DS #: 4924

APN: 125-31-701-005

PROJECT: Grand Canyon and Rosada

SUBMITTAL: 2nd

SCANNED BY/DATE:

CHECKED BY/DATE:



CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: December 5, 2017
TO: **Land Development Services** Department of Building & Safety				FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for: **Grand Canyon and Rosada**			**COPIES TO:** GCW Engineers / Surveyors
Cross Streets:	Grand Canyon Drive and Rosada Way			Touchstone Living
File Number:	F:\Depot\DSMemos\DS4924B.doc			Bart Anderson, P.E., DevCo
Parcel Number:	125-31-701-005			CCPW
Zoning Action:	TMP-71297			
FEMA Flood Zone	YES	NO	X	
Proposed Storm Drain	YES	NO	X	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	10/5/2017	10/19/2017	Not Approved	$400.00	490480: $400
2nd Submittal	11/15/2017	12/5/2017	See Comments Below	$400.00	491505: $400
			TOTAL FEES (LDDRS):	**$800.00**	----

REMARKS:

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

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

1. The site is adjacent to the jurisdiction of Clark County. The engineer must coordinate with *Clark County Department of Public Works* (CCPW) and incorporate any concerns for boundary conditions along the pertinent borders. CCPW concurrence is required prior to final acceptance of the subject drainage study.

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

END OF REMARKS
WSP/AYS

T/R/S: T19S/R60E/S31
AREA G-31

TRANSACTION REPORT

DEC/05/2017/TUE 04:58 PM

FAX(TX)

#	DATE	START T.	RECEIVER	COM.TIME	PAGE	TYPE/NOTE	FILE
001	DEC/05	04:57PM	7028042299	0:00:23	1	MEMORY OK SG3	0022

CITY OF LAS VEGAS **INTER-OFFICE MEMORANDUM**				**DATE:** **December 5, 2017**
TO: **Land Development Services** Department of Building & Safety				**FROM:** Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for: **Grand Canyon and Rosada**			**COPIES TO:** GCW Engineers / Surveyors
Cross Streets:	Grand Canyon Drive and Rosada Way			Touchstone Living
File Number:	F:\Depot\DSMemos\DS4924B.doc			Bart Anderson, P.E., DevCo
Parcel Number:	126-31-701-005			CCPW
Zoning Action:	TMP-71297			
FEMA Flood Zone	YES	NO	X	
Proposed Storm Drain	YES	NO	X	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	10/5/2017	10/19/2017	Not Approved	$400.00	490480: $400
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			TOTAL FEES (LDDRS):	**$800.00**	---

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END OF REMARKS
WSP/AYS

T/R/S: T19S/R60E/S31
AREA G-31

RESPONSE TO COMMENTS ON THE TECHNICAL DRAINAGE STUDY FOR GRAND CANYON AND ROSADA

398-A833

November 2017

GCW
ENGINEERS \ SURVEYORS

Prepared for:

Touchstone Living
9205 W. Russell Road, Suite 235
Las Vegas, NV 89148
(702) 929-3131

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Grand Canyon and Rosada Date: November 2017

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

East/West: Rosada Way

b) Section: 31 Township: 19S Range: 60E

c) APN : 125-31-701-005

Name of Owner: Touchstone Living

Telephone No.: (702) 929-3131 Fax No.: Not Available E-Mail Address: dmanning@touchstoneliving.com

Address: 9205 W Russell Road, Las Vegas, NV 89148

Contact Person-Name: Steve Jones **Telephone No.:** (702) 804-2000

* **E-Mail Address:** sjones@gcwengineering.com **Fax No.:** (702) 804-2297

Firm: GCW, Inc.

Address: 1555 S Rainbow Blvd, Las Vegas, NV 89146

Type of Land Development/Land Disturbance Process:

	Rezoning	x	Subdivision Map		Clearing and Grading Only
	Parcel Map		Planned Unit Development		Other (Please specify below)
	Large Parcel Map		Building Permit		

1. Total Owned Land Area: At Site: +/- 10 AC Being Developed/Disturbed: +/- 10 AC
2. Is a portion or all of the subject property located in a designated FEMA Flood Hazard Area? ☐ **Yes**** ☒ **No**
3. Is the property bordered or crossed by an existing or proposed Clark County Regional Flood Control District Master Planned Facility? ☐ **Yes**** ☒ **No**
4. Proposed type of development (Residential, Commercial, Etc.): Residential
5. Approximate upstream land area which drains to the subject site: +/- 278.8 AC
6. Has the site drainage been evaluated in the past? ☐ **YES** ☒ **NO** If yes, please identify documentation:
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Rosada Way, Washburn Road
8. Briefly describe your proposed schedule for the subject project: ASAP

PROFESSIONAL ENGINEER-STATE OF NEVADA
STEPHEN M. JONES
EXP. 6-30-19
CIVIL
No. 19638
11/13/2017

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.

*New Required Field

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

Revision	Date

Local Entity File No.

REFERENCE:

STANDARD FORM 1

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: October 23, 2017
TO: Land Development Services Department of Building & Safety				FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for: Grand Canyon and Rosada			COPIES TO: GCW Engineers / Surveyors
Cross Streets:	Grand Canyon Drive and Rosada Way			Touchstone Living
File Number:	F:\Depot\DSMemos\DS4924A.doc			Bart Anderson, P.E., DevCo
Parcel Number:	125-31-701-005			CCPW
Zoning Action:	TMP-71297			
FEMA Flood Zone	YES	NO	X	
Proposed Storm Drain	YES	NO	X	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	10/5/2017	10/19/2017	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.

1. A review of the grading plan shows an elevation difference of approximately five-feet of cut/fill adjacent to developed properties. Sites with a grade difference of 2 feet above or below existing grades are required to have approval from the *City of Las Vegas Planning and Development Department.* The engineer must submit copies of the grading plans and detail sheet with a letter justifying the grade difference to the *City Planning Department* (229-6301). The engineer must provide *City Planning* approval with the next submittal.

2. The site is adjacent to the jurisdiction of Clark County. The engineer must coordinate with *Clark County Department of Public Works* (CCPW) and incorporate any concerns for boundary conditions along the pertinent borders. CCPW concurrence is required prior to final acceptance of the subject drainage study.

3. Per *Public Works Condition #4* of *TMP-71297*, quote: "*Driveways along Washburn Road shall be designed to allow vehicles adequate space to enter the road facing forward. Backing into Washburn Road shall not be allowed*".

   It appears that based on this condition, a semi-circular driveway will be needed to accomplish the requirement. Please review and resolve accordingly.

4. The anticipated 100-year flows in *Washburn Road* and *Rosada Way* are deep and erosive. Provide erosion protection measures such as riprap in the roadside ditches. Provide riprap sizing calculations and revise the pertinent cross sections and construction notes accordingly.

5. Provide driveway elevations at the cutoff walls and a cross section detail of the driveways along *Washburn Road* and *Rosada Way*.
6. Per the Northwest neighborhood study the 10-year flow along Washburn should be 232cfs, not 234 as shown on Fig 6.
7. The proposed entrance/exit driveway (***Street "B"***) points directly at the center of a lot to the south of *Rosada Way* in the *Clark County* jurisdiction. This concentrated discharge will add to the flow in *Rosada Way* and negatively impacting the lot to the south. Provide hydraulic calculation at the Tee-intersection of the two streets (*Rosada* and "*B*") to justify whether the impact is acceptable. If the impact is substantial, *Street "B"* may need to be realigned to face *Park Street*.
8. **Sheet G1:** The drainage easement between Lots 12, 13 and 14 should be designated as a public drainage easement to be privately maintained and to be dedicated as a common lot. Label on the grading plans and record as such in the final map.
9. **Sheet G1:** Callout K/D2, located between Lots 11 and 12, does not exist, please revise.
10. **Sheet D2:** the drainage easement shown in Details A, E, F and G must be concrete lined. Revise in the next submittal.
11. Label the slope in the cul-de-sac of *Street "A"*. The minimum is 1%.
12. The *Gowan Study* was used instead of the *Northwest Neighborhood Study* for finished floor analysis, the *Northwest Neighborhood Study* is more conservative, please provide a finished floor analysis using those values.
13. The engineer must provide a table on the grading plans that shows a quantity estimate of all drainage improvements within Public Drainage Easements. All drainage improvements within Public Drainage Easements must be bonded and inspected.

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

END OF REMARKS
WSP/AYS

T/R/S: T19S/R60E/S31
AREA G-31

RESPONSE TO COMMENTS
ON THE
TECHNICAL DRAINAGE STUDY
FOR
GRAND CANYON AND ROSADA

398-A833

November 2017

Prepared for:

Touchstone Living
9205 W. Russell Road, Suite 235
Las Vegas, NV 89148
(702) 929-3131

Prepared by:

GCW, Inc.
1555 S. Rainbow Blvd.
Las Vegas, NV 89146
Phone: (702) 804-2000
Fax: (702) 804-2299

GCW
ENGINEERS \ SURVEYORS

398-A833

November 13, 2017

Albert Sung, PE
City of Las Vegas – Department of Public Works
333 N. Rancho Drive – 7th Floor
Las Vegas, NV 89106

Re: Response to City of Las Vegas Comments on the Technical Drainage Study for Grand Canyon and Rosada

Dear Mr. Sung:

This letter addresses City of Las Vegas (CLV) review comments dated October 23, 2017, regarding the project in its entirety. Below are individual responses to each comment included in the review letter.

Comment: "1. A review of the grading plan shows an elevation difference of approximately five-feet of cut/fill adjacent to developed properties. Sites with a grade difference of 2 feet above or below existing grades are required to have approval from the City of Las Vegas Planning and Development Department. The engineer must submit copies of the grading plans and detail sheet with a letter justifying the grade difference to the City Planning Department (229-6301). The engineer must provide City Planning approval with the next submittal."

Response: City Planning approval has been included in the appendix.

Comment: "2. The site is adjacent to the jurisdiction of Clark County. The engineer must coordinate with Clark County Department of Public Works (CCPW) and incorporate any concerns for boundary conditions along the pertinent borders. CCPW concurrence is required prior to final acceptance of the subject drainage study."

Response: Noted.

Comment: "3. Per Public Works Condition #4 of TMP-71297, quote: "Driveways along Washburn Road shall be designed to allow vehicles adequate space to enter the road facing forward. Backing into Washburn Road shall not be allowed". It appears that based on this condition, a semi-circular driveway will be needed to accomplish the requirement. Please review and resolve accordingly."

Response: Per a conversation between Wes Petty (GCW) and Lucien Paet (City of Las Vegas), semi-circular driveways will not be required as long as adequate turn

around space is provided in the driveways to allow vehicles to enter the road facing forward. The proposed driveways provide sufficient space for vehicles to turn around, therefore the design is adequate.

Comment: "4. The anticipated 100-year flows in Washburn Road and Rosada Way are deep and erosive. Provide erosion protection measures such as riprap in the roadside ditches. Provide riprap sizing calculations and revise the pertinent cross sections and construction notes accordingly."

Response: Per a phone call on October 31, 2017 between Steve Jones (GCW) and Albert Sung (City of Las Vegas), the current design is adequate for the 100-year flows in Washburn and Rosada since flows are deep and erosive prior to the development with an insignificant impact by this project. As requested a note has been added to the detail of the roadside swale to compact to 95%.

Comment: "5. Provide driveway elevations at the cutoff walls and a cross section detail of the driveways along Washburn Road and Rosada Way."

Response: Driveway elevations at the cutoff walls and cross section details of the driveways along Washburn and Rosada have been provided.

Comment: "6. Per the Northwest neighborhood study the 10-year flow along Washburn should be 232 cfs, not 234 as shown on Fig 6."

Response: The referenced flow rate on Figure 6 as well as Figure 5 have been corrected.

Comment: "7. The proposed entrance/exit driveway (**Street "B"**) points directly at the center of a lot to the south of Rosada Way in the Clark County jurisdiction. This concentrated discharge will add to the flow in Rosada Way and negatively impacting the lot to the south. Provide hydraulic calculation at the Tee- intersection of the two streets (Rosada and "B") to justify whether the impact is acceptable. If the impact is substantial, Street "B" may need to be realigned to face Park Street."

Response: A hydraulic calculation for Street B at Section 5 has been provided. The calculation shows a specific energy of 0.58-feet which would barely overtop the 0.48-foot street crown in Rosada, however since the current flow in Rosada is 139 cfs, with a greater flow depth and velocity than Street B, and Street B has a steep transitioning slope to the east, the flow will be forced east and will not negatively impact the lot to the south. Also note that in the existing condition 28 cfs is discharged toward the lot, which is greater than the 18 cfs in the proposed condition.

Comment: "8. **Sheet G1:** The drainage easement between Lots 12, 13 and 14 should be designated as a public drainage easement to be privately maintained

and to be dedicated as a common lot. Label on the grading plans and record as such in the final map."

Response: The subject drainage easement has been revised to be a public drainage easement to be privately maintained. The normal depth calculation for the easement has been updated to accurately reflect the 5-foot width and the new mannings value for the concrete lining. Per the memo included in the appendix the drainage easement is not required to be dedicated as a common lot.

Comment: "9. **Sheet G1:** Callout K/D2, located between Lots 11 and 12, does not exist, please revise."

Response: The K/D2 callout was incorrect. The plans have been revised to show the correct K/D1 callout.

Comment: "10. **Sheet D2:** the drainage easement shown in Details A, E, F and G must be concrete lined. Revise in the next submittal."

Response: The drainage easement has been revised to be concrete lined. Note that the previous calculation has also been corrected to show the drainage easement as 5-feet instead of 10-feet. The normal depth calculation for the drainage easement and the table on Figure 6 have been revised and are included in the appendix.

Comment: "11. Label the slope in the cul-de-sac of Street "A". The minimum is 1%."

Response: The cul-de-sac slope has been labeled.

Comment: "12. The Gowan Study was used instead of the Northwest Neighborhood Study for finished floor analysis, the Northwest Neighborhood Study is more conservative, please provide a finished floor analysis using those values."

Response: Finished floor elevations have been evaluated based on the Northwest Neighborhood Study. Finished floor elevation along Washburn have been raised to be a minimum of 18-inches above the flow depth. The finished floor elevation along Rosada Way still meet criteria and remain the same.

Comment: "13. The engineer must provide a table on the grading plans that shows a quantity estimate of all drainage improvements within Public Drainage Easements. All drainage improvements within Public Drainage Easements must be bonded and inspected."

Response: Noted. A table showing the quantity estimate has been added to sheet G1.

If you have any questions or require additional information, please do not hesitate to contact me at 804-2130.

Respectfully,

GCW, INC.

Nelson Baggs, E.I.
Flood Control Division

Enclosures

c: Wes Petty, GCW



NORTH

GRAPHIC SCALE

100 0 50 100

(IN FEET)

1 inch = 100 ft.

LEGEND

SUBBASIN BOUNDARY

DON1 SUBBASIN ID

Note:
Site lies within 'A' soil; However, 'D' soil utilized in analysis for conservative purposes

EXISTING CONDITION
SUBBASIN FLOW RATE SUMMARY

Subbasin ID	Area (acres)	Q_{100} (cfs)	Q_{10} (cfs)
EON1	10.0	25	9

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP	DATE:

PROJECT NO. 767-605

DESIGN: GYT
DRAWN: GYT
CHECK:
PLOT DATE: 11-13-17
PLOT TIME: 16:22:52

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

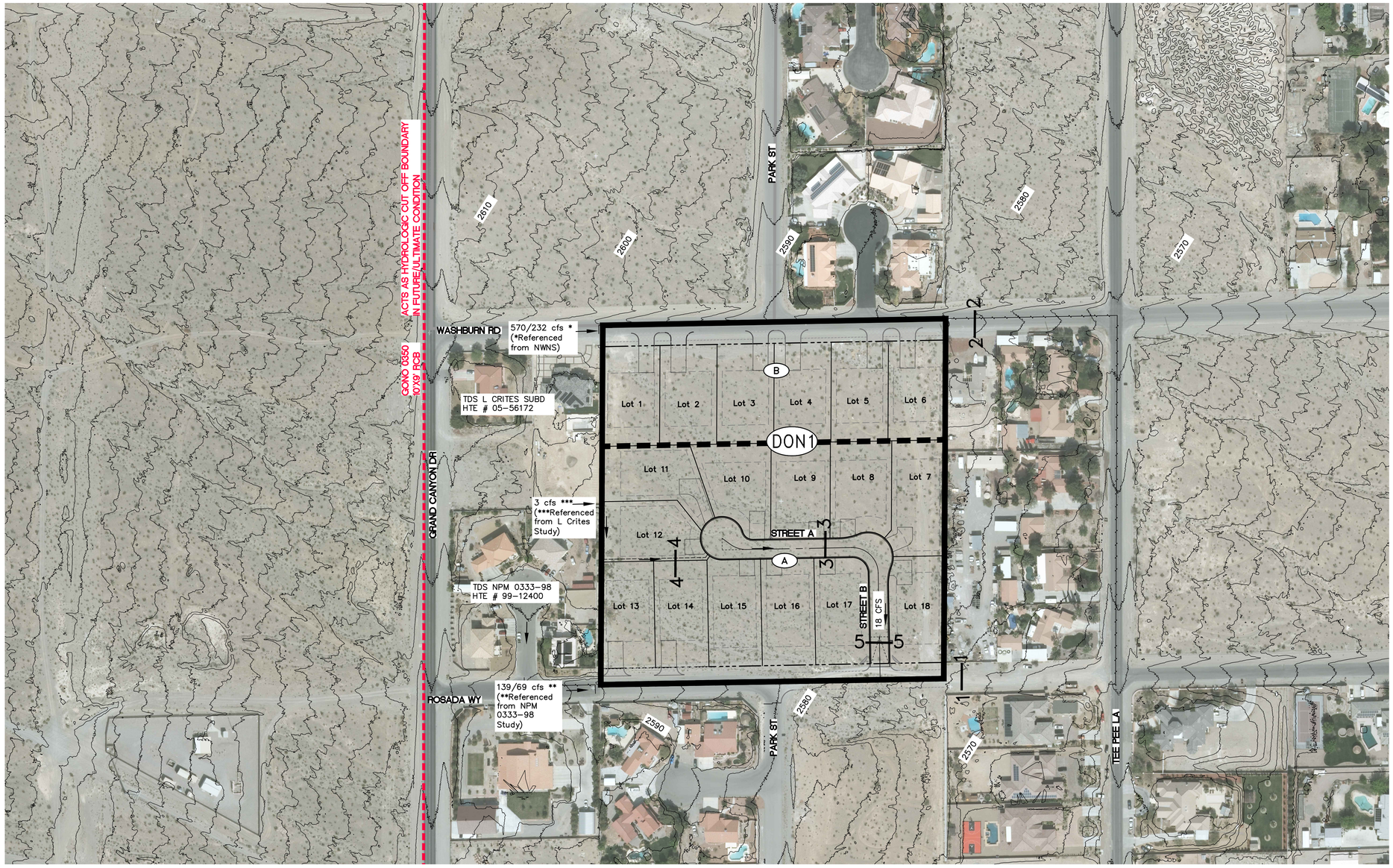
F:\Projects\300\398-A833\Division\Civil\Figures\RTC\FIGURE5.dwg
Nelson Boggs

TOUCHSTONE LIVING

GRAND CANYON AND ROSADA

EXISTING CONDITIONS BASIN MAP

DRAWING
FIG 5
1 OF 1 SHTS



NORTH

GRAPHIC SCALE

100 0 50 100

(IN FEET)

1 inch = 100 ft.

LEGEND

- SUBBASIN BOUNDARY
- DON1 — SUBBASIN DESIGNATION
- COND14 — CONCENTRATION POINT
- FLOW DIRECTION
- PRORATED SUBBASIN BOUNDARY
- A — SUBBASIN DESIGNATION
- FUTURE REGIONAL FACILITY

Note:
Site lies within 'A' soil; However, 'D' soil utilized in analysis for conservative purposes

PROPOSED CONDITION SUBBASIN FLOW RATE SUMMARY

Subbasin ID	Area (acres)	Q_{100} (cfs)	Q_{10} (cfs)
DON1	10.0	22	7

100-YR PROPOSED CONDITION PRORATED FLOW SUMMARY

Proposed Basins			
Subbasin*	Q_{100} (cfs)	Area (acres)	cfs/acre
DON1	22	10.0	2.20
Proposed Prorated Basins			
Subbasin*	Q_{100} (cfs)	Area (acres)	cfs/acre
A	15	6.6	2.20
B	7	3.4	2.20
TOTAL	22	10.0	2.20

10-YR PROPOSED CONDITION PRORATED FLOW SUMMARY

Proposed Basins			
Subbasin*	Q_{10} (cfs)	Area (acres)	cfs/acre
DON1	7	10.0	0.70
Proposed Prorated Basins			
Subbasin*	Q_{10} (cfs)	Area (acres)	cfs/acre
A	5	6.6	0.70
B	2	3.4	0.70
TOTAL	7	10.0	0.70

10-YEAR STREET FLOW CHARACTERISTICS

Location	Slope (%)	Q_{10} (cfs)	Depth (ft)	Velocity (ft/s)	D*V	Tributary
1-1: Rosada	2.6	76	1.07	5.32	5.7	** (69) + A (5) + *** (2)
2-2: Washburn	3.0	234	1.33	8.43	11.2	* (232) + B (2)
* Referenced from the CLV NWNS						
*** Referenced from the L Crites Study						

100-YEAR STREET FLOW CHARACTERISTICS PROPOSED CONDITIONS

Location	Slope (%)	Q_{100} (cfs)	Depth (ft)	Velocity (ft/s)	D*V	Tributary
1-1: Rosada	2.6	157	1.23	7.0	8.5	** (139) + A (15) + *** (3)
2-2: Washburn	3.0	577	1.70	12.0	20.4	* (570) + B (7)
3-3: Street A/ Street B	0.5	18	0.45	2.3	1.0	A (15) + *** (3)
4-4: Drainage Easement	1.0	3	0.22	3.5	N/A	*** (3)
5-5: Street B (before T-Intersection)	2.4	18	0.37	3.7	N/A	A (15) + *** (3)
* Referenced from the CLV NWNS						
** Referenced from the NPM 0333-98 Study						
*** Referenced from the L Crites Study						

DATE: | DESCRIPTION | REV | DATE | AGEN APP | DATE | GCW APP | DATE

PROJECT NO. 767-605

DESIGN: GYT
DRAWN: GYT
CHECK:
PLOT DATE: 11-13-17
PLOT TIME: 16:21:40

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

F:\Projects\300\398-A833\Division\Civil\Figures\RTC\FIGURE6.dwg
Nelson Boggs

TOUCHSTONE LIVING

GRAND CANYON AND ROSADA

PROPOSED CONDITIONS BASIN MAP

DRAWING
FIG 6
1 OF 1 SHTS

APPENDIX

Worksheet for Street B - 100yr Int (T-Intersection)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.38	%
Discharge	18.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.0	0.500
0+00.5	0.500
0+00.5	0.000
0+02.0	0.130
0+02.0	0.170
0+18.5	0.330
0+35.0	0.170
0+35.0	0.130
0+36.5	0.000
0+36.5	0.500
0+37.0	0.500

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.0, 0.500)	(0+37.0, 0.500)	0.016

Options

Current Roughness Weighted Method	Improved Lotter's Method
Open Channel Weighting Method	Improved Lotter's Method
Closed Channel Weighting Method	Horton's Method

Results

Normal Depth	0.37	ft
Elevation Range	0.00 to 0.50 ft	

Worksheet for Street B - 100yr Int (T-Intersection)

Results

Flow Area		4.85	ft²
Wetted Perimeter		36.83	ft
Hydraulic Radius		0.13	ft
Top Width		36.00	ft
Normal Depth		0.37	ft
Critical Depth		0.43	ft
Critical Slope		0.00663	ft/ft
Velocity		3.71	ft/s
Velocity Head		0.21	ft
Specific Energy		0.58	ft
Froude Number		1.78	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.37	ft
Critical Depth	0.43	ft
Channel Slope	2.38	%
Critical Slope	0.00663	ft/ft

Cross Section for Street B - 100yr Int (T-Intersection)

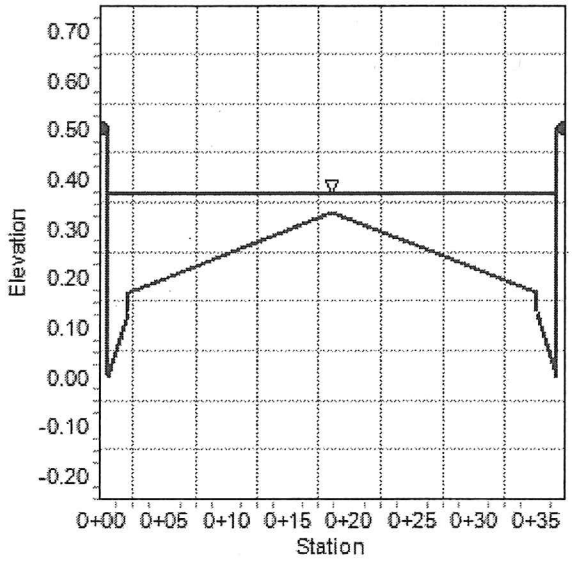
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.38	%
Normal Depth	0.37	ft
Discharge	18.00	ft³/s

Cross Section Image



Worksheet for 4-4: Drainage Easement

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.00	%
Discharge	3.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.0	2.000
0+00.0	0.100
0+02.5	0.000
0+05.0	0.100
0+05.0	2.000

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.0, 2.000)	(0+05.0, 2.000)	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	0.22	ft
Elevation Range	0.00 to 2.00 ft	
Flow Area	0.87	ft²
Wetted Perimeter	5.25	ft
Hydraulic Radius	0.17	ft
Top Width	5.00	ft
Normal Depth	0.22	ft
Critical Depth	0.27	ft

Worksheet for 4-4: Drainage Easement

Results

Critical Slope		0.00444	ft/ft
Velocity		3.45	ft/s
Velocity Head		0.18	ft
Specific Energy		0.41	ft
Froude Number		1.46	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.22	ft
Critical Depth	0.27	ft
Channel Slope	1.00	%
Critical Slope	0.00444	ft/ft

Cross Section for 4-4: Drainage Easement

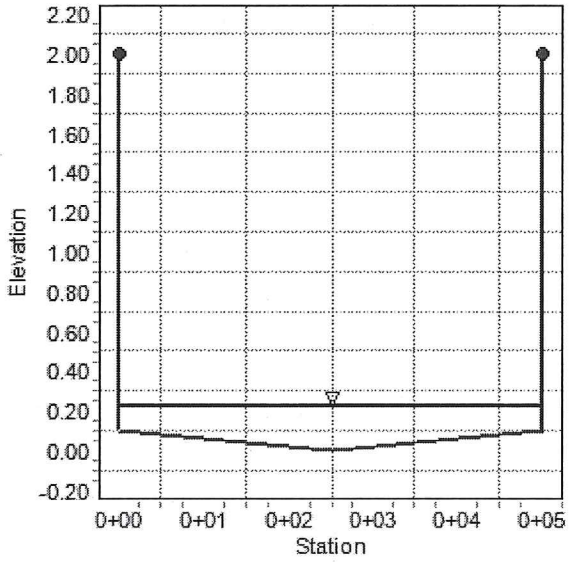
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.00	%
Normal Depth	0.22	ft
Discharge	3.00	ft³/s

Cross Section Image



GRAND CANYON & ROSADA

GCW

ENGINEERS \ SURVEYORS

TMP-71297
TMP 69943
WVR 71294, 71295
125317010005

398-A833

November 2, 2017

Ms. Linda Maynard and Mr. John Alabado
City Planning and Development
City of Las Vegas
333 North Rancho Drive
Las Vegas, Nevada 89106

RE: Grand Canyon and Rosada

Dear Ms. Maynard and Mr. Alabado:

We are currently preparing civil improvement plans for Grand Canyon and Rosada, which is an 18 lot residential development located North of Rosada Way, West of Tee Pee Lane, South on Washburn Road and East of Grand Canyon Drive in the Centennial Hills General Plan. We have submitted and received comments for the Technical Drainage Study (DS-4924-A). Comment #1 to the Technical Drainage Study references the need for an approval of the grade differential relative to our site and the developed properties adjacent to the site.

The existing ground topography varies across the site from 1.84% to greater than 3.53%. House pads vary from 100' x 167' to 100' x 199' for existing ground greater than 2%, the elevation difference across the pad will exceed 3.6 feet.

We have worked diligently to minimize the impact of our project on the surrounding area, and at the request of the City we are raising the site to maintain slopes and neighborhood flow. We would ask for your support and approval of our grading plan included with this package.

Thank you for your cooperation.

Cordially,

GCW, INC.

Wesley T. Petty, PE
Vice President

Attachments

PLANS APPROVED
PLANNING
Building & Safety Dept.
City of Las Vegas, Nevada
2' GRADE DIFFERENCE ONLY
LHM NOV 06 2017

Conforms to the minimum requirements of LVMC Title 19, applicable Master Plan development standards and/or Conditions of Approval. Make No Change Without Approval. Plan is Not a Permit to Violate Any Ordinance.

1555 South Rainbow Boulevard
Las Vegas, Nevada 89146

O 702.804.2000
F 702.804.2299

info@gcwengineering.com
gcwengineering.com

Industry Advisory from the Department of Public Works

Public Drainage Easements in the Rural Neighborhood Preservation Area and adjacent communities.

September 1, 2017

Affective September 1, 2017, the City of Las Vegas Department of Public Works will revise the requirement for a 10-ft wide to a 5-ft wide public drainage easement for new developments located in the Rural Neighborhood Preservation Area and adjacent communities.

Approval of the 5-foot easement is subject to the following conditions:

1. The City will not be maintaining this 5-foot wide public drainage easement. This easement must be maintained by the Homeowner Association or the property owner. This information must be presented to the buyer and written in the sales contract.

2. The 5-foot wide public drainage easement must be lined with concrete to identify the public drainage easement and to provide ease of maintenance for the Home Owner Association or the property owner.

3. The City's policy is to minimize public drainage easements. Every attempt should be made by the developer to eliminate the public drainage easement which may require engineering, coordination with the adjacent property owner, or by providing additional grading offsite. All attempts must be provided in writing and submitted as a part of drainage study for documentation.

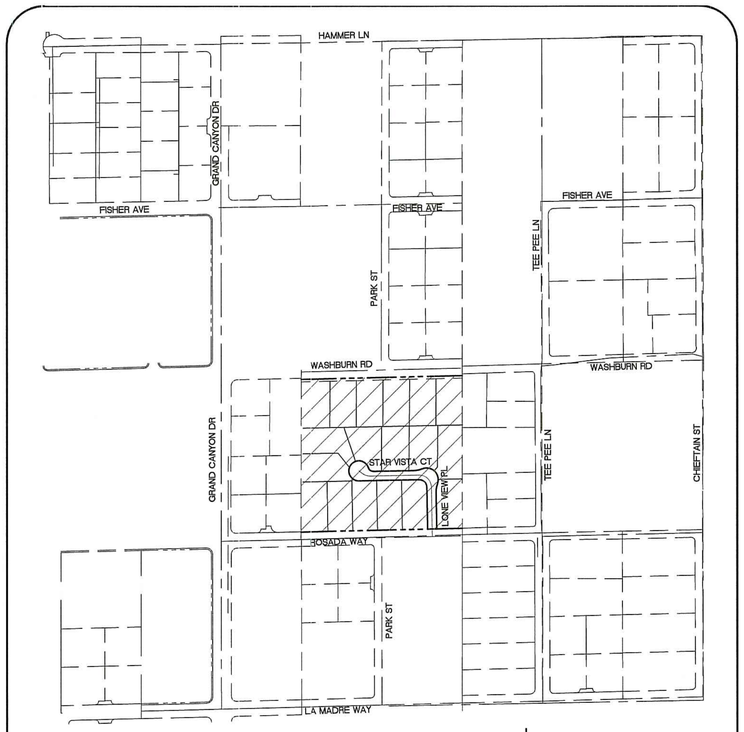
Should you have any questions or require additional information, please do not hesitate to contact the Department of Public Works Flood Control Section at (702) 229-1815.

Allen Pavelka, PE, City Engineer

DRAWING INDEX

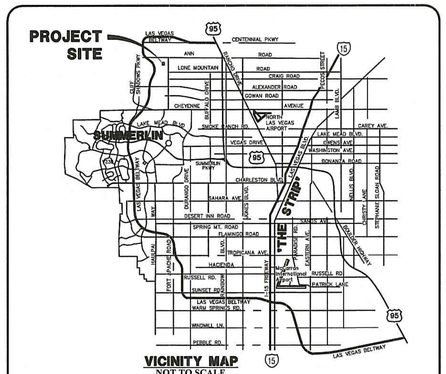
NO.	DWG	DESCRIPTION
1	C1	COVER SHEET
2	C2	CITY OF LAS VEGAS GENERAL NOTES
3	C3	CLARK COUNTY GENERAL NOTES
4	C4	GENERAL NOTES, MANHOLE SCHEDULE, AND QUANTITIES
5	G1	GRADING PLAN 1
6	G2	GRADING PLAN 2
7	D1	SECTIONS AND DETAILS 1
8	D2	SECTIONS AND DETAILS 2
9	R1	STAR VISTA CT PLAN AND PROFILE
10	R2	LONE VIEW PL ROADWAY PLAN AND PROFILE
11	P1	STAR VISTA CT PLAN AND PROFILE
12	P2	LONE VIEW PL PLAN AND PROFILE
13	P3	WASHBURN RD PLAN AND PROFILE – STA 12+00 TO STA 18+00
14	P4	WASHBURN RD PLAN AND PROFILE – STA 18+00 TO STA 24+00
15	P5	TEE PEE LN PLAN AND PROFILE – STA 4+00 TO STA 8+00
16	P6	TEE PEE LN PLAN AND PROFILE – STA 8+00 TO STA 12+00
17	P7	ROSADA WAY PLAN AND PROFILE – STA 11+00 TO STA 17+00
18	P8	ROSADA WAY PLAN AND PROFILE – STA 17+00 TO STA 23+00
19	MU	MASTER UTILITY PLAN
20	U1	UTILITY PLAN 1
21	U2	UTILITY PLAN 2
22	T1	TRAFFIC PLAN 1

IMPROVEMENT PLAN
FOR
GRAND CANYON AND ROSADA
CITY OF LAS VEGAS
APN 125-31-701-005



LOCATION MAP
NOT TO SCALE

North



VICINITY MAP
NOT TO SCALE

UTILITY/AGENCY APPROVALS

COX COMMUNICATIONS LAS VEGAS, INC. — DATE

CENTRAL TELEPHONE COMPANY, DBA CENTURY LINK — DATE

THE AFFIXED CENTRAL TELEPHONE COMPANY, DBA CENTURY LINK APPROVAL DOES NOT ASSUME OR GUARANTEE LIABILITY FOR KNOWN OR UNKNOWN CONFLICTS WITH EXISTING OR PROPOSED IMPROVEMENTS. RESOLUTION OF ANY CONFLICT WILL BE ACCOMPLISHED PURSUANT TO LOCAL ORDINANCES, NEVADA REVISED STATUTES AND/OR PUBLIC UTILITY COMMISSION RULES AND REGULATIONS.

NV ENERGY — DATE

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

NV ENERGY – TRANSMISSION ENGINEERING — DATE

SOUTHWEST GAS CORP. — DATE

DRAINAGE CERTIFICATION

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

HAO A. NGUYEN P.E. 19396 — 11–13–17 DATE

ALLEN PAVELKA, PE# 9029 — DATE
CITY ENGINEER/ACTING
CITY OF LAS VEGAS, NEVADA

APPROVAL OF THESE PLANS IS LIMITED TO THOSE IMPROVEMENTS CONSTRUCTED IN THE DEDICATED RIGHTS–OF–WAY AND/OR DEDICATED EASEMENTS. THIS APPROVAL DOES NOT AUTHORIZE THE CONSTRUCTION OF ANY IMPROVEMENTS THAT DEVIATE FROM ADOPTED STANDARDS AND/OR SPECIFICATIONS, EXCEPT THOSE SPECIFICALLY LISTED UNDER "DEVIATIONS FROM STANDARDS". THE ENGINEER SHALL RESOLVE ANY DEVIATION OTHER THAN THOSE LISTED IN "DEVIATIONS FROM STANDARDS" IN FAVOR OF THE UNIFORM STANDARD DRAWINGS AND SPECIFICATIONS CLARK COUNTY AREA NEVADA.

CLV BUILDING AND SAFETY DEPARTMENT

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

PLANNING DEPARTMENT — DATE

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. 126005 FIRE APPROVED DATE: _____
LVVWD APPROVED FIRE FLOW 2,250 GPM AT 20 PSI RESIDUAL
SHEETS: C1, C2, C4, D1, P1–P8, MU, U1, U2

APPROVED FOR CONSTRUCTION

LAS VEGAS FIRE AND RESCUE, FIRE FLOW 2,250 GPM AT 20 PSI RESIDUAL DATE

L# _____ CLV DWG# _____

BASIS OF BEARING

NORTH 88°54'00" EAST, BEING THE BEARING OF THE NORTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 31, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., AS SHOWN IN FILE 197, PAGE 2 OF SURVEYS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE,

BENCHMARK

CITY OF LAS VEGAS VERTICAL CONTROL POINT 6LV9936NEE6, BEING A RIVET AND PLATE IN CONCRETE PAD (FIRE HYDRANT) W. SIDE HUALAPAI WAY AND HAMMER LN.

ELEVATION: 2715.84 (FEET)
827.790 (METERS)

CITY OF LAS VEGAS BENCHMARKS – DATE RE–OBSERVED 2005 – 2007.
BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD'88).

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Avoid cutting underground utility lines. It's easy.
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OR 1-800-227-2600

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

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

OWNER

TOUCHSTONE LIVING
9205 W RUSSELL ROAD, SUITE 235
LAS VEGAS, NV 89148
(702) 929–3131

DEVELOPER

TOUCHSTONE LIVING
9205 W RUSSELL ROAD, SUITE 235
LAS VEGAS, NV 89148
(702) 929–3131

ENGINEER

GCW, INC.
1555 S. RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146
(702) 804–2000
(702) 804–2299 (FAX)

GROSS ACREAGE: 9.94
NO. OF LOTS: 18
DENSITY(UNIT/AC): 1.81

STATE OF NEVADA — REGISTERED PROFESSIONAL ENGINEER — HAO A. NGUYEN — No. 19396 — CIVIL — DATE: 11–13–17

REV	DATE	DESCRIPTION	DATE AGEN APP	DATE CGW APP

PROJECT NO. 398-A833
DESIGN: HN
DRAWN: FM
CHECK: HN
PLOT DATE: 11–13–17
PLOT TIME: 11:50:05

GCW
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com
ENGINEERS \ SURVEYORS
F:\Projects\300\398-A833\DWG\Production\A833c.dwg
Hao Nguyen

TOUCHSTONE LIVING
GRAND CANYON AND ROSADA
COVER SHEET

DRAWING C1
1 OF 22 SHTS

HTE:

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. COMPACTION SHALL COMPLY WITH THE REQUIREMENTS OF THE ENGINEER.
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, SUCH ITEM SHALL BE PROVIDED, AS DIRECTED BY THE CITY ENGINEER, AT NO EXPENSE TO THE CITY OF LAS VEGAS. TEMPORARY CONSTRUCTION INCLUDES DITCHES, BERMS, ROAD SIGNS AND BARRICADES, ETC.

REVISED 4/15/10

STORMWATER RUNOFF MANAGEMENT

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 THE CITY OF LAS VEGAS 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 THE CITY OF LAS VEGAS 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.

CITY OF LAS VEGAS SEWER NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS AND THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS' CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, AS AMENDED. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BE AWARE OF THE CONTENTS OF THE ABOVE SPECIFICATIONS.
2. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM CONSTRUCTION AS PER PLANS. ANY ADDITIONS, DELETIONS, OR CHANGES SHALL FIRST MEET WITH THE APPROVAL OF THE CITY ENGINEER.
3. CHISEL "S" OR "G" IN CURBS WHERE SEWER OR GAS LATERALS PASS UNDER THE CURB.
4. POLYVINYL (PVC) SEWER PIPE SHALL MEET ASTM D-3034 SDR 35 SPECIFICATIONS, INSTALLED WITH SAND BEDDING AND BACKFILL OF TYPE II AGGREGATE BASE.
5. ALL MANHOLES PAVED IN STREETS EIGHTY (80') FOOT R/W AND LARGER SHALL HAVE CONCRETE COLLARS. STREETS LESS THAN EIGHTY (80') FOOT R/W WILL REQUIRE RETROFIT IF PAVING DOES NOT CONFORM TO CITY STANDARDS AT THE MANHOLE.
6. TEE SADDLES SHALL BE USED TO CONNECT SEWER LATERALS TO EXISTING MAIN LINES UP TO TWELVE INCH (12") DIAMETER. CONNECTIONS TO FIFTEEN INCH (15") OR LARGER MAINS SHALL REQUIRE SPECIAL PROCEDURES. IN LINE "Y" 'S SHALL BE USED ON LINES TWELVE INCHES (12") OR ABOVE.
7. WATER MAINS SHALL BE PROTECTED IN ACCORDANCE WITH LVVWD STANDARDS WHENEVER A SEWER MAIN CROSSES OVER A WATER MAIN OR THE SEWER IS LESS THAN EIGHTEEN INCH (18") UNDER A WATER MAIN.
8. ALL CONTRACTORS INSTALLING SEWER MAINS THAT WILL BE UNDER THE JURISDICTION OF THE CITY OF LAS VEGAS MUST BE STATE OF NEVADA CLASS "A" CONTRACTORS.
9. THE CITY OF LAS VEGAS WILL NOT ACCEPT ANY SEWER MAINS WHICH HAVE A VERTICAL DEFLECTION OF MORE THAN ONE TENTH (0.1) OF A FOOT FROM THE APPROVED CONSTRUCTION PLANS AT ANY LOCATION. SEWER MAINS FOUND TO EXCEED THIS TOLERANCE WILL HAVE TO BE REPAIRED OR REMOVED OR REPLACED TO THE SATISFACTION OF THE CITY ENGINEER PRIOR TO ACCEPTANCE BY THE CITY OF LAS VEGAS.
10. INSTALLATION OF CURVED SEWER REQUIRES THE USE OF C-900 PIPE WHICH ALLOWS FOR PIPE DEFLECTION AT THE JOINTS.

REVISED 04/15/10

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Avoid cutting underground utility lines. It's costly.
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CALL BEFORE YOU DO OVERHEAD
1-702-227-2929

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 #6325 FOR HYDRANT SPECIFICATIONS AND HYDRANT INSTALLATION SPECIFICATIONS.
2. ONLY FIRE HYDRANTS THAT ARE ON THE LAS VEGAS VALLEY WATER DISTRICT'S – APPROVED PRODUCTS LIST ARE ALLOWED TO BE INSTALLED.
3. A PERMIT IS REQUIRED FROM LAS VEGAS FIRE AND RESCUE FOR THE INSTALLATION OF ON-SITE WATER LINES AND FIRE HYDRANTS. THE PERMIT AND CONTRACTORS MATERIAL TEST CERTIFICATE FOR UNDERGROUND PIPING FORM SHALL BE OBTAINED FROM THE FIRE PROTECTION ENGINEER BEFORE COMMENCEMENT OF WORK. [IFC SECTION 105.7.12]
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 SECTION 3310, SECTION 3312]
5. TO IDENTIFY FIRE HYDRANT LOCATIONS, CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER LINE OF STREET ADJACENT TO THE FIRE HYDRANTS [IFC SECTION 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 SECTION 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 SECTION 507.2.1]
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 SECTION 507]
9. PRIVATE FIRE HYDRANTS SHALL BE PAINTED RED. [IFC SECTION 507]
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 SECTION 507]
11. FIRE HYDRANTS SPACING SHALL BE AS FOLLOWS: [IFC SECTION C102] RESIDENTIAL – 500 FT UNSPRINKLERED; 600 FT SPRINKLERED. COMMERCIAL – 300 FT UNSPRINKLERED; 400 FT SPRINKLERED.
12. WHERE NEW 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 1,000 FOOT 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 FEET ON AN ALTERNATING BASIS. [IFC SECTION C102.8]
13. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN THE RADIUS OF A CUL-DE-SAC OR WITHIN 20 FEET OF THE PERIMETER OF THE RADIUS OF THE CUL-DE-SAC.
14. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN 6 FEET OF ANY CURB RETURN, DRIVEWAY, POWER POLE, STREETLIGHT OR ANY OTHER OBSTRUCTION. [IFC SECTION C102.12]
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 SECTION C102.4]
16. THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A FIRE DEPARTMENT CONNECTION (FDC) SHALL NOT EXCEED 100 FEET, AS MEASURED BY AN APPROVED ROUTE. [IFC SECTION C102.7]
17. THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO THE END OF A DEAD-END STREET SHALL NOT EXCEED 200 FT. [IFC SECTION 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. SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 2 FIRE HYDRANTS CAN BE OUT OF SERVICE DUE TO A BREAK IN A WATER MAIN. [IFC SECTION 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 SECTION 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 6% FOR 25 FEET PRIOR TO OR AFTER THE GRADE CHANGE. ADJACENT TO THE STRUCTURES GRADIENT SHALL NOT EXCEED 6%. [IFC SECTION 503.2.7, SECTION 503.2.8]
21. THE TURNING RADIUS OF THE FIRE APPARATUS ACCESS ROADS SHALL BE NO LESS THAN 52 FEET OUTSIDE AND 28 FEET INSIDE TURNING RADIUS. [IFC 503.2.4]
22. VERTICAL CLEARANCE OF ALL FIRE APPARATUS ACCESS ROADS SHALL NOT BE LESS THAN 13 FEET 6 INCHES. [IFC SECTION 503.2.1]
23. FIRE DEPARTMENT ACCESS ROADS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF NOT LESS THAN 40FT FLOW LINE TO FLOW LINE WITH PARALLEL PARKING PERMITTED ON BOTH SIDES. NOT LESS THAN 32 FT WIDE, FLOW LINE TO FLOW LINE WHERE PARKING IS PERMITTED ONLY ON ONE SIDE OF THE FIRE APPARATUS ACCESS ROAD. NOT LESS THAN 24 FT WIDE, FLOW LINE TO FLOW LINE, WHERE NO PARKING IS PERMITTED ON EITHER SIDE. FIRE LANES THROUGH PARKING LOTS SHALL NOT BE LESS THAN 24 FT. [IFC SECTION 503.2.1.1]
24. A FIRE APPARATUS ACCESS ROAD SHALL BE REQUIRED WHEN ANY PORTION OF AN EXTERIOR WALL FO THE FIRST STORY IS LOCATED MORE THAN 150 FT FROM A FIRE DEPARTMENT VEHICLE ACCESS. THIS DISTANCE COULD BE INCREASED TO 250 FT IF THE BUILDING IIS SPRINKLERED. [IFC SECTION 503.1.1]
25. APPROVED SECONDARY FIRE APPARATUS ACCESS SHALL BE PROVIDED FOR 100 OR MORE DWELLING UNITS, ROAD(S) WITH DEAD-EANDS OR WITH A SINGLE POINT OF ACCESS IN EXCESS OF 600 FT. COMMERCIAL AND INDUSTRIAL DEVELOPMENTS WHERE BUILDINGS EXCEED 2 STORIES OR 30 FEET IN HEIGHT, OR EXCEEDING 62,000 SQUARE FEET IN AREA. [IFC SECTION 503.1.2]
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. [IFC SECTION 503.2.5]
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 IN STALLED 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 SECTION 503.3]
28. ELECTRICALLY CONTROLLED ACCESS GATES SHALL BE PROVIDED WITH AN APPROVED EMERGENCY VEHICLE DETECTOR/RECEIVER SYSTEM. SAID SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE IFC SECTION 503.6 AND IFC APPENDIX M.

_____ _____
LAS VEGAS FIRE DEPARTMENT DATE

REVISED MARCH 1, 2016

FLOOD ZONE NOTE

NO PORTION OF THE SITE FALLS WITHIN A FEMA DESIGNATED SPECIAL FLOOD HAZARD AREA. SITE LOCATED ON PANEL 1745 E, DATED SEPTEMBER 27, 2002, TO REFLECT A LOMR. THIS PANEL SHOWS THAT THE PROJECT IS LOCATED WITHIN A ZONE X AND NOT LOCATED WITHIN A FEMA DESIGNATED 100-YEAR ZONE A OR SPECIAL FLOOD HAZARD AREA.

DEVIATION FROM STANDARDS

1. NONE

CITY OF LAS VEGAS TRAFFIC NOTES

1. ALL CONSTRUCTION SIGNING, BARRICADING, AND TRAFFIC DELINEATION SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST EDITION.
2. THE STREET SIGN CONTRACTOR SHALL OBTAIN STREET NAMES AND BLOCK NUMBERING FROM THE PLANNING DEPARTMENT PRIOR TO CONSTRUCTION.
3. BEFORE ANY WORK IS STARTED IN THE RIGHT-OF-WAY, THE CONTRACTOR SHALL INSTALL ALL ADVANCED WARNING SIGNS FOR THE CONSTRUCTION ZONE. THE CONTRACTOR SHALL INSTALL TEMPORARY STOP SIGNS AT ALL NEW STREET ENCROACHMENTS INTO EXISTING CITY STREETS WHERE WARRANTED IMMEDIATELY AFTER FIRST GRADING WORK IS ACCOMPLISHED, AND SHALL MAINTAIN SAID SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED.
4. WHEN A DESIGNATED "SAFE ROUTE TO SCHOOL" IS ENCROACHED UPON BY A CONSTRUCTION WORK ZONE AND PUBLIC WORKS STAFF IDENTIFIES A NEED FOR STUDENTS TO BE ASSISTED IN THE SAFE CROSSING THROUGH THAT WORK ZONE, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE A QUALIFIED "CROSSING GUARD". THE GUARD SHALL BE PRESENT FOR THE FULL DURATION OF TIME THAT CHILDREN ARE LIKELY TO BE PRESENT.
5. IF THE IMPROVEMENTS NECESSITATE THE OBLITERATION, TEMPORARY OBSTRUCTION, TEMPORARY REMOVAL OR RELOCATION OF ANY EXISTING TRAFFIC PAVEMENT MARKING, SUCH PAVEMENT MARKING SHALL BE RESTORED OR REPLACED WITH LIKE MATERIALS TO THE SATISFACTION OF THE CITY TRAFFIC ENGINEER.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL PERMANENT SIGNS SHOWN ON THE PLANS. ALL NEW SIGNS SHALL BE FABRICATED WITH DIAMOND GRADE VIP CLASS 6 REFLECTIVE SHEETING OR APPROVED EQUAL. ALL NEW TRAFFIC SIGNS, EXCEPT STREET NAME AND SCHOOL SPEED LIMIT SIGNS, SHALL HAVE 3M SERIES 1160 OR APPROVED EQUIVALENT ANTI-GRAFFITI PROTECTIVE OVERLAY FILM; SCHOOL ZONE SIGNS SHALL HAVE 3M SERIES 1150 ANIT-GRAFFITI PROTECTIVE OVERLAY FILM. STREET NAME SIGNS SHALL CONFORM IN THEIR ENTIRETY TO CURRENT CITY STANDARDS. ALL OTHER SIGNS SHALL BE STANDARD SIZE UNLESS OTHERWISE SPECIFIED ON THE PLANS. ALL SIGN POSTS SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENT CITY STANDARDS.
7. WHEN A PROPOSED STREET LIGHT STANDARD IS LOCATED WITHIN FIVE (5') FEET OF ANY PROPOSED SIGN SHOWN ON THE PLANS TO BE MOUNTED ON A SIGNPOST, THE SIGN SHALL BE MOUNTED ON THE STREET LIGHT STANDARD AND THE SIGNPOST SHALL BE ELIMINATED.
8. ALL PERMANENT TRAFFIC CONTROL DEVICES CALLED FOR HEREON SHALL BE IN PLACE AND IN FINAL POSITION PRIOR TO ALLOWING ANY PUBLIC TRAFFIC ONTO THE PORTIONS OF THE ROAD(S) BEING IMPROVED HERE UNDER, REGARDLESS OF THE STATUS OF COMPLETION OF PAVING OR OTHER OFF-SITE IMPROVEMENTS CALLED FOR BY THESE PLANS.
9. STREET SIGNS AND STOP SIGNS SHALL BE INSTALLED PER CITY STANDARD SPECIFICATIONS FOR PLACEMENT OF STREET NAME SIGNS.
10. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY TRAFFIC CONTROL DEVICES AND FLAGGERS TO INSURE THE SAFETY OF THE PUBLIC IN OR AROUND THE WORK AREA. THE CONTRACTOR SHALL HAVE A CERTIFIED ATSSA TRAFFIC CONTROL TECHNICIAN OR IMSA WORK ZONE SAFETY SPECIALIST SET UP, MAINTAIN AND/OR REMOVE ALL TRAFFIC CONTROL DEVICES IN THE CITY OF LAS VEGAS RIGHT-OF-WAY.
11. WORK IN PUBLIC STREETS, ONCE BEGUN, SHALL BE EXPEDITED TO COMPLETION SO AS TO PROVIDE MINIMUM INCONVENIENCE TO ADJACENT PROPERTY OWNERS AND TO TO THE TRAVELING PUBLIC.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING CITIZENS AREA TRANSIT (C.A.T.) IF THE CONSTRUCTION INTERRUPTS OR RELOCATES A BUS STOP OR HAS AN ADVERSE EFFECT ON BUS SERVICE ON THAT STREET TO ARRANGE FOR TEMPORARY RELOCATION OF STOP.
13. GUARDS SHALL BE OBTAINED BY CONTACTING THE METROPOLITAN POLICE DEPARTMENT SPECIAL EVENTS UNIT (PHONE # 828-3442) WHO WILL PROVIDE OFFICERS PROPERLY TRAINED IN TRAFFIC CONTROL. FEES FOR THE USE OF THESE OFFICERS SHALL BE SET BY METRO AND WILL BE PAID BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR ALL ARRANGEMENTS WITH METRO.
14. ANY WORK WITHIN 300' OF A SIGNALIZED INTERSECTION WILL BE NIGHT WORK, UNLESS DIRECTED BY THE CITY OF LAS VEGAS TRAFFIC ENGINEER.
15. CONTRACTOR SHALL CONTACT THE TRAFFIC ENGINEERING DIVISION (TRANSPORTATION SECTION) THROUGH THE PROJECT'S OFFSITE INSPECTOR PRIOR TO INITIATING PAVING TO RECEIVE DIRECTION FOR ANY PERMANENT OR TEMPORARY MODIFICATIONS TO THE APPROVED DRAWINGS REGARDING FINAL PAVEMENT TRANSITIONS, MARKINGS AND SIGNING THAT ARE REQUIRED TO MATCH ADJACENT ROADWAY SEGMENTS. THE CONTRACTOR SHALL PROVIDE A DRAWING FOR APPROVAL BY THE TRAFFIC ENGINEERING DIVISION DEPICTING ANY ADJUSTMENTS TO THE FINAL PAVEMENT MARKINGS AND SIGNAGE, WHICH MAY INCLUDE OMITTING, ADDING OR MODIFYING PAVEMENT MARKINGS AND TRAFFIC CONTROL SIGNS SUCH THAT ADEQUATE TRANSITIONS AND LANE TERMINATIONS BETWEEN ADJACENT ROADWAY SEGMENTS ARE CONSTRUCTED.

REVISED 4/15/10

CITY OF LAS VEGAS STREETLIGHT NOTES

1. ALL STREET LIGHTING INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE STREET LIGHTING PLANS, THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST REVISION, AND THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST REVISION, AND ANY ADOPTED SPECIAL AREA STANDARDS.
2. NO DEVIATION OF STREET LIGHT, PULL BOX, CONDUITS (ETC.) LOCATIONS SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL OF THE TRAFFIC ENGINEER AND THE CITY ENGINEER.
3. ALL EXISTING STREET LIGHTING SHALL REMAIN OPERATIONAL DURING CONSTRUCTION.
4. ALL STREET LIGHTING CONDUITS STUB SHALL HAVE AT LEAST ONE GREEN #8 THW WIRE INSTALLED, AS TRACER WIRE. WHEN "EMPTY" CONDUIT IS COMPLETELY INSTALLED FROM PB TO PB, IT SHALL HAVE MINIMUM OF 2 #4 AND 1 #8 THW WIRE WITH THE ENDS TAPED OR "SAFE OFF" PRIOR TO FINAL INSPECTION.
5. ANY STRUCTURE SUCH AS BLOCK WALLS, CHAIN LINK FENCES, RETAINING WALLS, ETC., SHALL LEAVE A MINIMUM CLEARANCE IN ACCORDANCE WITH THE USD NO. 320A.
6. AS-BUILT DRAWINGS SHALL BE SUPPLIED TO THE TEFO PRIOR TO ANY PRE-FINAL INSPECTION. THE AS-BUILT DRAWING NEEDS TO BE STAMPED AS-BUILT AND SIGNED BY THE PREPARER.
7. SERVICE POINT SHALL BE COORDINATED WITH NV ENERGY COMPANY, AND WHEREVER POSSIBLE, BE LOCATED NEAR THE CENTER OF THE CIRCUIT. SERVICE POINTS SHALL BE SHOWN ON THE PLANS.
8. IT SHALL BE ASSUMED THAT IN THE ABSENCE OF AN EXISTING, WORKABLE CIRCUIT TO ATTACH TO, ALL INSTALLATIONS SHALL REQUIRE A NEW SERVICE FOR OPERATION OF THE CIRCUIT.
9. WHEREVER THERE IS AN OVERHEAD UTILITY THAT MAY CONFLICT WITH THE INSTALLATION OF STREET LIGHTING CIRCUITS AND/OR POLES, THESE CONFLICTS MUST BE RESOLVED BETWEEN THE DEVELOPER AND THE UTILITIES INVOLVED, AT NO EXPENSE TO THE CITY OF LAS VEGAS, BEFORE STREETLIGHT BASES ARE INSTALLED.
10. THE CONTRACTOR SHALL FURNISH COMPLETE SERVICE TO TRANSFORMERS AND CONTROL SYSTEMS IF REQUIRED ON PLANS.
11. THE DEVELOPER/OWNER WILL BE REQUIRED TO SUPPLY POWER TO ALL NEW PUBLIC STREET LIGHTS INSTALLED UNDER THIS DESIGN PRIOR TO BOND RELEASE OR PROJECT COMPLETION. THE DEVELOPER/OWNER WILL BE RESPONSIBLE FOR ALL ITEMS ASSOCIATED WITH THE INSTALLATION, CONSTRUCTION, ENERGIZING, MAINTENANCE AND OPERATIONAL COST OF SAID STREET LIGHTS PRIOR TO PROJECT COMPLETION. REFER TO THE PLAN FOR ANY NEW SERVICE REQUIREMENTS. THE TRANSFER OF OWNERSHIP FROM THE DEVELOPER/OWNER TO THE CITY OF LAS VEGAS FOR ALL NEW PUBLIC STREET LIGHT/S AND/OR SERVICE/S INSTALLED UNDER THIS PLAN WILL BE IN CONJUNCTION WITH THIS PROJECT COMPLETION. COORDINATE ALL MAINTENANCE AND OPERATIONAL TRANSFERS WITH THE CITY OF LAS VEGAS TRAFFIC ENGINEERING DEPARTMENT (TEFO) AT (702) 229-6331.

REVISED 04/15/10

LAS VEGAS VALLEY WATER DISTRICT (LVVWD) STANDARD NOTES

LVVWD PROJECT # 126005

(Revised 01/09/2017)

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 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 SHALL BE FILLED, DISINFECTED, PRESSURE TESTED, FLUSHED, FILLED, AND AN ACCEPTABLE WATER SAMPLE OBTAINED, PRIOR TO CONNECTION TO THE LVVWD DISTRIBUTION SYSTEM.
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

GENERAL NOTES

1. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITION BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND OF INGRESS AND EGRESS TO SAID CONSTRUCTION. EXTENT OF TRANSITIONS TO BE DETERMINED BY THE COUNTY ENGINEER.
2. EXISTING UTILITIES ARE LOCATED ON PLANS FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE CONTRACTOR SHALL BEAR FULL RESPONSIBILITY FOR THE PROTECTION OF UTILITIES AND THE ENGINEER BEARS NO RESPONSIBILITY FOR UTILITIES NOT SHOWN ON PLANS OR NOT IN THE LOCATION SHOWN ON THE PLANS. (CALL BEFORE YOU DIG 800-227-2600).
3. CONSTRUCTION SURVEY: GRADES ARE GIVEN FROM TOP OF STAKES OR NAILS. THE CONTRACTORS ARE CAUTIONED TO OBSERVE THE FOLLOWING RULE IN USING THE GRADE STAKES GIVEN BY THIS OFFICE. THREE CONSECUTIVE POINTS THAT ARE SHOWN TO BE ON THE SAME RATE OF SLOPE MUST BE USED IN COMMON IN ORDER THAT ANY VARIATION OUT OF A PERFECT STRAIGHT GRADE MAY BE DETECTED. IN CASE ANY SUCH DISCREPANCY IS FOUND, THE SAME MUST BE REPORTED OTHERWISE THIS OFFICE WILL NOT BE RESPONSIBLE FOR ANY ERROR IN THE GRADE OF THE FINISH WORK.
4. WHEELCHAIR RAMPS SHALL BE CONSTRUCTED AT ALL STREET INTERSECTIONS PER CLARK COUNTY STANDARD DRAWING 235 EXACT LOCATION OF RAMP TO BE DETERMINED IN FIELD BY A CLARK COUNTY INSPECTOR.
5. STANDARD STREET SECTIONS PER CLARK COUNTY STANDARD DRAWINGS UNLESS OTHERWISE NOTED.
6. CURB AND GUTTER WITH A GRADE OF LESS THAN FOUR TENTHS OF ONE PERCENT SHALL BE CONSTRUCTED BY FORMING. EACH JOINT SHALL BE CHECKED FOR GRADE PRIOR TO CONSTRUCTION AND WATER TESTED AS SOON AS POSSIBLE AFTER CONSTRUCTION.
7. FINAL ASPHALTIC CONCRETE (AC) PAVEMENT SURFACES SHALL BE ONE-HALF INCH ABOVE LIP OF THE GUTTER (INCLUDING OPEN GRADE).
8. EXACT LOCATION OF ALL SAWCUTS TO BE DETERMINED IN THE FIELD BY A CLARK COUNTY INSPECTOR.
9. VALLEY GUTTER WITH A GRADE OF FOUR TENTHS OF ONE PERCENT OR LESS SHALL BE CHECKED FOR GRADE PRIOR TO CONSTRUCTION AND WATER TESTED AS SOON AS POSSIBLE AFTER CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INSURE PROPER DRAINAGE ACROSS ALL VALLEY GUTTERS.
10. ALL OFF-SITE IMPROVEMENT CONSTRUCTION SHALL CONFORM TO THE "UNIFORM STANDARD SPECIFICATIONS AND STANDARD DRAWINGS CLARK COUNTY AREA NEVADA" AND "CLARK COUNTY SUPPLEMENT TO UNIFORM STANDARD DRAWINGS AND SPECIFICATIONS", LATEST REVISION.
11. NEITHER THE OWNER NOR ENGINEER ASSUMES ANY RESPONSIBILITY FOR UTILITIES OR STRUCTURES NOT SHOWN ON THE DRAWINGS. CONTRACTOR TO VERIFY THE EXACT LOCATION OF UTILITIES PRIOR TO START OF CONSTRUCTION. THE CONTRACTOR'S RESPONSIBILITIES REGARDING UTILITIES SHALL BE AS REQUIRED UNDER SECTION 107.17 OF THE UNIFORM STANDARD SPECIFICATIONS FOR CLARK COUNTY AREA, NEVADA AND AS PROVIDED IN THE SPECIFICATIONS. THE CONTRACTOR SHALL USE EXTREME CARE WORKING OVER OR NEAR ANY EXISTING GAS MAINS.
12. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING IMPROVEMENTS, WHICH ARE TO REMAIN IN PLACE FROM DAMAGE. ALL SUCH IMPROVEMENTS OR STRUCTURES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR RECONSTRUCTED TO THE SATISFACTION OF THE ENGINEER AT THE EXPENSE OF THE CONTRACTOR.
13. FENCES, SIGNS, STRUCTURES, LIGHTS AND OTHER EXISTING IMPROVEMENTS WITHIN STREET R/W SHALL BE REMOVED WHERE SHOWN ON THE CONTRACT DRAWINGS, AND AS REQUIRED BY THE ENGINEER.
14. REPLACEMENT, RELOCATION OR RECONSTRUCTION OF ALL EXISTING IMPROVEMENTS INCLUDING FENCES, WALL SIGNS, AND ALL OTHER ITEMS APPLICABLE TO THIS CONTRACT SHALL BE AS REQUIRED BY THE ENGINEER.
15. ALL BARRICADING AND TEMPORARY TRAFFIC CONTROL DEVICES OR METHODS USED DURING CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE "NEVADA TRAFFIC CONTROL MANUAL, 1986 PUBLISHED BY THE STATE OF NEVADA, DEPARTMENT OF TRANSPORTATION, EXCEPT AS OTHERWISE PROVIDED IN THE CONTRACT DRAWINGS.
16. THE CONTRACTOR SHALL BACKFILL AND FINAL GRADE ALL CUT OR FILL SLOPES TO MATCH EXISTING CONDITIONS TO THE SATISFACTION OF THE ENGINEER.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE VERTICAL ADJUSTMENT OF ALL EXISTING SANITARY, WATER AND STORM SEWER MANHOLES TO THE FINAL FINISH GRADES IN ACCORDANCE WITH THE DETAILS SHOWN ON THE CONTRACT DRAWINGS AND IN ACCORDANCE WITH SECTION 609 OF THE "STANDARD SPECIFICATIONS".
18. ALL GRADING SHALL BE IN ACCORDANCE WITH THE SPECIFICATION MANUAL AND THE SOILS REPORT AS PREPARED BY
19. WHERE CONFLICTS OCCUR THE MOST RESTRICTIVE SHALL GOVERN.
20. 48 HOURS PRIOR TO START OF CONSTRUCTION THE CONTRACTOR SHALL CONTACT:

NEVADA ENERGY COMPANY	PHONE - (702) 402-8400
CENTURYLINK TELEPHONE COMPANY	PHONE - (702) 244-7055
SOUTHWEST GAS CORPORATION	PHONE - (702) 651-2111
LAS VEGAS VALLEY WATER DISTRICT	PHONE - (702) 870-2011

21. PRIVATE STREETS, CURB & GUTTER AND VALLEY GUTTERS REFLECTED ON THESE PLANS ARE TO BE INSPECTED BY A CLARK COUNTY INSPECTOR.

CLARK COUNTY DEPARTMENT OF PUBLIC WORKS NOTES

1. INSPECTIONS ARE REQUIRED. CALL 24 HOURS IN ADVANCE. 455-4610. YOUR PERMIT, APPROVED PLANS, AND BARRICADE PLANS FOR THIS WORK MUST BE ON THE JOB SITE AT ALL TIMES.
2. EXACT LOCATION OF ALL SAW-CUT LINES SHALL BE DETERMINED IN THE FIELD BY A CLARK COUNTY INSPECTOR.
3. CURB AND GUTTER WITH A GRADE OF LESS THAT 4/10 OF ONE PERCENT SHALL BE CONSTRUCTED BY FORMING. EACH JOINT SHALL BE CHECKED FOR GRADE PRIOR TO CONSTRUCTION AND WATER TESTED AS SOON AS POSSIBLE AFTER CONSTRUCTION.
4. FINAL ASPHALTIC CONCRETE (AC) PAVEMENT SURFACES SHALL BE ONE-HALF (1/2") INCH ABOVE THE LIP OF THE GUTTER (INCLUDING OPEN GRADE).
5. ALL OFF-SITE IMPROVEMENT CONSTRUCTION SHALL CONFORM TO THE UNIFORM STANDARD SPECIFICATIONS AND STANDARD DRAWINGS CLARK COUNTY AREA NEVADA AND CLARK COUNTY SUPPLEMENT TO UNIFORM STANDARD DRAWINGS AND SPECIFICATIONS, LATEST REVISION.
6. PRIVATE STREETS CURB & GUTTER AND VALLEY GUTTERS REFLECTED ON THESE PLANS ARE TO BE INSPECTED BY A CLARK COUNTY INSPECTOR.
7. WHEEL CHAIR RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING 235. EXACT LOCATION OF RAMPS SHALL BE DETERMINED IN THE FIELD BY A CLARK COUNTY INSPECTOR.
8. PROPER SIGNS, BARRIERS, BARRICADES AND LIGHTS SHALL BE PLACED AND MAINTAINED IN ACCORDANCE WITH THE LATEST "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" TRAFFIC, SCHOOL OR STREET SIGNS OF ANY KIND ARE NOT TO BE MOVED FOR ANY REASON WITHOUT FIRST COORDINATING WITH THE DEPARTMENT OF PUBLIC WORKS OFF-SITE INSPECTION AT (702)455-4610.
9. THIS PLAN DOES NOT AUTHORIZE CLOSURE OF ANY ROAD OR STREET.
10. NO OPEN TRENCH SHALL BE ALLOWED ACROSS ANY STREET OR WITHIN TEN (10) FEET OF ANY TRAVEL-WAY, EXCEPT WHEN WORK IS IN ACTUAL PROGRESS. AREAS COVERED BY ACCEPTABLE STEEL PLATE ARE NOT TO BE CONSTRUED AS A TRENCH. NO OPEN TRENCH IS PERMITTED IN EXCESS OF 500 FEET OR LENGTH NECESSARY TO ACCOMMODATE PIPE INSTALLATION IN A SINGLE DAY, WHICH EVER IS GREATER. ALL TRENCH CROSSINGS AND BACKFILL SHALL MEET THE STANDARD SPECIFICATION UNLESS OTHERWISE STATED.
11. A TEMPORARY PATCH IS TO BE IN PLACE AT THE END OF EACH WORK DAY WHERE THE BACKFILL IN THE TRENCH HAS BEEN COMPLETED AND PRIOR TO OPENING THE WORK AREA BACK TO TRAFFIC AND IS TO BE MAINTAINED BY THE PERMITTEE. A PERMANENT PATCH IS TO BE IN PLACE WITHIN THIRTY (30) DAYS AFTER THE INSTALLATION OF THE TEMPORARY PATCH.
12. COMPACTION TESTS ARE REQUIRED.

TRAFFIC NOTES

1. ALL PERMANENT TRAFFIC CONTROL DEVICES CALLED FOR HEREON SHALL BE IN PLACE AND IN FINAL POSITION PRIOR TO ALLOWING ANY PUBLIC TRAFFIC ONTO THE PORTIONS OF THE ROAD(S) BEING IMPROVED HEREUNDER, REGARDLESS OF THE STATUS OF COMPLETION OF PAVING OR OTHER OFF-SITE IMPROVEMENTS CALLED FOR BY THESE PLANS.
2. BEFORE ANY WORK IS STARTED IN THE RIGHT-OF-WAY, THE CONTRACTOR SHALL INSTALL ALL ADVANCE WARNING SIGNS FOR THE CONSTRUCTION ZONE. THE CONTRACTOR SHALL INSTALL TEMPORARY GROUND MOUNTED STOP SIGNS AT ALL NEW STREET ENCROACHMENTS INTO EXISTING COUNTY STREETS IMMEDIATELY AFTER FIRST GRADING WORK IS ACCOMPLISHED AND SHALL MAINTAIN SAID SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED.
3. ALL CONSTRUCTION SIGNING, BARRICADING AND PAVEMENT MARKINGS SHALL CONFORM TO THE NEVADA WORK ZONE TRAFFIC CONTROL HANDBOOK - 1986 AND TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION.
4. IF THE IMPROVEMENTS NECESSITATE THE OBLITERATION, TEMPORARY OBSTRUCTION, TEMPORARY REMOVAL, OR RELOCATION OF ANY EXISTING TRAFFIC PAVEMENT MARKING, SUCH PAVEMENT MARKING SHALL BE RESTORED OR REPLACED WITH LIKE MATERIALS TO THE SATISFACTION OF THE COUNTY TRAFFIC MANAGER.
5. THE DEVELOPER SHALL BE RESPONSIBLE TO PROVIDE AND INSTALL ALL PERMANENT SIGNS SHOWN ON THE PLANS. STREET NAME SIGNS SHALL CONFORM IN THEIR ENTIRETY TO CLARK COUNTY AREA STANDARDS. ALL OTHER SIGNS SHALL BE STANDARD SIZE UNLESS OTHERWISE SPECIFIED ON THE PLANS. ALL SIGN POSTS SHALL BE INSTALLED IN ACCORDANCE WITH CLARK COUNTY AREA STANDARDS. ALL SIGNS SHALL USE CLASS VI SHEETING.
6. IF A PROPOSED STREET LIGHT STANDARD IS FIELD LOCATED TO WITHIN FIVE (5) FEET OF ANY SIGN SHOW HEREON TO BE MOUNTED ON A SIGN POST, CHANGE SIGN MOUNTING TO ONE ON THE STREETLIGHT STANDARD.
7. PRIOR TO CONSTRUCTION, THE STREET SIGN CONTRACTOR SHALL OBTAIN STREET NAMES AND BLOCK NUMBERING FROM THE CURRENT PLANNING DIVISION OF THE DEPARTMENT OF COMPREHENSIVE PLANNING.
8. ALL TRAFFIC SIGNAL POLE ASSEMBLIES, STEEL PEDESTAL FOR CABINETS AND STREET LIGHT POLES SHALL BE GALVANIZED PER ASTM A.123.
9. ALL STREET LIGHTING INSTALLATIONS EXCEPT NOTED ON THE STREET LIGHTING PLANS SHALL CONFORM TO THE UNIFORM STANDARD DRAWINGS AND THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS' CONSTRUCTION OFF-SITE IMPROVEMENTS CLARK COUNTY AREA, NEVADA, LATEST EDITION OF EACH.
10. THE FOLLOWING CLARK COUNTY UNDERGROUND FACILITIES MAY BE LOCATED IN YOUR PROJECT AREA: STREET LIGHTING, TRAFFIC SIGNALS, AND FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T.) INTERCONNECT CABLE. YOU MUST CONTACT CLARK COUNTY TRAFFIC MANAGEMENT DIVISION, OPERATIONS UNIT AT 455-6000 FOR LOCATIONS AT LEAST 48 HOURS PRIOR TO WORKING IN THE AREA. CLARK COUNTY IS NOT A MEMBER OF "CALL BEFORE YOU DIG" (UNDERGROUND SERVICE ALERT), AND A CALL TO THAT ORGANIZATION DOES NOT RELIEVE YOU OF LIABILITY FOR CLARK COUNTY FACILITIES.
11. F.A.S.T. INTERCONNECT CABLE POLICY IS IN EFFECT. INTERCONNECT CABLE MUST BE MAINTAINED AT ALL TIMES. DEVELOPER/CONTRACTOR SHALL PROVIDE TEMPORARY OVERHEAD INTERCONNECT CABLE WHILE PERMANENT CABLE IS BEING RELOCATED. TEMPORARY AERIAL INSTALLATION MUST BE ACCEPTABLE TO THE COUNTY TRAFFIC MANAGER AND TO F.A.S.T. ANY DAMAGE TO THIS CABLE IS DEEMED IN EMERGENCY BY F.A.S.T., CITY OF LAS VEGAS, CLARK COUNTY AND NDOT AND MUST BE REPAIRED IMMEDIATELY TO F.A.S.T. ACCEPTANCE. $2,500 PER DAY DAMAGES MAY BE ASSESSED AFTER 24 HOURS HAS ELAPSED FROM TIME OF BREAK OR DAMAGE.
12. ALL NEW OR REPLACEMENT TRAFFIC SIGNAL LOOPS SHALL BE INSTALLED USING CABLE-IN-DUCT WIRING, SHALL HAVE INDEPENDENT LEAD-IN WIRES FOR EACH LOOP FROM THE CONTROLLER TO THE PULL-BOX, AND EACH LEAD-IN SHALL BE INDIVIDUALLY TAGGED.
13. TRAFFIC SIGNAL PEDESTRIAN HEADS SHALL BE THE L.E.D. TYPE.
14. ELECTRICAL POWER SERVICE POINT LOCATION(S) FOR STREET LIGHTING AND TRAFFIC SIGNALS MUST BE INDICATED ON THE PLANS. IF CONNECTING TO AN EXISTING CIRCUIT, INDICATE LOCATION OF EXISTING SERVICE POINT FOR EACH CIRCUIT.
15. WHEN STREETLIGHTS ARE TO BE CONNECTED TO AN EXISTING CIRCUIT, THE ENGINEER MUST CERTIFY THAT THE EXISTING CIRCUIT IS CAPABLE OF HANDLING THE ADDITIONAL CIRCUIT LOAD.
16. CLARK COUNTY RESERVES THE RIGHT TO REJECT STREET LIGHT AND TRAFFIC SIGNAL POLES AND ASSEMBLIES WHICH HAVE A "STRIPED" APPEARANCE.
17. TWO WEEKS PRIOR TO BEGINNING OF CONSTRUCTION, MODIFICATION OR RELOCATION OF ANY TRAFFIC SIGNAL SYSTEM, WRITTEN NOTICE SHALL BE SUBMITTED TO THE CLARK COUNTY TRAFFIC MANAGEMENT DIVISION OF THE DATE THAT WORK WILL BEGIN.
18. THREE (3) NORMAL WORKING DAYS PRIOR TO TURN-ON OR COMPLETION OF MODIFICATION(S) TO A TRAFFIC SIGNAL SYSTEM, WRITTEN NOTICE SHALL BE SUBMITTED TO THE CLARK COUNTY TRAFFIC MANAGEMENT DIVISION THAT WORK IS BEING COMPLETED AND THE PROPOSED DATE OF COMPLETION.

FLOOD ZONE NOTE

NO PORTION OF THE SITE FALLS WITHIN A FEMA DESIGNATED SPECIAL FLOOD HAZARD AREA. SITE LOCATED ON PANEL 1745 E, DATED SEPTEMBER 27, 2002, TO REFLECT A LOMR. THIS PANEL SHOWS THAT THE PROJECT IS LOCATED WITHIN A ZONE X AND NOT LOCATED WITHIN A FEMA DESIGNATED 100-YEAR ZONE A OR SPECIAL FLOOD HAZARD AREA.

DEVIATION FROM STANDARDS

1. NONE

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

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

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

BASIS OF BEARING

NORTH 88°54'00" EAST, BEING THE BEARING OF THE NORTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 31, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., AS SHOWN IN FILE 197, PAGE 2 OF SURVEYS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

CITY OF LAS VEGAS VERTICAL CONTROL POINT 6LV9936NEE6, BEING A RIVET AND PLATE IN CONCRETE PAD (FIRE HYDRANT) W. SIDE HUALAPAI WAY AND HAMMER LN.

ELEVATION: 2715.84 (FEET)
827.790 (METERS)

CITY OF LAS VEGAS BENCHMARKS - DATE RE-OBSERVED 2005 - 2007.
BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD'88).

L# _____ | CLV DWG# _____

HTE:

STATE OF NEVADA
ENGINEER
HAO A. NGUYEN
No. 19396
PROFESSIONAL
DATE: 11-13-17

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	CGW APP

PROJECT NO. 398-A833
DESIGN: HN
DRAWN: FM
CHECK: HN
PLOT DATE: 11-13-17
PLOT TIME: 11:48:45

GCW
ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com
F:\Projects\300\398-A833\DWG\Production\A833cc.dwg
Htoo Nguyen

TOUCHSTONE LIVING
GRAND CANYON AND ROSADA
CLARK COUNTY GENERAL NOTES

DRAWING
C3
3 OF 22 SHTS

ABBREVIATIONS

A	AIR	DR	DRIVE	P.A.E.	PEDESTRIAN ACCESS EASEMENT	STRUCT	STRUCTURE
AB	AGGREGATE BASE	DS	DOWNSPOUT	PB	PULL BOX	SVZ	SIGHT VISIBILITY ZONE
AC	ASPHALT CONCRETE, ACRE	DTL	DETAIL	PC	POINT OF CURVE, PRESSURE CLASS	SW	SIDEWALK
ACP	ASBESTOS CEMENT PIPE	DW	DRIVEWAY			SWG	SOUTHWEST GAS
ADD'L	ADDITIONAL	DWG	DRAWING	PCC	POINT OF COMPOUND CURVE	T	TELEPHONE OR TOP
A.E.	ACCESS EASEMENT	E	EAST	P.D.E.	PUBLIC DRAINAGE EASEMENT	TAN	TANGENT
AP	ANGLE POINT	E.A.E.	EMERGENCY ACCESS EASEMENT	PE	PROJECT ENGINEER OR POLYETHYLENE	TB	TOP OF BERM
APN	ASSESSOR'S PARCEL NUMBER	ECR	END CURB RETURN			TC	TOP OF CURB
APPROX	APPROXIMATELY	ELE,ELEC	ELECTRICAL	PED	PEDESTRIAN	TCE	TEMPORARY CONSTRUCTION ESMT
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS	ELEV	ELEVATION	PGL	PROFILE GRADE LINE	TEL,TELE	TELEPHONE
		EP, EOP	EDGE OF PAVEMENT	PH	POTHOLE	TEMP	TEMPORARY
		ESMT	EASEMENT	PI	POINT OF INTERSECTION	TF	TOP OF FOOTING
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	EVC	END VERTICAL CURVE	PIV	POST INDICATOR VALVE	TG	TOP OF GRATE
		EXIST,EX	EXISTING	P/L	PROPERTY LINE	TMH	TOP OF MANHOLE
AVE	AVENUE	EXP	EXPANSION JOINT	PLCP	POLYURETHANE LINED AND COATED STEEL PIPE	TOP	TOP OF PIPE
AVAR	AIR VALVE, AIR RELEASE ASSEMBLY	FC	FACE OF CURB			TP	TELEPHONE POLE
		FF, FFE	FINISH FLOOR ELEVATION	PMF	PAVEMENT MARKING FILM	TRANS	TRANSITION
AWWA	AMERICAN WATER WORKS ASSOCIATION	FG	FINISH GRADE	POB	POINT OF BEGINNING	TS	TRAFFIC SIGNAL
		FH	FIRE HYDRANT	POC	POINT ON CURVE	TW	TOP OF RETAINING WALL
BC	BACK OF CURB	FL	FLOW LINE	P.O.C.	POINT OF CONNECTION	TYP,(TYP)	TYPICAL
BCR	BEGIN CURB RETURN	FO	FIBER OPTIC	POT	POINT ON TANGENT	UDACS	UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR WATER DISTRIBUTION SYSTEMS (LATEST EDITION)
BLM	BUREAU OF LAND MANAGEMENT	FRP	FIBERGLASS REINFORCED PLASTIC	PP	POWER POLE		
BLVD	BOULEVARD	FS	FINISH SURFACE	PROP	PROPOSED		
BM	BENCHMARK	FT	FOOT/FEET	PRC	POINT OF REVERSE CURVE		
BO	BLOW-OFF	FTG	FOOTING	P.S.E.	PUBLIC SEWER EASEMENT TO BE PRIVATELY MAINTAINED BY HOA	UG	UNDERGROUND
BVCE	BEGIN VERTICAL CURVE ELEVATION	FUT	FUTURE			ULT	ULTIMATE
BVCS	BEGIN VERTICAL CURVE STATION	G	GAS	PSI	POUNDS PER SQUARE INCH	USDCCA	UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS' CONSTRUCTION OFF-SITE IMPROVEMENTS CLARK COUNTY AREA, NEVADA (LATEST EDITION)
BW	BACK OF SIDEWALK	GA	GAGE, GUY ANCHOR	PT	POINT OF TANGENCY		
BWV	BACK WATER VALVE	GB	GRADE BREAK	P.U.E.	PUBLIC UTILITY EASEMENT		
C, ℄	CENTERLINE	GND	GROUND	PVC	POLYVINYL CHLORIDE		
C&G	CURB AND GUTTER	GRD	GRADE, GROUND	PVI	POINT OF VERTICAL INTERSECTION		
CATV	UNDERGROUND CABLE TV	H, HGT	HEIGHT	PVMT	PAVEMENT	UT	UNDERGROUND TELEPHONE
CC	CLARK COUNTY	HDWL	HEADWALL	PVT	PRIVATE	VAR	VARIABLE/VARIES
CCBM	CLARK COUNTY BENCH MARK	HGL	HYDRAULIC GRADE LINE	PZ	PRESSURE ZONE	VC	VERTICAL CURVE
CCPW	CLARK COUNTY PUBLIC WORKS	HOA	HOME OWNERS ASSOCIATION	R, RAD	RADIAL, RADIUS	VCP	VITRIFIED CLAY PIPE
CCTV	CLOSED-CIRCUIT TELEVISION	HORIZ	HORIZONTAL	R, RT	RIGHT	VERT	VERTICAL
CCWRD	CLARK COUNTY WATER RECLAMATION DISTRICT	HP	HIGH POINT, HIGH PRESSURE	RCB	REINFORCED CONCRETE BOX	VG	VALLEY GUTTER
		HPS	HIGH PRESSURE SODIUM	RCP	REINFORCED CONCRETE PIPE	VOL	VOLUME
C.E.	COMMON ELEMENT	IBC	INTERNATIONAL BUILDING CODE	RD	ROAD	W	WATER, WEST, WATT
CFS	CUBIC FEET PER SECOND	INV	INVERT	RDWY	ROADWAY	W/	WITH
CIP	CAPITAL IMPROVEMENTS PROJECT, CORRUGATED IRON PIPE	INT	INTERIM	REC	RECTANGULAR	WI	WROUGHT IRON
		JT	JOINT	REF	REFERENCE	WS	WATER SUPPLY
CIPM	CURED-IN-PLACE MANHOLE	L	LENGTH	REINF	REINFORCED	WT	WEIGHT
CIPP	CURED-IN-PLACE PIPE	L, LT	LEFT	REQD	REQUIRED	WTR	WATER
CIR	CIRCLE	LF	LINEAR FEET	RIM	TOP OF RIM ELEVATION	XING	CROSSING
CLR	CLEAR OR CLEARANCE	LIP	LIP OF GUTTER	RND	ROUND	YD	YARD, YARD DRAIN
CLSM	CONTROLLED LOW STRENGTH MATERIAL	LN	LANE	ROW,R/W	RIGHT OF WAY	Z	PRESSURE ZONE
		LP	LIGHT POLE	RP	RADIUS POINT		
CLV	CITY OF LAS VEGAS	LSCP	LANDSCAPE	RPM	RAISED PAVEMENT MARKERS		
CMP	CORRUGATED METAL PIPE	LVVWD	LAS VEGAS VALLEY WATER DISTRICT	RPPA	REDUCED PRESSURE PRINCIPAL ASSEMBLY		
CMU	CONCRETE MASONRY UNIT	MAX	MAXIMUM				
CNLV	CITY OF NORTH LAS VEGAS	MH	MANHOLE	RSGV	RESILIENT SEAT GATE VALVE		
CO	CLEANOUT	MIN	MINIMUM	S	SEWER, SOUTH		
CONC	CONCRETE	MLCP	MORTAR LINED AND COATED PIPE	SCH	SCHEDULE		
COND	CONDUIT	MOD	MODIFY/MODIFIED	SD	STORM DRAIN		
CONST	CONSTRUCT OR CONSTRUCTION	MON	MONUMENT	SDMH	STORM DRAIN MANHOLE		
COORD	COORDINATE	MPH	MILES PER HOUR	SECT	SECTION		
COR	CORNER	N	NORTH	SF	SQUARE FOOT/FEET		
CPEP	CORRUGATED POLYETHELYNE PIPE	NDOT	NEVADA DEPARTMENT OF TRANSPORTATION	SHLDR	SHOULDER		
CT	COURT			SHT	SHEET		
CY	CUBIC YARD(S)	NO	NUMBER	SL	STREET LIGHT		
Δ	DELTA	NOSHA	STATE OF NEVADA OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION	SP	SERVICE POINT		
DCSWCS	DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEM (LATEST EDITION)			SQ	SQUARE		
				SR	SEWER RECLAIM MAIN		
		NPC	NEVADA POWER COMPANY	SS	SANITARY SEWER		
		NTS	NOT TO SCALE	SSMH	SANITARY SEWER MANHOLE		
D.E.	DRAINAGE EASEMENT	OC	ON CENTER	STA	STATION		
DEFL	DEFLECTION	OHC	OVERHEAD COX COMMUNICATION	ST	STREET		
DG	DESIGNED GRADE	OHP	OVERHEAD POWER LINE	STD	STANDARD		
D.I.	DROP INLET			STL	STEEL		
DIA, ø	DIAMETER						
DIP	DUCTILE IRON PIPE						

LEGEND

(1) LOT NUMBER	[54.10] FUTURE ELEVATION
1 BLOCK NUMBER	59.33 TC or FG GRADE BREAK ELEVATION
PAD= 00.0 / F.F.= 00.0 PAD ELEVATION FINISH FLOOR ELEVATION	56.22 TC or FG PROPOSED ELEVATION
PAD= (00.0) / F.F.= (00.0) EXISTING PAD ELEVATION EXIST. FINISH FLOOR ELEV.	(56.21) EXISTING ELEVATION
SCARP	RIGHT-OF-WAY
4510 EXISTING CONTOUR (5' INTERVAL)	PROPERTY LINE
EXISTING CONTOUR (1' INTERVAL)	CENTER LINE
CONCRETE DRIVEWAY	RETAINING WALL
TF TOP OF FOOTING	KNEE WALL
TW TOP OF RETAINING WALL	PERIMETER WALL
SDMH STORM DRAIN MANHOLE	STORM DRAIN LINE
SVZ - SIGHT VISIBILITY ZONE, NO STRUCTURES/ LANDSCAPING TALLER THAN 24"	SIDEWALK
	DITCH OR SWALE
	CURB TRANSITION AT SIDEWALK RAMP (ROLL CURB TO "L" CURB)

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OR 1-800-227-2600

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

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

QUANTITY ESTIMATE

NOTE: CONTRACTOR TO VERIFY QUANTITIES FOR BIDDING PURPOSES

STREET IMPROVEMENT - PRIVATE (CITY OF LAS VEGAS)

DESCRIPTION	UNIT	TOTAL
2" AC PAVEMENT	SY	2,405
3" AC PAVEMENT (PUBLIC)	SY	2,350
4" TYPE II AGGREGATE BASE MATERIAL	CY	268
4" TYPE II AGGREGATE BASE MATERIAL (PUBLIC)	CY	261
6" TYPE I AGGREGATE BASE MATERIAL (PUBLIC)	CY	392
6" TYPE II AGGREGATE BASE MATERIAL	CY	151
"L" TYPE CURB	LF	1,157

STREET IMPROVEMENT - PUBLIC (CLARK COUNTY)

DESCRIPTION	UNIT	TOTAL
3" AC PAVEMENT	SY	2,815
4" TYPE II AGGREGATE BASE MATERIAL	CY	313
6" TYPE I AGGREGATE BASE MATERIAL	CY	470

WATER - PUBLIC

DESCRIPTION	UNIT	TOTAL
6" PVC WATERLINE	LF	223
6"-90° BEND PER UDACS PLATE NO. 31	EA	1
6" CAP & 2" BLOW-OFF PER UDACS PLATE NO. 36	EA	1
8" PVC WATERLINE	LF	379
8"-45° BEND PER UDACS PLATE NO. 31	EA	1
8"-90° BEND PER UDACS PLATE NO. 31	EA	1
8"X6" REDUCER PER UDACS PLATE NO. 30	EA	1
STEEL CASING PER UDACS PLATE NO. 23	EA	1
10" PVC WATERLINE	LF	1512
10"-45° BEND PER UDACS PLATE NO. 31	EA	3
10"X6" REDUCER PER UDACS PLATE NO. 30	EA	2
10" TEE PER UDACS PLATE NO. 31	EA	1
10" GATE VALVE, BOX, AND COVER PER UDACS PLATE NO. 30 & 39	EA	4
10" CAP & 2" BLOW-OFF PER UDACS PLATE NO. 36	EA	2
FIRE HYDRANT, VALVES, TEE, & 6" WATERLINE PER UDACS PLATES NO. 40	EA	2
DEEP FIRE HYDRANT, VALVES, TEE, & 6" WATERLINE PER UDACS PLATES NO. 41	EA	1
1" WATER SERVICE WITH 1" WATER METER PER UDACS PLATE NO. 1	EA	18

SEWER - PUBLIC (ALT A)

DESCRIPTION	UNIT	TOTAL
8" PVC SANITARY SEWER PIPE	LF	1727
8" C900 SANITARY SEWER PIPE	LF	484
24" PVC SANITARY SEWER PIPE	LF	962
4" PVC SANITARY SEWER LATERAL (PRIVATE)	LF	659
48" DIA. SANITARY SEWER MANHOLE	EA	7
72" DIA. SANITARY SEWER MANHOLE	EA	3
BACK WATER VALVE (PRIVATE)	EA	9
PLUG AND STUB FOR FUTURE USE	EA	3

SEWER - PUBLIC (ALT B)

DESCRIPTION	UNIT	TOTAL
8" PVC SANITARY SEWER PIPE	LF	2689
8" C900 SANITARY SEWER PIPE	LF	484
4" PVC SANITARY SEWER LATERAL (PRIVATE)	LF	659
48" DIA. SANITARY SEWER MANHOLE	EA	10
BACK WATER VALVE (PRIVATE)	EA	9
PLUG AND STUB FOR FUTURE USE	EA	3

STREET SIGNS/STRIPING - PUBLIC

DESCRIPTION	UNIT	TOTAL
(2) STREET NAME SIGN (D3)	EA	1
(2) STREET NAME SIGN (D3) WITH 30" STOP SIGN (R1-1)	EA	1
30" STOP SIGN (R1-1)	EA	1
BLUE COLORED REFECTIVE RAISED PAVEMENT MARKERS	EA	3
PAINT CURB RED (NO PARKING) 30' WIDE CENTERED ON HYDRANT	EA	60

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. 126005 FIRST APPROVED DATE: _____

L# _____ CLV DWG# _____

STATE OF NEVADA — PROFESSIONAL ENGINEER — No. 19396 — MAO PAI — DATE: 11-13-17

REV	DATE	DESCRIPTION	AGEN APP	DATE	GOV APP	DATE

PROJECT NO. 398-A833
DESIGN: HN
DRAWN: FM
CHECK: HN
PLOT DATE: 11-13-17
PLOT TIME: 11:49:37

GCV ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcvengineering.com
F:\Projects\300\398-A833\DWG\Production\A833C.dwg
Hao Nguyen

TOUCHSTONE LIVING

GRAND CANYON AND ROSADA

GENERAL NOTES, MANHOLE SCHEDULE, AND QUANTITIES

DRAWING
C4
4 OF 22 SHTS

NORTH

40' 0' 20' 40'

SCALE: 1" = 40'

QUANTITY ESTIMATE

NOTE: CONTRACTOR TO VERIFY QUANTITIES FOR BIDDING PURPOSES

PUBLIC DRAINAGE EASEMENT (CITY OF LAS VEGAS)

DESCRIPTION	UNIT	TOTAL
5' WIDE CONCRETE CROSS GUTTER	LF	360

NOTE TO CONTRACTOR

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 OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

NOTE

ALL ONSITE STORM DRAINS AND ASSOCIATED STORM FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY THE HOA.

ALL PRIVATE STREETS ARE P.U.E., PUBLIC DRAINAGE EASEMENT AND PUBLIC SEWER EASEMENTS TO BE PRIVATELY MAINTAINED BY HOA.

BASIS OF BEARING

NORTH 88°54'00" EAST, BEING THE BEARING OF THE NORTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 31, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.O.M., AS SHOWN IN FILE 197, PAGE 2 OF SURVEYS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

CITY OF LAS VEGAS VERTICAL CONTROL POINT 6LV9936NEE6, BEING A RIVET AND PLATE IN CONCRETE PAD (FIRE HYDRANT) W. SIDE HUALAPAI WAY AND HAMMER LN.

ELEVATION: 2715.84 (FEET)
827.790 (METERS)

CITY OF LAS VEGAS BENCHMARKS – DATE RE-OBSERVED 2005 – 2007.
BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD'88).

NOTE

1. THE GEOTECHNICAL EXPLORATION PROPOSED 10± ACRE SINGLE-FAMILY RESIDENTIAL DEVELOPMENT LOCATED EAST OF GRAND CANYON DRIVE, NORTH OF ROSADA WAY, LAS VEGAS, NV AS PREPARED BY GEOTEK RESIDENTIAL, PROJECT NUMBER 13779-LVR DATED OCTOBER 17, 2017

2. CONSTRUCTION FOR BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING SAFETY AND MAINTENANCE DEPARTMENT

3. WALLS CONSTRUCTED OTHER THAN THOSE AS DETAILED ON THIS SHEET ARE TO BE CONSTRUCTED BY WALL SUB-CONTRACTOR, DETAILS AND STRUCTURAL CALCS AS PREPARED BY OTHERS.

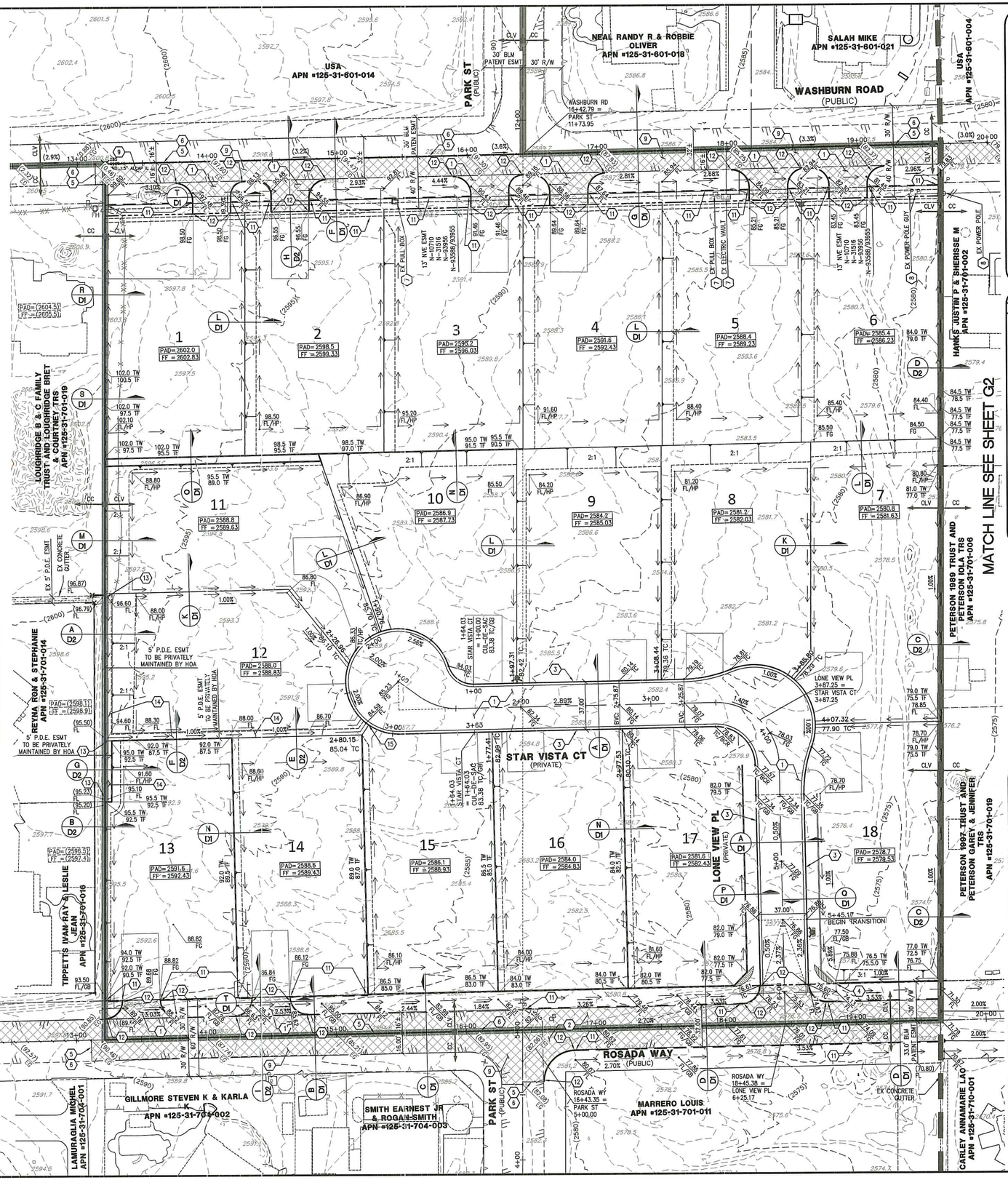
4. NO OBJECT OVER 24" OTHER THAN TRAFFIC CONTROL DEVICES AND STREET LIGHT POLES CAN BE CONSTRUCTED OR INSTALLED WITHIN THE SIGHT VISIBILITY ZONE.

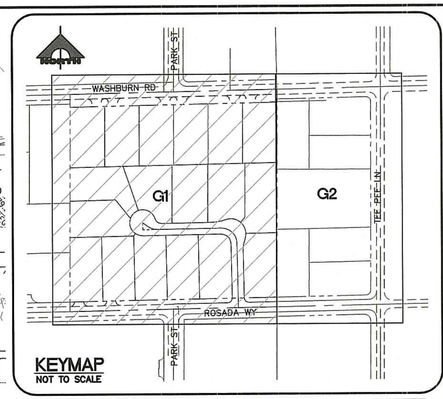
5. ALL PRIVATE STREETS ARE TO BE DEDICATED AS PUBLIC DRAINAGE EASEMENT AND PUBLIC UTILITY EASEMENT TO BE PRIVATELY MAINTAINED.

Call before you Dig
Avoid cutting underground utility lines. It's costly.
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811
OR
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AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.
CALL BEFORE YOU DO OVERHEAD
1-702-227-2929





KEYMAP
NOT TO SCALE

CONSTRUCTION NOTES

GRADING

1. CONSTRUCT 2" AC OVER 4" TYPE II AB.
2. CONSTRUCT 3" AC OVER 4" TYPE II AB OVER 6" TYPE I AB 95% COMPACTION..
3. CONSTRUCT 24" L TYPE CURB AND GUTTER PER SUMMERLIN STD DWG NO. S-47.
4. CONSTRUCT WALL OPENING PER DETAIL 3 ON SHEET D2.
5. SAWCUT.
6. MATCH EXISTING.
7. ADJUST TO GRADE.
8. PROTECT IN PLACE.
9. TRENCH AND PAVEMENT RESTORATION PER USDCCA DWG NO. 503 AND 500.3.
10. TRENCH AND PAVEMENT RESTORATION PER USDCCA DWG NO. 503 AND 500.4.
11. CONSTRUCT CONCRETE CUT-OFF WALL PER DETAIL 5 ON SHEET D2, H=18".
12. CONSTRUCT CONCRETE CUT-OFF WALL PER DETAIL 6 ON SHEET D2, H=36".
13. CONSTRUCT WALL OPENING PER DETAIL 4 ON SHEET D2.
14. CONSTRUCT 5' WIDE CONCRETE CROSS GUTTER PER DETAIL 7 ON SHEET D2.
15. CONSTRUCT CURB OPENING PER DETAIL 8 ON SHEET D2.

NOTE: SEE SHEET C2, C3 & C4 FOR ABBREVIATIONS AND QUANTITIES

Acceptance of plans for filing

By _____

Acceptance of these plans for filing shall not be construed to be a permit for or an approval of any violation of any of the provisions of the state or county laws and/or specifications. Clark County shall be held free from damages which may result from the construction of the improvements from the engineering design depicted herein.

NOTE: Power poles and/or other existing facilities not in proper location based on proposed improvements shown hereon will be relocated at no expense to Clark County.

LEGEND

H=18" CONCRETE CUT-OFF WALL

H=36" CONCRETE CUT-OFF WALL

STORMWATER MANAGEMENT NOTES - CITY OF LAS VEGAS

1. STANDARD NOTE NO. 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 THE CITY OF LAS VEGAS 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. STANDARD NOTE NO. 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 THE TITLE 24.40 AND THE LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDANCE MANUAL.
3. STANDARD NOTE NO. 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 NVR 100000, SECTION III.A.5.
4. STANDARD NOTE NO. 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 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 NVR 100000, SECTION III.A.12.
5. STANDARD NOTE NO. 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 CERTIFICATION

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

HAO A. NGUYEN P.E. 19396 — 11-13-17 DATE

L# _____ CLV DWG# _____

HTE:

STATE OF NEVADA — PROFESSIONAL ENGINEER — No. 19396 — HAO NGUYEN — Exp. 12/31/18 — CIVIL

DATE 11-13-17

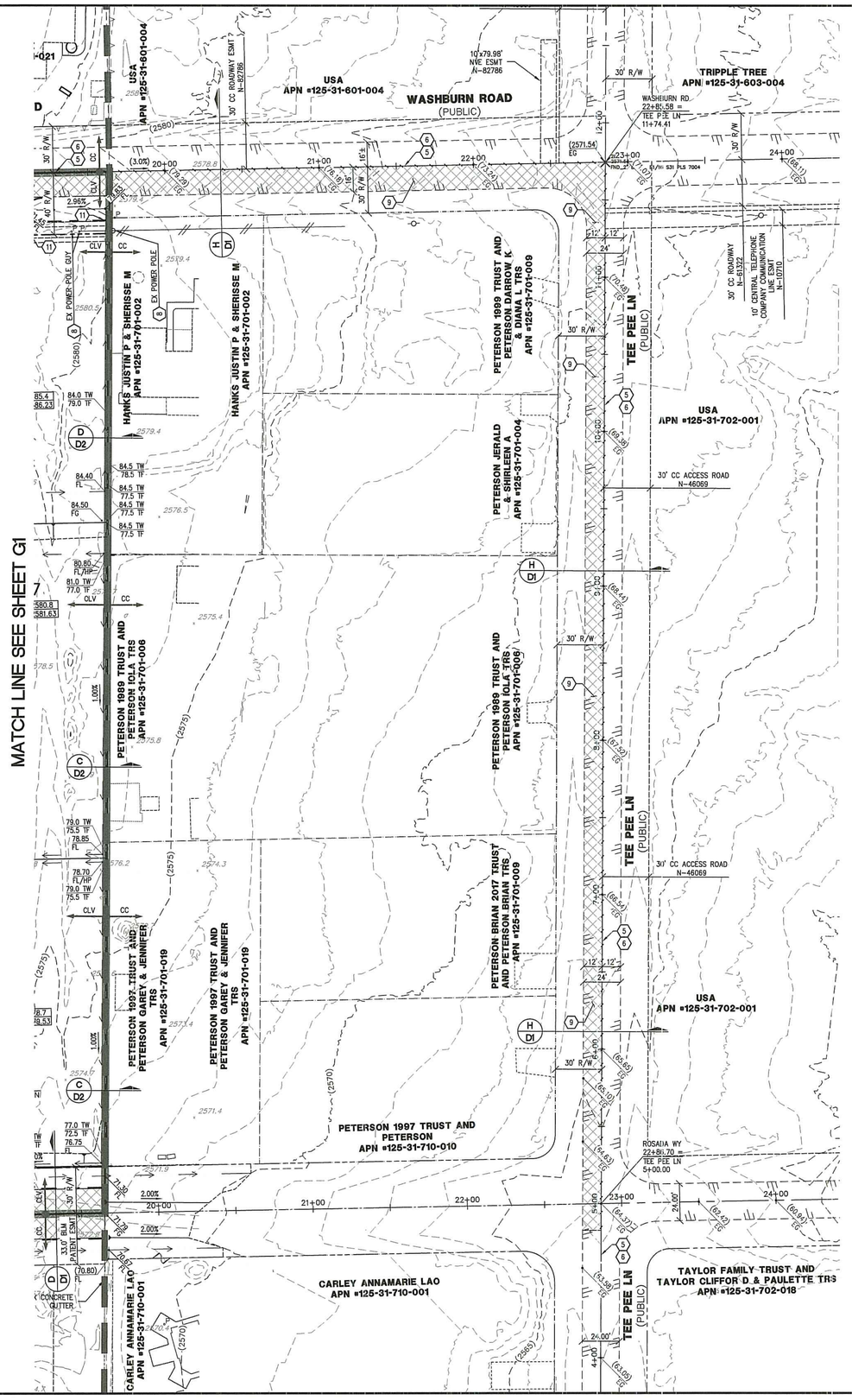
REV	DATE	DESCRIPTION	AGEN APP	DATE	GCW APP	DATE

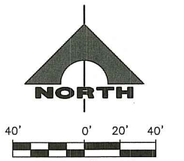
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DESIGN:
DRAWN:
CHECK:
PLOT DATE: 11-13-17
PLOT TIME: 11:49:19

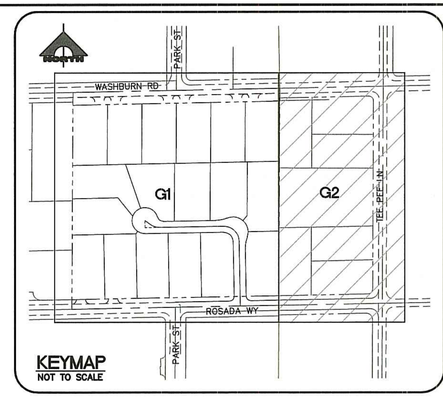
GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com
F:\Projects\300\398-A833\DWG\Production\v5333c5.dwg
Hao Nguyen

TOUCHSTONE LIVING
GRAND CANYON AND ROSADA
GRADING PLAN 1

DRAWING
G1
5 OF 22 SHTS







LEGEND

H=18" CONCRETE CUT-OFF WALL

H=36" CONCRETE CUT-OFF WALL

NOTE TO CONTRACTOR

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 OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

NOTE

ALL ONSITE STORM DRAINS AND ASSOCIATED STORM FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY THE HOA.

ALL PRIVATE STREETS ARE P.U.E., PUBLIC DRAINAGE EASEMENT AND PUBLIC SEWER EASEMENTS TO BE PRIVATELY MAINTAINED BY HOA.

BASIS OF BEARING

NORTH 88°54'00" EAST, BEING THE BEARING OF THE NORTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 31, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., AS SHOWN IN FILE 197, PAGE 2 OF SURVEYS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

CITY OF LAS VEGAS VERTICAL CONTROL POINT 6LV9936NEE6, BEING A RIVET AND PLATE IN CONCRETE PAD (FIRE HYDRANT) W. SIDE HUALAPAI WAY AND HAMMER LN.

ELEVATION: 2715.84 (FEET)
827.790 (METERS)

CITY OF LAS VEGAS BENCHMARKS – DATE RE-OBSERVED 2005 – 2007.
BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD'88).

NOTE

1. THE GEOTECHNICAL EXPLORATION PROPOSED 10± ACRE SINGLE-FAMILY RESIDENTIAL DEVELOPMENT LOCATED EAST OF GRAND CANYON DRIVE, NORTH OF ROSADA WAY, LAS VEGAS, NV AS PREPARED BY GEOTEK RESIDENTIAL, PROJECT NUMBER 13779-LVR DATED OCTOBER 17, 2017
2. CONSTRUCTION FOR BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING SAFETY AND MAINTENANCE DEPARTMENT
3. WALLS CONSTRUCTED OTHER THAN THOSE AS DETAILED ON THIS SHEET ARE TO BE CONSTRUCTED BY WALL SUB-CONTRACTOR, DETAILS AND STRUCTURAL CALCS AS PREPARED BY OTHERS.
4. NO OBJECT OVER 24" OTHER THAN TRAFFIC CONTROL DEVICES AND STREET LIGHT POLES CAN BE CONSTRUCTED OR INSTALLED WITHIN THE SIGHT VISIBILITY ZONE.
5. ALL PRIVATE STREETS ARE TO BE DEDICATED AS PUBLIC DRAINAGE EASEMENT AND PUBLIC UTILITY EASEMENT TO BE PRIVATELY MAINTAINED.

CONSTRUCTION NOTES

GRADING

1. CONSTRUCT 2" AC OVER 4" TYPE II AB.
2. CONSTRUCT 3" AC OVER 4" TYPE II AB OVER 6" TYPE I AB 95% COMPACTION..
3. CONSTRUCT 24" L TYPE CURB AND GUTTER PER SUMMERLIN STD DWG NO. S-47.
4. CONSTRUCT WALL OPENING PER DETAIL 3 ON SHEET D2.
5. SAWCUT.
6. MATCH EXISTING.
7. ADJUST TO GRADE.
8. PROTECT IN PLACE.
9. TRENCH AND PAVEMENT RESTORATION PER USDCCA DWG NO. 503 AND 500.3.
10. TRENCH AND PAVEMENT RESTORATION PER USDCCA DWG NO. 503 AND 500.4.
11. CONSTRUCT CONCRETE CUT-OFF WALL PER DETAIL 5 ON SHEET D2, H=18".
12. CONSTRUCT CONCRETE CUT-OFF WALL PER DETAIL 6 ON SHEET D2, H=36".
13. CONSTRUCT WALL OPENING PER DETAIL 4 ON SHEET D2.
14. CONSTRUCT 5' WIDE CONCRETE CROSS GUTTER PER DETAIL 7 ON SHEET D2.
15. CONSTRUCT CURB OPENING PER DETAIL 8 ON SHEET D2.

NOTE: SEE SHEET C2, C3 & C4 FOR ABBREVIATIONS AND QUANTITIES

Acceptance of plans for filing

By _____

Acceptance of these plans for filing shall not be construed to be a permit for or an approval of any violation of any of the provisions of the state or county laws and/or specifications. Clark County shall be held free from damages which may result from the construction of the improvements from the engineering design depicted herein.

NOTE: Power poles and/or other existing facilities not in proper location based on proposed improvements shown hereon will be relocated at no expense to Clark County.

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

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

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

DRAINAGE CERTIFICATION

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

HAO A. NGUYEN P.E. 19396 — 11-13-17 DATE

L# _____ CLV DWG# _____

ENGINEER: STATE OF NEVADA — HAO A. NGUYEN — No. 19396 — PROFESSIONAL ENGINEER — 11-13-17 DATE

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GOV APP

PROJECT NO. 398-A833
DESIGN:
DRAWN:
CHECK:
PLOT DATE: 11-13-17
PLOT TIME: 11:49:07

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

F:\Projects\300\398-A833\DWG\Production\A833cdc.dwg
Hao Nguyen

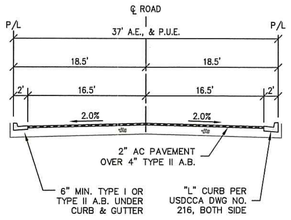
TOUCHSTONE LIVING

GRAND CANYON AND ROSADA

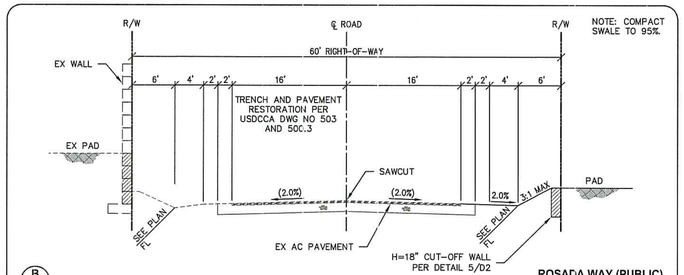
GRADING PLAN 2

DRAWING G2
6 OF 22 SHTS

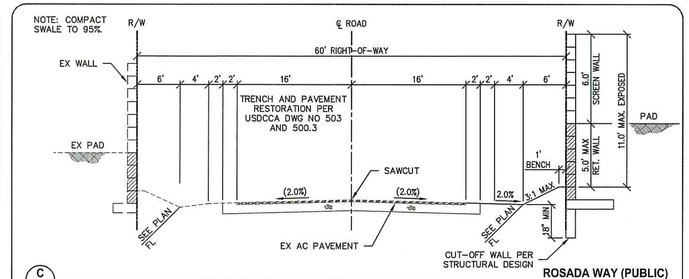
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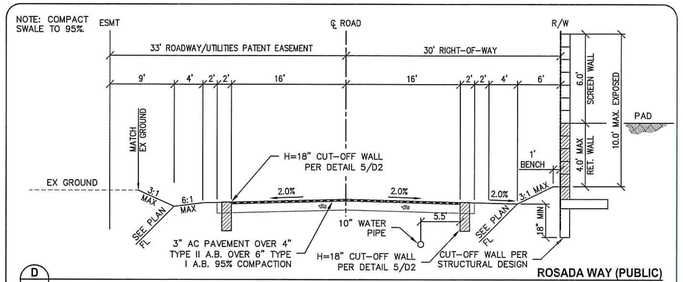
A — 37.0' PRIVATE STREET SECTION
NTS



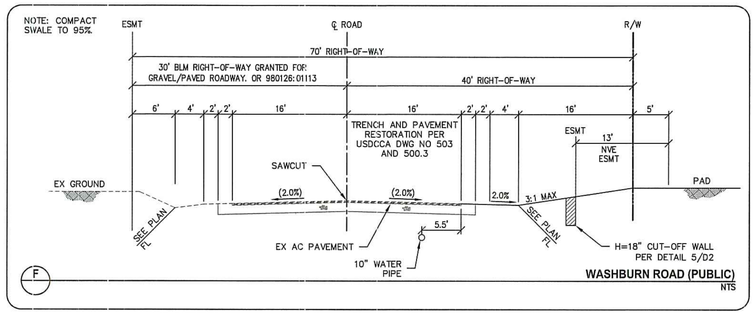
B — ROSADA WAY (PUBLIC)
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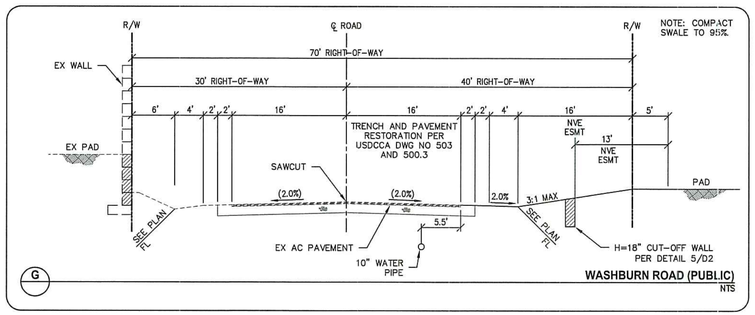
C — ROSADA WAY (PUBLIC)
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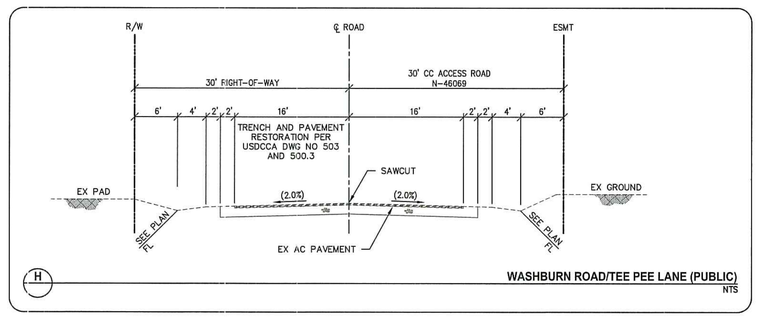
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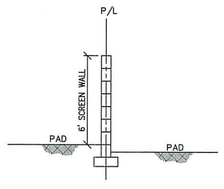
F — WASHBURN ROAD (PUBLIC)
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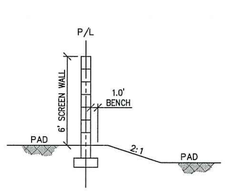
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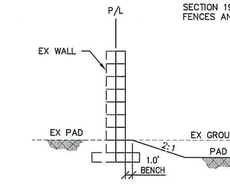
H — WASHBURN ROAD/TEE PEE LANE (PUBLIC)
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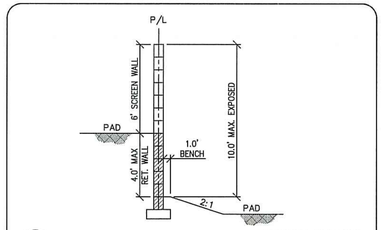
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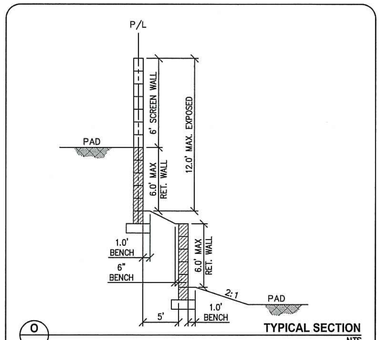
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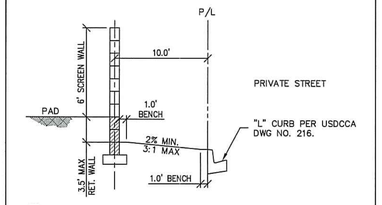
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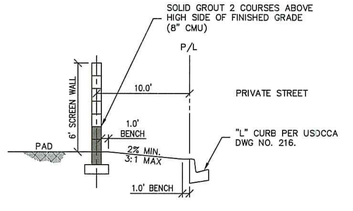
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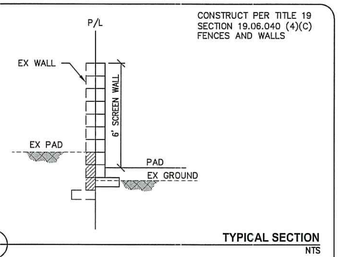
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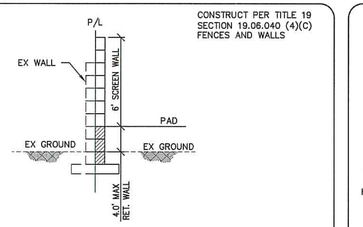
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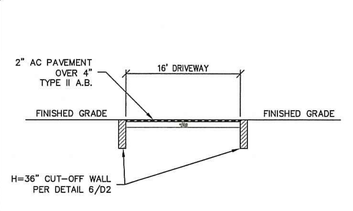
Q — TYPICAL SECTION
NTS



R — TYPICAL SECTION
NTS



S — TYPICAL SECTION
NTS



T — TYPICAL SECTION
NTS

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. 126005 FIRST APPROVED DATE: _____

CLARK COUNTY
DEPARTMENT OF PUBLIC WORKS
DEVELOPMENT REVIEW
Acceptance of plans for filing

By _____

Acceptance of these plans for filing shall not be construed to be a permit for or an approval of any violation of any of the provisions of the state or county laws and/or specifications. Clark County shall be held free from damages which may result from the construction of the improvements from the engineering design depicted herein.

NOTE: Power poles and/or other existing facilities not in proper location based on proposed improvements shown hereon will be relocated at no expense to Clark County.

L# _____ CLV DWG# _____

HTE:

ENGINEER - STATE OF NEVADA
HAO A. NGUYEN
Exp. 11/31/2017
No. 19396
PROFESSIONAL
DATE: 11-13-17

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP	DATE

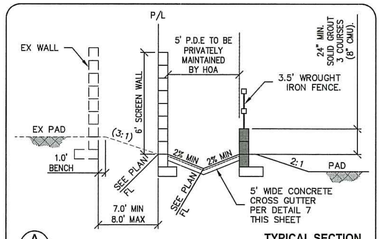
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DESIGN:
DRAWN:
CHECK:
PLOT DATE: 11-13-17
PLOT TIME: 13:57:09

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

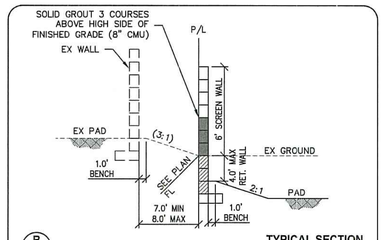
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Hao Nguyen

TOUCHSTONE LIVING
GRAND CANYON AND ROSADA
SECTIONS AND DETAILS 1

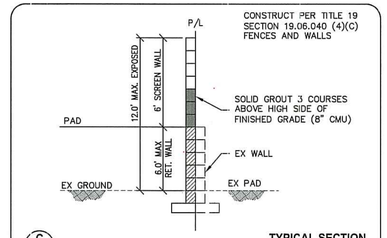
DRAWING
D1
7 OF 22 SHTS



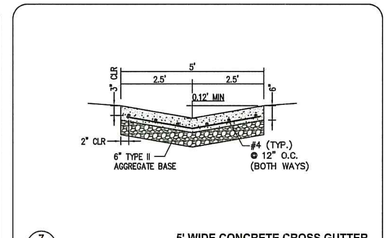
A TYPICAL SECTION
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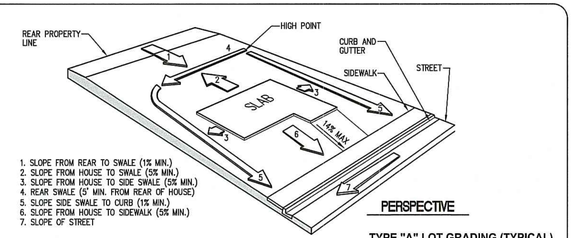
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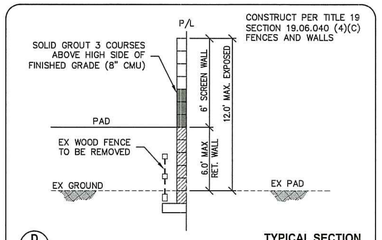
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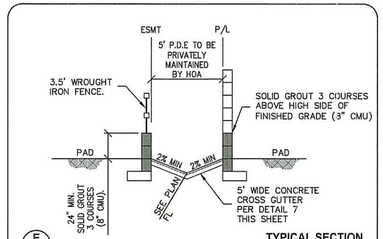
7 5' WIDE CONCRETE CROSS GUTTER
NTS



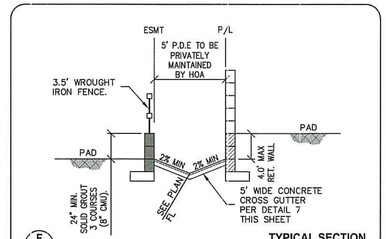
1 TYPE "A" LOT GRADING (TYPICAL)
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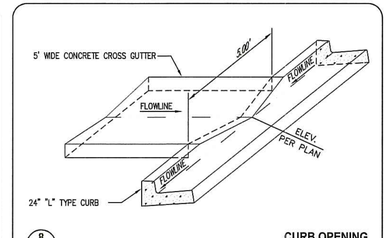
D TYPICAL SECTION
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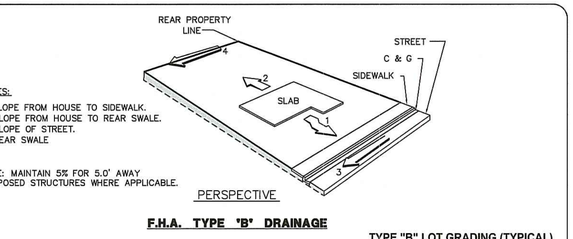
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F TYPICAL SECTION
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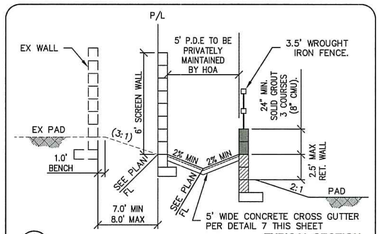


8 CURB OPENING
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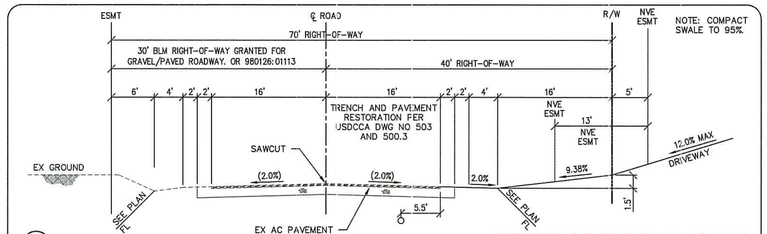


F.H.A. TYPE "B" DRAINAGE

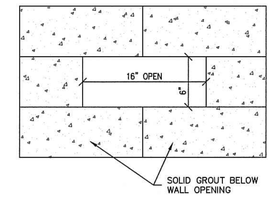
2 TYPE "B" LOT GRADING (TYPICAL)
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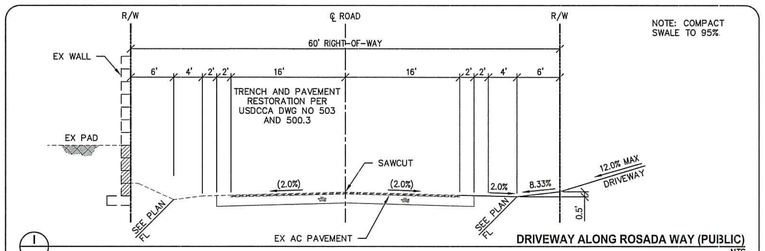
G TYPICAL SECTION
NTS



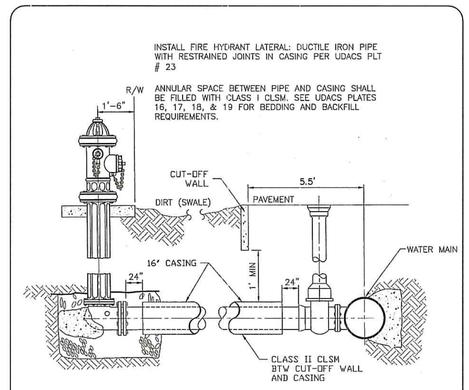
H DRIVEWAY ALONG WASHBURN ROAD (PUBLIC)
NTS



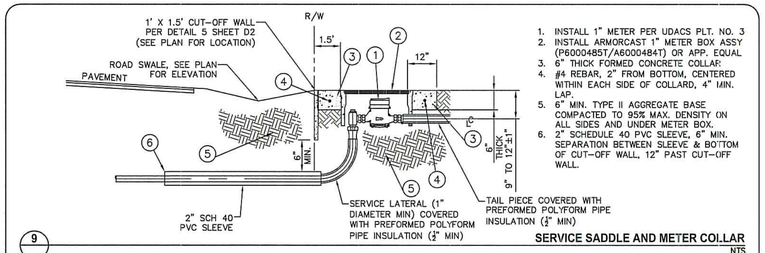
3 BLOCK WALL OPENING - 16"x6" CMU
NTS



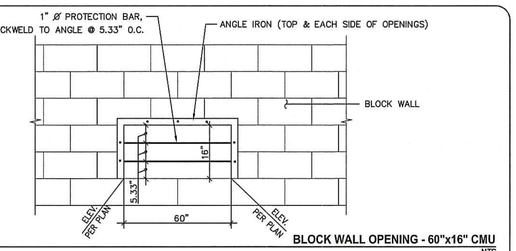
I DRIVEWAY ALONG ROSADA WAY (PUBLIC)
NTS



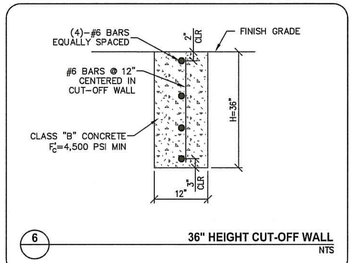
10 FIRE HYDRANT WITH STEEL CASING
NTS



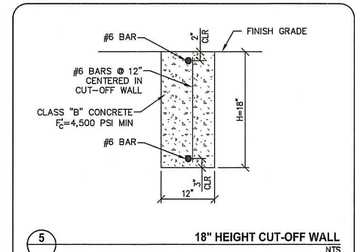
9 SERVICE SADDLE AND METER COLLAR
NTS



4 BLOCK WALL OPENING - 60"x16" CMU
NTS



6 36" HEIGHT CUT-OFF WALL
NTS



5 18" HEIGHT CUT-OFF WALL
NTS

CLARK COUNTY
DEPARTMENT OF PUBLIC WORKS
DEVELOPMENT REVIEW
Acceptance of plans for filing

By _____

Acceptance of these plans for filing shall not be construed to be a permit for or an approval of any violation of any of the provisions of the state or county laws and/or specifications. Clark County shall be held free from damages which may result from the construction of the improvements from the engineering design depicted herein.

NOTE: Power poles and/or other existing facilities not in proper location based on proposed improvements shown hereon will be relocated at no expense to Clark County.

APPROVED FOR CONSTRUCTION

_____

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. 126005 FIRST APPROVED DATE: _____

L# _____ CLV DWG# _____

STATE OF NEVADA — REGISTERED PROFESSIONAL ENGINEER — HAO A. NGUYEN — No. 19397 — DATE: 11-13-17

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GOV APP

PROJECT NO. 398-A833
DESIGN:
DRAWN:
CHECK:
PLOT DATE: 11-13-17
PLOT TIME: 11:48:49

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

F:\Projects\300\398--A833\DWG\Production\A833c0.dwg
Hao Nguyen

TOUCHSTONE LIVING
GRAND CANYON AND ROSADA
SECTIONS AND DETAILS 2

DRAWING
D2
8 OF 22 SHTS

HTE:



NORTH

GRAPHIC SCALE

100 0 50 100

(IN FEET)

1 inch = 100 ft.

LEGEND

SUBBASIN BOUNDARY

DON1 SUBBASIN ID

Note:
Site lies within 'A' soil; However, 'D' soil utilized in analysis for conservative purposes

EXISTING CONDITION
SUBBASIN FLOW RATE SUMMARY

Subbasin ID	Area (acres)	Q_{100} (cfs)	Q_{10} (cfs)
EON1	10.0	25	9

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP	DATE:

PROJECT NO. 767-605

DESIGN: GYT
DRAWN: GYT
CHECK:
PLOT DATE: 11-13-17
PLOT TIME: 16:22:52

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

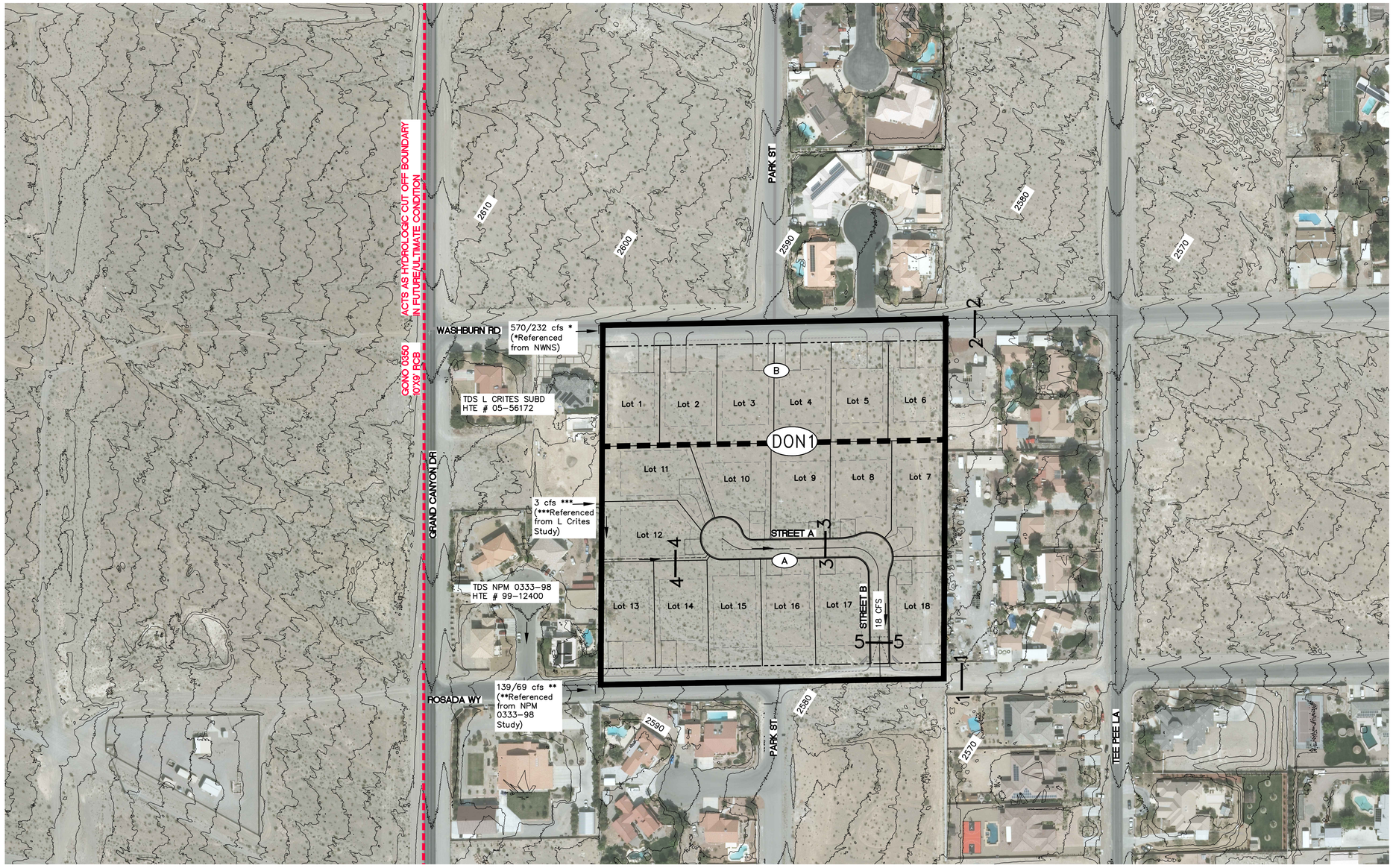
F:\Projects\300\398-A833\Division\Civil\Figures\RTC\FIGURE5.dwg
Nelson Boggs

TOUCHSTONE LIVING

GRAND CANYON AND ROSADA

EXISTING CONDITIONS BASIN MAP

DRAWING
FIG 5
1 OF 1 SHTS



NORTH

GRAPHIC SCALE

100 0 50 100

(IN FEET)

1 inch = 100 ft.

LEGEND

- SUBBASIN BOUNDARY
- DON1 — SUBBASIN DESIGNATION
- COND14 — CONCENTRATION POINT
- FLOW DIRECTION
- PRORATED SUBBASIN BOUNDARY
- A — SUBBASIN DESIGNATION
- FUTURE REGIONAL FACILITY

Note:
Site lies within 'A' soil; However, 'D' soil utilized in analysis for conservative purposes

PROPOSED CONDITION SUBBASIN FLOW RATE SUMMARY

Subbasin ID	Area (acres)	Q_{100} (cfs)	Q_{10} (cfs)
DON1	10.0	22	7

100-YR PROPOSED CONDITION PRORATED FLOW SUMMARY

Proposed Basins			
Subbasin*	Q_{100} (cfs)	Area (acres)	cfs/acre
DON1	22	10.0	2.20
Proposed Prorated Basins			
Subbasin*	Q_{100} (cfs)	Area (acres)	cfs/acre
A	15	6.6	2.20
B	7	3.4	2.20
TOTAL	22	10.0	2.20

10-YR PROPOSED CONDITION PRORATED FLOW SUMMARY

Proposed Basins			
Subbasin*	Q_{10} (cfs)	Area (acres)	cfs/acre
DON1	7	10.0	0.70
Proposed Prorated Basins			
Subbasin*	Q_{10} (cfs)	Area (acres)	cfs/acre
A	5	6.6	0.70
B	2	3.4	0.70
TOTAL	7	10.0	0.70

10-YEAR STREET FLOW CHARACTERISTICS

Location	Slope (%)	Q_{10} (cfs)	Depth (ft)	Velocity (ft/s)	D*V	Tributary
1-1: Rosada	2.6	76	1.07	5.32	5.7	** (69) + A (5) + *** (2)
2-2: Washburn	3.0	234	1.33	8.43	11.2	* (232) + B (2)
* Referenced from the CLV NWNS						
*** Referenced from the L Crites Study						

100-YEAR STREET FLOW CHARACTERISTICS PROPOSED CONDITIONS

Location	Slope (%)	Q_{100} (cfs)	Depth (ft)	Velocity (ft/s)	D*V	Tributary
1-1: Rosada	2.6	157	1.23	7.0	8.5	** (139) + A (15) + *** (3)
2-2: Washburn	3.0	577	1.70	12.0	20.4	* (570) + B (7)
3-3: Street A/ Street B	0.5	18	0.45	2.3	1.0	A (15) + *** (3)
4-4: Drainage Easement	1.0	3	0.22	3.5	N/A	*** (3)
5-5: Street B (before T-Intersection)	2.4	18	0.37	3.7	N/A	A (15) + *** (3)
* Referenced from the CLV NWNS						
** Referenced from the NPM 0333-98 Study						
*** Referenced from the L Crites Study						

DATE: | DESCRIPTION | REV | DATE | AGEN APP | DATE | GCW APP | DATE

PROJECT NO. 767-605

DESIGN: GYT
DRAWN: GYT
CHECK:
PLOT DATE: 11-13-17
PLOT TIME: 16:21:40

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

F:\Projects\300\398-A833\Division\Civil\Figures\RTC\FIGURE6.dwg
Nelson Boggs

TOUCHSTONE LIVING

GRAND CANYON AND ROSADA

PROPOSED CONDITIONS BASIN MAP

DRAWING
FIG 6
1 OF 1 SHTS