DS #: 05358

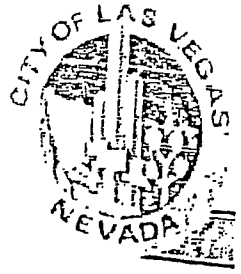
APN: 137-27-617-001

PROJECT: Castellana (aka Summerlin Village 25 - Parcel A)

SUBMITTAL: 1st

SCANNED BY/DATE:

CHECKED BY/DATE:



CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: September 30, 2020
TO: **Land Development Services** Department of Building & Safety				FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for:			**COPIES TO:**
Castellana (aka Summerlin Village 25 – Parcel A)				Actus
Cross Streets:	NWC of Fox Hill Drive & Far Hills Avenue			William Lyon Homes LLC
File Number:	F:\Depot\DSMemos\DS5358A.doc			Bart Anderson, P.E., DevCo
Parcel Number:	137-27-617-001			CCRFCD
Zoning Action:	20-0082-TMP1			
FEMA Flood Zone	YES	NO	X	
Proposed Storm Drain	YES X	NO		

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	9/11/2020	9/29/2020	See Comments Below	$400.00	3986790: $400
			TOTAL FEES (LDDRS):	**$400.00**	----

REMARKS:

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

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

1. Provide a copy of the zoning/planning conditions associated with this site (**20-0082-TMP1**) with the next submittal to verify compliance with conditions. *Flood Control* will not issue conditional approval of the drainage study without the associated zoning/planning conditions (issued by the *City Council*). Any associated conditions of approval that revise the site drainage parameters will require that the drainage study be revised and resubmitted.
2. The subject development is under the premise of flood protection by the improved perimeter streets, *Fox Hill Drive, Far Hill Boulevard* and the associated berm/swale along the west boundary. No occupancy permit of the houses will be issued prior to the substantial buildout of the perimeter facilities.
3. The grading plans, however, appear to show that the adjacent development *Village 25 Parcel D* has already been built and is shown as existing. Clarify in the next submittal whether the subject development will be improved prior to or after the adjacent *Parcel D* improvements. Review and revise the grading plans with either interim berm/swale or Parcel D development along the west boundary.
4. Sites with a grade difference of 2 feet above or below existing are required to have approval from the *City Planning and Development Department*. The engineer must submit copies of the grading plans and detail sheet with a letter justifying the grade difference to the *City Planning Department* (229-6301). The engineer must provide Planning approval with the next submittal.

5. The site is adjacent to or crosses an existing or proposed *Clark County Regional Flood Control District* (CCRFCD) master planned facility. Therefore, CCRFCD concurrence is required prior to final approval of the drainage study.

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

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

6. The R-curb height is 4.5" or 0.38' (from flowline to top of curb). As a general rule in Summerlin, the 100-year flow in the streets cannot overtop the street curb. The Table of 100-Year Hydraulic Sections in Figure 9 revealed that a few Sections will experience over the curb. This is not acceptable. The engineer/developer shall use more drop inlets and storm drains to reduce the 100-year flow depth to top of curb at most. Review and revise accordingly.
7. SDDI#1 is at a local low point. Address in the next submittal during a worst case scenario that the inlet is clogged, what is the maximum ponding depth at the inlet before it overflows. Note that the maximum allowable ponding depth is six inches. Provide enough grade elevations in the plan & profile to verify that the criterion will be met.
8. SDDI#2 states on the inlet calculation sheet that it considers ½ of DON2, this does not match the calculations or the grading sheets. The inlet is collecting ½ of DON1.
9. SDDI#2 is shown within the curvature of a knuckle. This will require a special detail to fit the proposed inlet within the curve.
10. Inlet SDDI#3 has a 0.49' depth at inlet, this is likely to overtop the curb onto Lot 93 and is not allowable.
11. All Drop Inlets are shown on plans within roll curb. The proposed inlets require L-curb. Revise calculations and plans to show a transition to L curb at the location of the inlets.
12. C.E. "H" also needs to be a public drainage easement. Provide a note on the grading plans labeling it as a Public Drainage Easement to be Privately Maintained by the H.O.A.
13. **Sheet C-3 and C-5 Castellana- Unit 2:** Discuss why the riprap pad are shown at the end of *Bella Noche Street* and *Medianoche Street* near *Arrebola Avenue* in the road from the Phase 1 construction. These appear to be left in place during the second phase of construction where the saw cutting is occurring. Remove the riprap accordingly.
14. Label all existing storm drain systems in *Fox Hill Drive* and *Far Hills Avenue* with *City of Las Vegas* recorded drawing numbers on the pertinent grading plans.
15. The proposed wrought iron fence must utilize RTC Uniform Standard Drawing 425.S1. Review and revise all pertinent notes and details accordingly.
16. Private streets must be public drainage easements. Provide a note on the grading plans "Note: All private streets are P.U.E., Public Sewer Easements, and Public Drainage Easements to be privately maintained by HOA."
17. All drainage easements must be public drainage easements to be privately maintained and common lots to be labeled on the grading plans and to be dedicated as such in the final map.
18. The engineer must provide a table on the grading plans that shows a quantity estimate of all drainage improvements within Public Drainage Easements. All drainage improvements within Public Drainage Easements must be bonded and inspected.

19. Provide a note on the grading plans: All Onsite Storm Drains and the associated facilities are Privately Owned and to be Privately Maintained by the HOA.

20. The following Garage Finished Floors do not meet the twice the depth of flow above the adjacent TC:

Lot	TC	GFF Shown	GFF Required
103	3494.30	3494.53	3494.96

21. The following Garage Finished Floors do not meet the twice the depth of energy head above the adjacent TC:

Lot	TC	GFF Shown	GFF Required
15	3463.13	3463.70	3464.03
16	3465.86	3466.40	3466.76
17	3468.59	3469.10	3469.49
107	3477.81	3478.53	3478.71
108	3473.83	3474.53	3474.73
109	3469.85	3470.53	3470.75

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

END OF REMARKS
HDR/AYS

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

3283 E. Warm Springs Road,
Suite 300
Las Vegas, NV 89120
(702) 586-9296

TRANSMITTAL

To: CITY OF LAS VEGAS

ATTN.: TDS 2nd REVIEW

Fax #:

From: Jessica Turoczy
Jessica.turoczy@actus-nv.com

702-586-9296 ext. 100

Date: October 13, 2020

Project: Castellana (V25)

Project #: WLH011904

Case/File #:

Total Pages: 1

Transmitting Via:
- ☐ Messenger
- ☐ Other: _____

Purpose:
- ☐ Review
- ☐ Other: _____

Quantity	Description
1	Wet-stamped TDS Addendum #1 containing CD cert letter
1	CD containing TDS Addendum #1
	Fees to be paid on-line

Comments:

Please call with any questions. Thanks!

Signature:

C:

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Castellana (aka Summerlin Village 25 - Parcel A) Date: 09/09/2020

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

East/West: Far Hills Avenue

b) Section: 27 Township: 20S Range: 59E

c) APN : 137-27-617-001

Name of Owner: Taylor Morrison c/o William Lyon Homes LLC

Telephone No.: 702-263-8200 Fax No.: N/A E-Mail Address: EDuenas@taylormorrison.com

Address: 1980 Festival Plaza Drive, Suite 500, Las Vegas, NV 89118

Contact Person-Name: Darryl Lattimore **Telephone No.:** (702) 586-9296

* **E-Mail Address:** darryl.lattimore@actus-nv.com **Fax No.:** N/A

Firm: Actus

Address: 3283 E. Warm Springs Road Suite 300, Las Vegas, NV 89120

Type of Land Development/Land Disturbance Process:

	Rezoning	X	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: 21.16+/- Being Developed/Disturbed: 21.16+/-
2. Is a portion or all of the subject property located in a designated FEMA Flood Hazard Area? ☐ **Yes**** ■ **No**
3. Is the property bordered or crossed by an existing or proposed Clark County Regional Flood Control District Master Planned Facility? ■ **Yes**** ☐ **No**
4. Proposed type of development (Residential, Commercial, Etc.): 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: 2019 Master Conceptual Study for the Summerlin West Village 25
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: To the east into the existing 42" RCB SD in Fox Hill Dr.
8. Briefly describe your proposed schedule for the subject project: ASAP



Engineer's Seal 9/09/2020

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

***New Required Field**

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

Revision	Date

Local Entity File No.

REFERENCE:

STANDARD FORM 1

Updated 05/01/2008

TECHNICAL DRAINAGE STUDY

For

CASTELLANA

(aka Summerlin Village 25 – Parcel A)

(APN: 137-27-617-001)

Far Hills Avenue and Fox Hill Drive

City of Las Vegas

Date: Sep 3, 2020

Prepared for:

William Lyon Homes
1980 Festival Plaza Drive, Suite 500
Las Vegas, NV 89118

Prepared By: Roshan Poudel, E.I.

Reviewed By: Darryl Lattimore, P.E.

September 9, 2020

3283 Warm Springs Road Suite 300
Las Vegas, NV 89120
(702) 586-9296

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

Re.: CD Certification for the TDS for Castellana (Summerlin Village 25 Parcel A)

Dear Staff,

The pdfs on the submittal package CD matches the original submittal package.

We hope the above responses satisfy any concerns. If you have any questions or need any additional information, please feel free to call our office at (702) 586-9296.

Sincerely,



Darryl Lattimore, P.E.
President

9/09/2020

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

Project Name: Castellana (aka V25 Parcel A)	Map ID:
Firm Name: Actus	Engineer: Darryl Lattimore
Address: 3283 E. Warm Springs Road, Suite 300	
City: Las Vegas	State: NV Zip: 89120
Phone Number: (702) 586-9296	Fax Number: N/A
Property Owner: Willian Lyon Homes	
Address: 1980 Festival Plaza Drive, Suite 500	
City: Henderson	State: NV Zip: 89118

Reviewed By:	Date Received:	Date Accepted for Review:

The following checklist is intended as a guide for the engineer preparing a Technical Drainage Study to submit to the local entity and Clark County Regional Flood Control District (if necessary). The listed items are the minimum information required prior to the entity performing a review. The engineer will remain responsible to ensure the Technical Drainage Study is prepared within the guidelines as set forth in the Clark County Regional Flood Control District (CCRFCD) Hydrologic Criteria and Drainage Design Manual (MANUAL).

This document is intended as an aid in preparing Technical Drainage Studies. Each study submitted is reviewed for compliance with local and regional criteria. This form is not intended to be all inclusive and does not limit the extent of the information, calculations or exhibits which may be necessary to properly evaluate the intended land use.

If items are not applicable for the subject site, provide N/A.

I. GENERAL REQUIREMENT

Yes	No	
x		Design Manual **Standard Form 1** with the engineer's seal and signature.
x		Design Manual **Standard Form 4**.
x		2 copies of the 24" x 36" Drainage Plan.
	N/A	A notarized letter from the adjacent property owner(s) allowing off-site grading or discharge.

II. MAPS AND EXHIBITS

Yes	No	
x		A copy of a current Flood Insurance Rate Map (FIRM) with the site delineated.
x		A copy of the current CCRFCD Master Plan Update Figure, (F-x), for Flood Control Facilities and Environmental areas with the site delineated.

REFERENCE:	**STANDARD FORM 2**

DRAINAGE SUBMITTAL CHECKLIST

II. MAPS AND EXHIBITS (Continued)

Yes	No	
x		Off-site drainage basin maps for existing, interim and future conditions showing the existing topography, basin boundaries, concentration points, and flows in cfs.
x		On-site drainage basin maps for existing and proposed conditions showing the existing topography, basin boundaries, concentration points, and on-site and off-site flows in cfs.
x		Vicinity Map with local and major cross streets identified and a north arrow.

III. DRAINAGE PLAN

Yes	No	
x		Sheet size: 24" x 36" sealed by a registered engineer in the State of Nevada.
x		Minimum scale: 1" = 60'.
x		Project name.
x		Vicinity Map with local and major cross streets.
x		Revision box.
x		North arrow and bar scale.
x		Engineer's/consultant's address and phone number.
x		Elevation datum and benchmark.
x		Legend for symbols and abbreviations.
x		Cut/fill scarps, where applicable.
x		Street names, grades, widths.
x		Proposed future and existing spot grades for top of curbs and street crowns at lot lines, grade breaks, and along curb returns on both sides of the street.
x		Existing contours encompassing the site and 100 feet beyond with spot elevations for important locations, where appropriate.
x		Minimum finish floor elevations with top-of-curb elevations at upstream end of lot.
x		Proposed typical street sections.

REFERENCE:	**STANDARD FORM 2**

DRAINAGE SUBMITTAL CHECKLIST

III. DRAINAGE PLAN (Continued)

Yes	No	
	N/A	Streets with off-set crowns.
x		Proposed contours or spot elevations in sufficient detail to exhibit intended drainage patterns and slopes.
x		Property lines.
x		Right-of-way lines and widths, existing and proposed.
x		Existing improvements and their elevations.
x		Delineation of proposed on-site drainage basins indicating area and 10-year and 100-year storm peak flows at basin concentration points.
x		Concentration points and drainage flow direction with Q_{100} and V_{100} and D_{100} in streets.
x		Cumulative flows, velocity, and direction of flow at upstream and downstream ends of site for the 10-year and 100-year flows.
x		Location and cross-section of street capacity calculations.
	N/A	Cross-sectional detail for channels, including cutoff wall locations.
x		Existing and proposed drainage facilities, appurtenances, and connections (i.e., sidewalk, ditches, swales, storm drain systems, unimproved and improved channels, and culverts, etc.) stating size, material, shape, and slope with plan and profile and HGL calculations.
x		Existing and proposed drainage easements and widths shown with sufficient detail. A cross sectional detail must be provided that shows appropriate lining and reinforcement.
x		Location and detail of existing, proposed, and future block wall openings. Minimum size is 16" x 48". Wrought iron gate is required for flows > 10 cfs.
	N/A	Location and detail of flood walls illustrating depth of flow, proposed grouting height, etc.
x		Perimeter retaining wall locations. All existing and proposed walls (retaining screen and flood) must be shown with adjacent ground elevations. Flood walls with 8-inch concrete masonry unit.
x		Building and/or lot numbers.
	N/A	Alignment of all existing, proposed, or future Regional Facilities adjacent to the site.
	N/A	Limits of existing floodplain based on current FIRM or best available information; limits of proposed floodplains based on best available information.

REFERENCE:	**STANDARD FORM 2**

DRAINAGE SUBMITTAL CHECKLIST

III. DRAINAGE PLAN (Continued)

Yes	No	
	N/A	For areas in Zone A, AE, AH, and AO, base flood elevations (BFEs) must be shown for each lot; BFEs may be listed on each lot, or in a table. Finish floor elevations must be a minimum of 18 inches above BFE.
x		Appropriately elevated "humps" 6 inches above the 100 year water surface elevation at site accesses where the intent is to protect the site from the Q_{100} flows.
x		Street slopes for perimeter and interior streets. The minimum slope is 0.4 percent.
	N/A	Location and detail of best management practice (BMP) for parking lots and low impact development (LID) (if required).

IV. HYDROLOGIC ANALYSIS

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

REFERENCE:	**STANDARD FORM 2**

DRAINAGE SUBMITTAL CHECKLIST

V. HYDRAULIC ANALYSIS

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

REFERENCE:	**STANDARD FORM 2**

CITY OF LAS VEGAS

MINIMUM DRAINAGE STUDY CRITERIA
STANDARD FORM 2 CHECKLIST SUPPLEMENT

(Revised 5/18/11)

The following checklist is intended as a supplemental guide for the engineer preparing a Technical Drainage Study submittal to the City of Las Vegas. This supplement focuses on requirements specific to the City of Las Vegas. The requirements presented are in addition to the Clark County Regional Flood Control District (CCRFCD) Manual Standard Form 2. The listed items are the minimum information required prior to the City performing a review. The engineer will remain responsible to ensure the Technical Drainage Study is prepared within the guidelines as set forth in the CCRFCD Hydrologic Criteria and Drainage Design Manual (Design Manual).

An appointment must be made to preview this checklist in conjunction with CCRFCD Standard Form 2 prior to the City accepting a new drainage study for review. The engineer must contact the Flood Control Section at (702) 229-6541 to schedule a submittal appointment.

If items are not applicable for the subject site, provide N/A.

I. GENERAL REQUIREMENT		
Yes	No	
	N/A	A notarized letter from the adjacent property owner(s) allowing off-site grading. (A copy of the letter must be received prior to final acceptance of the drainage study.)
X		Copies of all conditions of approval for development related to this property. (e.g. zoning, use permit, tentative map, etc.) Verify compliance with conditions.
X		An electronic copy of the complete submittal is required to be submitted with one original hard copy of the study. Electronic documents should be on a universal computer-readable digital output device replicating your submittal. An Indexed Portable Document Format (PDF) or Print Ready CAD file formats with a minimum of 300dpi are the desired formats. If figures are in color, they must be scanned in color and saved as a separate file. _____ by initial here, the engineer on record acknowledges that the electronic copy is an identical replicate of the original hard copy submitted to the City of Las Vegas.

II. GRADING PLAN INFORMATION		
Yes	No	
X		(1) 24" X 36" copy of the Grading Plan, (including all Detail Sheets) sealed by the engineer.
X		Proposed future and existing spot grades for top of curbs and street crowns at lot lines, grade breaks, and along curb returns on both sides of the street. Note: Proposed top of curb elevations must be provided for both sides of roadways even if only half street construction is required.
X		Label existing topography at a minimum 5 foot elevation interval including adjacent developments, finished floor elevations of existing buildings and top of existing curbs extending 100 feet* around the perimeter of the site. (*Measured from the centerline of the adjacent roadway.)

II. GRADING PLAN INFORMATION		
Yes	No	
X		Proposed on-site and off-site storm drains and other flood control facilities with plan and profile sheets for public storm drains showing the class of pipe, (Class III, IV, V, etc.), design hydraulic grade line, (HGL) and 100 year storm flow. A public drainage easement must be provided over on-site storm drains conveying off-site flows. An overflow path must be provided over all storm drains.
X		All existing and "to be constructed" walls with cross-sections showing wall type, (e.g. block wall, retaining wall, flood wall, etc.), with limits clearly defined, adjacent ground elevations. Wall heights must meet current ordinances and in no case exceed 14 feet above the adjacent property.
X		Street slopes for both interior and perimeter streets. Note: The minimum slope for a roadway is 0.4 percent, a minimum 18-inch storm drain must be provided where minimum slopes cannot be met.
X		Back of lot elevations and lot drainage pattern for all lots including common lots.
N/A		Sites with a grade difference two feet above or below existing ground are required to have approval from City of Las Vegas Current Planning. Current Planning approval is required prior to final approval of the drainage study.
X		On-site facilities must perpetuate flows through or around the site without significantly impacting adjacent property owners. (The project must pass flows through the site every 600 feet where the project is blocking flow paths.)
N/A		This project uses a solid grouted stem wall (or approved alternate) at the back of sidewalk to provide erosion protection for landscaped areas where the depth of flow in the roadway exceeds the back of walk elevation. A corresponding cross-section detail is included.
N/A		Commercial and Common Lot Landscape areas are not allowed to drain over the sidewalk. The grading plans show flow lines with grades and sidewalk under drains for all landscape areas draining to the public ROW.

III. Local Entity Criteria - City of Las Vegas – Manual Section 1600		
Yes	No	
X		Concrete valley gutters are required in parking lots with slopes less than 1 percent. Slopes through cul-de-sac must be at a 1 percent minimum where flow is drained through the cul-de-sac.
X		Ten-foot wide public drainage easements to be privately maintained are allowed for flow less than 20 cfs. The depth of flow entering the easement must be checked using the submerged weir calculation.
N/A		The limits of the flood zones and the base flood elevations (BFE) must be shown on all grading plans for all developments within a Special Flood Hazard Zone A, AO, AE, etc.
X		Minimum finish floor elevation is 6 inches above highest adjacent top of curb. Finish floor calculations must include allowances for super elevations on curves and velocity head for tee intersections.
X		Finished floor elevations for buildings adjacent to public drainage easements must be a minimum of 18 inches above the Q100 weir of submerged weir elevation, whichever is greater.

III. Local Entity Criteria - City of Las Vegas – Manual Section 1600		
Yes	No	
N/A		Lots with “B and C Type Drainage” that drain from one lot to another through a drainage easement shall be required to install an underground nuisance drainage system or a 2-foot valley gutter. 16” x 24” minimum block wall openings are required for both options.
N/A		Bubblers are required across 80 foot and greater ROW streets. When flows exceed 10 cfs, bubblers larger than 18 inches will be required up to a maximum of 36”. Inlets must be sized to match the pipe size provided.

- Contact the Flood Control Section regarding the drainage study review fee. These fees are payable at the time of submittal.
- The Drainage Study must be conditionally approved prior to submitting improvement plans to the Civil and Planning Development of the Department of Building and Safety for review.

This document is intended as an **aid** in preparing Technical Drainage Studies for the City of Las Vegas. Each study submitted is reviewed for compliance with local and regional criteria. This form is not intended to be all-inclusive and does not limit the extent of the information, calculations or exhibits which may be necessary to properly evaluate the intended land use.

Table of Contents

I. INTRODUCTION ..... - 1 -
A. Study Overview and Purpose ..... - 1 -
B. Location ..... - 1 -
C. FEMA Flood Plain Information ..... - 1 -
D. CCRFCD Master Plan Information ..... - 1 -
E. Reference Studies ..... - 1 -
II. DRAINAGE BASIN DESCRIPTIONS ..... - 2 -
A. Site Description ..... - 2 -
B. Offsite Drainage Description ..... - 3 -
C. Existing Condition Drainage Description ..... - 3 -
D. Interim/Ultimate Conditions Drainage Description ..... - 5 -
III. HYDROLOGIC CRITERIA ..... - 6 -
A. Method of Analysis ..... - 6 -
B. Precipitation ..... - 6 -
C. Hydrologic Abstractions ..... - 6 -
D. Basin Area ..... - 6 -
E. SCS Lag-Time with Time of Concentration ..... - 7 -
IV. MODEL RESULTS ..... - 7 -
A. Peak Flows ..... - 7 -
B. Street Flow Calculations ..... - 7 -
C. Finished Floor Analysis ..... - 8 -
D. Drainage Easements/Storm Drain Hydraulics ..... - 10 -
IV. CONCLUSIONS ..... - 10 -
V. REFERENCES ..... - 11 -

I. INTRODUCTION

A. Study Overview and Purpose

This study is intended to serve as the Technical drainage study for Castellana (aka Summerlin Village 25 – Parcel A). See Figure 1a, *Vicinity Map, and* Figure 1b*, Location Map*. The overall project is 21.16 ±acres and is located within the City of Las Vegas. The proposed project will be comprised of 91 single-family residential lots and will be developed in three (3) phases. This study is a stand-alone document and presents the findings of a detailed hydrologic analysis of the site and the contributing watershed areas. Please note that this study provides the hydrological summations for the Existing, the Interim, and the Ultimate Conditions to meet the mandated *City of Las Vegas* and the *Clark County Flood Control District's Hydrologic Criteria and Drainage Design Manual* requirements.

B. Location

The subject site is located in a portion of the Section 27, Township 20 South, Range 59 East, M.D.M., City of Las Vegas, Nevada, and is commonly known as APN: 137-27-617-001.

C. FEMA Flood Plain Information

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Community-Panel Number 32003C 2150E, effective September 27, 2002, the site is located within Zone 'X'. Zone 'X' consists of areas lying outside of the 0.2% annual chance floodplain (500-year flood event). Figure 3, *Flood Insurance Rate Map*, depicts the FEMA flood zones within proximity of the site. Figure 3 is provided in the Appendix of this study.

D. CCRFCD Master Plan Information

As shown on Figure F-22 from the 2018 *Flood Control Master Plan Update of the Las Vegas Valley* (Figures 4 and 5 of this report), the subject site is adjacent to existing CCRFCD facility 'APFH 0089'. Said existing facility will ultimately convey the flows captured by the approved 42" storm drain collection stubs for the project site as discussed within the *Existing Conditions Drainage Description* section of this study. The site is shown to be located within regional basin 'SWFH-9' on Figure 6 of this report.

E. Reference Studies

The studies/plans utilized to prepare this study are as follows:

- *Master Plan Conceptual Drainage Study for Summerlin Village 25, DS#5104*, *VTN (2019)*, and Updates, herein referred to as the "***Village 25 Master Study***". This study was used as the basis for the 100-year runoff conveyed to the drainage facilities in Fox Hill Drive within the referenced *FHD Study* below. We have re-analyzed the onsite hydrology within Parcel A to

match the current lot sizes. Please note that the newly calculated onsite runoff is lower than the flows determined in the *Village 25 Master Study* as discussed further within this study.

- *Technical Drainage Study for Summerlin Village 25 – Fox Hill Drive (from Far Hills Avenue to Redpoint Drive), DS#5118, GCW (2019)* and addenda, herein referred to as the "***FHD Study***". Relevant references from the *FHD study (the most current study)* has been provided to show the hydraulics of the proposed storm drain laterals to the proposed main facilities in Fox Hill Drive, and the anticipated runoff conveyed from Parcel A into the said facility. The original *FHD Study* established the drop inlet collection calculations on the west side of Fox Hills Drive and the drop inlets calculations remain unchanged. Please note that the 10-year runoff or criteria for Fox Hill Drive was not provided for this roadway within the *FHD Study* based on full collection of runoff upstream from said roadway. The drop inlets in Fox Hill Drive were sized to collect all of the 100-year runoff, and therefore, all of the 10-year runoff accordingly, per the *FHD Study*.

- *2nd Update to the Technical Drainage Study for Summerlin Village 25 – 3435 Reservoir, DS# 2371, GCW (2003),* herein referred to as the *'**Reservoir Study**'*. This study was used just to get an understanding of the future drainage pattern on the east side of Fox Hill Drive. This pattern is evidenced by the future designs in the referenced *Reservoir Study* grading plans and details. In addition, the LVVWD and Summerlin are coordinating to fill the northeast corner of LVVWD project site to maintain the drainage pattern (towards east into Far Hills Drive, away from our project site) as established in the *SWPA Master Study.* A preliminary copy of the 3435 Grading Plans by GCW (2019) elevating the northwest corner of their site are provided at the end of this current reference in the Appendix. Since runoff generated from this development do not affect our project site, no flows were referenced from this study.

- *Conceptual Drainage Study for Summerlin Village 23B Update #3, DS#3420, GCW (2013)*, herein referred to as the "***Village 23B Study***". This study was used as the basis for establishing the depth of flow in Far Hills Avenue to the south of the project site. The roadway is fully developed, and no runoff enters the site from Far Hills Avenue. This study is provided to verify the proposed lots along the southern boundary of the project meet the finished floor elevation (FFE) criteria.

The engineer has reviewed the referenced studies and concurs that the current and proposed conditions are the same as those from the referenced study.

II. DRAINAGE BASIN DESCRIPTIONS

A. Site Description

The overall site is surrounded by undeveloped property to the North and to the West, residential property to the South, and LVVWD property and NV energy substation to the East. The site has an overall slope of 6.8% percent and slopes from west towards east.

B. Offsite Drainage Description

The offsite drainage description includes analysis of offsite runoff tributary to the project site. All the referenced studies as well as the civil improvement plans for the subject projects are approved at the time of the report. Please note that the TDS for Summerlin Village 25 Parcel D is currently under review by City of Las Vegas. This study, however, assumes that the ultimate condition drainage for Summerlin Village 25 Parcel D will be the same as the ultimate condition drainage pattern established in the referenced *Village 25 Master Study,* and therefore development of Summerlin Village 25 Parcel D will not alter the offsite flows for this project site. Further assumptions made for this project, prior to the construction of the current Castellana project are:

FHD Study: The Fox Hill drainage improvements (42" RCP in Fox Hill Drive with various drop inlets) are complete. Said drainage improvements will accept runoff from the current project site via a 42-inch RCP storm drain installed specifically to collect runoff from this project site.

Two diversion channels, one to the north of Parcel A carrying flow to the future Redpoint Drive, and the other along the western boundary of the project site, carrying runoff to the Far Hills Drive are complete. The Far Hills Drive roadway is substantially complete. As stated in the Reference Section, the diversion channels convey upstream runoff tributary to Parcel A to a proposed 36-inch RCP culvert in Parcel D, that ultimately connects to the CCRFCD existing facility APFH 0089, which is an 8'x6' RCB storm drain. Finished floor elevation for the proposed lots within Castellana adjacent to Far Hills Avenue will reside at or above twice the depth of flow in Far Hills Drive to provide adequate flood protection.

Other: The LVVWD grading of the northeast corner of their site is substantially complete (see discussion in *Section E – Reference Studies* under the *Reservoir Study* above).

All the pertinent referenced material regarding offsite flows can be found in the Reference section of this study.

C. Existing Condition Drainage Description

The Existing Condition considers the currently undeveloped project site (see Figure 7, *Existing Condition Basin Map* in the Appendix). A description of the Existing Condition flows using the assumptions in the *Section II Subsection B (Offsite Drainage Description)* are as follows:

Onsite:

Flows from the onsite basins discharge east through the project site in the existing condition. An existing ditch running north to south, along the eastern boundary of Parcel A will collect and convey the stormwater runoff to an existing 42-inch RCP storm drain at the southeastern corner of the project site. Another existing ditch, further to the northwest of the project site, will collect and convey the storm water runoff north to Future Redpoint Drive consequently cutting of all offsite flows from the northwest to the project site. Two existing ditches (Ditch#1 and Ditch#2) lying along

the western boundary of the project cut off all offsite flows from the west. Ditch#1 collects and conveys stormwater runoff south to Ditch#2, and Ditch#2 conveys the flow south into the existing CCRFCD facility APFH 0089. Runoff landing east of the proposed ditches (Ditch#1 and Ditch#2) will continue flowing east until it is collected by the existing ditch adjacent to Fox Hills Drive. The stormwater flows in this ditch are conveyed south into an existing 42-inch RCP.

Please note that the existing 100-year flow of 69 cfs into the existing 42-inch RCP storm drain in Parcel A, is the runoff from the entire basin OFF3-C (please refer to Figure 7, *Existing Condition Basin Map*) which also includes flows from the Cosway to the north of Parcel A. Therefore, existing flow of 56 cfs from just Parcel A is obtained by prorating the referenced basin OFF3-C.

Far Hills Drive and Diversion Channel (southern and western boundary of the project):

The diversion channel (Ditch #2 in *FHD Study Figure 5*) along the western boundary of Parcel A diverts approximately 58 cfs in the 100-year event to an existing 36-inch RCP culvert near Far Hills Drive. The riprap lined channel depicted as *Section E* on *Sheet DT1* in the *FHD Study* plans maintains a depth of flow of 1.42 feet based upon *FHD Study* normal depth calculations with a velocity head of 0.30 feet. The referenced normal depth flow type is Subcritical; therefore, the necessary freeboard is 0.5 feet + the velocity head (or overall 1' minimum) per the *HCDDM* Section 706.1.3. The eastern side of the channel is a berm that maintains a minimum of 1 foot of freeboard over the depth of flow in the channel and adequately protects Parcel A from runoff in this diversion channel. Please see *Section IV Subsection C Hydraulic Calculations* for discussion on the proposed lots adjacent to this channel.

Fox Hills Drive (eastern boundary of project):

The only runoff within Fox Hills Drive is based upon the delineated Basin FOX5A and FOX5B in the *Village 25 Master Study* (see *Figure 6, Village 25 Master Study*). Said basins include the common elements adjacent to the project site and established 11 cfs for FOX5A and 12 cfs for FOX5B in the 100-year flood event. Please note that the 10-year flood event was not considered in either the *Village 25 Master Study* or the *FHD Study* based upon full collection of runoff upstream from these basins. These basins therefore have NOT been added to the Castellana Ultimate Condition HEC-1 analysis to analyze the 10-year criteria in Fox Hills Drive since the Castellana entry is very small (less than 0.5 acres) and conveys less than 1 cfs of additional 10-yr runoff into this street. Said increase is assumed to be negligible as further discussed in the *Section IV Subsection B – Street Flow Calculations*. Please see *Section IV Subsection C Finished Floor Analyses* for discussion on the proposed lots adjacent to this street and for the street flow analyses of Fox Hills Drive.

Far Hills Drive (southern boundary of project):

As stated above, Far Hills Drive is fully developed and does not allow runoff to enter the site. The project site will also not convey any runoff to Far Hills Drive. The engineer has reviewed several studies on the southern side of Far Hills Avenue to review the depth of flow calculations discussed for this street. All of the studies generally stated that runoff was contained within the street and that the only runoff in the street is based on flow generated in Basin ST-FH (the Far Hills Basin) in the *Village 23B Study*. The engineer has conservatively used half of the flow in Basin ST-FH as the basis of flow for the normal depth calculations adjacent to the southern boundary of the project site

although there are several drop inlets in the north side of Far Hills Avenue that mitigate runoff in this street. A normal depth calculation will be provided for the north side of Far Hills Avenue using 22 cfs to analyze the finished floor criteria to proposed lots adjacent to this roadway. Please see *Section IV Subsection C Hydraulic Calculations* for discussion on the proposed lots adjacent to this street.

All pertinent referenced material regarding offsite flows can be found in the Reference section of this study.

D. Interim/Ultimate Conditions Drainage Description

The Interim Condition considers the project site as fully developed while offsite basins in their existing condition. The Ultimate condition considers both the project site and the offsite basins to be fully developed. The downstream developments surrounding the project site are developed within the Existing Condition whereas the upstream parcels to the north of the project site are currently undeveloped but will be developed in the future per the *Village 25 Master Study*. However, the said upstream development are proposed to divert runoff to Redpoint Drive per the assumptions in *Section II Subsection B Offsite Drainage Description*, and will not affect the current project site in either the Interim or Ultimate Conditions. The proposed project will be developed in three phases:

Unit 1: The developer will construct the model lot area with Unit 1 (the entry way and approximately 45 lots) including rough grading the remaining portion of the project site. The storm drains along with the drop inlets collecting the complete Parcel A runoff will be constructed with this phase of development. The rough grading is necessary to establish drainage patterns to distribute runoff to the inlets.

Unit 2: This unit will consist of approximately 43 lots.

Unit 3: This unit will complete the remaining lots within the project site.

Therefore, the project will consist of two Interim Conditions with Unit 1 and Unit 2 (see Figure 8.1 and Figure 8.2, *Interim Condition Basins Maps* in the Appendix). Unit 3 (see Figure 9, *Ultimate Condition Basin Map*) will be the Ultimate Condition for the project site.

The project is extremely steep compared to many projects within the City of Las Vegas based on meeting Summerlin Design Criteria. During the construction phase of the proposed Unit 1, the rough graded-street sections will maintain runoff with velocities exceeding 5 feet per second due to the steep street slopes within the project. A similar hillside project in another jurisdiction utilized a riprap section between the end of the rough-cut street section and the beginning of the pavement within each phase using a D50 of 4-inches and a thickness of 8-inches. **This section utilizes the same concept as a potential mitigation for the potential erosion within the current project and so a similar design will be utilized for the current project using a D50 of 6-inches and Thickness of 12-inches between the end of the rough-cut street section of the beginning of pavement within each phase.**

All pertinent referenced material regarding offsite flows can be found in the Reference section of this study.

III. HYDROLOGIC CRITERIA

A. Method of Analysis

The U.S. Army Corps of Engineers HEC-1 flood hydrograph package was used to determine the peak runoff generated by the 100-year, 6-hour storm event. The HEC-1 computer model can simulate the surface runoff response of a given basin and smaller sub-basins to rainfall. The computed hydrographs from each sub-basin are then combined at the appropriate locations, from which a final discharge hydrograph is obtained. The HEC-1 analysis has been included in the Appendix.

B. Precipitation

The project site is located outside of the McCarran Airport Rainfall Area. The rainfall depths for the 6-hour, 10-year and 100-year storm events were obtained per the *CCRFCD Hydrologic Criteria and Drainage Design Manual (1999), Section 500, Table 501* and are 1.90 inches and 3.39 inches, respectively. However, the *Village 25 Master Study* used a rainfall depth of 3.41 inches for Parcel A. The current HEC-1 will utilize the same rainfall as listed in the *Village 25 Master Study* for Parcel A. Since the site encompasses less than 8-square miles, a Storm Distribution Number three (SDN #3) was used for the HEC-1 model. The referenced Rainfall map from the *Village 25 Master Study* has been provided in the Appendix.

C. Hydrologic Abstractions

The SCS curve number method was used to determine the infiltration rates for the drainage basins. The engineer has furnished a site-specific Custom Soil Resource Report from the FloodView Advanced – Clark County Regional Flood Control Districts website (see Appendix). The entire site lies within Vace-Wechech association (Soils Type 1156) and falls under hydrological soils group D. The soils information was referenced from the *Village 25 Master Study* and has been provided in the Appendix. Please note that we have re-analyzed the onsite hydrology **to match the current lot sizes**, and the ultimate condition CN value for the site used in the HEC-1 run is **lower** than the anticipated CN value for Parcel A in the *Village 25 Master Study*.

D. Basin Area

The basin areas for the offsite drainage basins in this study were determined from the referenced studies. The elevation topography is based on a project specific field survey in conjunction with reference studies within proximity of the site to delineate watersheds tributary to the project site (See Figures 7, 8.1, 8.2, and 9). The HEC-1 parameter calculations are located in the *Hydrologic Parameters Section* of the Appendix of this study.

E. SCS Lag-Time with Time of Concentration

Lag-time, T_L, is defined as the time measured from the centroid of effective rainfall to the peak of the outflow hydrograph. Lag-times for this study were estimated by calculating the drainage basins' time of concentration, T_C. The time of concentration is defined as the time required for runoff to flow from the hydraulically most distant point of a subbasin to the outlet point of the subbasin. The equation for lag-time is: $T_L=0.6T_C$. Standard Form 4 as included in the CCRFCD Manual was utilized to determine the lag times for subbasins modeled. A copy of the lag time computations is included in the Appendix.

IV. MODEL RESULTS

A. Peak Flows

TABLE 1

Flow Summary (Existing Condition)

BASIN ID/CONCENTRATION POINT	DRAINAGE AREA (acres)	Reference	Q_{100} cfs
*V25 Parcel A	21.16	*Prorated from referenced basin OFF3-C*	*56

**basin area and flows pro-rated from the referenced basin OFF3C, V25 Fox Hills Drive Improvement Study, GCW (2019), DS# 5118*

TABLE 2

Flow Summary (Interim/Ultimate Condition)

BASIN ID/CONCENTRATION POINT	DRAINAGE AREA (acres)	Reference	Q_{10} cfs	Q_{100} cfs
DON1	11.67	*HEC-1*	16	37
DON2	3.40	*HEC-1*	5	10
DON3	5.77	*HEC-1*	9	20
DON4	0.32	*HEC-1*	1	1
CP2	--	*HEC-1 (DON2 + DON3)*	14	30
CP1	--	*HEC-1 (DON1 + CP2)*	30	67
*COS-1	*3.48	*V25 Master Study*	--	*9
**ST-FH	**13.14	*V23B Study*	--	**44

*Referenced from the Summerlin Village 25 Master Study (DS#5118) and addenda, GCW (2019)

**Referenced from the approved TDS for the Conceptual Drainage Study for Summerlin Village 23B Upd#3, DS3420, GCW(2013)

B. Street Flow Calculations

Street Flow Criteria

TABLE 5 100-year Street Flow Analysis (Ultimate Condition)						
Street	Section	Flattest Slope (%)	Flow (100 year) (cfs)	Velocity (ft/s)	Flow Depth (ft)	VxD
Vista Balla St.	2	0.56	30.0	2.89	0.57	1.65
Bella Noche St.	1B	1.60	*19	3.44	0.45	1.55
Media Noche St.	1A	0.50	*19	2.33	0.52	1.21
Besito Ave.	3	0.57	20.0	2.76	0.52	1.44
Arrebol Ave.	1C	6.83	37.0	8.13	0.44	3.58
*Q_{100} conservatively assumed to be 50% of basin DON1.						

This project will not discharge any internal flows (except from entrance area) into the adjacent ROWs. All internal flows from the project site will be picked up by a series of drop inlets provided along the internal streets and will be conveyed to an existing 42" RCP stub protruding into the project site from Fox Hills Drive.

C. Finished Floor Analysis

Interior to Subdivision:

A finished floor analysis table depicting the proposed lot FFEs, high side TCs, and correlating street flow depths has been utilized to check that the finished floors for the proposed buildings reside above the following criteria:

- Twice the depth of flow measured from the gutter flowline at the high side of the lot
- 18-inches above the centerline elevation of the street in front of the lot measured from middle of lot.
- Finished floors will be set to 6-inches above the top of curb on any portion of the lot per *CCRFCD Manual Section 1602 304.4.E.1*.
- Finished floor elevation (FFE)s will be set above the EGL at T-intersections.

All FFEs for the proposed buildings within the project site are above the minimum requirements specified above barring several corner conditions with respect to *CCRFCD Manual Section 1602 304.4.E.1*. Please note that screen wall will have two-courses of solid grouting on Lot 62 and Lot 90 as a mitigation for said criteria. In addition, street flow criteria analyses were prepared at all T-intersections and the lots (Lot 16, 24, 104, 108 and 115) have finished floor above the EGL (annotated on the 100-year normal depth calculations in the Hydraulic Calculations Section of the Appendix). A copy of the finished floor table can be found in the Hydraulic Calculations section of this report.

Fox Hills Drive (Exterior Street):

The FFE of lots adjacent to Fox Hills Drive range between **7 feet to 10 feet above the roadway**. The depth of flow along the Fox Hills Drive has been summarized in Table 4. Note that solid grouting of wall will not be required against Fox Hills Drive.

Please note that 1 cfs of 100-yr flow from a small portion of the entrance of this project will discharge into the Fox Hills Drive in the ultimate condition. This additional flow is considered to be negligible and will be picked up by an existing drop inlet in Fox Hills Drive approximately 600 ft downstream from the proposed entrance, and so this additional 1 cfs 100-yr flow will not negatively impact any properties further downstream from the project site. Please note that in the *Village 25 Master Study*, the facilities in Fox Hills Drive were sized to convey an anticipated 81 cfs ultimate-condition-100-yr flow from Parcel A. This project only discharge 68 cfs (including the 1 cfs from the entrance) of total 100-yr flow into the facilities in Fox Hills Drive in the ultimate condition, therefore the downstream facilities are adequately sized to convey all runoff from our project site.

Far Hills Avenue (Exterior Street):

As discussed in the Existing Condition Drainage Description, a half section normal depth calculation using 22 cfs in the 100-year flood event was used to check the FFE for proposed lots adjacent to Far Hills Avenue. FFEs of the proposed lots adjacent to Far Hills Avenue range from **2 to 8 feet above the top of curb** in the roadway barring Lot 27 at the southwest corner of the project site. This lot is approximately 1 feet below the top of curb in Far Hills Avenue at the rear of the lot. The normal depth calculation depicts a depth of flow of 0.46 feet. The finished grade at the face of wall in the common element in between Lot 27 and Far Hills Avenue is more that twice the depth of flow in the roadway, hence Lot 27 meets criteria without solid grouting the perimeter wall.

Lots adjacent to the Cosway along the northern boundary:

The engineer has provided hydraulic cross-sections COS1 and COS2 for the western and the eastern portions of the Cosway, respectively. Please note that the cross-sections for the Cosway is based on preliminary landscaping design. Note that the Cosway landscaping is assumed to done in a manner that no water in the Cosway is allowed to run against the retaining wall on the north side of the project site. Please also note that for all lots along the Cosway with pad elevations below the existing Cosway grade, the wall along the property line will be provided the required solid grouting to ensure that the proposed lots along the Cosway are adequately protected.

Lots adjacent to diversion channel (Ditch #2) along northwest boundary:

The lots adjacent to the diversion channel are below the top of the diversion channel. The channel is riprap lined that there is a multi-stepped wall between the channel and the proposed lots against the northwest boundary line. The channel contains the proposed runoff and necessary freeboard protections, therefore the proposed wall at the property line will not require solid grouting and the finished floors for the proposed lots are adequately protected.

D. Drainage Easements/Storm Drain Hydraulics

Drop Inlet Calculations:

The *FHD Study* and *Village 25 Master Study* show that the runoff generated from outside development is to be collected within the culvert extending into the project site as discussed in *Section 2.C – Existing Condition Drainage Description*. The site's low point (concentration point CP-1) is located at the intersection of the proposed Arrebol Avenue and Vista Balla Street. A storm drain system at this location collects all of the onsite runoff via the proposed drop inlets and conveys said rainoff to an existing 42" RCP in C.E. "H" to match the drainage pattern/discharge point stipulated in both the *FHD Study* and *Village 25 Master Study*. The drop inlet calculations for the proposed drop inlets in the project site have been provided in the Appendix of this study.

Please note that the proposed drop inlets in the project site have been adequately sized to capture all Q_{100} from the site (except runoff from a small portion of the entrance) and therefore the project will not discharge any internal flows into the adjacent streets. Common Element "H" has been graded to allow for emergency overflow into Fox Hills Drive should the drop inlet become clogged.

Headwater Nomograph Calculations:

Nomograph calculations for the proposed storm drain in the proposed internal streets along with the WSPG calculations for the said storm drains has been provided in the Appendix of this report. Please note that the HGL for the 42" RCP storm drain in Fox Hills Drive was provided in the *FHD Study*, and has been highlighted in the Reference section for the *FHD Study*.

IV. CONCLUSIONS

The *Technical Drainage Study for Castellana (aka Summerlin Village 25 – Parcel A)* has been developed in accordance with criteria established in the Clark County Regional Flood Control District Hydrologic Criteria and Drainage Design Manual. The proposed development does not adversely impact any proposed or existing Clark County Regional Flood Control District Master Plan Update facilities.

V. REFERENCES

1. *CCRFCD Hydrologic Criteria and Drainage Design Manual and Addenda*, WRC Engineering, 1999.

2. *2018 Las Vegas Valley Flood Control Master Plan Update,* Atkins.

3. *Flood Insurance Rate Map, Community Panel Number 32003C 2150E, Clark County, Nevada, Federal Emergency Management Agency, effective September 27, 2002.*

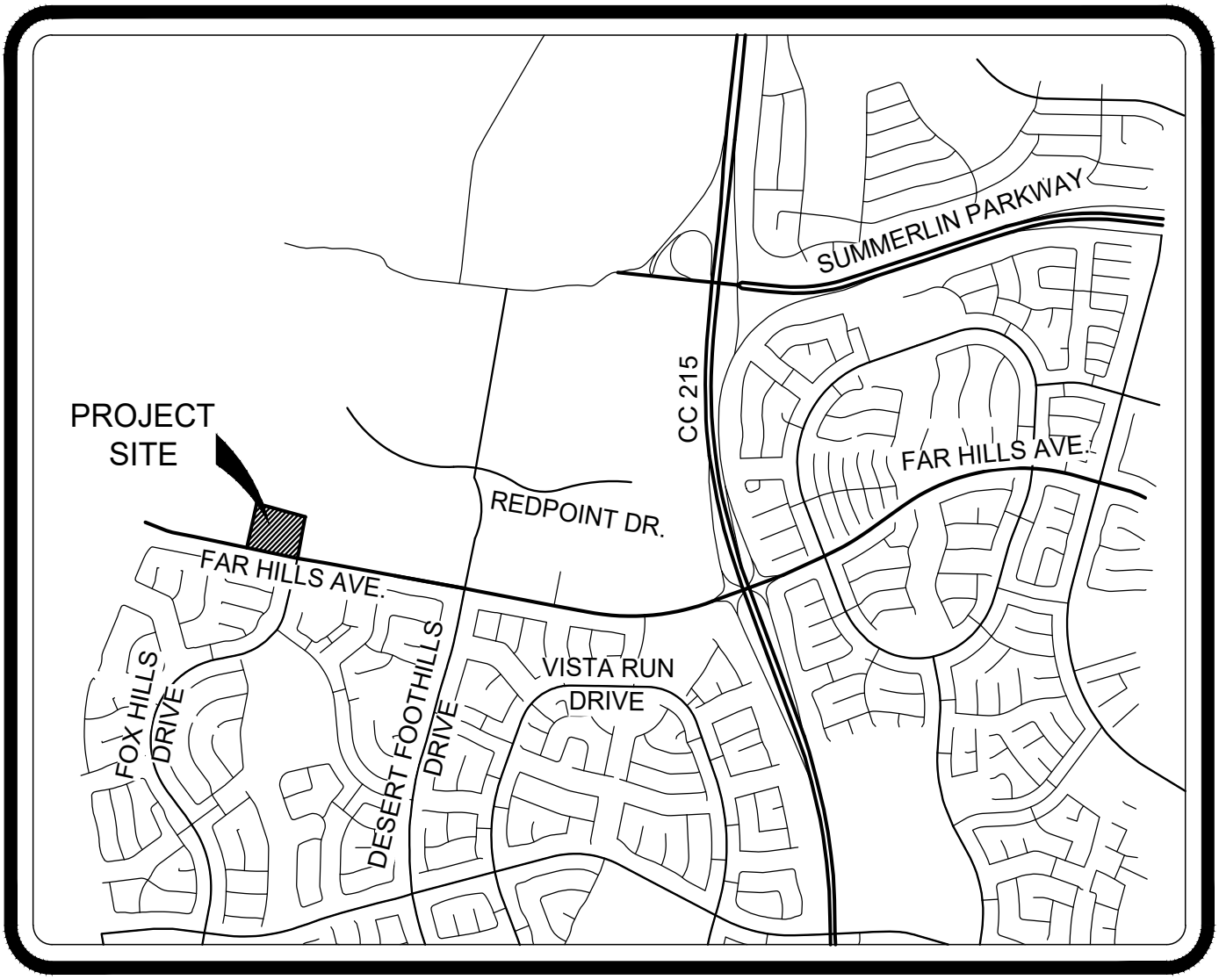
4. *Summerlin V25 - Fox Hill Drive improvements (from Far Hills Avenue to Redpoint Drive), DS#5118, GCW (2019) and addenda.*

5. *Master Conceptual Drainage Study for Summerlin West Village 25, DS#5104, VTN (2019) and Updates.*

6. *Conceptual Drainage Study for Summerlin Village 23B Update #3, DS 3420, GCW (2013).*

7. *2nd Update to the Technical Drainage Study for Summerlin Village 25 - 3435 Reservoir, DS# 2731, GCW 2003.*

APPENDIX



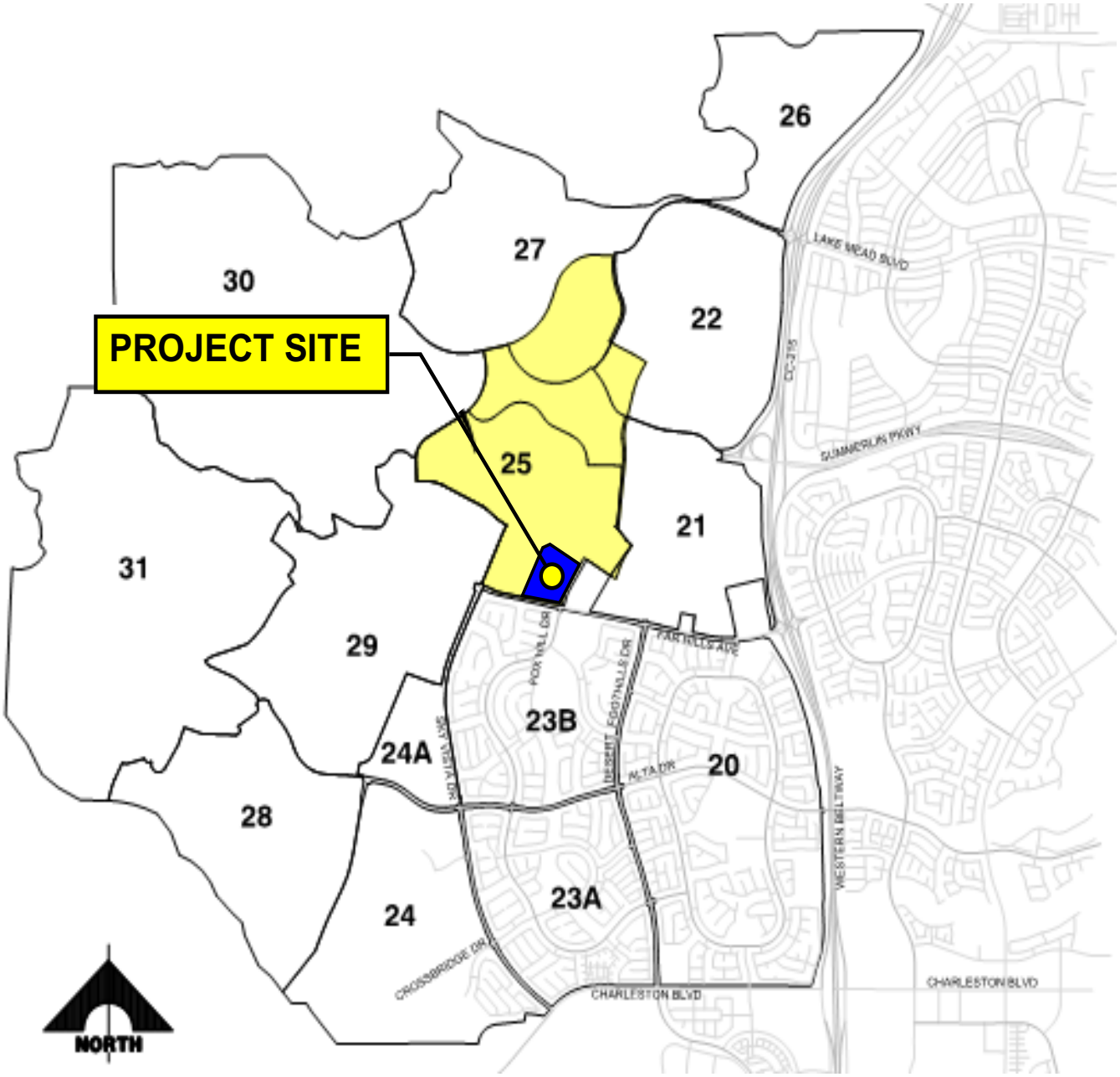
VICINITY MAP

SCALE: NTS

Actus
3283 E. Warm Springs Road Suite 300
Las Vegas, NV 89120
www. Actus-NV.com
(702) 586-9296
Consulting- Planning- Engineering - Surveying

Castellana
(aka Summerlin Village 25 - Parcels A)
VICINITY MAP

DATE	**08/20/2020**
DRAWN	**ALW**
DESIGNED	**ALW**
CHECKED	**DCL**
PROJECT #	**WLH011904**
SHEET NUMBER	**FIGURE 1a**



LOCATION MAP

SCALE: NTS

Actus
3203 E. Warm Springs Road
Suite 400
Las Vegas, NV 89120
www. Actus-NV.com
(702) 586-9296
Consulting- Planning-
Engineering - Surveying

Castellana
(aka Summerlin Village 25 - Parcel A)
LOCATION MAP

DATE	08/20/2020
DRAWN	ALW
DESIGNED	ALW
CHECKED	DCL
PROJECT #	WLH011904
SHEET NUMBER	FIGURE 1b

NOTES

This map is for assessment use only and does NOT represent a survey.

No liability is assumed for the accuracy of the data deliniated herein. Information on roads and other non-assessed parcels may be obtained from the Road Document Listing in the Assessor's Office.

This map is compiled from official records, including surveys and deeds, but only contains the information required for assessment. See the recorded documents for more detailed legal information.

USE THIS SCALE(FEET) WHEN MAP REDUCED FROM 11X17 ORIGINAL

0 100 200 400 600 800

MAP LEGEND

PARCEL BOUNDARY
SUB BOUNDARY
PM/LD BOUNDARY
ROAD EASEMENT
MATCH / LEADER LINE
HISTORIC LOT LINE
HISTORIC SUB BOUNDARY
HISTORIC PM/LD BOUNDARY
SECTION LINE

CONDOMINIUM UNIT
AIR SPACE PCL
RIGHT OF WAY PCL
SUB-SURFACE PCL

001 ROAD PARCEL NUMBER
001 PARCEL NUMER
1.00 ACREAGE
202 PARCEL SUB/SEQ NUMBER
PB 24-45 PLAT RECORDING NUMBER
5 BLOCK NUMBER
5 LOT NUMBER
GL5 GOV. LOT NUMBER

ASSESSOR'S PARCELS - CLARK COUNTY, NV.
Briana Johnson - Assessor

BOOK T20S R59E

127	126	125
136	137	138
165	164	163

Scale: 1" = 200'

SEC. 27

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

Rev: 1/28/2020

MAP N 2 NW 4

8	4	8	4
5	1	5	1
6	2	6	2
7	3	7	3
8	4	8	4
5	1	5	1

137-27-1

CLARK COUNTY NEVADA

208
PT 4
PT 1
PT 137-22-301-004
PM 125-15
PT 137-27-110-002
PT C
PT 137-27-110-001
410
SUMMERLI
SUMMERLIN VILLAGE 25 UNIT 2
811
110
512
002
PT 137-22-410-002
21
PT 29
001
26.55
PT 1
101
001
76
PT C
SUMMERLIN VILLAGE 25 UNIT 2
PT 137-27-110-00
PM 125-15
SKY VISTA DR
003
25
24
PT C
002
84.99
004
24
PT COS-2
PT 137-27-512-002
PT B
PB 160-86
006
COS-1
005
PROJECT SITE
PT 137-27-215-002
PT 21
PT 22
PT D
PT 137-27-215-001
PT 137-27-617-001
PT A
PT A
215
617
SUM
001
27.16

FIGURE 2a TAX DIST 200

NOTES

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USE THIS SCALE(FEET) WHEN MAP REDUCED FROM 11X17 ORIGINAL

0 100 200 400 600 800

MAP LEGEND

ASSESSOR'S PARCELS - CLARK COUNTY, NV.
Briana Johnson - Assessor

- PARCEL BOUNDARY
- SUB BOUNDARY
- PM/LD BOUNDARY
- ROAD EASEMENT
- MATCH / LEADER LINE
- HISTORIC LOT LINE
- HISTORIC SUB BOUNDARY
- HISTORIC PM/LD BOUNDARY
- SECTION LINE
- CONDOMINIUM UNIT
- AIR SPACE PCL
- RIGHT OF WAY PCL
- SUB-SURFACE PCL
- 001 ROAD PARCEL NUMBER
- 001 PARCEL NUMER
- 1.00 ACREAGE
- 202 PARCEL SUB/SEQ NUMBER
- PB 24-45 PLAT RECORDING NUMBER
- 5 BLOCK NUMBER
- 5 LOT NUMBER
- GL5 GOV. LOT NUMBER

BOOK T20S R59E

127	126	125
136	137	138
165	164	163

Scale: 1" = 200'

SEC. 27

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

Rev: 1/28/2020

MAP S 2 NW 4

8	4	8	4
5	1	5	1
6	2	6	2
7	3	7	3
8	4	8	4
5	1	5	1

137-27-2

CLARK COUNTY NEVADA

PT 4 PT D PT A PT A 215 617 SUM 001 27.16 001 21.16 PROJECT SITE PT 137-27-617-001 PT A PT A PT 137-27-215-005 PT 18 005 PT 3 001 0.70 201 PT 137-27-201-001 PT 3 PT 18 610 004 CL 211 001 PT 22 PT 21 002 003 SKY VISTA DR 201.46 201.46 24 53.84 66.40 106.98 003 20 66.40 24 137.44 PB 158-51 002 001 004 19 587.23 FAR HILLS AVE PM 123-8 560.72 PB 145-95 CL 14 CL 13 CL 12 212 DORADA COAST AVE 95-001 PB 149-70 PB 149-75 95-003 ATTIVA AVE PT K 213 SUMMERLIN VILLAGE 23B PARCEL Z-ALLEGRA-PHASE 2 PB 149-75 FESTIVO AVE 95-008 SUMMERLIN VILLAGE 25 UNIT 2 PB 160-86 PM 125-15 PT 137-22-101-003 PT 4 PT 137-34-120-005 PT 14 CL 15 310 MONTECITO AT SUMMERLIN PB 158-51 210 CL 14 214 15 011 SKY VISTA DR PB 145-95 LOS ALTOS PHASE 2 95-002 CANTABRIA COAST ST NAVARRA CANYON CT CASTILLA RAIN AVE MENORCA ISLAND CT BASQUE COAST ST COLORATURA ST TARRAGONA BREEZE AVE ESERT FOOTHILLS DR 598.13 491.92

FIGURE 2b TAX DIST 200

NOTES

This map is for assessment use only and does NOT represent a survey.

No liability is assumed for the accuracy of the data deliniated herein. Information on roads and other non-assessed parcels may be obtained from the Road Document Listing in the Assessor's Office.

This map is compiled from official records, including surveys and deeds, but only contains the information required for assessment. See the recorded documents for more detailed legal information.

USE THIS SCALE(FEET) WHEN MAP REDUCED FROM 11X17 ORIGINAL

0 100 200 400 600 800

MAP LEGEND

PARCEL BOUNDARY
SUB BOUNDARY
PM/LD BOUNDARY
ROAD EASEMENT
MATCH / LEADER LINE
HISTORIC LOT LINE
HISTORIC SUB BOUNDARY
HISTORIC PM/LD BOUNDARY
SECTION LINE

CONDOMINIUM UNIT
AIR SPACE PCL
RIGHT OF WAY PCL
SUB-SURFACE PCL

001 ROAD PARCEL NUMBER
001 PARCEL NUMER
1.00 ACREAGE
202 PARCEL SUB/SEQ NUMBER
PB 24-45 PLAT RECORDING NUMBER
5 BLOCK NUMBER
5 LOT NUMBER
GL5 GOV. LOT NUMBER

ASSESSOR'S PARCELS - CLARK COUNTY, NV.
Briana Johnson - Assessor

BOOK T20S R59E

127	126	125
136	137	138
165	164	163

Scale: 1" = 200'

SEC. 27

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

Rev: 6/16/2020

MAP N 2 NE 4

8	4	8	4
5	1	5	1
6	2	6	2
7	3	7	3
8	4	8	4
5	1	5	1

137-27-5

CLARK COUNTY NEVADA

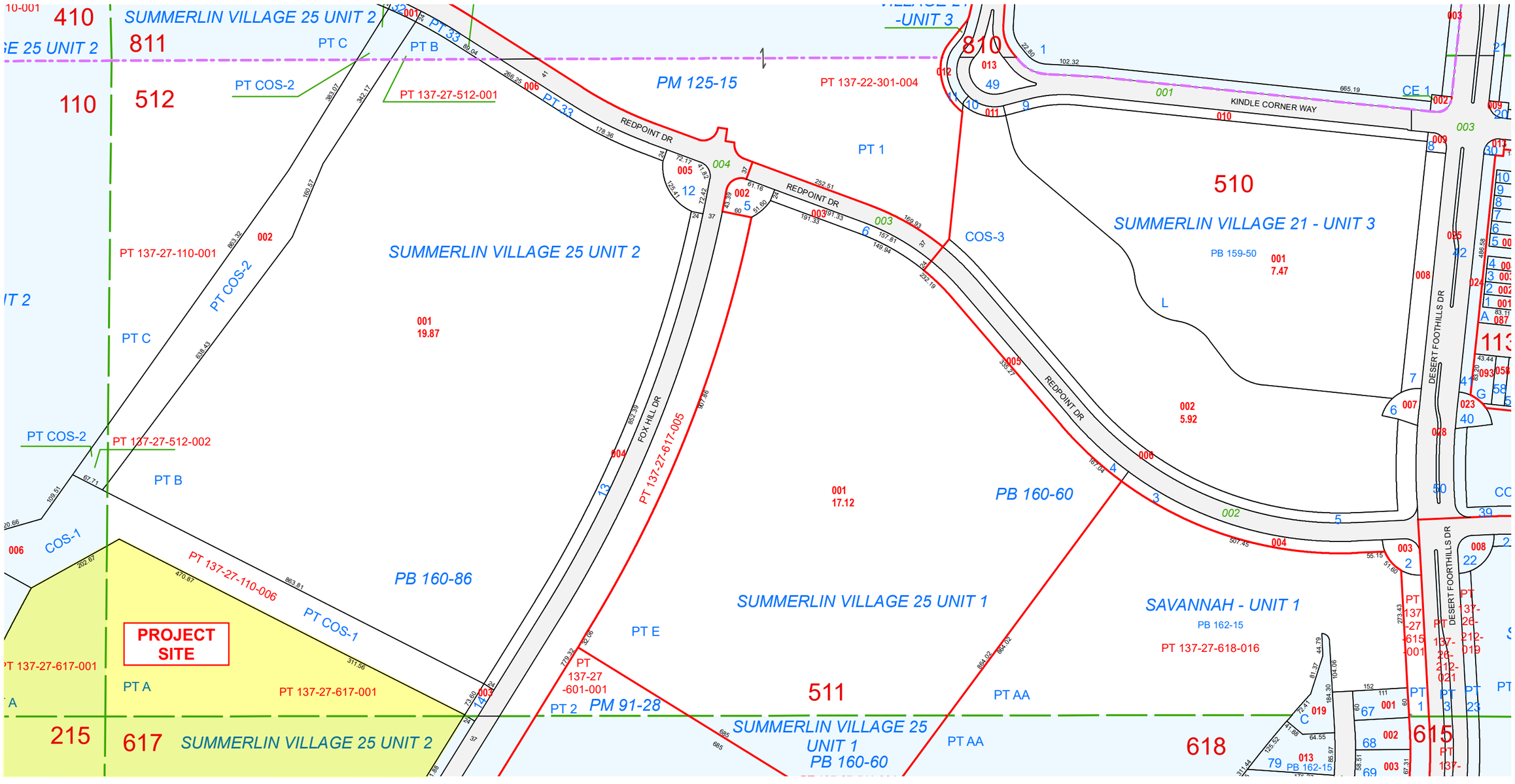


FIGURE 2c TAX DIST 200

NOTES

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USE THIS SCALE(FEET) WHEN MAP REDUCED FROM 11X17 ORIGINAL

0 100 200 400 600 800

MAP LEGEND

- PARCEL BOUNDARY
- SUB BOUNDARY
- PM/LD BOUNDARY
- ROAD EASEMENT
- MATCH / LEADER LINE
- HISTORIC LOT LINE
- HISTORIC SUB BOUNDARY
- HISTORIC PM/LD BOUNDARY
- SECTION LINE
- CONDOMINIUM UNIT
- AIR SPACE PCL
- RIGHT OF WAY PCL
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- 001 ROAD PARCEL NUMBER
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- 5 BLOCK NUMBER
- 5 LOT NUMBER
- GL5 GOV. LOT NUMBER

ASSESSOR'S PARCELS - CLARK COUNTY, NV.
Briana Johnson - Assessor

BOOK T20S R59E

127	126	125
136	137	138
165	164	163

Scale: 1" = 200'

SEC. 27

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

Rev: 7/24/2020

MAP S 2 NE 4

8	4	8	4
5	1	5	1
6	2	6	2
7	3	7	3
8	4	8	4
5	1	5	1

137-27-6

CLARK COUNTY NEVADA

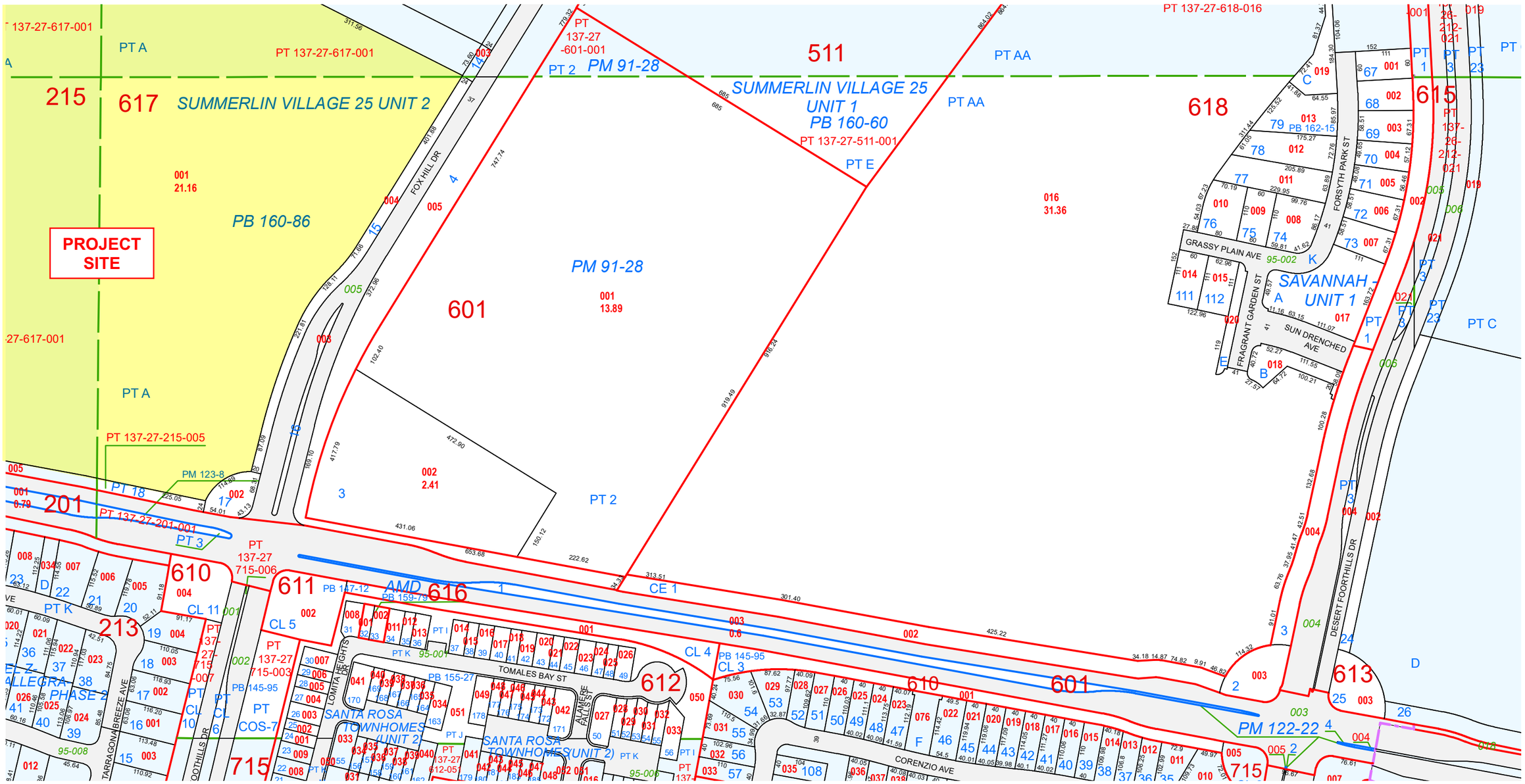


FIGURE 2d TAX DIST 200

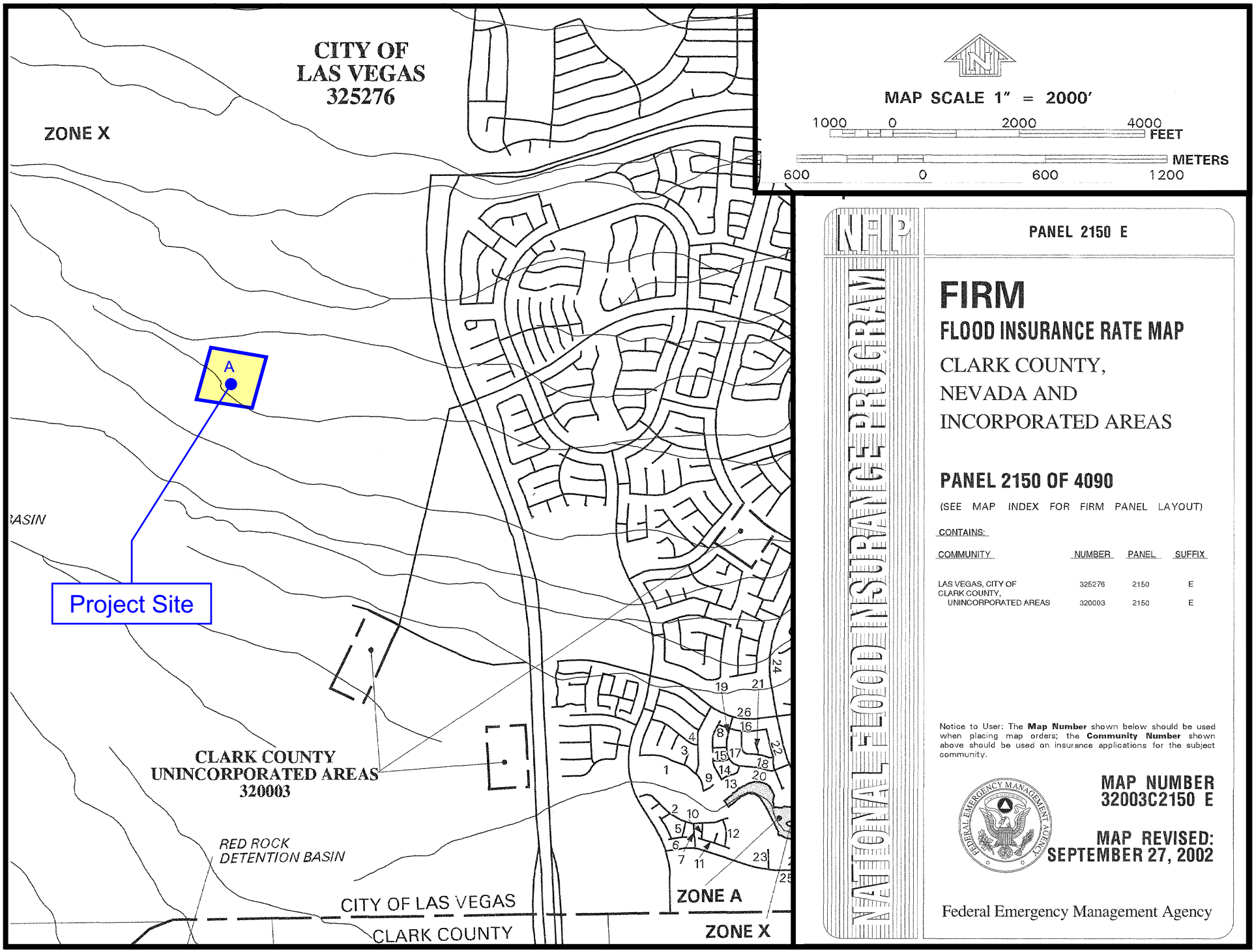

CITY OF
LAS VEGAS
325276
ZONE X
A
Project Site
CLARK COUNTY
UNINCORPORATED AREAS
320003
RED ROCK
DETENTION BASIN
CITY OF LAS VEGAS
CLARK COUNTY
ZONE A
ZONE X
MAP SCALE 1" = 2000'
1000 0 2000 4000
FEET
600 0 600 1200
METERS
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 2150 E
FIRM
FLOOD INSURANCE RATE MAP
CLARK COUNTY,
NEVADA AND
INCORPORATED AREAS
PANEL 2150 OF 4090
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS:
COMMUNITY NUMBER PANEL SUFFIX
LAS VEGAS, CITY OF 325276 2150 E
CLARK COUNTY,
UNINCORPORATED AREAS 320003 2150 E
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.
MAP NUMBER
32003C2150 E
MAP REVISED:
SEPTEMBER 27, 2002
Federal Emergency Management Agency

FIGURE 3

ID / Mile	Status	Facility Description	Length (ft.)	Flow (cfs)	HEC-1 Node	HEC-1 Model	Tributary Area (sq.mi.)	Channel Slope (%) **
APAD		**ANGEL PARK - ALTA DRIVE BRANCH**						
0203	E	2: 7' X 5.5' RCB	1104	2200	CSWAA-1	GOW3A	6.95	5.28
0225	E	2: 7' X 5.5' RCB OUTLET	360	2137	SUM5DB	GOW3A	6.73	3.40
APBE		**ANGEL PARK - BELTWAY BRANCH**						
0022	E	CONC CHNL 20'W 7'D 2:1 SS	1556	3366	CCSWFH15	GOW3A	3.39	1.81
0051	E	CONC CHNL 20'W 7'D 2:1 SS	1583	3366	CCSWFH15	GOW3A	3.39	2.77
0081	E	8' X 8' RCBC @ FAR HILLS	777	1048	CSWFH-15	GOW3A	0.59	2.32
0094	E	CONC CHNL 10'W 5'D 2:1 SS	1465	1048	CSWFH-15	GOW3A	0.59	1.88
0122	E	CONC CHNL 10'W 4'D 2:1 SS	1685	1048	CSWFH-15	GOW3A	0.59	0.80
0154	P0	8' X 6' RCB	5012	781	CSWFH-12	GOW3A	0.41	1.30
0249	P0	6' X 5' RCB	2858	606	CSWFH-11	GOW3A	0.31	3.00
APCH		**ANGEL PARK - CARRIAGE HILL BRANCH**						
0000	E	8' X 6' RCB	152	399	CSWFH-14	GOW3A	0.21	0.87
0003	P0	72" RCP	1685	399	CSWFH-14	GOW3A	0.21	2.00
0031	P0	60" RCP	2008	206	SWFH-13	GOW3A	0.10	1.38
APD2		**ANGEL PARK - DESERT FOOTHILLS 2 BRANCH**						
0002	E	7' X 6' RCB	883	674	SWAA-2	GOW3A	0.68	1.08
APDF		**ANGEL PARK - DESERT FOOTHILLS BRANCH**						
0000	P0	10' X 6' RCB	1788	1428	CSWFH-9	GOW3B	0.80	3.55
0026	P0	8' X 6' RCB	1813	968	CSWFH-8	GOW3A	1.80	2.00
0073	P0	6' X 4' RCB	1922	486	CSWFH-4	GOW3A	1.52	4.40
0123	P0	42" RCP	1076	141	GPDB	GOW3A	1.29	6.00
0125	P0	130 AC-FT GRAND PARK DETENTION BASIN		1543	CSWFH-3	GOW3A	1.29	
0127	P0	6' X 6' RCB	2977	853	SWFH-1	GOW3A	0.69	3.80
0128	P0	5' X 4' RCB	2197	509	SWFH-2	GOW3A	0.37	5.70
APFH		**ANGEL PARK - FAR HILLS BRANCH**						
0000	E	2: 8' X 8' RCB	1070	2494	CCSWFH14	GOW3B	1.51	3.50
0019	E	2: 8' X 8' RCB	250	2149	CCSWFH-9	GOW3B	1.30	4.19
0024	E	16' X 8' RCAP	1951	2149	CCSWFH-9	GOW3B	1.30	5.10
0061	E	8' X 6' RCB	1435	839	CSWFH-7	GOW3A	0.50	2.00
0089	E	8' X 6' RCB	2946	839	CSWFH-7	GOW3A	0.50	2.00
0144	P0	5' X 4' RCB	2497	456	SWFH-6	GOW3A	0.28	5.50
APM5		**DETENTION BASIN #5**						
0000	E	384 AC-FT DETENTION BASIN #5		6856	SUM5IN	GOW3A	6.73	
0008	P0	CONC CHNL 50'W 4.5'D 2:1 SS	2102	3634	CCDB54-7	GOW3A	4.13	5.20
0009	P0	CONC CHNL 50'W 4'D 2:1 SS	4180	3495	CDB55-7	GOW3A	2.60	5.80
0047	E	DIVERSION BERM WITH GABION BANK PROTECTION	1000	3634	CCDB54-7	GOW3A	4.13	1.30
0056	P0	CONC CHNL 80'W 4'D 2:1 SS	264	3634	CCDB54-7	GOW3A	4.13	1.30
0057	P0	CONC CHNL 50'W 3'D 2:1 SS	9922	1664	CDB54-4	GOW3A	0.81	6.80
0059	P0	CONC CHNL 100'W 3'D 2:1 SS	9075	2606	CDB54-7	GOW3A	3.31	7.00
0212	P0	CONC CHNL 30'W 3'D 2:1 SS	6695	1092	DB55-1	GOW3A	0.64	7.50
0213	P0	CONC CHNL 50'W 3'D 2:1 SS	6522	1729	CDB55-5	GOW3A	1.30	7.30
APSP		**ANGEL PARK - SUMMERLIN PARKWAY**						
0183	E	CONC CHNL 10'W 6'D 2:1 SS	1680	884	C11B-1	GOW3A	0.84	1.70
GOB3		**GOWAN LONE MOUNTAIN SYST. 3 BELTWAY**						
0000	E	66" RCP	1370	341	SV22-1	GOW3A	0.18	4.50
GOBE		**GOWAN LONE MOUNTAIN SYST. BELTWAY**						
0000	E	20' X 10' RCBC @ ACCESS RD	30	1044	CSV22	GOW3A	0.67	5.67
0001	E	CONC CHNL 20'W 5'D 2:1 SS	1100	1044	CSV22	GOW3A	0.67	6.50
0021	E	CONC CHNL 11'W 6.8'D 0:1 SS	2143	1044	CSV22	GOW3A	0.67	6.50
0058	E	CONC CHNL 15'W 7.5'D 0:1 SS	487	1044	CSV22	GOW3A	0.67	3.93
0065	E	CONC CHNL 17'W 7.5'D 0:1 SS	844	1044	CSV22	GOW3A	0.67	0.76
0088	E	2: 10' X 9' RCBC @ LAKE MEAD	400	782	SV22-2	GOW3A	0.49	0.50
0096	E	CONC CHNL 20'W 9'D 2:1 SS	627	782	SV22-2	GOW3A	0.49	0.50
0108	E	CONC CHNL 20'W 6'D 2:1 SS	1021	782	SV22-2	GOW3A	0.49	0.50
0127	E	CONC CHNL 20'W 6'D 2:1 SS	638	782	SV22-2	GOW3A	0.49	0.50
0139	E	CONC CHNL 10'W 5.5'D 2:1 SS	1500	782	SV22-2	GOW3A	0.49	1.02
GOL3		**GOWAN LONE MOUNTAIN SYSTEM-BRANCH 3**						
0010	E	CONC CHNL 20'W 10'D 0:1 SS	3037	3277	CRCLMT1R	GOW3A	7.31	2.78
0068	E	TRANSITION STRUCTURE	100	3277	CRCLMT1R	GOW3A	7.31	3.50
0070	E	20' X 6' RCBC @ CLIFF SHADOWS	350	1271	CRCSV22	GOW3A	4.99	2.44
0077	E	CONC CHNL 20'W 6'D 0:1 SS	1229	1271	CRCSV22	GOW3A	4.99	6.11

ID / Mile	Status	Facility Description	Length (ft.)	Flow (cfs)	HEC-1 Node	HEC-1 Model	Tributary Area (sq.mi.)	Channel Slope (%) **
GOL3		**GOWAN LONE MOUNTAIN SYSTEM-BRANCH 3**						
0100	E	CONC CHNL 20'W 10'D 0:1 SS	200	1271	CRCSV22	GOW3A	4.99	5.67
0115	E	96" RCP OUTLET	670	666	DET26	GOW3A	4.31	0.29
0128	E	305 AC-FT VILLAGE 26 DETENTION BASIN		3615	VIL26IN	GOW3A	4.31	
0137	E	CONC CHNL 20'W 7.5'D 0:1 SS	2720	3615	VIL26IN	GOW3A	4.31	6.50
0188	E	CONC CHNL 20'W 8'D 0:1 SS	563	3615	VIL26IN	GOW3A	4.31	3.91
0197	E	14' X 14' RCB	890	3615	VIL26IN	GOW3A	4.31	0.88
0214	E	Dual 10' X 14' RCB	124	3615	VIL26IN	GOW3A	4.31	0.57
0216	P0	CONC CHNL 50'W 4'D 2:1 SS	4060	3524	CSV26-1	GOW3A	4.02	6.08
0289	P0	CONC CHNL 50'W 3.5'D 2:1 SS	6215	2281	30	GOW3A	2.44	7.95
0290	E	NATURAL WASH 363'W	4850	1410	SV26-1	GOW3A	1.59	22.50
0370	E	NATURAL WASH 450'W	7000	2281	30	GOW3A	2.44	8.50
GOL4		**GOWAN LONE MOUNTAIN SYSTEM-BRANCH 4**						
0000	E	14' X 8' RCB	554	2243	CLMT1R	GOW3A	2.33	2.50
0010	E	2: 9' X 8' RCB	820	2243	CLMT1R	GOW3A	2.33	4.74
0025	E	SOIL CEMENT CHNL 60'W 8'D 3-4:1 SS	320	2243	CLMT1R	GOW3A	2.33	2.00
0026	E	SOIL CEMENT CHNL 42'W 6'D 3-4:1 SS	700	2243	CLMT1R	GOW3A	2.33	1.00

*The HEC-1 node shown identifies the controlling concentration point for the associated facility and is located upstream of this facility due to decreasing peak flow with increasing tributary area caused by storm distribution transitions, depth area reduction factors, or attenuation of flow from routing.
**As-built or design slopes were used when available. All other slopes are based on existing topography. The user should verify the facility slope listed prior to performing any facility specific analysis.
^ For parallel facilities, the existing facility flow equals its normal depth capacity, and the proposed parallel facility flow equals the remaining flow (i.e. HEC-1 Node flow = existing facility normal depth capacity + proposed parallel facility flow).

REGIONAL FLOOD CONTROL DISTRICT

2018 LAS VEGAS VALLEY FLOOD CONTROL MASTER PLAN UPDATE

FACILITY INVENTORY FIGURE F-22

LEGEND

ID (Facility Identifier) AABB
Parent Stream Name
Stream Name
Mile 0000
Distance Above Confluence with Parent Stream (Miles)
Miles in Hundredths

Existing Facility.....E
Proposed or Modified Facility.....P
Contingency Level
Category A.....P
Category B.....P0

Bottom Width..... W
Depth..... D
Side Slope, H:V..... SS

Construction Features

Cast in Place Concrete Pipe	CIPCP	Reinforced Concrete Arch Culvert	RCAC
Corrugated Metal Arch Pipe Culvert	CMAP	Reinforced Concrete Box	RCB
Corrugated Metal Pipe Culvert	CMPC	Reinforced Concrete Box Culvert	RCBC
High Density Polyethylene	HDPE	Reinforced Concrete Pipe	RCP
Horizontal Elliptical Reinforced Concrete Pipe	HERCP	Reinforced Concrete Pipe Culvert	RCPC
Reinforced Concrete Arch Pipe	RCAP	Storm Sewer Pipe	SSP

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Louis Berger

FIGURE 4

REGIONAL FLOOD CONTROL DISTRICT

2018
LAS VEGAS VALLEY
FLOOD CONTROL
MASTER PLAN UPDATE

FIGURE F-22
FLOOD CONTROL FACILITIES

LEGEND

- Ultimate Development Boundary
- Existing Facilities
- Category A Proposed Facilities
- Category B Proposed Facilities
- Local Existing Facilities
- Detention Basin
- Culvert or Bridge Crossing
- Stormdrain
- Lined Channel
- Unlined Channel
- Levee/Dike
- Natural Wash/Floodway
- ID-Mile Separator

Remove & Replace/Parallel Facilities

Category A	Category B
Channel	Channel
Stormdrain	Stormdrain
Crossing	Crossing

FIGURE 5

N

0 500 1,000 2,000 3,000
Feet

Scale: 1 inch = 2,000 feet

AerialSource:Esri World Imagery 2017

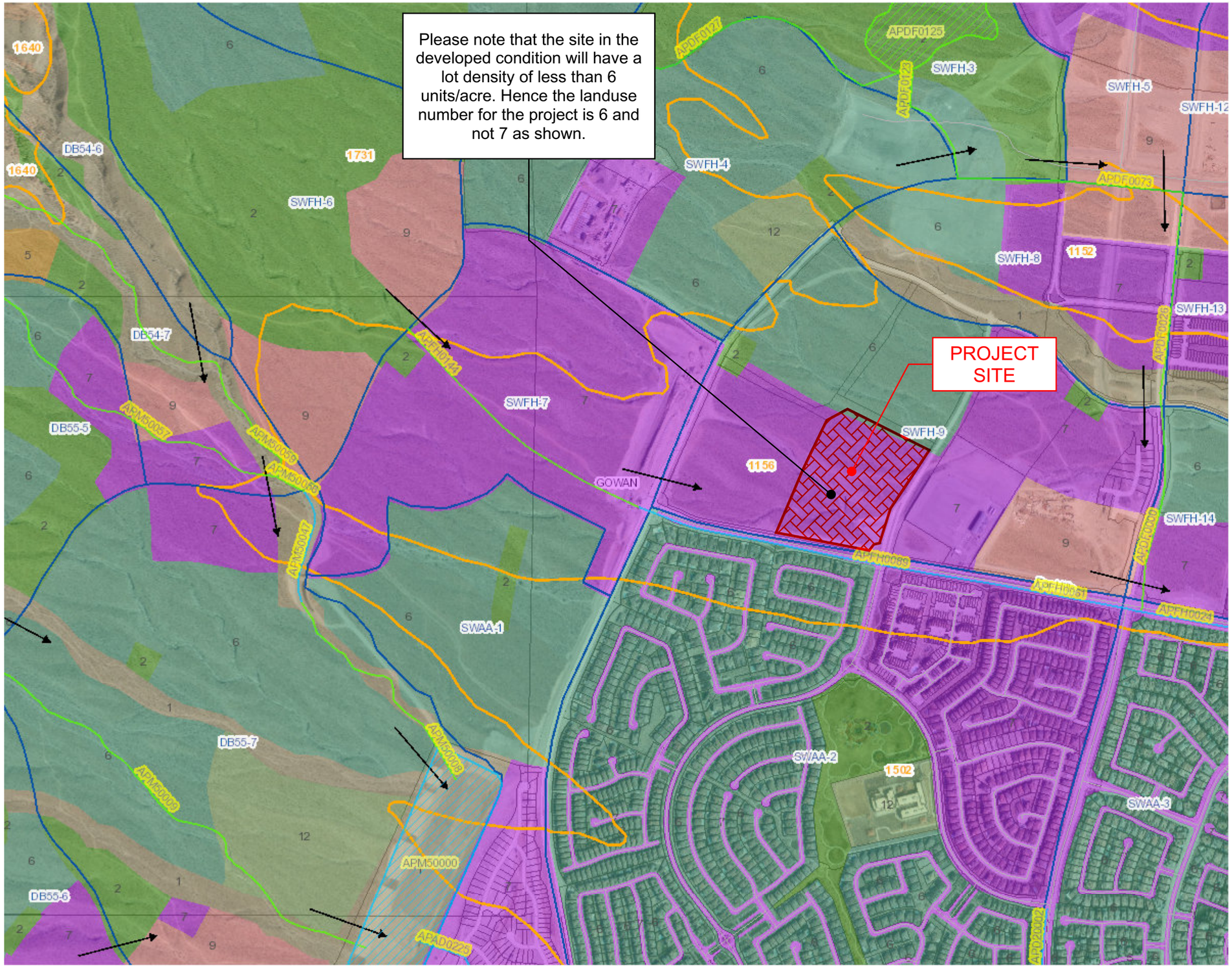
US95 I-15 CC-215 I-215

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54

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Louis Berger

FIGURE 6: HYDROLOGIC BASINS MAP (A PORTION OF THE 2018 LVVWD MPU FIGURE W4 - GOWAN WATERSHED)



Legend

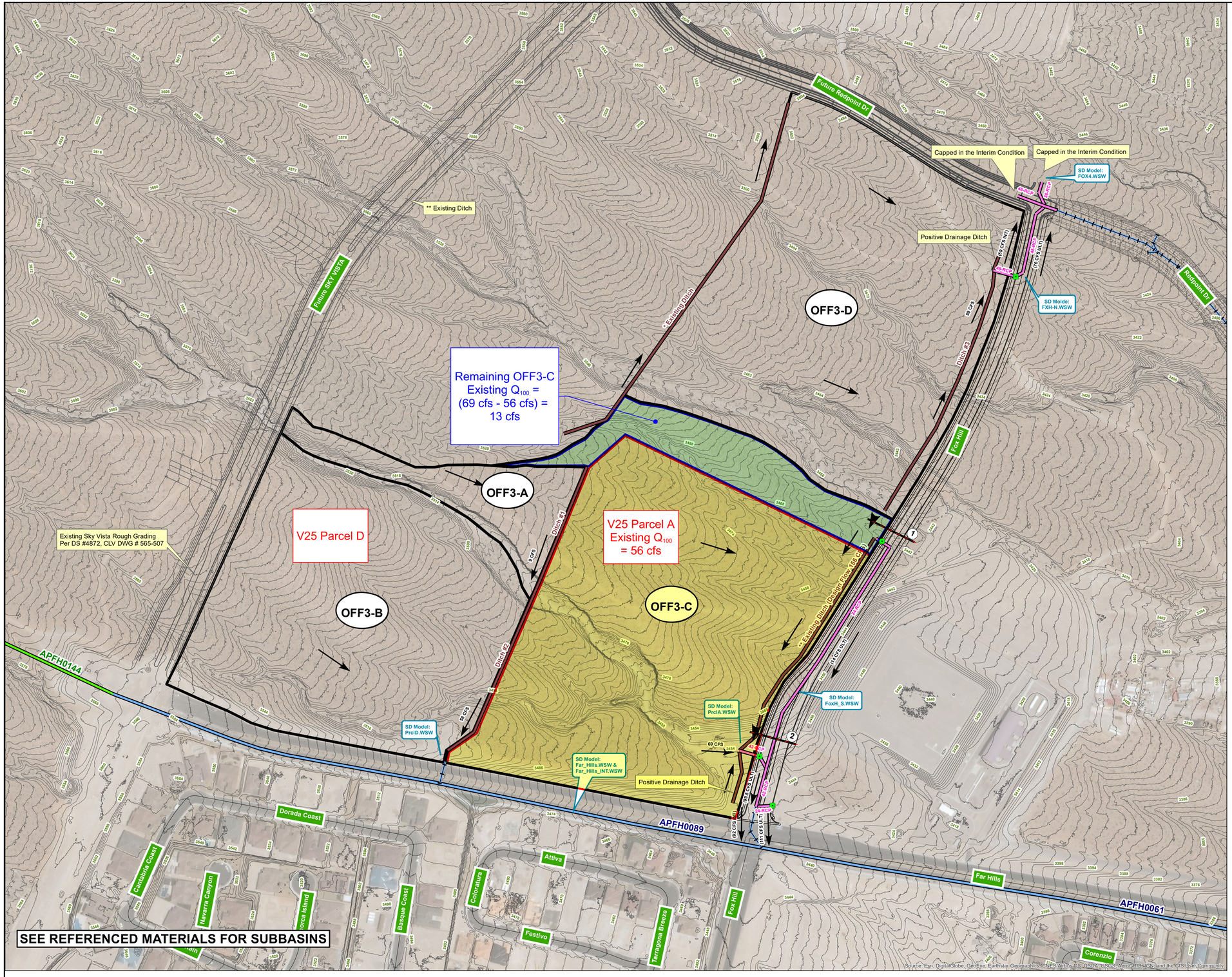
- Flow Arrows
- NodeID flow(cfs) — Concentration Points
- Existing Facilities
- Category A Proposed Facilities
- Category B Proposed Facilities
- Ultimate Development Boundary
- Watershed
- BasinID — Subbasins
- MUSYM — Soils
- 1: Undeveloped Land, Open desert
- 2: Parks, Golf Courses
- 3: Rural, 0.5-1 units per acre (uses 1 unit/acre)
- 4: Low-Density Residential, 1-2 units per acre (uses 2 units/acre)
- 5: Medium-Density Residential, 2-4 units per acre (uses 3 units/acre)
- 6: High-Density Residential, 4-8 units per acre (uses 6 units/acre)
- 7: Public Facility and Residential, 8-12 units/acre
- 8: Very High-Density Residential, 12 units/acre or more
- 9: Commercial, Retail, Casino, High Rise Condominiums
- 10: Light Industrial
- 11: Heavy Industrial
- 12: Schools
- 13: Lakes
- SFHA Zone AE
- SFHA Zone A
- SFHA Zone AO
- Zone X (Shaded)

1 inch = 833 feet

N

0 415 830 1,660 Feet

REGIONAL FLOOD CONTROL DISTRICT



NORTH

150 0 150 300 Feet

1 in = 150 ft

Legend

- Drop Inlet
- Cross Section
- Proposed SD
- Flow Arrow
- Ditches
- Existing SD

CCRFCD_Facilities

STATUS

- COM
- CON
- PRO
- TN1
- TN2
- Interim Subbasins
- 2-ft Contours 2016

(XX CFS) SD Flowrate
XX CFS Surface Flowrate

INTERIM CONDITIONS PRORATED FLOW SUMMARY

Basins		
Subbasin ID	Q_{100} (cfs)	Area (acres)
OFF3	390	146.86
Referenced from Desert Foothills Study		
Prorated Subbasins		
Subbasin ID	Q_{100} (cfs)	Area (acres)	Reference Subbasin
OFF3-A	9	3.52	OFF3
OFF3-B	49	18.29	OFF3
OFF3-C	69	25.98	OFF3
OFF3-D	59	22.35	OFF3
V25 Parcel A	56	21.16	OFF3-C

INTERIM CONDITIONS 100-YEAR DITCH CHARACTERISTICS

Section	Slope (%)	Q_{100} (cfs)	Depth of flow (ft)	Left Side Slope (H:V)	Right Side Slope (H:V)	Velocity (ft/s)	Bottom Width (ft)
Ditch #1	0.6	9	0.53	3.0	3.0	2.58	5
Ditch #2	0.6	58	1.42	3.0	3.0	4.42	5
Ditch #3	0.5	59	1.50	3.0	3.0	4.15	5

100-YEAR FLOW CHARACTERISTICS ULTIMATE CONDITIONS

Cross Section	Slope (%)	Q_{100} (cfs)	Depth (ft) / HW Elevation	Velocity (ft/s)	D*V	NOTE
(1)	0.5	11.5	0.56	2.6	1.4	Half Street - East & West
(1)	0.5	6.5	0.49	2.1	1.0	West Side - After the DI
(2)	0.4	11.5	0.57	2.4	1.4	East Side - Before the DI

NOTE:

SUBBASINS ARE PRORATED BASED ON BASIN DELINEATION REFERENCED FROM THE DESERT FOOTHILLS STUDY

*** Existing Ditch Per V25 Redpoint Study**

**** Existing Ditch Per V21 Redpoint Study**

DATE:
GCW APP
DATE
AGEN APP
DATE
DESCRIPTION
REV DATE

PROJECT NO. 62025-201
DESIGN:
DRAWN:
CHECK:
PLOT DATE: 03/27/2019
PLOT TIME: 10:27:25 AM

GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

F:\Projects\600\62025-201\Division\Fcst\Figures\GIS\Fig5.mxd
rfedalat

THE HOWARD HUGHES COMPANY, LLC

VILLAGE 25 FOX HILL DRIVE IMPROVEMENTS
FAR HILLS AVENUE TO REDPOINT DRIVE

FIGURE 7 - EXISTING CONDITION BASINS MAP
~~INTERIM CONDITION DRAINAGE MAP~~

DRAWING
~~FIG5~~
1 OF 1 SHTS

N

SCALE: 1"= 70'

70 35 0 70

DRAINAGE LEGEND

XON1 / XXX	BASIN IDENTIFICATION BASIN AREA (ACRES)
	BASIN BOUNDARY
●C1	CONCENTRATION POINT
	FLOW PATH
A — A	CROSS SECTION
(XX/XXX)	REFERENCE FLOW (CFS)

*NOTE THE TDS FOR THIS PARCEL IS CURRENTLY UNDER REVIEW, BUT WILL MATCH THE DRAINAGE PATTERN ESTABLISHED IN THE *VILLAGE 25 MASTER STUDY*. HENCE, DEVELOPMENT OF THIS PARCEL WILL NOT ALTER THE OVERALL DRAINAGE FOR OUR PROJECT SITE.

TABLE 2
Flow Summary (Interim/Ultimate Condition)

BASIN ID/CONCENTRATION POINT	DRAINAGE AREA (acres)	Reference	Q_{10} cfs	Q_{100} cfs
DON1	11.67	*HEC-1*	16	37
DON2	3.40	*HEC-1*	5	10
DON3	5.77	*HEC-1*	9	20
DON4	0.32	*HEC-1*	1	1
CP2	--	*HEC-1 (DON2 + DON3)*	14	30
CP1	--	*HEC-1 (DON1 + CP2)*	30	67
*COS-1	*3.48	*V25 Master Study*	--	*9
**ST-FH	**13.14	*V23B Study*	--	**44

*Referenced from the Summerlin Village 25 Master Study (DS# 5104) and addenda, VTN (2019)

**Referenced from the approved TDS for the Conceptual Drainage Study for Summerlin Village 23B Upd#3, DS3420, GCW(2013)

TABLE 3
Hydraulic Calculations (Interim/Ultimate Condition)

Easement/Swale	Section	Slope (%)	Flow (100 year) (cfs)	Velocity (ft/s)	Flow Depth (ft)	VxD
Cosway	Cos1	4.75	*9.0	4.23	0.37	1.57
Cosway	Cos2	4.00	*9.0	4.34	0.44	1.91

*referenced Q_{100} for basin COS-1, *Village 25 Master Study , DS# 5104* .

TABLE 4
100-year Exterior Street Flow Analysis (Ultimate Condition)

Street	Section	Slope (%)	Flow (100 year) (cfs)	Velocity (ft/s)	Flow Depth (ft)	VxD
Far Hills Avenue (Half St.)	*FH1	7.70	*22	7.93	0.46	3.65
Far Hills Avenue (Half St.)	*FH2	3.00	*22	5.49	0.53	2.91
Fox Hills Drive (Half St.)	FOX	**0.5	7.5	1.80	0.43	0.77
Fox Hills Drive (Half St.)	**1	**0.5	**6.5	2.09	0.49	1.02

*Flow referenced from the approved TDS for the Conceptual Drainage Study of Summerlin Village 23B Update#3, DS#3420.

**Referenced from the approved FHD Improvement Study, DS#5118.

TABLE 5a
100-year Street Flow Analysis (Ultimate Condition)

Street	Section	Flattest Slope (%)	Flow (100 year) (cfs)	Velocity (ft/s)	Flow Depth (ft)	VxD
Vista Balla St.	2	0.56	30.0	2.89	0.57	1.65
Arrebol Ave.	1C	6.83	37.0	8.13	0.44	3.58

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FIGURE 8.1 - INTERIM CONDITION BASINS MAP
CASTELLANA - UNIT 1
WILLIAM LYON HOMES
CITY OF LAS VEGAS

BY	DESCRIPTION	DATE

DATE	8-20-2020
DRAWN	Ro. Po.
DESIGNED	ALH
CHECKED	DCL
PROJECT #	WLH011904
SHEET TITLE	FIG 8.1
SHEET NUMBER	1

Plot Stamp: 8/20/2020 2:55:15 PM - Roshan Poudel
File: P:\WLH\011904 - V25 Parcel A\Studies & Reports\Drainage\Original\Exhibits\8-20-2020 WLH011904 Interim Condition Basins Map - Unit 1.dwg, Tab: Layout1

N

SCALE: 1"= 70'

70 35 0 70

DRAINAGE LEGEND

XON1 / XXX	BASIN IDENTIFICATION / BASIN AREA (ACRES)
	BASIN BOUNDARY
●C1	CONCENTRATION POINT
	FLOW PATH
A — A	CROSS SECTION
(XX/XXX)	REFERENCE FLOW (CFS)

*NOTE THE TDS FOR THIS PARCEL IS CURRENTLY UNDER REVIEW, BUT WILL MATCH THE DRAINAGE PATTERN ESTABLISHED IN THE *VILLAGE 25 MASTER STUDY*. HENCE, DEVELOPMENT OF THIS PARCEL WILL NOT ALTER THE OVERALL DRAINAGE FOR OUR PROJECT SITE.

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DON2	3.40	*HEC-1*	5	10
DON3	5.77	*HEC-1*	9	20
DON4	0.32	*HEC-1*	1	1
CP2	--	*HEC-1 (DON2 + DON3)*	14	30
CP1	--	*HEC-1 (DON1 + CP2)*	30	67
*COS-1	*3.48	*V25 Master Study*	--	*9
**ST-FH	**13.14	*V23B Study*	--	**44

*Referenced from the Summerlin Village 25 Master Study (DS# 5104) and addenda, VTN (2019)

**Referenced from the approved TDS for the Conceptual Drainage Study for Summerlin Village 23B Upd#3, DS3420, GCW(2013)

TABLE 3
Hydraulic Calculations (Interim/Ultimate Condition)

Easement/Swale	Section	Slope (%)	Flow (100 year) (cfs)	Velocity (ft/s)	Flow Depth (ft)	VxD
Cosway	Cos1	4.75	*9.0	4.23	0.37	1.57
Cosway	Cos2	4.00	*9.0	4.34	0.44	1.91

*referenced Q_{100} for basin COS-1, *Village 25 Master Study , DS# 5104* .

TABLE 4
100-year Exterior Street Flow Analysis (Ultimate Condition)

Street	Section	Slope (%)	Flow (100 year) (cfs)	Velocity (ft/s)	Flow Depth (ft)	VxD
Far Hills Avenue (Half St.)	*FH1	7.70	*22	7.93	0.46	3.65
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Fox Hills Drive (Half St.)	FOX	**0.5	7.5	1.80	0.43	0.77
Fox Hills Drive (Half St.)	**1	**0.5	**6.5	2.09	0.49	1.02

*Flow referenced from the approved TDS for the Conceptual Drainage Study of Summerlin Village 23B Update#3, DS#3420.

**Referenced from the approved FHD Improvement Study, DS#5118.

TABLE 5b
100-year Street Flow Analysis (Ultimate Condition)

Street	Section	Flattest Slope (%)	Flow (100 year) (cfs)	Velocity (ft/s)	Flow Depth (ft)	VxD
Vista Balla St.	2	0.56	30.0	2.89	0.57	1.65
Bella Noche St.	1B	1.60	*19	3.44	0.45	1.55
Media Noche St.	1A	0.50	*19	2.33	0.52	1.21
Arrebol Ave.	1C	6.83	37.0	8.13	0.44	3.58

*Q_{100} conservatively assumed to be 50% of basin DON1.

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FIGURE 8.2 - INTERIM CONDITION BASINS MAP
CASTELLANA - UNIT 1 AND UNIT 2
WILLIAM LYON HOMES
CITY OF LAS VEGAS

BY	DESCRIPTION	DATE

DATE	8-20-2020
DRAWN	Ro. Po.
DESIGNED	ALH
CHECKED	DCL
PROJECT #	WLH011904

SHEET TITLE: FIG 8.2

SHEET NUMBER: 1

Plot Stamp: 8/20/2020 2:54:18 PM - Roshan Poudel
File: P:\WLH011904 - V25 Parcel A\Studies & Reports\Drainage\Original\Exhibits\8-20-2020 WLH011904 Interim Condition Basins Map - Unit 2.dwg Tab: Layout1

N

SCALE: 1"= 70'

70 35 0 70

DRAINAGE LEGEND

XON1 / XXX	BASIN IDENTIFICATION / BASIN AREA (ACRES)
	BASIN BOUNDARY
●C1	CONCENTRATION POINT
	FLOW PATH
A — A	CROSS SECTION
(XX/XXX)	REFERENCE FLOW (CFS)

*NOTE THE TDS FOR THIS PARCEL IS CURRENTLY UNDER REVIEW, BUT WILL MATCH THE DRAINAGE PATTERN ESTABLISHED IN THE *VILLAGE 25 MASTER STUDY*. HENCE, DEVELOPMENT OF THIS PARCEL WILL NOT ALTER THE OVERALL DRAINAGE FOR OUR PROJECT SITE.

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Flow Summary (Interim/Ultimate Condition)

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DON3	5.77	*HEC-1*	9	20
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CP1	--	*HEC-1 (DON1 + CP2)*	30	67
*COS-1	*3.48	*V25 Master Study*	--	*9
**ST-FH	**13.14	*V23B Study*	--	**44

*Referenced from the Summerlin Village 25 Master Study (DS# 5104) and addenda, VTN (2019)
**Referenced from the approved TDS for the Conceptual Drainage Study for Summerlin Village 23B Upd#3, DS3420, GCW(2013)

TABLE 3
Hydraulic Calculations (Interim/Ultimate Condition)

Easement/Swale	Section	Slope (%)	Flow (100 year) (cfs)	Velocity (ft/s)	Flow Depth (ft)	VxD
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Cosway	Cos2	4.00	*9.0	4.34	0.44	1.91

*referenced Q_{100} for basin COS-1, *Village 25 Master Study , DS# 5104* .

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100-year Exterior Street Flow Analysis (Ultimate Condition)

Street	Section	Slope (%)	Flow (100 year) (cfs)	Velocity (ft/s)	Flow Depth (ft)	VxD
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Fox Hills Drive (Half St.)	FOX	**0.5	7.5	1.80	0.43	0.77
Fox Hills Drive (Half St.)	**1	**0.5	**6.5	2.09	0.49	1.02

*Flow referenced from the approved TDS for the Conceptual Drainage Study of Summerlin Village 23B Update#3, DS#3420.
**Referenced from the approved FHD Improvement Study, DS#5118.

TABLE 5
100-year Street Flow Analysis (Ultimate Condition)

Street	Section	Flattest Slope (%)	Flow (100 year) (cfs)	Velocity (ft/s)	Flow Depth (ft)	VxD
Vista Balla St.	2	0.56	30.0	2.89	0.57	1.65
Bella Noche St.	1B	1.60	*19	3.44	0.45	1.55
Media Noche St.	1A	0.50	*19	2.33	0.52	1.21
Besito Ave.	3	0.57	20.0	2.76	0.52	1.44
Arrebol Ave.	1C	6.83	37.0	8.13	0.44	3.58

*Q_{100} conservatively assumed to be 50% of basin DON1.

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FIGURE 9 - ULTIMATE CONDITION BASINS MAP
CASTELLANA - OVERALL
WILLIAM LYON HOMES
CITY OF LAS VEGAS

BY	DESCRIPTION	DATE

DATE	8-20-2020
DRAWN	Ro. Po.
DESIGNED	ALH
CHECKED	DCL
PROJECT #	WLH011904

SHEET TITLE
FIG 9

SHEET NUMBER
1

Plot Stamp: 8/20/2020 2:49:16 PM - Roshan Poudel
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HYDROLOGIC PARAMETERS



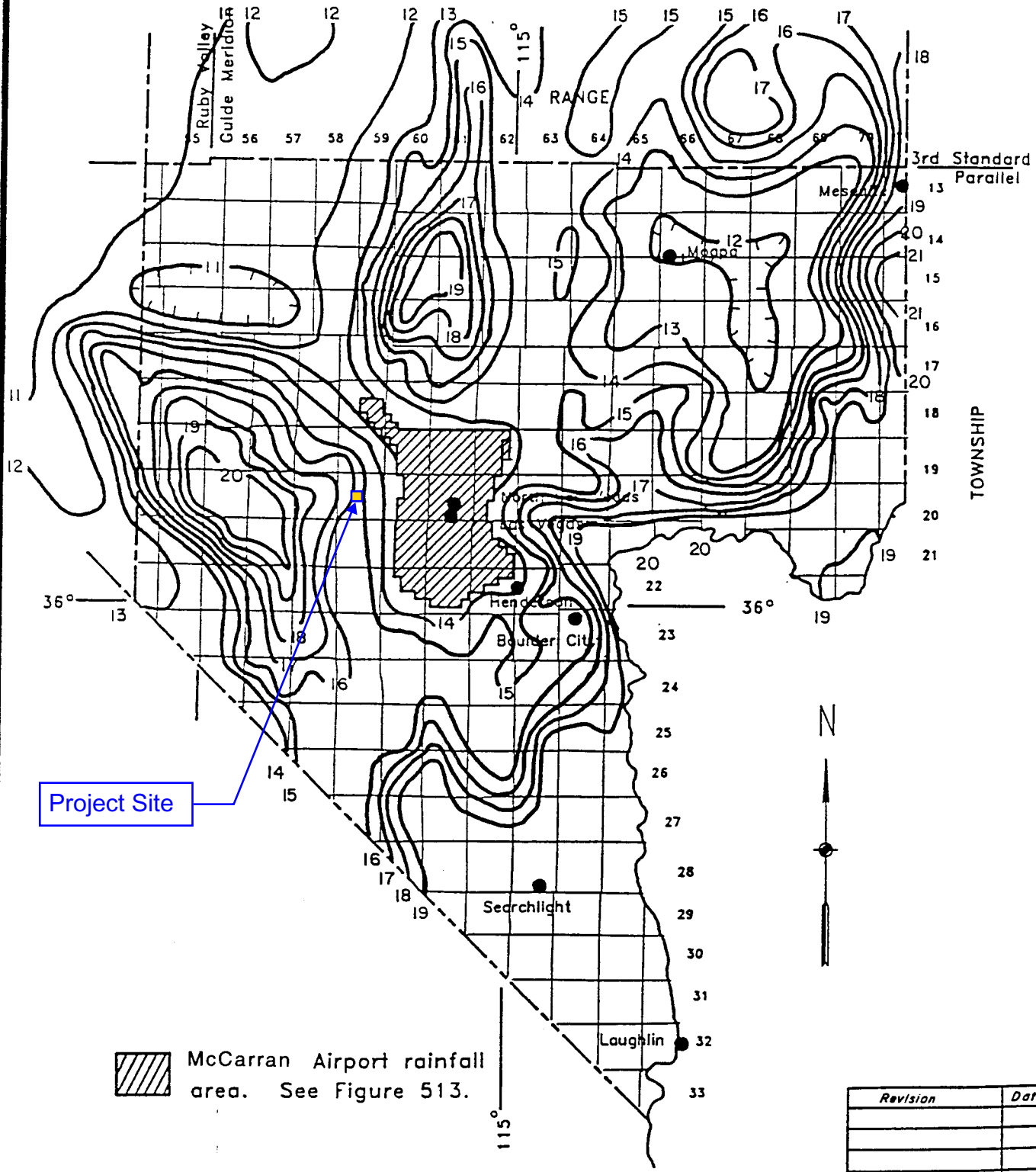
PRECIPITATION ADJUSTMENT RATIOS

Recurrence Interval	Ratio to NOAA Atlas 2
2-year	1.00
5-year	1.16
10-year	1.24
25-year	1.33
50-year	1.39
100-year	1.43

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

Revision	Date

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



Revision	Date

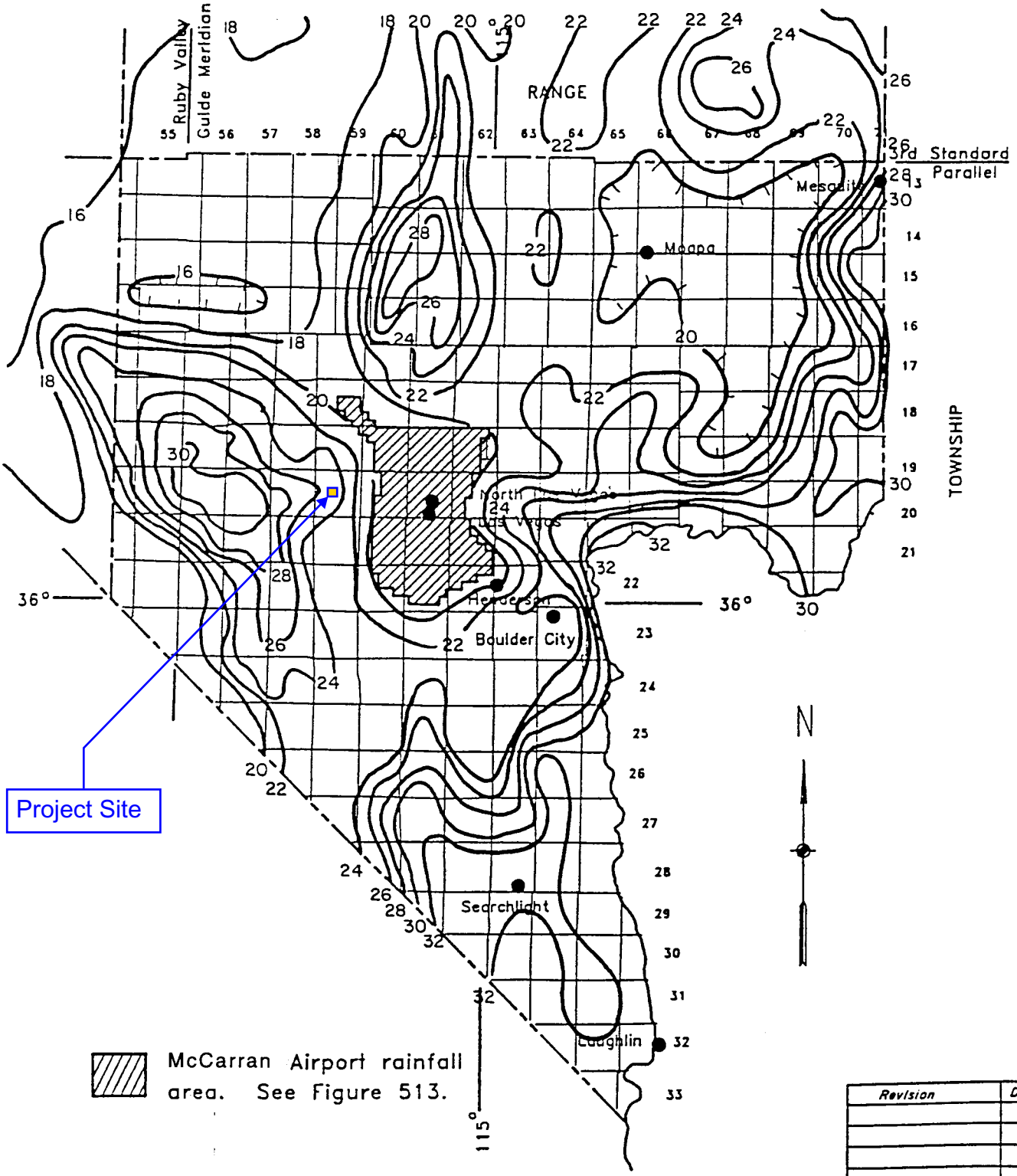
WRC ENGINEERING

REFERENCE:
NOAA ATLAS 2, VOLUME VII NEVADA, 1973

FIGURE 503

RAINFALL DEPTH-DURATION-FREQUENCY 100-YEAR, 6-HOUR

(DEPTHS IN TENTHS OF INCHES)



Revision	Date

WRC ENGINEERING

REFERENCE:
NOAA ATLAS 2, VOLUME VII NEVADA, 1973

FIGURE 506

Curve Number Matrix

SOIL MAP UNIT	HYDROLOGIC SOIL GROUP					LAND USE CATEGORY INDEX NUMBER												
	A	B	C	D	ROCK OUTCROP	1	2	3	4	5	6	7	8	9	10	11	12	13
	CN --->					63	47	57	60	62	74	84	89	92	86	92	71	30
		CN --->				77	66	73	74	76	83	89	93	94	91	94	81	30
			CN --->			85	77	82	83	84	88	92	95	95	93	95	87	30
				CN --->		88	83	86	87	88	91	94	96	96	95	96	90	30
					CN --->	90	90	92	92	92	94	96	96	97	96	97	94	30
	%	%	%	%	%	SOIL TYPE COMPOSITE CN FOR LAND USE CATEGORY												
1100	6	0	0	59	35	87.0	83.0	86.0	87.0	88.0	91.0	94.0	96.0	96.0	95.0	96.0	90.0	30.0
1105	55	40	0	5	0	70.0	56.0	65.0	67.0	69.0	78.0	86.0	91.0	93.0	88.0	93.0	76.0	30.0
1107	0	100	0	0	0	77.0	66.0	73.0	74.0	76.0	83.0	89.0	93.0	94.0	91.0	94.0	81.0	30.0
1112	100	0	0	0	0	63.0	47.0	57.0	60.0	62.0	74.0	84.0	89.0	92.0	86.0	92.0	71.0	30.0
1113	100	0	0	0	0	63.0	47.0	57.0	60.0	62.0	74.0	84.0	89.0	92.0	86.0	92.0	71.0	30.0
1117	100	0	0	0	0	63.0	47.0	57.0	60.0	62.0	74.0	84.0	89.0	92.0	86.0	92.0	71.0	30.0
1120	100	0	0	0	0	63.0	47.0	57.0	60.0	62.0	74.0	84.0	89.0	92.0	86.0	92.0	71.0	30.0
1127	100	0	0	0	0	63.0	47.0	57.0	60.0	62.0	74.0	84.0	89.0	92.0	86.0	92.0	71.0	30.0
1129	100	0	0	0	0	63.0	47.0	57.0	60.0	62.0	74.0	84.0	89.0	92.0	86.0	92.0	71.0	30.0
1130	65	0	25	10	0	71.0	58.0	66.0	68.0	70.0	79.0	87.0	91.0	93.0	89.0	93.0	77.0	30.0
1132	100	0	0	0	0	63.0	47.0	57.0	60.0	62.0	74.0	84.0	89.0	92.0	86.0	92.0	71.0	30.0
1133	70	0	10	0	20	71.0	58.0	67.0	68.0	70.0	79.0	87.0	91.0	93.0	89.0	93.0	77.0	30.0
1134	100	0	0	0	0	63.0	47.0	57.0	60.0	62.0	74.0	84.0	89.0	92.0	86.0	92.0	71.0	30.0
1135	84	0	0	16	0	67.0	52.0	62.0	64.0	66.0	76.0	85.0	90.0	92.0	87.0	92.0	74.0	30.0
1140	0	0	100	0	0	85.0	77.0	82.0	83.0	84.0	88.0	92.0	95.0	95.0	93.0	95.0	87.0	30.0
1141	8	0	2	70	20	86.0	81.0	85.0	86.0	86.0	90.0	93.0	95.0	96.0	94.0	96.0	89.0	30.0
1150	0	0	0	100	0	88.0	83.0	86.0	87.0	88.0	91.0	94.0	96.0	96.0	95.0	96.0	90.0	30.0
1151	41	0	0	59	0	78.0	68.0	74.0	76.0	77.0	84.0	90.0	93.0	94.0	91.0	94.0	82.0	30.0
1152	0	0	0	100	0	88.0	83.0	86.0	87.0	88.0	91.0	94.0	96.0	96.0	95.0	96.0	90.0	30.0
1155	0	0	0	100	0	88.0	83.0	86.0	87.0	88.0	91.0	94.0	96.0	96.0	95.0	96.0	90.0	30.0
1156	1	10	0	89	0	87.0	81.0	84.0	85.0	86.0	90.0	93.0	95.0	96.0	94.0	96.0	89.0	30.0
1160	0	0	100	0	0	85.0	77.0	82.0	83.0	84.0	88.0	92.0	95.0	95.0	93.0	95.0	87.0	30.0
1160dn	46	1	0	53	0	76.0	66.0	73.0	74.0	76.0	83.0	89.0	93.0	94.0	91.0	94.0	81.0	30.0
1165	32	40	15	13	0	75.0	64.0	71.0	73.0	74.0	82.0	88.0	92.0	94.0	90.0	94.0	80.0	30.0
1181	100	0	0	0	0	63.0	47.0	57.0	60.0	62.0	74.0	84.0	89.0	92.0	86.0	92.0	71.0	30.0
1182	95	0	5	0	0	64.0	48.0	58.0	61.0	63.0	74.0	84.0	90.0	92.0	86.0	92.0	72.0	30.0
1183	100	0	0	0	0	63.0	47.0	57.0	60.0	62.0						92.0	71.0	30.0
1184	100	0	0	0	0	63.0	47.0	57.0	60.0	62.0						92.0	71.0	30.0
1187	100	0	0	0	0	63.0	47.0	57.0	60.0	62.0						92.0	71.0	30.0
1190	100	0	0	0	0	63.0	47.0	57.0	60.0	62.0						92.0	71.0	30.0
1191	100	0	0	0	0	63.0	47.0	57.0	60.0	62.0						92.0	71.0	30.0
1192	55	35	0	10	0	70.0	57.0	66.0	68.0	70.0						93.0	76.0	30.0
1200	0	0	100	0	0	85.0	77.0	82.0	83.0	84.0						95.0	87.0	30.0
1206	0	0	100	0	0	85.0	77.0	82.0	83.0	84.0						95.0	87.0	30.0
1207	3	85	5	7	0	78.0	67.0	74.0	75.0	77.0						94.0	82.0	30.0
1222	0	0	100	0	0	85.0	77.0	82.0	83.0	84.0						95.0	87.0	30.0
1225	9	20	50	21	0	82.0	73.0	79.0	80.0	81.0						95.0	85.0	30.0
1230	54	0	0	46	0	75.0	63.0	70.0	72.0	74.0	81.0	88.0	92.0	94.0	90.0	94.0	80.0	30.0
1235	66	25	0	9	0	69.0	55.0	64.0	66.0	68.0	77.0	86.0	91.0	93.0	88.0	93.0	75.0	30.0
1236	0	0	100	0	0	85.0	77.0	82.0	83.0	84.0	88.0	92.0	95.0	95.0	93.0	95.0	87.0	30.0
1237	0	0	100	0	0	85.0	77.0	82.0	83.0	84.0	88.0	92.0	95.0	95.0	93.0	95.0	87.0	30.0
1240	0	0	0	100	0	88.0	83.0	86.0	87.0	88.0	91.0	94.0	96.0	96.0	95.0	96.0	90.0	30.0
1252	0	100	0	0	0	77.0	66.0	73.0	74.0	76.0	83.0	89.0	93.0	94.0	91.0	94.0	81.0	30.0
1255	0	100	0	0	0	77.0	66.0	73.0	74.0	76.0	83.0	89.0	93.0	94.0	91.0	94.0	81.0	30.0
1260	100	0	0	0	0	63.0	47.0	57.0	60.0	62.0	74.0	84.0	89.0	92.0	86.0	92.0	71.0	30.0
1262	75	0	0	25	0	69.0	56.0	64.0	67.0	69.0	78.0	86.0	91.0	93.0	88.0	93.0	76.0	30.0
1263	95	0	0	5	0	64.0	48.0	59.0	61.0	64.0	74.0	84.0	90.0	92.0	86.0	92.0	72.0	30.0
1264	100	0	0	0	0	63.0	47.0	57.0	60.0	62.0	74.0	84.0	89.0	92.0	86.0	92.0	71.0	30.0
1270	0	0	100	0	0	85.0	77.0	82.0	83.0	84.0	88.0	92.0	95.0	95.0	93.0	95.0	87.0	30.0
1278	0	0	100	0	0	85.0	77.0	82.0	83.0	84.0	88.0	92.0	95.0	95.0	93.0	95.0	87.0	30.0
1282	0	0	100	0	0	85.0	77.0	82.0	83.0	84.0	88.0	92.0	95.0	95.0	93.0	95.0	87.0	30.0
1300	0	0	0	100	0	88.0	83.0	86.0	87.0	88.0	91.0	94.0	96.0	96.0	95.0	96.0	90.0	30.0

Please note that the developed condition CN value for our site is lower than the anticipated CN value for V22 Parcel A in the *Village 25 Master Study*, because of the bigger lot sizes (lower lot density per acres).

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

Company:	Actus	Project Name:	Castellena (Summerlin V25 Parcel A)
By:	Roshan Poudel	Description:	Existing and Developed Basins
Date:	02/20/20	File Name:	WLH011904

SUB-BASIN DATA						INITIAL / OVERLAND TIME (Ti)			TRAVEL TIME (Tt)					Tc	Tc Check Urbanized Basins		Tlag	Landuse Index
DESIG:	DEV./EX. (D or E)	CN	K [1]	AREA Ac	AREA Mi^2 [2]	INITIAL LENGTH Feet	SLOPE %	Ti Min [3]	TRAVEL LENGTH Feet	SLOPE %	V1 VELOCITY FPS [4]	V2 VELOCITY FPS [5]	Tt Min [6]	Tc Calc. [7]	Total Length Feet [8]	Tc Check [9]	Tlag Hours [10]	
Existing Basins																		
EON1	E	87.00	0.7584	21.16	**0.0331**	500	0.70	15.48	1409	3.60	2.81	5.58	5.68	21.17			**0.212**	1
Developed Basins																		
DON1	D	90.00	0.7980	11.67	**0.0182**	111	1.00	5.73	1370	3.29	3.66	5.55	4.89	10.61	1481	18.228	**0.106**	6
DON2	D	90.00	0.7980	3.40	**0.0053**	111	1.00	5.73	500	0.57	1.53	2.31	5.46	11.19	611	13.394	**0.112**	6
DON3	D	90.00	0.7980	5.77	**0.0090**	111	1.00	5.73	960	6.62	5.20	7.87	2.58	8.30	1071	15.950	**0.083**	6
DON4	D	90.00	0.7980	0.32	**0.0005**	111	1.00	5.73	100	6.15	5.01	7.59	0.33	6.06	211	11.172	**0.061**	6

[1] K = 0.0132 (CN) - 0.39

[2] A = Area/640

[3] Ti = (1.8 (1.1-K) L^0.5)/S^0.33

[4] For Existing Conditions: V1 = 14.8 * (S/100)^0.5
For Developed Conditions: V1 = 20.2 * (S/100)^0.5

[5] For Existing Conditions: V2 = 29.4 * (S/100)^0.5
For Developed Conditions: V2 = 30.6 * (S/100)^0.5

[6] Tt = L/(60*V)

[7] Tc = Ti + Tt

[8] Total L = Initial L + Travel L

[9] Tc = (L/180) + 10

[10] Tlag = (0.6*Tc)/60

[11] Min Tlag =0.05

Note: For Travel Time Calcs: V1 applies to first 500 feet and V2 applies to remaining distance.

REFERENCE : **STANDARD FORM 4**

HYDRAULIC CALCULATIONS



Interim/Ultimate Condition

```
1****************************************
****************************************
 *                                      *                                        *
*
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                        *    U.S. ARMY CORPS OF ENGINEERS
*
 *               JUN   1998             *                                        *    HYDROLOGIC ENGINEERING CENTER
*
 *            VERSION 4.1               *                                        *         609 SECOND STREET
*
 *                                      *                                        *       DAVIS, CALIFORNIA 95616
*
 *  RUN DATE   20FEB20  TIME  09:59:04  *                                        *           (916) 756-1104
*
 *                                      *                                        *
*
 ****************************************
****************************************
```

```
                                        X     X  XXXXXXX   XXXXX           X
                                        X     X  X        X     X         XX
                                        X     X  X        X                X
                                        XXXXXXX  XXXX     X        XXXXX   X
                                        X     X  X        X                X
                                        X     X  X        X     X          X
                                        X     X  XXXXXXX   XXXXX          XXX
```

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

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

1 HEC-1 INPUT PAGE 1

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

            1           ID    PREPARED FOR
            2           ID    SUMMERLIN VILLAGE 25 - PARCEL A
            3           ID    10-Y & 100-Y, 6 Hour Storm
            4           ID    ONSITE INTERIM/ULTIMATE CONDITION
            5           ID    @@@@
```

```
             43           KK  DON3
             44           KM   DEVELOPED ONSITE BASIN DON3
             45           BA  0.0090
             46           LS       0   90.00
             47           UD   0.083
                          *
1                                                  HEC-1 INPUT                                                  PAGE  2

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


             48           KK  CP2
             49           KM   COMBINATION POINT CP2
             50           HC       2
                          *

             51           KK  CP1
             52           KM   COMBINATION POINT CP1
             53           HC       2
                          *

             54           KK  DON4
             55           KM   DEVELOPED ONSITE BASIN DON4
             56           BA  0.0005
             57           LS       0   90.00
             58           UD   0.061
                          *
             59           ZZ
1
                 SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

    24      DON1
                 .
                 .
    38           .      DON2
                 .           .
                 .           .
    43           .           .      DON3
                 .           .           .
                 .           .           .
    48           .      CP2   ............
                 .           .
                 .           .
    51      CP1   ............
                 .
                 .
    54           .      DON4

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
****************************************
 *                                      *                                                    *
*
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                    *    U.S. ARMY CORPS OF ENGINEERS
*
 *               JUN   1998             *                                                    *    HYDROLOGIC ENGINEERING CENTER
*
 *            VERSION 4.1               *                                                    *          609 SECOND STREET
*
 *                                      *                                                    *       DAVIS, CALIFORNIA 95616
*
 *  RUN DATE   20FEB20  TIME  09:59:04  *                                                    *           (916) 756-1104
*
 *                                      *                                                    *
*
 ****************************************
****************************************
```

PREPARED FOR
SUMMERLIN VILLAGE 25 - PARCEL A
10-Y & 100-Y, 6 Hour Storm
ONSITE INTERIM/ULTIMATE CONDITION
@@@

```
   22 IO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

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

                     COMPUTATION INTERVAL     .08 HOURS
                          TOTAL TIME BASE   24.92 HOURS

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

      JP          MULTI-PLAN OPTION
                       NPLAN           1  NUMBER OF PLANS

      JR          MULTI-RATIO OPTION
                      RATIOS OF PRECIPITATION
                      .56     1.00
1

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


                                                                  RATIOS APPLIED TO PRECIPITATION
 OPERATION       STATION     AREA    PLAN            RATIO 1  RATIO 2
                                                        .56     1.00

 HYDROGRAPH AT
+                DON1         .02     1   FLOW          16.      37.
                                          TIME         3.50     3.50

 HYDROGRAPH AT
+                DON2         .01     1   FLOW           5.      10.
                                          TIME         3.58     3.50

 HYDROGRAPH AT
+                DON3         .01     1   FLOW           9.      20.
                                          TIME         3.50     3.50

  2 COMBINED AT
+                CP2          .01     1   FLOW          14.      30.
                                          TIME         3.50     3.50

  2 COMBINED AT
+                CP1          .03     1   FLOW          30.      67.
                                          TIME         3.50     3.50

 HYDROGRAPH AT
+                DON4         .00     1   FLOW           1.       1.
                                          TIME         3.50     3.50


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

HYDRAULIC CALCULATIONS

Cosway Calculations (Interim/Ultimate Condition)
(Summarized in Table 3)

Worksheet for COS1 - 100 yr - Ult

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	4.75	%
Discharge	9.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	1.16
0+01.00	1.16
0+05.00	0.66
0+10.00	1.16
0+18.00	1.00
0+28.00	0.00
1+13.00	4.16

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 1.16)	(0+10.00, 1.16)	0.025
(0+10.00, 1.16)	(0+18.00, 1.00)	0.013
(0+18.00, 1.00)	(1+13.00, 4.16)	0.025

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	0.37	ft
Elevation Range	0.00 to 4.16 ft	
Flow Area	2.13	ft²
Wetted Perimeter	11.41	ft

Worksheet for COS1 - 100 yr - Ult

Results

Hydraulic Radius		0.19	ft
Top Width		11.38	ft
Normal Depth		0.37	ft
Critical Depth		0.47	ft
Critical Slope		0.01486	ft/ft
Velocity		4.23	ft/s
Velocity Head		0.28	ft
Specific Energy		0.65	ft
Froude Number		1.72	
Flow Type	Supercritical		

non-erosive

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	0.37	ft
Critical Depth	0.47	ft
Channel Slope	4.75	%
Critical Slope	0.01486	ft/ft

Cross Section for COS1 - 100 yr - Ult

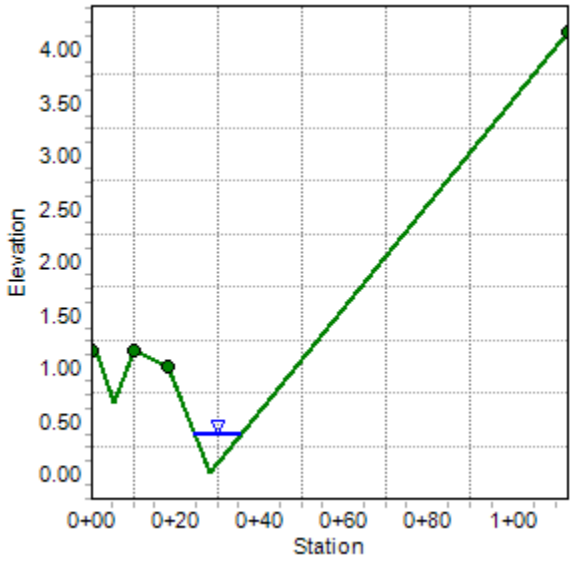
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	4.75	%
Normal Depth	0.37	ft
Discharge	9.00	ft³/s

Cross Section Image



Worksheet for COS2 - 100 yr - Ult

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	4.00	%
Discharge	9.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	1.16
0+01.00	1.16
0+05.00	0.66
0+10.00	1.16
0+18.00	1.00
0+28.00	0.00
0+74.00	4.16

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 1.16)	(0+10.00, 1.16)	0.025
(0+10.00, 1.16)	(0+18.00, 1.00)	0.013
(0+18.00, 1.00)	(0+74.00, 4.16)	0.025

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	0.44	ft
Elevation Range	0.00 to 4.16 ft	
Flow Area	2.07	ft²
Wetted Perimeter	9.39	ft

Worksheet for COS2 - 100 yr - Ult

Results

Hydraulic Radius		0.22	ft
Top Width		9.34	ft
Normal Depth		0.44	ft
Critical Depth		0.54	ft
Critical Slope		0.01419	ft/ft
Velocity		4.34	ft/s
Velocity Head		0.29	ft
Specific Energy		0.74	ft
Froude Number		1.63	
Flow Type	Supercritical		

non-erosive

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	0.44	ft
Critical Depth	0.54	ft
Channel Slope	4.00	%
Critical Slope	0.01419	ft/ft

Cross Section for COS2 - 100 yr - Ult

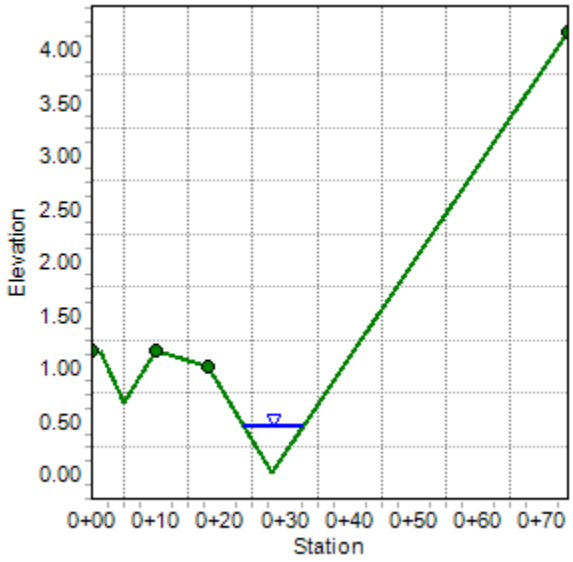
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	4.00	%
Normal Depth	0.44	ft
Discharge	9.00	ft³/s

Cross Section Image



HYDRAULIC CALCULATIONS

100-yr Exterior Street Calculations (Interim/Ultimate Condition)
(Summarized in Table 4)

Worksheet for FOX - Half St (West) - 100 yr - Ult

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.50	%
Discharge	7.50	ft³/s

Referenced 6.5cfs from FHD Study + additional 1 cfs from our entrance.

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.60
0+05.00	0.50
0+05.50	0.50
0+05.50	0.00
0+07.00	0.13
0+07.00	0.17
0+45.00	0.53
0+45.00	1.03
0+56.00	1.03

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.60)	(0+07.00, 0.13)	0.013
(0+07.00, 0.13)	(0+45.00, 0.53)	0.016
(0+45.00, 0.53)	(0+56.00, 1.03)	0.013

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	0.43	ft
Elevation Range	0.00 to 1.03 ft	

Worksheet for FOX - Half St (West) - 100 yr - Ult

Results

Flow Area		4.18	ft²
Wetted Perimeter		29.65	ft
Hydraulic Radius		0.14	ft
Top Width		29.17	ft
Normal Depth		0.43	ft
Critical Depth		0.41	ft
Critical Slope		0.00730	ft/ft
Velocity		1.80	ft/s
Velocity Head		0.05	ft
Specific Energy		0.48	ft
Froude Number		0.84	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.43	ft
Critical Depth	0.41	ft
Channel Slope	0.50	%
Critical Slope	0.00730	ft/ft

Cross Section for FOX - Half St (West) - 100 yr - Ult

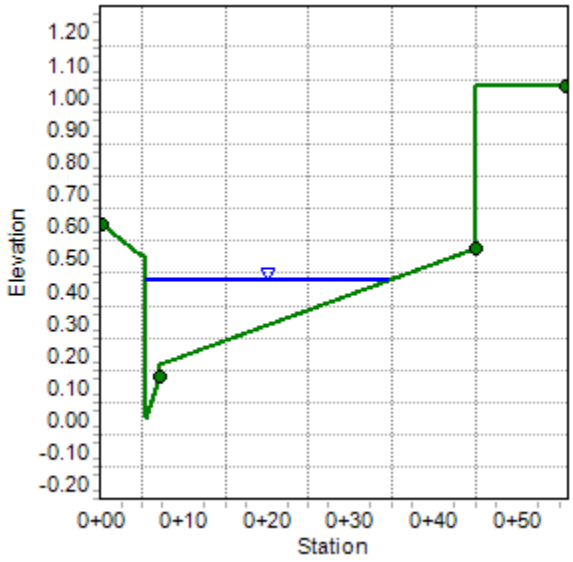
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.50	%
Normal Depth	0.43	ft
Discharge	7.50	ft³/s

Cross Section Image



Worksheet for *FH1 - Half St (North) - 100 yr - Ult

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	7.70	%
Discharge	22.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.50
0+00.50	0.00
0+02.00	0.13
0+02.00	0.17
0+29.00	0.71
0+29.00	1.21
0+38.00	1.21

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+29.00, 0.71)	0.016
(0+29.00, 0.71)	(0+38.00, 1.21)	0.013

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	0.46	ft
Elevation Range	0.00 to 1.21 ft	
Flow Area	2.77	ft²

Worksheet for *FH1 - Half St (North) - 100 yr - Ult

Results

Wetted Perimeter		16.76	ft
Hydraulic Radius		0.17	ft
Top Width		16.25	ft
Normal Depth		0.46	ft
Critical Depth		0.68	ft
Critical Slope		0.00573	ft/ft
Velocity		7.93	ft/s
Velocity Head		0.98	ft
Specific Energy		1.44	ft
Froude Number		3.38	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth		0.00	ft
Length		0.00	ft
Number Of Steps		0	

GVF Output Data

Upstream Depth		0.00	ft
Profile Description			
Profile Headloss		0.00	ft
Downstream Velocity		Infinity	ft/s
Upstream Velocity		Infinity	ft/s
Normal Depth		0.46	ft
Critical Depth		0.68	ft
Channel Slope		7.70	%
Critical Slope		0.00573	ft/ft

Cross Section for *FH1 - Half St (North) - 100 yr - Ult

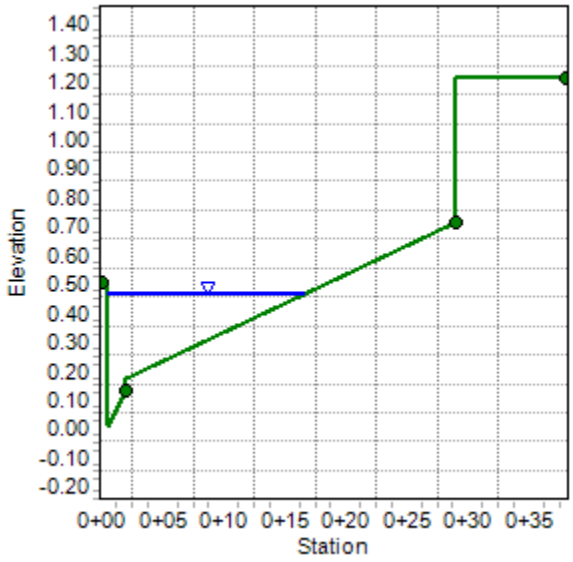
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	7.70	%
Normal Depth	0.46	ft
Discharge	22.00	ft³/s

Cross Section Image



Worksheet for *FH2 - Half St (North) - 100 yr - Ult

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	3.00	%
Discharge	22.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.50
0+00.50	0.00
0+02.00	0.13
0+02.00	0.17
0+29.00	0.71
0+29.00	1.21
0+38.00	1.21

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+29.00, 0.71)	0.016
(0+29.00, 0.71)	(0+38.00, 1.21)	0.013

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	0.53	ft
Elevation Range	0.00 to 1.21 ft	
Flow Area	4.01	ft²

Worksheet for *FH2 - Half St (North) - 100 yr - Ult

Results

Wetted Perimeter		20.71	ft
Hydraulic Radius		0.19	ft
Top Width		20.13	ft
Normal Depth		0.53	ft
Critical Depth		0.68	ft
Critical Slope		0.00572	ft/ft
Velocity		5.49	ft/s
Velocity Head		0.47	ft
Specific Energy		1.00	ft
Froude Number		2.17	
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		0.53	ft
Critical Depth		0.68	ft
Channel Slope		3.00	%
Critical Slope		0.00572	ft/ft

Cross Section for *FH2 - Half St (North) - 100 yr - Ult

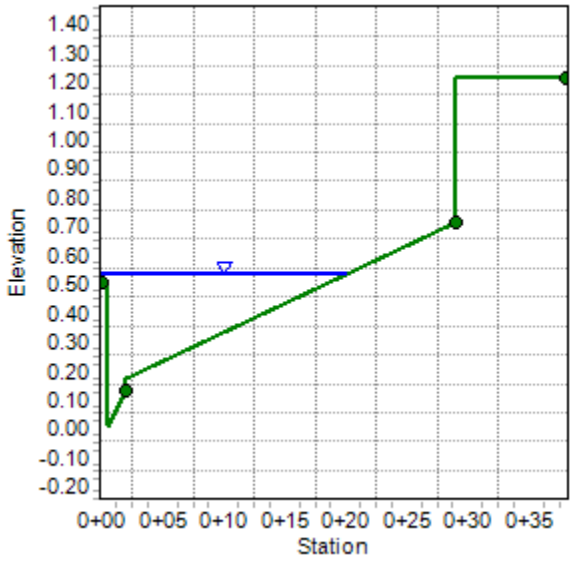
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	3.00	%
Normal Depth	0.53	ft
Discharge	22.00	ft³/s

Cross Section Image



HYDRAULIC CALCULATIONS

100-yr flow calculations - Interior Streets



Worksheet for Section 1A - 41' ROW - 100yr - Ult

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.50	%
Discharge	19.00	ft³/s

conservatively assumed to be 50% of Q_{100} from DON1

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.48
0+05.00	0.38
0+05.35	0.37
0+06.33	0.06
0+06.33	0.00
0+07.50	0.13
0+07.50	0.17
0+23.00	0.48
0+38.50	0.17
0+38.50	0.13
0+39.67	0.00
0+39.67	0.06
0+40.65	0.37
0+41.00	0.38

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.48)	(0+07.50, 0.17)	0.013
(0+07.50, 0.17)	(0+38.50, 0.17)	0.016
(0+38.50, 0.17)	(0+41.00, 0.38)	0.013

Options

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

Worksheet for Section 1A - 41' ROW - 100yr - Ult

Options

Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth		0.52	ft
Elevation Range	0.00 to 0.48 ft		
Flow Area		8.17	ft²
Wetted Perimeter		41.49	ft
Hydraulic Radius		0.20	ft
Top Width		41.00	ft
Normal Depth		0.52	ft
Critical Depth		0.51	ft
Critical Slope		0.00604	ft/ft
Velocity		2.33	ft/s
Velocity Head		0.08	ft
Specific Energy		0.60	ft
Froude Number		0.92	
Flow Type	Subcritical		

This section is applicable to Lot Lot 24 for EGL analysis. The finished floor for these lots are above the EGL.

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	0.52	ft
Critical Depth	0.51	ft
Channel Slope	0.50	%
Critical Slope	0.00604	ft/ft

Cross Section for Section 1A - 41' ROW - 100yr - Ult

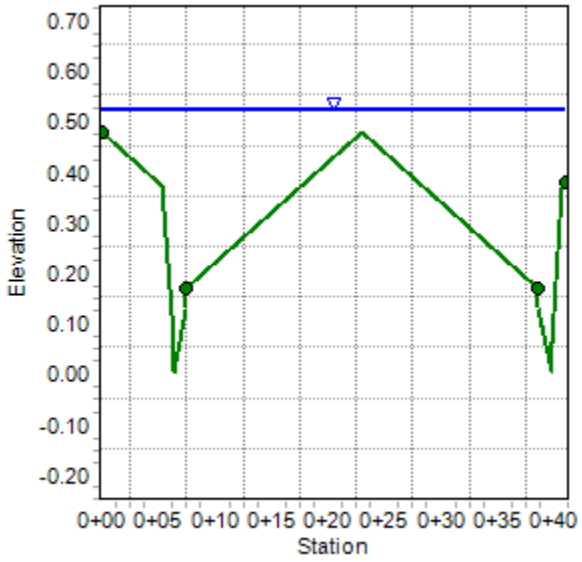
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.50	%
Normal Depth	0.52	ft
Discharge	19.00	ft³/s

Cross Section Image



Worksheet for Section 1B - 41' ROW - 100yr - Ult

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.60	%
Discharge	19.00	ft³/s

conservatively assumed to be 50% of Q_{100} from DON1

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.48
0+05.00	0.38
0+05.35	0.37
0+06.33	0.06
0+06.33	0.00
0+07.50	0.13
0+07.50	0.17
0+23.00	0.48
0+38.50	0.17
0+38.50	0.13
0+39.67	0.00
0+39.67	0.06
0+40.65	0.37
0+41.00	0.38

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.48)	(0+07.50, 0.17)	0.013
(0+07.50, 0.17)	(0+38.50, 0.17)	0.016
(0+38.50, 0.17)	(0+41.00, 0.38)	0.013

Options

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

Worksheet for Section 1B - 41' ROW - 100yr - Ult

Options

Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth		0.45	ft
Elevation Range	0.00 to 0.48 ft		
Flow Area		5.52	ft²
Wetted Perimeter		37.16	ft
Hydraulic Radius		0.15	ft
Top Width		36.77	ft
Normal Depth		0.45	ft
Critical Depth		0.51	ft
Critical Slope		0.00607	ft/ft
Velocity		3.44	ft/s
Velocity Head		0.18	ft
Specific Energy		0.64	ft
Froude Number		1.57	
Flow Type	Supercritical		

This section is applicable to Lot 16 for EGL analysis. The finished floor for these lots are above the EGL.

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	0.45	ft
Critical Depth	0.51	ft
Channel Slope	1.60	%
Critical Slope	0.00607	ft/ft

Cross Section for Section 1B - 41' ROW - 100yr - Ult

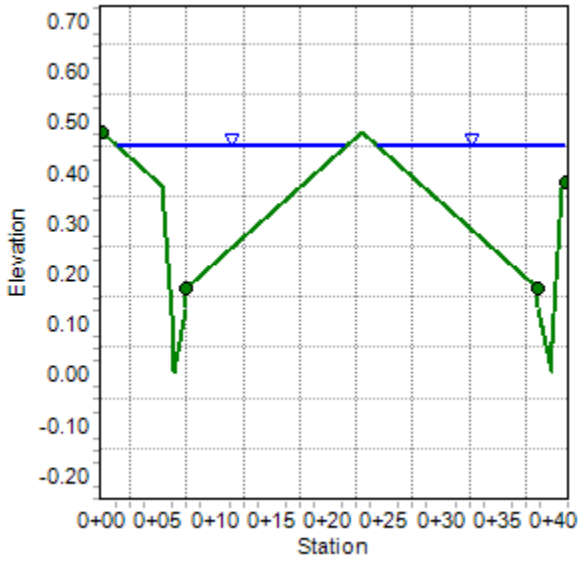
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.60	%
Normal Depth	0.45	ft
Discharge	19.00	ft³/s

Cross Section Image



Worksheet for Section 1C - 41' ROW - 100yr - Ult

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	6.83	%
Discharge	37.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.40
0+00.35	0.39
0+01.33	0.08
0+01.33	0.02
0+02.50	0.15
0+02.50	0.19
0+18.00	0.50
0+34.00	0.17
0+34.00	0.13
0+35.50	0.00
0+35.50	0.50
0+36.00	0.50
0+41.00	0.60

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.40)	(0+02.50, 0.15)	0.016
(0+02.50, 0.15)	(0+34.00, 0.13)	0.013
(0+34.00, 0.13)	(0+41.00, 0.60)	0.016

Options

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

Worksheet for Section 1C - 41' ROW - 100yr - Ult

Results

Normal Depth		0.44	ft
Elevation Range	0.00 to 0.60 ft		
Flow Area		4.55	ft²
Wetted Perimeter		30.37	ft
Hydraulic Radius		0.15	ft
Top Width		29.68	ft
Normal Depth		0.44	ft
Critical Depth		0.64	ft
Critical Slope		0.00412	ft/ft
Velocity		8.13	ft/s
Velocity Head		1.03	ft
Specific Energy		1.47	ft
Froude Number		3.66	
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	0.44	ft
Critical Depth	0.64	ft
Channel Slope	6.83	%
Critical Slope	0.00412	ft/ft

Cross Section for Section 1C - 41' ROW - 100yr - Ult

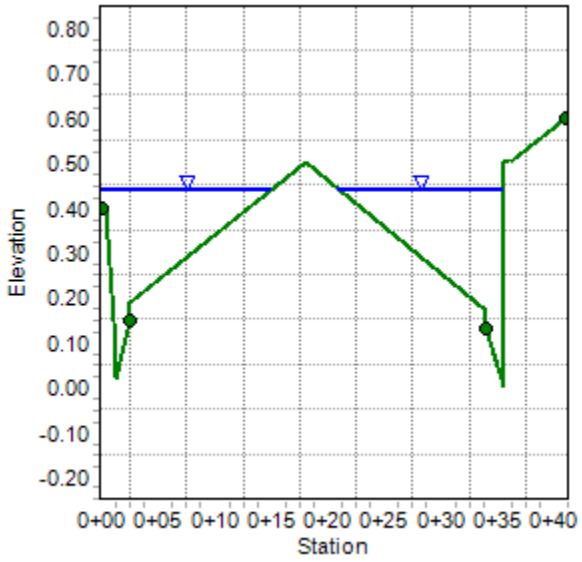
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	6.83	%
Normal Depth	0.44	ft
Discharge	37.00	ft³/s

Cross Section Image



Worksheet for Section 2 - 41' ROW - 100yr - Ult

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.56	%
Discharge	30.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.48
0+05.00	0.38
0+05.35	0.37
0+06.33	0.06
0+06.33	0.00
0+07.50	0.13
0+07.50	0.17
0+23.00	0.48
0+38.50	0.17
0+38.50	0.13
0+39.67	0.00
0+39.67	0.06
0+40.65	0.37
0+41.00	0.38

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.48)	(0+07.50, 0.17)	0.013
(0+07.50, 0.17)	(0+38.50, 0.17)	0.016
(0+38.50, 0.17)	(0+41.00, 0.38)	0.013

Options

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

Worksheet for Section 2 - 41' ROW - 100yr - Ult

Options

Closed Channel Weighting Method	Pavlovskii's Method		

Results

Normal Depth		0.57	ft
Elevation Range	0.00 to 0.48 ft		
Flow Area		10.39	ft²
Wetted Perimeter		41.60	ft
Hydraulic Radius		0.25	ft
Top Width		41.00	ft
Normal Depth		0.57	ft
Critical Depth		0.57	ft
Critical Slope		0.00548	ft/ft
Velocity		2.89	ft/s
Velocity Head		0.13	ft
Specific Energy		0.70	ft
Froude Number		1.01	
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	0.57	ft
Critical Depth	0.57	ft
Channel Slope	0.56	%
Critical Slope	0.00548	ft/ft

Cross Section for Section 2 - 41' ROW - 100yr - Ult

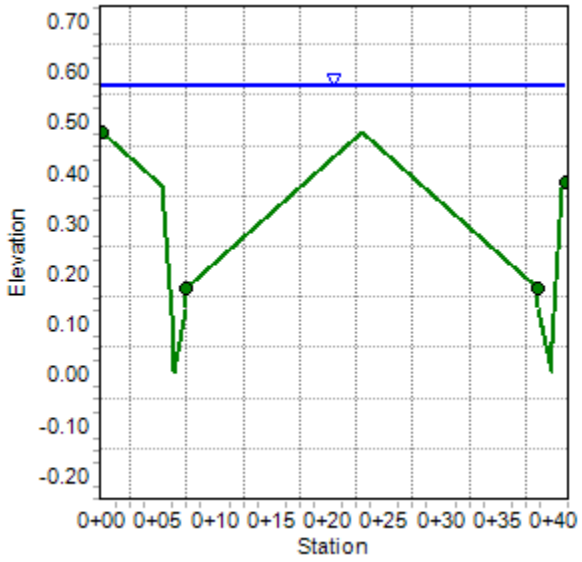
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.56	%
Normal Depth	0.57	ft
Discharge	30.00	ft³/s

Cross Section Image



Worksheet for Section 3 - 41' ROW - 100yr - Ult

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.57	%
Discharge	20.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.40
0+00.35	0.39
0+01.33	0.08
0+01.33	0.02
0+02.50	0.15
0+02.50	0.19
0+18.00	0.50
0+34.00	0.17
0+34.00	0.13
0+35.50	0.00
0+35.50	0.50
0+36.00	0.50
0+41.00	0.60

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.40)	(0+02.50, 0.15)	0.016
(0+02.50, 0.15)	(0+34.00, 0.13)	0.013
(0+34.00, 0.13)	(0+41.00, 0.60)	0.016

Options

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

Worksheet for Section 3 - 41' ROW - 100yr - Ult

Results

Normal Depth		0.52	ft
Elevation Range	0.00 to 0.60 ft		
Flow Area		7.26	ft²
Wetted Perimeter		37.90	ft
Hydraulic Radius		0.19	ft
Top Width		37.07	ft
Normal Depth		0.52	ft
Critical Depth		0.54	ft
Critical Slope		0.00466	ft/ft
Velocity		2.76	ft/s
Velocity Head		0.12	ft
Specific Energy		0.64	ft
Froude Number		1.10	
Flow Type	Supercritical		

This section is applicable to Lot 104, 108 and 115 for EGL analysis. The finished floor for these lots are above the EGL.

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	0.52	ft
Critical Depth	0.54	ft
Channel Slope	0.57	%
Critical Slope	0.00466	ft/ft

Cross Section for Section 3 - 41' ROW - 100yr - Ult

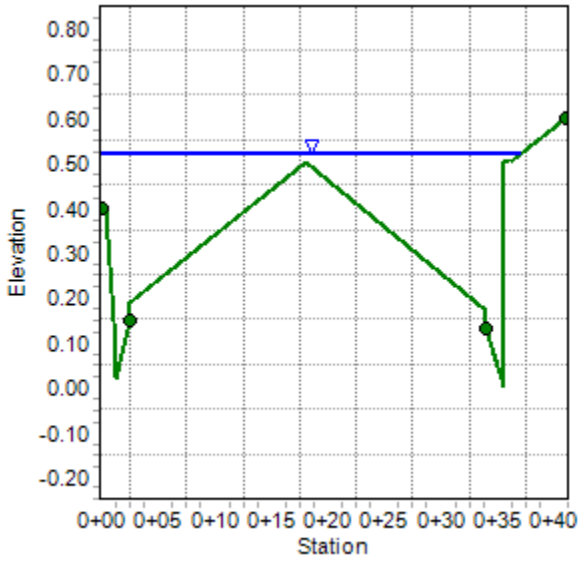
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.57	%
Normal Depth	0.52	ft
Discharge	20.00	ft³/s

Cross Section Image



HYDRAULIC CALCULATIONS

HYDRAULIC CALCULATIONS

Drop Inlet Calculations
Nomograph for the 42" RCP in V25 Parcel A
WSPG for internal SDs
Emergency weir overflow into C.E. "H"

Actus

Project Name:	Castellana	
By:	Roshan Poudel	
Date:	Aug-18-2020	
Notes:		
Facility ID:	**SDDI#4**	
Drainage Condition	**Proposed**	
Source of Flow	**Q100 = Western Half of CP2**	
Design Flow (cfs)		
Inlet Type:	**Type CM2 (Continuous Grade)**	
Inlet Length:	15 ft	
Number of Grates:	5	

	Input:	**Variable:**	**Input:**	
	Street Flow (cfs)	Q	15.0	
	Longitudinal Slope (ft/ft)	S_o	0.0056	
	Manning's Coefficient	n	0.0160	
	Street Flow Velocity (fps)	V	2.89	
	Street Flow Depth (ft)	D	0.57	
	Street Cross Slope (ft/ft)	S_x	0.0200	
	Grate Width (ft)	W	1.50	
	Grate Depression (in)	D_g	0.1667	2 inches
	Length of Grate (ft)	L_g	12.50	
	Length of Curb Opening (ft)	L_c	15.00	
	Clogging Factor - Grate (%)	CF_g	50.00	
	Clogging Factor - Curb (%)	CF_c	50.00	
	Effective Grate Length (ft)	L_{ge}	6.25	
	Effective Curb Opening Length (ft)	L_{ce}	7.50	

See Section 2 for the street-flow calc

	Output (Grate):	**Equation:**	**Output (Grate):**	
1	R_f - Frontal Flow Factor	1-0.09*(V-V_x) if V>V_x; else Frontal Flow Factor = 1	1.0000	
2	V_o - Splash Over Velocity (fps)	V_x=p+q*L_{ge}-r*L_{ge}^2+sy*L_{ge}^3 ; where	16.06	
		p=0.30,q=4.85,r=1.31,sy=0.15 (for Vane Grate)		
1	E - Grate Flow Ratio	Frontal Flow/Side Flow	0.19	
2	Q_w - Frontal Flow (cfs)	$Q_w = Q[1-(1-(W/T))^{2.67}]$	2.80	
1	Q_s - Side Flow (cfs)	$Q_s = Q-Q_w$	12.20	
	T - Side Flow Spread (ft)	$(D-D_g)/S_x$	20.17	
1	R_s - Side Flow Factor	$1/(1+(0.15*V^{1.8})/(S_x*L_{ge}^{2.3})$	0.57	
1	Q_{gi} - Intercepted Flow (cfs)	$(R_f*E+R_s*(1-E))*Q$	9.8	

	Output (Curb):	**Equation:**	**Output (Curb):**	
1	S_e - Equivalent Cross Slope (ft/ft)	S_x+S_g*E	0.041	
	Q_{sx} - Remaining Flow After Grate Interception (cfs)	$Q-Q_{gi}$	5.224	
	S_g - Gutter Cross Slope (ft/ft)	D_g/W	0.1111	
1	L_t - Effective Interception Length (ft)	$0.60*Q_{sx}^{0.42}*S_o^{0.30}*(1/(n*S_e))^{0.6}$	20.69	
1	Q_{ci} - Intercepted Flow (cfs)	$(1-(1-L_{ce}/L_t)^{1.8})*Q_{sx}$	2.9	
		or Q_{sx} if L_t is less than L_{ce}		

Output (Total):	**Equation:**	**Output (Total):**
Total Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	12.7
Bypass Flow (cfs)	Street Flow - Total Intercepted Flow	2.3

1 Formula referenced from the CCRFCD Manual
2 Formula referenced from FHWA Urban Drainage Design Manual (HEC-22)

Project Name:	Castellana	
By:	Roshan Poudel	
Date:	Aug-18-2020	
Notes:		
Facility ID:	**SDDI#3**	
Drainage Condition	**Proposed**	
Source of Flow	**Q100 = SDDI#4 bypass + north 1/2 of DON1**	
Design Flow (cfs)		
Inlet Type:	**Type CM2 (Sump)**	
Inlet Length:	17.5 ft	
Number of Grates:	6	

Input:	**Variable:**	**Input:**
Depth at Inlet (ft)	D	0.49
Grate Width (ft)	W	1.50
Length of Grate (ft)	L_g	15.00
Length of Curb Opening (ft)	L_c	17.50
Height of Curb Opening (ft)	H	0.50
Weir Coef. - Curb Opening	W_c	2.30
Weir Coef. - Grate	W_g	3.00
Orifice Coef.	O_c	0.67
Grate Coef.	G_c	0.60
Clogging Factor - Grate (%)	CF_g	50.00
Clogging Factor - Curb (%)	CF_c	50.00

Output (Grate):	**Equation:**	**Output (Grate):**
Effective Weir Length (ft)	$2*W+L_g$	18.00
Adjusted Effective Weir Length(ft)	$2*(1-CF_g/100)*W+(1-CF_g/100)*L_g$	9.00
Grate Open Area (sf)	$W*L_g$	22.50
Adjusted Grate Open Area (sf)	Grate Open Area * G_c * $(1-CF_g/100)$	6.75
Controlling Flow Type (weir/orifice)	If D<1.792*(Adj. Grate Open Area/Adj. Eff. Length) use weir, else orifice	weir
Intercepted Flow (cfs)	weir: W_g*(Adj. Eff. Weir Length) * $D^{1.5}$ orifice: O_c*(Adj. Grate Open Area)*$(64.4*D)^{0.5}$	9.26

Output (Curb):	**Equation:**	**Output (Curb):**
Effective Weir Length (ft)	L+1.8*W	20.20
Adjusted Effective Weir Length (ft)	$L+1.8*(1-CF_c/100)*W$	18.85
Curb Open Area (sf)	L*H	8.75
Adjusted Curb Open Area (sf)	Curb Open Area*$(1-CF_c/100)$	4.38
Controlling Flow Type (weir/orifice)	If D<H, weir, else orifice	weir
Intercepted Flow (cfs)	weir: W_c*(Adj. Eff. Weir Length)*$D^{1.5}$ orifice: O_c*(Adj. Curb Open Area)*$(64.4*(D-H/2))^{0.5}$	7.1001

Output (Total):	**Equation:**	**Output (Total):**	
Capacity Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	16.36	
	Overflow onto SDDI#1 =	4.44	cfs

Project Name:	Castellana	
By:	Roshan Poudel	
Date:	Aug-18-2020	
Notes:		
Facility ID:	**SDDI#2**	
Drainage Condition	**Proposed**	
Source of Flow	**Q100 = Southern half of DON2**	
Design Flow (cfs)		
Inlet Type:	**Type CM2 (Continuous Grade)**	
Inlet Length:	15 ft	
Number of Grates:	5	

See next page for the street-flow calc

	Input:	**Variable:**	**Input:**	
	Street Flow (cfs)	Q	18.5	
	Longitudinal Slope (ft/ft)	S_o	0.0104	
	Manning's Coefficient	n	0.0160	
	Street Flow Velocity (fps)	V	3.98	
	Street Flow Depth (ft)	D	0.54	
	Street Cross Slope (ft/ft)	S_x	0.0200	
	Grate Width (ft)	W	1.50	
	Grate Depression (in)	D_g	0.1667	2 inches
	Length of Grate (ft)	L_g	12.50	
	Length of Curb Opening (ft)	L_c	15.00	
	Clogging Factor - Grate (%)	CF_g	50.00	
	Clogging Factor - Curb (%)	CF_c	50.00	
	Effective Grate Length (ft)	L_{ge}	6.25	
	Effective Curb Opening Length (ft)	L_{ce}	7.50	

	Output (Grate):	**Equation:**	**Output (Grate):**	
1	R_f - Frontal Flow Factor	1-0.09*(V-V_x) if V>V_x; else Frontal Flow Factor = 1	1.0000	
2	V_o - Splash Over Velocity (fps)	V_x=p+q*L_{ge}-r*L_{ge}^2+sy*L_{ge}^3 ; where	16.06	
		p=0.30,q=4.85,r=1.31,sy=0.15 (for Vane Grate)		
1	E - Grate Flow Ratio	Frontal Flow/Side Flow	0.20	
2	Q_w - Frontal Flow (cfs)	$Q_w = Q[1-(1-(W/T))^{2.67}]$	3.71	
1	Q_s - Side Flow (cfs)	$Q_s = Q-Q_w$	14.79	
	T - Side Flow Spread (ft)	$(D-D_g)/S_x$	18.67	
1	R_s - Side Flow Factor	$1/(1+(0.15*V^{1.8})/(S_x*L_{ge}^{2.3})$	0.43	
1	Q_{gi} - Intercepted Flow (cfs)	$(R_f*E+R_s*(1-E))*Q$	10.1	

	Output (Curb):	**Equation:**	**Output (Curb):**	
1	S_e - Equivalent Cross Slope (ft/ft)	S_x+S_g*E	0.042	
	Q_{sx} - Remaining Flow After Grate Interception (cfs)	$Q-Q_{gi}$	8.448	
	S_g - Gutter Cross Slope (ft/ft)	D_g/W	0.1111	
1	L_t - Effective Interception Length (ft)	$0.60*Q_{sx}^{0.42}*S_o^{0.30}*(1/(n*S_e))^{0.6}$	29.81	
1	Q_{ci} - Intercepted Flow (cfs)	$(1-(1-L_{ce}/L_t)^{1.8})*Q_{sx}$	3.4	
		or Q_{sx} if L_t is less than L_{ce}		

Output (Total):	**Equation:**	**Output (Total):**	
Total Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	13.5	
Bypass Flow (cfs)	Street Flow - Total Intercepted Flow	5.0	

1 Formula referenced from the CCRFCD Manual
2 Formula referenced from FHWA Urban Drainage Design Manual (HEC-22)

South Half of Section 1C near DI#2

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.04	%
Discharge	18.50	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.48
0+05.00	0.38
0+05.35	0.37
0+06.33	0.06
0+06.33	0.00
0+07.50	0.13
0+07.50	0.17
0+23.00	0.49

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.48)	(0+07.50, 0.13)	0.013
(0+07.50, 0.13)	(0+23.00, 0.49)	0.013

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	0.54	ft
Elevation Range	0.00 to 0.49 ft	
Flow Area	4.64	ft²
Wetted Perimeter	23.26	ft

South Half of Section 1C near DI#2

Results

Hydraulic Radius		0.20	ft
Top Width		23.00	ft
Normal Depth		0.54	ft
Critical Depth		0.61	ft
Critical Slope		0.00389	ft/ft
Velocity		3.98	ft/s
Velocity Head		0.25	ft
Specific Energy		0.78	ft
Froude Number		1.56	
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	0.54	ft
Critical Depth	0.61	ft
Channel Slope	1.04	%
Critical Slope	0.00389	ft/ft

South Half of Section 1C near DI#2

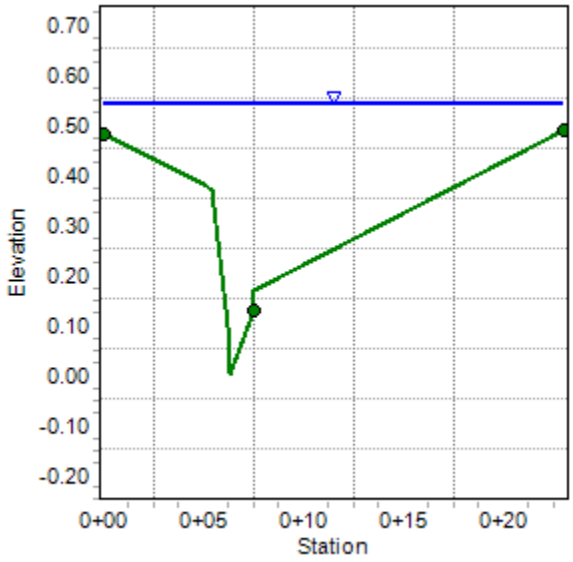
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.04	%
Normal Depth	0.54	ft
Discharge	18.50	ft³/s

Cross Section Image



Project Name:	Castellana	
By:	Roshan Poudel	
Date:	Aug-18-2020	
Notes:		
Facility ID:	**SDDI#1**	
Drainage Condition	**Proposed**	
Source of Flow	**Q100 = SDDI#3 bypass + crown overflow + south 1/2 of CP1**	
Design Flow (cfs)		
Inlet Type:	**Type CM2 (Sump)**	
Inlet Length:	17.5 ft	
Number of Grates:	6	

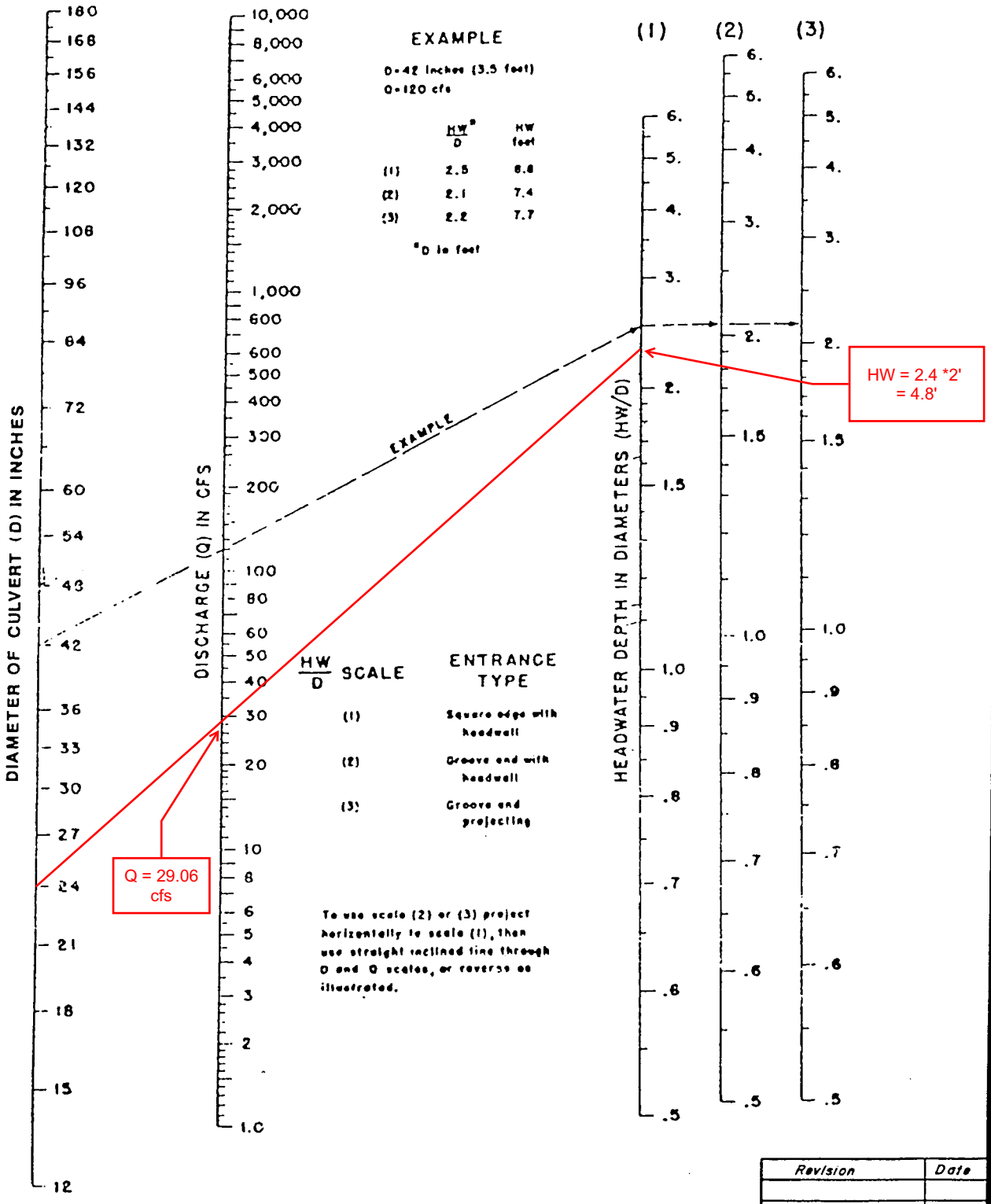
Input:	**Variable:**	**Input:**
Depth at Inlet (ft)	D	0.60
Grate Width (ft)	W	1.50
Length of Grate (ft)	L_g	15.00
Length of Curb Opening (ft)	L_c	17.50
Height of Curb Opening (ft)	H	0.50
Weir Coef. - Curb Opening	W_c	2.30
Weir Coef. - Grate	W_g	3.00
Orifice Coef.	O_c	0.67
Grate Coef.	G_c	0.60
Clogging Factor - Grate (%)	CF_g	50.00
Clogging Factor - Curb (%)	CF_c	50.00

Output (Grate):	**Equation:**	**Output (Grate):**
Effective Weir Length (ft)	$2*W+L_g$	18.00
Adjusted Effective Weir Length(ft)	$2*(1-CF_g/100)*W+(1-CF_g/100)*L_g$	9.00
Grate Open Area (sf)	$W*L_g$	22.50
Adjusted Grate Open Area (sf)	Grate Open Area * G_c * $(1-CF_g/100)$	6.75
Controlling Flow Type (weir/orifice)	If D<1.792*(Adj. Grate Open Area/Adj. Eff. Length) use weir, else orifice	weir
Intercepted Flow (cfs)	weir: W_g*(Adj. Eff. Weir Length) * $D^{1.5}$ orifice: O_c*(Adj. Grate Open Area)*$(64.4*D)^{0.5}$	12.55

Output (Curb):	**Equation:**	**Output (Curb):**
Effective Weir Length (ft)	L+1.8*W	20.20
Adjusted Effective Weir Length (ft)	$L+1.8*(1-CF_c/100)*W$	18.85
Curb Open Area (sf)	L*H	8.75
Adjusted Curb Open Area (sf)	Curb Open Area*$(1-CF_c/100)$	4.38
Controlling Flow Type (weir/orifice)	If D<H, weir, else orifice	orifice
Intercepted Flow (cfs)	weir: W_c*(Adj. Eff. Weir Length)*$D^{1.5}$ orifice: O_c*(Adj. Curb Open Area)*$(64.4*(D-H/2))^{0.5}$	13.92

Output (Total):	**Equation:**	**Output (Total):**
Capacity Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	26.46
		> 24.44 cfs So, OK.

NOMOGRAPH – INLET CONTROL RCP



Revision	Date

WRC ENGINEERING

REFERENCE: USDOT, FHWA, HDS, No. 5, 1985

FIGURE 1005

INPUT

```
T1 Mainline                                                                  0
T2 By Roshan Poudel, Aug 19, 2020
T3 Castellana (Summerlin Village 25 Parcel A)
SO    100.0003434.921  1                          3440.863
WX    100.0003434.921  1
R     100.0103435.021  1      .013                                  .000    .000 0
R     168.8003435.610  1      .013                                  .000   7.000 1
R     223.1803441.240  1      .013                                  .000    .000 0
JX    224.1803441.250  1  2  1.013   13.500   24.4403441.3203451.070-90.0   .0    .000
R     225.1803441.260  2      .013                                  .000    .000 0
R     237.6903441.320  2      .013                                  .000    .000 1
R     258.3303441.420  2      .013                                  .000    .000 0
WE    258.3303441.420  2      .200
SH    258.3303441.420  2                          3446.220
CD   1  4   1    .000   3.500     .000  .000  .000   .00
CD   2  4   1    .000   2.000     .000  .000  .000   .00
Q            29.060   .0
```

OUTPUT

Program Package Serial Number: 7156

WATER SURFACE PROFILE LISTING Date: 8-20-2020 Time: 7:34:50

Mainline
By Roshan Poudel, Aug 19, 2020
Castellana (Summerlin Village 25 Parcel A)

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
100.000	3434.921	5.942	3440.863	67.00	6.96	.75	3441.62	.00	2.57	.00	3.500	.000	.00	0 .0
WALL EXIT														
100.000	3434.921	5.942	3440.863	67.00	6.96	.75	3441.62	.00	2.57	.00	3.500	.000	.00	1 .0
.010	10.0076					.0044	.00	5.94	.00	.35	.013	.00	.00	PIPE
100.010	3435.021	5.842	3440.863	67.00	6.96	.75	3441.62	.00	2.57	.00	3.500	.000	.00	1 .0
68.790	.0086					.0044	.31	5.84	.00	2.20	.013	.00	.00	PIPE
168.800	3435.610	5.613	3441.223	67.00	6.96	.75	3441.98	.00	2.57	.00	3.500	.000	.00	1 .0
9.798	.1035					.0044	.04	5.61	.00	1.08	.013	.00	.00	PIPE
178.598	3436.625	4.641	3441.266	67.00	6.96	.75	3442.02	.00	2.57	.00	3.500	.000	.00	1 .0
HYDRAULIC JUMP														
178.598	3436.625	1.356	3437.981	67.00	19.46	5.88	3443.86	.00	2.57	3.41	3.500	.000	.00	1 .0
3.563	.1035					.0425	.15	1.36	3.41	1.08	.013	.00	.00	PIPE
182.161	3436.993	1.380	3438.373	67.00	19.01	5.61	3443.98	.00	2.57	3.42	3.500	.000	.00	1 .0
7.093	.1035					.0387	.27	1.38	3.30	1.08	.013	.00	.00	PIPE
189.254	3437.728	1.430	3439.157	67.00	18.13	5.10	3444.26	.00	2.57	3.44	3.500	.000	.00	1 .0
5.915	.1035					.0340	.20	1.43	3.08	1.08	.013	.00	.00	PIPE
195.169	3438.340	1.482	3439.822	67.00	17.28	4.64	3444.46	.00	2.57	3.46	3.500	.000	.00	1 .0
4.980	.1035					.0298	.15	1.48	2.88	1.08	.013	.00	.00	PIPE

Program Package Serial Number: 7156

WATER SURFACE PROFILE LISTING Date: 8-20-2020 Time: 7:34:50

Mainline

By Roshan Poudel, Aug 19, 2020

Castellana (Summerlin Village 25 Parcel A)

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
200.149	3438.855	1.537	3440.392	67.00	16.48	4.22	3444.61	.00	2.57	3.47	3.500	.000	.00	1 .0
4.220	.1035					.0262	.11	1.54	2.68	1.08	.013	.00	.00	PIPE
204.369	3439.292	1.594	3440.886	67.00	15.71	3.83	3444.72	.00	2.57	3.49	3.500	.000	.00	1 .0
3.589	.1035					.0230	.08	1.59	2.50	1.08	.013	.00	.00	PIPE
207.958	3439.664	1.653	3441.317	67.00	14.98	3.48	3444.80	.00	2.57	3.49	3.500	.000	.00	1 .0
3.055	.1035					.0203	.06	1.65	2.33	1.08	.013	.00	.00	PIPE
211.013	3439.980	1.716	3441.696	67.00	14.28	3.17	3444.86	.00	2.57	3.50	3.500	.000	.00	1 .0
2.598	.1035					.0178	.05	1.72	2.17	1.08	.013	.00	.00	PIPE
213.611	3440.250	1.781	3442.031	67.00	13.62	2.88	3444.91	.00	2.57	3.50	3.500	.000	.00	1 .0
2.199	.1035					.0157	.03	1.78	2.02	1.08	.013	.00	.00	PIPE
215.810	3440.477	1.850	3442.327	67.00	12.98	2.62	3444.95	.00	2.57	3.49	3.500	.000	.00	1 .0
1.849	.1035					.0139	.03	1.85	1.88	1.08	.013	.00	.00	PIPE
217.659	3440.669	1.922	3442.591	67.00	12.38	2.38	3444.97	.00	2.57	3.48	3.500	.000	.00	1 .0
1.538	.1035					.0122	.02	1.92	1.75	1.08	.013	.00	.00	PIPE
219.197	3440.828	1.998	3442.826	67.00	11.80	2.16	3444.99	.00	2.57	3.46	3.500	.000	.00	1 .0
1.255	.1035					.0108	.01	2.00	1.63	1.08	.013	.00	.00	PIPE
220.452	3440.958	2.078	3443.036	67.00	11.26	1.97	3445.00	.00	2.57	3.44	3.500	.000	.00	1 .0
1.000	.1035					.0096	.01	2.08	1.51	1.08	.013	.00	.00	PIPE

Program Package Serial Number: 7156

WATER SURFACE PROFILE LISTING Date: 8-20-2020 Time: 7:34:50

Mainline
By Roshan Poudel, Aug 19, 2020
Castellana (Summerlin Village 25 Parcel A)

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
221.452	3441.061	2.163	3443.225	67.00	10.73 / 1.79 /	3445.01 /	.00 /	2.57 /	3.40 /	3.500 /	.000 /	.00 /	1 /
.761	.1035				.0085	.01	2.16	1.40	1.08	.013	.00	.00	PIPE
222.213	3441.140	2.253	3443.394	67.00	10.23 / 1.63 /	3445.02 /	.00 /	2.57 /	3.35 /	3.500 /	.000 /	.00 /	1 /
.536	.1035				.0075	.00	2.25	1.29	1.08	.013	.00	.00	PIPE
222.750	3441.196	2.350	3443.545	67.00	9.76 / 1.48 /	3445.02 /	.00 /	2.57 /	3.29 /	3.500 /	.000 /	.00 /	1 /
.322	.1035				.0067	.00	2.35	1.19	1.08	.013	.00	.00	PIPE
223.071	3441.229	2.453	3443.682	67.00	9.30 / 1.34 /	3445.03 /	.00 /	2.57 /	3.21 /	3.500 /	.000 /	.00 /	1 /
.109	.1035				.0060	.00	2.45	1.09	1.08	.013	.00	.00	PIPE
223.180	3441.240	2.565	3443.805	67.00	8.87 / 1.22 /	3445.03 /	.00 /	2.57 /	3.10 /	3.500 /	.000 /	.00 /	1 /
JUNCT STR	.0100				.0032	.00	2.57	1.00		.013	.00	.00	PIPE
224.180	3441.250	4.389	3445.639	29.06	9.25 / 1.33 /	3446.97 /	.00 /	1.85 /	.00 /	2.000 /	.000 /	.00 /	1 /
1.000	.0100				.0165	.02	4.39	.00	2.00	.013	.00	.00	PIPE
225.180	3441.260	4.395	3445.656	29.06	9.25 / 1.33 /	3446.98 /	.00 /	1.85 /	.00 /	2.000 /	.000 /	.00 /	1 /
12.510	.0048				.0165	.21	4.40	.00	2.00	.013	.00	.00	PIPE
237.690	3441.320	4.608	3445.928	29.06	9.25 / 1.33 /	3447.26 /	.00 /	1.85 /	.00 /	2.000 /	.000 /	.00 /	1 /
20.640	.0048				.0165	.34	4.61	.00	2.00	.013	.00	.00	PIPE
WALL ENTRANCE													

HGL at SDDI#1.
Starting HGL for Lateral 1.

Program Package Serial Number: 7156

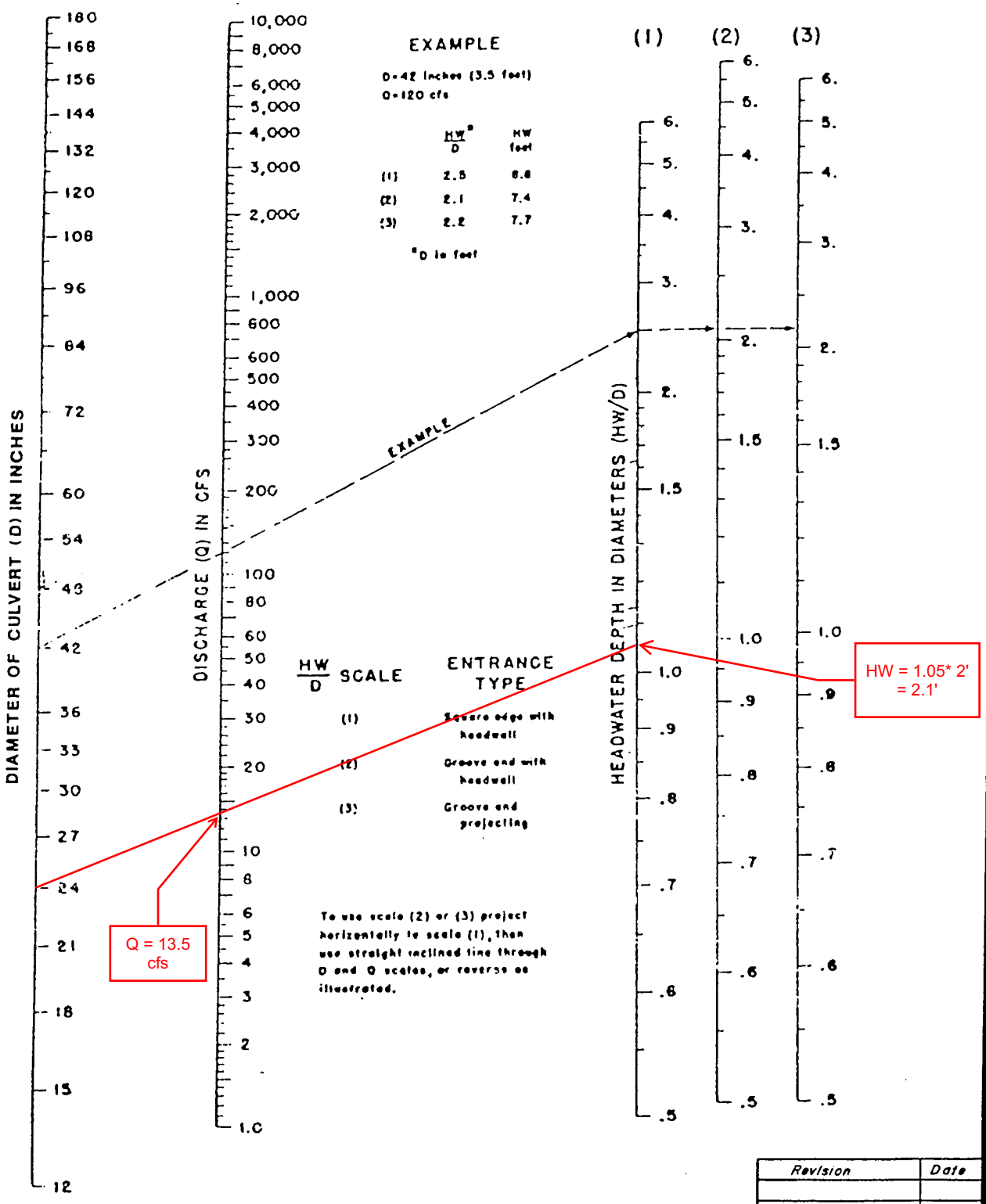
WATER SURFACE PROFILE LISTING Date: 8-20-2020 Time: 7:34:50

Mainline
By Roshan Poudel, Aug 19, 2020
Castellana (Summerlin Village 25 Parcel A)

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
258.330	3441.420	4.849	3446.269	29.06	9.25	1.33	3447.60	.00	1.85	.00	2.000	.000	.00	0 .0

HGL at SDDI#3.
Starting HGL for Lateral 2.

NOMOGRAPH – INLET CONTROL RCP



Revision	Date

WRC ENGINEERING

REFERENCE:
USDOT, FHWA, HDS, No. 5, 1985

FIGURE 1005

INPUT

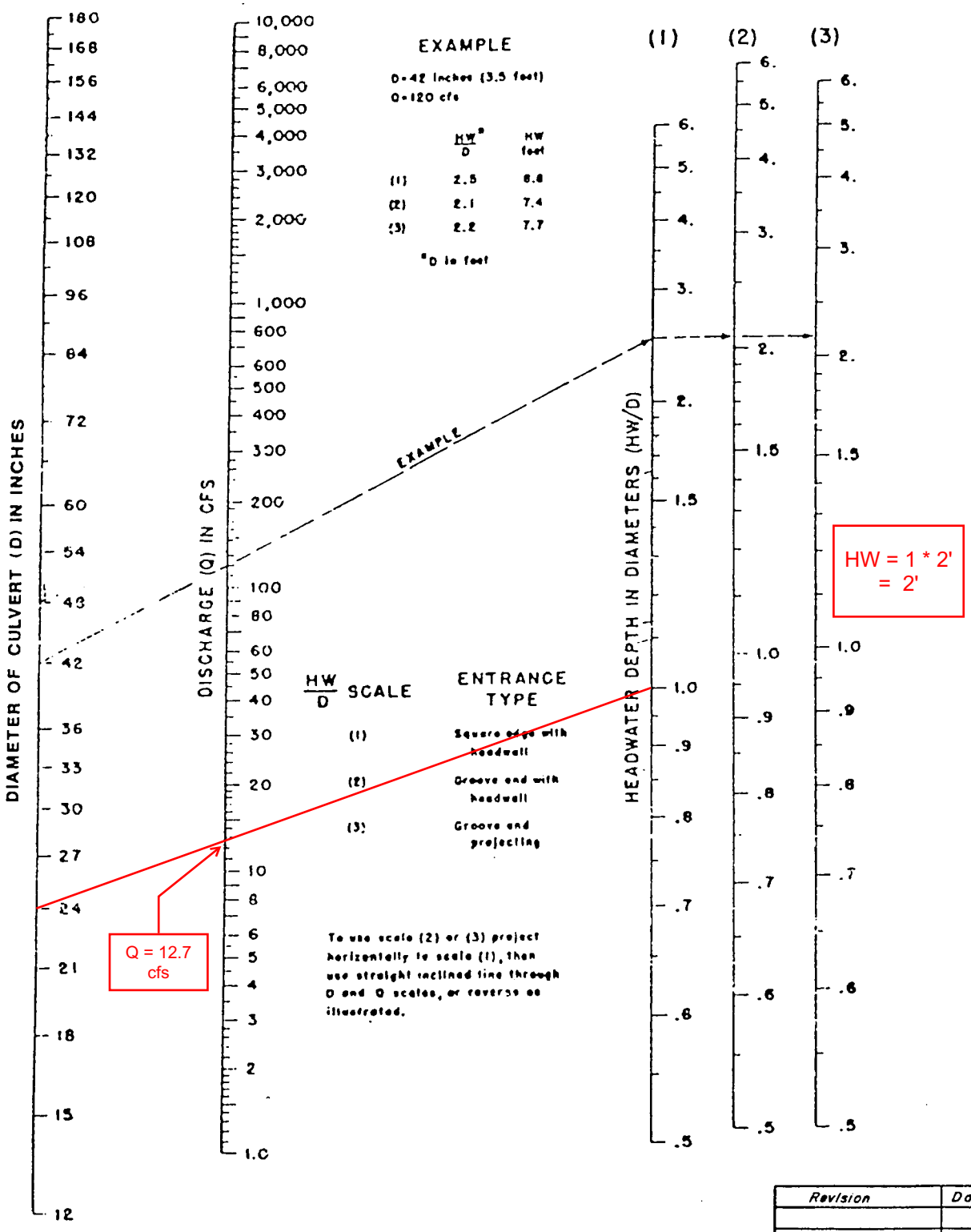
```
T1 Castellana (Summerlin Village 25 Parcel A)
0
T2 By Roshan Poudel, Aug 20, 2020
T3 SD Design - Lateral 1 (SDDI#2 to SDDI#1)
SO    224.1803441.250  1                          3445.639
R     224.1803441.250  1      .013                                .000    .000 0
R     231.0103441.320  1      .013                                .000    .000 0
SH    231.0103441.320  1                          3443.420
CD   1  4   1    .000   2.000     .000  .000  .000   .00
Q            13.500   .0
```

OUTPUT

```
FILE: Lateral1.WSW                    W S P G W - CIVILDESIGN Version 14.08                                    PAGE    1
                                Program Package Serial Number: 7156
                                        WATER SURFACE PROFILE LISTING                  Date: 8-20-2020  Time: 8:21: 1
                              Castellana (Summerlin Village 25 Parcel A)
                                By Roshan Poudel, Aug 20, 2020
                                  SD Design - Lateral 1 (SDDI#2 to SDDI#1)
 ********************************************************************************************************************* ********
         | Invert  |  Depth |  Water  |    Q    |  Vel     Vel  |  Energy | Super |Critical|Flow Top|Height/|Base Wt|      |No Wth
  Station |  Elev   |  (FT)  |  Elev   |  (CFS)  | (FPS)    Head |  Grd.El.|  Elev | Depth  | Width  |Dia.-FT|or I.D.|  ZL  |Prs/Pip
        -|-       -|-      -|-       -|-       -|-     -|-      -|-      -|-      -|-      -|-      -|-     -|-    -|
  L/Elem  |Ch Slope |        |         |         |         SF Ave|    HF   |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR  |Type Ch
 *********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|***** |*******
         |         |        |         |         |                 |         |       |        |        |       |       |      |
   224.180  3441.250    4.389  3445.639     13.50    4.30     .29  3445.93     .00    1.32      .00    2.000     .000   .00   1    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-
     6.830    .0103                                    .0036      .02     4.39     .00    1.10     .013       .00   .00  PIPE
         |         |        |         |         |                 |         |       |        |        |       |       |      |
   231.010  3441.320    4.343  3445.663     13.50    4.30     .29  3445.95     .00    1.32      .00    2.000     .000   .00   1    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-
```

HGL at SDDI#2.

NOMOGRAPH – INLET CONTROL RCP



Revision	Date

WRC ENGINEERING

REFERENCE:
USDOT, FHWA, HDS, No. 5, 1985

FIGURE 1005

INPUT

```
T1 Castellana (Summerlin Village 25 Parcel A)
0
T2 By Roshan Poudel, Aug 20, 2020
T3 SD Design - Lateral 2 (SDDI#4 to SDDI#3)
SO    258.3303441.420  1                          3446.269
R     258.3303441.420  1      .013                                .000    .000 0
R     265.5803441.490  1      .013                                .000    .000 0
SH    265.5803441.490  1                          3443.490
CD   1  4   1    .000   2.000     .000  .000  .000   .00
Q            12.700   .0
```

OUTPUT

```
FILE: Lateral2.WSW                    W S P G W - CIVILDESIGN Version 14.08                                    PAGE    1
                                Program Package Serial Number: 7156
                                        WATER SURFACE PROFILE LISTING                  Date: 8-20-2020  Time: 8:25:39
                              Castellana (Summerlin Village 25 Parcel A)
                                By Roshan Poudel, Aug 20, 2020
                                  SD Design - Lateral 2 (SDDI#4 to SDDI#3)
 ********************************************************************************************************************** ********
          | Invert  |  Depth |  Water  |    Q    |  Vel     Vel  |  Energy | Super |Critical|Flow Top|Height/|Base Wt|      |No Wth
  Station |  Elev   |  (FT)  |  Elev   |  (CFS)  | (FPS)    Head |  Grd.El.|  Elev | Depth  | Width  |Dia.-FT|or I.D.|  ZL  |Prs/Pip
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-      -|-     -|-    -|
  L/Elem  |Ch Slope |        |         |         |         SF Ave|    HF   |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR  |Type Ch
 *********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|***** |*******
          |         |        |         |         |                 |         |       |        |        |       |       |      |
   258.330  3441.420    4.849  3446.269     12.70    4.04     .25  3446.52     .00    1.28      .00    2.000     .000   .00   1    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-      -|-     -|-    -|-
     7.250    .0097                                    .0032      .02     4.85     .00    1.08    .013       .00   .00  PIPE
          |         |        |         |         |                 |         |       |        |        |       |       |      |
   265.580  3441.490    4.802  3446.292     12.70    4.04     .25  3446.55     .00    1.28      .00    2.000     .000   .00   1    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-      -|-     -|-    -|-
```

HGL at SDDI#4

Weir Depth Calculator

Company:	Actus
By:	Roshan Poudel, EI
Date:	8/20/2020
Project Name:	Castellana
Description	Emergency weir overflow C.E."H"
Location	Between Lot 8 and Lot 9

Q	67	cfs
C	3.0	
L	71.0	ft

Weir Flow = Q = C*L*H^(3/2)

$$H = \left(\frac{Q}{C * L}\right)^{(2/3)}$$

H = 0.463 ft

Emergency weir overflow depth

[1] Q = Flow (cfs) (Q100 @ CP1)
[2] C = Weir Coefficient
[3] L = Weir Length (ft)
[4] H = Weir Height (ft)

HYDRAULIC CALCULATIONS

HYDRAULIC CALCULATIONS

Finish Floor Analysis

CASTELLANA (SUMMERLIN VILLAGE 25 - PARCEL A)														
FINISH FLOOR ANALYSIS (OVERALL) - CITY OF LAS VEGAS JURISDICTION														
INPUT INFORMATION							FINISHED FLOORS							NOTES
Lot Number	Hydraulic Section Utilized	Centerline Elevation	T/C[1]	Mod Roll, Roll, or L Curb?	F/L[2]	D_{100}	Flowline FF min[3]	Centerline (of TC) FF min[4]	Pad	Section	FF Design	Flowline Check	Centerline Check	See References on Last Sheet
		(ft)	(ft)	Type	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
1	2	3453.95	3453.95	Roll	3453.57	0.57	3454.71	3455.45	3455.2	0.83	3456.03	OK	OK	
2	2	3453.15	3453.15	Roll	3452.77	0.57	3453.91	3454.65	3454.4	0.83	3455.23	OK	OK	
3	2	3452.78	3452.78	Roll	3452.40	0.57	3453.54	3454.28	3454.0	0.83	3454.83	OK	OK	
4	2	3452.37	3452.37	Roll	3451.99	0.57	3453.13	3453.87	3453.6	0.83	3454.43	OK	OK	
5	2	3451.98	3451.98	Roll	3451.60	0.57	3452.74	3453.48	3453.0	0.83	3453.83	OK	OK	
6	2	3451.58	3451.58	Roll	3451.20	0.57	3452.34	3453.08	3452.6	0.83	3453.43	OK	OK	
7	2	3451.32	3451.32	Roll	3450.94	0.57	3452.08	3452.82	3452.4	0.83	3453.23	OK	OK	
8	2	3451.08	3451.08	Roll	3450.70	0.44	3451.58	3452.58	3452.1	0.83	3452.93	OK	OK	
9	1C	3452.07	3452.07	Roll	3451.69	0.44	3452.57	3453.57	3453.5	0.83	3454.33	OK	OK	
10	1C	3452.43	3452.43	Roll	3452.05	0.44	3452.93	3453.93	3453.4	0.83	3454.23	OK	OK	
11	1C	3453.16	3453.16	Roll	3452.78	0.44	3453.66	3454.66	3454.1	0.83	3454.93	OK	OK	
12	1C	3455.18	3455.18	Roll	3454.80	0.44	3455.68	3456.68	3456.0	0.83	3456.83	OK	OK	
13	1C	3457.78	3457.78	Roll	3457.40	0.44	3458.28	3459.28	3458.6	0.83	3459.43	OK	OK	
14	1C	3460.46	3460.46	Roll	3460.08	0.44	3460.96	3461.96	3461.2	0.83	3462.03	OK	OK	
15	1C	3463.13	3463.13	Roll	3462.75	0.44	3463.63	3464.63	3463.9	0.83	3464.73	OK	OK	
16	1C	3465.86	3465.86	Roll	3465.48	0.44	3466.36	3467.36	3466.6	0.83	3467.43	OK	OK	
17	1C	3468.59	3468.59	Roll	3468.21	0.44	3469.09	3470.09	3469.3	0.83	3470.13	OK	OK	
18	1C	3471.32	3471.32	Roll	3470.94	0.44	3471.82	3472.82	3472.1	0.83	3472.93	OK	OK	
19	1C	3474.05	3474.05	Roll	3473.67	0.44	3474.55	3475.55	3474.8	0.83	3475.63	OK	OK	
20	1C	3476.78	3476.78	Roll	3476.40	0.52	3477.44	3478.28	3477.5	0.83	3478.33	OK	OK	
21	1C	3479.52	3479.52	Roll	3479.14	0.52	3480.18	3481.02	3480.3	0.83	3481.13	OK	OK	
22	1C	3482.25	3482.25	Roll	3481.87	0.54	3482.95	3483.75	3483.0	0.83	3483.83	OK	OK	
23	1C	3484.98	3484.98	Roll	3484.60	0.54	3485.68	3486.48	3485.7	0.83	3486.53	OK	OK	
24	1C	3487.71	3487.71	Roll	3487.33	0.54	3488.41	3489.21	3488.5	0.83	3489.33	OK	OK	
25	1C	3490.44	3490.44	Roll	3490.06	0.54	3491.14	3491.94	3491.2	0.83	3492.03	OK	OK	
26	1C	3493.17	3493.17	Roll	3492.79	0.54	3493.87	3494.67	3493.9	0.83	3494.73	OK	OK	
27	1C	3495.38	3495.38	Roll	3495.00	0.54	3496.08	3496.88	3496.1	0.83	3496.93	OK	OK	
28	1A	3488.61	3488.61	Roll	3488.23	0.52	3489.27	3490.11	3490.3	0.83	3491.13	OK	OK	
29	1A	3489.10	3489.10	Roll	3488.72	0.52	3489.76	3490.60	3490.8	0.83	3491.63	OK	OK	
30	1A	3490.14	3490.14	Roll	3489.76	0.52	3490.80	3491.64	3491.3	0.83	3492.13	OK	OK	
31	1A	3490.79	3490.79	Roll	3490.41	0.52	3491.45	3492.29	3492.4	0.83	3493.23	OK	OK	
32	1A	3491.06	3491.06	Roll	3490.68	0.52	3491.72	3492.56	3492.8	0.83	3493.63	OK	OK	
33	1A	3491.26	3491.26	Roll	3490.88	0.52	3491.92	3492.76	3493.0	0.83	3493.83	OK	OK	
34	1A	3491.49	3491.49	Roll	3491.11	0.52	3492.15	3492.99	3493.2	0.83	3494.03	OK	OK	
35	1A	3491.68	3491.68	Roll	3491.30	0.52	3492.34	3493.18	3493.4	0.83	3494.23	OK	OK	
36	1A	3491.88	3491.88	Roll	3491.50	0.52	3492.54	3493.38	3493.6	0.83	3494.43	OK	OK	
37	1A	3492.35	3492.35	Roll	3491.97	0.52	3493.01	3493.85	3493.9	0.83	3494.73	OK	OK	
38	1A	3492.84	3492.84	Roll	3492.46	0.52	3493.50	3494.34	3494.4	0.83	3495.23	OK	OK	
39	1A	3493.34	3493.34	Roll	3492.96	0.52	3494.00	3494.84	3494.9	0.83	3495.73	OK	OK	
40	1A	3493.84	3493.84	Roll	3493.46	0.52	3494.50	3495.34	3495.4	0.83	3496.23	OK	OK	
41	1A	3494.34	3494.34	Roll	3493.96	0.52	3495.00	3495.84	3495.9	0.83	3496.73	OK	OK	
42	1A	3494.83	3494.83	Roll	3494.45	0.52	3495.49	3496.33	3496.4	0.83	3497.23	OK	OK	
43	1A	3495.33	3495.33	Roll	3494.95	0.52	3495.99	3496.83	3496.9	0.83	3497.73	OK	OK	
44	1A	3495.76	3495.76	Roll	3495.38	0.52	3496.42	3497.26	3497.3	0.83	3498.13	OK	OK	
45	1A	3495.78	3495.78	Roll	3495.40	0.52	3496.44	3497.28	3497.5	0.83	3498.33	OK	OK	
46	1A	3495.56	3495.56	Roll	3495.18	0.52	3496.22	3497.06	3496.9	0.83	3497.73	OK	OK	

CASTELLANA (SUMMERLIN VILLAGE 25 - PARCEL A)														
FINISH FLOOR ANALYSIS (OVERALL) - CITY OF LAS VEGAS JURISDICTION														
INPUT INFORMATION							FINISHED FLOORS							NOTES
Lot Number	Hydraulic Section Utilized	Centerline Elevation	T/C[1]	Mod Roll, Roll, or L Curb?	F/L[2]	D_{100}	Flowline FF min[3]	Centerline (of TC) FF min[4]	Pad	Section	FF Design	Flowline Check	Centerline Check	See References on Last Sheet
		(ft)	(ft)	Type	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
47	1A	3494.61	3494.61	Roll	3494.23	0.52	3495.27	3496.11	3496.0	0.83	3496.83	OK	OK	
48	1A	3493.58	3493.58	Roll	3493.20	0.52	3494.24	3495.08	3494.9	0.83	3495.73	OK	OK	
49	1A	3493.82	3493.82	Roll	3493.44	0.52	3494.48	3495.32	3494.9	0.83	3495.73	OK	OK	
50	1A	3495.61	3495.61	Roll	3495.23	0.52	3496.27	3497.11	3496.7	0.83	3497.53	OK	OK	
51	1A	3495.78	3495.78	Roll	3495.40	0.52	3496.44	3497.28	3497.0	1.00	3498.00	OK	OK	
52	1A	3495.48	3495.48	Roll	3495.10	0.52	3496.14	3496.98	3496.5	0.83	3497.33	OK	OK	
53	1A	3494.69	3494.69	Roll	3494.31	0.52	3495.35	3496.19	3495.7	0.83	3496.53	OK	OK	
54	1A	3493.89	3493.89	Roll	3493.51	0.52	3494.55	3495.39	3494.9	0.83	3495.73	OK	OK	
55	1A	3493.08	3493.08	Roll	3492.70	0.52	3493.74	3494.58	3494.1	0.83	3494.93	OK	OK	
56	1A	3492.27	3492.27	Roll	3491.89	0.52	3492.93	3493.77	3493.5	0.83	3494.33	OK	OK	
57	1A	3491.81	3491.81	Roll	3491.43	0.52	3492.47	3493.31	3493.1	0.83	3493.93	OK	OK	
58	1A	3491.57	3491.57	Roll	3491.19	0.52	3492.23	3493.07	3492.8	0.83	3493.63	OK	OK	
59	1A	3491.34	3491.34	Roll	3490.96	0.52	3492.00	3492.84	3492.6	0.83	3493.43	OK	OK	
60	1A	3491.11	3491.11	Roll	3490.73	0.52	3491.77	3492.61	3492.4	0.83	3493.23	OK	OK	
61	1A	3490.82	3490.82	Roll	3490.44	0.52	3491.48	3492.32	3492.0	0.83	3492.83	OK	OK	
62	1B	3483.44	3483.44	Roll	3483.06	0.45	3483.96	3484.94	3484.8	0.83	3485.63	OK	OK	
63	1B	3479.93	3479.93	Roll	3479.55	0.45	3480.45	3481.43	3480.8	0.83	3481.63	OK	OK	
64	1B	3476.85	3476.85	Roll	3476.47	0.45	3477.37	3478.35	3477.7	0.83	3478.53	OK	OK	
65	1B	3473.78	3473.78	Roll	3473.40	0.45	3474.30	3475.28	3474.6	0.83	3475.43	OK	OK	
66	1B	3470.71	3470.71	Roll	3470.33	0.45	3471.23	3472.21	3471.6	0.83	3472.43	OK	OK	
67	1B	3470.27	3470.27	Roll	3469.89	0.45	3470.79	3471.77	3471.9	0.83	3472.73	OK	OK	
68	1B	3471.08	3471.08	Roll	3470.70	0.45	3471.60	3472.58	3472.5	0.83	3473.33	OK	OK	
69	1B	3471.79	3471.79	Roll	3471.41	0.45	3472.31	3473.29	3473.2	0.83	3474.03	OK	OK	
70	1B	3472.50	3472.50	Roll	3472.12	0.45	3473.02	3474.00	3473.9	0.83	3474.73	OK	OK	
71	1B	3473.21	3473.21	Roll	3472.83	0.45	3473.73	3474.71	3474.7	0.83	3475.53	OK	OK	
72	1B	3474.21	3474.21	Roll	3473.83	0.45	3474.73	3475.71	3475.9	0.83	3476.73	OK	OK	
73	1B	3475.22	3475.22	Roll	3474.84	0.45	3475.74	3476.72	3476.9	0.83	3477.73	OK	OK	
74	1B	3476.17	3476.17	Roll	3475.79	0.45	3476.69	3477.67	3477.8	0.83	3478.63	OK	OK	
75	1B	3477.11	3477.11	Roll	3476.73	0.45	3477.63	3478.61	3478.8	0.83	3479.63	OK	OK	
76	1B	3477.50	3477.50	Roll	3477.12	0.45	3478.02	3479.00	3479.3	0.83	3480.13	OK	OK	
77	1B	3477.37	3477.37	Roll	3476.99	0.45	3477.89	3478.87	3478.5	0.83	3479.33	OK	OK	
78	1B	3475.86	3475.86	Roll	3475.48	0.45	3476.38	3477.36	3477.5	0.83	3478.33	OK	OK	
79	1B	3476.00	3476.00	Roll	3475.62	0.45	3476.52	3477.50	3476.5	0.83	3477.33	OK	FIX	
80	1B	3477.47	3477.47	Roll	3477.09	0.45	3477.99	3478.97	3478.4	0.83	3479.23	OK	OK	
81	1B	3477.49	3477.49	Roll	3477.11	0.45	3478.01	3478.99	3478.7	0.83	3479.53	OK	OK	
82	1B	3476.86	3476.86	Roll	3476.48	0.45	3477.38	3478.36	3477.9	0.83	3478.73	OK	OK	
83	1B	3475.84	3475.84	Roll	3475.46	0.45	3476.36	3477.34	3476.9	0.83	3477.73	OK	OK	
84	1B	3474.83	3474.83	Roll	3474.45	0.45	3475.35	3476.33	3475.9	0.83	3476.73	OK	OK	
85	1B	3473.82	3473.82	Roll	3473.44	0.45	3474.34	3475.32	3474.9	0.83	3475.73	OK	OK	
86	1B	3472.81	3472.81	Roll	3472.43	0.45	3473.33	3474.31	3473.9	0.83	3474.73	OK	OK	
87	1B	3472.13	3472.13	Roll	3471.75	0.45	3472.65	3473.63	3473.2	0.83	3474.03	OK	OK	
88	1B	3471.46	3471.46	Roll	3471.08	0.45	3471.98	3472.96	3472.5	0.83	3473.33	OK	OK	
89	1B	3470.78	3470.78	Roll	3470.40	0.45	3471.30	3472.28	3471.9	0.83	3472.73	OK	OK	
90	1C	3462.44	3462.44	Roll	3462.06	0.44	3462.94	3463.94	3463.8	0.83	3464.63	OK	OK	
91	1C	3458.82	3458.82	Roll	3458.44	0.44	3459.32	3460.32	3459.7	0.83	3460.53	OK	OK	
92	1C	3455.32	3455.32	Roll	3454.94	0.44	3455.82	3456.82	3456.3	0.83	3457.13	OK	OK	

CASTELLANA (SUMMERLIN VILLAGE 25 - PARCEL A)

FINISH FLOOR ANALYSIS (OVERALL) - CITY OF LAS VEGAS JURISDICTION

INPUT INFORMATION							FINISHED FLOORS							NOTES
Lot Number	Hydraulic Section Utilized	Centerline Elevation	T/C[1]	Mod Roll, Roll, or L Curb?	F/L[2]	D_{100}	Flowline FF min[3]	Centerline (of TC) FF min[4]	Pad	Section	FF Design	Flowline Check	Centerline Check	See References on Last Sheet
		(ft)	(ft)	Type	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
93	1C	3452.85	3452.85	Roll	3452.47	0.44	3453.35	3454.35	3453.8	0.83	3454.63	OK	OK	
94	2	3451.35	3451.35	Roll	3450.97	0.57	3452.11	3452.85	3453.1	0.83	3453.93	OK	OK	
95	2	3451.57	3451.57	Roll	3451.19	0.57	3452.33	3453.07	3453.3	0.83	3454.13	OK	OK	
96	2	3451.78	3451.78	Roll	3451.40	0.57	3452.54	3453.28	3453.5	0.83	3454.33	OK	OK	
97	2	3452.12	3452.12	Roll	3451.74	0.57	3452.88	3453.62	3454.1	0.83	3454.93	OK	OK	
98	2	3452.45	3452.45	Roll	3452.07	0.57	3453.21	3453.95	3454.4	0.83	3455.23	OK	OK	
99	2	3452.78	3452.78	Roll	3452.40	0.57	3453.54	3454.28	3454.7	0.83	3455.53	OK	OK	
100	2	3453.10	3453.10	Roll	3452.72	0.57	3453.86	3454.60	3455.1	0.83	3455.93	OK	OK	
101	2	3453.44	3453.44	Roll	3453.06	0.57	3454.20	3454.94	3455.4	0.83	3456.23	OK	OK	
102	2	3453.80	3453.80	Roll	3453.42	0.57	3454.56	3455.30	3455.7	0.83	3456.53	OK	OK	
103	3	3492.00	3493.84	Roll	3493.46	0.52	3494.50	3493.50	3494.7	0.83	3495.53	OK	OK	centerline elevation manually punched
104	3	3487.75	3489.75	Roll	3489.37	0.52	3490.41	3489.25	3490.6	0.83	3491.43	OK	OK	centerline elevation manually punched
105	3	3484.00	3485.75	Roll	3485.37	0.52	3486.41	3485.50	3486.6	0.83	3487.43	OK	OK	centerline elevation manually punched
106	3	3480.00	3481.78	Roll	3481.40	0.52	3482.44	3481.50	3482.6	0.83	3483.43	OK	OK	centerline elevation manually punched
107	3	3477.81	3477.81	Roll	3477.43	0.52	3478.47	3479.31	3478.7	0.83	3479.53	OK	OK	
108	3	3473.83	3473.83	Roll	3473.45	0.52	3474.49	3475.33	3474.7	0.83	3475.53	OK	OK	
109	3	3467.80	3469.95	Roll	3469.57	0.52	3470.61	3469.30	3470.7	0.83	3471.53	OK	OK	
110	3	3465.75	3465.75	Roll	3465.37	0.52	3466.41	3467.25	3466.6	0.83	3467.43	OK	OK	
111	3	3461.65	3461.65	Roll	3461.27	0.52	3462.31	3463.15	3462.5	0.83	3463.33	OK	OK	
112	3	3457.76	3457.76	Roll	3457.38	0.52	3458.42	3459.26	3458.6	0.83	3459.43	OK	OK	
113	3	3455.85	3455.85	Roll	3455.47	0.52	3456.51	3457.35	3457.1	0.83	3457.93	OK	OK	
114	3	3455.63	3455.63	Roll	3455.25	0.52	3456.29	3457.13	3456.9	0.83	3457.73	OK	OK	
115	3	3455.34	3455.34	Roll	3454.96	0.52	3456.00	3456.84	3456.6	0.83	3457.43	OK	OK	

Where:

1: Top of Curb at High Side of Lot

2: Flowline = TC - 0.38 feet (for Roll)

3: Minimum Allowable Finished Floor Elevation above flowline @ high side of lot = $(2 \times D_{100}) + F/L$

4: Minimum Allowable Finished Floor Elevation above centerline (or TC whicher is higher) elevation = Centerline elevation (or Center TC) + 1.5 feet

REFERENCES

1) Summerlin V25 - Fox Hill Drive improvements (from Far Hills Avenue to Redpoint Drive), DS#5118, GCW (2019) and addenda

2) Updates 1 & 2 to the Master Conceptual Drainage Study for Summerlin West Village 25, DS#5104, VTN (2020).

3) Conceptual Drainage Study for Summerlin Village 23B Update #3, DS 3420, GCW (2013).

4) 2nd Update to the Technical Drainage Study for Summerlin Village 25 - 3435 Reservoir, DS# 2731, GCW 2003.

REFERENCES

1) Summerlin V25 - Fox Hill Drive improvements (from Far Hills Avenue to Redpoint Drive), DS#5118, GCW (2019) and addenda

Approval Letters
Response to Comments
Figure 6 Ultimate Condition Basin Map (*Addendum #1)*
Figure 7 Local Storm Drain Facilities Map *(Addendum #1)*
Appendix A - Worksheet for Ditch 1
Appendix A - Worksheet for Ditch 2
Appendix A - Worksheet for Section 1 (before DI)
Appendix A - Worksheet for Section 1 (after DI)
Appendix A - DI calculations

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: June 25, 2019
TO: **Land Development Services** Department of Building & Safety				FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for: **Summerlin V25 - Fox Hill Drive Improvements (from Far Hills Avenue to Redpoint Drive)**			**COPIES TO:** GCW Engineers / Surveyors
Cross Streets:	Fox Hill Drive & Far Hills Avenue			Howard Hughes Company, LLC
File Number:	F:\Depot\DSMemos\DS5118C.doc			Bart Anderson, P.E., DevCo
Parcel Number:	137-22-101-001			CCRFCD
Zoning Action:	N/A			
FEMA Flood Zone	YES		NO X	
Proposed Storm Drain	YES X		NO	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	4/1/2019	4/15/2019	Not Approved	$400.00	3073933: $400
2nd Submittal	5/6/2019	5/22/2019	Conditional Approval	$400.00	3122271: $400
CCRFCD	6/20/2019	6/25/2019	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.

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

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

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

ays

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

REGIONAL FLOOD CONTROL DISTRICT

Rec'd: 6/20/19
DS 5118
N/C

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

BOARD OF DIRECTORS

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Clark County

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Dr. Lois Tarkanian
City of Las Vegas

Mayor Rodney Woodbury
City of Boulder City

June 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 V25 B- FOX HILL DRIVE IMPROVEMENTS (FROM FAR HILLS AVENUE TO REDPOINT DRIVE) (DS5118B) (RFCD No. 19-11283)**

Dear Mr. Kwon:

Clark County Regional Flood Control District (District) reviewed Technical Drainage Study dated April 1, 2019, Addendum No. 1 dated May 6, 2019 for above-mentioned project as submitted by GCW, INC. In addition, District is in receipt of the Conditional Letter of Acceptance from City of Las Vegas Department of Public Works dated May 23, 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 GCW, INC. 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: Stephen M. Jones, P.E., GCW, Inc.

P:\Letters and Memos\Local Drainage\Land Development & Drainage\2019\L-19-11283.doc

600 S. Grand Central Parkway, Suite 300 • Las Vegas, Nevada 89106-4511
(702) 685-0000 • FAX: (702) 685-0001
Website: http://www.regionalflood.org

DS #: 5118

APN: 137-22-101-001

PROJECT: Summerlin V25 - Fox Hill Drive Improvements

SUBMITTAL: 2nd

SCANNED BY/DATE:

CHECKED BY/DATE:

CITY OF LAS VEGAS NEVADA

62025-201

May 6, 2019

Albert Y. Sung, PE
Flood Control Project Engineer
City of Las Vegas Land Development Services
Department of Public Works
333 N. Rancho Drive – 7th Floor
Las Vegas, NV 89106

Re: Response to City of Las Vegas Comments on the Technical Drainage Study for Village 25 Fox Hill Drive Improvements (Far Hills Avenue to Redpoint Drive) (DS5118A)

Dear Mr. Sung:

This letter addresses the City of Las Vegas review comments dated April 16, 2019 regarding the project in its entirety. Below are individual responses to each comment included in the review letter.

Comment 1:

The site is adjacent to or crosses an existing or proposed Clark County Regional Flood Control District (CCRFCD) master planned facility. Therefore, CCRFCD concurrence is required prior to final approval of the drainage study.

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

http://gust front.ccrfcd.org/LandDev/LandDev .aspx

Response:

The CCRFCD concurrence requirement prior to the final approval is acknowledged.

Comment 2:

The Study is premised on the protection, ie, fully build-out of Sky Vista Drive on the west for flood protection. The subject drainage study for Fox Hill Drive street improvements will not be approved prior to the Technical Drainage Study of Sky Vista Drive Improvements (Far Hills to Redpoint) being approved.

If the intention is not to have Sky Vista Drive for flood protection, then a true existing condition and offsite basins map must be presented in the next submittal. The interim berm/swale along Fox Hill Drive must be sized and armored accordingly.

Response:

For the north part of Sky Vista, the street is being rough graded, and a 5-ft bottom width ditch on the west side of that is being constructed per the Technical Drainage Study for Summerlin West Village 21 – Redpoint Drive Improvements (Desert Foothills Drive to Fox Hill Drive), DS5088B, which has been already approved by the CLV on March 12, 2019. Additionally, the southern part of Sky Vista is already rough graded per DS4872C, which was approved on August 3, 2017. Therefore, Sky Vista does not have to be fully build-out for flood protection of the proposed Fox Hill Drive.

Comment 3:

The project proposes to build temporary drainage facilities including drainage berms/swales along the west side of the proposed Far Hills Drive. Prior to final plan approval the developer must complete a ***Maintenance & Liability Agreement*** for the interim drainage improvements and post a minimum maintenance bond of $50,000 or 50-percent of the construction cost for the improvements, whichever is greater. The engineer must submit an estimate of the quantities for constructing the facilities and an exhibit that adequately shows the location and limits of the drainage facilities to City of Las Vegas Flood Control for approval. Once the drainage study is conditionally approved, the engineer should contact the City's Land Development Section (229-6371) to begin the agreement process.
In order for the maintenance bond to be released in the future, a drainage update/ letter will be required to justify that the offsite berms/ channels are no longer necessary and can be removed.

Response:

The requirements for Maintenance & Liability Agreement prior to the final approval are acknowledged.

Comment 4:

Page 3 of the Study under subchapter "Ultimate Drainage Condition", it's stated that some revisions have been made and Table 1 listed the flowrate changes at various concentration points such as CB, CFOX4B, CSTE and CFOX5A.
However, the "Master Conceptual Drainage Study for Summerlin West Village 25" submitted by VTN Nevada does not match the subject proposed changes. Also note that the VTN study is still under review and has not been approved yet.

GCW engineer must coordinate with VTN Nevada for them to agree with the changes. The subject drainage study will not be approved prior to the acceptance of the pertinent Village 25 Master Conceptual Study.

Response:

We have been coordinating with VTN Nevada for the proposed changes to the Village 25 Master Conceptual Study. The changes have been approved by VTN Nevada and they have already modified flowrates in their maps. Please see attached email communication, and Figures 6 and 7 from the VTN Village 25 Master Conceptual Study.

Comment 5:

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

Response:

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

Comment 6:

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

Response:

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

Comment 7:

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

Response:

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

Comment 8:

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

Comment #4

Masih Edalat

From: Joanna Ayson <jayson@vtnnv.com>
Sent: Wednesday, April 24, 2019 03:12 PM
To: Masih Edalat
Subject: RE: Summerlin West V25 MPU
Attachments: Figure 7 - Local Flood Control Facilities Map.pdf

Hello Masih

Please see the revised Figure 7 attached. This should match your drainage study now. Please let me know if you see any additional discrepancies or if there has been any changes to your design.

Thanks,
Joanna

From: Joanna Ayson
Sent: Wednesday, April 24, 2019 10:34 AM
To: 'Masih Edalat' <MEdalat@gcwengineering.com>; Brian Ruiz <brianr@vtnnv.com>; Dave Edwards <davee@vtnnv.com>; Vicki Marjerrison <VMarjerrison@gcwengineering.com>
Cc: Steve Jones <SJones@gcwengineering.com>; Rachel Raymond <rachelr@vtnnv.com>
Subject: RE: Summerlin West V25 MPU

Hi Masih,

I do not see any issues with your changes. We received a similar comment, and therefore have updated our HEC-1 model to match the flow patterns in your study. Please see the attached basin map which reflects the revisions. Our flow rates now match those shown in your study. Please note that we have removed CB, and the concentration point you will be referencing is now COS-2 (which has same flow rate). Our facility map is currently being updated to reflect your storm drain layout and I will send it to you once it is completed.

Please let me know if you have any questions or concerns.

Thanks,
Joanna

From: Masih Edalat <MEdalat@gcwengineering.com>
Sent: Thursday, April 18, 2019 5:40 PM
To: Brian Ruiz <brianr@vtnnv.com>; Dave Edwards <davee@vtnnv.com>; Joanna Ayson <jayson@vtnnv.com>; Vicki Marjerrison <VMarjerrison@gcwengineering.com>
Cc: Steve Jones <SJones@gcwengineering.com>
Subject: Summerlin West V25 MPU

Brain,

We have received the CLV comments on V25 Fox Hill Drive (Far Hills to Redpoint). In the Summerlin West V25 MPU, Fox Hill was divided into 2 basins; FOX5A (draining to the south) and FOX5B (draining to the north). However, GCW has designed Fox Hill draining to the south (both FOX5A and FOX5B draining south). To make it clear, we provided a table in our study showing the differences between the Summerlin West V25 MPU and the V25 Fox Hill Drive study.

Table 1: Ultimate Condition Flowrate Change			
Concentration Point ID	**Q_{100} (cfs) from Master Drainage Study for Village 25**	**Q_{100} (cfs) used in this study**	**Note**
CB	190	114	Basin B eliminated
CFOX4B	275	263	Basin FOX5B eliminated
CSTE	360	348	Basin FOX5B eliminated
CFOX5A	99	111	Basin FOX5B added

Below is a comment we received from the CLV regarding the proposed changes:

"Page 3 of the Study under subchapter "Ultimate Drainage Condition", it's stated that some revisions have been made and Table 1 listed the flowrate changes at various concentration points such as CB, CFOX4B, CSTE and CFOX5A. However, the "Master Conceptual Drainage Study for Summerlin West Village 25" submitted by VTN Nevada does not match the subject proposed changes. Also note that the VTN study is still under review and has not been approved yet.

GCW engineer must coordinate with VTN Nevada for them to agree with the changes. The subject drainage study will not be approved prior to the acceptance of the pertinent Village 25 Master Conceptual Study."

Since we need your confirmation, do you agree with our proposed changes?

Please let me know if you have any question.

Best,

GCW 50 YEARS ENGINEERS \ SURVEYORS 1969-2019

Masih Edalat, PhD, EI
Flood Control Department

O 702.804.2000 **D** 702.804.2127
F 702.804.2299
1555 South Rainbow Boulevard
Las Vegas, Nevada 89146

Sending us a large file? **Use the GCW File Transfer Site**



NORTH

150 0 150 300 Feet

1 in = 150 ft

Legend

- Drop Inlet
- Cross Section
- Proposed SD
- Flow Arrow
- Ditches
- Existing SD

CCRFCD_Facilities

STATUS

- COM
- CON
- PRO
- TN1
- TN2
- Interim Subbasins
- 2-ft Contours 2016

(XX CFS) SD Flowrate
XX CFS Surface Flowrate

INTERIM CONDITIONS PRORATED FLOW SUMMARY

Basins		
Subbasin ID	Q_{100} (cfs)	Area (acres)
OFF3	390	146.86
Referenced from Desert Foothills Study		
Prorated Subbasins		
Subbasin ID	Q_{100} (cfs)	Area (acres)	Reference Subbasin
OFF3-A	9	3.52	OFF3
OFF3-B	49	18.29	OFF3
OFF3-C	69	25.98	OFF3
OFF3-D	59	22.35	OFF3

INTERIM CONDITIONS 100-YEAR DITCH CHARACTERISTICS

Section	Slope (%)	Q_{100} (cfs)	Depth of flow (ft)	Left Side Slope (H:V)	Right Side Slope (H:V)	Velocity (ft/s)	Bottom Width (ft)
Ditch #1	0.6	9	0.53	3.0	3.0	2.58	5
Ditch #2	0.6	58	1.42	3.0	3.0	4.42	5
Ditch #3	0.5	59	1.50	3.0	3.0	4.15	5

100-YEAR FLOW CHARACTERISTICS ULTIMATE CONDITIONS

Cross Section	Slope (%)	Q_{100} (cfs)	Depth (ft) / HW Elevation	Velocity (ft/s)	D*V	NOTE
(1)	0.5	11.5	0.56	2.6	1.4	Half Street - East & West
(1)	0.5	6.5	0.49	2.1	1.0	West Side - After the DI
(2)	0.4	11.5	0.57	2.4	1.4	East Side - Before the DI

NOTE:
SUBBASINS ARE PRORATED BASED ON BASIN DELINEATION REFERENCED FROM THE DESERT FOOTHILLS STUDY

*** Existing Ditch Per V25 Redpoint Study**

**** Existing Ditch Per V21 Redpoint Study**

DATE:
DESIGN: GCW APP
DRAWN: DATE
CHECK: AGEN APP
DATE
DESCRIPTION
REV DATE

PROJECT NO. 62025-201
PLOT DATE: 03/27/2019
PLOT TIME: 10:27:25 AM

GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

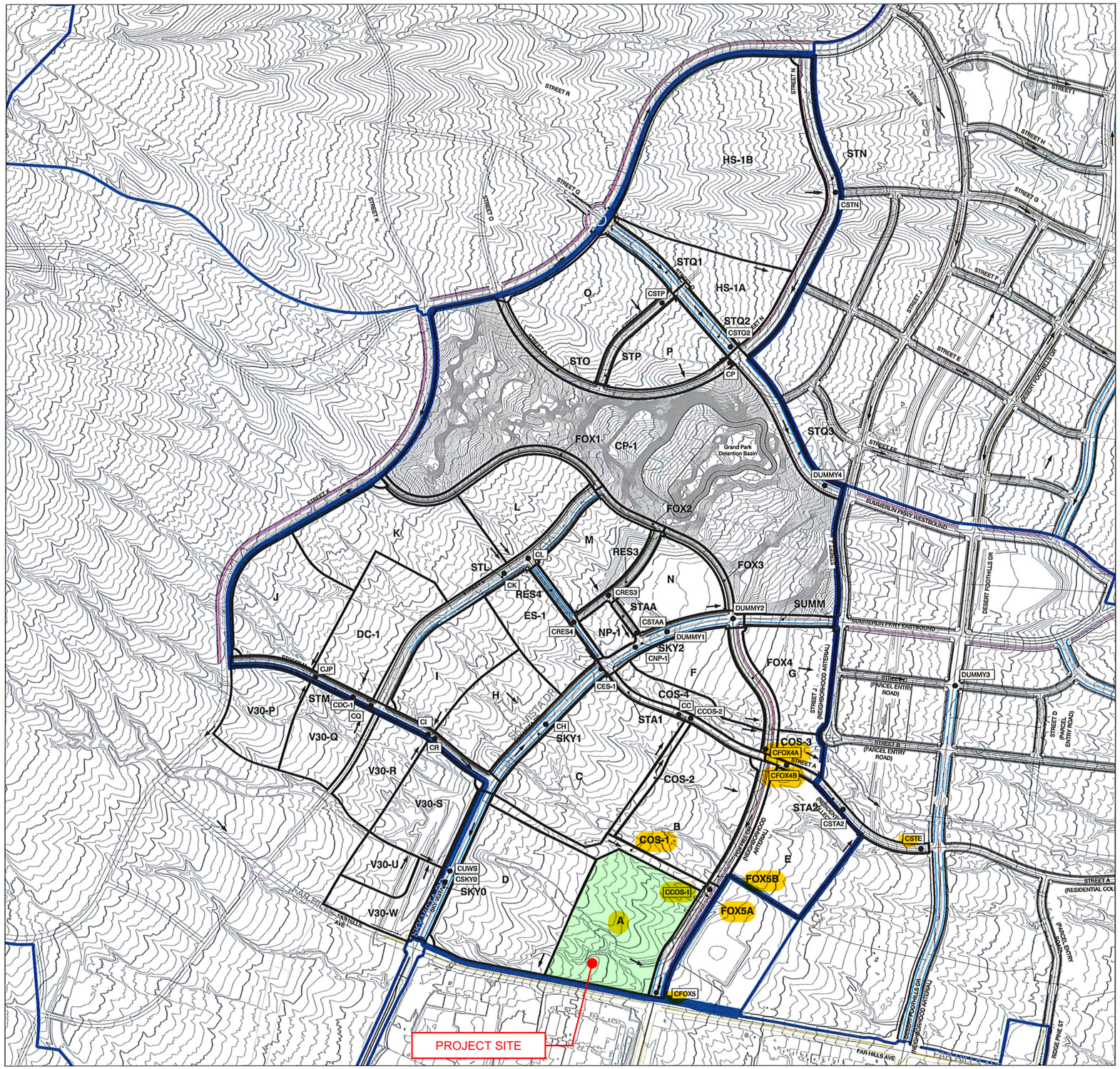
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THE HOWARD HUGHES COMPANY, LLC

VILLAGE 25 FOX HILL DRIVE IMPROVEMENTS
FAR HILLS AVENUE TO REDPOINT DRIVE

INTERIM CONDITION DRAINAGE MAP

DRAWING
FIG5
1 OF 1 SHTS



GRAPHIC SCALE
400 0 200 400 800
1" = 400'

NORTH

LEGEND

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

ULTIMATE CONDITION HEC-1 SUMMARY TABLE

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

REV	DATE	BY	REVISION

THE HOWARD HUGHES CORPORATION
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2727 SOUTH RAINBOW BOULEVARD
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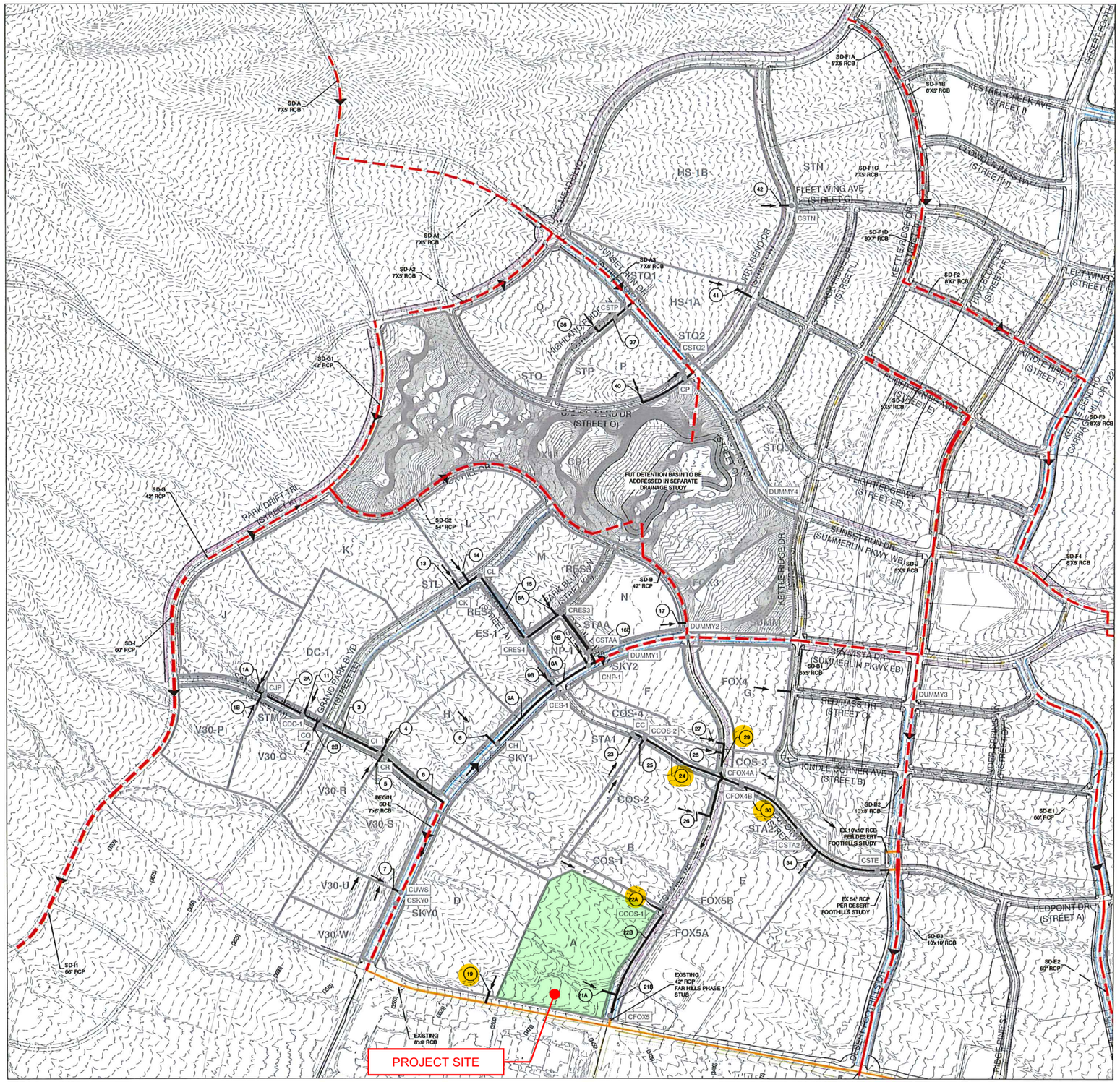
FIGURE 6
ULTIMATE CONDITION BASIN MAP

SUMMERLIN WEST VILLAGE 25

DRAWN BY: ATM/AH	JULY 2018	SCALE:	1"= 400' HORIZ. N/A VERT.
DESIGNED BY: JVA	JULY 2018		
CHECKED BY: JTA	JULY 2018		
PROJECT NO: 7919			

SHEET
OF SHEETS
DRAWING NO.

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GRAPHIC SCALE

400 0 200 400 800

1" = 400'

NORTH

LEGEND

- CCRFCD STORM DRAIN ALIGNMENT
- EXISTING FACILITY
- VILLAGE 25 LOCAL STORM DRAIN
- W51 BASIN DESIGNATION
- CONCENTRATION POINT
- (1) LOCAL FACILITY DESIGNATION
- DEVELOPED CONDITION FLOW ARROW

VILLAGE 25 LOCAL FLOOD PROTECTION FACILITIES

Facility #	Design Slope %	Q100 cfs	Tributary Basin/CP	Facility	Velocity fps
1A	6.00%	69	J	42" RCP	21.97
1B	3.78%	39	V30-P	30" RCP	16.15
2A	0.50%	128	CJP	54" RCP	9.92
2B	0.50%	37	V30-Q	36" RCP	7.39
3	6.00%	221	CQ	54" RCP	29.63
4	0.50%	53	I	42" RCP	8.10
5	2.84%	35	V30-R	30" RCP	14.12
6	5.18%	308	CR	66" RCP	30.44
7	1.00%	403	CUWS	72" RCP	17.05
8	6.00%	48	H	36" RCP	20.09
9A	0.50%	64	CH	42" RCP	8.37
9B	0.99%	42	ES-1	36" RCP	9.93
10A	6.00%	106	CES-1	42" RCP	24.65
10B	5.78%	9	NP-1	24" RCP	12.81
11	1.62%	56	DC-1	36" RCP	12.83
13	0.50%	86	K	48" RCP	9.07
14	6.00%	53	L	36" RCP	20.64
15	5.98%	167	CL	48" RCP	27.60
16A	6.00%	46	M	36" RCP	19.85
16B	4.05%	231	CSTAA	48" RCP	25.55
17	2.55%	40	N	30" RCP	14.00
19	0.50%	105	D	36" RCP	24.04
21A	1.00%	81	A	42" RCP	11.63
21B	2.02%	111	CFOX5	42" RCP	16.42
22A	4.00%	9	COS-1	24" RCP	11.23
22B	1.00%	20	CCOS-1	24" RCP	8.13
23	0.50%	99	C	48" RCP	9.21
24	5.13%	114	CCOS-2	48" RCP	23.60
25	0.50%	5	COS-2	24" RCP	4.50
26	1.00%	76	B	48" RCP	11.59
27	1.33%	43	F	30" RCP	10.92
29	1.50%	73	CFOX4A	36" RCP	13.07
30	5.50%	263	CFOX4B	54" RCP	29.95
31	4.27%	8	COS-3	24" RCP	11.12
34	0.50%	65	E	42" RCP	8.38
36	6.00%	46	O	36" RCP	19.85
37	6.00%	55	CSTP	36" RCP	20.85
40	6.00%	42	P	36" RCP	19.36
41	1.00%	47	HS-1A	36" RCP	10.22
42	1.00%	195	HS-1B	54" RCP	14.09

REVISION | BY | DATE | REV

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FIGURE 7
LOCAL STORM DRAIN FACILITIES MAP

SUMMERLIN WEST VILLAGE 25

DRAWN BY: ATM/MH JULY 2018
DESIGNED BY: SWB/TA JULY 2018
CHECKED BY: JYA JULY 2018
SCALE: HORIZ. 1"=400' VERT. NA
PROJECT NO: 7861

SHEET
OF SHEETS
DRAWING NO.

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APPENDIX A

Hydraulic Calculations and Information

Worksheet for Ditch #1

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.025	
Channel Slope	0.60	%
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	5.00	ft
Discharge	9.00	ft³/s

Free-board Protection = 0.5' + 0.1' = 0.6' < 1'.

So, Total protection = 1' + 0.53' = 1.53'.

Results

Normal Depth	0.53	ft
Flow Area	3.49	ft²
Wetted Perimeter	8.35	ft
Hydraulic Radius	0.42	ft
Top Width	8.18	ft
Critical Depth	0.43	ft
Critical Slope	0.01320	ft/ft
Velocity	2.58	ft/s
Velocity Head	0.10	ft
Specific Energy	0.63	ft
Froude Number	0.69	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.53	ft
Critical Depth	0.43	ft
Channel Slope	0.60	%

Worksheet for Ditch #1

GVF Output Data

Critical Slope	0.01320	ft/ft

Cross Section for Ditch #1

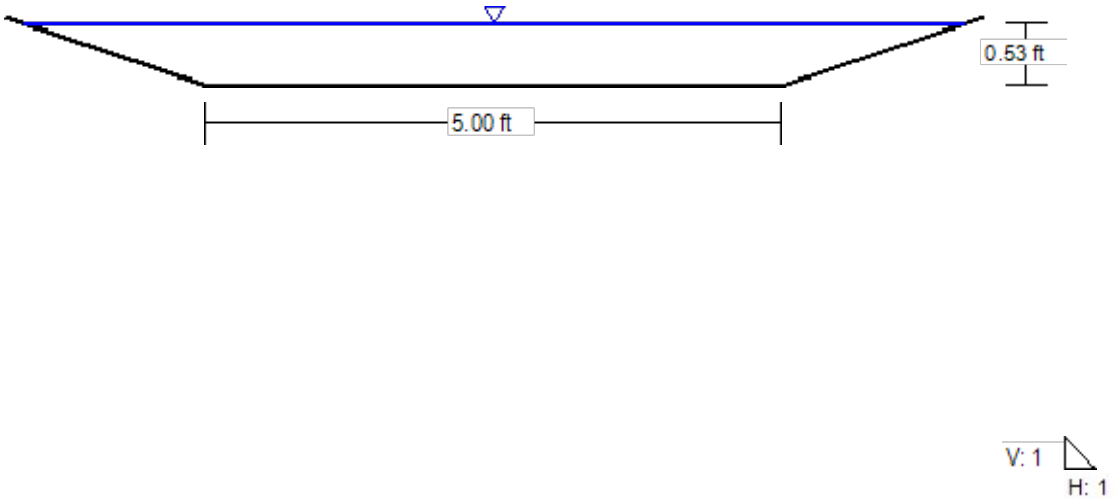
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.025	
Channel Slope	0.60	%
Normal Depth	0.53	ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	5.00	ft
Discharge	9.00	ft³/s

Cross Section Image



Worksheet for Ditch #2

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.025	
Channel Slope	0.60	%
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	5.00	ft
Discharge	58.00	ft³/s

Free-board Protection = 0.5' + 0.3' = 0.8' < 1'.

So, Total protection = 1' + 1.42' = 2.42'.

Results

Normal Depth	1.42	ft
Flow Area	13.13	ft²
Wetted Perimeter	13.97	ft
Hydraulic Radius	0.94	ft
Top Width	13.51	ft
Critical Depth	1.25	ft
Critical Slope	0.00994	ft/ft
Velocity	4.42	ft/s
Velocity Head	0.30	ft
Specific Energy	1.72	ft
Froude Number	0.79	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.42	ft
Critical Depth	1.25	ft
Channel Slope	0.60	%

Worksheet for Ditch #2

GVF Output Data

Critical Slope	0.00994	ft/ft

Cross Section for Ditch #2

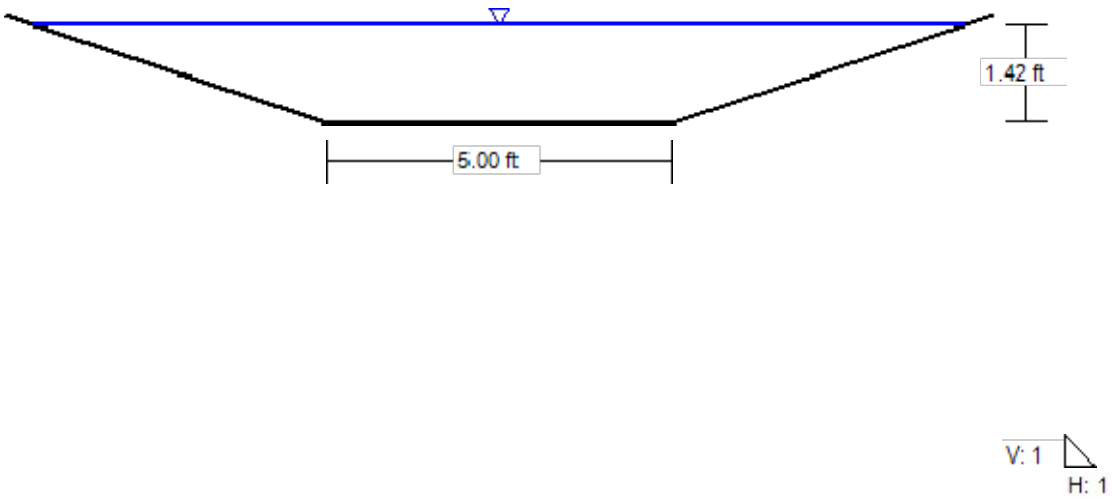
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.025	
Channel Slope	0.60	%
Normal Depth	1.42	ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	5.00	ft
Discharge	58.00	ft³/s

Cross Section Image



Worksheet for Section 1 - 100-yr - Half Street After the DI

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.50	%
Discharge	6.50	ft³/s

Section Definitions

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

Roughness Segment Definitions

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

Options

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

Results

Normal Depth	0.49	ft
Elevation Range	0.00 to 0.50 ft	
Flow Area	3.11	ft²
Wetted Perimeter	17.92	ft
Hydraulic Radius	0.17	ft
Top Width	17.39	ft

Worksheet for Section 1 - 100-yr - Half Street After the DI

Results

Normal Depth		0.49	ft
Critical Depth		0.46	ft
Critical Slope		0.00673	ft/ft
Velocity		2.09	ft/s
Velocity Head		0.07	ft
Specific Energy		0.55	ft
Froude Number		0.87	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.49	ft
Critical Depth	0.46	ft
Channel Slope	0.50	%
Critical Slope	0.00673	ft/ft

Cross Section for Section 1 - 100-yr - Half Street After the DI

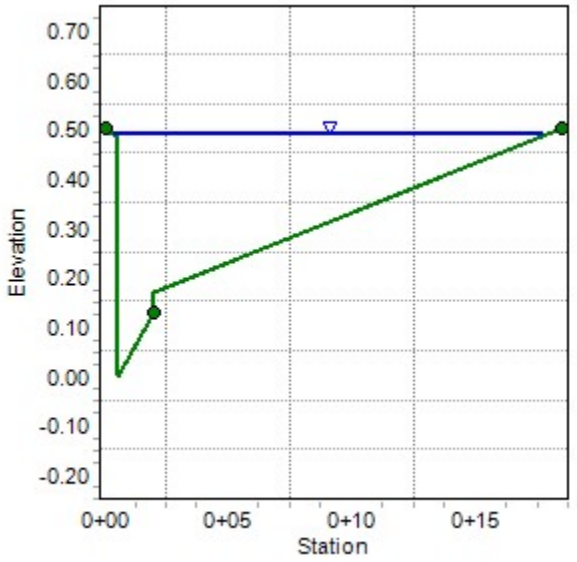
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.50	%
Normal Depth	0.49	ft
Discharge	6.50	ft³/s

Cross Section Image



ENGINEERS \ SURVEYORS

Drop Inlet Sizing Calculation

Project Name: Fox Hill Drive Improvements Phase I
By: Masih Edalat
Date: 02/28/2019

Drop Inlet Sizing on a Continuous Grade

DI #4
5' CM2

DI#6.1 in the referenced Sheet PP3

Known:

Q_s=	Street Flow	11.5	cfs
S_o=	Longitudinal Slope	0.005	ft/ft
n=	Manning's Roughness Coefficient	0.016	
V_s=	Flow Velocity	2.56	fps
D=	Flow Depth	0.56	ft
S_x=	Street Transverse Slope	0.02	ft/ft
W=	Grate Width	1.5	ft
a=	Gutter Depression	5.0	in
L_g=	Length of Grate	2.5	ft
L_c=	Length of Curb Opening	5.0	ft
C_{fg}=	Clogging Factor for Grate	50	%
C_{fc}=	Clogging Factor for Curb Opening	50	%

Grate Capacity Calculations:

R_f=	Frontal flow factor = 1-0.09*(V_s-V_o) if V_s>V_o; else R_f=1	1.00	
	V_o= Splash over velocity=p+q*(L_g*(1-(C_{fg}/100)))-r*(L_g*(1-(C_{fg}/100)))^2+s*(L_g*(1-(C_{fg}/100)))^3†	5.02	fps
E_o=	Grate flow ratio = Q_w/Q_s	0.17	
	Q_w= Frontal flow=A_w*V_s	1.99	cfs
	Q_x= Side flow = Q_s-Q_w	9.51	cfs
R_s=	Side flow factor = 1/(1+(0.15*$V_s^{1.8}$)/(S_x*(L_g*(1-C_{fg}/100))$^{2.3}$))	0.04	
Q_{ig}=	Flow intercepted = [R_f*E_o+R_s*(1-E_o)]*Q_s	2.4	cfs
	†p=1.76;q=3.12;r=0.45;s=0.03 (based on Bar P 1-1/8 grate)		

Curb Opening Capacity Calculations

S_e=	Equivalent cross slope = Sx+Sw*Eo	0.069	ft/ft
S_w=	Gutter cross slope = (0.137+afeet)/W	0.285	ft/ft
L_t=	Total interception L = 0.60*$Q_s^{0.42}$*$So^{0.30}$*(1/n*S_e)$^{0.6}$	20.23	ft
Q_{ic}=	Flow intercepted = (1-(1-(L_c*(1-C_{fc}/100))/L_t)$^{1.8}$)*Q_s	2.4	cfs

Total Inlet Calculations

Q_{ti}=	**Total flow intercepted = Q_{ig}+Q_{ic}**	**4.8**	**cfs**
Q_{tq}=	**Flow bypass = Q_s-Q_{ti}**	**6.7**	**cfs**
q=	Interception per unit ratio = Q_{ti}/L_g	0.96	cfs/ft
E_q=	Efficiency = (Qti/Qs)*100	42	%

ENGINEERS \ SURVEYORS

Drop Inlet Sizing Calculation

Project Name: Fox Hill Drive Improvements Phase I
By: Masih Edalat
Date: 02/28/2019

Drop Inlet Sizing in Sump

DI #3
7.5' CM2

DI#2.1 in the referenced Sheet PP1

Known:

Q=	Design Flow	6.5	cfs
D_p=	Ponding Depth at Inlet	0.83	ft
W=	Grate Width	1.5	ft
L_g=	Length of Grate	5.0	ft
L_c=	Length of Curb Opening	7.5	ft
H_c=	Curb Opening Height	0.5	ft
C_{wc}=	Weir coefficient for curb opening	2.3	
C_{wg}=	Weir coefficient for grate	3.0	
C_o=	Orifice coefficient	0.67	
R_o=	Grate opening factor	0.60	
C_{fg}=	Clogging Factor for Grate	50	%
C_{fc}=	Clogging Factor for Curb Opening	50	%

Grate Capacity Calculations:

P_g=	Active grate weir length (agwl) = 2*W+Lg	8.00	ft
P_{agl}	Adjusted agwl = 2*(1-Cfg/100)*W+Lg	6.50	ft
A_g=	Grate area = W*L_g	7.50	ft^2
A_{aga}=	Adjusted open grate area = Ag*Ro*(1-Cfg/100)	2.25	ft^2
	check - If Dp<1.792*Aaga/Pagl; weir; else orifice	orifice	
Q_{ig}=	Flow intercepted by grate If "weir" controls Qig=Cwg*Pagl*$Dp^{1.5}$ If "orifice" controls Qig=Co*Aaga*$(64.4*Dp)^{0.5}$	11.0	cfs

Curb Opening Capacity Calculations

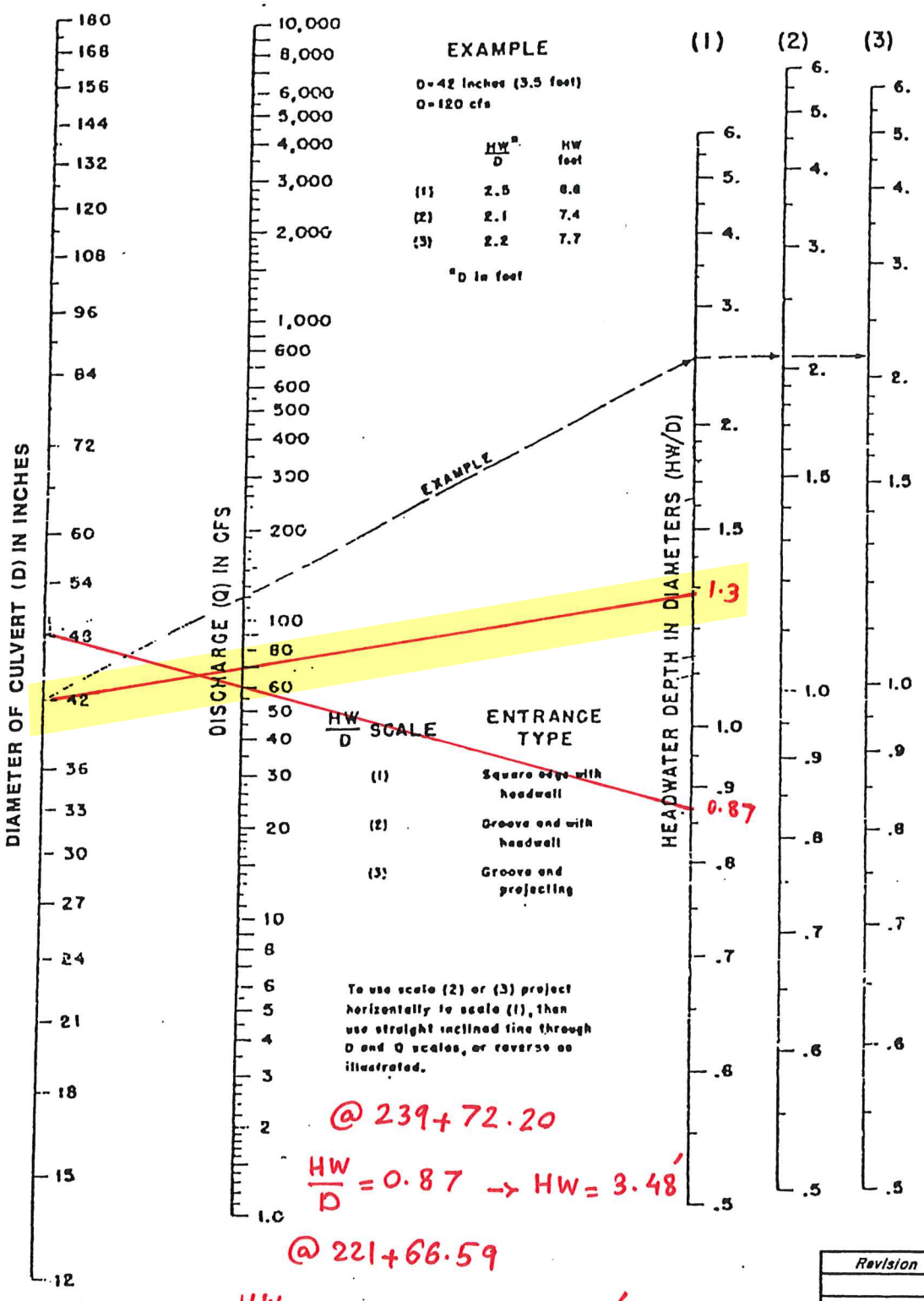
Pc =	Active curb opening weir length (acowl) = Lc+1.8*W	10.20	ft
Pacl	Adjusted acowl = Lc+1.8*(1-Cfc/100)*W	8.85	ft
Ac=	curb opening area (coa) = Lc*Hc	3.75	ft^2
A_{aca}=	Adjusted coa = Ac*(1-Cfc/100)	1.88	ft^2
	check - If Dp<Hc; weir; else orifice	orifice	
Qic=	Flow intercepted by curb opening If "weir" controls Qic=Cwc*Pacl*Dp1.5 If "orifice" controls Qic=Co*Aaca*(64.4*Dp-Hc/2)0.5	9.2	cfs

Total Inlet Calculations

Qti =	Flow Interception Capacity = Qig+Qic	20.2	cfs
q =	Interception per unit ratio = Q_{ti}/L_g	2.69	cfs/ft

Actual Flow Collected by Drop Inlet 7 cfs

NOMOGRAPH – INLET CONTROL RCP



@ 239+72.20

$\frac{HW}{D} = 0.87 \rightarrow HW = 3.48'$

@ 221+66.59

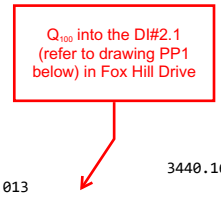
$\frac{HW}{D} = 1.3 \rightarrow HW = 4.55'$

Revision	Date

WRC ENGINEERING

REFERENCE: USDOT, FHWA, HDS, No. 5, 1985

FIGURE 1005




```
                                                                                PrclA.WSW
                                                                                        0
T1 V25 Fox Hill Dr
T2 Lateral in Parcel A
T3
SO   1000.0003433.670  1                          3440.163
R    1035.4703434.920  1      .013                                .000    .000 1
JX   1035.4803434.921  1  1   .013    6.500          3434.921     -90.0         .000
R    1035.4903434.922  1      .013                                .000 -45.000 1
R    1104.0703435.600  1      .013                                .000    .000 1
SH   1104.0703435.600  1                          3435.600
CD   1  4   1    .000   3.500     .000  .000  .000   .00
Q            81.000   .0
```

FILE: PrclA.WSW W S P G W - EDIT LISTING - Version 14.10 Date: 3-27-2019 Time: 8:56:36

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING PAGE 1

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	1	4	1		3.500														

W S P G W PAGE NO 1

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -
V25 Fox Hill Dr
HEADING LINE NO 2 IS -
Lateral in Parcel A
HEADING LINE NO 3 IS -

W S P G W PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1000.000	3433.670	1	3440.163

ELEMENT NO 2 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1035.470	3434.920	1	.013	.000	.000	.000	1

ELEMENT NO 3 IS A JUNCTION * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1035.480	3434.921	1	1	0	.013	6.500	.000	3434.921	.000	-90.000	.000

RADIUS	ANGLE
.000	.000

ELEMENT NO 4 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1035.490	3434.922	1	.013	.000	.000	-45.000	1

ELEMENT NO 5 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1104.070	3435.600	1	.013	.000	.000	.000	1

ELEMENT NO 6 IS A SYSTEM HEADWORKS * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1104.070	3435.600	1	3435.600

Program Package Serial Number: 3074

WATER SURFACE PROFILE LISTING Date: 3-27-2019 Time: 8:56:39

V25 Fox Hill Dr
Lateral in Parcel A

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	3433.670	6.493	3440.163	87.50	9.09	1.28	3441.45	.00	2.91	.00	3.500	.000	.00	1 .0
35.470	.0352					.0076	.27	6.49	.00	1.67	.013	.00	.00	PIPE
1035.470	3434.920	5.576	3440.496	87.50	9.09	1.28	3441.78	.00	2.91	.00	3.500	.000	.00	1 .0
JUNCT STR	.0976					.0070	.00	5.58	.00		.013	.00	.00	PIPE
1035.480	3434.921	5.942	3440.863	81.00	8.42	1.10	3441.96	.00	2.81	.00	3.500	.000	.00	1 .0
.010	.1220					.0065	.00	5.94	.00	1.14	.013	.00	.00	PIPE
1035.490	3434.922	6.159	3441.082	81.00	8.42	1.10	3442.18	.00	2.81	.00	3.500	.000	.00	1 .0
68.580	.0099					.0065	.44	6.16	.00	2.39	.013	.00	.00	PIPE
1104.070	3435.600	5.981	3441.581	81.00	8.42	1.10	3442.68	.00	2.81	.00	3.500	.000	.00	1 .0

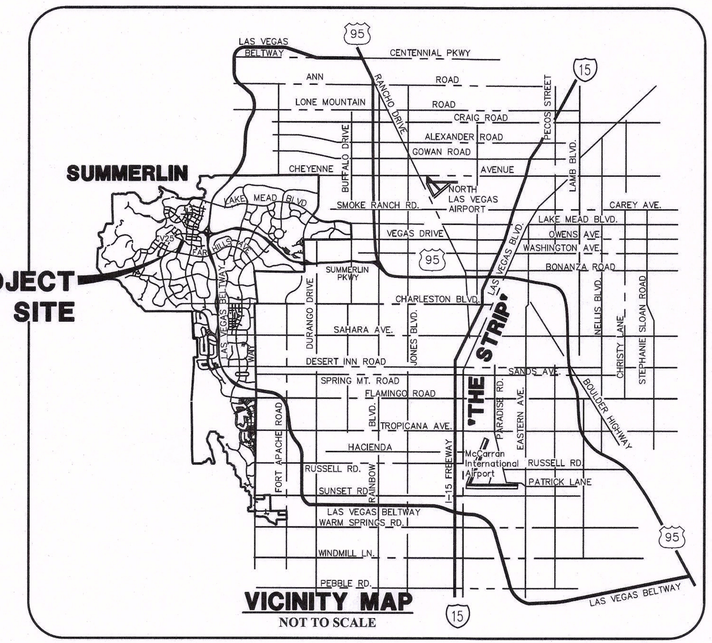
starting HGL for our WSPG calc

SUMMERLIN

SM

VILLAGE 25
FOX HILL DRIVE IMPROVEMENTS
(FAR HILLS AVENUE TO REDPOINT DRIVE)
FUTURE SID PROJECT
A.P.N. 137-22-101-001
2019

SHEET INDEX		
NO.	DWG	DESCRIPTION
1	G1	COVER SHEET
2	G2	PROJECT DATA SHEET
3	G3	GENERAL NOTES
4	HC1	HORIZONTAL CONTROL 1
5	HC2	HORIZONTAL CONTROL 2
6	MU1	MASTER UTILITY PLAN – WATER
7	MU2	MASTER UTILITY PLAN – STORM DRAIN
8	MU3	MASTER UTILITY PLAN – SEWER
9	MG	MASTER GRADING PLAN
10	GD1	GRADING PLAN 1
11	GD2	GRADING PLAN 2
12	GD3	GRADING PLAN 3
13	PP1	PLAN AND PROFILE 1
14	PP2	PLAN AND PROFILE 2
15	PP3	PLAN AND PROFILE 3
16	PP4	PLAN AND PROFILE 4
17	PP5	PLAN AND PROFILE 5
18	PP6	PLAN AND PROFILE 6
19	LP1	LATERAL PROFILES 1
20	LP2	LATERAL PROFILES 2
21	LP3	LATERAL PROFILES 3
22	DT1	TYPICAL DETAILS & SECTIONS
23	DT2	UTILITY DETAILS 1
24	DT3	UTILITY DETAILS 2
25	DT4	UTILITY DETAILS 3
26	TR1	SIGNAGE AND STRIPING PLAN 1
27	TR2	SIGNAGE AND STRIPING PLAN 2
28	TR3	SIGNAGE AND STRIPING PLAN 3
29	SL1	STREETLIGHT AND ELECTRICAL PLAN 1
30	SL2	STREETLIGHT AND ELECTRICAL PLAN 2
31	SL3	STREETLIGHT AND ELECTRICAL PLAN 3
32	SL4	STREETLIGHT AND ELECTRICAL PLAN 4



VICINITY MAP
NOT TO SCALE

CAUTION TO CONTRACTOR

THE CONTRACTOR SHALL BE RESPONSIBLE TO INVESTIGATE AND VERIFY THE ACTUAL LOCATION AND DEPTH OF ALL EXISTING UNDERGROUND FACILITIES AT LEAST 48 HOURS IN ADVANCE OF THE PERFORMANCE OF ANY WORK.

THE HOWARD HUGHES COMPANY, LLC

KEVIN ORROCK — DATE
VICE PRESIDENT

DRAINAGE CERTIFICATION

I CERTIFY THAT THE GRADING PLANS ARE IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.

MICHAEL FANG, P.E. 24464 — DATE

CLV PLANNING DEPARTMENT

THIS PLAN MEETS THE APPLICABLE STANDARDS OF THE CITY OF LAS VEGAS PLANNING DEPARTMENT

CITY OF LAS VEGAS PLANNING DEPARTMENT — DATE

ALLEN PAVELKA, P.E. 9029 — DATE
CITY ENGINEER
CITY OF LAS VEGAS, NEVADA

APPROVAL OF THESE PLANS IS LIMITED TO THOSE IMPROVEMENTS CONSTRUCTED IN THE DEDICATED RIGHTS-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 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.

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. XXXXXX — FIRST APPROVAL DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ON-SITE N/A GPM
SHEETS: G1–G3, MU1–MU3, PP1–PP6, LP1–LP3, DT2–DT4

FIRE DEPARTMENT APPROVAL

CITY OF LAS VEGAS FIRE DEPARTMENT — DATE

UTILITY APPROVALS

COX COMMUNICATIONS LAS VEGAS, INC. — DATE

CENTRAL TELEPHONE CO., DBA CENTURYLINK — DATE

THE AFFIXED 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.

NV ENERGY — DATE

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

NV ENERGY – TRANSMISSION ENGINEERING — DATE

SOUTHWEST GAS CORPORATION — DATE

CLV#:

OWNER/DEVELOPER

THE HOWARD HUGHES COMPANY, LLC
10801 W. CHARLESTON BLVD., 3RD FLOOR
LAS VEGAS, NEVADA 89135
OFFICE PHONE NO. (702) 791-4300

ENGINEER

GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

Call before you Dig — Avoid cutting underground utility lines. It's costly. Call 811 or 1-800-227-2800

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

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

ENGINEER - STATE OF NEVADA — PROFESSIONAL — MICHAEL FANG — No. 24464 — 03/28/2019 — DATE: 03/28/2019

90% REVIEW - NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP	DATE

PROJECT NO. 62025-201
DESIGN: LG/MF
DRAWN: AS
CHECK: LG/MF
PLOT DATE: 03-28-19
PLOT TIME: 10:10:58

GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com
ALEXANDER SANTIAGO
F:\PROJECTS\6XX\62025-201\DWG\PRODUCTION\62025-201_DA1.DWG

THE HOWARD HUGHES COMPANY. LLC

VILLAGE 25 FOX HILL DRIVE IMPROVEMENTS
(FAR HILLS AVENUE TO REDPOINT DRIVE)

COVER SHEET

DRAWING
G1
1 OF 32 SHTS

FAR HILLS AVE (PUBLIC)

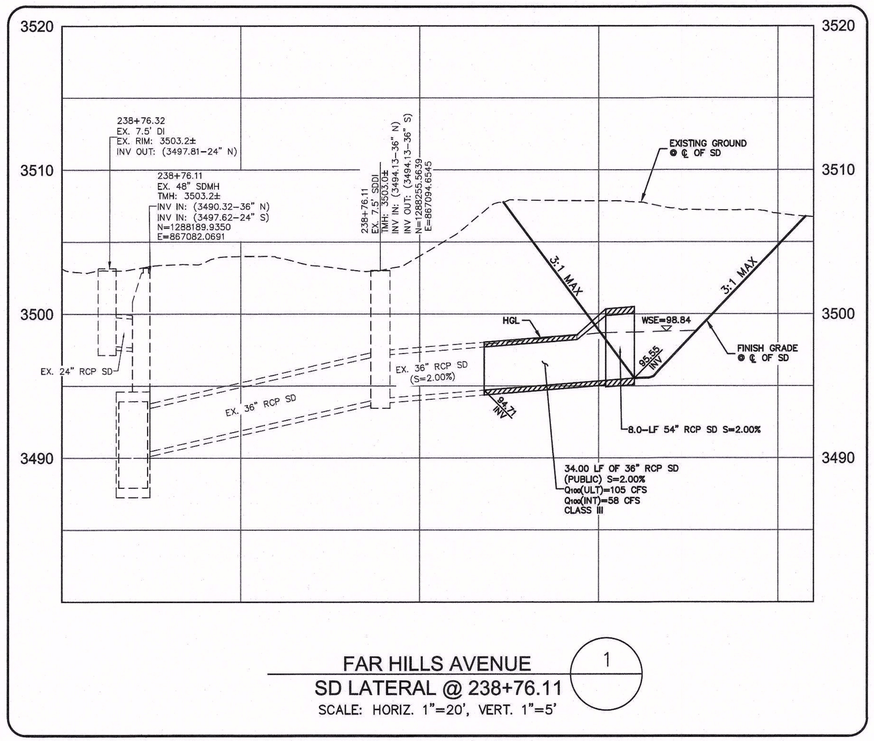
VILLAGE 25
PARCEL D
APN 137-22-101-001

34.0-LF 36" RCP SD S=2.00%
8.0-LF 54" RCP SD S=2.00%
INV: 95.55
N:1288331.05
E:867109.97
N:1288326.67
E:867112.38
EX. 36" RCP SD
EX. 8'X5' RCB SD
96.00 FL
96.34 FL
N:1288379.59
E:867198.17
N:1288376.03
E:867202.08
N:1288376.03
E:867202.08
97.00 FL
98.00 FL
99.00 FL
100.00 FL
1.00 FL
2.00 FL
0.42%
0.13%
0.63%
0.60%
3:1
N:1289232.01
E:867590.57
N:1289229.60
E:867594.95
29.67' R/W
29.67' R/W

VILLAGE 25
PARCEL A
APN 137-22-101-001

PROJECT SITE

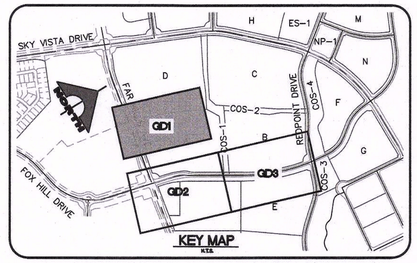
NORTH



FAR HILLS AVENUE
SD LATERAL @ 238+76.11
SCALE: HORIZ. 1"=20', VERT. 1"=5'

1

40' 0' 20' 40' 80'
SCALE: 1" = 40'



OFF-SITE FLOOD CONTROL NOTE

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

BASIS OF BEARING AND COORDINATES

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAID 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 M (984,250.0000 FTUS)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

NOTES:
1. ALL DISTANCES AND BEARINGS SHOWN HEREON ARE PROJECTED (GRID) VALUES BASED ON THE PRECEDING PROJECTION DEFINITION. THE PROJECTION WAS DEFINED SUCH THAT PROJECTED (GRID) DISTANCES ARE EQUIVALENT TO "GROUND" DISTANCES IN THE PROJECT AREA.
2. GRID BEARINGS SHOWN HEREON (OR IMPLIED BY GRID COORDINATES) DO NOT EQUAL GEODETIC BEARINGS DUE TO MERIDIAN CONVERGENCE.

BENCHMARK

BM#	DESCRIPTION	NAVD 88 DATUM	NAVD 88 DATUM
CLV BM No. 7LV0934DWB	FIND RIVET AND PLATE IN TOP OF CURB SE CORNER OF DESERT MOON RD. AND SKY VISTA DR. T5OS,R59E,S34	3318.31 (FEET)	1,011.422 (METERS)

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811 OR 1-800-227-2600

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

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

CLV#:

ENGINEER - STATE OF NEVADA
MICHAEL FANG
No. 24467
PROFESSIONAL
CIVIL
DATE: 05/29/2019

90% REVIEW - NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GOW APP	DATE

PROJECT NO. 62025-201
DESIGN: LG/MF
DRAWN: AS
CHECK: LG/MF
PLOT DATE: 03-28-19
PLOT TIME: 11:32:02
ALEXANDER SANTIAGO

GCW ENGINEERS\SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

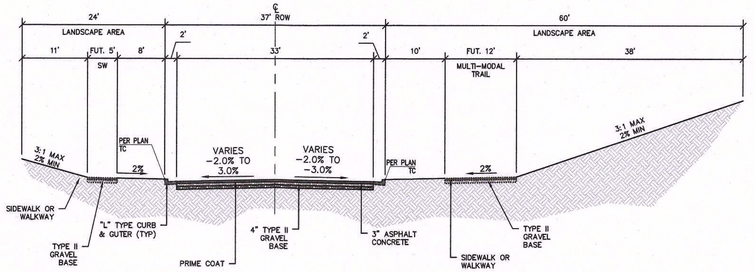
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THE HOWARD HUGHES COMPANY, LLC

VILLAGE 25 FOX HILL DRIVE IMPROVEMENTS
(FAR HILLS AVENUE TO REDPOINT DRIVE)

GRADING PLAN 1

DRAWING
GD1
10 OF 32 SHTS

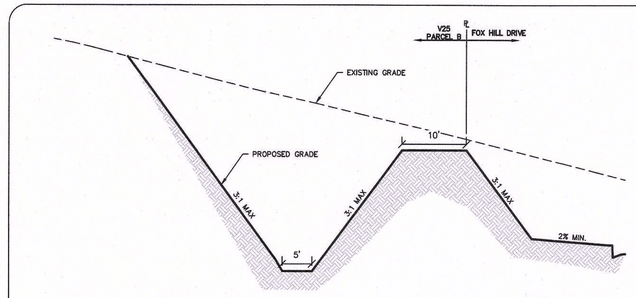


FOX HILL DRIVE

SCALE: NTS
240+53.30 TO 241+63.31

DWG PP5–PP6

D



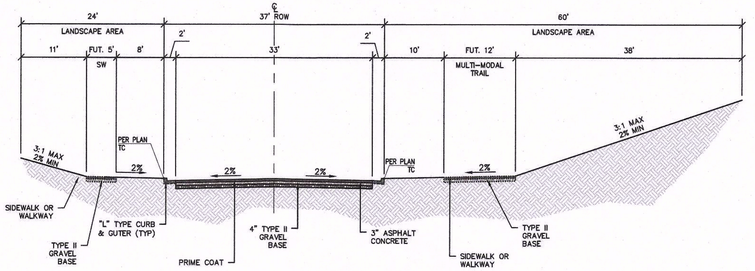
DRAINAGE CHANNEL

SCALE: NTS

DWG GD3

G

–

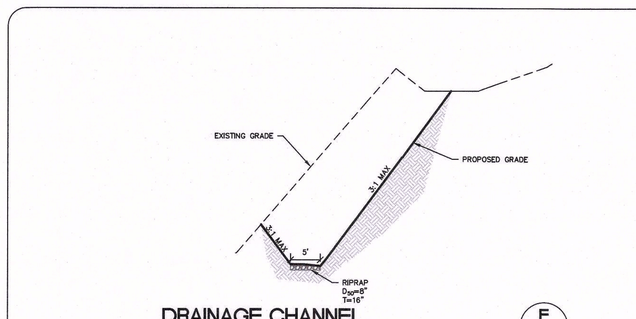


FOX HILL DRIVE

SCALE: NTS
226+00.00 TO 240+53.30

DWG PP2–PP5

C



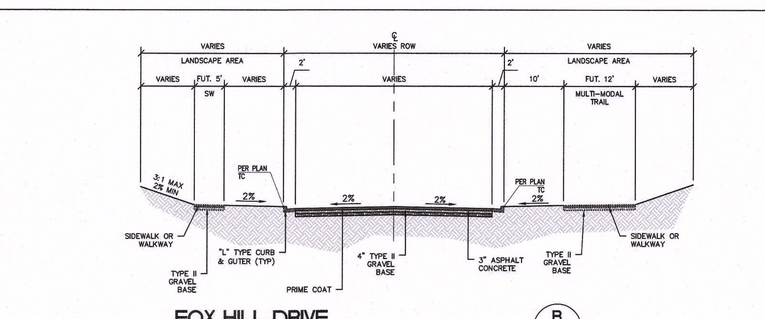
DRAINAGE CHANNEL

SCALE: NTS

DWG GD2

F

–

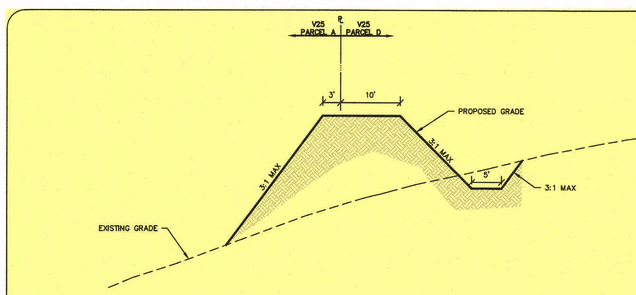


FOX HILL DRIVE

SCALE: NTS
222+50.00 TO 226+00.00

DWG PP2

B



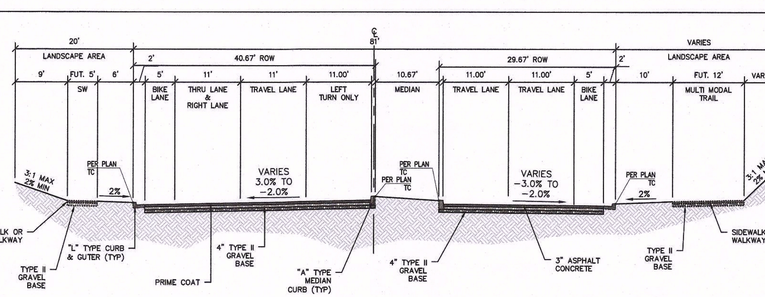
DRAINAGE CHANNEL

SCALE: NTS

DWG GD1

E

–



FOX HILL DRIVE

SCALE: NTS
220+30.34 TO 222+50.00

DWG PP1

A

CLV#:

ENGINEER - STATE OF NEVADA
PROFESSIONAL
MICHAEL FANG
Exp. 06/30/2019
No. 24467
DATE: 03/28/2019

90% REVIEW - NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP

PROJECT NO. 62025-201
DESIGN: LG/MF
DRAWN: AS
CHECK: LG/MF
PLOT DATE: 03-28-19
PLOT TIME: 10:29:20

GCW
ENGINEERS \ SURVEYORS
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LAS VEGAS, NV 89146
T: 702.804.2000
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gcwengineering.com

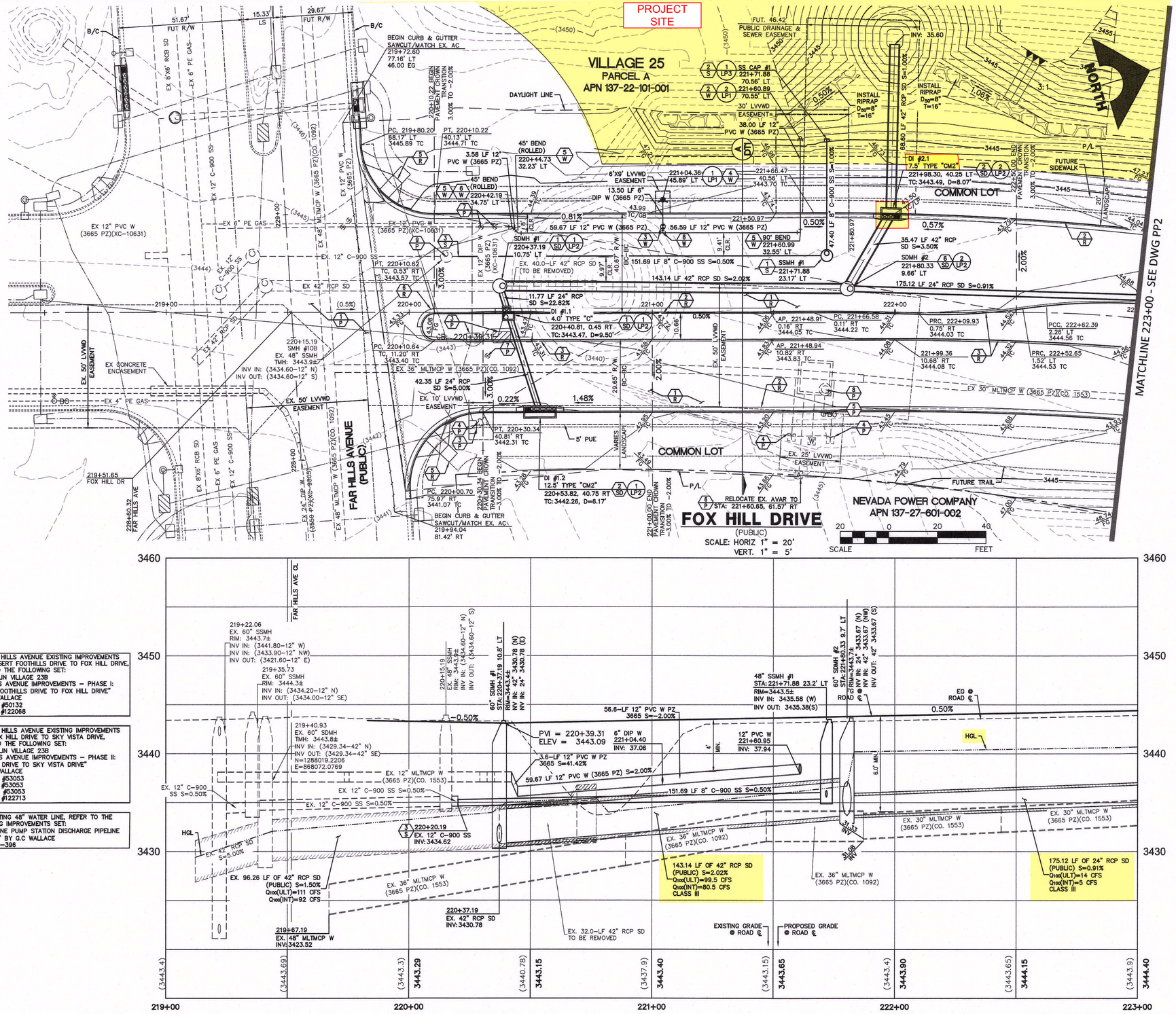
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ALEXANDER SANTIAGO

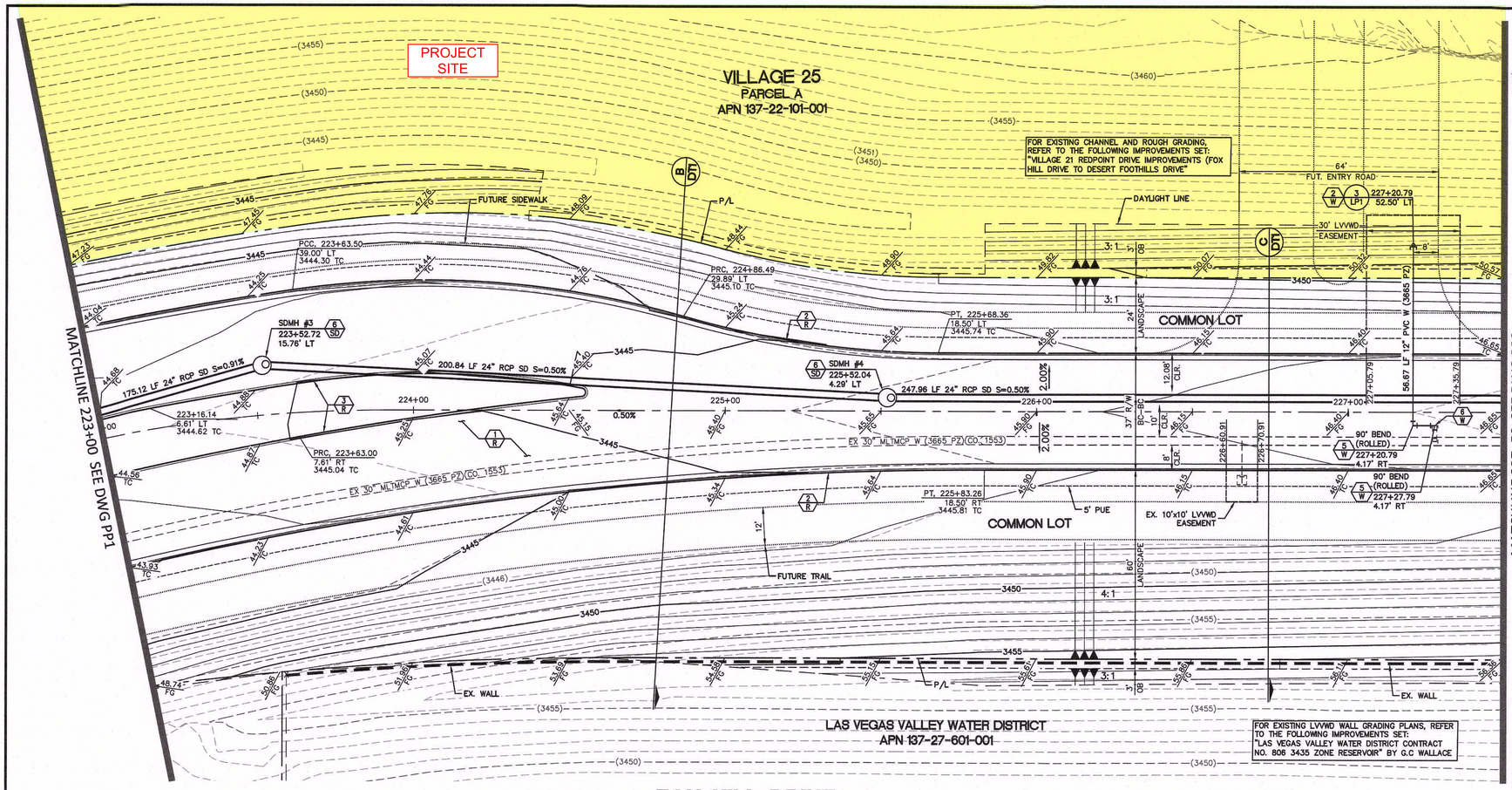
THE HOWARD HUGHES COMPANY. LLC

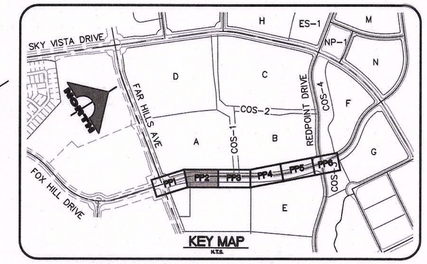
VILLAGE 25 FOX HILL DRIVE IMPROVEMENTS
(FAR HILLS AVENUE TO REDPOINT DRIVE)

TYPICAL DETAILS & SECTIONS

DRAWING
DT1
22 OF 32 SHTS


PROJECT SITE
VILLAGE 25
PARCEL A
APN 137-22-101-001
FAR HILLS AVENUE (PUBLIC)
FOX HILL DRIVE
(PUBLIC)
SCALE: HORIZ 1" = 20'
VERT. 1" = 5'
NEVADA POWER COMPANY
APN 137-27-601-002
COMMON LOT
MATCHLINE 223+00 - SEE DWG PP2
NORTH
BEGIN CURB & GUTTER SAWCUT/MATCH EX. AC 219+72.60 77.16' LT 46.00 EG
BEGIN CURB & GUTTER SAWCUT/MATCH EX. AC 219+94.04 81.42' RT
DAYLIGHT LINE
EX. 12" C-900 SS
EX. 6" PE GAS
EX. 8"X6" RCS SD
EX. 42" RCP SD
EX. 36" MLTMCP W (3665 PZ)(CO. 1092)
EX. 48" MLTMCP W (3665 PZ)(CO. 1092)
EX. 12" PVC W (3665 PZ)(XC-10631)
EX. 50' LVVWD EASEMENT
EX. 10' LVVWD EASEMENT
EX. 25' LVVWD EASEMENT
EX. CONCRETE ENCASEMENT
EX. 4" PE GAS
5' PUE
VARIES LANDSCAPE
FUTURE SIDEWALK
FUTURE TRAIL
LANDSCAPE
P/L
INV: 35.60
3:1
0.50%
1.06%
0.81%
0.50%
0.57%
0.22%
1.48%
2.00%
3.00%
-2.00%
-3.00%
PC, 219+80.20 68.17' LT 3445.89 TC
PT, 220+10.22 40.13' LT 3444.71 TC
3.58 LF 12" PVC W (3665 PZ)
45° BEND (ROLLED) 220+44.73 32.23' LT
45° BEND (ROLLED) 220+42.19 34.75' LT
6'X9' LVVWD EASEMENT
13.50 LF 6" DIP W (3665 PZ)
59.67 LF 12" PVC W (3665 PZ)
56.59 LF 12" PVC W (3665 PZ)
SDMH #1 220+37.19 10.75' LT
EX. 40.0-LF 42" RCP SD (TO BE REMOVED)
151.69 LF 8" C-900 SS S=0.50%
143.14 LF 42" RCP SD S=2.02%
11.77 LF 24" RCP SD S=22.82%
DI #1.1 4.0' TYPE "C" 220+40.81, 0.45 RT TC:3443.47, D=9.50'
PC, 220+10.64 TC, 11.20' RT 3443.40 TC
42.35 LF 24" RCP SD S=5.00%
PT, 220+10.62 TC, 0.53' RT 3443.57 TC
PT, 220+30.34 40.81' RT 3442.31 TC
PC, 220+00.70 75.97' RT 3441.07 TC
DI #1.2 12.5' TYPE "CM2" 220+53.82, 40.75 RT TC:3442.26, D=6.17'
AP, 221+48.91 0.16' RT 3444.05 TC
PC, 221+66.58 0.11' RT 3444.22 TC
AP, 221+48.94 10.82' RT 3443.83 TC
PRC, 222+09.93 0.75' RT 3444.03 TC
PRC, 222+52.65 1.52' LT 3444.53 TC
PCC, 222+62.39 2.26' LT 3444.56 TC
DI #2.1 7.5' TYPE "CM2" 221+98.30, 40.25 LT TC:3443.49, D=8.07'
68.60 LF 42" RCP SD S=1.00%
47.40 LF 8" C-900 SS S=1.00%
35.47 LF 42" RCP SD S=3.50%
SSMH #1 221+71.88 23.17' LT
SSMH #2 221+80.33 9.66' LT
175.12 LF 24" RCP SD S=0.91%
RELOCATE EX. AVAR TO STA: 221+60.65, 61.57' RT
SS CAP #1 221+71.88 70.56' LT
SS CAP #2 221+60.89 70.55' LT
INSTALL RIPRAP D50=8" T=16"
38.00 LF 12" PVC W (3665 PZ)
EX. 30" MLTMCP W (3665 PZ)(CO. 1553)
EX. 30" MLTMCP W (3665 PZ)(CO. 1553)
EX. 36" MLTMCP W (3665 PZ)(CO. 1092)
EX. 36" MLTMCP W (3665 PZ)(CO. 1092)
EX. 36" MLTMCP W (3665 PZ)(CO. 1092)
EX. 42" RCP SD S=5.00%
EX. 48" MLTMCP W (3665 PZ)(CO. 1092)
EX. 24" DIP W (3658 PZ)(XC-9805)
EX. 8"X6" RCS SD
EX. 6" PE GAS
EX. 12" C-900 SS
EX. 48" MLTMCP W (3665 PZ)(CO. 1092)
INV IN: (3434.60-12" N)
INV OUT: (3434.60-12" S)
INV IN: (3434.60-12" W)
INV IN: (3433.90-12" NW)
INV OUT: (3421.60-12" E)
INV IN: (3441.80-12" W)
INV IN: (3433.90-12" NW)
INV OUT: (3421.60-12" E)
INV IN: (3434.20-12" N)
INV OUT: (3434.00-12" SE)
INV IN: (3435.58 (W)
INV OUT: 3435.38(S)
INV IN: 3433.67 (NW)
INV IN: 24" 3433.67 (S)
INV OUT: 42" 3433.67 (S)
INV IN: 24" 3430.78 (N)
INV IN: 24" 3430.78 (E)
INV IN: 24" 3430.78 (N)
INV OUT: 42" 3430.78 (S)
INV IN: 24" 3430.78 (E)
INV IN: 24" 3430.78 (N)
INV OUT: 42" 3430.78 (S)
INV IN: 24" 3430.78 (E



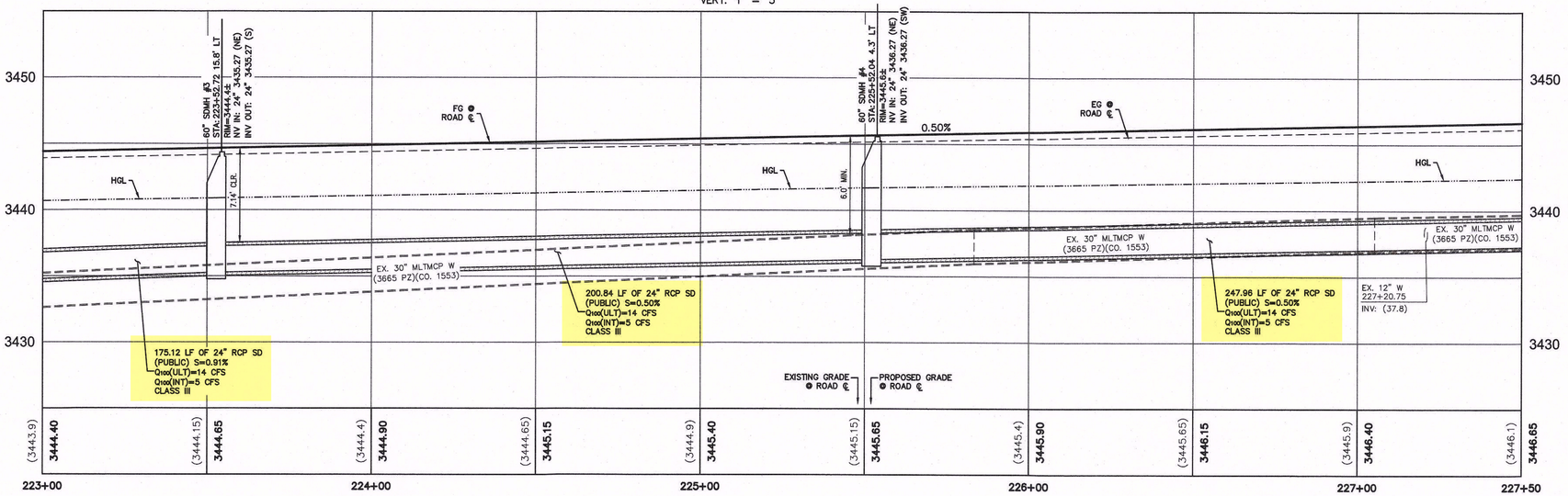


KEY MAP
NTS

FOX HILL DRIVE

(PUBLIC)
SCALE: HORIZ 1" = 20'
VERT. 1" = 5'

SCALE 20 0 20 40 FEET



PROTECTION NOTES:

1 P — EXISTING PAVEMENT, PROTECT IN PLACE
2 P — EXISTING CURB/GUTTER, PROTECT IN PLACE
3 P — EXISTING PULLBOX, ADJUST TO FINISH GRADE
4 P — EXISTING TEST STATION, ADJUST TO FINISH GRADE PER DETAILS 1 & 3 ON DWG. DT4
5 P — EXISTING BLOW-OFF, ADJUST TO FINISH GRADE PER UDACS PL. NO. 37
6 P — EXISTING AVAR, ADJUST TO FINISH GRADE PER UDACS PL. NO. 38 & DETAIL 1 ON DWG. DT3
7 P — EXISTING GATE VALVE, ADJUST TO FINISH GRADE PER UDACS PL. NO. 39
8 P — EXISTING WATER VAULT MH, ADJUST TO FINISH GRADE PER UDACS PL. NO. C-475
9 P — EXISTING SSMH, ADJUST TO FINISH GRADE

ROADWAY IMPROVEMENTS NOTES:

1 R — INSTALL A.C. PAVEMENT PER STREET SECTIONS, SEE DWG. DT1
2 R — INSTALL "L" TYPE CURB & GUTTER, SEE SUMMERLIN STD DWG. S-47
3 R — INSTALL "A" TYPE ISLAND CURB, SEE SUMMERLIN STD DWG. S-50
4 R — INSTALL CONCRETE SIDEWALK PER USD DWG. NO. 234.
5 R — CONSTRUCT SIDEWALK RAMP PER USD DWG NO. 235 (CASE II) AND DWG. DT2
6 R — INSTALL CURB TRANSITION PER DETAIL 10 ON DWG. DT2

WATER CONSTRUCTION NOTES:

1 W — INSTALL 1-½" WATER METER AND 1-½" RPPA PER DETAIL 11 DWG. DT2
2 W — INSTALL CAP W/ 2" BLOW-OFF ASSEMBLY PER UDACS PL. NO. 36
3 W — INSTALL GATE VALVE AND BOX PER UDACS PL. NO. 30 AND 39
4 W — INSTALL FIRE HYDRANT & ASSEMBLY PER UDACS PLT. NO. 40. FOR "DEEP" FIRE HYDRANTS SEE UDACS PL. NO. 41.
5 W — INSTALL HORIZONTAL BEND PER UDACS PL. NO. 31
6 W — REMOVE CAP AND BLOWOFF PER UDACS PL. NO. 36 AND CONNECT TO EX WATER LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX WATER PRIOR TO CONSTRUCTION)
7 W — INSTALL VERTICAL BEND PER UDACS PL. NO. 31 UNLESS OTHERWISE IDENTIFIED. (SEE PLAN FOR ANGLE)
8 W — INSTALL TEE PER UDACS PL. NO. 31

SEWER CONSTRUCTION NOTES:

1 S — INSTALL SEWER MANHOLE PER DCS STD. DWG. 1A AND 1B
2 S — STUB AND CAP SEWER PIPE PER DETAIL 2, DWG. DT2
3 S — REMOVE PLUG & CONNECT TO SEWER LINE W/ CONCRETE COLLAR PER DETAIL 1 ON DWG. DT2 (CONTRACTOR TO VERIFY SIZE, INVERT, LOCATION PRIOR TO CONSTRUCTION)

STORM DRAIN CONSTRUCTION NOTES:

1 SD — INSTALL TYPE II-SD MANHOLE PER USD DWG. NO. 405.2
2 SD — INSTALL TYPE "CM2" DROP INLET PER USD DWG. NO. 412.1 AND 421
3 SD — REMOVE PLUG & CONNECT TO STORM DRAIN W/ CONCRETE COLLAR PER DETAIL 1 ON DWG. DT2 (CONTRACTOR TO VERIFY SIZE, INVERT, LOCATION PRIOR TO CONSTRUCTION)
4 SD — INSTALL TEMPORARY PLUG AND CAP
5 SD — INSTALL TYPE "C" DROP INLET PER USD DWG. NO. 413 AND 421
6 SD — INSTALL TYPE III MANHOLE PER USD DWG. NO. 406

IRRIGATION CONSTRUCTION NOTES:

1 IR — BANK "A": 1-6" & 2-4" SCH 40 PVC. PER DETAIL 3 DWG. DT2

BASIS OF BEARING AND COORDINATES

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAID 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 M (984,250.0000 FTUS)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

NOTES:
1. ALL DISTANCES AND BEARINGS SHOWN HEREON ARE PROJECTED (GRID) VALUES BASED ON THE PRECEDING PROJECTION DEFINITION. THE PROJECTION WAS DEFINED SUCH THAT PROJECTED (GRID) DISTANCES ARE EQUIVALENT TO "GROUND" DISTANCES IN THE PROJECT AREA.
2. GRID BEARINGS SHOWN HEREON (OR IMPLIED BY GRID COORDINATES) DO NOT EQUAL GEODETIC BEARINGS DUE TO MERIDIAN CONVERGENCE.

BENCHMARK

BM#	DESCRIPTION	NAVD 88 DATUM	NAVD 88 DATUM
CLV BM No. 7LV0934DW6	FIND RIVET AND PLATE IN TOP OF CURB SE CORNER OF DESERT MOON RD. AND SKY VISTA DR. T50S,R59E,S34	3318.31 (FEET)	1,011.422 (METERS)

DROP INLET NOTE:

ALL STORM DRAIN DROP INLETS ARE TO BE CONSTRUCTED PER THE REQUIREMENTS OF USDCCA DWG. NO. 421 (STORMWATER QUALITY MANAGEMENT STAMP AND SIGN DETAIL).

OFF-SITE FLOOD CONTROL NOTE:

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

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. XXXXXX FIRST APPROVAL DATE: _____

CLV#:

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811 OR 1-800-227-2600

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

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

NEVADA PROFESSIONAL ENGINEER — STATE OF NEVADA — MICHAEL FANG — No. 24467 — Date: 03/28/2019

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP	DATE

90% REVIEW - NOT FOR CONSTRUCTION

PROJECT NO. 62025-201
DESIGN: LG/MF
DRAWN: AS
CHECK: LG/MF
PLOT DATE: 03-28-19
PLOT TIME: 10:25:37

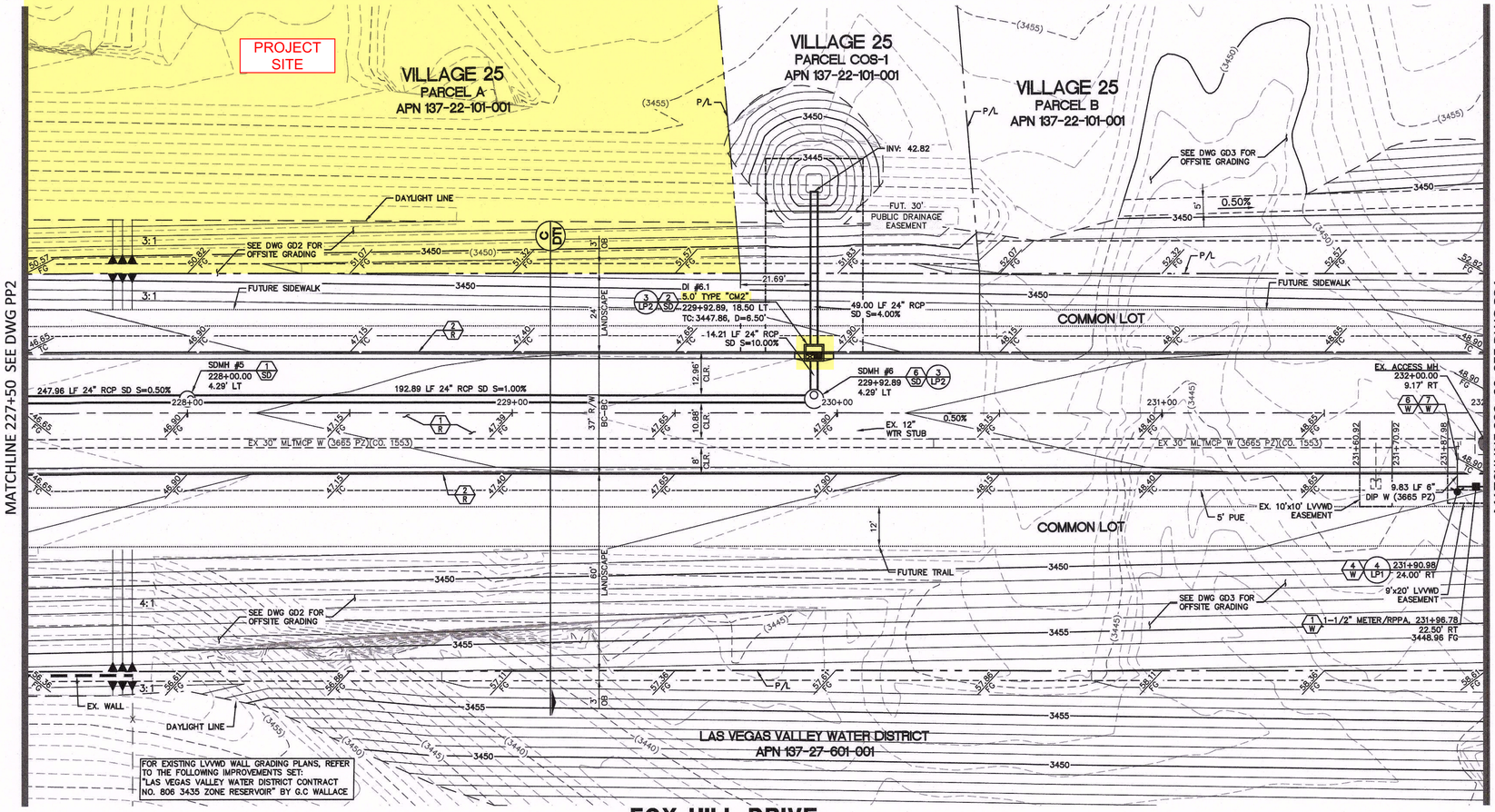
GCW ENGINEERS\SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com
F:\PROJECTS\6000\62025-201\DWG\PRODUCTION\62025-201_PP1.DWG
ALEXANDER SANTIAGO

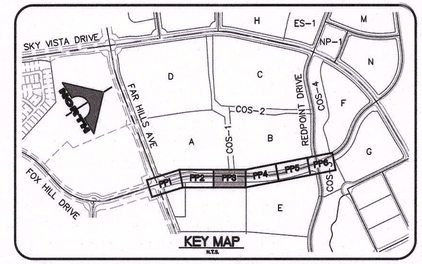
THE HOWARD HUGHES COMPANY. LLC

VILLAGE 25 FOX HILL DRIVE IMPROVEMENTS
(FAR HILLS AVENUE TO REDPOINT DRIVE)

PLAN AND PROFILE 2

DRAWING
PP2
14 OF 32 SHTS





KEY MAP
NTS

PROTECTION NOTES:

1 P — EXISTING PAVEMENT, PROTECT IN PLACE
2 P — EXISTING CURB/GUTTER, PROTECT IN PLACE
3 P — EXISTING PULLBOX, ADJUST TO FINISH GRADE
4 P — EXISTING TEST STATION, ADJUST TO FINISH GRADE PER DETAILS 1 & 3 ON DWG. DT4
5 P — EXISTING BLOW-OFF, ADJUST TO FINISH GRADE PER UDACS PL. NO. 37
6 P — EXISTING AVAR, ADJUST TO FINISH GRADE PER UDACS PL. NO. 38 & DETAIL 1 ON DWG. DT3
7 P — EXISTING GATE VALVE, ADJUST TO FINISH GRADE PER UDACS PL. NO. 39
8 P — EXISTING WATER VAULT MH, ADJUST TO FINISH GRADE PER UDACS PL. NO. C-475
9 P — EXISTING SSMH, ADJUST TO FINISH GRADE

ROADWAY IMPROVEMENTS NOTES:

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2 R — INSTALL "L" TYPE CURB & GUTTER, SEE SUMMERLIN STD DWG. S-47
3 R — INSTALL "A" TYPE ISLAND CURB, SEE SUMMERLIN STD DWG. S-50
4 R — INSTALL CONCRETE SIDEWALK PER USD DWG. NO. 234.
5 R — CONSTRUCT SIDEWALK RAMP PER USD DWG NO. 235 (CASE II) AND DWG. DT2
6 R — INSTALL CURB TRANSITION PER DETAIL 10 ON DWG. DT2

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STORM DRAIN CONSTRUCTION NOTES:

1 SD — INSTALL TYPE II-SD MANHOLE PER USD DWG. NO. 405.2
2 SD — INSTALL TYPE "CM2" DROP INLET PER USD DWG. NO. 412.1 AND 421
3 SD — REMOVE PLUG & CONNECT TO STORM DRAIN W/ CONCRETE COLLAR PER DETAIL 1 ON DWG. DT2 (CONTRACTOR TO VERIFY SIZE, INVERT, LOCATION PRIOR TO CONSTRUCTION)
4 SD — INSTALL TEMPORARY PLUG AND CAP
5 SD — INSTALL TYPE "C" DROP INLET PER USD DWG. NO. 413 AND 421
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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 M (984,250.0000 FTUS)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

NOTES:
1. ALL DISTANCES AND BEARINGS SHOWN HEREON ARE PROJECTED (GRID) VALUES BASED ON THE PRECEDING PROJECTION DEFINITION. THE PROJECTION WAS DEFINED SUCH THAT PROJECTED (GRID) DISTANCES ARE EQUIVALENT TO "GROUND" DISTANCES IN THE PROJECT AREA.
2. GRID BEARINGS SHOWN HEREON (OR IMPLIED BY GRID COORDINATES) DO NOT EQUAL GEODETIC BEARINGS DUE TO MERIDIAN CONVERGENCE.

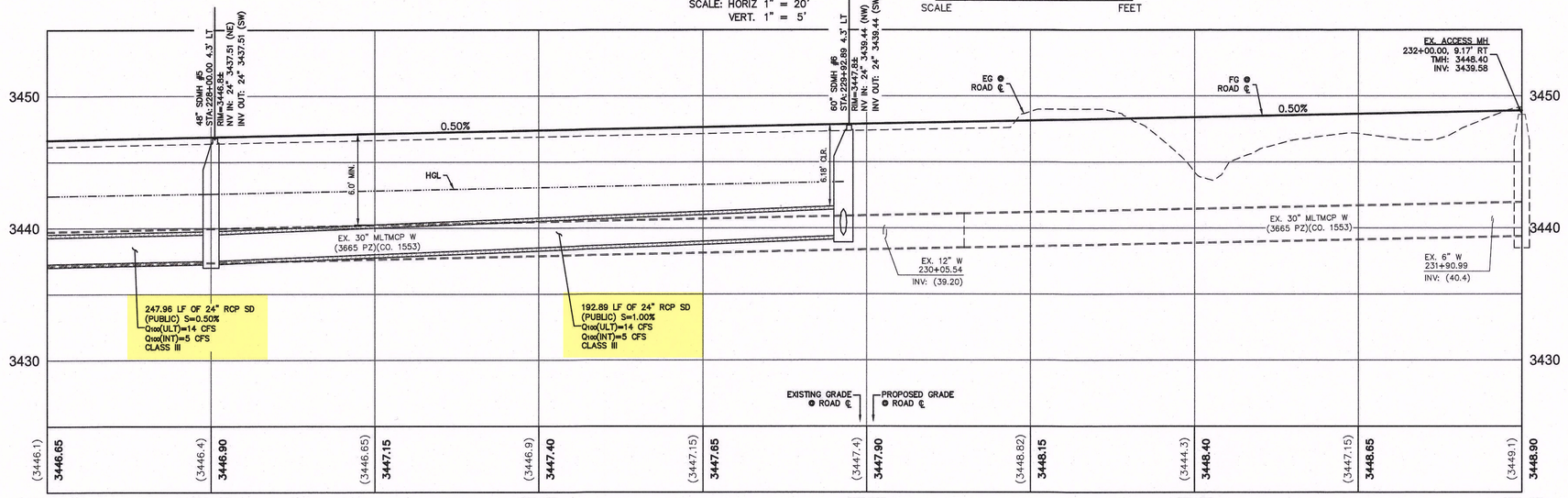
BENCHMARK

BM#	DESCRIPTION	NAVD 88 DATUM	NAVD 88 DATUM
CLV BM No. 7LV09340W6	FIND RIVET AND PLATE IN TOP OF CURB SE CORNER OF DESERT MOON RD. AND SKY VISTA DR. T5OS,R59E,S34	3318.31 (FEET)	1,011.422 (METERS)

FOX HILL DRIVE

(PUBLIC)
SCALE: HORIZ 1" = 20'
VERT. 1" = 5'

SCALE 20 0 20 40 FEET



DROP INLET NOTE:

ALL STORM DRAIN DROP INLETS ARE TO BE CONSTRUCTED PER THE REQUIREMENTS OF USDCCA DWG. NO. 421 (STORMWATER QUALITY MANAGEMENT STAMP AND SIGN DETAIL).

OFF-SITE FLOOD CONTROL NOTE:

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

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. XXXXXX FIRST APPROVAL DATE: _____

CLV#:

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811 OR 1-800-227-2600

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

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

ENGINEER - STATE OF NEVADA
MICHAEL FANG
No. 24454
PROFESSIONAL
DATE: 03/28/2019

90% REVIEW - NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP	DATE

PROJECT NO. 62025-201
DESIGN: LG/MF
DRAWN: AS
CHECK: LG/MF
PLOT DATE: 03-28-19
PLOT TIME: 10:26:10

GCW ENGINEERS\SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

F:\PROJECTS\6000\62025-201\DWG\PRODUCTION\62025-201_PP.DWG
ALEXANDER SANTIAGO

THE HOWARD HUGHES COMPANY, LLC

VILLAGE 25 FOX HILL DRIVE IMPROVEMENTS
(FAR HILLS AVENUE TO REDPOINT DRIVE)

PLAN AND PROFILE 3

DRAWING
PP3
15 OF 32 SHTS

REFERENCES

2) Update 1 & 2 to the Master Conceptual Drainage Study for Summerlin West Village 25, DS#5104, VTN (2020)

Approval Letters
Excerpts (*Update #1*)
Appendix A - Rainfall Map (*Update #1)*
Appendix A - Figure 6 : Ultimate Condition Basin Map *(Update #1)*
Appendix A - Figure 7 : Local Storm Drain Facilities Map *(Update #1)*
Appendix B - Curve Number Calculations *(Update #1)*
Appendix B - Standard Form 4 *(Update #1)*
Appendix B - Ultimate Condition HEC-1 *(Update #1)*
Appendix C - Hydraulic Calculations - Facility 21A *(Update #1)*
Appendix C - Hydraulic Calculations - Facility 22A *(Update #1)*

APPROVAL LETTER

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM			DATE: April 14, 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: **Master Conceptual Drainage Study – Update #1** **For Summerlin West Village 25**		**COPIES TO:** VTN Nevada
Cross Streets:	Sky Vista Drive and Far Hills Avenue		Howard Hughes Company, LLC
File Number:	F:\Depot\DSMemos\DS5104F.doc		Bart Anderson, P.E., DevCo
Parcel Number:	137-22-101-001, 137-21-000-002		CCRFCD
Zoning Action:	MDR-75107 & PMP-74780		
FEMA Flood Zone	YES	NO **X**	
Proposed Storm Drain	YES **X**	NO	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	2/20/2019	2/27/2019 & 3/20/2019	Not Approved	$400.00	503292: $400
2nd Submittal	4/4/2019	4/17/2019	Not Approved	$400.00	3081574: $400
3rd Submittal	4/25/2019	5/9/2019	Conditional Approval	$400.00	3105175: $400
CCRFCD	6/10/2019	6/18/2019	Concurrence Recv'd	N/C	N/C
4th Submittal	12/26/2019	1/23/2020	Conditional Approval	$100.00	3686588: $100
CCRFCD	3/23/2020	4/14/2020	Concurrence Recv'd	N/C	N/C
			TOTAL FEES (LDDRS):	**$1,300.00**	**----**

REMARKS:

4th Submittal: Update to revise the layout of V25 to match the changes to the overall Summerlin West Planning Area land plan

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.

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

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

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

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

END OF REMARKS
WSP/AYS

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

APPROVAL LETTER

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
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Clark County

Mayor Carolyn Goodman
City of Las Vegas

Stavros Anthony
City of Las Vegas

Isaac Barron
City of North Las Vegas

Mayor Kiernan McManus
City of Boulder City

March 23, 2020

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

DISTRICT CONCURRENCE: **UPDATE #1 FOR SUMMERLIN WEST VILLAGE 25 (DS5104E) (RFCD No. 20-12439)**

Dear Mr. Kwon:

Clark County Regional Flood Control District (District) reviewed Conceptual Drainage Study dated December 23, 2019 for above-mentioned project as submitted by VTN NEVADA. In addition, District is in receipt of the Conditional Letter of Acceptance from City of Las Vegas Department of Public Works dated January 23, 2020.

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

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

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

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

BY: _____
Ching C. Wang, P.E.
Senior Civil Engineer

CCW:jb

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

P:\Letters and Memos\Local Drainage\Land Development & Drainage\2020\L-20-12439.doc

600 S. Grand Central Parkway, Suite 300 • Las Vegas, Nevada 89106-4511
(702) 685-0000 • FAX: (702) 685-0001
Website: http://www.regionalflood.org

PROVIDING QUALITY PROFESSIONAL SERVICE SINCE 1960

December 11, 2019
W.O. #7861-3A

City of Las Vegas
Land Development Services
333 N. Rancho Drive, 7th Floor
Las Vegas, NV 89106

Attention: Albert Sung, P.E.
Flood Control Project Engineer

SUBJECT: UPDATE #1 TO THE MASTER CONCEPTUAL DRAINAGE STUDY FOR SUMMERLIN WEST VILLAGE 25

Mr. Sung:

This Update #1 to the approved *Master Conceptual Drainage Study for Summerlin West Village 25* (DS5104) is being submitted to address revisions to the overall Summerlin West Planning Area land plan. Since the approval of the original study, the *Update #1 to the Summerlin West Planning Area Flood Control Master Plan Update* (hereinafter referred to as the Overall Master Study Update #2) was submitted to the City of Las Vegas on October 28, 2019. The Overall Master Study Update #2 included revisions to the overall Summerlin West hydrology and proposed CCRFCD facilities in the area. This update reanalyzes Village 25 according to the revisions submitted in the Overall Master Plan Update study. In addition, this update reconfigures the conceptual storm drain alignment previously presented. The revisions addressed in this update are summarized below and are discussed in more detail throughout this document:

1. Offsite Parcels in Village 30 have combined. Parcels P and Q in have combined into a single Parcel A. The former land use of Parcels P and Q was Multi-family Residential (MF). The land use for the combined Parcel A is now High Density Single Family Residential (HD-SF).
2. Parcels R and S have combined into a single Parcel B. The land use of Parcel B (HD-SF) will remain consistent with the previously approved study.
3. Parcels U and W have combined into a single Parcel E. The former land use of Parcels U and W were HD-SF and Townhomes, respectively. The land use for the combined Parcel E is now HD-SF.
4. A street has been added between Village 30 Parcels A and B. A street basin (STAB) has been added to the analysis to represent the new street.
5. A street has been added between Village 30 Parcels B and E. A street basin (STBE) has been added to the analysis to represent the new street
6. The alignment of Fox Hill Drive between Park Drift Trail (Street K) and Park Bluff Lane (Street KK) has been revised. The hydrologic calculations for the street basins FOX1 and FOX2 and the adjacent parcel basins K, L, M, and CP-1 have been updated accordingly.
7. The size of the 3665 Reservoir/4125 Pump Station (Parcel DC-1) has decreased.

8. Several Parcels within Village 27 impact facilities that will be constructed with Village 25. A hydrologic analysis for parcels in Village 27 have been added in this update. Stub sizes for the Village 27 parcels which discharge into the Grand Park Detention Basin inflow pipe have also been added.

The analysis presented in this update has been completed in accordance with the criteria established in the Clark County Regional Flood Control District (CCRFCD) *Hydrologic Criteria and Drainage Design Manual*, hereinafter referred to as the Manual.

I. HYDROLOGY

As discussed previously, the Update #2 to the Overall Master Plan study included changes to the land uses and parcel configurations throughout the SWPA and revisions to the proposed CCRFCD MPU facilities. Areas for basins within Village 25 have been revised, and land uses for offsite basins in Village 30 have been revised. The new parcel areas and land uses have been utilized in this drainage study to revise the curve numbers and hydrologic basins. In addition, hydrologic calculations for offsite areas within Village 27 have been added for stubs that will be constructed with the Grand Park Detention Basin inflow pipe. Revised hydrologic calculations and HEC-1 analysis for Village 25 have been included in Appendix B of this report. Updated basin boundaries and flow rates are depicted on *Figure 6: Ultimate Condition Basin Map* in Appendix A.

II. STORM DRAIN ANALYSIS

The Overall Master Study revised the Clark County Regional Flood Control District (CCRFCD) facilities within Village 25. In addition, several technical drainage studies for infrastructure within Village 25 have been submitted or approved since the approval of the original. These include:

1. *Technical Drainage Study for Summerlin Village 25 Sky Vista Drive Improvements – Phase 1 (DS5120B)* by GCW, Inc., approved by CLV on May 30, 2019.
2. *Technical Drainage Study for Summerlin West Grand Park Detention Basin* by VTN Nevada, subnmitted to CLV on July 25, 2019 and currently under review.
3. *Technical Drainage Study for Summerlin West Grand Park Detention Basin Inlet Pipe* by VTN Nevada, submitted to CLV on November 27, 2019 and currently under review.
4. *Technical Drainage Study for Summerlin West Village 25 Sandstone Rise Drive (Street M): Park Drift Trail (Street K) to Sky Vista Drive* by Atkins, submitted to CLV on November 20, 2019.

The updated local and CCRFCD facilities have been depicted on *Figure 7: Local Flood Control Facilities Map*. Normal depth calculations have been included in Appendix C. Pertinent reference material has been included in Appendix D.

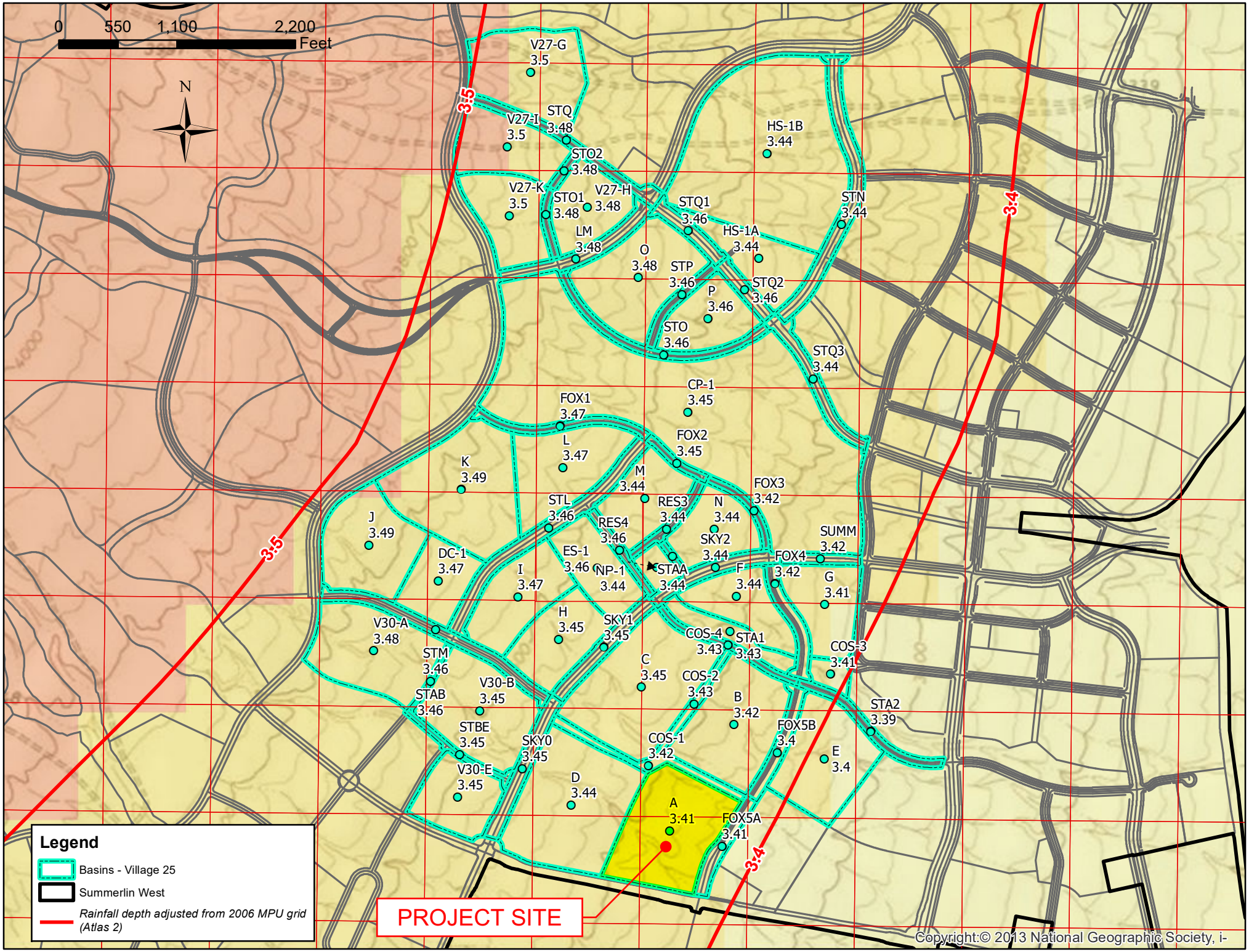
If you any questions about this study or any additional information is required, please do not hesitate to contact this office.

Respectfully Submitted,
VTN Consulting

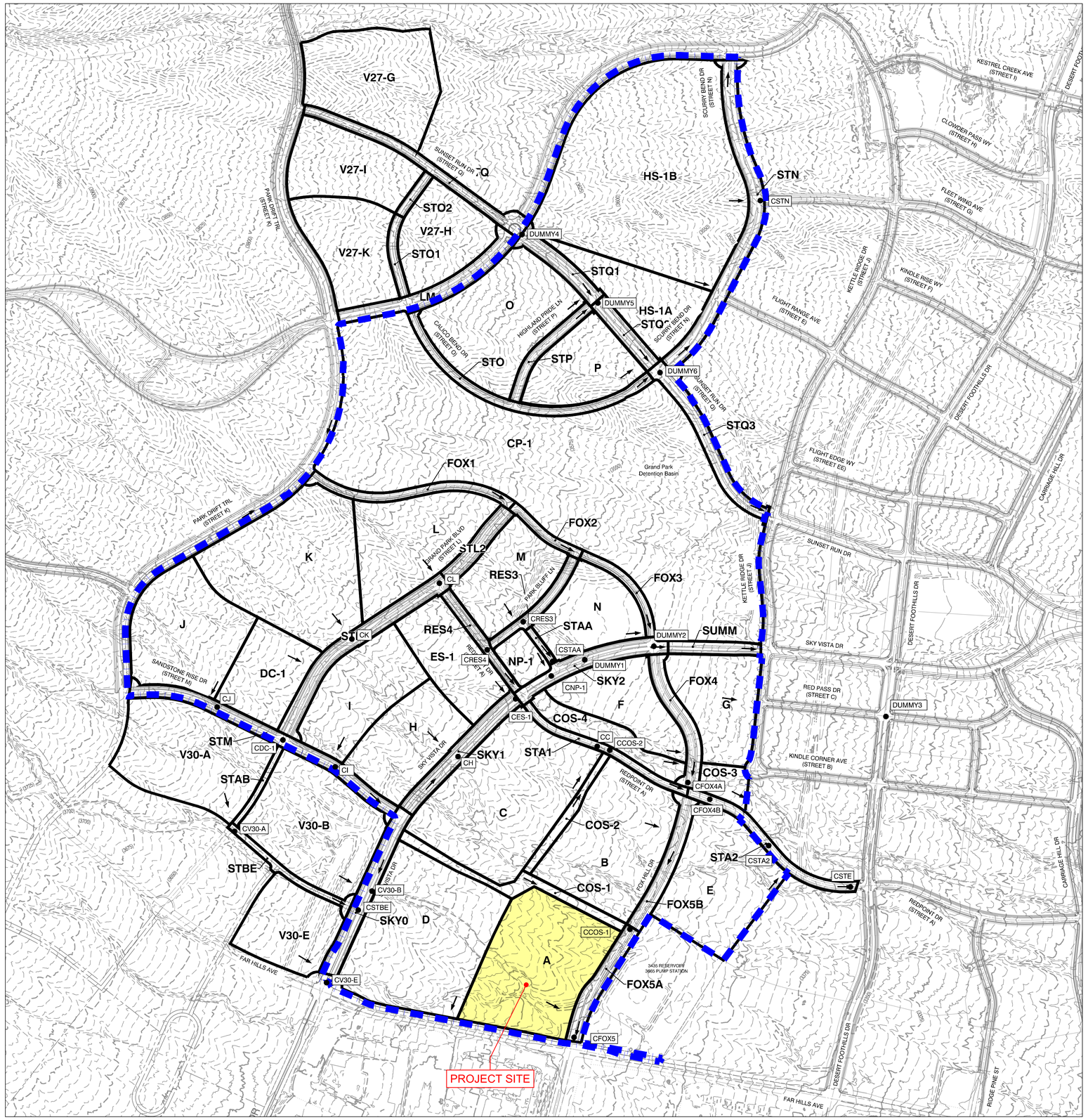


Joanna Ayson, P.E.

APPENDIX A
FIGURES



H:\7919\GIS\Rainfall\mxd\Village25-2006MPU-Precipitation.mxd Date: 12/5/2019



LEGEND

- VILLAGE 25 BOUNDARY
- BASIN BOUNDARY
- W51 BASIN DESIGNATION
- CW51 CONCENTRATION POINT
- FLOW ARROW

GRAPHIC SCALE
400 0 200 400 800
1" = 400'

NORTH

ULTIMATE CONDITION HEC-1 SUMMARY TABLE

BASIN ID	Area (a.c.)			Q100 (cfs)		
	Update #1	Previous	Difference	Update #1	Previous	Difference
J	16.90	16.90	0.00	69	69	0.00
STM	4.76	4.76	0.00	20	20	0.00
CJ	-	-	N/A	89	-	N/A
DC-1	9.42	15.02	-5.60	35	56	-21.00
CDC-1	-	-	N/A	124	184	-60.00
I	13.23	13.23	0.00	53	53	0.00
CI	-	-	N/A	176	274	-98.00
SKY0	4.15	4.15	0.00	15	14	1.00
V30-B	20.53	N/A	N/A	83	N/A	N/A
CV30B	-	N/A	N/A	273	N/A	N/A
V30-A	19.05	N/A	N/A	80	N/A	N/A
STAB	0.80	N/A	N/A	3	N/A	N/A
CV30-A	-	N/A	N/A	83	N/A	N/A
STBE	1.67	N/A	N/A	8	N/A	N/A
CSTBE	-	N/A	N/A	364	N/A	N/A
V30-E	10.36	N/A	N/A	44	N/A	N/A
CV30-E	-	N/A	N/A	408	N/A	N/A
SKY1	3.91	3.91	0.00	16	16	0.00
H	12.11	12.11	0.00	48	48	0.00
CH	-	-	N/A	64	64	0.00
ES-1	10.20	10.20	0.00	42	42	0.00
CES-1	-	-	N/A	105	106	-1.00
SKY2	3.78	3.78	0.00	17	17	0.00
NP-1	2.70	2.70	0.00	9	9	0.00
CNP-1	-	-	N/A	129	132	-3.00
STL1	5.60	7.86	-2.26	21	28	-7.00
K	25.71	21.91	3.80	101	86	15.00
CK	-	-	N/A	123	113	10.00
L	16.19	12.79	3.40	68	53	15.00
CL	-	-	N/A	187	167	20.00
RES4	1.60	1.60	0.00	7	7	0.00
CRES4	-	-	N/A	194	174	20.00
RES3	1.97	1.97	0.00	9	9	0.00
M	11.09	10.88	0.21	47	46	1.00
CRES3	-	-	N/A	248	229	19.00
STAA	0.44	0.44	0.00	2	2	0.00
CSTAA	-	-	N/A	248	231	17.00
N	9.91	9.91	0.00	40	40	0.00
CP-1	93.32	94.28	-0.96	270	282	-12.00
STL2	2.26	N/A	N/A	9	N/A	N/A
FOX1	2.91	3.39	-0.48	12	14	-2.00
FOX2	1.67	1.06	0.61	8	5	3.00
FOX3	1.51	1.51	0.00	7	7	0.00
SUMM	1.65	1.65	0.00	7	7	0.00
G	11.44	11.44	0.00	45	45	0.00
D	27.15	27.15	0.00	105	105	0.00
FOX5B	3.19	3.19	0.00	12	12	0.00
COS-1	3.48	3.48	0.00	9	9	0.00
CCOS-1	-	-	N/A	20	20	0.00
FOX5A	3.15	3.15	0.00	11	11	0.00
A	21.35	21.35	0.00	81	81	0.00
CFOX5	-	-	N/A	111	111	0.00
C	26.54	26.54	0.00	99	99	0.00
STA1	2.29	2.29	0.00	10	10	0.00
CC	-	-	N/A	109	109	0.00
COS-2	1.72	1.72	0.00	5	5	0.00
CCOS-2	-	-	N/A	114	114	0.00
FOX4	3.20	3.20	0.00	14	14	0.00
F	10.44	10.44	0.00	43	43	0.00
COS-4	5.04	5.04	0.00	16	16	0.00
CFOX4A	-	-	N/A	73	73	0.00
B	19.86	19.86	0.00	76	76	0.00
CFOX4B	-	-	N/A	263	263	0.00
STA2	2.84	2.84	0.00	12	12	0.00
CSTA2	-	-	N/A	275	275	0.00
COS-3	2.40	2.40	0.00	8	8	0.00
E	17.14	17.14	0.00	65	65	0.00
CSTE	-	-	N/A	348	348	0.00
V27-G	18.08	N/A	N/A	71	N/A	N/A
V27-I	11.97	N/A	N/A	39	N/A	N/A
STO2	0.76	N/A	N/A	3	N/A	N/A
STQ	4.13	N/A	N/A	19	N/A	N/A
CSTQ	-	N/A	N/A	132	N/A	N/A
V27-K	11.98	N/A	N/A	49	N/A	N/A
STO1	1.24	N/A	N/A	6	N/A	N/A
CSTO1	-	N/A	N/A	54	N/A	N/A
LM	4.65	N/A	N/A	21	N/A	N/A
V27-H	10.40	N/A	N/A	38	N/A	N/A
STQ1	2.49	2.49	0.00	11	11	0.00
O	19.18	19.18	0.00	46	46	0.00
STP	2.05	2.05	0.00	9	9	0.00
STQ2	2.11	2.11	0.00	10	10	0.00
P	10.31	10.31	0.00	42	42	0.00
STO	4.10	4.10	0.00	17	17	0.00
STQ3	4.22	4.22	0.00	18	18	0.00
STN	7.67	7.67	0.00	27	27	0.00
HS-1A	11.70	11.70	0.00	47	47	0.00
HS-1B	49.79	49.79	0.00	198	195	3.00
CSTN	-	-	N/A	269	266	3.00

REV | DATE | BY | REVISION

THE HOWARD HUGHES CORPORATION
10801 WEST CHARLESTON BLVD. 3RD FLOOR
LAS VEGAS, NEVADA 89135

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH. (702) 873-7500 FAX (702) 362-2597 WEB WWW.VTNNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

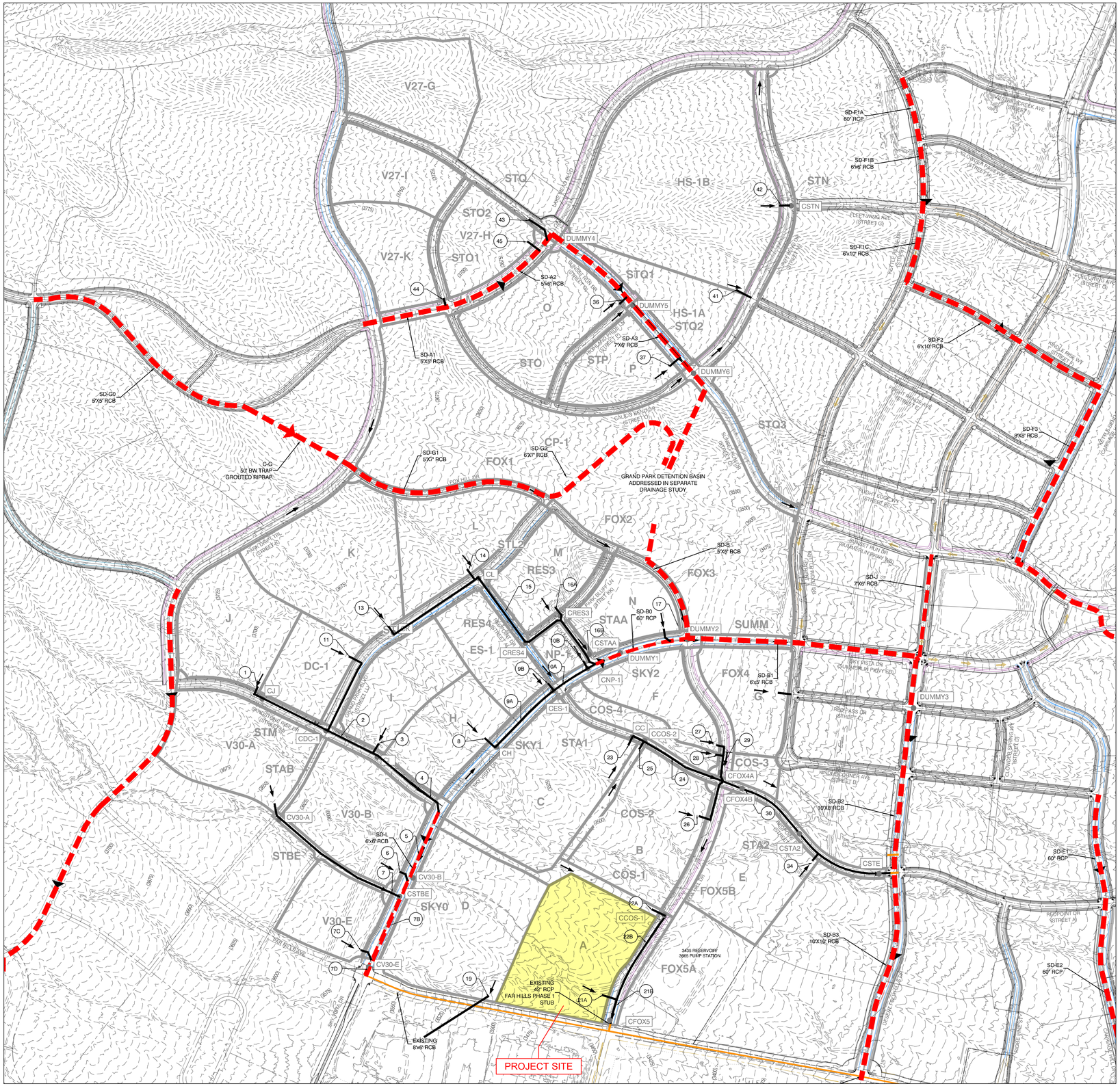
FIGURE 6
ULTIMATE CONDITION BASIN MAP

SUMMERLIN WEST VILLAGE 25

DRAWN BY: JYA — DECEMBER 2019
DESIGNED BY: JYA — DECEMBER 2019
CHECKED BY: JYA — DECEMBER 2019
PROJECT NO: 7919
SCALE: 1" = 400' HORIZ, N/A VERT.

SHEET
OF SHEETS
DRAWING NO.
FIG 6

H:\7919\Drainage\5_UP11A_Figures\Figure 6 - Village 25 Drainage Basin Map.dwg


V27-G
V27-I
V27-H
V27-K
STO
STO2
STO1
HS-1B
STN
CSTN
HS-1A
STQ2
STQ1
STQ3
STP
P
O
DUMMY4
DUMMY5
DUMMY6
SD-F1A
60" RCP
SD-F1B
6'X6' RCB
SD-F1C
6'X10' RCB
SD-F2
6'X10' RCB
SD-F3
8'X8' RCB
SD-A1
5'X5' RCB
SD-A2
5'X6' RCB
SD-A3
7'X6' RCB
SD-G0
5'X5' RCB
SD-G1
5'X7' RCB
SD-G2
6'X7' RCB
C-G
50' BW TRAP
GROUTED RIPRAP
CP-1
FOX1
FOX2
FOX3
FOX4
FOX5A
FOX5B
GRAND PARK DETENTION BASIN
ADDRESSED IN SEPARATE
DRAINAGE STUDY
SD-B1
6'X5' RCB
SD-B2
10'X8' RCB
SD-B3
10'X10' RCB
SD-B
7'X6' RCB
SD-B0
60" RCP
SD-E1
60" RCP
SD-E2
60" RCP
L
K
M
N
J
I
H
G
F
E
C
B
A
D
STL2
RES3
RES4
ES-1
NP-1
STAA
SUMM
SKY2
SKY1
SKY0
STA1
STA2
COS-4
COS-3
COS-2
COS-1
STM
STAB
STBE
V30-A
V30-B
V30-E
DC-1
CJ
CDC-1
CV30-A
CV30-B
CSTBE
CV30-E
CL
CRES3
CRES4
CH
CNP-1
CES-1
CC
CCOS-2
CFOX4A
CFOX4B
CSTA2
CSTE
CCOS-1
CFOX5
DUMMY1
DUMMY2
DUMMY3
EXISTING
42" RCP
FAR HILLS PHASE 1
STUB
EXISTING
8'x6' RCB
3435 RESERVOIR
3965 PUMP STATION
PROJECT SITE
FAIR OAKS RANCH DR
(STREET K)
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APPENDIX B
HYDROLOGIC CALCULATIONS

CURVE NUMBERS FOR SOILS - W.O. #7919

Soil # 152 Cave gravelly fine sandy loam, 0 to 4 percent slopes									
Soil	Percent	Group	Residential$_1$ (Apartment/Condo)	Residential$_2$ (7,000 ft^2)	Open Space$_3$ (Poor Condition)	Urban Districts$_4$ (Commercial)	Impervious$_5$ (Streets and roads(Paved)	Urban Districts$_6$ (Industrial)	Residential$_7$ (Townhomes)
Cave	100%	D	93	91	89	95	98	93	92
Total	**100%**		**93**	**91**	**89**	**95**	**98**	**93**	**92**

Soil # 155 Cave gravelly fine sandy loam, 4 to 15 percent slopes									
Soil	Percent	Group	Residential$_1$ (Apartment/Condo)	Residential$_2$ (7,000 ft^2)	Open Space$_3$ (Poor Condition)	Urban Districts$_4$ (Commercial)	Impervious$_5$ (Streets and roads(Paved)	Urban Districts$_6$ (Industrial)	Residential$_7$ (Townhomes)
Cave	100%	D	93	91	89	95	98	93	92
Total	**100%**		**93**	**91**	**89**	**95**	**98**	**93**	**92**

Soil # 156 Vace - Wechech association									
Soil	Percent	Group	Residential$_1$ (Apartment/Condo)	Residential$_2$ (7,000 ft^2)	Open Space$_3$ (Poor Condition)	Urban Districts$_4$ (Commercial)	Impervious$_5$ (Streets and roads(Paved)	Urban Districts$_6$ (Industrial)	Residential$_7$ (Townhomes)
Vace and Similar	45%	D	93	91	89	95	98	93	92
Wechech and Similar	25%	D	93	91	89	95	98	93	92
Wechech, steep, and similar	15%	D	93	91	89	95	98	93	92
Weiser	8%	B	88	84	79	92	98	88	87
Irongold	4%	D	93	91	89	95	98	93	92
Commski	2%	B	88	84	79	92	98	88	87
Threelakes	1%	A	81	76	68	89	98	81	80
Total	**100%**		**93**	**91**	**88**	**95**	**98**	**93**	**92**

Soil # 502 Canutio-Cave gravelly fine sandy loams, 2 to 8 percent slopes									
Soil	Percent	Group	Residential$_1$ (Apartment/Condo)	Residential$_2$ (7,000 ft^2)	Open Space$_3$ (Poor Condition)	Urban Districts$_4$ (Commercial)	Impervious$_5$ (Streets and roads(Paved)	Urban Districts$_6$ (Industrial)	Residential$_7$ (Townhomes)
Canutio	55%	A	81	76	68	89	98	81	80
Cave	40%	D	93	91	89	95	98	93	92
Arizo	5%	D	93	91	89	95	98	93	92
Total	**100%**		**87**	**83**	**78**	**92**	**98**	**87**	**86**

Soil # 731 Purob-Irongold association									
Soil	Percent	Group	Residential$_1$ (Apartment/Condo)	Residential$_2$ (7,000 ft^2)	Open Space$_3$ (Poor Condition)	Urban Districts$_4$ (Commercial)	Impervious$_5$ (Streets and roads(Paved)	Urban Districts$_6$ (Industrial)	Residential$_7$ (Townhomes)
Purob	60%	D	93	91	89	95	98	93	92
Irongold	25%	D	93	91	89	95	98	93	92
Typic torriorthents	5%	A	81	76	68	89	98	81	80
Arizo	3%	A	81	76	68	89	98	81	80
Purob	3%	D	93	91	89	95	98	93	92
Typic haplocalcids	2%	B	88	84	79	92	98	88	87
Xeric haplocambids	1%	A	81	76	68	89	98	81	80
Aridic calcixerolls	1%	A	81	76	68	89	98	81	80
Total	**100%**		**92**	**90**	**87**	**95**	**98**	**92**	**91**

1-Referenced Clark County's Hydrologic Criteria and Drainage Design Manual Table 602A
* Residential (Apartments / Condos)

2-Referenced Clark County's Hydrologic Criteria and Drainage Design Manual Table 602A
* Residential (7,000 sq ft lots)

3-Referenced Clark County's Hydrologic Criteria and Drainage Design Manual Table 602 page 1 of 4
* Open spaces in poor condition (grass cover < 50%)

4-Referenced Clark County's Hydrologic Criteria and Drainage Design Manual Table 602 page 1 of 4
* Urban Districts (Commercial / Business & Residential with average lot size <6000 sqft)

5-Referenced Clark County's Hydrologic Criteria and Drainage Design Manual Table 602 page 1 of 4
*Impervious (Paved Streets)

6-Referenced Clark County's Hydrologic Criteria and Drainage Design Manual Table 602 page 1 of 4
*Urban Districts (Industrial)

7-Referenced Clark County's Hydrologic Criteria and Drainage Design Manual Table 602 page 1 of 4
*Residential (Townhomes)

Curve Number calculations for basins										
Basin Name	Type	Soil Percentage	1	2	3	4	5	6	7	CN Value
A	156	100%				100%				95.0
B	156	100%				100%				95.0
C	156	74%				100%				95.0
	731	26%				100%				
D	156	100%				100%				95.0
DC-1	731	100%						100%		92.0
E	156	100%				100%				95.0
ES-1	156	48%				100%				95.0
	731	52%				100%				
F	152	79%				100%				95.0
	156	21%				100%				
G	152	84%	100%							93.0
	156	16%	100%							
H	156	5%				100%				95.0
	731	95%				100%				
HS-1A	155	6%				100%				95.0
	502	94%				100%				
HS-1B	155	93%				100%				94.8
	502	7%				100%				
I	156	2%				100%				95.0
	731	98%				100%				
J	731	100%				100%				95.0
K	156	3%				100%				95.0
	731	97%				100%				
L	156	80%				100%				95.0
	731	20%				100%				
M	156	100%				100%				95.0
N	152	5%				100%				95.0
	156	95%				100%				
O	155	1%				100%				81.3
	156	32%				100%				
	502	67%				100%				
P	156	40%				100%				93.2
	502	60%				100%				
COS-1	156	100%			100%					88.0
COS-2	156	100%			100%					88.0
COS-3	152	9%			100%					88.1
	156	91%			100%					
COS-4	156	100%			100%					88.0
	731	0%			100%					
CP-1	156	94%			100%					87.1
	731	5%			100%					
NP-1	152	37%			100%					88.4
	156	63%			100%					
FOX1	156	75%					100%			98.0
	731	25%					100%			
FOX2	156	100%					100%			98.0
FOX3	156	100%					100%			98.0
FOX4	152	67%					100%			98.0
	156	33%					100%			
FOX5A	156	100%					100%			98.0
FOX5B	156	100%					100%			98.0
LM	155	12%					100%			98.0
	156	58%								
	502	30%								
RES3	156	100%					100%			98.0
RES4	156	90%					100%			98.0
	731	10%					100%			
SKY0	156	100%					100%			98.0
SKY1	156	22%					100%			98.0
	731	78%					100%			
SKY2	152	43%					100%			98.0
	156	55%					100%			
	731	2%					100%			
STAA	152	72%					100%			98.0
	156	28%					100%			
STAB	731	100%					100%			98.0
STA1	156	82%					100%			98.0
	731	18%					100%			
STA2	156	100%					100%			98.0
STBE	156	72%					100%			98.0
	731	28%					100%			

TRAVEL TIME CALCULATIONS

DEVELOPMENT: Summerlin West Village 25

W.O. # 7919 **CALCULATED BY:** AH

$$Velocity = CS^{1/2}$$

C1 applies to the first 500 feet of travel distance
C2 applies to the remaining travel distance

Existing:		Urbanized	
C1=14.8	C2=29.4	C1=20.2	C2=30.6

					First 500 feet		Remaining Travel Distance	
Basin	**Length** (ft)	**High Elev** (ft)	**Low Elev** (ft)	**Slope** (ft/ft)	**C1**	**V1** (fps)	**C2**	**V2** (fps)
DEVELOPED CONDITION								
A	1409	3502	3452	0.036	20.2	3.8	30.6	5.8
B	1311	3499	3452	0.036	20.2	3.8	30.6	5.8
C	1465	3537	3497	0.027	20.2	3.3	30.6	5.1
COS-1	1898	3564	3550	0.008	20.2	1.8	30.6	2.7
COS-2	1036	3507	3496	0.010	20.2	2.1	30.6	3.1
COS-3	390	3453	3422	0.079	20.2	5.7	30.6	8.6
COS-4	1205	3538	3451	0.072	20.2	5.4	30.6	8.2
CP-1	2646	3737	3440	0.112	20.2	6.8	30.6	10.3
D	1417	3562	3497	0.045	20.2	4.3	30.6	6.5
DC-1	917	3680	3638	0.045	20.2	4.3	30.6	6.5
E	1250	3447	3406	0.033	20.2	3.7	30.6	5.5
ES-1	1032	3623	3545	0.075	20.2	5.5	30.6	8.4
F	1030	3538	3455	0.081	20.2	5.7	30.6	8.7
G	879	3491	3422	0.078	20.2	5.7	30.6	8.6
H	999	3602	3564	0.038	20.2	3.9	30.6	6.0
HS-1A	1494	3643	3531	0.075	20.2	5.5	30.6	8.4
HS-1B	1541	3648	3523	0.081	20.2	5.8	30.6	8.7
I	1122	3637	3593	0.039	20.2	4.0	30.6	6.0
J	1097	3740	3680	0.055	20.2	4.7	30.6	7.2
K	1721	3729	3618	0.064	20.2	5.1	30.6	7.7
L	846	3661	3604	0.067	20.2	5.2	30.6	7.9
M	743	3601	3530	0.095	20.2	6.2	30.6	9.4
N	877	3550	3505	0.052	20.2	4.6	30.6	7.0
NP-1	442	3569	3540	0.066	20.2	5.2	30.6	7.9
O	1301	3696	3610	0.066	20.2	5.2	30.6	7.8
P	656	3616	3562	0.083	20.2	5.8	30.6	8.8
FOX1	2115	3711	3599	0.053	20.2	4.6	30.6	7.0
FOX2	641	3589	3546	0.067	20.2	5.2	30.6	7.9
FOX3	907	3544	3504	0.044	20.2	4.2	30.6	6.4
FOX4	1230	3502	3452	0.041	20.2	4.1	30.6	6.2
FOX5A	1182	n/a	n/a	0.005	20.2	1.4	30.6	2.2
FOX5B	1004	3451	3444	0.007	20.2	1.7	30.6	2.6
LM	1577	3741	3655	0.055	20.2	4.7	30.6	7.1
RES3	978	3571	3528	0.045	20.2	4.3	30.6	6.5
RES4	909	3603	3548	0.060	20.2	5.0	30.6	7.5
SKY0	1325	3565	3559	0.005	20.2	1.4	30.6	2.1
SKY1	1241	3565	3544	0.017	20.2	2.6	30.6	4.0
SKY2	1114	3543	3500	0.038	20.2	4.0	30.6	6.0
STAA	314	3555	3538	0.052	20.2	4.6	30.6	7.0
STAB	722	3634	3631	0.004	20.2	1.3	30.6	2.0
STA1	1455	3537	3456	0.056	20.2	4.8	30.6	7.2

STANDARD FORM 4

DEVELOPMENT: Summerlin West Village 25

W.O. # 7919 **CALCULATED BY:** JYA/ RBR

V1 applies to the first 500 feet of travel distance applies to the remaining travel distance		V2
Existing:		**Developed**
$V1 = 148 * S^{1/2}$	$V2 = 294 * S^{1/2}$	$V1 = 202 * S^{1/2}$ $V2 = 306 * S^{1/2}$

$$T_i = \frac{1.8(1.1-k)L^{1/2}}{S^{1/3}} \qquad T_t = \frac{L}{60V}$$

$$k = 0.0132 C_n - 0.39 \qquad T_c = T_i + T_t$$

SUB-BASIN					INITIAL/OVERLAND TIME (Ti)			TRAVEL TIME (Tt)					Tc CHECK (URBANIZED BASINS)		FINAL Tc	LAG TIME	REMARKS
DESIG. (1)	Cn	K (2)	AREA Ac. (3)	AREA Mi^2	LENGTH Ft (4)	SLOPE % (5)	Ti Min. (6)	LENGTH Ft. (7)	SLOPE % (8)	V1 fps (9a)	V2 fps (9b)	Tt Min. (10)	TOTAL LENGTH (11)	Tc Min. (12)	Min.	TLAG Hr.	
DEVELOPED CONDITION																	
A	95.0	0.864	21.35	0.0334	100	1.0	4.25	1409	3.6	3.8	5.8	4.81	1509	18.38	9.06	0.091	
B	95.0	0.864	19.86	0.0310	100	1.0	4.25	1311	3.6	3.8	5.8	4.51	1411	17.84	8.76	0.088	
C	95.0	0.864	26.54	0.0415	100	1.0	4.25	1465	2.7	3.3	5.1	5.68	1565	18.69	9.93	0.099	
COS-1	88.0	0.772	3.48	0.0054	100	1.0	5.91	1898	0.8	1.8	2.7	13.49	1998	21.10	19.40	0.194	
COS-2	88.0	0.772	1.72	0.0027	100	1.0	5.91	1036	1.0	2.1	3.1	6.94	1136	16.31	12.85	0.128	
COS-3	88.1	0.773	2.40	0.0038	100	1.0	5.89	390	7.9	5.7	8.6	1.14	490	12.72	7.03	0.070	
COS-4	88.0	0.772	5.04	0.0079	100	1.0	5.91	1205	7.2	5.4	8.2	2.96	1305	17.25	8.88	0.089	
CP-1	87.1	0.759	93.32	0.1458	100	1.0	6.13	2646	11.2	6.8	10.3	4.72	2746	25.26	10.85	0.109	
D	95.0	0.864	27.15	0.0424	100	1.0	4.25	1417	4.5	4.3	6.5	4.28	1517	18.43	8.53	0.085	
DC-1	92.0	0.824	9.42	0.0147	100	1.0	4.96	917	4.5	4.3	6.5	3.00	1017	15.65	7.96	0.080	
E	95.0	0.864	17.14	0.0268	100	1.0	4.25	1250	3.3	3.7	5.5	4.53	1350	17.50	8.78	0.088	
ES-1	95.0	0.864	10.20	0.0159	100	1.0	4.25	1032	7.5	5.5	8.4	2.57	1132	16.29	6.81	0.068	
F	95.0	0.864	10.44	0.0163	100	1.0	4.25	1030	8.1	5.7	8.7	2.47	1130	16.28	6.72	0.067	
G	93.0	0.838	11.44	0.0179	100	1.0	4.72	879	7.8	5.7	8.6	2.21	979	15.44	6.93	0.069	
H	95.0	0.864	12.11	0.0189	100	1.0	4.25	999	3.8	3.9	6.0	3.51	1099	16.11	7.76	0.078	
HS-1A	95.0	0.864	11.70	0.0183	100	1.0	4.25	1494	7.5	5.8	8.7	3.35	1594	18.86	7.60	0.076	
HS-1B	94.8	0.861	49.79	0.0778	100	1.0	4.30	1541	8.1	5.8	8.7	3.44	1641	19.12	7.74	0.077	
I	95.0	0.864	13.23	0.0207	100	1.0	4.25	1122	3.9	4.0	6.0	3.82	1222	16.79	8.07	0.081	
J	95.0	0.864	16.90	0.0264	100	1.0	4.25	1097	5.5	4.7	7.2	3.15	1197	16.65	7.40	0.074	
K	95.0	0.864	25.71	0.0402	100	1.0	4.25	1721	6.4	5.1	7.7	4.26	1821	20.12	8.51	0.085	
L	95.0	0.864	16.19	0.0253	100	1.0	4.25	846	6.7	5.2	7.9	2.33	946	15.25	6.58	0.066	
M	95.0	0.864	11.09	0.0173	100	1.0	4.25	743	9.5	6.2	9.4	1.77	843	14.69	6.01	0.060	
N	95.0	0.864	9.91	0.0155	100	1.0	4.25	877	5.2	4.6	7.0	2.72	977	15.43	6.97	0.070	
NP-1	88.4	0.776	2.70	0.0042	100	1.0	5.82	442	6.6	5.2	7.9	1.42	542	13.01	7.24	0.072	
O	81.3	0.683	19.18	0.0300	100	1.0	7.50	1301	6.6	5.2	7.8	3.31	1401	17.79	10.81	0.108	
P	93.2	0.840	10.31	0.0161	100	1.0	4.67	656	8.3	5.8	8.8	1.73	756	14.20	6.40	0.064	
FOX1	98.0	0.904	2.91	0.0045	26	2.0	1.44	2115	5.3	4.6	7.0	5.62	2141	21.90	7.06	0.071	
FOX2	98.0	0.904	1.67	0.0026	27	2.0	1.45	641	6.7	5.2	7.9	1.89	667	13.71	3.35	0.033	Use Min TLAG = 0.050 per HCDDM
FOX3	98.0	0.904	1.51	0.0024	36	2.0	1.69	907	4.4	4.2	6.4	3.03	943	15.24	4.72	0.047	Use Min TLAG = 0.050 per HCDDM
FOX4	98.0	0.904	3.20	0.0050	60	2.0	2.17	1230	4.1	4.1	6.2	4.02	1290	17.17	6.19	0.062	
FOX5A	98.0	0.904	3.15	0.0049	60	2.0	2.17	1182	0.5	1.4	2.2	11.09	1242	16.90	13.26	0.133	
FOX5B	98.0	0.904	3.19	0.0050	60	2.0	2.17	1004	0.7	1.7	2.6	8.22	1064	15.91	10.39	0.104	
LM	98.0	0.904	4.65	0.0073	30	2.0	1.54	1577	5.5	4.7	7.1	4.28	1607	18.93	5.82	0.058	
RES3	98.0	0.904	1.97	0.0031	44	2.0	1.87	978	4.5	4.3	6.5	3.19	1022	15.68	5.05	0.051	Use Min TLAG = 0.050 per HCDDM
RES4	98.0	0.904	1.60	0.0025	33	2.0	1.62	909	6.0	5.0	7.5	2.59	942	15.23	4.20	0.042	
SKY0	98.0	0.904	4.15	0.0065	60	2.0	2.17	1325	0.5	1.4	2.1	12.81	1385	17.69	14.98	0.150	
SKY1	98.0	0.904	3.91	0.0061	61	2.0	2.18	1241	1.7	2.6	4.0	6.32	1301	17.23	8.50	0.085	

```
1****************************************                                    ****************************************
 *                                      *                                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                    *    U.S. ARMY CORPS OF ENGINEERS      *
 *              JUN   1998              *                                    *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                                    *          609 SECOND STREET           *
 *                                      *                                    *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   18DEC19  TIME  17:42:07  *                                    *           (916) 756-1104             *
 *                                      *                                    *                                      *
 ****************************************                                    ****************************************

                                        X     X  XXXXXXX   XXXXX          X
                                        X     X  X        X     X        XX
                                        X     X  X        X              X
                                        XXXXXXX  XXXX     X        XXXXX  X
                                        X     X  X        X              X
                                        X     X  X        X     X        X
                                        X     X  XXXXXXX   XXXXX         XXX


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

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

1                                              HEC-1 INPUT                                                 PAGE  1

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

                        *DIAGRAM
 *** FREE ***
              1         ID    ULTIMATE CONDITION HYDROLOGIC MODEL
              2         ID    OFFSITE BASINS DRAINING TO STUB AT STREET A
              3         ID    INPUT FILE DATE = JUNE 27, 2018
              4         ID    DESIGN STORM = 100-YEAR 6-HR STORM
              5         ID    STORM DISTRIBUTION = SDN #3
              6         ID    MODELED BY VTN (AH)
              7         ID
              8         ID    ********************************************************
              9         ID    * SUMMERLIN WEST VILLAGE 25                            *
             10         ID    ********************************************************
             11         ID
             12         ID
             13         ID  JR CARD RATIOS REPRESENT DEPTH-AREA REDUCTION FACTORS (DARF'S)
             14         ID
             15         ID  100-YEAR,  6-HOUR STORM,  SDN3
             16         ID
             17         IT       5       0       0     300
             18         IO       5       0       0
             19         IN       5       0       0
             20         JR    PREC    1.00
                        *
             21         KK       J
             22         KM   ONSITE BASIN
             23         BA  0.0264
             24         PB    3.49
             25         PC       0    0.02   0.057    0.07   0.087   0.108   0.124    0.13    0.13   0.130
             26         PC    0.13    0.13    0.13   0.133    0.14   0.142   0.148   0.158   0.172   0.181
             27         PC    0.19   0.197   0.199     0.2   0.201   0.204   0.214   0.229   0.241   0.249
             28         PC   0.251   0.256    0.27   0.278   0.281   0.283   0.295   0.322   0.352   0.409
             29         PC   0.499    0.59    0.71   0.744   0.781   0.812   0.819   0.835   0.851   0.856
             30         PC    0.86   0.868   0.876   0.888    0.91   0.926   0.937    0.95    0.97   0.976
             31         PC   0.982   0.985   0.987   0.989    0.99   0.993   0.993   0.994   0.995   0.998
             32         PC   0.998   0.999       1
             33         LS       0    95.0
             34         UD   0.074
                        *
             35         KK     STM
             36         KM   ONSITE BASIN
             37         BA  0.0074
             38         PB    3.46
             39         LS       0    98.0
             40         UD   0.080
                        *
             41         KK      CJ
             42         KM   COMBINE J AND STM
             43         HC       2
                        *
1                                              HEC-1 INPUT                                                 PAGE  2
```

```
 278          KK  DUMMY3
 279          KM   COMBINE DUMMY2, SUMM, AND G
 280          HC       3
              *

 281          KK       D
 282          KM   ONSITE BASIN
 283          BA  0.0424
 284          PB    3.44
 285          LS       0    95.0
 286          UD   0.085
              *

 287          KK   FOX5B
 288          KM   1/2 FOX5 STREET BASIN
 289          BA  0.0050
 290          PB    3.40
 291          LS       0    98.0
 292          UD   0.104
              *
1                                        HEC-1 INPUT                                        PAGE  9

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

 293          KK   COS-1
 294          KM   ONSITE BASIN
 295          BA  0.0054
 296          PB    3.42
 297          LS       0    88.0
 298          UD   0.194
              *

 299          KK  CCOS-1
 300          KM   COMBINE FOX5B AND COS-1
 301          HC       2
              *

 302          KK   FOX5A
 303          KM   1/2 FOX5 STREET BASIN
 304          BA  0.0049
 305          PB    3.41
 306          LS       0    98.0
 307          UD   0.133
              *

 308          KK       A
 309          KM   ONSITE BASIN
 310          BA  0.0334
 311          PB    3.41
 312          LS       0    95.0
 313          UD   0.091
              *

 314          KK   CFOX5
 315          KM   COMBINE FOX5A,CCOS-1, AND A
 316          HC       3
              *

 317          KK DUMMY3B
 318          KM   COMBINE COMBINE CFOX5 AND D
 319          HC       2
              *

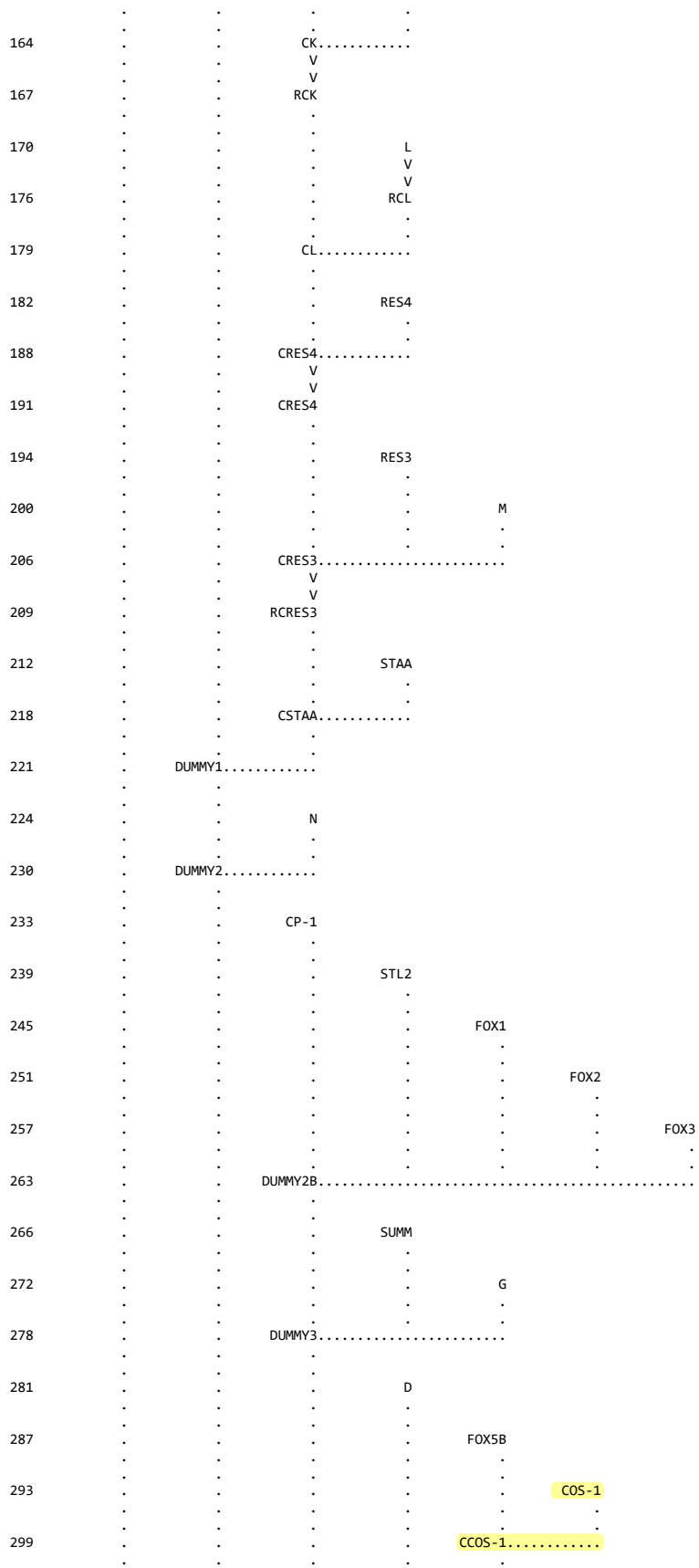
 320          KK       C
 321          KM   ONSITE BASIN
 322          BA  0.0415
 323          PB    3.45
 324          LS       0    95.0
 325          UD   0.099
              *

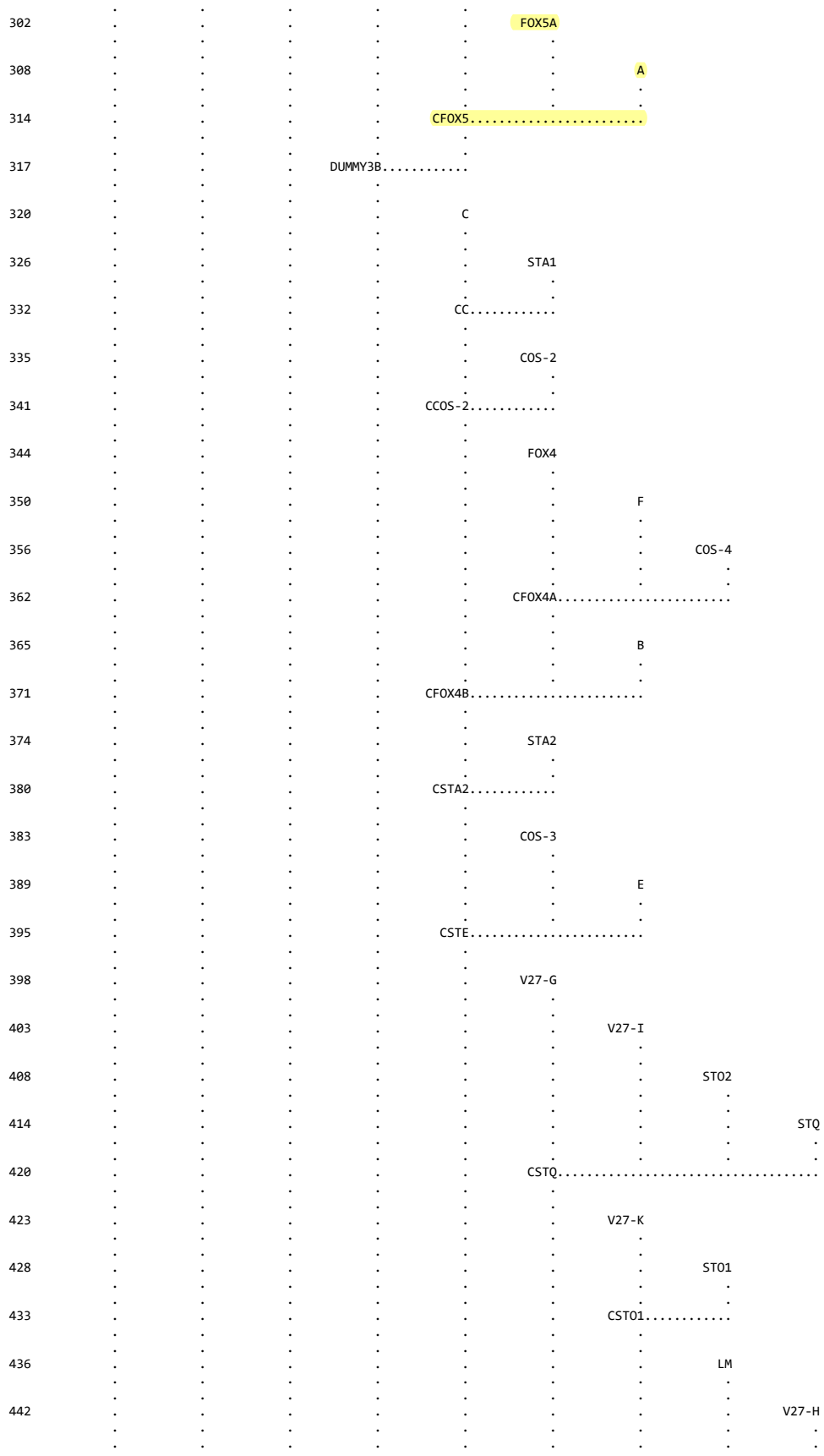
 326          KK    STA1
 327          KM   STREET BASIN
 328          BA  0.0036
 329          PB    3.43
 330          LS       0    98.0
 331          UD   0.055
              *
1                                        HEC-1 INPUT                                        PAGE 10

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

 332          KK      CC
 333          KM   COMBINE STA1, AND C
 334          HC       2
              *

 335          KK   COS-2
 336          KM   ONSITE BASIN
```


164 CK
167 RCK
170 L
176 RCL
179 CL
182 RES4
188 CRES4
191 CRES4
194 RES3
200 M
206 CRES3
209 RCRES3
212 STAA
218 CSTAA
221 DUMMY1
224 N
230 DUMMY2
233 CP-1
239 STL2
245 FOX1
251 FOX2
257 FOX3
263 DUMMY2B
266 SUMM
272 G
278 DUMMY3
281 D
287 FOX5B
293 COS-1
299 CCOS-1


302
FOX5A
308
A
314
CFOX5
317
DUMMY3B
320
C
326
STA1
332
CC
335
COS-2
341
CCOS-2
344
FOX4
350
F
356
COS-4
362
CFOX4A
365
B
371
CFOX4B
374
STA2
380
CSTA2
383
COS-3
389
E
395
CSTE
398
V27-G
403
V27-I
408
STO2
414
STQ
420
CSTQ
423
V27-K
428
STO1
433
CSTO1
436
LM
442
V27-H

```
                                          TIME         3.50

  3 COMBINED AT
+                  CRES3       .10     1  FLOW         248.
                                          TIME         3.50

 ROUTED TO
+                 RCRES3       .10     1  FLOW         246.
                                          TIME         3.50

 HYDROGRAPH AT
+                   STAA       .00     1  FLOW           2.
                                          TIME         3.50

  2 COMBINED AT
+                  CSTAA       .10     1  FLOW         248.
                                          TIME         3.50

  2 COMBINED AT
+                 DUMMY1       .15     1  FLOW         377.
                                          TIME         3.50

 HYDROGRAPH AT
+                      N       .02     1  FLOW          40.
                                          TIME         3.50

  2 COMBINED AT
+                 DUMMY2       .16     1  FLOW         418.
                                          TIME         3.50

 HYDROGRAPH AT
+                   CP-1       .15     1  FLOW         270.
                                          TIME         3.50

 HYDROGRAPH AT
+                   STL2       .00     1  FLOW           9.
                                          TIME         3.50

 HYDROGRAPH AT
+                   FOX1       .00     1  FLOW          12.
                                          TIME         3.50

 HYDROGRAPH AT
+                   FOX2       .00     1  FLOW           8.
                                          TIME         3.50

 HYDROGRAPH AT
+                   FOX3       .00     1  FLOW           7.
                                          TIME         3.50

  5 COMBINED AT
+                DUMMY2B       .16     1  FLOW         306.
                                          TIME         3.50

 HYDROGRAPH AT
+                   SUMM       .00     1  FLOW           7.
                                          TIME         3.50

 HYDROGRAPH AT
+                      G       .02     1  FLOW          45.
                                          TIME         3.50

  3 COMBINED AT
+                 DUMMY3       .18     1  FLOW         358.
                                          TIME         3.50

 HYDROGRAPH AT
+                      D       .04     1  FLOW         105.
                                          TIME         3.50

 HYDROGRAPH AT
+                  FOX5B       .00     1  FLOW          12.
                                          TIME         3.50

 HYDROGRAPH AT
+                  COS-1       .01     1  FLOW           9.
                                          TIME         3.58

  2 COMBINED AT
+                 CCOS-1       .01     1  FLOW          20.
                                          TIME         3.58

 HYDROGRAPH AT
+                  FOX5A       .00     1  FLOW          11.
                                          TIME         3.58

 HYDROGRAPH AT
+                      A       .03     1  FLOW          81.
                                          TIME         3.50

  3 COMBINED AT
```

APPENDIX C
HYDRAULIC CALCULATIONS

Worksheet for Facility 21A - 42" RCP

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	1.00	%
Diameter	42.00	in
Discharge	81.00	ft³/s

Results

Normal Depth	28.55	in
Flow Area	6.96	ft²
Wetted Perimeter	6.78	ft
Hydraulic Radius	12.32	in
Top Width	3.27	ft
Critical Depth	2.81	ft
Percent Full	68.0	%
Critical Slope	0.00674	ft/ft
Velocity	11.63	ft/s
Velocity Head	2.10	ft
Specific Energy	4.48	ft
Froude Number	1.40	
Maximum Discharge	108.22	ft³/s
Discharge Full	100.60	ft³/s
Slope Full	0.00648	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	in
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	in
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	67.98	%
Downstream Velocity	Infinity	ft/s

Worksheet for Facility 21A - 42" RCP

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	28.55	in
Critical Depth	2.81	ft
Channel Slope	1.00	%
Critical Slope	0.00674	ft/ft

Cross Section for Facility 21A - 42" RCP

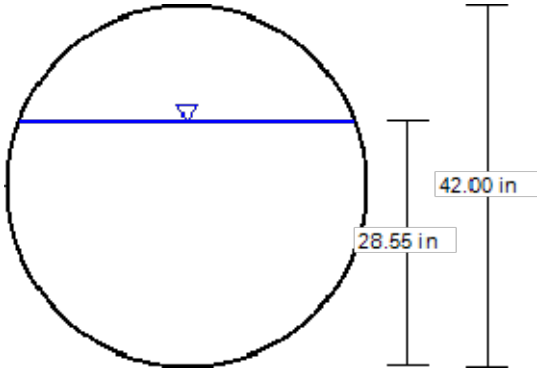
Project Description

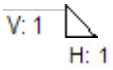
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	1.00	%
Normal Depth	28.55	in
Diameter	42.00	in
Discharge	81.00	ft³/s

Cross Section Image





Worksheet for Facility 22A - 24" RCP

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	4.00	%
Diameter	24.00	in
Discharge	9.00	ft³/s

Results

Normal Depth	7.26	in
Flow Area	0.80	ft²
Wetted Perimeter	2.33	ft
Hydraulic Radius	4.13	in
Top Width	1.84	ft
Critical Depth	1.07	ft
Percent Full	30.2	%
Critical Slope	0.00504	ft/ft
Velocity	11.23	ft/s
Velocity Head	1.96	ft
Specific Energy	2.56	ft
Froude Number	3.00	
Maximum Discharge	48.67	ft³/s
Discharge Full	45.24	ft³/s
Slope Full	0.00158	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	in
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	in
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	30.24	%
Downstream Velocity	Infinity	ft/s

Worksheet for Facility 22A - 24" RCP

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	7.26	in
Critical Depth	1.07	ft
Channel Slope	4.00	%
Critical Slope	0.00504	ft/ft

Cross Section for Facility 22A - 24" RCP

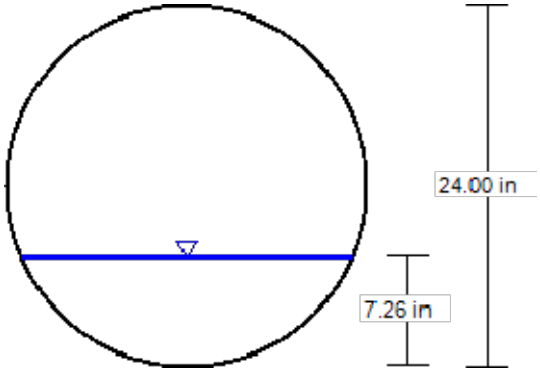
Project Description

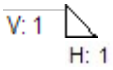
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	4.00	%
Normal Depth	7.26	in
Diameter	24.00	in
Discharge	9.00	ft³/s

Cross Section Image





REFERENCES

3) Conceptual Drainage Study for Summerlin Village 23B Update #3, DS 3420, GCW (2013)

Approval Letter
Figure 6U3 Ultimate Conditions Drainage Basin Map
Figure 7U3 Drainage Facilities Map - Ultimate Conditions
Standard Form 4
Basin ST-FH Excerpts from Proposed Condition HEC-1 Analysis

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: July 24, 2013
TO: **Land Development Services** Department of Public Works				FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	**Conceptual Drainage Study** for: **Summerlin Village 23B – Update #3**			**COPIES TO:** G.C. Wallace Inc.
Cross Streets:	NWC of Alta Drive & Desert Foothills Drive			Howard Hughes Corp.
File Number:	F:\Depot\DSMEMOS\DS3420F.doc			Bart Anderson, P.E., DevCo
Parcel Number:	137-22-000-015			CCRFCD
Zoning Action:	TMP-46270			
FEMA Flood Zone	YES	NO **X**		
Proposed Storm Drain	YES **X**	NO		

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	9/15/2003	9/29/2003	Not Approved	$250.00	110938: $250
2nd Submittal	10/10/2003	10/24/2003	Conditionally Approved	$400.00	112511: $400
CCRFCD	11/25/2003	12/9/2003	Concurrence	N/C	N/C
3rd Submittal	7/26/2012	8/9/2012	Approved	$100.00	291144: $100
4th Submittal	1/28/2013	2/11/2013	Approved	$100.00	308821: $100
5th Submittal	7/11/2013	7/24/2013	See Comments Below	$100.00	325901: $100
			TOTAL FEES (LDDRS):	**$950.00**	**----**

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.

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.

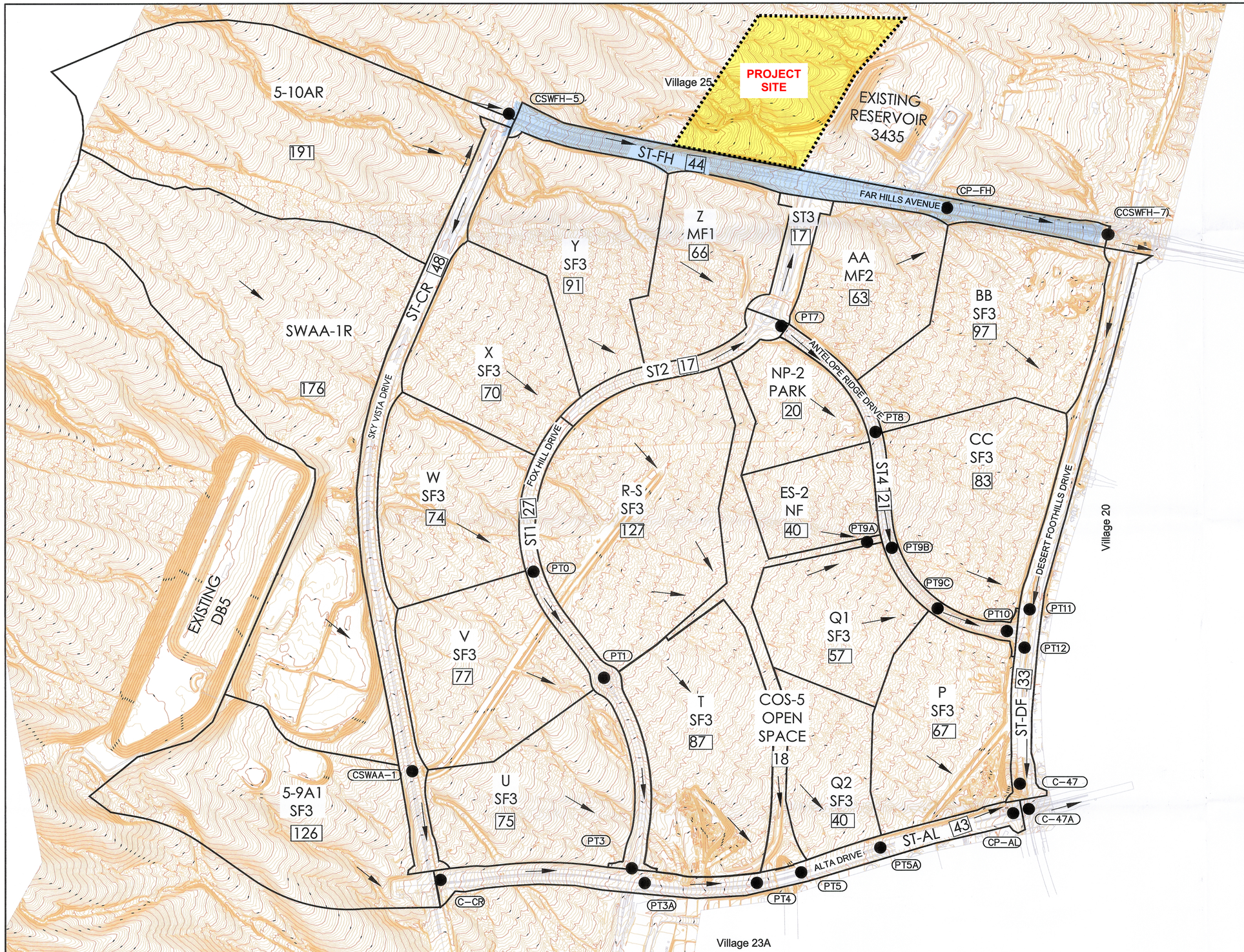
NOTE: Any future changes to the proposed design (or design assumptions) as outlined in the approved drainage study and attached preliminary grading plan which affect drainage must be addressed in a Drainage Study Amendment and accepted by the City of Las Vegas Flood Control Section. Additionally, conditional 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.

END OF REMARKS

B&H/ays

T/R/S: T20S/R59E/22

AREA K-22



NORTH

SCALE 1" = 300'

GRAPHIC SCALE

300 0 150 300

(IN FEET)

1 inch = 300 ft.

SUMMARY OF ULTIMATE CONDITIONS HEC-1 MODEL

SB OR CP	AREA (AC)	100 YR (CFS)	10 YR (CFS)
5-9A1	38.58	126	60
5-10AR	61.64	191	86
AA	18.52	63	31
BB	32.03	97	42
C-47	-	662	283
C-47A	-	2626	1651
CC	28.57	83	36
C-CR	-	2212	1569
CCSWFH-7	-	3625	1806
COS-5	12.32	18	4
CP-AL	-	2276	1598
CP-FH	-	952	417
CSWAA-1	-	2184	1560
CSWFH-5	-	870	376
ES-2	10.86	40	19
NP-2	11.25	20	4
P	24.03	67	29
PT0	-	139	61
PT1	-	211	93
PT10	-	395	171
PT11	-	169	70
PT12	-	564	239
PT13	-	631	268
PT2	-	282	123
PT3	-	309	136
PT3A	-	2247	1583
PT4	-	2260	1588
PT5	-	2264	1590
PT5A	-	2270	1594
PT6	-	150	67
PT7	-	167	74
PT8	-	177	77
PT9A	-	162	71
PT9B	-	327	143
PT9C	-	377	164
Q1	17.93	57	24
Q2	13.34	40	17
R-S	41.82	127	54
ST1	8.30	27	13
ST2	4.25	17	8
ST3	4.12	17	9
ST4	5.98	21	10
ST-AL	13.03	43	21
ST-CR	16.43	48	24
ST-DF	12.14	33	16
ST-FH	13.14	44	22
SUM5OT	-	2149	1548
SWAA-1R	81.90	176	64
T	29.70	87	38
U	25.15	75	33
V	25.45	77	33
W	23.78	74	32
X	23.31	70	30
Y	29.18	91	40
Z	20.13	66	29

LEGEND

A / SF3	PARCEL NAME / PARCEL DENSITIES
13	MAXIMUM DISCHARGE FROM PARCEL
PT1 ●	CONCENTRATION POINT
———	SUBBASIN BOUNDARY

DESIGN:
DRAWN:
CHECK:
ISSUE DATE:
ISSUE EDITOR:
PLOT DATE:07-10-13
PLOT TIME: 14:04:41

DATE: DESCRIPTION: DATE: AGEN. APP. DATE: GOV. APP. REV. DATE

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299

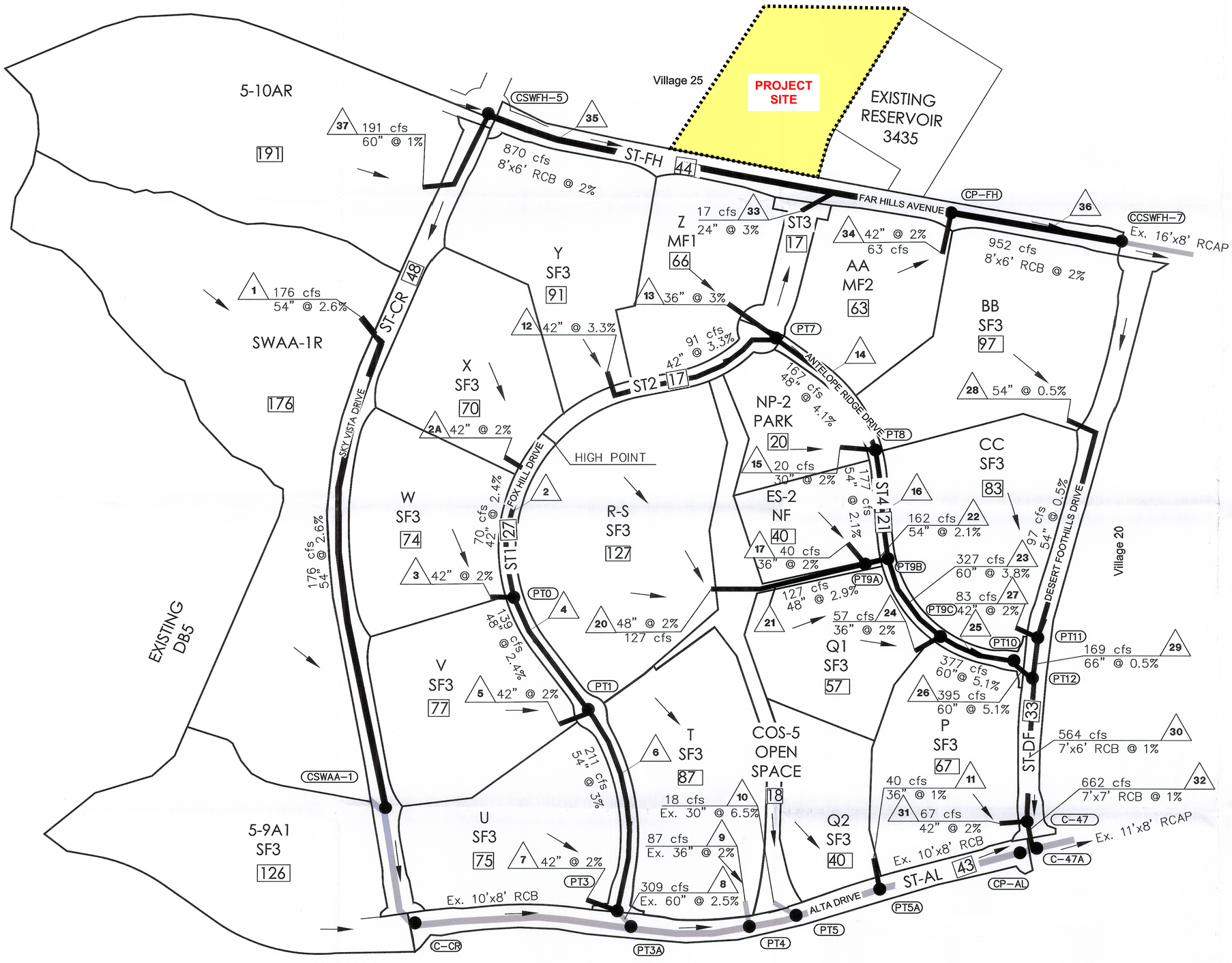
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SUMMERLIN VILLAGE 23B

CONCEPTUAL DRAINAGE STUDY UPDATE #3

ULTIMATE CONDITIONS DRAINAGE BASIN MAP

SHEET
FIG 6U3



Village 23A

NORTH

SCALE 1" = 300'

GRAPHIC SCALE

300 0 150 300

(IN FEET)

1 inch = 300 ft.

LEGEND

- A / SF3 — PARCEL NAME / PARCEL DENSITIES
- 13 — MAXIMUM DISCHARGE FROM PARCEL
- PROPOSED STORM DRAIN
- PT1 — CONCENTRATION POINT
- EXISTING STORM DRAIN
- SUBBASIN BOUNDARY
- 8 — FACILITY IDENTIFIER

DESIGN:
DRAWN:
CHECK:
ISSUE DATE:
ISSUE EDITOR:
PLOT DATE: 07-10-13
PLOT TIME: 14:37:30

DATE: | AGEN. APP | DATE | DESCRIPTION | REV | DATE

G.C. WALLACE, INC.
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SUMMERLIN VILLAGE 23B

CONCEPTUAL DRAINAGE STUDY UPDATE #3

DRAINAGE FACILITIES MAP - ULTIMATE CONDITIONS

SHEET

FIG 7U3

K:\Projects\600\620238-100\Division\Fcst\Figures\Update #3\Vlg7U3.dgn

HYDROLOGIC CRITERIA AND DESIGN MANUAL

TIME OF CONCENTRATION

G. C. WALLACE COMPANIES
Engineers/Planners/Surveyors

SUMMERLIN VILLAGE 23B
CONCEPTUAL DRAINAGE STUDY UPDATE #3
ULTIMATE CONDITIONS

Project No: 62023B-100
Date: 16-Jan-13
Calculated by:

SUB-BASIN DATA						INITIAL / OVERLAND TIME (Ti)			TRAVEL TIME (Tt)					Tc CHECK URBANIZED BASINS		Tc	Tlag	REMARKS
DESIG:	DEV./EX. (D or E)	CN	K	AREA Ac	AREA Sq Mi	INITIAL LENGTH Feet	SLOPE %	Ti Min	TRAVEL LENGTH Feet	SLOPE %	V1 VELOCITY fps	V2 VELOCITY fps	Tt Min	TOTAL LENGTH Feet	Tc = (L/180)+10 Min	Min	Tlag = 0.6Tc/60 Hours	Remarks:
(1)		(16)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)	(12)	(13)	(14)	(15)	
U	D	90.4	0.8033	25.15	0.03929	100	1.0	5.3	1820	3.7	3.9	5.9	5.9	1920	20.7	11.2	0.112	
V	D	89.8	0.7954	25.45	0.03977	100	1.0	5.5	1535	3.8	3.9	5.9	5.0	1635	19.1	10.5	0.105	
W	D	90.3	0.8020	23.78	0.03716	100	1.0	5.4	1480	4.3	4.2	6.3	4.6	1580	18.8	9.9	0.099	
X	D	89.7	0.7940	23.31	0.03642	100	1.0	5.5	1500	3.7	3.9	5.9	5.0	1600	18.9	10.5	0.105	
Y	D	91.0	0.8112	29.18	0.04560	100	1.0	5.2	1715	4.0	4.1	6.1	5.4	1815	20.1	10.6	0.106	
Z	D	91.0	0.8112	20.13	0.03146	100	1.0	5.2	1130	3.3	3.7	5.6	4.1	1230	16.8	9.3	0.093	
AA	D	93.8	0.8482	18.52	0.02894	100	1.0	4.5	1375	2.6	3.3	5.0	5.5	1475	18.2	10.0	0.100	
BB	D	90.2	0.8006	32.03	0.05005	100	1.0	5.4	1550	3.6	3.8	5.8	5.2	1650	19.2	10.6	0.106	
CC	D	89.7	0.7940	28.57	0.04464	100	1.0	5.5	1915	2.9	3.5	5.2	6.9	2015	21.2	12.4	0.124	
ST1	D	94.5	0.8574	8.30	0.01297	21	2.0	1.6	3185	2.3	3.1	4.7	12.3	3206	27.8	13.9	0.139	
ST2	D	94.5	0.8574	4.25	0.00663	21	2.0	1.6	1500	3.6	3.8	5.8	5.0	1521	18.5	6.6	0.066	
ST3	D	95.3	0.8680	4.12	0.00643	21	2.0	1.5	830	3.6	3.8	5.8	3.1	851	14.7	4.6	0.050	
ST4	D	94.5	0.8574	5.98	0.00934	21	2.0	1.6	2840	4.2	4.1	6.3	8.2	2861	25.9	9.8	0.098	
NP-2*	D	74.0	0.5868	11.25	0.01758	100	6.0	5.1	900	5.0	4.5	6.9	2.8	1000	15.6	7.9	0.079	
ES-2*	D	93.1	0.8389	10.86	0.01697	100	1.0	4.7	900	4.4	4.2	6.4	3.0	1000	15.6	7.7	0.077	
T	D	89.7	0.7940	30.12	0.04707	100	1.0	5.5	2015	3.3	3.7	5.6	6.8	2115	21.8	12.3	0.123	
R-S	D	89.7	0.7940	41.82	0.06534	100	1.0	5.5	1505	4.4	4.2	6.4	4.6	1605	18.9	10.1	0.101	
Q1*	D	89.7	0.7940	17.93	0.02802	100	1.0	5.5	1000	3.4	3.7	5.6	3.7	1100	16.1	9.2	0.092	
Q2	D	89.7	0.7940	13.34	0.02084	100	1.0	5.5	1390	3.3	3.7	5.6	4.9	1490	18.3	10.4	0.104	
P	D	89.7	0.7940	24.03	0.03754	100	1.0	5.5	1380	2.8	3.4	5.1	5.3	1480	18.2	10.8	0.108	
COS-5*	D	74.0	0.5868	12.32	0.01925	50	2.0	5.2	3260	3.0	3.5	5.3	11.1	3310	28.4	16.3	0.163	
ST-FH	D	95.6	0.8719	13.14	0.02052	80	2.0	2.9	3900	5.3	4.6	7.0	9.9	3980	32.1	12.8	0.128	
ST-AL	D	94.7	0.8600	13.03	0.02036	30	2.0	1.9	3745	3.6	3.8	5.8	11.5	3775	31.0	13.4	0.134	
ST-DF	D	94.6	0.8587	12.14	0.01897	40	2.0	2.2	3550	0.9	1.9	2.9	21.9	3590	29.9	24.0	0.240	
ST-CR	D	95.0	0.8640	16.43	0.02567	50	2.0	2.4	4930	2.1	2.9	4.4	19.5	4980	37.7	21.9	0.219	
5-9A1	D	92.2	0.8270	38.58	0.06028	100	1.0	4.9	2320	3.8	3.9	6.0	7.2	2420	23.4	12.1	0.121	
5-10AR	D	90.8	0.8086	61.64	0.09631	200	2.0	5.9	3580	5.5	4.7	7.2	8.9	3780	31.0	14.8	0.148	
SWAA-1R	D	84.3	0.7228	81.90	0.12797	100	1.0	6.8	8300	3.3	3.7	5.6	25.7	8400	56.7	32.4	0.324	
* Revised for this update																		

Tc = Ti + Tt Tlag = 0.6 Tc
Ti = 1.8 (1.1 - K) $L^{1/2}$ / $S^{1/3}$
K = 0.0132 (CN) - 0.39

For the travel time (Tt) calculations,
V1 applies to the first 500 feet of travel distance;
V2 applies to the remaining travel distance.

Existing: V1 = 14.8*$(S/100)^{1/2}$
V2 = 29.4*$(S/100)^{1/2}$

Developed: V1 = 20.2*$(S/100)^{1/2}$
V2 = 30.6*$(S/100)^{1/2}$

REFERENCE: **STANDARD FORM 4**

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             JUN   1998                *
*          VERSION 4.1                  *
*                                       *
*  RUN DATE   08JUL13  TIME  08:34:30   *
*                                       *
*****************************************
```

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

```
X     X  XXXXXXX   XXXXX           X
X     X  X        X     X        XX
X     X  X        X               X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X               X
X     X  X        X     X         X
X     X  XXXXXXX   XXXXX         XXX
```

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

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


```
          LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
                    *DIAGRAM
 *** FREE ***
               1    ID   ************************************************************
               2    ID   * ..................................................... *
               3    ID   * :                SUMMERLIN VILLAGE 23B              : *
               4    ID   * :                CONCEPTUAL STUDY UPDATE #3         : *
               5    ID   * :                DEVELOPED ONSITE                   : *
               6    ID   * :                DEVELOPED OFFSITE                  : *
               7    ID   * :...................................................: *
               8    ID   * :             RETURN PERIOD_ _ _ _10 & 100-YEAR     : *
               9    ID   * :             DISTRIBUTION_ _ _ _ 6-HOUR SDN3       : *
              10    ID   * :             PROJECT NO_ _ _ _ _ 62023B.100        : *
              11    ID   * :             FILENAME_ _ _ _ _ _ V23B-ULTR.H1      : *
              12    ID   * :             DATE_ _ _ _ _ _ _ 07/05/2013          : *
              13    ID   * :             MODELED BY_ _ _ _ _ GYT               : *
              14    ID   * :...................................................: *
              15    ID   * :                                                   : *
              16    ID   * :...................................................: *
              17    ID   ************************************************************
              18    ID
              19    ID    JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:
              20    ID
              21    ID                                  AREA      DARF
              22    ID                              SQ.MI.
              23    ID
              24    ID                             0.0 - 0.5    1.000
              25    ID                             0.5 - 1.0    0.975
              26    ID                             1.0 - 2.0    0.950
              27    ID                             2.0 - 3.0    0.925
              28    ID                             3.0 - 4.0    0.915
              29    ID                             4.0 - 5.0    0.908
              30    ID                             5.0 - 7.0    0.895
              31    ID                             7.0 - 8.0    0.885
              32    ID
              33    IT       5       0       0     200
              34    IO       5       0
              35    IN       5       0       0
              36    JR    PREC     1.0   0.975    0.95   0.925   0.915   0.908   0.895   0.885    0.55
                    *
                    * BASIN PARAMETERS FOR OFFSITE BASINS TAKEN
                    * DIRECTLY FROM 2008 MPU:
                    *
                    * THE FOLLOWING SECTION OF HYDROLOGY WAS DEVELOPED BASED ON G.C. WALLACE'S
                    * 2006 SUMMERLIN WEST: EXISTING OFFSITE/PROPOSED ONSITE DRAINAGE CONDITION
                    * HYDROLOGIC MODEL (11-20-06); THE HYDROLOGY WAS REVISEED IN ORDER TO
                    * INCORPORATE ALL EXISTING/PROPOSED MPU FACILITIES
                    *
              37    KK  DB54-1
              38    BA   2.222
              39    PB    3.72
              40    PC   0.000   .0200   .0570   .0700   .0870   .1080   .1240   .1300   .1300   .1300
              41    PC   .1300   .1300   .1300   .1330   .1400   .1420   .1480   .1580   .1720   .1810
              42    PC   .1900   .1970   .1990   .2000   .2010   .2040   .2140   .2290   .2410   .2490
              43    PC   .2510   .2560   .2700   .2780   .2810   .2830   .2950   .3220   .3520   .4090
```



```
          LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
              44    PC   .4990   .5900   .7100   .7440   .7810   .8120   .8190   .8350   .8510   .8560
              45    PC   .8600   .8680   .8760   .8880   .9100   .9260   .9370   .9500   .9700   .9760
              46    PC   .9820   .9850   .9870   .9890   .9900   .9930   .9930   .9940   .9950   .9980
              47    PC   .9980   .9990  1.000
              48    LS       0    87.2
              49    UD   0.495
                    *
```

```
                  *
             684  KK   R/ST3
             685  KM   ROUTE THROUGH ST-FH (FAR HILLS) TO CP-FH
             686  RD    1905   0.053   0.016       0    TRAP       0      50
                  *
             687  KK      AA
             688  KM
             689  KM            AREA   18.52      AC
             690  KM            Tlag    10.0     MIN
             691  KM              CN    93.8
             692  BA  .02894
             693  LS        0    93.8
             694  UD     .100
                  *
1                                              HEC-1 INPUT                                                    PAGE 19

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

             695  KK    R/AA
             696  KM   ROUTE THROUGH STFH (FAR HILLS) TO CP-FH
             697  RD    1010   0.042   0.016       0    TRAP       0      50
                  *
             698  KK   ST-FH
             699  KM
             700  KM    FAR HILLS AVENUE
             701  KM
             702  KM            AREA    13.1      AC
             703  KM            Tlag    12.8     MIN
             704  KM              CN    95.6
             705  BA  .02052
             706  LS        0    95.6
             707  UD     .128
                  *
             708  KK   CP-FH
             709  KM   COMBINE CSWFH-5, ST3, F, AND ST5 (FAR HILLS DRIVE)
             710  HC        4
                  *
             711  KKCCSWFH-7
             712  KM  COMBINE CP-FH AND CSWFH-7
             713  HC        2
                  *
             714  ZZ
1
                  SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

    37      DB54-1
                 V
                 V
    50     RDB54-1
                 .
                 .
    59           .      DB54-5
                 .            .
                 .            .
    64     CDB54-5............
                 V
                 V
    67    RCDB54-5
                 .
                 .
    73           .      DB54-2
                 .           V
                 .           V
    78           .     RDB54-2
                 .            .
                 .            .
    84           .            .      DB54-3
                 .            .           V
                 .            .           V
    89           .            .     RDB54-3
                 .            .            .
                 .            .            .
    98           .            .            .      DB54-4
                 .            .            .            .
                 .            .            .            .
   103           .     CDB54-4.....................
                 .           V
                 .           V
   106           .    RCDB54-4
                 .            .
                 .            .
   112    CRCDB544............
                 V
                 V
   115    RCRCDB54
                 .
                 .
   121           .     DB54-6R
                 .            .
                 .            .
   126    CDB54-6R............
                 .
                 .
   129           .      DB55-1
```

+	CSWFH-7	1.81	1	FLOW	3085.	2989.	2897.	2798.	2763.	2735.	2686.	2646.	1389.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
HYDROGRAPH AT													
+	SWFH-4	.12	1	FLOW	196.	189.	182.	175.	172.	170.	166.	163.	73.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
ROUTED TO													
+	RSWFH-4	.12	1	FLOW	186.	178.	171.	165.	162.	160.	157.	153.	71.
				TIME	3.58	3.58	3.58	3.58	3.58	3.67	3.67	3.67	3.67
HYDROGRAPH AT													
+	SWFH-5	.26	1	FLOW	493.	478.	463.	448.	442.	438.	430.	424.	224.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
HYDROGRAPH AT													
+	5-10AR	.10	1	FLOW	191.	185.	179.	173.	171.	169.	166.	164.	86.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
3 COMBINED AT													
+	CSWFH-5	.47	1	FLOW	870.	841.	813.	786.	775.	767.	753.	741.	376.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
ROUTED TO													
+	RCSWFH-5	.47	1	FLOW	832.	803.	775.	750.	738.	730.	717.	706.	369.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.67
HYDROGRAPH AT													
+	ST3	.01	1	FLOW	17.	17.	16.	16.	16.	15.	15.	15.	9.
				TIME	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
ROUTED TO													
+	R/ST3	.01	1	FLOW	16.	15.	15.	15.	14.	14.	14.	14.	8.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
HYDROGRAPH AT													
+	AA	.03	1	FLOW	63.	62.	60.	58.	57.	57.	56.	55.	31.
				TIME	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
ROUTED TO													
+	R/AA	.03	1	FLOW	61.	58.	57.	56.	55.	54.	54.	53.	30.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
HYDROGRAPH AT													
+	ST-FH	.02	1	FLOW	44.	43.	42.	40.	40.	40.	39.	38.	22.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
4 COMBINED AT													
+	CP-FH	.53	1	FLOW	952.	920.	889.	860.	847.	838.	824.	811.	417.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.67
2 COMBINED AT													
+	CCSWFH-7	2.34	1	FLOW	3993.	3871.	3753.	3625.	3578.	3544.	3481.	3427.	1806.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67

1

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR PLAN = 1 RATIO= .00									
RCDB54-5	MANE	4.70	2621.58	244.61	2.38	5.00	2614.97	245.00	2.38

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3109E+03 EXCESS= .0000E+00 OUTFLOW= .3110E+03 BASIN STORAGE= .1245E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RCDB54-5	MANE	4.77	2512.38	243.06	2.29	5.00	2499.95	245.00	2.29

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2994E+03 EXCESS= .0000E+00 OUTFLOW= .2995E+03 BASIN STORAGE= .9871E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RCDB54-5	MANE	4.83	2421.93	246.37	2.21	5.00	2415.79	245.00	2.21

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2886E+03 EXCESS= .0000E+00 OUTFLOW= .2886E+03 BASIN STORAGE= .1267E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RCDB54-5	MANE	4.90	2359.22	244.95	2.13	5.00	2358.38	245.00	2.13

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2780E+03 EXCESS= .0000E+00 OUTFLOW= .2780E+03 BASIN STORAGE= .9866E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RCDB54-5	MANE	4.93	2302.63	246.36	2.09	5.00	2294.92	245.00	2.09

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2734E+03 EXCESS= .0000E+00 OUTFLOW= .2735E+03 BASIN STORAGE= .1213E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RCDB54-5	MANE	4.95	2264.31	242.41	2.07	5.00	2263.73	245.00	2.07

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2703E+03 EXCESS= .0000E+00 OUTFLOW= .2704E+03 BASIN STORAGE= .9679E-02 PERCENT ERROR= .0

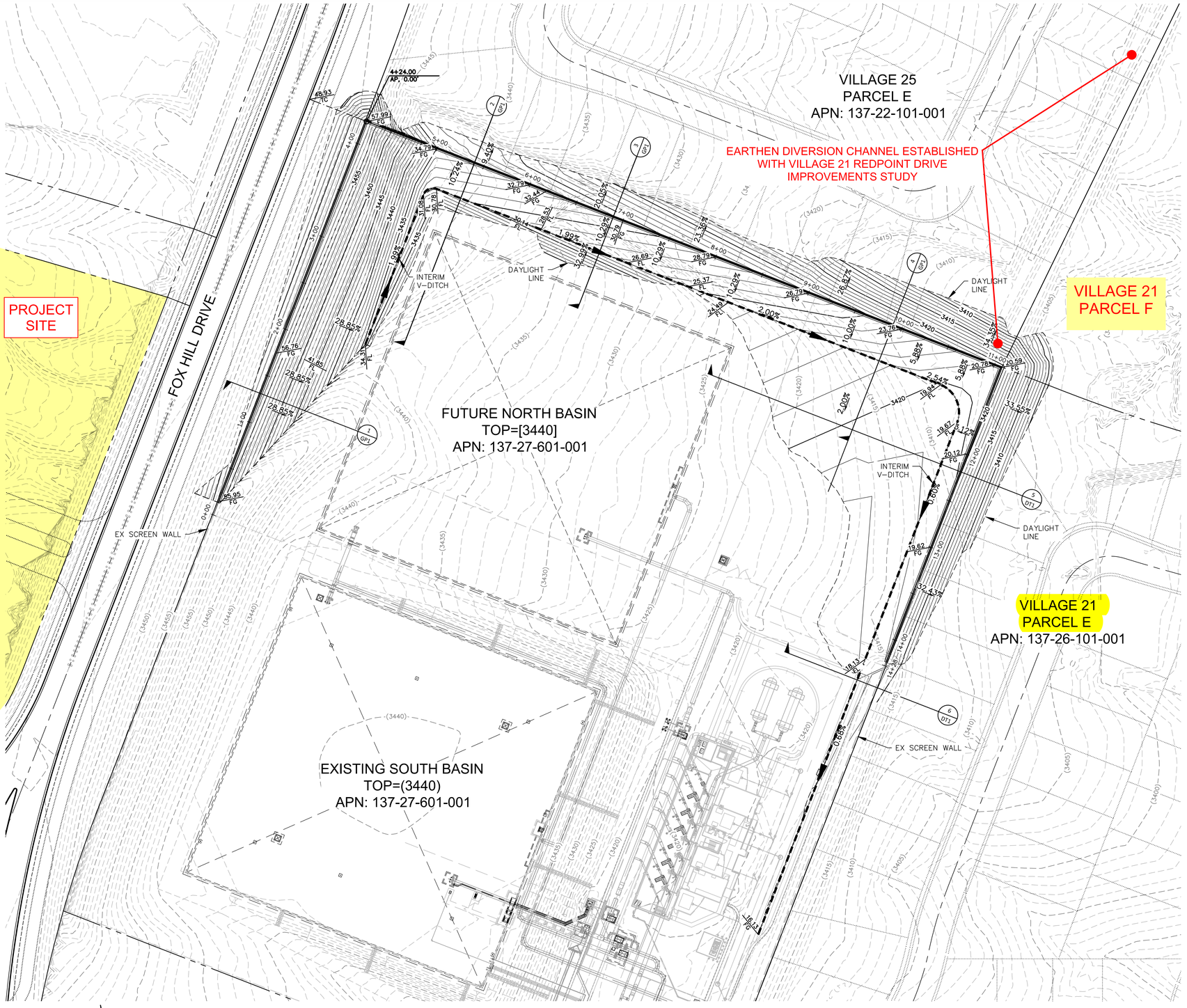
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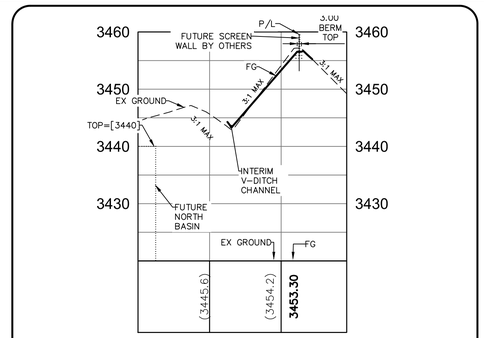
4) 2nd Update to the Technical Drainage Study for Summerlin Village 25 - 3435 Reservoir, DS# 2731, GCW 2003.

Approval Letter
Excerpt from Update Report
Grading Plans and Details

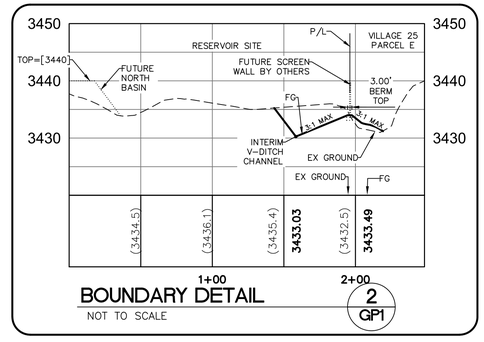
Additional Supporting Item:

Preliminary Village 21 3435 LVVWD Reservior Grading Plans (2019) by GCW

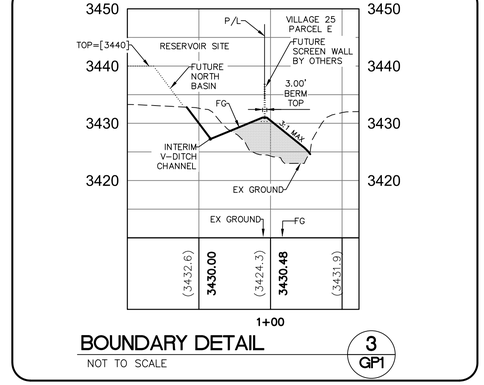




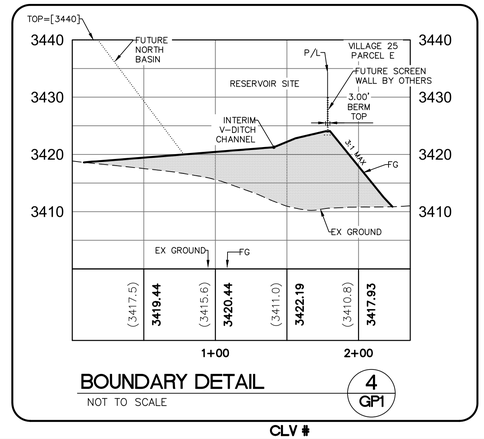
BOUNDARY DETAIL — NOT TO SCALE — 1 GP1



BOUNDARY DETAIL — NOT TO SCALE — 2 GP1



BOUNDARY DETAIL — NOT TO SCALE — 3 GP1



BOUNDARY DETAIL — NOT TO SCALE — 4 GP1

3435 ZONE RESERVIOR SITE GRADING

HORIZ SCALE: 1" = 50'

GRADING QUANTITIES	
CUT VOLUME	2,053 CY
FILL VOLUME	18,550 CY
NET VOLUME (FILL)	16,497 CY

CLV #

PRELIMINARY AND FOR REFERENCE ONLY

90% REVIEW - NOT FOR CONSTRUCTION

REV	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP

PROJECT NO. 62021-208
DESIGN: LG
DRAWN: LG
CHECK: MF
PLOT DATE: 02-25-19
PLOT TIME: 14:29:47

GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

F:\Projects\600\62021-208\DWG\Production\62021-208_GP1.dwg
Lupe Gracia

THE HOWARD HUGHES COMPANY, LLC

VILLAGE 21 3435 ZONE RESERVOIR
FAR HILLS AVENUE

GRADING PLAN

DRAWING
GP1
4 OF 5 SHTS

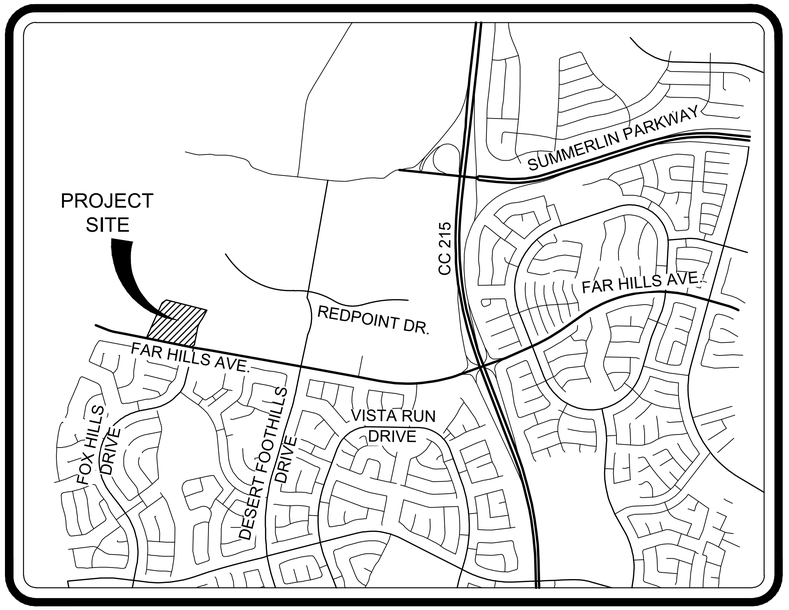
GRADING PLANS AND DETAILS

Unit 1



CASTELLANA - UNIT 1

SUMMERLIN VILLAGE 25
PARCEL A
PREPARED FOR:
WILLIAM LYON HOMES
APN: 137-27-617-001
8.81 AC



VICINITY MAP
SCALE: NTS

SHEET INDEX

SHEET NUMBER	SHEET TITLE
C1	COVER SHEET
C2	NOTES SHEET
C3	GRADING PLAN 1
C4	GRADING PLAN 2
C5	GRADING PLAN 3
C6	GRADING PLAN 4
C7	GRADING PLAN 5
C8	GRADING PLAN 6
C9	SECTIONS & DETAILS SHEET 1
C10	SECTIONS & DETAILS SHEET 2

PROJECT TEAM

DEVELOPER

WILLIAM LYON HOMES
1980 FESTIVAL PLAZA DRIVE, SUITE 500
LAS VEGAS, NV 89134
PH: 702-263-8200

CIVIL ENGINEER

ACTUS
ATTN: DARRYL LATTIMORE, P.E.
3283 E. WARM SPRINGS RD., SUITE 300
LAS VEGAS, NV 89120
T: 702-586-9296
E-MAIL: DARRYL.LATTIMORE@ACTUS-NV.COM

OWNER

HOWARD HUGHES COMPANY LLC
10801 W CHARLESTON BLVD
SUITE 300
LAS VEGAS, NV 89135
702-791-4000

UTILITY CONTACTS

POWER

NV ENERGY
ATTN: NEW DEVELOPMENT
7155 LINDELL ROAD
LAS VEGAS, NEVADA 89118

WATER

LAS VEGAS VALLEY WATER DISTRICT
ATTN: ENGINEERING SERVICES
1001 S VALLEY VIEW BLVD
LAS VEGAS, NV 89107
T: 702-870-2011

SEWER

CITY OF LAS VEGAS PUBLIC WORKS
ATTN: ENGINEERING PLANNING
333 N. RANCHO DRIVE 7TH FLOOR
LAS VEGAS, NEVADA 89106
PHONE: 702-229-6541

GAS

SOUTHWEST GAS CORPORATION
ATTN: ENGINEERING SERVICES
6355 SHATZ STREET
NORTH LAS VEGAS, NV 89115

TELEPHONE

CENTRAL TELEPHONE D/B/A CENTURY LINK
6700 VIA AUSTI PARKWAY
LAS VEGAS, NEVADA 89119

DISPOSAL

REPUBLIC SERVICES, INC.
770 E. SAHARA AVE. - P.O. BOX 98508
LAS VEGAS, NEVADA 89193-8508

CABLE

COX COMMUNICATIONS LAS VEGAS, INC.
1700 VEGAS DRIVE
LAS VEGAS, NEVADA 89106

MOU PER ORDINANCE 6630 § 26

1. MINIMUM STREET WIDTHS WITHIN GATED PRIVATE COMMUNITY INTERIOR STREETS:
   - 41' WIDTH WITH 5' SIDEWALK ON ONE SIDE, MINIMUM 33' WIDTH FLOW LINE TO FLOW LINE OF CURB. PARKING ALLOWED BOTH SIDES OF STREET.
   - 36' WIDTH WITH 5' SIDEWALK ONE SIDE, MINIMUM 28' WIDTH FLOW LINE TO FLOW LINE OF CURB. PARKING ALLOWED ONE SIDE OF STREET.
2. REDUCED FIRE FLOW REQUIRED FOR COMMUNITIES ENTIRELY PROTECTED BY FIRE SPRINKLERS FROM 1,500 GPM TO 1,000 GPM FOR RESIDENCES LESS THAN 3,000 SQ. FT.
3. SIDEWALK REQUIRED ON ONE SIDE OF INTERIOR PRIVATE GATED STREETS IN COMPLIANCE WITH ONE OF THE ABOVE STREET SECTIONS.







BASIS OF BEARING

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

LEGAL DESCRIPTION

PARCEL A IS A PORTION OF THE REMAINDER OF LOT 1 MAPPED WITH THE PARCEL MAP RECORDED IN FILE 123 PAGE 36 OF PARCEL MAPS, AND RECORDED MAY 1, 2018.

APN# 137-27-617-001
PARCEL A WILL BE ESTABLISHED AS A SEPARATE LEGAL PARCEL BY THE HOWARD HUGHES CORPORATION WITH THE VILLAGE 25 UNIT 2 FINAL MAP.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK

MONUMENT ID: 5LV0926W6

RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS

ELEVATION:
FEET = 3229.29' (NAVD88)
METERS = 984.29 M (NAVD88)

DEDICATION NOTE

ALL EASEMENTS, RIGHT-OF-WAY, AND OTHER DEDICATIONS WITHIN THIS PLAN SET ARE GRANTED PER FMP# ___-_____ UNLESS OTHERWISE NOTED

FIRE SPRINKLER NOTE

FIRE SPRINKLER SYSTEM SHALL BE PLUMBED TO THE MASTER TOILET.
NO EXCEPTIONS ALLOWED

DISCLAIMER NOTE

THE UNDERGROUND UTILITIES AS SHOWN HEREON HAVE BEEN LOCATED FROM OBSERVED FIELD SURVEY EVIDENCE AND EXISTING DRAWINGS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING; PLANS PROVIDED BY THE CLIENT, UTILITY COMPANIES, AND MUNICIPAL AGENCIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

REV #	REVISION DESCRIPTION	SHEET(S)	APPD BY	DATE APPD

APPROVALS

ALLEN PAVELKA PE, PE# 9029 — DATE
CITY ENGINEER - CITY OF LAS VEGAS

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.

DEPARTMENT OF PLANNING — DATE
THIS PLAN MEETS THE APPLICABLE STANDARDS OF THE PLANNING DEPARTMENT

LAS VEGAS FIRE & RESCUE — DATE
FIRE DEPARTMENT APPROVAL
APPROVAL BY THE FIRE DEPARTMENT HAVING JURISDICTION IS REQUIRED PRIOR TO OBTAINING FINAL APPROVAL FROM THE LVVWD.

NV ENERGY — DATE
NV ENERGY ACKNOWLEDGES THAT WE HAVE RECEIVED YOUR PLANS AND WILL PROVIDED 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

CENTRAL TELEPHONE DBA CENTURY LINK — DATE
THE AFFIXED CENTURY LINK APPROVAL DOES NOT ASSUME OR GUARANTEE LIABILITY FOR KNOWN OR UNKNOWN CONFLICTS WITH EXISTING OR PROPOSED IMPROVEMENTS. RESOLUTION 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.

COX COMMUNICATIONS LAS VEGAS, INC — DATE

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES

PROJECT NO. ___#### FIRST APPROVED DATE: _____

LVVWD APPROVED FIRE FLOW N/A GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 26 GPM

SHEETS:
N/A

TMP #78257
107V____ L20-_____

Actus
3283 E. Warm Springs Rd., Suite 300
Las Vegas, NV 89120
www.Actus-NV.com
(702) 586-9296
Engineering - Surveying - Consulting - Planning

COVER SHEET
CASTELLANA - UNIT 1
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

A	DATE	DESCRIPTION	BY

PROFESSIONAL ENGINEER — STATE OF NEVADA — DARRYL C. LATTIMORE — No. 17516 — EXP: 12/31/21 — CIVIL
9/9/2020

DATE	09/08/2020
DRAWN	PR
DESIGNED	BSP
CHECKED	DCL
PROJECT #	WLH011904

SHEET TITLE
COVER

SHEET NUMBER
C1

SHEET 1 OF 10

Plot Stamp: 9/9/2020 11:55:36 AM - Brandon Prokopchuk
File: P:\WLH011904 - V25 Parcel A\Civil_CD\UNIT 1\WLH011904-UNIT1-CD-COVR.dwg, Tab: C1 - COVER

CITY OF LAS VEGAS GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFFSITE IMPROVEMENTS, CLARK COUNTY AREA NEVADA", LATEST ISSUE; THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION, CLARK COUNTY AREA NEVADA", LATEST REVISED EDITION; THE "SUMMERLIN IMPROVEMENT STANDARDS" FOR WORK IN THE SUMMERLIN AREA; AND OTHER APPLICABLE APPROVED STANDARDS ISSUED BY THE CONTROLLING AGENCY; THE UNIFORM BUILDING CODE; AND ALL LOCAL CITY CODES AND ORDINANCES APPLICABLE, EXCEPT AS NOTED ON THIS SHEET AS "DEVIATIONS FROM STANDARDS".
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 THE 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 EXTRUDED-TYPE CURB.
8. AC PAVEMENT TO BE ONE-HALF INCH (½") ABOVE LIP OF ALL GUTTERS AFTER COMPACTION, EXCEPT AT SIDEWALK RAMPS 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 BETWEEN 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 THE (GEOTEK RESIDENTIAL, REPORT 14658-LVR, UPDATED APRIL 17, 2019) 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 PERMANENT 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 SECTIONS OF NDOT OR THE CLARK COUNTY AREA SPECIFICATIONS (AS APPLICABLE) AND THE PLANS AND DETAILS SHOWN HEREON.
20. WHEN INSTALLING 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. AFTER HAUNCHING AND PRIOR TO BACKFILL OPERATIONS WHICH WOULD COVER SANITARY SEWER AND STORM DRAIN FACILITIES, CONTRACTOR IS REQUIRED TO SCHEDULE CLV OPEN-TRENCH UTILITY SURVEY INSPECTION FOR DETERMINATION OF FINAL LOCATION COORDINATES. FACILITIES TO BE LOCATED CLV SHALL INCLUDE A MINIMUM THE HORIZONTAL AND VERTICAL (INVERT) LOCATION OF PUBLIC SEWER MANHOLES, STORM DRAIN MANHOLES AND TRANSITION STRUCTURES, STORM DRAIN LATERALS AT THE CONNECTION TO THE STORM DRAIN MAIN AND AT 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.
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.

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 FOR DIRECTION.
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BALANCE 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' SEE SOILS REPORT 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. ALL 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.

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 "G" 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.

DISCLAIMER NOTE

THE UNDERGROUND UTILITIES AS SHOWN HEREON HAVE BEEN LOCATED FROM OBSERVED FIELD SURVEY EVIDENCE AND EXISTING DRAWINGS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING; PLANS PROVIDED BY THE CLIENT, UTILITY COMPANIES, AND MUNICIPAL AGENCIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.



CITY OF LAS VEGAS TRAFFIC NOTES

1. ALL CONSTRUCTION SIGNING, BARRICADING, 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 WHERE WARRANTED IMMEDIATELY AFTER FIRST GRADING WORK IS ACCOMPLISHED, AND SHALL MAINTAIN SAID SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED.
4. WHEN A DESIGNATED "SAFE ROUTE TO SCHOOL" IS ENCROACHED UPON BY A CONSTRUCTION WORK ZONE AND PUBLIC WORKS STAFF IDENTIFIES A NEED FOR STUDENTS TO BE ASSISTED 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 FURNISHED WITH DIAMOND® VIP CLASS 6 REFLECTIVE SHEETING OR APPROVED EQUAL. ALL NEW TRAFFIC SIGNS, EXCEPT STREETNAME AND SCHOOL SPEED LIMIT SIGNS, SHALL HAVE 3M SERIES 1160 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 MOUNTED 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 ONTO THE PORTIONS OF THE ROAD(S) BEING IMPROVED HERE UNDER, REGARDLESS OF THE STATUS OF COMPLETION OF PAVING OR OTHER OFF-SITE IMPROVEMENTS CALLED FOR BY THESE PLANS.
9. STREET SIGNS AND STOPS 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 IMSA 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 WILL INTERRUPT'S OR RELOCATES 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 CONTACTING 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 PROJECTS OFFSITE INSPECTOR PRIOR TO INITIATING PAVING TO RECEIVE DIRECTION FOR ANY PERMANENT OR TEMPORARY MODIFICATIONS TO THE APPROVED DRAWINGS REGARDING FINAL PAVEMENT TRANSITIONS, MARKINGS AND SIGNING THAT ARE REQUIRED TO MATCH ADJACENT ROADWAY SEGMENTS. THE CONTRACTOR SHALL PROVIDE DRAWINGS PREPARED BY THE TRAFFIC ENGINEERING DIVISION DEPICTING ANY ADJUSTMENTS TO THE FINAL PAVEMENT MARKINGS AND SIGNAGE, WHICH MAY INCLUDE OMITTING, ADDING OR MODIFYING PAVEMENT MARKINGS AND TRAFFIC CONTROL SIGNS SUCH THAT ADEQUATE TRANSITIONS AND LANE TERMINATIONS BETWEEN ADJACENT ROADWAY SEGMENTS ARE CONSTRUCTED.

CITY OF LAS VEGAS STREETLIGHT NOTES

1. ALL STREET LIGHTING INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE STREET LIGHTING PLANS, THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST REVISION (USS), AND THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST REVISION.
2. DESIGN PROFESSIONAL AND CONTRACTORS SHALL VERIFY CITY'S LATEST LED FIXTURE SPECIFICATIONS AND APPROVED FIXTURES PER CLV WEBSITE, UNDER BUILDING AND SAFETY FORMS, PRIOR TO ORDERING MATERIALS.
3. NO DEVIATION OF STREET LIGHT, PULL BOX, CONDUITS (ETC.) LOCATIONS SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL OF TRAFFIC ENGINEERING AND THE CITY ENGINEER. ANY DEVIATIONS FROM THE PLAN LOCATION WILL REQUIRE COMPLIANCE WITH SECTION 623 OF THE USS.
4. ALL EXISTING STREET LIGHTING SHALL REMAIN OPERATIONAL DURING CONSTRUCTION IN ACCORDANCE WITH SECTION 623 G.03.01 OF THE USS.
5. ALL EMPTY CONDUIT SHALL HAVE AT LEAST ONE GREEN #8 THW WIRE INSTALLED, AS TRACER WIRE IN ACCORDANCE WITH SECTION 623 G.02.01 OF THE USS PRIOR TO BACKFILLING AND FINAL INSPECTION.
6. ANY STRUCTURE SUCH AS BLOCK WALLS, CHAIN LINK FENCES, RETAINING WALLS, ETC., SHALL LEAVE A MINIMUM CLEARANCE IN COMPLIANCE WITH THE USD NO. 320A WHEN POLE IS INSTALLED BEHIND SIDEWALK, AND SHALL AT NO TIME COMPLETELY ENCLOSE THE STREET LIGHTING POLE.
7. AS-BUILT DRAWINGS SHALL BE SUPPLIED TO THE TRAFFIC ENGINEERING DIVISION PRIOR TO ANY PRE-FINAL INSPECTION. THE AS-BUILT DRAWING NEEDS TO BE STAMPED AS-BUILT AND SIGNED BY THE PREPARER.
8. SERVICE POINTS SHALL BE COORDINATED WITH NV ENERGY, AND WHEREVER POSSIBLE, BE LOCATED NEAR THE CENTER OF THE CIRCUIT. SERVICE POINTS SHALL BE SHOWN ON THE CIVIL PLANS.
9. WHEREVER THERE IS AN OVERHEAD UTILITY THAT MAY CONFLICT WITH THE INSTALLATION OF STREET LIGHTING CIRCUITS AND/OR POLES, THESE CONFLICTS MUST BE RESOLVED BETWEEN THE DEVELOPER AND THE UTILITIES INVOLVED BEFORE STREETLIGHT BASES ARE INSTALLED, AT NO EXPENSE TO THE CITY OF LAS VEGAS.
10. THE CONTRACTOR SHALL FURNISH COMPLETE CONDUIT, WIRE, ETC. FROM SERVICE TRANSFORMERS AND CONTROL SYSTEMS IF REQUIRED ON THE PLANS.

LAS VEGAS VALLEY WATER DISTRICT NOTES

LVVWD PROJECT No.: N/A

1. NO WORK SHALL BEGIN UNTIL THE WATER PLANS HAVE BEEN APPROVED FOR CONSTRUCTION BY THE LVVWD. FOLLOWING WATER PLAN APPROVAL, NOTICE SHALL BE GIVEN TO THE LVVWD 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 DRAFT OR 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 GUTTERS.
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 3.14.01, AND APPROVED BY THE LVVWD INSPECTION DIVISION PRIOR TO SHUTDOWN. PROPER WRITTEN NOTIFICATION MUST BE GIVEN TO ALL AFFECTED CUSTOMERS.
12. ALL WATER FACILITY CONSTRUCTION MATERIALS USED MUST BE AS LISTED ON THE LVVWD APPROVED PRODUCT'S LIST FOR NEW FACILITIES, LATEST REVISION, OR SPECIFICALLY APPROVED ON THESE PLANS BY SUBMITTING SHOP DRAWINGS.
13. TELEPHONE "CALL BEFORE YOU DIG" AT "811" OR 1-800-227-2600.
14. THE INSTALLATION OF LVVWD MUNICIPAL WATER FACILITIES WITHIN ALL STREETS IS ASSUMED TO BE IN COMPLIANCE WITH THE UNIFORM STANDARDS, INCLUDING THE PLACEMENT OF ASPHALT PAVING STREET SURFACES. ANY REPAIR WORK DONE BY THE LVVWD TO THE MUNICIPAL WATER FACILITIES WILL INCLUDE THE PLACEMENT OF AN APPROPRIATELY SIZED ASPHALT REPAIR PATCH ON THE STREET SURFACE.

ANY 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 ABUTTING A PUBLIC OR PRIVATE STREET, IF DISTURBED BY THE LVVWD DURING THE REPAIR OR OPERATION OF ITS FACILITIES, WILL BE REPLACED BY LVVWD WITH AN APPROPRIATELY SIZED PLAIN FINISH CONCRETE PATCH. THE LVVWD WILL NOT RESTORE, AND WILL NOT BE RESPONSIBLE FOR THE RESTORATION OF, ANY DECORATIVE PAVING SURFACE WITHIN THE STREET. THE LVVWD WILL NOT ATTEMPT TO MATCH COLOR OR FINISH OF ANY ADJACENT MATERIALS.

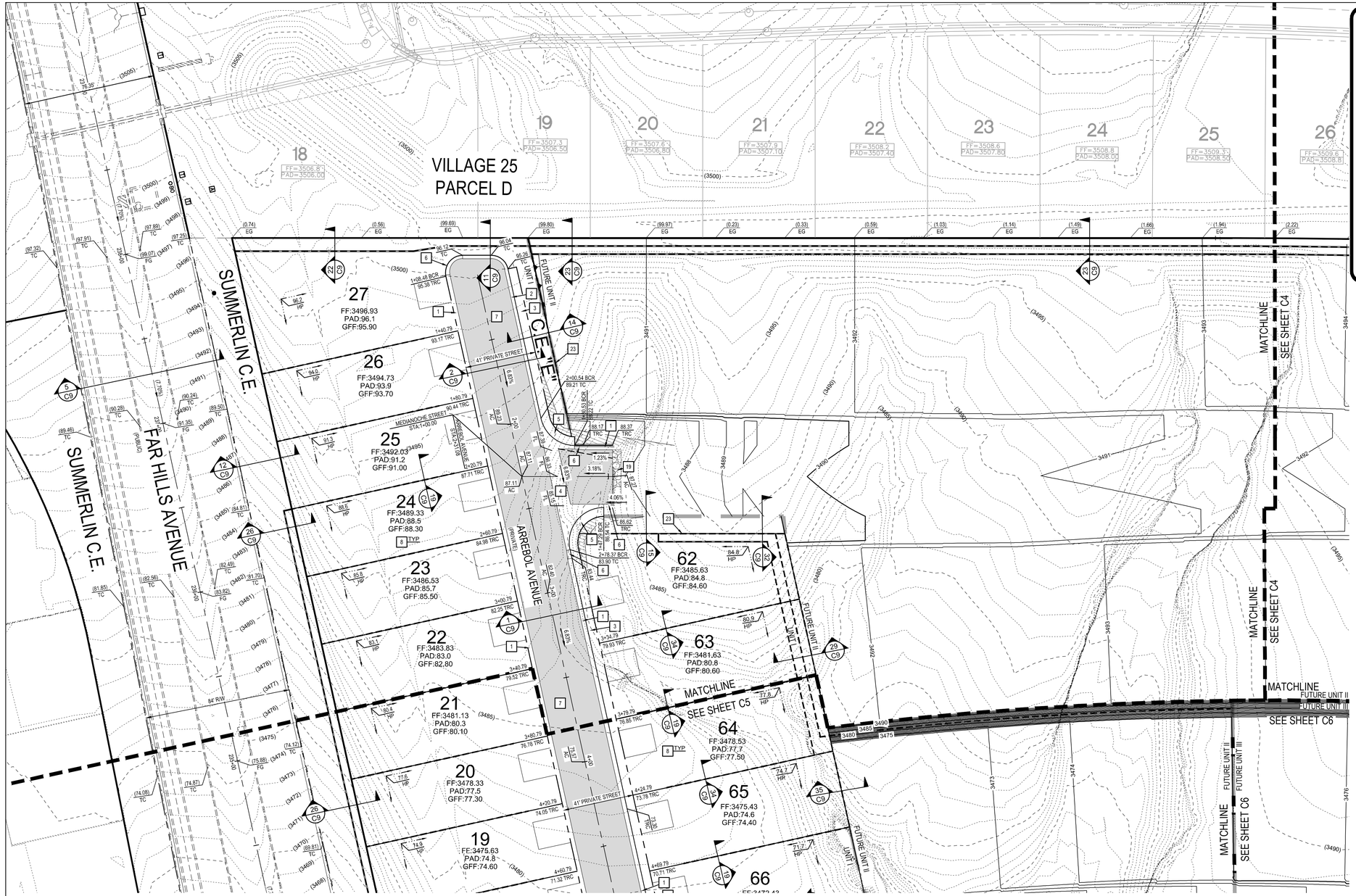
15. NO LEAD COMPLIANCE NOTE:
TO COMPLY WITH THE FEDERAL SAFE DRINKING WATER ACT, ALL WATER WORKS BRASS PRODUCTS PROPOSED TO BE RELOCATED, OR INSTALLED AS NEW MUST BE INSTALLED WITH THE LEAD FREE APPROVED PRODUCT. THE OLD LEADED PRODUCT MAY NOT BE REUSED.

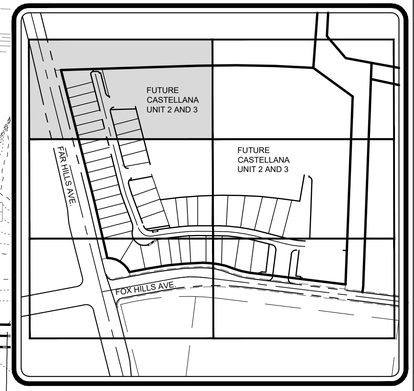
SOUTHWEST GAS GENERAL NOTES

1. IN THE EVENT OF NATURAL GAS EMERGENCIES CALL 911 AND 1-877-860-6020
2. THERE SHALL BE A MINIMUM HORIZONTAL AND VERTICAL CLEARANCE OF 12-INCHES BETWEEN NATURAL GAS FACILITIES AND ANY UNDERGROUND FACILITIES AND/OR STRUCTURES, INCLUDING BUT NOT LIMITED TO WATER, SEWER, STORM DRAIN, COMMUNICATIONS, AND ELECTRIC.
3. FOR VALVE ADJUSTMENT CONTACT 702-668-6107 48 HOURS PRIOR TO CONSTRUCTION.
4. IN THE EVENT OF A NATURAL GAS CONFLICT WITH PROPOSED UTILITIES AND/OR STRUCTURES CONTACT 702-365-2099

LAS VEGAS FIRE & RESCUE GENERAL NOTES

1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LAS VEGAS FIRE AND RESCUE ADOPTED FIRE CODE ORDINANCE # 6325 FOR HYDRANT SPECIFICATIONS AND HYDRANT INSTALLATION SPECIFICATIONS.
2. ONLY FIRE HYDRANTS THAT ARE ON THE LAS VEGAS VALLEY WATER DISTRICT'S - 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 THE CONTRACTORS MATERIAL TEST CERTIFICATE FOR THE UNDERGROUND PIPING FORM SHALL BE OBTAINED FROM THE FIRE PROTECTION ENGINEER BEFORE COMMENCEMENT OF WORK.
4. ON ANY RESIDENTIAL OR COMMERCIAL INSTALLATIONS FIRE HYDRANTS SHALL BE INSTALLED AND FIRE APPARATUS ACCESS ROADS SHALL BE MAINTAINED BEFORE COMMENCEMENT OF ANY COMBUSTIBLE CONSTRUCTION. ALL FIRE HYDRANTS SHALL BE IN GOOD WORKING ORDER AND SHALL BE CAPABLE OF DELIVERING THE REQUIRED FIRE FLOW.
5. TO IDENTIFY THE FIRE HYDRANT LOCATIONS, CONTRACTOR SHALL PLACE A BLUE REFLECT





KEY MAP
SCALE: NTS

LEGEND

PROPOSED	EXISTING	DESCRIPTION
		PUBLIC R/W LINE
		PRIVATE R/W LINE
		BOUNDARY LINE
		EASEMENT LINE
CUT / FILL		MATCH LINE
		CUT / FILL LINE
		CENTERLINE
		EDGE OF ASPHALT
		CURB & GUTTER
		RETAINING WALL
		SAWCUT LINE
		FLOWLINE
		GRADE BREAK
2500	(2500)	MAJOR CONTOUR - 5'
2503	(2503)	MINOR CONTOUR - 1'
		FENCE
		SCARP
		CONCRETE SURFACE
		PROPOSED ASPHALT PAVEMENT
		REMOVE AND REPLACE ASPHALT
		RIP-RAP
98.76 FG	(98.76) XX	ELEVATION GRADE TAG
1.00%	(1.00%)	GRADE SLOPE TAG
1 C5		SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER
		SIGHT VISIBILITY ZONE

COMMON ABBREVIATIONS

FF	- FINISHED FLOOR	TRC	- TOP OF 30" ROLL CURB
TC	- TOP OF CURB	AC	- TOP OF PAVEMENT
FL	- FLOWLINE GRADE	EP	- EDGE OF PAVEMENT
TB	- TOP OF BERM	TW	- TOP OF RETAINING WALL
TF	- TOP OF WALL FOOTER	PRIV.	- PRIVATE
ST.	- STREET	TYP.	- TYPICAL
ESMT	- EASEMENT	R/W	- RIGHT-OF-WAY
TMH	- TOP OF MANHOLE (RIM ELEV.)	DG	- DESIGN GRADE

SIGHT VISIBILITY ZONE NOTE

NO WALLS, FENCES SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAT TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT POLES, MAY BE CONSTRUCTED OR INSTALLED WITHIN THE SIGHT VISIBILITY ZONE UNLESS SAID OBJECT IS MAINTAINED AT LESS THAN 24 INCHES IN HEIGHT, MEASURED FROM TOP OF CURB, OR WHERE NO CURB EXISTS, A HEIGHT OF 27 INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT, GRAVEL OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.

PLEASE REFER TO TRAFFIC SHEET FOR SIGHT VISIBILITY ZONE DIMENSIONS.

GRADING NOTES

1. ACTUS SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES IN THE PLANS OR CONDITIONS IN THE FIELD.
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 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.
3. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
4. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.

ESTIMATED QUANTITIES

NOTE: QUANTITIES SHOWN ARE RAW QUANTITIES AND APPROXIMATE. CONTRACTOR TO DETERMINE HIS OWN QUANTITIES FOR GRADING PURPOSES.

WORK UNDER THIS PLAN CONSTITUTES GRADING IN ACCORDANCE WITH 2018 IBC. ENGINEERING REPORTS AND CERTIFICATIONS IN CONFORMANCE WITH IBC SHALL BE FILED WITH THE CITY OF LAS VEGAS PRIOR TO CITY OF LAS VEGAS APPROVAL AT FINAL INSPECTION.

CUT:	152,811 CY
FILL:	61,468 CY
BALANCE:	91,343 CY (CUT)

ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLVR N/A ON FILE WITH THE CITY OF LAS VEGAS.

9/9/2020

DARRYL LATTIMORE, P.E. — DATE

BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV092BW6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.



SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: SOUTHWEST GEOTECHNICAL
ORIGINAL PROJECT NUMBER: 197203
DATED: FEBRUARY 11, 2020

LINE & CURVE DATA NOTE

PLEASE REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

DEDICATION NOTE

ALL EASEMENTS, RIGHT-OF-WAY, AND OTHER DEDICATIONS WITHIN THIS PLAN SET ARE GRANTED PER FMP # ____ UNLESS OTHERWISE NOTED

PRIVATE STREET NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

COMMON LOT NOTE

ALL COMMON LOTS ARE TO BE PUBLIC DRAINAGE, PEDESTRIAN ACCESS, UTILITY, SEWER, AND PRIVATE LANDSCAPE EASEMENTS OVER THEIR ENTIRETY TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

STORM DRAIN CONNECTION NOTE

WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE EXISTING RCP TO THE NEAREST BELL CONNECTION. CONNECT NEW RCP TO EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

DISCLAIMER NOTE

THE UNDERGROUND UTILITIES AS SHOWN HEREON HAVE BEEN LOCATED FROM OBSERVED FIELD SURVEY EVIDENCE AND EXISTING DRAWINGS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING; PLANS PROVIDED BY THE CLIENT, UTILITY COMPANIES, AND MUNICIPAL AGENCIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8' CROSS GUTTER PER CCAUSD #228
5. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE I. "A" & "B" = 8' UNLESS OTHERWISE NOTED
6. CONSTRUCT 5' TRANSITION "L" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "B" ON SHEET C10
7. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
8. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "A" ON SHEET C10
9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL CALL BOX FOR ENTRY GATES
11. CONSTRUCT TYPE III 60" STORM DRAIN MANHOLE PER CCAUSD #406
12. CONNECT TO EX. SD LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX. SD)
13. INSTALL 6' HIGH MAX. WROUGHT IRON FENCE PER DETAIL "C" ON SHEET C10 & CCAUSD 425.S1
14. INSTALL TYPE "A" ISLAND CURB PER CCAUSD #219
15. CONSTRUCT TYPE "CM2" DROP INLET PER CCAUSD #412.1 & 421 (5 - GRATES, L=15', W=4.15')
16. CONSTRUCT TYPE "CM2" DROP INLET PER CCAUSD #412.1 & 421 (6 - GRATES, L=17.5', W=4.15')
17. CONSTRUCT TYPE I 48" STORM DRAIN MANHOLE PER CCAUSD #403.1
18. INSTALL PEDESTRIAN ACCESS GATE PER DETAIL "D" ON SHEET C10
19. INSTALL TEMPORARY RIP-RAP PAD (D_{50}=6", THICKNESS = 12")
20. CONSTRUCT ENTRY GATES PER LANDSCAPE PLANS
21. CONSTRUCT GATES PER CCAUSD #425.S1
22. CONSTRUCT ENHANCED CONCRETE PER LANDSCAPE PLANS
23. SOLID GROUT WALL 2 COURSES ABOVE FINISHED GRADE



107V_____ L20-_____

Actus
3283 E. Warm Springs Rd., Suite 300
Las Vegas, NV 89120
www.Actus-NV.com
(702) 586-9286
Engineering - Surveying - Consulting - Planning

GRADING PLAN 1
CASTELLANA - UNIT 1
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

BY	DESCRIPTION	DATE

DARRYL C. LATTIMORE
STATE OF NEVADA
EXP: 12/31/21
CIVIL
No. 17516
PROFESSIONAL ENGINEER
9/9/2020

DATE	09/08/2020
DRAWN	PR
DESIGNED	BSP
CHECKED	DCL
PROJECT #	WLH011904

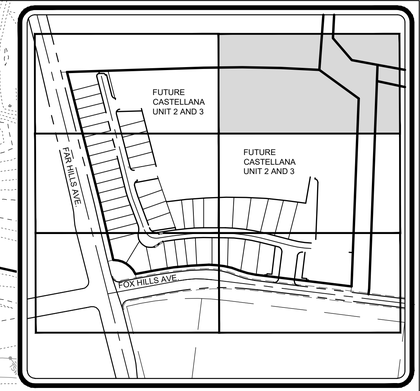
SHEET TITLE
GRADING

SHEET NUMBER
C3

SHEET 3 OF 10

Plot Stamp: 9/9/2020 11:55:58 AM - Brandon Prokopchuk
File: P:\WLH011904 - V25 Parcel A\Civil_CD\UNIT 1\WLH011904-UNIT 1-C2-GRAD.dwg, Tab: C3 - GRADING 1





KEY MAP
SCALE: NTS

LEGEND

PROPOSED	EXISTING	DESCRIPTION
		PUBLIC R/W LINE
		PRIVATE R/W LINE
		BOUNDARY LINE
		EASEMENT LINE
		MATCH LINE
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		CENTERLINE
		EDGE OF ASPHALT
		CURB & GUTTER
		RETAINING WALL
		SAWCUT LINE
		FLOWLINE
		GRADE BREAK
2500	(2500)	MAJOR CONTOUR - 5'
2503	(2503)	MINOR CONTOUR - 1'
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		SCARP
		CONCRETE SURFACE
		PROPOSED ASPHALT PAVEMENT
		REMOVE AND REPLACE ASPHALT
		RIP-RAP
98.76 FG	(98.76) XX	ELEVATION GRADE TAG
1.00%	(1.00%)	GRADE SLOPE TAG
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TMH	- TOP OF MANHOLE (RIM ELEV.)	DG	- DESIGN GRADE

SIGHT VISIBILITY ZONE NOTE

NO WALLS, FENCES SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAT TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT POLES, MAY BE CONSTRUCTED OR INSTALLED WITHIN THE SIGHT VISIBILITY ZONE UNLESS SAID OBJECT IS MAINTAINED AT LESS THAN 24 INCHES IN HEIGHT, MEASURED FROM TOP OF CURB, OR WHERE NO CURB EXISTS, A HEIGHT OF 3' INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT, GRAVEL OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.

PLEASE REFER TO TRAFFIC SHEET FOR SIGHT VISIBILITY ZONE DIMENSIONS.

GRADING NOTES

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CUT:	152,811 CY
FILL:	61,468 CY
BALANCE:	91,343 CY (CUT)

ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV# N/A ON FILE WITH THE CITY OF LAS VEGAS.

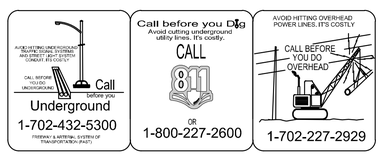
DARRYL LATTIMORE, P.E. — 9/9/2020 DATE

BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV092BWE
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.



SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: SOUTHWEST GEOTECHNICAL
ORIGINAL PROJECT NUMBER: 197203
DATED: FEBRUARY 11, 2020

LINE & CURVE DATA NOTE

PLEASE REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

DEDICATION NOTE

ALL EASEMENTS, RIGHT-OF-WAY, AND OTHER DEDICATIONS WITHIN THIS PLAN SET ARE GRANTED PER FMP # ____ UNLESS OTHERWISE NOTED

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COMMON LOT NOTE

ALL COMMON LOTS ARE TO BE PUBLIC DRAINAGE, PEDESTRIAN ACCESS, UTILITY, SEWER, AND PRIVATE LANDSCAPE EASEMENTS OVER THEIR ENTIRETY TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

STORM DRAIN CONNECTION NOTE

WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE EXISTING RCP TO THE NEAREST BELL CONNECTION. CONNECT NEW RCP TO EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

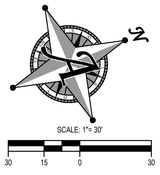
FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

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GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8' CROSS GUTTER PER CCAUSD #228
5. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE I. "A" & "B" = 8' UNLESS OTHERWISE NOTED
6. CONSTRUCT 5' TRANSITION "L" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "B" ON SHEET C10
7. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
8. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "A" ON SHEET C10
9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL CALL BOX FOR ENTRY GATES
11. CONSTRUCT TYPE III 60" STORM DRAIN MANHOLE PER CCAUSD #406
12. CONNECT TO EX. SD LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX. SD)
13. INSTALL 6' HIGH MAX. WROUGHT IRON FENCE PER DETAIL "C" ON SHEET C10 & CCAUSD 425.S1
14. INSTALL TYPE "A" ISLAND CURB PER CCAUSD #219
15. CONSTRUCT TYPE "CM2" DROP INLET PER CCAUSD #412.1 & 421 (5 - GRATES, L=15', W=4.15')
16. CONSTRUCT TYPE "CM2" DROP INLET PER CCAUSD #412.1 & 421 (6 - GRATES, L=17.5', W=4.15')
17. CONSTRUCT TYPE I 48" STORM DRAIN MANHOLE PER CCAUSD #403.1
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23. SOLID GROUT WALL 2 COURSES ABOVE FINISHED GRADE



107V_____ L20-_____

Actus
3283 E. Warm Springs Rd., Suite 300
Las Vegas, NV 89120
www.Actus-NV.com
(702) 586-9266
Engineering - Surveying - Consulting - Planning

GRADING PLAN 2
CASTELLANA - UNIT 1
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

BY	DESCRIPTION	DATE	#'s

PROFESSIONAL ENGINEER — STATE OF NEVADA
DARRYL C. LATTIMORE
EXP: 12/31/21
CIVIL
No. 17516
9/9/2020

DATE	09/08/2020
DRAWN	PR
DESIGNED	BSP
CHECKED	DCL
PROJECT #	WLH011904

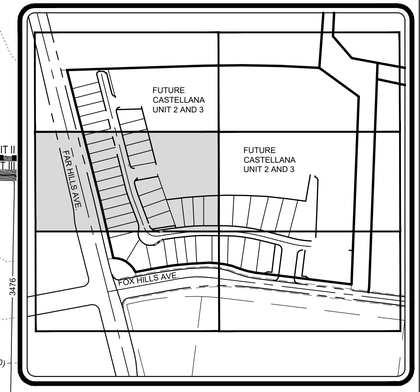
SHEET TITLE
GRADING

SHEET NUMBER
C4

SHEET 4 OF 10

Plot Stamp: 9/9/2020 11:56:03 AM - Brandon Prokopchuk
File: P:\WLH011904 - V25 Parcel A\Civil_CD\UNIT 1\WLH011904-UNIT 1-CD-GRAD.dwg, Tab: C4 - GRADING 2





KEY MAP
SCALE: NTS

LEGEND

PROPOSED	EXISTING	DESCRIPTION
		PUBLIC R/W LINE
		PRIVATE R/W LINE
		BOUNDARY LINE
		EASEMENT LINE
CUT / FILL		MATCH LINE
		CUT / FILL LINE
		CENTERLINE
		EDGE OF ASPHALT
		CURB & GUTTER
		RETAINING WALL
		SAWCUT LINE
		FLOWLINE
		GRADE BREAK
2500	(2500)	MAJOR CONTOUR - 5'
2503	(2503)	MINOR CONTOUR - 1'
		FENCE
		SCARP
		CONCRETE SURFACE
		PROPOSED ASPHALT PAVEMENT
		REMOVE AND REPLACE ASPHALT
		RIP-RAP
98.76 FG	(98.76) XX	ELEVATION GRADE TAG
1.00%	(1.00%)	GRADE SLOPE TAG
1 C5		SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER
		SIGHT VISIBILITY ZONE

COMMON ABBREVIATIONS

FF	- FINISHED FLOOR	TRC	- TOP OF 30" ROLL CURB
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TF	- TOP OF WALL FOOTER	PRIV.	- PRIVATE
ST.	- STREET	TYP.	- TYPICAL
ESMT	- EASEMENT	R/W	- RIGHT-OF-WAY
TMH	- TOP OF MANHOLE (RIM ELEV.)	DG	- DESIGN GRADE

BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV0526W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
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AVOID HITTING UNDERGROUND SOLAR, SIGNAL SYSTEMS AND STREET LIGHT CONDUIT. IT'S COSTLY.
CALL BEFORE YOU DIG UNDERGROUND
Call before you Dig
Underground
1-702-432-5300

Call before you Dig
Avoid cutting underground utility lines. It's costly.
CALL
811
OR
1-800-227-2600

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

SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: SOUTHWEST GEOTECHNICAL
ORIGINAL PROJECT NUMBER: 197203
DATED: FEBRUARY 11, 2020

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23. SOLID GROUT WALL 2 COURSES ABOVE FINISHED GRADE

SCALE: 1"= 30'
30 15 0 30

107V_____ L20-_____

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CUT: 152,811 CY
FILL: 61,468 CY
BALANCE: 91,343 CY (CUT)

ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY. CLV# N/A ON FILE WITH THE CITY OF LAS VEGAS.

9/9/2020
DARRYL LATTIMORE, P.E. DATE

Actus
3285 E. Warm Springs Rd., Suite 300
Las Vegas, NV 89120
www.Actus-NV.com
(702) 586-9286
Engineering - Surveying - Consulting - Planning

CASTELLANA - UNIT 1
GRADING PLAN 3
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

NO.	DATE	DESCRIPTION	BY

DARRYL C. LATTIMORE
EXP: 12/31/21
CIVIL
No. 17516
STATE OF NEVADA
PROFESSIONAL ENGINEER
9/9/2020

DATE	09/08/2020
DRAWN	PR
DESIGNED	BSP
CHECKED	DCL
PROJECT #	WLH011904

SHEET TITLE
GRADING

SHEET NUMBER
C5

SHEET 5 OF 10

Plot Stamp: 9/9/2020 11:56:08 AM - Brandon Prokopchuk
File: P:\WLH\011904 - V25 Parcel A\Civil_CD\UNIT 1\WLH011904-UNIT 1-CD-GRAD.dwg, Tab: C5 - GRADING 3



KEY MAP
SCALE: NTS

LEGEND

PROPOSED	EXISTING	DESCRIPTION
		PUBLIC R/W LINE
		PRIVATE R/W LINE
		BOUNDARY LINE
		EASEMENT LINE
		MATCH LINE
CUT / FILL		CUT / FILL LINE
		CENTERLINE
		EDGE OF ASPHALT
		CURB & GUTTER
		RETAINING WALL
		SAWCUT LINE
		FLOWLINE
		GRADE BREAK
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2503	(2503)	MINOR CONTOUR - 1'
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		SCARP
		CONCRETE SURFACE
		PROPOSED ASPHALT PAVEMENT
		REMOVE AND REPLACE ASPHALT
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98.76 FG	(98.76) XX	ELEVATION GRADE TAG
1.00%	(1.00%)	GRADE SLOPE TAG
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9/9/2020
DARRYL LATTIMORE, P.E. DATE

BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV0926WI
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

BASIS OF BEARINGS

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Call before you Dig
Underground
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (FAST)

Call before you Dig
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OR
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AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY
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SOILS NOTE

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BY: SOUTHWEST GEOTECHNICAL
ORIGINAL PROJECT NUMBER: 197203
DATED: FEBRUARY 11, 2020

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FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

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GRADING CONSTRUCTION NOTES

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2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
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10. INSTALL CALL BOX FOR ENTRY GATES
11. CONSTRUCT TYPE III 60" STORM DRAIN MANHOLE PER CCAUSD #406
12. CONNECT TO EX. SD LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX. SD)
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21. CONSTRUCT GATES PER CCAUSD #425.S1
22. CONSTRUCT ENHANCED CONCRETE PER LANDSCAPE PLANS
23. SOLID GROUT WALL 2 COURSES ABOVE FINISHED GRADE

SCALE: 1"= 30'
30 15 0 30

107V_____ L20-_____

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GRADING PLAN 4
CASTELLANA - UNIT 1
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

#	DATE	DESCRIPTION	BY

DARRYL C. LATTIMORE
STATE OF NEVADA
PROFESSIONAL ENGINEER
EXP: 12/31/21
CIVIL
No. 17516
9/9/2020

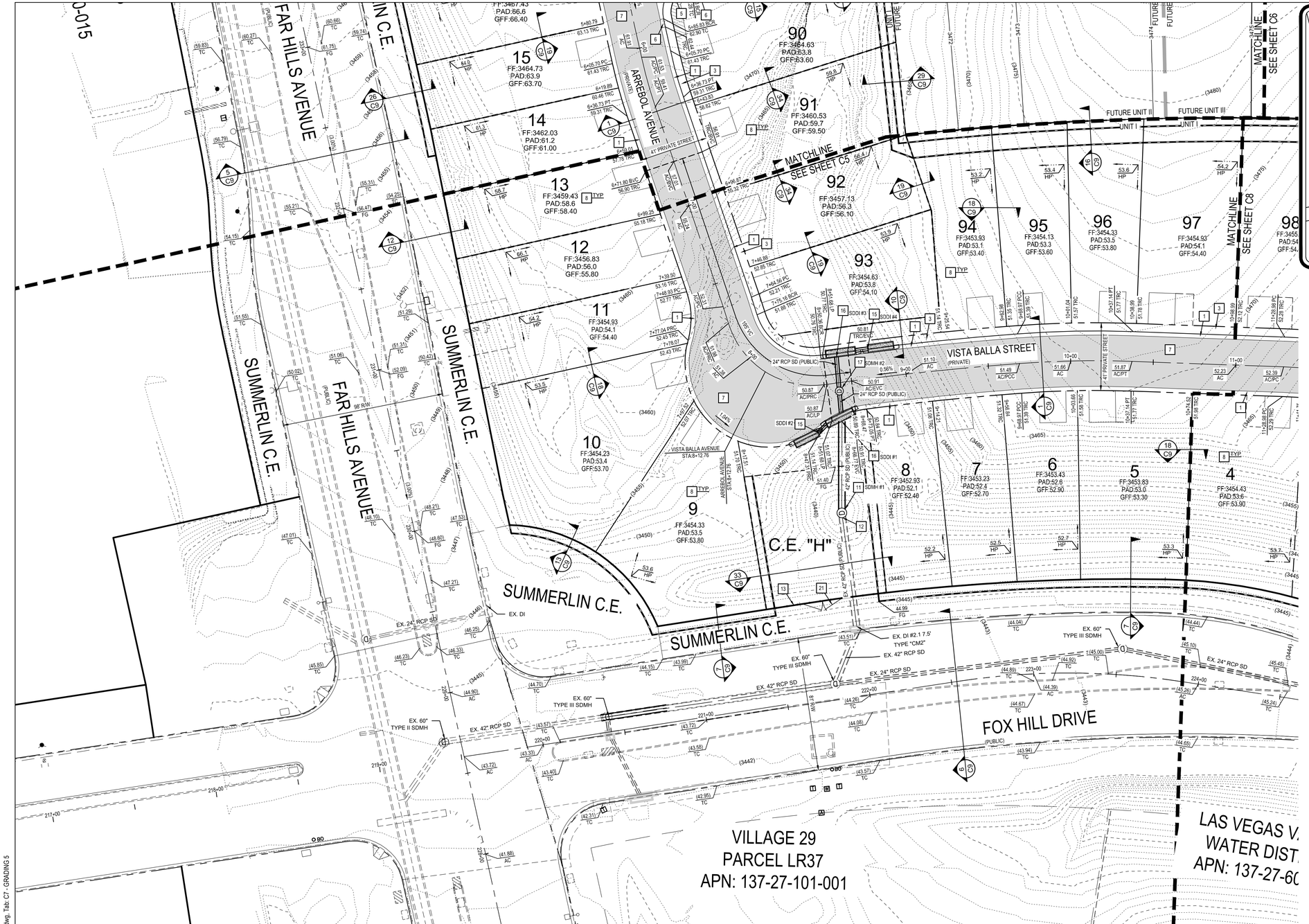
DATE	09/08/2020
DRAWN	PR
DESIGNED	BSP
CHECKED	DCL
PROJECT #	WLH011904

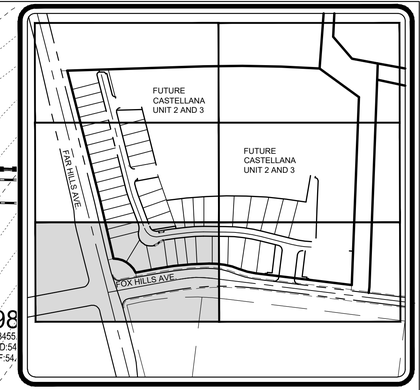
SHEET TITLE
GRADING

SHEET NUMBER
C6

SHEET 6 OF 10

Plot Stamp: 9/9/2020 11:56:18 AM - Brandon Prokopchuk
File: P:\WLH011904 - V25 Parcel A\Civil_CD\UNIT 1\WLH011904-UNIT 1-CD-GRAD.dwg, Tab: C6 - GRADING 4





KEY MAP
SCALE: NTS

LEGEND

PROPOSED	EXISTING	DESCRIPTION
		PUBLIC R/W LINE
		PRIVATE R/W LINE
		BOUNDARY LINE
		EASEMENT LINE
		MATCH LINE
CUT / FILL		CUT / FILL LINE
		CENTERLINE
		EDGE OF ASPHALT
		CURB & GUTTER
		RETAINING WALL
		SAWCUT LINE
		FLOWLINE
		GRADE BREAK
2500	(2500)	MAJOR CONTOUR - 5'
2503	(2503)	MINOR CONTOUR - 1'
		FENCE
		SCARP
		CONCRETE SURFACE
		PROPOSED ASPHALT PAVEMENT
		REMOVE AND REPLACE ASPHALT
		RIP-RAP
98.76 FG	(98.76) XX	ELEVATION GRADE TAG
1.00%	(1.00%)	GRADE SLOPE TAG
1 C5		SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER
		SIGHT VISIBILITY ZONE

COMMON ABBREVIATIONS

FF	- FINISHED FLOOR	TRC	- TOP OF 30" ROLL CURB
TC	- TOP OF CURB	AC	- TOP OF PAVEMENT
FL	- FLOWLINE GRADE	EP	- EDGE OF PAVEMENT
TB	- TOP OF BERM	TW	- TOP OF RETAINING WALL
TF	- TOP OF WALL FOOTER	PRIV.	- PRIVATE
ST.	- STREET	TYP.	- TYPICAL
ESMT	- EASEMENT	R/W	- RIGHT-OF-WAY
TMH	- TOP OF MANHOLE (RIM ELEV.)	DG	- DESIGN GRADE

SIGHT VISIBILITY ZONE NOTE

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PLEASE REFER TO TRAFFIC SHEET FOR SIGHT VISIBILITY ZONE DIMENSIONS.

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ESTIMATED QUANTITIES

NOTE: QUANTITIES SHOWN ARE RAW QUANTITIES AND APPROXIMATE. CONTRACTOR TO DETERMINE HIS OWN QUANTITIES FOR GRADING PURPOSES.

WORK UNDER THIS PLAN CONSTITUTES GRADING IN ACCORDANCE WITH 2018 IBC; ENGINEERING REPORTS AND CERTIFICATIONS IN CONFORMANCE WITH IBC SHALL BE FILED WITH THE CITY OF LAS VEGAS PRIOR TO CITY OF LAS VEGAS APPROVAL AT FINAL INSPECTION.

CUT:	152,811 CY
FILL:	61,468 CY
BALANCE:	91,343 CY (CUT)

ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV# N/A ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. — 9/9/2020 — DATE

STATE OF NEVADA — PROFESSIONAL ENGINEER — DARRYL C. LATTIMORE — EXP: 12/31/21 — CIVIL — No. 17516 — 9/9/2020

BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV052EW6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

AVOID HITTING UNDERGROUND SQUITTO, SIGNAL SYSTEMS AND STREET LIGHT SYSTEM CONDUIT. IT'S COSTLY.
CALL BEFORE YOU DIG UNDERGROUND
Call before you dig
Underground
1-702-432-5300
(NEVADA'S 1 MATERIAL SYSTEM OF TRANSPORTATION (PAST))

Call before you Dig
Avoid cutting underground utility lines. It's costly.
CALL
811
OR
1-800-227-2600

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

SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: SOUTHWEST GEOTECHNICAL
ORIGINAL PROJECT NUMBER: 197203
DATED: FEBRUARY 11, 2020

LINE & CURVE DATA NOTE

PLEASE REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

DEDICATION NOTE

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STORM DRAIN MANHOLE TABLE

SDMH #	COORDINATES	RIM ELEV.	INVERTS
1	N:632129.3753 E:211877.5440	3449.2±	INV. IN:3435.61 (42" - E) INV. IN:3435.61 (42" - NW)
2	N:632157.1264 E:211809.2002	3450.8±	INV. IN:3441.32 (24" - W) INV. OUT: 3441.32 (24" - E)

SCALE: 1"= 30'
30 15 0 30

107V_____ L20-_____

Plot Stamp: 9/9/2020 11:56:24 AM - Brandon Protopchuk
File: P:\WLH\011904 - V25 Parcel A\Civil_CD\UNIT 1\WLH011904-UNIT 1-CD-GRAD.dwg, Tab: C7 - GRADING 5

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GRADING PLAN 5
CASTELLANA - UNIT 1
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

NO.	DATE	DESCRIPTION	BY

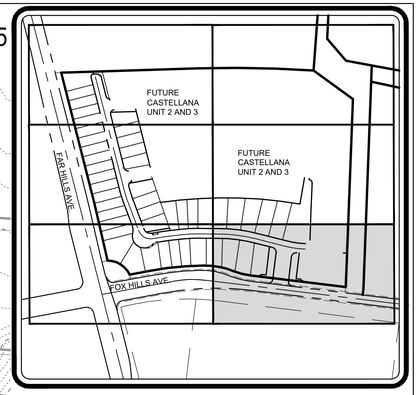
DATE 09/08/2020
DRAWN PR
DESIGNED BSP
CHECKED DCL
PROJECT # WLH011904

SHEET TITLE
GRADING

SHEET NUMBER
C7

SHEET 7 OF 10





KEY MAP
SCALE: NTS

LEGEND

PROPOSED	EXISTING	DESCRIPTION
		PUBLIC R/W LINE
		PRIVATE R/W LINE
		BOUNDARY LINE
		EASEMENT LINE
CUT / FILL		MATCH LINE
		CUT / FILL LINE
		CENTERLINE
		EDGE OF ASPHALT
		CURB & GUTTER
		RETAINING WALL
		SAWCUT LINE
		FLOWLINE
		GRADE BREAK
2500	(2500)	MAJOR CONTOUR - 5'
2503	(2503)	MINOR CONTOUR - 1'
		FENCE
		SCARP
		CONCRETE SURFACE
		PROPOSED ASPHALT PAVEMENT
		REMOVE AND REPLACE ASPHALT
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98.76 FG	(98.76) /X	ELEVATION GRADE TAG
1.00%	(1.00%)	GRADE SLOPE TAG
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9/9/2020
DARRYL LATTIMORE, P.E. — DATE

BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV092616W
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

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SOILS NOTE

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BY: SOUTHWEST GEOTECHNICAL
ORIGINAL PROJECT NUMBER: 197203
DATED: FEBRUARY 11, 2020

LINE & CURVE DATA NOTE

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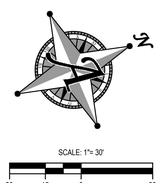
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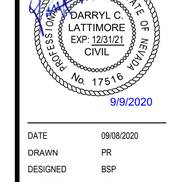


107V_____ L20-_____

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(702) 586-9286
Engineering - Surveying - Consulting - Planning

GRADING PLAN 6
CASTELLANA - UNIT 1
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

BY	DESCRIPTION	DATE
A		



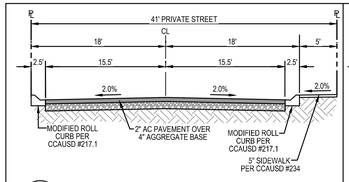
DATE	09/08/2020
DRAWN	PR
DESIGNED	BSP
CHECKED	DCL
PROJECT #	WLH011904

SHEET TITLE
GRADING

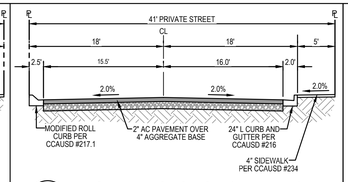
SHEET NUMBER
C8

SHEET 8 OF 10

Plot Stamp: 9/9/2020 11:56:33 AM - Brandon Prokopchuk
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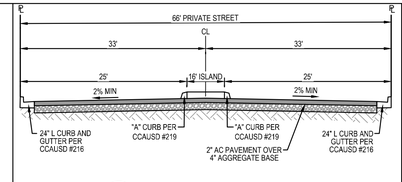


1 41' STREET SECTION (PRIVATE)
NOT TO SCALE

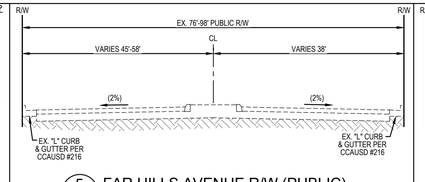


2 41' STREET SECTION (PRIVATE)
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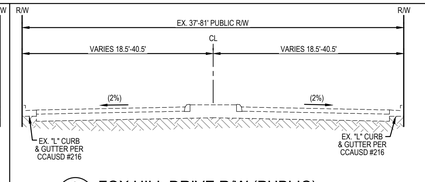
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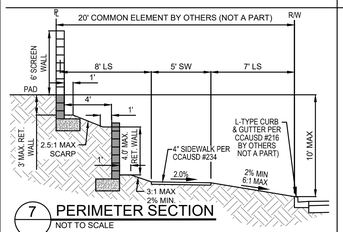
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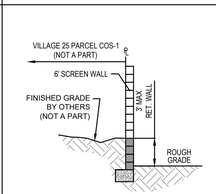
5 FAR HILLS AVENUE R/W (PUBLIC)
NOT TO SCALE



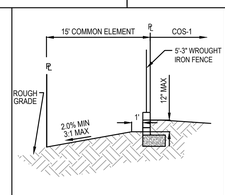
6 FOX HILL DRIVE R/W (PUBLIC)
NOT TO SCALE



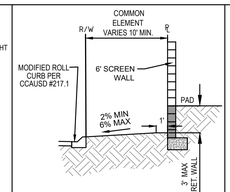
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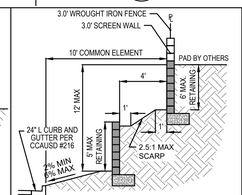
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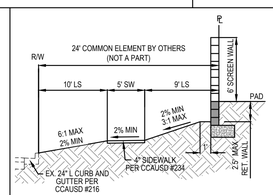
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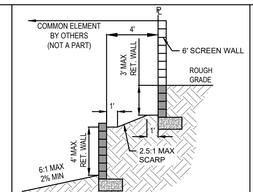
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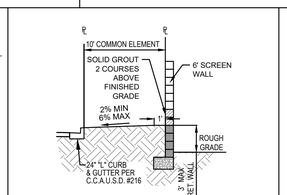
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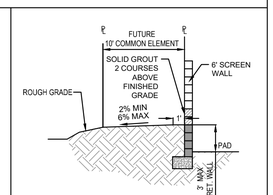
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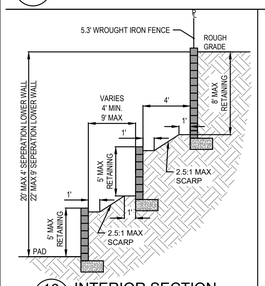
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14 INTERIOR SECTION
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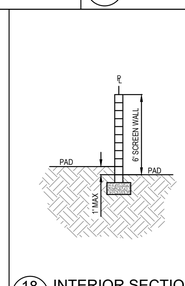


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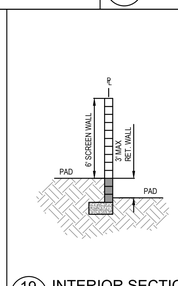


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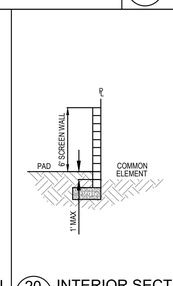
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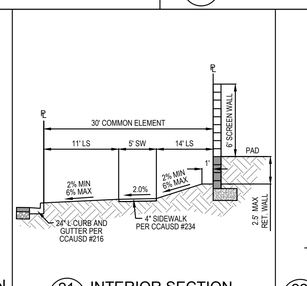
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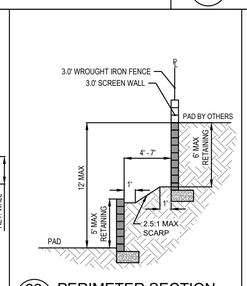
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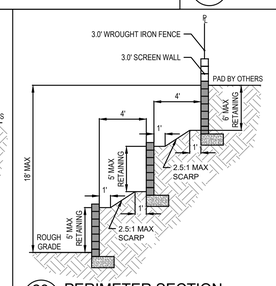
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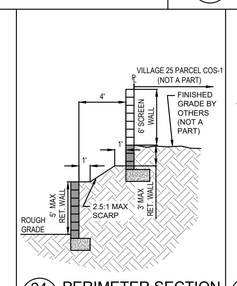
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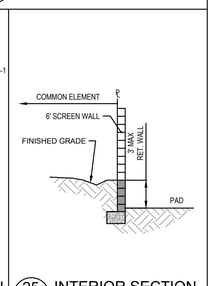
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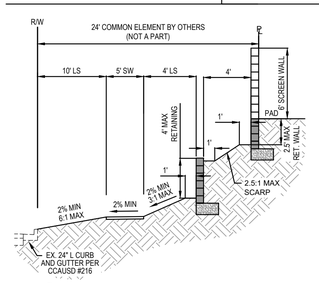
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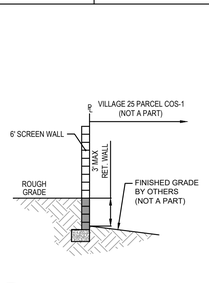
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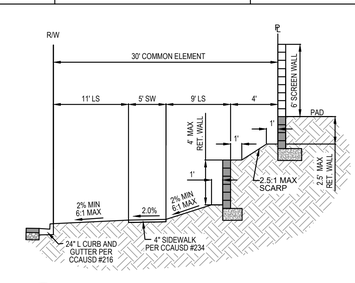
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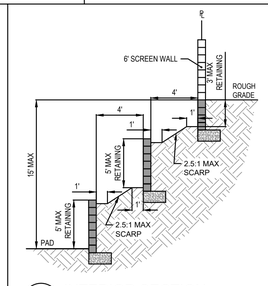
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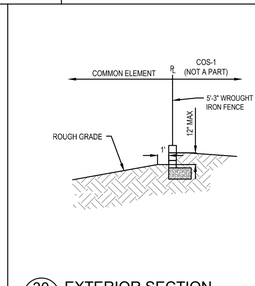
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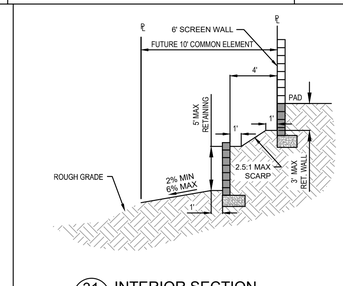
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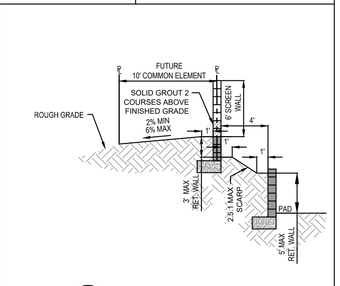
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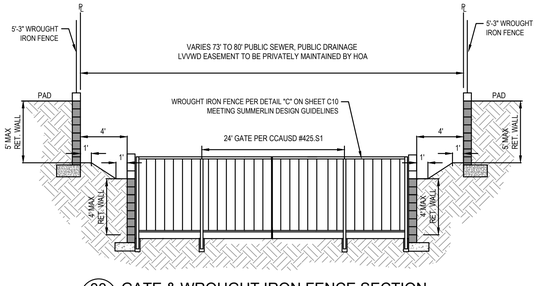
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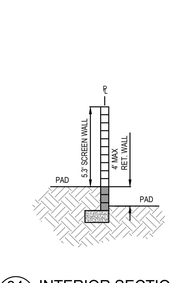
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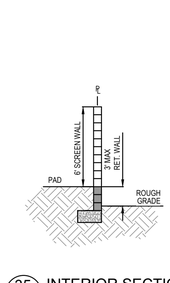
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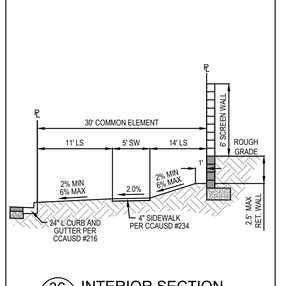
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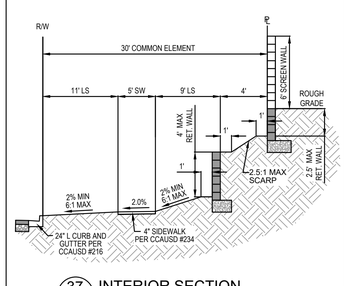
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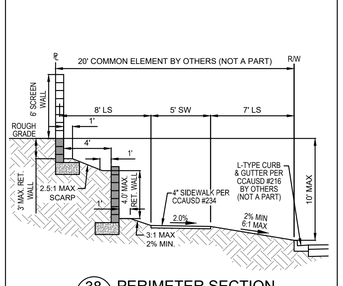
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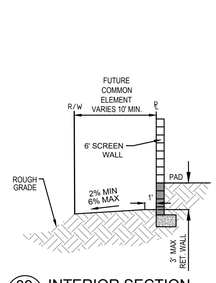
36 INTERIOR SECTION
NOT TO SCALE



37 INTERIOR SECTION
NOT TO SCALE



38 PERIMETER SECTION
NOT TO SCALE



39 INTERIOR SECTION
NOT TO SCALE



WALL NOTES

1. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
2. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.
3. ALL RETAINING WALLS SHALL BE WATER-PROOFED AND PROVIDE DRAINAGE WEEP HOLES PER GEO RECOMMENDATIONS.
4. WROUGHT IRON FENCE GATE DETAILS, FOUNDATIONS AND PLANS BY OTHERS.
5. ALL BLOCK, RETAINING, WROUGHT IRON FENCES & GATES TO BE CONSTRUCTED PER SUMMERLIN WEST DESIGN CRITERIA.

107V____ L20-____

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Las Vegas, NV 89120
www.Actus-NV.com
(702) 586-9296
Engineering - Surveying - Consulting - Planning

SECTIONS & DETAILS SHEET 1
CASTELLANA - UNIT 1
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

BY	DESCRIPTION	DATE
A		

DARRYL C. LATTIMORE
EXP: 12/31/21
CIVIL
STATE OF NEVADA
No. 17516
PROFESSIONAL ENGINEER
9/9/2020

DATE	09/08/2020
DRAWN	PR
DESIGNED	BSP
CHECKED	DCL
PROJECT #	WLH011904

SHEET TITLE
DETAILS

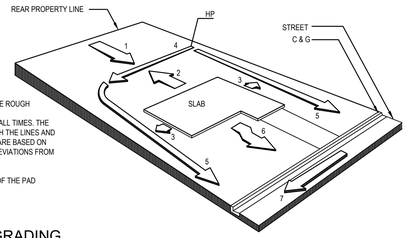
SHEET NUMBER
C9

SHEET 9 OF 10

Plot Stamp: 9/9/2020 11:56:37 AM - Brandon Prokopchuk
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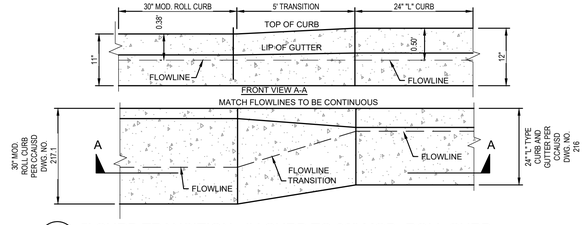
1. SLOPE FROM REAR TO SWALE (MIN. 2%)
2. SLOPE FROM HOUSE TO SWALE (MIN. 2%)
3. SLOPE FROM HOUSE TO SIDE SWALE (MIN. 2%)
4. REAR SWALE (10' MIN. FROM REAR OF HOUSE) (MIN. 1%)
5. SIDE SWALE (MIN. 1%)
6. SLOPE FROM HOUSE TO BACK OF CURB (MIN. 2%)
7. SLOPE OF STREET

A. INDICATED GRADES OTHER THAN T.C., F.G. & GUTTER F.L. ARE ROUGH GRADES. (0.1' LOWER THAN FINISHED GRADE).
B. 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.
C. CARE SHALL BE EXERCISED IN GRADING CORNER LOTS.
D. ROUGH PAD ELEVATIONS SHALL BE GRADED TO WITHIN 0.1' OF THE PAD ELEVATIONS SHOWN ON THE PLANS.

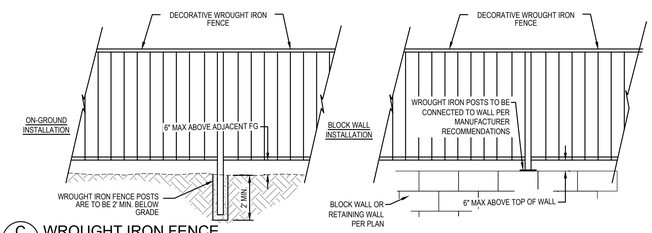


PERSPECTIVE VIEW

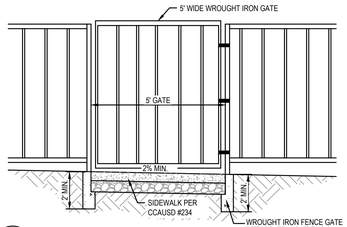
A TYPICAL TYPE "A" PAD GRADING
NOT TO SCALE



B 5' CURB TRANSITION - 'L' CURB TO 30" MOD. ROLL CURB
NOT TO SCALE



C WROUGHT IRON FENCE
NOT TO SCALE



D PEDESTRIAN GATE DETAIL
NOT TO SCALE







WALL NOTES

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107V____L20-

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Las Vegas, NV 89120
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SECTIONS & DETAILS SHEET 2
CASTELLANA - UNIT 1
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

#	DATE	DESCRIPTION	BY
A			

DARRYL C. LATTIMORE
EXP: 12/31/21
CIVIL
STATE OF NEVADA
No. 17516
PROFESSIONAL ENGINEER
9/9/2020

DATE	09/08/2020
DRAWN	PR
DESIGNED	BSP
CHECKED	DCL
PROJECT #	WLH011904

SHEET TITLE
DETAILS

SHEET NUMBER
C10
SHEET 10 OF 10

Plot Stamp: 9/9/2020 11:56:39 AM - Brandon Prokopchuk
File: P:\WLH\H01190\4 - V2\5 Parcel A\Civil_CD\UNIT 1\WLH01190\4-UNIT 1-CD-DTLS.dwg, Tab: C10 - DETAILS SHEET 2

GRADING PLANS AND DETAILS

Unit 2

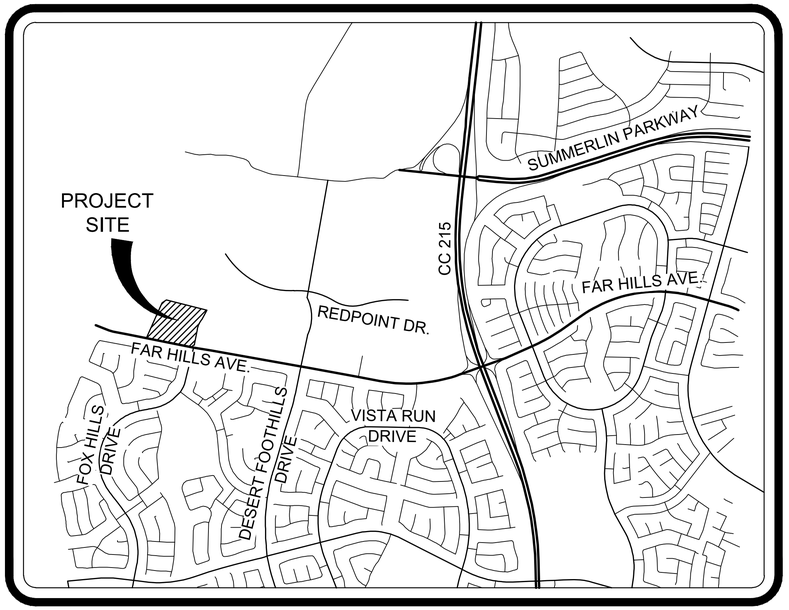


CASTELLANA - UNIT 2

SUMMERLIN VILLAGE 25
PARCEL A
PREPARED FOR:

WILLIAM LYON HOMES

APN: 137-27-617-001
CITY OF LAS VEGAS, NEVADA
6.39 AC



VICINITY MAP
SCALE: NTS

SHEET INDEX	
SHEET NUMBER	SHEET TITLE
C1	COVER SHEET
C2	NOTES SHEET
C3	GRADING PLAN 1
C4	GRADING PLAN 2
C5	GRADING PLAN 3
C6	SECTIONS & DETAILS SHEET

PROJECT TEAM

DEVELOPER

WILLIAM LYON HOMES
1980 FESTIVAL PLAZA DRIVE, SUITE 500
LAS VEGAS, NV 89134
PH: 702-263-8200

CIVIL ENGINEER

ACTUS
ATTN: DARRYL LATTIMORE, P.E.
3283 E. WARM SPRINGS RD., SUITE 300
LAS VEGAS, NV 89120
T: 702-586-9296
E-MAIL: DARRYL.LATTIMORE@ACTUS-NV.COM

OWNER

HOWARD HUGHES COMPANY LLC
10801 W CHARLESTON BLVD
SUITE 300
LAS VEGAS, NV 89135
702-791-4000

UTILITY CONTACTS

POWER

NV ENERGY
ATTN: NEW DEVELOPMENT
7155 LINDELL ROAD
LAS VEGAS, NEVADA 89118

WATER

LAS VEGAS VALLEY WATER DISTRICT
ATTN: ENGINEERING SERVICES
1001 S VALLEY VIEW BLVD
LAS VEGAS, NV 89107
T: 702-870-2011

SEWER

CITY OF LAS VEGAS PUBLIC WORKS
ATTN: ENGINEERING PLANNING
333 N. RANCHO DRIVE 7TH FLOOR
LAS VEGAS, NEVADA 89106
PHONE: 702-229-6541

GAS

SOUTHWEST GAS CORPORATION
ATTN: ENGINEERING SERVICES
6355 SHATZ STREET
NORTH LAS VEGAS, NV 89115

TELEPHONE

CENTRAL TELEPHONE D/B/A CENTURY LINK
6700 VIA AUSTI PARKWAY
LAS VEGAS, NEVADA 89119

DISPOSAL

REPUBLIC SERVICES, INC.
770 E. SAHARA AVE. - P.O. BOX 98508
LAS VEGAS, NEVADA 89193-8508

CABLE

COX COMMUNICATIONS LAS VEGAS, INC.
1700 VEGAS DRIVE
LAS VEGAS, NEVADA 89106

MOU PER ORDINANCE 6630 § 26

1. MINIMUM STREET WIDTHS WITHIN GATED PRIVATE COMMUNITY INTERIOR STREETS:
   - 41' WIDTH WITH 5' SIDEWALK ON ONE SIDE, MINIMUM 33' WIDTH FLOW LINE TO FLOW LINE OF CURB. PARKING ALLOWED BOTH SIDES OF STREET.
   - 36' WIDTH WITH 5' SIDEWALK ONE SIDE, MINIMUM 28' WIDTH FLOW LINE TO FLOW LINE OF CURB. PARKING ALLOWED ONE SIDE OF STREET.
2. REDUCED FIRE FLOW REQUIRED FOR COMMUNITIES ENTIRELY PROTECTED BY FIRE SPRINKLERS FROM 1,500 GPM TO 1,000 GPM FOR RESIDENCES LESS THAN 3,000 SQ. FT.
3. SIDEWALK REQUIRED ON ONE SIDE OF INTERIOR PRIVATE GATED STREETS IN COMPLIANCE WITH ONE OF THE ABOVE STREET SECTIONS.

BASIS OF BEARING

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

LEGAL DESCRIPTION

PARCEL A IS A PORTION OF THE REMAINDER OF LOT 1 MAPPED WITH THE PARCEL MAP RECORDED IN FILE 123 PAGE 36 OF PARCEL MAPS, AND RECORDED MAY 1, 2018.

APN# 137-27-617-001
PARCEL A WILL BE ESTABLISHED AS A SEPARATE LEGAL PARCEL BY THE HOWARD HUGHES CORPORATION WITH THE VILLAGE 25 UNIT 2 FINAL MAP.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK

MONUMENT ID: 5LV0926W6

RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS

ELEVATION:
FEET = 3229.29' (NAVD88)
METERS = 984.29 M (NAVD88)

DEDICATION NOTE

ALL EASEMENTS, RIGHT-OF-WAY, AND OTHER DEDICATIONS WITHIN THIS PLAN SET ARE GRANTED PER FMP# ___-_____ UNLESS OTHERWISE NOTED

FIRE SPRINKLER NOTE

FIRE SPRINKLER SYSTEM SHALL BE PLUMBED TO THE MASTER TOILET.
NO EXCEPTIONS ALLOWED

DISCLAIMER NOTE

THE UNDERGROUND UTILITIES AS SHOWN HEREON HAVE BEEN LOCATED FROM OBSERVED FIELD SURVEY EVIDENCE AND EXISTING DRAWINGS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING; PLANS PROVIDED BY THE CLIENT, UTILITY COMPANIES, AND MUNICIPAL AGENCIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

REV #	REVISION DESCRIPTION	SHEET(S)	APPD BY	DATE APPD

TMP #78257
107V____ L20-_____

APPROVALS

ALLEN PAVELKA PE, PE# 9029 — DATE
CITY ENGINEER - CITY OF LAS VEGAS

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.

DEPARTMENT OF PLANNING — DATE
THIS PLAN MEETS THE APPLICABLE STANDARDS OF THE PLANNING DEPARTMENT

LAS VEGAS FIRE & RESCUE — DATE
FIRE DEPARTMENT APPROVAL
APPROVAL BY THE FIRE DEPARTMENT HAVING JURISDICTION IS REQUIRED PRIOR TO OBTAINING FINAL APPROVAL FROM THE LVVWD.

NV ENERGY — DATE
NV ENERGY ACKNOWLEDGES THAT WE HAVE RECEIVED YOUR PLANS AND WILL PROVIDED 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

CENTRAL TELEPHONE DBA CENTURY LINK — DATE
THE AFFIXED CENTURY LINK APPROVAL DOES NOT ASSUME OR GUARANTEE LIABILITY FOR KNOWN OR UNKNOWN CONFLICTS WITH EXISTING OR PROPOSED IMPROVEMENTS. RESOLUTION 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.

COX COMMUNICATIONS LAS VEGAS, INC — DATE

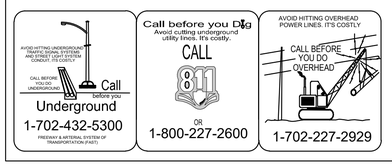
APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES

PROJECT NO. ____#####_____ FIRST APPROVED DATE: _____

LVVWD APPROVED FIRE FLOW N/A GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 26 GPM

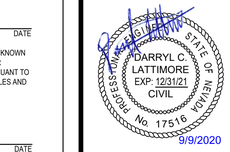
SHEETS:
N/A



Actus
3283 E. Warm Springs Rd., Suite 300
Las Vegas, NV 89120
www.Actus-NV.com
(702) 586-9296
Engineering - Surveying - Consulting - Planning

COVER SHEET
CASTELLANA - UNIT 2
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

A	DATE	DESCRIPTION	BY



9/9/2020

DATE	03/24/2020
DRAWN	EMG
DESIGNED	KAL
CHECKED	DCL
PROJECT #	WLH011904

SHEET TITLE
COVER SHEET

SHEET NUMBER
C1

Plot Stamp: 9/9/2020 11:59:04 AM - Brandon Prokopchuk
File: P:\WLH011904 - V25 Parcel A\Civil_CD\UNIT 2\WLH011904-UNIT 2-CD-COVR.dwg, Tab: C1 - COVER

CITY OF LAS VEGAS GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFFSITE IMPROVEMENTS, CLARK COUNTY AREA NEVADA", LATEST ISSUE; THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION, CLARK COUNTY AREA NEVADA", LATEST REVISED EDITION; THE "SUMMERLIN IMPROVEMENT STANDARDS" FOR WORK IN THE SUMMERLIN AREA; AND OTHER APPLICABLE APPROVED STANDARDS ISSUED BY THE CONTROLLING AGENCY; THE UNIFORM BUILDING CODE; AND ALL LOCAL CITY CODES AND ORDINANCES APPLICABLE, EXCEPT AS NOTED ON THIS SHEET AS "DEVIATIONS FROM STANDARDS".
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 THE 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 EXTRUDED-TYPE CURB.
8. AC PAVEMENT TO BE ONE-HALF INCH (½") ABOVE LIP OF ALL GUTTERS AFTER COMPACTION, EXCEPT AT SIDEWALK RAMPS 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 BETWEEN 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 THE (GEOTEK RESIDENTIAL, REPORT 14658-LVR, UPDATED APRIL 17, 2019) 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 PERMANENT 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 SECTIONS OF NDOT OR THE CLARK COUNTY AREA SPECIFICATIONS (AS APPLICABLE) AND THE PLANS AND DETAILS SHOWN HEREON.
20. WHEN INSTALLING 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. AFTER HAUNCHING AND PRIOR TO BACKFILL OPERATIONS WHICH WOULD COVER SANITARY SEWER AND STORM DRAIN FACILITIES, CONTRACTOR IS REQUIRED TO SCHEDULE CLV OPEN-TRENCH UTILITY SURVEY INSPECTION FOR DETERMINATION OF FINAL LOCATION COORDINATES. FACILITIES TO BE LOCATED CLV SHALL INCLUDE IN A MINIMUM THE HORIZONTAL AND VERTICAL (INVERT) LOCATION OF PUBLIC SEWER MANHOLES, STORM DRAIN MANHOLES AND TRANSITION STRUCTURES, STORM DRAIN LATERALS AT THE CONNECTION TO THE STORM DRAIN MAIN AND AT 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.
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.

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 FOR DIRECTION.
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN 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' SEE SOILS REPORT 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. ALL 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.

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 "G" 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.

DISCLAIMER NOTE

THE UNDERGROUND UTILITIES AS SHOWN HEREON HAVE BEEN LOCATED FROM OBSERVED FIELD SURVEY EVIDENCE AND EXISTING DRAWINGS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING; PLANS PROVIDED BY THE CLIENT, UTILITY COMPANIES, AND MUNICIPAL AGENCIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.



CITY OF LAS VEGAS TRAFFIC NOTES

1. ALL CONSTRUCTION SIGNING, BARRICADING, 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 WHERE WARRANTED IMMEDIATELY AFTER FIRST GRADING WORK IS ACCOMPLISHED, AND SHALL MAINTAIN SAID SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED.
4. WHEN A DESIGNATED "SAFE ROUTE TO SCHOOL" IS ENCROACHED UPON BY A CONSTRUCTION WORK ZONE AND PUBLIC WORKS STAFF IDENTIFIES A NEED FOR STUDENTS TO BE ASSISTED 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® VIP CLASS 6 REFLECTIVE SHEETING OR APPROVED EQUAL. ALL NEW TRAFFIC SIGNS, EXCEPT STREETNAME AND SCHOOL SPEED LIMIT SIGNS, SHALL HAVE 3M SERIES 1160 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 MOUNTED 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 ONTO THE PORTIONS OF THE ROAD(S) BEING IMPROVED HERE UNDER, REGARDLESS OF THE STATUS OF COMPLETION OF PAVING OR OTHER OFF-SITE IMPROVEMENTS CALLED FOR BY THESE PLANS.
9. STREET SIGNS AND STOPS 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 IMSA 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 WILL INTERRUPT'S OR RELOCATES 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 CONTACTING 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 PROJECTS OFFSITE INSPECTOR PRIOR TO INITIATING PAVING TO RECEIVE DIRECTION FOR ANY PERMANENT OR TEMPORARY MODIFICATIONS TO THE APPROVED DRAWINGS REGARDING FINAL PAVEMENT TRANSITIONS, MARKINGS AND SIGNING THAT ARE REQUIRED TO MATCH ADJACENT ROADWAY SEGMENTS. THE CONTRACTOR SHALL PROVIDE DRAWINGS PREPARED BY THE TRAFFIC ENGINEERING DIVISION DEPICTING ANY ADJUSTMENTS TO THE FINAL PAVEMENT MARKINGS AND SIGNAGE, WHICH MAY INCLUDE OMITTING, ADDING OR MODIFYING PAVEMENT MARKINGS AND TRAFFIC CONTROL SIGNS SUCH THAT ADEQUATE TRANSITIONS AND LANE TERMINATIONS BETWEEN ADJACENT ROADWAY SEGMENTS ARE CONSTRUCTED.

CITY OF LAS VEGAS STREETLIGHT NOTES

1. ALL STREET LIGHTING INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE STREET LIGHTING PLANS, THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST REVISION (USS), AND THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST REVISION.
2. DESIGN PROFESSIONAL AND CONTRACTORS SHALL VERIFY CITY'S LATEST LED FIXTURE SPECIFICATIONS AND APPROVED FIXTURES PER CLV WEBSITE, UNDER BUILDING AND SAFETY FORMS, PRIOR TO ORDERING MATERIALS.
3. NO DEVIATION OF STREET LIGHT, PULL BOX, CONDUITS (ETC.) LOCATIONS SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL OF TRAFFIC ENGINEERING AND THE CITY ENGINEER. ANY DEVIATIONS FROM THE PLAN LOCATION WILL REQUIRE COMPLIANCE WITH SECTION 623 OF THE USS.
4. ALL EXISTING STREET LIGHTING SHALL REMAIN OPERATIONAL DURING CONSTRUCTION IN ACCORDANCE WITH SECTION 623 G.03.01 OF THE USS.
5. ALL EMPTY CONDUIT SHALL HAVE AT LEAST ONE GREEN #8 THW WIRE INSTALLED, AS TRACER WIRE IN ACCORDANCE WITH SECTION 623 G.02.01 OF THE USS PRIOR TO BACKFILLING AND FINAL INSPECTION.
6. ANY STRUCTURE SUCH AS BLOCK WALLS, CHAIN LINK FENCES, RETAINING WALLS, ETC., SHALL LEAVE A MINIMUM CLEARANCE IN COMPLIANCE WITH THE USD NO. 320A WHEN POLE IS INSTALLED BEHIND SIDEWALK, AND SHALL AT NO TIME COMPLETELY ENCLOSE THE STREET LIGHTING POLE.
7. AS-BUILT DRAWINGS SHALL BE SUPPLIED TO THE TRAFFIC ENGINEERING DIVISION PRIOR TO ANY PRE-FINAL INSPECTION. THE AS-BUILT DRAWING NEEDS TO BE STAMPED AS-BUILT AND SIGNED BY THE PREPARER.
8. SERVICE POINTS SHALL BE COORDINATED WITH NV ENERGY, AND WHEREVER POSSIBLE, BE LOCATED NEAR THE CENTER OF THE CIRCUIT. SERVICE POINTS SHALL BE SHOWN ON THE CIVIL PLANS.
9. WHEREVER THERE IS AN OVERHEAD UTILITY THAT MAY CONFLICT WITH THE INSTALLATION OF STREET LIGHTING CIRCUITS AND/OR POLES, THESE CONFLICTS MUST BE RESOLVED BETWEEN THE DEVELOPER AND THE UTILITIES INVOLVED BEFORE STREETLIGHT BASES ARE INSTALLED, AT NO EXPENSE TO THE CITY OF LAS VEGAS.
10. THE CONTRACTOR SHALL FURNISH COMPLETE CONDUIT, WIRE, ETC. FROM SERVICE TRANSFORMERS AND CONTROL SYSTEMS IF REQUIRED ON THE PLANS.

LAS VEGAS VALLEY WATER DISTRICT NOTES

LVVWD PROJECT No.: N/A

1. NO WORK SHALL BEGIN UNTIL THE WATER PLANS HAVE BEEN APPROVED FOR CONSTRUCTION BY THE LVVWD. FOLLOWING WATER PLAN APPROVAL, NOTICE SHALL BE GIVEN TO THE LVVWD 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 DRAFT OR 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 GUTTERS.
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 3.14.01, AND APPROVED BY THE LVVWD INSPECTION DIVISION PRIOR TO SHUTDOWN. PROPER WRITTEN NOTIFICATION MUST BE GIVEN TO ALL AFFECTED CUSTOMERS.
12. ALL WATER FACILITY CONSTRUCTION MATERIALS USED MUST BE AS LISTED ON THE LVVWD APPROVED PRODUCT'S LIST FOR NEW FACILITIES, LATEST REVISION, OR SPECIFICALLY APPROVED ON THESE PLANS BY SUBMITTING SHOP DRAWINGS.
13. TELEPHONE "CALL BEFORE YOU DIG" AT "811" OR 1-800-227-2600.
14. THE INSTALLATION OF LVVWD MUNICIPAL WATER FACILITIES WITHIN ALL STREETS IS ASSUMED TO BE IN COMPLIANCE WITH THE UNIFORM STANDARDS, INCLUDING THE PLACEMENT OF ASPHALT PAVING STREET SURFACES. ANY REPAIR WORK DONE BY THE LVVWD TO THE MUNICIPAL WATER FACILITIES WILL INCLUDE THE PLACEMENT OF AN APPROPRIATELY SIZED ASPHALT REPAIR PATCH ON THE STREET SURFACE.

ANY 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 ABUTTING A PUBLIC OR PRIVATE STREET, IF DISTURBED BY THE LVVWD DURING THE REPAIR OR OPERATION OF ITS FACILITIES, WILL BE REPLACED BY LVVWD WITH AN APPROPRIATELY SIZED PLAIN FINISH CONCRETE PATCH. THE LVVWD WILL NOT RESTORE, AND WILL NOT BE RESPONSIBLE FOR THE RESTORATION OF, ANY DECORATIVE PAVING SURFACE WITHIN THE STREET. THE LVVWD WILL NOT ATTEMPT TO MATCH COLOR OR FINISH OF ANY ADJACENT MATERIALS.

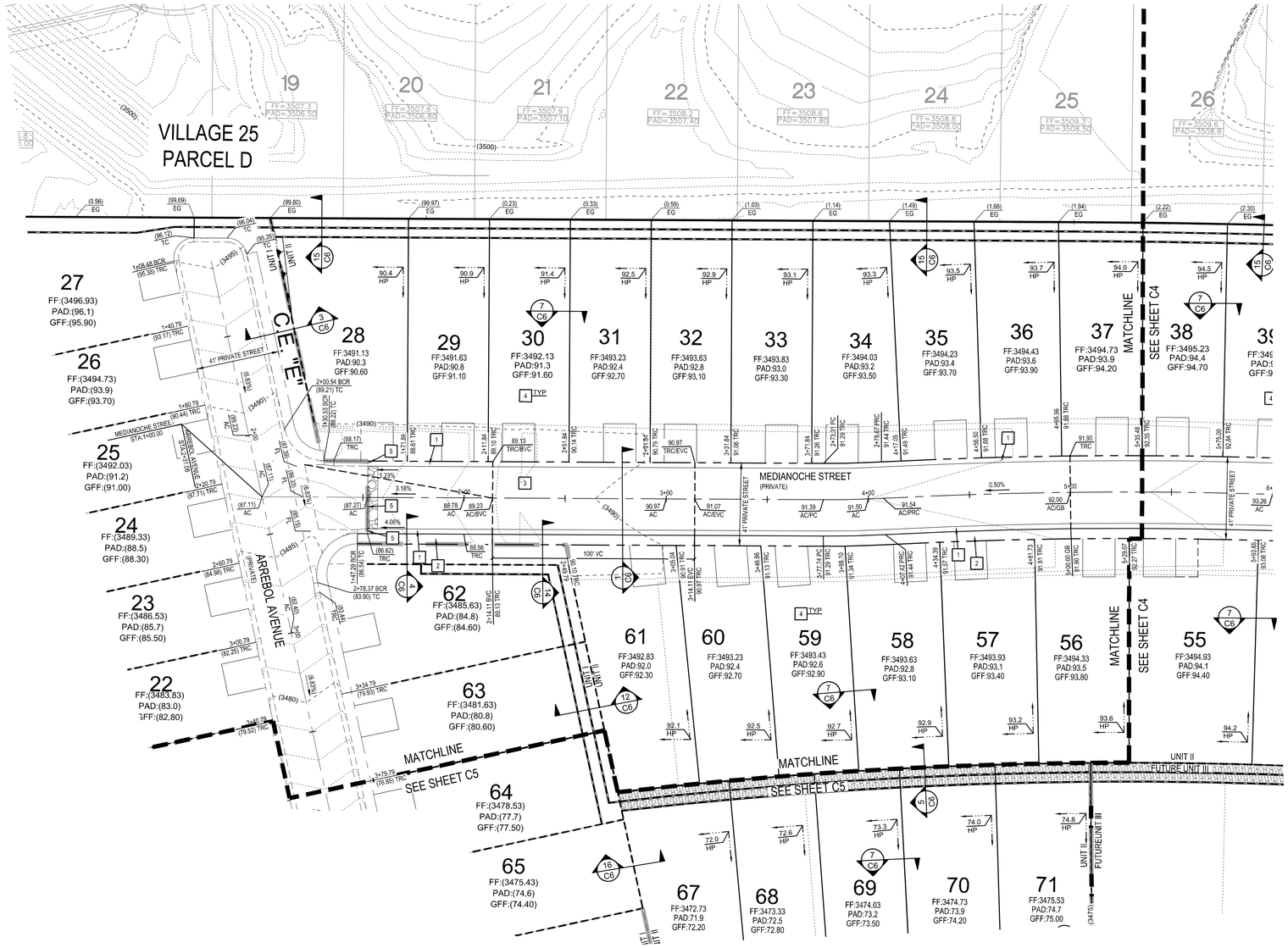
15. NO LEAD COMPLIANCE NOTE:
TO COMPLY WITH THE FEDERAL SAFE DRINKING WATER ACT, ALL WATER WORKS BRASS PRODUCTS PROPOSED TO BE RELOCATED, OR INSTALLED AS NEW MUST BE INSTALLED WITH THE LEAD FREE APPROVED PRODUCT. THE OLD LEADED PRODUCT MAY NOT BE REUSED.

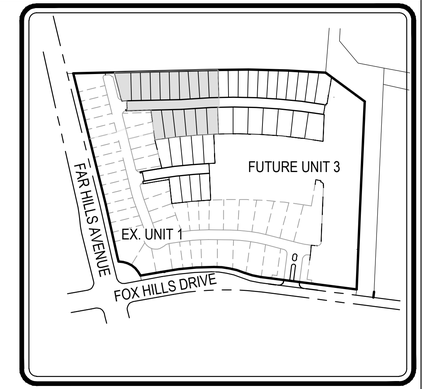
SOUTHWEST GAS GENERAL NOTES

1. IN THE EVENT OF NATURAL GAS EMERGENCIES CALL 911 AND 1-877-860-6020
2. THERE SHALL BE A MINIMUM HORIZONTAL AND VERTICAL CLEARANCE OF 12-INCHES BETWEEN NATURAL GAS FACILITIES AND ANY UNDERGROUND FACILITIES AND/OR STRUCTURES, INCLUDING BUT NOT LIMITED TO WATER, SEWER, STORM DRAIN, COMMUNICATIONS, AND ELECTRIC.
3. FOR VALVE ADJUSTMENT CONTACT 702-668-6107 48 HOURS PRIOR TO CONSTRUCTION.
4. IN THE EVENT OF A NATURAL GAS CONFLICT WITH PROPOSED UTILITIES AND/OR STRUCTURES CONTACT 702-365-2099

LAS VEGAS FIRE & RESCUE GENERAL NOTES

1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LAS VEGAS FIRE AND RESCUE ADOPTED FIRE CODE ORDINANCE # 6325 FOR HYDRANT SPECIFICATIONS AND HYDRANT INSTALLATION SPECIFICATIONS.
2. ONLY FIRE HYDRANTS THAT ARE ON THE LAS VEGAS VALLEY WATER DISTRICT'S - 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 THE CONTRACTORS MATERIAL TEST CERTIFICATE FOR THE UNDERGROUND PIPING FORM SHALL BE OBTAINED FROM THE FIRE PROTECTION ENGINEER BEFORE COMMENCEMENT OF WORK.
4. ON ANY RESIDENTIAL OR COMMERCIAL INSTALLATIONS FIRE HYDRANTS SHALL BE INSTALLED AND FIRE APPARATUS ACCESS ROADS SHALL BE MAINTAINED BEFORE COMMENCEMENT OF ANY COMBUSTIBLE CONSTRUCTION. ALL FIRE HYDRANTS SHALL BE IN GOOD WORKING ORDER AND SHALL BE CAPABLE OF DELIVERING THE REQUIRED FIRE FLOW.
5. TO IDENTIFY THE FIRE HYDRANT LOCATIONS, CONTRACTOR





KEY MAP
SCALE: NTS

LEGEND

PROPOSED	EXISTING	DESCRIPTION
		PUBLIC R/W LINE
		PRIVATE R/W LINE
		BOUNDARY LINE
		EASEMENT LINE
		MATCH LINE
CUT / FILL		CUT / FILL LINE
		CENTERLINE
		EDGE OF ASPHALT
		CURB & GUTTER
		RETAINING WALL
		SAWCUT LINE
		FLOWLINE
		GRADE BREAK
2500	(2500)	MAJOR CONTOUR - 5'
2503	(2503)	MINOR CONTOUR - 1'
		FENCE
		SCARP
		CONCRETE SURFACE
		PROPOSED ASPHALT PAVEMENT
		REMOVE AND REPLACE ASPHALT
		RIP-RAP
98.76 FG	(98.76) XX	ELEVATION GRADE TAG
1.00%	(1.00%)	GRADE SLOPE TAG
1 C5		SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER
		SIGHT VISIBILITY ZONE

COMMON ABBREVIATIONS

FF	- FINISHED FLOOR	TRC	- TOP OF 30" ROLL CURB
TC	- TOP OF CURB	AC	- TOP OF PAVEMENT
FL	- FLOWLINE GRADE	EP	- EDGE OF PAVEMENT
TB	- TOP OF BERM	TW	- TOP OF RETAINING WALL
TF	- TOP OF WALL FOOTER	PRIV.	- PRIVATE
ST.	- STREET	TYP.	- TYPICAL
ESMT	- EASEMENT	R/W	- RIGHT-OF-WAY
TMH	- TOP OF MANHOLE (RIM ELEV.)	DG	- DESIGN GRADE

SIGHT VISIBILITY ZONE NOTE

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GRADING NOTES

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3. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
4. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.

ESTIMATED QUANTITIES

NOTE: QUANTITIES SHOWN ARE RAW QUANTITIES AND APPROXIMATE. CONTRACTOR TO DETERMINE HIS OWN QUANTITIES FOR GRADING PURPOSES.

WORK UNDER THIS PLAN CONSTITUTES GRADING IN ACCORDANCE WITH 2018 IBC; ENGINEERING REPORTS AND CERTIFICATIONS IN CONFORMANCE WITH IBC SHALL BE FILED WITH THE CITY OF LAS VEGAS PRIOR TO CITY OF LAS VEGAS APPROVAL AT FINAL INSPECTION.

CUT:	152,811 CY
FILL:	61,468 CY
BALANCE:	91,343 CY (CUT)

ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLVF N/A ON FILE WITH THE CITY OF LAS VEGAS.

9/9/2020
DARRYL LATTIMORE, P.E. — DATE

BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV0926W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.



SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: SOUTHWEST GEOTECHNICAL
ORIGINAL PROJECT NUMBER: 197203
DATED: FEBRUARY 11, 2020

LINE & CURVE DATA NOTE

PLEASE REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

DEDICATION NOTE

ALL EASEMENTS, RIGHT-OF-WAY, AND OTHER DEDICATIONS WITHIN THIS PLAN SET ARE GRANTED PER FMP #___-_____ UNLESS OTHERWISE NOTED

PRIVATE STREET NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

COMMON LOT NOTE

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STORM DRAIN CONNECTION NOTE

WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE EXISTING RCP TO THE NEAREST BELL CONNECTION, CONNECT NEW RCP TO EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

DISCLAIMER NOTE

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GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
3. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
4. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "A" ON SHEET C6
5. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
6. INSTALL TEMPORARY RIP-RAP PAD (D_{50}=6", THICKNESS = 12")



107V_____ L20-_____

Actus
3285 E. Warm Springs Rd., Suite 300
Las Vegas, NV 89120
www.Actus-NV.com
(702) 586-9266
Engineering - Surveying - Consulting - Planning

GRADING PLAN 1
CASTELLANA - UNIT 2
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

NO.	DATE	DESCRIPTION	BY

PROFESSIONAL ENGINEER
DARRYL C. LATTIMORE
EXP: 12/31/21
CIVIL
No. 17516
STATE OF NEVADA
9/9/2020

DATE	03/24/2020
DRAWN	EMG
DESIGNED	KAL
CHECKED	DCL
PROJECT #	WLH011904

SHEET TITLE
GRADING

SHEET NUMBER
C3

SHEET 3 OF 6

Plot Stamp: 9/9/2020 11:59:26 AM - Brandon Prokopchuk
File: P:\WLH\011904 - V25 Parcel A\Civil_CD\UNIT 2\WLH011904-UNIT 2-CD-GRAD.dwg, Tab: C3 - GRADING 1



KEY MAP
SCALE: NTS

LEGEND

PROPOSED	EXISTING	DESCRIPTION
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		BOUNDARY LINE
		EASEMENT LINE
		MATCH LINE
		CUT / FILL LINE
		CENTERLINE
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		RETAINING WALL
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		FLOWLINE
		GRADE BREAK
2500	(2500)	MAJOR CONTOUR - 5'
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DARRYL LATTIMORE, P.E. — 9/9/2020 DATE

BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV092B16
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

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AVOID HITTING UNDERGROUND AND OVERHEAD POWER LINES AND OTHER UTILITY SYSTEMS CONDUIT. IT'S COSTLY
CALL BEFORE YOU DIG
Call before you
Underground
1-702-432-5300
FEDERAL & MATERIAL SYSTEMS OF TRANSPORTATION (FAST)

Call before you Dig
Avoid cutting underground utility lines. It's costly.
CALL
811
OR
1-800-227-2600

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

SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: SOUTHWEST GEOTECHNICAL
ORIGINAL PROJECT NUMBER: 197203
DATED: FEBRUARY 11, 2020

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2. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
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5. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
6. INSTALL TEMPORARY RIP-RAP PAD (D_{50}=6", THICKNESS = 12")

SCALE: 1"= 30'
30 15 0 30

107V_____ L20-_____

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GRADING PLAN 2
CASTELLANA - UNIT 2
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

BY	DESCRIPTION	DATE
A		

DARRYL C. LATTIMORE
STATE OF NEVADA
No. 17516
PROFESSIONAL ENGINEER
EXP: 12/31/21
CIVIL
9/9/2020

DATE	03/24/2020
DRAWN	EMG
DESIGNED	KAL
CHECKED	DCL
PROJECT #	WLH011904

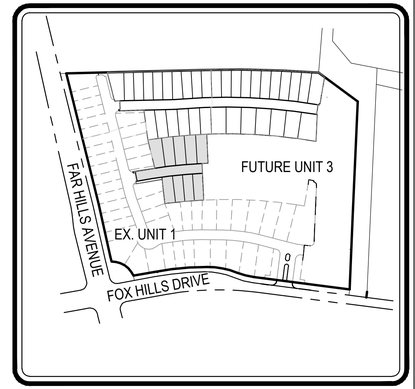
SHEET TITLE
GRADING

SHEET NUMBER
C4

SHEET 4 OF 6

Plot Stamp: 9/9/2020 11:59:31 AM - Brandon Prokopchuk
File: P:\WLH011904 - V25 Parcel A\Civil_CD\UNIT 2\WLH011904-UNIT 2-CD-GRAD.dwg, Tab: C4 - GRADING 2





KEY MAP
SCALE: NTS

LEGEND

PROPOSED	EXISTING	DESCRIPTION
		PUBLIC R/W LINE
		PRIVATE R/W LINE
		BOUNDARY LINE
		EASEMENT LINE
		MATCH LINE
CUT / FILL		CUT / FILL LINE
		CENTERLINE
		EDGE OF ASPHALT
		CURB & GUTTER
		RETAINING WALL
		SAWCUT LINE
		FLOWLINE
		GRADE BREAK
2500	(2500)	MAJOR CONTOUR - 5'
2503	(2503)	MINOR CONTOUR - 1'
		FENCE
		SCARP
		CONCRETE SURFACE
		PROPOSED ASPHALT PAVEMENT
		REMOVE AND REPLACE ASPHALT
		RIP-RAP
98.76 FG	(98.76) XX	ELEVATION GRADE TAG
1.00%	(1.00%)	GRADE SLOPE TAG
1 C5		SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER
		SIGHT VISIBILITY ZONE

COMMON ABBREVIATIONS

FF	- FINISHED FLOOR	TRC	- TOP OF 30" ROLL CURB
TC	- TOP OF CURB	AC	- TOP OF PAVEMENT
FL	- FLOWLINE GRADE	EP	- EDGE OF PAVEMENT
TB	- TOP OF BERM	TW	- TOP OF RETAINING WALL
TF	- TOP OF WALL FOOTER	PRIV.	- PRIVATE
ST.	- STREET	TYP.	- TYPICAL
ESMT	- EASEMENT	R/W	- RIGHT-OF-WAY
TMH	- TOP OF MANHOLE (RIM ELEV.)	DG	- DESIGN GRADE

SIGHT VISIBILITY ZONE NOTE

NO WALLS, FENCES SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAT TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT POLES, MAY BE CONSTRUCTED OR INSTALLED WITHIN THE SIGHT VISIBILITY ZONE UNLESS SAID OBJECT IS MAINTAINED AT LESS THAN 24 INCHES IN HEIGHT, MEASURED FROM TOP OF CURB, OR WHERE NO CURB EXISTS, A HEIGHT OF 2' INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT, GRAVEL OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.

PLEASE REFER TO TRAFFIC SHEET FOR SIGHT VISIBILITY ZONE DIMENSIONS.

GRADING NOTES

1. ACTUS SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES IN THE PLANS OR CONDITIONS IN THE FILED.
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 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.
3. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
4. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.

ESTIMATED QUANTITIES

NOTE: QUANTITIES SHOWN ARE RAW QUANTITIES AND APPROXIMATE. CONTRACTOR TO DETERMINE HIS OWN QUANTITIES FOR GRADING PURPOSES.

WORK UNDER THIS PLAN CONSTITUTES GRADING IN ACCORDANCE WITH 2018 IBC; ENGINEERING REPORTS AND CERTIFICATIONS IN CONFORMANCE WITH IBC SHALL BE FILED WITH THE CITY OF LAS VEGAS PRIOR TO CITY OF LAS VEGAS APPROVAL AT FINAL INSPECTION.

CUT:	152,811 CY
FILL:	61,468 CY
BALANCE:	91,343 CY (CUT)

ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLVF NA ON FILE WITH THE CITY OF LAS VEGAS.

9/9/2020
DARRYL LATTIMORE, P.E. DATE

BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV0926W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.



SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: SOUTHWEST GEOTECHNICAL
ORIGINAL PROJECT NUMBER: 197203
DATED: FEBRUARY 11, 2020

LINE & CURVE DATA NOTE

PLEASE REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

DEDICATION NOTE

ALL EASEMENTS, RIGHT-OF-WAY, AND OTHER DEDICATIONS WITHIN THIS PLAN SET ARE GRANTED PER PMP #____-_____ UNLESS OTHERWISE NOTED

PRIVATE STREET NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

COMMON LOT NOTE

ALL COMMON LOTS ARE TO BE PUBLIC DRAINAGE, PEDESTRIAN ACCESS, UTILITY, SEWER, AND PRIVATE LANDSCAPE EASEMENTS OVER THEIR ENTIRETY TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

STORM DRAIN CONNECTION NOTE

WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE EXISTING RCP TO THE NEAREST BELL CONNECTION, CONNECT NEW RCP TO EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

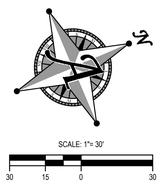
FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

DISCLAIMER NOTE

THE UNDERGROUND UTILITIES AS SHOWN HEREON HAVE BEEN LOCATED FROM OBSERVED FIELD SURVEY EVIDENCE AND EXISTING DRAWINGS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING; PLANS PROVIDED BY THE CLIENT, UTILITY COMPANIES, AND MUNICIPAL AGENCIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
3. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
4. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "A" ON SHEET C6
5. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
6. INSTALL TEMPORARY RIP-RAP PAD (D_{50}=6", THICKNESS = 12")



107V_____ L20-_____

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GRADING PLAN 3
CASTELLANA - UNIT 2
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

NO.	DATE	DESCRIPTION	BY
A			

DARRYL C. LATTIMORE
EXP: 12/31/21
CIVIL
No. 17516
STATE OF NEVADA
PROFESSIONAL ENGINEER
9/9/2020

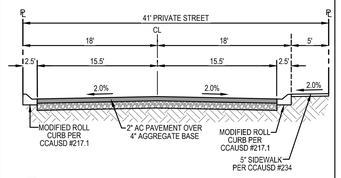
DATE	03/24/2020
DRAWN	EMG
DESIGNED	KAL
CHECKED	DCL
PROJECT #	WLH011904

SHEET TITLE
GRADING

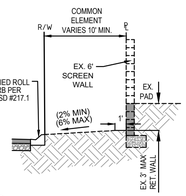
SHEET NUMBER
C5

SHEET 5 OF 6

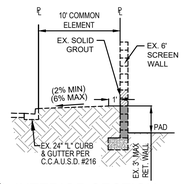
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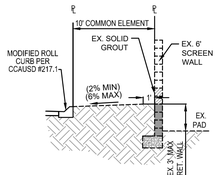
1 41' STREET SECTION (PRIVATE)
NOT TO SCALE



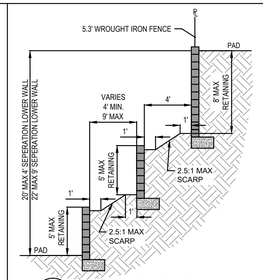
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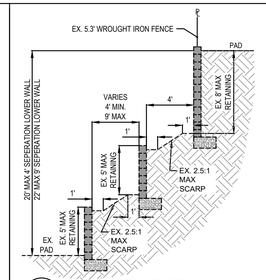
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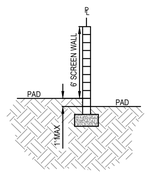
4 INTERIOR SECTION
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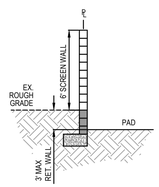
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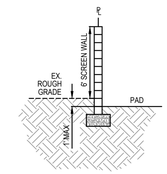
6 INTERIOR SECTION
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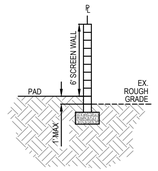
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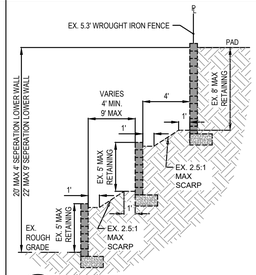
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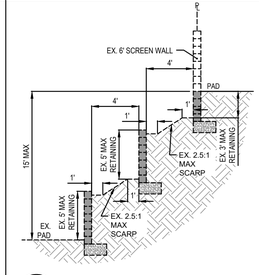
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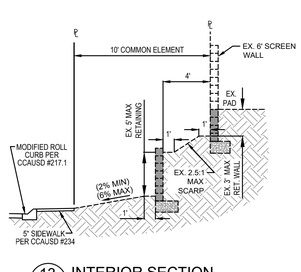
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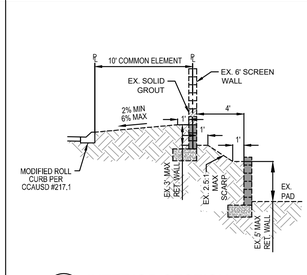
11 INTERIOR SECTION
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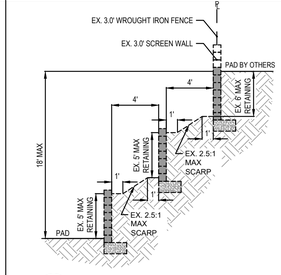
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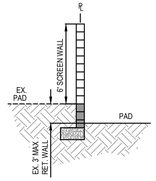
13 INTERIOR SECTION
NOT TO SCALE



14 INTERIOR SECTION
NOT TO SCALE



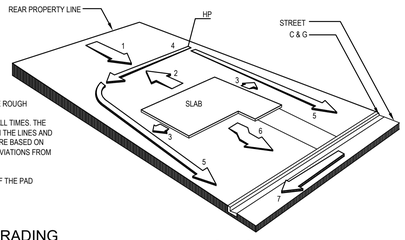
15 PERIMETER SECTION
NOT TO SCALE



16 INTERIOR SECTION
NOT TO SCALE

1. SLOPE FROM REAR TO SWALE (MIN. 2%)
2. SLOPE FROM HOUSE TO SWALE (MIN. 2%)
3. SLOPE FROM HOUSE TO SIDE SWALE (MIN. 2%)
4. REAR SWALE (10' MIN. FROM REAR OF HOUSE) (MIN. 1%)
5. SIDE SWALE (MIN. 1%)
6. SLOPE FROM HOUSE TO BACK OF CURB (MIN. 2%)
7. SLOPE OF STREET

A. INDICATED GRADES OTHER THAN T.C., F.G. & GUTTER F.L. ARE ROUGH GRADES. (0.1' LOWER THAN FINISHED GRADE).
B. 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.
C. CARE SHALL BE EXERCISED IN GRADING CORNER LOTS.
D. ROUGH PAD ELEVATIONS SHALL BE GRADED TO WITHIN 0.1' OF THE PAD ELEVATIONS SHOWN ON THE PLANS.



PERSPECTIVE VIEW

A TYPICAL TYPE "A" PAD GRADING
NOT TO SCALE







WALL NOTES

1. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
2. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.
3. ALL RETAINING WALLS SHALL BE WATER-PROOFED AND PROVIDE DRAINAGE WEEP HOLES PER GEO RECOMMENDATIONS
4. WROUGHT IRON FENCE GATE DETAILS, FOUNDATIONS AND PLANS BY OTHERS.

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Actus
3285 E. Warm Springs Rd., Suite 300
Las Vegas, NV 89120
www.Actus-NV.com
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Engineering - Surveying - Consulting - Planning

SECTIONS & DETAILS SHEET
CASTELLANA - UNIT 2
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

	DATE	DESCRIPTION	BY
1			

DARRYL C. LATTIMORE
EXP: 12/31/21
CIVIL
STATE OF NEVADA
No. 17516
PROFESSIONAL ENGINEER
9/9/2020

DATE	03/24/2020
DRAWN	EMG
DESIGNED	KAL
CHECKED	DCL
PROJECT #	WLH011904

SHEET TITLE
DETAILS

SHEET NUMBER
C6

SHEET 6 OF 6

Plot Stamp: 9/9/2020 11:59:44 AM - Brandon Prokopchuk
File: P:\WLH011904 - V2\5 Parcel A\Civil_CD\UNIT 2\WLH011904-UNIT 2-CD-DTLS.dwg, Tab: C6 - DETAILS SHEET 1

GRADING PLANS AND DETAILS

Unit 3

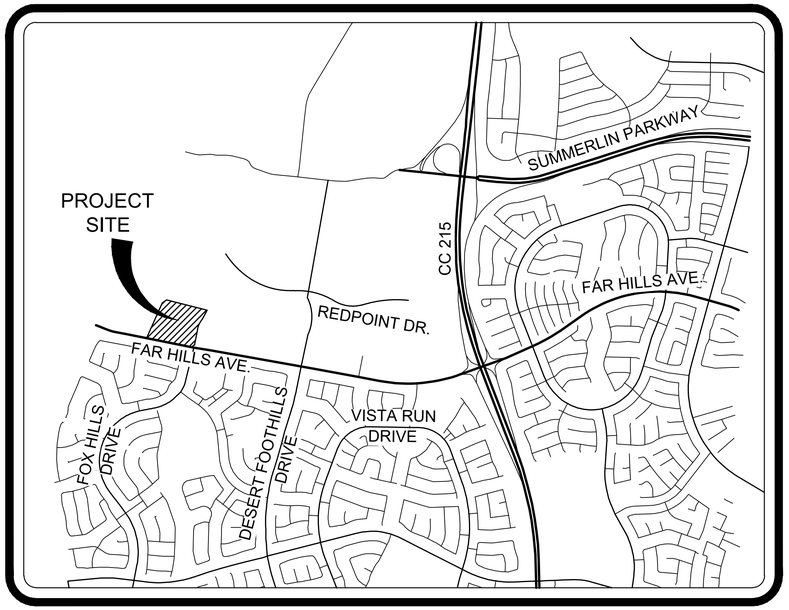


CASTELLANA

SUMMERLIN VILLAGE 25
PARCEL A
PREPARED FOR:

WILLIAM LYON HOMES

APN: 137-27-617-001
CITY OF LAS VEGAS, NEVADA
21.20 AC



VICINITY MAP
SCALE: NTS

PROJECT TEAM

DEVELOPER

WILLIAM LYON HOMES
1980 FESTIVAL PLAZA DRIVE, SUITE 500
LAS VEGAS, NV 89134
PH: 702-263-8200

CIVIL ENGINEER

ACTUS
ATTN: DARRYL LATTIMORE, P.E.
3283 E. WARM SPRINGS RD., SUITE 300
LAS VEGAS, NV 89120
T: 702-586-9296
E-MAIL: DARRYL.LATTIMORE@ACTUS-NV.COM

OWNER

HOWARD HUGHES COMPANY LLC
10801 W CHARLESTON BLVD
SUITE 300
LAS VEGAS, NV 89135
702-791-4000

UTILITY CONTACTS

POWER

NV ENERGY
ATTN: NEW DEVELOPMENT
7155 LINDELL ROAD
LAS VEGAS, NEVADA 89118

WATER

LAS VEGAS VALLEY WATER DISTRICT
ATTN: ENGINEERING SERVICES
1001 S VALLEY VIEW BLVD
LAS VEGAS, NV 89107
T: 702-870-2011

SEWER

CITY OF LAS VEGAS PUBLIC WORKS
ATTN: ENGINEERING PLANNING
333 N. RANCHO DRIVE 7TH FLOOR
LAS VEGAS, NEVADA 89106
PHONE: 702-229-6541

GAS

SOUTHWEST GAS CORPORATION
ATTN: ENGINEERING SERVICES
6355 SHATZ STREET
NORTH LAS VEGAS, NV 89115

TELEPHONE

CENTRAL TELEPHONE D/B/A CENTURY LINK
6700 VIA AUSTI PARKWAY
LAS VEGAS, NEVADA 89119

DISPOSAL

REPUBLIC SERVICES, INC.
770 E. SAHARA AVE. - P.O. BOX 98508
LAS VEGAS, NEVADA 89193-8508

CABLE

COX COMMUNICATIONS LAS VEGAS, INC.
1700 VEGAS DRIVE
LAS VEGAS, NEVADA 89106

MOU PER ORDINANCE 6630 § 26

1. MINIMUM STREET WIDTHS WITHIN GATED PRIVATE COMMUNITY INTERIOR STREETS:
   - 41' WIDTH WITH 5' SIDEWALK ON ONE SIDE, MINIMUM 33' WIDTH FLOW LINE TO FLOW LINE OF CURB. PARKING ALLOWED BOTH SIDES OF STREET.
   - 36' WIDTH WITH 5' SIDEWALK ONE SIDE, MINIMUM 28' WIDTH FLOW LINE TO FLOW LINE OF CURB. PARKING ALLOWED ONE SIDE OF STREET.
2. REDUCED FIRE FLOW REQUIRED FOR COMMUNITIES ENTIRELY PROTECTED BY FIRE SPRINKLERS FROM 1,500 GPM TO 1,000 GPM FOR RESIDENCES LESS THAN 3,000 SQ. FT.
3. SIDEWALK REQUIRED ON ONE SIDE OF INTERIOR PRIVATE GATED STREETS IN COMPLIANCE WITH ONE OF THE ABOVE STREET SECTIONS.



SHEET INDEX

SHEET NUMBER	SHEET TITLE
C1	COVER SHEET
C2	GENERAL NOTES SHEET
C3	OVERALL GRADING PLAN 1
C4	OVERALL GRADING PLAN 2
C5	OVERALL GRADING PLAN 3
C6	OVERALL GRADING PLAN 4
C7	OVERALL GRADING PLAN 5
C8	OVERALL GRADING PLAN 6
C9	SECTIONS & DETAILS 1
C10	SECTIONS & DETAILS 2
C11	PLAN & PROFILE - STORM DRAIN

BASIS OF BEARING

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

LEGAL DESCRIPTION

PARCEL A IS A PORTION OF THE REMAINDER OF LOT 1 MAPPED WITH THE PARCEL MAP RECORDED IN FILE 123 PAGE 36 OF PARCEL MAPS, AND RECORDED MAY 1, 2018.

APN# 137-27-617-001
PARCEL A WILL BE ESTABLISHED AS A SEPARATE LEGAL PARCEL BY THE HOWARD HUGHES CORPORATION WITH THE VILLAGE 25 UNIT 2 FINAL MAP.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK

MONUMENT ID: 5LV0926W6

RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS

ELEVATION:
FEET = 3229.29' (NAVD88)
METERS = 984.29 M (NAVD88)

DEDICATION NOTE

ALL EASEMENTS, RIGHT-OF-WAY, AND OTHER DEDICATIONS WITHIN THIS PLAN SET ARE GRANTED PER FMP# ___-_____ UNLESS OTHERWISE NOTED

FIRE SPRINKLER NOTE

FIRE SPRINKLER SYSTEM SHALL BE PLUMBED TO THE MASTER TOILET.
NO EXCEPTIONS ALLOWED

DISCLAIMER NOTE

THE UNDERGROUND UTILITIES AS SHOWN HEREON HAVE BEEN LOCATED FROM OBSERVED FIELD SURVEY EVIDENCE AND EXISTING DRAWINGS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING; PLANS PROVIDED BY THE CLIENT, UTILITY COMPANIES, AND MUNICIPAL AGENCIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

REV #	REVISION DESCRIPTION	SHEET(S)	APPD BY	DATE APPD

TMP #78257
107V____ L20-_____

APPROVALS

ALLEN PAVELKA PE, PE# 9029 — DATE
CITY ENGINEER - CITY OF LAS VEGAS

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.

DEPARTMENT OF PLANNING — DATE
THIS PLAN MEETS THE APPLICABLE STANDARDS OF THE PLANNING DEPARTMENT

LAS VEGAS FIRE & RESCUE — DATE
FIRE DEPARTMENT APPROVAL
APPROVAL BY THE FIRE DEPARTMENT HAVING JURISDICTION IS REQUIRED PRIOR TO OBTAINING FINAL APPROVAL FROM THE LVVWD.

NV ENERGY — DATE
NV ENERGY ACKNOWLEDGES THAT WE HAVE RECEIVED YOUR PLANS AND WILL PROVIDED 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 COMMISSIONS RULES AND REGULATIONS

SOUTHWEST GAS CORPORATION — DATE

CENTRAL TELEPHONE DBA CENTURY LINK — DATE

"THE AFFIXED CENTURY LINK APPROVAL DOES NOT ASSUME OR GUARANTEE LIABILITY FOR KNOWN OR UNKNOWN CONFLICTS WITH EXISTING OR PROPOSED IMPROVEMENTS. RESOLUTION 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."

COX COMMUNICATIONS LAS VEGAS, INC — DATE

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. N/A FIRST APPROVED DATE: _____

LVVWD APPROVED FIRE FLOW N/A GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 26 GPM

SHEETS:
N/A

Actus
3283 E. Warm Springs Rd., Suite 300
Las Vegas, NV 89120
www.Actus-NV.com
(702) 586-9296
Engineering - Surveying - Consulting - Planning

COVER SHEET
CASTELLANA
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

NO.	DATE	DESCRIPTION	BY

PROFESSIONAL ENGINEER
STATE OF NEVADA
DARRYL C. LATTIMORE
EXP: 12/31/21
CIVIL
No. 17516
9/9/2020

DATE	03/24/2020
DRAWN	EMG
DESIGNED	KAL
CHECKED	DCL
PROJECT #	WLH011904

SHEET TITLE
COVER

SHEET NUMBER
C1

SHEET 1 OF 11

Plot Stamp: 9/9/2020 11:31:23 AM - Brandon Prokopchuk
File: P:\WLH011904 - V25 Parcel A\Civil_CD\WLH011904-CD-COVR.dwg, Tab: C1 - COVER

CITY OF LAS VEGAS GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFFSITE IMPROVEMENTS, CLARK COUNTY AREA NEVADA", LATEST ISSUE; THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION, CLARK COUNTY AREA NEVADA", LATEST REVISED EDITION; THE "SUMMERLIN IMPROVEMENT STANDARDS" FOR WORK IN THE SUMMERLIN AREA; AND OTHER APPLICABLE APPROVED STANDARDS ISSUED BY THE CONTROLLING AGENCY; THE UNIFORM BUILDING CODE; AND ALL LOCAL CITY CODES AND ORDINANCES APPLICABLE, EXCEPT AS NOTED ON THIS SHEET AS "DEVIATIONS FROM STANDARDS".
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 OPERATIONS 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 THE 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 EXTRUDED-TYPE CURB.
8. AC PAVEMENT TO BE ONE-HALF INCH (½") ABOVE LIP OF ALL GUTTERS AFTER COMPACTION, EXCEPT AT SIDEWALK RAMPS 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 BETWEEN 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 THE (GEOTEK RESIDENTIAL, REPORT 14658-LVR, UPDATED APRIL 17, 2019) 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 PERMANENT 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 SECTIONS 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. AFTER HAUNCHING AND PRIOR TO BACKFILL OPERATIONS WHICH WOULD COVER SANITARY SEWER AND STORM DRAIN FACILITIES, CONTRACTOR IS REQUIRED TO SCHEDULE CLV OPEN-TRENCH UTILITY SURVEY INSPECTION FOR DETERMINATION OF FINAL LOCATION COORDINATES. FACILITIES TO BE LOCATED BY CLV SHALL INCLUDE AT A MINIMUM THE HORIZONTAL AND VERTICAL (INVERT) LOCATION OF PUBLIC SEWER MANHOLES, STORM DRAIN MANHOLES AND TRANSITION STRUCTURES, STORM DRAIN LATERALS AT THE CONNECTION TO THE STORM DRAIN MAIN AND AT 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.
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.

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 FOR 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' SEE SOILS REPORT 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. ALL 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.

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 "G" 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.

NOTES TO CONTRACTOR

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

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.

DISCLAIMER NOTE

THE UNDERGROUND UTILITIES AS SHOWN HEREON HAVE BEEN LOCATED FROM OBSERVED FIELD SURVEY EVIDENCE AND EXISTING DRAWINGS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING; PLANS PROVIDED BY THE CLIENT, UTILITY COMPANIES, AND MUNICIPAL AGENCIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.



CITY OF LAS VEGAS TRAFFIC NOTES

1. ALL CONSTRUCTION SIGNING, BARRICADING, 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 WHERE WARRANTED IMMEDIATELY AFTER FIRST GRADING WORK IS ACCOMPLISHED, AND SHALL MAINTAIN SAID SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED.
4. WHEN A DESIGNATED "SAFE ROUTE TO SCHOOL" IS ENCROACHED UPON BY A CONSTRUCTION WORK ZONE AND PUBLIC WORKS STAFF IDENTIFIES A NEED FOR STUDENTS TO BE ASSISTED 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 REFLECTIVE SHEETING OR APPROVED EQUAL. ALL NEW TRAFFIC SIGNS, EXCEPT STREETNAME AND SCHOOL SPEED LIMIT SIGNS, SHALL HAVE 3M SERIES 1160 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 MOUNTED 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 ONTO THE PORTIONS OF THE ROAD(S) BEING IMPROVED HERE UNDER, REGARDLESS OF THE STATUS OF COMPLETION OF PAVING OR OTHER OFF-SITE IMPROVEMENTS CALLED FOR BY THESE PLANS.
9. STREET SIGNS AND STOPS 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 IMSA 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 INTENDS TO OFFSITE RELOCATES 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 CONTACTING 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 PROJECTS OFFSITE INSPECTOR PRIOR TO INITIATING PAVING TO RECEIVE DIRECTION FOR ANY PERMANENT OR TEMPORARY MODIFICATIONS TO THE APPROVED DRAWINGS REGARDING FINAL PAVEMENT TRANSITIONS, MARKINGS AND SIGNING THAT ARE REQUIRED TO MATCH ADJACENT ROADWAY SEGMENTS. THE CONTRACTOR SHALL PROVIDE A DRAWING FOR APPROVAL BY THE TRAFFIC ENGINEERING DIVISION DEPICTING ANY ADJUSTMENTS TO THE FINAL PAVEMENT MARKINGS AND SIGNAGE, WHICH MAY INCLUDE OMITTING, ADDING OR MODIFYING PAVEMENT MARKINGS AND TRAFFIC CONTROL SIGNS SUCH THAT ADEQUATE TRANSITIONS AND LANE TERMINATIONS BETWEEN ADJACENT ROADWAY SEGMENTS ARE CONSTRUCTED.

CITY OF LAS VEGAS STREETLIGHT NOTES

1. ALL STREET LIGHTING INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE STREET LIGHTING PLANS, THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA" LATEST REVISION (USS), AND THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST REVISION.
2. DESIGN PROFESSIONAL AND CONTRACTORS SHALL VERIFY CITY'S LATEST LED FIXTURE SPECIFICATIONS AND APPROVED FIXTURES PER CLV WEBSITE, UNDER BUILDING AND SAFETY FORMS, PRIOR TO ORDERING MATERIALS.
3. NO DEVIATION OF STREET LIGHT, PULL BOX, CONDUITS (ETC.) LOCATIONS SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL OF TRAFFIC ENGINEERING AND THE CITY ENGINEER. ANY DEVIATIONS FROM THE PLAN LOCATION WILL REQUIRE COMPLIANCE WITH SECTION 623 OF THE USS.
4. ALL EXISTING STREET LIGHTING SHALL REMAIN OPERATIONAL DURING CONSTRUCTION IN ACCORDANCE WITH SECTION 623 G.03.01 OF THE USS.
5. ALL EMPTY CONDUIT SHALL HAVE AT LEAST ONE GREEN #8 THW WIRE INSTALLED, AS TRACER WIRE IN ACCORDANCE WITH SECTION 623 G.02.01 OF THE USS PRIOR TO BACKFILLING AND FINAL INSPECTION.
6. ANY STRUCTURE SUCH AS BLOCK WALLS, CHAIN LINK FENCES, RETAINING WALLS, ETC., SHALL LEAVE A MINIMUM CLEARANCE IN COMPLIANCE WITH THE USD NO. 320A WHEN POLE IS INSTALLED BEHIND SIDEWALK, AND SHALL AT NO TIME COMPLETELY ENCLOSE THE STREET LIGHTING POLE.
7. AS-BUILT DRAWINGS SHALL BE SUPPLIED TO THE TRAFFIC ENGINEERING DIVISION PRIOR TO ANY PRE-FINAL INSPECTION. THE AS-BUILT DRAWING NEEDS TO BE STAMPED AS-BUILT AND SIGNED BY THE PREPARER.
8. SERVICE POINTS SHALL BE COORDINATED WITH NV ENERGY, AND WHEREVER POSSIBLE, BE LOCATED NEAR THE CENTER OF THE CIRCUIT. SERVICE POINTS SHALL BE SHOWN ON THE CIVIL PLANS.
9. WHEREVER THERE IS AN OVERHEAD UTILITY THAT MAY CONFLICT WITH THE INSTALLATION OF STREET LIGHTING CIRCUITS AND/OR POLES, THESE CONFLICTS MUST BE RESOLVED BETWEEN THE DEVELOPER AND THE UTILITIES INVOLVED BEFORE STREETLIGHT BASES ARE INSTALLED. AT NO EXPENSE TO THE CITY OF LAS VEGAS.
10. THE CONTRACTOR SHALL FURNISH COMPLETE CONDUIT, WIRE, ETC. FROM SERVICE TRANSFORMERS AND CONTROL SYSTEMS IF REQUIRED ON THE PLANS.

LAS VEGAS VALLEY WATER DISTRICT NOTES

LVVWD PROJECT No.: N/A

1. NO WORK SHALL BEGIN UNTIL THE WATER PLANS HAVE BEEN APPROVED FOR CONSTRUCTION BY THE LVVWD. FOLLOWING WATER PLAN APPROVAL, NOTICE SHALL BE GIVEN TO THE LVVWD 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 DRAFT OR 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 GUTTERS.
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 3.14.01, AND APPROVED BY THE LVVWD INSPECTION DIVISION PRIOR TO SHUTDOWN. PROPER WRITTEN NOTIFICATION MUST BE GIVEN TO ALL AFFECTED CUSTOMERS.
12. ALL WATER FACILITY CONSTRUCTION MATERIALS USED MUST BE AS LISTED ON THE LVVWD APPROVED 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 COMPLIANCE WITH THE UNIFORM STANDARDS, INCLUDING THE PLACEMENT OF ASPHALT PAVING STREET SURFACES. ANY REPAIR WORK DONE BY THE LVVWD TO THE MUNICIPAL WATER FACILITIES WILL INCLUDE THE PLACEMENT OF AN APPROPRIATELY SIZED ASPHALT REPAIR PATCH ON THE STREET SURFACE.

ANY 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 ABUTTING A PUBLIC OR PRIVATE STREET, IF DISTURBED BY THE LVVWD DURING THE REPAIR OR OPERATION OF ITS FACILITIES, WILL BE REPLACED BY LVVWD WITH AN APPROPRIATELY SIZED PLAIN FINISH CONCRETE PATCH. THE LVVWD WILL NOT RESTORE, AND WILL NOT BE RESPONSIBLE FOR THE RESTORATION OF, ANY DECORATIVE PAVING SURFACE WITHIN THE STREET. THE LVVWD WILL NOT ATTEMPT TO MATCH COLOR OR FINISH OF ANY ADJACENT MATERIALS.

15. NO LEAD COMPLIANCE NOTE:
TO COMPLY WITH THE FEDERAL SAFE DRINKING WATER ACT, ALL WATER 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.

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

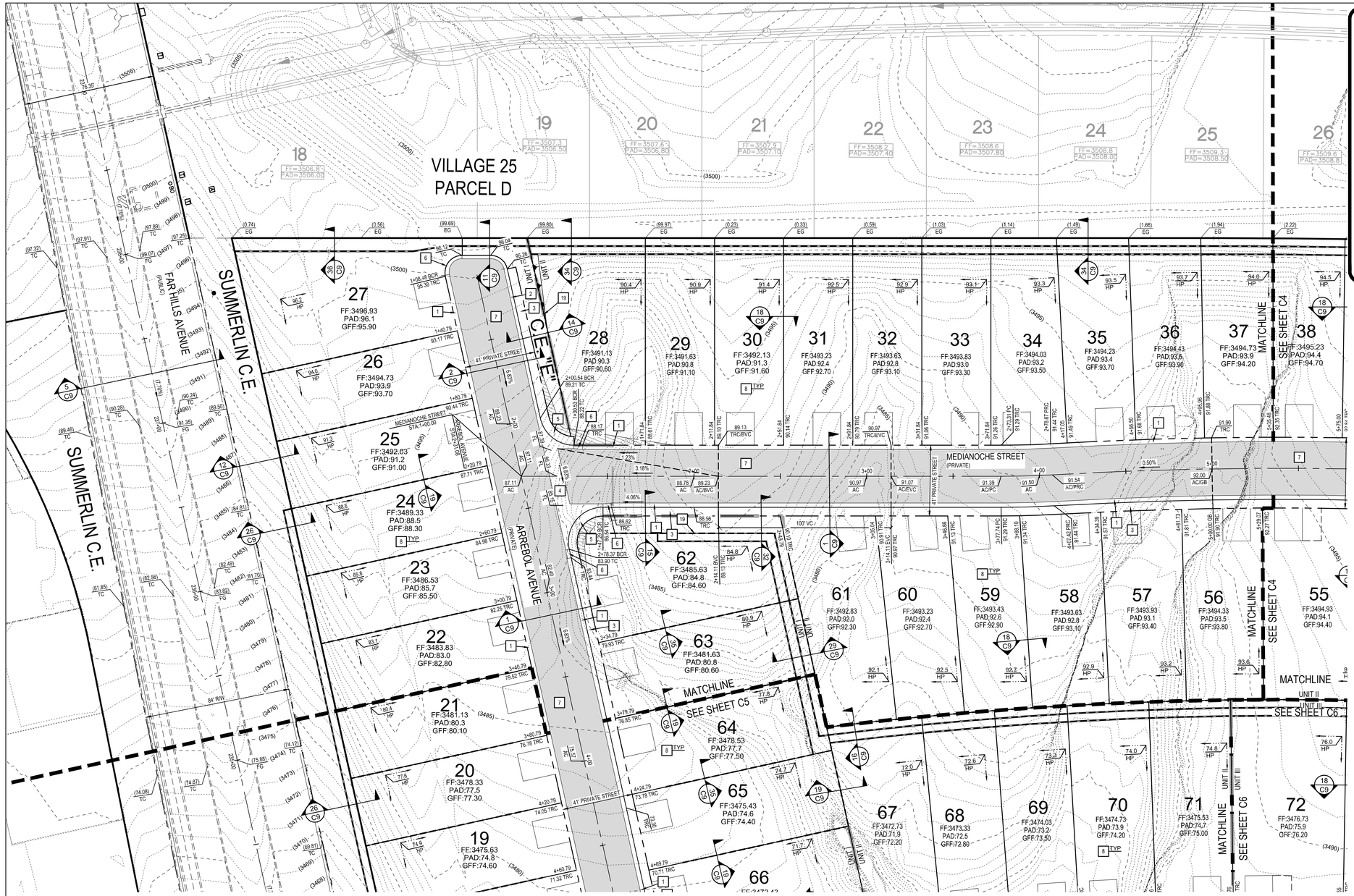
PROJECT NO. ___N/A_____ FIRST APPROVED DATE: _____

LVVWD APPROVED FIRE FLOW N/A GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 26 GPM

SHEETS:
N/A

LAS VEGAS FIRE & RESCUE GENERAL NOTES

1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LAS VEGAS FIRE AND RESCUE ADOPTED FIRE CODE ORDINANCE # 6325 FOR HYDRANT SPECIFICATIONS AND HYDRANT INSTALLATION SPECIFICATIONS.
2. ONLY FIRE HYDRANTS THAT ARE ON THE LAS VEGAS VALLEY WATER DISTRICT'S - 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 THE CONTRACTORS MATERIAL TEST CERTIFICATE FOR THE UNDERGROUND PIPING FORM SHALL BE OBTAINED FROM THE FIRE PROTECTION ENGINEER BEFORE COMMENCEMENT OF WORK.
4. ON ANY RESIDENTIAL OR COMMERCIAL INSTALLATIONS FIRE HYDRANTS SHALL BE INSTALLED AND FIRE APPARATUS ACCESS ROADS SHALL BE MAINTAINED BEFORE COMMENCEMENT OF ANY COMBUSTIBLE CONSTRUCTION. ALL FIRE HYDRAN





KEY MAP
SCALE: NTS

LEGEND

PROPOSED	EXISTING	DESCRIPTION
		PUBLIC R/W LINE
		PRIVATE R/W LINE
		BOUNDARY LINE
		EASEMENT LINE
CUT / FILL		MATCH LINE
		CUT / FILL LINE
		CENTERLINE
		EDGE OF ASPHALT
		CURB & GUTTER
		RETAINING WALL
		SAWCUT LINE
		FLOWLINE
		GRADE BREAK
2500	(2500)	MAJOR CONTOUR - 5'
2503	(2503)	MINOR CONTOUR - 1'
		FENCE
		SCARP
		CONCRETE SURFACE
		PROPOSED ASPHALT PAVEMENT
		REMOVE AND REPLACE ASPHALT
		RIP-RAP
98.76 FG	(98.76) XX	ELEVATION GRADE TAG
1.00%	(1.00%)	GRADE SLOPE TAG
1 C5		SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER
		SIGHT VISIBILITY ZONE

COMMON ABBREVIATIONS

FF	- FINISHED FLOOR	TRC	- TOP OF 30" ROLL CURB
TC	- TOP OF CURB	AC	- TOP OF PAVEMENT
FL	- FLOWLINE GRADE	EP	- EDGE OF PAVEMENT
TB	- TOP OF BERM	TW	- TOP OF RETAINING WALL
TF	- TOP OF WALL FOOTER	PRIV.	- PRIVATE
ST.	- STREET	TYP.	- TYPICAL
ESMT	- EASEMENT	R/W	- RIGHT-OF-WAY
TMH	- TOP OF MANHOLE (RIM ELEV.)	DG	- DESIGN GRADE

SIGHT VISIBILITY ZONE NOTE

NO WALLS, FENCES SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAT TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT POLES, MAY BE CONSTRUCTED OR INSTALLED WITHIN THE SIGHT VISIBILITY ZONE UNLESS SAID OBJECT IS MAINTAINED AT LESS THAN 24 INCHES IN HEIGHT, MEASURED FROM TOP OF CURB, OR WHERE NO CURB EXISTS, A HEIGHT OF 2' INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT, GRAVEL OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.

PLEASE REFER TO TRAFFIC SHEET FOR SIGHT VISIBILITY ZONE DIMENSIONS.

GRADING NOTES

1. ACTUS SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES IN THE PLANS OR CONDITIONS IN THE FIELD.
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 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.
3. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
4. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.

ESTIMATED QUANTITIES

NOTE: QUANTITIES SHOWN ARE RAW QUANTITIES AND APPROXIMATE. CONTRACTOR TO DETERMINE HIS OWN QUANTITIES FOR GRADING PURPOSES.

WORK UNDER THIS PLAN CONSTITUTES GRADING IN ACCORDANCE WITH 2018 IBC. ENGINEERING REPORTS AND CERTIFICATIONS IN CONFORMANCE WITH IBC SHALL BE FILED WITH THE CITY OF LAS VEGAS PRIOR TO CITY OF LAS VEGAS APPROVAL AT FINAL INSPECTION.

CUT:	152,811 CY
FILL:	61,468 CY
BALANCE:	91,343 CY (CUT)

ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV# N/A ON FILE WITH THE CITY OF LAS VEGAS.

9/9/2020
DARRYL LATTIMORE, P.E. — DATE

BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV09286
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.



SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: SOUTHWEST GEOTECHNICAL
ORIGINAL PROJECT NUMBER: 197203
DATED: FEBRUARY 11, 2020

LINE & CURVE DATA NOTE

PLEASE REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

DEDICATION NOTE

ALL EASEMENTS, RIGHT-OF-WAY, AND OTHER DEDICATIONS WITHIN THIS PLAN SET ARE GRANTED PER FMP # ____-____ UNLESS OTHERWISE NOTED

PRIVATE STREET NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

COMMON LOT NOTE

ALL COMMON LOTS ARE TO BE PUBLIC DRAINAGE, PEDESTRIAN ACCESS, UTILITY, SEWER, AND PRIVATE LANDSCAPE EASEMENTS OVER THEIR ENTIRETY TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

STORM DRAIN CONNECTION NOTE

WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE EXISTING RCP TO THE NEAREST BELL CONNECTION, CONNECT NEW RCP TO EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X". AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C1150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

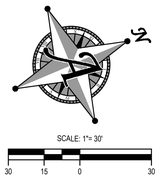
FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

DISCLAIMER NOTE

THE UNDERGROUND UTILITIES AS SHOWN HEREON HAVE BEEN LOCATED FROM OBSERVED FIELD SURVEY EVIDENCE AND EXISTING DRAWINGS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING; PLANS PROVIDED BY THE CLIENT, UTILITY COMPANIES, AND MUNICIPAL AGENCIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8' CROSS GUTTER PER CCAUSD #228
5. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE I. "A" & "B" = 8' UNLESS OTHERWISE NOTED
6. CONSTRUCT 5' TRANSITION "L" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "B" ON SHEET C10
7. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
8. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "A" ON SHEET C10
9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL CALL BOX FOR ENTRY GATES
11. CONSTRUCT TYPE III 60" STORM DRAIN MANHOLE PER CCAUSD #406
12. CONNECT TO EX. SD LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX. SD)
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17. CONSTRUCT TYPE I 48" STORM DRAIN MANHOLE PER CCAUSD #403.1
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19. SOLID GROUT WALL 2 COURSES ABOVE FINISHED GRADE
20. CONSTRUCT ENTRY GATES PER LANDSCAPE PLANS
21. CONSTRUCT GATES PER CCAUSD #425.S1
22. CONSTRUCT ENHANCED CONCRETE PER LANDSCAPE PLANS



107V_____ L20-_____

Actus
3283 E. Warm Springs Rd., Suite 300
Las Vegas, NV 89120
www.Actus-NV.com
(702) 586-9266
Engineering - Surveying - Consulting - Planning

OVERALL GRADING PLAN 1
CASTELLANA
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

BY	DESCRIPTION	DATE	#

PROFESSIONAL ENGINEER — DARRYL C. LATTIMORE — EXP: 12/31/21 — CIVIL — STATE OF NEVADA — No. 17516
9/9/2020

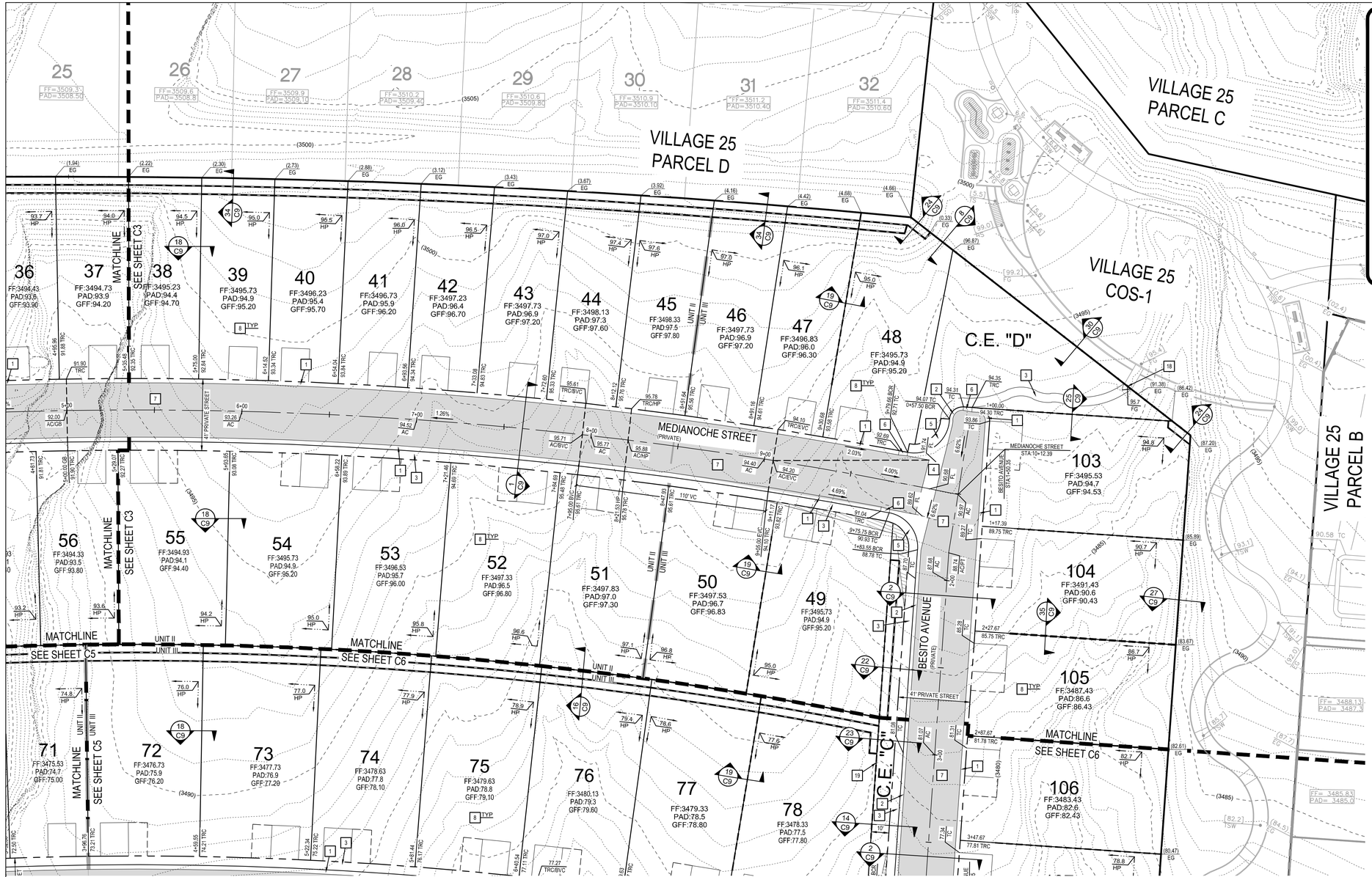
DATE	03/24/2020
DRAWN	EMG
DESIGNED	KAL
CHECKED	DCL
PROJECT #	WLH011904

SHEET TITLE
GRADING

SHEET NUMBER
C3

SHEET 3 OF 11

Plot Stamp: 9/9/2020 11:51:44 AM - Brandon Prokopchuk
File: P:\WLH011904 - V25 Parcel A\Civil_CD\WLH011904-CD-GRAD.dwg, Tab: C3 - GRADING 1





KEY MAP
SCALE: NTS

LEGEND

PROPOSED	EXISTING	DESCRIPTION
		PUBLIC R/W LINE
		PRIVATE R/W LINE
		BOUNDARY LINE
		EASEMENT LINE
CUT / FILL		MATCH LINE
		CUT / FILL LINE
		CENTERLINE
		EDGE OF ASPHALT
		CURB & GUTTER
		RETAINING WALL
		SAWCUT LINE
		FLOWLINE
		GRADE BREAK
2500	(2500)	MAJOR CONTOUR - 5'
2503	(2503)	MINOR CONTOUR - 1'
		FENCE
		SCARP
		CONCRETE SURFACE
		PROPOSED ASPHALT PAVEMENT
		REMOVE AND REPLACE ASPHALT
		RIP-RAP
98.76 FG	(98.76) XX	ELEVATION GRADE TAG
1.00%	(1.00%)	GRADE SLOPE TAG
		SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER
		SIGHT VISIBILITY ZONE

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TF	- TOP OF WALL FOOTER	PRIV.	- PRIVATE
ST.	- STREET	TYP.	- TYPICAL
ESMT	- EASEMENT	R/W	- RIGHT-OF-WAY
TMH	- TOP OF MANHOLE (RIM ELEV.)	DG	- DESIGN GRADE

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CUT:	152,811 CY
FILL:	61,468 CY
BALANCE:	91,343 CY (CUT)

ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV# N/A ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. — DATE 9/9/2020

BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV092BWB
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.



SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: SOUTHWEST GEOTECHNICAL
ORIGINAL PROJECT NUMBER: 197203
DATED: FEBRUARY 11, 2020

LINE & CURVE DATA NOTE

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DEDICATION NOTE

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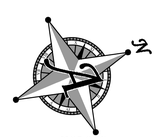
FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

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2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
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21. CONSTRUCT GATES PER CCAUSD #425.S1
22. CONSTRUCT ENHANCED CONCRETE PER LANDSCAPE PLANS



107V_____ L20-_____

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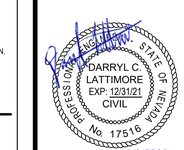
OVERALL GRADING PLAN 2

CASTELLANA

WILLIAM LYON HOMES

CITY OF LAS VEGAS, NEVADA

NO.	DATE	DESCRIPTION	BY



DATE	03/24/2020
DRAWN	EMG
DESIGNED	KAL
CHECKED	DCL
PROJECT #	WLH011904

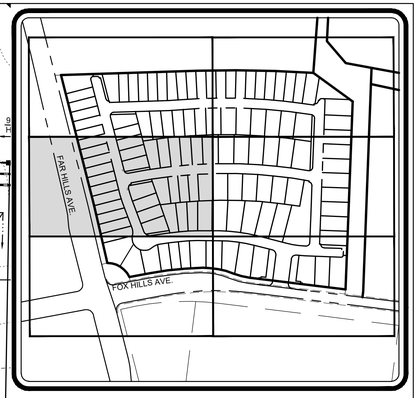
SHEET TITLE
GRADING

SHEET NUMBER
C4

SHEET 4 OF 11

Plot Stamp: 9/9/2020 11:51:51 AM - Brandon Prokopchuk
File: P:\WLH011904 - V25 Parcel A\Civil_CD\WLH011904-CD-GRAD.dwg, Tab: C4 - GRADING 2





KEY MAP
SCALE: NTS

LEGEND

PROPOSED	EXISTING	DESCRIPTION
		PUBLIC R/W LINE
		PRIVATE R/W LINE
		BOUNDARY LINE
		EASEMENT LINE
CUT / FILL		MATCH LINE
		CUT / FILL LINE
		CENTERLINE
		EDGE OF ASPHALT
		CURB & GUTTER
		RETAINING WALL
		SAWCUT LINE
		FLOWLINE
		GRADE BREAK
2500	(2500)	MAJOR CONTOUR - 5'
2503	(2503)	MINOR CONTOUR - 1'
		FENCE
		SCARP
		CONCRETE SURFACE
		PROPOSED ASPHALT PAVEMENT
		REMOVE AND REPLACE ASPHALT
		RIP-RAP
98.76 FG	(98.76) XX	ELEVATION GRADE TAG
1.00%	(1.00%)	GRADE SLOPE TAG
1 C5		SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER
		SIGHT VISIBILITY ZONE

COMMON ABBREVIATIONS

FF	- FINISHED FLOOR	TRC	- TOP OF 30" ROLL CURB
TC	- TOP OF CURB	AC	- TOP OF PAVEMENT
FL	- FLOWLINE GRADE	EP	- EDGE OF PAVEMENT
TB	- TOP OF BERM	TW	- TOP OF RETAINING WALL
TF	- TOP OF WALL FOOTER	PRIV.	- PRIVATE
ST.	- STREET	TYP.	- TYPICAL
ESMT	- EASEMENT	R/W	- RIGHT-OF-WAY
TMH	- TOP OF MANHOLE (RIM ELEV.)	DG	- DESIGN GRADE

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PLEASE REFER TO TRAFFIC SHEET FOR SIGHT VISIBILITY ZONE DIMENSIONS.

GRADING NOTES

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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 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.
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ESTIMATED QUANTITIES

NOTE: QUANTITIES SHOWN ARE RAW QUANTITIES AND APPROXIMATE. CONTRACTOR TO DETERMINE HIS OWN QUANTITIES FOR GRADING PURPOSES.

WORK UNDER THIS PLAN CONSTITUTES GRADING IN ACCORDANCE WITH 2018 IBC; ENGINEERING REPORTS AND CERTIFICATIONS IN CONFORMANCE WITH IBC SHALL BE FILED WITH THE CITY OF LAS VEGAS PRIOR TO CITY OF LAS VEGAS APPROVAL AT FINAL INSPECTION.

CUT:	152,811 CY
FILL:	61,468 CY
BALANCE:	91,343 CY (CUT)

ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV# N/A ON FILE WITH THE CITY OF LAS VEGAS.

9/9/2020
DARRYL LATTIMORE, P.E. — DATE

BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV0526W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

AVOID HITTING UNDERGROUND SIGNAL SIGNAL SYSTEMS AND STREET LIGHT SYSTEM CONDUIT. IT'S COSTLY.
CALL BEFORE YOU DIG UNDERGROUND
Call before you
Underground
1-702-432-5300
(Hotline) A NATIONAL SYSTEM OF TRANSPORTATION (PART)

Call before you Dig
Avoid cutting underground utility lines. It's costly.
CALL
811
OR
1-800-227-2600

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

SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: SOUTHWEST GEOTECHNICAL
ORIGINAL PROJECT NUMBER: 197203
DATED: FEBRUARY 11, 2020

LINE & CURVE DATA NOTE

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DEDICATION NOTE

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STORM DRAIN CONNECTION NOTE

WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE EXISTING RCP TO THE NEAREST BELL CONNECTION, CONNECT NEW RCP TO EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

DISCLAIMER NOTE

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1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8' CROSS GUTTER PER CCAUSD #228
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9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL CALL BOX FOR ENTRY GATES
11. CONSTRUCT TYPE III 60" STORM DRAIN MANHOLE PER CCAUSD #406
12. CONNECT TO EX. SD LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX. SD)
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15. CONSTRUCT TYPE "CM2" DROP INLET PER CCAUSD #412.1 & 421 (5 - GRATES, L=15', W=4.15')
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19. SOLID GROUT WALL 2 COURSES ABOVE FINISHED GRADE
20. CONSTRUCT ENTRY GATES PER LANDSCAPE PLANS
21. CONSTRUCT GATES PER CCAUSD #425.S1
22. CONSTRUCT ENHANCED CONCRETE PER LANDSCAPE PLANS

SCALE: 1"= 30'
30 15 0 30

107V_____ L20-_____

Actus
3283 E. Warm Springs Rd., Suite 300
Las Vegas, NV 89120
www.Actus-NV.com
(702) 586-9286
Engineering - Surveying - Consulting - Planning

OVERALL GRADING PLAN 3
CASTELLANA
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

BY	DATE	DESCRIPTION

PROFESSIONAL ENGINEER — DARRYL C. LATTIMORE — EXP: 12/31/21 — CIVIL — No. 17516 — STATE OF NEVADA
9/9/2020

DATE	03/24/2020
DRAWN	EMG
DESIGNED	KAL
CHECKED	DCL
PROJECT #	WLH011904

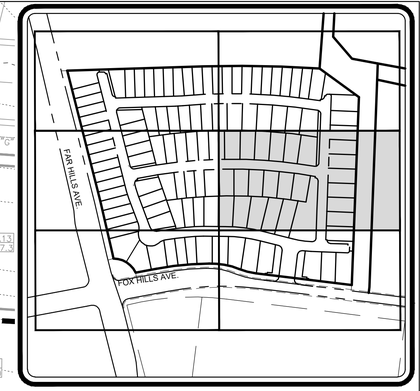
SHEET TITLE
GRADING

SHEET NUMBER
C5

SHEET 5 OF 11

Plot Stamp: 9/9/2020 11:51:56 AM - Brandon Protopchuk
File: P:\WLH\011904 - V25 Parcel A\Civil_CD\WLH011904-CD-GRAD.dwg, Tab: C5 - GRADING 3





KEY MAP
SCALE: NTS

LEGEND

PROPOSED	EXISTING	DESCRIPTION
		PUBLIC R/W LINE
		PRIVATE R/W LINE
		BOUNDARY LINE
		EASEMENT LINE
		MATCH LINE
CUT / FILL		CUT / FILL LINE
		CENTERLINE
		EDGE OF ASPHALT
		CURB & GUTTER
		RETAINING WALL
		SAWCUT LINE
		FLOWLINE
		GRADE BREAK
2500	(2500)	MAJOR CONTOUR - 5'
2503	(2503)	MINOR CONTOUR - 1'
		FENCE
		SCARP
		CONCRETE SURFACE
		PROPOSED ASPHALT PAVEMENT
		REMOVE AND REPLACE ASPHALT
		RIP-RAP
98.76 FG	(98.76) XX	ELEVATION GRADE TAG
1.00%	(1.00%)	GRADE SLOPE TAG
1 C5		SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER
		SIGHT VISIBILITY ZONE

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BALANCE:	91,343 CY (CUT)

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I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV# N/A ON FILE WITH THE CITY OF LAS VEGAS.

9/9/2020
DARRYL LATTIMORE, P.E. — DATE

BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV092BW6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.



SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: SOUTHWEST GEOTECHNICAL
ORIGINAL PROJECT NUMBER: 197203
DATED: FEBRUARY 11, 2020

LINE & CURVE DATA NOTE

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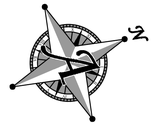
FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

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21. CONSTRUCT GATES PER CCAUSD #425.S1
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107V_____ L20-_____

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(702) 586-9266
Engineering - Surveying - Consulting - Planning

OVERALL GRADING PLAN 4
CASTELLANA
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

#	DATE	DESCRIPTION	BY

DARRYL C. LATTIMORE
STATE OF NEVADA
No. 17516
PROFESSIONAL ENGINEER
9/9/2020

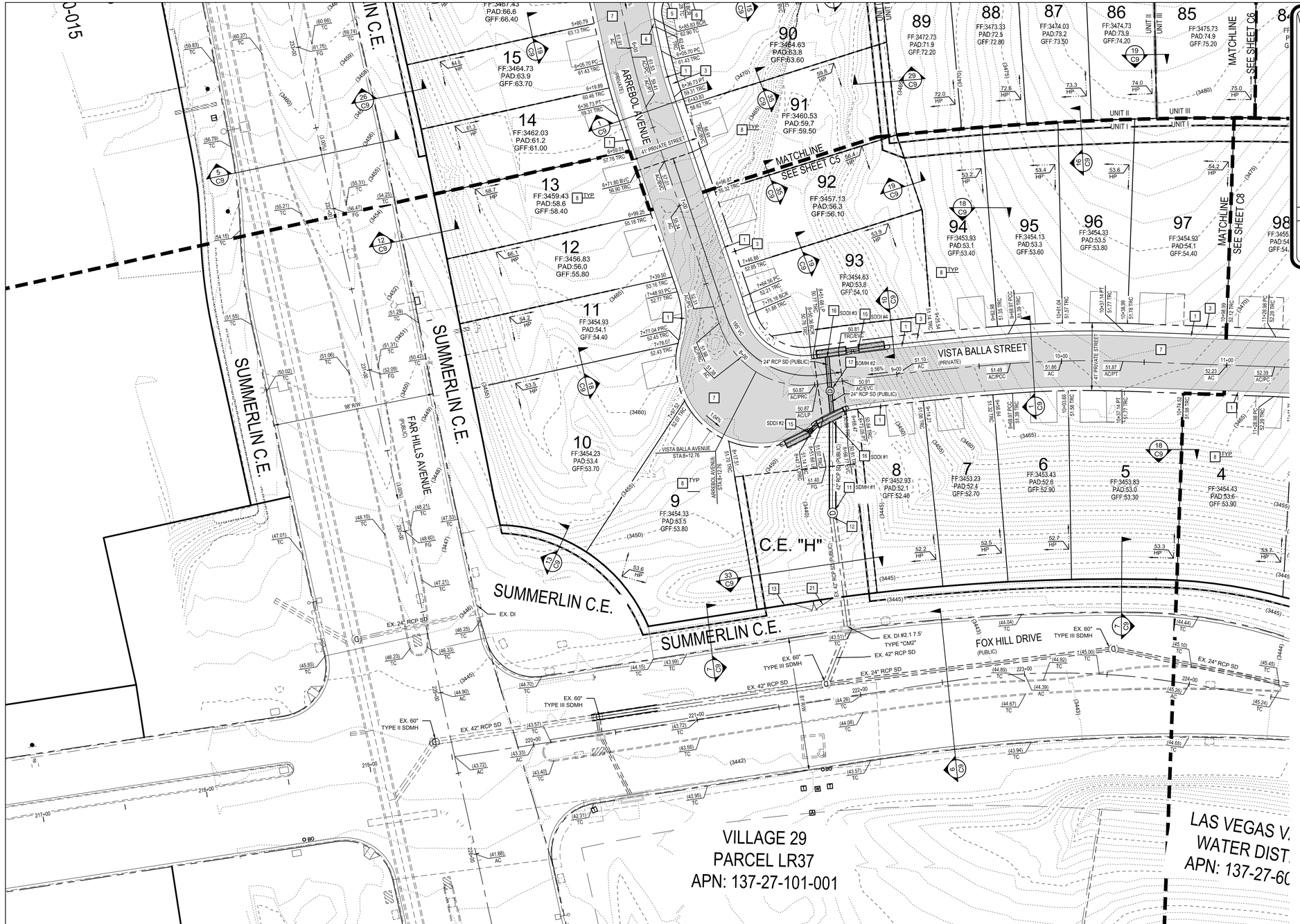
DATE	03/24/2020
DRAWN	EMG
DESIGNED	KAL
CHECKED	DCL
PROJECT #	WLH011904

SHEET TITLE
GRADING

SHEET NUMBER
C6

SHEET 6 OF 11

Plot Stamp: 9/9/2020 11:52:07 AM - Brandon Prokopchuk
File: P:\WLH011904 - V2\5 Parcel A\Civil_CD\WLH011904-CD-GRAD.dwg, Tab: C6 - GRADING 4





KEY MAP
SCALE: NTS

LEGEND

PROPOSED	EXISTING	DESCRIPTION
		PUBLIC R/W LINE
		PRIVATE R/W LINE
		BOUNDARY LINE
		EASEMENT LINE
		MATCH LINE
CUT / FILL		CUT / FILL LINE
		CENTERLINE
		EDGE OF ASPHALT
		CURB & GUTTER
		RETAINING WALL
		SAWCUT LINE
		FLOWLINE
		GRADE BREAK
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2503	(2503)	MINOR CONTOUR - 1'
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		SCARP
		CONCRETE SURFACE
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98.76 FG	(98.76) XX	ELEVATION GRADE TAG
1.00%	(1.00%)	GRADE SLOPE TAG
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CUT:	152,811 CY
FILL:	61,468 CY
BALANCE:	91,343 CY (CUT)

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I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY. CLV# N/A ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. — 9/9/2020 — DATE

BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV052EW6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.



SOILS NOTE

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BY: SOUTHWEST GEOTECHNICAL
ORIGINAL PROJECT NUMBER: 197203
DATED: FEBRUARY 11, 2020

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WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE EXISTING RCP TO THE NEAREST BELL CONNECTION, CONNECT NEW RCP TO EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

DISCLAIMER NOTE

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GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8' CROSS GUTTER PER CCAUSD #228
5. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE I. "A" & "B" = 8' UNLESS OTHERWISE NOTED
6. CONSTRUCT 5' TRANSITION "L" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "B" ON SHEET C10
7. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
8. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "A" ON SHEET C10
9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL CALL BOX FOR ENTRY GATES
11. CONSTRUCT TYPE III 60" STORM DRAIN MANHOLE PER CCAUSD #406
12. CONNECT TO EX. SD LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX. SD)
13. INSTALL 6' HIGH MAX. WROUGHT IRON FENCE PER DETAIL "C" ON SHEET C10 & CCAUSD 425.S1
14. INSTALL TYPE "A" ISLAND CURB PER CCAUSD #219
15. CONSTRUCT TYPE "CM2" DROP INLET PER CCAUSD #412.1 & 421 (5 - GRATES, L=15', W=4.15')
16. CONSTRUCT TYPE "CM2" DROP INLET PER CCAUSD #412.1 & 421 (6 - GRATES, L=17.5', W=4.15')
17. CONSTRUCT TYPE I 48" STORM DRAIN MANHOLE PER CCAUSD #403.1
18. INSTALL PEDESTRIAN ACCESS GATE PER DETAIL "D" ON SHEET C10
19. SOLID GROUT WALL 2 COURSES ABOVE FINISHED GRADE
20. CONSTRUCT ENTRY GATES PER LANDSCAPE PLANS
21. CONSTRUCT GATES PER CCAUSD #425.S1
22. CONSTRUCT ENHANCED CONCRETE PER LANDSCAPE PLANS

SCALE: 1"= 30'
30 15 0 30

STORM DRAIN MANHOLE TABLE

SDMH #	COORDINATES	RIM ELEV.	INVERTS
1	N:632129.3753 E:211877.5440	3449.2±	INV. IN:3435.61 (42" - E) INV. IN:3435.61 (42" - NW)
2	N:632157.1264 E:211809.2002	3450.8±	INV. IN:3441.32 (24" - W) INV. OUT: 3441.32 (24" - E)

107V_____ L20-_____

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OVERALL GRADING PLAN 5
CASTELLANA
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

#	DATE	DESCRIPTION	BY

DARRYL C. LATTIMORE
STATE OF NEVADA
PROFESSIONAL ENGINEER
No. 17516
EXP: 12/31/21
CIVIL
9/9/2020

DATE	03/24/2020
DRAWN	EMG
DESIGNED	KAL
CHECKED	DCL
PROJECT #	WLH011904
SHEET TITLE	GRADING
SHEET NUMBER	C7

SHEET 7 OF 11

Plot Stamp: 9/9/2020 11:52:17 AM - Brandon Protopchuk
File: P:\WLH\011904 - V25 Parcel A\Civil_CD\WLH011904-CD-GRAD.dwg, Tab: C7 - GRADING 5





KEY MAP
SCALE: NTS

LEGEND

PROPOSED	EXISTING	DESCRIPTION
		PUBLIC R/W LINE
		PRIVATE R/W LINE
		BOUNDARY LINE
		EASEMENT LINE
		MATCH LINE
CUT / FILL		CUT / FILL LINE
		CENTERLINE
		EDGE OF ASPHALT
		CURB & GUTTER
		RETAINING WALL
		SAWCUT LINE
		FLOWLINE
		GRADE BREAK
2500	(2500)	MAJOR CONTOUR - 5'
2503	(2503)	MINOR CONTOUR - 1'
		FENCE
		SCARP
		CONCRETE SURFACE
		PROPOSED ASPHALT PAVEMENT
		REMOVE AND REPLACE ASPHALT
		RIP-RAP
98.76 FG	(98.76) /X	ELEVATION GRADE TAG
1.00%	(1.00%)	GRADE SLOPE TAG
1 C5		SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER
		SIGHT VISIBILITY ZONE

COMMON ABBREVIATIONS

FF	- FINISHED FLOOR	TRC	- TOP OF 30" ROLL CURB
TC	- TOP OF CURB	AC	- TOP OF PAVEMENT
FL	- FLOWLINE GRADE	EP	- EDGE OF PAVEMENT
TB	- TOP OF BERM	TW	- TOP OF RETAINING WALL
TF	- TOP OF WALL FOOTER	PRIV.	- PRIVATE
ST.	- STREET	TYP.	- TYPICAL
ESMT	- EASEMENT	R/W	- RIGHT-OF-WAY
TMH	- TOP OF MANHOLE (RIM ELEV.)	DG	- DESIGN GRADE

SIGHT VISIBILITY ZONE NOTE

NO WALLS, FENCES SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAT TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT POLES, MAY BE CONSTRUCTED OR INSTALLED WITHIN THE SIGHT VISIBILITY ZONE UNLESS SAID OBJECT IS MAINTAINED AT LESS THAN 24 INCHES IN HEIGHT, MEASURED FROM TOP OF CURB, OR WHERE NO CURB EXISTS, A HEIGHT OF 27 INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT, GRAVEL OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.

PLEASE REFER TO TRAFFIC SHEET FOR SIGHT VISIBILITY ZONE DIMENSIONS.

GRADING NOTES

1. ACTUS SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES IN THE PLANS OR CONDITIONS IN THE FILED.
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 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.
3. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
4. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.

ESTIMATED QUANTITIES

NOTE: QUANTITIES SHOWN ARE RAW QUANTITIES AND APPROXIMATE. CONTRACTOR TO DETERMINE HIS OWN QUANTITIES FOR GRADING PURPOSES.

WORK UNDER THIS PLAN CONSTITUTES GRADING IN ACCORDANCE WITH 2018 IBC; ENGINEERING REPORTS AND CERTIFICATIONS IN CONFORMANCE WITH IBC SHALL BE FILED WITH THE CITY OF LAS VEGAS PRIOR TO CITY OF LAS VEGAS APPROVAL AT FINAL INSPECTION.

CUT:	152,811 CY
FILL:	61,468 CY
BALANCE:	91,343 CY (CUT)

ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLW N/A ON FILE WITH THE CITY OF LAS VEGAS.

9/9/2020

DARRYL LATTIMORE, P.E. DATE

BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: 5LV092EW6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.



SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: SOUTHWEST GEOTECHNICAL
ORIGINAL PROJECT NUMBER: 197203
DATED: FEBRUARY 11, 2020

LINE & CURVE DATA NOTE

PLEASE REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

DEDICATION NOTE

ALL EASEMENTS, RIGHT-OF-WAY, AND OTHER DEDICATIONS WITHIN THIS PLAN SET ARE GRANTED PER FMP #___-_____ UNLESS OTHERWISE NOTED

PRIVATE STREET NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

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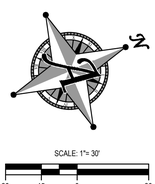
FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

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OVERALL GRADING PLAN 5
CASTELLANA
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

#	DATE	DESCRIPTION	BY
1			

DARRYL C. LATTIMORE, STATE OF NEVADA, PROFESSIONAL ENGINEER, No. 17516, EXP: 12/31/21, CIVIL
9/9/2020

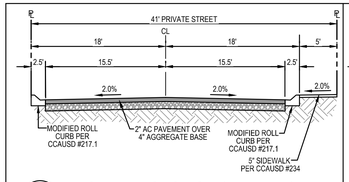
DATE	03/24/2020
DRAWN	EMG
DESIGNED	KAL
CHECKED	DCL
PROJECT #	WLH011904

SHEET TITLE
GRADING

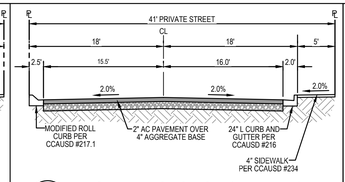
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SHEET 8 OF 11

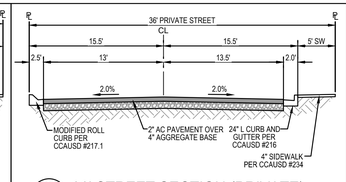
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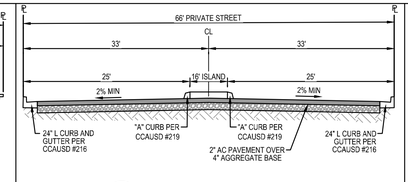
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NOT TO SCALE



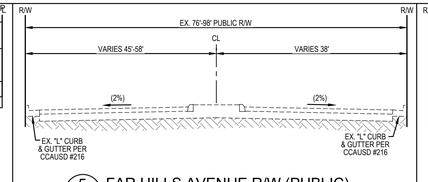
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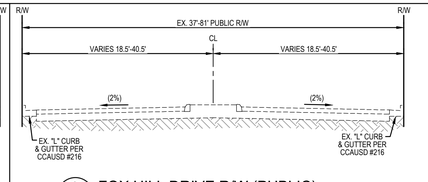
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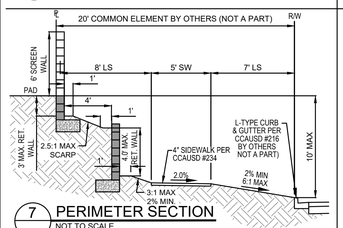
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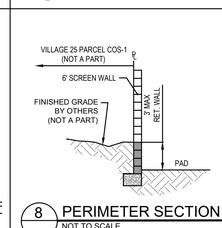
5 FAR HILLS AVENUE R/W (PUBLIC)
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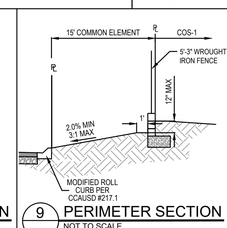
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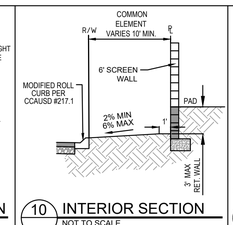
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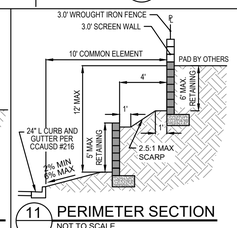
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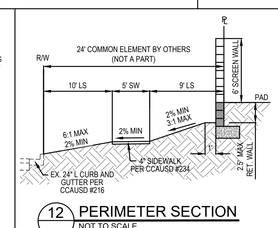
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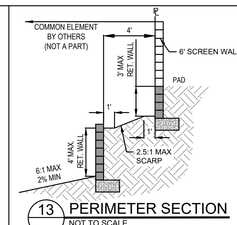
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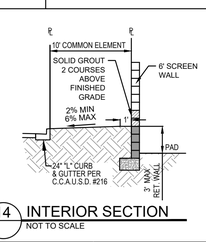
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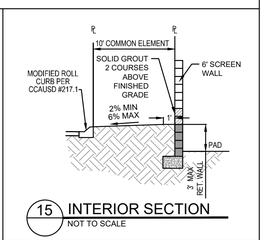
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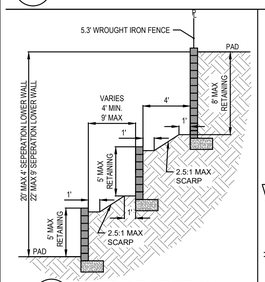
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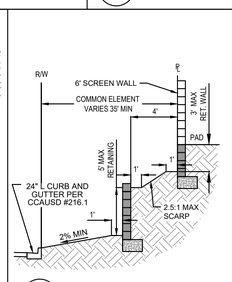
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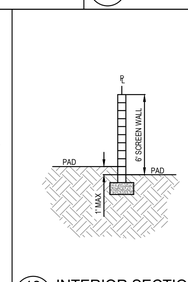
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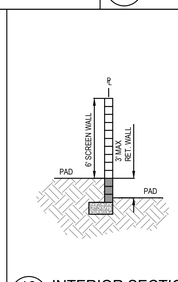
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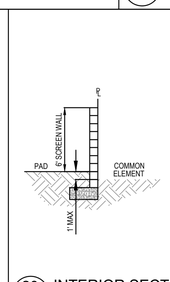
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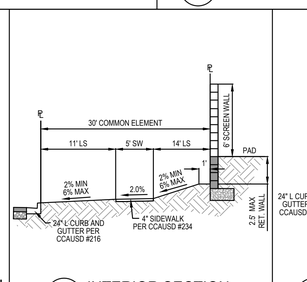
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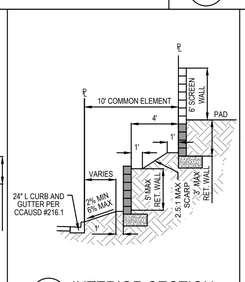
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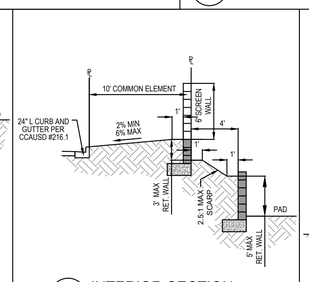
20 INTERIOR SECTION
NOT TO SCALE



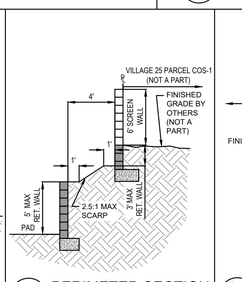
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NOT TO SCALE



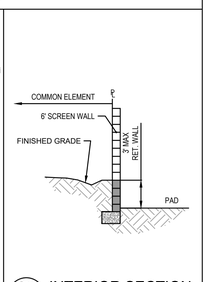
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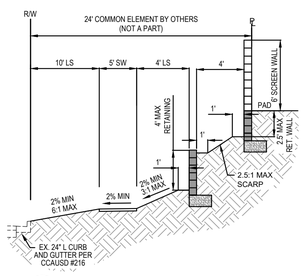
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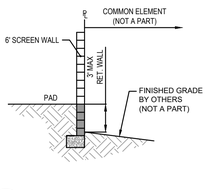
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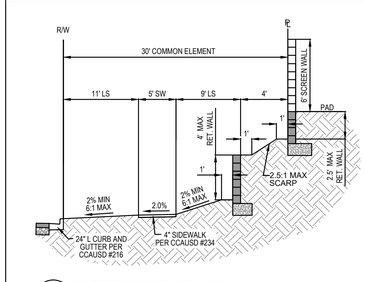
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NOT TO SCALE



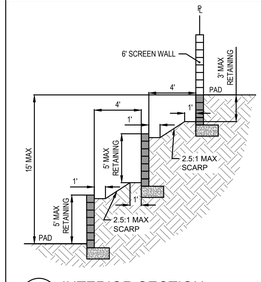
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NOT TO SCALE



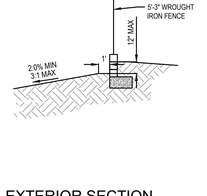
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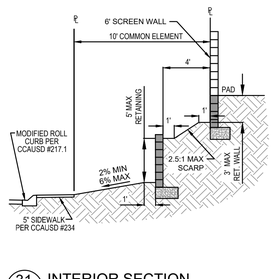
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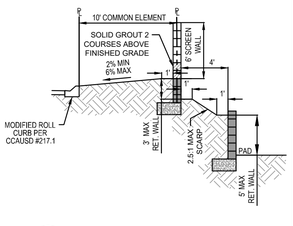
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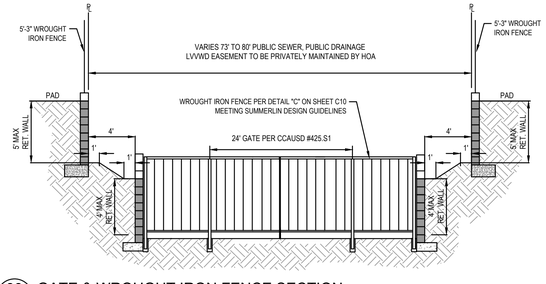
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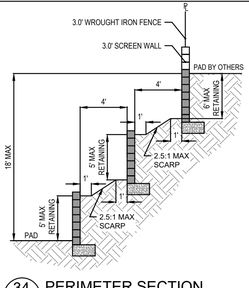
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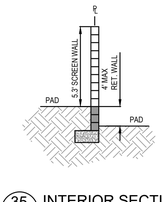
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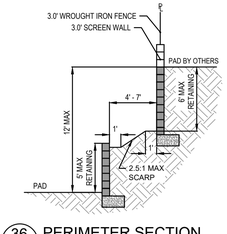
33 GATE & WROUGHT IRON FENCE SECTION
NOT TO SCALE



34 PERIMETER SECTION
NOT TO SCALE



35 INTERIOR SECTION
NOT TO SCALE



36 PERIMETER SECTION
NOT TO SCALE

AVOID HITTING UNDERGROUND TRAFFIC SIGNAL SYSTEMS AND ASSOCIATED UNDERGROUND CONDUIT. IT'S COSTLY!
CALL BEFORE YOU DIG UNDERGROUND
Call before you
Underground
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (FAST)

Call before you Dig
Avoid cutting underground utility lines. It's costly.
CALL
811
OR
1-800-227-2600

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

WALL NOTES

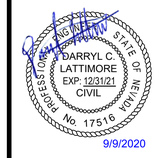
1. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
2. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.
3. ALL RETAINING WALLS SHALL BE WATER-PROOFED AND PROVIDE DRAINAGE WEEP HOLES PER GEO RECOMMENDATIONS
4. WROUGHT IRON FENCE GATE DETAILS, FOUNDATIONS AND PLANS BY OTHERS.
5. ALL BLOCK, RETAINING, WROUGHT IRON FENCES & GATES TO BE CONSTRUCTED PER SUMMERLIN WEST DESIGN CRITERIA.

107V____ L20-____

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SECTIONS & DETAILS 1
CASTELLANA
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

BY	DESCRIPTION	DATE
A		



9/9/2020

DATE	03/24/2020
DRAWN	EMG
DESIGNED	KAL
CHECKED	DCL
PROJECT #	WLH011904

SHEET TITLE
DETAILS

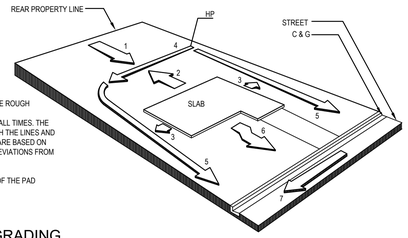
SHEET NUMBER
C9

SHEET 9 OF 11

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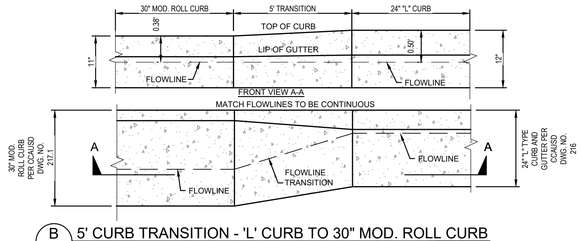
1. SLOPE FROM REAR TO SWALE (MIN. 2%)
2. SLOPE FROM HOUSE TO SWALE (MIN. 2%)
3. SLOPE FROM HOUSE TO SIDE SWALE (MIN. 2%)
4. REAR SWALE (10' MIN. FROM REAR OF HOUSE) (MIN. 1%)
5. SIDE SWALE (MIN. 1%)
6. SLOPE FROM HOUSE TO BACK OF CURB (MIN. 2%)
7. SLOPE OF STREET

A. INDICATED GRADES OTHER THAN T.C., F.G. & GUTTER F.L. ARE ROUGH GRADES. (0.1' LOWER THAN FINISHED GRADE).
B. 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.
C. CARE SHALL BE EXERCISED IN GRADING CORNER LOTS.
D. ROUGH PAD ELEVATIONS SHALL BE GRADED TO WITHIN 0.1' OF THE PAD ELEVATIONS SHOWN ON THE PLANS.

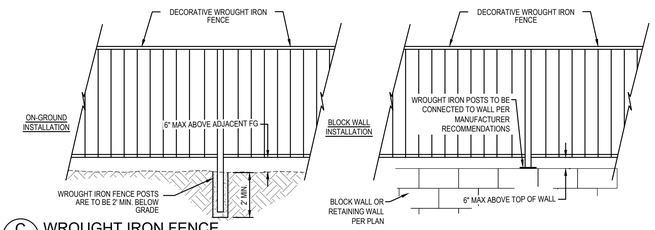


PERSPECTIVE VIEW

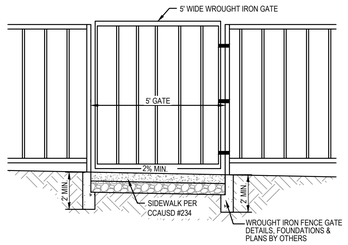
A TYPICAL TYPE "A" PAD GRADING
NOT TO SCALE



B 5' CURB TRANSITION - 'L' CURB TO 30" MOD. ROLL CURB
NOT TO SCALE



C WROUGHT IRON FENCE
NOT TO SCALE



D PEDESTRIAN GATE DETAIL
NOT TO SCALE

WALL NOTES

1. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
2. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.
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4. WROUGHT IRON FENCE GATE DETAILS, FOUNDATIONS AND PLANS BY OTHERS.
5. ALL BLOCK, RETAINING, WROUGHT IRON FENCES & GATES TO BE CONSTRUCTED PER SUMMERLIN WEST DESIGN CRITERIA.







107V_____ L20-_____

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SECTIONS & DETAILS 2

CASTELLANA

WILLIAM LYON HOMES

CITY OF LAS VEGAS, NEVADA

BY	DESCRIPTION	DATE	A

PROFESSIONAL ENGINEER
DARRYL C. LATTIMORE
EXP: 12/31/21
CIVIL
No. 17516
STATE OF NEVADA

9/9/2020

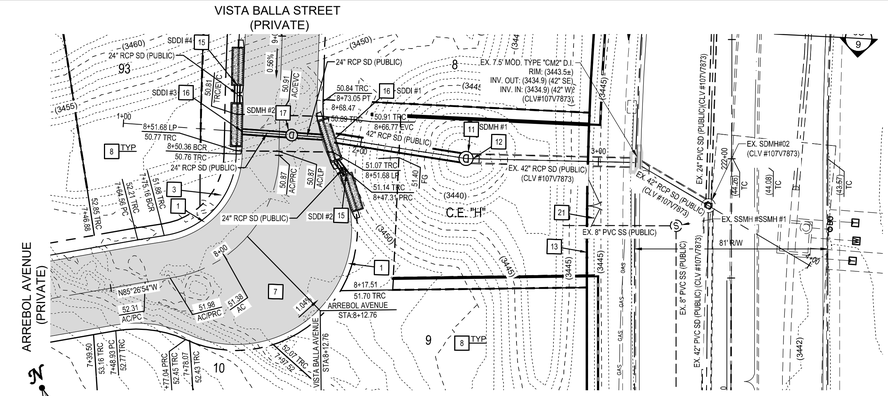
DATE	03/24/2020
DRAWN	EMG
DESIGNED	KAL
CHECKED	DCL
PROJECT #	WLH011904

SHEET TITLE
DETAILS

SHEET NUMBER
C10

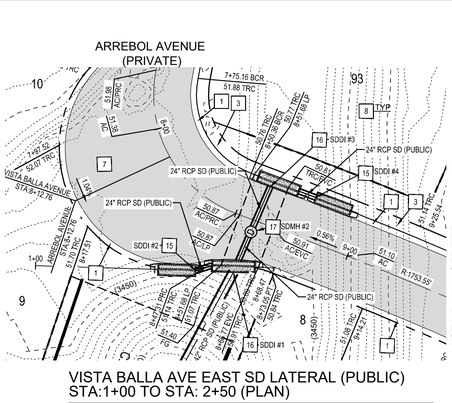
HTE # HTE# or SHEET#

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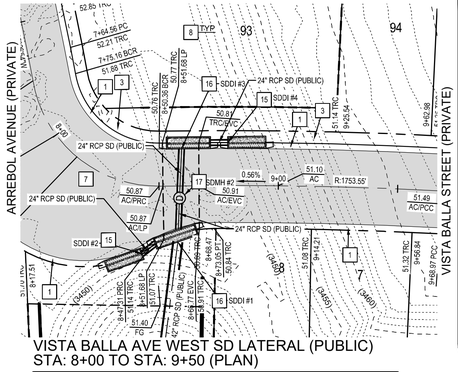
COMMON ELEMENT "H" STORM DRAIN (PUBLIC)
STA 0+00 TO STA: 3+00 (PLAN)

SCALE: 1" = 30'



VISTA BALLA AVE EAST SD LATERAL (PUBLIC)
STA:1+00 TO STA: 2+50 (PLAN)

SCALE: 1" = 30'

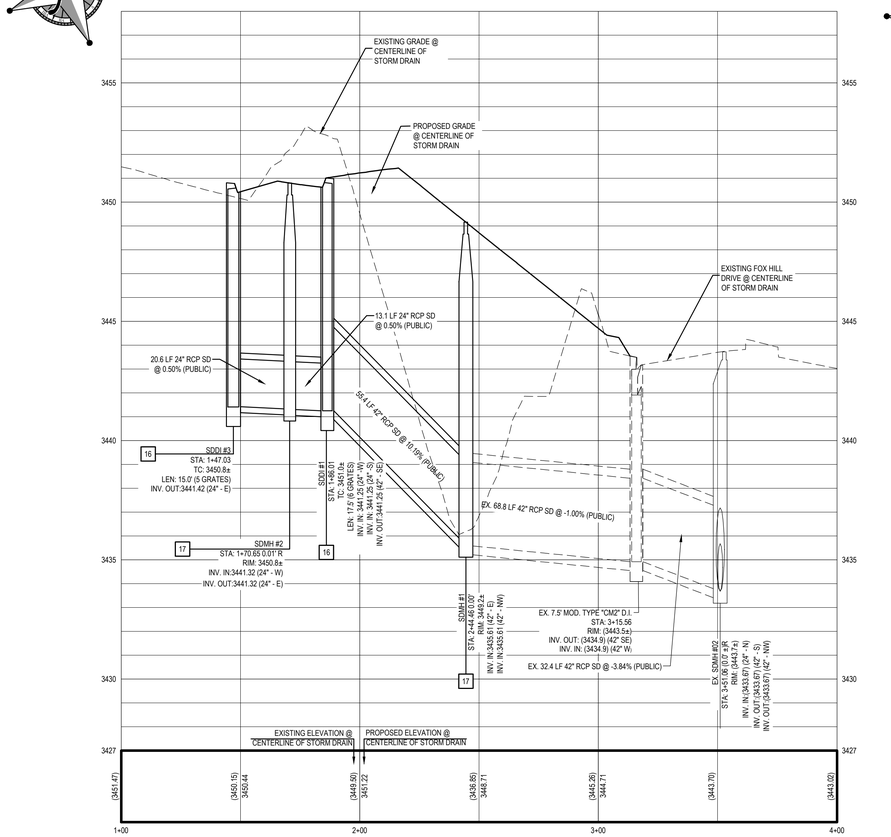


VISTA BALLA AVE WEST SD LATERAL (PUBLIC)
STA: 8+00 TO STA: 9+50 (PLAN)

SCALE: 1" = 30'

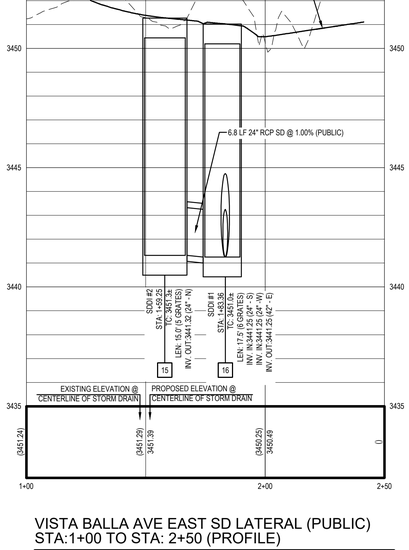


KEY MAP
SCALE: NTS



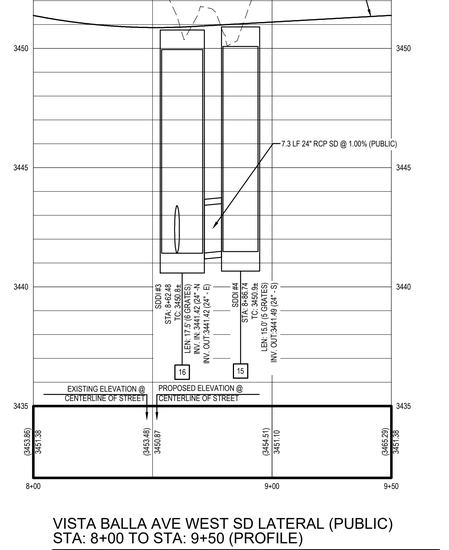
COMMON ELEMENT "H" STORM DRAIN (PUBLIC)
STA:10+00 TO STA: 13+00 (PROFILE)

HORIZ. SCALE: 1" = 30' | VERT. SCALE 1" = 6'



VISTA BALLA AVE EAST SD LATERAL (PUBLIC)
STA:1+00 TO STA: 2+50 (PROFILE)

HORIZ. SCALE: 1" = 30' | VERT. SCALE 1" = 6'



VISTA BALLA AVE WEST SD LATERAL (PUBLIC)
STA: 8+00 TO STA: 9+50 (PROFILE)

HORIZ. SCALE: 1" = 30' | VERT. SCALE 1" = 6'



COMMON ABBREVIATIONS

FF	- FINISHED FLOOR	TRC	- TOP OF 30" ROLL CURB
TC	- TOP OF CURB	AC	- TOP OF PAVEMENT
FL	- FLOWLINE GRADE	EP	- EDGE OF PAVEMENT
TB	- TOP OF BERM	TW	- TOP OF RETAINING WALL
TF	- TOP OF WALL FOOTER	PRIV.	- PRIVATE
ST.	- STREET	TYP.	- TYPICAL
ESMT	- EASEMENT	R/W	- RIGHT-OF-WAY
TMH	- TOP OF MANHOLE (RIM ELEV.)	DG	- DESIGN GRADE

SIGHT VISIBILITY ZONE NOTE

NO WALLS, FENCES SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAT TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT POLES, MAY BE CONSTRUCTED OR INSTALLED WITHIN THE SIGHT VISIBILITY ZONE UNLESS SAID OBJECT IS MAINTAINED AT LESS THAN 24 INCHES IN HEIGHT, MEASURED FROM TOP OF CURB, OR WHERE NO CURB EXISTS, A HEIGHT OF 27 INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT, GRAVEL OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.

PLEASE REFER TO TRAFFIC SHEET FOR SIGHT VISIBILITY ZONE DIMENSIONS.

GRADING NOTES

1. ACTUS SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES IN THE PLANS OR CONDITIONS IN THE FILED.
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 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.
3. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
4. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.

ESTIMATED QUANTITIES

NOTE: QUANTITIES SHOWN ARE RAW QUANTITIES AND APPROXIMATE. CONTRACTOR TO DETERMINE HIS OWN QUANTITIES FOR GRADING PURPOSES.

WORK UNDER THIS PLAN CONSTITUTES GRADING IN ACCORDANCE WITH 2018 IBC. ENGINEERING REPORTS AND CERTIFICATIONS IN CONFORMANCE WITH IBC SHALL BE FILED WITH THE CITY OF LAS VEGAS PRIOR TO CITY OF LAS VEGAS APPROVAL AT FINAL INSPECTION.

CUT: 152,811 CY
FILL: 61,468 CY
BALANCE: 91,343 CY (CUT)

ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV# N/A ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. — 9/9/2020 — DATE

BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV092BWB
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.



SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: SOUTHWEST GEOTECHNICAL
ORIGINAL PROJECT NUMBER: 197203
DATED: FEBRUARY 11, 2020

LINE & CURVE DATA NOTE

PLEASE REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

DEDICATION NOTE

ALL EASEMENTS, RIGHT-OF-WAY, AND OTHER DEDICATIONS WITHIN THIS PLAN SET ARE GRANTED PER FMP # _____ UNLESS OTHERWISE NOTED

PRIVATE STREET NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

COMMON LOT NOTE

ALL COMMON LOTS ARE TO BE PUBLIC DRAINAGE, PEDESTRIAN ACCESS, UTILITY, SEWER, AND PRIVATE LANDSCAPE EASEMENTS OVER THEIR ENTIRETY TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

STORM DRAIN CONNECTION NOTE

WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE EXISTING RCP TO THE NEAREST BELL CONNECTION. CONNECT NEW RCP TO EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

DISCLAIMER NOTE

THE UNDERGROUND UTILITIES AS SHOWN HEREON HAVE BEEN LOCATED FROM OBSERVED FIELD SURVEY EVIDENCE AND EXISTING DRAWINGS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING; PLANS PROVIDED BY THE CLIENT, UTILITY COMPANIES, AND MUNICIPAL AGENCIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8' CROSS GUTTER PER CCAUSD #228
5. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE I. "A" & "B" = 8' UNLESS OTHERWISE NOTED
6. CONSTRUCT 5' TRANSITION "L" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "B" ON SHEET C10
7. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
8. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "A" ON SHEET C10
9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL CALL BOX FOR ENTRY GATES
11. CONSTRUCT TYPE III 60" STORM DRAIN MANHOLE PER CCAUSD #406
12. CONNECT TO EX. SD LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX. SD)
13. INSTALL 6' HIGH MAX. WROUGHT IRON FENCE PER DETAIL "C" ON SHEET C10 & CCAUSD 425.S1
14. INSTALL TYPE "A" ISLAND CURB PER CCAUSD #219
15. CONSTRUCT TYPE "CM2" DROP INLET PER CCAUSD #412.1 & 421 (5 - GRATES, L=15', W=4.15')
16. CONSTRUCT TYPE "CM2" DROP INLET PER CCAUSD #412.1 & 421 (6 - GRATES, L=17.5', W=4.15')
17. CONSTRUCT TYPE I 48" STORM DRAIN MANHOLE PER CCAUSD #403.1
18. INSTALL PEDESTRIAN ACCESS GATE PER DETAIL "D" ON SHEET C10
19. SOLID GROUT WALL 2 COURSES ABOVE FINISHED GRADE
20. CONSTRUCT ENTRY GATES PER LANDSCAPE PLANS
21. CONSTRUCT GATES PER CCAUSD #425.S1
22. CONSTRUCT ENHANCED CONCRETE PER LANDSCAPE PLANS

SCALE: 1"= 30'
30 15 0 30

107V_____ L20-_____

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Engineering - Surveying - Consulting - Planning

PLAN & PROFILE - STORM DRAIN

CASTELLANA

WILLIAM LYON HOMES

CITY OF LAS VEGAS, NEVADA

#	DATE	DESCRIPTION	BY

PROFESSIONAL ENGINEER — DARRYL C. LATTIMORE — STATE OF NEVADA — EXP: 12/31/21 — CIVIL — No. 17516 — 9/9/2020

DATE	03/24/2020
DRAWN	EMG
DESIGNED	KAL
CHECKED	DCL
PROJECT #	WLH011904

SHEET TITLE
PLAN & PROFILES

SHEET NUMBER
C11

SHEET 11 OF 11

Plot Stamp: 9/9/2020 11:53:16 AM - Brandon Prokopchuk
File: P:\WLH011904 - V25 Parcel A\Civil_CD\WLH011904-CD-SD-PROF.dwg, Tab: C11-PLAN & PROFILE STORM DRAIN