1.1.1 TerraZyme will increase the soaked and unsoaked CBR of most soils to different degrees depending on soil characteristics such as gradation, plasticity, expansiveness, organic content and ionic potential.

1.1.1.1 Highly plastic soils will usually show the greatest increase in CBR from TerraZyme treatment. Unfortunately, it is generally the case that soils with higher plasticity (PI above 20%) also exhibit gradation that is fine-grained and CBR values well below the range useful for road construction. The ability of TerraZyme treatment to raise very low CBR values (0.5% to 5%) to stabilized values of from 5%-15% may often not be sufficient to make the material attractive for road construction without the addition of structural sand or gravel to the low strength soil.

1.1.1.2. Moderately plastic soils, often containing gravel or higher percentages of sand, and can exhibit fairly acceptable initial CBR values of between 10% to 30%. Moderate plasticity (PI of between 8%-15%) makes these soils excellent candidates for stabilization as the treated CBR values can reach well into the normally specified ranges for improved sub-grade and sub-base of 30% to 100%.

1.1.1.3. Non-plastic or marginally plastic granular soils with high initial CBR values of 60% to 100% should also exhibit substantial increases in CBR from treatment with TerraZyme. These increases may be sufficient to economically overcome low underlying resistance in a highly plastic sub-grade with a sufficient thickness of stabilized soil. The use of TerraZyme will also give efficiencies in compaction of base and sub-base materials. Often, required compaction of 95% is reached with less than 50% of usual compaction effort. Full compaction efforts will often increase density to in excess of 100% of laboratory values (Modified Proctor). Increasing the plasticity of these soils to a PI of 6% to 10%, when combined with TerraZyme stabilization can improve final cured CBR value as well as reduce permeability and guard against the destructive loss of structural particles in the treated layer. TerraZyme treatment of these soil mixes can also eliminate pumping action of silt and clay from below the base and sub-base layers to protect the integrity of the road during wet weather.

2.1.2 Testing TerraZyme with available soils should be done in such a way as to select and evaluate those soils and soil mixes that have the highest potential for use within the road structure.

1.1.2.1. Low strength, highly plastic soils are generally only suitable for evaluating the effect of high dosage TerraZyme treatment when combined with up to 50% structural material such as sandy gravel. The combination of adding structural material and treating with TerraZyme may yield a CBR value that would be adequate to improve sub-grades that are not in themselves an acceptable foundation for road structures. If the improvement is substantial and the structural materials are locally available, TerraZyme may prove to be an economically viable alternative to removal of the low-strength or highly plastic soil. Low strength, highly plastic soils should not be evaluated for TerraZyme stabilization with the expectation that TerraZyme alone will make them suitable for most road construction needs.

1.1.2.2. Moderately plastic soils may be evaluated as found or they may be mixed with granular materials with the view of creating an improved sub-grade or sub-base material. TerraZyme dosage of these soils will depend upon the level of plasticity exhibited and the desired characteristics of the final stabilized material. Dosage evaluations will also yield vital economic information useful in determining final road design using TerraZyme stabilization of the sub-grade, sub-base or base layers.

1.1.2.3. Granular soils of higher strength should be tested in the event that a moderate increase in CBR% will make them suitable for use in the sub-grade, sub-base or base layers of the road structure. These

soils are also candidates for economically viable stabilization where it is desirable to reduce granular material loss on unsurfaced roads. TerraZyme stabilization will also be beneficial to these soils by reducing permeability and pumping of destructive silts and clays into the base layer under asphalt or concrete wear surfaces.