IRRIGATION NOTES & SPECIFICATIONS

Irrigation design based on the Craven Thompson & Associates Landscape Plan dated 11/18/2024. Contractor shall refer to these plans to coordinate sprinkler and pipe locations.

The system has been designed to conform with the requirements of all applicable codes, laws, ordinances, rules, regulations and conventions. Should any conflict exist, the requirements of the codes shall prevail. It is the responsibility of the owner/installation contractor to ensure the entire system is installed as designed. Irrigation contractor responsible for obtaining all required permits according to federal, state and local laws.

The scope of work is shown on the plans, notes and details. The Irrigation Contractor shall be certified as a CERTIFIED IRRIGATION CONTRACTOR by the Irrigation Association. The certification shall be current and in good standing.

THE WORK

The work specified in this section consists of furnishing all components necessary for the installation, testing, and delivery of a complete, fully functional automatic landscape irrigation system that complies with the irrigation plans, specifications, notes, and details. This work shall include, but not be limited to, the providing of all required material if applicable (pump(s), backflows, pipes, valves, fittings, controllers, wire, primer, glue, etc.), layout, protection to the public, excavation, assembly, installation, backfilling, compacting, repair of road surfaces, controller and low voltage feeds to valves, cleanup, maintenance, guarantee and as-built plans.

All irrigated areas shall provide 100% head-to-head coverage from a fully automatic irrigation system with a rain/freeze shut off device. The rain sensor shall be installed to prevent activation by adjacent heads and in a visually un-obtrusive location approved by owner. Zones are prioritized first by public safety and then by hydraulic concerns. This sequencing will be a mandatory punch list item.

These plans have been designed to satisfy/exceed the Florida Building Code (FBC) Appendix F and the Florida Irrigation Society Standards and Specifications for Turf and Landscape Irrigation Systems, eighth edition. All products should be installed per manufacturer's recommendation. Contractor shall verify all underground utilities 72 hours prior to commencement of work.

It is the responsibility of the irrigation contractor to familiarize themselves with all grade differences, location of walls, retaining walls, structures and utilities. Do not willfully install the sprinkler system as shown on the drawings when it is obvious in the field that unknown obstruction, grade differences or differences in the area dimensions exist that might not have been considered in the engineering. Such obstructions, or differences, should be brought to the attention of the owner's authorized representative. In the event this notification is not performed, the irrigation contractor shall assume full responsibility for any revisions necessary.

Irrigation contractor shall repair or replace all items damaged by their work. Irrigation contractor shall coordinate their work with other contractors for the location and installation of pipe sleeves and laterals through walls, under roadways and paving, etc.

The contractor shall take immediate steps to repair, replace, or restore all services to any utilities which are disrupted due to their operations. All costs involved in disruption of service and repairs due to negligence on the part of the contractor shall be their responsibility.

POINT OF CONNECTION (P.O.C.)

The P.O.C. is a new line size X 2" tap, maximum of 10' of 2" polyethylene service line, a new 2" potable meter (by others) and a 2" pressure vacuum breaker. The P.O.C. must be capable of delivering a minimum of 35 GPM at 55 PSI downstream of the water meter.

Contractor to verify these minimum conditions can be met prior to ordering of materials and the beginning of installation. If the conditions can not be met, the contractor must notify the designer prior to proceeding with the work. If the contractor does not do so, the contractor proceeds at their own risk and becomes responsible for any future work required to make the system perform as required.

THE PIPE

Pipe locations shown on the plan are schematic and shall be adjusted in the field. When laying out mainlines place a minimum of 18" away from either the back of curb, front of walk, back of walk, or other hardscape to allow for ease in locating and protection from physical damage. Install all lateral pipe near edges of pavement or against buildings whenever possible to allow space for plant root balls. Always install piping inside project's property boundary.

All pipes are to be placed in planting beds. If it is necessary to have piping under hardscapes, such as roads, walks, and patios, the pipes must be sleeved using Class 200 PVC with the sleeve diameter being twice the size of the pipe it is carrying with a minimum sleeve size of 2". No sleeve shall have turns or fittings that prevent a pipe from being manually pushed/pulled through after it is installed.

Pipe sizes shall conform to those shown on the drawings. No substitutions of smaller pipe sizes shall be permitted, but substitutions of larger sizes may be approved. All damaged and rejected pipe shall be removed from the site at the time of said rejection.

Mainline shall be Sch 40 solvent-weld PVC with Sch 40 PVC solvent-weld fittings, size per plans..

Contractor to ensure all mainline piping is properly restrained using mechanical joint fittings, restraining collars, threaded rods, thrust blocks, etc.., as and where required. Contractor shall refer to pipe manufacturers recommended installation practices for further direction.

PVC pipe joint compound and primer: The PVC cement shall be Weld-On 711 (grey, slow-drying, heavy duty) and the primer shall be Weld-On P70 (purple tinted, compatible with cement), or approved equals.

ELECTRICAL POWER SUPPLY

Electrical supply for irrigation controller and sensors to be provided by irrigation contractor. Contractor to coordinate with local utilities for the installation of, and connection to, site available power supplies for required electrical components as set forth in the irrigation plans.

All electrical work is to comply with the National Electrical Code and any, and all, other applicable electrical codes, laws and regulations. A licensed electrician shall perform all electrical hook-ups. Power for each controller shall be a dedicated 120 volt, 20 amp circuit unless otherwise specified in the plans.

WIRING

Irrigation control wire shall be thermoplastic solid copper, single conductor, low voltage irrigation controller wire; suitable for direct burial and continuous operation at rated voltages.

Tape and bundle control wires every 10' and run alongside the mainline. At all turns in direction make a 2' coil of wire. At all valve boxes coil wire around a 1" piece of PVC pipe to make a coil using 30 linear inches of wire. Make electrical connections with 3M DBR/Y-6 connectors.

Number all wires, using an electrical book of numbers, according to the plans. Number wires in all valve boxes, junction boxes and at the controller.

Wire sized, numbered and colored as follows:
#14 white for common
#14 spare black common
#14 individual color coded hot wire
#14 spare yellow hot wire

Install all electrical conduit for control/sensor wires with long-radii sweeps at turns in direction to facilitate pulling wire through conduits.

SPARE WIRES

Leaving the controller, run three spare wires in both directions from controller. Of the three (3) wires install as one (1) common spare and four (2) hot wires.

Loop these wires into each RCV along their path and terminate in the last valve box controlled by the wires respective controller. The loop into each valve box shall extend up into the valve box a minimum of 8" and be readily accessible by opening the valve box lid. These wires must be all numbered and color coded as required in these plans.

CONTROLLER GROUNDING

Contractor to utilize 4"X96"X0.0625" copper grounding plates, 5/8"X10' copper clad grounding rods, Cadweld "One-Shot" at all connection points, #6 insulated copper wire, and earth contact material. Install these and other required components as outlined in the details. Contractor to verify that the earth to ground resistance does not exceed 10 ohms. Contractor shall provide a written certification, on a licensed electrical contractors letter head, showing the date of the test, controller location, and test results.

SOIL MOISTURE SENSOR

Place all soil moisture sensor wiring in 1" SCH 40 PVC conduit. Soil moisture sensor should be placed in the middle of a spray or drip area as per manufacturer's recommendations. Controller shall be set to the Florida Automated Weather Network's urban scheduler settings using the SMS as a moisture cut off device (like a rain switch) per manufacturer directions.

LAYOUT

Lay out irrigation system mainlines and lateral lines. Make the necessary adjustments as required to take into account all site obstructions and limitations prior to excavating trenches.

Stake all sprinkler head locations. Adjust location and make the necessary modifications to nozzle types, etc. required to ensure 100% head to head coverage. Refer to the Edge of Pavement Detail on the Irrigation Detail Sheet.

Spray heads shall be installed 4" from sidewalks or curbed roadways and 12" from uncurbed roadways and building foundations.

Shrub heads shall be installed on 3/4" Sch 40 PVC risers. The risers shall be set at a minimum of 18" off sidewalks, roadway curbing, building foundations, and/or any other hardscaped areas. Shrub heads shall be installed to a standard height of 4" below maintained height of plants and shall be installed a minimum of 6" within planted masses to be less visible and offer protection. Paint all shrub risers with flat black or forest green paint, unless irrigation system will utilize reuse water; in this case the risers shall be purple PVC and shall not be painted.

Locate valves prior to excavation. Ensure that their location provides for easy access and that there is no interference with physical structures, plants, trees, poles, etc. Valve boxes must be placed a minimum of 12" and a maximum of 15" from the edge of pavement, curbs, etc. and the top of the box must be 2" above finish grade. No valve boxes shall be installed in turf areas without approval by the irrigation designer – only in shrub beds. Never install in sport field areas.

VALVES

Sequence all valves so that the farthest valve from the P.O.C. operates first and the closest to the P.O.C. operates last. The closest valve to the P.O.C. should be the last valve in the programmed sequence.

Adjust the flow control on each RCV to ensure shut off in 10 seconds after deactivation by the irrigation controller.

Using an electric branding iron, brand the valve I.D. letter/number on the lid of each valve box. This brand must be 2"-3" tall and easily legible.

EQUIPMENT

All pop-up heads and shrub risers shall be pressure compensating. All pop-up heads shall be mounted on flex-type swing joints.

All sprinkler equipment, not otherwise detailed or specified on these plans, shall be installed as per manufacturer's recommendations and specifications, and according to local and state laws.

TRENCHING

Excavate straight and vertical trenches with smooth, flat or sloping bottoms. Trench width and depth should be sufficient to allow for the proper vertical and horizontal separation between piping as shown in the pipe installation detail on the detail sheet.

Protect existing landscaped areas. Remove and replant any damaged plant material upon job completion. The replacement material shall be of the same genus and species, and of the same size as the material it is replacing. The final determination as to what needs to be replaced and the acceptability of the replacement material shall be solely up to the owner or owner's representative.

INSTALLATION

Solvent Weld Pipe: Cut all pipe square and deburr. Clean pipe and fittings of foreign material; then apply a small amount of primer while ensuring that any excess is wiped off immediately. Primer should not puddle or drip from pipe or fittings. Next apply a thin coat of PVC cement; first apply a thin layer to the pipe, next a thin layer inside the fitting, and finally another very thin layer on the pipe. Insert the pipe into the fitting. Insure that the pipe is inserted to the bottom of the fitting, then turn the pipe a 1/4 turn and hold for 10 seconds. Make sure that the pipe doesn't recede from the fitting. If the pipe isn't at the bottom of the fitting upon completion, the glue joint is unacceptable and must be discarded.

Pipes must cure a minimum of 30 minutes prior to handling and placing into trenches. A longer curing time may be required; refer to the manufacturer's specifications. The pipe must cure a minimum of 24 hours prior to filling with water.

BACKFILL

The Backfill 6" below, 6" above, and around all piping shall be of clean sand and anything beyond that in the trench can be of native material but nothing larger than 2" in diameter. In all planting beds backfill all trenches to 85% Proctor and all trenches under hardscapes to be backfilled and compacted to 95% Proctor.

Mainline pipe depth measured to the top of pipe shall be:
- 24" minimum for 3/4"-2 1/2" PVC with a 30" minimum at vehicular crossings;.

Lateral line depths measured to top of pipe shall be:
- 18" minimum for 3/4"-3" PVC with a 30" minimum at vehicular crossings.

Contractor shall backfill all piping, both mainline and laterals, prior to performing any pressure tests. The pipe shall be backfilled with the exception of 2' on each side of every joint (bell fittings, 90's, tees, 45's, etc.). These joints shall not be backfilled until all piping has satisfactorily passed its appropriate pressure test as outlined below.

FLUSHING

Prior to the placement of valves, flush all mainlines for a minimum of 10 minutes or until lines are completely clean of debris, whichever is longer.

Prior to the placement of heads, flush all lateral lines for a minimum of 10 minutes or until lines are completely clean of debris, whichever is longer.

Use screens in heads and adjust heads for proper coverage avoiding excess water on walls, walks and paving.

TESTING

Soil: At a minimum of 2 locations on the site, soil tests for infiltration and texture shall be performed according to the USDA Soil Quality Test Kit Guide. The tests shall be documented in a USDA Soil Worksheet. (All of the above is available at:

https: //www.nrcs.usda.gov/conservation-basics/natural-resource-concerns/soils/soil-health/soil-health-assessment

The completed worksheet shall be submitted to the owners representative for review/approval. Do not proceed without written direction from the owner/owner's representative.

Schedule testing with Owner's Representative a minimum of three (3) days in advance of testing.

Contractor to utilize soil test data to inform the irrigation scheduling at the project, using BMP's issued by the Irrigation Association which can be download on line at: https: //irrigation.org/IA/Advocacy/Standards-Best-Practices/Landscape-Irrigation-BMPs/IA/Advocacy/Landscape-Irrigation-BMPs.aspx?hkey=93b546ad-c87a-41b8-bf70-8c4fd2cff931 (link at bottom of the webpage).

Read pages 47-52 in Appendix C for how to create irrigation schedules.

Mainline: Remove all remote control valves and cap using a threaded cap on SCH 80 nipple. Hose bibs and gate valves shall not be tested against during a pressure test unless authorized by written permission from the owner. Fill mainline with water and pressurize the system to 125 PSI using a hydrostatic pump. Monitor the system pressure at two gauge locations; the gauge locations must be at opposite ends of the mainline. With the same respective pressures, monitor the gauges for two hours. There can be no loss in pressure at either gauge for solvent-welded pipe.

If these parameters are exceeded, locate the problem; repair it; wait 24 hours and retry the test. This procedure must be followed until the mainline passes the test.

Lateral Lines: The lateral lines must be fully filled to operational pressure and visually checked for leaks. Any leaks detected must be repaired.

Operational Testing –Once the mainline and lateral lines have passed their respective tests, and the system is completely operational, a coverage test and demonstration of the system is required. The irrigation contractor must demonstrate to the owner and/or owner's representative, that proper coverage is obtained and the system works automatically from the controller. This demonstration requires each zone to be turned on, in the proper sequence as shown on the plans, from the controller. Each zone will be inspected for proper coverage and function. The determination of proper coverage and function is at the sole discretion of the owner and/or owner's representative.

Upon completion of the operational test, run each zone until water begins to puddle or run off. This will allow you to determine the number of irrigation start times necessary to meet the weekly evapotranspiration requirements of the planting material in each zone. In fine sandy soils, it is possible no puddling will occur. If this is experienced, then theoretical calculations for run times will be required for controller programming.

SUBMITTALS

Pre-Construction: Provide owner and/or owner's representative a PDF package of equipment cut sheet submittals within ten (10) working days from date of Notice to Proceed. PDF shall have a table of contents and index sheet. Index sections for different components and label with specification section number and name of component. Furnish submittals for all components on material list. Indicate or highlight which items are being supplied on catalog cut sheets when multiple items are shown on one sheet. Incomplete submittals will be returned without review.

After project completion:
As a condition of final acceptance, the irrigation contractor shall provide the owner with:

1. Irrigations As-Builts: shall be provided utilizing a sub-foot Global Navigation Satellite System (GNSS) to accurately locate all mainlines, sleeves, remote control valves, gate valves, independent wire runs, wire splice boxes, controllers, high voltage supply sources/conduit path, control mechanisms, sensors, wells and water source connections, including backflow (if applicable) in Florida East State Plane, NAD 83, and CORS 96 format. The data collected shall be in POINT format and include an ID for each data point with Manufacturer, Type, Size, and Depth. All mainline and independent runs of wire shall be located every 30' for straight runs and at every change of direction. Sleeves will be located at end points and every 20' of length. All underground items shall include depth in inch format. These POINTS once collected shall be imported into an AutoCAD DWG geo-referenced base file to be labeled accordingly. The completed AS-Built shall be a Geo-Referenced DWF file and delivered digitally to the owner as a PDF file.
2. Controller charts – Upon completion of "as-built" prepare controller charts; one per controller. Indicate on each chart the area controlled by a remote control valve using a different color for each zone. This chart shall be reduced to a size that will fit inside of the controller door. The chart shall be laminated.
3. Grounding Certification – Provide ground certification results for each controller and pump panel grounding grid installed. This must be on a licensed electrician letter head indicating location tested (using IR plan symbols), date, time, test method, and testing results.

INSPECTIONS AND COORDINATION MEETINGS REQUIRED – Contractor is required to schedule, perform, and attend the following, and demonstrate to the owner and/or owner's representative to their satisfaction, as follows:

1. Pre-construction meeting – Designer and contractor to review entire install process and schedule with owner/general contractor.
2. Mainline installation inspection(s) – All mainline must be inspected for proper pipe, fittings, depth of coverage, backfill, and installation method.
3. Mainline pressure test – All mainline shall be pressure tested according to design requirements.
4. Backflow assembly testing – All newly installed backflow assemblies must be tested. The test results shall be provided (in writing) to the owner and/or owner's representative verifying that State of Florida requirements have been met.
5. USDA soil quality tests for infiltration/texture
6. Coverage and operational test
7. Punch list inspection
8. Final inspection

FINAL ACCEPTANCE

Final acceptance of the irrigation system will be given after the following documents and conditions have been completed and approved. Final payment will not be released until these conditions are satisfied.

1. All above inspections are completed, documented, and approved by owner.
2. Completion and acceptance of 'as-built' drawings.
3. Acceptance of required controller charts and placement inside of controllers.
4. All other submittals have be made to the satisfaction of the owner.

GUARANTEE

The irrigation system shall be guaranteed for a minimum of one calendar year from the time of final acceptance.

MINIMUM RECOMMENDED IRRIGATION MAINTENANCE PROCEDURES

1. Every irrigation zone should be checked monthly and have written reports generated describing the date(s) each zone was inspected, problems identified, date problems repaired, and a list of materials used in the repair. At minimum, these inspections should include the following tasks:
   A. Turn on each zone from the controller to verify automatic operation.
   B. Check schedules to ensure they are appropriate for the season, plant type, soil type, and irrigation method. Consult an I.A. certified auditor for methods used in determining proper irrigation scheduling requirements.
   C. Check remote control valves to ensure proper operation.
   D. Check setting on pressure regulators to verify proper setting, if present.
   E. Check flow control and adjust as needed; ensure valve closure within 10-15 seconds after deactivation by controller.
   F. Check for leaks – mainline, lateral lines, valves, heads, etc.
   G. Check all heads as follows:
      a. Set proper height (top of sprinkler is 1" below mow height).
      b. Verify head pop-up height: 6" in turf, 12" in ground cover, and pop-up on riser in shrub beds.
      c. Check wiper seal for leaks. If leaking, clean head and re-inspect. Replace head with an identical head if leaking cannot be stopped.
      e. Check all nozzles for proper pattern, clogging, leaks, make/model, etc. Replace as needed.
      f. Check for proper alignment (perfectly vertical), proper coverage area, and minimal overspray onto hardscapes.
      g. Ensure riser height is raised or lowered to accommodate plant growth patterns thereby providing proper coverage.
      h. Verify the pop-up riser retracts after operation. Repair or replace as needed.
2. Netafim (drip) zones with automatic flush valve(s): all installed automatic flush valves are to be inspected annually (at a minimum) for proper operation, and repaired/replaced as required.
3. Check controller grounds for resistance (10 ohms or less) once per year. Submit written reports to owner and/or owner's representative.
4. Check rain shut off device monthly to ensure proper function.
5. Inspect all filters monthly. Clean, repair, or replace as needed.
6. Inspect backflow assembly by utilizing a licensed backflow inspector. Inspections should be done annually, at minimum.
7. Inspect all valve boxes to ensure they are in good condition, lids are in place and locked.
8. Exercise all gate valves per manufacturer guidelines and recommendations to prevent valves from seizing.
9. Winterize as weather in your area dictates. Follow manufacturer recommendations and blow out all lines and equipment using compressed air. Perform seasonal startup of system as per manufacturer recommendations.
10. Conduct additional inspections, maintenance tasks, etc. that are particular for your site.

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Call 811 two business days before digging

DRC

PZ24-12000026
04.02.2025

DATE: 02/26/25
SCALE: AS SHOWN
DESIGN BY: AKR
DRAWN BY: AKR
CHECKED BY: NDP
APPROVED BY: SWP

BY:	DESCRIPTION:	DATE:

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ATLANTIC FLEET WASH
1501 WEST ATLANTIC BLVD.
POMPANO BEACH, FLORIDA

PREPARED FOR:
KAJA PROPERTIES INC.

IRRIGATION NOTES

Nicole D. Pastre
Florida R.L.A. No. 6667397
2025.02.28 11:27:28-05'00'

Nicole D. Pastre
Florida R.L.A. No. 6667397
2025-02-25

PROJECT NO.
24-0055-001-01

IR-6

SHEET 6 OF 6