

Why?

**Not trying to scarce you!
Just letting you what to
look for.**



Stormwater The Problems and Blessings!

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Resource Conservationist



CLACKAMAS COUNTY

Soil and Water Conservation District

Inherited Situation

Spring and Summer Bliss
Winter Reality



Beware!!!!!!



Water runs downhill



Stormwater and Health

Manure is the same - Cows, horses, dogs, cats

Buffer between livestock/agr. operations and wells

Wells Users are on your own for health!



How much area do you have?

Square feet or Acres?



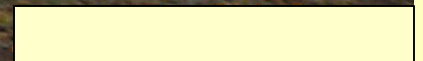
Conservation Practices are the same!

No matter what the Size

Just a Matter of Scale



Created Situations



Look Before Leaping

Where is the Water coming from?

**Living with the Problem –
Lemonade from Lemons**

Consider the Neighbors

Effects of Fill *or old landslides*

Oregon Depart of Geology



Correcting the problem

Stormwater Management System

Impervious surface – Roof/Driveway

**Rainwater Harvesting Container – tank
for stormwater and your own use**

Rain Garden or swale



Stormwater starts on the roof - Gutters

Stormwater starts on the driveway.

**Stormwater may come
from the neighbors**

**Stormwater may bubble up under
your house or in your yard.**



Gutter Problem or too Close to Creek?



Drainage Solutions

Wet Yards

Basements/Crawl spaces

Ditches

Permeable pavers and asphalt



Rainwater Harvesting Containers



**Rainwater
systems do not
have to be
ugly**

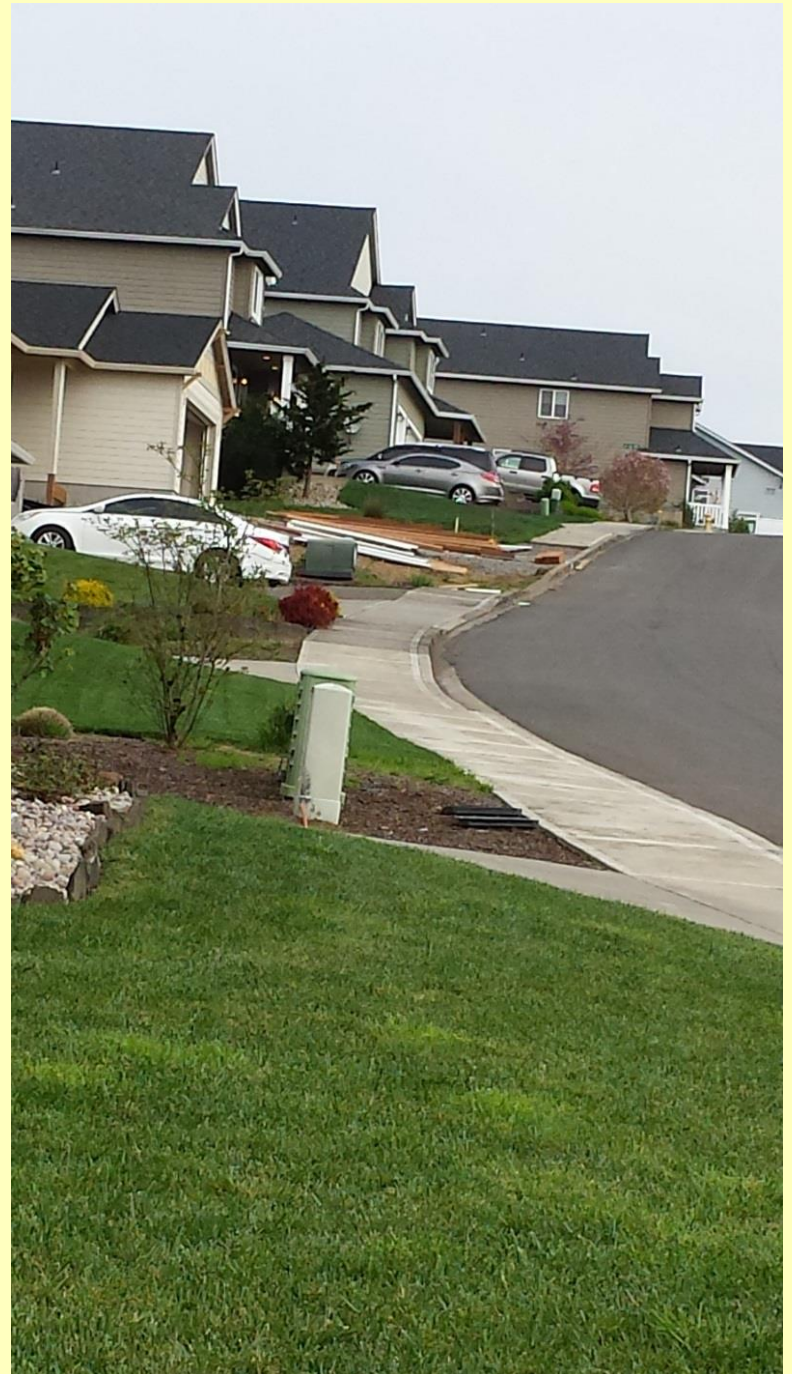




What you do with your Stormwater Depends ON your SOILS



What you do with your Stormwater Depends ON your SLOPE





Stormwater retention and Groundwater Recharge



Basement or Crawl space Water?



French Drains



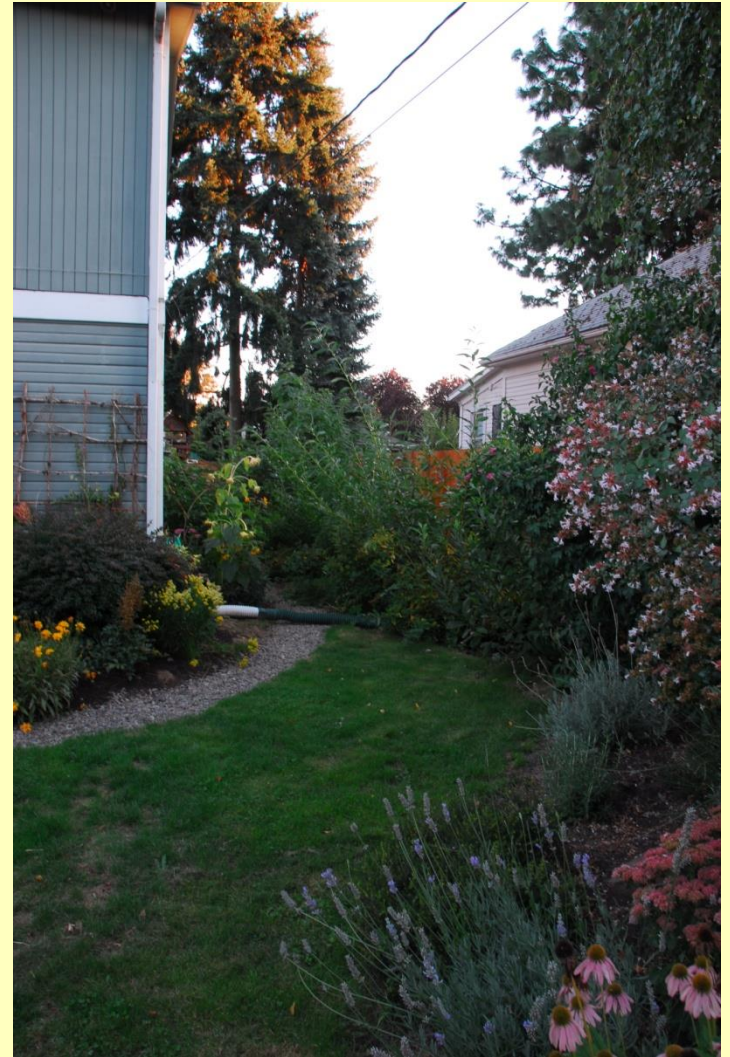
Take advantage of the Situation



Wildlife Habitat Design

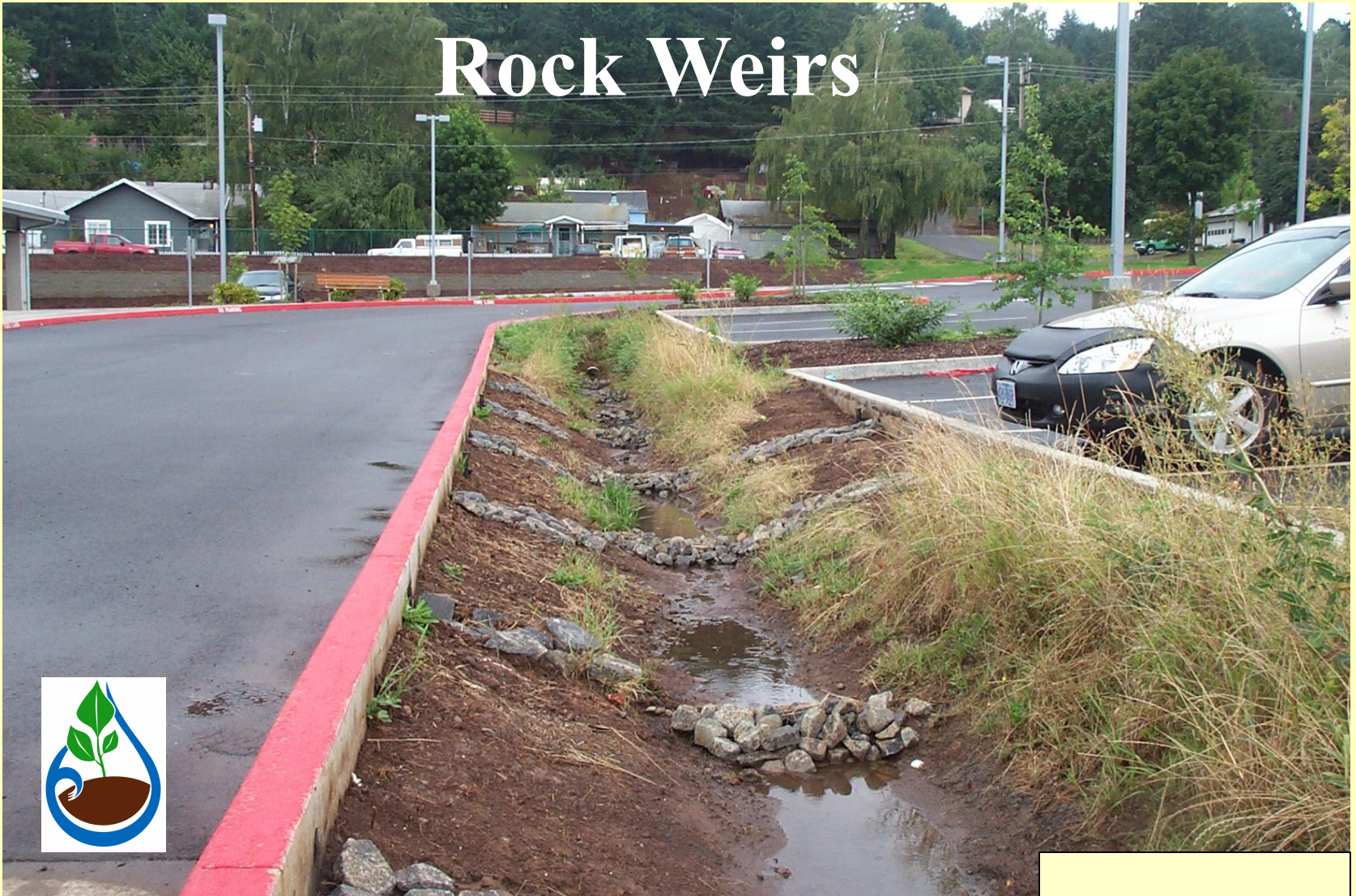


Rain Gardens



Driveway or roof water into wildlife habitat

Rock Weirs



**Make sure Rocks or “Energy Dissipaters”
are large or strong enough.**



Spring or “June” pastures for Livestock



Create late summer pastures.

Basement or Crawl Spaces Sump Pumps



**Water stain marks
garages and outbuildings**

Heavy Use Areas

Driveways



Path

and Walkways



Livestock



The land has Changed!



Larger energy dissipater



Take advantage of the rain, catch it.



Broken Tile line

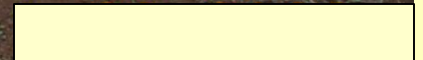


Large scale land movement

A geo technical report may pay off!



Hazardous slope maps



Saturating a filled area



Building on a hill?

Is it Fill or is it Bermed?



Dumping on the Neighbors – Excellent way to litigation!



Drainage to your advantage!



Know When to Engineer!



Debris Lines - Beware of high Water



Roads – Cut waterbar ditches sloped slightly downhill

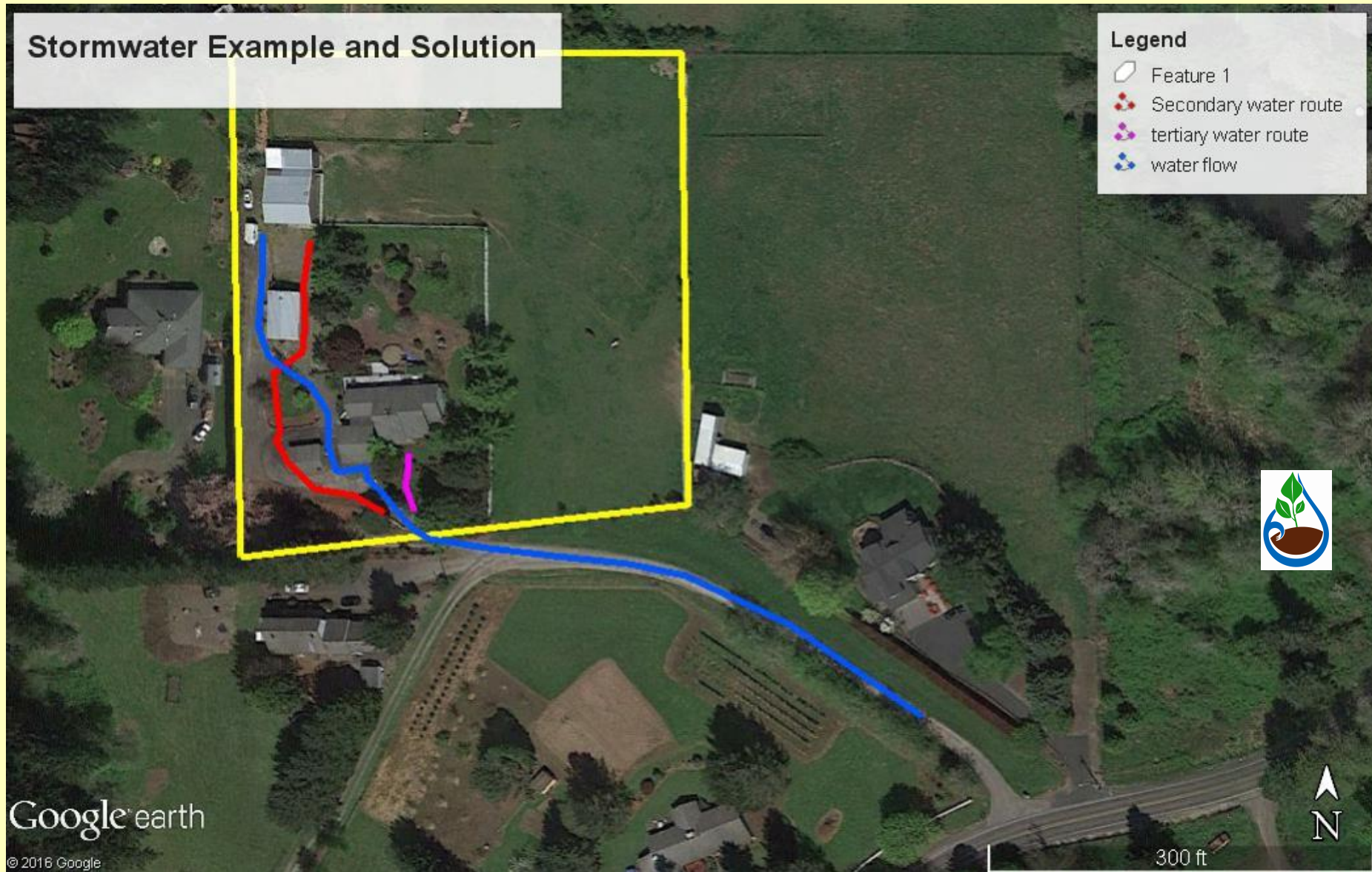


Designs make a Difference



Walking Trails or Dirt Bike Tracts

“Perfect Storm”Water - Case History





French drains and Rain Gardens



**One or 2
practices at a
time makes it
more affordable.
Unless You have
friends!**





CLACKAMAS COUNTY

Soil and Water Conservation District

Knowing Where to Look for What!

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