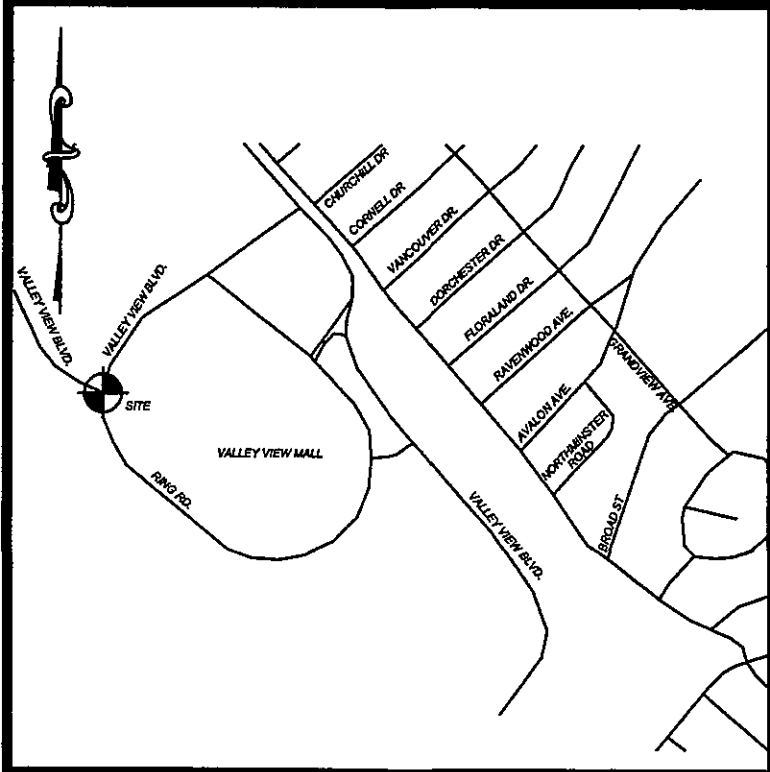


CURVE TABLE					
CURVE	LENGTH	RADIUS	TANGENT	CHORD	BEARING
C1	30.90'	30.00'	16.98'	29.55'	S25°34'41"W
C2	237.93'	190.00'	137.41'	222.69'	N89°02'32"W



VICINITY MAP
NTS

NOTES & LEGENDS

HEADS

- 1" - TORO SERIES 570Z-4P POP UP - 4" POP UP SPRINKLER HEAD
FITTED WITH FIXED SPRAY 570 SERIES SPECIAL PATTERN (4" X 30" RECTANGULAR SIDE MOUNT STRIP) SPRAY NOZZLE.
- 2" - TORO SERIES 570Z-4P POP UP - 4" POP UP SPRINKLER HEAD
FITTED WITH FIXED SPRAY 570 SERIES SPECIAL PATTERN (9" X 22" RECTANGULAR SIDE MOUNT STRIP) SPRAY NOZZLE.
- 3" - TORO SERIES 570Z-4P POP UP - 4" POP UP SPRINKLER HEAD
FITTED WITH FIXED SPRAY 570 SERIES SPECIAL PATTERN (4" X 15" RECTANGULAR SIDE MOUNT STRIP) SPRAY NOZZLE.
- 4" - TORO SERIES 570Z-4P POP UP SPRINKLER WITH 4" POP-UP
STROKE AND FITTED WITH FIXED SPRAY 570 SERIES 12" SERIES
(MAXIMUM 13" RADIUS) SPRAY NOZZLE.
- 5" - TORO SERIES 570Z-4P POP UP SPRINKLER WITH 4" POP-UP
STROKE AND FITTED WITH FIXED SPRAY 570 SERIES 15" SERIES
(MAXIMUM 16" RADIUS) SPRAY NOZZLE.
- 6" - TORO MINI 8 SERIES GEAR DRIVEN MULTIPLE NOZZLE POP-UP
SPRINKLER WITH 4" POP-UP STROKE AND FITTED WITH AN
ADJUSTABLE RADIUS (3.0) NOZZLE.

- 7" - ALL HEADS WITH A 12" POP UP STROKE, IF INSTALLED WITH LESS
THAN 1/2 OF THE SPRINKLER BODY EXPOSED ABOVE GRADE, SHALL BE
INSTALLED ON POLYETHYLENE FLEX SWING JOINTS POLY PIPE FITTED
WITH (3/8" INSERT BY 1/2" M.P.T. AND/OR 3/8" INSERT BY 3/4"
M.P.T.) ELBOWS. IF GREATER THAN 1/2 OF THE SPRINKLER BODY IS
EXPOSED THEN THE 12" POP-UP HEAD SHALL BE MOUNTED ON A SCHEDULE
40 PVC PIPE RISER AS DESCRIBED BELOW IN RELATION TO MOUNTING
SHRUB HEAD MODELS. IN MOUNTING 12" POP UP HEADS ON SHRUB TYPE
RISERS CARE SHALL BE TAKEN TO INSTALL THE HEAD IN SUCH A MANNER
THAT SURROUNDING PLANT MATERIAL (PLANNED OR EXISTING) WILL HIDE
THE BODY OF THE SPRINKLER AS WELL AS POSSIBLE WHILE THE NOZZLE
IN THE POPPED UP OPERATING POSITION WILL PROVIDE FOR AN
UNOBSTRUCTED SPRAY PATTERN.

- 8" - SHRUB MODEL SPRINKLERS, IF AND WHEN USED, SHALL BE MOUNTED
ON SCHEDULE 40 PVC PIPE RISERS FITTED WITH PVC SOLVENT WELD
MALE ADAPTERS AT EACH END. THE NOMINAL PIPE SIZE OF THE
SHRUBBERY HEAD PIPE RISER SHALL MATCH THE INLET SIZE OF THE
PARTICULAR HEAD IN QUESTION. IF ADJUSTMENT OF THE RISER TO AN
ANGLE OF OTHER THAN 90 DEGREES TO THE LATERAL PIPE LINE IS
REQUIRED THEN TWO SCHEDULE 40 PVC THREADED STREET ELBOWS SHALL
BE INSTALLED AT THE LOWER END OF THE PIPE RISER TO PROVIDE THE
DEGREE OF ADJUSTMENT NECESSARY. IF NECESSARY TALLER RISERS
SHALL BE "STAKED" WITH APPROPRIATE MATERIAL (E.G. 1/2" STEEL
REINFORCING ROD AND ALL STAINLESS STEEL CLAMPS) TO PREVENT
WHIPPING OR LAYOVER OF THE SPRINKLER RISER. ANY EXPOSED PVC
RISER PIPES SHALL BE PAINTED A NATURAL TONE OF BROWN SO AS TO
BE AS UNOBTRUSIVE AS POSSIBLE. ALL SHRUB HEADS SHALL BE
INSTALLED IN SUCH A MANNER AS TO PROVIDE SPRAY PATTERNS
RELATIVELY UNOBSTRUCTED BY SURROUNDING PLANTINGS WHILE USING
THE SHORTEST RISER HEIGHT POSSIBLE.

- 9" - 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 EDGING 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.
- 10" - ALL THREADED PIPE CONNECTIONS SHALL BE ASSEMBLED USING
TERFON THREAD SEALING TAPE.
- 11" - 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.

PIPE

- 12" - DENOTES ROUTE OF PR 200 PVC LATERAL PIPING. SIZE
OF LATERAL PIPING SHALL BE 1" IN SIZE. MINIMUM DEPTH OF
COVER OVER LATERAL PIPING TO BE 12".
- 13" - DENOTES ROUTE OF PR 200 MAIN LINE PIPING. SIZE
OF PIPE TO BE 1" IN SIZE. MINIMUM DEPTH OF COVER OVER
MAINLINE PIPING TO BE 18".
- 14" - PIPING SHALL BE PR 200 SOLVENT WELD PVC PIPE WITH SCHEDULE
40 PVC SOLVENT WELD FITTINGS UNLESS OTHERWISE NOTED.
- 15" - ALL PIPING RUNS SHALL BE "SNAKED" IN THE TRENCH DURING
INSTALLATION TO PREVENT EXCESSIVE STRAIN DUE TO THERMAL
EXPANSION OR CONTRACTION.
- 16" - 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.

DRIP IRRIGATION

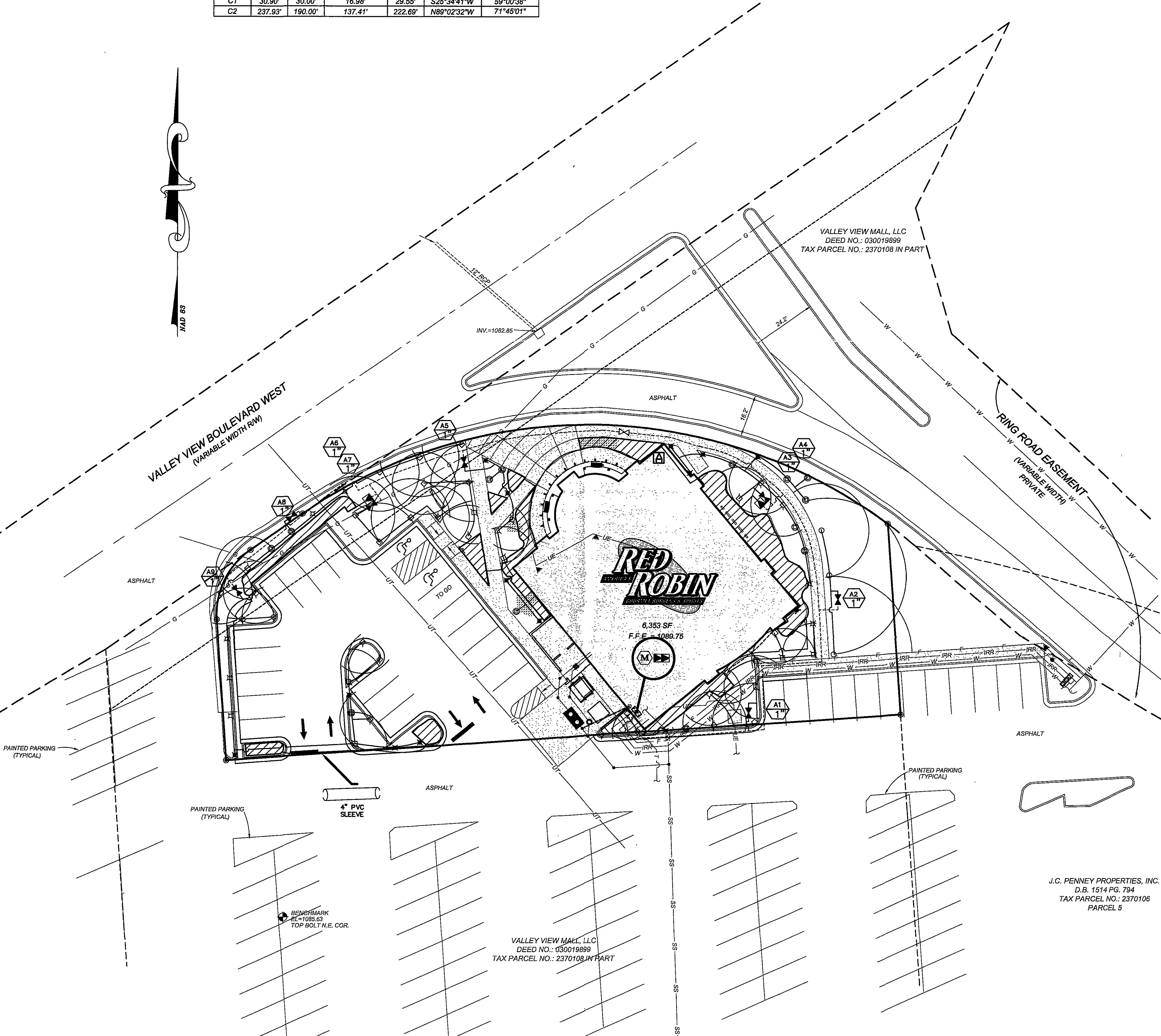
- 17" - LOCATION OF TORO NETAFIM TECHLINE 1/2" P.E. TUBING.
18" - 18" EMITTER SPACING INTERVALS AT 1 GPM EMITTERS IN LINE.
NETAFIM (MODEL# TLD-9-1810) TECHLINE TO BE INSTALLED UNDER
MULCH IN LANDSCAPE AREAS AS SHOWN ON THE IRRIGATION PLAN.
- 19" - LOCATION OF DRIP VALVE ASSEMBLY WHICH INCLUDES TORO 250
SERIES REMOTE CONTROL VALVE WITH FLOW CONTROL FEATURE.
NETAFIM 200 MESH FILTER #0150-140, AND NETAFIM PRESSURE
REGULATOR #PRT150AS. FLOW CONTROL VALVES SHALL BE AS NOTED ON
BOXES WITH LIDS MOUNTED AT GRADE LEVEL.

HEAD RADII

- 20" - 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.
- 21" - APPROXIMATE ARC 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

- 22" - LOCATION OF ELECTRIC 24 V.A.C. REMOTE CONTROL VALVE
WITH FLOW CONTROL FEATURE (MODEL # TORO 250-08-04). SIZE
OF ZONE CONTROL VALVES TO BE AS NOTED ON THE IRRIGATION PLANS.
- 23" - 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" SHALL BE INSTALLED IN CARSON MODEL #419-1 BOX WITH
#419-2 COVER.
- 24" - LOCATION OF MAINLINE ISOLATION GATE VALVE. THE
ISOLATION VALVES SHALL BE LINE SIZE AND SHALL BE
INSTALLED WITH A VALVE BOX ASSEMBLY AS SHOWN IN THE DETAIL.



NOTES & LEGENDS

24 VAC CONTROL WIRING

- 25" - 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 PIRING 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.
- 26" - WIRE SPICES SHALL BE KEPT TO AN ABSOLUTE MINIMUM. WHERE
MAJOR CONCENTRATIONS OF SPICES ARE NECESSARY SAID SPICES
SHALL BE PLACED IN A CARSON #910-1 VALVE BOX, WITH #910-2
COVER, INSTALLED AT GRADE LEVEL. SPICES AT VALVE LOCATIONS
SHALL BE MADE INSIDE OF THE VALVE BOX. ALL SPICE LOCATIONS
SHALL BE NOTED ON THE AS BUILT PLAN.
- 27" - WIRE RUNS SHALL BE INSTALLED WITH ENOUGH SLACK AND/OR
OCCASIONAL EXPANSION LOOPS TO PREVENT EXCESSIVE STRAIN DUE TO
THERMAL CONTRACTION.
- 28" - ALL WIRE SPICES SHALL BE MADE USING UL APPROVED DIRECT
BURIAL CONNECTORS AND WATERPROOFING MATERIALS. ALL ELECTRICAL
WORK SHALL BE INSTALLED ACCORDING TO CODE.

CONTROLLER

- 29" - LOCATION OF THE IRRIGATION CONTROLLER. THE CONTROLLER
SHALL BE TORO CUSTOM COMMAND CONTROL SERIES SOLID STATE
UNIT WHICH SHALL BE OF THE WALL MOUNT STYLE. THE CONTROLLER
SHALL BE OF THE MODEL NUMBER CC-PP-9 STATION CONTROLLER. THE
CONTROLLER SHALL INCORPORATE 24 V.A.C. ELECTRIC REMOTE CONTROL
VALVE OPERATION. THE CONTROLLER SHALL BE MOUNTED IN THE
APPROPRIATE LOCATION SHOWN ON THE PLAN.

- 30" - 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.

- 31" - NOTE: THE OWNER SHALL BE RESPONSIBLE FOR PROVIDING A 120
VAC POWER CIRCUIT AT THE CONTROLLER LOCATION. THE POWER SOURCE
SHALL BE CAPABLE OF SUPPORTING A 10 AMPERE LOAD AT 120 VAC.

BACKFLOW PREVENTION

- 32" - DENOTES THE LOCATION OF REDUCED PRESSURE BACKFLOW
PREVENTER ASSEMBLY WHICH SHALL BE THE RESPONSIBILITY OF
THE IRRIGATION CONTRACTOR. THE BACKFLOW SHALL BE 3/4" 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 AT LEAST AS NOTED ON THE DETAIL SHEET AND
SHALL HAVE AN APPROVED COVER.

WATER SUPPLY

- 33" - DENOTES THE LOCATION OF THE PROPOSED IRRIGATION METER.
THE METER SHALL BE THE OWNER'S RESPONSIBILITY. THE METER
SHALL BE 3/4" 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.

- 34" - THIS IRRIGATION SYSTEM SHALL BE CAPABLE OF DELIVERING 15 GPM
MAXIMUM WITH ONE CONTROL STATION OPERATING AT A TIME AT 50 PSI
AT THE BASE OF THE HEAD FOR OPTIMUM PERFORMANCE OF THE
IRRIGATION SYSTEM AS DESIGN AND SPECIFIED.

SLEEVING

- 35" - DENOTES LOCATION OF PVC SLEEVES FOR
IRRIGATION PIPING. SIZE OF SLEEVES TO BE AS NOTED.
- 36" - 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.

- 37" - WHERE IRRIGATION PIPING CROSSES SIDEWALK THE
CONTRACTOR SHALL INSTALL A 2" PVC SLEEVE.
- 38" - ALSO WHERE IRRIGATION WIRING CROSSES SIDEWALKS
THE CONTRACTOR SHALL INSTALL A 2" PVC SLEEVE.

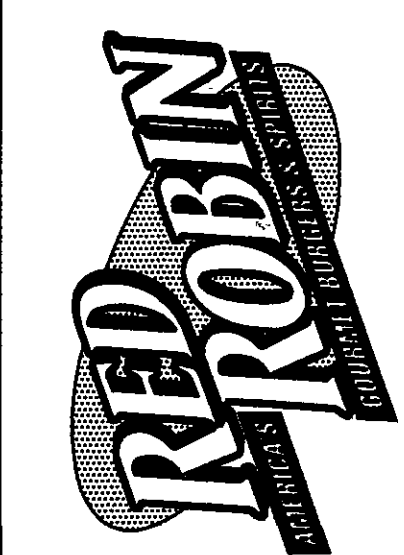
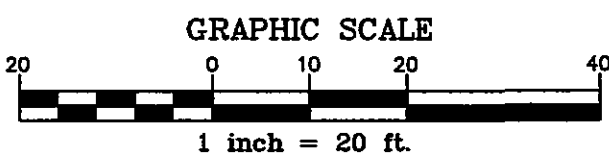
- 39" - THE IRRIGATION CONTRACTOR SHALL COORDINATE THE INSTALLATION
OF THE IRRIGATION SYSTEM WITH THE LANDSCAPE CONTRACTOR TO
INSURE PROPER INSTALLATION OF BOTH THE IRRIGATION SYSTEM WITH
THE LANDSCAPE AND HARDSCAPE.

- 40" - 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.

- 41" - 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.

- 42" - THIS DESIGN IS BASED ON THE SITE INFORMATION AND/OR DRAWINGS
SUPPLIED BY THE CLIENT OR 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.

IRRIGATION LAYOUT					
DRAWN: FWR	APPROVED:	DATE: 1-6-06	SCALE: 1" = 20'	SHEET: 1 OF 2	PROJECT NO.: 060106.110
STI DESIGNS			FILENAME: IR-1.DWG		
4355 Golf Acres Drive Charlotte, North Carolina 28208 Phone: (704) 383-8873 Phone: (800) 932-8676					

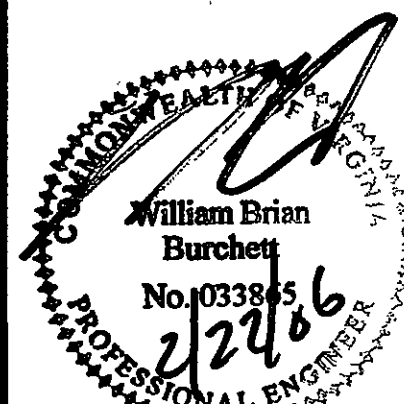


RED ROBIN GOURMET BURGERS
4802 VALLEY VIEW BLVD.
ROANOKE, VA 24012
IRRIGATION PLAN

COMMERCIAL
SITE DESIGN
LANDSCAPE ARCHITECTURE
ENGINEERING / SURVEYING / PLANNING
7501 CREEDMOOR ROAD, SUITE 106
RALEIGH, NORTH CAROLINA 27615
PHONE: 919-848-6121 FAX: 919-848-5741

Revisions

- 1-30-06
CITY COMMENTS #1
- 1-23-06
CITY COMMENTS #2
- 1-23-06
- 1-23-06
- 1-23-06
- 1-23-06
- 1-23-06



DRAWN BY: STH	CHECKED BY: WBB
SCALE: 1"=20'	DATE: 12-13-05
JOB NO.: RRB-0511	
SHEET NO.: C-9	