Pre-Season Irrigation System Assessment

No.	Item	Action Needed or Taken	Date
	Irrigation Pump – Centrifugal		
CP1.	Pump casing without: ❑ Cracks or holes ❑ Leaks caused by drying gaskets		
CP2.	Cleaned drain hole on the underside of pump		
CP3.	Drain and fill plugs in the pump volute case tightened to prevent air and water leaks ● Pipe thread compound should be used on all pipe threads.		
CP4.	Pump shaft (impeller) rotates freely within casing		
CP5.	Belts, chains, and couplings in good condition		
CP6.	Lubricate pump and check oil levels		
CP7.	Pump securely attached to the platform		
CP8.	Intake and discharge piping firmly supported within three feet of the irrigation pump		
CP9.	Pressure gauge installed on the pump discharge line ● Pressure jolts from filling the pipeline and pressure fluctuations and vibrations while the pump is operating will eventually compromise gauge accuracy, requiring occasional replacement		
CP10.	Flow meter installed and operating properly		
CP11.	Rodents and/or burrowing animals eradicated from pond site		
CP12.	Control panel ❑ Shaded to cool thermal breakers ❑ Mounted on secure poles or foundation ❑ Holes or missing knockout plugs screened or puttied ❑ Small hole (3/16-inch) in the bottom of the panel to allow moisture to drain		

	Irrigation Pump – Turbine		
TP1.	Sturdy motor base with motor firmly supported		
TP2.	Pump lubrication ❑ Using food grade oil ❑ Oilers working properly		
TP3.	Pressure gauge installed on the pump discharge line ● Pressure jolts from filling the pipeline and pressure fluctuations and vibrations while the pump is operating will eventually compromise gauge accuracy, requiring occasional replacement		

Pre-Season Irrigation System Assessment

No.	Item	Action Needed or Taken	Date
TP4.	Intake screen ❑ Clean and properly placed ❑ Intake not resting on bottom of the pond or water source ► Prevent mud and debris from being sucked into the system ❑ Intake should not be too close to the water surface ► Air can be sucked into the irrigation system due to vortexing		
TP5.	Trash screen is clean and placed properly		
TP6.	Discharge pipe firmly supported		
TP7.	Flow meter installed and operating properly		
TP8.	Rodents and/or burrowing animals eradicated from pond site		

	Electric Motor		
EM1.	Motor frame clean of: ❑ Debris and vegetation ❑ Caked-on dirt and oil ❑ Rodent or insect nests		
EM2.	Motor ventilation ❑ Vents open and unobstructed by grass or plant debris ❑ Vents and case openings protected with ¼-to-½ inch mesh screen (e.g., machine cloth) ❑ Plant material and debris removed from around motor(s) for unobstructed ventilation flow ❑ If housed inside a structure or building, ample-sized openings exist for ventilation		
EM3.	Clean out motor drain hole located on the motor base or the motor support base ● Prevents water from collecting under the air intake		
EM4.	Motor windings ❑ Check for rodent and insect entry and damage ► If there is evidence of rodent damage, find and then plug or screen the entry point ❑ Use compressed air to remove dirt, dust, debris, or other foreign material ❑ Remove excessive grease ● If excessively grease covered, confer with a motor repair service		
EM5.	Motor covered for shade and for water protection		
EM6.	Safety shields and access covers ❑ Protective covers correctly attached to motor and properly functioning ❑ Access plates and cover dome in-place and secure		

Pre-Season Irrigation System Assessment

No.	Item	Action Needed or Taken	Date
EM7.	Belts do not show deterioration or cracking		
EM8.	Proper shaft alignment with pump and turns freely		
EM9.	Proper belt alignment and tension between motor and pump		
EM10.	Safety switches work property (check manufacturer's manual)		
EM11.	Tighten terminal screws and electrical wire connecting screws ● Freeze/thaw cycles cause electrical contacts to loosen		
EM12	Motor runs quietly, free of excess vibration or noise		

	Electrical Service		
	Overhead lines clear of tree branches and other physical hazards		
	Service panel ❑ Secure and installed properly ❑ Open holes or missing knockout plugs plugged ❑ Interior free of moisture or corrosion ❑ Clean of debris, nests, rodents, and insects ❑ Interlocking door latches work properly ❑ Door seals and/or drop traps intact and secure ❑ Shaded to cool thermal breakers		
	Service panel electrical connections ❑ Replace blown fuses (never use an oversized fuse) ❑ Slowly open and close the disconnect switch to check for alignment of blades and clips ❑ Open and close the disconnect switch several times to clean oxide from contact points ❑ Clean contacts of dust and dirt. ► For copper, use very fine sandpaper or a fine file to clean contacts ► Never file the silver on silver-plated contacts ► Clean with compressed air ► Clean relay contacts with a high-quality electrical contact cleaner		

	Irrigation Mainline or Laterals		
IM1.	Pipelines ❑ Cleaned of animal nests and plant debris ❑ Remove end plugs and drains and flush the entire system ❑ No evidence of sink holes along buried pipeline ► Indication of pipeline leaks or soil settling		

Pre-Season Irrigation System Assessment

No.	Item	Action Needed or Taken	Date
IM2.	Pipeline condition should not be or should not have: ❑ Bent or flattened ❑ Punctured or breaks ❑ Split seams ❑ Leaky joints, couplers, connections, or valves ❑ Worn, torn, or leaky gaskets ❑ Leaky end plugs		
IM3.	Mainline protection ❑ Sufficient covered if buried ❑ Physical barrier if aboveground		
IM4.	Flow meter installed and properly operating		
IM5.	Air relief valve(s) or combination valve(s) installed at high point in system to purge trapped air		
IM6.	Vacuum release valves installed at high point in system to purge entrapped air		
IM7.	Pressure relief valve set at 10 psi above operating pressure.		
	Stationary System		
SS1.	Sprinkler nozzle size or sprayhead orifice size are the same along the length of the lateral		
SS2.	Correct lateral spacing along mainline		
SS3.	Risers ❑ In-place and unbroken ❑ Properly oriented with ground ❑ Correctly spaced along the lateral ❑ Sufficiently long so sprinklers will not be obstructed foliage		
	Pressure gauges installed on the laterals ● Monitor pressure drop and variation from pump site ● Pressure jolts from filling the pipeline and pressure fluctuations and vibrations while the pump is operating will eventually compromise gauge accuracy, requiring occasional replacement		
	Impact Nozzles and Sprayheads (e.g., Rotators and Spinners)		
NS2.	Sprayheads (e.g., rotators or spinners) ❑ No plugged orifices ❑ Rotators or spinners rotate freely throughout rotation ❑ Orifices properly sized for irrigation system operating pressure ❑ Orifices not excessive worn (refer to In-Season checklist)		

Pre-Season Irrigation System Assessment

No.	Item	Action Needed or Taken	Date
NS1.	Impact nozzles ❑ No plugged nozzles ❑ Nozzles rotate freely throughout the preset arc ► Swing impact arm 4-inches to the right and release. Head should freely and fluidly move several inches. Repeat. Amount of rotation should be consistent each time the impact arm is released. ❑ Plastic nozzles: No cracks, chips, or wear patters ❑ No bent head arms ❑ No weak or broken springs ❑ Undamaged base gaskets (i.e., not cracked or torn) ❑ Orifices properly sized for irrigation system operating pressure ❑ Orifices not excessive worn (refer to In-Season checklist)		
NS3.	Pressure at each sprinkler is within manufactures operating range ● Use a Pitot tube to measure water pressure at nozzle orifice		

	Pollution Prevention Measures (Overspray and Drift Prevention)		
PP1.	Endgun operation ❑ Arc adjusted correctly ❑ Bearings and brake inspected for wear ► Endguns operating in partial circles tend to unevenly wear bearings, affecting speed of rotation ❑ Azimuth settings for activation/deactivation of solenoids correctly set		

In-Season Irrigation System Assessment

No.	Item	Action Needed or Taken	Date
	Irrigation Pump – Centrifugal		
CP1.	Suction pipe ❑ Screening device and connections clean of moss, plant debris, or trash ❑ Inlet submerged adequately to prevent entrance of air and eddying of water ❑ Free of air leaks		
CP2.	Pump case checked for cracks or holes		
CP3.	Inspect bearings for signs of wear, repack or replace as necessary		
	Irrigation Pump – Turbine		
TP1.	Pump lubrication ❑ Using food grade oil ❑ Oilers working properly		
TP2.	Intake screen ❑ Clean and properly placed ❑ Intake not resting on bottom of the pond or water source ► Prevent mud and debris from being sucked into the system ❑ Intake should not be too close to the water surface ► Air can be sucked into the irrigation system due to vortexing		
TP3.	Inspect bearings for signs of wear, repack or replace as necessary		
TP4.	Trash screen is clean and properly placed		
	Electric Motor		
EM1.	Motor ventilation ❑ Vents open and unobstructed by grass or plant debris ❑ Vents and case openings protected with ¼-to-½ inch mesh screen (e.g., machine cloth) ❑ Plant material and debris removed from around motor(s) for unobstructed ventilation flow ❑ If housed inside a structure or building, ample-sized openings exist for ventilation		
EM2.	Motor covered for shade and for water protection		
EM3.	Safety shields and access covers ❑ Protective covers correctly attached to motor and properly functioning ❑ Access plates and cover dome in-place and secure		
EM4.	Belts do not show deterioration or cracking		

In-Season Irrigation System Assessment

No.	Item	Action Needed or Taken	Date
EM5.	Proper shaft alignment with pump		
EM6.	Proper belt alignment and tension between motor and pump		
EM7.	Electrical connections ❑ Terminal screws and electrical wire connecting screws tight, tighten and re-tape, if necessary ► Normal heat and temperature fluctuations tend to loosen terminal screws and wire connectors		
EM8.	Motor bearings properly lubricated and no signs of wear, repack or replace as required		
EM9.	Good water drainage away from motor base to prevent ponding		
EM10.	Motor runs quietly, free of excessive vibration or noise		

	Irrigation Mainline or Laterals		
IM1.	Pipeline condition should not be or should not have: ❑ Bent or flattened ❑ Punctures or breaks ❑ Leaky joints, couplers, connections, or valves ❑ Leaky end plugs ❑ Worn or leaky gaskets		
IM2.	Flow meter properly operating		
IM3.	Valves and gaskets not leaking		
IM4.	Drain plugs properly seal under pressure		
IM5.	No evidence of sink holes, indicating pipeline leaks or soil settling		

	Stationary System		
SS1.	Correct lateral spacing along mainline		
SS2.	Sprinkler nozzle size the same along the length of the lateral		
SS3.	Risers ❑ In-place and unbroken ❑ Properly oriented with ground ❑ Correctly spaced along the lateral ❑ Sufficiently long so sprinklers will not be obstructed foliage		
SS4.	Pressure at beginning and end of laterals within proper operating range ● Use Pitot tube to measure water pressure at nozzle orifice		

In-Season Irrigation System Assessment

No.	Item	Action Needed or Taken	Date
	Impact Nozzles and Sprayheads (e.g., Rotators and Spinners)		
NS1.	Impact nozzles ❑ No plugged nozzles ❑ Nozzles rotate freely through the preset arc ► General rule: 1 to 2 revolutions per minute ❑ No bent head arms ❑ No worn out springs ❑ Base gaskets in good condition ❑ Nozzle orifice size appropriate for irrigation system operating pressure ❑ Do not lubricate sprinkler heads either for storage or for operation		
NS2.	Sprayheads ❑ No plugged nozzles ❑ Rotators or spinners rotate freely throughout rotation ❑ Orifice size appropriate for irrigation system operating pressure		
NS3.	Checking impact nozzle wear ● Verify diameter using shank end of a drill bit as a gauge ● Insert shank end into the nozzle opening. It should be snug. If the bit can be wobbled sideways – even slightly, the nozzle is worn and should be replaced.		
NS4.	Replacing impact nozzles ● Box-end wrench used to prevent damage to nozzle ● Threads wrapped with Teflon plumbers tape ► Petroleum-based compounds cause deterioration of rubber washers		
NS5.	Pressure at each sprinkler is within manufactures operating range ● Use a Pitot tube to measure water pressure at nozzle orifice		
NS6.	Visual inspect distribution pattern of each sprinkler for uniform application pattern ● Donut patterns ● Dry or overly wet areas		

	Pollution Prevention Measures (Overspray and Drift Prevention)		
PP1.	Impact nozzles ❑ Arc adjusters and trip pins are properly set to prevent overspray ❑ ¼ or ½ turn nozzles placed along perimeter laterals and, if necessary, at end of laterals		
PP2.	Sprayheads (e.g., rotators and spinners) ❑ Deflection shields in-place		

In-Season Irrigation System Assessment

No.	Item	Action Needed or Taken	Date
PP4.	Backflow devices installed and operating properly ❑ Irrigation mainline check valve ❑ Vacuum relief valve ❑ Low pressure drain ❑ Inspection port ❑ System interlock (i.e., pressure switch, flow meter, hydraulic or electric solenoids)		

Post-Season Irrigation System Assessment

No.	Item	Action Needed or Taken	Date
	Irrigation Pump – Centrifugal		
CP1.	All water is drained from pump, especially prior to freezing weather ● Remove the lowest plug on pump and drain casing		
CP2.	Open petcock and drain diaphragm-type hand primer		
CP3.	Suction tube and discharge piping removed where ice is a problem		
CP4.	Cover any exposed metal, such as the shaft, with a protective lubricant to prevent corrosion		
CP5.	Cover oil- or grease-lubricated bearings with a lubricant to prevent moisture-induced rust or pitting		
CP6.	Lubricate the shaft		
CP7.	Remove tension from belts		
CP8.	Close ball valve on pressure gauge riser, remove gauge, and store inside		
CP9.	Seal openings, including suction, discharge, and primer, with duct tape as a barrier against rodents, insects, and foreign material		
CP10.	Coat rubber parts with a rubber preservative ● Rubber seat on discharge primer valve ● Flexible coupling connecting the pump to the driver		
CP11.	Cover pump with a waterproof tarp		
	Irrigation Pump - Turbine		
TP1.	Remove all exterior dirt and grime that may trap moisture		
	Electric Motor		
EM1.	Motor covered with a breathable water-resistant tarp		
EM2.	Control panel (boxes): ● Move switches in the “Off” or “Open” position ● Lock panel in the off position ● Remove fuses to prevent corrosion & accidental startup ● Protect exposed boxes with waterproof tarp		
EM3.	Remove all exterior dirt and grime that may trap moisture		
EM4.	Screen all motor openings to keep rodents, insects, and foreign material out		

Post-Season Irrigation System Assessment

No.	Item	Action Needed or Taken	Date
EM5.	Lubricate all bearings		
EM6.	Spray electrical contacts with contact cleaner to displace dirt and moisture and prevent corrosion		
EM7.	Check level of oil in the reservoir and change if it is discolored		
EM8.	Replace panel door seals if hard or broken to keep moisture, insects, and dust out		

	Irrigation Mainline or Laterals		
IM1.	Drain water from all pipelines and completely open valves		
IM2.	Remove end plugs and empty water, debris, and sediment		
IM3.	Replace end plugs as a barrier to rodents, insects, and foreign material		
IM4.	If possible, remove the flow meter and pressure gages and cover the holes		

	Impact Nozzles and Sprayheads (e.g., Rotators and Spinners)		
NS1.	Impact Nozzles ❑ Place tape over nozzle to keep out foreign material, such as insects, rodents, dirt, and debris		