



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

Date: 4/18/2023

Client Name: Dragon Ridge C.C.

File Number: 47746

Consultant: Soil and Water Consulting

Greensmix : Lab #27 WCS&G 90/10 QC #1

Gravel: Lab #771 LMSC GRAVEL 1.9ACC

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	7.3	49.0	33.6	6.3	1.1	0.3	2.4

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	3.4	76.9	18.5	0.5	0.0	0.0	0.7

1. For Bridging to Occur. $D_{15}(\text{gravel}) \leq 8 \times D_{85}(\text{rootzone})$ $D_{15}(\text{gravel}) = 5.95$
 $D_{85}(\text{rootzone}) = 0.92$
 $5.95 \text{ mm} \leq 7.36 \text{ mm}$

These Results show that the $D_{15}(\text{gravel})$ at 5.95 mm **IS** less than or equal to ($\leq$) $8 \times D_{85}(\text{rootzone})$, which was $8 \times 0.92 \text{ mm} = 7.36 \text{ mm}$. 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. $D_{15}(\text{gravel}) \geq 5 \times D_{15}(\text{rootzone})$ $D_{15}(\text{gravel}) = 5.95$
 $D_{15}(\text{rootzone}) = 0.29$
 $5.95 \text{ mm} \geq 1.45 \text{ mm}$

These Results show that the $D_{15}(\text{gravel})$ at 5.95 mm **IS** $\geq 5 \times D_{15}(\text{rootzone})$, which was $5 \times 0.29 \text{ mm} = 1.45 \text{ mm}$. Therefore, adequate permeability **SHOULD** occur with this gravel and rootzone sand.

3. Uniformity Coefficient of Gravel $D_{90}(\text{gravel})/D_{15}(\text{gravel}) \leq 3.0$ $D_{90}(\text{gravel}) = 9.23$
 $D_{15}(\text{gravel}) = 5.95$
 $1.55 \text{ mm} \leq 3.00 \text{ mm}$

These Results show that the $D_{90}(\text{gravel})/D_{15}(\text{gravel})$ is 1.55 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: _____