

DOUGLAS A. DUCEY
Governor



CAROL DITMORE
Director

STATE OF ARIZONA
DEPARTMENT OF HOUSING
1110 WEST WASHINGTON, SUITE 280
PHOENIX, ARIZONA 85007
(602) 771-1000 WWW.AZHOUSING.GOV
FAX: 602-771-1002

Installation Memorandum

Effective October 1, 2019

July 31, 2019

Re: Manufactured Home Crawlspace Drainage

In compliance with our statutory requirement to ensure the safety of the people who occupy manufactured homes, the Manufactured Housing Division (“MHD”) recently re-evaluated the standards and requirements for general installation site drainage, and specifically crawlspace drainage, for this type of structure. Please note that these are not new requirements.

The following general requirements are summarized and derived from HUD’s *Model Manufactured Home Installation Standards and Permanent Foundation Guide for Manufactured Housing Handbook*.

1. The home must be protected from surface runoff from the surrounding area. Site drainage must be provided to direct surface water away from the home to protect against erosion of foundation supports and to prevent water build-up under the home. All drainage must slope a minimum of one-half inch per foot away from the foundation for the first ten feet. Where property lines, walls, slopes, or other physical conditions prohibit this slope, the site must be provided with drains or swales or otherwise graded to drain water away from the structure.
2. The area under the home must be graded, or other methods must be provided to remove any water that may collect under the home. The interior ground level must be above the outside finish grade unless:
 - a. Adequate gravity drainage to a positive out fall is provided, or
 - b. The permeability of the soil and the location of the water table is such that water will not collect in the crawl space, or
 - c. Drain tile and automatic sump pump are provided.
3. Manufacturers must specify in their installation instructions whether the home is suitable for the installation of gutters and downspouts. If suitable, the installation instructions must indicate that when gutters and downspouts are installed, the runoff must be directed away from the home.

In order to address and clarify the requirements in regard to crawlspace drainage, MHD in collaboration with industry representatives, has caused to be created a guide to the most common options for achieving adequate drainage of crawlspaces. The guide, in the form of a drawing, includes:

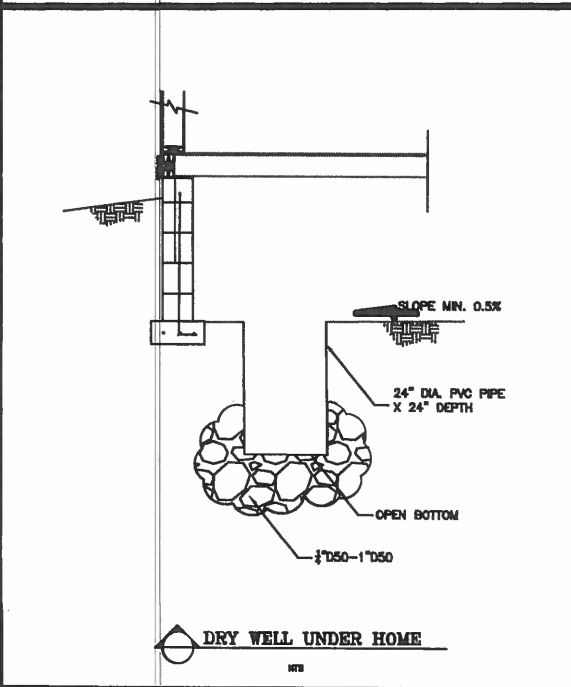
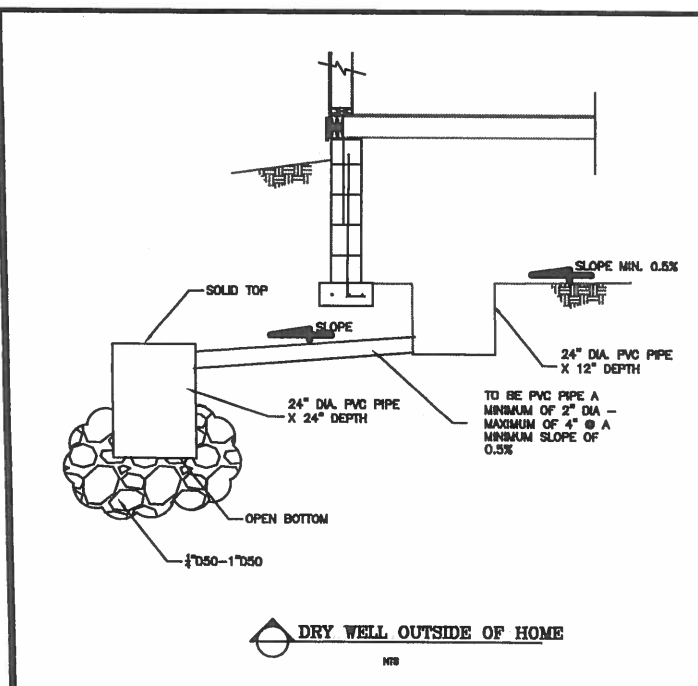
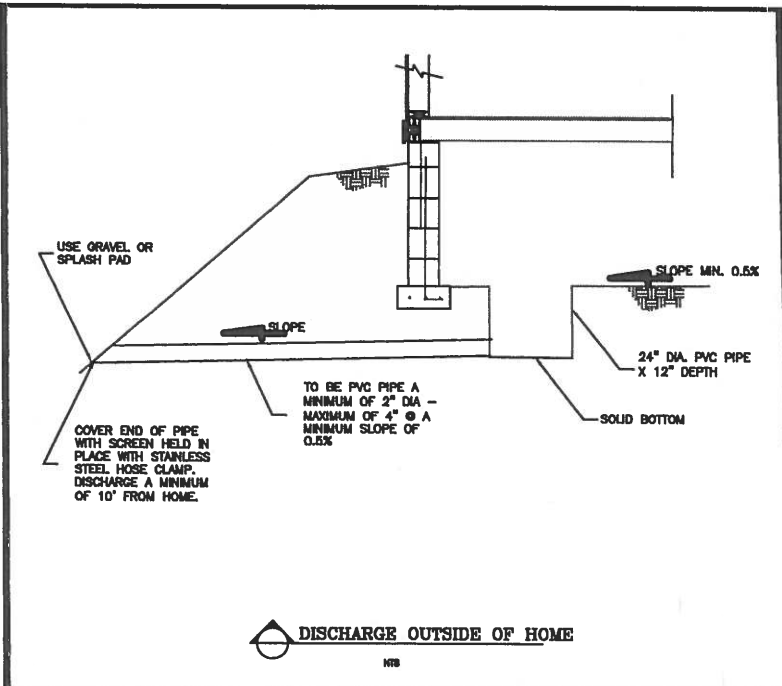
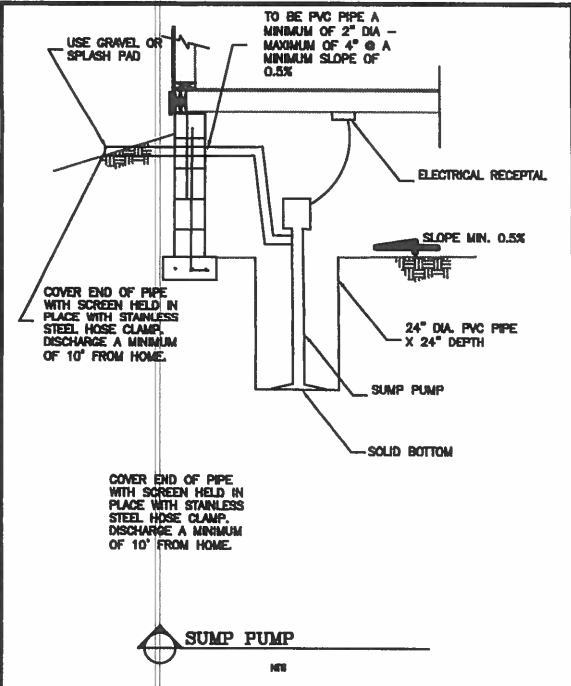
- The General Site and Under Home Drainage Requirements.
- Drawings of the most commonly used options for providing crawlspace drainage of “pit set” (also known as ground or grade set) homes.

In the case of a pit set home, when soil permeability allows adequate drainage of the crawlspace without the use of other drainage structures, documentation of soil suitability, in the form of a Percolation Test Report as required when a septic system is used, or a USDA Soil Survey Report (available without charge from: www.soils.usda.gov) will be required prior to the issuance of a certificate of occupancy by MHD.

The requirements set forth in this memorandum shall be effective October 1, 2019.

Thank you.

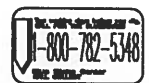
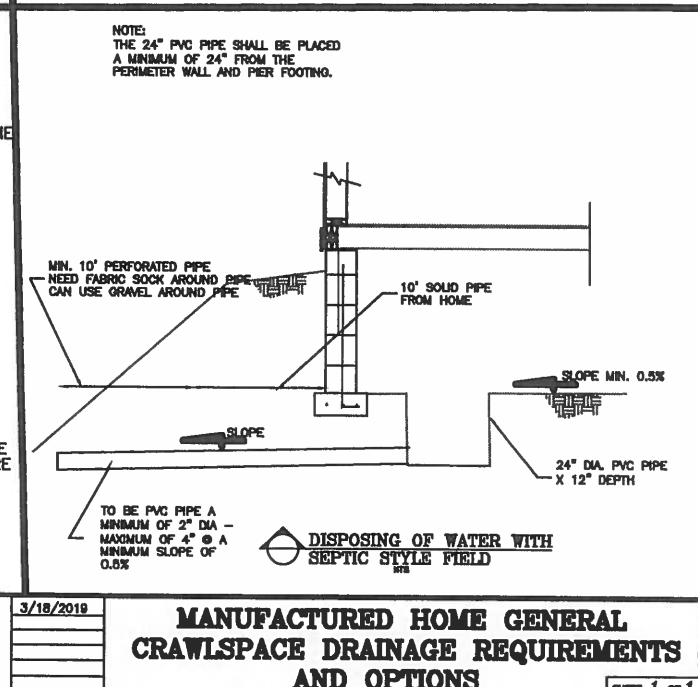
Dave Meunier
Inspection Administrator, Manufactured Housing Division
Arizona Department of Housing



GENERAL SITE AND UNDER HOME DRAINAGE REQUIREMENTS

1. THE 24" PVC PIPE SHALL BE PLACED A MINIMUM OF 24" FROM THE PERIMETER WALL AND PIER FOOTING.
2. THE HOME MUST BE PROTECTED FROM SURFACE RUNOFF FROM THE SURROUNDING AREA. SITE DRAINAGE MUST BE PROVIDED TO DIRECT SURFACE WATER AWAY FROM THE HOME TO PROTECT AGAINST EROSION OF FOUNDATION SUPPORTS AND TO PREVENT WATER BUILD-UP UNDER THE HOME. ALL DRAINAGE MUST SLOPE A MINIMUM OF ONE-HALF INCH PER FOOT AWAY FROM THE FOUNDATION FOR THE FIRST TEN FEET. WHERE PROPERTY LINES, WALLS, SLOPES, OR OTHER PHYSICAL CONDITIONS PROHIBIT THIS SLOPE, THE SITE MUST BE PROVIDED WITH DRAINS OR SWALES OR OTHERWISE GRADED TO DRAIN WATER AWAY FROM THE STRUCTURE.
3. THE AREA UNDER THE HOME MUST BE GRADED, OR OTHER METHODS MUST BE PROVIDED TO REMOVE ANY WATER THAT MAY COLLECT UNDER THE HOME. THE INTERIOR GROUND LEVEL MUST BE ABOVE THE OUTSIDE FINISH GRADE UNLESS:
 - a. ADEQUATE GRAVITY DRAINAGE TO A POSITIVE OUT FALL IS PROVIDED, OR
 - b. THE PERMEABILITY OF THE SOIL AND THE LOCATION OF THE WATER TABLE IS SUCH THAT WATER WILL NOT COLLECT IN THE CRAWL SPACE (*PROVIDE A USDA SITE SURVEY ON PERMEABILITY OF THE SOIL AND LOCATION OF WATER TABLE DEMONSTRATING THAT WATER WILL NOT COLLECT IN THE CRAWL SPACE, OR SEPTIC TANK PERCOLATION TEST RESULTS), OR
 - c. DRAIN TILE AND AUTOMATIC SUMP PUMP IS PROVIDED.
4. MANUFACTURERS MUST SPECIFY IN THEIR INSTALLATION INSTRUCTIONS WHETHER THE HOME IS SUITABLE FOR THE INSTALLATION OF GUTTERS AND DOWNSPOUTS. IF SUITABLE, THE THE INSTALLATION INSTRUCTIONS MUST INDICATE THAT WHEN GUTTERS AND DOWNSPOUTS ARE INSTALLED, THE RUNOFF MUST BE DIRECTED AWAY FROM THE HOME.

* ONLINE SOIL REPORTS: www.soils.usda.gov OR SEPTIC TANK PERCOLATION TEST RESULTS



LLOYD W. ROGERS
CIVIL ENGINEER

3/18/2019

MANUFACTURED HOME GENERAL CRAWLSPACE DRAINAGE REQUIREMENTS AND OPTIONS