### SIZING TABLE

<table>
<thead>
<tr>
<th>Model</th>
<th>Screen Length</th>
<th>Screen Height</th>
<th>$A_{\text{screen}}$ (Net open area)</th>
<th>$Q_{\text{screen}}$ Flow Rate (cfs)</th>
<th>$L_{\text{bypass}}$ (ft)</th>
<th>B (bypass height) = 4&quot;</th>
<th>B (bypass height) = 6&quot;</th>
<th>B (bypass height) = 8&quot;</th>
<th>B (bypass height) = 10&quot;</th>
<th>B (bypass height) = 12&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>3L18H-Bypass-Shape</td>
<td>3</td>
<td>18</td>
<td>1.80</td>
<td>8.72</td>
<td>3.00</td>
<td>Q4 8</td>
<td>Q6 7</td>
<td>Q8 6</td>
<td>Q10 5</td>
<td>Q12 10</td>
</tr>
<tr>
<td>4L18H-Bypass-Shape</td>
<td>4</td>
<td>18</td>
<td>2.45</td>
<td>11.84</td>
<td>4.00</td>
<td>3.93 8</td>
<td>5.52 7</td>
<td>6.81 6</td>
<td>7.77 5</td>
<td>13.19 10</td>
</tr>
<tr>
<td>5L18H-Bypass-Shape</td>
<td>5</td>
<td>18</td>
<td>3.09</td>
<td>14.96</td>
<td>5.00</td>
<td>5.24 8</td>
<td>7.35 7</td>
<td>9.08 6</td>
<td>10.36 5</td>
<td>17.58 10</td>
</tr>
</tbody>
</table>

### MINIMUM BYPASS RATINGs for lid designs with 6" Freeboard

Determine **CPS model number** based on screen length and height - bypass height - and screen shape. For example, Model 3L18H-8-U is 3' wide x 18" tall, has 8" bypass height, and is "U" shaped. Custom lengths and heights are available for any catch basin.

*LA County approved

*Full Capture Device as Certified by the California Regional Water Quality Control Board (CRWQCB)
STANDARD LENGTHS, VARIABLE BYPASS HEIGHTS

ADS CPS units are standardized with a pre-set Length of screen (L). The height of the bypass is the variable used to confirm that the total $Q_{\text{bypass}}$ for the CPS with Lid design exceeds the Max $Q_{10}$ for a certain CB width. The sizing table below shows the resultant $Q_{\text{bypass}}$ for the various B (bypass heights).

Defining the Orifice bypass equation for CPS with deflector lids

$$Q_{\text{bypass}} = c_{\text{bypass}} A_{\text{bypass}} \sqrt{2gH}$$

$c_{\text{bypass}} = .6$ (coefficient)
$g = 32.2 \text{ ft/s}^2$
$A_{\text{bypass}} = L \times h$ (bypass height)
$H = \text{depth of water to centroid of bypass}$

Example Selection and Calculation:
Assume we have a 7' wide catch basin with a depth $V_b$ of 3.5' and 18" connector pipe. The Max $Q_1$ is 1.2 CFS and the Max $Q_{10}$ is 5.3 CFS per the hydrology study table to the right. Select the appropriate screen to pass the 1 year flow then determine the minimum bypass height required to pass the 10 year flow. The 3L18H-6B screen (highlighted in green) passes 8.52 CFS far exceeding the 1.2 CFS requirement. According to the sizing table that unit will bypass 5.52 CFS with a 6" bypass height based on the Orifice Flow bypass equation which is greater than the required 5.3 CFS maximum 10 yr flow seen by the 7' wide catch basin. The bypass is calculated as follows:

$$Q_{\text{bypass}} = c_{\text{bypass}} A_{\text{bypass}} \sqrt{2gH}$$

$c_{\text{bypass}} = .6$ (orifice coefficient)
$g = 32.2 \text{ ft/s}^2$
$A_{\text{bypass}} = L \times h$ (bypass height) = (3 x 6/12) = 1.5 ft
$H = \text{depth of water to centroid of bypass}$

We need to check Clearance and determine the H

Clearance = $V_b$-Screen-H_bypass-height (must always be > 4"
Clearance = 42"-18"-6"-8"=10"
$H = H_{\text{bypass}} + \text{Clearance} - 6"$ freeboard (sized conservatively)
$H = 6/2 + 10 - 6 = 7"$ or .583 ft

Finally, $Q_{\text{bypass}} = c_{\text{bypass}} A_{\text{bypass}} \sqrt{2gH}$

$Q_{\text{bypass}} = .6 \times 1.5 \times 2 \times 32.2 \times .583 = 5.52\text{cfs}$

SIZING TABLE

<table>
<thead>
<tr>
<th>CPS Flow Rates by Model</th>
<th>MINIMUM BYPASS RATINGS for lid designs with 6&quot; Freeboard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>Screen Length</td>
</tr>
<tr>
<td>3L18H-Bypass-Shape</td>
<td>3</td>
</tr>
<tr>
<td>4L18H-Bypass-Shape</td>
<td>4</td>
</tr>
<tr>
<td>5L18H-Bypass-Shape</td>
<td>5</td>
</tr>
</tbody>
</table>

Determine CPS model number based on screen length and height - bypass height - and screen shape. For example Model 3L18H-8-U is 3' wide x 18" tall, has 8" bypass height, and is "U" shaped. Custom lengths and heights are available for any catch basin.

Catch Basin Ratings for one year and ten year rain events as determined by LA County hydrology studies

<table>
<thead>
<tr>
<th>CB width (ft)</th>
<th>Max $Q_1$ (cfs)</th>
<th>Max $Q_{10}$ (cfs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.5</td>
<td>2.8</td>
<td>0.6</td>
</tr>
<tr>
<td>7</td>
<td>5.3</td>
<td>1.2</td>
</tr>
<tr>
<td>10</td>
<td>7.5</td>
<td>1.7</td>
</tr>
<tr>
<td>14</td>
<td>10</td>
<td>2.2</td>
</tr>
<tr>
<td>21</td>
<td>13.9</td>
<td>3.1</td>
</tr>
<tr>
<td>28</td>
<td>17.3</td>
<td>3.8</td>
</tr>
</tbody>
</table>
1.0 Product Selection: Installer to determine which CPS Model to install based on 1. Flow Ratings, 2. Bypass Requirements, 3. Location of Connector Pipe inside the catch basin (see Product Selection Guide).

2.0 Materials: All FLEXSTORM CPS are comprised entirely of 304 stainless steel and brought to the field pre-configured for easy assembly once Product Selection is confirmed; All Models are supplied with vertical upright mounting brackets which accept qty (4) 3/8” x 3” minimum stainless anchor bolts. All bypass lids require a qty (2) 3/8” x 3” min stainless anchor bolts. Mounting brackets are equipped with slotted holes to allow for varied contours on walls and sloped floors.

3.0 Installation of Base Model: Drop CPS through the manhole opening. Position the CPS evenly spaced around the connector pipe ensuring a minimum of 4” spacing away from any corners. Loosen the bolts in the slotted holes which connect the screen to the upright mounting brackets until the bottom is flush with the floor. Tighten the bolts and mark the hole locations on the wall for the stainless anchor bolts. Drill holes and hammer the bolts in place and secure the CPS using stainless nuts. If the bottom of the base exposes more than a 5 mm gap then an additional base 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 primary base.

3.1 Installation of Bypass Lid: If the bypass lid is required verify the minimum bypass height needed and mark the “B” bypass height location on the wall directly above the base uprights. Lift the lid in place and mark the hole locations for the lid mounting brackets. Drill holes and hammer the bolts in place and secure the lid with the stainless nuts.

4.0 Removal of CPS: In certain locations, the CPS may need to be removed in order to provide increased accessibility through the manhole entry. In such cases, the CPS would utilize the “Quick Release” wall mount bracket set and standard CPS flanges. See the installation drawing labeled Removable CPS Detail for step by step instructions. In standard installations, the CPS can be removed by simply loosening the 3/8” anchor nuts that secure it to the wall.

5.0 Warranty: ADS – FLEXSTORM warrants the CPS material to be free of defects and guarantees base framing integrity for a period of 3 years from installation date.
ADS – FLEXSTORM CONNECTOR PIPE SCREEN (CPS) MAINTENANCE GUIDELINES

FLEXSTORM suggests that its Connector Pipe Screens (CPS) be maintained per this modified set of conditions from the LA County CPS Standards. FLEXSTORM advises that catch basins be cleaned out at least 2 times per year and/or if debris has filled above a 40% level inside of the catch basin. Sites with large amounts of foliage, high sediment loads, or smaller CPS devices might need to be cleaned more frequently.

**Maintenance Conditions and Maintenance Standards**: The Following are deficiencies in maintenance conditions and their corresponding maintenance standards which shall apply to the Connector Pipe Screen. The cleanout of each CB shall meet the maintenance standards listed as follows:

<table>
<thead>
<tr>
<th></th>
<th>Description of Maintenance Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Clear trash and debris located immediately in front of curb opening or side opening of CB, and on top or between metal grates of grated CB.</td>
</tr>
<tr>
<td>2</td>
<td>Remove Vegetation growing across and/or blocking the basin opening.</td>
</tr>
<tr>
<td>3</td>
<td>Remove all Trash and debris and vegetation from inside the Catch Basin.</td>
</tr>
<tr>
<td>4</td>
<td>Remove Trash and debris in the connector pipe opening, upstream or downstream.</td>
</tr>
<tr>
<td>5</td>
<td>Knock off/Remove all Debris that covers the perforated openings of the connector pipe screen</td>
</tr>
<tr>
<td>6</td>
<td>Ensure there is no Standing Water inside of catch basin (indicates the device is not properly draining)</td>
</tr>
</tbody>
</table>

Trash and debris shall include, but is not limited to, mud, vegetation, and garbage.

Upon completion of a cleanout operation at a CB and before leaving it, the Contractor shall sweep the top surface of the CB and the area 2 feet around the CB, and shall remove any trash and debris resulting from the cleanout operations. No debris is to be left at a CB for future pick-up.

**Method of Removal**: All trash and debris required to be removed from the CBs shall be removed in a manner to be determined by the Contractor. This can be done by hand or with a truck mounted vacuum. If entering the catch basin ensure that local confined space entry procedures are followed. The Contractor shall not allow any trash or debris to enter the connector pipe or main line as a result of the cleanout operations.

**Debris Disposal**: All trash and debris removed under this Contract shall become the property of the Contractor and shall be legally disposed of away from the CB sites. The Contractor is responsible for proper disposal of the trash and debris, including obtaining approvals from all jurisdictional agencies, as applicable. The contractor shall be responsible for contacting and coordinating with local Animal Care and Control for pickup and disposal of dead animals. However, the Contractor shall be responsible for removing any dead animal from inside a CB.
NOTES:
1. All Materials Are Type 304SS Unless Otherwise Noted
2. All Horizontal And Vertical Stiffeners Shall Be Spot Welded @ 4" C.C. (Max) To Perforated Screen
3. For Catch Basin Uneven Floor Extension Panel Detail See Sh. 3

*See Appendix A-1 And CPS Sizing Table For Hb, Hs, And L Values
NOTES:
1. All Materials Are Type 304SS Unless Otherwise Noted

2. All Horizontal And Vertical Stiffeners Shall Be Spot Welded @ 4"C.C. (Max) To Perforated Screen

3. Center Stiffener Required When S ≥ 3'-0"

4. Top And Center Base Support Brackets Required When S ≥ 3'-0"

5. 3" Base Support Bracket At The Inflection Point Required For All Units

6. For Catch Basin Uneven Floor Extension Panel Detail See Sh. 4

*See Appendix A-1 And CPS Sizing Table For Hb, Hs, And L Values

DETAIL A

ELEVATION VIEW

PLAN VIEW
Deflector, See Sh. 5

14GA 5mm Perforated Screen 50% Open

Spot Weld (Typ.), See Note 2 Hereon

Vertical
1 1/4" x 1/2" x 1/2" 12GA U-Channel Stiffener (Typ.)

3" Base Support Bracket (Typ.), See Detail D, Sh. 3

12" Center Base Support Bracket (When S ≥ 3'-0")
See Detail C, Sh. 3

1 1/2" x 1 1/2" 13GA Mounting Bracket (Typ.)

3/8" x 3" Wedge Anchor, 2 Per Connection (Typ.)

5/16" x 1" Hex Bolt, Washer, And Lock Nut, 2 Per Connection

1 1/4" x 1/2" x 1/2" 12GA U-Channel Stiffener (Typ.)

14GA 5mm Perforated Screen 50% Open

NOTES:
1. All Materials Are Type 304SS Unless Otherwise Noted
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* See Appendix A-1 And CPS Sizing Table For Hb, Hs, And L Values
Further to my last email, this new design is workable for mosquito abatement activities and is approved for use on our end (from a mosquito abatement standpoint). Thanks to all involved for the work and modification to the device.

Joseph Huston
Field Operations Supervisor

ALAMEDA COUNTY MOSQUITO
ABATEMENT DISTRICT HINGED LID DESIGN
1. Lower screen into catch basin through manhole opening.

2. Raise the unit above the wall mounted brackets.

3. Move the unit towards wall until flanges are flush with wall.

4. Lower the screen ~3" until CPS flanges are captured behind wall mounted brackets. Ensure base is flush to catch basin floor.
ADS CPS FIELD PHOTOS
BEFORE and AFTER MAINTENANCE