

St. Joseph County Health Department

"Promoting physical and mental health and facilitating the prevention of disease, injury, and disability for all St. Joseph County residents"

ELEVATED SAND MOUND WORKSHEET

This worksheet must be accurately completed and submitted with the site plan which demonstrates all aspects of the mound system.

SYSTEM SPECIFICATIONS: See Health Department specification sheet for information

Soil Load Rate: _____ Required absorption area: _____ ft² Aggregate bed: _____ ft²

Daily Design Flow (DDF): _____ gallons = number of bedrooms/equivalents: _____ x 150 or 450 whichever is greater.

SEPTIC TANK: New: _____ Existing: _____ Size: _____ gallons Manufacturer: _____

DOSE TANK: New: _____ Existing: _____ Size: _____ gallons Manufacturer: _____

Internal dimensions: Width: _____ inches. Length: _____ inches. _____ gallons per inch or foot
(circle one)

POSITION OF AGGREGATE BED: _____ **Centered** (slope $\leq 1/2\%$) or _____ **Upslope** (slope $> 1/2\%$ - 6%)

Elevation shots are necessary to determine slope and these must be included in the site plan. If you use a topography map, it may not provide sufficient information and permit approval could be delayed.

MOUND DIMENSIONS: The dimensions of the aggregate bed shall be as long and narrow as site conditions permit. Maximum width of aggregate bed shall not exceed the equation below. Systems with a DDF of ≤ 750 gpd, the agg bed width shall be at least 4 feet and no greater than 10 feet.

Aggregate Bed: Width: _____ feet Length: _____ feet Depth: _____ inches Total area: _____ ft²

Aggregate bed maximum width = $0.83 \sqrt{\frac{\text{daily design flow (x) soil load rate}}{n^*}}$ = _____

This number may be rounded down to the nearest whole number.

DDF (gpd)	n
≤ 1500	3
1501-3000	4
3001-4000	5

Lateral separation: _____ feet on/center (2 – 3 feet)

Separation of laterals to edge of aggregate bed: _____ to sides (1 – 1.5 feet) 1.5' to ends

Basal area: Width: _____ feet Length: _____ feet Total absorption area: _____ square feet

The minimum width of the basal area shall be calculated as the greater of the following equations:

(A) Width = $\frac{\text{minimum basal area (ft}^2\text{)}}{\text{length of aggregate bed (ft)}}$;or (B)

Slope	Min. Basal Area Width
$0\% \leq \text{slope} \leq 1/2\%$	Agg Bed width (+) 14 ft.
$1/2\% < \text{slope} \leq 6\%$	Agg Bed width (+) 9 ft.

Sand area: Width: _____ feet Length: _____ feet Depth of sand under aggregate bed: _____ inches
(Min. 12")

Cover/Plow area: Width: _____ feet Length: _____ feet

DISTRIBUTION NETWORK: (check one) _____ Center Feed, or _____ End Feed (max. lateral length 55 feet)

Only approved pressure-rated pipe & fittings (couplers, reducers, elbows, tee's, etc.) will be used: _____ Yes _____ No

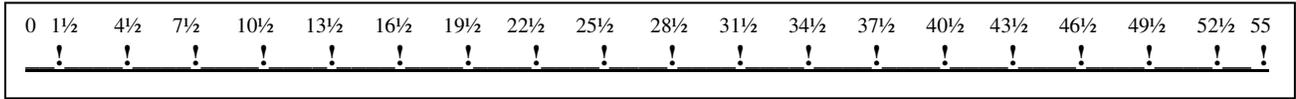
Laterals: Total number: _____ Length: _____ feet Diameter: _____ inches (Use Lateral Diameter Graph)
(1 - 3")

Holes: Size 1/4 inch Spaced 3 feet on/center Holes/lateral: _____ Holes/system: _____

The number of holes x 1.28 gpm (3.0' design head) = _____ total gpm

Flow/lateral: _____ gpm Flow/system: _____ gpm Total length of laterals: _____ feet

Lateral length in feet with hole placement. Mark the appropriate lateral length and count the holes.
(Holes start 18" from the manifold and no hole shall be placed less than 18" from the end cap. Do not forget to count the hole in the end cap.)



Manifold: Length: _____ feet. Diameter: _____ inches (must be 2 – 4"). Refer to Table X of Rule 410 IAC 6-8.2

Effluent Force Main: Length**: _____ feet Diameter: _____ inches Volume: * _____ (length x volume/foot)

*If line drains to the dose tank, this is drain-back amount to be added to the actual dose to determine float settings.

Pipe diameter:	1"	1 1/4"	1 1/2"	2"	3"	4"
Gallons/foot:	.045	.078	.106	.174	.384	.650

Drains to: _____ Field _____ Dose tank

**Is any portion of the force main deeper than 60": _____ yes _____ no.

If yes, what length will NOT drain: _____ feet. (subtract this amount from the total length before calculating drain-back volume)

Friction loss in effluent force main: *Sec. 73 (z) Table IX of Rule 410 IAC 6-8.2.

Friction loss at _____ gpm = _____ *feet per 100 ft. of _____ inch diameter pipe.

Calculate friction loss from fittings using chart:

List each fitting by type and corresponding value.

Example (for 2"): 2-90° elbows at 5.2' = 10.4'

Add up total equivalent length for each fitting type to get "Friction loss length from fittings" to use below.

*Pipe diameter:	1"	1 1/2"	2"	2 1/2"	3"	4"
90° Elbow :	2.6'	4.3'	5.2'	6.2'	7.7'	10.1'
45° Elbow:	1.4'	2.1'	2.8'	3.3'	4.1'	5.4'
Check valve:	8.7'	13.4'	17.2'	20.6'	25.5'	33.6'

FITTINGS List:

Length force main _____ (+) Friction loss length from fittings _____ = _____ total effective length in feet.

Number from Table IX: _____ (x) _____ total effective length in feet/100 = _____ **Friction loss**

Volume calculation: The total dose amount delivered must be ≥ 7 times the volume of the distribution laterals.

Total volume of the laterals (from page one) _____ x 7 = _____ gallons. Total dose amount = _____ gallons.

Plan meets volume calculation requirements: _____ Yes _____ No (If No, revise if possible or contact the HD)

PUMP: Manufacturer: _____ Model: _____ Horse power: _____ Height: _____"

Performance curve included with TDH and gpm plotted: _____ Yes _____ No

Pump is adequate, but not oversized: _____ Yes _____ No

Dosing Tank will be set up in compliance with Sec. 64 and Sec. 65 of the State Rule: _____ Yes _____ No

Junction box(es) will be located outside the dosing tank and riser, and shall be in accordance with Sec. 65 of the State Rule: _____ Yes _____ No

All Septic Tanks and Dosing Tanks will have risers in accordance with Sec. 59 of the State Rule:

_____ Yes _____ No

Each Dose Tank will be equipped with an audible and visual alarm on a separate circuit from the pump:

_____ Yes _____ No

Pump will stay submerged at all times:

_____ Yes _____ No

TOTAL DYNAMIC HEAD:

A. Friction Loss in Force Main _____ feet

B. Elevation Difference _____ feet
(Pump-off to Manifold, or highest elevation in force main)

C. System Design Head _____ 3 feet

Total Dynamic Head = _____ feet
(A + B + C)