# **Construction supervision checklist – Solar water pumping system**

This checklist is to be utilised to identify, review, and correct any conditions or hazards that may endanger personnel, contractors, or members of the public at Solar Water Pumping projects.

Date: ***[Insert date]***

**Project name: *[Insert project name]***

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| **SN** | **Task or Condition** | **Tick result** | | | **Actions to address**  **(If the result is NO, then include an action)** |
| **YES** | **NO** | **N/A** |
| **A.** | **Before construction- stage 1** |  |  |  |  |
| **Site safety Induction** | | | | | |
| 1. | Has a site safety induction been conducted and signed by all personnel involved in the task? |  |  |  |  |
| 2. | If dangerous goods are in use, are there adequate safety controls in place? |  |  |  |  |
| 3. | Are environmental considerations addressed? |  |  |  |  |
| 4. | Does the workforce have the necessary safety training? |  |  |  |  |
| 5. | Is the local site condition all fulfilled and signed? |  |  |  |  |
| **Forms/Documentation** | | | | | |
| 1. | Is there a certified/current working drawing on site? |  |  |  |  |
| 2. | Is there an installation checklist on site? |  |  |  |  |
| 3. | Is the work order or appropriate permit issued for work on-site? |  |  |  |  |
| **Personal protective equipment** | | | | | |
| 1. | Are the PPE as per daily risk assessment? |  |  |  |  |
| 2. | Is other safety apparel in good condition? |  |  |  |  |

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| **Tools/Equipment** | | | | | |
|  | | **Yes** | **No** | **N/A** |  |
| 1. | Are all electrical and mechanical tools within their test date range and tagged? |  |  |  |  |
| 2. | Are the lifting equipment in good working condition? |  |  |  |  |
| **After construction – stage 2** | | | | | |
|  | | **Yes** | **No** | **N/A** |  |
| 1. | Is the system installed by a qualified installer? |  |  |  |  |
| 2. | Have the as-built electrical drawings been received? |  |  |  |  |
| 3. | Does the final electrical design have a professional engineer’s stamp? |  |  |  |  |
| 4. | PV module specification is as per design? |  |  |  |  |
| 5. | Inverter specification is as per design? |  |  |  |  |
| 6. | Combiner box specification is as per design? |  |  |  |  |
| 7. | Is the water pump specification as per design? |  |  |  |  |
| **PV modules** | | | | | |
|  | | **Yes** | **No** | **N/A** |  |
| 1. | PV Modules are physically installed per plans, drawings |  |  |  |  |
| 2. | The array is optimized for performance without sacrificing aesthetics |  |  |  |  |
| 3. | Trees and plants will not grow tall enough to shade the array |  |  |  |  |
| 4. | Array installation is neat and clean |  |  |  |  |
| 5. | The PV module model number matches the approved specifications |  |  |  |  |
| 6. | Combiner box(es) is installed and matches the approved specifications |  |  |  |  |
| 7. | Module connectors are tight and secure |  |  |  |  |
| 8. | Module interconnection conductors are UV-protected as per the approved specifications |  |  |  |  |
| 9. | Wires and conduit sizes installed per the approved specifications |  |  |  |  |
| 10. | Wiring is neat and secure |  |  |  |  |
| 11 | Conductors are not in contact with the roof surface |  |  |  |  |
| 12 | Electrical boxes are accessible and suitable for the environment |  |  |  |  |
| 13 | No potential for wire damage |  |  |  |  |
| 14 | Confirm metallic PV module frame grounding uses a dedicated grounding conductor or the rack/module system is UL listed for grounding |  |  |  |  |
| 15 | Proper grounding of all other metallic surfaces that might become energized (conduit, combiner boxes, disconnect enclosures, etc.) |  |  |  |  |
| 16 | Dissimilar metals are electrically isolated to avoid galvanic corrosion |  |  |  |  |
| 17 | Aluminum is not placed in direct contact with concrete |  |  |  |  |
| 18 | Protective fencing installed and will not shade array (if required) |  |  |  |  |
| **Inverter** | | | | | |
|  | | **Yes** | **No** | **N/A** |  |
| 1. | The inverter is installed per the work order |  |  |  |  |
| 2. | Confirm inverter model number matches the approved specifications |  |  |  |  |
| 3. | Inverter is warranted |  |  |  |  |
| 4. | Wire and conduit sizes installed per the approved specifications |  |  |  |  |
| 5. | Installation is neat and permanent |  |  |  |  |
| 6. | Inverter is easily accessible |  |  |  |  |
| 7. | DC disconnect is DC-rated, permanently installed and readily accessible |  |  |  |  |
| 8. | AC disconnect, if specified, is securely installed and accessible |  |  |  |  |
| **Water pump** | | | | | |
|  | | **Yes** | **No** | **N/A** |  |
| 1. | The pump is installed as per the work drawing |  |  |  |  |
| 2. | The pump is adequately sized as per the water requirement |  |  |  |  |
| 3. | The cable sizes for the pump are as per the drawing and specification |  |  |  |  |
| 4. | Cable shoes are properly crimped and cable caps are used |  |  |  |  |
| 5. | Proper cable colours are used |  |  |  |  |
| 6. | The pump is installed as per the requirement |  |  |  |  |
| 7. | The pipeline from the water pump is properly sealed |  |  |  |  |
| 8. | The pipeline is as per the requirements of the crops and as per the drawings. |  |  |  |  |
| **System labelling** | | | | | |
|  | | **Yes** | **No** | **N/A** |  |
| 1. | All equipment and parts are labelled as required |  |  |  |  |
| 2. | The labels identify PV power source attributes at the DC disconnect |  |  |  |  |
| 3. | The labels identify the AC point of connection |  |  |  |  |
| 4. | Outdoor labels designed to withstand the elements |  |  |  |  |
| 5. | Emergency and maintenance contact information |  |  |  |  |

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| **Water collection and distribution infrastructures** | | | | | |
|  | | **Yes** | **No** | **N/A** |  |
| 1. | For drinking water, is the horizontal roughing filter constructed in the approved location? |  |  |  |  |
| 2. | For drinking water, is the horizontal roughing filter constructed as per the approved specifications and drawings? |  |  |  |  |
| 3. | Is the pump intake and collection reservoir constructed as per the approved specifications and drawings? |  |  |  |  |
| 4. | Is the pump intake and collection reservoir constructed in the approved location? |  |  |  |  |
| 5. | Is the distribution reservoir constructed as per the approved specifications and drawings? |  |  |  |  |
| 6. | Is the distribution reservoir constructed in the approved location? |  |  |  |  |
| 7. | Is the path of the water transmission line as per the approved drawings? |  |  |  |  |
| 8. | Are the transmission line pipes as per the approved specifications and drawings? |  |  |  |  |
| 9. | Is the distribution network of water as per the approved drawings? |  |  |  |  |
| 10. | Are the distribution network pipes as per the approved specifications and drawings? |  |  |  |  |
| 11. | For drinking water projects, are appropriate measures taken to ensure drinkable water quality as per the approved design report? |  |  |  |  |
| 12. | If water meters are included, are they installed as per the approved specifications and drawings? |  |  |  |  |

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| Additional comments/findings: |
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| **Supervised by:** | **Name** | **Position** | **Signature** |
| Contractor representative |  |  |  |
| Employer representative |  |  |  |
| Consultant representative |  |  |  |