

**ADVANCED ENVIRO-SEPTIC® DESIGN WORKSHEET FOR ARIZONA**

**Project:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Design Criteria:** \_\_\_\_\_

**1. Determine Daily Design Flow Residential (using fixtures):**

Daily Design Flow by Fixture Count					
Number of Bedrooms	Fixture Count	Design Flow (GPD)	of Bedroom	Fixture Count	Design Flow (GPD)
1	7 or Less	150	5	>35 & ≤ 42	900
1	> 7 & ≤14	300	6	>42 & ≤ 49	1,050
2	>14 & ≤21	450	7	>49 & ≤ 56	1,200
3	>21 & ≤28	600	8	>56	1,350
4	>28 & ≤35	750	<b>Arizona R18-9-A314(4)</b>		

Daily Design Flow: \_\_\_\_\_ bedrooms, \_\_\_\_\_ fixtures + \_\_\_\_\_ GPD (water softener) = \_\_\_\_\_ GPD

Commercial or Large Flow System: \_\_\_\_\_ GPD

**2. Calculate the minimum System Sand Bed Area (SSBA):**

Percolation Rate (minutes/inch)	Trenches* (gal/day/sq. ft.)	Beds (gal/day/sq. ft.)
Less than 1.00	Site Specific	Site Specific
1.00 to less than 3.00	6.24	3.86
3	5.29	2.48
4	4.42	2.13
5	3.63	1.75
7	2.60	1.28
10	1.91	0.96
15	1.28	0.65
20	1.03	0.53
25	0.89	0.48
30	0.75	0.40
35	0.65	0.36
40	0.59	0.33
45	0.53	0.31
50	0.51	0.29
55	0.48	0.27
greater than 55 to 60	0.43	0.24
greater than 60 to 120	0.31	0.17
greater than 120	Site Specific	Site Specific

Note: Adjusted System Soil Absorption Rates calculated in accordance with R18-9-A312.d.

System Sand Bed Area (SSBA): \_\_\_\_\_ GPD ÷ \_\_\_\_\_ GPD/sf (from table above) = \_\_\_\_\_ ft<sup>2</sup> minimum

**3. AES Pipe Required:**

Residential: 70 ft/bedroom x \_\_\_\_\_ bedrooms = \_\_\_\_\_ ft minimum

Commercial: \_\_\_\_\_ GPD ÷ 2.14 GPD/ft = \_\_\_\_\_ ft minimum

**4. Calculate the number of serial sections required (skip if using Parallel distribution):**

Design Daily Flow = \_\_\_\_\_ GPD ÷ 750 GPD/section = \_\_\_\_\_ sections minimum

(round up to nearest whole number) = \_\_\_\_\_ sections minimum

**5. Number of AES rows required:**

Pipe required (from Step #3) = \_\_\_\_\_ ft ÷ \_\_\_\_\_ row length ft = \_\_\_\_\_ rows  
(round up to nearest whole number) ÷ \_\_\_\_\_ serial sections (from Step #4) = \_\_\_\_\_ rows  
(must be whole number, increase number of rows or change row length if necessary)

**6. Find Pipe Layout Width (PLW):**

( \_\_\_\_\_ # of rows - 1) x \_\_\_\_\_ ft center-to-center spacing + 1 ft = \_\_\_\_\_ ft  
Note: the PLW is the distance from the outermost edge of the first to the outermost edge of the last rows.

**7. Calculate System Sand Bed Width (SSBW):**

**a) For beds sloping 10% or less -**

SSBA (from Step #2) = \_\_\_\_\_ ft<sup>2</sup> ÷ \_\_\_\_\_ row length + 1 = \_\_\_\_\_ SSBW ft min.

If (7a) is less than ( \_\_\_\_\_ PLW + 1 ft = \_\_\_\_\_ ft) then the minimum SSBW = PLW + 1 ft = \_\_\_\_\_ ft  
Note: PLW + 2 is the amount of sand needed to cover all the rows plus a one ft border.

**b) For beds sloping over 10% -**

SSBA (from Step #2) = \_\_\_\_\_ ft<sup>2</sup> ÷ \_\_\_\_\_ SSBL (from Step #3) = \_\_\_\_\_ ft

If this is less than ( \_\_\_\_\_ PLW + 4 ft = \_\_\_\_\_ ft) then the minimum SSBW = PLW + 4 ft = \_\_\_\_\_ ft  
Note: There will always be a System Sand extension for beds sloping over 10%.

**8. System Sand extensions (SSE):**

**a) Level beds -**

System Sand extension = \_\_\_\_\_ SSBW ft - \_\_\_\_\_ (PLW + 1 ft) ÷ 2 = \_\_\_\_\_ ft min.  
each

Final System Sand bed width = \_\_\_\_\_ SSE x 2 = \_\_\_\_\_ + \_\_\_\_\_ (PLW + 1 ft) = \_\_\_\_\_ ft  
Note: the Presby pipes are centered in the middle of the sand bed area with a System Sand extension on each side. There will be no System Sand extensions if SSBW is equal to (PLW + 1 ft).

**b) Sloping beds -**

System Sand extension = \_\_\_\_\_ SSBW ft - \_\_\_\_\_ PLW + 1 ft = \_\_\_\_\_ ft min.  
Note: The System Sand extension is always placed on down slope side of the field (pipes grouped at high side).

**Notes:**

Designed by: \_\_\_\_\_