

DS #:

5182.1

APN:

137-26-112.003

PROJECT:

Summerlin Village 21 - Parcel K (Maro Rodic)

SUBMITTAL:

3rd

SCANNED BY/DATE:

CHECKED BY/DATE:



CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		February 10, 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:	
	Summerlin Village 21 - Parcel K (aka Moro Rock) - Update	
Cross Streets:	SEC Desert Foothill Dr. & Kindle Corner Ave.	
File Number:	F:\Depot\DSMemos\DS5182D.doc	
Parcel Number:	137-26-112-003	
Zoning Action:	TMP-76950	
FEMA Flood Zone	YES	NO X
Proposed Storm Drain	YES X	NO
COPIES TO:		
		Slater Hanifan Group
		The Howard Hughes Corporation
		Bart Anderson, P.E., DevCo
		CCRFGD

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	8/26/2019	9/20/2019	Not Approved	\$400.00	3542401: \$400
2 nd Submittal	10/14/2019	10/24/2019	Conditional Approval	\$400.00	3609084: \$400
CCRFGD	11/20/2019	11/26/2019	Concurrence Recv'd	N/C	N/C
3 rd Submittal	1/16/2020	2/10/2020	See Comments Below	\$100.00	3709277: \$100
TOTAL FEES (LDDRS):				\$900.00	----

REMARKS:

3rd Submittal: Update to revise onsite grading and drainage design to match the originally approved Summerlin West Village 21 Master Drainage Study

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.

1. It is noted that the engineer/developer had revised the original drainage design regarding Lots 11-24 and Lots 41-58 to eliminate future burden of maintenance of the wash to the south and the amenity area to the north.

However, the revised design proposes a number of cross-lot drainage pipes which incurs the need for public drainage easements in various lots. Provide an overall plan to show all the required public drainage easements (privately maintained by the HOA).

The engineer may alternatively revise the grading plans to eliminate cross-lot drainage. By doing this, lot to lot public drainage easement will not be an issue anymore.

Address and resolve in the next submittal.

The following comment is repeated until it is complete:

2. The subject development is under the premise of flood protection by the surrounding perimeter streets and the associated storm drain systems, ie, *Desert Foothills Boulevard* and *Kindle Corner Avenue*. No occupancy permit of the houses will be issued prior to the substantial buildout of the perimeter streets.

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
HDR/AYS

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

**TECHNICAL DRAINAGE STUDY
UPDATE
Summerlin Village 21 Parcel K
(Aka Moro Rock)**

City of Las Vegas, Nevada

Job No.: RAH1908.000

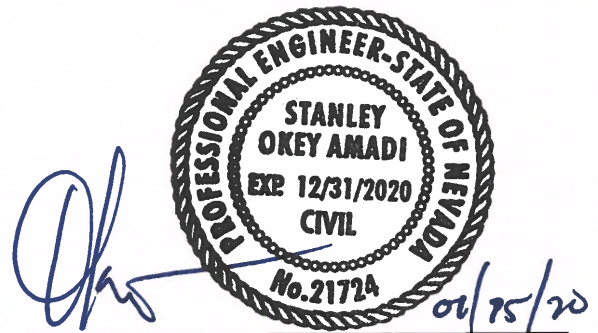
Date: January 2020

Prepared By:

Slater Hanifan Group, a Westwood Team
5740 S. Arville Street, Suite 216
Las Vegas, Nevada 89118
Phone: 702-284-5300 • Fax: 702-284-5399

Prepared For:

Richmond America Homes
7770 Dean Martin Dr., Suite #308
Las Vegas, Nevada 89139
Phone: 702-617-84 • Fax: 702-348-5964



Stanley Okey Amadi, P.E., CFM
NV Professional Engineer No. 21724

Assisted by: Caitlyn Alcantara, E.I.



RAH1908-000

January 15, 2020

Albert Sung, P.E., CFM – Flood Control Project Engineer
City of Las Vegas Department of Public Works
333 N. Rancho Drive
Las Vegas, Nevada 89106

Subject: Technical Drainage Study Update for Summerlin Village 21 Parcel K (Aka: Moro Rock; DS5182)

Mr. Sung:

This letter certifies that all items provided on the *Technical Drainage Study Update for Summerlin Village 21 Parcel K (Aka: Moro Rock)* submittal CD match the paper version bound into the study.

Respectfully Submitted,
SLATER HANIFAN GROUP, A Westwood Team

Caitlyn Alcantara, E.I.
Flood Control Division

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL
DRAINAGE STUDY INFORMATION FORM

Name of Development: Summerlin Village 21 Parcel K (Aka: Moro Rock) - Update Date: January 2020
Location of Development: a) Descriptive (Cross Streets): North/South: Desert Foothills Drive
East/West: Kindle Corner Way
b) Section: 26 Township: 20 S Range: 59 E
c) APN: 137-26-112-003

Name of Owner: Owner: Hughes Howard Company LLC Developer: Richmond American Homes
Telephone No.: 702-617-8464 Fax No.: 702-617-8499 E-mail Address: brian.walsh@mdch.com
Address: 7770 Dean Martin Drive #308 Las Vegas NV 89139

Contact Person – Name: Stanley Okey Amadi, P.E., CFM Telephone No.: (702) 284-5300
*E-mail Address: Stanley.amadi@westwoodps.com Fax No.: (702) 284-5399
Firm: Slater Hanifan Group, A Westwood Team
Address: 5740 S. Arville #216 Las Vegas NV 89118

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: 8.2 acres Being Developed/Disturbed: 8.2 acres

2. Is a portion or all of the subject property located in a 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.): Single Family Residential

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

6. Has the site drainage been evaluated in the past? ☒ Yes** ☐ No If yes, please identify documentation: _____

Summerlin West Planning Area MPU Update DS4926, Technical Drainage Study for Summerlin Village 21 Parcel K (DS5182)

7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Project will discharge flows to storm drain in Kindle Corner.

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

*Newly 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

Updated 05/01/2008



RAH1908.000

1/15/2020

Albert Sung, P.E., CFM – Flood Control Project Engineer
City of Las Vegas Department of Public Works
333 N. Rancho Drive
Las Vegas, Nevada 89106

Subject: Technical Drainage Study Update for Summerlin Village 21 – Parcel K (aka Moro Rock; DS5182)

Dear Mr. Sung:

This letter is intended to serve as the *Technical Drainage Study Update for Summerlin Village 21 – Parcel K* (aka Moro Rock and hereinafter referred to as the Update Study). The Original Study was conditionally approved by City of Las Vegas (CLV) on October 25, 2019 with final approval issued on November 26, 2019 after Clark County Regional Flood Control District (CCRFCD) issued a concurrence on November 20, 2019. The CLV and CCRFCD approval letters for the Original Study are provided in Appendix A.

This Update Study is provided to address grading changes to the project site generated per Summerlin's (The Howard Hughes Corporation; THHC) review as well as address the conditions on the CLV approval letter. A copy of the Summerlin comment letter of December 13, 2019 has been provided in Appendix A for reference.

Summerlin's review specifically addressed comments 5 and 6 made by CLV which became the conditions of approval of the Original Study. Both comments have been addressed by regrading Lots 11-24 and 41-58 to drain to Bearpaw Meadow Avenue and Redwood Mountain Avenue instead of Kindle Corner Avenue and the southern wash respectively. Note that yard drains with 6" PVC pipes have been provided to drain portions of the above referenced lots into the streets. The area conveyed by each yard drain have been determined to be approximately 0.05 acres which will generate a flow rate of 0.19 cfs based on the 3.7cfs/acre ratio estimated for the site. This flow rate is considered very insignificant; thus, no computations have been provided for the area drains and 6" PVC pipes. In addition, the finished floors have been elevated a minimum of 6" above the high points of the overflow paths should the yard drains and PVC pipes become completely clogged. It should also be noted that a small portion of the project parcel (Common Elements J, K & H), specifically subbasins *K(g), *K(h1), and *K(h2), will continue to sheet flow offsite in deviation from the master drainage study. Subbasins *K(h1), and *K(h2) are landscape areas needed to tie back into existing ground, and the flow generated from these basins equate to three (3) cfs. As previously submitted subbasin *K(g) is the portion of the project site from the entryway high point to project boundary which generates insignificant flow (<1 cfs) that will drain into Desert Foothills Street.

Hydrologic Analyses: No new hydrologic analyses have been provided with the Update Study. Boundary lines for subbasins *K(b) and *K(h) have been adjusted to clearly separate the runoff routed to Redwood Mountain Avenue from lots 41-58 and the runoff generated by the landscape. Subbasin *K(h) has been further subdivided into two subbasins *K(h1) and *K(h2) to distinguish

flow approaching the eastern arroyo and the southern wash. Boundary lines for subbasin *K(i) have not been adjusted, though the flow direction has been changed.

Hydraulic Analyses: Hydraulic computations have been adjusted in three areas with this Update Study: street flow computations, drop inlet sizing, and emergency overflow computations. Refer to Exhibit E, provided in Appendix B for a summary of street sections for the proposed condition.

Street Flows and Emergency Overflow: Emergency overflow section EO and street sections B, D, E and F have been revised to reflect the additional impacting flow from subbasins *K(b) and *K(i). Note that street slopes for sections E and F have been revised to reflect the applicable slopes from the revised grading plan. Though flow depths and velocities have generally increased, street flow criteria are still met and onsite velocities are still not erosive. Finished floor computations have been revised and are provided in Appendix E. A table summarizing street sections is provided on Exhibit E for the ultimate condition included in Appendix B.

Storm Drain and Drop Inlets: The contributing flow to drop inlet SDDI#1 increased by six (6) cfs due to the additional flow from subbasins *K(b) and *K(i). The size of the inlet has increased by 2.5-ft from a 12.5-ft Type CM2 Drop Inlet to a 15-ft Type CM2 Drop Inlet. The expected ponding is still limited to curb height inclusive of the 2" depression. The lateral loss and nomograph computations have been revised to reflect the new flow rate. Note that the starting HGL is referenced from the profile of the storm drain stub provided by VTN (see Appendix G for reference). The 24-inch reinforced concrete pipe (RCP) size remains adequate as previously proposed since the storm drain still meets all CCRFCD storm drain design criteria.

Finished Floors: Finished floors have been analyzed to ensure adequate protection against the following: emergency overflow path, adjacent streets, fronting streets, and specific energy. Review of the finished floor analyses indicate that the proposed finished floors will be adequately flood protected during the 100-year storm event.

Conclusions: The adjusted drainage patterns results in no adverse impacts to the adjacent and or downstream properties. The proposed storm drain facilities are still in compliance with the CCRFCD Manual. Therefore, the adjusted drainage patterns and development is considered acceptable.

We believe the above responses, revised computations and revisions provided on the plans have adequately satisfied your concerns as stipulated in the review memorandum. The revised plan, profile, and detail sheets adopting the revisions addressed in in this letter have been included in Appendix G. If you have any questions or require additional information, please do not hesitate to contact us at (702) 284-5300.

Respectfully Submitted,

SLATER HANIFAN GROUP, A WESTWOOD TEAM



Caitlyn Alcantara, E.I.
Flood Control Division

cc: Stanley Okey Amadi, P.E., CFM
Mark Failla, P.E., CFM – SHG
Isaac Guzman, P.E. – SHG
Kevin Bross, P.E. – SHG

APPENDIX

Appendix A Approval and Comment Letters

Appendix B Revised Drainage Exhibits

Appendix C Revised FlowMaster Computations

Appendix D Revised Storm Drain Hydraulic Computations

Appendix E Revised Finished Floor Analyses Tables

Appendix F Reference Material:
*Summerlin West Village 21 Kindle Corner Avenue (Street B) Carriage Hill to
Desert Foothills Drive
by VTN*

Appendix G Previously Approved Exhibit and Improvement Plans

Appendix H CD of Electronic Files & Revised Improvement Plans

APPENDIX A

Approval and Comment Letters

CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		November 26, 2019
TO: Land Development Services Department of Building & Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	COPIES TO:	
Drainage Study for:	Slater Hanifan Group	
Summerlin Village 21 - Parcel K (aka Moro Rock)	The Howard Hughes Corporation	
Cross Streets:	SEC Desert Foothill Dr. & Kindle Corner Ave.	Bart Anderson, P.E., DevCo
File Number:	F:\Depot\DSMemos\DS5182C.doc	CCRFC
Parcel Number:	137-26-112-003	
Zoning Action:	TMP-76950	
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	8/26/2019	9/20/2019	Not Approved	\$400.00	3542401: \$400
2 nd Submittal	10/14/2019	10/24/2019	Conditional Approval	\$400.00	3609084: \$400
CCRFC	11/20/2019	11/26/2019	Concurrence Recv'd	N/C	N/C
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 subject development is under the premise of flood protection by the surrounding perimeter streets and the associated storm drain systems, ie, *Desert Foothills Boulevard* and *Kindle Corner Avenue*. No occupancy permit of the houses will be issued prior to the substantial buildout of the perimeter streets.
- Second Request: Exhibit E (Proposed Drainage Map):** The proposed drainage pattern deviates from the approved Summerlin West Village 21 master drainage study. For example, Subbasin K*(h) of the southern portion of the subject development drains to the adjacent wash and Subbasin K*(i) of the northern portion drains individually through the sidewalk and common area to Kindle Corner Avenue directly. The master study of Village 21, however, proposed to drain the whole Parcel K to a stub at the northeast corner.

The engineer of the subject drainage study must coordinate with VTN Nevada to amend the Village 21 master study or revise the subject drainage pattern to comply with the original approved pattern. This must be addressed and resolved in the next submittal.

The response was that VTN Nevada will submit an amendment to the Summerlin Village 21 Master Drainage Study to address the deviation of drainage pattern. The subject Improvement Plans will not be approved prior to the final approval of the Master Study Update.

3. **Second Request:** *The proposed drainage pattern will produce numerous point discharge to the wash to the south and to the amenity common area to the north creating erosion and maintenance problem in the future. Note that the wash and the common amenity zone are to be privately maintained by the Howard Hughes Company or the Summerlin Master Association. If the proposed drainage pattern is the final design, obtain acknowledgment and approval from Howard Hughes Company or the Summerlin Master Association prior to the final approval of the subject drainage study.*

The response was that the Tentative Map and the conceptual grading plan for the site were reviewed and approved by Summerlin prior to the drainage study submittal to the City. However, the attached copy of approval from Summerlin did not specifically address the issue of the extra maintenance because of the deviation from the approved master drainage study.

Obtain a letter of approval or acknowledgment specifically for the above commented issue from Summerlin prior to the final approval of the *Improvement Plans*.

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
HDR/AYS

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

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

Stavros Anthony
City of Las Vegas

Isaac Barron
City of North Las Vegas

Mayor Kieman McManus
City of Boulder City

November 20, 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: SUMMERLIN VILLAGE 21 - PARCEL K (AKA
MORO ROCK)
(DS5182B) (RFCD No. 19-11388)**

Dear Mr. Kwon:

Clark County Regional Flood Control District (District) reviewed Technical Drainage Study dated August 26, 2019, Addendum No. 1 dated October 14, 2019 for above-mentioned project as submitted by SLATER HANIFAN GROUP. In addition, District is in receipt of the Conditional Letter of Acceptance from City of Las Vegas Department of Public Works dated October 24, 2019.

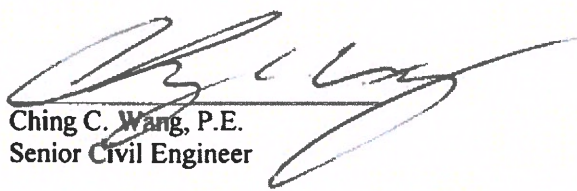
District concurs with acceptance of this Technical Drainage Study by City of Las Vegas Department of Public Works.

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 SLATER HANIFAN GROUP 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: Stanley Okey Amadi, P.E., Slater Hanifan Group

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Angela Pinley
Richmond American Homes
7770 S. Dean Martin Drive, #308
Las Vegas, NV 89139



December 13, 2019

Re: SDRC Parcel K | Technical Drainage Study | Not Approved | Summerlin Village 21 (Redpoint) Richmond American Homes

Dear Angela –

The Summerlin Design Review Committee (SDRC) has reviewed the following for the above-mentioned Village:

- Technical Drainage Study dated 8/26/2019
- Technical Drainage Study Addendum dated 10/14/19

The Technical Drainage Studies were previously prepared and submitted to the City of Las Vegas without SDRC's review or approval. The SDRC is concerned that the Drainage Basins are not consistent with the Approved Master Plan as indicated by the City of Las Vegas:

- **City Comment 5** clearly states that the proposed drainage pattern deviates from the approved Summerlin West Village 21 Master Drainage Study. Specifically, Basin K(h) discharges 6 cfs to the adjacent wash, and Basin K(i) discharges 3 cfs directly to the adjacent street (Kindle Corner Avenue).

In response to the City it was stated (without coordination with the SDRC or Howard Hughes) that Richmond American Homes (RAH) was coordinating directly with the Master Developer's Engineer (VTN) and that VTN would provide an update to the Master Study.

Please note that the SDRC is not supportive of any coordination with the Master Developers Consultants taking place without the direct consent of the SDRC. Any and all coordination must originate through the SDRC.

Howard Hughes.

- **City Comment 6** correctly identifies that the drainage pattern will produce numerous point discharge to the wash to the south and to the amenity common area to the north, creating erosion and maintenance problems in the future. The SDRC agrees with this concern and is not supportive of the proposed design.

Richmond American Homes has responded to the City that they are coordinating with the Summerlin Master Association. The Summerlin Master Association and SDRC are unaware of any such coordination.

Please contact us if you have any questions.

Sincerely,



Sharon D. Thompson
Design Review Coordinator, Summerlin

APPENDIX B

Revised Drainage Exhibits

APPENDIX C

Revised FlowMaster Computations

Worksheet for B

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.87	%
Discharge	5.00	ft³/s
Section Definitions		

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.35	0.38
0+01.33	0.06
0+01.33	0.00
0+02.50	0.13
0+02.50	0.17
0+18.00	0.48

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+02.50, 0.13)	0.013
(0+02.50, 0.13)	(0+18.00, 0.48)	0.016

Options

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

Results

Normal Depth	0.35	ft
Elevation Range	0.00 to 0.48 ft	
Flow Area	1.30	ft²
Wetted Perimeter	11.35	ft
Hydraulic Radius	0.11	ft

Worksheet for B

Results

Top Width	11.19	ft
Normal Depth	0.35	ft
Critical Depth	0.43	ft
Critical Slope	0.00669	ft/ft
Velocity	3.85	ft/s
Velocity Head	0.23	ft
Specific Energy	0.58	ft
Froude Number	1.99	
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	0.43	ft
Channel Slope	2.87	%
Critical Slope	0.00669	ft/ft

Cross Section for B

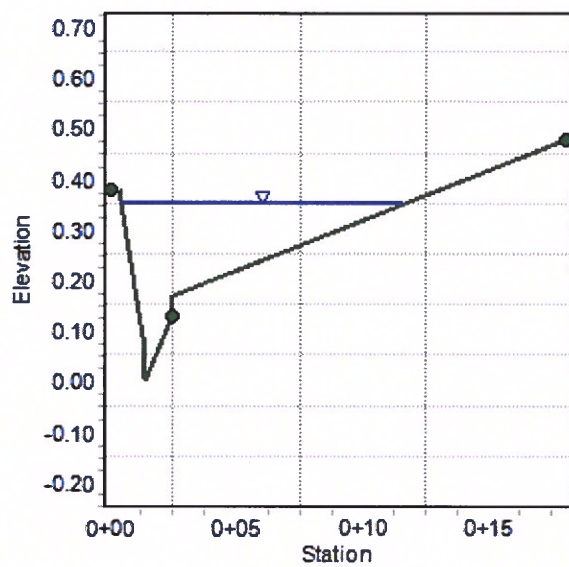
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.87 %
Normal Depth	0.35 ft
Discharge	5.00 ft ³ /s

Cross Section Image



Worksheet for D

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.60	%
Discharge	20.00	ft ³ /s
Section Definitions		

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.35	0.38
0+01.33	0.06
0+01.33	0.00
0+02.50	0.13
0+02.50	0.17
0+15.00	0.42
0+27.50	0.17
0+27.50	0.13
0+28.67	0.00
0+28.67	0.06
0+29.65	0.38
0+30.00	0.38

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+02.50, 0.13)	0.013
(0+02.50, 0.13)	(0+27.50, 0.13)	0.016
(0+27.50, 0.13)	(0+30.00, 0.38)	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 D

Results

Normal Depth		0.51	ft
Elevation Range	0.00 to 0.42 ft		
Flow Area		7.12	ft²
Wetted Perimeter		30.58	ft
Hydraulic Radius		0.23	ft
Top Width		30.00	ft
Normal Depth		0.51	ft
Critical Depth		0.51	ft
Critical Slope		0.00579	ft/ft
Velocity		2.81	ft/s
Velocity Head		0.12	ft
Specific Energy		0.63	ft
Froude Number		1.02	
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	0.51	ft
Critical Depth	0.51	ft
Channel Slope	0.60	%
Critical Slope	0.00579	ft/ft

Cross Section for D

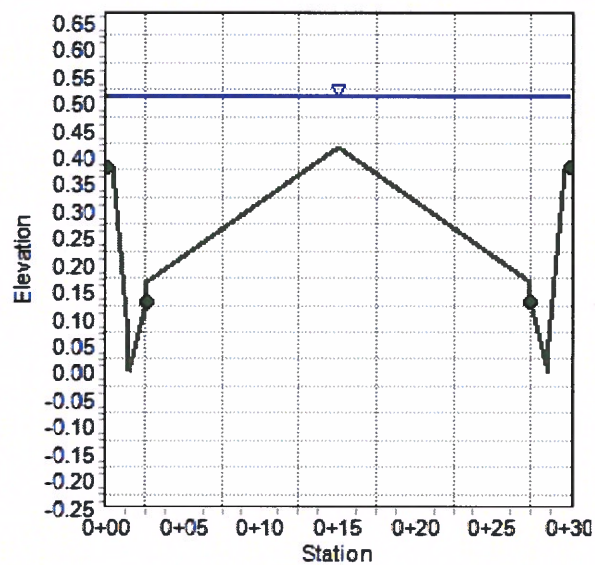
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.60 %
Normal Depth	0.51 ft
Discharge	20.00 ft ³ /s

Cross Section Image



Project Description

Solve For	Normal Depth
-----------	--------------

Input Data

Discharge	5.00	ft ³ /s
-----------	------	--------------------

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.35	0.38
0+01.33	0.06
0+01.33	0.00
0+02.50	0.13
0+02.50	0.17
0+15.00	0.42
0+27.50	0.17
0+27.50	0.13
0+28.67	0.00
0+28.67	0.06
0+29.65	0.38
0+30.00	0.38

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+02.50, 0.13)	0.013
(0+02.50, 0.13)	(0+27.50, 0.13)	0.016
(0+27.50, 0.13)	(0+30.00, 0.38)	0.013

Options

Closed Channel Weighting Method Pavlovskii's Method

Worksheet for E (Max Slope)

Results

Normal Depth		0.27	ft
Elevation Range	0.00 to 0.42	ft	
Flow Area		1.11	ft ²
Wetted Perimeter		13.90	ft
Hydraulic Radius		0.08	ft
Top Width		13.62	ft
Normal Depth		0.27	ft
Critical Depth		0.35	ft
Critical Slope		0.00706	ft/ft
Velocity		4.49	ft/s
Velocity Head		0.31	ft
Specific Energy		0.58	ft
Froude Number		2.77	
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	0.27	ft
Critical Depth	0.35	ft
Channel Slope	6.15	%
Critical Slope	0.00706	ft/ft

Cross Section for E (Max Slope)

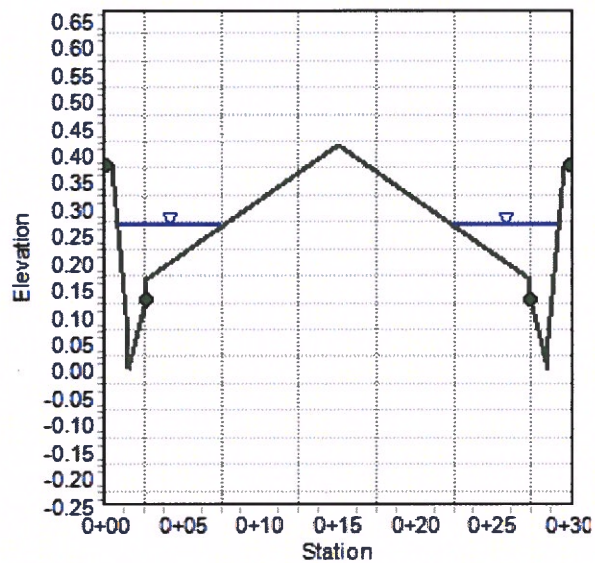
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	6.15 %
Normal Depth	0.27 ft
Discharge	5.00 ft ³ /s

Cross Section Image



Worksheet for E (Min Slope)

Results

Normal Depth		0.29	ft
Elevation Range	0.00 to 0.42		ft
Flow Area		1.33	ft²
Wetted Perimeter		15.53	ft
Hydraulic Radius		0.09	ft
Top Width		15.24	ft
Normal Depth		0.29	ft
Critical Depth		0.35	ft
Critical Slope		0.00712	ft/ft
Velocity		3.75	ft/s
Velocity Head		0.22	ft
Specific Energy		0.50	ft
Froude Number		2.23	
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	0.29	ft
Critical Depth	0.35	ft
Channel Slope	3.94	%
Critical Slope	0.00712	ft/ft

Cross Section for E (Min Slope)

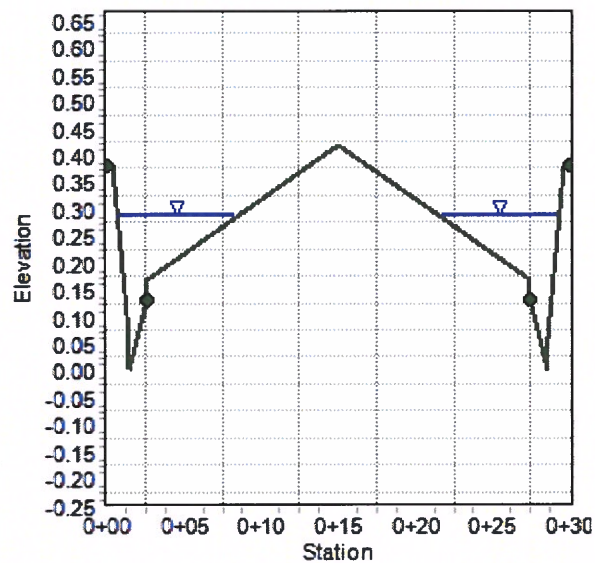
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	3.94 %
Normal Depth	0.29 ft
Discharge	5.00 ft ³ /s

Cross Section Image



Worksheet for F (Max Slope)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.20	%
Discharge	27.00	ft ³ /s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.35	0.38
0+01.33	0.06
0+01.33	0.00
0+02.50	0.13
0+02.50	0.17
0+15.00	0.42
0+27.50	0.17
0+27.50	0.13
0+28.67	0.00
0+28.67	0.06
0+29.65	0.38
0+30.00	0.38

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+02.50, 0.13)	0.013
(0+02.50, 0.13)	(0+27.50, 0.13)	0.016
(0+27.50, 0.13)	(0+30.00, 0.38)	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 F (Max Slope)

Results

Normal Depth		0.47	ft
Elevation Range	0.00 to 0.42 ft		
Flow Area		5.76	ft²
Wetted Perimeter		30.49	ft
Hydraulic Radius		0.19	ft
Top Width		30.00	ft
Normal Depth		0.47	ft
Critical Depth		0.57	ft
Critical Slope		0.00544	ft/ft
Velocity		4.68	ft/s
Velocity Head		0.34	ft
Specific Energy		0.81	ft
Froude Number		1.88	
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	0.47	ft
Critical Depth	0.57	ft
Channel Slope	2.20	%
Critical Slope	0.00544	ft/ft

Cross Section for F (Max Slope)

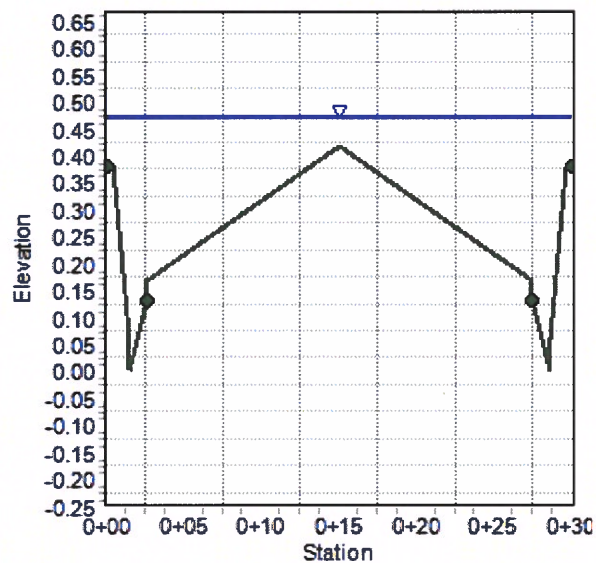
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.20	%
Normal Depth	0.47	ft
Discharge	27.00	ft ³ /s

Cross Section Image



Project Description

Solve For	Normal Depth
-----------	--------------

Discharge	27.00	ft ³ /s
-----------	-------	--------------------

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.35	0.38
0+01.33	0.06
0+01.33	0.00
0+02.50	0.13
0+02.50	0.17
0+15.00	0.42
0+27.50	0.17
0+27.50	0.13
0+28.67	0.00
0+28.67	0.06
0+29.65	0.38
0+30.00	0.38

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+02.50, 0.13)	0.013
(0+02.50, 0.13)	(0+27.50, 0.13)	0.016
(0+27.50, 0.13)	(0+30.00, 0.38)	0.013

Closed Channel Weighting Method	Pavlovskii's Method
$W_{\text{CC}} = \frac{1}{N} \sum_{i=1}^N \frac{1}{\sqrt{1 + \frac{1}{\lambda} \left(\frac{1}{\sigma_i^2} - \frac{1}{\sigma_{\text{max}}^2} \right)}}$	$W_{\text{P}} = \frac{1}{N} \sum_{i=1}^N \frac{1}{\sqrt{1 + \frac{1}{\lambda} \left(\frac{1}{\sigma_i^2} - \frac{1}{\sigma_{\text{max}}^2} \right)}}$

Worksheet for F (Min Slope)

Results

Normal Depth		0.50	ft
Elevation Range	0.00 to 0.42		ft
Flow Area		6.85	ft ²
Wetted Perimeter		30.57	ft
Hydraulic Radius		0.22	ft
Top Width		30.00	ft
Normal Depth		0.50	ft
Critical Depth		0.57	ft
Critical Slope		0.00544	ft/ft
Velocity		3.94	ft/s
Velocity Head		0.24	ft
Specific Energy		0.74	ft
Froude Number		1.45	
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	0.50	ft
Critical Depth	0.57	ft
Channel Slope	1.24	%
Critical Slope	0.00544	ft/ft

Cross Section for F (Min Slope)

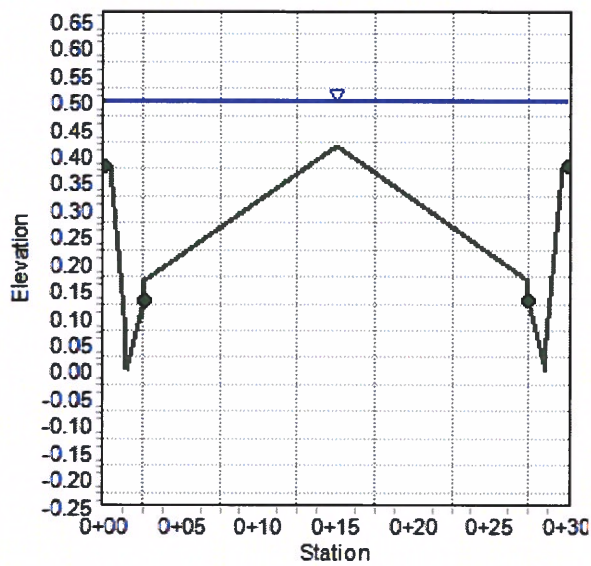
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.24 %
Normal Depth	0.50 ft
Discharge	27.00 ft ³ /s

Cross Section Image



Worksheet for EO: Emergency Overflow (Normal Depth)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.025
Channel Slope	2.00 %
Bottom Width	50.00 ft
Discharge	27.00 ft ³ /s

Results

Normal Depth	0.19 ft
Flow Area	9.66 ft ²
Wetted Perimeter	50.39 ft
Hydraulic Radius	0.19 ft
Top Width	50.00 ft
Critical Depth	0.21 ft
Critical Slope	0.01553 ft/ft
Velocity	2.79 ft/s
Velocity Head	0.12 ft
Specific Energy	0.31 ft
Froude Number	1.12
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	0.19 ft
Critical Depth	0.21 ft
Channel Slope	2.00 %
Critical Slope	0.01553 ft/ft

Cross Section for EO: Emergency Overflow (Normal Depth)

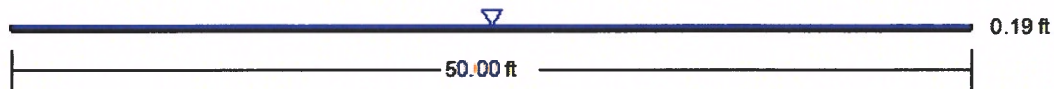
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.025
Channel Slope	2.00 %
Normal Depth	0.19 ft
Bottom Width	50.00 ft
Discharge	27.00 ft ³ /s

Cross Section Image



V: 1
H: 1



Worksheet for EO: Emergency Overflow (Weir)

Project Description

Solve For Headwater Elevation

Input Data

Discharge		27.00	ft ³ /s
Crest Elevation		0.00	ft
Tailwater Elevation		0.19	ft
Crest Surface Type	Paved		
Crest Breadth		0.50	ft
Crest Length		50.00	ft

Results

Headwater Elevation	0.31	ft
Headwater Height Above Crest	0.31	ft
Tailwater Height Above Crest	0.19	ft
Weir Coefficient	3.09	US
Submergence Factor	1.00	
Adjusted Weir Coefficient	3.09	US
Flow Area	15.64	ft ²
Velocity	1.73	ft/s
Wetted Perimeter	50.63	ft
Top Width	50.00	ft

Cross Section for EO: Emergency Overflow (Weir)

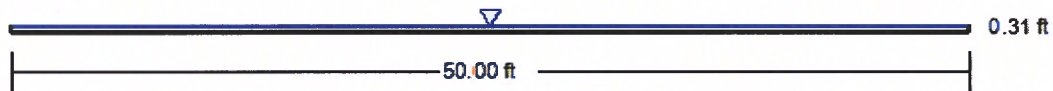
Project Description

Solve For Headwater Elevation

Input Data

Discharge	27.00	ft ³ /s
Headwater Elevation	0.31	ft
Crest Elevation	0.00	ft
Tailwater Elevation	0.19	ft
Crest Surface Type	Paved	
Crest Breadth	0.50	ft
Crest Length	50.00	ft

Cross Section Image



V: 1
H: 1

APPENDIX D

Revised Storm Drain Hydraulic Computations

Curb Inlet Sizing Computation



Project Name & Number: RAH1908: MORO ROCK (SUMM V21 PARCEL K)
 Date: 1/13/2020
 By: CAA

Notes:

Facility ID: SDDI#1
 Drainage Condition: Proposed
 Source of Flow: Q100 = Basin K(a+b+c+d+e+f+i)
 Design Flow (cfs): 27.0
 Inlet Type: Type CM2 (Sump)
 Inlet Length: 15.-ft
 Number of Grates: 5

Input:

Depth at Inlet (ft)
 Grate Width (ft)
 Length of Grate (ft)
 Length of Curb Opening (ft)
 Height of Curb Opening (ft)
 Weir Coef. - Curb Opening
 Weir Coef. - Grate
 Orifice Coef.
 Grate Coef.
 Clogging Factor - Grate (%)
 Clogging Factor - Curb (%)

Variable:

D
 W
 L_g
 L_c
 H
 W_c
 W_g
 O_c
 G_c
 CF_g
 CF_c

Input:

0.67
 1.50
 12.3
 14.50
 0.50
 2.3
 3.0
 0.67
 0.60
 50
 50

Output (Grate):

Effective Weir Length (ft)
 Adjusted Effective Weir Length (ft)
 Grate Open Area (sf)
 Adjusted Grate Open Area (sf)
 Controlling Flow Type (weir/orifice)
 Intercepted Flow (cfs)

Equation:

$2*W+L_g$
 $2*(1-CF_g/100)*W+(1-CF_g/100)*L_g$
 $W*L_g$
 $Grate\ Open\ Area * G_c*(1-CF_g/100)$
 If $D < 1.792*(Adj.\ Grate\ Open\ Area/Adj.\ Eff.\ Length)$
 use weir, else orifice
 weir: $W_g*(Adj.\ Eff.\ Weir\ Length)*D^{1.5}$
 orifice: $O_c*(Adj.\ Grate\ Open\ Area)*(64.4*D)^{0.5}$

Output (Grate):

15.25
 7.63
 18.38
 5.51
 weir
 12.5

Output (Curb):

Effective Weir Length (ft)
 Adjusted Effective Weir Length (ft)
 Curb Open Area (sf)
 Adjusted Curb Open Area (sf)
 Controlling Flow Type (weir/orifice)
 Intercepted Flow (cfs)

Equation:

$L+1.8*W$
 $L+1.8(1-CF_c/100)*W$
 $L*H$
 $Curb\ Open\ Area * (1-CF_c/100)$
 If $D < H$, weir, else orifice
 weir: $W_c*(Adj.\ Eff.\ Weir\ Length)*D^{1.5}$
 orifice: $O_c*(Adj.\ Curb\ Open\ Area)*(64.4*(D-H/2))^{0.5}$

Output (Curb):

17.20
 15.91
 7.25
 3.63
 orifice
 15.87

Output (Total):

Capacity Intercepted Flow (cfs)

Equation:

Intercepted (Grate) + Intercepted (Curb)

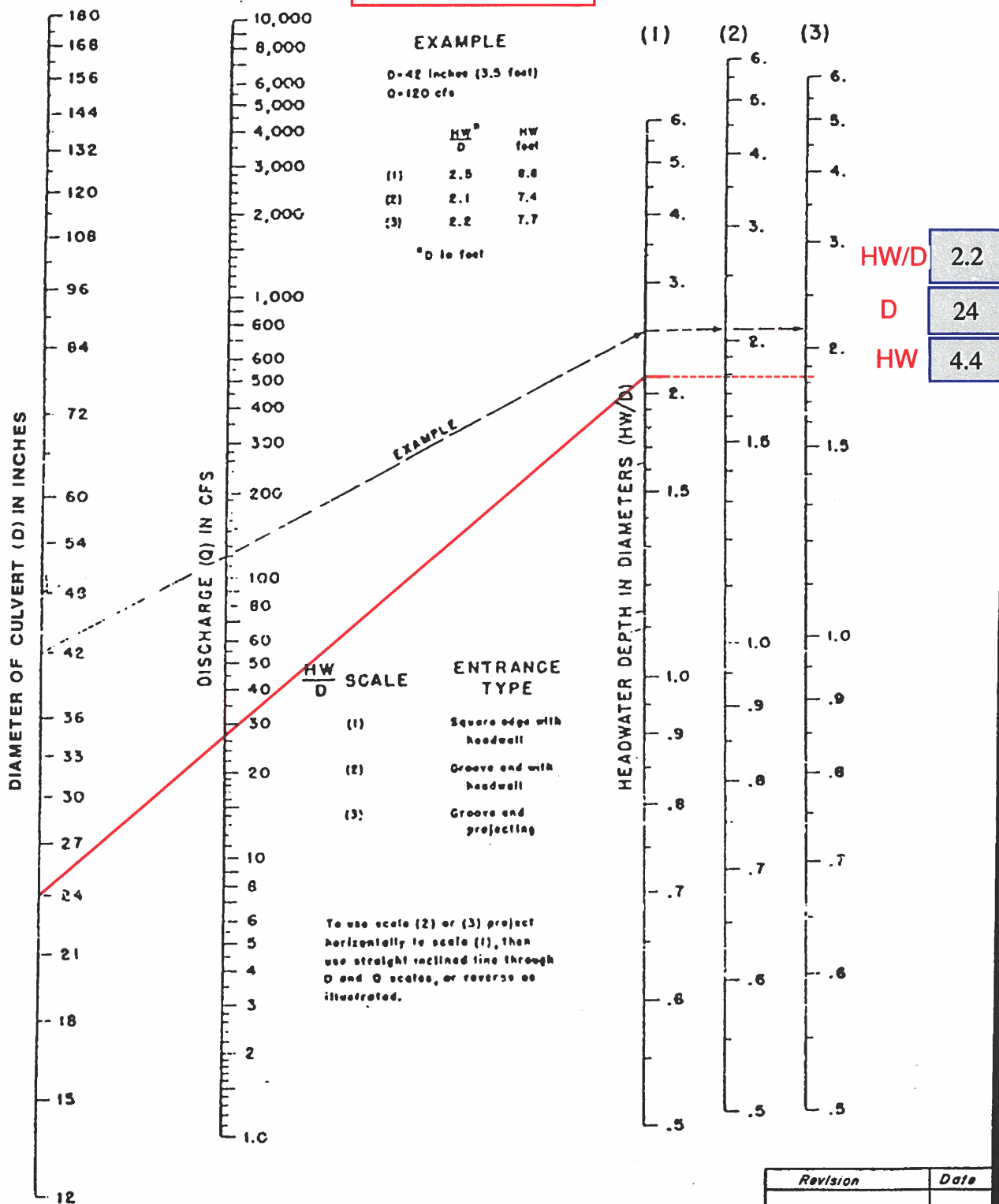
Output (Total):

28.3

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

NOMOGRAPH - INLET CONTROL RCP

SDDI#1: Q = 27 CFS



Revision	Date

Project Name: Moro Rock (Summerlin Village 21 Parcel K) - Update
 Project Number: RAH1908
 Date: 1/15/2020
 By: CAA



STORM SEWER HYDRAULIC CALCULATIONS

STATION		CONDUIT DATA				FLOW DATA						LOSS		HGL		COMMENTS		
FROM	TO	SIZE / TYPE	n Manning's Roughness	INVERTS		LENGTH	A (FT ²)	R (FT)	Φ	Q (CFS)	V (FPS)	H _v = V ² /2g (FT)	S _f (FT/FT)	LOSS PIPE	HGL PIPE		PRESS. FLOW?	OTHER
				D / S ELEV.	U / S ELEV.									H _f (FT)	D/S HGL ELEV.*	U/S HGL ELEV.		
1000.00	1027.01	Round 24" RCP	0.013	3325.48	3327.57	27.01	3.1416	0.50	0.004925	27	8.5944	1.1469	0.01420	0.384	3326.40	3326.78	No	SDDI #1 LATERAL

$S_f = \Phi H_v / R^{1.33}$
 $\Phi = 2g (n^2) / 2.21$
 1 - Where pipes are not under pressure, assume U/S HGL is at top of pipe

*STARTING HGL IS ASSUMED AS 1-FT BELOW THE RIM ELEVATION OF THE CONNECTING MANHOLE (EX SDMH 6) IN KINDLE CORNER AVENUE

Worksheet for EX 24" RCP SD

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	7.74	%
Diameter	24	in
Discharge	27.00	ft³/s

Results

Normal Depth	0.92	ft
Flow Area	1.40	ft²
Wetted Perimeter	2.97	ft
Hydraulic Radius	0.47	ft
Top Width	1.99	ft
Critical Depth	1.81	ft
Percent Full	45.8	%
Critical Slope	0.01250	ft/ft
Velocity	19.26	ft/s
Velocity Head	5.77	ft
Specific Energy	6.68	ft
Froude Number	4.05	
Maximum Discharge	67.70	ft³/s
Discharge Full	62.93	ft³/s
Slope Full	0.01425	ft/ft
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
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	45.77	%
Downstream Velocity	Infinity	ft/s

Worksheet for EX 24" RCP SD

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.92	ft
Critical Depth	1.81	ft
Channel Slope	7.74	%
Critical Slope	0.01250	ft/ft

Cross Section for EX 24" RCP SD

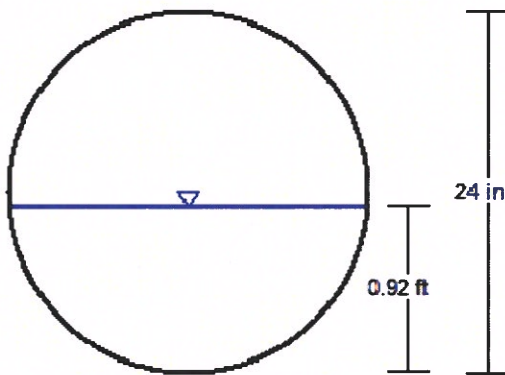
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013
Channel Slope	7.74 %
Normal Depth	0.92 ft
Diameter	24 in
Discharge	27.00 ft ³ /s

Cross Section Image



V: 1
H: 1

APPENDIX E

Revised Finished Floor Analyses Tables

RAH1908: MORO ROCK (SUMMERLIN VILLAGE 21 PARCEL K) - TDS FINISHED FLOOR - CITY OF LAS VEGAS JURISDICTION										
INPUT INFORMATION					FINISHED FLOORS					NOTES
Lot Number	Hydraulic Section Utilized	T/C ¹ (ft)	F/L ² (ft)	D ₁₀₀ (ft)	Flowline F.F. _{min} ³ (ft)	T/C + 6" F.F. _{min} ⁴ (ft)	F.F.-Design (ft)	Flowline Check	T/C + 6" Check	See References on Last Sheet
1	A1	3359.22	3358.84	0.36	3359.56	3359.72	3361.0	OK	OK	
2	A1	3359.35	3358.97	0.36	3359.69	3359.85	3361.0	OK	OK	
3	A1	3359.51	3359.13	0.36	3359.85	3360.01	3361.3	OK	OK	
4	A1	3359.68	3359.30	0.36	3360.02	3360.18	3361.3	OK	OK	
5	A1	3359.97	3359.59	0.36	3360.31	3360.47	3361.7	OK	OK	
6	A1	3360.39	3360.01	0.36	3360.73	3360.89	3361.7	OK	OK	
7	A1	3360.29	3359.91	0.36	3360.63	3360.79	3362.1	OK	OK	
8	A1	3360.45	3360.07	0.36	3360.79	3360.95	3362.1	OK	OK	
9	A1	3360.60	3360.22	0.36	3360.94	3361.10	3362.4	OK	OK	
10	A1	3360.76	3360.38	0.36	3361.10	3361.26	3362.4	OK	OK	
11	E	3359.23	3358.85	0.21	3359.27	3359.73	3360.1	OK	OK	
12	E	3358.23	3357.85	0.21	3358.27	3358.73	3360.1	OK	OK	
13	E	3356.95	3356.57	0.21	3356.99	3357.45	3357.9	OK	OK	
14	E	3355.41	3355.03	0.21	3355.45	3355.91	3357.9	OK	OK	
15	E	3353.82	3353.44	0.21	3353.86	3354.32	3354.7	OK	OK	
16	E	3352.23	3351.85	0.21	3352.27	3352.73	3354.7	OK	OK	
17	E	3350.64	3350.26	0.21	3350.68	3351.14	3351.5	OK	OK	
18	E	3349.05	3348.67	0.21	3349.09	3349.55	3351.5	OK	OK	
19	E	3347.46	3347.08	0.21	3347.50	3347.96	3348.4	OK	OK	
20	E	3345.88	3345.50	0.21	3345.92	3346.38	3348.4	OK	OK	
21	E	3344.29	3343.91	0.21	3344.33	3344.79	3345.2	OK	OK	
22	E	3342.79	3342.41	0.21	3342.83	3343.29	3345.2	OK	OK	
23	E	3341.44	3341.06	0.21	3341.48	3341.94	3342.3	OK	OK	
24	E	3340.24	3339.86	0.21	3340.28	3340.74	3342.3	OK	OK	
25	F	3337.69	3337.31	0.52	3338.35	3338.19	3339.5	OK	OK	
26	F	3338.00	3337.62	0.52	3338.66	3338.50	3339.5	OK	OK	
27	F	3338.32	3337.94	0.52	3338.98	3338.82	3340.2	OK	OK	
28	F	3338.63	3338.25	0.52	3339.29	3339.13	3340.2	OK	OK	
29	F	3338.94	3338.56	0.52	3339.60	3339.44	3340.7	OK	OK	
30	D	3339.13	3338.75	0.49	3339.73	3339.63	3340.7	OK	OK	
31	D	3339.29	3338.91	0.49	3339.89	3339.79	3341.1	OK	OK	
32	D	3339.45	3339.07	0.49	3340.05	3339.95	3341.1	OK	OK	
33	D	3339.61	3339.23	0.49	3340.21	3340.11	3341.4	OK	OK	
34	D	3339.77	3339.39	0.49	3340.37	3340.27	3341.4	OK	OK	
35	D	3340.02	3339.64	0.49	3340.62	3340.52	3341.8	OK	OK	
36	D	3340.18	3339.80	0.49	3340.78	3340.68	3341.8	OK	OK	
37	D	3340.35	3339.97	0.49	3340.95	3340.85	3342.1	OK	OK	
38	D	3340.50	3340.12	0.49	3341.10	3341.00	3342.1	OK	OK	
39	D	3340.65	3340.27	0.49	3341.25	3341.15	3342.4	OK	OK	
40	D	3340.80	3340.42	0.49	3341.40	3341.30	3342.4	OK	OK	
41	B	3341.48	3341.10	0.28	3341.66	3341.98	3343.1	OK	OK	
42	B	3342.22	3341.84	0.28	3342.40	3342.72	3343.1	OK	OK	
43	B	3342.97	3342.59	0.28	3343.15	3343.47	3344.6	OK	OK	
44	B	3343.71	3343.33	0.28	3343.89	3344.21	3344.6	OK	OK	
45	B	3344.45	3344.07	0.28	3344.63	3344.95	3346.1	OK	OK	
46	B	3345.19	3344.81	0.28	3345.37	3345.69	3346.1	OK	OK	
47	B	3346.04	3345.66	0.28	3346.22	3346.54	3347.9	OK	OK	
48	B	3347.03	3346.65	0.28	3347.21	3347.53	3347.9	OK	OK	
49	B	3348.16	3347.78	0.28	3348.34	3348.66	3350.3	OK	OK	
50	B	3349.44	3349.06	0.28	3349.62	3349.94	3350.3	OK	OK	
51	B	3350.87	3350.49	0.28	3351.05	3351.37	3353.3	OK	OK	
52	B	3352.41	3352.03	0.28	3352.59	3352.91	3353.3	OK	OK	
53	B	3353.94	3353.56	0.28	3354.12	3354.44	3356.4	OK	OK	
54	B	3355.47	3355.09	0.28	3355.65	3355.97	3356.4	OK	OK	
55	B	3357.02	3356.64	0.28	3357.20	3357.52	3359.4	OK	OK	
56	B	3358.45	3358.07	0.28	3358.63	3358.95	3359.4	OK	OK	
57	B	3359.62	3359.24	0.28	3359.80	3360.12	3361.2	OK	OK	
58	B	3360.25	3359.87	0.28	3360.43	3360.75	3361.2	OK	OK	
59	A2	3356.12	3355.74	0.36	3356.46	3356.62	3357.1	OK	OK	
60	A2	3354.55	3354.17	0.36	3354.89	3355.05	3357.1	OK	OK	
61	A2	3352.73	3352.35	0.36	3353.07	3353.23	3353.7	OK	OK	
62	A2	3351.05	3350.67	0.36	3351.39	3351.55	3353.7	OK	OK	

INPUT INFORMATION					FINISHED FLOORS					NOTES
Lot Number	Hydraulic Section Utilized	T/C ¹ (ft)	F/L ² (ft)	D ₁₀₀ (ft)	Flowline F.F. _{min} ³ (ft)	T/C + 6" F.F. _{min} ⁴ (ft)	F.F. _{-Design} (ft)	Flowline Check	T/C + 6" Check	See References on Last Sheet
63	A2	3349.61	3349.23	0.36	3349.95	3350.11	3350.6	OK	OK	
64	A2	3348.31	3347.93	0.36	3348.65	3348.81	3350.6	OK	OK	
65	A2	3347.16	3346.78	0.36	3347.50	3347.66	3348.2	OK	OK	
66	A2	3346.15	3345.77	0.36	3346.49	3346.65	3348.2	OK	OK	
67	A2	3345.29	3344.91	0.36	3345.63	3345.79	3346.3	OK	OK	
68	A2	3344.54	3344.16	0.36	3344.88	3345.04	3346.3	OK	OK	
69	A2	3343.80	3343.42	0.36	3344.14	3344.30	3344.8	OK	OK	
70	A2	3343.05	3342.67	0.36	3343.39	3343.55	3344.8	OK	OK	
71	A2	3342.31	3341.93	0.36	3342.65	3342.81	3343.3	OK	OK	
72	A2	3341.57	3341.19	0.36	3341.91	3342.07	3343.3	OK	OK	
73	E	3340.46	3340.08	0.21	3340.50	3340.96	3342.6	OK	OK	
74	E	3341.69	3341.31	0.21	3341.73	3342.19	3342.6	OK	OK	
75	E	3343.07	3342.69	0.21	3343.11	3343.57	3345.5	OK	OK	
76	E	3344.59	3344.21	0.21	3344.63	3345.09	3345.5	OK	OK	
77	E	3346.18	3345.80	0.21	3346.22	3346.68	3348.7	OK	OK	
78	E	3347.77	3347.39	0.21	3347.81	3348.27	3348.7	OK	OK	
79	E	3349.36	3348.98	0.21	3349.40	3349.86	3351.9	OK	OK	
80	E	3350.95	3350.57	0.21	3350.99	3351.45	3351.9	OK	OK	
81	E	3352.54	3352.16	0.21	3352.58	3353.04	3355.0	OK	OK	
82	E	3354.13	3353.75	0.21	3354.17	3354.63	3355.0	OK	OK	
83	E	3355.72	3355.34	0.21	3355.76	3356.22	3358.1	OK	OK	
84	E	3357.22	3356.84	0.21	3357.26	3357.72	3358.1	OK	OK	
85	E	3358.44	3358.06	0.21	3358.48	3358.94	3360.3	OK	OK	
86	E	3359.39	3359.01	0.21	3359.43	3359.89	3360.3	OK	OK	

-The finished floor shall be set a vertical distance of at least 6-inches above the highest adjacent top of curb.

RAH1908: MORO ROCK (SUMMERLIN VILLAGE 21 PARCEL K) - TDS
FINISHED FLOOR ANALYSIS - 2X Depth of Flow

INPUT INFORMATION				FINISHED FLOORS			NOTES
Building Number	Hydraulic Section Utilized	F/L ¹ (ft)	D ₁₀₀ (ft)	Flowline F.F. _{min} ² (ft)	F.F. _{Design} (ft)	Flowline Check	See References on Last Sheet
59	C	3353.60	0.49	3354.58	3357.10	OK	
60	C	3353.60	0.49	3354.58	3357.10	OK	
61	C	3352.00	0.49	3352.98	3353.70	OK	
62	C	3350.20	0.49	3351.18	3353.70	OK	
63	C	3348.60	0.49	3349.58	3350.60	OK	
64	C	3347.50	0.49	3348.48	3350.60	OK	
65	C	3346.50	0.49	3347.48	3348.20	OK	
66	C	3345.40	0.49	3346.38	3348.20	OK	
67	C	3344.30	0.49	3345.28	3346.30	OK	
68	C	3343.60	0.49	3344.58	3346.30	OK	
69	C	3342.80	0.49	3343.78	3344.80	OK	
70	C	3342.10	0.49	3343.08	3344.80	OK	
71	C	3341.30	0.49	3342.28	3343.30	OK	
72	C	3340.40	0.49	3341.38	3343.30	OK	
73	C	3340.40	0.49	3341.38	3342.60	OK	
74	C	3341.31	0.49	3342.29	3342.60	OK	
75	C	3342.10	0.49	3343.08	3345.50	OK	
76	C	3342.80	0.49	3343.78	3345.50	OK	
77	C	3343.60	0.49	3344.58	3348.70	OK	
78	C	3344.30	0.49	3345.28	3348.70	OK	
79	C	3345.40	0.49	3346.38	3351.90	OK	
80	C	3346.50	0.49	3347.48	3351.90	OK	
81	C	3347.50	0.49	3348.48	3355.00	OK	
82	C	3348.60	0.49	3349.58	3355.00	OK	
83	C	3350.20	0.49	3351.18	3358.10	OK	
84	C	3352.00	0.49	3352.98	3358.10	OK	
85	C	3353.60	0.49	3354.58	3360.30	OK	
86	C	3353.60	0.49	3354.09	3360.30	OK	

Where:

1: TC-0.38 (For Roll Curb), TC-0.5 (For L Curb)

2: Minimum Allowable Finished Floor Elevation above flowline elevation @ high side of lot = (2 x D₁₀₀) + F/L

CCRFCD Finished Floor Criteria:

-The finished floor shall be set a vertical distance above the gutter flowline of at least twice the depth of flow in the gutter flowline up to a maximum of 18 inches above the WSEL in the street.

Supplemental Finished Floor Checks

Adjacent/Perimeter Street Check									
Lot Number	Street	High TC ¹	High FL ²	Section	Flow Depth ³	Min FF ⁴	Design FF	Check	Solid Grout
1	DESERT FOOTHILLS	3361.48	3360.98	2	0.41	3361.80	3361.0	CHECK	Yes
2	DESERT FOOTHILLS	3361.74	3361.24	2	0.41	3362.06	3361.0	CHECK	Yes
3	DESERT FOOTHILLS	3362.51	3362.01	2	0.41	3362.83	3361.3	CHECK	Yes
4	DESERT FOOTHILLS	3362.90	3362.40	2	0.41	3363.22	3361.3	CHECK	Yes
5	DESERT FOOTHILLS	3363.58	3363.08	2	0.41	3363.90	3361.7	CHECK	Yes
6	DESERT FOOTHILLS	3363.97	3363.47	2	0.41	3364.29	3361.7	CHECK	Yes
7	DESERT FOOTHILLS	3364.36	3363.86	2	0.41	3364.68	3362.1	CHECK	Yes
8	DESERT FOOTHILLS	3364.75	3364.25	2	0.41	3365.07	3362.1	CHECK	Yes
9	DESERT FOOTHILLS	3365.13	3364.63	2	0.41	3365.45	3362.4	CHECK	Yes
10	DESERT FOOTHILLS	3365.52	3365.02	2	0.41	3365.84	3362.4	CHECK	Yes
11	KINDLE CORNER	3361.11	3360.61	1	0.31	3361.23	3360.1	CHECK	Yes
12	KINDLE CORNER	3359.71	3359.21	1	0.31	3359.83	3360.1	OK	No
13	KINDLE CORNER	3358.06	3357.56	1	0.31	3358.18	3357.9	CHECK	Yes
14	KINDLE CORNER	3356.24	3355.74	1	0.31	3356.36	3357.9	OK	No
15	KINDLE CORNER	3354.46	3353.96	1	0.31	3354.58	3354.7	OK	No
16	KINDLE CORNER	3352.68	3352.18	1	0.31	3352.80	3354.7	OK	No
17	KINDLE CORNER	3350.73	3350.23	1	0.31	3350.85	3351.5	OK	No
18	KINDLE CORNER	3348.87	3348.37	1	0.31	3348.99	3351.5	OK	No
19	KINDLE CORNER	3347.00	3346.50	1	0.31	3347.12	3348.4	OK	No
20	KINDLE CORNER	3345.14	3344.64	1	0.31	3345.26	3348.4	OK	No
21	KINDLE CORNER	3343.28	3342.78	1	0.31	3343.40	3345.2	OK	No
22	KINDLE CORNER	3341.41	3340.91	1	0.31	3341.53	3345.2	OK	No
23	KINDLE CORNER	3340.07	3339.57	1	0.31	3340.19	3342.3	OK	No
24	KINDLE CORNER	3337.61	3337.11	1	0.31	3337.73	3342.3	OK	No
24	PEAR LAKE	3338.10	3337.72	F	0.52	3338.76	3342.3	OK	No
59	TOKOPAH FALLS	3359.36	3358.98	A1	0.36	3359.70	3357.1	CHECK	Yes
72	PEAR LAKE	3340.27	3339.89	D	0.49	3340.87	3343.3	OK	No
73	PEAR LAKE	3339.51	3339.13	D	0.49	3340.11	3342.6	OK	No
86	TOKOPAH FALLS	3360.14	3359.76	A1	0.36	3360.48	3360.3	CHECK	Yes

1: High TC is the elevation at the high side of the adjacent perimeter street

2: 0.38-ft is subtracted from the High TC to obtain the High FL elevation

3: Flow depth is the normal depth in adjacent perimeter street

4: Min FF is the High FL plus twice the depth of flow.

Specific Energy Check							
Lot Number	High TC ¹	High FL ²	Section	Specific Energy ³	Min FF ⁴	Design FF	Check
27	3338.32	3337.94	E	0.65	3338.59	3340.20	OK
28	3338.63	3338.25	E	0.65	3338.90	3340.20	OK
29	3338.94	3338.56	E	0.65	3339.21	3340.70	OK
38	3340.50	3340.12	A2	0.87	3340.99	3342.10	OK
39	3340.65	3340.27	B	0.58	3340.85	3342.40	OK
40	3340.65	3340.27	B	0.58	3340.85	3342.40	OK
55	3357.02	3356.64	A1	0.47	3357.11	3359.40	OK
56	3358.45	3358.07	A1	0.47	3358.54	3359.40	OK
57	3358.45	3358.07	A1	0.47	3358.54	3361.20	OK

1: High TC is the elevation at the high side of the adjacent perimeter street

2: 0.38-ft is subtracted from the High TC to obtain the High FL elevation

2: Specific energy depth is taken from FlowMaster calculation for street directing flow toward lot.

3: Min FF is the High FL plus the specific energy depth.

Emergency Overflow Finish Floor Checks

Hydraulic Section / Drainage Easements Check - Emergency Overflow							
Lot Number	High TC/FL ¹	Section	Flow Depth ²	Min FF ³	Design FF	Check	Solid Grout
24	3337.04	EO	0.26	3337.30	3342.30	OK	No
25	3337.04	EO	0.26	3337.30	3339.50	OK	No

1: High TC/FL is at the high side of the drainage easement flowline or the highest TC adjacent to the easement if flow is weiring over the curb.

2: Flow depth is either normal depth or weir depth (whichever is higher) of the emergency overflow.

3: Min FF is the High TC/FL plus the emergency overflow depth.

APPENDIX F

Reference Material

Summerlin West Village 21 Kindle Corner Avenue (Street B)

Carriage Hill to Desert Foothills Drive

By VTN

SHEET #	SHEET	DESCRIPTION	STATION RANGE
CV	1	COVER SHEET	
NT	2	NOTE SHEET	
HC1	3	HORIZONTAL CONTROL 1	
HC2	4	HORIZONTAL CONTROL 2	
HC3	5	HORIZONTAL CONTROL 3	
HC4	6	HORIZONTAL CONTROL 4	
MUTSS	7	MASTER UTILITY SEWER PLAN	
MUTSD	8	MASTER UTILITY STORM DRAIN	
MUTW	9	MASTER UTILITY WATER	
MGRD	10	MASTER GRADING PLAN	
GR1	11	GRADING PLAN 1	
GR2	12	GRADING PLAN 2	
GR3	13	GRADING PLAN 3	
GR4	14	GRADING PLAN 4	
GR5	15	GRADING PLAN 5	
DT1	16	DETAIL SHEET 1	
DT2	17	DETAIL SHEET 2	
DT3	18	DETAIL SHEET 3	
UT1	19	UTILITY PLAN & PROFILE 1	27+00 TO 23+00
UT2	20	UTILITY PLAN & PROFILE 2	23+00 TO 20+00
UT3	21	UTILITY PLAN & PROFILE 3	20+00 TO 17+00
UT4	22	UTILITY PLAN & PROFILE 4	17+00 TO 13+00
UT5	23	UTILITY PLAN & PROFILE 5	13+00 TO 9+50
UT6	24	UTILITY PLAN & PROFILE 6 STORM DRAIN LATERAL	
UT7	25	UTILITY PLAN & PROFILE 7 STORM DRAIN LATERAL	
UT7A	25A	UTILITY PLAN & PROFILE 7A WATER LATERAL	
UT8	26	UTILITY PLAN & PROFILE 8 WATER LATERAL	
UT9	27	UTILITY PLAN & PROFILE 9 STORM DRAIN LATERAL	
UT10	28	UTILITY PLAN & PROFILE 10 SEWER LATERAL	
UT11	29	UTILITY PLAN & PROFILE 11 STORM DRAIN LATERAL	
UT12	30	UTILITY PLAN & PROFILE 12 STORM DRAIN LATERAL	
UT13	31	UTILITY PLAN & PROFILE 13 WATER & SEWER LATERAL	
UT14	32	UTILITY PLAN & PROFILE 14 STORM DRAIN LATERAL	
UT15	33	UTILITY PLAN & PROFILE 15 WATER LATERAL	
UT16	34	UTILITY PLAN & PROFILE 16 STORM DRAIN LATERAL	
TR1	35	TRAFFIC & STREETLIGHTING PLAN 1	
TR2	36	TRAFFIC & STREETLIGHTING PLAN 2	
S1	37	STRUCTURAL DETAIL	

(STREET B)
CARRIAGE HILL TO DESERT FOOTHILLS
APN: 137-26-199-003
CITY OF LAS VEGAS
STATE OF NEVADA

10845 GRIFFITH PEAK DRIVE, SUITE 160
LAS VEGAS, NEVADA 89135
702-791-4000

FUTURE S.I.D. PROJECT

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE
NEVADA COORDINATE REFERENCE SYSTEM (NCRS). LAS
VEGAS HIGH ELEVATION ZONE WITH 114°58'00" EAST
OF 1983 CENTRAL MERIDIAN BEING COINCIDENT WITH 114°58' WEST
OF THE GREENWICH MERIDIAN.

LINEAR UNIT: US SURVEY FOOT (FTUS)

DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00

SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)

ZONE: LAS VEGAS HIGH ELEVATION ZONE

PROJECTION: TRANSVERSE MERCATOR
STANDARD PARALLEL AND LATITUDE OF GRID
ORIGIN: 36°15'00"N
LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W
NORTHING AT GRID ORIGIN: 400,000.00 M (1,312,333.3333 FTUS)
EASTING AT CENTRAL MERIDIAN: 300,000.00 M (984,250.0000
FTUS)

SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

PROJECT DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988
(NAVD88)
CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2006)
NAVD88 ELEVATION: 989.574 METERS (3,246.83 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF
CHARLESTON BLVD & WEST OF DETENTION BASIN.
T21S.R59E.S03

THESE PLANS AND THE DESIGN CRITERIA CONTAINED WITHIN THESE PLANS ARE BASED UPON THE INFORMATION PRESENTLY KNOWN BY THE ENGINEER. ALL CONSTRUCTION SHALL BE IN CONFORMANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL STATUTES, LAWS, CODES, REGULATIONS AND ORDINANCES, INCLUDING BUT NOT LIMITED TO THE FEDERAL FAIR HOUSING AMENDMENTS ACT, AMERICANS WITH DISABILITIES ACT, THE ARCHITECTURAL BARRIERS ACT AND ANY APPLICABLE UNIFORM STANDARDS, SPECIFICATIONS OR DRAWINGS. THE PERSON OR ENTITY PERFORMING THE CONSTRUCTION SHALL BE SOLELY RESPONSIBLE TO MAKE SURE CONSTRUCTION IS IN CONFORMANCE WITH ALL LOCAL, STATE AND FEDERAL STATUTES, LAWS, CODES, REGULATIONS, STANDARDS, GUIDELINES AND ORDINANCES AND FURTHER IS IN CONFORMANCE WITH ANY APPLICABLE DESIGN CRITERIA, INCLUDING BUT NOT LIMITED TO SOILS REPORTS, TRAFFIC STUDIES, GEOTECHNICAL REPORTS, ARCHITECTURAL PLANS AND SPECIFICATIONS, DRAINAGE PLANS OR STUDIES AND ANY OTHER CRITERIA, STANDARDS OR REQUIREMENTS LISTED IN THE PLANS OR THE GENERAL NOTES RELATED TO THESE PLANS OR PROVIDED BY ANYONE IN REFERENCE TO THIS PROJECT.

CITY ENGINEER ALLEN PAVELKA, P.E. #9029

APPROVAL OF THESE PLANS BY THE CITY ENGINEER IS LIMITED TO THOSE IMPROVEMENTS CONSTRUCTED IN THE DEDICATED RIGHT-OF-WAY AND/OR DEDICATED EASEMENTS. THIS APPROVAL DOES NOT AUTHORIZE THE CONSTRUCTION OF ANY IMPROVEMENTS THAT DEVIATE FROM ADOPTED STANDARDS AND/OR SPECIFICATIONS EXCEPT THOSE SPECIFICALLY LISTED UNDER DEVIATIONS FROM STANDARD. THE ENGINEER SHALL RESOLVE ANY DEVIATION OTHER THAN THOSE LISTED IN DEVIATIONS FROM STANDARDS IN FAVOR OF THE UNIFORM STANDARD DRAWINGS AND SPECIFICATIONS CLARK COUNTY AREA NEVADA.

N/A

CITY OF LAS VEGAS, DEPARTMENT OF PLANNING

DATE

THIS PLAN MEETS THE APPLICABLE STANDARDS OF THE PLANNING AND DEVELOPMENT DEPARTMENT

LAS VEGAS FIRE & RESCUE DATE _____

CENTRAL TELEPHONE COMPANY d/b/a CENTURYLINK DATE

"THE AFFIXED CENTURY LINK NEVADA 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."

NV ENERGY DATE

NV ENERGY ACKNOWLEDGES THAT WE HAVE RECEIVED YOUR PLANS AND WILL PROVIDE SERVICE TO ALL ELECTRICAL NEEDS ASSOCIATED WITH THIS PROJECT. NVENERGY 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.

COX COMMUNICATIONS LAS VEGAS, INC. DATE

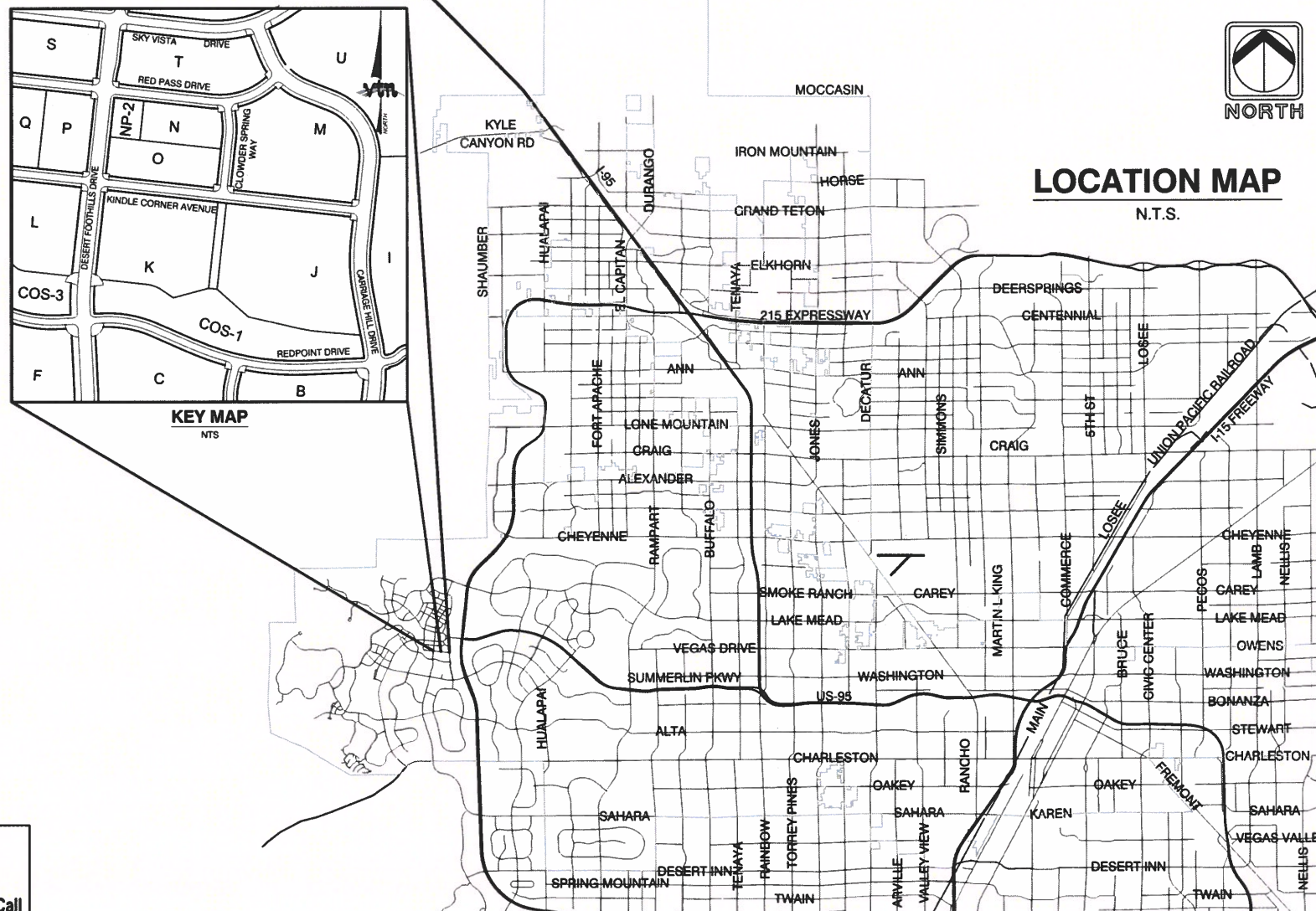
SOUTHWEST GAS CORPORATION DATE

LAS VEGAS VALLEY WATER DISTRICT
APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. 136408 FIRST APPROVED DATE: _____
LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
SHEETS: MUTSS, MUTSD, MUTW, UT1-7, UT10, UT12, UT14-15
LVVWD APPROVAL IS VALID FOR ONE (1) YEAR FROM SIGNATURE DATE. IF
CONSTRUCTION IS NOT STARTED, PLANS MUST BE RESUBMITTED FOR REVIEW
AND APPROVAL.

KEVIN T. ORROCK, VICE PRESIDENT **DATE**

HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY



N.T.S.

FIRE DEPARTMENT APPROVAL

APPROVAL BY THE FIRE DEPARTMENT HAVING JURISDICTION IS REQUIRED PRIOR TO OBTAINING FINAL APPROVAL FROM THE LVVWD.

OWNER
HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
10845 GRIFFITH PEAK DRIVE, SUITE 160
LAS VEGAS, NEVADA 89135
702-791-4000

DEVELOPER
HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
10845 GRIFFITH PEAK DRIVE, SUITE 160
LAS VEGAS, NEVADA 89135
702-791-4000

ENGINEERING FIRM
VTN
2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89148-5148
PH. (702) 873-7550
FAX (702) 362-2597

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CLARK COUNTY TROOPIC



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204-769-7600
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LIVE YOUR AREA'S COMPREHENSIVE TRAFFIC SYSTEM

**HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY**
0945 GRIFFITH PEAK DRIVE, SUITE 160

COVER SHEET

**SUMMERLIN WEST VILLAGE 21
KINDLE CORNER AVENUE (STREET B)
RIAGE HILL TO DESERT FOOTHILLS DRIVE**

DRAWN BY:
DDH

DESIGNED BY:

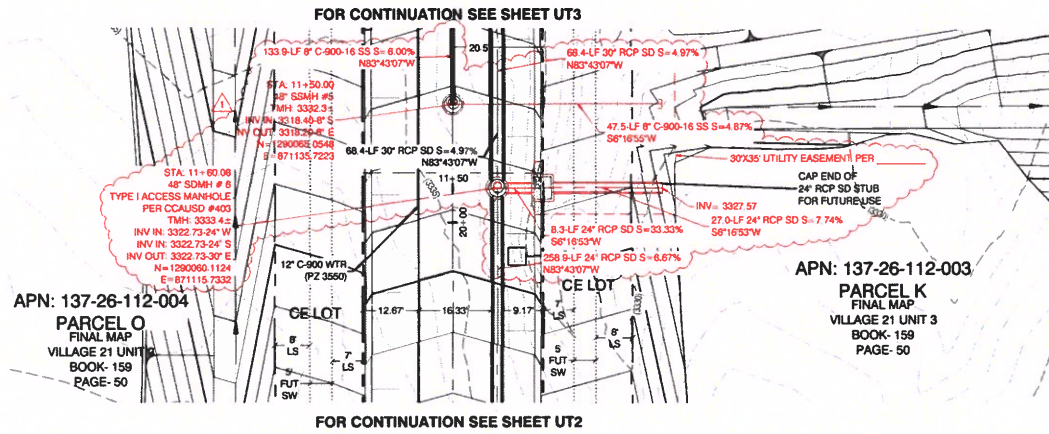
09/18/2018

DATE: 9/18/2018

PROFESSIONAL ENGINEER-STATE OF NEVADA
 WILLIAM J. MEYER
 EXP. 12/31/19
 CIVIL
 No. 15745

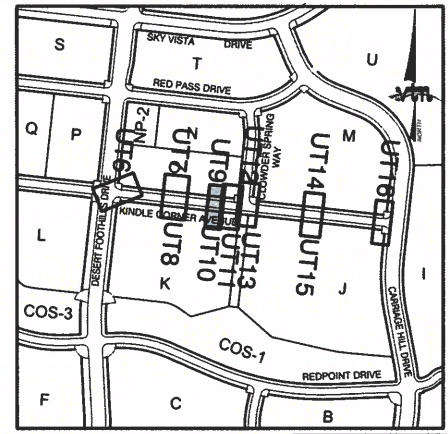
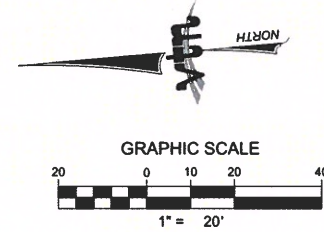
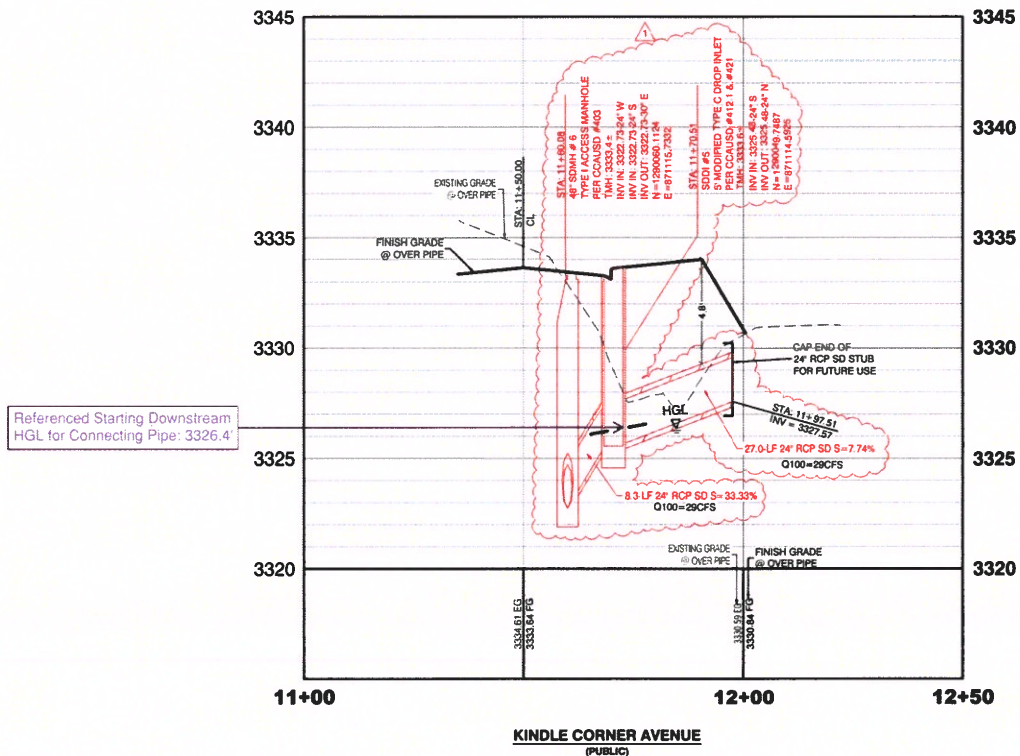
SHEET
CV
1 OF 37 SHEETS
DRAWING NO.
L19-00477

BS \\Street B-Carriage Hill to Desert Foothills\\Sheet Set\\DWG\\7851-CV.dwg: 12/2/2019 9:49 AM:bmbayer



KINDLE CORNER AVENUE
(PUBLIC)

PROFILE SCALES:
HORIZ = 1" = 20'
VERT = 1" = 4'



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AND
1-702-455-6000
CLARK COUNTY TRAFFIC
OPERATIONS

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Avoid cutting underground
utility lines. It's costly.

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1-800-227-2600
AND
1-702-455-6000
CLARK COUNTY TRAFFIC
OPERATIONS

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

STORM DRAIN DROP INLET NOTE:
ALL STORM DRAIN INLETS SHALL INCLUDE A STORM WATER INLET CONCRETE STAMP IN ACCORDANCE WITH CCAUSD DWG NO. 421.

WATER PRESSURE ZONE:
WATER SERVICE LOCATED IN THE 3435 & 3550 PRESSURE ZONE.

NOTE:
5' MINIMUM HORIZONTAL SEPARATION FROM OUTSIDE EDGE OF THE WATER MAIN TO OUTSIDE EDGE OF DROP INLET

CONSTRUCTION NOTES

WATER

12"X12" TEE WITH 8" G.V. (PER UDACS PLATE 39 & 40) 2 EA.

12" GATE VALVE (PER UDACS PLATE 39 & 40) 10 EA.

12" 5' VERTICAL BEND (PER UDACS PLATE 31) 1 EA.

12"X12" TEE (PER UDACS PLATE 31) 3 EA.

12"X12" CROSS (PER UDACS PLATE 31) 1 EA.

12" CAP & BLOW OFF (PER UDACS PLATE 36) 5 EA.

1.5" TYPE K SOFT COPPER WATER LATERAL SERVICE WITH 1.5" METER PER UDACS PLATE 44 (RIGIDITY) AND 1.5" RPPA PER DETAIL ON SHEET UT2 2 EA.

12" 45' VERTICAL BEND (PER UDACS PLATE 31) 4 EA.

12" 1' HORIZONTAL DEFLECTION (PER UDACS 2.07) 12 EA.

12" C-900 WATER MAIN PER UDACS 2.06 01 & PLATE 17 1,252 LF.

6" C-900 WATER MAIN PER UDACS 2.06 01 & PLATE 17 31 LF.

WATER POINT OF CONNECTION

SEWER

STANDARD MANHOLE PER SD-1 & SD-4 W/ SINGLE 24" DIAMETER MANHOLE COVER (UNLESS NOTED OTHERWISE) 5 EA.

8" C-900-16 SANITARY SEWER MAIN 1 EA.

SEWER POINT OF CONNECTION

WATERLINE TRENCH NOTE:
CONSTRUCT WATERLINE TRENCH SECTION AND BACKFILL PER UDACS PLATE NO. 17.

WATER LINE MARKER BALLS NOTE:
INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING. PER UDACS PLATE NO. 15

FIRE HYDRANT MARKER NOTES
BLUE COLORED REFLECTIVE RAISED PAVEMENT MARKERS ARE TO BE INSTALLED

1. ON ROADWAYS WITH NO PARKING PERMITTED ON HYDRANT SIDE, LOCATE MARKER 8' FROM FACE OF CURB ON HYDRANT SIDE.

2. ON ROADWAYS WITH PARKING PERMITTED ON HYDRANT SIDE, LOCATE MARKER 16' FROM FACE OF CURB ON HYDRANT SIDE.

WATER MAIN JOINT DEFLECTION
PVC PIPE SHALL BE DEFLECTED AT THE JOINT ONLY. THE MAXIMUM ALLOWABLE DEFLECTION SHALL BE ONE (1) DEGREE PER JOINT WITH A MINIMUM RADIUS OF CURVATURE OF 1.150 FEET. PER UDACS 2.07 01 AND 2.07 02.

FOR CHANGES IN DIRECTION EXCEEDING THE MAXIMUM ALLOWABLE JOINT DEFLECTION, FITTINGS SHALL BE USED.

UTILITY CROSSING NOTE:
ALL SEWER/STORM DRAINS CROSSING WATER LINES MUST CONFORM TO SECTION 2.22 OF UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR POTABLE WATER SYSTEMS (UDACS) FOR WATER AND STORM MAIN CROSSINGS AND CLEARANCES.

LAS VEGAS FIRE & RESCUE APPROVAL

BY: _____ DATE: _____

APPROVAL OF THESE PLANS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR, OR AN APPROVAL OF, ANY VIOLATION OF ANY OF THE PROVISIONS OF THE STATE OR COUNTY LAWS FIRE FLOW 1500 GPM AT 20 P.S.I. RESIDUAL.

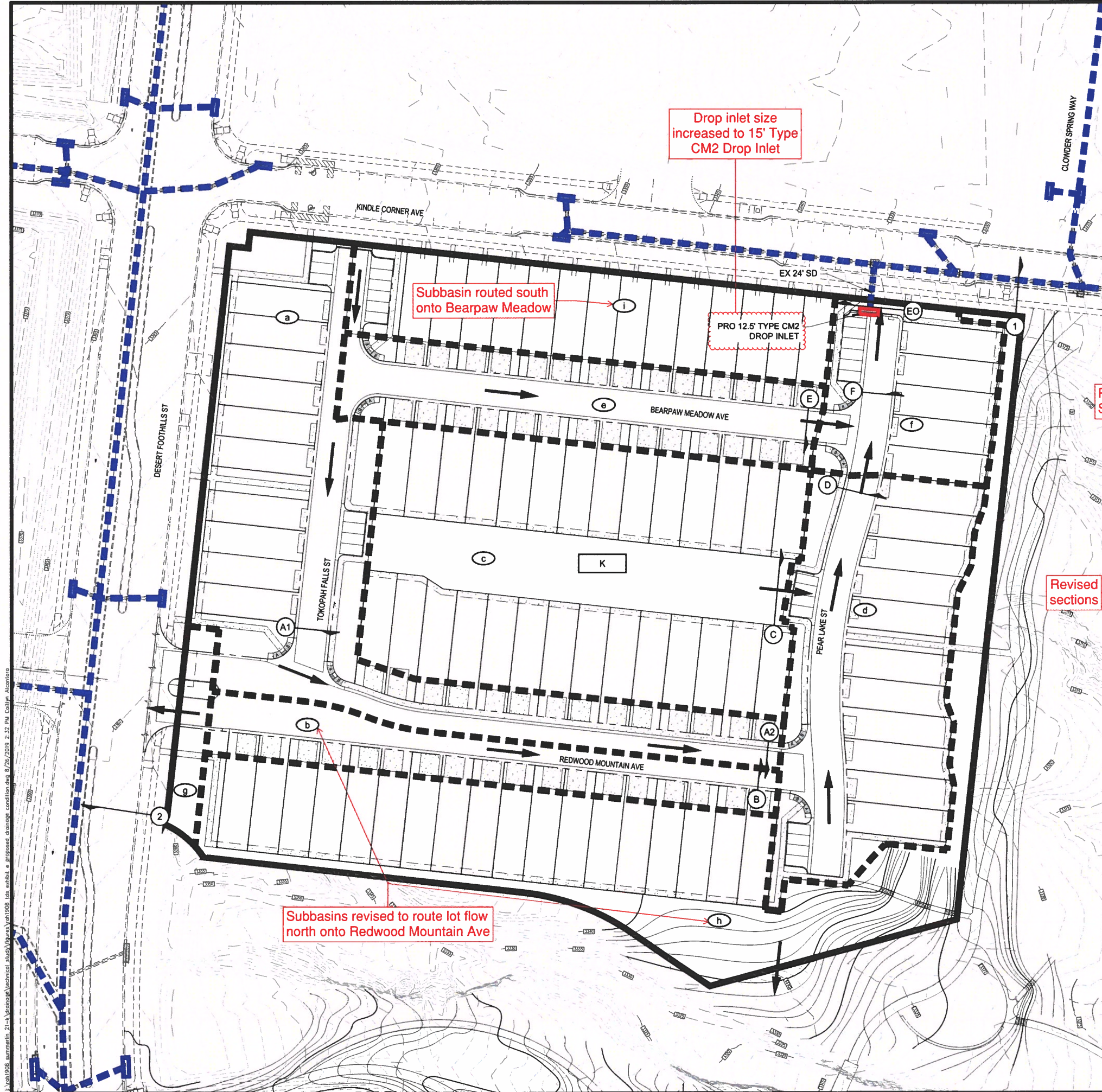
APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT: 136408 FIRST APPROVED DATE: _____
LVVWD APPROVED FIRE FLOW: TOTAL 1500 GPM/ONSITE N/A GPM
LVVWD APPROVAL IS VALID FOR ONE (1) YEAR FROM SIGNATURE DATE. IF CONSTRUCTION IS NOT STARTED, PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL.

CITY OF LAS VEGAS		HOWARD HUGHES COMPANY, LLC A DELAWARE LIMITED LIABILITY COMPANY LAS VEGAS, NEVADA 89105		2777 SOUTH RAINBOW BOULEVARD LAS VEGAS, NEVADA 89146-5148 PH: (702) 875-7500 FAX: (702) 362-2587 WEB: WWW.VTVM.COM CONSULTING ENGINEERS & PLANNERS • LAND SURVEYORS	
DATE	1/19/2019	BY	J.M.	REVISION	RELOCATE PROPOSED SDD, SD LATERAL & SS LATERAL UPDATE EASEMENT UPDATE CONSTRUCTION NOTES/QUANTITIES
REV	1	DATE	1/19/2019	BY	J.M.
UTILITY PLAN & PROFILE 9 STORM DRAIN LATERAL SUMMERLIN WEST VILLAGE 21 KINDLE CORNER AVENUE (STREET B) CARRIAGE HILL TO DESERT FOOTHILLS DRIVE DRAWN BY: J.M. DESIGNED BY: J.M. CHECKED BY: J.M. PROJECT NO: 136408 SCALE: 1" = 20' HORIZ. 1" = 4' VERT. PROFESSIONAL ENGINEER - STATE OF NEVADA WILLIAM J. MEYER EXP. 12/31/19 CIVIL NO. 15745 SHEET UT9 27 OF 37 SHEETS DRAWING NO. L19-00477					

APPENDIX G

Previously Approved Exhibit and Improvement Plans



LEGEND

- BASIN BOUNDARY
- PRO-RATED SUBBASIN BOUNDARY
- ID
- PRO-RATED SUBBASIN ID
- FLOW DIRECTION
- FLOWMASTER SECTION

Proposed Condition Flow Rate Summary

Basin/Concentration Point ID	Area (ac)	Q ₁₀₀ (cfs)
*K	8.2	30
*STB	2.7	12
*DES4	2.8	12

*REFERENCED FROM SUMMERLIN WEST STUDY

Prorated Flow Summary

Basin ID	Q ₁₀₀ (cfs)	Area (acres)	100-yr Unit Flow (cfs/acre)
K*	30	8.20	3.7

Subbasin ID	Q ₁₀₀ (cfs)	Area (acres)	100-yr Unit Flow (cfs/acre)
K*(a)	5	1.47	3.7
K*(b)	2	0.46	3.7
K*(c)	6	1.73	3.7
K*(d)	4	1.07	3.7
K*(e)	2	0.65	3.7
K*(f)	2	0.48	3.7
K*(g)	0	0.10	3.7
K*(h)	6	1.54	3.7
K*(i)	3	0.70	3.7
TOTAL	30	8.20	

Proposed Condition 100-Year Street Flow Summary

Section ID	Q ₁₀₀ (cfs)	Slope (%)	Depth (ft)	Velocity (fps)	DxV
A1 (Q = Basin *K(a))	5	0.85	0.35	2.05	0.7
A2 (Q = Basin *K(a))	5	0.60	0.36	1.79	0.6
B (Q = Basin *K(b))	2	6.15	0.32	5.18	1.7
D (Q = Basin *K(c))	2.87	0.35	3.85	1.3	
E (Q = Basin *K(d))	2	2.87	0.28	3.17	0.9
F (Q = Basin *K(e))	17	0.60	0.49	2.63	1.3
1 (Q = Basin *K(f))	2	6.15	0.21	4.05	0.9
2 (Q = Basin *K(g))	21	1.55	0.46	3.81	1.8
EO (Q = 1/2 of Basin *STB + Basin *K(i))	9	0.60	0.52	2.87	1.5
1 (Q = 1/2 of Basin *STB + Basin *K(i))	9	6.56	0.31	5.21	1.6
2 (Q = 1/2 of Basin *DES4)	6	1.50	0.41	3.13	1.3

Proposed Condition Onsite Hydraulic Section Summary

Section ID	Q ₁₀₀ (cfs)	Section Description	Slope (%)	Depth (ft)	Velocity (fps)
Section C (Q = Basin *K(c))	6.0	Paseo Section	2.90	0.49	4.92

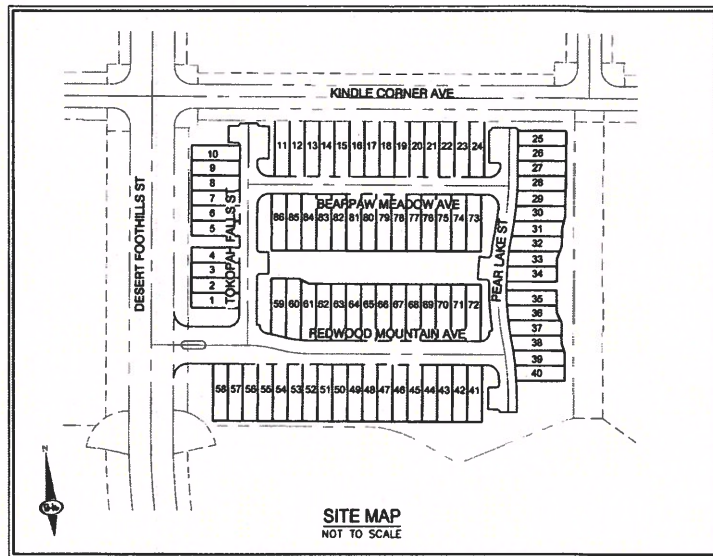
Ultimate Condition Drainage Easement Hydraulic Summary

Section ID	Q ₁₀₀ (cfs)	Width (ft)	Type of Analysis	Depth (ft)	Velocity (fps)
EO (Q = Basin *K(a+b+c+d+e+f))	21	50	Normal Depth	0.17	2.53
			Weir	0.26	N/A

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89116
PHONE (702) 264-3390 FAX (702) 264-3390

RICHMOND AMERICAN HOMES
SUMMERLIN VILLAGE 21 PARCEL K
PROPOSED DRAINAGE MAP

DATE: AUG 2019
DRAFTER: CAA
DESIGNER: CAA
CHECKED: SOA
PROJECT NO.
RAH1908.000



APPROVALS	
CITY ENGINEER-ALLEN PAVELKA PE, #9029	DATE _____
APPROVAL OF THESE PLANS BY THE CITY ENGINEER IS LIMITED TO THOSE IMPROVEMENTS CONSTRUCTED IN THE DEDICATED OF RIGHT-OF-WAY, AND/OR DEDICATED EASEMENTS. THIS APPROVAL DOES NOT AUTHORIZE CONSTRUCTION OF ANY IMPROVEMENTS THAT DEVIATE FROM ADOPTED STANDARDS, AND/OR SPECIFICATIONS EXCEPT THOSE SPECIFICALLY LISTED UNDER DEVIATIONS FORM STANDARDS. THE ENGINEER SHALL RESOLVE ANY DEVIATION OTHER THAN THOSE LISTED IN DEVIATIONS FROM STANDARDS IN FAVOR OF THE UNIFORM STANDARD DRAWINGS AND SPECIFICATIONS, CLARK COUNTY AREA, NEVADA.	
LAS VEGAS FIRE AND RESCUE	DATE _____
CITY OF LAS VEGAS - PLANNING DEPARTMENT DATE _____ THIS PLAN MEETS THE APPLICABLE STANDARDS OF THE PLANNING DEPARTMENT.	
CENTRAL TELEPHONE CO. DBA CENTURYLINK	DATE _____
THE AFFIDED 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.	
APPROVED FOR CONSTRUCTION	
LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES PROJECT NO. _____ FIRST APPROVED DATE: _____ LYING APPROVED FIRE FLOW <u>1,500</u> GPM AT 20 PS RESIDUAL MAXIMUM AVAILABLE FIRE SPRINKLER FLOW <u>20</u> GPM SHEETS: <u>ADD FIELD</u>	
NV ENERGY	DATE _____
NV ENERGY ACKNOWLEDGES THAT WE HAVE RECEIVED YOUR PLANS AND WILL PROVIDE SERVICE TO ALL ELECTRICAL NEEDS ASSOCIATED WITH THIS PROJECT. NV ENERGY 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.	
SOUTHWEST GAS CORPORATION	DATE _____
COX COMMUNICATIONS LAS VEGAS, INC.	DATE _____

OWNER	DEVELOPER	ENGINEER
HOWARD HUGHES COMPANY, LLC 1000 W. CHARLESTON BLVD. LAS VEGAS, NV 89135	RICHMOND AMERICAN HOMES 2720 S. DEAN MARSH RD. #308 LAS VEGAS, NV 89139 TEL: 702-617-8400 FX: 702-348-5984 CONTACT: NICOLE BLOOM	SALTER HANFMAN GROUP, INC. 5740 S. ARCADE STREET, SUITE 216 LAS VEGAS, NV 89118 TEL: (702) 284-5300 FX: (702) 284-5399 CONTACT: ISAAC GUZMAN

BEING LOT "K" OF THAT CERTAIN FINAL MAP TITLED "SUMMERLIN VILLAGE 21 - UNIT 3", IN BOOK 159 OF PLATS, PAGE 50, IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA.

BENCHMARK NUMBER: SLV092616

RIVET AND PLATE IN TOP OF CURB AT SOUTHEAST CORNER OF CARRIAGE HILL DRIVE AND
FAR HILLS AVENUE.

ELEVATION = 3229.29 FEET, 984.288 METERS
N.A.Y.D. 88 DATUM

PER THE CITY OF LAS VEGAS VERTICAL CONTROL

SOUTH 89°51'25" EAST, BEING THE BEARING OF THE NORTH LINE OF SECTION 27, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREOF IN BOOK 159, PAGE 13 OF PLATS IN THE CLARK COUNTY RECORDER'S OFFICE, NEVADA.

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C2150E, DATED SEPTEMBER 27, 2002. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

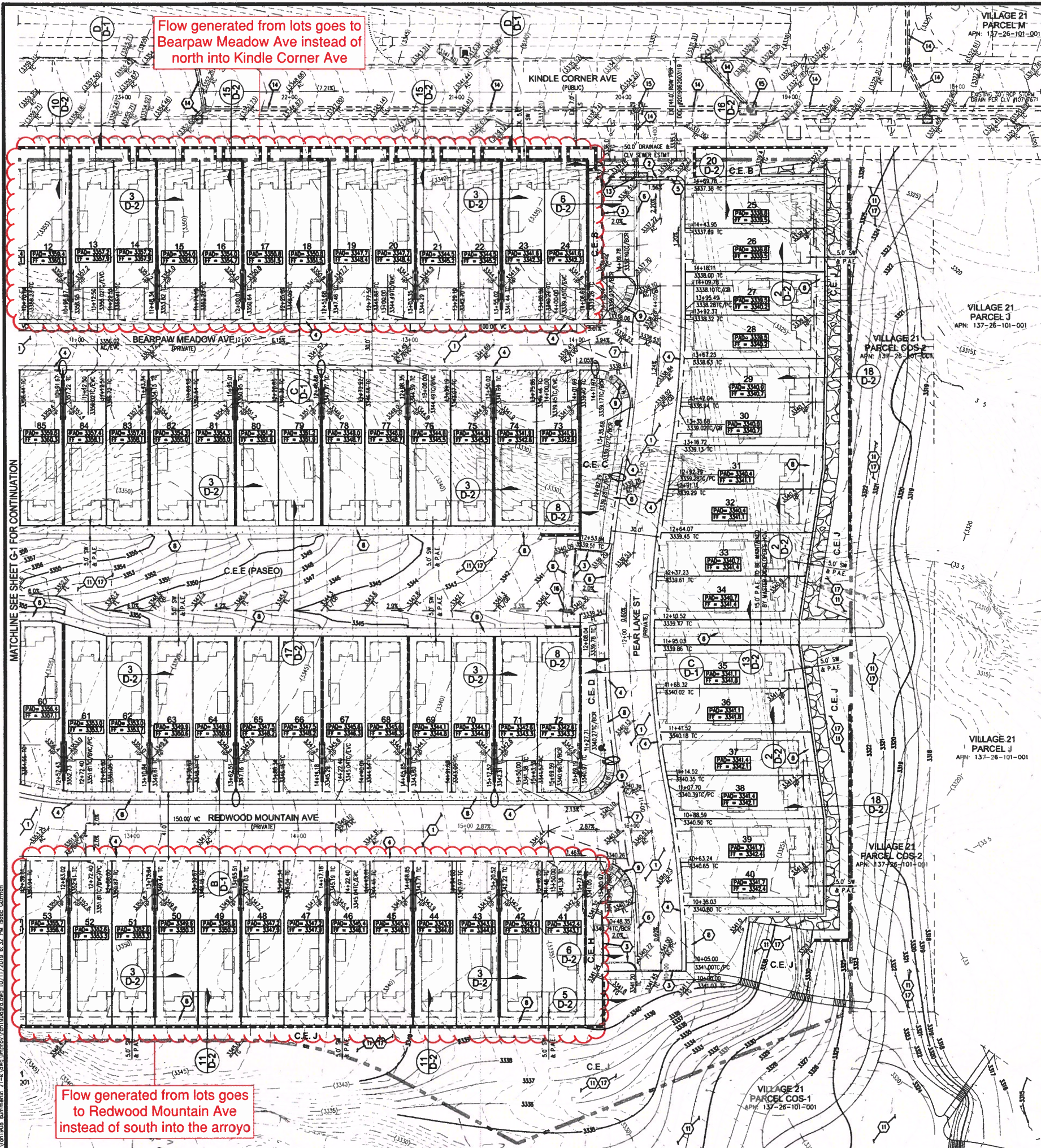
SWPPP NOTE

NOTE: ALL LAND SURFACE AREA DISTURBANCES OVER 1 ACRE REQUIRE A STORMWATER DISCHARGE PERMIT ISSUED BY THE NEVADA DIVISION OF ENVIRONMENTAL PROTECTION (NDEP). A PHASED CONSTRUCTION UNIT ON A CONTIGUOUS SUBDIVISION IS CONSIDERED UNDER CONSTRUCTION UNTIL ALL STRIPPED SURFACE AREAS HAVE BEEN COVERED BY PAVING, BUILDING CONSTRUCTION OR PLANTING. A STORMWATER DISCHARGE PERMIT APPLICATION AND ASSOCIATED INFORMATION MAY BE DOWNLOADED FROM THE WEB SITE: [HTTP://WWW.STATE.NV.US/SWPP/STORMINFO.HTM](http://www.state.nv.us/swpp/storminfo.htm) PROJECTS THAT DISTURB MORE THAN ONE ACRE OF LAND MUST SUBMIT NO. NVW00000 ALONG WITH THE APPROPRIATE FILING FEE.

PROJECT INFORMATION	
ACREAGE (GROSS):	= 8.20 AC
ACREAGE (NET):	= 7.03 AC
DENSITY (LOTS/NET ACRE):	= 122.03 UNITS/NET AC
ZONING:	= P-C
TOTAL NO. OF RESIDENTIAL LOTS	= 86
TOTAL NO. OF COMMON ELEMENTS	= 3
MINIMUM LOT SIZE	= 2,173 SF±
MAXIMUM LOT SIZE	= 2,686 SF±
PROVIDED OPEN SPACE	= 81,178 SF±
EARTHWORK SUMMARY (UNADJUSTED)	
CUT	4,905 CY.
FILL	64,115 CY.
NET	59,210 CY.

PREPARED BY: ANGLE ENGINEERING
ADDRESS: 5995 SOUTH EDMOND STREET, LAS VEGAS, NV 89118
PHONE: 702-382-6453
PROJECT No. 28223-1
DATED: 6/12/19

[illegible]



SCALE - 1"=30' FEET

CALL SOUTHWEST GAS AT 702-651-2111 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

DRAINAGE IMPROVEMENT QUANTITIES		
1. 12.5" TYPE "CMZ" DROP INLET	EA	1
2. 3" WIDE CONCRETE VALLEY GUTTER	EA	962
3. 8" WIDE CONCRETE VALLEY GUTTER	EA	2,822

SURVEY NOTE
OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DISTURBED, DESTROYED, OR OBLISCURED DURING CONSTRUCTION.

SOILS REPORT
SOILS REPORT BY ANGLE ENGINEERING
PROJECT NO. 26223-1 DATED 6/12/19
EARTHWORKS
EARTHWORK QUANTITIES (RAW):
CUT= 4,905 CU YDS
FILL= 64,115 CU YDS
EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.

DISCLAIMER NOTE
1) EXISTING UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND 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 IN THEIR PROPER LOCATION.
2) FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED TOP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS THE CONTRACTOR SHALL NOTIFY THE ENGINEER.

GENERAL NOTES
1. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
2. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SHIPPP.
3. MAXIMUM MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
4. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
5. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
7. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITY STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. CONTRACTOR TO PROTECT IN PLACE DURING CONSTRUCTION. ENGINEER/OWNER SHALL BE NOTIFIED OF PRIOR DAMAGE TO EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR/REPLETING FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENCING.
8. 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.

LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES
(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, WASH CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATED IN, THE PUBLIC RIGHTS OF WAY OF CLARK COUNTY 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 CLARK COUNTY TITLE 24.40 AND IN THE LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDANCE 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 EXCEPTIONS MAY APPLY. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NWR100000, SECTION B.4.3.
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 A RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NWR100000, SECTION B.4.12.
5. ACCUMULATED SEDIMENT IN BMPs SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHOEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

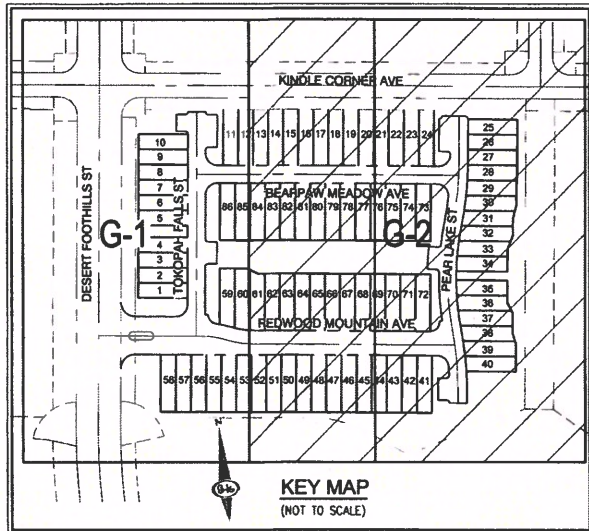
PRIVATE STREET NOTE
ALL PRIVATE STREETS ARE PUBLIC UTILITY EASEMENTS, PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY HOA.

DRAINAGE EASEMENT NOTE
ALL DRAINAGE EASEMENTS ARE PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED.

FAST
Call before you dig
UnderGround
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM
OF TRANSPORTATION (F.A.S.T.)

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.
Call before you dig
YOU'D OVERHEAD
1-702-227-2929

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



- CONSTRUCTION NOTES**
- 1) CONSTRUCT 2" AC PAVEMENT WITH 4" TYPE II AGGREGATE BASE
 - 2) CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD NO. 216
 - 3) CONSTRUCT "A" TYPE ISLAND CURB PER CCAUSD NO. 219
 - 4) CONSTRUCT 30" ROLL CURB AND GUTTER PER CCAUSD NO. 217.1
 - 5) CONSTRUCT 5" TRANSITION FROM ROLLED CURB TO "L" TYPE CURB PER DETAIL 21 SHEET D-2
 - 6) CONSTRUCT 3" CROSS GUTTER PER DETAIL 1 SHEET D-1
 - 7) CONSTRUCT 8" CROSS GUTTER PER CCAUSD NO. 228
 - 8) CONSTRUCT 5" WIDE SIDEWALK PER CCAUSD NO. 234 (4" THICK W/ 5" TYPE II AGGREGATE BASE)
 - 9) CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOWNS OR EQUIVALENT PER CCAUSD NO. 235, CASE 1
 - 10) SAWCUT AND MATCH EXISTING IMPROVEMENTS PER CCAUSD NO. 503 & 500.2
 - 11) LANDSCAPING TO BE DESIGNED AND MAINTAINED BY MASTER DEVELOPER
 - 12) INSTALL CABLE RAIL GUARDRAIL PER DETAIL 19 ON SHEET D-2
 - 13) INSTALL 12.5" TYPE "CMZ" DROP INLET PER CCAUSD NO. 412.1 AND STORM WATER QUALITY MANAGEMENT STAMP PER CCAUSD NO. 421
 - 14) EXISTING 24" ROP STORM DRAIN PER CLV #1077671
 - 15) EXISTING 60" TYPE III STORM DRAIN MANHOLE PER CLV #1077671
 - 16) INSTALL SIDEWALK UNDERDRAIN PER CCAUSD NO. 236
 - 17) PUBLIC DRAINAGE EASEMENT TO BE PRIVATELY MAINTAINED BY MASTER DEVELOPER HOA

FLOOD ZONE
THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C2150E, DATED SEPTEMBER 27, 2002. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

FLOOD CERTIFICATION
I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY DS-5182 ON FILE AT CITY OF LAS VEGAS FOR THE SUBJECT PROJECT.
ISAAC GUZMAN, P.E. 23513 DATE

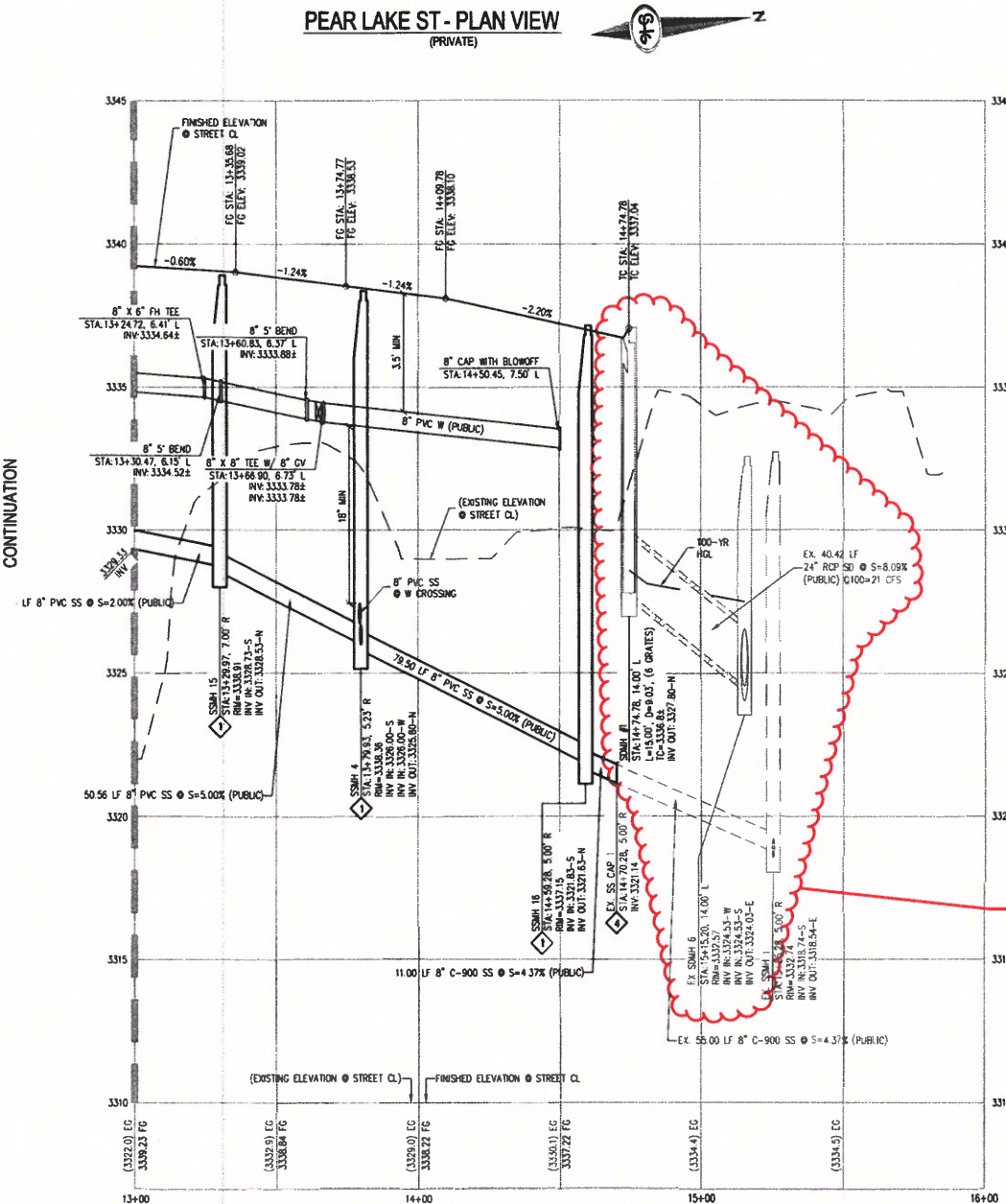
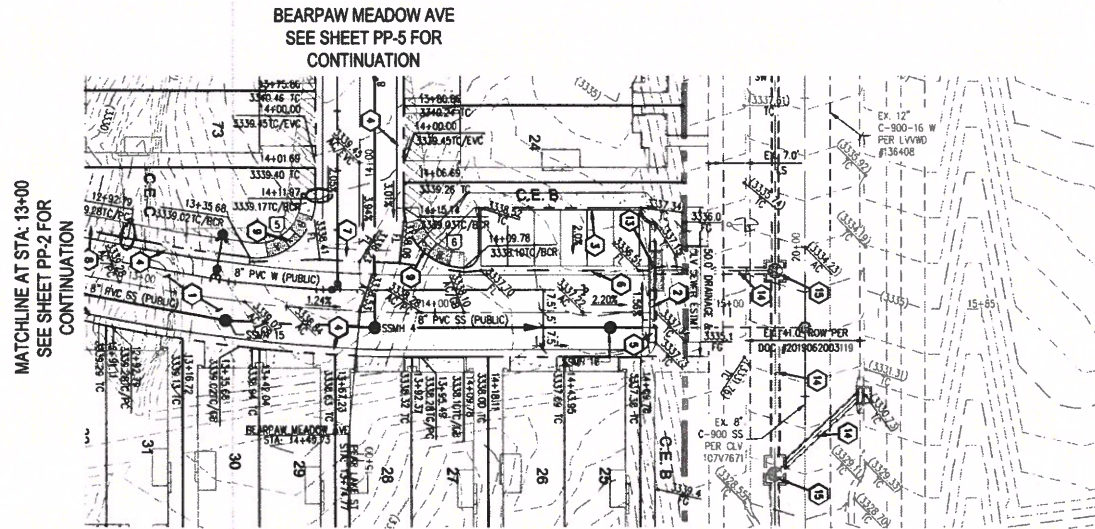
SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89115
PHONE (702) 254-5300 FAX (702) 254-5399

RICHMOND AMERICAN HOMES
SUMMERLIN V21 PARCEL K
GRADING PLAN II

CITY OF LAS VEGAS, NV
DATE: 10/14/19
DRAFTER: HA
DESIGNER: IG
CHECKED: IG
PROJECT NO. RAH1908.00
ISAC GUZMAN, P.E. 23513
DATE

ISAC M. GUZMAN
Exp. 06/29/2021
Civil
No. 23513
10449

G-2
SHEET 5 OF 19



MATCHLINE AT STA: 13+00
SEE SHEET PP-2 FOR
CONTINUATION

MATCHLINE AT STA: 13+00
SEE SHEET PP-2 FOR
CONTINUATION

PEAR LAKE ST - PROFILE VIEW

HORIZ. 1" = 30'
VERT. 1" = 3'

Storm drain adjusted
per grading changes

0 30 60
SCALE - 1"=30' FEET

CALL SOUTHWEST GAS AT 702-651-2111
FOR STANDBY WHEN EXCAVATING OVER OR
NEAR HIGH PRESSURE GAS LINES

SURVEY NOTE

OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS
SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED,
DISTURBED, DESTROYED, OR OBLISCURED DURING CONSTRUCTION

DISCLAIMER NOTE

- EXISTING UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND 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 IN THEIR PROPER LOCATION.
- FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS THE CONTRACTOR SHALL NOTIFY THE ENGINEER.

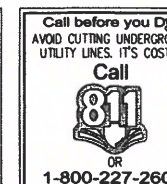
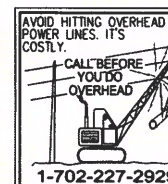
GENERAL NOTES

- THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
- ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SNPPP.
- MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
- SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
- ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
- CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
- CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITY STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. CONTRACTOR TO PROTECT IN PLACE DURING CONSTRUCTION. ENGINEER/OWNER SHALL BE NOTIFIED OF PRIOR DAMAGE TO EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR/REPLENISHING FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENCING.
- 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.

WATER NOTES

- ALL SEWER/STORM DRAIN CROSSING WATER LINES MUST CONFORM TO SECTION 2.22 OF THE UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR POTABLE WATER SYSTEMS (UDACS) FOR WATER AND STORM MAIN CROSSINGS AND CLEARANCES.
- INSTALL WATERLINE IN STEEL CASING PER UDACS PLATES NO. 21 AND 23. MINIMUM 18-INCH CLEARANCE IS REQUIRED ABOVE THE TOP OF THE CASING. FROM THE UPPER BENDS THROUGHOUT THE LOADED SECTION OF THE PIPE, DUCTILE IRON PIPE WITH RESTRAINED JOINTS IS REQUIRED. IN ADDITION, IMPULSION BLOCKS ARE TO BE INSTALLED AT THE UPPER BENDS.
- ANGULAR SPACE BETWEEN PIPE AND CASING SHALL BE FILLED WITH CLASS 1 CLSM. SEE UDACS PLATES 17 AND 18 FOR REDDING AND BACKFILL REQUIREMENTS.
- INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING, PER UDACS PLATE NO. 15.
- MINIMUM 24" COVER PER UDACS SECTION 2.08.04 GRADING MUST BE COMPLETED PRIOR TO WATERLINE INSTALLATION.

RAMP NUMBER	GRADE (%)	"A" (FT) MIN.	"B" (FT) MIN.
(1)	-6 TO -5.01	4.5	21.5
(2)	-5 TO -4.01	4.5	15.0
(3)	-4 TO -3.01	4.5	12.0
(4)	-3 TO -2.01	4.5	9.5
(5)	-2 TO 1	8.0	8.0
(6)	2 TO 3	9.5	4.5
(7)	3 TO 4	12.0	4.5
(8)	4 TO 5	15.0	4.5
(9)	5 TO 6	21.5	4.5



APPROVED FOR CONSTRUCTION

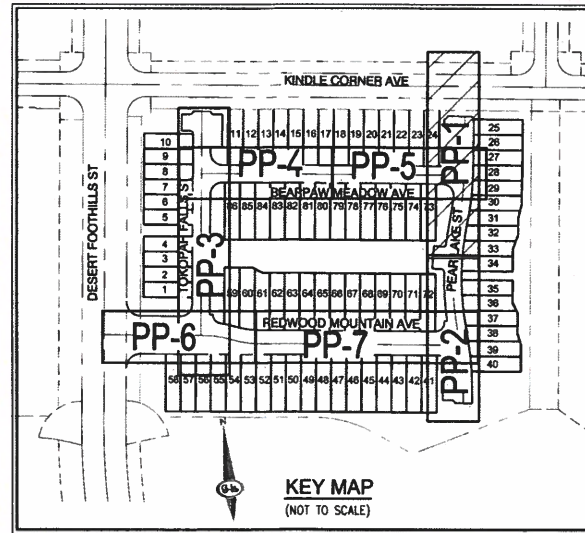
LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. RAH1908.00 FIRST APPROVED DATE: 06/20/2021
LVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ON SITE 20 GPM

SEWER CONSTRUCTION NOTES

- INSTALL 48" DIAMETER SANITARY SEWER MANHOLE PER DCSWCS SD-1, SD-4 AND SD-9 WITH 24" SINGLE LID.
- INSTALL 8" PVC SANITARY SEWER PIPE (PUBLIC) PER DCSWCS SD-15 AND SD-17.
- INSTALL 8" CS900 SANITARY SEWER PIPE (PUBLIC) PER DCSWCS SD-15 AND SD-17.
- FIELD VERIFY LOCATION, REMOVE EXISTING SEWER CAP, AND CONNECT TO EXISTING SEWER STUB.
- INSTALL 4" PVC SEWER LATERAL PER DCSWCS SD-20 AND SD-23.

CONSTRUCTION NOTES

- CONSTRUCT 2" AC PAVEMENT WITH 4" TYPE 1 AGGREGATE BASE.
- CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD NO. 216.
- CONSTRUCT "A" TYPE ISLAND CURB PER CCAUSD NO. 219.
- CONSTRUCT 30" ROLL CURB AND GUTTER PER CCAUSD NO. 217.1.
- CONSTRUCT 5" TRANSITION FROM ROLLED CURB TO "L" TYPE CURB PER DETAIL 21 SHEET D-2.
- CONSTRUCT 3" CROSS GUTTER PER DETAIL 1 SHEET D-1.
- CONSTRUCT 8" CROSS GUTTER PER CCAUSD NO. 228.
- CONSTRUCT 5" WIDE SIDEWALK PER CCAUSD NO. 234 (4" THICK W/ 5" TYPE II AGGREGATE BASE).
- CONSTRUCT SIDEWALK RAMPS USING ANHOL TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235, CASE 1.
- SAWCUT AND MATCH EXISTING IMPROVEMENTS PER CCAUSD NO. 503 & 500.2.
- LANDSCAPING TO BE DESIGNED AND MAINTAINED BY MASTER DEVELOPER.
- INSTALL CABLE RAIL GUARDRAIL PER DETAIL 19 ON SHEET D-2.
- INSTALL 12" TYPE "CM2" DROP INLET PER CCAUSD NO. 412.1 AND STORM WATER QUALITY MANAGEMENT STAMP PER CCAUSD NO. 421.
- EXISTING 24" ROP STORM DRAIN PER CLV #107V7671.
- EXISTING 60" TYPE II STORM DRAIN MANHOLE PER CLV #107V7671.
- INSTALL SIDEWALK UNDERDRAIN PER CCAUSD NO. 236.
- PUBLIC DRAINAGE EASEMENT TO BE PRIVATELY MAINTAINED BY MASTER DEVELOPER HOA.



SLATER HANIFAN GROUP
 a Westwood team
 9740 S. ARVILLE STREET #216, LAS VEGAS, NV 89116
 PHONE (702) 264-5300 FAX (702) 264-5399

RICHRMOND AMERICAN HOMES

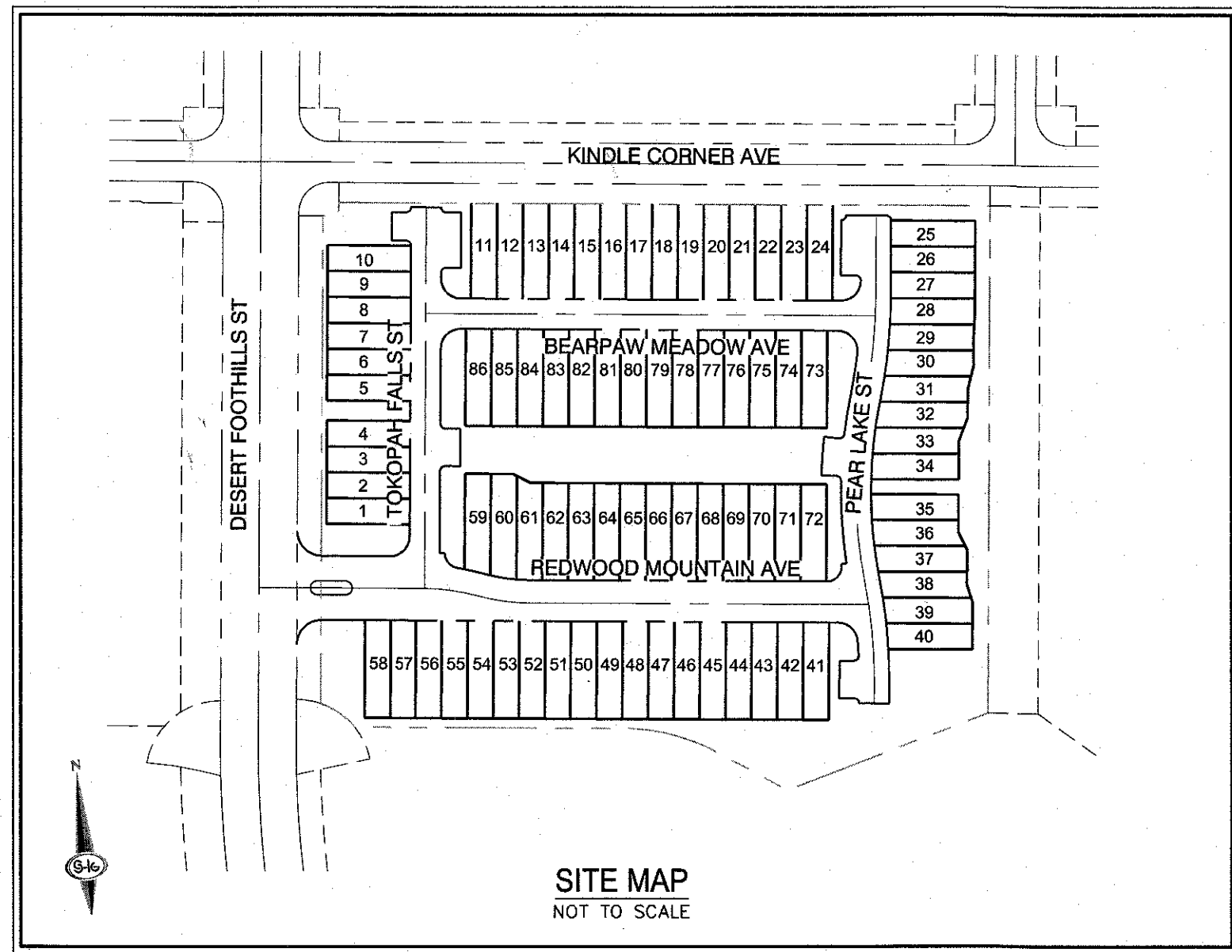
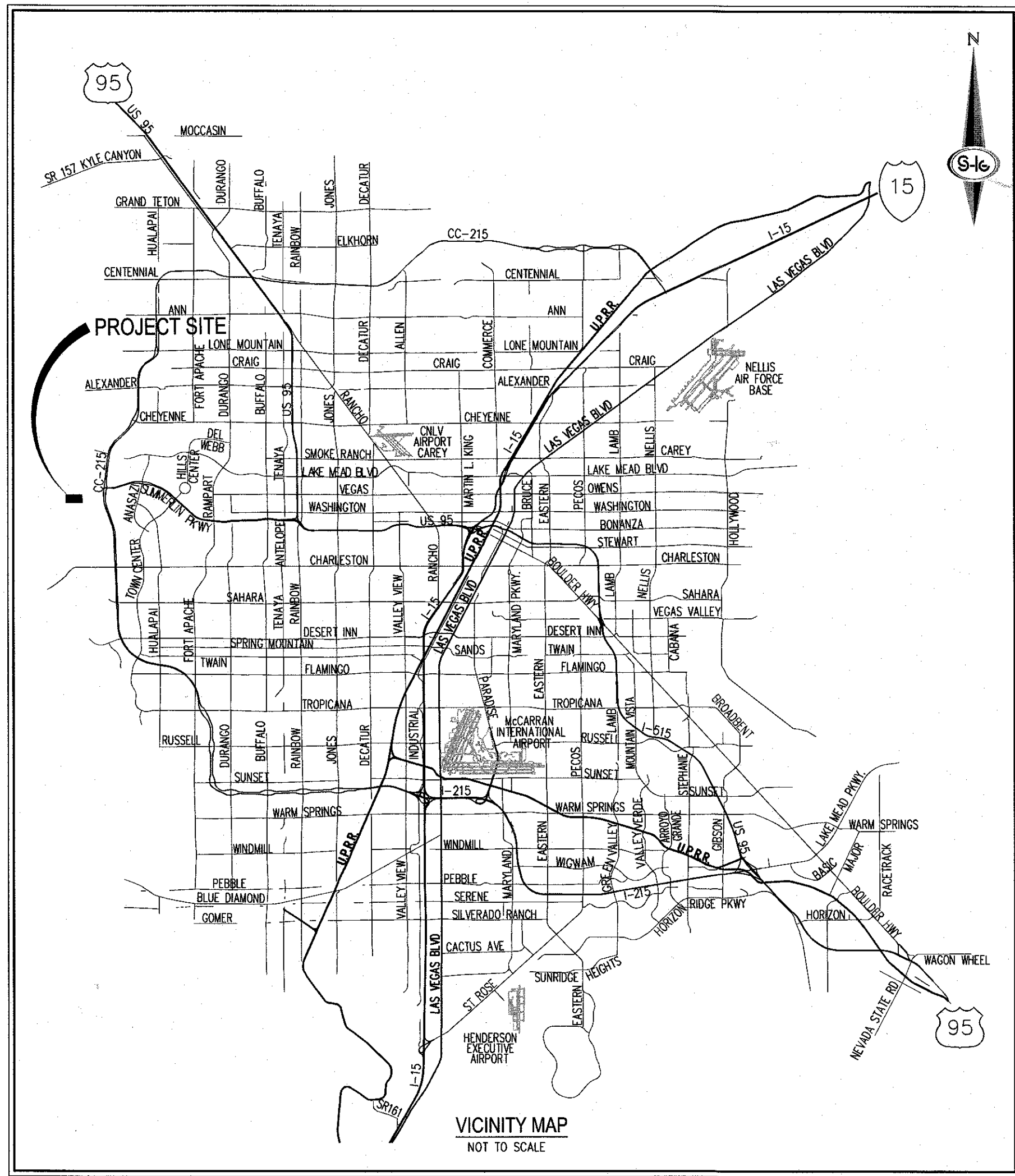
CITY OF LAS VEGAS, NV
 SUMMERLIN V21 PARCEL K
 PLAN AND PROFILE - PEAR LAKE ST I

DATE: 10/14/19
 DRAFTER: HA
 DESIGNER: IG
 CHECKED: IG
 PROJECT NO. RAH1908.00

PP-1
 SHEET 8 OF 19

APPENDIX H

CD of Electronic Files & Revised Improvement Plans



RICHMOND AMERICAN HOMES IMPROVEMENT PLANS FOR SUMMERLIN VILLAGE 21 PARCEL K AKA MORO ROCK

CITY OF LAS VEGAS, NEVADA
RESIDENTIAL SUBDIVISION

APN: 137-26-112-003



CLV FIRE & RESCUE SPRINKLER REQUIREMENTS

- M.O.U. ITEMS
TMP #79550
- HYDRANT SPACING REQUIREMENTS WILL BE AS PER PRESCRIBED ADOPTED CODE.
 - MINIMUM STREET WIDTHS AS DESCRIBED WITHIN GATED PRIVATE COMMUNITY INTERIOR STREETS AS FOLLOWS:
A. 33' WITH PARKING ON BOTH SIDES MEASURED TO FACE OF CURB.
 - SPRINKLER INSTALLATION REQUIREMENTS WILL FOLLOW THE BASE NFPA 130 REQUIREMENTS FOR SUCH LOCATIONS.
 - CITY OF LAS VEGAS AGREES THAT FOR SINGLE FAMILY DWELLINGS PROVIDED WITH FIRE SPRINKLERS, THERE WILL BE NO ADDITIONAL FEE FOR THE FIRE SPRINKLER REVIEW, PERMIT OR INSPECTIONS.
 - PLANS FOR RESIDENTIAL FIRE SPRINKLERS WILL BE PART OF THE STANDARD PLAN SUBMITTAL FOR SINGLE FAMILY DWELLING TRACT OR PRODUCTION HOME.
 - NOT NET INCREASE IN ENTERPRISE FUND FOR IMPLEMENTING THE INSTALLATION OF FIRE SPRINKLER SYSTEMS WITHIN SINGLE FAMILY DWELLING TRACT OR PRODUCTION HOMES.
 - HYDRANT SPACING REQUIREMENT AT "ALL INTERSECTIONS," MINIMUM SPACING AND REQUIRED LOCATIONS WILL BE IN ACCORDANCE WITH ADOPTED CODE.
 - ITEMS REFLECTED WITHIN THIS M.O.U. FOR ALL PROJECTS PERMITTED WILL BE EFFECTED AND ENFORCEABLE WITH THE ADOPTION OF 2018 INTERNATIONAL RESIDENTIAL CODE, 2018 INTERNATIONAL BUILDING CODE, 2018 INTERNATIONAL FIRE CODE, 2018 INTERNATIONAL TRANSPORTATION COMMISSION STANDARDS, AND LAS VEGAS MUNICIPAL CODE, TITLE 19.

DEVIATIONS FROM STANDARDS

NONE

SWPPP NOTE

NOTE: ALL LAND SURFACE AREA DISTURBANCES OVER 1 ACRE REQUIRE A STORMWATER DISCHARGE PERMIT ISSUED BY THE NEVADA DIVISION OF ENVIRONMENTAL PROTECTION (NDEP). A PHASED CONSTRUCTION UNIT IN A CONTIGUOUS SUBDIVISION IS CONSIDERED UNDER CONSTRUCTION UNTIL ALL STRIPPED SURFACE AREAS HAVE BEEN COVERED BY PAVING, BUILDING CONSTRUCTION OR PLANTING. A STORMWATER DISCHARGE PERMIT APPLICATION AND ASSOCIATED INFORMATION MAY BE DOWNLOADED FROM THE WEB SITE: <http://www.state.nv.us/bwpc/storm1.htm> PROJECTS THAT DISTURB MORE THAN ONE ACRE OF LAND MUST SUBMIT TO NDEP A "NOTICE OF INTENT" FOR INCLUSION UNDER STORMWATER PERMIT NO. NV1000000 ALONG WITH THE APPROPRIATE FILING FEE.

PROJECT INFORMATION

ACREAGE (GROSS): = 8.20 AC
ACREAGE (NET): = 7.03 AC
DENSITY (LOTS/NET ACRE): = 12.23 DU/NET AC
ZONING: = P-C
TOTAL NO. OF RESIDENTIAL LOTS = 86
TOTAL NO. OF COMMON ELEMENTS = 3
MINIMUM LOT SIZE = 2,173 SF±
MAXIMUM LOT SIZE = 2,685 SF±
PROVIDED OPEN SPACE = 81,178 SF±

EARTHWORK SUMMARY (UNADJUSTED)

CUT 4,905 CY
FILL 64,115 CY
NET 59,210 CY

GEOTECHNICAL ENGINEER

PREPARED BY: ANGLE ENGINEERING
ADDRESS: 5205 SOUTH EDMOND STREET, LAS VEGAS, NV 89118
PHONE: 702-382-8463
PROJECT No. 26223-1
DATED: 6/12/19

Sheet List Table		
NO.	SHEET	TITLE
1	C-1	COVER SHEET
2	C-2	STANDARD NOTES
3	C-3	QUANTITIES & LEGEND
4	G-1	GRADING PLAN I
5	G-2	GRADING PLAN II
6	D-1	STREET SECTIONS
7	D-2	GRADING DETAILS
8	D-3	GRADING DETAILS II
9	PP-1	PLAN AND PROFILE - PEAR LAKE ST I
10	PP-2	PLAN AND PROFILE - PEAR LAKE ST II
11	PP-3	PLAN AND PROFILE - TOKOPAH FALLS ST
12	PP-4	PLAN AND PROFILE - BEARPAW MEADOW AVE I
13	PP-5	PLAN AND PROFILE - BEARPAW MEADOW AVE II
14	PP-6	PLAN AND PROFILE - REDWOOD MOUNTAIN AVE I
15	PP-7	PLAN AND PROFILE - REDWOOD MOUNTAIN AVE II
16	MUT-1	MASTER UTILITY PLAN
17	U-1	UTILITY PLAN I
18	U-2	UTILITY PLAN II
19	T-1	TRAFFIC PLAN I
20	T-2	TRAFFIC PLAN II
21	T-3	TRAFFIC PLAN III

APPROVALS

ACTING CITY ENGINEER-ROSA CORTEZ PE, #17505	DATE
APPROVAL OF THESE PLANS BY THE CITY ENGINEER IS LIMITED TO THOSE IMPROVEMENTS CONSTRUCTED IN THE DEDICATED OF RIGHT-OF-WAY, AND/OR DEDICATED EASEMENTS. THIS APPROVAL DOES NOT AUTHORIZE CONSTRUCTION OF ANY IMPROVEMENTS THAT DEVIATE FROM ADOPTED STANDARDS AND/OR SPECIFICATIONS EXCEPT THOSE SPECIALLY LISTED UNDER DEVIATIONS FORM STANDARDS. THE ENGINEER SHALL RESOLVE ANY DEVIATION OTHER THAN THOSE LISTED IN DEVIATIONS FROM STANDARDS IN FAVOR OF THE UNIFORM STANDARD DRAWINGS AND SPECIFICATIONS, CLARK COUNTY AREA, NEVADA.	
LAS VEGAS FIRE AND RESCUE	DATE
THIS PLAN MEETS THE APPLICABLE STANDARDS OF THE PLANNING DEPARTMENT.	
CITY OF LAS VEGAS - PLANNING DEPARTMENT	DATE
THE AFFIRMED 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.	
APPROVED FOR CONSTRUCTION	
LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES PROJECT NO. 137018 FIRST APPROVED DATE: LVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 26 GPM SHEETS: C-1, C-2, C-3, PP-1 THRU PP-7, MU-1, U-1, U-2	
NV ENERGY	DATE
NV ENERGY ACKNOWLEDGES THAT WE HAVE RECEIVED YOUR PLANS AND WILL PROVIDE SERVICE TO ALL ELECTRICAL NEEDS ASSOCIATED WITH THIS PROJECT. NV ENERGY 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.	
SOUTHWEST GAS CORPORATION	DATE
COX COMMUNICATIONS LAS VEGAS, INC.	DATE

OWNER/DEVELOPER ENGINEER

RICHMOND AMERICAN HOMES 7770 S. DEAN MARTIN DR. #308 LAS VEGAS, NV 89139 PH: 702-877-8400 FX: 702-284-5300 CONTACT: NICOLE BLOOM	SLATER HANIFAN GROUP, INC. 5740 S. ARVILLE STREET, SUITE 216 LAS VEGAS, NV 89118 PH: (702) 284-5300 FX: (702) 284-5399 CONTACT: ISAAC GUZMAN
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LEGAL DESCRIPTION

BEING LOT "K" OF THAT CERTAIN FINAL MAP TITLED "SUMMERLIN VILLAGE 21 - UNIT 3", IN BOOK 159 OF PLATS, PAGE 50, IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA.

BENCHMARK

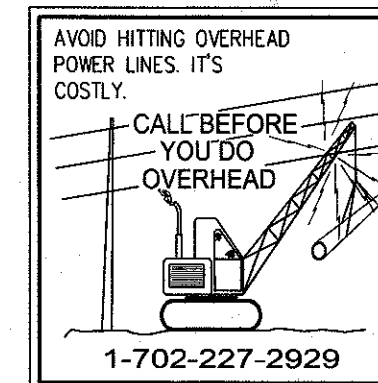
BENCHMARK NUMBER: SLV0926W6
RIVET AND PLATE IN TOP OF CURB AT SOUTHEAST CORNER OF CARRIAGE HILL DRIVE AND FAR HILLS AVENUE.
ELEVATION = 3229.29 FEET, 984.288 METERS
N.A.V.D. 88 DATUM
PER THE CITY OF LAS VEGAS VERTICAL CONTROL

BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF THE NORTH LINE OF SECTION 27, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.14, CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREOF IN BOOK 159, PAGE 13 OF PLATS IN THE CLARK COUNTY RECORDER'S OFFICE, NEVADA.

FEMA FLOOD ZONE INFORMATION

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C2150E, DATED SEPTEMBER 27, 2002. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.



SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300
FAX (702) 284-5399

SUMMERLIN VILLAGE 21 PARCEL K
COVER SHEET

DATE: 12/27/19
DRAFTER: HA
DESIGNER: IG
CHECKED: IG
PROJECT NO.
RAH1908.00

ISAAC M. GUZMAN
CIVIL ENGINEER
Exp. 06/30/2021
CIVIL
No. 23513
H620

C-1
SHEET 1 OF 21
L19-02448
1075124

STORMWATER RUNOFF MANAGEMENT

(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 AND CONSTRUCTION DEBRIS OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATE IN, THE PUBLIC RIGHTS OF WAY OF CLARK COUNTY 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 TITLE 24.40 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 EXCEPTIONS MAY APPLY; REFER TO NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.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 UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN 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 NVR100000, SECTION III.A.12.
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.

LEGAL DESCRIPTION

BEING LOT "K" OF THAT CERTAIN FINAL MAP TITLED "SUMMERLIN VILLAGE 21 - UNIT 3", IN BOOK 159 OF PLATS, PAGE 50, IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA.

BENCHMARK

BENCHMARK NUMBER: 50V026W6
RIVET AND PLATE IN TOP OF CURB AT SOUTHEAST CORNER OF CARRIAGE HILL DRIVE AND FAR HILLS AVENUE.
ELEVATION = 3229.29 FEET, 984.288 METERS
N.A.S.D. 88 DATUM
PER THE CITY OF LAS VEGAS VERTICAL CONTROL.

BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF THE NORTH LINE OF SECTION 27, TOWNSHIP 20 SOUTH, RANGE 98 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREIN IN BOOK 159, PAGE 13 OF PLATS IN THE CLARK COUNTY RECORDER'S OFFICE, NEVADA.

SOUTHERN NEVADA - SOUTHWEST GAS CORPORATION GENERAL NOTES

1. IN THE EVENT OF NATURAL GAS EMERGENCIES CALL 911 AND 1-877-860-6020
2. 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 ELECTRICAL, 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.
3. FOR VALVE ADJUSTMENT CONTACT 702-668-6107 48 HOURS PRIOR TO CONSTRUCTION.
4. IN THE EVENT OF NATURAL GAS CONFLICT WITH PROPOSED UTILITIES AND STRUCTURES CONTACT 702-363-2089
CAUTION: HIGH PRESSURE GAS

CALL SOUTHWEST GAS AT 702-400-1789 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES 48 HOURS PRIOR TO CONSTRUCTION

SOUTHWEST GAS APPROVAL

SOUTHWEST GAS CORPORATION DATE

2.2 CITY OF LAS VEGAS SEWER NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER 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.
2. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM CONSTRUCTION AS PER PLANS, ANY ADDITIONS, DELETIONS, OR CHANGES SHALL FIRST MEET WITH THE APPROVAL OF THE CITY ENGINEER.
3. CHISEL "S" OR "O" IN CURBS WHERE SEWER OR GAS LATERALS PASS UNDER THE CURB.
4. POLYVINYL (PVC) SEWER PIPE SHALL MEET ASTM D-3034 SDR 35 SPECIFICATIONS, INSTALLED WITH SAND BEDDING AND BACKFILL OF TYPE II AGGREGATE BASE.
5. 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.
6. TEE SADDLES SHALL BE USED TO CONNECT SEWER LATERALS TO EXISTING MAIN LINES UP TO TWELVE INCH (12") DIAMETER. CONNECTIONS TO FIFTEEN INCH (15") OR LARGER MAINS SHALL REQUIRE SPECIAL PROCEDURES, IN LINE "Y" "S" SHALL BE USED ON LINES TWELVE INCHES (12") OR ABOVE.
7. WATER MAINS SHALL BE PROTECTED IN ACCORDANCE WITH LVVWD STANDARDS WHENEVER A SEWER MAIN CROSSES OVER A WATER MAIN OR THE SEWER IS LESS THAN EIGHTEEN INCH (18") UNDER A WATER MAIN.
8. ALL CONTRACTORS INSTALLING SEWER MAINS THAT WILL BE UNDER THE JURISDICTION OF THE CITY OF LAS VEGAS MUST BE STATE OF NEVADA CLASS "A" CONTRACTORS.
9. THE CITY OF LAS VEGAS WILL NOT ACCEPT ANY SEWER MAINS WHICH HAVE A VERTICAL DEFLECTION OF MORE THAN ONE TENTH (0.1) OF A FOOT FROM THE APPROVED CONSTRUCTION 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.
10. INSTALLATION OF CURVED SEWER REQUIRES THE USE OF C-900 PIPE WHICH ALLOWS FOR PIPE DEFLECTION AT THE JOINTS.

LAS VEGAS VALLEY WATER DISTRICT (LVVWD) STANDARD NOTES

LVVWD PROJECT # 137018 (REVISED 08/01/2017)

1. NO WORK SHALL BE DONE UNTIL THE WATER PLANS HAVE BEEN APPROVED FOR CONSTRUCTION BY THE LVVWD. FOLLOWING WATER PLAN APPROVAL, NOTICE SHALL BE GIVEN TO THE LVVWD COMMUNICATION SUPPORT CENTER (258-7171) 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 PLATES, 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 EDITION OF THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFFSITE IMPROVEMENT, CLARK COUNTY AREA.
4. A SINGLE PIPE MATERIAL SHALL 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 CUTTERS.
8. ALL WATER AND STORM DRAIN OR SANITARY SEWER CROSSINGS SHALL CONFORM TO SECTION 2.22 OF THE 2010 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 CENTRAL STORES. TELEPHONE 258-3152 OR 258-3802, TWO (2) WORKING DAYS PRIOR TO METER PICKUP.
11. ANY INTERRUPTION OF SERVICE MUST BE PERFORMED IN ACCORDANCE WITH UDACS SECTION 314.01, 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 PRODUCTS 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 CONFORMANCE 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 DECORATIVE 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 PLAN 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 WORKS 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.

GRADING NOTES

1. INDICATED GRADES OTHER THAN I.C., F.G. & GUTTER F.L. ARE ROUGH GRADES.
2. THE ROUGH GRADING PLANS SHALL BE ON THE JOB SITE AT ALL TIMES. THE ROUGH GRADING SHALL BE FINISHED IN CONFORMANCE WITH THE LINES AND GRADES SHOWN ON THE PLANS. THE GRADING QUANTITIES ARE BASED ON THE ELEVATION AND DETAILS SHOWN ON THE PLANS. ANY DEVIATIONS FROM THE PLANS WILL RESULT IN QUANTITY CHANGES.
3. CARE SHALL BE EXERCISED IN GRADING CORNER LOTS.
4. ROUGH PAD ELEVATIONS SHALL BE GRADED TO WITHIN 0.1' OF THE PAD ELEVATIONS SHOWN ON THE PLANS. WHEN GRADING IS COMPLETE PER THE PLANS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE LOTS CAN BE INSPECTED. AT THAT TIME THE ENGINEER SHALL ALSO DECIDE IF ANY ADDITIONAL DITCHES OR BERMS ARE REQUIRED. THE CONTRACTOR IS REQUESTED NOT TO REMOVE ANY OF HIS ROUGH GRADING EQUIPMENT UNTIL HE RECEIVES GRADING APPROVAL FROM THE ENGINEER.
5. SOILS REPORT PREPARED BY ANGLE ENGINEERING, PROJECT NO. 26223-1, DATED 6/12/19.
6. EARTHWORK QUANTITIES (RAW):
- CUT = 4,905 CUBIC YARDS
- FILL = 64,115 CUBIC YARDS
A) THE ABOVE QUANTITIES DO NOT REFLECT LOSSES DUE TO SUBSIDENCE OR SHRINKAGE.
B) THE ABOVE QUANTITIES DO REFLECT USING NATIVE MATERIAL IN LIEU OF TYPE I GRAVEL BASE MATERIAL FOR STREET SECTIONS.
C) THE ABOVE QUANTITIES DO NOT REFLECT ANY EARTHWORK WHICH MAY BE REQUIRED BY THE ENGINEER TO CONSTRUCT ADDITIONAL PROTECTIVE DITCHES OR BERMS NOT SHOWN ON THESE DRAWINGS.

CITY OF LAS VEGAS FIRE AND RESCUE GENERAL NOTES

1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LAS VEGAS FIRE AND RESCUE ADOPTED FIRE CODE ORDINANCE # 6631 FOR HYDRANT SPECIFICATIONS AND HYDRANT INSTALLATION SPECIFICATIONS.
2. ONLY FIRE HYDRANTS THAT ARE ON THE LAS VEGAS VALLEY WATER DISTRICTS - APPROVED PRODUCTS LIST ARE ALLOWED TO BE INSTALLED.
3. A PERMIT 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 § 105.6.15
4. ON ANY RESIDENTIAL OR COMMERCIAL INSTALLATIONS, FIRE HYDRANTS SHALL BE INSTALLED AND FIRE APPARATUS ACCESS ROADS SHALL BE PROVIDED 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
5. TO IDENTIFY THE FIRE HYDRANT LOCATIONS, THE CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER LINE OF THE STREET ADJACENT TO THE FIRE HYDRANTS. IFC § 507.5.7.1
6. ALL UNDERGROUND INSPECTIONS, PRESSURE AND FLUSH VERIFICATIONS OF ALL FIRE 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 § 108.3
7. ALL ON-SITE UNDERGROUND WATER 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.
8. 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
9. PRIVATE HYDRANTS SHALL BE PAINTED RED. IFC § 507.5.7.1
10. 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
11. FIRE HYDRANT SPACING SHALL BE AS FOLLOWS: IFC § C102
a. RESIDENTIAL - 500 FT UNSPRINKLERED; 600 FT SPRINKLERED.
b. COMMERCIAL - 300 FT UNSPRINKLERED; 400 FT SPRINKLERED.
12. WHERE THE WATER MAINS ARE EXTENDED ALONG STREET LOTS OR NEW STREETS 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 ON EACH SIDE OF THE STREET SPACED AT 500 FT ON AN ALTERNATING BASIS. IFC § C102.8
13. 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.
14. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN 6 FT OF ANY CURB RETURN, DRIVEWAY, POWER POLE, STREETLIGHT OR ANY OTHER OBSTRUCTION. IFC § C102.10
15. 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
16. 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
17. THE MAXIMUM DISTANCE FROM A HYDRANT TO THE END OF A DEAD-END STREET SHALL NOT EXCEED 200 FT. IFC § C102.6
18. 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, SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 2 FIRE HYDRANTS AND/OR FIRE SPRINKLER LEAD-INS CAN BE OUT OF SERVICE DUE TO A SERVICE INTERRUPTION. FOR SYSTEMS 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
19. ALL FIRE APPARATUS ACCESS ROADS SHALL BE PAVED 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
20. THE GRADIENT FOR THE FIRE APPARATUS ACCESS ROADS SHALL NOT EXCEED 12% ANGLES OF APPROACH AND ANGLES OF DEPARTURE SHALL NOT EXCEED 6% PRIOR TO 25 FT PRIOR TO OR AFTER THE GRADE CHANGE. ADJACENT TO THE STRUCTURES GRADIENT SHALL NOT EXCEED 6%. IFC § 503.2.7, § 503.2.8
21. 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
22. VERTICAL CLEARANCE OF ALL FIRE APPARATUS ACCESS ROADS SHALL NOT BE LESS THAN 13FT 6 INS. IFC § 503.2.1
23. FIRE DEPARTMENT ACCESS ROADS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF NOT LESS THAN 33 FT WITH PARKING 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 LANES THROUGH PARKING LOTS SHALL BE NOT LESS THAN 24 FT. IFC § 503.2.1.1
24. A FIRE APPARATUS ACCESS ROAD SHALL BE REQUIRED WHEN ANY PORTION OF AN EXTERIOR WALL OF THE FIRST STORY IS LOCATED MORE THAN 150 FT FROM A FIRE DEPARTMENT VEHICLE ACCESS. IFC § 503.1.1
25. APPROVED SECONDARY FIRE APPARATUS ACCESS SHALL BE PROVIDED FOR 200 OR MORE DWELLING UNITS, ROAD(S) WITH DEAD-ENDS OR A SINGLE POINT OF ACCESS IN EXCESS OF 600 FT, CLV REGULATION AND MOU
26. ALL DEAD-END FIRE APPARATUS ROADS AND/OR FIRE LANES, 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
27. ALL FIRE APPARATUS ACCESS ROADS SHALL BE MARKED BY BOTH APPROVED SIGNS AT THE START OF THE DESIGNATED FIRE LANE. ONE SIGN AT THE END OF THE FIRE LANE AND WITHIN INTERVALS OF 100 FT ALONG THE DESIGNATED FIRE LANES. 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 LEVEL. THE CURB ALONG OR ON THE PAVEMENT OR CEMENT (IF NO CURB IS PROVIDED) SHALL BE PAINTED WITH RED WEATHER RESISTANT PAINT IN ADDITION TO THE SIGNS. IFC § 503.3
28. ELECTRICALLY CONTROLLED ACCESS GATES SHALL BE PROVIDED WITH AN APPROVED EMERGENCY VEHICLE DETECTOR/RECEIVER SYSTEM. IFC § 503.6
29. WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS, OR HAVING FOUR OR MORE TRAVEL LANES AND A TRAFFIC COUNT OF MORE THAN 30,000 VEHICLES PER DAY, ALL 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

2.5 CITY OF LAS VEGAS GRADING NOTES

1. IN THE EVENT THAT ANY UNFORESEEN CONDITIONS NOT COVERED BY THESE NOTES ARE ENCOUNTERED DURING GRADING OPERATIONS, THE OWNER/ENGINEER SHALL BE IMMEDIATELY NOTIFIED BY DIRECTION.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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	VERTICAL COMPACTION
A. PAVEMENT AREA SUBGRADE	0.1"	+0.0' TO -0.1"
B. ENGINEERED FILL	0.5"	+0.1' TO -0.1"

SEE SOILS REPORT
COMPACTION TESTING WILL BE PERFORMED BY THE OWNER OR HIS REPRESENTATIVE.
7. ALL CUT AND FILL SLOPES SHALL BE PROTECTED UNTIL EFFECTIVE EROSION CONTROL HAS BEEN ESTABLISHED.
8. 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 FOR CONSTRUCTION WATER.
9. THE CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS AND ALL OTHER PUBLIC RIGHT-OF-WAY IN A CLEAN, SAFE AND USABLE CONDITION. SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE PUBLICLY OWNED PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT. ALL ADJACENT PROPERTY, PRIVATE OR PUBLIC SHALL BE MAINTAINED IN A CLEAN, SAFE AND USABLE CONDITION.
10. 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 EXPENSE AND AT THE DIRECTION OF THE CITY ENGINEER. TEMPORARY CONSTRUCTION INCLUDES DITCHES, BERMS, ROAD SIGNS AND BARRICADES, ETC.

UTILITY LOCATION NOTE TO CONTRACTOR

EXISTING UTILITY LOCATIONS SHOWN HEREIN ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND 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 LOCATIONS. CALL BEFORE YOU DIG: 1 (800) 227-2600; SOUTHWEST GAS CORPORATION: 702-400-1789 (STANDBY CONTACT NUMBER)



2.1 CITY OF LAS VEGAS GENERAL NOTES

1. 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, AND 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".
2. THE EXISTENCE AND LOCATION OF ANY OVERHEAD OR UNDERGROUND UTILITY LINES, PIPES, OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A RESEARCH OF THE AVAILABLE RECORDS. EXISTING UTILITIES AS SHOWN FROM CLV PLANS LIBRARY ARE APPROXIMATE AND FOR RECORD PURPOSES. EXISTING UTILITIES ARE LOCATED ON PLANS ONLY FOR THE CONVENIENCE OF THE CONTRACTOR. EXISTING UTILITY SERVICE LATERALS MAY NOT BE SHOWN ON THE PLANS. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, LOCATE ALL UNDERGROUND AND OVERHEAD INTERFERENCES WHICH MAY AFFECT HIS OPERATION DURING CONSTRUCTION AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO SAME. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING NEAR OVERHEAD UTILITIES SO AS TO SAFELY PROTECT ALL PERSONNEL AND EQUIPMENT, AND SHALL BE RESPONSIBLE FOR ALL COST AND LIABILITY IN CONNECTION THEREWITH.
3. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING UTILITY LINES, STRUCTURES AND STREET IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE. FROM DAMAGE, AND ALL SUCH IMPROVEMENTS OR STRUCTURES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED SATISFACTORY TO THE CITY ENGINEER AND OWNING UTILITY COMPANY AT THE EXPENSE OF THE CONTRACTOR.
4. ALL CONSTRUCTION SHALL BE AS SHOWN ON THESE PLANS, ANY REVISIONS SHALL HAVE THE PRIOR WRITTEN APPROVAL OF THE CITY ENGINEER.
5. TYPE V CEMENT SHALL BE USED IN ALL OFF-SITE CONCRETE WORK. CONCRETE TO BE 3000 P.S.I. MINIMUM @ 28 DAYS. MIX DESIGNS TO BE APPROVED BY THE CITY, PRIOR TO USE ON THE PROJECT.
6. PERMITS ARE REQUIRED FOR ANY WORK IN THE PUBLIC RIGHT-OF-WAY. THE CONTRACTOR SHALL SECURE ALL PERMITS AND INSPECTIONS REQUIRED FOR THIS CONSTRUCTION.
7. EXPANSION JOINTS REQUIRED, MAXIMUM EVERY 300' IN EXTENDED-TYPE CURB.
8. AC PAVEMENT TO BE ONE-HALF INCH (1/2") ABOVE UP OF ALL GUTTERS AFTER COMPACTION, EXCEPT AT SIDEWALK RAMP AND CROSS GUTTERS.
9. CURB AND GUTTER FOUND TO BE UNACCEPTABLE TO THE CITY OF LAS VEGAS SHALL BE REMOVED AND REPLACED PER STANDARD DRAWING 216.
10. SIDEWALK RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING 235. EXACT LOCATION OF RAMPS MAY BE ADJUSTED IN THE FIELD BY A CITY INSPECTOR.
11. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITIONS THROUGHOUT NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND FOR INGRESS AND EGRESS TO NEW CONSTRUCTION. THE EXTENT OF THE TRANSITIONS TO BE AS SHOWN ON PLANS.
12. ALL GRADING WORK SHALL CONFORM TO THE SOILS REPORT AS PREPARED BY ANGLE ENGINEERING, REPORT #26223-1, 6/22/19 APPROVED BY THE CITY ENGINEER, AND AS SHOWN ON THESE PLANS.
13. EXACT LOCATION OF ALL SAWCUT LINES MAY BE ADJUSTED OR DETERMINED IN THE FIELD BY A CITY OF LAS VEGAS ENGINEER IF LOCATION ON PLANS IS NOT CLEARLY SHOWN, OR EXISTING PAVEMENT CONDITION REQUIRES RELOCATIONS.
14. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT EXISTING RECORD SURVEY MONUMENTS. ANY MONUMENTS DISTURBED SHALL BE REPLACED AND ADJUSTED PER AVAILABLE RECORDS IN ACCORDANCE WITH N.R.S. STATUTE NO. 625.380 & CITY OF LAS VEGAS TITLE 18, APPENDIX D.
15. UTILITY COMPANY METER BOXES, MANHOLE LIDS, VALVE COVERS, ETC., SHALL BE LOCATED OUT OF DRIVEWAYS, DRIVEWAY APRONS, FLOWLINES, AND CROSS GUTTERS UNLESS WRITTEN APPROVAL IS GRANTED BY THE UTILITY COMPANY AND THE CITY ENGINEER.

WALL NOTES:

16. ALL WALLS, NEW OR EXISTING, ARE ONLY SHOWN ON CIVIL PLANS FOR THE PURPOSE OF REVIEWING GRADING RELATIONSHIPS; FLOOD CONTROL, AND SIGHT DISTANCE AT INTERSECTIONS. NEW WALLS REQUIRE A SEPARATE PERMIT AND INSPECTION BY THE BUILDING DEPARTMENT.
17. ASPHALT MIX DESIGN MUST BE SUBMITTED AND APPROVED BY THE CITY ENGINEER PRIOR TO THE PLACEMENT OF ASPHALT WITHIN CITY RIGHT OF WAY.
18. CONTRACTOR SHALL ADJUST ALL NEW AND EXISTING INLETS, VALVE BOXES, MANHOLE RIMS, AND SEWER CLEAN OUTS, ETC. TO FINISH GRADE AS APPLICABLE WHETHER OR NOT THEY ARE SHOWN ON THE PLANS.
19. MATERIALS, HANDLING AND PLACEMENT OF PORTLAND CEMENT CONCRETE SHALL BE IN ACCORDANCE WITH APPLICABLE SPECIFICATIONS OF NDOT OR THE CLARK COUNTY AREA SPECIFICATIONS (AS APPLICABLE) AND THE PLANS AND DETAILS SHOWN HEREON.
20. WHEN INSTALLING UNDERGROUND FACILITIES THAT REQUIRE UNDERGROUND LOCATING DEVICES SUCH AS MARKER BALLS, LOCATING RIBBON, ETC. THE CONTRACTOR SHALL PROVIDE WRITTEN DOCUMENTATION TO OFFSITE INSPECTION AND TESTING CERTIFYING THAT ALL DEVICES HAVE BEEN PLACED AND VERIFIED TO BE IN GOOD WORKING CONDITION PRIOR TO THE CONSTRUCTION OF ANY ROAD BASE.
21. SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S) SHALL BE PROVIDED TO THE CITY AND APPROVED PRIOR TO ACCEPTANCE OF FACILITY VIDEO INSPECTION. THE MAP(S) SHALL INCLUDE THE HORIZONTAL AND VERTICAL (INVERT) LOCATION OF THE PUBLIC SEWER MANHOLES, STORM DRAIN MANHOLES AND TRANSITION STRUCTURES, STORM DRAIN LATERALS AT THE CONNECTION TO THE STORM DRAIN MAIN AND THE CONNECTION TO A DROP INLET, THE CONNECTION OF SEWER SERVICE LATERALS TO THE SEWER MAIN AND WHERE THE SEWER SERVICE LATERALS EXIT THE PUBLIC RIGHT-OF-WAY, SEWER AND STORM DRAIN MAIN ALIGNMENT, INCLUDING DEFLECTION POINTS. THE LOCATION SHALL BE DESCRIBED BY COORDINATES WHICH SHALL BE BASED ON THE OFFICIAL HORIZONTAL AND VERTICAL CONTROL NETWORKS OF THE CITY OF LAS VEGAS. FINAL LOCATION MAP(S) MUST BE SEALED AND CERTIFIED BY A NEVADA PROFESSIONAL LAND SURVEYOR TO HAVE POSITIONAL CERTAINITIES OF ± 0.09 METERS (± 0.3 FEET) HORIZONTALLY AND VERTICALLY. A SEPARATION ELECTRONIC COMMA DELIMITED FILE FOR THE SANITARY SEWER AND STORM DRAIN COORDINATES SHALL ALSO ACCOMPANY THE SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S).
22. CCTV VIDEO INSPECTION IS REQUIRED FOR ALL SEWER AND STORM DRAINS. THE CCTV VIDEO INSPECTIONS NEED TO BE PERFORMED PER THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS LATEST EDITION.
23. A SEPARATE BORING PERMIT IS REQUIRED FOR ALL BORING ACTIVITIES.

2.3 CITY OF LAS VEGAS TRAFFIC NOTES

1. ALL CONSTRUCTION SIGNING, BARRICADEING, AND TRAFFIC DELINEATION SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST EDITION.
2. THE STREET SIGN CONTRACTOR SHALL OBTAIN STREET NAMES AND BLOCK NUMBERING FROM THE PLANNING DEPARTMENT PRIOR TO CONSTRUCTION.
3. BEFORE ANY WORK IS STARTED IN THE RIGHT-OF-WAY, THE CONTRACTOR SHALL INSTALL ALL ADVANCE WARNING SIGNS FOR THE CONSTRUCTION ZONE. THE CONTRACTOR SHALL INSTALL TEMPORARY STOP SIGNS AT ALL NEW STREET ENCROACHMENTS INTO EXISTING CITY STREETS. WHEN WARNING SIGN ADVANCE WARNING STANDARDS IS ACCOMPLISHED, AND SHALL MAINTAIN SAID SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED.
4. WHEN A DESIGNATED "SAFE ROUTE TO SCHOOL" IS ENCRONACHED UPON BY A CONSTRUCTION WORK ZONE AND PUBLIC WORKS STAFF IDENTIFIES A NEED FOR STUDENTS TO BE ASSIGNED IN THE SAFE CROSSING THROUGH THAT WORK ZONE, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE A QUALIFIED "CROSSING GUARD". THE GUARD SHALL BE PRESENT FOR THE FULL DURATION OF TIME THAT CHILDREN ARE LIKELY TO BE PRESENT.
5. IF THE IMPROVEMENTS NECESSITATE THE OBLITERATION, TEMPORARY OBSTRUCTION, TEMPORARY REMOVAL OR RELOCATION OF ANY EXISTING TRAFFIC PAVEMENT MARKING, SUCH PAVEMENT MARKING SHALL BE RESTORED OR REPLACED WITH LIKE MATERIALS TO THE SATISFACTION OF THE CITY TRAFFIC ENGINEER.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL PERMANENT SIGNS SHOWN ON THE PLANS. ALL NEW TRAFFIC SIGNS SHALL BE FABRICATED WITH DIAMOND GRADE VIP CLASS 6 REFLECTIVE SHEETING OR APPROVED EQUAL. ALL NEW TRAFFIC SIGNS, EXCEPT STREET NAME AND SCHOOL SPEED LIMIT SIGNS, SHALL HAVE 3M SERIES 1150 OR APPROVED EQUIVALENT ANTI-GRAFFITI PROTECTIVE OVERLAY FILM. SCHOOL ZONE SIGNS SHALL HAVE 3M SERIES 1150 ANTI-GRAFFITI PROTECTIVE OVERLAY FILM. STREET NAME SIGNS SHALL CONFORM IN THEIR ENTIRETY TO CURRENT CITY STANDARDS. ALL OTHER SIGNS SHALL BE STANDARD SIZE UNLESS OTHERWISE SPECIFIED ON THE PLANS. ALL SIGN POSTS SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENT CITY STANDARDS.
7. WHEN A PROPOSED STREET LIGHT STANDARD IS LOCATED WITHIN FIVE (5) FEET OF ANY PROPOSED SIGN SHOWN ON THE PLANS TO BE INSTALLED ON A SIGNPOST, THE SIGN SHALL BE MOUNTED ON THE STREET LIGHT STANDARD AND THE SIGNPOST SHALL BE ELIMINATED.
8. ALL PERMANENT TRAFFIC CONTROL DEVICES CALLED FOR HEREON SHALL BE IN PLACE AND IN FINAL POSITION PRIOR TO ALLOWING ANY PUBLIC TRAFFIC ON THE PORTIONS OF THE ROAD(S) BEING IMPROVED. THE STATUS OF COMPLETION OF PAVING OR OTHER OFF-SITE IMPROVEMENTS CALLED FOR BY THESE PLANS.
9. STREET SIGNS AND STOP SIGNS SHALL BE INSTALLED PER CITY STANDARD SPECIFICATIONS FOR PLACEMENT OF STREET NAME SIGNS.
10. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY TRAFFIC CONTROL DEVICES AND FLAGGERS TO INSURE THE SAFETY OF THE PUBLIC IN OR AROUND THE WORK AREA. THE CONTRACTOR SHALL HAVE A CERTIFIED ATSSA TRAFFIC CONTROL TECHNICIAN OR MSA WORK ZONE SAFETY SPECIALIST SET UP, MAINTAIN AND/OR REMOVE ALL TRAFFIC CONTROL DEVICES IN THE CITY OF LAS VEGAS RIGHT OF WAY.
11. WORK IN PUBLIC STREETS, ONCE BEGUN, SHALL BE EXPEDITED TO COMPLETION SO AS TO PROVIDE MINIMUM INCONVENIENCE TO ADJACENT PROPERTY OWNERS AND TO THE TRAVELING PUBLIC.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING CITIZENS AREA TRANSIT (C.A.T.) IF THE CONSTRUCTION INTERRUPTS OR CONTACTS A BUS STOP OR HAS AN ADVERSE EFFECT ON BUS SERVICE ON THAT STREET TO ARRANGE FOR TEMPORARY RELOCATION OF STOP.
13. GUARDS SHALL BE OBTAINED BY RELUCTING THE METROPOLITAN POLICE DEPARTMENT SPECIAL EVENTS UNIT (PHONE # 828-3442) WHO WILL PROVIDE OFFICERS PROPERLY TRAINED IN TRAFFIC CONTROL. FEES FOR THE USE OF THESE OFFICERS SHALL BE SET BY METRO AND WILL BE PAID BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR ALL ARRANGEMENTS WITH METRO.
14. ANY WORK WITHIN 300' OF A SIGNALIZED INTERSECTION WILL BE NIGHT WORK, UNLESS OTHERWISE DIRECTED BY THE CITY OF LAS VEGAS TRAFFIC ENGINEER.
15. THE CONTRACTOR SHALL CONTACT THE TRAFFIC ENGINEERING DIVISION (TRANSPORTATION SECTION) THROUGH THE PROJECT PRIOR TO INITIATING PAVING TO RECEIVE DIRECTION FOR PROTECTING EXISTING RECORD SURVEY MONUMENTS. ANY MONUMENTS DISTURBED SHALL BE REPLACED AND ADJUSTED PER AVAILABLE RECORDS IN ACCORDANCE WITH N.R.S. STATUTE NO. 625.380 & CITY OF LAS VEGAS TITLE 18, APPENDIX D.
16. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT EXISTING RECORD SURVEY MONUMENTS. ANY MONUMENTS DISTURBED SHALL BE REPLACED AND ADJUSTED PER AVAILABLE RECORDS IN ACCORDANCE WITH N.R.S. STATUTE NO. 625.380 & CITY OF LAS VEGAS TITLE 18, APPENDIX D.
17. UTILITY COMPANY METER BOXES, MANHOLE LIDS, VALVE COVERS, ETC., SHALL BE LOCATED OUT OF DRIVEWAYS, DRIVEWAY APRONS, FLOWLINES, AND CROSS GUTTERS UNLESS WRITTEN APPROVAL IS GRANTED BY THE UTILITY COMPANY AND THE CITY ENGINEER.

DEVIATIONS FROM STANDARDS

NONE

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. 137018 FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 26 GPM

SLATER
HANIFAN
GROUP

Westwood team
#216
LAS VEGAS, NV 89118
PHONE (702) 284-5300
FAX (702) 284-5399

CITY OF LAS VEGAS, NV

NO.

DESCRIPTION

DATE

BY

APP. DATE

APP. BY

828
1720
R59

DATE: 12/27/19

DRAFTER: HA

DESIGNER: IG

CHECKED: IG

PROJECT NO.
RAH1908.00

PROFESSIONAL ENGINEER - STATE OF NEVADA
ISAAC M. GUZMAN
Exp. 06/30/2021
CIVIL
No. 23512
Here

C-2
SHEET 2 OF 21
L19-02448
107Y5124

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AC	ASPHALTIC CONCRETE OR ACRE
AGG	AGGREGATE BASE
APN	ASSESSOR'S PARCEL NUMBER
APPROX OR ~	APPROXIMATE
AVE	AVENUE
@	AT
B	BEGIN CURVE OR BACK OF CURB
BEG	BEGINNING OF CURB RETURN
BHW	BOTTOM OF HEADWALL
BLDG	BUILDING
BLVD	BOULEVARD
BW	BENCHMARK
BVC	BEGIN VERTICAL CURVE
BWS	BACK WATER VALVE
CL	CLARK COUNTY
CC	CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS
CCPW	CLARK COUNTY PUBLIC WORKS
CCPFD	CLARK COUNTY REGIONAL FLOOD DISTRICT
CCWC	CLARK COUNTY WATER RECLAMATION DISTRICT
CL/C	COMMON ELEMENT
CL/C/L	CENTERLINE
CLR	CLEAR OR CLEARANCE
CLSM	CONTROLLED LOW STRENGTH MATERIAL
CLV	CITY LAS VEGAS
CML&C	CEMENT MORTAR LINED AND COATED
CMU	CONCRETE MASONRY UNIT
CNLY	CITY OF NORTHERN LAS VEGAS
CONJ	CITY OF HENDERSON
CONC	CONCRETE
CT	COURT
CU OR CU YD	CUBIC YARD
DOWNS	DESIGN AND CONSTRUCTION FOR WASTEWATER COLLECTION SYSTEMS
DE	DRAINAGE EASEMENT
DET	DETAIL
DI	DUCTILE IRON OR DRAIN INLET
DIA. Ø	DIAMETER
DP	DUCTILE IRON PIPE
DR	DRIVE
DWG(S)	DRAWING
DWY	DRIVEWAY
EA	EACH
ECR	END CURB RETURN
EG	EXISTING GROUND
ELEV	ELEVATION
ESMT	EASEMENT
EP	EDGE OF PAVEMENT
ERU	EQUIVALENT RESIDENTIAL UNIT
EVC	END VERTICAL CURVE
EX OR EXIST	EXISTING
FC	FACE OF CURB
FF	FINISHED FLOOR
FGH	FINISHED GRADE
FHQ	FINISHED GRADE, HIGH SIDE
FQL	FINISHED GRADE, LOW SIDE
FH	FIRE HYDRANT

FL	FLOWLINE
FT	FEET OR FOOT
FT	FUTURE
GRD	GRADE OR GROUND
GB	GRADE BREAK OR GRADE CHANGE
GV	GATE VALVE
HDPE	HIGH DENSITY POLYETHYLENE
HWA	HIGHWAYERS ASSOCIATION
HORIZ	HORIZONTAL
HP	HIGH POINT
HWL	HIGH WATER LEVEL
HDWL OR HW	HEADWALL
HYD	HYDRAULIC OR HYDRANT
ID	INSIDE DIAMETER
ID	INCH
INT	INTERSECTION
INV	INVERT ELEVATION
IR	IRON PIPE
IRRG	IRRIGATION
LF	LINEAR FEET
LMC	LANDSCAPE MAINTENANCE CORPORATION
LP	LOW POINT
LT OR L	LEFT
LWVD	LAS VEGAS VALLEY WATER DISTRICT
LWL	LOW WATER LEVEL
MAX	MAXIMUM
MECH	MECHANICAL
MI	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MUC	MUNICIPAL UTILITY EASEMENT
NDOT	NEVADA DEPARTMENT OF TRANSPORTATION
NTE	NOT TO SCALE
NUS	NONEXCLUSIVE UTILITY EASEMENT
NG	NON-GRADY
OC	ON CENTER
OD	OUTSIDE DIAMETER OR OVERALL DIMENSION
OF	OFFSET
ORIG	ORIGINAL
PAB	PUBLIC OR PEDESTRIAN ACCESS EASEMENT
PB	PULL BOX
PC	POINT OF CURVE
PCC	POINT OF COMPOUND CURVE
PDE	PUBLIC DRAINAGE EASEMENT
R OR PL	PROPERTY LINE
POB	POINT OF BEGINNING
POC	POINT OF CURVATURE
POE	POINT OF ENDING
PRC	POINT OF REVERSE CURVATURE
PRELIM	PRELIMINARY
PROED	PROPOSED
PRV	PRESSURE REDUCING VALVE
PUE	PUBLIC UTILITY EASEMENT
PT	POINT OF TANGENT OR POINT
PVC	POLYVINYL CHLORIDE

PVI	POINT OF VERTICAL INTERSECTION
QTY	QUANTITY
R	RADIUS
RCA	REINFORCED CONCRETE ARCH
RCB	REINFORCED CONCRETE BOX
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
ROWY ESMT	ROADWAY EASEMENT
REQD	REQUIRED
REV	REVISION
RG	ROUGH GRADE
RT OR R	RIGHT
RW, ROW	RIGHT OF WAY
S	SLOPE
SCH	SCHEDULE
SD	STORM DRAIN
SDDI	STORM DRAIN DROP INLET
SDMH	STORM DRAIN MANHOLE
SEC	SECTION
SF	SQUARE FEET
SHT	SHEET
SLTC	STREET LIGHT & TRAFFIC CONTROL ESMT
SNWA	SOUTHERN NEVADA WATER AUTHORITY
SPEC	SPECIFICATIONS
ST	STREET
SSMH	SANITARY SEWER MANHOLE
STA	STATION
STD	STANDARD
STL	STEEL
STLT	STREET LIGHT
SW	SIDEWALK
SWG	SOUTHWEST GAS
SWR OR SS	SANITARY SEWER
SY	SQUARE YARD
TAN	TANGENT
TC	TOP OF CURB
TF	TOP OF FLOOR OR TOP OF FOOTING
TH	TOP OF GRATE
THRU	THROUGH
THW	TOP OF HEADWALL
TP	TOP OF PIPE
TPW	TOP OF WALL
TRW	TOP OF RETAINING WALL
TSP	TOP OF SCREEN WALL
TYP	TYPICAL
UDACS	UNIFORM DESIGN AND CONSTRUCTION STANDARDS
UE	UTILITY EASEMENT
VC	VERTICAL CURVE
VERT	VERTICAL
VG	VALLEY GUTTER
W	WROUGHT IRON
WL	WATER LINE
WP2	WATER PRESSURE ZONE
WT	WEIGHT
WTR	WATER LINE

IN THE EVENT THAT ANY TEMPORARY CONSTRUCTION ITEM IS REQUIRED WHICH IS NOT SHOWN ON THESE DRAWINGS, THE OWNER AGREES TO PROVIDE AND INSTALL SUCH ITEM AT HIS OWN EXPENSE AND AT THE DIRECTION OF THE CITY OF LAS VEGAS DEPT. OF PUBLIC WORKS. TEMPORARY CONSTRUCTION ITEMS INCLUDE: PAVEMENT TRANSITIONS, PROTECTIVE DITCHES AND BERMS, ROAD SIGNS AND BARRICADES, ETC.

-QUANTITIES SHOWN ARE ESTIMATES ONLY AND ARE INTENDED TO ILLUSTRATE SCOPE OF WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE EXACT QUANTITIES INVOLVED.

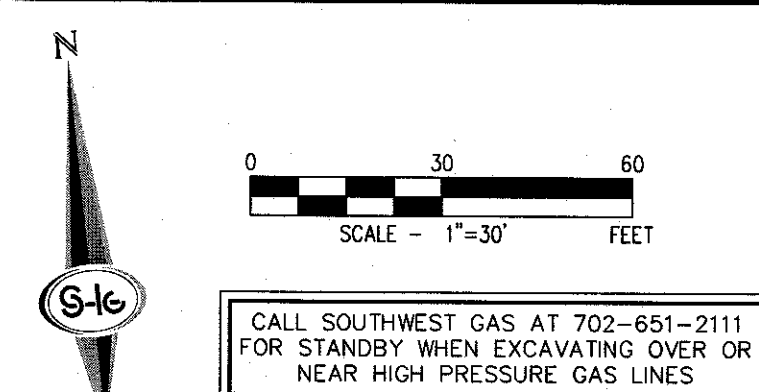
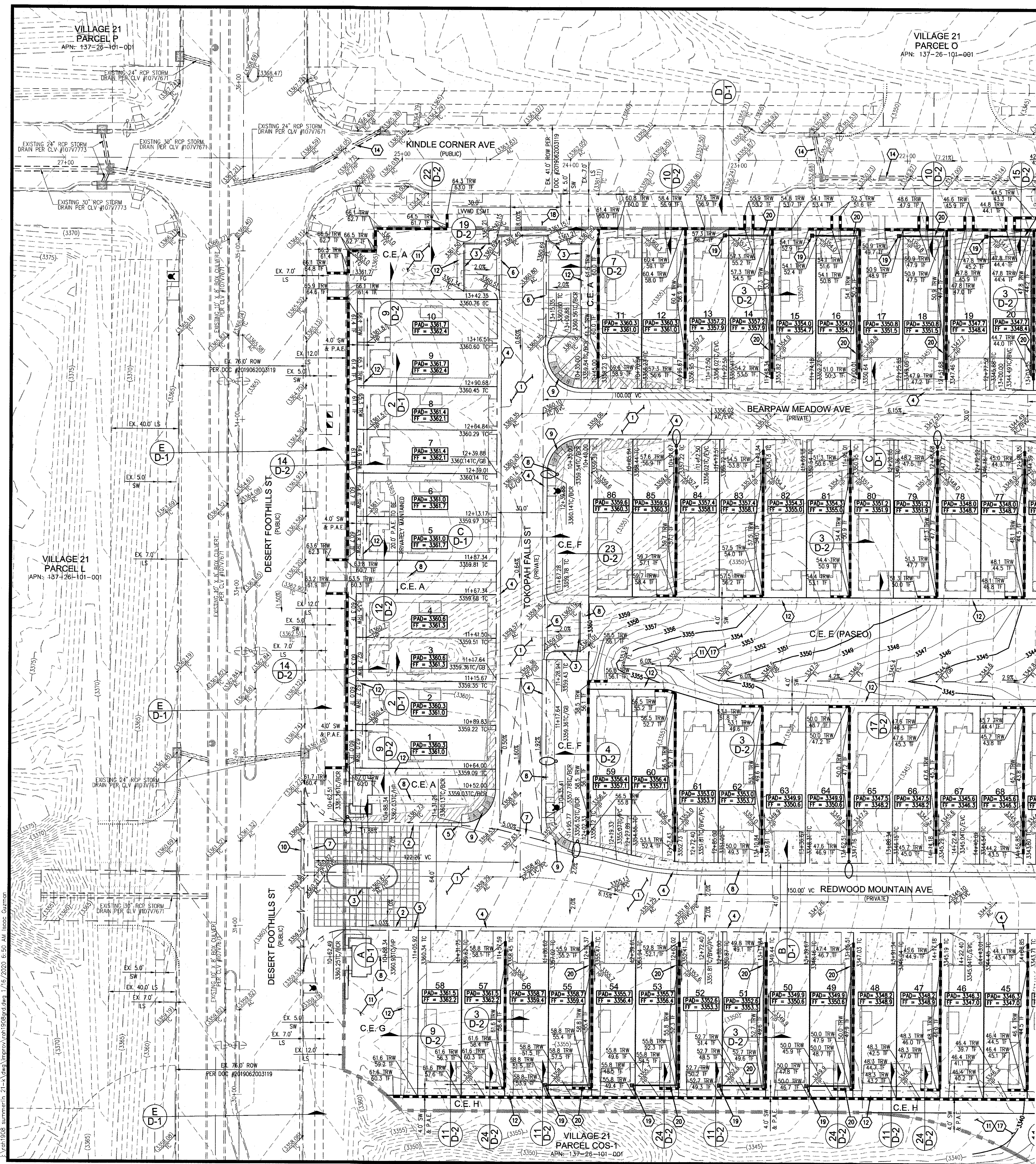
-EXISTING UTILITY LOCATIONS SHOWN HEREIN ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATIONS. CALL BEFORE YOU DIG.
(800) 227-2600

EXISTING	PROPOSED	DESCRIPTION
		5' CONTOUR
		1' CONTOUR
		STRIPING
		SEWER MANHOLE
		CURB AND GUTTER
		SANITARY SEWER PIPE AND FLOW ARROW
		WATER PIPE
		WATER GATE VALVE
		FIRE HYDRANT
		WATER BLOW-OFF
		WATER LATERAL W/ METER
		SANITARY SEWER LATERAL
		STREETLIGHT
		EDGE OF PAVEMENT
		TRAFFIC SIGN
		PAD ELEVATION
		FINISHED FLOOR ELEVATION
		ELEVATION
		RETAINING WALL
		STORM DRAIN W/ MANHOLE
		EXISTING GAS GATE VALVE
		EXISTING UNKNOWN MANHOLE
		EXISTING GAS, SIZE PER PLAN
		EXISTING POWER POLE
		EXISTING TRAFFIC SIGNAL
		EXISTING WALL
		WATER PIPE FITTING
		WATER POINT OF CONNECTION
		SEWER POINT OF CONNECTION
		DAYLIGHT LINE
		STREET CENTERLINE
		RIGHT-OF-WAY
		MATCHLINE
		BOUNDARY LINE
		PHASE LINE
		PROPERTY LINE
		FLOWLINE
		SAWCUT
		CUT/FILL TRANSITION LINE
		SIDEWALK
		EX STRIPING TO BE OBLITERATED
		GRADE BREAK LINE
		REFLECTIVE RAISED PAVEMENT MARKERS
		BACK WATER VALVE
		WROUGHT IRON FENCE
		PONY WALL
		DECORATIVE PERIMETER WALL
		DECORATIVE PERIMETER RETAINING WALL
		PROPOSED CURB AND GUTTER WITH RIGHT-OF-WAY AT BACK OF CURB
		EXISTING CURB AND GUTTER WITH RIGHT-OF-WAY AT BACK OF CURB
		FUTURE CURB AND GUTTER WITH RIGHT-OF-WAY AT BACK OF CURB
		PROPOSED SCARP AREA
		DRIVEWAY
		PROPOSED RIP RAP
		SIGHT VISIBILITY ZONE PER STD DWG NO. 201.2
		HANDICAP RAMP

DRAINAGE		EA	1
1.	15.0" TYPE "CM2" DROP INLET	EA	-
2.	3' WIDE CONCRETE VALLEY GUTTER W/10" TYPE I AGGREGATE BASE	SF	- 962
3.	8' WIDE CONCRETE VALLEY GUTTER W/10" TYPE I AGGREGATE BASE	SF	- 2,822
4.	12"x12" INLET NYLOPLAST GRATE YARD DRAIN	EA	- 10
5.	6" 40--PVC DRAINAGE PIPE	LF	- 1,090
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
SEWER SYSTEM			
1.	4" PVC SEWER LATERAL (PRIVATE)	LF	1,872 -
2.	8" PVC SEWER PIPE (PUBLIC)	LF	- 1,706
3.	STANDARD 48" SEWER MANHOLE (PUBLIC)	EA	- 14
4.	8" SEWER PIPE CAP	EA	- -
5.	BACK WATER VALVE	EA	46 -
6.	8" C-900 WATER QUALITY SEWER PIPE (PUBLIC)	EA	- 11
7.			
WATER SYSTEM			
1.	FIRE HYDRANT ASSEMBLY W/6" GATE VALVE PER UDACS PLATE NO. 40	EA	- 4
2.	6" PVC WATER PIPE	LF	- 58
3.	8" PVC WATER PIPE	LF	- 1,729
4.	8" DIP WATER PIPE	LF	- 8
5.	12" DIP WATER PIPE	LF	- 16
6.	8" GATE VALVE WITH VALVE BOX PER UDACS PLATE NO. 30 & 39	EA	- 8
7.	12" GATE VALVE WITH VALVE BOX PER UDACS PLATE NO. 30 & 39	EA	- 1
8.	8" x 8" TEE PER UDACS PLATE NO. 31	EA	- 4
9.	8" x 8" TEE PER UDACS PLATE NO. 30	EA	- 4
10.	8" 5 DEGREE BEND PER UDACS PLATE NO. 31	EA	- 7
11.	8" 11.25 DEGREE BEND PER UDACS PLATE NO. 31	EA	- 5
12.	8" 45 DEGREE BEND PER UDACS PLATE NO. 31	EA	- 2
13.	12" x 8" REDUCER PER UDACS PLATE NO. 30	EA	- 2
14.	CAP AND 2" BLOW-OFF ASSEMBLY W/CAP PER UDACS PLATE NO. 36	EA	- 2
15.	1" COPPER SERVICE W/ 3/4" METER PER UDACS PLATE NO. 6	EA	- 86
16.	1" COPPER SERVICE W/ 3/4" METER & 1" RPPA PER UDACS PLATE NO. 4 & B	EA	- 2
STREET IMPROVEMENTS			
1.	2" A.C. PAVEMENT W/ 4" TYPE II OVER 6" TYPE II AGGREGATE BASE	LF	- 5,640
2.	STANDARD 24" TYPE "L" CURB & GUTTER W/6" TYPE II AGGREGATE BASE	SY	- 135
3.	STANDARD 8" TYPE "A" ISLAND CURB W/6" TYPE II AGGREGATE BASE	LF	- 489
4.	STANDARD 30" TYPE "ROLL" CURB & GUTTER W/6" TYPE II AGGREGATE BASE	LF	- 2,759
5.	4' WIDE CONCRETE SIDEWALK W/5" TYPE II AGGREGATE BASE	SF	- 11,097
6.	5' WIDE CONCRETE SIDEWALK W/5" TYPE II AGGREGATE BASE	SF	- 6,396
7.	ADA SIDEWALK RAMPS	EA	- 8
TRAFFIC SIGNALS			
1.	30" STOP SIGN WITH POST (R1-1)	EA	- 5
2.	9" STREET NAME SIGN (D-3, BROWN W/ WHITE LETTERS)(6 POLES x 2 PER POLE=12)	EA	- 5
3.	BLUE COLORED REFLECTIVE RAISED PAVEMENT MARKER	EA	- 4
4.	CROSSWALK MARKINGS	LF	- -
5.			
6.			
7.			
8.			
DRY UTILITIES			
1.	100W TYPE 3B STREETLIGHT PER SUMNERLIN IMPROVEMENT STANDARDS	EA	- 10
2.	1-1/4" PVC STREET LIGHT CONDUIT WITH (2) #4 AND (1) #6 CONDUCTORS	LF	- 1,274
3.	NO. 3-1/2 PULL BOX W/METAL COVER	EA	- 2
4.	150 AMP SERVICE PEDESTAL (IRR)	EA	- -
5.	200 AMP SERVICE PEDESTAL (SLT)	EA	- 1
6.			

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. 137018 FIRST APPROVED DATE: _____
LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL _____
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 26 GPM _____





DRAINAGE IMPROVEMENT QUANTITIES			
1. 12.5" TYPE "CM2" DROP INLET	EA	1	
2. 3" WIDE CONCRETE VALLEY GUTTER	SF	962	
3. 8" WIDE CONCRETE VALLEY GUTTER	SF	2,822	
4. 12"x12" INLET NYLOPLAST GRATE YARD DRAIN	EA	10	
5. 6" 40'-PVC DRAINAGE PIPE	LF	1,090	

SURVEY NOTE
OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DISTURBED, DESTROYED, OR OBSOLETE DURING CONSTRUCTION.

SOILS REPORT
SOILS REPORT BY ANGLE ENGINEERING
PROJECT NO. 26223-1 DATED 6/12/19
EARTHWORKS
EARTHWORK QUANTITIES (RAW):
CUT: 4,905 CU YDS
FILL: 64,115 CU YDS
EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.

DISCLAIMER NOTE
1) EXISTING UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND 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 IN THEIR PROPER LOCATION.
2) FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED TOP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS THE CONTRACTOR SHALL NOTIFY THE ENGINEER.

GENERAL NOTES
1. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
2. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
3. MAXIMUM MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
4. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
5. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
7. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITY STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. CONTRACTOR TO PROTECT IN PLACE DURING CONSTRUCTION. ENGINEER/OWNER SHALL BE NOTIFIED OF PRIOR DAMAGE TO EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR/REPLETING FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENCING.
8. 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.

LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES
(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 ACCUMULATED IN, THE PUBLIC RIGHTS OF WAY OF CLARK COUNTY 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 CLARK COUNTY TITLE 24.40 AND IN THE LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDANCE 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 EXCEPTIONS MAY APPLY; REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.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 A RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
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.

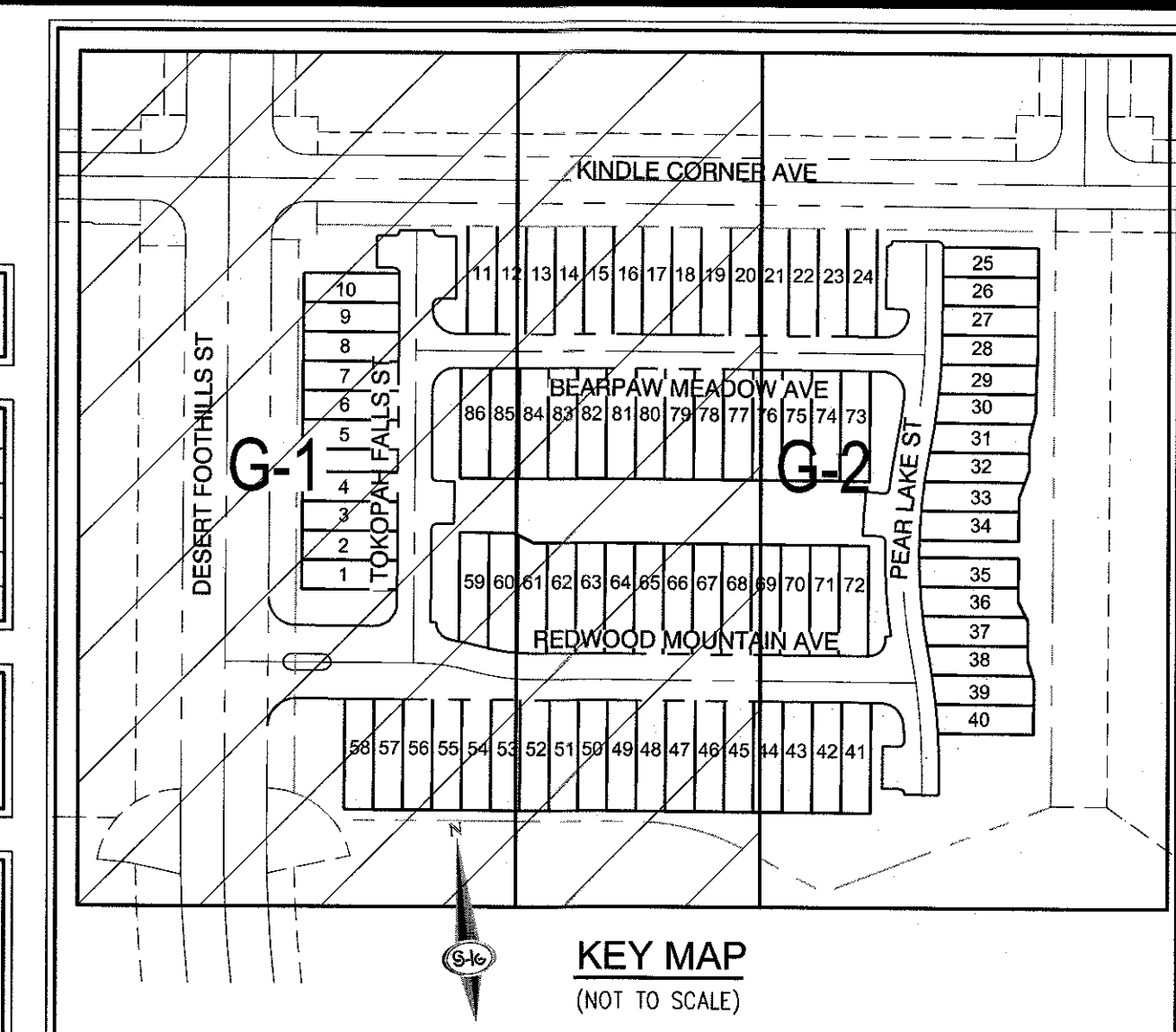
PRIVATE STREET NOTE
ALL PRIVATE STREETS ARE PUBLIC UTILITY EASEMENTS, PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY HOA.

DRAINAGE EASEMENT NOTE
ALL DRAINAGE EASEMENTS ARE PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED.

FAST
Call before you dig
UnderGround
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T.)

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.
CALL BEFORE YOU DIG OVERHEAD
1-702-227-2929

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



- CONSTRUCTION NOTES**
- CONSTRUCT 2" AC PAVEMENT WITH 4" TYPE II AGGREGATE BASE
 - CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD NO. 216
 - CONSTRUCT "A" TYPE ISLAND CURB PER CCAUSD NO. 219
 - CONSTRUCT 30" ROLL CURB AND GUTTER PER CCAUSD NO. 217.1
 - CONSTRUCT 5" TRANSITION FROM ROLLED CURB TO "L" TYPE CURB PER DETAIL 21 SHEET D-2
 - CONSTRUCT 3" CROSS GUTTER PER DETAIL 1 SHEET D-1
 - CONSTRUCT 8" CROSS GUTTER PER CCAUSD NO. 228
 - CONSTRUCT 5" WIDE SIDEWALK PER CCAUSD NO. 234 (4" THICK W/ 5" TYPE II AGGREGATE BASE)
 - CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235, CASE I
 - SAWCUT AND MATCH EXISTING IMPROVEMENTS PER CCAUSD NO. 503 & 500.2
 - LANDSCAPING TO BE DESIGNED AND MAINTAINED BY MASTER DEVELOPER
 - CONSTRUCT 4" WIDE SIDEWALK PER CCAUSD NO. 234 (4" THICK W/ 5" TYPE II AGGREGATE BASE)
 - INSTALL 15.0" TYPE "CM2" DROP INLET PER CCAUSD NO. 412.1 AND STORM WATER QUALITY MANAGEMENT STAMP PER CCAUSD NO. 421
 - EXISTING 24" RCP STORM DRAIN PER CLV #107/7671
 - EXISTING 60" TYPE III STORM DRAIN MANHOLE PER CLV #107/7671
 - INSTALL SIDEWALK UNDERDRAIN PER CCAUSD NO. 236
 - PUBLIC DRAINAGE EASEMENT TO BE PRIVATELY MAINTAINED BY MASTER DEVELOPER HOA
 - INSTALL 4" COMPACTED DECOMPOSED GRANITE OVER NATIVE SOIL
 - INSTALL 12"x12" INLET NYLOPLAST GRATE YARD DRAIN OR APPROVED EQUIVALENT (SEE SHEET D-3 FOR LOT DRAINAGE DETAILS FOR LOTS 11-24 & 41-58)
 - INSTALL 6" 40'-PVC DRAINAGE PIPE @ 1.0% SLOPE (SEE SHEET D-3 FOR LOT DRAINAGE DETAILS FOR LOTS 11-24 & 41-58)

FLOOD ZONE
THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C2150E, DATED SEPTEMBER 27, 2002. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

FLOOD CERTIFICATION
I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY DS-5182 ON FILE AT CITY OF LAS VEGAS FOR THE SUBJECT PROJECT.
ISAAC GUZMAN, P.E. 23513 DATE

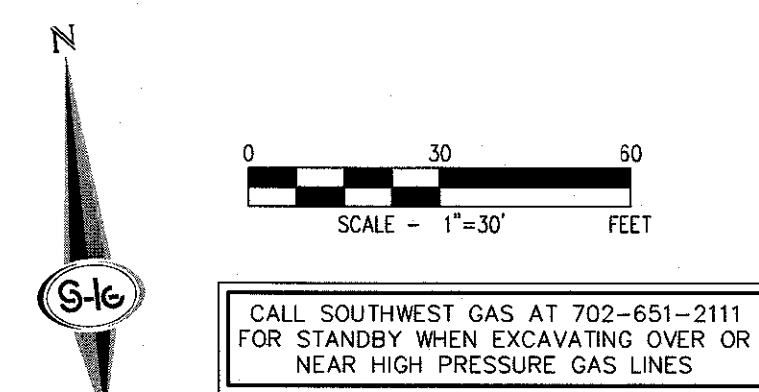
SLATER HANIFAN GROUP
a Westwood Team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

RICHMOND AMERICAN HOMES
SUMMERLIN VILLAGE 21 PARCEL K
GRADING PLAN I

CITY OF LAS VEGAS, NV
DATE: 12/27/19
DRAFTER: HA
CHECKED: IG
PROJECT NO. RAH1908.00
ISAAC GUZMAN, P.E. 23513
DATE

ISAAC H. GUZMAN
Professional Engineer - State of Nevada
Exp. 06/30/2021
Civil
No. 23513
1-16-20

G-1
SHEET 4 OF 21



DRAINAGE IMPROVEMENT QUANTITIES			
1. 12" TYPE 'CM2' DROP INLET	EA	1	
2. 3" WIDE CONCRETE VALLEY GUTTER	SF	962	
3. 8" WIDE CONCRETE VALLEY GUTTER	SF	2,822	
4. 12"x12" INLET NYLOPLAST GRATE YARD DRAIN	EA	10	
5. 6" 40-PVC DRAINAGE PIPE	LF	1,090	

SURVEY NOTE
OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DISTURBED, DESTROYED, OR OBSOLETE DURING CONSTRUCTION.

SOILS REPORT
SOILS REPORT BY ANGLE ENGINEERING
PROJECT NO. 26223-1 DATED 6/12/19
EARTHWORKS
EARTHWORK QUANTITIES (RAW):
CUT: 4,905 CU YDS
FILL: 64,115 CU YDS
EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.

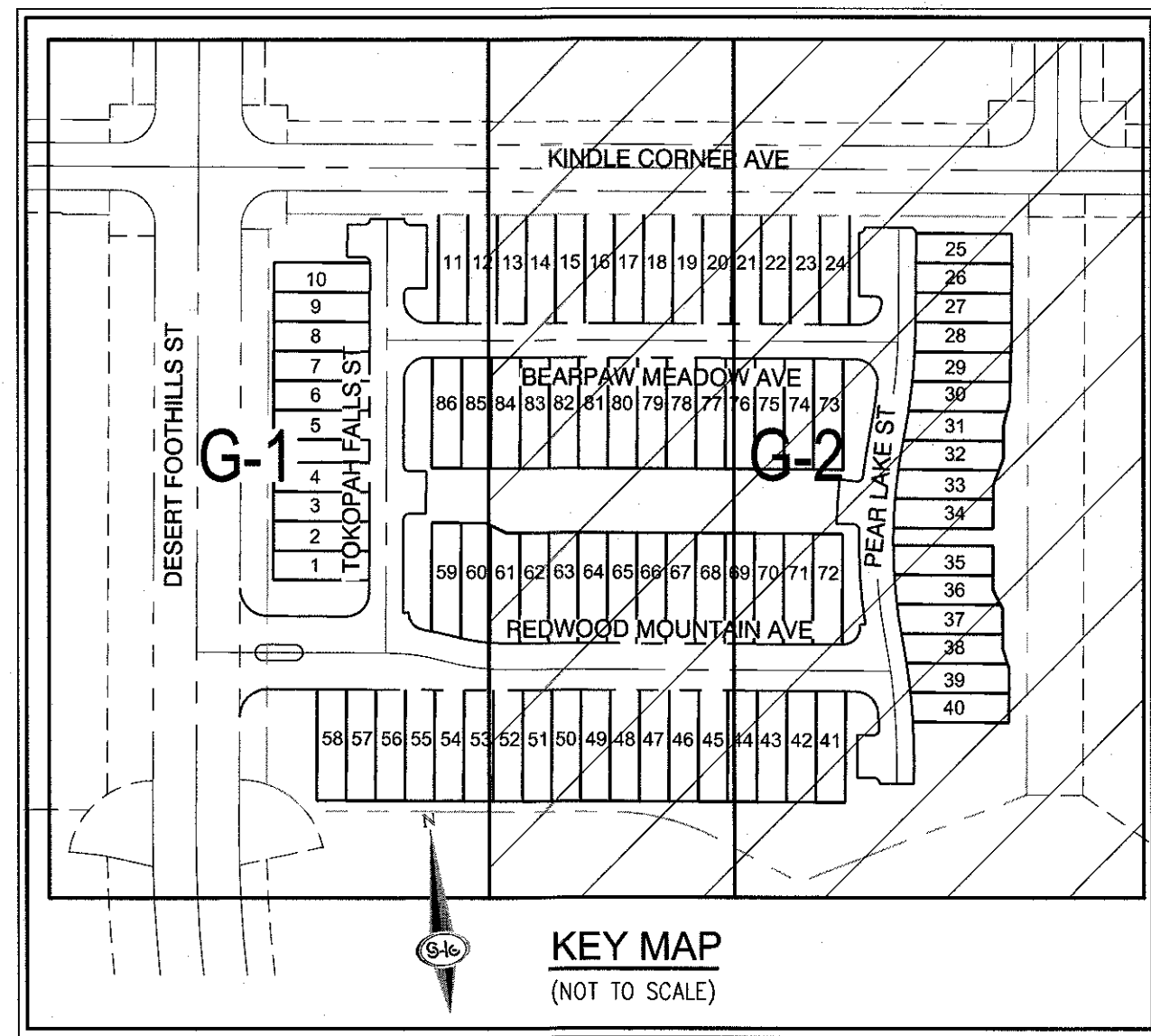
DISCLAIMER NOTE
1) EXISTING UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.
2) FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED TOP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS THE CONTRACTOR SHALL NOTIFY THE ENGINEER.

GENERAL NOTES
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4. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
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6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
7. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITY STRUCTURES AND FACILITIES AND NOTIFY ENGINEER IMMEDIATELY PRIOR TO CONSTRUCTION. CONTRACTOR TO PROTECT IN PLACE DURING CONSTRUCTION. ENGINEER/OWNER SHALL BE NOTIFIED OF PRIOR DAMAGE TO EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR/REPLENISHING FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENCING.
8. 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 EXIST) WITHIN THE SIGHT VISIBILITY ZONES.

LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES
(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 ACCUMULATED IN THE PUBLIC RIGHTS OF WAY OF CLARK COUNTY 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 CLARK COUNTY TITLE 24.40 AND IN THE LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDANCE 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 EXCEPTIONS MAY APPLY; REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVRI00000, SECTION III.A.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 A RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVRI00000, SECTION III.A.12.
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.

PRIVATE STREET NOTE
ALL PRIVATE STREETS ARE PUBLIC UTILITY EASEMENTS, PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY HOA.

DRAINAGE EASEMENT NOTE
ALL DRAINAGE EASEMENTS ARE PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED



- CONSTRUCTION NOTES**
- CONSTRUCT 2" AC PAVEMENT WITH 4" TYPE II AGGREGATE BASE
 - CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD NO. 216
 - CONSTRUCT "A" TYPE ISLAND CURB PER CCAUSD NO. 219
 - CONSTRUCT 30" ROLL CURB AND GUTTER PER CCAUSD NO. 217.1
 - CONSTRUCT 5" TRANSITION FROM ROLLED CURB TO "L" TYPE CURB PER DETAIL 21 SHEET D-2
 - CONSTRUCT 3" CROSS GUTTER PER DETAIL 1 SHEET D-1
 - CONSTRUCT 8" CROSS GUTTER PER CCAUSD NO. 228
 - CONSTRUCT 5" WIDE SIDEWALK PER CCAUSD NO. 234 (4" THICK W/ 5" TYPE II AGGREGATE BASE)
 - CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235, CASE 1
 - SAWOUT AND MATCH EXISTING IMPROVEMENTS PER CCAUSD NO. 503 & 500.2
 - LANDSCAPING TO BE DESIGNED AND MAINTAINED BY MASTER DEVELOPER
 - CONSTRUCT 4" WIDE SIDEWALK PER CCAUSD NO. 234 (4" THICK W/ 5" TYPE II AGGREGATE BASE)
 - INSTALL 150" TYPE "CM2" DROP INLET PER CCAUSD NO. 421 AND STORM WATER QUALITY MANAGEMENT STAMP PER CCAUSD NO. 421
 - EXISTING 24" RCP STORM DRAIN PER CLV #107/7671
 - EXISTING 60" TYPE III STORM DRAIN MANHOLE PER CLV #107/7671
 - INSTALL SIDEWALK UNDERDRAIN PER CCAUSD NO. 236
 - PUBLIC DRAINAGE EASEMENT TO BE PRIVATELY MAINTAINED BY MASTER DEVELOPER HOA
 - INSTALL 4" COMPACTED DECOMPOSED GRANITE OVER NATIVE SOIL
 - INSTALL 12"x12" INLET NYLOPLAST GRATE YARD DRAIN OR LOTTS 11-24 & 41-58
 - EQUIVALENT (SEE SHEET D-3 FOR LOT DRAINAGE DETAILS FOR LOTS 11-24 & 41-58)
 - INSTALL 6" 40-PVC DRAINAGE PIPE @ 1.0% SLOPE (SEE SHEET D-3 FOR LOT DRAINAGE DETAILS FOR LOTS 11-24 & 41-58)

FLOOD ZONE
THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C2150E, DATED SEPTEMBER 27, 2002. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAN.

FLOOD CERTIFICATION
I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY 05-5182 ON FILE AT CITY OF LAS VEGAS FOR THE SUBJECT PROJECT.
ISAAC GUZMAN, P.E. 23513 _____ DATE _____

FAST
Call before you
UnderGround
1-702-432-5300
FREWAY & ARTERIAL SYSTEM
OF TRANSPORTATION (F.A.S.T.)

AVOID HITTING OVERHEAD
POWER LINES. IT'S
COSTLY.
CALL BEFORE
YOU DIG
OVERHEAD
Call
811
OR
1-800-227-2600

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

SLATER HANFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300
FAX (702) 284-5399

CITY OF LAS VEGAS, NV

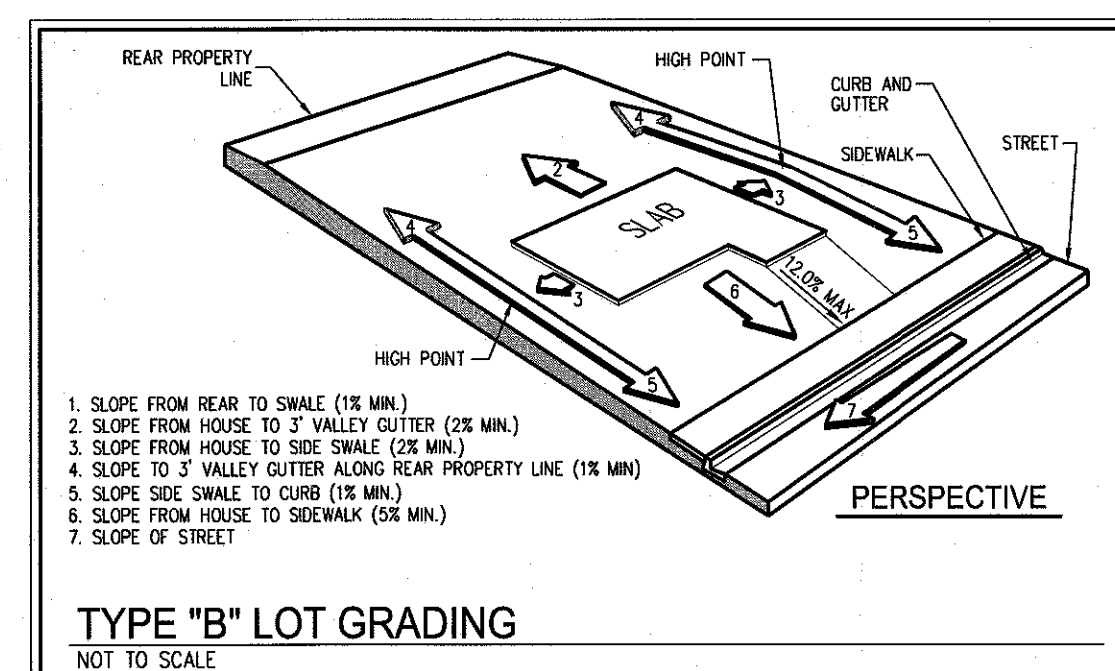
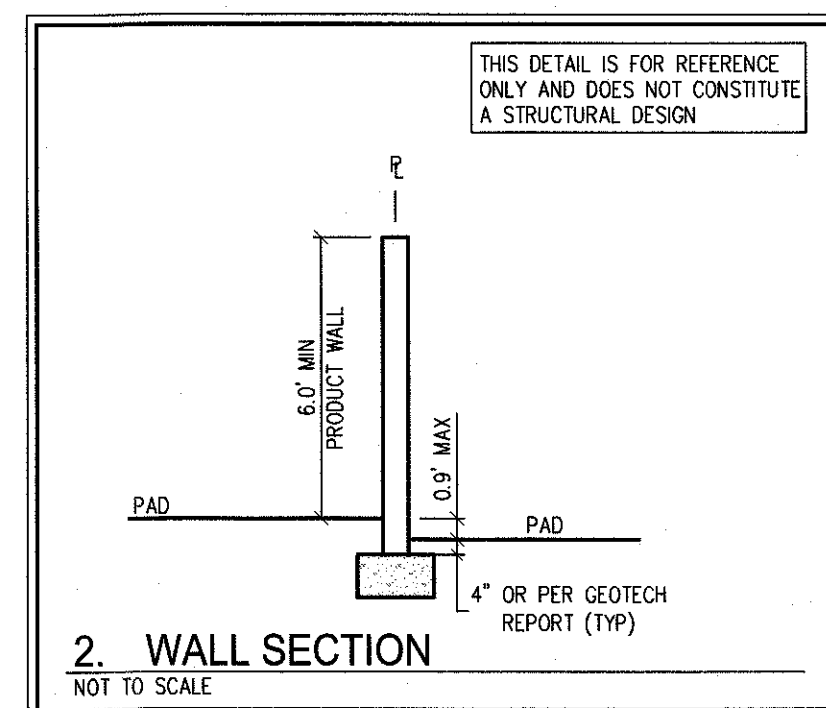
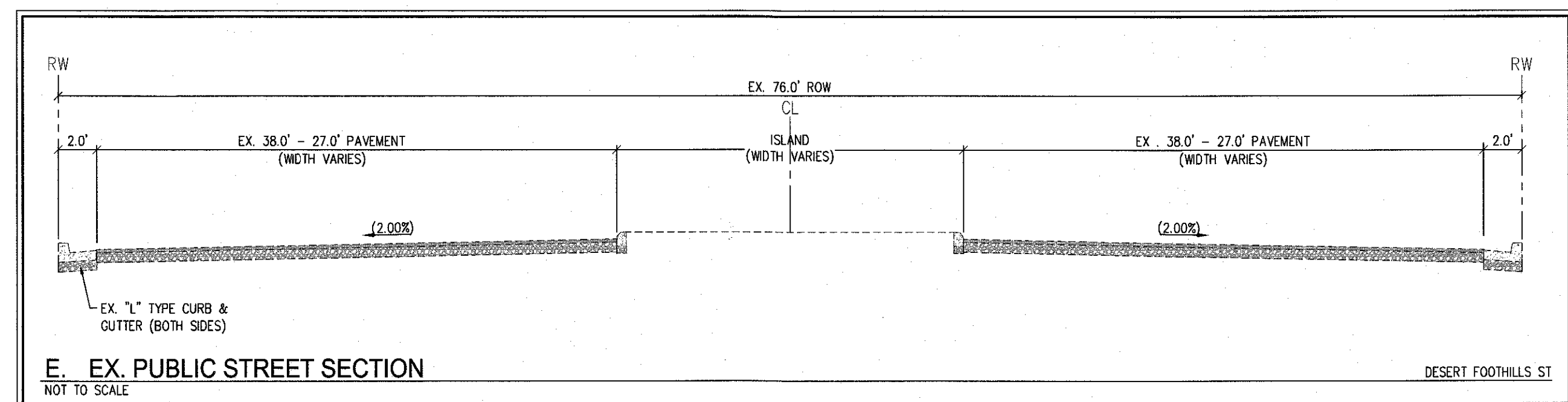
RICHMOND AMERICAN HOMES

SUMMERLIN VILLAGE 21 PARCEL K
GRADING PLAN II

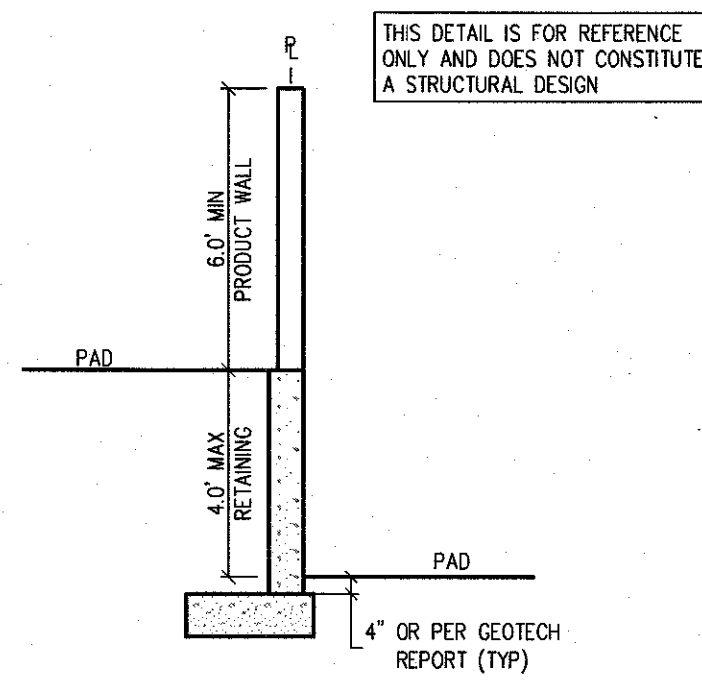
DATE: 12/27/19
DRAFTER: HA
DESIGNER: IG
CHECKED: IG
PROJECT NO.
RAH1908.00

ISAAC M. GUZMAN
P.E. 23513
PROFESSIONAL ENGINEER - STATE OF NEVADA
CIVIL
16-20

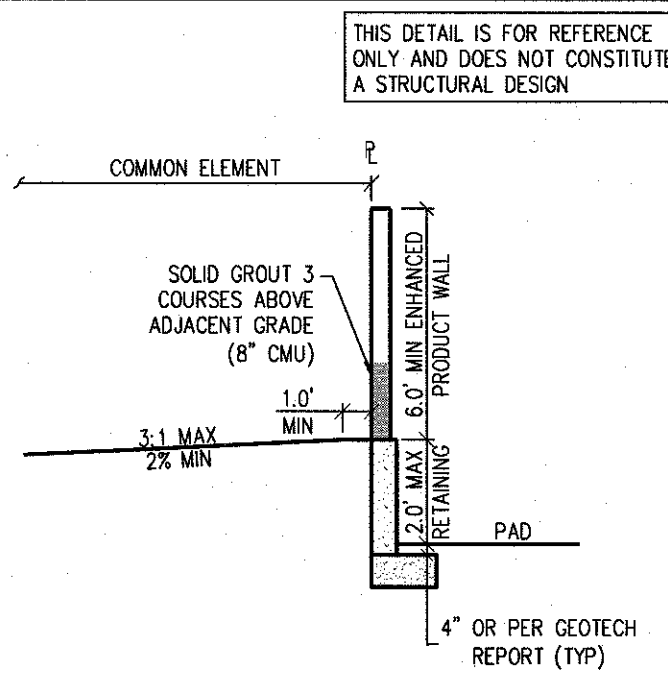
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SHEET 5 OF 21



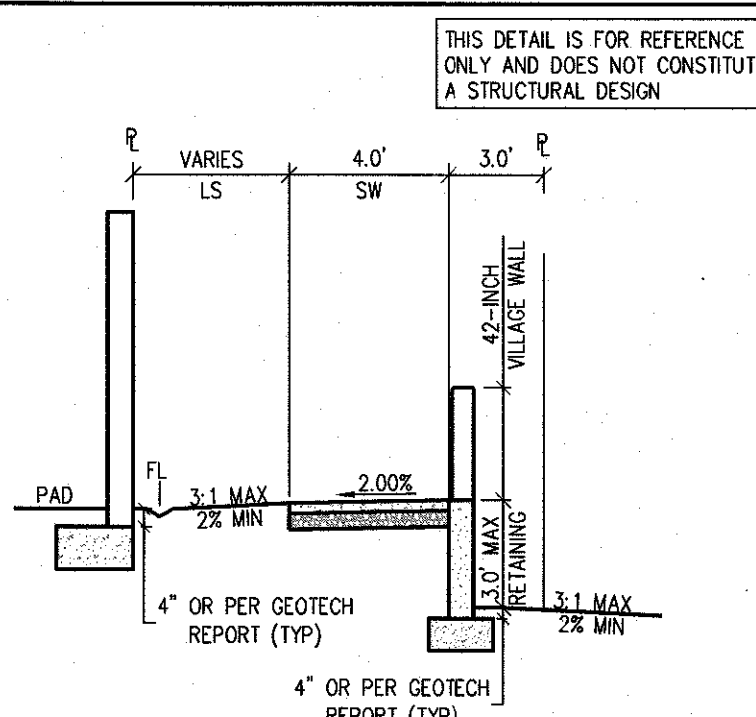
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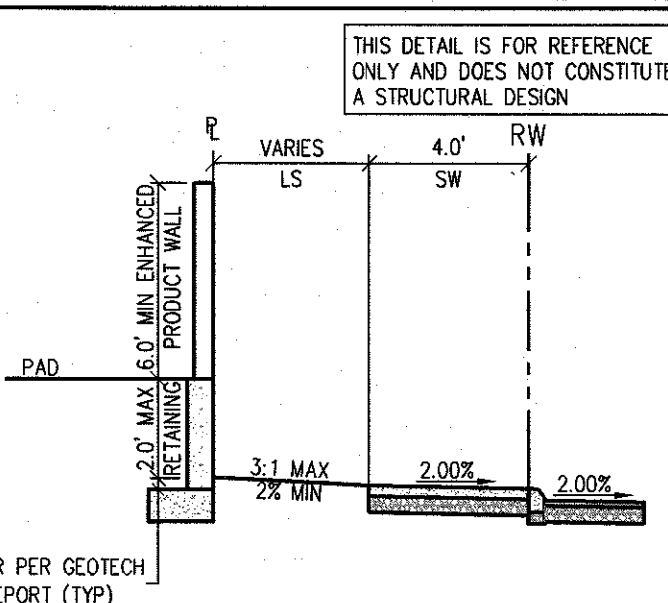
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NOT TO SCALE



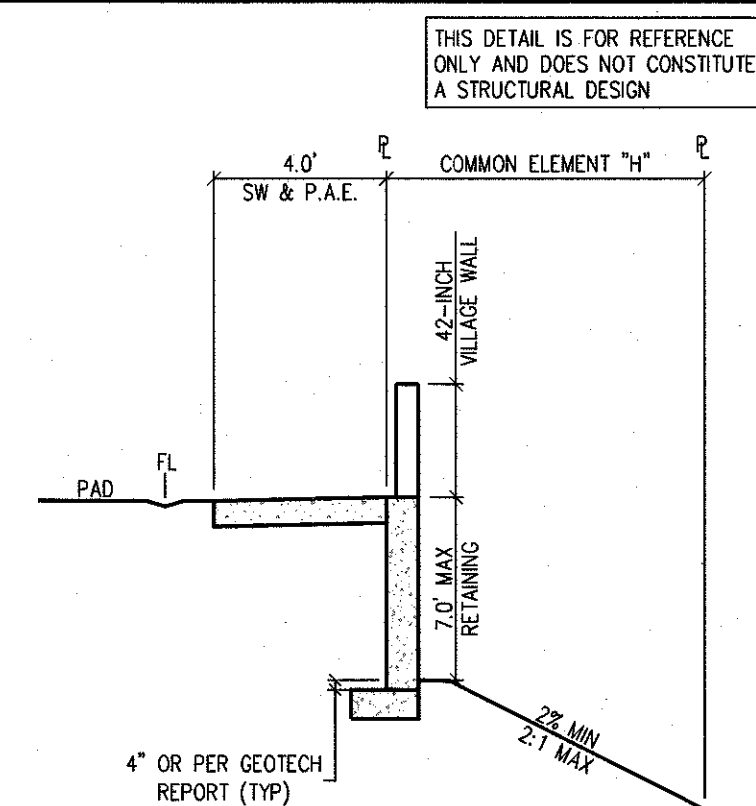
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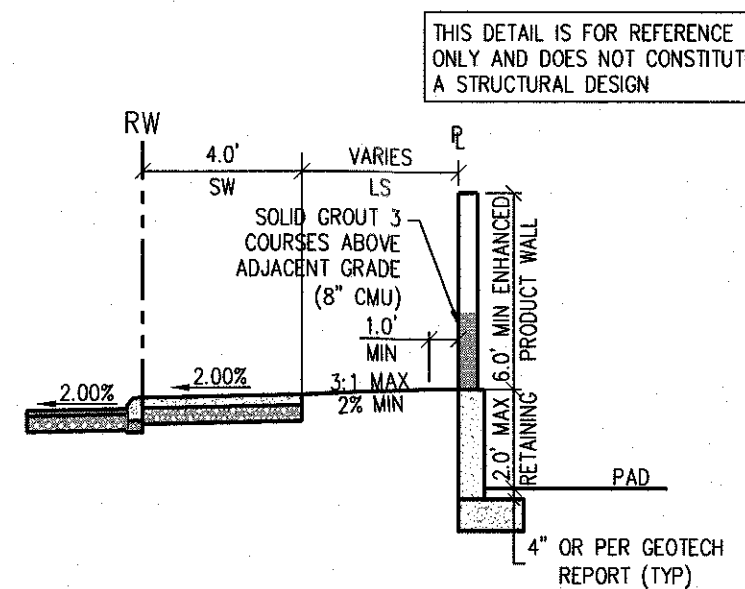
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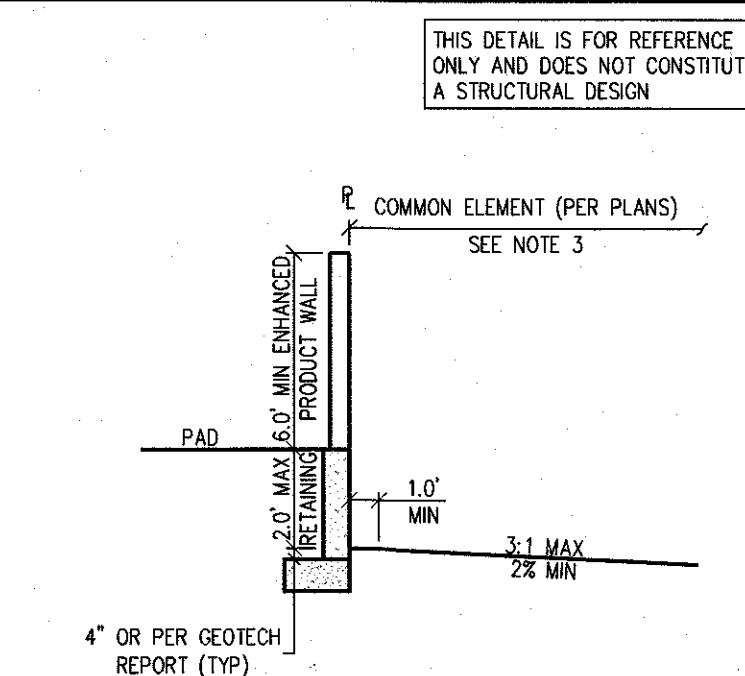
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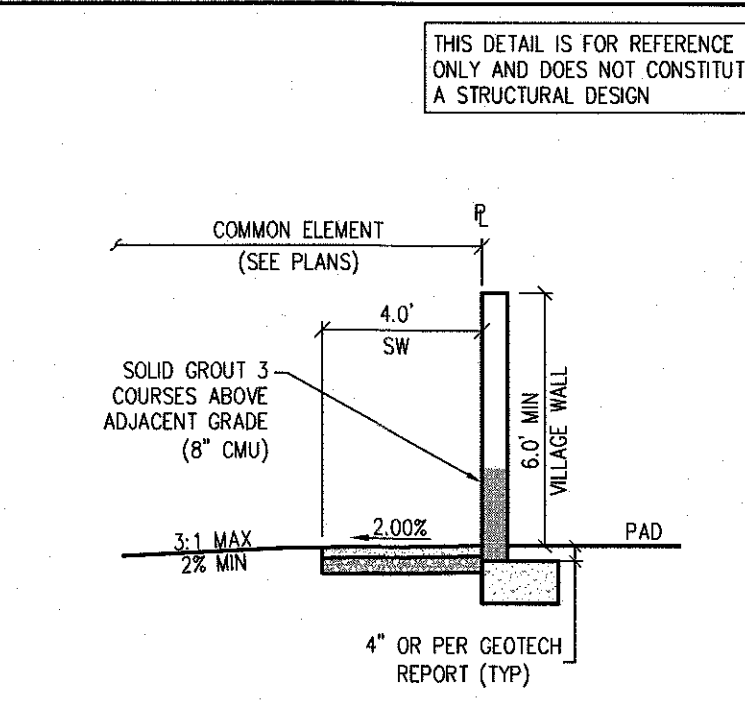
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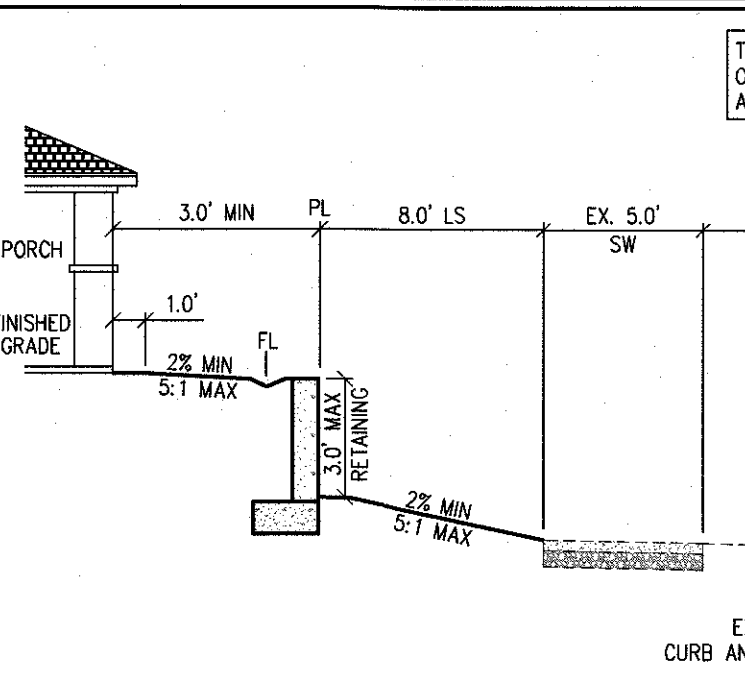
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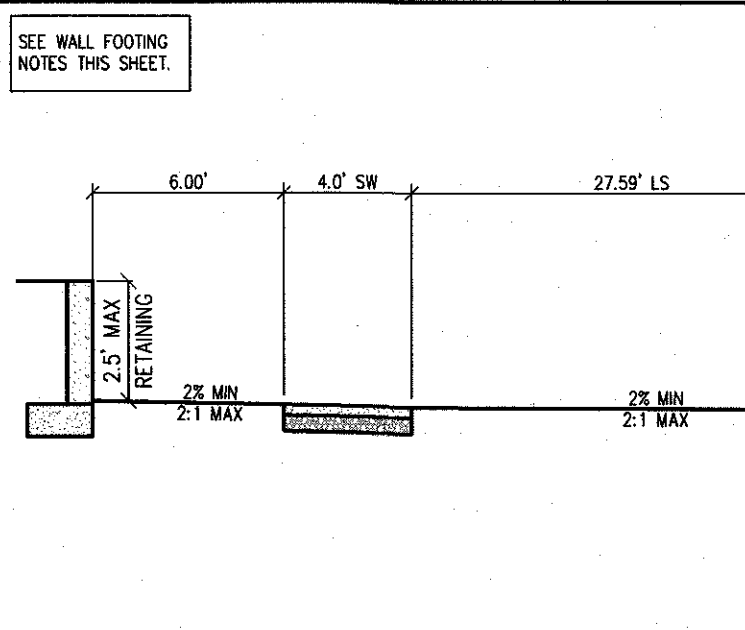
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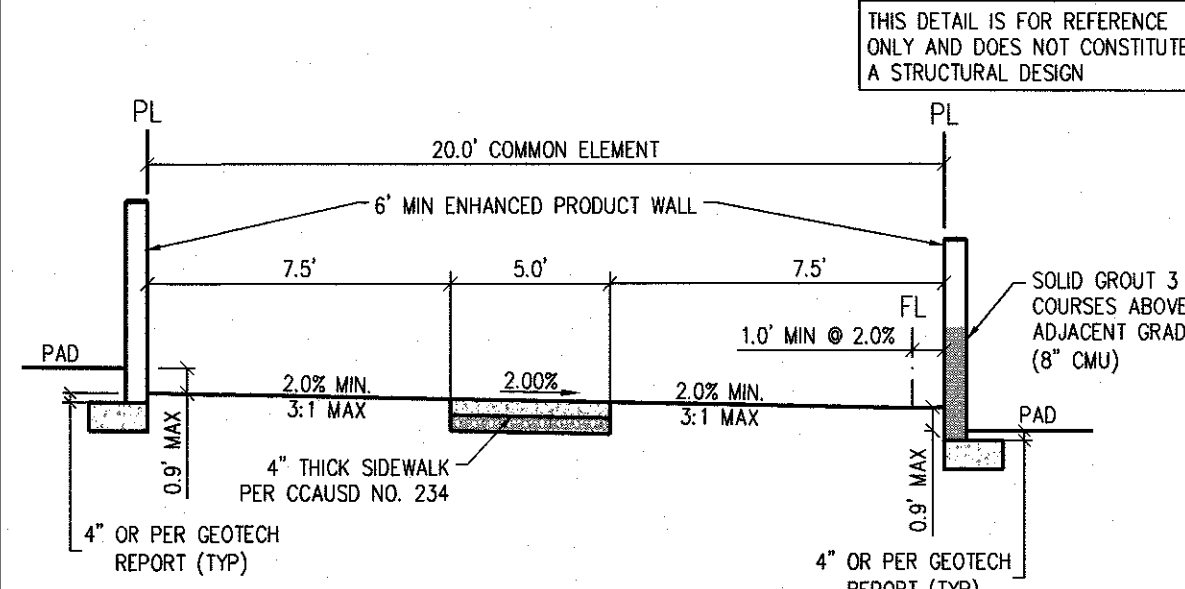
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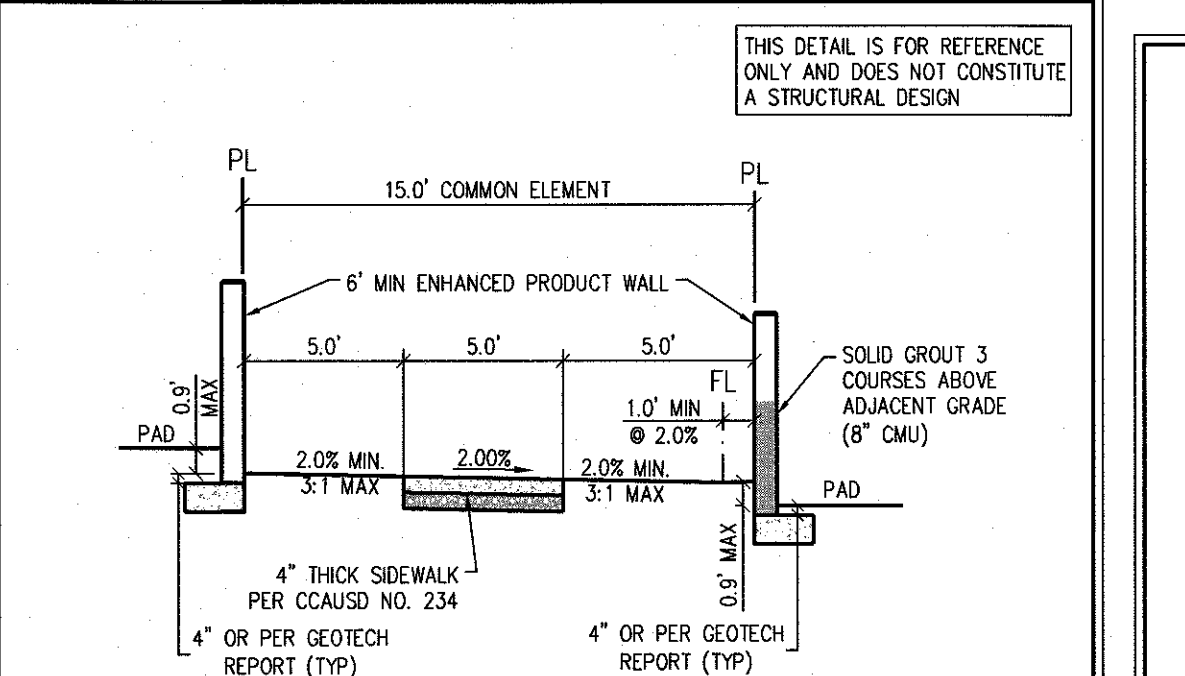
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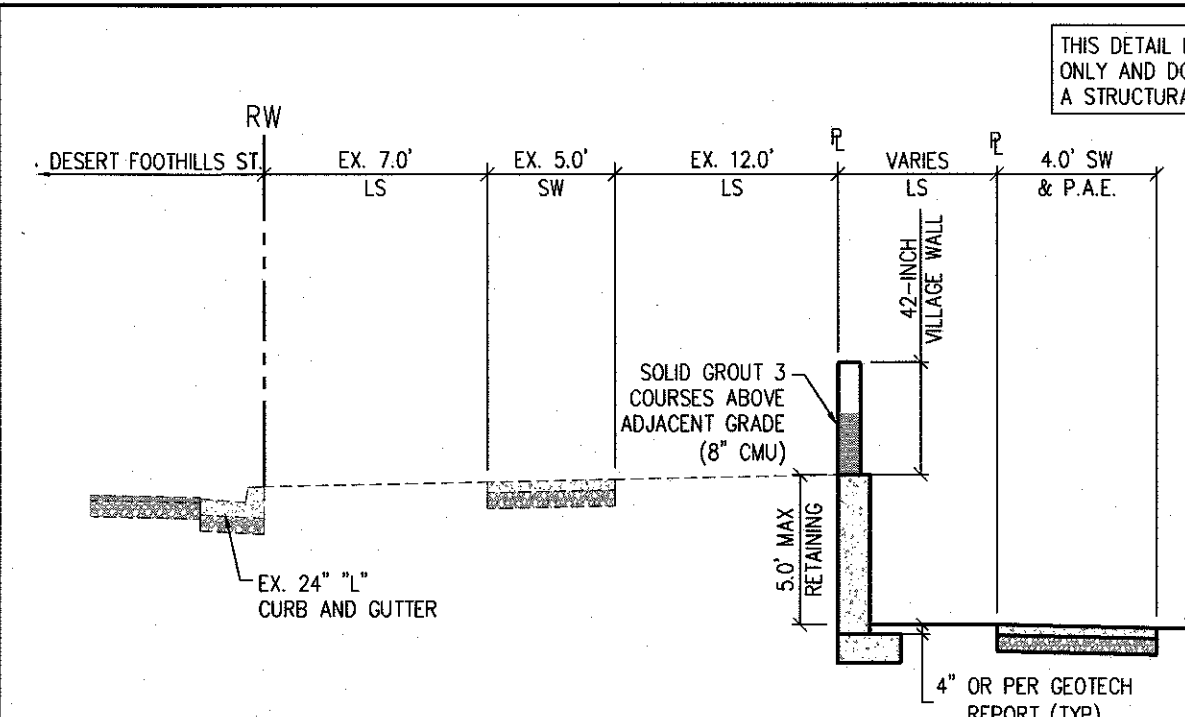
19. EASEMENT SECTION
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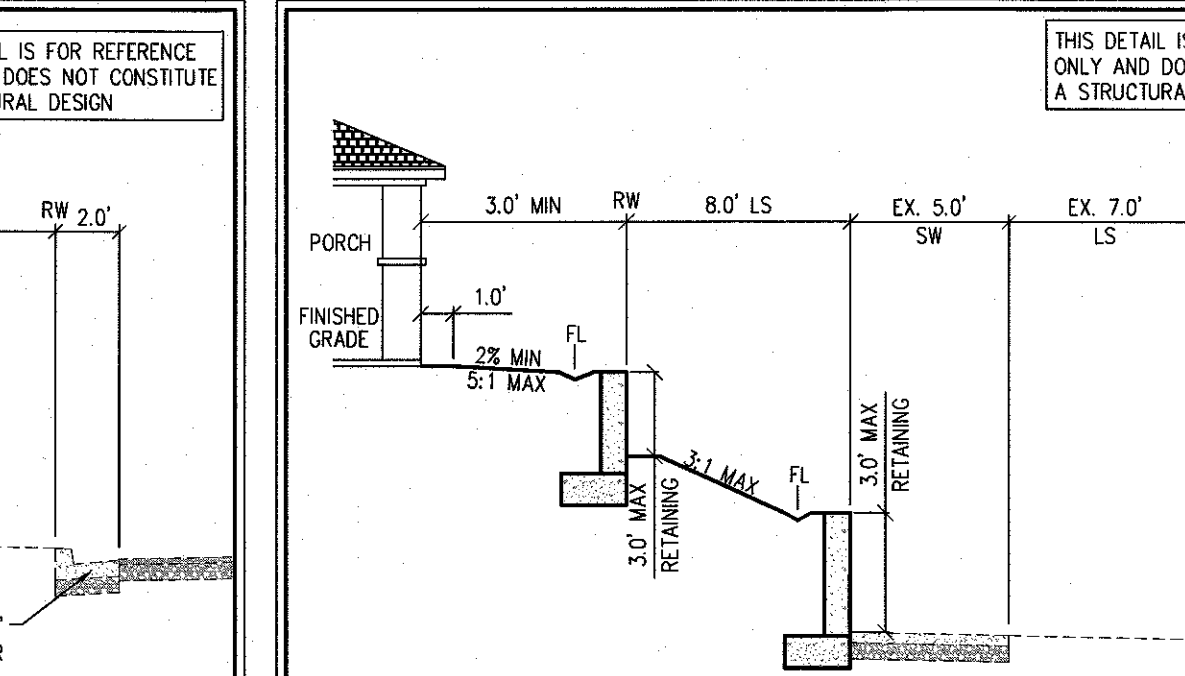
12. COMMON ELEMENT WITH SIDEWALK
NOT TO SCALE



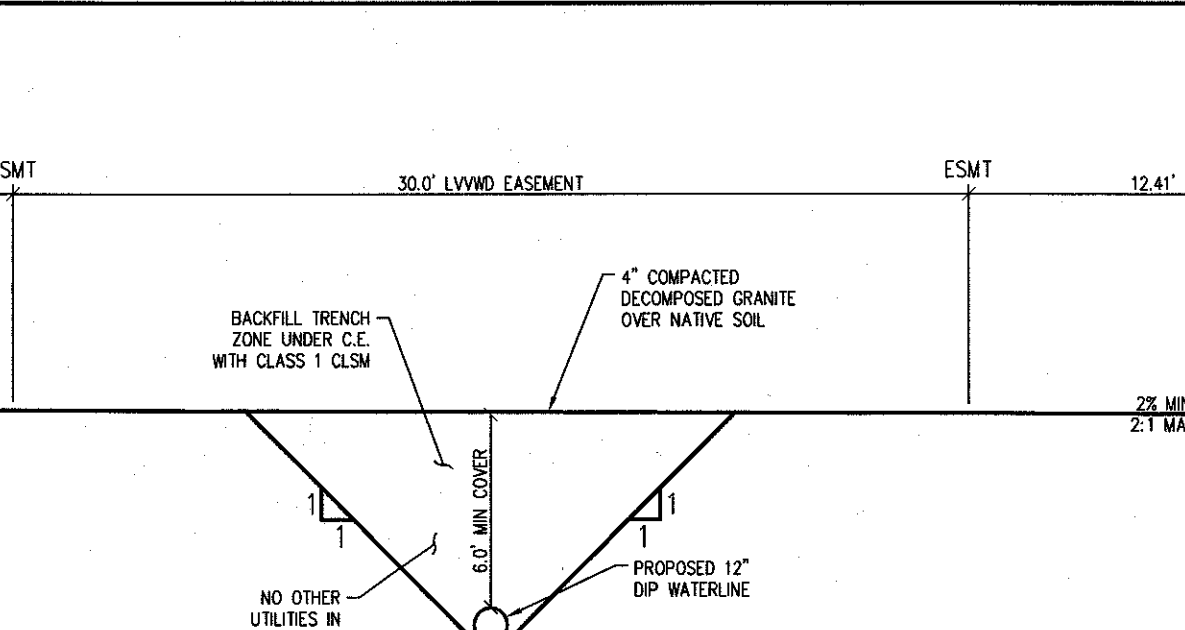
13. COMMON ELEMENT WITH SIDEWALK
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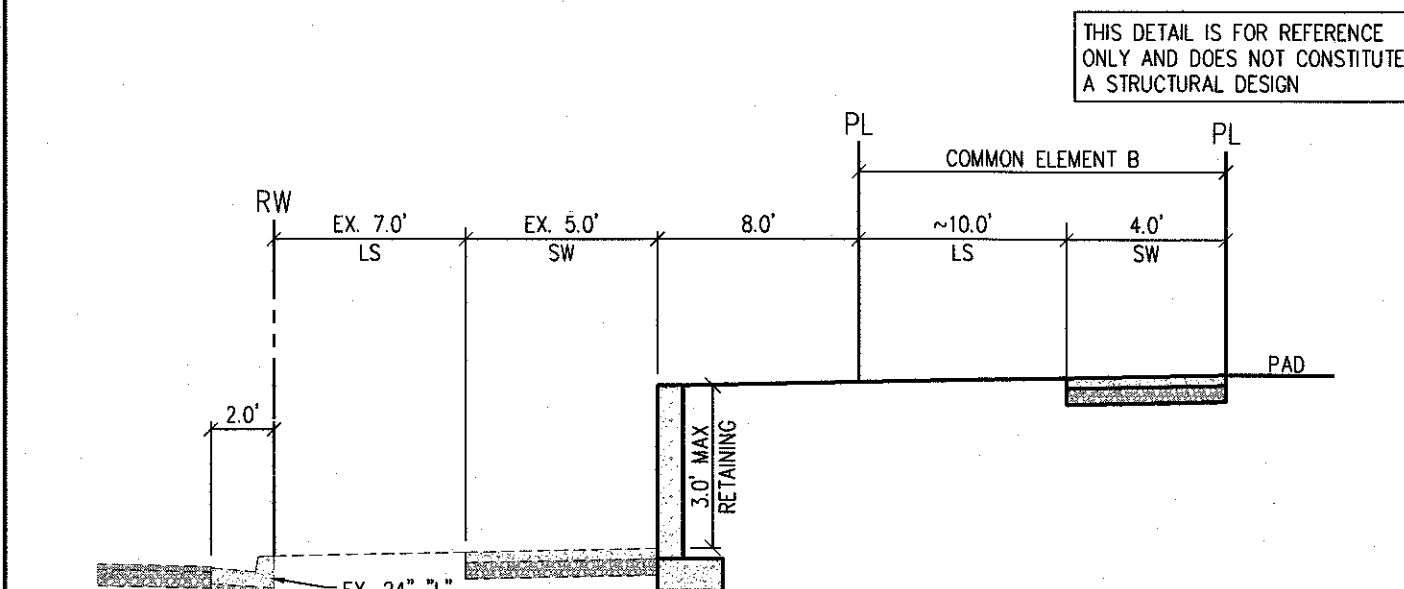
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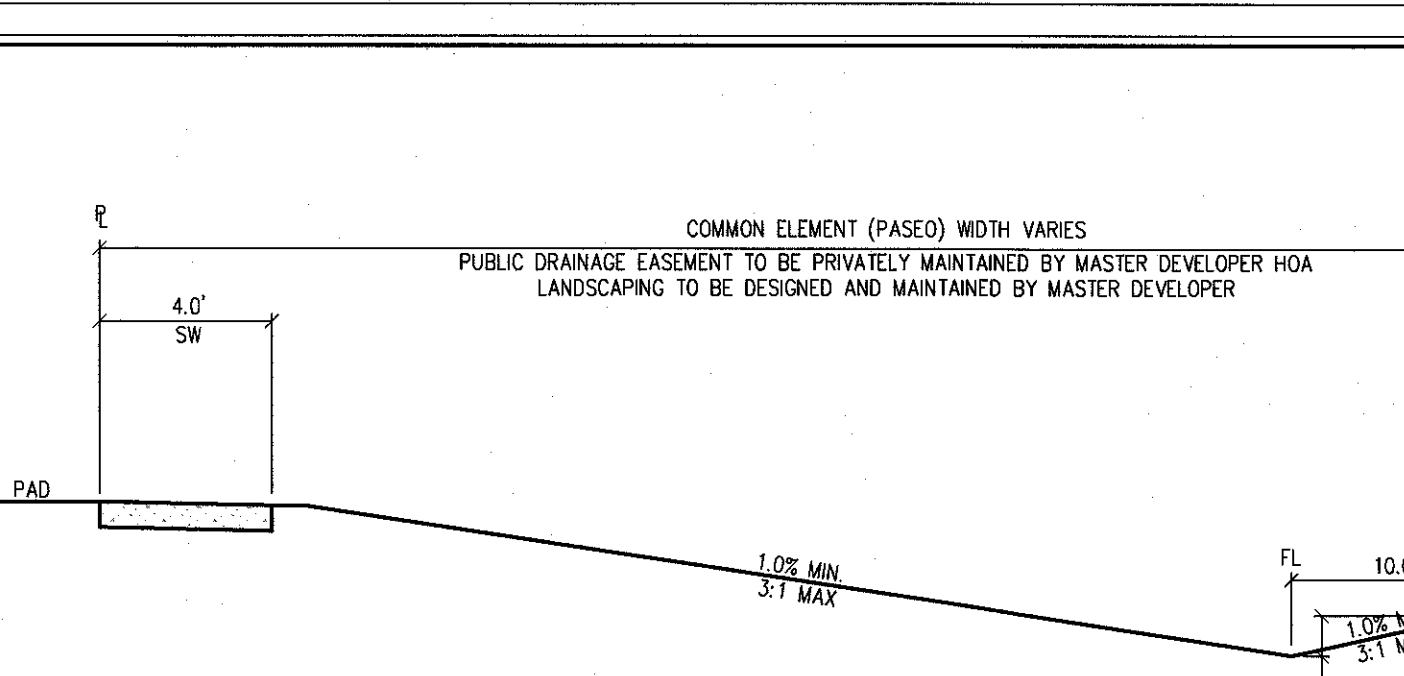
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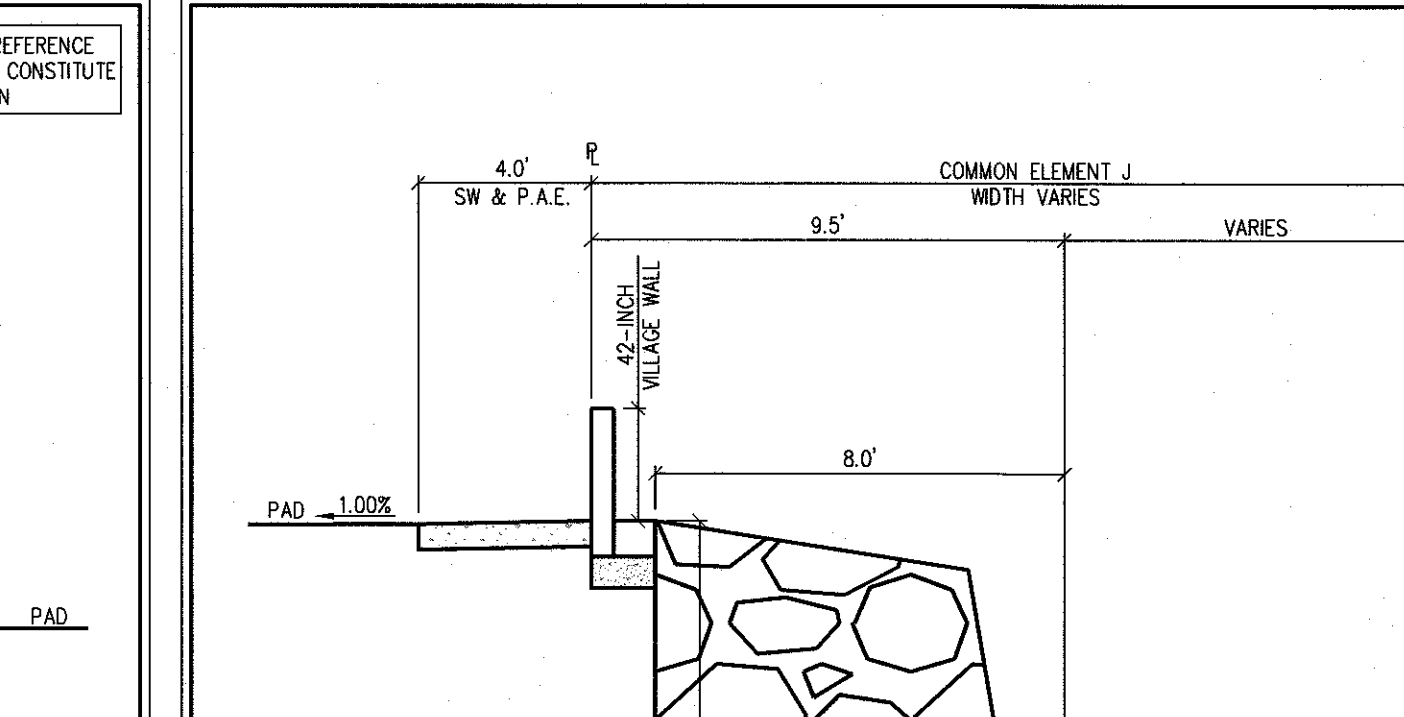
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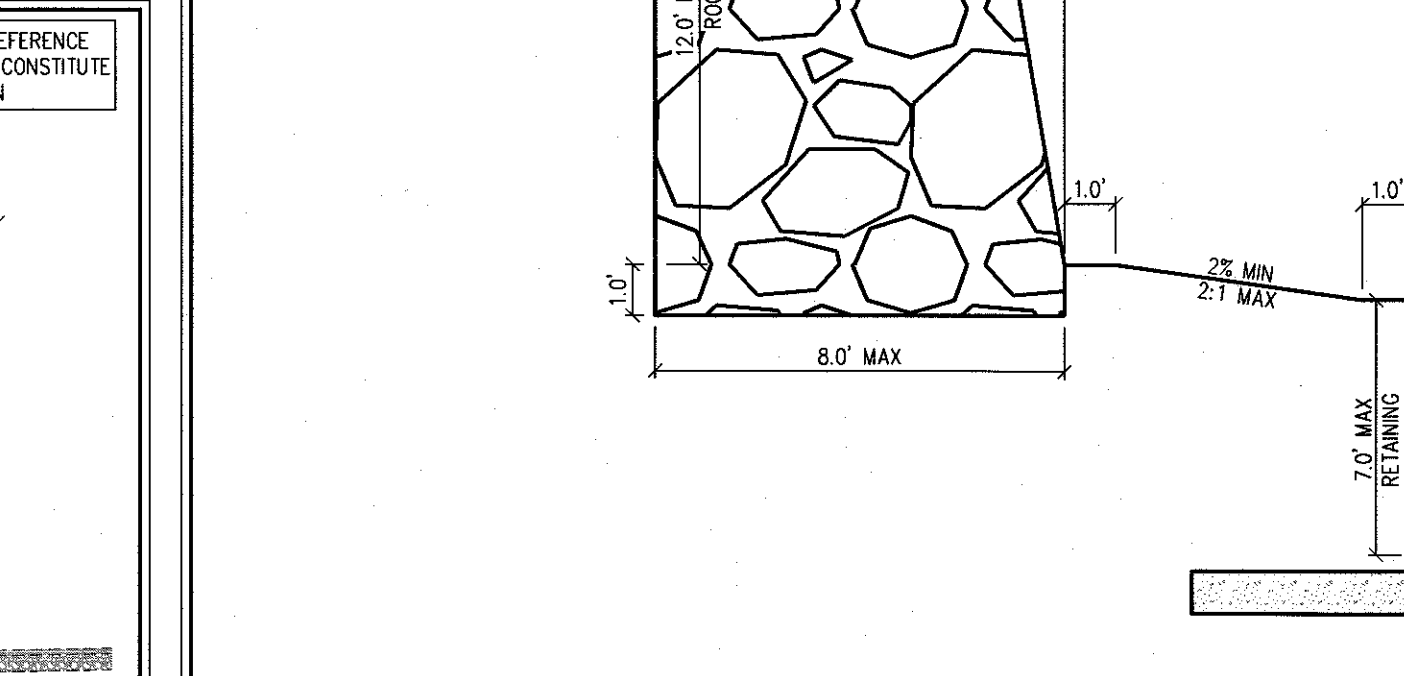
17. PASEO
NOT TO SCALE



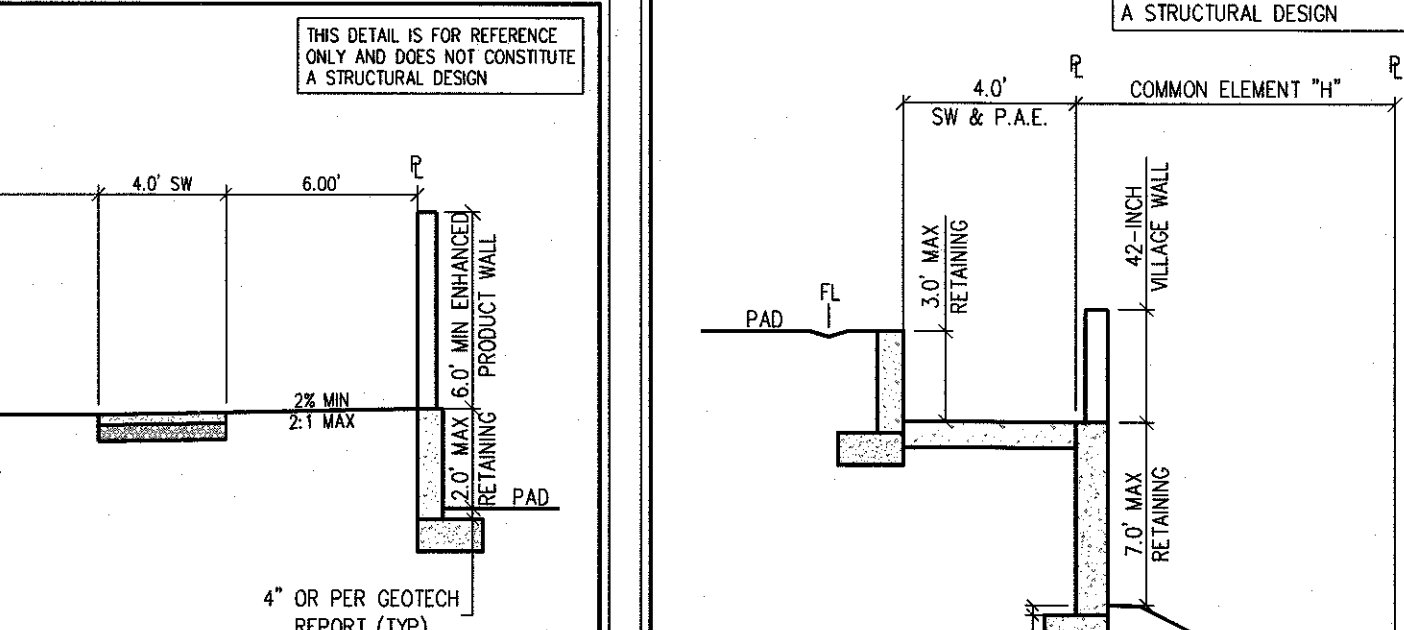
18. RETAINING WALL SECTION
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19. EASEMENT SECTION
NOT TO SCALE

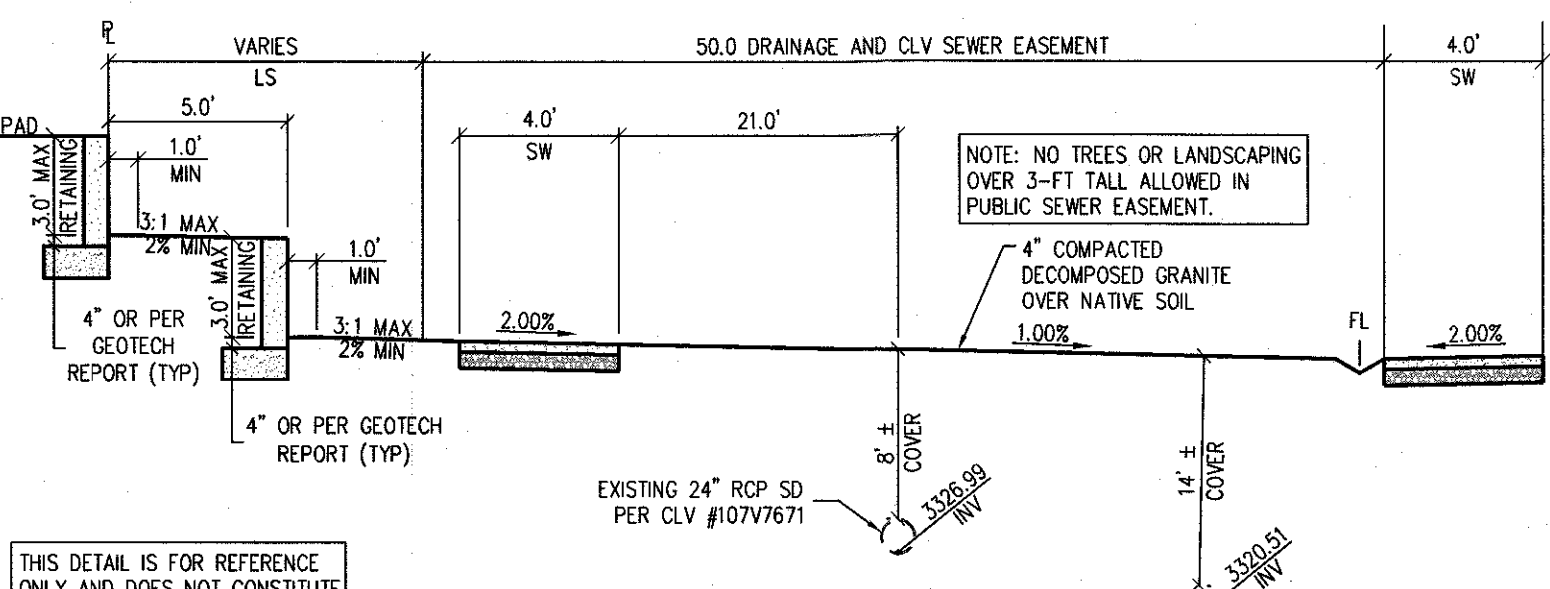


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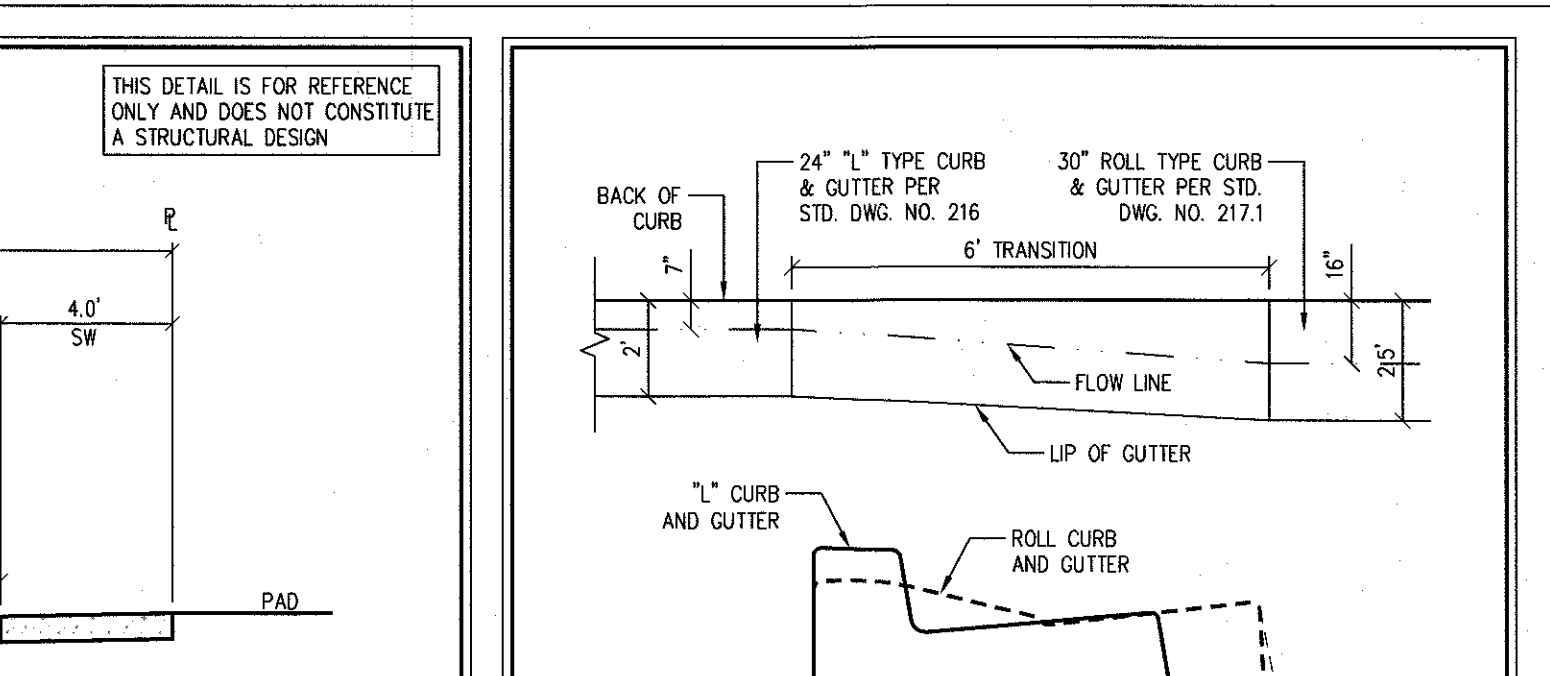


21. 5' TRANSITION FROM 'L' TO ROLL CURB
NOT TO SCALE

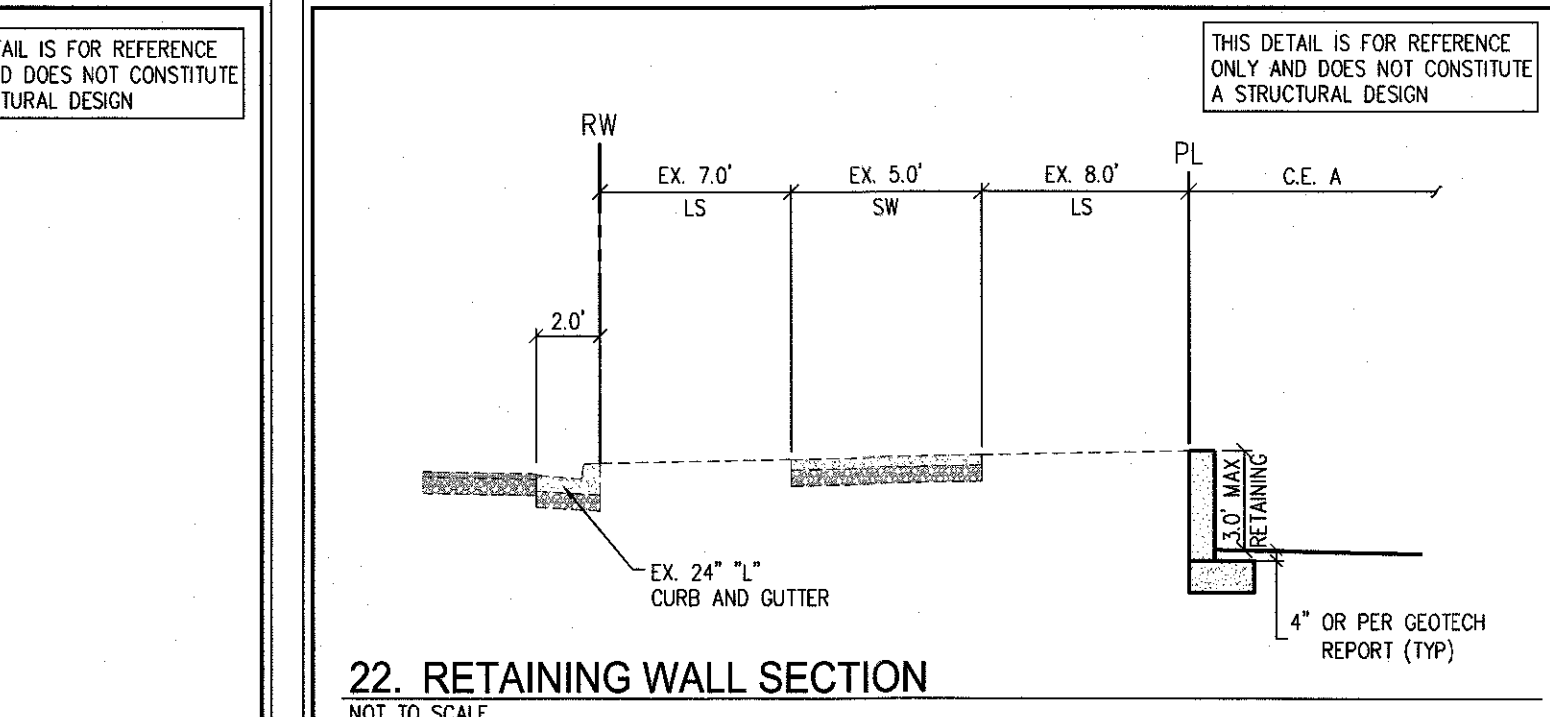
21. 5' TRANSITION FROM 'L' TO ROLL CURB
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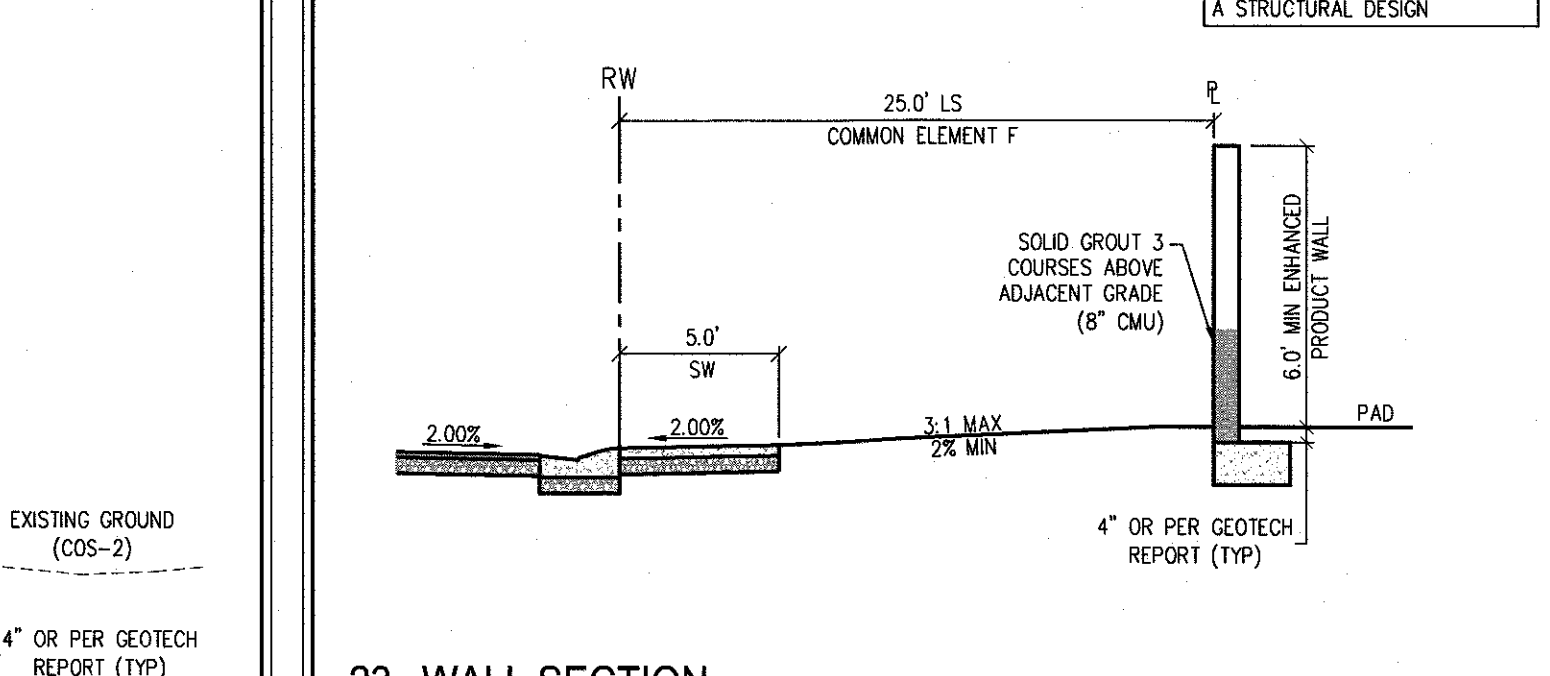
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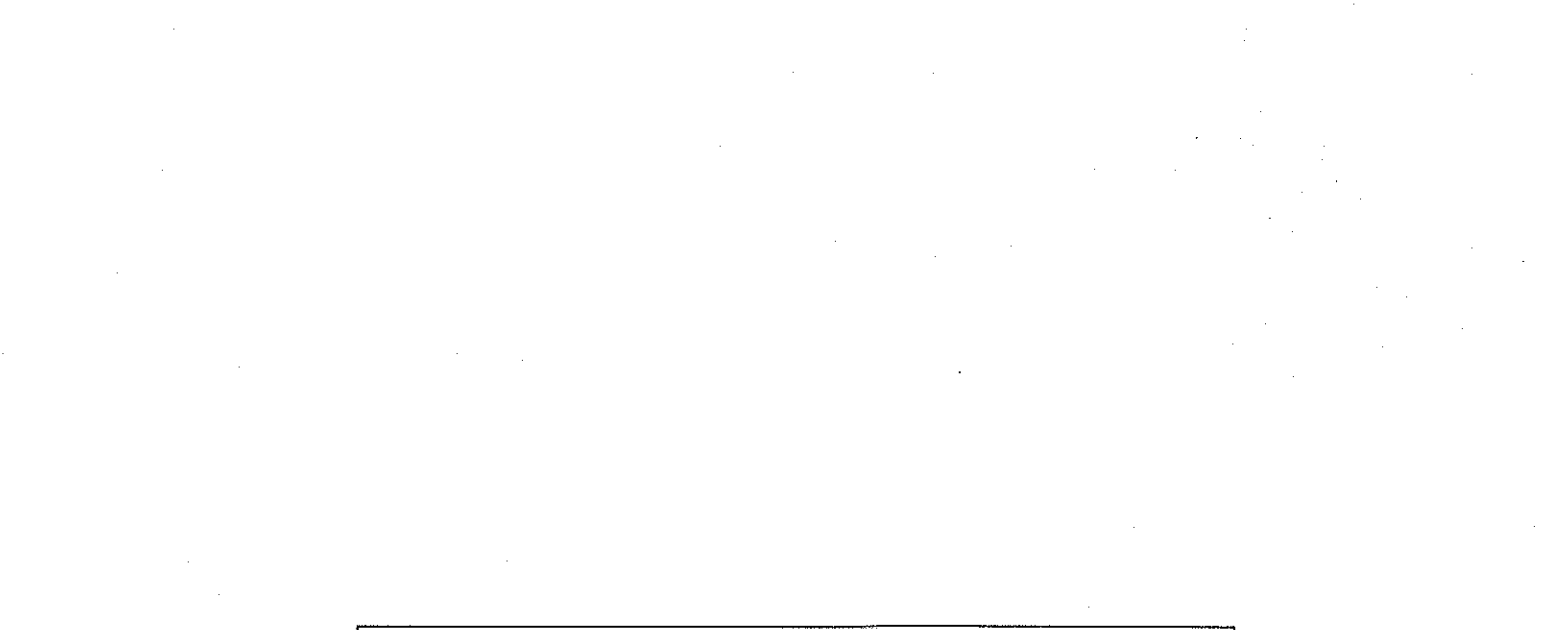
23. WALL SECTION
NOT TO SCALE



24. RETAINING WALL SECTION
NOT TO SCALE



25. RETAINING WALL SECTION
NOT TO SCALE



26. RETAINING WALL SECTION
NOT TO SCALE

26. RETAINING WALL SECTION
NOT TO SCALE

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. 137018 FIRST APPROVED DATE: 06/30/2020
LVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 28 GPM

SLATER
HANFAN
GROUP

5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300

DATE: 12/27/19

DRAFTER: HA

DESIGNER: IG

CHECKED: IG

PROJECT NO. RAH1908.00

ISAC M. GUZMAN

Exp. 06/30/2021

CIVIL

No. 23513

D-2

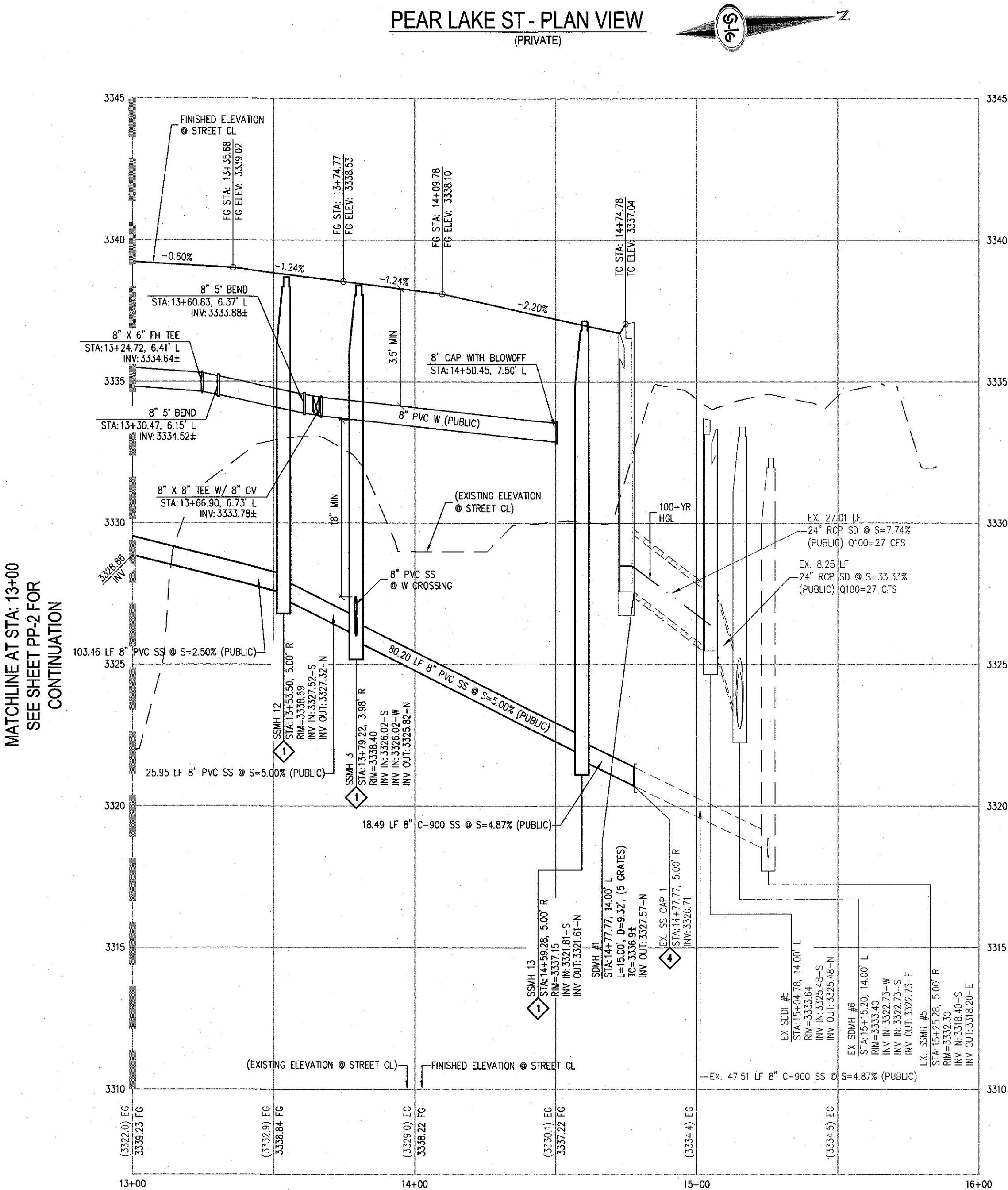
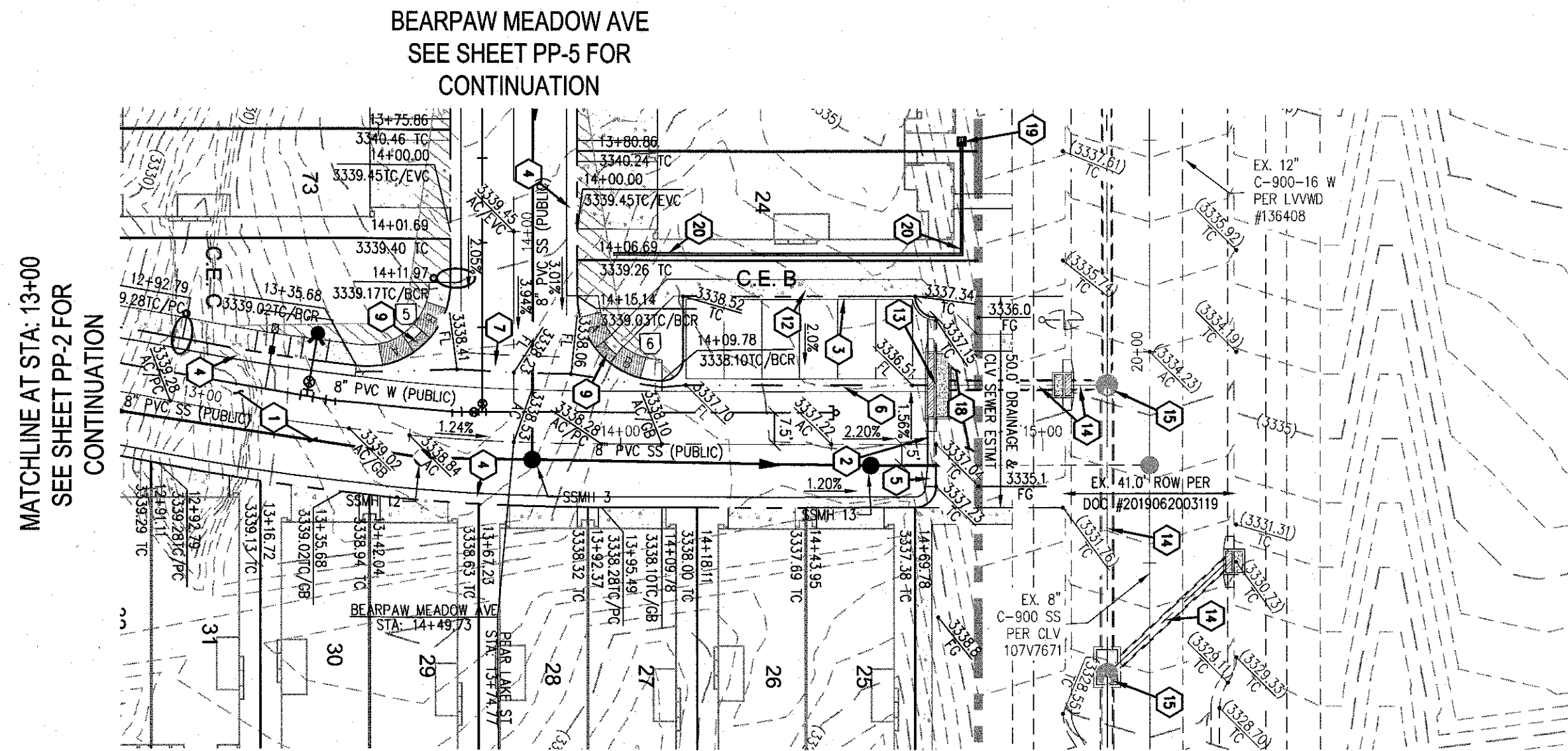
SHEET 7 OF 21

L19-02448

107Y5124

SUMMERLIN VILLAGE 21 PARCEL K

GRADING DETAILS



PEAR LAKE ST - PROFILE VIEW

HORIZ: 1" = 30'
VERT: 1" = 5'

SCALE - 1" = 30' FEET

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WATER NOTES

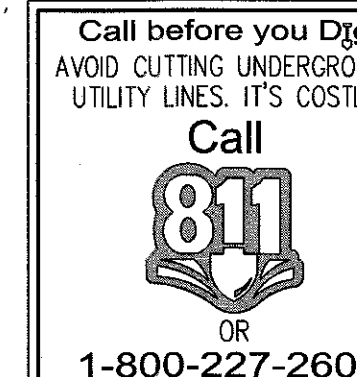
- ALL SEWER/STORM DRAINS CROSSING WATER LINES MUST CONFORM TO SECTION 2.22 OF THE UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR POTABLE WATER SYSTEMS (UDACS) FOR WATER AND STORM MAIN CROSSINGS AND CLEARANCES.
- INSTALL WATERLINE IN STEEL CASING PER UDACS PLATES NO. 21 AND 23. MINIMUM 18-INCH CLEARANCE IS REQUIRED ABOVE THE TOP OF THE CASING FROM THE UPPER BENDS THROUGHOUT THE LOWERED SECTION OF THE PIPE. DUCTILE IRON PIPE WITH RESTRAINED JOINTS IS REQUIRED. IN ADDITION, THRUST BLOCKS ARE TO BE INSTALLED AT THE UPPER BENDS.
- ANNUAL SPACE BETWEEN PIPE AND CASING SHALL BE FILLED WITH CLASS 1 CLSM. SEE UDACS PLATES 17 AND 19 FOR BEDDING AND BACKFILL REQUIREMENTS.
- INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING, PER UDACS PLATE NO. 15.
- MINIMUM 24" COVER PER UDACS SECTION 2.08.04 GRADING MUST BE COMPLETED PRIOR TO WATERLINE INSTALLATION.
- WATER MAIN JOINT DEFLECTION PER UDACS 2.07.01 AND 2.07.03.

SEWER CONNECTION NOTE

ONE OR MORE SEGMENTS OF THE DOWNSIDE SEWER SYSTEM THAT WILL SERVE THIS PROJECT HAS NOT BEEN COMPLETED AND/OR ACCEPTED FOR MAINTENANCE BY THE CITY OF LAS VEGAS. ANY WORK DONE ON THIS PROJECT PRIOR TO THE COMPLETION AND/OR ACCEPTANCE OF THE DOWNSIDE SEWER SYSTEM(S) SHALL BE DONE AT THE DEVELOPER'S OWN RISK. THE CITY OF LAS VEGAS RESERVES THE RIGHT TO PREVENT THE PHYSICAL CONNECTION OF THIS PROJECT INTO THE DOWNSIDE SEWER SYSTEM UNTIL ALL SEGMENTS HAVE BEEN COMPLETED AND ACCEPTED FOR MAINTENANCE, OR UNTIL SUCH TIME AS THEY ARE DEEMED AVAILABLE FOR SERVICE.

SIDEWALK RAMP TABLE

RAMP NUMBER	GRADE (%)	"A" (FT) MIN.	"B" (FT) MIN.
1	-6 TO -5.01	4.5	21.5
2	-5 TO -4.01	4.5	15.0
3	-4 TO -3.01	4.5	12.0
4	-3 TO -2.01	4.5	9.5
5	-2 TO 2	8.0	8.0
6	2.01 TO 3	9.5	4.5
7	3.01 TO 4	12.0	4.5
8	4.01 TO 5	15.0	4.5
9	5.01 TO 6	21.5	4.5



APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. 137018 FIRST APPROVED DATE: 06/30/2021
LVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 26 GPM

CONSTRUCTION NOTES

- CONSTRUCT 2" AC PAVEMENT WITH 4" TYPE II AGGREGATE BASE
- CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD NO. 216
- CONSTRUCT "A" TYPE ISLAND CURB PER CCAUSD NO. 219
- CONSTRUCT 30" ROLL CURB AND GUTTER PER CCAUSD NO. 217.1
- CONSTRUCT 5" TRANSITION FROM ROLLED CURB TO "L" TYPE CURB PER DETAIL 21 SHEET D-2
- CONSTRUCT 3" CROSS GUTTER PER DETAIL 1 SHEET D-1
- CONSTRUCT 8" CROSS GUTTER PER CCAUSD NO. 228
- CONSTRUCT 5" WIDE SIDEWALK PER CCAUSD NO. 234 (4" THICK W/ 5" TYPE II AGGREGATE BASE)
- CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235, CASE 1
- SAWCUT AND MATCH EXISTING IMPROVEMENTS PER CCAUSD NO. 503 & 500.2
- LANDSCAPING TO BE DESIGNED AND MAINTAINED BY MASTER DEVELOPER
- CONSTRUCT 4" WIDE SIDEWALK PER CCAUSD NO. 234 (4" THICK W/ 5" TYPE II AGGREGATE BASE)
- INSTALL 15.0" TYPE "SM2" DROP INLET PER CCAUSD NO. 412.1 AND STORM WATER QUALITY MANAGEMENT STAMP PER CCAUSD NO. 421
- EXISTING 24" RCP STORM DRAIN PER CLV #107V7671
- EXISTING 60" TYPE III STORM DRAIN MANHOLE PER CLV #107V7671
- INSTALL SIDEWALK UNDERDRAIN PER CCAUSD NO. 236
- PUBLIC DRAINAGE EASEMENT TO BE PRIVATELY MAINTAINED BY MASTER DEVELOPER HOA
- INSTALL 4" COMPACTED DECOMPOSED GRANITE OVER NATIVE SOIL
- INSTALL 12"x12" INLET IN/OUTLET GRATE YARD DRAIN OR APPROVED EQUIVALENT (SEE SHEET D-3 FOR LOT DRAINAGE DETAILS FOR LOTS 11-24 & 41-58)
- INSTALL 6" 40-PVC DRAINAGE PIPE @ 1.0% SLOPE (SEE SHEET D-3 FOR LOT DRAINAGE DETAILS FOR LOTS 11-24 & 41-58)

SEWER CONSTRUCTION NOTES

- INSTALL 48" DIAMETER SANITARY SEWER MANHOLE PER DCSWCS SD-1, SD-4 AND SD-9 WITH 24" SINGLE LID
- INSTALL 8" PVC SANITARY SEWER PIPE (PUBLIC) PER DCSWCS SD-15 AND SD-17
- INSTALL 4" C900 SANITARY SEWER PIPE (PUBLIC) PER DCSWCS SD-15 AND SD-17
- FIELD VERIFY LOCATION, REMOVE EXISTING SEWER CAP, AND CONNECT TO EXISTING SEWER STUB
- INSTALL 4" PVC SEWER LATERAL PER DCSWCS SD-20 AND SD-23

SLATER
HANIFAN
GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5599

DATE	BY	APP.
DESCRIPTION	NO.	

RICHMOND
AMERICAN HOMES

SUMMERLIN VILLAGE 21 PARCEL K
PLAN AND PROFILE - PEAR LAKE ST I

DATE: 12/27/19

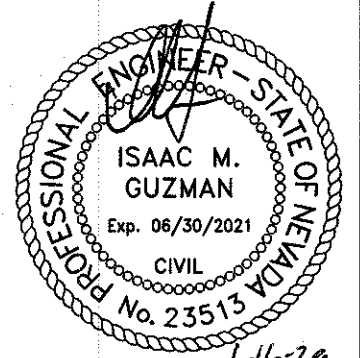
DRAFTER: HA

DESIGNER: IG

CHECKED: IG

PROJECT NO.

RAH1908.00



PP-1

SHEET 9 OF 21

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