

Luke Costlow // Permaculture Land Assessment

Organic Growers School Spring Conference 2020

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Please support OGS!

There is no **success** without a **plan**.

There is no **plan** without an **assessment** of the context.

There is no **assessment** until you **ask and answer important questions**.

There are no **questions** until you **consider what you do not know**.

Mollison: “The conscious design and maintenance of agriculturally productive systems which have the diversity, stability, and resilience of natural ecosystems. It is the harmonious integration of the landscape with people providing their food, energy, shelter and other material and non-material needs in a sustainable way.”

Holmgren: “Permaculture is a creative design process based on whole-systems thinking informed by ethics and design principles that feature on this site.

PERMACULTURE PRINCIPLES

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| <ol style="list-style-type: none"> 1. *Observe and Interact 2. Catch and Store Energy 3. *Obtain a Yield 4. *Apply Self Regulation and Feedback 5. Use and Value Renewables 6. Produce No Waste | <ol style="list-style-type: none"> 7. *Design from Patterns to Details 8. Integrate Don't Segregate 9. Use Small, Slow Solutions 10. Use and Value Diversity 11. Use Edges and Value the Marginal 12. Creatively Use and Respond to Change |
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ALBERT EINSTEIN

If I had an hour to solve a problem and my life depended on the answer, I would spend the first 55 minutes figuring out the proper questions to ask. For if I knew the proper questions, I could solve the problem in less than five minutes.

First step: write about your land in narrative, paragraph form

Write out chronological history of your land and house through time - land, house, and people living there.

Second step: Get your maps

County GIS, Plat, Architectural drawings, Utility schematics / buried utilities (call 811), Previous owners drawings, Surveys

Gather **any possible** maps you can get - the more info the better

Make a blank base map that includes: property boundaries, roads and paths, location of structures and other permanent features (later, use the base map to make other maps: Zones, Sectors, Water Flows, Utilities)

Third step: Dive into the questions.

Some will require you to be on site. Bring a compass, a notebook, a pen, camera, tree ID book, good shoes, rain gear (go in the rain to see where water flows!), measuring tape. Bring your printed questions.

Some will require phone calls and research (frost dates, elevation, etc.) Some are basic. Start with easy.

BASIC SITE INFORMATION

Address of Property

Located in what county, what municipality, law enforcement jurisdiction

Elevation of Property

Size of plot in acres

PERSONAL INFORMATION

Name(s) and ages of owners, resident children, non-resident children
 Number of people living on site and their names, ages, and relationship to property owners
 How long do you plan to live at this site?

ZONE ASSESSMENT

Zone definition: Divisions and categorization of your property based on the frequency in which you visit an area. Starts from the center (your body / your kitchen) and works outwards.

Zones are never concentric circles. **Draw out the zones on a map**

Don't try to force your zones where you want them to be, instead pay attention to where you actually go, where you resist going, what kind shoes/clothes you wear to different areas. All good clues.

1.) NATURAL CHARACTERISTICS

Inherent traits from Mother Nature

CLIMATE ANALYSIS

USDA Hardiness Zone (WNC is generally 6a, 6b, or 7a)

Factors that might influence the "official" zone classification: elevation, aspect, microclimate, etc.

Climate Averages: Yearly Rainfall, Yearly Snowfall, Days with some precipitation, sunny days, average July high, average January low, Last Spring Frost, First Fall Frost, Dates of Growing Season

TOPOGRAPHY

Elevation, major slopes, aspect, general soil types, major features, geologic information

PRESENCE OF NATURAL RESOURCES

Springs, sunken areas, woodlands, timber, stones for building, open meadows, etc.

WATER ASSESSMENT *(some of this is best done in your raincoat in a pouring deluge!)*

Creeks, Ponds, Swales, Sloughs, Bogs, Springs, Seeps, Gulleys, etc.

Size, Location, Flow, Fill Rates, Seasonality, Accessibility, Current Uses

Quality, Clarity, Dissolved Oxygen Content, Pollution Existing/Potential

Other water features/sources (springs, rainfall, snowfall)

How does water affect the major buildings? Does it drain away from the house?

What happens during a heavy rain? Where does water linger on the surface after a rain?

SOIL ASSESSMENT

Get a lab test from the Extension Office AND make detailed notes of your own.

Personal experience and observation (How does it feel? Smell? Is it rocky? Is it red, tan, black? Is it compacted?)

Is it rich in organic material? What's the PH? What amendments have been added through the years?)

FOREST HEALTH ASSESSMENT

Age of forest, primary tree Species, Primary Understory Tree, Notable Edibles/Medicinals, Invasives, Soil, biodiversity, signs of wildlife, amount and proportion of dead/diseased trees?

CURRENT PLANTS IN CULTIVATION

Identify perennials, note perennial health and location, have they been well pruned and maintained?

Assess the annual garden space (not details), include notes about health, site placement, and size of plot.

MICROCLIMATE ANALYSIS (*do one for each distinct and relevant microclimate*)

Location: where exactly is it? What are its “boundaries”

Seasonality: Is the warmest place in winter also the warmest in summer, etc.? Probably not. Why?

Current zone classification: how does it differ from your general USDA hardiness zone?

Current vegetation: what grows there now? Clues about what else would do well/poorly

Lack of Vegetation: Why isn't a plant in this area that grows well seemingly everywhere else?

Special Features: south facing stone wall, wind break, north side of building, high water table, etc.

Possible Future Use: list ideas for possible uses while considering each microclimate.

KNOWN CHALLENGES / NATURAL

After gathering all the information above, what are the glaring issues you will definitely need to deal with?

Water (too much / too little? Run off? Uphill / downhill of buildings? Accessible? Clean?)

Topography (highest / lowest elevation, elevation of buildings)

Erosion, dead trees, lack of topsoil, invasive species, etc.

2.) SECTORS

*Sectors are things that originate off your site, move through it, and affect it. **Make a sector map.***

ENERGY FLOWS

What energies (visible and invisible) move through the site? How? Where? What are their effects?

Sun path (solstices and equinoxes), shade, wind

Wildlife, people, views, noise, neighbors, passersby, air traffic, etc.

From what direction do these affect the house?

WATER FLOW

What happens when it rains? Where does water flow? Where does it come from?

What does your water do when it leaves your property (is it destructive)?

Do neighboring properties affect the water coming onto your land? Flooding?

ACTUAL AND POTENTIAL NEGATIVE EFFECTS FROM WILDLIFE:

What animals live on the property and in the area? What are common problems with these animals?

Are there traits of this site that make it uniquely susceptible to animals? Consider “domesticated” animals.

Examples: Messy/aggressive/loud/stray dogs, raccoons in trash, “problem” bears, bunnies eating everything, mouse poop in cellar, snakes in the crawlspace, bats in the attic, bird-murdering cats pooping in raised beds, hawks regularly kill chickens, woodpecker damage to siding, etc.

EFFECTS OF NEIGHBORING PROPERTIES

Use of Chemicals, Noises/Smells/Views, Logging Potential, Water flow, Invisible Structures, Privacy

3.) INFRASTRUCTURE

Significant man-made impacts, the “Built Environment”

HISTORY

What's happened on this land? (Logging, crops, animals, chemicals, plants - invasive or beneficial, fires)

EXISTING ROADS, PAVED AREAS, MAJOR PATHWAYS AND WALKS

Location, condition, material, length, slope, connects what to what, how does water behave on the roads?

What happens in the snow? Are roads navigable? Who will be responsible for clearing snow?

Who is responsible for road upkeep? City, county, property owner?

EXISTING UTILITIES

Call 811 (free state service) to locate buried utilities. Draw locations of these on a map.

Water (Well or municipal? Onsite water treatment?), Heat (what kind?), Electrical (locations, capacity,

generated onsite?) Solar, Sewage Waste, Internet, Generator, Trash/Recycle Pickup, Landline, Cell Phone

POTENTIAL FUTURE ROADS AND UTILITIES

Type, length, cost, etc.

POSSIBILITY FOR NON-EXISTING UTILITIES

If these utilities are not currently part of the site, are you interested in them? What would it take to get them?

BUILDING SITE ASSESSMENT (do this for every building and every site where you plan to put a building)

This is an assessment of the SITE of a building, not the structure itself.

Consider: Solar Access, Road Access, Drainage, Slope, Access to Garden and Other Important Areas, Exterior doors from dwellings, Privacy, Wind Paths, etc

STATE OF STRUCTURES AND BUILDINGS (do this for every major structure)

Take the time to thoroughly examine the structure. Foundations, roofs, siding, gutters, windows, doors, etc. If you have a report from a home inspector, be sure to include relevant findings.

WELLS

Do you share with others? Fill rate/gallons per minute, pressure, depth to water, rock porosity and permeability, pollution potential, treatment systems, age of pump, pumps during power outage? Back up manual pump?

SEPTIC

Depth of bedrock, depth of water table, drainage characteristics of soil, location of leach field, what's downhill, date last serviced, maples or willows that might damage the system?

WATER CATCHMENT

Existing features/infrastructure? Where is water being caught naturally/unintentionally? Mosquito potential/ mitigation techniques present?

ASSESSMENT OF OTHER INFRASTRUCTURE

Fences, retaining walls, irrigation systems, dams, berms, cisterns, etc.

KNOWN CHALLENGES / INFRASTRUCTURE

Upcoming repairs/replacements, safety concerns, emergency preparedness, etc.

4.) INVISIBLE STRUCTURES

Social, Legal, and Financial constructs that impact the project.

TITLE AND OWNERSHIP DETAILS

What is the story of the title of the land? Who owns it? Is there anything "weird" or contested in any way?

Month and year purchased:

Name(s) listed on the deed:

What is the status of the mortgage? Estimated date of end of mortgage?

Are there any deed restrictions?

Who owns the mineral rights?

Are there any conservation easements associated with the land?

To whom does the owner pay property taxes? What services do these taxes provide? (plowing, trash pick up, brush pickup, road upkeep, etc.)

CONSTRAINTS FROM "AUTHORITIES"

Look into any "rules" that may be a challenge for your goals (keeping roosters, etc).

You don't have to follow them, but be aware of what laws you may be civilly disobeying.

Examples: HOAs, Town and County Ordinances, Deed Restrictions, Livestock Restrictions, Building Restrictions, Set backs, Road right of ways, Utility right of ways, Mineral rights, Landlords, Roommate agreements, etc.

RELATIONSHIPS WITH NEIGHBORS

Do you consider them friends / enemies? Do you consider them good / bad people? Are they welcome on your land? See them often? Know their names? Got any beefs? Do they loan tools? Do they borrow tools?

KNOWN CHALLENGES / INVISIBLE STRUCTURES

Noise: (Noise from rail, airway, roads, neighbors, pets, roosters). Nighttime Light: (streetlights, nearby towns, porch lights). Views (Important to maintain mountain views? Want to hide views of neighbors' houses), etc.

5.) STAKEHOLDERS

Who has a vested interest in this land? What are their needs/desires/ambitions? What skills/resources?

KNOW YOURSELF

Are you an engineer, artist, philosopher, or juggernaut?

Do you **think-then-do**, or you **do-then-learn**?

Do you struggle with finally getting started? Do you start before you are ready and make mistakes?

What do you love? What do you hate?

What are you capable of?

What are your limitations (health, age, ability, social issues, confidence, knowledge, help)

What are your strengths/weaknesses

What plants do you love? What plants do you detest?

What chores do you love? What chores do you detest?

What else is on an extreme end of the love/hate spectrum? Do the other stakeholders share this view?

Do any of the residents work from the site?

Do any of the residents commute? If so, how long is the commute?

Do any of the residents attend school away from the site? How far away?

OTHER STAKEHOLDERS

Who else has stakes in this project? How do their answers align with yours?

How does compromise work in these relationships? How do decisions get made?

How are disagreements communicated and settled?

What contracts are in place? Rental agreements, shared leases, etc.

Do you rent/airbnb/have work-for-stay?

Do you host house guests frequently?

Do you have, or do you plan to have, children?

Describe the pet situation on the property. Describe the current livestock on the property What kind?

How many? Ages? Who owns them? How are they confined to the site? How does the site meet their needs?

What needs are not being met?

Banks? HOA? Insurance companies? Extended family (does grandma need a ramp for her wheelchair?)

FINANCES, BUDGET, AND RESOURCES AVAILABLE

- Financial situation and Budget for implementation (can be phased):
- How much time, money, energy do you have? How much of these are you willing to give?
- Is funding available to you? Can it come now as a lump sum, or will it come over time?
- Who has real interest in providing labor hours for implementation of the plan? (be honest). Amount of time per week available for building and maintaining projects for each stakeholder (be realistic)
- Who has real interest in providing ongoing maintenance of systems?
- Will you need to hire laborers? Where will you hire them from? At what cost/ can you afford? Do you have friends/family who would give a day's labor for a "barn raising" type of work day?
- What tools/equipment/machinery do you have available for use? What can you borrow?
- Do you have access to any free/discounted resources? (building materials, compost/manure, plants, equipment/machinery, friends with expertise, labor hours, etc.?)
- What real land-based skills do you have?: Building, growing, chainsaw, masonry,
- What other skills, services, or goods do you have that you are willing and able to barter?
- What relationships can you lean on, and for what kind of support
- What are your priorities: home renovations, planting lots of plants, get chickens, deal with standing dead trees, etc.

IDENTIFY YOUR VISION AND GOALS

This exercise is a no-holds-barred, anything goes type of exercise. This isn't about assessment of the site, this an an **assessment of your ambitions and desires**. Maybe these will be in balance with what the land can provide, maybe not. Limit your dreams only by ecological and ethical concerns and to some degree, finances.

What are your visions of an ideal future? What are your goals?

Really think about WHY you want to spend time, energy, and money on this project

How do you define success? What role does "happiness" play in this?

What is beautiful to you? A "well-oiled machine" of interconnected systems, curb appeal, a jungle, a meadow, a zen garden, a forest, wild and unrestrained/managed and controlled? Something else?

How will it feel? How will it smell? What will people say when they see it for the first time?

What do you want the land to provide?

How much? During what parts of the year?

What are the things "you've always wanted"?

What are your dreams for how this land will LOOK:

What are your dreams for how this land will FEEL:

What are your dreams for how this land will FUNCTION:

What are your dreams for what this land will PROVIDE:

How do you envision YOUR RELATIONSHIP TO THIS LAND:

How do you envision this LAND'S RELATIONSHIP TO YOU?

Level of food sufficiency desired:

Water (source, frequency, amount needed per day):

Structures: (house(s)/type of heat, greenhouse, workshop, storage, barns, chicken house, other outbuildings?

Utility Areas: (clothes line, trash/recycle area, wood processing, compost, hobby space, play area, equipment storage and service, etc.)

Income Production from property: (market garden, animals, woodlot, education, lodging, etc.)

Pets? Livestock?

Biodiversity Goals (plant and animal)

Wildlife enhancement goals: habitat, food sources, etc.

Short term visitors: overnight guests, workshops, airbnb, etc.

What is your desire for privacy? Do you have too much, not enough? Why or why not?

Do you require or foresee requiring accommodations regarding physical accessibility concerns?