

ADVANCED ENVIRO-SEPTIC® DESIGN WORKSHEET FOR OKLAHOMA

Project: Design example #2 from manual **Date:** Jan 2022

Design Criteria: 3 bedrooms, 266 GPD, group 3 soils, 1% slope, mound, serial distribution

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

a. 3 Bedrooms = 630 ft²

b. 0 Additional Bedrooms x 0 ft² / bedroom = 0 ft²

c. Total area required = 630 ft² from 1a above + 0 ft² from 1b above = 630 ft²

Soil Group	Minimum Required Bed Area (square feet) by Number of Bedrooms			
	Two or Fewer	Three	Four	Each Additional Bedroom
1	230	300	370	80
2	230	300	370	80
2a	350	460	580	120
3	480	630	770	150
3a	700	930	1,160	240
4	920	1,240	1,540	320
5	1,400	1,880	2,340	500

Note: Table B AES loading rates already reflect a 33% reduction in conventional bed sizing.

2. Advanced Enviro-Septic® pipe required:

3 bedrooms x 70 ft / bedroom = 210 ft minimum

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

3 bedrooms ÷ 5 = 0.6 > 1 serial sections minimum (round up to nearest whole number)

4. Number of AES rows required:

Pipe required (from Step #2) = 210 ft ÷ 70 row length ft

= 3 rows (round up to nearest whole number) ÷ 1 serial sections (from Step #3)

= 3 rows per section (round up to whole number) x 1 serial sections

= 3 rows minimum, n/a updated row length

5. Find Pipe Layout Width (PLW):

(3 # of rows - 1) = 2 x 1.5 ft center-to-center spacing = 3 ft + 1 ft = 4 ft

Note: the PLW is the distance from the outermost edge of the first to the outermost edge of the last rows.

6. System Sand Bed Length & Width (SSBL & SSBW):

a. SSBL = 70 row length + 1 = 71 ft

b. SSBW = 630 SSBA from step #1c ÷ (71 SSBL from step 6a above) = 8.9 > 9 ft min.

c. (4 PLW + 1) = 5 ft (sand needed to cover all AES rows)

7. **Verify final sand bed width requirements:**

Verify the minimum SSBW from Step #6 will cover all the rows in the bed.

a. Level beds & beds sloping 5% or less: If the minimum SSBW is less than the (PLW + 1 ft), use (PLW + 1 ft) as the new minimum SSBW.

Use the larger of 6b or 6c = 9 ft sand bed width minimum

b. Beds sloping > 5%: If the minimum SSBW is less than the (PLW + 3.5 ft), use (PLW + 3.5 ft) as the new minimum SSBW. Adding 3.5 ft to the pipe layout width accounts for a 2.5 ft system sand extension on the down slope side of the field.

1. n/a PLW from step #5 + 3.5 ft = n/a ft
2. n/a SSBW from step #6b
3. n/a ft minimum sand bed width (choose the larger of 1 or 2 above)

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

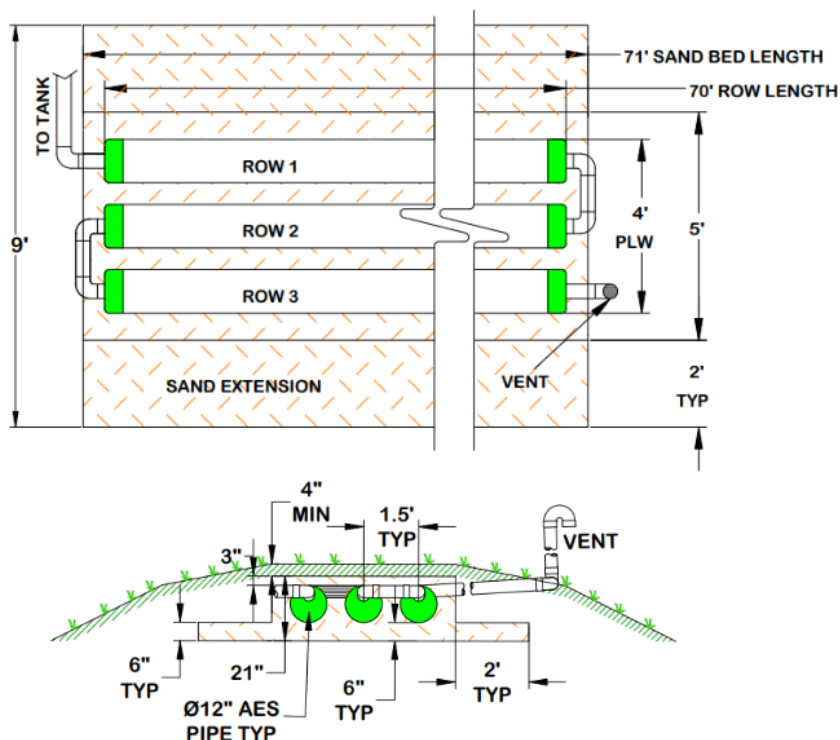
For level beds, the sand extensions are placed on each side of AES pipes. If the value from step #6c is equal to or greater than the value from step #7a above, there will be no extensions.

a. Sand extensions = (9 value from step #7a - 5 value from step #6c) ÷ 2 = 2 ft

b. Sloping Beds >5%: extension placed entirely on the down slope side of the bed.

Extension = n/a value from step #7b3 - n/a value from step #6c = n/a ft

Notes: Level bed with 2' sand extensions on either side of AES rows.



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