Post-Wildfire Watershed Restoration Field Handbook

Engineering Best Management Practices: Soil Repellency Remediation, Biochar, and Sediment Barriers

POST-FIRE WATERSHED RESTORATION FIELD HANDBOOK

Diagnosing Thermal Soil Hydrophobicity

Severe post-fire runoff is caused by volatile organic waxes condensing in sub-surface soil layers.

Field crews perform the Water Drop Penetration Time (WDPT) test at 1-cm depth increments.

Values over 60 seconds indicate severe repellency requiring active biochar or mechanical scarification.

Structural Erosion Barrier Specifications

? Contour Felled Log Erosion Barriers (LEBs): Lodgepole timber anchored with rebar on 20-30% slopes.

? Certified Weed-Free Straw Wattles: 9-inch diameter wheat straw wattles trenched 3 inches into mineral soil.

? Silt Fence Check Dams: High-flow geotextile fabric staked in ephemeral gully chutes.

Engineered Biochar Soil Amendment Protocols

Apply 5 tons per acre of beetle-kill pine biochar (pyrolyzed at 600℃, 350 m†/g surface area).

Biochar restores cation exchange capacity and provides porous microbial refugia for mycorrhizal colonization.