



Walk & Talk Notes

Client: [REDACTED]

Address: [REDACTED]

Date of Site Walk: 11/5/2022

General Notes and Recommendations

NOTE: Any recommendations provided in this document are based on the limited context of what we were able to observe and discuss during our Walk & Talk, and are best taken as suggestions for further investigation and inquiry to help round out a holistic site development plan.

Notes/Observations

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Recommendations/Next Steps

- Create a **Minimum Holistic Goal**¹ before continuing with the land design and development process. The MHG process will yield three very important things that will help to navigate the continued design and development of the homestead:
 - Develop a clear, concise understanding of who makes what decisions and what powers they have to allocate what resources are available. Come to agreement on how future disagreements will be handled.
 - Have an **inspiring, co-owned Quality of Life Statement** that you can use to vet the alignment of future decisions and actions towards your desired Quality of Life. (This is the “magnetized needle” that will always point you towards your True North)
 - Know what you must produce and who you need to work with to meet your Quality of Life needs, and the conditions required of your future resource base to sustain that production indefinitely (described in terms of the land you live on and are surrounded by, the people you are in relationship with, and the community you are a part of).
- **Broad-Acre Passive Water Harvesting as part of a general site-wide rehydration plan.**

¹ <http://www.7thgenerationdesign.com/mhg>

- The landscape at RMR has amazing potential for passively harvesting and infiltrating water for the benefit of the surrounding ecology and all future land-based enterprises. Lots of “problem = opportunity” locations that we walked by! Starting with developing an understanding of the current water patterning and water harvesting potential, then identifying current trouble spots, will reveal the best locations for restorative repatterning, whether that comes from specific water harvesting elements or specific management practices.
- Optimize the broad acre areas that are currently shedding water to the incised drainages using the tools of high-density rotational planned grazing and keyline subsoil ripping (see [Living Systems](#)).

Water

Notes/Observations

- Significant head cutting around many of the springs.
- Irrigation pond is completely surrounded by dense stand of rushes and reeds. Tamarisk is growing along the hydrated edge wherever there are significant salt crusts. Pond has a lined bottom and is fed by the well.
- Well water has high TDS count.
- The landscape in its current condition is actively dehydrating as evidenced by the soil compaction, observed vegetation and numerous incised channels that are actively deepening.

Recommendations/Next Steps

- **Erosion Control Elements:** These are some of the elements we discussed that should be installed near term to “plug the holes in the bucket” to keep existing erosion issues from worsening. The constant theme is to de-energize concentrated flows and, wherever possible, spread them out across the broader landscape to be absorbed into the soil profile and utilized to grow vegetation that can be harvested by grazing animals and wildlife.
 - **Headcuts**
 - Recommend installing zuni bowl and other geologically-armored energy dissipation structures to stabilize the numerous headcuts and protect small spring-fed ponds from seasonal run-off.
 - **Culvert Discharge**
 - Recommend constructing an Energy Dissipation Pool at the culvert discharge for the (3rd?) spring we looked at? This will keep the culvert in self-cleaning condition and decrease the energy of the discharge in high-flow events and prevent erosion further down the creek course. Any structures should be built to accommodate seasonal access of a backhoe to clean out sediment accumulated during heavy flows.
 - Some of the culvert discharges observed are well positioned to be patterned into a broad-acre swale system to accommodate surge flows and enhance broad acre hydration.
 - **Aggrading Incised Gullies**

Recommendations/Next Steps

- **Wheeled Access**
 - Installation of rolling dips, belt drains and grade changes to drain the road surfaces more frequently and at beneficial locations will help to decrease road maintenance and increase functionality for all 4 seasons.

Structures

Notes/Observations

- Considering future home-site north of the existing irrigation pond.

Recommendations/Next Steps

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Living Systems

Notes/Observations

- Planting oaks along driveway - considering transplanting existing young oaks
- Pastures currently dominated by filaree, chenopods, oat grass, mustard, *Croton setigerus* (Doveweed) and *Trichostema lanceolatum* (Vinegar Weed). Soils are hard, compacted, bare in many places.

Recommendations/Next Steps

- **Oak Plantings:** Plant oaks grown in air pruning containers that have a highly-branched, non-circling roots with an intact tap root. Transplanting young oaks will damage the root systems and disadvantage them and increase the likelihood of disease. I would highly recommend planting from air-pruned stock vs. transplanting an already established oak.
 - More on the science of air pruning [here](#).
- **Pastures**
 - Keep up the high-density rotational planned grazing with the goats and sheep! The more of the standing carbon that can be trampled or run through an animal rumen the better.
 - Consider [keyline subsoil ripping](#) in concert with application of effective microbe solutions and potentially seed application for pasture restoration. Keyline subsoiling is a much lower cost technique to apply to the broad acreage than swales, and allows for easier access throughout pasture blocks in comparison with swales.
 - Guner Tautrim of [Orella Ranch](#) up on the Gaviota coast has a keyline plow that he's rented out in the past. My former business partner Jesse Smith and his organization [White Buffalo Land Trust](#)⁶ also have a keyline plow that may be available for rent.
 - NOTE: Keylining should be employed in concert with managed grazing and passive water harvesting/erosion repair elements as part of a holistic plan

⁶ <https://www.whitebuffalolandtrust.org/>

with clear management objectives. The plow itself is an amazing tool but it is not a silver bullet! Used improperly it can do harm just like any other tool.

- **Livestaking** - simple, effective technique for revegetating riparian edges.
 - View our [YouTube playlist on Live Staking](#)⁷ to learn more about live staking and its applications in a variety of different bioregions.
 - I've included a [Primer on Live Staking](#) that we include in our Level 2 reports, appended at the end of this document.

Resources

- Doug Richardson at [Drylands Farming Company](#)⁸, based in Ventura. Doug has supplied us with vetiver grass for the installs we have done, but he also grows a number of different dryland and Mediterranean adapted crop species.

Boundaries

Notes/Observations

- Old barbed wire fences located throughout the property.
- New permanent fencing installed to keep Thatcher horses out of formerly overstocked pasture zones.

Recommendations/Next Steps

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Energy

Notes/Observations

- Oil and natural gas present on site. Gas is currently being vented off, looking to put this to a productive use.
- Excellent solar aspect and potential for solar PV and solar thermal.

Recommendations/Next Steps

- Investigate options for putting the vented gas to productive use.
 - Electricity Generation
 - Mobile Bitcoin Mining
 - [EZ Smart Box](#)
 - Data Centers
 - [EZ Smart Grid](#)
 - EV Charging?
 - Sale of energy back to the grid?
 - Re-injection into existing wells to boost dwindling formation pressure and maintain outputs.
 - Compression, storage and use to run natural gas vehicles or other natural gas applications.

⁷ https://youtube.com/playlist?list=PLtkfNW6_wbUplaaAFi6Ip3sNK4bTTJfCz

⁸ <http://www.drylandsfarmingcompany.com/>

Economy

Notes/Observations

- Ranch is currently cash-flowing from several lease-based enterprises:
 - Oil: ~\$100K/yr in lease revenue
 - Cell Towers: ~\$250K/yr in lease revenue
 - Bees: \$4K/yr in lease revenue, located throughout the upland areas.

Recommendations/Next Steps

- Get clear on the high-level management objectives for the ranch. Establish a framework for future nested enterprises and entrepreneurs to layer their operation onto such that the ranch owner, the enterprise partner and the ecology are all benefited. Recommend starting with the MHG process described at the beginning of this document.

Primer On Live Staking

Live Staking

Live staking is a method by which small-diameter branches can be pushed, dug or pounded into wet or perennially moist soils prior to bud break, where they will strike root and become an entirely new tree or shrub. Live staking leverages a process called *adventitious rooting*, whereby a tree or plant will set roots from typically non-rooting meristematic tissues in response to a stressor - in this case the physical injury of cutting and driving the branch into the soil. Provided the new livestake receives enough water and sunlight, it will develop into a fully-formed, healthy tree. Live staking is primarily used to stabilize stream banks and ephemeral waterways, or to establish trees in perennially moist soils.

Figure A.1

Left: Young willow live stakes just starting to leaf out along the edge of a newly constructed pond. **Right:** Same livestakes growing rapidly in a dense willow hedge to armor the pond edge.



The best branches to use for live staking are straight, vertical growing trunks and stems. Harvest the stakes during the late dormant season, and set in water immediately after cutting to keep them from drying out. At a minimum, stakes should be as thick as a human thumb up to 3-4" thick, and be 2-3+' in length for the highest strike rate. Select stakes that are at least 2 years of age that are mature and hard. The thicker the diameter of the stake, the more stored energy it will have available to put towards rooting and branch development. When harvesting, aim to include at least 5-7 nodes per stake. Cut the top of each stake flat and the bottom at an angle to make it easy to identify which side goes up (this will also help when driving the stakes into the ground - the flat top is easier to push/hammer and the angle bottom will more easily penetrate the ground). Remove all small branches and twigs from the live stakes - this will increase the hormonal rooting response and make it much easier to drive the stakes into the soil, and will help keep the stakes from drying out. Place freshly harvested stakes into a bucket of water (water depth should be ~ 1/3rd the total length of the stake) immediately after cutting to keep them hydrated, and place them in a cool and dark

location. Stakes can be stored for up to 7-10 days in these conditions, though ideally they will be planted within 24 hours of harvest.

Fresh cut whips are best when installing a large number of live stakes, as they can simply be pushed or pounded into the ground if the soil is loose and damp enough, or a metal stake of comparable diameter to the whips can be driven into the soil to create a perfectly sized hole for the live stake to be inserted into. The metal stake should be the same diameter as the livestakes in order to ensure no airspace is left in the hole that could inhibit root formation or allow the stake to dry out. Stakes should be planted approximately 2/3rds in the ground and 1/3rd above. Generally, the deeper they can be planted the better.

Staking should happen in late winter or early spring, when soils are moist but the risk of deep freezes has passed (frost heave can push new livestakes out of the ground if they haven't had a chance to set significant roots yet). Once the stake is driven in to the appropriate depth, the top should be cut clean if it has become damaged or frayed from the driving process. In drier, sunnier, and hotter climates, and even in cooler and more humid climates, painting the top cut with latex paint will help to decrease evaporative losses from the exposed plant tissue and decrease the chances of infestation or infection. Beeswax, plant resins, pitch or bitumin can also be used.

Live stakes should be selected from tree species that are well-adapted to riparian or perennially moist soils (e.g. areas with high water tables). Some species with a known track record for successful livestaking in a wide variety of climates and conditions are listed below:

- **Willow (*Salix spp.*)** - Willows produce a very strong, fibrous hairnet root system, and are excellent for stabilizing riparian or perennially wet or moist soils.
- **Alder (*Alnus spp.*)** - Alder is a fast-growing pioneer tree that also fixes nitrogen. It is frequently found growing in disturbed soils along road edges and in roadside ditches.
- **Dogwood (*Cornus spp.*)** - Red Osier, Gray and Silky varieties. More shrub-like, typically multi-stemmed.
- **American Sycamore (*Platanus spp.*)**
- **Elderberry (*Sambucus spp.*)** - Edible, medicinal, does well on riparian edges with good sun exposure.
- **Pacific Ninebark (*Physocarpus capitatus*)**
- **Buttonbush (*Cephalanthus occidentalis*)**
- **Spicebush (*Lindera benzoin*)**
- **Poplars / Cottonwoods / Aspens (*Populus spp.*)** - Fast-growing in moist soils.
- **Black Twinberry (*Lonicera involucrata*)** - Best rooting results with 2-3 year old wood.
- **Common Snowberry (*Symphoricarpos albus*)** - Best rooting results with 2-3 year old wood.
- **Black Mulberry (*Morus rubra*)** - Has the capacity to root on its own, will benefit from soaking in willow water to increase rooting response prior to staking.
- **Indian Plum (*Oemleria cerasiformis*)** - North American native, produces edible fruit and roots well in moist soils.

The NRCS has also released a technical bulletin on the use of [western Washington native shrubs and trees for use in live-staking](#)⁹.

⁹ https://www.nrcs.usda.gov/Internet/FSE_PLANTMATERIALS/publications/orpmctn3857.pdf