DS #: 5390

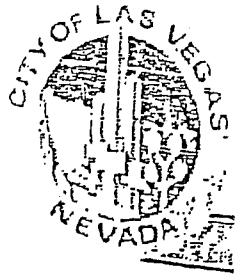
APN: 125-06-810-004

PROJECT: Luna at Sunstone

SUBMITTAL: 2nd

SCANNED BY/DATE:

CHECKED BY/DATE:



CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: February 2, 2021
TO: **Land Development Services** Department of Building & Safety				FROM: Jennifer Shinn, P.E. Flood Control, Engr. Associate Department of Public Works
SUBJECT:	Drainage Study for:			**COPIES TO:**
Luna at Sunstone				Westwood Professional Devices
Cross Streets:	Skye Canyon Park Dr and Iron Mountain Rd			Woodside Homes of Nevada, LLC
File Number:	F:\Depot\DSMemos\DS5390B.doc			Bart Anderson, P.E., DevCo
Parcel Number:	125-06-810-004			
Zoning Action:	20-0260-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	11/30/2020	12/21/2020	See Comments Below	$400.00	$400
2nd Submittal	1/12/2021	2/02/2021	Approved	$400.00	$400
			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.

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

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

END OF REMARKS

HDR/JKS

T/R/S: TS19/R60E/S6

AREA G-06

Westwood

5740 S. Arville St., Suite 216
Las Vegas, NV 89118

Main (702) 284-5300

westwoodps.com
(888) 937-5150

WSH1905.000

January 7, 2021

Jennifer Shinn, P.E.
City of Las Vegas
495 S. Main Street
Las Vegas, NV 89101

Subject: Addendum to the Technical Drainage Study for Luna at Sunstone

Mr. Sung:

This letter certifies that all items provided on electronic submittal CD matches 100% of the *Addendum to the Technical Drainage Study for Luna at Sunstone* bound paper version.

Respectfully Submitted,
WESTWOOD PROFESSIONAL SERVICES

Abhusan Achhami
Graduate Engineer – Water Resources Department

ADDENDUM TO THE TECHNICAL DRAINAGE STUDY

Luna at Sunstone

JANUARY 2021

PREPARED FOR:

Woodside Homes of Nevada, LLC
Las Vegas, Nevada

PREPARED BY:

Westwood

Westwood

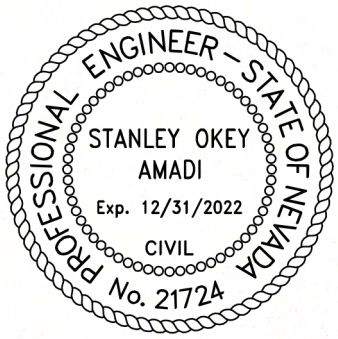
Luna at Sunstone

Addendum to the Technical Drainage Study

City of Las Vegas, Nevada

Prepared For:
Woodside Homes of Nevada, LLC
7895 West Sunset Road, Suite 110
Las Vegas, NV 89113
Phone: 702-889-7824

Prepared By:
Westwood Professional Services
5740 S. Arville Street, Suite 216
Las Vegas, NV 89118
Phone: (702) 284-5300
Fax: (702) 284-5339



Project Number: WSH1905.000
Date: January 2021

Stanley Okey Amadi, P.E., CFM
NV Professional Engineer No. 21724
Assisted by: Abhusan Achhami

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Luna at Sunstone (Addendum) Date: January 2021

Location of Development: a) Descriptive (Cross Streets): North/South: Skye Canyon Park Drive

East/West: Iron Mountain Road

b) Section: 6 Township: 19S Range: 60E

c) APN: 125-06-810-004

Name of Owner: Northland, LLC

Telephone No.: (702) 889-7824 Fax No.: E-mail Address: sanderson@woodsidehomes.com

Address: 7895 West Sunset Road, #110 Las Vegas NV 89113

Contact Person – Name: Stanley Okey Amadi, P.E., CFM Telephone No.: (702) 284-5300

*E-mail Address: stanley.amadi@westwoodps.com Fax No.: (702) 284-5399

Firm: Westwood PS

Address: 5740 S. Arville #216 Las Vegas NV 89118

Type of Land Development/Land Disturbance Process:

☐	Rezoning	☐	Subdivison 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: 23+/- acres Being Developed/Disturbed: 23 +/- acres

2. Is a portion or all of the subject property located in a FEMA Flood Hazard Area? ☐ Yes** ☒ No

3. Is the property bordered or crossed by an existing or proposed Clark County Regional Flood Control District Master Planned Facility? ☒ Yes** ☐ No

4. Proposed type of development (Residential, Commercial, Etc.): Residential

5. Approximate upstream land area which drains to the subject site: <2.0 acres

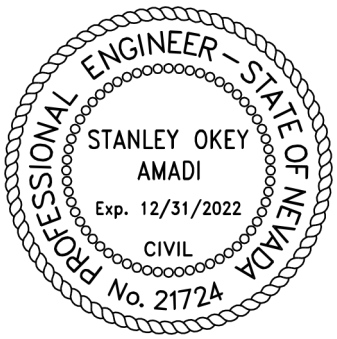
6. Has the site drainage been evaluated in the past? ☒ Yes** ☐ No If yes, please identify documentation:

Master Drainage Study - Sunstone (DS 5081)

Sunstone - Phase 1 Infrastructure (DS 5135)

7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Flows will be routed northly onto existing storm drain facility at O'Hare Road and southerly onto the storm drain facility at Iron Mountain Road

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



Engineer's Seal

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

*Newly Required Field

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

Revision	Date

Local Entity File No.

REFERENCE: STANDARD FORM 1

Updated 05/01/2008

Westwood

5740 S. Arville St., Suite 216
Las Vegas, NV 89118

main (702) 284-5300

WSH1905.000

January 7, 2021

Jennifer Shinn, P.E.
Flood Control Engineering Associate
City of Las Vegas Department of Public Works
333 N. Rancho Drive
Las Vegas, Nevada 89106

Subject: Addendum to the Technical Drainage Study for Luna at Sunstone DS5390

Dear Ms. Shinn,

This letter is submitted in response to the comments contained in the December 22, 2020 review memorandum, regarding the above referenced project. A copy of the City of Las Vegas comment letter has been provided in Appendix A.

The comments in the review memorandum have been individually addressed as follows:

1. **Comment**: Provide a copy of the zoning/planning conditions associated with this site 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: A copy of NOFA has been provided in Appendix B.

2. **Comment**: The calculated curve numbers consider 5% of the site as soil group B, the provided NRCS soil data does not show any soil group B within the site area.

   Response: The NRCS web soil data download has been revised to include the non-dominant minor soil information which shows that 5% of the soil is categorized as soil group B. Refer to the updated soil report provided in Appendix D.

3. **Comment: Exhibit F:** The referenced depth and velocity for Section 7a do not match the depth and velocity provided in the Mass Grading Study DS5282.

   Response: The correction has been made. Refer to the revised Exhibit F in Appendix C.

4. **Comment**: **Exhibit E:** Provide calculations for the interim condition swales as well as rip-rap calculations shown in the interim condition.

Westwood

5740 S. Arville St., Suite 216
Las Vegas, NV 89118

main (702) 284-5300

Response: The computations have been provided in Appendix E and the summary table has been included in the revised Exhibit E in Appendix C. Note that the swale computations indicate non erosive velocities; thus, nominal riprap size of D50=6" and thickness=12" was specified and the riprap sizing computation was deemed unnecessary.

5. **Comment**: **Sheet G-1:** The west side of the Entry Driveway to O'Hare Road does not provide adequate freeboard to the 100-year flow depth in O'Hare Road. Note that the hump must provide a minimum of six inches (6") of freeboard. The east side of the entry way meets the criteria though. Review and resolve in the next submittal.

   Response: Acknowledged. The grading at the west side of the Entry Driveway to O'Hare Road has been revised to provide adequate freeboard above the 100-year flow depth in O'Hare Road to satisfy the criteria. Refer to the revised grading sheet G-1 in Appendix G.

6. **Comment**: **Sheet G-4:** Callout 15 is for rip rap however it is pointing to an inlet where there is no rip rap shown on the plans.

   Response: The callout has been revised. Refer to the revised improvement plans in Appendix G.

7. **Comment**: **Sheet G-6:** Section 25 D-2 at the end of Lunar Effect Street shows a proposed berm that is not shown on the plans.

   Response: The grading plan has been revised to show the proposed berm with top of berm elevations at the end of Lunar Effect Street, matching with that shown in section 25 D-2. Refer to Appendix G.

8. **Comment**: **Sheet G-7:** Explain the purpose of the 7.99% swale going from the high point within the Phase 2 area to C.E.L.

   Response: The proposed swale is intended to provide a finished grade elevation for the future sidewalk within the common element. It is not a drainage conveyance feature. Note that with the landscape architects design, a meandering sidewalk maybe considered for the design.

9. **Comment**: **Sheet SD-1:** Provide calculations for the HGL shown on SD Lateral 1.

   Response: The calculations for the HGL at SD lateral 1 was not provided because the Lateral system was referenced from the Phase 1 Infrastructure Study (DS5135), where the system was designed for 29 cfs. However, with the revised design, that flow at that lateral system in this study is only 24 cfs. So, the HGL would actually be lower than that previously computed. To stay on the conservative side, same HGLs from Phase 1 Infrastructure Study were shown in this study without a revised HGL computations. The referenced hydraulic computations were provided in Appendix G of the previous submittal. The same reference hydraulic computations have been resubmitted in Appendix D of this submittal for your convenience.

10. **Comment**: **Sheet SD-1:** The HGL shown on SD Lat 2 does not meet the minimum requirement of 12" below the finished grade.

Westwood

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Response: The HGLs at SDDI#2 and the lateral connection at Existing SDMH#3, which are the critical locations meets the minimum requirement of 12" below the finished grade. The requirement is not met at the gutter flow line of the street but does not constitute any design flaws. Note that the storm drain is already existing and was designed for the same quantity of flow being discharged by the development. Therefore, no revisions to the design are warranted.

Additional Changes:
Some changes were made in the study which included revision of Finished Floors, Pads and Top of Curbs (TCs) elevations; thus, the finished floor analyses computations for majority of the lots have been updated accordingly. The revised finished floor computations have been designed to be flood protected from the 100-year storm event. Summary Tables and spreadsheets showing the finished floor analysis have been included in Appendix F. Additionally, the street slope at Lunar Phase Street has also been revised.

We believe the above responses and revisions provided on the plans have adequately satisfied your concerns in the subject review memorandum. The revised grading plans and detail sections adopting the revisions addressed in this letter have been included separately with this submittal. If you have any questions or require additional information, please do not hesitate to contact our office at (702) 284-5300.

Respectfully Submitted,
WESTWOOD PROFESSIONAL SERVICES

Abhusan Achhami

Graduate Engineer – Flood Control Division
cc: Stanley Okey Amadi, P.E., CFM
Mark Failla, P.E., CFM
Matt Burge, P.E.

Westwood

5740 S. Arville St., Suite 216
Las Vegas, NV 89118

main (702) 284-5300

APPENDIX

Appendix A – CLV Comment Letter

Appendix B – NOFA

Appendix C – Drainage Exhibits

Appendix D – Soils Report & Referenced WSPGW Model
- Updated Web Soil Survey
- Referenced WSPGW for SDDI1 Lateral

Appendix E – Hydraulic Computations
- Interior Street Sections
- Swale Computations

Appendix F – Finished Floor Computations

Appendix G – CD of Electronic Files & Revised Improvement Plans

APPENDIX A

CLV Comment Letter

CITY OF LAS VEGAS **INTER-OFFICE MEMORANDUM**				**DATE:** **December 22, 2020**
TO: **Land Development Services** Department of Building & Safety				**FROM:** Jennifer Shinn, P.E. Flood Control, Engr. Associate Department of Public Works
SUBJECT:	Drainage Study for:			**COPIES TO:**
Luna at Sunstone				Westwood Professional Devices
Cross Streets:	Skye Canyon Park Dr and Iron Mountain Rd			Woodside Homes of Nevada, LLC
File Number:	F:\Depot\DSMemos\DS5390A.doc			Bart Anderson, P.E., DevCo
Parcel Number:	125-06-810-004			
Zoning Action:				
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	11/30/2020	12/21/2020	See Comments Below	$400	$400
			TOTAL FEES (LDDRS):	**$400**	**----**

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.

The following are comments pertaining to the subject site specific drainage study and grading plans:

1. Provide a copy of the zoning/planning conditions associated with this site 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 calculated curve numbers consider 5% of the site as soil group B, the provided NRCS soil data does not show any soil group B within the site area.
3. **Exhibit F:** The referenced depth and velocity for Section 7a do not match the depth and velocity provided in the Mass Grading Study DS5282.
4. **Exhibit E:** Provide calculations for the interim condition swales as well as rip-rap calculations shown in the interim condition.
5. **Sheet G-1:** The west side of the Entry Driveway to O'Hare Road does not provide adequate freeboard to the 100-year flow depth in O'Hare Road. Note that the hump must provide a minimum of six inches (6") of freeboard. The east side of the entry way meets the criteria though. Review and resolve in the next submittal.
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8. **Sheet G-7:** Explain the purpose of the 7.99% swale going from the high point within the Phase 2 area to C.E.L.
9. **Sheet SD-1:** Provide calculations for the HGL shown on SD Lateral 1.
10. **Sheet SD-1:** The HGL shown on SD Lat 2 does not meet the minimum requirement of 12” below the finished grade.

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/JKS

T/R/S: TS19/R60E/S6
AREA G-06

APPENDIX B

NOFA

LAS VEGAS CITY COUNCIL

CAROLYN G. GOODMAN
Mayor

STAVROS S. ANTHONY
Mayor Pro Tem

MICHELE FIORE
CEDRIC CREAR
BRIAN KNUDSEN
VICTORIA SEAMAN
OLIVIA DIAZ

JORGE CERVANTES
City Manager

DEPARTMENT OF PLANNING

ROBERT SUMMERFIELD
DIRECTOR

CITY HALL
495 S. MAIN ST.
3RD FLOOR
LAS VEGAS, NV 89101

702.229.6301 | VOICE
702.464.2545 | FAX
711 | TTY

cityoflasvegas
lasvegasnevada.gov

December 9, 2020

Mr. Efraim Balizan
Northland, LLC
9275 West Russell Road, Suite #400
Las Vegas, Nevada 89148

RE: 20-0260-VAC1 AND 20-0260-TMP1
PLANNING COMMISSION MEETING OF DECEMBER 8, 2020

Dear Mr. Balizan:

The Planning Commission at a regular meeting held on ***December 8, 2020*** voted to ***APPROVE*** the following Land Use Entitlement project requests on 23.05 acres on the northwest corner of Iron Mountain Road and N Skye Canyon Park Dr (APN 125-06-810-004), T-D (Traditional Neighborhood) Zone [L (Residential Low) Sunstone Special Land Use Designation], Ward 6 (Fiore).

20-0260-VAC1 - Petition TO VACATE PUBLIC DRAINAGE AND SEWER EASEMENTS adjacent to the eastern property line.

20-0260-TMP1 - LUNA AT SUNSTONE - FOR A PROPOSED 162-LOT SINGLE-FAMILY RESIDENTIAL SUBDIVISION.

This approval is subject to the following conditions:

20-0260-VAC1 CONDITIONS

1. The limits of this Petition of Vacation shall be unused public sewer and unused public drainage easements as granted on Parcel 17 of the "Parent Final Map of Sunstone" as recorded in Book 161, Page 40 of Plats.

2. If replacement Public Sewer and Drainage Easements are needed, they shall record on the Final Map for Sunstone Parcel E.

3. The Order of Vacation shall record immediately prior to and concurrent with the Final Map for this site.

4. All public improvements, if any, adjacent to and in conflict with this vacation application are to be modified, as necessary, at the applicant's expense prior to the recordation of an Order of Vacation.

5. All development shall be in conformance with code requirements and design standards of all City Departments.

6. The Order of Vacation shall not be recorded until all of the conditions of approval have been met provided, however, that conditions requiring modification of public improvements may be fulfilled for purposes of recordation by providing sufficient security for the performance thereof in accordance with the Subdivision Ordinance of the City of Las Vegas. City Staff is empowered to modify this application if necessary because of technical concerns or because of other related review actions as long as current City right-of-way requirements are still complied with and the intent of the vacation application is not changed.

7. If the Order of Vacation is not recorded within one (1) year after approval by the City of Las Vegas or an Extension of Time is not granted by the Planning Director, then approval will terminate and a new petition must be submitted.

20-0260-TMP1 CONDITIONS

Planning

1. Approval of the Tentative Map shall be for no more than four (4) years. If a Final Map is not recorded on all or a portion of the area embraced by the Tentative Map within four (4) years of the approval of the Tentative Map, this action is void.

2. Common Element "L" is identified as Common Element "J" in the cross section view and shall be corrected prior to the recording of the Final Map.

3. Approval of Petition to Vacate (20-0260-VAC1) shall be required, if approved.

4. Street names must be provided in accordance with the City's Street Naming Regulations.

5. A fully operational fire protection system, including fire apparatus roads, fire hydrants and water supply, shall be installed and shall be functioning prior to construction of any combustible structures.

6. In conjunction with creation, declaration and recordation of the subject common-interest community, and prior to recordation of the Covenants, Codes and Restrictions ("CC&R"), or conveyance of any unit within the community, the Developer is required to record a Declaration of Private Maintenance Requirements ("DPMR") as a covenant on all associated properties, and on behalf of all current and future property owners. The DPMR is to include a listing of all privately owned and/or maintained infrastructure improvements, along with assignment of maintenance responsibility for each to the common interest community or the respective individual property owners, and is to provide a brief description of the required level of maintenance for privately maintained components. The DPMR must be reviewed and approved by the City of Las Vegas Department of Field Operations prior to recordation, and must include a statement that all properties within the community are subject to assessment for all associated costs should private maintenance obligations not be met, and the City of Las Vegas be required to provide for said maintenance. Also, the CC&R are to include a statement of obligation of compliance with the DPMR. Following recordation, the Developer is to submit copies of the recorded DPMR and CC&R documents to the City of Las Vegas Department of Field Operations.

7. All development is subject to the conditions of City Departments and State Subdivision Statutes.

Public Works

8. Private streets must be granted and labeled on the Final Map for this site as Public Utility Easements (P.U.E.), Public Sewer Easements, and Public Drainage Easements with private surface maintenance by the Homeowner's Association.

9. Common Element "G" shall have a minimum 40-foot wide Public Sewer and Public Drainage Easement to Be Privately Maintained. No trees or landscaping over 3 feet tall shall be allowed within the Public Sewer Easement. As required in 20-0260-VAC1, any replacement Public Sewer or Public Drainage Easements in Common Elements "G" and "B" shall be granted on the Final Map for this site.

10. In accordance with condition #10 of TMP-76718 and section 3.04 of the Sunstone Development Agreement, if not already constructed or guaranteed by the master developer, a minimum two lanes of asphalt pavement on village streets providing the main access to this site and a working sanitary sewer connection shall be provided prior to a final inspection of any dwelling units within this Tentative Map. Complete construction of Village streets shall conform to section 3.04 of the Sunstone Development Agreement. All existing paving damaged or removed by this development shall be restored at its original location and to its original width concurrent with development of this site.

11. Submit a wastewater masterplan update justifying the increase in lots to Parcel "E" do not affect capacities. Alternatively, a supplemental memo showing an exchange in lot balance between Parcel "E" and another Parcel in the same sub basin may be provided. Either the wastewater masterplan update or the supplemental memo must be approved by the Sanitary Sewer Section of the Department of Public Works prior to issuance of permits for this site.

12. An update to the previously approved Traffic Impact Analysis must be submitted to and approved by the Department of Public Works prior to the issuance of any building or grading permits, the submittal of any construction drawings, or the recordation of a Final Map, whichever may occur first. The Traffic Impact Analysis shall include a pedestrian circulation/access plan to identify nearby pedestrian attractors and recommend measures to accommodate pedestrians, such as but not limited to pedestrian access, crosswalk, pedestrian activated flashers and temporary sidewalks. Comply with the recommendations of the approved update to the Traffic Impact Analysis prior to occupancy of the site. No recommendation of the approved Traffic Impact Analysis, nor compliance therewith, shall be deemed to modify or eliminate any condition of approval imposed by the Planning Commission or the City Council on the development of this site.

13. A Drainage Plan and Technical Drainage Study must be submitted to and approved by the Department of Public Works prior to the issuance of any building, grading permits or the recordation of a Final Map, whichever may occur first. Provide and improve all drainageways recommended in the approved drainage plan/study. The developer of this site shall be responsible to construct such neighborhood or local drainage facility improvements as are recommended by the City of Las Vegas Neighborhood Drainage Studies and approved Drainage Plan/Study concurrent with development of this site.

14. The approval of all Public Works related improvements shown on this Tentative Map is in concept only. Specific design and construction details relating to size, type and/or alignment of improvements, including but not limited to street, sewer and drainage improvements, shall be resolved prior to approval of the construction plans by the City. No deviations from adopted City Standards shall be allowed unless specific written approval for such is received from the City Engineer prior to the recordation of a Final Map or the approval of subdivision-related construction plans, whichever may occur first. Approval of this Tentative Map does not constitute approval of any deviations. If such approval cannot be obtained, a revised Tentative Map must be submitted showing elimination of such deviations. Roadway locations and parcel entries are schematic and final studies and engineering improvements designs. Geometric design of Parcel entry points must be approved through the development review of each parcel.

15. Site development to comply with all applicable conditions of approval for the Sunstone master Tentative Map (TMP-76718) and any other site related actions.

This action by the Planning Commission on **December 8, 2020** is final unless a written appeal is filed with the City Clerk within ten days of the date of the Planning Commission's decision as allowed by code or there is a review action filed by the City Council within the same time period. For additional information on appeals or review requests submitted please access https://www.lasvegasnevada.gov/Business/Permits-Licenses/Building-Permits/Permit-Application-Status, or contact the Department of Planning and Development at 702.229.6301 after ***December 21, 2020***. No building permits or business licenses related to these items shall be issued prior to the expiration of the required ten day waiting period, or until any filed appeal is resolved pursuant to LVMC Title 19.18.

Sincerely,

Peter Lowenstein, AICP
Deputy Planning Director
Department of Planning

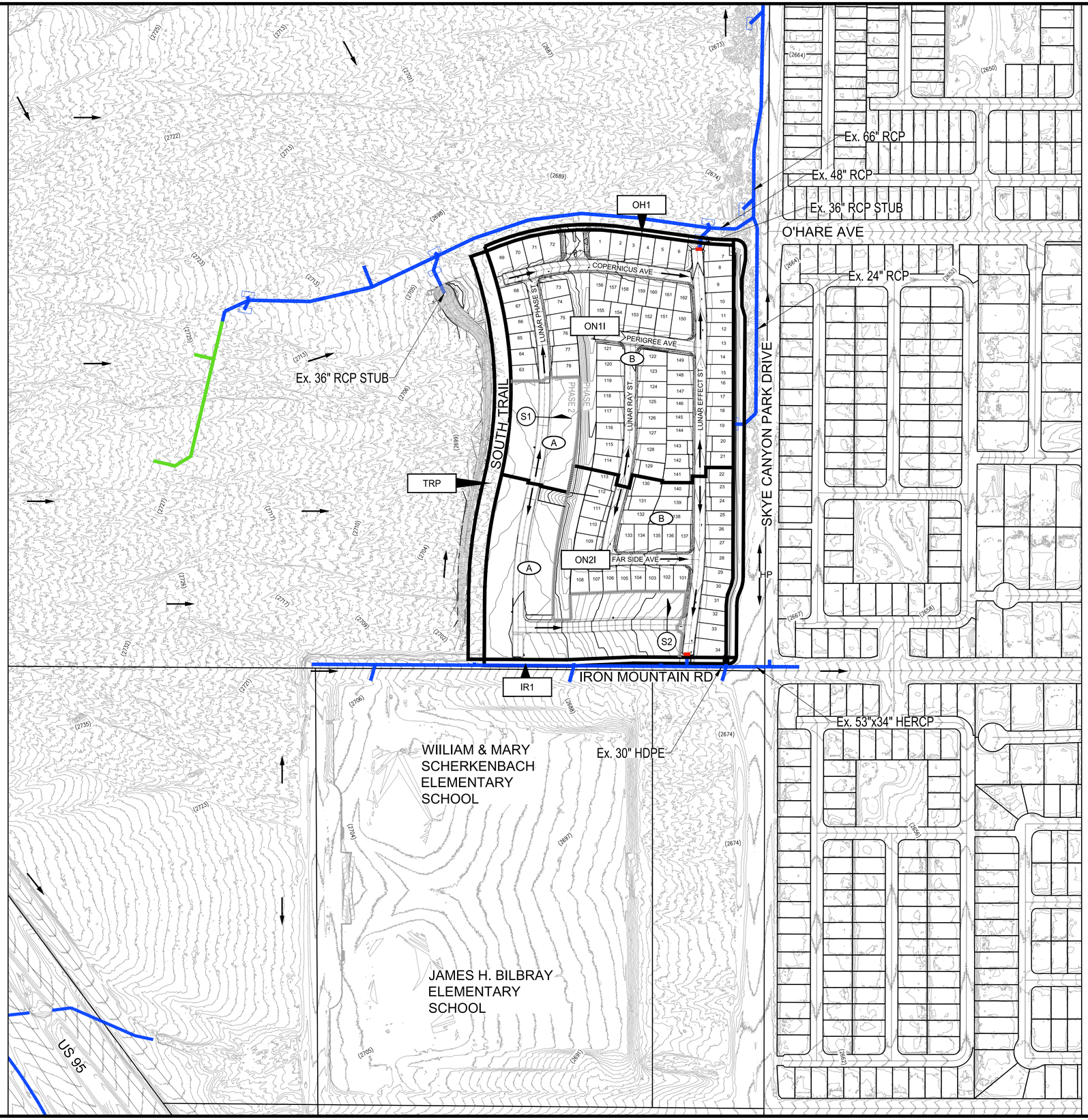
PL:nl/clb

cc: Mr. Scott Anderson
Woodside Homes of Nevada, LLC
7895 West Sunset Road, Suite #110
Las Vegas, Nevada 89113

Ms. Hannah Swan
Westwood Professional Services
5740 South Arville Street, Suite #216
Las Vegas, Nevada 89118

APPENDIX C

Drainage Exhibits



LEGEND

- BASIN BOUNDARY
- PHASE BOUNDARY
- EXISTING FACILITIES
- FUTURE FACILITIES
- PROPOSED FACILITIES
- ID — BASIN ID
- ID — PRO-RATED SUBBASIN ID
- ID — CONCENTRATION POINT ID
- FLOW DIRECTION
- ID — FLOWMASTER SECTION

Interim Condition Flow Rate Summary

Basin/Concentration Point ID	Area (ac)	Q_{100} (cfs)	Q_{10} (cfs)
ON1I	12.0	23	9
ON2I	9.5	17	6
OH1	0.3	1	1
SK1	1.0	3	2
IR1	0.3	1	1
TRP	1.5	1	<1

Subbasin Prorated Flow Rate Summary

Basin ID	Q_{100} (cfs)	Area (acres)	100-yr Unit Flow (cfs/acre)
ON1I	23	12.00	1.9
ON2I	17	9.50	1.8
Subbasin ID	**Q_{100} (cfs)**	**Area (acres)**	**100-yr Unit Flow (cfs/acre)**
ON1I(A)	3	1.56	1.9
ON1I(B)	20	10.44	1.9
TOTAL	***23***	***12.00***	
ON2I(A)	8	4.38	1.8
ON2I(B)	9	5.12	1.8
TOTAL	***17***	***9.50***	

Interim Condition Onsite Hydraulic Section Summary

Section ID	Q_{100} (cfs)	Section Description	Slope (%)	Depth (ft)	Velocity (fps)
S1 (Q = ON1I(A))	3.0	Newly Graded Trapezoidal Channel, 3:1 SS	0.77	0.08	1.00
S2 (Q = ON2I(A))	8.0	Newly Graded Trapezoidal Channel, 3:1 SS	0.70	0.14	1.36
			3.00	0.09	2.19

NOTES:

1. Refer to Exhibit E for full extent of the basins
2. *Flow in Ann-215 Storm Drain from Beltway Plans (added algebraically)

Westwood
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
Phone (702) 284-5300
Fax (702) 284-5399
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

CITY OF LAS VEGAS, NV

WOODSIDE HOMES OF NEVADA, LLC

LUNA AT SUNSTONE

INTERIM CONDITION DRAINAGE MAP

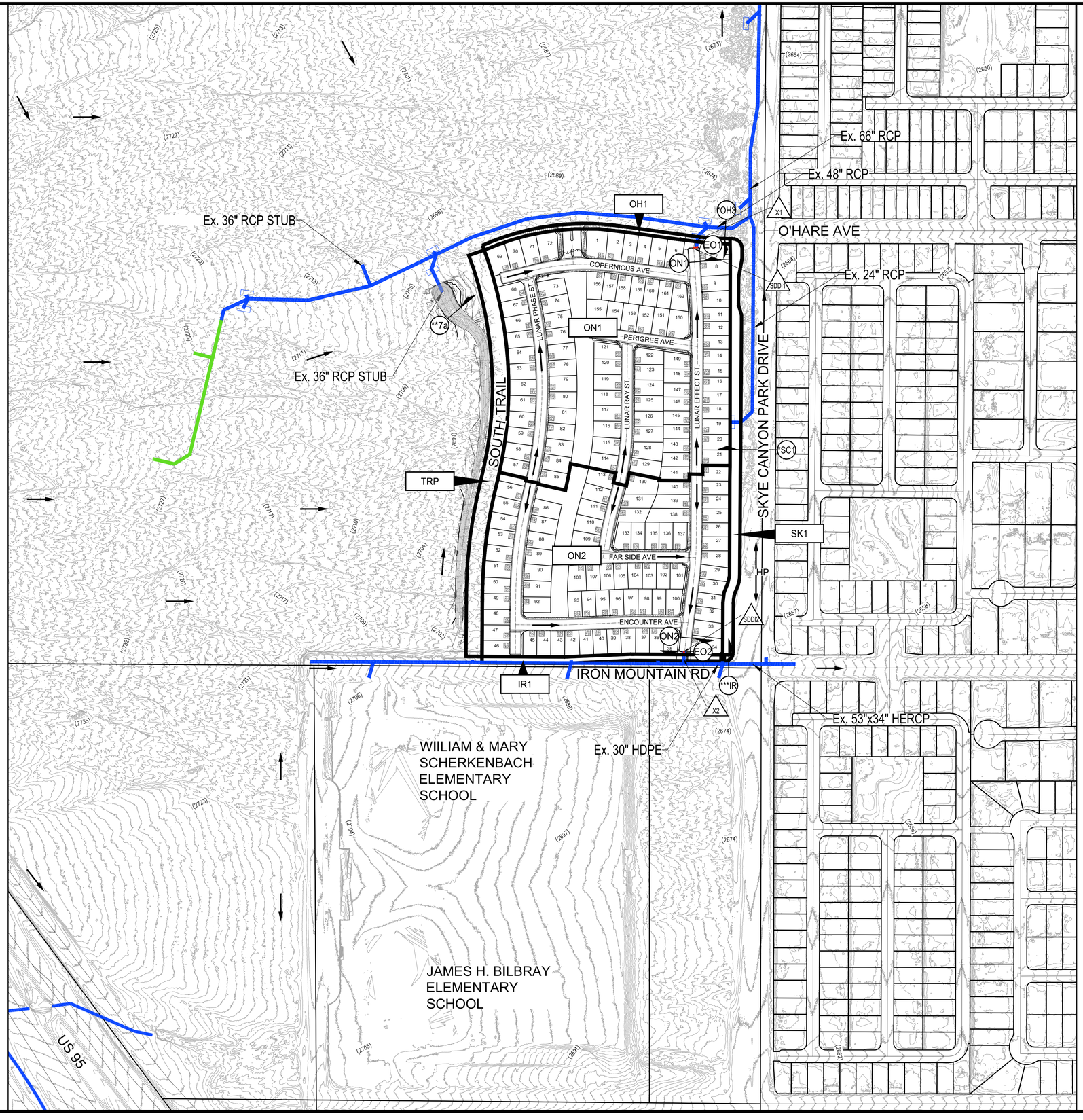
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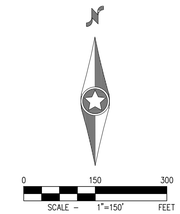
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DESIGNER: AA
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WSH1905.000

EXHIBIT E
SHEET 1 OF 1

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LEGEND

- BASIN BOUNDARY
- PRO-RATED SUBBASIN BOUNDARY
- EXISTING FACILITIES
- FUTURE FACILITIES
- PROPOSED FACILITIES
- ID — BASIN ID
- ID — PRO-RATED SUBBASIN ID
- ID — CONCENTRATION POINT ID
- FLOW DIRECTION
- ID — FLOWMASTER SECTION

Developed Condition Flow Rate Summary

Basin/Concentration Point ID	Area (ac)	Q_{100} (cfs)	Q_{10} (cfs)
ON1	12.0	24	9
ON2	9.5	19	7
OH1	0.3	1	1
SK1	1.0	3	2
IR1	0.3	1	1
TRP	1.5	1	<1

Developed Condition 100-Year Street Flow Summary

Section ID	Q_{100} (cfs)	Slope (%)	Depth (ft)	Velocity (fps)	DxV
ON1	24	0.70	0.49	2.94	1.4
Q = ON1		4.46	0.37	5.54	2.0
ON2	19	0.70	0.46	2.68	1.2
Q = ON2		4.00	0.36	5.04	1.8
*OH3 (Q = Combined Bypass from OH2 Facilities + EOHR1(c))	36	3.76	0.49	5.73	2.8
*SC1 (Q = EFA4(a))	5	0.46	0.45	1.85	0.8
***IR	133	2.36	0.74	6.52	4.8
(Q = EC10)		3.90	0.70	7.66	5.4

*Referenced from Infra Study (DS5135)
***Referenced from Phase 1A Study (DS5199)

Developed Condition 10-Year Street Flow Summary

Section ID	Q_{10} (cfs)	Slope (%)	Depth (ft)	Velocity (fps)	DxV	Dry Lane (ft)
*SC1 (Q = EFA4(a))	3	0.46	0.40	1.64	0.7	14.5

*Referenced from Infra Study (DS5135)

Developed Condition Onsite Hydraulic Section Summary

Section ID	Q_{100} (cfs)	Section Description	Slope (%)	Depth (ft)	Velocity (fps)
**7a (Q = MG7 + 95-5B* + 95-6B*)	103.0	Newly Graded Triangular Channel, 3:1 SS	0.50	2.65	4.900

**Referenced from Mass Grade Study (DS5282)

Developed Condition Emergency Overflow Summary

Section ID	Q_{100} (cfs)	Type of Analysis	Depth (ft)	Velocity (fps)
EO1 Q = ON1	24.0	Normal Depth	0.25	7.58
		Weir	0.33	N/A
EO2 Q = ON2	19.0	Normal Depth	0.52	4.21
		Weir	0.54	N/A

Flood Control Facility Summary

Facility ID	Facility Description	Source of Flow	Q_{100} (cfs)	Comments
SDDI1	Proposed 12.5' Curb Inlet	ON1	24	The onsite flow ON1 is lower than *29 cfs in the ultimate condition
X1	Existing 30" RCP	ON1	24	
SDDI2	Proposed 5' Curb Inlet	ON2	10	Incoming Flow = 19 cfs; Bypass Flow = 9 cfs
X2	Existing 24" RCP	SDDI2	10	X2 has been designed for 10 cfs

*Referenced from Infra Study (DS5135)

NOTES:
1. *REFERENCED FROM INFRA STUDY (DS5135).
2. **REFERENCED FROM MASS GRADE STUDY (DS5282)
3. ***REFERENCED FROM PHASE 1A STUDY (DS5199)

Westwood
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
Phone (702) 284-5300
Fax (702) 284-5399
westwoodps.com
Westwood Professional Services, Inc.

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CITY OF LAS VEGAS, NV

WOODSIDE HOMES OF NEVADA, LLC

LUNA AT SUNSTONE

DEVELOPED CONDITION DRAINAGE MAP

S 6
T 19 S
R 60 E

DATE: JAN 2021
DRAFTER: AA
DESIGNER: AA
CHECKED: SOA
PROJECT NO.
WSH1905.000

EXHIBIT F
SHEET 1 OF 1

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APPENDIX D

Soils Report & Referenced WSPGW Model

Updated Web Soil Survey

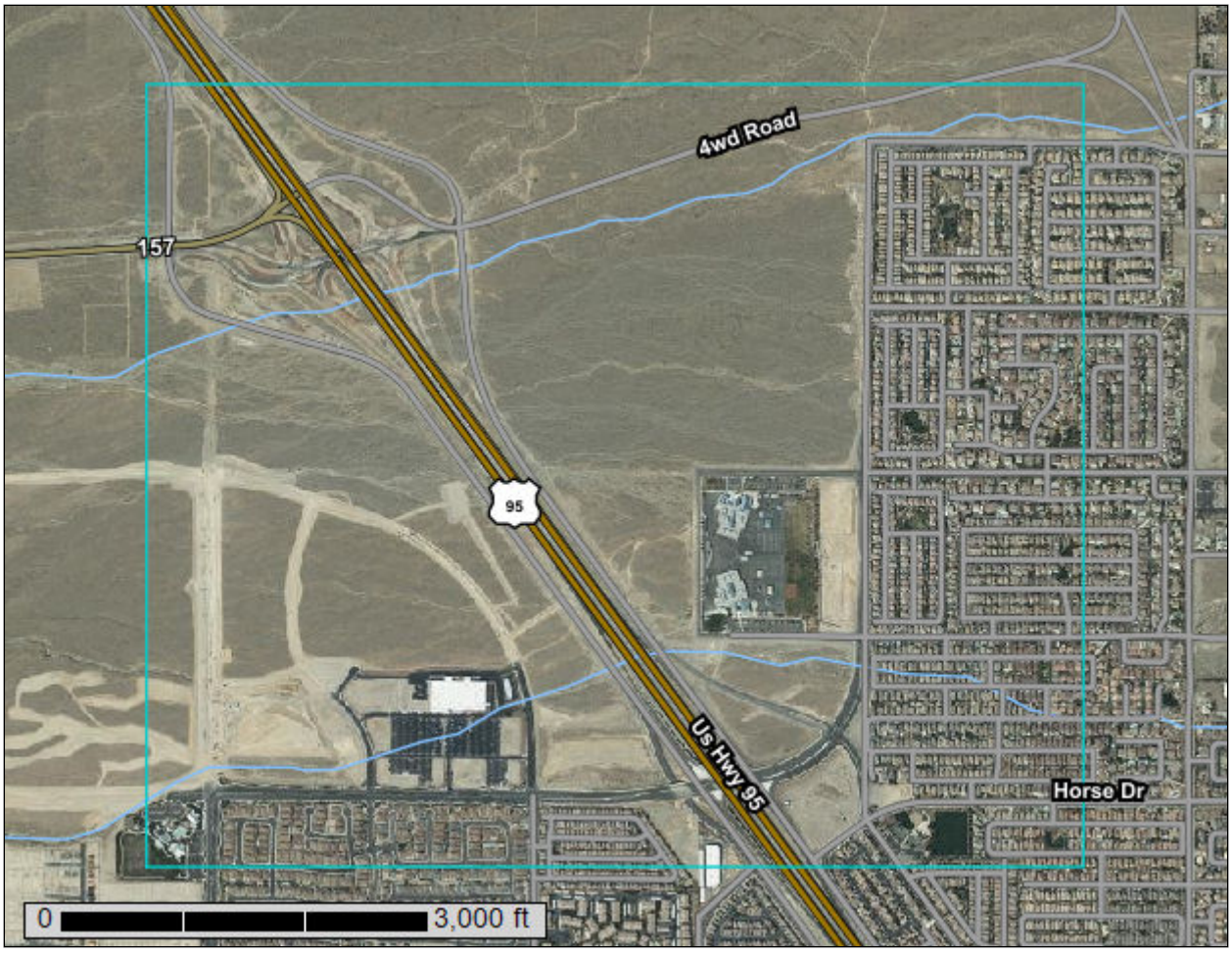
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Las Vegas Valley Area, Nevada, Part of Clark County



January 4, 2021

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:16,500 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 200 400 800 1200

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Las Vegas Valley Area, Nevada, Part of Clark County
Survey Area Data: Version 16, Aug 26, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 3, 2019—May 14, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
155	Cave gravelly fine sandy loam, 4 to 15 percent slopes	88.7	7.9%
314	Weiser-Wechech association	567.3	50.2%
400	Tencee very gravelly fine sandy loam, 2 to 8 percent slopes	473.3	41.9%
Totals for Area of Interest		**1,129.3**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The

delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Las Vegas Valley Area, Nevada, Part of Clark County

155—Cave gravelly fine sandy loam, 4 to 15 percent slopes

Map Unit Setting

National map unit symbol: hr9w
Elevation: 2,000 to 4,800 feet
Mean annual precipitation: 4 to 12 inches
Mean annual air temperature: 57 to 70 degrees F
Frost-free period: 180 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition

Cave and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cave

Setting

Landform: Fan remnants
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Mixed alluvium

Typical profile

H1 - 0 to 15 inches: gravelly fine sandy loam
H2 - 15 to 60 inches: indurated

Properties and qualities

Slope: 4 to 15 percent
Depth to restrictive feature: 4 to 20 inches to petrocalcic
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water capacity: Very low (about 1.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Other vegetative classification: LIMY 3-5" P.Z. (030XB019NV_3)
Hydric soil rating: No

314—Weiser-Wechech association

Map Unit Setting

National map unit symbol: 1tf6l
Elevation: 1,610 to 4,850 feet
Mean annual precipitation: 5 to 7 inches
Mean annual air temperature: 57 to 70 degrees F
Frost-free period: 180 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Weiser, very rarely flooded, and similar soils: 70 percent
Wechech and similar soils: 15 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Weiser, Very Rarely Flooded

Setting

Landform: Fan remnants
Landform position (two-dimensional): Summit
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Alluvium derived from limestone and dolomite

Typical profile

H1 - 0 to 6 inches: extremely gravelly fine sandy loam
H2 - 6 to 60 inches: extremely gravelly sandy loam

Properties and qualities

Slope: 2 to 8 percent
Surface area covered with cobbles, stones or boulders: 5.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Very rare
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: R030XB005NV - Arid Active Alluvial Fans
Hydric soil rating: No

Description of Wechech

Setting

Landform: Fan remnants
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Alluvium derived from limestone and dolomite

Typical profile

H1 - 0 to 2 inches: very gravelly sandy loam
H2 - 2 to 7 inches: very gravelly sandy loam
H3 - 7 to 13 inches: very gravelly sandy loam
H4 - 13 to 60 inches: cemented material

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: 8 to 14 inches to petrocalcic
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 50 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: Very low (about 0.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R030XB005NV - Arid Active Alluvial Fans
Hydric soil rating: No

Minor Components

Threelakes

Percent of map unit: 6 percent
Landform: Fan remnants
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R030XA066NV - CALCAREOUS LOAM 5-7 P.Z.
Hydric soil rating: No

Weiser, very rarely flooded

Percent of map unit: 5 percent
Landform: Fan remnants
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R030XB075NV - GRAVELLY FAN 5-7 P.Z.
Hydric soil rating: No

Typic torriorthents, sandy-skeletal, occasionally flooded

Percent of map unit: 4 percent

Landform: Drainageways
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R030XB028NV - VALLEY WASH
Hydric soil rating: No

400—Tencee very gravelly fine sandy loam, 2 to 8 percent slopes

Map Unit Setting

National map unit symbol: hrc1
Elevation: 2,400 to 5,700 feet
Mean annual precipitation: 4 to 10 inches
Mean annual air temperature: 57 to 64 degrees F
Frost-free period: 180 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Tencee and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tencee

Setting

Landform: Fan remnants
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Alluvium derived from limestone and dolomite

Typical profile

H1 - 0 to 9 inches: very gravelly fine sandy loam
H2 - 9 to 15 inches: very gravelly sandy loam
H3 - 15 to 19 inches: indurated

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: 7 to 20 inches to petrocalcic
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water capacity: Very low (about 1.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Hydric soil rating: No

Soil Information for All Uses

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

Water Features

This folder contains tabular reports that present soil hydrology information. The reports (tables) include all selected map units and components for each map unit. Water Features include ponding frequency, flooding frequency, and depth to water table.

Hydrologic Soil Group and Surface Runoff

This table gives estimates of various soil water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or

soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

Surface runoff refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. The concept indicates relative runoff for very specific conditions. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

Report—Hydrologic Soil Group and Surface Runoff

Absence of an entry indicates that the data were not estimated. The dash indicates no documented presence.

Hydrologic Soil Group and Surface Runoff–Las Vegas Valley Area, Nevada, Part of Clark County			
Map symbol and soil name	**Pct. of map unit**	**Surface Runoff**	**Hydrologic Soil Group**
155—Cave gravelly fine sandy loam, 4 to 15 percent slopes			
Cave	100	Very high	D
314—Weiser-Wechech association			
Weiser, very rarely flooded	70	Low	A
Wechech	15	Very high	D
Threelakes	6	Low	A
Weiser, very rarely flooded	5	Low	B
Typic torriorthents, sandy-skeletal, occasionally flooded	4	Very low	A
400—Tencee very gravelly fine sandy loam, 2 to 8 percent slopes			
Tencee	100	Very high	D

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Referenced WSPGW for SDDI1 Lateral

Ultimate Condition WSPG Summary
Lateral Line From Basin EPE1 to Ohare Road Mainline Model (OLAT1.WSW)

WSPG Station	Plan Set Project No. *	Equivalent Roadway Station	Improvement Plan Sheet	Storm Drain Dimension	Invert Elevation (ft)	Q_{100} (cfs)	WSE (ft)	Velocity (ft/s)	FG Elevation	Facility Description	HGL Check[1]
1000.00	OHA: EST1909	42+06.75	P-4	36" RCP	2656.16	43.00	2667.01	6.08	2669.80	Connection to SCP Model	OK
1035.07		41+83.87		36" RCP	2659.80	43.00	2667.23	6.08	2669.67	Wall Entrance	OK
1035.07				20' x 10' RCB	2659.80	43.00	2667.81	0.27	2669.67		OK
1037.57				20' x 10' RCB	2660.06	29.00	2667.81	0.19	2669.67	Junction with OH3a Drop Inlet Facility	OK
1037.57				20' x 10' RCB	2660.06	29.00	2667.81	0.19	2669.67		OK
1040.07				20' x 10' RCB	2660.14	29.00	2667.81	0.19	2669.67		OK
1040.07				20' x 10' RCB	2660.14	29.00	2667.81	5.91	2669.67	Wall Exit	OK
1073.75		41+83.37		30" RCP	2661.24	29.00	2667.98	5.91	2670.00	Addition of Flow from EPE1	OK
1073.75				30" RCP	2661.24	29.00	2667.98	5.91	2670.00		OK

This flow has been revised to 24 cfs in this study

The revised total flow is 38 cfs

```
T1 EST1905: SUNSTONE PHASE 1 INFRASTRUCTURE
T2 OHARE STORM DRAIN SYSTEM LATERAL 1 (OLAT1)
T3 FROM PARCEL EPE1 TO OHARE MAINLINE SD (OHA)
SO   1000.0002656.160 36                          2667.009
R    1035.0702659.800 36      .013                                  37.0
WE   1035.0702659.800  1      .013
R    1037.5702660.060  1      .013                                   0.0
JX   1037.5702660.060  1  1   .013   14.0           2660.060        90.0
R    1040.0702660.142  1      .013                                   0.0
WX   1040.0702660.142 30      .013
R    1073.7502661.240 30      .013
SH   1073.7502661.240 30
CD   1  3   0   0.000  10.000   20.000 0.000 0.000  0.0000.00  0.00
CD   2  3   0   0.000  12.000   12.500 0.000 0.000  0.0000.00  0.00
CD   3  3   0   0.000  12.000    7.500 0.000 0.000  0.0000.00  0.00
CD   4  3   0   0.000  17.000    5.000 0.000 0.000  0.0000.00  0.00
CD  18  4   1   0.000   1.500    0.000 0.000 0.000  0.0000.00  0.00
CD  24  4   1   0.000   2.000    0.000 0.000 0.000  0.0000.00  0.00
CD  30  4   1   0.000   2.500    0.000 0.000 0.000  0.0000.00  0.00
CD  36  4   1   0.000   3.000    0.000 0.000 0.000  0.0000.00  0.00
CD  42  4   1   0.000   3.500    0.000 0.000 0.000  0.0000.00  0.00
CD  48  4   1   0.000   4.000    0.000 0.000 0.000  0.0000.00  0.00
Q           29.000
```

This flow has been revised to 24 cfs in this study. System has not been remodeled since the revised flow is lower than the previous design flow

FILE: OLAT1.WSW W S P G W - EDIT LISTING - Version 14.10 Date: 4- 7-2020 Time:10:44:12

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

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	3	0	.000	10.000	20.000	.000	.000	.00										
CD	2	3	0	.000	12.000	12.500	.000	.000	.00										
CD	3	3	0	.000	12.000	7.500	.000	.000	.00										
CD	4	3	0	.000	17.000	5.000	.000	.000	.00										
CD	18	4	1		1.500														
CD	24	4	1		2.000														
CD	30	4	1		2.500														
CD	36	4	1		3.000														
CD	42	4	1		3.500														
CD	48	4	1		4.000														

W S P G W

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

EST1905: SUNSTONE PHASE 1 INFRASTRUCTURE

HEADING LINE NO 2 IS -

OHARE STORM DRAIN SYSTEM LATERAL 1 (OLAT1)

HEADING LINE NO 3 IS -

FROM PARCEL EPE1 TO OHARE MAINLINE SD (OHA)

W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1000.000	2656.160	36	2667.009

ELEMENT NO 2 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1035.070	2659.800	36	.013	.000	.000	37.000	0

ELEMENT NO 3 IS A WALL ENTRANCE *

U/S DATA	STATION	INVERT	SECT	FP
	1035.070	2659.800	1	.013

ELEMENT NO 4 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1037.570	2660.060	1	.013	.000	.000	.000	0

ELEMENT NO 5 IS A JUNCTION * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1037.570	2660.060	1	1	0	.013	14.000	.000	2660.060	.000	90.000	.000

RADIUS	ANGLE
.000	.000

THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING

THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING

ELEMENT NO 6 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1040.070	2660.142	1	.013	.000	.000	.000	0

ELEMENT NO 7 IS A WALL EXIT *

U/S DATA	STATION	INVERT	SECT
	1040.070	2660.142	30

ELEMENT NO 8 IS A REACH * * *

OLAT1.EDT

	U/S DATA	STATION	INVERT	SECT	N		RADIUS	ANGLE	ANG PT	MAN H
		1073.750	2661.240	30	.013		.000	.000	.000	0
ELEMENT NO	9 IS A SYSTEM HEADWORKS			*		*				
	U/S DATA	STATION	INVERT	SECT			W S ELEV			
		1073.750	2661.240	30			.000			

Program Package Serial Number: 7189

WATER SURFACE PROFILE LISTING Date: 4- 7-2020 Time:10:44:15

EST1905: SUNSTONE PHASE 1 INFRASTRUCTURE

OHARE STORM DRAIN SYSTEM LATERAL 1 (OLAT1)

FROM PARCEL EPE1 TO OHARE MAINLINE SD (OHA)

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
1000.000	2656.160	10.849	2667.009	43.00	6.08	.57	2667.58	.00	2.14	.00	3.000	.000	.00	1 .0
35.070	.1038					.0042	.15	10.85	.00	.91	.013	.00	.00	PIPE
1035.070	2659.800	7.425	2667.225	43.00	6.08	.57	2667.80	.00	2.14	.00	3.000	.000	.00	1 .0
WALL	ENTRANCE													
1035.070	2659.800	8.006	2667.806	43.00	.27	.00	2667.81	.00	.52	20.00	10.000	20.000	.00	0 .0
2.500	.1040					.0000	.00	8.01	.02	.18	.013	.00	.00	BOX
JUNCT STR	.0000					.0000	.00	7.75	.02		.013	.00	.00	BOX
1037.570	2660.060	7.748	2667.808	29.00	.19	.00	2667.81	.00	.40	20.00	10.000	20.000	.00	0 .0
2.500	.0328					.0000	.00	7.75	.01	.20	.013	.00	.00	BOX
1040.070	2660.142	7.666	2667.808	29.00	.19	.00	2667.81	.00	.40	20.00	10.000	20.000	.00	0 .0
WALL	EXIT													
1040.070	2660.142	7.667	2667.809	29.00	5.91	.54	2668.35	.00	1.84	.00	2.500	.000	.00	1 .0
33.680	.0326					.0050	.17	7.67	.00	1.09	.013	.00	.00	PIPE
1073.750	2661.240	6.737	2667.977	29.00	5.91	.54	2668.52	.00	1.84	.00	2.500	.000	.00	1 .0

```
1000.00    .I          C    H                              W  E          .   R
1001.51    .                                                                .
1003.01    .                                                                .
1004.52    .                                                                .
1006.02    .                                                                .
1007.53    .                                                                .
1009.03    .                                                                .
1010.54    .                                                                .
1012.04    .                                                                .
1013.55    .                                                                .
1015.05    .                                                                .
1016.56    .                                                                .
1018.06    .                                                                .
1019.57    .                                                                .
1021.07    .                                                                .
1022.58    .                                                                .
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1024.08    .                                                
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1049.67 .

1051.17 .

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1055.69 .

1057.19 .

1058.70 .

1060.20 .

1061.71 .

1063.21 .

1064.72 .

1066.22 .

1067.73 .

1069.23 .

1070.74 .

1072.24 .

1073.75 . I C H W E . R

2656.160 2657.558 2658.956 2660.354 2661.753 2663.151 2664.549 2665.947 2667.345 2668.744 2670.142

N O T E S
1. GLOSSARY
   I = INVERT ELEVATION
   C = CRITICAL DEPTH
   W = WATER SURFACE ELEVATION
   S = SUPER-ELEVATION
   H = HEIGHT OF CHANNEL
   E = ENERGY GRADE LINE
   X = CURVES CROSSING OVER
   B = BRIDGE ENTRANCE OR EXIT
   Y = WALL ENTRANCE OR EXIT
2. STATIONS FOR POINTS AT A JUMP MAY NOT BE PLOTTED EXACTLY

APPENDIX E

Hydraulic Computations

Interior Street Sections

Worksheet for Section ON1 - max%

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	4.46 %
Discharge	24.00 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.38	0.38
0+01.50	0.00
0+02.50	0.08
0+02.50	0.12
0+18.00	0.43
0+33.50	0.12
0+33.50	0.08
0+34.50	0.00
0+35.62	0.38
0+36.00	0.38

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+02.50, 0.08)	0.013
(0+02.50, 0.08)	(0+33.50, 0.08)	0.016
(0+33.50, 0.08)	(0+36.00, 0.38)	0.013

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

Results	
Normal Depth	0.37 ft
Roughness Coefficient	0.016
Elevation	0.37 ft
Elevation Range	0.00 to 0.43 ft
Flow Area	4.3 ft²
Wetted Perimeter	29.92 ft
Hydraulic Radius	0.14 ft
Top Width	29.70 ft

Worksheet for Section ON1 - max%

Results	
Normal Depth	0.37 ft
Critical Depth	0.50 ft
Critical Slope	0.58 %
Velocity	5.54 ft/s
Velocity Head	0.48 ft
Specific Energy	0.85 ft
Froude Number	2.556
Flow Type	Supercritical

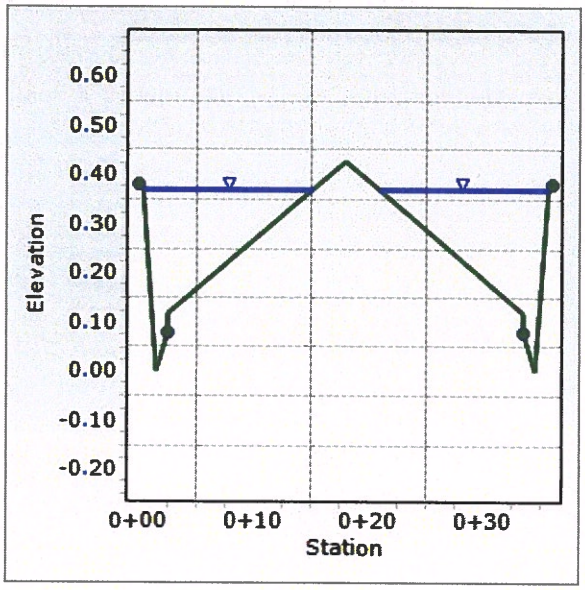
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Length	0.00 ft
Number Of Steps	0

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	0.50 ft
Channel Slope	4.46 %
Critical Slope	0.58 %

Cross Section for Section ON1 - max%

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	4.46 %
Normal Depth	0.37 ft
Discharge	24.00 cfs



Worksheet for Section ON2 - max%

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	4.00 %
Discharge	19.00 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.38	0.38
0+01.50	0.00
0+02.50	0.08
0+02.50	0.12
0+18.00	0.43
0+33.50	0.12
0+33.50	0.08
0+34.50	0.00
0+35.62	0.38
0+36.00	0.38

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+02.50, 0.08)	0.013
(0+02.50, 0.08)	(0+33.50, 0.08)	0.016
(0+33.50, 0.08)	(0+36.00, 0.38)	0.013

Options

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

Results

Normal Depth	0.36 ft
Roughness Coefficient	0.016
Elevation	0.36 ft
Elevation Range	0.00 to 0.43 ft
Flow Area	3.8 ft²
Wetted Perimeter	27.84 ft
Hydraulic Radius	0.14 ft
Top Width	27.63 ft

Worksheet for Section ON2 - max%

Results	
Normal Depth	0.36 ft
Critical Depth	0.46 ft
Critical Slope	0.61 %
Velocity	5.04 ft/s
Velocity Head	0.39 ft
Specific Energy	0.75 ft
Froude Number	2.403
Flow Type	Supercritical

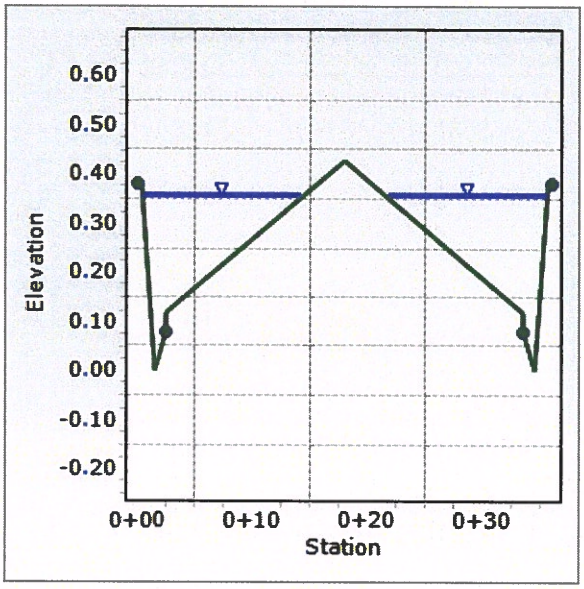
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Length	0.00 ft
Number Of Steps	0

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	0.36 ft
Critical Depth	0.46 ft
Channel Slope	4.00 %
Critical Slope	0.61 %

Cross Section for Section ON2 - max%

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	4.00 %
Normal Depth	0.36 ft
Discharge	19.00 cfs



Swale Computations

Worksheet for Section S1

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.77 %
Discharge	3.00 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	1.00
0+50.00	0.00
0+86.00	0.00
1+36.00	1.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 1.00)	(1+36.00, 1.00)	0.022

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	0.08 ft
Roughness Coefficient	0.022
Elevation	0.08 ft
Elevation Range	0.00 to 1.00 ft
Flow Area	3.0 ft²
Wetted Perimeter	43.56 ft
Hydraulic Radius	0.07 ft
Top Width	43.55 ft
Normal Depth	0.08 ft
Critical Depth	0.06 ft
Critical Slope	1.86 %
Velocity	1.00 ft/s
Velocity Head	0.02 ft
Specific Energy	0.09 ft
Froude Number	0.670
Flow Type	Subcritical

Worksheet for Section S1

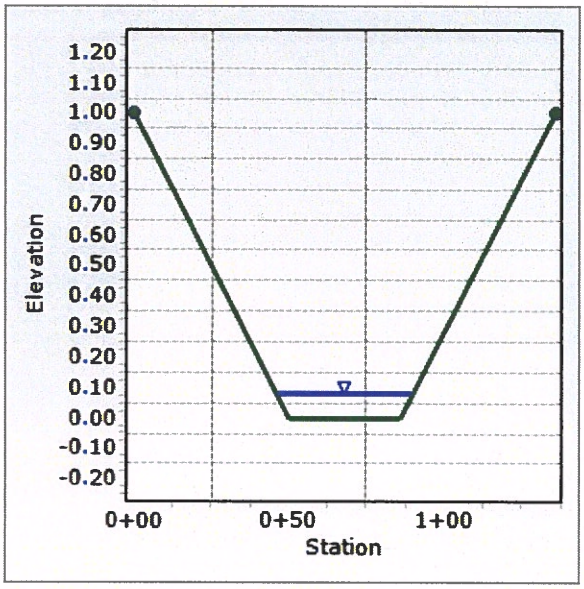
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Length	0.00 ft
Number Of Steps	0

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	0.08 ft
Critical Depth	0.06 ft
Channel Slope	0.77 %
Critical Slope	1.86 %

Cross Section for Section S1

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.77 %
Normal Depth	0.08 ft
Discharge	3.00 cfs



Worksheet for Section S2 - min%

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.70 %
Discharge	8.00 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	1.00
0+50.00	0.00
0+86.00	0.00
1+36.00	1.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 1.00)	(1+36.00, 1.00)	0.022

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	0.14 ft
Roughness Coefficient	0.022
Elevation	0.14 ft
Elevation Range	0.00 to 1.00 ft
Flow Area	5.9 ft²
Wetted Perimeter	49.72 ft
Hydraulic Radius	0.12 ft
Top Width	49.72 ft
Normal Depth	0.14 ft
Critical Depth	0.11 ft
Critical Slope	1.54 %
Velocity	1.36 ft/s
Velocity Head	0.03 ft
Specific Energy	0.17 ft
Froude Number	0.698
Flow Type	Subcritical

Worksheet for Section S2 - min%

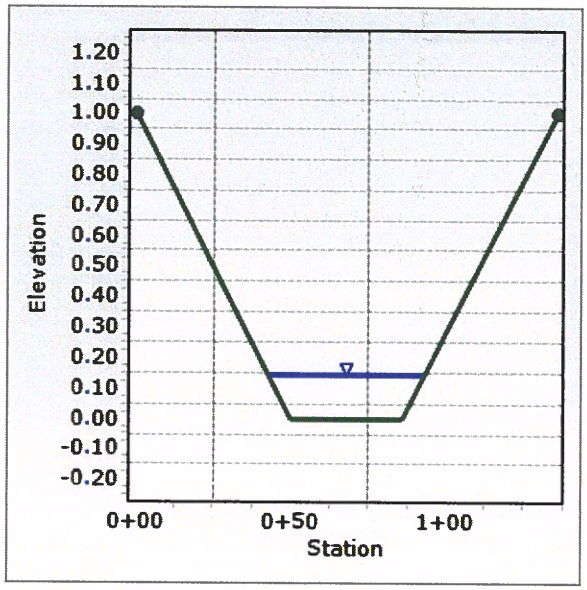
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Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

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	0.14 ft
Critical Depth	0.11 ft
Channel Slope	0.70 %
Critical Slope	1.54 %

Cross Section for Section S2 - min%

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.70 %
Normal Depth	0.14 ft
Discharge	8.00 cfs



Worksheet for Section S2 - max%

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	3.00 %
Discharge	8.00 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	1.00
0+50.00	0.00
0+86.00	0.00
1+36.00	1.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 1.00)	(1+36.00, 1.00)	0.022

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	0.09 ft
Roughness Coefficient	0.022
Elevation	0.09 ft
Elevation Range	0.00 to 1.00 ft
Flow Area	3.6 ft²
Wetted Perimeter	45.01 ft
Hydraulic Radius	0.08 ft
Top Width	45.01 ft
Normal Depth	0.09 ft
Critical Depth	0.11 ft
Critical Slope	1.54 %
Velocity	2.19 ft/s
Velocity Head	0.07 ft
Specific Energy	0.16 ft
Froude Number	1.357
Flow Type	Supercritical

Worksheet for Section S2 - max%

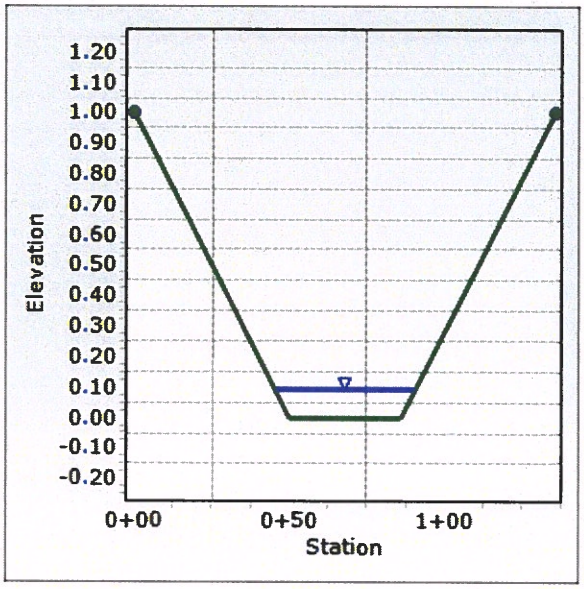
GVF Input Data	
Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

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	0.09 ft
Critical Depth	0.11 ft
Channel Slope	3.00 %
Critical Slope	1.54 %

Cross Section for Section S2 - max%

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	3.00 %
Normal Depth	0.09 ft
Discharge	8.00 cfs



APPENDIX F

Finished Floor Computations

LUNA AT SUNSTONE
FINISHED FLOOR - CITY OF LAS VEGAS JURISDICTION

INPUT INFORMATION					FINISHED FLOORS					NOTES
Lot Number	Hydraulic Section Utilized	T/C[1] (ft)	F/L[2] (ft)	D_{100} (ft)	Flowline F.F.$_{min}$[3] (ft)	T/C + 6" F.F.$_{min}$[4] (ft)	F.F.$_{Design}$ (ft)	Flowline Check	T/C + 6" Check	See References on Last Sheet
1	ON1	2682.83	2682.45	0.49	2683.43	2683.33	2684.4	OK	OK	
2	ON1	2681.11	2680.73	0.49	2681.71	2681.61	2682.7	OK	OK	
3	ON1	2679.54	2679.16	0.49	2680.14	2680.04	2681.2	OK	OK	
4	ON1	2678.13	2677.75	0.49	2678.73	2678.63	2679.7	OK	OK	
5	ON1	2676.99	2676.61	0.49	2677.59	2677.49	2678.6	OK	OK	
6	ON1	2676.12	2675.74	0.49	2676.72	2676.62	2677.7	OK	OK	
7	ON1	2674.95	2674.57	0.49	2675.55	2675.45	2676.8	OK	OK	
8	ON1	2675.28	2674.90	0.49	2675.88	2675.78	2677.1	OK	OK	
9	ON1	2675.62	2675.24	0.49	2676.22	2676.12	2677.4	OK	OK	
10	ON1	2675.95	2675.57	0.49	2676.55	2676.45	2677.7	OK	OK	
11	ON1	2676.25	2675.87	0.49	2676.85	2676.75	2677.9	OK	OK	
12	ON1	2676.54	2676.16	0.49	2677.14	2677.04	2678.2	OK	OK	
13	ON1	2676.85	2676.47	0.49	2677.45	2677.35	2678.5	OK	OK	
14	ON1	2677.15	2676.77	0.49	2677.75	2677.65	2678.8	OK	OK	
15	ON1	2677.45	2677.07	0.49	2678.05	2677.95	2679.1	OK	OK	
16	ON1	2677.75	2677.37	0.49	2678.35	2678.25	2679.4	OK	OK	
17	ON1	2678.05	2677.67	0.49	2678.65	2678.55	2679.7	OK	OK	
18	ON1	2678.35	2677.97	0.49	2678.95	2678.85	2680.0	OK	OK	
19	ON1	2678.69	2678.31	0.49	2679.29	2679.19	2680.4	OK	OK	
20	ON1	2679.02	2678.64	0.49	2679.62	2679.52	2680.7	OK	OK	
21	ON1	2679.32	2678.94	0.49	2679.92	2679.82	2681.0	OK	OK	
22	ON2	2679.35	2678.97	0.46	2679.89	2679.85	2681.3	OK	OK	
23	ON2	2679.35	2678.97	0.46	2679.89	2679.85	2681.1	OK	OK	
24	ON2	2679.11	2678.73	0.46	2679.65	2679.61	2680.8	OK	OK	
25	ON2	2678.81	2678.43	0.46	2679.35	2679.31	2680.5	OK	OK	
26	ON2	2678.51	2678.13	0.46	2679.05	2679.01	2680.2	OK	OK	
27	ON2	2677.91	2677.53	0.46	2678.45	2678.41	2679.9	OK	OK	
28	ON2	2677.91	2677.53	0.46	2678.45	2678.41	2679.7	OK	OK	
29	ON2	2677.62	2677.24	0.46	2678.16	2678.12	2679.3	OK	OK	
30	ON2	2677.32	2676.94	0.46	2677.86	2677.82	2679.0	OK	OK	
31	ON2	2677.02	2676.64	0.46	2677.56	2677.52	2678.7	OK	OK	
32	ON2	2676.72	2676.34	0.46	2677.26	2677.22	2678.5	OK	OK	
33	ON2	2676.56	2676.18	0.46	2677.10	2677.06	2678.4	OK	OK	

LUNA AT SUNSTONE
FINISHED FLOOR - CITY OF LAS VEGAS JURISDICTION

INPUT INFORMATION					FINISHED FLOORS					NOTES
Lot Number	Hydraulic Section Utilized	T/C[1] (ft)	F/L[2] (ft)	D_{100} (ft)	Flowline F.F.$_{min}$[3] (ft)	T/C + 6" F.F.$_{min}$[4] (ft)	F.F.$_{Design}$ (ft)	Flowline Check	T/C + 6" Check	See References on Last Sheet
34	ON2	2676.32	2675.94	0.46	2676.86	2676.82	2678.3	OK	OK	
35	ON2	2677.06	2676.68	0.46	2677.60	2677.56	2678.6	OK	OK	
36	ON2	2678.05	2677.67	0.46	2678.59	2678.55	2679.6	OK	OK	
37	ON2	2679.41	2679.03	0.46	2679.95	2679.91	2680.9	OK	OK	
38	ON2	2681.28	2680.90	0.46	2681.82	2681.78	2682.8	OK	OK	
39	ON2	2683.00	2682.62	0.46	2683.54	2683.50	2684.5	OK	OK	
40	ON2	2684.74	2684.36	0.46	2685.28	2685.24	2686.2	OK	OK	
41	ON2	2686.79	2686.41	0.46	2687.33	2687.29	2688.3	OK	OK	
42	ON2	2689.24	2688.86	0.46	2689.78	2689.74	2690.7	OK	OK	
43	ON2	2691.55	2691.17	0.46	2692.09	2692.05	2693.1	OK	OK	
44	ON2	2693.10	2692.72	0.46	2693.64	2693.60	2694.6	OK	OK	
45	ON2	2693.71	2693.33	0.46	2694.25	2694.21	2695.3	OK	OK	
46	ON2	2695.21	2694.83	0.46	2695.75	2695.71	2697.0	OK	OK	
47	ON2	2694.98	2694.60	0.46	2695.52	2695.48	2697.0	OK	OK	
48	ON2	2695.16	2694.78	0.46	2695.70	2695.66	2696.9	OK	OK	
49	ON2	2695.41	2695.03	0.46	2695.95	2695.91	2697.2	OK	OK	
50	ON2	2695.65	2695.27	0.46	2696.19	2696.15	2697.4	OK	OK	
51	ON2	2695.90	2695.52	0.46	2696.44	2696.40	2697.7	OK	OK	
52	ON2	2696.13	2695.75	0.46	2696.67	2696.63	2697.9	OK	OK	
53	ON2	2696.46	2696.08	0.46	2697.00	2696.96	2698.1	OK	OK	
54	ON2	2696.79	2696.41	0.46	2697.33	2697.29	2698.5	OK	OK	
55	ON2	2697.12	2696.74	0.46	2697.66	2697.62	2698.8	OK	OK	
56	ON2	2697.40	2697.02	0.46	2697.94	2697.90	2699.1	OK	OK	
57	ON1	2697.43	2697.05	0.49	2698.03	2697.93	2699.2	OK	OK	
58	ON1	2697.19	2696.81	0.49	2697.79	2697.69	2698.8	OK	OK	
59	ON1	2696.79	2696.41	0.49	2697.39	2697.29	2698.4	OK	OK	
60	ON1	2696.39	2696.01	0.49	2696.99	2696.89	2698.0	OK	OK	
61	ON1	2695.99	2695.61	0.49	2696.59	2696.49	2697.6	OK	OK	
62	ON1	2695.59	2695.21	0.49	2696.19	2696.09	2697.2	OK	OK	
63	ON1	2695.19	2694.81	0.49	2695.79	2695.69	2696.8	OK	OK	
64	ON1	2694.80	2694.42	0.49	2695.40	2695.30	2696.4	OK	OK	
65	ON1	2694.36	2693.98	0.49	2694.96	2694.86	2695.9	OK	OK	
66	ON1	2693.56	2693.18	0.49	2694.16	2694.06	2695.1	OK	OK	

LUNA AT SUNSTONE
FINISHED FLOOR - CITY OF LAS VEGAS JURISDICTION

INPUT INFORMATION					FINISHED FLOORS					NOTES
Lot Number	Hydraulic Section Utilized	T/C[1] (ft)	F/L[2] (ft)	D_{100} (ft)	Flowline F.F.$_{min}$[3] (ft)	T/C + 6" F.F.$_{min}$[4] (ft)	F.F.$_{Design}$ (ft)	Flowline Check	T/C + 6" Check	See References on Last Sheet
67	ON1	2692.33	2691.95	0.49	2692.93	2692.83	2693.9	OK	OK	
68	ON1	2691.62	2691.24	0.49	2692.22	2692.12	2693.2	OK	OK	
69	ON1	2693.63	2693.25	0.49	2694.23	2694.13	2695.2	OK	OK	
70	ON1	2692.01	2691.63	0.49	2692.61	2692.51	2693.6	OK	OK	
71	ON1	2689.87	2689.49	0.49	2690.47	2690.37	2691.5	OK	OK	
72	ON1	2687.77	2687.39	0.49	2688.37	2688.27	2689.4	OK	OK	
73	ON1	2691.41	2691.03	0.49	2692.01	2691.91	2693.1	OK	OK	
74	ON1	2692.59	2692.21	0.49	2693.19	2693.09	2694.2	OK	OK	
75	ON1	2693.67	2693.29	0.49	2694.27	2694.17	2695.3	OK	OK	
76	ON1	2694.37	2693.99	0.49	2694.97	2694.87	2696.0	OK	OK	
77	ON1	2694.77	2694.39	0.49	2695.37	2695.27	2696.4	OK	OK	
78	ON1	2695.13	2694.75	0.49	2695.73	2695.63	2696.9	OK	OK	
79	ON1	2695.49	2695.11	0.49	2696.09	2695.99	2697.2	OK	OK	
80	ON1	2695.85	2695.47	0.49	2696.45	2696.35	2697.6	OK	OK	
81	ON1	2696.21	2695.83	0.49	2696.81	2696.71	2698.0	OK	OK	
82	ON1	2696.57	2696.19	0.49	2697.17	2697.07	2698.3	OK	OK	
83	ON1	2696.93	2696.55	0.49	2697.53	2697.43	2698.7	OK	OK	
84	ON1	2697.29	2696.91	0.49	2697.89	2697.79	2699.0	OK	OK	
85	ON1	2697.43	2697.05	0.49	2698.03	2697.93	2699.4	OK	OK	
86	ON2	2697.26	2696.88	0.46	2697.80	2697.76	2699.0	OK	OK	
87	ON2	2696.89	2696.51	0.46	2697.43	2697.39	2698.6	OK	OK	
88	ON2	2696.53	2696.15	0.46	2697.07	2697.03	2698.3	OK	OK	
89	ON2	2696.16	2695.78	0.46	2696.70	2696.66	2697.9	OK	OK	
90	ON2	2695.80	2695.42	0.46	2696.34	2696.30	2697.5	OK	OK	
91	ON2	2695.43	2695.05	0.46	2695.97	2695.93	2697.2	OK	OK	
92	ON2	2695.07	2694.69	0.46	2695.61	2695.57	2696.8	OK	OK	
93	ON2	2688.50	2688.12	0.46	2689.04	2689.00	2690.1	OK	OK	
94	ON2	2686.13	2685.75	0.46	2686.67	2686.63	2687.7	OK	OK	
95	ON2	2684.20	2683.82	0.46	2684.74	2684.70	2685.8	OK	OK	
96	ON2	2682.48	2682.10	0.46	2683.02	2682.98	2684.1	OK	OK	
97	ON2	2680.77	2680.39	0.46	2681.31	2681.27	2682.4	OK	OK	
98	ON2	2679.16	2678.78	0.46	2679.70	2679.66	2680.8	OK	OK	
99	ON2	2677.87	2677.49	0.46	2678.41	2678.37	2679.5	OK	OK	

LUNA AT SUNSTONE
FINISHED FLOOR - CITY OF LAS VEGAS JURISDICTION

INPUT INFORMATION					FINISHED FLOORS					NOTES
Lot Number	Hydraulic Section Utilized	T/C[1] (ft)	F/L[2] (ft)	D_{100} (ft)	Flowline F.F.$_{min}$[3] (ft)	T/C + 6" F.F.$_{min}$[4] (ft)	F.F.$_{Design}$ (ft)	Flowline Check	T/C + 6" Check	See References on Last Sheet
100	ON2	2676.92	2676.54	0.46	2677.46	2677.42	2678.5	OK	OK	
101	ON2	2678.27	2677.89	0.46	2678.81	2678.77	2679.8	OK	OK	
102	ON2	2679.02	2678.64	0.46	2679.56	2679.52	2680.5	OK	OK	
103	ON2	2680.10	2679.72	0.46	2680.64	2680.60	2681.6	OK	OK	
104	ON2	2681.28	2680.90	0.46	2681.82	2681.78	2682.8	OK	OK	
105	ON2	2682.37	2681.99	0.46	2682.91	2682.87	2683.9	OK	OK	
106	ON2	2683.44	2683.06	0.46	2683.98	2683.94	2684.9	OK	OK	
107	ON2	2684.52	2684.14	0.46	2685.06	2685.02	2686.0	OK	OK	
108	ON2	2685.80	2685.42	0.46	2686.34	2686.30	2687.0	OK	OK	
109	ON2	2683.81	2683.43	0.46	2684.35	2684.31	2685.7	OK	OK	
110	ON2	2684.05	2683.67	0.46	2684.59	2684.55	2685.8	OK	OK	
111	ON2	2684.29	2683.91	0.46	2684.83	2684.79	2686.1	OK	OK	
112	ON2	2684.53	2684.15	0.46	2685.07	2685.03	2686.3	OK	OK	
113	ON2	2684.00	2683.62	0.46	2684.54	2684.50	2686.1	OK	OK	
114	ON1	2684.00	2683.62	0.49	2684.60	2684.50	2685.6	OK	OK	
115	ON1	2683.41	2683.03	0.49	2684.01	2683.91	2685.0	OK	OK	
116	ON1	2682.76	2682.38	0.49	2683.36	2683.26	2684.3	OK	OK	
117	ON1	2682.12	2681.74	0.49	2682.72	2682.62	2683.7	OK	OK	
118	ON1	2681.55	2681.17	0.49	2682.15	2682.05	2683.1	OK	OK	
119	ON1	2680.99	2680.61	0.49	2681.59	2681.49	2682.6	OK	OK	
120	ON1	2680.61	2680.23	0.49	2681.21	2681.11	2682.3	OK	OK	
121	ON1	2680.31	2679.93	0.49	2680.91	2680.81	2682.1	OK	OK	
122	ON1	2680.05	2679.67	0.49	2680.65	2680.55	2681.8	OK	OK	
123	ON1	2680.61	2680.23	0.49	2681.21	2681.11	2682.3	OK	OK	
124	ON1	2681.18	2680.80	0.49	2681.78	2681.68	2682.9	OK	OK	
125	ON1	2681.74	2681.36	0.49	2682.34	2682.24	2683.4	OK	OK	
126	ON1	2682.31	2681.93	0.49	2682.91	2682.81	2684.0	OK	OK	
127	ON1	2682.86	2682.48	0.49	2683.46	2683.36	2684.6	OK	OK	
128	ON1	2683.41	2683.03	0.49	2684.01	2683.91	2685.1	OK	OK	
129	ON1	2683.93	2683.55	0.49	2684.53	2684.43	2685.7	OK	OK	
130	ON2	2684.10	2683.72	0.46	2684.64	2684.60	2686.3	OK	OK	
131	ON2	2684.10	2683.72	0.46	2684.64	2684.60	2686.0	OK	OK	
132	ON2	2683.82	2683.44	0.46	2684.36	2684.32	2685.6	OK	OK	

LUNA AT SUNSTONE FINISHED FLOOR - CITY OF LAS VEGAS JURISDICTION										
INPUT INFORMATION					FINISHED FLOORS					NOTES
Lot Number	Hydraulic Section Utilized	T/C[1] (ft)	F/L[2] (ft)	D_{100} (ft)	Flowline $F.F._{min}$[3] (ft)	T/C + 6" $F.F._{min}$[4] (ft)	$F.F._{Design}$ (ft)	Flowline Check	T/C + 6" Check	See References on Last Sheet
133	ON2	2682.01	2681.63	0.46	2682.55	2682.51	2683.6	OK	OK	
134	ON2	2680.98	2680.60	0.46	2681.52	2681.48	2682.6	OK	OK	
135	ON2	2679.91	2679.53	0.46	2680.45	2680.41	2681.6	OK	OK	
136	ON2	2678.84	2678.46	0.46	2679.38	2679.34	2680.5	OK	OK	
137	ON2	2678.26	2677.88	0.46	2678.80	2678.76	2679.9	OK	OK	
138	ON2	2678.81	2678.43	0.46	2679.35	2679.31	2680.6	OK	OK	
139	ON2	2679.12	2678.74	0.46	2679.66	2679.62	2680.9	OK	OK	
140	ON2	2679.35	2678.97	0.46	2679.89	2679.85	2681.2	OK	OK	
141	ON1	2679.35	2678.97	0.49	2679.95	2679.85	2681.4	OK	OK	
142	ON1	2679.34	2678.96	0.49	2679.94	2679.84	2681.1	OK	OK	
143	ON1	2679.09	2678.71	0.49	2679.69	2679.59	2680.8	OK	OK	
144	ON1	2678.79	2678.41	0.49	2679.39	2679.29	2680.5	OK	OK	
145	ON1	2678.49	2678.11	0.49	2679.09	2678.99	2680.2	OK	OK	
146	ON1	2678.19	2677.81	0.49	2678.79	2678.69	2679.9	OK	OK	
147	ON1	2677.88	2677.50	0.49	2678.48	2678.38	2679.6	OK	OK	
148	ON1	2677.58	2677.20	0.49	2678.18	2678.08	2679.3	OK	OK	
149	ON1	2677.28	2676.90	0.49	2677.88	2677.78	2679.0	OK	OK	
150	ON1	2677.34	2676.96	0.49	2677.94	2677.84	2678.9	OK	OK	
151	ON1	2678.23	2677.85	0.49	2678.83	2678.73	2679.8	OK	OK	
152	ON1	2679.19	2678.81	0.49	2679.79	2679.69	2680.7	OK	OK	
153	ON1	2680.15	2679.77	0.49	2680.75	2680.65	2681.7	OK	OK	
154	ON1	2681.11	2680.73	0.49	2681.71	2681.61	2682.7	OK	OK	
155	ON1	2681.92	2681.54	0.49	2682.52	2682.42	2683.7	OK	OK	
156	ON1	2682.98	2682.60	0.49	2683.58	2683.48	2684.6	OK	OK	
157	ON1	2681.06	2680.68	0.49	2681.66	2681.56	2682.7	OK	OK	
158	ON1	2679.59	2679.21	0.49	2680.19	2680.09	2681.2	OK	OK	
159	ON1	2678.18	2677.80	0.49	2678.78	2678.68	2679.8	OK	OK	
160	ON1	2677.03	2676.65	0.49	2677.63	2677.53	2678.7	OK	OK	
161	ON1	2676.22	2675.84	0.49	2676.82	2676.72	2677.9	OK	OK	
162	ON1	2675.74	2675.36	0.49	2676.34	2676.24	2677.4	OK	OK	

LUNA AT SUNSTONE
FINISHED FLOOR - CITY OF LAS VEGAS JURISDICTION

INPUT INFORMATION					FINISHED FLOORS					NOTES
Lot Number	Hydraulic Section Utilized	T/C[1] (ft)	F/L[2] (ft)	D_{100} (ft)	Flowline $F.F._{min}$[3] (ft)	T/C + 6" $F.F._{min}$[4] (ft)	$F.F._{Design}$ (ft)	Flowline Check	T/C + 6" Check	See References on Last Sheet

Where:

1: Top of Curb at High Side of Lot

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

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

4: City of Las Vegas minimum allowable finished floor elevation = T.C. @ high side of lot + 6-inches

5: These lots have an adjacent solid grouted wall that protects the FF.

City of Las Vegas Finished Floor Criteria:

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

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

Supplemental Finish Floor Checks

Drainage Easements Check							
Lot Number	High TC/FL[1]	Section	Flow Depth[2]	Min FF[3]	Design FF	Check	Solid Grout
6	2674.93	EO1	0.25	2676.68	2677.70	OK	No
7	2674.89	EO1	0.25	2676.64	2676.80	OK	No
34	2676.19	EO2	0.52	2678.21	2678.30	OK	No
35	2676.19	EO2	0.52	2678.21	2678.60	OK	No

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

2: Flow depth is either normal depth or weir depth (whichever is higher).

3: Min FF is the High TC/FL plus the Flow Depth plus 18 inches.

Adjacent/Perimeter Street Check									
Lot Number	Street	High TC[1]	High FL[2]	Section	Flow Depth[3]	Min FF[4]	Design FF	Check	Solid Grout
1	O'HARE RD	2683.00	2682.50	*OH	0.49	2683.48	2684.4	OK	No
1	LUNA TERRA ST	2682.95	2682.45	*OH	0.49	2683.43	2684.4	OK	No
2	O'HARE RD	2680.21	2679.71	*OH	0.49	2680.69	2682.7	OK	No
3	O'HARE RD	2677.60	2677.10	*OH	0.49	2678.08	2681.2	OK	No
4	O'HARE RD	2676.45	2675.95	*OH	0.49	2676.93	2679.7	OK	No
5	O'HARE RD	2674.00	2673.50	*OH	0.49	2674.48	2678.6	OK	No
6	O'HARE RD	2672.76	2672.26	*OH	0.49	2673.24	2677.7	OK	No
6	LUNAR EFFECT ST	2675.33	2674.95	ON1	0.49	2675.93	2677.7	OK	No
7	O'HARE RD	2670.09	2669.59	*OH	0.49	2670.57	2676.8	OK	No
7	SKYE CANYON	2669.15	2668.65	*SC	0.46	2669.57	2676.8	OK	No
8	SKYE CANYON	2669.47	2668.97	*SC	0.46	2669.89	2677.1	OK	No
9	SKYE CANYON	2669.90	2669.40	*SC	0.46	2670.32	2677.4	OK	No
10	SKYE CANYON	2670.13	2669.63	*SC	0.46	2670.55	2677.7	OK	No
11	SKYE CANYON	2670.33	2669.83	*SC	0.46	2670.75	2677.9	OK	No
12	SKYE CANYON	2670.32	2669.82	*SC	0.46	2670.74	2678.2	OK	No
13	SKYE CANYON	2670.47	2669.97	*SC	0.46	2670.89	2678.5	OK	No
14	SKYE CANYON	2670.69	2670.19	*SC	0.46	2671.11	2678.8	OK	No
15	SKYE CANYON	2670.80	2670.30	*SC	0.46	2671.22	2679.1	OK	No
16	SKYE CANYON	2671.02	2670.52	*SC	0.46	2671.44	2679.4	OK	No
17	SKYE CANYON	2671.24	2670.74	*SC	0.46	2671.66	2679.7	OK	No
18	SKYE CANYON	2671.36	2670.86	*SC	0.46	2671.78	2680.0	OK	No
19	SKYE CANYON	2671.58	2671.08	*SC	0.46	2672.00	2680.4	OK	No
20	SKYE CANYON	2671.80	2671.30	*SC	0.46	2672.22	2680.7	OK	No

21	SKYE CANYON	2672.00	2671.50	*SC	0.46	2672.42	2681.0	OK	No
22	SKYE CANYON	2672.25	2671.75	*SC	0.46	2672.67	2681.3	OK	No
23	SKYE CANYON	2672.47	2671.97	*SC	0.46	2672.89	2681.1	OK	No
24	SKYE CANYON	2672.70	2672.20	*SC	0.46	2673.12	2680.8	OK	No
25	SKYE CANYON	2672.82	2672.32	*SC	0.46	2673.24	2680.5	OK	No
26	SKYE CANYON	2673.07	2672.57	*SC	0.46	2673.49	2680.2	OK	No
27	SKYE CANYON	2673.31	2672.81	*SC	0.46	2673.73	2679.9	OK	No
28	SKYE CANYON	2673.56	2673.06	*SC	0.46	2673.98	2679.7	OK	No
29	SKYE CANYON	2673.68	2673.18	*SC	0.46	2674.10	2679.3	OK	No
30	SKYE CANYON	2673.66	2673.16	*SC	0.46	2674.08	2679.0	OK	No
31	SKYE CANYON	2673.46	2672.96	*SC	0.46	2673.88	2678.7	OK	No
32	SKYE CANYON	2673.20	2672.70	*SC	0.46	2673.62	2678.5	OK	No
33	SKYE CANYON	2673.11	2672.61	*SC	0.46	2673.53	2678.4	OK	No
34	SKYE CANYON	2672.88	2672.38	*SC	0.46	2673.30	2678.3	OK	No
34	IRON MOUTAIN	2674.86	2674.36	*IR	0.74	2675.84	2678.3	OK	No
35	IRON MOUTAIN	2676.19	2675.69	*IR	0.74	2677.17	2678.6	OK	No
35	LUNAR EFFECT ST	2676.31	2675.93	ON2	0.46	2676.85	2678.6	OK	No
36	IRON MOUTAIN	2677.65	2677.15	*IR	0.74	2678.63	2679.6	OK	No
37	IRON MOUTAIN	2679.11	2678.61	*IR	0.74	2680.09	2680.9	OK	No
38	IRON MOUTAIN	2679.68	2679.18	*IR	0.74	2680.66	2682.8	OK	No
39	IRON MOUTAIN	2681.14	2680.64	*IR	0.74	2682.12	2684.5	OK	No
40	IRON MOUTAIN	2682.03	2681.53	*IR	0.74	2683.01	2686.2	OK	No
41	IRON MOUTAIN	2683.52	2683.02	*IR	0.74	2684.50	2688.3	OK	No
42	IRON MOUTAIN	2685.00	2684.50	*IR	0.74	2685.98	2690.7	OK	No
43	IRON MOUTAIN	2686.42	2685.92	*IR	0.74	2687.40	2693.1	OK	No
44	IRON MOUTAIN	2687.44	2686.94	*IR	0.74	2688.42	2694.6	OK	No
45	IRON MOUTAIN	2690.17	2689.67	*IR	0.74	2691.15	2695.3	OK	No
45	LUNAR PHASE ST	2691.88	2691.50	ON2	0.46	2692.42	2695.3	OK	No
46	IRON MOUTAIN	2695.35	2694.85	*IR	0.74	2696.33	2697.0	OK	No
69	O'HARE RD	2694.42	2693.92	*OH	0.49	2694.90	2695.2	OK	No
70	O'HARE RD	2692.82	2692.32	*OH	0.49	2693.30	2693.6	OK	No
71	O'HARE RD	2690.84	2690.34	*OH	0.49	2691.32	2691.5	OK	No
72	O'HARE RD	2688.70	2688.20	*OH	0.49	2689.18	2689.4	OK	No
73	STREET B	2688.31	2687.93	ON1	0.49	2688.91	2693.1	OK	No
92	ENCOUNTER AVE	2691.16	2690.78	ON2	0.46	2691.70	2696.8	OK	No
100	LUNAR EFFECT ST	2677.10	2676.72	ON2	0.46	2677.64	2678.5	OK	No
101	LUNAR EFFECT ST	2677.47	2677.09	ON2	0.46	2678.01	2679.8	OK	No
109	FAR SIDE AVE	2685.58	2685.20	ON1	0.49	2686.18	2685.7	CHECK	Yes
121	PERIGREE AVE	2681.77	2681.39	ON1	0.49	2682.37	2682.1	CHECK	Yes
122	PERIGREE AVE	2678.77	2678.39	ON1	0.49	2679.37	2681.8	OK	No

133	LUNAR RAY ST	2678.51	2678.13	ON2	0.46	2679.05	2683.6	OK	No
137	LUNAR EFFECT ST	3011.47	3011.09	ON2	0.46	3012.01	2679.9	CHECK	Yes
149	PERIGREE AVE	2677.38	2677.00	ON1	0.49	2677.98	2679.0	OK	No
150	LUNAR EFFECT ST	2676.49	2676.11	ON1	0.49	2677.09	2678.9	OK	No
162	LUNAR EFFECT ST	2676.10	2675.72	ON1	0.49	2676.70	2677.4	OK	No

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

2: 0.38-ft/ 0.50-ft is subtracted from the High TC to obain the High FL elevation

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

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

Specific Energy Check							
Lot Number	High TC[1]	High FL[2]	Section	Specific Energy[3]	Min FF[4]	Design FF	Check
8	2675.28	2674.90	ON1	0.85	2675.75	2677.10	OK
9	2675.62	2675.24	ON1	0.85	2676.09	2677.40	OK
13	2676.85	2676.47	ON1	0.85	2677.32	2678.50	OK
28	2677.91	2677.53	ON2	0.75	2678.28	2679.70	OK
33	2676.42	2676.04	ON2	0.75	2676.79	2678.40	OK
70	2692.01	2691.63	ON1	0.85	2692.48	2693.60	OK
153	2680.15	2679.77	ON1	0.85	2680.62	2681.70	OK

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

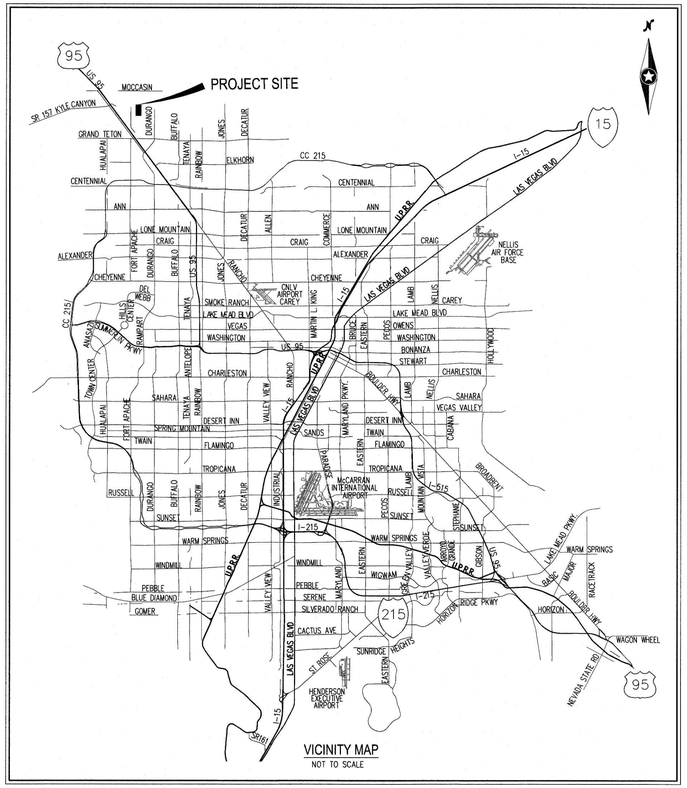
2: 0.38-ft is subtracted from the High TC to obain the High FL elevation

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

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

APPENDIX G

CD of Electronic Files & Improvement Plans

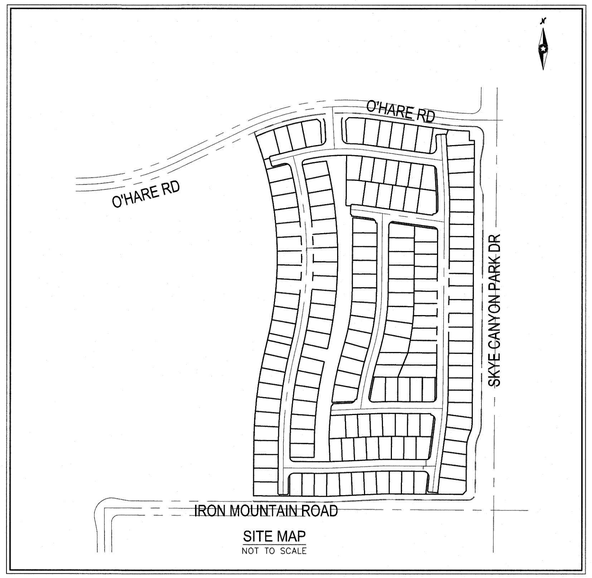


VICINITY MAP
NOT TO SCALE

Woodside Homes
BETTER BY DESIGN

IMPROVEMENT PLANS FOR
LUNA AT SUNSTONE

CITY OF LAS VEGAS, NEVADA
RESIDENTIAL SUBDIVISION
APN: 125-06-810-004



SITE MAP
NOT TO SCALE

SHEET INDEX	
NO.	SHEET TITLE
1	COVER SHEET
2	GENERAL NOTES
3	LEGEND, ABBREVIATIONS, & QUANTITIES
4	GRADING PLAN I
5	GRADING PLAN II
6	GRADING PLAN III
7	GRADING PLAN IV
8	GRADING PLAN V
9	GRADING PLAN VI
10	GRADING PLAN VII - INTERIM
11	GRADING PLAN VIII - INTERIM
12	GRADING PLAN IX - INTERIM
13	STREET SECTIONS & GRADING DETAILS I
14	GRADING DETAILS II
15	PLAN AND PROFILE - STORM DRAIN LATERALS

APPROVALS

LAS VEGAS FIRE AND RESCUE — DATE

CITY OF LAS VEGAS PLANNING DEPARTMENT

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 STATUES AND / OR PUBLIC UTILITY COMMISSION RULES AND REGULATIONS.

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE: _____
LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW N/A GPM
SHEETS: ######

NV ENERGY — DATE

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

SOUTHWEST GAS CORPORATION — DATE

COX COMMUNICATIONS LAS VEGAS, INC. — DATE

LEGAL DESCRIPTION

ALL OF PARCEL 17 OF THE "PARENT FINAL MAP OF SUNSTONE" AS SHOWN BY MAP THEREOF IN BOOK 161, PAGE 40 OF PLATS IN THE CLARK COUNTY RECORDER'S OFFICE, CLARK COUNTY, NEVADA, LYING WITHIN THE SOUTHEAST QUARTER (SE1/4) OF SECTION 6, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA.

BENCHMARK

BENCHMARK NUMBER: USDA (1934) 19

DEPARTMENT OF AGRICULTURE BRASS DISC AT THE SOUTHWEST CORNER OF U.S. 95 AND KYLE CANYON ROAD

ELEVATION = 2817.61 FEET, 858.810 METERS
NAVD 88 DATUM

PER THE CITY OF LAS VEGAS BENCHMARK BOOK – 2008 ADJUSTMENT (UPDATED 05/24/2010).

BASIS OF BEARINGS

SOUTH 00°25'04" WEST, BEING THE BEARING OF THE EAST LINE OF THE SOUTHEAST QUARTER (SE1/4) OF SECTION 6, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREOF IN BOOK 161, PAGE 40 OF PLATS IN THE CLARK COUNTY RECORDER'S OFFICE, NEVADA.

FEMA FLOOD ZONE INFORMATION

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE 'X' (AREA OUTSIDE THE 500 YEAR FLOODPLAIN), PER THE FEMA FIRM PANELS 32003C1735E DATED SEPTEMBER 27, 2002

M.O.U. ITEMS

1. 20-0260-TMP1, 20-0260-VAC1 ON 12/08/2020

DEVIATIONS FROM STANDARDS

NONE

SWPPP NOTE

NOTE: ALL LAND SURFACE AREA DISTURBANCES OVER 1 ACRE REQUIRE A STORMWATER DISCHARGE PERMIT ISSUED BY THE NEVADA DIVISION OF ENVIRONMENTAL PROTECTION (NDEP). A PHASED CONSTRUCTION UNIT IN A CONTIGUOUS SUBDIVISION IS CONSIDERED UNDER CONSTRUCTION UNTIL ALL STRIPPED SURFACE AREAS HAVE BEEN COVERED BY PAVING, BUILDING CONSTRUCTION OR PLANTING. A STORMWATER DISCHARGE PERMIT APPLICATION AND ASSOCIATED INFORMATION MAY BE DOWNLOADED FROM THE WEB SITE: HTTP://WWW.STATE.NV.US/BMPC/STORM01.HTM PROJECTS THAT DISTURB MORE THAN ONE ACRE OF LAND MUST SUBMIT TO NDEP A "NOTICE OF INTENT" FOR INCLUSION UNDER STORMWATER PERMIT NO. NVR100000 ALONG WITH THE APPROPRIATE FILLING FEE.

PROJECT INFORMATION

ACREAGE (GROSS):	= 26.22 AC
DENSITY (LOTS/NET ACRE):	= 6.18 DU/NET AC
ZONING:	= R-SL (SUNSTONE)
TOTAL NO. OF RESIDENTIAL LOTS	= 162
TOTAL NO. OF COMMON ELEMENTS *	= 13
MINIMUM LOT SIZE	= 3,440 SF±
MAXIMUM LOT SIZE	= 5,535 SF±
PROVIDED OPEN SPACE	= 73,741 SF±

EARTHWORK SUMMARY (UNADJUSTED)

CUT	47,601 CY.
FILL	49,014 CY.
NET	1,413 CY. (FILL)

DISTURBED ACREAGE:
ONSITE=22.06 AC OFFSITE=N/A

GEOTECHNICAL ENGINEER

PREPARED BY: SOUTHWEST GEOTECHNICAL
ADDRESS: 5275 ARVILLE ST, SUITE #108, LAS VEGAS, NEVADA 89118
PHONE: (702) 323-6000
PROJECT No. 182187
DATED:04/25/2018



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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811
OR
1-800-642-2444

OWNER	DEVELOPER	ENGINEER
NORTHLAND LLC 11411 SOUTHERN HIGHLANDS, SUITE 300 LAS VEGAS, NV 89141 PH: (702)-220-6565	WOODSIDE HOMES OF NEVADA 7895 WEST SUNSET ROAD SUITE 110 LAS VEGAS, NV 89113 PH: (702) 889-7800 FX: (702) 889-0801	WESTWOOD PROFESSIONAL SERVICES, INC 5740 S. ARVILLE STREET, SUITE 216 LAS VEGAS, NV 89118 PH: (702) 284-5300 FX: (702) 284-5399 CONTACT: MATTHEW D. BURGE, P.E.

Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS, NEVADA

Woodside Homes
BETTER BY DESIGN

LUNA AT SUNSTONE
COVER SHEET

S6 T19S R60E

DATE: 01/07/2021
DRAFTER: YZ
DESIGNER: MB
CHECKED: MK
PROJECT NO.
WSH1905-000

PROFESSIONAL ENGINEER · STATE OF NEVADA · MATTHEW D. BURGE · No. 025993 · 12/31/2022 · CIVIL

C-1
SHEET 1 OF 15

k:\wsh\1905-000 sunstone parcel a\desk\mpm\wsh1905-000 cvr.dwg 1/7/2021 11:41 AM Matt Burge

STORMWATER RUNOFF MANAGEMENT

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

1. THE OWNER, SITE DEVELOPER, CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT ,MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATE IN, THE PUBLIC RIGHTS OF WAYS OF CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN TITLE 24.40 AND THE LAS VEGAS VALLEY CONSTRUCTION SITE BEST MANAGEMENT PRACTICES MANUAL.
3. TEMPORARY OR PERMANENT STABILIZATION PRACTICES WILL BE INSTALLED ON DISTURBED AREAS AS SOON AS PRACTICABLE AND NO LATER THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. SOME EXCEPTIONS MAY APPLY; REFER TO NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.5.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER ANY ACTUAL RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
5. ACCUMULATED SEDIMENT IN BMPS SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

LEGAL DESCRIPTION

ALL OF PARCEL 17 OF THE "PARENT FINAL MAP OF SUNSTONE" AS SHOWN BY MAP THEREOF IN BOOK 161, PAGE 40 OF PLATS IN THE CLARK COUNTY RECORDER'S OFFICE, CLARK COUNTY, NEVADA, LYING WITHIN THE SOUTHEAST QUARTER (SE1/4) OF SECTION 6, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA.

BENCHMARK

BENCHMARK NUMBER: USDA (1934) 19

DEPARTMENT OF AGRICULTURE BRASS DISC AT THE SOUTHWEST CORNER OF U.S. 95 AND PECOS ROAD.

ELEVATION = 2817.61 FEET, 858.810 METERS
NAVD 88 DATUM

PER THE CITY OF LAS VEGAS BENCHMARK BOOK – 2008 ADJUSTMENT (UPDATED 05/24/2010).

BASIS OF BEARINGS

SOUTH 00°25'04" WEST, BEING THE BEARING OF THE EAST LINE OF THE SOUTHEAST QUARTER (SE1/4) OF SECTION 6, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREOF IN BOOK 161, PAGE 40 OF PLATS IN THE CLARK COUNTY RECORDER'S OFFICE, NEVADA.

SOUTHERN NEVADA - SOUTHWEST GAS CORPORATION GENERAL NOTES

1. IN THE EVENT OF NATURAL GAS EMERGENCIES CALL 911 AND 1-877-860-6020
2. MINIMUM HORIZONTAL AND VERTICAL CLEARANCES BETWEEN NATURAL GAS FACILITIES AND ANY UNDERGROUND UTILITIES AND/OR STRUCTURES, INCLUDING BUT NOT LIMITED TO WATER, SEWER, STORM DRAIN, COMMUNICATIONS, AND ELECTRICAL SHALL BE AT LEAST 12-INCHES OR GREATER AS DICTATED BY LOCAL CODES AND STANDARDS.
   A) ANY DEVIATION FROM SPECIFIED MINIMUM CLEARANCES MUST BE APPROVED BY ALL AFFECTED UTILITIES AND/OR MUNICIPALITIES
3. FOR VALVE ADJUSTMENT CONTACT 702-528-7881 14 DAYS PRIOR TO CONSTRUCTION.
4. IN THE EVENT OF NATURAL GAS CONFLICT WITH PROPOSED UTILITIES AND STRUCTURES CONTACT 702-365-2099

SOUTHWEST GAS APPROVAL

SOUTHWEST GAS CORPORATION — DATE

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 'S' 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.

REVISED 04/15/10

LAS VEGAS VALLEY WATER DISTRICT (LVVWD) STANDARD NOTES

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

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.

IS NO LEAD COMPLIANCE NOTE:
TO COMPLY WITH THE FEDERAL SAFE DRINKING WATER ACT, ALL WATER WORKS BRASS PRODUCTS PROPOSED TO BE RELOCATED, OR INSTALLED AS NEW MUST BE INSTALLED WITH THE LEAD FREE APPROVED PRODUCT. THE OLD LEADED PRODUCT MAY NOT BE REUSED.

GRADING NOTES

1. INDICATED GRADES OTHER THAN T.C., F.G. & GUTTER F.L. ARE ROUGH GRADES.
2. THE ROUGH GRADING PLANS SHALL BE ON THE JOB SITE AT ALL TIMES. THE ROUGH GRADING SHALL BE FINISHED IN CONFORMANCE WITH THE LINES AND GRADES SHOWN ON THE PLANS. THE GRADING QUANTITIES ARE BASED ON THE ELEVATION AND DETAILS SHOWN ON THE PLANS. ANY DEVIATIONS FROM THE PLANS WILL RESULT IN QUANTITY CHANGES.
3. CARE SHALL BE EXERCISED IN GRADING CORNER LOTS.
4. ROUGH PAD ELEVATIONS SHALL BE GRADED TO WITHIN 0.1' OF THE PAD ELEVATIONS SHOWN ON THE PLANS. WHEN GRADING IS COMPLETE PER THE PLANS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE LOTS CAN BE INSPECTED. AT THAT TIME THE ENGINEER SHALL ALSO DECIDE IF ANY ADDITIONAL DITCHES OR BERMS ARE REQUIRED. THE CONTRACTOR IS REQUESTED NOT TO REMOVE ANY OF HIS ROUGH GRADING EQUIPMENT UNTIL HE RECEIVES GRADING APPROVAL FROM THE ENGINEER.
5. SOILS REPORT PREPARED BY SOUTHWEST GEOTECHNICAL, PROJECT NO. 182187, DATED 04/25/2018.
6. EARTHWORK QUANTITIES (RAW):
   -CUT = 47,601 CUBIC YARDS
   -FILL = 49,014 CUBIC YARDS

   A) THE ABOVE QUANTITIES DO NOT REFLECT LOSSES DUE TO SUBSIDENCE OR SHRINKAGE.
   B) THE ABOVE QUANTITIES DO REFLECT USING NATIVE MATERIAL IN LIEU OF TYPE I GRAVEL BASE MATERIAL FOR STREET SECTIONS.
   C) THE ABOVE QUANTITIES DO NOT REFLECT ANY EARTHWORK WHICH MAY BE REQUIRED BY THE ENGINEER TO CONSTRUCT ADDITIONAL PROTECTIVE DITCHES OR BERMS NOT SHOWN ON THESE DRAWINGS.

CITY OF LAS VEGAS FIRE AND RESCUE GENERAL NOTES

1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LAS VEGAS FIRE AND RESCUE ADOPTED FIRE CODE ORDINANCE # 6631 FOR HYDRANT SPECIFICATIONS AND HYDRANT INSTALLATION SPECIFICATIONS.
2. ONLY FIRE HYDRANTS THAT ARE ON THE LAS VEGAS VALLEY WATER 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 CONTRACTORS MATERIAL TEST CERTIFICATE FOR UNDERGROUND PIPING FORM SHALL BE OBTAINED FROM THE FIRE PROTECTION ENGINEER BEFORE COMMENCEMENT OF WORK. IFC §105.6.15
4. ON ANY RESIDENTIAL OR COMMERCIAL INSTALLATIONS, FIRE HYDRANTS SHALL BE INSTALLED AND FIRE APPARATUS ACCESS ROADS SHALL BE 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. IFC §3310, §3312
5. TO IDENTIFY THE FIRE HYDRANT LOCATIONS, THE CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER LINE OF THE STREET ADJACENT TO THE FIRE HYDRANTS. IFC §507.5.7.3
6. ALL UNDERGROUND INSPECTIONS, PRESSURE AND FLUSH VERIFICATIONS OF ALL FIRE HYDRANTS AND FIRE LINES, SHALL BE CONDUCTED BEFORE COVERING THE LINES. CENTER LOADING IS ACCEPTABLE FOR THE HYDRO TESTS WITH PRIOR FIRE PREVENTION APPROVAL. IFC §106.3
7. ALL ON-SITE UNDERGROUND WATER MAINS AND MATERIALS SHALL BE U.L. LISTED, A.W.W.A APPROVED AND SHALL BE RATED FOR THE APPROPRIATE WORKING PRESSURE. IFC §507.2.1, NFPA 24
8. PAINTING OF CURBS, FIRE HYDRANTS, PADS, PROTECTION OF FIRE HYDRANTS FROM PHYSICAL DAMAGE, AND ALL OTHER WORK NECESSARY PER PLANS SHALL BE COMPLETED BEFORE APPROVAL BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION. IFC §507
9. PRIVATE HYDRANTS SHALL BE PAINTED RED. IFC §507.5.7.1
10. PRIOR TO THE FINAL OCCUPANCY, A FIRE FLOW TEST SHALL BE WITNESSED BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION TO VERIFY AVAILABILITY OF THE REQUIRED FIRE FLOW. IFC §507
11. FIRE HYDRANT SPACING SHALL BE AS FOLLOWS: IFC §C102
    - RESIDENTIAL – 500 FT UNSPRINKLERED; 600 FT SPRINKLERED.
    - COMMERCIAL – 300 FT UNSPRINKLERED; 400 FT SPRINKLERED.
12. WHERE THE WATER MAINS ARE EXTENDED ALONG STREETS OR NEW STREETS ARE INSTALLED WHERE FIRE HYDRANTS ARE NOT NEEDED FOR PROTECTION OF THE STRUCTURES, FIRE HYDRANTS SHALL BE INSTALLED AT A MAXIMUM OF 1000 FT SPACING, TO PROVIDE FOR TRANSPORTATION HAZARDS. WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS OR HAVE FOUR (4) OR MORE TRAFFIC LANES AND HAVE A TRAFFIC COUNT OF MORE THAN 30,000 PER DAY, HYDRANTS ARE REQUIRED ON EACH SIDE OF THE STREET SPACED AT 500 FT ON AN ALTERNATING BASIS. IFC ▲C102.8
13. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN THE RADIUS OF A CUL-DE-SAC OR WITHIN 20 FT OF THE PERIMETER OF THE RADIUS OF THE CUL-DE-SAC.
14. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN 6 FT OF ANY CURB RETURN, DRIVEWAY, POWER POLE, STREETLIGHT OR ANY OTHER OBSTRUCTION. IFC ▲C102.10
15. A MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A ONE-TWO FAMILY DWELLING SHALL NOT EXCEED 300 FT, AS MEASURED BY AN APPROVED ROUTE. IFC ▲C102.4
16. THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A FIRE DEPARTMENT CONNECTION (FDC) SHALL NOT EXCEED 100 FT, AS MEASURED BY AN APPROVED ROUTE. IFC ▲C102.7
17. THE MAXIMUM DISTANCE FROM A HYDRANT TO THE END OF A DEAD-END STREET SHALL NOT EXCEED 200 FT. IFC ▲C102.6
18. TWO (2) SOURCES OF SUPPLY ARE REQUIRED WHENEVER THERE IS 4 OR MORE FIRE HYDRANTS/SPRINKLER LEAD-INS ARE INSTALLED ON A SINGLE SYSTEM. FOR SYSTEMS REQUIRED TO HAVE TWO (2) SOURCES OF WATER SUPPLY, SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 2 FIRE HYDRANTS AND/OR FIRE SPRINKLER LEAD-INS CAN BE OUT OF SERVICE DUE TO A SERVICE INTERRUPTION. FOR SYSTEMS PERMITTED TO HAVE ONE SOURCE OF WATER SUPPLY, SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 5 FIRE HYDRANTS AND/OR FIRE SPRINKLER LEAD-INS CAN BE OUT OF SERVICE DUE TO A SERVICE INTERRUPTION. IFC ▲C104
19. ALL FIRE APPARATUS ACCESS ROADS SHALL BE PAVED TO PROVIDE ALL-WEATHER DRIVING CAPABILITIES, AND SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF THE FIRE APPARATUS. IFC ▲503.2.3
20. THE GRADIENT FOR THE FIRE APPARATUS ACCESS ROADS SHALL NOT EXCEED 12% ANGLES OF APPROACH AND ANGLES OF DEPARTURE SHALL NOT EXCEED 8% FT FIRST FOR AFTER THE GRADE CHANGE. ADJACENT TO THE STRUCTURES GRADIENT SHALL NOT EXCEED 6% IFC ▲503.2.7, ▲503.2.8
21. THE TURNING RADIUS OF THE FIRE APPARATUS ACCESS ROADS SHALL BE NO LESS THAN 52 FT OUTSIDE AND 28 FT INSIDE TURNING RADIUS. IFC ▲503.2.4
22. VERTICAL CLEARANCE OF ALL FIRE APPARATUS ACCESS ROADS SHALL NOT BE LESS THAN 13FT 6 INS. IFC ▲ 503.2.1
23. FIRE DEPARTMENT ACCESS ROADS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF NOT LESS THAN 33 FT WITH PARKING ON BOTH SIDES MEASURED TO FACE OF CURB. NOT LESS THAN 28 FT WIDE WITH PARKING RESTRICTED TO ONE SIDE MEASURED TO FACE OF CURB. NOT LESS THAN 24 FT WIDE WITH NO PARKING ON EITHER SIDE MEASURED TO FACE OF CURB. FIRE LANES THROUGH PARKING LOTS SHALL BE NOT LESS THAN 24 FT. IFC ▲ 503.2.1.1
24. A FIRE APPARATUS ACCESS ROAD SHALL BE REQUIRED WHEN ANY PORTION OF AN EXTERIOR WALL OF THE FIRST STORY IS LOCATED MORE THAN 150 FT FROM A FIRE DEPARTMENT VEHICLE ACCESS. IFC ▲503.1.1
25. APPROVED SECONDARY FIRE APPARATUS ACCESS SHALL BE PROVIDED FOR 200 OR MORE DWELLING UNITS, ROAD(S) WITH DEAD- ENDS OR A SINGLE POINT OF ACCESS IN EXCESS OF 600 FT. CLV REGULATION AND MOU
26. ALL DEAD-END FIRE APPARATUS ROADS AND/OR FIRE LANES, PUBLIC OR PRIVATE, IN EXCESS OF 150 FT IN LENGTH SHALL BE PROVIDED WITH AN APPROVED TURN AROUND HAVING A MINIMUM DIAMETER OF 81 FT. CLV REGULATION
27. ALL FIRE APPARATUS ACCESS ROADS SHALL BE MARKED BY PLACING APPROVED SIGNS AT THE START OF THE DESIGNATED FIRE LANE, ONE SIGN AT THE END OF THE FIRE LANE AND WITH SIGNS AT INTERVALS OF 100 FT ALONG THE DESIGNATED FIRE LANES SIGNS TO BE PLACED ON BOTH SIDES OF AN ACCESS ROADWAY IF NEEDED TO PREVENT PARKING ON EITHER SIDE. SIGNS TO BE INSTALLED NO HIGHER THAN 10 FT OR LESS THAN 6 FT FROM THE ROADWAY LEVEL. THE CURB ALONG OR ON THE PAVEMENT OR CEMENT (IF NO CURB IS PROVIDED) SHALL BE PAINTED WITH A RED WEATHER RESISTANT PAINT IN ADDITION TO THE SIGNS. IFC ▲503.3
28. ELECTRICALLY CONTROLLED ACCESS GATES SHALL BE PROVIDED WITH AN APPROVED EMERGENCY VEHICLE DETECTOR/RECEIVER SYSTEM. IFC ▲503.6
29. WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS, OR HAVING FOUR OR MORE TRAVEL LANES AND A TRAFFIC COUNT OF MORE THAN 30,000 VEHICLES PER DAY, ALL HYDRANTS BEING UTILIZED TO DELIVER FIRE FLOW TO THE PROPOSED LOCATION SHALL BE LOCATED ON THE SAME SIDE OF THE STREET AS THE PROPOSED DEVELOPMENT. CLV REGULATION

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.

REVISED 04/15/10

UTILITY LOCATION NOTE TO CONTRACTOR

EXISTING UTILITY LOCATIONS SHOWN HEREIN ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATIONS. CALL BEFORE YOU DIG: 1 (800) 227-2600; SOUTHWEST GAS CORPORATION: 702-276-8451 (STANDBY CONTACT NUMBER)

CITY OF LAS VEGAS GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA NEVADA", LATEST ISSUE; THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION, CLARK COUNTY AREA NEVADA", LATEST REVISED EDITION; 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 INTERFERENCE'S 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 ENGINEER AND THE 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

ABBREVIATIONS

AC	ASPHALTIC CONCRETE OR ACRE	FL	FLOWLINE	PVI	POINT OF VERTICAL INTERSECTION
AGG	AGGREGATE BASE	FT	FEET OR FOOT	QTY	QUANTITY
APN	ASSESSORS PARCEL NUMBER	FUT	FUTURE	R	RADIUS
APPROX OR ~	APPROXIMATE	GRD	GRADE OR GROUND	RCA	REINFORCED CONCRETE ARCH
AVE	AVENUE	GB	GRADE BREAK OR GRADE CHANGE	RCB	REINFORCED CONCRETE BOX
@	AT	GV	GATE VALVE	RCP	REINFORCED CONCRETE PIPE
BC	BEGIN CURVE OR BACK OF CURB	HDPE	HIGH DENSITY POLYETHYLENE	RD	ROAD
BCR	BEGINNING OF CURB RETURN	HOA	HOME OWNERS ASSOCIATION	ROWY ESMT	ROADWAY EASEMENT
BHW	BOTTOM OF HEADWALL	HORZ	HORIZONTAL	REQD	REQUIRED
BLDG	BUILDING	HP	HIGH POINT	REV	REVISION
BLVD	BOULEVARD	HWL	HIGH WATER LEVEL	RG	ROUGH GRADE
BM	BENCHMARK	HDWL OR HW	HEADWALL	RT OR R	RIGHT
BVC	BEGIN VERTICAL CURVE	HYD	HYDRAULIC OR HYDRANT	RW, ROW	RIGHT OF WAY
BWV	BACK WATER VALVE	ID	INSIDE DIAMETER	S	SLOPE
CC	CLARK COUNTY	IN	INCH	SCH	SCHEDULE
CCAUSD	CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS	INT	INTERSECTION	SD	STORM DRAIN
CCPW	CLARK COUNTY PUBLIC WORKS	INV	INVERT ELEVATION	SDDI	STORM DRAIN DROP INLET
CCRFCD	CLARK COUNTY REGIONAL FLOOD DISTRICT	IP	IRON PIPE	SDMH	STORM DRAIN MANHOLE
CCWRD	CLARK COUNTY WATER RECLAMATION DISTRICT	IRRG	IRRIGATION	SEC	SECTION
CE	COMMON ELEMENT	LF	LINEAR FEET	SF	SQUARE FEET
CL/C/L/C	CENTERLINE	LMC	LANDSCAPE MAINTENANCE CORPORATION	SHT	SHEET
CLR	CLEAR OR CLEARANCE	LP	LOW POINT	SLTC	STREET LIGHT & TRAFFIC CONTROL ESMT
CLSW	CONTROLLED LOW STRENGTH MATERIAL	LT OR L	LEFT	SNWA	SOUTHERN NEVADA WATER AUTHORITY
CLV	CITY OF LAS VEGAS	LVVWD	LAS VEGAS VALLEY WATER DISTRICT	SPECS	SPECIFICATIONS
CML&C	CEMENT MORTAR LINED AND COATED	LWL	LOW WATER LEVEL	ST	STREET
CMU	CONCRETE MASONRY UNIT	MAX	MAXIMUM	SSMH	SANITARY SEWER MANHOLE
CNLV	CITY OF NORTH LAS VEGAS	MECH	MECHANICAL	STA	STATION
COH	CITY OF HENDERSON	MH	MANHOLE	STD	STANDARD
CONC	CONCRETE	MIN	MINIMUM	STL	STEEL
CT	COURT	MISC	MISCELLANEOUS	STLT	STREET LIGHT
CY OR CU YD	CUBIC YARD	MUE	MUNICIPAL UTILITY EASEMENT	SW	SIDEWALK
DCWCS	DESIGN AND CONSTRUCTION FOR WASTEWATER COLLECTION SYSTEMS	NDOT	NEVADA DEPARTMENT OF TRANSPORTATION	SWG	SOUTHWEST GAS
		NTS	NOT TO SCALE	SWR OR SS	SANITARY SEWER
DE	DRAINAGE EASEMENT	NUE	NONEXCLUSIVE UTILITY EASEMENT	SY	SQUARE YARD
DET	DETAIL	NVE	NV ENERGY	TAN	TANGENT
DI	DUCTILE IRON OR DRAIN INLET	OC	ON CENTER	TC	TOP OF CURB
DIA, ø	DIAMETER	OD	OUTSIDE DIAMETER OR OVERALL DIMENSION	TF	TOP OF FLOOR OR TOP OF FOOTING
DIP	DUCTILE IRON PIPE	OFF	OFFSET	TG	TOP OF GRATE
DR	DRIVE	ORIG	ORIGINAL	THRU	THROUGH
DWG(S)	DRAWING	PAE	PUBLIC OR PEDESTRIAN ACCESS EASEMENT	THW	TOP OF HEADWALL
DWY	DRIVEWAY	PB	PULL BOX	TP	TOP OF PIPE
EA	EACH	PC	POINT OF CURVE	TW	TOP OF WALL
ECR	END CURB RETURN	PCC	POINT OF COMPOUND CURVE	TRW	TOP OF RETAINING WALL
EG	EXISTING GROUND	PDE	PUBLIC DRAINAGE EASEMENT	TSW	TOP OF SCREEN WALL
ELEV	ELEVATION	℄ OR PL	PROPERTY LINE	TYP	TYPICAL
ESMT	EASEMENT	POB	POINT OF BEGINNING	UDACS	UNIFORM DESIGN AND CONSTRUCTION STANDARDS
EP	EDGE OF PAVEMENT	POC	POINT OF CURVATURE		
ERU	EQUIVALENT RESIDENTIAL UNIT	POE	POINT OF ENDING	UE	UTILITY EASEMENT
EVC	END VERTICAL CURVE	PRC	POINT OF REVERSE CURVATURE	VC	VERTICAL CURVE
EX OR EXIST	EXISTING	PRELIM	PRELIMINARY	VERT	VERTICAL
FC	FACE OF CURB	PROP	PROPOSED	VG	VALLEY GUTTER
FF	FINISHED FLOOR	PRV	PRESSURE REDUCING VALVE	WI	WROUGHT IRON
FG	FINISHED GRADE	PUE	PUBLIC UTILITY EASEMENT	WL	WATER LINE
FGH	FINISHED GRADE, HIGH SIDE	PT	POINT OF TANGENT OR POINT	WPZ	WATER PRESSURE ZONE
FGL	FINISHED GRADE, LOW SIDE	PVC	POLYVINYL CHLORIDE	WT	WEIGHT
FH	FIRE HYDRANT			WTR	WATER LINE

SPECIAL NOTE

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

NOTICE TO CONTRACTOR

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

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

LEGEND

EXISTING	PROPOSED	DESCRIPTION
(1900)	1900	5' CONTOUR
		1' CONTOUR
		STRIPING
		SEWER MANHOLE
		CURB AND GUTTER
EX 8" PVC SS	8" PVC SS	SANITARY SEWER PIPE AND FLOW ARROW
EX 8" PVC WTR	8" PVC WTR	WATER PIPE
		WATER GATE VALVE
		FIRE HYDRANT
		WATER BLOW-OFF
		WATER LATERAL W/ METER
		SANITARY SEWER LATERAL
		STREETLIGHT
		EDGE OF PAVEMENT
		TRAFFIC SIGN
PAD = XXX.X F = XXX.X	PAD = XXX.X F = XXX.X	PAD ELEVATION FINISHED FLOOR ELEVATION
EXISTING TC	EXISTING TC	ELEVATION
		RETAINING WALL
		STORM DRAIN W/ MANHOLE

	EXISTING GAS GATE VALVE
MH	EXISTING UNKNOWN MANHOLE
GAS	EXISTING GAS, SIZE PER PLAN
	EXISTING POWER POLE
	EXISTING TRAFFIC SIGNAL
	EXISTING WALL
	WATER PIPE FITTING
POC	WATER POINT OF CONNECTION
POC	SEWER POINT OF CONNECTION
	DAYLIGHT LINE
	STREET CENTERLINE
	RIGHT-OF-WAY
	MATCHLINE
	BOUNDARY LINE
	PHASE LINE
	PROPERTY LINE
	FLOWLINE
	SAWCUT
V FILL / CUT V	CUT/FILL TRANSITION LINE
	SIDEWALK
	EX STRIPING TO BE OBLITERATED
	GRADE BREAK LINE
	REFLECTIVE RAISED PAVEMENT MARKERS
BWV	BACK WATER VALVE
	WROUGHT IRON FENCE
	PONY WALL
	DECORATIVE PERIMETER WALL
	DECORATIVE PERIMETER RETAINING WALL
	PROPOSED CURB AND GUTTER WITH RIGHT-OF-WAY AT BACK OF CURB
	EXISTING CURB AND GUTTER WITH RIGHT-OF-WAY AT BACK OF CURB
	FUTURE CURB AND GUTTER WITH RIGHT-OF-WAY AT BACK OF CURB
	PROPOSED SCARP AREA
	DRIVEWAY
	PROPOSED RIP RAP
	SIGHT VISIBILITY ZONE PER STD DWG NO. 201.2
	HANDICAP RAMP

QUANTITIES

			PRIVATE	PUBLIC
DRAINAGE				
1.	5.0' TYPE "CM2" DROP INLET	EA	–	1
2.	12.5' TYPE "CM2" DROP INLET	EA	–	1
3.	8' WIDE CONCRETE VALLEY GUTTER W/10" TYPE I AGGREGATE BASE	SF	6,444	–
4.	SIDEWALK UNDER DRAIN	EA	1	–
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
SEWER SYSTEM				
1.	4" PVC SEWER LATERAL (PRIVATE)	LF	–	–
2.	8" PVC SEWER PIPE (PUBLIC)	LF	–	–
3.	STANDARD 48" SEWER MANHOLE (PUBLIC)	EA	–	–
4.	8" SEWER PIPE CAP	EA	–	–
5.	BACK WATER VALVE	EA	–	–
6.	8" C-900 WATER QUALITY SEWER PIPE (PUBLIC)	EA	–	–
7.				
WATER SYSTEM				
1.	FIRE HYDRANT ASSEMBLY W/6" GATE VALVE PER UDACS PLATE NO. 40	EA	–	–
2.	6" PVC WATER PIPE (CLASS 150)	LF	–	–
3.	8" PVC WATER PIPE (CLASS 150)	LF	–	–
4.	8" DIP WATER PIPE (CLASS 53)	LF	–	–
5.	8" GATE VALVE WITH VALVE BOX PER UDACS PLATE NO. 30 & 39	EA	–	–
6.	8" X 6" TEE PER UDACS PLATE NO. 31	EA	–	–
7.	8" X 8" TEE PER UDACS PLATE NO. 31	EA	–	–
8.	8" 5 DEGREE BEND WITH RESTRAINED JOINTS	EA	–	–
9.	8" 11.25 DEGREE BEND PER UDACS PLATE NO. 31	EA	–	–
10.	8" 22.5 DEGREE BEND PER UDACS PLATE NO. 31	EA	–	–
11.	8" 45 DEGREE BEND PER UDACS PLATE NO. 31	EA	–	–
12.	8" 90 DEGREE BEND PER UDACS PLATE NO. 31	EA	–	–
13.	CAP AND 2" BLOW-OFF ASSEMBLY W/CAP PER UDACS PLATE NO. 36	EA	–	–
14.	1" COPPER SERVICE W/ 3/4" METER PER UDACS PLATE NO. 2	EA	–	–
15.	1" COPPER SERVICE W/ 1" METER PER UDACS PLATE NO. 4	EA	–	–
16.	1" COPPER SERVICE W/ 3/4" METER & 1" RPPA PER UDACS PLATE NO. 4 & 8	EA	–	–
		EA	–	
STREET IMPROVEMENTS				
1.	2" A.C. PAVEMENT W/ 4" TYPE II OVER 6" TYPE I AGGREGATE BASE	SY	–	–
2.	STANDARD 18" TYPE "L" ISLAND CURB & GUTTER W/6" TYPE I AGGREGATE BASE	LF	–	–
3.	STANDARD 8" TYPE "A" ISLAND CURB W/6" TYPE I AGGREGATE BASE	LF	–	–
4.	STANDARD 30" TYPE "ROLL" CURB & GUTTER W/6" TYPE I AGGREGATE BASE	LF	–	–
5.	4' WIDE CONCRETE SIDEWALK W/4" TYPE II AGGREGATE BASE	SF	–	–
6.				–
7.				
TRAFFIC SIGNALS				
1.	30" STOP SIGN WITH POST (R1-1)	EA	–	–
2.	9" STREET NAME SIGN (D-3, BROWN W/ WHITE LETTERS)(6 POLES x 2 PER POLE=12)	EA	–	–
3.	BLUE COLORED REFLECTIVE RAISED PAVEMENT MARKER	EA	–	–
4.	CROSSWALK MARKINGS	LF	–	–
5.				
6.				
7.				
8.				
DRY UTILITIES				
1.	100W H.P.S. LUMINAIRE STREET LIGHT W/DECORATIVE POLE	EA	–	–
2.	1-1/4" PVC STREET LIGHT CONDUIT WITH (2) #4 AND (1) #8 CONDUCTORS	LF	–	–
3.	NO. 3-1/2 PULL BOX W/METAL COVER	EA	–	–
4.	150 AMP SERVICE PEDESTAL (IRR)	EA	–	–
5.	200 AMP SERVICE PEDESTAL (STLT)	EA	–	–
6.				

APPROVED FOR CONSTRUCTION

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







Westwood
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
Phone (702) 284-5300
Fax (702) 284-5399
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS, NEVADA

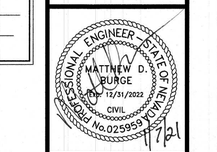
Woodside Homes
BETTER BY DESIGN

LUNA AT SUNSTONE

LEGEND, ABBREVIATIONS, & QUANTITIES

S6
T19S
R60E

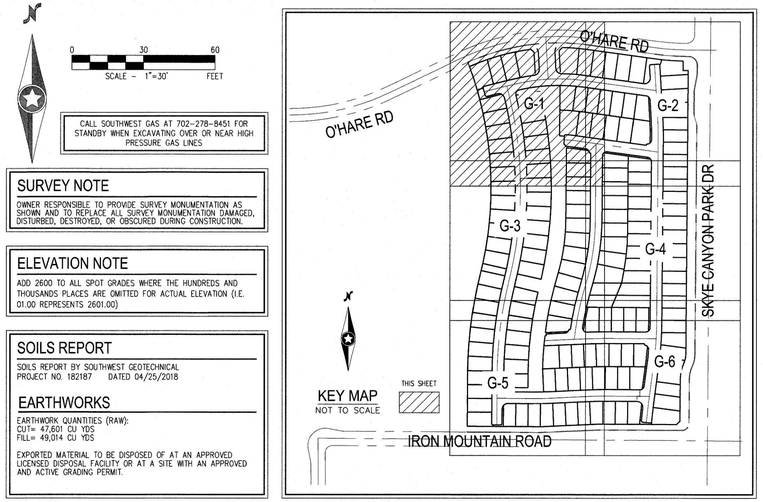
DATE: 01/07/2021
DRAFTER: YZ
DESIGNER: MB
CHECKED: MK
PROJECT NO.
WSH1905-000



C-3
SHEET 3 OF 15

j:\wsh1905-000 sunstone parcel e\civil\mpricv\wsh1905-000_cvr.dwg 1/7/2021 11:41 AM Matt Burge





CALL SOUTHWEST GAS AT 702-278-8451 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

SURVEY NOTE

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

ELEVATION NOTE

ADD 2600 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 2601.00)

SOILS REPORT

SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 182187 DATED 04/25/2018

EARTHWORKS

EARTHWORK QUANTITIES (RAW):
CUT= 47,601 CU YDS
FILL= 49,014 CU YDS

EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.

DISCLAIMER NOTE

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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.

GRADING NOTES

1. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
2. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
3. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
4. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
5. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
7. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITY STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. CONTRACTOR TO PROTECT IN PLACE DURING CONSTRUCTION. ENGINEER/OWNER SHALL BE NOTIFIED OF PRIOR DAMAGE TO EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR/REPLEPING FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENCING.
8. NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXIST) WITHIN THE SIGHT VISIBILITY ZONES.

CONSTRUCTION NOTES

1. CONSTRUCT 2" AC PAVEMENT WITH 4" TYPE II AGGREGATE BASE
2. CONSTRUCT 8' CROSS GUTTER PER CCAUSD NO. 228
3. CONSTRUCT 30" ROLL CURB PER CCAUSD NO. 217.2.S1
4. CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD NO. 216
5. CONSTRUCT "A" TYPE ISLAND CURB PER CCAUSD NO. 219
6. CONSTRUCT CURB TRANSITION FROM ROLL CURB TO 'L' CURB PER DETAIL 16 ON SHEET D-2
7. FIELD VERIFY AND CONNECT TO EXISTING CURB AND GUTTER
8. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD NO. 234
9. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235, CASE III AND 235.1
10. CONSTRUCT CONCRETE CHANNEL PER DETAIL 18 ON SHEET D-2
11. CONSTRUCT SIDEWALK UNDERDRAIN PER CCAUSD NO. 236
12. INSTALL 4' WIDE CONCRETE U-CHANNEL PER DETAIL 17 ON SHEET D-2
13. INSTALL U-CHANNEL TO "L" CURB OPENING PER DETAIL 21 ON SHEET D-2
14. INSTALL TYPE "CM2" DROP INLET PER CCAUSD NO. 412.1 & 421 (SIZE PER PLAN)
15. RIP RAP D50=6", THICKNESS=12" TO 5' BEYOND THE PHASE BOUNDARY (WHERE SHOWN)
16. REFORM BACK OF DROP INLET PER CCAUSD NO. 412.1
17. REMOVE AND REPLACE EXISTING IMPROVEMENTS
18. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235, CASE II AND 235.1
19. CONSTRUCT "L" TYPE ISLAND CURB PER CCAUSD NO. 219

LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

1. THE OWNER, SITE DEVELOPER, CONTRACTOR, AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATED IN, THE PUBLIC RIGHTS OF WAY OF CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN CLARK COUNTY TITLE 24.40 AND IN THE LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDANCE MANUAL.
3. TEMPORARY OR PERMANENT STABILIZATION PRACTICES WILL BE INSTALLED ON DISTURBED AREAS AS SOON AS PRACTICABLE AND NO LATER THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. SOME EXCEPTIONS MAY APPLY; REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.5.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER A RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
5. ACCUMULATED SEDIMENT IN BMPS SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

DRAINAGE EASEMENT NOTE

ALL PRIVATE STREETS, DRAINAGE EASEMENTS AND COMMON ELEMENTS ARE PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA.

DRAINAGE IMPROVEMENT QUANTITIES

1.	5.0' TYPE "CM2" DROP INLET	EA	1
2.	12.5' TYPE "CM2" DROP INLET	EA	1
3.	8' WIDE CONCRETE VALLEY GUTTER	SF	6,444
4.	SIDEWALK UNDER DRAIN	EA	1
5.			–
6.			–
7.			–
8.			–
9.			–
10.			–

FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1735E, DATED SEPTEMBER 27, 2002. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

FLOOD CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY DS-5390A ON FILE AT CITY OF LAS VEGAS FOR THE SUBJECT PROJECT.

MATTHEW D. BURGE, P.E. NO. 025959 DATE

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

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

Call before you Dig AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY. Call 811 OR 1-800-642-2444

Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS, NEVADA

Woodside Homes BETTER BY DESIGN

S6 T19S R60E

LUNA AT SUNSTONE
GRADING PLAN I

DATE: 01/07/2021
DRAFTER: YZ
DESIGNER: MB
CHECKED: MK

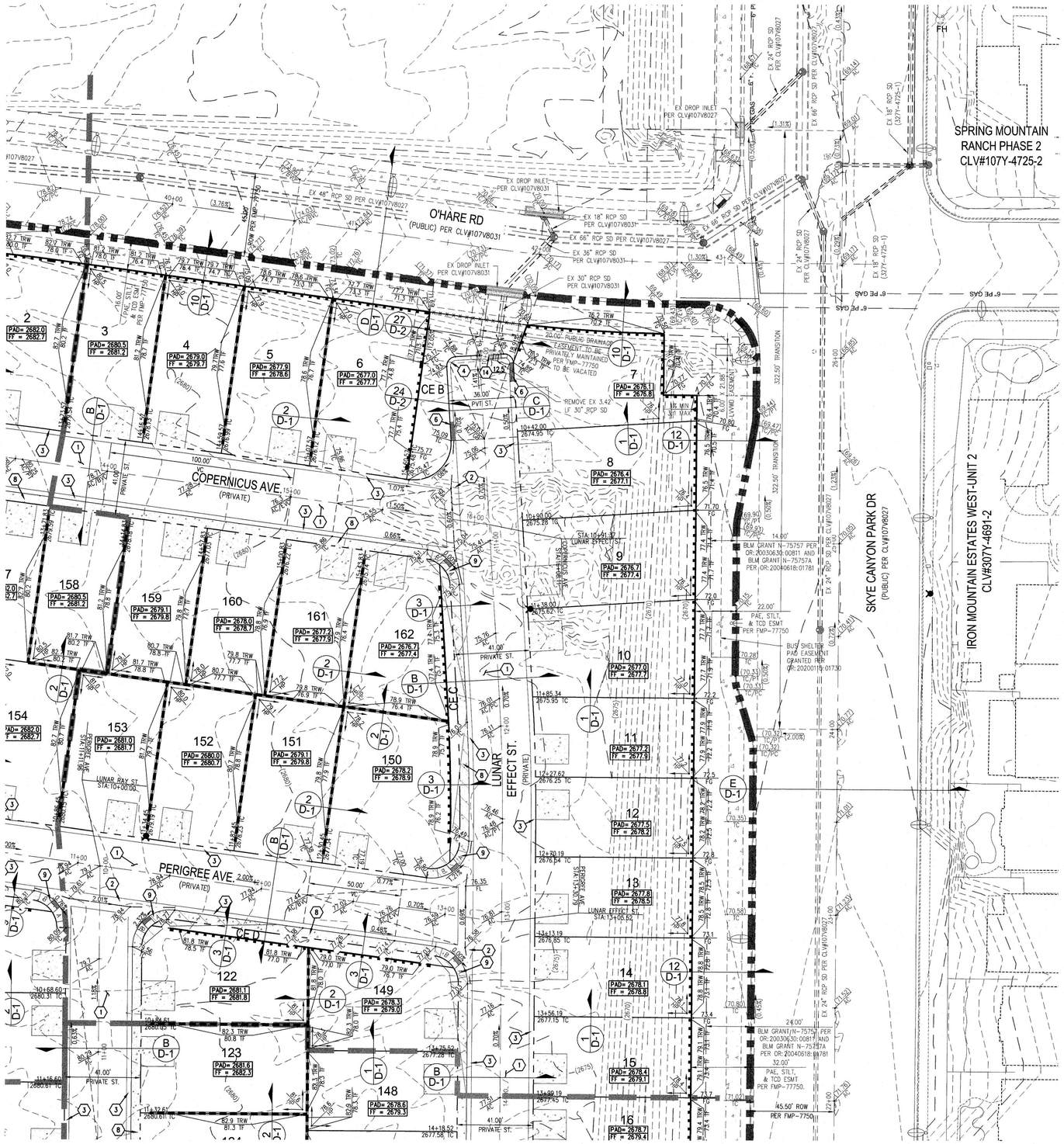
PROJECT NO.
WSH1905-000

NEVADA LICENSED PROFESSIONAL ENGINEER STATE OF NEVADA MATTHEW D BURGE EXP. 12/31/2022 CIVIL NO. 025959

7/9/21

G-1
SHEET 4 OF 15

J:\wsh1905-000_sunstone_patrol\ e\dwg\onpro\wsh1905-000 grd.dwg 1/7/2021 11:41 AM Matt Burge


O'HARE RD
(PUBLIC) PER CLV#107V8031
SPRING MOUNTAIN RANCH PHASE 2 CLV#107Y-4725-2
SKYE CANYON PARK DR
(PUBLIC) PER CLV#107V8027
IRON MOUNTAIN ESTATES WEST-UNIT 2 CLV#307Y-4691-2
COPERNICUS AVE.
(PRIVATE)
PERIGREE AVE.
(PRIVATE)
LUNAR EFFECT ST.
(PRIVATE)
PRIVATE ST.
CE A
CE B
CE C
CE D
CE E
CE F
MATCHLINE - SEE SHEET G-1
MATCHLINE - SEE SHEET G-4
EX DROP INLET PER CLV#107V8027
EX DROP INLET PER CLV#107V8031
EX 48" RCP SD PER CLV#107V8027
EX 66" RCP SD PER CLV#107V8027
EX 36" RCP SD PER CLV#107V8031
EX 30" RCP SD PER CLV#107V8031
EX 18" RCP SD PER CLV#107V8031
EX 24" RCP SD PER CLV#107V8027
EX 18" RCP SD (327Y-4725-1)
EX 24" RCP SD PER CLV#107V8027
EX 24" RCP SD PER CLV#307Y-4691-2
EX 24" RCP SD PER CLV#107V8027
EX 30" RCP SD PER CLV#107V8027
EX 24" RCP SD PER CLV#107V8027
EX 24" RCP SD PER CLV#107V8027
EX 24



0 30 60
SCALE - 1"=30' FEET

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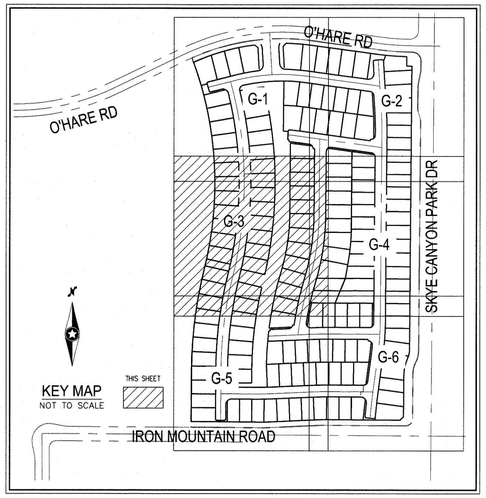
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SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 182187 DATED 04/25/2018

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1. THE OWNER, SITE DEVELOPER, CONTRACTOR, AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATED IN, THE PUBLIC RIGHTS OF WAY OF CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN CLARK COUNTY TITLE 24.40 AND IN THE LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDANCE MANUAL.
3. TEMPORARY OR PERMANENT STABILIZATION PRACTICES WILL BE INSTALLED ON DISTURBED AREAS AS SOON AS PRACTICABLE AND NO LATER THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. SOME EXCEPTIONS MAY APPLY; REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.5.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER A RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
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4.	SIDEWALK UNDER DRAIN	EA	1
5.			–
6.			–
7.			–
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10.			–

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MATTHEW D. BURGE, P.E. NO. 025959 DATE

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Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS, NEVADA

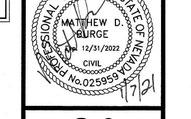
Woodside Homes BETTER BY DESIGN

LUNA AT SUNSTONE
GRADING PLAN III

S6 T19S R60E

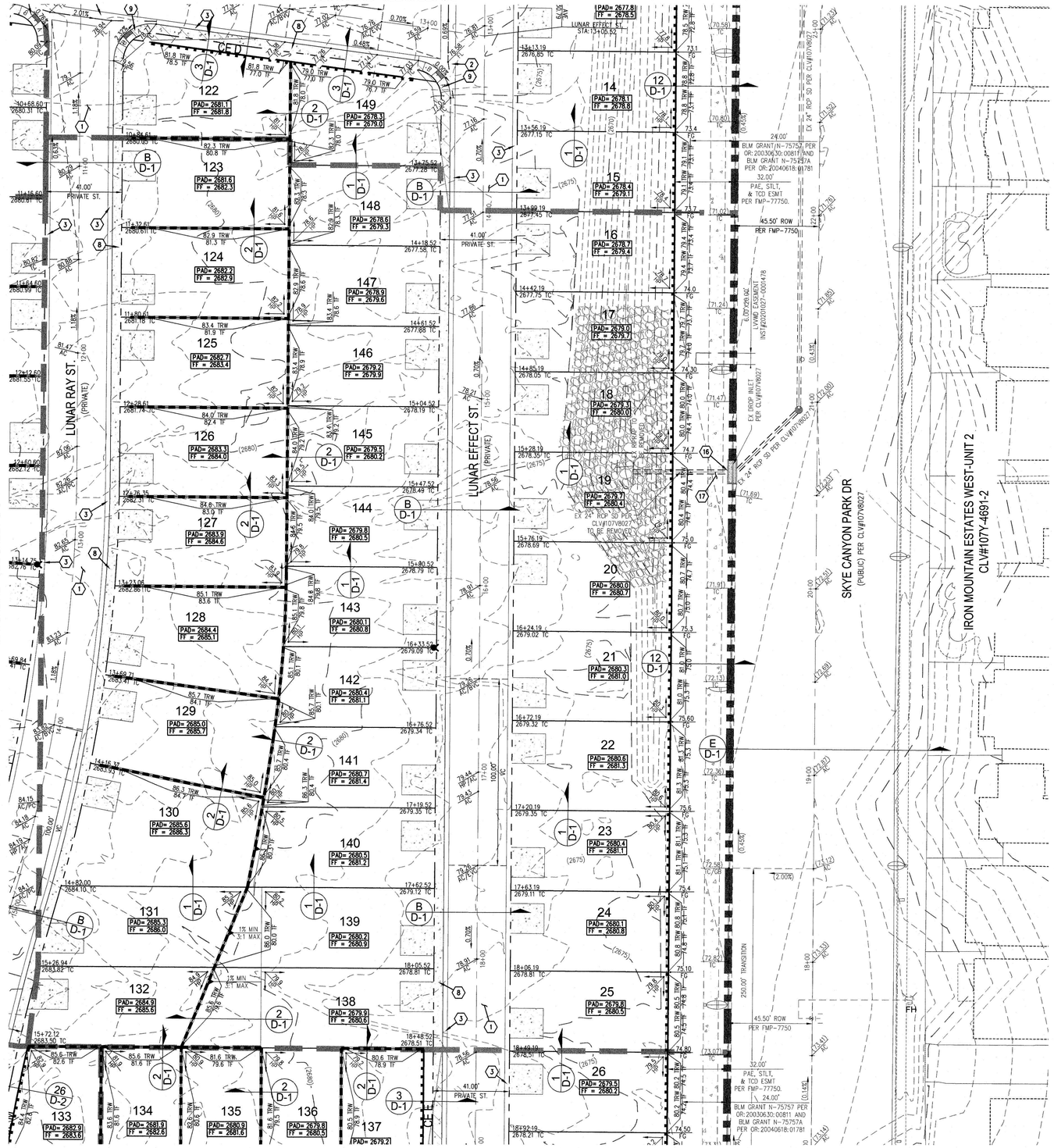
DATE: 01/07/2021
DRAFTER: YZ
DESIGNER: MB
CHECKED: MK

PROJECT NO.
WSH1905-000



G-3
SHEET 6 OF 15

J:\wsh1905-000 sunstone parcel e\dwg\mxrox\wsh1905-000 grd.dwg 1/7/2021 11:42 AM Matt Burge



CALL SOUTHWEST GAS AT 702-278-8451 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

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ELEVATION NOTE

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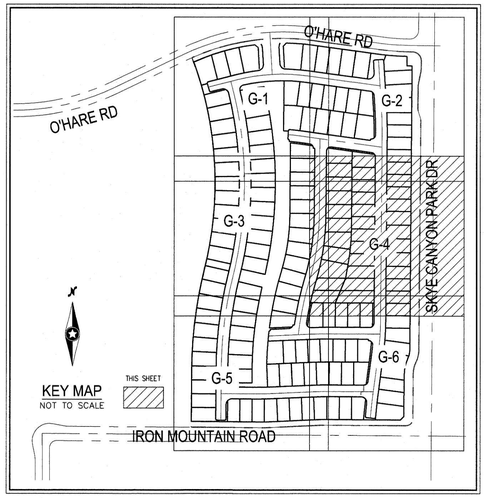
SOILS REPORT

SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 182187 DATED 04/25/2018

EARTHWORKS

EARTHWORK QUANTITIES (RAW):
CUT= 47,601 CU YDS
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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 GUTTER 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.

CONSTRUCTION NOTES

1. CONSTRUCT 2" AC PAVEMENT WITH 4" TYPE II AGGREGATE BASE
2. CONSTRUCT 8" CROSS GUTTER PER CCAUSD NO. 228
3. CONSTRUCT 30" ROLL CURB PER CCAUSD NO. 217.2.S1
4. CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD NO. 216
5. CONSTRUCT "A" TYPE ISLAND CURB PER CCAUSD NO. 219
6. CONSTRUCT CURB TRANSITION FROM ROLL CURB TO 'L' CURB PER DETAIL 16 ON SHEET D-2
7. FIELD VERIFY AND CONNECT TO EXISTING CURB AND GUTTER
8. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD NO. 234
9. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235, CASE III AND 235.1
10. CONSTRUCT CONCRETE CHANNEL PER DETAIL 18 ON SHEET D-2
11. CONSTRUCT SIDEWALK UNDERDRAIN PER CCAUSD NO. 236
12. INSTALL 4' WIDE CONCRETE U-CHANNEL PER DETAIL 17 ON SHEET D-2
13. INSTALL U-CHANNEL TO "L" CURB OPENING PER DETAIL 21 ON SHEET D-2
14. INSTALL TYPE "CM2" DROP INLET PER CCAUSD NO. 412.1 & 421 (SIZE PER PLAN)
15. RIP RAP D50=6", THICKNESS=12" TO 5' BEYOND THE PHASE BOUNDARY (WHERE SHOWN)
16. REFORM BACK OF DROP INLET PER CCAUSD NO. 412.1
17. REMOVE AND REPLACE EXISTING IMPROVEMENTS
18. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235, CASE III AND 235.1
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7. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITY STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. CONTRACTOR TO PROTECT IN PLACE DURING CONSTRUCTION. ENGINEER/OWNER SHALL BE NOTIFIED OF PRIOR DAMAGE TO EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR/REPLEIGING FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENCING.
8. NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXIST) WITHIN THE SIGHT VISIBILITY ZONES.

LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

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NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS, NEVADA

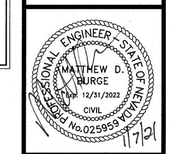
Woodside Homes
BETTER BY DESIGN

LUNA AT SUNSTONE
GRADING PLAN IV

S6 T19S R60E

DATE: 01/07/2021
DRAFTER: YZ
DESIGNER: MB
CHECKED: MK

PROJECT NO.
WSH1905-000



G-4
SHEET 7 OF 15

J:\wsh1905-000 sunstone parcel 4\dwg\improv\wsh1905-000 grd.dwg 1/7/2021 11:42 AM Matt Burge



SCALE – 1"=30' (0, 30, 60 FEET)

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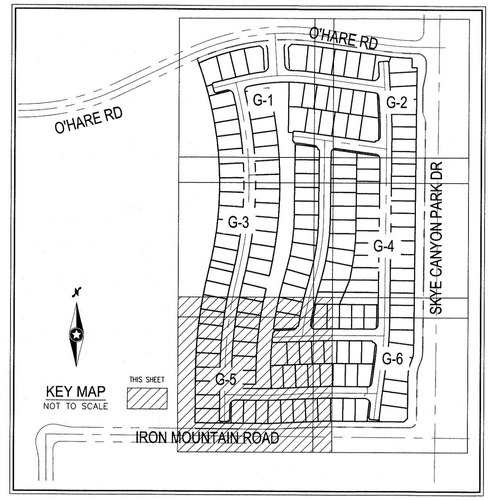
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PROJECT NO. 182187 DATED 04/25/2018

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Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

CITY OF LAS VEGAS, NEVADA

Woodside Homes BETTER BY DESIGN

LUNA AT SUNSTONE
GRADING PLAN V

S16 T19S R60E

DATE: 01/07/2021
DRAFTER: YZ
DESIGNER: MB
CHECKED: MK

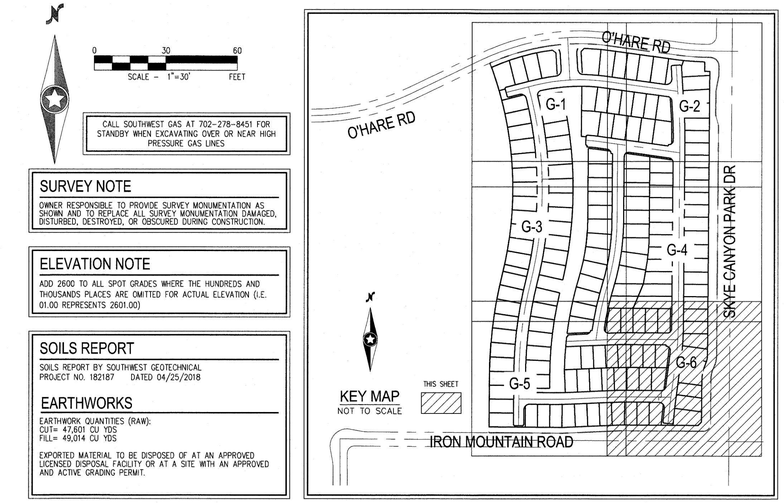
PROJECT NO.
WSH1905-000

PROFESSIONAL ENGINEER STATE OF NEVADA MATTHEW D. BURGE No. 025959 EXP. 12/31/2022 CIVIL

G-5
SHEET 8 OF 15

I:\wsh1905-000 sunstone parcel e\dwg\improv\wsh1905-000 grd.dwg 1/7/2021 11:42 AM Matt Burge





CALL SOUTHWEST GAS AT 702-278-8451 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

SURVEY NOTE

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

ELEVATION NOTE

ADD 2600 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 2601.00)

SOILS REPORT

SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 182187 DATED 04/25/2018

EARTHWORKS

EARTHWORK QUANTITIES (RAW):
CUT= 47,601 CU YDS
FILL= 49,014 CU YDS

EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.

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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.

CONSTRUCTION NOTES

1. CONSTRUCT 2" AC PAVEMENT WITH 4" TYPE II AGGREGATE BASE
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3. CONSTRUCT 30" ROLL CURB PER CCAUSD NO. 217.2.S1
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3. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
4. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
5. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
7. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITY STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. CONTRACTOR TO PROTECT IN PLACE DURING CONSTRUCTION. ENGINEER/OWNER SHALL BE NOTIFIED OF PRIOR DAMAGE TO EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR/REPLEPING FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENCING.
8. NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXIST) WITHIN THE SIGHT VISIBILITY ZONES.

LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

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4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER A RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
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DRAINAGE EASEMENT NOTE

ALL PRIVATE STREETS, DRAINAGE EASEMENTS AND COMMON ELEMENTS ARE PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA.

DRAINAGE IMPROVEMENT QUANTITIES

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2.	12.5' TYPE "CM2" DROP INLET	EA	1
3.	8' WIDE CONCRETE VALLEY GUTTER	SF	6,444
4.	SIDEWALK UNDER DRAIN	EA	1
5.			-
6.			-
7.			-
8.			-
9.			-
10.			-

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MATTHEW D. BURGE, P.E. NO. 025959 DATE

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

Call before you Dig AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY. Call 811 OR 1-800-642-2444

Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS, NEVADA

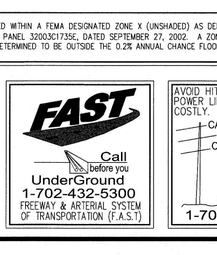
Woodside Homes BETTER BY DESIGN

LUNA AT SUNSTONE
GRADING PLAN VI

S6 T19S R60E

DATE: 01/07/2021
DRAFTER: YZ
DESIGNER: MB
CHECKED: MK

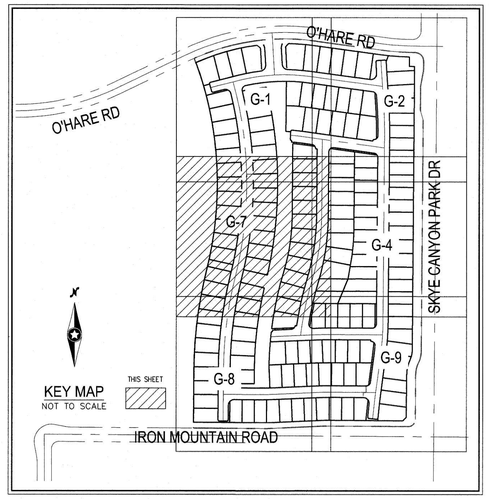
PROJECT NO.
WSH1905-000



G-6
SHEET 9 OF 15

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0 30 60
SCALE – 1"=30' FEET

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OR
1-800-642-2444

Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS, NEVADA

Woodside Homes
BETTER BY DESIGN

LUNA AT SUNSTONE
GRADING PLAN VII - INTERIM

S6 T19S R60E

DATE: 01/07/2021
DRAFTER: YZ
DESIGNER: MB
CHECKED: MK

PROJECT NO.
WSH1905-000

PROFESSIONAL ENGINEER - STATE OF NEVADA
MATTHEW D. BURGE
No. 025959
12/31/2022
CIVIL

G-7
SHEET 10 OF 15

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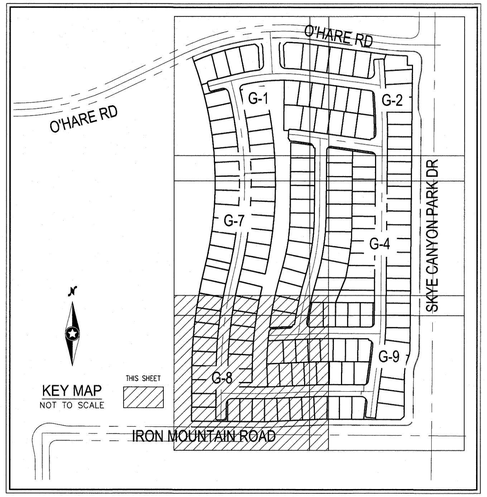
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3. TEMPORARY OR PERMANENT STABILIZATION PRACTICES WILL BE INSTALLED ON DISTURBED AREAS AS SOON AS PRACTICABLE AND NO LATER THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. SOME EXCEPTIONS MAY APPLY; REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.5.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER A RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
5. ACCUMULATED SEDIMENT IN BMPS SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

DRAINAGE IMPROVEMENT QUANTITIES

1.	5.0' TYPE "CM2" DROP INLET	EA	1
2.	12.5' TYPE "CM2" DROP INLET	EA	1
3.	8' WIDE CONCRETE VALLEY GUTTER	SF	6,444
4.	SIDEWALK UNDER DRAIN	EA	1
5.			–
6.			–
7.			–
8.			–
9.			–
10.			–

FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1735E, DATED SEPTEMBER 27, 2002. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

FLOOD CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY DS-5390A ON FILE AT CITY OF LAS VEGAS FOR THE SUBJECT PROJECT.

MATTHEW D. BURGE, P.E. NO. 025959 DATE

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

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

Call before you Dig AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY. Call 811 OR 1-800-642-2444

Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

CITY OF LAS VEGAS, NEVADA

Woodside Homes BETTER BY DESIGN

LUNA AT SUNSTONE
GRADING PLAN VIII - INTERIM

S6 T19S R60E

DATE: 01/07/2021
DRAFTER: YZ
DESIGNER: MB
CHECKED: MK
PROJECT NO. WSH1905-000

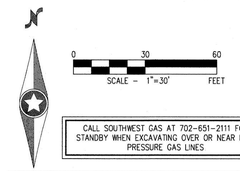
PROFESSIONAL ENGINEER – STATE OF NEVADA – MATTHEW D. BURGE – No. 025959 – EXP. 12/31/2022 – CIVIL

G-8
SHEET 11 OF 15

J:\wsh\1905-000 sunstone pgpack a\dwg\mprov\wsh1905-000 grd – Int1.dwg 1/7/2021 11:44 AM Matt Burge

MATCHLINE - SEE SHEET G-4





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

SURVEY NOTE

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

ELEVATION NOTE

ADD 2600 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 2601.00)

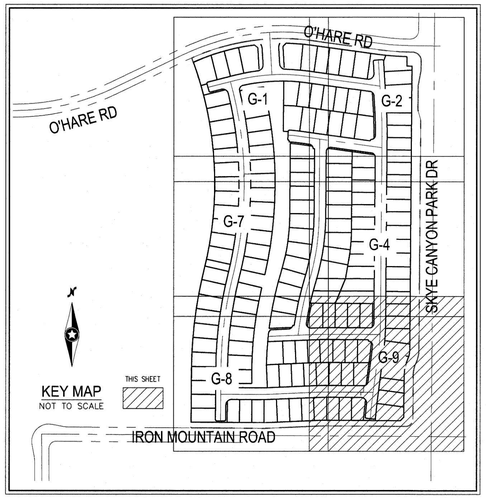
SOILS REPORT

SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 182187 DATED 04/25/2018

EARTHWORKS

EARTHWORK QUANTITIES (RAW):
CUT= 47,601 CU YDS
FILL= 49,014 CU YDS

EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.



DISCLAIMER NOTE

1) EXISTING UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

2) FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED 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.

GRADING NOTES

1. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
2. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
3. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
4. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
5. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
7. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITY STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. CONTRACTOR TO PROTECT IN PLACE DURING CONSTRUCTION. ENGINEER/OWNER SHALL BE NOTIFIED OF PRIOR DAMAGE TO EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR/REPLEPING FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENCING.
8. NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXIST) WITHIN THE SIGHT VISIBILITY ZONES.

CONSTRUCTION NOTES

1. CONSTRUCT 2" AC PAVEMENT WITH 4" TYPE II AGGREGATE BASE
2. CONSTRUCT 8" CROSS GUTTER PER CCAUSD NO. 228
3. CONSTRUCT 30" ROLL CURB PER CCAUSD NO. 217.2.S1
4. CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD NO. 216
5. CONSTRUCT "A" TYPE ISLAND CURB PER CCAUSD NO. 219
6. CONSTRUCT CURB TRANSITION FROM ROLL CURB TO 'L' CURB PER DETAIL 16 ON SHEET D-2
7. FIELD VERIFY AND CONNECT TO EXISTING CURB AND GUTTER
8. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD NO. 234
9. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235, CASE III AND 235.1
10. CONSTRUCT CONCRETE CHANNEL PER DETAIL 18 ON SHEET D-2
11. CONSTRUCT SIDEWALK UNDERDRAIN PER CCAUSD NO. 236
12. INSTALL 4' WIDE CONCRETE U-CHANNEL PER DETAIL 17 ON SHEET D-2
13. INSTALL U-CHANNEL TO "L" CURB OPENING PER DETAIL 21 ON SHEET D-2
14. INSTALL TYPE "CM2" DROP INLET PER CCAUSD NO. 412.1 & 421 (SIZE PER PLAN)
15. RIP RAP D50=6", THICKNESS=12" TO 5' BEYOND THE PHASE BOUNDARY (WHERE SHOWN)
16. REFORM BACK OF DROP INLET PER CCAUSD NO. 412.1
17. REMOVE AND REPLACE EXISTING IMPROVEMENTS
18. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235, CASE II AND 235.1
19. CONSTRUCT "L" TYPE ISLAND CURB PER CCAUSD NO. 219

LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

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5.			-
6.			-
7.			-
8.			-
9.			-
10.			-

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westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

CITY OF LAS VEGAS, NEVADA

Woodside Homes
BETTER BY DESIGN

LUNA AT SUNSTONE
GRADING PLAN IX - INTERIM

S6 T19S R60E

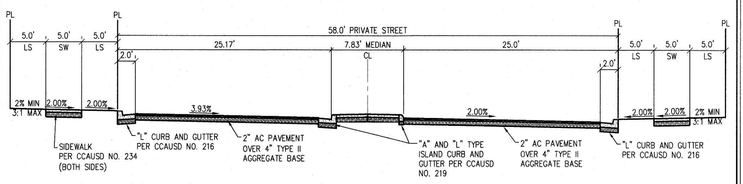
DATE: 01/07/2021
DRAFTER: YZ
DESIGNER: MB
CHECKED: MK

PROJECT NO.
WSH1905-000

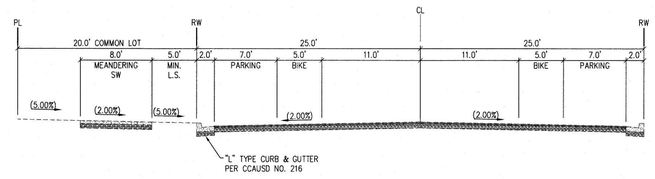


G-9
SHEET 12 OF 15

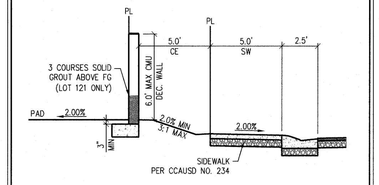
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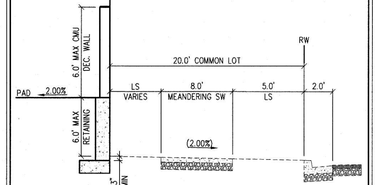
A. ENTRANCE SECTION
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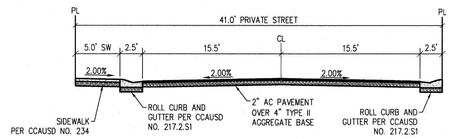
F. EXISTING PUBLIC STREET SECTION
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SKYE CANYON PARK DR



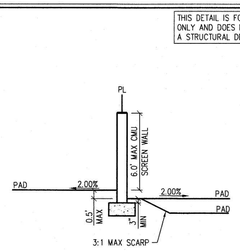
9. WALL SECTION
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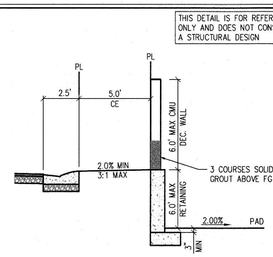
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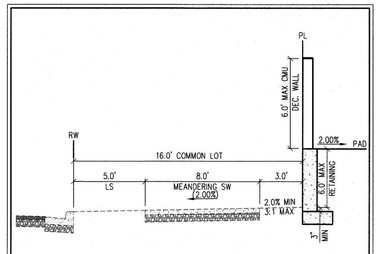
B. 41' PRIVATE STREET SECTION
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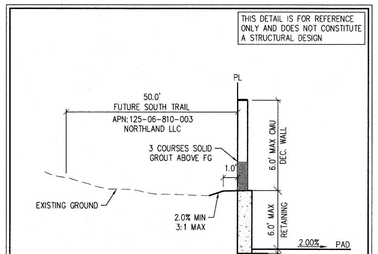
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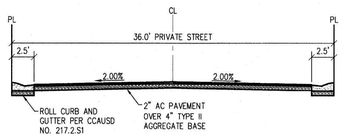
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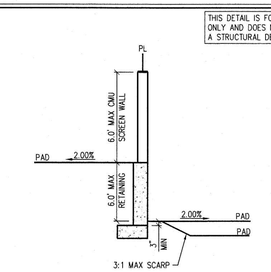
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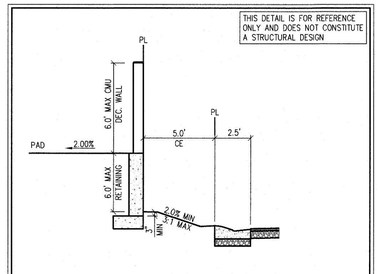
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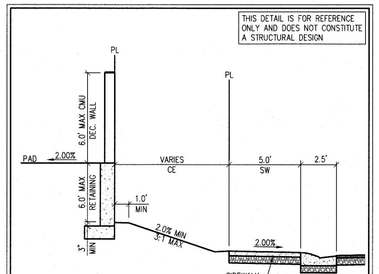
C. 36' PRIVATE STREET SECTION
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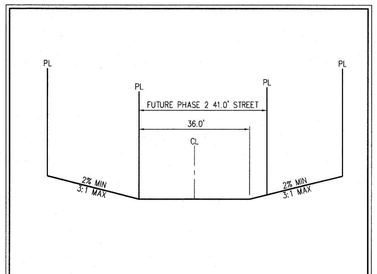
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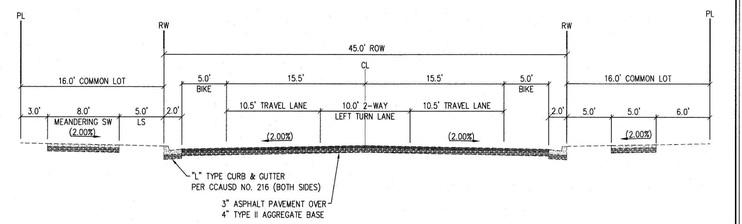
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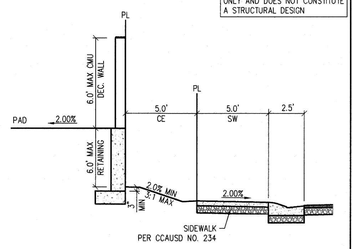
11. WALL SECTION
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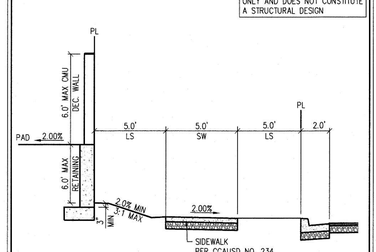
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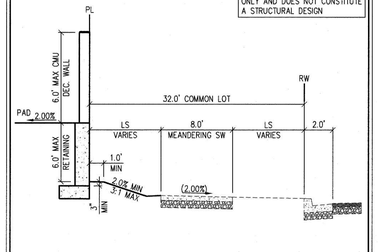
D. EXISTING PUBLIC STREET SECTION
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OHARE RD



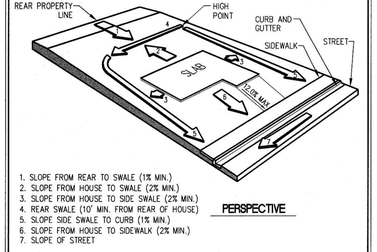
3. WALL SECTION
NOT TO SCALE



7. WALL SECTION
NOT TO SCALE

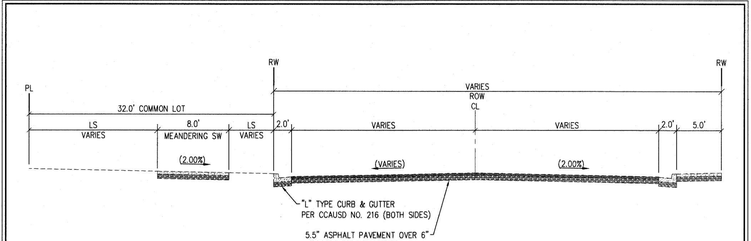


12. PERIMETER WALL SECTION
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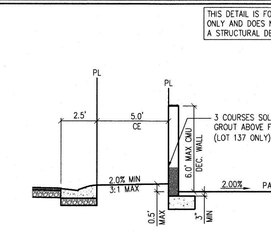


1. SLOPE FROM REAR TO SWALE (1% MIN.)
2. SLOPE FROM HOUSE TO SWALE (2% MIN.)
3. SLOPE FROM HOUSE TO SIDE SWALE (2% MIN.)
4. REAR SWALE (10' MIN. FROM REAR OF HOUSE)
5. SLOPE SIDE SWALE TO CURB (1% MIN.)
6. SLOPE FROM HOUSE TO SIDEWALK (2% MIN.)
7. SLOPE OF STREET

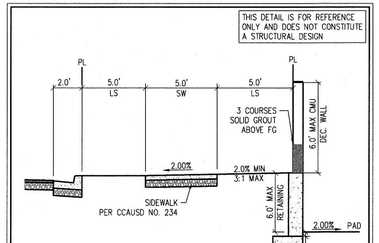
TYPE "A" LOT GRADING
NOT TO SCALE



E. EXISTING PUBLIC STREET SECTION
NOT TO SCALE
SKYE CANYON PARK DR



4. WALL SECTION
NOT TO SCALE



8. WALL SECTION
NOT TO SCALE

WALL SECTION NOTE
WALL SECTIONS TO BE BUILT PER THE SUNSTONE DESIGN STANDARDS







Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS, NEVADA

Woodside Homes
BETTER BY DESIGN

LUNA AT SUNSTONE

STREET SECTIONS & GRADING DETAILS I

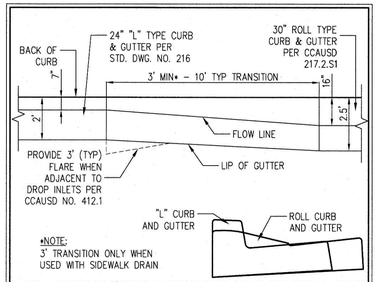
S6
T19S
R60E

DATE: 01/07/2021
DRAFTER: YZ
DESIGNER: MB
CHECKED: MK

PROJECT NO.
WSH1905-000

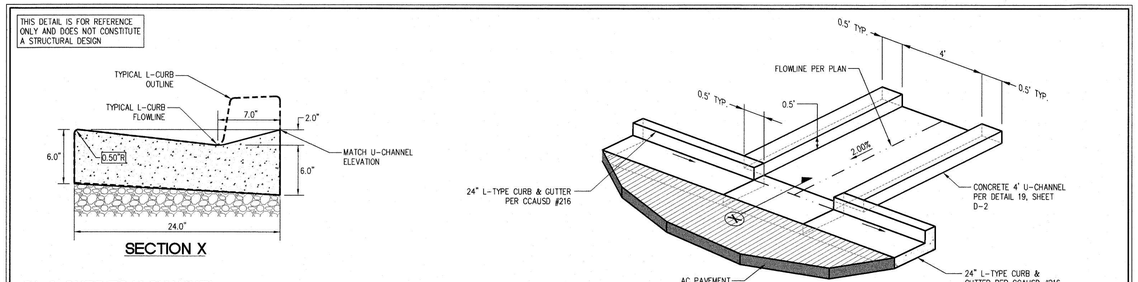
D-1
SHEET 13 OF 15

J:\wsh1905-000 sunstone parcel e\Dwg\Improv\wsh1905-000 d1.dwg 1/7/2021 11:44 AM Matt Burge



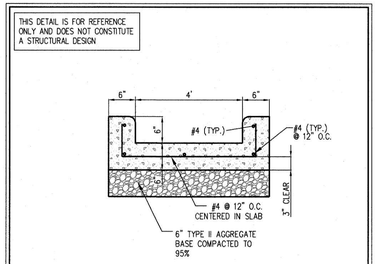
16. 10' TRANSITION FROM "L" C&G TO ROLL C&G

NOT TO SCALE



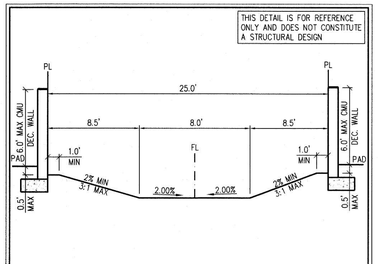
21. L-CURB TO U-CHANNEL

NOT TO SCALE



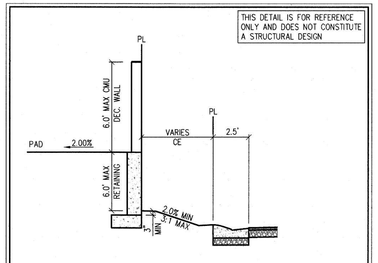
17. 4' CONCRETE U-CHANNEL

NOT TO SCALE



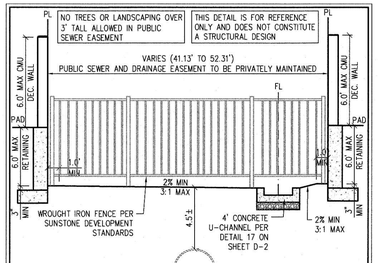
22. WALL SECTION

NOT TO SCALE



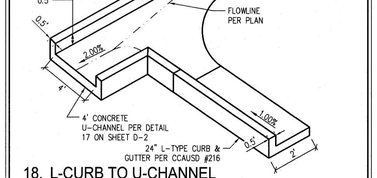
24. WALL SECTION

NOT TO SCALE



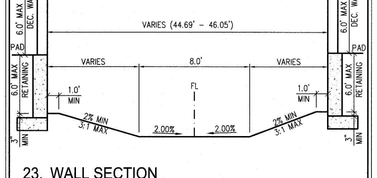
28. WALL SECTION

NOT TO SCALE



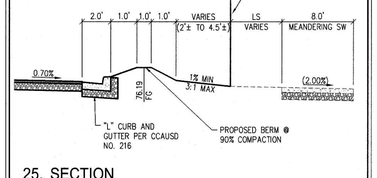
18. L-CURB TO U-CHANNEL

NOT TO SCALE



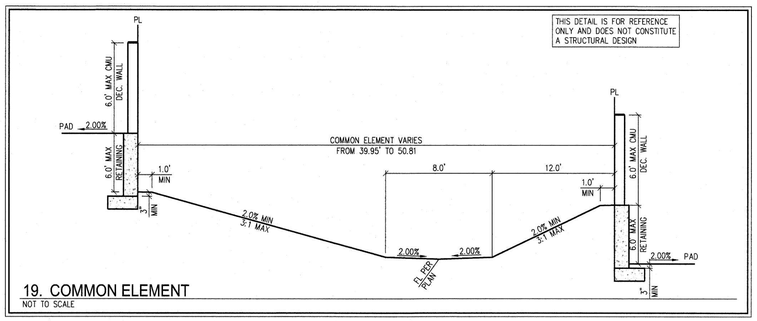
23. WALL SECTION

NOT TO SCALE



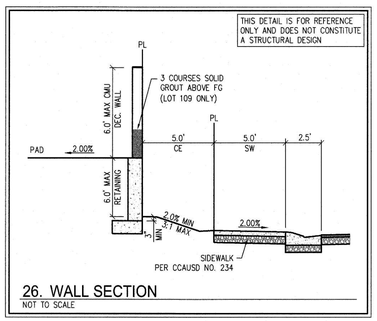
25. SECTION

NOT TO SCALE



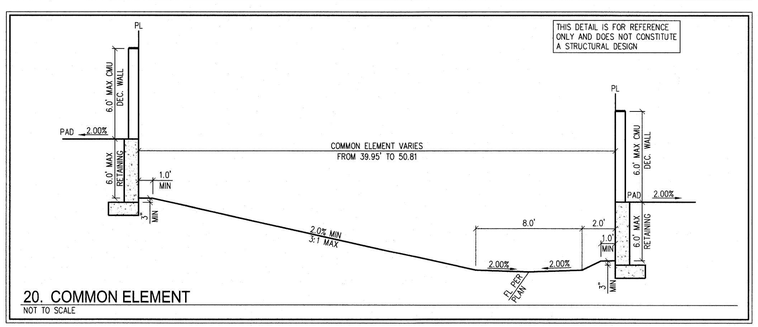
19. COMMON ELEMENT

NOT TO SCALE



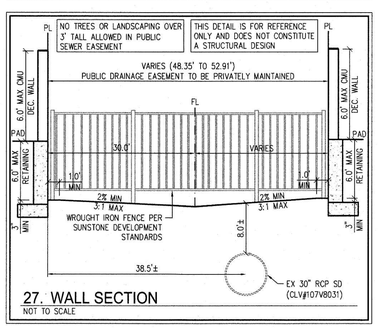
26. WALL SECTION

NOT TO SCALE



20. COMMON ELEMENT

NOT TO SCALE



27. WALL SECTION

NOT TO SCALE

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

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811 OR 1-800-642-2444

Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS, NEVADA

Woodside Homes
BETTER BY DESIGN

LUNA AT SUNSTONE
GRADING DETAILS II

S6 T19S R60E

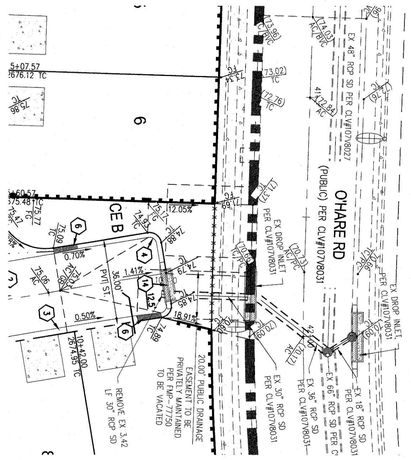
DATE: 01/07/2021
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PROJECT NO.
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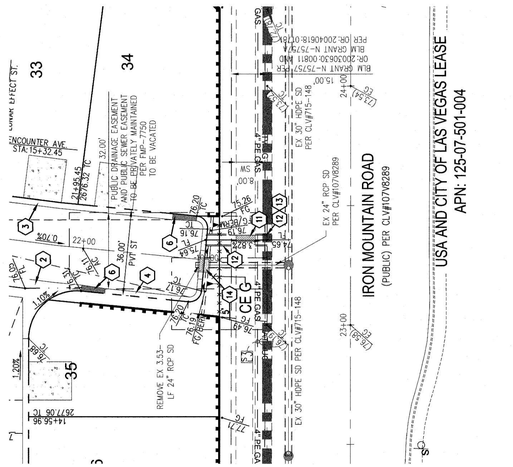


D-2
SHEET 14 OF 15

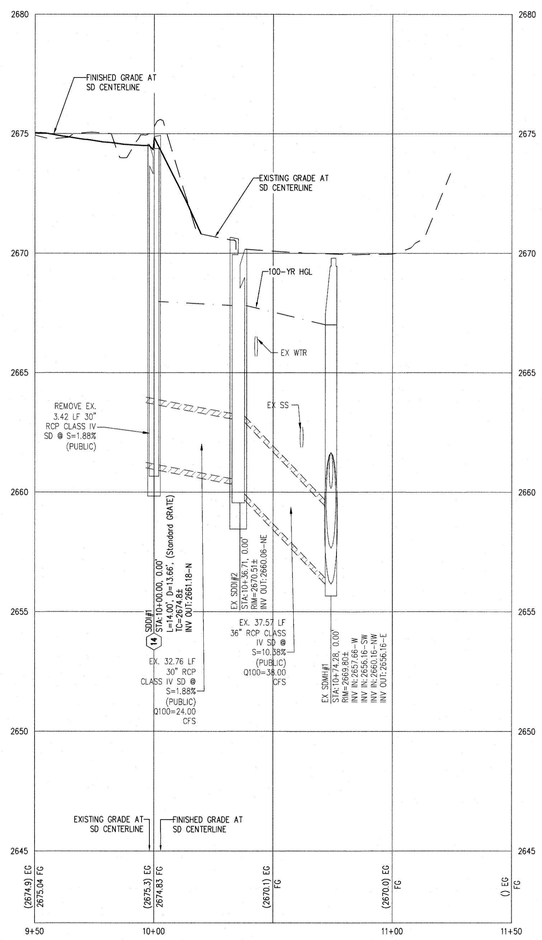
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SD LAT 1 - PLAN VIEW



SD LAT 2 - PLAN VIEW



SD LAT 1 - PROFILE VIEW

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

SD LAT 2 - PROFILE VIEW

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

0 30 60
SCALE – 1"=30' FEET

CALL SOUTHWEST GAS AT 702-278-8451 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

SURVEY NOTE

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

ELEVATION NOTE

ADD 2600 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 2601.00)

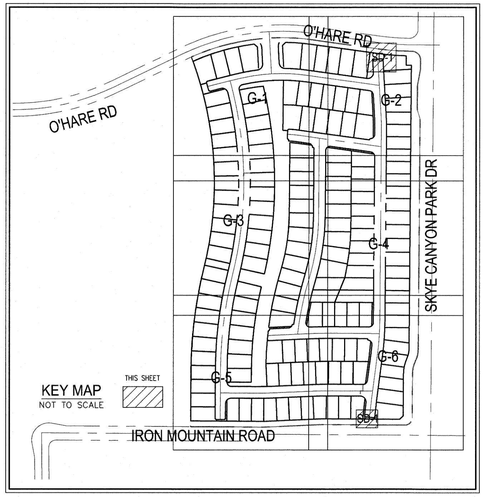
SOILS REPORT

SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 182187 DATED 04/25/2018

EARTHWORKS

EARTHWORK QUANTITIES (RAW):
CUT= 47,601 CU YDS
FILL= 49,014 CU YDS

EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.



DISCLAIMER NOTE

1) EXISTING UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

2) FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED 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.

CONSTRUCTION NOTES

1. CONSTRUCT 2" AC PAVEMENT WITH 4" TYPE II AGGREGATE BASE
2. CONSTRUCT 8' CROSS GUTTER PER CCAUSD NO. 228
3. CONSTRUCT 30" ROLL CURB PER CCAUSD NO. 217.2.S1
4. CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD NO. 216
5. CONSTRUCT "A" TYPE ISLAND CURB PER CCAUSD NO. 219
6. CONSTRUCT CURB TRANSITION FROM ROLL CURB TO 'L' CURB PER DETAIL 16 ON SHEET D-2
7. FIELD VERIFY AND CONNECT TO EXISTING CURB AND GUTTER
8. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD NO. 234
9. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235, CASE III AND 235.1
10. CONSTRUCT CONCRETE CHANNEL PER DETAIL 18 ON SHEET D-2
11. CONSTRUCT SIDEWALK UNDERDRAIN PER CCAUSD NO. 236
12. INSTALL 4' WIDE CONCRETE U-CHANNEL PER DETAIL 17 ON SHEET D-2
13. INSTALL U-CHANNEL TO "L" CURB OPENING PER DETAIL 21 ON SHEET D-2
14. INSTALL TYPE "CM2" DROP INLET PER CCAUSD NO. 412.1 & 421 (SIZE PER PLAN)
15. RIP RAP D50=6", THICKNESS=12" TO 5' BEYOND THE PHASE BOUNDARY (WHERE SHOWN)
16. REFORM BACK OF DROP INLET PER CCAUSD NO. 412.1
17. REMOVE AND REPLACE EXISTING IMPROVEMENTS
18. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235, CASE II AND 235.1
19. CONSTRUCT "L" TYPE ISLAND CURB PER CCAUSD NO. 219

GRADING NOTES

1. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
2. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
3. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
4. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
5. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
7. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITY STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. CONTRACTOR TO PROTECT IN PLACE DURING CONSTRUCTION. ENGINEER/OWNER SHALL BE NOTIFIED OF PRIOR DAMAGE TO EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR/REPLEPING FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENCING.
8. NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXIST) WITHIN THE SIGHT VISIBILITY ZONES.

LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

1. THE OWNER, SITE DEVELOPER, CONTRACTOR, AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATED IN, THE PUBLIC RIGHTS OF WAY OF CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN CLARK COUNTY TITLE 24.40 AND IN THE LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDANCE MANUAL.
3. TEMPORARY OR PERMANENT STABILIZATION PRACTICES WILL BE INSTALLED ON DISTURBED AREAS AS SOON AS PRACTICABLE AND NO LATER THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. SOME EXCEPTIONS MAY APPLY, REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.5.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER A RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
5. ACCUMULATED SEDIMENT IN BMPS SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

DRAINAGE EASEMENT NOTE

ALL PRIVATE STREETS, DRAINAGE EASEMENTS AND COMMON ELEMENTS ARE PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA.

DRAINAGE IMPROVEMENT QUANTITIES

1.	5.0' TYPE "CM2" DROP INLET	EA	1
2.	12.5' TYPE "CM2" DROP INLET	EA	1
3.	8' WIDE CONCRETE VALLEY GUTTER	SF	6,444
4.	SIDEWALK UNDER DRAIN	EA	1
5.			–
6.			–
7.			–
8.			–
9.			–
10.			–

FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1735E, DATED SEPTEMBER 27, 2002. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

FLOOD CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY OS-5390A ON FILE AT CITY OF LAS VEGAS FOR THE SUBJECT PROJECT.

MATTHEW D. BURGE, P.E. NO. 025959 DATE

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

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

Call before you Dig AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY. Call 811 OR 1-800-642-2444

Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS, NEVADA

Woodside Homes BETTER BY DESIGN

LUNA AT SUNSTONE

PLAN AND PROFILE - STORM DRAIN LATERALS

S6 T19S R60E

DATE: 01/07/2021
DRAFTER: YZ
DESIGNER: MB
CHECKED: MK

PROJECT NO.
WSH1905-000

PROFESSIONAL ENGINEER – STATE OF NEVADA – MATTHEW D. BURGE – Exp. 12/31/2022 – CIVIL – No. 025959 – 1/7/21

SD-1
SHEET 15 OF 15

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