

Exhibit A



THE FREELON GROUP | ARCHITECTS

P.O. Box 12876 T 919.941.9790
RTP, NC 27709 F 919.767.0144

WWW.FREELON.COM

This drawing and all parts of it are the property of The Freelon Group, Inc. It is to be returned to The Freelon Group, Inc. upon completion of use for which it was made. Reproduction of this drawing without the written consent of The Freelon Group, Inc. is not permitted.



Lappas + Havener, PA

LANDSCAPE ARCHITECTS

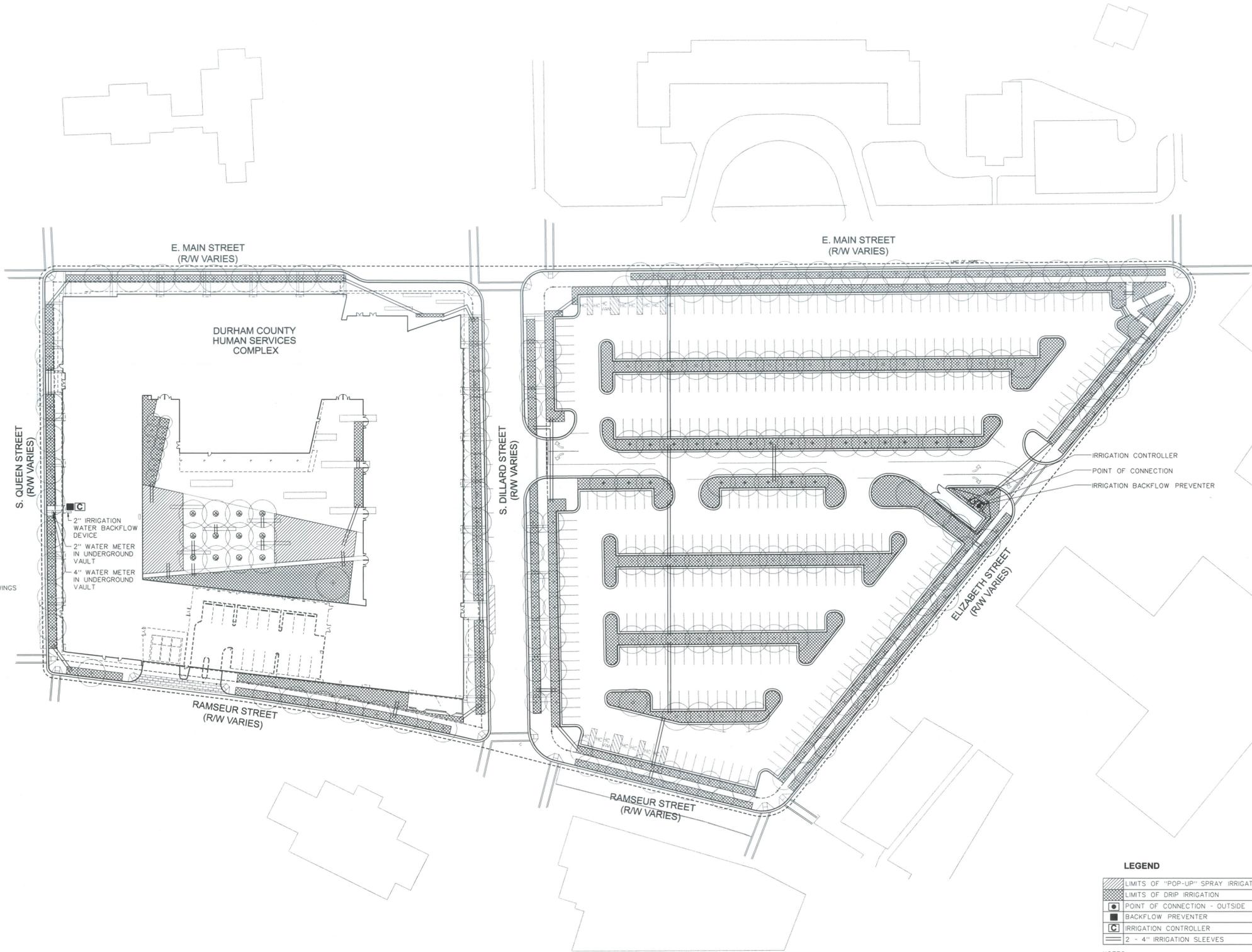
P.O. BOX 2625
DURHAM, NORTH CAROLINA 27715-2625

THE IMPERIAL BUILDING
215 MORRIS STREET
DURHAM, NORTH CAROLINA 27701

TEL: 919.419.1199

FAX: 919.419.1659

WWW.LHPA-NC.COM

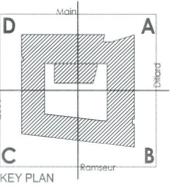


REFER TO CIVIL DRAWINGS FOR WATER SERVICE

IRRIGATION CONTROLLER
POINT OF CONNECTION
IRRIGATION BACKFLOW PREVENTER



Durham County Human Services Complex



Durham, NC

Construction Documents Set

LEGEND

	LIMITS OF "POP-UP" SPRAY IRRIGATION
	LIMITS OF DRIP IRRIGATION
	POINT OF CONNECTION - OUTSIDE
	BACKFLOW PREVENTER
	IRRIGATION CONTROLLER
	2 - 4" IRRIGATION SLEEVES

NOTES:

- ON LAWN IRRIGATION - INSTALL AN ASSE•1013 REDUCED PRESSURE ASSEMBLY IN AN ASSE•1060 INSULATED ENCLOSURE AND LOCATED WITHIN 50' OF THE DOMESTIC TEE WITH A WYE STRAINER AND UNIONS TO PROTECT AGAINST FREEZING.
- BACKFLOW PREVENTER INSTALLERS MUST CONTACT DURHAM CROSS-CONNECTION CONTROL AT (919) 560-4194 TO OBTAIN BACKFLOW PREVENTER PERMIT AND INSTALLATION REQUIREMENTS PRIOR TO BEGINNING WORK.

**IRRIGATION PLAN
BLOCK 400-500**

DATE 04.03.2008

SCALE 1"=40'

DRAWN CDB, KSG, SMC

PROJ. NO. 20067.00

L-200

SCALE: 1"=40'-0"



IRRIGATION NOTES & LEGENDS

HEADS

- TORO S800 SERIES GEAR DRIVEN ROTARY POP-UP SPRINKLER WITH 5" POP-UP STROKE AND FITTED WITH 2.5 NOZZLE.
- ALL POP-UP IRRIGATION HEADS DESIGNED ADJACENT TO CURBS OR PAVEMENT SHALL BE INSTALLED WITH A CLEARANCE OF 1 1/2" FROM THE EDGES OF ALL PAVED AREAS TO PROVIDE FOR EDDING AND MAINTENANCE OPERATIONS. HEADS INSTALLED ON SHRUB RISERS OR WITH THE TOP OF THE HEAD MORE THAN 1/2" ABOVE GRADE SHALL BE INSTALLED WITH A MINIMUM 6" CLEARANCE FROM PAVED AREAS.
- ALL THREADED PIPE CONNECTIONS SHALL BE ASSEMBLED USING TETON THREAD SEALING TAPE.
- ALL HEADS MOUNTED IN THE LAWN AREAS SHALL BE MOUNTED ON TORO POLYETHYLENE PIPE FLEX SWING JOINTS COMPOSED OF MODEL #850-01 3/8" I.D. POLY PIPE FITTED WITH #850-31 (3/8" INSERT BY 1/2" M.P.T.) AND/OR #850-32 (3/8" INSERT BY 3/4" M.P.T.) ELBOWS.

DRIP IRRIGATION

- LOCATION OF NETAFIM TECHLINE 1/2" P.E. TUBING, 18" EMITTER SPACING INTERVALS AT 1 GPM EMITTERS IN-LINE. NETAFIM MODEL# TELD-9-1810) TECHLINE TO BE INSTALLED UNDER MULCH IN LANDSCAPE AREAS AS SHOWN ON THE IRRIGATION PLANS.
- SERIES REMOTE CONTROL VALVE WITH FLOW CONTROL FEATURE, NETAFIM 120 MESH FILTER #DFD75-120, AND NETAFIM PRESSURE REGULATOR #PVD75-45. FLOW CONTROL VALVES SHALL BE AS NOTED ON THE LAYOUT. ALL VALVES SHALL BE INSTALLED IN CARSON VALVE BOXES WITH LIDS MOUNTED AT GRADE LEVEL.

PIPE

- DENOTES ROUTE OF PR 200 PVC LATERAL PIPING. SIZE OF LATERAL PIPING SHALL BE AS NOTED BELOW. MINIMUM DEPTH OF COVER OVER LATERAL PIPING TO BE 12".

LATERAL PIPING SIZING SCHEDULE

SUMMATION OF GALLONAGE DEMAND ON THE PARTICULAR BRANCHES OF PIPE WITHIN A CONTROL SECTION SHALL BE DETERMINED BY USING THE GPM FOR A NOZZLE BASED ON A 50 PSI BASE OF HEAD PRESSURE AND FULL RADIUS AT THAT PRESSURE AS REPORTED IN THE TORO 2000 IRRIGATION PRODUCTS CATALOG. PIPE SIZES FOR THE LATERALS SHALL BE AS FOLLOWS:

- ZERO TO FIFTEEN GPM ACCUMULATED FLOW USE 1" PR200 PVC PIPE
- GREATER THAN FIFTEEN UP TO THIRTY-FIVE GPM USE 1-1/2" PR200 PVC PIPE

FRICTION LOSS ALLOWANCES FOR THIS PROJECT HAVE BEEN DETERMINED USING THE ABOVE FLOW RANGES AND DEMANDS.

- DENOTES ROUTE OF PR 200 MAIN LINE PIPING. SIZE OF PIPE TO BE 1-1/2". MINIMUM DEPTH OF COVER OVER MAINLINE PIPING TO BE 18"

- PIPING SHALL BE PR 200 SOLVENT WELD PVC PIPE WITH SCHEDULE 40 PVC SOLVENT WELD FITTINGS UNLESS OTHERWISE NOTED.
- ALL PIPING RUNS SHALL BE "SNAKED" IN THE TRENCH DURING INSTALLATION TO PREVENT EXCESSIVE STRAIN DUE TO THERMAL EXPANSION OR CONTRACTION.
- THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID DAMAGING PLANTINGS (INCLUDING ROOTS) DURING INSTALLATION OF THE IRRIGATION SYSTEM AND SHALL COORDINATE HIS EFFORTS WITH THE LANDSCAPER AND LANDSCAPE ARCHITECT SO AS TO OPTIMIZE THE EFFICIENCY AND THE AESTHETIC QUALITY OF THE INSTALLATION.

HEAD RADI

- THE IRRIGATION CONTRACTOR SHALL ADJUST THE RADIUS AND THROW OF EACH SPRINKLER HEAD TO PROVIDE OPTIMUM COVERAGE WHILE MINIMIZING OVERSPRAY ONTO HARDSCAPES OR BUILDINGS. ADJUST HEADS TO ELIMINATE DRY SPOTS.
- APPROXIMATE RBC AND RADIUS OF INDIVIDUAL SPRINKLER HEAD COVERAGE SHALL BE AS ILLUSTRATED. INDIVIDUAL HEAD OR NOZZLE MODEL NUMBERS MAY BE DEPENDENT UPON THESE SPECIFIC CHARACTERISTICS.

VALVES

- LOCATION OF ELECTRIC 24 V.A.C. REMOTE CONTROL VALVE WITH FLOW CONTROL FEATURE (MODEL # TORO 250-06-04). SIZE OF ZONE CONTROL VALVES TO BE 1" AS NOTED ON THE IRRIGATION PLANS.
- ALL IN-LINE REMOTE CONTROL VALVES SHALL BE INSTALLED IN CARSON VALVE BOXES WITH LIDS MOUNTED AT GRADE LEVEL. SINGLE VALVES MAY BE INSTALLED IN CARSON MODEL #910-1 VALVE BOX WITH #910-2 COVER, WHILE MULTIPLE VALVES (UP TO TWO 1" VALVES OR ONE 1-1/2" VALVE) SHALL BE INSTALLED IN CARSON MODEL #1419-1 BOX WITH #1419-2 COVER.

24 V.A.C. CONTROL WIRING

- ALL 24 V.A.C. CONTROL WIRING SHALL BE SINGLE STRAND COPPER WIRE WITH POLYETHYLENE PE DIRECT BURIAL INSULATION RATED FOR 300 V.A.C. VALVE "COMMON" WIRES SHALL HAVE WHITE INSULATION WHILE VALVE "HOT" WIRES SHALL HAVE INSULATION RED IN COLOR. THE "COMMON" WIRES SHALL BE #14 AWG. "HOT" WIRES SHALL BE #14 AWG. VALVE WIRING SHALL FOLLOW MAINLINE PIPING WHERE FEASIBLE AND SHALL BE LAID IN A COMMON TRENCHLINE WITH THE MAINLINE PIPING AND IN THE BOTTOM OF THE TRENCH. WIRING SHALL BE "BUNDLED" AND TAPED AT INTERVALS OF APPROXIMATELY TEN FEET. ALL WIRING SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS.
- WIRE SPLICES SHALL BE KEPT TO AN ABSOLUTE MINIMUM. WHERE MAJOR CONCENTRATIONS OF SPLICES ARE NECESSARY SAID SPLICES SHALL BE PLACED IN A CARSON #910-1 VALVE BOX, WITH #910-2 COVER, INSTALLED AT GRADE LEVEL. SPLICES AT VALVE LOCATIONS SHALL BE MADE INSIDE OF THE VALVE BOX. ALL SPLICE LOCATIONS SHALL BE NOTED ON THE AS BUILT PLAN.
- WIRE RUNS SHALL BE INSTALLED WITH ENOUGH SLACK AND/OR OCCASIONAL EXPANSION LOOPS TO PREVENT EXCESSIVE STRAIN DUE TO THERMAL CONTRACTION.
- ALL WIRE SPLICES SHALL BE MADE USING UL APPROVED DIRECT BURIAL CONNECTORS AND WATERPROOFING MATERIALS. ALL ELECTRICAL WORK SHALL BE INSTALLED ACCORDING TO CODE.

CONTROLLERS

- LOCATION OF THE IRRIGATION CONTROLLERS. THE CONTROLLERS SHALL BE TORO TWC-212 SOLID STATE UNITS WHICH SHALL BE OF THE WALL MOUNT STYLE. THE CONTROLLERS SHALL INCORPORATE 24 V.A.C. ELECTRIC REMOTE CONTROL VALVE OPERATION. THE CONTROLLERS SHALL BE MOUNTED IN THE APPROXIMATE LOCATIONS SHOWN ON THE PLAN.
- ALL ELECTRICAL CONNECTIONS AND INSTALLATIONS SHALL BE PERFORMED IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS.
- ALL 120 VAC WIRING SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE ELECTRICAL CODE REQUIREMENTS.

NOTE: THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING 120 VAC POWER CIRCUITS AT THE CONTROLLER LOCATIONS. THE POWER SOURCES SHALL BE CAPABLE OF SUPPORTING A 10 AMPERE LOAD AT 120 VAC.

BACKFLOW PREVENTION

- DENOTES THE LOCATION OF REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY. THE BACKFLOW SHALL BE THE GENERAL CONTRACTOR'S RESPONSIBILITY. THE BACKFLOW SHALL BE 1" IN SIZE. THE BACKFLOW ASSEMBLY SHALL BE INSTALLED DOWNSTREAM OF THE IRRIGATION METER AS SHOWN ON THE LAYOUT. THE UNIT MUST BE INSTALLED IN ACCORDANCE WITH ALL LOCAL AND STATE CODE REQUIREMENTS AND SHALL HAVE APPROVED COVER.

WATER SUPPLY

- DENOTES THE LOCATION OF THE PROPOSED IRRIGATION METER. THE METER SHALL BE THE GENERAL CONTRACTOR'S RESPONSIBILITY. THE METER SHALL BE 1" IN SIZE. SINCE THE WATER SUPPLY FOR THE SYSTEM SHALL BE POTABLE WATER, THE CONTRACTOR WILL BE REQUIRED TO INSTALL BACKFLOW PREVENTION DEVICE WHICH WILL BE LOCATED DOWNSTREAM OF THE IRRIGATION METER AS NOTED ON PLAN.

- THE IRRIGATION SYSTEM SHALL BE CAPABLE OF DELIVERING 30 GPM MAXIMUM WITH ONE STATION OPERATING WITH 50 PSI AT THE BASE OF THE HEAD FOR OPTIMUM PERFORMANCE OF THE IRRIGATION SYSTEM AS DESIGNED AND SPECIFIED.

* NOTE * - IF THE REQUIRED GPM AND/OR PRESSURE CAN NOT BE OBTAINED THE IRRIGATION SYSTEMS WILL NEED TO BE REDESIGNED USING A BOOSTER PUMP.

SLEEVING

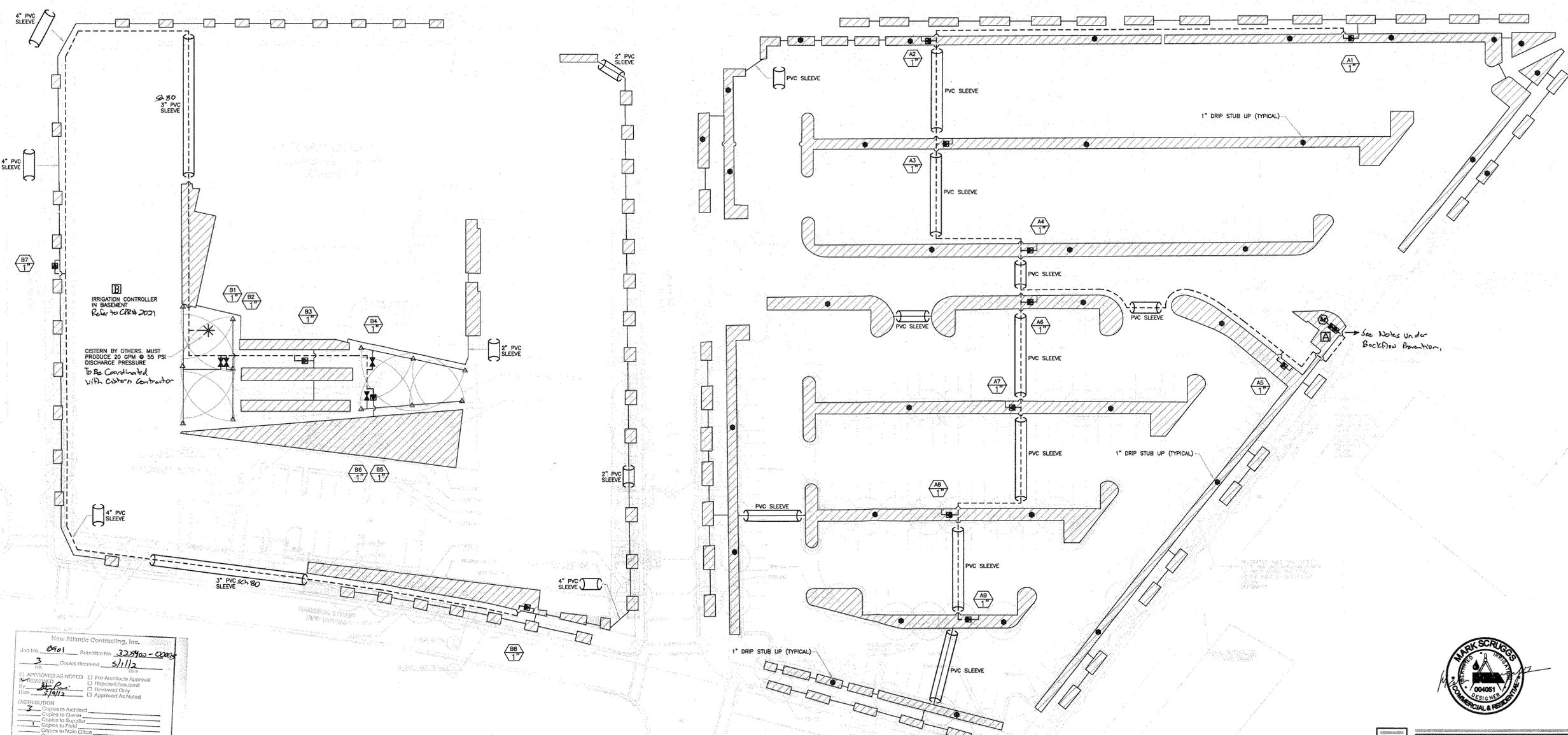
- DENOTES LOCATION OF PVC SLEEVES FOR IRRIGATION PIPING. SIZE OF SLEEVES TO BE AS NOTED.
- WHERE WIRE RUNS OCCUR A SEPARATE PVC ELECTRICAL CONDUIT SLEEVE SHALL BE USED FOR 24 VAC WIRING PER ELECTRICAL CODE. SIZE OF PVC WIRE SLEEVES TO BE AS NOTED ON LAYOUT.
- WHERE IRRIGATION PIPING CROSSES SIDEWALKS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING A SLEEVE 2 SIZES LARGER THAN THE PIPE THAT IS CROSSING.

- THE IRRIGATION CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE IRRIGATION SYSTEM WITH THE LANDSCAPE CONTRACTOR TO INSURE PROPER INSTALLATION OF BOTH THE IRRIGATION SYSTEM WITH THE LANDSCAPE AND HARDSCAPE.

NOTE: THE IRRIGATION SYSTEM IS DISPLAYED SCHEMATIC IN NATURE. THE IRRIGATION CONTRACTOR MAY BE REQUIRED TO MAKE MINOR ADJUSTMENTS IN THE FIELD. THESE MINOR ADJUSTMENTS SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER BUT SHALL BE MADE ONLY AFTER NOTIFICATION IS MADE TO THE OWNER OR HIS REPRESENTATIVE.

- THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE SITE SO THAT HE IS AWARE OF ANY SPECIAL CONDITIONS WHICH EXIST THAT MAY AFFECT HIS BID PROPOSAL AND SHALL THEREAFTER BE RESPONSIBLE FOR ALL COST INCURRED BY HIMSELF IN RELATION TO THE INSTALLATION.

- THIS DESIGN IS BASED ON THE SITE INFORMATION AND/OR DRAWINGS SUPPLIED BY THE CLIENT OF RECORD WITH DESIGN CRITERIA BEING SET BY THE CLIENT AND/OR PROJECT OWNER (I.E. AREA TO BE IRRIGATED, MANUFACTURER'S EQUIPMENT TO BE EMPLOYED, WATER SOURCE SUITABILITY, ELECTRICAL POWER AVAILABILITY FOR IRRIGATION SYSTEM USE, ETC.). SMITH TURF & IRRIGATION CO. BEARS NO RESPONSIBILITY OR LIABILITY FOR ANY ERRORS IN DESIGN OR APPLICATION WHICH MIGHT ARISE DUE TO INACCURACIES IN THE ABOVE REFERENCE INFORMATION SUPPLIED TO SMITH TURF & IRRIGATION CO. IN RELATION TO THIS SPECIFIC PROJECT UNLESS OTHERWISE NOTED.



New Atlantic Contracting, Inc.
 Job No. 0901 Submittal No. 328400-0001
 Date: 5/11/12
 Approved As Noted
 Distribution:
 3 Copies to Architect
 2 Copies to Owner
 1 Copy to Supplier
 1 Copy to Field
 1 Copy to Main Office
 1 Copy to

SMITH TURF & IRRIGATION CO.
 TORO
 P.O. BOX 669385 • CHARLOTTE, NORTH CAROLINA • 28266-9388
 (704) 393-8873 • D I S T R I B U T O R S • (800) 232-8676

STI New DESIGNS
 4355 Golf Acres Drive
 Charlotte, North Carolina 28208
 Phone: (704) 393-8873

THE IRRIGATION PLANS AND SPECIFICATIONS FOR THIS PROJECT PREPARED BY SMITH TURF IRRIGATION COMPANY ARE SUPPLIED FOR USE BY OUR CLIENT ONLY AND MAY NOT BE COPIED OR REPRODUCED BY ANY PERSON OR PERSONS OTHER THAN SAID CLIENT OR HIS AGENTS. THESE PLANS AND SPECIFICATIONS SHALL BE USED ONLY IN CONNECTION WITH THE PARTICULAR WORK AND PRODUCTS SPECIFIED AND SHALL NOT BE USED IN CONNECTION WITH ANY OTHER PROJECT WITHOUT THE EXPRESS WRITTEN CONSENT OF SMITH TURF & IRRIGATION CO.

NO.	DATE	BY	REVISION

DRAWN: RMS	APPROVED: IR-1.DWG	DATE: 1-19-12
------------	--------------------	---------------

DRAWINGS FOR:
Durham County Human Services Complex
 DURHAM, N.C.
IRRIGATION LAYOUT

SCALE: 1" = 30'
 SHEET: 1 OF 1
 PROJECT NO.: 090105.110