

High Plains Biochar LLC

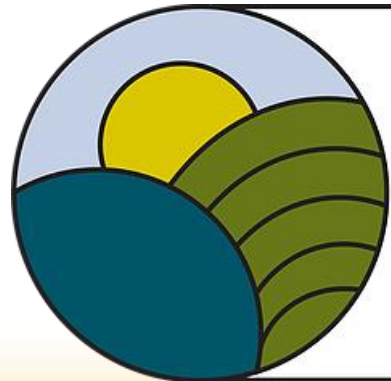


ROWDY YEATTS

What is Biochar?

Biochar is a type of charcoal made by exposing biomass such as wood or crop residue to high temperatures in the absence of oxygen. This effectively burns off everything except the carbon leaving behind a highly porous material high in carbon content. Essentially a blank carbon sponge.

To put this in perspective 1 gram of our biochar has over 300 sq meters of surface area and 85% organic carbon. We were recently certified by the USDA to be 100% Biobased.



**USDA
CERTIFIED
BIOBASED
PRODUCT**
PRODUCT 100%



Who uses Biochar?

- Farmers, greenhouses, nurseries, and gardeners use biochar as a soil amendment to increase yields and drought resistance while reducing water and fertilizer needs.
- Cities, parks departments, homeowners, and golf courses use biochar for a variety of applications from improving soil health, reducing fertilizer and other contamination levels in storm water, ponds, and lakes. Also for improving survival rates on tree plantings.
- Industrial applications for reclamation and remediation work including tailing piles at mines where biochar can prevent things like heavy metals from leaching into our water and revegetate these areas to prevent erosion. We have also done testing for using biochar to capture mercury in flue gas at coal fired power plants.
- Also can be used to clean contaminated water as biochar is effective at capturing things like fertilizers, heavy metals, pesticides, pharmaceuticals, and other toxins in waddles, used as a filter media, or in applications like rain gardens and bio swales.

Urban Trees

- **Challenges:**
 - Pavement that limits the availability of water and oxygen.
 - Poor and disturbed soils.
 - Compacted soils.
 - Contaminated soils.
- **Results of those challenges:**
 - Shortened tree life span.
 - Increased maintenance costs.
 - Increased mortality rates.
 - Reduced overall benefits.

Urban Trees

- **Solution:**

- Adding biochar and compost to urban tree plantings. In some cases, cities are utilizing a mix of biochar, compost, and gravel for tree plantings.

- **Benefits:**

- Increased long term survival.
- Reduced soil compaction.
- Increased water holding capacity.
- Increased resistance to disease and pests.
- Storm water and flooding benefits.
- Benefits last thousands of years.



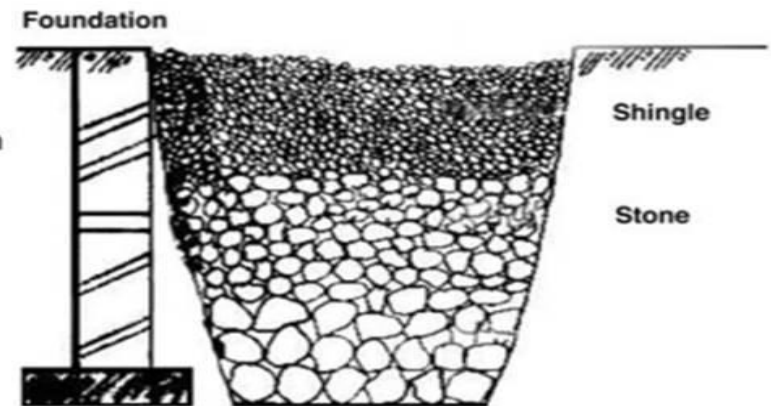


Trench mix:

1 part biochar

9 parts 4-8 mm crushed granite

A French drain is basically a trench filled in with large rocks. In heavy rains, water can flow between the spaces in the rocks.



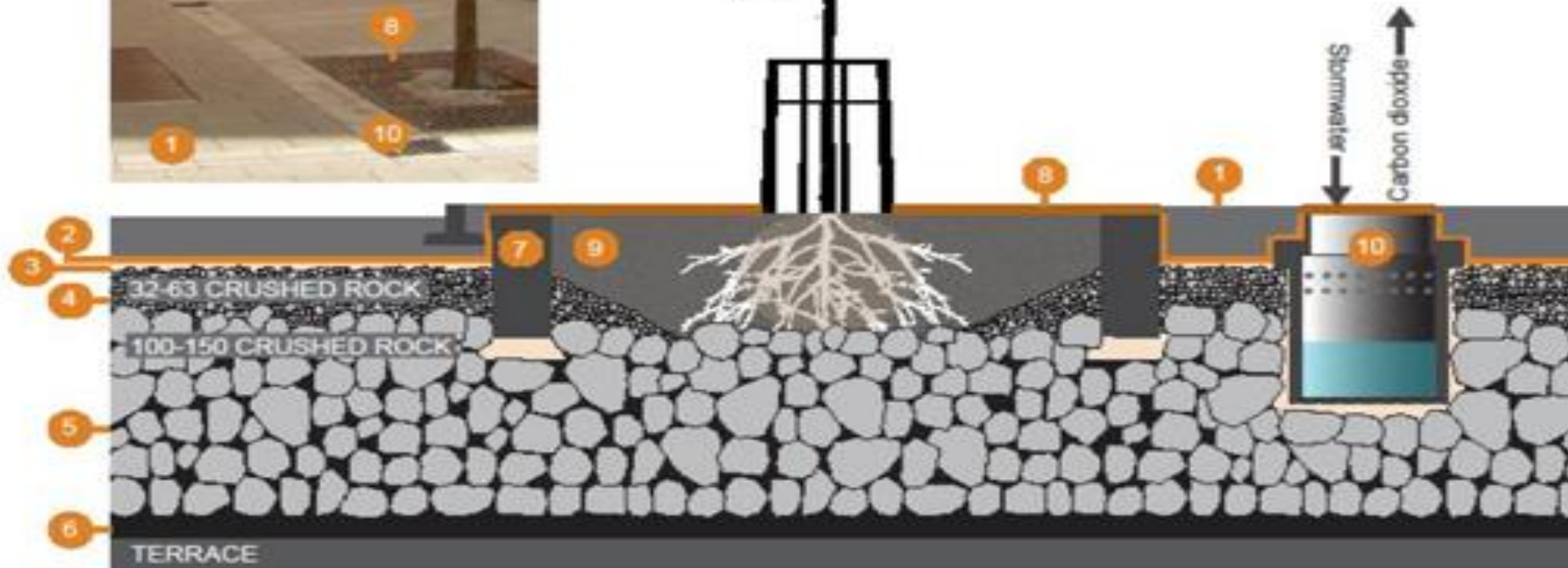
Not to scale





Structural soil with biochar

A method for building with stability and to create good growing conditions for trees in paved areas with the use of stormwater and the added value of decreasing the risk of roots damaging paving or underground pipes



1. Paved surface with dished stormwater gutters
2. Geotextile
3. Leveling layer (crushed rock 8-16 mm) – also used for concrete bunker and water/air inlet.
4. Aerated bearing layer (crushed rock 32-63 mm)
5. Structural soil (crushed rock 100-150 mm) with fertilized biochar holed into the structural volume
6. Pure biochar on terrace
7. Concrete bunker
8. Surface grid
9. Crushed rock with fertilized biochar
10. Inlet for air and water supply

Biochar being applied to 15 trees planted near the Laramie Airport during community service day.



Questions or Comments

