



**Addendum #2 to the
Technical Drainage Study
for**

LAS VEGAS LONE MOUNTAIN TEMPLE

Date Prepared:
August 2024

Prepared for:
PGAL
7373 Peak Drive, Suite 170
Las Vegas, NV 89128
702.435.4448

Prepared by:
Kimley-Horn and Associates, Inc.
6671 Las Vegas Boulevard South, Suite 320
Las Vegas, NV 89119
702.862.3600

Kimley»»Horn

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Las Vegas Lone Mountain Temple Date: August 2024

Location of Development: a) Descriptive (Cross Streets) North/South: Grand Canyon Drive & Tee Pee Lane

East/West: Hickam Avenue & Florine Avenue

b) Section: 6 Township: 20S Range: 60E

c) APN : 138-06-801-010 and 138-06-801-018

Name of Owner: Church of Jesus Christ of Latter-day Saints - Lance Berrey

Telephone No.: 702.435.4448 Fax No.: N/A E-Mail Address: LBerrey@pgal.com

Address: 7373 Peak Drive, Suite 170, Las Vegas, Nevada, 89128

Contact Person-Name: Rachael R. Dennis, P.E. Telephone No.: 702.734.5666

* E-Mail Address: Rachael.Dennis@kimley-horn.com Fax No.: N/A

Firm: Kimley-Horn

Address: 6671 Las Vegas Boulevard South, #320, Las Vegas NV 89119

Type of Land Development/Land Disturbance Process:

<input type="checkbox"/> Rezoning	<input type="checkbox"/> Subdivision Map	<input type="checkbox"/> Clearing and Grading Only
<input type="checkbox"/> Parcel Map	<input type="checkbox"/> Planned Unit Development	<input checked="" type="checkbox"/> Other (Please specify below)
<input type="checkbox"/> Large Parcel Map	<input checked="" type="checkbox"/> Building Permit	<input type="checkbox"/> Grading Permit

1. Total Owned Land Area: At Site: +/- 20 ac Being Developed/Disturbed: +/- 20 ac

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.): Commercial

5. Approximate upstream land area which drains to the subject site: +/- 60 ac

6. Has the site drainage been evaluated in the past? YES NO If yes, please identify documentation: _____

1) Jensen and Helena Areas 1-8; 2) Grand Canyon & Alexander; 3) Lone Mtn Ranch Estates; 4) Lone Mtn Equestrian Park; (see below)

7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: _____

1) Surface Flows to Hickam Avenue; & 2) Surface Flows to Tee Pee Lane

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

5) Jensen and Alexander Lot 9 Subdivision; & 6) Lone Vista Ranch



Engineer's Seal 8/15/24

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

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM			DATE: July 17, 2024
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:
Las Vegas Lone Mountain Temple			Kimley–Horn & Associates
Cross Streets:	SEC of Grand Canyon Dr. & Hickam Avenue		Church of Jesus Christ of Latter-day Saints - Lance Berrey
File Number:	F:\Depot\DSMemos\DS5774B.doc		Bart Anderson, P.E. DevCo
Parcel Number:	138-06-801-010 and 138-06-801-018		CCPW
Zoning Action:	24-0152-SDR1		
FEMA Flood Zone	YES	NO	X
Proposed Storm Drain	YES	NO	X

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	5/16/2024	6/6/2024	Not Approved	\$400.00	5768442: \$400
2 nd Submittal	7/3/2024	7/17/2024	See Comments Below	\$400.00	5839824: \$400
TOTAL FEES (LDDRS):				\$800.00	----

REMARKS:

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

	is approved subject to conformance to all City standards and the following conditions:
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 (**24-0152-SDR1**) 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. Sites with a grade difference of 2 feet above or below existing grades are required to have approval from the *City of Las Vegas 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 *City Planning* approval with the next submittal.
3. The site is adjacent to the jurisdiction of *Clark County* to the north, east and west. The engineer must coordinate with *Clark County Public Works Department* (CCPW) and incorporate any concerns for boundary conditions along the north, east and west borders. CCPW concurrence is required prior to final approval of the subject study.

4. Per previous Comment #14: The revised existing and proposed drainage maps showed that at the intersection of *Hickam* and *Tee Pee*, the 100-year split flow in *Hickam* will increase from 17cfs to 35cfs and in *Tee Pee* from 3cfs to 21cfs post development of the subject project. Provide hydraulic calculations to prove that the existing houses in the *County* jurisdiction will not be inundated in the next submittal.
5. **Sheet C5.06:** Per the profile of the streets, *Hickam* and *Tee Pee*, the meeting point of the two streets will lead to a low point. Address how to drain the low point in the next submittal.

***** The City of Las Vegas Flood Control is standardizing the file naming of drainage studies and plans during the digitizing process. When saving the project files in the CD or thumb drive, please follow the system below:**

If drainage study only contains one combined file, use the following naming convention in Document Title:

1st Submittal DS and Plans (for first and original submittal);

2nd Submittal DS and Plans (for second submittal (addendum #1)) etc.

If drainage study contains multiple files, use the following naming convention in Document Title:

1st Submittal DS (for the report of the drainage study)

1st Submittal Plan 1 (could be the drainage condition maps)

1st Submittal Plan 2 (could be the improvement plans) etc.

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 Update and accepted by the *City of Las Vegas Flood Control Section*. Additionally, final approval 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
HDR/AYS

T/R/S: T20S/R60E/06
AREA L-06



August 15, 2024

Mr. Albert Sung, P.E.
City of Las Vegas Flood Control
333 Rancho Drive
Las Vegas, NV 89106

RE: *Addendum #2 to the Technical Drainage Study for the Las Vegas Lone Mountain Temple*

Dear Mr. Sung,

Attached is one (1) copy of the *Addendum #2 to the Technical Drainage Study for the Las Vegas Lone Mountain Temple* for your review. This letter certifies that all items provided on the electronic submittal (CD) match the paper version bound into the study.

With Kimley-Horn, you should expect more and will experience better. Please contact me at (702) 734-5666 or rachael.dennis@kimley-horn.com should you have any questions or concerns.

Sincerely,

A handwritten signature in black ink that reads "Rachael R. Dennis". The signature is written in a cursive style with a large initial "R".

Rachael R. Dennis, P.E.

A handwritten signature in black ink that reads "Sean Schofield". The signature is written in a cursive style with a large initial "S".

Sean Schofield, Analyst

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July 22, 2024

Albert Sung, P.E.
Flood Control Engineer
Department of Public Works
City of Las Vegas
495 S. Main Street
Las Vegas, NV 89101

RE: *Addendum #2 to the Technical Drainage Study for LDS Lone Mountain Temple (DS5774)*

The purpose of this letter is to provide satisfactory answers to the comments issued in the subject Comment Letter dated July 17, 2024. These comments have been reviewed and are addressed herein.

Comment 1: Provide a copy of the zoning/planning conditions associated with this site (24-0152-SDR1) 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.

Response: Zoning and Planning Conditions (24-0152-SDR1, 204-0072-GPA1, & 24-0072-ZON1) for the proposed site have been included in **Appendix A**. In response to the Planning Conditions, minor onsite grading and site plan changes have been incorporated. The proposed revisions include:

- Removed the easternmost driveway on Hickam Avenue. Removed the parking stalls at the northeast corner of the site to increase the width of the landscape buffer across from APNs 138-06-701-019 & 138-06-701-020. Minor onsite grading revisions to accommodate the plan changes.
 - Updated pertinent onsite prorated calculations; slopes for onsite normal depth calculations, emergency overflow calculations, and drop inlet calculations; and updated Parking Lot LID calculations for the proposed CDS hydrodynamic separator BMP, accordingly.
- Revised roof drains to connect directly into proposed underground storm drain systems. Adjusted the mainline storm drain alignment and drop inlets to accommodate the new parking lot curb locations.
 - Added four (4) onsite prorated Subbasins **ON15-ON18** for the new roof drain locations.
 - Revised pertinent flowrates, inverts, and slopes for the **Standard Form 6** Models for the storm drain mainline and laterals. Updated slopes for all drop inlets. **DI#5** was re-sized to a **4' x 4'** Grate Inlet in sump and is located in-line with the new mainline alignment at the northeast corner of

the site. The HGLs have been designed to be at least 1-foot below finished grade.

Refer to the **Improvement Plans** in **Appendix D** for the revised grading and added storm drain changes. Revised summary tables have been shown on **Figure PRO** in **Appendix A**. All revised hydraulic calculations have been provided in **Appendix B**. The revised **Figure LID – LID Basin Map** and calculations have been provided in **Appendix C**. The methodologies and calculations presented in this report are in compliance with CLV criteria, CCPW criteria, and the CCRFCD Hydrologic Criteria and Drainage Design Manual (Manual).

Comment 2: Sites with a grade difference of 2 feet above or below existing grades are required to have approval from the City of Las Vegas 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 City Planning approval with the next submittal.

Response: The grade difference justification was submitted concurrently with this addendum to CLV Department of Planning on August 13, 2024 for the proposed onsite grade difference of 2 feet above or below existing grades and will be submitted upon receipt of approval. We request the fill justification approval be a condition of the TDS approval.

Comment 3: The site is adjacent to the jurisdiction of Clark County to the north, east and west. The engineer must coordinate with Clark County Public Works Department (CCPW) and incorporate any concerns for boundary conditions along the north, east and west borders. CCPW concurrence is required prior to final approval of the subject study.

Response: Noted. The proposed design has been shared with CCPW and coordination with CCPW has been ongoing. Upon conditional approval by CLV, the study will be submitted to CCPW for concurrence.

Comment 4: Per previous Comment #14: The revised existing and proposed drainage maps showed that at the intersection of Hickam and Tee Pee, the 100-year split flow in Hickam will increase from 17cfs to 35cfs and in Tee Pee from 3cfs to 21cfs post development of the subject project. Provide hydraulic calculations to prove that the existing houses in the County jurisdiction will not be inundated in the next submittal.

Response: A detailed hydraulic analysis was completed for the intersection as part of the original TDS Submittal. The existing Tee Pee Lane and Hickam Avenue intersection was modeled using **HEC-RAS v. 6.4.1** hydraulic modeling software. A two-dimensional

(2D) overland flow analysis was prepared for the intersection to capture the overland flow across the existing intersection with inflow hydrographs at Hickam Avenue and Tee Pee Lane to estimate depth and velocity at the intersection and downstream of the project site. Flow depths and velocities from HEC-RAS output were previously included in tables on **Figures RAS-01 and RAS-02** which have been re-included in **Appendix A**. Note that the flow split flowrates shown on the figures remain unchanged at the intersection and were determined from the previously submitted HEC-RAS analyses.

Excerpt from Original TDS Submittal:

As discussed in meetings held with Clark County Public Works (CCPW) on March 13, 2024 and the City of Las Vegas (CLV) on March 14, 2024; flow increases to the intersection are acceptable and must meet Manual criteria for depth, velocity, as well as maintain finished floor protection for the existing downstream residential properties. The Clark County Regional Flood Control District requirement for the finish floor elevation (FF) is that it must be 18 inches above the centerline grade of the adjacent street or be elevated to twice the depth of flow up to 18 inches above the water surface elevation (WSE).

*Based on the calculated flow characteristics, the Manual criteria for depth (D) and velocity times depth (V*D) during the 100-year storm event will be met. Additionally, the downstream property Finished Floor and Garage Floor Elevations were surveyed including the adjacent roadways to verify the proposed flows will meet Manual Criteria for finished floor elevations.*

As discussed with CLV and CCPW, the proposed flows at the intersection will increase flow depths approximately 2-inches; however, the existing finished floor and garage floor elevations are set above at least twice the depth of flow in the adjacent roadways. Since the proposed flows discharging at the intersection will meet Manual criteria, the proposed outlet will not adversely impact downstream facilities or properties. Please note that additional hydraulic sections in Hickam Avenue east of the intersection were not provided because the roadway begins to super elevate to the south directing flows away from downstream properties conveying flows within the existing swale located along the southern boundary.

Comment 5: Sheet C5.06: Per the profile of the streets, Hickam and Tee Pee, the meeting point of the two streets will lead to a low point. Address how to drain the low point in the next submittal.

Response: Additional elevation tags have been provided including a detail for the ramp grading showing that there is no low point due at the intersection due to the spill curb at the sidewalk ramp. Refer to the improvement plans in **Appendix D**.

With Kimley-Horn, you should expect more and will experience better. Please contact me at (702) 734-5666 or rachael.dennis@kimley-horn.com should you have any questions or need any additional information.

Sincerely,



Rachael R. Dennis, PE



Sean Schofield, Analyst

LIST OF APPENDICES

Appendix A – Documents & Figures

- PRO Proposed Condition Basin Map
- RAS-01 Existing Conditions HEC-RAS Map (Re-included from original submittal)
- RAS-02 Proposed Conditions HEC-RAS Map (Re-included from original submittal)
- NOFA 24-0152-SDR1 and 24-0072-GPA1 & 24-0072-ZON1

Appendix B – Hydraulic Calculations

- Normal Depth Calculations – Onsite
- Drop Inlet Calculations
- Emergency Overflow Calculations
- Standard Form 6 Models

Appendix C – LID Basin Map & Calculations

- LID Basin Map & Calculations
- CDS Unit Detail

Appendix D – Improvement Plans

Appendix E – Data CD