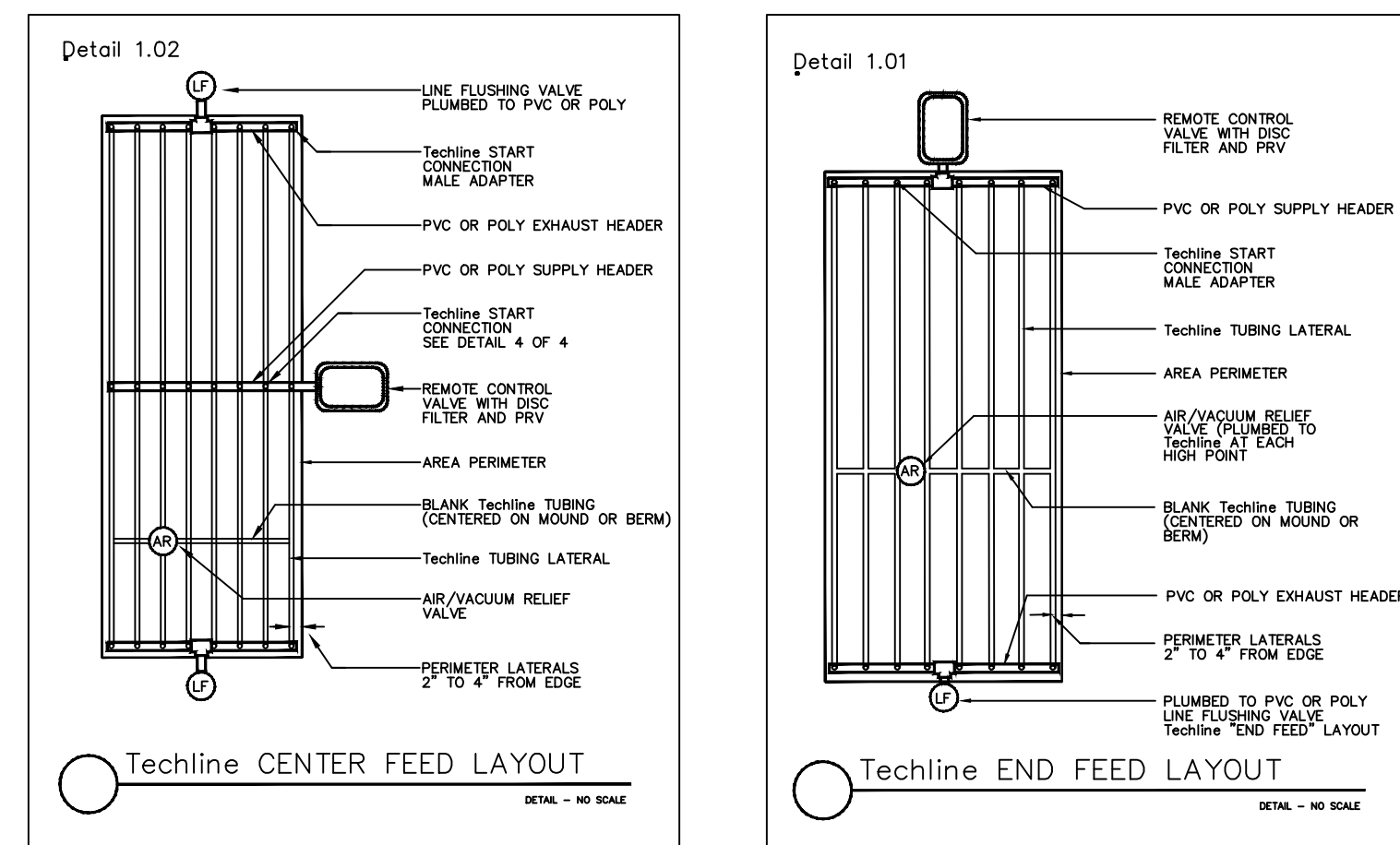


CONSTRUCTION NOTES:

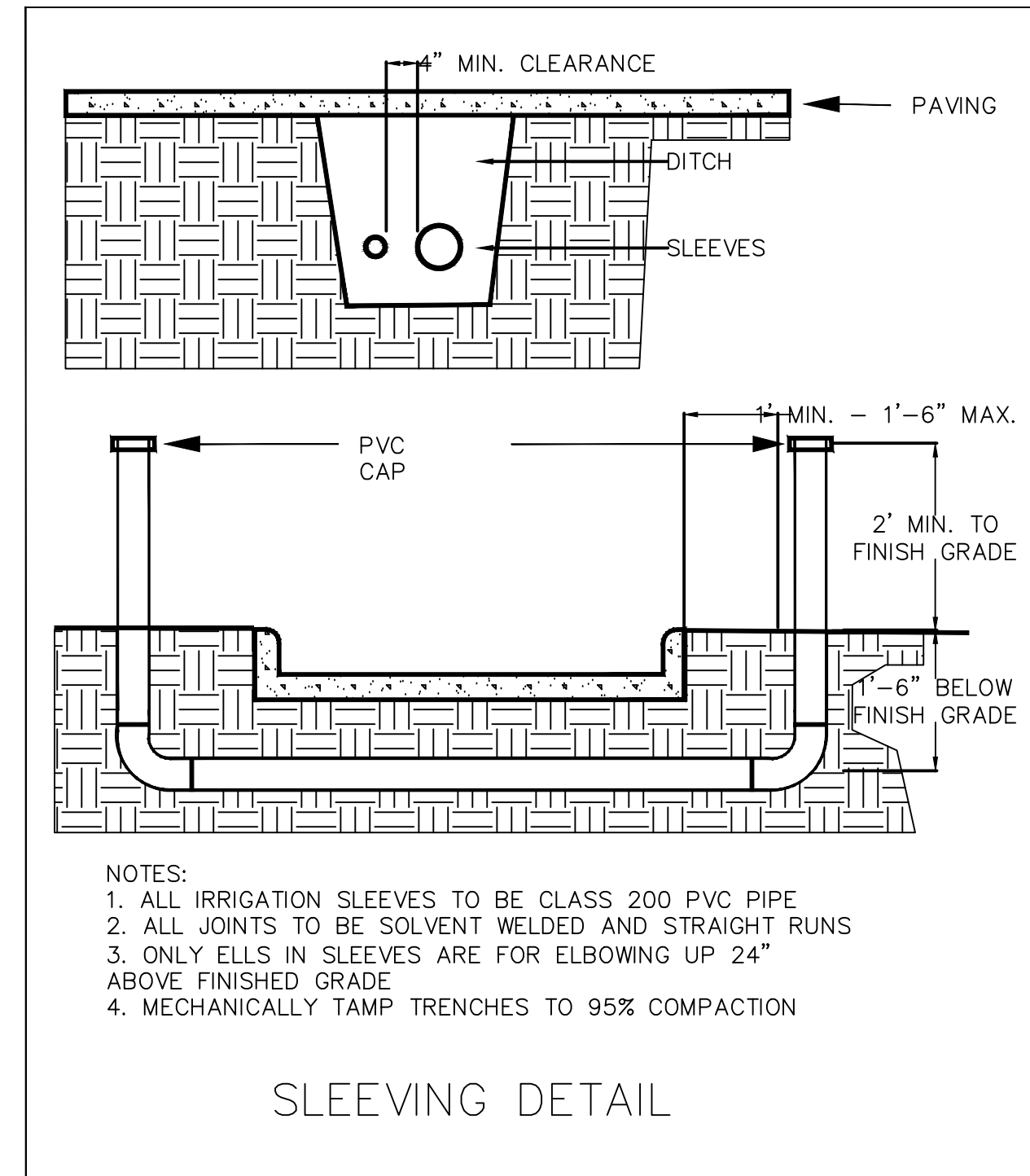
- IRRIGATION CONTRACTOR SHALL BE A LICENSED IRRIGATOR IN THE STATE OF TEXAS AND HAVE A LICENSED IRRIGATOR/INSTALLER ON SITE. AFTER AWARD OF CONTRACT AND BEFORE ANY IRRIGATION SYSTEM MATERIALS ARE ORDERED FROM SUPPLIERS OR DELIVERED TO THE JOB SITE, SUBMIT TO THE OWNER A COMPLETE LIST OF ALL IRRIGATION SYSTEM MATERIALS, OR PROCESSES PROPOSED TO BE FURNISHED AND INSTALLED AS PART OF THIS CONTRACT. THE LANDSCAPE ARCHITECT OR OWNER'S AUTHORIZED REPRESENTATIVE WILL ALLOW NO SUBSTITUTIONS WITHOUT PRIOR WRITTEN ACCEPTANCE. MANUFACTURER'S WARRANTIES SHALL NOT RELIEVE THE CONTRACTOR OF HIS LIABILITY UNDER THE GUARANTEE. SUCH WARRANTIES SHALL ONLY SUPPLEMENT THE GUARANTEE.
- IRRIGATION CONTRACTOR SHALL PROVIDE A COMPLETE, FUNCTIONING AUTOMATIC IRRIGATION SYSTEM. THIS INCLUDES ALL MATERIALS, LABOR, FEES, TAXES, EQUIPMENT, AND OTHER COSTS INCIDENTAL TO ACCOMPLISHING THE END.
- ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH APPLICABLE CODES AND ORDINANCES OF THE CITY OF SAN ANTONIO AND THE STATE OF TEXAS. ALL LOCAL CODES SHALL PREVAIL OVER ANY DISCREPANCIES CONTAINED IN THESE DOCUMENTS.
- CONFIRM STATIC WATER PRESSURE AT LEAST 7 DAYS BEFORE BEGINNING WORK. IF STATIC WATER PRESSURE IS LESS THAN STATED IN PRESSURE CALCULATIONS DO NOT PROCEED UNTIL DIRECTED SO BY THE LANDSCAPE ARCHITECT. IF ACTUAL SITE STATIC PRESSURE EXCEEDS DESIGN PRESSURE BY 15 P.S.I., A PRESSURE REDUCING VALVE SHALL BE INSTALLED. THE POINT OF CONNECTION SHALL BE AS NOTED ON PLANS. NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES.
- THE IRRIGATION CONTRACTOR IS REQUIRED BY LAW TO NOTIFY TEXAS ONE CALL (800-245-4545) 72 HOURS PRIOR TO ANY EXCAVATION. IRRIGATION CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING HIMSELF FAMILIAR WITH ALL UNDERGROUND UTILITIES, PIPES AND STRUCTURES. IRRIGATION CONTRACTOR SHALL TAKE SOLE RESPONSIBILITY FOR ANY COST INCURRED DUE TO DAMAGE OF SAID UTILITIES WHETHER OR NOT TEXAS ONE CALL IS NOTIFIED.
- DO NOT WILLFULLY PROCEED WITH CONSTRUCTION AS DESIGNED WHEN IT IS OBVIOUS THAT UNKNOWN OBSTRUCTIONS AND/OR GRADE DIFFERENCES EXIST THAT MAY NOT HAVE BEEN KNOWN DURING DESIGN. SUCH CONDITIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE. THE IRRIGATION CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ALL NECESSARY REVISIONS DUE TO FAILURE TO GIVE SUCH NOTIFICATION.
- IRRIGATION CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COORDINATION WITH OTHER CONTRACTORS AS REQUIRED TO ACCOMPLISH IRRIGATION INSTALLATION. IRRIGATION CONTRACTOR SHALL CLEARLY MARK ALL EXPOSED EXCAVATIONS, MATERIALS, AND EQUIPMENT. COVER OR BARRICADE TRENCHES WHEN THE IRRIGATION CONTRACTOR IS NOT ON SITE. TAKE ALL NECESSARY SAFETY PRECAUTIONS TO PROTECT AND PREVENT INJURY TO ANY PERSONS ON SITE.
- DUE TO SCALE OF DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS SLEEVES, ETC., WHICH MAY BE REQUIRED. IRRIGATION CONTRACTOR SHALL CAREFULLY INVESTIGATE THE STRUCTURAL AND FINISHED CONDITIONS AFFECTING ALL OF HIS WORK AND PLAN HIS WORK ACCORDINGLY, FURNISHING SUCH FITTINGS, ETC., AS MAY BE REQUIRED TO MEET SUCH CONDITIONS. DRAWINGS ARE GENERALLY DIAGRAMMATIC AND INDICATIVE OF THE WORK TO BE INSTALLED. THE WORK SHALL BE INSTALLED IN SUCH A MANNER AS TO AVOID CONFLICTS BETWEEN IRRIGATION SYSTEM, PLANTING AND ARCHITECTURAL FEATURES. THIS DESIGN IS DIAGRAMMATIC. ALL PIPING, VALVES, ETC., SHOWN WITHIN PAVED AREAS IS FOR DESIGN CLARIFICATION ONLY AND SHALL BE INSTALLED IN PLANTING AREAS AND WITHIN PROPERTY LINES.
- IT IS THE IRRIGATION CONTRACTOR'S RESPONSIBILITY TO COORDINATE PIPING WITH THE LANDSCAPE SUBCONTRACTOR TO AVOID CONFLICT WITH PLANTING BEDS. IT WILL BE THE RESPONSIBILITY OF THE IRRIGATION SUBCONTRACTOR TO MOVE PIPING TO ALLOW PROPER PLACEMENT OF PLANT MATERIAL. THE IRRIGATION CONTRACTOR SHALL MAKE MINOR ADJUSTMENTS TO ENSURE PROPER COVERAGE AT NO ADDITIONAL COST TO THE OWNER.
- NO MACHINE TRENCHING IS TO BE DONE WITH DRIPLINE OF TREES. TRENCHING IS TO BE DONE BY HAND OR BY TUNNELING UNDER ROOT SYSTEM BY METHOD APPROVED BY OWNER'S REPRESENTATIVE. PIPING LAYOUT IS DIAGRAMMATIC AND PIPING SHALL BE ROUTED AROUND EXISTING PLANT MATERIAL TO AVOID DAMAGE TO EXISTING PLANTS. DO NOT CUT ANY ROOT OVER 3/4" DIAMETER. ANY CUTS MADE SHALL BE CLEAN AND WITHOUT FRAYED ENDS.
- IRRIGATION CONTRACTOR SHALL BE RESPONSIBLE FOR SLEEVES AND CHASES WHEREVER PIPING OR CONDUIT PASSES, UNDER ALL PAVING, THROUGH WALLS, ETC. ALL SLEEVE LOCATIONS MAY NOT BE SHOWN ON PLAN, COORDINATE WITH ARCHITECTURAL AND CIVIL DRAWINGS, GENERAL CONTRACTOR AND OTHER SUBCONTRACTORS AS REQUIRED. ALL SLEEVE AND CHASE LOCATIONS ARE NOT NOTED ON PLAN. ALL SLEEVES SHALL BE SCH 40 PVC, SIZED TWICE THE DIAMETER OF PIPE OR COMBINATION OF PIPES ENCLOSED WITHIN THE SLEEVE.
- ALL CONTROL WIRE SHALL BE DIRECT BURIAL 14 GAUGE SOLID COPPER WIRE SINGLE STRAND. ALL SPLICES SHALL BE WATER-PROOF AND INSTALLED IN ACCESS BOXES. NO BURIED SPLICES. INSTALL WITH PROPER SPLICING AND GROUNDING.
- OBTAIN COVERAGE TEST APPROVAL FROM OWNER'S REPRESENTATIVE PRIOR TO PLANTING, SODDING OR SEEDING.
- ELECTRIC POWER SHALL BE PROVIDED TO CONTROLLER LOCATION BY GENERAL CONTRACTOR. IRRIGATION CONTRACTOR SHALL PROVIDE FINAL HARD-WIRE TO CONTROLLERS. FINAL LOCATION OF CONTROLLER SHALL BE APPROVED BY OWNER.
- ALL MAIN LINES SHALL BE P.V.C. CLASS 200, 12" MINIMUM COVER OF SELECT BACKFILL FOR MAINLINE AND WIRES. ALL LATERAL LINES SHALL BE P.V.C. CLASS 200, 1/2" CLASS 315, 6" MINIMUM COVER OF SELECT BACKFILL FOR ALL LATERALS. PIPE TO BE PRIMED WITH PURPLE COLORED PRIMER PRIOR TO APPLYING P.V.C. CEMENT. ALL TRENCHES AND HOLES TO BE FILLED WITH MATERIAL FREE OF ROCKS AND DEBRIS AND COMPACTED IN LIFTS TO ORIGINAL GRADE.
- ALL ROTORS SHALL BE LOCATED 12' FROM PAVEMENT, CURBS OR EDGE OF STRUCTURE. ALL SPRAY HEADS SHALL BE LOCATED 6" FROM PAVEMENT, CURBS OR EDGE OF STRUCTURE. ALL SPRINKLER HEADS SHALL BE SET PERPENDICULAR TO FINISHED GRADE AND CHECK VALVES INSTALLED TO PREVENT LOW HEAD DRAINAGE.
- THE IRRIGATION CONTRACTOR SHALL FLUSH AND ADJUST ALL SPRINKLERS AND VALVES FOR OPTIMUM COVERAGE. NO DIRECT SPRAY ON NON IRRIGATED AREAS
- ALL HEADS TO BE INSTALLED ON SWING JOINTS. AREAS LESS THAN 6" WIDE SHALL BE WATERED BY DRIP IRRIGATION. BUBBLERS AS SPECIFIED ON PLAN TO BE INSTALLED FOR EACH TREE. TREES WILL BE ON SEPARATE CIRCUITS.
- BE SURE AND KEEP UP TO DATE WITH STATE OF TEXAS AND CITY OF SAN ANTONIO LANDSCAPE IRRIGATION ORDINANCES.
- IRRIGATION CONTRACTOR SHALL PROVIDE THE OWNER WITH AN IRRIGATION AS-BUILT PLAN, SHOWING EXACT LOCATIONS, SIZES, AND KINDS OF EQUIPMENT INSTALLED PRIOR TO FINAL INSPECTION. IRRIGATION CONTRACTOR IS TO PROVIDE 10-SPRAY HEADS, 5-ROTOR HEADS AND ASSOCIATED FITTINGS AND PIPING FOR USE ON IRRIGATION ZONE(S) AS DIRECTED IN THE FIELD BY OWNER'S REPRESENTATIVE. IRRIGATION CONTRACTOR SHALL GUARANTEE ALL IRRIGATION WORK FOR A PERIOD OF NOT LESS THAN ONE YEAR.

DRIP:

DRIPLINE AND FITTINGS SHALL BE MANUFACTURED BY HUNTER
 DRIPLINE SHALL BE HUNTER PLD-10-12 DRIPPERS EVERY 12" @ 1gph
 DRIPLINE TO BE INSTALLED AFTER PLANTING. SHOULD BE STAKED TO THE GROUND EVERY 3 TO 4 FEET AND TWICE AT EACH FITTING.
 USE NETAFIM FITTINGS TO CONNECT DRIPLINE CV TO PVC.
 INSTALL AS PER MANUFACTURER'S SPECIFICATIONS AND TRY TO USE CENTER FEED SET-UP WHERE APPLICABLE.
 DRIPLINE TO BE INSTALLED IN SOD AREAS, SHOULD BE BURIED 2" DEEP.



CHECK WITH LOCAL LAWS, RULES, AND INSTALLATION TECHNIQUES TO ENSURE PROPER PROTECTION FROM CONTAMINATION AND FREEZING TEMPERATURES



LEGEND

- HUNTER PROS-04-PRS30-CV WITH PRO SPRAY NOZZLES
- HUNTER PROS-04-CV WITH MP ROTATOR NOZZLES
- HUNTER PROS-04-CV WITH PCN 1 GPM BUBBLER
- HUNTER PGV-101G 1" & 1.5" VALVE WITH FLOW CONTROL
- HUNTER PCZ-40 1" & 1.5" VALVE FOR DRIP ZONES
- HUNTER PRO-C STATION CONTROLLER
- FEBCO 850 - 3/4" DC WITH Y STRAINER. CHECK WITH LOCAL CODES
- M.V. = MASTER VALVE I.V. = ISOLATION VALVE
- 1.25" MAINLINE
- HUNTER SOLAR-SYNC RAIN/FREEZE SENSOR
- DRIPLINE - HUNTER PLD-10-12 1GPH EMITTERS 12' APART
- ▨ 4" SCHEDULE 40 PVC SLEEVE
- M 3/4" WATER METER FOR IRRIGATION

PRESSURE CALCS

Water Source 1
 Description: 3/4" Water Meter
 Type: Meter
 Static Pressure: 60 (psi)
 Service Line: 1.138 (psi)
 Meter Loss: 2.345 (psi)

Mean System
 Static Pressure: 60 (psi)
 Service Line Loss: 1.138 (psi)
 Meter Loss: 2.345 (psi)
 Backflow Loss: 5.614 (psi)
 Master Valve Loss: 1.763 (psi)
 Filter Loss: 0 (psi)

Zone 1-3 @ 12.29 (GPM)
 Mainline Loss: 3.06 (psi)
 Valve Loss: 1.76 (psi)
 Filter Loss: 0 (psi)
 Lateral Loss: 1.2 (psi)
 Elevation: 0 (psi)
 Sprinkler Requirement: 30 (psi)

Total Design Pressure: 46.88 (psi)
Residual Pressure: 13.12 (psi)

Annual Water Budget

Run Times Based on 1/4 Inch of Irrigation Per Cycle

Zone #	Description	Head Type (#)	Precip. Rate	GPM	Run Time	Gals Per Cycle	
1	Turf	Sprays	1.3	8.54	12	99	
2	Turf	Sprays	1.12	9.77	13	131	
3	Turf	Sprays	1.75	12.29	9	105	
4	Beds	Drip Line	0.71	8.71	21	184	
5	Trees	Bubblers	1	9	15	135	
					Total	70	654

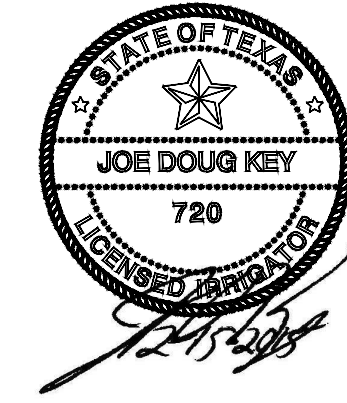
Historical Monthly Water Use - 70% of Potential ET				Legend	
Month	Avg. Daily ET	Avg. Cycles	Total Gals.	Description Column	
January	0.04	3	1961	Sun or Shade	
February	0.04	3	1961	Turf or Beds	
March	0.06	4	2615	Sloped	
April	0.07	4	2615	Other	
May	0.12	7	4576		
June	0.15	9	5884	Head Type (#) Column	
July	0.18	11	7191	Include # Of Heads on Proposed Zone	
August	0.18	11	7191	Sprays - Full/Half/Quarter	
September	0.15	9	5884	Rotors	
October	0.10	6	3922	Bubblers	
November	0.05	4	2615	Drip line	
December	0.04	3	1961		
			Yearly Total-74	48377	

* Deduct Rainfall

"Precipitation Rate = Gallons per minute per zone x 96.25 divided by square footage covered by that zone."

"Run Time = .5 irrigation divided by precipitation rate of that zone x 60 = minutes of run time."

HORIZON
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 DEVELOPMENT CONSULTING
 1370 Pantheon Way, Suite 210
 San Antonio, Texas 78232
 210.831.8564 jrobison@horizondesign-sa.com



IrrigationDesignService.Com

1209 OAK SHADOWS CIRCLE AUSTIN, TEXAS 78758 (512)783-6688



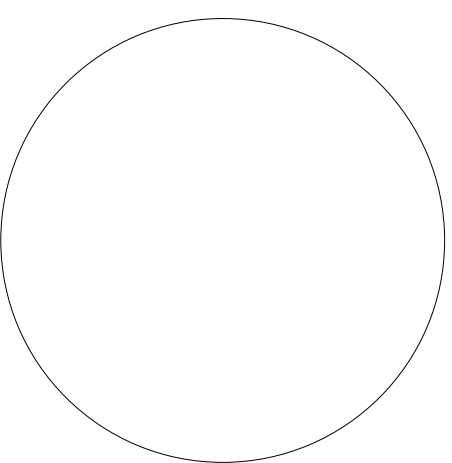
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 PHONE: 210 308-0080
 FAX: 210 697-3309
 eMAIL: office@dhrarchitects.com

REVISED ISSUE DATES:

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	2
	3
	4

BUSH'S CHICKEN BITTERS @ BLANCO
 Bitters Road East of Blanco Road
 San Antonio, TX 78216

IRRIGATION DETAILS



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 PROJECT ARCHITECT:

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