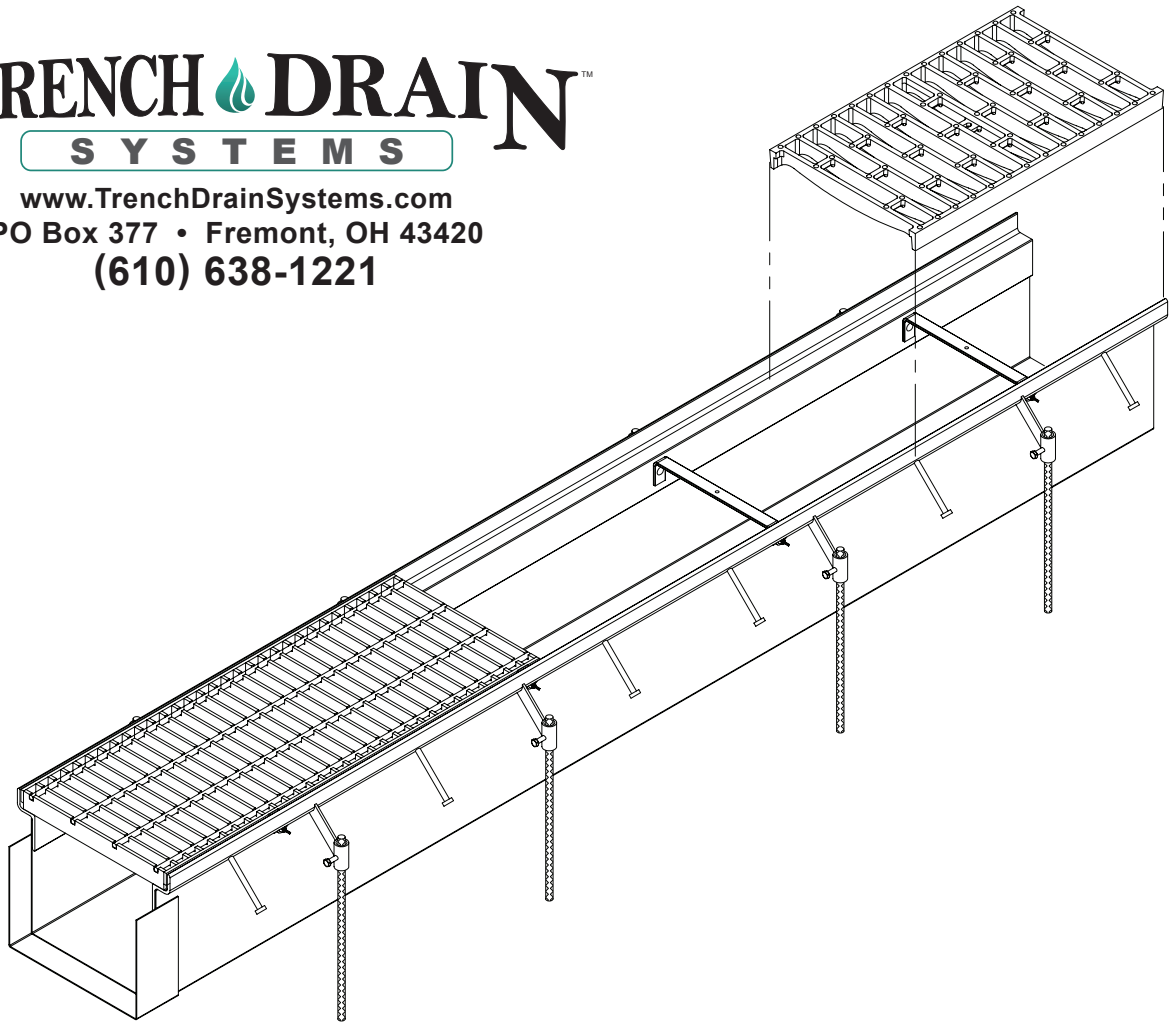
CUSTOM
Steel Trench Drain Forming System
by Trench Drain Systems

TRENCH DRAIN™
SYSTEMS

www.TrenchDrainSystems.com
PO Box 377 • Fremont, OH 43420
(610) 638-1221



INSTALLATION INSTRUCTIONS

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IMPORTANT

Read all installation information prior to starting the job.

JOB SAFETY is top priority! Good construction practices should be used at all times. Wear goggles and gloves when cutting or handling channels, frames and grates. Always lift with the legs and not with the back.

RECOMMENDED TOOLS AND ACCESSORIES

(*All of the following items may not be needed for your job.*)

- Shovel
- Mattock
- Level
- Hammer
- Stringline
- Drill
- EPS foam filler blocks
- Concrete vibrator
- Transit
- Boards
  2"x4" (51mm x 102mm)
  1"x6"(25mm x 152mm)
- Concrete saw
- Jigsaw
- Laser level (optional)
- Abrasive blade
- Screw driver
- Adjustable wrench
- Grade stakes
- Back hoe
- Caulk gun
- Caulk
- Polyethylene sheeting
- Duct tape

RECOMMENDED CAULK AND SEALERS

Sealing may be done at channel joints and at openings for adjusting screws, however, it is not necessary to seal these joints and openings in all applications. This should be determined by the project engineer or owner.

When sealing is required the following is recommended.

	TYPE OF JOINT - OPENING			
CHANNEL MATERIAL	FLEXIBLE NON-CORROSIVE	RIGID NON-CORROSIVE	FLEXIBLE CORROSIVE	RIGID CORROSIVE
Galvanized Steel	Any flexible caulk	Weld in the field	Not recommended	Not recommended
Stainless Steel	Any flexible caulk	Weld in the field	See caulk mfr's recommendation for chemical resistance	Weld in the field

It is recommended that where corrosive fluids are draining into trenches, field test should be done to ascertain the acceptability of all products.

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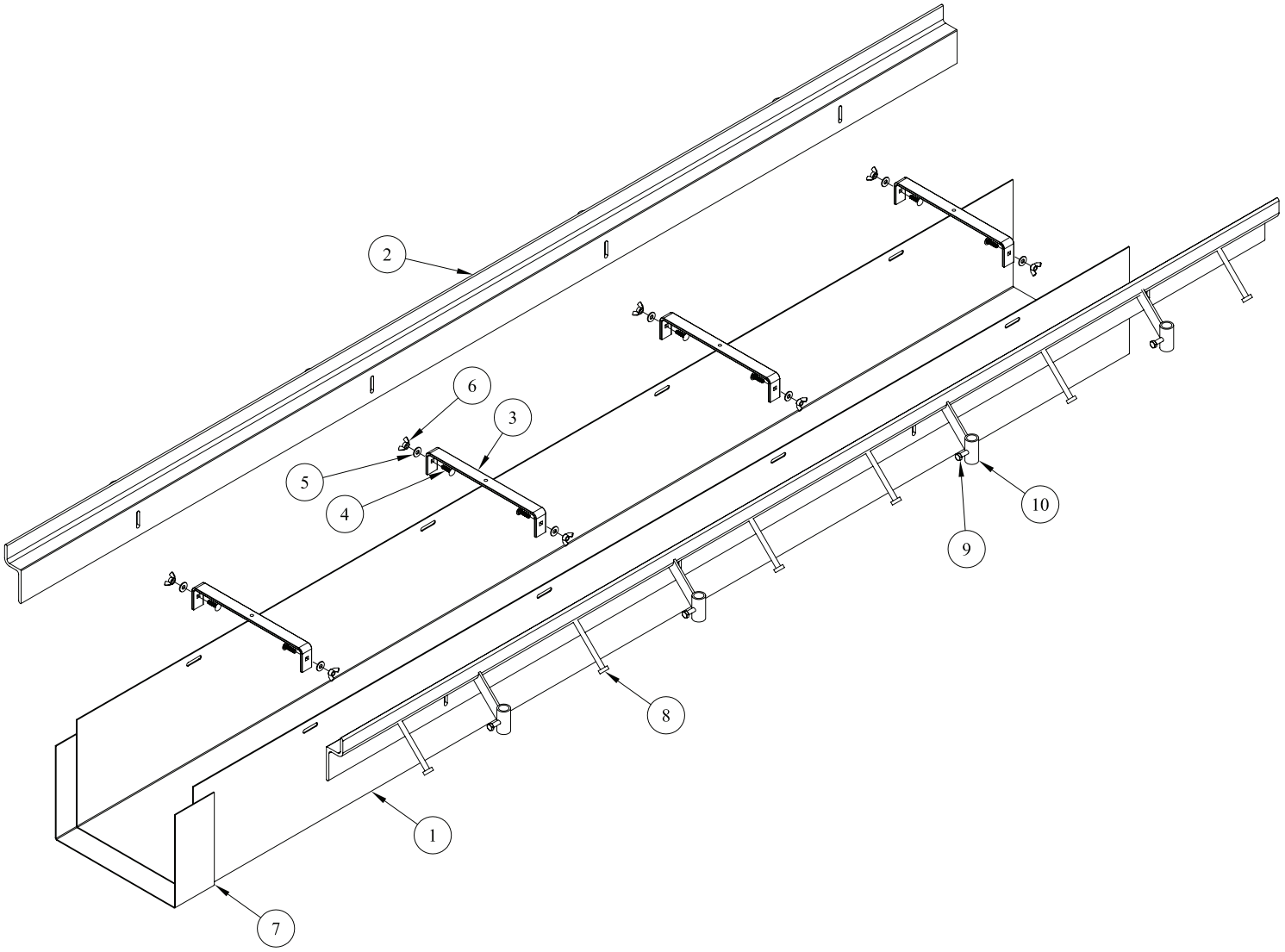
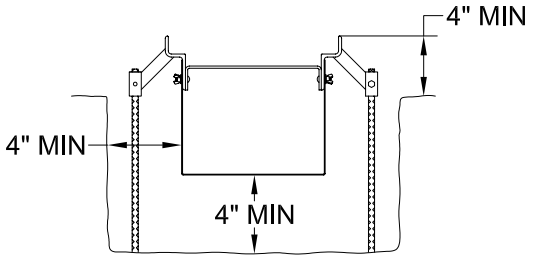


1	TRENCH CHANNEL	6	WING NUT
2	GRATE FRAME	7	ALIGNMENT COLLAR
3	SPACER BAR	8	CONCRETE ANCHOR
4	SQUARE NECK BOLT	9	HEX HEAD BOLT
5	FLAT WASHER	10	ANCHOR STAND

EXCAVATION & PREPARATION

A trench must be excavated to a minimum of 8" (203 mm) wider than the grate width and 4" (102 mm) deeper than the combined depth of the channel and grate.

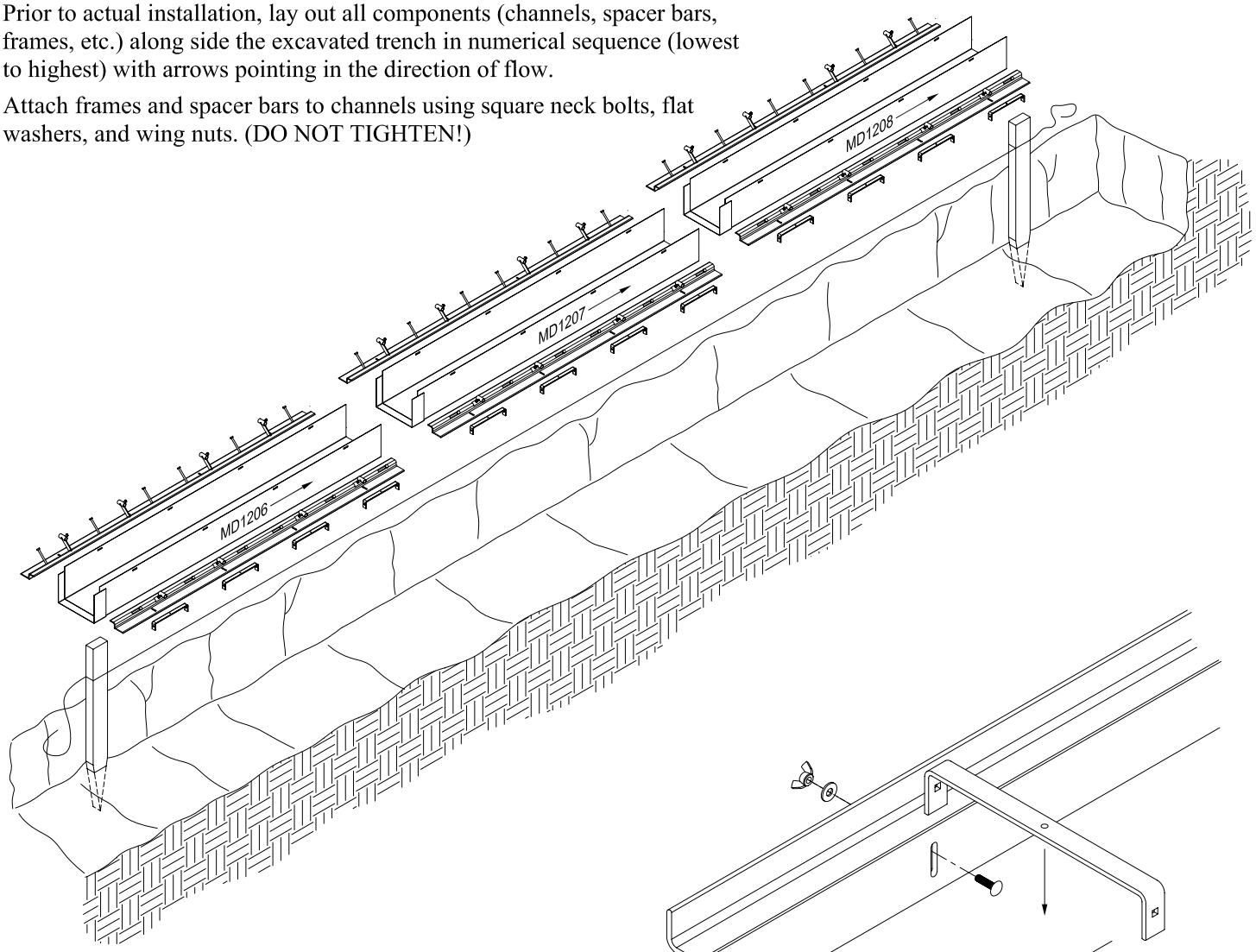


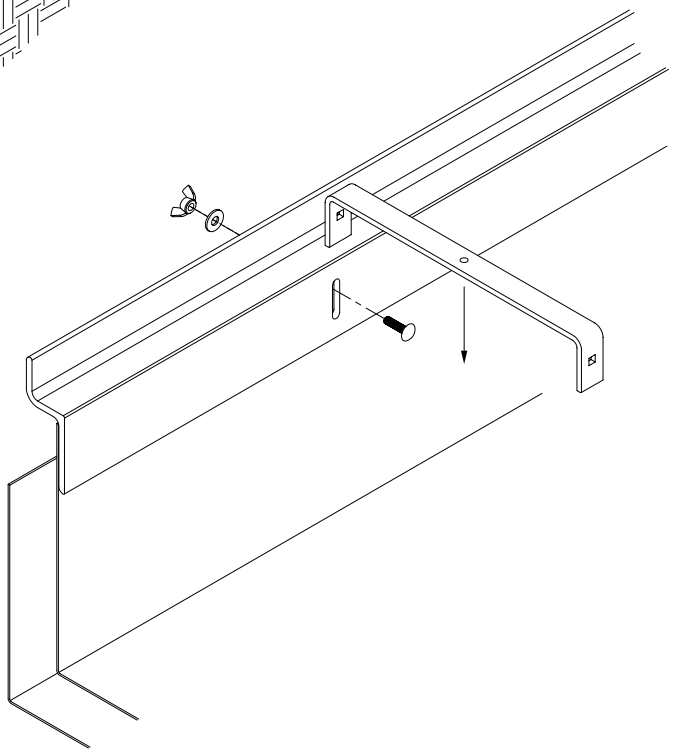
The above guidelines are MINIMUM dimensions which may be increased to meet structural requirements of concrete matrix design. The local Structural Engineer will determine the concretes's overall thickness and reinforcement geometry.

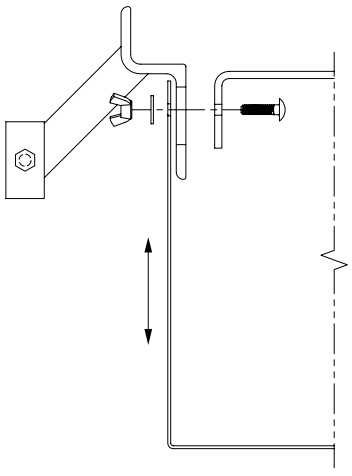
A stringline should be erected to the prescribed surface elevation along the drain run as a guide for setting MultiDrain to the required level.

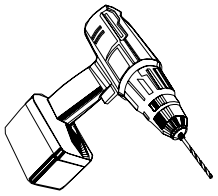
Prior to actual installation, lay out all components (channels, spacer bars, frames, etc.) along side the excavated trench in numerical sequence (lowest to highest) with arrows pointing in the direction of flow.

Attach frames and spacer bars to channels using square neck bolts, flat washers, and wing nuts. (DO NOT TIGHTEN!)



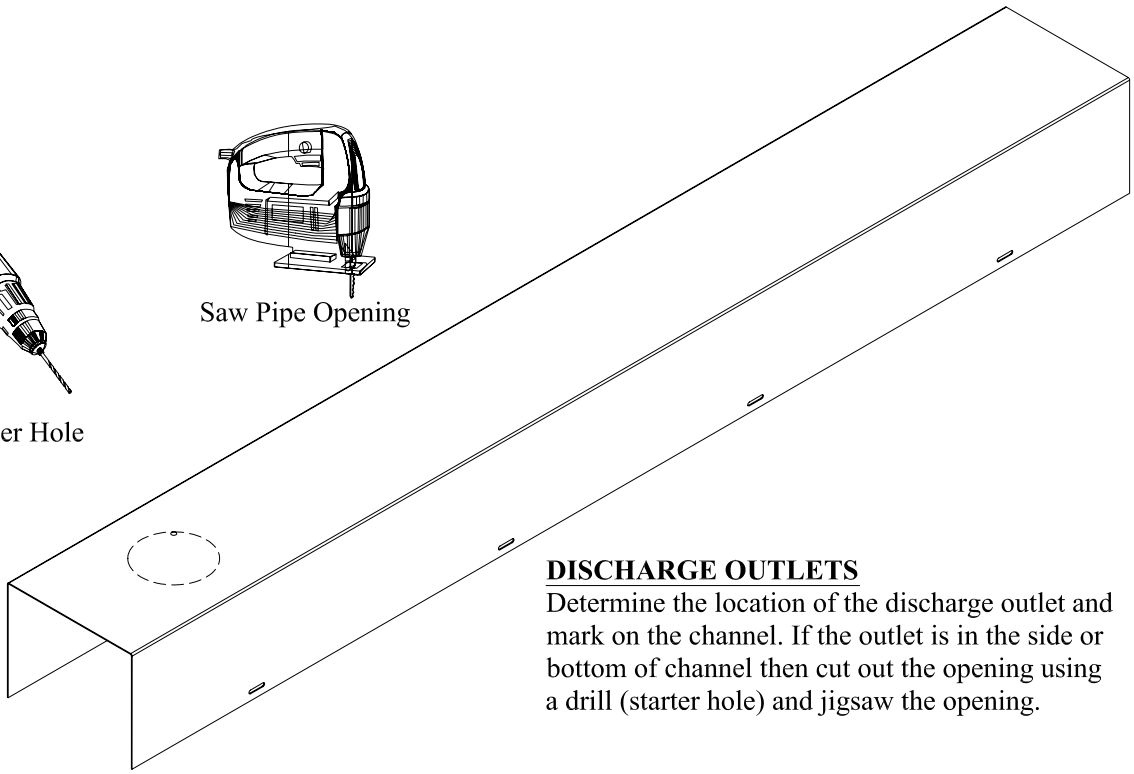






Drill Starter Hole

Saw Pipe Opening

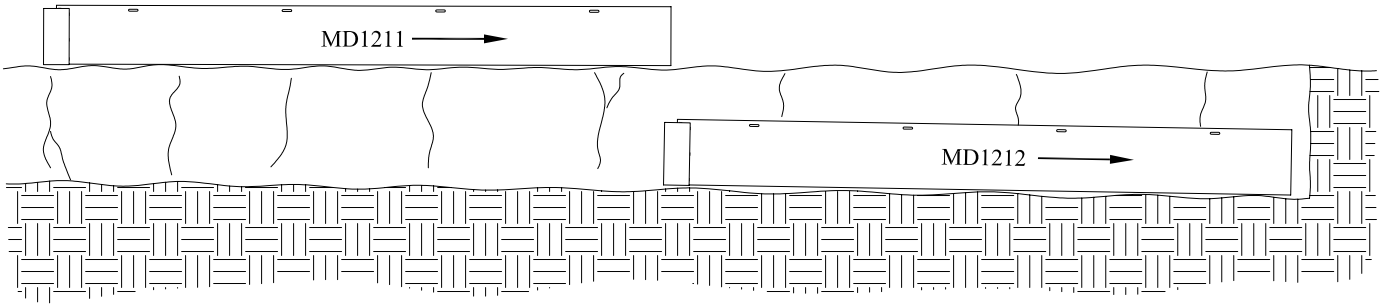


DISCHARGE OUTLETS

Determine the location of the discharge outlet and mark on the channel. If the outlet is in the side or bottom of channel then cut out the opening using a drill (starter hole) and jigsaw the opening.

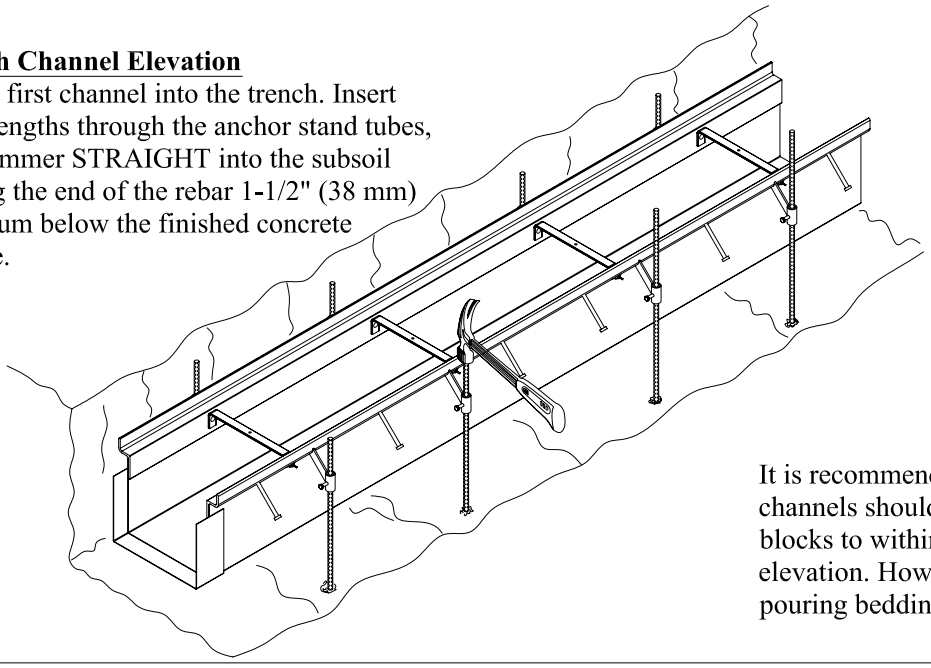
Trench Channel Sequence

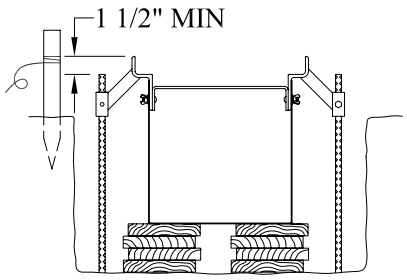
Always begin the channel installation at the outlet (deepest) end of trench run and work back toward the shallow end. (Example: If you end the trench system with a #10 channel, then set the #10 channel at the discharge outlet and work back to #9, #8, and #7 until the run is complete.)



Trench Channel Elevation

Set the first channel into the trench. Insert rebar lengths through the anchor stand tubes, and hammer STRAIGHT into the subsoil leaving the end of the rebar 1-1/2" (38 mm) minimum below the finished concrete surface.

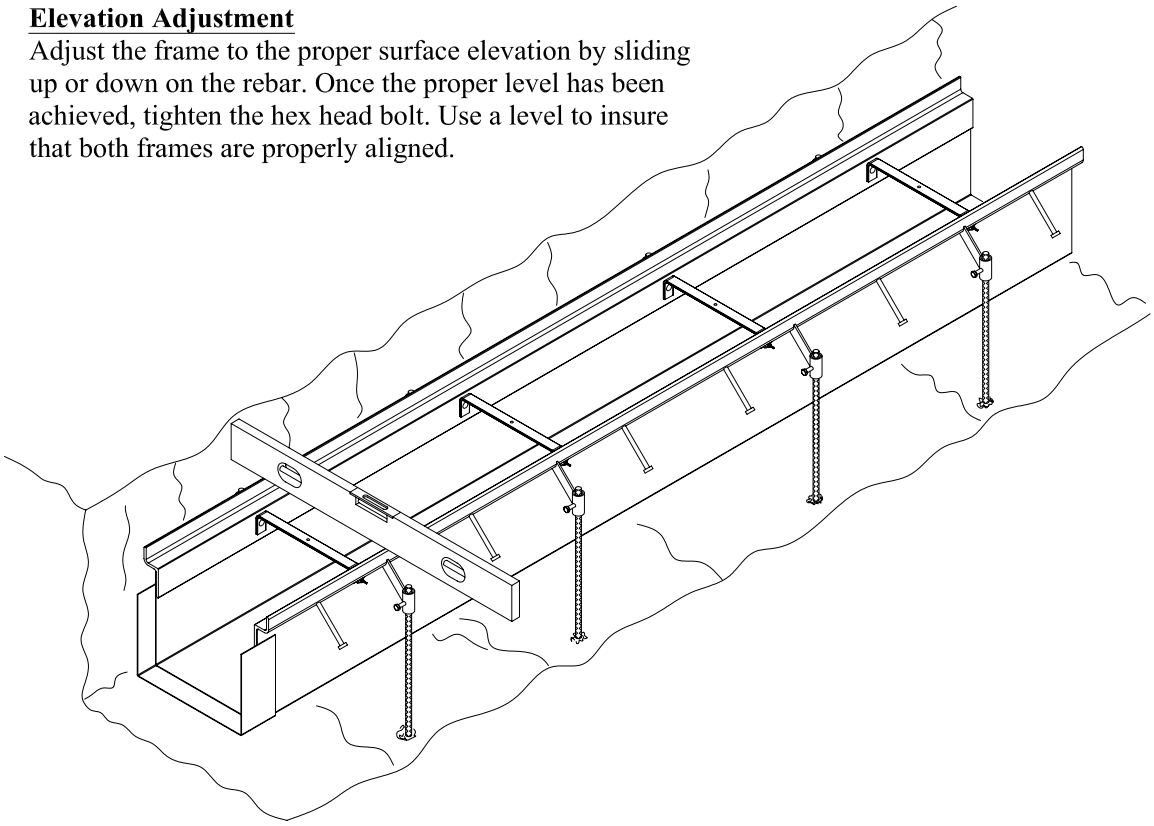


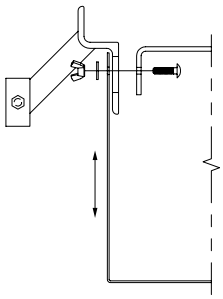


It is recommended that, prior to installing rebar, channels should be elevated on bricks or wooden blocks to within one or two inches below the final elevation. However, blocks must be removed before pouring bedding concrete.

Elevation Adjustment

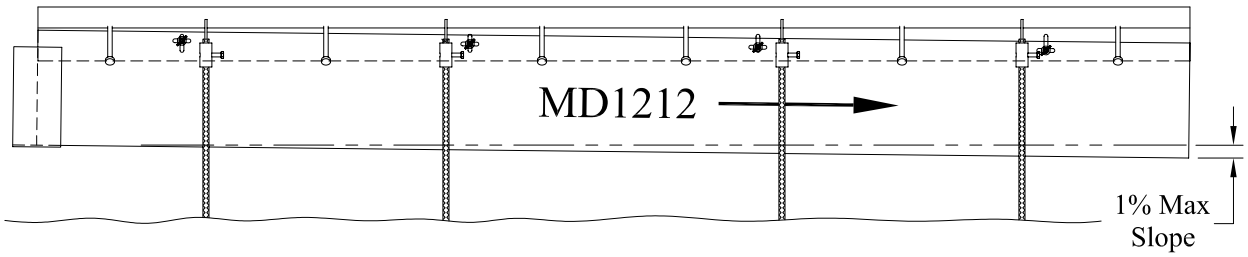
Adjust the frame to the proper surface elevation by sliding up or down on the rebar. Once the proper level has been achieved, tighten the hex head bolt. Use a level to insure that both frames are properly aligned.





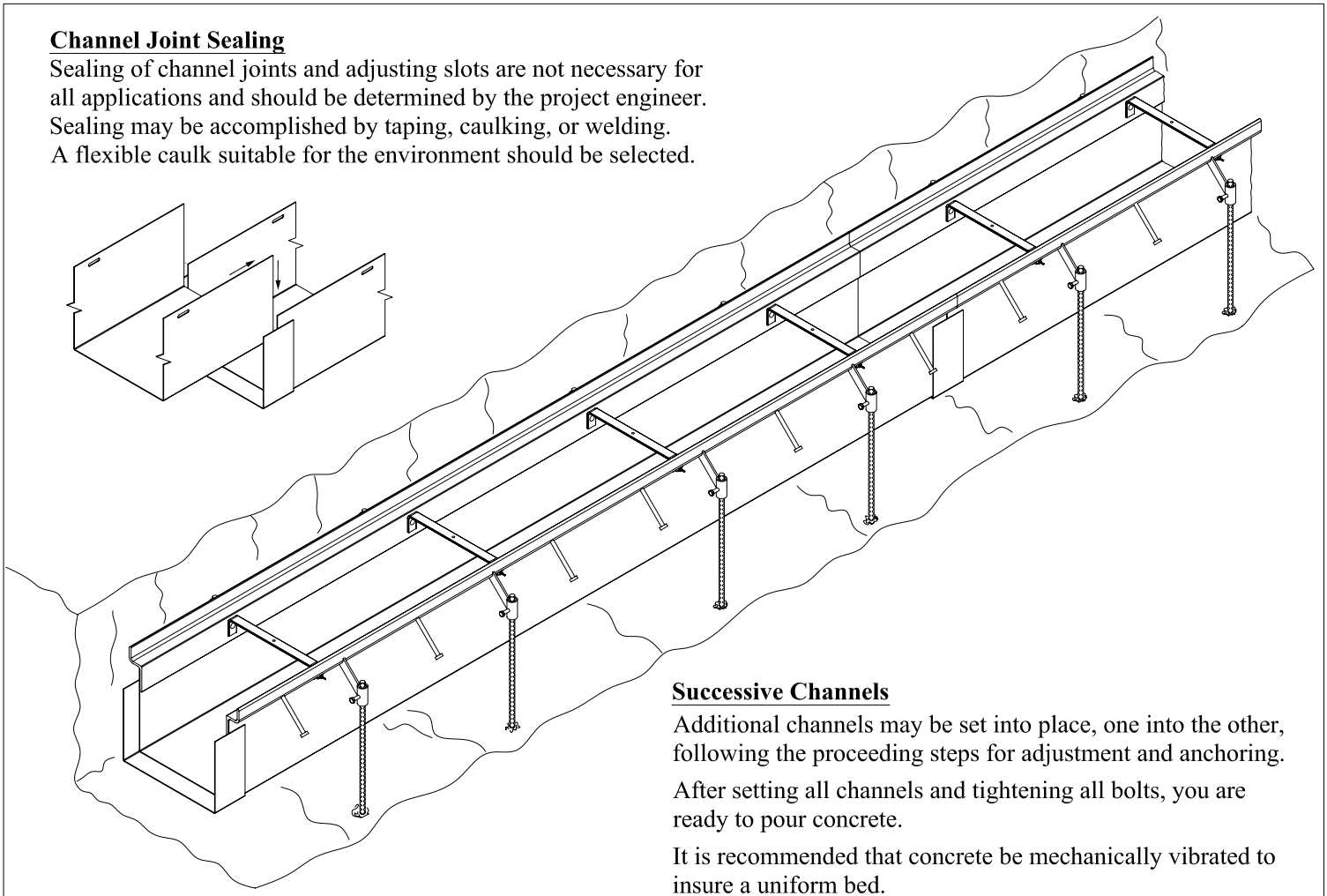
Slope Adjustment

Once the frame is leveled, adjustment of the channel to the specified slope may be accomplished by raising or lowering the channel within the frame. Channels can be adjusted from perfectly level (no slope) to a maximum of 1% slope. ***Tighten all bolts and nuts*** once slope has been achieved.



Channel Joint Sealing

Sealing of channel joints and adjusting slots are not necessary for all applications and should be determined by the project engineer. Sealing may be accomplished by taping, caulking, or welding. A flexible caulk suitable for the environment should be selected.

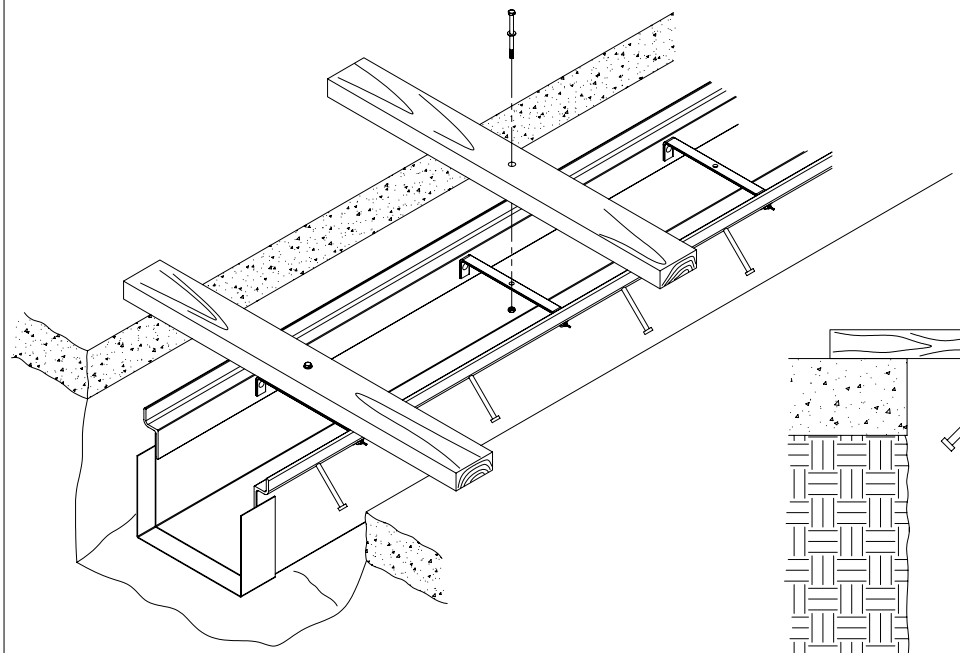


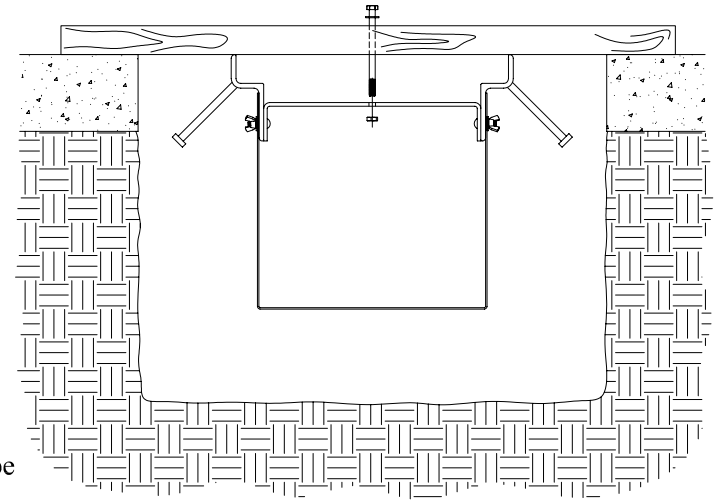
Successive Channels

Additional channels may be set into place, one into the other, following the proceeding steps for adjustment and anchoring.

After setting all channels and tightening all bolts, you are ready to pour concrete.

It is recommended that concrete be mechanically vibrated to insure a uniform bed.





Alternate Installation Method

Channels and frames may be supported from existing concrete by bolting a 2" x 4" (51 mm x 102 mm) board spanning the trench as illustrated. The channels can still be adjusted for the specified slope as previously outlined.

Care should be taken to not over tension the bolt to the spacer bar as this will deflect the spacer bar and narrow the channel.

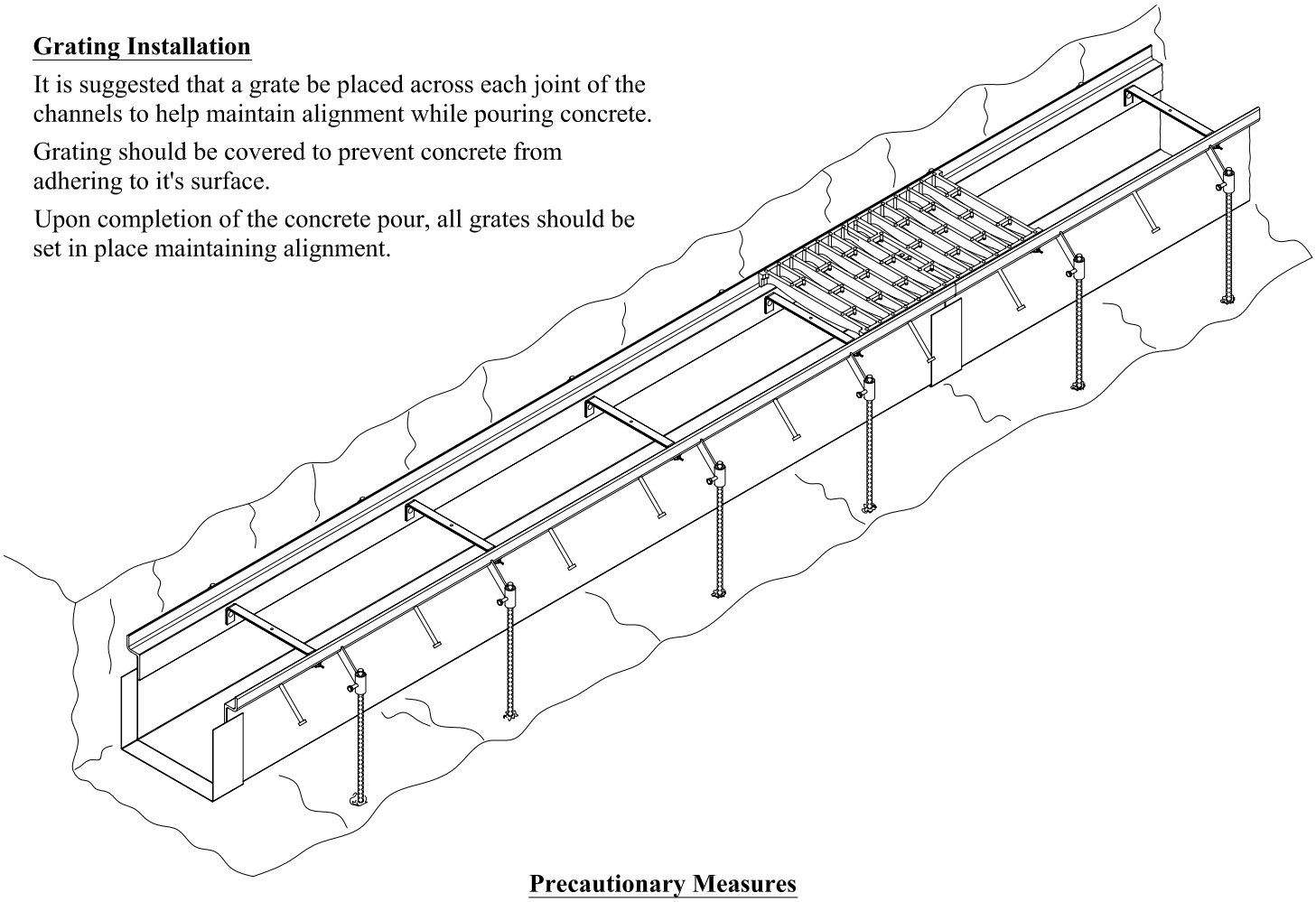
Note: Frames without anchor stands are depicted for this application.

Grating Installation

It is suggested that a grate be placed across each joint of the channels to help maintain alignment while pouring concrete.

Grating should be covered to prevent concrete from adhering to it's surface.

Upon completion of the concrete pour, all grates should be set in place maintaining alignment.

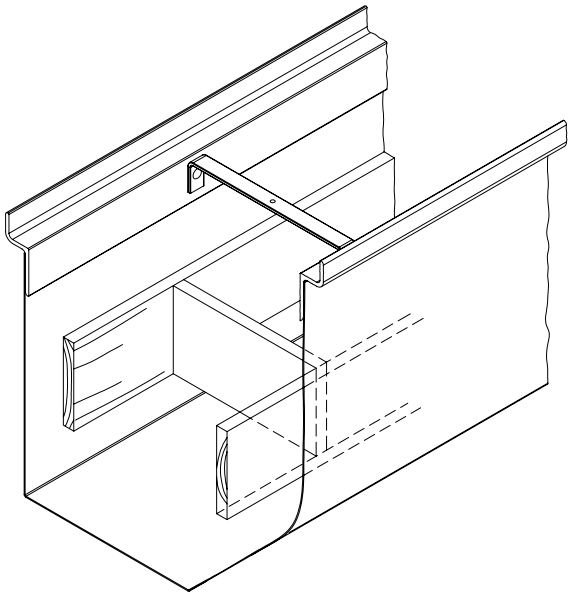


Precautionary Measures

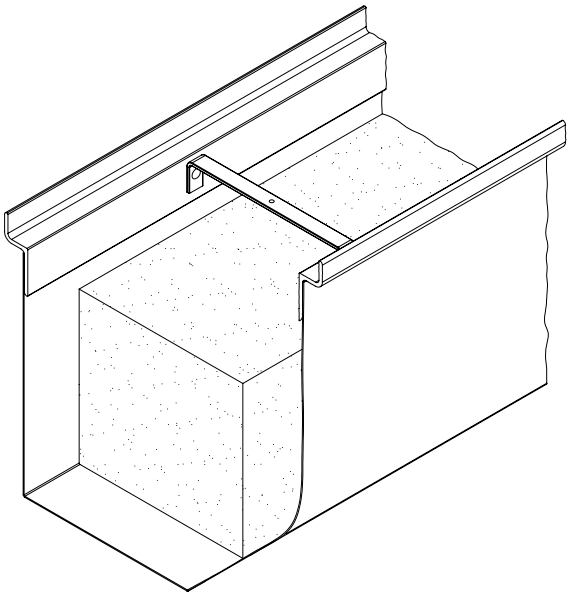
Care should be taken to cover channels and grates during concrete pour to eliminate unnecessary clean up.

If you are using deep channels, it may be necessary to brace the lower walls of the channels to maintain uniformity. Wood framing or expanded polystyrene (EPS) foam blocks methods are depicted.

If you have any questions, please contact one of our experienced technical staff.



Wood Framing

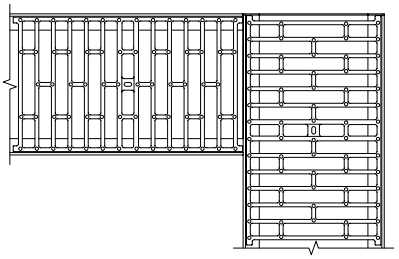


EPS Foam

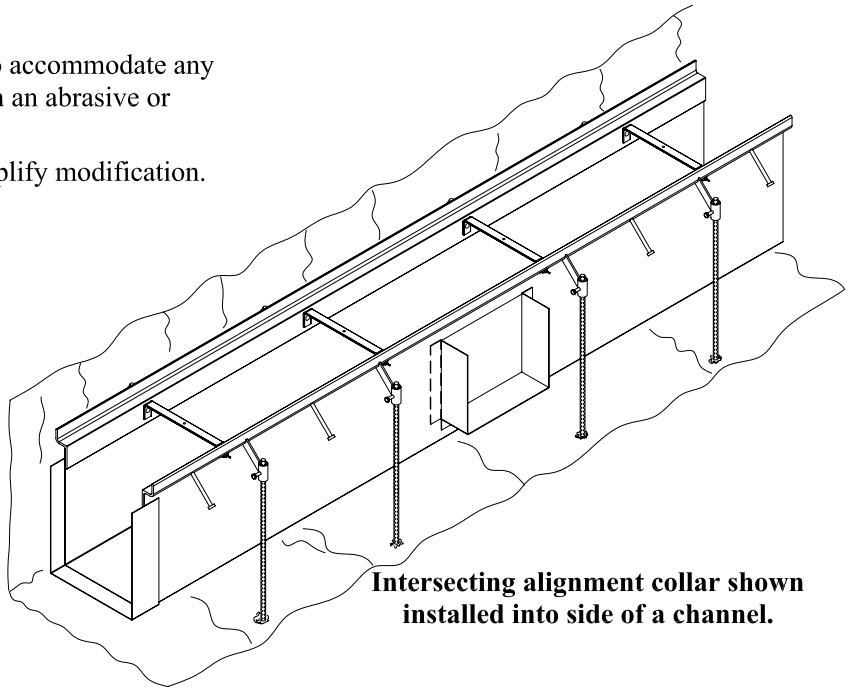
Intersecting Trench Methods

Channels, frames and grates may be cut in the field to accommodate any type of angle or connection using a masonry saw with an abrasive or diamond blade or jigsaw with appropriate blade.

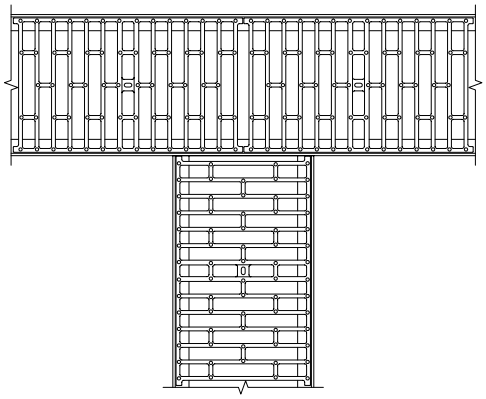
Alignment collars and end plates are available to simplify modification.



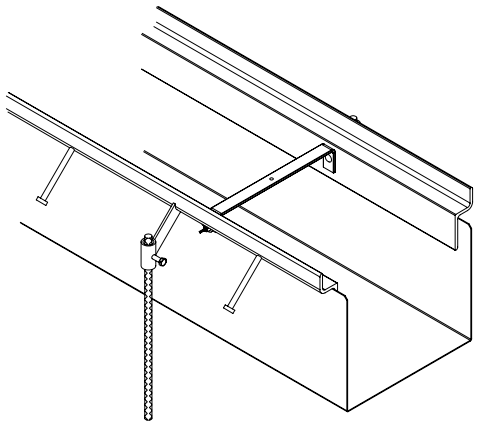
Grating, 90 degree Ell (no cutting required)



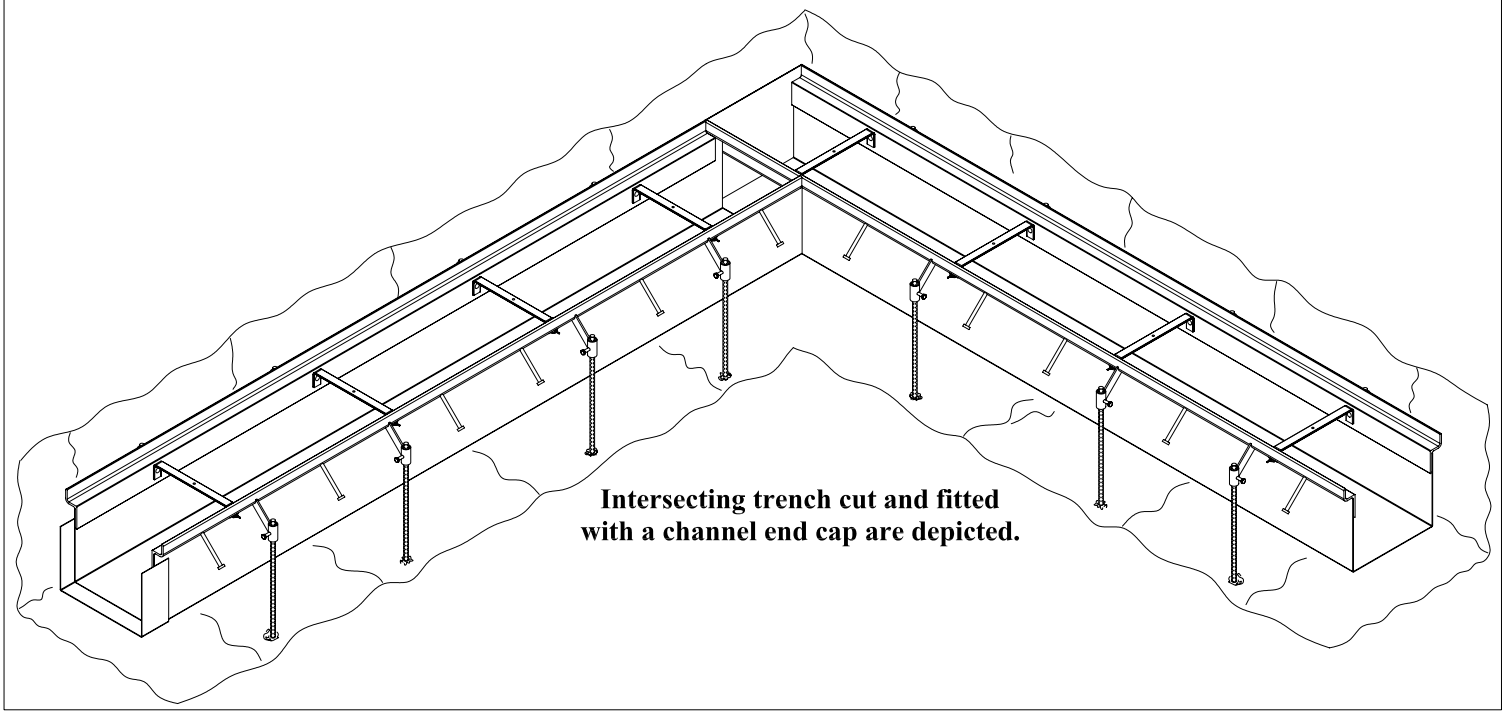
Intersecting alignment collar shown installed into side of a channel.



Grating, 90 degree Tee (no cutting required)



Intersecting frame must be cut to fit around the frame of the trunk line channel.



Intersecting trench cut and fitted with a channel end cap are depicted.