Planning (for Sustainability) Makes Perfect

More ways to increase your sustainability. Carol Ekarius offers a checklist of ideas to consider for a new homestead or for improvements to an existing homestead.

By Carol Ekarius

When making a plan, either for a new homestead or for improvements on an existing homestead, these are some of the things to consider:

Wetlands over one acre are protected by federal laws and require a 404 permit to drain or fill (and you don't want to go there). Even if the law doesn't protect small wetlands, it's best to avoid them, both for environmental reasons and for practical reasons: Build in a wetland and you have a permanent drainage problem; allow your animals to spend too much time in muddy conditions and you will have health problems.

Large rock outcroppings always increase construction cost, so if at all possible, avoid these areas.

Slopes provide both challenges and opportunities: Slopes with a grade of up to 8 percent are fairly easy to build on. On slopes with grades between 8 percent and 16 percent, you definitely will acquire some significant additional costs for engineering, as well as for excavating and shoring. Slopes over 16 percent become very challenging, and therefore very expensive, to build on. Avoid disturbing steeply sloped sites; however, some slopes will provide opportunities for using earth-sheltered housing. Houses built into banks can be less expensive to heat and cool, and can provide good opportunities for roof gardens and water-collection systems.

Barns and animal areas are best situated below the elevation of the house, if possible. This helps provide a view so you can see what's going on with your critters from the comfort of the house, and it reduces odors, water contamination and flooding. Typically, barns are located at least 300 feet from the house and downwind of the prevailing wind direction. Small chicken coops, rabbit sheds or kennels should be at least 75 feet from the house.

Trees are an asset and can provide material for construction and wood for heating, but heavily timbered areas can present a hazard from the fire standpoint. Buildings should be kept at least 50 feet away from the tree line. This will provide a break for a fire traveling through the forest's crown to drop to the ground and cool off. If you're building in forested country, talk to your state forester's office about defensible space recommendations. Trees also provide opportunities and challenges for dealing with solar or wind conditions, such as using carefully placed deciduous trees to block summer sun, but that allow winter sun to warm the house.

Water and sewer are always important components of your infrastructure: Check with your local health department on what the minimum setbacks are and consider them minimums! The cost of a contaminated water supply will be far greater than the dollars and cents incurred to protect your water supply in the first place, so keep all animal yards and buildings (even dog enclosures) away from the well head. If you will be drilling a new well, place it in an elevated area upslope from buildings and any heavily used areas (driveways, loafing areas or holding pens, barns, etc.). If the county or state hasn't set minimum setbacks from a well, use 100 feet as the absolute minimum. When there is live water on the site (streams, rivers or ponds), try to allow at least a 200-foot setback from the shoreline to buildings or annual crop ground. This setback should have a permanent grass or grass and woody vegetation (trees, willows) to minimize pollution and bank erosion.

Drainage is something that people often fail to think about during planning and down the road they regret the oversight! Design roads and buildings on higher ground to prevent flooding and slope soils away from the building as work is finished.

Poor drainage around buildings can lead to wet basements, moldy conditions and failing foundations; for your animals it can lead to health problems like foot rot or mastitis. If improvements must be in low areas, use French drains and gravel or compacted road base as fill to reduce mud and move water away. Drainage can be diverted away from buildings by use of an earthen ridge, a swale or concrete curbing.

Try to direct runoff to well grassed, permanent pastures. If you can't move runoff to a grassed-over area, construct a small, rock-lined drainage pond downstream. Don't allow runoff to move toward your well, other buildings or neighbor's property. "It's important to understand how water flows on the undeveloped site," Green says, "and attempt to maintain that pattern during and after construction."

Soil types may be a consideration. Different soil types have different load-bearing capacities, or abilities to disperse the

weight of a structure over a given area. Bedrock has the greatest load-bearing capacity at as much as 40 tons per square foot; mucky-type, clay soils have the lowest, at about 12-ton per square foot (these usually have to be removed prior to building). The final design of your buildings' foundations will depend on the soil's ability to bear the weight of the structure. In areas with unstable soils, you may need a professional engineer involved in your design.

Sun, wind and snow will also play a role in your homestead's design. In hot climates, look for sites that minimize solar exposure and place buildings with their shortest elevation (side) to the south. Low rooflines and overhanging porches on the southern exposure will help to reduce temperatures inside.

Place open-faced structures with the opening aligned in the direction that gets summer winds for natural cooling. For colder climates, go the opposite and place buildings so the longest elevation is exposed to the sun. Block winter wind with natural features, like hills and woods, or by growing or constructing a windbreak.

Snow removal and storage may not be a big issue all over the country, but if you happen to reside in the snow belt, try to determine where you can store plowed snow and leave enough room around buildings for operating a plow. Windbreaks can reduce snow accumulation in driveways and around buildings.

Access also needs to be considered during design. Good roads are expensive to design, build and maintain, so placing structures where you can readily access them from existing roads is the best plan. When planning, remember that emergency vehicles or large trucks may need access to your site, so provide at least 75 feet between buildings, with some larger areas that are suitable for maneuvering fire trucks. A tractor-trailer requires at least a 55-foot turning radius and 13.5 feet of clearance from overhead obstacles, like power lines; some farm equipment may require even more head room.

Utilities are expensive if you have to run power over long distances, but solar and wind prices are coming down (and tax incentives are available for getting into these technologies), so you may be able to go off-the-grid on a homestead that doesn't have nearby power. Even if you have readily available electric poles near your site, solar can easily be incorporated for running electric fences or providing night lighting along trails or near buildings.

Read Carol's whole article: "Ways to Increase Your Sustainability."