

DS #: 5374

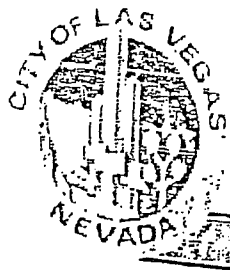
APN: 137-27-511-001

PROJECT: Summerlin Village 95 Parcel E

SUBMITTAL: 1st

SCANNED BY/DATE:

CHECKED BY/DATE:



CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		November 2, 2020
TO: Land Development Services Department of Building & Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for:	COPIES TO:
Summerlin Village 25 Parcel E		RCI Engineering
Cross Streets:	SEC of Fox Hill Drive & Redpoint Drive	Lennar Communities Nevada LLC
File Number:	F:\Depot\DSMemos\DS5374A.doc	Bart Anderson, P.E., DevCo
Parcel Number:	137-27-511-001	
Zoning Action:	TMP-78668	
FEMA Flood Zone	YES NO X	
Proposed Storm Drain	YES X NO	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	10/13/2020	10/28/2020 & 11/2/2020	See Comments Below	\$400.00	4031553: \$400
			TOTAL FEES (LDDRS):	\$400.00	----

REMARKS:

The Drainage Study for the subject project has been reviewed and:

	is approved subject to conformance to all City standards and the following conditions:
X	must be resubmitted or supplemented including the following:
	is conditionally approved subject to Clark County Regional Flood Control District concurrence.
	is conditionally approved subject to Clark County Public Works Department concurrence.

- The subject development is under the premise of flood protection by the improved *Fox Hill Drive* and *Redpoint Drive* and the associated storm drain facilities. No occupancy permit of the houses will be issued prior to the substantial buildout of the perimeter facilities.
- Sites with a grade difference of 2 feet above or below existing are required to have approval from the *City Planning and Development Department*. The engineer must submit copies of the grading plans and detail sheet with a letter justifying the grade difference to the *City Planning Department* (229-6301). The engineer must provide Planning approval with the next submittal.
- The *Study* referenced the *Ultimate Conditions Drainage Map* as Figure 5. However, it appears that the *Ultimate Conditions Map* provided is **Figure 6**. Review and clarify or provide Figure 5 in the next submittal.
- Cross Section 21 on Lot 3 shows that it is on sheet D-1 but is on sheet D-2. Review and revise accordingly.
- Show the Flow Depth and Velocity values from Appendix C for the adjacent streets *Redpoint Drive* and *Fox Hill Drive* on **Figure 6**.
- Per Hydraulic Sections D & E, the 100-year flow depth is 0.46' and 0.58' which will flow over the top of the roll curb along Lots 17 to 26. Revise to limit the 100-year flow depth to the top of curb.

7. **Sheet G-1:** The west side of the *Entry Driveway* to *Redpoint Drive* does not provide adequate freeboard to the 100-year flow depth in *Redpoint Drive*. Note that the hump must provide a minimum of six inches (6") of freeboard. The east side of the entry way meets the criteria though. Review and resolve in the next submittal.
8. **Sheet G-3:** Per the grading design, it appears that drainage on the east side in *Mojave Arch Street* will make two 90-degree turns to the proposed DI #1 on the west side of the street. This will create turbulence and inefficient capture of surface flows at the cul-de-sac. Provide one inlet either at the east side of *Mojave Arch Street* or at the far end curb to improve the flow condition.
9. **Sheet G-3:** It appears that there is a contour line 3402 in the drainage easement which will act as a dam causing a potential ponding depth of about 1.6' in case the proposed inlet is totally clogged. Note that the maximum ponding depth is six inches above the top of curb. Provide enough grade elevation changes to verify the criterion will be met.
10. **Sheet G-3:** It appears that the existing 43.94' public drainage and sewer easement does not align with the storm drain at the end of *Mojave Arch Street*. The engineer may consider vacate the existing drainage easement and re-dedicate the easement. The recordation of the new easement must be done prior to the final approval of the improvement plans.
11. **Sheet G-3 to Sheet G-5:** Label the existing finished floor elevation of the adjacent houses to the east in the *Summerlin Village 21 Parcel F* developments.
12. Address an Emergency Overflow path for the inlet at the end of *Mojave Arch Street*.
13. The proposed inlet in *Mojave Arch Street* is shown to be within a roll curb. Revise to provide transition to L-curb in the next submittal accordingly.
14. Private streets must be public drainage easements. Provide a note on the grading plans "Note: All private streets are P.U.E., Public Sewer Easements, and Public Drainage Easements to be privately maintained by HOA."
15. All drainage easements must be public drainage easements to be privately maintained and common lots to be labeled on the grading plans and to be dedicated as such in the final map.
16. The engineer must provide a table on the grading plans that shows a quantity estimate of all drainage improvements within Public Drainage Easements. All drainage improvements within Public Drainage Easements must be bonded and inspected.
17. Provide a note on the grading plans: All Onsite Storm Drains and the associated facilities are Privately Owned and to be Privately Maintained by the HOA.

NOTE: Please be advised that all land surface area disturbances over 1 acre or any area adjacent to a water way must submit to the Nevada Division of Environmental Protection a "Notice of Intent" to discharge that certifies a stormwater pollution prevention plan has been developed and is maintained on site; for inclusion in the Stormwater General Permit No. NVR100000. A phased construction unit in a contiguous subdivision is considered under construction until all stripped or disturbed surface areas have been covered by paving, building construction or planting. For more information, including forms and applications see <http://ndep.nv.gov/bwpc/storm01.htm> or call (775) 687-9429.

END OF REMARKS
HDR/AYS

T/R/S: T20S/R59E/27
AREA K-27

TECHNICAL DRAINAGE STUDY For SUMMERLIN VILLAGE 25 PARCEL E

Prepared for:

**Lennar Communities Nevada LLC
2490 Paseo Verde Parkway, Suite 120
Henderson, NV 89074
Phone: (702) 736-9100
Fax: (702) 736-9200**

October 2020

PROJECT 3040.0058

**RCI Engineering
500 South Ranch Drive, Suite 17 Las Vegas, NV 89106
Tel: 702.453.0800 * Fax: 702.453.0801
www.rcicnevada.com**

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Summerlin Village 25 Parcel E Date: October 2020

Location of Development: a) Descriptive (Cross Streets) North/South: Fox Hill Drive

East/West: Redpoint Drive

b) Section: 27 Township: 20 South Range: 59 East

c) APN: 137-27-511-001

Name of Owner: Lennar Communities Nevada, LLC

Telephone No.: 702-739-9100 Fax No.: 702-739-9200 E-Mail Address: _____

Address: 2490 Paseo Verde Pkwy, Suite 120, Henderson, NV 89074

Contact Person-Name: Rick J Read, P.E. Telephone No.: 702-453-0800

* E-Mail Address: rread@rcinevada.com Fax No.: 702-453-0801

Firm: RCI Engineering

Address: 500 South Rancho Drive, Suite 17, Las Vegas, Nevada 89106

Type of Land Development/Land Disturbance Process:

☐	Rezoning	☐	Subdivision Map	☐	Clearing and Grading Only
☐	Parcel Map	☒	Planned Unit Development	☐	Other (Please specify below)
☐	Large Parcel Map	☐	Building Permit		

1. Total Owned Land Area: At Site: 17.12 acres Being Developed/Disturbed: 17.12 acres

2. Is a portion or all of the subject property located in a designated FEMA Flood Hazard Area? ☐ Yes** ☒ No

3. Is the property bordered or crossed by an existing or proposed Clark County Regional Flood Control District Master Planned Facility? ☐ Yes** ☒ No

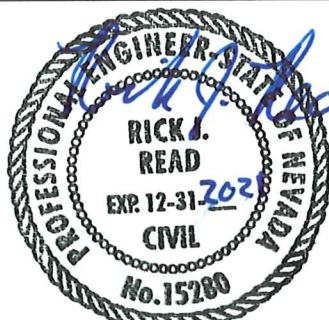
4. Proposed type of development (Residential, Commercial, Etc.): Residential

5. Approximate upstream land area which drains to the subject site: 0 acres

6. Has the site drainage been evaluated in the past? ☒ YES ☐ NO If yes, please identify documentation: Master Conceptual Drainage Study For Summerlin West Village 25 (DS4926H)

7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: North into storm drain in Redpoint Drive

8. Briefly describe your proposed schedule for the subject project: ASAP



Engineer's Seal

Submit this form as part of the required drainage study to the local entity which has jurisdiction over the subject property. This form may provide sufficient information to serve as the Conceptual Drainage Study.

*New Required Field

**Review and concurrence of the Clark County Regional Flood Control District is required.

	Revision	Date
Local Entity File No. _____		

REFERENCE:

STANDARD FORM 1

RCI Engineering

October 8, 2020

City of Las Vegas
Flood Control
333 N Rancho Dr.
Las Vegas, NV 89106

RE: Certification Letter for Paper and Digital Plans for the
Technical Drainage Study for Summerlin Village 25 Parcel E

Mr. Sung,

This letter has been provided as certification that the paper version of the plans match the digital PDF plans on the CD submitted with the drainage study.

Sincerely,

RCI Engineering



Rick J. Read, P.E.

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

Project Name: Summerlin V 25 Parcel E		Map ID:
Firm Name: RCI Engineering		Engineer: Rick Read, P.E.
Address: 500 South Rancho Drive, Suite 17		
City: Las Vegas	State: Nevada	Zip: 89106
Phone Number: 453-0800	Fax Number: 453-0801	
Property Owner: Lennar Homes		
Address: 2490 Paseo Verde Pkwy, Suite 120		
City: Henderson	State: Nevada	Zip: 89074
Reviewed By:	Date Received:	Date Accepted for Review:
The following checklist is intended as a guide for the engineer preparing a Technical Drainage Study to submit to the local entity and Clark County Regional Flood Control District (if necessary). The listed items are the minimum information required prior to the entity performing a review. The engineer will remain responsible to ensure the Technical Drainage Study is prepared within the guidelines as set forth in the Clark County Regional Flood Control District (CCRFGD) Hydrologic Criteria and Drainage Design Manual (MANUAL). This document is intended as an aid in preparing Technical Drainage Studies. Each study submitted is reviewed for compliance with local and regional criteria. This form is not intended to be all inclusive and does not limit the extent of the information, calculations or exhibits which may be necessary to properly evaluate the intended land use. If items are not applicable for the subject site, provide N/A.		
I. GENERAL REQUIREMENT:		
Yes	No	
☒	☐	Design Manual Standard Form 1 with the engineer's seal and signature.
☒	☐	Design Manual Standard Form 4 .
☒	☐	2 copies of the 24" x 36" Drainage Plan.
☐	☒	A notarized letter from the adjacent property owner(s) allowing off-site grading or discharge.
Reference:		STANDARD FORM 2

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

II. MAPS AND EXHIBITS

Yes	No	
☒	☐	A copy of a current Flood Insurance Rate Map (FIRM) with the site delineated.
☒	☐	A copy of the current CCRFCD Master Plan Update Figure, (F-x), for Flood Control Facilities and Environmental areas with the site delineated.
☒	☐	On-site drainage basin maps for existing and proposed conditions showing the existing topography, basin boundaries, concentration points, and on-site and off-site flows in cfs.
☒	☐	Vicinity Map with local and major cross streets identified and a north arrow.
☒	☐	Off-site drainage basin maps for existing, interim and future conditions showing the existing topography, basin boundaries, concentration points, and flows in cfs.

III. DRAINAGE PLAN

Yes	No	
☒	☐	Sheet size: 24" x 36" sealed by a registered engineer in the State of Nevada.
☒	☐	Minimum scale: 1" = 60'.
☒	☐	Project name.
☒	☐	Vicinity Map with local and major cross streets.
☒	☐	Revision box.
☒	☐	North arrow and bar scale.
☒	☐	Engineer's/consultant's address and phone number.
☒	☐	Elevation datum and benchmark.
☒	☐	Legend for symbols and abbreviations.
☒	☐	Cut/fill scarps, where applicable.
☒	☐	Street names, grades, widths.
☒	☐	Proposed future and existing spot grades for top of curbs and street crowns at lot lines, grade breaks, and along curb returns on both sides of the street.

REFERENCE:

STANDARD FORM 2

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

III. DRAINAGE PLAN (Continued)

Yes	No	
☒	☐	Existing contours encompassing the site and 100 feet beyond with spot elevations for important locations, where appropriate.
☒	☐	Minimum finish floor elevations with top-of-curb elevations at upstream end of lot.
☒	☐	Proposed typical street sections.
	☒	Streets with off-set crowns.
☒	☐	Proposed contours or spot elevations in sufficient detail to exhibit intended drainage patterns and slopes.
☒	☐	Property lines.
☒	☐	Right-of-way lines and widths, existing and proposed.
☒	☐	Existing improvements and their elevations.
☒	☐	Delineation of proposed on-site drainage basins indicating area and 10-year and 100-year storm peak flows at basin concentration points.
☒	☐	Concentration points and drainage flow direction with Q_{100} and V_{100} and D_{100} in streets.
☒	☐	Cumulative flows, velocity, and direction of flow at upstream and downstream ends of site for the 10-year and 100-year flows.
☒	☐	Location and cross-section of street capacity calculations.
	☒	Cross-sectional detail for channels, including cutoff wall locations.
☒	☐	Existing and proposed drainage facilities, appurtenances, and connections (i.e., sidewalk, ditches, swales, storm drain systems, unimproved and improved channels, and culverts, etc.) stating size, material, shape, and slope with plan and profile and HGL calculations.
☒	☐	Existing and proposed drainage easements and widths shown with sufficient detail. A cross sectional detail must be provided that shows appropriate lining and reinforcement.
	☒	Location and detail of existing, proposed, and future block wall openings. Minimum size is 16"x48". Wrought iron gate is required for flows > 10 cfs.
☒	☐	Location and detail of flood walls illustrating depth of flow, proposed grouting height, etc.

REFERENCE:

STANDARD FORM 2

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

III. DRAINAGE PLAN (Continued)

Yes	No	
☒	☐	Perimeter retaining wall locations. All existing and proposed walls (retaining screen and flood) must be shown with adjacent ground elevations. Flood Walls with 8-inch concrete masonry unit.
☒	☐	Building and/or lot numbers.
☐	☒	Alignment of all existing, proposed, or future Regional Facilities adjacent to the site.
☐	☒	Limits of existing floodplain based on current FIRM or best available information; limits of proposed floodplains based on best available information.
☐	☒	For areas in Zone A, AE, AH, and AO, base flood elevations (BFEs) must be shown for each lot; BFEs may be listed on each lot, or in a table. Finish floor elevations must be a minimum of 18 inches above BFE.
☐	☒	Appropriately elevated "humps" 6 inches above the 100-year water surface elevation at site accesses where the intent is to protect the site from the Q_{100} flows.
☒	☐	Street slopes for perimeter and interior streets. The minimum slope is 0.4 percent.

IV. HYDROLOGIC ANALYSIS

Yes	No	
☒	☐	Appropriate soil information and Soils Map for existing and future conditions with subbasins and property delineated.
☐	☒	Input and output information for existing conditions from computer models (HEC-1 or TR-55). The flow routing diagram must be provided with HEC-1 models.
☒	☐	Input and output information for future conditions from computer models (HEC-1 or TR-55). The flow routing diagram must be provided with HEC-1 models.
☒	☐	Use of correct precipitation values in and around the McCarran Airport Rainfall Area.
☒	☐	A discussion in the text of the hydrologic analysis justifying subbasin boundaries and cutoffs, supporting assumptions, and calculations.
☒	☐	A summary table of storm water flows showing basin area, Q_{10} and Q_{100} for both individual basins and combined basin flows, where acceptable.
☒	☐	Copies of supporting technical information referenced from a previously approved study and a statement accepting these results.
☒	☐	On-site facilities must perpetuate flows through or around the site without significantly impacting adjacent property owners in accordance with current Nevada Drainage Law.

REFERENCE:

STANDARD FORM 2

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

V. HYDRAULIC ANALYSIS

Yes	No	
	n/a	Flow split calculations and supporting documentation or reference for the method of flow split calculations used.
X		Normal depth street flow calculations and cross section diagrams for all interior and perimeter streets. Provide "d x v" products for the Q_{100} and Q_{10} flows representing the worst case for interior and all perimeter streets. $Q_{100} d \times v \leq 8$. $Q_{10} d \times v \leq 6$ and 12 foot dry lane for rights-of-way ≥ 80 feet. Calculations must be labeled by street name as indicated on the Grading Plan.
X		A summary table of interior and exterior street capacity calculations showing the street name, Q_{100} flow, slope, depth of flow, velocity and depth times velocity product and streets needing to meet 12 foot dry lane criteria.
	n/a	Appropriate hydraulic calculations for block wall openings assuming a 50 percent vertical clogging factor. (Assume the lower half of the opening is plugged.)
X		Appropriate hydraulic calculations at drainage easement entrance and discharge locations to set finish floor elevations. Hydraulic calculations must include submerged weir, superelevation and tee intersection losses, where appropriate.
X		Provide necessary freeboard requirements to set the finished floor elevations of all proposed buildings, 2 x depth of flow or depth of flow plus 18 inches of freeboard, whichever is less. The minimum requirement is 6 inches above adjacent upstream top of curb. Buildings adjacent to drainage easements must always be provided with 18 inches of freeboard above the Q_{100} weir height or flow depth, which ever is greater.
	n/a	A complete water surface profile analysis (HEC-2, HEC-RAS, etc.) for channel flows and FEMA Zone A flood zones.
		• Field survey data. • Input and output information. • Plotted cross-sections based on survey with proper encroachments. • A map showing the location of the cross-sections. • Analysis of both sub- and super-critical flow segments. • A summary table and a discussion of the results in the text of the report.
X		Provide a 50 percent clogging factor in the capacity calculation for drop inlets.
X		Hydraulic calculations for culverts and storm drains. D-Load calculations must be provided for storm drain pipes in public rights-of-way, including headwater pool inundation.
X		The mitigation of nuisance water, both during construction and in the fully developed condition, must be addressed.

REFERENCE:

STANDARD FORM 2

TABLE OF CONTENTS

<u>No.</u>		<u>Page</u>
I.	INTRODUCTION	1
II.	LOCATION AND DESCRIPTION	1
III.	FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD HAZARD ANALYSIS	3
IV.	CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT FACILITIES	3
V.	HYDROLOGY	6
VI.	EXISTING CONDITIONS	7
VII.	ULTIMATE CONDITIONS	7
VIII.	PRORATED STORM FLOWS AND HYDRAULICS	10
IX.	CONCLUSIONS AND RECOMMENDATIONS	13
X.	REFERENCES	14

LIST OF TABLES

<u>No.</u>	<u>Description</u>	<u>Page</u>
1	ULTIMATE CONDITIONS HEC-1 MODEL SUMMARY	8

LIST OF FIGURES

<u>No.</u>	<u>Description</u>	<u>Page</u>
1	VICINITY MAP	2
2	LOCATION MAP	3
3	F.I.R.M.	4
4	CCRFCD FACILITIES	5
5	ULTIMATE CONDITIONS MAP	9

I. INTRODUCTION

Lennar is proposing to develop a 17.12 acre site as a single family residential project located on the east side of Fox Hill Drive and on the south side of Redpoint Drive in Village 25 of Summerlin. The overall Project will consist of 51 single family residences with onsite open space, landscaping, and perimeter block walls. The purpose of this report is to accompany the civil improvement plans for the Project, to provide detailed hydrological and hydraulic analyses for the site, and to determine adequate protection for the Project from offsite and onsite flows. The following tasks were performed in the preparation of this report:

- ♦ Identify previous drainage studies for the project site and surrounding areas.
- ♦ Identify the FEMA floodplain designation for the project site.
- ♦ Estimate runoff generated for the peak onsite 10-year and 100-year return period storms for existing, proposed, and ultimate conditions (offsite flows are referenced).
- ♦ Recommend drainage facilities to protect the project from storm runoff.

II. LOCATION AND DESCRIPTION

The Project is located in Section 27, Township 20 South, Range 59 East, M.D.M., in Las Vegas, Nevada. The site is located on the east side of Fox Hill Drive and on the south side of Redpoint Drive. Fox Hill Drive and Redpoint Drive are under construction and will be completed by Summerlin prior to or concurrently with the construction of this Project. The site is bordered on the south by the existing LVVWD 3435 Zone Reservoir and on the east by Village 21 Parcel F a residential development which is currently under construction and assumed to be completed for this drainage study.



PROJECT SITE

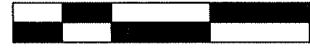
SUMMERLIN VILLAGE 25
PARCEL E
LENNAR
FIGURE 1
VICINITY MAP

RCI Engineering

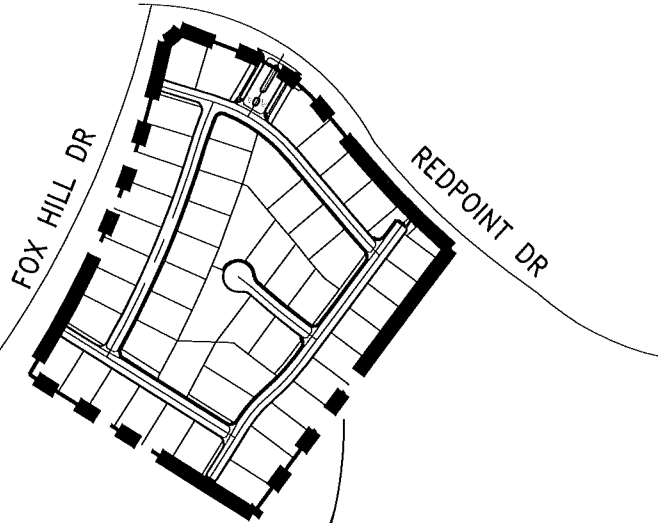
500 SOUTH RANCHO DRIVE, SUITE 17, LAS VEGAS, NV 89106
PH#702.453.0800 FAX#702.453.0801



250' 0' 250' 500'



SCALE: 1" = 500'



PROJECT SITE

FAR HILLS AVE

S DESERT FOOTHILLS DR

SUMMERLIN VILLAGE 25
PARCEL E
LENNAR

FIGURE 2
LOCATION MAP

RCI *Engineering*

500 SOUTH RANCHO DRIVE, SUITE 17, LAS VEGAS, NV 89106
PH#702.453.0800 FAX#702.453.0801

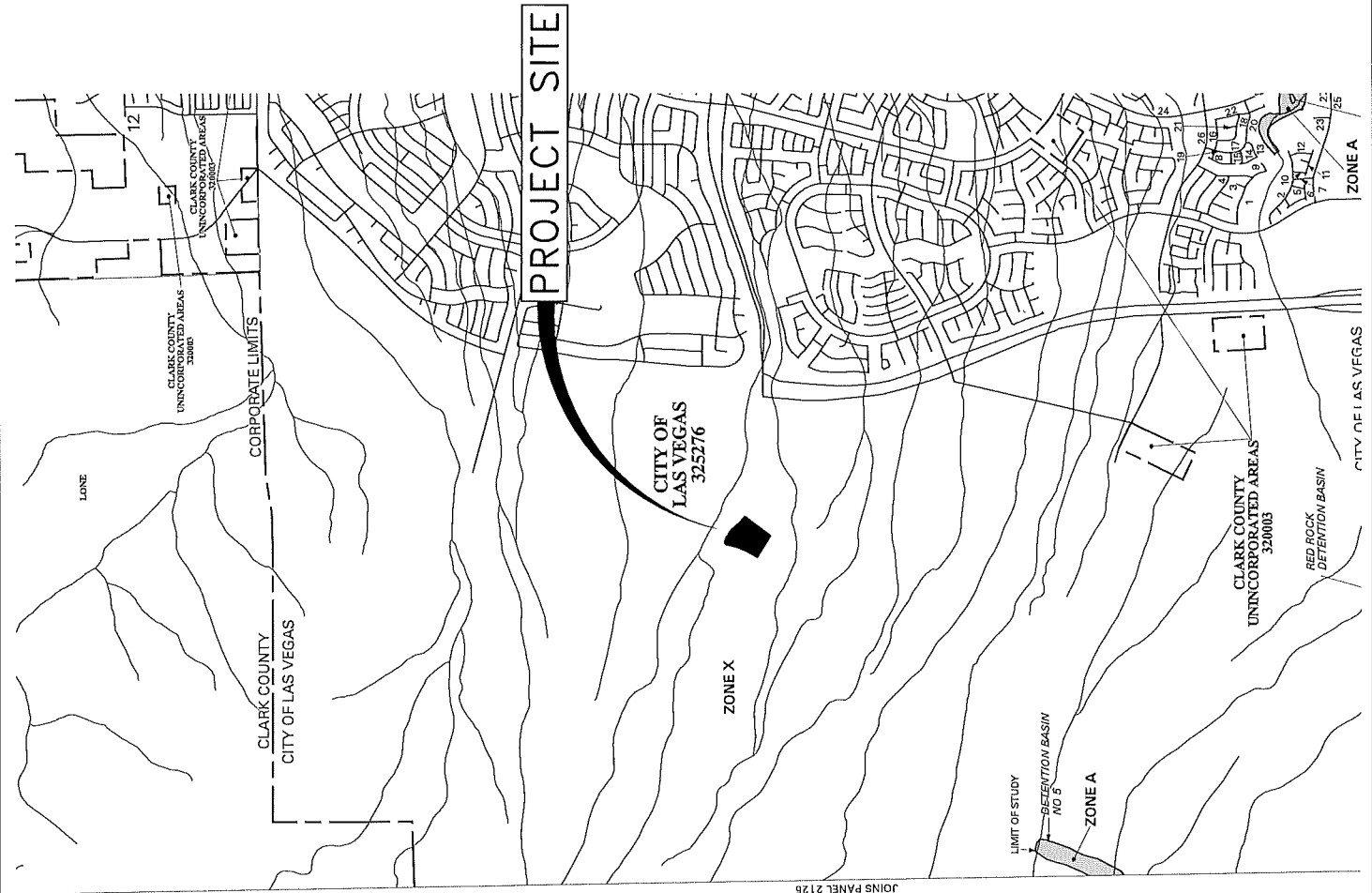
The site is presently undeveloped with sparse vegetation. The proposed development will consist of residential housing with Type A drainage. The project will include lots with an average lot size of 11,300 square feet. The Project will have a gated entrance from Redpoint Drive. Interior streets will be private with private surface maintenance. The entrance road will be a 65-foot private roadway with a continuous cross slope from west to east, "L" Type curb and gutter, Median Island, a 5-foot detached sidewalk and landscaping on both sides. The majority of the interior residential streets will consist of a 41-foot wide private roadway with a normal crown section, Roll type curb and gutter and a 5-foot wide sidewalk on one side. There is a short stub street at the west end of Wildrose Arch Street that will be 31-feet wide with Roll Curb and gutter.

III. FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD HAZARD ANALYSIS

Figure 3 was reproduced from the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) containing Community Panel Numbers 32003C2150E, dated September 27, 2002. Review of the FIRM panels shows that the Project is currently located within a Zone X. Zone X areas are defined as areas outside of the 100-year floodplains; areas of 100 year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100 year flood. Therefore, the project is not located within a FEMA-designated Special Flood Hazard Area (SFHA).

IV. CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT FACILITIES

Figure 4 is reproduced from Figure F-22 of the 2018 *Clark County Regional Flood Control District (CCRFCD) Master Plan Update* (Reference 1, hereinafter referred to as the 2018 MPU). This figure depicts the project site in relation to existing and proposed CCRFCD facilities. As shown on the figure, the site is not adjacent to any CCRFCD Facilities. The nearest facility is APDF 0000 in Desert Foot which is approximately 650 feet east of the project. Therefore, the Project is not located near or adjacent to a CCRFCD facility and concurrence will not be required for this drainage study.



JOINS PANEL 2126



NATIONAL FLOOD INSURANCE PROGRAM

PANEL 2150 E

FIRM
FLOOD INSURANCE RATE MAP
CLARK COUNTY,
NEVADA AND
INCORPORATED AREAS

PANEL 2150 OF 4090
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

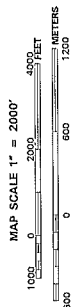
CONTAINS:	JOB NUMBER	PANEL	SHEET
UNINCORPORATED AREAS	32003	2150	E

Notice to User: This Map Number shown below should be used when placing map orders. The Community Number shown below should be used on insurance applications for the subject community.

MAP NUMBER
32003C2150 E

MAP REVISED:
SEPTEMBER 27, 2002

Federal Emergency Management Agency



SUMMERLIN VILLAGE 25
PARCEL E
LENNAR

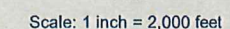
FIGURE 3
F.I.R.M. MAP

RCI Engineering
500 SOUTH RANCHO DRIVE, SUITE 17, LAS VEGAS, NV 89106
PH#702.453.0800 FAX#702.453.0801



LEGEND

AN



AerialSource:Esri World Imagery 2017



Member of the SNC-Lavalin Group



V. HYDROLOGY

The methodology presented in this study is in compliance with the *CCRFCD Hydrologic Criteria and Drainage Design Manual* (Reference 2, hereinafter referred to as the Manual).

Model Description - The watersheds were modeled using the SCS Unit Hydrograph method within the U.S. Army Corps of Engineers *HEC-1 Flood Hydrograph Package* (Reference 3).

Precipitation - The project site lies outside of the McCarran Rainfall Area as delineated in the Design Manual on Figures 503 and 506. The 10-year and 100-year point precipitation values for the project will be 1.86 inches and 3.43 inches during a 6-hour storm event, respectively. This equates to a 0.54 ratio between the 10-year and 100-year storm events. (See Appendix A)

Since the drainage area for the project will be less than 8 square miles, an SDN 3 design storm distribution per Table 503 of the Manual was selected for use in the HEC-1 computer model.

Curve Numbers (CN) –The soils information for this Project was referenced from the NRCS Website. The site is comprised of soil type 156 Vace-Wechech association. The Natural Resource Conservation Service has identified the major hydrologic rating for that soil as “D” with small percentages of Soils Types “A” and “B”. Pertinent soils information from the NRCS Website has been included in Appendix A.

For the given soils, CN values were determined from the appropriate columns of Table 602 of the Manual. Existing conditions storm flows have been referenced and will be discussed in detail in the existing conditions section of this report. For the ultimate conditions, the developed site was modeled with a CN value of 85.5 for Lots with an average area of 10,000 square feet. CN calculations have been included in Appendix A.

Drainage Areas and Flow Patterns - The subbasins and flow patterns used in the hydrologic modeling for ultimate conditions used electronic files of the grading plans for the Project and for the surrounding improvements constructed by Summerlin.

Lag Time - The lag time (TLAG) is described as the time between the center of mass of rainfall and the time of peak discharge from a basin. Lag time can be related to time of concentration (T_c) by the following relationship: $TLAG = 0.6(T_c)$. The time of concentration (T_c) is defined as the time required for runoff to flow from the most remote part of the basin area to the outlet of the basin or a design point under consideration. The procedure for calculating T_c is outlined in Section 602 of the Manual. Lag time calculations for the drainage subbasin has been included in Appendix A on Standard Form 4.

VI. EXISTING CONDITIONS

Existing conditions for the site and surrounding area have been referenced from the *Flood Control Master Plan Update Summerlin West Planning Area*, by VTN (Reference 4, hereinafter referred to as the Summerlin West Study). The Summerlin West Study had final approval by the City of Las Vegas on July 30, 2018 with CCRFCD concurrence on June 28, 2018. A copy of Figure A.6.3 from the Summerlin West Study showing the Parcel E site has been included in Appendix C. Parcel E was modelled as a part of Subbasin 3-12 in the existing condition as shown on Figure A.6.3 in Appendix C. Since the overall existing conditions for Village 25 has been approved with the Summerlin West Study and is being referenced for this study, no existing condition hydrologic analysis has been provided.

VII. ULTIMATE CONDITIONS

Figure 5 depicts the ultimate condition flow patterns and the storm drain plan for the Project. The ultimate condition HEC-1 model has been included in Appendix A. Table 1 summarizes the ultimate condition 100-year and 10-year flow rate for the project site. Figure 5 shows the prorated basins and storm drain and the prorated storm flows and all hydraulic calculations will be addressed in the Prorated Storm Flows and Hydraulics section of this report. The site has been graded to drain north to Redpoint Drive which matches the *Master Conceptual Drainage Study for Summerlin West Village 25* by VTN (Reference 5, hereinafter referred to as the V25 Study). The V25 Study was approved on June 18, 2019 with CCRFCD concurrence on June 6, 2019.

The improvements for Fox Hill Drive on the west were designed as a part of the *Technical Drainage Study for Fox Hill Drive Improvements*, by GCW (Reference 6, hereinafter referred to as the Fox Hill Study). The Fox Hill Study was approved by the CLV on May 23, 2019. As shown in that drainage study and plans included in Appendix C, the site is protected from offsite storm flows by the street improvements and interim channel on the west. The hydraulics for that street section will be addressed in the Prorated Storm Flows and Hydraulics section of this report.

TABLE 1 ULTIMATE CONDITIONS HEC-1 MODEL SUMMARY			
SUBBASIN OR CP*	BASIN AREA (AC)	100 YR (cfs)	10 YR (cfs)
ON1	7.15	29	15

*See Figure 5

The improvements for Redpoint Drive on the north were designed as a part of the *Technical Drainage Study for Summerlin Village 21 Redpoint Drive Improvements (Fox Hill Drive to Desert Foothills Drive)*, by GCW (Reference 7, hereinafter referred to as the Redpoint Study). The Redpoint Study was approved by the CLV on March 12, 2019. As shown in that drainage study and plans included in Appendix C, the site is protected from offsite storm flows by the street improvements on the north. The hydraulics for that street section will be addressed in the Prorated Storm Flows and Hydraulics section of this report.

The Project site is bordered on the south by the LVVWD 3435 Zone Reservoir and on the east by Village 21 Parcel F. Please see Details 10 for the cross section for the property line adjacent to Parcel F. As shown Parcel F is being constructed with a double retaining wall adjacent to the site. This Project is matching into that existing retaining wall. Please see Details 12-15 on Sheet D-1 for the cross section next to the LVVWD site on the south. The land along the south slopes steeply from west to east at around 8 percent and the LVVWD site has been graded with minimum slopes. The proposed Parcel E site is in most cases below the LVVWD Project and a solid grouted block wall will be constructed to 3 courses above highest adjacent grade except where pad grades are higher than the adjacent elevation.

VIII. PRORATED STORM FLOWS AND HYDRAULICS

Prorated storm flows from this study were calculated to model the ultimate conditions onsite discharges to design points. Please see the prorated basins on Figure 5 Ultimate Conditions Drainage and Storm Drain Map. Calculations are based on the overall 100-year storm flow from Subbasins ON1 and then divided by the acreage to determine how much runoff per acre will be produced. The acreage of each Prorated Basin is then multiplied by the cfs/acre which equals the cfs per Prorated Basin. Subbasins ON1 will generate an ultimate condition 100-year storm flow of approximately 2.6 cfs per acre (44 cfs/17.12 acres). The 100-year storm flows and calculations for the Prorated Basins have been shown on Figure 5.

The site is steep and drains from west to east with slopes ranging from 8 percent to 9 percent. The north south streets have been graded at slopes ranging from 0.65 to 1 percent. The site has been graded to drain to the northeast corner of the Project and prorated flows were calculated to ensure that the 100-year storm flows were not draining over top of curb with erosive velocities. Please see the 100-year Hydraulics Section Table on Figure 5 and the Flowmaster normal depth calculations in Appendix B. As shown the 100-year storm flows at Section B will drain with erosive velocities, but those flows are draining below top of curb. The Flowmaster calculations in Appendix B have the total flows at those cross sections written on them for your review.

All drop inlets have been designed with a 50 percent clogging factor per City of Las Vegas criteria. A Standard Form 6 Spreadsheet and a drop inlet calculation for the proposed onsite storm drain have been included in Appendix B. The onsite storm drain conveys the 100-year storm flow of 44 cfs into an existing 48-inch RCP storm drain from Redpoint Drive. The starting HGL for the main line Standard Form 6 spreadsheet to Mojave Arch Street was referenced from Sheet PP3 from the Redpoint Drive Improvements. The Standard Form 6 spreadsheet for the storm drain has been included in Appendix B and Sheet PP3 has been included in Appendix C with the reference material for Redpoint Drive. Please note that the Project site was modelled at a conceptual level with a density of less than 6,000 sq. ft. lots and those preliminary calculations showed that the site will produce 68 cfs during a 100-year storm event. Lennar has decided to develop this parcel with a minimum of 10,000 sq. ft. lots and the site will produce 44 cfs during a 100-year

storm event. Therefore, the 100-year storm flows produced by the site will not have a negative impact to downstream facilities since those facilities were designed for the higher flows.

The easement at the north end of Mojave Arch Street will serve as the emergency overflow path for the Project under the unlikely event that all of the drop inlets on the project become 100-percent clogged. A weir calculation for that easement has been conducted and is included in Appendix B. As shown in that calculation the finished floor elevation for Lot 26 adjacent to the easement is a minimum of 0.5 feet above the 100-year storm emergency overflow water surface elevation.

Per City of Las Vegas criteria in the Design Manual, the onsite finish floor elevations shall be set at a vertical distance of 6-inches above highest top of curb elevation or twice the depth of flow in the gutter flow line. Based on the street capacity calculations, the maximum depth of surface flow in the interior streets for the 100-year storm event will be 0.58 ft. To meet 2* depth of flow criteria the finish floor elevations should be set to a minimum of 1.16-feet above highest adjacent flow line elevation. Therefore, the site criteria will be to set all finish floor elevations a minimum of 6-inches above the highest top of curb. One exception is that Lot 51 does not meet that criteria at the high side of the lot, but does meet that criteria at the high side of structure. That is because the lot extends up the street about 90 feet past the house at a slope of 8.88 percent. All other lots finish floor elevations on the Project site exceed this criteria.

Based on the calculated street flow characteristics, the Design Manual criteria for depth (D) and velocity times depth ($V \cdot D$) to be less than 8 during the 100-year storm event will be met. Since in all cases the $D \cdot V$ was less than 6 during the 100-year storm event, 10-year cross section calculations were not warranted.

Perimeter streets hydraulics were reviewed to make sure that the site is protected from storm flows in the adjacent offsite streets. Storm flows in Repoint Drive will drain at a maximum depth of 0.41 feet (below top of curb). The finish floor elevations for lots along Redpoint Drive range from being 3 feet below the Redpoint Drive TC elevation on the west to 1 foot above TC elevation on the east. A solid grouted block wall will be constructed 3 courses above highest adjacent grade in cases where the finish floor elevation does not

meet twice the depth of flow. Please see page 4 and the Flowmaster calculation from the Redpoint Study in Appendix C. The entrance to the site has been humped to provide 0.5 feet of freeboard above the worst case 100-year storm flows in Redpoint Drive.

Storm flows in Fox Hill Drive will drain at a maximum depth of 0.57 feet along the east side of the street (above top of curb). The finish floor elevations for lots along Fox Hill Drive range from 7 to 10 feet below Fox Hill Drive TC elevations. Solid grouted block walls will be constructed 3 courses above highest adjacent grade where block retaining walls are proposed. There is also a Rockery wall along Lots 3 through 10. The village wall along that Rockery wall will be constructed with 3 courses of solid grouted block above highest adjacent grade. Please see Page 3 and the Flowmaster calculation from the Fox Hill Study in Appendix C for the offsite storm flow depths. Therefore, the site is protected against any offsite flows in the adjacent street from draining onto the site.

Cross Sections B and D were cut at the downstream end of Wildrose Arch Street and Sandstone Arch Street for velocity calculations and to determine the energy grade line to set finish floor elevations on the east side of the intersections. As shown the Specific Energy in those cross sections is 0.80 feet and 0.63 feet. Finish Floor elevations have been set a minimum of 2 feet above the high side TC and are above the specific energy elevations for those lots.

IX. CONCLUSIONS AND RECOMMENDATIONS

1. Methodology used in this report is in compliance with the Clark County Regional Flood Control District (CCRFCD) criteria.
2. The proposed project lies within a FEMA Zone X. Therefore, the project is not currently located in a FEMA-designated Special Flood Hazard Area.
3. The proposed development does not alter existing peak flows or the character of flows downstream of the development.
4. Storm drain facilities proposed within the project and shown on the grading plans will be constructed with the development.
5. Homes to be constructed within this project will have adequate freeboard to be protected from flows conveyed in the adjacent streets and flows draining across the adjacent LVVWD 3435 Zone Reservoir on the south and Village 21 Parcel F on the east.

X. REFERENCES

1. Clark County Regional Flood Control District, *Clark County Regional Flood Control District - The 2013 Las Vegas Valley Master Plan Update*, September 2008.
2. Clark County Regional Flood Control District *Hydrologic Criteria and Drainage Design Manual*, updated August 1999.
3. U.S. Army Corps of Engineers, *HEC-1 Flood Hydrograph Package*, June 1998.
4. VTN, *Flood Control Master Plan Update Summerlin West Planning Area*, July 2019.
5. VTN, *Master Conceptual Drainage Study for Summerlin West Village 25*, June 2019.
6. GCW, *Technical Drainage Study for Fox Hill Drive Improvements*, May 2019.
7. GCW, *Technical Drainage Study for Summerlin Village 21 Redpoint Drive Improvements (Fox Hill Drive to Desert Foothills Drive)*, March 2019.

APPENDIX A – HYDROLOGIC CALCS

Tentative Map and Conditional Approval letter from Summerlin

Precipitation References

Soils Map

Soils References

Curve Number References

Ultimate Developed Conditions

Curve Number Calculations

Standard Form 4

HEC-1 Model

TENTATIVE MAP FOR
SUMMERLIN VILLAGE 25 PARCEL E
A SINGLE FAMILY RESIDENTIAL SUBDIVISION

APN: 137-27-511-001
CITY OF LAS VEGAS, NEVADA
17.12+/- ACRES

BY **LENNAR**[®]
dba GREYSTONE NEVADA, LLC

OWNER:

THE HOWARD HUGHES COMPANY, LLC
10801 W. CHARLESTON BLVD, 3RD FLOOR
LAS VEGAS, NEVADA 89135

DEVELOPER,

GREYSTONE NEVADA, LLC
9275 W RUSSELL RD., LAS VEGAS, NV 89148
PHONE: (702) 736-9100 FAX: (702) 736-9200

DESIGN ENGINEER:

RCI Engineering
500 S. Rancho Dr, Suite 17 - Las Vegas, NV 89106 PHN 702.453.0800
FAX 702.453.0801

LEGAL DESCRIPTION

LOT E OF "SUMMERLIN VILLAGE 25 - UNIT 1" AS SHOWN BY MAP THEREOF ON FILE
IN THE CLARK COUNTY RECORDER'S OFFICE IN BOOK 150, PAGE 060 OF PLATS.
SITUATE IN SECTION 27, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M., CITY OF LAS
VEGAS, CLARK COUNTY, NEVADA.

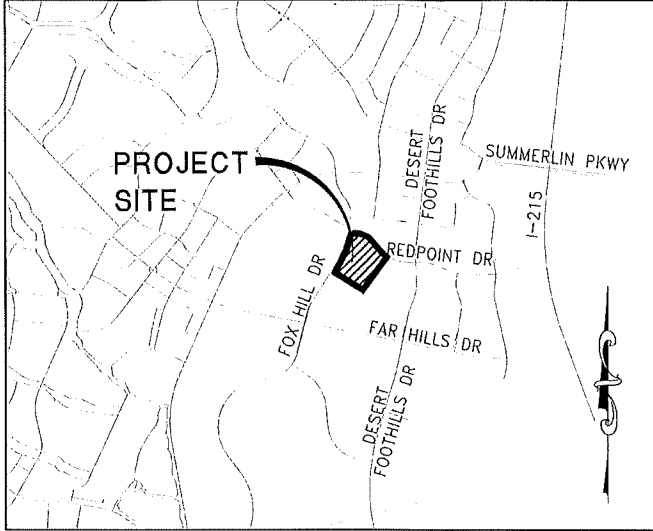
CONTAINING 17.12 ACRES

BASIS OF BEARINGS

NORTH 01°26'53" EAST, BEING THE BEARING OF THE WEST LINE OF SECTION 27,
TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY,
NEVADA AS SHOWN IN FILE 123, PAGE 36 OF PARCEL MAPS.

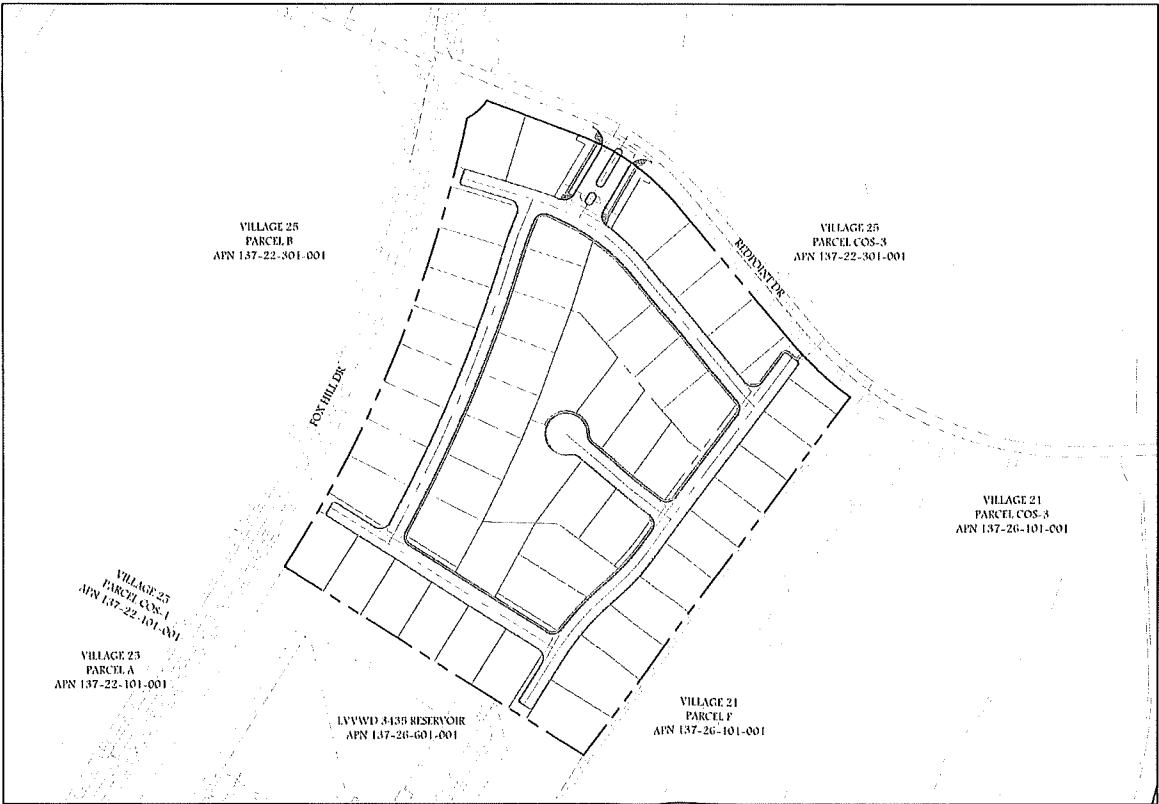
DISCLAIMER NOTE:

UTILITY LOCATIONS SHOWN HEREON ARE
APPROXIMATE ONLY. IT SHALL BE THE
CONTRACTOR'S RESPONSIBILITY TO
DETERMINE THE EXACT HORIZONTAL AND
VERTICAL LOCATION OF ALL EXISTING
UNDERGROUND OR OVERHEAD UTILITIES
PRIOR TO COMMENCING CONSTRUCTION.
NO REPRESENTATION IS MADE THAT ALL
EXISTING UTILITIES ARE SHOWN HEREON.
THE ENGINEER ASSUMES NO
RESPONSIBILITY FOR UTILITIES NOT
SHOWN OR UTILITIES NOT SHOWN IN
THEIR PROPER LOCATION. CONTRACTOR
TO NOTIFY ENGINEER OF ANY CHANGES
OR DISCREPANCIES.



VICINITY MAP

NOT TO SCALE



SITE PLAN

NOT TO SCALE

GENERAL NOTES

- ALL IMPROVEMENTS SHALL CONFORM TO THE UNIFORM STANDARDS AND SPECIFICATIONS OF CLARK COUNTY, NEVADA, THE DESIGN GUIDELINES FOR SUMMERLIN V25, AND SPECIFICATIONS OF THE CITY OF LAS VEGAS UNLESS NOTED OTHERWISE.
- UTILITY SERVICES PROVIDED AS FOLLOWS:
WATER..... LAS VEGAS VALLEY WATER DISTRICT
ELECTRIC..... NV ENERGY
GAS..... SOUTHWEST GAS CORPORATION
SEWER..... CITY OF LAS VEGAS
SOLID WASTE DISPOSAL..... REPUBLIC SERVICES
TELEPHONE..... CENTURYLINK
- UTILITY EASEMENTS TO BE DEDICATED TO RESPECTIVE AGENCIES.
- SEWER CONTRIBUTION = 0.013 M.G.D. AVG. (0.045 PEAK)
- BUILDING SETBACKS TO COMPLY WITH CITY OF LAS VEGAS DEVELOPMENT CODE OR APPROVED WAIVERS.
- STORM WATER TO SURFACE DRAIN ON STREETS AND IN STORM DRAIN.
- THIS DEVELOPMENT IS SHOWN IN ITS ENTIRETY ON THIS TENTATIVE MAP.
- THIS DEVELOPMENT LIES WITHIN A ZONE "X" AS DESIGNATED BY FEWA FIRM MAP# 32003C2150E DATED SEPTEMBER 27, 2002
- ALL INTERIOR SEWER AND WATER MAINS ARE 8" UNLESS OTHERWISE SHOWN.
- ALL INTERIOR STREETS ARE PRIVATE.
- ALL CURB RADIUS = 20' AT INTERSECTIONS UNLESS OTHERWISE SHOWN.
- THIS SUBDIVISION WILL HAVE CC&R'S & TO MAINTAIN LANDSCAPING IN PERPETUITY BY THE HOME OWNER'S ASSOCIATION.
- THERE ARE NO OBSERVABLE FAULTS OR FISSURES ON OR NEAR THIS SITE.
- SEEPS, SPRINGS, OR OTHER INDICATIONS OR HIGH GROUND WATER LEVELS HAVE NOT BEEN LOCATED WITHIN 20 FEET OF THE EXISTING GROUND SURFACE.
- PRIVATE INTERIOR STREETS ARE CITY OF LAS VEGAS PUBLIC SEWER EASEMENTS, PUBLIC UTILITY EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS. SURFACE TO BE PRIVATELY MAINTAINED BY THE HOMEOWNERS ASSOCIATION.

LAND USE INFORMATION:

APN	= 137-27-511-001
CURRENT ZONING	= PC/SF3
PROPOSED ZONING	= PC/SF3
TOTAL GROSS ACREAGE	= 17.12 AC
TOTAL SINGLE FAMILY NUMBERED LOTS	= 51 LOTS
TOTAL COMMON LOTS	= 11 LOTS
DENSITY	= 2.97 DU/AC
OPEN SPACE REQUIREMENT	= 0 S.F.
OPEN SPACE PROVIDED	= 7,333 S.F.
MAXIMUM LOT SIZE	=18,741 S.F.
MINIMUM LOT SIZE	=9,480 S.F.
AVERAGE LOT SIZE	=11,330 S.F.
TYPICAL LOT SIZES	=80'x115'

SHEET INDEX

SHT No.	DWG ID	DRAWING DESCRIPTION
1	TM-1	COVER SHEET
2	TM-2	TENTATIVE MAP (SHEET 1 OF 5)
3	TM-3	TENTATIVE MAP (SHEET 2 OF 5)
4	TM-4	TENTATIVE MAP (SHEET 3 OF 5)
5	TM-5	TENTATIVE MAP (SHEET 4 OF 5)
6	TM-6	TENTATIVE MAP (SHEET 5 OF 5)
7	D-1	DETAILS AND SECTION
8	CS-1	SITE CROSS SECTION (SHEET 1 OF 2)
9	CS-2	SITE CROSS SECTION (SHEET 2 OF 2)

LEGEND

RIGHT-OF-WAY/BOUNDARY	---
CENTERLINE	---
EASEMENT	---
PROPOSED PUBLIC SEWER LINE	— 8" SWR
PROPOSED PUBLIC WATERLINE	— 14" SWR
EXISTING PUBLIC SEWER LINE	— 8" SWR
EXISTING PUBLIC WATERLINE	— 14" SWR
PROPOSED SIDEWALK	---
PROPOSED FIRE HYDRANT	▼
EXISTING STREET LIGHT	---
INDEX CONTOUR	2035
INTERMEDIATE CONTOUR	---
LOT NUMBER	1
RATE OF GRADE	2.00%
RIGHT OF WAY	R/W
SIDEWALK	SW
SQUARE FEET	S.F.
COMMON ELEMENT	C.E.
POINT OF CONNECTION	POC

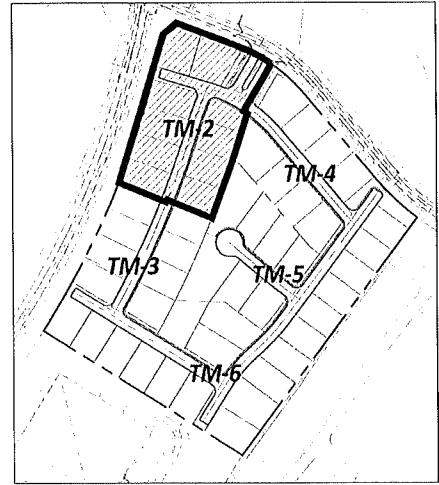
TENTATIVE MAP
SUMMERLIN VILLAGE 25 PARCEL E
COVER SHEET



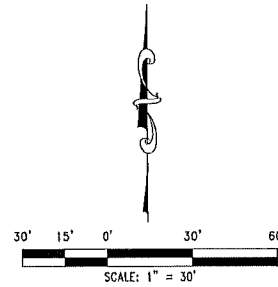
3/19/20
DRAWING
TM-1
SHT 1 OF 9

VILLAGE 25
PARCEL 11
APR 15/22 301 001

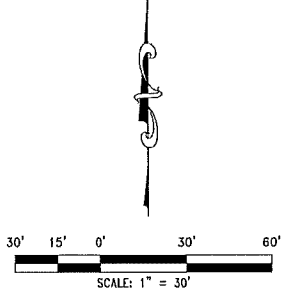
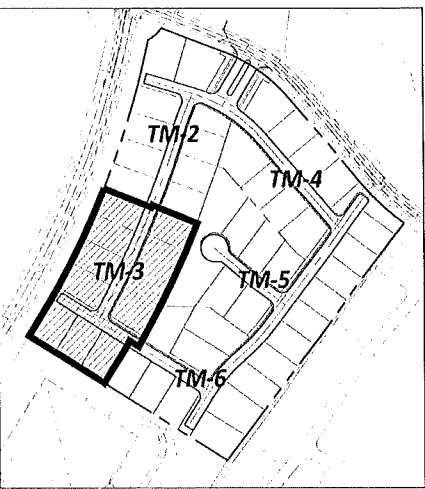
VILLAGE 25
PARCEL 005-5
APR 15/22 301 001



KEYMAP



DATE: MARCH 18, 2025 HORIZ. SCALE: 1"=30' VERT. SCALE: 1"=5' DRAWN BY: MS CHECKED BY: CR APPROVED BY: CR PROJECT #: 3040.0035		BY: [] DATE: []
DESCRIPTION: []		REV: []
LENNAR 9275 W. RUSSELL RD SUITE 400, LAS VEGAS, NV 89148 PHONE: (702) 736-5100 FAX: (702) 736-9200		
RCI Engineering 500 S. RANCHO DRIVE, SUITE 17, LAS VEGAS, NV 89106 PHONE: (702) 453-0800 FAX: (702) 453-0801		
TENTATIVE MAP SUMMERLIN VILLAGE 25 PARCEL E TENTATIVE MAP (SHEET 1 OF 5) GITY OF LAS VEGAS NEVADA 3/18/20 12:11pm C:\3040_LENNAR\0035_SUMLIN_V25E1_PLANNING\CAD FILES\TM-2.dwg chrisr		
DRAWING TM-2 SHT 2 OF 9		



DATE: March 18, 2022
HORIZ. SCALE: 1"=30'
VERT. SCALE: N/A
DRAWN BY: MS
CHECKED BY: CR
APPROVED BY: CR
PROJECT #: 3046.082

REVISION

REV

DESCRIPTION

BY

APPD

DATE

LENNAR®
9275 W. RUSSELL RD SUITE 400, LAS VEGAS, NV 89148
PHONE: (702) 736-9100 FAX: (702) 736-9200

RCI Engineering

500 S. RANCHO DRIVE, SUITE 17, LAS VEGAS, NV 89106
PHONE: (702) 453-0800 FAX: (702) 453-0801

TENTATIVE MAP
SUMMERLIN VILLAGE 25 PARCEL E
TENTATIVE MAP (SHEET 2 OF 5)
CITY OF LAS VEGAS
NEVADA

PROFESSIONAL SEAL

CHRISTOPHER R. ZORNY
Exp. 6/30/2025
CIVIL
No. 13576-2015-001

3/10/20

DRAWING
TM-3
SHEET 3 OF 9

G:\3046_LENNAR\0058_SHEEN_25PARCEL_E\PLANNING\CD FILES\TMAP.dwg created: 3/18/20 12:11pm

owned and/or maintained infrastructure improvements, along with assignment of maintenance responsibility for each to the common interest community or the respective individual property owners, and is to provide a brief description of the required level of maintenance for privately maintained components. The DPMR must be reviewed and approved by the City of Las Vegas Department of Field Operations prior to recordation, and must include a statement that all properties within the community are subject to assessment for all associated costs should private maintenance obligations not be met, and the City of Las Vegas be required to provide for said maintenance. Also, the CC&R are to include a statement of obligation of compliance with the DPMR. Following recordation, the Developer is to submit copies of the recorded DPMR and CC&R documents to the City of Las Vegas Department of Field Operations.

5. All development is subject to the conditions of City Departments and State Subdivision Statutes.

Public Works

6. Private streets must be granted and labeled on the Final Map for this site as Public Utility Easements (P.U.E.), Public Sewer Easements, and Public Drainage Easements with private surface maintenance by the Homeowner's Association.
7. If such does not already exist, grant a Public Sewer and Public Drainage Easement by separate document over Common Element Lot 4 of Book 159, Page 50 of Plats to coincide with the Public Sewer and Public Drainage Easement granted over Common Element F on the Final Map for this site. Additionally, vacate any unused portion of the Public Sewer and Drainage Easement located in Common Element "F" prior to recordation of the Final Map for this site.
8. The proposed sewer point of connection shall be abandoned and a new point of connection shall be located on Redpoint Drive between the storm drain and the water line. Alternatively, meet with Sanitary Sewer and Flood Control Sections of the Department of Public Works to discuss the proposed layout.
9. Prior to the recordation of a Final Map for this site, submit a pedestrian circulation plan to identify nearby pedestrian attractors and recommend measures to accommodate pedestrians, such as but not limited to pedestrian access, crosswalk, pedestrian activated flashers and temporary sidewalks.

10. A Drainage Plan and Technical Drainage Study must be submitted to and approved by the Department of Public Works prior to the issuance of any building, grading permits or the recordation of a Final Map, whichever may occur first. Provide and improve all drainageways recommended in the approved drainage plan/study. The developer of this site shall be responsible to construct such neighborhood or local drainage facility improvements as are recommended by the City of Las Vegas Neighborhood Drainage Studies and approved Drainage Plan/Study concurrent with development of this site.
11. The approval of all Public Works related improvements shown on this Tentative Map is in concept only. Specific design and construction details relating to size, type and/or alignment of improvements, including but not limited to street, sewer and drainage improvements, shall be resolved prior to approval of the construction plans by the City. No deviations from adopted City Standards shall be allowed unless specific written approval for such is received from the City Engineer prior to the recordation of a Final Map or the approval of subdivision related construction plans, whichever may occur first. Approval of this Tentative Map does not constitute approval of any deviations. If such approval cannot be obtained, a revised Tentative Map must be submitted showing elimination of such deviations. Roadway locations and parcel entries are schematic and final studies and engineering improvements designs. Geometric design of Parcel entry points must be approved through the development review of each parcel.
12. Site development to comply with all applicable conditions of approval for Tentative Map TMP-76354 and all other applicable site-related actions.

This action by the Planning Commission on **June 9, 2020** is final unless a written appeal is filed with the City Clerk within seven days of the date of the Planning Commission's decision as allowed by code or there is a review action filed by the City Council within the same time period. For additional information on appeals or review requests submitted please access <https://www.lasvegasnevada.gov/Business/Permits-Licenses/Building-Permits/Permit-Application-Status>, or contact the Department of Planning and Development at 702.229.6301 after **June 16, 2020**. No building permits or business licenses related to these items shall be issued prior to the expiration of the required seven day waiting period, or until any filed appeal is resolved pursuant to LVMC Title 19.18.

Sincerely,



Eric McCammond
Sr. Management Analyst
Case Planning Division

TMP-78668 [PRJ-78542] - Page Four
June 10, 2020

EM:nl

cc;

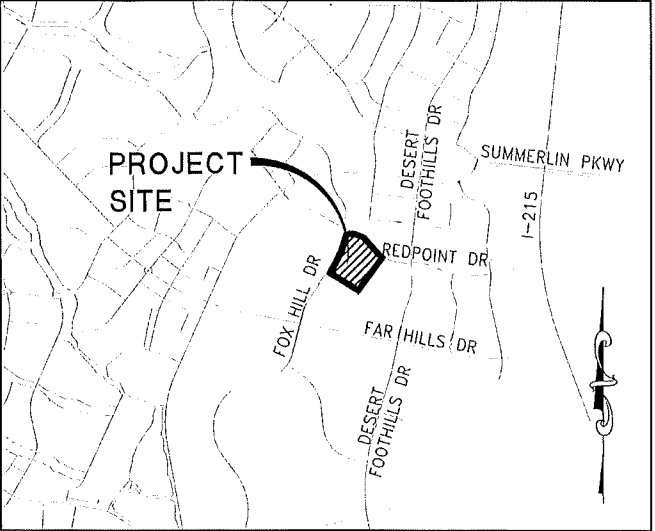
Ms. Jeanette Jeffrey
Greystone Nevada, LLC
9275 West Russell Road, Ste. 400
Las Vegas, Nevada 89148

Ms. Amber Dolce
RCI Engineering
500 S. Rancho Drive, Ste. 17
Las Vegas, Nevada 89106

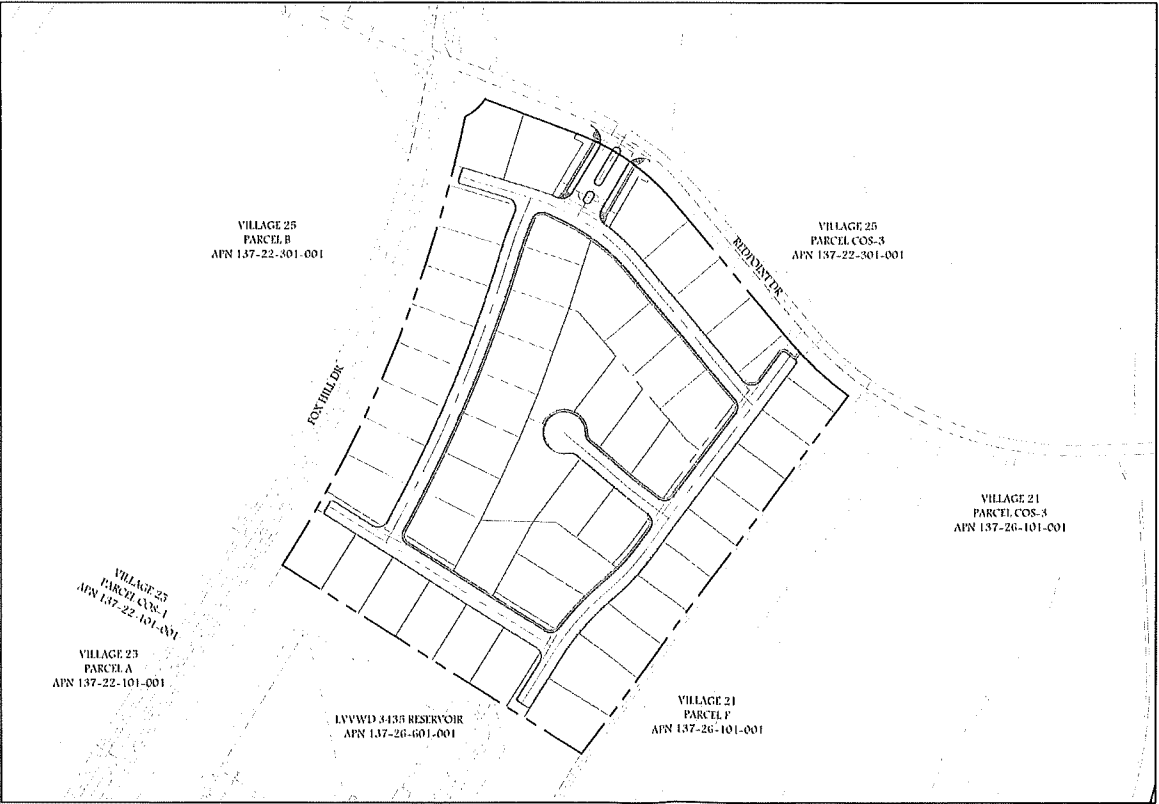
TENTATIVE MAP FOR
SUMMERLIN VILLAGE 25 PARCEL E
A SINGLE FAMILY RESIDENTIAL SUBDIVISION

APN: 137-27-511-001
CITY OF LAS VEGAS, NEVADA
17.12+/- ACRES

BY **LENNAR**[®]
dba GREYSTONE NEVADA, LLC



VICINITY MAP
NOT TO SCALE



SITE PLAN
NOT TO SCALE

GENERAL NOTES

- ALL IMPROVEMENTS SHALL CONFORM TO THE UNIFORM STANDARDS AND SPECIFICATIONS OF CLARK COUNTY, NEVADA, THE DESIGN GUIDELINES FOR SUMMERLIN V25, AND SPECIFICATIONS OF THE CITY OF LAS VEGAS UNLESS NOTED OTHERWISE.
- UTILITY SERVICES PROVIDED AS FOLLOWS:
WATER..... LAS VEGAS VALLEY WATER DISTRICT
ELECTRIC..... NV ENERGY
GAS..... SOUTHWEST GAS CORPORATION
SEWER..... CITY OF LAS VEGAS
SOLID WASTE DISPOSAL..... REPUBLIC SERVICES
TELEPHONE..... CENTURYLINK
- UTILITY EASEMENTS TO BE DEDICATED TO RESPECTIVE AGENCIES.
- SEWER CONTRIBUTION = 0.013 M.G.D. AVG. (0.045 PEAK)
- BUILDING SETBACKS TO COMPLY WITH CITY OF LAS VEGAS DEVELOPMENT CODE OR APPROVED WAIVERS.
- STORM WATER TO SURFACE DRAIN ON STREETS AND IN STORM DRAIN.
- THIS DEVELOPMENT IS SHOWN IN ITS ENTIRETY ON THIS TENTATIVE MAP.
- THIS DEVELOPMENT LIES WITHIN A ZONE "X" AS DESIGNATED BY FEWA FIRM MAP# 32003C2150E DATED SEPTEMBER 27, 2002
- ALL INTERIOR SEWER AND WATER MAINS ARE 8" UNLESS OTHERWISE SHOWN.
- ALL INTERIOR STREETS ARE PRIVATE.
- ALL CURB RADIUS = 20' AT INTERSECTIONS UNLESS OTHERWISE SHOWN.
- THIS SUBDIVISION WILL HAVE C&R'S & TO MAINTAIN LANDSCAPING IN PERPETUITY BY THE HOME OWNER'S ASSOCIATION.
- THERE ARE NO OBSERVABLE FAULTS OR FISSURES ON OR NEAR THIS SITE.
- SEEPS, SPRINGS, OR OTHER INDICATIONS ON HIGH GROUND WATER LEVELS HAVE NOT BEEN LOCATED WITHIN 20 FEET OF THE EXISTING GROUND SURFACE.
- PRIVATE INTERIOR STREETS ARE CITY OF LAS VEGAS PUBLIC SEWER EASEMENTS, PUBLIC UTILITY EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS. SURFACE TO BE PRIVATELY MAINTAINED BY THE HOMEOWNERS ASSOCIATION.

LAND USE INFORMATION:

APN	= 137-27-511-001
CURRENT ZONING	= PC/SF3
PROPOSED ZONING	= PC/SF3
TOTAL GROSS ACREAGE	= 17.12 AC
TOTAL SINGLE FAMILY NUMBERED LOTS	= 51 LOTS
TOTAL COMMON LOTS	= 11 LOTS
DENSITY	= 2.97 DU/AC
OPEN SPACE REQUIREMENT	= 0 S.F.
OPEN SPACE PROVIDED	= 7,333 S.F.
MAXIMUM LOT SIZE	=18,741 S.F.
MINIMUM LOT SIZE	=9,480 S.F.
AVERAGE LOT SIZE	=11,330 S.F.
TYPICAL LOT SIZES	=80'x115'

SHEET INDEX

SHEET No.	DWG ID	DRAWING DESCRIPTION
1	TM-1	COVER SHEET
2	TM-2	TENTATIVE MAP (SHEET 1 OF 5)
3	TM-3	TENTATIVE MAP (SHEET 2 OF 5)
4	TM-4	TENTATIVE MAP (SHEET 3 OF 5)
5	TM-5	TENTATIVE MAP (SHEET 4 OF 5)
6	TM-6	TENTATIVE MAP (SHEET 5 OF 5)
7	D-1	DETAILS AND SECTION
8	CS-1	SITE CROSS SECTION (SHEET 1 OF 2)
9	CS-2	SITE CROSS SECTION (SHEET 2 OF 2)

LEGEND

RIGHT-OF-WAY/BOUNDARY	---
CENTERLINE	---
EASEMENT	---
PROPOSED PUBLIC SEWER LINE	---X" SWR---
PROPOSED PUBLIC WATERLINE	---X" WTR---
EXISTING PUBLIC SEWER LINE	---X" SWR---
EXISTING PUBLIC WATERLINE	---X" WTR---
PROPOSED SIDEWALK	---
PROPOSED FIRE HYDRANT	---
EXISTING STREET LIGHT	---
INDEX CONTOUR	2035
INTERMEDIATE CONTOUR	---
LOT NUMBER	1
RATE OF GRADE	2.00%
RIGHT OF WAY	R/W
SIDEWALK	SW
SQUARE FEET	S.F.
COMMON ELEMENT	C.E.
POINT OF CONNECTION	POC

OWNER:

THE HOWARD HUGHES COMPANY, LLC
10801 W. CHARLESTON BLVD, 3RD FLOOR
LAS VEGAS, NEVADA 89135

DEVELOPER,

GREYSTONE NEVADA, LLC
9275 W RUSSELL RD. LAS VEGAS, NV 89148
PHONE: (702) 736-9100 FAX: (702) 736-9200

DESIGN ENGINEER:

RCI Engineering
500 S. Rancho Dr, Suite 17 - Las Vegas, NV 89106 PHN 702.453.0800
FAX 702.453.0801

LEGAL DESCRIPTION

LOT E OF "SUMMERLIN VILLAGE 25 - UNIT 1" AS SHOWN BY MAP THEREOF ON FILE IN THE CLARK COUNTY RECORDER'S OFFICE IN BOOK 160, PAGE 060 OF PLATS. SITUATE IN SECTION 27, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA.

CONTAINING 17.12 ACRES

BASIS OF BEARINGS

NORTH 01°26'53" EAST, BEING THE BEARING OF THE WEST LINE OF SECTION 27, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA AS SHOWN IN FILE 123, PAGE 36 OF PARCEL MAPS.

DISCLAIMER NOTE:

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND OR OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION. CONTRACTOR TO NOTIFY ENGINEER OF ANY CHANGES OR DISCREPANCIES.

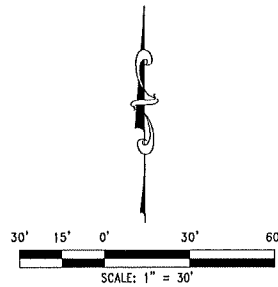
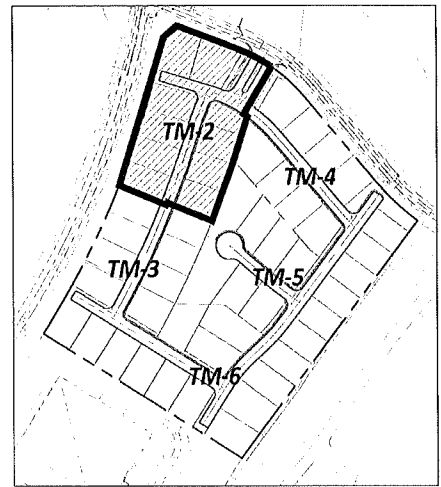
TENTATIVE MAP
SUMMERLIN VILLAGE 25 PARCEL E
COVER SHEET



3/19/20
DRAWING
TM-1
SHEET 1 OF 9

VILLAGE 25
PARCEL 10
APN 157 22 501 001

VILLAGE 25
PARCEL 004-5
APN 157 22 501 001

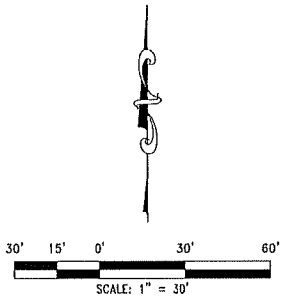
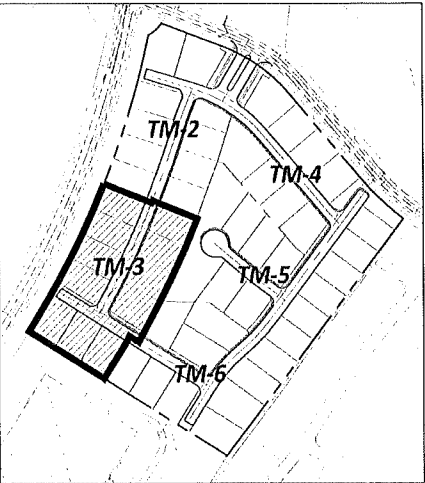


TENTATIVE MAP SUMMERLIN VILLAGE 25 PARCEL E TENTATIVE MAP (SHEET 1 OF 5)		LENNAR® 9275 W. RUSSELL RD SUITE 400, LAS VEGAS, NV 89148 PHONE (702) 736-9100 FAX: (702) 736-9200		RCI Engineering 500 S. Rancho Drive, Suite 17, Las Vegas, NV 89106 PH702.453.0800 FAX702.453.0801	
DATE: MARCH 18, 2020	BY: [Signature]	DESCRIPTION: [Blank]	REV: [Blank]	DATE: MARCH 18, 2020	BY: [Signature]
HORIZ. SCALE: 1"=30'	VERT. SCALE: 1"=10'	DESIGNED BY: [Blank]	CHECKED BY: [Blank]	HORIZ. SCALE: 1"=30'	VERT. SCALE: 1"=10'
DRAWN BY: [Blank]	US	DESIGNED BY: [Blank]	CR	DRAWN BY: [Blank]	US
CHECKED BY: [Blank]	CR	CHECKED BY: [Blank]	CR	CHECKED BY: [Blank]	CR
APPROVED BY: [Blank]	CR	APPROVED BY: [Blank]	CR	APPROVED BY: [Blank]	CR
PROJECT #:	3048.0032	PROJECT #:	3048.0032	PROJECT #:	3048.0032

PROFESSIONAL ENGINEER
CHRISTOPHER R. ZIMM
No. 13916
6/13/2020
CIVIL
3/18/20

TM-2
SHEET 2 OF 9

05:10:00_LENNAR\0058_SWRCH_V25E1_PLANNING\CAD FILES\T-042.dwg schweh 3/18/20 12:11pm



DATE: March 18, 2022

APPD: []

REV: []

DESCRIPTION: []

DESIGNED BY: []

CHECKED BY: []

APPROVED BY: []

PROJECT #: []

SCALE: 1" = 30'

DATE: []

SCALE: []

DATE: []

SCALE: []

DATE: []

LENAR®

5275 W. RUSSELL RD SUITE 400 LAS VEGAS, NV 89148

PHONE: (702) 736-5100 FAX: (702) 736-5200

RCI Engineering

500 S. RANCHO DRIVE, SUITE 17, LAS VEGAS, NV 89106

PH: (702) 453-0800 FAX: (702) 453-0801

TENTATIVE MAP

SUMMERLIN VILLAGE 25 PARCEL E

TENTATIVE MAP (SHEET 2 OF 5)

CITY OF LAS VEGAS

NEVADA

PROFESSIONAL SEAL

CHRISTOPHER R. ZIRARI

Exp. 6/30/2022

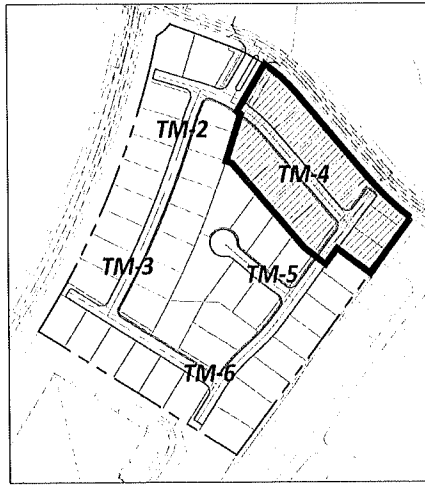
CIVIL

15516

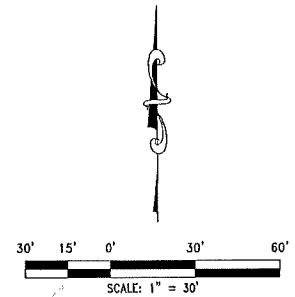
3/14/20

TM-3

SHT 3 OF 9



KEYMAP

[illegible]

LENNAR®

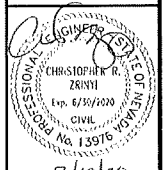
PHONE: (702) 736-9100 FAX: (702) 736-9200

RCI Engineering
500 S. Rancho Drive, Suite 17, Las Vegas, NV 89102
800/702-4538 FAX 702/453-8800

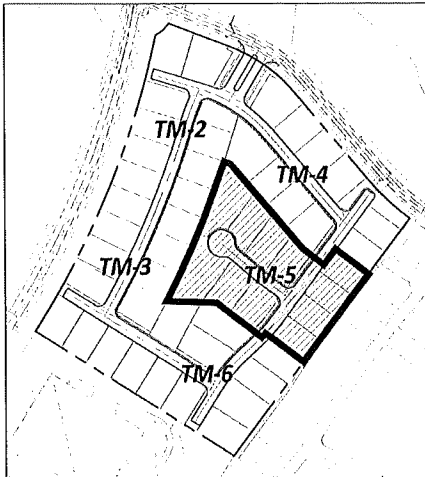
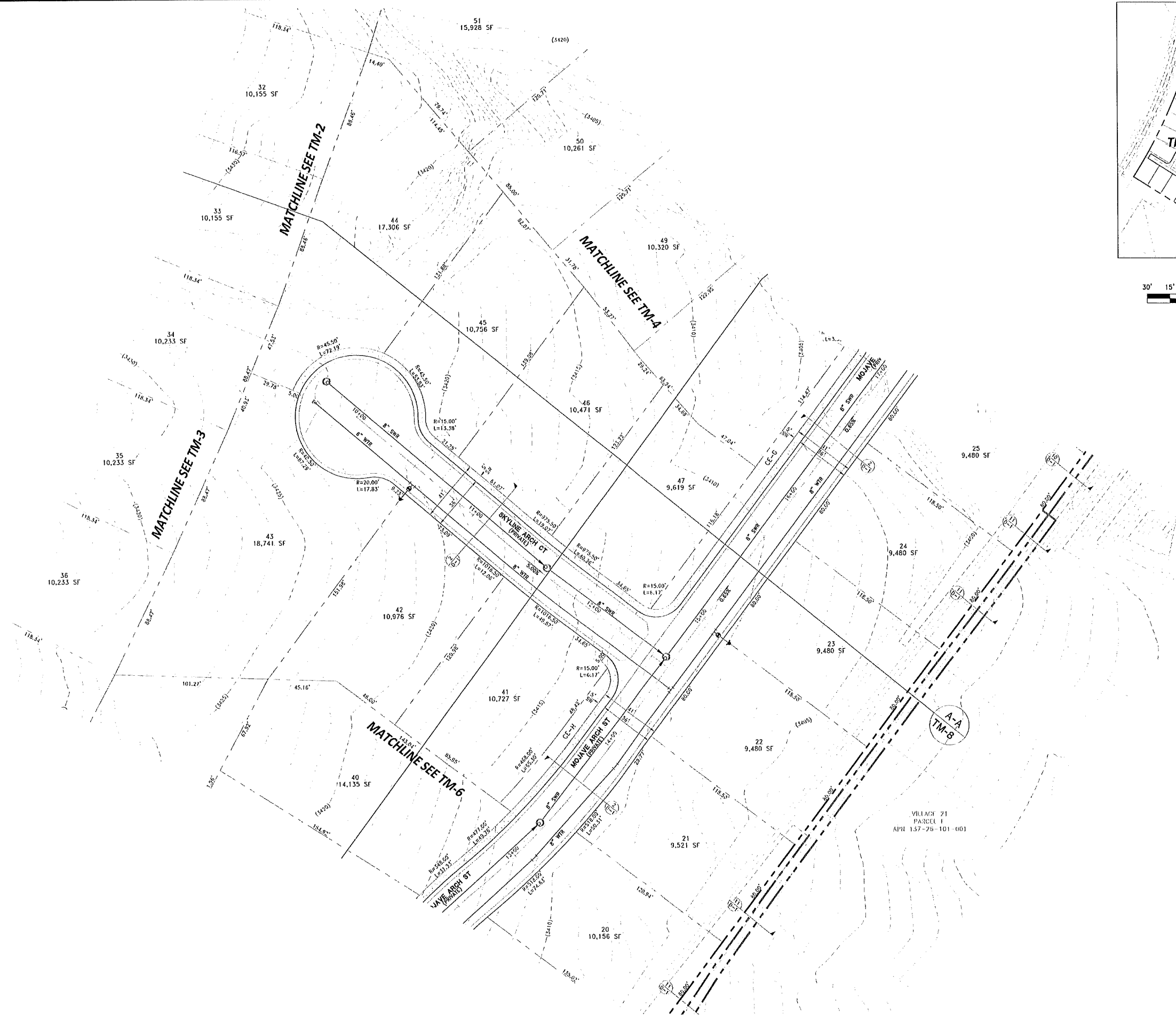
TENTATIVE MAP
SUMMERLIN VILLAGE 25 PARCEL E

TENTATIVE MAP (SHEET 3 OF 5)

CITY OF LAS VEGAS

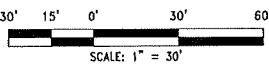
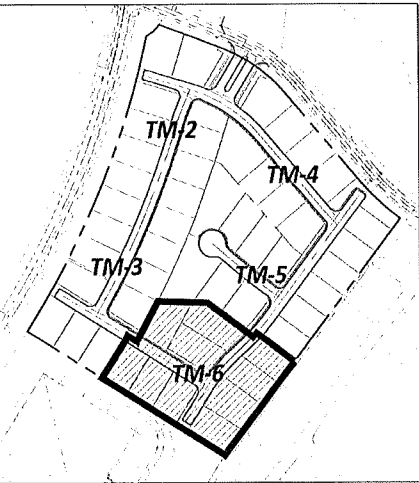
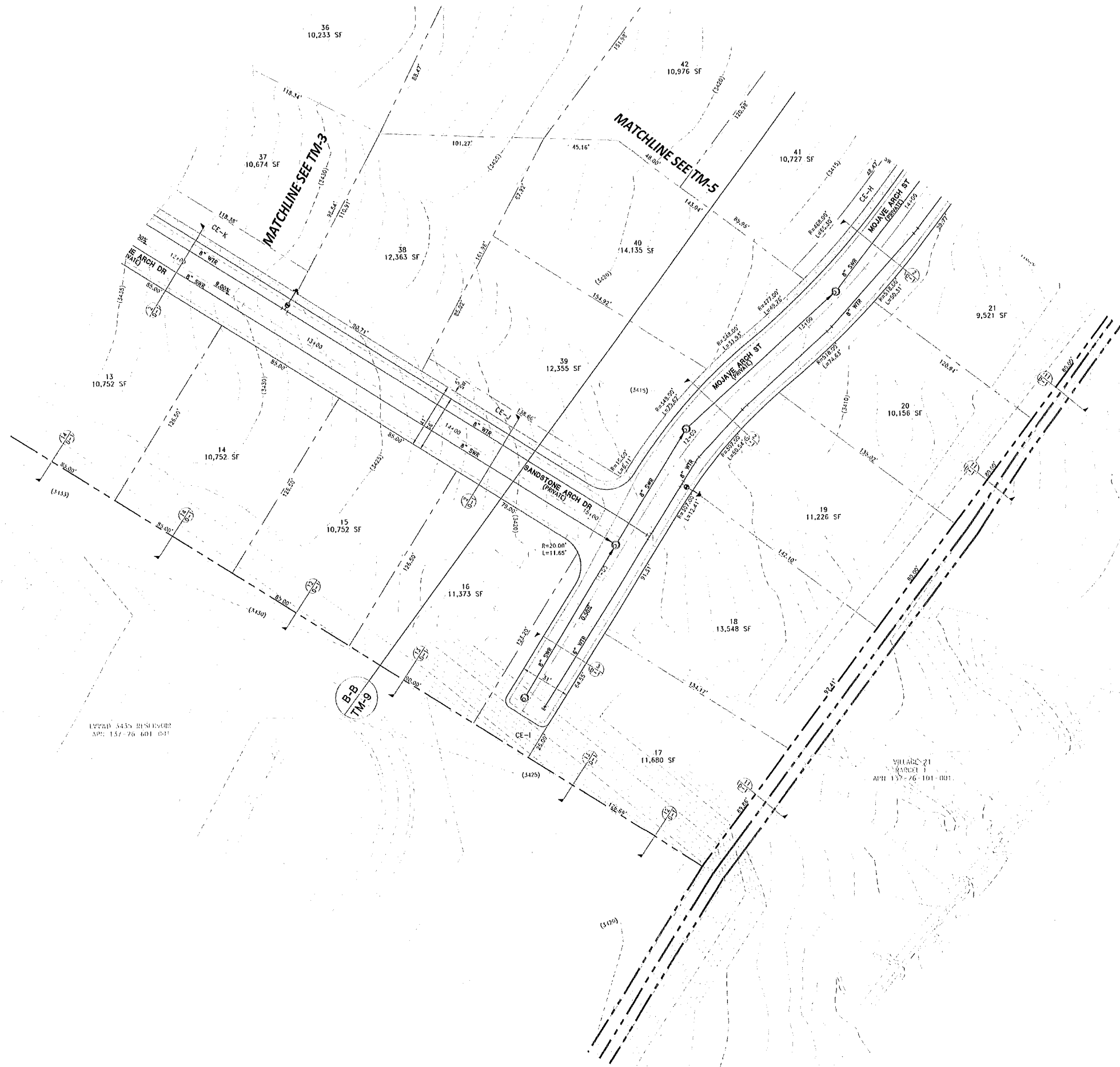


TM-4
SHT 4 OF 9

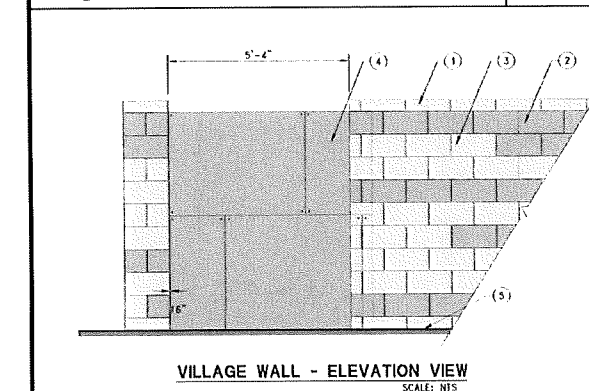
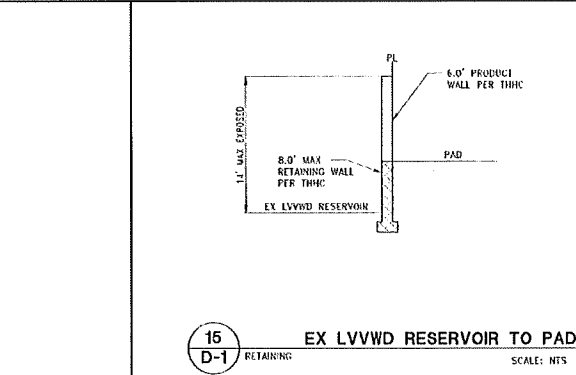
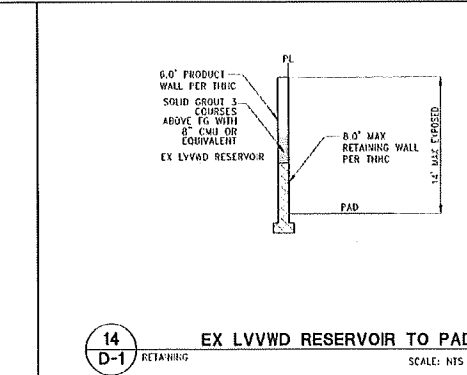
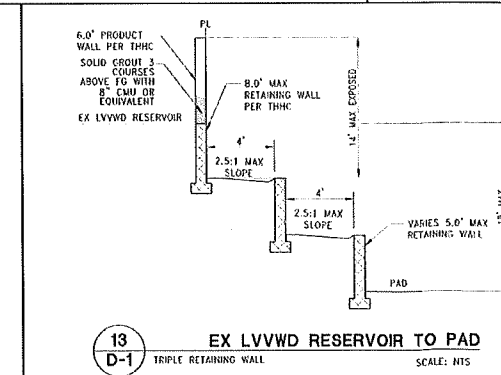
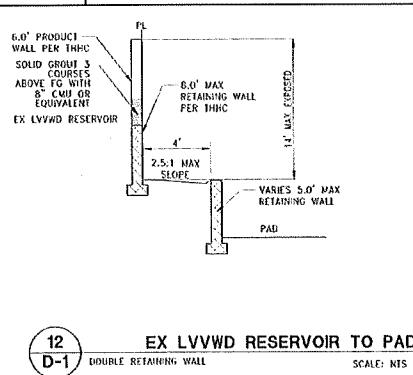
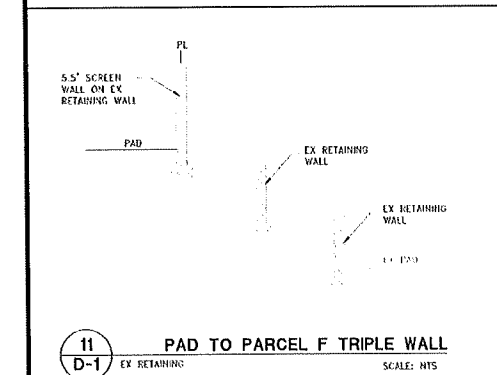
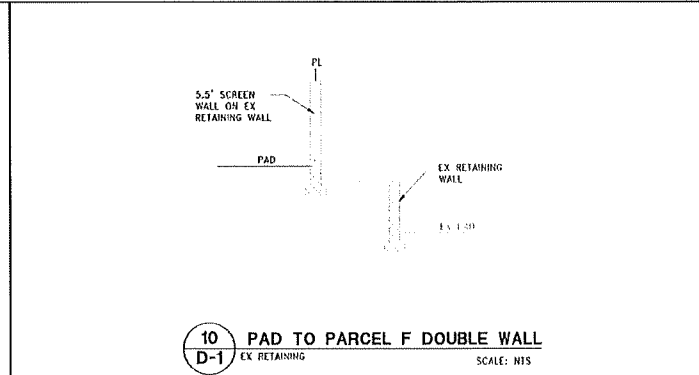
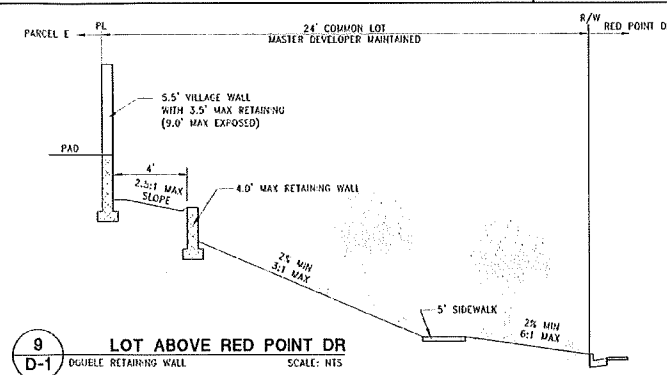
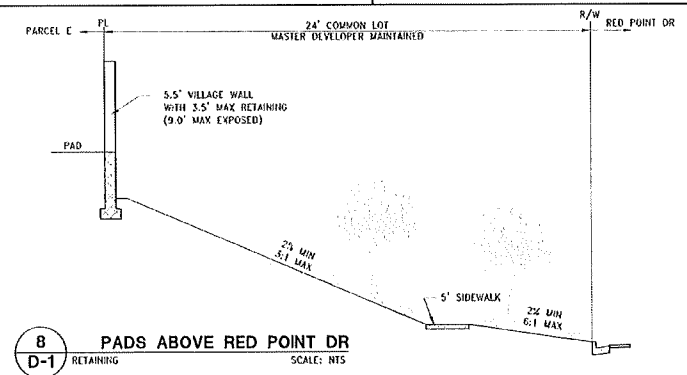
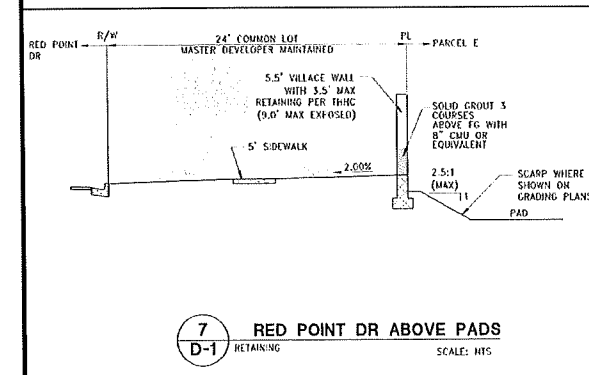
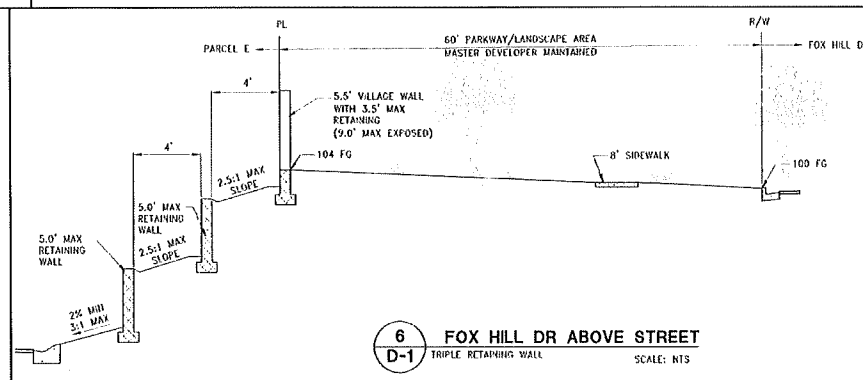
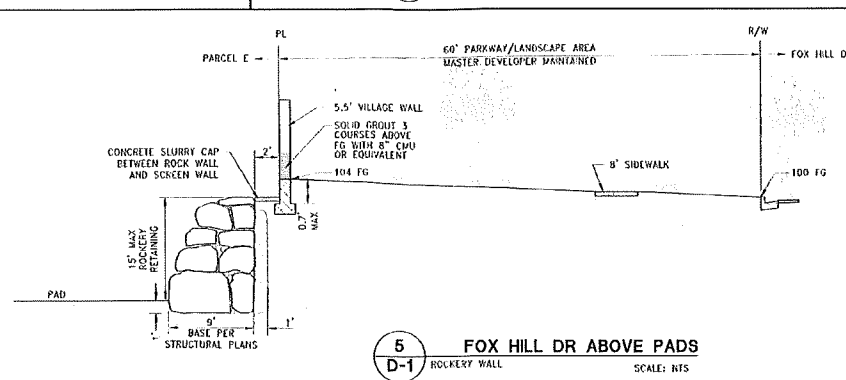
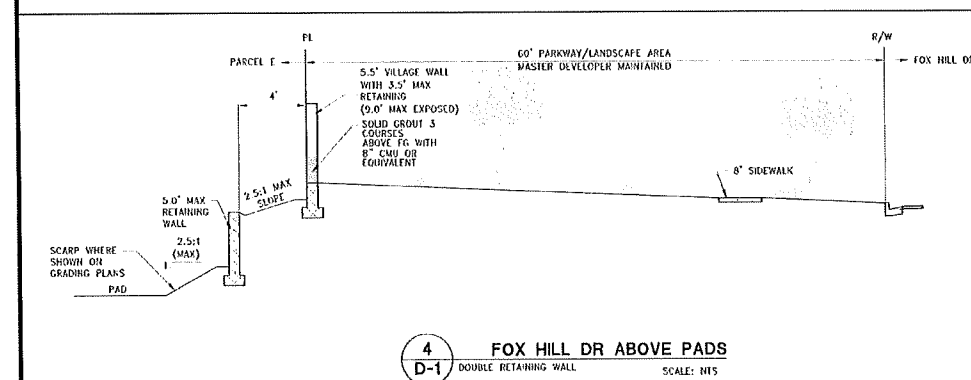
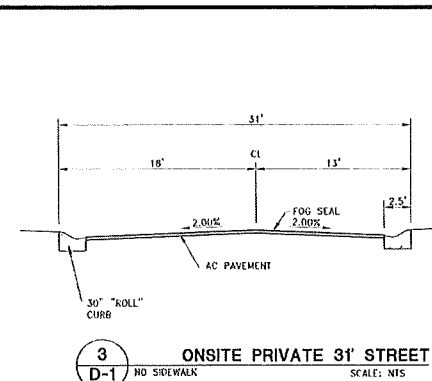
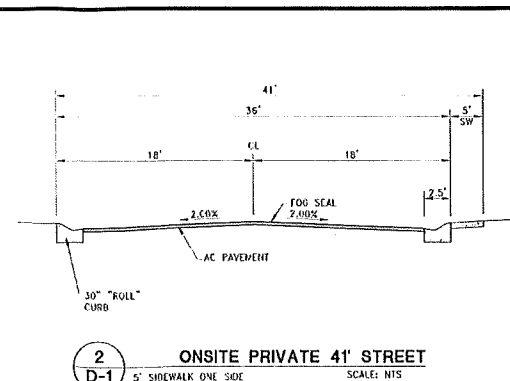
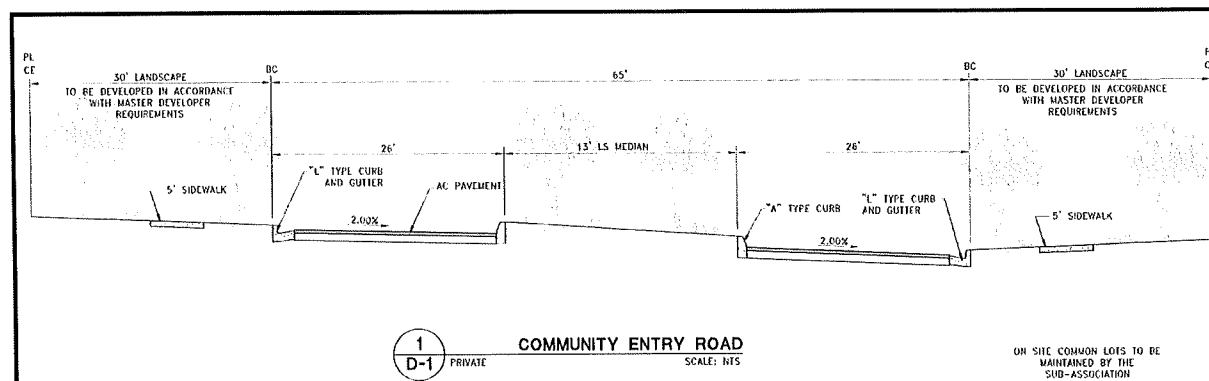


DATE: 10/10/2018		REVISIONS:
BY: [Signature]	APPD: [Signature]	DESCRIPTION:
LENNAR® 9225 W. RUSSELL RD SUITE 400, LAS VEGAS, NV 89148 PHONE: (702) 736-5100 FAX: (702) 736-5200		
RCI Engineering 500 S. Rancho Drive, Suite 217, Las Vegas, NV 89106 PHONE: 453-0800 FAX: 453-0801		
TENTATIVE MAP (SHEET 4 OF 5)		
SUMMERLIN VILLAGE 25 PARCEL E		
CITY OF LAS VEGAS		
NEVADA		
DRAWING TM-5 SHEET 5 OF 9		

0:\3040_LENNAR\0053_SHEN_V25E1_PLANNING\CAD FILES\TM-5.dwg created 3/12/20 12:12pm



	TENTATIVE MAP SUMMERLIN VILLAGE 25 PARCEL E		LENNAR® 9275 W. RUSSELL RD SUITE 400, LAS VEGAS, NV 89148 PHONE: (702) 796-9100 FAX: (702) 796-9200	
	TENTATIVE MAP (SHEET 5 OF 5)		RCI Engineering 500 S. Rancho Drive, Suite 17, Las Vegas, NV 89106 PH: 702.453.0800 FAX: 702.453.0801	
CITY OF LAS VEGAS		NEVADA		
DRAWING TM-6		DATE: 3/18/20 BY: JPD APP: JPD DESCRIPTION: PLANNING, CAD FILES, MAP, AND OTHER REV: 1/18/20 SCALE: 1"=30' N/A DESIGNED BY: JPD CHECKED BY: JPD APPROVED BY: JPD PROJECT #:		



- ## LEGEND
1. VILLAGE THEME: WALL COLOR - HONED CUB BLOCK: 4'-8"x16"
COLOR: CANYON BROWN SUMMERLIN BLEND (BUELY CHEERS) (BASKETED SAND)
AVAIL. FROM: CUEX
 2. VILLAGE THEME: WALL COLOR "A" - HONED CUB BLOCK: 8'-8"x16"
COLOR: CANYON BROWN SUMMERLIN BLEND (BUELY CHEERS) (BASKETED SAND)
AVAIL. FROM: CUEX
 3. VILLAGE THEME: WALL COLOR "B" - PRECISION (STANDARD) CUB BLOCK: 8'-8"x16"
COLOR: CANYON BROWN SUMMERLIN BLEND (BUELY CHEERS) (BASKETED SAND)
AVAIL. FROM: CUEX
 4. STEEL CLAD CORNER PANEL
 5. FINISH GRADE

DATE	REVISION	BY	DATE
March 13, 2020			
WPSR SCALE: N/A			
VERT SCALE: N/A			
SHEET NO: 05			
SHEET BY: CR			
DESIGNED BY: CR			
CHECKED BY: CR			
PROJECT NO: 3041092			

LENNAR®
9275 W. RUSSELL RD SUITE 400, LAS VEGAS, NV 89148
PHONE: (702) 736-5100 FAX: (702) 736-5200

RCI Engineering
500 S. RENO DRIVE, SUITE 127, LAS VEGAS, NV 89106
PHONE: (702) 453-0800, FAX: (702) 453-0801

TENTATIVE MAP
SUMMERLIN VILLAGE 25 PARCEL E

DETAILS AND SECTIONS



3/18/20

DRAWING

D-1

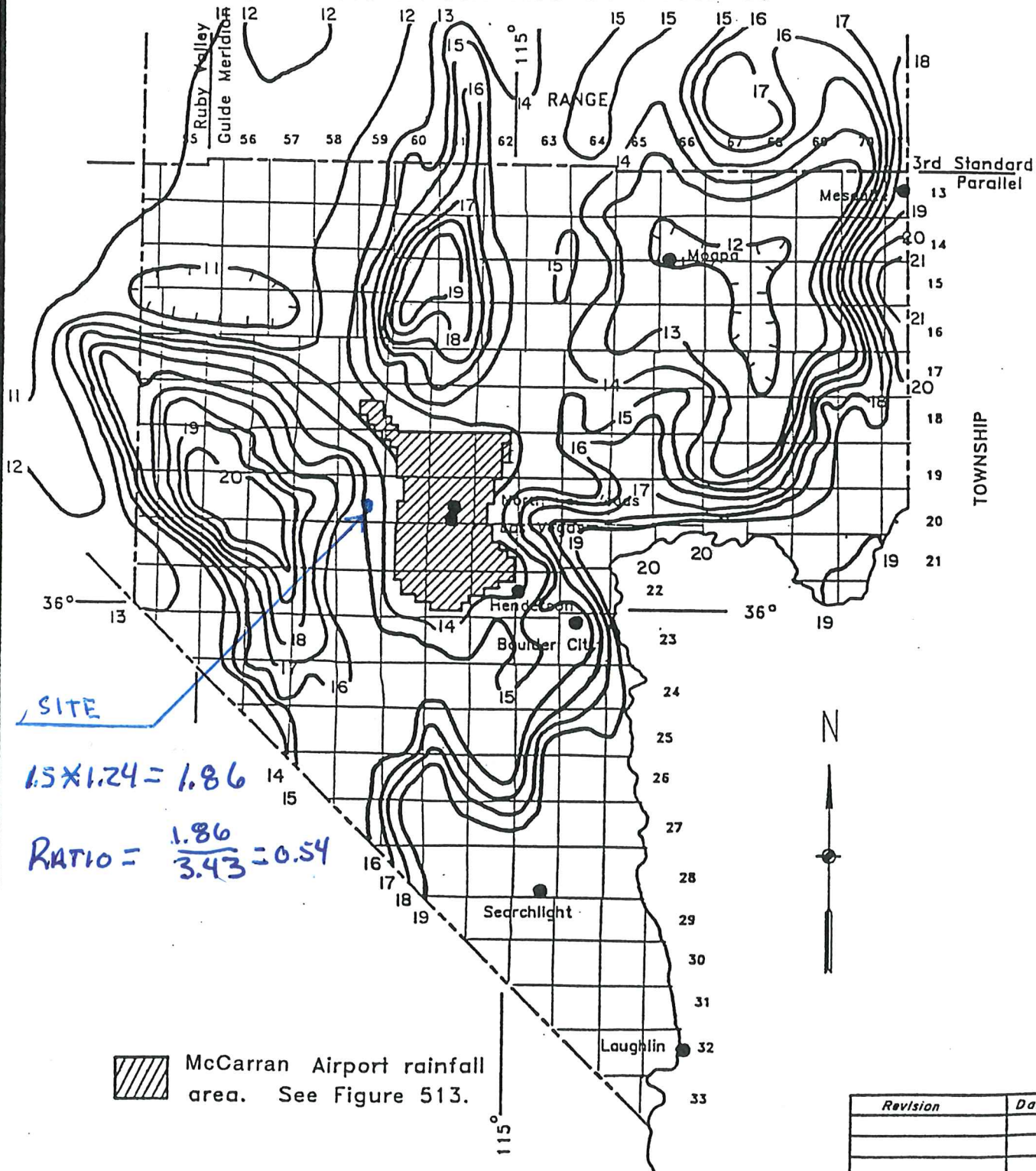
SHEET 7 OF 9

CITY OF LAS VEGAS

NEVADA

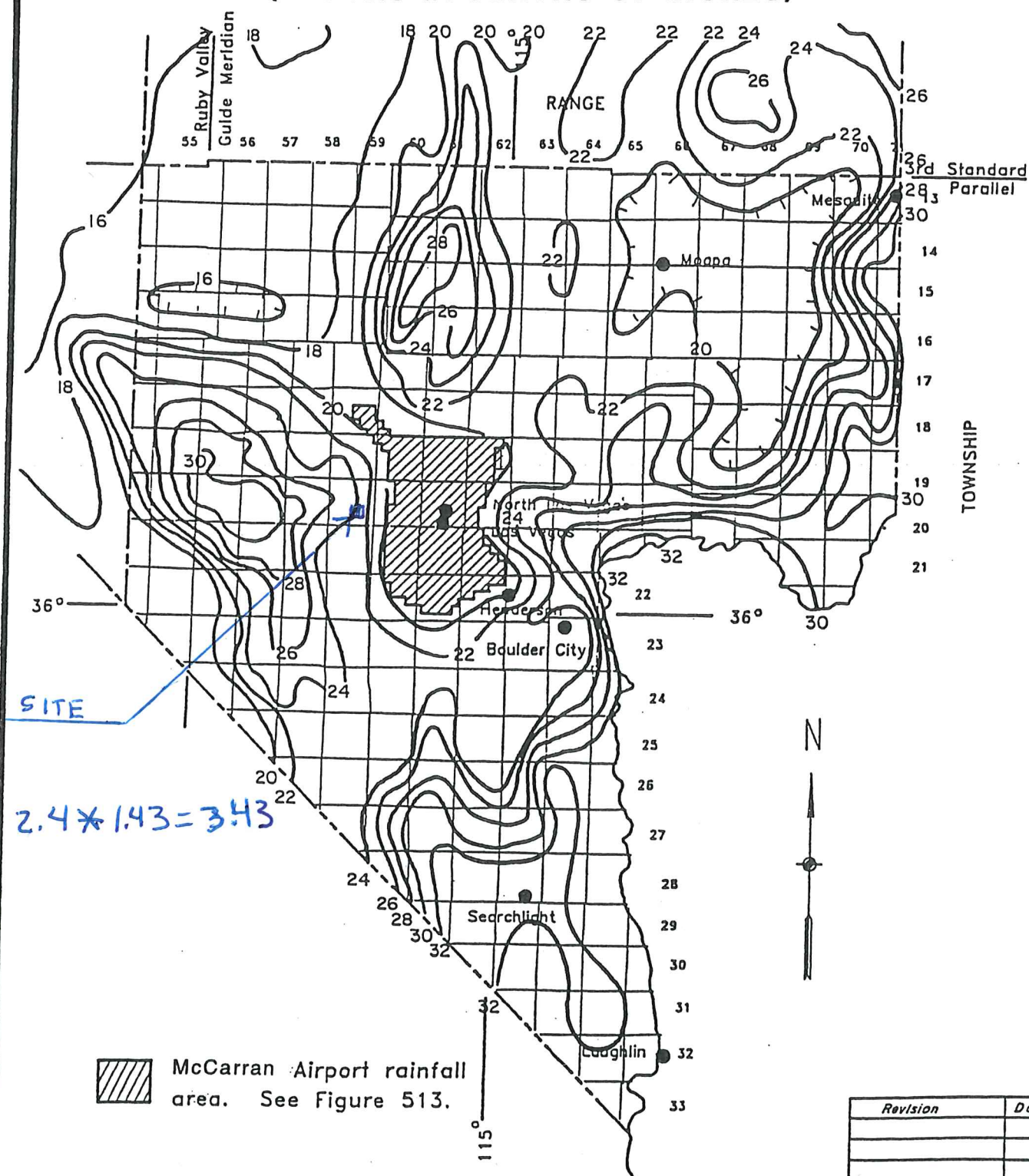
HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

RAINFALL DEPTH-DURATION-FREQUENCY 10-YEAR, 6-HOUR (DEPTHS IN TENTHS OF INCHES)



HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

RAINFALL DEPTH-DURATION-FREQUENCY 100-YEAR, 6-HOUR (DEPTHS IN TENTHS OF INCHES)



McCarran Airport rainfall area. See Figure 513.

Revision	Date

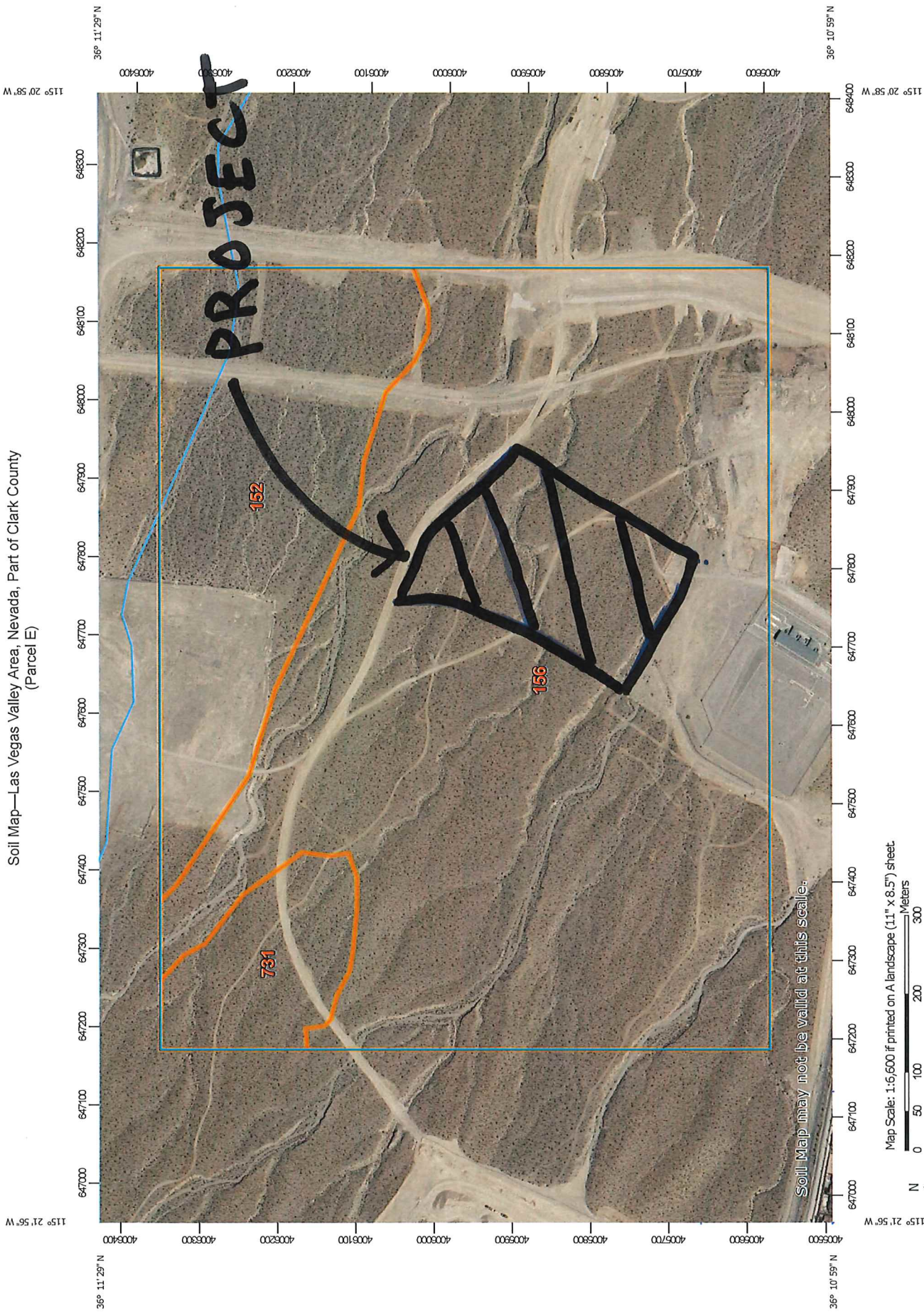
PRECIPITATION ADJUSTMENT RATIOS

<u>Recurrence Interval</u>	<u>Ratio to NOAA Atlas 2</u>
2-year	1.00
5-year	1.16
x10-year	1.24 x
25-year	1.33
50-year	1.39
x100-year	1.43 x

- NOTE: 1. Multiply the values obtained from the NOAA Atlas 2 by the above ratios to obtain the adjusted precipitation values.
2. NOAA Atlas 2 values for use with TR-55 shall not be adjusted by the above ratios.
3. Tables 505 and 506 require no adjustments.

<i>Revision</i>	<i>Date</i>

Soil Map—Las Vegas Valley Area, Nevada, Part of Clark County
(Parcel E)



Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
152	Cave gravelly fine sandy loam, 0 to 4 percent slopes	40.3	20.9%
156	Vace-Wechech association	141.2	73.3%
731	Purob-Irongold association	11.1	5.8%
Totals for Area of Interest		192.6	100.0%

Engineering Properties—Las Vegas Valley Area, Nevada, Part of Clark County														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H
156—Vace-Wechech association														
Vace	45	D	0-2	Gravelly fine sandy loam	GC, SC, SC-SM	A-2	0-0- 1	0-0- 5	60-70-85	50-60-75	35-45-55	15-20-35	18-24-30	4-8 -12
			2-8	Gravelly loam, fine sandy loam, gravelly fine sandy loam, loam	CL, CL-ML, SC	A-6, A-4	0-0- 0	0-0- 5	65-95-100	55-90-100	50-75-85	40-55-65	18-24-30	4-8 -12
			8-60	Cemented material	—	—	—	—	—	—	—	—	—	—
Wechech	25	D	0-2	Very gravelly sandy loam	GC, GC-GM	A-1, A-2	0-0- 0	5- 8- 15	35-50-55	30-45-50	20-25-35	10-15-20	18-22-30	4-6 -12
			2-7	Very gravelly sandy loam, very gravelly fine sandy loam	GC-GM	A-1, A-2	0-0- 0	0-0- 5	35-50-55	30-45-50	20-30-35	12-20-25	18-22-30	4-6 -12
			7-13	Very gravelly sandy loam, very gravelly fine sandy loam	GC-GM, GC	A-2, A-1	0-0- 0	0- 8- 10	35-40-50	30-35-45	15-30-40	8-15- 25	18-22-30	4-6 -12
			13-60	Cemented material	—	—	—	—	—	—	—	—	—	—
Wechech, steep	15	D	0-2	Very gravelly sandy loam	GC, GC-GM	A-1, A-2	0-0- 0	5- 8- 15	35-50-55	30-45-50	20-25-35	10-15-20	18-22-30	4-6 -12
			2-7	Very gravelly fine sandy loam, very gravelly sandy loam	GC-GM	A-1, A-2	0-0- 0	0-0- 5	35-50-55	30-45-50	20-30-35	12-20-25	18-22-30	4-6 -12
			7-13	Very gravelly sandy loam, very gravelly fine sandy loam	GC-GM, GC	A-2, A-1	0-0- 0	0- 8- 10	35-40-50	30-35-45	15-30-40	8-15- 25	18-22-30	4-6 -12

Engineering Properties—Las Vegas Valley Area, Nevada, Part of Clark County														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H
			13-60	Cemented material	—	—	—	—	—	—	—	—	—	—
Weiser	8	B	0-6	Gravelly very fine sandy loam	GM, SM	A-4	0- 0- 0	0- 0- 0	60-70-80	55-65-75	50-60-70	35-43-50	15-20-25	NP-3 -5
			6-10	Extremely gravelly loam	GP-GM	A-1	0- 3- 5	0- 5- 10	15-23-30	10-18-25	5-13- 20	5- 8- 10	15-20-25	NP-3 -5
			10-42	Extremely gravelly sandy loam	GP, GP-GM	A-1	0- 3- 5	0- 5- 10	15-23-30	10-18-25	5-13- 20	0- 5- 10	15-20-25	NP-3 -5
			42-60	Extremely gravelly sandy loam	GP, GP-GC, GP-GM	A-1, A-2	0- 3- 5	0- 5- 10	15-23-30	10-18-25	5-13- 20	0- 5- 10	15-20-25	NP-5 -10
Irongold	4	D	0-1	Very gravelly sandy loam	GM	A-1	0- 3- 5	0- 5- 10	40-50-55	35-45-50	15-18-20	10-13-15	15-20-25	NP-3 -5
			1-7	Loam, gravelly loam	SM, ML, GM, CL-ML	A-4	0- 0- 5	0- 0- 5	70-83-95	60-75-90	50-65-80	45-58-70	15-20-25	NP-3 -5
			7-11	Gravelly sandy loam, very gravelly loam, very gravelly sandy loam, gravelly loam	GM, SM	A-1, A-2, A-4	0- 3- 5	0- 5- 10	35-48-65	30-43-60	20-35-50	15-28-40	15-20-25	NP-3 -5
			11-34	Cemented material	—	—	—	—	—	—	—	—	—	—

Engineering Properties—Las Vegas Valley Area, Nevada, Part of Clark County														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H
			34-60	Extremely gravelly loamy coarse sand	GP, GP-GM	A-1	0- 0- 5	0- 0- 5	30-38-45	10-18-25	5- 8- 10	0- 5- 10	0-17 -21	NP-2 -4
Commski	2	B	0-3	Extremely gravelly loam	GW-GM, GM	A-1	0- 8- 10	0- 8- 10	20-30-35	10-20-25	10-18-25	7-13- 17	15-20 -25	NP-3 -5
			3-60	Extremely gravelly coarse sandy loam, extremely gravelly fine sandy loam, extremely gravelly sandy loam	GW-GM	A-1	0- 2- 5	0- 3- 10	20-30-35	10-20-25	7-13- 18	4- 8- 10	25-28 -30	NP-3 -5
Threelakes	1	A	0-4	Extremely gravelly loamy sand	GP-GM, GP	A-1	0- 2- 5	10-15-23	30-40-50	15-25-30	5-10- 15	0- 5- 10	10-12 -15	NP-2 -5
			4-31	Extremely gravelly fine sandy loam, extremely gravelly sandy loam	GP, GP-GM, GP-GC	A-1, A-2	0- 0- 5	0- 7- 10	20-28-35	10-18-25	5-13- 20	0- 5- 10	16-22 -27	2-6 -10
			31-60	Stratified extremely gravelly fine sandy loam to extremely gravelly loamy coarse sand	GP, GW-GC	A-1, A-2	0- 0- 5	0- 5- 8	20-30-40	10-18-25	5-13- 20	0- 5- 10	17-22 -27	3-6 -10

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

RUNOFF CURVE NUMBERS - RESIDENTIAL DISTRICTS

Average Lot Size or Usage ¹	Percent Impervious ²	Curve Number for Hydrologic Soil Groups			
		A	B	C	D
Apartments/Condos	72	81	88	91	93
Townhouses/6,000 sq ft lots or less ³	69	80	87	90	92
7,000 sq ft lots	63	76	84	89	91
8,000 sq ft lots	58	73	82	88	90
10,000 sq ft lots	38	<u>61</u>	<u>75</u>	<u>83</u>	<u>87</u>
14,000 sq ft lots	30	57	72	81	86
20,000 sq ft lots	25	54	70	80	85
40,000 sq ft lots	20	51	68	79	84
80,000 sq ft lots	12	46	65	77	82

1 Lot size should represent the size of the average lot and not the gross acreage divided by the number of lots.

2 Actual percent impervious value should be compared to selected land use type.

3 In cases where average residential lots are smaller than 6,000 sq ft, commercial/business/industrial land use should be used.

USE 10,000 SQ.FT. AVG.

Revision	Date

REFERENCE:

TABLE 602A

CN CALCULATIONS - ULTIMATE CONDITIONS

Basin		CN-AVG 10,000 SQ FT LOTS		WEIGHTED CN	
		% SOIL TYPE	HYDRO	%	
ON1		1	A	100	61
		10	B	100	75
			C		83
		89	D	100	87
					85.5

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL																
TIME OF CONCENTRATION																
RCI ENGINEERING		LENNAR SUMMERLIN VILLAGE 25 PARCEL E										BY: RJR				
		Ultimate Conditions										DATE: 9/22/20				
DESIG:	DEV/JEX. (D or E)	SUB-BASIN DATA				INITIAL / OVERLAND TIME (Ti)			TRAVEL TIME (Tt)			Tc	Tc Check	Tlag	REMARKS	
		CN	K	AREA Ac	AREA Mi ²	INITIAL LENGTH Feet	SLOPE %	Ti Min	TRAVEL LENGTH Feet	SLOPE %	V1 VELOCITY FPS					V2 VELOCITY FPS
(1)			(2)	(3)		(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)			
EOFF1	D	85.5	0.7386	17.12	0.0268	186	1.1	8.7	1700	2.3	8.1	4.7	7.0	15.6	20.5	0.156

$T_c = T_i + T_t$ $T_i = 1.8 (1.1 - K) L^{1/2} / S^{1/3}$ $K = 0.0132 (CN) - 0.39$ $T_c \text{ Check (Developed)} = L / 180 + 10$	For the travel time (T_t) calculations, V_1 applies to the first 500 feet of travel distance; V_2 applies to the remaining travel distance.	Existing $V_1 = 14.8 * (S/100)^{1/2}$ Existing $V_2 = 29.4 * (S/100)^{1/2}$ Minimum $T_c (EX) = 10$ Min per Section 602	Developed $V_1 = 20.2 * (S/100)^{1/2}$ Developed $V_2 = 30.6 * (S/100)^{1/2}$ Minimum $T_c (DEV) = 5$ Min per Section 602.1
--	---	---	---

REFERENCE :	STANDARD FORM 4
-------------	-----------------

1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* JUN 1998 *
* VERSION 4.1 *
*
* RUN DATE 22SEP20 TIME 05:42:58 *
*

*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 756-1104 *
*

```

X  X  XXXXXX  XXXX  X
X  X  X      X  X  XX
X  X  X      X  X  X
XXXXXX  XXXX  X      XXXX  X
X  X  X      X  X  X
X  X  X      X  X  X
X  X  XXXXXX  XXXX  XXX

```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL. LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

```

*DIAGRAM
1 ID SUMMERLIN VILLAGE 25 PARCEL E
2 ID ULTIMATE CONDITIONS MODEL
3 ID DESIGN STORM = 100-YEAR 6-HOUR STORM
4 ID STORM DISTRIBUTION = SDN3
5 ID
6 ID AREA (SQUARE MILES) DARF
7 ID 10-YR STORM FLOW 0.54
8 ID
9 IT 5 0 0 300
10 IO 5 0 0
11 IN 5 0 0
12 JR PREC 1.00 0.54
*
13 KK ON1
14 KM ULTIMATE CONDITIONS SUBBASIN
15 BA .0268
16 PB 3.43
17 PC 0.000 0.020 0.057 0.070 0.087 0.108 0.124 0.130 0.130 0.130
18 PC 0.130 0.130 0.130 0.133 0.140 0.142 0.148 0.158 0.172 0.181
19 PC 0.190 0.197 0.199 0.200 0.201 0.204 0.214 0.229 0.241 0.249
20 PC 0.251 0.256 0.270 0.278 0.281 0.283 0.295 0.322 0.352 0.409
21 PC 0.499 0.590 0.710 0.744 0.781 0.812 0.819 0.835 0.851 0.856
22 PC 0.860 0.868 0.876 0.888 0.910 0.926 0.937 0.950 0.970 0.976
23 PC 0.982 0.985 0.987 0.989 0.990 0.993 0.993 0.994 0.995 0.998
24 PC 0.998 0.999 1.000
25 LS 0 85.5
26 UD 0.156
*
*
27 ZZ

```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT
LINE (V) ROUTING (--->) DIVERSION OR PUMP FLOW

NO. (.) CONNECTOR (<---) RETURN OF DIVERTED OR PUMPED FLOW

13 ON1

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* JUN 1998 *
* VERSION 4.1 *
*
* RUN DATE 22SEP20 TIME 05:42:58 *
*

*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 756-1104 *
*

SUMMERLIN VILLAGE 25 PARCEL E
ULTIMATE CONDITIONS MODEL
DESIGN STORM = 100-YEAR 6-HOUR STORM
STORM DISTRIBUTION = SDN3

AREA (SQUARE MILES) DARF
10-YR STORM FLOW 0.54

10 IO OUTPUT CONTROL VARIABLES

IPRNT 5 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA
NMIN 5 MINUTES IN COMPUTATION INTERVAL
IDATE 1 0 STARTING DATE
ITIME 0000 STARTING TIME
NQ 300 NUMBER OF HYDROGRAPH ORDINATES
NDDATE 2 0 ENDING DATE
NDTIME 0055 ENDING TIME
ICENT 19 CENTURY MARK

COMPUTATION INTERVAL .08 HOURS
TOTAL TIME BASE 24.92 HOURS

ENGLISH UNITS
DRAINAGE AREA SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION FEET
FLOW CUBIC FEET PER SECOND
STORAGE VOLUME ACRE-FEET
SURFACE AREA ACRES
TEMPERATURE DEGREES FAHRENHEIT

JP MULTI-PLAN OPTION
NPLAN 1 NUMBER OF PLANS

JR MULTI-RATIO OPTION
RATIOS OF PRECIPITATION
1.00 .54

1

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN	RATIOS APPLIED TO PRECIPITATION	
				RATIO 1	RATIO 2
				1.00	.54
HYDROGRAPH AT					
+	ON1	.03	1 FLOW	44.	16.
			TIME	3.58	3.58

*** NORMAL END OF HEC-1 ***

APPENDIX B – HYDRAULIC CALCS

100-Year Ultimate Developed Flow Rate Hydraulic Cross Sections

Drop Inlet Calculation

Standard Form 6 Model

D-Load Calculations

Emergency Overflow Calculations

Worksheet for SECTION A 41-FOOT 100-YEAR

Project Description	
Friction Method	Manning
	Formula
Solve For	Normal Depth
Input Data	
Channel Slope	2.48 %
Discharge	12 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+95.00	1.00
0+95.00	0.48
1+00.00	0.38
1+01.50	0.00
1+02.50	0.08
1+02.50	0.13
1+18.00	0.44
1+33.50	0.13
1+33.50	0.08
1+34.50	0.00
1+36.00	0.38
1+36.00	1.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+95.00, 1.00)	(1+02.50, 0.13)	0.013
(1+02.50, 0.13)	(1+18.00, 0.44)	0.016
(1+18.00, 0.44)	(1+33.50, 0.13)	0.016
(1+33.50, 0.13)	(1+36.00, 1.00)	0.013

Options	
Current Roughness Weighted Method	Improved Lotter's Method
Open Channel Weighting Method	Improved Lotter's Method
Closed Channel Weighting Method	Horton's Method

Results	
Normal Depth	0.32 ft
Elevation Range	0.00 to 1.00 ft
Flow Area	2.88 ft ²
Wetted Perimeter	24.10 ft
Hydraulic Radius	0.12 ft

Worksheet for SECTION A 41-FOOT 100-YEAR

Results

Top Width	23.92 ft
Normal Depth	0.32 ft
Critical Depth	0.41 ft
Critical Slope	0.50 %
Velocity	4.17 ft/s
Velocity Head	0.27 ft
Specific Energy	0.59 ft
Froude Number	2.121
Flow Type	Supercritical

GVF Input Data

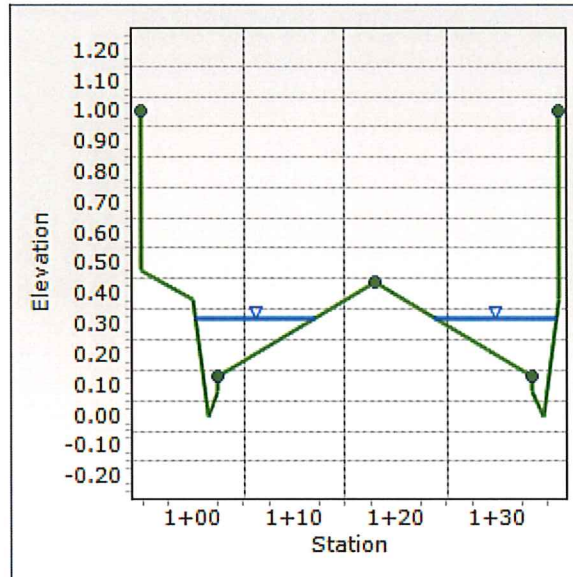
Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.00 ft
Profile Description	
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.32 ft
Critical Depth	0.41 ft
Channel Slope	2.48 %
Critical Slope	0.50 %

Cross Section for SECTION A 41-FOOT 100-YEAR

Project Description	
Friction Method	Manning
	Formula
Solve For	Normal Depth
Input Data	
Channel Slope	2.48 %
Normal Depth	0.32 ft
Discharge	12 cfs



Worksheet for SECTION B 41-FOOT 100-YEAR

Project Description	
Friction Method	Manning
	Formula
Solve For	Normal Depth
Input Data	
Channel Slope	4.00 %
Discharge	18 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+95.00	1.00
0+95.00	0.48
1+00.00	0.38
1+01.50	0.00
1+02.50	0.08
1+02.50	0.13
1+18.00	0.44
1+33.50	0.13
1+33.50	0.08
1+34.50	0.00
1+36.00	0.38
1+36.00	1.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+95.00, 1.00)	(1+02.50, 0.13)	0.013
(1+02.50, 0.13)	(1+18.00, 0.44)	0.016
(1+18.00, 0.44)	(1+33.50, 0.13)	0.016
(1+33.50, 0.13)	(1+36.00, 1.00)	0.013

Options	
Current Roughness Weighted Method	Improved Lotter's Method
Open Channel Weighting Method	Improved Lotter's Method
Closed Channel Weighting Method	Horton's Method

Results	
Normal Depth	0.34 ft
Elevation Range	0.00 to 1.00 ft
Flow Area	3.29 ft ²
Wetted Perimeter	25.88 ft
Hydraulic Radius	0.13 ft

Worksheet for SECTION B 41-FOOT 100-YEAR

Results

Top Width	25.71 ft
Normal Depth	0.34 ft
Critical Depth	0.46 ft
Critical Slope	0.49 %
Velocity	5.47 ft/s
Velocity Head	0.46 ft
Specific Energy	0.80 ft
Froude Number	2.694
Flow Type	Supercritical

LOT 18

GVF Input Data

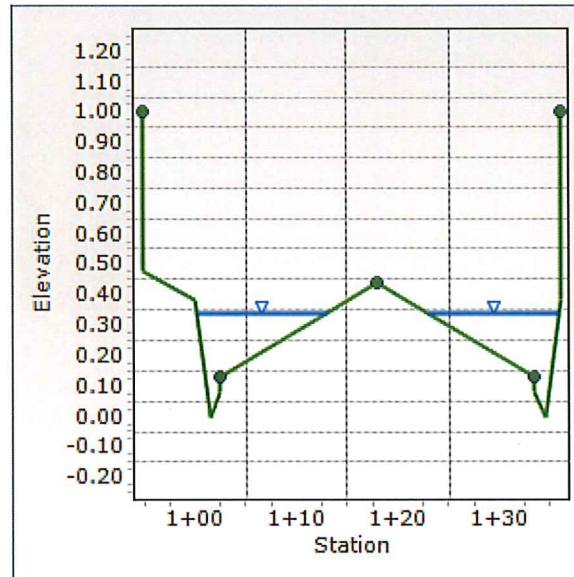
Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.00 ft
Profile Description	
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.34 ft
Critical Depth	0.46 ft
Channel Slope	4.00 %
Critical Slope	0.49 %

Cross Section for SECTION B 41-FOOT 100-YEAR

Project Description	
Friction Method	Manning
	Formula
Solve For	Normal Depth
Input Data	
Channel Slope	4.00 %
Normal Depth	0.34 ft
Discharge	18 cfs



Worksheet for SECTION C 41-FOOT 100-YEAR

Project Description	
Friction Method	Manning
	Formula
Solve For	Normal Depth
Input Data	
Channel Slope	3.50 %
Discharge	10 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+95.00	1.00
0+95.00	0.48
1+00.00	0.38
1+01.50	0.00
1+02.50	0.08
1+02.50	0.13
1+18.00	0.44
1+33.50	0.13
1+33.50	0.08
1+34.50	0.00
1+36.00	0.38
1+36.00	1.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+95.00, 1.00)	(1+02.50, 0.13)	0.013
(1+02.50, 0.13)	(1+18.00, 0.44)	0.016
(1+18.00, 0.44)	(1+33.50, 0.13)	0.016
(1+33.50, 0.13)	(1+36.00, 1.00)	0.013

Options	
Current Roughness Weighted Method	Improved Lotter's Method
Open Channel Weighting Method	Improved Lotter's Method
Closed Channel Weighting Method	Horton's Method

Results	
Normal Depth	0.29 ft
Elevation Range	0.00 to 1.00 ft
Flow Area	2.13 ft ²
Wetted Perimeter	20.50 ft
Hydraulic Radius	0.10 ft

Worksheet for SECTION C 41-FOOT 100-YEAR

Results

Top Width	20.33 ft
Normal Depth	0.29 ft
Critical Depth	0.38 ft
Critical Slope	0.48 %
Velocity	4.70 ft/s
Velocity Head	0.34 ft
Specific Energy	<u>0.63 ft</u>
Froude Number	2.558
Flow Type	Supercritical

LOTS 25 + 26

GVF Input Data

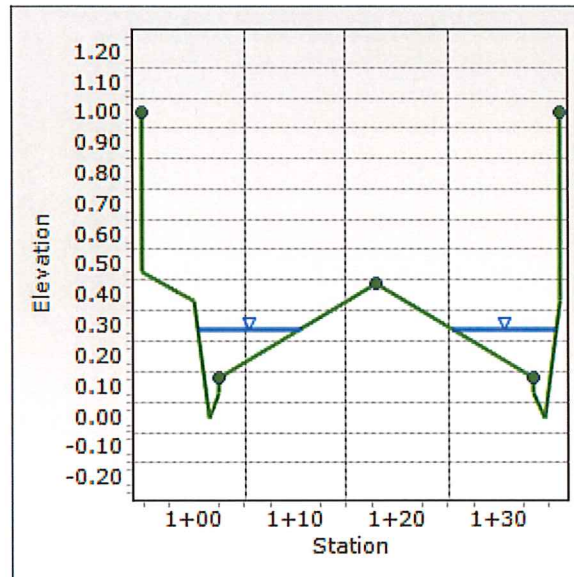
Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.00 ft
Profile Description	
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.29 ft
Critical Depth	0.38 ft
Channel Slope	3.50 %
Critical Slope	0.48 %

Cross Section for SECTION C 41-FOOT 100-YEAR

Project Description	
Friction Method	Manning
	Formula
Solve For	Normal Depth
Input Data	
Channel Slope	3.50 %
Normal Depth	0.29 ft
Discharge	10 cfs



Worksheet for SECTION D 41-FOOT 100-YEAR

Project Description	
Friction Method	Manning
	Formula
Solve For	Normal Depth
Input Data	
Channel Slope	1.00 %
Discharge	24 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+95.00	1.00
0+95.00	0.48
1+00.00	0.38
1+01.50	0.00
1+02.50	0.08
1+02.50	0.13
1+18.00	0.44
1+33.50	0.13
1+33.50	0.08
1+34.50	0.00
1+36.00	0.38
1+36.00	1.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+95.00, 1.00)	(1+02.50, 0.13)	0.013
(1+02.50, 0.13)	(1+18.00, 0.44)	0.016
(1+18.00, 0.44)	(1+33.50, 0.13)	0.016
(1+33.50, 0.13)	(1+36.00, 1.00)	0.013

Options	
Current Roughness Weighted Method	Improved Lotter's Method
Open Channel Weighting Method	Improved Lotter's Method
Closed Channel Weighting Method	Horton's Method

Results	
Normal Depth	0.46 ft
Elevation Range	0.00 to 1.00 ft
Flow Area	7.40 ft ²
Wetted Perimeter	40.41 ft
Hydraulic Radius	0.18 ft

Worksheet for SECTION D 41-FOOT 100-YEAR

Results

Top Width	40.13 ft
Normal Depth	0.46 ft
Critical Depth	0.50 ft
Critical Slope	0.53 %
Velocity	3.24 ft/s
Velocity Head	0.16 ft
Specific Energy	0.63 ft
Froude Number	1.332
Flow Type	Supercritical

GVF Input Data

Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.00 ft
Profile Description	
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.46 ft
Critical Depth	0.50 ft
Channel Slope	1.00 %
Critical Slope	0.53 %

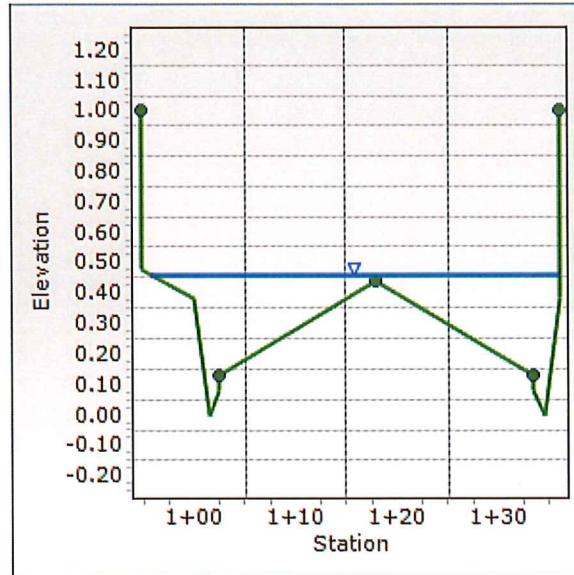
Cross Section for SECTION D 41-FOOT 100-YEAR

Project Description

Friction Method	Manning
	Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.00 %
Normal Depth	0.46 ft
Discharge	24 cfs



Worksheet for SECTION E 41-FOOT 100-YEAR

Project Description	
Friction Method	Manning
	Formula
Solve For	Normal Depth
Input Data	
Channel Slope	0.65 %
Discharge	44 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+95.00	1.00
0+95.00	0.48
1+00.00	0.38
1+01.50	0.00
1+02.50	0.08
1+02.50	0.13
1+18.00	0.44
1+33.50	0.13
1+33.50	0.08
1+34.50	0.00
1+36.00	0.38
1+36.00	1.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+95.00, 1.00)	(1+02.50, 0.13)	0.013
(1+02.50, 0.13)	(1+18.00, 0.44)	0.016
(1+18.00, 0.44)	(1+33.50, 0.13)	0.016
(1+33.50, 0.13)	(1+36.00, 1.00)	0.013

Options

Current Roughness Weighted Method	Improved Lotter's Method
Open Channel Weighting Method	Improved Lotter's Method
Closed Channel Weighting Method	Horton's Method

Results

Normal Depth	0.58 ft
Elevation Range	0.00 to 1.00 ft
Flow Area	12.36 ft ²
Wetted Perimeter	41.50 ft
Hydraulic Radius	0.30 ft

Worksheet for SECTION E 41-FOOT 100-YEAR

Results

Top Width	41.00 ft
Normal Depth	0.58 ft
Critical Depth	0.61 ft
Critical Slope	0.48 %
Velocity	3.56 ft/s
Velocity Head	0.20 ft
Specific Energy	0.78 ft
Froude Number	1.143
Flow Type	Supercritical

GVF Input Data

Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.00 ft
Profile Description	
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.58 ft
Critical Depth	0.61 ft
Channel Slope	0.65 %
Critical Slope	0.48 %

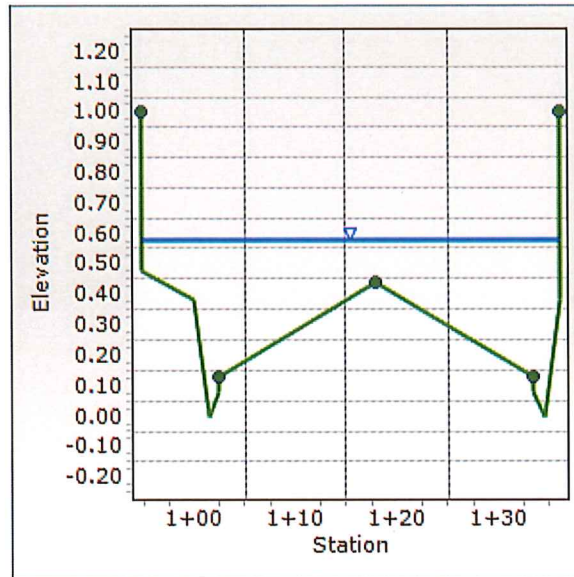
Cross Section for SECTION E 41-FOOT 100-YEAR

Project Description

Friction Method	Manning
	Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.65 %
Normal Depth	0.58 ft
Discharge	44 cfs



Hydraulic Analysis Report

Project Data

Project Title:

Designer:

Project Date: Wednesday, June 10, 2020

Project Units: U.S. Customary Units

Notes:

Curb and Gutter Analysis: INLET 1

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0065 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 2.0000 ft

Design Flow: 44.0000 cfs

Gutter Result Parameters

Width of Spread: 31.5278 ft

Gutter Depression: 0.0000 in

Area of Flow: 9.9400 ft²

E_o (Gutter Flow to Total Flow): 0.1605

Gutter Depth at Curb: 7.5667 in

Inlet Input Parameters

Inlet Location: Inlet in Sag

Percent Clogging: 0.0000 %

Inlet Type: Sweeper Combo

Grate Type: P - 1-7/8

Grate Width: 1.5000 ft

Grate Length: 11.6670 ft

Length of Inlet: 13.3300 ft

Curb opening height: 6.0000 in

Local Depression: 4.0000 in

Inlet Result Parameters

Perimeter: 19.0300 ft

Effective Perimeter: 19.0300 ft

Area: 26.8588 ft²

Effective Area: 26.8588 ft²

Depth at curb face (upstream of local depression): 0.7516 ft

Computed Width of Spread at Sag: 37.5796 ft

Flow type: Weir Flow

Efficiency: 1.0000

Clogging Factor (50%)

Grate, $11.67 \times 1.5 = 17.5'$

Curb Opening $13.33 \times 1.5 = 20'$

Type "CM2" (7 Grates)

Intercept 44 cfs

Bypass 0 cfs

Ponding Depth = 0.8'

Storm Drain Hydraulics Calculations

SUMMERLIN VILLAGE 25 PARCEL E

DATE: 10/06/20

[illegible]

Summary of Results

[illegible]

Storm Drain Inlet type					
Pipe Entrance	Code	Ke	Box, Reinforced Concrete Entrance	Code	Ke
Headwall			Headwall parallel to Embankment (no wingwalls)		
Grooved Edge	A	0.20	Square edge on 3 edges	O	0.50
Rounded Edge (0.15D radius)	B	0.15	Rounded on 3 edges to radius of 1/12 barrel	P	0.20
Rounded Edge (0.25D radius)	C	0.10	Wingwalls at 30 to 75 deg to barrel		
Square Edge (cut concrete and CMP)	D	0.40	Square edged at crown	Q	0.40
Headwall and 45 deg Wingwall			Crown edge rounded to radius of 1/12 barrel	R	0.20
Grooved Edge	E	0.20	Wingwalls at 10 to 30 deg to barrel		
Square Edge	F	0.35	Square edged at crown	S	0.50
Headwall with Parallel Wingwalls Spaced 1.25D apart			Wingwalls parallel (extension of sides)		
Grooved Edge	G	0.30	Square edged at crown	T	0.70
Square Edge	H	0.40			
Beveled Edge	I	0.25			
Projecting Entrance					
Grooved Edge (RCP)	J	0.25			
Square Edge (RCP)	K	0.50			
Sharp Edge, thin wall (CMP)	L	0.90			
Sloping Entrance					
Mitered to conform to slope	M	0.70			
Flared-end Section	N	0.50			

LOSS COEFFICIENTS			
CONTRACTIONS		EXPANSIONS	
A2/A1	Kc	q	Ke
0.1	0.36	5	0.15
0.2	0.34	10	0.18
0.3	0.31	20	0.40
0.4	0.27	30	0.65
0.5	0.22	40	0.95
0.6	0.16	50	1.10
0.7	0.11	60	1.16
0.8	0.05	70	1.14
0.9	0.01	80	1.12
1.0	0.00	90	1.08
BENDS		MANHOLES	
q	Kb	q	Km
(D<Radius)		10	0.05
30	0.14	20	0.11
45	0.18	30	0.22
60	0.20	40	0.32
90	0.25	50	0.46
(D = Radius)		60	0.63
30	0.25	70	0.85
45	0.35	80	1.06
60	0.43	90	1.33
90	0.50		
JUNCTIONS			
q	Kj		
15	0.85		
30	0.65		
45	0.50		
60	0.35		
90	0.25		

Equations Used:	Manual Reference:
Pipe Form Losses	
$HL=K*(V^2/2g)$	Eq 803 pg 811
Expansion Losses	
$HL=Ke*(V^2/2g)*((A2/A1)-1)^2$	Eq 804 pg 811
Contraction Losses	
$HL=Kc*(V^2/2g)$	Eq 805 pg 811
Bend Losses	
$HL=Kb*(V^2/2g)$	Eq 806 pg 812
Junction Losses	
$HL=(V^2/2g)-Kj(V^2/2g)$	Eq 807 pg 812
Manhole Losses	
$HL=Km*(V^2/2g)$	Eq 808 pg 812
Inlet Losses	
$HL=Ki*(V^2/2g)*((A2/A1)-1)^2$	Eq 809 pg 813
Outlet Losses	
$HL=Ko*(V^2/2g)$	Eq 810 pg 813

DEFINITIONS		
A	Area	
D	Pipe Diameter	
D/S	Downstream	
F	$29.14n^2$	
Hb	Bend Loss	
Hc	Contraction Loss	
He	Expansion Loss	
Hf	Friction Loss	
Hj	Junction Loss	
Hi	Head Loss	
Hm	Misc Losses	
Hmh	Manhole Loss	
K	Loss Coef	
Kb	Bend Loss Coef	
Kc	Contraction Loss Coef	
Ke	Expansion Loss Coef	
Kj	Junction Loss Coef	
Kmh	Manhole Loss Coef	
L	Length	
q	Angle in degrees	
Q	Flow Rate	
R	Hydraulic Radius	
Rbend	Bend Radius	
S	Slope	
Sf	Friction Slope	
T/R	Transition/Reach	
U/S	Upstream	
V	Velocity	
$V^2/2g$	Velocity Head	

DATE: 12/8/2020

DESIGNER: R9F

PROGRAM SAMM

D-LOAD REQUIREMENTS FOR A 30 IN. DIAMETER CIRCULAR PIPE

 P I P E D A T A

DIAMETER (in.)	30.00
WALL B, THICKNESS (in.)	3.500

 I N S T A L L A T I O N C O N D I T I O N S

MINIMUM DEPTH OF FILL (ft.)	1.00
MAXIMUM DEPTH OF FILL (ft.)	20.00
SOIL DENSITY (lb/cu. ft.)	140.0
SPECIFIED BEDDING FACTOR	1.90
INSTALLATION TYPE	TRENCH
TRENCH WIDTH (ft.)	7.10
SOIL LATERAL PRESSURE/FRICTION TERM (KMU')	0.1650
PARAMETERS TO COMPUTE TRANSITION WIDTH	
POSITIVE PROJECTION RATIO	1.00
POSITIVE SETTLEMENT RATIO	0.50
SOIL LATERAL PRESSURE/FRICTION TERM (KMU)	0.1924
SOIL LATERAL PRESSURE COEFFICIENT	0.33

 A D D I T I O N A L L O A D S

LIVE LOAD	AASHTO HS-20
NO SURCHARGE LOAD	

 F A C T O R S O F S A F E T Y

FACTOR OF SAFETY ON 0.01 INCH CRACK D-LOAD (EARTH,LIVE)	1.00; 1.00
FACTOR OF SAFETY ON ULTIMATE LOAD (EARTH,LIVE) IN ACCORDANCE WITH ASTM C 76	
DL.01 LESS THAN 2000 LBS/FT/FT	1.5
DL.01 GREATER THAN 3000 LBS/FT/FT	1.25
DL.01 BETWEEN 2000 AND 3000 LBS/FT/FT	INTERPOLATED

RESULTS OF ANALYSIS

```

-----
SSSSSSSS  AAAAAAAAAA  MMM  MMM  MMM  MMM
SS         AA      AA   MM M M MM  MM M M MM
SSSSSSSS  AAAAAAAAAA  MM  M  MM  MM  M  MM
          SS      AA   MM      MM  MM      MM
SSSSSSSS  AA      AA   MM      MM  MM      MM

```

PROGRAM SAMM

 AMERICAN CONCRETE PIPE ASSOCIATION
 VERSION 2.0 - 1 SEPTEMBER 1990

Program SAMM computes earth loads on concrete pipe in accordance with the methods presented in the Concrete Pipe Design Manual (March 1990) and the Concrete Pipe Handbook (January 1988), published by the American Concrete Pipe Association. The user must select input values suitable to his specific installation. The information presented in the computer output is for review, interpretation, application and approval by a qualified engineer who must assume full responsibility for verifying that said output is appropriate and correct. There are no express or implied warranties. The use of this product does not constitute endorsement by ACPA or any other agents.

PIPE DEPTH (ft.)	-----EARTH LOAD-----			LIVE	SURCH	TOTAL	BED	REQUIRED D-LOAD	
	ARCHING	>TRANS	LOAD	LOAD	LOAD	LOAD	FACT	0.01 in. ULT.	
	FACTOR		(lb/ft)	(lb/ft)	(lb/ft)	(lb/ft)		(lb/ft/ft)	
1.0	1.07	Y	460.	2830.	0.	3290.	1.90	693.	1039.
1.5	1.10	Y	712.	2777.	0.	3489.	1.90	734.	1102.
2.0	1.14	Y	981.	2069.	0.	3050.	1.90	642.	963.
2.5	1.17	Y	1266.	1480.	0.	2746.	1.90	578.	867.
3.0	1.21	Y	1571.	1084.	0.	2655.	1.90	559.	838.
3.5	1.25	Y	1895.	896.	0.	2790.	1.90	587.	881.
4.0	1.30	Y	2239.	754.	0.	2993.	1.90	630.	945.
4.5	1.34	Y	2606.	644.	0.	3250.	1.90	684.	1026.
5.0	1.39	Y	2997.	558.	0.	3554.	1.90	748.	1122.
5.5	1.44	Y	3412.	488.	0.	3900.	1.90	821.	1232.
6.0	1.46	Y	3783.	431.	0.	4214.	1.90	887.	1331.
6.5	1.47	Y	4115.	383.	0.	4498.	1.90	947.	1420.
7.0	1.47	Y	4441.	343.	0.	4784.	1.90	1007.	1511.
7.5	1.47	Y	4767.	310.	0.	5077.	1.90	1069.	1603.
8.0	1.47	Y	5093.	281.	0.	5374.	1.90	1131.	1697.
8.5	1.48	Y	5427.	255.	0.	5682.	1.90	1196.	1794.
9.0	1.48	Y	5753.	234.	0.	5986.	1.90	1260.	1890.
9.5	1.48	Y	6079.	215.	0.	6293.	1.90	1325.	1987.
10.0	1.48	Y	6404.	198.	0.	6602.	1.90	1390.	2085.
10.5	1.48	Y	6730.	183.	0.	6913.	1.90	1455.	2183.
11.0	1.49	Y	7056.	170.	0.	7226.	1.90	1521.	2282.
11.5	1.49	Y	7382.	158.	0.	7540.	1.90	1587.	2381.
12.0	1.49	Y	7708.	147.	0.	7855.	1.90	1654.	2480.
12.5	1.49	Y	8034.	138.	0.	8171.	1.90	1720.	2580.
13.0	1.49	Y	8359.	129.	0.	8488.	1.90	1787.	2681.
13.5	1.49	Y	8685.	121.	0.	8806.	1.90	1854.	2781.

14.0	1.49	Y	7324.	94.	0.	7418.	1.90	1952.	2928.
14.5	1.50	Y	7588.	89.	0.	7677.	1.90	2020.	3020.
15.0	1.50	Y	7853.	84.	0.	7937.	1.90	2089.	3087.
15.5	1.50	Y	8117.	79.	0.	8196.	1.90	2157.	3151.
16.0	1.49	Y	8369.	75.	0.	8444.	1.90	2222.	3210.
16.5	1.49	Y	8633.	71.	0.	8704.	1.90	2291.	3269.
17.0	1.50	Y	8897.	68.	0.	8964.	1.90	2359.	3327.
17.5	1.50	Y	9160.	64.	0.	9225.	1.90	2428.	3382.
18.0	1.50	Y	9424.	61.	0.	9485.	1.90	2496.	3435.
18.5	1.50	Y	9688.	58.	0.	9746.	1.90	2565.	3485.
19.0	1.50	Y	9952.	56.	0.	10008.	1.90	2634.	3533.
19.5	1.50	Y	10216.	53.	0.	10269.	1.90	2702.	3579.
20.0	1.50	Y	10480.	51.	0.	10530.	1.90	2771.	3622.

BROAD CRESTED WEIR

PARCEL E

Q100 = 44 Design Flow

L = 40

ASSUME H1 = 0.51 Weir Head

C (FOR H1) = 3

$Q_F = CL(H)^{3/2}$ 44.0 Free Flow

WEIR ELEVATION 3402.00 Overflow Easement

HEAD 0.51

WSE= 3402.5

APPENDIX C – REFERENCE MATERIALS

VTN, *Flood Control Master Plan Update Summerlin West Planning Area*, July 2019.

VTN, *Master Conceptual Drainage Study for Summerlin West Village 25*, June 2019.

GCW, *Technical Drainage Study for Fox Hill Drive Improvements*, May 2019.

GCW, *Technical Drainage Study for Summerlin Village 21 Redpoint Drive Improvements (Fox Hill Drive to Desert Foothills Drive)*, March 2019.

**FLOOD CONTROL MASTER
PLAN UPDATE**

SUMMERLIN WEST PLANNING AREA

Las Vegas, Nevada

W.O. # 7809

Prepared for:
Howard Hughes Corp.

Submitted to:
Public Works Department
City of Las Vegas



CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		April 17, 2019
TO: Land Development Services Department of Building & Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for:	
	Summerlin West Planning Area Master Plan Update	
Cross Streets:	West of I-215 between Lake Mead Boulevard and Charleston Boulevard	COPIES TO: VTN Nevada
File Number:	F:\Depot\DSMemos\DS4926H.doc	The Howard Hughes Corporation
Parcel Number:	137-22-000-017	Bart Anderson, P.E., DevCo
Zoning Action:		CCRFC
FEMA Flood Zone	YES ☒ NO	CCPW
Proposed Storm Drain	YES ☒ NO	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	10/9/2017 & 10/25/2017	11/8/2017	Not Approved	\$400.00	490518: \$400
2 nd Submittal	12/6/2017	12/20/2017 & 1/10/2018	Not Approved	\$400.00	492005: \$400
3 rd Submittal	2/27/2018	3/24/2018	Not Approved	\$400.00	493739: \$400
4 th Submittal & Supplement	4/23/2018 & 5/22/2018	5/22/2018	See Comments Below	\$400.00	495223: \$400
CCPW & CCRFC	7/30/2018	7/30/2018	Concurrence Recv'd	N/C	N/C
5 th Submittal	1/3/2019 (Paid on 1/7/2019)	1/30/2019	Not Approved	\$100.00	502286: \$100
6 th Submittal	2/19/2019	3/13/2019	Conditional Approval	\$400.00	503267: \$400
CCPW & CCRFC	4/15/2019	4/17/2019	Concurrence Recv'd	N/C	N/C
TOTAL FEES (LDDRS):				\$2,100.00	----

REMARKS:

5th & 6th Submittals: Update #1 & Addendum #1 to address Land Use Changes in the Summerlin West Planning Area

The Drainage Study for the ~~subject project~~ has been reviewed and:

☒	is approved subject to conformance to all City standards and the following conditions: must be resubmitted or supplemented including the following:
	is conditionally approved subject to Clark County Regional Flood Control District concurrence.
	is conditionally approved subject to Clark County Public Works Department concurrence.

1. The proposed revision of the overall *Summerlin West Planning Area* (SWPA) will have impact to the various existing downstream regional facilities. All impacted downstream facilities must be modified and substantially completed prior to the onsite development of upstream Villages.

With the exception of ***Summerlin West Villages 21 and 22***, no occupancy permits will be issued to the remaining villages prior to the pertinent downstream facility modifications being completed.

2. The *Study* states that ***Detention Basin 5 (DB5)*** needs additional capacity to accommodate the increased flows from the proposed SWPA revision. An update to the **DB5** technical drainage study must be submitted and approved prior to any upstream Villages development with the exception of Villages 21 and 22.
3. The *Study* states that a portion of the existing *Beltway Channel* between *Far Hills Avenue* and *Summerlin Parkway* requires modification with heightened stem walls. An update to the Western Beltway Channel modification must be submitted and approved prior to any upstream Villages development with the exception of Villages 21 and 22.

NOTE: Any future changes to the proposed design (or design assumptions) as outlined in the approved drainage study and attached preliminary grading plan which affect drainage must be addressed in a Drainage Study Update and accepted by the *City of Las Vegas Flood Control Section*. Additionally, conditional acceptance of a drainage study is valid for a period of one (1) year. If the proposed construction has not been completed in that time period, the *City of Las Vegas* reserves the right to require additional conditions and/or submission and acceptance of a complete drainage study update prior to further construction of a project.

NOTE: Please be advised that all land surface area disturbances over 1 acre or any area adjacent to a water way must submit to the *Nevada Division of Environmental Protection* a "Notice of Intent" to discharge that certifies a stormwater pollution prevention plan has been developed and is maintained on site; for inclusion in the Stormwater General Permit No. NVR100000. A phased construction unit in a contiguous subdivision is considered under construction until all stripped or disturbed surface areas have been covered by paving, building construction or planting. For more information, including forms and applications see <http://ndep.nv.gov/bwpc/storm01.htm> or call (775) 687-9429.

END OF REMARKS
WSP/AYS

T/R/S: T21S/R69E/22
AREA K-22

CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		July 30, 2018
TO: Land Development Services Department of Building & Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT: Drainage Study for: Summerlin West Planning Area Master Plan Update		COPIES TO: VTN Nevada
Cross Streets:	West of I-215 between Lake Mead Boulevard and Charleston Boulevard	The Howard Hughes Corporation
File Number:	F:\Depot\DSMemos\DS4926E.doc	Bart Anderson, P.E., DevCo
Parcel Number:	137-22-000-017	CCRFCD
Zoning Action:		CCPW
FEMA Flood Zone	YES ☒ NO ☐	
Proposed Storm Drain	YES ☒ NO ☐	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Tr #
1 st Submittal	10/9/2017 & 10/25/2017	11/8/2017	Not Approved	\$400.00	490518 \$ ()
2 nd Submittal	12/6/2017	12/20/2017 & 1/10/2018	Not Approved	\$400.00	492005 \$ ()
3 rd Submittal	2/27/2018	3/24/2018	Not Approved	\$400.00	493739 \$ ()
4 th Submittal & Supplement	4/23/2018 & 5/22/2018	5/22/2018	See Comments Below	\$400.00	495223 \$ ()
CCPW & CCRFCD	7/30/2018	7/30/2018	Concurrence Recv'd	N/C	N/C
TOTAL FEES (LDDRS):				\$1,600.00	

REMARKS:

The Drainage Study for the subject project has been reviewed and:

☒	is approved subject to conformance to all City standards and the following conditions:
	must be resubmitted or supplemented including the following:
	is conditionally approved subject to Clark County Regional Flood Control District concurrence.
	is conditionally approved subject to Clark County Public Works Department concurrence.

- Atkins is working on the 2018 MPU. Coordinate and verify the proposed regional flood control facilities as shown in Sheet A.6.5 with Atkins for inclusion of the Summerlin West Master Plan facilities into the ongoing 2018 MPU.

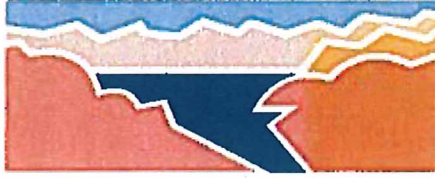
NOTE: Any future changes to the proposed design (or design assumptions) as outlined in the approved drainage study and attached preliminary grading plan which affect drainage must be addressed in a Drainage Study Update and accepted by the City of Las Vegas Flood Control Section. Additionally, conditional acceptance of a drainage study is valid for a period of one (1) year. If the proposed construction has not been completed in that time period, the City of Las Vegas reserves the right to require additional conditions and/or submission and acceptance of a complete drainage study update prior to further construction of a project.

NOTE: Please be advised that all land surface area disturbances over 1 acre or any area adjacent to a water way must submit to the *Nevada Division of Environmental Protection* a "Notice of Intent" to discharge that certifies a stormwater pollution prevention plan has been developed and is maintained on site; for inclusion in the Stormwater General Permit No. NVR100000. A proposed construction unit in a contiguous subdivision is considered under construction until all striped or disturbed surface areas have been covered by paving, building construction or planting. For more information, including forms and applications see <http://ndep.nv.gov/bwpc/storm01.htm> or call (775) 687-9429.

END OF REMARKS
WSP/AYS

T/R/S: T21S/R69E/22
AREA K-22

REGIONAL FLOOD CONTROL DISTRICT



Steven C. Parrish, P.E.
General Manager/Chief
Engineer

June 28, 2018

BOARD OF DIRECTORS

Lawrence L. Brown, III
Chairman
Clark County

Mayor Debra March
Vice-Chairman
City of Henderson

David Ballweg
City of Mesquite

Chris Giunchigliani
Clark County

Mayor Carolyn Goodman
City of Las Vegas

Mayor John J. Lee
City of North Las Vegas

Dr. Lois Tarkanian
City of Las Vegas

Mayor Rodney Woodbury
City of Boulder City

Mr. Oh Sang Kwon, P.E.
City of Las Vegas Department of Public Works
333 North Rancho Drive
Las Vegas, NV 89106

**DISTRICT CONCURRENCE: SUMMERLIN WEST PLANNING AREA MASTER
PLAN UPDATE
(DS4926D) (RFCD No. 18-10069)**

Dear Mr. Kwon:

Clark County Regional Flood Control District (District) reviewed Technical Drainage Study dated October 9, 2017, Addendum No. 1 dated December 6, 2017, Addendum No. 2 dated February 27, 2018, Addendum No. 3 dated April 20, 2018, and Supplement No. 1 dated May 22, 2018 for above-mentioned project as submitted by VTN NEVADA. In addition, District is in receipt of the Conditional Letter of Acceptance from City of Las Vegas Department of Public Works dated May 22, 2018.

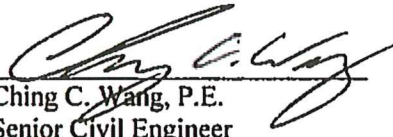
District concurs with acceptance of this Technical Drainage Study by City of Las Vegas Department of Public Works.

District's review of this project was limited to issues of Regional Flood Control Significance as defined in *Uniform Regulations for the Control of Drainage*.

Please be aware that as additional information becomes available and/or restudies of Flood Insurance Studies are performed, information submitted by VTN NEVADA may be superseded. Compliance with regulatory elements and design standards specified in *Uniform Regulations for the Control of Drainage* does not imply a guarantee that properties will be free from flooding or flood damage. The District, its officials, or employees assume no liability for information, data, or conclusions presented by consulting engineers. We, therefore, make no warranties, either expressed or implied, in conducting this review.

STEVEN C. PARRISH, P.E.
General Manager/Chief Engineer

BY:


Ching C. Wang, P.E.
Senior Civil Engineer

CCW:ay

c: William J. Meyer, P.E., VTN Nevada

P:\Letters and Memos\Local Drainage\Land Development & Drainage\2018\L-18-10069.doc

HEC-1 SUMMARY TABLE							
DB5/ALTA TRIBUTARY							
PROPOSED CONDITION							
Basin / Concentration Point	Area (acre)	Q ₁₀₀ (cfs)	SDN	Basin / Concentration Point	Area (acre)	Q ₁₀₀ (cfs)	SDN
3-1	1422.67	2093	SDN3	3-F	180.16	532	SDN3
3-2	144.58	403	SDN3	3-G2	82.23	284	SDN3
CP3.1	-	2153	SDN3	CP3.8	-	795	SDN3
3-D	213.07	482	SDN3	3-A	217.07	422	SDN3
CP3.3	-	2307	SDN3	3-B	446.26	856	SDN3
3-3	111.16	395	SDN3	3-C	184.83	367	SDN3
3-4	221.26	754	SDN3	CPDBA-B	-	1533	SDN3
3-5	-	628	SDN3	GPDB	-	141	SDN3
CP3.2	-	1666	SDN3	3-G1	110.4	474	SDN3
3-E	348.31	801	SDN3	CP3-G1	-	526	SDN3
CP3.4	-	3573	SDN3	3-H1	27.48	91	SDN3
3-6	56.74	202	SDN3	CP3-H1	-	592	SDN3
3-7	109.69	423	SDN3	3-I1	187.75	465	SDN3
3-J	97.87	199	SDN3	CP3.9	-	1701	SDN3
CP3.5	-	688	SDN3	3-O	71.96	237	SDN3
3-8	408.73	1105	SDN3	3-P2	156.22	260	SDN3
3-K	568.98	1226	SDN3	3-P1	92.53	507	SDN3
CP3.6	-	2794	SDN3	CP3-P	-	976	SDN3
3-N	291.64	681	SDN3	3-Q	126.31	402	SDN3
3-M	123.16	360	SDN3	CP3-Q	-	1361	SDN3
CPDB5	-	6813	SDN3	3-H2	117.36	369	SDN3
DB5	-	2142	SDN3	CP3-H2	-	1688	SDN3
3-L	206.53	579	SDN3	3-I2	75.83	201	SDN3
CP3-L	-	2230	SDN3	CP3.10	-	3374	SDN3
RCSWAA-1	-	2229	SDN3	3-H3	89.8	256	SDN3
SWAA-2	-	948	SDN3	CP3.11	-	3589	SDN3
CSWAA-2	-	2944	SDN3	ANGLPKIN	-	8972	SDN5
SWAA-3	-	668	SDN3	ANGLPKDB	-	406	SDN5
CSWAA-3	-	3185	SDN4				

LEGEND

CONCENTRATION POINT

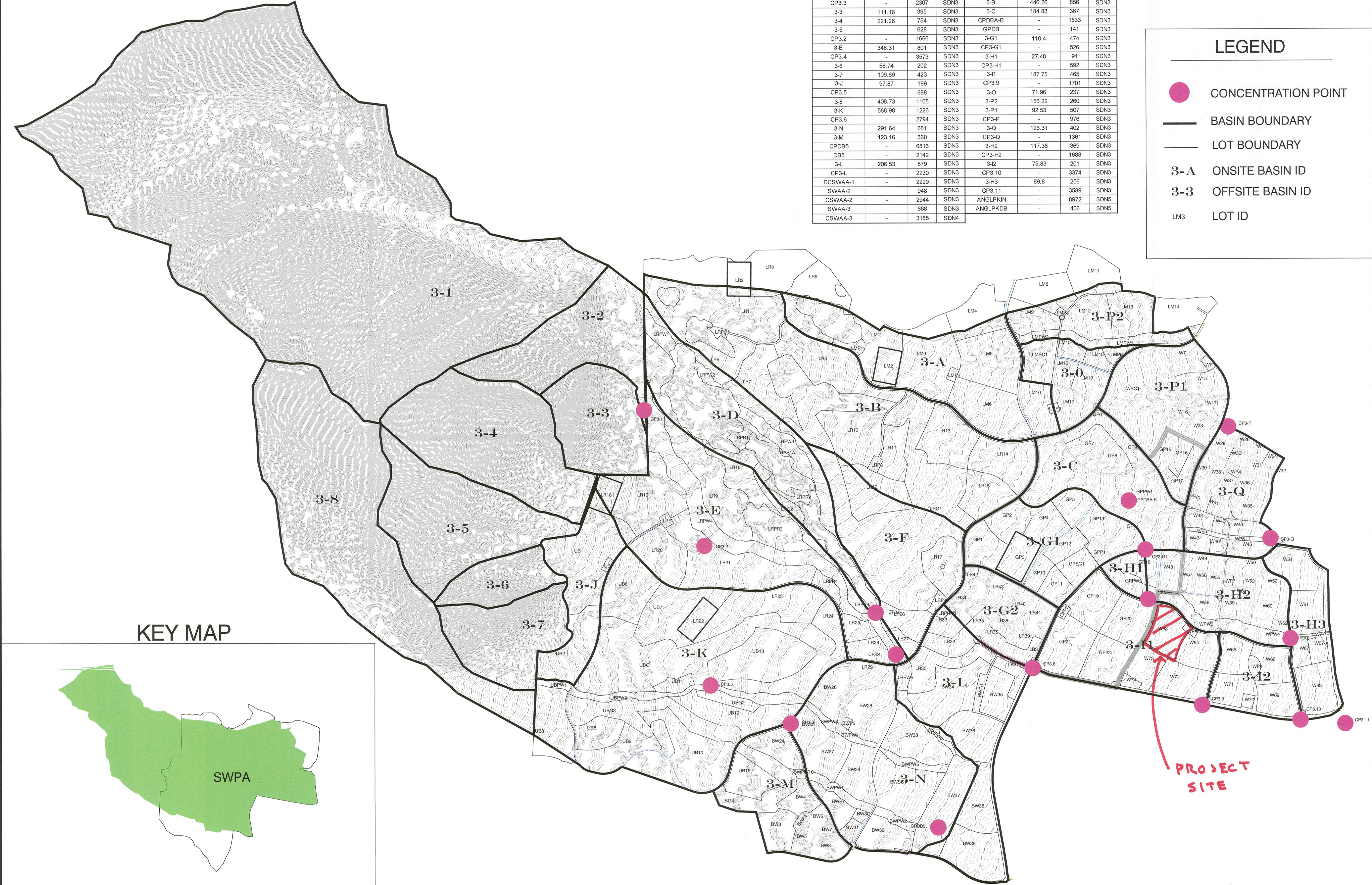
BASIN BOUNDARY

LOT BOUNDARY

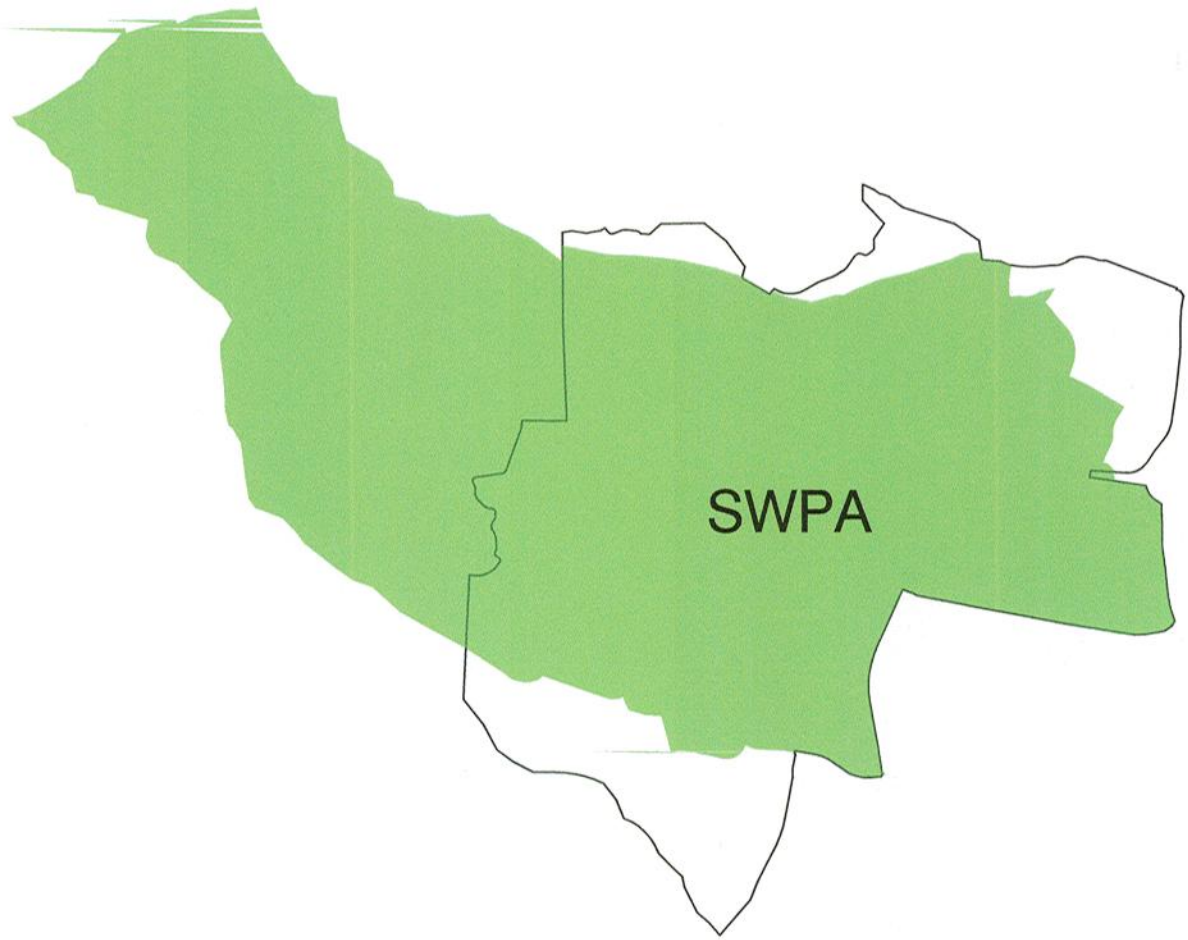
3-A ONSITE BASIN ID

3-3 OFFSITE BASIN ID

LM3 LOT ID



KEY MAP



THE HOWARD HUGHES CORPORATION
10301 WEST CHARLESTON BLVD., 3RD FLOOR
LAS VEGAS, NV 89135

2017 SUMMERLIN WEST
PLANNING AREA

A.6.3
DB5/Alta Tributary

DRAWN BY:
JVA/SVB
9/2017

DESIGNED BY:
JVA/SVB
9/2017

CHECKED BY:

PROJECT NO:
7809

SCALE:

HORIZ.
VERT.

SHEET

OF SHEETS

DRAWING NO.

REVISION

BY

DATE

REV

2227 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH: (702) 875-7550 FAX: (702) 382-2597 WEB: WWW.VTNV.COM
CONSULTING ENGINEERS • PLANNERS • LAND SURVEYORS

HN:7809 Drainage/A Figures & Exhibits/Basin Maps/A.6.4 DB5-Alta Tributary/A.6.4 DB5-Alta Tributary.dwg

Master Conceptual Drainage Study for

Summerlin West Village 25

Las Vegas, Nevada

W.O. # 7919-A

Prepared for:

Howard Hughes Company, LLC

Submitted to:

City of Las Vegas
Public Works



CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM

DATE:

June 18, 2019

TO:

Land Development Services
Department of Building & Safety

FROM:

Albert Sung, P.E.
Flood Control Project Engineer
Department of Public Works

SUBJECT:

Drainage Study for:

Master Conceptual Drainage Study
For Summerlin West Village 25

COPIES TO:

VTN Nevada

Cross Streets:

Sky Vista Drive and Far Hills Avenue

Howard Hughes Company, LLC

File Number:

F:\Depot\DSMemos\DS5104D.doc

Bart Anderson, P.E., DevCo

Parcel Number:

137-22-101-001, 137-21-000-002

CCRFC

Zoning Action:

MDR-75107 & PMP-74780

FEMA Flood Zone

YES

NO X

Proposed Storm Drain

YES X

NO

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	2/20/2019	2/27/2019 & 3/20/2019	Not Approved	\$400.00	503292: \$400
2 nd Submittal	4/4/2019	4/17/2019	Not Approved	\$400.00	3081574: \$400
3 rd Submittal	4/25/2019	5/9/2019	Conditional Approval	\$400.00	3105175: \$400
CCRFC	6/10/2019	6/18/2019	Concurrence Recv'd	N/C	N/C
TOTAL FEES (LDDRS):				\$1,200.00	

REMARKS:

The Drainage Study for the subject project has been reviewed and:

X	is approved subject to conformance to all City standards and the following conditions:
	must be resubmitted or supplemented including the following:
	is conditionally approved subject to Clark County Regional Flood Control District concurrence.
	is conditionally approved subject to Clark County Public Works Department concurrence.

- The *Grand Park Detention Basin* is proposed to regulate and meter outflow to match the previously approved downstream flow conditions at the junction of *Far Hills* storm drain and the *Beltway Channel*. Without the *Grand Park Detention Basin*, there will be a net increase in flows at the *Beltway Channel* downstream of *Far Hills* intersection exceeding the previously approved flow.

A technical drainage study for the analysis, design and construction plans for the *Grand Park Detention Basin* must be submitted and approved by the City prior to the individual onsite parcel developments.

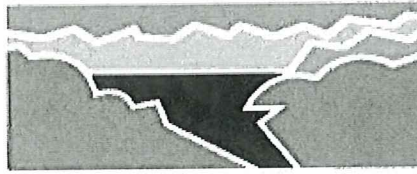
NOTE: Any future changes to the proposed design (or design assumptions) as outlined in the approved drainage study and attached preliminary grading plan which affect drainage must be addressed in a Drainage Study Update and accepted by the *City of Las Vegas Flood Control Section*. Additionally, conditional acceptance of a drainage study is valid for a period of one (1) year. If the proposed construction has not been completed in that time period, the *City of Las Vegas* reserves the right to require additional conditions and/or submission and acceptance of a complete drainage study update prior to further construction of a project.

NOTE: Please be advised that all land surface area disturbances over 1 acre or any area adjacent to a water way must submit to the Nevada Division of Environmental Protection a "Notice of Intent" to discharge that certifies a stormwater pollution prevention plan has been developed and is maintained on site; for inclusion in the Stormwater General Permit No. NVR100000. A phased construction unit in a contiguous subdivision is considered under construction until all stripped or disturbed surface areas have been covered by paving, building construction or planting. For more information, including forms and applications see <http://ndep.nv.gov/bwpc/storm01.htm> or call (775) 687-9429.

END OF REMARKS
WSP/AYS

T/R/S: T20S/R59E/22
AREA K-22

REGIONAL FLOOD CONTROL DISTRICT



Steven C. Parrish, P.E.
General Manager/Chief
Engineer

BOARD OF DIRECTORS

Lawrence L. Brown, III
Chair
Clark County

Mayor Debra March
Vice-Chair
City of Henderson

George Gault
City of Mesquite

James B. Gibson
Clark County

Mayor Carolyn Goodman
City of Las Vegas

Isaac Barron
City of North Las Vegas

Mayor Pro Tem
Dr. Lois Tarkanian
City of Las Vegas

Mayor Rodney Woodbury
City of Boulder City

June 6, 2019

Mr. Oh Sang Kwon, P.E.
City of Las Vegas Department of Public Works
333 North Rancho Drive
Las Vegas, NV 89106

**DISTRICT CONCURRENCE: MASTER CONCEPTUAL DRAINAGE STUDY FOR
SUMMERLIN WEST VILLAGE 25
(DS5104C) (RFCD No. 19-11268)**

Dear Mr. Kwon:

Clark County Regional Flood Control District (District) reviewed Conceptual Drainage Study dated February 20, 2019, Addendum No. 1 dated April 4, 2019, Addendum No. 2 dated April 25, 2019 for above-mentioned project as submitted by VTN NEVADA. In addition, District is in receipt of the Conditional Letter of Acceptance from City of Las Vegas Department of Public Works dated May 9, 2019.

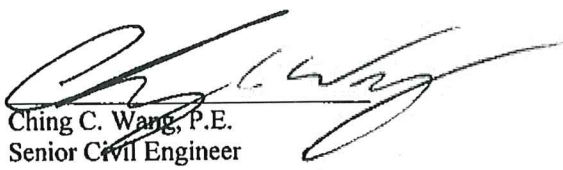
District concurs with acceptance of this Technical Drainage Study by City of Las Vegas Department of Public Works.

District's review of this project was limited to issues of Regional Flood Control Significance as defined in *Uniform Regulations for the Control of Drainage*.

Please be aware that as additional information becomes available and/or restudies of Flood Insurance Studies are performed, information submitted by VTN NEVADA may be superseded. Compliance with regulatory elements and design standards specified in *Uniform Regulations for the Control of Drainage* does not imply a guarantee that properties will be free from flooding or flood damage. The District, its officials, or employees assume no liability for information, data, or conclusions presented by consulting engineers. We, therefore, make no warranties, either expressed or implied, in conducting this review.

STEVEN C. PARRISH, P.E.
General Manager/Chief Engineer

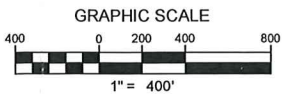
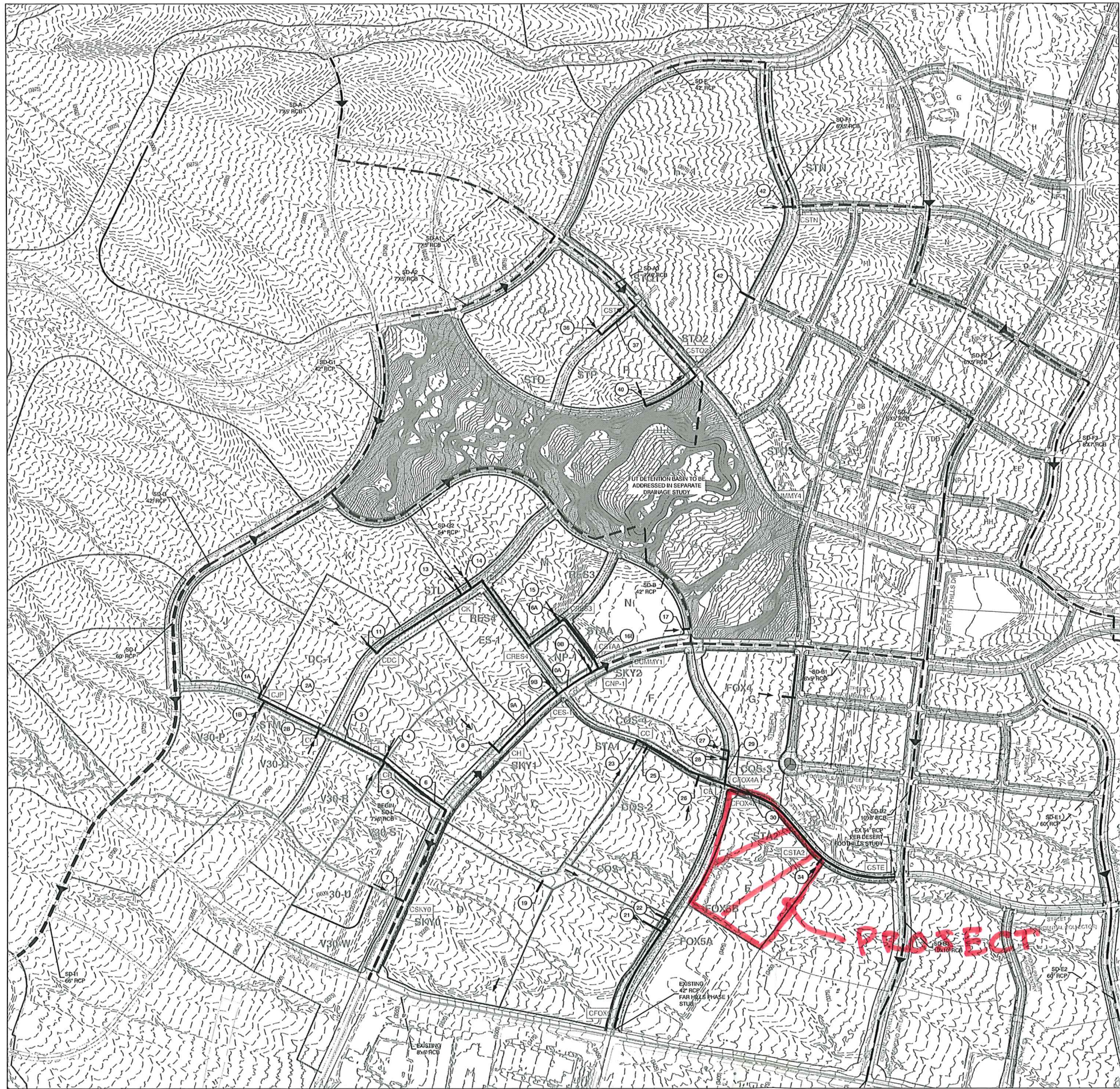
BY:


Ching C. Wang, P.E.
Senior Civil Engineer

CCW:cr

c: Brian Troy Ruiz, P.E., VTN Nevada

P:\Letters and Memos\Local Drainage\Land Development & Drainage\2019\L-19-11268.doc



LEGEND

- CCRCD STORM DRAIN ALIGNMENT
- EXISTING FACILITY
- VILLAGE 25 LOCAL STORM DRAIN
- W51 BASIN DESIGNATION
- CONCENTRATION POINT
- LOCAL FACILITY DESIGNATION
- DEVELOPED CONDITION FLOW ARROW

VILLAGE 25 LOCAL FLOOD PROTECTION FACILITIES					
Facility #	Design Slope %	Q100 cfs	Tributary Basin/CP	Facility	Velocity fps
1A	6.00%	69	J	30" RCP	22.05
1B	3.78%	39	V30-P	24" RCP	15.81
2A	0.50%	128	CJP	54" RCP	9.92
2B	0.50%	37	V30-Q	36" RCP	7.39
3	6.00%	165	CQ	54" RCP	27.44
4	0.50%	53	I	42" RCP	8.10
5	2.84%	35	V30-R	30" RCP	14.12
6	5.18%	252	CR	54" RCP	28.98
7	1.00%	346	CUWS	66" RCP	16.08
8	6.00%	49	H	24" RCP	19.86
9A	0.50%	64	CH	42" RCP	8.37
9B	0.99%	42	ES-1	36" RCP	9.93
10A	6.00%	106	CES-1	42" RCP	24.65
10B	5.78%	9	NP-1	24" RCP	12.81
11	1.62%	56	DC-1	36" RCP	12.83
13	0.50%	86	K	48" RCP	9.07
14	6.00%	53	L	30" RCP	20.74
15	5.98%	223	CL	42" RCP	28.96
16A	6.00%	46	M	24" RCP	19.72
16B	4.05%	287	CSTAA	48" RCP	26.22
17	2.55%	40	N	30" RCP	14.00
19	0.50%	105	D	54" RCP	9.61
21	6.00%	81	A	30" RCP	22.77
22	4.70%	114	D, COS-1	54" RCP	22.70
23	0.50%	101	C	48" RCP	9.21
25	0.50%	5	COS-2	24" RCP	4.50
26	0.50%	76	B	48" RCP	8.87
27	1.33%	42	F	30" RCP	10.89
28	0.50%	16	COS-4	30" RCP	5.96
29	3.49%	73	CFOX4A	36" RCP	18.26
30	5.50%	275	CFOX4B	48" RCP	29.89
31	4.27%	8	COS-3	24" RCP	11.12
34	0.50%	65	E	42" RCP	8.38
36	6.00%	46	O	30" RCP	20.02
37	6.00%	55	CSTP	30" RCP	20.93
40	6.00%	42	P	24" RCP	19.39
42	6.00%	234	HS-1	48" RCP	29.96

65 CFS (PARCEL E)

PROTECT

FIGURE 7
LOCAL STORM DRAIN
FACILITIES MAP

SUMMERLIN WEST VILLAGE 25

THE HOWARD HUGHES CORPORATION
10851 WEST CHARLESTON BLVD., 3RD FLOOR
LAS VEGAS, NEVADA 89135

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5146
PH. (702) 872-7500 FAX (702) 392-3287 WEB WWW.VTNV.COM
CONSULTING ENGINEERS & PLANNERS • LAND SURVEYORS

DRAWN BY:
ATMAN

DESIGNED BY:
SJB/DVA

CHECKED BY:
JVA

PROJECT NO:
7281

JULY 2018

JULY 2018

JULY 2018

SCALE: 1"=400'

SHEET

OF SHEETS

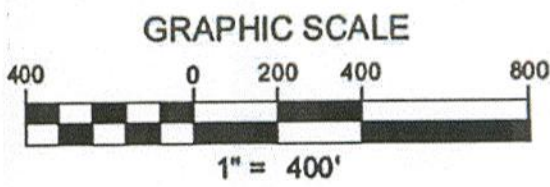
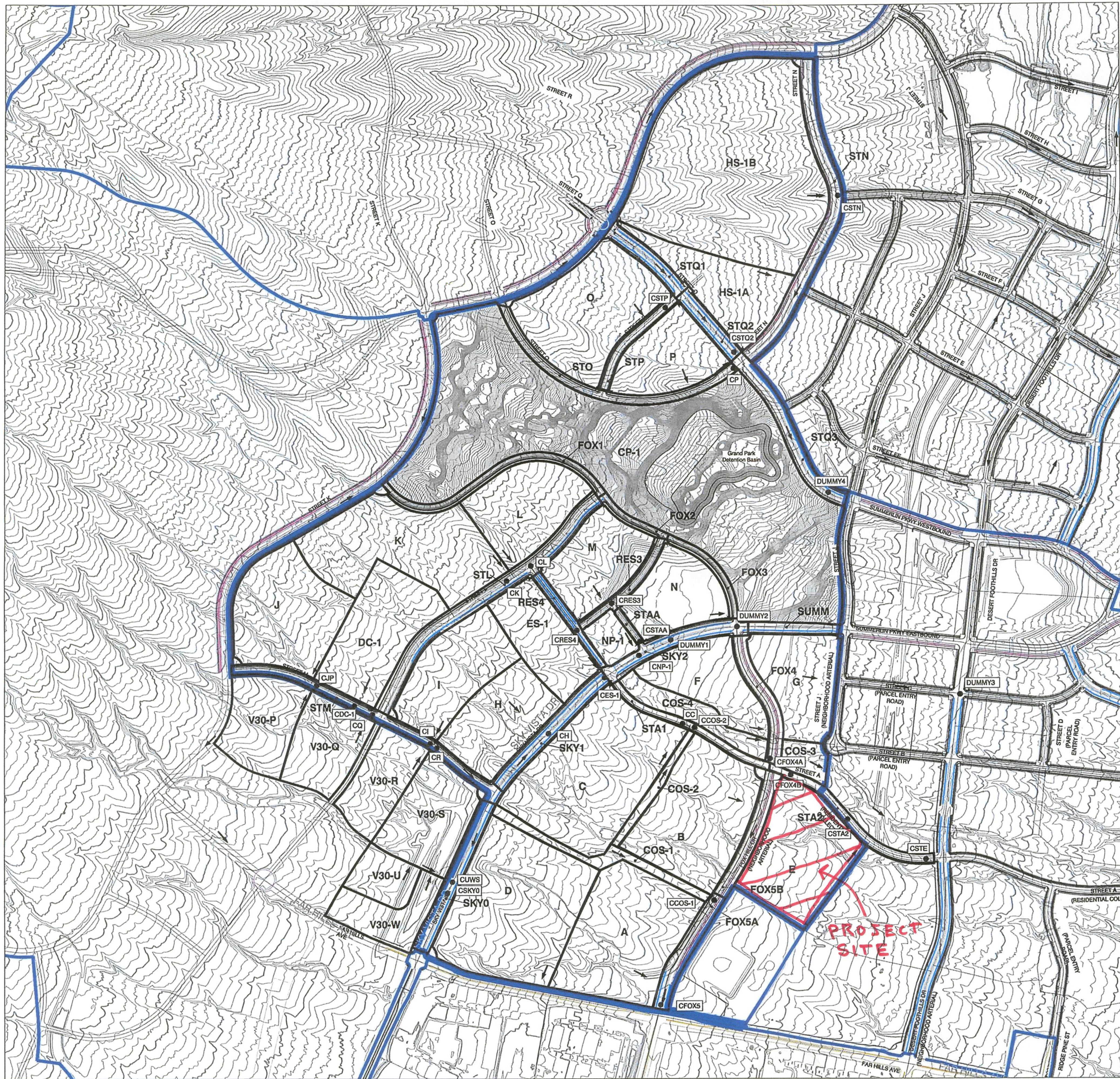
DRAWING NO.

REVISION

BY

DATE

REV



LEGEND

- BASIN BOUNDARY
- W51 BASIN DESIGNATION
- CONCENTRATION POINT
- ➔ FLOW ARROW

ULTIMATE CONDITION HEC-1 SUMMARY TABLE					
BASIN ID	Area (a.c.)	Q100 (cfs)	BASIN ID	Area (a.c.)	Q100 (cfs)
J	16.90	69	FOX3	1.51	7
STM	4.76	20	N	9.91	40
V30-P	10.30	39	SUMM	1.65	7
CJP	-	128	G	11.44	45
DC-1	15.02	56	D	27.15	105
CDC-1	-	184	FOX5B	3.19	12
V30-Q	9.60	37	COS-1	3.48	9
CQ	-	221	CCOS-1	-	20
I	13.23	53	FOX5A	3.15	11
CI	-	274	A	21.35	81
V30-R	8.57	35	CFOX5	-	111
CR	-	308	C	26.54	99
V30-S	11.91	49	STA1	2.29	10
V30-U	4.74	20	CC	-	109
V30-W	6.85	25	COS-2	1.72	5
CUWS	-	403	CCOS-2	-	114
SKY0	4.16	14	FOX4	3.20	14
CSKY0	-	416	F	10.44	43
SKY1	3.91	16	COS-4	5.04	16
H	12.11	48	CFOX4A	-	73
CH	-	64	B	19.86	76
ES-1	10.20	42	CFOX4B	-	263
CES-1	-	106	STA2	2.84	12
SKY2	3.78	17	CSTA2	-	275
NP-1	2.70	9	COS-3	2.40	8
CNP-1	-	132	E	17.14	65
STL	7.86	28	CSTE	-	348
K	21.91	86	STP	2.05	9
CK	-	113	O	19.18	46
L	12.79	53	CSTP	-	55
CL	-	167	STQ1	2.49	11
RES4	1.60	7	STQ2	2.11	10
CRES4	-	174	CSTQ2	-	76
RES3	1.97	9	STO	4.10	17
M	10.88	46	P	10.31	42
CRES3	-	229	CP	-	59
STAA	0.44	2	STQ3	4.22	18
CSTAA	-	231	STN	7.67	27
FOX1	3.39	14	HS-1A	11.70	47
FOX2	1.06	5	HS-1B	49.79	195
CP-1	94.28	282	CSTN	-	266

THE HOWARD HUGHES CORPORATION

FIGURE 6
ULTIMATE CONDITION BASIN MAP

DRAWN BY:
ATMAH

SHEET
OF SHEETS
DRAWING NO.

SUMMERLIN WEST VILLAGE 25

CHECKED BY:
JVA

PROJECT NO.
7819

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH: (702) 873-7550 FAX: (702) 382-2507 WEB: WWW.VTNV.COM
CONSULTING ENGINEERS & PLANNERS • LAND SURVEYORS

SCALE: 1" = 400' USGS
NA - NAD 83

H:\71910\Drawings\04_452A_Figure6 - Village 25 Drainage Basin Mapping

**TECHNICAL DRAINAGE STUDY
FOR
FOX HILL DRIVE IMPROVEMENTS**

62025-201

March 2019

Prepared for:

**Hughes Howard Company, LLC
10801 Charleston Blvd., 3Rd Floor
Las Vegas, Nevada 89146
Phone: (702) 791-4300**

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM

DATE:

May 23, 2019

TO:

Land Development Services
Department of Building & Safety

FROM:

Albert Sung, P.E.
Flood Control Project Engineer
Department of Public Works

SUBJECT:

Drainage Study for:

**Summerlin V25 - Fox Hill Drive Improvements
(from Far Hills Avenue to Redpoint Drive)**

COPIES TO:

GCW Engineers / Surveyors

Cross Streets:

Fox Hill Drive & Far Hills Avenue

Howard Hughes Company, LLC

File Number:

F:\Depot\DSMemos\DS5118B.doc

Bart Anderson, P.E., DevCo

Parcel Number:

137-22-101-001

CCRFCD

Zoning Action:

N/A

FEMA Flood Zone

YES

NO

X

Proposed Storm Drain

YES

X

NO

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	4/1/2019	4/15/2019	Not Approved	\$400.00	3073933: \$400
2 nd Submittal	5/6/2019	5/22/2019	See Comments Below	\$400.00	3122271: \$400
TOTAL FEES (LDDRS):				\$800.00	----

REMARKS:

The Drainage Study for the subject project has been reviewed and:

	is approved subject to conformance to all City standards and the following conditions:
	must be resubmitted or supplemented including the following:
X	is conditionally approved subject to Clark County Regional Flood Control District concurrence.
	is conditionally approved subject to Clark County Public Works Department concurrence.

1. **This drainage study is acceptable in concept;** however, *City of Las Vegas* will not formally accept the study until the *Clark County Regional Flood Control District (CCRFCD)* has issued a letter of concurrence. The engineer should contact the CCRFCD to confirm that they have begun their review.

Please note that effective March 15, 2019, the CCRFCD adopted new requirements for drainage study concurrence submittal. Follow the link below for specific guidance.

<http://gustfront.ccrfcd.org/LandDev/LandDev.aspx>

2. The project proposes to build temporary drainage facilities including drainage berms/swales along the west side of the proposed *Far Hills Drive*. Prior to final plan approval the developer must complete a **Maintenance & Liability Agreement** for the interim drainage improvements and post a minimum maintenance bond of \$50,000 or 50-percent of the construction cost for the improvements, whichever is greater. The engineer must submit an estimate of the quantities for constructing the facilities and an exhibit that adequately shows the location and limits of the drainage facilities to *City of Las Vegas Flood Control* for approval. Once the drainage study is conditionally approved, the engineer should contact the *City's Land Development Section (229-6371)* to begin the agreement process.

In order for the maintenance bond to be released in the future, a drainage update / letter will be required to justify that the offsite berms / channels are no longer necessary and can be removed.

In an effort to increase administrative efficiency, for all original and re-submittal packages including updates and the addenda, the City of Las Vegas Public Works Department requires both a hardcopy and a digital copy (PDF) on CD for the drainage study.

A letter sealed and signed by a Nevada registered civil engineer must be included in every submittal certifying documents on the electronic CD matches 100% of the hardcopy submittal. The new submittal requirement is effective on May 1, 2019. If there are any questions regarding these new requirements, please contact Albert Sung in the City Flood Control Section at (702) 229-6541.



Sample Letter to
certify CD.pdf

NOTE: Please be advised that all land surface area disturbances over 1 acre or any area adjacent to a water way must submit to the *Nevada Division of Environmental Protection* a "Notice of Intent" to discharge that certifies a stormwater pollution prevention plan has been developed and is maintained on site; for inclusion in the Stormwater General Permit No. NVR100000. A phased construction unit in a contiguous subdivision is considered under construction until all stripped or disturbed surface areas have been covered by paving, building construction or planting. For more information, including forms and applications see <http://ndep.nv.gov/bwpc/storm01.htm> or call (775) 687-9429.

END OF REMARKS

ays

T/R/S: T20S/R59E/22
AREA K-22

Comment 5:

Sheet PP1: DI #2.1 at the west half of Far Hills Drive is at a local low point. Address what is the maximum ponding depth and the overflow path in case the inlet is totally clogged in the next submittal.

Response:

DI #2.1 is at a local low point, however, about 70 feet south of the DI, the street cross slope changes from curb to the median and the maximum possible ponding is less than 0.5 ft. The overflow path is to the south.

Comment 6:

Sheet PP2: At approximately Station 226+50, provide a nominal inlet at the east side of Fox Hill Drive. This is to comply with the 600' maximum spacing between nuisance inlets.

Response:

There is an existing water line on the east side of the proposed road (30" MLT MCP), same depth as the proposed storm drain, which makes it impossible for us to add drop inlets on the right side of the street. The maximum 100-year flow depth on the east side of the street is 0.57 ft which is 0.07 ft above the TC, however, the flow will be contained in the landscape area. Please note that The Howard Hughes Company (THHC) is aware of that issue. Additionally, all the flow on the east side of the street will be generated by the street and nuisance flow will be minimal to the street from east side developments. This issue has been discussed with Albert Sung on the phone.

0.57' deep

Comment 7:

Sheet PP3: Provide an inlet at Station 228+00 at the west side and an inlet at Station 230+00 at the east side of Fox Hill Drive.

Response:

Since Fox Hill is a 37' width street and is not arterial (it is a Residential Collector street), the 600-ft rule distance between DIs does not apply. The maximum distance between DIs on the west side of the road is ~980 ft and note that the proposed DIs will still be collecting all the street surface flow. Please see attached email communication between GCW and Oh Sang Kwon.

Comment 8:

Sheet PP3 to Sheet PP-5: Between Station 230+00 and Station 240+00, ie, approximately 1,000', there is no inlet in-between. The proposed storm drains in Fox Hill Drive may need to be extended so as to provide a pair of inlets on both sides of Fox Hill to comply with the 600'-maximum spacing criteria. Review and revise accordingly.

Worksheet for Section 2 - 100-yr - Half Street East Side

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.42 %
Discharge 11.50 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
0+00.0	0.50
0+00.5	0.48
0+00.5	0.00
0+02.0	0.13
0+02.0	0.17
0+18.5	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.0, 0.50)	(0+02.0, 0.13)	0.013
(0+02.0, 0.13)	(0+18.5, 0.50)	0.016

Options

Current Roughness weighted Pavlovskii's Method
Method
Open Channel Weighting Method Pavlovskii's Method
Closed Channel Weighting Method Pavlovskii's Method

Results

Normal Depth 0.57 ft
Elevation Range 0.00 to 0.50 ft
Flow Area 4.74 ft²
Wetted Perimeter 19.18 ft
Hydraulic Radius 0.25 ft
Top Width 18.50 ft

Worksheet for Section 2 - 100-yr - Half Street East Side

Results

Normal Depth	0.57	ft
Critical Depth	0.55	ft
Critical Slope	0.00608	ft/ft
Velocity	2.43	ft/s
Velocity Head	0.09	ft
Specific Energy	0.66	ft
Froude Number	0.85	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.57	ft
Critical Depth	0.55	ft
Channel Slope	0.42	%
Critical Slope	0.00608	ft/ft

Cross Section for Section 2 - 100-yr - Half Street East Side

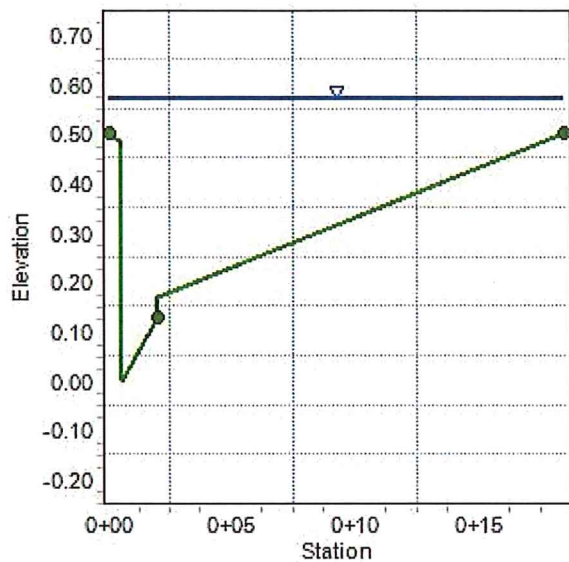
Project Description

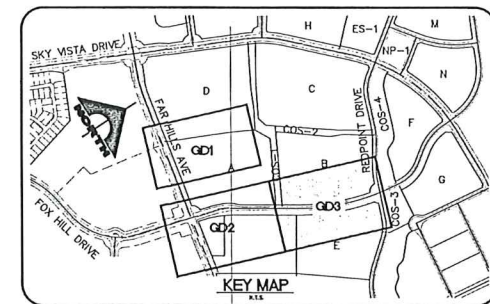
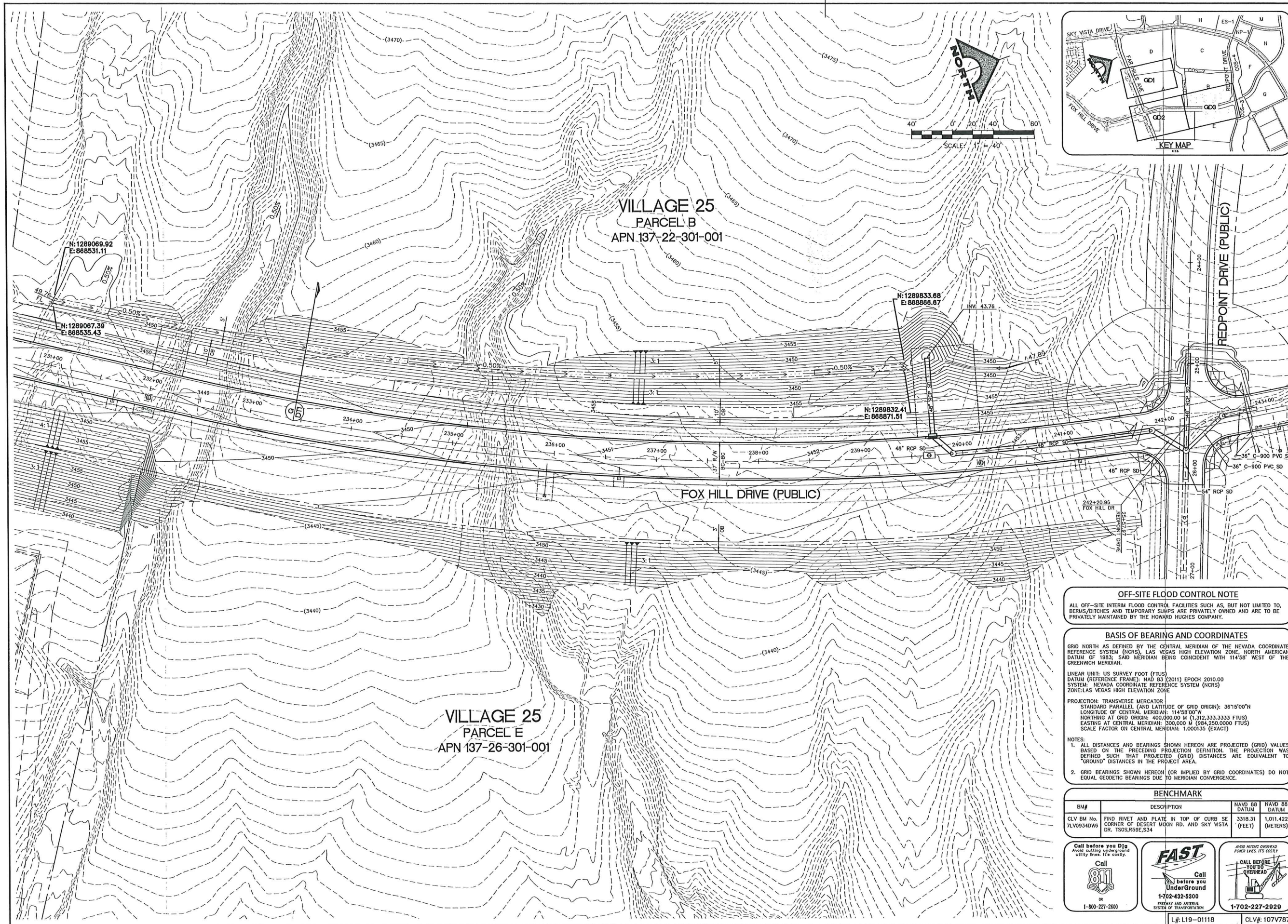
Friction Method Manning Formula
Solve For Normal Depth

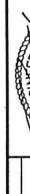
Input Data

Channel Slope 0.42 %
Normal Depth 0.57 ft
Discharge 11.50 ft³/s

Cross Section Image





THE HOWARD HUGHES COMPANY, LLC VILLAGE 25 FOX HILL DRIVE IMPROVEMENTS (FAR HILLS AVENUE TO REDPOINT DRIVE) GRADING PLAN 3	PROJECT NO. 62025-201		DESIGN LG/AF		1555 S. RAINBOW BLVD. LAS VEGAS, NV 89146			DATE: 09/05/2019
	DRAWN AS		CHECK LG/AF		T: 702.804.2000 F: 702.804.2299 gowengineering.com			
DRAWING GD3		PLOT DATE: 09-05-19		PLOT TIME: 15:01:44		ALEXANDER SANTIAGO		
12 OF 32 SHEETS								

**TECHNICAL DRAINAGE STUDY
FOR
SUMMERLIN VILLAGE 21 REDPOINT DRIVE IMPROVEMENTS
(FOX HILL DRIVE TO DESERT FOOTHILLS DRIVE)**

62021-206

January 2019

Prepared for:

**Hughes Howard Company, LLC
10801 Charleston Blvd., 3Rd Floor
Las Vegas, Nevada 89146
Phone: (702) 791-4300**

GCV[']
ENGINEERS \ SURVEYORS

CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		March 12, 2019
TO: Land Development Services Department of Building & Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for:	
	Summerlin West Village 21 – Redpoint Drive Improvements (Desert Foothills Drive to Fox Hill Drive)	
Cross Streets:	Desert Foothill Drive and Far Hill Drive	
File Number:	F:\Depot\DSMemos\DS5088B.doc	
Parcel Number:	137-26-101-001; 137-22-101-001	
Zoning Action:	FMP-74490	
FEMA Flood Zone	YES	NO X
Proposed Storm Drain	YES X	NO
		COPIES TO: GCW Inc.
		Howard Hughes Company, LLC
		Bart Anderson, P.E., DevCo

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	1/17/2019	2/7/2019	Not Approved	\$400.00	502418: \$400
2 nd Submittal	2/26/2019	3/12/2019	See Comments Below	\$400.00	503373: \$400
TOTAL FEES (LDDRS):				\$800.00	----

REMARKS:

The Drainage Study for the subject project has been reviewed and:

X	is approved subject to conformance to all City standards and the following conditions:
	must be resubmitted or supplemented including the following:
	is conditionally approved subject to Clark County Regional Flood Control District concurrence.
	is conditionally approved subject to Clark County Public Works Department concurrence.

- The project proposed to construct temporary drainage facilities including drainage berms/swales in various locations for the interim protection of the proposed segment of *Redpoint Drive*. Prior to the final plans approval, the developer must complete a **Maintenance & Liability Agreement** for the interim drainage improvements and post a minimum maintenance bond of \$50,000 or 50-percent of the construction cost for the improvements, whichever is greater. The engineer must submit an estimate of the quantities for constructing the facilities and an exhibit that adequately shows the location and limits of the drainage facilities to *City Flood Control* for approval. Once the drainage study is conditionally approved, the engineer/developer should contact the *City's Land Development Section* (702-229-6371) to begin the agreement process.

In order for the maintenance bond to be released in the future, a drainage update/letter will be required to justify that the berm/swale are no longer necessary and can be removed.

- The subject drainage study is premised on the fully developed (ie constructed) *Desert Foothills Drive* (*Far Hills* to *Redpoint*). The subject improvement plans will not be approved prior to the buildout of *Desert Foothills Drive* (*Far Hills* to *Redpoint*) and the associated facilities.

3. The flow in the storm drain exceeds the maximum velocity allowed (25 fps) per the *CCRFCD Hydrologic & Hydraulic Design Manual*. The Engineer must provide a detail showing additional sacrificial concrete (1-inch minimum) on the plans. A Special Construction Note must be added to the Grading Plans and the Plan and Profile Sheet that calls out the special construction requirement for the additional sacrificial concrete.

NOTE: Any future changes to the proposed design (or design assumptions) as outlined in the approved drainage study and attached preliminary grading plan which affect drainage must be addressed in a Drainage Study Update and accepted by the *City of Las Vegas Flood Control Section*. Additionally, conditional acceptance of a drainage study is valid for a period of one (1) year. If the proposed construction has not been completed in that time period, the *City of Las Vegas* reserves the right to require additional conditions and/or submission and acceptance of a complete drainage study update prior to further construction of a project.

NOTE: Please be advised that all land surface area disturbances over 1 acre or any area adjacent to a water way must submit to the Nevada Division of Environmental Protection a "Notice of Intent" to discharge that certifies a stormwater pollution prevention plan has been developed and is maintained on site; for inclusion in the Stormwater General Permit No. NVR100000. A phased construction unit in a contiguous subdivision is considered under construction until all stripped or disturbed surface areas have been covered by paving, building construction or planting. For more information, including forms and applications see <http://ndep.nv.gov/bwpc/storm01.htm> or call (775) 687-9429.

END OF REMARKS
WSP/AYS

T/R/S: T20S/R59E/26
AREA K-26

Table 1: 100-year Flow Characteristics Ultimate Condition

Location	Slope (%)	Q ₁₀₀ (cfs)	Depth (ft)	Velocity (ft/s)	D*V	Tributary
Section 1	2.3 (min)	15.0	0.41	3.9	1.6	STA2-1
Section 1	8.0 (max)	15.0	0.35	6.3	2.2	STA2-1

XI. STORM DRAIN FACILITIES

USE 0.41' (WORST CASE)

A WSPG model is created to ensure the proposed storm drain system could safely convey the ultimate condition runoff in Redpoint Drive. The WSPG model flow rates in the 48-inch pipe in Redpoint is based off the HEC-1 model concentration points referenced from The Desert Foothills Drive Study. The model runs from the existing stub in Desert Foothills Drive to station 25+68.2. According to the storm drain model, water surface elevation meets the criteria in all locations. However, due the steep slopes in the proposed street, flow velocity is greater than 25 feet per second in some areas. Therefore, sacrificial concrete is proposed for areas that flow velocity is greater than 25 feet per second.

In addition, another WSPG model has been created for the existing storm drain in Fox Hill to make sure the proposed ditch (#3) can safely convey the offsite runoff into the storm drain system. WSPG calculations for the storm drain facility has been included in Appendix A. HGL and flowrates have been marked up on the storm drain profile sheets included on the improvement plans.

Drop inlet calculations were done to ensure the proposed inlets could intercept the flow. Note that only two of the proposed drop inlets are designed to collect street flow (the rest intended only for nuisance flow). Drop inlet calculation and street section were done based on street flow in the interim condition. Inlet control calculations were done for the stubs for the interim conditions. In addition, full flow capacity calculations were done to insure the pipes could intercept the ultimate conditions flow. All drop inlet calculations contain a 50 percent clogging factor. Since the bypass flow from the inlets in Redpoint Drive is zero, this project will not negatively impact downstream facilities. Inlet control calculations, and drop inlet calculations have been included in Appendix A.

XII. CONCLUSIONS AND RECOMMENDATIONS

1. Methodology used in this report is in compliance with Clark County Regional Flood Control District (CCRFCD) criteria.
2. The project area lies within a designated FEMA Flood Zone X. Therefore, the project is not currently located in a FEMA-designated Special Flood Hazard Area.
1. The site is adjacent to proposed CCRFCD Facilities APDF 0026 and APFH 0089. The study will be submitted to the RFCD for concurrence upon approval by the City of Las Vegas.
- 2.
3. The proposed drainage patterns in this report are generally consistent with the existing conditions and the 2013 MPU.
4. Flowrates for the design of this project are based off the land plan from The Summerlin West Master Plan Update.

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Channel Slope

8.00 %

Discharge

15.00 ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.50
0+00.50	0.00
0+02.00	0.13
0+02.00	0.17
0+18.50	0.50
0+35.00	0.17
0+35.00	0.13
0+36.50	0.00
0+36.50	0.50
0+37.00	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+35.00, 0.13)	0.016
(0+35.00, 0.13)	(0+37.00, 0.50)	0.013

Current Roughness vweigted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Worksheet for Sec 1 - 100-Yr - Max Slope

Results

Normal Depth		0.35 ft
Elevation Range	0.00 to 0.50 ft	
Flow Area		2.39 ft ²
Wetted Perimeter		21.39 ft
Hydraulic Radius		0.11 ft
Top Width		20.60 ft
Normal Depth		0.35 ft
Critical Depth		0.49 ft
Critical Slope		0.00647 ft/ft
Velocity		6.27 ft/s
Velocity Head		0.61 ft
Specific Energy		0.96 ft
Froude Number		3.24
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.00 ft
Profile Description	
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.35 ft
Critical Depth	0.49 ft
Channel Slope	8.00 %
Critical Slope	0.00647 ft/ft

Worksheet for Sec 1 - 100-Yr - Min Slope

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope

2.30 %

Discharge

15.00 ft³/s

Section Definitions

Station (ft)

Elevation (ft)

0+00.00	0.50
0+00.50	0.50
0+00.50	0.00
0+02.00	0.13
0+02.00	0.17
0+18.50	0.50
0+35.00	0.17
0+35.00	0.13
0+36.50	0.00
0+36.50	0.50
0+37.00	0.50

Roughness Segment Definitions

Start Station

Ending Station

Roughness Coefficient

(0+00.00, 0.50)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+35.00, 0.13)	0.016
(0+35.00, 0.13)	(0+37.00, 0.50)	0.013

Options

Current Roughness weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Worksheet for Sec 1 - 100-Yr - Min Slope

Results

Normal Depth		0.41 ft
Elevation Range	0.00 to 0.50 ft	
Flow Area		3.86 ft ²
Wetted Perimeter		27.72 ft
Hydraulic Radius		0.14 ft
Top Width		26.81 ft
Normal Depth		0.41 ft
Critical Depth		0.49 ft
Critical Slope		0.00655 ft/ft
Velocity		3.88 ft/s
Velocity Head		0.23 ft
Specific Energy		0.64 ft
Froude Number		1.80
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.00 ft
Profile Description	
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.41 ft
Critical Depth	0.49 ft
Channel Slope	2.30 %
Critical Slope	0.00655 ft/ft

Cross Section for Sec 1 - 100-Yr - Max Slope

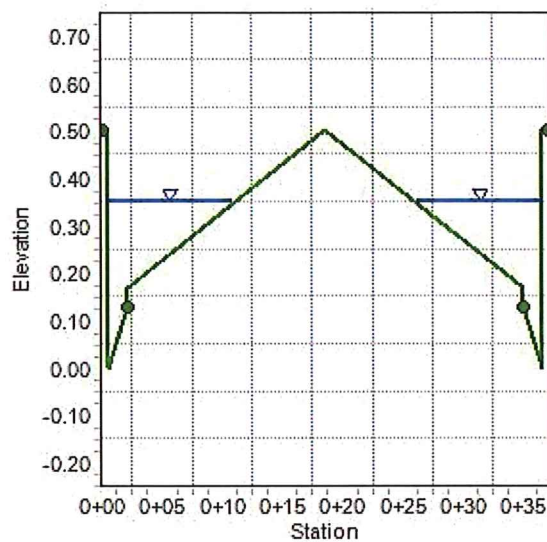
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	8.00	%
Normal Depth	0.35	ft
Discharge	15.00	ft ³ /s

Cross Section Image

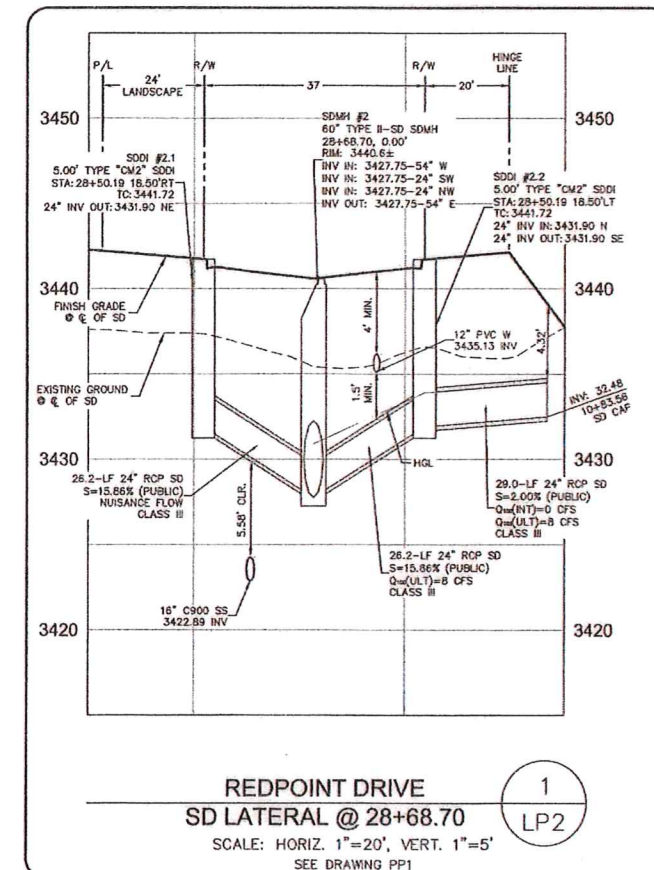
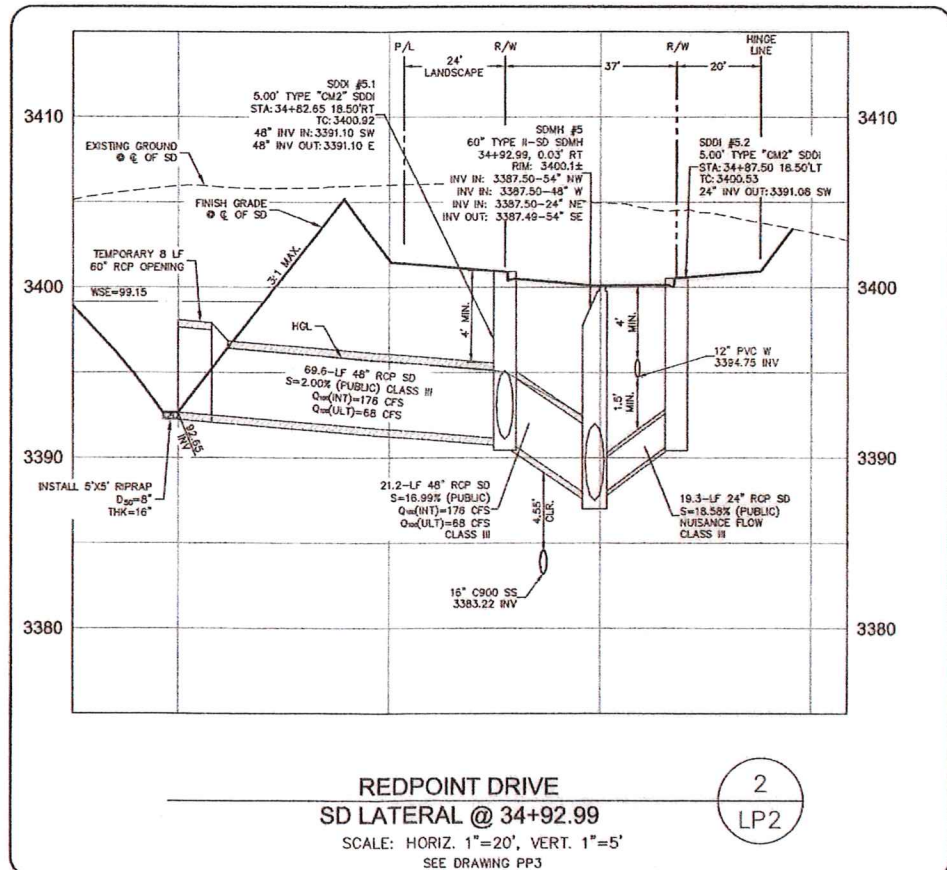
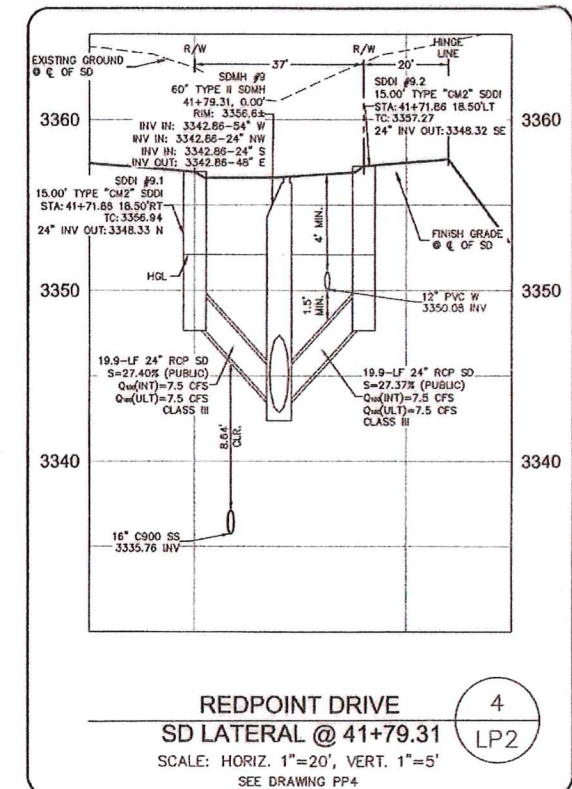


Project Description

Manning Formula

Normal Depth

Channel Slope	2.30	%
Normal Depth	0.41	ft
Discharge	15.00	ft ³ /s



OFF-SITE FLOOD CONTROL NOTE:
ALL OFF-SITE INTERIM FLOOD CONTROL FACILITIES SUCH AS, BUT NOT LIMITED TO, BERMS/DITCHES AND TEMPORARY SUMPS ARE PRIVATELY OWNED AND ARE TO BE PRIVATELY MAINTAINED BY THE HOWARD HUGHES COMPANY.

APPROVED FOR CONSTRUCTION

[Signature]

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. 136244 FIRST APPROVAL DATE: 4-22-19

OWNER:
THE HOWARD HUGHES COMPANY, LLC
10801 W. CHARLESTON BLVD, 3RD FLOOR
LAS VEGAS, NEVADA 89135

DEVELOPER:
GREYSTONE NEVADA, LLC
9275 W RUSSELL RD. LAS VEGAS, NV 89148
PHONE: (702) 736-9100 FAX: (702) 736-9200
CONTACT: ROBERT FLAXA

DESIGN ENGINEER:
RCI Engineering

500 South Ranch Drive, Suite 17, Las Vegas, NV 89106
PH#702.453.0800 FAX#702.453.0801

LEGAL DESCRIPTION

LOT E OF "SUMMERLIN VILLAGE 25 - UNIT 1" AS SHOWN BY MAP THEREOF
ON FILE IN THE CLARK COUNTY RECORDER'S OFFICE IN BOOK 160, PAGE 0060
OF PLATS. SITUATE IN SECTION 27, TOWNSHIP 20 SOUTH, RANGE 59 EAST,
M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA.

CONTAINING 17.12 ACRES

BENCHMARK

CITY OF LAS VEGAS BENCHMARK 7LV09 27E4

RIVET AND PLOT IN TOP OF CURB AT SOUTHEAST CORNER OF
FAR HILLS AVENUE AND DESERT FOOTHILLS DRIVE.

ELEVATION=1016.62 METERS (NAVD'88 V.2008)
ELEVATION=3355.36 US SURVEY FEET (NAVD'88 V.2008)

BASIS OF BEARINGS

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF
THE NEVADA REFERENCE SYSTEM (NCRS), LAS VEGAS AND
HIGH ELEVATION ZONES, NORTH AMERICAN DATUM OF
1983 (NAD83); SAID MERIDIAN BEING COINCIDENT WITH
114°58' WEST OF THE GREENWICH MERIDIAN.

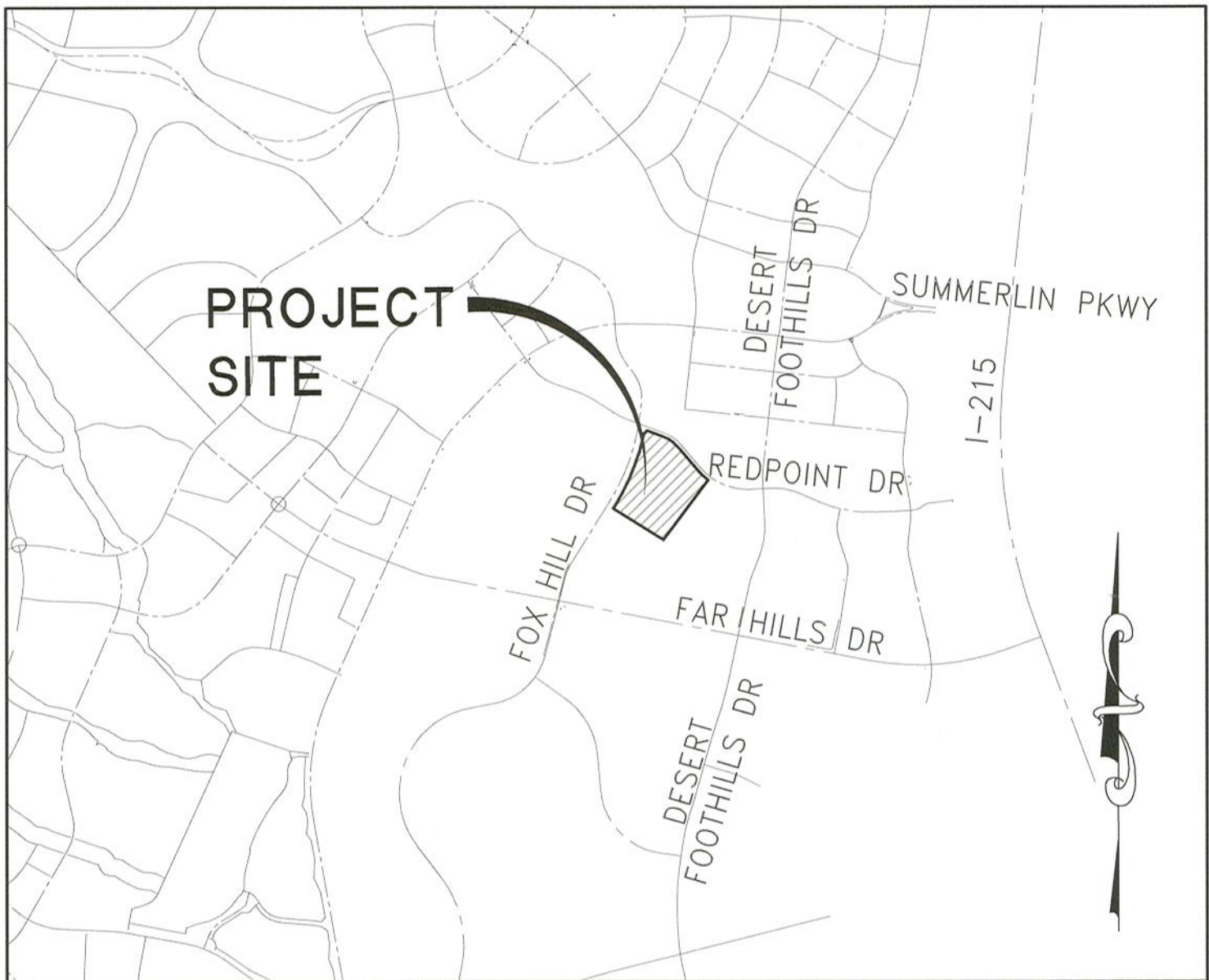
SHEET INDEX

SHT No.	DWG ID	DRAWING DESCRIPTION
1	C-1	COVER SHEET
2	N-1	GENERAL NOTES, LEGENDS, AND ABBREVIATIONS
3	G-1	GRADING PLAN (SHEET 1 OF 5)
4	G-2	GRADING PLAN (SHEET 2 OF 5)
5	G-3	GRADING PLAN (SHEET 3 OF 5)
6	G-4	GRADING PLAN (SHEET 4 OF 5)
7	G-5	GRADING PLAN (SHEET 5 OF 5)
8	D-1	GRADING DETAILS (SHEET 1 OF 2)
9	D-2	GRADING DETAILS (SHEET 2 OF 2)
10	P-1	PLAN AND PROFILE: MOJAVE ARCH ST STA: 16+00.00-18+31.67 AND INLET #1

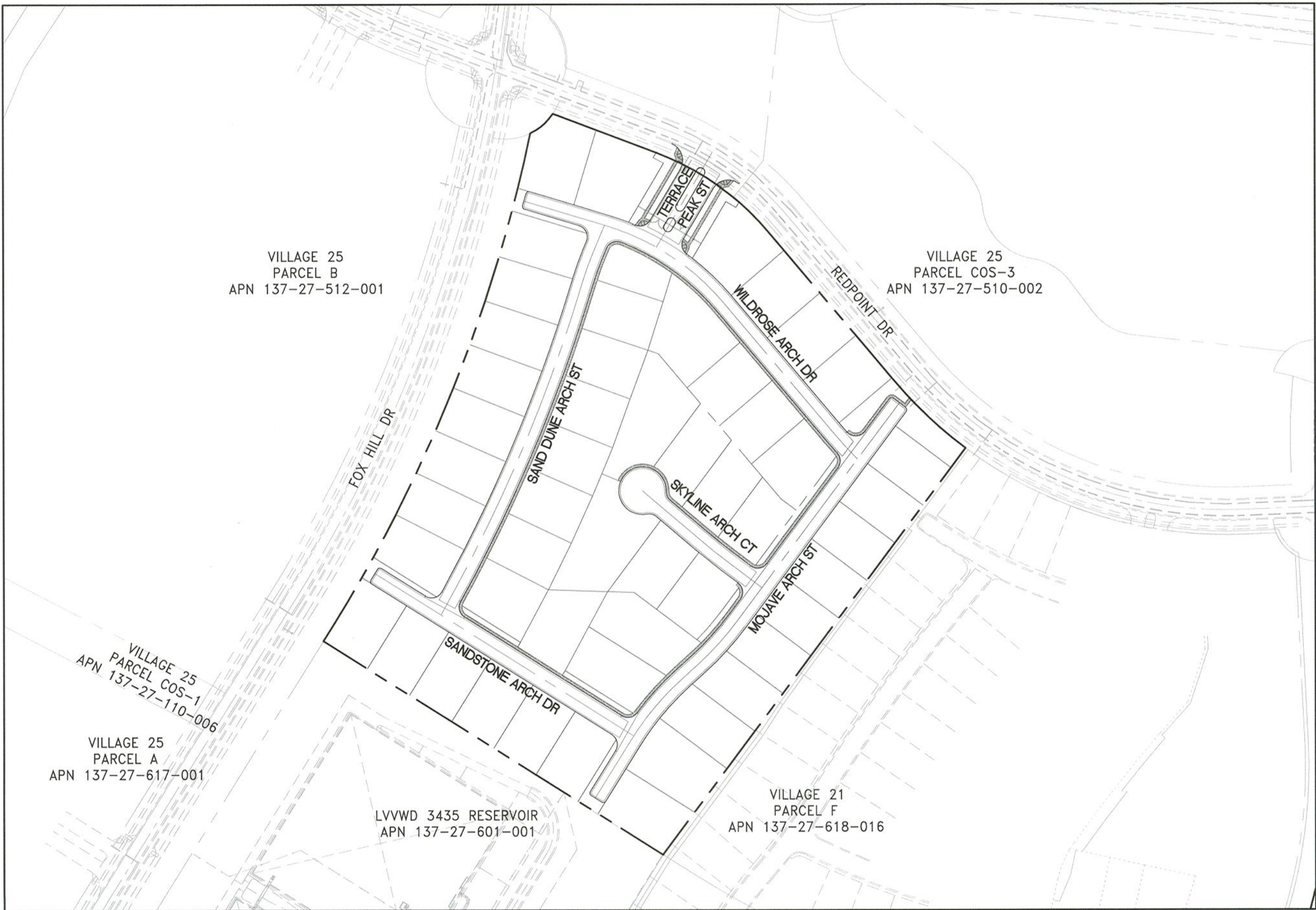
IMPROVEMENT PLANS FOR SUMMERLIN VILLAGE 25 PARCEL E A SINGLE FAMILY RESIDENTIAL SUBDIVISION BY **LENNAR**[®]

dba GREYSTONE NEVADA, LLC

APN: 137-27-511-001
CITY OF LAS VEGAS, NEVADA
17.12+/- ACRES
51 LOTS



VICINITY MAP
NOT TO SCALE



SITE PLAN
NOT TO SCALE

APPROVED BY:

CITY OF LAS VEGAS

DEPARTMENT OF PLANNING

DEPARTMENT OF PLANNING

LAS VEGAS FIRE AND RESCUE

LAS VEGAS FIRE AND RESCUE

CENTURYLINK

CENTRAL TELEPHONE COMPANY - dba CENTURYLINK

THE CENTURYLINK APPROVAL DOES NOT ASSUME OR GUARANTEE LIABILITY FOR KNOWN OR UNKNOWN CONFLICTS
WITH EXISTING OR PROPOSED IMPROVEMENTS. RESOLUTION OF ANY CONFLICT WILL BE ACCOMPLISHED
PURSUANT TO LOCAL ORDINANCES, NEVADA REVISED STATUTES AND/OR PUBLIC UTILITY COMMISSION RULES
AND REGULATIONS.

SOUTHWEST GAS CORPORATION

SOUTHWEST GAS CORPORATION SWG UID

COX COMMUNICATIONS LAS VEGAS INC.

COX COMMUNICATIONS LAS VEGAS INC.

NV ENERGY

NV ENERGY COMPANY

NV ENERGY COMPANY ACKNOWLEDGES THAT WE HAVE RECEIVED YOUR PLANS AND WILL PROVIDE
SERVICE TO ALL ELECTRICAL NEEDS ASSOCIATED WITH THIS PROJECT. NV ENERGY COMPANY RESERVES
THE RIGHT TO ADDRESS ANY EXISTING OR FUTURE CONFLICTS ONCE THE FINAL DESIGN IS COMPLETED.
THE NEW SERVICE AND THE RESOLUTION OF ANY CONFLICTS WILL BE ACCOMPLISHED PURSUANT TO THE
NEVADA PUBLIC UTILITY COMMISSION'S RULES AND REGULATIONS.

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES

PROJECT NO. - FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW X,XXX GPM AT 20 PSI RESIDUAL
(SHEETS C-1, N-1, MU-1, U-X AND P-X)

DISCLAIMER NOTE:

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS
RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING
UNDERGROUND OR OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO
REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER
ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR
PROPER LOCATION. CONTRACTOR TO NOTIFY ENGINEER OF ANY CHANGES OR DISCREPANCIES.

Call before you Dig
AVOID CUTTING UNDERGROUND
UTILITY LINES. IT'S COSTLY.
Call 811
OR
1-800-227-2600

FAST
Call before you
UnderGround
1-702-432-5300
FREWAY AND ARTERIAL
SYSTEM OF TRANSPORTATION

CALL BEFORE YOU DO
OVERHEAD
1-702-227-2929

FOR REVIEW ONLY	
REV	DESCRIPTION
BT	DATE
DATE: October 07, 2020	
HORIZ. SCALE:	N/A
VERT. SCALE:	N/A
DRAWN BY:	WW, SN
DESIGNED BY:	CR
CHECKED BY:	CRZ
APPROVED BY:	CRZ
PROJECT #:	3040.0058
LENNAR [®] 9275 W. RUSSELL RD SUITE 400, LAS VEGAS, NV 89148 PHONE: (702) 736-9100 FAX: (702) 736-9200	
RCI ENGINEERING 500 SOUTH RANCH DRIVE, SUITE 17, LAS VEGAS, NV 89106 MAIN: 702.453.0800 FAX: 702.453.0801	
NEVADA	
IMPROVEMENT PLANS FOR SUMMERLIN VILLAGE 25 PARCEL E A SINGLE FAMILY RESIDENTIAL SUBDIVISION COVER SHEET	
CITY OF LAS VEGAS 10/07/20 12:24pm	
DRAWING C-1 SHT 1 OF 10 CLV DRAWING NUMBER CLV PROJECT #	

ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA NEVADA", LATEST ISSUE; THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION, CLARK COUNTY AREA NEVADA", LATEST REVISED EDITION; THE "SUMMERLIN IMPROVEMENT STANDARDS" FOR WORK IN THE SUMMERLIN AREA; AND OTHER APPLICABLE APPROVED STANDARDS ISSUED BY THE CONTROLLING AGENCY; THE UNIFORM BUILDING CODE; AND ALL LOCAL CITY CODES AND ORDINANCES APPLICABLE, EXCEPT AS NOTED ON THIS SHEET AS "DEVIATIONS FROM STANDARDS".

- ## CITY OF LAS VEGAS TRAFFIC NOTES

- DEVIATIONS FROM STANDARDS
NONE

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LAS VEGAS FIRE AND RESCUE ADOPTED FIRE CODE ORDINANCE #6631 FOR HYDRANT SPECIFICATIONS AND HYDRANT INSTALLATION SPECIFICATIONS.

ONLY FIRE HYDRANTS THAT ARE ON THE LAS VEGAS VALLEY WATER DISTRICTS' -APPROVED PRODUCTS LIST ARE ALLOWED TO BE INSTALLED.

IF WATER SUPPLY IS REQUIRED FROM LAS VEGAS FIRE AND RESCUE FOR THE INSTALLATION OF ON-SITE WATER LINES AND FIRE HYDRANTS, THE PERMIT AND CONTRACTORS MATERIAL TEST CERTIFICATE FOR UNDERGROUND PIPING FORM SHALL BE OBTAINED FROM THE FIRE PROTECTION ENGINEER BEFORE COMMENCEMENT OF WORK. IFC § 105.6.16.

ON A LOT OR ALONG A STREET, THE FIRE HYDRANT SHALL BE INSTALLED AT THE INTERSECTION OF THE FIRE APPARATUS ACCESS ROADS SHALL BE MAINTAINED BEFORE COMMENCEMENT OF ANY COMBUSTIBLE CONSTRUCTION. ALL FIRE HYDRANTS SHALL BE IN GOOD WORKING ORDER AND SHALL BE CAPABLE OF DELIVERING THE REQUIRED FIRE FLOW. IFC § 3310, § 3312.

TO IDENTIFY THE FIRE HYDRANT LOCATIONS, THE CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER OF EACH FIRE HYDRANT. THE MARKER SHALL BE 12 INCHES IN DIAMETER AND 4 INCHES HIGH.

ALL UNDERGROUND INSPECTIONS, PRESSURE AND FLUSH VERIFICATIONS OF ALL BLUE HYDRANTS AND FIRE LINES, SHALL BE CONDUCTED BEFORE COVERING THE LINES. CENTER LOADING IS ACCEPTABLE FOR THE HYDRO TESTS WITH PRIOR FIRE PREVENTION APPROVAL. IFC § 105.3.

IF THE WATER SUPPLY UNDERGROUND MAINS AND MATERIALS SHALL BE U.L. LISTED, A.W.W.A APPROVED AND SHALL BE RATED FOR THE APPROPRIATE WORKING PRESSURE. IFC § 507.2.1, NFPA 24.

PAINTING OF CURBS, FIRE HYDRANTS, PADS, PROTECTION OF FIRE HYDRANTS FROM PHYSICAL DAMAGE, AND ALL OTHER WORK NECESSARY PER PLANS SHALL BE COMPLETED BEFORE APPROVAL BY LAS VEGAS FIRE AND RESCUE. FIRE PREVENTION DIVISION. IFC § 507.

PRIVATE HYDRANTS SHALL BE PAINTED RED. IFC § 507.5.7.1.

PRIOR TO THE FINAL OCCUPANCY, A FIRE FLOW TEST SHALL BE WITNESSED BY LAS VEGAS FIRE AND RESCUE. FIRE PREVENTION DIVISION TO VERIFY AVAILABILITY OF THE REQUIRED FIRE FLOW. IFC § 507.

FIRE HYDRANT SPACING SHALL BE AS FOLLOWS:

- * RESIDENTIAL - 500 FT UNSPRINKLERED; 600 FT SPINKLERED.
- * COMMERCIAL - 500 FT UNSPRINKLERED; 400 FT SPINKLERED.

IF THE WATER SUPPLY UNDERGROUND MAINS AND MATERIALS ARE INSTALLED WHERE FIRE HYDRANTS ARE NOT NEEDED FOR PROTECTION OF THE STRUCTURES, FIRE HYDRANTS SHALL BE INSTALLED AT A MAXIMUM OF 1000 FT SPACING, TO PROVIDE FOR TRANSPORTATION HAZARDS. WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS OR HAVE FOUR (4) OR MORE TRAFFIC LANES AND HAVE A TRAFFIC COUNT OF MORE THAN 30,000 PER DAY, HYDRANTS ARE REQUIRED TO BE INSTALLED AT A MAXIMUM OF 500 FT.

NO FIRE HYDRANTS SHALL BE LOCATED WITHIN THE RADIUS OF A CUL-DE-SAC OR WITHIN 20 FT OF THE PERIMETER OF THE RADIUS OF THE CUL-DE-SAC.

NO FIRE HYDRANTS SHALL BE LOCATED WITHIN 6 FT OF ANY CURB RETURN, DRIVEWAY, POWER POLE, STREETLIGHT OR ANY OTHER OBSTRUCTION.

A MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A ONE-TWO FAMILY DWELLING SHALL NOT EXCEED 300 FT, AS MEASURED BY AN APPROVED ROUTE. IFC § C102.4.

THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A FIRE DEPARTMENT CONNECTION (FDC) SHALL NOT EXCEED 100 FT, AS MEASURED BY AN APPROVED ROUTE. IFC § C102.7.

THE MAXIMUM DISTANCE FROM A HYDRANT TO THE END OF A DEAD-END STREET SHALL NOT EXCEED 200 FT. IFC § C102.6.

TWO (2) SOURCES OF SUPPLY ARE REQUIRED WHENEVER THERE IS 4 OR MORE FIRE HYDRANTS/SPRINKLER LEAD-INS ARE INSTALLED ON A SINGLE SYSTEM, FOR SYSTEMS REQUIRED TO HAVE TWO (2) SOURCES OF WATER SUPPLY. SECONDARY SOURCES SHALL BE VALVED SUCH THAT MORE THAN TWO (2) FIRE HYDRANTS AND/OR FIRE SPRINKLER LEAD-INS CAN BE OUT OF SERVICE DUE TO SERVICE INTERRUPTION OR SYSTEM FAILURE. PERMITTED TO HAVE ONE SOURCE OF WATER SUPPLY, SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 3 FIRE HYDRANTS AND/OR FIRE SPRINKLER LEAD-INS CAN BE OUT OF SERVICE DUE TO A SERVICE INTERRUPTION. IFC § C104.

ALL FIRE HYDRANTS AND SPRINKLER LEAD-INS SHALL BE MAINTAINED TO PROVIDE ALL-WEATHER DRIVING CAPABILITIES, AND SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF THE FIRE APPARATUS. IFC § 503.2.3.

THE GRADIENT FOR THE FIRE APPARATUS ACCESS ROADS SHALL NOT EXCEED 12%. ANGLES OF APPROACH AND ANGLES OF DEPARTURE SHALL NOT EXCEED 60° FOR 25 FT PRIOR TO OR AFTER THE GRADE CHANGE. ADJACENT TO THE STRUCTURES.

THE TURNING RADIUS OF THE FIRE APPARATUS ACCESS ROADS SHALL BE NO LESS THAN 52 FT OUTSIDE AND 28 FT INSIDE TURNING RADIUS. IFC § 503.2.4.

VERTICAL CLEARANCE OF ALL FIRE APPARATUS ACCESS ROADS SHALL NOT BE LESS THAN 13FT 6 INS. IFC § 503.2.1.

SEPARATE DEPARTURE AND APPROACH ANGLES SHALL BE MAINTAINED. THE MINIMUM WIDTH OF NOT LESS THAN 33 FT TURNING ON BOTH SIDES MEASURED TO FACE OF CURB. NOT LESS THAN 28 FT WIDE WITH PARKING RESTRICTED TO ONE SIDE MEASURED TO FACE OF CURB. NOT LESS THAN 24 FT WIDE WITH NO PARKING ON EITHER SIDE MEASURED TO FACE OF CURB. FIRE LINES THROUGH PARKING LOTS SHALL BE NOT LESS THAN 24 FT. IFC § 503.2.1.

A FIRE APPARATUS TURNING RADIUS SHALL BE REQUIRED FOR ANY PORTION OF A TURNING RADIUS OF THE FIRST STORY IS LOCATED MORE THAN 150 FT FROM A FIRE DEPARTMENT VEHICLE ACCESS. IFC § 503.1.1.

APPROVED SECONDARY FIRE APPARATUS ACCESS SHALL BE PROVIDED FOR 200 OR MORE DWELLING UNITS, ROAD(S) WITH DEADENDS OR A SINGLE POINT OF ACCESS IN EXCESS OF 600 FT. CLV REGULATION AND MOU.

IN DEAD-END FIRE LINES, PUBLIC OR PRIVATE, IN EXCESS OF 150 FT IN LENGTH SHALL BE PROVIDED WITH AN APPROVED TURN AROUND HAVING A MINIMUM DIAMETER OF 81 FT. CLV REGULATION.

ALL FIRE APPARATUS ACCESS ROADS SHALL BE MARKED BY PLACING APPROVED SIGNS AT THE START OF THE DESIGNATED TURNING RADIUS. THE SIGNS SHALL BE INSTALLED ON BOTH SIDES OF THE ROADWAY. IN EXCESS OF 150 FT IN LENGTH SHALL BE PROVIDED WITH AN APPROVED TURN AROUND HAVING A MINIMUM DIAMETER OF 81 FT. CLV REGULATION.

FIRE LINES, SIGNS TO BE PLACED ON BOTH SIDES OF AN ACCESS ROADWAY IF NEEDED TO PREVENT PARKING ON EITHER SIDE. SIGNS TO BE INSTALLED NO HIGHER THAN 10 FT OR LESS THAN 6 FT FROM THE ROADWAY LENGTH THE CURB ALONG OR ON THE PAVEMENT OR CEMENT (IF NO CURB IS PROVIDED) SHALL BE PAINTED WITH A RED WEATHER RESISTANT PAINT.

IN ADDITION TO THE SIGNS, THE TURNING RADIUS SHALL BE MARKED WITH A RED WEATHER RESISTANT PAINT.

ELECTRICALLY CONTROLLED ACCESS GATES SHALL BE PROVIDED WITH AN APPROVED EMERGENCY VEHICLE DETECTOR/RECEIVER SYSTEM. IFC § 503.6.

WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS OR STREET LIGHTS HAVING FOUR OR MORE TRAVEL LANES AND A TRAFFIC COUNT OF MORE THAN 30,000 PER DAY, HYDRANTS BEING UTILIZED TO DELIVER FIRE FLOW TO THE PROPOSED LOCATION SHALL BE LOCATED ON THE SAME SIDE OF THE STREET AS THE PROPOSED DEVELOPMENT. CLV REGULATION.

IN THE EVENT THAT ANY UNFORESEEN CONDITIONS NOT COVERED BY THESE NOTES ARE ENCOUNTERED DURING GRADING OPERATIONS, THE OWNER/ENGINEER SHALL BE IMMEDIATELY NOTIFIED FOR DIRECTION.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM ALL NECESSARY CUTS AND FILLS WITHIN THE LIMITS OF THIS PROJECT AND THE RELATED OFF-SITE WORK, SO AS TO GENERATE THE DESIRED SUBGRADE, FINISH GRADES AND SLOPES SHOWN.

THE CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR ALL EXCAVATION. ADEQUATE SHORING SHALL BE DESIGNED AND PROVIDED BY THE CONTRACTOR TO PREVENT UNDERMINING OF ANY ADJACENT FEATURES OR FACILITIES AND/OR CAVING OF THE EXCAVATION.

THE CONTRACTOR IS WARNED THAT AN EARTHWORK BALANCE WAS NOT NECESSARILY THE INTENT OF THIS PROJECT. ANY ADDITIONAL MATERIAL REQUIRED OR LEFTOVER MATERIAL FOLLOWING EARTHWORK OPERATIONS BECOMES THE RESPONSIBILITY OF THE CONTRACTOR.

THE GRADING CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE OWNER TO PROVIDE FOR THE REQUIREMENTS OF THE PROJECT STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND ASSOCIATED PERMIT.

CONTRACTOR SHALL GRADE TO THE LINES AND ELEVATIONS SHOWN ON THE PLANS WITHIN THE FOLLOWING HORIZONTAL AND VERTICAL TOLERANCES AND DEGREES OF COMPACTION, IN THE AREAS INDICATED: HORIZONTAL TOLERANCE: 0.00'.

A. PAVEMENT AREA SUBGRADE 0.1" +0.0" TO -0.1" SEE SOIL REPORT

B. PAVEMENT FILL 0.1" +0.0" TO -0.1" SEE SOIL REPORT COMPACTION TESTING WILL BE PERFORMED BY THE OWNER OR HIS REPRESENTATIVE.

ALL CUT AND FILL SLOPES SHALL BE PROTECTED UNTIL EFFECTIVE EROSION CONTROL HAS BEEN ESTABLISHED.

THE USE OF POTABLE WATER WITHOUT A SPECIAL PERMIT FOR BUILDING OR CONSTRUCTION PURPOSES INCLUDING CONSOLIDATION OF BACKFILL OR DUST CONTROL IS PROHIBITED. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FROM THE CITY OF CHICAGO.

THE CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS AND ALL OTHER PUBLIC RIGHT-OF-WAY IN A CLEAN, SAFE AND USABLE CONDITION. ALL SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE PUBLICLY OWNED RIGHT-OF-WAY. THE CONTRACTOR SHALL MAINTAIN THE ADJACENT PROPERTY, PRIVATE OR PUBLIC SHALL BE MAINTAINED IN A CLEAN, SAFE AND USABLE CONDITION.

0. IN THE EVENT THAT ANY TEMPORARY CONSTRUCTION ITEM IS REQUIRED THAT IS NOT SHOWN ON THESE DRAWINGS, THE OWNER AGREES TO PROVIDE AND INSTALL SUCH ITEM AT HIS OWN DISCRETION AND THE DIRECTION OF THE CITY ENGINEER. TEMPORARY CONSTRUCTION ITEMS SHALL BE REMOVED IMMEDIATELY AFTER THE PERMITS HAVE EXPIRED.

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

1. THE OWNER, SITE DEVELOPER, CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATE IN, ANY OF THE DISTURBED AREAS OF THE PROJECT SITE AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN THE CITY OF LAS VEGAS AND THE LAS VEGAS VALLEY CONSTRUCTION SITE BEST MANAGEMENT PRACTICES MANUAL.
3. TEMPORARY OR PERMANENT STABILIZATION PRACTICES WILL BE INSTALLED ON DISTURBED AREAS AS SOON AS PRACTICABLE AND NO LATER THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. SOME OF THESE ACTIONS MAY APPLY; REFER TO NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NR1000000, SECTION 11.0.5.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS AND ALL BMPs WEEKLY, AND WITHIN 24 HOURS AFTER ANY ACTUAL RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL REPORT ANY EROSION OR MORE SEVERE DAMAGE TO THE CITY OF LAS VEGAS AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NR1000000, SECTION 11.0.5.11.2.
5. ACCUMULATED SEDIMENT IN BMPs SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

IN THE EVENT OF NATURAL GAS EMERGENCIES CALL 911 AND 1-877-860-6020

MINIMUM HORIZONTAL AND VERTICAL CLEARANCES BETWEEN NATURAL GAS FACILITIES AND ANY UNDERGROUND UTILITIES AND/OR STRUCTURES, INCLUDING BUT NOT LIMITED TO WATER, SEWER, STORM DRAIN, COMMUNICATIONS, AND ELECTRIC SHALL BE AT LEAST 12-INCHES OR GREATER AS DICTATED BY LOCAL CODES AND STANDARDS

(A) ANY DEVIATION FROM SPECIFIED MINIMUM CLEARANCES MUST BE APPROVED BY ALL AFFECTED UTILITIES AND/OR MUNICIPALITIES FOR VALVE ADJUSTMENT CONTACT 702-528-7881 14 DAYS PRIOR TO CONSTRUCTION

IN THE EVENT OF A NATURAL GAS CONFLICT WITH PROPOSED UTILITIES AND STRUCTURES CONTACT 702-365-2099

SOUTHWEST GAS CORPORATION STAND BY CONTACT NUMBER 702-278-8451

ALL SOUTHWEST GAS AT 702-278-8451 FOR STANDBY WHEN EXCAVATING
OVER OR NEAR HIGH PRESSURE GAS LINES 48 HOURS PRIOR TO CONSTRUCTION

ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE DESIGN AND CONSTRUCTION SPECIFICATIONS FOR SEWER COLLECTION SYSTEMS AND THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS' CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, AS AMENDED. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BE AWARE OF THE CONTENTS OF THE ABOVE SPECIFICATIONS.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM CONSTRUCTION AS PER PLANS, ANY ADDITIONS, DELETIONS, OR CHANGES SHALL BE APPROVED WITH APPROVAL OF THE CITY ENGINEER.

CHISEL "S" OR "C" IN CURBS WHERE SEWER OR GAS LATERALS PASS UNDER THE CURB.

POLYVINYL (PVC) SEWER PIPE SHALL MEET ASTM D-3034 SDR 35 SPECIFICATIONS, INSTALLED WITH SAND BEDDING AND BACKFILL OF TYPE II AGGREGATE BASE.

ALL MANHOLES PAVED IN STREETS EIGHTY (80') FOOT R/W AND LARGER SHALL HAVE CONCRETE COLLARS. STREETS LESS THAN EIGHTY (80') FOOT R/W WILL REQUIRE RETROFIT IF PAVING DOES NOT CONFORM TO CITY STANDARDS AT THE MANHOLE.

TEE SADDLES SHALL BE USED TO CONNECT SEWER LATERALS TO EXISTING MAIN LINES UP TO TWELVE INCH (12") DUALS. CONNECTIONS TO FIFTY INCH (51") OR LARGER MAINS SHALL REQUIRE SPECIAL PROCEDURES. IN LINE TEE SHALL BE USED ON LINES TWELVE INCHES (12") OR ABOVE.

WATER MAINS SHALL BE PROTECTED IN ACCORDANCE WITH LVWD STANDARDS WHENEVER A SEWER MAIN CROSSES OVER A WATER MAIN OR THE SEWER IS LESS THAN EIGHTEEN INCH (18") UNDER A WATER MAIN.

ALL CONTRACTORS INSTALLING SEWER MAINS SHALL BE UNDER THE JURISDICTION OF THE CITY OF LAS VEGAS MUST BE STATE OF NEVADA CLASS "A" CONTRACTORS.

THE CITY OF LAS VEGAS WILL NOT ACCEPT ANY SEWER MAINS WHICH HAVE A VERTICAL DEFLECTION OF MORE THAN ONE INCH PER FEET. ANY SEWER MAINS WHICH ARE INSTALLED UNDER PLANS AT ANY LOCATION, SEWER MAINS FOUND TO EXCEED THIS TOLERANCE WILL HAVE TO BE REPAIRED OR REMOVED OR REPLACED TO THE SATISFACTION OF THE CITY ENGINEER PRIOR TO ACCEPTANCE BY THE CITY OF LAS VEGAS.

INSTALLATION OF CURVED SEWER REQUIRES THE USE OF C-900 PIPE WHICH ALLOWS FOR PIPE DEFLECTION AT THE POINT OF CURVATURE.

LVVWD PROJECT # -
(REVISED 08/01/2017)

1. NO WORK SHALL BEGIN UNTIL THE WATER PLANS HAVE BEEN APPROVED FOR CONSTRUCTION BY THE LVVWD, FOLLOWING WATER PLAN APPROVAL, NOTICE SHALL BE GIVEN TO THE LVVWD COMMUNICATIONS SUPPORT CENTER (702-268-7171) TWO (2) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION, FOR FUTURE INSPECTIONS, NOTICE MUST BE GIVEN BY 2:00 P.M. THE BUSINESS DAY PRIOR TO THE REQUESTED LVVWD INSPECTION. **WHEN REQUESTING INSPECTIONS, PLEASE REFER TO THE PROJECT # IDENTIFIED ABOVE.**

2. ALL WORK SHALL CONFORM TO LVVWD STANDARD PRACTICES, DRAWINGS, AND SPECIFICATIONS, AND TO THE 2010 EDITION OF THE UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR POTABLE WATER SYSTEMS (UDACS). THE LATEST EDITION OF UDACS SHALL SUPERSEDE ANY CONFLICTS CONTAINED IN THE APPROVED DRAWINGS AND/OR SPECIFICATIONS.

3. ALL WORK, EXCEPT AS MODIFIED BY THESE PLANS OR BY NOTE 2 ABOVE, SHALL BE DONE IN ACCORDANCE WITH THE MOST RECENT DRAFT OR EDITION OF THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFFSITE IMPROVEMENT, CLARK COUNTY AREA.

4. A SINGLE PIPE MATERIAL IS TO BE USED THROUGHOUT THE PROJECT UNLESS OTHERWISE APPROVED BY THE LVVWD.
5. ALL SERVICE LATERALS TWO (2) INCHES IN DIAMETER AND SMALLER SHALL BE TYPE K COPPER TUBING WITH LVVWD APPROVED SERVICE SADDLES.
6. ALL WATER METER BOXES SHALL BE LOCATED OUTSIDE OF DRIVEWAY AREAS.
7. ALL VALVES SHALL BE LOCATED OUTSIDE OF DRIVEWAYS, VALLEY AND CURB GUTTERS.
8. ALL WATER AND STORM DRAIN OR SANITARY SEWER CROSSINGS SHALL CONFORM TO SECTION 2.22 OF THE 2000 EDITION OF THE UDACs.
9. ALL WATER FACILITIES AND APPURTENANCES SHALL BE DISINFECTED, PRESSURE TESTED, AND HAVE AN ACCEPTABLE PASSING HEALTH WATER SAMPLE OBTAINED, PRIOR TO OPERATION AND USE.
10. THE CONTRACTOR MUST OBTAIN ALL METERS TWO (2) INCHES AND SMALLER FROM LVVWD APPROVED STORES. TELEPHONE 702-258-3152 OR 702-258-3802, TWO (2) WORKING DAYS PRIOR TO METER PICKUP.
11. ANY INTERRUPTION OF SERVICE MUST BE PERFORMED IN ACCORDANCE WITH UDACS SECTION 3.14.01, AND APPROVED BY THE LVVWD INSPECTION DIVISION PRIOR TO SHUTDOWN. PROPER WRITTEN NOTIFICATION MUST BE GIVEN TO ALL AFFECTED CUSTOMERS.
12. ALL WATER FACILITY CONSTRUCTION MATERIALS USED MUST BE AS LISTED ON THE LVVWD APPROVED PRODUCT'S LIST FOR NEW FACILITIES, LATEST REVISION, OR SPECIFICALLY APPROVED ON THESE PLANS BY SUBMITTING SHOP DRAWINGS.
13. TELEPHONE "CALL BEFORE YOU DIG" AT "811" OR 1-800-227-2600.
14. THE INSTALLATION OF LVVWD MUNICIPAL WATER FACILITIES WITHIN ALL STREETS IS ASSUMED TO BE IN COMPLIANCE WITH THE UNIFORM STANDARDS, INCLUDING THE PLACEMENT OF ASPHALT PAVING STREET SURFACES. ANY REPAIR WORK DONE BY THE LVVWD TO THE MUNICIPAL WATER FACILITIES WILL INCLUDE THE PLACEMENT OF AN APPROPRIATELY SIZED ASPHALT REPAIR PATCH ON THE STREET SURFACE.

ANY DECATIVE PAVING SURFACE WITHIN THE STREET IS THE RESPONSIBILITY OF THE OWNER'S ASSOCIATION, OR THE INDIVIDUAL PROPERTY OWNERS IF NO OWNER'S ASSOCIATION IS IN EXISTENCE, OR THE AGENCY HAVING JURISDICTION. DECORATIVE SURFACE MATERIALS PLACED WITHIN THE TEN FOOT EASEMENT ADJUTING A PUBLIC OR PRIVATE STREET, IF DISTURBED BY THE LVVWD DURING THE REPAIR OR OPERATION OF ITS FACILITIES, WILL BE REPLACED BY LVVWD WITH AN APPROPRIATELY SIZED PLAIN FINISH CONCRETE PATCH. THE LVVWD WILL NOT RESTORE, AND WILL NOT BE RESPONSIBLE FOR THE RESTORATION OF, ANY DECORATIVE PAVING SURFACE WITHIN THE STREET. THE LVVWD WILL NOT ATTEMPT TO MATCH COLOR OR FINISH OF ANY ADJACENT MATERIALS.
15. **NO LEAD COMPLIANCE NOTE:**
TO COMPLY WITH THE FEDERAL SAFE DRINKING WATER ACT, ALL WATER BRASS PRODUCTS PROPOSED TO BE RELOCATED, OR INSTALLED AS NEW MUST BE INSTALLED WITH THE LEAD FREE APPROVED PRODUCT. THE OLD LEADED PRODUCT MAY NOT BE REUSED.

LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES
PROJECT NO. _____ FIRST APPROVED DATE: _____

ALL STREET LIGHTING INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE STREET LIGHTING PLANS, THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", AND THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST EDITION, AND ANY ADOPTED SPECIAL AREA STANDARDS.

NO DEVIATION OF STREET LIGHT, PULL BOX, CONDUITS (ETC.) LOCATIONS SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL OF TRAFFIC ENGINEERING AND THE CITY ENGINEER.

ALL EXISTING STREET LIGHTING SHALL REMAIN OPERATIONAL DURING CONSTRUCTION.

ALL STREET LIGHTING CONDUITS SUBS SHALL HAVE AT LEAST ONE GREEN (#8 THW WIRE INSTALLED, AS TRACER WIRE, WHEN "EMPTY" CONDUIT IS COMPLETELY INSTALLED FROM PB TO FB, IT SHALL HAVE MINIMUM OF 2 #4 AND 1 #8 THW WIRE WITH THE GREEN WIRE FACTOR OF SAFETY OF ONE (1) CIVIL PLANS.

ANY STRUCTURE SUCH AS BLOCK WALLS, CHAIN LINK FENCES, RETAINING WALLS, ETC., SHALL LEAVE A MINIMUM CLEARANCE IN ACCORDANCE WITH THE UDO NO. 320A.

AS-BUILT DRAWINGS SHALL BE SUPPLIED TO THE TEFD PRIOR TO ANY PRE-FINAL INSPECTION. THE ASBUILT DRAWING NEEDS TO BE STAMPED AS-BUILT AND SIGNED BY THE PREPARER.

SERVICE POINT SHALL BE COORDINATED WITH NV ENERGY COMPANY, AND WHEREVER POSSIBLE, BE LOCATED NEAR THE CENTER OF THE TRAFFIC OR SIDEWALK OF THE CIVIL PLANS.

IT SHALL BE ASSUMED THAT IN THE ABSENCE OF AN EXISTING, WORKABLE CIRCUIT TO ATTACH TO, ALL INSTALLATIONS SHALL REQUIRE A NEW SERVICE FOR OPERATION OF THE CIRCUIT.

WHEREVER THERE IS AN OVERHEAD UTILITY THAT MAY CONFLICT WITH THE INSTALLATION OF STREET LIGHTING CIRCUITS AND/OR POLES, THESE CONFLICTS MUST BE RESOLVED BETWEEN THE DEVELOPER AND THE UTILITIES INVOLVED, ON NO EXPENSE TO THE CITY OF LAS VEGAS, BEFORE STREETLIGHT BASES ARE INSTALLED.

THE CONTRACTOR SHALL FURNISH COMPLETE SERVICE TO TRANSFORMERS AND CONTROL SYSTEMS IF REQUIRED, ON PLANS.

THE DEVELOPER/OWNER WILL BE REQUIRED TO SUPPLY POWER TO ALL NEW PUBLIC STREET LIGHTS INSTALLED UNDER THIS AGREEMENT. THE DEVELOPER/OWNER SHALL BE RESPONSIBLE FOR THE COST OF THE POWER FOR ALL STREET LIGHTS ASSOCIATED WITH THE INSTALLATION, CONSTRUCTION, ENGINEERING, MAINTENANCE AND OPERATIONAL COST OF SAID STREET LIGHTS PRIOR TO THE COMPLETION OF THE PROJECT. THE CITY OF LAS VEGAS WILL BE RESPONSIBLE FOR THE COST OF THE POWER FROM THE DEVELOPMENT OWNER TO THE CITY OF LAS VEGAS FOR ALL NEW PUBLIC STREET LIGHTS AND/OR SERVICE INSTALLED UNDER THIS PLAN DESIGN WILL BE IN CONJUNCTION WITH THIS PROJECT COMPLETION. COORDINATE ALL MAINTENANCE AND OPERATIONAL TRANSFERS WITH THE CITY OF LAS VEGAS TRAFFIC ENGINEERING DEPARTMENT (TEFD) AT (702) 229-6331.

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND OR OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION. CONTRACTOR TO NOTIFY ENGINEER OF ANY CHANGES OR DISCREPANCIES.

AVOID CUTTING UNDERGROUND
UTILITY LINES. IT'S COSTLY.

Call
811
OR
1-800-227-2600

FAST

Call
before you
UnderGround
1-702-432-5300
FREEMAN AND ARTISAL
SYSTEM OF TRANSPORTATION

AVOID HITTING UNDERGROUND
POWER LINES. IT'S COSTLY.

CALL BEFORE
YOU DO
OVERHEAD

1-702-227-2929

EXISTING	PROPOSED	DESCRIPTION
		ROW OR PROPERTY LINE
		EASEMENT LINE
		CENTERLINE
		CURB
		VALLEY GUTTER
		EDGE OF PAVEMENT
		SIDEWALK
		SIDEWALK RAMP
		DRIVEWAY
		SAWCUT LINE
		RETAINING WALL
		FLOOD WALL
		WROUGHT IRON VEHICULAR GATE
		WROUGHT IRON PEDESTRIAN GATE
		INDEX CONTOURS
		INTERMEDIATE CONTOURS
		ROUGH GRADE INDEX CONTOURS
		ROUGH GRADE INTERMEDIATE CONTOURS
		CUT OR FILL SLOPE
		CUT AND FILL LINE
		LOT NUMBER
		FF AND PAD ELEVATION
		GRADE SLOPE
		SPOT ELEVATION
		SWALE LINE
		LOT DIMENSION
		SIGHT VISIBILITY ZONE
		WATERLINE MAIN AND SIZE
		FIRE HYDRANT
		WATER METER AND SERVICE LATERAL
		WATER VALVE
		WATER FITTINGS
		WATER LINE REDUCER
		WATER CAP WITH WATER BLOW OFF ASSEMBLY
		IRRIGATION SLEEVE
		PRESSURE REDUCING VALVE
		REDUCED PRESSURE PRINCIPLE ASSEMBLY
		SEWERLINE MAIN AND SIZE
		SEWERLINE MANHOLE
		SEWERLINE CAP
		SEWER LATERAL
		BACK WATER VALVE
		100W HPS STREET LIGHT
		250W HPS STREET LIGHT
		400W HPS STREET LIGHT
		STREET LIGHT CONDUIT AND 4" FIBER OPTIC CONDUIT AND PULLBOX
		REFLECTIVE FIRE HYDRANT MARKER
		STORM DRAIN MAIN AND SIZE
		ROCK RIP RAP
		STORM DRAIN MANHOLE
		STORM DRAIN DROP INLET

AGG	AGGREGATE	FG	FINISH GRADE	R/W	RIGHT OF RADII
AC	ASPHALTIC CONCRETE	FL	FLOW LINE	R/W	RIGHT-OF-WAY
AF	ANGLE POINT	FT	FUTURE	TS	TEMPORARY SLOVER
BV	BACK OF CURB	PL-G	PLASTIC GAS	SH	SHEET
BSI	BEGIN STREET IMPROVEMENTS	S-G	STEEL GAS	SL	SEWER LATERAL
BC	BEGINNING OF VERTICAL CURVE	GP	GRADE BREAK	SW	SIDEWALK
BM	BENCH MARK	HP	HIGH POINT	ST	SQUARE FOOT
BDR	BORDER	HDP	HIGH DENSITY POLYETHYLENE	TD, YD	SQUARE YARD
CATV	CABLE TELEVISION	HSI	HIGH STREET IMPROVEMENTS	STA	STATION
CL	CENTERLINE	HPPH	HIGH PERFORMANCE POLY PROPYLENE	STD	STORM DRAIN
CCUSD	CLARK COUNTY UNIFORM STANDARD	INT	INTERSECTION	STANDARD	STANDARD
	DRAWINGS	INV	INVERT	STL	STREETLIGHT
CCWRD	CLARK COUNTY WATER RECLAMATION	LVVWD	LAS VEGAS VALLEY WATER DISTRICT	TEMP	TEMPORARY
	DISTRICT	LF	LINEAR FEET	TC	TOP OF CURB
CMH	CENTER OF MANHOLE	MH	MANHOLE	TF	TOP OF FINISH
CO	CLEAR OUT, SEWER	MAX	MAXIMUM	TR	TOP OF ROLL CURB
COMM	COMMERCIAL	MIN	MINIMUM	TT	TOP OF RETAINING WALL
CONC, PCC	CONCRETE	NTS	NOT TO SCALE	TS	TRAFFIC SIGNAL
CONST	CONSTRUCTION OR CONSTRUCT	ON	ON CENTER	TSI	TRAFFIC SIGNAL INTERCONNECT
CU, YD, CY	CUBIC YARD, CUBIC YARD	PVMT	POINT OF INTERSECTION	TRANS	TRANSITION
CU, FT, CF	CUBIC FEET	PC	POINT OF REVERSE CURVE	TOP	TOP OF WALL
	CURB FACE	PRC	POINT OF CURVE	TYG	TYPICAL
DCSWCS	DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS	PC	POINT OF TANGENCY	UGDS	UNDERGROUND
	DIAMETER	PCC	PORTLAND CEMENT CONCRETE	UDACS	UNDERGROUND DESIGN AND CONSTRUCTION STANDARDS
DIA	DIAMETER	PUE	PUBLIC UTILITY EASEMENT	VAR	VARIABLE
DWY	DRIVEWAY	PV	POLYVINYL CHLORIDE	VERT	VERTICAL
DRP	DROP INLET	PP	POWER POLE	VCP	VALLEY CURVE
DE	DRAINAGE EASEMENT	P	POWER	VGT	VALLEY GUTTER
ESMT	EASEMENT	PL	PROPERTY LINE	VPC	VERTICAL CLAY PIPE
END	END STREET IMPROVEMENTS	POC	POINT OF CONNECTION	WTR	WATER
EP	EDGE OF PAVEMENT	PROP	PROPOSED	WATER	WATER LATERAL
EL	ELECTRIC	PB	PULL BOX		
ELEV	ELEVATION	RP	RADIUS POINT		
ECR	END OF CURB RETURN	RPPA	REDUCED PRESSURE PRINCIPLE		
EVC	END OF VERTICAL CURVE		ASSEMBLY		
EX, EXIST	EXISTING	REIN	REINFORCED		
FT	FEET OR FOOT	RCB	REINFORCED CONCRETE BOX		
FTG	FOOTING WALL	RCP	REINFORCED CONCRETE PIPE		
FH	FIRE HYDRANT				

DESCRIPTION	PUBLIC	PRIVATE
INCH ASPHALTIC CONCRETE PAVING	- SY	622 SY
FE II GRAVEL	- CY	- CY
RB & GUTTER (24-INCH)	- LF	201 LF
RB & GUTTER (30-INCH)	- LF	5,625 LF
TYPE ISLAND CURB	- LF	242 LF
CONCRETE VALLEY GUTTER	1,295 SF	3,455 SF
INCH CONCRETE SIDEWALK	- SF	2,225 SF
INCH CONCRETE SIDEWALK	- SF	12,726 SF
EWALK UNDERDRAIN	- EA	- EA
4" WATER METER	- EA	- EA
4" IRRIGATION METER WITH 1" RPPA	- EA	- EA
WER/GAS/PHONE/CABLE SERVICE TO LOTS	- EA	- EA
VEY MONUMENTS	- EA	- EA
A RAMPS	- EA	- EA
INCH SEWER LATERAL	- LF	- LF
INCH PVC SEWER MAIN	- LF	- LF
INCH C-900 SEWER MAIN	- LF	- LF
INCH SEWER MANHOLES	- EA	- EA
CKWATER VALVES	- EA	- EA
TER LATERAL	- LF	- LF
INCH PVC WATER MAIN	- LF	- LF
INCH PVC WATER MAIN	- LF	- LF
INCH PVC WATER MAIN	- LF	- LF
INCH DIP WATER MAIN	- LF	- LF
E HYDRANT	- EA	- EA
E CRASH GATE (WROUGHT IRON)	- SF	- SF
HT STANDARD (STD. BASE)	- SF	- SF
1/4 INCH STREET LIGHT CONDUIT	- LF	- LF
200 AMP SERVICE PEDESTAL	- EA	- EA
REET SIGNS - STAND ALONE	- EA	- EA
PULLBOX	- EA	- EA
D 601 BARRICADE (SFT)	- EA	- EA
IRRIGATION METER WITH 1" RPPA	- EA	- EA

-INCH STORM DRAIN	- LF	- LF
-INCH STORM DRAIN	- LF	- LF
-INCH STORM DRAIN	- LF	72 LF
-INCH STORM DRAIN	- LF	- LF
-INCH SD MANHOLE (>8')	- EA	2 EA
-INCH SD MANHOLE (>5')	- EA	- EA
-FOOT TYPE CM2 DROP INLET	- EA	- EA
-FOOT TYPE CM2 DROP INLET	- EA	- EA
-FOOT TYPE CM2 DROP INLET	- EA	- EA
-FOOT TYPE CM2 DROP INLET	- EA	- EA
-FOOT TYPE CM2 DROP INLET	- EA	- EA
-FOOT TYPE CM2 DROP INLET	- EA	- EA
-FOOT TYPE CM2 DROP INLET	- EA	1 EA
x72" JENSEN PRECAST INLET	- CY	- CY
RAP (050-6")	- CY	- CY
ANDON PRIVATE RCP	- LF	- LF
WROUGHT IRON FENCE	1,044 SF	- SF

ITY OF LAS VEGAS BENCHMARK 7L0V9 27E4
 IVET AND PLOT IN TOP OF CURB AT SOUTHEAST CORNER OF
 AR HILLS AVENUE AND DESERT FOOTHILLS DRIVE.
 ELEVATION=1016.62 METERS (NAVD'88 V.2008)
 ELEVATION=3335.36 US SURVEY FEET (NAVD'88 V.2008)

BASIS OF BEARINGS
 GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF
 THE NEVADA REFERENCE SYSTEM (NCRS), LAS VEGAS AND
 HIGH ELEVATION ZONES, NORTH AMERICAN DATUM OF
 1983 (NAD83); SAID MERIDIAN BEING COINCIDENT WITH
 14°58' WEST OF THE GREENWICH MERIDIAN.

	R	RIGHT OR RADIUS
	R/W	RIGHT-OF-WAY
	S, SS	SANITARY SEWER
	SHT	SHEET
	SL	SEWER LATERAL
	SW	SIDEWALK
	SQ FT, SF	SQUARE FOOT
	SQ YD, SY	SQUARE YARD
POLYETHYLENE	STA	STATION
IMPROVEMENTS	STD	STORM DRAIN
ANCE POLY PROPYLENE	STD	STANDARD
	STL	STREETLIGHT
LEY WATER DISTRICT	TEL	TELEPHONE

DATE	REV	DESCRIPTION	BY	APPRO
DATE: October 07, 2020				
HORIZ. SCALE: N/A				
VERT. SCALE: N/A				
DRAWN BY: WW, SN				
DESIGNED BY: CR				
CHECKED BY: CRZ				
APPROVED BY: PROJECT #:				
				3040.0058

LENAR®
9275 W. RUSSELL RD SUITE 400, LAS VEGAS, NV 89148
PHONE: (702) 746-9100 FAX: (702) 736-9200

RCI ENGINEERING
500 SOUTH RANCHO DRIVE, SUITE 17, LAS VEGAS, NV 89106
MAIN: 702.453.0800 FAX: 702.453.0801

**SUMMERLIN VILLAGE 25 PARCEL E,
A SINGLE FAMILY RESIDENTIAL SUBDIVISION**

GENERAL NOTES, LEGENDS, AND ABBREVIATIONS

CITY OF LAS VEGAS
NEVADA

DATE: 10-7-20

DRAWING
N-1

SHEET 2 OF 10
CLY PROJECT #

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND OR OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION. CONTRACTOR TO NOTIFY ENGINEER OF ANY CHANGES OR DISCREPANCIES.

Call
811

FAST

Call
before you
UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL
CONCRETE TRANSPORT SYSTEM

1-702-227-2929

CITY OF LAS VEGAS BENCHMARK 7LV09 27E4

RIVET AND PLOT IN TOP OF CURB AT SOUTHEAST CORNER OF
FAR HILLS AVENUE AND DESERT FOOTHILLS DRIVE.

ELEVATION: 1016.60 METERS (NAME:00, U.0000)

ELEVATION=3335.36 US SURVEY FEET (NAVD'88 V.2008)

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA REFERENCE SYSTEM (NCRS), LAS VEGAS AND HIGH ELEVATION ZONES, NORTH AMERICAN DATUM OF 1983 (NAD83); SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

ALL ONSITE STORM DRAINS AND THE ASSOCIATED FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY THE HOA

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY HOA.

NO STRUCTURES AND NO TREES OR VEGETATION TALLER
THAN THREE FEET ALLOWED WITHIN CLV SEWER EASEMENT

ALL STRUCTURES SHOWN OR INDICATED ON THIS SUBMITTAL WITHIN THE PROPERTY REQUIRE A BUILDING PERMIT APPLICATION AND SUBMITTAL THIS INCLUDES BUILDINGS, ABOVE GROUND TANKS, SIGNS, RETAINING WALLS, FENCES, TRASH ENCLOSURES, SHADE STRUCTURES, STAIRWAYS, RAMPS, LIGHT POLES, LIGHT BOLLARDS, ETC. THIS DOES NOT INCLUDE ANY FLOOD CONTROL STRUCTURE SUCH AS PIPES, CULVERTS, ARC CULVERTS, HEADWALLS, ETC. THIS DOES NOT INCLUDE ANY DRIVEWAY OR STREET RIGHT-OF-WAY. THIS DOES NOT INCLUDE PRIVATE STREETS. THE REVIEW OF CIVIL IMPROVEMENT AND/OR GRADING PLANS DOES NOT INCLUDE ANY REVIEW OF ANY STRUCTURE THAT REQUIRES A BUILDING PERMIT APPLICATION."

ACCORDING TO THE FEMA FLOOD INSURANCE RATE MAP
(FIRM) COMMUNITY PANEL NUMBERS 32003C2150E
SEPTEMBER 27, 2002, THE SITE IS LOCATED IN A ZONE "X"

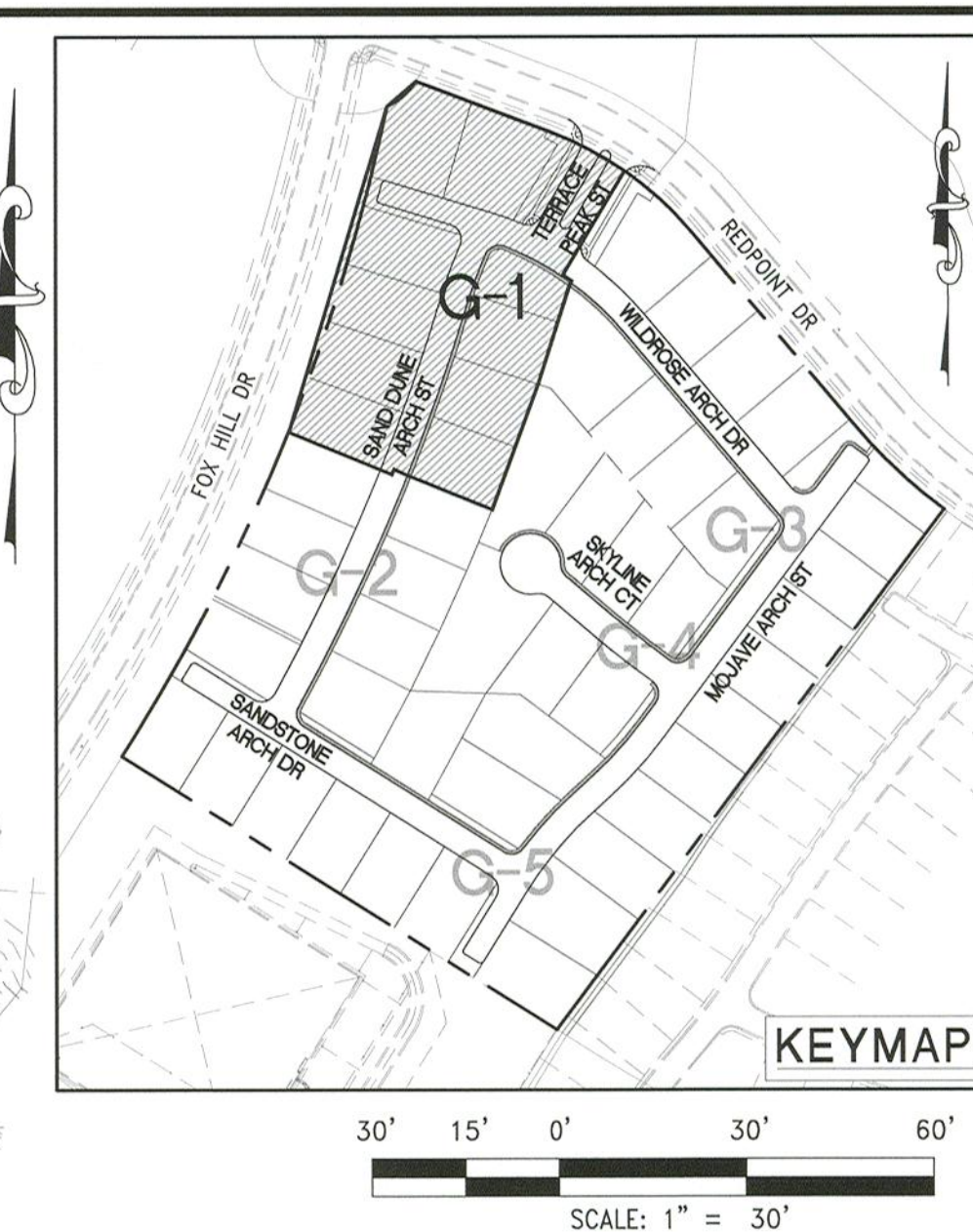
OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS
REQUIRED BY CITY OF LAS VEGAS AND CLARK COUNTY UNIFORM
STANDARD DRAWING NUMBER 243. OWNER IS ALSO RESPONSIBLE TO
REPLACE ALL SURVEY MONUMENTATION DAMAGED, DESTROYED, OR
OBSCURED DURING CONSTRUCTION.

NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

1. CONTRACTOR IS RESPONSIBLE FOR DUST AND EROSION CONTROL DURING CONSTRUCTION.
2. SEE DETAIL SHEET FOR ON-SITE PAVEMENT SECTIONS. CONTRACTOR TO VERIFY WITH SOILS REPORT.
3. SEE FINAL MAP FOR EXACT PROPERTY LINE DIMENSIONS.
4. ENGINEER TO BE NOTIFIED OF ANY DISCREPANCIES IMMEDIATELY.
5. THESE PLANS SHALL NOT, IN PART OR IN WHOLE, BE USED FOR CONSTRUCTION UNTIL APPROVED AND SIGNED BY THE GOVERNING AGENCIES.
6. ALL GRADING SHALL CONFORM TO SOILS REPORT RECOMMENDATIONS.
7. DURING CONSTRUCTION, SURVEYORS AND CONTRACTORS MUST VERIFY THAT ALL STREETS AND LOTS HAVE POSITIVE DRAINAGE. SAME MUST UTILIZE 2% TO 4% GRADES ON VERTICAL TANGENTS TO VERIFY SLOPES.
8. SOIL REPORT NOTE:
GRADING SHALL BE IN ACCORDANCE
WITH SOILS REPORT PREPARED BY
ENGINEER. ACCESS CONSULTING ENGINEERS LLC
PROJECT NO. 20-167
DATED: MARCH 13, 2020
9. CUT/FILL ESTIMATES
EXISTING TO FINISH GRADE ELEVATIONS
NET CUT: 66.450 CY
NET FILL: 69.300 CY
TOTAL FILL: 69.300 CY
10. SEE DETAIL 35/D-2 FOR TYPICAL LOT DRAINAGE
11. FOR STORMWATER RUNOFF MANAGEMENT NOTES REFER TO SHEET N-1

- ① CONSTRUCT AC PAVEMENT PER DETAILS 1 THRU 3 ON SHEET D-1
- ② CONSTRUCT 24" 'L' CURB AND GUTTER PER CCAUSD #216
- ③ CONSTRUCT 30" ROLL CURB PER SUMMERLIN IMPROVEMENT

- (4) STD CURB #5-48
- (5) CONSTRUCT "L" TYPE INLAND CURB PER CAUSD #219
- (6) CONSTRUCT "S" TYPE TRANSITION "RAMP 24" TYPE CURB AND GUTTER TO 30" ROLL CURB PER DETAIL 37. SLOPE D=2
- (7) CONSTRUCT 8" CROSS GUTTER PER SUMMERLIN IMPROVEMENT STD 20
- (8) CONSTRUCT 8" SLOPED (ROLLED CURB) CROSS GUTTER PER SUMMERLIN IMPROVEMENT STD 20
- (9) CONSTRUCT 5" SIDEWALK PER CAUSD #234
- (10) CONSTRUCT 5" SIDEWALK WHEN ADJACENT TO ROLL CURB
- (11) CONSTRUCT SIDEWALK RAMP USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CAUSD #235 (CASE 1). SEE PLAN AND PROFILE SHEET CURVE TABLES FOR "A" AND "B" DIMENSIONS
- (12) CONSTRUCT SIDEWALK RAMP USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CAUSD #235 (CASE 2). SEE PLAN AND PROFILE SHEET CURVE TABLES FOR "A" AND "B" DIMENSIONS
- (13) CONSTRUCT 5' WIDE PEDESTRIAN ACCESS GATE
- (14) INSTALL ELECTRONICALLY CONTROLLED ACCESS GATES
- (15) CONSTRUCT 6" HIGH WROUGHT IRON FENCE AND/OR GATES
- (16) CALL BOX
- (17) CONSTRUCT 20" TYPE CM2 DOW INLET PER CAUSD #412.1 & #421
- (18) CONSTRUCT CONCRETE PAVERS AND 2" WIDE CONCRETE BAND PER DETAIL 36 ON SIDE DOW D=2
- (19) EX SIDEWALK BY OTHERS
- (20) EX SIDEWALK RAMP
- (21) EX "L" CURB AND GUTTER



REV	DESCRIPTION	BY	APPD	DATE
	DATE: October 07, 2020			
	HORIZ. SCALE: 1" = 30'			
	VERT. SCALE: N/A			
	DRAWN BY: WW, SN			
	DESIGNED BY: CR			
	CHECKED BY: CRZ			
	APPROVED BY: CRZ			
	PROJECT #: 3040.00558			

LENNAR®
9275 W. RUSSELL RD SUITE 400, LAS VEGAS, NV 89148
PHONE: (702) 736-9100 FAX: (702) 736-9200

RCI ENGINEERING
500 SOUTHERN RANCHO DRIVE, SUITE 137, LAS VEGAS, NV 89106
MAIN: (702) 453-0800 FAX: (702) 453-0801



10

IMPROVEMENT PLANS FOR
SUMMERLIN VILLAGE 25 PARCEL E
A SINGLE FAMILY RESIDENTIAL SUBDIVISION
GRADING PLAN (SHEET 1 OF 5)

DATE: <u>10-7-20</u>
DRAWING
G-1
SHT 3 OF 10
CLV DRAWING NUMBER
CLV PROJECT # _____

I HEREBY CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY DS # _____ ON FILE WITH CITY OF LAS VEGAS FOR THIS PROJECT.

CHRISTOPHER R. ZRINYI, PE NO. 13976

DATE _____

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND OR OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION. CONTRACTOR TO NOTIFY ENGINEER OF ANY CHANGES OR DISCREPANCIES.

FAST

Call
before you
UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL
CONSTRUCTION

BENCHMARK
CITY OF LAS VEGAS BENCHMARK 7LV09 27E4
RIVET AND PLOT IN TOP OF CURB AT SOUTHEAST CORNER OF
FAR HILLS AVENUE AND DESERT FOOTHILLS DRIVE.
ELEVATION=1016.62 METERS (NAVD'88 V.2008)
ELEVATION=3335.36 US SURVEY FEET (NAVD'88 V.2008)

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA REFERENCE SYSTEM (NCRS), LAS VEGAS AND HIGH ELEVATION ZONES, NORTH AMERICAN DATUM OF 1983 (NAD83); SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

ALL ONSITE STORM DRAINS AND THE ASSOCIATED FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY THE HOA

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY HOA.

NO STRUCTURES AND NO TREES OR VEGETATION TALLER
THAN THREE FEET ALLOWED WITHIN CLV SEWER EASEMENT

ALL STRUCTURES SHOWN OR INDICATED ON THIS SUBMITTAL WITHIN THE PROPERTY REQUIRE A BUILDING PERMIT APPLICATION AND SUBMITTAL THIS INCLUDES BUILDINGS, ABOVE GROUND TANKS, SIGNS, RETAINING WALLS, FENCES, TRASH ENCLOSURES, SHADE STRUCTURES, STAIRWAYS, RAMPS, LIGHT POLES, LIGHT BOLLARDS, ETC. THIS DOES NOT INCLUDE ANY WORK CONCENTRATED STRUCTURE SUCH AS PIPES, CULVERTS, ARCHES, TUNNELS, ROADWAYS, ETC. THIS DOES NOT INCLUDE ANY FLOOD CONTROL OR PUBLIC STREET RIGHT-OF-WAY. THIS DOES NOT INCLUDE PRIVATE STREETS. THE REVIEW OF CULVERT IMPROVEMENT AND/OR GRADING PLANS DOES NOT INCLUDE ANY REVIEW OF ANY STRUCTURE THAT REQUIRES A BUILDING PERMIT APPLICATION."

ACCORDING TO THE FEMA FLOOD INSURANCE RATE MAP
(FIRM) COMMUNITY PANEL NUMBERS 32003C2150E
SEPTEMBER 27, 2002, THE SITE IS LOCATED IN A ZONE "X"

OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS
REQUIRED BY CITY OF LAS VEGAS AND CLARK COUNTY UNIFORM
STANDARD DRAWING NUMBER 243. OWNER IS ALSO RESPONSIBLE TO
REPLACE ALL SURVEY MONUMENTATION DAMAGED, DESTROYED, OR
OBSCURED DURING CONSTRUCTION.

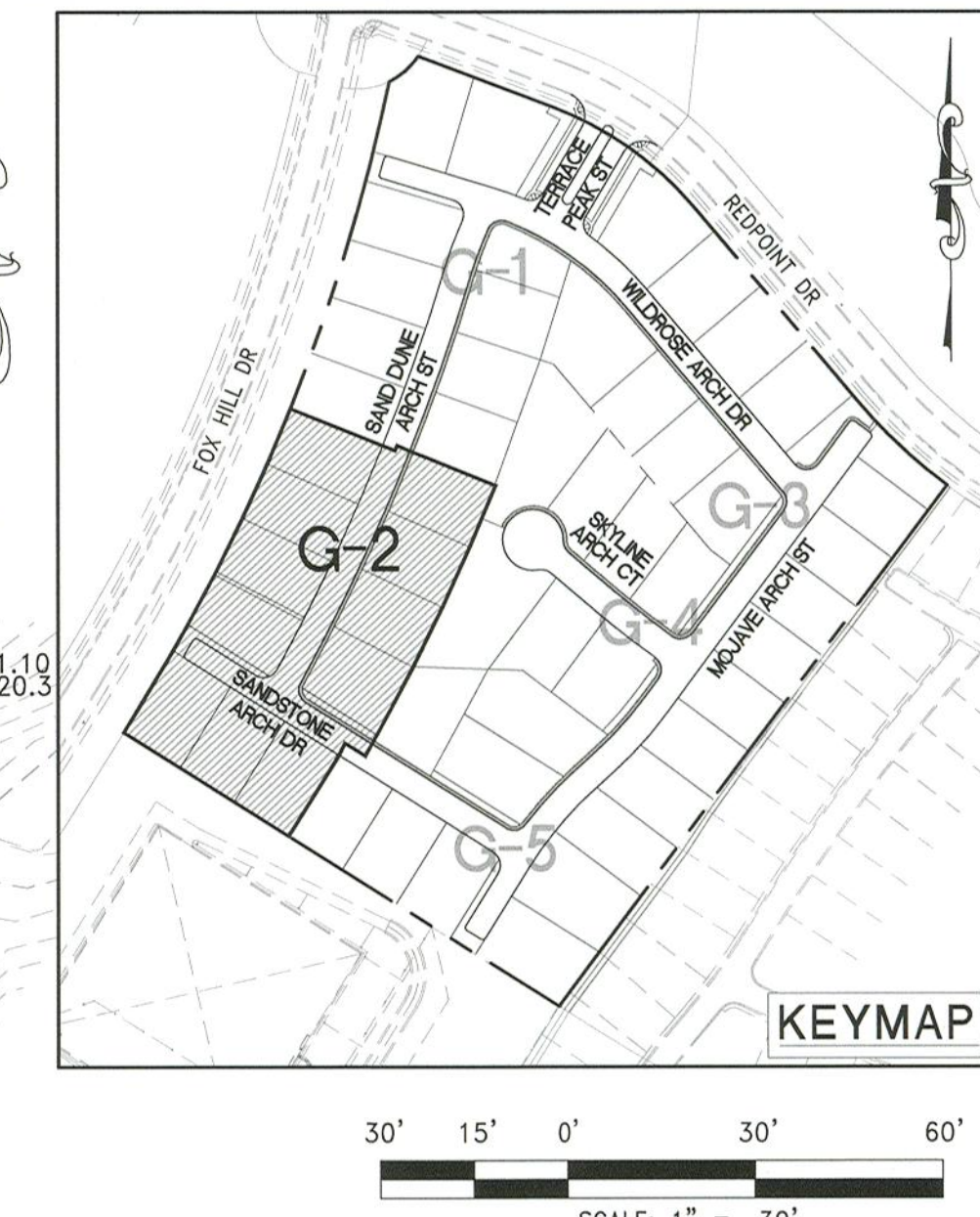
NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

1. CONTRACTOR IS RESPONSIBLE FOR DUST AND EROSION CONTROL DURING CONSTRUCTION.
2. SEE DETAIL SHEET FOR ON-SITE PAVEMENT SECTIONS. CONTRACTOR TO VERIFY WITH SOILS REPORT.
3. SEE FINAL MAP FOR EXACT PROPERTY LINE DIMENSIONS.
4. ENGINEER TO BE NOTIFIED OF ANY DISCREPANCIES IMMEDIATELY.
5. THESE PLANS SHALL NOT, IN PART OR IN WHOLE, BE USED FOR CONSTRUCTION UNTIL APPROVED AND SIGNED BY THE GOVERNING AGENCIES.
6. ALL GRADING SHALL CONFORM TO SOILS REPORT RECOMMENDATIONS.
7. DURING CONSTRUCTION, SURVEYORS AND CONTRACTORS MUST VERIFY THAT ALL STREETS AND LOTS HAVE POSITIVE DRAINAGE. SAME MUST UTILIZE AT LEAST THREE GRADES ON VERTICAL TANGENTS TO VERIFY SLOPES.
8. SOIL REPORT NOTE:
GRADING SHALL BE IN ACCORDANCE
WITH SOILS REPORT PREPARED BY:
ENGINEER: ACCESS CONSULTING ENGINEERS LLC
PROJECT NO. 20-167
DATED: MARCH 13, 2020
9. CUT/FILL ESTIMATES
EXISTING TO FINISH GRADE ELEVATIONS
NET CUT: 68,450 CY
NET FILL: 69,380 CY
10. SEE DETAIL 35/D-2 FOR TYPICAL LOT DRAINAGE
11. FOR STORMWATER RUNOFF MANAGEMENT NOTES REFER TO SHEET N-1

① CONSTRUCT AC PAVEMENT PER DETAILS 1 THRU 3 ON SHEET D-1

② CONSTRUCT 24" 'L' CURB AND GUTTER PER CCAUSD #216

- (1) CONSTRUCT 30" ROLL CURB PER SUMMERLIN IMPROVEMENT STD DWG #5-48
- (2) CONSTRUCT 1' TYPE ISLAND CURB PER CAUSAD #219
- (3) CONSTRUCT 1' C/SIDE TRANSITION FROM 24" X 1' TYPE CURB AND GUTTER TO 30" ROLL CURB PER DETAIL 37 SHEET D-2
- (4) CONSTRUCT 8" CROSS GUTTER PER SUMMERLIN IMPROVEMENT STD DWG #5-48
- (5) CONSTRUCT 8" MODIFIED (ROLLED CURB) CROSS GUTTER PER SUMMERLIN IMPROVEMENT STD DWG #5-48
- (6) CONSTRUCT 5" SIDEWALK PER CAUSAD #234
- (7) (6" THICK WHEN ADJACENT TO ROLL CURB)
- (8) CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CAUSAD #235 (CASE 1) SEE PLAN AND PROFILE FOR CURB VARIABLES FOR "A" AND "B" DIMENSIONS
- (9) CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CAUSAD #235 (CASE 2) SEE PLAN AND PROFILE FOR CURB VARIABLES FOR "A" AND "B" DIMENSIONS
- (10) CONSTRUCT 5' WIDE PEDESTRIAN ACCESS GATE
- (11) INSTALL ELECTRONICALLY CONTROLLED ACCESS GATES
- (12) CONSTRUCT 6" HIGH WOODRUM FENCE AND/OR GATES
- (13) CALL BOX
- (14) CONSTRUCT 20" TYPE CWD DROP INLET PER CAUSAD #412 #421
- (15) CONSTRUCT CONCRETE PAVES AND 2" WIDE CONCRETE BAND PER DETAIL 36 ON SHEET D-2
- (16) EX SIDEWALK BY OTHERS
- (17) EX SIDEWALK RAMPS
- (18) EX 1' CURB AND GUTTER



DATE: October 07, 2020	REV	DESCRIPTION	BY	APPD	DATE
HORIZ. SCALE: 1" = 30'					
VERT. SCALE: N/A					
WY. SN					
DRAWN BY: CR					
DESIGNED BY: CR					
CHECKED BY: CRZ					
APPROVED BY: CRZ					
PROJECT #: 3040.0058					

LENNAR®
9275 W. RUSSELL RD SUITE 400, LAS VEGAS, NV 89148
PHONE: (702) 736-9100 FAX: (702) 736-9200

RCI ENGINEERING
500 SOUTH RANCHO DRIVE, SUITE 17, LAS VEGAS, NV 89106
MAIN: 702.453.0800 FAX: 702.453.0801



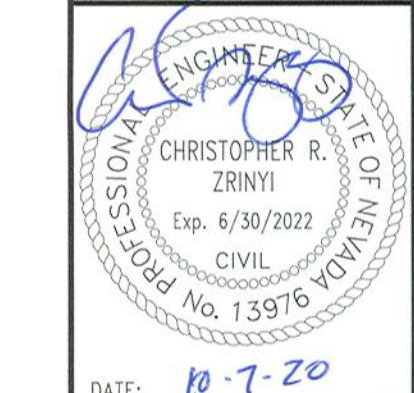
IMPROVEMENT PLANS FOR

SUMMERLIN VILLAGE 25 PARCEL E
A SINGLE FAMILY RESIDENTIAL SUBDIVISION

GRADING PLAN (SHEET 2 OF 5)

CITY OF LAS VEGAS

NEVADA



DATE: <u>10/1/01</u> DRAWING G-2 SHT 4 OF 10 CLV DRAWING NUMBER CLV PROJECT # <u> </u>	DATE: <u>10/1/01</u> DRAWING G-2 SHT 4 OF 10 CLV DRAWING NUMBER CLV PROJECT # <u> </u>
	DATE: <u>10/1/01</u> DRAWING G-2 SHT 4 OF 10 CLV DRAWING NUMBER CLV PROJECT # <u> </u>
	DATE: <u>10/1/01</u> DRAWING G-2 SHT 4 OF 10 CLV DRAWING NUMBER CLV PROJECT # <u> </u>

I HEREBY CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY DS #_____ ON FILE WITH CITY OF LAS VEGAS FOR THIS PROJECT.

CHRISTOPHER R. ZRINYI, PE NO. 13976

DATE _____

CLV PROJECT #

100

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND OR OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION. CONTRACTOR TO NOTIFY ENGINEER OF ANY CHANGES OR DISCREPANCIES.

FAST

Call
before you
UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL
SYSTEM OF TRANSPORTATION

BENCHMARK
CITY OF LAS VEGAS BENCHMARK 7LV09 27E4
RIVET AND PLOT IN TOP OF CURB AT SOUTHEAST CORNER OF
FAR HILLS AVENUE AND DESERT FOOTHILLS DRIVE.
ELEVATION=1016.62 METERS (NAVD/88 V.2008)
ELEVATION=3335.36 US SURVEY FEET (NAVD/88 V.2008)

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA REFERENCE SYSTEM (NCRS), LAS VEGAS AND HIGH ELEVATION ZONES, NORTH AMERICAN DATUM OF 1983 (NAD83); SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

ALL ONSITE STORM DRAINS AND THE ASSOCIATED FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY THE HOA

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY HOA.

NO STRUCTURES AND NO TREES OR VEGETATION TALLER
THAN THREE FEET ALLOWED WITHIN CLV SEWER EASEMENT

ALL STRUCTURES SHOWN OR INDICATED ON THIS SUBMITTAL WITHIN THE PROPERTY REQUIRE A BUILDING PERMIT APPLICATION AND SUBMITTAL THIS INCLUDES BUILDINGS, ABOVE GROUND TANKS, SIGNS, RETAINING WALLS, FENCES, TRASH ENCLOSURES, SHADE STRUCTURES, STAIRWAYS, RAMPS, LIGHT POLES, LIGHT BOLLARDS, ETC. THIS DOES NOT INCLUDE ANY FLOOD CONTROL STRUCTURE SUCH AS PIPES, CULVERTS, ARCH OR LVERTS, HEADWALLS, ETC. THIS DOES NOT INCLUDE ANY WORK WITHIN A PUBLIC STREET RIGHT-OF-WAY. THIS DOES NOT INCLUDE PRIVATE STREETS. THE REVIEW OF CIVIL IMPROVEMENT AND/OR GRADING PLANS DOES NOT INCLUDE ANY REVIEW OF ANY STRUCTURE THAT REQUIRES A BUILDING PERMIT APPLICATION."

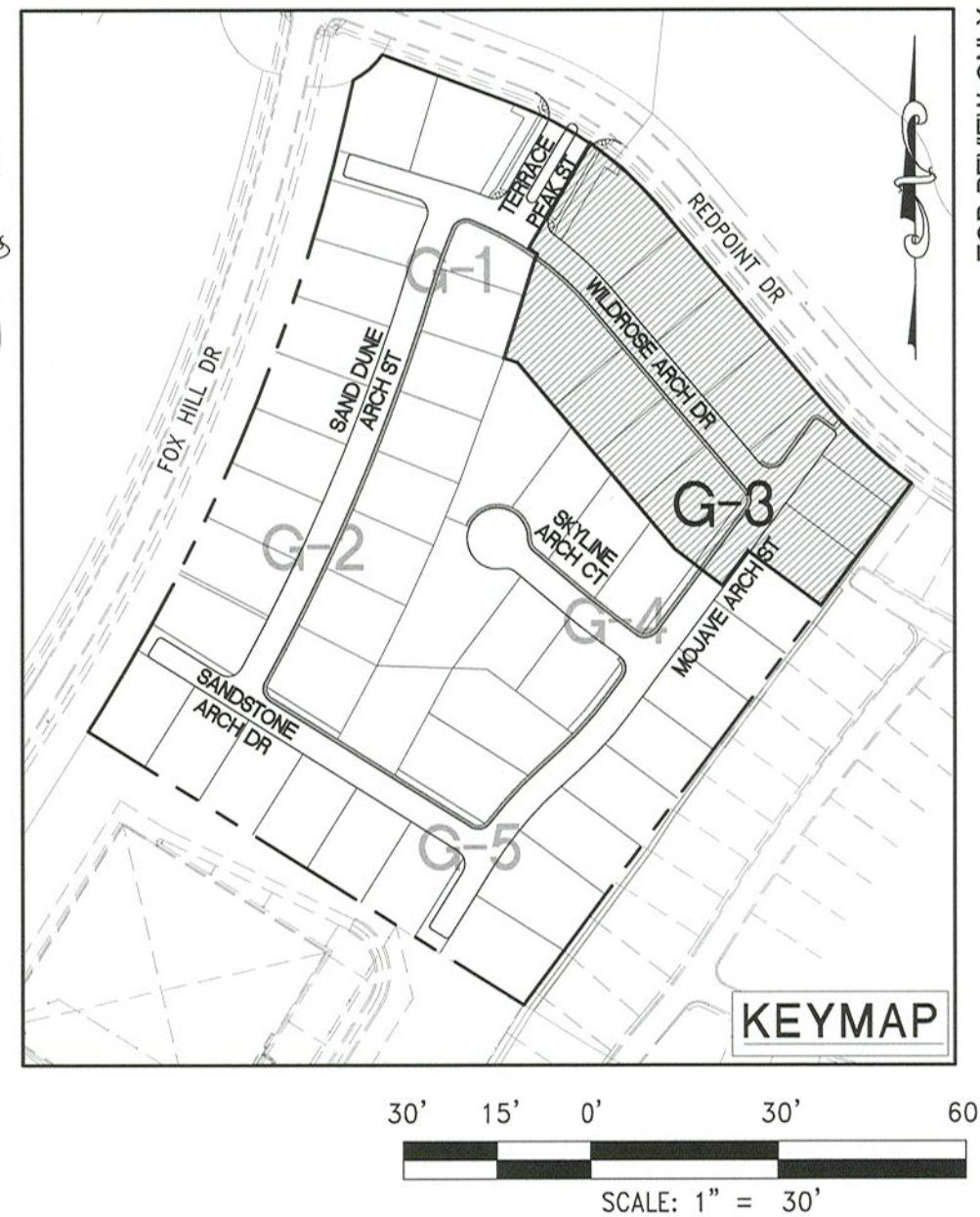
ACCORDING TO THE FEMA FLOOD INSURANCE RATE MAP (FIRM) COMMUNITY PANEL NUMBERS 32003C2150E SEPTEMBER 27, 2002, THE SITE IS LOCATED IN A ZONE "X"

OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS
REQUIRED BY CITY OF LAS VEGAS AND CLARK COUNTY UNIFORM
STANDARD DRAWING NUMBER 243. OWNER IS ALSO RESPONSIBLE TO
REPLACE ALL SURVEY MONUMENTATION DAMAGED, DESTROYED, OR
OBSCURED DURING CONSTRUCTION.

NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

1. CONTRACTOR IS RESPONSIBLE FOR DUST AND EROSION CONTROL DURING CONSTRUCTION.
2. SEE DETAIL SHEET FOR ON-SITE PAVEMENT SECTIONS. CONTRACTOR TO VERIFY WITH SOILS REPORT.
3. SEE FINAL MAP FOR EXACT PROPERTY LINE DIMENSIONS.
4. ENGINEER TO BE NOTIFIED OF ANY DISCREPANCIES IMMEDIATELY.
5. THESE PLANS SHALL NOT, IN PART OR IN WHOLE, BE USED FOR CONSTRUCTION UNTIL APPROVED AND SIGNED BY THE GOVERNING AGENCIES.
6. ALL GRADING SHALL CONFORM TO SOILS REPORT RECOMMENDATIONS.
7. DURING CONSTRUCTION, SURVEYORS AND CONTRACTORS MUST VERIFY THAT ALL STREETS AND LOTS HAVE POSITIVE DRAINAGE. SAME MUST UTILIZE AT LEAST THREE GRADES ON VERTICAL TANGENTS TO VERIFY SLOPES.
8. SOIL REPORT NOTE:
GRADING SHALL BE IN ACCORDANCE
WITH SOILS REPORT PREPARATION
ENGINEER: ACCESS CONSULTING ENGINEERS LLC
PROJECT NO. 20-167
DATED: MARCH 13, 2020
9. CUT/FILL ESTIMATES
EXISTING TO FINISH GRADE ELEVATIONS
NET CUT: 66,430 CY
NET FILL: 69,380 CY
10. SEE DETAIL 35/D-2 FOR TYPICAL LOT DRAINAGE
11. FOR STORMWATER RUNOFF MANAGEMENT NOTES REFER TO SHEET N-1

- 1) CONSTRUCT AC PAVEMENT PER DETAILS 1 THRU 3 ON SHEET D
- 2) CONSTRUCT 24" L¹ CURB AND GUTTER PER CAUSD #216
- 3) CONSTRUCT 30" ROLL CURB PER SUMMERLIN IMPROVEMENT STD DWG #5-48
- 4) CONSTRUCT "L" TYPE ISLAND CURB PER CAUSD #219
- 5) CONSTRUCT 5" CROSS TRANSITION FROM 24" L¹ TYPE CURB AND GUTTER TO 30" ROLL CURB PER DETAIL 37 SHEET D-2
- 6) CONSTRUCT 8" CROSS GUTTER PER SUMMERLIN IMPROVEMENT STD DWG #5-66
- 7) CONSTRUCT 8" MODIFIED (ROLLED CURB) CROSS GUTTER PER SUMMERLIN IMPROVEMENT STD DWG #5-64
- 8) CONSTRUCT 5" SIDEWALK PER CAUSD #234
- 9) 6" THICK WHEN ADJACENT TO ROLL CURB
- 10) CONSTRUCT SIDEWALK RAMP USING ASPHALT TYPE 1, SEE PLAN AND PROFILE SHEET CURVE TABLES FOR "A" AND "B" DIMENSIONS
- 11) CONSTRUCT SIDEWALK RAMP USING ASPHALT TYPE 1, SEE PLAN AND PROFILE SHEET CURVE TABLES FOR "C" AND "D" DIMENSIONS
- 12) CONSTRUCT 5" WIDE PEDESTRIAN ACCESS GATE
- 13) INSTALL ELECTRONICALLY CONTROLLED ACCESS GATES
- 14) CONSTRUCT 6" HIGH WROUGHT IRON FENCE AND/OR GATES
- 15) CALL BOX
- 16) CONSTRUCT 20" TYPE C2 DRAIN INLET PER CAUSD #214
- 17) CONSTRUCT CONCRETE PAVEDS AND 2' WIDE CONCRASTE BAND PER DETAIL 36 ON SHEET D-2
- 18) EX SIDEWALK BY OTHERS
- 19) EX SIDEWALK RAMPS
- 20) EX "L" CURB AND GUTTER



I HEREBY CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY DS # _____ ON FILE WITH CITY OF LAS VEGAS FOR THIS PROJECT.

CHRISTOPHER R. ZRINYI, PE NO. 13976

DATE _____

REV	DESCRIPTION	BY	APPD	DATE
	DATE: October 07, 2020			
	HORIZ. SCALE: 1" = 30'			
	VERT. SCALE: N/A			
	DRAWN BY: WW, SN			
	DESIGNED BY: CR			
	CHECKED BY: CRZ			
	APPROVED BY: _____			
	PROJECT #: 3040-0058			

LENNAR®
 9275 W. RUSSELL RD SUITE 400, LAS VEGAS, NV 89148
 PHONE: (702) 736-9100 FAX: (702) 736-9200

RCI ENGINEERING
 500 SOUTH BANCROFT DRIVE, SUITE 17, LAS VEGAS, NV 89106
 MAIN: 702.453.0000 FAX: 702.453.1111

IMPROVEMENT PLANS FOR
SUMMERLIN VILLAGE 25 PARCEL E
A SINGLE FAMILY RESIDENTIAL SUBDIVISION
GRADING PLAN (SHEET 3 OF 5)



 CHRISTOPHER R. ZIRNYI
 Exp. 6/30/2022
 CIVIL
 No. 13976
 DATE: 10-7-26
 DRAWING
 SHT 5 OF 10
 CLV DRAWING NUMBER
 CLV PROJECT #

\\3040_LENR\0058_SMRLN_V25E\IPS\UNIT_1\S0003_0-1.dwg	crivera	10/07/20	3:48pm
--	---------	----------	--------

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND OR OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION. CONTRACTOR TO NOTIFY ENGINEER OF ANY CHANGES OR DISCREPANCIES.

FAST

Call
before you
UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL
SYSTEMS OF CONSTRUCTION



AVOID HITTING OVERHEAD
POWER LINES. IT'S COSTLY.

CALL BEFORE
YOU DO
OVERHEAD

1-702-227-2929

BENCHMARK

CITY OF LAS VEGAS BENCHMARK 7LV09 27E4

RIVET AND PLOT IN TOP OF CURB AT SOUTHEAST CORNER OF
FAR HILLS AVENUE AND DESERT FOOTHILLS DRIVE.

ELEVATION=1016.62 METERS (NAVD'88 V.2008)
ELEVATION=3335.36 US SURVEY FEET (NAVD'88 V.2008)

BASIS OF BEARINGS

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA REFERENCE SYSTEM (NCRS), LAS VEGAS AND HIGH ELEVATION ZONES, NORTH AMERICAN DATUM OF 1983 (NAD83); SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

NOTE

ALL ONSITE STORM DRAINS AND THE ASSOCIATED FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY THE HOA

NOTE

NOTE
ALL PRIVATE STREETS ARE P.U.E., PUBLIC
SEWER EASEMENTS AND PUBLIC DRAINAGE
EASEMENTS TO BE PRIVATELY MAINTAINED
BY HOA.

SEWER EASEMENT NOTE

NO STRUCTURES AND NO TREES OR VEGETATION TALLER
THAN THREE FEET ALLOWED WITHIN CLV SEWER EASEMENT

BUILDING PERMIT NOTE

ALL STRUCTURES SHOWN OR INDICATED ON THIS SUBMITTAL WITHIN THE PROPERTY REQUIRE A BUILDING PERMIT APPLICATION AND SUBMITTAL THIS INCLUDES BUILDINGS, ABOVE GROUND TANKS, SIGNS, RETAINING WALLS, FENCES, TRASH ENCLOSURES, SHADE STRUCTURES, STAIRWAYS, RAMPS, LIGHT POLES, LIGHT BOLLARDS, ETC. THIS DOES NOT INCLUDE ANY FLOOD CONTROL STRUCTURE SUCH AS PIPES, CULVERTS, ARCH CULVERTS, HEADWALLS, ETC. THIS DOES NOT INCLUDE ANY STRUCTURE SUBJECT TO STREET RIGHT-OF-WAY. THIS DOES NOT INCLUDE PRIVATE STRUTS, THE REVIEW OF CIVIL IMPROVEMENT AND/OR GRADING PLANS DOES NOT INCLUDE ANY REVIEW OF ANY STRUCTURE THAT REQUIRES A BUILDING PERMIT APPLICATION."

FLOOD ZONE NOTE

ACCORDING TO THE FEMA FLOOD INSURANCE RATE MAP
(FIRM) COMMUNITY PANEL NUMBERS 32003C2150E
SEPTEMBER 27, 2002, THE SITE IS LOCATED IN A ZONE "X"

SURVEY MONUMENT NOTE

OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS
REQUIRED BY CITY OF LAS VEGAS AND CLARK COUNTY UNIFORM
STANDARD DRAWING NUMBER 243. OWNER IS ALSO RESPONSIBLE TO
REPLACE ALL SURVEY MONUMENTATION DAMAGED, DESTROYED, OR
OBSURED DURING CONSTRUCTION.

SIGHT VISIBILITY ZONE

NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

ENGINEERS NOTES

1. CONTRACTOR IS RESPONSIBLE FOR DUST AND EROSION CONTROL DURING CONSTRUCTION.
2. SEE DETAIL SHEET FOR ON-SITE PAVEMENT SECTIONS. CONTRACTOR TO VERIFY WITH SOILS REPORT.
3. SEE FINAL MAP FOR EXACT PROPERTY LINE DIMENSIONS.
4. ENGINEER TO BE NOTIFIED OF ANY DISCREPANCIES IMMEDIATELY.
5. THESE PLANS SHALL NOT, IN PART OR IN WHOLE, BE USED FOR CONSTRUCTION UNTIL APPROVED AND SIGNED BY THE GOVERNING AGENCIES.
6. ALL GRADING SHALL CONFORM TO SOILS REPORT RECOMMENDATIONS.
7. DURING CONSTRUCTION, SURVEYORS AND CONTRACTORS MUST VERIFY THAT ALL STREETS AND LOTS HAVE POSITIVE DRAINAGE. SAME MUST UTILIZE AT LEAST THREE PERCENT GRADES ON VERTICAL TANGENTS TO VERIFY SLOPES.
8. SOIL REPORT NOTE:
GRADING SHALL BE IN ACCORDANCE
WITH SOILS REPORT RECOMMENDATIONS.
ENGINEER: ACCESS CONSULTING ENGINEERS LLC
PROJECT NO. 20-167
DATED: MARCH 13, 2020
9. CUT/FILL ESTIMATES
EXISTING TO FINISH GRADE ELEVATIONS
NET CUT: 69,430 CU
NET FILL: 69,380 CU
10. SEE DETAIL 35/0-2 FOR TYPICAL LOT DRAINAGE
11. FOR STORMWATER RUNOFF MANAGEMENT NOTES REFER TO SHEET N-1

CONSTRUCTION NOTES

- 1) CONSTRUCT AC PAVEMENT PER DETAILS 1 THRU 3 ON SHEET D-1
- 2) CONSTRUCT "4" 1/2 CURB AND GUTTER PER CAUSD #216
- 3) CONSTRUCT "30" ROLL CURB PER SUMMERLIN IMPROVEMENT STD DWG #S-48
- 4) CONSTRUCT "1" TYPE ISLAND CURB PER CAUSD #219
- 5) CONSTRUCT "5" CURB TRANSITION FROM "4" "1" TYPE CURB AND GUTTER TO "50" ROLL CURB PER DETAIL 37 SHEET D-2
- 6) CONSTRUCT "8" CROSS GUTTER PER SUMMERLIN IMPROVEMENT STD DWG #S-64
- 7) CONSTRUCT "MODIFIED (ROLLED CURB) CROSS GUTTER PER SUMMERLIN IMPROVEMENT STD DWG #S-64
- 8) CONSTRUCT SIDEWALK PER CAUSD #234 (6" THICK WHEN ADJACENT TO ROLL CURB)
- 9) CONSTRUCT SIDEWALK RUMPS USING ARMOR (SEE TRUNCATED DOMES OR EQUIVALENT PER CAUSD #235 (CASE 1) SEE PLAN AND PROFILE SHEET CURVE TABLES FOR "A" AND "B" DIMENSIONS)
- 10) CONSTRUCT SIDEWALK RUMPS USING ARMOR (SEE TRUNCATED DOMES OR EQUIVALENT PER CAUSD #235 (CASE 2) SEE PLAN AND PROFILE SHEET CURVE TABLES FOR "A" AND "B" DIMENSIONS)
- 11) CONSTRUCT "5" WIDE PEDESTRIAN ACCESS GATE
- 12) INSTALL ELECTRONICALLY CONTROLLED ACCESS GATES
- 13) CONSTRUCT "6" HIGH WRAITH OR IRON FENCE AND/OR GATES
- 14) CALL BOX
- 15) CONSTRUCT "20" TYPE CM2 DOW INLET PER CAUSD #412.1 & #421
- 16) CONSTRUCT CONCRETE PAVERS AND "2" WIDE CONCRETE BAND PER DETAIL 36 ON SHEET D-2
- 17) EX SIDEWALKS BY OTHERS
- 18) EX SIDEWALK RAMPS
- 19) EX "L" CURB AND GUTTER



I HEREBY CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY DS #_____ ON FILE WITH CITY OF LAS VEGAS FOR THIS PROJECT.

CHRISTOPHER R. ZRINYI, PE NO. 13976

DATE _____

REV	DESCRIPTION	BY	APPD.
	DATE: October 07, 2020		
	WPT SCALE: 1" = 30'		
	N/A		
	WV SN		
	WV SN		
	DESIGNED BY: CRZ		
	CHECKED BY: CRZ		
	APPROVED BY: CRZ		
	PROJECT #:		
	3940.0058		

LENNAR®
 9275 W. RUSSELL RD SUITE 400, LAS VEGAS, NV 89148
 PHONE: (702) 736-9100 FAX: (702) 736-9200

IMPROVEMENT PLANS FOR
SUMMERLIN VILLAGE 25 PARCELS
A SINGLE FAMILY RESIDENTIAL SUBDIVISION

DATE: 10-7-20

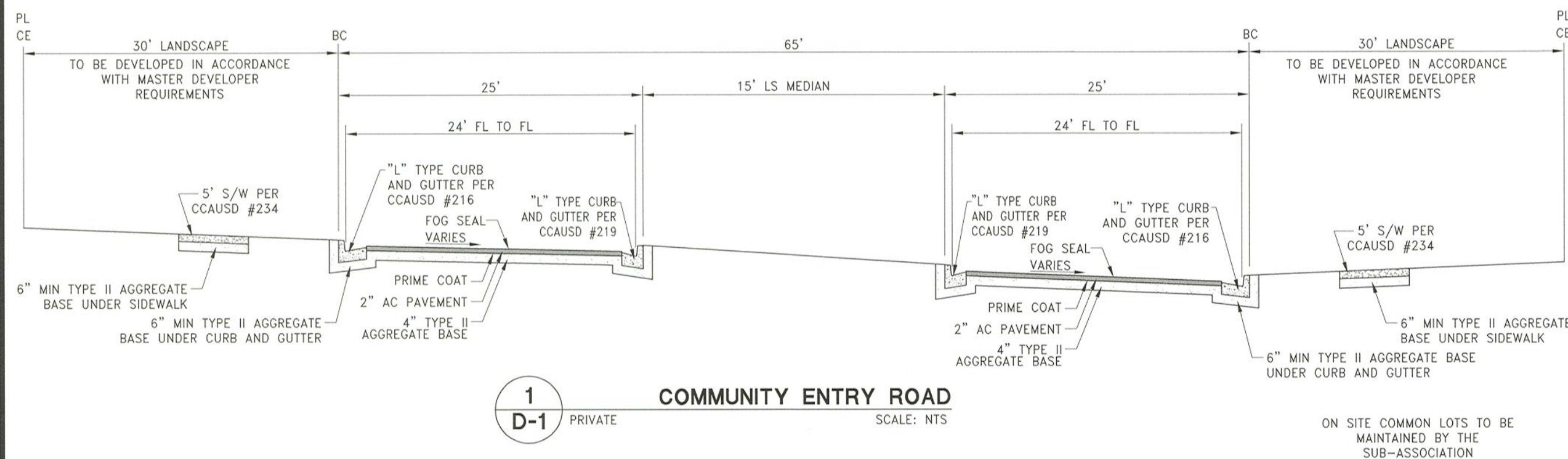
DRAWING

G-5

SHT 7 OF 10

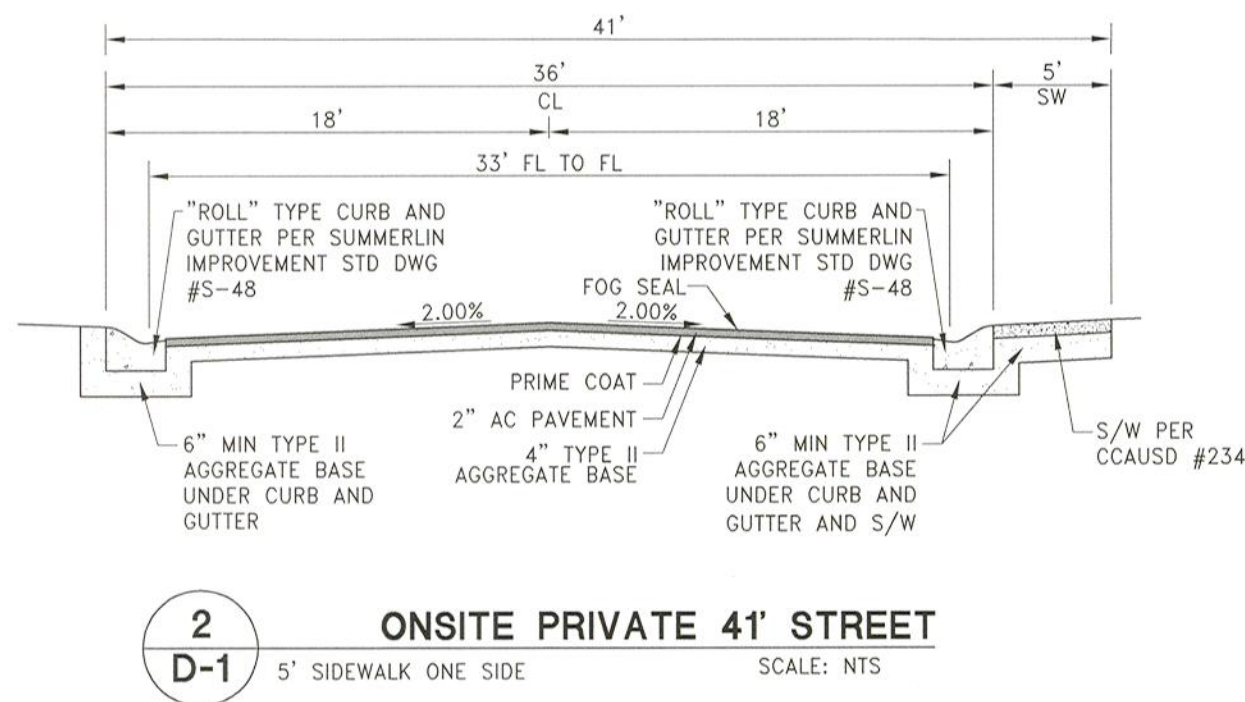
CLV PROJECT # _____

NOTE: ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA.



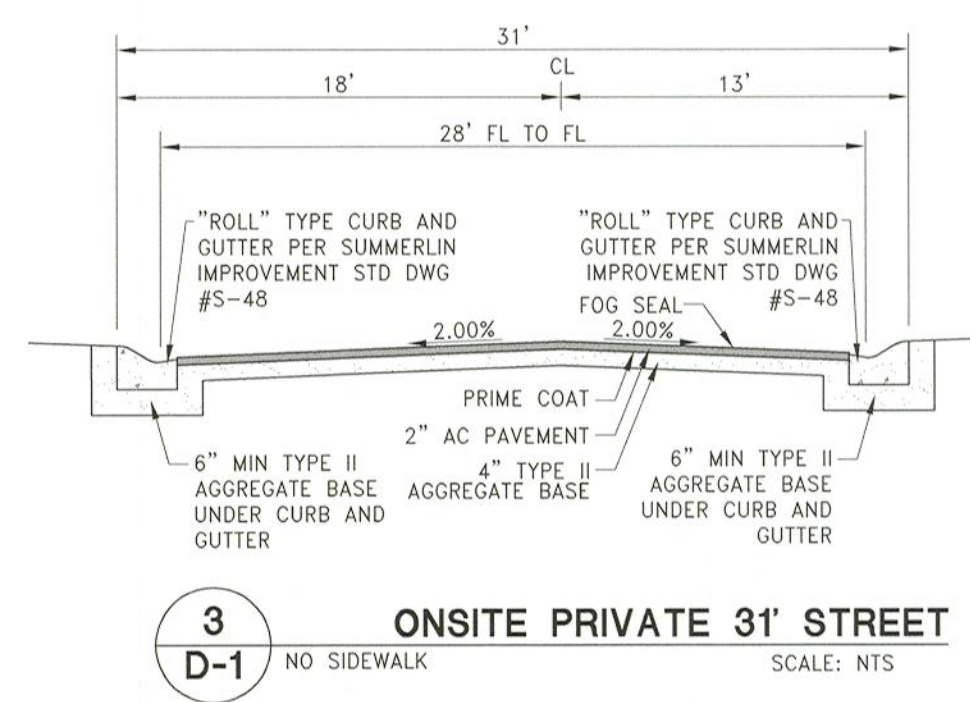
1
D-1 PRIVATE COMMUNITY ENTRY ROAD
SCALE: NTS

NOTE: ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA.

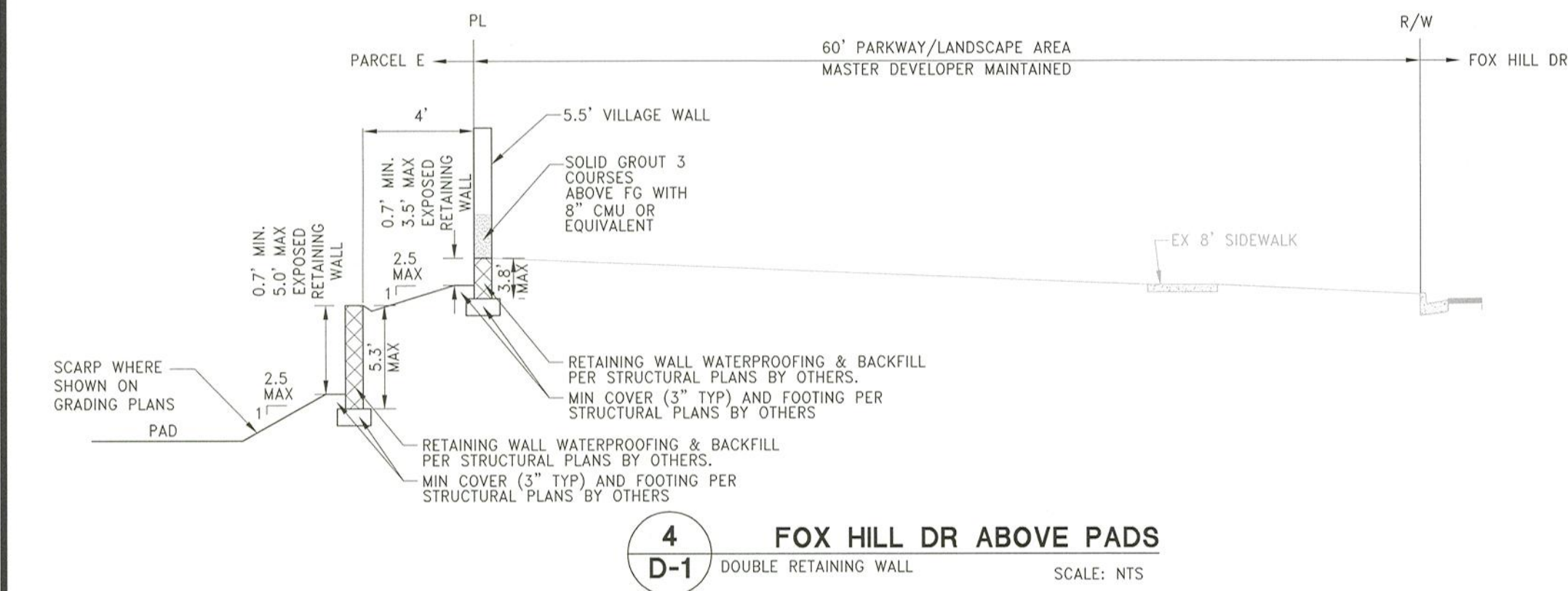


2
D-1 ONSITE PRIVATE 41' STREET
SCALE: NTS

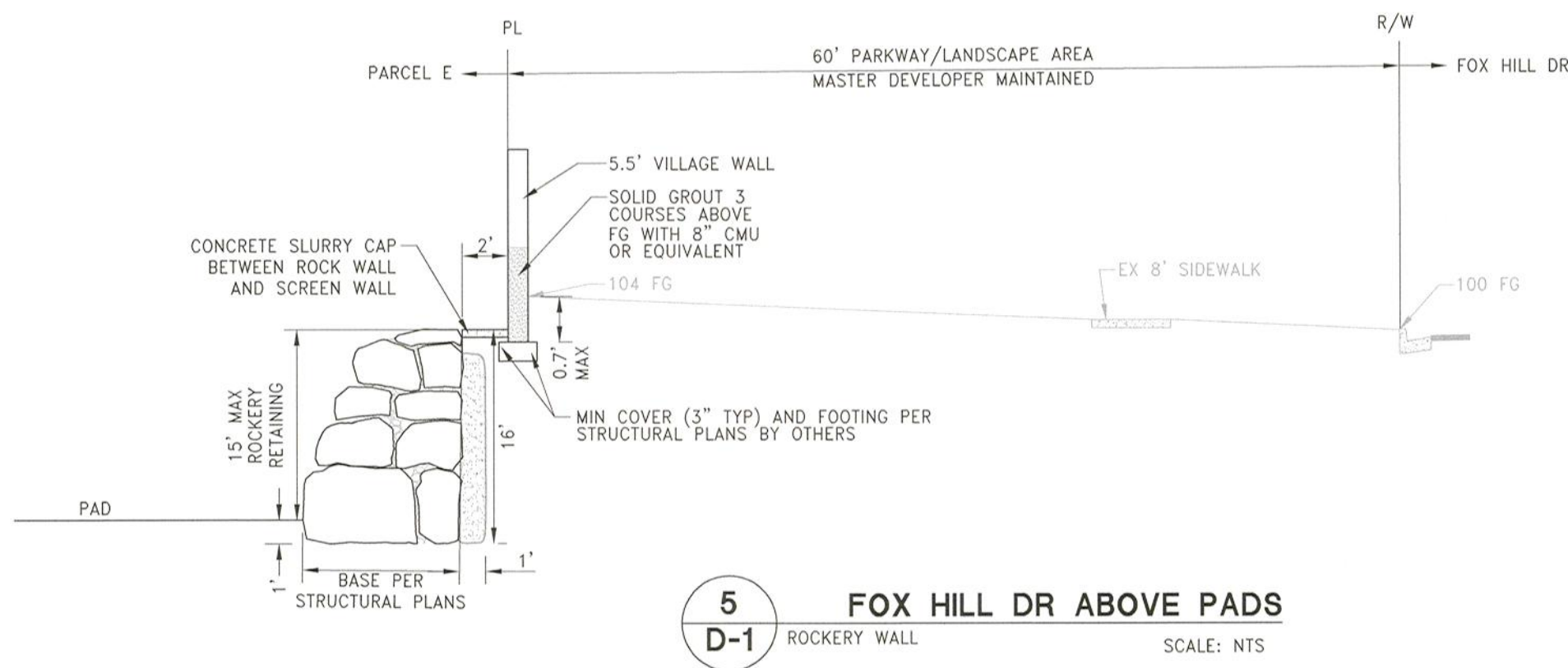
NOTE: ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA.



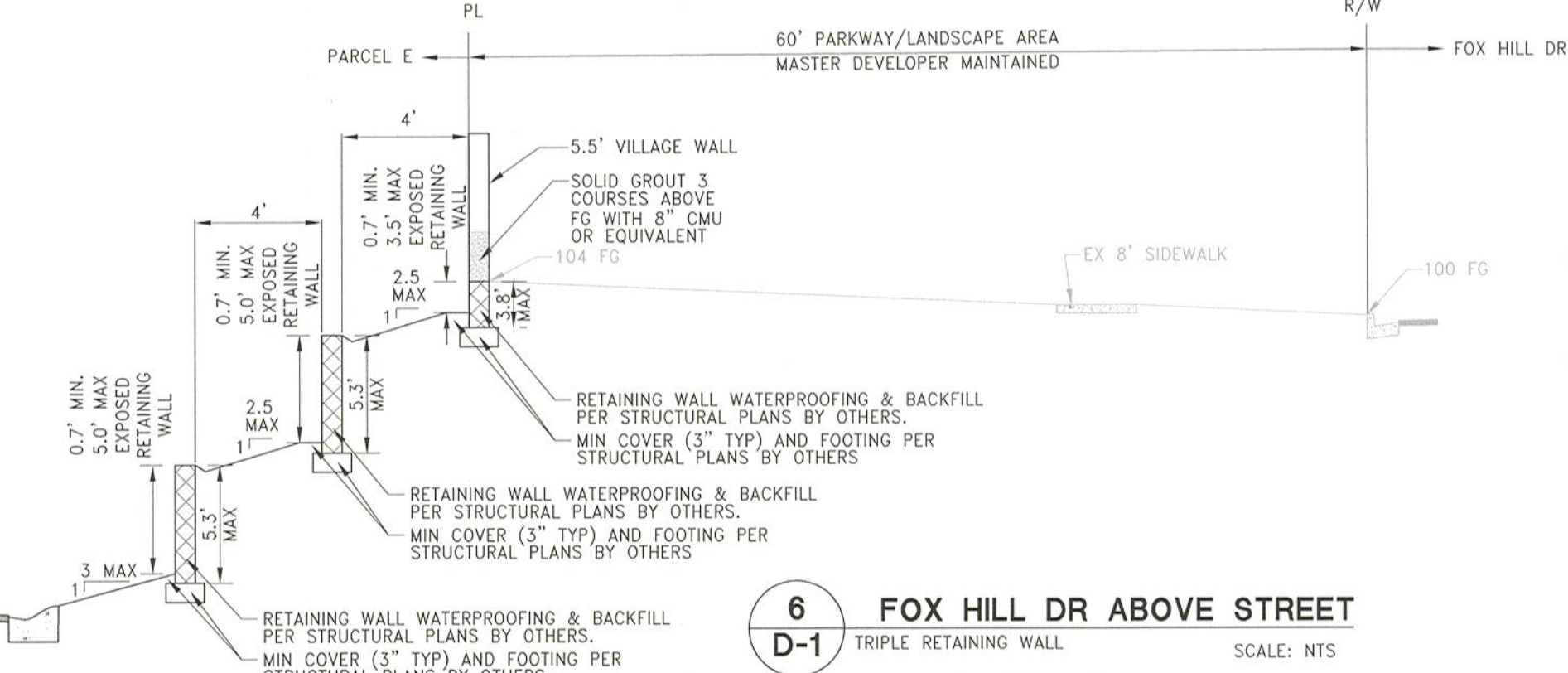
3
D-1 ONSITE PRIVATE 31' STREET
SCALE: NTS



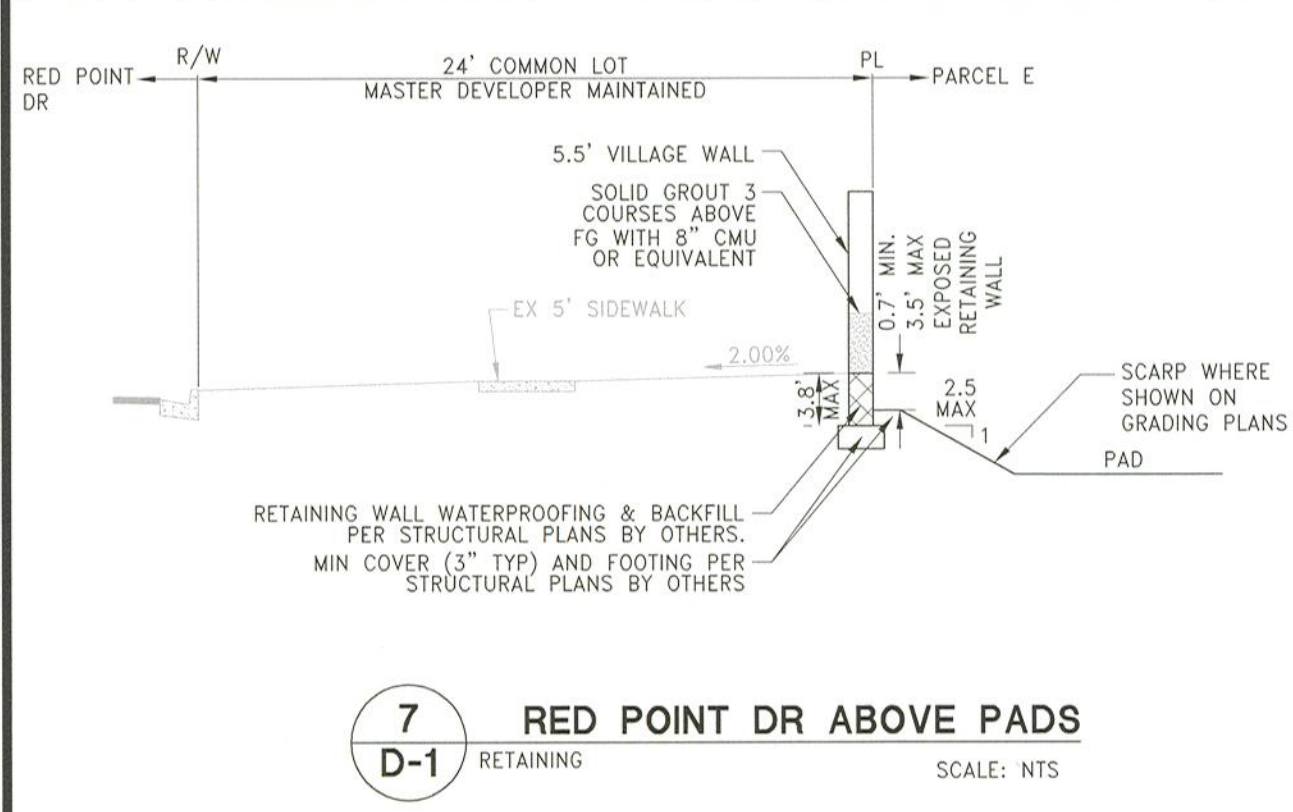
4
D-1 FOX HILL DR ABOVE PADS
SCALE: NTS



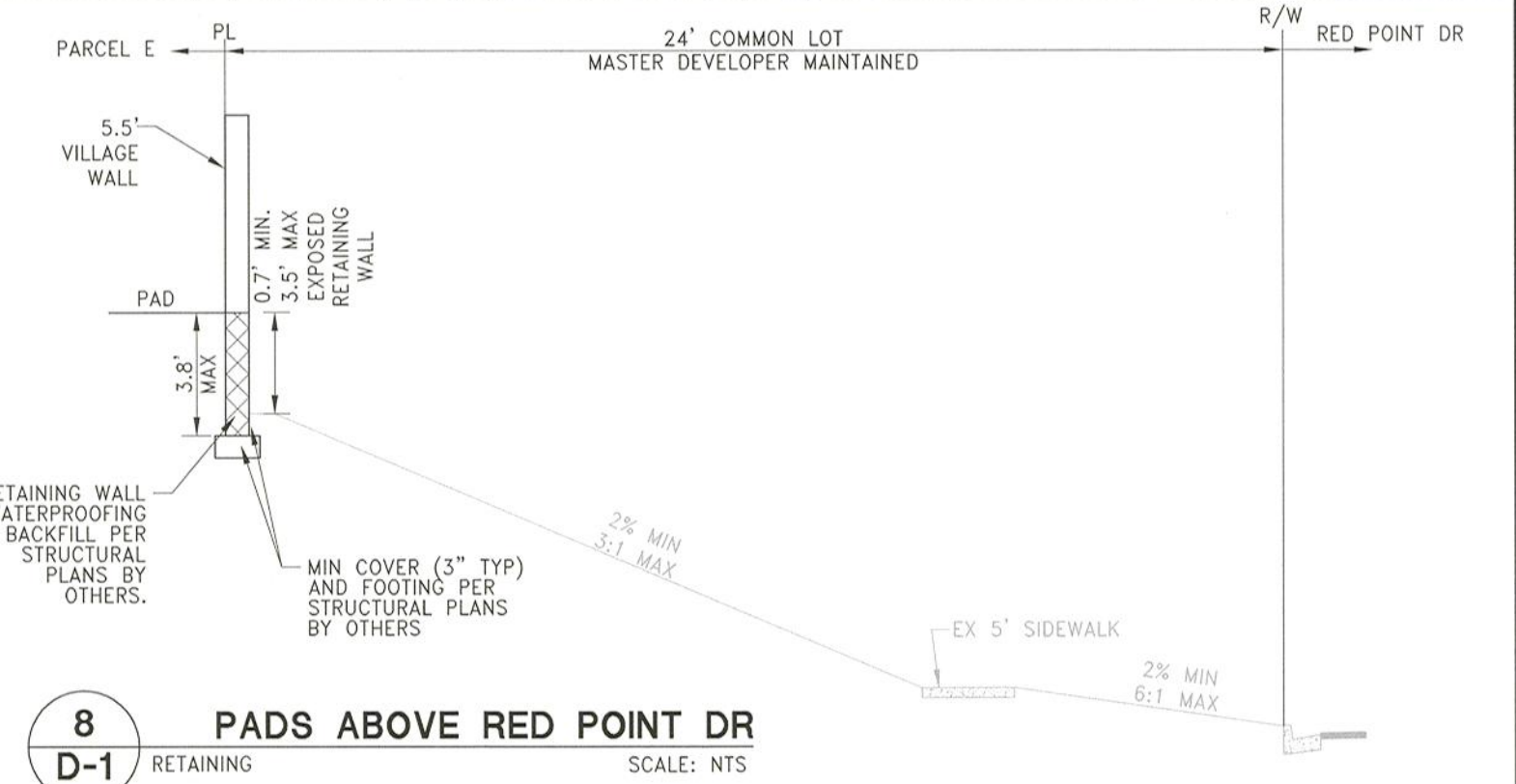
5
D-1 FOX HILL DR ABOVE PADS
SCALE: NTS



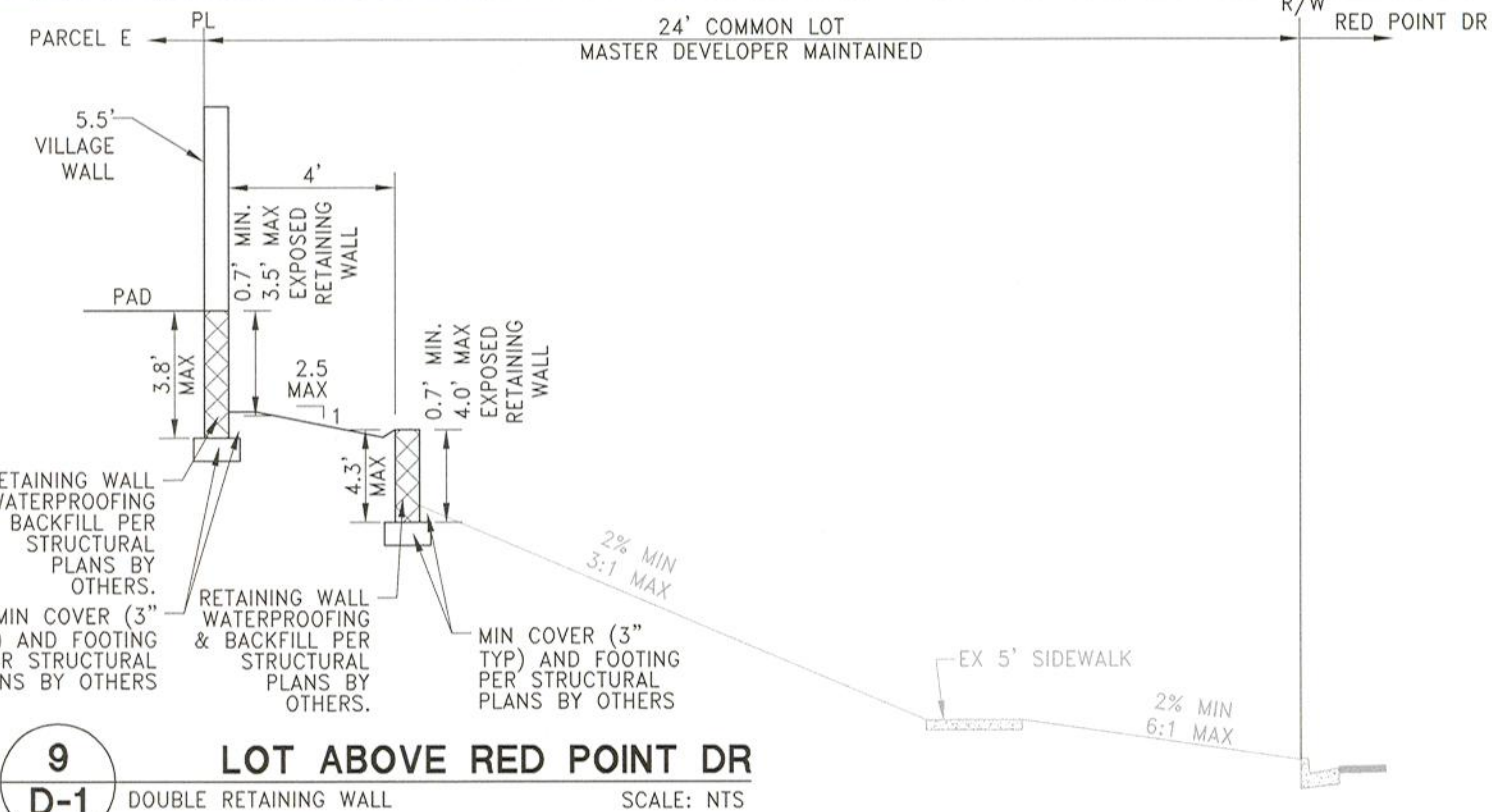
6
D-1 FOX HILL DR ABOVE STREET
SCALE: NTS



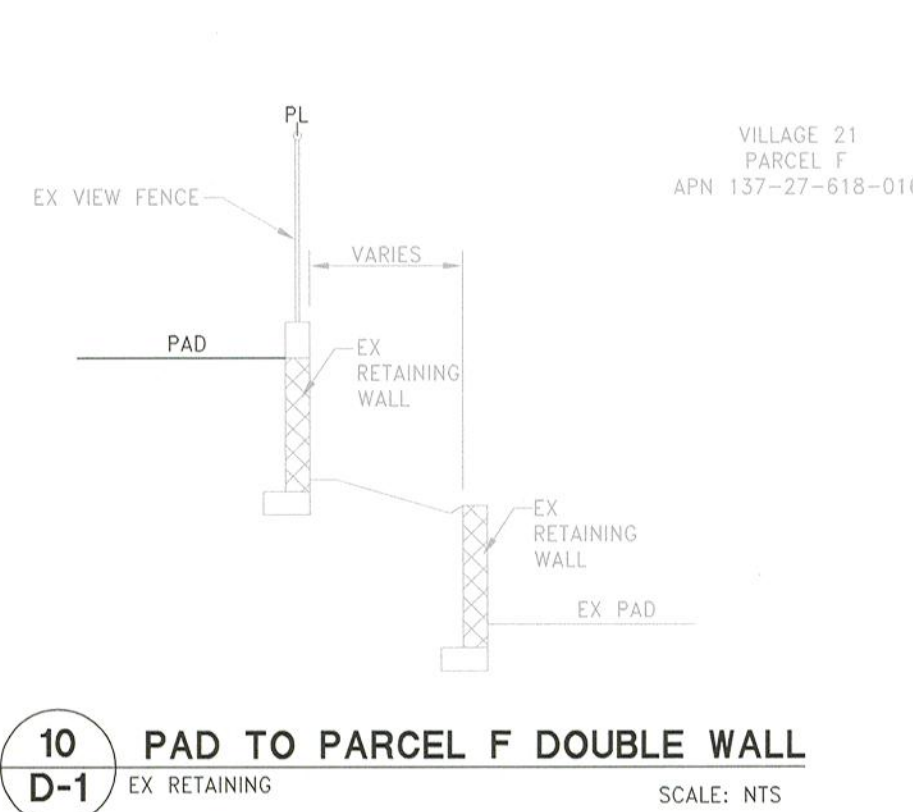
7
D-1 RED POINT DR ABOVE PADS
SCALE: NTS



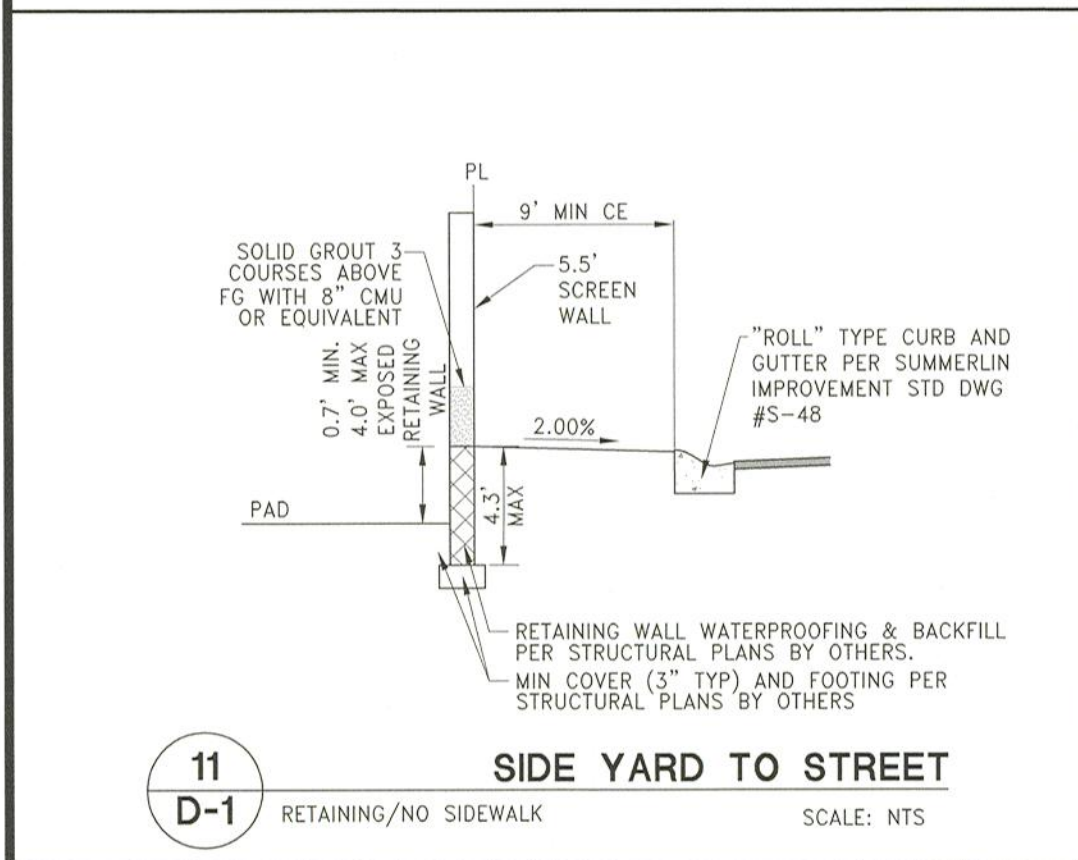
8
D-1 PADS ABOVE RED POINT DR
SCALE: NTS



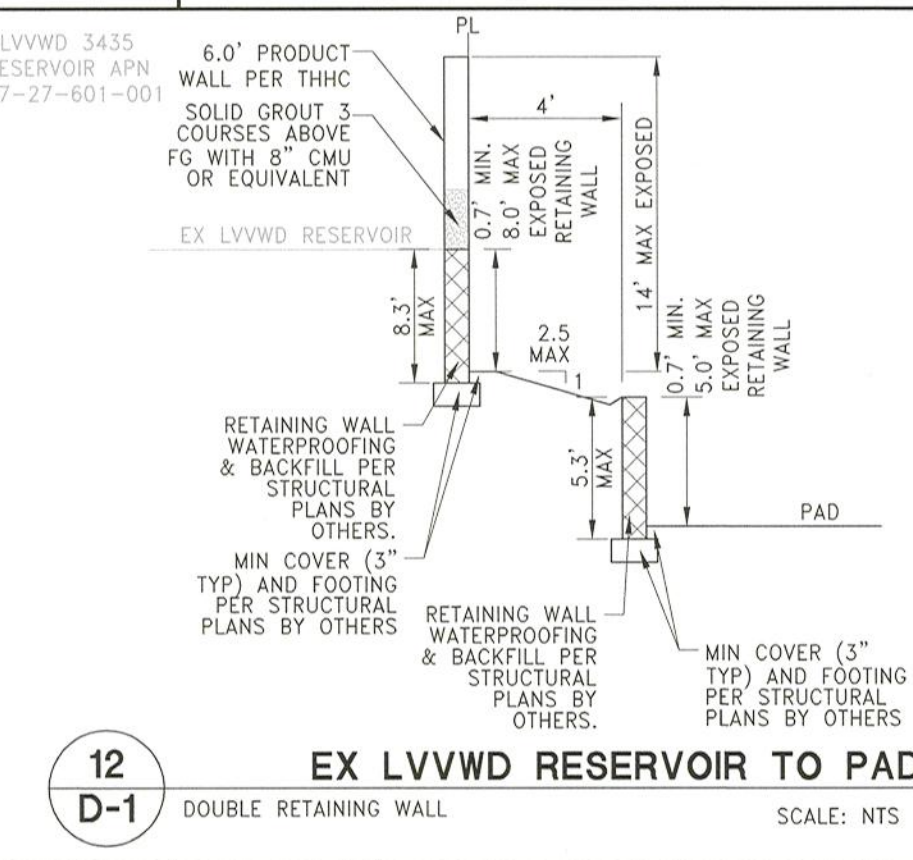
9
D-1 LOT ABOVE RED POINT DR
SCALE: NTS



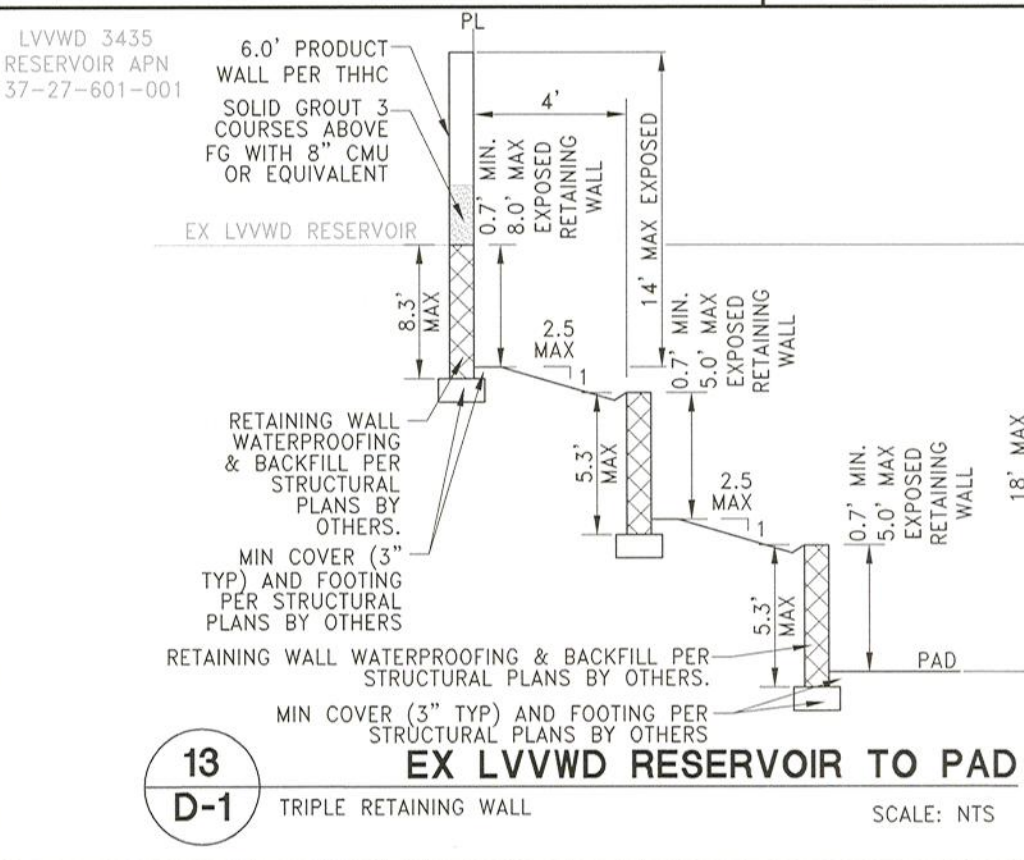
10
D-1 PAD TO PARCEL F DOUBLE WALL
SCALE: NTS



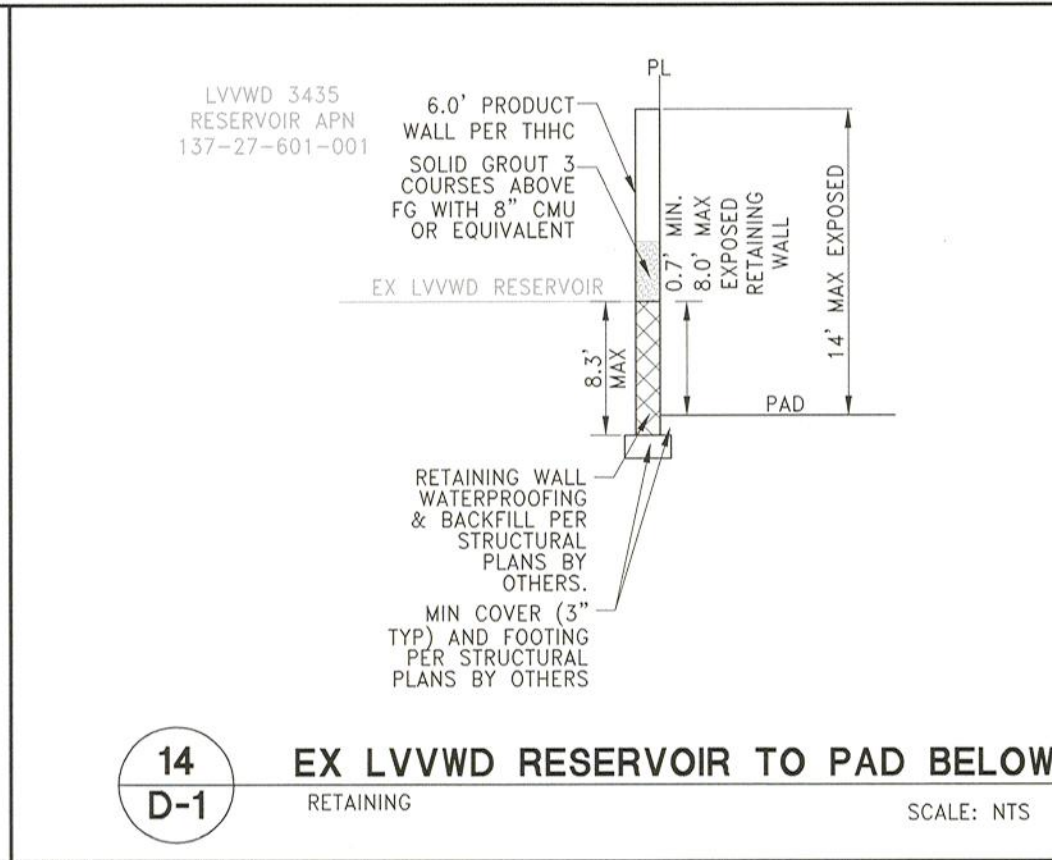
11
D-1 SIDE YARD TO STREET
SCALE: NTS



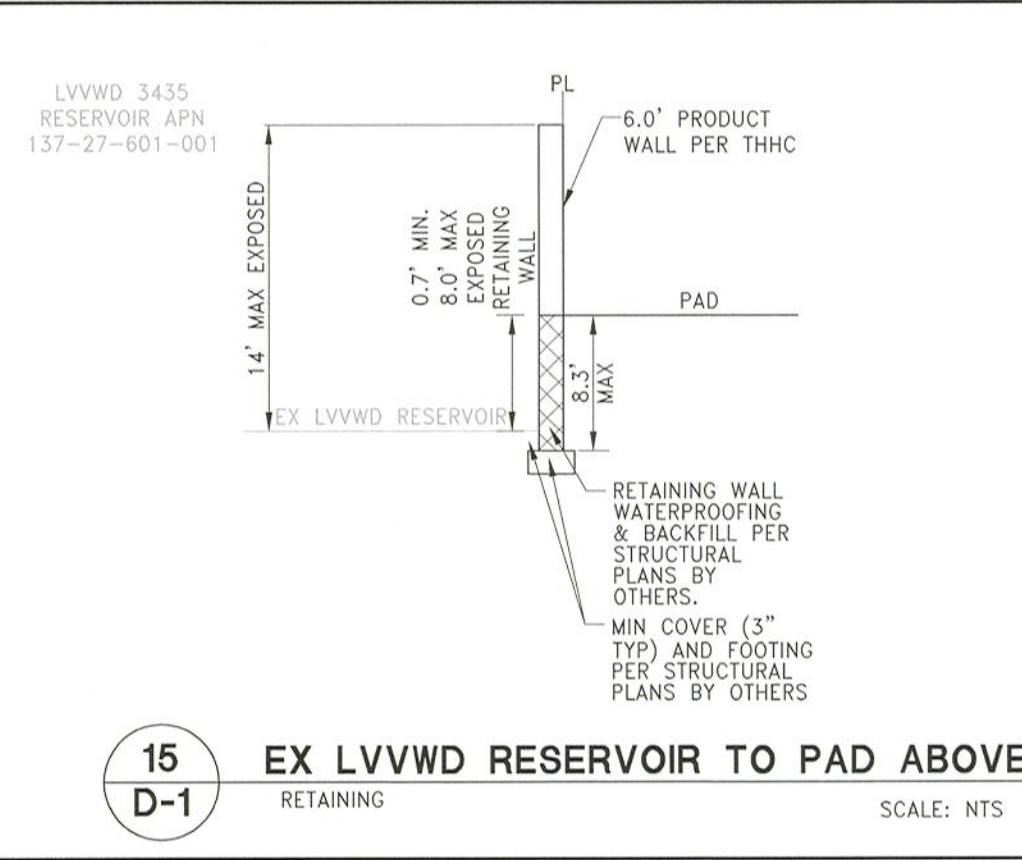
12
D-1 EX LVVWD RESERVOIR TO PAD
SCALE: NTS



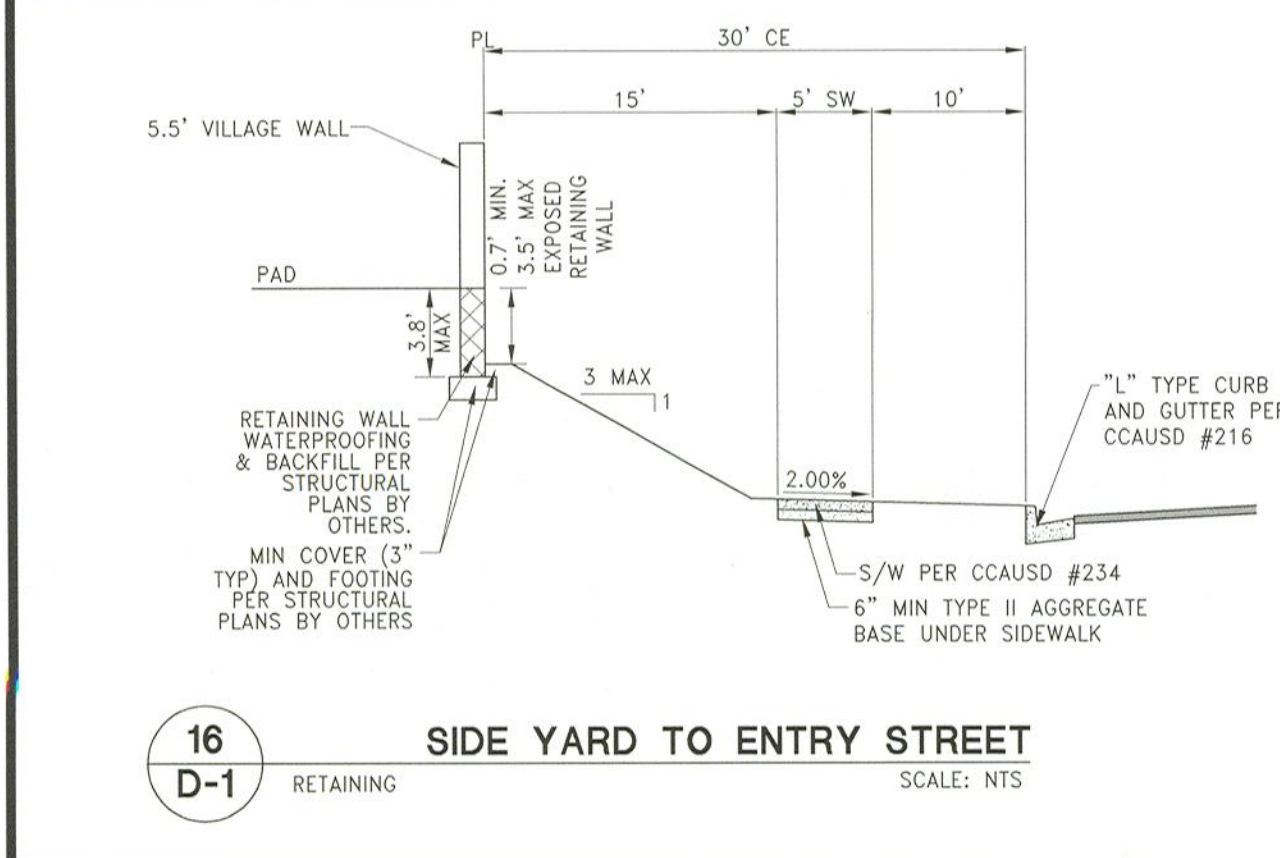
13
D-1 EX LVVWD RESERVOIR TO PAD
SCALE: NTS



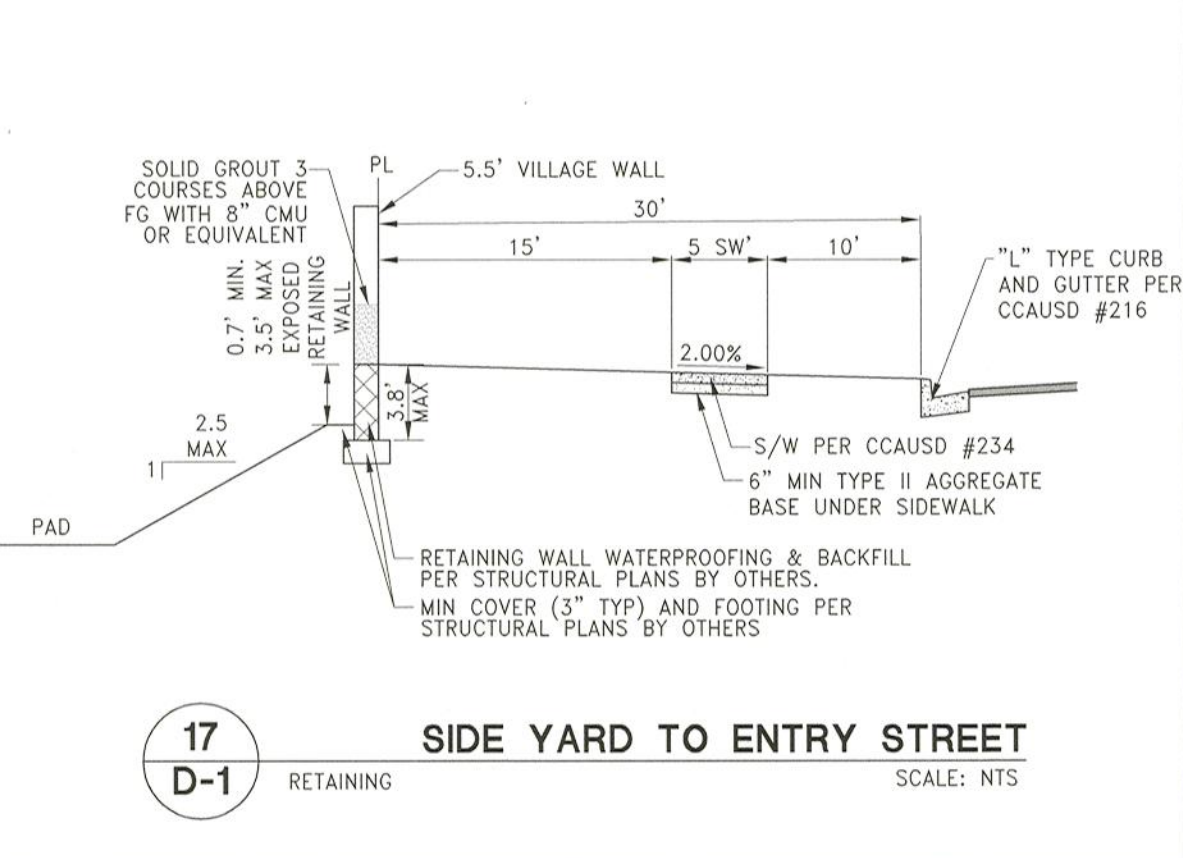
14
D-1 EX LVVWD RESERVOIR TO PAD BELOW
SCALE: NTS



15
D-1 EX LVVWD RESERVOIR TO PAD ABOVE
SCALE: NTS



16
D-1 SIDE YARD TO ENTRY STREET
SCALE: NTS



17
D-1 SIDE YARD TO ENTRY STREET
SCALE: NTS

FOR REVIEW ONLY

REV	DATE	DESCRIPTION
01	07/07/20	1" = 30'
02	07/07/20	1" = 30'
03	07/07/20	1" = 30'
04	07/07/20	1" = 30'
05	07/07/20	1" = 30'
06	07/07/20	1" = 30'
07	07/07/20	1" = 30'
08	07/07/20	1" = 30'
09	07/07/20	1" = 30'
10	07/07/20	1" = 30'
11	07/07/20	1" = 30'
12	07/07/20	1" = 30'
13	07/07/20	1" = 30'
14	07/07/20	1" = 30'
15	07/07/20	1" = 30'
16	07/07/20	1" = 30'
17	07/07/20	1" = 30'
18	07/07/20	1" = 30'
19	07/07/20	1" = 30'
20	07/07/20	1" = 30'
21	07/07/20	1" = 30'
22	07/07/20	1" = 30'
23	07/07/20	1" = 30'
24	07/07/20	1" = 30'
25	07/07/20	1" = 30'
26	07/07/20	1" = 30'
27	07/07/20	1" = 30'
28	07/07/20	1" = 30'
29	07/07/20	1" = 30'
30	07/07/20	1" = 30'
31	07/07/20	1" = 30'
32	07/07/20	1" = 30'
33	07/07/20	1" = 30'
34	07/07/20	1" = 30'
35	07/07/20	1" = 30'
36	07/07/20	1" = 30'
37	07/07/20	1" = 30'
38	07/07/20	1" = 30'
39	07/07/20	1" = 30'
40	07/07/20	1" = 30'
41	07/07/20	1" = 30'
42	07/07/20	1" = 30'
43	07/07/20	1" = 30'
44	07/07/20	1" = 30'
45	07/07/20	1" = 30'
46	07/07/20	1" = 30'
47	07/07/20	1" = 30'
48	07/07/20	1" = 30'
49	07/07/20	1" = 30'
50	07/07/20	1" = 30'
51	07/07/20	1" = 30'
52	07/07/20	1" = 30'
53	07/07/20	1" = 30'
54	07/07/20	1" = 30'
55	07/07/20	1" = 30'
56	07/07/20	1" = 30'
57	07/07/20	1" = 30'
58	07/07/20	1" = 30'
59	07/07/20	1" = 30'
60	07/07/20	1" = 30'
61	07/07/20	1" = 30'
62	07/07/20	1" = 30'
63	07/07/20	1" = 30'
64	07/07/20	1" = 30'
65	07/07/20	1" = 30'
66	07/07/20	1" = 30'
67	07/07/20	1" = 30'
68	07/07/20	1" = 30'
69	07/07/20	1" = 30'
70	07/07/20	1" = 30'
71	07/07/20	1" = 30'
72	07/07/20	1" = 30'
73	07/07/20	1" = 30'
74	07/07/20	1" = 30'
75	07/07/20	1" = 30'
76	07/07/20	1" = 30'
77	07/07/20	1" = 30'
78	07/07/20	1" = 30'
79	07/07/20	1" = 30'
80	07/07/20	1" = 30'
81	07/07/20	1" = 30'
82	07/07/20	1" = 30'
83	07/07/20	1" = 30'
84	07/07/20	1" = 30'
85	07/07/20	1" = 30'
86	07/07/20	1" = 30'
87	07/07/20	1" = 30'
88	07/07/20	1" = 30'
89	07/07/20	1" = 30'
90	07/07/20	1" = 30'
91	07/07/20	1" = 30'
92	07/07/20	1" = 30'
93	07/07/20	1" = 30'
94	07/07/20	1" = 30'
95	07/07/20	1" = 30'
96	07/07/20	1" = 30'
97	07/07/20	1" = 30'
98	07/07/20	1" = 30'
99	07/07/20	1" = 30'
100	07/07/20	1" = 30'

DATE: 07/07/20
HORIZ. SCALE: 1" = 30'
VERT. SCALE: 1" = 30'
DRAWN BY: CRZ
CHECKED BY: CRZ
APPROVED BY: CRZ
PROJECT #: 3040.0058

LENNAR
9275 W. RUSSELL RD SUITE 400, LAS VEGAS, NV 89148
PHONE: (702) 736-5100 FAX: (702) 736-5200

RCI ENGINEERING
300 SOUTH MAIN STREET, SUITE 100, LAS VEGAS, NV 89101
PHONE: (702) 453-6000 FAX: (702) 453-6001

IMPROVEMENT PLANS FOR
SUMMERLIN VILLAGE 25 PARCELS
A SINGLE FAMILY RESIDENTIAL SUBDIVISION

GRADING DETAILS (SHEET 1 OF 2)

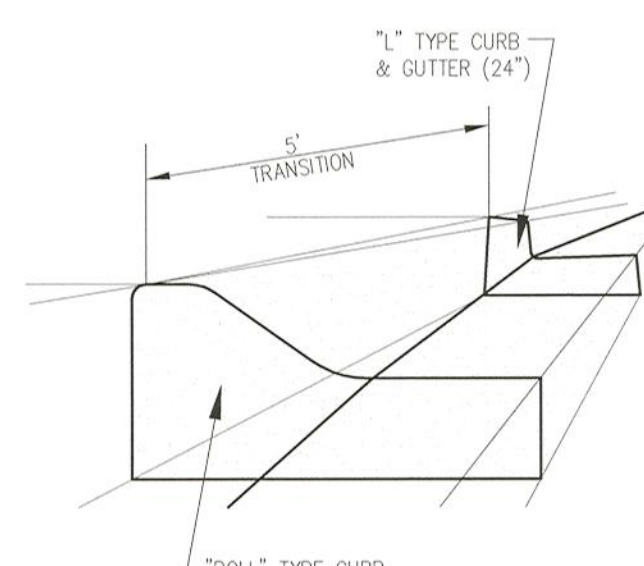
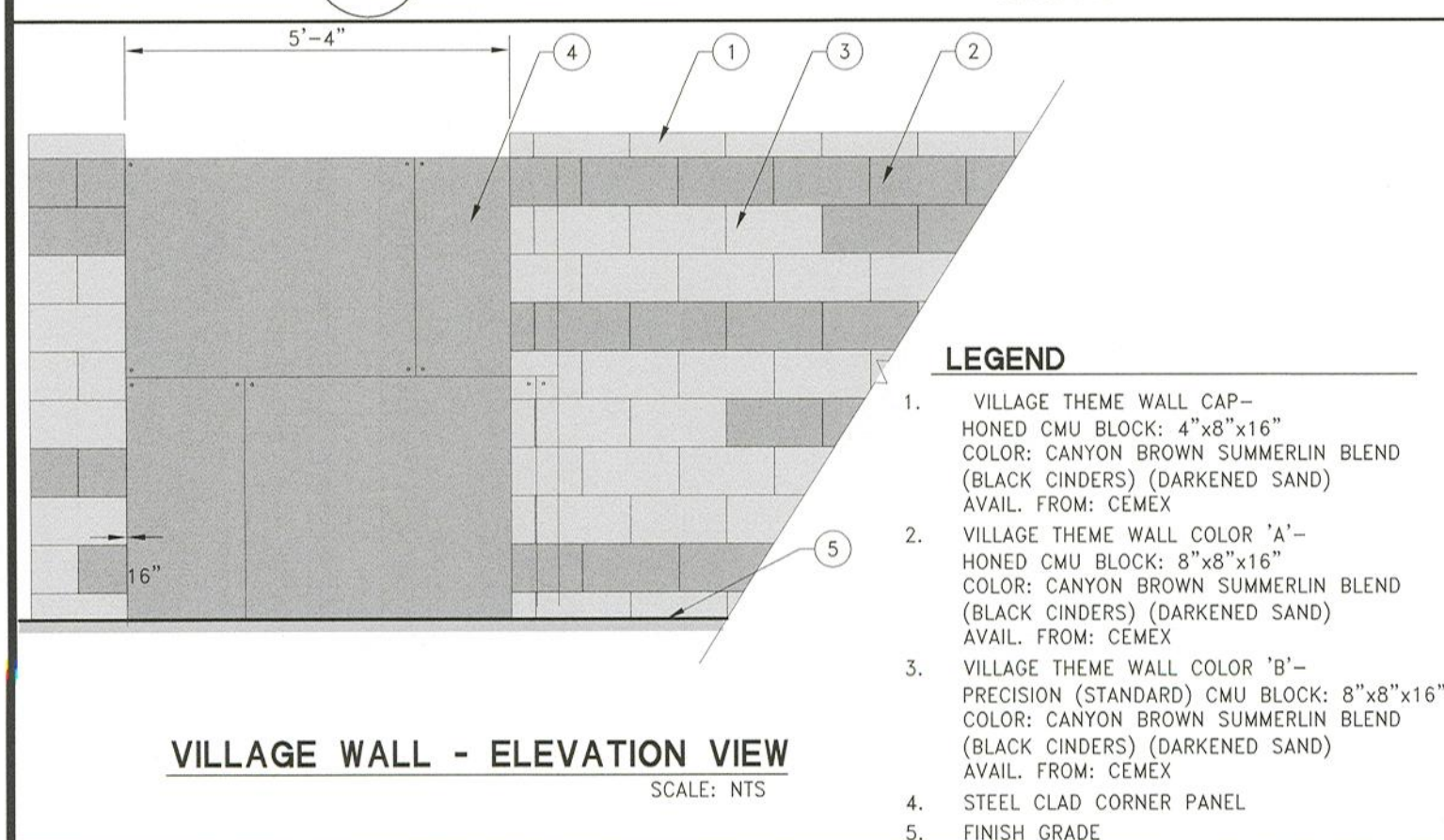
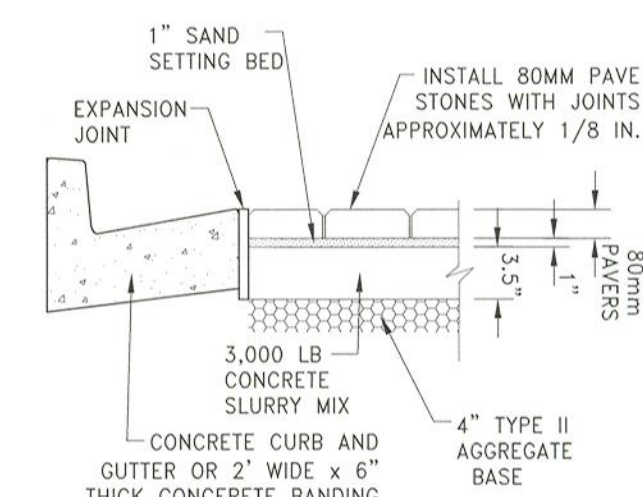
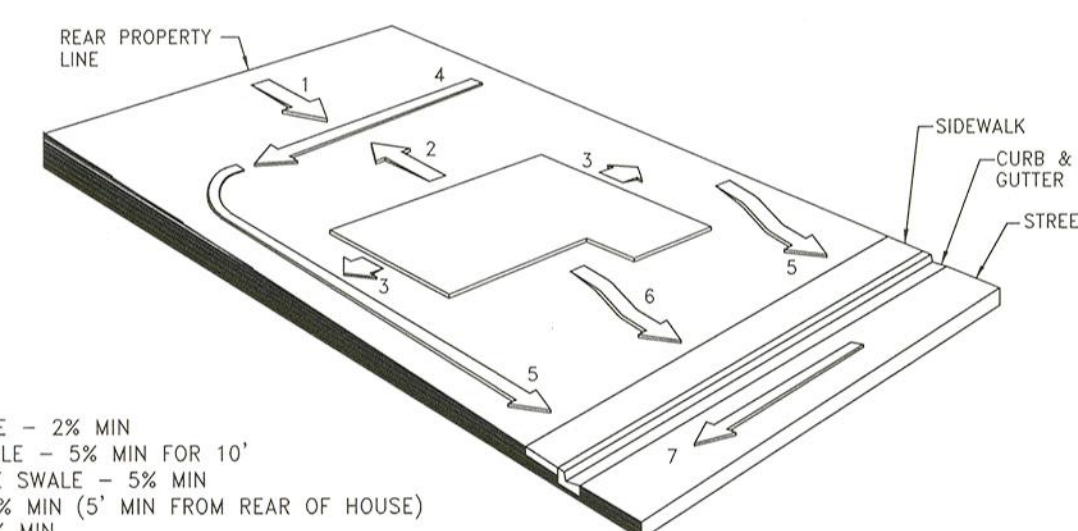
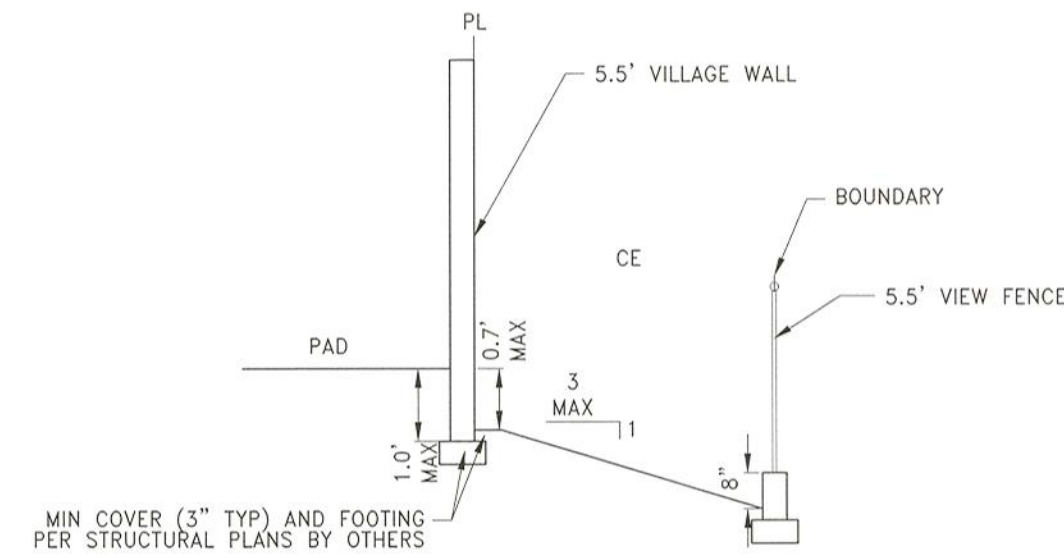
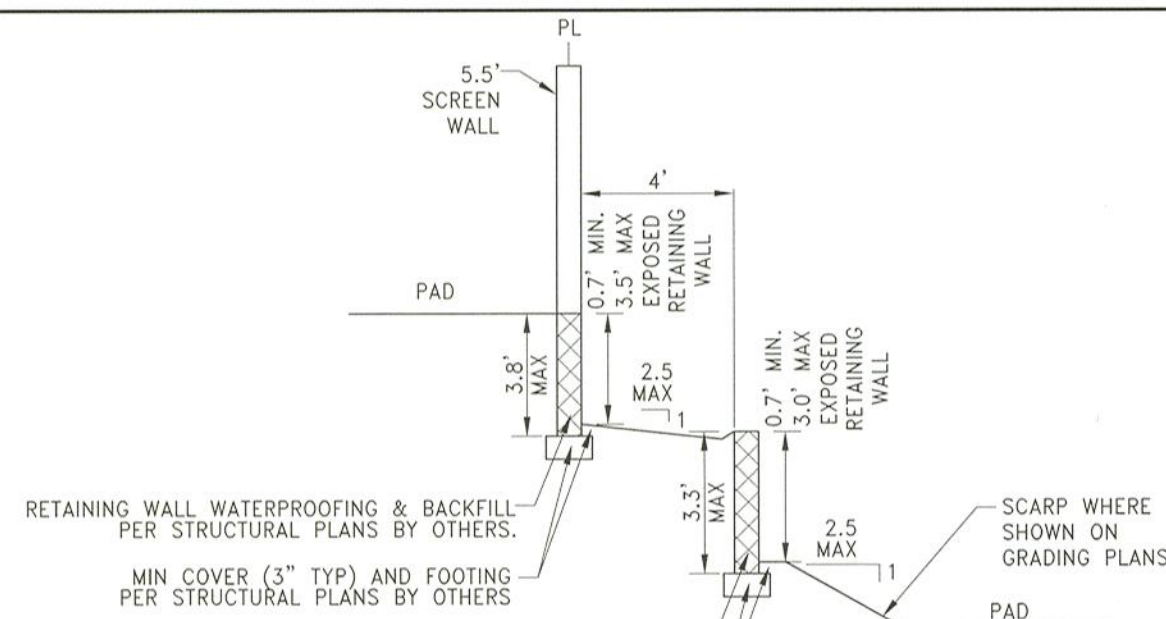
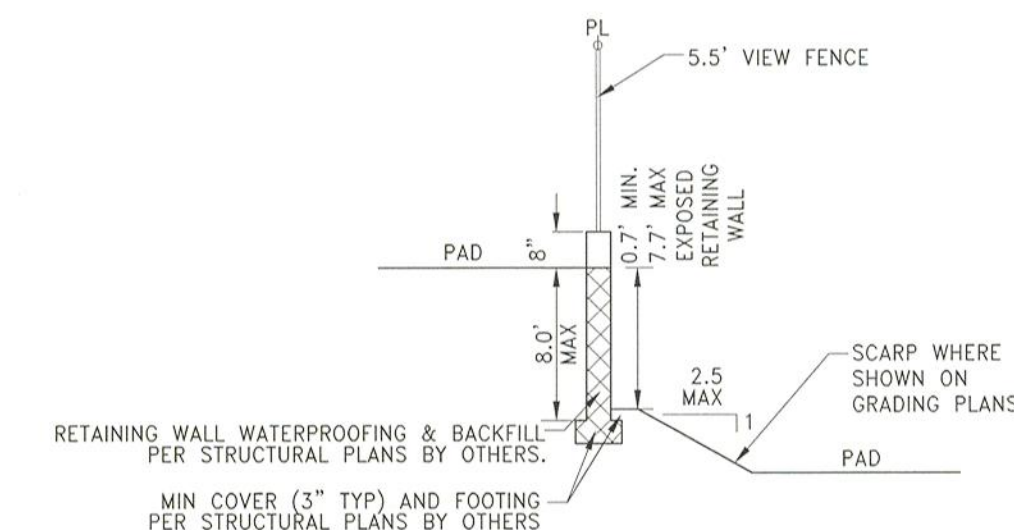
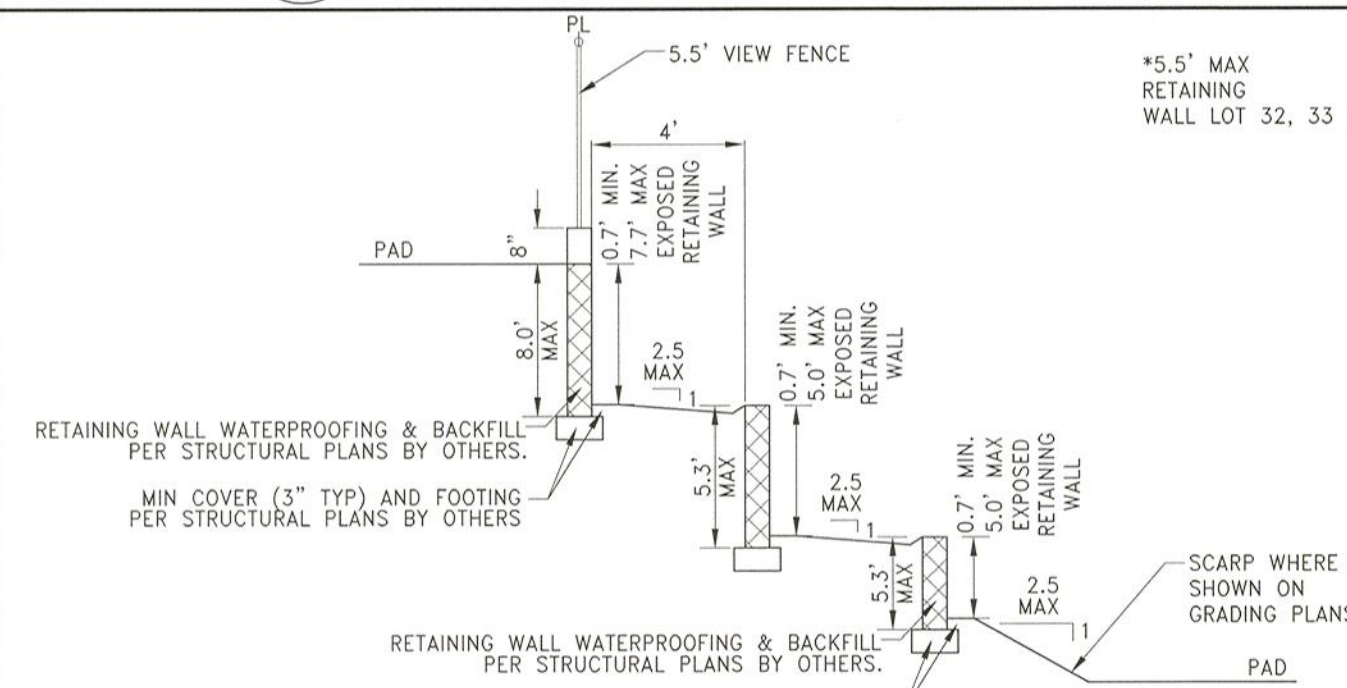
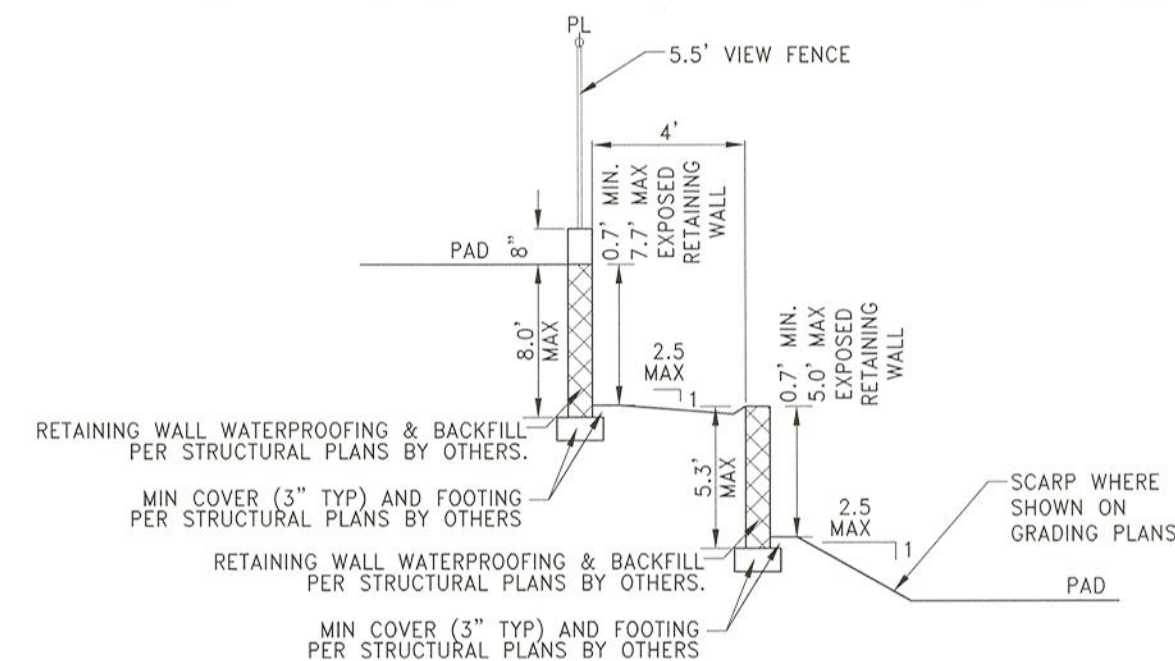
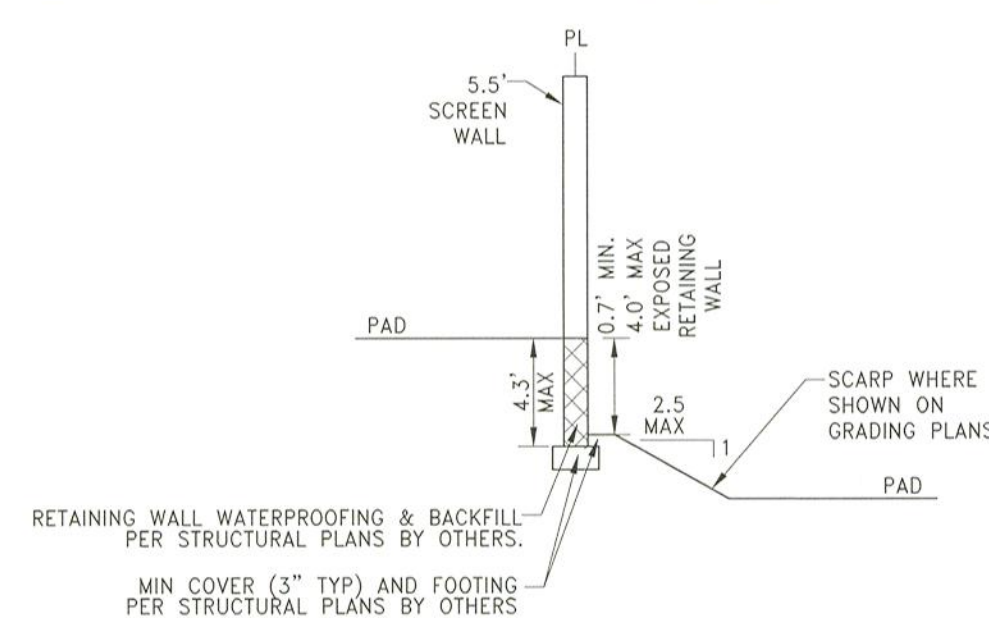
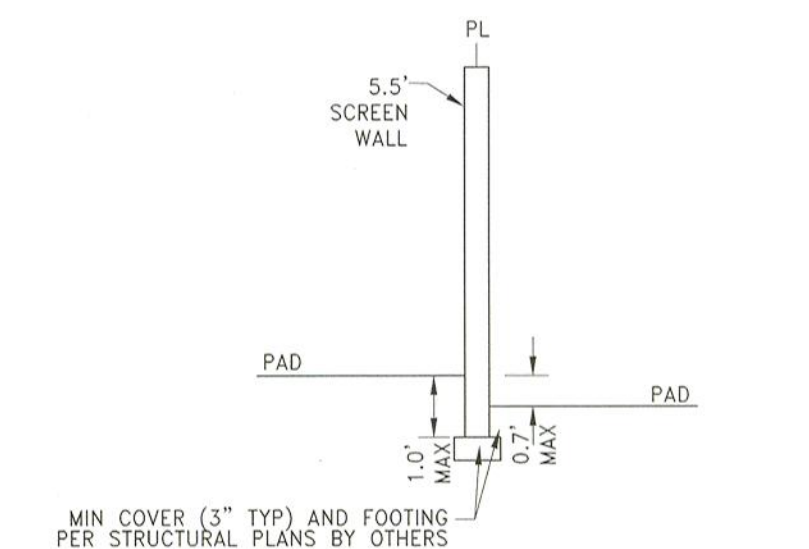
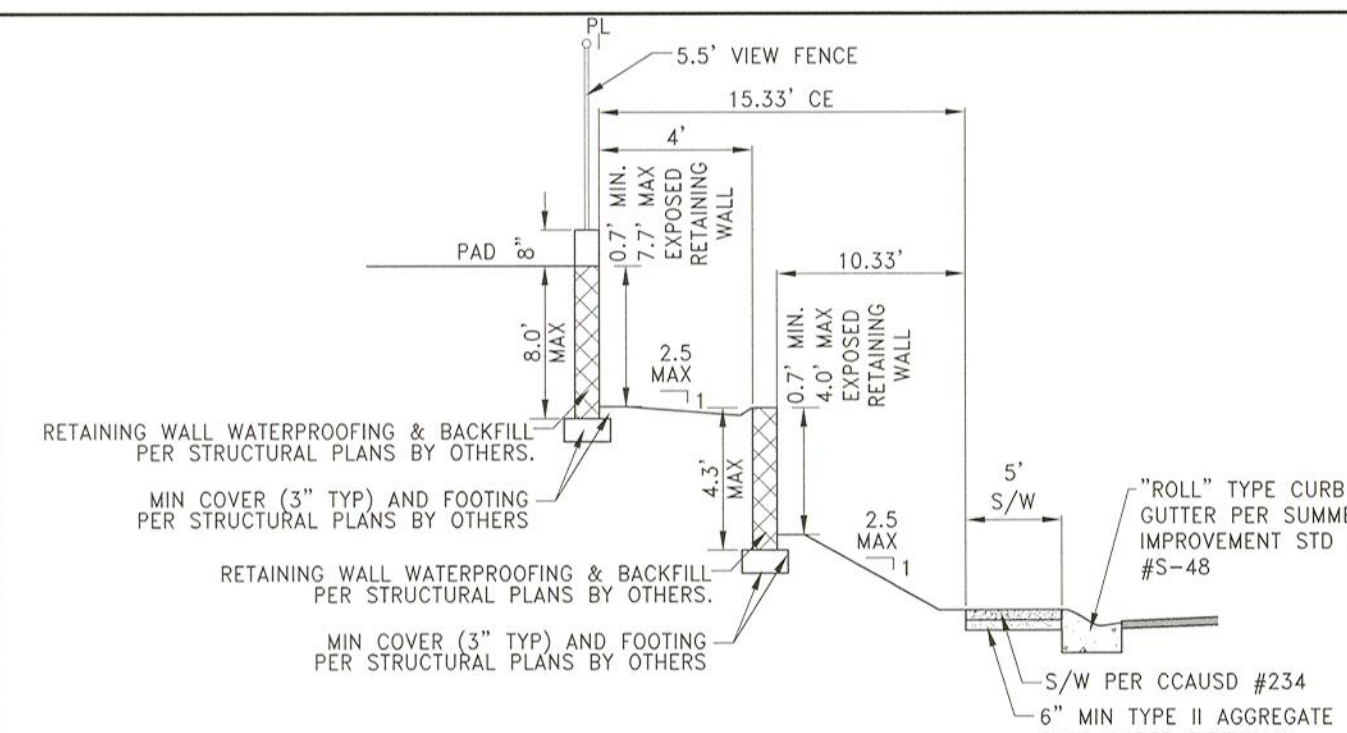
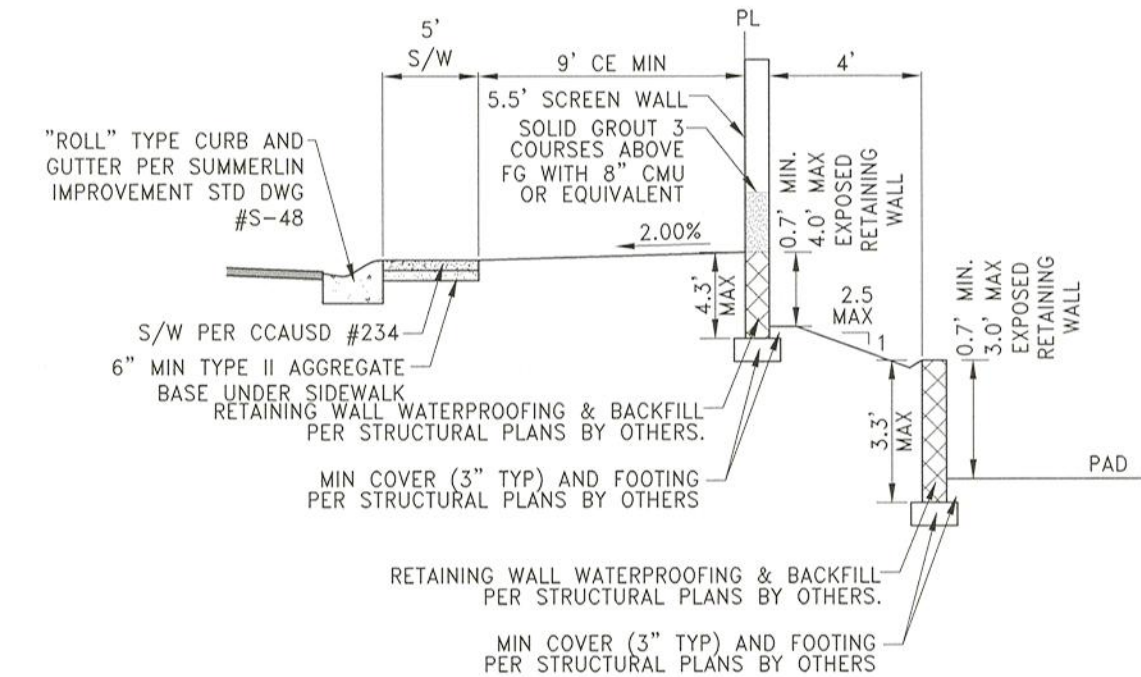
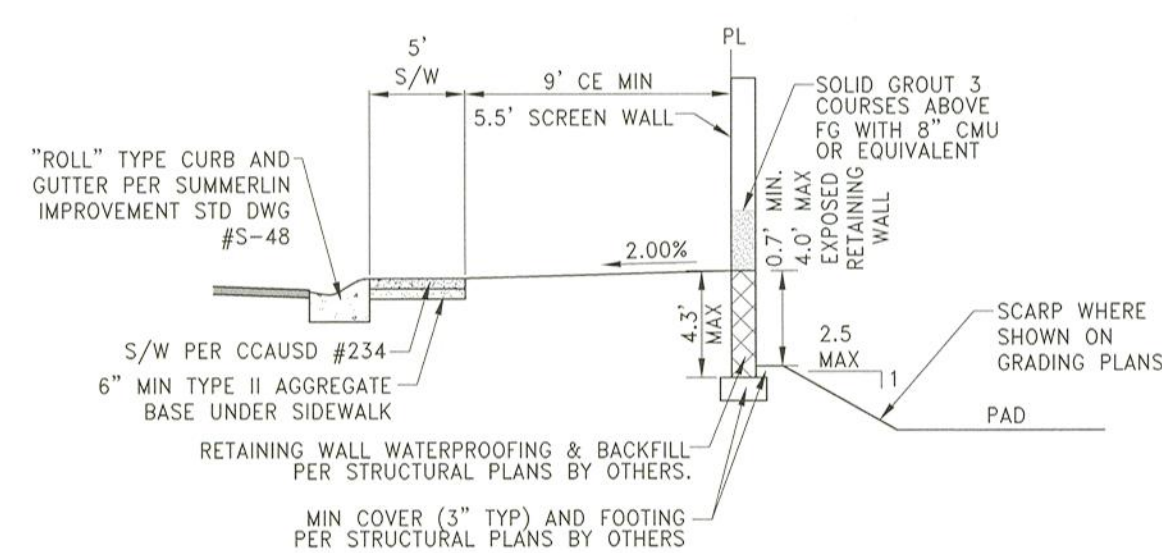
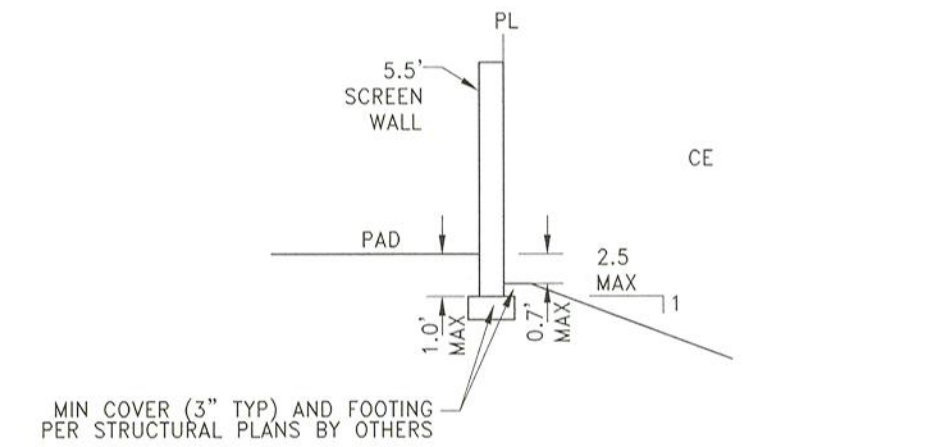
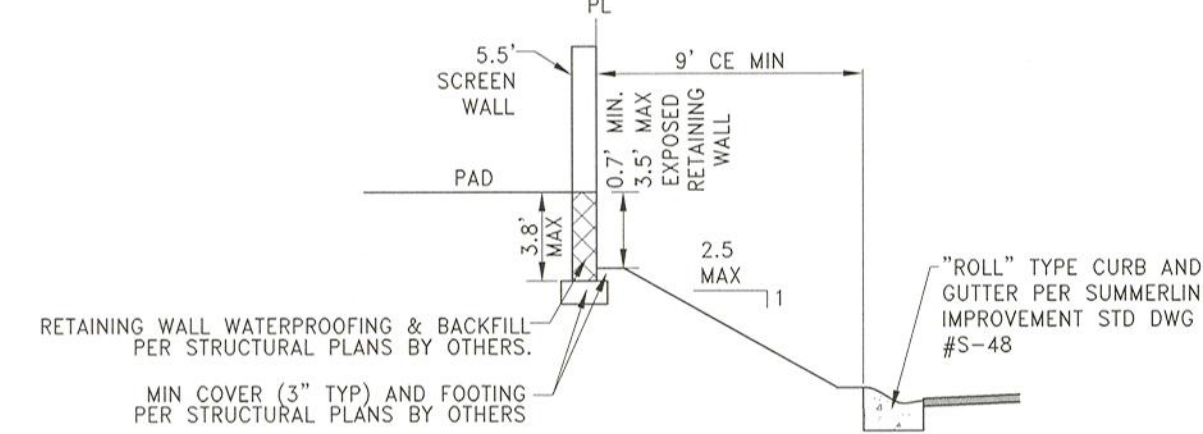
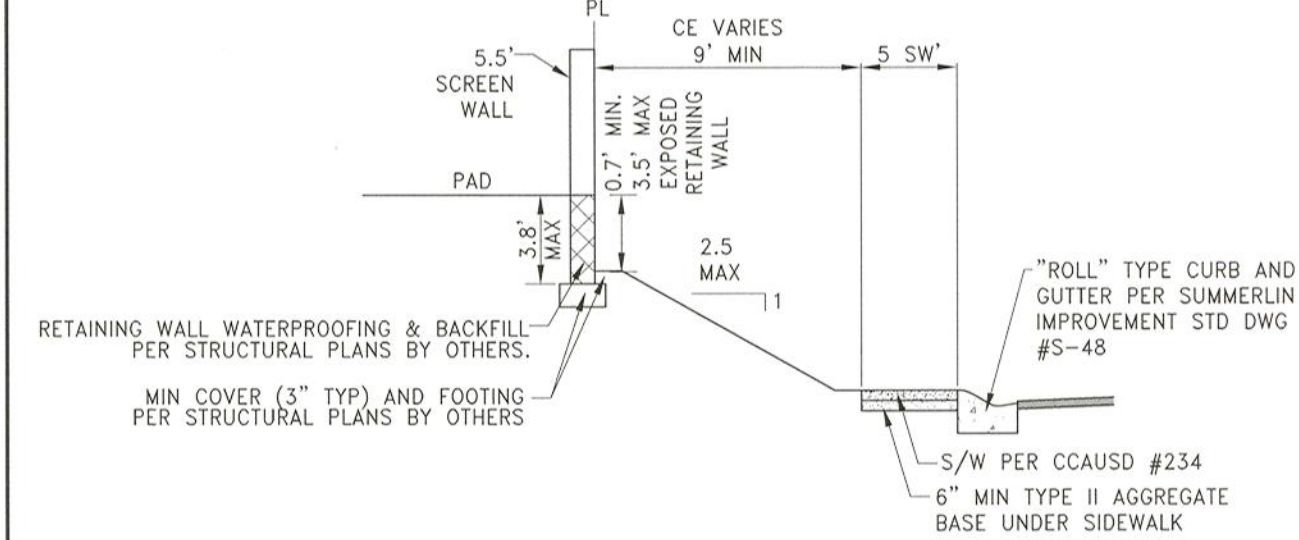
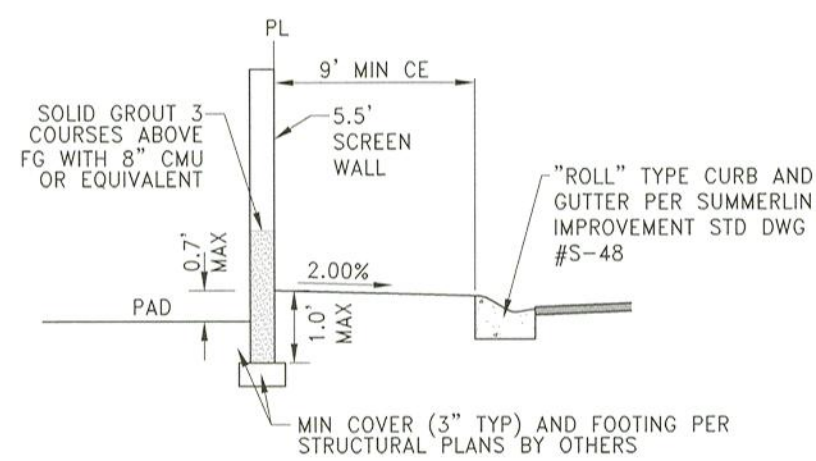
CITY OF LAS VEGAS

10/07/20 1:14pm

GEOTECHNICAL NOTE:
A GEOLOGIST OR GEOTECHNICAL ENGINEER SHALL BE ON SITE DURING EXCAVATION AND MASS GRADING OPERATIONS TO EXAMINE THE SOIL CHARACTERISTICS AND GEOLOGICAL CONDITIONS ENCOUNTERED, AND TO PROVIDE PROFESSIONAL ADVICE TO THE OWNER IN THE EVENT THAT UNANTICIPATED SOIL PROBLEMS ARISE AND/OR SUBSURFACE SITE CONDITIONS ARE FOUND TO BE SIGNIFICANTLY DIFFERENT THAN DETERMINED BY PRE-EXPLORATION AND TESTING.

WALL & SCARP NOTE:
1. CONTRACTOR TO CONSTRUCT ALL SCARP AND MAINTAIN PROPER COVER OVER AND FROM ALL WALL FOOTINGS PER THE SOILS REPORT REFERRED TO ON THE GRADING PLANS, REPORT ANY PROBLEMS IN DOING SO TO THE DEVELOPER AND THE ENGINEER IMMEDIATELY.
2. SCARP LESS THAN 1" VERTICAL NOT SHOWN ON PLANS.
3. ALL WALL ALIGNMENTS SHALL FOLLOW SIGHT VISIBILITY ZONE ALIGNMENT AND REMAIN OUTSIDE OF SIGHT VISIBILITY ZONE.

D-1
SHT 8 OF 10
CLV DRAWING NUMBER
CLV PROJECT #



GEOTECHNICAL NOTE:

A GEOLOGIST OR GEOTECHNICAL ENGINEER SHALL BE ON SITE DURING EXCAVATION AND MASS GRADING OPERATIONS TO EXAMINE THE SOIL CHARACTERISTICS AND GEOLOGICAL CONDITIONS ENCOUNTERED, AND TO PROVIDE PROFESSIONAL ADVICE TO THE OWNER IN THE EVENT THAT UNANTICIPATED SOIL PROBLEMS ARISE AND/OR SUBSURFACE SITE CONDITIONS ARE FOUND TO BE SIGNIFICANTLY DIFFERENT THAN DEFINED BY PRE EXPLORATION AND TESTING.

WALL & SCARP NOTE

1. CONTRACTOR TO CONSTRUCT ALL SCARP AND MAINTAIN PROPER COVER OVER AND FROM ALL WALL FOOTINGS PER THE SOILS REPORT REFERRED TO ON THE GRADING PLANS, REPORT ANY PROBLEMS IN DOING SO TO THE DEVELOPER AND THE ENGINEER IMMEDIATELY.
2. SCARP LESS THAN 1' VERTICAL NOT SHOWN ON PLANS.
3. ALL WALL ALIGNMENTS SHALL FOLLOW SIGHT VISIBILITY ZONE ALIGNMENT AND REMAIN OUTSIDE OF SIGHT VISIBILITY ZONE.

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND OR OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THE PROPER LOCATION. CONTRACTOR TO NOTIFY ENGINEER OF ANY CHANGES OR DISCREPANCIES.

Call
811

FAST

Call
before you
UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL
OVERLAY DIST. TO/UNDERGROUND

1-702-227-2929

CITY OF LAS VEGAS BENCHMARK 7LV09 27E4

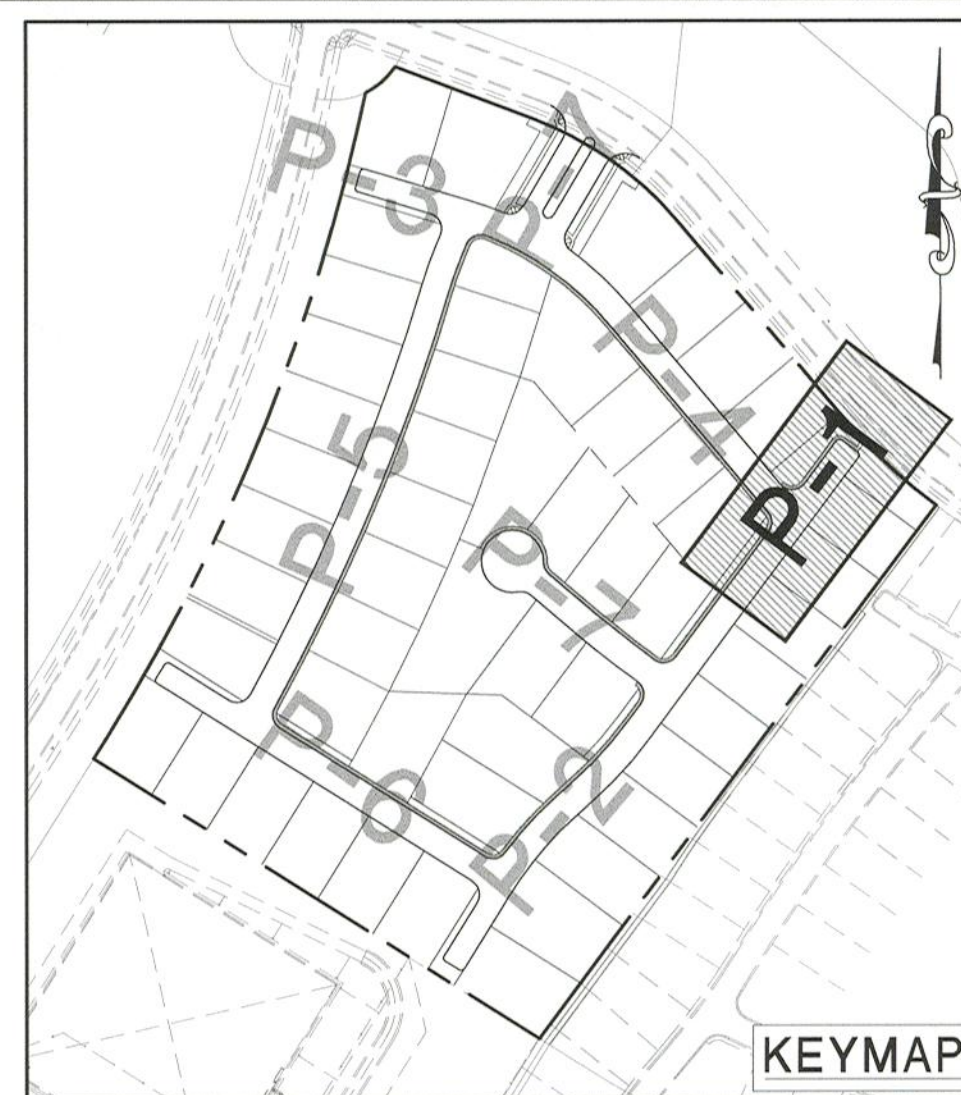
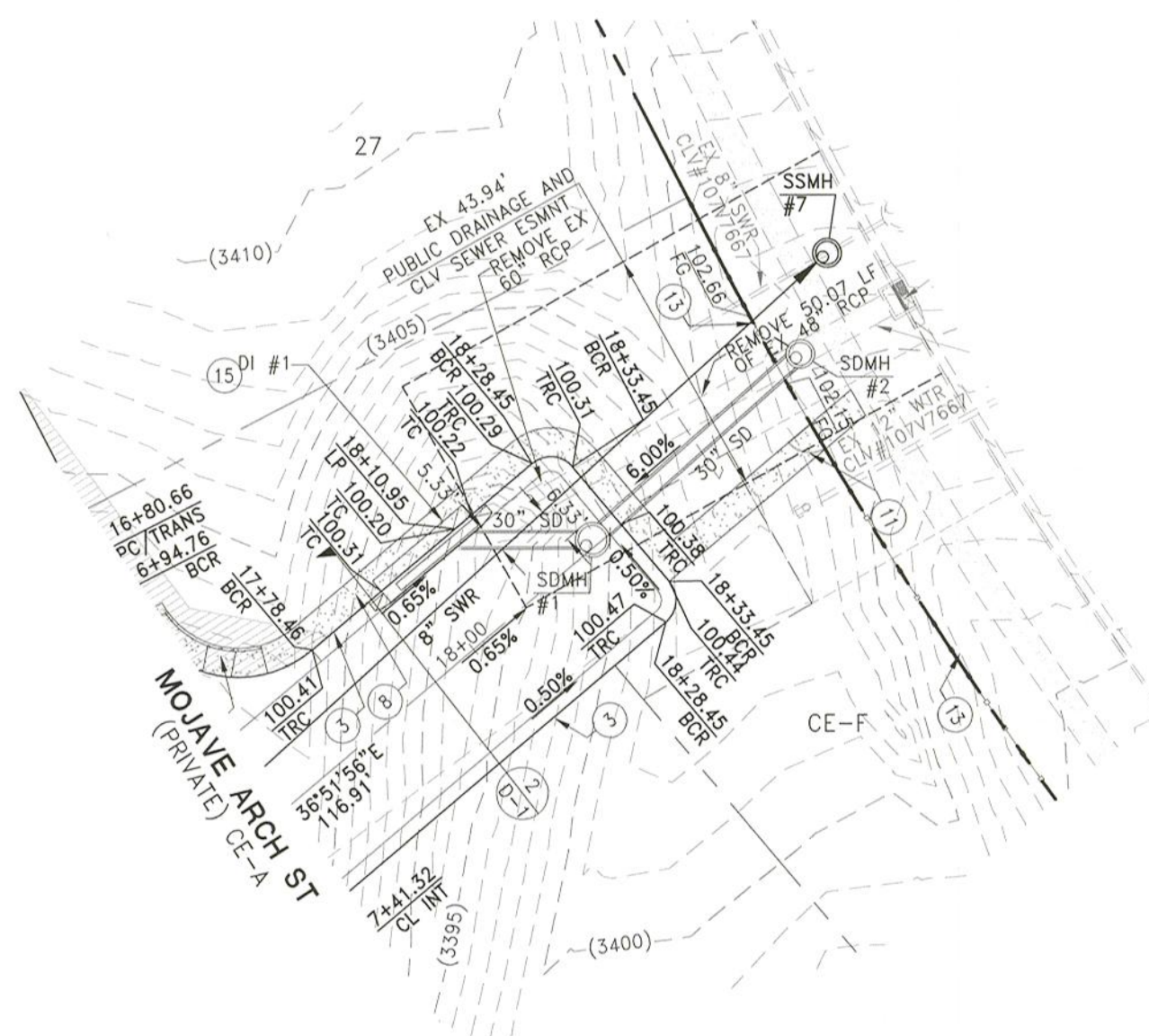
RIVET AND PLOT IN TOP OF CURB AT SOUTHEAST CORNER OF
FAR HILLS AVENUE AND DESERT FOOTHILLS DRIVE.

ELEVATION=1016.62 METERS (NAVD'88 V.2008)
ELEVATION=3335.36 US SURVEY FEET (NAVD'88 V.2008)

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA REFERENCE SYSTEM (NCRS), LAS VEGAS AND HIGH ELEVATION ZONES, NORTH AMERICAN DATUM OF 1983 (NAD83); SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.



- (1) CONSTRUCT AC PAVEMENT PER DETAILS 1 THRU 3 ON SHEET D-1
- (2) CONSTRUCT 24" 'L' CURB AND GUTTER PER CCAUSD #216
- (3) CONSTRUCT 30" 'D' CURB ROLL PER SUMMERLIN IMPROVEMENT DTD DWG #48
- (4) CONSTRUCT 'L' TYPE ISLAND CURB PER CCAUSD #219
- (5) CONSTRUCT 5' CURB TRANSITION FROM 24" 'L' TYPE CURB AND GUTTER TO 30" 'D' CURB ROLL PER DETAIL 37 SHEET D-2
- (6) CONSTRUCT CROSS GUTTER PER SUMMERLIN IMPROVEMENT DTD DWG #55-64
- (7) CONSTRUCT UNIMPROVED (ROLLED CURB) CROSS GUTTER PER SUMMERLIN IMPROVEMENT DTD DWG #55-64
- (8) CONSTRUCT SIDEWALK PER CCAUSD #234
- (9) 6" THICK WHEN ADJACENT TO ROLL CURB(S)
- (10) CONSTRUCT SIDEWALK RAMP USING ARMOR TILE TRUNCATED CONE EQUIVALENT PER CCAUSD #238 (CASE 1) SEE PLAN AND PROFILE SHEET CURVE TABLES FOR "A" AND "B" DIMENSIONS
- (11) CONSTRUCT SIDEWALK RAMP USING ARMOR TILE TRUNCATED CONE EQUIVALENT PER CCAUSD #238 (CASE 2) SEE PLAN AND PROFILE SHEET CURVE TABLES FOR "A" AND "B" DIMENSIONS
- (12) CONSTRUCT 5' WIDE PEDESTRIAN ACCESS GATE
- (13) INSTALL ELECTRONICALLY CONTROLLED ACCESS GATES
- (14) CONSTRUCT 6' HIGH WROUGHT IRON FENCE AND/OR GATES
- (15) CALL BOX
- (16) CONSTRUCT 20" TYPE CM2 DOW INLET PER CCAUSD #412.1 & #421
- (17) CONSTRUCT CONCRETE PAVERS AND 2" WIDE CONCRETE BAND PER DETAIL 36 ON SHEET D-2
- (18) EX SIDEWALK BY OTHERS
- (19) EX SIDEWALK RAMPS
- (20) EX 'L' CURB AND GUTTER



30' 15' 0' 30' 60'

HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 5'



Station	Ground Elevation	Proposed Grade Elevation	Notes
3410			
3405			
3400			
3395			
3390			
3385			
3380			
3375			
3370			
3365			
3420			
3415			
3410			
3405			
3400			
3395			
3390			
3385			
3380			
3375			
3370			
3365			

REV	DESCRIPTION	BY	APPD	DATE
	DATE: Schber 07, 2020			
	HORIZ. SCALE: 1"=50'			
	VERT. SCALE: 1"=5'			
	DRAWN BY: WM. SN.			
	DESIGNED BY: CR			
	CHECKED BY: CRZ			
	APPROVED BY: CRZ			
	PROJECT #:			

LENNAR®
 9275 W. RUSSELL RD SUITE 400, LAS VEGAS, NV 89148
 PHONE: (702) 736-9100 FAX: (702) 736-9600

IMPROVEMENT PLANS FOR SUMMERLIN VILLAGE 25 PARCEL E A SINGLE FAMILY RESIDENTIAL SUBDIVISION PLAN AND PROFILE: MOJAVE ARCH ST STA: 16+00.00-18+31.67 AND INLET #1	NEVADA
	CITY OF LAS VEGAS

PROFESSIONAL ENGINEER CHRISTOPHER R. ZRINYI Exp. 6/30/2022 CIVIL No. 13976	STATE OF NEVADA LICENSE NO. 13976
DATE: 10-7-20	
DRAWING	
P-1	
SHT 10 OF 10	
CLY DRAWING NUMBER	

3040_LENR\0058_SMRLN_V25E\CIVIL\UNIT 1\S0007_P-1.dwg	crivera	10/07/20	3:44pm
--	---------	----------	--------