
AMENDED WATER CONSERVATION PLAN

for

Reunion Ranch WCID

Adopted 4/24/24

Prepared for:

Reunion Ranch WCID
c/o Willatt & Flickinger, PLLC
12912 Hill Country Boulevard, Ste. F-232
Bee Cave, Texas 78738

Prepared by:

Murfee Engineering Company, Inc.
Texas Registered Firm No. F-353
1101 Capital of Texas Hwy., South, Building D
Austin, Texas 78746

APPLICANT INFORMATION

Applicant Name: Reunion Ranch WCID

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12912 Hill Country Blvd, Suite F-232
Bee Cave, Texas 78738

Telephone Number: (512) 476-6604

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Application Prepared by: Mark Kestner, PE

Title: District Engineer

Signature:  _____

Date: 04/24/24

1. Introduction

The Reunion Ranch WCID (the “District”) water conservation plan has been developed to meet the LCRA Water Conservation Plan Rules for Water Sale Contracts in accordance with the LCRA Water Contract Rules. This Plan recognizes that conservation is a valuable tool in managing water utility systems.

Benefits of water conservation include:

- extending available water supplies
- reducing the risk of shortage during periods of extreme drought
- reducing water utility operating cost
- improving the reliability and quality of water utility service
- reducing customer cost for water service
- enhancing water quality and the environment.

This Plan applies to all of the District’s retail water customers located within its water service area, as defined in its Water Supply Contract with LCRA.

Appendices

Appendix A - Historical Water Use Data – Table 1

Appendix B - Landscape Conservation Standards

Appendix C - New Pool Construction Standards

2. Utility Profile Information

The proposed service area is approximately 525-acre (0.820 square mile) single-family residential subdivision located south of Ranch-to-Market 1826 in northeastern Hays County. The subdivision is proposed to have 535 residential connections.

As of June 2023, the Reunion Ranch water system had been built out to full capacity. There is a total of 535 residential and HOA common building connections. The estimated residential population is 1,834 people and is comprised of single-family units.

The District will procure all water service via Raw Water Contract with the LCRA and Wholesale Water Service Agreement with the West Travis County Public Utility Agency (WTCPUA). The current contract is 350 acre-feet/year (afy) based on historical water use trends and projected conservation measures.

The water distribution system consists of typical pipes, valves, fire hydrants, and connections designed and specified in accordance with TCEQ rules as well as standard engineering practice.

The system will be designed for a daily capacity of 603,692 gallons, in keeping with the Water Services Agreement.

DISTRICT SIZE

The District has grown from approximately 275 Living Unit Equivalent (LUE) in 2018 to the present Built-Out condition of 535 LUE. The estimated residential population is 1,834 people and is comprised of single-family units or 3.43 people per LUE.

DISTRICT WATER USE AND LOSSES

Water use data from the past five years, since 2018, are attached to this report. The five-year average daily water use was 257,841 gpd. The five-year average water loss as measured by total unmetered use was 3.86% or 423,00 gal/month, 14.10 gpd, or 0.0077 GPCD. All metered use was residential and all unmetered use was classified as loss.

DISTRICT WATER USE DAILY PEAKING FACTOR

The five-year peak to average daily water use was 507,679 gpd/257,841 gpd = 1.97 peaking ratio.

DISTRICT WATER USAGE PER CAPITA (GPCD) AND LIVING UNIT EQUIVALENT (LUE)

Current water use is 160 total gallons per capita per day (GPCD) as of June 2023. or 548 gpd/Living Equivalent Unit (LUE)

3. Water Conservation Goals

The average water use per connection use has continued to decrease during development at a rate of approximately 4% per year. The current water conservation goal is to continue to reduce the per connection use at a rate of 1% per year or (99% X 548gpd) (99% X 160GPCD).

The conservation goals will be addressed by demand management and reusing treated wastewater effluent for irrigation.

The wastewater treatment plant is capable of producing effluent that meets the 210 Type I requirements with a daily average of approximately 56,000 gpd. This treated effluent will be suitable for irrigation of any areas within the service area and will reduce the use of potable water via direct offset. The targeted water reduction can be seen in the table below.

Targeted Water Reduction 10 Year Plan

Year	Base Flow (GPD/LUE)	Base Flow (GPCP)	Base Flow (GPD)	Targeted Percentatge Reduction	Targeted Flow (GPD/LUE)	Savings (GPD/LUE)	Savings (GPCD)	Savings (GPD)
1	548.0	160	293,180.00	1%	542.5	5.5	1.60	2,932
2	542.5	158	290,248.20	1%	537.1	5.4	1.58	2,902
3	537.1	157	287,345.72	1%	531.7	5.4	1.57	2,873
4	531.7	155	284,472.26	1%	526.4	5.3	1.55	2,845
5	526.4	153	281,627.54	1%	521.1	5.3	1.53	2,816
6	521.1	152	278,811.26	1%	515.9	5.2	1.52	2,788
7	515.9	150	276,023.15	1%	510.8	5.2	1.50	2,760
8	510.8	149	273,262.92	1%	505.7	5.1	1.49	2,733
9	505.7	147	270,530.29	1%	500.6	5.1	1.47	2,705
10	500.6	146	267,824.99	1%	495.6	5.0	1.46	2,678

4. Water Conservation Strategies

1. **Meter Calibration required.** The District tests and calibrates master meters to within the accuracy of plus or minus 5%, as well as all meters over 1" in size at intervals not to exceed one year. Meters smaller than 1" are tested and replaced according to manufacturer recommendations.
2. **Metered Usage required.** All connections, including any temporary connections, to the water distribution system are metered. All meters are tested and replaced as necessary, in accordance with manufacturer recommendations.
3. **Loss Audits Required.** The contracted water system operator is required to conduct water loss audits in accordance with all applicable laws.
4. **Continuing Education Required.** Continuing education and information on water conservation will be provided by the District to its customers primarily via informational material included in monthly retail billings. Customers will be informed of rebates for irrigation system equipment, evaluation of pools, and landscapes provided by LCRA to improve water use efficiency.
5. **Tiered Billing Structure.** The rate structure includes a base monthly cost and graduated volumetric rates that increase with usage in order to encourage limited water use. The billing system is capable of separating water-use per customer type into the following categories: residential, commercial, hydrant, tracking, and reclaimed. Further details about billing structure can be found in the currently adopted Rate Order.
6. **Contracts Required.** The primary means of implementation and enforcement shall be contractual, via the retail water service agreement each customer will be required to execute prior to service. Additionally, the Water Conservation Plan will be adopted by the Board of Directors and established as official policy along with the service rates and impact fees.

7. **Coordination with LCRA.** The District will coordinate with the Lower Colorado Region (Region K) of the Lower Colorado Regional Water Planning Group to ensure consistency with the letter and intent of the regional water plans. Once this Water Conservation Plan is approved by the LCRA and adopted by the District, a copy will be made available to the Region K Planning Group.
8. **Irrigation Schedules.** Reunion Ranch watering schedules allow irrigation for homeowners in accordance with LCRA requirements. The exact schedule can be found in the Drought Contingency Plan.
9. **Automatic Metering Infrastructure.** The Board anticipates reviewing the possibility to convert to automatic metering infrastructure as the current equipment reached its end of life anticipated in the next 10 years.

WATER LOSS PREVENTION

Water loss audits are conducted in accordance with TAC 31 §358.6. This includes visually inspecting areas near water mains for evidence of leaks; reviewing water meter readings for excessive values indicative of leaks; checking for unauthorized connections; and any other activities required by the state-trained auditor.

The following table shows water loss per year in million gallons based on the difference between the volume of water delivered at the District master meter and the billing meters.

ADDITIONAL CONSERVATION STRATEGIES

The water conservation-related deed restrictions that are a part of the existing contract between the LCRA and Hays Reunion Ranch L.P. will continue to be implemented.

CONSERVATION LANDSCAPE BEST MANAGEMENT PRACTICES

Irrigation water use accounts for a significant portion of the water use in the District. Landscaping, soil, irrigation systems, and management practices have been specified to conserve water used for irrigation. Details of the Conservation Landscaping Strategies can be found in Appendix B

WATER REUSE

The wastewater treatment plant is capable of treating 80,000 gallons per day, producing effluent that meets the 210 Type I requirements with a daily average of approximately 56,000 gpd. This treated effluent will be suitable for irrigation of any areas within the service area and will reduce the use of potable water via direct offset.

Effluent Re-use facilities will be installed and upgrades to the WWTP will allow for a maximum amount of effluent to be used for irrigation. The district has entered into a Firm Water Conservation Cost-Share Program with LCRA to accomplish the irrigation of common areas in the development and reduce the use of purchased water for irrigation purposes.

The 11.48 acres of drip field are anticipated to require ½ inch of water per week or 24.87 Acre-feet per year or 8,105,000 gallons on average. All effluent not used to keep the fields in working order will be used for irrigation purposes. Irrigation requirements are estimated to be 65 acre/ft in a standard year or (65 acre X 325851) 21,180,315 gallons per year.

Total water reuse for irrigation is therefore the plant total effluent output less the effluent required to keep the drip fields in proper working order (20,440,000 – 8,105,000) 12,335,000 gallons (37.86 acre-feet) in a standard year.

The maximum amount of potable water to be offset by these facilities will vary by rainfall received as the need to keep the disposal fields turf viable must be maintained as a condition of its permitting. On wetter years the drip fields will require less effluent to maintain the disposal fields turf allowing for more effluent to be re-directed to the common area irrigation.

5. Wholesale Water Conservation Plans

Wholesale treated water customers must develop a drought contingency and a water conservation plan in accordance with LCRA Water Contract Rules. The plans must include a governing board resolution, ordinance or other official document noting that the plan has been formally adopted by the utility. Wholesale treated water customers must include in their wholesale water supply contracts the requirement that each successive wholesale customer develop and implement a water conservation and drought contingency plan.

6. Coordination with Regional Water Planning Group

The service area of The District is located within the Lower Colorado River Water Planning Area (Region K) of the State of Texas and the district has provided or will provide a copy of this water conservation plan to the regional water planning group at LCRA, c/o Water Contracts and Conservation, P.O. Box 220, Austin, Texas, 78703.

7. Authorization and Implementation

The District Board President, or his/her designee, is hereby authorized and directed to implement the applicable provisions of the plan. He/she will oversee the execution and implementation of the program and will be responsible for keeping adequate records for program verification. A signed and dated copy of this plan by the general manager, or his/her designee, will be sufficient to meet this requirement.

PLAN IMPLEMENTATION

The District has designated a Water Conservation & Drought Management Committee, who will be responsible for the implementation of this Water Conservation Plan. The Board President or his/her appointed representative may re-appoint this position. At that time, the District will inform LCRA about this personnel change.

Approved by: Dennis B. Daniel, President - Reunion Ranch WCID

Signature:  _____

Date: 4/24/24

(Customer representative with enforcement authority)

Appendix A – Historical Water Use Data – Table 1

WATER

Month	Days	Monthly Water Usage (AF)	Monthly Water Usage (gallons)	Rolling Annual Water Usage (gallons)	Flow (GPD)	3-Month Avg (GPD)	Connections (LUE)	Growth (LUE)	Total Use per LUE (gpd)	Rolling Annual (GPD/LUE)
Jan-14	30.4167	3.45	1,124,186		36,960	-	48	-	770	
Feb-14	30.4167	4.19	1,364,136		44,848	-	53	5	846	
Mar-14	30.4167	2.94	958,002		31,496	37,768	54	1	583	
Apr-14	30.4167	4.45	1,450,037		47,672	41,339	54	0	883	
May-14	30.4167	6.93	2,258,147		74,240	51,136	63	9	1,178	
Jun-14	30.4167	5.85	1,906,228		62,671	61,528	67	4	935	
Jul-14	30.4167	5.87	1,912,745		62,885	66,599	71	4	886	
Aug-14	30.4167	4.25	1,384,867		45,530	57,028	76	5	599	
Sep-14	30.4167	11.45	3,730,994		122,663	77,026	87	11	1,410	
Oct-14	30.4167	11.15	3,633,239		119,449	95,881	91	4	1,313	
Nov-14	30.4167	9.66	3,147,721		103,487	115,199	95	4	1,089	
Dec-14	30.4167	3.81	1,241,492	2,009,316	40,816	87,917	95	0	430	910
Jan-15	30.4167	3.12	1,016,655	2,000,355	33,424	59,242	98	3	341	874
Feb-15	30.4167	2.81	915,641	1,962,981	30,103	34,781	102	4	295	829
Mar-15	30.4167	2.17	707,097	1,942,072	23,247	28,925	101	-1	230	799
Apr-15	30.4167	4.32	1,407,676	1,938,542	46,280	33,210	101	0	458	764
May-15	30.4167	5.58	1,818,249	1,901,884	59,778	43,102	103	2	580	714
Jun-15	30.4167	5.77	1,880,160	1,899,711	61,813	55,957	105	2	589	685
Jul-15	30.4167	7.27	2,368,937	1,937,727	77,883	66,491	116	11	671	667
Aug-15	30.4167	12.85	4,187,185	2,171,254	137,661	92,452	117	1	1,177	715
Sep-15	30.4167	20.04	6,530,054	2,404,509	214,687	143,410	118	1	1,819	749
Oct-15	30.4167	11.33	3,691,892	2,409,397	121,377	157,908	121	3	1,003	724
Nov-15	30.4167	7.43	2,421,073	2,348,843	79,597	138,554	123	2	647	687
Dec-15	30.4167	3.82	1,244,751	2,349,114	40,923	80,632	122	-1	335	679
Jan-16	30.4167	2.41	785,301	2,329,835	25,818	48,779	126	4	205	668
Feb-16	30.4167	6.62	2,157,134	2,433,292	70,919	45,887	131	5	541	688
Mar-16	30.4167	7.12	2,320,059	2,567,706	76,276	57,671	139	8	549	715
Apr-16	30.4167	9.88	3,219,408	2,718,684	105,844	84,346	158	19	670	732
May-16	30.4167	8.52	2,776,251	2,798,517	91,274	91,131	165	7	553	730
Jun-16	30.4167	9.42	3,069,516	2,897,630	100,916	99,344	174	9	580	729
Jul-16	30.4167	19.66	6,406,231	3,234,071	210,616	134,268	180	6	1,170	771
Aug-16	30.4167	18.46	6,015,209	3,386,407	197,760	169,764	182	2	1,087	763
Sep-16	30.4167	14.98	4,881,248	3,249,006	160,479	189,618	183	1	877	685
Oct-16	30.4167	15.81	5,151,704	3,370,657	169,371	175,870	194	11	873	674
Nov-16	30.4167	15.46	5,037,656	3,588,706	165,622	165,157	201	7	824	689
Dec-16	30.4167	10.06	3,278,061	3,758,148	107,772	147,588	210	9	513	703
Jan-17	30.4167	6.32	2,059,378	3,864,321	67,706	113,700	214	4	316	713
Feb-17	30.4167	7.29	2,375,454	3,882,515	78,097	84,525	216	2	362	698
Mar-17	30.4167	7.05	2,297,250	3,880,614	75,526	73,776	225	9	336	680
Apr-17	30.4167	9.97	3,248,734	3,883,058	106,808	86,810	229	4	466	663
May-17	30.4167	15.28	4,979,003	4,066,620	163,693	115,342	233	4	703	676
Jun-17	30.4167	15.81	5,151,704	4,240,136	169,371	146,624	233	0	727	688
Jul-17	30.4167	21.05	6,859,164	4,277,881	225,507	186,190	238	5	948	669
Aug-17	30.4167	30.67	9,993,850	4,609,434	328,565	241,148	243	5	1,352	691
Sep-17	30.4167	23.49	7,654,240	4,840,517	251,646	268,573	246	3	1,023	704
Oct-17	30.4167	21.63	7,048,157	4,998,554	231,720	270,644	247	1	938	709
Nov-17	30.4167	20.49	6,676,687	5,135,140	219,508	234,291	263	16	835	710
Dec-17	30.4167	11.50	3,747,287	5,174,242	123,198	191,475	274	11	450	705
Jan-18	30.4167	7.01	2,284,216	5,192,979	75,097	139,268	275	1	273	701
Feb-18	30.4167	8.01	2,610,067	5,212,530	85,810	94,702	283	8	303	696
Mar-18	30.4167	6.80	2,215,787	5,205,741	72,848	77,919	283	0	257	690
Apr-18	30.4167	13.41	4,369,662	5,299,152	143,660	100,773	288	5	499	692
May-18	30.4167	22.53	7,341,423	5,496,020	241,362	152,623	289	1	835	703

WATER

Month	Days	Monthly Water Usage (AF)	Monthly Water Usage (gallons)	Rolling Annual Water Usage (gallons)	Flow (GPD)	3-Month Avg (GPD)	Connections (LUE)	Growth (LUE)	Total Use per LUE (gpd)	Rolling Annual (GPD/LUE)
Jun-18	30.4167	27.64	9,006,522	5,817,255	296,105	227,042	289	0	1,025	728
Jul-18	30.4167	27.78	9,052,141	6,000,003	297,605	278,357	302	13	985	731
Aug-18	30.4167	35.85	11,681,758	6,140,662	384,058	325,922	308	6	1,247	723
Sep-18	30.4167	30.56	9,958,007	6,332,643	327,387	336,350	308	0	1,063	726
Oct-18	30.4167	11.32	3,688,633	6,052,682	121,270	277,571	312	4	389	680
Nov-18	30.4167	9.52	3,102,102	5,754,800	101,987	183,548	317	5	322	637
Dec-18	30.4167	7.72	2,515,570	5,652,157	82,704	101,987	331	14	250	621
Jan-19	30.4167	7.86	2,561,189	5,675,238	84,203	89,631	338	7	249	619
Feb-19	30.4167	8.91	2,903,332	5,699,677	95,452	87,453	347	9	275	616
Mar-19	30.4167	11.63	3,789,647	5,830,832	124,591	101,416	353	6	353	624
Apr-19	30.4167	17.23	6,153,400	5,979,477	184,583	134,876	358	5	516	626
May-19	30.4167	18.24	6,215,100	5,885,617	195,403	168,193	363	5	538	601
Jun-19	30.4167	23.99	7,816,100	5,786,415	256,968	212,318	371	8	693	573
Jul-19	30.4167	34.77	11,330,100	5,976,245	372,496	274,956	381	10	978	573
Aug-19	30.4167	41.71	13,592,100	6,135,440	446,864	358,776	389	8	1,149	564
Sep-19	30.4167	39.92	13,007,500	6,389,564	427,644	415,668	399	10	1,072	565
Oct-19	30.4167	35.18	11,463,300	7,037,453	376,876	417,128	407	8	926	610
Nov-19	30.4167	15.97	5,204,500	7,212,653	171,107	325,209	415	8	412	618
Dec-19	30.4167	12.93	4,212,800	7,354,089	138,503	228,828	424	9	327	624
Jan-20	30.4167	11.93	3,888,400	7,464,690	127,838	145,816	426	2	300	628
Feb-20	30.4167	10.93	3,560,500	7,519,454	117,058	127,799	432	6	271	628
Mar-20	30.4167	14.20	4,628,400	7,589,350	152,167	132,354	443	11	343	627
Apr-20	30.4167	22.95	7,478,100	7,699,742	245,855	171,693	453	10	543	629
May-20	30.4167	27.38	8,921,400	7,925,267	293,306	230,443	459	6	639	638
Jun-20	30.4167	36.00	11,730,000	8,251,425	385,644	308,268	463	4	833	649
Jul-20	30.4167	43.79	14,267,500	8,496,208	469,068	382,673	468	5	1,002	651
Aug-20	30.4167	47.39	15,441,900	8,650,358	507,679	454,130	474	6	1,071	645
Sep-20	30.4167	30.65	9,987,100	8,398,658	328,343	435,030	481	7	683	613
Oct-20	30.4167	34.00	11,079,800	8,366,700	364,267	400,096	485	4	751	598
Nov-20	30.4167	24.21	7,888,300	8,590,350	259,341	317,317	489	4	530	608
Dec-20	30.4167	15.60	5,084,300	8,662,975	167,155	263,588	496	7	337	609
Jan-21	30.4167	13.10	4,267,100	8,694,533	140,288	188,928	498	2	282	607
Feb-21	30.4167	13.96	4,548,900	8,776,900	149,553	152,332	502	4	298	609
Mar-21	30.4167	18.82	6,133,000	8,902,283	201,633	163,825	504	2	400	614
Apr-21	30.4167	25.80	8,406,200	8,979,625	276,368	209,185	506	2	546	614
May-21	30.4167	22.60	7,365,000	8,849,925	242,137	240,046	506	0	479	601
Jun-21	30.4167	32.82	10,693,700	8,763,567	351,574	290,026	516	10	681	588
Jul-21	30.4167	36.22	11,803,300	8,558,217	388,054	327,255	519	3	748	567
Aug-21	30.4167	42.30	13,784,000	8,420,058	453,173	397,600	523	4	866	550
Sep-21	30.4167	43.99	14,334,500	8,782,342	471,271	437,499	524	1	899	568
Oct-21	30.4167	32.68	10,647,200	8,746,292	350,045	424,830	526	2	665	561
Nov-21	30.4167	22.04	7,182,900	8,687,508	236,150	352,489	527	1	448	554
Dec-21	30.4167	18.11	5,902,200	8,755,667	194,045	260,080	528	1	368	557
Jan-22	30.4167	13.90	4,528,000	8,777,408	148,866	193,020	529	1	281	557
Feb-22	30.4167	12.90	4,202,800	8,748,567	138,174	160,362	530	1	261	554
Mar-22	30.4167	22.82	7,434,900	8,857,058	244,435	177,158	531	1	460	559
Apr-22	30.4167	30.41	9,908,000	8,982,208	325,742	236,117	532	1	612	564
May-22	30.41667	35.50	11,568,400	9,332,492	380,331	316,836	533	1	714	584
Jun-22	30.41667	44.68	14,557,400	9,654,467	478,599	394,891	534	1	896	602
Jul-22	30.41667	46.57	15,175,700	9,935,500	498,927	452,619	534	0	934	617
Aug-22	30.41667	39.75	12,953,200	9,866,267	425,859	467,795	534	0	797	611
Sep-22	30.41667	38.24	12,460,500	9,710,100	409,660	444,815	534	0	767	600
Oct-22	30.41667	35.03	11,415,800	9,774,150	375,314	403,611	534	0	703	603

WATER

Month	Days	Monthly Water Usage (AF)	Monthly Water Usage (gallons)	Rolling Annual Water Usage (gallons)	Flow (GPD)	3-Month Avg (GPD)	Connections (LUE)	Growth (LUE)	Total Use per LUE (gpd)	Rolling Annual (GPD/LUE)
Nov-22	30.41667	21.27	6,930,100	9,753,083	227,839	337,604	534	0	427	602
Dec-22	30.41667	15.57	5,074,700	9,684,125	166,839	256,664	535	1	312	597
Jan-23	30.41667	14.73	4,800,100	9,706,800	157,812	184,163	535	0	295	598
Feb-23	30.41667	11.98	3,903,000	9,681,817	128,318	150,990	535	0	240	596
Mar-23	30.41667	14.04	4,574,200	9,443,425	150,385	145,505	535	0	281	582
Apr-23	30.41667	17.85	5,818,000	9,145,238	191,277	156,660	535	0	358	560
May-23	30.41667	29.64	9,657,000	8,943,308	317,490	219,717	535	0	593	550
Jun-23	30.41667	25.67	8,366,000	8,427,358	275,047	261,271	535	0	514	518
Jul-23	30.41667	42.91	13,982,000	8,327,883	459,682	350,740	535	0	859	512
Aug-23	30.41667	40.64	13,244,000	8,352,117	435,419	390,049	535	0	814	514
Sep-23	30.41667	39.50	12,871,000	8,386,325	423,156	439,419	535	0	791	516
Oct-23	30.41667	30.56	9,957,000	8,264,758	327,353	395,310	534	-1	613	508
Nov-23	30.41667	20.40	6,646,000	8,241,083	218,499	323,003	535	1	408	507
Dec-23	30.41667	15.58	5,076,000	8,241,192	166,882	237,578	535	0	312	507
Jan-24	30.41667	15.42	5,023,000	8,259,767	165,140	183,507	535	0	309	508
Feb-24	30.41667	10.89	3,548,000	8,230,183	116,647	149,556	535	0	218	506
Mar-24	30.41667	21.05	6,859,000	8,420,583	225,501	169,096	535	0	421	518

Appendix B - Landscape Conservation Standards

Planting Specifications:

1. Landscape Option: Builders shall offer homeowners a conservation landscape package such as the LCRA Hill Country Landscape Option (HCLO) which includes only plants selected from Central Texas native and adapted plant list such as the Grow Green Native and Adapted Landscape Plants Guide (available at www.austintexas.gov/department/grow-green) or other native plant source.
2. Turf Selection: Turf that is used as part of the landscape package shall be the appropriate variety for the site location and intended use (see below).

Variety	Drought Tolerance	Shade Tolerance	Heat Tolerance	Wear Tolerance	Water Tolerance	Growing Height
Bermuda Hybrids of Bermuda grass Tifgreen, Tifdwarf, Tifway and Santa Ana	Good	Poor	Good	Excellent	Medium	½ - 2 inches
Zoysia (Japonica)	Fair	Fair (JaMur)	Good	Good	Medium	¾ - 2 inches
Buffalo (Prairie or 609)	Excellent	Poor	Excellent	Good	Low	3 – 8 inches

3. Invasive Plants: Plants considered to be invasive or environmentally detrimental shall not be used. For a list of invasive plants reference the Texas administrative Code Title 4 Part 1 Chapter 19 Subchapter T Rule 19.30 paragraph a, and City of Austin watershed protection document “Central Texas Invasive Plants”.
[https://texreg.sos.state.tx.us/public/readtac\\$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=4&pt=1&ch=19&rl=300](https://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=4&pt=1&ch=19&rl=300)
<https://www.austintexas.gov/sites/default/files/files/Watershed/growgreen/plantguide.pdf>
4. Turf Limitation: In new homes, no more than 50 percent of the landscape may be planted in turf.

Soil Specifications:

1. Soil Depth: All irrigated and newly planted turf areas will have a minimum settled soil depth of at least 6 - 8 inches:
 - a. builders and owners will import soil if needed to achieve sufficient soil depth;
 - b. soil in these areas may be either native soil from the site or imported, improved soil;

- c. improved soil shall have a minimum organic content of 5 percent or will be an amended mix of no less than twenty percent compost blended with sand and loam (caliche shall not be considered as soil);
 - d. undisturbed, non-irrigated natural areas are exempt from these requirements.
2. Soil in new developments:
- a. native soil shall be stockpiled and reused on site;
 - b. topsoil that is added to the site shall be incorporated in a 2 to 3 inch scarified transition layer to improve drainage.

Irrigation System Installation, Design, and Maintenance Specifications:

1. Irrigation systems: Landscape irrigation systems shall not be mandatory.
2. Installation: Irrigation systems, if installed, shall be designed, installed, inspected, and maintained according to TCEQ Chapter 344 Landscape Irrigation rules, as well as the following additional criteria:
 - a. New irrigation systems utilizing an automatic controller must be capable of (at minimum) the following functions:
 - i. Multiple irrigation programs, with at least three (3) start times per program; and
 - ii. The ability to limit irrigation frequency to a weekly schedule as well as once every seven (7) days and once every fourteen (14) days.
3. Spray Irrigation: Spray irrigation for each home/business shall be limited to 2.5 times the foundation footprint, with a 12,000 sq foot maximum. The footprint may include both the house and the garage, but not the driveway or patio.
4. Common areas: Irrigation systems for entryways and common areas shall incorporate design and conservation features applicable to lot types within the subdivision. Drip irrigation in common areas will be used where feasible. Color-bed changes and turfgrass overseeding in common areas is prohibited
5. Watering Schedule: The developer, builder and/or homeowner association shall promote a watering schedule for both residences and common areas which conserves water and reduces run-off, as follows:
 - March through October - 1/2 inch of water in accordance with the watering schedule
 - November through February – turn off irrigation system
6. Additionally, as customers of the District, water users may irrigate outdoors using an inground irrigation system or hose-end sprinkler no more than the scheduled days and times as directed by the Board from the schedules indicated below:
 - a. In accordance with the current Drought Contingency Plan.
 - b. In a schedule approved by the Board by majority vote in accordance with contractual obligations.
7. Monitoring: Irrigation systems in common areas shall be monitored once per month, and any repairs will be made in a timely manner.

8. Time of Day Irrigation: Watering of common areas and residential landscapes shall be limited to the recommended watering schedule days and times unless irrigation is with reclaimed water or is necessary to meet regulatory requirements.
9. Automated irrigation systems shall not be required in any new landscape. However, if irrigation is installed it shall meet the guidelines outlined in this section.
10. All irrigation systems shall be installed in accordance with state law, Title 2 Texas Water Code, Chapter 34, and Title 30 Texas Administrative Code, Chapter 344 rules, as regulated and enforced by TCEQ. Irrigation contractors who install the irrigation systems must be TCEQ-licensed irrigators.
11. Drip irrigation shall be used for all irrigated landscaped areas, excluding turf. Turf can be irrigated with drip, but drip irrigation is not required.
12. Areas planted with turf shall be on separate zones from areas planted with shrubs, trees or perennials.
13. Hydro zoning of all areas that are irrigated automatically will be scheduled with plants with similar watering needs.
14. All automatic irrigation systems are required to have a rain sensor, a soil moisture sensor and/or a weather sensor connected to an irrigation controller to stop the irrigation cycle during and after a rainfall event. Rain sensors are to be installed in a location where rainfall is unobstructed. Rain sensors should be adjusted at the ¼-inch setting.
15. Sprinkler irrigation is prohibited in median strips, parking islands and all landscape areas less than 10 feet from curb to curb or 10 feet in width. Areas less than 10 feet curb-to-curb or 10 feet in width can be irrigated with low-volume irrigation. Low-volume irrigation (subsurface drip irrigation or drip irrigation) shall be installed in long landscape strips less than 10 feet in width to avoid runoff and overspray onto the hardscape.
16. All new residential irrigation systems are required to have pressure regulation where static operating pressure exceeds the sprinkler manufacturer's recommended operating range to eliminate extensive misting. These may include in-line pressure regulators, flow control valves, or sprinkler devices equipped with pressure regulation stems or nozzles.
17. Irrigation systems are to have a controller that features multiple start times, rain sensor capability, a water budget feature, and a non-volatile memory in case of power outage.
18. Scheduling recommendations shall be posted inside or immediately near the controller enclosure box for easy reference.
19. Homeowners shall be provided with a complete irrigation plan (or as-built drawing) that describes the location of each irrigation zone, control valves, and sprinkler devices.
20. Sprinkler systems shall be designed with no overspray onto the hardscape.
21. Sprinkler zones located at the bottom of sloped terrain along curbs, sidewalks, driveways, and other hardscapes should be equipped with devices that prevent low-

head drainage after the sprinkler zone is turned off. In-line check valves and sprinkler heads with check valves already installed will help prevent low-head drainage.

22. No more than 50% or up to 7,000 square feet of the landscape shall be planted in turf. Longer leafed native grasses and wildflowers that use low amounts of water are not considered turf grass when determining how much turf grass is allowed.
23. Automatic spray irrigation for each home/business shall be limited to 2.5 times the foundation footprint, with a 12,000-square-foot maximum. The footprint may include both the house and the garage, but not the driveway or patio.

These standards are similar to the Greater Austin Homebuilder “Sensible Landscaping for Central Texas” guidelines developed with significant input from the LCRA. The standards are meant to provide builders and homeowners with a well-designed, water-efficient landscape. The standards can be adopted through ordinance, deed restriction or covenant where economically feasible and allowed by federal, state and local law.

Soil

1. There shall be no less than 3 inches of high-quality topsoil in planted areas.
2. Topsoil shall be native soil from the site, or fertile, friable, blended soil/compost blend. Topsoil shall not be of any admixture of subsoil or slag and shall be free of stones over 1½ inches in diameter, lumps, refuse, plants or their roots, sticks, noxious weeds, salts, soil sterilants or other material that is detrimental to plant growth. If topsoil is delivered, it shall be obtained from a well-drained site that is free of flooding. Topsoil shall not be delivered or spread while in a muddy condition.
3. Non-native topsoil shall contain not less than 25 percent organic matter (compost) that is blended through the soil.
4. Topsoil that is added to the site shall be incorporated into the existing surface in a two- to three-inch scarified transition layer to enable water to drain adequately through the different types of soil. Do not scarify within the drip line of existing trees that are to be retained.

Plant Choice

1. Plants used must be native and drought tolerant.
2. For a list of native plants reference University of Texas at Austin, Lady Bird Johnson Wildflower Collection – Plants for Central Texas, and the City of Austin watershed protection document “Native and Adapted Landscape Plants an Earthwise guide for Central Texas”.

- a. <https://www.wildflower.org/collections/>
 - b. <https://www.austintexas.gov/sites/default/files/files/Watershed/growgreen/plantguide.pdf>
3. Turf grasses should be limited to low water use turfs. St. Augustine grasses should not be planted.
 4. Invasive plants shall not be used.

Plant Prepping

1. A hole dug for the plant or tree should be two to three times wider than the container or root ball in which the plant is being stored, ensuring water is able to be absorbed by the plant's roots.
2. The existing soil should be blended with compost before the sodding or seeding with the recommended turfgrass.

Plant Placement and Spacing

Proper plant placement and spacing is critical to plant health and long-term landscape quality. Placing plants too close to buildings can cause problems with plant disease, as well as insect and structural problems. Proper plant spacing helps ensure good air flow and room for plants to mature without crowding. Consider the mature height and width of plants before planting them.

Mulch

1. All areas planted with trees, perennials and shrubs shall be finished with a **2- to 4-inch-deep** layer of high-quality 50/50 blend of organic mulch and compost blend.
2. Wood chip mulch shall be clean wood chips free of man-made debris, shredded into coarse pieces ranging from 1 to 3 inches.
3. Rock mulch shall be used in planting beds only as temporary mulch until full plant coverage is achieved, or as permanent mulch in areas with native shrubs and perennials.

Maintenance

1. Replenish mulch/compost blend in non-turf areas every two years at a minimum. Doing so during the fall and spring is recommended.
2. Aerate turfgrass within the first year of construction and twice a year after that (about Oct. 1 and March 1).
3. Top dress turfgrass areas with quality compost twice a year (about Oct. 1 and March 1) at a depth of $\frac{1}{4}$ to $\frac{1}{2}$ inch following the aeration and drag or rake it into the canopy and aeration holes.
4. Set the automatic irrigation system back to a normal schedule after the establishment period.

Appendix C – New Pool Construction Standards

- A. Private residential swimming pools shall not be installed with sand media filters.
- B. Pool water features installed with public swimming pools or private residential swimming pools must be designed so the water feature can be turned off without affecting the filtering capabilities of the pool. Automatic pool fill features must be designed so they can be turned off in both public and private residential swimming pools.
- C. Pools with shared water between the pool and spa shall be designed so water can be shared without the necessity of an above-ground water feature that cannot be turned off. If a water feature between the spa and the pool exists, the default setting will be for it to be turned off.
- D. Automatic pool fill features must include an automatic pool shut-off feature.
- E. Vanishing or negative edge pools must be designed with catch basins large enough to prevent splashing that leads to increased water use.
- F. Backwash systems must be designed so they may be turned off.
- G. Pool skimmers should be managed in such a way as to minimize water consumption. The range of allowable water within the skimmer fill range should allow for several inches of evaporative loss prior to filling. All residential swimming pools shall have a hose end timer installed at the nearest hose bib location. In addition, a hose bib back-flow prevention device must be connected to the hose bib fixtures nearest to the pool.