CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: March 26, 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:**
4125 Zone South Reservoir				AtkinsRealis
Cross Streets:	Reservoir Entrance Dr & V32 Loop Road			Howard Hughes Company, LLC
File Number:	F:\Depot\DSMemos\DS5751A.doc			Bart Anderson, P.E., DevCo
Parcel Number:	137-21-101-007			
Zoning Action:	23-0276-CRG1			
FEMA Flood Zone	YES	NO	**X**	
Proposed Storm Drain	YES	NO	**X**	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	3/7/2024	3/26/2024	See Comments Below	$400.00	5659682: $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 (**23-0276-CRG1**) 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 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.

3. **Figure 3 and Figure 3b:** Provide flow arrows and offsite contours so that the flow pattern can be verified.

4. **Figure 3:** Provide context for CP5 and CP6. It does not seem to go to the same wash or utilized for comparison in any way.

5. Provide an existing condition drainage map in the next submittal.

6. Provide a regional facility exhibit showing the existing, proposed, and future MPU facilities in a 24” x 36” exhibit. This is required to determine how close an existing or proposed regional facility is to the subject site. *Clark County Regional Flood Control District* concurrence may need to be required.

7. **Figure 3**: Provide a hydraulic section to illustrate that the wash northwest of the offsite basins is contained and does not overflow into the offsite basins.
8. **Basin Sub-7** has a wall on the south side of the ditch per *Detail Sections A/CD1* and *B/CD1* yet the boundary for **Sub-7** seems to go over the wall. Review and revise the basin delineation of **Sub-7** and all subsequent hydrologic and hydraulic calculations in the next submittal.
9. The side-slopes of multiple sections presented do not match the improvement plans or do not show on the improvement plans. For instance, Section F, on Sheet CD1 has 2:1 side-slopes while in FlowMaster Section CP1 shows side-slopes of 4:1 and 2:1.
10. The riprap computation for CP2 16.4% states that the riprap would be 21-inches while the width would be 4-feet. 21-inches is nearly half of the width of the ditch. Explain how this would be done.
11. Check the flow of sections of **Sub-2** and **Sub-4**. Section **Sub-2** does not include the flow of **Sub-4** and section **Sub-4** includes the flow of both areas which are not correct.
12. Quantify how much flow impacts the western boundary of the *Disinfection Building* and provide a hydraulic section in the swale around the building to verify the proposed finished floor elevation is adequate.
13. The access road within **Basin Sub-3** appears to be a flow conveyance facility which is not acceptable. Provide swales at both sides of the access road in the next submittal.
14. Per the grading plan and proposed contours, the flow generated from **Sub-3** does not appear to go to CP2 as proposed. Address and revise accordingly.
15. The proposed contours at the end of **Sub-7**'s ditch, ie, CP2, appears to be in a sump condition (see 4099.78FL). Address and resolve in the next submittal.
16. The improvement plans cannot confirm the section produced in FlowMaster for **Sub-8**. Provide an improvement plan section where **Sub-8** is proposed.
17. The slope of section *Block Wall Opening* is listed on the plan as 2.4% but is listed in the hydraulic section as 3.7%. Review and revise accordingly.
18. The thickness of riprap should be twice the d_{50} of the riprap proposed. For example, Section A is 8-inches but the thickness is 1-ft. The thickness of the riprap should be 16-inches. Take an overall review of all the callout of riprap sizes and thicknesses.
19. Show riprap on plan view and label the riprap so we may verify where the changes in riprap occur.

***** 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/R59E/21
AREA K-21