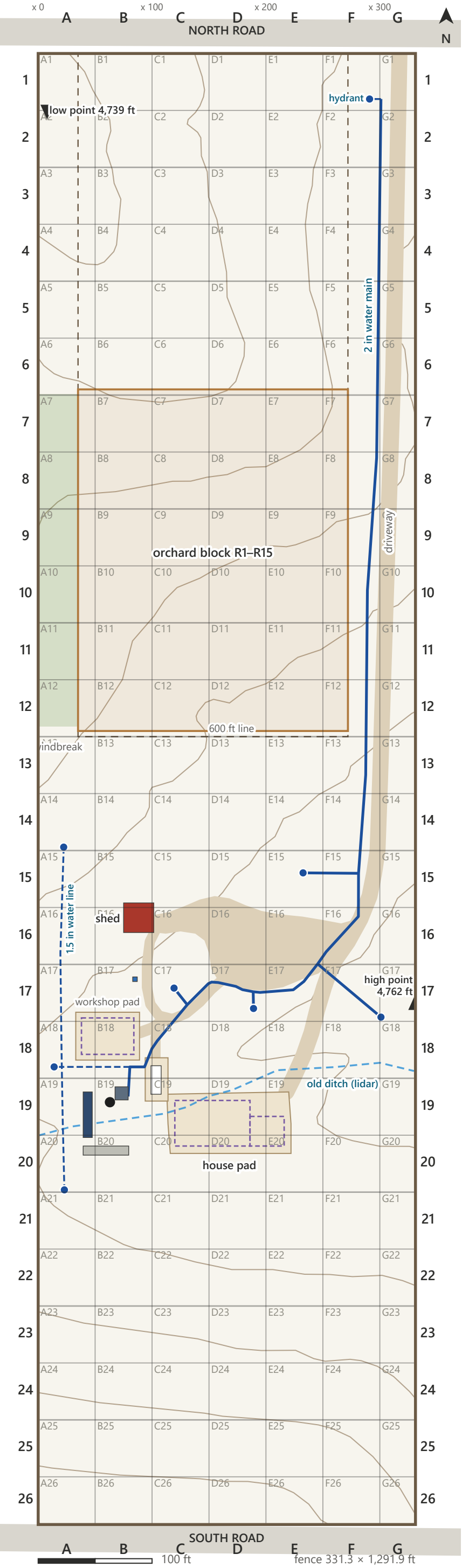


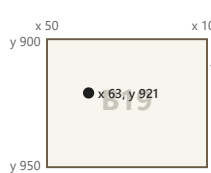
Mountain Prairie Acres: Site Master Grid

One coordinate system for every project on the property: lot feet from the northwest fence corner, 50 ft cells A–G by 1–26, tied to latitude and longitude. Pages and code helpers all read the same data file.

Whole lot, north up, 50 ft cells



Reading a grid reference



**Lot feet:** x is feet east of the west fence, y is feet south of the north fence. The origin (0, 0) is the northwest fence corner, and the fences run true north–south and east–west.

**Cells:** a column letter (A–G, west to east) plus a row number (1–26, north to south). Each cell is 50 × 50 ft, so *B19* is x 50–100, y 900–950. Write a spot as *B19* (x 63, y 921).

**SiteRef:** B19-E13-S21 means 13 ft east and 21 ft south of B19’s northwest corner. See the SiteRef guide and examples on the second printed page.

Lot and location

|                                         |                                                    |
|-----------------------------------------|----------------------------------------------------|
| FENCED LOT                              | LIKELY PARCEL                                      |
| 331.3 × 1,291.9 ft                      | 330 × 1,320 ft (10 ac)                             |
| 9.83 acres inside the fence             | to the road centerlines; not surveyed              |
| ORIGIN (0, 0)                           | DRIVEWAY ENTRANCE                                  |
| 43.47545, -115.59484                    | 43.47550, -115.59364                               |
| northwest fence corner (NAD83 / GPS)    | open in Google Maps (for directions)               |
| LOT AXES                                | POSITION ACCURACY                                  |
| x runs 89.9° true                       | about 10 ft                                        |
| within 0.2° of due east; y is due south | USGS NAIP-based; a shed GPS pin checks within 5 ft |

Feature coordinates and SiteRefs

SiteRefs below identify feature centers, not the full extent of a building or water line. Generated codes round to 0.01 ft; this does not improve the map's roughly 10 ft GPS accuracy.

| Feature (id)                                                                | Cells     | SiteRef (center)  | Size, ft              | Ground, ft | Lat, long            |
|-----------------------------------------------------------------------------|-----------|-------------------|-----------------------|------------|----------------------|
| Boundary and access                                                         |           |                   |                       |            |                      |
| Fence (lot line) fence                                                      | A1–G26    | D13–E15.65–S45.95 | 331.3 × 1,291.9       | —          | 43.47368, -115.59421 |
| North road road_north                                                       | off grid  | OUTSIDE LOT       | 24 wide               | —          | 43.47550, -115.59420 |
| South road road_south                                                       | off grid  | OUTSIDE LOT       | 24 wide               | —          | 43.47187, -115.59419 |
| Driveway entrance driveway_entrance                                         | off grid  | OUTSIDE LOT       | —                     | —          | 43.47550, -115.59364 |
| 9 · Driveway driveway                                                       | G1 → E19  | G10–E6.03–S5.3    | 14 wide               | 4,752.8    | 43.47420, -115.59368 |
| 9 · Yard and turnaround yard                                                | C15–F17   | D16–E42.58–S30.35 | 8,400 sq ft           | 4,759.0    | 43.47331, -115.59411 |
| 9 · Loop drive around the island loop_path                                  | C16 → D17 | C17–E1.54–S39.05  | 9 wide                | 4,758.4    | 43.47315, -115.59445 |
| 9 · Path to the workshop pad path_workshop                                  | C17 → B18 | C18–E1.13–S5.25   | 10 wide               | 4,758.8    | 43.47311, -115.59445 |
| 9 · Path to the RV pad path_rv                                              | C18       | C18–E3–S15.57     | 9 wide                | 4,759.2    | 43.47308, -115.59444 |
| Homestead                                                                   |           |                   |                       |            |                      |
| 1 · Red shed shed                                                           | B15–C16   | B16–E38.25–S9     | 26.5 × 26             | 4,756.2    | 43.47337, -115.59450 |
| 2 · Outhouse outhouse                                                       | B17       | B17–E35–S13       | 4 × 4                 | 4,757.7    | 43.47322, -115.59451 |
| 3 · Solar container container_solar                                         | A19, A20  | A19–E43.5–S32     | 8 × 40                | 4,757.9    | 43.47290, -115.59467 |
| 3 · Storage container container_storage                                     | A20, B20  | B20–E9.5–S13.5    | 40 × 8                | 4,758.3    | 43.47281, -115.59461 |
| 4 · House pad house_pad                                                     | C19–E20   | D19–E18.2–S39.45  | 109 × 54              | 4,759.8    | 43.47288, -115.59420 |
| 5 · Irrigation tank irrigation_tank                                         | B19       | B19–E13–S21       | 9 across              | 4,758.7    | 43.47293, -115.59459 |
| 6 · Pump house pump_house                                                   | B19       | B19–E23.25–S13.25 | 11.5 × 11.5           | 4,759.1    | 43.47295, -115.59456 |
| 7 · Workshop pad workshop_pad                                               | A17–B18   | B18–E11–S13       | 56 × 42               | 4,758.4    | 43.47308, -115.59460 |
| 8 · RV pad rv_pad                                                           | B18–C19   | C19–E4–S1         | 20 × 38               | 4,759.5    | 43.47298, -115.59444 |
| 8 · RV camper rv                                                            | B18–C19   | C19–E3.5–S1.5     | 9 × 25                | 4,759.5    | 43.47298, -115.59444 |
| Planned buildings                                                           |           |                   |                       |            |                      |
| 4 · House (planned) house                                                   | C19–D20   | D19–E3–S39.5      | 66 × 40               | 4,759.6    | 43.47288, -115.59425 |
| 4 · Garage (planned) garage                                                 | D19–E20   | E19–E1–S46.5      | 30 × 26               | 4,760.2    | 43.47286, -115.59407 |
| 7 · Workshop (planned) workshop                                             | A17–B18   | B18–E11–S13       | 46 × 32               | 4,758.4    | 43.47308, -115.59460 |
| Utilities                                                                   |           |                   |                       |            |                      |
| Water main, 2 in PVC water_main                                             | B19 → G1  | F11–E38.41–S46.24 | 2 in pipe, 1,015 long | 4,755.4    | 43.47396, -115.59375 |
| Water line west to the fence, 1.5 in PVC water_tee_west                     | A18, B18  | A18–E47.25–S40    | 1.5 in pipe, 65 long  | 4,758.6    | 43.47301, -115.59465 |
| Water line along the west fence, 1.5 in water_line_west                     | A14 → A20 | A17–E20.18–S47.49 | 1.5 in pipe, 300 long | 4,757.3    | 43.47313, -115.59476 |
| Water branch to the island hydrant, 2 in water_branch_island                | C17       | C17–E25.1–S28.1   | 2 in pipe, 20 long    | 4,758.7    | 43.47318, -115.59436 |
| Water branch to the hydrant south of the yard, 2 in water_branch_yard_south | D17       | D17–E38.95–S31.35 | 2 in pipe, 15 long    | 4,759.9    | 43.47317, -115.59412 |
| Water branch to the east hydrant, 2 in water_branch_east                    | E16 → G17 | F17–E23.2–S22.95  | 2 in pipe, 75 long    | 4,760.9    | 43.47320, -115.59380 |
| Water branch to the hydrant north of the yard, 2 in water_branch_yard_north | E15, F15  | F15–E6.95–S19.8   | 2 in pipe, 50 long    | 4,758.9    | 43.47348, -115.59386 |
| Water lateral at the north end, 1.5 in water_lateral_north                  | F1, G1    | F1–E46–S40        | 1.5 in pipe, 10 long  | 4,748.5    | 43.47534, -115.59372 |
| Hydrant, west end of the 1.5 in line hydrant_west                           | A18       | A18–E14–S40       | —                     | 4,757.9    | 43.47301, -115.59478 |
| Hydrant, south end of the west fence line hydrant_fence_south               | A20       | A20–E23–S48       | —                     | 4,757.6    | 43.47271, -115.59474 |
| Hydrant, north end of the west fence line hydrant_fence_north               | A14       | A14–E22.4–S47     | —                     | 4,752.6    | 43.47354, -115.59475 |
| Hydrant, in the island hydrant_island                                       | C17       | C17–E19.3–S20.8   | —                     | 4,758.6    | 43.47320, -115.59438 |
| Hydrant, south of the yard hydrant_yard_south                               | D17       | D17–E39.1–S38.7   | —                     | 4,760.0    | 43.47315, -115.59412 |
| Hydrant, near the east fence hydrant_east                                   | G17       | G17–E1–S46.3      | —                     | 4,761.5    | 43.47313, -115.59370 |
| Hydrant, north of the yard hydrant_yard_north                               | E15       | E15–E32.6–S19.6   | —                     | 4,758.5    | 43.47348, -115.59396 |
| Hydrant, north end hydrant_north                                            | F1        | F1–E41–S40        | —                     | 4,748.3    | 43.47534, -115.59374 |
| Orchard                                                                     |           |                   |                       |            |                      |
| Orchard strip orchard_area                                                  | A1–F12    | D7–E3.5–S0        | 237 × 600             | 4,744.1    | 43.47463, -115.59426 |
| Orchard block R1-R15 orchard_block                                          | A6–F12    | D9–E3.5–S45       | 237 × 300             | 4,750.3    | 43.47423, -115.59426 |
| Windbreak windbreak                                                         | A6–A12    | A9–E17.5–S45      | 35 × 292              | 4,748.0    | 43.47423, -115.59477 |
| Terrain                                                                     |           |                   |                       |            |                      |
| High point high_point                                                       | G17       | G17–E31–S35       | —                     | 4,761.7    | 43.47316, -115.59358 |
| Low point low_point                                                         | A2        | A2–E0–S0          | —                     | 4,739.2    | 43.47532, -115.59484 |
| Old ditch line old_ditch                                                    | A20 → G18 | D19–E14.79–S11.83 | 8 wide                | 4,759.6    | 43.47295, -115.59421 |

SiteRef Location Codes and Shared Helpers

**Format:** CELL-Eoffset-Soffset fits a precise location in one printed column. C17-E12-S18 means 12 ft east and 18 ft south of **C17's northwest corner**: x 112, y 818. Decimals are feet, not inches; C17-E12.5-S18 is valid.

**Planted example:** the M-111 rootstock at orchard R6-C3 is B10-E33-S35 (x 83, y 485) in the current layout. SiteRef locates the spot, not the plant: keep the metal tag and individual Plant ID separately. A replacement plant can reuse the spot's code.

**Unknown locations:** record PENDING, never guessed offsets. The three Urban apples' outside-orchard locations are pending. Keep cell and offsets as underlying values and generate SiteRef for printing; do not maintain a second editable copy.

**GPS input:** the shared metadata stores one latitude/longitude tie for the lot. Each cell's northwest-corner GPS coordinates are calculated from its x0, y0 values, not stored as a second table. Convert a GPS point with SiteGrid.fromLatLon(latitude, longitude), then generate its SiteRef. Latitude comes first; Idaho longitudes are negative. Near cell boundaries, phone GPS error plus the roughly 10 ft map accuracy can put a point in the neighboring cell; verify measured offsets.

Web pages load generated data/site\_grid.js and data/site\_terrain.js, then call SiteGrid. Edit canonical JSON in the repository's data/ directory; see the property data and SQLite guide.

```
<script src="data/site_grid.js"></script>
<script src="data/site_terrain.js"></script>

SiteGrid.cellOf(63, 921)           // 'B19'
SiteGrid.cellBounds('B19')         // { x0: 50, y0: 900, x1: 100, y1: 950 }
SiteGrid.siteRef(112, 818)         // 'C17-E12-S18'
SiteGrid.fromSiteRef('C17-E12-S18') // [112, 818]
SiteGrid.fromSiteRef('PENDING')    // null (no location)
SiteGrid.siteRef(...SiteGrid.fromLatLon(43.473208398831, -115.594410245142))// 'C17-E12-S18' (GPS to SiteRef)
SiteGrid.center('pump_house')      // [73.25, 913.25]
SiteGrid.cellsOf('house_pad')      // ['C19', 'D19', 'E19', 'C20', 'D20', 'E20']
SiteGrid.elevationFt(63, 921)      // 4758.7 (feet above sea level)
SiteGrid.toLatLon(63, 921)         // [43.472925, -115.594594]
SiteGrid.fromLatLon(43.473383, -115.594507) // [86.5, 754.3] (a GPS pin on the shed)
SiteGrid.treeXY(5, 3)              // [74, 505] (orchard tree R5-C3: x, y, cell B11)
SiteGrid.mapsLink(63, 921)         // Google Maps link to that spot
```

Scripts and the command line use tools/site\_grid.py, which reads the same files:

```
python tools/site_grid.py cell 63 921           # B19
python tools/site_grid.py where B19             # cell bounds and the features in it
python tools/site_grid.py feature pump_house     # center, size, cells, ground, lat/long
python tools/site_grid.py dist pump_house house  # gap and ground change
python tools/site_grid.py tree 5 3              # orchard tree R5-C3: x, y, cell, ground
python tools/site_grid.py site-ref C17-E12-S18   # x 112, y 818, cell C17
python tools/site_grid.py site-ref PENDING       # location not yet known
python tools/site_grid.py fromlatlon 43.473383 -115.594507
from site_grid import SiteGrid; grid = SiteGrid()
grid.site_ref(83, 485)                           # B10-E33-S35 (R6-C3 M-111)
grid.from_site_ref("C17-E12-S18")                 # (112, 818)
grid.from_site_ref("PENDING")                     # None
grid.site_ref(*grid.from_latlon(43.473208398831, -115.594410245142)) # C17-E12-S18
```

Conventions

- Feet throughout. Elevations are above sea level (NAVD88) from USGS 3DEP lidar flown before the homestead pads were graded.
- SiteRef uses the master cell, then east and south offsets from that cell's northwest corner. Offsets are nonnegative, less than 50 ft, and must stay inside the fence, including the partial edge cells. Generated codes use up to two decimal places. E and S are compass directions, even on the orchard map drawn south up.
- Planting records should identify each individual plant, not assign one coordinate to a quantity group. SiteRef is calculated from its location; it is not a metal tag or a permanent Plant ID. Keep unlocated plants PENDING and vacant spots separate from dead or moved plants.
- Status is existing or planned; planned buildings move once staked. Edit canonical data/site.json (rect x0/y0/x1/y1, circle cx/cy/r, polygon/line pts, point x/y), then run python tools/property\_data.py build and the tests. Browser files in docs/data/ are generated, not independently editable.
- Latitude and longitude come from the fitted lot frame, good to about 10 ft: fine for maps and directions, not for boundary questions. For precise layout, measure from the fences.
- Buried water lines (2 in PVC solid, 1.5 in dashed) and the 8 frost-free hydrants (blue dots) are traced from the owner's hand-drawn map (October 2026): good to about 5 ft around the homestead and 10 ft at the north end, so dig by hand near them.