



200 White Mountain Drive
New Bremen, OH 45869
Tel: (419) 977-2766
Fax: (419) 977-2767

Date: 7/27/2023

Client Name: Dragon Ridge C.C.

File Number: 47746

Consultant: Soil and Water Consulting

Greensmix : Lab #1820 WCS&G 90/10 Q.C. #6

Gravel: Lab #1821 LMSC GRAVEL 1.9 QC #2

GREENSMIX/GRAVEL COMPATIBILITY

Rootzone Sieve Analysis	Particle Diameter (%)							
	2.0 mm	1.0 mm	0.5 mm	0.25 mm	0.15 mm	0.106 mm	0.053 mm	Silt/Clay
% Retained	0.0	7.1	43.3	34.7	9.2	1.9	0.8	3.0

Gravel Sieve Analysis	Particle Diameter (%)							
	12.5 mm	9.5 mm	6.35 mm	4.75 mm	2.36 mm	2.0 mm	1.0 mm	< 1.0 mm
% Retained	0.0	0.7	68.6	25.9	3.6	0.1	0.1	1.0

1. For Bridging to Occur. $D_{15}(\text{gravel}) \leq 8 \times D_{85}(\text{rootzone})$ $D_{15}(\text{gravel}) = 5.38$

$D_{85}(\text{rootzone}) = 0.91$

$5.38 \text{ mm} \leq 7.28 \text{ mm}$

These Results show that the $D_{15}(\text{gravel})$ at 5.38 mm **IS** less than or equal to ($\leq$) $8 \times D_{85}(\text{rootzone})$, which was $8 \times 0.91 \text{ mm} = 7.28 \text{ mm}$. Therefore, bridging of the coarsest 15% rootzone particles **SHOULD** occur with the finest 15% of gravel particles. This gravel **IS** compatible with sand.

2. For Adequate Permeability. $D_{15}(\text{gravel}) \geq 5 \times D_{15}(\text{rootzone})$ $D_{15}(\text{gravel}) = 5.38$

$D_{15}(\text{rootzone}) = 0.25$

$5.38 \text{ mm} \geq 1.25 \text{ mm}$

These Results show that the $D_{15}(\text{gravel})$ at 5.38 mm **IS** $\geq 5 \times D_{15}(\text{rootzone})$, which was $5 \times 0.25 \text{ mm} = 1.25 \text{ mm}$. Therefore, adequate permeability **SHOULD** occur with this gravel and rootzone sand.

3. Uniformity Coefficient of Gravel $D_{90}(\text{gravel})/D_{15}(\text{gravel}) \leq 3.0$ $D_{90}(\text{gravel}) = 9.07$

$D_{15}(\text{gravel}) = 5.38$

$1.69 \text{ mm} \leq 3.00 \text{ mm}$

These Results show that the $D_{90}(\text{gravel})/D_{15}(\text{gravel})$ is 1.69 mm which **IS** less than or equal to 3.0. Therefore, the Uniformity Coefficient of gravel **PASSES** this criterion.

Furthermore, the gravel should have 100% particles < 12mm, $\leq 10\%$ particles < 2mm, and $\leq 5\%$ particles < 1mm.

Reviewed by: _____