



Frog Creek Partners, LLC

800 West Yellowstone Hwy

Casper, WY 82601

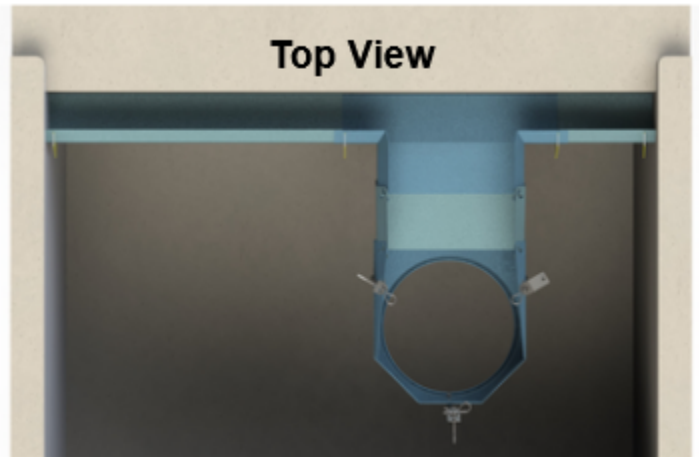
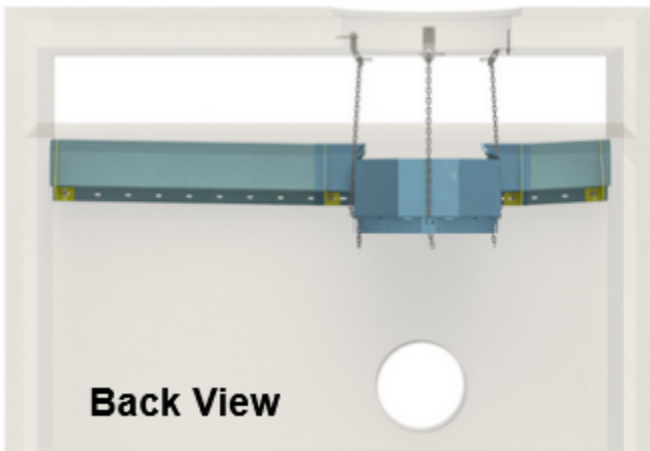
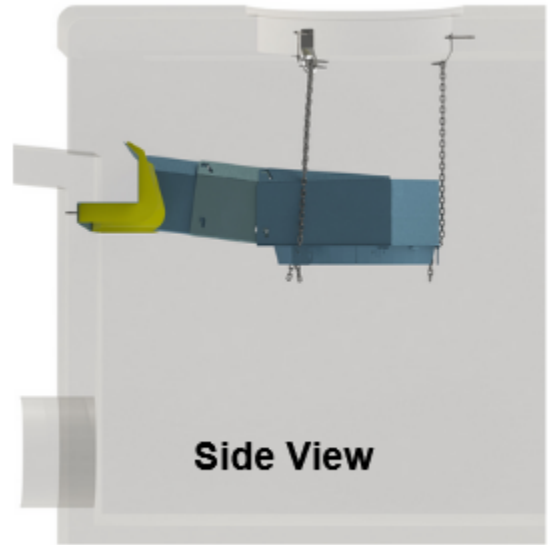
307.797.7720

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# GUTTER BIN® STORMWATER FILTRATION SYSTEM

## CURB INLET FILTER (CIF)

### INSTALLATION MANUAL





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## INTRODUCTION

Thank you for purchasing the Gutter Bin® stormwater filtration system curb inlet filtration system (CIF). You are well on your way to a cleaner world. The goal of this manual is to communicate effectively and efficiently the installation process for the CIF. By the length of this manual, it might seem that installing the CIF is a complicated process. We can assure you that it is not, and you will find it fairly straight forward. Please read these instructions to the end before you start the installation. OK, let's get your mind into the gutter...

The "Installers" will achieve the following results:

1. All the CIF components will be securely fastened to each other and to the catch basin for years of service;
2. The parts will be arranged and sloped so that water flows from the gutter and into the Mundus Bag water filter;
3. The Mundus Bag will be positioned directly below the manhole for ease of service;
4. An adequate overflow distance will exist above the CIF to allow heavy water flow to bypass the system; yet the CIF will be placed high enough to capture 100% of trash during the first flush of a rain event; and
5. The Installers safely complete a good Gutter Bin installation.

## CUSTOMER SUPPORT

Need help? Contact us:

Call: 307-797-7720  
Email: [support@frogcreek.partners](mailto:support@frogcreek.partners)  
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You will find instructional videos, technical documentation, specification sheets and product briefs.

We are here to support you 24/7/365.

## PROJECT PREPARATION

1. Obtain approval to perform the work (permits, ROW, management, etc)
2. Communicate with the infrastructure owner and stakeholders about the project
3. Arrange for training the persons who will perform Gutter Bin installs and maintenance.
4. **CLEAN THE CATCH BASIN WITHIN ONE WEEK PRIOR TO THE INSTALL DATE**
5. Plan and emphasize a safe work environment.





## SAFETY NOTICES



Clean out the catch basin prior to installing a Gutter Bin. Gutter trash can contain hazardous materials and dangerous objects.



Failure to properly utilize traffic cones and a high visibility safety vest could cause injury to the Installers or pedestrians and may lead to civil penalties. Be sure to adhere to all local, state, and federal regulations when servicing or installing stormwater infrastructure.



Confined space entry may be required. The project engineer or customer is responsible for confined space determination and permit. Confined space entry procedures are generally required for a CIF installation within a catch basin. Failure to use or improper use of personal protective equipment (PPE) could cause injury to the installation technician.



Try to avoid installing Gutter Bins in high traffic areas during the busiest time of day. Traffic and pedestrians are one of the main installation hazards. Protect yourself and those around you by using common sense and being safe.



Wear the appropriate personal protective equipment (PPE) for the job and as per your manager's direction. A list of recommended PPE is included for your reference.

## SAFETY EQUIPMENT - PPE

1. High visibility safety vest
2. Traffic control devices (cones)
3. Safety glasses
4. Gloves
5. Ear plugs
6. Steel toe boots
7. Confined space equipment
8. 4-Gas confined space monitor (CO, CH<sub>4</sub>, H<sub>2</sub>S, O<sub>2</sub>)
9. Knee pads
10. Hard hat





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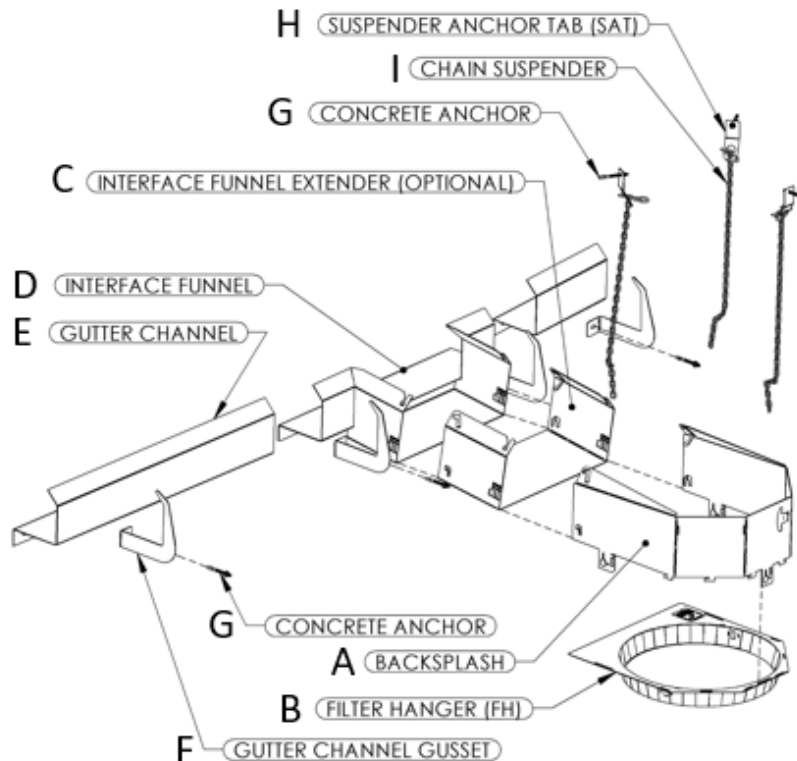
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## REQUIRED TOOLS

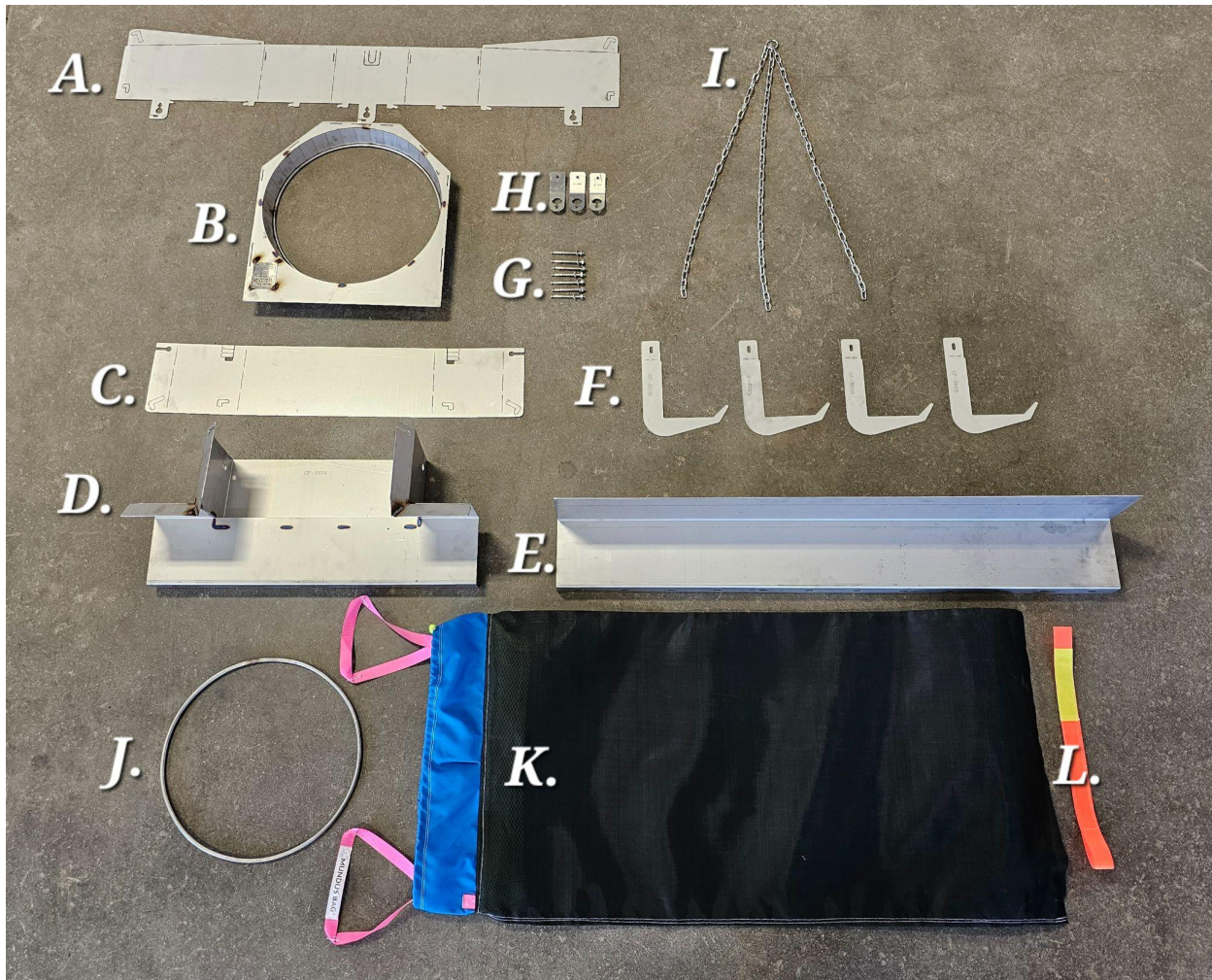
1. Hammer drill (corded or cordless)
2. Masonry drill bit, 1/4 inch
3. Hammer
4. Ratchet wrench
5. Deep socket, 7/16" (wrench or spanner works too)
6. Pliers or vice grips
7. Grate puller
8. Hand level (2' or less in length)
9. Scraper picture
10. Marker (Sharpie)
11. Angle grinder with cutoff wheel (or portable plasma cutter)
12. Metal punch with 1/8" tip picture
13. Silicon sealant (optional)

## CIF COMPONENT LEGEND





## CIF COMPONENT LEGEND 2



## COMPONENT LIST

PART	PART NAME	LOCATION AND PURPOSE	QTY
A	Backsplash	Attaches to the downstream side of the Filter Hanger. It directs flow down into the Mundus Bag opening	1
B	Filter Hanger	Hangs below the manhole by 3 chains. It engages with the Mundus Bag and bears most of the working load	1
C	Extender	An extra part in case greater distance is required to	1





		connect the Interface Funnel with the Filter hanger to position the Mundus Bag under the manhole	
<b>D</b>	<b>Interface Funnel</b>	Interfaces with the catch basin and Gutter Channel to funnel water onto the Filter Hanger	<b>1</b>
<b>E</b>	<b>Gutter Channel*</b>	48" long (with ability to cut-to-length) channel that connects to the face of the catch basin. It carries water and pollution down the length of the inlet opening to the interface funnel	<b>1</b>
<b>F</b>	<b>Gusset*</b>	Bolted to the Interface Funnel and Gutter Channel(s) to improve their stability and longevity	<b>4</b>
<b>G</b>	<b>Concrete Anchor Bolt</b>	There is one anchor bolt for each Chain Hanger (3x), Gutter Channel (1x) and both sides of the Interface Funnel (2)	<b>6</b>
<b>H</b>	<b>Chain Hanger</b>	Three are located at the top near the manhole to hang chain that support the Filter Hanger. They are located at 0°, 120°, and 240° of the north, southwest and southeast side	<b>3</b>
<b>I</b>	<b>Chain (~24" long)</b>	The Chain connects the Chain Hanger with the Chain Stays on the Filter Hanger to support the device weight	<b>3</b>
<b>J</b>	<b>Mundus Hoop</b>	Located within the blue Mundus Bag anchor fabric and engages with the receiver in the Filter Hanger	<b>1</b>
<b>K</b>	<b>Mundus Bag</b>	Hangs from the Filter Hanger and filter pollution from stormwater. Type of Mundus Bag varies with client needs	<b>1</b>
<b>L</b>	<b>Mundus Strap</b>	Located near the bottom of the Mundus Bag for the purpose of being a releasable closure for the filter	<b>1</b>

\* Additional Gutter Channel and Gussets may be required for curb inlet openings greater than 50" long

## CIF INSTALL PROCEDURE

**Total Installation Time:** 20 to 60 minutes (the second install will be twice as fast as the first)

Installing the CIF is an eight (8) step process. The steps are as follows:

1. Worksite and component preparation
2. Position the **Interface Funnel**
3. Cut and place the **Gutter Channel**
4. Hang the **Filter Hanger**
5. Connect **Filter Hanger** to the **Interface Funnel**





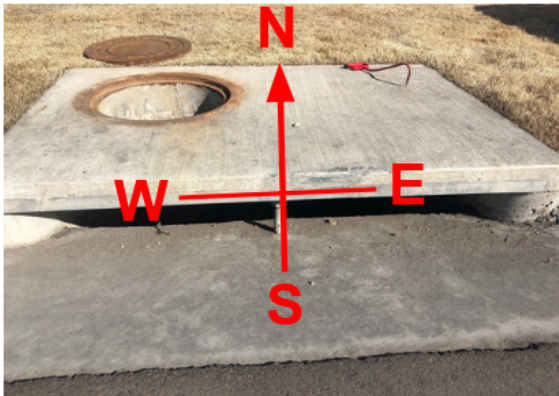
6. Install the **Mundus Bag**
7. Log install info into the FCP Field Asset Manager (FAM)
8. Clean up site and log

## 1. Worksite Preparation

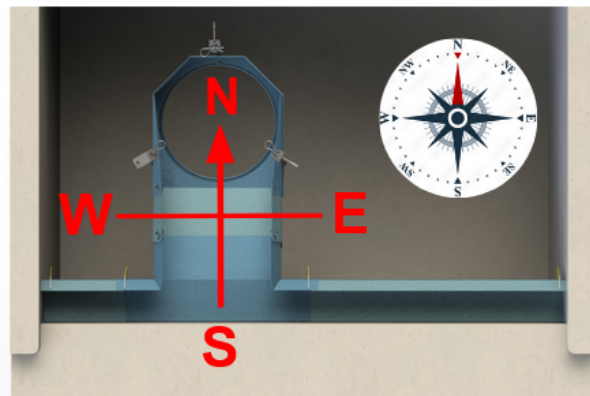
- a. Divert foot and vehicle traffic away from your workspace using blockades and traffic cones
- b. Remove the manhole cover using a grate puller
- c. Clean the grate shelf and work area
- d. Set up confined space safety equipment and ensure air in the catch basin is safe
- e. Ensure the catch basin structure has adequate integrity to hold the anchor bolts and CIF components
- f. Find the **Catch Basin North** to orient yourself to better understand the CIF install instructions

## Orientation

### Catch Basin North is Curbside



(Front View)



(Top View)

### Catch Basin South is Streetside

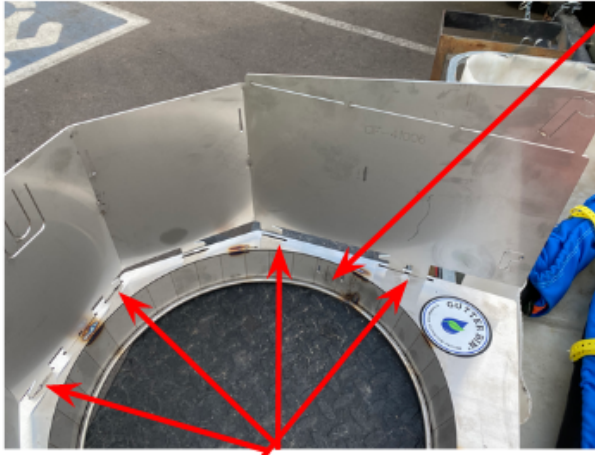
*(Regardless of which direction True North is, use this temporary orientation for CIF install)*

## 2. CIF Preparation

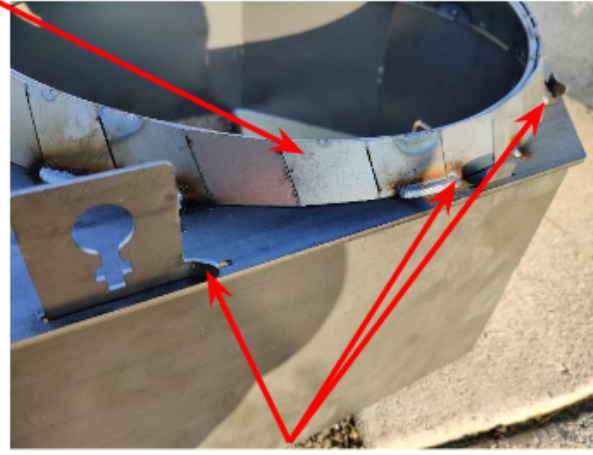
- a. Layout all of the CIF components near the manhole
- b. Attach the **backsplash** to the **filter hanger** (if it is not already).
  - i. Place the **filter hanger** flat on the ground with the receiver cone facing downward (logo side up).



## Receiver



Bend backsplash to match filter hanger shape and insert all the backsplash tabs through the filter hanger slots  
(Top View)



Turn filter hanger over and bend the nine tabs with pliers so they lock backsplash to the filter hanger  
(Bottom View)

- ii. Hand bend the backsplash into a half octagon shape to match the profile of the filter hanger
  - iii. Align the tabs of the **backsplash** with slots in the **filter hanger** and push the tabs fully through the slots
  - iv. Bend the nine (9) **backsplash** tabs to fasten the **backsplash** to the **filter hanger**. Note that the bendable tabs are tapered to provide progressive tightening as the tabs are bent. Receiver cone faces down
  - v. The **backsplash** and **filter hanger** are now one unit and henceforth referred to as just the **filter hanger**
- c. Bend the **gussets** to a 90° angle
- i. The **interface funnel** will need two (2) **gussets** and each **gutter channel** will need at least one (1) **gusset**



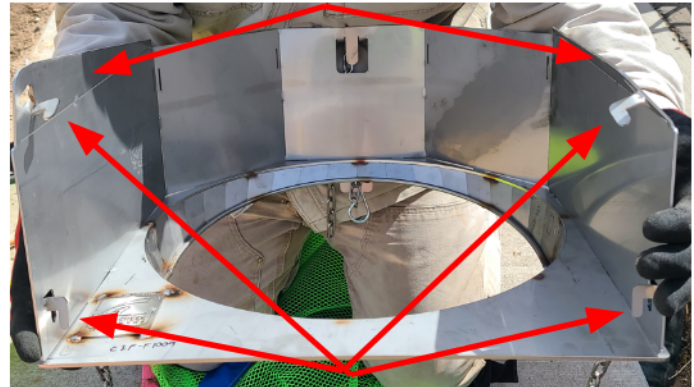
Bend gusset 90d at bend line  
(Top View)



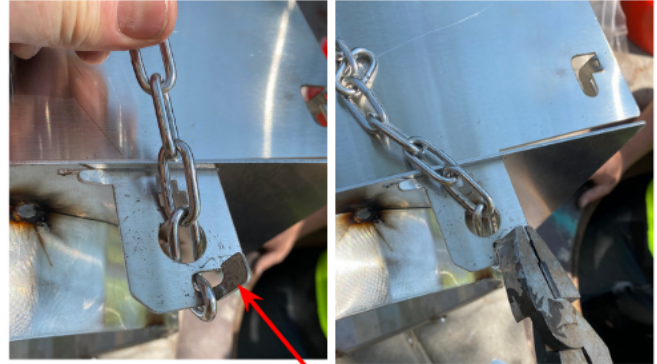
d. Prepare the **Filter Hanger** for fit up to the **Interface Funnel** or **extender**

- i. Bend the four (4) Thumbs on the **filter hanger** inward at a 90° angle (*90 degree right angle to plane*). There are two (2) on each side of the **filter hanger**. Use a punch and hammer to do this
- ii. Bend the three (3) Fingers on either side of the **interface funnel** inward 90° using pliers.
- iii. Attach the **chains** to the **filter hanger** (*if not already attached*)

Bend triangular cornice inward 45d



Bend upper and lower thumbs inward on filter hanger - four (4) total (Front View)

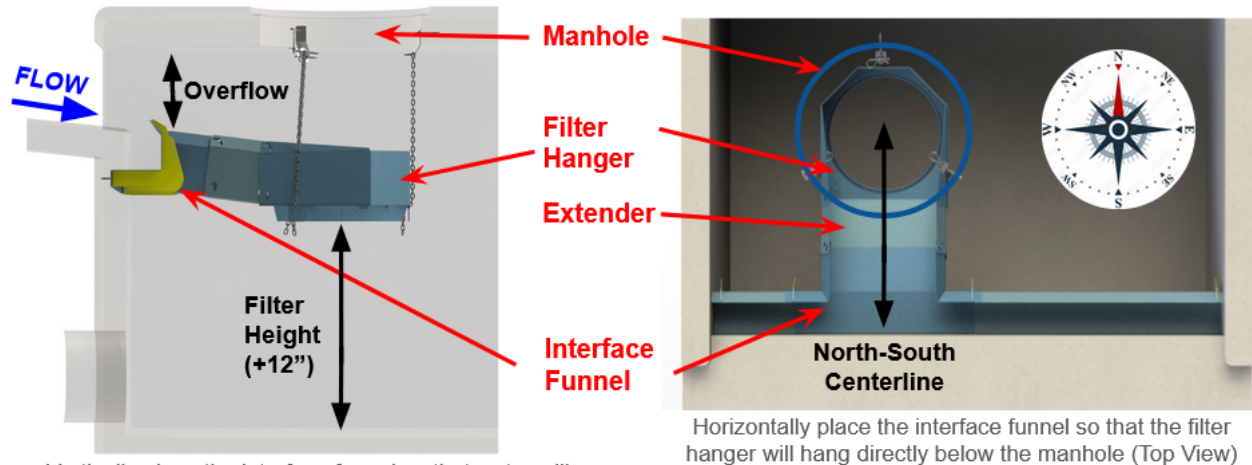


Attach the chain to the filter hanger by pushing the chain end thru the hole and looping the last link over the bent out tab. Bend tab back in to lock in place. (Side View)



Three fingers on either side of Interface Funnel bent inward 90d

e. Layout and prepare all the CIF components on the surface as they will be positioned within the catch basin



Vertically place the interface funnel so that water will flow onto the gutter channel the whole length of the inlet, and place it low enough to account for gutter channel slope in long catch basins. (Side View)

Horizontally place the interface funnel so that the filter hanger will hang directly below the manhole (Top View)

### 3. Position the Interface Funnel

#### a. This is a critical step

- i. The **interface funnel** position will dictate the **gutter channel** cut lengths, the slope of the **gutter channel**, the depth of the **filter hanger**, and the overflow bypass of the system

#### b. Enter the catch basin with this equipment:

- i. Confined space PPE, the **interface funnel**, two **gussets**, two **anchor bolts**, a level, the marker, the metal punch, the hammer drill with ¼" bit, and the hammer

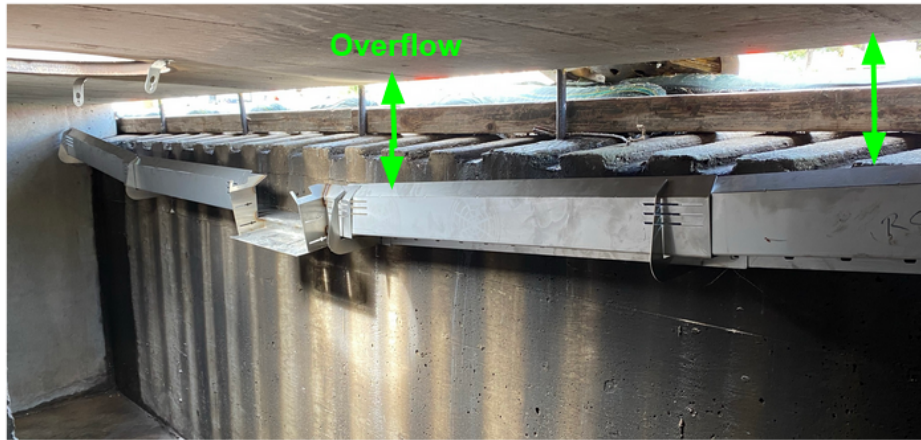
#### c. Horizontally align the **interface funnel** so that its North-South centerline intersects the center of the manhole (*or nearly so*)

- i. This will ensure that the **Mundus Bag** is centered below the manhole during operation for ease of service in the future.
- ii. Use a marker or metal scribe to mark the **interface funnel** centerline on the catch basin wall

#### d. Vertically align the **interface funnel**

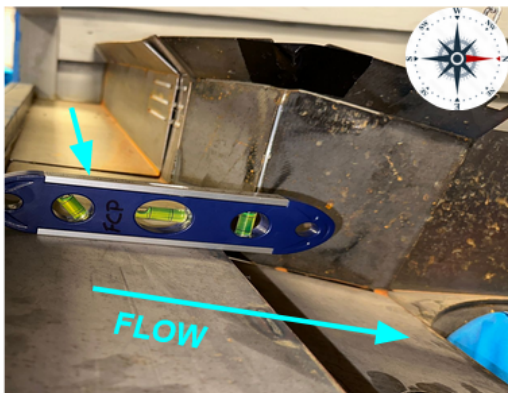
- i. The top of the **interface funnel** should be about level with the bottom of the curb inlet opening at gutter level for short catch basins (60" or less inlet length)
- ii. Set the top of the **interface funnel** lower for longer catch basins to allow for at least one (1) inch of slope per four 4-foot section of **gutter channel**. Note: CIF marking templates are available for purchase

e. Level, mark and drill **interface funnel**



The Interface Funnel and the Gutter Channel are set to a height that catches flow from the inlet opening, yet low enough to allow water to bypass overflow in large storms. The Interface Funnel may be a little low in this picture but we needed the slope to move sediment and other heavy pollutants down the gutter channel

i. Level the **interface funnel** on the East-West line

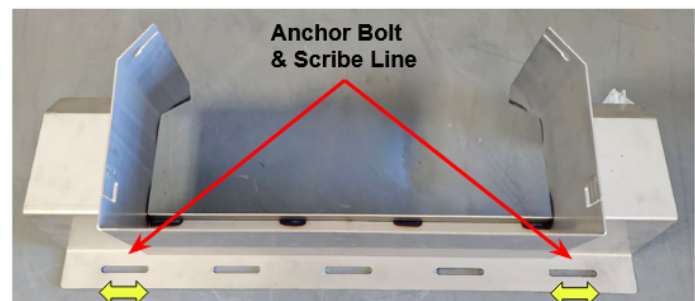


Water from Interface Funnel flows North and down onto filter hanger or extender (Side View)



Interface Funnel and filter hanger are level from East to West (Front View)

- ii. Make two scribe marks. One in each slot on the east and west side of the **interface funnel** wings to mark drilling location
- iii. Set the **interface funnel** aside while you drill the holes.



Scribe the East & West (left & right) interface funnel slots to mark the two (2) anchor locations. Drill the hole anywhere within the marked slot line. A pointy metal scribe works best to mark concrete. Sharpie will work too (Front View)



- iv. Hammer drill a  $\frac{1}{4}$ ' hole at any point along the scribe mark so the hole will align with the **interface funnel slot**. Drill hole one (1) inch less than the length of the **anchor bolt** For a 3" bolt, drill the hole 2" deep. See **anchor bolt** instruction below
- v. Set the two **anchor bolts**
- f. Loosely secure the **interface funnel** to the face
  - i. Slide the **interface funnel** over the two **anchor bolts**
  - ii. Place one bent **gusset** over each **anchor bolt**
  - iii. Spin on a washer and nut on each **anchor bolt**. Do not snug up yet. You will need movement in the **interface funnel** to fit a **gutter channel** over it in the next step

#### 4. Gutter Channel Install

- a. Measure and cut
  - i. Measure the East-West distance from each **Interface Funnel anchor bolt** to its nearest respective catch basin wall.
  - ii. If the distance from the **anchor bolt** to the wall is less than 48", then mark and cut the gutter channel to a length 0.5 to 1.0" shorter than the measured distance. *Note: wear eye & ear PPE*
  - iii. If the distance from the anchor bolt to the wall is greater than 48", then set an uncut 4-foot (48") section of gutter channel.
    1. Set an anchor bolt and gusset near the end of the **gutter channel**. Loosely spin on a washer and nut
    2. Continue this process until the **gutter channel** butts up against the East or West catch basin wall with a slope of at least 1 inch per 4-foot section so that water drains downward toward the **interface funnel**
  - iv. Ensure the upstream **gutter channel** OVERLAPS the downstream component so that there is a shingling effect, and the water will flow smoothly downhill when in operation.
- b. Note: **Gutter channel** is sold in 4-foot lengths for ease of shipping and modular installation. Using the **marker**, draw cut lines on the **gutter channel** where it should be cut to length being careful to ensure there is sufficient overlap (at least 1 inch) between **gutter channel** and **interface funnel** while mounting holes are aligned. Cut the **gutter channel** to length using the **angle grinder with a cutoff wheel**. A portable plasma cutter works well too





- c. Optional: Use silicon sealant to seal the gaps between components if site conditions require it
- d. Once the **Interface funnel** and **gutter channel** span the entire length of the curb inlet opening, use a wrench to snugly tighten all the anchor nuts. **Caution:** **Overtightening may loosen the anchor bolts**



A one inch (25mm) drop over four feet = 1.2 degrees or 2.1% slope. The bubble must touch or exceed the guideline to ensure good FLOW on the Gutter Channel



The Gutter Channel must drop at least one inch (25mm) toward the Interface Funnel to ensure flow. The (Front View)

## 5. Hang the Filter Hanger

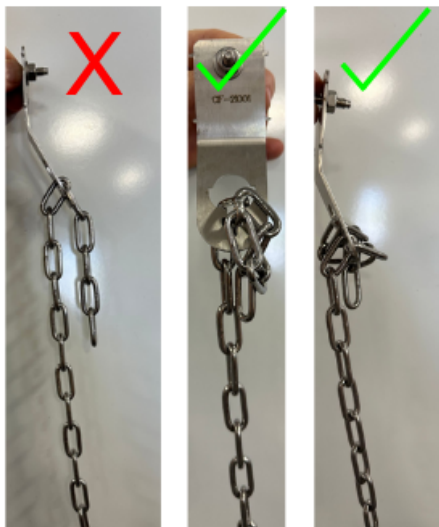
- a. Install three (3) **chain anchors** to suspend the **filter hanger**.
  - i. Locate a spot on the North, Southwest, and Southeast side of the manhole area to drill an **anchor bolt** hole
  - ii. The three holes should be spaced approximately equal ( $120^\circ \pm 10^\circ$ ) around the perimeter of the manhole



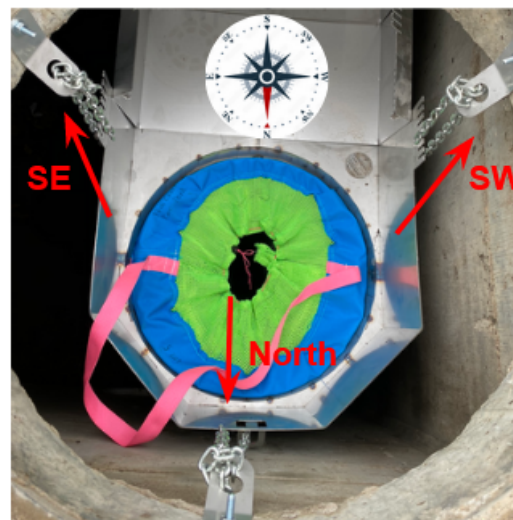
The chain hanger can attach to a concrete wall or ceiling. Ensure adequate anchorage so that it does not protrude into the clear opening and interfere with future operations



- iii. Note: Ensure that anchor bolts will not protrude into the clear opening and impede future manhole ingress/egress
- iv. Drill and set the **anchor bolts**
- v. Place a **chain anchor** over each **anchor bolt** and spin a washer and nut over the top of each **anchor bolt**. Tighten nuts
- b. Insert and hang the **filter hanger**
  - i. Hold the **filter hanger** by the chain on the North side as you lower it into the manhole
  - ii. Attached the North chain to its **chain anchor** with a lot of slack
  - iii. Do not attach the SW and SE chains yet. That will come after the **filter hanger** is attached to the **interface funnel**



Make a knot of the chain end so it holds better. Do not leave the bitter end hanging. Secure it with knot or fastener (wire or tie)

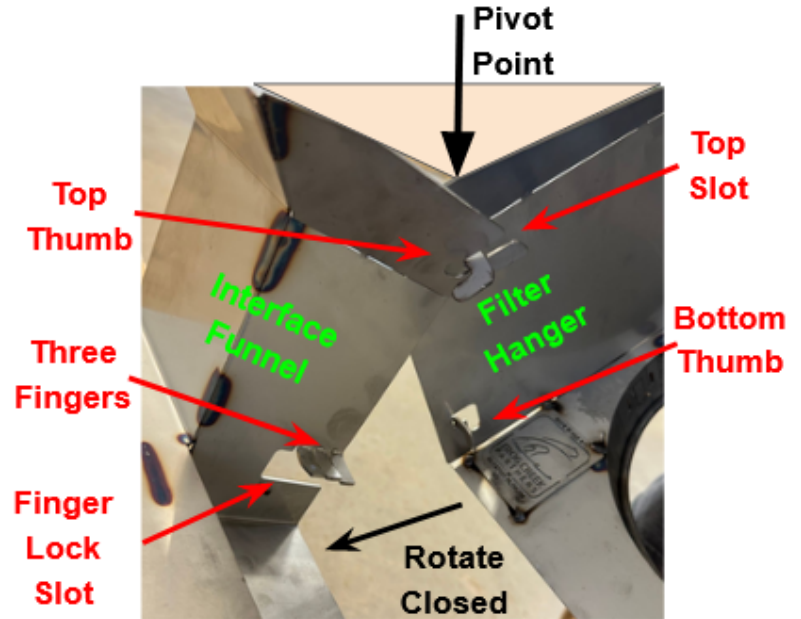


All 3 chains are knotted and secure to chain hangers. The SW and SE chain hangers are positioned to pull filter hanger towards the interface funnel



6. Connect the Filter Hanger to the Interface Funnel or Extender

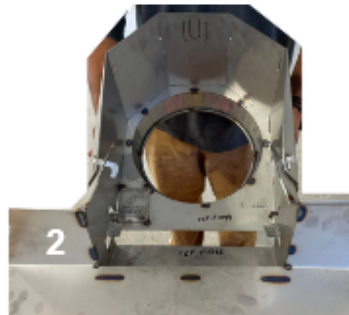
- a. Determine if the **filter hanger** will be nearly centered below the manhole when connected directly to the **interface funnel**. If it will not, then see "Add Extender" note below. If it will, then proceed to next step
- b. Ensure all Fingers and Thumbs on the **interface funnel** and **filter hanger** are bent inward at a 90° angle. The **filter hanger** should be hanging by the single North Chain
- c. Angle the **filter hanger** at 45° and drop the Top Thumbs on the **filter hanger** into the Top Slots of the **interface funnel**



Top thumb is engaged with thumb slot, rotate filter hanger down so the bottom thumb slides into finger lock. Pound one or more fingers down to lock thumb into place. (Side View)



1. Insert two top thumbs into slots



2. Rotate filter hanger down



3. Slide bottom thumbs into finger lock slot



4. Hammer down finger(s) to lock in thumb

- d. Rotate the **filter hanger** down so that its Bottom Thumbs slide into the Finger Lock Slot and the upstream **interface funnel** overlaps the downstream **filter hanger**

- e. Push or hammer down at least one Finger on each Finger Lock Slot to lock in the two Bottom Thumbs. **The Bottom Thumb must be secured within the Finger Lock Slot**

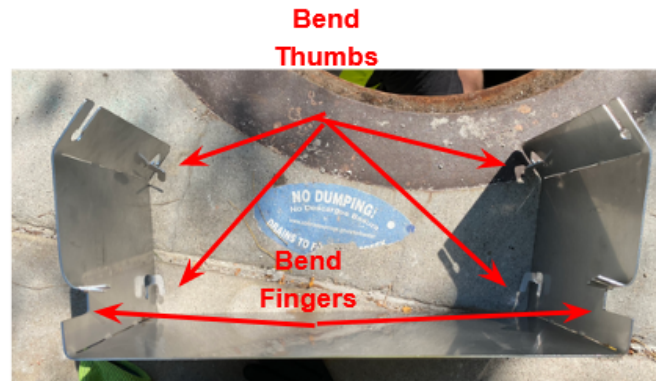


- f. Note: Add Extender - The **filter hanger**, **extender(s)** and **interface funnel** all have similar connection mechanisms. Attach one or more **extenders** to bridge a gap between the **interface funnel** and the **filter hanger**.

Bend the **extender** to fit the profile of the **interface funnel**. Bend all the Fingers and Thumbs 90° inward to engage with the other parts. Connect the **extender** to the **interface funnel** side first, and then connect the **filter hanger** to the **extender**

- g. Attach the East and West **filter hanger** chains to the **chain hangers**

- i. Push the top end of the **chain** up through the hole in the **chain hanger** and lock it into the slot on the chain hanger. Do this for all three (3) **chains**
- ii. Level the **filter hanger** North-South, and East-West by tightening or loosening the **chains**
- iii. Knot the top of each **chain** to prevent the chain from coming loose when it is jostled during maintenance later
- iv. Ensure all the fasteners are secure and tight (nuts, tabs, chains). The **filter hanger** should not separate from the upstream component when you shake it with your hand



Extender Preparation: Bend four thumbs and six fingers inward 90 degrees (90d). Bend the walls to 90d. Bend the cornice at top of wall about 30d. (Front View)

## 7. Install the Mundus Bag

See Mundus Bag installation instructions

## 8. Install the vacuum truck friendly (VTF) locks if provided.

## 9. Log install info into the FCP Gutter Bin Field Asset Manager (FAM)

## 10. Clean up site and log



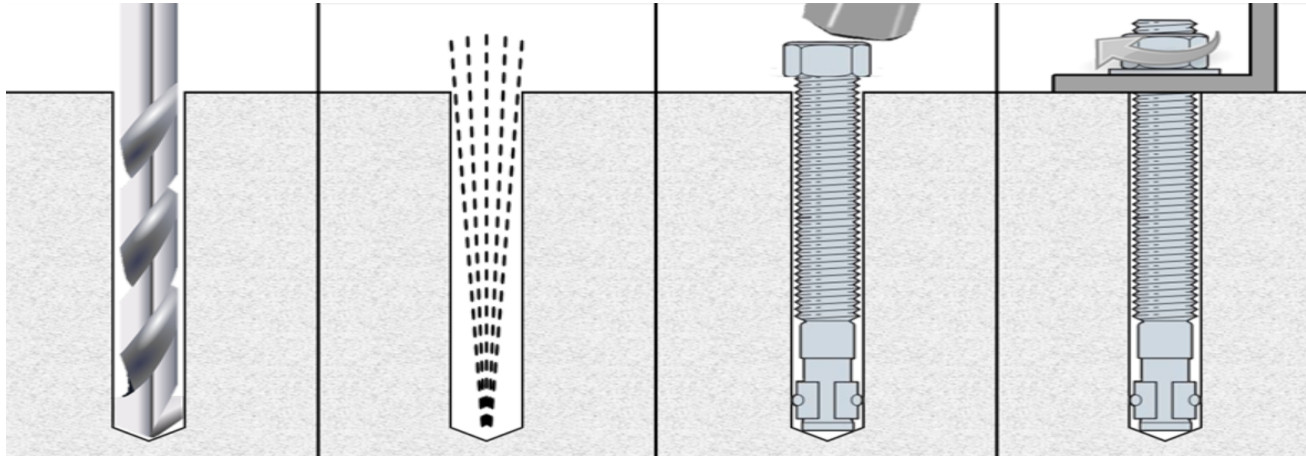




## Appendix

### How to drill & set a concrete anchor bolt:

1. Use a hammer drill with ¼" masonry drill bit to drill the hole
2. Drill perpendicular to the wall to a depth about one inch (25mm) less than the total length of the anchor bolt
3. Cycle the **drill bit** into and out of the hole repeatedly to remove excess dust.
4. With the nut spun on the pounding end of the bolt to protect the threads, tap the bolt into the hole without bending the bolt
5. Remove the nut and then place the CIF component over the anchor bolt with a washer and nut
6. Tighten the nuts only when all of the components are properly positioned. Recommended tightening torque is 8ft-lbs. Do not overtighten or the anchor may disengage. It just needs to be firmly snug



**Good Job! Please email us some pictures of your install and project location. Thank you again for installing Gutter Bins to help protect and restore the waters of this world!**

### Notes:

