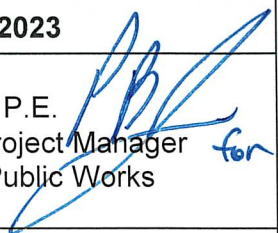


CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM		DATE: September 26, 2023
TO: Land Development Services Department of Community Development – Building and Safety Division		FROM: Oh-Sang Kwon, P.E. Flood Control Project Manager Department of Public Works 
SUBJECT:	Drainage Study for:	COPIES TO:
	Master Drainage Study for BLM 940	Westwood
Cross Streets:	US-95 & Moccasin Road	95 Management, LLC
File Number:	F:\Depot\DSMemos\DS5656C.doc	Bart Anderson, P.E., CLV DevCo
Parcel Number:	Portions of 100-30-000-001, 100-31-000-001, 100-32-000-001	Tim Parks, P.E., CLV – Engineering CCRCD
Zoning Action:	Future Development Agreement	
FEMA Flood Zone	YES	NO X
Proposed Storm Drain	YES X	NO

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	2/23/2023	3/23/2023	See Comments Below	\$400	5157981: \$400
2 nd Submittal	5/16/2023	6/20/2023	See Comments below	\$400	5276577: \$400
3 rd Submittal	8/23/2023	9/26/2023	See Comments Below	\$400	5409753: \$400
TOTAL FEES (LDDRS):				\$1,200	----

REMARKS: 3rd Submittal – Supplemental Information is required to address the requested MPU Options.

2nd Submittal – Includes a New Conceptual Master Plan, Option 6D that is dated 3/14/2023.

1st Submittal – Master Drainage Study in support of Future Development. Sets the overall drainage impacts for development of the BLM 940 - Conceptual Master Plan, Option 5B, dated 1/16/2023 that identifies a maximum of 6,186 Dwelling units.

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.
	Is conditionally approved subject to National Park Service concurrence

The Master Drainage Study included a New Conceptual Master Plan, Option 6D (Land Plan) dated 3/14/2023 that is predicated upon access with a new interchange on US-95 within the Paiute Reservation. This new plan appears to change the Moccasin Road corridor and limits the ability to construct full infrastructure and roadway improvements. The Plan needs to clearly identify if the proposed 70-foot trail corridor along Moccasin is in addition to the full roadway improvements for Moccasin Road.

1. The BLM 940 Master Drainage Study is proposing to revise the hydrology and facility sizes identified in the Clark County Regional Flood Control District's (CCRFCD) 2018 Las Vegas Valley Flood Control Master Plan Update. Flood Control understands that this Master Study will be incorporated into the ongoing 2023 Las Vegas Valley Flood Control Master Plan Update (MPU). The proposed changes to the 2023 MPU need continued coordination between the City and CCRFCD.
2. This Master Drainage Study is the basis for a Master Plan Change; therefore, the study needs to clearly identify the facilities and costs associated with each of the requested alternatives for **Option A & B** in accordance with CCRFCD requirements for a Master Plan Change. The request for the two options is to show the impact of the changes to the MPU facilities, so that a detailed comparison of the proposed facilities can be evaluated to determine the most cost effective and regulatory means for the continued implementation of the Master Plan as required in NRS 543.597. This Master Study is proposed to be included in the 2023 Master Plan Update and needs to address the requested information. The Master Drainage Study needs to revise the Ultimate Condition MPU analysis to include two options and identify the necessary facilities:

Option A – The Ultimate MPU facility goes north along the westerly boundary of the BLM 940 development. The Ultimate facility needs to be able to incorporate the proposed condition (interim) facilities such that the interim facilities can be expanded to be included as a part of the Ultimate MPU improvements. **Option A** requires that National Park Service (NPS) concurrence be obtained prior to final approval of the Master Drainage Study.

Option B – The Ultimate MPU facility goes east and follows the current Moccasin alignment along the southern boundary of the BLM 940 development. This would include incorporating a peaking basin that utilizes our current BLM Grant at the northeast corner of the Moccasin and Skye Canyon Park Drive (Fort Apache) intersection. This option reduces the size of the Moccasin MPU facility (LVMO 0001) and the flow rate to the Upper Las Vegas Wash. **Option B** allows the Master Drainage Study to be approved for the Moccasin MPU facility alignment without NPS concurrence as the flows are reduced with the peaking basin versus the current MPU.

Flood Control understands that the developer wants to maximize development; however, the existing BLM grant gives the City the ability to use our Grant for the intended purpose. The impact with the peaking basin needs to be shown and discussed in the Master Drainage Study.

3. The Conceptual Drainage Facility sizing for Facility F1 shows three sections for flow conveyance for the proposed condition. The proposed Drainage Easement needs to be the 80-foot width for all sections. Provide a Table on Exhibit J1 to show the proposed condition (interim) drainage flow rates for these proposed concrete channel facilities.

Should **Option A** be the preferred MPU facility alignment, Exhibit J1 includes the proposed condition cross sections that incorporate the Ultimate MPU facility size. Sections for Facility 1A and 1B show future twin RCB's while Facility 1C allows expanding the proposed condition channel improvements without the full reconstruction of these facilities.

4. Revise Exhibits H1 and H2 to correctly show the proposed F1 Facility flow rates. Cross reference the Exhibit G1 flow rates to show the flows being collected along the western boundary in the (interim) proposed condition.
5. Provide new Exhibit H's (H3 & H4) that reflect the requested **Option B** facilities, including the peaking basin parameters based upon the existing BLM Grant # 83860.
6. Revise Exhibit K to reflect the requested **Option B** parameters that include the peaking basin impacts and include the peaking basin as a part of the Master Study.
7. Revise the Exhibit K cross sections to show the existing 50-foot Right-of-Way dedicated along the south side of Moccasin Road with the Sunstone development and correctly show the existing power pole locations in relation to that existing roadway Right-of-Way. Include the existing Grants along the north half of the Moccasin alignment on all cross sections adjacent to this development. Include the existing Grants along both the north and south half of the Moccasin alignment on all cross sections

- adjacent to and east of this development. Provide an additional cross section east of the BLM 940 site that shows how the facilities fit within the total 100-foot Grant width.
8. Provide alternative Exhibit G's that reflect the **Option B** parameters.
 9. Update Exhibit J1 and J2 to show the required Public Drainage Easement (80-foot width) necessary for the Ultimate MPU facility with appropriate access. The sections need to Note that a minimum of 10-foot clear separation between the outside of the RCB's and the 36" water line is required. Provide a separate section that shows the conceptual "Trail Improvements" contained within the Public Drainage Easement.
 10. Exhibit G1 shows the proposed condition (interim) drainage facilities as concrete channels along the entire length of the western boundary.
 11. Update the Phasing Plan (Exhibit I) to include the construction of the proposed condition (interim) drainage facilities along the west side of the BLM 940 site and note that "Additional on-site facilities may be required in the interim to protect the Phased development." Clearly identify the Proposed Regional Facilities by the Master Developer. No MPU by others is shown. Remove and clarify.
 12. Update all Exhibit cross sections to incorporate the existing 100-foot width of Moccasin Road. The City of Las Vegas currently has Right-of-Way or Grants totaling a minimum of a 100-foot width along the entire length of Moccasin from Brightstone Trail to the Upper Las Vegas Wash, east of Durango. The BLM 940 site has a minimum of 50-foot Roadway and Drainage Grant north of the Moccasin centerline (property line).
 13. The provided Conceptual Master Plan, Option 6D shows a Trail along the Moccasin alignment. It appears that the Trail is replacing the roadway improvements for the north half of Moccasin. The roadway improvements along the Moccasin alignment needs further review as the trail section replacing the roadway improvement section has not yet been approved. Coordinate the roadway cross-section and provide an Exhibit that shows the section including all major infrastructure. Continue to coordinate with Public Works to make sure we have the required width of Moccasin Road necessary for all infrastructure needed to serve the BLM 940 site.
 14. Please note that the site layout (pods, land use, density, infrastructures, etc.) must be approved by City Council prior to final approval of the Master Drainage Study. If the site layout does not match the Master Drainage Study, an update to the Master Drainage Study must be submitted to address the changes.
 15. The Master Drainage Study flow impacts for the Proposed Condition Onsite HEC-1 flows have been updated to incorporate the higher CN-values associated with lots smaller than 6,000 SF. The Onsite storm drain facility sizes use the Onsite HEC-1 values. Exhibits G2 through G5 have been updated accordingly.
 16. The Master Drainage Study for the existing and proposed interim hydrology uses the conservative approach that the existing berm along the southern side of the existing Paiute golf course is a conveyance cut-off. This berm directs flow around the golf course and the entire flow is proposed to be collected by the BLM 940 site.
 17. The project proposed to discharge the Onsite BLM 940 development flows east into the National Monument property. Therefore, National Park Service (NPS) concurrence is required prior to final approval of the Master Drainage Study. Detailed design is required with the Infrastructure Drainage Studies for Regions 1 through 5. Coordinate the discharge requirements with NPS on how they want the flows distributed into the National Monument. NPS concurrence will also be required for each of the detailed studies for development.
 18. Technical drainage studies are required for each phase of the infrastructure improvements. The design of infrastructure improvements shall incorporate freeboard and velocity mitigation based upon an n-value of 0.013. The technical drainage studies for the infrastructure improvements may be submitted with conditional approval of this Master Drainage Study. However, final approval for the Master Drainage Study must be obtained prior to conditional approval of the infrastructure drainage studies.

19. Each Onsite Proposed Condition Region (Region 1 – 5, See Exhibits G2, G3, G4, and G5) needs to include a detailed analysis of how the Onsite flows will be distributed into the National Monument for any development within the Region.
20. **Exhibit G5:** Facility 5J & 5I are proposed to connect into the existing MPU facility (LVMO 0000) along the Moccasin alignment as discussed in the report per the City's previous comment. Detailed analysis will be provided with the detailed study for Region 5.
21. The culverts crossing US-95 have limited flow conveyance and do not have the capacity to convey the 100-year flows. The Master Drainage Study takes the conservative approach that the flows beyond the existing capacities will overtop and follow the same overall flow path to the east.
22. Please note that the Master Traffic Study must be approved prior to final approval of the Master Drainage Study. The Master Drainage Study needs to clearly indicate those streets that serve as Arterial and/or Major Collectors based upon their functional street classification. Based upon the Street Sections provided in Appendix E; Street Sections A, B, C, D, E, F, G, H, & I need to meet the dry-lane and flow depth requirements. This information is required as the design process moves forward. Additionally, if the street layout from the Master Traffic Study does not match the Master Drainage study, an update to the Master Drainage Study must be submitted to address the changes.
23. Please note that any future technical drainage study submittals that differ from the Master Drainage Study (ie. Changes in pods, infrastructure, flows etc.) will require an update to the Master Drainage Study and this update must be approved by the City of Las Vegas Flood Control Section prior to final approval of technical drainage study.
24. Technical drainage studies are required for each of the POD's. The technical drainage studies for the POD's may not be submitted until the conditional approval of the pertinent infrastructure drainage study is obtained. Final approval for the infrastructure drainage study must be obtained prior to conditional approval of the impacted POD drainage studies.
25. Building permits for the homes within the individual POD's will not be issued until construction of the street and flood control infrastructure around the POD is substantially complete.
26. Due to the complex nature of proposing changes to the ongoing 2023 Clark County Regional Flood Control District (CCRFCD) Master Plan, the Master Drainage Study is required to obtain CCRFCD concurrence prior to final approval of the Master Drainage Study. Continue to coordinate all submittals with CCRFCD to make sure that this Study is fully incorporated into the 2023 CCRFCD Master Plan.
27. The site is adjacent to Clark County jurisdictional boundaries. The engineer must coordinate the Master Drainage Study with Clark County Department of Development Services (CCDDS) and incorporate any concerns for boundary conditions. CCDDS concurrence is required prior to final acceptance of the Master Drainage Study.
28. Flood Control understands that there may be additional Infrastructure (i.e. SNWA facilities) that needs to share the proposed MPU facility alignment along the western boundary. Continue to coordinate the required width needed for all infrastructure needed to serve the BLM 940 site.

***** 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/PBJ

T/R/S: T18S/R60E/S30-32
AREA Northwest