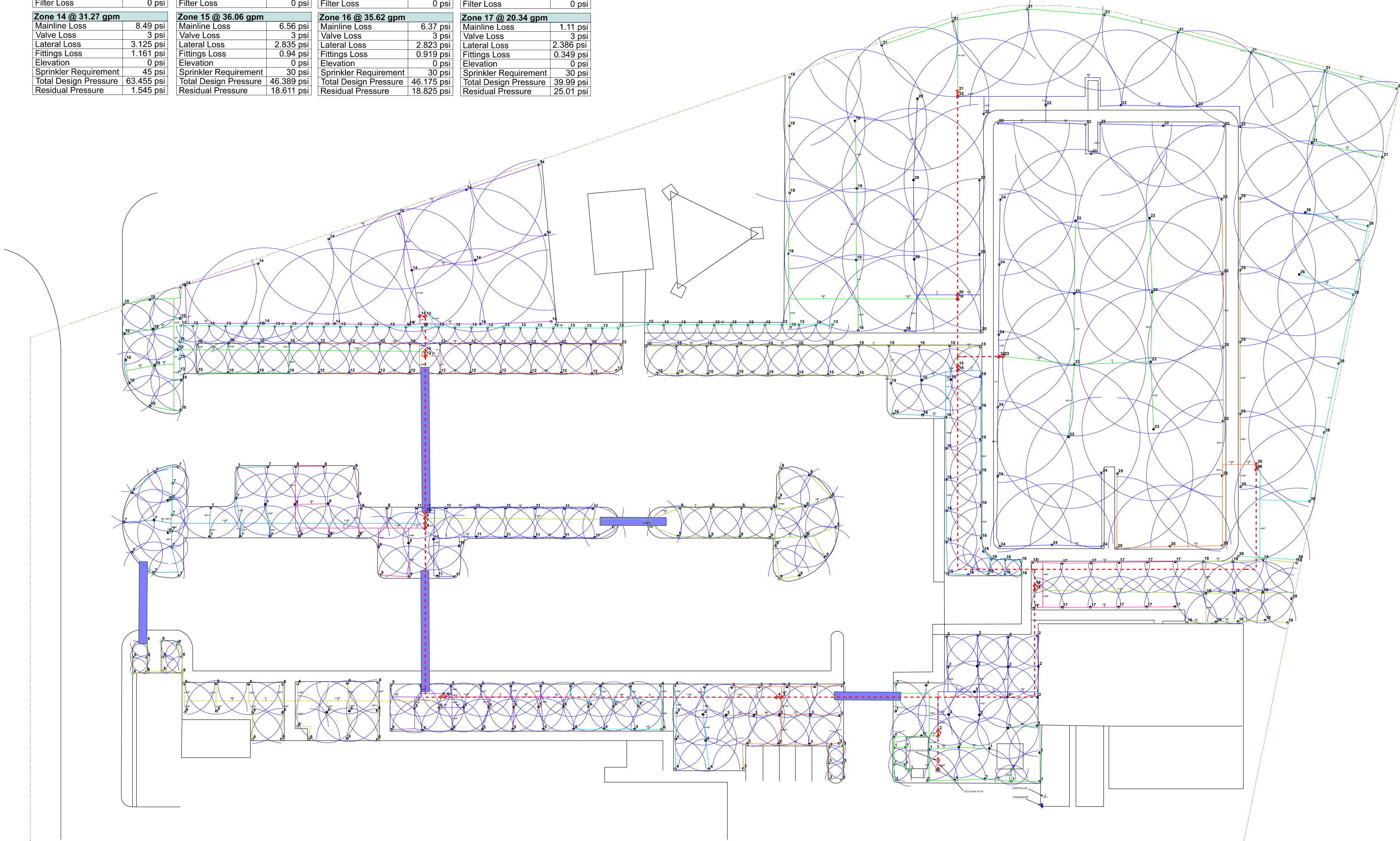


Run Set: 1	Run Set: 2	Run Set: 3	Run Set: 4	Run Set: 5	Run Set: 6	Run Set: 7	Run Set: 8	Run Set: 9	Run Set: 10	Run Set: 11	Run Set: 12	Run Set: 13
Water Source #1	Water Source #1	Water Source #1	Water Source #1	Water Source #1	Water Source #1	Water Source #1	Water Source #1	Water Source #1	Water Source #1	Water Source #1	Water Source #1	Water Source #1
Type Meter	Type Meter	Type Meter	Type Meter	Type Meter	Type Meter	Type Meter	Type Meter	Type Meter	Type Meter	Type Meter	Type Meter	Type Meter
Static Pressure 65 psi	Static Pressure 65 psi	Static Pressure 65 psi	Static Pressure 65 psi	Static Pressure 65 psi	Static Pressure 65 psi	Static Pressure 65 psi	Static Pressure 65 psi	Static Pressure 65 psi	Static Pressure 65 psi	Static Pressure 65 psi	Static Pressure 65 psi	Static Pressure 65 psi
Service Line 0 psi	Service Line 0 psi	Service Line 0 psi	Service Line 0 psi	Service Line 0 psi	Service Line 0 psi	Service Line 0 psi	Service Line 0 psi	Service Line 0 psi	Service Line 0 psi	Service Line 0 psi	Service Line 0 psi	Service Line 0 psi
Meter Loss 0.909 psi	Meter Loss 0.912 psi	Meter Loss 0.969 psi	Meter Loss 1.038 psi	Meter Loss 1.154 psi	Meter Loss 0.976 psi	Meter Loss 0.998 psi	Meter Loss 0.848 psi	Meter Loss 1.091 psi	Meter Loss 1.09 psi	Meter Loss 0.848 psi	Meter Loss 1.184 psi	Meter Loss 0.523 psi
Mainline Components	Mainline Components	Mainline Components	Mainline Components	Mainline Components	Mainline Components	Mainline Components	Mainline Components	Mainline Components	Mainline Components	Mainline Components	Mainline Components	Mainline Components
Backflow Loss 3 psi	Backflow Loss 3 psi	Backflow Loss 3 psi	Backflow Loss 3 psi	Backflow Loss 3 psi	Backflow Loss 3 psi	Backflow Loss 3 psi	Backflow Loss 3 psi	Backflow Loss 3 psi	Backflow Loss 3 psi	Backflow Loss 3 psi	Backflow Loss 3 psi	Backflow Loss 3 psi
Master Valve Loss 0 psi	Master Valve Loss 0 psi	Master Valve Loss 0 psi	Master Valve Loss 0 psi	Master Valve Loss 0 psi	Master Valve Loss 0 psi	Master Valve Loss 0 psi	Master Valve Loss 0 psi	Master Valve Loss 0 psi	Master Valve Loss 0 psi	Master Valve Loss 0 psi	Master Valve Loss 0 psi	Master Valve Loss 0 psi
Filter Loss 0 psi	Filter Loss 0 psi	Filter Loss 0 psi	Filter Loss 0 psi	Filter Loss 0 psi	Filter Loss 0 psi	Filter Loss 0 psi	Filter Loss 0 psi	Filter Loss 0 psi	Filter Loss 0 psi	Filter Loss 0 psi	Filter Loss 0 psi	Filter Loss 0 psi
Zone 1 @ 33.22 gpm	Zone 2 @ 33.29 gpm	Zone 3 @ 34.96 gpm	Zone 4 @ 37.38 gpm	Zone 5 @ 38.54 gpm	Zone 6 @ 35.3 gpm	Zone 7 @ 36.81 gpm	Zone 8 @ 31.44 gpm	Zone 9 @ 37.91 gpm	Zone 10 @ 37.9 gpm	Zone 11 @ 31.44 gpm	Zone 12 @ 38.84 gpm	Zone 13 @ 21.32 gpm
Mainline Loss 0.33 psi	Mainline Loss 0.38 psi	Mainline Loss 2.46 psi	Mainline Loss 2.85 psi	Mainline Loss 7.27 psi	Mainline Loss 6.23 psi	Mainline Loss 8.97 psi	Mainline Loss 6.66 psi	Mainline Loss 9.54 psi	Mainline Loss 11.62 psi	Mainline Loss 6.79 psi	Mainline Loss 12.09 psi	Mainline Loss 4.15 psi
Valve Loss 3 psi	Valve Loss 3 psi	Valve Loss 3 psi	Valve Loss 3 psi	Valve Loss 3 psi	Valve Loss 3 psi	Valve Loss 3 psi	Valve Loss 3 psi	Valve Loss 3 psi	Valve Loss 3 psi	Valve Loss 3 psi	Valve Loss 3 psi	Valve Loss 3 psi
Lateral Loss 2.028 psi	Lateral Loss 1.886 psi	Lateral Loss 1.798 psi	Lateral Loss 2.358 psi	Lateral Loss 1.36 psi	Lateral Loss 3.493 psi	Lateral Loss 3.278 psi	Lateral Loss 2.003 psi	Lateral Loss 4.641 psi	Lateral Loss 3.573 psi	Lateral Loss 2.326 psi	Lateral Loss 2.439 psi	Lateral Loss 2.85 psi
Fittings Loss 0.236 psi	Fittings Loss 0.227 psi	Fittings Loss 0.426 psi	Fittings Loss 0.863 psi	Fittings Loss 0.863 psi	Fittings Loss 0.973 psi	Fittings Loss 1.225 psi	Fittings Loss 0.866 psi	Fittings Loss 1.418 psi	Fittings Loss 1.519 psi	Fittings Loss 0.912 psi	Fittings Loss 1.453 psi	Fittings Loss 0.7 psi
Elevation 0 psi	Elevation 0 psi	Elevation 0 psi	Elevation 0 psi	Elevation 0 psi	Elevation 0 psi	Elevation 0 psi	Elevation 0 psi	Elevation 0 psi	Elevation 0 psi	Elevation 0 psi	Elevation 0 psi	Elevation 0 psi
Sprinkler Requirement 30 psi	Sprinkler Requirement 30 psi	Sprinkler Requirement 30 psi	Sprinkler Requirement 30 psi	Sprinkler Requirement 30 psi	Sprinkler Requirement 30 psi	Sprinkler Requirement 30 psi	Sprinkler Requirement 30 psi	Sprinkler Requirement 30 psi	Sprinkler Requirement 30 psi	Sprinkler Requirement 30 psi	Sprinkler Requirement 30 psi	Sprinkler Requirement 30 psi
Total Design Pressure 39.268 psi	Total Design Pressure 39.18 psi	Total Design Pressure 41.23 psi	Total Design Pressure 42.242 psi	Total Design Pressure 45.788 psi	Total Design Pressure 46.701 psi	Total Design Pressure 49.25 psi	Total Design Pressure 45.51 psi	Total Design Pressure 51.271 psi	Total Design Pressure 52.28 psi	Total Design Pressure 45.965 psi	Total Design Pressure 51.717 psi	Total Design Pressure 43.528 psi
Residual Pressure 25.732 psi	Residual Pressure 25.82 psi	Residual Pressure 23.77 psi	Residual Pressure 22.758 psi	Residual Pressure 19.212 psi	Residual Pressure 18.299 psi	Residual Pressure 15.75 psi	Residual Pressure 19.49 psi	Residual Pressure 13.729 psi	Residual Pressure 12.72 psi	Residual Pressure 19.035 psi	Residual Pressure 13.283 psi	Residual Pressure 21.474 psi

Run Set: 14	Run Set: 15	Run Set: 16	Run Set: 17
Water Source #1	Water Source #1	Water Source #1	Water Source #1
Type Meter	Type Meter	Type Meter	Type Meter
Static Pressure 65 psi	Static Pressure 65 psi	Static Pressure 65 psi	Static Pressure 65 psi
Service Line 0 psi	Service Line 0 psi	Service Line 0 psi	Service Line 0 psi
Meter Loss 0.841 psi	Meter Loss 0.991 psi	Meter Loss 0.982 psi	Meter Loss 0.497 psi
Mainline Components	Mainline Components	Mainline Components	Mainline Components
Backflow Loss 3 psi	Backflow Loss 3 psi	Backflow Loss 3 psi	Backflow Loss 3 psi
Master Valve Loss 0 psi	Master Valve Loss 0 psi	Master Valve Loss 0 psi	Master Valve Loss 0 psi
Filter Loss 0 psi	Filter Loss 0 psi	Filter Loss 0 psi	Filter Loss 0 psi
Zone 14 @ 31.27 gpm	Zone 15 @ 36.06 gpm	Zone 16 @ 35.62 gpm	Zone 17 @ 20.34 gpm
Mainline Loss 8.49 psi	Mainline Loss 6.56 psi	Mainline Loss 6.37 psi	Mainline Loss 1.11 psi
Valve Loss 3 psi	Valve Loss 3 psi	Valve Loss 3 psi	Valve Loss 3 psi
Lateral Loss 3.125 psi	Lateral Loss 2.835 psi	Lateral Loss 2.823 psi	Lateral Loss 2.386 psi
Fittings Loss 1.161 psi	Fittings Loss 0.94 psi	Fittings Loss 0.919 psi	Fittings Loss 0.349 psi
Elevation 0 psi	Elevation 0 psi	Elevation 0 psi	Elevation 0 psi
Sprinkler Requirement 45 psi	Sprinkler Requirement 30 psi	Sprinkler Requirement 30 psi	Sprinkler Requirement 30 psi
Total Design Pressure 63.455 psi	Total Design Pressure 46.389 psi	Total Design Pressure 46.175 psi	Total Design Pressure 39.99 psi
Residual Pressure 1.545 psi	Residual Pressure 18.611 psi	Residual Pressure 18.825 psi	Residual Pressure 25.01 psi



Run Set: 18	Run Set: 19	Run Set: 20	Run Set: 21	Run Set: 22	Run Set: 23	Run Set: 24	Run Set: 25	Run Set: 26
Water Source #1	Water Source #1	Water Source #1	Water Source #1	Water Source #1	Water Source #1	Water Source #1	Water Source #1	Water Source #1
Type Meter	Type Meter	Type Meter	Type Meter	Type Meter	Type Meter	Type Meter	Type Meter	Type Meter
Static Pressure 65 psi	Static Pressure 65 psi	Static Pressure 65 psi	Static Pressure 65 psi	Static Pressure 65 psi	Static Pressure 65 psi	Static Pressure 65 psi	Static Pressure 65 psi	Static Pressure 65 psi
Service Line 0 psi	Service Line 0 psi	Service Line 0 psi	Service Line 0 psi	Service Line 0 psi	Service Line 0 psi	Service Line 0 psi	Service Line 0 psi	Service Line 0 psi
Meter Loss 0.686 psi	Meter Loss 0.588 psi	Meter Loss 0.481 psi	Meter Loss 0.553 psi	Meter Loss 0.514 psi	Meter Loss 0.617 psi	Meter Loss 0.42 psi	Meter Loss 0.734 psi	Meter Loss 0.528 psi
Mainline Components	Mainline Components	Mainline Components	Mainline Components	Mainline Components	Mainline Components	Mainline Components	Mainline Components	Mainline Components
Backflow Loss 3 psi	Backflow Loss 3 psi	Backflow Loss 3 psi	Backflow Loss 3 psi	Backflow Loss 3 psi	Backflow Loss 3 psi	Backflow Loss 3 psi	Backflow Loss 3 psi	Backflow Loss 3 psi
Master Valve Loss 0 psi	Master Valve Loss 0 psi	Master Valve Loss 0 psi	Master Valve Loss 0 psi	Master Valve Loss 0 psi	Master Valve Loss 0 psi	Master Valve Loss 0 psi	Master Valve Loss 0 psi	Master Valve Loss 0 psi
Filter Loss 0 psi	Filter Loss 0 psi	Filter Loss 0 psi	Filter Loss 0 psi	Filter Loss 0 psi	Filter Loss 0 psi	Filter Loss 0 psi	Filter Loss 0 psi	Filter Loss 0 psi
Zone 18 @ 26.81 gpm	Zone 19 @ 23.39 gpm	Zone 20 @ 19.78 gpm	Zone 21 @ 22.11 gpm	Zone 22 @ 21.09 gpm	Zone 23 @ 24.56 gpm	Zone 24 @ 18.01 gpm	Zone 25 @ 28.36 gpm	Zone 26 @ 21.45 gpm
Mainline Loss 1.82 psi	Mainline Loss 3.29 psi	Mainline Loss 2.43 psi	Mainline Loss 3.92 psi	Mainline Loss 3.57 psi	Mainline Loss 3.53 psi	Mainline Loss 1.97 psi	Mainline Loss 4.55 psi	Mainline Loss 2.69 psi
Valve Loss 3 psi	Valve Loss 3 psi	Valve Loss 3 psi	Valve Loss 3 psi	Valve Loss 3 psi	Valve Loss 3 psi	Valve Loss 3 psi	Valve Loss 3 psi	Valve Loss 3 psi
Lateral Loss 2.197 psi	Lateral Loss 4.183 psi	Lateral Loss 3.049 psi	Lateral Loss 3.603 psi	Lateral Loss 3.075 psi	Lateral Loss 4.235 psi	Lateral Loss 3.747 psi	Lateral Loss 2.901 psi	Lateral Loss 3.055 psi
Fittings Loss 0.401 psi	Fittings Loss 0.747 psi	Fittings Loss 0.547 psi	Fittings Loss 0.752 psi	Fittings Loss 0.664 psi	Fittings Loss 0.777 psi	Fittings Loss 0.745 psi	Fittings Loss 0.574 psi	Fittings Loss 0.574 psi
Elevation 0 psi	Elevation 0 psi	Elevation 0 psi	Elevation 0 psi	Elevation 0 psi	Elevation 0 psi	Elevation 0 psi	Elevation 0 psi	Elevation 0 psi
Sprinkler Requirement 30 psi	Sprinkler Requirement 45 psi	Sprinkler Requirement 45 psi	Sprinkler Requirement 45 psi	Sprinkler Requirement 45 psi	Sprinkler Requirement 45 psi	Sprinkler Requirement 45 psi	Sprinkler Requirement 45 psi	Sprinkler Requirement 45 psi
Total Design Pressure 40.699 psi	Total Design Pressure 59.057 psi	Total Design Pressure 56.923 psi	Total Design Pressure 59.073 psi	Total Design Pressure 58.155 psi	Total Design Pressure 59.383 psi	Total Design Pressure 56.843 psi	Total Design Pressure 57.272 psi	Total Design Pressure 57.728 psi
Residual Pressure 24.301 psi	Residual Pressure 5.943 psi	Residual Pressure 8.077 psi	Residual Pressure 5.927 psi	Residual Pressure 6.845 psi	Residual Pressure 5.617 psi	Residual Pressure 8.157 psi	Residual Pressure 5.817 psi	Residual Pressure 7.728 psi

Irrigation

Quantity	Symbol	Description	Part Number	Pressure	Flow	Radius
Sprinklers						
2	●	Rain Bird 10H - 1804	10H	30 psi	0.79 gpm	10 ft
10	●	Rain Bird 12F - 1804	12F	30 psi	2.6 gpm	12 ft
32	●	Rain Bird 15F - 1804	15F	30 psi	3.7 gpm	15 ft
182	●	Rain Bird 15H - 1804	15H	30 psi	1.85 gpm	15 ft
52	●	Rain Bird 15Q - 1804	15Q	30 psi	0.92 gpm	15 ft
17	●	Rain Bird 5000 Series 1.5 - 5004-PL-FC	1.5	45 psi	1.54 gpm	35 ft
52	●	Rain Bird 5000 Series 2.0 - 5004-PL-FC	2.0	45 psi	2.07 gpm	37 ft
3	●	Rain Bird 5000 Series 2.5 - 5004-PL-FC	2.5	45 psi	2.51 gpm	37 ft
8	●	Rain Bird 5000 Series 3.0 LA - 5004-PL-FC	3.0 LA	45 psi	3.07 gpm	35 ft
11	●	Rain Bird 5000 Series 4.0 - 5004-PL-FC	4.0	45 psi	4.01 gpm	42 ft
62	●	Rain Bird 8H - 1804	8H	30 psi	0.52 gpm	8 ft
17	●	Rain Bird 8Q - 1804	8Q	30 psi	0.26 gpm	8 ft

Meters/Pumps		
1	■	2 inch meter

Backflow Devices		
1	⊖	Febco 765 - 2"

Control Valves		
26	⊕	Hunter PGV-151 Globe

Irrigation Accessories		
1	⚡	Hunter MINI-CLIK
1	⚡	Nibco 2" isolation valve
1	⚡	Rain Bird ESPLXMI-28

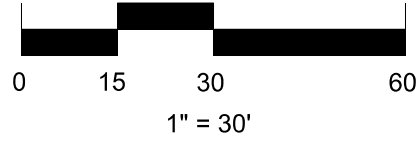
Lateral Line Pipe		
4230 ft	—	Class 315 1/2"
1515 ft	—	Class 200 3/4"
833 ft	—	Class 200 1"
621 ft	—	Class 200 1 1/4"
559 ft	—	Class 200 1 1/2"

Mainline Pipe		
1039 ft	- - - - -	Class 200 1 1/2"

Sprinkler Zone Data			
Zone #	Total Area	Total Flow	Precip Rate
1	2787.35 Sq/Ft	33.22 gpm	1.15 in/hr
2	2554.9 Sq/Ft	33.29 gpm	1.25 in/hr
3	2311.76 Sq/Ft	34.96 gpm	1.46 in/hr
4	2524.11 Sq/Ft	37.38 gpm	1.43 in/hr
5	2169.08 Sq/Ft	38.54 gpm	1.71 in/hr
6	2332.34 Sq/Ft	35.3 gpm	1.46 in/hr
7	2930.28 Sq/Ft	36.81 gpm	1.21 in/hr
8	2595.2 Sq/Ft	31.44 gpm	1.17 in/hr
9	2477.23 Sq/Ft	37.91 gpm	1.47 in/hr
10	2495.92 Sq/Ft	37.9 gpm	1.46 in/hr
11	2222.01 Sq/Ft	31.44 gpm	1.36 in/hr
12	2420.57 Sq/Ft	38.84 gpm	1.55 in/hr
13	2508.12 Sq/Ft	21.32 gpm	0.82 in/hr
14	9549.88 Sq/Ft	31.27 gpm	0.32 in/hr
15	2665.06 Sq/Ft	36.06 gpm	1.3 in/hr
16	2850.14 Sq/Ft	35.62 gpm	1.2 in/hr
17	1840.72 Sq/Ft	20.34 gpm	1.06 in/hr
18	1760.98 Sq/Ft	26.81 gpm	1.47 in/hr
19	9201.54 Sq/Ft	23.39 gpm	0.24 in/hr
20	9618.97 Sq/Ft	19.78 gpm	0.2 in/hr
21	12482.68 Sq/Ft	22.11 gpm	0.17 in/hr
22	12549.24 Sq/Ft	21.09 gpm	0.16 in/hr
23	17401.63 Sq/Ft	24.56 gpm	0.14 in/hr
24	8364.63 Sq/Ft	18.01 gpm	0.21 in/hr
25	15554.51 Sq/Ft	28.36 gpm	0.18 in/hr
26	9598.1 Sq/Ft	21.45 gpm	0.22 in/hr

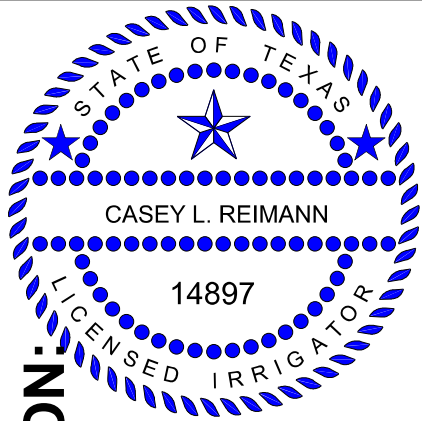
Water Source #1		
Meter Size	2 inch meter	
Static Pressure	65 psi	
Elevation Change	0 ft	
Service Line Information		
Pipe Category	Type K Copper	
Pipe Size	Type K Copper 2"	
Length	0 ft	
Velocity	5 fps	
Recommendations		
Maximum Recommended Flow	46.97 gpm	
Available Working Pressure	58.5 psi	

The maximum velocity of the PVC water piping will not exceed 5 linear feet per second. Plans and instruction manuals will be kept on site during the installation of the system. Proposed watering schedule will be programmed into controller. There will be a permanent sticker on controller. Wiring used to connect controller is U.L. approved. Irrigation in Texas is regulated by the Texas Commission on Environmental Quality (TCEQ) (MC-178), PO Box 13087, Austin, Texas 78711-3087. TCEQ's website is: www.tceq.state.tx.us. Back-flow preventer will need to be tested yearly.



TEXAS
IRRIGATION
DESIGN

281 341-0499



SHEET DESCRIPTION:
IRRIGATION DESIGN

PROJECT:
TRAN STAR BACK PARKING LOT
HOUSTON, TX

REVISIONS:
None

DATE:
09122013

JOB NUMBER:
D1-09122013

DRAWN BY:
CASEY REIMANN

CHECKED BY:
CLR

SCALE:
1" = 30'

SHEET:
1 of 1