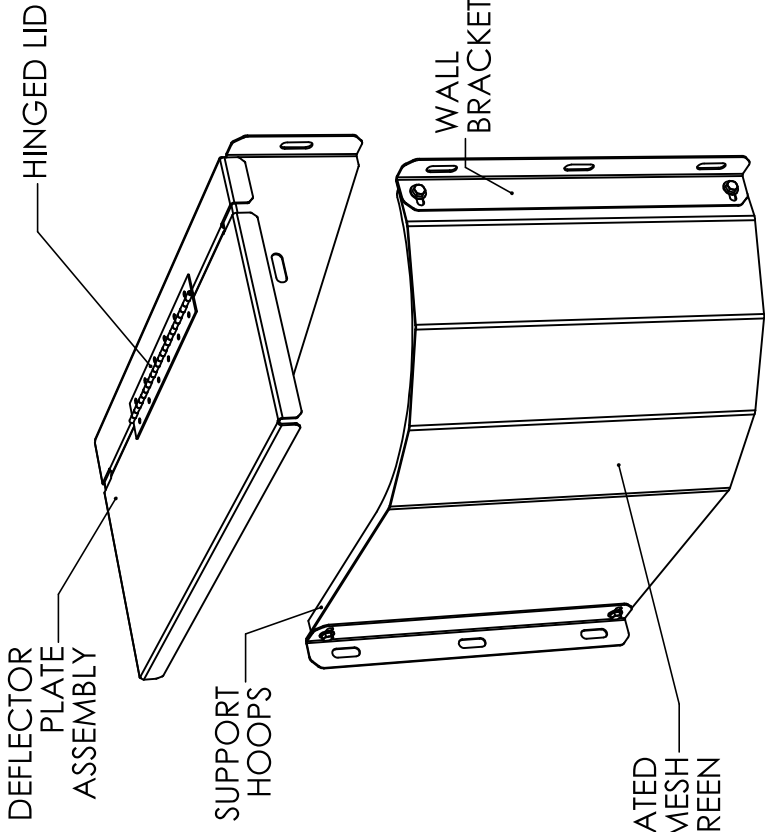
Model Number	Screen Width ¹ (in)	Screen Height (in)	Screen Length ² (ft)	Screen Area ³ (ft ²)	Net Open Screen Area ⁴ (ft ²)	Maximum Treatment Flow Rate ⁵ (cfs)	Trash Storage Capacity ⁶ (yd ³)	Bypass Capacity ⁷ (cfs)
BWCPS-2112L	21	12	2.27	2.27	1.16	2.27	0.64	7.55
BWCPS-2118L	21	18	2.27	3.40	1.73	4.17	0.95	7.55
BWCPS-2124L	21	24	2.27	4.53	2.31	6.43	1.27	7.55
BWCPS-2130L	21	30	2.27	5.67	2.89	8.98	1.59	7.55
BWCPS-2136L	21	36	2.27	6.80	3.47	11.81	1.91	7.55

This table lists commonly specified standard model sizes. Additional standard model sizes and custom sizes are available.
 1. The "Screen Width" is the total perimeter dimension of the screen that encompasses the connector pipe.
 2. The "Screen Length" is the total perimeter dimension of the screen that encompasses the connector pipe.
 3. The "Screen Area" is the product of the "Screen Length" and "Screen Height," with no consideration for open space.
 4. The "Net Open Screen Area" is the "Screen Area" minus the area of the screen that is occupied by the support hoops.
 5. MTR utilizes an orifice coefficient (C) of 0.60 and an approximated upstream/downstream head differential across the screen of 2/3 of the maximum screen height. The listed MTR has a safety factor (SF) of 2x applied.
 6. The "Trash Storage Capacity" utilizes a catch basin size of 14'-0" x 3'-2" and a maximum trash level of 40% of the maximum screen height. Different size catch basins will yield different values for Trash Storage Capacity.
 7. The "Bypass Capacity" assumes a maximum water elevation above the top of the screen of 3ft. The Bypass Capacity will vary with the water level above the top of the screen.



TOP SECTION VIEW - CPS/CATCH BASIN

SCALE: NTS



ISOMETRIC VIEW - CPS/DEFLECTOR PLATE

SCALE: NTS

NOTES:

- ALL COMPONENTS SHALL BE MANUFACTURED FROM GRADE 304 STAINLESS STEEL.
- PERFORATED MESH SCREEN SHALL BE 14GA, 304 STAINLESS STEEL, 3/16" (5MM) MAX HOLE SIZE, 45% MINIMUM OPEN AREA.
- THE DEFLECTOR PLATE ASSEMBLY MAY BE NECESSARY FOR APPLICATIONS WITH FLOW ENTERING DIRECTLY ABOVE THE CPS.

TITLE:

CONNECTOR PIPE SCREEN "L" CONFIGURATION

NAME	DATE
JGR	01/17/2020
IAM	01/24/2020
CMK	01/24/2020
EDK	02/04/2020
MAH	02/06/2020

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES

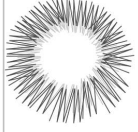
TOLERANCES:

FRACTIONAL: ± 1/32

ANGULAR: MACH ± 0.5 DEG BEND ± 1.0 DEG

TWO PLACE DECIMAL ± 0.30

THREE PLACE DECIMAL ± 0.020



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SIZE DWG. NO. REV

A BWCPS-L-0001 A

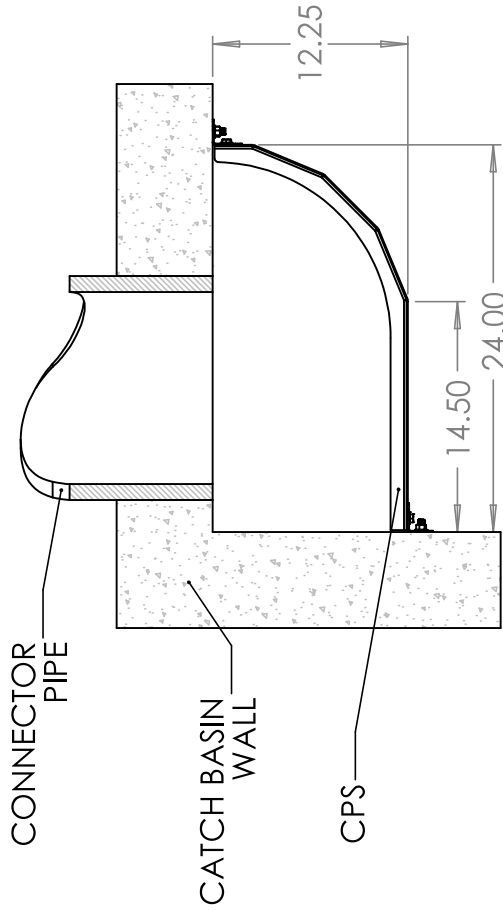
SHEET 1 OF 5

STANDARD MODELS (24-INCH)

"L" CONFIGURATION

Model Number	Screen Width ¹ (in)	Screen Height (in)	Screen Length ² (ft)	Screen Area ³ (ft ²)	Net Open Screen Area ⁴ (ft ²)	Maximum Treatment Flow Rate ⁵ (cfs)	Trash Storage Capacity ⁶ (yd ³)	Bypass Capacity ⁷ (cfs)
BWCPS-2412L	24	12	2.59	2.59	1.32	2.60	0.63	8.63
BWCPS-2418L	24	18	2.59	3.89	1.98	4.77	0.95	8.63
BWCPS-2424L	24	24	2.59	5.18	2.64	7.35	1.26	8.63
BWCPS-2430L	24	30	2.59	6.48	3.30	10.27	1.58	8.63
BWCPS-2436L	24	36	2.59	7.77	3.96	13.49	1.89	8.63

This table lists commonly specified standard model sizes. Additional standard model sizes and custom sizes are available.
 1. The "Screen Width" is the total perimeter dimension of the screen that encompasses the connector pipe.
 2. The "Screen Length" is the total perimeter dimension of the screen that encompasses the connector pipe.
 3. The "Screen Area" is the product of the "Screen Length" and "Screen Height," with no consideration for open space.
 4. The "Net Open Screen Area" is the product of the "Screen Length" and "Screen Height," with no consideration for open space.
 5. MTR utilizes an orifice coefficient (C) of 0.60 and an approximated upstream/downstream head differential across the screen of 2/3 of the maximum screen height. The listed MTR has a safety factor (SF) of 2x applied.
 6. The "Trash Storage Capacity" utilizes a catch basin size of 14'-0" x 3'-2" and a maximum trash level of 40% of the maximum screen height. Different size catch basins will yield different values for Trash Storage Capacity.
 7. The "Bypass Capacity" assumes a maximum water elevation above the top of the screen of 3ft. The Bypass Capacity will vary with the water level above the top of the screen.



TOP SECTION VIEW - CPS/CATCH BASIN

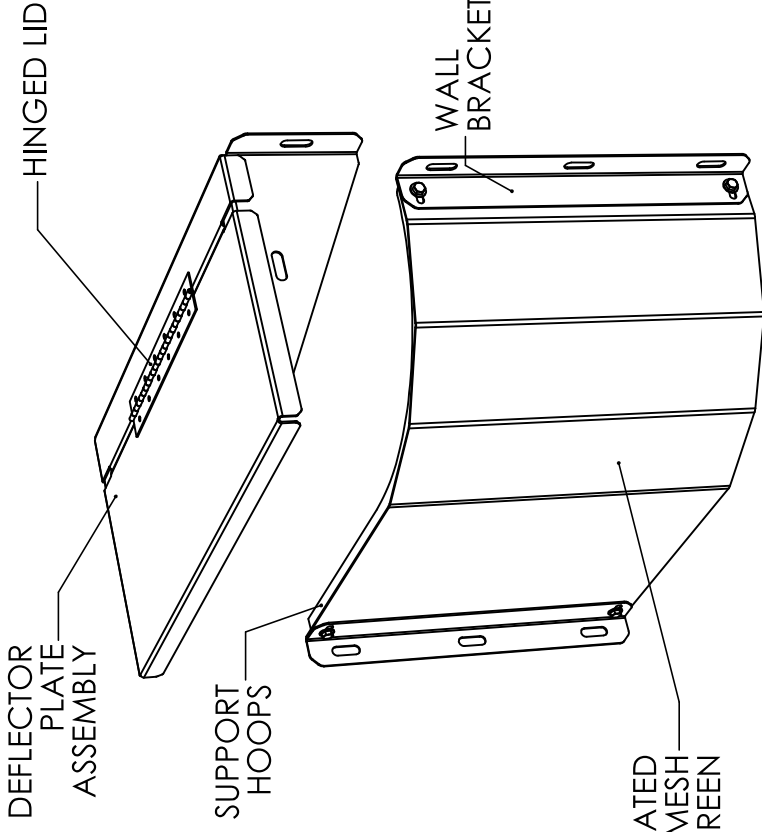
SCALE: NTS

TITLE:

CONNECTOR PIPE SCREEN "L" CONFIGURATION

SCALE: 1:12 DO NOT SCALE DRAWING FINISH 304 STAINLESS STEEL

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ISOMETRIC VIEW - CPS/DEFLECTOR PLATE

SCALE: NTS

NOTES:

- ALL COMPONENTS SHALL BE MANUFACTURED FROM GRADE 304 STAINLESS STEEL.
- PERFORATED MESH SCREEN SHALL BE 14GA, 304 STAINLESS STEEL, 3/16" (5MM) MAX HOLE SIZE, 45% MINIMUM OPEN AREA.
- THE DEFLECTOR PLATE ASSEMBLY MAY BE NECESSARY FOR APPLICATIONS WITH FLOW ENTERING DIRECTLY ABOVE THE CPS.

NAME	DATE
JGR	01/17/2020
IAM	01/24/2020
CMK	01/24/2020
EDK	02/04/2020
MAH	02/06/2020

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES

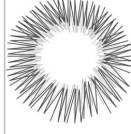
TOLERANCES:

FRACTIONAL: ± 1/32

ANGULAR: MACH ± 0.5 DEG BEND ± 1.0 DEG

TWO PLACE DECIMAL ± 0.30

THREE PLACE DECIMAL ± 0.020



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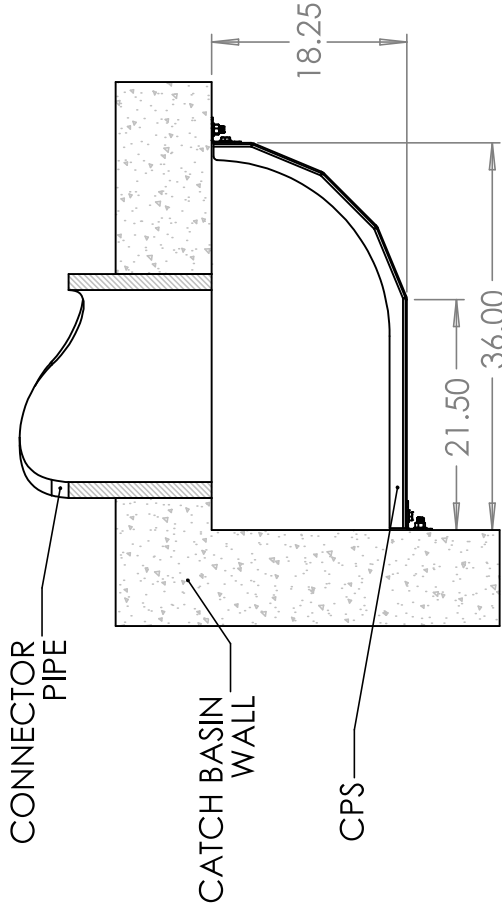
SIZE	DWG. NO.	REV
A	BWCPS-L-0001	A

STANDARD MODELS (36-INCH)

"L" CONFIGURATION

Model Number	Screen Width ¹ (in)	Screen Height (in)	Screen Length ² (ft)	Screen Area ³ (ft ²)	Net Open Screen Area ⁴ (ft ²)	Maximum Treatment Flow Rate ⁵ (cfs)	Trash Storage Capacity ⁶ (yd ³)	Bypass Capacity ⁷ (cfs)
BWCPS-3612L	36	12	3.89	3.89	1.98	3.90	0.60	12.94
BWCPS-3618L	36	18	3.89	5.83	2.97	7.16	0.90	12.94
BWCPS-3624L	36	24	3.89	7.77	3.96	11.02	1.19	12.94
BWCPS-3630L	36	30	3.89	9.71	4.95	15.40	1.49	12.94
BWCPS-3636L	36	36	3.89	11.66	5.95	20.24	1.79	12.94

This table lists commonly specified standard model sizes. Additional standard model sizes and custom sizes are available.
 1. The "Screen Width" is the total perimeter dimension of the screen that encompasses the connector pipe.
 2. The "Screen Length" is the total perimeter dimension of the screen that encompasses the connector pipe.
 3. The "Screen Area" is the product of the "Screen Length" and "Screen Height," with no consideration for open space.
 4. The "Net Open Screen Area" is the product of the "Net Open Screen Length" and "Net Open Screen Height."
 5. MTRF utilizes an orifice coefficient (C) of 0.60 and an approximated upstream/downstream head differential across the screen of 2/3 of the maximum screen height. The listed MTRF has a safety factor (SF) of 2x applied.
 6. The "Trash Storage Capacity" utilizes a catch basin size of 14'-0" x 3'-2" and a maximum trash level of 40% of the maximum screen height. Different size catch basins will yield different values for Trash Storage Capacity.
 7. The "Bypass Capacity" assumes a maximum water elevation above the top of the screen of 3ft. The Bypass Capacity will vary with the water level above the top of the screen.



TOP SECTION VIEW - CPS/CATCH BASIN

SCALE: NTS

TITLE:

CONNECTOR PIPE SCREEN "L" CONFIGURATION

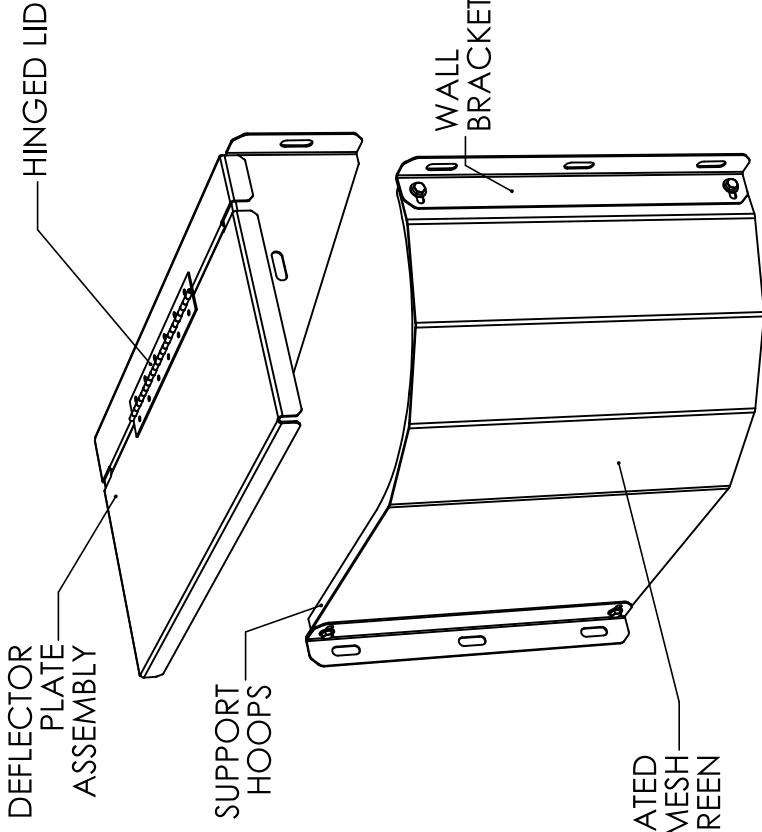
SCALE: 1:12

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FINISH

304 STAINLESS STEEL

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ISOMETRIC VIEW - CPS/DEFLECTOR PLATE

SCALE: NTS

NOTES:

- ALL COMPONENTS SHALL BE MANUFACTURED FROM GRADE 304 STAINLESS STEEL.
- PERFORATED MESH SCREEN SHALL BE 14GA, 304 STAINLESS STEEL, 3/16" (5MM) MAX HOLE SIZE, 45% MINIMUM OPEN AREA.
- THE DEFLECTOR PLATE ASSEMBLY MAY BE NECESSARY FOR APPLICATIONS WITH FLOW ENTERING DIRECTLY ABOVE THE CPS.

NAME	DATE
JGR	01/17/2020
IAM	01/24/2020
CMK	01/24/2020
EDK	02/04/2020
MAH	02/06/2020

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES

TOLERANCES:

FRACTIONAL: ± 1/32

ANGULAR: MACH ± 0.5 DEG BEND ± 1.0 DEG

TWO PLACE DECIMAL ± 0.30

THREE PLACE DECIMAL ± 0.020



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SIZE DWG. NO.

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SHEET 3 OF 5

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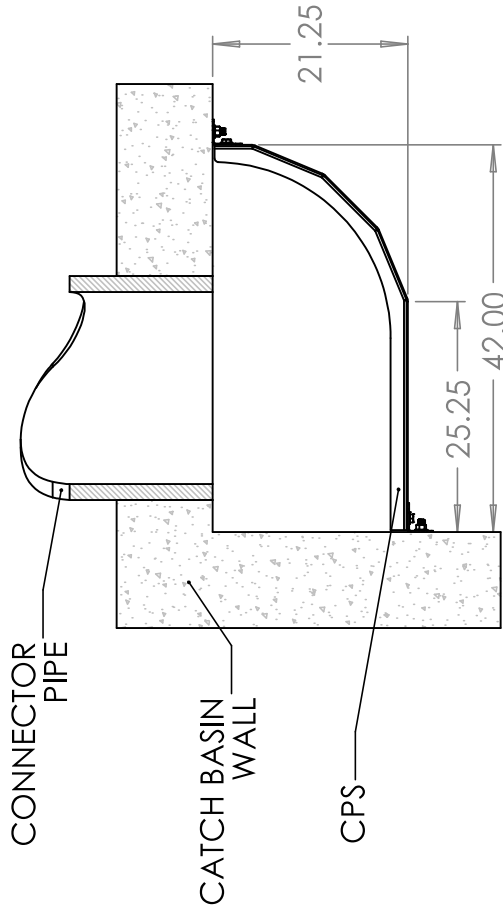
5

STANDARD MODELS (42-INCH)

"L" CONFIGURATION

Model Number	Screen Width ¹ (in)	Screen Height (in)	Screen Length ² (ft)	Screen Area ³ (ft ²)	Net Open Screen Area ⁴ (ft ²)	Maximum Treatment Flow Rate ⁵ (cfs)	Trash Storage Capacity ⁶ (yd ³)	Bypass Capacity ⁷ (cfs)
BWCPS-4212L	42	12	4.53	4.53	2.31	4.54	0.58	15.10
BWCPS-4218L	42	18	4.53	6.80	3.47	8.35	0.86	15.10
BWCPS-4224L	42	24	4.53	9.07	4.62	12.85	1.15	15.10
BWCPS-4230L	42	30	4.53	11.33	5.78	17.96	1.44	15.10
BWCPS-4236L	42	36	4.53	13.60	6.94	23.61	1.73	15.10

This table lists commonly specified standard model sizes. Additional standard model sizes and custom sizes are available.
 1. The "Screen Width" is the total perimeter dimension of the screen that encompasses the deflector plate.
 2. The "Screen Length" is the total perimeter dimension of the screen that encompasses the deflector plate.
 3. The "Screen Area" is the product of the "Screen Length" and "Screen Height," with no consideration for open space.
 4. The "Net Open Screen Area" is the "Screen Area" minus the area of the deflector plate.
 5. MTRF utilizes an orifice coefficient (C) of 0.60 and an approximated upstream/downstream head differential across the screen of 2/3 of the maximum screen height. The listed MTRF has a safety factor (SF) of 2x applied.
 6. The "Trash Storage Capacity" utilizes a catch basin size of 14'-0" x 3'-2" and a maximum trash level of 40% of the maximum screen height. Different size catch basins will yield different values for Trash Storage Capacity.
 7. The "Bypass Capacity" assumes a maximum water elevation above the top of the screen of 3ft. The Bypass Capacity will vary with the water level above the top of the screen.



TOP SECTION VIEW - CPS/CATCH BASIN

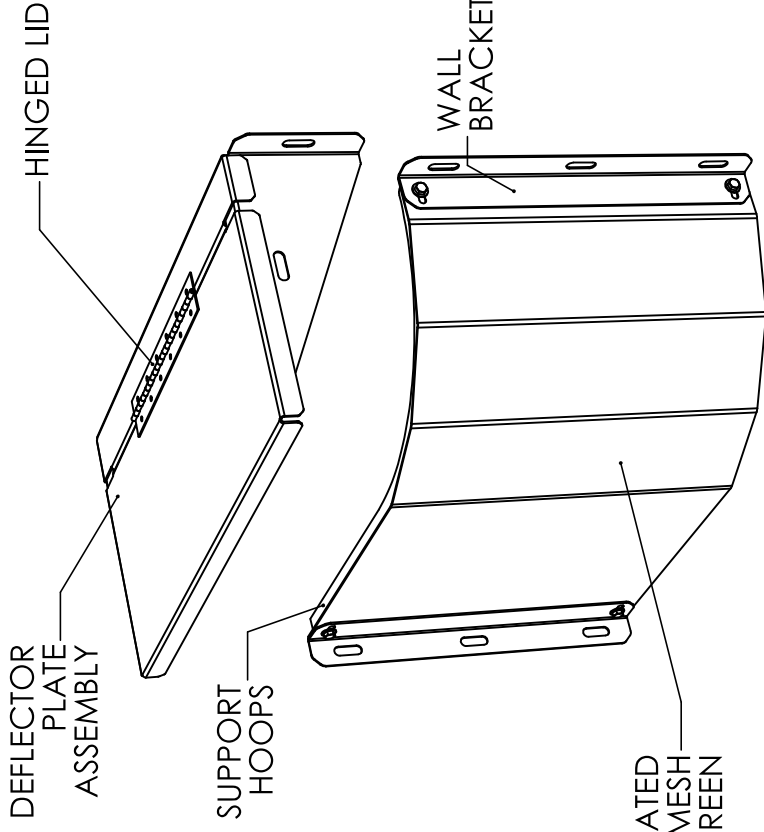
SCALE: NTS

TITLE:

CONNECTOR PIPE SCREEN "L" CONFIGURATION

SCALE: 1:12 DO NOT SCALE DRAWING FINISH 304 STAINLESS STEEL

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ISOMETRIC VIEW - CPS/DEFLECTOR PLATE

SCALE: NTS

NOTES:

- ALL COMPONENTS SHALL BE MANUFACTURED FROM GRADE 304 STAINLESS STEEL.
- PERFORATED MESH SCREEN SHALL BE 14GA, 304 STAINLESS STEEL, 3/16" (5MM) MAX HOLE SIZE, 45% MINIMUM OPEN AREA.
- THE DEFLECTOR PLATE ASSEMBLY MAY BE NECESSARY FOR APPLICATIONS WITH FLOW ENTERING DIRECTLY ABOVE THE CPS.

NAME	DATE
JGR	01/17/2020
IAM	01/24/2020
CMK	01/24/2020
EDK	02/04/2020
MAH	02/06/2020

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES

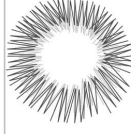
TOLERANCES:

FRACTIONAL: ± 1/32

ANGULAR: MACH ± 0.5 DEG BEND ± 1.0 DEG

TWO PLACE DECIMAL ± 0.30

THREE PLACE DECIMAL ± 0.020



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SIZE	DWG. NO.	REV
A	BWCPS-L-0001	A

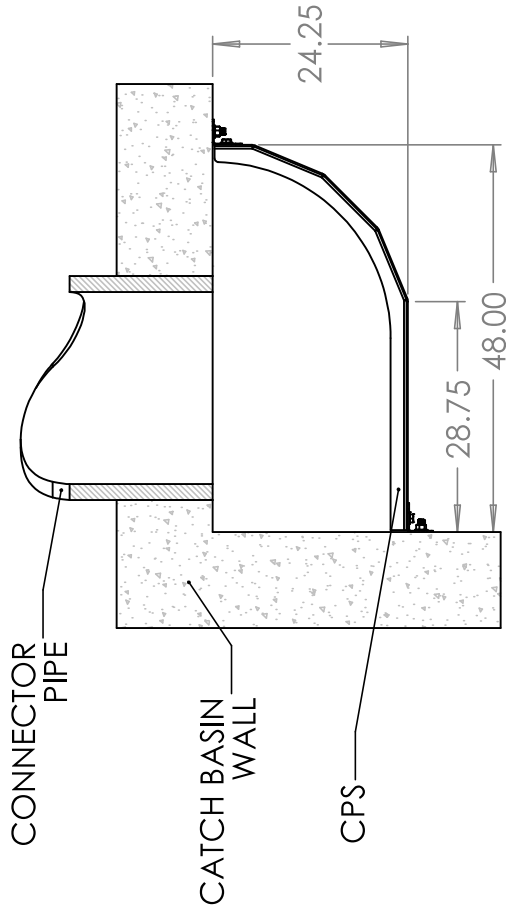
SHEET 4 OF 5

STANDARD MODELS (48-INCH)

"L" CONFIGURATION

Model Number	Screen Width ¹ (in)	Screen Height (in)	Screen Length ² (ft)	Screen Area ³ (ft ²)	Net Open Screen Area ⁴ (ft ²)	Maximum Treatment Flow Rate ⁵ (cfs)	Trash Storage Capacity ⁶ (yd ³)	Bypass Capacity ⁷ (cfs)
BWCPS-4812L	48	12	5.18	5.18	2.64	5.19	0.55	17.25
BWCPS-4818L	48	18	5.18	7.77	3.96	9.54	0.83	17.25
BWCPS-4824L	48	24	5.18	10.36	5.28	14.69	1.10	17.25
BWCPS-4830L	48	30	5.18	12.95	6.61	20.53	1.38	17.25
BWCPS-4836L	48	36	5.18	15.54	7.93	26.99	1.65	17.25

This table lists commonly specified standard model sizes. Additional standard model sizes and custom sizes are available.
 1. The "Screen Width" is the total perimeter dimension of the screen that encompasses the connector pipe.
 2. The "Screen Length" is the total perimeter dimension of the screen that encompasses the connector pipe.
 3. The "Screen Area" is the product of the "Screen Length" and "Screen Height," with no consideration for open space.
 4. The "Net Open Screen Area" is the product of the "Net Open Screen Length" and "Net Open Screen Height."
 5. MTR utilizes an orifice coefficient (C) of 0.60 and an approximated upstream/downstream head differential across the screen of 2/3 of the maximum screen height. The listed MTR has a safety factor (SF) of 2x applied.
 6. The "Trash Storage Capacity" utilizes a catch basin size of 14'-0" x 3'-2" and a maximum trash level of 40% of the maximum screen height. Different size catch basins will yield different values for Trash Storage Capacity.
 7. The "Bypass Capacity" assumes a maximum water elevation above the top of the screen of 3ft. The Bypass Capacity will vary with the water level above the top of the screen.



TOP SECTION VIEW - CPS/CATCH BASIN

SCALE: NTS

TITLE:

CONNECTOR PIPE SCREEN "L" CONFIGURATION

SCALE: 1:12

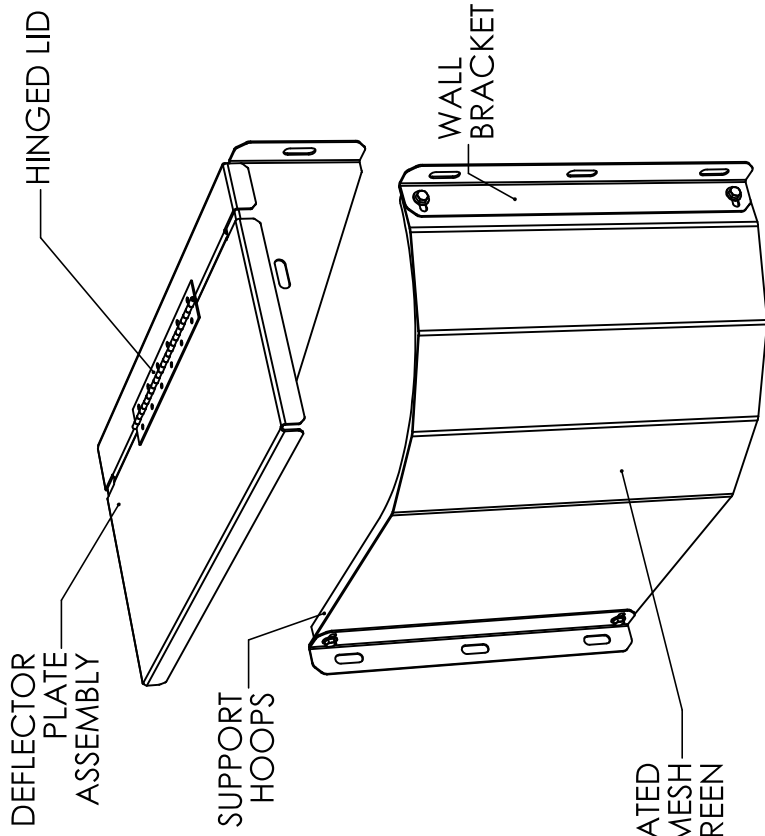
DO NOT SCALE DRAWING

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304 STAINLESS STEEL

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ISOMETRIC VIEW - CPS/DEFLECTOR PLATE

SCALE: NTS

NOTES:

- ALL COMPONENTS SHALL BE MANUFACTURED FROM GRADE 304 STAINLESS STEEL.
- PERFORATED MESH SCREEN SHALL BE 14GA, 304 STAINLESS STEEL, 3/16" (5MM) MAX HOLE SIZE, 45% MINIMUM OPEN AREA.
- THE DEFLECTOR PLATE ASSEMBLY MAY BE NECESSARY FOR APPLICATIONS WITH FLOW ENTERING DIRECTLY ABOVE THE CPS.

NAME	DATE
JGR	01/17/2020
IAM	01/24/2020
CMK	01/24/2020
EDK	02/04/2020
MAH	02/06/2020

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES

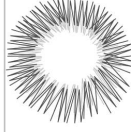
TOLERANCES:

FRACTIONAL: ± 1/32

ANGULAR: MACH ± 0.5 DEG BEND ± 1.0 DEG

TWO PLACE DECIMAL ± 0.30

THREE PLACE DECIMAL ± 0.020



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SIZE DWG. NO.

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SHEET 5 OF 5

APPENDIX B (SPECIFICATIONS)

BrightWater™ Guide Specification

Connector Pipe Screens

Released 07/26/2020

This product guide specification is written according to the Construction Specifications Institute (CSI) 3-Part Format, including MasterFormat, SectionFormat, and PageFormat, contained in the *CSI Manual of Practice*.

Note to Architect/Engineer:

This section must be carefully reviewed and edited by the Architect/Engineer to meet the requirements of the project and local building code. Coordinate this section with other specification sections and the Plans and Drawings. Delete all "Specifier Notes" when editing this section.

Section numbers are from MasterFormat 2016 Edition. Update section number as necessary to current versions if required.

Specifier Notes: This section covers the BrightWater™ Stormwater Connector Pipe Screen. The BrightWater™ Connector Pipe Screen is configured to meet the specific requirements of the project.

Consult BrightWater™ for assistance in editing this section for the specific project or application.

SECTION 33 44 33 – STORMWATER TRASH AND DEBRIS GUARDS

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. BrightWater™ Stormwater Connector Pipe Screens.

1.02 RELATED SECTIONS

- A. Section 01 33 00 – Submittal Procedures
- B. Section 33 42 33 – Stormwater Curbside Drains and Inlets

1.03 REFERENCE STANDARDS

- A. ASTM A193 – Standard Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications
- B. ASTM A240 – Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
- C. ASTM A276 – Standard Specification for Stainless Steel Bars and Shapes
- D. ASTM F593 – Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs
- E. ASTM F594 – Standard Specification for Stainless Steel Nuts

1.04 QUALITY ASSURANCE

- A. Maintain at the project site a copy of each referenced standard that prescribes execution requirements.
- B. The materials, process and finished stormwater treatment system shall be subject to inspection by the Engineer. Acceptance or rejection of the system shall be based on the Specifications contained in this section.
- C. The manufacturer of the Connector Pipe Screen(s) shall have a minimum of three years of experience manufacturing Devices of the type specified.
- D. The installer of the Connector Pipe Screen(s) shall have a minimum of three years of experience installing Devices of the type specified.

1.05 SUBMITTALS

- A. Submittals must conform to Section 01 33 00 - Submittal Procedures.
- B. Product Data: Submit manufacturer's product data, installation instructions, Operations and Maintenance Manual, Material Certifications, and Performance Certifications.
- C. Record Documents:
 - 1. Shop Drawings.

2. Operations and Maintenance Manual.
3. Installation Verification.
4. Material Certifications.
5. Performance Certifications.

1.06 DELIVERY, STORAGE, AND HANDLING

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

1.07 WARRANTY

- A. Warranty must conform to Section 01 78 00 – Closeout Submittals. At a minimum, the Manufacturer shall provide a two (2) year limited warranty.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. BrightWater™
Phone: (619) 821-1558
Email: customerservice@wearebrightwater.com
Website: www.wearebrightwater.com

2.02 CONNECTOR PIPE SCREEN DESIGN

- A. Provide a complete, permanent system for screening and capturing the site stormwater runoff by way of a Connector Pipe Screen.
- B. All material shall meet or exceed the referenced applicable standards as well as federal, state, and local requirements.
- C. The treatment Device shall be certified as a Full Capture Trash Treatment Control Device by the California State Water Resources Control Board (SWRCB).

2.03 GENERAL

- A. The Connector Pipe Screen shall remove trash, debris and sediment, and other gross pollutants from dry weather and wet weather runoff entering the project curb inlet or drop inlets

Project Owner
Project Name
Project No.

Stormwater Trash and Debris Guards
33 44 33
3

catch basins. The Device consists of a metal screen and mounting framework that installs in front of the outlet pipe (connector pipe) of the curb inlet or drop inlet catch basin. An optional deflector plate assembly should be specified for applications with incoming flow directly above the Connector Pipe Assembly. The Connector Pipe Screen(s) shall be designed and installed in such a manner that they treat the necessary stormwater flows, as detailed in the project WQMP, without impeding the storm drain system's maximum hydraulic capacity.

- B. The Connector Pipe Screen shall not utilize any moving parts in the screening process and shall not obstruct the hydraulic flow path or the curb inlet manned access points in any manner.

2.04 MATERIALS

The Connector Pipe Screen shall be manufactured from materials that provide for a design service life not less than 25 years. Specific material requirements and properties are detailed below;

SCREEN	The Connector Pipe Screen metal screen shall be made from a minimum of 14 gauge, perforated 304 stainless steel with a maximum hole size of 3/16" (5mm) and a minimum open area of 45% and shall conform to ASTM A240.
SUPPORTS	The screen supports shall be made from a minimum of 14ga, 304 stainless steel angle conforming to ASTM A276.
BRACKETS	The mounting brackets shall be made from a minimum of 14ga, 304 stainless steel angle conforming to ASTM A276.
PLATE ASSEMBLY	The Deflector Plate Assembly shall be made from a minimum of 14ga, 304 stainless steel angle conforming to ASTM A276.
HARDWARE	All mounting and assembly hardware shall be made from 304SS and shall conform to ASTM A193, F593 or F594.

2.05 PERFORMANCE

- A. The Connector Pipe Screen(s) shall remove trash, debris, sediment and other gross pollutants from dry weather and wet weather runoff entering the project curb inlet and drop inlet catch basins.
- B. Treatment flow rates and storage capacities shall meet or exceed the Specifications in Table 1 or Table 2 for given models Specified on the Plans.
- C. Performance of the Connector Pipe Screen(s) shall be based on treating the Water Quality Flow Rate and Trash Capture Flow Rate without internally bypassing and without re-suspension and washout of captured pollutants. The Maximum Treatment Flow Rate for each targeted pollutant shall be greater than or equal to the WQF and Trash Capture Flow Rate as detailed in the project WQMP.
- D. The Connector Pipe Screen shall be capable of capturing and retaining 100% of all particles 5mm or greater up to the Maximum Trash Treatment Flow Rate.

Table 1

STANDARD MODELS								
"U" CONFIGURATION								
Model Number	ScreenWidth ¹	Screen Height	Screen Length ²	Screen Area ³	Net Open Screen Area ⁴	Maximum Treatment Flow Rate ⁵	Trash Storage Capacity ⁶	Bypass Capacity ⁷
Model No.	(in)	(in)	(ft)	(ft ²)	(ft ²)	(cfs)	(yd ³)	(cfs)
BWCPS-2112U	21	12	2.78	2.78	1.42	2.79	0.64	9.27
BWCPS-2118U	21	18	2.78	4.17	2.13	5.13	0.96	9.27
BWCPS-2124U	21	24	2.78	5.57	2.84	7.89	1.28	9.27
BWCPS-2130U	21	30	2.78	6.96	3.55	11.03	1.60	9.27
BWCPS-2136U	21	36	2.78	8.35	4.26	14.50	1.92	9.27
BWCPS-2412U	24	12	3.18	3.18	1.62	3.19	0.63	10.59
BWCPS-2418U	24	18	3.18	4.77	2.43	5.86	0.95	10.59
BWCPS-2424U	24	24	3.18	6.36	3.24	9.02	1.27	10.59
BWCPS-2430U	24	30	3.18	7.95	4.06	12.61	1.58	10.59
BWCPS-2436U	24	36	3.18	9.54	4.87	16.57	1.90	10.59
BWCPS-3612U	36	12	4.77	4.77	2.43	4.78	0.60	15.89
BWCPS-3618U	36	18	4.77	7.16	3.65	8.79	0.91	15.89
BWCPS-3624U	36	24	4.77	9.54	4.87	13.53	1.21	15.89
BWCPS-3630U	36	30	4.77	11.93	6.08	18.91	1.51	15.89
BWCPS-3636U	36	36	4.77	14.31	7.30	24.86	1.81	15.89
BWCPS-4212U	42	12	5.57	5.57	2.84	5.58	0.59	18.54
BWCPS-4218U	42	18	5.57	8.35	4.26	10.25	0.88	18.54
BWCPS-4224U	42	24	5.57	11.13	5.68	15.78	1.17	18.54
BWCPS-4230U	42	30	5.57	13.92	7.10	22.06	1.46	18.54
BWCPS-4236U	42	36	5.57	16.70	8.52	29.00	1.76	18.54
BWCPS-4812U	48	12	6.36	6.36	3.24	6.38	0.56	21.19
BWCPS-4818U	48	18	6.36	9.54	4.87	11.72	0.85	21.19
BWCPS-4824U	48	24	6.36	12.72	6.49	18.04	1.13	21.19
BWCPS-4830U	48	30	6.36	15.90	8.11	25.21	1.41	21.19
BWCPS-4836U	48	36	6.36	19.09	9.73	33.14	1.69	21.19

This table lists commonly specified standard model sizes. Additional standard model sizes and custom sizes are available.

1. The "Width" dimension indicates the distance from the inner most edges of the screen that span the connector pipe.
2. The "Screen Length" is the total perimeter dimension of the screen that encompasses the connector pipe.
3. The "Screen Area" is the product of the "Screen Length" and "Screen Height" with no consideration for open space.
4. The "Net Open Screen Area" is based on a 14Ga, 304SS Perforated Screen With 3/16" Hole Size And 45% Minimum Open Area.
5. MTFR utilizes an orifice coefficient (C) of 0.60 and an approximated upstream/downstream head differential across the screen of 2/3 of the maximum screen height. The listed MTFR has a safety factor (SF) of 2X applied.
6. The "Trash Storage Capacity" utilizes a catch basin size of 14'-0" X 3'-2" and a maximum trash level of 40% of the maximum screen height. Different size catch basins will yield different values for Trash Storage Capacity.
7. The "Bypass Capacity" assumes a maximum water elevation above the top of the screen of 1ft. The Bypass Capacity will vary with the water level above the top of the screen.

Table 2

STANDARD MODELS								
"L" CONFIGURATION								
Model Number	ScreenWidth ¹	Screen Height	Screen Length ²	Screen Area ³	Net Open Screen Area ⁴	Maximum Treatment Flow Rate ⁵	Trash Storage Capacity ⁶	Bypass Capacity ⁷
Model No.	(in)	(in)	(ft)	(ft ²)	(ft ²)	(cfs)	(yd ³)	(cfs)
BWCPS-2112L	21	12	2.27	2.27	1.16	2.27	0.64	7.55
BWCPS-2118L	21	18	2.27	3.40	1.73	4.17	0.95	7.55
BWCPS-2124L	21	24	2.27	4.53	2.31	6.43	1.27	7.55
BWCPS-2130L	21	30	2.27	5.67	2.89	8.98	1.59	7.55
BWCPS-2136L	21	36	2.27	6.80	3.47	11.81	1.91	7.55
BWCPS-2412L	24	12	2.59	2.59	1.32	2.60	0.63	8.63
BWCPS-2418L	24	18	2.59	3.89	1.98	4.77	0.95	8.63
BWCPS-2424L	24	24	2.59	5.18	2.64	7.35	1.26	8.63
BWCPS-2430L	24	30	2.59	6.48	3.30	10.27	1.58	8.63
BWCPS-2436L	24	36	2.59	7.77	3.96	13.49	1.89	8.63
BWCPS-3612L	36	12	3.89	3.89	1.98	3.90	0.60	12.94
BWCPS-3618L	36	18	3.89	5.83	2.97	7.16	0.90	12.94
BWCPS-3624L	36	24	3.89	7.77	3.96	11.02	1.19	12.94
BWCPS-3630L	36	30	3.89	9.71	4.95	15.40	1.49	12.94
BWCPS-3636L	36	36	3.89	11.66	5.95	20.24	1.79	12.94
BWCPS-4212L	42	12	4.53	4.53	2.31	4.54	0.58	15.10
BWCPS-4218L	42	18	4.53	6.80	3.47	8.35	0.86	15.10
BWCPS-4224L	42	24	4.53	9.07	4.62	12.85	1.15	15.10
BWCPS-4230L	42	30	4.53	11.33	5.78	17.96	1.44	15.10
BWCPS-4236L	42	36	4.53	13.60	6.94	23.61	1.73	15.10
BWCPS-4812L	48	12	5.18	5.18	2.64	5.19	0.55	17.25
BWCPS-4818L	48	18	5.18	7.77	3.96	9.54	0.83	17.25
BWCPS-4824L	48	24	5.18	10.36	5.28	14.69	1.10	17.25
BWCPS-4830L	48	30	5.18	12.95	6.61	20.53	1.38	17.25
BWCPS-4836L	48	36	5.18	15.54	7.93	26.99	1.65	17.25

This table lists commonly specified standard model sizes. Additional standard model sizes and custom sizes are available.

1. The "Width" dimension indicates the distance from the inner most edges of the screen that span the connector pipe.
2. The "Screen Length" is the total perimeter dimension of the screen that encompasses the connector pipe.
3. The "Screen Area" is the product of the "Screen Length" and "Screen Height" with no consideration for open space.
4. The "Net Open Screen Area" is based on a 14Ga, 304SS Perforated Screen With 3/16" Hole Size And 45% Minimum Open Area.
5. MTFR utilizes an orifice coefficient (C) of 0.60 and an approximated upstream/downstream head differential across the screen of 2/3 of the maximum screen height. The listed MTFR has a safety factor (SF) of 2X applied.
6. The "Trash Storage Capacity" utilizes a catch basin size of 14'-0" X 3'-2" and a maximum trash level of 40% of the maximum screen height. Different size catch basins will yield different values for Trash Storage Capacity.
7. The "Bypass Capacity" assumes a maximum water elevation above the top of the screen of 1ft. The Bypass Capacity will vary with the water level above the top of the screen.

2.05 PERFORMANCE (Continued)

- E. The Connector Pipe Screen(s) shall be designed to withstand a lateral force of standing water plus a 2X safety factor within the catch basin in which the Connector Pipe Screen(s) is/are installed considering a water level flush with the maximum height of the assembly and the screen entirely obstructed.

PART 3 – EXECUTION

3.01 General

- A. The installation of the Connector Pipe Screen(s) shall be performed by a Manufacturer approved installation Contractor. The Contractor and installation shall conform to all applicable national, state, and local laws and ordinances.

3.02 Identification

- A. All Connector Pipe Screen(s) shall be identified with permanent markings that indicate the following minimum information:
 - 1. Name of Manufacturer
 - 2. Model of Device
 - 3. Date of Manufacture
 - 4. Date of Installation
 - 5. Manufacturer Contact Information

3.03 Installation

- A. The Contractor shall furnish all labor, equipment and materials required to install the Connector Pipe Screen(s) in accordance with the Plans and Specifications.
- B. Plans indicate a general location and arrangement for the Connector Pipe Screen(s). Where specific installation procedures are not indicated in the Plans, follow the product manufacturer's written instructions.
- C. All Devices shall be inspected for defects in materials and workmanship prior to installation. Any defective, damaged or otherwise compromised Device shall be marked as such and not utilized.
- D. Any damage to the catch basin as a result of the installation is the responsibility of the Contractor.
- E. The Connector Pipe Screen(s) shall be installed in such a manner that there is no gap or opening greater than 5mm in size that allows water to bypass the Connector Pipe Screen assembly.
- F. The Connector Pipe Screen(s) shall be installed in a manner such that no components of the Device encroaches into the manhole opening by more than four (4) inches.
- G. Any edge of the Connector Pipe Screen(s) assembly that does not abut a wall or floor shall be smooth and not have any rough edges, burrs, cut perforations, or prongs.

H. The Contractor shall supply the Engineer with a record of installation that includes the following minimum information:

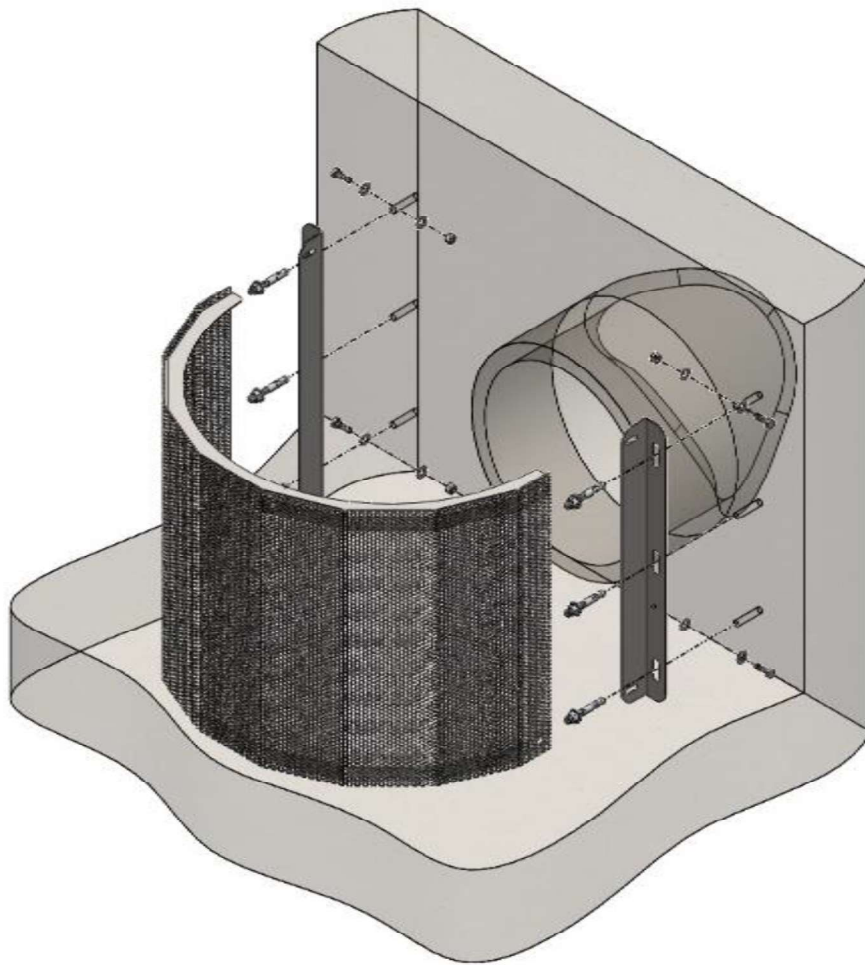
1. Project Name
2. Project Location
3. Name of Manufacturer
4. Manufacturer Contact
5. Date of Installation
6. Drainage Inlet Location
7. Model of Device

REVISION TABLE

Version	Release Date	Summary of Changes
BW1.00	07/26/2020	Initial Release
BW1.01	10/14/2020	Revised "U" Configuration Model Numbers.

APPENDIX C (INSTALLATION)

Installation Guide



OVERVIEW:

The BrightWater™ Connector Pipe Screen (CPS) is a post-construction, stormwater Best Management Practice (BMP) designed to capture 100% of trash and debris 5mm and larger in size from stormwater systems. The device, which consists of a metal screen and mounting framework, installs in front of the outlet pipe (connector pipe) of a curb inlet or drop inlet catch basin and screens for gross pollutants such as trash and debris effectively converting an existing or new catch basin into a treatment device. The Device is typically implemented to comply with Federal, State, and Local Clean Water Act regulations and Full Trash Capture compliance. To ensure proper function of the Device and continued protection of the receiving water bodies, the Device must be assembled and installed properly. This guideline contains recommendations and requirements for the assembly and installation of the BrightWater™ Connector Pipe Screen.

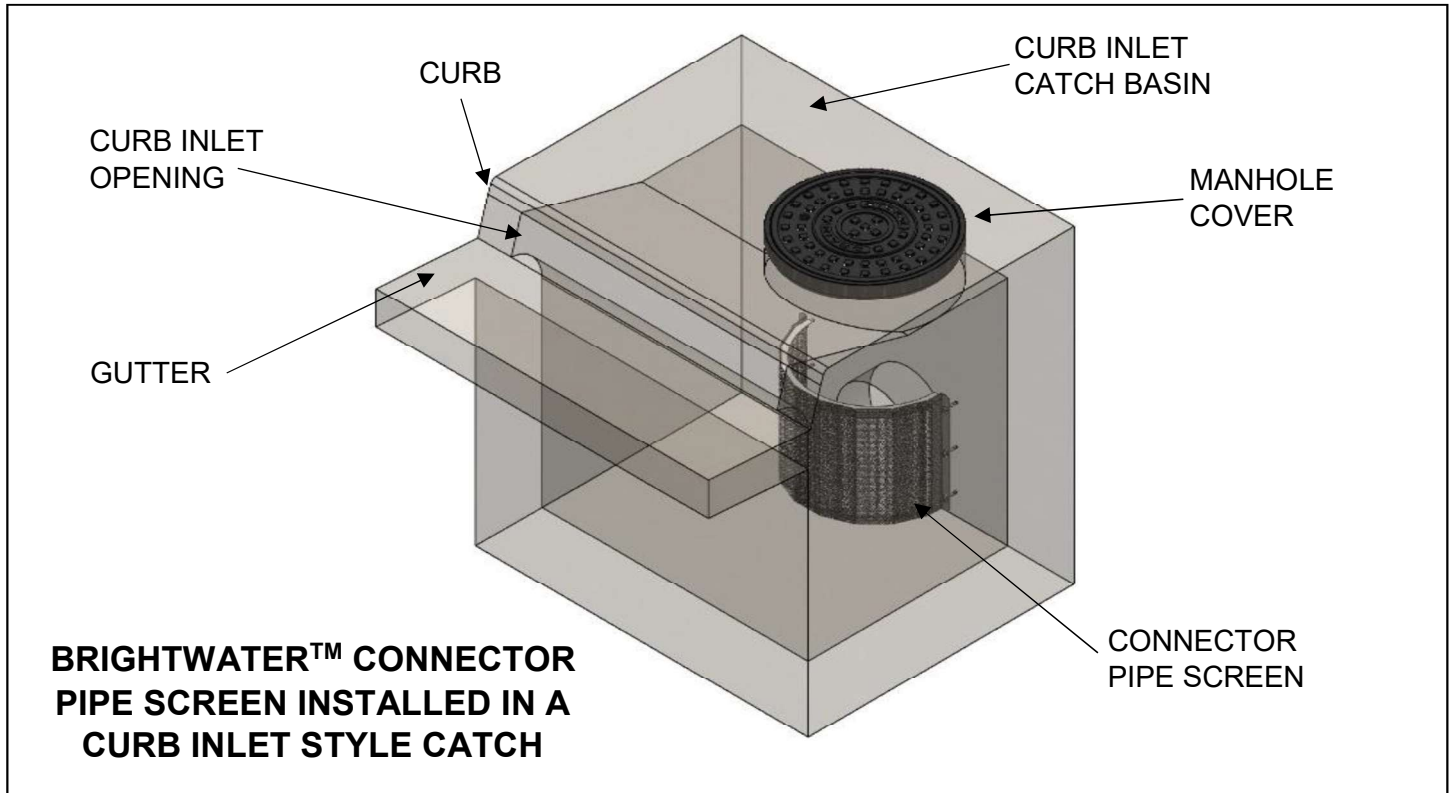


Figure 1- Brightwater™ Connector Pipe Screen Diagram

ASSEMBLY AND INSTALLATION OVERVIEW:

Proper assembly and installation of a stormwater treatment Device is necessary to ensure the treatment Device operates as intended and is providing the necessary pollutant removal. Proper assembly and installation can also minimize maintenance and repairs for the lifetime of the treatment Device. Assembly and installation should follow this guideline for recommendations and requirements as well as any local, state and federal requirements.

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ASSEMBLY AND INSTALLATION EQUIPMENT:

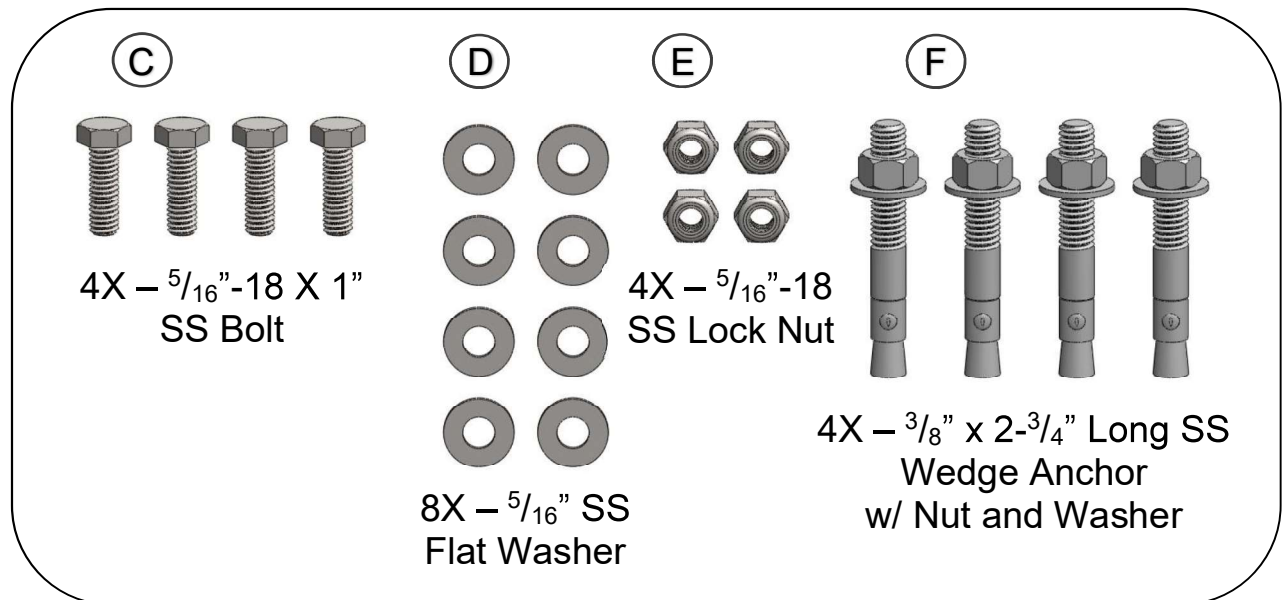
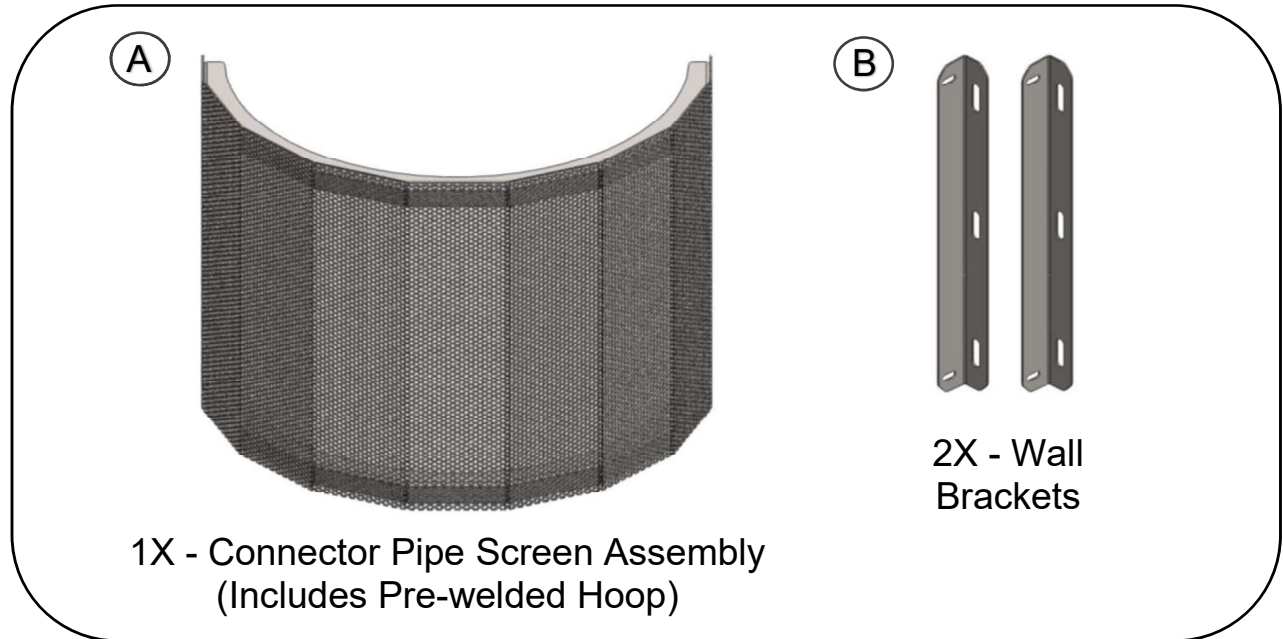
The following equipment and tools are recommended to facilitate assembly and installation of the BrightWater™ Connector Pipe Screen:

- Personal Protective Equipment (PPE) including but not limited to pants, long sleeve shirt, boots, gloves, eye protection, hearing protection, head protection, and high visibility safety vest.
- Work Zone safety equipment including but not limited to safety cones, street barricades, traffic control signage, and open manhole barricades.
- Manhole Hook/Removal Tool or similar.
- Flashlight.
- Tape Measure.
- Digital Camera.
- Hammer
- ½" Combination Wrench.
- Ratchet with ½" and 9/16" Sockets.
- Rotary Hammer Drill
- 3/8" Concrete Drill Bit
- Industrial Vacuum (Truck mounted, trailer mounted, or portable)
- A treatment Device Installation form.



ASSEMBLY AND INSTALLATION MATERIALS:

The following treatment Device components and assembly/installation hardware are required to complete assembly and installation of the Connector Pipe Screen. Typically these materials are supplied by BrightWater™. Some installations may require non-standard installation hardware. Please check with BrightWater™ to determine which materials will need to be supplemented if any.



ASSEMBLY AND INSTALLATION PROCEDURES:

The BrightWater™ Connector Pipe Screen can be assembled and installed with minimal equipment and effort. The installation should begin by preparing and installing all safety measures. Specific procedures for the installation are detailed below:

STEP 1: Adorn all PPE and prepare documentation equipment. Install all Work Zone safety equipment and conduct a brief safety meeting. Work Zone safety equipment should protect the installer(s) from vehicular traffic and should also isolate and protect pedestrians and vehicles from the work zone.

STEP 2: Remove the manhole cover utilizing the manhole puller/remover and safely set aside out of the way of the installation operations and pedestrians or vehicles. Prepare the catch basin for manned entry.



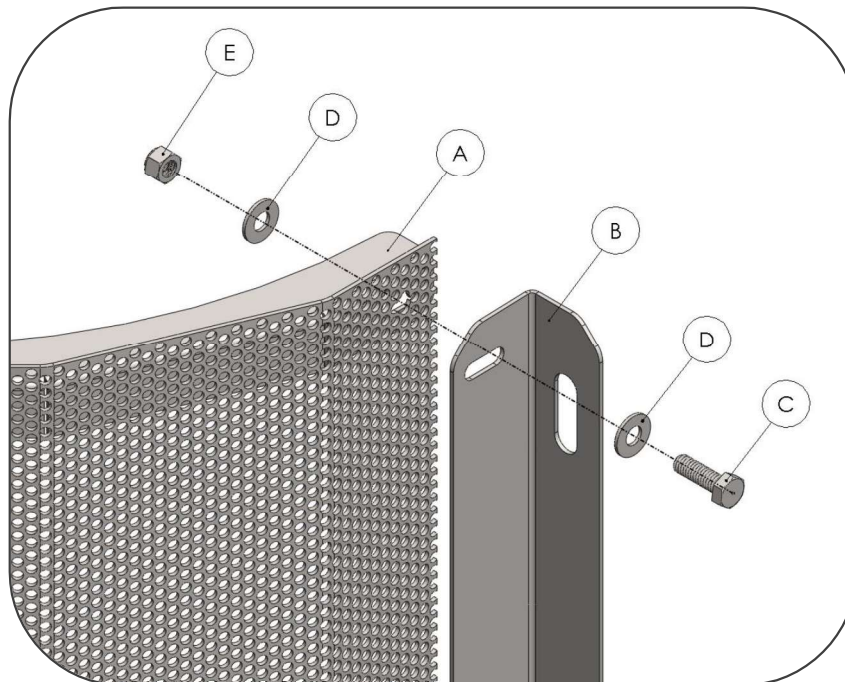
STEP 3: Thoroughly clean the catch basin of all trash, debris, and sediment to allow for an unobstructed installation.



STEP 4: Insert the Connector Pipe Screen into the catch basin through the manhole opening (shown) or through the grated opening of the catch basin. Most units will fit sideways through a standard manhole opening. Connector Pipe Screen assemblies that are 22-inches in height or taller will be supplied in two pieces that will fit through the manhole opening and can be assembled inside of the catch basin.



STEP 5: Assemble the Wall Brackets to the Screen Assembly using the supplied hardware. The hardware should be snug to allow for adjustment.



STEP 5 (Continued): Assembly can be accomplished with a wrench and ratchet. The order of assembly can be seen in the diagram above. The brackets should be snugly assembled but moveable to allow for adjustment when mounting the assembly to the wall. There are four locations that require the assembly hardware.



STEP 6: Mark the centerline of the outlet pipe and align the screen assembly with the center of the outlet pipe. Position the screen assembly with brackets against the wall and centered with the pipe. The smooth edge of the screen should face upward.



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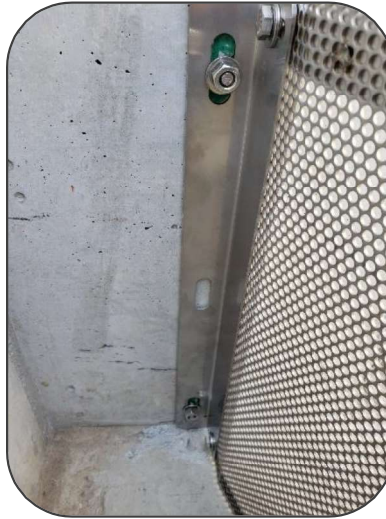
STEP 7: Mark the mounting holes and drill the holes using a rotary hammer drill. The Wall Brackets provide for a total of six mounting locations. The assembly only needs to utilize four mounting holes (2ea at the top and 2ea at the bottom). The center mounting holes can remain unutilized provided the catch basin concrete is structurally sound and provides a secure connection for the Device. Should the concrete be deteriorated or not provide for a strong connection, the center mounting hole of the wall brackets can be utilized.



STEP 8: Clean the mounting holes and the catch basin one last time. Install the concrete wedge anchors flush to the washer/nut.



STEP 9: Mount the screen assembly to the wedge anchors making sure the Wall Brackets are mounted flush to the floor of the catch basin. Adjust the screen assembly flush to the floor of the catch basin and tighten the assembly bolts.



STEP 10: Inspect the installation ensuring the assembly is firmly attached to the wall of the catch basin and there are no gaps around the side or bottom of the screen in excess of 5mm. Ensure the cut edge of the screen is oriented to contact the floor of the catch basin.



STEP 11: Finalize the Documentation and Installation Form – Photograph the conditions of the interior and exterior of the catch basin and Connector Pipe Screen. Document the installation using the Treatment Device Installation Form included with this manual or similar. The presence of standing water or vector such as mosquitos should be highlighted in the installation form. The local vector control agency should be notified if mosquitos are present in the catch basin or conditions exist in the catch basin that would cause standing water.

STEP 12: Replace the manhole cover and remove all Work Zone Safety Equipment.

INSTALLATION FORM

Site Name: _____

Site Address: _____

(City) (State) (Zip Code)

NPDES Tracking No. _____

Owner/Operator Name: _____

Site Contact: _____

Phone: () - Email: _____

Installer Name: _____

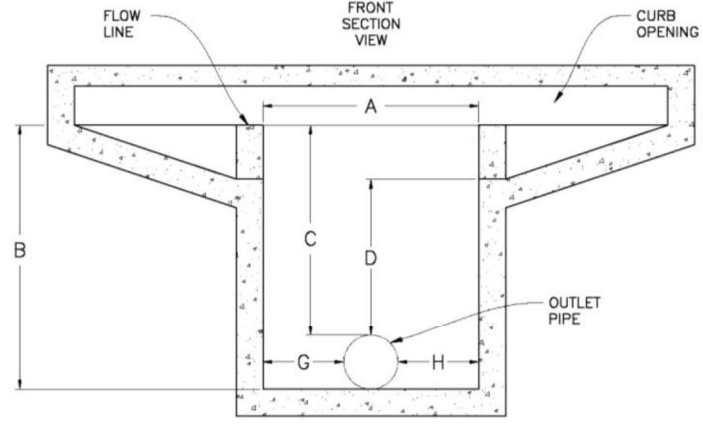
Phone: () - Email: _____

Date of Installation: ____/____/____

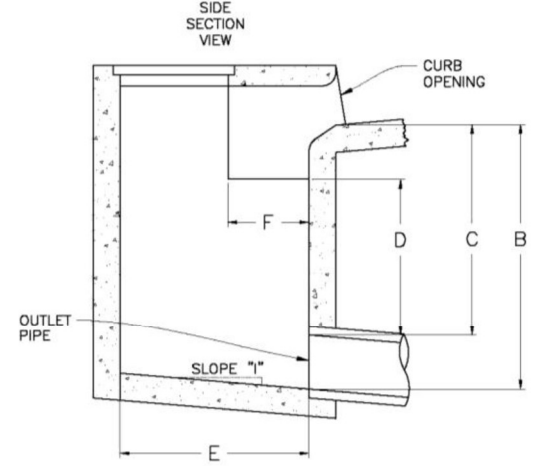
BMP ID	BMP Location (Site Map or GPS Coordinates)	CPS Model Number	Notes/Comments

CONTACT AND PROJECT INFORMATION				
CONTACT DETAILS	Company Name:			
	Contact Name:			
	Mailing Address			
	Street:	City:	State:	Zip:
	Phone:			
	Email:			
PROJECT DETAILS	Project Name:			
	Project Address			
	Street:	City:	State:	Zip:
	Regulatory Agency:			
	Special Instructions:			

MEASUREMENTS											
DRAIN NO.	QTY	FIELD MEASURED DIMENSIONS									NO. OF WINGS
		A	B	C	D	E	F	G	H	I	



FRONT SECTION VIEW

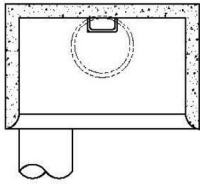


SIDE SECTION VIEW

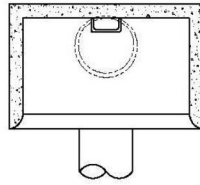
A = The inside width of the catch basin not including the wings (if any).
 B = The depth measured from the gutter flow line to the catch basin bottom at the front face of the catch basin.
 C = The depth measured from the gutter flow line to the crown of the outlet pipe.
 D = The depth measured from the wing flow line (if any) at the entrance into the catch basin to the crown of the outlet pipe.
 E = The distance from the inside front wall to the inside rear wall of the catch basin.
 F = The width of the wing (if any) at the entrance to the catch basin.
 G/H = Distance from the edge of the catch basin to the inside edge of the Connector Pipe.
 I = Slope of the Catch Basin.

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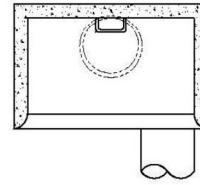
MEASUREMENTS (Continued)



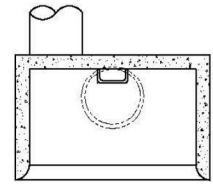
FRONT-LEFT OUTLET



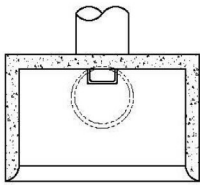
FRONT-CENTER OUTLET



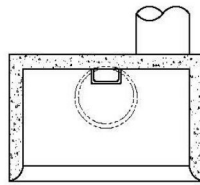
FRONT-RIGHT OUTLET



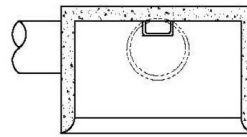
BACK-LEFT OUTLET



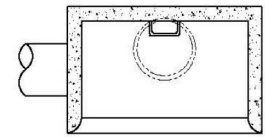
BACK-CENTER OUTLET



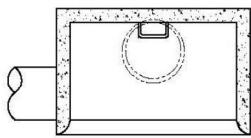
BACK-RIGHT OUTLET



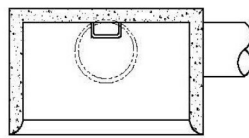
LEFT-BACK OUTLET



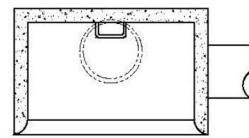
LEFT-CENTER OUTLET



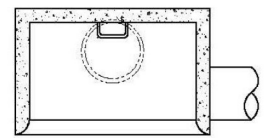
LEFT-FRONT OUTLET



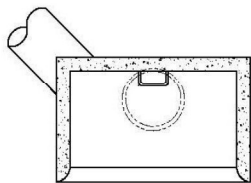
RIGHT-BACK OUTLET



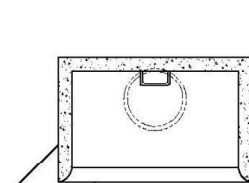
RIGHT-CENTER OUTLET



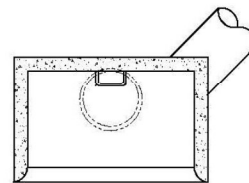
RIGHT-FRONT OUTLET



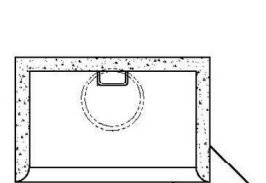
BACK-LEFT-CORNER OUTLET



FRONT-LEFT-CORNER OUTLET



BACK-RIGHT-CORNER OUTLET



FRONT-RIGHT-CORNER OUTLET

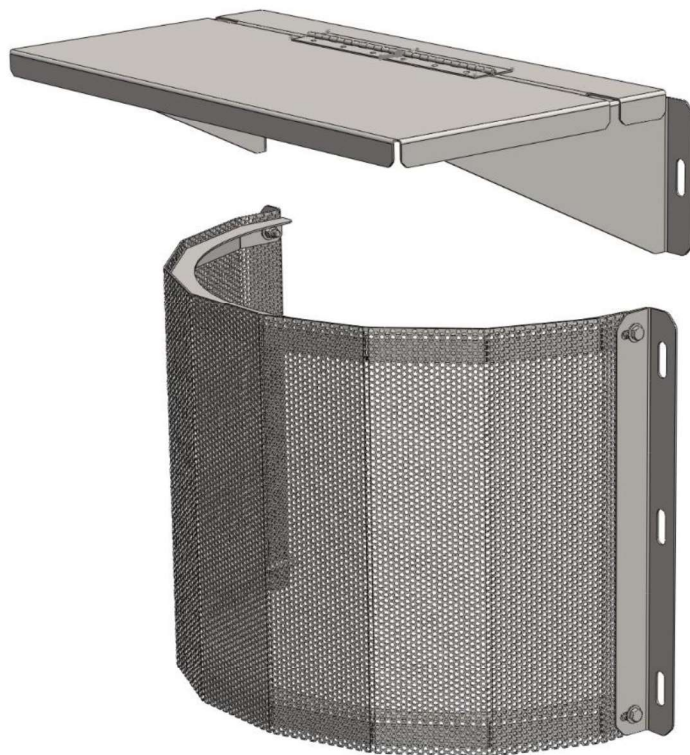
INSTRUCTIONS:

1. Circle the example catch basin layout that best matches the field conditions for the project's catch basin(s). If more than one catch basin is being retrofitted please circle and list the number next to the example layout.
2. Please sketch any modifications to the example necessary.
3. If no example layout best matches the project's catch basin, please sketch the catch basin on the "blank" diagram to the right.



APPENDIX D (I&M MANUAL)

Inspection and Maintenance Guide



OVERVIEW:

The BrightWater™ Connector Pipe Screen (CPS) is a post-construction, stormwater Best Management Practice (BMP) designed to capture 100% of trash and debris 5mm and larger in size from stormwater systems. The device, which consists of a metal screen and mounting framework, installs in front of the outlet pipe (connector pipe) of a curb inlet or drop inlet catch basin and screens for gross pollutants such as trash and debris effectively converting an existing or new catch basin into a treatment device. The Device is typically implemented to comply with Federal, State, and Local Clean Water Act regulations and Full Trash Capture compliance. To ensure proper function of the Device and continued protection of the receiving water bodies, the Device must be regularly inspected and maintained. These requirements to inspect and maintain apply to all stormwater BMPs regardless of type, function or even brand. This guideline contains recommendations and requirements for the inspection and maintenance specific to the BrightWater™ Connector Pipe Screen.

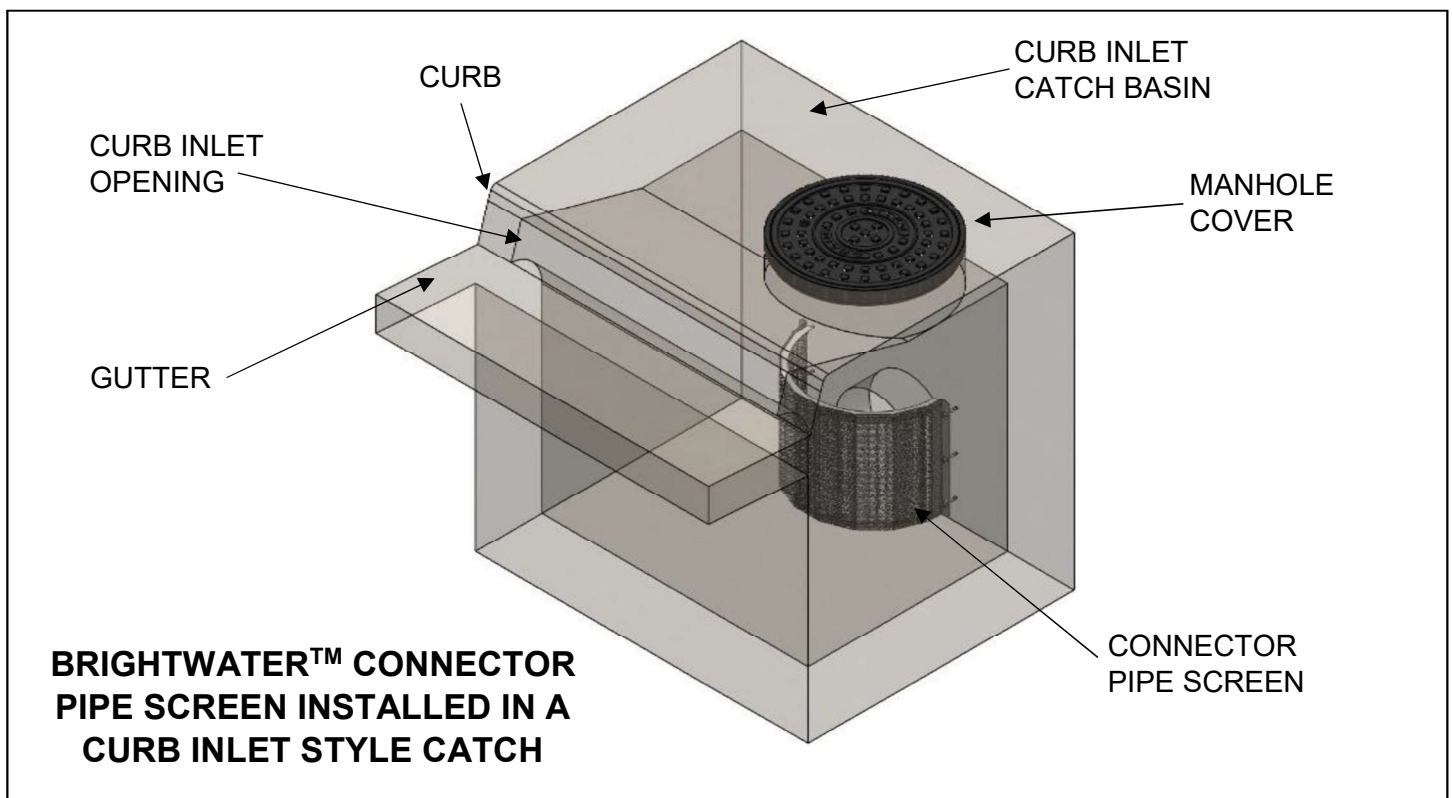


Figure 1- Brightwater™ Connector Pipe Screen Diagram

INSPECTION OVERVIEW:

A thorough inspection program is necessary to ensure the treatment Device is operating as intended and providing the necessary pollutant removal. An actively practiced inspection program can also minimize unnecessary maintenance and provide insight to the status of the

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receiving water bodies. An inspection program should be structured based on the type of treatment Device as well as the location and function of the treatment Device. It is critical to closely monitor and document the first year of operation after initial installation in order to develop a long term maintenance plan for the Device that is consistent with the environmental requirements of the installation.

INSPECTION FREQUENCY AND TIMING:

The BrightWater™ Connector Pipe Screen should be inspected on a routine and recurring basis. The frequency and timing of the inspections can be variable based on the configuration of the Device, location of the Device within the drainage system, and the geographic region of installation. During the first year of operation, after initial installation, the Connector Pipe Screen should be inspected more frequently to create a baseline of understanding for operation of the Device. Subsequent years of operation can have reduced inspection provided no anomalous events occur during the year.

- **First Year Inspection** – A minimum of three inspections in the first year are recommended. The first inspection should occur on or around the start of the rainy season with the last inspection occurring on or around the end of the rainy season. If the region of installation has no definitive rainy season, inspections should be spaced evenly throughout the year. Maintenance visits may coincide with inspection visits.
- **Second Year and Subsequent Year Inspections** – A minimum of two inspections per year are recommended. The first inspection should occur on or around the start of the rainy season and the final inspection should occur on or around the end of the rainy season. If the region of installation has no definitive rainy season, inspections should be spaced evenly throughout the year. If during the first year inspection the Device and/or location is determined have high pollutant loadings or atypical loadings of sediment, trash and debris, additional inspections may be necessary. Maintenance visits may coincide with inspection visits.

INSPECTION EQUIPMENT:

The following equipment and tools are recommended to facilitate inspection of the BrightWater™ Connector Pipe Screen:

- Personal Protective Equipment (PPE) including but not limited to pants, long sleeve shirt, boots, gloves, eye protection, hearing protection, head protection, and high visibility safety vest.
- Work Zone safety equipment including but not limited to safety cones, street barricades, traffic control signage, and open manhole barricades.

- Manhole Hook/Removal Tool or similar.
- Flashlight.
- Tape Measure.
- Digital Camera.
- A treatment Device Inspection and Maintenance form for documenting the inspection visit. (A BrightWater™ Inspection and Maintenance form is included with this document.)



INSPECTION PROCEDURES:

The BrightWater™ Connector Pipe Screen can be inspected without entry into the catch basin. The Inspection should begin by preparing and installing all safety measures followed by the inspection and documentation. Specific procedures for the inspection are detailed below:

- Adorn all PPE and prepare documentation equipment.
- Install all Work Zone safety equipment and conduct a brief safety meeting. Work Zone safety equipment should protect the inspector(s) from vehicular traffic and should also isolate and protect pedestrians and vehicles from the work zone.
- Remove the manhole cover utilizing the manhole puller/remover and safely set aside out of the way of the inspection operations and pedestrians or vehicles.
- Inspect the gutter, curb face, and curb opening. – The areas outside of the catch basin should be free from debris, obstructions and standing water. The presence of any of these conditions outside of the catch basin are potential indicators of maintenance that may be necessary for the Connector Pipe Screen. If any of these maintenance indicators are encountered they should be documented and, depending on severity, should be rectified through recommended maintenance. Maintenance may occur simultaneously with inspection provided the maintenance indicators have already been documented.
- Utilizing a flashlight, inspect the interior of the catch basin – Once outfitted with a Connector Pipe Screen, the interior of the catch basin is converted into a stormwater treatment device and acts as both the treatment and storage vessel for pollutants.

Pollutants such as trash, debris, and sediment are expected to be captured inside of the catch basin. The presence of such pollutants are indicators the Device is operating as intended. Conversely, the lack of such pollutants present in the Device may be an indicator that the Device or stormwater system is not functioning as intended. The quantities of pollutants should be documented and compared with the maximum capacities for the Device and maintenance recommended as necessary.

- Inspect the area behind the CPS and the Connector pipe. - The area behind the Connector Pipe Screen and the Connector Pipe itself should be free from debris, obstructions, and standing water. The presence of any of these conditions downstream of the treatment Device are potential indicators of maintenance that may be necessary for the Connector Pipe Screen treatment system. If any of these maintenance indicators are encountered, they should be documented and depending on the severity, should be rectified through recommended maintenance. Maintenance may occur simultaneously with inspection provided the maintenance indicators have already been documented.
- Inspect the Connector Pipe Screen for physical or structural anomalies. – The CPS should be firmly mounted to the catch basin wall and floor and there should be no loose or missing hardware. No gaps in excess of 5mm should be present. Bent, Broken, or otherwise damaged structural components should be documented and maintained.
- Finalize the Documentation and Inspection Form – Photograph the conditions of interior and exterior of the catch basin and Connector Pipe Screen. Document the inspection event utilizing the Treatment Device Inspection Form included with this manual or similar. The presence of standing water or vector such as mosquitos should be highlighted in the inspection form. The local vector control agency should be notified if mosquitos are present in the catch basin or treatment Device.
- Replace the manhole cover and remove all Work Zone Safety Equipment.

* *Confined Space Entry is typically not required for routine inspections of standard installations. Confined space entry protocol should be followed should circumstances require entry into the catch basin for inspection.*

MAINTENANCE OVERVIEW:

To ensure proper function of the BrightWater™ Connector Pipe Screen and to ensure continued protection of the receiving water bodies, the Device must be regularly maintained. A maintenance program should be structured based on the type of treatment Device as well as the location and function of the treatment Device. It is also important to incorporate data received from the inspection program into the maintenance recommendations to ensure proper function but also to minimize unnecessary maintenance. It is important to recognize that maintenance operations include a wide variety of operations and not all operations have to occur during each maintenance cycle. Maintenance may consist solely of trash and debris

removal or may consist of repair and replacement of components. A customized maintenance program provides the most benefit to operation while minimizing maintenance costs.

MAINTENANCE FREQUENCY AND TIMING:

BrightWater™ Connector Pipe Screens should be maintained on a routine and recurring basis. The frequency and timing of the maintenance can be variable based on the configuration of the Device, location of the Device within the drainage system, and the geographic region of installation. During the first year of operation, after initial installation, the Connector Pipe Screen may need to be maintained more frequently to create a baseline of understanding for operation of the Device. Subsequent years of operation may have reduced maintenance provided no anomalous events occur during the year.

- **First Year Maintenance** – A minimum of three maintenance visits in the first year are recommended. The first maintenance visit should occur on or around the start of the rainy season with the last maintenance visit occurring on or around the end of the rainy season. If the region of installation has no definitive rainy season, maintenance visits should be spaced evenly throughout the year. Maintenance visits may coincide with inspection visits.
- **Second Year and Subsequent Year Maintenance** – A minimum of two maintenance visits per year are recommended. The first maintenance visit should occur on or around the start of the rainy season and the final maintenance visit should occur on or around the end of the rainy season. If the region of installation has no definitive rainy season, maintenance visits should be spaced evenly throughout the year. If during the first year inspection the Device and/or location is determined have high pollutant loadings or atypical loadings of sediment, trash and debris, additional maintenance visits may be necessary. Maintenance visits may coincide with inspection visits.

MAINTENANCE EQUIPMENT:

The following equipment and tools are recommended to facilitate maintenance of the BrightWater™ Connector Pipe Screen:

- Personal Protective Equipment (PPE) including but not limited to pants, long sleeve shirt, boots, gloves, eye protection, hearing protection, head protection, and high visibility safety vest.
- Work Zone safety equipment including but not limited to safety cones, street barricades, traffic control signage, and open manhole barricades.
- Manhole Hook/Removal Tool or similar.
- Flashlight.

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- Tape Measure.
- Digital Camera.
- Small hand tools such as wrenches, screw drivers, and socket set.
- Industrial Vacuum (Truck mounted, trailer mounted, or portable)
- A treatment Device Inspection and Maintenance form for documenting the inspection visit. (A BrightWater™ Inspection and Maintenance form is included with this document.)



MAINTENANCE PROCEDURES:

The BrightWater™ Connector Pipe Screen can be routinely maintained without entry into the catch basin for most applications. Maintenance should begin by preparing and installing all safety measures followed by Inspection and documentation. Specific procedures for Maintenance are detailed below:

- Adorn all PPE and prepare documentation equipment.
- Install all Work Zone safety equipment and conduct a brief safety meeting. Work Zone safety equipment should protect the maintenance personnel from vehicular traffic and should also isolate and protect pedestrians and vehicles from the work zone.
- Remove the manhole cover utilizing the manhole puller/remover and safely set aside out of the way of the inspection operations and pedestrians or vehicles.
- If during inspection it is determined the accumulated trash, debris, and sediment requires removal, an industrial vacuum should be utilized to remove the material. Using a reduced diameter suction hose, vacuum the trash, debris, and sediment from the interior of the catch basin. Figure 2 and Figure 3 illustrate typical maintenance scenarios. The suction hose is inserted through the manhole opening as illustrated in Figure 2 and Figure 3. The suction hose should be maneuvered around within the interior of the catch basin removing all trash, debris, and sediment. A pressure washing wand may be utilized to assist this process by freeing stubborn and clogged material from the screen of the Device. The suction hose should remain inside the catch basin at the front edge of the screen while the Device is being washed down.

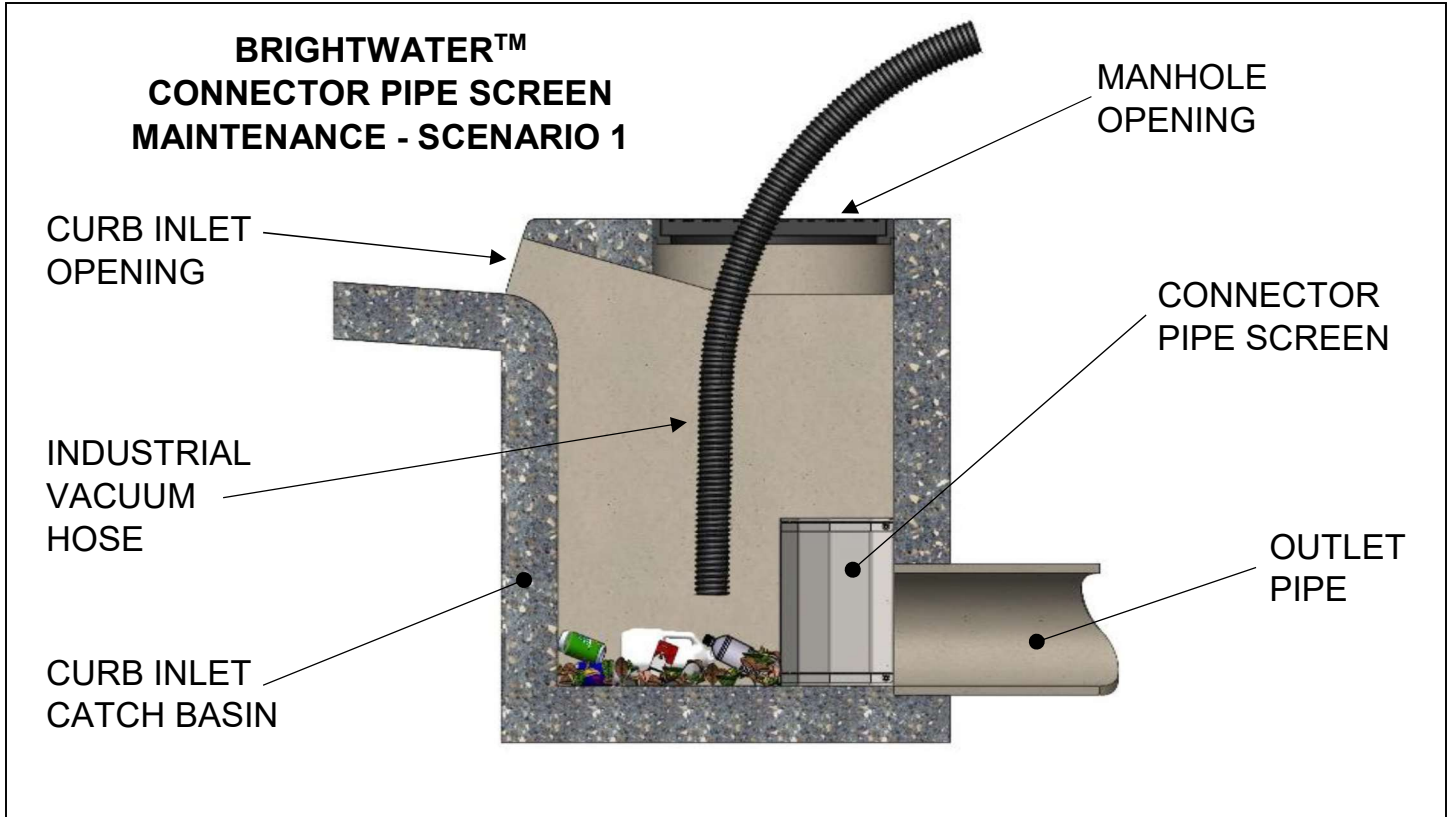


Figure 2 - Brightwater™ Connector Pipe Screen Maintenance Scenario 1

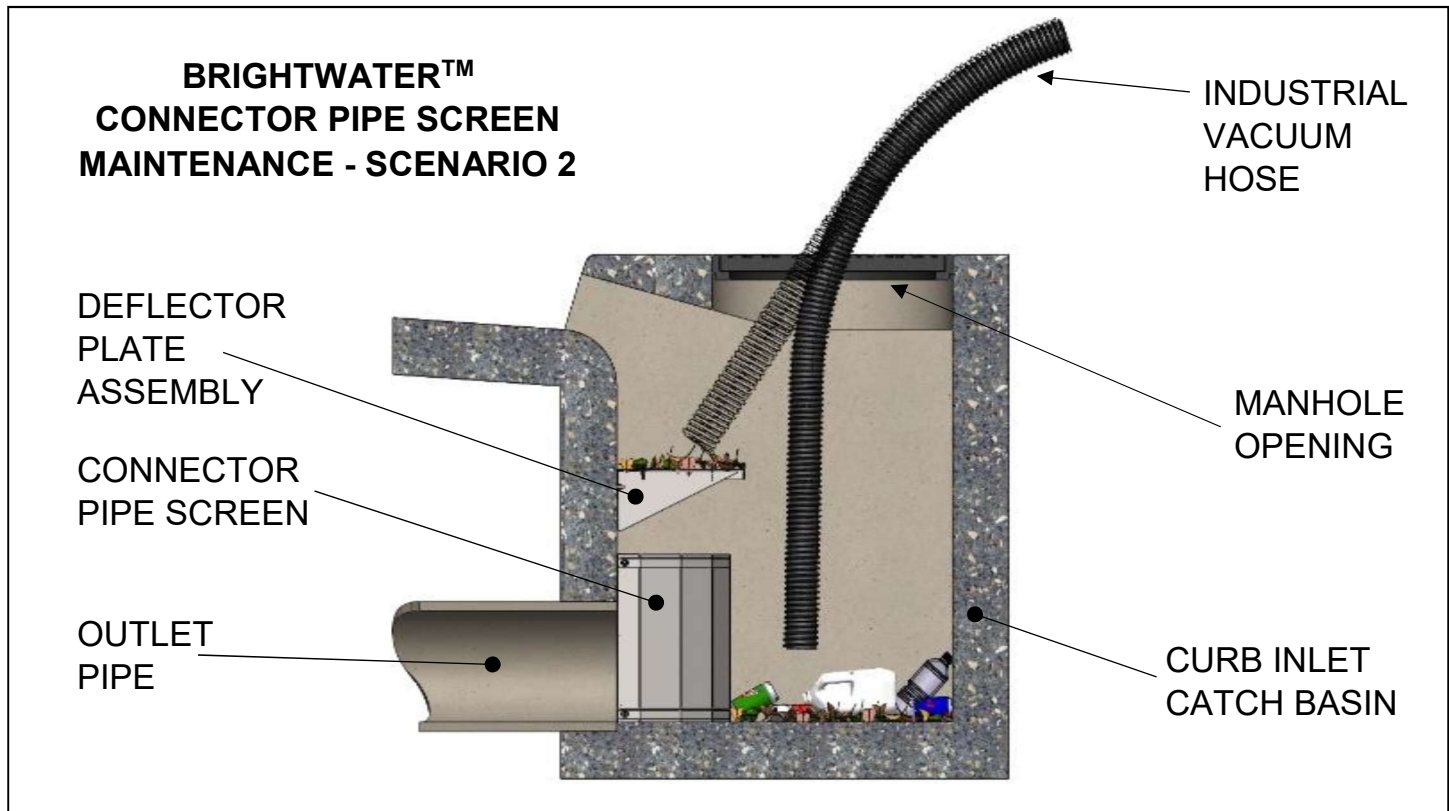


Figure 3 - Brightwater™ Connector Pipe Screen Maintenance Scenario 2

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- Trash and debris may accumulate on the top of the Deflector Plate Assembly. (See Figure 3.) This material should be removed during the maintenance visit by either utilizing the vacuum hose directly on top of the Deflector Plate or by utilizing the pressure washing wand to rinse the material from the Deflector Plate onto the floor of the catch basin where the vacuum hose can suck the material up.
- Removed trash, debris, and sediment should be disposed of following local, state, and federal guidelines. Typically this material is considered non-hazardous waste and can be disposed of in the standard waste stream. If oil and grease are determined to be present amongst the trash, debris, and sediment, the material should be disposed of following local, state, and federal guidelines. Depending on oil content, this material may be classified as hazardous waste and should be disposed of according to local, state, and federal guidelines.
- Finalize the Documentation and Maintenance Form – Photograph the conditions of interior and exterior of the catch basin and Connector Pipe Screen. Document the maintenance event utilizing the Treatment Device Inspection Form included with this manual or similar. The presence of standing water or vector such as mosquitos should be highlighted in the maintenance form. The local vector control agency should be notified if mosquitos are present in the catch basin or treatment Device.
- Replace the manhole cover and remove all Work Zone Safety Equipment.

INSPECTION & MAINTENANCE FORM

Site Name: _____

Site Address: _____

(City) (State) (Zip Code)

NPDES Tracking No. _____

Owner/Operator Name: _____

Site Contact: _____

Phone: () - Email: _____

Inspector Name: _____

Phone: () - Email: _____

Date of Visit: _____ / _____ / _____ Time of Visit: _____ AM / PM

Type of Visit: Scheduled Pre-Storm During Storm Post-Storm Emergency

Visit Purpose: Inspection Maintenance Both

BMP ID	BMP Location (Site Map or GPS Coordinates)	Trash Load (yd ³)	Debris Load (yd ³)	Sediment Load (yd ³)	Screen Condition	Structure Condition	General Condition of BMP Corrective Action Required or Performed

(Continued on next page.)

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INSPECTION & MAINTENANCE FORM (Continued)

BMP ID	BMP Location (Site Map or GPS Coordinates)	Trash Load (yd ³)	Debris Load (yd ³)	Sediment Load (yd ³)	Screen Condition	Structure Condition	General Condition of BMP Corrective Action Required or Performed

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 gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, 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.”

Print name and title: _____

Signature: _____ **Date:** _____

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APPENDIX E (MVCAC CERTIFICATION)



MVCAC

Mosquito and Vector Control Association of California

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

BrightWater
P.O. Box 85430
San Diego, CA 92186

November 19, 2020

Dear Ms. Clifford,

Thank you for the submission of the BrightWater Connector Pipe Screen 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 BrightWater Connector Pipe Screen 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 BrightWater Connector Pipe Screen 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

APPENDIX F (WARRANTY)

LIMITED WARRANTY BRIGHTWATER™

TO THE EXTENT PERMITTED BY THE LAWS OF YOUR JURISDICTION, THIS LIMITED WARRANTY LIMITS OR EXCLUDES CERTAIN WARRANTIES OR RIGHTS OTHERWISE PROVIDED BY LAW.

BrightWater™ warrants that the product you ("Purchaser") have purchased from BrightWater™ or a BrightWater™ authorized reseller is free from defects in materials and workmanship under normal use for a period of one (1) year from the original date of product purchase. The warranty period begins on the day of shipment from BrightWater™. In the event the product is ready for shipment but Purchaser elects to postpone or delay shipment, the warranty period begins on the day of postponement or delay. The warranty extends only to the original purchaser and is not transferrable. The warranty excludes all expendable parts.

During the warranty period, BrightWater™ will repair or replace defective products or parts with new products or parts or, at the option of BrightWater™, serviceable used products or parts that are equivalent or superior to new parts in performance. This Limited Warranty extends only to products purchased from BrightWater™ or a BrightWater™ authorized reseller. This Limited Warranty does not extend to any product that has been damaged or rendered defective (a) as a result of accident, misuse or abuse; (b) as a result of utilizing improper installation methods (c) as a result of an act of God; (d) by operation outside the usage parameters; (e) by the use of parts not manufactured or sold by BrightWater™; (f) by modification of the product; (g) as a result of war or terrorist attack; or (h) as a result of service by anyone other than BrightWater™ or a BrightWater™ authorized reseller or authorized agent.

IT IS EXPRESSLY AGREED THAT THIS WARRANTY IS THE EXCLUSIVE AND ONLY WARRANTY TO PASS WITH BRIGHTWATER'S™ PRODUCTS. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, INCLUDING, WITHOUT LIMITATION, THOSE OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY.

There are no other warranties or representations with respect to the nature or quality of BrightWater's™ products. Under no circumstances shall BrightWater™ be liable for incidental, consequential, or other additional damages of any kind or nature whatsoever, including, without limitation, shipping and freight charges, installation and/or removal expenses, labor charges, lost profits, interest, attorney fees, or other costs. This limitation applies whether damages are sought, or a claim made, under this warranty or as a tort claim (including negligence and strict product liability), a contract claim, or any other claim. This limitation of liability will be effective even if BrightWater™ or an authorized BrightWater™ representative has been advised by you of the possibility of any such damages.

In the event such disclaimer of implied warranties is held to be unenforceable or otherwise invalid, or if Purchaser or any third party, including, without limitation, employees, assignees, invitees, agents, contractors, subcontractors, and/or representatives of Purchaser, claim BrightWater™ is liable for negligence arising from the manufacture of its products, or if for any other reason a claim is made that BrightWater™ has not fully satisfied its obligations with respect to its products, BrightWater's™ liability is limited to an amount equal to two (2) times the original purchase price of BrightWater's™ products proven to be defective, exclusive of any applicable taxes. Purchaser hereby agrees to indemnify, defend and hold BrightWater™ harmless in the event any third party brings a claim against BrightWater™ relating to its products.

Any claim for breach of this warranty must be submitted within one year from the date of original purchase and must be in writing, addressed to President, BrightWater™, P.O. Box 85430, San Diego, CA 92186. Only a corporate officer (President, Vice President, or Corporate Secretary) of BrightWater™ shall have the authority to modify this warranty, and any such modification must be in writing and signed by the corporate officer, including reference to said officer's title, to be effective.

If a dispute arises out of or relates to this Limited Warranty, or performance or breach thereof, BrightWater™ and Purchaser agree first to try in good faith to resolve the dispute by mediation under the Commercial Mediation Rules published by the American Arbitration Association before resorting to arbitration. Thereafter, any remaining unresolved controversy or claim arising out of or relating to this Limited Warranty, or performance or breach thereof, shall be resolved by binding arbitration in accordance with the Commercial Arbitration Rules published by the American Arbitration Association, and shall be conducted in San Diego County, California. The sole Arbitrator shall be a retired or former Judge familiar with commercial and construction matters. Judgement upon the award rendered by the Arbitrator may be entered in the San Diego County court having jurisdiction thereof.