

SITEDRAIN™

VERTICAL INSTALLATION GUIDE

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American Wick Drain SITEDRAIN prefabricated drainage products may be installed in a variety of civil construction applications including: retaining walls, shoring walls, MSE walls, bridge abutments, landfills, split slabs, underslab, cut-slopes, trench drains and cutoff drains.

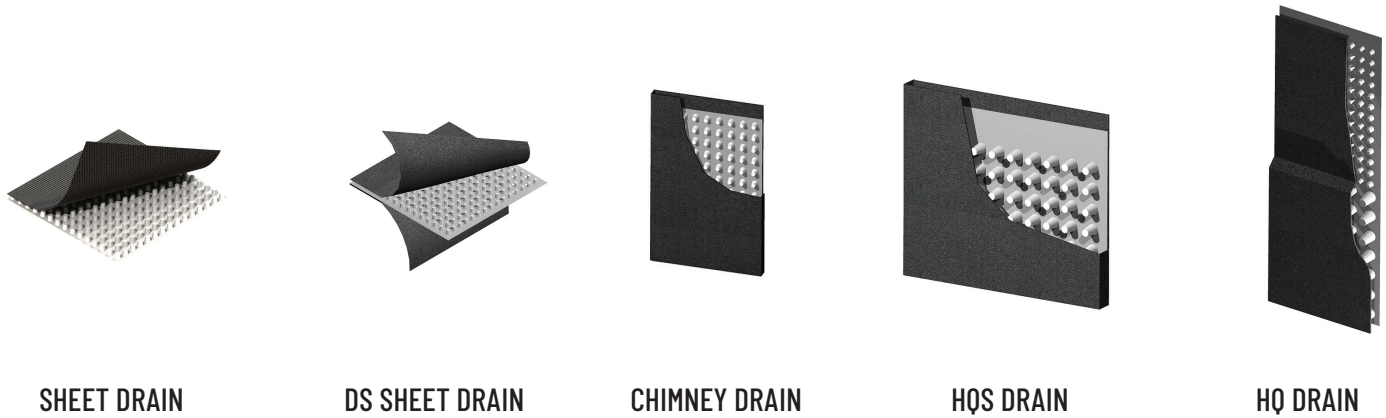
AWD SITEDRAIN products are engineered to provide predictable performance without the expense of specialized tools or equipment. SITEDRAIN products are durable and designed to work in conjunction with soil, concrete or shotcrete backfill materials in a wide variety of subsurface drainage applications. Contact AWD for specific information related to the drainage requirements of your project.



GENERAL INFORMATION

SITEDRAIN prefabricated drainage products combine a formed and molded polymer core with geotextile filter fabrics bonded to one or both sides. The fabric retains backfill materials while allowing water to freely enter the drainage core, providing a continuous and efficient flow path for collected water.

AWD manufactures SITEDRAIN Sheet Drains, DS (Double-Sided) Sheet Drains, Chimney Drains and Combination Drains. The following information provides guidelines applicable to prefabricated drains in typical applications.



SITEDRAIN PRODUCT OVERVIEW	
Sheet Series	Large surface area, single-sided drainage. Flow capacity equivalent to 6 - 12 feet of drainage aggregate.
DS Sheet Series	Large surface area, double-sided drainage. Flow capacity equivalent to 6 - 12 feet of drainage aggregate.
Chimney Series	Special width double-sided sheet drains for applications where discrete coverage is desired.
HQS Series	High flow capacity, double sided water collection system for sheet drains. Replacement for perforated pipe.
HQ Series	High flow capacity, single-sided water collection system for sheet drains. Replacement for perforated pipe.

PACKAGING & SHIPPING:

AWD offers the following packaging and shipping options for SITEDRAIN products.

- Rolls palletized and banded (standard/default shipping method)
- Rolls loose (upon request)
- Rolls loose in UV resistant bags (upon request)

DELIVERY:

Materials shall be delivered in original, unopened, undamaged packaging bearing manufacturer’s name and product identification.

- Care must be taken during unloading process to insure materials are not damaged.
- Materials shall remain in original packaging until time of installation.

STORAGE:

Store materials in protected environment until time of installation.

- Materials not shipped in UV resistant bags must be stored indoors or under separate UV protective cover to protect materials from exposure to direct sunlight.
- UV resistant bagged materials may be stored in outdoor UV exposed environments for a cumulative maximum of 180 days.

ENVIRONMENTAL CONSIDERATIONS:

- Limit unpackaged material UV exposure to a cumulative maximum of 14 days during installation.
- Do not install materials during high wind events.
- Do not expose materials to chemicals that are strong acids, strong bases, or high in solvents content.
- Protect materials from site construction damage, flames, and other environmental conditions that may damage the materials.

TEMPERATURE GUIDELINES:

INSTALLATION TEMPERATURE RESTRICTIONS:

AWD does not recommend installation when the ambient temperature is below 20°F or above 100°F.

OPERATIONAL TEMPERATURE RESTRICTIONS:

AWD products should not be installed in applications where the long term operational temperature is expected to be below 20°F or above 150°F.

HOT APPLIED LAYER RESTRICTIONS:

AWD does not recommend hot applied layers (i.e. asphalt, hot mix setting beds, etc.) with application temperatures greater than 200°F be applied directly in contact with drainage products. In instances where the application temperature is above 200°F, please contact AWD for technical assistance.

INSTALLATION DETAILS

This document is provided as a guideline to address typical installation applications and conditions. Where noted, "AWD-XXX" refers to detail drawing numbers located in the Appendix of this installation guide that contain additional information. Contact your local AWD SITEDRAIN representative for project or application specific guidelines.

ACCESSORIES:

AWD offers a complete line of Fittings & Accessories to facilitate the proper installation of our drainage products. AWD Fitting & Joint Tape (AWD Tape) is recommended for the sealing, seaming, terminating and connecting details referenced in this document. Any tape designed for underground use is acceptable provided it offers a strong bond that will not deteriorate over time in typical or anticipated subsurface conditions.

ATTACHMENT METHODS:

Common attachment methods for drainage products include construction adhesives, mechanical fasteners (typically using nail gun), double-sided tapes, insulation anchors, and nails through washers or wood lathing. Construction adhesives with high solvent contents should be avoided as they may damage prefabricated drainage products. Acceptable attachment methods are dependent upon substrate.

CONCRETE OR WOOD: Construction adhesives, double-sided tape, or mechanical fasteners.

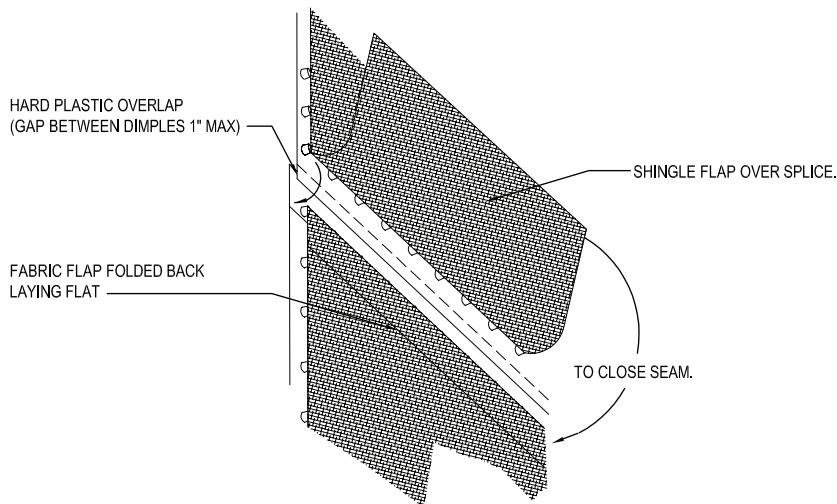
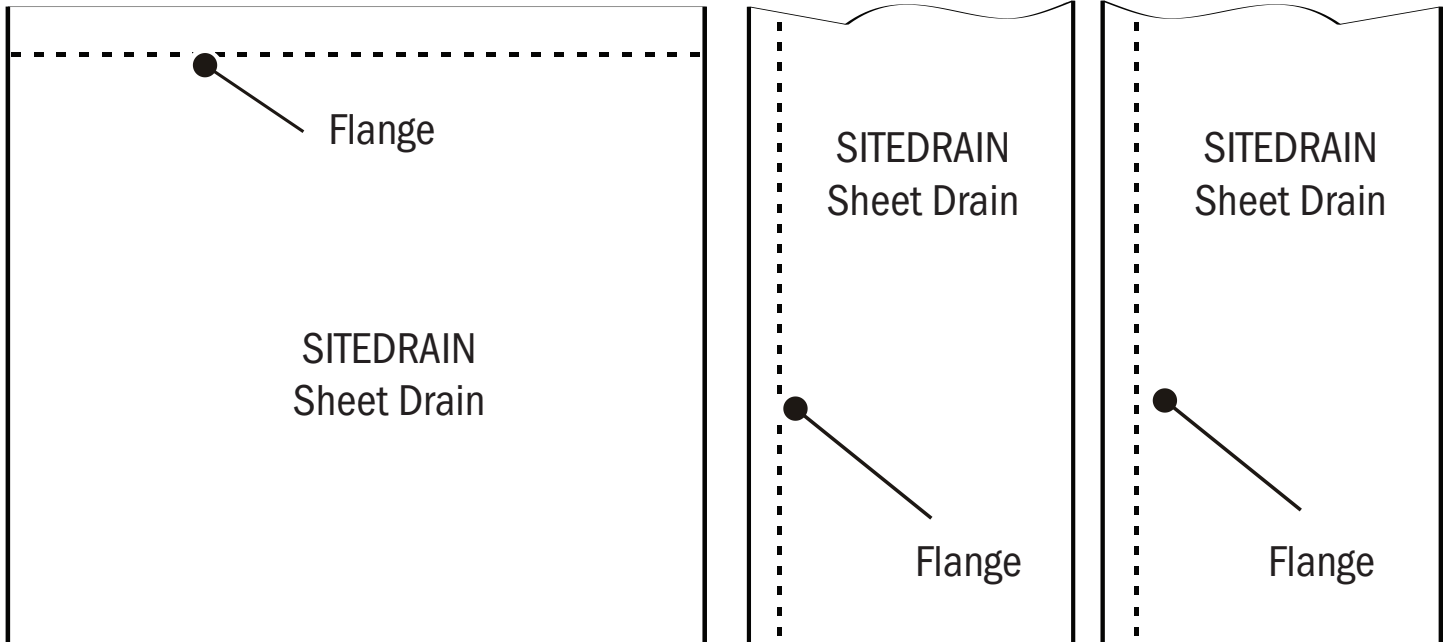
SOIL: 4-inch to 8-inch long galvanized nails on approximately 4-foot spacing. Nail length will vary depending upon the surface to which the prefabricated drain is being attached. Nails should have flat heads, and washers or wood lathing may be used to prevent the nail head from being driven through the prefabricated drain.

WATERPROOFING MEMBRANES: Construction adhesives, double-sided tape, or insulation anchors. Check with the waterproofing manufacturer for compatibility before using construction adhesives in conjunction with waterproofing materials.

DRAINAGE CONNECTION FLANGE:

SITEDRAIN prefabricated sheet & combination drains are manufactured with a core flange on each roll. The flange is a flat section of plastic that extends beyond the molded dimples on one side. The flange is designed to connect rolls to each other to facilitate water flow and transporation. Rolls are designed with integrated fabric flaps that extend beyond the flange edge to secure seams and terminate edges, preventing soil intrusion into the water flow channel.

Rolls can be installed vertically (in columns) or horizontally (in rows) against the installation surface. All rolls should be installed with flanges oriented in a consistent manner.

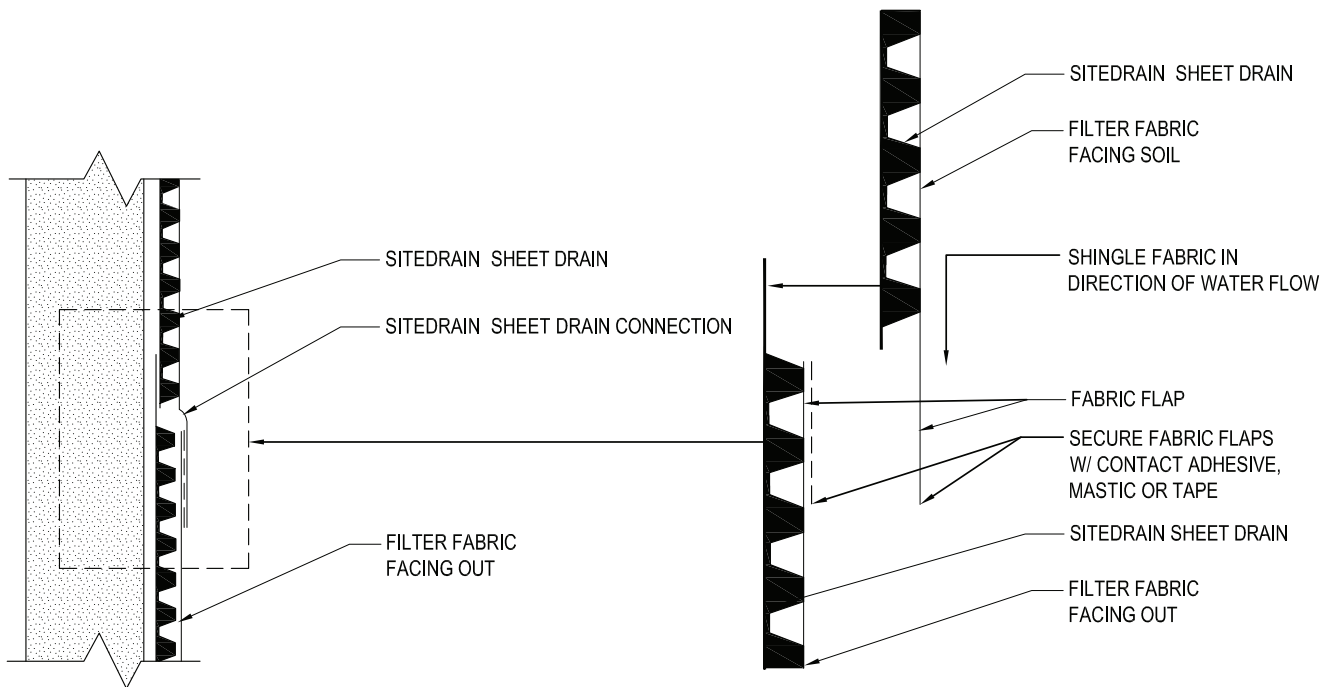


CONNECTING ROLLS:

1. Attach the first roll of sheet drain to the wall using AWD recommended attachment method.
2. Attach additional rolls by placing the flush edge of the roll over the connection flange on the adjacent roll.
3. Use fabric flaps to secure seams.
4. Seal all edges of drain prior to backfill.

When installed horizontally (rows) the core flange should be at the upstream edge. Additional rolls should be oriented in a consistent manner with the non-flanged edge installed over the flange edge of the previously installed roll. Integrated fabric flaps are used to cover the seams prior to backfill. Fabric flaps should be seamed in a downstream direction when possible.

AWD Fitting & Seam Tape (AWD Tape) or spray adhesives can be used to secure fabric flaps at seams.



AWD-200

SEALING EDGE TERMINATIONS & PENETRATIONS:

SITEDRAIN products are installed in subsurface applications and care should be taken when backfilling to ensure soil is not able to enter the prefabricated drainage core through roll seams or edges.

SEAMS AND EDGES:

Fabric flaps are provided on AWD prefabricated drainage products to facilitate seam and edge terminations.

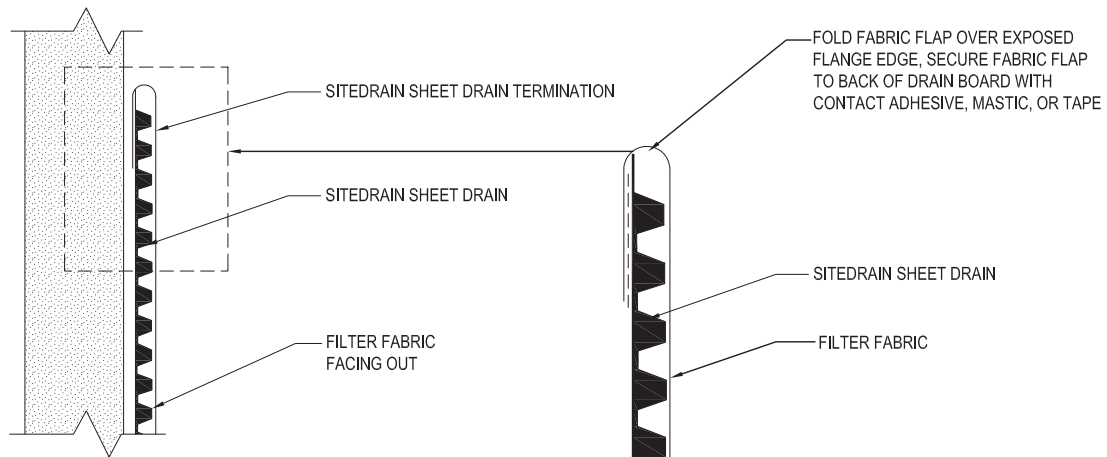
- SITEDRAIN Sheet and DS Series products provide fabric flaps on the long edges of each roll.
- SITEDRAIN C-Series Chimney Drain products are fully wrapped with no fabric flaps.
- SITEDRAIN HQ/HQS Series products provide fabric flaps on the top/flange open edge to facilitate the connection of Sheet or DS Sheet products.

For additional security, spray adhesive or AWD Tape can be used to secure fabric flaps in place prior to backfill.

NOTE:

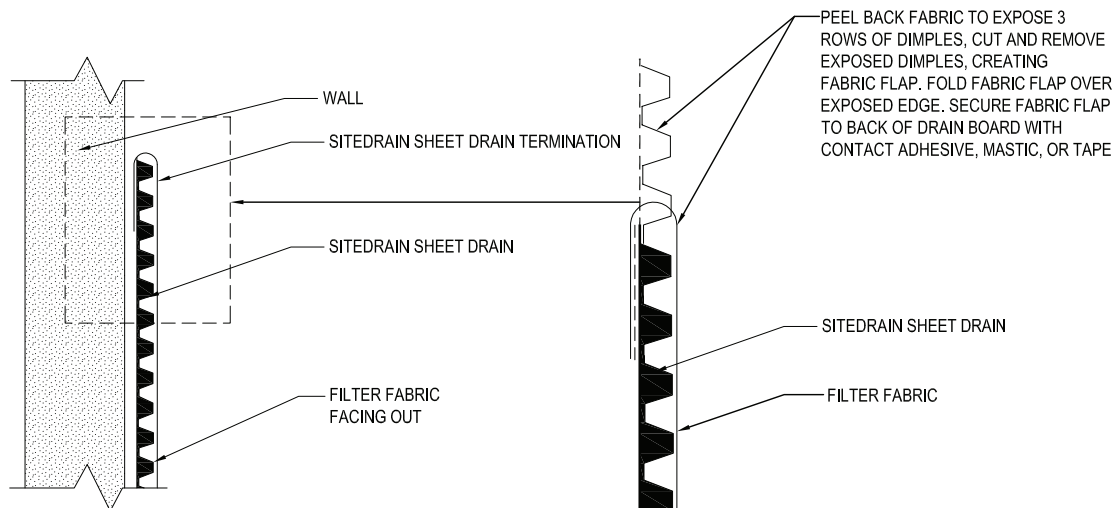
The ends of all rolls/products without fabric flaps must be secured with tape or fabric prior to backfill. Detail Reference for Seams and Terminations - AWD-200, 201, 203, 205, 206, 207, 208.

TERMINATION - Flange Edge - Vertical



AWD-201

TERMINATION - Non-Flange Edge - Vertical



AWD-203

PENETRATIONS:

Penetrations (such as pipes) through prefabricated drains should be sealed using AWD Tape to insure backfill material is not able to enter the drainage core.

FABRIC CUTS:

Cuts in the fabric less than 2 inches wide should be sealed using AWD Tape. Cuts in the fabric larger than 2 inches wide require a patch of filter fabric (of the same type used on the drainage product) extending a minimum 3 inches in all directions beyond the damaged fabric be used to cover the cut. The patch should be secured in place over the cut using AWD Tape or spray adhesive.

BACKFILLING:

Soil should be placed and compacted directly against the prefabricated drain at the compaction requirement specified by the designer. Direct compactor exhaust away from the drain to prevent damage. Backfill to a minimum of 3 inches above drain to allow for coverage after settlement.

VERTICAL APPLICATIONS

SITEDRAIN Sheet Drains

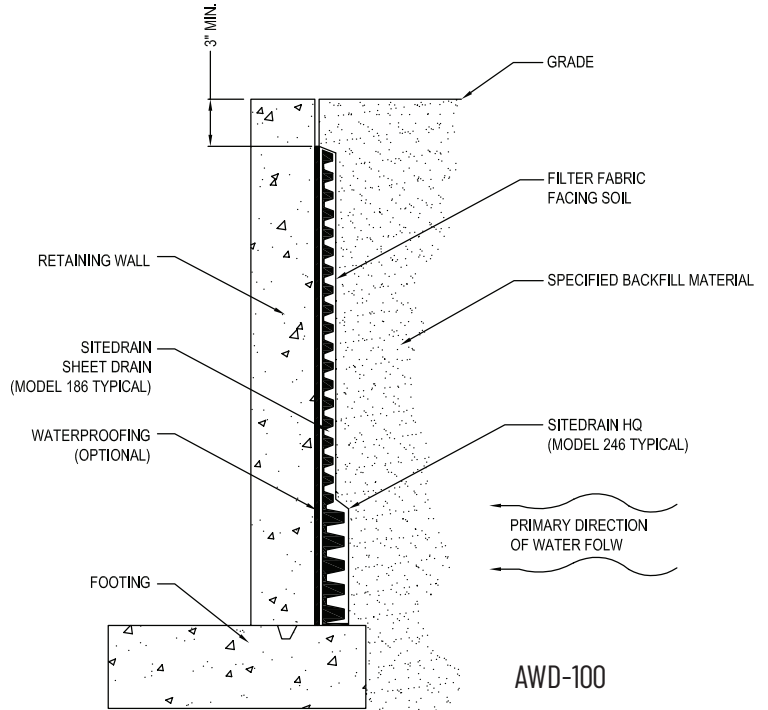
When using SITEDRAIN sheet drains in vertical applications the area of installation should be clear of debris. Limit foot traffic, and/or heavy equipment directly on the sheet drain during horizontal installations to avoid damage to the drainage channel. Refer to General Information and Installation Details sections for installation guidelines.

BACKFILLED WALL:

Install sheet drain with fabric side toward soil.

AWD Detail Reference for Backfilled Walls

- AWD-101 - Retaining Wall Drainage - French Drain
- AWD-102 - Retaining Wall Drainage - Weep Hole
- AWD-105 - Bridge Abutment - Combination Drain
- AWD-106 - Bridge Abutment - French Drain
- AWD-107 - Bridge Abutment - Weep Hole

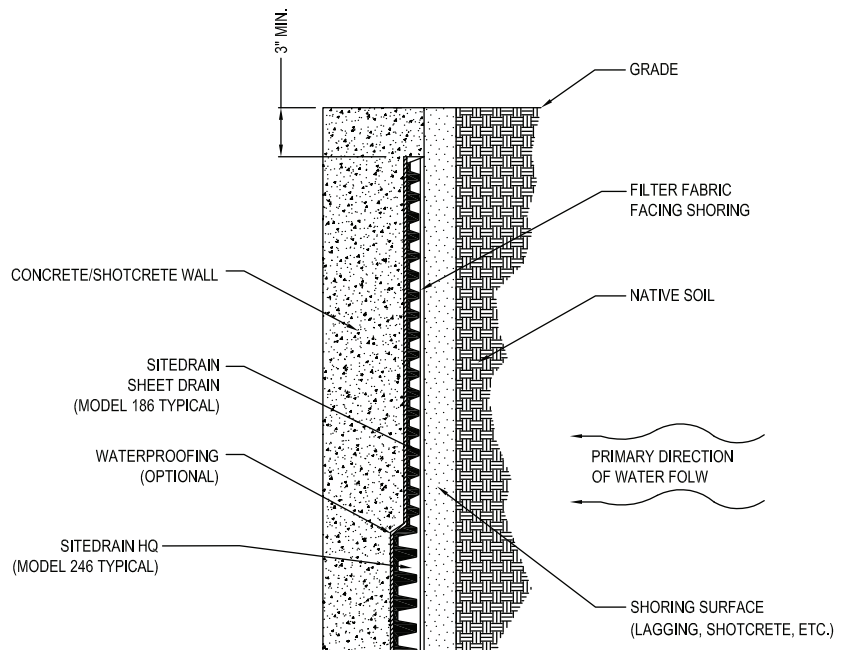


SHORING WALL:

Install sheet drain with fabric side toward shoring. Concrete or gunnite/shotcrete may be placed against the core side of the drain. Refer to "Discharge Details" section for weep hole connection instructions.

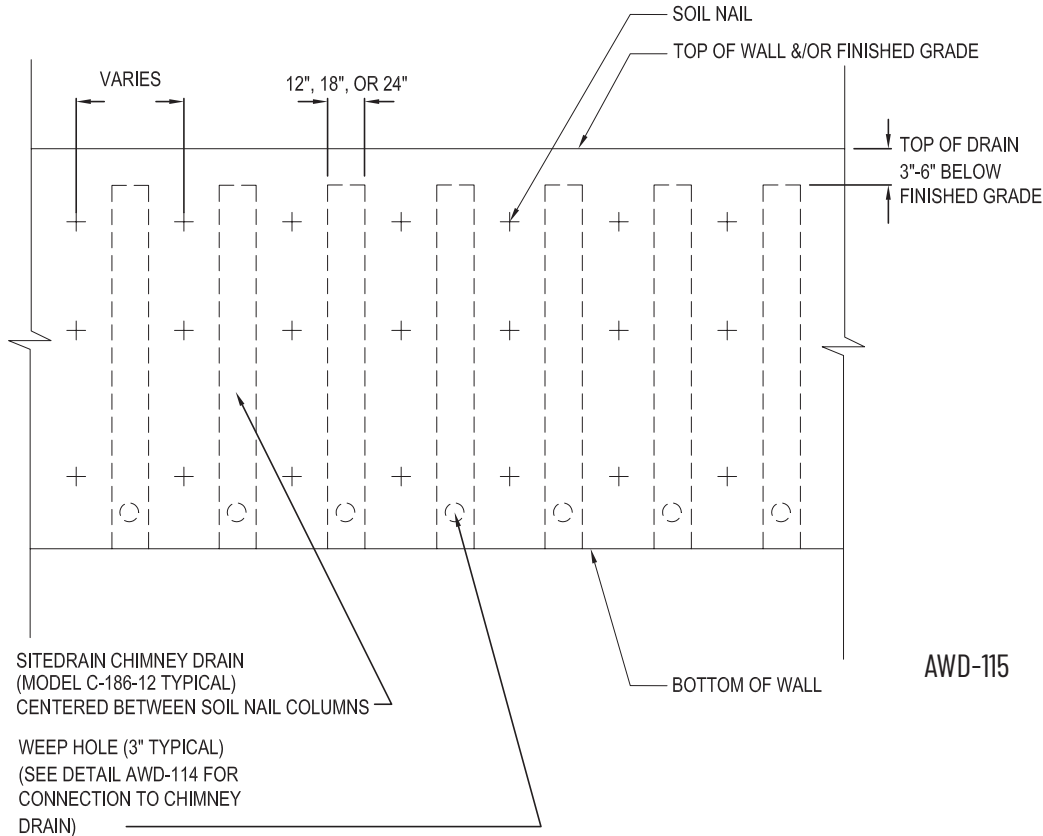
AWD Detail Reference for Shoring Walls

- AWD-112 - Shoring Wall - Weep Hole



SOIL NAIL WALL (CHIMNEY DRAINS):

Chimney Drains are special width sheet drains fully wrapped in filter fabric. The perforated core allows water entry from both sides. Place dimple side toward soil/shoring. Chimney drains are typically installed at spaced intervals in vertical wall or slope applications to relieve hydrostatic pressure and enhance installation ease for applications where full wall coverage is not practical or required.



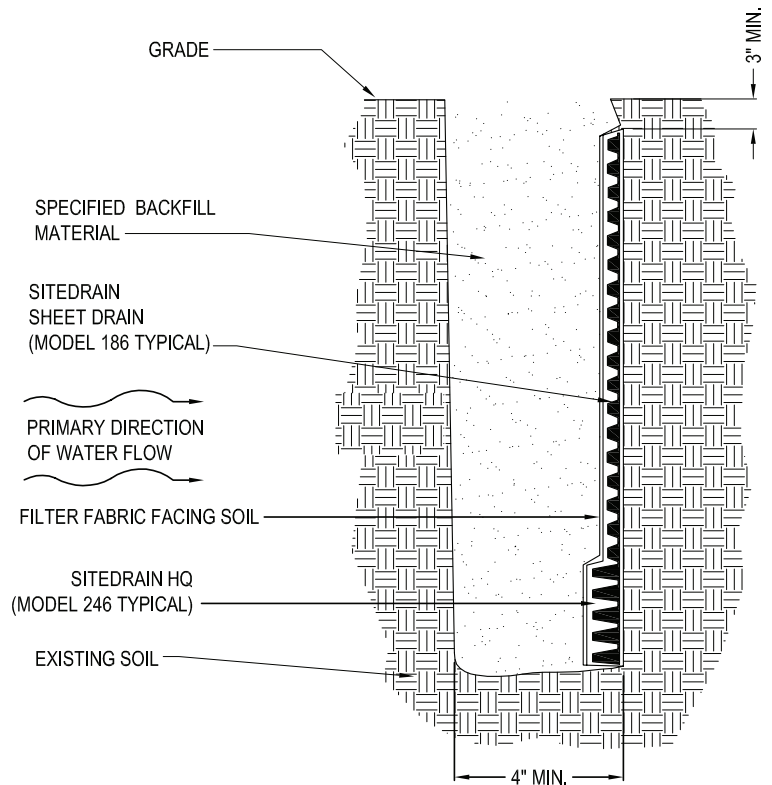
CUT-OFF DRAIN:

Install drain using soil nails with washers.

AWD Detail Reference for Cut-Off Drainage

AWD-133 - Cut-Off Drainage - Strip Drain

AWD-131 - Cut-Off Drainage - French Drain



AWD-130

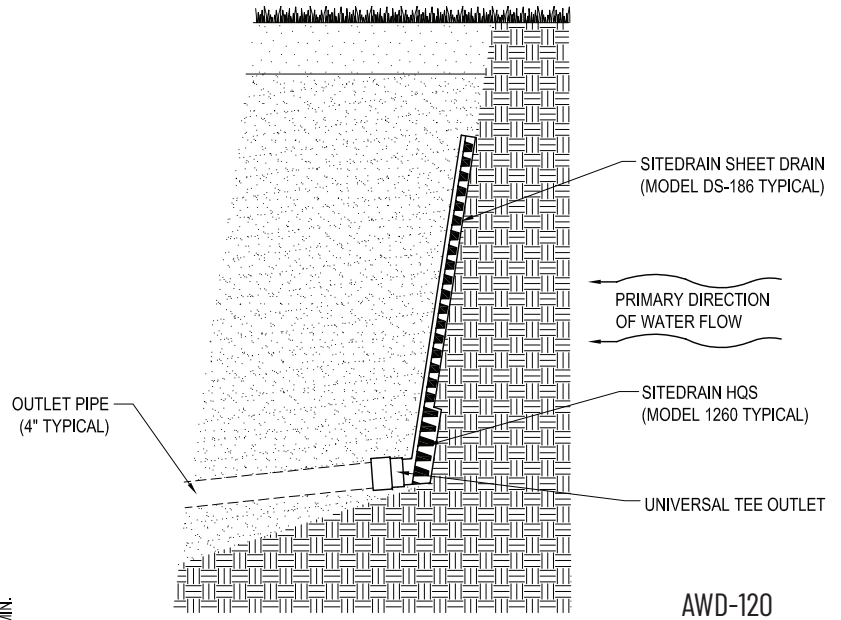
FOR CUT-OFF DRAIN > 3.5' DEEP

CUT-SLOPE DRAIN:

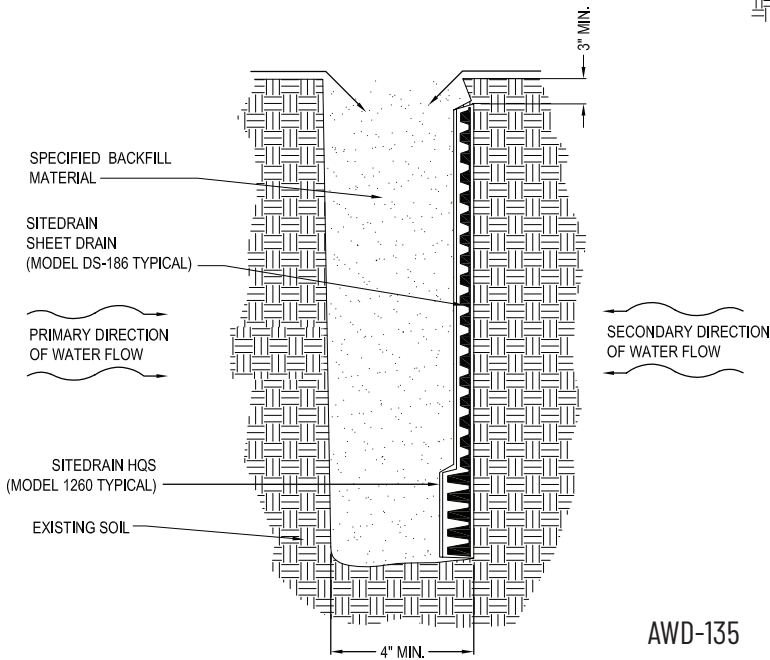
Install drain using soil nails with washers.

AWD Detail Reference for Cut-Slope Drainage

AWD-121 - Cut-Slope Drainage - French Drain



AWD-120



AWD-135

FOR TRENCH DRAINS > 3.5' DEEP

TRENCH DRAIN:

Install drain using soil nails with washers.

AWD Detail Reference for Cut-Slope Drainage

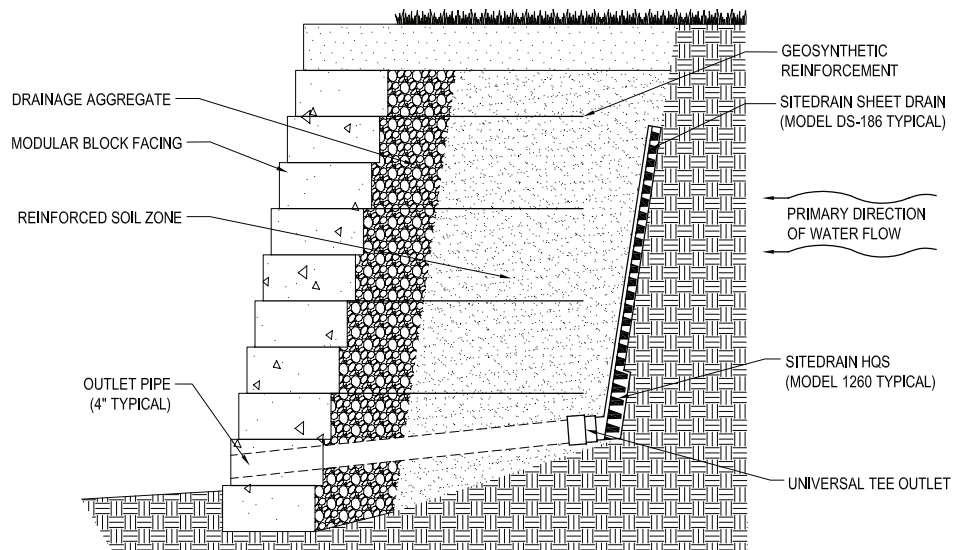
AWD-138 - Trench Drainage - Strip Drain

AWD-136 - Trench Drainage - French Drain

MSE WALL BACK DRAINAGE:

AWD Detail Reference for MSE Wall

AWD-136 - MSE Wall - French Drain



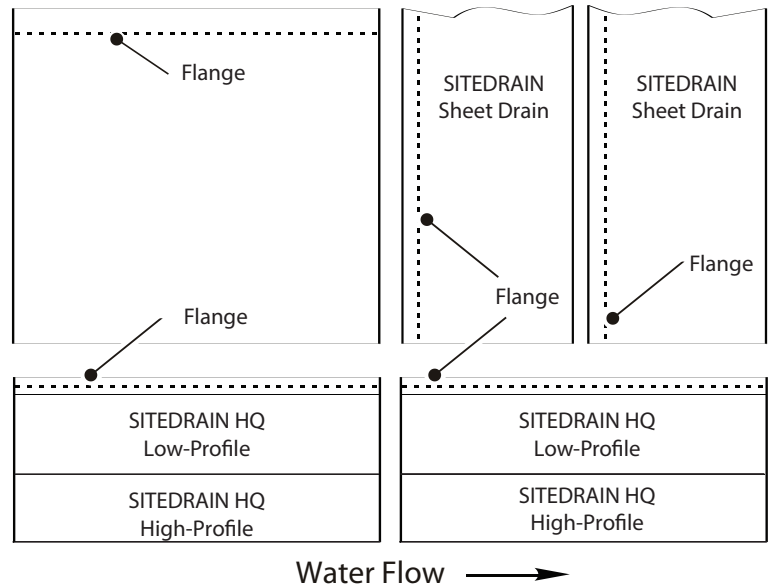
AWD-125

SITEDRAIN HQ Perimeter Drain System

INSTALLING SITEDRAIN HQ

When using SITEDRAIN HQ as the collection and conveyance system, install first roll of SITEDRAIN HQ at the bottom of the wall. The drain should sit on top of the footing (if applicable) with high-profile part of the drain at the bottom to provide high lateral water flow. Install sheet drain over the HQ core flange.

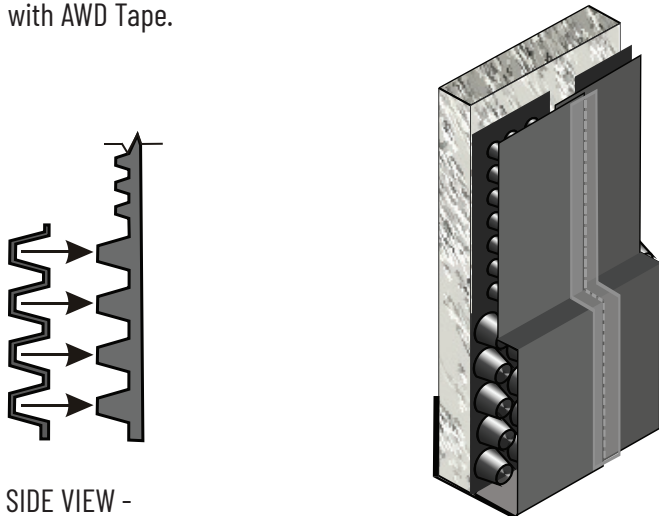
Refer to "General Information" and "Installation Details" sections for installation guidelines.



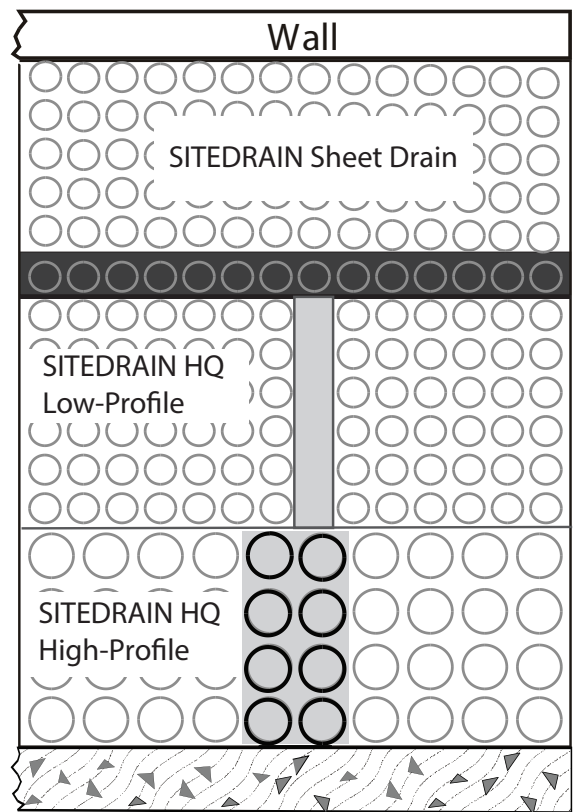
CONNECTING HQ ROLLS

To attach the next roll of SITEDRAIN HQ drain, peel back fabric of SITEDRAIN HQ to expose one row of both low-profile and high-profile dimples on each connecting end. Cut and discard one row of low-profile dimples (do not cut high-profile dimples) from each connecting end. Do not cut fabric.

Interlock one row of the high-profile section and secure connection with AWD Tape.



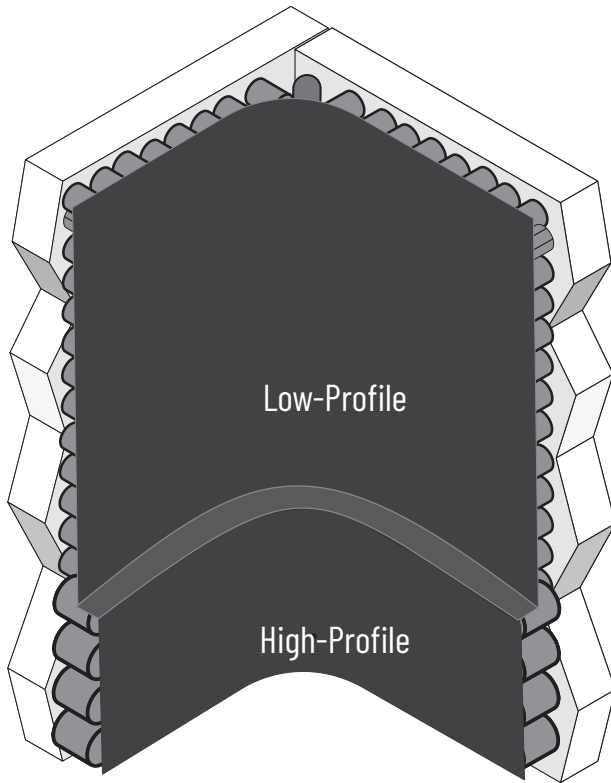
SIDE VIEW -
Interlock HQ Core



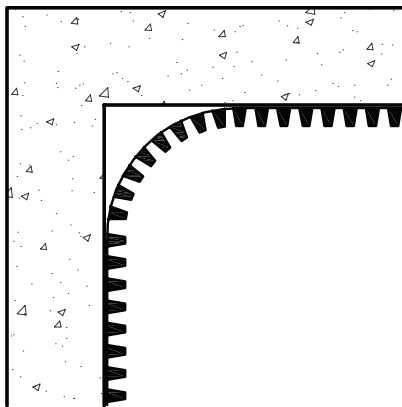
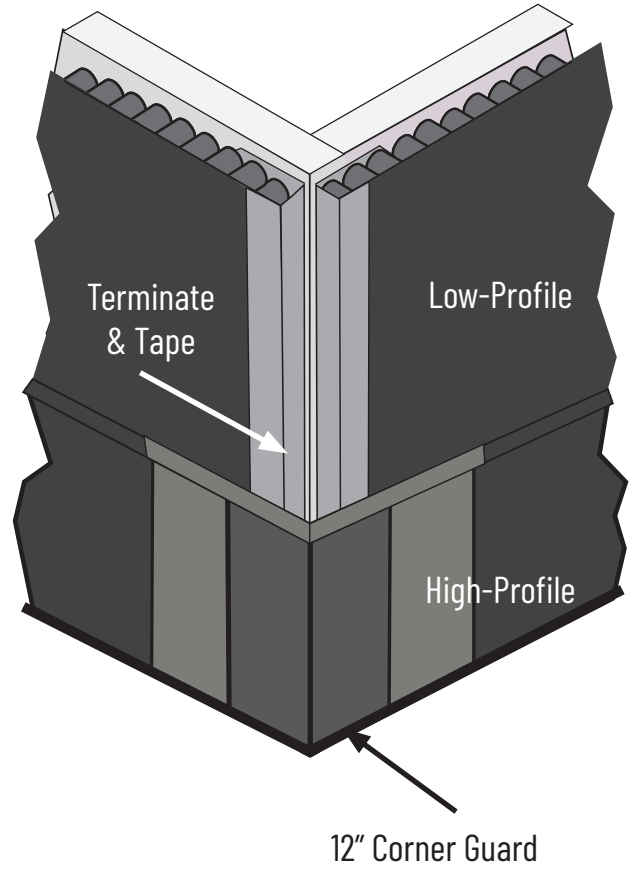
Overlap fabric flaps and tape to secure.

HQ CORNER DETAILS

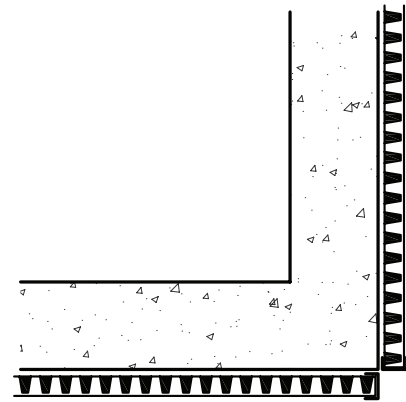
Inside Corners



Outside Corners



Bend drain around Inside Corner.
Low and High Profile Sections



Low Profile: Terminate and Tape

High-Profile: Slit fabric and place AWD 12\" Corner Guard Fitting over slit. Tape to secure.

SITEDRAIN HQ Perimeter Drain System

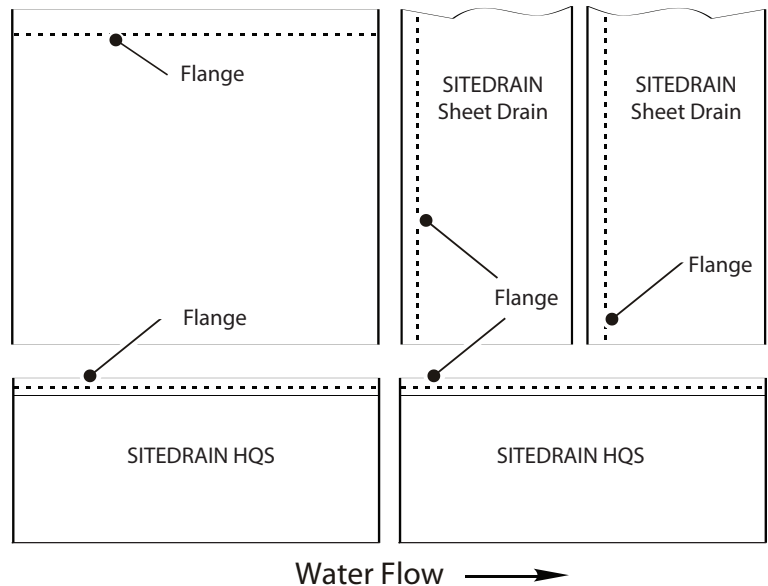
INSTALLING SITEDRAIN HQS

When using SITEDRAIN HQS as the collection and conveyance system, install first roll of SITEDRAIN HQS at the bottom of the wall or trench.

Install sheet drain over the HQS core flange.

NOTE: HQS has fabric flaps that extend beyond the flange on both the front and back side. Both fabric flaps must be secured prior to backfill.

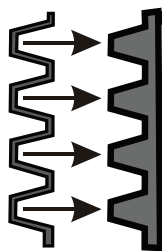
Refer to "General Information" and "Installation Details" sections for installation guidelines.



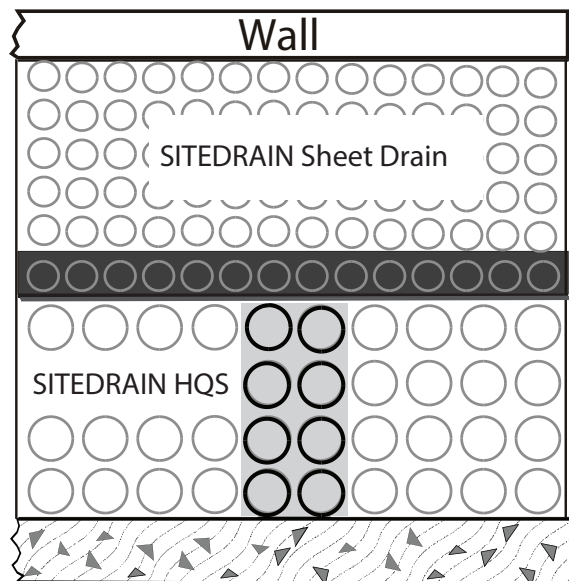
CONNECTING HQS ROLLS

To attach the next roll of SITEDRAIN HQS drain, peel back fabric of SITEDRAIN HQS to expose dimples on each connecting end.

Interlock one row of dimples, overlap fabric flaps on front and back sides. Secure connection with AWD Tape.

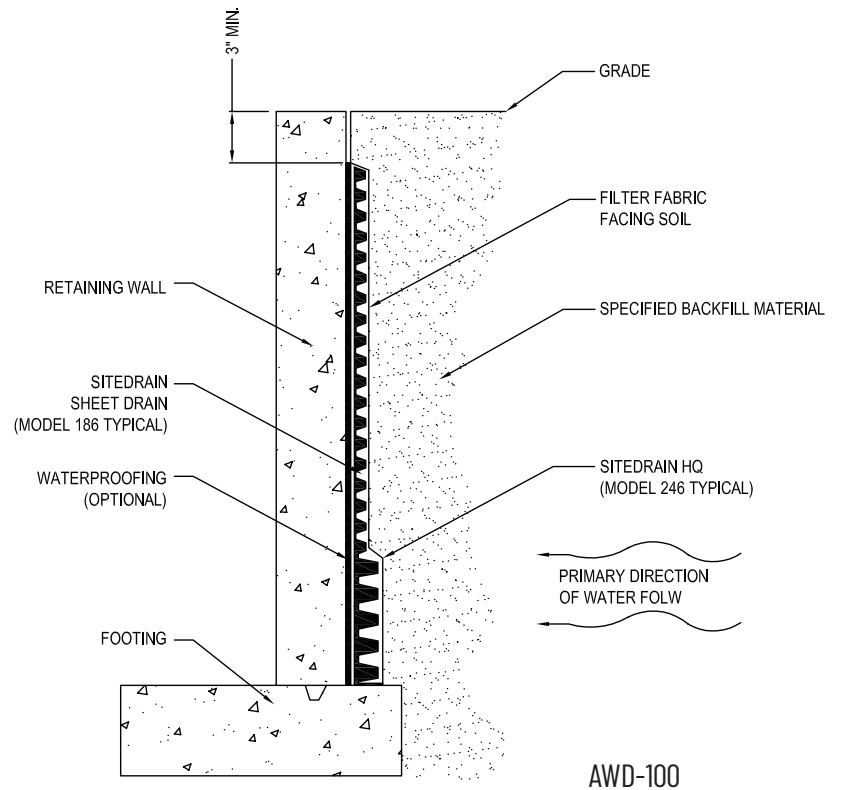


SIDE VIEW -
Interlock HQS Core

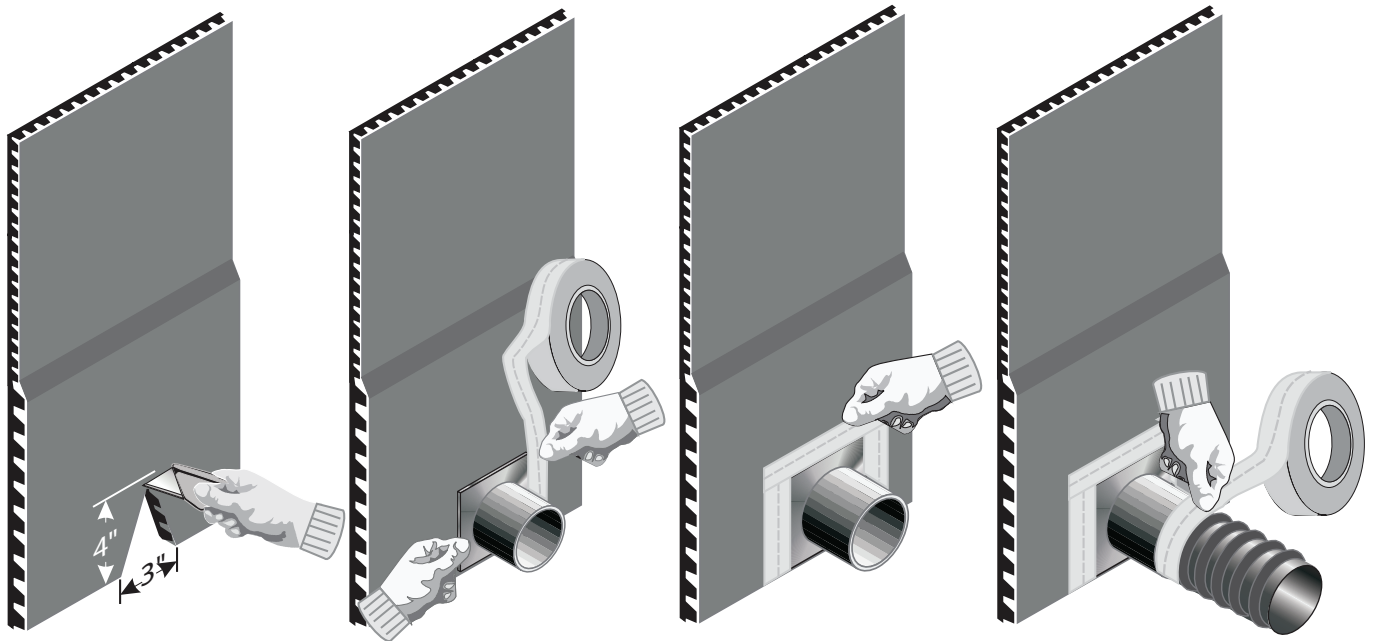


DISCHARGE OUTLET DETAILS

SITEDRAIN HQ drains are designed to connect directly to SITEDRAIN Sheet Drain products allowing collected water a fast, efficient, uninterrupted flow path to designated drainage outlets. AWD Tee Outlet and End Outlet fittings are used to connect SITEDRAIN HQ to outlet pipes. SITEDRAIN products can also be connected to weep hole outlets.



Tee Outlet Connection:



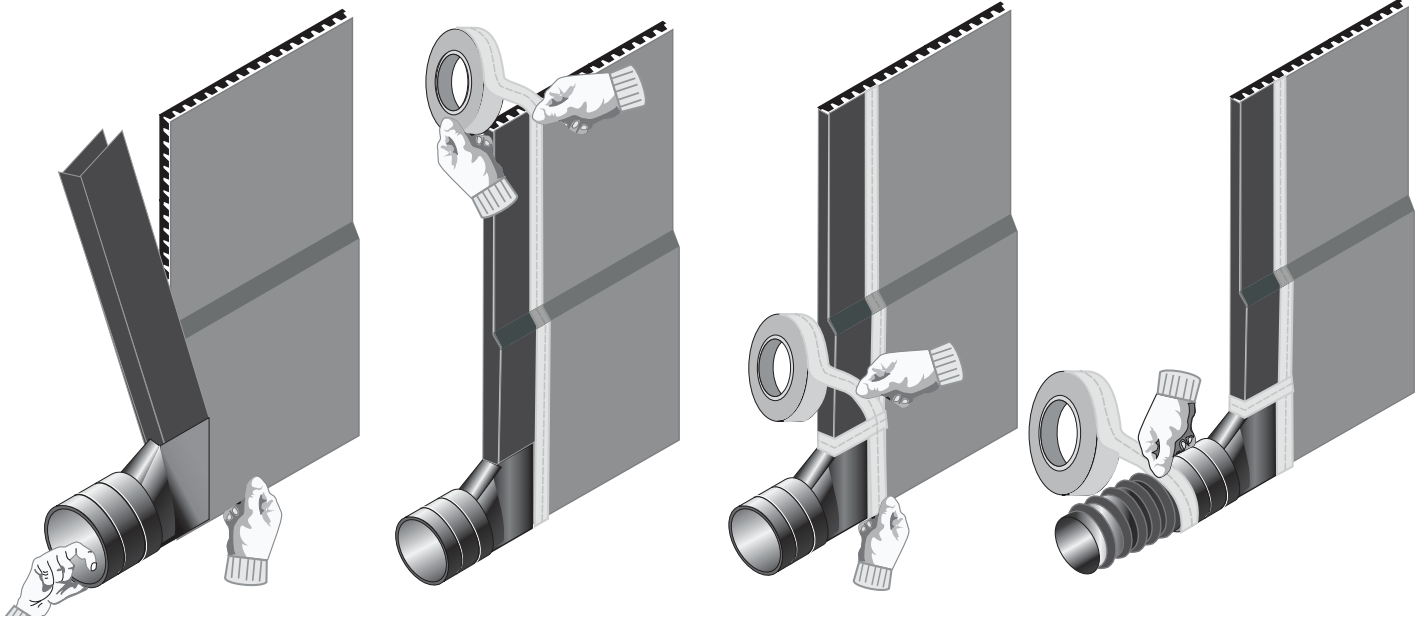
Use razor knife to cut 3" wide x 4" high "V" notch through geocomposite drain fabric and core at desired Tee Outlet fitting location. Discard cut-out section.

PLACE "U" Channel of Tee Outlet fitting over "V" notch and secure bottom edge using AWD Tape.

Secure all fitting edges with AWD Tape.

Insert 4" pipe into Tee Outlet fitting and secure connection with AWD Tape. Double bell housing on fitting allows secure connection of 4" smooth or corrugated pipe.

End Outlet Connection:



Place "U" Channel of End Outlet Fitting around bottom corner of geocomposite drain with fabric flap extending upwards.

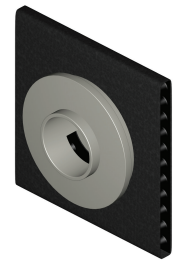
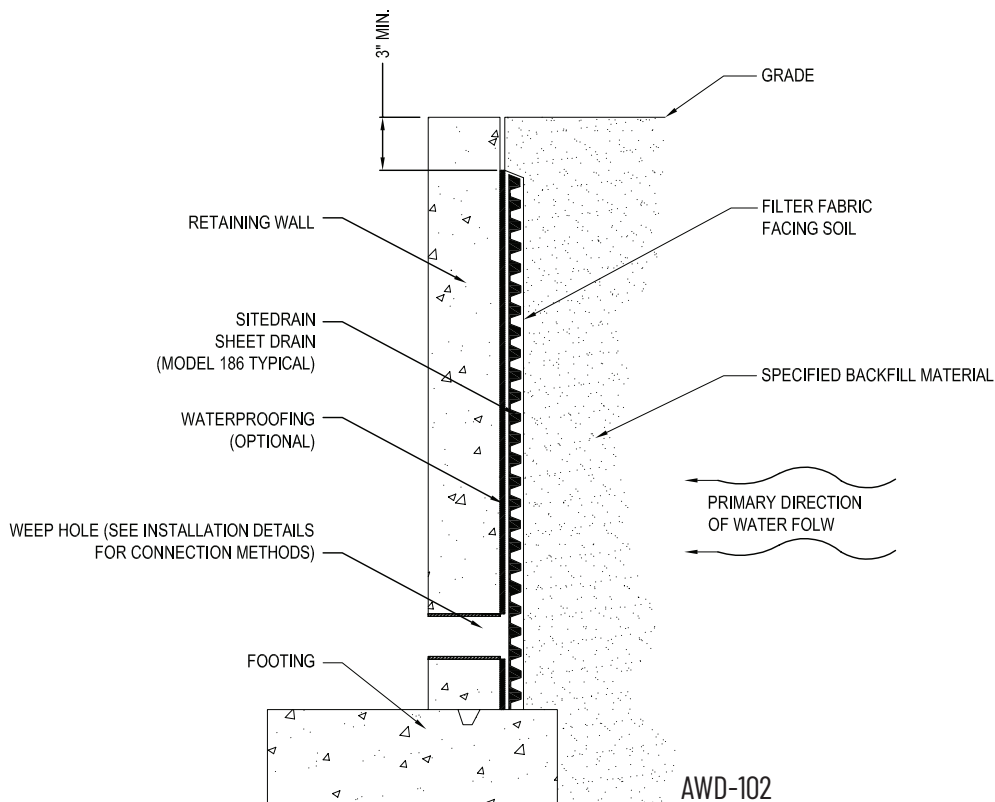
Fold fabric around exposed edge of drain and secure with AWD Tape.

Secure all fitting edges with AWD Tape.

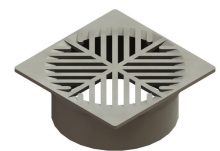
Insert 4" pipe into End Outlet fitting and secure connection with AWD Tape. Double bell housing on fitting allows secure connection of 4" smooth or corrugated pipe.

Weep Connections:

AWD offers two options for weep connection discharge.



Option 1 - Geo-Outlet



Option 2 - Drain Grate

AWD-102

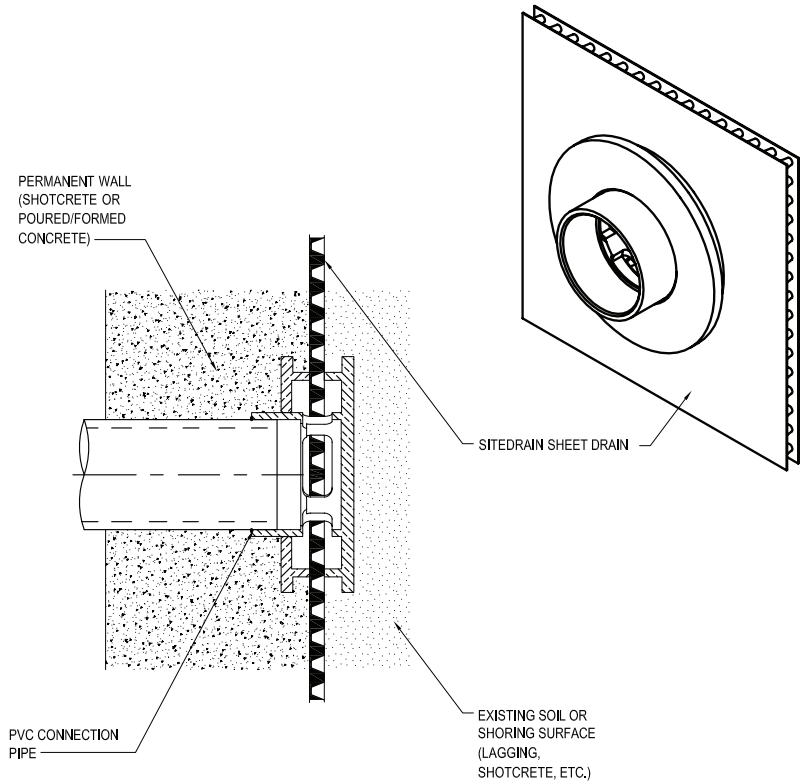
Geo Outlet Connection:

Form a 4-inch diameter round hole in the prefabricated drain (through core and fabric) at the fitting connection location using the Geo Outlet Punch accessory or a standard utility knife.

Insert drainage collector through back of prefabricated drain.

Place All-Purpose Cement (compatible with both ABS and PVC plastic) on the portion of drainage collector that extends through prefabricated drain and attach retainer ring. Hand squeeze retainer ring to drainage collector to form a seal with prefabricated drain until cement sets (~10 seconds).

Place All-Purpose Cement on inside portion of drainage collector and attach 3-inch diameter SCH 40 PVC pipe. (not included).

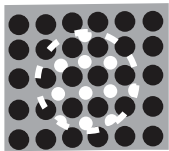


AWD-324

Additional References for Geo Outlets

- AWD-320 - Vertical Wall Tee Outlet
- AWD-322 - Backfilled Wall Tee Outlet
- AWD-321 - Vertical Wall Existing Weep Hole

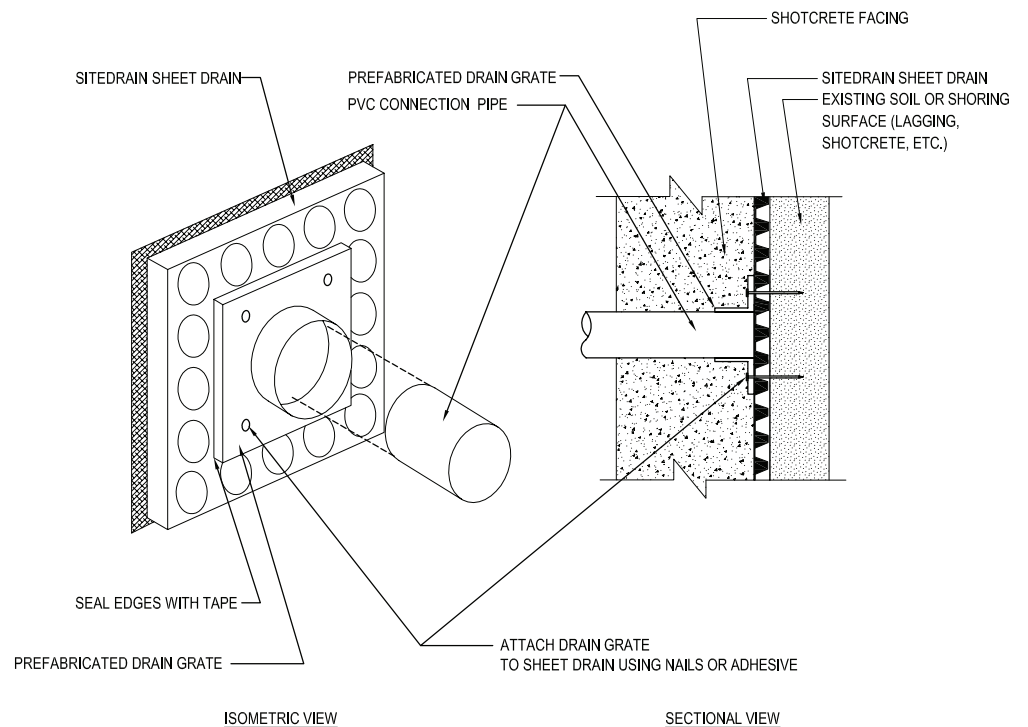
Drain Grate



Drill 1/4" holes into the flat plastic areas between dimples of the hard plastic core on the back (wall) side of the sheet drain at the weep hole location.

Do not drill through dimples or fabric.

Holes should extend in all directions to match the dimensions of the weep hole. The holes will allow water to flow from the sheet drain into the weep hole.



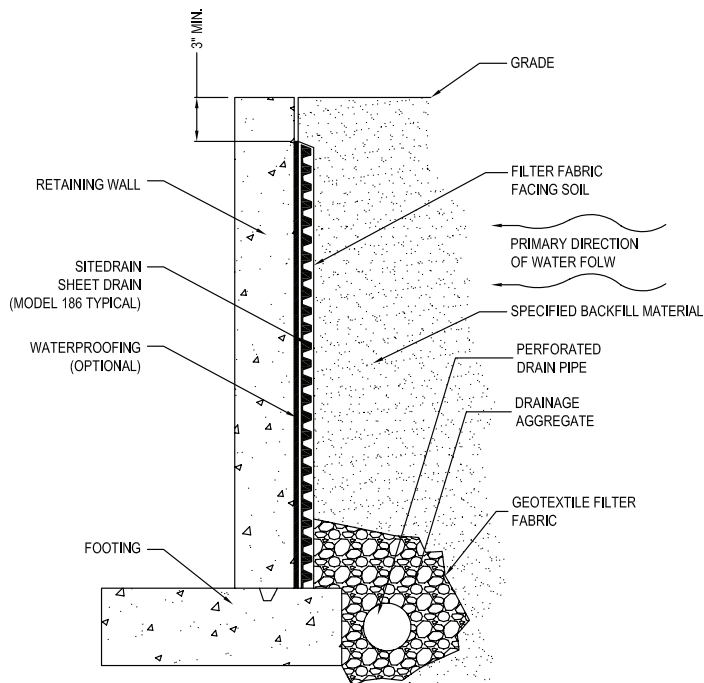
AWD-330

ALTERNATE - FRENCH DRAIN

Terminate sheet drain at the footer. Allow sheet drain to discharge into drainage aggregate for transition to perforated pipe. Terminate bottom edge of drain with fabric or tape to prevent backfill material intrusion.

Additional References - French Drain

- AWD-106 - Bridge Abutment - French Drain
- AWD-121 - Cut-Slope Drainage - French Drain
- AWD-131 - Cut-Off Drainage - French Drain
- AWD-136 - Trench Drainage - French Drain



AWD-101

PRODUCT WARRANTY:

American Wick Drain Corporation ("AWD") warrants that the products shall be free from defects and in conformity, within normal manufacturing variations, with AWD's physical specifications. No other portion of AWD's published literature shall be incorporated herein except for such physical specifications. AWD shall be responsible for such defects only if the same is noted, in writing, within one (1) year from delivery of the products.

OTHER THAN THE WARRANTY IMMEDIATELY ABOVE, ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXCLUDED. THE REMEDIES PROVIDED HEREUNDER SHALL BE EXCLUSIVE; AWD SHALL NOT BE LIABLE FOR ANY PERSONAL INJURY, OTHER DIRECT, INDIRECT, CONSEQUENTIAL, INCIDENTAL, OR SPECIAL DAMAGES OF ANY KIND (INCLUDING COST OF INSTALLATION, REMOVAL OR REPAIR OF THE PRODUCT OR LOSS OF USE OR PROFIT).

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