Kyle Canyon Water District

WATER CONSERVATION PLAN

August 2009

Background

The Kyle Canyon Water District was formed on December 5, 1973, as a 318 General Improvement District of Clark County. Clark County administers the district, but the water system has been maintained and operated by the Las Vegas Valley Water District through a contract with Clark County since 1974.

Kyle Canyon has 500 buildable land parcels and 1,128 residents. There are 369 service connections established (358 residential, 11 other). Of these connections, only 329 are currently active or in use. The remaining service connections are inactive for a variety of reasons, including ownership transitions, seasonal residency and postponed development.

Physical Setting
Kyle Canyon is located in Clark County approximately 35 miles from downtown Las Vegas on Mount Charleston in the Toiyabe National Forest. Kyle Canyon sits at approximately 6,800 feet above sea level and is a heavily wooded residential area surrounded by dense vegetation including joshua, juniper, ponderosa, bristlecone and piñon pine, and white fir trees.

Climate
Kyle Canyon experiences four seasons. Summer is extremely dry on the mountain with temperatures averaging 20-30 degrees cooler than in the Las Vegas Valley. Winter temperatures are regularly below freezing, with snow conditions occurring between November and April each year. The mountain receives 10.5 inches of precipitation on average.

Water System
The Kyle Canyon Water System is divided into four major residential subdivisions that are served by four groundwater wells and four reservoirs. The system's water rights (permits 62265, 62266, 62267 and 62268) have a total combined duty of 480.895 acre-feet per year.

Historically, a variety of health, safety and distribution issues have challenged the system, including rapid growth, a series of well and reservoir outages, and broken lines due to freezing and age. A series of system improvements, including the current Kyle Canyon System Improvements Project, have resulted in improved system reliability, water quality, fireflow and reduced system loss.

The cost for improvements has been funded by a combination of Clark County sales tax revenues earmarked for water and wastewater infrastructure, state and federal grants and customer rate increases. Kyle Canyon's residential water rates have increased from $28.00 per month in 1993 to $71.00 per month in 2009.

In order to fund future needed and improvements, and in compliance with grant requirements, the Kyle Canyon Water District has established a depreciation account that will help to offset financial impacts of future infrastructure needs and asset replacements.

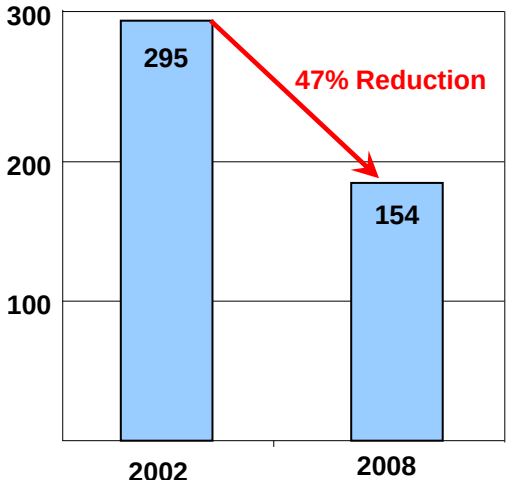
WATER CONSERVATION

Conservation History and Consumption Estimates

Kyle Canyon is a verdant mountain community, contrasting dramatically with the desert valley below. In winter, the community often receives several feet of snow that support the green environment during spring runoffs. However, the mountain becomes exceptionally dry during summer and fall, resulting in extreme fire danger. The perception of an abundance of water, coupled with the threat of fire, led to extremely high water consumption for many years. This trend peaked in 2002, when consumption levels reached 295 gallons per capita per day (GPCD).

In response, the Kyle Canyon Water District adopted its first conservation plan on June 18, 2002. Since that time, Kyle Canyon has reduced its water consumption by more than 45 percent to 154 GPCD in 2008.

The "gallons per capita per day" metric is used by some communities to measure water consumption and as a general means of establishing conservation goals and water-use benchmarks for tracking purposes. A variety of factors influence per capita use, including climate, demographics, building density, and local business or industrial water use.



Kyle Canyon water use in terms of Gallons Per Capita per Day (GPCD)

The total community GPCD is calculated by first dividing the total annual well production by the estimated population of Mount Charleston, then dividing by the days in a year (365). Population figures are drawn from the Clark County Department of Comprehensive Planning Southern Nevada Consensus Population Estimate each year[1].

For the Kyle Canyon Water District, challenges exist with calculating a usable GPCD for conservation purposes. First, a majority of water service points in Kyle Canyon are not metered, making it impossible to quantify total system loss. Many communities include system loss in their calculation of GPCD. However, without meter information, increases in consumption cannot be determined to be caused by increased customer demands with any degree of certainty.

Second, the make-up of Kyle Canyon's residential population is unique in Southern Nevada. Only an estimated 50 percent of homeowners in Kyle Canyon are full-time residents. This ratio fluctuates from year to year, causing the Clark County population estimates to vary by as much as 30 percent from one year to the next.[2] As a result, some

[1] The estimated population was 975 in 2002 and 1,128 in 2008.

[2] From 2006 to 2007, the population rose from 822 to 1,205. The average annual population change since 2000 was an increase of 26.

shifts in GPCD may be the result of changes in the percentage of full-time residents, not a change in consumption behaviors.

Despite these challenges, a consistently applied method of measurement is the best and most accurate tool to measure the system's overall progress from year to year. Although these estimates should not be compared to other communities, it is clear that significant conservation gains have been achieved within Kyle Canyon since 2002.

Water Conservation Measures

Building on past success, this conservation plan will maintain the current conservation tools employed in Kyle Canyon. These primary conservation tools were designed to target non-essential water use and waste. The effect has been to moderate seasonal demands as necessary, subsequently increasing the overall system reliability. In this conservation plan, additional tools will complement the core components of the existing plan to achieve further conservation gains.

Current Conservation Measures

The Kyle Canyon Water District will maintain the following measures currently in place to maintain water conservation for Kyle Canyon:

1) Conservation Ordinances

Clark County has developed water waste and development ordinances which are applicable to Kyle Canyon as part of the unincorporated area of Clark County. Kyle Canyon is subject to the following conservation-related ordinances:

Comprehensive Development Code – Title 30.64

- Turf limitations
- Fountain restrictions
- Waste of water from public water system
- Water use restrictions

The full details of these ordinances are provided in Appendix A.

2) Water Management Plan

In June 2003, the Kyle Canyon Water District adopted a Water Management Plan with input from the community. The plan promotes conservation and prepares Kyle Canyon residents for potential water shortages and service interruptions. This is done by establishing measures that reduce customer demands to extend the use of local groundwater supplies.

In order to achieve targeted reductions during times of supply shortage, such as drought or emergency conditions, the plan establishes water supply conditions that are primarily determined by the water levels in Kyle Canyon's wells. The four Operating Condition levels are determined as follows:

Sustainable:
In the sustainable stage, water supplies from the groundwater aquifer are sufficient to meet the needs of the Kyle Canyon community. This stage is triggered when water supplies are being used at a rate that doesn't exceed one or more of the wells' ability to naturally recharge. Water levels in each of the community wells are stabilized, and there's no immediate concern of infrastructure failure.

Concerned:
The concerned stage implies that water supplies from the groundwater aquifer are being used at a rate consistent with the wells' ability to naturally recharge. This stage is triggered when water levels fall below the following operating stages:

- Echo Well No. 3 - 90 ft. from surface
- Echo Well No. 4 - 170 ft. from surface
- Echo Well No. 5 - 120 ft. from surface
- Rainbow Well - 145 ft. from surface

Critical:
In the critical stage, water supplies from the groundwater aquifer are being depleted at a rate higher than one or more of the wells' ability to naturally recharge. Well failure is highly likely or imminent. This stage is triggered when water levels fall below the following operating stages:

- Echo Well No. 3 - 110 ft. from surface
- Echo Well No. 4 - 230 ft. from surface
- Echo Well No. 5 - 140 ft. from surface
- Rainbow Well - 165 ft. from surface

Emergency:
The emergency stage indicates that a well outage, infrastructure failure or water quality issue has occurred. During emergency conditions, all or part of the community's water system has failed and resources are not adequate to meet the demands of the community.

In addition to well levels, staff consider several other factors in making an operating condition determination, including but not limited to, anticipated or actual higher demands for water, system failure or water quality issues.

In order to reduce water use and protect groundwater supplies, irrigation restrictions go into effect when an elevated Operating Condition is declared. Table1 below, outlines the "day of week" watering restrictions that apply under each Operating Condition.

Table 1.

KYLE CANYON WATERING SCHEDULE BY ADDRESS				
Operating Condition	**Spring May - June**	**Summer July - August**	**Fall September - 1st freeze**	**Winter 1st freeze - April**
Sustainable	Responsible water use	Responsible water use	Responsible water use	No outdoor irrigation
Concerned	Group 1: Mon Group 2: Tues	Group 1: Mon, Thur Group 2: Tues, Fri	Group 1: Mon Group 2: Tues	No outdoor irrigation
Critical	Group 1: Thurs Group 2: Tues	Group 1: Thurs Group 2: Tues	Group 1: Thurs Group 2: Tues	No outdoor irrigation
Emergency	No outdoor irrigation			
Saturday or Sunday: Hand-watering only, unless emergency conditions exist.				
Group 1 – Addresses ending in even numbers, **Group 2 –** Addresses ending in odd numbers				

Changes in Operating Conditions are communicated to the public on several levels. An official public notice is posted, visible signage is posted at two key locations in the community and members of the Town Advisory Board and individual residents are notified by way of phone calls, direct mail, e-mail, or any combination thereof.

3) Service Rules – Conservation and Demand Management

The Kyle Canyon Water District Service Rules were amended in 2003 to define the following as water waste. Water waste violations are subject to penalties if not corrected.

- Malfunctioning irrigation device or supply line, where the customer or their agent has known of the problem for more than 48 hours;
- Washing vehicles, equipment, driveways, parking lots, sidewalks, streets, or other surfaces or objects where water is allowed to flow off the parcel for a continuous period of five minutes or greater;
- Using spray irrigation (sprinklers) between the hours of 11:00 a.m. and 7:00 p.m. during summer months (July and August);
- Under an Operating Condition declaration, non-compliance with regulations relating to watering assignments shall be considered water waste.

In accordance with Service Rules, customers are notified of observed waste and allowed a prescribed period of time to take corrective action. Subsequent violations result in a formal violation notice and fee assessment according to the following schedule in Table 2:

Table 2.

Sustainable, Concerned, and Critical Schedule					
Meter Size	**1st Violation**	**2nd Violation**	**3rd Violation**	**4th Violation**	**5th+ Violation**
1" and Less	**$100**	**$100**	**$100**	**$160**	**$320**
Over 1" but less than 3"	**$120**	**$140**	**$160**	**$320**	**$640**
3" and over	**$140**	**$160**	**$320**	**$640**	**$1,280**

Emergency Schedule					
Meter Size	**1st Violation**	**2nd Violation**	**3rd Violation**	**4th Violation**	**5th+ Violatio**
1" and Less	**$120**	**$140**	**$160**	**$200**	**$400**
Over 1" but less than 3"	**$140**	**$160**	**$180**	**$400**	**$800**
3" and over	**$160**	**$200**	**$400**	**$800**	**$1,600**

A copy of the Kyle Canyon Service Rules, Section 11: Conservation and Demand Management is attached as Appendix B for reference.

4) Water Waste Investigations

Water waste investigations have and will be performed to enforce the water waste regulations outlined above. Staff will continue regular water waste investigations to observe and document any water waste and take the appropriate follow-up action. During elevated Operating Conditions, the frequency of investigations is increased in accordance with the heightened gravity of wasting water resources and potential associated impacts.

5) Leak Detection

The geology and soil conditions in the Kyle Canyon area allow water to percolate underground rather than surfacing, making leaks difficult to observe. This problem has been exacerbated by the aging infrastructure that makes up a majority of the distribution system.

In 2007, the Kyle Canyon Water District obtained funding to install a system-wide Metrolog leak detection system. The equipment was installed and is used to monitor the distribution system regularly. When unusual usage patterns are identified, staff works to locate and repair leaks within the distribution system and help residents to identify and address service leaks. Ongoing leak detection and remedy will continue to help maintain existing GPCD levels.

6) Conservation Hotline

The Southern Nevada Water Authority operates a Conservation Helpline (258-SAVE) that will continue to be available to Kyle Canyon residents. The Hotline is a resource for customers to ask conservation questions, report water waste, or obtain additional water conservation information. Any water waste reported through the conservation hotline is addressed through the water waste investigation process described above.

Future Conservation Measures

At a minimum and during the five-year planning horizon, the Kyle Canyon Water District will implement and/or expand the following measures to achieve additional water conservation for Kyle Canyon (an estimate of reductions to be achieved through the implementation of each measure is included in brackets):

7) Install Water Meters and Implement Conservation Water Rates [13 GPCD]

The installation of water meters will help to measure customer water use, volumes and patterns. This information will provide a valuable tool in helping to plan future infrastructure needs for the area, as well as identifying system leaks and losses. According to a U.S. Department of Housing and Urban Development report, meters coupled with a consumption-based rate structure yields an average of 13–45 percent lower water use than unmetered customers. Based on this estimate, the Kyle Canyon Water District could realize water savings of 13 GPCD or more.[3]

In 1996, the Kyle Canyon Water District initiated a pilot program designed to study the effectiveness of installing individual water meters at residences in the Kyle Canyon area. The program included the installation of individual meters at a total of 28 residences in varying home and lot sizes throughout Kyle Canyon. Today, approximately 100 meters have been installed and are read monthly. The current Kyle Canyon Systems Improvements Project includes the installation of meters on all remaining services. The project is underway and installation is scheduled to be complete in late 2010. Following meter installation, a new conservation water rate structure will be developed and implemented. One component of the rate structure will include charges based on consumption—higher consumption of water will result in higher rates.

8) Expanded Automated Meter Reading Pilot Program [2 GPCD]

In conjunction with the installation of meters, all service accounts will be equipped with an Automated Meter Reading (AMR) device. The AMR generates a series of reports with information specific to each meter. One such report lists all meters that have recorded constant water flow for 24 consecutive hours, prior to the meter read. Letters will be issued to all accounts that indicate continual water use to notify the customer of a possible leak and provide information to help locate and repair the problem.

Water savings from this measure is expected to be intermittent and seasonal. However, the use of AMR technology will help residents to detect and resolve leak issues early on, enabling them to repair leaks much sooner than is currently possible.

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[3] Estimated GPCD reduction is based on residential water use only. Commercial water use patterns are not expected to change dramatically as a majority of commercial use is attributed to visitors.

9) Perform Indoor Water Audit Survey and Fixtures Retrofit [2 GPCD]

Indoor and outdoor water use audits will continue to be provided to assist Kyle Canyon residents in identifying leaks and high water use areas within the home. The audits provide tools and reference materials that aid in water conservation, including high efficiency water devices.

Based on Southern Nevada Water Authority (SNWA) conservation estimates, over 300 homes in the Kyle Canyon area were built prior to 1994, when NRS Chapter 278 established building codes that require more efficient water fixtures. The codes include limitations on water flow on shower fixtures, toilets and faucets. Updating toilets, faucets and showerheads that were installed prior to 1994 can help conserve water. Table 3 identifies common household fixtures and their associated water efficient rates of flow before retrofit and post retrofit, assuming they are retrofitted with water-efficient fixtures.

If half of the residents in the 300 older homes replaced just two faucets and installed one flapper in an existing toilet fixture, it is estimated that the community could reduce its water use by 2 GPCD.

Table 3.

Fixture	Non-Efficient	Efficient	Estimated Savings
Toilet	3.5 – 7.0 gallons per flush	1.3 gallons per flush	1.2 - 5.7 gallons per flush
Shower	Varies	2.0 – 2.5 gallons per minute	2,000 gallons of water annually saved when two faucets / showerheads are replaced
Sink	Varies	1.5 gallons per minute (bathroom) 2.2 gallons per minute (kitchen and laundry)	
Washing Machines	41 gallons per load	28 gallons per load	13 gallons per load
Dishwashers	9 – 12 gallons per load	4 – 7 gallons per load	Up to 8 gallons per load

10) Encourage Drip Irrigation for Trees and Shrubs [1 GPCD]

Residential landscapes in Kyle Canyon feature mature trees and shrubs that provide shade, absorb carbon dioxide, reduce soil erosion, provide homes for wildlife, decrease energy use, lessen noise pollution, lower air temperatures and reduce storm runoff. While trees and shrubs provide a host of benefits, they can also be a source of inefficient watering practices. Many Kyle Canyon residents use hand-placed sprinklers or hand water to irrigate their landscapes. Drip systems are substantially more water efficient and low-maintenance compared with sprinkler or hand irrigation. Drip systems limit the amount of water wasted and provide a deeper soak than sprinklers.

Kyle Canyon residents will be encouraged to utilize drip systems to water trees and shrubs. Residents are also encouraged to visit snwa.com for more

information about drip emitters or visit the Springs Preserve, which offers classes on the installation of drip irrigation systems.

11) Encourage Native Landscaping When Planning Upgrades [>1 GPCD]

The SNWA conducted a five-year study that documented substantial water use reductions by converting turf grass to xeric and/or drought-tolerant plant material. The study found that residents in Southern Nevada annually applied an average of 73 gallons of water per square foot of turf, but just 17.2 gallons annually per square foot after converting turf areas to "water smart" landscape plantings. Consequently, it is estimated that landscape conversions can save approximately 55 gallons of water per square foot converted annually.

Although most landscapes in Kyle Canyon feature species native to the mountain environment, a handful of properties include large areas of ornamental turf. While not intending to single-out a small group of customers, all residents will be encouraged to utilize native and drought-tolerant plants when making landscape changes.

12) Educational Programs/Public Outreach [1 GPCD]

A) *Water Watch* Newsletter – The Las Vegas Valley Water District will continue to publish the *Water Watch* quarterly bill insert to educate Kyle Canyon residents on conservation issues and techniques specific to the area.

B) Classes – In conjunction with the implementation of a conservation rate structure, staff will offer a water conservation class to recommend tools and practices that will help households to reduce their water use and minimize future water bills. These will include, but are not limited to, workshops on winterizing a plumbing system to avoid leaks or the practice of leaving faucets running; water smart irrigation and landscape practices; defensible space; and home fixture and appliance retrofits. Class offerings will be scheduled to assist customers in reducing their water use prior to and shortly following the implementation of a conservation water rate.

C) Information Fairs – Participating in community information fairs provides an opportunity to educate members of the community that do not typically attend Town Advisory Board Meetings, etc. Staff will provide written materials and be present to discuss conservation, system conditions, improvement projects and other general questions.

D) Youth Education – The *Water's Edge* publication is provided to all students in Kyle Canyon. *Water's Edge* is an educational newspaper for school children (K-5) that provides information on water issues, including conservation. In addition, a conservation-based school tour of the Springs Preserve will be encouraged for the community elementary school.

Drought and Emergency Contingency Plan

The Kyle Canyon Water Management Plan, as described in preceding sections, is designed to help the community respond to drought and short-term emergency

conditions. It focuses on reducing non-essential uses and waste through successive levels of drought severity and prohibits all water use during short-term emergency conditions. In addition, multiple methods of customer notification are outlined to ensure that customers are aware of elevated Operating Conditions and the associated water use restrictions.

In addition, the Las Vegas Valley Water District, U.S. Forest Service, Nevada Division of Forestry and Mount Charleston Volunteer Fire Department work closely together to implement response plans to emergency fire events. Fire response agencies strive to protect the area's water resources by utilizing imported water whenever possible. However, to support their efforts, the Las Vegas Valley Water District developed an emergency response plan. When notified, staff will adjust well operations to maximize available water resources and ensure a reliable water supply for residents.

In addition, the current Kyle Canyon System Improvements Project includes the installation of a bypass pipeline to the Rainbow subdivision. The pipeline will allow water from the Echo Wells to supplement the Rainbow Well supply in the event of an emergency, regardless of power availability.

Implementation

Kyle Canyon's current conservation program is comprehensive and effective. Since 2002, the Las Vegas Valley Water District has worked diligently to reduce excessive water use in Kyle Canyon and protect the area's water system. These efforts have achieved a remarkable 45 percent reduction in per capita water use—from 295 GPCD in 2002, to 154 GPCD in 2008.

Although the community may experience diminishing returns over the short-term, it is anticipated that the installation of meters and implementation of a conservation rate structure will generate significant water savings within the next five years and over the long-term. Reductions from this measure are expected grow over the first 2-5 years after the implementation of a conservation rate structure.

In addition to these major activities, the District will also employ several measures to complement and expand upon the existing conservation program. These include education and outreach, indoor audits and retro-fits and efforts to encourage water efficient landscapes and irrigation.

A five-year calendar for the implementation of all conservation measures is outlined in Table 4.

Table 4. **Timeline for Implementation**

Conservation Measure	*Anticipated Completion*
Water Management Plan	*Continuous*
Clark County Ordinances	*Continuous*
Service Rule Regulations	*Continuous*
Water Waste Investigations	*Continuous- elevated in summer*
Leak Detection	*Continuous*
Conservation Helpline	*Continuous*
Irrigation/Landscape Efficiencies	*2009 and ongoing*
Education Public Outreach	*2009 and ongoing*
Audits and Retrofit	*2010 and ongoing*
AMR Program	*Continuous- expanded to all meters in 2011*
Install Meters/Implement Conservation Rates	*Install 2009-2010, Develop rate 2011, Implement rate 2012/2013*

The total impact on GPCD for all conservation measures is estimated to be a reduction of 20 GPCD by 2015. A schedule of reductions by year is anticipated as follows:

2009 Estimated Cumulative Impact: 2 GPCD

- ~ Encouraging efficient irrigation/landscape practices
- ~ Increase conservation outreach at the school
- ~ Continue all existing programs

2010 Estimated Cumulative Impact: 5 GPCD

- ~ Active campaign to retrofit existing fixtures
- ~ Maintain focused outreach and education
- ~ Continue all existing programs

2011 Estimated Cumulative Impact: 8 GPCD

- ~ Engage community in conservation rates discussion
- ~ Begin classes to help reduce water use
- ~ Fully implement expanded AMR program
- ~ Continue all existing programs

2012 Estimated Cumulative Impact: 13 GPCD

- ~ Implement conservation rates
- ~ Conduct a second round of community classes
- ~ Continue all existing programs

2013 Estimated Cumulative Impact: 16 GPCD

- ~ Community continues to adjust to rate structure
- ~ Continue all existing programs

2014 Estimated Cumulative Impact: 20 GPCD

- ~ Full impact of conservation rate is realized
- ~ Continue all existing programs

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30.64 Site Landscape and Screening Standards

30.64.010 Purpose. The purpose of requiring landscaping and screening is to:

1. Improve the quality of air and discourage plant material that is high in pollen production.

2. Promote the visual image desired by the community through the use of low water, climate adaptable plant materials.

3. Increase the compatibility and minimize potentially negative impacts of differing adjacent uses by providing alternative buffering standards which will act as a visual barrier. The buffering standards will also provide justification and mitigation for waivers to the design standards required elsewhere within this Title.

4. Reduce dust, noise, glare and heat; assist in wind control; and minimize water runoff onto streets.

5. Conserve natural resources, including water, in conformance with the Water Conservation Plan and/or Drought Plan developed by the Southern Nevada Water Authority. (Ord. 3356 § 5 (part), 2/2006; Ord. 2934 § 6, 8/2003; Ord. 2741 § 12 (part), 5/2002)

30.64.020 Fences and Walls. Perimeter fences and walls are permitted and/or required in accordance with the provisions of this section. An additional one foot of decorative embellishment is permitted on each wall.

1. When Permitted. Unless otherwise specified in Tables 30.64-1 and 30.64-2, fences and walls not required (but permitted) shall comply with this subsection (1). However, when constructed in conjunction with a retaining wall, the specified maximum wall height may be increased to include the height of the retaining wall up to a maximum of 12 feet, subject to compliance with 30.64.050(4), unless otherwise specified in the Chapter. Security fences are permitted in conjunction with Temporary Government Facilities in any zoning district, subject to the requirements for security fences in 30.08.030 and Table 30.64-2.

A. Single Family Residential Development and Multi-family Buildings not within a dwelling group. Fences and walls may be up to 6 feet in height except if within 15 feet of the front property line or private street/easement (see Table 30.64-1 for front yard restrictions). Fences or walls which meet the setbacks for accessory buildings shall conform to accessory building height restrictions.

B. Multiple Family Dwelling Group Development. Fences and walls shall be a maximum of 6 feet high, shall be decorative if in the urban area, and shall be set back for landscaping along streets as required in Table 30.64-2 below.

C. Commercial and Special Development. Fences and walls over 3 feet in height are not permitted within required street setbacks (10 foot minimum) unless required to buffer adjacent uses as approved by the Commission or Board. Any fence or wall within the street setback shall be decorative. Congregate care, independent and assisted living, major school, and recreational facilities may have fences and walls within street setbacks subject to approval by the Commission or Board. Fences or walls within side and rear setbacks not adjacent to a street nor on the property line shall not exceed 6 feet in height.

D. Industrial Development. Fences and walls, including security fences and walls, are permitted at a 10 foot maximum height around the perimeter of the development within the required setback when fence or wall is set back for required landscaping along streets. The maximum height may be increased up to 13 feet to accommodate additional height needed for retaining walls. See Table 30.64-2 for requirements for fences and walls along a street.

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E. Vacant Property. Temporary fences may be constructed on vacant property, subject to the height restrictions above, in order to control access and dust, and to prevent the dumping of refuse. Walls within subdivided lots may be constructed per the requirements for walls within the district.

F. Hillside Walls. Walls within hillside developments shall comply with the following.

i. Walls shall conform to the topography of the site.

ii. To the greatest extent practical, walls shall incorporate the use of graduating steps.

iii. Walls shall either incorporate the use of native materials or be earth tone colors to match the native soils and rocks.

iv. The use of decorative fences is encouraged around side and rear yards.

v. Decorative fences only shall be allowed around natural areas.

vi. The maximum cumulative height of a series of retaining walls is 36 feet where for each 9 feet of vertical height, a 6 foot horizontal offset shall be provided, and where anything over 9 feet must be a decorative fence. (See Figure 30.64-1)

2. Required. Fences and walls are only required when shown in Tables 30.64-1 and 30.64-2.

3. Redundant Walls. This section establishes the general policy of not requiring redundant walls in close proximity to each other that could cause unsafe or unhealthful conditions, such as gaps which collect trash and/or trap animals and/or people. A redundant wall is not required when the adjacent property owner agrees that the existing wall will serve as an adequate buffer, even if the existing wall is less than 6 feet in height, subject to a notarized letter of consent. Otherwise, a 6 foot high redundant wall shall be constructed as a buffer when required. The separation between the walls shall be 4 inches or less or at least 30 inches wide. The gap at the end of any redundant walls shall be secured with a see thru, locked gate which allows for access, visibility, and maintenance. The area between the walls shall be kept free of debris and weeds.

4. Measurement of Fence or Wall Height. The actual height of fences or walls must meet the minimum height requirement but may exceed the minimum height by up to 1 foot.

A. Where the finished grade line of a lot is above or below the finished grade line of an abutting lot or street, the finished grade shall be the point on the high side, except within the front yard of single-family residences, which shall be measured from the top of curb.

B. An additional 1 foot for lighting and/or decorative features is allowed on top of columns.

5. Gated Communities. Developments with interior private streets or drives may restrict access to the development subject to the following:

A. Access gates shall be decorative and set back a minimum of 50 feet from the lip of gutter of the street intersecting the street or drive for stacking of vehicles.

B. Egress gates shall be set back a minimum of 20 feet from the lip of gutter of the street intersecting the street or drive.

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C. Guard enclosures and/or related equipment shall be set back a minimum of 20 feet from the right-or-way line of the street intersecting the private street or drive, but need not conform to any other setback, and may be located within the private street.

D. Access codes to the gates shall be provided to the Metropolitan Police Department and the Clark County Fire Department.

E. Perimeter walls and gates enclosing the community are permitted up to 8 feet in height, including within the front yards of lots facing the access control gates, or as permitted by 30.64.050(4) when constructed in conjunction with a retaining wall.

6. Access Gates - Single Family Residence or Special Uses not open to the public. A single Family residence may restrict access to the development subject to the following: Access gates shall be set back a minimum of 18 feet from property line along collector or arterial streets.

7. Access Gates – Commercial, Industrial Development or Special Uses open to the public. Commercial or industrial developments or special uses open to the public may restrict access to the property subject to the following: Access gates shall be set back from the property line a minimum of 50 feet or access gates shall be set back 18 feet only if the gates remain open during business hours. When a private street accesses the development, and gates will not remain open during business hours, the gate shall be set back a minimum of 50 feet from the property line or lip of the gutter, whichever is greater. The Director of Development Services may waive this requirement with the approval of an administrative minor deviation. (Ord. 3757 § 9 (part), 4/2009; Ord 3586 § 9 (part), 2/2008; Ord. 3549 § 11 (part), 9/2007; Ord. 3518 § 14 (part), 5/2007; Ord. 3472 § 12 (part), 1/2007; Ord. 3354 § 11 (part), 2/2006; Ord. 3229 § 12 (part), 6/2005; Ord. 3209 § 10 (part), 5/2005; Ord. 2934 § 7, 8/2003; Ord. 2741 § 12 (part), 5/2002; Ord. 2573 § 14, (part) 2001)

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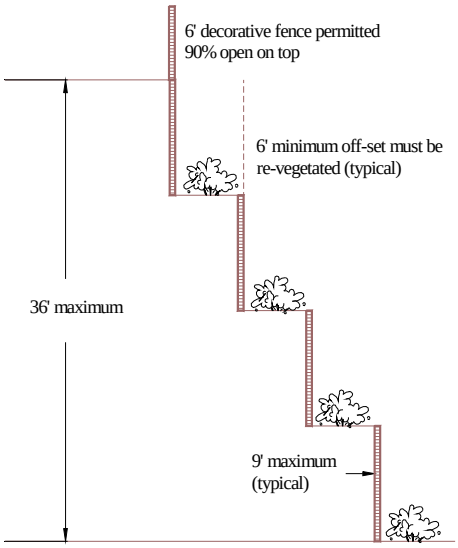
Figure 30.64-1 Hillside Retaining Walls



(Ord. 3209 § 11 (part), 3/2005)

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30.64.030 Landscaping.

a. Landscaping Required. Except for mines, gravel pits, temporary uses, agricultural cultivation, public facilities without buildings, and the rear yards of single family dwellings, any disturbed area of a developed property not occupied by permitted outside activity areas, storage areas, structures, parking, driveways, drive aisles, bus turnouts, and sidewalks shall be landscaped and maintained in a clean condition. Disturbed areas designated for future development need not have live landscaping. (For the purposes of this Section and related landscaping requirements, rear yard is defined as any yard area behind established screen walls or fencing located in side or rear yards.) Any required landscaping may be within a trail dedication; however it cannot obstruct the intended use of the trail.

b. Landscape Design Objectives.

1. Landscape plans shall incorporate water conserving design which includes appropriate soil, soil amendments to absorb and retain water and encourage the formation of deep root systems, mulch, drainage, and microclimates, and includes groupings of plants with similar water requirements on an irrigation line.

A. Grading and hydrology should whenever possible be designed to maximize the use of storm water for on-site irrigation.

B. Landscape plans shall address all applicable sight visibility concerns, including the location of traffic control signs and devices, sight visibility zones, and adequate spatial considerations for the (future) size and spread of plant materials at maturity in conformance with 30.16.240(a)(5). (Also see 30.64.030(k))

2. The selection and orientation of plant material on the south and west sides of buildings is preferred to promote energy conservation and solar gains.

c. Live Landscaping.

1. All required landscaping shall be planted with live plants, except as provided in subsection (a) above. For property at elevations of 4,000 or more feet above sea level, natural and native landscaping should be preserved and incorporated into the landscape area.

2. Any tree within 5 feet of a required perimeter wall, sidewalk, street, or public utility easement adjacent to a street shall be planted with a root shield designed to redirect root growth and shall incorporate a deep root irrigation system per 30.64.030(l)(4)(B). All trees within this area shall be limited to those with non-invasive root systems per Appendix C, Plant List, Part 10. (See Figures 30.64-2 and 30.64-3)

3. Efforts to keep and maintain existing drought-tolerant trees, especially if mature, are highly encouraged.

d. Maintenance of Landscaping and Sidewalks.

1. Fences, walls and landscaped areas (including plant materials, irrigation system, and hardscape features) shall be maintained.

A. Landscaping or structures of any kind shall not obstruct vehicular or pedestrian travel along the sidewalk or street.

B. No landscaping materials shall obstruct, block, or in any way impede the view of any traffic signal, sign, directional device, or sight visibility zone.

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C. Trees may overhang a sidewalk and street, provided the overhang is a minimum height of 10 feet above any sidewalk or 16 feet and 4 inches above any street, and the overhanging foliage does not impose a danger to the public.

D. When detached sidewalks are installed, the property owner(s), homeowners association, or landscape maintenance association shall maintain all landscaping in conformance with the requirements of this Chapter and shall be responsible for trimming, modifying, or removing any plant materials within required landscape areas that cause or constitute an imminent safety hazard to the traveling public, including but not limited to obstructing the visibility of traffic control signs and devices, obstructing sight visibility zones, or not providing adequate clearance for pedestrians and vehicles. Noncompliance with the maintenance requirements herein established shall cause the County to provide notice to the property owner(s), homeowners association, or landscape maintenance association of the County's intent to perform the required maintenance and collect payment accordingly for the work performed.

2. Landscaped areas shall not be used for parking of vehicles, display of merchandise or other uses detrimental to the landscaping.

3. Any required plant material that does not survive, or sustains severe damage, shall be replaced within 90 days.

4. Landscaping required outside decorative fences and walls shall be maintained by the property owner(s), homeowners association, or landscape maintenance association, whichever is applicable. Whenever a landscaping area is an easement or is located within a common lot, the easement or common lot shall be shown on any major or minor subdivision map. All areas specifically intended for landscaping purposes shall be shown on required improvement plans.

A. Damage to landscaping (including plant materials, irrigation system, and hardscape features) within the required easement as a result of the work performed by, or on behalf of, any public utility shall be repaired or replaced by the public utility.

B. Damage to landscaping (plant materials) that occurs as a result of a property owner's, homeowners association's, or maintenance association's lack of general maintenance, as required in Section 30.64.030(d)(5), or as a result of the actions of a property owner, homeowners association, or maintenance association creating a condition that caused such damage to occur, shall be repaired or replaced by the applicable property owner, homeowners association, or maintenance association, whichever caused the damage.

C. Removal or relocation of any private property owners' landscaping in County rights-of-way or easements to accommodate a public improvement, including roadways and pavements, sidewalks, curbs and gutters, landscaping, street lights, foundations, poles and traffic signal conduits, water mains, sanitary and storm sewers, tunnels, subways, people movers, viaducts, bridges, underpasses, and overpasses, or other public facilities across, along, over or under any street or streets, or other such improvements which are to be used by the general public, shall be the responsibility and at the expense of the property owner. The County (or other entity governed ex officio by the Clark County Board of Commissioners, i.e., Las Vegas Valley Water District, Kyle Canyon Water District, Big Bend Water District or Clark County Water Reclamation District, singly the "County Entity") shall issue to a property owner 30 days written notice of a need to remove or relocate any of the property owner's landscaping that may be in conflict with installation, maintenance, or use of the public improvement. The property owner shall, within 30 days after receiving such written notice from the County Entity, remove or relocate its said landscaping. If the property owner fails to remove or relocate its landscaping as required by this section within the required time period, the County Entity may remove or relocate said landscaping and charge the cost of removal or

relocation to the property owner. The County will not be held liable for any losses or damages due to removal or relocation of such landscaping.

5. General maintenance of all sidewalks, whether constructed within a public right-of-way or a public access easement, shall be performed by the property owner, homeowners association, or landscape maintenance association, and shall include keeping the sidewalks clean and free of weeds, debris, ice, and snow, and preventing landscaping or structures of any kind from obstructing the sidewalk.

A. Long-term maintenance of all sidewalks except meandering sidewalks, including repair and replacement when required, shall be the responsibility of Clark County, pursuant to NRS 41.1315, unless the sidewalk is damaged as a result of negligence on the part of, or actions taken by, the property owner, homeowners association, or landscape maintenance association.

B. Clark County shall not be held liable for damage or injury that occurs as a result of a property owner's, homeowners association's, or maintenance association's lack of general maintenance, as required in subsection A above, or if the actions of a property owner, homeowners association, or maintenance association created a hazardous condition that caused or otherwise resulted in damage or injury.

e. Plant Materials.

1. Except for single family residential development, all required plants shall consist of materials selected from the plant list in Appendix C, Plant Materials, and/or as recommended for local use by the *Southern Nevada Water Authority's Water Smart Landscapes Program Plant List*, except that all cactus, and annual and perennial flowers, are permitted. If the genus is listed, all varieties of that genus are permitted, even if all common names are not listed, except where specifically prohibited. All stock shall conform to the standards listed in the *American Standards for Nursery Stock* as required by section 555.200 (Standards for Nursery Stock) of the NAC. The use of plants listed in Appendix C, part 7, Allergenic Potential List, are discouraged. The following plants are expressly prohibited in all developments:

A. European Olive trees, all fruiting varieties;

B. Fruitless Mulberry trees; and

C. Any plant listed on the Nevada State Department of Agriculture's noxious weed list as shown in Appendix C, Part 8.

2. An oasis is an area where non-drought tolerant landscaping designs are permitted. Plants not listed in Appendix C, Plant Materials, and/or not recommended for local use by the Southern Nevada Water Authority's *Water Smart Landscapes Program Plant List*, may be used in an oasis if they are grouped in separately programmed irrigation areas according to their water requirements providing that:

A. The area of the oasis shall not exceed 1% of the net area of the development;
B. The oasis is not located within the required street frontage landscaping.

3. Alternative plant materials may be approved by the Zoning Administrator by an administrative minor deviation per Table 30.16-8, where documentation is provided by the applicant from the State Department of Agriculture, the Las Vegas Valley Water District or a publication equal and

acceptable to the Zoning Administrator indicating that the plant is drought tolerant and is not an invasive or noxious plant.

f. Irrigation. A water conserving irrigation system is required for all landscaping. Drip or similar systems with no over spray shall be used when irrigating non-turf vegetation. Irrigation systems shall be maintained in good operating condition. The use of irrigation systems which utilize reclaimed wastewater is preferred, and required for golf courses as soon as a source of reclaimed wastewater is available. Restrictions for over spray shall not apply when water used will be provided by one or more of the following methods:

1. Water is provided for the applicant's own wells or appurtenant or transferred water right which can be legally used to irrigate the property on which a golf course is developed;

2. Water is provided by the water purveyor; however, the applicant must contribute to an exterior water efficiency retrofit program approved by the water purveyor to offset the impacts on water resources and system delivery capacity in an amount equivalent to 2 times the amount of water used to irrigate turf.

3. Groundwater provided from the shallow aquifer. Applicant may develop and provide the groundwater at his/her sole cost, or may compensate the appropriate water district to develop ground water pursuant to an agreement with the district. The agreement must have been executed by both parties at the time of the application.

- **g. Swales.** Within landscape areas greater than 4 feet wide, a 2 foot wide minimum swale shall be provided adjacent to attached sidewalks unless a perimeter fence or wall is constructed within 2 feet of the sidewalk, or unless the landscape strip is designed with a berm to screen parking and provide enhanced landscaping. When detached sidewalks are constructed in landscape areas greater than 10 feet wide, a swale shall be provided on each side of the sidewalk unless bermed. The required swales shall be designed to prevent irrigation water from flowing onto the street or sidewalk. (See Figure 30.64-3)

h. Storm Water Detention/Retention Basins. When provided, private on-site detention/retention basins which are not paved or riprapped shall be landscaped if in non-single family residential development to enhance the natural configuration of the basin. Grading, hydrology and landscape plans should be integrated to make maximum use of site storm water runoff for supplemental on-site irrigation purposes.

i. Ground Cover. Any portion of a landscape area not planted shall be covered with decorative rock, bark, mulch or other material suitable for reducing dust and evaporation, and improving the aesthetic appearance of the area. Non-porous materials should not be placed under the mulch where plants exist.

j. Turf. Turf limitations apply as follows:

1. Development within subdivisions approved after July 1, 1992 shall not impose restrictions which require the use of turf in landscaping or which prevent the use of xeriscaping as an alternative to turf;

2. The maximum slope of a turf area shall not exceed 33%;

3. Turf areas shall not be located within 6 feet of a street, curb, paved surface other than a single-family residential driveway, or sidewalk if adjacent to a paved surface;

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4. Except within single family residential development, no area of turf shall have a width or depth less than 10 feet. This area may be less than 10 feet wide if adjacent to a planter bed or other landscape area which will catch overspray;

5. The area of turf within multiple family dwelling groups and non-residential development, except for parks, cemeteries, and schools, shall not exceed 30% of the landscaped area within the development; and

6. The area of turf within the front yard of single-family residential lots shall not exceed 50% of the net area of the front yard; and

7. Golf courses, shall be limited to a maximum of 90 acres for 18 holes and 10 acres for a driving range;

A. The turf limitation of golf courses may be exceeded if the applicant demonstrates to the satisfaction of the water purveyor that irrigated turf, in excess of the amount specified, will have no significant impact on water resources or water peak demand delivery capacity, because water used for the additional turf will be provided by one or more of the following methods:

i. Water provided from applicant's own wells or appurtenant or transferred water rights which can be legally used to irrigate the property on which the golf course is developed;

ii. Water provided from the water purveyor. However, the applicant must contribute to an exterior water efficiency retrofit program approved by the water purveyor to offset the impacts on water resources and system delivery capacity, in an amount equivalent to 2 times the amount of water used by the turf grass;

iii. Groundwater provided from the shallow groundwater aquifer. Applicant may develop and provide the ground water at his sole cost or may compensate the appropriate water district to develop ground water pursuant to an agreement with the district. The agreement must have been executed by both parties at the time of the application;

B. The restrictions for turf area shall not apply to any property that is the subject of a development agreement between the county and the owner or former owner of the property; provided, the development agreement is in effect as of April 5, 2000 and at the time of commencement of construction of the golf course.

k. Required Trees. Trees shall be planted as required in Tables 30.64-1 and 30.64-2, and as shown in Figures 30.64-2 through 30.64-14, 30.64-17, and 30.64-18, if large 15 gallon trees are being planted. Trees located beneath or adjacent to overhead power lines are not required if the power company certifies that the landscape requirement poses a hazard. Trees are not required when their location conflicts with septic system separation requirements. Unless otherwise specified by the Commission or Board, trees and alternative distances can be provided as follows:

1. One large tree (at maturity will be 40 feet or higher and have a minimum 20 foot spread) is required for each 30 linear feet of street frontage.

2. One medium tree (at maturity will have a minimum 20 foot spread) is required for each 20 linear feet of street frontage.

3. One small tree (at maturity will have a less than a 20 foot spread) is required for each 10 linear feet of street frontage.

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4. These distances may be increased by 10 feet if 24 inch box trees are planted instead of 15 gallon trees.

5. A variety of species and appropriate clustering of plants to provide a homogeneous buffering effect are encouraged within the landscape area.

l. Landscape Strip and Sidewalks.

1. Sidewalks, drive aisles, signs, and driveways providing access from the street to and within the development are permitted within a landscape area or strip.

2. If constructed sidewalks are attached (not offset from curb), the required landscape area shall begin at the property line (back of sidewalk) and shall not include any part of the right-of-way. If detached sidewalks are constructed pursuant to Section 30.52.030(a)(1)(K), the required landscape area shall include the detached sidewalk with 10 feet of landscaping (See Figures 30.64-17 and 30.64-18). On collector or arterial streets, when attached sidewalks are permitted in lieu of detached sidewalks per 30.64.030(1)(4), 15 feet of landscaping is required behind the sidewalk.

3. Required landscaping is permitted within public utility easements if designed to protect utility facilities per Figure 30.64-2. However, plant materials located within 5 feet of public utility structures and appurtenances (but not underground lines) shall be limited to shrubs and groundcover only.

4. When required by Tables 30.64-1 and 30.64-2, straight, detached sidewalks shall be provided unless there is an existing attached sidewalk that will not be rebuilt, or the arterial or collector street frontage is less than 300 linear feet and is adjacent on both sides to existing development constructed with attached sidewalks.

A. When not required, detached sidewalks and landscaping may be provided at the option of the property owner, homeowners association, or landscape maintenance association. Whether required or not, all detached sidewalks shall conform to Figures 30.64-17 or 30.64-18 and are additionally subject to the following:

i. The tree spacing may be increased by 10 feet.

ii. All areas between the sidewalk the curb shall be landscaped except for incidental paving for bus stops or paving designed to protect underground public utilities, returns to intersections, and amenity zones pursuant to the Mixed Use Overlay District standards established in Section 30.48.770(C)(6-7). See Table 30.56-2 for pedestrian realm requirements for non mixed use projects.

iii. A landscape area as required shall be provided within the distance between the curb and the front setback, shall abut both sides of the sidewalk, and shall contain the quantity of plant materials required per Figures 30.64-17 or 30.64-18, or as otherwise required by this Title, except only shrubs, groundcover, and small to medium trees with non-invasive root systems shall be permitted between the curb and the sidewalk. Tree rows on both sides of a detached sidewalk shall offset each other to provide balanced spacing, and all trees shall be approximately centered within the landscape strip on each side of the sidewalk. (See Figures 30.64-17, 30.64-18 and Appendix C, Parts 2 and 10)

B. All trees planted in landscape areas adjacent to detached sidewalks or within 5 feet of any pavement or wall (building or perimeter) shall be required to install, operate, and maintain a deep root irrigation system in conformance with Figure 30.64-3 and the standards listed below (also see "Deep Root Irrigation" in 30.08.030):

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i. For small and medium trees, a minimum of 1 irrigation pipe (2" – 4" by 36" – 48") made of PVC or suitable material, shall be inserted vertically into the ground at the trunk's base to encourage downward growth of a deep root system and capture, drain, and redirect excess surface water into the deeper tree root area. For large trees, a minimum of 2 (2" – 4" by 36" – 48") pipes shall be required.

ii. Each irrigation pipe shall be loosely filled with gravel or rock and may be perforated along the lower half to facilitate the absorption of water into the lower soil profile and below the tree's root ball. Irrigation lines, emitters, and/or bubblers may be placed within each deep root irrigation pipe.

iii. All required deep root irrigation pipes shall be installed in conjunction with required swales and designed to allow sufficient amounts of irrigation water to reach a depth of 3 to 4 feet.

5. When dedication for bus turnouts is required, the landscape strip is not required adjacent to the bus turnouts.

m. Certificate of Compliance. A Certificate of Compliance stating that landscape materials have been installed per this Title shall be signed by the property owner or contractor and submitted to the Building Official.

1. Single family residences may be occupied prior to the landscaping being installed if the developer or property owner signs a Certificate of Compliance prior to the issuance of building permits stating that all required landscaping shall be installed within 6 months of the date of the Certificate of Occupancy.

2. Buildings other than single family residences may be occupied prior to the landscaping being installed; however, the required landscaping shall be installed prior to final Certificate of Occupancy.

3. If drought restrictions established by this Title prohibit the planting of landscaping during specified months, the required landscaping need not be installed until 60 days following the date from which planting is permitted to resume. (Ord. 3688 § 12, 10/2008; Ord 3586 § 9 (part), 2/2008; Ord. 3549 § 11 (part), 9/2007; Ord. 3472 § 12 (part), 1/2007; Ord. 3356 § 5 (part), 2/2006; Ord. 3296 § 9 (part), 10/2005; Ord. 3094 § 3, 7/2004; Ord. 3062 § 4, 5/2004; Ord. 3020 § 3, 2/2004; Ord. 2934 § 8, 8/2003; Ord. 2741 § 12 (part), 5/2002)

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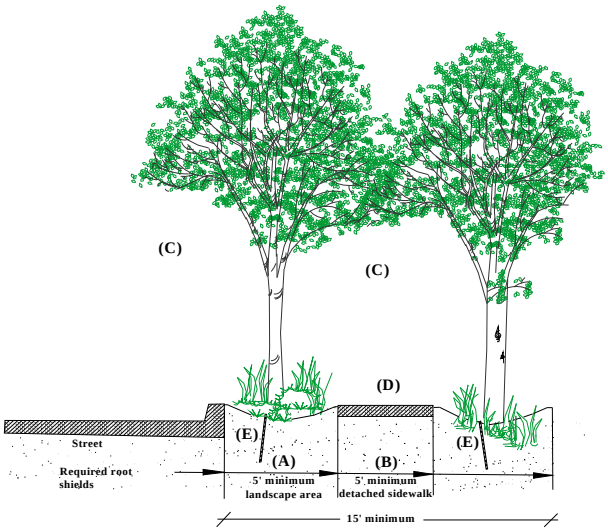
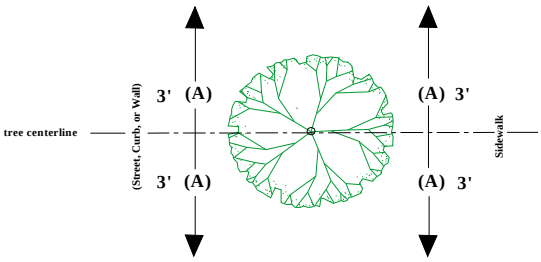
Figure 30.64-2 Root Shield (Root Barrier)



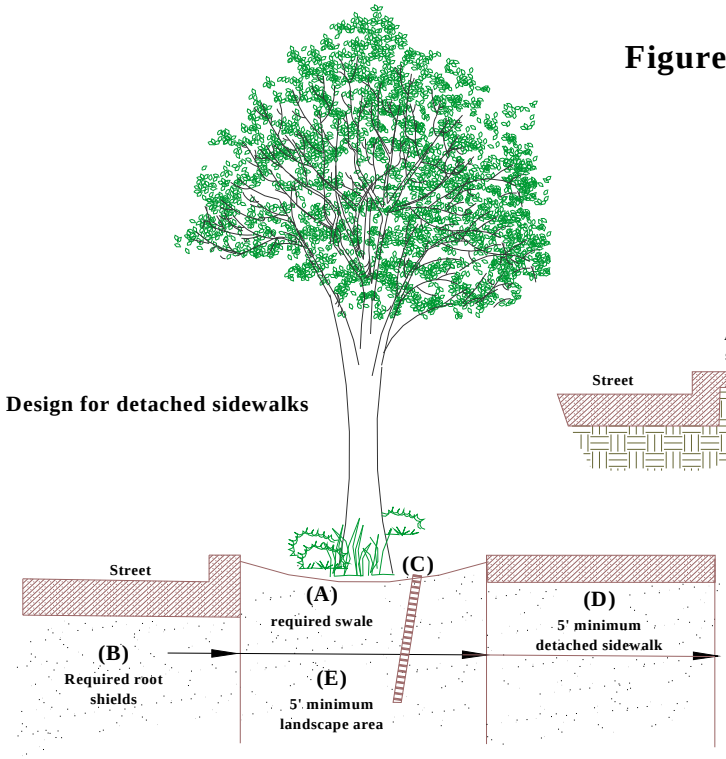


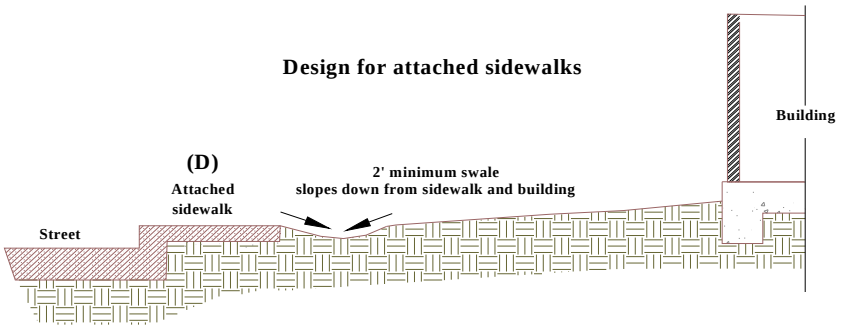
Root Shields (A) shall be installed parallel to curb, sidewalk, or wall to a minimum depth of 3' and shall extend at least 3' laterally in both directions from tree centerline.

(A) Root shield material shall be installed in a compacted trench to a minimum depth of 3' and extend laterally a minimum of 3'on each side of the tree centerline, with top of root shield set 2" below top of back of sidewalk and flush with edge of sidewalk (root shield for attached sidewalks shall be set 2" below top of curb and set flush with edge of curb).
(B) Unless otherwise required by this Title, detached sidewalks shall have a minimum width of 5' and conform to *ADA Accessibility Guidelines*; attached sidewalks shall have the minimum width required per the *Uniform Standard Drawings, Clark County Area*.
(C) Minimum 16' 4" vertical clearance between street and trees, and minimum 10' vertical clearance between sidewalk and street trees.
(D) All sidewalks shall be constructed in conformance with the *Uniform Standard Drawings, Clark County Area*.
(E) For small and medium trees, 1 deep root irrigation pipe (minimum 2" - 4" by 36" - 48") shall be vertically inserted at the trunk's base; for large trees, 2 deep root irrigation pipes (minimum 2" - 4" by 36" - 48") shall be required. See 30.64.030(l)(4)(B), for additional deep root irrigation system components and requirements.

(Ord. 3356 § 5 (part), 2/2006)

Figure 30.64-3 Swale Designs





(A) Where plant materials are required on both sides of the detached sidewalk, swales shall be constructed on both sides of the sidewalk (unless bermed).
(B) Root shield material shall be installed in a compacted trench to a minimum depth of 3' and extend laterally a minimum of 3' on each side of the tree, with top of root shield set 2" below top of back of sidewalk and flush with edge of sidewalk. See Figure 30.64-2 for additional details.
(C) For small and medium trees, 1 deep root irrigation pipe (minimum 2" - 4" by 36" - 48") shall be vertically inserted at the trunk's base; for large trees, 2 deep root irrigation pipes (minimum 2" - 4" by 36" - 48") shall be required. See 30.64.030(l)(4)(B), for additional deep root irrigation system components and requirements.
(D) Unless otherwise required by this Title, detached sidewalks shall have a minimum width of 5' and conform to *ADA Accessibility Guidelines*; attached sidewalks shall have the minimum width required per Clark County Public Works *Uniform Standard Drawings*.
(E) Minimum landscape area width may vary if detached sidewalk meanders. See Figure 30.64-18.

(Ord. 3356 § 5 (part), 2/2006)

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30.64.040 Screening and Buffering Requirements. Tables 30.64-1 and 30.64-2 establish the minimum screening and buffering requirements for development as depicted in Figures 30.64-4 through 30.64-14.

Table 30.64-1 Single-Family Residential Screening and Landscape Buffer Requirements [1, 6]

	Rural Residential Use [7]	**Suburban Residential Use and/or Rural Estates PUD**	**Compact Residential Use**
Perimeter on Private or Local Streets – Rear Yard Only[5]	Figure 30.64-5[2] OR Figure 30.64-6[2]	Figure 30.64-5 OR Figure 30.64-6	Figure 30.64-7 OR Figure 30.64-8
Side or Rear on Collector/Arterial Streets[5]	Figure 30.64-5[2] OR Figure 30.64-6[2]	Figure 30.64-17 OR Figure 30.64-18 For both figures, 6' min/8' max high decorative wall or fence required behind landscaping and detached sidewalk.	Figure 30.64-17 OR Figure 30.64-18 For both figures, 6' min/8' max high decorative wall or fence required behind landscaping and detached sidewalk.
Adjacent to Freeway	Figure 30.64-4 No wall required in Community District 5.	Figure 30.64-4	Figure 30.64-4
Adjacent to a Less Intensive Use [4, 5]		• When adjacent to rural residential use 6' minimum/maximum decorative wall. • Wall may be eliminated in rural area by administrative minor deviation per Table 30.16-8.	• When adjacent to suburban or rural residential use: Figure 30.64-11 with 1 tree per 30'. • Wall may be eliminated in rural area by administrative minor deviation per Table 30.16-8.
Front Yards (within 15' of front property line or private street/easement)	• Figure 30.64-8 when fronting a collector or arterial street except wall or fence is not required. • A 6' maximum decorative fence may be permitted. • Fence need not be decorative in rural areas; or, with administrative minor deviation approval, if adjacent properties have similar fences.	• If a wall or fence is not required, a 5' maximum decorative fence may be permitted. • Fence need not be decorative in rural areas; or, with administrative minor deviation approval, if adjacent properties have similar fences.	If a wall or fence is not required, a 5' maximum decorative fence may be permitted.
Retaining Walls[5]	When on side or rear yard, see 30.64.050(a)(4) and Figure 30.64-15.	When on side or rear yard, see 30.64.050(a)(4) and Figure 30.64-15.	When on side or rear yard, see 30.64.050(a)(4) and Figure 30.64-15.

Additional Requirements:

1. These requirements are minimum standards. More intensive landscaping shown in other figures is also permitted. If full off-site improvements are deferred, the required landscaping and irrigation system need not be provided until the off-site improvements are installed, unless non-urban street standards apply.
2. The requirement does not apply to lots which are 40,000 square feet or larger; however, if provided, must follow regulations within table.
3. Deleted
4. The Zoning Administrator may allow breaches in the wall for pedestrian access and trails by an administrative minor deviation and letters of consent from adjacent and impacted property owners.
5. Specified maximum wall heights may be increased to include the height of a retaining wall in accordance with Section 30.64.050(4).
6. Detached sidewalks (offset from curb) may be constructed per Figures 30.64-17 and 30.64-18 instead of attached sidewalks as depicted in Figures 30.64-5 through 30.64-10 and 30.64-13, provided all other landscaping, dedication, and maintenance requirements are satisfied.
7. Fencing materials in the rural residential districts may include traditional farm fencing (smooth twisted wire mounted on posts) or alternative fencing used for confining domestic animals, provided that all fencing is compatible with the rural character of the immediate area.

(Ord. 3757 § 9 (part), 4/2009; Ord. 3635 § 10, 6/2008; Ord 3586 § 9 (part), 2/2008; Ord. 3518 § 14 (part), 5/2007; Ord. 3432 § 11 (part), 10/2006; Ord. 3356 § 5 (part), 2/2006; Ord. 3296 § 9 (part), 10/2005; Ord. 3229 § 12 (part), 6/2005; Ord. 3209 § 10 (part), 3/2005; Ord. 3106 § 11, 8/2004; Ord 3008 § 8, 12/2003; Ord. 2934 § 10 (part), 8/2003; Ord. 2741 § 12 (part), 5/2002)

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Table 30.64-2 Non-Single-Family Residential Screening and Landscape Buffer Requirements[1, 7]				
	Multi-Family Use	**Commercial & Mixed Use**	**Industrial Use**	**Special Use**
Adjacent to any Street[5]	Figure 30.64-9 OR Figure 30.64-10	Figure 30.64-13	Figure 30.64-13	Figure 30.64-13 (except as permitted by 30.64.020(1)(C))
Adjacent to Collector/Arterial Streets[5]	Figure 30.64-17 OR Figure 30.64-18	Figure 30.64-17 OR Figure 30.64-18	Figure 30.64-17 OR Figure 30.64-18	Figure 30.64-17 OR Figure 30.64-18
Adjacent to Freeway	Figure 30.64-4	Figure 30.64-4	Figure 30.64-4	Figure 30.64-4
Adjacent to a Less Intensive Use[3, 5]	• When adjacent to rural residential: Figure 30.64-11 with 1 tree per 20'. • When adjacent to suburban or compact residential: Figure 30.64-11 with 1 tree per 30'. • Wall may be eliminated in the rural area by administrative minor deviation per Table 30.16-8.	• When adjacent to residential[4] use: Figure 30.64-11 with 1 tree per 20'. • Wall may be eliminated in the rural area by administrative minor deviation per Table 30.16-8. • Buffer shall extend to back of required street landscaping.	• When adjacent to residential[4] use: Figure 30.64-11 with 1 tree per 20'. • Wall may be increased to 10'. • Wall may be eliminated in the rural area by administrative minor deviation per Table 30.16-8. • Buffer shall extend to back of required street landscaping.	• When adjacent to residential[4] use: Figure 30.64-11 with 1 tree per 20'. • Wall may be eliminated in the rural area by administrative minor deviation per Table 30.16-8. • Buffer shall extend to back of required street landscaping.
Retaining Walls[5]	• When wall is on the side or rear yard not adjacent to a street, see 30.64.050 (a)(4) and Figure 30.64-15. • If adjacent to a street, figures 30.64-9 or 30.64-10.	• When wall is on the side or rear yard not adjacent to a street, see 30.64.050 (a)(4) and Figure 30.64-15. • If adjacent to a street, the height of any retaining wall shall not exceed 36".	• When wall is on the side or rear yard not adjacent to a street, see 30.64.050 (a)(4) and Figure 30.64-15. • If adjacent to a street, the height of any retaining wall shall not exceed 36" except when screening outside storage (see outside storage below).	• When wall is on the side or rear yard not adjacent to a street, see 30.64.050 (a)(4) and Figure 30.64-15. • If adjacent to a street, the height of any retaining wall shall not exceed 36".
Outside Storage	Not applicable.	Per Table 30.44-1.	• Maximum height 10' plus 3' retaining wall. • When adjacent to non-industrial uses 8' minimum screened fence or wall required. • When adjacent to street, must comply with Figure 30.64-8, except screened fence or wall may be increased to 10' without additional landscaping.	Per Table 30.44-1: Walls cannot be located within the setback.
Security Fencing[6]			Walls/fences permitted above may be security walls.	See Table 30.44-1 for special uses and airports within the P-F District which permit security walls.

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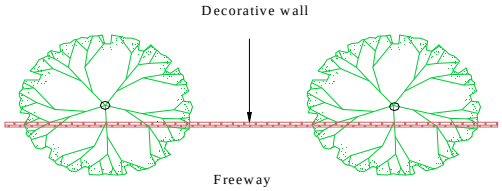
Table 30.64-2 Non-Single-Family Residential Screening and Landscape Buffer Requirements[1, 7]				
	Multi-Family Use	**Commercial & Mixed Use**	**Industrial Use**	**Special Use**
Parking Lot Landscaping		Figure 30.64-14	Figure 30.64-14	Figure 30.64-14
Other Wall		A decorative fence enclosing outdoor space adjacent to not more than 50% of a commercial building is permitted if no closer than 3' to the sidewalk.		

Additional Requirements:

1. Exceptions to required landscaping are as follows:
   A. If the property is outside of the service area of the nearest water purveyor, live landscaping need not be planted until water service is extended to the site, providing an irrigation system is installed for the future planting and rockscaping is provided in the interim, except that development within the rural area need not provide the future irrigation system.
   B. If full off-site improvements are deferred, the required landscaping and irrigation system need not be provided until the off-site improvements are installed.
2. Deleted.
3. The Zoning Administrator may allow breaches in the wall for pedestrian access and trails by an administrative minor deviation with letters of consent from adjacent and impacted property owners.
4. Including uses such as, but not limited to, schools, places of worship, libraries, museums, cemeteries, day care, child care, congregate care, assisted/independent living facilities, or hospitals.
5. Specified maximum wall heights may be increased to include the height of a retaining wall in accordance with Section 30.64.050(4).
6. Security fences are permitted in conjunction with Temporary Government Facilities in any zoning district, subject to the requirements for security fences in this Table and 30.08.030.
7. Detached sidewalks (offset from curb) may be constructed per Figures 30.64-17 and 30.64-18 instead of attached sidewalks as depicted in Figures 30.64-5 through 30.64-10 and 30.64-13, provided all other landscaping, dedication, and maintenance requirements are satisfied.

(Ord. 3757 § 9 (part), 4/2009; Ord 3586 § 9 (part), 2/2008; Ord. 3432 § 11 (part), 10/2006; Ord. 3356 § 5 (part), 2/2006; Ord. 3229 § 12 (part), 6/2005; Ord. 3209 § 10 (part), 3/2005; Ord. 2934 § 10 (part), 8/2003; Ord. 2741 § 12 (part), 5/2002)

Figure 30.64-4 Freeway Buffer



One large tree (15 gallon) required every 50 linear feet, generally spaced 50 feet apart; or

One tree for every 100 feet if 24" box trees, generally spaced 100 feet apart; or

Plants, such as shrubs, vines, or ground cover which when full grown will cover 50% of the wall surface facing the freeway

Rural: Wall need not be decorative, landscaping not required

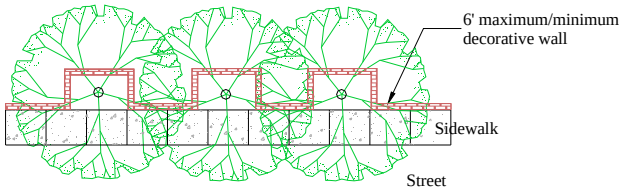
Noise attenuation required in Residential only per Nevada Department Of Transportation standards.

Decorative Wall Height Minimum/Maximum: Commercial - 6 feet Industrial - 8 feet

(Ord 3586 § 9 (part), 2/2008)

Clark County Development Code Title 30.64

Figure 30.64-5 Street Buffer-Wall Off-Sets



Number of trees required: per 30.64.030 (k)

One medium or large tree required in each 4' x 4' (or greater) tree well; alternatively if non-urban street standards apply, trees planted inside the wall per 30.64-030 (k) are permitted

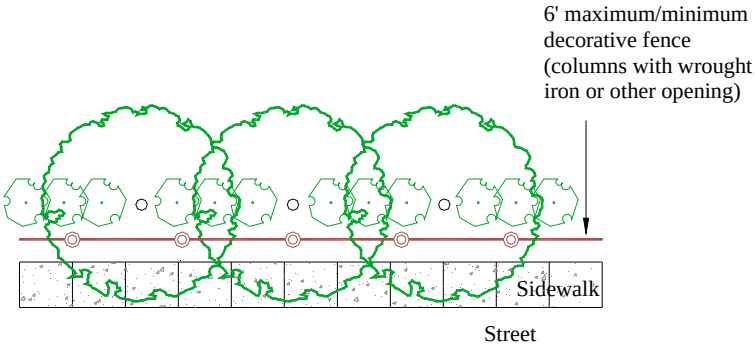
Tree wells are encouraged to be located on common property lines

Rural areas: Wall need not be decorative
Sidewalk not required if non-urban street standards apply

NOTES:
1 . Maximum/minimum wall height may be increased in accordance with 30.64.050 (4)

(Ord. 3549 § 11 (part), 9/2007; Ord. 3432 § 11 (part), 10/2006; Ord. 3209 § 11 (part), 3/2005; Ord. 2934 § 12 (part), 8/2003)

Figure 30.64-6 Fence with Landscape Screen



Number and size of trees required: per 30.64.030(k)

Shrubs sufficient to screen rear yards, generally spaced 5' apart.

Rural areas: Fence need not be decorative
Sidewalk not required if non-urban street standards apply

(Ord. 3432 § 11 (part), 10/2006; Ord. 2934 § 12 (part), 8/2003)

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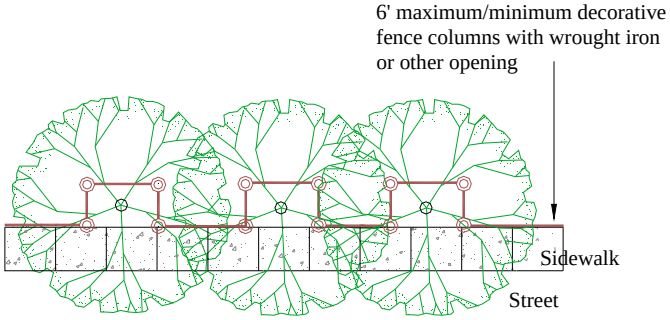
Figure 30.64-7 Fence Off-Sets



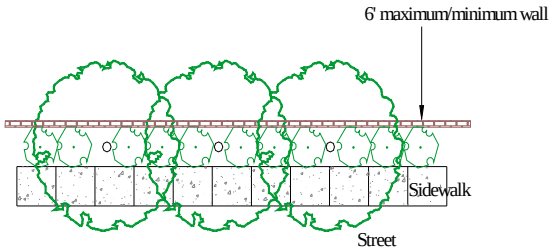
Number of trees required: per 30.64.030(k)

One large tree required in each 6' x 10' fence off-set. (alternative 4' x 4' offset permitted only when landscaping is behind fence)

Rural areas: Fences need not be decorative
Sidewalk not required if non-urban street standards apply

(Ord. 3432 § 11 (part), 10/2006; Ord. 2934 § 12 (part), 8/2003)

Figure 30.64-8 6' Landscape strip with Wall



Number of trees required: per 30.64.030(k)

Landscape strip must be 3' minimum/6' average, with 6' minimum adjacent to trees

Wall can be increased to 8' if average landscaping is increased to 10'

Shrubs shall be designed to cover more than fifty (50) percent of the landscaped area when mature, and may be grouped if distributed along entire strip

Rural areas: Walls need not be decorative

(Ord. 3296 § 9 (part), 10/2005; Ord. 3209 § 11 (part), 3/2005; Ord. 3106 § 12, 8/2004)

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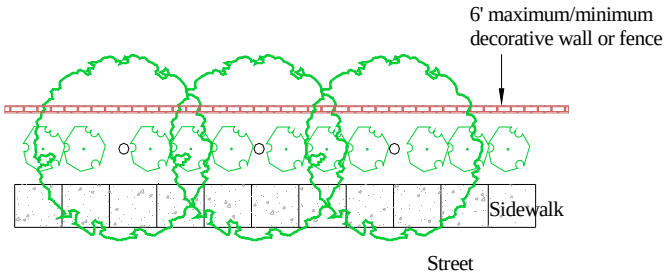
Figure 30.64-9 10' Landscape Strip with Wall or Fence



Number of trees required: per 30.64.030 (k)

Landscape strip must be 6' minimum/10' average

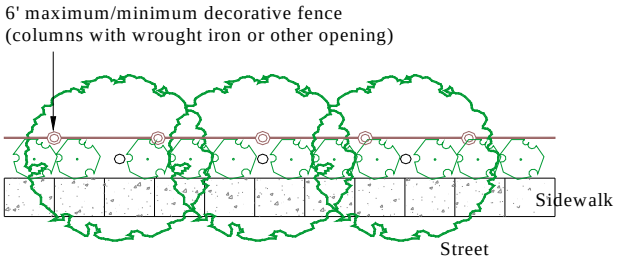
Wall/fence may be increased to 8' if average landscaping is increased to 15', or wall may be increased in accordance with 30.64.050(4)

Shrubs shall be designed to cover more than fifty (50) percent of the landscaped area when mature, and may be grouped if distributed along entire strip

Rural areas: Fences/walls need not be decorative

(Ord. 3549 § 11 (part), 9/2007; Ord. 3296 § 9 (part), 10/2005; Ord. 3209 § 11 (part), 3/2005)

Figure 30.64-10 6' Landscape strip with Fence



Number of trees required: per 30.64.030(k)

Landscape strip must be 3' minimum/6' average/6' minimum adjacent to trees

Fence can be increased to 8' if average landscaping is increased to 10'

Shrubs shall be located to cover more than fifty (50) percent of the landscaped area when mature, and may be grouped if distributed along entire strip.

Rural areas: Fence need not be decorative

(Ord. 3296 § 9 (part), 10/2005)

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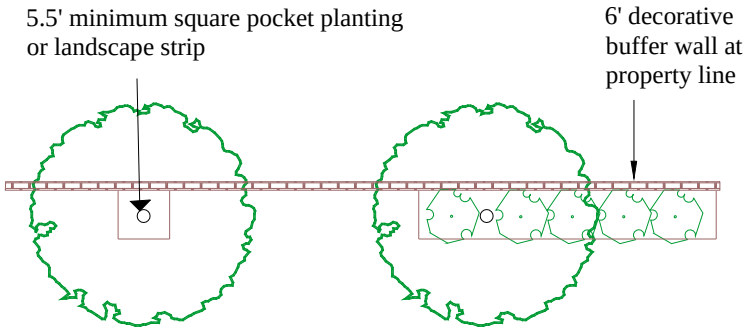
Figure 30.64-11 Buffer Adjacent to a Less Intensive Use

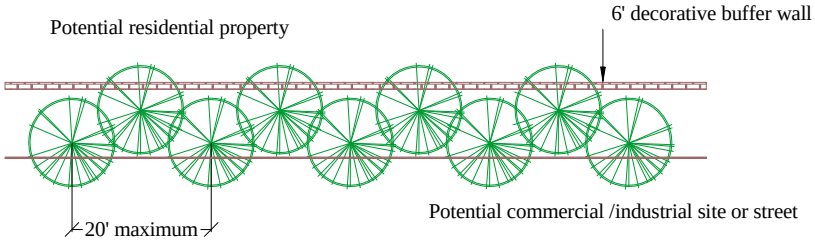


Where adjacent property is developed, trees shall be 24" box large evergreen trees to quickly mature and cover the distance between trees.

Quantity of trees per Tables 30.64-1 and 2

Rural area: Wall need not be decorative

Figure 30.64-12 Intense Buffer



Trees shall be 24" box large evergreen trees designed to expand and screen the distance between trees and planted in off-set rows.

Where intense landscape buffering is required along a street, the landscaping shall be installed on the street side of the wall.

When adjacent to street, shrubs shall be located to cover more than fifty (50) percent of the landscaped area and may be grouped if distributed along entire strip.

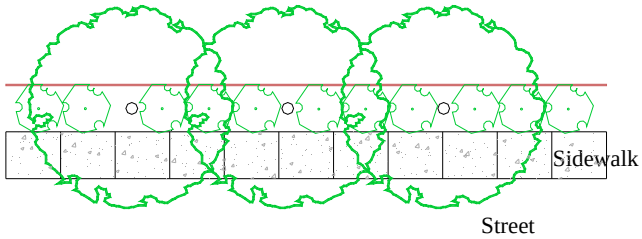
5.5 foot minimum square pocket planting or 10' landscape strip.

Wall height may be increased in accordance with 30.64.050(4)

Rural area: Wall need not be decorative.

(Ord. 3209 § 11 (part), 3/2005)

Figure 30.64-13 Street Landscaping



Number of trees required: per 30.64.030k

Landscape strip must be 3' minimum/6' average landscape strip, 6' minimum adjacent to trees

Shrubs shall be designed to cover more than fifty (50) percent of the landscaped area, and may be grouped if distributed along entire strip.

For Commercial and Special Development, fences and walls are not permitted within a required building setback, except when required by the Commission, or Board or to screen outside uses (See Table 30.64-2).

(Ord. 3549 § 11 (part), 9/2007; Ord. 2934 § 12 (part), 8/2003; Ord. 2778 § 3, 7/2002; Ord. 2764 § 5, 6/2002)

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Figure 30.64-14 Parking Lot Landscaping

(Not required within parking garages)

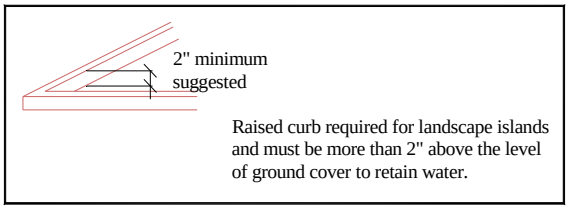
Islands can be designed at the end of rows, between rows, or both.

One large tree shall be provided for every 8 parking spaces, or one medium tree may be substituted for every 6 spaces, with trees generally distributed throughout the parking lot.

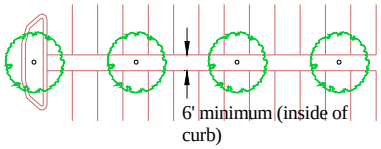
Parking adjacent to other trees need not be included.

The total number of trees may be reduced by 20% if 10% or more of the parking lot is landscaped, xeriscaped, or finished with a permeable surface or pavers.

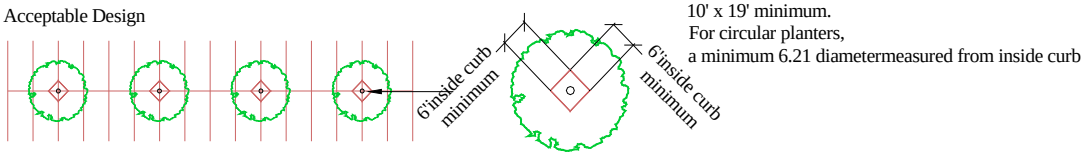
Parking lots which exist or were approved prior to March 2000 can be retrofitted, resulting in a 10% parking reduction.



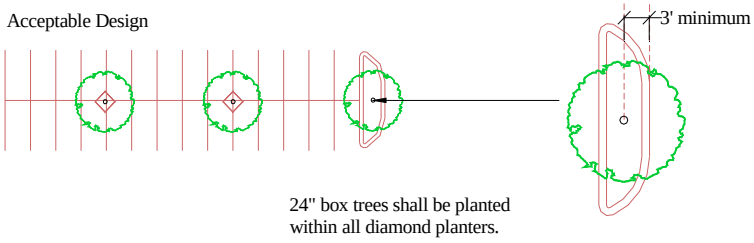
Preferred Design



Acceptable Design



Acceptable Design



(Ord 3586 § 9 (part), 2/2008)

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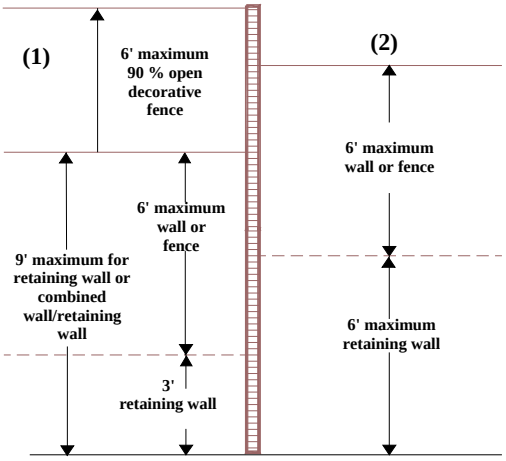
Figure 30.64-15 Retaining Walls



Finished Grade / Low Side

Notes:
(1) 3' minimum retaining wall plus 6' maximum wall (or fence) is permitted per 30.64.050(a)(4)(A).
(2) 6' retaining wall plus 6' fence or wall (need not be open) is permitted per 30.64.050(a)(4)(C).
NOTE: Within required street setbacks (where a wall or fence is otherwise not permitted), a retaining wall only may be constructed to a maximum height of three feet (3').

(Ord. 3354 § 11 (part), 2/2006; Ord. 3229 § 12 (part), 6/2005; Ord. 2573 § 14 (part), 2001; Ord. 2510 § 14 (part), 2000)

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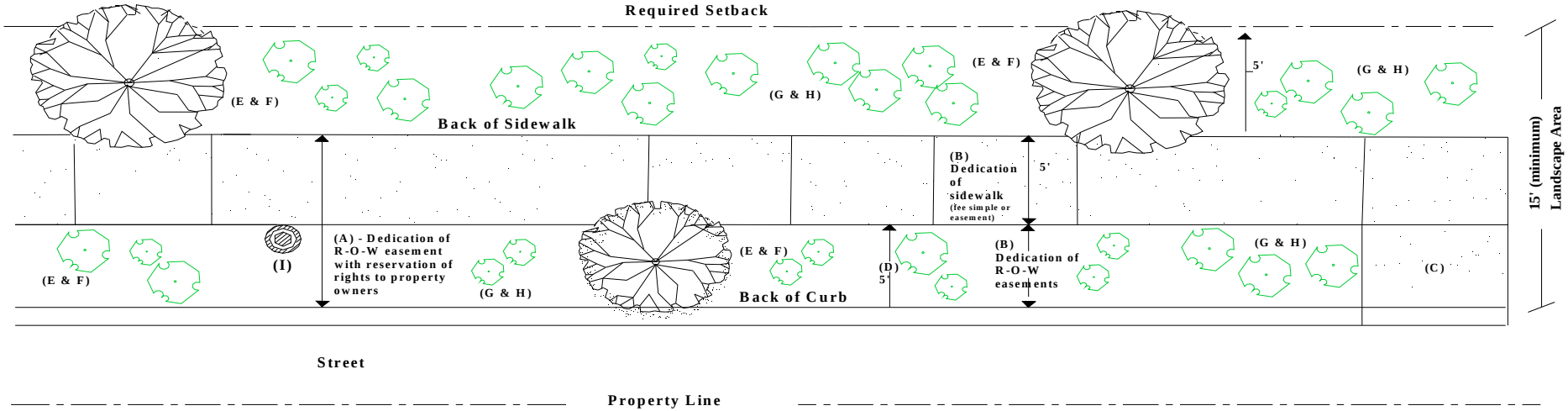
Figure 30.64-17 Detached Sidewalk Requirements (straight sidewalk)



(A) Dedication from back of curb to back of sidewalk as right-of-way easement for roadway and utility purposes, per 30.52.030(k); or
(B) Dedication of the sidewalk (fee simple or easement) with right-of-way easements as needed between back of curb and front of sidewalk to access, install, repair and maintain the sidewalk and public utility (including traffic) facilities.
(C) Return to curb at property lines to meet existing attached sidewalk, if applicable.
(D) Straight sidewalk shall be offset a minimum 5' from back of curb.
(E) Turf is not permitted; only shrubs, groundcover, and trees with non-invasive root systems per Appendix C, Part 10, with root shields installed per Figure 30.64-2, are permitted. All trees planted in landscape areas adjacent to detached sidewalks or within five feet (5') of any pavement or wall (building or perimeter) shall install, operate, and maintain a deep root irrigation system in conformance with 30.64-030(l)(4)(B) and Figure 30.64-3.
(F) Two rows of trees planted generally 20 feet apart shall be required (one row on each side of sidewalk planted generally 40 feet apart). Tree rows on both sides of a detached sidewalk shall offset each other to provide balanced spacing intervals, and all trees shall be approximately centered within the landscape strip on each side of the sidewalk . EXCEPTION: Where existing underground utilities are installed between back of curb and front of sidewalk, street trees shall not be required.
(G) Shrubs & groundcover shall be planted to cover more than 50 % of the landscaped area and may be grouped if distributed along the entire strip.
(H) Swales are required per Figure 30.64-3.
(I) 10' lateral separation is required between streetlight and any tree.

(Ord 3586 § 9 (part), 2/2008; Ord. 3356 § 5 (part), 2/2006)

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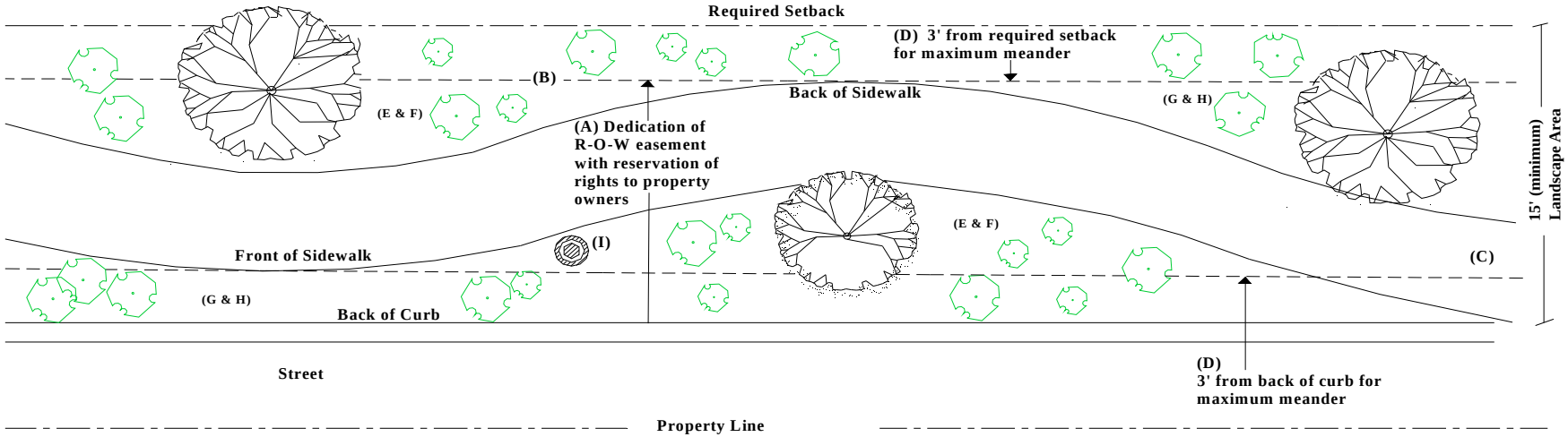
Figure 30.64-18 Detached Sidewalk Requirements (meandering sidewalk)



(A) Dedication from back of curb to back of sidewalk not more than three feet from required setback (includes the sidewalk and maximum meander width) as right-of-way easement for roadway and utility purposes, per 30.52.030(k).
(B) Dedication to back of sidewalk shall be based upon that point where the back of sidewalk meanders closest to the required setback.
(C) Return to curb at property lines to meet existing attached sidewalk, if applicable.
(D) Sidewalk shall not meander closer than 3' from back of curb or required setback.
(E) Turf is not permitted; only shrubs, groundcover, and trees with non-invasive root systems per Appendix C, Part 10, with root shields installed per Figure 30.64-2, are permitted. All trees planted in landscape areas adjacent to detached sidewalks or within five feet (5') of any pavement or wall (building or perimeter) shall install, operate, and maintain a deep root irrigation system in conformance with 30.64-030(l)(4)(B) and Figure 30.64-3.
(F) Two rows of trees planted generally 20 feet apart shall be required (one row on each side of sidewalk planted generally 40 feet apart). Tree rows on both sides of a detached sidewalk shall offset each other to provide balanced spacing intervals, and all trees shall be approximately centered within the landscape strip
on each side of the sidewalk.
(G) Shrubs & groundcover shall be planted to cover more than 50 % of the landscaped area and may be grouped if distributed along the entire strip.
(H) Swales are required per Figure 30.64-3.
(I) 10' lateral separation is required between streetlight and any tree.

(Ord 3586 § 9 (part), 2/2008; Ord. 3356 § 5 (part), 2/2006)

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30.64.050 Alternative Standards.

a. Fences and Walls. Except for fences and walls within the front yards of single family residences, fences, walls and hedges over 6 feet in height are permitted within required setbacks when:

1. The Commission or Board determines that a fence or wall over 6 feet is required to mitigate the effect of a use on an adjacent use with the approval of a related land use application.

2. The Zoning Administrator determines that additional height, up to 8 feet in overall height, is appropriate for fences and walls within accessory structure setbacks in the side or rear yard with an administrative minor deviation application and notarized letters of consent from adjacent, impacted developed property owners. The additional height (8 feet maximum) may also be granted in the front yard only to within 15 feet of the front property line.

3. The Zoning Administrator determines that additional height, up to the height permitted for accessory structures, is appropriate for an open decorative or chain link fence and/or lighting enclosing a game area, with an administrative minor deviation application and with notarized letters of consent from adjacent property owners.

4. Retaining walls shall not exceed a maximum height of 3 feet except as permitted by subsections (A), (B), or (C) below. However, in no case shall walls (including retaining walls) for commercial development exceed 3 feet in height above the finished grade of the street (or sidewalk if constructed) within required street setbacks (see 30.64.020(1)(C)). (Also see Table 30.64-2 for Outside Storage)

A. Adjacent to property whose elevation is lower than the developing property, a retaining wall or combined wall/retaining wall may be permitted to a maximum height of 9 feet. Additionally, a ninety 90% open decorative fence up to a maximum height of 6 feet is permitted for any part of the wall/retaining wall over 9 feet. (See Figure 30.64-15)

B. An alternative retaining wall system (hillside development) may be permitted per Figure 30.64-1.

C. Specified maximum wall heights may be increased to a maximum of 12 feet (6 foot wall plus 6 foot retaining wall) for the following, subject to the landscape provisions specified and compliance with subsection (5) below (See Figure 30.64-15):

i. Subdivision walls (perimeter or interior) along any local or private street shall provide a minimum 6 foot landscape strip (see Figure 30.64-8).

ii. Interior subdivision walls with initial development (no additional landscaping required).

iii. Perimeter subdivision walls along any collector or arterial street shall provide a minimum 15 foot landscape strip (see Figure 30.64-9).

iv. Walls adjacent to non-developed property (no additional landscaping required).

v. Walls adjacent to developed properties when the finished grade of the developing property is lower than the finished grade of the developed property (no additional landscaping required).

vi. Walls adjacent to developed properties when the finished grade of the developing property is higher than the finished grade of the developed property shall only be permitted with approval of an Administrative Minor Deviation application and notarized letters of consent from all property owners adjacent to the increased wall height (including owners of undeveloped properties). Additional landscaping shall not be required.

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5. Retaining walls shall not exceed 2 feet within any sight visibility zone.

6. The Director of Public Works and/or the Director of Development Services determines that a wall is required to protect property or public safety. The height and design of such a wall, including those within flood control facilities, shall be as required.

b. Adjustments to Site Landscape and Screening Standards. Proposals to utilize standards different from those provided elsewhere in this chapter may be considered in light of the unique characteristics of an individual site, including those created by the shape and location of property, design of existing or proposed structures, and the operation of the uses proposed for the site. Adjustments to site landscape standards include those related to screening and buffering, placement and amount of site landscape materials, parking lot landscaping, amount of turf, and the location of fences and walls. The determination of the acceptability of such adjustments shall be based upon consideration of the following:

1. The provision of landscape proposals to reduce environmental problems and to further the County's compliance with the Federal Clean Air Act Amendments of 1990 such as, but not limited to, increased use of allowable landscape species which increase the absorption of carbon dioxide and production of oxygen, and produce low amounts of pollen.

2. The ability of the proposed standards to result in the same or improved screening and buffering function as results from the standards of Table 30.64-1

3. The ability of the proposed standards to provide the same or enhanced visual character to the site as would result from the application of the landscape requirements for which alternative standards are being offered.

4. The ability of the proposed standards to maintain water demand equal to or less than that anticipated to be required by the installation and maintenance of the landscape plan and materials for which the alternative standards are being offered.

5. The ability of the proposed standards to result in site landscaping that maintains or increases the site development compatibility with that of adjacent sites in the manner anticipated through the application of the landscape requirements for which alternative standards are offered.

c. The Commission or Board may approve modified standards, including reduced or additional landscaping or fence height, as a condition imposed in conjunction with the approval of a land use application or by a waiver of standards application per Table 30.16-7, which, in their estimation, will better accomplish the purposes of this Chapter. In addition, the specialized requirements within Table 30.44-1 shall supersede the requirements of this Chapter. (Ord. 3757 § 9 (part), 4/2009; Ord 3586 § 9 (part), 2/2008; Ord. 3549 § 11 (part), 9/2007; Ord. 3472 § 12 (part), 1/2007; Ord. 3354 § 11 (part), 2/2006; Ord. 3229 § 12 (part), 6/2005; Ord. 3209 § 10 (part), 3/2005; Ord. 2934 § 9, 8/2003; Ord. 2769 § 105, 7/2002; Ord. 2573 § 14 (part), 2001)

30.64.060 **Water Features.** Variances or waivers to the use and size restrictions within this Section shall not be permitted, and the Zoning Administrator shall not accept such an application. Because the conservation of water resources is vital to the general prosperity, health, safety and welfare of the County, the development of water features for recreational, scenic and landscape purposes shall be severely limited; however, the surface area restrictions for swimming pools, manmade decorative water features, or manmade recreational water theme parks shall not apply to water features within an enclosed climate controlled building. Any water feature permitted under this Section shall only be permitted if designed to re-circulate water within the feature.

1. Swimming Pools. Swimming pools are considered to be accessory uses in all districts when not a principal use of the property. All pools (above ground and below grade) shall comply with the

following. Swimming pools which exceed the permitted area shall only be permitted in accordance with subsection (2) below (Manmade Lakes).

A. Pool water line must be a minimum 5 feet away from the required front yard and shall not be constructed across a property line.

B. All pools must be enclosed by a minimum 5 foot high fence or wall (which may be a building wall) with self-closing and self-latching gates or doors, the latching device being located on the inside and not less than 4 feet above the ground designed to prevent access to the pool without going through the gate. If visible from the street then the pool must be surrounded by a decorative wall.

C. As a further precaution, it is suggested all doors and windows shall be self-closing and self-latching, and a non-climbable 5 foot fence be constructed to separate the pool/spa from the residence (see Figure 30.64-16).

D. Waterfalls or other decorative features associated with a pool may encroach into a yard setback, must conform to maximum wall height, and may not cross a property line.

E. Within developments other than single-family residences, the water surface area of outdoor swimming pools for a development shall not exceed the following.

i. 4% for the first 10 acres or less and 0.4% for the additional total development area that exceeds 10 acres.

iii. For a resort hotel, an additional 5 square feet will be allowed for each guest room.

iv. Area in addition to that permitted in subsections (i) and (ii) above may be permitted if in conformance with the provisions Subsection (2) below.

2. Manmade Lakes. Manmade lakes are prohibited, except for the following.

A. A body of water constituting a wetlands project or located in a recreational facility which is owned or operated by a political subdivision of this State and that utilizes nonpotable water.

B. A body of water which is located in a recreational facility that is open to the public and owned or operated by the United States of America or the State of Nevada.

C. A body of water which stores water for use in flood control, in meeting peak water demands or for purposes relating to the treatment of sewage by a political subdivision of this State.

D. A body of water which stores water for use by the Las Vegas Valley Water District or by a water district created pursuant to NRS Chapter 318.

E. Bodies of water located on a golf course or a cemetery which are used for the purpose of storing irrigation water for the same and which have a combined aggregate surface area less than 5.5% of the total golf course or cemetery area, respectively.

F. A body of water which stores and distributes water or reclaimed wastewater for use by an irrigation district created pursuant to NRS Chapter 539.

G. A body of water which stores water used in a mining reclamation project.

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H. A body of water which is located or is proposed to be created within a nonprofit youth camp for the benefit of youth in learning and experiencing watercraft activities and water safety.

I. A body of water, with no limitations on its area, which may include decorative, recreational and/or entertainment features, located at a resort hotel, provided it is subject to the following.

i. The resort hotel demonstrates that the resort hotel benefits the community and is in the public interest as evidenced by the approval of the resort hotel under this Title, provided, that the bodies of water or features are shown on the plans and advertised in the notice of public hearing.

ii. The applicant demonstrates to the satisfaction of the water purveyor that the proposed body of water will have no significant impact on water resources or water peak demand delivery capacity, because of the use of 1 or more of the following methods. The method or methods used shall be the highest priority method or methods feasible, as reasonably determined by the appropriate water district, as listed in the following priority order. The applicant shall submit a Water Efficiency Plan to the water purveyor, which must be approved by the water purveyor prior to the issuance of permits.

(a) Use of well water if the property upon which the body of water is located is part of a single development that has appurtenant non-revocable water rights existing on or before July 1, 1995.

(b) Use of groundwater from the shallow groundwater aquifer.

(c) Use of reclaimed wastewater from a municipal system or the subject property. If the applicant contributes to an exterior water efficiency retrofit program approved by the water purveyor to offset the water resources used, in an amount equivalent to the amount of water used by the body of water.

(d) Use of water from the water purveyor. However, the applicant must contribute to an exterior water efficiency retrofit program approved by the water purveyor to offset the impacts on water resources and system delivery capacity, in an amount equivalent to 2 times the amount of water used by the body of water.

iii. The applicant must submit an efficient water use plan for the entire resort hotel to the water purveyor. The applicant must receive plan approval from the appropriate water district before issuance of any building permits for the body of water.

iv. If reclaimed wastewater or water from a shallow aquifer will be used, the property may be subject to the approval of an effluent management plan and/or an appropriate sewer surcharge fee for discharging excess conventional pollutants from either process into the municipal sewer system. If excess Total Dissolved Solids (TDS) is discharged, the property must fund salinity reduction programs through the Clark County Sanitation District for reducing the total TDS use equivalent by the amount of the excess TDS contributed.

3. Manmade Decorative Water Features. Approval of a design review application per Table 30.16-9 shall be required to establish any manmade decorative water feature. Decorative water features which exceed the permitted area shall only be permitted in accordance with subsection (2) above (Manmade Lakes). The water surface area of outdoor manmade decorative water features for a single development shall be limited as follows:

A. 2% for the first 10 acres or less and 0.2% for the additional total development area that exceeds 10 acres.

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B. For a resort hotel, an additional 2.5 square feet for each room used for sleeping accommodations.

C. For a resort hotel, additional area shall be allowed where:

i. The water is from a shallow groundwater aquifer system, which may be operated in conjunction with a system using reclaimed wastewater resulting from the use of potable water and the subsequent on-site treatment of the used water, on the single development. However, any such reclaimed wastewater may be used only to the extent that shallow groundwater is unavailable.

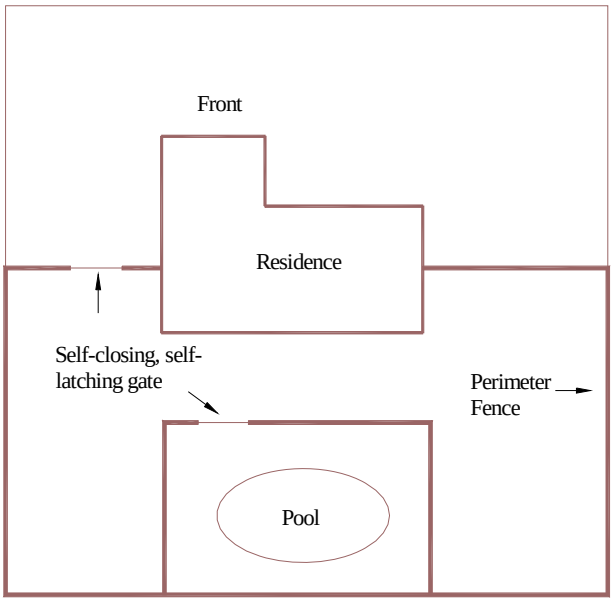
ii. Any additional water features using shallow groundwater or reclaimed wastewater generated on the site, as provided above, do not, in aggregate, exceed an additional square footage increment equal to the amount of outdoor manmade decorative water features calculated under subsections (A) and (B) above.

iii. The necessary groundwater permit and water treatment process approvals have been obtained from the appropriate agencies having or asserting jurisdiction.

iv. A deed restriction has been recorded stating that the continuing operation of outdoor manmade decorative water features may require the continuing operation of systems to provide water from a shallow groundwater aquifer or from reclaimed wastewater generated on the single development as provided above.

4. Manmade Recreational Water Theme Park. The water surface area of manmade recreational water theme park for a single development is limited to 20% for the first 20 acres or less and 2% for the additional total development area that exceeds 20 acres. (Ord. 3432 § 11 (part), 10/2006; Ord. 3354 § 11 (part), 2/2006; Ord. 3297 § 5, 10/2005; Ord. 2950 § 2, 9/2003)

Figure 30-64-16 Suggested Swimming Pool Precautions



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30.64.070 **Drought Restrictions.** During a drought, as defined in 30.08.030, the following additional restrictions shall apply to development. These restrictions cannot be waived or varied. Except for the prohibited operation of manmade decorative water features per Section 30.64.070(C) and the planting of cool season grasses per Section 30.64.070(A)(1), any development or facility that has obtained approval of a land use application or permit for construction prior to August 1, 2003, which approved landscaping not in conformance with the restrictions listed in this ordinance, will not be subject to these restrictions (water features thus approved may be constructed but not operated).

A. During Drought Watch, the following landscape material restrictions shall apply:

1. Residential Landscape Restrictions: Single-family and multifamily developments are prohibited from installing new turf in common areas of residential neighborhoods. This restriction shall not apply to privately owned and maintained parks, including required open space, provided that no turf area dimension is less than 10 feet.

2. Non-Residential Landscape Restrictions: The installation of new turf in non-residential developments is prohibited. This restriction shall not apply to major schools, parks, amphitheatres or cemeteries, provided that no turf area dimension is less than 10 feet; to turf required by other governmental jurisdictions and/or regulatory agencies; or to golf courses and driving ranges, provided that turf is limited to not more than 50% of what is permitted under subsection 30.64.030(j)(7).

B. During Drought Alert, the following additional landscape development restrictions for residential development shall apply:

1. The installation of new turf is prohibited in residential front yards.

2. For single-family residential lots, the installation of new turf shall not exceed 50% of the gross area of the side and rear yard or 100 square feet, whichever is greater, provided no turf area dimension is less than 10 feet. In any case, a maximum of 5,000 square feet of turf is permitted.

C. Operation of Manmade Decorative Water Features. During a Drought Watch and Drought Alert, the use of manmade decorative water features shall be prohibited, including the use of existing features. The following uses shall be exempt:

1. Swimming pools, spas and recreational water parks. The use of covers for pools and spas is encouraged.

2. One water feature of less than 200 square feet surface area in conjunction with a single-family residence or a residential development, except that any water feature located at the entry of a residential development shall not be operated. During Drought Alert, the maximum area of a fountain permitted to be operated shall not exceed 25 square feet.

3. Water features that are necessary and functional components serving other allowable uses, such as storage ponds on a golf course or cemetery, or aeration devices.

4. Indoor water features, or features with the majority of the total water volume contained indoors or underground. If practical alternatives exist for separating indoor and outdoor components (such as timers or shut-off valves), they shall be separated and managed accordingly.

5. Commercial water features operated in conjunction with a resort hotel as defined by Section 463.01865 of the Nevada Revised Statutes, if 1) a water efficiency and drought response plan which addresses guidelines suggested by the Southern Nevada Water Authority is submitted to the

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Zoning Administrator prior to January 30, 2004, for facilities existing as of the effective date of this ordinance, or prior to certificate of occupancy for future facilities, and 2) a sign is posted at the feature stating that the feature is operating in compliance with the drought ordinance and that a water efficiency and drought response plan is on file with the local water purveyor.

6. Water features necessary to sustain aquatic animals, provided that such animals have been actively managed within the water feature prior to declaration of drought.

7. Water features will not be required to be drained. A recirculating water pool to maintain pumps, pond liners, and ancillary equipment, but only between the hours of 1:00 a.m. and 4:00 a.m. or whenever freezing conditions require system preservation, may be maintained.

8. Existing and/or approved water features in developments which conform to the following, may be permitted to operate, subject to the approval of an Administrative Design Review to verify compliance:

i. The property owner, homeowner's association, or landscape maintenance association reduces consumptive water use for the development by reducing the amount of turf (functional or non-functional) within the development by 50 square feet for each square foot of surface area of the water feature if a rebate for turf conversion is not requested from the Water Smart Landscape program of the Southern Nevada Water Authority. Turf removed after the declaration of drought watch or drought alert will qualify under this subsection; however, turf removed before the declaration of drought watch on January 1, 2002, shall not qualify;

ii. If the development cannot reduce non-functional turf area, the property owner, homeowner's association, or landscape maintenance association shall pay the following fee to the Water Smart Landscape program of the Southern Nevada Water Authority for the period ending the next calendar year: $10 per square foot of surface area. A receipt verifying fee payment shall be provided with the administrative design review application;

iii. If the development does not have enough non-functional turf required to qualify under subsection (i) above, the property owner, homeowner's association, or landscape maintenance association shall first reduce non-functional turf to the extent possible, and then pay the following fee to the Water Smart Landscape program of the Southern Nevada Water Authority for the period ending the next calendar year: $10 per square foot of surface area for the proportion of turf area not available for conversion. A receipt verifying fee payment shall be provided with the administrative design review application.

iv. For each subsequent year during drought watch or drought alert that the water feature is operated, the property owner, homeowner's association, or landscape maintenance association shall pay the following fee to the Water Smart Landscape program of the Southern Nevada Water Authority by January 1 of the year during which the water feature will be operated: $200.

v. Temporary signs indicating the water feature is permitted to operate in conformance with drought restrictions shall be posted as follows: 1) sign area shall not be less than 4 or greater than 16square feet, and 2) sign(s) shall be visible from any street from which the water feature is visible.

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D. Any person or association, regardless of date of establishment, is prohibited from imposing or enforcing private covenants, conditions, restrictions, deed clauses or other agreements between the parties, which prevent the utilization of water efficient landscaping, including but not limited to xeriscape, provided such landscaping receives appropriate architectural review approval. In any event, landscaping materials and designs may not be prohibited solely on the basis that they make use of water-efficient landscaping, per Title 24 (as amended). (Ord. 3518 § 14 (part), 5/2007; Ord. 3354 § 11 (part), 2/2006; Ord. 3094 § 4, 7/2004; Ord. 2975 § 1, 11/2003; Ord. 2950 § 3, 9/2003; Ord. 2934 § 11, 8/2003)

SECTION 11 – CONSERVATION AND DEMAND MANAGEMENT

11.1 Introduction

Historically low precipitation for several years has significantly reduced the amount of water available through natural recharge into the groundwater aquifer. This has stressed the Kyle Canyon water system infrastructure and its ability to meet water demands. Given the current situation reducing Kyle Canyon's vulnerability to service interruptions and/or water shortages will require a sustained water conservation effort by all service customers.

These Service Rules serve as an enforceable mechanism to reduce the impacts of drought and high water demands on the Kyle Canyon water system. These impacts contribute to significant system reliability concerns.

11.2 Drought and Water Supply Conditions

On June 17, 2003, the KCWD adopted the "Kyle Canyon Water Management Plan" to address drought and water supply conditions in Kyle Canyon. These Service Rules have been revised to implement the "Kyle Canyon Water Management Plan".

Drought occurs when existing water supplies cannot meet established demands for a period of time. Communities can also induce or aggravate drought conditions through high water consumption or inefficient water use.

Water conservation is necessary to manage demands on the Kyle Canyon water system and its groundwater wells. For the purpose of demand management, four stages, or Operating Conditions shall apply:

a. Sustainable
b. Concerned
c. Critical
d. Emergency

The LVVWD, as agent for the KCWD, by and through its designated staff, will continually monitor the effectiveness of the water management measures during the year and revisit its operating condition declarations to reflect the status of the water resource environment. The LVVWD by and through its designated staff, may consider several factors in making an operating condition determination, including but not limited to, anticipated or actual higher demands for water, system failure or water quality issues.

The following chart defines the four Operating Conditions, the triggers for elevating operating conditions, and the required customer response to address Sustainable, Concerned, Critical, and Emergency Operating Conditions.

Operating Conditions Table		
Condition	Trigger	Customer Response
Sustainable	Water supplies are being used at a rate that does not exceed the well's ability to naturally recharge.	Water supplies are sufficient to meet demands.
Concerned	Water Supplies are being used at a rate consistent with the well's ability to naturally recharge. Water levels in one or more of the groundwater wells fall below: Echo 3: 90 ft. from surface Echo 4: 170 ft. from surface Echo 5: 120 ft. from surface Rainbow: 145 ft. from surface	Use water to meet all indoor demands and reduce outdoor demands.
Critical	Water supplies are being depleted at a rate higher than that the well naturally recharges. Water levels in one or more of the groundwater wells fall below: Echo 3: 110 ft. from surface Echo 4: 230 ft. from surface Echo 5: 140 ft. from surface Rainbow: 165 ft. from surface	Water is available to meet all indoor demands if outdoor demands are significantly reduced. Indicates a high or imminent potential for supply shortages and/or well / infrastructure failure.
Emergency	A well/infrastructure failure has occurred, or water resources are not adequate to meet demands	Expect service interruptions, poor water quality and/or water shortages.
Note: The trigger levels cited in this section are intended to serve as a guide for designated staff of the LVVWD. Actual operating condition declarations may vary from these levels based on static or dynamic levels, impact of spring runoff, seasonality, or other factors deemed important by operational staff. Other factors may include, but are not limited to, anticipated or actual higher demands for water, operational flexibility, or water quality concerns.		

11.3 Notification of Operating Conditions

When a Concerned, Critical, or Emergency Operating Condition is declared, the applicable sections of these Service Rules shall take effect. Official public notice shall be provided by way of phone calls, direct mailed correspondence, visible signage, e-mail, or any combination thereof. This notice shall serve as official notification to customers of the Operating Condition and its subsequent effects on KCWD Service Rules and procedures.

11.4 Water Waste Enforcement

As a condition of service, customers of the KCWD must use water delivered through the KCWD's water system in a manner that promotes efficiency and avoids waste.

11.5 Water Waste Prohibited

a. Water waste shall include, but not be limited to allowing water provided by the KCWD to flow or spray off the parcel for which the water was provided. Rule violations may result from, but are not limited to:

1. The operation of landscape watering systems

2. Malfunctioning device or supply line, where the customer or their agent has known of the problem for more than 48 hours

3. Washing vehicles, equipment, driveways, parking lots, sidewalks, streets, or other surfaces or objects where water is allowed to flow off the parcel for a continuous period of five minutes or greater

4. Using spray irrigation (sprinklers) between the hours of 11:00 a.m. and 7:00 p.m. during summer months (July and August)

5. Under an Operating Condition declaration, non-compliance with regulations relating to watering assignments shall be considered water waste

b. Exceptions

The following shall not be considered wasting water:

1. Water waste generated as an inherent outcome of water used to abate a health or safety hazard where the proper application of water is the most appropriate and practical technology, or water used to reasonably meet the provisions of federal, state, or local law.

2. Spray irrigation used at any time of day, during any month, to sustain plantings less than 30 days old. The exemption does not however, allow water to spray or flow off the parcel.

3. Supervised testing or maintenance of a system to repair, adjust, or conduct a performance assessment. Both the operation of spray irrigation and the generation of spray or flow from the parcel shall be exempt by this provision, if no reasonable alternative exists.

c. Violations

Under Concerned and Critical Operation Conditions and upon the first observation of waste, the customer will be notified and allowed a prescribed period of time to take corrective action. Subsequent violations will result in a formal violation notice and fee assessment.

Under Emergency Operating Conditions and upon observation of waste, the customer will be issued a formal violation notice and fee assessment. If the customer is unavailable or refuses to comply with the appropriate management measures prescribed in these Service Rules during Emergency Operating Conditions, the service may be terminated and a fee will be assessed.

Policies and procedures to support these Service Rules include:

1. Specifically define water waste and exceptions

2. Require observation and documentation of water waste by a representative of the KCWD

3. Require notification to the customer explaining the KCWD's policy prior to issuance of a violation during all operating conditions except Emergency. During the Emergency Operating Stages, the KCWD may terminate service and/or issue a violation without prior notice

4. Provide a mechanism by that a customer may protest the finding of violation;

5. May allow a customer to receive additional time to pursue corrective action;

6. Provide educational and/or incentive programs to assist customers to abate water waste.

d. Administrative Fees

Customers issued a violation notice as defined by the KCWD shall be assessed a fee according to the listed schedule. Violation levels shall be based upon violation history for the preceding 18 months. Administrative fees are assessed in accordance with the appropriate Operating Condition.

Sustainable, Concerned, and Critical Schedule					
Size	1st Violation	2nd Violation	3rd Violation	4th Violation	5th+ Violation
1” and Less	$100	$100	$100	$160	$320
Over 1” but less than 3”	$120	$140	$160	$320	$640
3” and over	$140	$160	$320	$640	$1,280

Emergency Schedule					
Size	1st Violation	2nd Violation	3rd Violation	4th Violation	5th+ Violation
1” and Less	$120	$140	$160	$200	$400
Over 1” but less than 3”	$140	$160	$180	$400	$800
3” and over	$160	$200	$400	$800	$1,600

11.6 Water Efficiency and Conservation Codes

All customers of the KCWD are expected to comply with all applicable water efficiency codes. The LVVWD, as agent for the KCWD, may reject the application for, rescind, or terminate water service to any parcel or use determined to be in violation of applicable codes or standards that are directly or indirectly intended to conserve or protect the waters of the KCWD.

11.7 Demand Management

a. Spray Irrigation Restrictions

As determined by Operating Conditions, all customers will comply with the irrigation watering restrictions.

1. During all Operating Stages, it shall be considered water waste to spray irrigate outdoor vegetation between the hours of 11:00 a.m. and 7:00 p.m. in July and August.

2. During Concerned, Critical, and Emergency Operating Conditions watering days are restricted. It shall be considered water waste to spray irrigate outdoor irrigation in variance with the following table:

Spray Irrigation Watering Schedule				
Time of Year	Sustainable	Concerned	Critical	Emergency
Spring May – June	Any day of week	1 Day Per Week	1 Day Per Week	All Irrigation is Prohibited
Summer July – August	Any day of week	2 Days Per Week 7 p.m.–11:00 a.m.	1 Day Per Week 7 p.m.–11:00 a.m.	All Irrigation is Prohibited
Fall September – 1st freeze	Any day of week	1 Day Per Week	1 Day Per Week	All Irrigation is Prohibited
Winter 1st Freeze - April	Spray Irrigation is Prohibited	Spray Irrigation is Prohibited	Spray Irrigation is Prohibited	All Irrigation is Prohibited

b. Watering Schedules

For the purpose of managing the water distribution system, specific watering days and/or schedules will be assigned by the KCWD. Affected water users will be provided notification by way of phone calls, direct mailed correspondence, visible signage, e-mail, or LVVWD.com (Kyle Canyon web page) or any combination thereof. This notice shall serve as official notification to customers of the Operating Condition and its subsequent effects on KCWD Service Rules and procedures.

c. Hand Watering Restrictions

As determined by Operating Conditions, all customers will comply with the hand watering restrictions in accordance with the following table:

Hand Watering Restrictions				
Time of Year	Sustainable	Concerned	Critical	Emergency
Hand Watering	Permitted	Permitted Monday – Friday and Saturday or Sunday	Permitted Monday – Friday and Saturday or Sunday	All Irrigation is Prohibited

d. Other Outdoor Water Use Restrictions

1. Surface, Building, and Equipment Washing (excluding motor vehicles)

During Critical and Emergency Operating Conditions, surface, building, and equipment washing is prohibited.

2. Personal Vehicle Washing

Under Concerned Operating Conditions, personal vehicles may be washed upon-residential properties one time per week with a leak free hose equipped with a positive shut-off nozzle and where water does not flow off of the parcel for a continuous period of five minutes or greater.

Under Critical and Emergency Operating Conditions personal vehicle washing is prohibited.

e. Watering Timers for Irrigation Systems

During Sustainable, Concerned, and Critical Operating Conditions irrigation systems, including subsurface and hose attachment must be equipped with a watering timer.

1. Watering timers should not be set to exceed 15 minutes per area.
2. Watering timers may be reset in 15-minute increments per area.
3. Watering duration may not exceed a total of 30 minutes per area, per assigned watering day.