

Landscape Irrigation Auditor Blank Worksheets

- Catch Device Test
- Controller Data and Controller Settings
- Drip/Micro System Review
- Simple Schedule Worksheet
- Site Conditions Review
- Soil Moisture Irrigation Schedule
- Sprinkler System Review
- Test Area Flow Rate Calculation
- Test Area Map
- Water Source and System Data
- Watering Days Irrigation Schedule

| | | | |
|---------------------|--|--------------------------|--|
| Project Name | <input style="width: 95%;" type="text"/> | Date | <input style="width: 95%;" type="text"/> |
| Address | <input style="width: 95%;" type="text"/> | Auditor | <input style="width: 95%;" type="text"/> |
| City, State | <input style="width: 95%;" type="text"/> | Area/Zone/Station | <input style="width: 95%;" type="text"/> |

| | | | |
|---|--|------------------|--|
| Test Area/Station | <input style="width: 95%;" type="text"/> | | |
| Catch Device Area (A_{CD}) | <input style="width: 95%;" type="text"/> | in. ² | Test Run Time (t_R) |
| | <input style="width: 95%;" type="text"/> | | <input style="width: 95%;" type="text"/> |
| | | | min |

Catch Device Volumes

| | | | | | | | | | | | |
|-----|--|-----|--|-----|--|-----|--|-----|--|-----|--|
| #1 | | #17 | | #33 | | #49 | | #65 | | #81 | |
| #2 | | #18 | | #34 | | #50 | | #66 | | #82 | |
| #3 | | #19 | | #35 | | #51 | | #67 | | #83 | |
| #4 | | #20 | | #36 | | #52 | | #68 | | #84 | |
| #5 | | #21 | | #37 | | #53 | | #69 | | #85 | |
| #6 | | #22 | | #38 | | #54 | | #70 | | #86 | |
| #7 | | #23 | | #39 | | #55 | | #71 | | #87 | |
| #8 | | #24 | | #40 | | #56 | | #72 | | #88 | |
| #9 | | #25 | | #41 | | #57 | | #73 | | #89 | |
| #10 | | #26 | | #42 | | #58 | | #74 | | #90 | |
| #11 | | #27 | | #43 | | #59 | | #75 | | #91 | |
| #12 | | #28 | | #44 | | #60 | | #76 | | #92 | |
| #13 | | #29 | | #45 | | #61 | | #77 | | #93 | |
| #14 | | #30 | | #46 | | #62 | | #78 | | #94 | |
| #15 | | #31 | | #47 | | #63 | | #79 | | #95 | |
| #16 | | #32 | | #48 | | #64 | | #80 | | #96 | |

| | | | |
|---|--|---|--|
| Number Catch Devices | <input style="width: 95%;" type="text"/> | ¼ of Number Catch Devices | <input style="width: 95%;" type="text"/> |
| Total Catch Volume | <input style="width: 95%;" type="text"/> | Total Low Quarter | <input style="width: 95%;" type="text"/> |
| Average Volume [V_{avg}] | <input style="width: 95%;" type="text"/> | Average Low Quarter [V_{lq}] | <input style="width: 95%;" type="text"/> |

| |
|--|
| Calculate Distribution Uniformity |
| $DU_{lq} = \frac{\text{Average low quarter } [V_{lq}]}{\text{Average volume } [V_{avg}]} = \frac{\text{mL}}{\text{mL}} = \underline{\hspace{2cm}}$ |
| Calculate Net Precipitation Rate |
| $PR_{net} = \frac{3.66 \times V_{avg}}{t_R \times A_{CD}} = \frac{3.66 \times (\text{mL})}{(\text{min}) \times (\text{in.}^2)} = \underline{\hspace{2cm}} \text{ in./h}$ |

| | | | |
|--------------|----------------------|---------|--|
| Project Name | <input type="text"/> | Date | <input type="text"/> |
| Address | <input type="text"/> | Auditor | <input type="text"/> |
| City, State | <input type="text"/> | Page | <input type="text"/> of <input type="text"/> |

| | | | |
|--|--------------------------|---------------------------------------|--------------------------|
| Manufacturer | | Central Control (check one) | |
| <input type="text"/> | <input type="checkbox"/> | Yes | <input type="checkbox"/> |
| <input type="text"/> | <input type="checkbox"/> | No | <input type="checkbox"/> |
| Model Number | | Weather Station (check one) | |
| <input type="text"/> | <input type="checkbox"/> | Yes | <input type="checkbox"/> |
| <input type="text"/> | <input type="checkbox"/> | No | <input type="checkbox"/> |
| Stations Being Used | | Smart Controller (check one) | |
| <input type="text"/> | <input type="checkbox"/> | Yes | <input type="checkbox"/> |
| <input type="text"/> | <input type="checkbox"/> | No | <input type="checkbox"/> |
| Station Run Time Range (min) | | | |
| Minimum | <input type="text"/> | Maximum | <input type="text"/> |
| Number of Programs | | Start Times/Program | |
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| Calendar Days (check one) | | | |
| <input type="checkbox"/> | 7 days | <input type="checkbox"/> | 14 days |
| <input type="checkbox"/> | Other (explain) | <input type="text"/> | <input type="text"/> |
| Irrigation Interval (check options available) | | | |
| <input type="checkbox"/> | Daily | <input type="checkbox"/> | Even/Odd |
| <input type="checkbox"/> | Custom (explain) | <input type="text"/> | <input type="text"/> |
| Rain delay (maximum days) | | Skip Day Period (maximum days) | |
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| Percent Adjust Options (check applicable) | | | |
| <input type="checkbox"/> | Global | <input type="checkbox"/> | By program |
| <input type="checkbox"/> | By station | <input type="checkbox"/> | By month |
| <input type="checkbox"/> | Seasonal | <input type="checkbox"/> | |
| Sensors Installed (make & model) | | | |
| Rain | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| Freeze | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| Wind | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| Temperature | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| Flow | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| Soil moisture | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| Tipping bucket | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| Notes | | | |
| <input type="text"/> | | | |

cont. on back

| | | | |
|---------------------|--|----------------|--|
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| Address | <input style="width: 95%;" type="text"/> | Auditor | <input style="width: 95%;" type="text"/> |
| City, State | <input style="width: 95%;" type="text"/> | Page | <input style="width: 10%;" type="text"/> of <input style="width: 10%;" type="text"/> |

| Station # | | | Observed Problems |
|-----------------------------------|--|-----|-------------------------|
| Plant material | | | Emission devices |
| Plant condition | | | Missing emitters |
| Microclimate | | | Clogged emitters |
| Soil category | | | Emitters in wrong place |
| Pressure regulator in place (Y/N) | | | Broken stakes |
| Flow rating | | gpm | |
| Pressure setting | | psi | Tubing and fittings |
| Pressure readings | | | Cut tubing |
| Beginning | | psi | Kinked tubing |
| Middle | | psi | Broken fittings |
| End | | psi | Flush plugs buried |
| Filter in place (Y/N) | | | |
| Filter type | | | Filter needs servicing |
| Size (mesh or micron) | | | |
| Emitter type | | | |
| Flow rate | | gph | |
| Emitter spacing | | in. | |
| Line spacing | | in. | |
| Tubing size (in./mm) | | | |
| Air/vacuum relief (Y/N) | | | |
| Flush plugs accessible (Y/N) | | | |

Abbreviation Key

| Plant Material |
|-----------------------|
| CS = Cool season turf |
| WS = Warm season turf |
| T = Trees |
| S = Shrubs |
| N = Native plants |
| GC = Ground cover |
| F = Annual flowers |

| Microclimate |
|--|
| FS = Full sun all day |
| PS = Part shade, less than 6 hours of sun per day |
| SH = Full shade all day |
| EX = Extreme conditions (parking lots, south-facing glass or wall) |

| Soil Category |
|------------------------|
| C = Coarse |
| MC = Moderately coarse |
| M = Medium |
| MF = Moderately fine |
| F = Fine |

| Plant Condition |
|---|
| LM = Low-maintenance, stressed |
| TRD = Some stress, but generally good condition |
| HQ = Majority are vigorously growing |

| Slope |
|----------------|
| F = Flat |
| SI = Slight |
| Mod = Moderate |
| Stp = Steep |



Simple Schedule Worksheet

| | | | | |
|---------------------|----------------------|------|----------------------|----------------------|
| Project Name | <input type="text"/> | Date | <input type="text"/> | |
| | Address | | Auditor | <input type="text"/> |
| | City, State | | <input type="text"/> | |

| Controller ID/Name | | | | |
|-----------------------|---|-------------------------|--|-----------------|
| Station # | | | | |
| | Item Description | Source | | Units |
| A | Target amount of water to apply | management choice | | inches |
| B | Precipitation rate | gross or net | | inches per hour |
| C | Distribution uniformity [DU _{ig}] | audit or estimate | | decimal |
| D | Scheduling multiplier [SM] | table | | |
| Scheduling Parameters | | | | |
| E | Ideal run time (lower boundary) | $\frac{A \times 60}{B}$ | | minutes |
| F | Upper run time boundary | E × D | | minutes |
| G | Recommended run time | management choice | | minutes |

| | | | |
|--------------|--|---------|----|
| Project Name | | Date | |
| Address | | Auditor | |
| City, State | | Page | of |

| Controller ID/Name | | | | | |
|---------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Area/location | | | | | |
| Controller station(s) # | | | | | |
| Irrigated area | ft ² | ft ² | ft ² | ft ² | ft ² |
| Plant material (all that apply) | | | | | |
| Plant condition (choose one) | | | | | |
| Microclimate (choose one) | | | | | |
| Soil category (choose one) | | | | | |
| Root zone depth | in. | in. | in. | in. | in. |
| Slope (choose one) | | | | | |
| Compaction (Y/N) | | | | | |
| Runtime until runoff | min | min | min | min | min |
| Standing water (Y/N) | | | | | |
| Turf/shrub separation (Y/N) | | | | | |
| Hydrozone separation (Y/N) | | | | | |
| Mowing height | in. | in. | in. | in. | in. |
| Fertilization (frequency) | | | | | |
| Aeration (frequency) | | | | | |
| Dethatching (frequency) | | | | | |
| Mulch in beds (Y/N) | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
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| | | | | | |
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| | | | | | |

Abbreviation Key

| | | | | |
|--|--|--|--|--|
| Plant Material CS = Cool season turf WS = Warm season turf T = Trees S = Shrubs N = Native plants GC = Ground cover F = Annual flowers | Microclimate FS = Full sun all day PS = Part shade, less than 6 hours of sun per day SH = Full shade all day EX = Extreme conditions (parking lots, south-facing glass or wall) | Soil Category C = Coarse MC = Moderately coarse M = Medium MF = Moderately fine F = Fine | Plant Condition LM = Low maintenance, stressed TRD = Traditional, some stress, but generally good condition HQ = High quality, majority are vigorously growing | Slope F = Flat SI = Slight Mod = Moderate Stp = Steep |
|--|--|--|--|--|

| | | | |
|---------------------|--|--------------------------|----------------|
| Project Name | | | Date |
| Address | | | Auditor |
| City, State | | Area/Zone/Station | |

| Plant Water Requirement | Value | Units | | Source |
|---|-------|---------|--|--|
| A. ET _o reference period | | | | |
| B. ET _o reference period in days | | days | | <i>Override value</i> |
| C. Reference ET [ET _o] | | in. | | weather data |
| D. Landscape coefficient [K _L] | | | | (K _T or K _P) × K _d × K _{mc} |
| 1) Turf or plant factor [K _T or K _P] | | | | charts & tables |
| 2) Vegetation density factor [K _d] | | | | charts & tables |
| 3) Microclimate factor [K _{mc}] | | | | charts & tables |
| E. Landscape ET [ET _L] | | in. | | C × D |
| F. Average daily ET _L | | in. | | E ÷ B |
| Sprinkler Performance | Value | Units | | Source |
| G. Precipitation rate [PR] | | in./h | | <i>Override/audit or calculation</i> |
| H. Distribution uniformity [DU _{ig}] | | decimal | | <i>Override/audit or estimate</i> |
| I. Scheduling multiplier [SM] | | | | table or equation |
| Soil Properties | Value | Units | | Source |
| J. Soil texture category | | | | field observation |
| K. Available water [AW] | | in./in. | | <i>Override value/charts</i> |
| L. Root zone depth | | in. | | field measurement |
| M. Plant available water [PAW] | | in. | | K × L |
| N. Management allowed depletion [MAD] | | decimal | | 0.5 for landscapes |
| O. Allowed depletion [AD] | | in. | | M × N |
| Scheduling Parameters | Value | Units | | Source |
| P. Irrigation interval | | days | | O ÷ F [round down] |
| Q. Water to apply | | in. | | F × P |
| R. Lower boundary | | min | | (Q ÷ G) × 60 [round down] |
| S. Upper boundary | | min | | R × I [round up] |
| T. Selected run time, whole number | | min | | management decision |
| U. Determine cycle starts by | | | | |
| a. Observed time to runoff | Ua. | min | | field observation |
| or b. Site conditions | Ub. | cycles | | based on site conditions |
| 1) Soil category | | | | C, MC = 1; M = 2; MF, F = 3 |
| 2) Slope | | | | Fl = 0, Sl = 1, Mod = 2, St = 3 |
| 3) Compaction | | | | Yes = 1, No = 0 |
| 4) Sprinkler type | | | | Spray = 1, Rotor = 0 |
| Scheduling Summary | Value | Units | | Source |
| Water to be applied | | in. | | Q |
| Interval | | days | | P |
| V. Cycle starts per day | | | | T ÷ Ua [round up] or Ub |
| Minutes per cycle | | min | | T ÷ V [round] |



Sprinkler System Review

| | | | |
|---------------------|--|----------------|--|
| Project Name | <input style="width: 95%;" type="text"/> | Date | <input style="width: 95%;" type="text"/> |
| Address | <input style="width: 95%;" type="text"/> | Auditor | <input style="width: 95%;" type="text"/> |
| City, State | <input style="width: 95%;" type="text"/> | Page | <input style="width: 15%;" type="text"/> of <input style="width: 15%;" type="text"/> |

Abbreviation Key: S = Spray, fixed nozzle R = Rotor, MSMT nozzles I = Impact X = Needs correction ✓ = Correction completed

| Controller ID/Name | | | | | | | | | | |
|-----------------------------|---|-----|---|-----|---|-----|---|-----|---|-----|
| Station # | | | | | | | | | | |
| Sprinkler type (choose one) | | | | | | | | | | |
| Station flow | | gpm | | gpm | | gpm | | gpm | | gpm |
| High pressure | | psi | | psi | | psi | | psi | | psi |
| Low pressure | | psi | | psi | | psi | | psi | | psi |
| Action Required | X | ✓ | X | ✓ | X | ✓ | X | ✓ | X | ✓ |
| Broken pipes | | | | | | | | | | |
| Missing/broken heads | | | | | | | | | | |
| Missing nozzle | | | | | | | | | | |
| psi adjustment needed | | | | | | | | | | |
| Clogged nozzle | | | | | | | | | | |
| Heads not turning | | | | | | | | | | |
| Arc misalignment | | | | | | | | | | |
| Low head drainage | | | | | | | | | | |
| Leaking seals/fittings | | | | | | | | | | |
| Spray deflected/blocked | | | | | | | | | | |
| Sunken head | | | | | | | | | | |
| Tilted heads | | | | | | | | | | |
| Mismatched heads | | | | | | | | | | |
| Spray/rotor separation | | | | | | | | | | |
| Spacing uneven | | | | | | | | | | |
| Valve malfunction | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Observations on Maintenance Frequency



Test Area Flow Rate Calculation

| | | | |
|--------------|----------------------|---------|--|
| Project Name | <input type="text"/> | Date | <input type="text"/> |
| Address | <input type="text"/> | Auditor | <input type="text"/> |
| City, State | <input type="text"/> | Page | <input type="text"/> of <input type="text"/> |

| | | | | | | | |
|-------------------|----------------------|----------------------|---------------|----------------------|-----|----------------------|--------------------------|
| Test Area/Station | | <input type="text"/> | | | | | |
| Meter Start | | | Meter Stop | | | <input type="text"/> | |
| Total Flow | <input type="text"/> | gal/ft ³ | Test Run Time | <input type="text"/> | min | Flow Rate | <input type="text"/> gpm |

| Gross Precipitation Rate | Drip Irrigation Precipitation Rate |
|--|--|
| $PR = \frac{96.3 \times Q}{\text{Area (ft}^2\text{)}}$ | $PR = \frac{1.605 \times Q_{\text{gph}}}{\text{Area (ft}^2\text{)}} \quad \text{or} \quad PR = \frac{231.1 \times Q_{\text{gph}}}{S_{\text{ei}} \times S_{\text{li}}}$ |

Calculations

| | | | |
|---------------------|--|----------------|--|
| Project Name | <input style="width: 95%;" type="text"/> | Date | <input style="width: 95%;" type="text"/> |
| Address | <input style="width: 95%;" type="text"/> | Auditor | <input style="width: 95%;" type="text"/> |
| City, State | <input style="width: 95%;" type="text"/> | Page | <input style="width: 10%;" type="text"/> of <input style="width: 10%;" type="text"/> |

| | | | | | | | | |
|--------------------------|--|------------|-------------------|--|------------|-----------------|--|------------|
| Test Area/Station | <input style="width: 95%;" type="text"/> | | | | | | | |
| Test Run Time | <input style="width: 95%;" type="text"/> | min | Wind | <input style="width: 95%;" type="text"/> | mph | Pressure | <input style="width: 95%;" type="text"/> | psi |
| Meter Start | <input style="width: 95%;" type="text"/> | | Meter Stop | <input style="width: 95%;" type="text"/> | | Total | <input style="width: 95%;" type="text"/> | |



Water Source and System Data

| | | | |
|--------------|----------------------|---------|--|
| Project Name | <input type="text"/> | Date | <input type="text"/> |
| Address | <input type="text"/> | Auditor | <input type="text"/> |
| City, State | <input type="text"/> | Page | <input type="text"/> of <input type="text"/> |

Water Source Data

| Water Source (check one) | | | |
|----------------------------------|--------------------------------------|--------------------------|--|
| <input type="checkbox"/> | Potable | <input type="checkbox"/> | Reclaimed |
| <input type="checkbox"/> | | <input type="checkbox"/> | Well |
| <input type="checkbox"/> | | <input type="checkbox"/> | Pond |
| <input type="checkbox"/> | Other (explain) <input type="text"/> | | |
| Backflow Device (check one) | | | |
| <input type="checkbox"/> | None | <input type="checkbox"/> | RPA |
| <input type="checkbox"/> | | <input type="checkbox"/> | DCV |
| <input type="checkbox"/> | | <input type="checkbox"/> | PVB |
| <input type="checkbox"/> | | <input type="checkbox"/> | AVB |
| | Size | <input type="text"/> | in. |
| Pump or Pump Station (check one) | | | |
| <input type="checkbox"/> | No | <input type="checkbox"/> | Yes |
| | | Maximum flow | <input type="text"/> gpm |
| | | Pressure | <input type="text"/> psi |
| Meter (check one) | | | |
| <input type="checkbox"/> | No | <input type="checkbox"/> | Yes |
| | | Size | <input type="text"/> in. |
| | | Units (check one) | <input type="checkbox"/> gallons <input type="checkbox"/> cubic feet |
| | | Available pressure | <input type="text"/> psi (during scheduled irrigation window) |

General System Information

| Water Utility | |
|---------------------------|----------------------|
| Contact person | <input type="text"/> |
| Phone | <input type="text"/> |
| Watering restrictions | <input type="text"/> |
| Landscape Maintenance Co. | |
| Contact person | <input type="text"/> |
| Phone | <input type="text"/> |
| Irrigation Service Co. | |
| Contact person | <input type="text"/> |
| Phone | <input type="text"/> |
| Pump Service Co. | |
| Contact person | <input type="text"/> |
| Phone | <input type="text"/> |



Watering Days Irrigation Schedule

| | | | |
|---------------------|--|--------------------------|--|
| Project Name | <input style="width: 95%;" type="text"/> | Date | <input style="width: 95%;" type="text"/> |
| Address | <input style="width: 95%;" type="text"/> | Auditor | <input style="width: 95%;" type="text"/> |
| City, State | <input style="width: 95%;" type="text"/> | Area/Zone/Station | <input style="width: 95%;" type="text"/> |

| Plant Water Requirement | Value | Units | | Source |
|---|-------|---------|--|--|
| A. ET _o reference period | | | | |
| B. ET _o reference period in days | | days | | <i>Override value</i> |
| C. Reference ET [ET _o] | | in. | | weather data |
| D. Landscape coefficient [K _L] | | | | (K _T or K _p) × K _d × K _{mc} |
| 1) Turf or plant factor [K _T or K _p] | | | | charts & tables |
| 2) Vegetation density factor [K _d] | | | | charts & tables |
| 3) Microclimate factor [K _{mc}] | | | | charts & tables |
| E. Landscape ET [ET _L] | | in. | | C × D |
| F. Average daily ET _L | | in. | | E ÷ B |
| Sprinkler Performance | Value | Units | | Source |
| G. Precipitation rate [PR] | | in./h | | <i>Override/audit or calculation</i> |
| H. Distribution uniformity [DU _{ig}] | | decimal | | <i>Override/audit or estimate</i> |
| I. Scheduling multiplier [SM] | | | | table or equation |
| Scheduling Parameters | Value | Units | | Source |
| J. Irrigation interval | | | | watering days |
| | | days | | <i>Override value</i> |
| K. Water to apply | | in. | | J × F |
| L. Lower boundary | | min | | (K ÷ G) × 60 [round down] |
| M. Upper boundary | | min | | L × I [round up] |
| N. Selected run time, whole number | | min | | management decision |
| O. Determine cycle starts by | | | | |
| a. Observed time to runoff | Oa. | min | | field observation |
| or b. Site conditions | Ob. | cycles | | based on site conditions |
| 1) Soil category | | | | C, MC = 1; M = 2; MF, F = 3 |
| 2) Slope | | | | Fl = 0, Sl = 1, Mod = 2, St = 3 |
| 3) Compaction | | | | Yes = 1, No = 0 |
| 4) Sprinkler type | | | | Spray = 1, Rotor = 0 |
| Scheduling Summary | Value | Units | | Source |
| Water to be applied | | in. | | K |
| Interval | | days | | J |
| P. Cycle starts per day | | | | N ÷ Oa [round up] or Ob |
| Minutes per cycle | | min | | N ÷ P [round] |