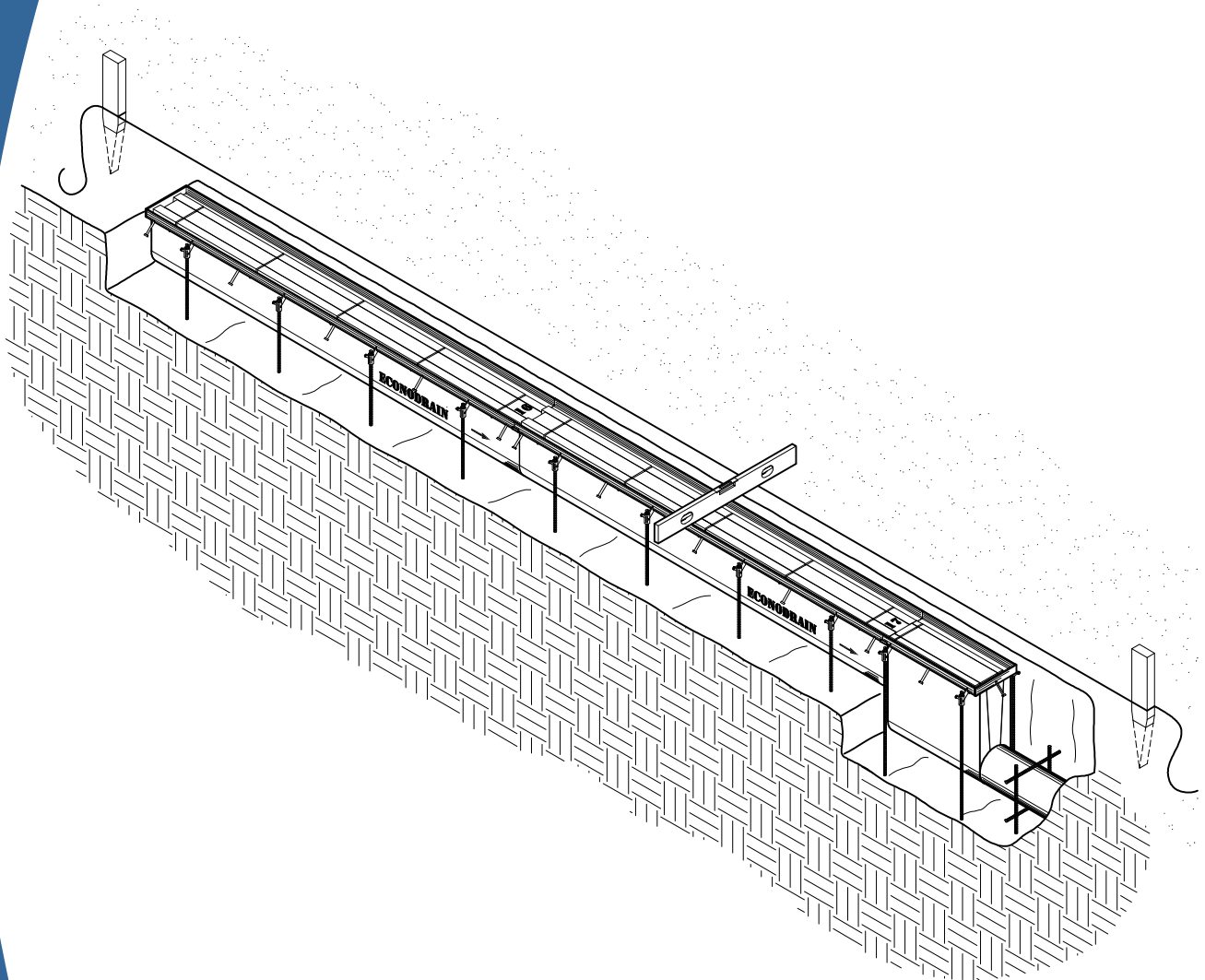


# EconoDrain<sup>®</sup> Trench Forming System

**MultiDrain**

We Drain Your Site, Not Your Budget

## Installation Instructions



**MultiDrain Systems, Inc.**

P.O. Box 88, Barium Springs, NC 28010

(704) 508-1010 or Toll Free 800-433-1119 Fax: (704) 508-1011

[www.multidrainssystems.com](http://www.multidrainssystems.com)

Thank you for including EconoDrain® in your project.

We are confident that you will find EconoDrain to be the fastest and most economical trench drain system to install.

EconoDrain provides a versatile and durable trench drain or pathway for a wide variety of applications. It is available in standard widths of 4", 6", 8", and 12". The standard former length is 8' with 4' and 2' lengths available to meet specific project requirements.

Standard EconoDrain trench slope is 0.5% with neutral and custom slopes available as options. Long continuously sloped trench runs are enabled without costly special components.

Trench widths greater than 12" can be custom engineered to meet your specific project specifications.

Do not hesitate to contact your local EconoDrain distributor or our customer service at 1-800-433-1119 for any questions or comments you have concerning EconoDrain products or their installation.

Again, thank you for using EconoDrain.

## **Before You Get Started**

### **READ THE ENTIRE INSTALLATION BOOKLET BEFORE YOU START**

### **This will help prevent costly mistakes later!**

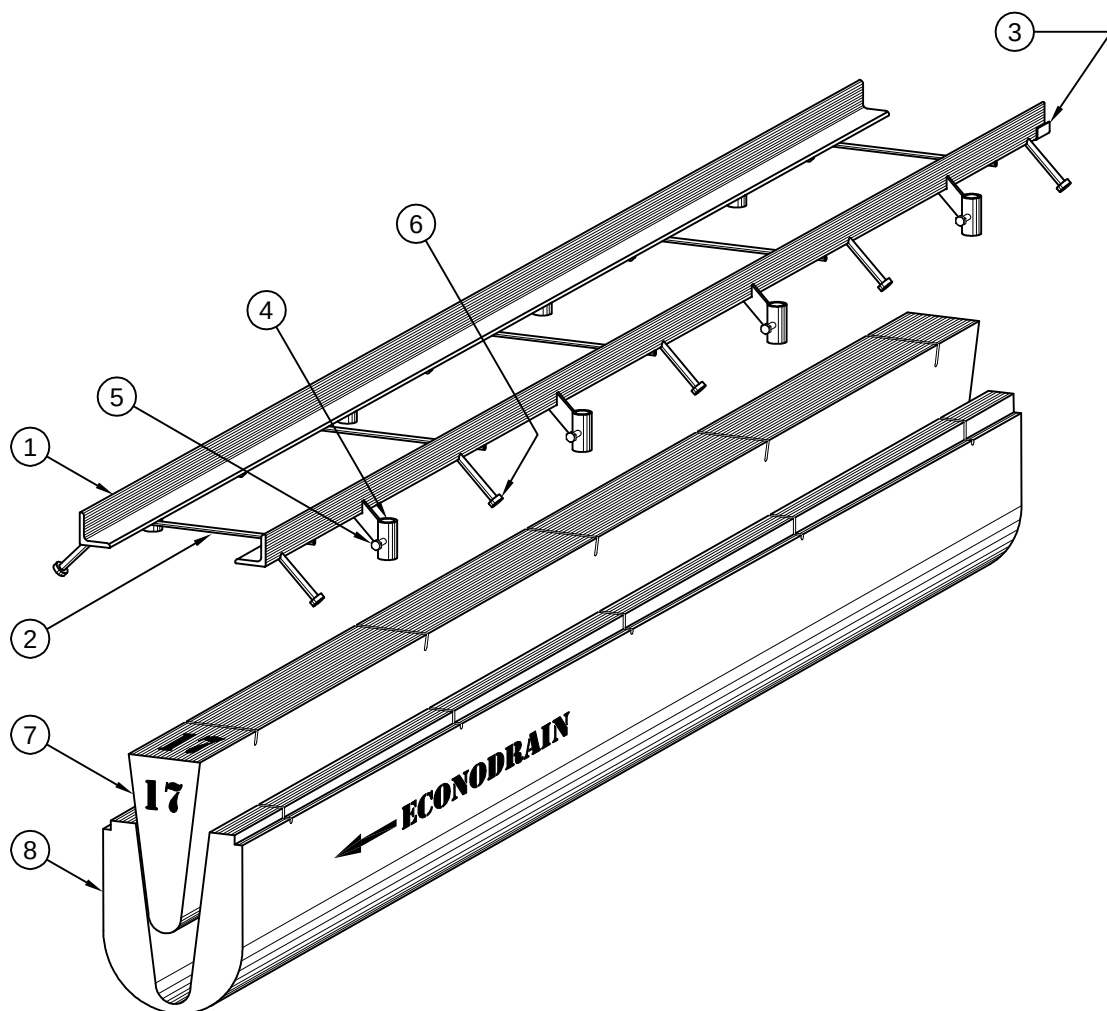
In preparation to install EconoDrain, please make sure you have the following tools and equipment available:

- #4 x 48" rebar
- Hammer to drive rebar & flat stakes into Sub-Base
- String-line & flat stakes
- Bubble Level
- Duct Tape
- EPS Foam Form Release & Applicator Brush
- 10 to 12 - 2" x 10" x 12" wooden blocks
- Tie Wire
- Concrete Finger (Probe) Vibrator
- Pipe for trench outlet
- 4" Hand Grinder with metal cut-off blade

Everything necessary for a successful EconoDrain installation will be included in your product shipment (dependent upon order variables). Typically we supply the EPS Formers, Frame Assemblies, and Grates at a minimum. Additionally, we recommend ordering EPS Form Release, Frame End Plates, and Grate Locking Devices.

Rebar required for installation should be obtained locally, however, this can be supplied with the shipment.

Receiving personnel should check that Bill of Lading and Parts List match the Items Received. Discrepancies should be noted on the signed Bill of Lading.



① FRAME ASSEMBLY

② SPACER ROD

③ ALIGNMENT CLIP

④ ANCHOR STAND

⑤ HEX BOLT

⑥ ANCHOR STUD

⑦ EPS FORM - CENTER WEDGE

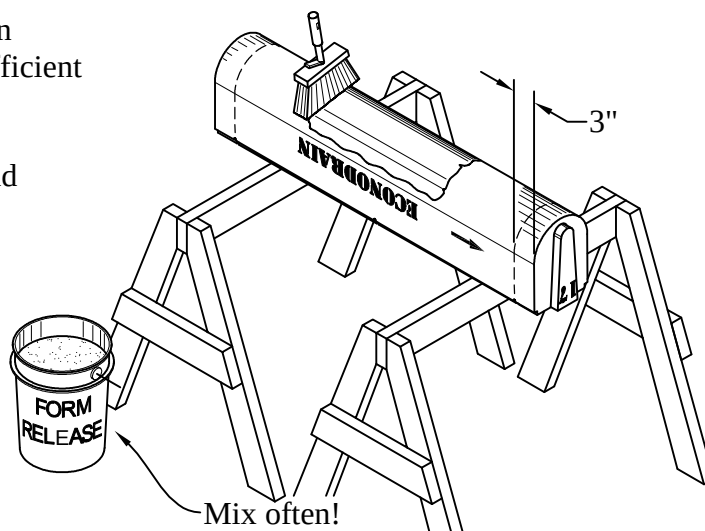
⑧ EPS FORM - OUTER SECTION

## Step 1: Apply Mold Release to EPS Forms

The EPS forms should be coated with EconoDrain Form Release before any other steps allowing sufficient drying time prior to assembly.

Do not coat the first three inches (3") on either end of the EPS Forms - since joint duct tape will be placed here in Step #12.

While a brush is recommended for applying Form Release, a hand sprayer may be used. Assure the Form Release is mixed regularly to prevent the release agent from falling out of liquid suspension.

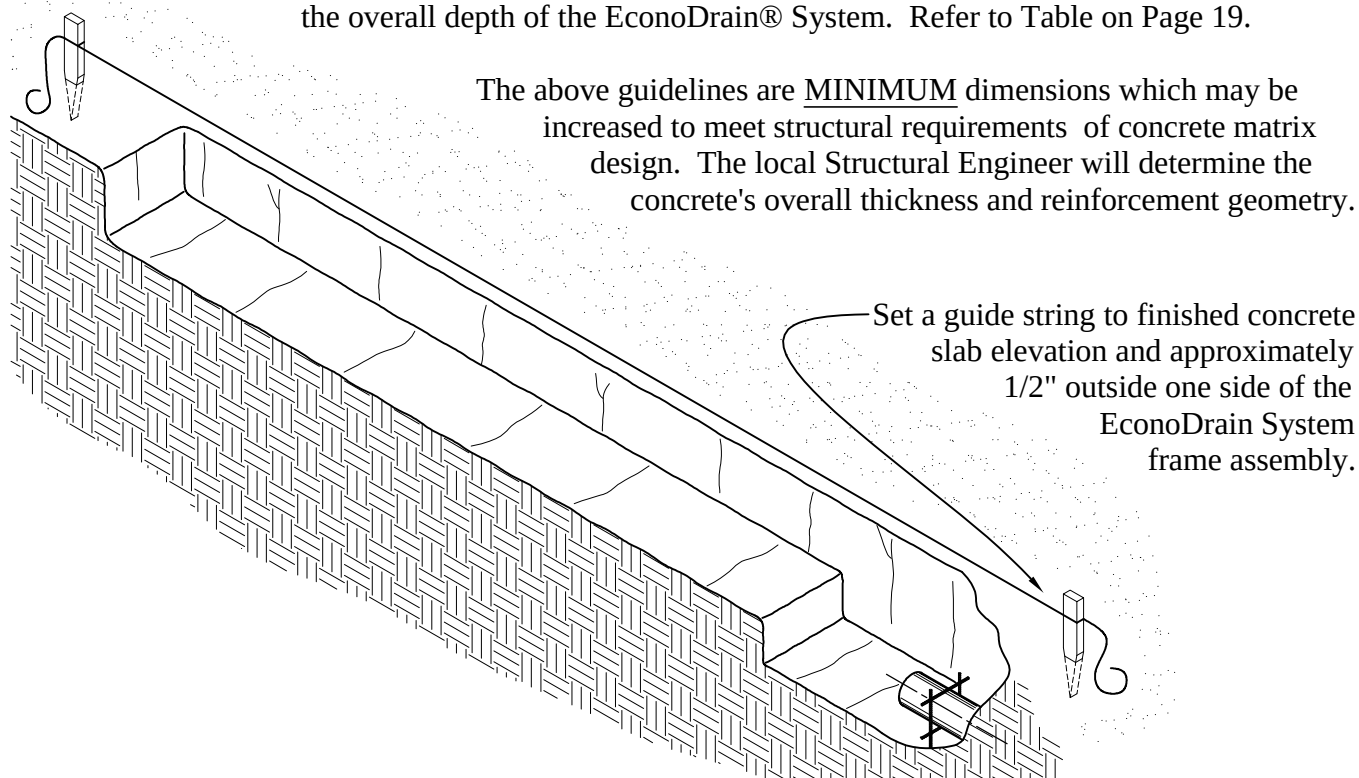


**Caution: Do not use Petroleum Base Form Release—It will damage the EPS Formers!**

## Step 2: Prepare Excavation and Set Alignment Guide

A trench must be excavated 12" to 18" wider (at a MINIMUM) than the overall width of the frame including the rebar receivers and anchor weld studs, and should be at least 6" deeper than the overall depth of the EconoDrain® System. Refer to Table on Page 19.

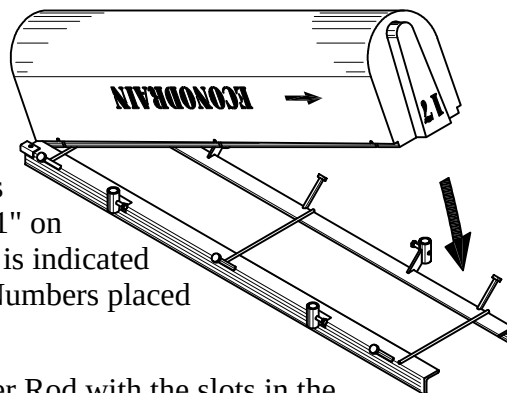
The above guidelines are MINIMUM dimensions which may be increased to meet structural requirements of concrete matrix design. The local Structural Engineer will determine the concrete's overall thickness and reinforcement geometry.



**Caution: The EconoDrain® System typically incorporates slope within the trench run length flowing from the shallow end to the deeper end. Mimimize over excavation!**

## Step 3: Assemble the EPS Forms to the Frame Assembly

The EconoDrain EPS Form Center Wedge and Outer Section are shipped assembled, but must be properly aligned upon arrival at the jobsite. Before assembling to frames, align the EPS Form Outer Section slots to those in the Center Wedge. This alignment results in the Center Wedge protruding approximately 1" on the downstream end of the EPS Form. Downstream (deeper end) is indicated by an arrow stenciled on the side of the EPS Form and by Form Numbers placed on the projecting end of the Center Wedge.



Attach the EPS Form to the frame assembly by aligning the Spacer Rod with the slots in the EPS Form and carefully press the EPS Form onto the Rods. Press slowly with equal pressure to prevent damage to the EPS Form until the Spacer Rods are seated at the bottom of the EPS Form slots.

Final Check: The arrows on the EPS Form's side should point away from the Alignment Clip (see the Drawing on Page 3). The Center Section should also protrude on the opposite end of the Alignment Clip.

## Step 4: Beginning the Installation

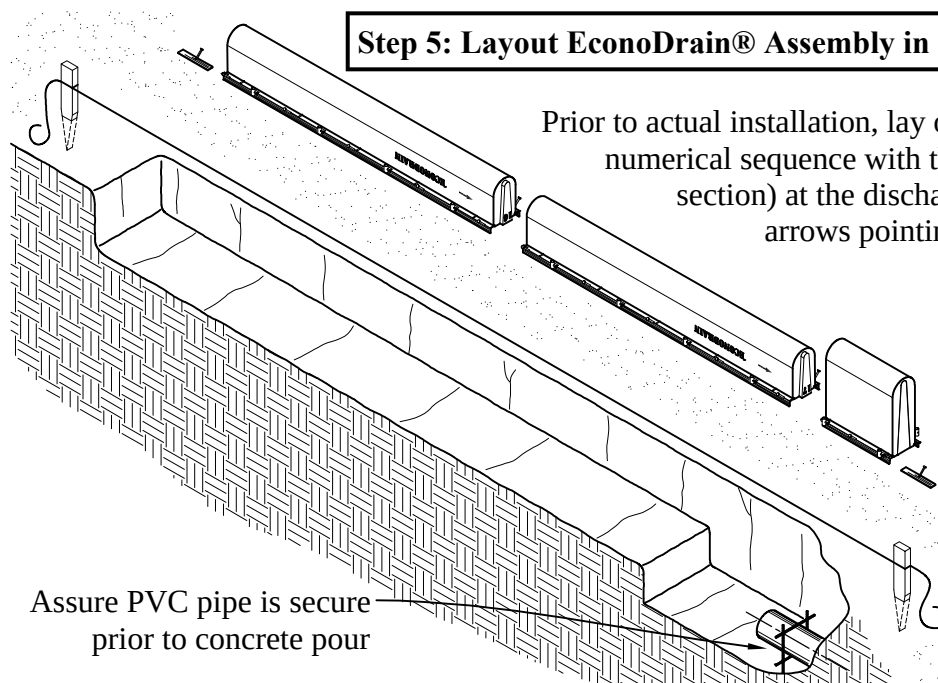
Begin all installations at the trench outlet or downstream end and work backward until the installation is complete. Set Catch Basins first (if used). Refer to Steps 6 & 7 for Typical Catch Basin Installation.

See page 13 for use of Intersection Kits for forming left and right L's, T's, and Four-way intersections.

Installation of deeper EPS Forms (greater than 15" deep) require stabilization of the Former during concreting to prevent the EPS Form bottom from being moved from side to side by the concrete. Refer to Step 14 on page 9 for guidance on this procedure.

## Step 5: Layout EconoDrain® Assembly in Desired Installation Sequence

Prior to actual installation, lay out EconoDrain assemblies in numerical sequence with the highest number (deepest section) at the discharge point with all EPS Form arrows pointing toward the discharge point.

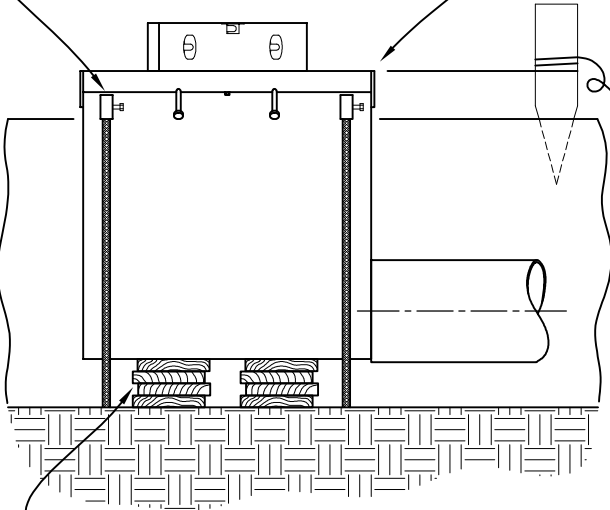


Assure PVC pipe is secure  
prior to concrete pour

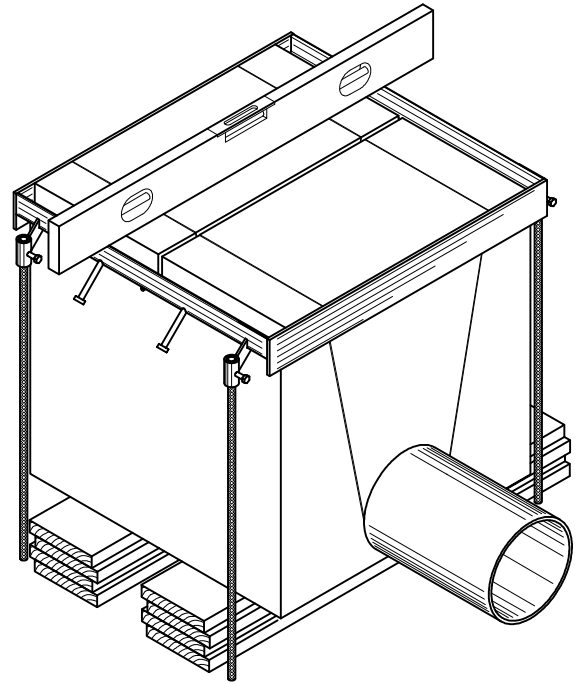
## Step 6: Typical Installation of Catch Basin - 24" x 24"

Assure top is level with finished slab elevation

Assure top end of rebar is flush with top of Anchor Stand



Remove wood blocks prior to concrete pour

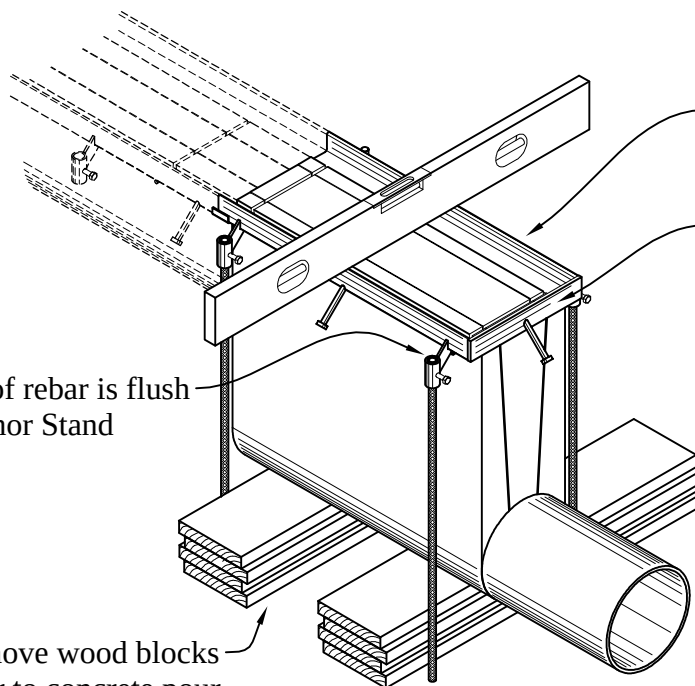


## Step 7: Installation of In-Line Catch Basin

Assure top is level with finished slab elevation

Attach the Frame End Plate to the Frame Assembly

Assure top end of rebar is flush with top of Anchor Stand



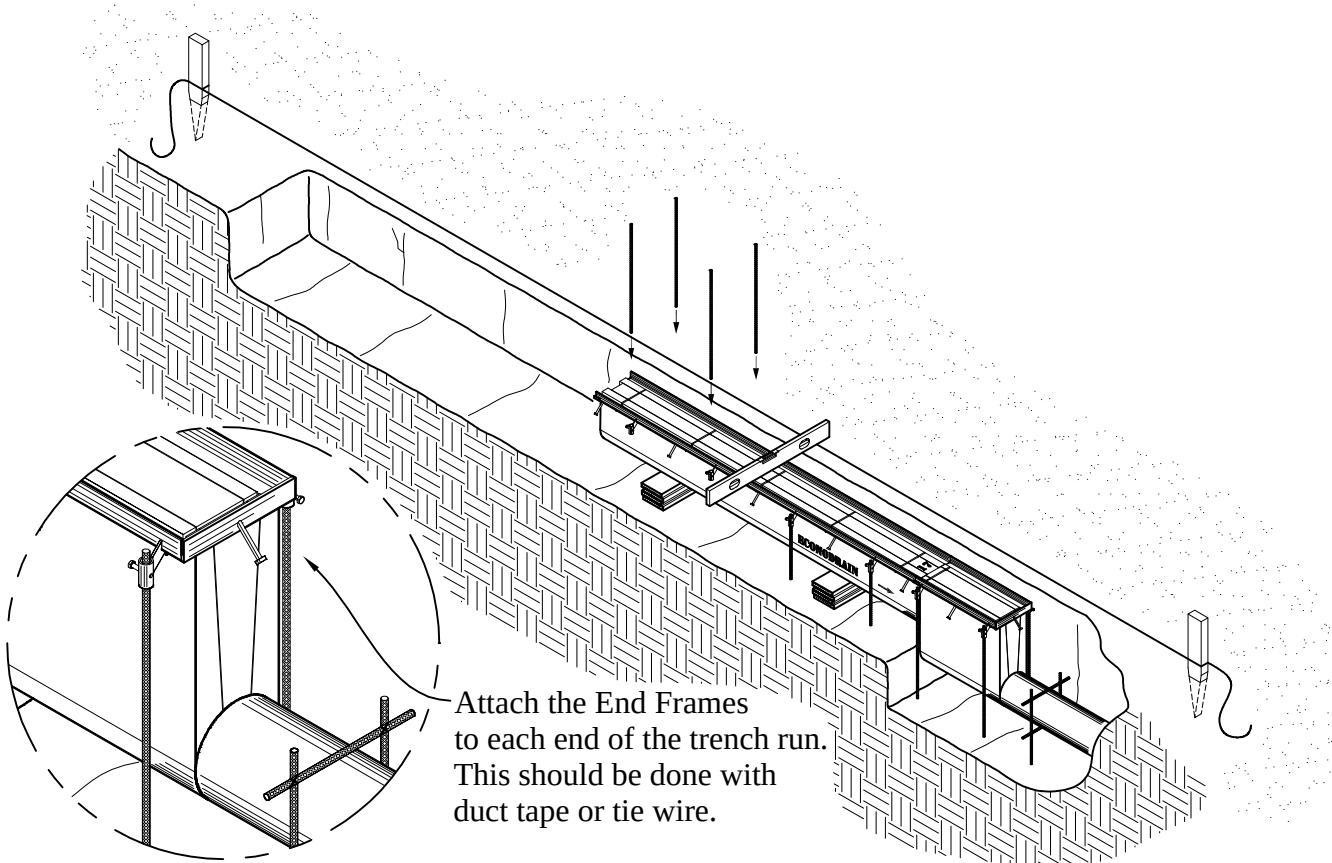
Remove wood blocks prior to concrete pour

## Step 8: Installation of EconoDrain® EPS Trench Forming Assembly

Install the outlet Trench Form or Catch Basin component first.

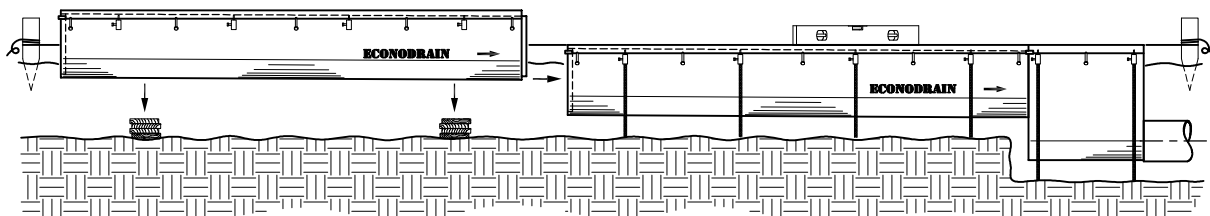
Use wooden blocks to support the EconoDrain assembly above the floor of the trench excavation and approximately 1" below the desired finished elevation.

Insert #4 Rebar thru ALL of the Anchor Stands and hammer the Rebar STRAIGHT into the sub-base 12" or more, depending on soil or sub-base conditions, to hold the forms in place and prevent floatation when placing concrete. At this step, the Rebar tip should be left about 1-1/2" to 2" above the top of the Anchor Stand. Snug the Hex Bolt enough to hold the assembly on the Rebar but do not tighten at this time.



Make sure the Pipe Outlets fit snugly against the EPS Form at the trench outlet. Cover the pipe end with duct tape to prevent concrete infiltration and secure the pipe to prevent movement during concreting.

## Step 9: Finish Setting the Remainder of the EconoDrain® System



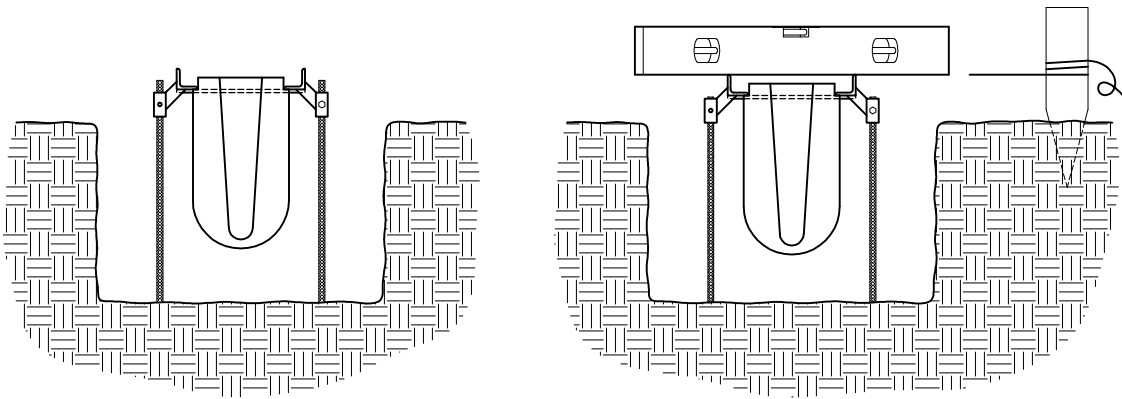


## Step 10: Final Adjustments - Final Rebar Adjustment

Loosen the Hex Bolt and set the EconoDrain assemblies slightly higher than the finished elevation by sliding the unit upward until the tip of the rebar is 1/8" to 1/4" above the top of the Anchor Stand. Tighten the Hex Bolts securely.

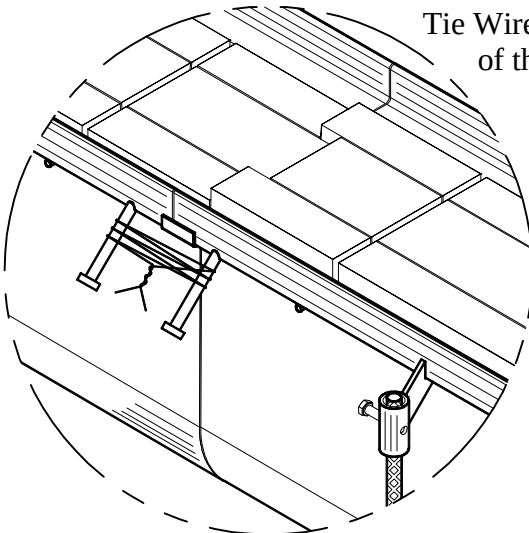
Remove the wood block from beneath the EPS Form.

When all the units are set in this manner, tap the top of the rebar with a hammer to lower the unit assembly to the precise elevation. Use a level and string-line to assure correct alignment lengthwise as well as side to side.



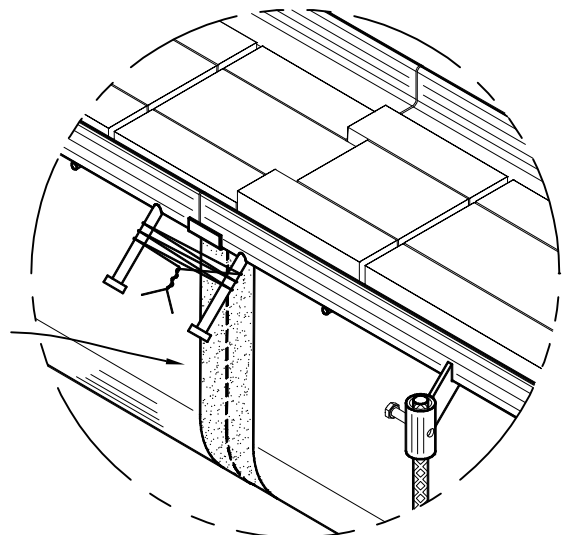
## Step 11: Final Adjustments - Wire Tie the Sections Together

Tie Wire sections together, loosely, using the anchor studs at each end of the frame assembly as shown.



## Step 12: Duct Tape the EPS Former Joints

Apply duct tape to former joints. Apply tape smoothly avoiding wrinkles and press to assure adhesion to EPS Form.

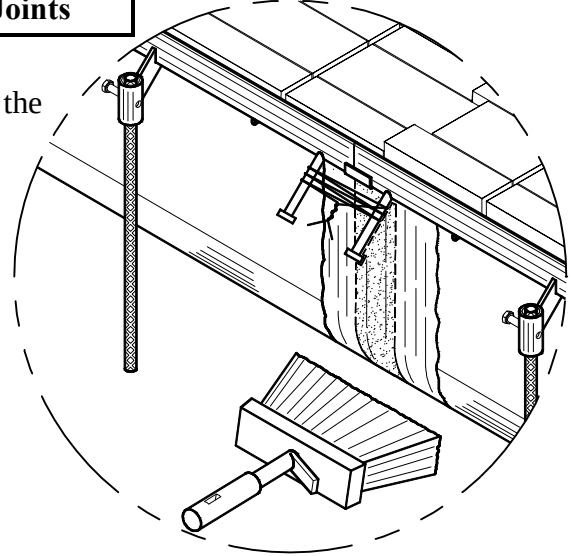




## Step 13: Finish Applying Form Release At EPS Former Joints

A brush or sprayer may be used to apply form release around the joint areas left uncoated in Step 1.

**AS ALWAYS, THE FORM RELEASE MUST BE DRY PRIOR TO POURING CONCRETE!**



## Step 14: Installing EconoDrain® Formers in the Deeper Portion of the System

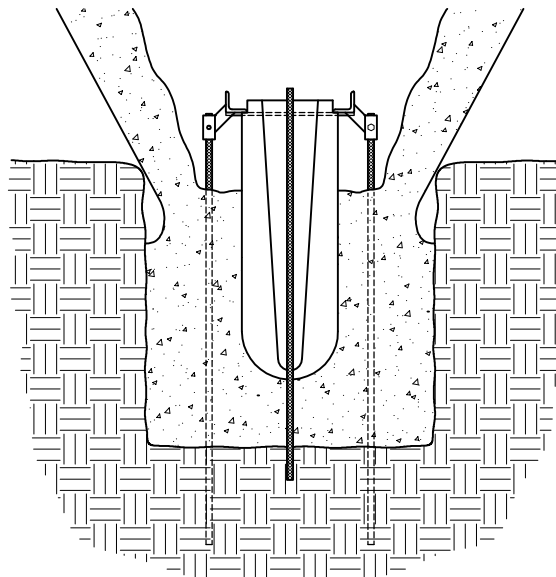
Four (4) holes are provided through the center of the deeper EPS Forms for insertion of rebar. These holes maintain vertical alignment during initial concrete placement.

The rebar is driven only a few inches into the ground or sub-base.

Concrete must be filled on both sides of the form as evenly as possible. Multiple passes on either side are preferable while avoiding filling the trench from one side.

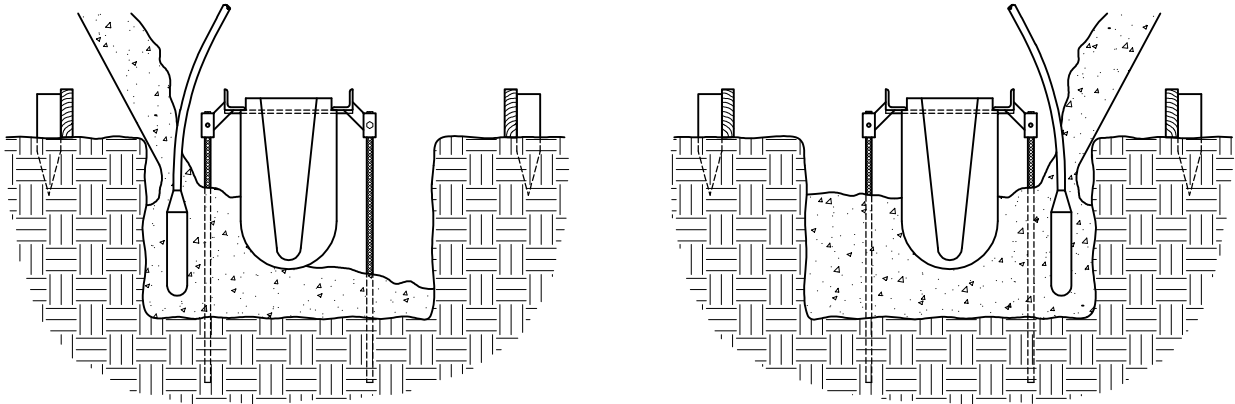
See Step 15: How to Pour Concrete Around EconoDrain® Trench Forming System.

The rebar must be removed once the concrete/form pressure equalizes but prior to the concrete setting up.

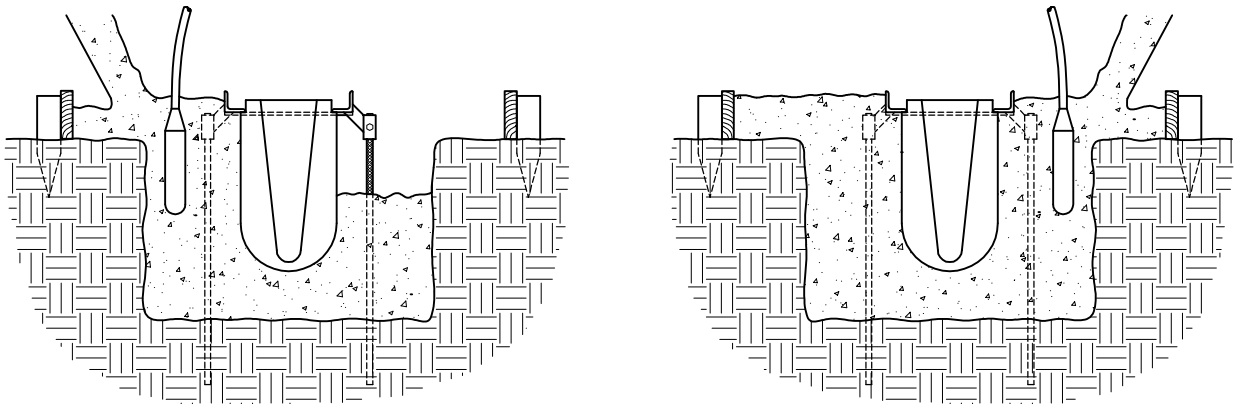


## Step 15: Pour Concrete Around EconoDrain Trench Forming System

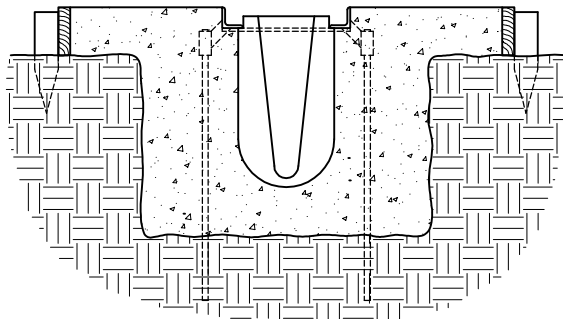
Alternate pouring and consolidation on either side of the EconoDrain System Form until the desired elevation is reached as shown. Avoid concrete lift cold joints.



A diagram for a Concrete Pour Shield is shown on Page 15. You may wish to consider building and using this to help eliminate un-necessary clean-up at the end of the job.



Finish Concrete.

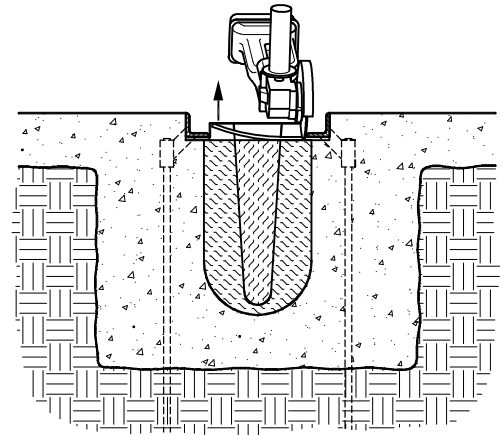
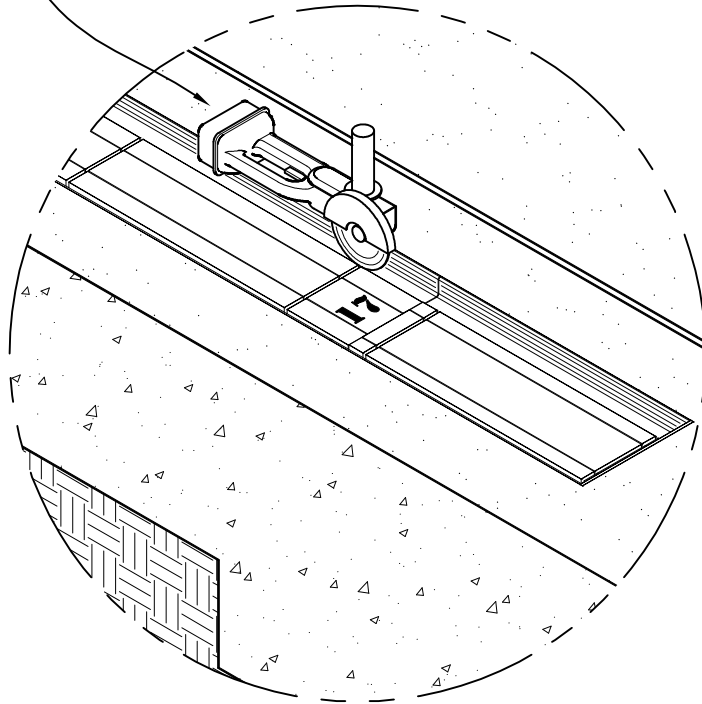


## Step 16: EPS Form Removal

Allow concrete to set for 24 hours.

Cut and remove spacer rods using a hand grinder or power saw equipped with a steel cutting abrasive blade.

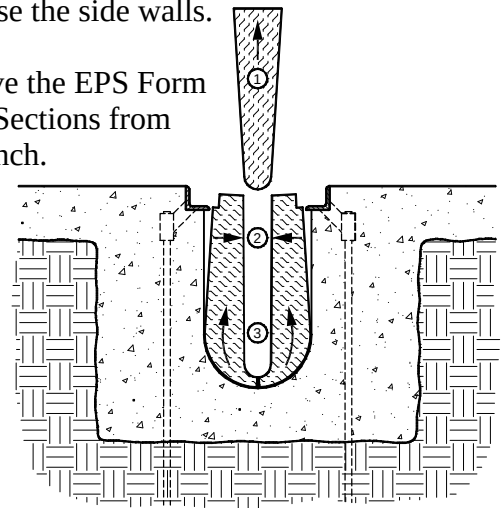
Cut the spacer rod adjacent to the frame angling the grinder/saw to avoid dulling the blade on the concrete wall.



① Remove the EPS Form Center Wedge.

② Collapse the side walls.

③ Remove the EPS Form Outer Sections from the trench.

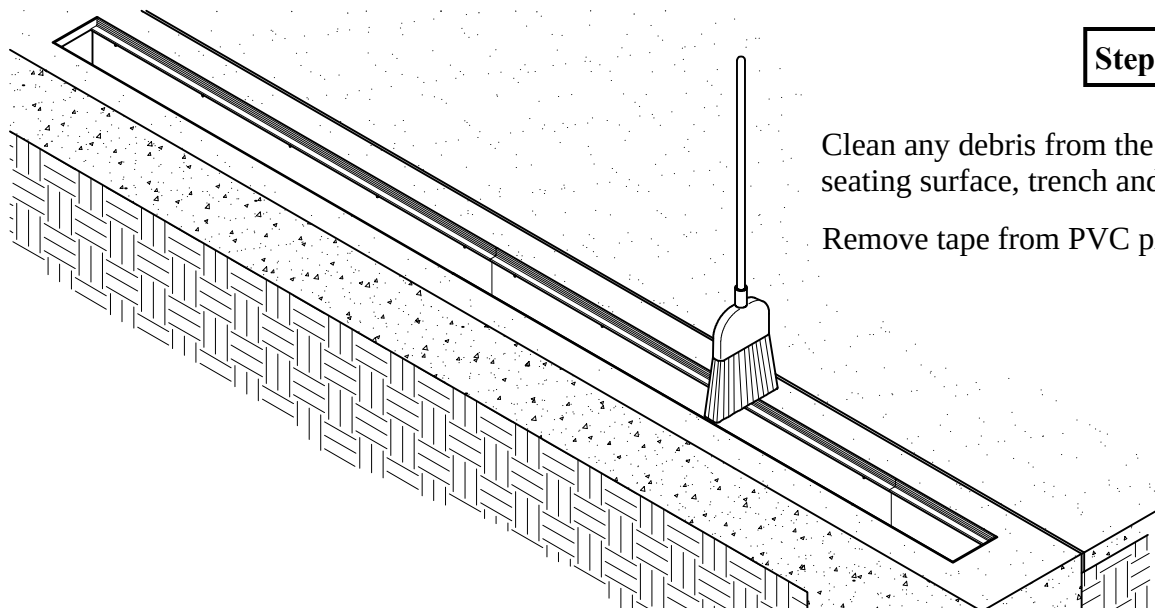


**Caution: Do not use Gasoline to dissolve EPS. This violates EPA pollution policies and creates hazardous conditions due to fire and explosion potential.**

## Step 17: Cleanup

Clean any debris from the frame grate seating surface, trench and catch basins.

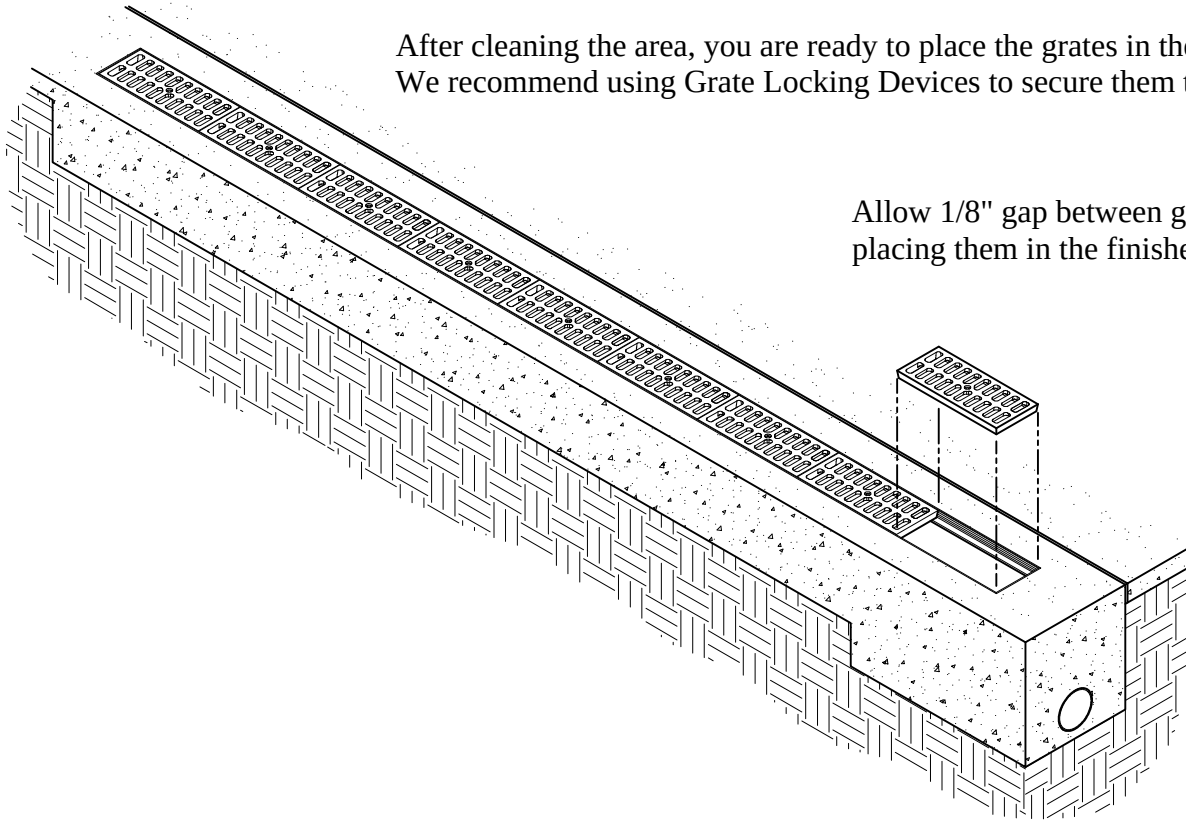
Remove tape from PVC pipe ends.



## Step 18: Grating Installation

After cleaning the area, you are ready to place the grates in the trench.  
We recommend using Grate Locking Devices to secure them to the rails.

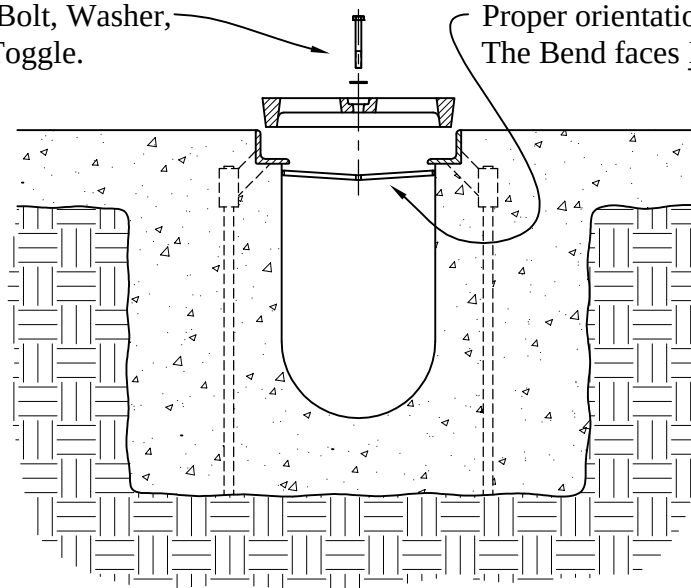
Allow 1/8" gap between grates when placing them in the finished trench.



## Step 19: Grate Locking Device Installation

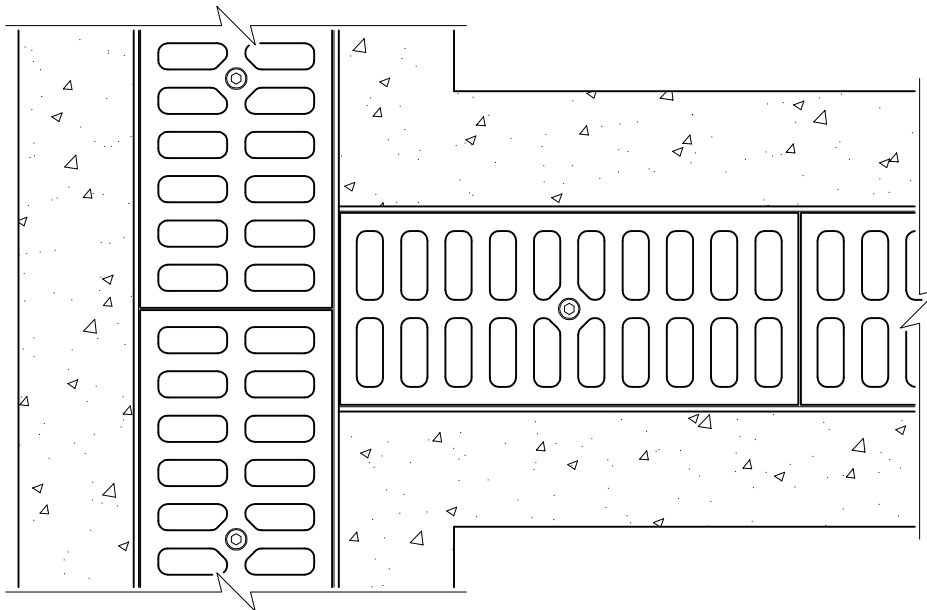
Hex Head Bolt, Washer,  
and Lock Toggle.

Proper orientation of the Lock Toggle:  
The Bend faces Downwards.

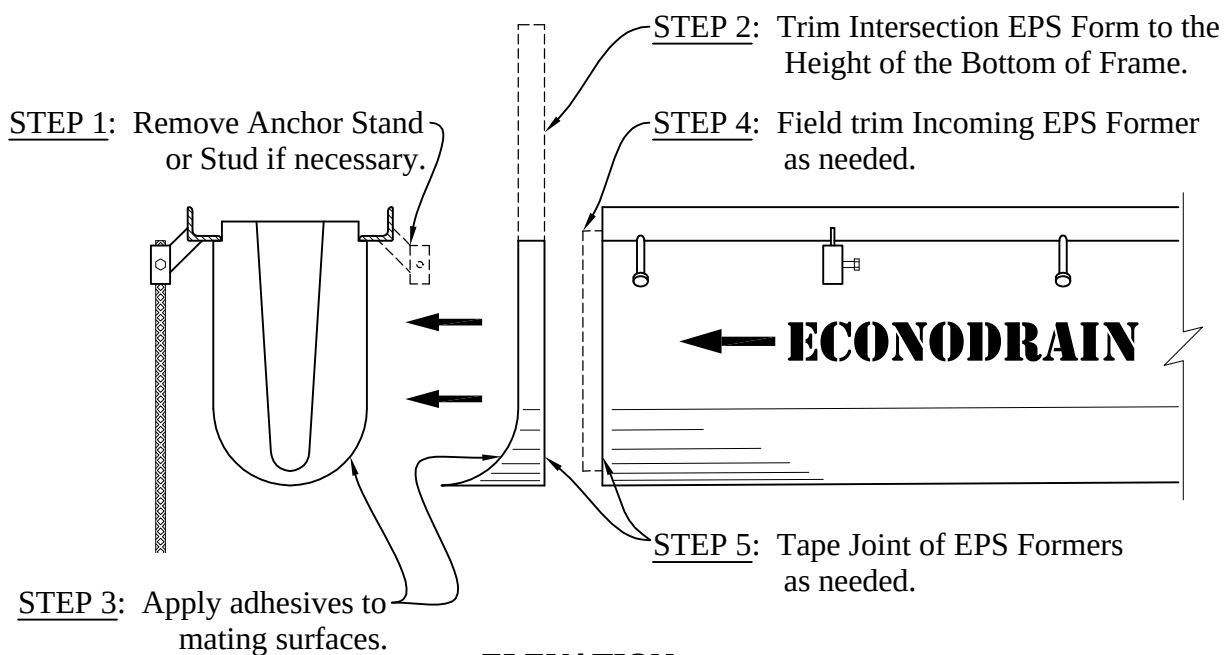


## Special Installation: Intersection Kits

Intersection Kits are used for forming left and right L's, T's and four-way trench intersections for EconoDrain #4, #6, #8 and #12 Systems.



**FINISHED PLAN VIEW**



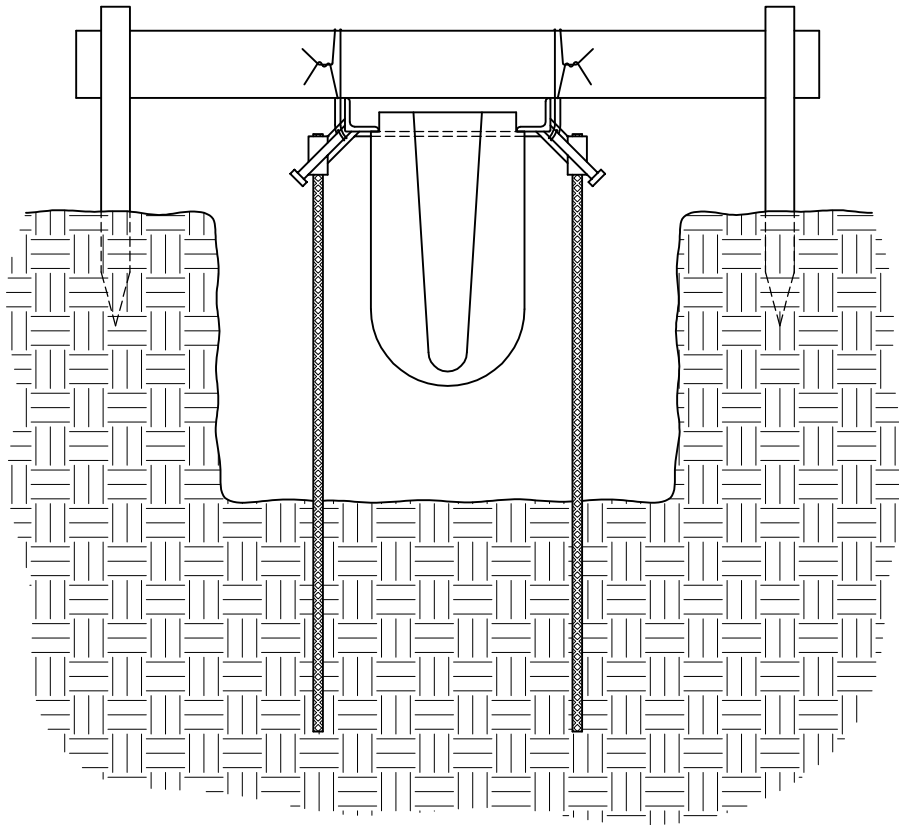
**ELEVATION**

## Special Installation: Installing EconoDrain in Poor Sub-Grade Conditions

To further assure the EPS Forms will not float in loose or very poor sub-surface conditions, concrete should be placed as follows:

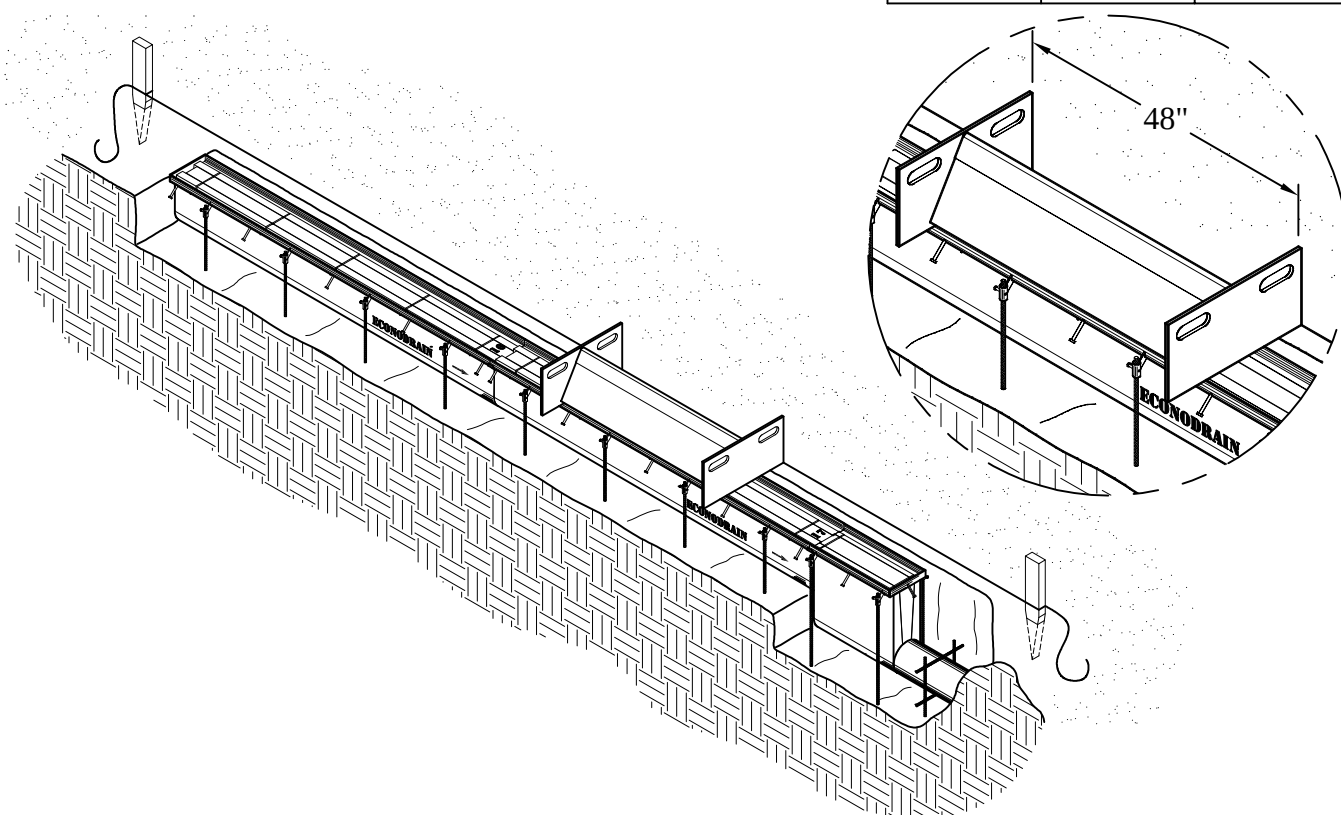
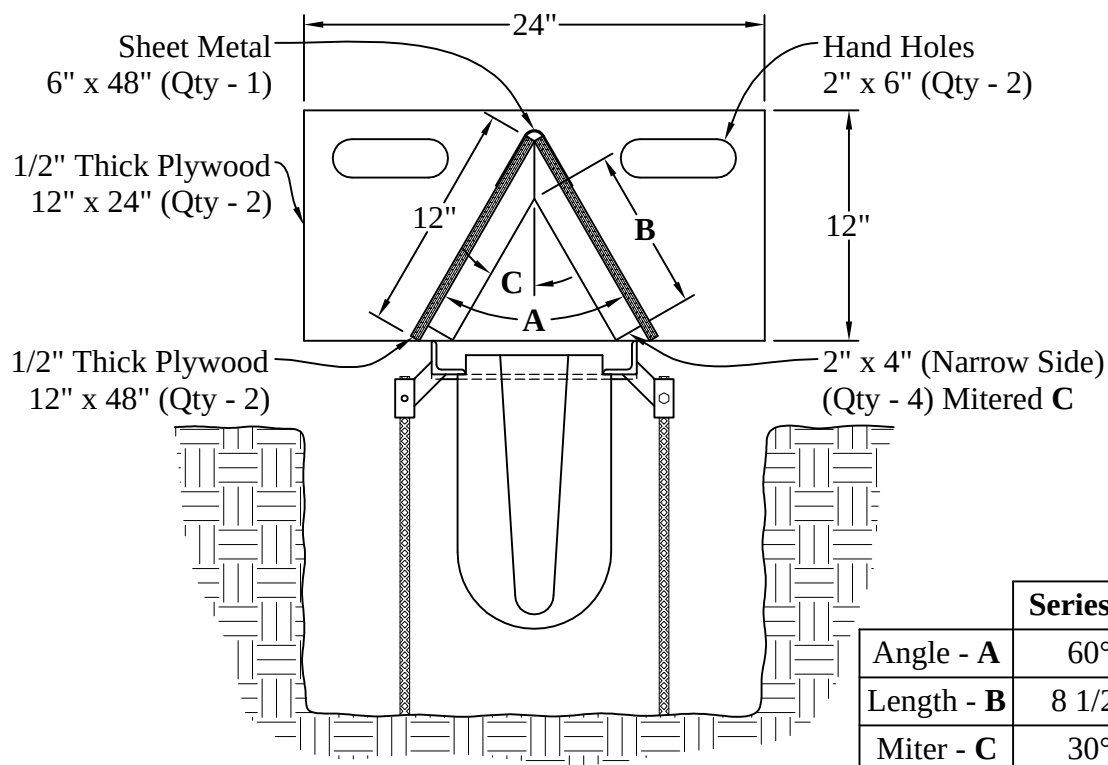
Complete Steps 1 through 14 in the EconoDrain Installation Instructions. Then proceed as follows:

Wire 2x4's across the top of the metal Frame rail, as shown here, to prevent the assembly from floating and side shifting. The 2x4 should be firmly anchored prior to concreting. Rebar, metal, or wooden stakes are used to secure the free end of the 2x4 into compacted sub base or sub-grade. Threaded concrete anchor bolts, such as Tapcon™ brand or similar, can be used to secure the free end of the 2x4 into adjacent concrete slab. A minimum of two (2) additional 2x4 reinforcement cross bars should be used per 8' EconoDrain Form Section in conjunction with previously driven rebar.



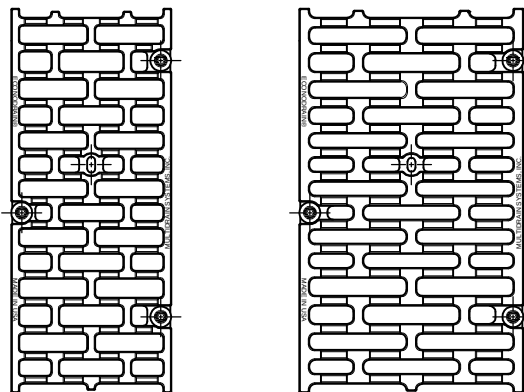
## Helpful Hint : Concrete Pour Shield

The time required to construct this useful device will pay dividends in shortening clean-up time at the end of the project.

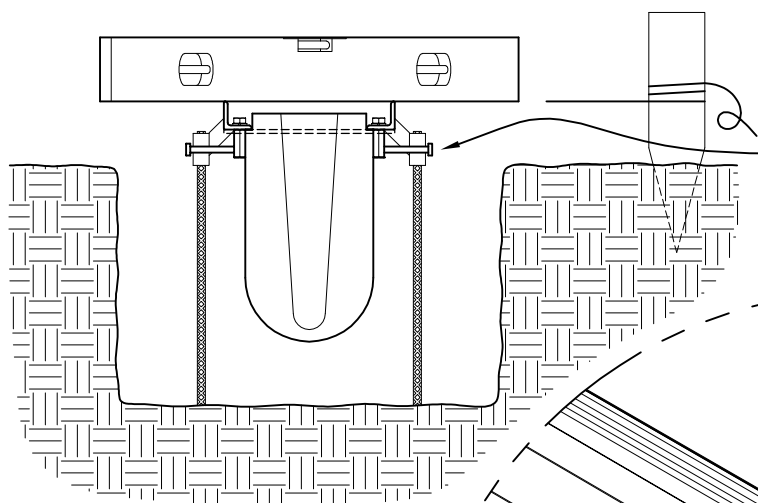




## Installation of PT-3 Three-Point Lockdown Grate Trench Forming System



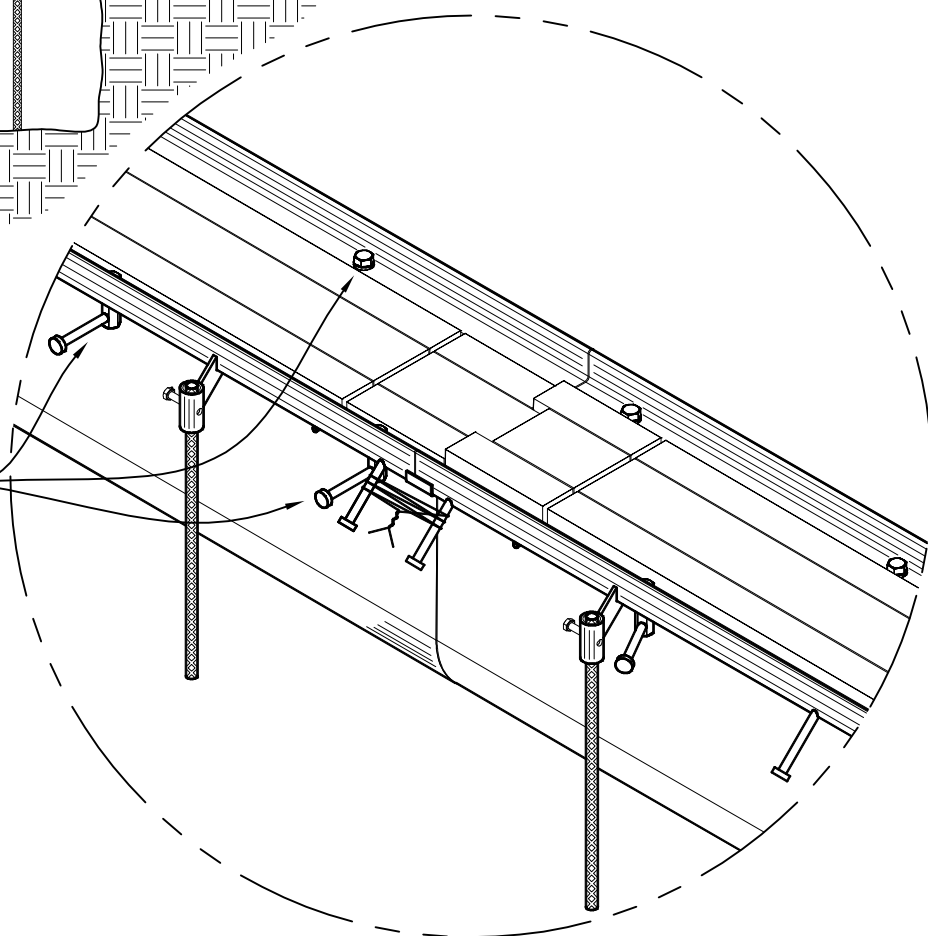
The EconoDrain PT-3 System is currently available in #8 and #12 Systems.



The Frame Assembly is shipped to the jobsite with the Lockdown Inserts bolted to the Frame Rails.

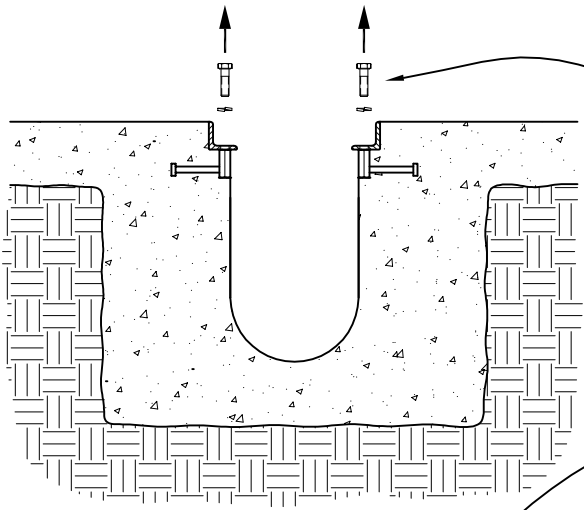
Please make sure the Anchor Studs on the Lock Inserts point **OUTWARD** prior to installing.

Lockdown Inserts

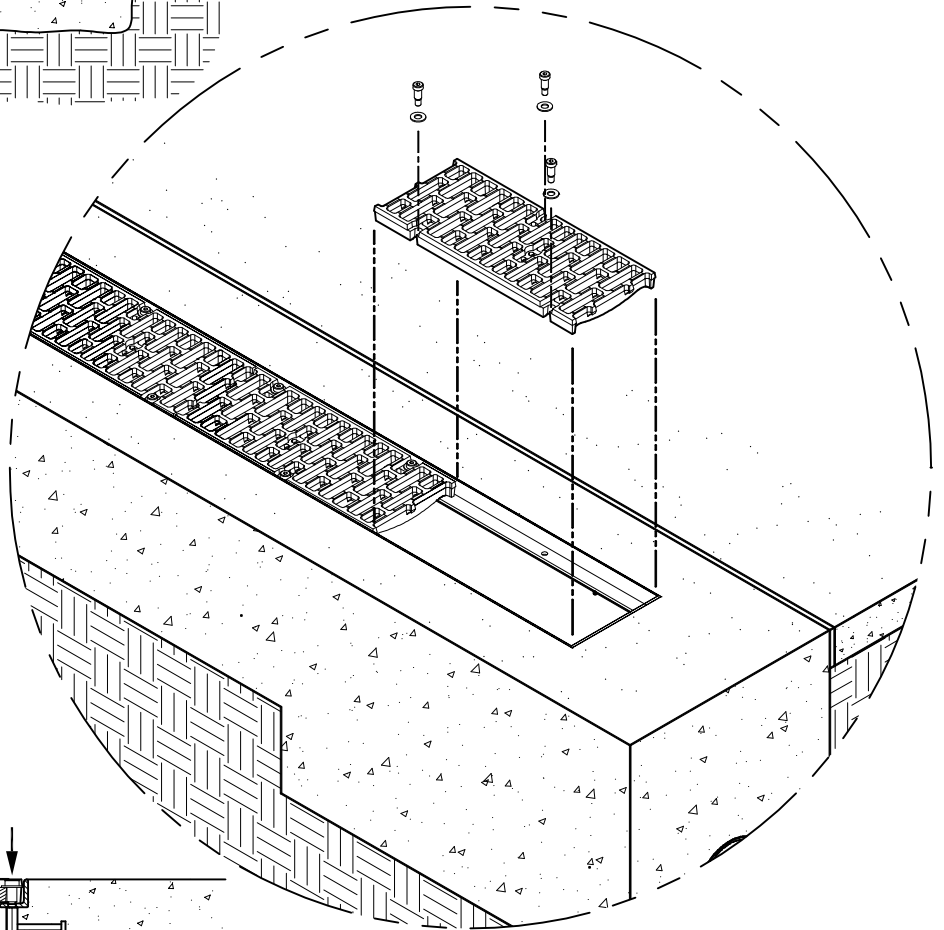


Follow Steps 1 thru 17 as shown in the Installation Instructions.

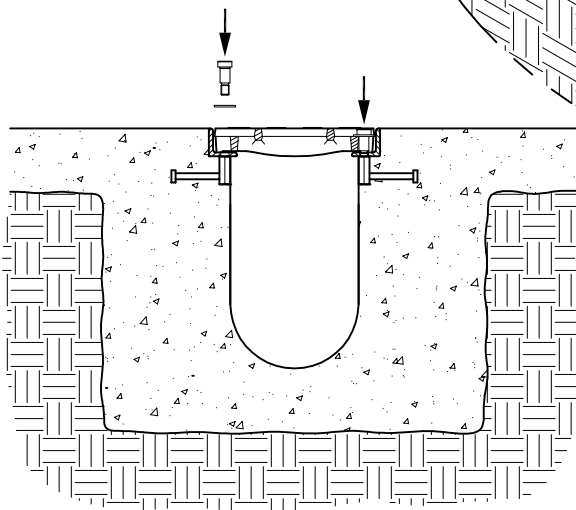
## Installation of PT-3 Three-Point Lockdown Grate Trench Forming System



Prior to Grating Installation, remove the Hex Bolts and Lock Washers securing the Lockdown Inserts. The holes should be free of any debris or concrete prior to installing the PT-3 Gratings.



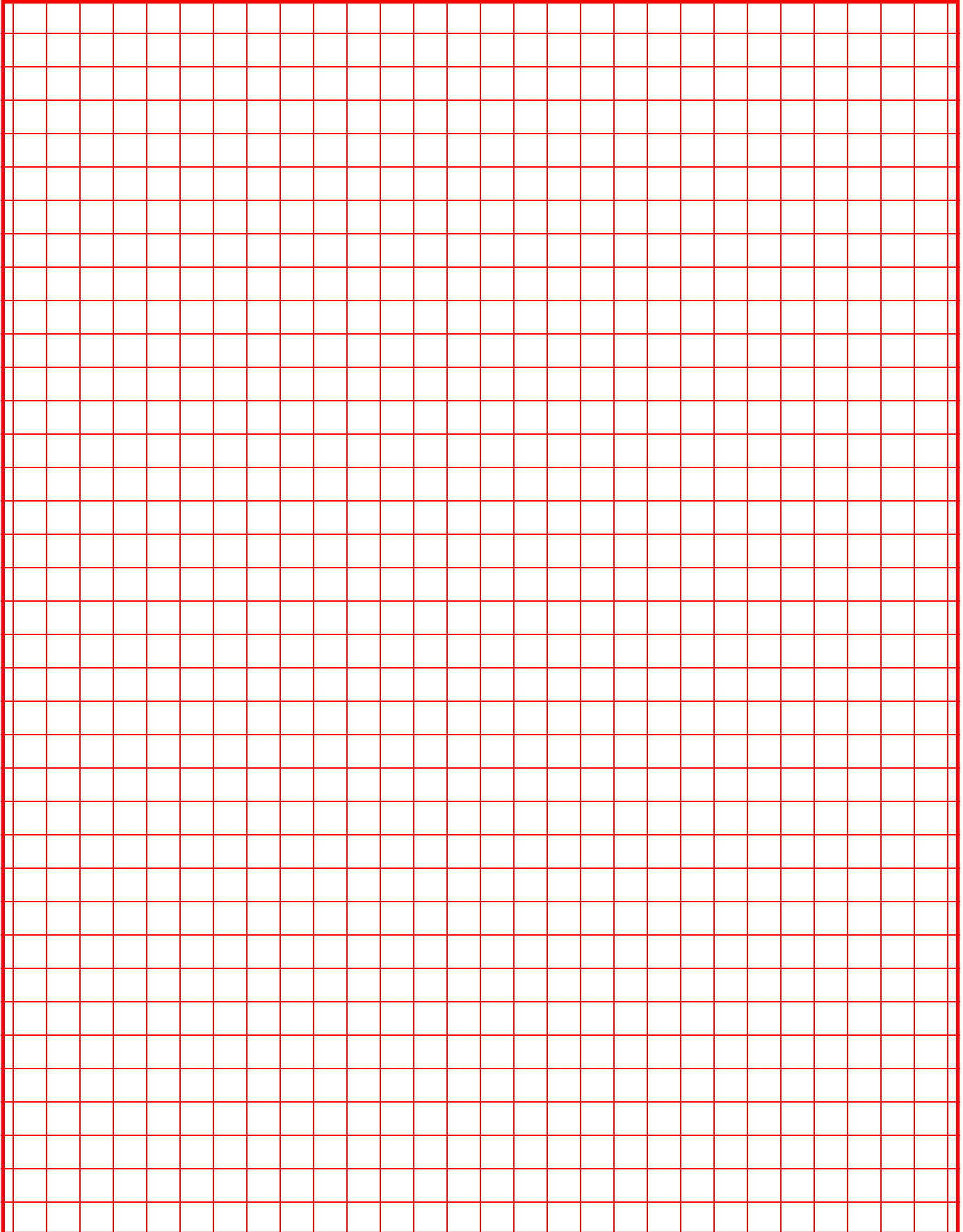
Install the PT-3 Gratings and secure them with 5/8" x 1" Socket Shoulder Bolt and Flat Washer.



**Guideline:** Excavate your trench depth equal to the Overall Average Depth (shown below) plus an additional 6 inches.

Final Concrete thickness per local engineering regulations and project specifications.  
Check before you dig!

| Part Number | #4 EconoDrain Overall Average Depth (in) | #6 EconoDrain Overall Average Depth (in) | #8 EconoDrain Overall Average Depth (in) | #12 EconoDrain Overall Average Depth (in) |
|-------------|------------------------------------------|------------------------------------------|------------------------------------------|-------------------------------------------|
| 04          | 4.5                                      | n/a                                      | n/a                                      | n/a                                       |
| 05          | 5.0                                      | n/a                                      | n/a                                      | n/a                                       |
| 06          | 5.5                                      | 6.25                                     | 6.25                                     | n/a                                       |
| 07          | 6.0                                      | 6.75                                     | 6.75                                     | n/a                                       |
| 08          | 6.5                                      | 7.25                                     | 7.25                                     | n/a                                       |
| 09          | 7.0                                      | 7.75                                     | 7.75                                     | n/a                                       |
| 10          | 7.5                                      | 8.25                                     | 8.25                                     | 8.25                                      |
| 11          | 8.0                                      | 8.75                                     | 8.75                                     | 8.75                                      |
| 12          | 8.5                                      | 9.25                                     | 9.25                                     | 9.25                                      |
| 13          | 9.0                                      | 9.75                                     | 9.75                                     | 9.75                                      |
| 14          | 9.5                                      | 10.25                                    | 10.25                                    | 10.25                                     |
| 15          | 10.0                                     | 10.75                                    | 10.75                                    | 10.75                                     |
| 16          | 10.5                                     | 11.25                                    | 11.25                                    | 11.25                                     |
| 17          | 11.0                                     | 11.75                                    | 11.75                                    | 11.75                                     |
| 18          | 11.5                                     | 12.25                                    | 12.25                                    | 12.25                                     |
| 19          | 12.0                                     | 12.75                                    | 12.75                                    | 12.75                                     |
| 20          | 12.5                                     | 13.25                                    | 13.25                                    | 13.25                                     |
| 21          | 13.0                                     | 13.75                                    | 13.75                                    | 13.75                                     |
| 22          | 13.5                                     | 14.25                                    | 14.25                                    | 14.25                                     |
| 23          | 14.0                                     | 14.75                                    | 14.75                                    | 14.75                                     |
| 24          | 14.5                                     | 15.25                                    | 15.25                                    | 15.25                                     |
| 25          | 15.0                                     | 15.75                                    | 15.75                                    | 15.75                                     |
| 26          | 15.5                                     | 16.25                                    | 16.25                                    | 16.25                                     |
| 27          | 16.0                                     | 16.75                                    | 16.75                                    | 16.75                                     |
| 28          | 16.5                                     | 17.25                                    | 17.25                                    | 17.25                                     |
| 29          | 17.0                                     | 17.75                                    | 17.75                                    | 17.75                                     |
| 30          | 17.5                                     | 18.25                                    | 18.25                                    | 18.25                                     |
| 31          | 18.0                                     | 18.75                                    | 18.75                                    | 18.75                                     |
| 32          | 18.5                                     | 19.25                                    | 19.25                                    | 19.25                                     |
| 33          | 19.0                                     | 19.75                                    | 19.75                                    | 19.75                                     |
| 34          | 19.5                                     | 20.25                                    | 20.25                                    | 20.25                                     |
| 35          | 20.0                                     | 20.75                                    | 20.75                                    | 20.75                                     |
| 36          | 20.5                                     | 21.25                                    | 21.25                                    | 21.25                                     |
| 37          | 21.0                                     | 21.75                                    | 21.75                                    | 21.75                                     |
| 38          | 21.5                                     | 22.25                                    | 22.25                                    | 22.25                                     |
| 39          | 22.0                                     | 22.75                                    | 22.75                                    | 22.75                                     |
| 40          | 22.5                                     | 23.25                                    | 23.25                                    | 23.25                                     |
| 41          | 23.0                                     | 23.75                                    | 23.75                                    | 23.75                                     |
| 42          | 23.5                                     | 24.25                                    | 24.25                                    | 24.25                                     |
| 43          | 24.0                                     | 24.75                                    | 24.75                                    | 24.75                                     |
| 44          | 24.5                                     | 25.25                                    | 25.25                                    | 25.25                                     |
| 45          | 25.0                                     | 25.75                                    | 25.75                                    | 25.75                                     |
|             |                                          |                                          |                                          |                                           |





We Drain Your Site, Not Your Budget!

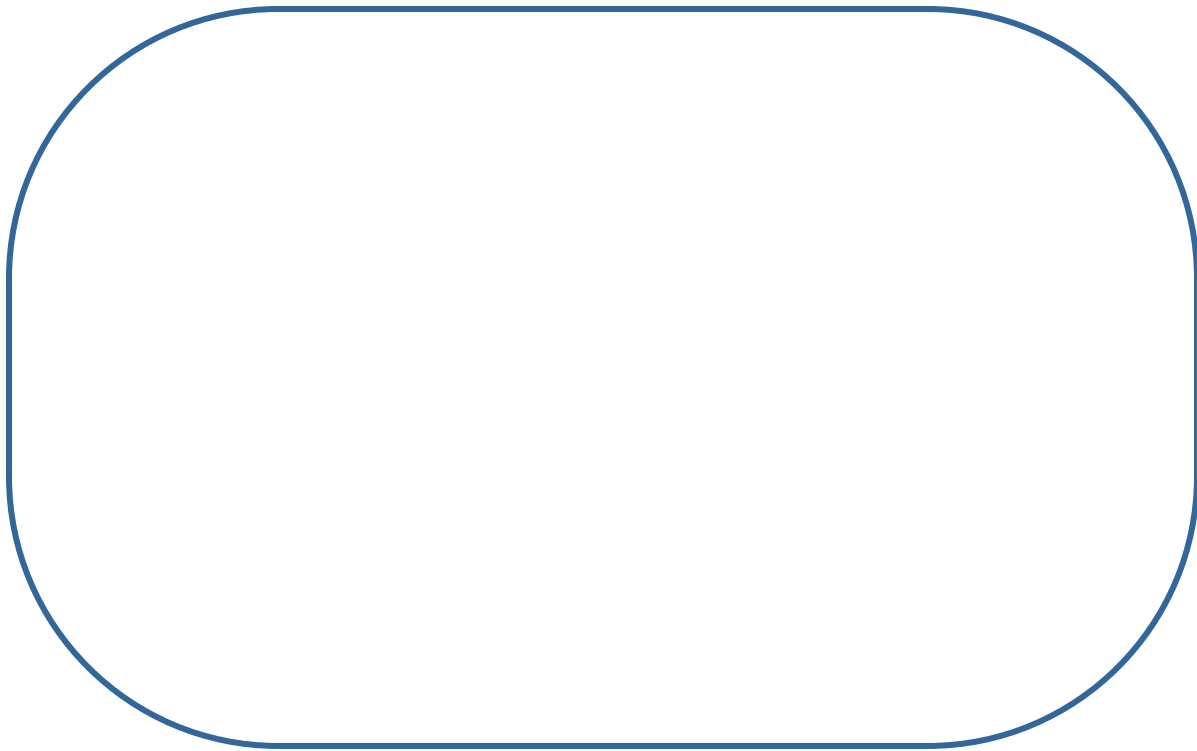
Ask for ..... **EconoDrain®**  
by MultiDrain Systems, Inc.

**Thank You for using EconoDrain® Trench Forming System on this project.**

**We appreciate your business**

**and hope to see you on your next trench drain project!**

**For more Information, please contact:**



**MultiDrain Systems, Inc.**

**P.O. Box 88 Barium Springs, NC 28010**

**(800) 433-1119 (704) 508-1010 Fax: (704) 508-1011**

**[www.multidrainsystems.com](http://www.multidrainsystems.com)**