

April 24, 2024

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

Re: Amended Application for Trash Treatment Control Device - Hydra TMDL Systems, Inc. Connector Pipe Screen (CPS) (Formerly Bio Clean® Environmental Services, Inc. Modular Connector Pipe Trash Screen Fact Sheet BC-3.

Dear Mr. Cosentini,

Hydra TMDL Systems, Inc. is pleased to submit this amended application for its Connector Pipe Screen for Certification as a Full Capture System. The Hydra TMDL Systems, Inc. CPS had been previously certified under an application submitted by Bio Clean® Environmental Services, Inc. Although Hydra TMDL Systems, Inc. was the valid owner of the System, an agreement between Bio Clean® Environmental Services, Inc. and Hydra TMDL Systems, Inc. from 2019-23 allowed Bio Clean® Environmental Services, Inc. to be the certified representative of the System. During the time of the agreement, Contech Engineered Solutions had purchased Bio Clean® Environmental Services, Inc. but had not amended its application to register the new certified representative. As the previous agreement has now expired, Contech Engineered Solutions has provided a 4/12/2024 letter (see Appendix F of the amended application) acknowledging that:

1. Hydra TMDL Systems, Inc. is the legal owner of the formerly Bio Clean® Environmental Services, Inc. Modular Connector Pipe Trash Screen Fact Sheet BC-3 and
2. Hydra TMDL Systems, Inc. is amending the certified application to change the ownership and name of the System.

The Hydra TMDL Systems, Inc. CPS functions the same as the already certified System.

Documentation for this application is being submitted in accordance with the California State Water Resources Control Board *Trash Treatment Control Device Application Requirements* document 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

Don't hesitate to contact me with any questions or if additional information is required. I appreciate your consideration of this application.

Regards,



Denis Friezner
Director of Engineering
Hydra TMDL Systems, Inc.
5116 West Emerald Street, Suite A
Boise ID 83706

1.0 COVER LETTER

1.A. A general description of the Device

The Hydra TMDL Systems, Inc. Connector Pipe Screen (CPS) is designed to capture trash and debris. The CPS functions are identical to the Bio Clean® Environmental Services, Inc. Modular Connector Pipe Trash Screen Fact Sheet BC-3, which has been installed throughout Los Angeles. Our CPS design offers many unique and innovative features. These units can be customized and adjusted, coming in both a U-shaped design and an L-shaped design for various outlet locations, making them versatile enough to fit into any size catch basin. These devices are fabricated using perforated stainless steel, and the design includes vertical bends in the screen, making the structure rigid and durable and capable of withstanding higher flows than stock perforated metal.

Installation is quick and easy, with minimal parts required. Each CPS unit has an alternate configuration, including a mandatory bypass lid when any part of the device is beneath the curb or grate opening to capture all trash and debris coming in from any direction. Routine maintenance is required to remove trash and debris and is site and p-loading dependent.

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

Owner Information:

Denis Friezner
VP and Director of Engineering
Hydra TMDL Systems, Inc.
5116 West Emerald Street, Suite A
Boise, Idaho 83706
Denis@hydratmdl.com

Authorized Representative Contact Information:

Denis Friezner
VP and Director of Engineering
Hydra TMDL Systems, Inc.
5116 West Emerald Street, Suite A
Boise, Idaho 83706
Denis@hydratmdl.com

1.C. Manufacturer's Website Page for Device

<https://hydratmdl.com/product-cps/>

1.D. The Devices' Manufacturing Location

The Hydra TMDL Systems, Inc. CPS manufacturing facility is in Boise, ID. The facility that provides support for all CPS devices is listed below:

Hydra TMDL Systems, Inc.
5116 West Emerald Street, Suite A
Boise Idaho 83706
Denis@hydratmdl.com

1.E. A Brief Summary of Field/Lab Testing Results

Table 1 uses an orifice coefficient of .53 for calculating the treatment flow of the Hydra TMDL Systems, Inc. CPS device. This coefficient was obtained from a technical report by the County of Los Angeles titled "Connector Pipe Screen Design – Full Capture TMDL Compliance – Screen and Bypass Sizing Requirement" (April 2007). This coefficient is more conservative than the standard .6, generally used for the orifice equation. The treatment flow rates assume the screen is 50% clogged.

1.F. A Brief Summary of the Device Limitations and Operational, Sizing, and Maintenance Considerations

The Hydra TMDL Systems, Inc. Connector Pipe Screens (CPS) are pre-engineered filtration systems designed to meet site-specific water quality treatment requirements. Conformance with the Engineer's Plans and Specifications and the manufacturer's recommendations are essential to ensure the proper operation and function of the Device.

Hydra TMDL Systems, Inc. manufactures the CPS using stainless steel components. The materials selected serve a wide variety of applications and are the most durable materials available for this type of Device. Adherence to installation recommendations is required to ensure the device's design service life is maintained.

Hydra TMDL Systems, Inc. CPS should be sized to meet site- and region-specific water quality objectives and requirements. Systems that are not designed and installed in conformance with 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 are facilitated by the device's design. The Device's design allows for placement of the CPS directly against the outlet pipe in a catch basin, leaving direct, unimpeded access to the rest of the basin for quick and effortless removal. Design considerations for maintenance frequency should be considered.

1.G. A Description or List of Locations where the Device has been Installed

The City of Los Angeles, in contract with Hydra TMDL Systems, Inc., has installed over 1000 CPS units in L.A. County. Cities where CPS units have been installed include, but are not limited to, the following:

- Arcadia
- Baldwin Park
- Beverly Hills
- Compton
- El Segundo
- Glendale
- Granada Hills
- Harbor City
- Inglewood
- Los Angeles
- Manhattan Beach
- North Hollywood
- Northridge
- Pasadena
- San Fernando - Santa Clarita
- Santa Monica
- Sherman Oaks
- Sun Valley
- Van Nuys

1. H. The Certification Below:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision per a system designed to ensure 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 collecting the data, 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 a fine and imprisonment for knowing violations.



Denis Friezner, VP, Director of Engineering

Date: April 24, 2024

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3.0 Physical Description

3. A. Trash Capture

The Hydra TMDL Systems, Inc. Connector Pipe Screen (CPS) is a perforated stainless-steel stormwater treatment system protecting outlet pipes in catch basins from trash and debris by

capturing trash, debris, and sediment in stormwater. The CPS screen is installed around the outlet pipe to prevent trash and floatables from continuing downstream. Design flows are directly routed through the screen, and the 5 mm perforations on the stainless-steel screen ensure the capture of all particles 5mm in size or larger.

The Hydra TMDL Systems, Inc. Connector Pipe Screen incorporates the following features to fully capture all particles larger than 5mm.

- The perforated screens are made using 14-gauge and 16-gauge stainless steel, with an aperture no greater than 5.0 mm. The open area is not less than 50%. Each unit has an alternate configuration, including a
- Bypass features are incorporated in all devices and are located above the basin's treatment water level, ensuring the retention of all trash and debris for flows that conform to full capture requirements.

Connector Pipe Screen

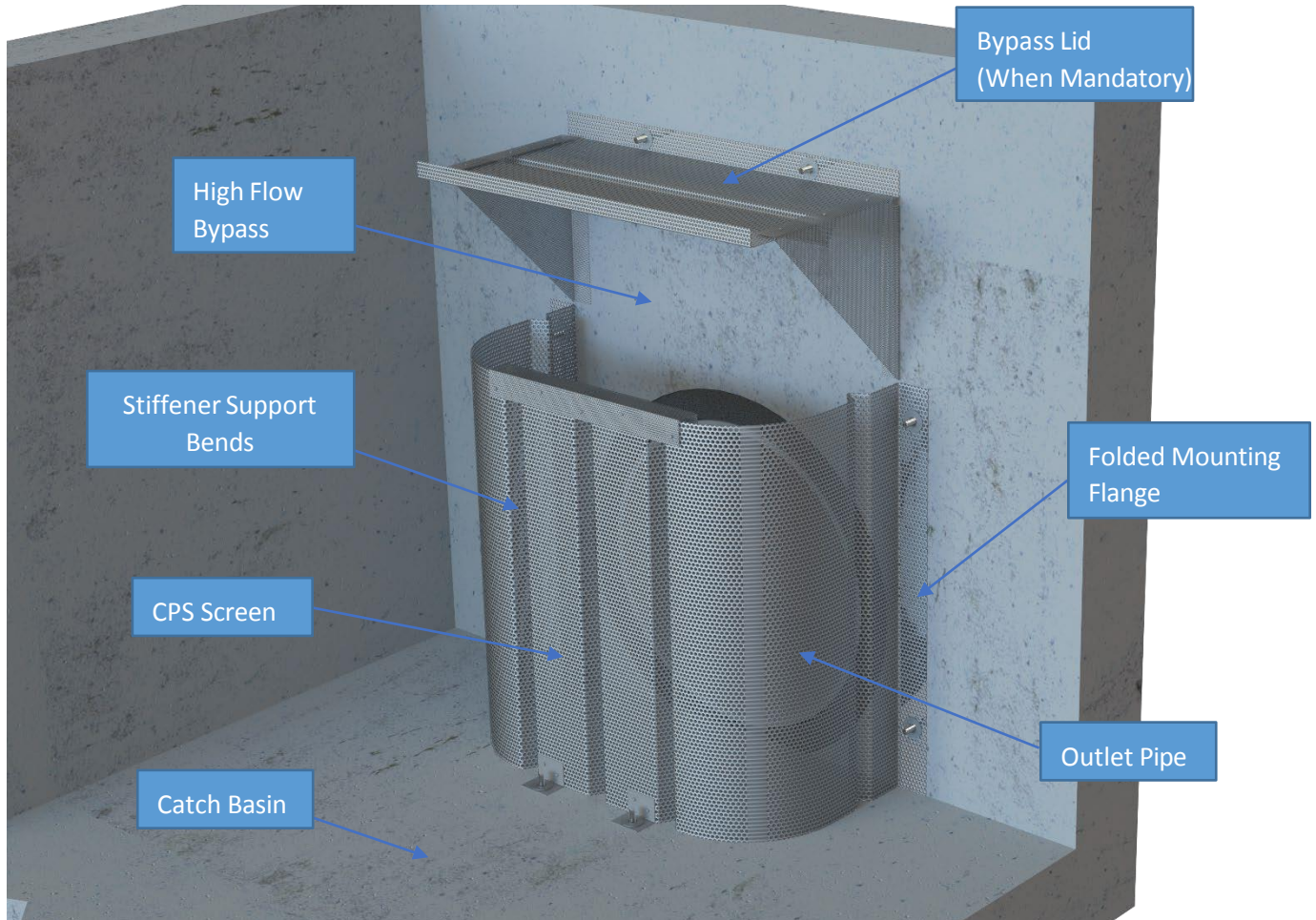


Figure 1 – Connector Pipe Screen (CPS)

Connector Pipe Screen Operation - Diagram



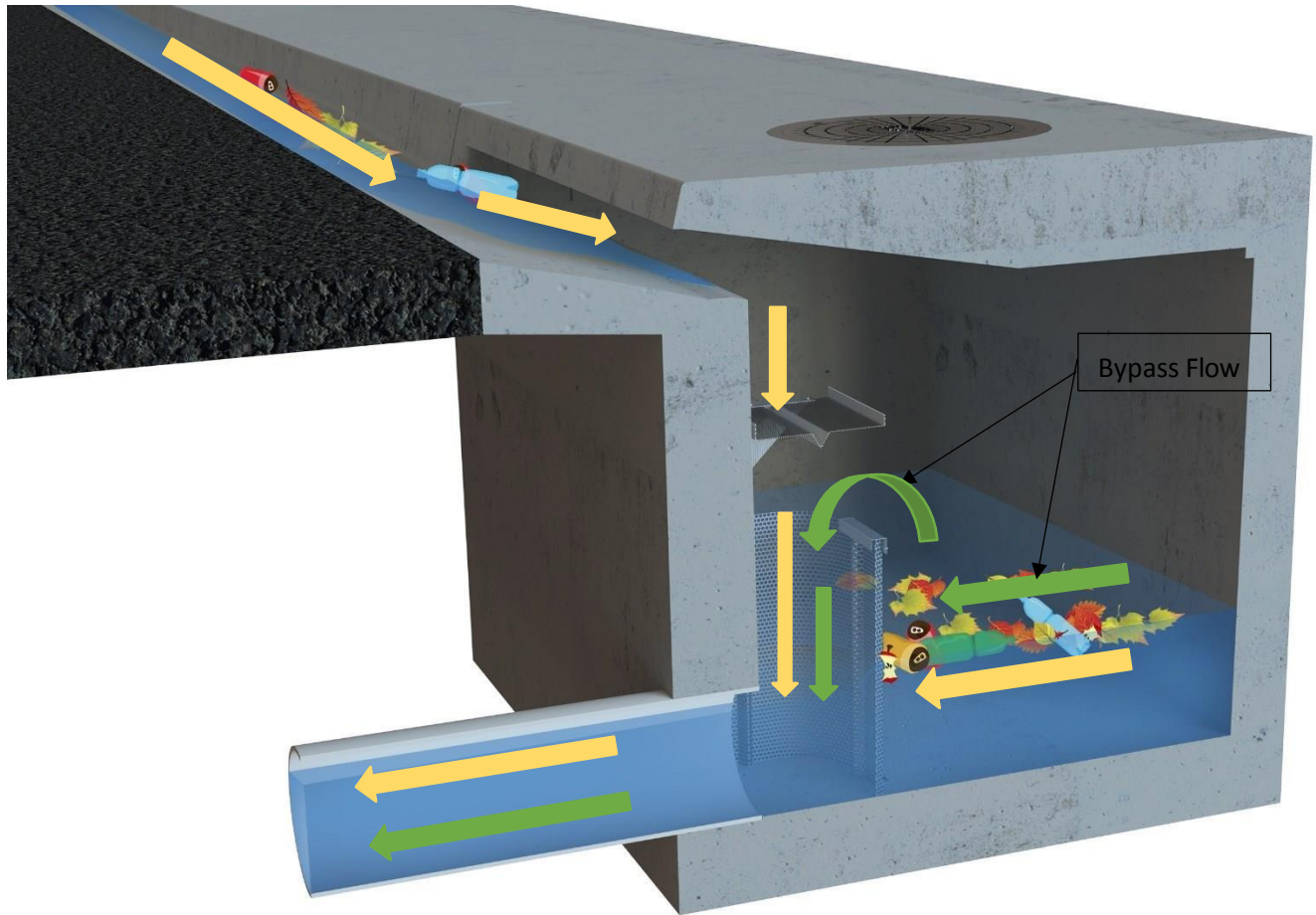


Figure 2 – Connector Pipe Screen Operation

3. B. Peak Flows/Trash Volumes

Stormwater flows from parking lots and roads, beginning their entrance into the catch basin through the curb inlet (which can be grated or combo inlets). Upon entering the catch basin, the flows must pass through the Connector Pipe Screen (CPS) before entering the outlet pipe. The CPS is installed around the outlet wall, protecting the outlet pipe from trash, debris, and sediment that is more significant than 5 mm (*See Figure 2 – Connector Pipe Screen Operation.*)

The CPS is straightforward in design, with function identical to CPS units used by the County of Los Angeles; however, special consideration was given to the configuration and capacities to ensure maximum possible treatment and adequate bypass without resuspension of previously removed trash and debris (*See Figure 1 – Connector Pipe Screen Features*). The CPS is constructed from perforated stainless steel with an open area of no less than 50% and apertures no greater than 5.0 mm. This ensures that all trash and debris in stormwater are fully captured, and the water can freely exit through the outlet pipe.

During peak flow events, the CPS continues to treat. However, water levels in the catch basin may rise to overflow, at which point the CPS is considered to be operating in bypass mode. Bypass occurs over the top of the CPS or in the window between the bypass lid and the top of the screen. This mandatory bypass lid is when any part of the device is beneath the curb or grate opening to capture all trash and debris coming in from any direction and ensure that trash and

debris do not continue downstream. The Engineer should note the treatment flow capacity, the bypass flow capacity, and the grate or curb inlet flow capacity and determine which of the three may be a limitation of the flow capacity for this component of the storm drain system.

A sizing chart for the CPS is shown below in Table 1 (U-shaped) and Table 2 (L-shaped). The nomenclature for models lists the Width x Length x Height of the CPS. The characteristics and capacity Table lists the maximum Full Capture trash removal treatment capacity. These capacities are considered for both resuspensions of removed trash and debris and screen blocking. A safety factor has been applied to the treatment capacity. The Table lists the most commonly utilized standard sizes available. Other common sizes and custom configurations are available. Characteristics and capacities will be determined as needed, following the same guidelines and using the same empirically determined data for sizing the custom configurations.

3. C. Hydraulic Capacity

**Hydra TMDL Systems, Inc. CPS (U-Shaped) Characteristics and Capacity Table
California Full Capture Certified Capacities**

TABLE 1

CPS Length (ft)	CPS Height (in)	Net Open Area (Screen) (S.F.)	Treatment Capacity (CFS)
3.7	12	1.90	5.26
4.7	12	2.41	6.67
3.7	18	2.84	9.66
4.7	18	3.61	12.26
5.7	18	4.37	14.86
3.7	24	3.79	14.88
4.7	24	4.81	18.88
5.7	24	5.83	22.89
3.7	30	4.74	20.80
4.7	30	6.01	26.40
5.7	30	7.29	31.99
3.7	36	5.69	27.35
4.7	36	7.22	34.71
5.7	36	8.75	42.07

*Other standard and custom model sizes available. Contact Hydra TMDL Systems, Inc. for more information

**Hydra TMDL Systems, Inc. CPS (L-Shaped) Characteristics and Capacity Table
California Full Capture Certified Capacities**

TABLE 2

CPS Length (ft)	CPS Height (in)	Net Open Area (Screen) (S.F.)	Treatment Capacity (CFS)
2.7	12	1.39	3.84
3.7	12	1.90	5.26
2.7	18	2.08	7.06
3.7	18	2.84	9.66
4.7	18	3.61	12.26
2.7	24	2.77	10.88
3.7	24	3.79	14.88
4.7	24	4.81	18.88
2.7	30	3.46	15.20
3.7	30	4.74	20.80
4.7	30	6.01	26.40
2.7	36	4.16	19.99
3.7	36	5.69	27.35
4.7	36	7.22	34.71

*Other standard and custom model sizes available. Contact Hydra TMDL Systems, Inc. for more information

The equation below is used to calculate hydraulic capacity:

$$\text{Orifice Equation: } Q = C A \sqrt{2gh}$$

where,

Q = flow rate [in³/s] *converted to [CFS and GPM]

C = coefficient of discharge [0.53 used by Hydra TMDL Systems, Inc.]

A = area of orifice or net open area [in²] = area of screen [in²] * % open area

g = acceleration from gravity [in/s²]

h = head acting on the centerline of each screening window [in]

3. D. Comparison Tables

Please see Section 3.C. for hydraulic capacity tables for five standard sizes of the CPS in U-shape and L-shape configurations.

3. E. Design Drawings

Please refer to Appendix A for representative design drawings of the configurations.

3. F. Alternative Configurations

There are only two standard configurations.

3. G. Internal Bypass

The Connector Bypass Screen (CPS) continues to treat during peak flow events. However, water levels in the catch basin may rise to overflow, at which point the CPS is considered to be operating in bypass mode. Bypass occurs over the top of the CPS or in the window between the bypass lid and the top of the screen. (See Figure 3) The bypass flow rates for each CPS Device have been pre-determined and are published in Table 1. This bypass flow rate should be noted and compared to the original design capacity of the catch basin. A safety factor has been applied to the bypass capacity.

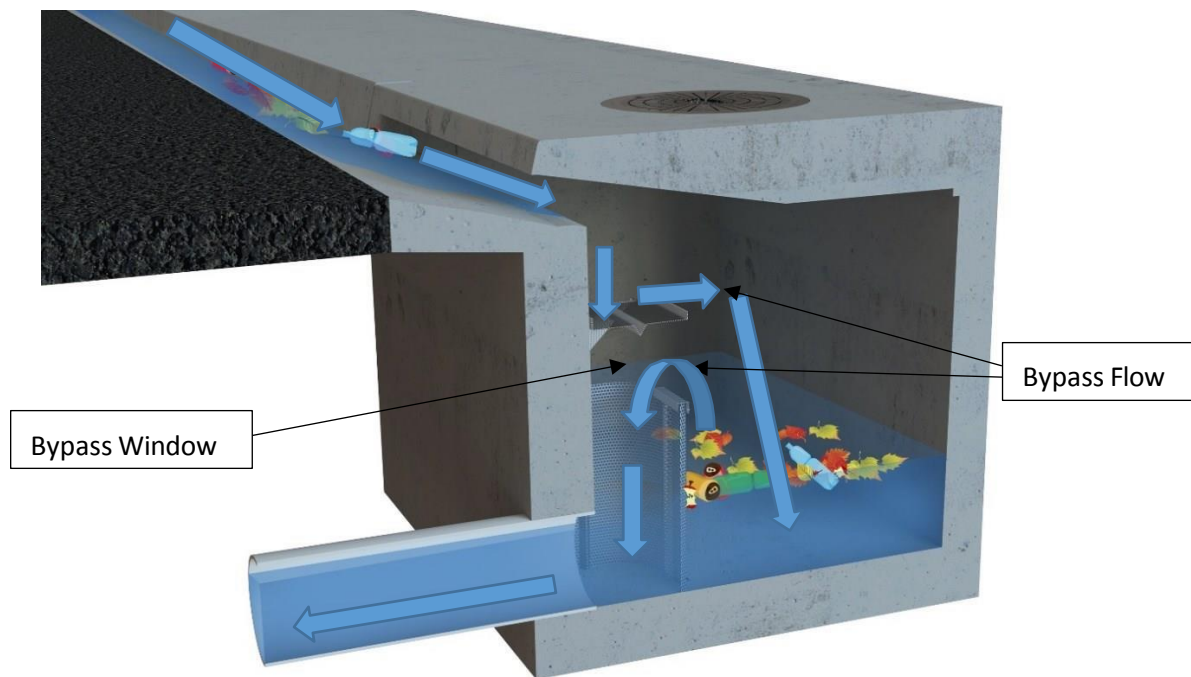


Figure 3 – Connector Pipe Screen in Bypass Operation

3. H. Previously Trapped Trash

The Connector Pipe Screens have been designed to remove and permanently retain all trash and debris 5mm in size or larger. Conditions under which the Device re-introduces previously trapped trash are listed below:

- Suppose the Device is improperly maintained, and trash and debris are allowed to accumulate beyond the prescribed maximum allowable level in the trash containment compartments. In that case, conditions will be present that could cause a reintroduction of trash into the effluent of the Device.
- Broken or damaged screens can cause an adverse condition allowing the reintroduction of trash and debris into the effluent.
- Missing or un-replaced components after a maintenance service can cause an adverse condition that could re-introduce trash and debris into the effluent of the Device.

3. I. Calibration Feature

Hydra TMDL Systems, Inc.'s CPS does not include or require any calibration adjustment.

3. J. Photographs

Photographs of the Connector Pipe Screen in various stages of manufacture, installation, and operation are included below:



Figure 4 – Connector Pipe Screen Installed (U-Shaped)



Figure 5 – Connector Pipe Screen Installed (U-Shaped)



Figure 6 – CPS Before Maintenance (U-Shaped)



Figure 7 – CPS Before Maintenance (L-Shaped)

3. K. Material Type

The Connector Pipe Screen is constructed of high-strength, durable materials and components that ensure a lengthy design and service life for the Device. Appendix B of this submittal includes a detailed Specification for the Connector Pipe Screen, including material Specifications. Essential materials and components are additionally listed below:

- Screen – The main screen is manufactured from Perforated Type 304 Stainless Steel, with openings equal to or less than 5.0 mm in size.
- Bypass Lid (When Mandatory) – The bypass lid is manufactured from Perforated Type 304 Stainless Steel, with openings equal to or less than 5.0 mm in size. This mandatory bypass lid is when any part of the device is beneath the curb or grate opening to capture all trash and debris coming in from any direction and ensure that trash and debris do not continue downstream.

3. L. Estimated design life of the Device

The estimated design life for the Connector Pipe Screen is 25 to 50 years. The design life depends on the materials utilized and the proper application of those materials.

4. Installation Guidance

4. A. Standard Device Installation Procedures and Considerations

Once the measurements have been completed, the CPS is manufactured and delivered for installation. Most installations require only removing the catch basin grate or manhole cover, cleaning the catch basin, lowering the CPS into position, bolting it into the outlet wall and the bottom of the catch basin, and then replacing the grate or manhole cover. If it is determined that a bypass lid is required, it will also be lowered into position at the correct bypass height above the CPS and bolted into the outlet wall.

Additionally, confined space entry of the catch basin is likely required for the primary installation of the CPS system. The installer must adhere to all jurisdictional and OSHA safety

recommendations and requirements.

Post-installation inspection of the CPS is strongly advised. A Hydra TMDL Systems, Inc. representative is available for on-site inspection as support for the Owner. Inspection should determine if the CPS was correctly installed and provided in a clean condition with no defects resulting from the installation.

Installation for Trash Capture in association with Full Capture programs, Trash TMDLs, or the Statewide Trash Amendment are often retrofit type installations. Care should be taken to document existing and as-built conditions to determine if the CPS must be supplied in a unique configuration to meet the retrofit conditions. Consideration must be given to any special configurations for flow, treatment, and installation. This mandatory bypass lid is when any part of the device is beneath the curb or grate opening to capture all trash and debris coming in from any direction and ensure that trash and debris do not continue downstream.

4.B. Description of Device Installation Limitations and Non-Standard Device Installation Procedure

Existing protrusions may limit Hydra TMDL Systems, Inc. CPS installation within a catch basin. If any non-standard installation is required, the installer should contact their respective sales representative or sales support at Denis@hydratmdl.com or (818) 516-4946. Installation procedures may differ, but the design of the CPS cannot change.

4. C. Methods for Diagnosing and Correcting Installation Errors.

Hydra TMDL Systems, Inc. has a process for design and manufacturing that includes checks and balances to minimize and eliminate errors in the design and manufacturing processes for the Connector Pipe Screen systems. This process involves a formal submittal and review of each unit's design and fabrication details. The Owner has and should take this opportunity to review the proposed Device before installation. This process helps to reduce or eliminate errors during installation. If an installation error occurs, the error should be documented and reviewed with Hydra TMDL Systems, Inc. and the Contractor immediately upon determination of the error.

After installation is completed, a checklist should be reviewed to ensure proper installation of the CPS system. The checklist should include critical criteria for the determination of proper installation. This checklist should be reviewed in its entirety after the installation and kept as documentation of proper installation. If an error is determined during the checklist review, the documented error should be reported to Hydra TMDL Systems, Inc., as well as the Owner and Engineer. The checklist includes critical criteria such as:

- The catch basin is clean and free of trash and debris.
- The CPS has been set correctly in the basin, with 4" spacing away from corners.
- Inlet/Outlet pipes to/from the catch basin are not blocked or impeded due to the CPS installation.
- CPS and CPS components are not bent, broken, or damaged.
- All debris from the installation has been cleaned and removed.
- All components are free of sharp corners and edges.
- The bypass lid has been installed as required in section 4.D below.

The CPS units can also be inspected after operation to determine proper function.

5.0 Operation and Maintenance Information

5. A. Inspection Procedures and Inspection Frequency Considerations

Safety Precautions: The CPS should be inspected by trained individuals familiar with local traffic safety regulations and disposal procedures. If working in the street, proper safety equipment should be worn, including but not limited to a hard hat, vest, gloves, and eye protection, and all local traffic safety rules & regulations should be followed.

Inspecting the Hydra TMDL Systems, Inc. CPS: Regular maintenance is necessary to maintain the efficiency of the CPS. Hydra TMDL Systems, Inc. advises inspecting the unit every six months, following the steps outlined below. It's important to note that inspection and cleaning should only take place after 24 hours of no rainfall. It's also recommended that the surrounding areas be examined for trash and debris periodically.

- To begin the inspection, remove any catch basin grate or manhole cover to gain visual access to the CPS install site.

- Visually inspect all chambers for heavy sediment, trash, and debris loading. A battery-powered flashlight or droplight is recommended for thorough inspection.
- Visually inspect the device for any damage or unfastening that may have occurred.
- Use a hook or equivalent tool to ensure the vector control hinged top mandatory deflector screen is easily opened.
- Measure the trash load using a tape measure or equivalent trash measurement tool.
- Keep a record of inspection, noting any irregularity, damage, or loss of secure mounting.
- Record trash load measurement.
- (If necessary) take photos and keep them on record.
- Perform vector control inspection and keep records.
- Ensure that the hinged top mandatory deflector screen is in the closed position.
- Reinstall any removed catch basin grates or manhole covers.

5. B. Description of Maintenance Frequency Considerations

The Connector Pipe Screen *Operation and Maintenance Manual* is included with this submittal as Appendix D. This manual contains detailed requirements and recommendations for the CPS operation and maintenance when used as Full Capture Trash Treatment Control Devices. A summary of the requirements and recommendations is listed below:

- Clean CPS. Typical service interval occurs twice every 12 months for inspections and once every 12 months for maintenance service (\approx 10-minute service time). The unit may require more frequent maintenance if the Device is in a high debris-loading drainage area.
- Maintenance cycles are dependent on site-specific trash and debris loading.
- Maintenance operations should be planned to occur just before the start of the rainy season and at the termination of the rainy season for the most effective system operation. **Inspection Procedures**
- Following installing a Connector Pipe Screen, the unit will require periodic and scheduled maintenance. Hydra TMDL Systems, Inc. or an approved contractor can provide inspection and maintenance services.
- Inspection of the CPS should be quick and require no entry into the catch basins or extensive use of equipment. The inspection should provide a general assessment of the condition and operation of the CPS and an estimate as to the need or timing for maintenance.
- The primary observation during the inspection is the condition of the CPS. The screen should be in good working condition and should be free from obstructions or blockages. Accumulated trash levels should be documented, and maintenance should occur if

maximum capacity levels are exceeded.

5. C. Maintenance Procedures

A full description of the maintenance procedures can be located in the Connector Pipe Screen *Operation and Maintenance Manual* included with this submittal as Appendix D. A summary of the critical components of the methods is listed below:

Maintenance Procedures

It is recommended that maintenance occurs at least two days after the most recent rain event to allow debris and sediments to dry out. Maintaining the Device while flows are still entering will increase the time and complexity required for maintenance. CPS can be cleaned from the finished surface without entering the catch basin using a vacuum truck. Some unique and custom configurations may create conditions requiring entry for some or all of the maintenance procedures. Once all safety measures have been set up, cleaning of the CPS can proceed as follows:

- Remove all manhole covers or access hatches (traffic control and safety measures to be completed prior).
- Using an extension on a vacuum truck, position the hose over the opened manhole, hatch, or grate opening. Insert the vacuum hose into the catch basin and suck out trash, foliage, and sediment. A pressure washer is recommended to assist in spraying any debris stuck on the CPS.
- The last step is to close up and replace the manhole or hatch and remove all traffic control.
- All removed debris and trash shall be disposed of following local and State requirements.
- Disposal requirements for recovered trash and debris may vary depending on local guidelines. In most areas, the sediment, once dewatered, can be disposed of in a sanitary landfill. It is not anticipated that the sediment would be classified as hazardous waste.
- Replacement parts can be ordered from the manufacturer for damaged components.

Record-Keeping Maintenance Procedures

- The maintenance operator shall prepare a maintenance/inspection record following maintenance and inspection. The record shall include any maintenance activities performed, the amount and description of debris collected, and the condition of the system and its various filter mechanisms.

- The owner shall retain the maintenance/inspection record for a minimum of five years from the maintenance date. These records shall be made available to the governing municipality for inspection upon request.

5.D. Essential Equipment and Materials for Proper Maintenance Activities

- Recording device (pen and paper form, voice recorder, iPad, etc.)
- Suitable clothing (appropriate footwear, gloves, hard hats, safety glasses, etc.)
- Traffic control equipment (cones, barricades, signage, flagging, etc.)
- Manhole hook or pry bar
- Flashlight
- Tape measure
- Measuring stick or sludge sampler
- Confined space entry equipment (if necessary)
- Vacuum truck
- Pressure washer

5. E. Description of the Effects of Deferred Maintenance on Device Structural Integrity, Performance, Odor, etc.

Standardized maintenance frequencies suitable for most sites are detailed in Section 5.B. and 5.C. Maintenance frequency, however, is very site-specific, depending on trash and debris loading. Records from inspections and prior maintenance should be periodically reviewed to assess the appropriateness of the prescribed maintenance frequency.

Delayed or deferred maintenance can cause diminished trash and debris removal, re-entrainment of trash and debris in the catch basin and upstream hydraulic impacts, and impacts on water quality.

5.F. Repair procedures for Device’s Structure and Screening Components

If during inspection or maintenance of the Hydra TMDL Systems, Inc. CPS, it’s found that the device needs repair, photographs, and documentation should be sent to the Hydra TMDL Systems, Inc. assistance team at Denis@hydratmdl.com. The Hydra TMDL Systems, Inc. engineering and technical support team can assess the damage, suggest a repair plan, or begin a warranty repair or replacement.

6. Vector Control Accessibility.

6. A. Date of Application Submittal to Mosquito Vector Control Association

The Application to the Mosquito Control Association of California will be submitted after the review of this Application by the California State Water Resources Control Board. Once that Application from the Mosquito Control Association has been received, it will attached as

6. B. Description of Access for Vector Control Personnel

Hydra TMDL Systems, Inc. designed the CPS with access that facilitates maintenance for Vector Control inspection and treatment (if required). While in operation, the Connector Pipe Screen is designed to be free of standing or constant pools of water in the catch basins. Because the absence of standing water and prolonged wet conditions are not anticipated, Vector is not expected due to the installation and operation of the CPS. In the event that Vector is experienced, direct access to the catch basin from the ground surface for Vector Control operations is available. The bypass lid can be hinged upwards (See *Figure 8* and *Figure 9*), where the outlet pipe can be accessed in the event of any vector. A verification letter was sent by the

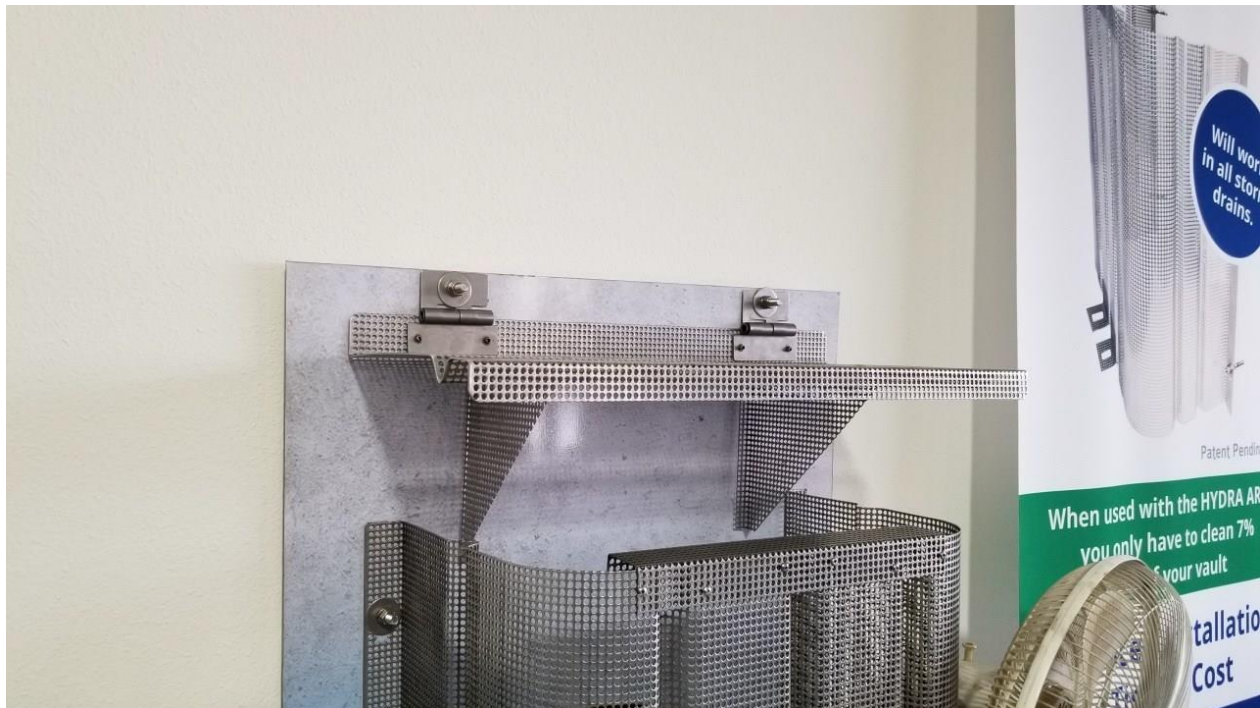


Figure 8 – CPS Bypass Lid in Closed Position (bypass lid is mandatory when the unit is placed immediately beneath a curb inlet or grate)



Figure 9 – CPS Bypass Lid in Open Position (bypass lid may only be open during unit maintenance or vector control access)

6.C. Mosquito Vector Control Association of California Letter of Verification

Please refer to Appendix (TBD) E

7. Reliability Information

7. A. Estimated Design Life of Device Components before Major Overhaul

Each component of the CPS is made of high-quality Type 304 Stainless Steel. This very durable material is expected to have a design life of 25 to 50 years. The design life is dependent on the proper application of the materials.

7. B. Warranty Information

Hydra TMDL Systems, Inc. warrants that the Hydra TMDL Systems, Inc. CPS shall be free from defects in materials and workmanship for a period of 10 years from the date of delivery. The warranty coverage requires that the products must be installed in accordance with all site conditions required by state and local codes, the applicable product or industry specifications and guidelines, the manufacturer's installation recommendations, and other applicable laws. Specifically excluded from the warranty are damages arising from ordinary wear and tear,

alteration, or repair by anyone other than Hydra TMDL Systems, Inc. or under Hydra TMDL Systems, Inc. direction. Furthermore, damage due to accident, misuse, abuse, or neglect, or any other event not caused by Hydra TMDL Systems, Inc. Industries Inc, is also not covered by the warranty.

Suppose a warranty claim is made and determined to be valid. In that case, Hydra TMDL Systems, Inc. will either repair or replace the product, solely at the discretion of Hydra TMDL Systems, Inc. All warranty claims must be submitted, evaluated, and approved by Hydra TMDL Systems, Inc., for the claim to be determined to be valid. There are no other warranties, either expressed or implied, other than what is expressly specified herein.

7. C. Customer Support Information.

Hydra TMDL Systems, Inc. is based in Idaho and will provide customer support in California.

Hydra TMDL Systems, Inc.
5116 West Emerald Street,
Boise, ID 83706

(818)516-4946

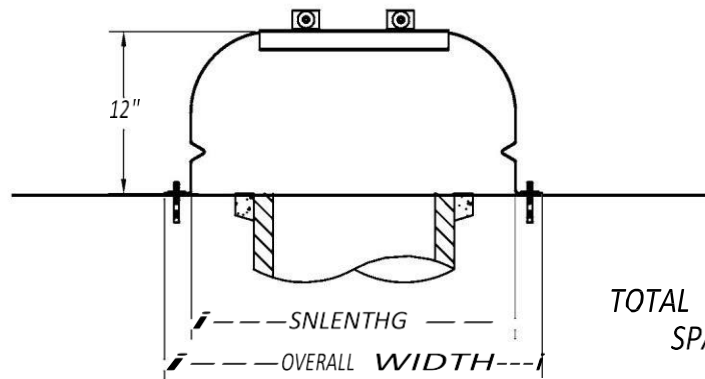
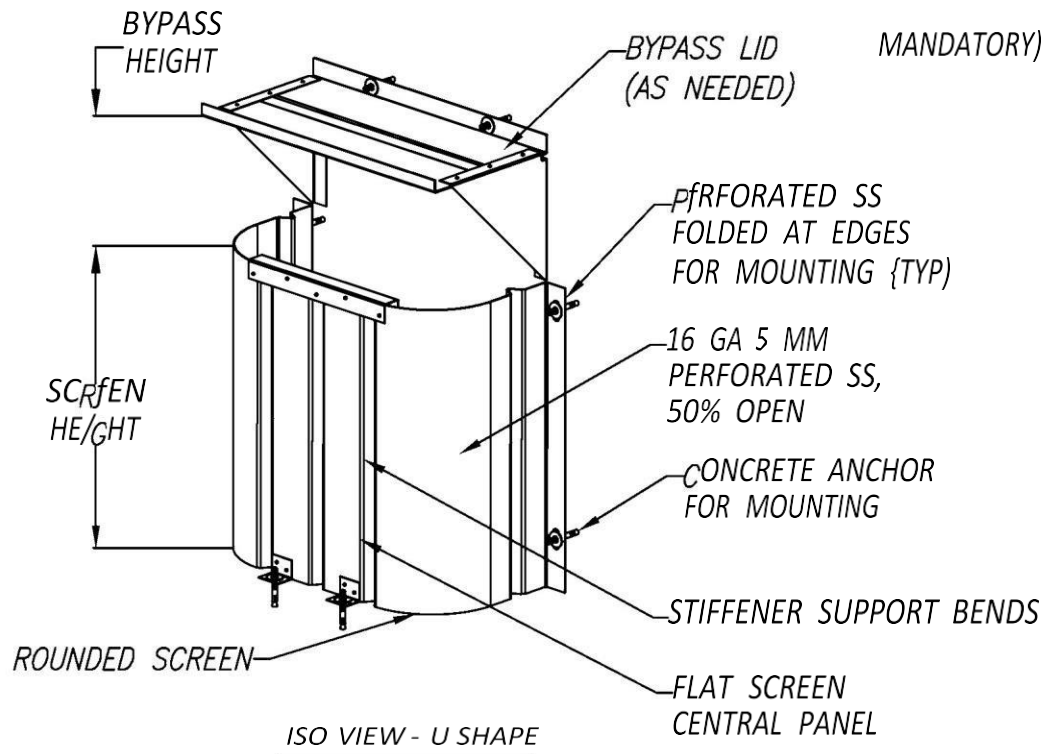
Denis@hydratmdl.com

8. Field/Lab Testing Information and Analysis

The County of Los Angeles published a technical report titled "Connector Pipe Screen Design – Full Capture TMDL Compliance – Screen and Bypass Sizing Requirement" (April 2007), which established the sizing criterion for all CPS screens to comply with Ballona Creek and Los Angeles River Trash Total Maximum Daily Load (Trash TMDL) full-capture standards. Using this as a reference, Hydra TMDL Systems, Inc. designed the CPS using an orifice coefficient of .53, which is more conservative than the standard .6, which is generally used for the orifice equation. The treatment flow rates assume that the screen is 50%.

APPENDIX A

HYDRA CONNECTOR PIPE SCREEN (CPS)



TOTAL SCREEN LENGTH ~ VARIES
SPAN LENGTH = VARIES

GENERAL NOTES

1. HYDRA TMDL SYSTEMS TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS, AND CAPACITIES ARE SUBJECT TO CHANGE
3. THIS CPS UNIT IS DESIGNED FOR TREATMENT FLOWS THROUGH THE SCREEN. FLOWS GREATER THAN THE TREATMENT FLOW RATE WILL BYPASS OVER THE SCREEN.
4. A BYPASS UD IS REQUIRED SINCE THE OUTLET PIPE IS DIRECTLY BELOW THE CURB OPENING.
5. CPS IS COMPRISED OF 304 STAINLESS STEEL THICKNESS IS 16 GAUGE SCREEN PERFORATIONS ARE 5 MILLIMETERS IN DIAMETER. THE SCREEN AREA IS 51% OPEN SPACE

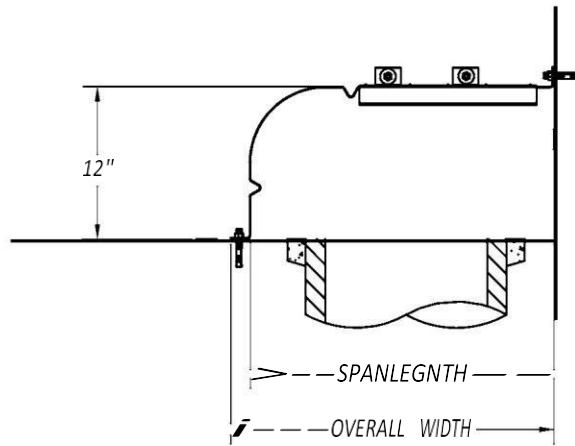
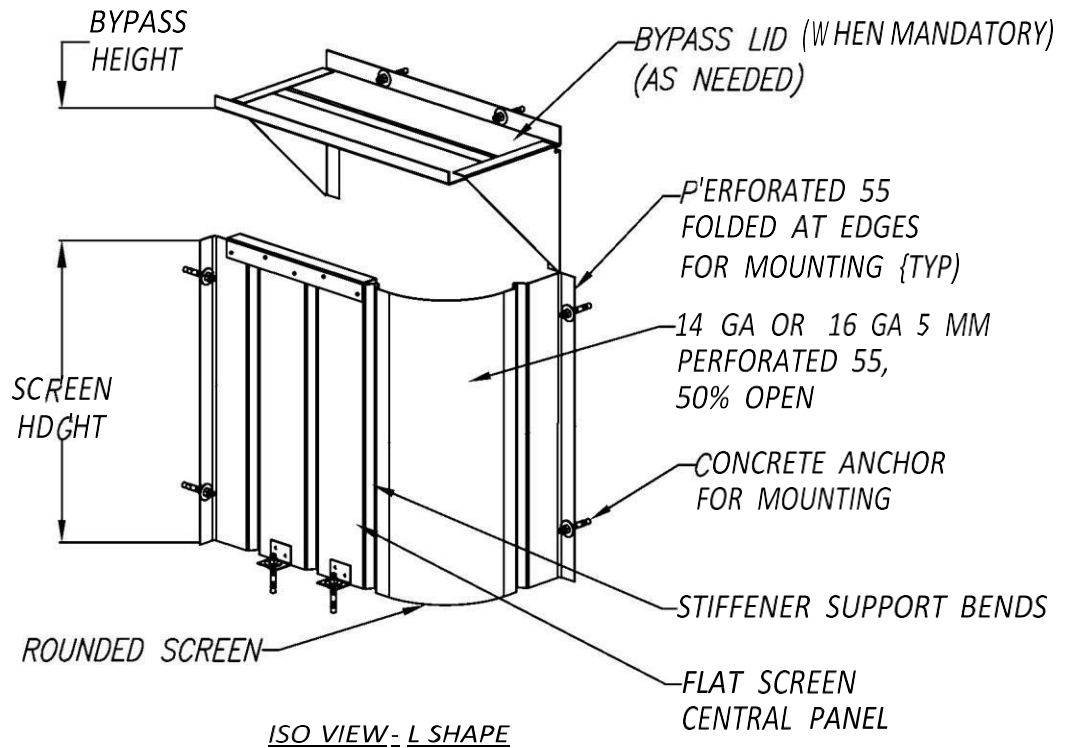
INSTALLATION NOTES

1. CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS REQUIRED TO INSTALL THE CPS UNIT AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURERS SPECIFICATIONS. UNLESS OTHERWISE STATED IN MANUFACTURERS CONTRACT.
2. POSITION THE CPS SO IT IS EVENLY SPACED AROUND THE CONNECTOR PIPE, ENSURING A MIN. OF 4" SPACING AWAY FROM ANY CORNERS. SCREEN BOTTOM SHALL BE FLUSH WITH THE CATCH BASIN FLOOR, OR WITH GAPS NO GREATER THAN 5 MM.
3. IF A BYPASS UD IS REQUIRED,

WARRANTY: 3 YEAR MANUFACTURERS

MEETS FULL CAPTURE REQUIREMENTS

HYDRA CONNECTOR PIPE SCREEN (CPS)



TOTAL SCREEN LENGTH ~ VARIES
SPAN LENGTH = VARIES

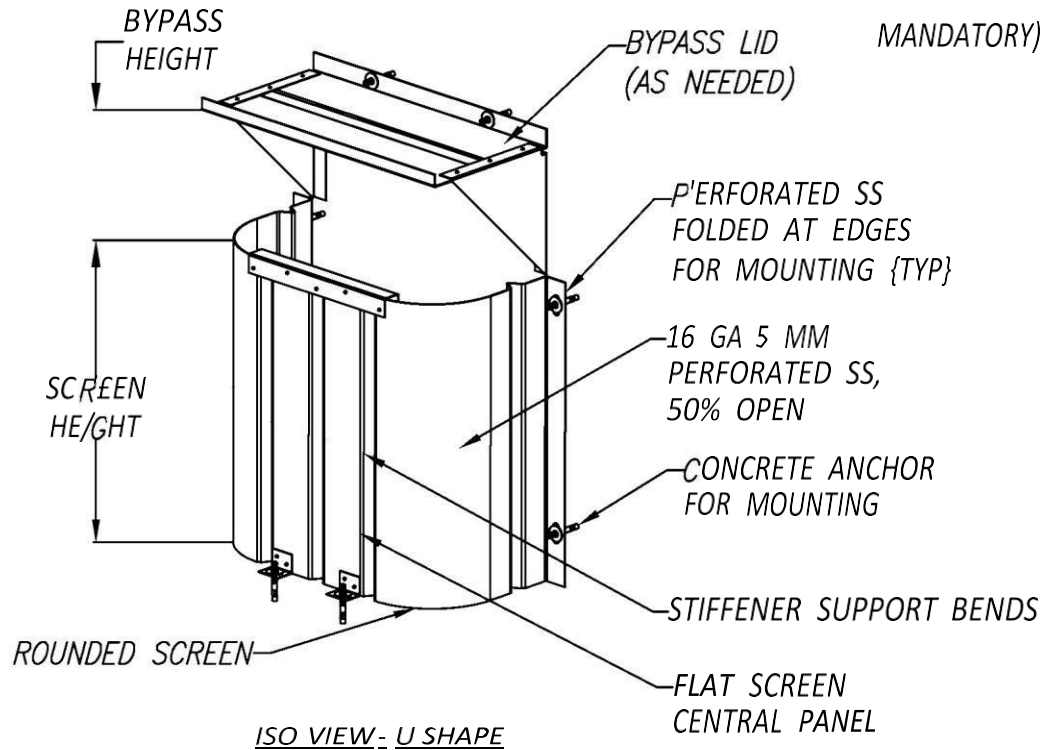
GENERAL NOTES

1. HYDRA TMDL SYSTEMS TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS, AND CAPACITIES ARE SUBJECT TO CHANGE
3. THIS CPS UNIT IS DESIGNED FOR TREATMENT FLOWS THROUGH THE SCREEN. FLOWS GREATER THAN THE TREATMENT FLOW RATE WILL BYPASS OVER THE SCREEN.
4. A BYPASS LID IS REQUIRED SINCE THE OUTLET PIPE IS DIRECTLY BELOW THE CURB OPENING.
5. CPS IS COMPRISED OF 304 STAINLESS STEEL THICKNESS IS 14 GAUGE SCREEN PERFORATIONS ARE 5 MILLIMETERS IN DIAMETER. THE SCREEN AREA IS 51% OPEN SPACE

INSTALLATION NOTES

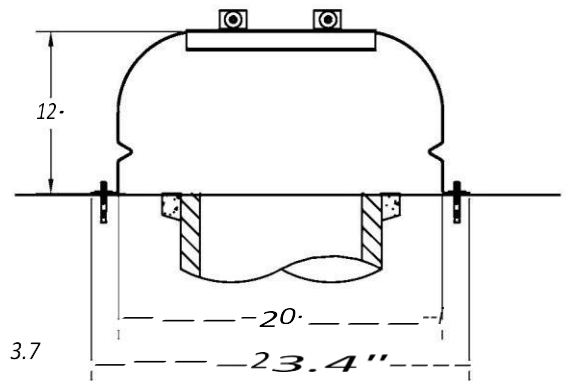
1. CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS REQUIRED TO INSTALL THE CPS UNIT AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURERS SPECIFICATIONS. UNLESS OTHERWISE STATED IN MANUFACTURERS CONTRACT.
2. POSITION THE CPS SO IT IS EVENLY SPACED AROUND THE CONNECTOR PIPE, ENSURING A MIN. OF 4" SPACING AWAY FROM ANY CORNERS. SCREEN BOTTOM SHALL BE FLUSH WITH THE CATCH BASIN FLOOR, OR WITH GAPS NO GREATER THAN 5 MM.

HYDRA CONNECTOR PIPE SCREEN (CPS) U3.7



CPS U WITH 3.7 FT SCREEN LENGTH	
CPS HEIGHT {IN}	SCREEN FLOW {CFS}
12	5.26
18	9.66
24	14.88
30	20.80
36	27.35

NOTE: BYPASS FLOW RATES VARY WITH VAULT DEPTH AND BYPASS HEIGHT. CONTACT HYDRA TMDL FOR ADDITIONAL INFORMATION.



TOTAL SCREEN LENGTH = 3.7
SPAN LENGTH = 20"
COMPATIBLE WITH PIPES UP TO 15"

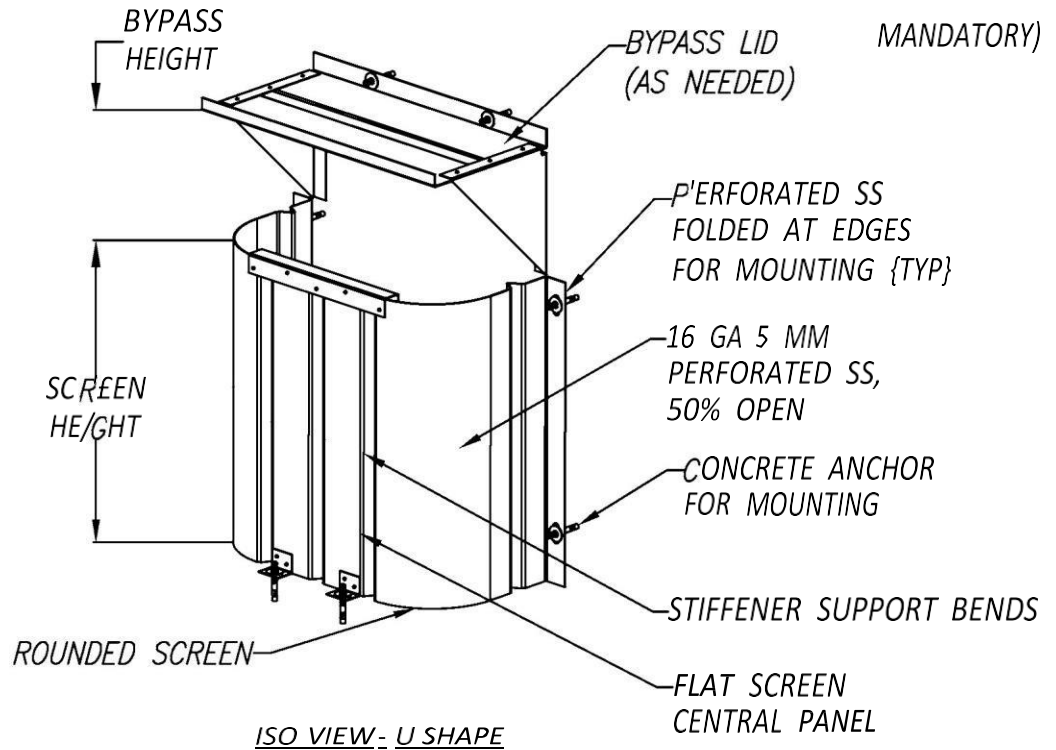
GENERAL NOTES

- HYDRA TMDL SYSTEMS TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
- ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS, AND CAPACITIES ARE SUBJECT TO CHANGE
- THIS CPS UNIT IS DESIGNED FOR TREATMENT FLOWS THROUGH THE SCREEN. FLOWS GREATER THAN THE TREATMENT FLOW RATE WILL BYPASS OVER THE SCREEN.
- A BYPASS LID IS REQUIRED SINCE THE OUTLET PIPE IS DIRECTLY BELOW THE CURB OPENING.
- CPS IS COMPRISED OF 304 STAINLESS STEEL THICKNESS IS 16 GAUGE SCREEN PERFORATIONS ARE 5 MILLIMETERS IN DIAMETER. THE SCREEN AREA IS 51% OPEN SPACE

INSTALLATION NOTES

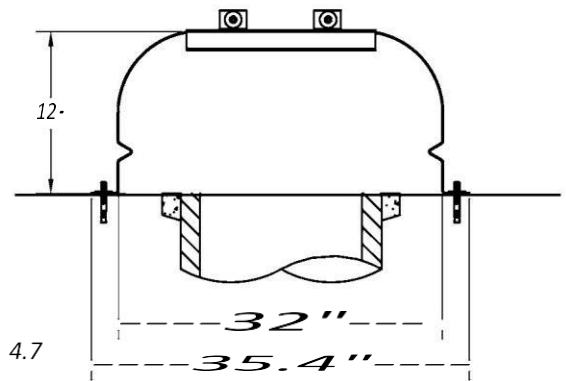
- CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS REQUIRED TO INSTALL THE CPS UNIT AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURERS SPECIFICATIONS. UNLESS OTHERWISE STATED IN MANUFACTURERS CONTRACT.
- POSITION THE CPS SO IT IS EVENLY SPACED AROUND THE CONNECTOR PIPE, ENSURING A MIN. OF 4" SPACING AWAY FROM ANY CORNERS. SCREEN BOTTOM SHALL BE FLUSH WITH THE CATCH BASIN FLOOR, OR WITH GAPS NO GREATER THAN 5 MM.

HYDRA CONNECTOR PIPE SCREEN (CPS) U4.7



CPS U WITH 4.7 FT SCREEN LENGTH	
CPS HEIGHT {IN}	SCREEN FLOW {CFS}
12	6.67
18	12.26
24	18.88
30	26.40
36	34.71

NOTE: BYPASS FLOW RATES VARY WITH VAULT DEPTH AND BYPASS HEIGHT. CONTACT HYDRA TMDL FOR ADDITIONAL INFORMATION.



TOTAL SCREEN LENGTH = 4.7
SPAN LENGTH = 32"
COMPATIBLE WITH PIPES UP TO 24"

GENERAL NOTES

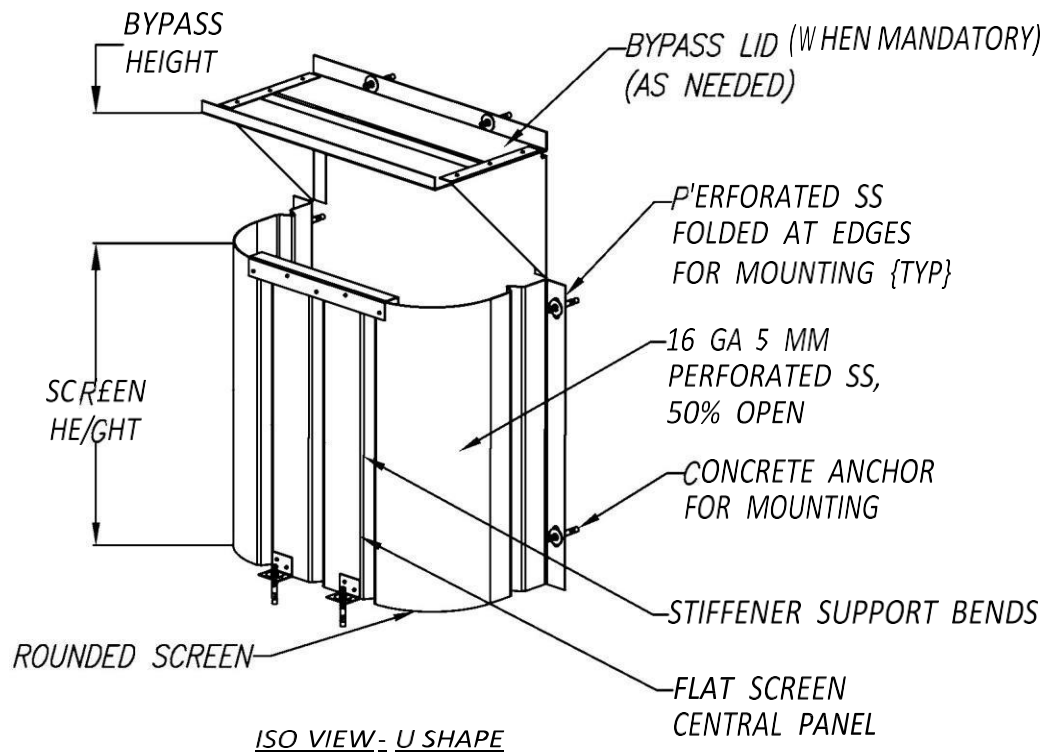
- HYDRA TMDL SYSTEMS TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
- ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS, AND CAPACITIES ARE SUBJECT TO CHANGE
- THIS CPS UNIT IS DESIGNED FOR TREATMENT FLOWS THROUGH THE SCREEN. FLOWS GREATER THAN THE TREATMENT FLOW RATE WILL BYPASS OVER THE SCREEN.
- A BYPASS LID IS REQUIRED SINCE THE OUTLET PIPE IS DIRECTLY BELOW THE CURB OPENING.
- CPS IS COMPRISED OF 304 STAINLESS STEEL THICKNESS IS 16 GAUGE SCREEN PERFORATIONS ARE 5 MILLIMETERS IN DIAMETER. THE SCREEN AREA IS 51% OPEN SPACE

INSTALLATION NOTES

- CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS REQUIRED TO INSTALL THE CPS UNIT AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURERS SPECIFICATIONS. UNLESS OTHERWISE STATED IN MANUFACTURERS CONTRACT.
- POSITION THE CPS SO IT IS EVENLY SPACED AROUND THE CONNECTOR PIPE, ENSURING A MIN. OF 4" SPACING AWAY FROM ANY CORNERS. SCREEN BOTTOM SHALL BE FLUSH WITH THE CATCH BASIN FLOOR, OR WITH GAPS NO GREATER THAN 5 MM.

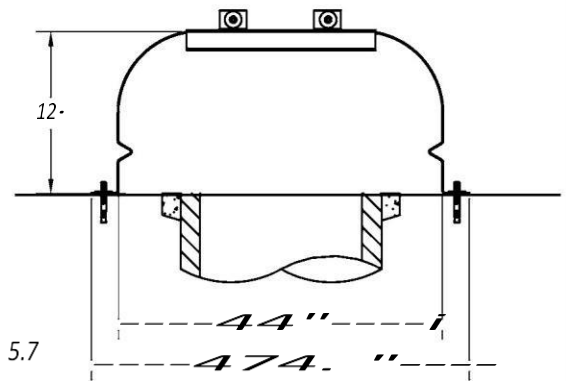
WARRANTY: 3 YEAR MANUFACTURERS

HYDRA CONNECTOR PIPE SCREEN (CPS) U5.7



CPS U WITH 5.7 FT SCREEN LENGTH	
CPS HEIGHT {IN}	SCREEN FLOW {CFS}
12	8.09
18	14.86
24	22.89
30	31.99
36	42.07

NOTE: BYPASS FLOW RATES VARY WITH VAULT DEPTH AND BYPASS HEIGHT. CONTACT HYDRA TMDL FOR ADDITIONAL INFORMATION.



TOTAL SCREEN LENGTH = 5.7
SPAN LENGTH = 44"
COMPATIBLE WITH PIPES UP TO 36"

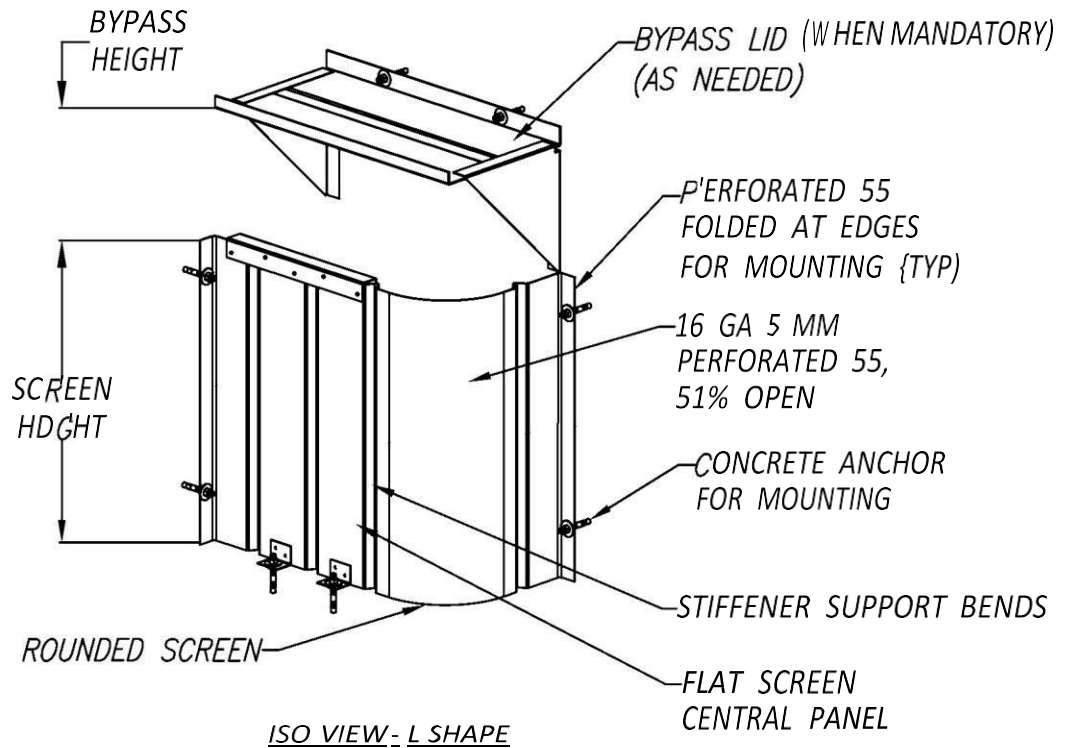
GENERAL NOTES

- HYDRA TMDL SYSTEMS TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
- ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS, AND CAPACITIES ARE SUBJECT TO CHANGE
- THIS CPS UNIT IS DESIGNED FOR TREATMENT FLOWS THROUGH THE SCREEN. FLOWS GREATER THAN THE TREATMENT FLOW RATE WILL BYPASS OVER THE SCREEN.
- A BYPASS UD IS REQUIRED SINCE THE OUTLET PIPE IS

INSTALLATION NOTES

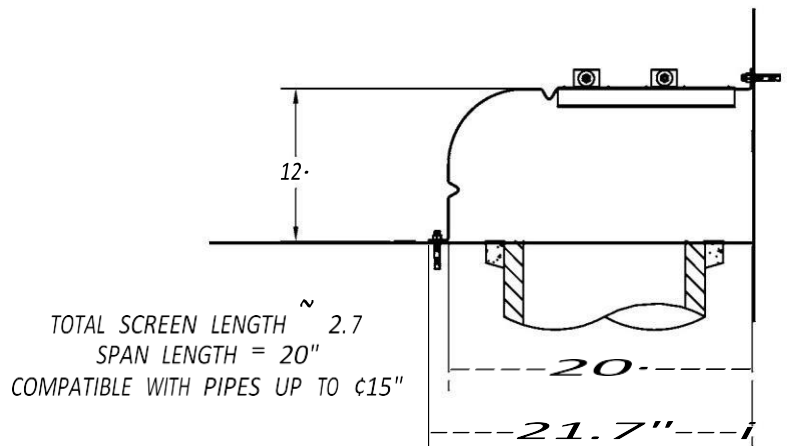
- CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS REQUIRED TO INSTALL THE CPS UNIT AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURERS SPECIFICATIONS. UNLESS OTHERWISE STATED IN MANUFACTURERS CONTRACT.
- POSITION THE CPS SO IT IS EVENLY SPACED AROUND THE CONNECTOR PIPE, ENSURING A MIN. OF 4" SPACING AWAY FROM ANY CORNERS. SCREEN BOTTOM SHALL BE FLUSH WITH THE CATCH BASIN FLOOR, OR WITH GAPS NO GREATER THAN 5 MM.

HYDRA CONNECTOR PIPE SCREEN (CPS) L 2.7



CPS L WITH 2.7 FT SCREEN LENGTH	
CPS HEIGHT {IN}	SCREEN FLOW {CFS}
12	3.84
18	7.06
24	10.88
30	15.20
36	19.99

NOTE: BYPASS FLOW RATES VARY WITH VAULT DEPTH AND BYPASS HEIGHT. CONTACT HYDRA TMDL FOR ADDITIONAL INFORMATION.-----



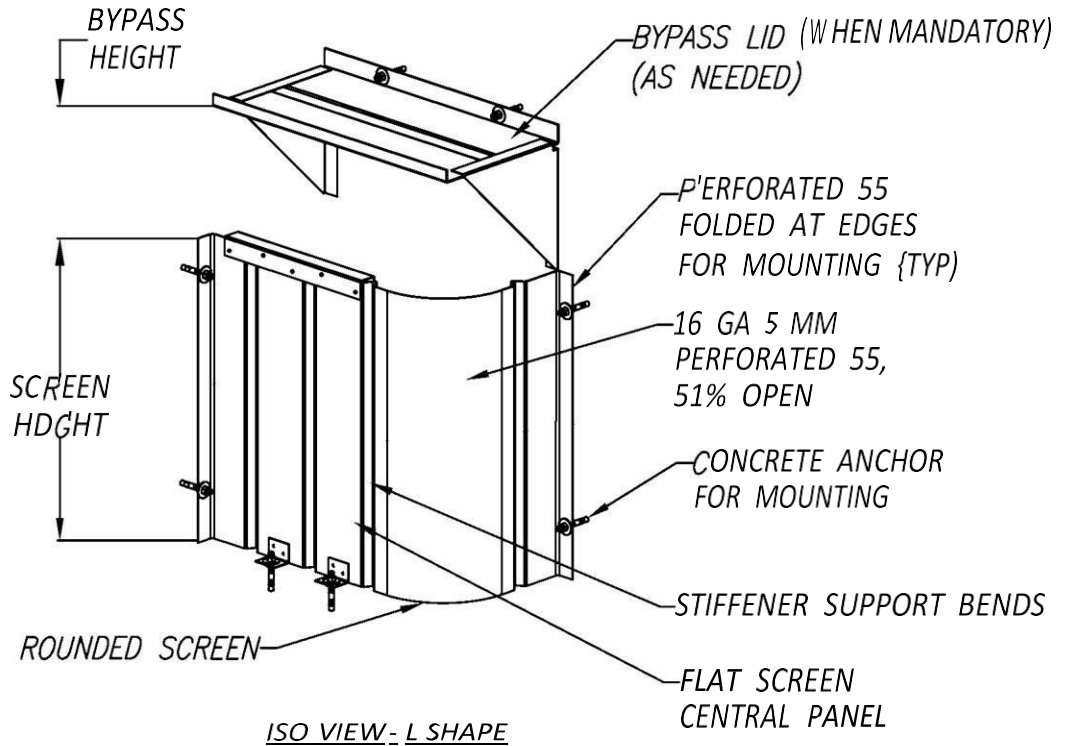
GENERAL NOTES

1. HYDRA TMDL SYSTEMS TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS, AND CAPACITIES ARE SUBJECT TO CHANGE
3. THIS CPS UNIT IS DESIGNED FOR TREATMENT FLOWS THROUGH THE SCREEN. FLOWS GREATER THAN THE TREATMENT FLOW RATE WILL BYPASS OVER THE SCREEN.
4. A BYPASS UD IS REQUIRED SINCE THE OUTLET PIPE IS

INSTALLATION NOTES

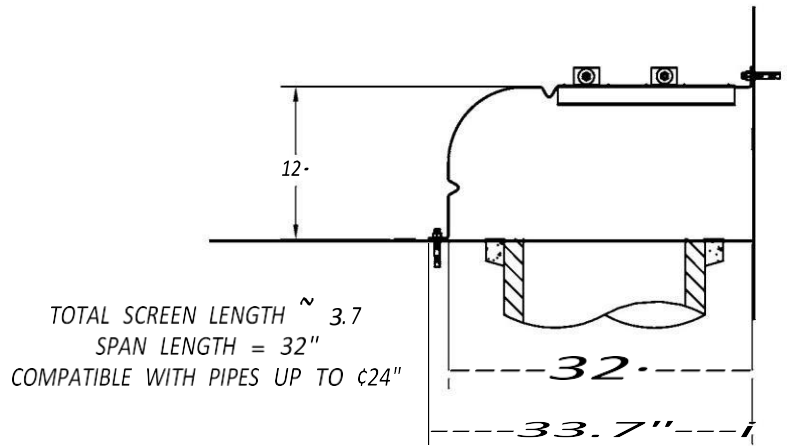
1. CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS REQUIRED TO INSTALL THE CPS UNIT AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURERS SPECIFICATIONS. UNLESS OTHERWISE STATED IN MANUFACTURERS CONTRACT.
 2. POSITION THE CPS SO IT IS EVENLY SPACED AROUND THE CONNECTOR PIPE, ENSURING A MIN. OF 4" SPACING AWAY FROM ANY CORNERS. SCREEN BOTTOM SHALL BE FLUSH WITH THE CATCH BASIN FLOOR, OR WITH GAPS NO GREATER THAN 5 MM.
- J.

HYDRA CONNECTOR PIPE SCREEN (CPS) L 3.7



CPS L WITH 3.7 FT SCREEN LENGTH	
CPS HEIGHT {IN}	SCREEN FLOW {CFS}
12	5.26
18	9.66
24	14.88
30	20.80
36	27.35

NOTE: BYPASS FLOW RATES VARY WITH VAULT DEPTH AND BYPASS HEIGHT. CONTACT HYDRA TMDL FOR ADDITIONAL INFORMATION.-----



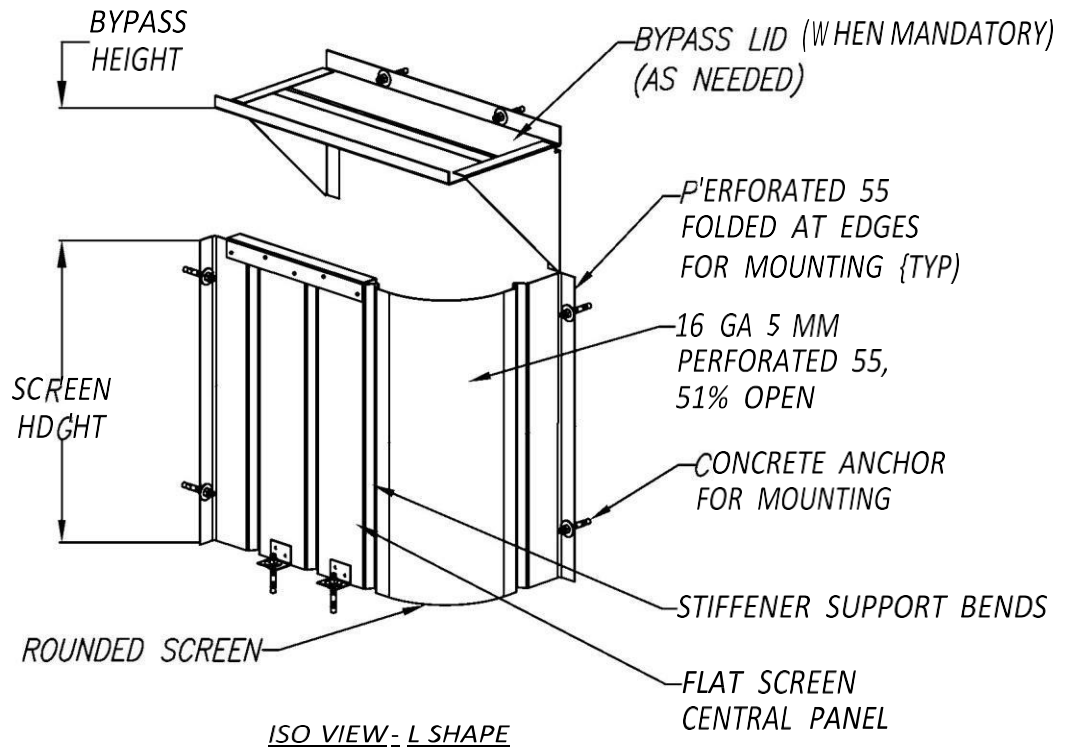
GENERAL NOTES

1. HYDRA TMDL SYSTEMS TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS, AND CAPACITIES ARE SUBJECT TO CHANGE
3. THIS CPS UNIT IS DESIGNED FOR TREATMENT FLOWS THROUGH THE SCREEN. FLOWS GREATER THAN THE TREATMENT FLOW RATE WILL BYPASS OVER THE SCREEN.
4. A BYPASS UD IS REQUIRED SINCE THE OUTLET PIPE IS

INSTALLATION NOTES

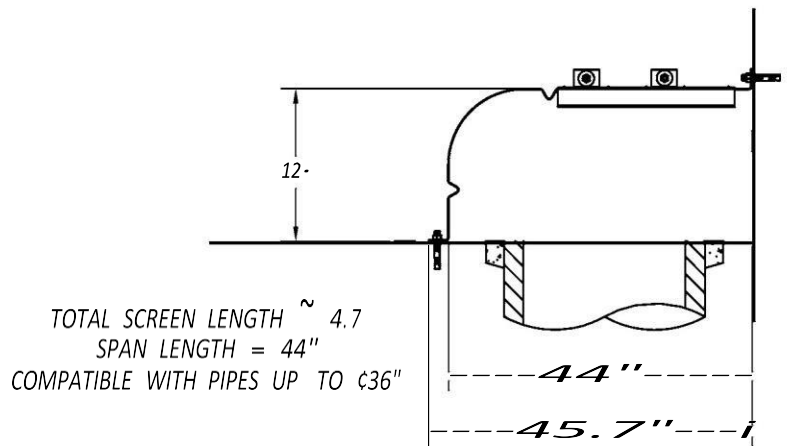
1. CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS REQUIRED TO INSTALL THE CPS UNIT AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURERS SPECIFICATIONS. UNLESS OTHERWISE STATED IN MANUFACTURERS CONTRACT.
 2. POSITION THE CPS SO IT IS EVENLY SPACED AROUND THE CONNECTOR PIPE, ENSURING A MIN. OF 4" SPACING AWAY FROM ANY CORNERS. SCREEN BOTTOM SHALL BE FLUSH WITH THE CATCH BASIN FLOOR, OR WITH GAPS NO GREATER THAN 5 MM.
- J.

HYDRA CONNECTOR PIPE SCREEN (CPS) 4.7



CPS L WITH 4.7 FT SCREEN LENGTH	
CPS HEIGHT {IN}	SCREEN FLOW {CFS}
12	6.67
18	12.26
24	18.88
30	26.40
36	34.71

NOTE: BYPASS FLOW RATES VARY WITH VAULT DEPTH AND BYPASS HEIGHT. CONTACT HYDRA TMDL FOR ADDITIONAL INFORMATION.-----



GENERAL NOTES

1. HYDRA TMDL SYSTEMS TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS, AND CAPACITIES ARE SUBJECT TO CHANGE
3. THIS CPS UNIT IS DESIGNED FOR TREATMENT FLOWS THROUGH THE SCREEN. FLOWS GREATER THAN THE TREATMENT FLOW RATE WILL BYPASS OVER THE SCREEN.
4. A BYPASS UD IS REQUIRED SINCE THE OUTLET PIPE IS

INSTALLATION NOTES

1. CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS REQUIRED TO INSTALL THE CPS UNIT AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURERS SPECIFICATIONS. UNLESS OTHERWISE STATED IN MANUFACTURERS CONTRACT.
2. POSITION THE CPS SO IT IS EVENLY SPACED AROUND THE CONNECTOR PIPE, ENSURING A MIN. OF 4" SPACING AWAY FROM ANY CORNERS. SCREEN BOTTOM SHALL BE FLUSH WITH THE CATCH BASIN FLOOR, OR WITH GAPS NO GREATER THAN 5 MM.
- 3.

Hydra TMDL Systems, Inc.			
CPS U			
CPS length	CPS height	A _{screen} (net open area)	Q _{screen}
ft	in	sf	cfs
3.7	12	1.90	5.26
4.7	12	2.41	6.67
5.7	12	2.92	8.09
3.7	18	2.84	9.66
4.7	18	3.61	12.26
5.7	18	4.37	14.86
3.7	24	3.79	14.88
4.7	24	4.81	18.88
5.7	24	5.83	22.89
3.7	30	4.74	20.8
4.7	30	6.01	26.4
5.7	30	7.29	31.99
3.7	36	5.69	27.35
4.7	36	7.22	34.71
5.7	36	8.75	42.07

Hydra TMDL Systems, Inc.			
Hydra CPS L			
CPS length	CPS height	A _{screen} (net open area)	Q _{screen}
ft	in	sf	cfs
2.7	12	1.39	3.84
3.7	12	1.90	5.26
4.7	12	2.41	6.67
2.7	18	2.08	7.06
3.7	18	2.84	9.66
4.7	18	3.61	12.26
2.7	24	2.77	10.88
3.7	24	3.79	14.88
4.7	24	4.81	18.88
2.7	30	3.46	15.20
3.7	30	4.74	20.80
4.7	30	6.01	26.40
2.7	36	4.16	19.99
3.7	36	5.69	27.35
4.7	36	7.22	34.71

CPS U & U-Ext Length (ft)	CPS L length (ft)	Max. Pipe Ø (in)
3.7	2.7	15
4.7	3.7	24
5.7	4.7	36

APPENDIX B

Stormwater Connector Pipe Screen

PART 1 – GENERAL

1. Purpose

This specification establishes acceptable criteria for Connector Pipe Screens for collecting trash and debris inside catch basins. It is intended to serve as a guide to producers, distributors, architects, engineers, contractors, plumbers, installers, inspectors, agencies, and users to promote understanding regarding materials, manufacture, and installation and to provide for identification of devices complying with this specification.

2. Description

Stormwater Connector Pipe Screens (CPS) prevent trash and debris from entering the stormwater system during dry weather and moderate storm flows by keeping the trash inside the catch basin. The CPS is a screen placed permanently or temporarily in a catch basin at the location of the outlet pipe. The screen separates trash and debris from stormwater treatment flows. Flows that exceed the treatment flow rate bypass over the top of the screen. When the outlet pipe is located below a curb opening, the CPS features a mandatory lid to prevent debris from passing behind the screen and flowing directly to the outlet pipe. The CPS shall be designed to retain all trash larger than 5 mm (0.197 inches) in the catch basin.

3. Manufacturer

The manufacturer of the CPS shall be regularly engaged in the engineering, design, and production of systems developed for the treatment of stormwater runoff for at least (10) years and which have a history of successful production, acceptable to the Engineer of work. Under the drawings, the CPS(s) shall be a screen device manufactured/distributed by Hydra TMDL Systems Inc., which can be reached at:

5116 West Emerald Street, Suite A
Boise, Idaho 83706
Phone: (818) 516-4946
www.hydratmdl.com

4. Submittals

- Submittal drawings will be provided with each order to the contractor and Engineer of work.
- Submittal drawings are to detail the CPS, its components, and the sequence for installation, including:
 - CPS configuration with primary dimensions
 - Various CPS components
 - Any accessory equipment
 - Inspection and maintenance documentation submitted upon request.

5. Work Included

- Specification requirements for installation of CPS.
- Manufacturer to supply CPS(s):
- Screen
- Mounting hardware
- Bypass lid with supports (when required)

PART 2 – COMPONENTS

- The CPS shall have sufficient structural integrity to withstand a lateral force of standing water within the catch basin area when the screen becomes 100% clogged. The CPS unit shall be bolted to the catch basin walls.
- The CPS shall be configured with a mandatory lid, preventing trash from falling between the screen and the connector pipe. The deflector plate shall be designed to withstand a vertical load.
- The gap at the CPS unit's bottom, sides, and joints shall not exceed 5 mm (0.197 inches).
- The CPS shall include vertical structural stiffeners extending the entire length of the screen in the form of bends in the screen itself, a bolting surface to fasten the CPS to the wall of the catch basin, and support for the upper portion of the CPS unit referred to as the "bypass."
- All parts/components of the CPS unit must be sized to fit through the catch basin's manhole opening.
- The CPS frame shall be fabricated from 304 stainless steel.
- The CPS screen shall be fabricated from perforated 304 stainless steel. The screen shall have a minimum thickness of 16 gauge. The geometrical opening shape shall have a diameter of 5 mm (0.197 inches).
- The screen material used shall have at least 45% open area.
- Any edge of the CPS that is not flush with the wall or floor of the catch basin shall be smooth with no prongs or jagged edges.
- The assembly bolts, screws, nuts, and washers shall be fabricated entirely from 316 stainless steel. The concrete anchor bolts shall use a wedge anchor with Type 316 stainless steel threaded rods, nuts, and washers.

PART 3 – PERFORMANCE

1 General

- Function - Unless otherwise specified, the CPS has no moving internal components and functions based on gravity flow. Stormwater runoff enters the catch basin through a curb opening and flows toward the connector pipe. The CPS is placed to intercept flows before exiting the catch basin through the connector pipe. The CPS must be able to be removed through the catch basin opening. Stormwater flow up to the peak treatment rate is processed through the screen. Flows in excess of the peak treatment rate will overtop the screen in a bypass. The lid (when required) shall be placed high enough above the screen to allow for full bypass flow.
- Trash and debris - The CPS will remove and retain trash and debris larger than 5 mm

in diameter entering the catch basin during frequent storm events and specified flow rates.

- Treatment Flow Rate - The CPS operates through gravity flow. The CPS is to be sized so the screen is capable of passing the calculated project-specific water quality flow rate per local standards. All treatment flow rates must include a 50% screen clogging factor.
- Bypass Flow Rate – The CPS is designed to fit within the catch basin in a way not to affect the existing hydraulics and treat or bypass all flows. The bypass must be sized with a surface area greater than the outlet pipe size thus the CPS shall not be a critical point of flow restriction.

PART 4 - EXECUTION

1 General

The installation and use of the CPS shall conform to all applicable national, State, municipal, and local specifications.

2 Installation

The contractor shall furnish all labor, equipment, materials, and incidentals required to install the CPS device(s) and appurtenances in accordance with the drawings, installation manual, and these specifications and be inspected and approved by the local governing agency. Any damage to the catch basin and surrounding infrastructure caused by the installation of the CPS is the responsibility of the installation contractor.

- CPS and all components or accessories shall be inserted through the catch basin and properly secured per the manufacturer's installation manual and these specifications.

3 Shipping, Storage, and Handling

- Shipping – CPS shall be shipped to the contractor's address, and it is the responsibility of the contractor to transport the unit(s) to the exact installation site.
- Storage and Handling– The contractor shall exercise care in storing and handling the CPS(s) and its components prior to and during installation. The contractor shall bear any repair or replacement costs associated with events occurring after delivery is accepted and unloading has commenced. The CPS(s) and its components shall always be stored indoors and transported inside the original shipping container(s) until the CPS(s) are ready to be installed. The CPS shall always be handled with care and lifted according to OSHA and NIOSA lifting recommendations and contractor's workplace safety professional recommendations.

4 Maintenance and Inspection

- Inspection – After installation, the contractor shall demonstrate that the CPS has been properly installed at the correct location(s), elevations, and with appropriate supports and fasteners. All components associated with the CPS and its installation shall be inspected by the Engineer of work, governing agency, and the manufacturer at the place of installation. In addition, the contractor shall demonstrate that the CPS has been installed per the manufacturer's specifications and recommendations. CPS(s)

shall be physically inspected regularly per the owner's Stormwater Pollution Prevention Plans (SWPPP) and the manufacturer's recommendations. The inspection operator shall keep an inspection record. The record shall include the condition of the CPS and its appurtenances. The most current copy of the inspection record shall always be copied and placed in the owner's SWPPP.

5 Maintenance

- The maintenance shall be performed by someone qualified. A Maintenance Manual is available upon request from the manufacturer. The manual has detailed information regarding the maintenance of CPS(s). The maintenance operator shall keep a detailed Maintenance Record. The Maintenance Record shall include any maintenance activities performed, the amount and description of debris collected, and the condition of the CPS. The most current copy of the Maintenance Record shall always be copied and placed in the owner's Stormwater Pollution Prevention Plan (SWPPP) per the governing agency. Upon cleaning, no trash or debris shall be located in the catch basin, on top of the bypass lid, or between the screen; no vegetation shall block the catch basin opening or connector pipe, and no trash or debris shall be located within the catch basin opening.
- Material Disposal - All debris, trash, organics, and sediments captured and removed from the CPS shall be transported and disposed of at an approved facility in accordance with local and state regulations. Please refer to state and local regulations for properly disposing of toxic and nontoxic material.

PART 5 – QUALITY ASSURANCE

1 Warranty

Hydra TMDL Systems, Inc. warrants that the Hydra TMDL Systems, Inc. CPS shall be free from defects in materials and workmanship for a period of 10 years from the date of delivery. The warranty coverage requires that the products must be installed in accordance with all site conditions required by state and local codes, the applicable product or industry specifications and guidelines, the manufacturer's installation recommendations, and other applicable laws. Expressly excluded from the warranty are damages arising from ordinary wear and tear, alteration, or repair by anyone other than Hydra TMDL Systems, Inc. or under Hydra TMDL Systems, Inc. direction. Furthermore, damage due to accident, misuse, abuse, or neglect, or any other event not caused by Hydra TMDL Systems, Inc. Industries Inc, is also not covered by the warranty. Suppose a warranty claim is made and determined to be valid. In that case, Hydra TMDL Systems, Inc. will either repair or replace the product, solely at the discretion of Hydra TMDL Systems, Inc. All warranty claims must be submitted, evaluated, and approved by Hydra TMDL Systems, Inc., for the claim to be determined to be valid. There are no other warranties, either expressed or implied, other than what is expressly specified herein.

[End of This Section]

APPENDIX C

INSTALLATION

CPS is designed to be installed inside each catch basin, covering the outlet pipe within the acceptable perimeters. Hydra CPS requires entry into each catch basin for installing this product.

Please follow all guidelines for working and entering a catch basin per your State and Federal Guidelines. Hydra TMDL Systems, Inc. is not responsible for any injuries or damages that might occur during this installation process.

Installer to determine which Hydra TMDL Systems, Inc. CPS model to install based on the following criteria:

1. Location of connector pipe inside the catch basin to determine the screen shape
2. Sizing of the Outlet Pipe for the Connector Pipe Screen to Filter
3. Location of the curb opening to determine if a mandatory bypass lid is required
4. Treatment flow rate through the screen
5. Bypass requirements – typically over the screen



It is recommended that the catch basin be cleaned during installation time, as the installation can be used as an opportunity to do so. CPS installation requires a debris-free surface to ensure that the CPS rests with no more than a 5MM gap on any of its edges.

Requirements:

The contractor shall furnish all labor, equipment, materials, and incidentals required to install the CPS and appurtenances in accordance with the contract documents. Any damage to the existing drainage structure (retrofit applications) or surrounding infrastructure that may need to be

repaired to allow for proper installation of the CPS shall be considered incidental and paid for at no cost to the client. Hydra TMDL Systems, Inc. does offer installation services in certain areas. Don't hesitate to contact Hydra TMDL Systems, Inc. for more information on pre-authorized 3rd party contractors that can provide installation service in your area.

The Hydra TMDL Systems, Inc. CPS manufacturer provides a warranty against defects in materials and workmanship for 10-years from the date of acceptance by the Engineer. The Hydra TMDL Systems, Inc. CPS also carries a 2-year installation warranty. Components:



Marker – Sharpie
 Tape Measure
 Square – Straight Edge

Tools

- •
-
- Hammer (recommend 2lbs sledge hammer)
- Level 24"
- RotoHammer w/ 3/8" x 6" concrete bit
- 9/16 wrench
- Impact Drill with 9/16 socket (not required)



Hardware:

- 3/8" x 2 3/4" Wedge Anchors
- 3/8" x 1 1/2" Nuts & Bolt, Washers

Installation:

1. Carefully lower the Modular CPS unit through the manhole opening.
2. Position the Modular CPS, so it is evenly spaced around the connector pipe, ensuring a minimum of 4" spacing away from any corners.
3. Mark the hole locations on the wall for the stainless anchor bolts.
4. Drill holes and hammer the bolts in place 5. Secure the Hydra TMDL Systems, Inc. CPS using stainless nuts.
6. If a bypass lid is required, position the lid so that it is at the correct bypass height above the CPS.
7. Mark hole locations, drill holes and hammer the bolts in place for the bypass lid.
8. Secure the bypass lid using stainless nuts.
9. If the bottom of the base exposes more than a 5 mm gap, then an additional face strip may be fastened to the base channel using stainless tek screws or rivets. This base face strip matches the Length and contour of the base screen.



For Installation Support
Please Contact Us At:
818-516-4946
Denis@hydratmdl.com

APPENDIX D

OPERATION & MAINTENANCE

CPS devices should be maintained by trained individuals in proper disposal procedures, confined space entry, and traffic safety regulations. When servicing a Hydra TMDL Systems, Inc. CPS device, follow all safety and traffic control protocols and wear all proper personal protection equipment, such as gloves, safety glasses, hard hats, safety vests, and work boots.



Visual Inspection

1. Begin by inspecting the inflow of the catch basin where the Hydra TMDL Systems, Inc. CPS device is located. Check for any obstructions to the inflow of the C.B. unit. If any large obstructions are found, have them removed. Once the inflow inspection is completed, remove the manhole cover for further inspection. (Note: Confined Space Entry Procedures may apply if trained personnel intend to enter the interior space of any Catch Basin. Please follow all applicable confined space entry procedures)
2. Remove the manhole cover and visually estimate the amount and types of debris found in the C.B. unit. Look for any visual signs of damage that may compromise the C.B. unit to function correctly. Inspect for any standing water in the C.B. unit and large amounts of sediment and debris surrounding the CPS device. If standing water and high sediment volume are found, remove water, sediment and debris by vacuum truck or other debris removal methods.

Cleaning Procedures and Frequencies

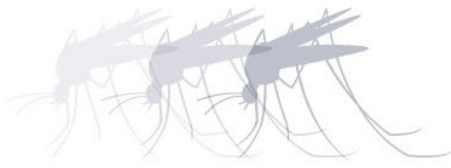
1. Like all other stormwater BMPs, CPS devices require periodic maintenance. Routine inspection and maintenance intervals for all CPS devices are typically twice yearly for inspections and once yearly for maintenance service. CPS devices may require more frequent maintenance if they are located in a high debris-loading drainage area, such as certain downtown areas, retail/restaurant areas, or residential areas with a significant amount of vegetation/foilage. In such cases, CPS devices may require more frequent inspection and maintenance service, ranging from twice per year to monthly inspection and maintenance service, depending on trash and debris load conditions.
2. To begin CPS cleaning procedures, conduct a visual inspection of the CPS device and the surrounding area to ensure a safe working environment—set up appropriate barriers and signage as necessary to establish a work zone surrounding the catch basin. Once the work zone has been established, remove the manhole cover from the catch basin.
3. Once the manhole cover is removed from the basin, the CPS is ready for servicing. All debris can be removed by either a vacuum truck or manually removing sediment and debris by hand.
4. CPS devices shall be cleaned using a pressure washer as may be necessary if any materials are found to cause occlusion or clogging of the screen.

Disposal

1. All trash and debris removed from the CPS unit shall be disposed of in accordance with local, State, and federal regulations.
2. Solid waste disposal can be coordinated with local landfills. Liquids may need to be disposed of by a wastewater treatment plant, municipal vacuum truck decant facility or approved facility.

For Maintenance Services or
Information Please Contact Us At: 818-516-4946 Or Email:
Denis@hydratmdl.com

APPENDIX E



MVCAC
Mosquito and Vector Control Association of California

One Capitol Mall, Suite 320 • Sacramento, CA 95814 • p: (916) 440-0826 • f: (916) 444-7462 • e: mvcac@mvcac.org

Hydra TMDL Systems, Inc.
5116 West Emerald Street, Suite A
Boise, ID 83706

May 1, 2024

Dear Mr. Friezner,

Thank you for the submission of the Hydra TMDL Systems Connector Pipe Screen (CPS) 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 Hydra TMDL Systems CPS 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 Hydra TMDL Systems CPS 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,

Megan MacNee
MVCAC Executive Director

APPENDIX F

April 11, 2024

Eric Oppenheimer
Executive Director
California State Water Resources Control Board
Division of Water Quality
P.O. Box 100
Sacramento, CA 95812-100

RE: Bio Clean[®] Connector Pipe Screen Trash Capture

Dear Mr. Oppenheimer,

This purpose of this letter is to notify the State Water Resources Control Board that Contech Engineered Solutions, LLC (Contech) recognizes Hydra TMDL Systems Inc. as the legal owner of Bio Clean[®] Environmental Services, Inc. Modular Connector Pipe Trash Screen described in Fact Sheet BC-3¹. The Bio Clean[®] Connector Pipe Screen application was made by Bio Clean[®] who had exclusive rights to sell the technology at the time. Approval as a Trash Full Capture System was granted on April 30, 2020. Contech acquired Bio Clean Environmental on March 31, 2022² and this exclusive relationship was subsequently terminated. Therefore, we request that the existing approval for the Bio Clean Connector Pipe Screen be transferred to Hydra TMDL Systems. Contech acknowledges that Hydra TMDL Systems Inc. will submit an amended application with the new owner's name, contact information and device name. Any warranty claims in keeping with Contech Conditions of Sale³ should be made to Contech.

Regards,



Vaikko Allen
Director – Stormwater Regulatory Management
Contech Engineered Solutions, LLC

¹ State Water Resources Control Board. 2023. Certified Trash Full Capture Systems Available to the Public. Available online at:

https://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/trash_implementation/2023/full-uptre-available-to-public.11.27.2023.pdf

² Contech Engineered Solutions, LLC. 2022. Press Release: Bio Clean[®] to be Integrated into Contech[®] Engineered Solutions. Available online at: <https://www.conteches.com/press-releases/bio-clean-to-be-integrated-into-contech-engineered-solutions-customers-to-benefit-from-expanded-stormwater-management-solutions/>

³ Contech Engineered Solutions, LLC. 2024. Conditions of Sale. Available online at: <https://www.conteches.com/cos/>

