Stormwater and Steep Slopes
Landslides in Seattle

- Totally Natural (13%)
- Some Factor of Human Influence (84%)
- Unknown (3%)

Shannon and Wilson
Landslide Study for the City of Seattle, 2000
The most common human alterations that contribute to landsliding are:

Inappropriate vegetation management (stay tuned) and

Inappropriate management of surface drainage

Inappropriate fill/debris placement
Pre-Development Hydrology

- Glacial Till
- Advance Outwash
- Lake Sediments
- Pre-glacial Sediments
Glacial Till

Advance

Outwash

Lake

Sediments

Pre-glacial Sediments

Post-Development Hydrology

Post-glacial Sediments

Advance Outwash

Lake Sediments

Pre-glacial Sediments
Managing Stormwater on Steep Slopes
No Management
Modern Stormwater Detention
ADS tightline
CMP tightline
Rain garden, an Element of "Low Impact Development" (LID).

Photo courtesy WA DOE
Interceptor Trenches

Excavate trench into impermeable soil layer. Lay geotextile into trench. Place gravel into trench and extend gravel height to the maximum anticipated water level. Overlap geotextile on top of gravel. Backfill with excavated soil.

Perforated drainage pipe placed on 3 to 6 inches of gravel. Pipe midpoint should be located into the impermeable soil layer.
Fill placement on slopes.
Picture showing fill failure
Shallow Landslide resulting from disposal of yard waste on a steep slope. Photo by Dan McShane
QUESTIONS?