



LAS BRISAS PHASE 2

First Submittal
December 14, 2016

Second Submittal
January 26, 2017

Third Submittal
February 21, 2017

FINAL

PLANNED

AREA

DEVELOPMENT

NARRATIVE

City of Goodyear

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LAS BRISAS PHASE 2

Final Planned Area Development

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LAS BRISAS OVERVIEW

Las Brisas is a 427-acre master planned community located in the western region of the City of Goodyear ("Las Brisas"). More specifically, the property is located between Lower Buckeye Road to the north, Broadway Road to the south, Perryville Road to the west and Citrus Road to the east. The City of Goodyear General Plan designates Las Brisas as Low Density Residential, 2.0 – 4.0 du/ac. Las Brisas has been entitled and developed in two phases. Las Brisas Phase 1 is 116 acres with 324 planned single family residential lots and was approved as part of the larger Canyon Trails PAD. Las Brisas Phase 2, the subject of this Final Planned Area Development ("Las Brisas Phase 2 Final PAD"), is comprised of the remaining 311 acres and was originally approved on September 11, 2006 via City of Goodyear Ordinance No. 06-1020 and Supplementary Zoning Map No. 05-219. The original Las Brisas Phase 2 Final PAD approvals included 912 single family residential lots with an overall net density of 3.09 du/ac. This update to the Las Brisas Phase 2 Final PAD modifies the zoning classification on four development parcels and will result in an overall unit count increase within Phase 2 to approximately 997 single family residential lots with an overall net density of 3.29 du/ac.

The combined Las Brisas Phase 1 and Phase 2 development plans embody the land use goals and objectives outlined in the City of Goodyear General Plan. Las Brisas, as a whole, provides a mix of single family housing opportunities combined with abundant open space and recreational features intended to promote a walkable residential community that appeals to a diverse buyer demographic. Through strategic placement of collector streets, open space amenities, trail systems, and community assets such as the Las Brisas Academy school, Las Brisas is designed to be a highly connected community that promotes multi-modal access throughout the neighborhoods.

This update to the Las Brisas Phase 2 Final PAD is intended to continue the tradition of providing high quality homes within a vibrant and well-designed master planned community by responding to current market trends, buyer feedback and consumer demands.

PAD REGULATORY IMPACT

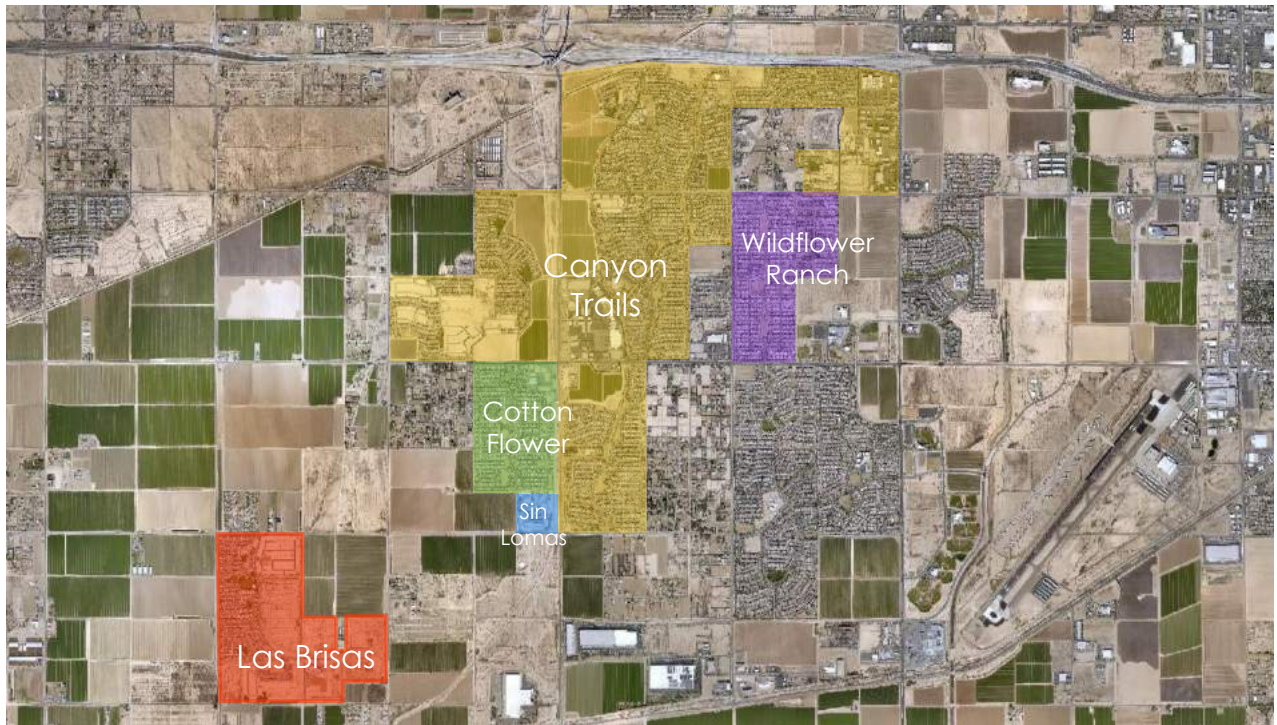
The Las Brisas Phase 2 Final PAD has been prepared pursuant to Section 3-5 of the City of Goodyear Zoning Ordinance and establishes the regulatory framework for Las Brisas Phase 2 by creating unique, project specific zoning regulations. The Las Brisas Phase 2 Final PAD takes precedence over any current or future zoning ordinances and guidelines implemented by the City of Goodyear except in circumstances involving public health, safety and welfare. The Las Brisas Phase 2 Final PAD is a stand-alone regulatory document comprised of project specific zoning regulations, including but not limited to permitted uses, project density and intensity, development standards, and design requirements. Zoning requirements, development standards, and regulatory processes that are not specifically articulated within the Las Brisas Phase 2 Final PAD are governed by the City of Goodyear Zoning Ordinance. The Las Brisas Phase 2 Final PAD does not modify other Goodyear City Code provisions or requirements.

PROPERTY LOCATION AND REGIONAL CONTEXT

PROPERTY LOCATION AND DESCRIPTION

The Las Brisas Phase 2 property is approximately 311 acres and located in West Goodyear between Lower Buckeye Road to the north, Broadway Road to the south, Perryville Road to the west and Citrus Road to the east (the "Property") (see below *Las Brisas Phase 1 and Phase 2 Property Location Map* on page 7). The Property is easily accessible from Interstate 10 to the north and SR30 to the south. Perryville Road, along the western edge of the Property, is the jurisdictional line between the City of Goodyear and the City of Buckeye. Las Brisas Phase 2 is generally surrounded by agricultural land; however, the City of Goodyear General Plan calls for the area to be largely residential with a business and commerce center planned south of Broadway Road along the State Route 30 highway corridor.

Las Brisas Phase 1 and Phase 2 Property Location Map



REGIONAL FACILITIES, SERVICES AND UTILITIES

MUNICIPAL BOUNDARIES

Las Brisas Phase 2 is located entirely within the jurisdictional limits of the City of Goodyear. The City of Buckeye jurisdictional boundary is located immediately to the west, across Perryville Road.

REGIONAL TRANSPORTATION

Regional transportation systems within close proximity to Las Brisas Phase 2 include Interstate 10, located approximately three miles to the north, and State Route 30, located approximately two miles to the south. Perryville Road, Broadway Road, Lower Buckeye Road, and Citrus Road, all located along the perimeter of Las Brisas, are classified as Arterial Roads on the City of Goodyear Land Use and Transportation Map within the General Plan.

AIRPORTS AND AIRBASES

Las Brisas is located approximately four miles west of the Phoenix/Goodyear Airport and is outside the established noise contours. With respect to Luke Air Force Base, Las Brisas is located outside

the established noise contours and designated Major Flight Tracks, but within the area designated as Territory Within the Vicinity of a Military Airport. All future home buyers will receive notification and disclosure regarding proximity to Luke Air Force Base and the Phoenix/ Goodyear Airport.

SCHOOLS

Las Brisas Phase 2 lies within the jurisdiction of the Liberty Elementary School District and the Buckeye Union High School District. A 15-acre elementary and middle school site has been dedicated by Taylor Morrison to the Liberty Elementary School District, and the Las Brisas Academy school (planned K-8) is now open. With respect to Buckeye Union High School District, Las Brisas Phase 2 is within the service area for the Estrella Foothills High School.

FIRE PROTECTION

The City of Goodyear currently has six fire stations located throughout the City. Las Brisas is located approximately 5 miles from Goodyear Fire Station #184.

WATER DISTRIBUTION AND SANITARY SEWER SYSTEMS

Water. Las Brisas is located within the water service boundary for the City of Goodyear. Las Brisas previously extended the existing water system at Cotton Lane and Lower Buckeye Road to provide service to the Las Brisas property. The water system extension has been designed as a regional solution pursuant to agreements with the City of Goodyear. Las Brisas also provides a connection to a regional water storage facility to further ensure regional supply and pressure. A *Water Study Compliance Letter* that verifies conformance with the West Goodyear Central Planning Area Master Water Study is included in **Appendix A**.

Sewer. Regional sewer facilities have been extended from the proposed Cotton Lane trunk main to the Las Brisas property per the approved City of Goodyear sewer master plan. The sewer extension is sufficiently sized to collect regional sewage per the City's master plan. A *Sewer Technical Memorandum* that verifies conformance with the West Goodyear Central Planning Area Master Wastewater Study Supplement 1 is included in **Appendix B**.

CITY OF GOODYEAR GENERAL PLAN DESIGNATION

GENERAL PLAN LAND USE DESIGNATION

The City of Goodyear General Plan designates the Las Brisas property as Neighborhoods, which are defined as:

Neighborhoods include a wide range of densities and housing products that suit the needs of existing and future residents. Residential densities in this category are wide-ranging . . .

Specifically, the General Plan states that *'Single family, detached and attached, residential uses with densities up to 5 dwelling units per acre are appropriate throughout the Neighborhoods category.'* The overall density proposed for Las Brisas is 3.29 du/ac, which is well within the maximum density for Low Density Residential development.

COMMUNITY MASTER PLAN OVERVIEW

The development plan for the overall 427-acre Las Brisas community has been strategically crafted to offer high quality homes within a vibrant, well-designed master planned community that is responsive to market trends and reactive to buyer feedback and consumer demands. Las Brisas is organized into eleven residential development parcels, a commercial parcel, a school parcel with two large neighborhood parks. West Las Brisas Drive and 185th Avenue are the signature collector roadways that function as the structural backbone for the community and has been developed as a lushly landscaped corridor that provides access to each neighborhood. A roundabout has been developed near the Las Brisas Academy School, which acts as a both unique design element within the community as well as a traffic calming measure to promote safe and pedestrian friendly access to the school. Las Brisas includes a variety of residential lot sizes intended to appeal to a broad cross-section of homebuyers, which range from young families to empty nesters. The community maintains a total open space allocation in excess of 20%. The open space network is comprised of an extensive system of parks, trails and open space that are a core organizing element for the community and designed to facilitate connectivity and interaction among the residents. Amenities include two major neighborhood parks, each in excess of five acres, as well as pocket parks within each development parcel that are one to two acres in size and contain passive and recreational areas and amenities such as seating areas, ramadas, shade structures, playground equipment, picnic areas and turf play areas. Each residential neighborhood maintains its own distinct identity through unique entry signage as well as by a themed park that is the heart of the neighborhood.

LAS BRISAS PHASE 2 OVERVIEW

Las Brisas Phase 2 continues the single family development pattern that was established with Las Brisas Phase 1 and is intended to reflect a seamless continuation of the initial development

concept. Phase 2 is comprised of 311 acres that is divided into 8 development parcels with an approximate total of 997 single family residential lots. Five distinct lot sizes are provided within Las Brisas Phase 2 and will accommodate Taylor Morrison's Encore, Discovery and Expedition series product lines. Twelve different floor plans will be offered with three elevation options for each floor plan as well as multiple color schemes. The result is that significant diversity in home styles will be available to fulfill a variety of consumer preferences and ensure diversity within the community. Las Brisas Phase 2 contains one of the large neighborhood parks and is also home to the Las Brisas Academy Elementary School and a future neighborhood commercial center. The following **Table 1** on page 11 provides a parcel by parcel summary of the projected unit counts, density, and open space projections for Las Brisas Phase 2.

LAS BRISAS PHASE 2
RESIDENTIAL LAND USE SUMMARY

TABLE 1

Parcel	Gross Acres	Target # of Units	Zoning Designation	Arterial ROW	Net Acres	Net Density	Open Space Acreage	% Open Space
Las Brisas Phase 1 (Not a Part)								
Parcel 1.1	35.2	105	70 x 120	1.3	33.9	3.10	5.4	15.9%
Parcel 1.2	41.9	107	80 x 125	0.7	41.2	2.60	7.6	18.4%
Parcel 1.3	38.7	112	60 x 117	0.6	38.1	2.94	11.1	29.1%
Phase 1 Totals	115.8	324		2.6	113.2	2.86	24.1	21.3%
Las Brisas Phase 2								
Parcel 2A.1	43.2	166	SF-6,400	2.0	41.2	4.03	5.8	14.1%
Parcel 2A.2	44.2	130	Sf-8,400	0.0	44.2	2.94	9.0	20.4%
Parcel 2B.1	7.0	20	SF-7,800	0.0	7.0	2.86	1.2	20.4%
Parcel 2B.1	19.4	66	SF-6,400	0.0	19.4	3.40	5.2	26.8%
Parcel 2B.2	31.3	107	SF-7,000	0.0	31.3	3.42	4.3	13.7%
Parcel 2B.3	34.9	123	SF-6,400	1.4	33.5	3.67	6.9	20.6%
Parcel 2C.1 - 2C.4	64.6	225	SF-6,400	2.4	62.2	3.62	13.7	22.0%
Parcel 2C.5	21.1	75	SF-5,850	1.1	20.0	3.75	5.0	25.0%
Parcel 2C.6	24.3	85	SF-7,000	1.6	22.7	3.74	2.6	11.5%
Park Phase 2	5.2	0	SF-7,000	0.0	5.2	0.0	5.2	100.0%
School	16.2	0	SF-7,000	0.0	16.2	0.0	0.0	-
Phase 2 Totals	311.4	997		8.5	302.9	3.29	58.9	19.4%
Las Brisas Overall TOTALS	427.2	1321		11.1	416.1	3.17	83.0	20.8%

PARKS, OPEN SPACE & COMMUNITY CONNECTIVITY

The parks, open space and pedestrian connectivity system within Las Brisas is a hallmark of the community's design concept and creates the social backbone for Las Brisas. By providing a seamless and interconnected system of parks, open space areas and multi-use trails and sidewalks, Las Brisas provides safe routes to school for community children and opportunities for residents to socially connect with friends and neighbors in different parts of the community.

The design of the parks and open space system consists of a blend of intimate pocket parks located within each development parcel and two larger neighborhood parks designed to accommodate community-wide recreation needs. The neighborhood park and pocket parks will include active and passive amenities such as turf play areas, active playground equipment, shade and seating areas. To ensure sustainable design, the parks are dual purpose facilities. Retention areas will be incorporated into each park, generally in the turf play areas; however, playgrounds, sidewalk areas and other recreational amenities will be located outside designated retention areas. In addition, an extensive system of community sidewalks, multi-use trails and bike paths ensure opportunities for non-motorized circulation.

The *Las Brisas Overall Landscape Concept Plan* can be found in **Appendix C**.

NEIGHBORHOOD PARK

The neighborhood park within Las Brisas Phase 2 is located in Parcel 2C.6 consists of approximately 5.2 acres and is centrally located to the immediate east of the Las Brisas Academy school. The park is designated for use by all Las Brisas residents and is easily accessible via pedestrian and vehicular corridors. Amenities in the Las Brisas Phase 2 neighborhood park will include turf play areas, playground equipment, a basketball court, shade structures, ramadas, tree bosque and seating areas. The park is directly accessible from the multi-use paths and sidewalks that provide connectivity throughout the entire community. A detail of the neighborhood park can be found in **Appendix D**.

The Las Brisas Phase 2 neighborhood park is one of two larger parks within the overall Las Brisas master plan. A second, larger neighborhood park of approximately 9.1 acres was developed within Las Brisas Phase 1.

POCKET PARKS

A total of seven pocket parks are strategically located within Las Brisas Phase 2 at the entry of each individual development parcel. Three additional pocket parks are included in Las

Brisas Phase 1. All parks classified as pocket parks are a minimum of one acre in size and will include a combination of active and passive recreation opportunities. As noted above, a signature land planning element for Las Brisas is that a pocket park is strategically located at the entrance to each development parcel. This provides a sense of arrival and emphasizes the social importance of the pocket park areas as a gathering spot for community residents. In some neighborhoods, homes face onto the park areas in classic neo-traditional style while other park areas are framed by homes that will likely include some view fencing within backyards. All pocket parks will be accessible from multiple directions and via multiple access points. Concepts for the pocket parks located within parcels 2B.1, 2B.2, 2B.3 and 2C.5 can be found in **Appendix E**. These concepts are typical for all pocket parks within Las Brisas Phase 2.

COMMUNITY TRAILS AND BIKE PATHS

Las Brisas Phase 2 includes an extensive pedestrian and non-motorized vehicle circulation network that includes sidewalks, a multi-use trail system and bike paths to provide interconnectivity between the individual development parcels, recreational amenity areas and other community destinations. Las Brisas Drive and 185th Avenue will include an eight-foot separated sidewalk along a lushly landscaped and shaded corridor. Bike paths are also provided along these roadways as well as along 183rd Avenue. A multi-use trail is incorporated into the community design to provide off-street access through the community. A cross-section of the multi-use trail is located in **Appendix F**.

WATER CONSERVATION AND SUSTAINABILITY

Las Brisas Phase 2 has been designed with a lush and inviting landscape environment that respects our desert climate through the use of water-wise plants that are sustainable and enduring. Turf is strategically and purposefully used throughout the community within active recreation areas to facilitate outdoor play and create relief in the desert landscape. As water conservation and sustainable development measures evolve, the landscape palette within Las Brisas Phase 2 may change over time. In response to anticipated future cost increases for water resources, turf areas within the Las Brisas may be replaced and limited to active recreation areas in the future, and at the discretion of the homeowner's association.

CIRCULATION

Las Brisas Phase 2 is designed in conformance to the City of Goodyear "*Roadway Functional Classification Plan*" as contained in the General Plan. The following roadways provide the major circulation components for Las Brisas Phase 2:

PERRYVILLE ROAD

The property is bounded on the west by Perryville Road, which also serves as the jurisdictional boundary between the City of Goodyear and the City of Buckeye. Perryville Road is classified as an arterial roadway. All necessary right-of-way has been dedicated and the east half of the roadway has been constructed adjacent to the residential areas to its final configuration. Perryville Road adjacent to the commercial area will be completed at the time the commercial parcel is developed.

CITRUS ROAD

Citrus Road traverses along the eastern boundary of Las Brisas. Citrus Road is classified as an arterial road and will be improved in conjunction with development of Parcels 2B.3 and 2C.5.

BROADWAY ROAD

Broadway Road serves as the south boundary of Las Brisas and is classified as a minor arterial road. The north half of Broadway Road will be improved in conjunction with the development of Parcel 2C.6. Broadway Road adjacent to the commercial area will be completed at the time the commercial parcel is developed.

LAS BRISAS DRIVE AND 185TH AVENUE

Las Brisas Drive and 185th Avenue are the major internal circulation corridors for Las Brisas. Las Brisas Drive bisects the project from east to west while 185th Avenue bisects the project from north to south. These roadways serve as the backbone circulation for the community and are designed to efficiently route local traffic through the project to the regional transportation corridors discussed above. Las Brisas Drive and 185th Avenue utilize a vehicular pavement cross-section similar to a minor collector, and are heavily landscaped corridors with oversized sidewalks designed to accommodate pedestrian and other non-motorized traffic. A distinctive roundabout has been constructed at the confluence of Las Brisas Drive and 183rd Avenue, also at the entrance to the Las Brisas Academy school,

which serves as a signature design feature and traffic calming measure. See **Appendix G** for landscape and design concepts for Las Brisas Drive, 185th Avenue and the roundabout.

ENTRY MONUMENTS

The entrances to Las Brisas Phase 2 are located at 183rd Avenue off Broadway Road, Las Brisas Drive and Citrus Road, and Las Brisas Drive and Perryville Road. Similar to the entrance to Las Brisas Phase 1, the entrances to Las Brisas Phase 2 are designed to evoke an agricultural feel and create a sense of arrival. These entrances will include landscape and hardscape components such as palm tree groves, a split rail fence, masonry block theme wall and an eight-foot sidewalk on either side of the entry. Entry monument signage will be placed on one side of the entry except that entry monument signs will be placed on either side of the entry at Las Brisas Drive and Citrus Road.

Entrances to each individual development parcel include a lushly landscaped open space area with a separated sidewalk and community theme walls, including split rail fence details. Design concepts for the Las Brisas Phase 2 primary entry and residential parcel entries, as well as community theme walls, are included in **Appendix H**.

TRAFFIC IMPACT STUDY

A detailed Traffic Impact Study was prepared and submitted to staff in conjunction with the original 2006 zoning case. A Traffic Compliance Letter dated October 17, 2016 is included as **Appendix I** and concludes that the project remains in substantial conformance with 2006 Traffic Impact Study.

REGULATORY STANDARDS

The regulatory development standards, including permitted uses, setbacks, lot size requirements, and design requirements are provided in a separate document titled Las Brisas Phase 2 Final PAD Regulatory Standards Booklet.

January 18, 2017

Robert Johnson
Land Planning and Development Manager
Taylor Morrison
9000 East Pima Center Parkway, Suite 350
Scottsdale, Arizona 85258

RE: Water Study Compliance Letter for Las Brisas Phase 2 – 2016 PAD Amendment

Dear Mr. Johnson:

Per your request, Goodwin and Marshall (G&M) has prepared this technical memorandum as a summary of the impacts to the West Goodyear Central Planning Area (WGCPA) Master Water Study Update prepared in December 2012 and approved by the City in January 2013 (herein referenced as the Approved Master Study) based on the proposed PAD Revision / revised land plan and density changes for Las Brisas Phase 2.

The updated Las Brisas land plan evaluated for the purpose of this analysis is titled Las Brisas Phase 2 Context Plan and dated 9/14/2016. In general, the PAD revision / revised land plan proposes to increase the overall Las Brisas Phase 2 residential dwelling unit count from 912 to 997 when compared to the original approved PAD lot count (85 lot increase). The Master Water Study accounted for a residential unit count for Las Brisas Phase 1 of 324 residential lots and Phase 2 of 891 residential lots. For the purpose of the study, the dwelling units provided in the Master Water Study (1,215) will be compared to the new Las Brisas Land Plan (1,321 total lots) (106 lot increase). The total lot count used and water demand calculated for the Las Brisas development along with the total lot count and water demand of the WGCPA were analyzed to evaluate compliance.

Per Figure 3 of the WGCPA Master Water Study Update, the single-family residential demands modeled for the Las Brisas development were calculated based on a total lot count of 1,215 lots resulting in an average daily demand of 330 gallons per minute (gpm), excluding any demands associated with the Las Brisas school site and commercial pad. The overall lot count within the WGCPA included 7,993 lots, and the total average daily demand was calculated at 3,250 gpm. The proposed Las Brisas Phase 2 2016 PAD Amendment proposes an increase to the number of lots within Phase 1 & 2 of Las Brisas to a total of 1,321 single-family residential lots. The lot increase of 106 single-family results in an overall lot count of 8,099 single-family lots and an average daily demand of 3,280 gpm.

Per the review comments received as part of the review of the PAD, we have provided Table 1 which illustrates the reduction in pressure at 2 nodes adjacent to the Las Brisas development as a result of the increased demands. Because we do not have access to the water model that was prepared in support of the Master Water Study, a simplified and conservative approach has been utilized computing the anticipated head loss through 4 pipe segments from the Water Treatment Plant to nodes at the Citrus Road & Broadway Road intersection and the Lower Buckeye Road and Perryville Road intersection. Table 1 illustrates a reduction in pressure of approximately 0.13 psi during the Average Day Demand Scenario. Figure 1 illustrates the segments analyzed under the scenario described above. As has been

the case with previous development of the Las Brisas project, individual water reports will be prepared and submitted in conjunction with preliminary plat submittals to further illustrate conformance with the WGCPA Master Water Study Update and City of Goodyear requirements related to potable water delivery.

If you require additional information or have any questions about our submittal items, please do not hesitate to call or e-mail me (602-218-7285 or bcaldwell@gmcivil.com).

Sincerely,
Goodwin & Marshall, Inc.

Brent Caldwell

Brent Caldwell, P.E.



TABLE 1: WATER STUDY COMPLIANCE CALCULATIONS

West Goodyear Central Planning Area (WGCPA) Master Water Study Update

PIPE SEGMENT #1 - WTP TO YUMA ROAD		
Flow Rate	3,250	gpm
Pipe Length	2,640	feet
Pipe Diameter	24	inches
C	130	
Segment Headloss	2.08	feet
	0.90	psi

PIPE SEGMENT #2 - YUMA RD TO LOWER BUCK		
Flow Rate	1,200	gpm
Pipe Length	5,280	feet
Pipe Diameter	16	inches
C	130	
Segment Headloss	4.72	feet
	2.05	psi

PIPE SEGMENT #3 - LOWER BUCK TO BROADW		
Flow Rate	400	gpm
Pipe Length	5,280	feet
Pipe Diameter	16	inches
C	130	
Segment Headloss	0.62	feet
	0.27	psi

PIPE SEGMENT #4 - CITRUS TO PERRYVILLE		
Flow Rate	400	gpm
Pipe Length	5,280	feet
Pipe Diameter	16	inches
C	130	
Segment Headloss	0.62	feet
	0.27	psi

Total Pressure Loss @ Node 22820 **3.22**

Total Pressure Loss @ Node 22678 **3.22**

ADD Pressure @ Node 22820 **83.00**

ADD Pressure @ Node 22678 **66.00**

Las Brisas Phase 2 PAD Revision / Context Plan

PIPE SEGMENT #1 - WTP TO YUMA ROAD		
Flow Rate	3,280	gpm
Pipe Length	2,640	feet
Pipe Diameter	24	inches
C	130	
Segment Headloss	2.11	feet
	0.92	psi

PIPE SEGMENT #2 - YUMA RD TO LOWER BUCK		
Flow Rate	1,230	gpm
Pipe Length	5,280	feet
Pipe Diameter	16	inches
C	130	
Segment Headloss	4.94	feet
	2.14	psi

PIPE SEGMENT #3 - LOWER BUCK TO BROADW		
Flow Rate	415	gpm
Pipe Length	5,280	feet
Pipe Diameter	16	inches
C	130	
Segment Headloss	0.66	feet
	0.29	psi

PIPE SEGMENT #4 - CITRUS TO PERRYVILLE		
Flow Rate	415	gpm
Pipe Length	5,280	feet
Pipe Diameter	16	inches
C	130	
Segment Headloss	0.66	feet
	0.29	psi

Total Pressure Loss @ Node 22820 **3.35**

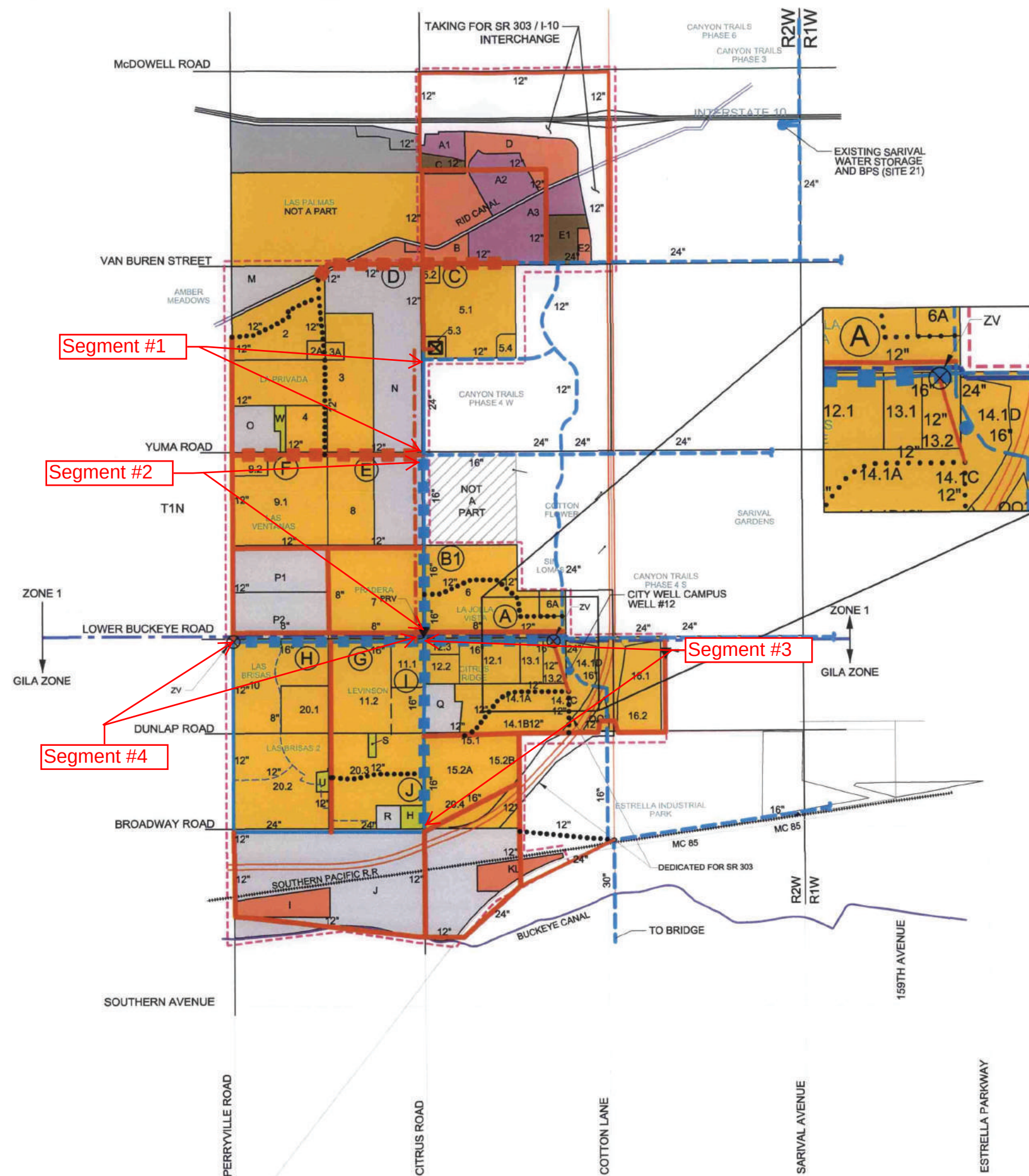
Total Pressure Loss @ Node 22678 **3.35**

ADD Pressure @ Node 22820 **82.87**

ADD Pressure @ Node 22678 **65.87**

Pressure Reduction @ Node 22820 **0.13**

Pressure Reduction @ Node 22678 **0.13**



LEGEND

- STUDY AREA BOUNDARY
- EXISTING WATER MAIN OUTSIDE SERVICE AREA
- EXISTING REGIONAL WATER LINES FOR WGCPA (NOT A PART OF ANY CRO)
- WATER MAIN INSTALLED AS PART OF 2006 CRO
- PROPOSED NEW PROJECT SPECIFIC WATER LINES
- PROPOSED ZONE SUPPLY LINE
- CRO REGIONAL WATER MAINS NOT YET BUILT
- EXISTING SUBDIVISION WATER LINES
- OTHER FUTURE SUBDIVISION WATER MAINS
- 11 IDG DEVELOPMENT PROPERTY
- B ADDITIONAL DEVELOPMENT PROPERTY
- X WEST GOODYEAR WTF
- ANTICIPATED SR 303 ALIGNMENT
- PRESSURE ZONE BOUNDARY
- X ZONE VALVE (ZV)
- ▼ PRESSURE REDUCING VALVE (PRV)

PROPOSED CITY MASTER STUDY WATER MAINS

- (A) LOWER BUCKEYE: 173RD AVE. TO CITRUS RD.
- (B1) CITRUS: LOWER BUCKEYE RD. TO YUMA RD.
- (C) VAN BUREN: CITRUS RD. TO 175TH AVE.
- (D) VAN BUREN: CITRUS RD. TO RID CANAL
- (E) YUMA: CITRUS RD. TO 183RD AVE.
- (F) YUMA: 183RD AVE. TO PERRYVILLE RD.
- (G) LOWER BUCKEYE: CITRUS RD. TO 183RD AVE.
- (H) LOWER BUCKEYE: 183RD AVE. TO PERRYVILLE RD.
- (I) CITRUS: LOWER BUCKEYE RD. TO DUNLAP RD.
- (J) CITRUS: DUNLAP RD. TO 183RD AVE.



SCALE: N.T.S.

January 17, 2017

Robert Johnson
Land Planning and Development Manager
Taylor Morrison
9000 East Pima Center Parkway, Suite 350
Scottsdale, Arizona 85258

**Re: Sewer Technical Memorandum for Las Brisas Phase 2 – 2016 PAD Amendment
Impact Summary to the 2014 West Goodyear Central Planning Area Master Wastewater Study**

Dear Mr. Johnson:

Per your request, Goodwin and Marshall (G&M) has prepared this technical memorandum as a summary of the impacts to the *West Goodyear Central Planning Area Master Wastewater Study Supplement 1* (herein referenced as the Approved Master Study) based on the proposed PAD Revision / revised land plan and density changes for Las Brisas Phase 2. The updated Las Brisas land plan evaluated for the purpose of this analysis is titled Las Brisas Phase 2 Context Plan and dated 9/14/2016. In general, the PAD revision / revised land plan proposes to increase the overall Las Brisas Phase 2 residential dwelling unit count from 912 to 997 when compared to the original approved PAD lot count (85 lot increase). The Master Wastewater Study accounted for a residential unit count for Las Brisas Phase 2 of 891. For the purpose of the study, the dwelling units provided in the Master Wastewater Study (891) will be compared to the new Las Brisas Land Plan (997) (106 lot increase).

The findings in this report show the cumulative average flow (gpd) generated by Las Brisas (Phase 1 and Phase 2) is proposed to increase from 575,352 gpd to 593,916 gpd or an increase in 3.23%. The results of this analysis show that all proposed and existing sewer infrastructure have adequate capacity to serve the increase in sewer flow and associated increase in density for Las Brisas Phase 2.

Analysis

The Approved Master Study dated February 6, 2014 is the most recent approved master plan for the area including the Las Brisas development. Specifically, *Table 2a – Wastewater Generated Flows, IDG Properties* and *Table 4: Ultimate Sewer System* contains both the basin sewer flows and the system capacity analysis that has been evaluated for the increase in density within the Las Brisas Development. *Table 2a* from the Approved Master Study (referenced as Table 1 within this technical memorandum) can be seen on Page 3. *Table 4* from the Approved Master Study can be found in **Appendix A**. The cells within the spread sheets that are subject to change as part of the Las Brisas update are highlighted in yellow.

Table 1: Wastewater Generated Flows, IDG Properties

West Goodyear Central Planning Area
Master Wastewater Study Update Supplement 1

Coe & Van Loo Consultants, Inc.
CVL Project No.: 1.07.0112705

Area ID	Property	DU's	Unit Flow Lines ≥ 15" (gpd/du)	Unit Flow (gpad)	Average Flows (gpd)	Peak Flows Line Sizes ≥ 15" (gpd)	Unit Peak Flow Line Sizes ≤ 12" (gpd/du)	Peak Flow Line Sizes ≤ 12" (gpd)
1	Las Palmas	750	144		108,000	312,120	1,000	750,000
2	Amber Meadows	293	144		42,192	121,935	1,000	293,000
2A	Amber Meadows School			1,019	6,114	17,669	-	-
3	La Privada	569	144		81,936	236,795	1,000	569,000
3A	La Privada School			1,019	6,114	17,669	-	-
4	Paseo Ridge Phase II (*Lees)	135	144		19,440	56,182	1,000	135,000
5.1	Silva-Rose Gardens	384	144		55,296	159,805	1,000	384,000
5.2	Silva-Rose			951	6,657	19,239	-	-
5.3	Silva-Rose Gardens			1,019	10,190	29,449	-	-
5.4	Silva-Rose Gardens			1,019	8,152	23,559	-	-
6	La Jolla Vista	688	144		99,072	286,318	1,000	688,000
6A	La Jolla Vista School	-	-	1,019	12,228	35,339	-	-
7	Pradera	456	144		65,664	189,769	1,000	456,000
8	Paseo Ridge Phase I (*Van Leemven)	214	144		30,816	89,058	1,000	214,000
9.1	Las Ventanas Single Family	412	144		59,328	171,458	1,000	412,000
9.2	Las Ventanas			951	14,265	41,226	-	-
10	Las Brisas Phs 1	324	144		46,656	134,836	1,000	324,000
11.1	Levinson			951	25,677	74,207	-	-
11.2	Levinson	422	144		60,768	175,620	1,000	422,000
12.1	Citrus Ridge			1019	50,950	147,246	-	-
12.2	Citrus Ridge (R1-6)	90	129		11,610	33,553	1,000	90,000
12.3	Citrus Ridge (C2)			951	7,998	23,114	-	-
13.1	Cotton Commons (MHD)	300	124		37,200	107,508	1,000	300,000
13.2	Cotton Commons (MD)	160	128		20,480	59,187	1,000	160,000
14.1a	El Cidro (*El Cidro Ranch)	159	144		22,896	66,169	1,000	159,000
14.1b	El Cidro (*El Cidro Ranch)	103	129		13,287	38,399	1,000	103,000
14.1c	El Cidro (*El Cidro Ranch)	35	144		5,040	14,566	1,000	35,000
14.1d	El Cidro (*El Cidro Ranch)	74	129		9,546	27,588	1,000	74,000
15.1	El Cidro (*El Cidro Ranch)	164	144		23,616	68,250	1,000	164,000
15.2a	El Cidro (*El Cidro Ranch)	164	144		23,616	68,250	1,000	164,000
15.2b	El Cidro (*El Cidro Ranch)	162	129		20,898	60,395	1,000	162,000
16.1	El Cidro (*El Cidro Ranch)	152	144		21,888	63,256	1,000	152,000
16.2	El Cidro (*El Cidro Ranch)	94	144		13,536	39,119	1,000	94,000
17	Canyon Trails 4 West (Centex)	1,064	144		153,216	442,794	1,000	1,064,000
18	Canyon Trails 4 South (TM)	717	144		103,248	298,387	1,000	717,000
19	Sin Lomas	135	144		19,440	56,182	1,000	135,000
20.1	Las Brisas Phase 2	111	144		15,984	46,194	1,000	111,000
20.2	Las Brisas Phase 2	416	144		59,904	173,123	1,000	416,000
20.3	Las Brisas Phase 2	364	129		46,956	135,703	1,000	364,000
20.3A	Las Brisas Phase 2 School			1019	16,915	48,886		
20.4	El Cidro (*El Cidro Ranch)	155	129		19,995	57,786	1,000	155,000
20.5	Las Brisas Phase 2			951	18,193	52,577		
	GRAND TOTAL	9266			1,494,977	4,320,485		

Note: 1. All bolded and italicized cells have been modified.
2. Names with an asterisk (*) are former names of the development.

Table 2: Wastewater Generated Flows, Updated

Area ID	Property	DU's	Unit Flow Lines $\geq$ 15" (gpdu)	Unit Flow (gpad)	Average Flows (gpd)	Peak Flows Line Sizes $\geq$ 15" (gpd)	Unit Peak Flow Line Sizes $\leq$ 12" (gpdu)	Peak Flow Line Sizes $\leq$ 12" (gpd)
20.1	Las Brisas Phase 2	130	144		18,720	54,101	1,000	130,000
20.2	Las Brisas Phase 2	477	144		68,688	198,508	1,000	477,000
20.3	Las Brisas Phase 2	390	144		56,160	162,302	1,000	390,000

Wastewater Generated Flow Update

The wastewater generated flows shown in **Table 1** were modified for the dwelling units contained in the updated Las Brisas plan. The Area ID's that were updated can be found in **Table 2**. Area ID 20.1, 20.2, & 20.3 contain the modified dwelling units for Las Brisas. In summary, Area ID 20.1 increased from 111 dwelling units to 130 dwelling units, Area ID 20.2 increased from 416 dwelling units to 477 dwelling units and Area ID 20.3 increased from 364 dwelling units to 390 dwelling units (total 106 lot increase).

Ultimate Sewer Design Update

The system capacity analysis (Ultimate Sewer System) was updated with the applicable wastewater generated flows as discussed above – see **Table 3 in Appendix A**. Values updated to reflect an increase in density or sewer line slope change are shown in red text within in this table. Sanitary sewer flows and pipe line capacities were tracked from the first point where an updated Area ID enters the sewer system. In accordance with the Approved Master Report, the updated flows and pipe line capacities were carried through the system to the Las Brisas Lift Station.

Please note, an error for Area ID 11.2 was also found in the Ultimate Sewer System design and corrected as part of this analysis. The peak flow, per the Approved Master Report, should relate to 2/3 of the total peak flow generated from 11.2 Area ID. The total peak flow is 422,000 gpd. Two thirds of 422,000 is 281,333, however the approved worksheet showed the peak flow to be 337,600 gpd. This peak flow error is rectified in **Table 4 in Appendix B**.

Results

Based on the analysis contained within the updated Ultimate Sewer Design worksheet, all proposed and existing sanitary sewer lines have adequate capacity to serve the proposed Las Brisas land plan and associated peak sewer flow of 593,916 gpd. The results of the analysis show that all sewer mains within this Las Brisas lift station sewer basin have a $d/D \leq 0.80$. This analysis was terminated at the Las Brisas lift station as the regional sanitary sewer mains down stream of this location are shown to have a d/D of ≤ 0.55 .

Though not included in the Approved Master Study, a brief evaluation of the Las Brisas lift station has been provided. The Las Brisas Lift Station is designed to handle an estimated ultimate daily peak sewer load of 2.98 MGD. Phase 1 of the lift station is currently operational and has a capacity of approximately 1.79 MGD (*See Lift Station Report for Las Brisas Lift Station Release Date: September 20, 2007*). The average flow to the lift station as generated by the Las Brisas project at full build out is 445,688 gpd / 1.43 MGD peak flow. Based on this information the existing lift station as currently designed and operated has adequate capacity for the proposed flows.

In summary, G&M has utilized all historical data and design demand parameters to provide revisions to the West Goodyear Central Planning Area Master Wastewater Study per the proposed Las Brisas Phase 2 PAD revision and associated land plan. G&M has updated the existing ultimate sewer system analysis to accommodate the additional dwelling units and sewer line slope revisions. All proposed and existing sewer infrastructure has adequate capacity to serve the West Goodyear Central Planning Area members and the proposed density of the Las Brisas development.

Sincerely,

Goodwin and Marshall, Inc.



Warren Russell, P.E.



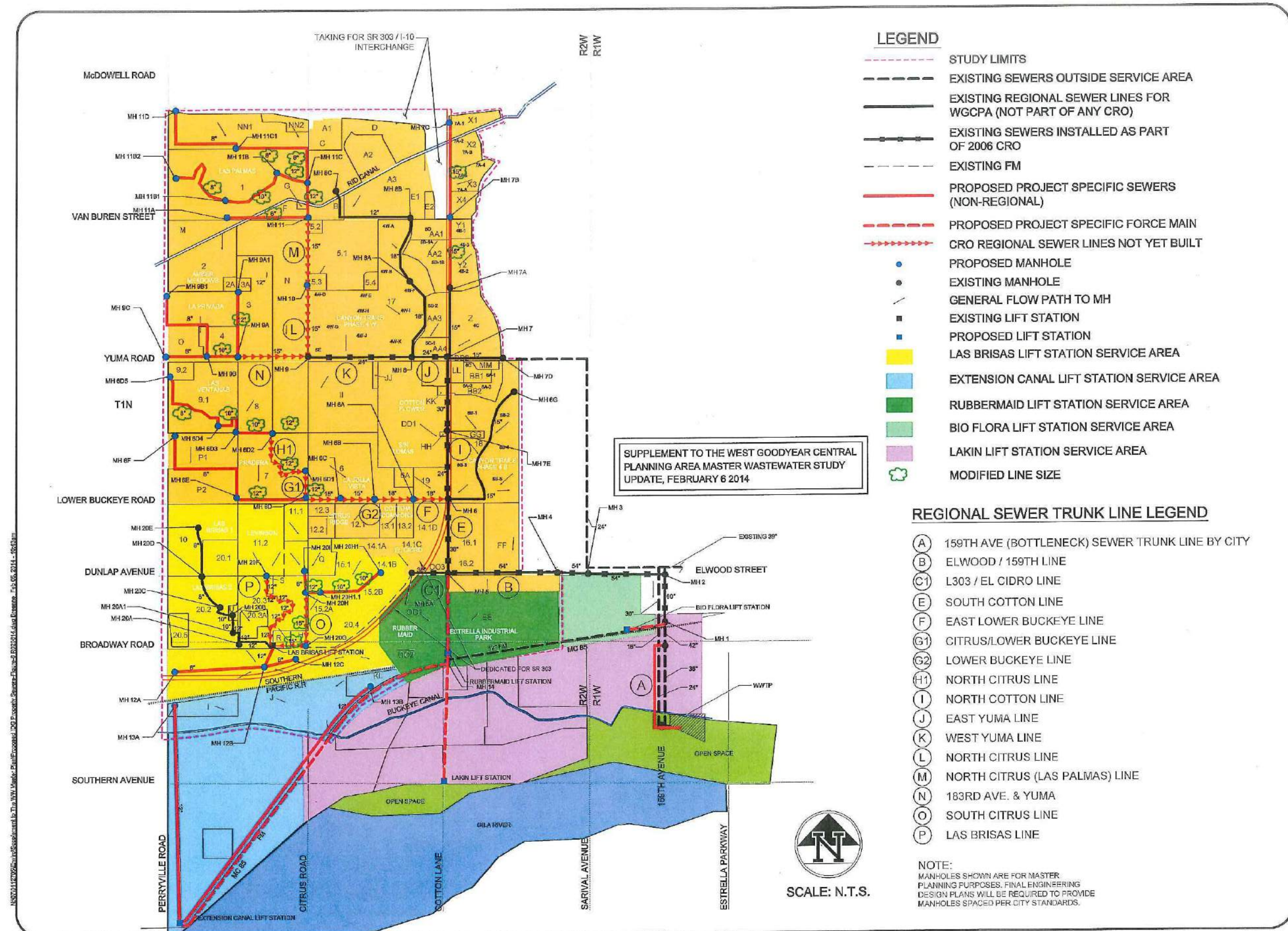


Table 4: Ultimate Sewer System
Supplement to the WGPCA Master Wastewater Study Update February 6, 2014

Start MH	End MH	Area ID	Average Flow (gpd)	Cumulative Average Flow (gpd)	Peaking Factor	Residential Peak Flow (Line Sizes 8" to 12") (gpd)	Total Estimated Peak Flow: Lines < 12" (gpd)	Total Estimated Peak Flow: Lines > 12" (gpd)	Estimated Ground Elevation (feet)	Estimated Length (feet)	Line Diameter (inches)	Sewer Line Slope (ft/ft)	Estimated Start Depth (feet)	Estimated Start Invert Elevation (ft)	Mid-line Bend Drops (ft)	Estimated End Invert Elevation (ft)	Sewer Line Capacity (gpd)	% Full (Q/Q _c)	Velocity Flowing Full (fps)	Depth of Flow (in) (goal seek)	X-sec Area of Flow (SF)	Hyd Radius (ft)	± 0	Actual Peak Velocity (fps)	d/D
		P2	12000	44,400		75,000	300,000	128,316	956	4,515	8	0.0033	6.7	950.68	0.00	935.78	446529	67%	2.0	4.776	0.217	0.185	0.00	2.1	0.60
				44,400	2.89																				
6a	6d	Flow from line 6f - 6a	44400	44,400		300,000																			
		7	65664	110,064		456,000	766,000	318,085	942	2,560	12	0.0030	5.9	935.44	0.00	927.76	1261154	60%	2.5	6.683	0.449	0.267	0.00	2.6	0.56
				110,064	2.89																				
6d	6c	Flow From Line 6e to 6d	110064	110,064																					
		Flow From Line 6d2 to 6d	145122	255,186																					
		12.2	11610	266,796																					
		12.3	7998	274,794																					
				274,794	2.89			794,155	937	1297	15	0.0022	8.2	927.51	0.20	924.46	1958147	41%	2.5	6.637	0.524	0.288	0.00	2.3	0.44
6c	6b	Flow From Line 6d - 6c	274794	274,794																					
		2/5 6	39629	314,423																					
		12.1	50950	365,373																					
				365,373	2.89			1,055,928	946	1354	15	0.0022	20.1	924.46	0.00	921.48	1958147	54%	2.5	7.830	0.948	0.321	0.00	2.5	0.52
6b	6a	Flow From Line 6c - 6b	365373	365,373																					
		13.1	37200	402,573																					
		13.2	20480	423,053																					
		2/5 6	39629	462,682																					
				462,682	2.89			1,337,151	948	1313	18	0.0017	25.6	921.23	0.00	919.00	2799036	48%	2.5	8.747	0.852	0.368	0.00	2.4	0.49
6a	6	Flow From Line 6b - 6a	462682	462,682																					
		6A	12228	474,910																					
		1/5 6	19814	494,724																					
		19	19440	514,164																					
				514,164	2.89			1,485,935	945	1,491	18	0.0031	24.2	919.00	0.00	914.35	3791716	39%	3.3	7.813	0.736	0.341	0.00	3.1	0.43
6	5	Flow From Line 7e-6	1748215	1,748,215																					
		Flow From Line 6a-6	514164	2,262,379																					
		16.1	21888	2,284,267																					
		FF	12800	2,297,067				6,638,524	937	2,762	36	0.0015	20.3	913.90	0.00	909.86	16485782	40%	3.6	15.866	3.002	0.689	0.00	3.4	0.44
				2,297,067	2.89																				
20i	20h	1/3 11.2	20256	20,256		84,400																			
		11.1	25677	45,933																					
		Q	12960	58,893		90,000	248,607	170,201	919	390	8	0.0323	19.5	898.82	0.00	886.22	1403563	18%	6.2	2.276	0.082	0.109	0.00	4.7	0.28
				58,893	2.89																				
20h1	20h1.1	14.1B	13287	13,287		103,000																			
		3/10 14.1A	7056	20,343		49,000																			
		15.2B	20898	41,241		162,000	314,000	119,186	920	2,025	10	0.0027	26.2	892.97	0.00	887.42	741295	42%	2.1	4.535	0.240	0.195	0.00	2.0	0.45
				41,241	2.89																				
20h1.1	20h	Flow From Line 20h1-20h1.1	41241	41,241		314,000																			
		15.2A	23616	64,857		164,000																			
		15.1	23616	88,473		164,000	642,000	255,687	915	475	12	0.0030	26.7	887.25	0.00	885.92	1264836	51%	2.5	6.042	0.396	0.251	0.00	2.5	0.50
				88,473	2.89																				
20e	20d	1/3 10	15552	15,552		108,000																			
				15,552	2.89			44,945	939	1,842	8	0.0020	8.0	930.33	0.00	926.65	349257	31%	1.5	3.049	0.122	0.138	0.00	1.4	0.38
20d	20c	Flow From Line 20e to 20d	15552	15,552		108,000																			
		2/3 10	31104	46,656		216,000																			
		20.1	15884	62,640		111,000	435,000	181,030	928	1,415	8	0.0020	6.0	921.33	0.00	918.50	349257	125%	1.5	7.136	0.329	0.199	-43.79	2.0	0.89
				62,640	2.89																				
20c	20b	Flow From Line 20d-20c	62640	62,640		435,000																			
		20.5	18193	80,833																					
		1/3 20.2	19688	100,801		138,667	626,243	291,314	928	780	10	0.0020	6.9	918.23	0.00	916.67	833246	99%	1.8	8.071	0.472	0.254	0.00	2.1	0.81
				100,801	2.89																				
20b	20a1	Flow From Line 20c-20b	100801	100,801		626,243																			
		U	2160	102,961		15,000																			
		2/3 20.2	39936	142,897		277,333	918,577	412,971	925	682	10	0.0020	7.8	916.40	0.00	915.08	633246	145%	1.8	9.221	0.526	0.245	-164.23	2.7	0.92
				142,897	2.89																				
20a1	20a	Flow from Line 20b to 20a1	142897	142,897		918,577																			
		20.3A	16915	159,812			967,462	461,857	923	638	12	0.0020	6.9	915.08	0.00	913.80	1029728	94%	2.0	9.215	0.647	0.303	0.00	2.3	0.77
				159,812	2.89																				
20a	Las Brisas LS	Flow From Line 20a1-20a	159812	159,812		967,462	967,462	461,857	921	1,344	12	0.0198	6.2	913.80	0.00	887.16	3241715	30%	6.4	4.486	0.268	0.204	0.00	5.6	0.37

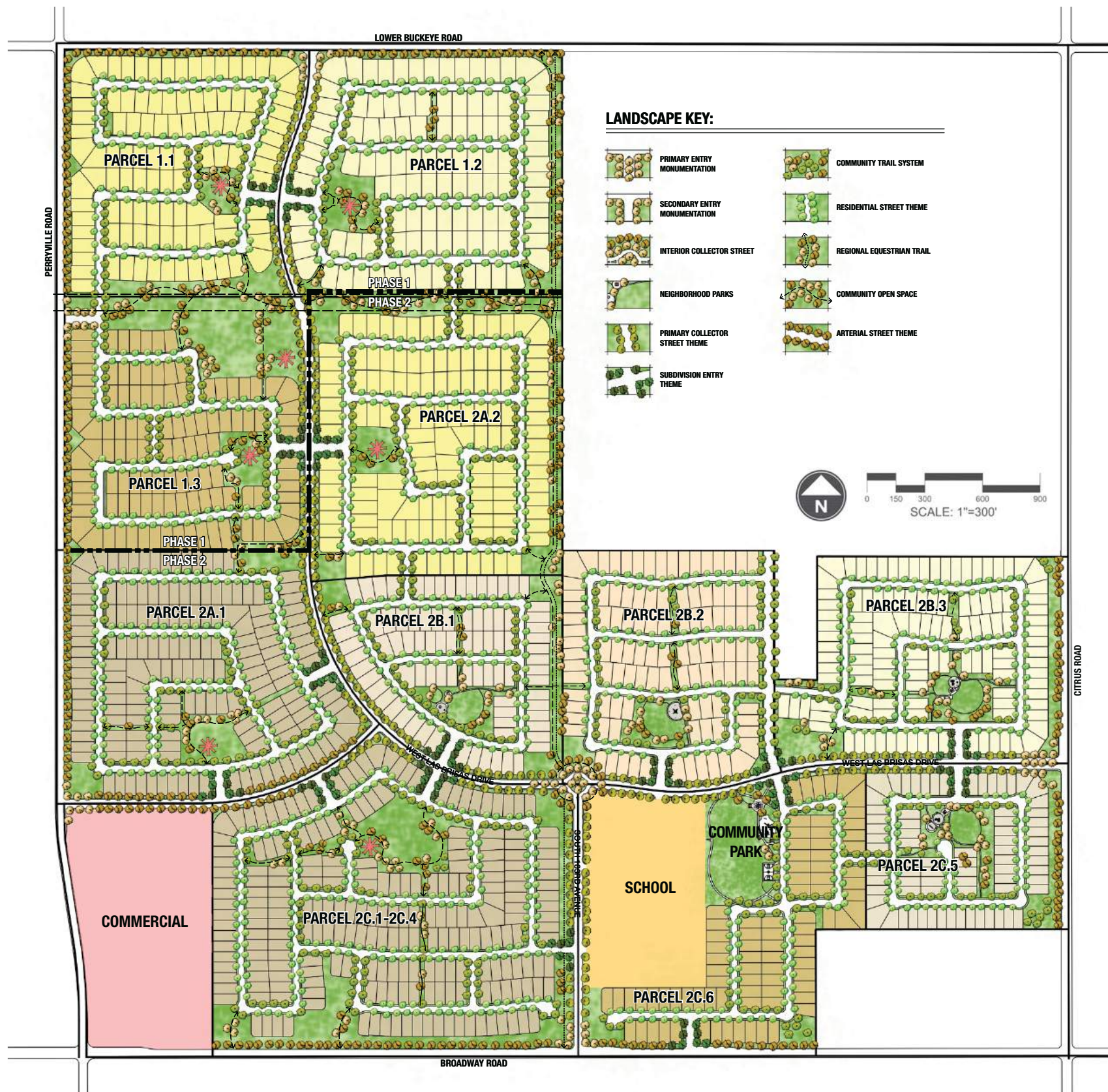
Table 4: Ultimate Sewer System
Supplement to the WGPCA Master Wastewater Study Update February 6, 2014

Start MH	End MH	Area ID	Average Flow (gpd)	Cumulative Average Flow (gpd)	Peeking Factor	Residential Peak Flow (Line Sizes 8" to 12") (gpd)	Total Estimated Peak Flow: Lines ≤ 12" (gpd)	Total Estimated Peak Flow: Lines > 12" (gpd)	Estimated Ground Elevation (feet)	Estimated Length (feet)	Line Diameter (Inches)	Sewer Line Slope (ft/ft)	Estimated Start Depth (feet)	Estimated Start Invert Elevation (ft)	Mid-line Bend Drops (ft)	Estimated End Invert Elevation (ft)	Sewer Line Capacity (gpd)	% Full (Q/Q _c)	Velocity Flowing Full (fps)	Depth of Flow (in) [goal seek]	X-sec Area of Flow (SF)	Hyd Radius (ft)	± 0	Actual Peak Velocity (fps)	d/D
20h	20g	Flow From Line 20i-20h	58893	58,893		248,607																			
		Flow From Line 20h1.1-20h	88473	147,366		642,000																			
		20.4	19995	167,361		155,000																			
				167,361	2.89		1,045,607	483,673	910	1,992	15	0.0022	23.1	885.64	0.00	881.20	1970974	25%	2.5	5.054	0.363	0.235	0.00	2.1	0.34
20f	Las Brisas LS	20.3	46956	48,963		364,000																			
		S	1296	48,262		9,000																			
		2/3 11.2	40512	88,764		337,600																			
				88,764	2.89		710,600	256,528	928	4,297	12	0.0054	16.0	910.52	0.00	887.16	1697701	42%	3.3	5.405	0.343	0.233	0.00	3.2	0.45
20g	Las Brisas LS	Flow from Line 20h-20g	167361	167,361		1,045,607																			
		R	4320	171,681		30,000																			
		H	4320	176,001		30,000																			
				176,001	2.89		1,105,607	508,643	906	1,350	15	0.0024	23.7	881.10	0.00	877.90	2032554	25%	2.6	5.106	0.369	0.237	0.00	2.1	0.34
12a	12b	1/4 J	75388	75,388																					
				75,388	2.89			217,870	905	3,350	8	0.0037	10.6	893.77	0.00	881.37	475041	46%	2.1	3.797	0.163	0.161	0.00	2.1	0.47
12c	12b	1/4 J	75388	75,388																					
				75,388	2.89			217,870	903	1,200	8	0.0100	9.0	893.37	0.00	881.37	780963	28%	3.5	2.895	0.113	0.132	0.00	3.0	0.36
12b	Las Brisas LS	Flow From Line 12a-12b	75388	75,388																					
		Flow From Line 12c-12b	75388	150,775																					
				150,775	2.89			435,740	905	1,000	12	0.0035	23.0	881.04	0.00	877.54	1362202	32%	2.7	4.658	0.262	0.209	0.00	2.4	0.39
Las Brisas LS	5a	Flow From Line 20f-Las BrisasLS	88764	88,764																					
		Flow From Line 20g-Las Brisas LS	176001	264,765																					
		Flow From Line 20a- Las Brisas LS	159812	424,577																					
		Flow From Line 12b-Las BrisasLS	150775	575,352																					
				575,352	From Table 3			2,980,000	Forcemain																
5a	5	14.1C	5040	5,040																					
		7/10 14.1A	15840	20,880																					
		14d	9546	30,426																					
		003	7817	38,243																					
				38,243	2.89			110,523																	
		Las Brisas Lift Station	2980000					3,090,523	926	1,346	30	0.0015	11.3	912.14		910.10	10266593	30%	3.2	11.258	1.685	0.511	0.00	2.8	0.38
13a	Extension Canal LS	I	38040	38040																					
		1/4 J	75388	113428																					
				113428	2.89			327,805	889	8,000	12	0.0030	6.8	881.20	0.60	857.20	1261154	26%	2.5	4.188	0.242	0.192	0.00	2.1	0.35
13b	Extension Canal LS	1/4 J	75388	75388																					
		K	19020	94408																					
		L	6857	101065																					
				101,065	2.89			292,076	902	11,260	12	0.0030	6.2	894.80	0.20	861.02	1261154	23%	2.5	3.922	0.223	0.183	0.00	2.0	0.33
Extension Canal LS	14	Flow From Line 13a-Extension Canal LS	113428	113,428																					
		Flow From Line 13b-Extension Canal LS	101065	214,492																					
				214,492	From Table 3			1,360,000	Forcemain																
Lakin	14	Lakin Lift Station	2500000	2,500,000	From Table 3			2,500,000	Forcemain																
14	Rubbermaid LS	Extension Canal LS to 14	1360000	1,360,000																					
		Lakin Lift Station	2500000	3,860,000																					
				3,860,000				3,860,000	905	200	24	0.0020	6.0	897.00	0.00	895.60	6539363	59%	3.2	13.239	1.777	0.531	0.00	3.4	0.55
Rubbermaid LS	5	Flow From Line 14 to Rubbermaid LS	3860000	3,860,000																					
		EE	280446	4,140,446																					
		001	53817	4,194,263																					
		002	123375	4,317,638																					
				4,317,638	From Table 3			4,410,000	Forcemain																

Project **Las Brisas**
Date: January 11, 2017
Location: Goodyear, Arizona
Job No. 10508A

Table 4: Ultimate Sewer System Update

Start MH	End MH	Area ID	Average Flow (gpd)	Cumulative Average Flow (gpd)	Peaking Factor	Residential Peak Flow (Line Sizes 8" to 12") (gpdu)	Total Estimated Peak Flow: Lines < 12" (gpd)	Total Estimated Peak Flow: Lines > 12" (gpd)	Estimated Ground Elevation (feet)	Estimated Length (feet)	Line Diameter (inches)	Sewer line Slope (ft/ft)	Estimated Start Depth (feet)	Estimated Start Invert Elevation (ft)	Mid-line Bend Drops (ft)	Estimated End Invert Elevation (ft)	Sewer Line Capacity (gpd)	% full (Q/Qf)	Velocity Flowing Full (fps)	Depth of Flow (in) [goal seek]	X-sec Area of Flow (SF)	Hyd Radius (ft)	= 0	Actual Peak Velocity (fps)	d/D
20d	20c	Flow From Line 20e to 20d	15,552	15,552		108,000																			
		2/3 10	31,104	46,656		216,000																			
		20.1	18,720	65,376		130,000																			
				65,376	2.89		454,000	188,937	928	1415	8	0.0035	6	921.33	0	916.38	462,056	98%	2.0	6.4141	0.29999201	0.202815	-5.77623E-05	2.34	0.80
20c	20b	Flow From 20d-20c	65,376	65,376		454,000																			
		20.5	18,193	83,569		52,577																			
		1/3 20.2	22,896	106,465	2.89	159,000																			
				106,465			665,577	307,684	926	780	10	0.0025	6.9	916.38	0	914.43	708,040	94%	2.0	7.577	0.443392808	0.251895	-7.160607269	2.32	0.76
20b	20a1	Flow From Line 20c-20b	106,465	106,465		665,577																			
		U	-	-		-																			
		2/3 20.2	45,792	152,257	2.89	318,000																			
				152,257			983,577	440,023	925	662	10	0.0048	7.8	914.43	0	911.25	981,088	100%	2.8	7.93	0.463845869	0.253363	-20.8654647	3.28	0.79
20a1	20a	Flow From Line 20b to 20a1	152,257	152,257		983,577																			
		20.3A	16,915	169,172		48886																			
				169,172	2.89		1,032,463	488,907	923	638	12	0.002	6.9	911.25	0	909.97	1,029,799	100%	2.0	9.52	0.668208074	0.304044	-21.64263014	2.39	0.79
20a	Las Brisas LS	Flow From Line 20a1-20a	169,172	169,172	2.89	1,032,463	1,032,463	488,907	921	1344	12	0.005	6.2	909.97	0	903.25	1,628,255	63%	3.2	6.79	0.458341702	0.269162	-21.69752521	3.49	0.57
20f	Las Brisas LS	20.3	56,160	56,160		390,000																			
		S	1,296	57,456		9000																			
		2/3 11.2	40,512	97,968		281333																			
				97,968	2.89		680,333	283,128	928	4297	12	0.0054	16	910.52	0	887.32	1,692,132	40%	3.3	5.28	0.332843394	0.229467	-0.680444775	3.16	0.44
Las Brisas LS	5a	Flow From Line 20f-Las Brisas LS	97,968	97,968																					
		Flow From Line 20g-Las Brisas LS	176,001	273,969																					
		Flow From Line 20a-Las Brisas LS	169,172	443,141																					
		Flow From Line 12b-Las Brisas LS	150,775	593,916																					
				593,916					Forcemain																



PLANT SCHEDULE

SYMBOL	BOTANICAL/COMMON NAME	SIZE
TREES		
	DALBERGIA SISSOO	15 GAL.
	FRAXINUS VELUTINA 'RIO GRANDE'	24" BOX
	PISTACIA X RED PUSH	24" BOX
	PHOENIX DACTYLIFERA	20' HEIGHT TRUNK
	PINUS ELДАРICA	24" BOX
	PLATANUS WRIGHTII	24" BOX
	QUERCUS VIRGINIANA 'HERITAGE' (tm)	24" BOX
	ULMUS PARVIFOLIA	15 GAL.
SHRUBS		
	CAESALPINIA PULCHERRIMA	5 GAL.
	CASSIA PHYLLODENIA	5 GAL.
	EREMOPHILA SP. 'VALENTINE' (tm)	5 GAL.
	LEUCOPHYLLUM L. 'LYNN'S LEGACY'	5 GAL.
	NERIUM OLEANDER	5 GAL.
	RUELLIA BRITTONIANA	5 GAL.
	RUELLIA PENINSULARIS	5 GAL.
ACCENTS		
	AGAVE DESMETTIANA	5 GAL.
	DASYLIUM WHEELERI	5 GAL.
	ALOE BARBADENSIS	5 GAL.
	BOUGAINVILLEA B. 'LA JOLLA'	5 GAL.
	DASYLIUM QUADRANGULATUM	5 GAL.
	EUPHORBIA BIGLANDULOSA	5 GAL.
	HESPERALOE PARVIFLORA	1 GAL.
	MUHLENBERGIA C. 'REGAL MIST' (tm)	1 GAL.
	MUHLENBERGIA L. 'AUTUMN GLOW' (tm)	1 GAL.
	MUHLENBERGIA RIGIDA 'NASHVILLE' (tm)	1 GAL.
	PEDILANTHUS MACROCARPUS	5 GAL.
	PENNISETUM SETACEUM 'CUPREUM'	1 GAL.
	PHOENIX ROEBELENI	15 GAL.
GROUNDCOVERS		
	ACACIA REDOLENS 'DESERT CARPET'	1 GAL.
	CYNODON DACTYLON 'MID-IRON'	500
	CYNODON D. 'TRIANGLE BERMUDA'	HYDRO-SEED
	CONVOLVULUS CNEORUM	1 GAL.
	LANTANA SSP. 'NEW GOLD'	1 GAL.
	ROSMARINUS O. 'HUNTINGTON CARPET'	1 GAL.
	SETCREASEA PALLIDA	1 GAL.
VINES		
	PARTHENOCEISSUS SP. 'HACIENDA CREEPER' (tm)	5 GAL.
	VITIS CALIFORNICA 'ROGERS RED'	5 GAL.
MATERIALS		
	CONCRETE HEADER	4" X 6"
	DECOMPOSED GRANITE 'WALKER GOLD'	1/2" SCREENED
	DECOMPOSED GRANITE 'WALKER GOLD'	1/4" MINUS
	CRUSHED ROCK 'WALKER GOLD'	4"-6" DIA.

LAS BRISAS

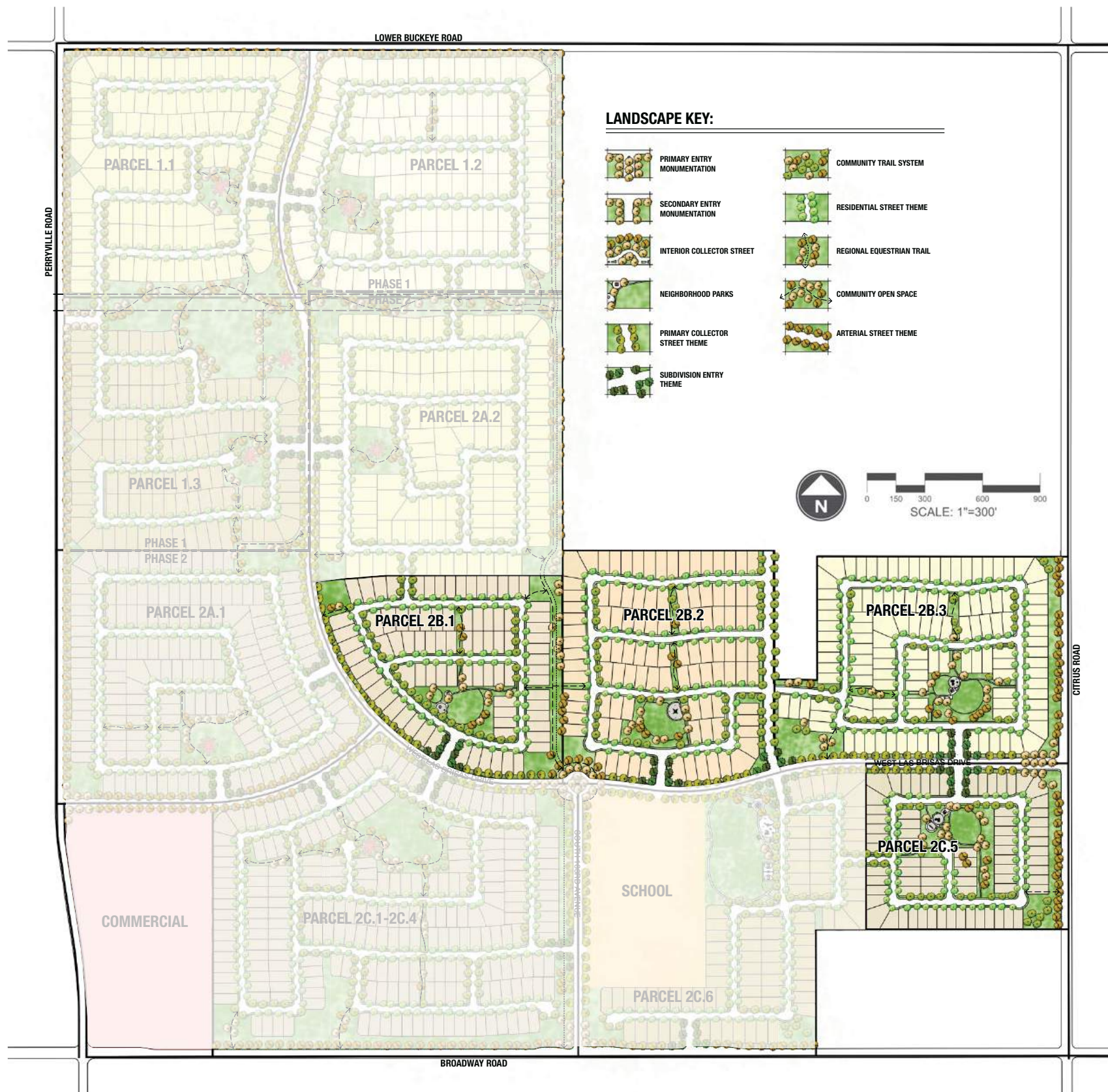
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OVERALL LANDSCAPE
CONCEPT PLAN

NOVEMBER 2016-UPDATED 2/2017



PLANT SCHEDULE

SYMBOL	BOTANICAL/COMMON NAME	SIZE
TREES		
	DALBERGIA SISSOO	15 GAL.
	FRAXINUS VELUTINA 'RIO GRANDE'	24" BOX
	PISTACIA X RED PUSH	24" BOX
	PHOENIX DACTYLIFERA	20' HEIGHT TRUNK
	PINUS ELДАРICA	24" BOX
	PLATANUS WRIGHTII	24" BOX
	QUERCUS VIRGINIANA 'HERITAGE' (tm)	24" BOX
	ULMUS PARVIFOLIA	15 GAL.
SHRUBS		
	CAESALPINIA PULCHERRIMA	5 GAL.
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	RUELLIA BRITTONIANA	5 GAL.
	RUELLIA PENINSULARIS	5 GAL.
ACCENTS		
	AGAVE DESMETTIANA	5 GAL.
	DASYLIUM WHEELERI	5 GAL.
	ALOE BARBADENSIS	5 GAL.
	BOUGAINVILLEA B. 'LA JOLLA'	5 GAL.
	DASYLIUM QUADRANGULATUM	5 GAL.
	EUPHORBIA BIGLANDULOSA	5 GAL.
	HESPERALOE PARVIFLORA	1 GAL.
	MUHLENBERGIA C. 'REGAL MIST' (tm)	1 GAL.
	MUHLENBERGIA L. 'AUTUMN GLOW' (tm)	1 GAL.
	MUHLENBERGIA RIGIDA 'NASHVILLE' (tm)	1 GAL.
	PEDICULARIS MACROCARPUS	5 GAL.
	PENNISETUM SETACEUM 'CUPREUM'	1 GAL.
	PHOENIX ROEBELENI	15 GAL.
GROUNDCOVERS		
	ACACIA REDOLENS 'DESERT CARPET'	1 GAL.
	CYNODON DACTYLON 'MID-IRON'	500
	CYNODON D. 'TRIANGLE BERMUDA'	HYDRO-SEED
	CONVOLVULUS CNEORUM	1 GAL.
	LANTANA SSP. 'NEW GOLD'	1 GAL.
	ROSMARINUS O. 'HUNTINGTON CARPET'	1 GAL.
	SETCREASEA PALLIDA	1 GAL.
VINES		
	PARTHENOCISSUS SP. 'HACIENDA CREEPER' (tm)	5 GAL.
	VITIS CALIFORNICA 'ROGERS RED'	5 GAL.
MATERIALS		
	CONCRETE HEADER	4" X 6"
	EXTRUDED CONCRETE CURB	1/2" SCREENED
	DECOMPOSED GRANITE 'WALKER GOLD'	1/4" MINUS
	DECOMPOSED GRANITE 'WALKER GOLD'	4"-6" DIA.

LAS BRISAS

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OVERALL LANDSCAPE PLAN
MODIFIED PARCELS

NOVEMBER 2016-UPDATED 2/2017



CLASSIC RECREATION
SYSTEMS
DENVER MODEL



PLAY EQUIPMENT (TYP)



BENCH WITH BACK



PLAY EQUIPMENT (TYP)



PLAY EQUIPMENT (TYP)



5' PEDESTRIAN
SIDEWALK (TYP)

SIDEWALK
CONNECTION



GRASS PLAY (TYP)



STREET TREES - RIO GRANDE ASH

LAS BRISAS

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NEIGHBORHOOD PARK -
PARCEL 2B.1

NOVEMBER 2016-UPDATED 2/2017



PLAY EQUIPMENT (CLIMBING NET)



BENCH WITH BACK



GRASS PLAY (TYP)



STREET TREES - RIO GRANDE ASH

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NEIGHBORHOOD PARK -
PARCEL 2B.2

NOVEMBER 2016-UPDATED 2/2017



SEATWALL



PLAY EQUIPMENT (TYP)



CLASSIC RECREATION SYSTEMS
DENVER MODEL



BENCH WITH BACK



TREE BOSQUE



GRASS PLAY (TYP)



STREET TREES - RIO GRANDE ASH

LAS BRISAS

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NEIGHBORHOOD PARK -
PARCEL 2B.3

NOVEMBER 2016-UPDATED 2/2017



CLASSIC RECREATION SYSTEMS
DENVER MODEL



SEATWALL



PLAY EQUIPMENT (TYP)



PLAY EQUIPMENT (SWINGS)



BENCH WITH BACK



GRASS PLAY (TYP)



STREET TREES - RIO GRANDE ASH

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NEIGHBORHOOD PARK -
PARCEL 2C.5

NOVEMBER 2016-UPDATED 2/2017



GRASS PLAY (TYP)



STREET TREES - RIO GRANDE ASH



TREE BOSQUE



PLAY MOUNDS (TYP)



PLAY EQUIPMENT (SWINGS)



PLAY EQUIPMENT (TYP)



CLASSIC RECREATION SYSTEMS
DENVER MODEL



SCULPTURAL CLIMBING STRUCTURE



BENCH WITH BACK



TREE BOSQUE

LAS BRISAS

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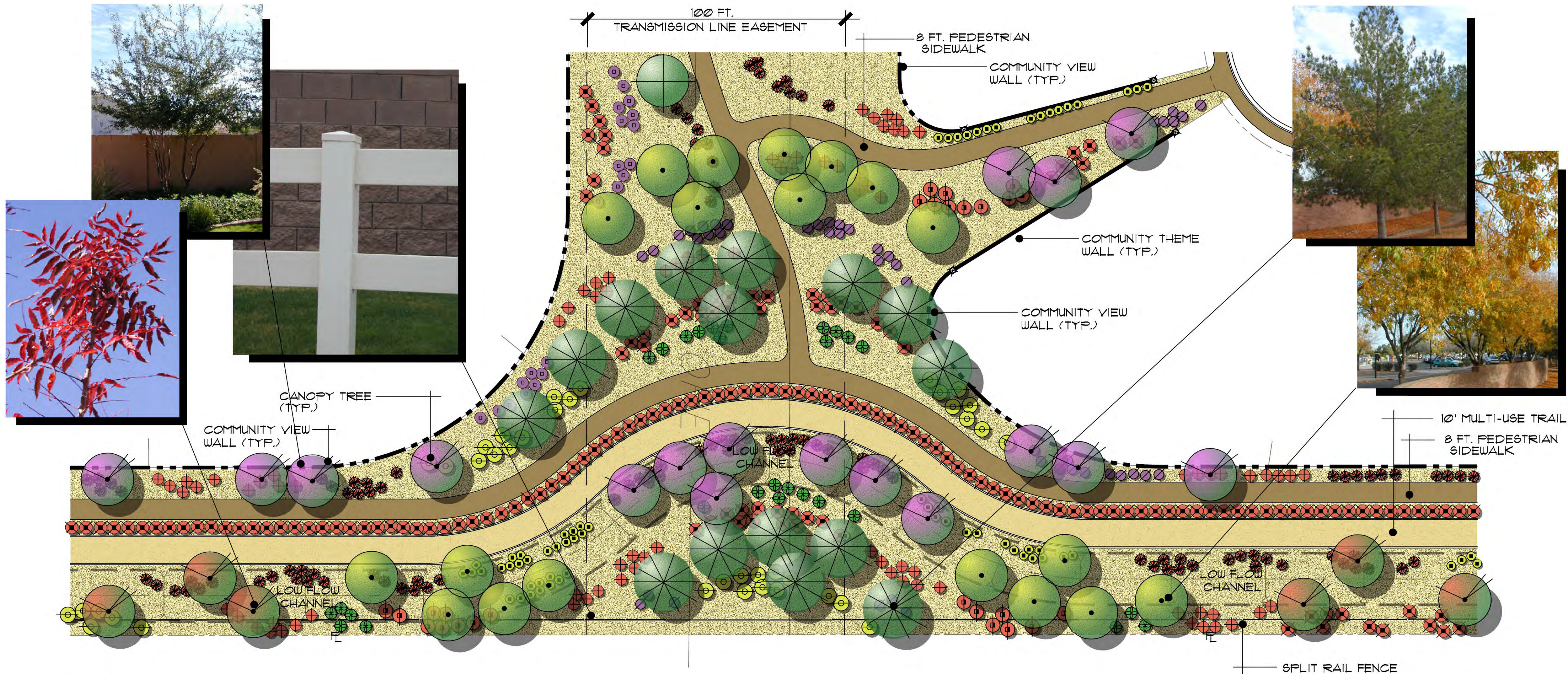
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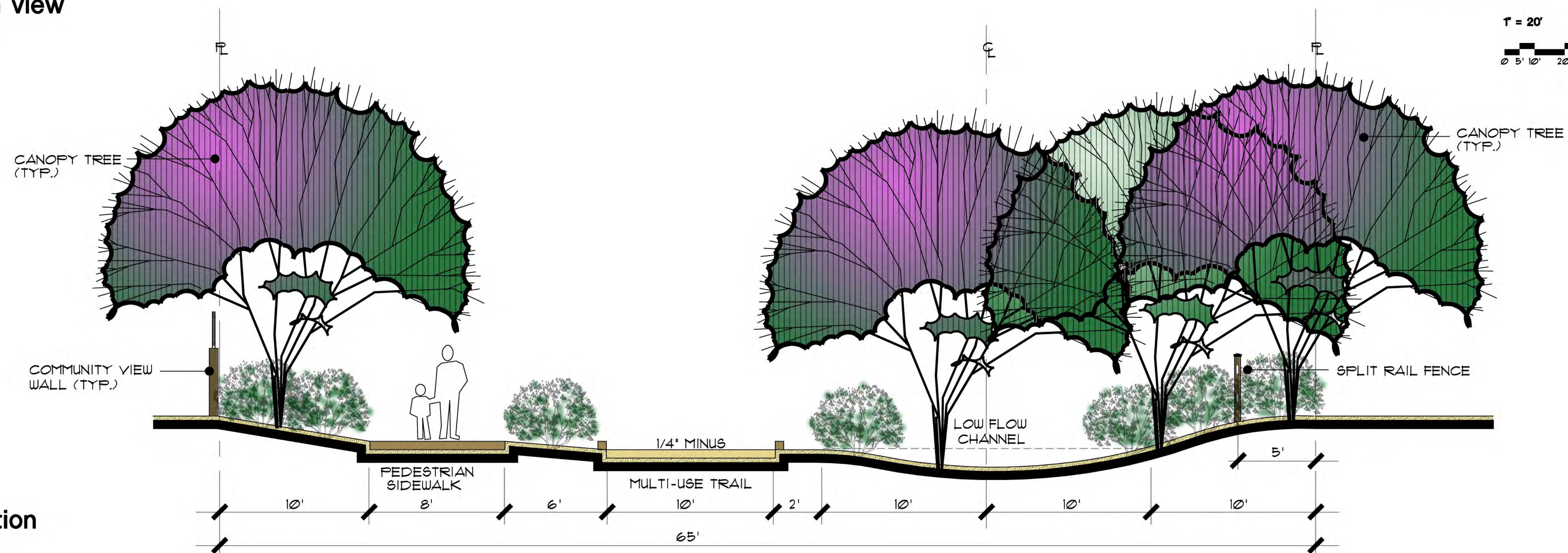


COMMUNITY PARK -
PARCEL 2C.6

NOVEMBER 2016-UPDATED 2/2017



plan view



section

Las Brisas

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Date : January 3, 2005

equestrian /
multi-use trail
corridor

exhibit G-1



FRANK LLOYD WRIGHT
OAK PARK STUDIO VASE

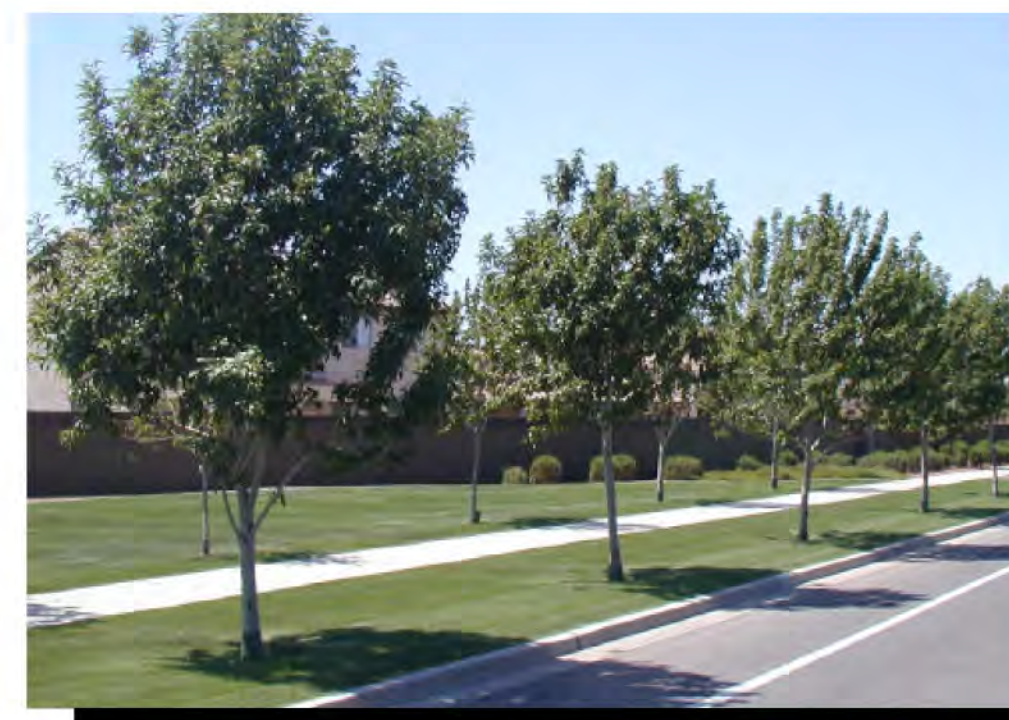


POT ACCENT PLANTING
AGAVE DESMETTIANA



ACCENT TREE
MULTI-TRUNK 'HERITAGE
LIVE OAK'

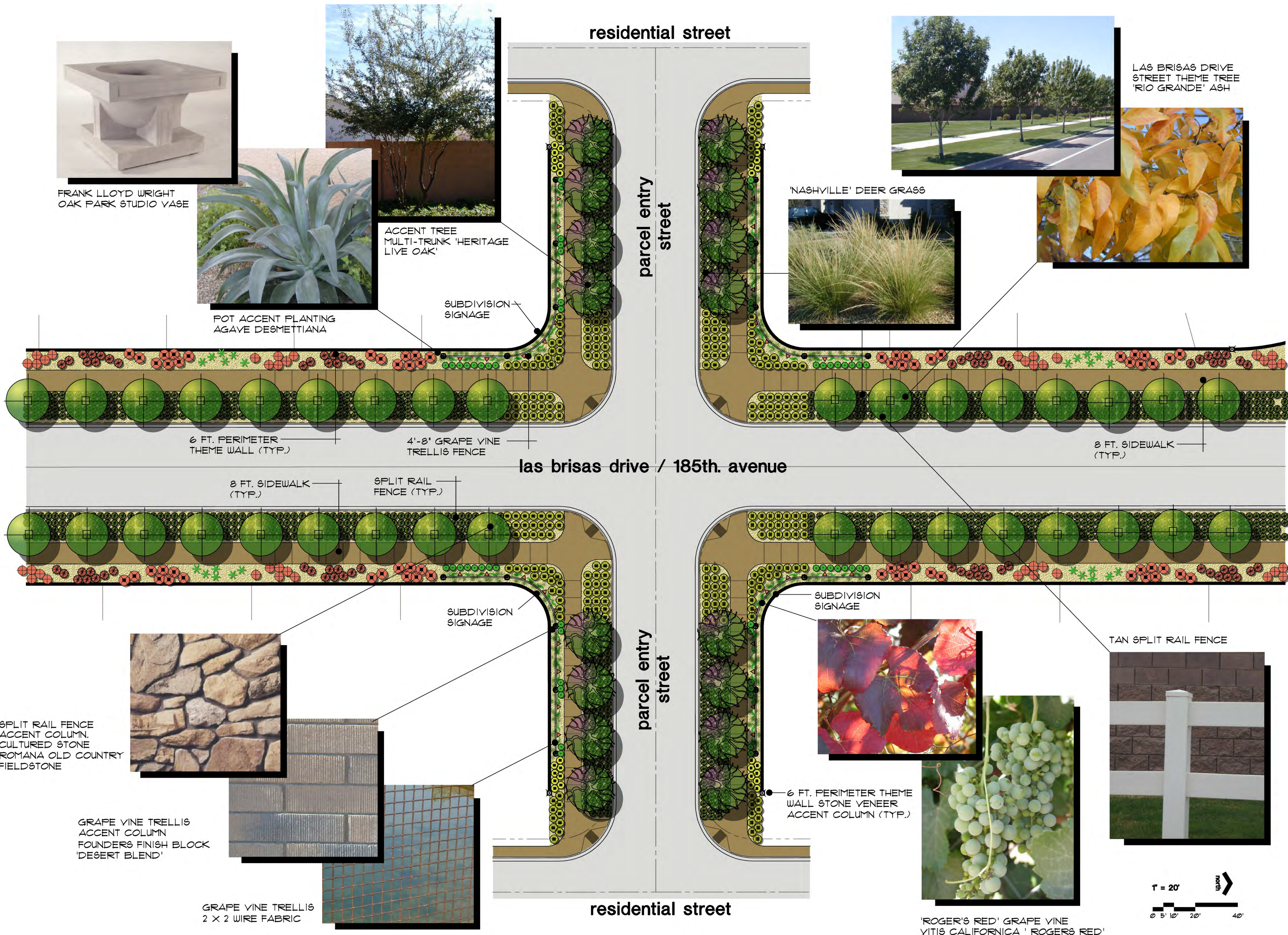
SUBDIVISION
SIGNAGE



LAS BRISAS DRIVE
STREET THEME TREE
'RIO GRANDE' ASH



'NASHVILLE' DEER GRASS



6 FT. PERIMETER
THEME WALL (TYP.)

4'-8' GRAPE VINE
TRELLIS FENCE

8 FT. SIDEWALK
(TYP.)

SPLIT RAIL
FENCE (TYP.)

8 FT. SIDEWALK
(TYP.)

SUBDIVISION
SIGNAGE

SUBDIVISION
SIGNAGE

TAN SPLIT RAIL FENCE



SPLIT RAIL FENCE
ACCENT COLUMN.
CULTURED STONE
ROMANA OLD COUNTRY
FIELDSTONE

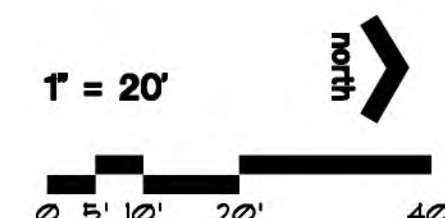


GRAPE VINE TRELLIS
ACCENT COLUMN
FOUNDERS FINISH BLOCK
'DESERT BLEND'

GRAPE VINE TRELLIS
2 X 2 WIRE FABRIC



'ROGER'S RED' GRAPE VINE
VITIS CALIFORNICA ' ROGERS RED'



DEVELOPER:
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graythorndesign@cox.net

Date : October 28, 2005

community
collector road
landscape exhibit
exhibit H-1



Las Brisas

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Planning
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Date : October 28, 2005

minor collector
vehicular / ped.
circulation node
exhibit 'I'



Las Brisas

DEVELOPER:

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ENGINEER:

GOODWIN
MARSHALL

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Design Studio

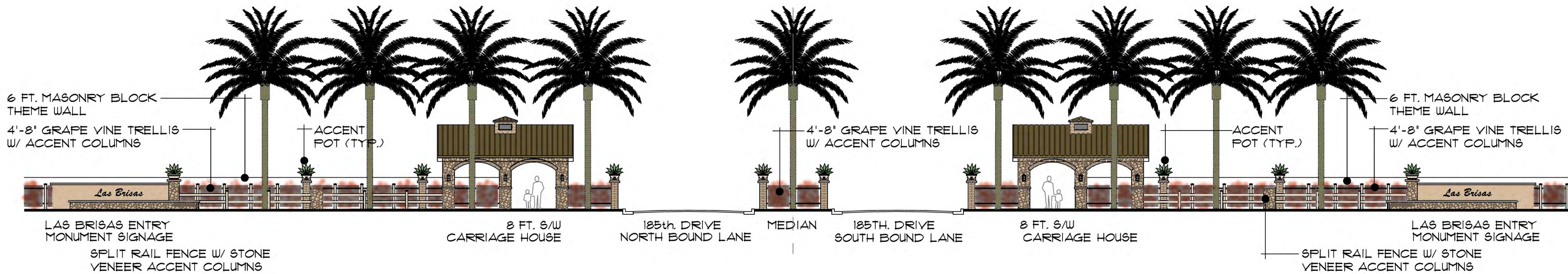
Planning
Landscape Architecture

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graythorndesign@aol.com

Date : January 3, 2005

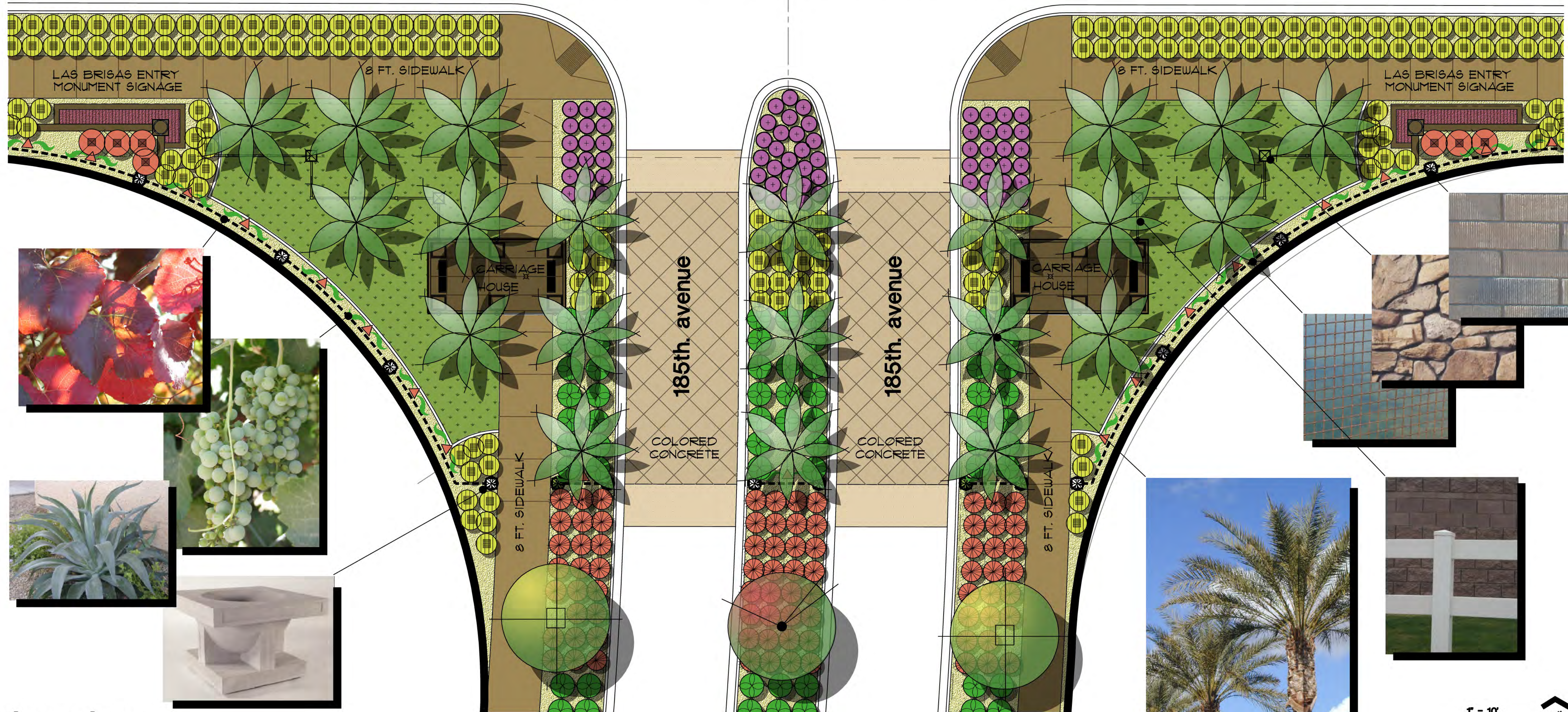
primary entry
monument
perspective

exhibit D-1



elevation

lower buckeye road



plan view

Las Brisas

DEVELOPER:
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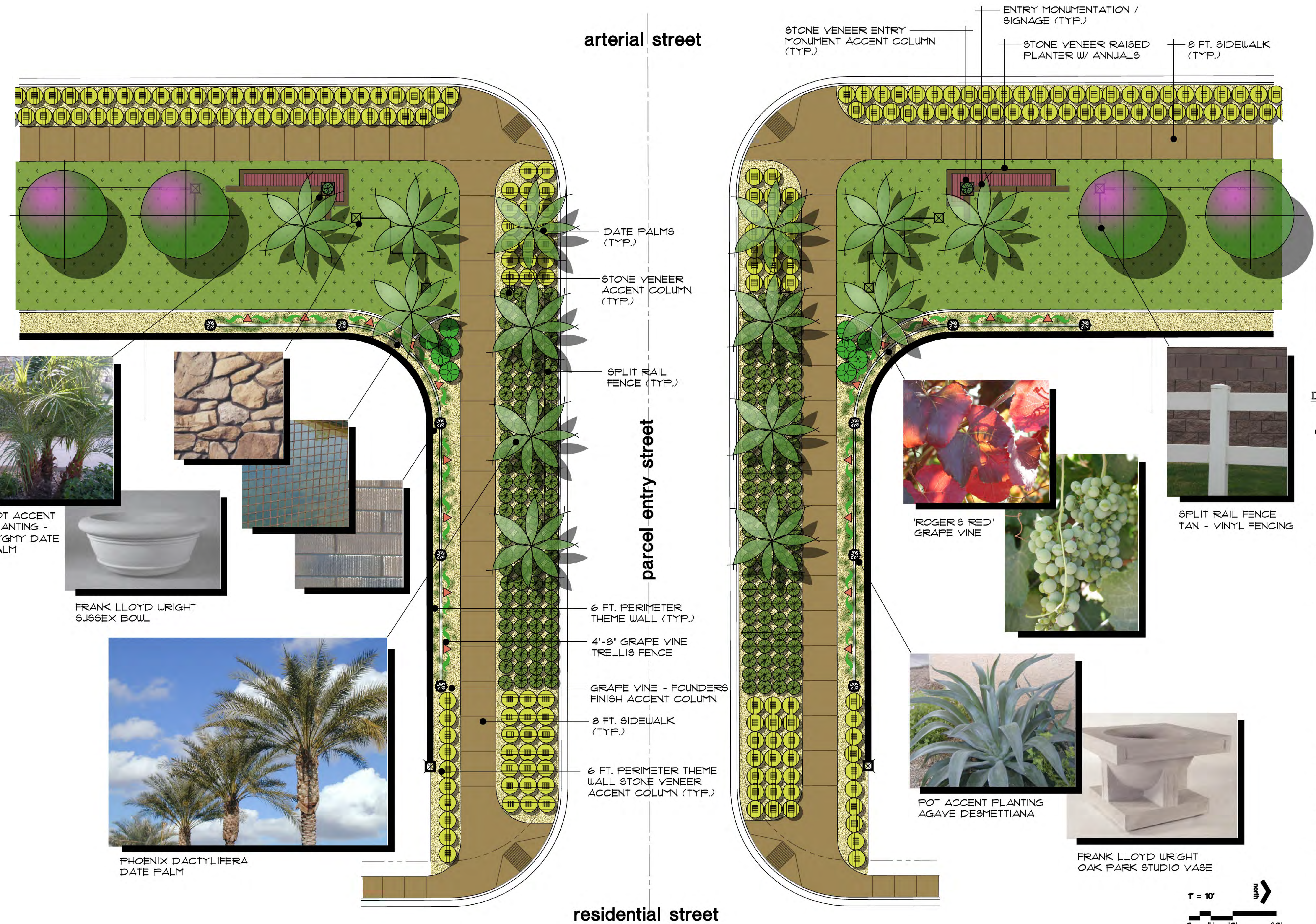


Planning
Landscape Architecture
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graythorndesign@cox.net

Date : October 28, 2005

primary entry
monumentation

exhibit D-2



Las Brisas

DEVELOPER:
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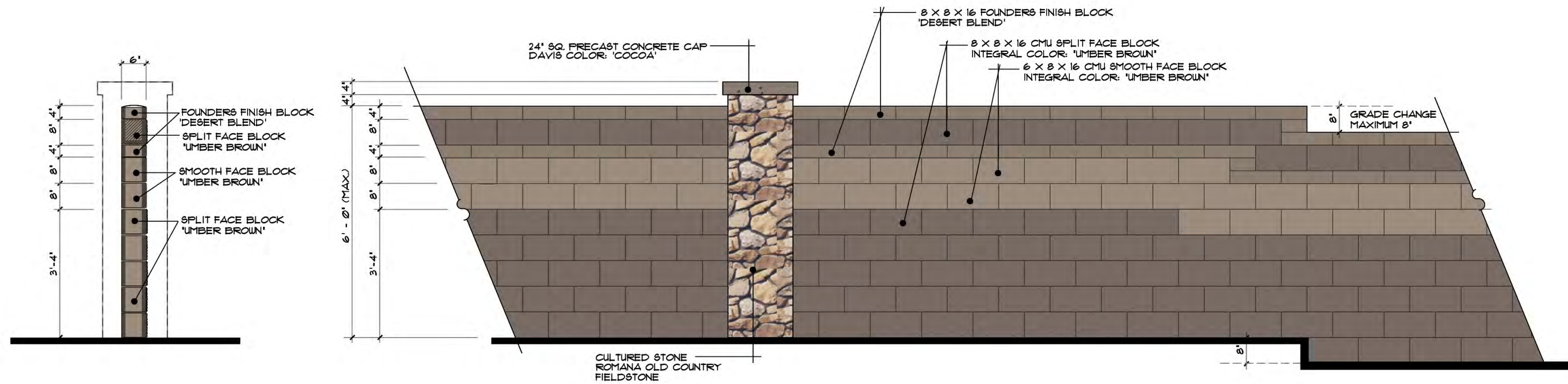


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Landscape Architecture
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Chandler, AZ. 85225
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480 782 1015 fax
graythorndesign@cox.net

Date : October 28, 2005

secondary entry
monumentation

exhibit D-3



6 ft. theme wall - section

6 ft. community theme wall - elevation



COLORED CONCRETE CAP
DAVIS COLOR: 'COCOA'



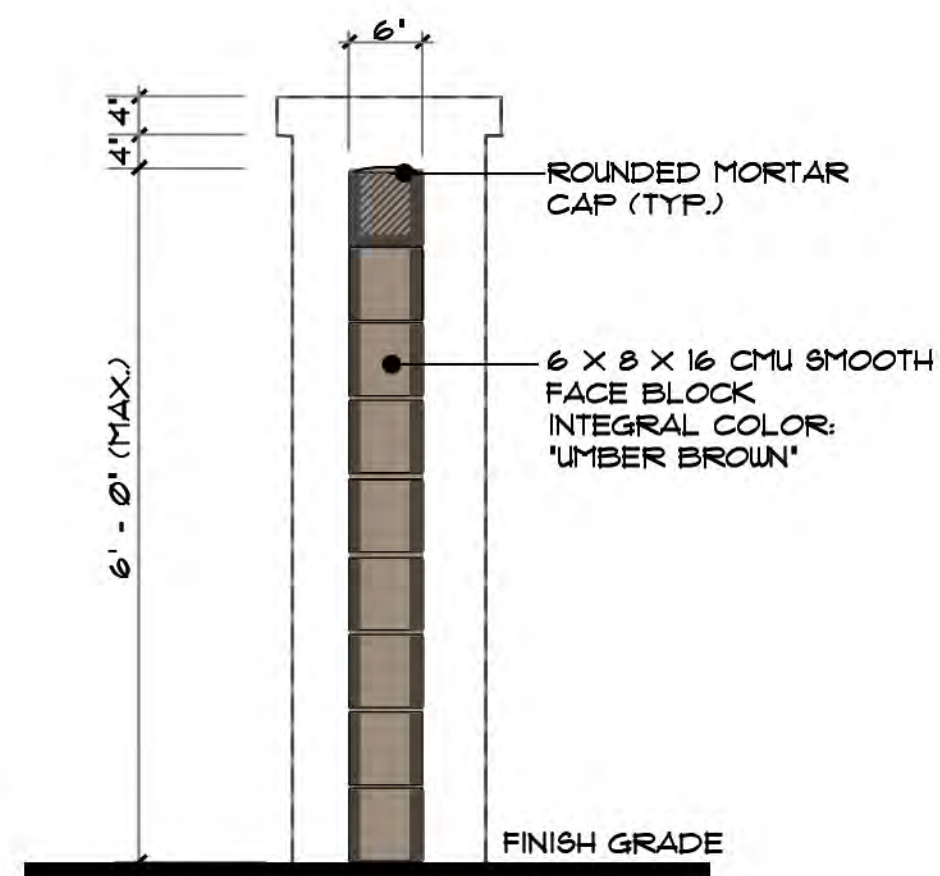
CULTURED STONE
ROMANA OLD COUNTRY
FIELDSTONE



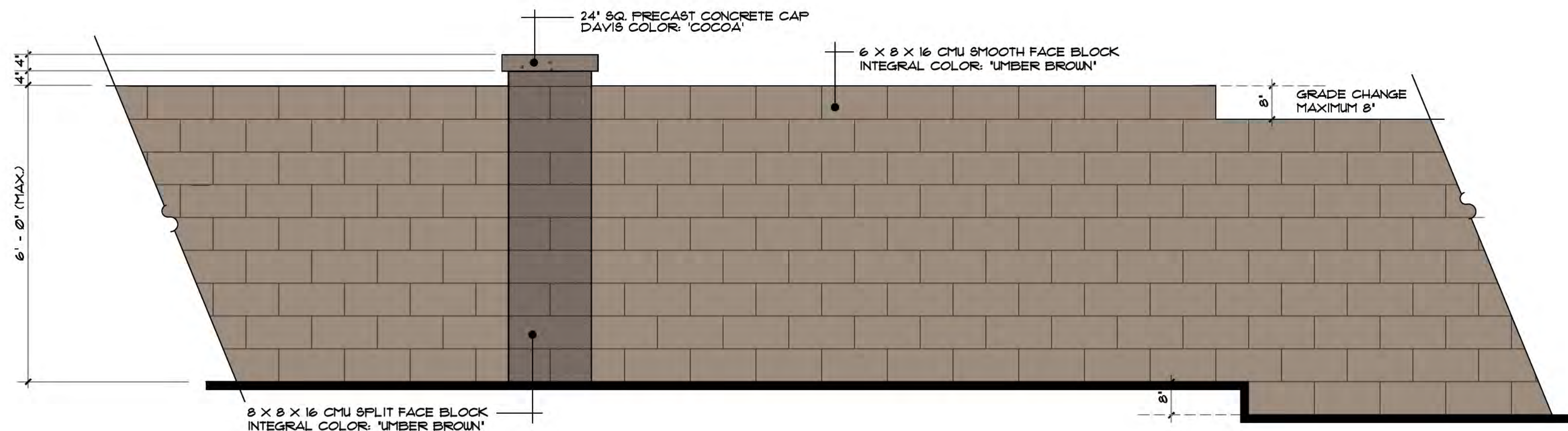
'UMBER BROWN' MASONRY
BLOCK



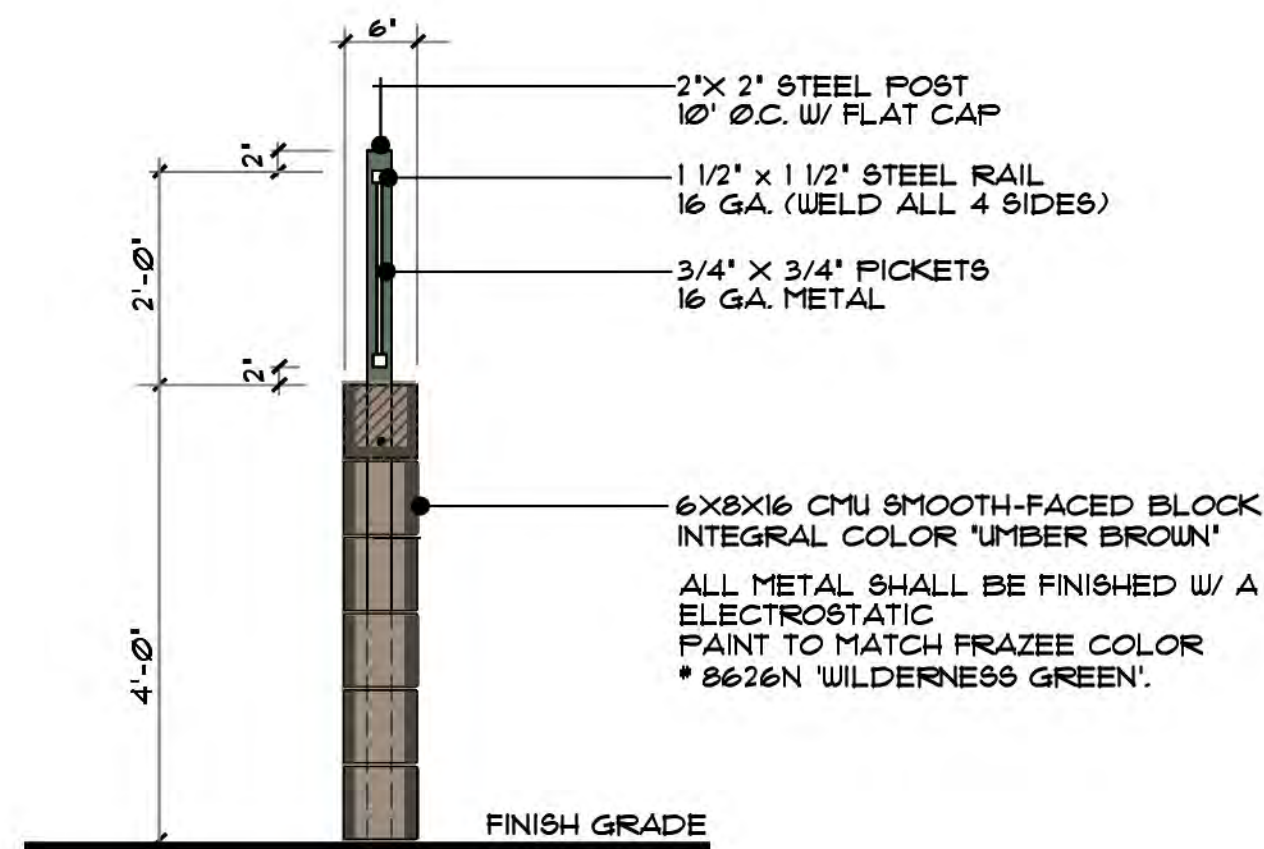
FOUNDERS FINISH BLOCK
'DESERT BLEND'



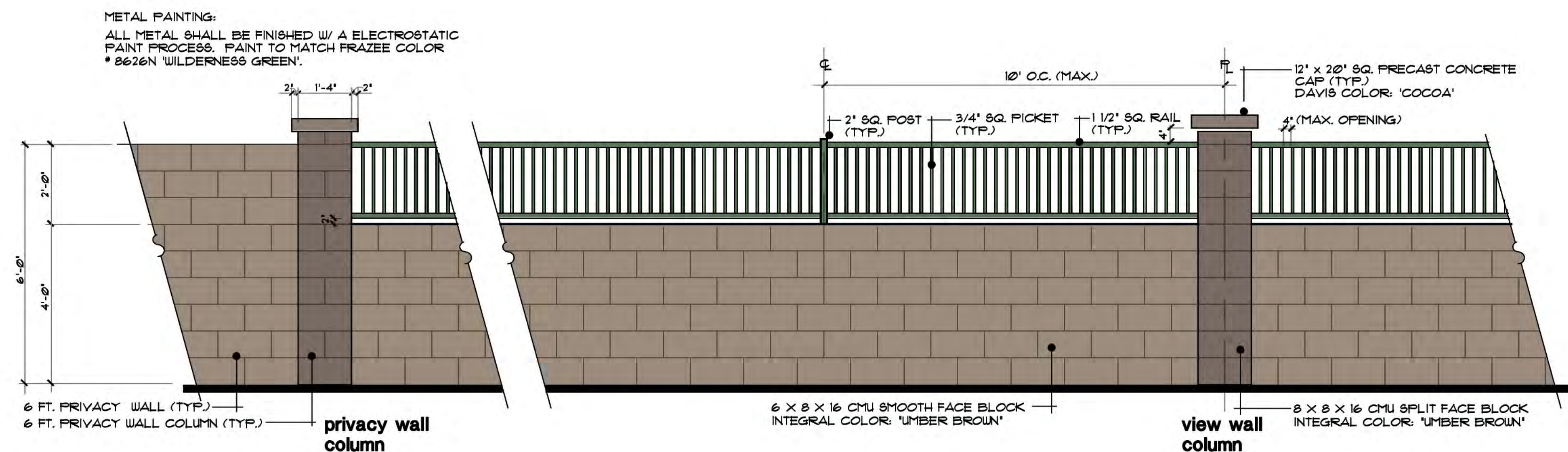
6 ft. privacy wall - section



6 ft. community privacy wall - elevation



6 ft. view wall - section



6 ft. view wall - elevation

Las Brisas

DEVELOPER:
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TAYLOR WOODROW HOMES, INC.
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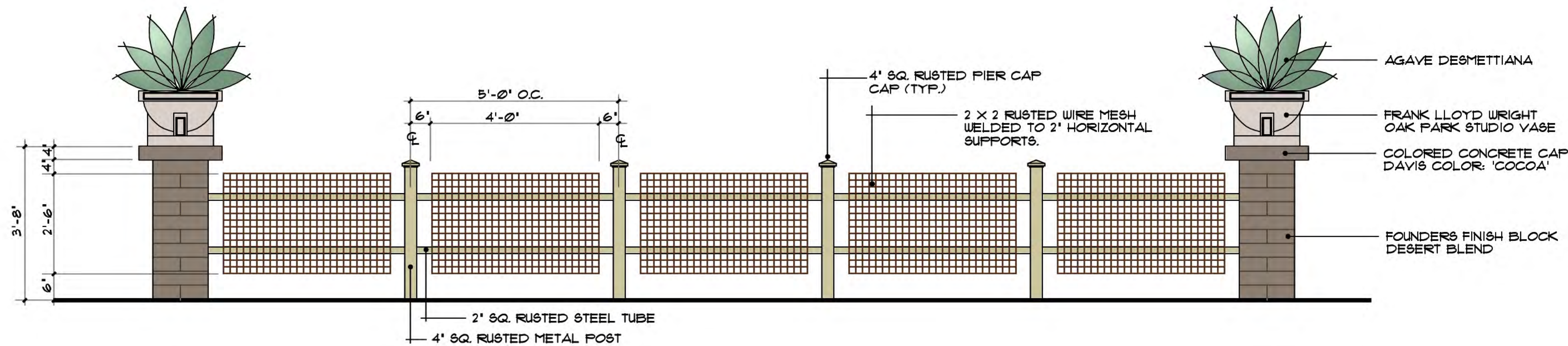
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Phoenix, Arizona 85016
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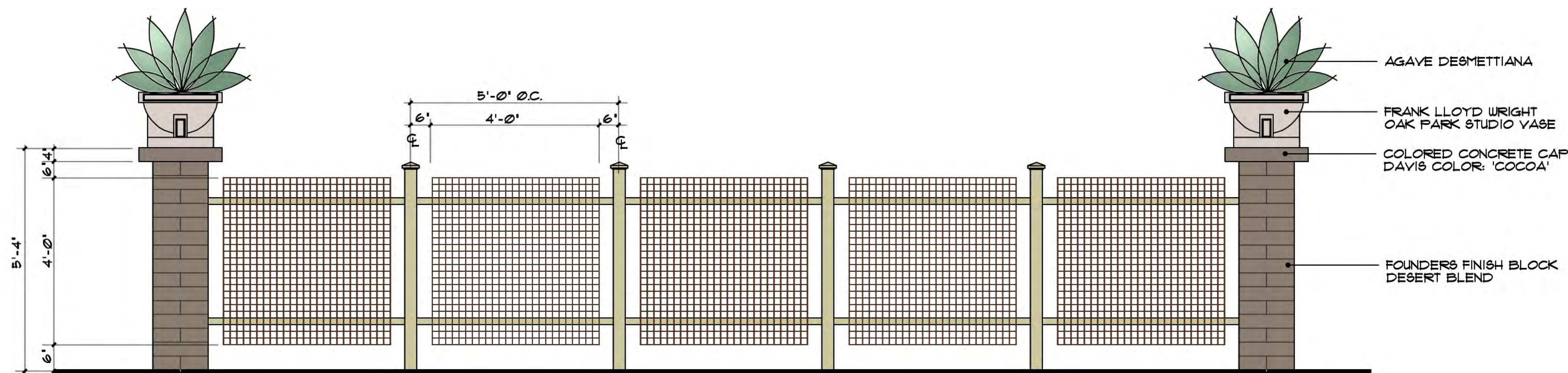
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Landscape Architecture
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Chandler, AZ. 85225
480 782 1110
480 782 1015 fax
graythorndesign@cox.net

Date : January 3, 2005

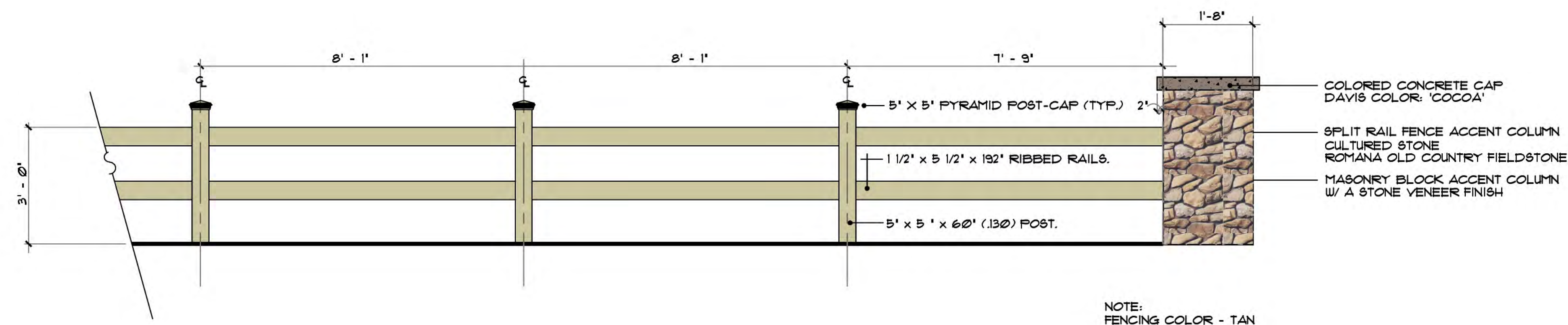
community
theme walls &
view fence
exhibit H-2



3'-0" ht. grape vine trellis - elevation



4'-6" ht. grape vine trellis - elevation



split rail fence - elevation



Las Brisas

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Planning
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480 782 1110
480 782 1015 fax
graythorndesign@cox.net

Date : January 3, 2005

grape vine trellis
/ split rail
fencing

exhibit H-3

January 13, 2017

Robert Johnson
Land Planning and Development Manager
Taylor Morrison
9000 East Pima Center Parkway, Suite 350
Scottsdale, Arizona 85258

RE: Traffic Engineering Compliance Letter for Las Brisas Phase 2 – 2016 PAD Amendment

Dear Mr. Johnson:

Per your request, Goodwin and Marshall (G&M) has prepared this technical memorandum analyze the impacts of the proposed Las Brisas Phase 2 2016 PAD Amendment and to verify conformance with the approved Traffic Impact Analysis (TIA) completed in August 2007. The internal phasing structure within the Las Brisas project as well as the external population projections were analyzed to evaluate compliance.

A previous traffic compliance letter was submitted for the construction plans for Las Brisas Phase 2C.1-2C.4 which identified the Las Brisas project would include 1,225 residential lots. Under the currently proposed plan, the entire Las Brisas project will include 1,321 residential lots. However, this is actually a reduction of 29 lots from the 1,340 lots that were included in the approved TIA. Based on this overall reduction, the trip generation for the development is applicable and should be considered conservative. Please see Table 1 below for more detailed information.

Table 1: Lot and Trip Analysis

Description	ITE Land Use Code	Size (Units)	Vehicle-Trips Generated						
			Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Original Study	210	1,340	12,757	251	754	1,005	844	496	1,340
Revised Study	210	1,321	12,576	248	743	991	832	489	1,321
ITE Land Use Code 210 (single-family residential)									

A comparison of the City of Goodyear MAG population projections used in the approved TIA and the latest MAG population projections shows some slight differences. The population counts and projections for the years 2010 and 2020 respectively are lower in the approved TIA than the current MAG estimates show. However the projections for the year 2030 are higher in the approved TIA. The TIA shows a projection of 330,400 people in 2030 versus 299,397 people in the current MAG projections. Since the year 2030 was used in the TIA as the horizon year which determined ultimate roadway improvements, the recommendations for these improvements should also be considered conservative.

In summary, the Las Brisas project is in substantial conformance with the previous plan. The reduction in the number of residential lots and reduced horizon year population projection will slightly decrease the amount of traffic projected in the original traffic study. Therefore the assumptions and recommendations presented in the original study should still be considered valid.

If you require additional information or have any questions about our submittal items, please do not hesitate to call or e-mail me (602-218-7285 or mbaacke@gmcivil.com).

Sincerely,
Goodwin & Marshall, Inc.


Matt Baacke, P.E.



EXPIRES 3/31/17