DS #: 5219

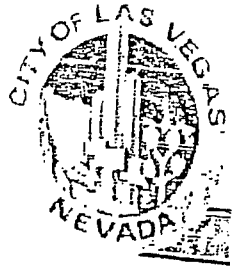
APN: 137-22-101-001

PROJECT: Summerlin Village 25 Grand Park Boulevard Improvements - Street "M" to Fox Hill Drive

SUBMITTAL: 2nd

SCANNED BY/DATE:

CHECKED BY/DATE:



CITY OF LAS VEGAS **INTER-OFFICE MEMORANDUM**				**DATE:** **October 29, 2020**
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: **Summerlin Village 25 Grand Park Boulevard Improvements - Street "M" to Fox Hill Drive**				**COPIES TO:** GCW Inc.
Cross Streets:	Grand Park Boulevard & Redpoint Drive			Howard Hughes Company, LLC
File Number:	F:\Depot\DSMemos\DS5219B.doc			Bart Anderson, P.E., DevCo
Parcel Number:	137-22-101-001			CCRFCD
Zoning Action:	N/A			
FEMA Flood Zone	YES		NO **X**	
Proposed Storm Drain	YES **X**		NO	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	11/19/2019 & 12/4/2019	12/17/2019	Not Approved	$400.00	3651174: $400
2nd Submittal	10/15/2020	10/29/2020	See Comments Below	$400.00	4032497: $400
			TOTAL FEES (LDDRS):	**$800.00**	**----**

REMARKS:

***** The Conditional Approval of this Drainage Study is to allow the engineer/developer to submit the Improvement Plans to City Land Development Only**

***** Do not submit the Drainage Study to Clark County Regional Flood Control District (CCRFCD) prior to the Structural Design and Calculations being approved by the City Building & Safety Department**

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:
X	is conditionally approved subject to Clark County Regional Flood Control District concurrence.
	is conditionally approved subject to Clark County Public Works Department concurrence.

1. The project proposed to construct temporary drainage facilities including drainage berms/ditches along the west side of *Grand Park Boulevard*. Prior to the final plans approval, the developer must complete a ***Maintenance & Liability Agreement*** for the interim drainage improvements and post a minimum maintenance bond of $50,000 or 50-percent of the construction cost for the improvements, whichever is greater. The engineer must submit an estimate of the quantities for constructing the facilities and an exhibit that adequately shows the location and limits of the drainage facilities to *City Flood Control* for approval. Once the drainage study is conditionally approved, the engineer/developer should contact the *City's Land Development Section* (702-229-6371) to begin the agreement process.

In order for the maintenance bond to be released in the future, a drainage update/letter will be required to justify that the berm/swale are no longer necessary and can be removed.

2. **This drainage study is acceptable in concept;** however, *City of Las Vegas* will not formally accept the study until the *Clark County Regional Flood Control District (CCRFCD)* has issued a letter of concurrence. The engineer should contact the CCRFCD to confirm that they have begun their review.

   Please note that effective March 15, 2019, the CCRFCD adopted new requirements for drainage study concurrence submittal. Follow the link below for specific guidance.

   http://gustfront.ccrfcd.org/LandDev/LandDev.aspx

3. All storm drain inlets that are more than 10'-deep require a special structural detail and calculations. Submit structural design and calculations to ***City Building & Safety Department*** for review and approval prior to the final approval of the drainage study.
4. All offsite interim flood control facilities such as but not limited to berms/ditches and temporary sump are privately owned and to be privately maintained by the *Howard Hughes Company*.

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

END OF REMARKS
HDR/AYS

T/R/S: T20S/R59E/22
AREA K-22

GCW

ENGINEERS \ SURVEYORS

RESPONSE TO COMMENTS FOR THE TECHNICAL DRAINAGE STUDY FOR

VILLAGE 25 GRAND PARK BOULEVARD IMPROVEMENTS (ST "M" TO FOX HILL DR)

62025-209

October 2020

Prepared for:
The Howard Hughes Company, LLC
10845 Griffith Peak Drive, Suite 160
Las Vegas, Nevada 89135
Phone: (702) 791-4300

Prepared by GCW, Inc.

1555 South Rainbow Blvd
Las Vegas, NV 89146

P: 702.804.2000
F: 702.804.2298

info@gcwengineering.com
www.gcwengineering.com

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Village 25 Grand Park Boulevard Improvements (Street 'M' to Fox Hill Dr) Date: October 2020

Location of Development: a) Descriptive (Cross Streets) North/South: Redpoint Dr

East/West: Grand Park Blvd

b) Section: 22 Township: 20 S Range: 59 E

c) APN : 137-22-301-004

Name of Owner: The Howard Hughes Company, LLC

Telephone No.: 702-791-4300 Fax No.: 702-791-4385 E-Mail Address: April.Chapman@howardhughes.com

Address: 10845 Griffith Peak Drive, Suite 160, Las Vegas, Nevada 89135

Contact Person-Name: Mohammad Masih Edalat **Telephone No.:** (702) 804-2127

* **E-Mail Address:** Medalat@gcwengineering.com **Fax No.:** (702) 804-2299

Firm: GCW, Inc.

Address: 1555 South Rainbow Blvd, Las Vegas, Nevada 89146

Type of Land Development/Land Disturbance Process:

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

1. Total Owned Land Area: At Site: +/- 363 Acres Being Developed/Disturbed: +/- 15 Acres
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.): Road Improvement
5. Approximate upstream land area which drains to the subject site: +/- 65 Acres
6. Has the site drainage been evaluated in the past? ☒ **YES** ☐ **NO** If yes, please identify documentation: Drainage Study for Summerlin West Village 21 Desert Foothills Drive (Far Hills Avenue to Street A)
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: The runoff drains into the existing storm drain facility in Redpoint Drive.
8. Briefly describe your proposed schedule for the subject project: ASAP

Engineer's Seal **10/12/2020**

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.**

Local Entity File No.

Revision	Date

REFERENCE:

STANDARD FORM 1

62025-209

October 12, 2020

Albert Y. Sung, P.E.
City of Las Vegas, 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 Village 25 Grand Park Boulevard Improvements (Street "M" to Fox Hill Drive (DS5219A)

Dear Mr. Sung,

This letter is to certify that all documents provided on electronic submittal (CD) match the hardcopy version of the study.

Respectfully submitted,

Masih Edalat, PhD, P.E.
Project Engineer

10/12/20

1555 South Rainbow Boulevard
Las Vegas, Nevada 89146
O 702.804.2000
F 702.804.2299
info@gcwengineering.com
gcwengineering.com

RESPONSE TO COMMENTS FOR THE TECHNICAL DRAINAGE STUDY FOR VILLAGE 25 GRAND PARK BOULEVARD IMPROVEMENTS (STREET "M" TO FOX HILL DRIVE)

62025-209

October 2020

Authored By:

Masih Edalat, PhD, PE

Prepared By:

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

62025-209

October 12, 2020

Re: Response to City of Las Vegas Comments on the Technical Drainage Study for Village 25 Grand Park Boulevard Improvements (Street "M" to Fox Hill Drive (DS5219A)

This report addresses the City of Las Vegas review comments dated December 18, 2019 regarding the project in its entirety. Below are individual responses to each comment included in the review letter.

Comment 1:

The subject drainage study is premised on the existence of the *Grand Park Detention Basin Inflow Facility* (APDF 0127) in *Fox Hill Drive.*

The subject drainage study will not be approved prior to the approval of the Technical Drainage Study for *Summerlin West Grand Park Detention Basin*.

Response:

Please refer to the appendix for the approval letter for the Technical Drainage Study for *Summerlin West Grand Park Detention Basin.*

Comment 2:

For the same reasoning, the subject drainage study will not be approved prior to the approval of the Technical Drainage Studies for *Summerlin West Village 25 Redpoint Drive, Park Bluff Lane, Foxtail Pass Way* and *Summerlin West Village 25 Sandstone Rise Drive (Street M) — Sky Vista Drive to Park Drift Trail*.

Response:

Please refer to the appendix for the approval letters for the mentioned studies.

Comment 3:

The project proposed to construct temporary drainage facilities including drainage berms/ditches along the west side of *Grand Park Boulevard.* Prior to the final plans approval, the developer must complete a Maintenance & Liability Agreement for the interim drainage improvements and post a minimum maintenance bond of $50,000 or 50-percent of the construction cost for the improvements, whichever is greater. The engineer must submit an estimate of the quantities for constructing the facilities and an exhibit that adequately shows the location and limits of the drainage facilities to *City Flood Control* for approval. Once the drainage study is conditionally approved, the engineer/developer should contact the *City's Land Development Section* (702-229-6371) to begin the agreement process.

In order for the maintenance bond to be released in the future, a drainage update/letter will be required to justify that the berm/swale are no longer necessary and can be removed.

Response:

The Maintenance & Liability Agreement requirement is acknowledged.

Comment 4:

The site is adjacent to or crosses an existing or proposed *Clark County Regional Flood Control District* (CCRFCD) master planned facility. Therefore, CCRFCD concurrence is required prior to final approval of the drainage study.

Please note that effective March 15, 2019, the CCRFCD adopted new requirements for drainage study concurrence submittal. Follow the link below for specific guidance.

http://qustfront.ccrfcd.org/LandDev/LandDev.aspx.

Response:

The CCRFCD concurrence requirements is acknowledged.

Comment 5:

All storm drain inlets that are more than 10'-deep require a special structural detail and calculations. Submit structural design and calculations to *City Building & Safety Department* for review and approval prior to the final approval of the drainage study.

Response:

The structural approval prior to the final drainage study approval is acknowledged.

Comment 6:

The *Ultimate Condition Drainage Map* was missing in the last submittal. Provide as such in the next addendum.

Response:

The Ultimate Condition Drainage Map, FIG9 is included in this current submittal.

Comment 7:

FIG 8: Drop Inlet DI#5.2 is downstream from inlet DI#4.2 and should therefore be analyzed to capture the bypass flow from inlet DI#4.2.

Response:

DI labels have been updated on FIG 8 to match with the plans. Additionally, total intercepted flow by each DI is added to the map. The DI calculation sheets are updated. Please refer to the appendix for more information.

Comment 8:

Provide labels and inlet capture calculations for all proposed inlets as shown on FIG 8.

Response:

Inlet capture calculations for all proposed inlets are provided in the appendix.

Comment 9:

Label *"Fox Hill Drive"* on FIG 8 and FIG 9.

Response:

FIG 8 and FIG 9 revised accordingly.

Comment 10:

Add the pink/purple lines on FIG 8 to the legend.

Response:

The pink line that shows the referenced Subbasin boundaries from Zone 3665 Reservoir Study is added to the legend on FIG 8.

Comment 11:

Provide headwater calculations for the stub at approximately Sta.16+72 and use the ponding depth as the WSE for the WSPGW for *Sandstone Rise to Grand Park*.

Response:

The WSPG has been updated to represent correct headwater. Please refer to appendix for headwater calculations and WSPG outputs.

Comment 12:

Sheet PP7: Per the profile, DIs #11.1, #11.2 and #11.3 are in sump condition. Discuss in the next submittal that an emergency overflow path is provided in a worst case scenario that the inlets are all clogged. Limit the maximum ponding depth to 12". Review and revise accordingly.

Response:

A 2-ft wide drainage flume is provided through the median and can be counted as an emergency overflow path For DIs #11.1 and 11.2. For DI #11.3, the overflow path in a worst case scenario would be draining to Fox Hill Drive, after ponding 12”. See below calculations:

FL at DI #11.3 = 92.04’
WSE for 12” ponding = 92.04’ + 12” = 93.04’
FL at the high point at the curved curb next to Fox Hill Dr = 93.54’ – 0.5’ = 93.04’

Comment 13:

All offsite interim flood control facilities such as but not limited to berms/ditches and temporary sump are privately owned and to be privately maintained by the *Howard Hughes Company.* Provide a note as such on the grading plans.

Response:

The note is provided on the plans.

Additional Note:

After the first submittal of the study, the plans are updated per the VTN's Traffic Study comments. As a result, there are not any utility changes to this study. The changes are mainly grading based on the new base line work. Therefore, previously submitted hydrology and hydraulic calculations are not affected. The plan and profiles have been re-reviewed for completeness and accuracy to ensure positive drainage throughout the intersections and roads. In conclusion, the proposed improvements do not pose any negative impacts on downstream facilities or development and are in compliance with CCRFCD *Hydrologic Criteria and Drainage Design Manual*.

If you have any questions or require additional information, please do not hesitate to contact me at 804-2127.

Respectfully,

GCW, INC.

Masih Edalat, PhD, PE
Flood Control Division

APPENDIX

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM			DATE: December 18, 2019
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: **Summerlin Village 25 Grand Park Boulevard Improvements - Street "M" to Fox Hill Drive**			**COPIES TO:** GCW Inc.
Cross Streets:	Grand Park Boulevard & Redpoint Drive		Howard Hughes Company, LLC
File Number:	F:\Depot\DSMemos\DS5219A.doc		Bart Anderson, P.E., DevCo
Parcel Number:	137-22-101-001		CCRFCD
Zoning Action:	N/A		
FEMA Flood Zone	YES	NO X	
Proposed Storm Drain	YES X	NO	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	11/19/2019 & 12/4/2019	12/17/2019	See Comments Below	$400.00	3651174: $400
			TOTAL FEES (LDDRS):	**$400.00**	----

REMARKS:

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

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

Note that the Clark County Regional Flood Control District (District) has begun efforts to update the *Hydrologic Criteria and Drainage Design Manual* (HCDDM) and is requesting participation from the engineering community. The District is collecting comments and suggestions on errors, clarifications, or changes needed to the current Manual and/or content and usability enhancements to be incorporated into the updated Manual. Additional information on procedures and deadline to provide feedback and comments are available online at (http://www.ccrfcd.org/hcddmupdate.html).

1. The subject drainage study is premised on the existence of the *Grand Park Detention Basin Inflow Facility* (APDF 0127) in *Fox Hill Drive*.

   The subject drainage study will not be approved prior to the approval of the Technical Drainage Study for *Summerlin West Grand Park Detention Basin*.

2. For the same reasoning, the subject drainage study will not be approved prior to the approval of the Technical Drainage Studies for *Summerlin West Village 25 Redpoint Drive, Park Bluff Lane, Foxtail Pass Way* and *Summerlin West Village 25 Sandstone Rise Drive (Street M) – Sky Vista Drive to Park Drift Trail*.

3. The project proposed to construct temporary drainage facilities including drainage berms/ditches along the west side of *Grand Park Boulevard*. Prior to the final plans approval, the developer must complete a ***Maintenance & Liability Agreement*** for the interim drainage improvements and post a minimum maintenance bond of $50,000 or 50-percent of the construction cost for the improvements, whichever is greater. The engineer must submit an estimate of the quantities for constructing the facilities and an exhibit that adequately shows the location and limits of the drainage facilities to *City Flood Control* for approval. Once the drainage study is conditionally approved, the engineer/developer should contact the *City's Land Development Section* (702-229-6371) to begin the agreement process.

   In order for the maintenance bond to be released in the future, a drainage update/letter will be required to justify that the berm/swale are no longer necessary and can be removed.

4. The site is adjacent to or crosses an existing or proposed *Clark County Regional Flood Control District* (CCRFCD) master planned facility. Therefore, CCRFCD concurrence is required prior to final approval of the drainage study.

   Please note that effective March 15, 2019, the CCRFCD adopted new requirements for drainage study concurrence submittal. Follow the link below for specific guidance.

   http://gustfront.ccrfcd.org/LandDev/LandDev.aspx

5. All storm drain inlets that are more than 10'-deep require a special structural detail and calculations. Submit structural design and calculations to ***City Building & Safety Department*** for review and approval prior to the final approval of the drainage study.
6. The *Ultimate Condition Drainage Map* was missing in the last submittal. Provide as such in the next addendum.
7. **FIG 8**: Drop Inlet DI#5.2 is downstream from inlet DI#4.2 and should therefore be analyzed to capture the bypass flow from inlet DI#4.2.
8. Provide labels and inlet capture calculations for all proposed inlets as shown on **FIG 8**.
9. Label "*Fox Hill Drive*" on **FIG 8** and **FIG 9**.
10. Add the pink/purple lines on **FIG 8** to the legend.
11. Provide headwater calculations for the stub at approximately Sta.16+72 and use the ponding depth as the WSE for the WSPGW for *Sandstone Rise to Grand Park.*
12. **Sheet PP7**: Per the profile, DIs #11.1, #11.2 and #11.3 are in sump condition. Discuss in the next submittal that an emergency overflow path is provided in a worst case scenario that the inlets are all clogged. Limit the maximum ponding depth to 12". Review and revise accordingly.
13. All offsite interim flood control facilities such as but not limited to berms/ditches and temporary sump are privately owned and to be privately maintained by the *Howard Hughes Company*. Provide a note as such on the grading plans.

In an effort to increase administrative efficiency, for all original and re-submittal packages including updates and the addenda, the City of Las Vegas Public Works Department requires both a hardcopy and a digital copy (PDF) on CD for the drainage study.

A letter sealed and signed by a Nevada registered civil engineer must be included in every submittal certifying documents on the electronic CD matches 100% of the hardcopy submittal. The new submittal requirement is effective on May 1, 2019. If there are any questions regarding these new requirements, please contact Albert Sung in the City Flood Control Section at (702) 229-6541.

Sample Letter to certify CD.pdf

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

END OF REMARKS
HDR/AYS

T/R/S: T20S/R59E/22
AREA K-22

NORTH

110 0 110 220 Feet

1 in = 110 ft

Legend

- Flow Direction
- Existing_Ditches
- Existing SD
- Proposed SD
- 1-ft Contour
- Interim Subbasin
- 5 ft-Contour
- V25 Land Plan
- Parcel Boundary
- Referenced Subbasin Zone 3665 Reservoir Study

CCRFCD Facilities

- COM
- CON
- PRO

(XX CFS) SD Flowrate
XX CFS Surface Flowrate

INTERIM CONDITIONS PRORATED FLOW SUMMARY

Basins			
Subbasin ID	Q_{100} (cfs)	Area (acres)	
INT-1 [4]	223	170.64	
Prorated Subbasins			
Subbasin ID	Q_{100} (cfs)	Area (acres)	Reference Subbasin
OF1	4	2.8	INT-1

SEE FIG9 FOR ULTIMATE CONDITION FLOWRATES

[1] REFER TO THE TRIPLE ROAD STUDY
[2] REFERENCED FROM THE SANDSTONE STUDY
[3] REFERENCED FROM THE GPDB INLET STUDY
[4] REFERENCED FROM THE ZONE 3665 RESERVOIR STUDY

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP	DATE:

PROJECT NO. 62025-209
DESIGN:
DRAWN:
CHECK:
PLOT DATE: 03/23/2020
PLOT TIME: 1:09:08 PM

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

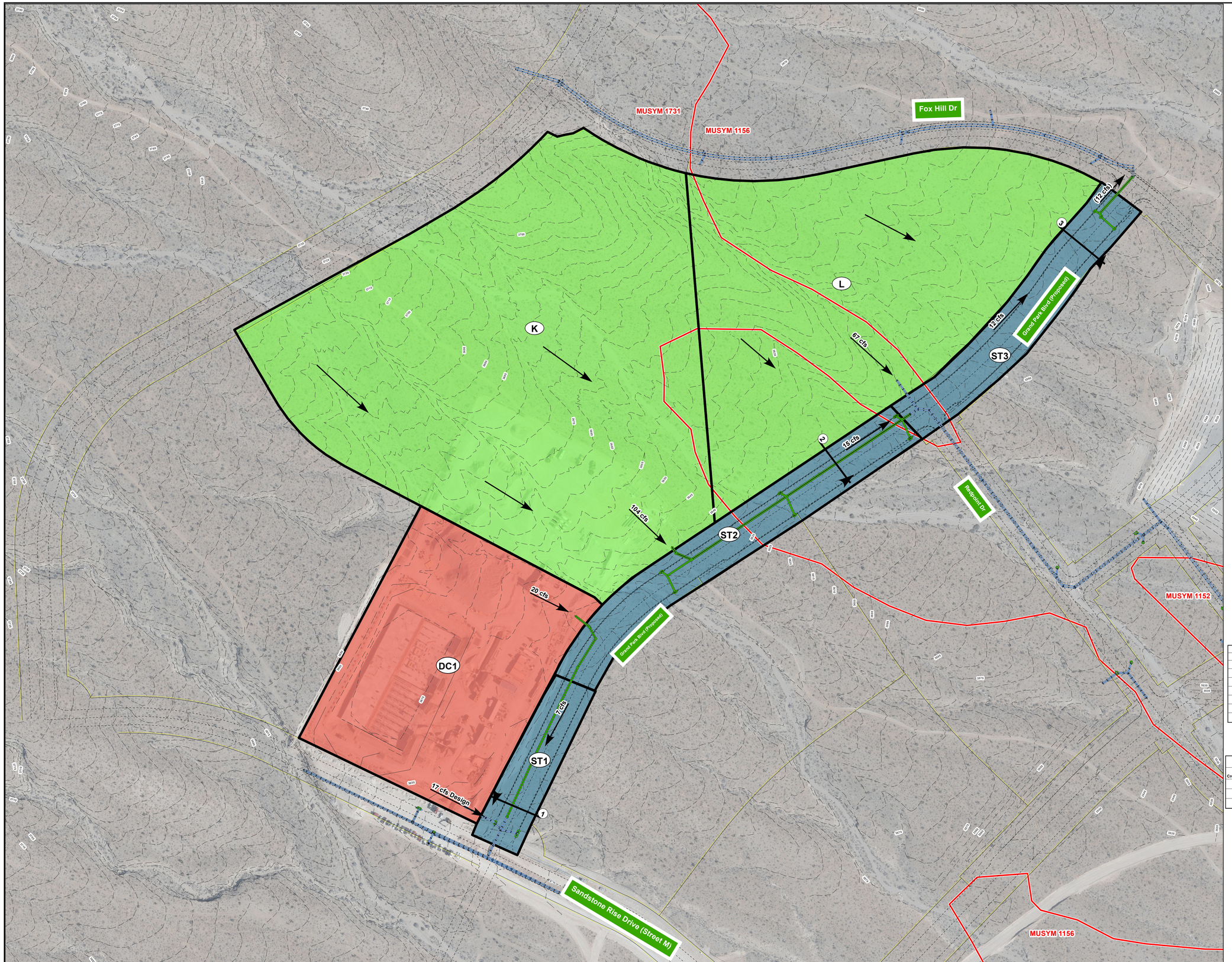
F:\Projects\600\62025-209\Division\Fcst\Figures\GIS\FIG8.mxd
medalat

THE HOWARD HUGHES COMPANY, LLC

GRAND PARK BLVD IMPROVEMENTS

INTERIM CONDITION DRAINAGE MAP

DRAWING
FIG8
1 OF 1 SHTS



NORTH

120 0 120 240 Feet

1 in = 120 ft

Legend

- Cross Section
- Ultimate Flow Direction
- 2018 MPU Soils
- Existing SD
- Proposed SD
- 5 ft_Contour
- V25 Land Plan
- Parcel Boundary
- Ultimate Condition Subbasin

Land Use

- Streets & Roads
- Commercial & Business
- Industrial

ULTIMATE CONDITION
SUBBASIN FLOW RATE SUMMARY

Subbasin ID	Area (Acres)	Q_{100} (cfs)	Q_{10} (cfs)
DC1	9.4	37	17
K	25.8	104	52
L	16.2	67	34
ST1	1.6	7	4
ST2	3.6	15	8
ST3	2.7	12	6

100-YEAR FLOW CHARACTERISTICS
ULTIMATE CONDITIONS

Cross Section	Slope (%)	Q_{100} (cfs)	Depth (ft) / HW Elevation	Velocity (ft/s)	D*V	NOTE
1	1.0	3.5	0.37	2.3	0.9	Half-Street
2	2.7	7.5	0.40	4.0	1.6	Half-Street
3	1.7	6.0	0.40	3.2	1.3	Half-Street

DATE:

REV	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP

PROJECT NO.
62025-209

DESIGN:
DRAWN:
CHECK:
PLOT DATE: 03/23/2020
PLOT TIME: 10:50:48 AM

GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
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gcwengineering.com

F:\Projects\600\62025-209\Division\Fed\Figures\GIS\FIG9.mxd
medalat

THE HOWARD HUGHES COMPANY, LLC

GRAND PARK BLVD IMPROVEMENTS

ULTIMATE CONDITION DRAINAGE MAP

DRAWING
FIG9
1 OF 1 SHTS

ENGINEERS \ SURVEYORS

Drop Inlet Sizing Calculation

Project Name: Grand Park Blvd
By: Masih Edalat
Date: 10/29/2019

Drop Inlet Sizing on a Continuous Grade

7.5' Type CM2
DI#9.2

Known:

Q_s=	Street Flow	7.5	cfs
S_o=	Longitudinal Slope	0.027	ft/ft
n=	Manning's Roughness Coefficient	0.016	
V_s=	Flow Velocity	4.00	fps
D=	Flow Depth	0.4	ft
S_x=	Street Transverse Slope	0.02	ft/ft
W=	Grate Width	1.5	ft
a=	Gutter Depression	5.0	in
L_g=	Length of Grate	5.0	ft
L_c=	Length of Curb Opening	7.5	ft
C_{fg}=	Clogging Factor for Grate	50	%
C_{fc}=	Clogging Factor for Curb Opening	50	%

Grate Capacity Calculations:

R_f=	Frontal flow factor = 1-0.09*(V_s-V_o) if V_s>V_o; else R_f=1	1.00	
	V_o= Splash over velocity=p+q*(L_g*(1-(C_{fg}/100)))-r*(L_g*(1-(C_{fg}/100)))^2+s*(L_g*(1-(C_{fg}/100)))^3†	7.22	fps
E_o=	Grate flow ratio = Q_w/Q_s	0.29	
	Q_w= Frontal flow=A_w*V_s	2.15	cfs
	Q_x= Side flow = Q_s-Q_w	5.35	cfs
R_s=	Side flow factor = 1/(1+(0.15*$V_s^{1.8}$)/(S_x*(L_g*(1-C_{fg}/100))$^{2.3}$))	0.08	
Q_{ig}=	Flow intercepted = [R_f*E_o+R_s*(1-E_o)]*Q_s	2.6	cfs
	†p=1.76;q=3.12;r=0.45;s=0.03 (based on Bar P 1-1/8 grate)		

Curb Opening Capacity Calculations

S_e=	Equivalent cross slope = Sx+Sw*Eo	0.102	ft/ft
S_w=	Gutter cross slope = (0.137+afeet)/W	0.285	ft/ft
L_t=	Total interception L = 0.60*$Q_s^{0.42}$*$So^{0.30}$*(1/n*S_e)$^{0.6}$	22.28	ft
Q_{ic}=	Flow intercepted = (1-(1-(L_c*(1-C_{fc}/100))/L_t)$^{1.8}$)*Q_s	2.1	cfs

Total Inlet Calculations

Q_{ti}=	**Total flow intercepted = Q_{ig}+Q_{ic}**	**4.7**	**cfs**
Q_{tq}=	**Flow bypass = Q_s-Q_{ti}**	**2.8**	**cfs**

ENGINEERS \ SURVEYORS

Drop Inlet Sizing Calculation

Project Name: Grand Park Blvd
By: Masih Edalat
Date: 10/29/2019

Drop Inlet Sizing on a Continuous Grade

15' Type CM2
DI#10.1

Known:

Q_s=	Street Flow	7.5	cfs
S_o=	Longitudinal Slope	0.027	ft/ft
n=	Manning's Roughness Coefficient	0.016	
V_s=	Flow Velocity	4.00	fps
D=	Flow Depth	0.4	ft
S_x=	Street Transverse Slope	0.02	ft/ft
W=	Grate Width	1.5	ft
a=	Gutter Depression	5.0	in
L_g=	Length of Grate	12.5	ft
L_c=	Length of Curb Opening	15.0	ft
C_{fg}=	Clogging Factor for Grate	50	%
C_{fc}=	Clogging Factor for Curb Opening	50	%

Grate Capacity Calculations:

R_f=	Frontal flow factor = $1-0.09*(V_s-V_o)$ if $V_s>V_o$; else $R_f=1$	1.00	
	V_o= Splash over velocity=$p+q*(L_g*(1-(C_{fg}/100)))-r*(L_g*(1-(C_{fg}/100)))^2+s*(L_g*(1-(C_{fg}/100)))^3$†	11.01	fps
E_o=	Grate flow ratio = Q_w/Q_s	0.29	
	Q_w= Frontal flow=A_w*V_s	2.15	cfs
	Q_x= Side flow = Q_s-Q_w	5.35	cfs
R_s=	Side flow factor = $1/(1+(0.15*V_s^{1.8})/(S_x*(L_g*(1-C_{fg}/100))^{2.3}))$	0.43	
Q_{ig}=	Flow intercepted = $[R_f*E_o+R_s*(1-E_o)]*Q_s$	4.4	cfs
	†p=1.76;q=3.12;r=0.45;s=0.03 (based on Bar P 1-1/8 grate)		

Curb Opening Capacity Calculations

S_e=	Equivalent cross slope = Sx+Sw*Eo	0.102	ft/ft
S_w=	Gutter cross slope = (0.137+afeet)/W	0.285	ft/ft
L_t=	Total interception L = $0.60*Q_s^{0.42}*So^{0.30}*(1/n*S_e)^{0.6}$	22.28	ft
Q_{ic}=	Flow intercepted = $(1-(1-(L_c*(1-C_{fc}/100))/L_t)^{1.8})*Q_s$	3.9	cfs

Total Inlet Calculations

Q_{ti}=	**Total flow intercepted = $Q_{ig}+Q_{ic}$**	**7.5**	**cfs**
Q_{tq}=	**Flow bypass = Q_s-Q_{ti}**	**0.0**	**cfs**

ENGINEERS \ SURVEYORS

Drop Inlet Sizing Calculation

Project Name: Grand Park Blvd
By: Masih Edalat
Date: 10/29/2019

Drop Inlet Sizing on a Continuous Grade

7.5' Type CM2
DI#10.2

Known:

Q_s=	Street Flow	3.0	cfs
S_o=	Longitudinal Slope	0.027	ft/ft
n=	Manning's Roughness Coefficient	0.016	
V_s=	Flow Velocity	4.00	fps
D=	Flow Depth	0.4	ft
S_x=	Street Transverse Slope	0.02	ft/ft
W=	Grate Width	1.5	ft
a=	Gutter Depression	5.0	in
L_g=	Length of Grate	5.0	ft
L_c=	Length of Curb Opening	7.5	ft
C_{fg}=	Clogging Factor for Grate	50	%
C_{fc}=	Clogging Factor for Curb Opening	50	%

Grate Capacity Calculations:

R_f=	Frontal flow factor = 1-0.09*(V_s-V_o) if V_s>V_o; else R_f=1	1.00	
	V_o= Splash over velocity=p+q*(L_g*(1-(C_{fg}/100)))-r*(L_g*(1-(C_{fg}/100)))^2+s*(L_g*(1-(C_{fg}/100)))^3†	7.22	fps
E_o=	Grate flow ratio = Q_w/Q_s	0.72	
	Q_w= Frontal flow=A_w*V_s	2.15	cfs
	Q_x= Side flow = Q_s-Q_w	0.85	cfs
R_s=	Side flow factor = 1/(1+(0.15*$V_s^{1.8}$)/(S_x*(L_g*(1-C_{fg}/100))$^{2.3}$))	0.08	
Q_{ig}=	Flow intercepted = [R_f*E_o+R_s*(1-E_o)]*Q_s	2.2	cfs
	†p=1.76;q=3.12;r=0.45;s=0.03 (based on Bar P 1-1/8 grate)		

Curb Opening Capacity Calculations

S_e=	Equivalent cross slope = Sx+Sw*Eo	0.225	ft/ft
S_w=	Gutter cross slope = (0.137+afeet)/W	0.285	ft/ft
L_t=	Total interception L = 0.60*$Q_s^{0.42}$*$So^{0.30}$*(1/n*S_e)$^{0.6}$	9.43	ft
Q_{ic}=	Flow intercepted = (1-(1-(L_c*(1-C_{fc}/100))/L_t)$^{1.8}$)*Q_s	1.8	cfs

Total Inlet Calculations

Q_{ti}=	**Total flow intercepted = Q_{ig}+Q_{ic}**	**3.0**	**cfs**
Q_{tq}=	**Flow bypass = Q_s-Q_{ti}**	**0.0**	**cfs**

ENGINEERS \ SURVEYORS

Drop Inlet Sizing Calculation

Project Name: Grand Park Blvd
By: Masih Edalat
Date: 03/23/2020

Drop Inlet Sizing in Sump

15' Type CM2
DI#11.1 & DI#11.3

Known:

Q=	Design Flow	6.0	cfs
D_p=	Ponding Depth at Inlet	0.83	ft
W=	Grate Width	1.5	ft
L_g=	Length of Grate	2.5	ft
L_c=	Length of Curb Opening	5.0	ft
H_c=	Curb Opening Height	0.5	ft
C_{wc}=	Weir coefficient for curb opening	2.3	
C_{wg}=	Weir coefficient for grate	3.0	
C_o=	Orifice coefficient	0.67	
R_o=	Grate opening factor	0.60	
C_{fg}=	Clogging Factor for Grate	50	%
C_{fc}=	Clogging Factor for Curb Opening	50	%

Grate Capacity Calculations:

P_g=	Active grate weir length (agwl) = 2*W+Lg	5.50	ft
P_{agl}	Adjusted agwl = 2*(1-Cfg/100)*W+Lg	4.00	ft
A_g=	Grate area = W*L_g	3.75	ft^2
A_{aga}=	Adjusted open grate area = Ag*Ro*(1-Cfg/100)	1.13	ft^2
	check - If Dp<1.792*Aaga/Pagl; weir; else orifice	orifice	
Q_{ig}=	Flow intercepted by grate If "weir" controls Qig=Cwg*Pagl*$Dp^{1.5}$ If "orifice" controls Qig=Co*Aaga*$(64.4*Dp)^{0.5}$	5.5	cfs

Curb Opening Capacity Calculations

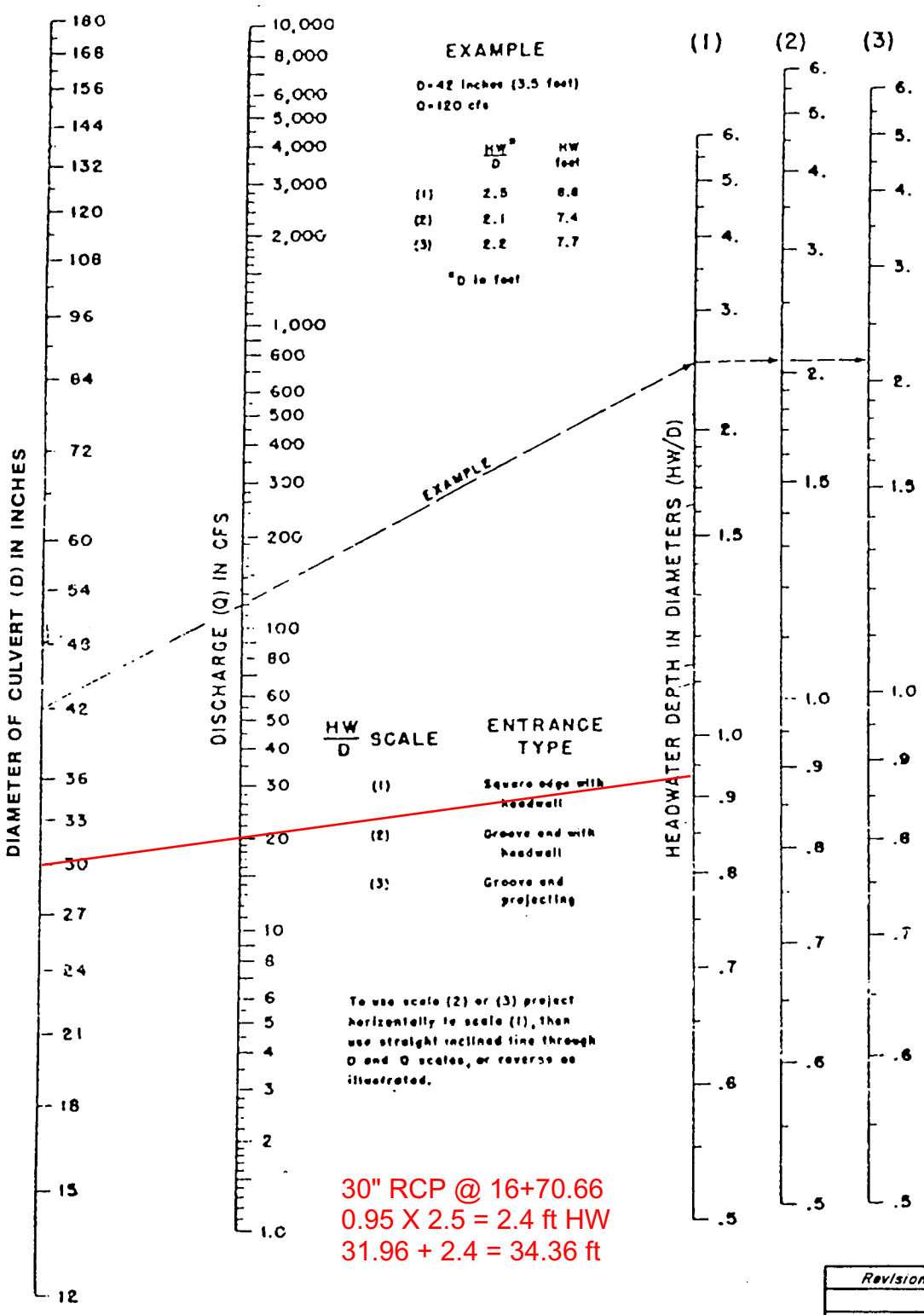
Pc =	Active curb opening weir length (acowl) = Lc+1.8*W	7.70	ft
Pacl :	Adjusted acowl = Lc+1.8*(1-Cfc/100)*W	6.35	ft
Ac=	curb opening area (coa) = Lc*Hc	2.50	ft^2
A_{aca}=	Adjusted coa = Ac*(1-Cfc/100)	1.25	ft^2
	check - If Dp<Hc; weir; else orifice	orifice	
Qic=	Flow intercepted by curb opening If "weir" controls Qic=Cwc*Pacl*Dp1.5 If "orifice" controls Qic=Co*Aaca*(64.4*Dp-Hc/2)0.5	6.1	cfs

Total Inlet Calculations

Qti =	Flow Interception Capacity = Qig+Qic	11.6	cfs
q =	Interception per unit ratio = Q_{ti}/L_g	2.32	cfs/ft

Actual Flow Collected by Drop Inlet 6 cfs

NOMOGRAPH – INLET CONTROL RCP



Revision	Date

WRC ENGINEERING

REFERENCE: USDOT, FHWA, HDS, No. 5, 1985

FIGURE 1005

```
T1 Grand Park Blvd Improvements (62025-209)                                                    0
T2 Sandstone Rise to Grand Park

SO    960.4403626.990  1                          3629.990
R    1000.0003627.380  1      .013                                  .00    .000 1
JX   1000.0103627.390  2      .013                                              .000
R    1194.2203628.350  2      .013                                  .00    .000 1
R    1468.0903629.720  2      .013                                  .00  10.000 1
R    1565.2903630.210  2      .013                                  .00 -60.000 1
R    1603.3103630.400  2      .013                                  .00 -20.000 1
R    1653.0003631.960  2      .013                                  .00    .000 1
SH   1653.0003631.960  2                          3634.360
CD   1  4   1    .000   3.000     .000  .000  .000   .00
CD   2  4   1    .000   2.500     .000  .000  .000   .00
Q            20.000   .0
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FILE: SandSRTC.WSW W S P G W - EDIT LISTING - Version 14.10 Date:12-30-2019 Time: 3:46:19

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING PAGE 1

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	1	4	1		3.000														
CD	2	4	1		2.500														

W S P G W PAGE NO 1

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -
Grand Park Blvd Improvements (62025-209)
HEADING LINE NO 2 IS -
Sandstone Rise to Grand Park
HEADING LINE NO 3 IS -

W S P G W PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	960.440	3626.990	1	3629.990

ELEMENT NO 2 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1000.000	3627.380	1	.013	.000	.000	.000	1

ELEMENT NO 3 IS A JUNCTION * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1000.010	3627.390	2	0	0	.013	.000	.000	.000	.000	.000	.000

RADIUS	ANGLE
.000	.000

ELEMENT NO 4 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1194.220	3628.350	2	.013	.000	.000	.000	1

ELEMENT NO 5 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1468.090	3629.720	2	.013	.000	.000	10.000	1

ELEMENT NO 6 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1565.290	3630.210	2	.013	.000	.000	-60.000	1

ELEMENT NO 7 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1603.310	3630.400	2	.013	.000	.000	-20.000	1

ELEMENT NO 8 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	16							

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
960.440	3626.990	3.000	3629.990	20.00	2.83	.12	3630.11	.00	1.44	.00	3.000	.000	.00	1 .0
.000	.0099					.0009	.00	3.00	.00	1.13	.013	.00	.00	PIPE
960.440	3626.990	3.000	3629.990	20.00	2.83	.12	3630.11	.00	1.44	.00	3.000	.000	.00	1 .0
29.342	.0099					.0008	.02	3.00	.00	1.13	.013	.00	.00	PIPE
989.782	3627.279	2.722	3630.001	20.00	2.97	.14	3630.14	.00	1.44	1.74	3.000	.000	.00	1 .0
10.218	.0099					.0008	.01	2.72	.27	1.13	.013	.00	.00	PIPE
1000.000	3627.380	2.622	3630.001	20.00	3.05	.14	3630.15	.00	1.44	1.99	3.000	.000	.00	1 .0
JUNCT STR	1.0000					.0016	.00	2.62	.30		.013	.00	.00	PIPE
1000.010	3627.390	2.501	3629.891	20.00	4.07	.26	3630.15	.00	1.52	.00	2.500	.000	.00	1 .0
.315	.0049					.0024	.00	2.50	.00	1.53	.013	.00	.00	PIPE
1000.325	3627.391	2.500	3629.891	20.00	4.07	.26	3630.15	.00	1.52	.00	2.500	.000	.00	1 .0
74.949	.0049					.0022	.17	2.50	.00	1.53	.013	.00	.00	PIPE
1075.275	3627.762	2.268	3630.030	20.00	4.27	.28	3630.31	.00	1.52	1.45	2.500	.000	.00	1 .0
38.064	.0049					.0022	.08	2.27	.42	1.53	.013	.00	.00	PIPE
1113.339	3627.950	2.134	3630.084	20.00	4.48	.31	3630.40	.00	1.52	1.77	2.500	.000	.00	1 .0
30.533	.0049					.0023	.07	2.13	.50	1.53	.013	.00	.00	PIPE
1143.872	3628.101	2.023	3630.124	20.00	4.70	.34	3630.47	.00	1.52	1.97	2.500	.000	.00	1 .0
26.422	.0049					.0026	.07	2.02	.56	1.53	.013	.00	.00	PIPE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1170.293	3628.232	1.925	3630.157	20.00	4.93	.38	3630.53	.00	1.52	2.10	2.500	.000	.00	1 .0
23.756	.0049					.0028	.07	1.93	.63	1.53	.013	.00	.00	PIPE
1194.049	3628.349	1.838	3630.187	20.00	5.17	.42	3630.60	.00	1.52	2.21	2.500	.000	.00	1 .0
.171	.0049					.0030	.00	1.84	.69	1.53	.013	.00	.00	PIPE
1194.220	3628.350	1.837	3630.187	20.00	5.17	.42	3630.60	.00	1.52	2.21	2.500	.000	.00	1 .0
21.135	.0050					.0032	.07	1.84	.69	1.53	.013	.00	.00	PIPE
1215.355	3628.456	1.757	3630.213	20.00	5.43	.46	3630.67	.00	1.52	2.29	2.500	.000	.00	1 .0
19.708	.0050					.0036	.07	1.76	.75	1.53	.013	.00	.00	PIPE
1235.063	3628.554	1.683	3630.238	20.00	5.69	.50	3630.74	.00	1.52	2.35	2.500	.000	.00	1 .0
18.719	.0050					.0040	.07	1.68	.82	1.53	.013	.00	.00	PIPE
1253.781	3628.648	1.614	3630.262	20.00	5.97	.55	3630.82	.00	1.52	2.39	2.500	.000	.00	1 .0
19.187	.0050					.0045	.09	1.61	.89	1.53	.013	.00	.00	PIPE
1272.968	3628.744	1.549	3630.293	20.00	6.26	.61	3630.90	.00	1.52	2.43	2.500	.000	.00	1 .0
8.209	.0050					.0049	.04	1.55	.96	1.53	.013	.00	.00	PIPE

1281.177	3628.785	1.526	3630.311	20.00	6.37	.63	3630.94	.00	1.52	2.44	2.500	.000	.00	1	.0		
186.914	.0050					.0050	.93	1.53	.99	1.53	.013	.00	.00	PIPE			
1468.090	3629.720	1.526	3631.246	20.00	6.37	.63	3631.88	.00	1.52	2.44	2.500	.000	.00	1	.0		
1.681	.0050					.0050	.01	1.53	.99	1.52	.013	.00	.00	PIPE			

Program Package Serial Number: 3074

WATER SURFACE PROFILE LISTING Date:12-30-2019 Time: 3:47: 5

Grand Park Blvd Improvements (62025-209)

Sandstone Rise to Grand Park

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1469.771	3629.729	1.522	3631.250	20.00	6.39	.63	3631.89	.00	1.52	2.44	2.500	.000	.00	1	.0
4.935	.0050					.0050	.02	1.52	.99	1.52	.013	.00	.00	PIPE	
1474.706	3629.753	1.522	3631.275	20.00	6.39	.63	3631.91	.00	1.52	2.44	2.500	.000	.00	1	.0
HYDRAULIC JUMP															
1474.706	3629.753	1.482	3631.236	20.00	6.60	.68	3631.91	.00	1.52	2.46	2.500	.000	.00	1	.0
7.031	.0050					.0055	.04	1.48	1.05	1.52	.013	.00	.00	PIPE	
1481.738	3629.789	1.482	3631.271	20.00	6.60	.68	3631.95	.00	1.52	2.46	2.500	.000	.00	1	.0
13.178	.0050					.0058	.08	1.48	1.05	1.52	.013	.00	.00	PIPE	
1494.916	3629.855	1.425	3631.280	20.00	6.92	.74	3632.02	.00	1.52	2.48	2.500	.000	.00	1	.0
13.016	.0050					.0066	.09	1.43	1.13	1.52	.013	.00	.00	PIPE	
1507.932	3629.921	1.371	3631.292	20.00	7.26	.82	3632.11	.00	1.52	2.49	2.500	.000	.00	1	.0
12.529	.0050					.0075	.09	1.37	1.21	1.52	.013	.00	.00	PIPE	
1520.461	3629.984	1.320	3631.303	20.00	7.61	.90	3632.20	.00	1.52	2.50	2.500	.000	.00	1	.0
11.953	.0050					.0085	.10	1.32	1.31	1.52	.013	.00	.00	PIPE	
1532.414	3630.044	1.271	3631.315	20.00	7.98	.99	3632.30	.00	1.52	2.50	2.500	.000	.00	1	.0
11.454	.0050					.0096	.11	1.27	1.40	1.52	.013	.00	.00	PIPE	
1543.868	3630.102	1.224	3631.326	20.00	8.37	1.09	3632.41	.00	1.52	2.50	2.500	.000	.00	1	.0
10.947	.0050					.0109	.12	1.22	1.51	1.52	.013	.00	.00	PIPE	

Program Package Serial Number: 3074

WATER SURFACE PROFILE LISTING Date:12-30-2019 Time: 3:47: 5

Grand Park Blvd Improvements (62025-209)

Sandstone Rise to Grand Park

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1554.815	3630.157	1.179	3631.337	20.00	8.78	1.20	3632.53	.00	1.52	2.50	2.500	.000	.00	1	.0
10.475	.0050					.0124	.13	1.18	1.62	1.52	.013	.00	.00	PIPE	
1565.290	3630.210	1.137	3631.347	20.00	9.21	1.32	3632.66	.00	1.52	2.49	2.500	.000	.00	1	.0
.579	.0050					.0133	.01	1.14	1.74	1.53	.013	.00	.00	PIPE	
1565.869	3630.213	1.134	3631.347	20.00	9.24	1.32	3632.67	.00	1.52	2.49	2.500	.000	.00	1	.0
9.959	.0050					.0142	.14	1.13	1.75	1.53	.013	.00	.00	PIPE	
1575.828	3630.263	1.094	3631.356	20.00	9.69	1.46	3632.81	.00	1.52	2.48	2.500	.000	.00	1	.0
9.537	.0050					.0162	.15	1.09	1.87	1.53	.013	.00	.00	PIPE	
1585.365	3630.310	1.055	3631.365	20.00	10.16	1.60	3632.97	.00	1.52	2.47	2.500	.000	.00	1	.0
9.155	.0050					.0184	.17	1.05	2.01	1.53	.013	.00	.00	PIPE	
1594.520	3630.356	1.018	3631.374	20.00	10.66	1.76	3633.14	.00	1.52	2.46	2.500	.000	.00	1	.0

8.790	.0050					.0210	.18	1.02	2.15	1.53	.013	.00	.00	PIPE				
1603.310	3630.400	.982	3631.382	20.00	11.18	1.94	3633.32	.00	1.52	2.44	2.500	.000	.00	1	.0			
9.233	.0314					.0215	.20	.98	2.30	.90	.013	.00	.00	PIPE				
1612.543	3630.690	1.005	3631.694	20.00	10.84	1.83	3633.52	.00	1.52	2.45	2.500	.000	.00	1	.0			
10.725	.0314					.0193	.21	1.00	2.20	.90	.013	.00	.00	PIPE				
1623.268	3631.026	1.041	3632.067	20.00	10.34	1.66	3633.73	.00	1.52	2.46	2.500	.000	.00	1	.0			
7.814	.0314					.0170	.13	1.04	2.06	.90	.013	.00	.00	PIPE				

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1631.083	3631.272	1.079	3632.351	20.00	9.86	1.51	3633.86	.00	1.52	2.48	2.500	.000	.00	1 .0
5.901	.0314					.0149	.09	1.08	1.92	.90	.013	.00	.00	PIPE
1636.983	3631.457	1.119	3632.576	20.00	9.40	1.37	3633.95	.00	1.52	2.49	2.500	.000	.00	1 .0
4.538	.0314					.0131	.06	1.12	1.79	.90	.013	.00	.00	PIPE
1641.521	3631.600	1.161	3632.760	20.00	8.96	1.25	3634.01	.00	1.52	2.49	2.500	.000	.00	1 .0
3.506	.0314					.0115	.04	1.16	1.67	.90	.013	.00	.00	PIPE
1645.026	3631.710	1.205	3632.914	20.00	8.54	1.13	3634.05	.00	1.52	2.50	2.500	.000	.00	1 .0
2.698	.0314					.0101	.03	1.20	1.56	.90	.013	.00	.00	PIPE
1647.725	3631.794	1.250	3633.045	20.00	8.15	1.03	3634.08	.00	1.52	2.50	2.500	.000	.00	1 .0
2.038	.0314					.0089	.02	1.25	1.45	.90	.013	.00	.00	PIPE
1649.763	3631.858	1.298	3633.156	20.00	7.77	.94	3634.09	.00	1.52	2.50	2.500	.000	.00	1 .0
1.478	.0314					.0079	.01	1.30	1.35	.90	.013	.00	.00	PIPE
1651.240	3631.905	1.349	3633.253	20.00	7.41	.85	3634.10	.00	1.52	2.49	2.500	.000	.00	1 .0
.999	.0314					.0069	.01	1.35	1.25	.90	.013	.00	.00	PIPE
1652.239	3631.936	1.402	3633.338	20.00	7.06	.77	3634.11	.00	1.52	2.48	2.500	.000	.00	1 .0
.573	.0314					.0061	.00	1.40	1.16	.90	.013	.00	.00	PIPE
1652.812	3631.954	1.458	3633.412	20.00	6.73	.70	3634.12	.00	1.52	2.47	2.500	.000	.00	1 .0
.188	.0314					.0054	.00	1.46	1.08	.90	.013	.00	.00	PIPE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1653.000	3631.960	1.518	3633.478	20.00	6.41	.64	3634.12	.00	1.52	2.44	2.500	.000	.00	1 .0

REFERENCES

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: July 1, 2020
TO: **Land Development Services** Department of Building & Safety				FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for:			**COPIES TO:**
Summerlin West Grand Park Detention Basin - Inlet Pipe				VTN Nevada
Cross Streets:	I-215 and Summerlin Parkway			The Howard Hughes Corporation
File Number:	F:\Depot\DSMemos\DS5226D.doc			Bart Anderson, P.E., DevCo
Parcel Number:	137-22-301-001			CCRFCD
Zoning Action:	N/A			
FEMA Flood Zone	YES	NO **X**		
Proposed Storm Drain	YES **X**	NO		

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	11/27/2019	12/20/2019 & 12/30/2019	Not Approved	$400.00	3658677: $400
2nd Submittal	2/18/2020	3/26/2020	Not Approved	$400.00	3747241: $400
3rd Submittal	4/20/2020	5/11/2020	Conditional Approval	$400.00	3820204: $400
CCRFCD	6/23/2020	7/1/2020	Concurrence Recv'd	N/C	N/C
			TOTAL FEES (LDDRS):	**$1,200.00**	**----**

REMARKS:

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

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

1. The project proposed to construct temporary drainage facilities including drainage berms/ditches along the west side of various perimeter streets. Prior to the final plans approval, the developer must complete a ***Maintenance & Liability Agreement*** for the interim drainage improvements and post a minimum maintenance bond of $50,000 or 50-percent of the construction cost for the improvements, whichever is greater. The engineer must submit an estimate of the quantities for constructing the facilities and an exhibit that adequately shows the location and limits of the drainage facilities to *City Flood Control* for approval. Once the drainage study is conditionally approved, the engineer/developer should contact the *City's Land Development Section* (702-229-6371) to begin the agreement process.

   In order for the maintenance bond to be released in the future, a drainage update/letter will be required to justify that the berm/swale are no longer necessary and can be removed.

2. Previous comment for Sheet PP4 to Sheet PP6 to extend the 30"-RCP stub from *Sunset Run Drive* to Station 25+00 in *Calico Bend Drive* for future inlets connection will be required upon future *Calico Bend Drive Street Improvement Project*.

3. Previous comment for Sheet PP7 to Sheet PP10 to provide extension of storm drain and inlets in *Park Drift Trail* from Station 236+00 to the intersection with *Lake Mead Boulevard* will be required upon future *Park Drift Trail Street Improvement Project*.
4. Previous comment for Sheet PP11 to Sheet PP13 to provide extension of storm drain and inlets in *Park Drift Trail* between *Lake Mead Boulevard* and *Sunset Run Drive* will be required upon future *Park Drift Trail Street Improvement Project*.
5. Previous comment for Sheet PP17 to Sheet PP19 to extend the 54"-RCP stub in *Sunset Run Drive* to provide future drop inlets will be required upon future *Sunset Run Drive Street Improvement Project*.
6. All offsite interim flood control facilities such as but not limited to berms/ditches, temporary sump and temporary sediment basins are privately owned and to be privately maintained by the *Howard Hughes Company*. Provide a note as such on the grading plans.

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

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

END OF REMARKS
HDR/AYS

T/R/S: T20S/R59E/22
AREA K-22

TECHNICAL DRAINAGE STUDY
FOR
VILLAGE 25
REDPOINT DRIVE, PARK BLUFF LANE,
FOXTAIL PASS WAY IMPROVEMENTS

62025-211

October 2019

Prepared for:

The Howard Hughes Company, LLC
10845 Griffith Peak Drive, Suite 160
Las Vegas, NV 89135
Phone: (702) 791-4300

GCW 50 YEARS
ENGINEERS \ SURVEYORS 1969-2019

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM			DATE: September 29, 2020
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: **Summerlin West Village 25 Redpoint Drive, Park Bluff Lane, Foxtail Pass Way Improvements - Update**			**COPIES TO:** GCW, Inc.
Cross Streets:	Redpoint Drive and Sky Vista Drive		Howard Hughes Company, LLC
File Number:	F:\Depot\DSMemos\DS5200D.doc		Bart Anderson, P.E., DevCo
Parcel Number:	137-22-101-001		CCRFCD
Zoning Action:	N/A		
FEMA Flood Zone	YES	NO **X**	
Proposed Storm Drain	YES **X**	NO	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	10/7/2019	11/4/2019	Not Approved	$400.00	3600805: $400
2nd Submittal	11/19/2019	12/10/2019	Conditional Approval	$400.00	3650838: $400
CCRFCD	1/9/2020	1/21/2020	Concurrence Recv'd	N/C	N/C
3rd Submittal	9/15/2020	9/29/2020	See Comments Below	$100.00	3989918: $100
			TOTAL FEES (LDDRS):	**$900.00**	**----**

REMARKS:

3rd Submittal: Update to address minor alignment revision per Traffic comments

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

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

The following comment is repeated until it is complete:

1. The project proposed to construct temporary drainage facilities including drainage berms/ditches primarily along the west side of the future roadway of *Grand Park Boulevard* and the proposed *Park Bluff Lane* and along both sides of the proposed *Redpoint Drive* and *Foxtail Pass Way*. Prior to the final plans approval, the developer must complete a ***Maintenance & Liability Agreement*** for the interim drainage improvements and post a minimum maintenance bond of $50,000 or 50-percent of the construction cost for the improvements, whichever is greater. The engineer must submit an estimate of the quantities for constructing the facilities and an exhibit that adequately shows the location and limits of the drainage facilities to *City Flood Control* for approval. Once the drainage study is conditionally approved, the engineer/developer should contact the *City's Land Development Section* (702-229-6371) to begin the agreement process.

   In order for the maintenance bond to be released in the future, a drainage update/letter will be required to justify that the berm/swale are no longer necessary and can be removed.

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

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

END OF REMARKS
HDR/AYS

T/R/S: T20S/R59E/22
AREA K-22

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: May 12, 2020
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: **Summerlin West Village 25 - Sandstone Rise Dr. (Street M)** **(from Park Drift Trail <Street K> to Sky Vista Drive)**				**COPIES TO:** Atkins
Cross Streets:	NWQ of Sky Vista Drive & Far Hills Avenue			Howard Hughes Company LLC
File Number:	F:\Depot\DSMemos\DS5221C.doc			Bart Anderson, P.E., DevCo
Parcel Number:	137-21-801-001, 137-22-301-001			CCRFCD
Zoning Action:	N/A			
FEMA Flood Zone	YES	NO **X**		
Proposed Storm Drain	YES **X**	NO		

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	11/20/2019	12/26/2019	Not Approved	$400.00	3652617: $400
2nd Submittal	1/22/2020	2/20/2020	Conditional Approval	$400.00	3713777: $400
CCRFCD	5/12/2020	5/26/2020	Concurrence Recv'd	N/C	N/C
			TOTAL FEES (LDDRS):	**$800.00**	**----**

REMARKS:

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

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

1. The project proposes to build temporary drainage facilities including drainage berms/swales for the flood protection of the proposed ***Sandstone Rise Drive***. Prior to final plan approval the developer must complete a ***Maintenance & Liability Agreement*** for the interim drainage improvements and post a minimum maintenance bond of $50,000 or 50-percent of the construction cost for the improvements, whichever is greater. The engineer must submit an estimate of the quantities for constructing the facilities and an exhibit that adequately shows the location and limits of the drainage facilities to *City of Las Vegas Flood Control* for approval. Once the drainage study is conditionally approved, the engineer should contact the *City's Land Development Section* (229-6371) to begin the agreement process.

   In order for the maintenance bond to be released in the future, a drainage update / letter will be required to justify that the offsite berms / channels are no longer necessary and can be removed.

2. ***Repeat Request***: *Figure 3 Hydrology Workmap* also did not state what drainage condition it is trying to present. Is it an *Interim Condition* or *Ultimate Condition*? Label clearly in the next submittal.

   The revised workmap still did not state whether it is *Interim* or *Ultimate* condition. Provide a corrected workmap as a supplement to *City Flood Control*.

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

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

END OF REMARKS
HDR/AYS

T/R/S: T20S/R59E/21
AREA K-21

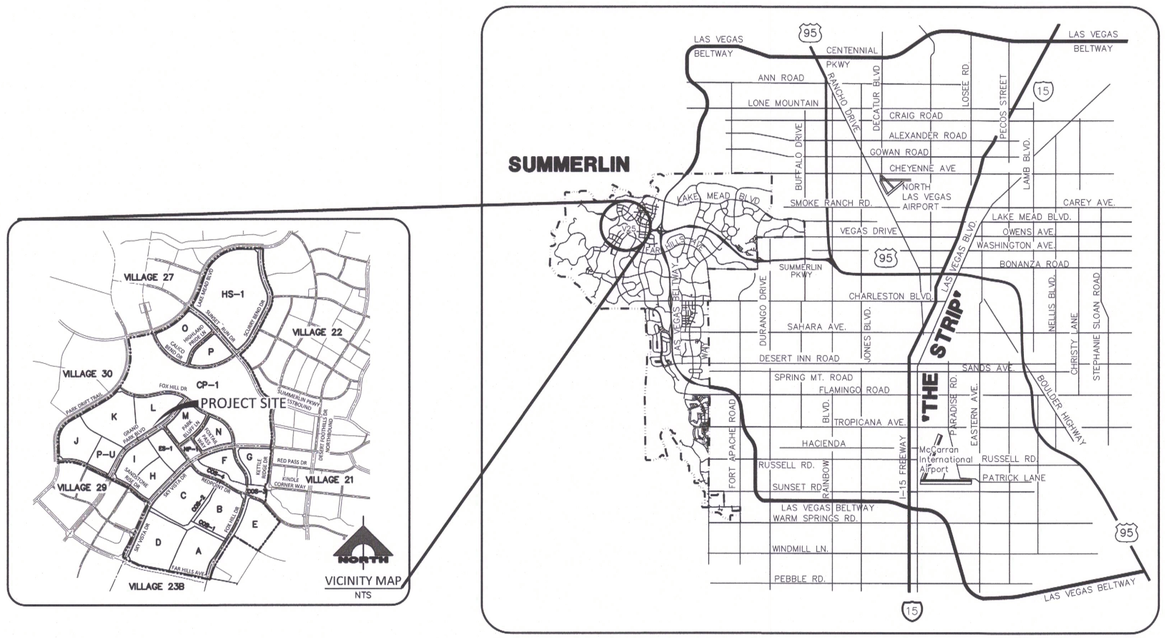
SUMMERLIN

SM

VILLAGE 25
GRAND PARK BLVD IMPROVEMENTS

(SANDSTONE RISE DRIVE TO FOX HILL DRIVE)
FUTURE SID PROJECT
A.P.N. 137-22-301-004
2020

SHEET INDEX		
NO.	DWG	DESCRIPTION
1	G1	COVER SHEET
2	G2	LEGEND AND ABBREVIATIONS
3	G3	GENERAL NOTES
4	HC1	HORIZONTAL CONTROL PLAN 1
5	HC2	HORIZONTAL CONTROL PLAN 2
6	MU1	MASTER UTILITY PLAN – WATER
7	MU2	MASTER UTILITY PLAN – STORM
8	MU3	MASTER UTILITY PLAN – SEWER
9	MG	MASTER GRADING PLAN
10	GD1	GRADING PLAN 1
11	GD2	GRADING PLAN 2
12	PP1	PLAN AND PROFILE 1
13	PP2	PLAN AND PROFILE 2
14	PP3	PLAN AND PROFILE 3
15	PP4	PLAN AND PROFILE 4
16	PP5	PLAN AND PROFILE 5
17	PP6	PLAN AND PROFILE 6
18	PP7	PLAN AND PROFILE 7
19	LP1	LATERAL PROFILES 1
20	LP2	LATERAL PROFILES 2
21	LP3	LATERAL PROFILES 3
22	LP4	LATERAL PROFILES 4
23	DT1	TYPICAL DETAILS & SECTIONS 1
24	DT2	TYPICAL DETAILS & SECTIONS 2
25	DT3	TYPICAL DETAILS & SECTIONS 3
26	DT4	UTILITY DETAILS 1
27	DT5	UTILITY DETAILS 2
28	TR1	SIGNAGE AND STRIPING 1
29	TR2	SIGNAGE AND STRIPING 2
30	SL1	STREETLIGHT AND ELECTRICAL PLAN 1
31	SL2	STREETLIGHT AND ELECTRICAL PLAN 2
32	SL3	STREETLIGHT AND ELECTRICAL PLAN 3
33	S1	MODIFIED TYPE CM2 DROP INLET



VICINITY MAP
NTS

OWNER/DEVELOPER

THE HOWARD HUGHES COMPANY, LLC
10845 GRIFFITH PEAK DRIVE, SUITE 160
LAS VEGAS, NEVADA 89135
OFFICE PHONE NO. (702) 791-4300

ENGINEER

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

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

CAUTION TO CONTRACTOR

THE CONTRACTOR SHALL BE RESPONSIBLE TO INVESTIGATE AND VERIFY THE ACTUAL LOCATION AND DEPTH OF ALL EXISTING UNDERGROUND FACILITIES AT LEAST 48 HOURS IN ADVANCE OF THE PERFORMANCE OF ANY WORK.

THE HOWARD HUGHES COMPANY, LLC

KEVIN ORROCK — DATE
VICE PRESIDENT

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.

MICHAEL FANG, P.E. 24464 — DATE

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. XXXXXX — FIRST APPROVAL DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ON-SITE N/A GPM
SHEETS: G1–G3, MU1–MU3, PP1–PP7, LP1–LP4, DT4–DT5

FIRE DEPARTMENT APPROVAL

CITY OF LAS VEGAS FIRE DEPARTMENT — DATE

UTILITY APPROVALS

COX COMMUNICATIONS LAS VEGAS, INC. — DATE

CENTRAL TELEPHONE CO., DBA CENTURYLINK — DATE

THE AFFIXED CENTURYLINK APPROVAL DOES NOT ASSUME OR GUARANTEE LIABILITY FOR KNOWN OR UNKNOWN CONFLICTS WITH EXISTING OR PROPOSED IMPROVEMENTS. RESOLUTION OF ANY CONFLICT WILL BE ACCOMPLISHED PURSUANT TO LOCAL ORDINANCES, NEVADA REVISED 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 CORPORATION — DATE

L#: LXX–XXXXX–XXXX | CLV#: 107XXXXX

ENGINEER - STATE OF NEVADA
MICHAEL FANG
Exp. 06/30/2021
CIVIL
No. 24464
PROFESSIONAL
DATE: 10/09/2020

DESCRIPTION	REV	DATE	AGEN APP	DATE	GCW APP	DATE

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

PROJECT NO. 62025-209
DESIGN: PB
DRAWN: PB
CHECK: LG
PLOT DATE: 10-09-20
PLOT TIME: 15:54:14

GCW ENGINEERS\SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com
ALEXANDER SANTIAGO
F:\PROJECTS\6500\62025-209\CIVIL\PRODUCTION\62025-209COV_G1.DWG

THE HOWARD HUGHES COMPANY, LLC

VILLAGE 25 GRAND PARK BLVD IMPROVEMENTS
(SANDSTONE RISE DRIVE TO FOX HILL DRIVE)

COVER SHEET

DRAWING
G1
1 OF 33 SHTS

LAS VEGAS VALLEY WATER DISTRICT
LVVWD PROJECT # 136980

(REVISED 08/01/2017)

1. NO WORK SHALL BEGIN UNTIL THE WATER PLANS HAVE BEEN APPROVED FOR CONSTRUCTION BY THE LVVWD. FOLLOWING WATER PLAN APPROVAL, NOTICE SHALL BE GIVEN TO THE LVVWD COMMUNICATION SUPPORT CENTER (258-7171) TWO (2) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION. FOR FUTURE INSPECTIONS, NOTICE MUST BE GIVEN BY 2:00 PM THE BUSINESS DAY PRIOR TO THE REQUESTED LVVWD INSPECTION. WHEN REQUESTING INSPECTIONS, PLEASE REFER TO THE PROJECT # IDENTIFIED ABOVE.
2. ALL WORK SHALL CONFORM TO LVVWD STANDARD PLATES, DRAWINGS, AND SPECIFICATIONS, AND TO THE 2010 EDITION OF THE UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR POTABLE WATER SYSTEMS (UDACS). THE LATEST EDITION OF UDACS SHALL SUPERSEDE ANY CONFLICTS CONTAINED IN THE APPROVED DRAWINGS AND/OR SPECIFICATIONS.
3. ALL WORK, EXCEPT AS MODIFIED BY THESE PLANS OR BY NOTE 2 ABOVE, SHALL BE DONE IN ACCORDANCE WITH THE MOST RECENT DRAFT OR EDITION OF THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFFSITE IMPROVEMENT, CLARK COUNTY AREA.
4. A SINGLE PIPE MATERIAL SHALL BE USED THROUGHOUT THE PROJECT UNLESS OTHERWISE APPROVED BY THE LVVWD.
5. ALL SERVICE LATERALS TWO (2) INCHES IN DIAMETER AND SMALLER SHALL BE TYPE K COPPER TUBING WITH LVVWD APPROVED SERVICE SADDLES.
6. ALL WATER METER BOXES SHALL BE LOCATED OUTSIDE OF DRIVEWAY AREAS.
7. ALL VALVES SHALL BE LOCATED OUTSIDE OF DRIVEWAYS, VALLEY AND CURB GUTTERS.
8. ALL WATER AND STORM DRAIN OR SANITARY SEWER CROSSINGS SHALL CONFORM TO SECTION 2.22 OF THE 2010 EDITION OF THE UDACS
9. ALL WATER FACILITIES AND APPURTENANCES SHALL BE DISINFECTED, PRESSURE TESTED, AND HAVE AN ACCEPTABLE PASSING HEALTH WATER SAMPLE OBTAINED, PRIOR TO OPERATION AND USE.
10. THE CONTRACTOR MUST OBTAIN ALL METERS TWO (2) INCHES AND SMALLER FROM LVVWD CENTRAL STORES. TELEPHONE 258-3152 OR 258-3802. TWO (2) WORKING DAYS PRIOR TO METER PICKUP.
11. ANY INTERRUPTION OF SERVICE MUST BE PERFORMED IN ACCORDANCE WITH UDACS SECTION 3.14.01, AND APPROVED BY THE LVVWD INSPECTION DIVISION PRIOR TO SHUTDOWN. PROPER WRITTEN NOTIFICATION MUST BE GIVEN TO ALL AFFECTED CUSTOMERS.
12. ALL WATER FACILITY CONSTRUCTION MATERIALS USED MUST BE LISTED ON THE LVVWD APPROVED PRODUCT'S LIST FOR NEW FACILITIES, LATEST REVISION, OR SPECIFICALLY APPROVED ON THESE PLANS BY SUBMITTING SHOP DRAWINGS.
13. TELEPHONE "CALL BEFORE YOU DIG" AT 811 OR 1-800-227-2600
14. THE INSTALLATION OF LVVWD MUNICIPAL WATER FACILITIES WITHIN ALL STREETS IS ASSUMED TO BE IN COMPLIANCE WITH THE UNIFORM STANDARDS, INCLUDING THE PLACEMENT OF ASPHALT PAVING STREET SURFACES. ANY REPAIR WORK DONE BY THE LVVWD TO THE MUNICIPAL WATER FACILITIES WILL INCLUDE THE PLACEMENT OF AN APPROPRIATELY SIZED ASPHALT REPAIR ON THE STREET SURFACE.

    ANY DECORATIVE PAVING SURFACE WITHIN THE STREET IS THE RESPONSIBILITY OF THE OWNER'S ASSOCIATION, OR THE INDIVIDUAL PROPERTY OWNERS IF NO OWNER'S ASSOCIATION IS IN EXISTENCE, OR THE AGENCY HAVING JURISDICTION. DECORATIVE SURFACE MATERIALS PLACED WITHIN THE TEN FOOT EASEMENT ABUTTING A PUBLIC OR PRIVATE STREET, IF DISTURBED BY THE LVVWD DURING THE REPAIR OR OPERATION OF ITS FACILITIES, WILL BE REPLACED BY LVVWD WITH AN APPROPRIATELY SIZED PLAIN FINISH CONCRETE PATCH. THE LVVWD WILL NOT RESTORE, AND WILL NOT BE RESPONSIBLE FOR THE RESTORATION OF, ANY DECORATIVE PAVING SURFACE WITHIN THE STREET. THE LVVWD WILL NOT ATTEMPT TO MATCH COLOR OR FINISH OF ANY ADJACENT MATERIALS.
15. NO LEAD COMPLIANCE NOTE:
    TO COMPLY WITH THE FEDERAL SAFE DRINKING WATER ACT, ALL WATER WORKS BRASS PRODUCTS PROPOSED TO BE RELOCATED, OR INSTALLED AS NEW MUST BE INSTALLED WITH THE LEAD FREE APPROVED PRODUCT. THE OLD LEADED PRODUCT MAY NOT BE REUSED.

ADDITIONAL WATER NOTES

1. INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING, PER UDACS PLATE 15.
2. 24" MINIMUM DEPTH OF COVER OVER WATER LINE MUST BE MAINTAINED DURING CONSTRUCTION.
3. THE DISTRICT CANNOT GUARANTEE A WATERTIGHT SHUTDOWN WHERE CONNECTIONS OR REPAIRS TO EXISTING FACILITIES ARE REQUIRED. THE CONTRACTOR SHALL ENSURE ALL LABOR AND EQUIPMENT IS AVAILABLE TO REMOVE FUGITIVE WATER THAT MAY IMPEDE CONSTRUCTION AT ALL TIMES. COORDINATION WITH INSPECTION DIVISION MUST TAKE PLACE PRIOR TO ANY TRIAL SHUTDOWN. CONTRACTOR TO INSTALL TEMPORARY SERVICE TO ENSURE PROPER SHUTDOWN IN THE EVENT NO OTHER APPURTENANCES ARE AVAILABLE.
4. THIS PROJECT PROVIDES FOR THE INSTALLATION OF OFF-SITE WATER MAINS ONLY, AND DOES NOT PROVIDE OR IMPLY ANY WATER COMMITMENT.

FOR TRENCHES 4-FEET WIDE AND GREATER

CONTRACTOR MUST SUBMIT SHOP DRAWINGS TO LVVWD ENGINEERING SERVICES BEFORE CONSTRUCTION TO SHOW HOW WATERLINES SPANNING A TRENCH WILL BE SUPPORTED DURING EXCAVATION AND BACKFILL.

SUPPORTED PIPELINES MAY BE EXPOSED FOR NO LONGER THAN 90 DAYS MAXIMUM. IF THE PIPE WILL BE EXPOSED FOR MORE THAN 90 DAYS, PIPE MUST BE RELOCATED PER APPROVED PLANS.

IF THE PIPE MATERIAL IS ACP, REPLACE FROM COUPLING TO COUPLING WITH DUCTILE IRON PIPE.

CONDITIONAL APPROVAL OF VALVED OUTLET (6" AND LARGER)

THE WATER PLANS SHOW ONE OR MORE VALVED OUTLETS EXTENDING OUT OF PAVED AREAS. INSTALLATION OF THESE OUTLETS IS ACCEPTABLE. HOWEVER, IF THE OUTLETS ARE INCORRECTLY LOCATED OR NOT USED FOR ANY REASON WHEN THE PROPERTY IS ACTUALLY DEVELOPED, THE DEVELOPER SHALL ABANDON THE OUTLETS AT THE CONNECTION TO THE ACTIVE MAIN IN ACCORDANCE WITH LVVWD STANDARDS AND AT THE DEVELOPER'S EXPENSE. APPROVAL OF THE VALVED OUTLET DOES NOT PROVIDE OR IMPLY A WATER COMMITMENT.

WATER MAIN JOINT NOTES (PVC 4"-24")

PVC PIPE SHALL BE DEFLECTED AT THE JOINT ONLY. THE MAXIMUM ALLOWABLE DEFLECTION SHALL BE ONE (1) DEGREE PER JOINT WITH A MINIMUM RADIUS OF CURVATURE OF 1,150 FEET, PER UDACS 2.07.01 AND 2.07.02.

FOR CHANGES IN DIRECTION EXCEEDING THE MAXIMUM ALLOWABLE JOINT DEFLECTION, FITTINGS SHALL BE USED.

WATER MAIN JOINT NOTES (DIP 4"-12")

DIP PIPE SHALL BE DEFLECTED AT THE JOINT ONLY. THE MAXIMUM ALLOWABLE DEFLECTION SHALL BE TWO AND ONE-HALF (2.5) DEGREES PER JOINT WITH A MINIMUM RADIUS OF CURVATURE OF 415 FEET, PER UDACS 2.07.03.

FOR CHANGES IN DIRECTION EXCEEDING THE MAXIMUM ALLOWABLE JOINT DEFLECTION, FITTINGS SHALL BE USED.

ALL SEWER/STORM DRAIN CROSSING WATER LINES MUST COMPLY WITH UDACS SECTION 2.22

LEGEND

- TYPICAL PROPOSED LINEWORK
- TYPICAL EXISTING LINEWORK
- TYPICAL FUTURE LINEWORK
- SECTION LINE
- EASEMENT LINE
- RIGHT-OF-WAY LINE
- PROPERTY LINE
- CENTERLINE
- TYPICAL UTILITY LINE 4" - 12" (SINGLE LINE)
- TYPICAL UTILITY LINE > THAN 12" (DOUBLE LINE)
- TYPICAL SEWER LINE W/MH
- TYPICAL WATER LINE W/GV
- TYPICAL STORM LINE W/MH
- 100 YR HYDRAULIC GRADE LINE
- CONCRETE OR STEEL ENCASEMENT
- TYPICAL STUB & BLOW-OFF
- EX. UTILITIES PROFILE VIEW
- -PE GAS- EX. GAS LINE
- -ELE UG- EX. ELECTRICAL
- EX. CABLE TV
- EX. TELEPHONE
- EX. OVERHEAD POWER LINES
- EX. ELEC & PWR POLES
- TYPICAL CURB & GUTTER, SIDEWALK AND RAMP
- POST AND CABLE FENCE
- CHAIN LINK FENCE
- SAWCUT
- PAVEMENT RESORATION AREA
- PROPOSED ABANDONMENT
- EXISTING ABANDONMENT
- CUT LINE LIMITS
- FILL LINE LIMITS
- DETAIL BUBBLE W/ REF. (1/C)
- BENCHMARK
- GATE VALVE
- PRV PRESSURE REDUCING VALVE
- BWV BACK WATER VALVE
- DROP INLET
- FIRE HYDRANT
- WATER METER
- WATER RPPA
- WATER RPDA
- TRAFFIC SIGNAL PULL BOX
- STREET LIGHT CLARK COUNTY
- STREET LIGHT SUMMERLIN STD
- TRAFFIC SIGNAL/FLASHER
- EXISTING TELE POLE
- EXISTING POWER POLE
- EXISTING POLE
- EX. ELEC MARKER
- TRANSFORMER PAD
- SERVICE PEDESTAL
- PULLBOX
- 3005 PROPOSED CONTOUR
- (3005) EXISTING CONTOUR
- 60.50 TC PROPOSED SPOT ELEVATION
- (60.50) TC EXISTING SPOT ELEVATION
- 1.00% PROPOSED SLOPE
- TOP SLOPE / TOE SLOPE SLOPE DIRECTION
- FF = 2333.25 FINISH FLOOR ELEVATION

ABBREVIATIONS

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

STREETLIGHT QUANTITIES (PUBLIC)

STREETLIGHT, 32' SINGLE	6	LF
STREETLIGHT, 32' DOUBLE	13	LF
1-1/4" CONDUIT W/ WIRE & T&B	3,251	EA
SERVICE POINT	6	EA
TRANSFORMER	2	EA
#3-1/2 PULLBOX	10	EA
#5 PULLBOX	8	EA

QUANTITIES ARE ESTIMATES ONLY. CONTRACTOR IS TO VERIFY DURING BIDDING PROCESS.

SEWER QUANTITIES (PUBLIC)

8" C-900	955	LF
48" MANHOLE	3	EA
PIPE END CAP	2	EA

QUANTITIES ARE ESTIMATES ONLY. CONTRACTOR IS TO VERIFY DURING BIDDING PROCESS.

STORM DRAIN QUANTITIES (PUBLIC)

24" RCP	340	LF
24" C-900 PVC	51	LF
30" RCP	653	LF
36" RCP	140	LF
42" RCP	813	LF
48" TYPE II MANHOLE	5	EA
60" TYPE II MANHOLE	7	EA
5' TYPE "CM2" DROP INLET	3	EA
7.5' TYPE "CM2" DROP INLET	4	EA
10' TYPE "CM2" DROP INLET	2	EA
PLUG AND CAP	1	EA

QUANTITIES ARE ESTIMATES ONLY. CONTRACTOR IS TO VERIFY DURING BIDDING PROCESS.

ROAD IMPROVEMENT QUANTITIES (PRIVATE)

EXCAVATION	55,243	CY
EMBANKMENT	7,587	CY
NET (CUT)	47,656	CY

QUANTITIES ARE ESTIMATES ONLY. CONTRACTOR IS TO VERIFY DURING BIDDING PROCESS.

WATER QUANTITIES (PUBLIC)

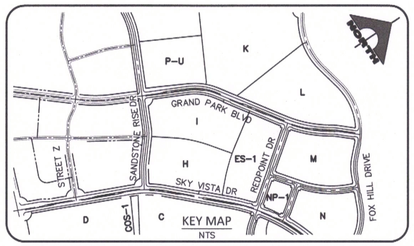
6" DIP	190	LF
12" DIP	354	LF
16" DIP	945	LF
20" DIP	1,729	LF
FIRE HYDRANT ASSEMBLY	5	EA
20"X6" TEE & VALVE (FIRE HYDRANT)	4	EA
16"X6" TEE & VALVE (FIRE HYDRANT)	1	EA
1-1/2" METER AND 1-1/2" RPPA	2	EA
6" GATE VALVE	1	EA
12" GATE VALVE	6	EA
16" GATE VALVE	4	EA
20" GATE VALVE	7	EA
20"X16" REDUCER	1	EA
12" CAP & BLOW-OFF	5	EA
16" CAP & BLOW-OFF	1	EA

QUANTITIES ARE ESTIMATES ONLY. CONTRACTOR IS TO VERIFY DURING BIDDING PROCESS.

ROAD IMPROVEMENT QUANTITIES (PUBLIC)

"L" TYPE CURB & GUTTER	5,600	LF
TYPE "A" CURB	4,557	LF
4" A.C. PAVEMENT	16,407	SY
4" TYPE II AGGREGATE BASE	1,823	CY
HANDICAP RAMP	6	EA
PAVEMENT MARKINGS AND STRIPING	2,273	LF
BIKE LANE STRIPING	2,273	LF
SIGNAGE	30	EA

QUANTITIES ARE ESTIMATES ONLY. CONTRACTOR IS TO VERIFY DURING BIDDING PROCESS.



BASIS OF BEARING AND COORDINATES

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

LINEAR UNIT: US SURVEY FOOT (FTUS)
DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00
SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)
ZONE: LAS VEGAS HIGH ELEVATION ZONE

PROJECTION: TRANSVERSE MERCATOR
STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N
LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W
NORTHING AT GRID ORIGIN: 400,000.00 M (1,312,333.3333 FTUS)
EASTING AT CENTRAL MERIDIAN: 300,000 M (984,250.0000 FTUS)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

NOTES:
1. ALL DISTANCES AND BEARINGS SHOWN HEREON ARE PROJECTED (GRID) VALUES BASED ON THE PRECEDING PROJECTION DEFINITION. THE PROJECTION WAS DEFINED SUCH THAT PROJECTED (GRID) DISTANCES ARE EQUIVALENT TO "GROUND" DISTANCES IN THE PROJECT AREA.
2. GRID BEARINGS SHOWN HEREON (OR IMPLIED BY GRID COORDINATES) DO NOT EQUAL GEODETIC BEARINGS DUE TO MERIDIAN CONVERGENCE.

BENCHMARK

BM#	DESCRIPTION	NAVD 88 DATUM (FEET)	NAVD 88 DATUM (METERS)
CLV BM No. 7LV0934SW6	FIND RIVET AND PLATE IN TOP OF CURB SE CORNER OF DESERT MOON RD. AND SKY VISTA DR. T20S,R59E,S34	3318.31	1,011.422

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. XXXXXX FIRST APPROVAL DATE: _____

LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ON-SITE N/A GPM

L#: LXX-XXXXX-XXXX | CLV#: 107XXXXX

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

ENGINEER - STATE OF NEVADA - MICHAEL PANG - No. 24469 - EXP. 06/30/2021 - CIVIL - PROFESSIONAL ENGINEER

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	CGW APP	DATE: 10/09/2020

PROJECT NO. 62025-209
DESIGN: PB
DRAWN: PB
CHECK: LG
PLOT DATE: 10-09-20
PLOT TIME: 15:54:17

GCW ENGINEERS\SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com
F:\PROJECTS\2020\62025-209\CIVIL\PRODUCTION\62025-209C01_CV.DWG
ALEXANDER SANTIAGO

THE HOWARD HUGHES COMPANY, LLC

VILLAGE 25 GRAND PARK BLVD IMPROVEMENTS (SANDSTONE RISE DRIVE TO FOX HILL DRIVE)

LEGEND AND ABBREVIATIONS

DRAWING G2

2 OF 33 SHTS

CAUTION: HIGH PRESSURE GAS!!

CALL SOUTHWEST GAS AT 702-278-8451 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES 48 HOURS PRIOR TO CONSTRUCTION.

SOUTHERN NEVADA - SOUTHWEST GAS CORPORATION GENERAL NOTES

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

SOUTHWEST GAS APPROVAL

SOUTHWEST GAS CORPORATION DATE

CITY OF LAS VEGAS GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA NEVADA", LATEST ISSUE; THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION, CLARK COUNTY AREA NEVADA", LATEST REVISED EDITION; THE "SUMMERLIN IMPROVEMENT STANDARDS" FOR WORK IN THE SUMMERLIN AREA; AND OTHER APPLICABLE APPROVED STANDARDS ISSUED BY THE CONTROLLING AGENCY; THE UNIFORM BUILDING CODE; AND ALL LOCAL CITY CODES AND ORDINANCES APPLICABLE, EXCEPT AS NOTED ON THIS SHEET AS "DEVIATIONS FROM STANDARDS".
2. THE EXISTENCE AND LOCATION OF ANY OVERHEAD OR UNDERGROUND UTILITY LINES, PIPES, OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A RESEARCH OF THE AVAILABLE RECORDS. EXISTING UTILITIES AS SHOWN FROM CLV PLANS LIBRARY ARE APPROXIMATE AND FOR RECORD PURPOSES. EXISTING UTILITIES ARE LOCATED ON PLANS ONLY FOR THE CONVENIENCE OF THE CONTRACTOR. EXISTING UTILITY SERVICE LATERALS MAY NOT BE SHOWN ON THE PLANS. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, LOCATE ALL UNDERGROUND AND OVERHEAD INTERFERENCE'S WHICH MAY AFFECT HIS OPERATION DURING CONSTRUCTION AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO SAME. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING NEAR OVERHEAD UTILITIES SO AS TO SAFELY PROTECT ALL PERSONNEL AND EQUIPMENT, AND SHALL BE RESPONSIBLE FOR ALL COST AND LIABILITY IN CONNECTION THEREWITH.
3. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING UTILITY LINES, STRUCTURES AND STREET IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE, FROM DAMAGE, AND ALL SUCH IMPROVEMENTS OR STRUCTURES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED SATISFACTORY TO THE CITY ENGINEER AND OWNING UTILITY COMPANY AT THE EXPENSE OF THE CONTRACTOR.
4. ALL CONSTRUCTION SHALL BE AS SHOWN ON THESE PLANS, ANY REVISIONS SHALL HAVE THE PRIOR WRITTEN APPROVAL OF THE CITY ENGINEER.
5. TYPE V CEMENT SHALL BE USED IN ALL OFF-SITE CONCRETE WORK. CONCRETE TO BE 3000 P.S.I. MINIMUM @ 28 DAYS. MIX DESIGNS TO BE APPROVED BY THE CITY, PRIOR TO THE USE ON THE PROJECT.
6. PERMITS ARE REQUIRED FOR ANY WORK IN THE PUBLIC RIGHT-OF-WAY. THE CONTRACTOR SHALL SECURE ALL PERMITS AND INSPECTIONS REQUIRED FOR THIS CONSTRUCTION.
7. EXPANSION JOINTS REQUIRED, MAXIMUM EVERY 300' IN EXTRUDED-TYPE CURB.
8. AC PAVEMENT TO BE ONE-HALF INCH (½") ABOVE LIP OF ALL GUTTERS AFTER COMPACTION, EXCEPT AT SIDEWALK RAMPS AND CROSS GUTTERS.
9. CURB AND GUTTER FOUND TO BE UNACCEPTABLE TO THE CITY OF LAS VEGAS SHALL BE REMOVED AND REPLACED PER STANDARD DRAWING 216.
10. SIDEWALK RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING 235. EXACT LOCATION OF RAMPS MAY BE ADJUSTED IN THE FIELD BY A CITY INSPECTOR.
11. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITIONS BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND FOR INGRESS AND EGRESS TO NEW CONSTRUCTION. THE EXTENT OF THE TRANSITIONS TO BE AS SHOWN ON PLANS.
12. ALL GRADING WORK SHALL CONFORM TO THE SOILS REPORT AS PREPARED BY NOVA GEOTECHNICAL, REPORT # G-19-026, DATE MAY 9TH, 2019 APPROVED BY THE CITY ENGINEER, AND AS SHOWN ON THESE PLANS.
13. EXACT LOCATION OF ALL SAWCUT LINES MAY BE ADJUSTED OR DETERMINED IN THE FIELD BY A CITY OF LAS VEGAS ENGINEER IF LOCATION ON PLANS IS NOT CLEARLY SHOWN, OR EXISTING PAVEMENT CONDITION REQUIRES RELOCATIONS.
14. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT EXISTING PERMANENT SURVEY MONUMENTS. ANY MONUMENTS DISTURBED SHALL BE REPLACED AND ADJUSTED PER AVAILABLE RECORDS IN ACCORDANCE WITH N.R.S. STATUTE NO. 625.380 & CITY OF LAS VEGAS TITLE 18, APPENDIX D.
15. UTILITY COMPANY METER BOXES, MANHOLE LIDS, VALVE COVERS, ETC., SHALL BE LOCATED OUT OF DRIVEWAYS, DRIVEWAY APRONS, FLOWLINES, AND CROSS GUTTERS UNLESS WRITTEN APPROVAL IS GRANTED BY THE UTILITY COMPANY AND THE CITY ENGINEER.

WALL NOTES:

16. ALL WALLS, NEW OR EXISTING, ARE ONLY SHOWN ON CIVIL PLANS FOR THE PURPOSE OF REVIEWING GRADING RELATIONSHIPS; FLOOD CONTROL AND SIGHT DISTANCE AT INTERSECTIONS. NEW WALLS REQUIRE A SEPARATE PERMIT AND INSPECTION BY THE BUILDING DEPARTMENT.
17. ASPHALT MIX DESIGN MUST BE SUBMITTED AND APPROVED BY THE CITY ENGINEER PRIOR TO THE PLACEMENT OF ASPHALT WITHIN CITY RIGHT OF WAY.
18. CONTRACTOR SHALL ADJUST ALL NEW AND EXISTING INLETS, VALVE BOXES, MANHOLE RIMS, AND SEWER CLEAN OUTS, ETC. TO FINISH GRADE AS APPLICABLE WHETHER OR NOT THEY ARE SHOWN ON THE PLANS.
19. MATERIALS, HANDLING AND PLACEMENT OF PORTLAND CEMENT CONCRETE SHALL BE IN ACCORDANCE WITH APPLICABLE SECTIONS OF NDOT OR THE CLARK COUNTY AREA SPECIFICATIONS (AS APPLICABLE) AND THE PLANS AND DETAILS SHOWN HEREON.
20. WHEN INSTALLING UNDERGROUND FACILITIES THAT REQUIRE UNDERGROUND LOCATING DEVICES SUCH AS MARKER BALLS, LOCATING RIBBON, ETC, THE CONTRACTOR SHALL PROVIDE WRITTEN DOCUMENTATION TO OFFSITE INSPECTION AND TESTING CERTIFYING THAT ALL DEVICES HAVE BEEN PLACED AND VERIFIED TO BE IN GOOD WORKING CONDITION PRIOR TO THE CONSTRUCTION OF ANY ROAD BASE.
21. ~~AFTER~~ HAUNCHING AND PRIOR TO BACKFILL OPERATIONS WHICH WOULD COVER SANITARY SEWER AND STORM DRAIN FACILITIES, CONTRACTOR IS REQUIRED TO SCHEDULE CLV "AS-BUILT" TRENCH UTILITY SURVEY INSPECTION FOR DETERMINATION OF FINAL LOCATION COORDINATES. FACILITIES TO BE LOCATED BY CLV SHALL INCLUDE AT A MINIMUM THE HORIZONTAL AND VERTICAL (INVERT) LOCATION OF PUBLIC SEWER MANHOLES, STORM DRAIN MANHOLES AND TRANSITION STRUCTURES, STORM DRAIN LATERALS AT THE CONNECTION TO THE STORM DRAIN MAIN AND AT THE CONNECTION TO A DROP INLET, THE CONNECTION OF SEWER SERVICE LATERALS TO THE SEWER MAIN AND WHERE THE SEWER SERVICE LATERALS EXIT THE PUBLIC RIGHT-OF-WAY, SEWER AND STORM DRAIN MAIN ALIGNMENT, INCLUDING DEFLECTION POINTS.

OR

(MAY BE USED ONLY ON PROJECTS ASSOCIATED WITH A TENTATIVE MAP CONTAINING 5 LOTS OR MORE)

- SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S) SHALL BE PROVIDED TO THE CITY AND APPROVED PRIOR TO ACCEPTANCE OF FACILITY VIDEO INSPECTION. THE MAP(S) SHALL INCLUDE HORIZONTAL AND VERTICAL (INVERT) LOCATION OF PUBLIC SEWER MANHOLES, STORM DRAIN MANHOLES AND TRANSITION STRUCTURES, STORM DRAIN LATERALS AT THE CONNECTION TO THE STORM DRAIN MAIN AND AT THE CONNECTION TO A DROP INLET, THE CONNECTION OF SEWER SERVICE LATERALS TO THE SEWER MAIN AND WHERE THE SEWER SERVICE LATERALS EXIT THE PUBLIC RIGHT-OF-WAY, SEWER AND STORM DRAIN MAIN ALIGNMENT, INCLUDING DEFLECTION POINTS. THE LOCATION SHALL BE DESCRIBED BY COORDINATES WHICH SHALL BE BASED ON THE OFFICIAL HORIZONTAL AND VERTICAL CONTROL NETWORKS OF THE CITY OF LAS VEGAS. FINAL LOCATION MAPS MUST BE SEALED AND CERTIFIED BY A NEVADA PROFESSIONAL LAND SURVEYOR TO HAVE POSITIONAL CERTAINTIES OF ± 0.09 METERS (± 0.3 FEET) HORIZONTALLY AND VERTICALLY. A SEPARATE ELECTRONIC COMMA DELIMITED FILE FOR THE SANITARY SEWER AND STORM DRAIN COORDINATES SHALL ALSO ACCOMPANY THE SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S).

22. CCTV VIDEO INSPECTION IS REQUIRED FOR ALL SEWER AND STORM DRAINS. THE CCTV VIDEO INSPECTIONS NEED TO BE PERFORMED PER THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS LATEST EDITION.
23. A SEPARATE BORING PERMIT IS REQUIRED FOR ALL BORING ACTIVITIES.

REVISED 06/04/18

DEVIATION FROM STANDARDS

NONE

CITY OF LAS VEGAS FIRE AND RESCUE GENERAL NOTES FOR HYDRANTS AND ACCESS

1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LAS VEGAS FIRE AND RESCUE ADOPTED FIRE CODE ORDINANCE #6631 FOR HYDRANT SPECIFICATIONS AND HYDRANT INSTALLATION SPECIFICATIONS.
2. ONLY FIRE HYDRANTS THAT ARE ON THE LAS VEGAS VALLEY WATER DISTRICT'S – APPROVED PRODUCTS LIST ARE ALLOWED TO BE INSTALLED.
3. A PERMIT IS REQUIRED FROM LAS VEGAS FIRE AND RESCUE FOR THE INSTALLATION OF ON-SITE WATER LINES AND FIRE HYDRANTS. THE PERMIT AND CONTRACTORS MATERIAL TEST CERTIFICATE FOR UNDERGROUND PIPING FORM SHALL BE OBTAINED FROM THE FIRE PROTECTION ENGINEER BEFORE COMMENCEMENT OF WORK. [IFC SECTION 105.6.15]
4. ON ANY RESIDENTIAL OR COMMERCIAL INSTALLATIONS, FIRE HYDRANTS SHALL BE INSTALLED AND FIRE APPARATUS ACCESS ROADS SHALL BE MAINTAINED BEFORE COMMENCEMENT OF ANY COMBUSTIBLE CONSTRUCTION. ALL FIRE HYDRANTS SHALL BE IN GOOD WORKING ORDER AND SHALL BE CAPABLE OF DELIVERING THE REQUIRED FIRE FLOW. [IFC SECTION 3310, SECTION 3312]
5. TO IDENTIFY FIRE HYDRANT LOCATIONS, THE CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER LINE OF THE 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, NFPA 24]
8. PAINTING OF CURBS, FIRE HYDRANTS, PADS, PROTECTION OF FIRE HYDRANTS FROM PHYSICAL DAMAGE, AND ALL OTHER WORK NECESSARY PER PLANS SHALL BE COMPLETED BEFORE APPROVAL BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION. [IFC SECTION 507]
9. PRIVATE FIRE HYDRANTS SHALL BE PAINTED RED. [IFC SECTION 507.5.7.1]
10. PRIOR TO THE FINAL OCCUPANCY, A FIRE FLOW TEST SHALL BE WITNESSED BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION TO VERIFY AVAILABILITY OF THE REQUIRED FIRE FLOW. [IFC 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 THE WATER MAINS ARE EXTENDED ALONG STREETS OR NEW STREETS ARE INSTALLED WHERE FIRE HYDRANTS ARE NOT NEEDED FOR PROTECTION OF THE STRUCTURES, FIRE HYDRANTS SHALL BE INSTALLED AT A MAXIMUM OF 1,000 FT SPACING, TO PROVIDE FOR TRANSPORTATION HAZARDS. WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS OR HAVE FOUR (4) OR MORE TRAFFIC LANES AND HAVE A TRAFFIC COUNT OF MORE THAN 30,000 PER DAY, HYDRANTS ARE REQUIRED ON EACH SIDE OF THE STREET SPACED AT 500 FT ON AN ALTERNATING BASIS. [IFC SECTION C102.8]
13. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN THE RADIUS OF A CUL-DE-SAC OR WITHIN 20 FT OF THE PERIMETER OF THE RADIUS OF THE CUL-DE-SAC.
14. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN 6 FT OF ANY CURB RETURN, DRIVEWAY, POWER POLE, STREETLIGHT OR ANY OTHER OBSTRUCTION. [IFC SECTION C102.10]
15. A MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A ONE-TWO FAMILY DWELLING SHALL NOT EXCEED 300 FT, AS MEASURED BY AN APPROVED ROUTE. [IFC SECTION C102.4]
16. THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A FIRE DEPARTMENT CONNECTION (FDC) SHALL NOT EXCEED 100 FT, AS MEASURED BY AN APPROVED ROUTE. [IFC 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. FOR SYSTEMS REQUIRED TO HAVE TWO (2) SOURCES OF WATER SUPPLY, SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 2 FIRE HYDRANTS AND/OR SPRINKLER LEAD-INS CAN BE OUT OF SERVICE DUE TO A SERVICE INTERRUPTION. FOR SYSTEMS PERMITTED TO HAVE ONE SOURCE OF WATER SUPPLY, SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 3 FIRE HYDRANTS AND/OR FIRE SPRINKLER LEAD-INS CAN BE OF SERVICE DUE TO A SERVICE INTERRUPTION. [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 FT PRIOR TO OR AFTER THE GRADE CHANGE. ADJACENT TO THE STRUCTURES GRADIENT SHALL NOT EXCEED 6%. [IFC SECTION 503.2.7, 503.2.8]
21. THE TURNING RADIUS OF THE FIRE APPARATUS ACCESS ROADS SHALL BE NO LESS THAN 52 FT OUTSIDE AND 28 FT INSIDE TURNING RADIUS. [IFC 503.2.4]
22. VERTICAL CLEARANCE OF ALL FIRE APPARATUS ACCESS ROADS SHALL NOT BE LESS THAN 13 FT 6 IN. [IFC SECTION 503.2.1]
23. FIRE DEPARTMENT ACCESS ROADS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF NOT LESS THAN 33 FT WITH PARKING ON BOTH SIDES MEASURED TO FACE OF CURB. NOT LESS THAN 28 FT WIDE WITH PARKING RESTRICTED TO ONE SIDE MEASURED TO FACE OF CURB. NOT LESS THAN 24 FT WIDE WITH NO PARKING ON EITHER SIDE MEASURED TO FACE OF CURB. FIRE LANES THROUGH PARKING LOTS SHALL 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 OF THE FIRST STORY IS LOCATED MORE THAN 150 FT FROM A FIRE DEPARTMENT VEHICLE ACCESS. [IFC SECTION 503.1.1]
25. APPROVED SECONDARY FIRE APPARATUS ACCESS SHALL BE PROVIDED FOR 200 OR MORE DWELLING UNITS, ROAD(S) WITH DEAD-ENDS OR SINGLE POINT OF ACCESS IN EXCESS of 600 FT. CLV REGULATION AND MOU.
26. ALL DEAD-END FIRE APPARATUS ROADS AND/OR FIRE LANES, PUBLIC OR PRIVATE, IN EXCESS OF 150 FT IN LENGTH SHALL BE PROVIDED WITH AN APPROVED TURN AROUND HAVING A MINIMUM DIAMETER OF 81 FT. CLV REGULATION
27. ALL FIRE APPARATUS ACCESS ROADS SHALL BE MARKED BY PLACING APPROVED SIGNS AT THE START OF THE DESIGNATED FIRE LANE, ONE SIGN AT THE END OF THE FIRE LANE AND WITH SIGNS AT INTERVALS OF 100 FT ALONG THE DESIGNATED FIRE LANES. SIGNS TO BE PLACED ON BOTH SIDES OF AN ACCESS ROADWAY IF NEEDED TO PREVENT PARKING ON EITHER SIDE. SIGNS TO BE INSTALLED NO HIGHER THAN 10 FT OR LESS THAN 6 FT FROM THE ROADWAY LEVEL. THE CURB ALONG OR ON THE PAVEMENT OR CEMENT (IF NO CURB IS PROVIDED) SHALL BE PAINTED WITH A RED WEATHER RESISTANT PAINT IN ADDITION TO THE SIGNS. [IFC SECTION 503.3]
28. ELECTRICALLY CONTROLLED ACCESS GATES SHALL BE PROVIDED WITH AN APPROVED EMERGENCY VEHICLE DETECTOR/RECEIVER SYSTEM. [IFC SECTION 503.6]
29. WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS, OR HAVING FOUR OR MORE TRAVEL LANES AND A TRAFFIC COUNT OF MORE THAN 30,000 VEHICLES PER DAY, ALL HYDRANTS BEING UTILIZED TO DELIVER FIRE FLOW TO PROPOSED LOCATION SHALL BE LOCATED ON THE SAME SIDE OF THE STREET AS THE PROPOSED DEVELOPMENT. CLV REGULATION.

REVISED FEBRUARY 4, 2019

FLOOD ZONE NOTE

THIS PROJECT IS LOCATED WITHIN A FEMA DESIGNATED FLOOD ZONE X PER FIRM PANEL 32003C2150E, DATED SEPTEMBER 27, 2002. A ZONE X IS DEFINED AS BEING OUTSIDE THE 100-YEAR FLOODPLAIN AND NOT LOCATED WITHIN A FEMA-DESIGNATED SPECIAL FLOOD HAZARD AREA.

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

LAS VEGAS VALLEY CONSTRUCTION STORMWATER RUNOFF MANAGEMENT - STANDARD NOTES

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 CLARK COUNTY UDACS 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 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 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

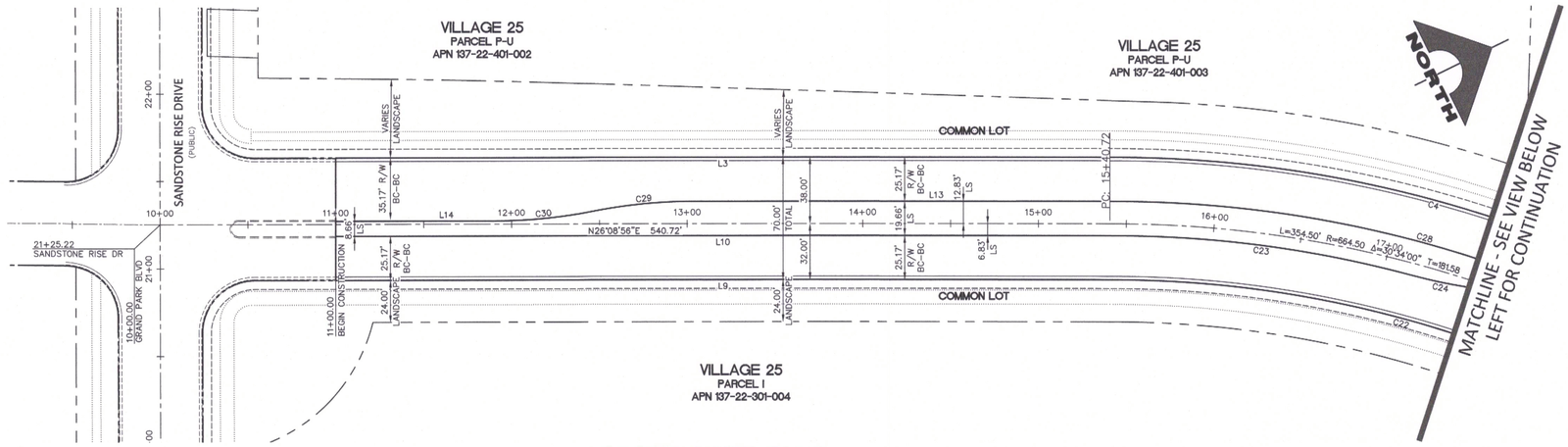
- REPORT COMPACTION TESTING WILL BE PERFORMED BY THE OWNER OR HIS REPRESENTATIVE.

7. ALL CUT AND FILL SLOPES SHALL BE PROTECTED UNTIL EFFECTIVE EROSION CONTROL HAS BEEN ESTABLISHED.
8. THE USE OF POTABLE WATER WITHOUT A SPECIAL PERMIT FOR BUILDING OR CONSTRUCTION PURPOSES INCLUDING CONSOLIDATION OF BACKFILL OR DUST CONTROL IS PROHIBITED. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR CONSTRUCTION WATER.
9. THE CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS AND ALL OTHER PUBLIC RIGHT-OF-WAY IN A CLEAN, SAFE AND USABLE CONDITION. ALL SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE PUBLICLY OWNED PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT. ALL ADJACENT PROPERTY, PRIVATE OR PUBLIC SHALL BE MAINTAINED IN A CLEAN, SAFE AND USABLE CONDITION.
10. IN THE EVENT THAT ANY TEMPORARY CONSTRUCTION ITEM IS REQUIRED THAT IS NOT SHOWN ON THESE DRAWINGS, THE OWNER AGREES TO PROVIDE AND INSTALL SUCH ITEM AT HIW OWN EXPENSE AND AT THE DIRECTION OF THE CITY ENGINEER. TEMPORARY CONSTRUCTION INCLUDES DITCHES, BERMS, ROAD SIGNS AND BARRICADES, ETC.

REVISED 4/15/10

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 "SUGGESTED 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 UTILIZE TYPE XI RETROREFLECTIVE SHEETING IN ACCORDANCE WITH CGAUSS 627 AND 716 AND SHALL HAVE AN ANTI-GRAFFITI PROTECTIVE O



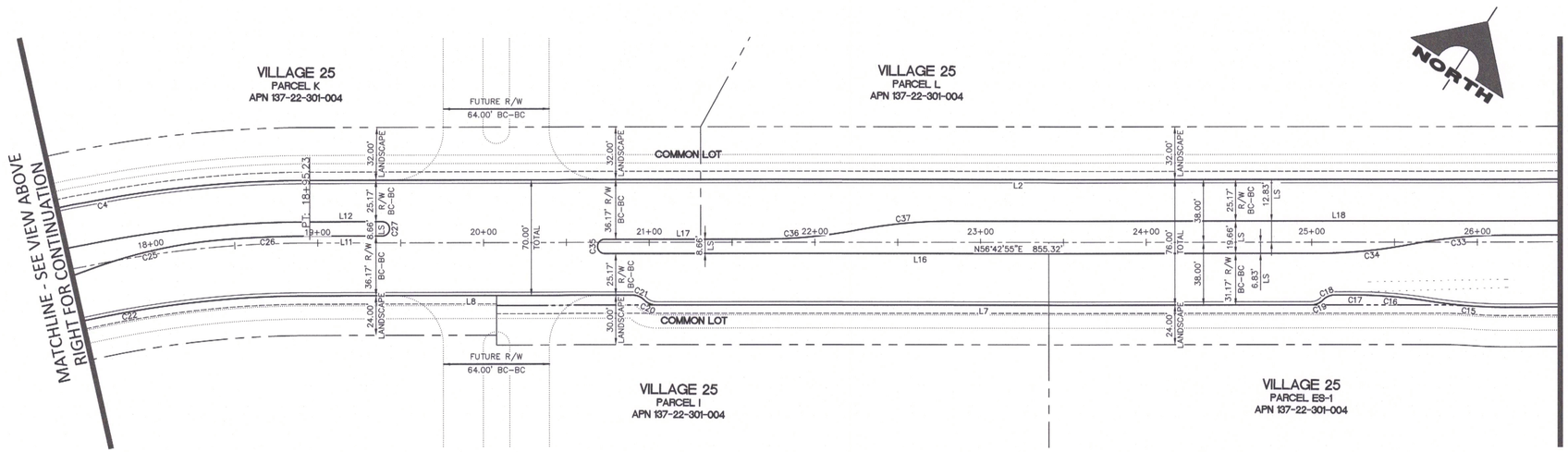
GRAND PARK BLVD

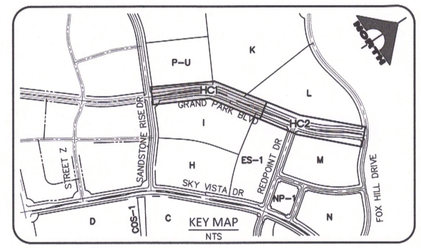
(PUBLIC)

SCALE: HORIZ 1" = 40'

40' 0' 20' 40' 80'

SCALE: 1" = 40'





LINE TABLE		
LINE #	LENGTH	DIRECTION
L2	855.32'	S56°42'55"W
L3	440.72'	S26°08'56"W
L7	395.59'	S56°42'55"W
L8	194.62'	S56°42'55"W
L9	440.72'	S26°08'56"W
L10	440.72'	N26°08'56"E
L11	43.79'	N56°42'55"E
L12	43.79'	S56°42'55"W
L13	236.55'	S26°08'56"W
L14	89.81'	S26°08'56"W
L16	429.71'	S56°42'55"W
L17	95.00'	N56°42'55"E
L18	468.17'	N56°42'55"E

CURVE TABLE				
CURVE #	LENGTH	RADIUS	TANGENT	DELTA
C4	374.78'	702.50'	191.96'	30°34'01"
C15	47.48'	300.00'	23.79'	9°04'08"
C16	47.48'	300.00'	23.79'	9°04'07"
C17	47.48'	300.00'	23.79'	9°04'07"
C18	7.95'	10.00'	4.20'	45°34'23"
C19	7.95'	10.00'	4.20'	45°34'23"
C20	7.95'	10.00'	4.20'	45°34'21"
C21	7.95'	10.00'	4.20'	45°34'23"
C22	337.43'	632.50'	172.83'	30°34'00"
C23	173.71'	657.67'	87.36'	15°08'01"
C24	35.40'	300.00'	17.72'	6°45'37"
C25	93.23'	300.00'	46.99'	17°48'18"
C26	51.21'	668.67'	25.62'	4°23'17"
C27	13.60'	4.33'	757960.08'	180°00'02"
C28	361.35'	677.33'	185.09'	30°34'01"
C29	57.53'	300.00'	28.86'	10°59'17"
C30	57.53'	300.00'	28.86'	10°59'17"
C33	57.53'	300.02'	28.86'	10°59'14"
C34	57.53'	300.00'	28.86'	10°59'17"
C35	13.60'	4.33'	3016067.97'	180°00'01"
C36	57.53'	300.00'	28.86'	10°59'17"
C37	57.53'	300.00'	28.86'	10°59'17"

BASIS OF BEARING AND COORDINATES

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983, SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

LINEAR UNIT: US SURVEY FOOT (FTUS)
DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00
SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)
ZONE: LAS VEGAS HIGH ELEVATION ZONE

PROJECTION: TRANSVERSE MERCATOR
STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N
LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W
NORTHING AT GRID ORIGIN: 400,000.00 M (1,312,333.3333 FTUS)
EASTING AT CENTRAL MERIDIAN: 300,000 M (984,250.0000 FTUS)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

NOTES:
1. ALL DISTANCES AND BEARINGS SHOWN HEREON ARE PROJECTED (GRID) VALUES BASED ON THE PRECEDING PROJECTION DEFINITION. THE PROJECTION WAS DEFINED SUCH THAT PROJECTED (GRID) DISTANCES ARE EQUIVALENT TO "GROUND" DISTANCES IN THE PROJECT AREA.
2. GRID BEARINGS SHOWN HEREON (OR IMPLIED BY GRID COORDINATES) DO NOT EQUAL GEODETIC BEARINGS DUE TO MERIDIAN CONVERGENCE.

BENCHMARK

BM#	DESCRIPTION	NAVD 88 DATUM	NAVD 88 DATUM
CLV BM No. 7LV0934SW6	FIND RIVET AND PLATE IN TOP OF CURB SE CORNER OF DESERT MOON RD. AND SKY VISTA DR. T20S,R59E,S34	3318.31 (FEET)	1,011.422 (METERS)

L#: LXX-XXXXX-XXXX | CLV#: 107XXXXX

ENGINEER - STATE OF NEVADA
MICHAEL FANG
Exp. 06/30/2021
CIVIL
No. 24464
PROFESSIONAL
DATE: 10/09/2020

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DATE AGEN APP	DATE GOW APP

PROJECT NO. 62025-209
DESIGN: PB
DRAWN: PB
CHECK: LG
PLOT DATE: 10-09-20
PLOT TIME: 15:54:52

GCW
ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com
F:\PROJECTS\620\62025 - 209\GWP\PRODUCTION\62025 - 209XREF.MCSWG
ALEXANDER SANTIAGO

THE HOWARD HUGHES COMPANY, LLC

VILLAGE 25 GRAND PARK BLVD IMPROVEMENTS
(SANDSTONE RISE DRIVE TO FOX HILL DRIVE)

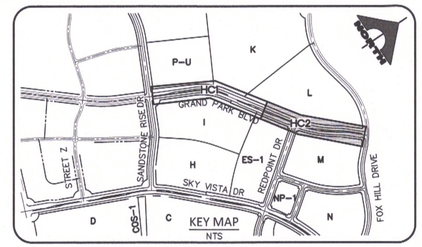
HORIZONTAL CONTROL PLAN 1

DRAWING
HC1
4 OF 33 SHTS

LINE TABLE		
LINE #	LENGTH	DIRECTION
L1	204.94'	S42°16'10"W
L2	855.32'	S56°42'55"W
L4	20.00'	S42°16'10"W
L5	184.70'	S42°16'10"W
L6	150.10'	S56°42'55"W
L15	144.80'	S56°42'55"W
L18	468.17'	N56°42'55"E
L19	132.48'	N42°16'10"E
L20	60.05'	N42°16'10"E
L21	60.05'	S42°16'10"W
L22	8.66'	N47°43'50"W
L23	8.66'	S47°43'50"E
L24	81.61'	S42°16'10"W

CURVE TABLE				
CURVE #	LENGTH	RADIUS	TANGENT	DELTA
C1	52.96'	30.00'	36.48'	101°08'31"
C2	90.32'	638.00'	45.23'	8°06'40"
C3	575.58'	1462.00'	291.56'	22°33'25"
C5	46.50'	30.00'	29.38'	88°48'48"
C6	7.95'	10.00'	4.20'	45°34'23"
C7	7.95'	10.00'	4.20'	45°34'23"
C8	79.56'	562.00'	39.85'	8°06'40"
C9	457.16'	1538.00'	230.28'	17°01'51"
C10	8.00'	10.00'	4.23'	45°50'25"
C11	7.90'	10.26'	4.16'	44°06'57"
C12	10.18'	1532.00'	5.09'	0°22'51"
C13	46.66'	30.00'	29.54'	89°06'55"
C14	45.17'	30.00'	28.11'	86°16'22"
C31	11.31'	1487.17'	5.66'	0°26'09"
C32	13.70'	4.35'	1144.03'	180°26'09"
C38	15.17'	4.83'	INFINITY'	180°00'00"
C39	100.02'	1497.17'	50.03'	3°49'40"
C40	50.04'	1497.17'	25.02'	1°54'55"
C41	67.16'	300.00'	33.72'	12°49'32"
C42	44.78'	300.00'	22.43'	8°33'06"

CURVE TABLE				
CURVE #	LENGTH	RADIUS	TANGENT	DELTA
C43	209.85'	1487.17'	105.10'	8°05'06"
C44	86.75'	612.83'	43.45'	8°06'40"
C45	13.60'	4.33'	INFINITY'	180°00'00"
C46	66.52'	300.00'	33.39'	12°42'13"
C47	39.25'	300.00'	19.65'	7°29'43"
C48	30.05'	593.17'	15.03'	2°54'10"
C49	476.06'	1506.83'	240.03'	18°06'06"
C50	141.87'	816.50'	71.11'	9°57'19"



KEY MAP
NTS

BASIS OF BEARING AND COORDINATES

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

LINEAR UNIT: US SURVEY FOOT (FTUS)
DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00
SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)
ZONE:LAS VEGAS HIGH ELEVATION ZONE

PROJECTION: TRANSVERSE MERCATOR
STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N
LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W
NORTHING AT GRID ORIGIN: 400,000.00 M (1,312,333.3333 FTUS)
EASTING AT CENTRAL MERIDIAN: 300,000 M (984,250.0000 FTUS)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

NOTES:
1. ALL DISTANCES AND BEARINGS SHOWN HEREON ARE PROJECTED (GRID) VALUES BASED ON THE PRECEDING PROJECTION DEFINITION. THE PROJECTION WAS DEFINED SUCH THAT PROJECTED (GRID) DISTANCES ARE EQUIVALENT TO "GROUND" DISTANCES IN THE PROJECT AREA.
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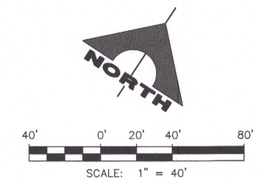
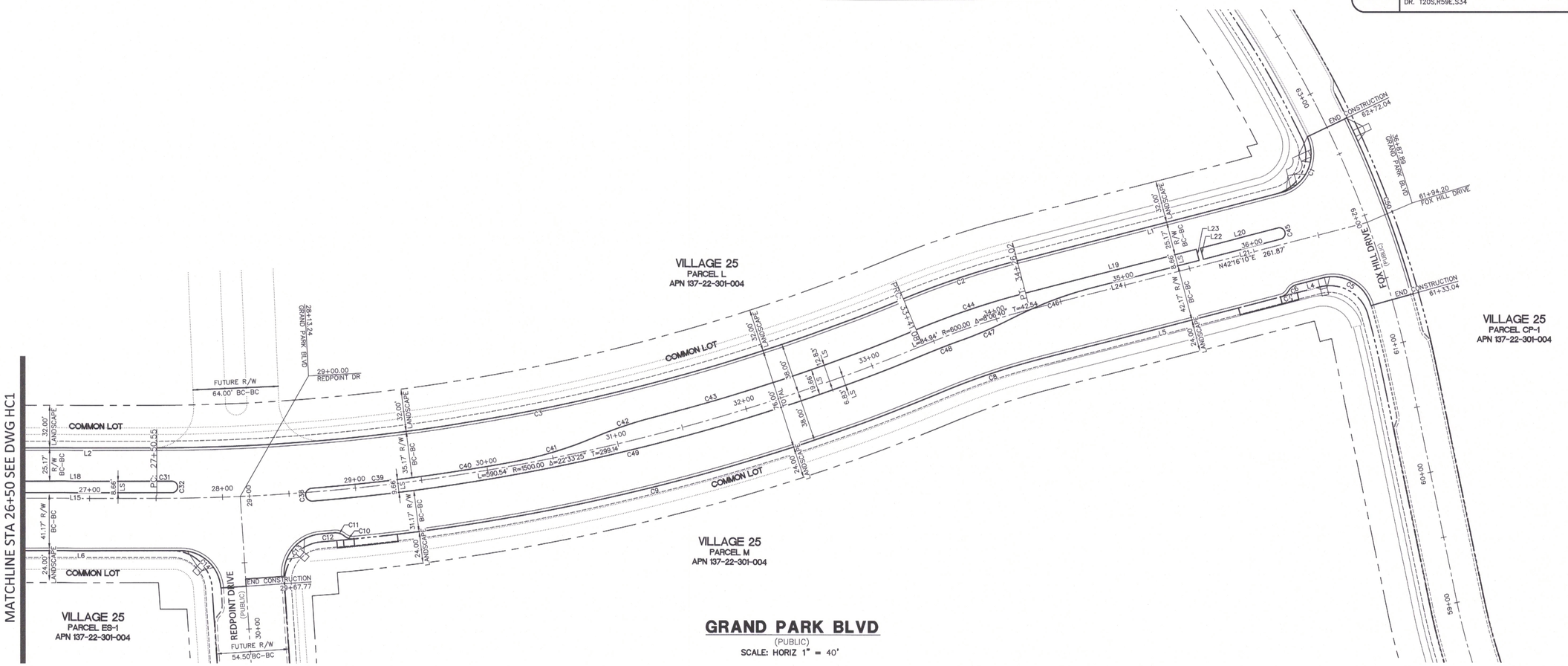
BENCHMARK

BM#	DESCRIPTION	NAVD 88 DATUM	NAVD 88 DATUM
CLV BM No. 7LV0934SW6	FIND RIVET AND PLATE IN TOP OF CURB SE CORNER OF DESERT MOON RD. AND SKY VISTA DR. T20S,R59E,S34	3318.31 (FEET)	1,011.422 (METERS)



SCALE: 1" = 40'



L#: LXX-XXXXX-XXXX | CLV#: 107XXXXX

ENGINEER - STATE OF NEVADA
MICHAEL FANG
Exp. 06/30/2021
CIVIL
No. 24464
PROFESSIONAL ENGINEER
DATE: 10/09/2020

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

REV	DESCRIPTION	DATE	AGEN APP	DATE	GOV APP	DATE

PROJECT NO. 62025-209
DESIGN: PB
DRAWN: PB
CHECK: LG
PLOT DATE: 10-09-20
PLOT TIME: 15:55:07

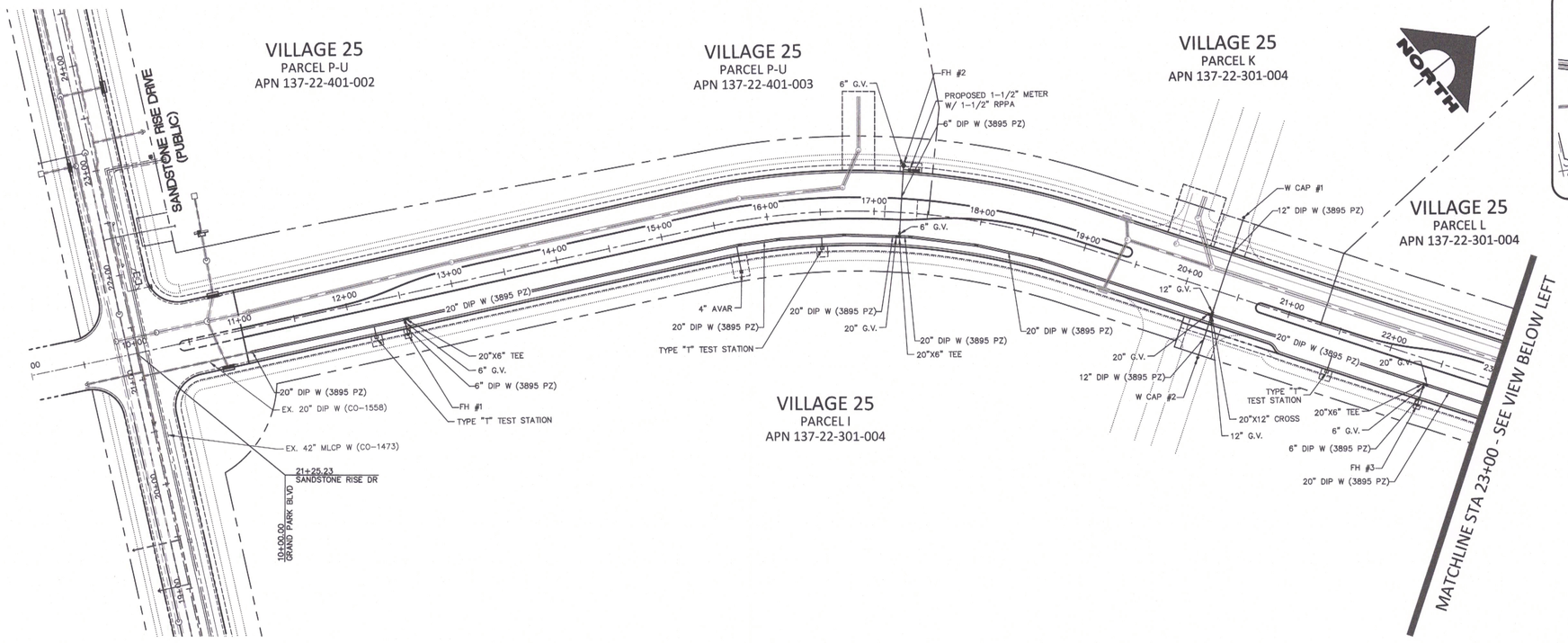
GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com
F:\PROJECTS\900\62025-209\CPMO\PRODUCTION\62025-209CO2_HC2.DWG
ALEXANDER SANTIAGO

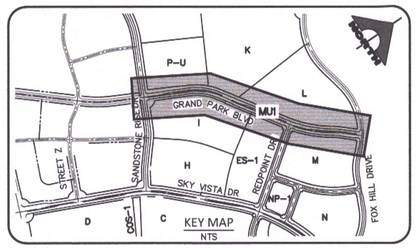
THE HOWARD HUGHES COMPANY, LLC

VILLAGE 25 GRAND PARK BLVD IMPROVEMENTS
(SANDSTONE RISE DRIVE TO FOX HILL DRIVE)

HORIZONTAL CONTROL PLAN 2

DRAWING
HC2
5 OF 33 SHTS





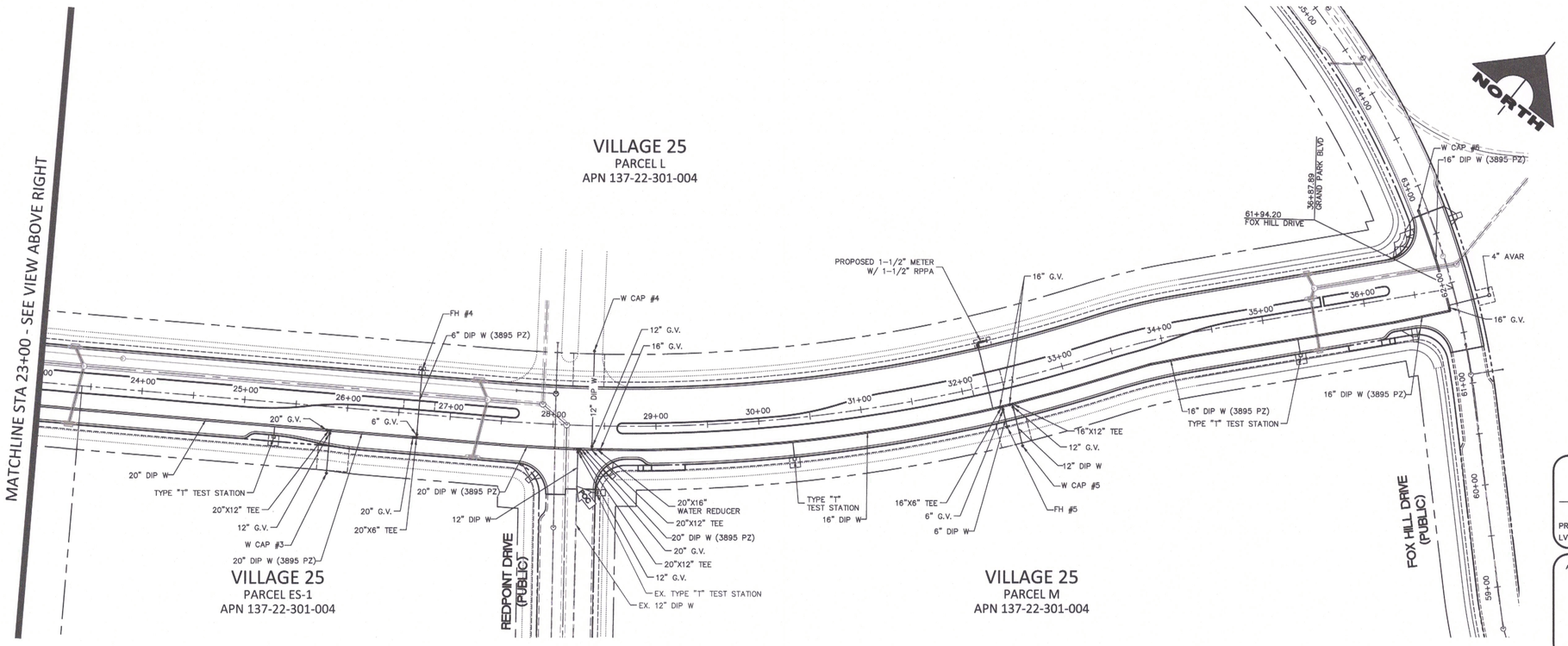
GRAND PARK BLVD

(PUBLIC)

SCALE: HORIZ 1" = 60'

60' 0' 30' 60' 120'

SCALE: 1" = 60'



APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. XXXXXX FIRST APPROVAL DATE:

LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ON-SITE N/A GPM

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

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY
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L#: LXX-XXXXX-XXXX | CLV#: 107XXXXX

ENGINEER - STATE OF NEVADA
MICHAEL FANG
Exp. 06/30/2021
CIVIL
No. 24464
PROFESSIONAL
DATE: 10/09/2020

REV	DATE	DESCRIPTION	DATE AGEN APP	DATE GCW APP

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

PROJECT NO. 62025-209

DESIGN: PB
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CHECK: LG
PLOT DATE: 10-09-20
PLOT TIME: 15:56:09

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1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
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gcwengineering.com

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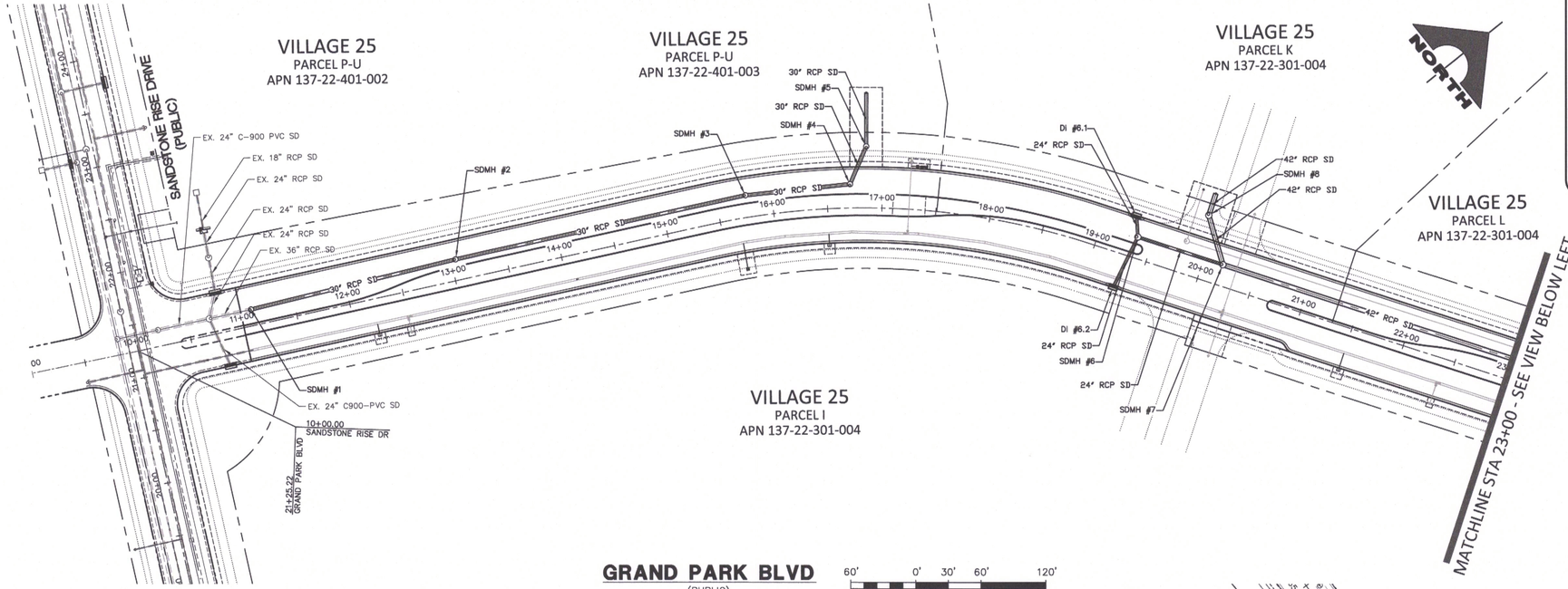
ALEXANDER SANTIAGO

THE HOWARD HUGHES COMPANY, LLC

VILLAGE 25 GRAND PARK BLVD IMPROVEMENTS
(SANDSTONE RISE DRIVE TO FOX HILL DRIVE)

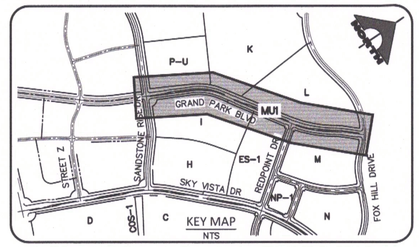
MASTER UTILITY PLAN - WATER

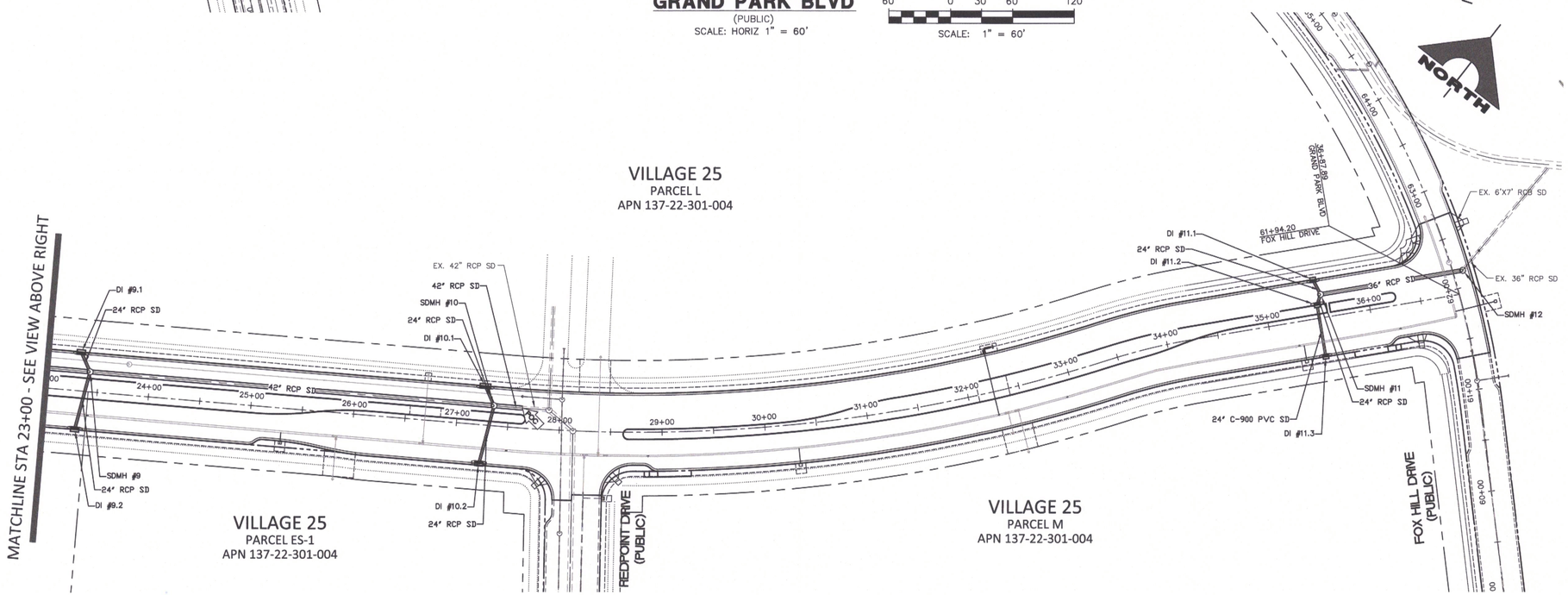
DRAWING
MU1
6 OF 33 SHTS



GRAND PARK BLVD
(PUBLIC)
SCALE: HORIZ 1" = 60'

60' 0' 30' 60' 120'
SCALE: 1" = 60'





STORM DRAIN STRUCTURE SCHEDULE

STRUCT. #	STREET NAME	STATION & OFFSET	RIM	INV IN	INV OUT	NORTHING	EASTING	SIZE
SDMH #1	GRAND PARK BOULEVARD	11+10.00, 15.04' L	3632.9±	3627.38		1290577.23	865832.96	48"
SDMH #2	GRAND PARK BOULEVARD	13+04.17, 19.49' L	3634.5±	3628.35	3628.35	1290753.48	865914.54	48"
SDMH #3	GRAND PARK BOULEVARD	15+76.94, 20.52' L	3636.7±	3629.72	3629.72	1290999.33	866035.24	48"
SDMH #4	GRAND PARK BOULEVARD	16+71.19, 22.12' L	3635.4±	3630.21	3630.21	1291081.40	866087.31	48"
SDMH #5	GRAND PARK BOULEVARD	16+85.47, 57.00' L	3638.3±	3630.40	3630.40	1291114.80	866069.15	48"
SDMH #6	GRAND PARK BOULEVARD	19+35.84, 19.50' L	3628.5±	3616.41 3616.41	3616.41	1291258.47	866291.36	60"
SDMH #7	GRAND PARK BOULEVARD	20+18.42, 19.50' L	3626.3±	3614.59 3614.59	3614.59	1291303.79	866360.39	60"
SDMH #8	GRAND PARK BOULEVARD	19+91.84, 58.92' L	3630.8±	3615.54	3615.54	1291322.16	866316.54	60"

STORM DRAIN STRUCTURE SCHEDULE

STRUCT. #	STREET NAME	STATION & OFFSET	RIM	INV IN	INV OUT	NORTHING	EASTING	SIZE
SDMH #9	GRAND PARK BOULEVARD	23+41.50, 19.50' L	3617.6±	3604.38 3604.38 3604.38	3604.38	1291481.10	866630.47	60"
SDMH #10	GRAND PARK BOULEVARD	27+35.12, 19.50' L	3607.1±	3595.53 3595.53 3595.53	3595.53	1291697.11	866959.51	60"
SDMH #11	GRAND PARK BOULEVARD	35+55.00, 22.66' L	3592.9±	3581.00 3581.00	3581.00	1292278.35	867523.63	60"
SDMH #12	GRAND PARK BOULEVARD	36+94.93, 22.66' L	3595.7±	3579.14		1292381.90	867617.75	60"

STORM DRAIN STRUCTURE SCHEDULE

STRUCT. #	STREET NAME	STATION & OFFSET	RIM	INV IN	INV OUT	NORTHING	EASTING	SIZE
DI #6.1	GRAND PARK BOULEVARD	19+28.59, 38.00' L	3628.7±		3622.37	1291269.96	866275.15	7.5'
DI #6.2	GRAND PARK BOULEVARD	19+28.59, 32.00' R	3628.8±		3617.13	1291211.44	866313.56	7.5'
DI #9.1	GRAND PARK BOULEVARD	23+31.50, 38.00' L	3617.9±		3610.69	1291491.07	866611.96	7.5'
DI #9.2	GRAND PARK BOULEVARD	23+31.50, 38.00' R	3617.9±		3606.71	1291427.54	866653.67	7.5'
DI #10.1	GRAND PARK BOULEVARD	27+25.12, 38.00' L	3607.4±		3601.44	1291707.09	866941.00	10.0'
DI #10.2	GRAND PARK BOULEVARD	27+25.12, 38.00' R	3606.9±		3595.82	1291643.55	866982.71	7.5'
DI #11.1	GRAND PARK BOULEVARD	35+50.00, 38.00' L	3593.0±		3587.49	1292284.97	867508.92	5.0'
DI #11.2	GRAND PARK BOULEVARD	35+50.00, 12.83' L	3593.3±	3583.38	3583.38	1292268.04	867527.54	5.0'
DI #11.3	GRAND PARK BOULEVARD	35+50.00, 38.00' R	3592.5±		3583.63	1292233.85	867565.16	5.0'

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. XXXXXX FIRST APPROVAL DATE:

LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ON-SITE N/A GPM

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

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FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

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L#: LXX-XXXXX-XXXX CLV#: 107XXXXX

ENGINEER - STATE OF NEVADA
MICHAEL FANG
Exp. 06/30/2021
CIVIL
No. 24464
PROFESSIONAL
DATE: 10/09/2020

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GOW APP

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

PROJECT NO. 62025-209
DESIGN: PB
DRAWN: PB
CHECK: LG
PLOT DATE: 10-09-20
PLOT TIME: 15:57:13

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

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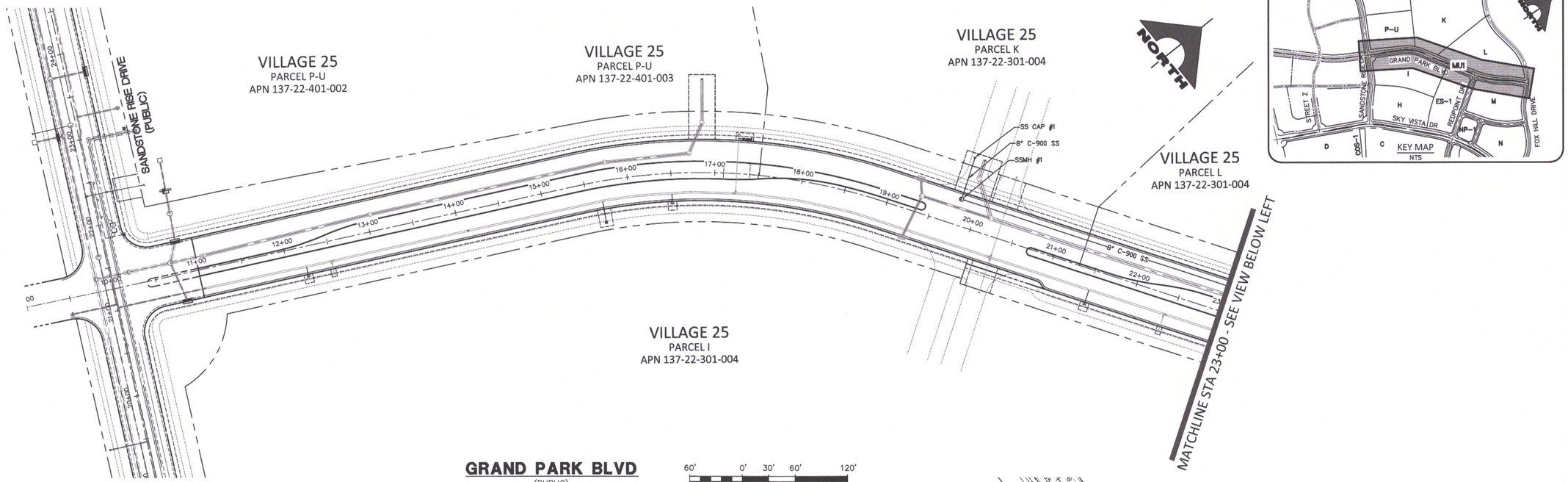
ALEXANDER SANTIAGO

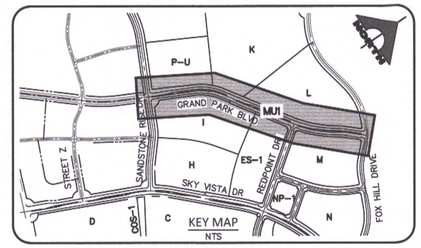
THE HOWARD HUGHES COMPANY, LLC

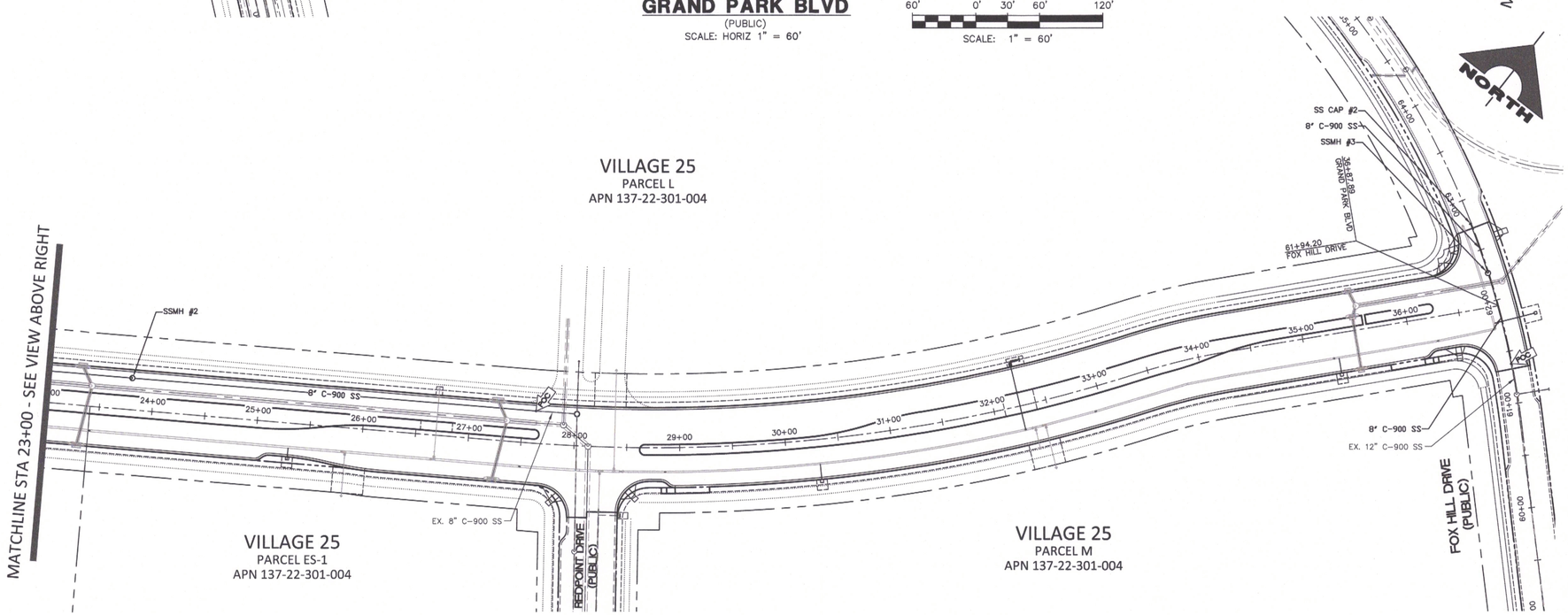
VILLAGE 25 GRAND PARK BLVD IMPROVEMENTS
(SANDSTONE RISE DRIVE TO FOX HILL DRIVE)

MASTER UTILITY PLAN - STORM

DRAWING
MU2
7 OF 33 SHTS







SANITARY SEWER MANHOLE SCHEDULE

MH #	STREET NAME	STATION & OFFSET	RIM	INV IN	INV OUT	NORTHING	EASTING	MH SIZE
SSMH #1	SKY VISTA DRIVE	19+79.84, 30.00' L	3627.1±	3610.65	3610.45	1291291.40	866322.38	48"
SSMH #2	SKY VISTA DRIVE	23+78.81, 30.02' L	3616.4±	3598.80	3598.60	1291510.36	866655.88	48"
SSMH #3	SKY VISTA DRIVE	36+83.23, 32.45' L	3596.4±	3585.68	3585.48	1292379.82	867602.64	48"

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. XXXXXX FIRST APPROVAL DATE:

LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ON-SITE N/A GPM

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811 OR 1-800-227-2800

FAST
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L#: LXX-XXXXX-XXXX CLV#: 107XXXXX

ENGINEER - STATE OF NEVADA PROFESSIONAL
MICHAEL FANG
Exp. 06/30/2021
CIVIL
No. 24464
DATE: 10/09/2020

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GOW APP

PROJECT NO. 62025-209
DESIGN: PB
DRAWN: PB
CHECK: LG
PLOT DATE: 10-09-20
PLOT TIME: 15:58:12

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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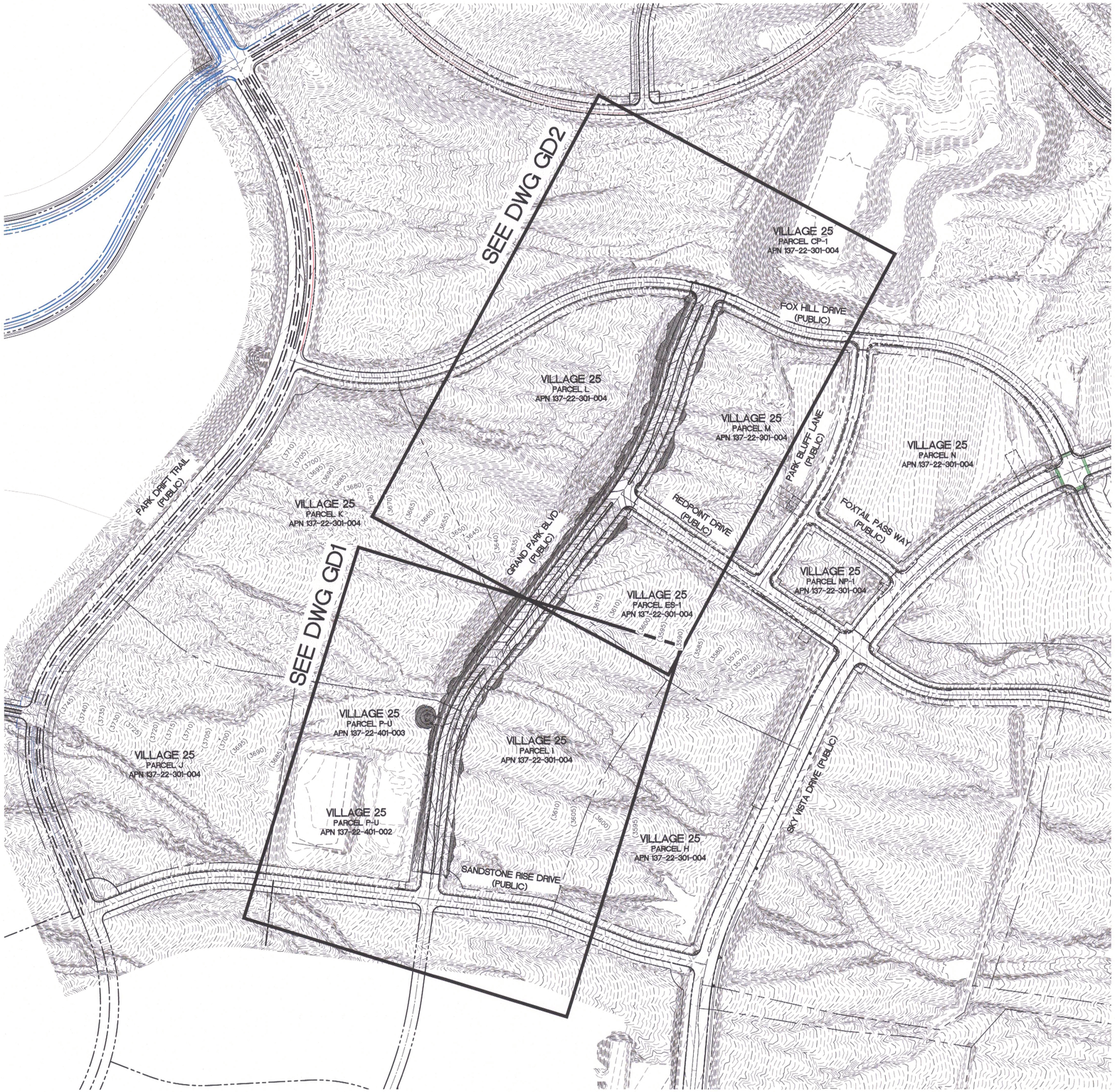
THE HOWARD HUGHES COMPANY, LLC

VILLAGE 25 GRAND PARK BLVD IMPROVEMENTS
(SANDSTONE RISE DRIVE TO FOX HILL DRIVE)

MASTER UTILITY PLAN - SEWER

DRAWING
MU3
8 OF 33 SHTS



NORTH

200' 0' 100' 200' 400'

SCALE: 1" = 200'

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

ENGINEER - STATE OF NEVADA
MICHAEL FANG
Exp. 06/30/2021
CIVIL
No. 24464
PROFESSIONAL

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GOW APP	DATE 10/09/2020

PROJECT NO. 62025-209

DESIGN: PB
DRAWN: PB
CHECK: LG
PLOT DATE: 10-09-20
PLOT TIME: 15:59:07

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

F:\PROJECTS\600\62025-209\DWG\PRODUCTION\62025-209GD4_GR1.DWG
ALEXANDER SANTIAGO

OFF-SITE FLOOD CONTROL NOTE

ALL OFF-SITE INTERIM FLOOD CONTROL FACILITIES SUCH AS, BUT NOT LIMITED TO, BERMS/DITCHES AND TEMPORARY SUMPS ARE PRIVATELY OWNED AND ARE TO BE PRIVATELY MAINTAINED BY THE HOWARD HUGHES COMPANY.

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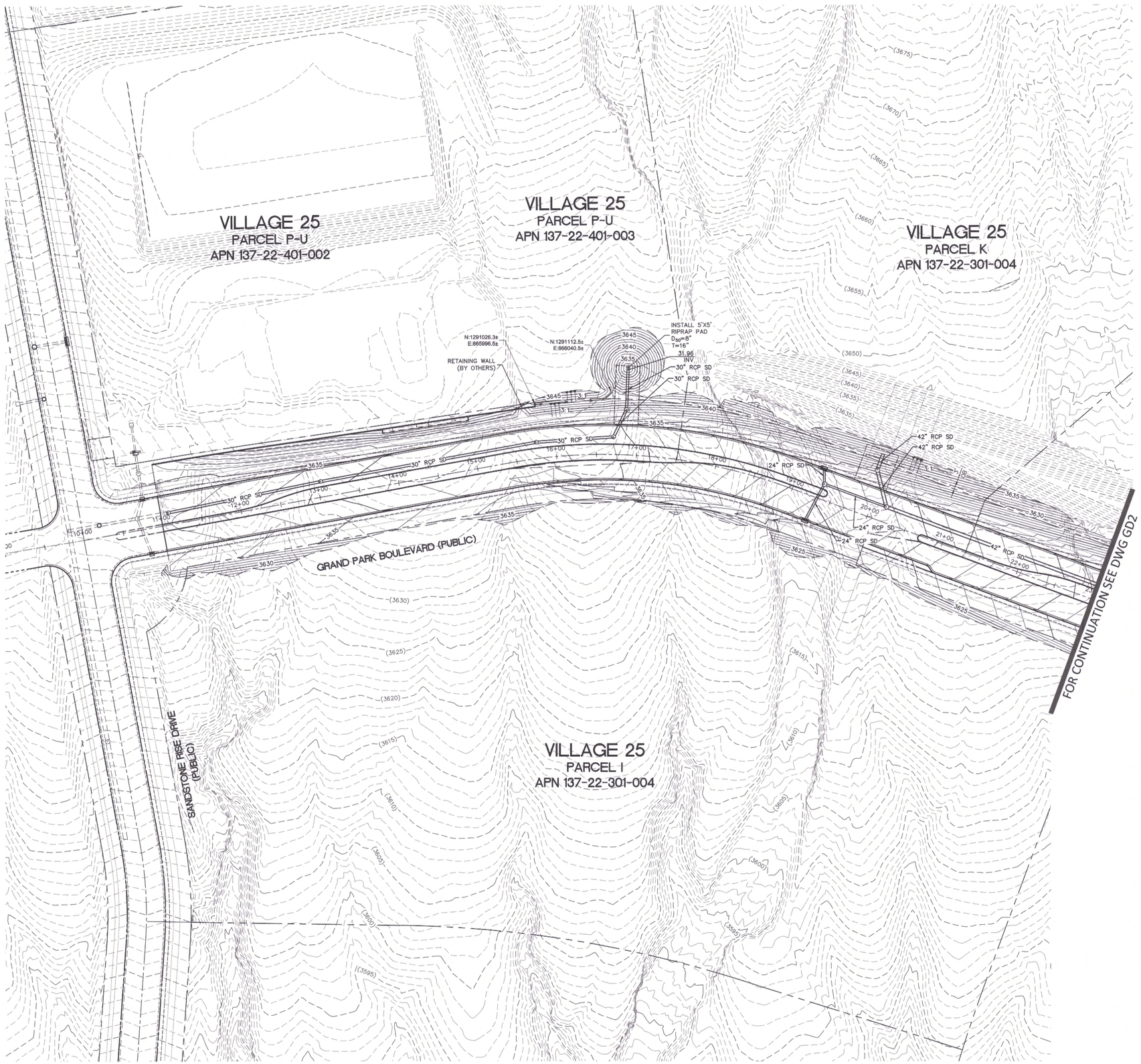
L#: LXX-XXXXX-XXXX | CLV#: 107XXXXX

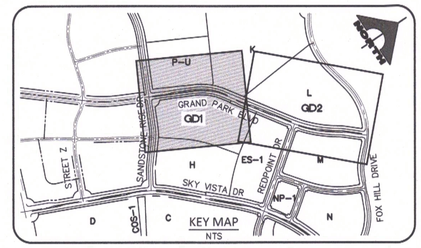
THE HOWARD HUGHES COMPANY, LLC

VILLAGE 25 GRAND PARK BLVD IMPROVEMENTS
(SANDSTONE RISE DRIVE TO FOX HILL DRIVE)

MASTER GRADING PLAN

DRAWING
MG
9 OF 33 SHTS





NORTH

60' 0' 30' 60' 120'

SCALE: 1" = 60'

OFF-SITE FLOOD CONTROL NOTE

ALL OFF-SITE INTERIM FLOOD CONTROL FACILITIES SUCH AS, BUT NOT LIMITED TO, BERMS/DITCHES AND TEMPORARY SUMPS ARE PRIVATELY OWNED AND ARE TO BE PRIVATELY MAINTAINED BY THE HOWARD HUGHES COMPANY.

BASIS OF BEARING AND COORDINATES

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

LINEAR UNIT: US SURVEY FOOT (FTUS)
DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00
SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)
ZONE: LAS VEGAS HIGH ELEVATION ZONE

PROJECTION: TRANSVERSE MERCATOR
STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N
LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W
NORTHING AT GRID ORIGIN: 400,000.00 M (1,312,333.3333 FTUS)
EASTING AT CENTRAL MERIDIAN: 300,000 M (984,250.0000 FTUS)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

NOTES:
1. ALL DISTANCES AND BEARINGS SHOWN HEREON ARE PROJECTED (GRID) VALUES BASED ON THE PRECEDING PROJECTION DEFINITION. THE PROJECTION WAS DEFINED SUCH THAT PROJECTED (GRID) DISTANCES ARE EQUIVALENT TO "GROUND" DISTANCES IN THE PROJECT AREA.
2. GRID BEARINGS SHOWN HEREON (OR IMPLIED BY GRID COORDINATES) DO NOT EQUAL GEODETIC BEARINGS DUE TO MERIDIAN CONVERGENCE.

BENCHMARK

BM#	DESCRIPTION	NAVD 88 DATUM	NAVD 88 DATUM
CLV BM No. 7LV0934SW6	FIND RIVET AND PLATE IN TOP OF CURB SE CORNER OF DESERT MOON RD. AND SKY VISTA DR. T20S,R59E,S34	3318.31 (FEET)	1,011.422 (METERS)

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811 OR 1-800-227-2800

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

L#: LXX-XXXXX-XXXX | CLV#: 107XXXXX

ENGINEER - STATE OF NEVADA
PROFESSIONAL
MICHAEL FANG
Exp. 06/30/2021
CIVIL
No. 24464
DATE: 10/09/2020

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GOV APP

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

PROJECT NO. 62025-209

DESIGN:	PB
DRAWN:	PB
CHECK:	LG
PLOT DATE:	10-09-20
PLOT TIME:	16:00:11

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

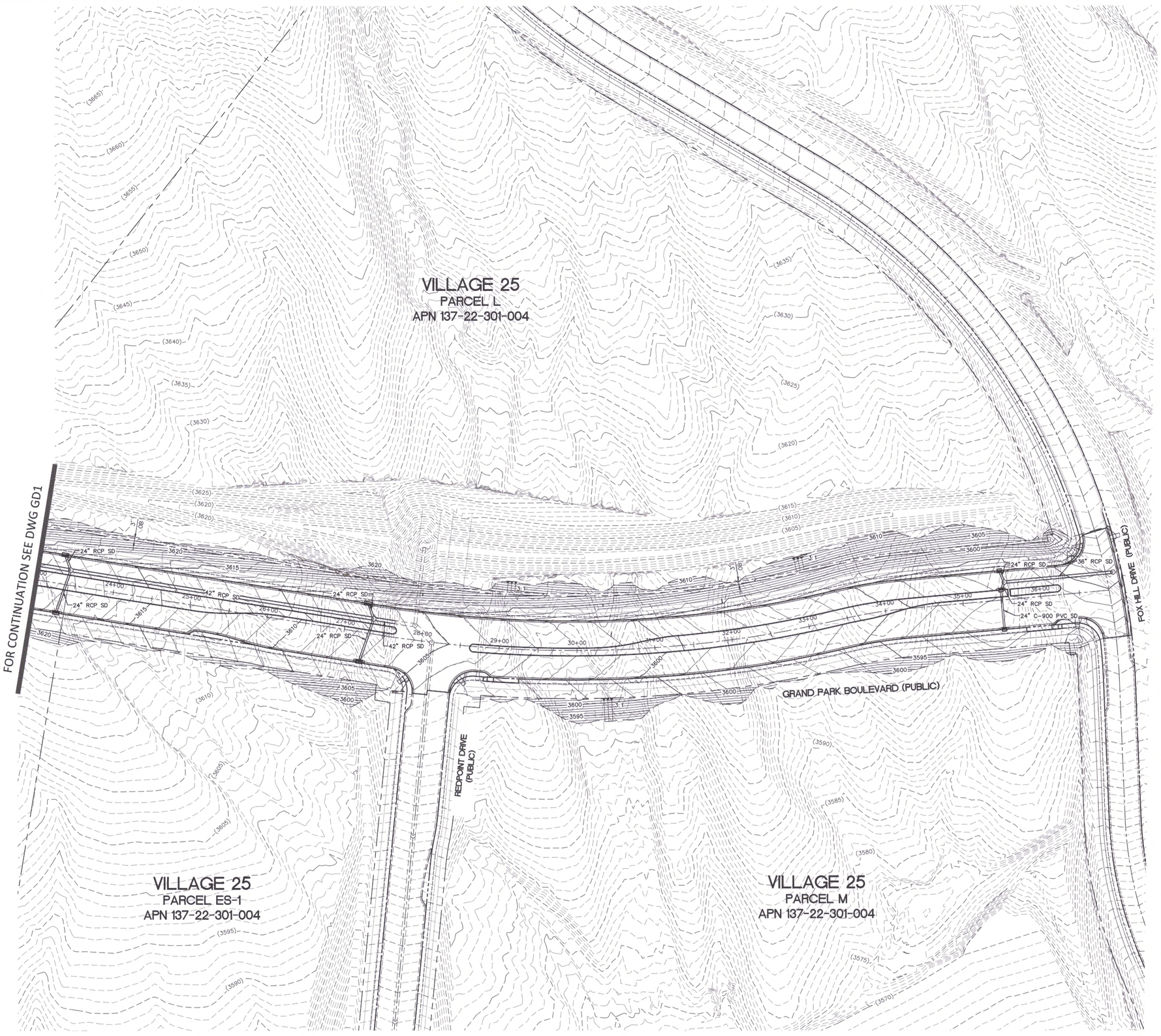
F:\PROJECTS\62025-209\PRODUCTION\62025-209CIVIL_GD2.DWG
ALEXANDER SANTIAGO

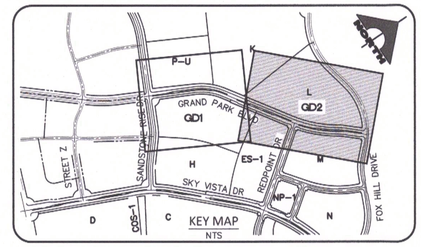
THE HOWARD HUGHES COMPANY, LLC

VILLAGE 25 GRAND PARK BLVD IMPROVEMENTS
(SANDSTONE RISE DRIVE TO FOX HILL DRIVE)

GRADING PLAN 1

DRAWING
GD1
10 OF 33 SHTS





NORTH

60' 0' 30' 60' 120'

SCALE: 1" = 60'

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LINEAR UNIT: US SURVEY FOOT (FTUS)
DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00
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ZONE: LAS VEGAS HIGH ELEVATION ZONE

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L#: LXX-XXXXX-XXXX | CLV#: 107XXXXX

STATE OF NEVADA
PROFESSIONAL ENGINEER
MICHAEL FANG
Exp. 06/30/2021
CIVIL
No. 24464
DATE: 10/09/2020

REV	DATE	DESCRIPTION	DATE AGEN APP	DATE GOV APP

PROJECT NO. 62025-209
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GCW
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F:\PROJECTS\000\62025-209\DWG\PRODUCTION\62025-209CIVIL_GD2.DWG
ALEXANDER SANTIAGO

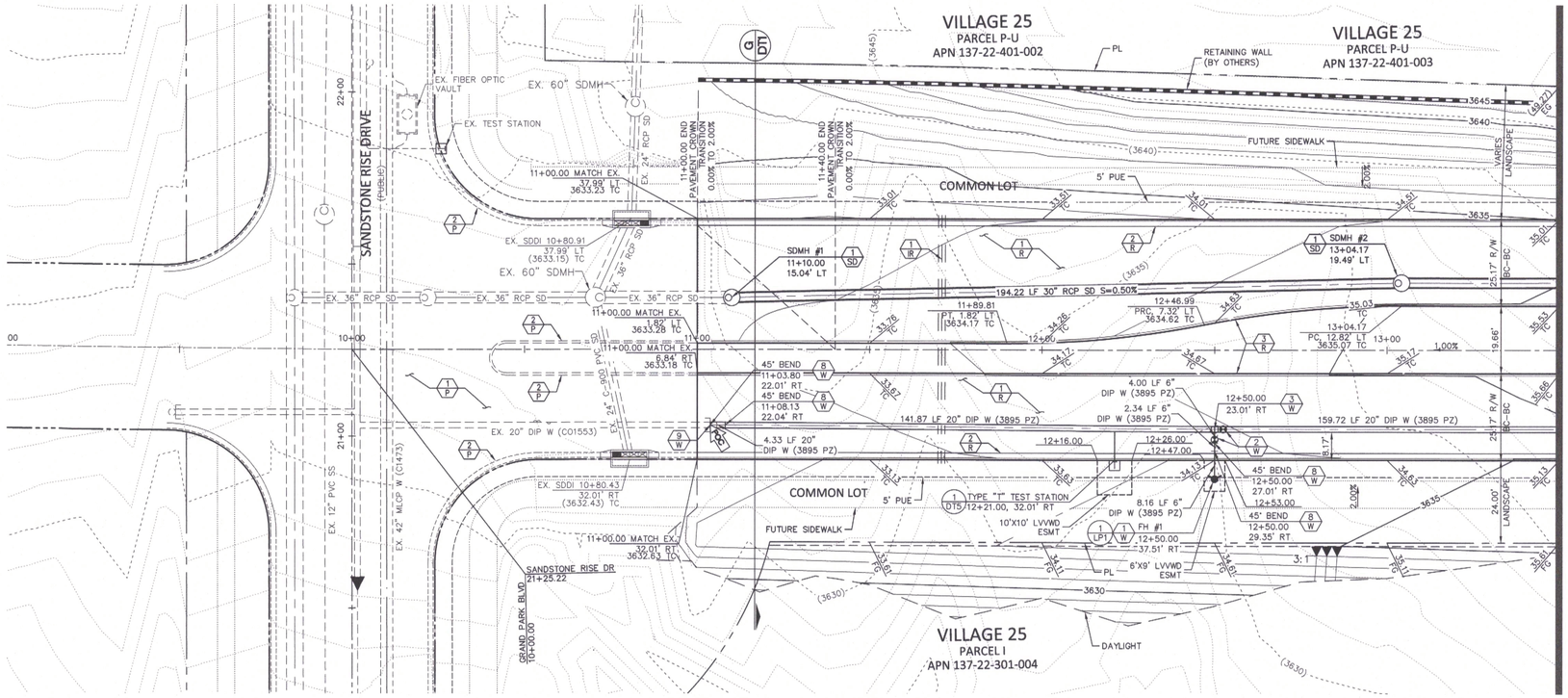
THE HOWARD HUGHES COMPANY, LLC

VILLAGE 25 GRAND PARK BLVD IMPROVEMENTS
(SANDSTONE RISE DRIVE TO FOX HILL DRIVE)

GRADING PLAN 2

DRAWING
GD2
11 OF 33 SHTS

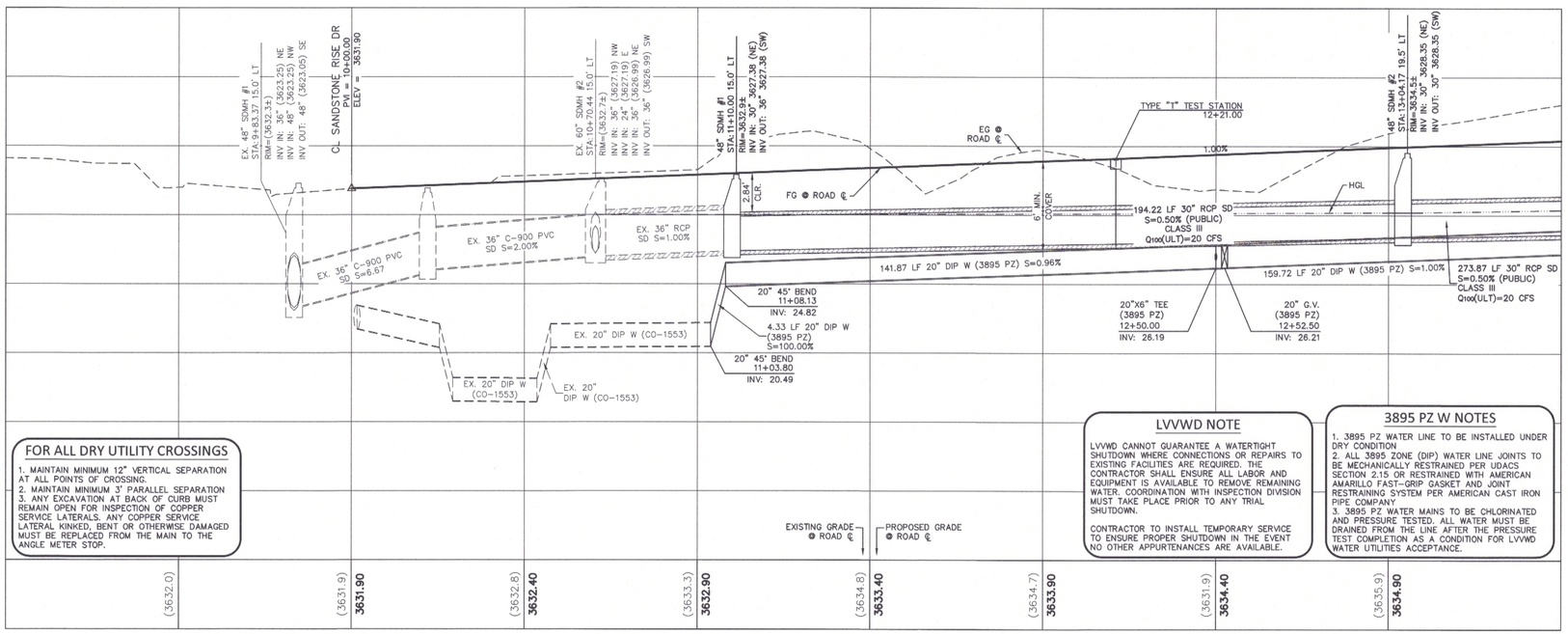
FOR AGENCY REVIEW - NOT FOR CONSTRUCTION



GRAND PARK BLVD

(PUBLIC)
SCALE: HORIZ 1" = 20'
VERT. 1" = 5'

20' 0' 10' 20' 40'



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LVVWD NOTE

PROTECT IN PLACE AND ADJUST LVVWD EXISTING FACILITIES TO FINISHED GRADE PER UDACS. ALL LVVWD FACILITIES SHALL BE ACCESSIBLE AT ALL TIMES.

FOR SANDSTONE RISE DRIVE EXISTING IMPROVEMENTS, REFER TO THE FOLLOWING SET:
"SUMMERLIN VILLAGE 25 SANDSTONE RISE DRIVE IMPROVEMENTS (SKY VISTA DRIVE TO PARK DRIFT TRAIL)" BY ATKINS
CLV #10775132

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES

PROJECT NO. XXXXXX FIRST APPROVAL DATE: _____
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ON-SITE N/A GPM

FOR ALL DRY UTILITY CROSSINGS

1. MAINTAIN MINIMUM 12" VERTICAL SEPARATION AT ALL POINTS OF CROSSING.
2. MAINTAIN MINIMUM 3' PARALLEL SEPARATION
3. ANY EXCAVATION AT BACK OF CURB MUST REMAIN OPEN FOR INSPECTION OF COPPER SERVICE LATERALS. ANY COPPER SERVICE LATERAL KINKED, BENT OR OTHERWISE DAMAGED MUST BE REPLACED FROM THE MAIN TO THE ANGLE METER STOP.

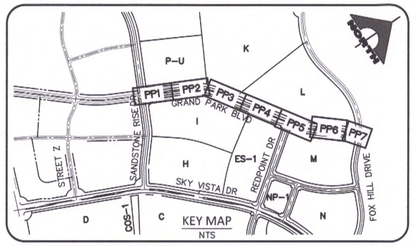
LVVWD NOTE

LVVWD CANNOT GUARANTEE A WATERTIGHT SHUTDOWN WHERE CONNECTIONS OR REPAIRS TO EXISTING FACILITIES ARE REQUIRED. THE CONTRACTOR SHALL ENSURE ALL LABOR AND EQUIPMENT IS AVAILABLE TO REMOVE REMAINING WATER. COORDINATION WITH INSPECTION DIVISION MUST TAKE PLACE PRIOR TO ANY TRIAL SHUTDOWN.

CONTRACTOR TO INSTALL TEMPORARY SERVICE TO ENSURE PROPER SHUTDOWN IN THE EVENT NO OTHER APPURTENANCES ARE AVAILABLE.

3895 PZ W NOTES

1. 3895 PZ WATER LINE TO BE INSTALLED UNDER DRY CONDITION
2. ALL 3895 ZONE (DIP) WATER LINE JOINTS TO BE MECHANICALLY RESTRAINED PER UDACS SECTION 2.15 OR RESTRAINED WITH AMERICAN AMARILLO FAST-GRIP GASKET AND JOINT RESTRAINING SYSTEM PER AMERICAN CAST IRON PIPE COMPANY
3. 3895 PZ WATER MAINS TO BE CHLORINATED AND PRESSURE TESTED. ALL WATER MUST BE DRAINED FROM THE LINE AFTER THE PRESSURE TEST COMPLETION AS A CONDITION FOR LVVWD WATER UTILITIES ACCEPTANCE.



KEY MAP
NTS

PROTECTION CONSTRUCTION NOTES

1P EXISTING PAVEMENT, PROTECT IN PLACE
2P EXISTING CURB/GUTTER, PROTECT IN PLACE
3P EXISTING PULLBOX, ADJUST TO FINISH GRADE
4P EXISTING TEST STATION, ADJUST TO FINISH GRADE
5P EXISTING SDMH, PROTECT IN PLACE & ADJUST TO FINISH GRADE IF IMPACTED BY PAVEMENT IMPROVEMENTS
6P EXISTING SSMH, PROTECT IN PLACE & ADJUST TO FINISH GRADE IF IMPACTED BY PAVEMENT IMPROVEMENTS

ROADWAY CONSTRUCTION NOTES

1R INSTALL A.C. PAVEMENT PER STREET SECTIONS, SEE DWG. DT1
2R INSTALL "L" TYPE CURB & GUTTER, SEE SUMMERLIN STD DWG. S-47
3R INSTALL "A" TYPE ISLAND CURB, SEE SUMMERLIN STD DWG. S-50
4R INSTALL CURB TRANSITION PER DETAIL 4 DWG. DT4
5R CONSTRUCT SIDEWALK RAMP PER USD DWG No. 235 (CASE II)
6R INSTALL "L" TYPE ISLAND CURB, SEE SUMMERLIN STD DWG. S-50

WATER CONSTRUCTION NOTES

1W INSTALL FIRE HYDRANT & ASSEMBLY PER UDACS PLT. No. 40
2W INSTALL GATE VALVE AND BOX PER UDACS PLT. No. 30 AND 39
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5W INSTALL REDUCER PER UDACS PLT. No. 31
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9W REMOVE CAP AND BLOWOFF PER UDACS PLT. No. 36 AND CONNECT TO EXISTING WATER LINE.
10W INSTALL CROSS PER UDACS PLT. No. 31

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3SD INSTALL TEMPORARY PLUG AND CAP PER DETAIL 3 ON DWG. DT5
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FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

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1-702-227-2929

L#: LXX-XXXXX-XXXX | CLV#: 107XXXXX

STATE OF NEVADA — ENGINEER — MICHAEL FANG — No. 24464 — PROFESSIONAL — Exp. 06/30/2021 — CIVIL
DATE: 10/09/2020

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	CGW APP	DATE

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

PROJECT NO. 62025-209
DESIGN: PB
DRAWN: PB
CHECK: LG
PLOT DATE: 10-09-20
PLOT TIME: 16:03:12
ALEXANDER SANTIAGO

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

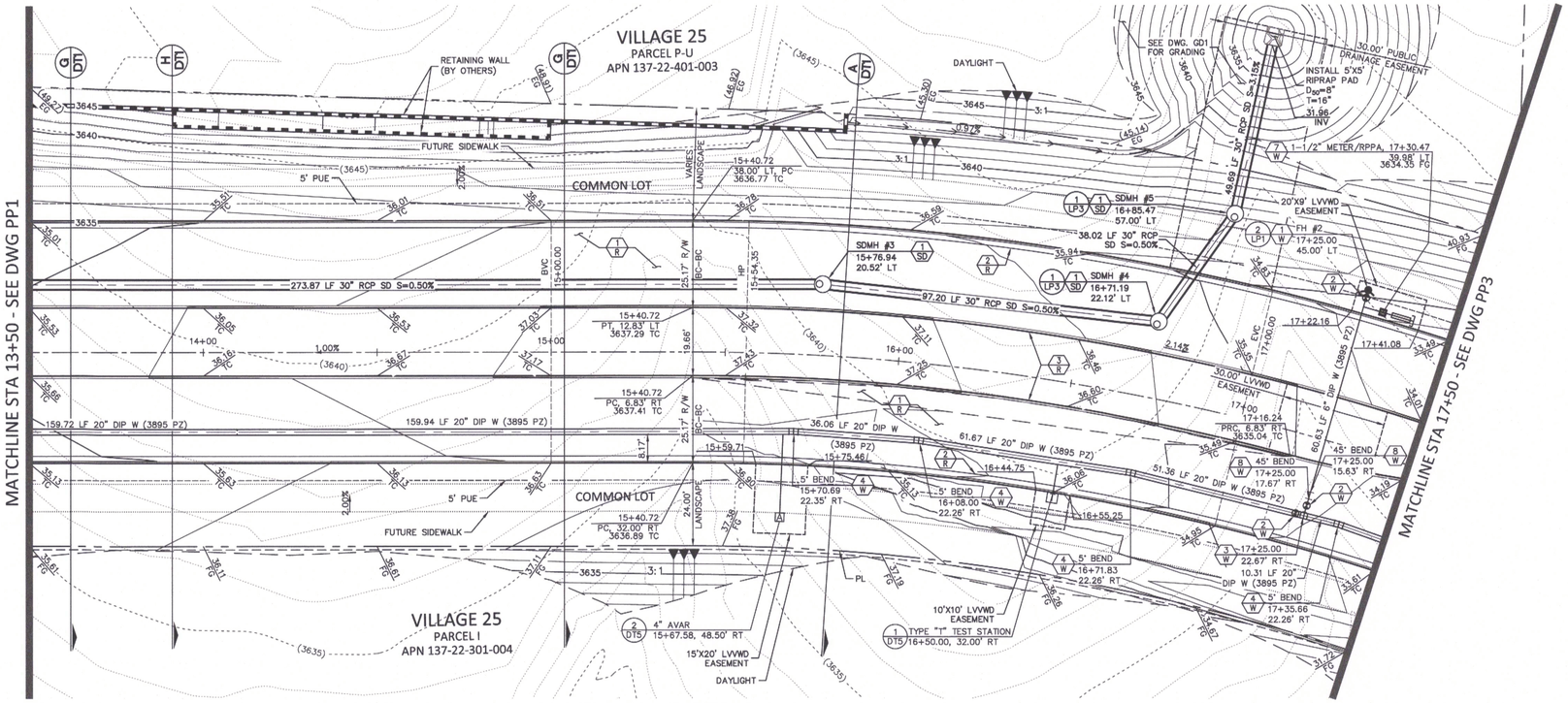
F:\PROJECTS\62025-209\CIVIL\PRODUCTION\62025-209C05_PP.DWG

THE HOWARD HUGHES COMPANY, LLC

VILLAGE 25 GRAND PARK BLVD IMPROVEMENTS (SANDSTONE RISE DRIVE TO FOX HILL DRIVE)

PLAN AND PROFILE 1

DRAWING
PP1
12 OF 33 SHTS



GRAND PARK BLVD

(PUBLIC)

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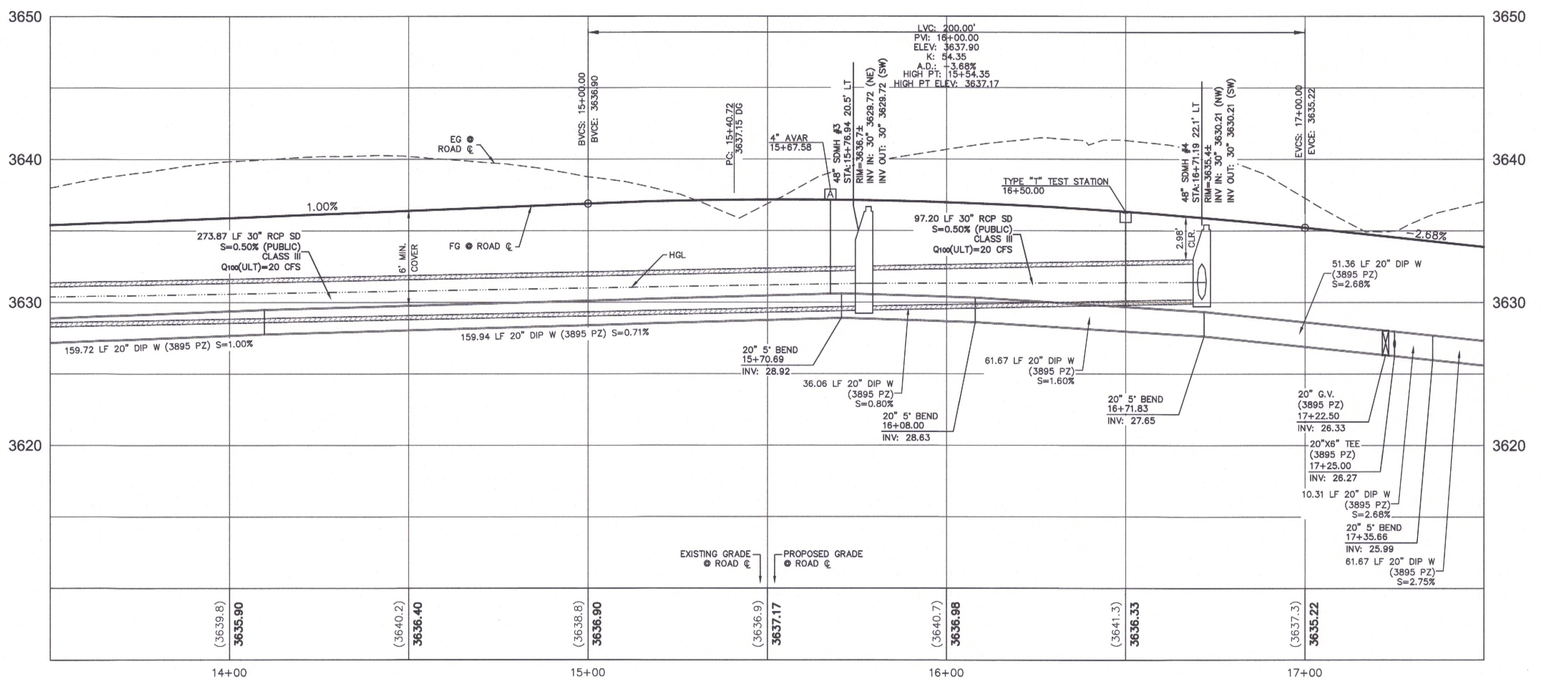
20' 0' 10' 20' 40'

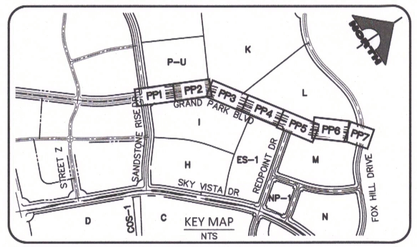


APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES

PROJECT NO. XXXXXX FIRST APPROVAL DATE:

LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ON-SITE N/A GPM



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FOR ALL DRY UTILITY CROSSINGS

1. MAINTAIN MINIMUM 12" VERTICAL SEPARATION AT ALL POINTS OF CROSSING.
2. MAINTAIN MINIMUM 3' PARALLEL SEPARATION
3. ANY EXCAVATION AT BACK OF CURB MUST REMAIN OPEN FOR INSPECTION OF COPPER SERVICE LATERALS. ANY COPPER SERVICE LATERAL KINKED, BENT OR OTHERWISE DAMAGED MUST BE REPLACED FROM THE MAIN TO THE ANGLE METER STOP.

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BENCHMARK

BM#	DESCRIPTION	NAVD 88 DATUM	NAVD 88 DATUM
CLV BM No. 7LV0934SW6	FIND RIVET AND PLATE IN TOP OF CURB SE CORNER OF DESERT MOON RD. AND SKY VISTA DR. T20S,R59E,S34	3318.31 (FEET)	1,011.422 (METERS)

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

L#: LXX-XXXXX-XXXX CLV#: 107XXXXX

ENGINEER'S STATE OF NEVADA — MICHAEL FANG — Exp. 06/30/2021 — CIVIL — No. 24464 — PROFESSIONAL

DATE: 10/09/2020

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GOW APP

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

PROJECT NO. 62025-209

DESIGN: PB
DRAWN: PB
CHECK: LG
PLOT DATE: 10-09-20
PLOT TIME: 16:03:57

ALEXANDER SANTIAGO

GCW ENGINEERS'S SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

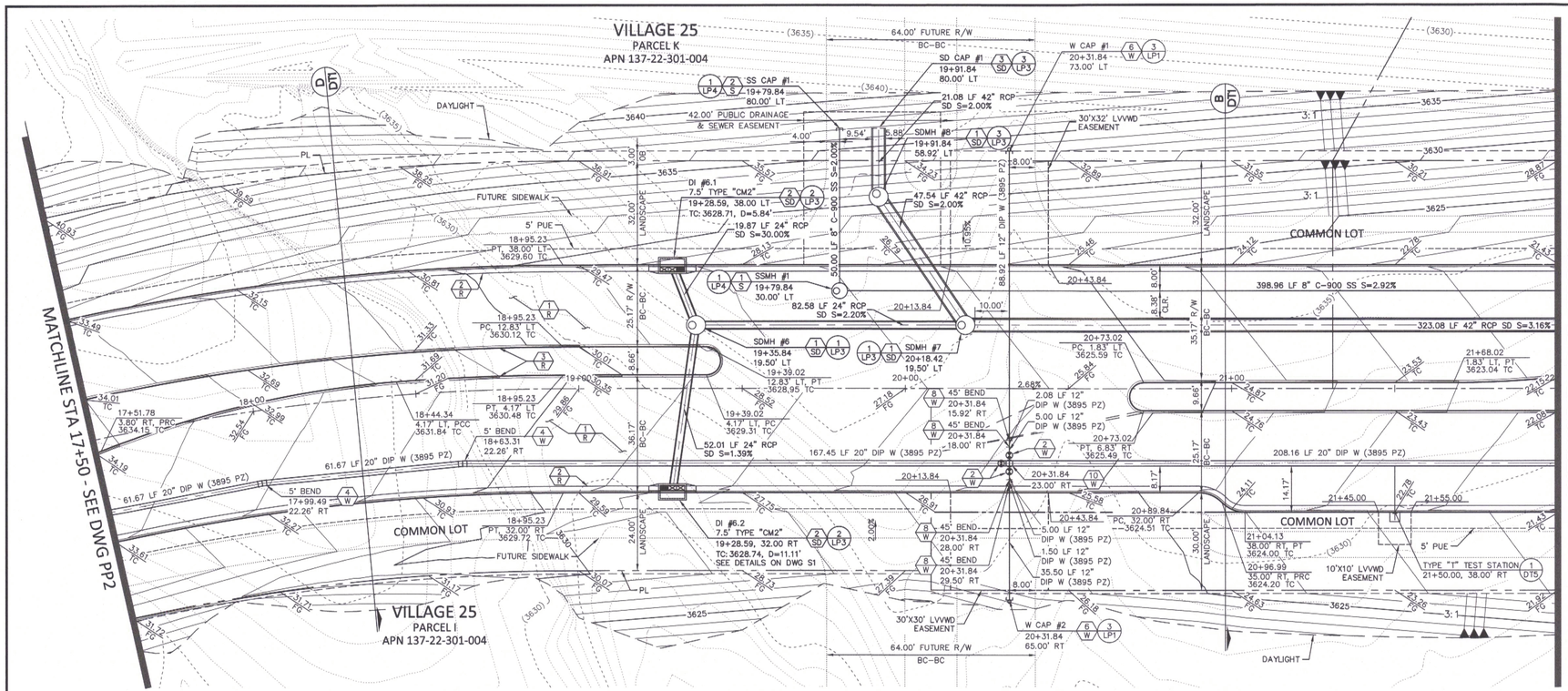
F:\PROJECTS\62025-209\CIVIL\PRODUCTION\62025-209CDS_PP.DWG

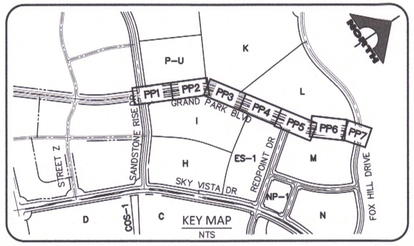
THE HOWARD HUGHES COMPANY, LLC

VILLAGE 25 GRAND PARK BLVD IMPROVEMENTS
(SANDSTONE RISE DRIVE TO FOX HILL DRIVE)

PLAN AND PROFILE 2

DRAWING
PP2
13 OF 33 SHTS





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GRAND PARK BLVD

(PUBLIC)

SCALE: HORIZ 1" = 20'
VERT. 1" = 5'

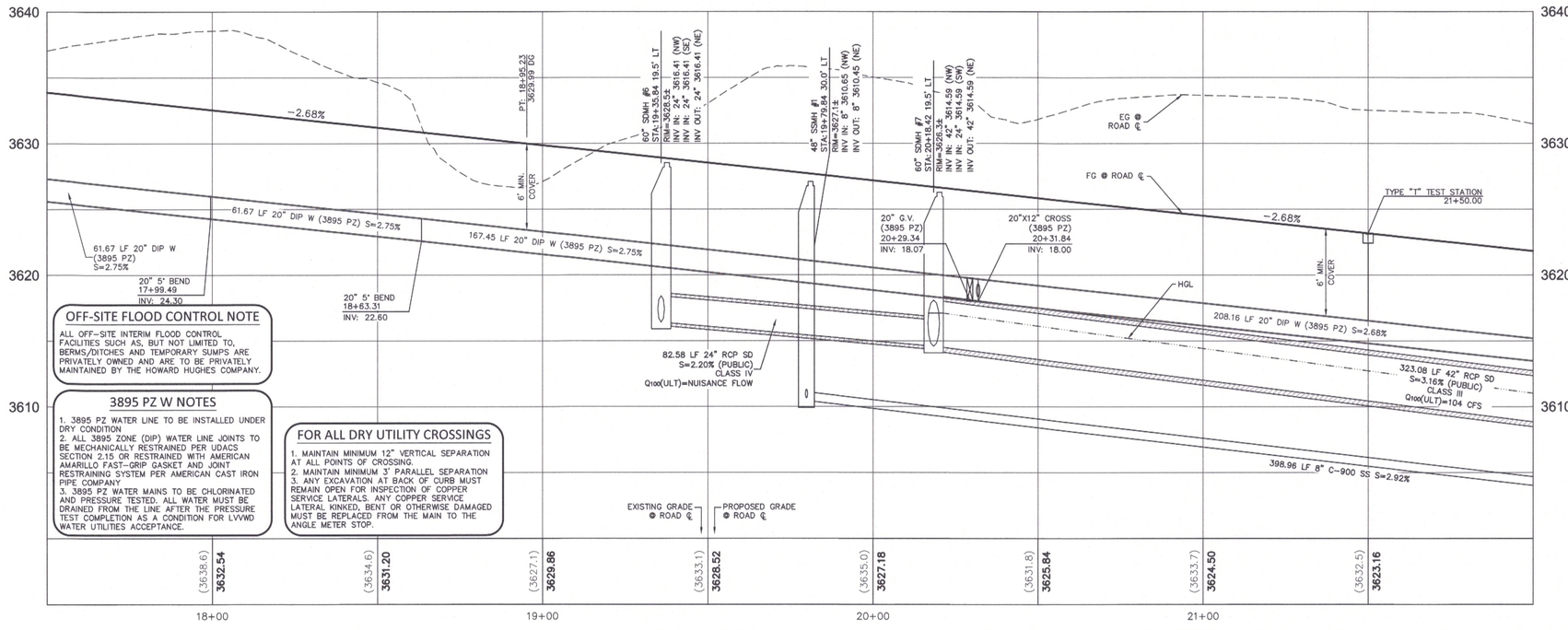
20' 0' 10' 20' 40'

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES

PROJECT NO. XXXXXX FIRST APPROVAL DATE:

LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ON-SITE N/A GPM



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PROTECTION CONSTRUCTION NOTES

1 P — EXISTING PAVEMENT, PROTECT IN PLACE
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3 P — EXISTING PULLBOX, ADJUST TO FINISH GRADE
4 P — EXISTING TEST STATION, ADJUST TO FINISH GRADE
5 P — EXISTING SDMH, PROTECT IN PLACE & ADJUST TO FINISH GRADE IF IMPACTED BY PAVEMENT IMPROVEMENTS
6 P — EXISTING SSMH, PROTECT IN PLACE & ADJUST TO FINISH GRADE IF IMPACTED BY PAVEMENT IMPROVEMENTS

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2 R — INSTALL "L" TYPE CURB & GUTTER, SEE SUMMERLIN STD DWG. S-47
3 R — INSTALL "A" TYPE ISLAND CURB, SEE SUMMERLIN STD DWG. S-50
4 R — INSTALL CURB TRANSITION PER DETAIL 4 DWG. DT4
5 R — CONSTRUCT SIDEWALK RAMP PER USD DWG No. 235 (CASE II)
6 R — INSTALL "L" TYPE ISLAND CURB, SEE SUMMERLIN STD DWG. S-50

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1 W — INSTALL FIRE HYDRANT & ASSEMBLY PER UDACS PLT. No. 40
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3 W — INSTALL TEE PER UDACS PLT. No. 31
4 W — INSTALL HORIZONTAL BEND PER UDACS PLT. No. 31 (SEE PLAN FOR ANGLE)
5 W — INSTALL REDUCER PER UDACS PLT. No. 31
6 W — INSTALL CAP W/ 2" BLOW-OFF ASSEMBLY PER UDACS PLT. No. 36
7 W — INSTALL 1-½" WATER METER AND 1-½" RPPA PER DETAIL 1 DWG. DT4
8 W — INSTALL VERTICAL BEND PER UDACS PLT. No. 31 (SEE PROFILE FOR ANGLE)
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10 W — INSTALL CROSS PER UDACS PLT. No. 31

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BASIS OF BEARING AND COORDINATES

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

LINEAR UNIT: US SURVEY FOOT (FTUS)
DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00
SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)
ZONE:LAS VEGAS HIGH ELEVATION ZONE

PROJECTION: TRANSVERSE MERCATOR
STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N
LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W
NORTHING AT GRID ORIGIN: 400,000.00 M (1,312,333.3333 FTUS)
EASTING AT CENTRAL MERIDIAN: 300,000 M (984,250.0000 FTUS)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

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L#: LXX-XXXXX-XXXX CLV#: 107XXXXX

ENGINEER'S STATE OF NEVADA PROFESSIONAL
MICHAEL FANG
Exp. 06/30/2021
CIVIL
No. 24464
DATE 10/09/2020

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GOV APP
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PROJECT NO. 62025-209
DESIGN: PB
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PLOT TIME: 16:04:43

GCW ENGINEERS \ SURVEYORS
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gcwengineering.com
ALEXANDER SANTIAGO

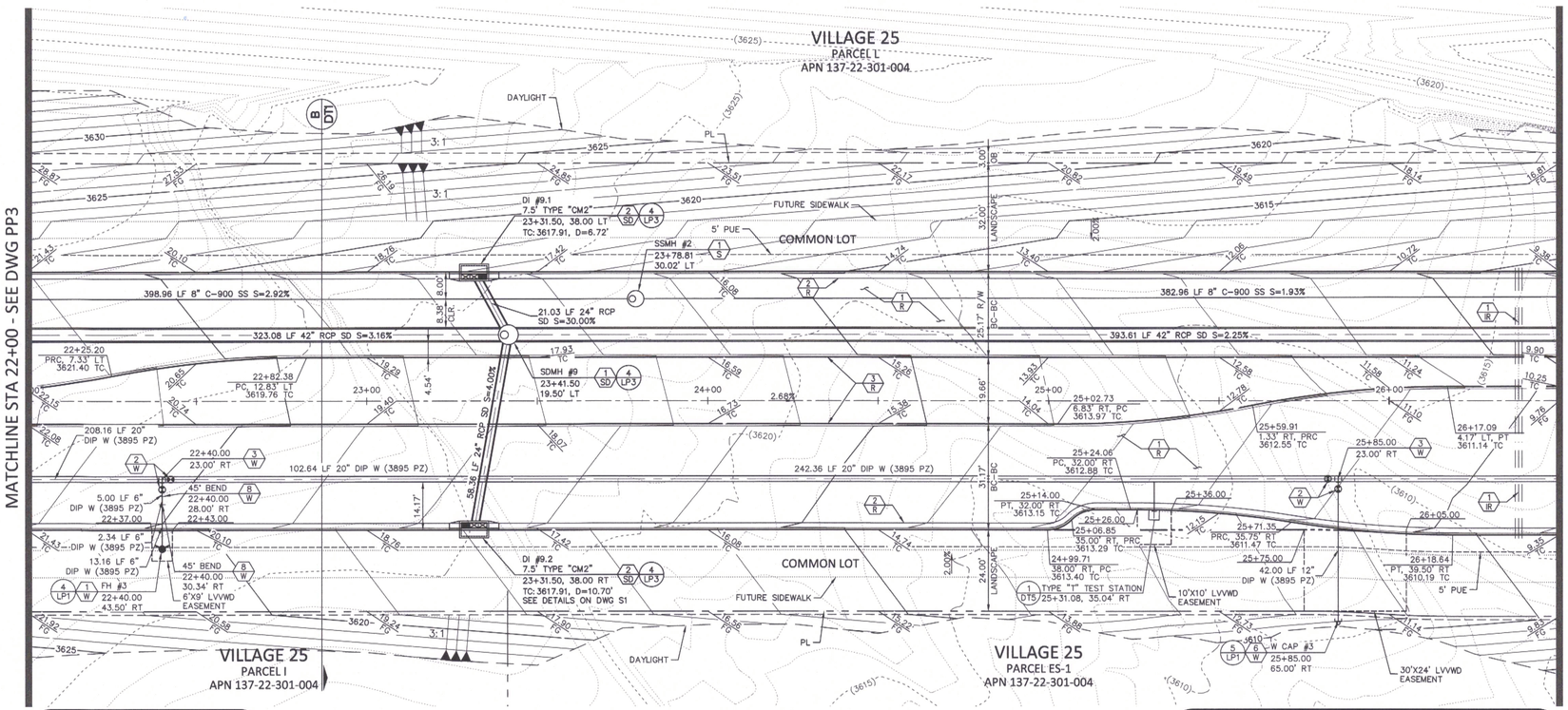
F:\PROJECTS\62025-209\CIVIL\PRODUCTION\62025-209CDS_PP.DWG

THE HOWARD HUGHES COMPANY, LLC

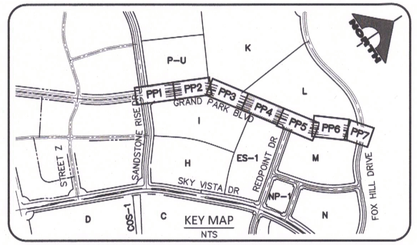
VILLAGE 25 GRAND PARK BLVD IMPROVEMENTS
(SANDSTONE RISE DRIVE TO FOX HILL DRIVE)

PLAN AND PROFILE 3

DRAWING
PP3
14 OF 33 SHTS



NORTH



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(PUBLIC)

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APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES

PROJECT NO. XXXXXX FIRST APPROVAL DATE:

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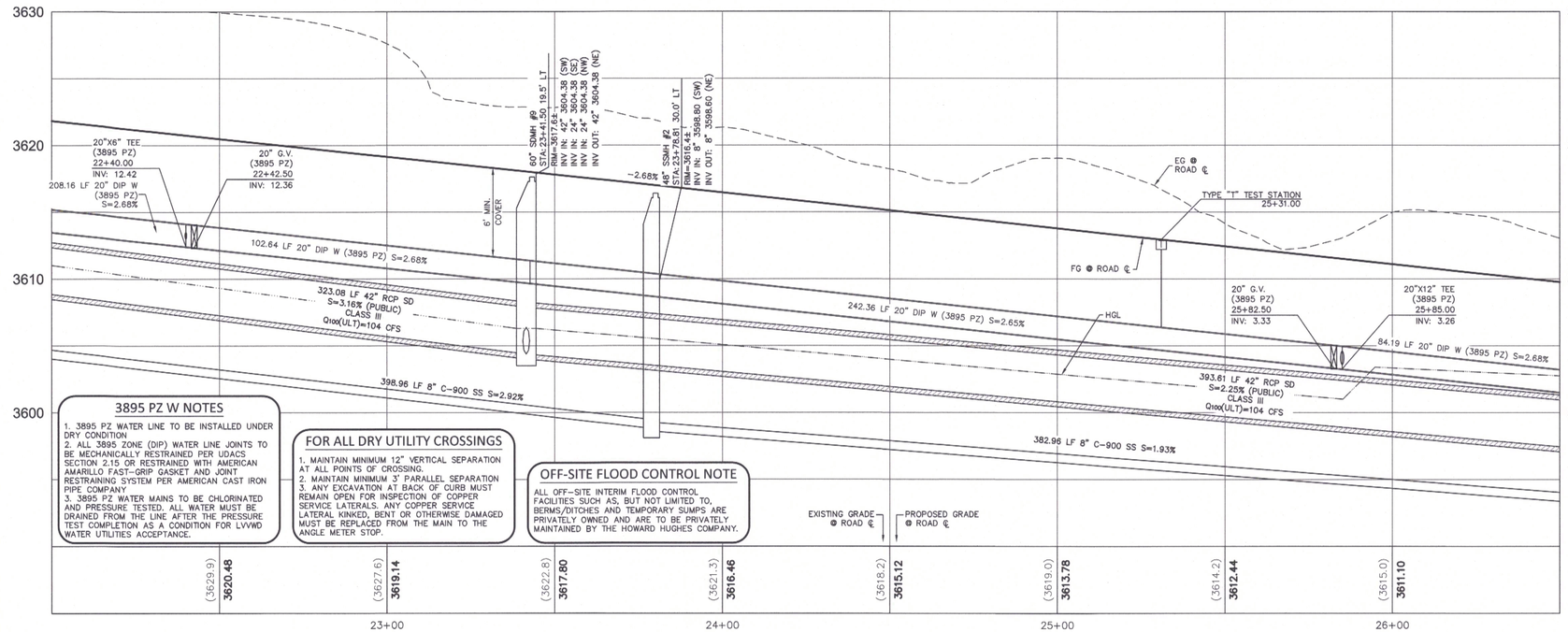

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L#: LXX-XXXXX-XXXX CLV#: 107XXXXX

STATE OF NEVADA PROFESSIONAL ENGINEER MICHAEL P. FANG Exp. 06/30/2021 CIVIL No. 24464
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F: 702.804.2299
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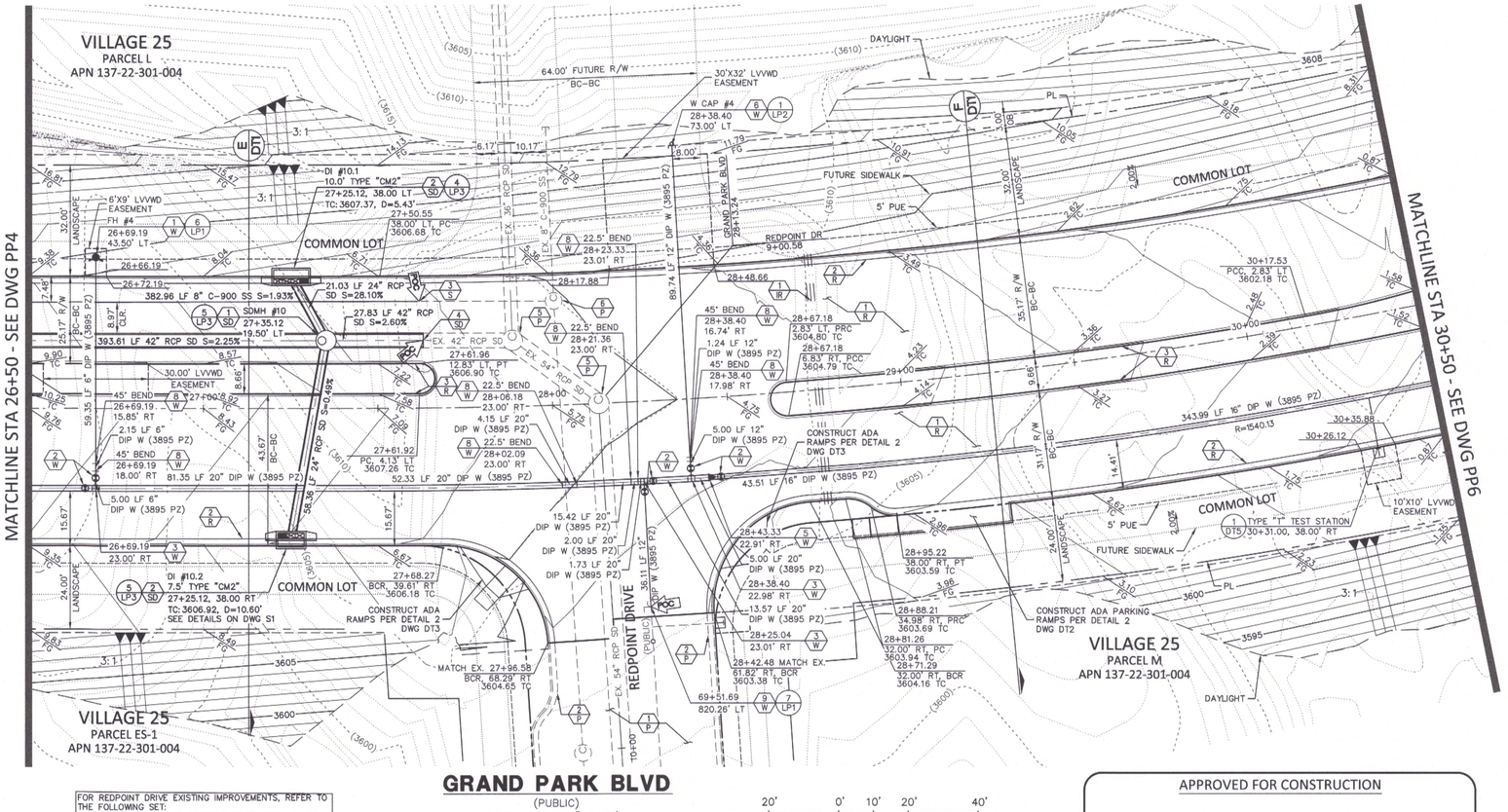
F:\PROJECTS\600\62025-209\DWG\PRODUCTION\62025-209CDS_PP.DWG
ALEXANDER SANTIAGO

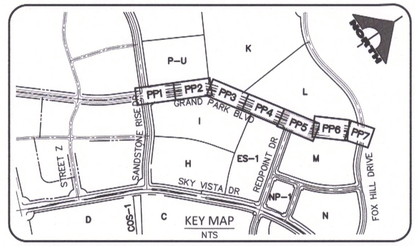
THE HOWARD HUGHES COMPANY, LLC

VILLAGE 25 GRAND PARK BLVD IMPROVEMENTS
(SANDSTONE RISE DRIVE TO FOX HILL DRIVE)

PLAN AND PROFILE 4

DRAWING
PP4
15 OF 33 SHTS





GRAND PARK BLVD
(PUBLIC)
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FOR REDPOINT DRIVE EXISTING IMPROVEMENTS, REFER TO THE FOLLOWING SET:
"SUMMERLIN VILLAGE 25 REDPOINT DRIVE, PARK BLUFF LANE, FOXTAIL PASS WAY IMPROVEMENTS (GRAND PARK BOULEVARD TO SKY VISTA DRIVE)"
BY GCW, INC.
CLV #107V8184

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES

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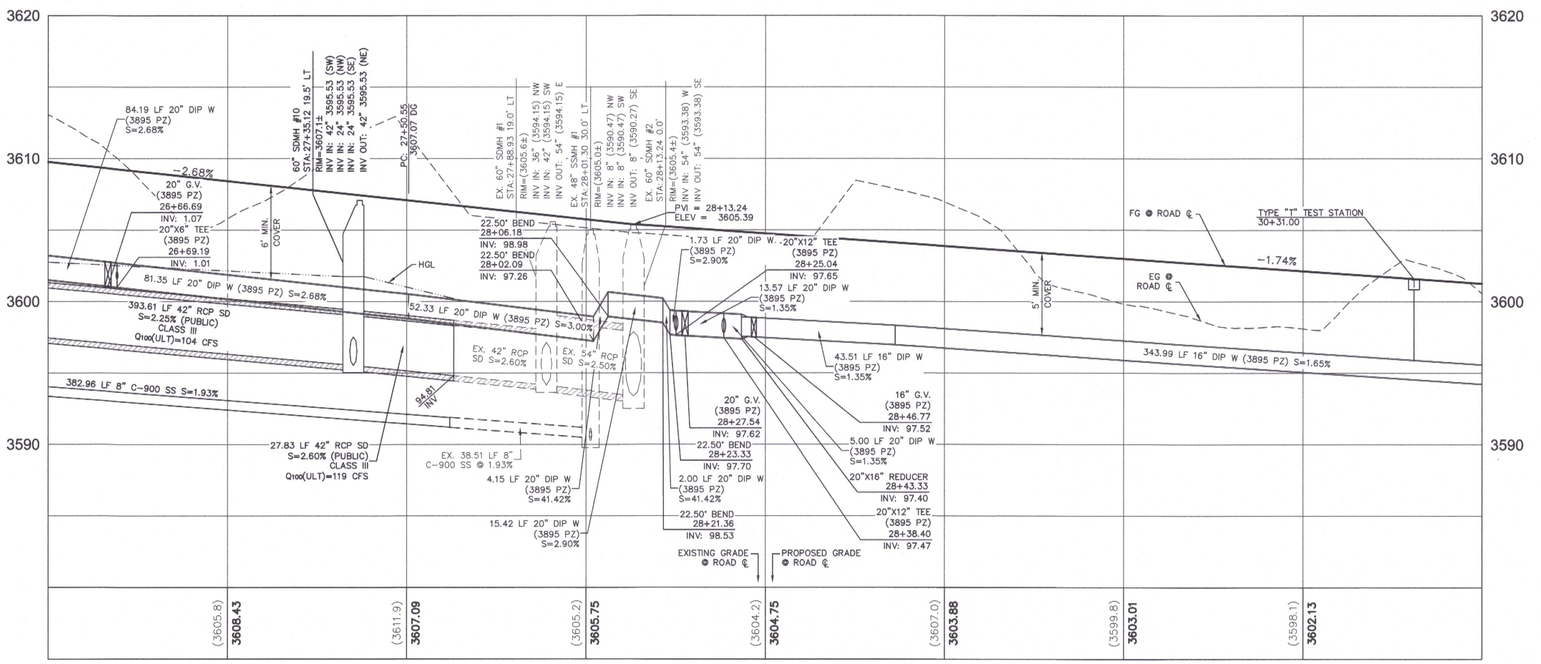

LVVWD NOTE

PROTECT IN PLACE AND ADJUST LVVWD EXISTING FACILITIES TO FINISHED GRADE PER UDACS. ALL LVVWD FACILITIES SHALL BE ACCESSIBLE AT ALL TIMES.

LVVWD NOTE

LVVWD CANNOT GUARANTEE A WATERTIGHT SHUTDOWN WHERE CONNECTIONS OR REPAIRS TO EXISTING FACILITIES ARE REQUIRED. THE CONTRACTOR SHALL ENSURE ALL LABOR AND EQUIPMENT IS AVAILABLE TO REMOVE REMAINING WATER. COORDINATION WITH INSPECTION DIVISION MUST TAKE PLACE PRIOR TO ANY TRIAL SHUTDOWN.

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2 P — EXISTING CURB/GUTTER, PROTECT IN PLACE
3 P — EXISTING PULLBOX, ADJUST TO FINISH GRADE
4 P — EXISTING TEST STATION, ADJUST TO FINISH GRADE
5 P — EXISTING SDMH, PROTECT IN PLACE & ADJUST TO FINISH GRADE IF IMPACTED BY PAVEMENT IMPROVEMENTS
6 P — EXISTING SSMH, PROTECT IN PLACE & ADJUST TO FINISH GRADE IF IMPACTED BY PAVEMENT IMPROVEMENTS

ROADWAY CONSTRUCTION NOTES

1 R — INSTALL A.C. PAVEMENT PER STREET SECTIONS, SEE DWG. DT1
2 R — INSTALL "L" TYPE CURB & GUTTER, SEE SUMMERLIN STD DWG. S-47
3 R — INSTALL "A" TYPE ISLAND CURB, SEE SUMMERLIN STD DWG. S-50
4 R — INSTALL CURB TRANSITION PER DETAIL 4 DWG. DT4
5 R — CONSTRUCT SIDEWALK RAMP PER USD DWG No. 235 (CASE II)
6 R — INSTALL "L" TYPE ISLAND CURB, SEE SUMMERLIN STD DWG. S-50

WATER CONSTRUCTION NOTES

1 W — INSTALL FIRE HYDRANT & ASSEMBLY PER UDACS PLT. No. 40
2 W — INSTALL GATE VALVE AND BOX PER UDACS PLT. No. 30 AND 39
3 W — INSTALL TEE PER UDACS PLT. No. 31
4 W — INSTALL HORIZONTAL BEND PER UDACS PLT. No. 31 (SEE PLAN FOR ANGLE)
5 W — INSTALL REDUCER PER UDACS PLT. No. 31
6 W — INSTALL CAP W/ 2" BLOW-OFF ASSEMBLY PER UDACS PLT. No. 36
7 W — INSTALL 1-½" WATER METER AND 1-½" RPPA PER DETAIL 1 DWG. DT4
8 W — INSTALL VERTICAL BEND PER UDACS PLT. No. 31 (SEE PROFILE FOR ANGLE)
9 W — REMOVE CAP AND BLOWOFF PER UDACS PLT. No. 36 AND CONNECT TO EXISTING WATER LINE.
10 W — INSTALL CROSS PER UDACS PLT. No. 31

SEWER CONSTRUCTION NOTES

1 S — INSTALL SEWER MANHOLE PER DCS STD. DWG. 1A AND 1B
2 S — STUB AND CAP SEWER PIPE PER DETAIL 2 DWG. DT4
3 S — REMOVE PLUG & CONNECT TO SEWER LINE (CONTRACTOR TO VERIFY SIZE, INVERT, AND LOCATION OF EX. SEWER PRIOR TO CONSTRUCTION)

STORM DRAIN CONSTRUCTION NOTES

1 SD — INSTALL TYPE II MANHOLE PER USD DWG. No. 405.1
2 SD — INSTALL TYPE "CM2" DROP INLET PER USD DWG. No. 412.1 AND 421
3 SD — INSTALL TEMPORARY PLUG AND CAP PER DETAIL 3 ON DWG. DT5
4 SD — REMOVE PLUG & CONNECT TO EX. STORM DRAIN TO NEAREST RCP JOINT OR W/ CONCRETE COLLAR PER DETAIL 4 ON DWG. DT5 (CONTRACTOR TO VERIFY SIZE, INVERT, AND LOCATION OF EX. STORM DRAIN PRIOR TO CONSTRUCTION)

IRRIGATION CONSTRUCTION NOTES

1 IR — BANK "A": 1-6" & 2-4" SCH 40 PVC. PER DETAIL 3 DRAWING DT4

CONTRACTOR TO FIELD VERIFY SIZE, LOCATION AND INVERT OF EXISTING PIPE, AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO NEW SEWER CONSTRUCTION

BASIS OF BEARING AND COORDINATES

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS HIGH ELEVATION ZONE; NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

LINEAR UNIT: US SURVEY FOOT (FTUS)
DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00
SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)
ZONE:LAS VEGAS HIGH ELEVATION ZONE

PROJECTION: TRANSVERSE MERCATOR
STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N
LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W
NORTHING AT GRID ORIGIN: 400,000.00 M (1,312,333.3333 FTUS)
EASTING AT CENTRAL MERIDIAN: 300,000.00 M (984,250.0000 FTUS)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

NOTES:
1. ALL DISTANCES AND BEARINGS SHOWN HEREON ARE PROJECTED (GRID) VALUES BASED ON THE PRECEDING PROJECTION DEFINITION. THE PROJECTION WAS DEFINED SUCH THAT PROJECTED (GRID) DISTANCES ARE EQUIVALENT TO "GROUND" DISTANCES IN THE PROJECT AREA.
2. GRID BEARINGS SHOWN HEREON (OR IMPLIED BY GRID COORDINATES) DO NOT EQUAL GEODETIC BEARINGS DUE TO MERIDIAN CONVERGENCE.

BENCHMARK

BM#	DESCRIPTION	NAVD 88 DATUM	NAVD 88 DATUM
CLV BM No. 7LV0934SW6	FIND RIVET AND PLATE IN TOP OF CURB SE CORNER OF DESERT MOON RD. AND SKY VISTA DR. T20S,R59E,S34	3318.31 (FEET)	1,011.422 (METERS)

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

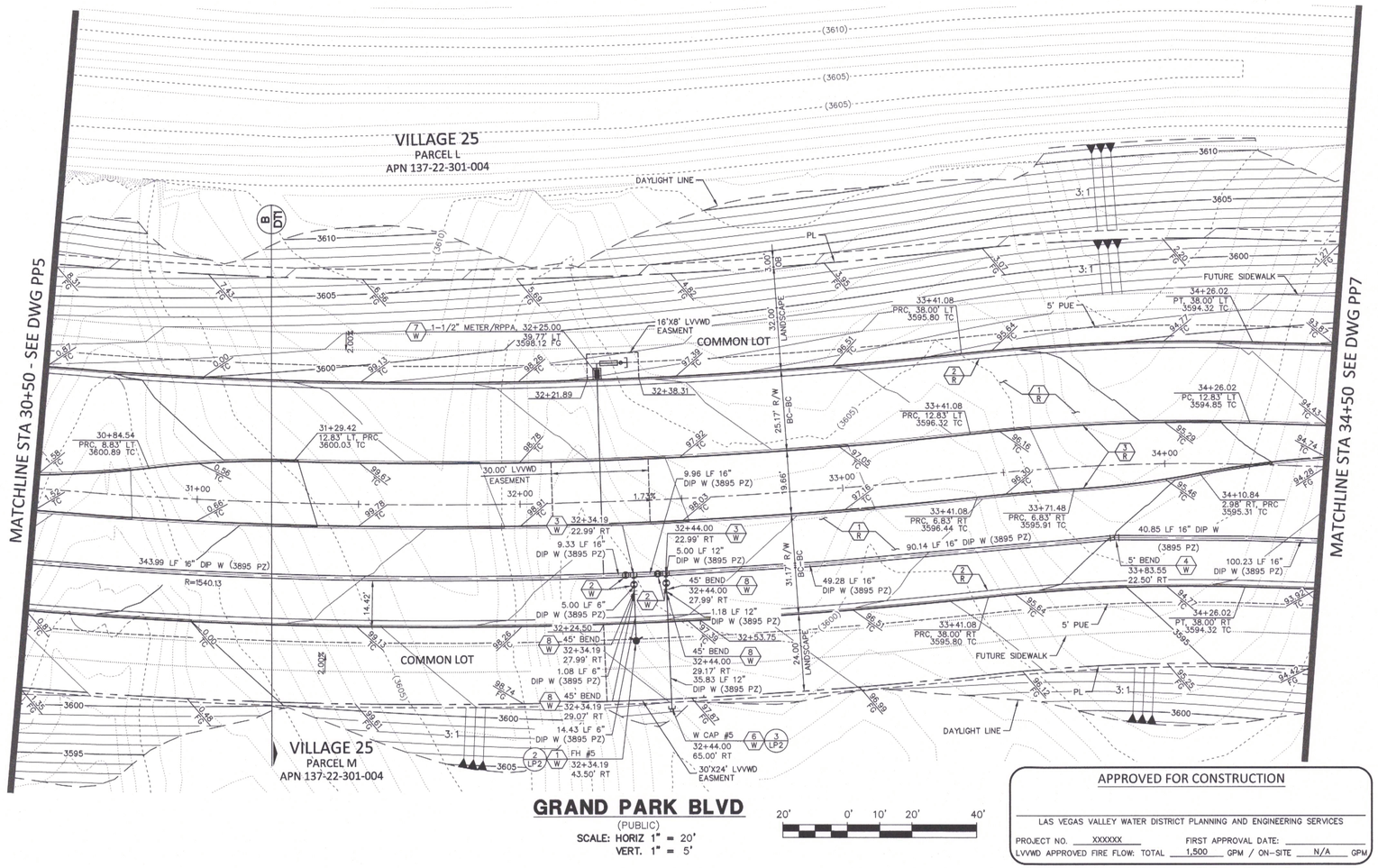
AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.
CALL BEFORE YOU DIG OVERHEAD
1-702-227-2929

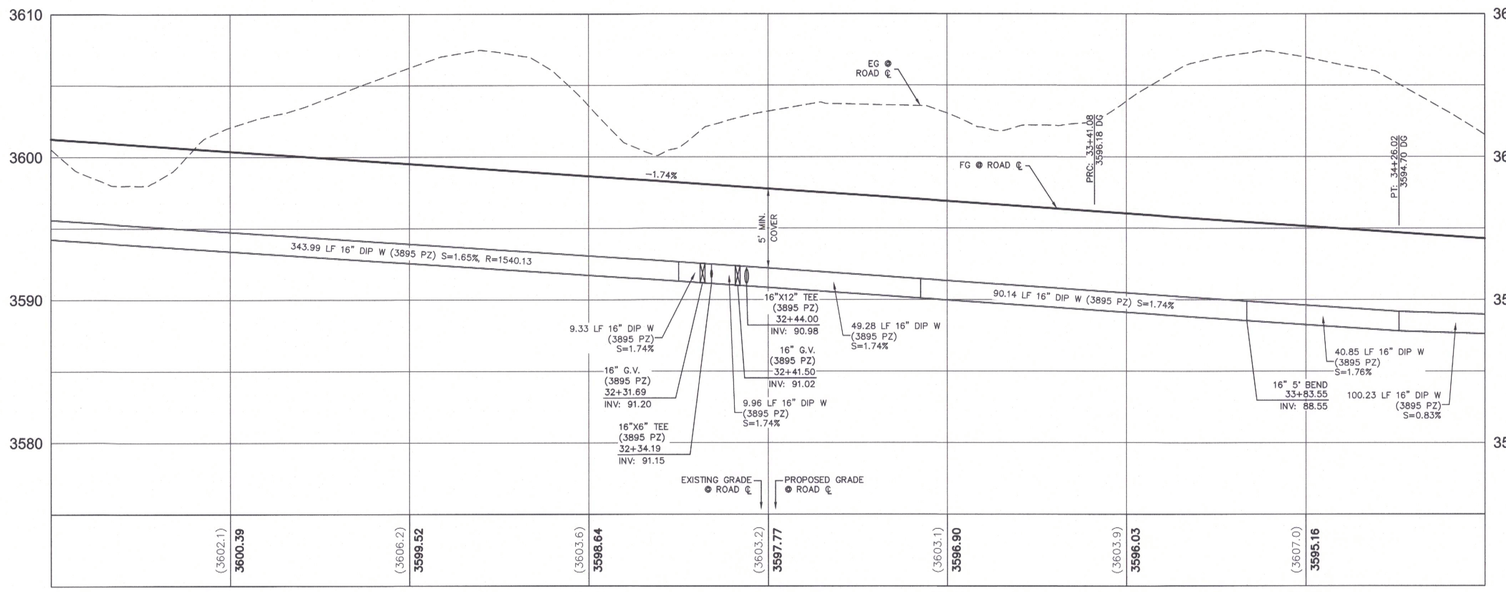
L#: LXX-XXXXX-XXXX | CLV#: 107XXXXX

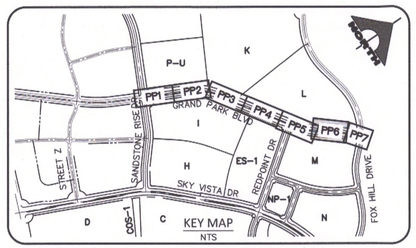
STATE OF NEVADA — PROFESSIONAL ENGINEER — MICHAEL FANG — Exp. 06/30/2021 — CIVIL — No. 24464 — DATE: 10/09/2020

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION







APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES

PROJECT NO. XXXXXX FIRST APPROVAL DATE: _____

LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ON-SITE N/A GPM

PROTECTION CONSTRUCTION NOTES

1 P — EXISTING PAVEMENT, PROTECT IN PLACE
2 P — EXISTING CURB/GUTTER, PROTECT IN PLACE
3 P — EXISTING PULLBOX, ADJUST TO FINISH GRADE
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3 R — INSTALL "A" TYPE ISLAND CURB, SEE SUMMERLIN STD DWG. S-50
4 R — INSTALL CURB TRANSITION PER DETAIL 4 DWG. DT4
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IRRIGATION CONSTRUCTION NOTES

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LINEAR UNIT: US SURVEY FOOT (FTUS)
DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00
SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)
ZONE:LAS VEGAS HIGH ELEVATION ZONE

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STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N
LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W
NORTHING AT GRID ORIGIN: 400,000.00 M (1,312,333.3333 FTUS)
EASTING AT CENTRAL MERIDIAN: 300,000 M (984,250.0000 FTUS)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

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OFF-SITE FLOOD CONTROL NOTE

ALL OFF-SITE INTERIM FLOOD CONTROL FACILITIES SUCH AS, BUT NOT LIMITED TO, BERMS/DITCHES AND TEMPORARY SUMPS ARE PRIVATELY OWNED AND ARE TO BE PRIVATELY MAINTAINED BY THE HOWARD HUGHES COMPANY.

FOR ALL DRY UTILITY CROSSINGS

1. MAINTAIN MINIMUM 12" VERTICAL SEPARATION AT ALL POINTS OF CROSSING.
2. MAINTAIN MINIMUM 3' PARALLEL SEPARATION
3. ANY EXCAVATION AT BACK OF CURB MUST REMAIN OPEN FOR INSPECTION OF COPPER SERVICE LATERALS. ANY COPPER SERVICE LATERAL KINKED, BENT OR OTHERWISE DAMAGED MUST BE REPLACED FROM THE MAIN TO THE ANGLE METER STOP.

3895 PZ W NOTES

1. 3895 PZ WATER LINE TO BE INSTALLED UNDER DRY CONDITION
2. ALL 3895 ZONE (DIP) WATER LINE JOINTS TO BE MECHANICALLY RESTRAINED PER UDACS SECTION 2.15 OR RESTRAINED WITH AMERICAN AMARILLO FAST-GRIP GASKET AND JOINT RESTRAINING SYSTEM PER AMERICAN CAST IRON PIPE COMPANY.
3. 3895 PZ WATER MAINS TO BE CHLORINATED AND PRESSURE TESTED. ALL WATER MUST BE DRAINED FROM THE LINE AFTER THE PRESSURE TEST COMPLETION AS A CONDITION FOR LVVWD WATER UTILITIES ACCEPTANCE.

BENCHMARK

BM#	DESCRIPTION	NAVD 88 DATUM	NAVD 88 DATUM
CLV BM No. 7LV0934SW6	FIND RIVET AND PLATE IN TOP OF CURB SE CORNER OF DESERT MOON RD. AND SKY VISTA DR. T20S,R59E,S34	3318.31 (FEET)	1,011.422 (METERS)

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1-702-227-2929

L#: LXX-XXXXX-XXXX CLV#: 107XXXXX

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

DESCRIPTION	DATE	REV
	DATE	AGEN APP
	DATE	GOW APP
	DATE	10/09/2020

PROJECT NO. 62025-209
DESIGN: PB
DRAWN: PB
CHECK: LG
PLOT DATE: 10-09-20
PLOT TIME: 16:07:06

ENGINEER - STATE OF NEVADA — MICHAEL FANG — Exp. 06/30/2021 — CIVIL — No. 24464 — PROFESSIONAL

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

F:\PROJECTS\600\62025 - 209\DWG\PRODUCTION\62025 - 209COB_PP.DWG

ALEXANDER SANTIAGO

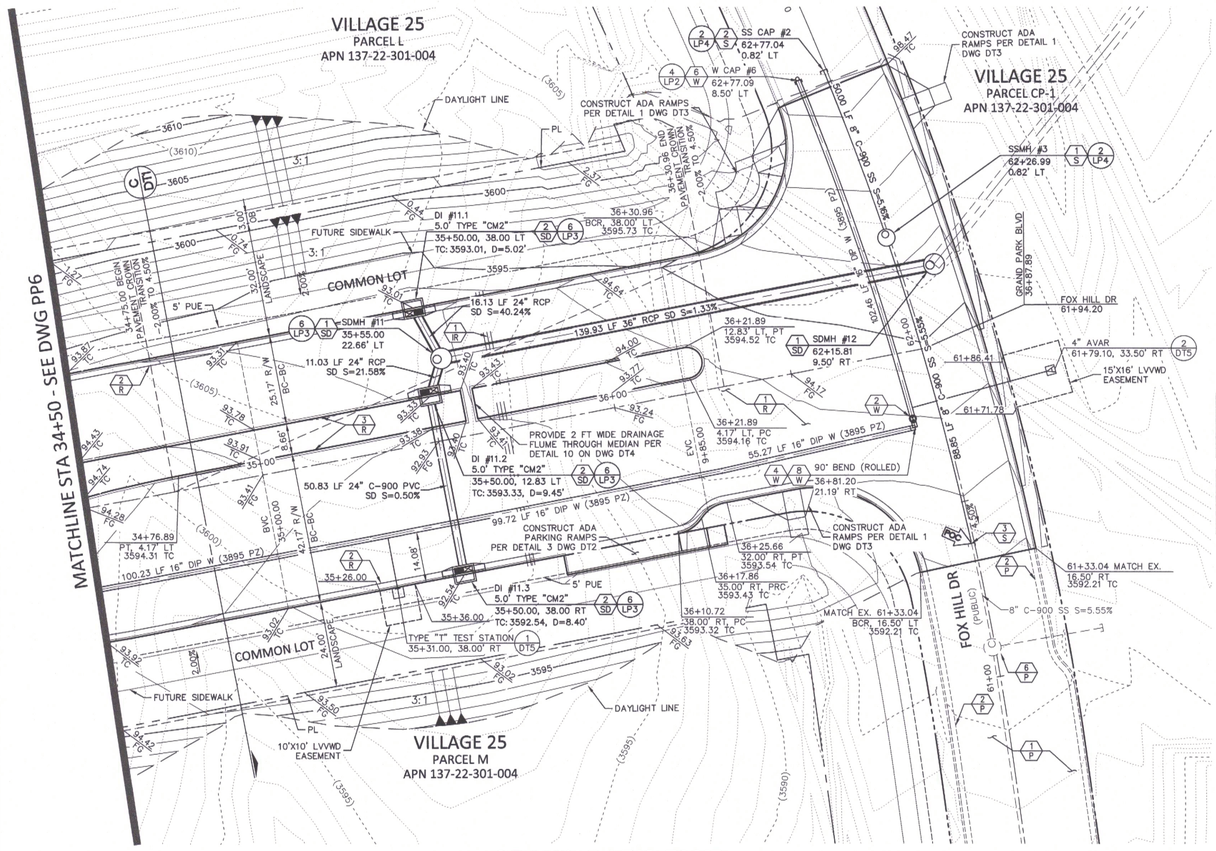
THE HOWARD HUGHES COMPANY, LLC

VILLAGE 25 GRAND PARK BLVD IMPROVEMENTS (SANDSTONE RISE DRIVE TO FOX HILL DRIVE)

PLAN AND PROFILE 6

DRAWING PP6

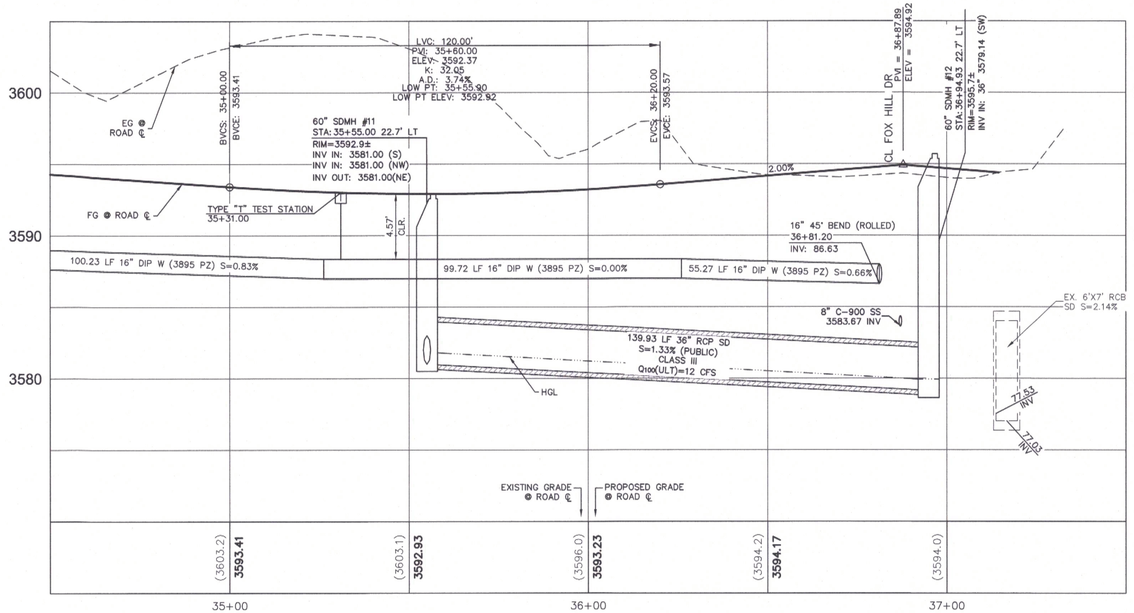
17 OF 33 SHTS

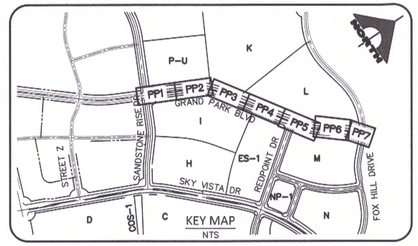


GRAND PARK BLVD

(PUBLIC)

SCALE: HORIZ 1" = 20'
VERT. 1" = 5'





PROTECTION CONSTRUCTION NOTES

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DROP INLET NOTE

WHERE 10 FEET PARALLEL SEPARATION IS NOT PRACTICABLE:

ALL STORM DRAIN DROP INLETS ARE TO BE CONSTRUCTED PER THE REQUIREMENTS OF USDCCA DWG. NO. 421 (STORMWATER QUALITY MANAGEMENT STAMP AND SIGN DETAIL).

DROP INLET NOTE

ALL STORM DRAIN DROP INLETS ARE TO BE CONSTRUCTED PER THE REQUIREMENTS OF USDCCA DWG. NO. 421 (STORMWATER QUALITY MANAGEMENT STAMP AND SIGN DETAIL).

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LINEAR UNIT: US SURVEY FOOT (FTUS)
DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00
SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)
ZONE:LAS VEGAS HIGH ELEVATION ZONE

PROJECTION: TRANSVERSE MERCATOR
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LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W
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APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES

PROJECT NO. XXXXXX FIRST APPROVAL DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ON-SITE N/A GPM

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L#: LXX-XXXXX-XXXX | CLV#: 107XXXXX

NEVADA STATE OF ENGINEER PROFESSIONAL MICHAEL FANG Exp. 06/30/2021 CIVIL No. 24464
DATE: 10/09/2020

REV	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP	DATE

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

PROJECT NO. 62025-209
DESIGN: PB
DRAWN: PB
CHECK: LG
PLOT DATE: 10-09-20
PLOT TIME: 16:07:56
ALEXANDER SANTIAGO
F:\PROJECTS\62025-209\DWG\PRODUCTION\62025-209CIOS_PP.DWG

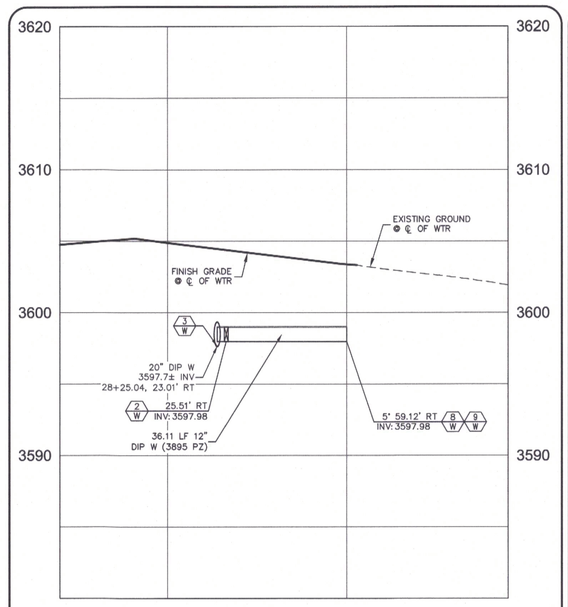
GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

THE HOWARD HUGHES COMPANY, LLC

VILLAGE 25 GRAND PARK BLVD IMPROVEMENTS (SANDSTONE RISE DRIVE TO FOX HILL DRIVE)

PLAN AND PROFILE 7

DRAWING PP7
18 OF 33 SHTS

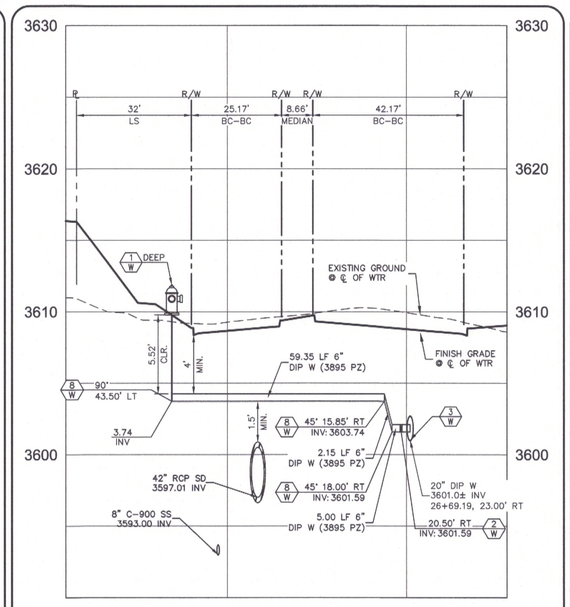


GRAND PARK BOULEVARD
WTR LATERAL @ 27+54.45

SCALE: HORIZ. 1"=20', VERT. 1"=5'

7

SEE DRAWING PP5

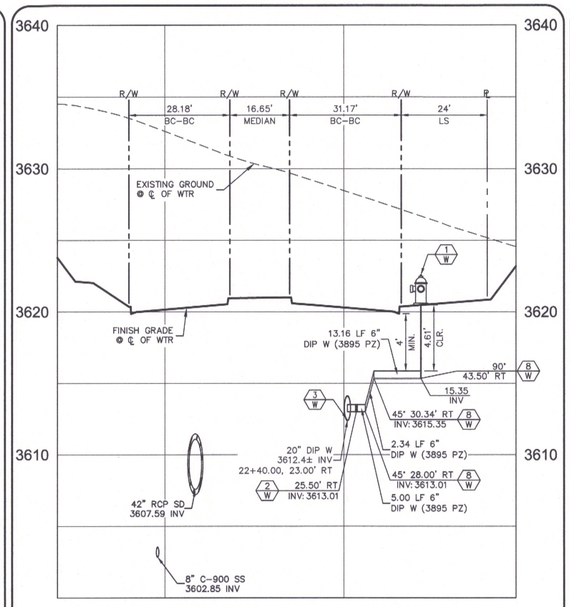


GRAND PARK BOULEVARD
WTR LATERAL @ 26+69.19

SCALE: HORIZ. 1"=20', VERT. 1"=5'

6

SEE DRAWING PP5

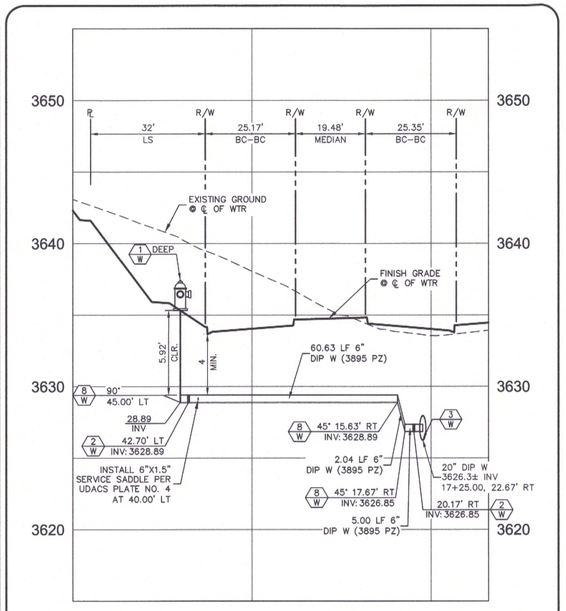


GRAND PARK BOULEVARD
WTR LATERAL @ 22+40.00

SCALE: HORIZ. 1"=20', VERT. 1"=5'

4

SEE DRAWING PP4

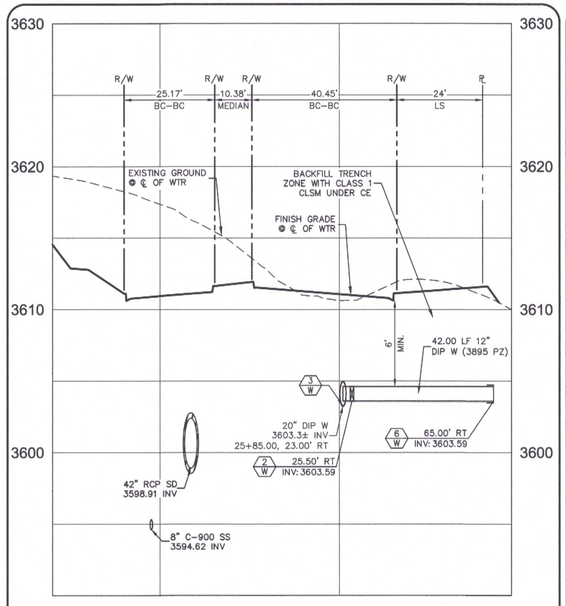


GRAND PARK BOULEVARD
WTR LATERAL @ 17+25.00

SCALE: HORIZ. 1"=20', VERT. 1"=5'

2

SEE DRAWING PP2

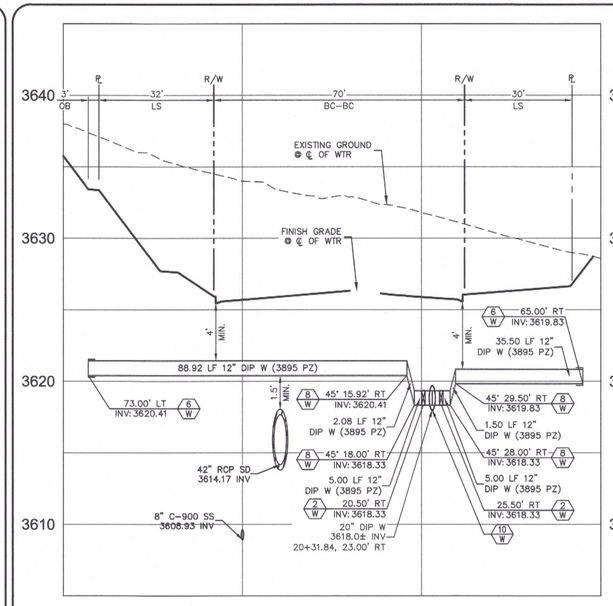


GRAND PARK BOULEVARD
WTR LATERAL @ 25+85.00

SCALE: HORIZ. 1"=20', VERT. 1"=5'

5

SEE DRAWING PP4

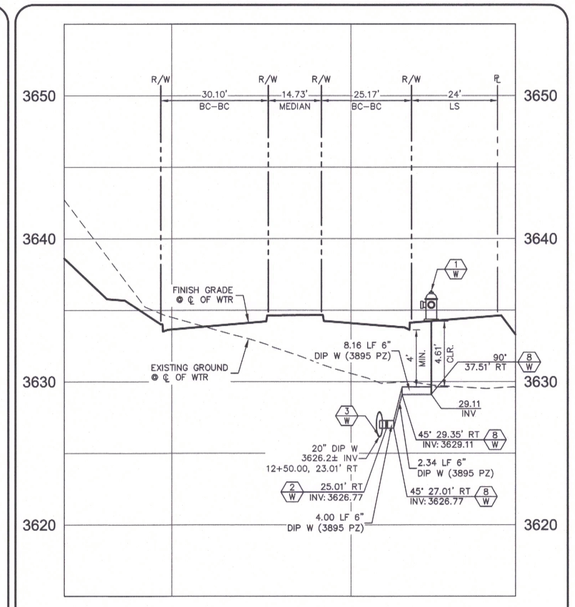


GRAND PARK BOULEVARD
WTR LATERAL @ 20+31.84

SCALE: HORIZ. 1"=20', VERT. 1"=5'

3

SEE DRAWING PP3



GRAND PARK BOULEVARD
WTR LATERAL @ 12+50.00

SCALE: HORIZ. 1"=20', VERT. 1"=5'

1

SEE DRAWING PP1

ALL 3895 ZONE (DIP) WATER LINE JOINTS TO BE MECHANICALLY RESTRAINED PER UDACS SECTION 2.15 OR RESTRAINED WITH AMERICAN AMARILLO FAST-GRIP GASKET AND JOINT RESTRAINING SYSTEM PER AMERICAN CAST IRON PIPE COMPANY

WATER CONSTRUCTION NOTES:

1 W — INSTALL FIRE HYDRANT PER UDACS PL. NO. 30, 39 AND 40. FOR "DEEP" FIRE HYDRANTS SEE UDACS PL. NO. 41.

2 W — INSTALL GATE VALVE AND BOX PER UDACS PL. NO. 30 AND 39

8 W — INSTALL VERTICAL BEND PER UDACS PL. NO. 31 UNLESS OTHERWISE IDENTIFIED. (SEE PLAN FOR ANGLE)

9 W — REMOVE CAP AND BLOWOFF PER UDACS PL. NO. 36 AND CONNECT TO EX WATER LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX WATER PRIOR TO CONSTRUCTION)

3 W — INSTALL TEE PER UDACS PLT. NO. 31

6 W — INSTALL CAP W/ 2" BLOW-OFF ASSEMBLY PER UDACS PL. NO. 36

10 W — INSTALL CROSS PER UDACS PLT. NO. 31

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. XXXXXX FIRST APPROVAL DATE:

L#: LXX-XXXXX-XXXX CLV#: 107XXXXX

ENGINEER - STATE OF NEVADA - PROFESSIONAL - MICHAEL FANG - Exp. 06/30/2021 - CIVIL - No. 24464 - DATE: 10/09/2020

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	AGEN APP	DATE	GCW APP	DATE

PROJECT NO. 62025-209

DESIGN: PB
DRAWN: PB
CHECK: LG
PLOT DATE: 10-09-20
PLOT TIME: 16:08:47

ALEXANDER SANTIAGO

GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
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gcwengineering.com

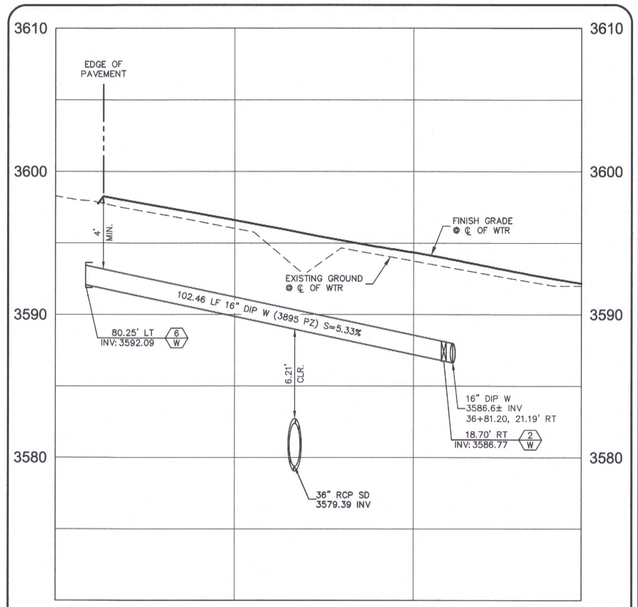
F:\PROJECTS\GCW\2025-209\GCW\PRODUCTION\2025-209CIVIL_LP1.DWG

THE HOWARD HUGHES COMPANY, LLC

VILLAGE 25 GRAND PARK BLVD IMPROVEMENTS
(SANDSTONE RISE DRIVE TO FOX HILL DRIVE)

LATERAL PROFILES 1

DRAWING
LP1
19 OF 33 SHTS

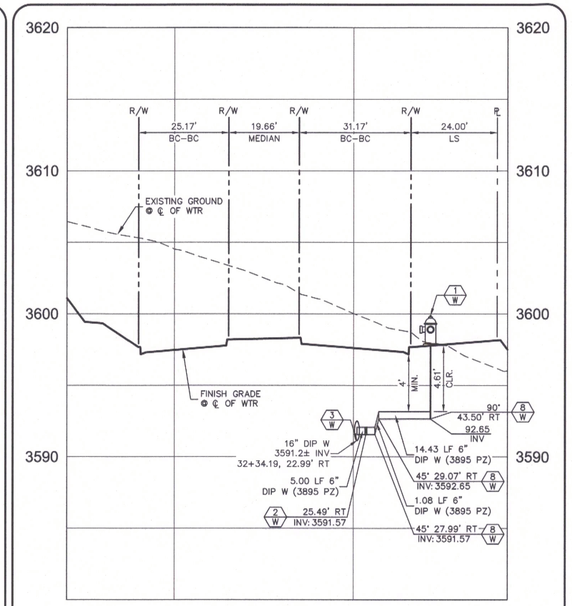


GRAND PARK BOULEVARD
WTR LATERAL @ 36+79.37

4 / —

SCALE: HORIZ. 1"=20', VERT. 1"=5'

SEE DRAWING PP7

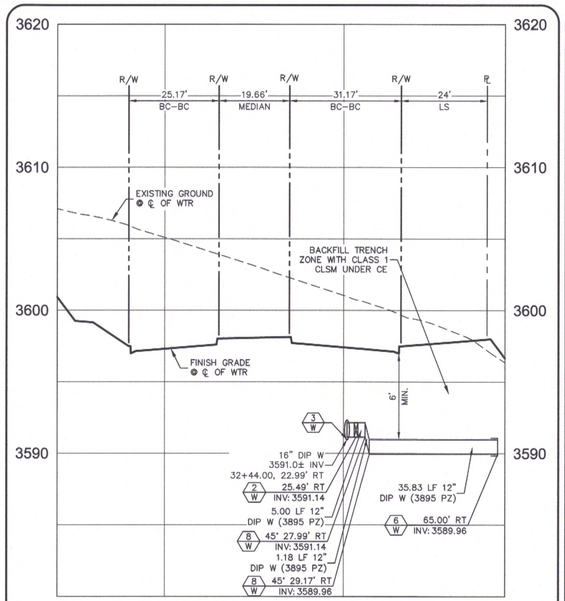


GRAND PARK BOULEVARD
WTR LATERAL @ 32+34.19

2 / —

SCALE: HORIZ. 1"=20', VERT. 1"=5'

SEE DRAWING PP6

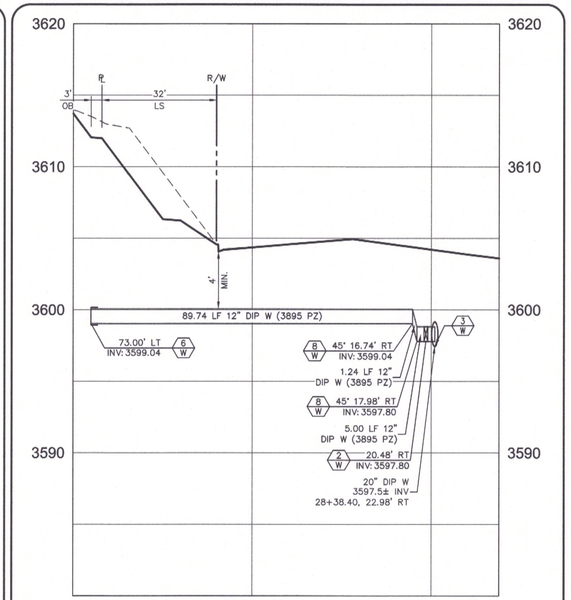


GRAND PARK BOULEVARD
WTR LATERAL @ 32+44.00

3 / —

SCALE: HORIZ. 1"=20', VERT. 1"=5'

SEE DRAWING PP6



GRAND PARK BOULEVARD
WTR LATERAL @ 28+38.40

1 / —

SCALE: HORIZ. 1"=20', VERT. 1"=5'

SEE DRAWING PP5

ALL 3895 ZONE (DIP) WATER LINE JOINTS TO BE MECHANICALLY RESTRAINED PER UDACS SECTION 2.15 OR RESTRAINED WITH AMERICAN AMARILLO FAST-GRIP GASKET AND JOINT RESTRAINING SYSTEM PER AMERICAN CAST IRON PIPE COMPANY

WATER CONSTRUCTION NOTES:

1 W — INSTALL FIRE HYDRANT PER UDACS PL. NO. 30, 39 AND 40. FOR "DEEP" FIRE HYDRANTS SEE UDACS PL. NO. 41.
2 W — INSTALL GATE VALVE AND BOX PER UDACS PL. NO. 30 AND 39
5 W — INSTALL VERTICAL BEND PER UDACS PL. NO. 31 UNLESS OTHERWISE IDENTIFIED. (SEE PLAN FOR ANGLE)
9 W — REMOVE CAP AND BLOWOFF PER UDACS PL. NO. 36 AND CONNECT TO EX WATER LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX WATER PRIOR TO CONSTRUCTION)
3 W — INSTALL TEE PER UDACS PLT. NO. 31
6 W — INSTALL CAP W/ 2" BLOW-OFF ASSEMBLY PER UDACS PL. NO. 36
10 W — INSTALL CROSS PER UDACS PLT. NO. 31

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. XXXXXX FIRST APPROVAL DATE:

L#: LXX-XXXXX-XXXX | CLV#: 107XXXXX

DATE: 10/09/2020

REV	DATE	DESCRIPTION
	DATE	AGEN APP
	DATE	GCW APP

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

PROJECT NO. 62025-209

DESIGN: PB
DRAWN: PB
CHECK: LG
PLOT DATE: 10-09-20
PLOT TIME: 16:09:03

GCW
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F:\PROJECTS\62025-209\PRODUCTION\62025-209C05_LP.DWG

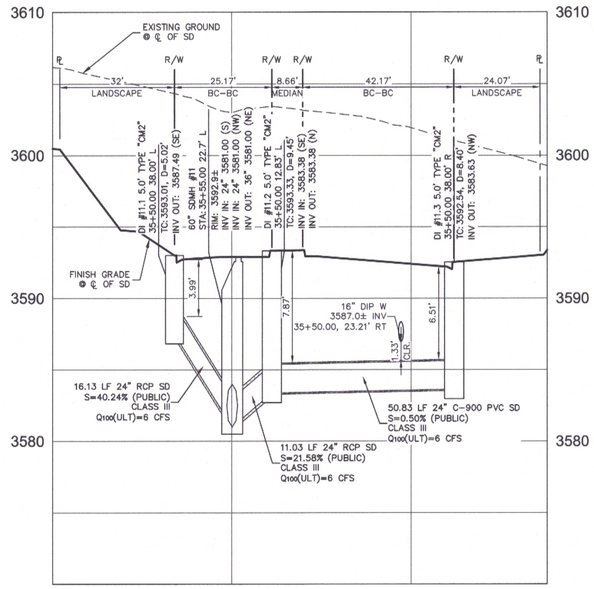
ALEXANDER SANTIAGO

THE HOWARD HUGHES COMPANY, LLC

VILLAGE 25 GRAND PARK BLVD IMPROVEMENTS
(SANDSTONE RISE DRIVE TO FOX HILL DRIVE)

LATERAL PROFILES 2

DRAWING
LP2
20 OF 33 SHTS

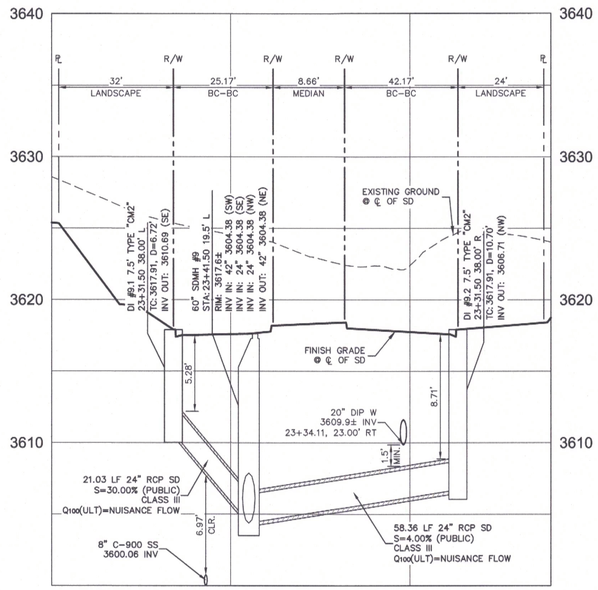


GRAND PARK BOULEVARD
SD LATERAL @ 35+55.00

6

SCALE: HORIZ. 1"=20', VERT. 1"=5'

SEE DRAWING PP7

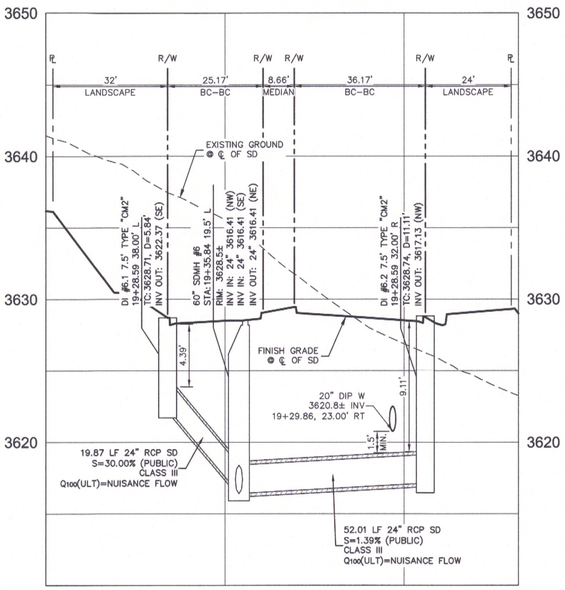


GRAND PARK BOULEVARD
SD LATERAL @ 23+41.50

4

SCALE: HORIZ. 1"=20', VERT. 1"=5'

SEE DRAWING PP4

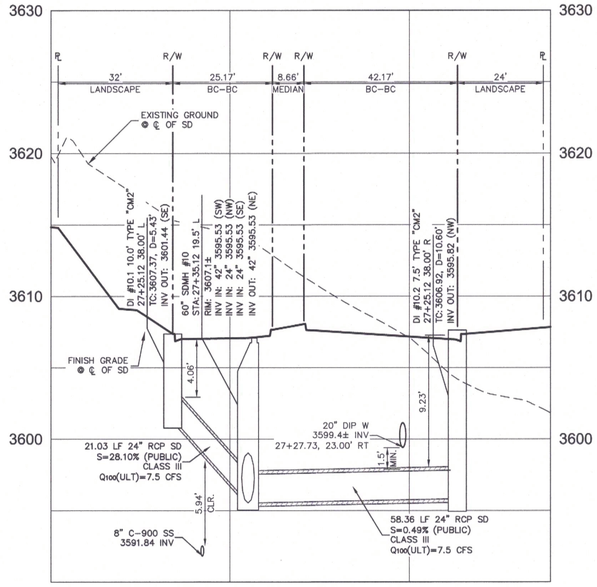


GRAND PARK BOULEVARD
SD LATERAL @ 19+35.84

2

SCALE: HORIZ. 1"=20', VERT. 1"=5'

SEE DRAWING PP3

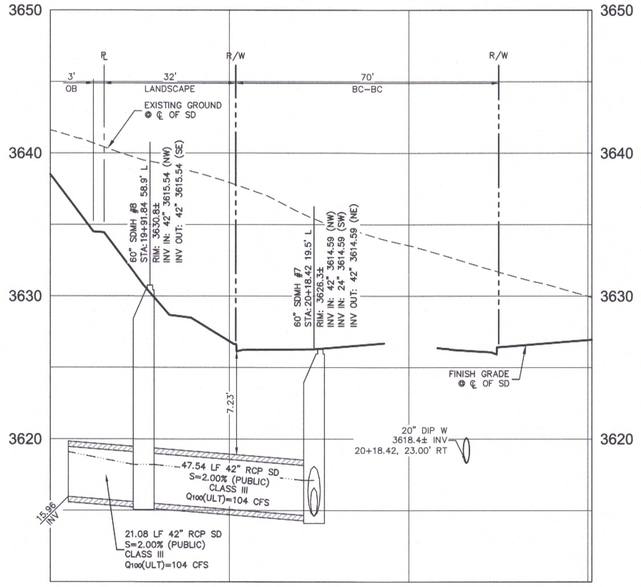


GRAND PARK BOULEVARD
SD LATERAL @ 27+37.12

5

SCALE: HORIZ. 1"=20', VERT. 1"=5'

SEE DRAWING PP5

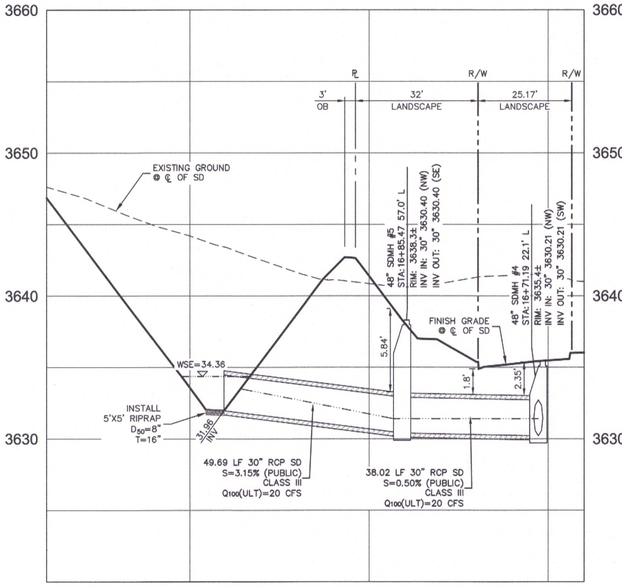


GRAND PARK BOULEVARD
SD LATERAL @ 20+18.42

3

SCALE: HORIZ. 1"=20', VERT. 1"=5'

SEE DRAWING PP3



GRAND PARK BOULEVARD
SD LATERAL @ 16+70.66

1

SCALE: HORIZ. 1"=20', VERT. 1"=5'

SEE DRAWING PP3

OFF-SITE FLOOD CONTROL NOTE

ALL OFF-SITE INTERIM FLOOD CONTROL FACILITIES SUCH AS, BUT NOT LIMITED TO, BERMS/DITCHES AND TEMPORARY SUMPS ARE PRIVATELY OWNED AND ARE TO BE PRIVATELY MAINTAINED BY THE HOWARD HUGHES COMPANY.

DROP INLET NOTE

ALL STORM DRAIN DROP INLETS ARE TO BE CONSTRUCTED PER THE REQUIREMENTS OF USDCCA DWG. NO. 421 (STORMWATER QUALITY MANAGEMENT STAMP AND SIGN DETAIL).

DROP INLET NOTE

WHERE 10 FEET PARALLEL SEPARATION IS NOT PRACTICABLE:

CAST-IN-PLACE MONOLITHIC POUR WITH WATERSTOP BETWEEN SLAB AND WALLS. BASE, WALLS AND TOP TO BE CONSTRUCTED WITH WATERSTOPS. CENTER BULB OR FLAT STRIP (VINYLEX, GREENSTREAK PLASTIC PRODUCTS OR APPROVED EQUAL).

CONSTRUCTION NOTE

IN AREAS WHERE THE EXCAVATION OR GROUND ELEVATION IS LESS THAN THREE (3) FEET, FROM THE TOP OF THE LVVWD TRANSMISSION MAIN, NO EXCAVATION EQUIPMENT, OTHER THAN HAND HELD EQUIPMENT WILL BE ALLOWED WITHIN TEN (10) FEET OF THE PIPELINE IN THESE AREAS. THE CONTRACTOR IS TO PLACE A CONCRETE BARRIER, I.E. JERSEY RAIL, TO IDENTIFY AND PROTECT THE "NO EQUIPMENT ZONE".

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. XXXXXX FIRST APPROVAL DATE: _____

L#: LXX-XXXXX-XXXX | CLV#: 107XXXXX

ENGINEER: STATE OF NEVADA — MICHAEL FANG — No. 24468 — PROFESSIONAL ENGINEER — CIVIL — Exp. 06/30/2021 — DATE: 10/09/2020

REV	DESCRIPTION	DATE	AGEN APP	DATE	GOW APP	DATE

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

PROJECT NO. 62025-209

DESIGN: PB
DRAWN: PB
CHECK: LG
PLOT DATE: 10-09-20
PLOT TIME: 16:09:18

GCW
1555 S. RAINBOW BLVD.
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gcwengineering.com
ENGINEERS \ SURVEYORS

F:\PROJECTS\WORK\62025-209\VMPD\PRODUCTION\EXHIBITS\62025-209EXH_LP1.DWG

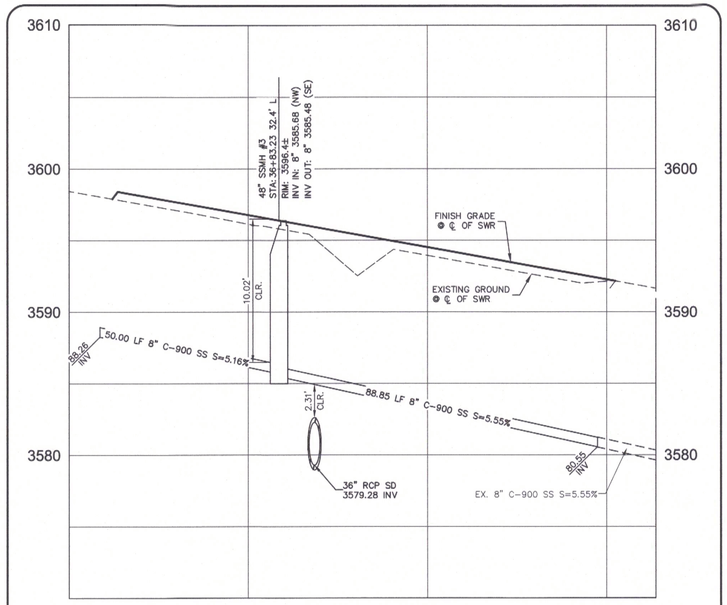
ALEXANDER SANTIAGO

THE HOWARD HUGHES COMPANY, LLC

VILLAGE 25 GRAND PARK BLVD IMPROVEMENTS (SANDSTONE RISE DRIVE TO FOX HILL DRIVE)

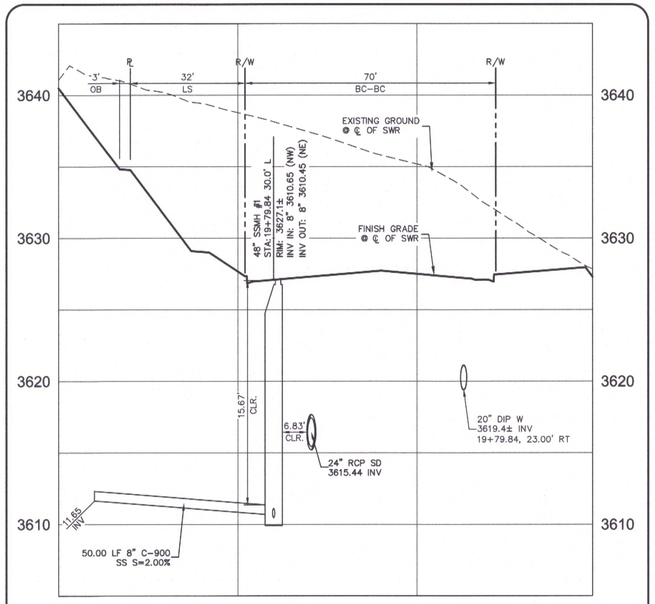
LATERAL PROFILES 3

DRAWING
LP3
21 OF 33 SHTS



GRAND PARK BOULEVARD
SS LATERAL @ 36+87.07
SCALE: HORIZ. 1"=20', VERT. 1"=5'
SEE DRAWING PP7

2
—



GRAND PARK BOULEVARD
SS LATERAL @ 19+79.84
SCALE: HORIZ. 1"=20', VERT. 1"=5'
SEE DRAWING PP3

1
—

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. XXXXXX FIRST APPROVAL DATE:

L#: LXX-XXXXX-XXXX | CLV#: 107XXXXX

ENGINEER - STATE OF NEVADA
MICHAEL FANG
Exp. 06/30/2021
No. 24464
PROFESSIONAL
CIVIL
DATE 10/09/2020

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

PROJECT NO. 62025-209
DESIGN: PB
DRAWN: PB
CHECK: LG
PLOT DATE: 10-09-20
PLOT TIME: 16:09:33

GCW ENGINEERS \ SURVEYORS
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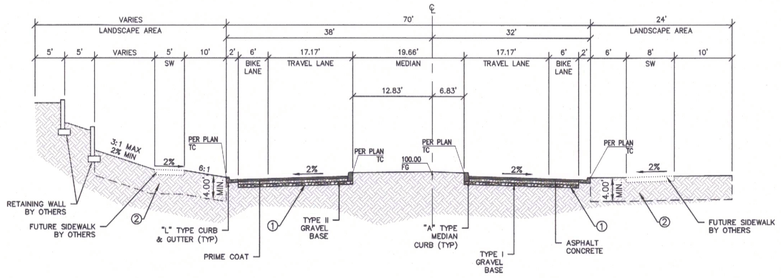
F:\PROJECTS\62025-209\PRODUCTION\PP\62025-209CIVIL_LP1.DWG
ALEXANDER SANTIAGO

THE HOWARD HUGHES COMPANY, LLC

VILLAGE 25 GRAND PARK BLVD IMPROVEMENTS
(SANDSTONE RISE DRIVE TO FOX HILL DRIVE)

LATERAL PROFILES 4

DRAWING
LP4
22 OF 33 SHTS



GRAND PARK BLVD (DTJ SECTION I1)

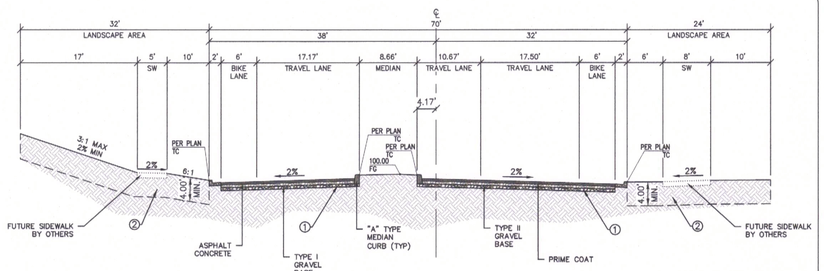
SCALE: NTS

NEIGHBORHOOD ARTERIAL (TWO LANES - WITH MEDIAN)

H

① – SCARIFY NATIVE 6" AND RECOMPACT TO 95%

② – LANDSCAPE AREA – EXCAVATE AND RECOMPACT TO 85%



GRAND PARK BLVD (DTJ SECTION A9)

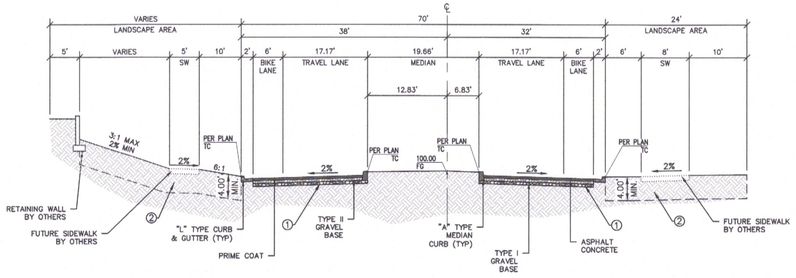
SCALE: NTS

NEIGHBORHOOD ARTERIAL (TWO LANES - WITH MEDIAN)

D

① – SCARIFY NATIVE 6" AND RECOMPACT TO 95%

② – LANDSCAPE AREA – EXCAVATE AND RECOMPACT TO 85%



GRAND PARK BLVD (DTJ SECTION I1)

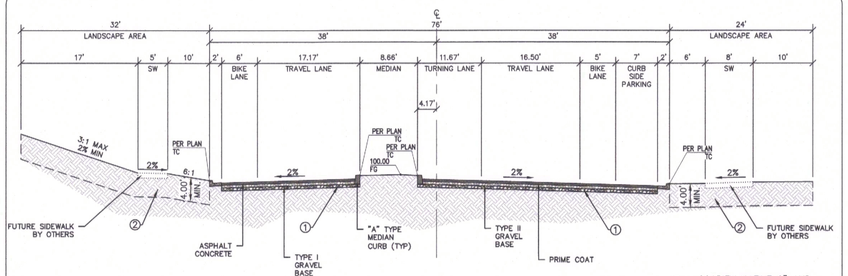
SCALE: NTS

NEIGHBORHOOD ARTERIAL (TWO LANES - WITH MEDIAN)

G

① – SCARIFY NATIVE 6" AND RECOMPACT TO 95%

② – LANDSCAPE AREA – EXCAVATE AND RECOMPACT TO 85%



GRAND PARK BLVD (DTJ SECTION I1)

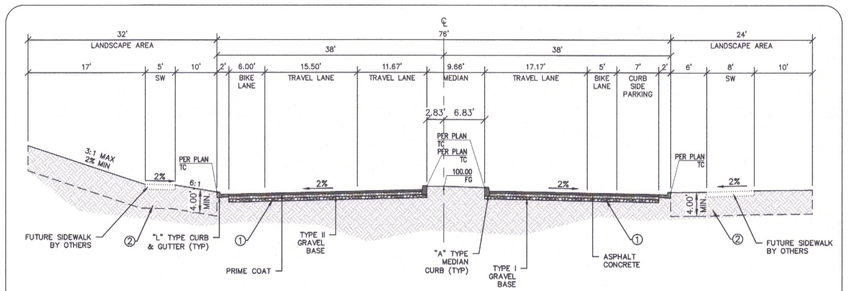
SCALE: NTS

NEIGHBORHOOD ARTERIAL (TWO LANES - WITH MEDIAN)

C

① – SCARIFY NATIVE 6" AND RECOMPACT TO 95%

② – LANDSCAPE AREA – EXCAVATE AND RECOMPACT TO 85%



GRAND PARK BLVD (DTJ SECTION A9)

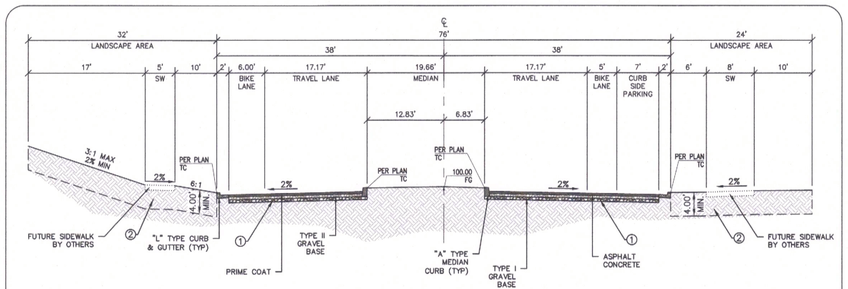
SCALE: NTS

NEIGHBORHOOD ARTERIAL (TWO LANES - WITH MEDIAN)

F

① – SCARIFY NATIVE 6" AND RECOMPACT TO 95%

② – LANDSCAPE AREA – EXCAVATE AND RECOMPACT TO 85%



GRAND PARK BLVD (DTJ SECTION A9)

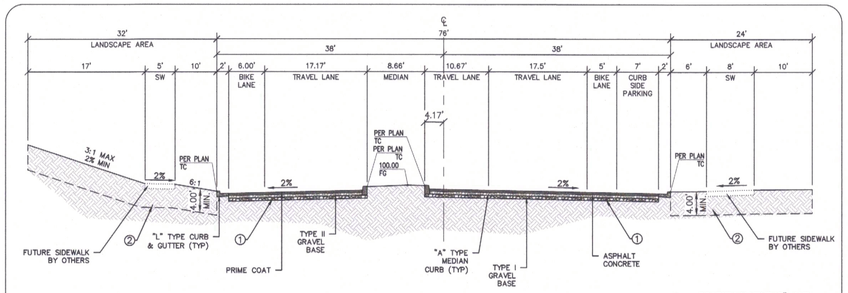
SCALE: NTS

NEIGHBORHOOD ARTERIAL (TWO LANES - WITH MEDIAN)

B

① – SCARIFY NATIVE 6" AND RECOMPACT TO 95%

② – LANDSCAPE AREA – EXCAVATE AND RECOMPACT TO 85%



GRAND PARK BLVD (DTJ SECTION A9)

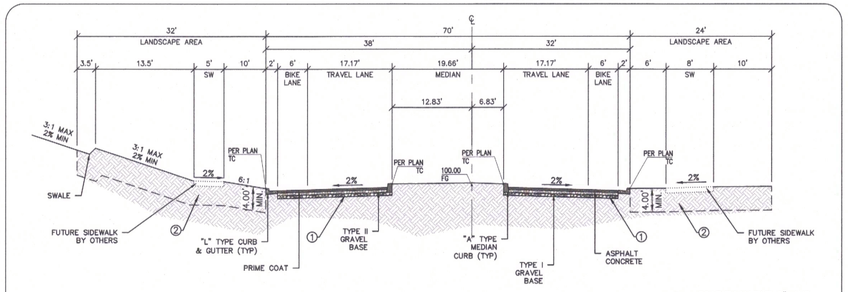
SCALE: NTS

NEIGHBORHOOD ARTERIAL (TWO LANES - WITH MEDIAN)

E

① – SCARIFY NATIVE 6" AND RECOMPACT TO 95%

② – LANDSCAPE AREA – EXCAVATE AND RECOMPACT TO 85%



GRAND PARK BLVD (DTJ SECTION I1)

SCALE: NTS

NEIGHBORHOOD ARTERIAL (TWO LANES - WITH MEDIAN)

A

① – SCARIFY NATIVE 6" AND RECOMPACT TO 95%

② – LANDSCAPE AREA – EXCAVATE AND RECOMPACT TO 85%

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

STATE OF NEVADA — PROFESSIONAL ENGINEER — MICHAEL FANG — Exp. 06/30/2022 — CIVIL — No. 24468 — DATE: 10/09/2020

DESCRIPTION	REV	DATE	AGEN APP	DATE	GCW APP	DATE

PROJECT NO. 62025-209

DESIGN: PB
DRAWN: PB
CHECK: LG
PLOT DATE: 10-09-20
PLOT TIME: 16:09:44

GCW
ENGINEERS \ SURVEYORS
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ALEXANDER SANTIAGO

THE HOWARD HUGHES COMPANY, LLC

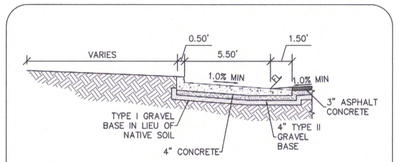
VILLAGE 25 GRAND PARK BLVD IMPROVEMENTS (SANDSTONE RISE DRIVE TO FOX HILL DRIVE)

TYPICAL DETAILS & SECTIONS 1

DRAWING DT1

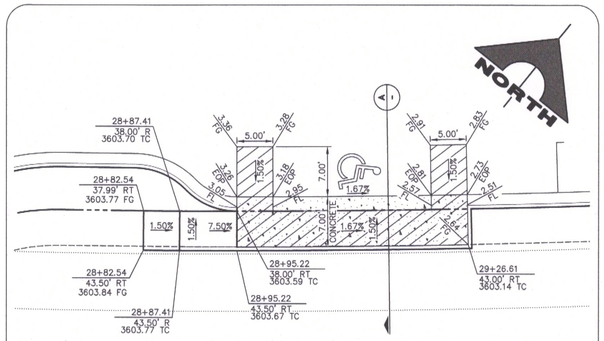
23 OF 33 SHTS

L#: LXX-XXXXX-XXXX | CLV#: 107XXXXX



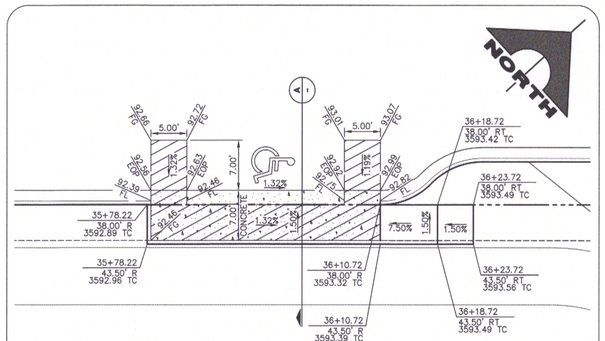
ADA PARKING SECTION
SCALE: NTS

A
–



ADA PARKING RAMP 2
SCALE: 1"=10'
DWG TR2

2
–



ADA PARKING RAMP 1
SCALE: 1"=10'
DWG TR2

1
–

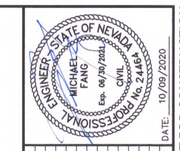
L#: LXX-XXXXX-XXXX | CLV#: 107XXXXX

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

F:\PROJECTS\62025-209\CIVIL\PRODUCTION\62025-209COT_DT2.DWG
ALEXANDER SANTIAGO

PROJECT NO. 62025-209
DESIGN: PB
DRAWN: PB
CHECK: LG
PLOT DATE: 10-09-20
PLOT TIME: 16:10:17

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP	DATE



DATE: 10/09/2020

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

THE HOWARD HUGHES COMPANY, LLC

VILLAGE 25 GRAND PARK BLVD IMPROVEMENTS
(SANDSTONE RISE DRIVE TO FOX HILL DRIVE)

TYPICAL DETAILS & SECTIONS 2

DRAWING
DT2
24 OF 33 SHTS

ACCESS RAMP DETAIL 2

SCALE: 1"=10'

DWG PP5

2

ACCESS RAMP DETAIL 1

SCALE: 1"=10'

DWG PP7

1

L#: LXX-XXXXX-XXXX | CLV#: 107XXXXX

GCV ENGINEERS \ SURVEYORS
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F:\PROJECTS\(6XX)\62025-209\PWD\PRODUCTION\62025-209CIVIL_DT3.DWG

ALEXANDER SANTIAGO

PROJECT NO. 62025-209

DESIGN: PB
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CHECK: LG
PLOT DATE: 10-09-20
PLOT TIME: 16:10:53

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GCV APP	DATE

STATE OF NEVADA
PROFESSIONAL ENGINEER
MICHAEL FANG
Exp. 06/30/2021
CIVIL
No. 24464

DATE: 10/09/2020

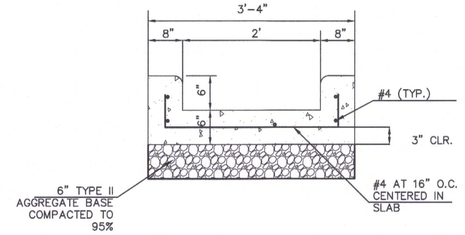
FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

THE HOWARD HUGHES COMPANY, LLC

VILLAGE 25 GRAND PARK BLVD IMPROVEMENTS
(SANDSTONE RISE DRIVE TO FOX HILL DRIVE)

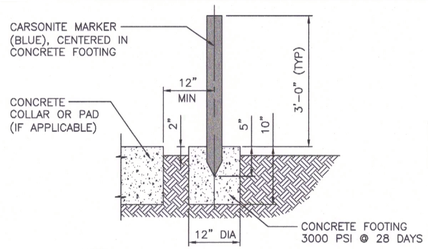
TYPICAL DETAILS & SECTIONS 3

DRAWING
DT3
25 OF 33 SHTS



2 FT WIDE DRAINAGE FLUME — 10

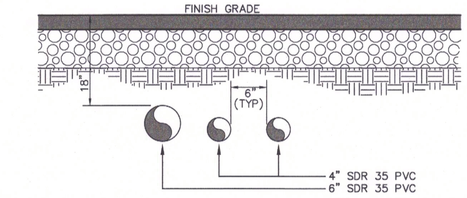
SCALE: N.T.S.



NOTE:
SEE SPECIFICATIONS FOR ALL APPROVED PRODUCTS.

CARSONITE MARKER INSTALLATION — 7

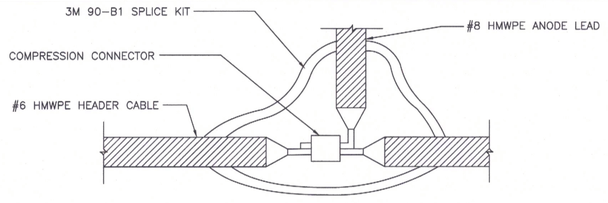
SCALE: N.T.S.



NOTE:
CONTRACTOR TO EXTEND SLEEVES 1' (12") BEHIND BACK OF CURB, TYP.

IRRIGATION SLEEVE BANK 'A' — 3

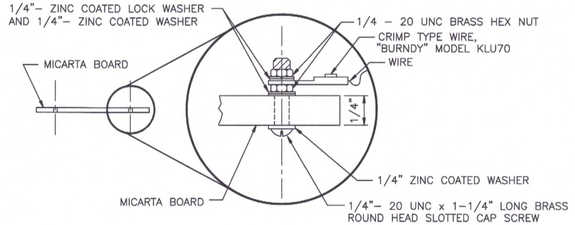
SCALE: N.T.S.



TAP SPLICE

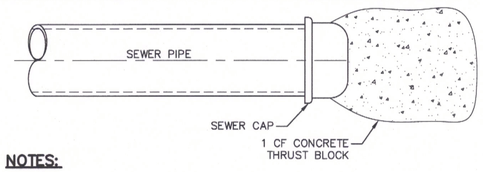
GALVANIC ANODE GROUND WIRE SPLICES — 9

SCALE: N.T.S.



TEST BOARD DETAIL - TYPICAL LUG AND STUD CONNECTION — 6

SCALE: N.T.S.

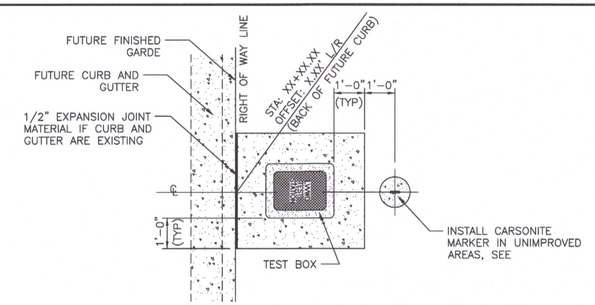


NOTES:

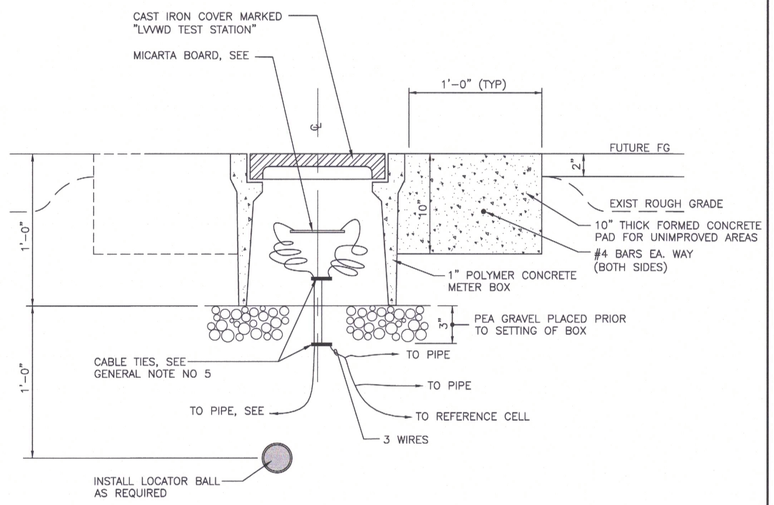
1. CONCRETE TO CONFORM WITH SECTION 4.11.2 OF THE LATEST VERSION OF THE DCS.

SEWER STUB AND CAP WITH THRUST BLOCK — 2

SCALE: N.T.S.



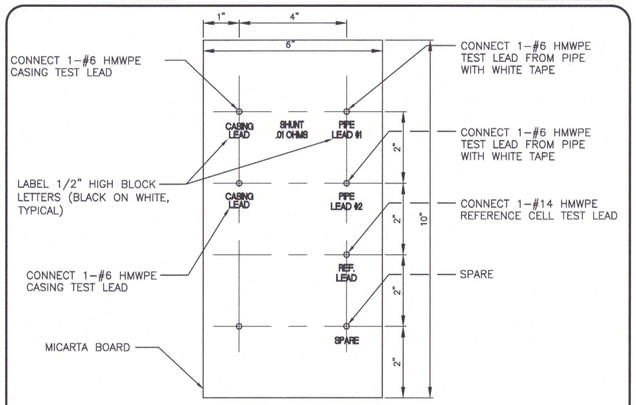
PLAN VIEW



SECTION VIEW

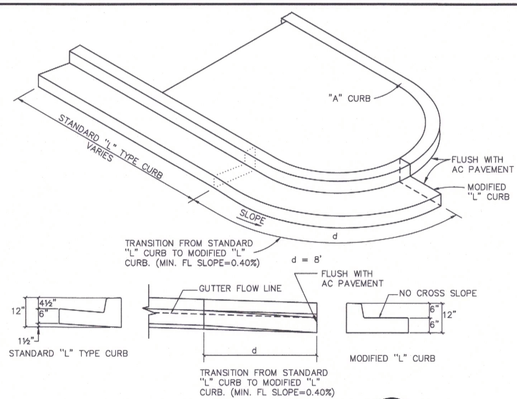
TEST BOX DETAIL - TYPICAL — 8

SCALE: N.T.S.



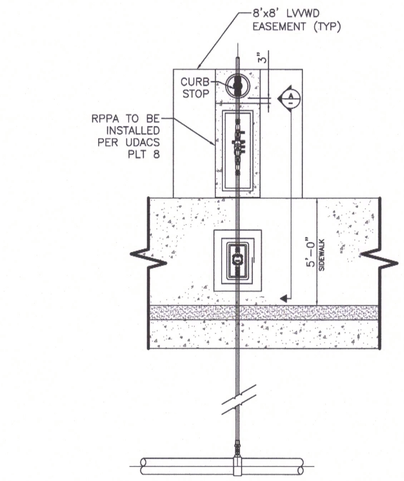
STANDARD TEST BOARD INSTALLATION — 5

SCALE: N.T.S.



CURB TRANSITION DETAIL — 4

SCALE: N.T.S.



SECTION A

METER & RPPA PER UDACS PL. NO. 4 & 8 W/ CURB STOP — 1

SCALE: N.T.S.

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. XXXXXX FIRST APPROVAL DATE:

L#: LXX-XXXXX-XXXX | CLV#: 107XXXXX

ENGINEER - STATE OF NEVADA - MICHAEL FANG - Exp. 06/30/2021 - CIVIL - No. 24464 - PROFESSIONAL - DATE: 10/09/2020

FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

REV	DESCRIPTION	DATE
		AGEN APP DATE
		GCW APP DATE

PROJECT NO. 62025-209

DESIGN: PB
DRAWN: PB
CHECK: LG
PLOT DATE: 10-09-20
PLOT TIME: 16:11:09

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

ALEXANDER SANTIAGO

F:\PROJECTS\62025-209\DWG\PRODUCTION\62025-209DT1.DWG

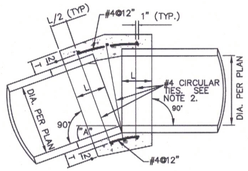
THE HOWARD HUGHES COMPANY, LLC

VILLAGE 25 GRAND PARK BLVD IMPROVEMENTS (SANDSTONE RISE DRIVE TO FOX HILL DRIVE)

UTILITY DETAILS 1

DRAWING DT4

26 OF 33 SHTS



PLAN

NOTES:

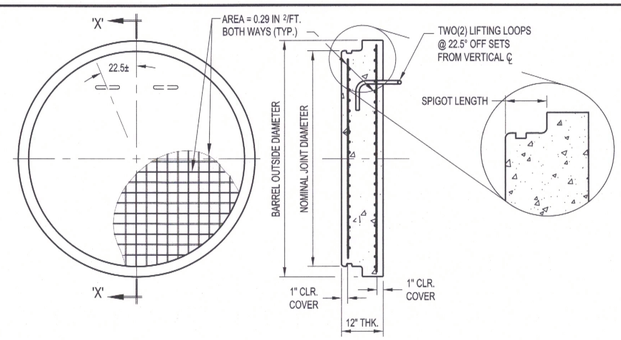
1. WHERE THE SLOPE OF THE UPSTREAM PIPE IS GREATER THAN THE SLOPE OF THE DOWNSTREAM PIPE, JOIN SOFFITS. WHERE THE SLOPE OF THE UPSTREAM PIPE IS LESS THAN THE SLOPE OF THE DOWNSTREAM PIPE, JOIN INVERTS.

2. WHERE THE SPACE BETWEEN THE PIPE EXTREMITIES EXCEEDS 2 1/2 INCHES, THE NUMBER OF CIRCULAR TIES SHALL BE INCREASED TO MAINTAIN A MAXIMUM SPACING OF 6 INCHES CENTER TO CENTER. CIRCULAR TIES SHALL HAVE A DIAMETER 5 INCHES GREATER THAN THE OUTSIDE DIAMETER OF THE LARGER PIPE.

CIRCULAR TIES:

PIPE DIAMETER	SPACE BETWEEN PIPE EXTREMITIES	NO. OF CIRCULAR TIES	L	T
18" OR LESS	2 1/2"	3	12"	5"
24" OR LESS	2 1/2"	3	12"	6"
30" OR LESS	2 1/2"	3	12"	7"
36" OR LESS	2 1/2" OR LESS	4	18"	9"
60" OR LESS	2 1/2" OR LESS	5	21"	11"
78" OR LESS	2 1/2" OR LESS	7	24"	12"

CONCRETE COLLAR DETAIL 4
SCALE: N.T.S.



SECTION : 'X'-'X'

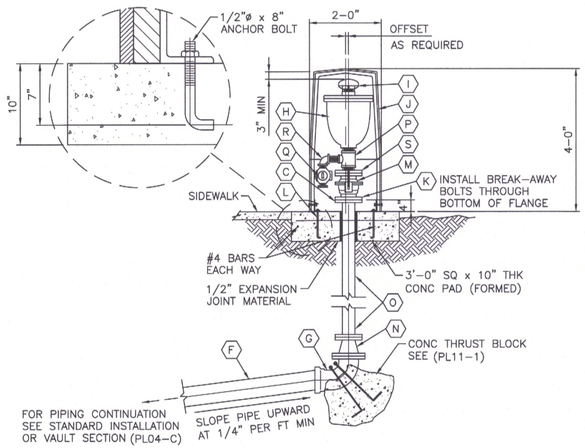
CONCRETE COLLAR DETAIL 3
SCALE: N.T.S.

GENERAL NOTES

1. ALL TEST LEADS AND ANODE LEADS SHALL BE ATTACHED TO THE STEEL CYLINDER OF THE PIPE BY MEANS OF A "CADWELD" EXOTHERMIC WELD.
2. ALL TEST LEADS SHALL BE ATTACHED TO EITHER THE PIPELINE'S BELL END, SPIGOT END OR PLAIN END AS SHOWN ON THE DRAWING.
3. ALL EXPOSED PORTIONS OF THE EXOTHERMIC WELD AND COPPER CABLE CONDUCTORS SHALL BE COATED WITH A SCOTCHCOAT 4 INSULATING RESIN PRIOR TO PLACING GROUT AROUND THE PIPELINE JOINT.
4. NO WIRE SPLICES ARE ALLOWED
5. ALL TEST LEADS INSIDE THE TEST BOX SHALL BE BUNDLED TOGETHER AT 8 INCH INTERVALS WITH NYLON CABLE TIES. ALL TEST STATION LEADS SHALL BE PROVIDED WITH SUFFICIENT SLACK SO THAT THE TEST BOARD MAY BE EXTENDED A MINIMUM OF 4 FEET ABOVE THE TEST BOX.
6. ALL TEST LEADS AND ANODE LEADS (WIRE INSULATION) ARE COLOR CODED

   TEST STATION LEADS FROM PIPE – WHITE
   REFERENCE CELL TEST LEADS – RED
   CASING – BLACK

   ALL TEST LEADS SHALL BE COLOR CODED WITH COLORED WIRE INSULATION (TYP)
   ** WHEN APPROVED BY DISTRICT ENGINEER COLOR CODED "TAPING" IS PERMITTED **
   IN LIEU OF COLOR CODED WIRES ALL SHALL BE INSTALLED AS FOLLOWS:
   A. ALL WIRE INSULATION SHALL BE ONE UNIFORM COLOR.
   B. ALL COLOR CODED TAPE SHALL FOLLOW THE ABOVE COLOR TABLE.
   C. TAPE SHALL BE INSTALLED AT EACH END AND 4 FOOT INTERVALS.
7. ALL TEST LEADS SHALL BE CONNECTED TO THE BRASS BOLTS ON THE TEST BOARD WITH SOLDER–LESS SCREW TIGHT COPPER LUG CONNECTORS OR PRESSURE TERMINAL CONNECTORS.
8. ALL TEST LEADS SHALL HAVE A MINIMUM OF 4 FEET OF SLACK NEAR THE PIPE JOINT TO PREVENT DAMAGE DURING THE BACKFILL OPERATION.

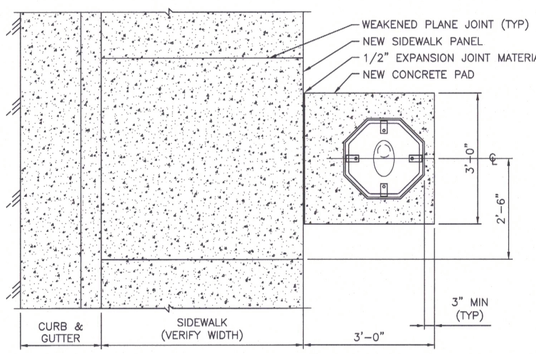


PROFILE VIEW

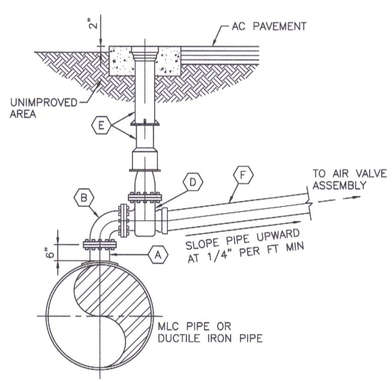
LEGEND

- (A) 6" FLG STL OUTLET FOR MLC STL PIPE, FLG TEE FOR DIP
- (B) 6"– 90° FLG DUCTILE IRON BEND
- (C) 6" DUCTILE IRON FLANGE ADAPTOR
- (D) 6" FLG x PO OR FLG x MJ GATE VALVE W/2" OPERATING NUT
- (E) VALVE BOX AND COVER – SEE DETAIL (PL10–8)
- (F) 6" DUCTILE IRON PC350 PIPE OR 6" PVC CL150 DR18 PIPE
- (G) 6" – 90° FLG x PO OR FLG x MJ DI BEND
- (H) 4" AIR VALVE, FLANGED INLET
- (I) 4" MUSHROOM VENT CAP WITH #22/24 STAINLESS STEEL MESH SCREEN
- (J) APPROVED ENCLOSURE
- (K) 5/8"–11NC BREAK–AWAY ZINC PLATED HEX HD BOLT, HEX NUT AND LOCKWASHER
- (L) 1/2"ø x 8" ANCHOR BOLT
- (M) 4" BALL VALVE– QUARTER TURN
- (N) 6" x 4" FLG x FLG DI REDUCER
- (O) 4" DUCTILE IRON PC350 PIPE
- (P) 4" X 2" BRASS TEE, THREADED INLETS W/ THREADED NIPPLES
- (Q) 2" CORP STOP, THREADED BOTH ENDS W/ THREADED CAP
- (R) 2" 90° ELBOW, THREADED W/ THREADED NIPPLES
- (S) 4" THREADED COMPANION FLANGE

NOTE SEE SPECIFICATIONS FOR ALL APPROVED PRODUCTS

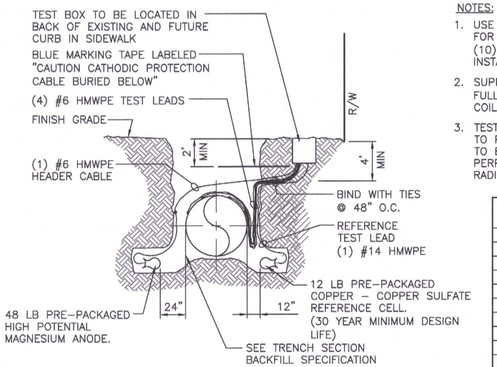


PLAN VIEW



STANDARD INSTALLATION

AIR VALVE ASSEMBLY FOR 4" VALVES 2
NOT TO SCALE



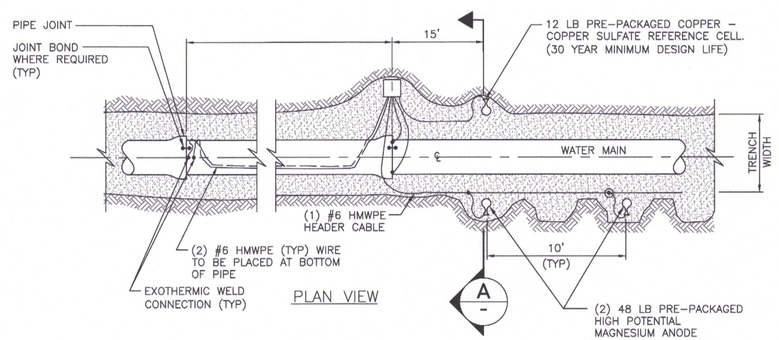
SECTION A

NOTES:

1. USE ONLY NATIVE SOIL FREE OF ROCKS AND CLODS FOR BACKFILL AROUND CELLS WITH A MINIMUM OF (10) TEN GALS OF WATER SATURATION DURING INSTALLATION. DO NOT USE SAND AS BACKFILL.
2. SUPPLY ENOUGH WIRE FROM EACH LEAD TO REACH FULL R/W WIDTH PLUS FIVE (5) ADDITIONAL FEET. COIL WIRE IN BOTTOM OF BOX.
3. TEST STATION PLACEMENT TO BE PERPENDICULAR TO PIPE, AT INTERSECTIONS, TEST STATION WIRES TO BE PLACED PARALLEL TO PIPE FOR PLACEMENT PERPENDICULAR TO PIPE AFTER ROAD EASEMENT RADIUS.

APPROXIMATE PIPELINE STATIONING OF TEST STATIONS

DWG NO	STATION	ADDITIONAL WIRE
12	12+21.00	
13	16+50.00	
14	21+50.00	
15	25+31.00	
16	30+31.00	
18	35+31.00	



PLAN VIEW

TYPE T TEST STATION INSTALLATION WITH PRE-PACKAGED ANODES 1
SCALE: N.T.S.

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. XXXXXX FIRST APPROVAL DATE:

L#: LXX–XXXXX–XXXX CLV#: 107XXXXX

ENGINEER - STATE OF NEVADA
MICHAEL FANG
Exp. 06/30/2021
CIVIL
No. 24464
PROFESSIONAL
DATE: 10/09/2020

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP

PROJECT NO. 62025-209
DESIGN: PB
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PLOT TIME: 16:11:14

GCW
ENGINEERS \ SURVEYORS
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gcwengineering.com

F:\PROJECTS\62025-209\CIVIL\PRODUCTION\62025-209CIV03_DT1.DWG ALEXANDER SANTIAGO

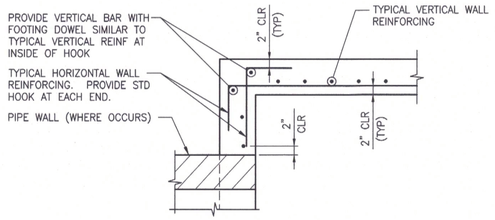
FOR AGENCY REVIEW - NOT FOR CONSTRUCTION

THE HOWARD HUGHES COMPANY, LLC

VILLAGE 25 GRAND PARK BLVD IMPROVEMENTS (SANDSTONE RISE DRIVE TO FOX HILL DRIVE)

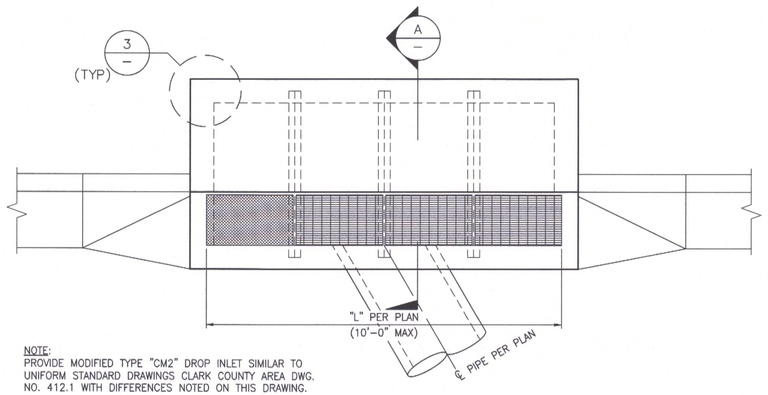
UTILITY DETAILS 2

DRAWING DT5
27 OF 33 SHTS



3 / - WALL CORNER DETAIL

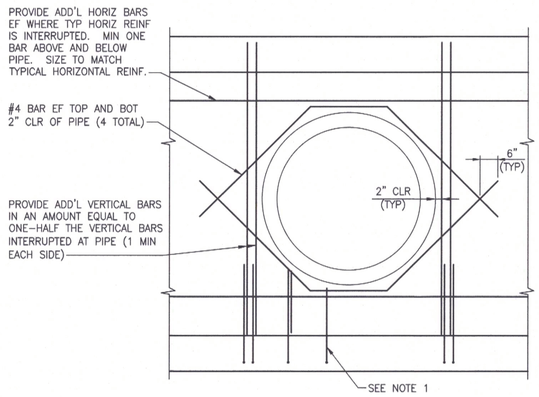
SCALE: NTS



NOTE:
PROVIDE MODIFIED TYPE "CM2" DROP INLET SIMILAR TO UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA DWG. NO. 412.1 WITH DIFFERENCES NOTED ON THIS DRAWING.

1 / - PLAN - MODIFIED TYPE CM2 DROP INLET

SCALE: NTS

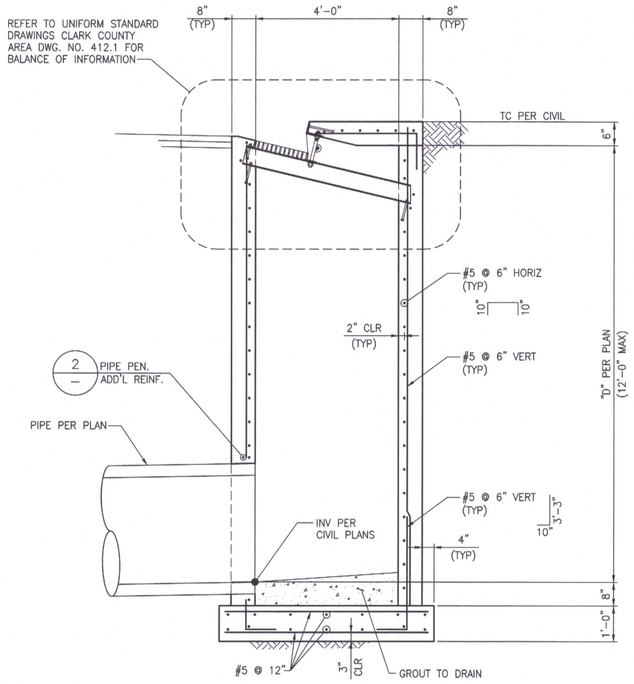


NOTES:

1. FIELD CUT TYPICAL WALL REINFORCING 2" CLR OF PIPE.
2. WHEN WALL IS LESS THAN 9" THICK REINFORCING DOES NOT NEED TO BE PLACED IN EACH FACE AS STATED ABOVE.
3. IF BARS CANNOT EXTEND BEYOND PIPE AS SHOWN, EXTEND AS FAR AS POSSIBLE AND PROVIDE STANDARD HOOK.

2 / - PIPE PENETRATION REINFORCING DETAIL

SCALE: NTS



A / - SECTION

SCALE: NTS

GENERAL STRUCTURAL NOTES

1. DESIGN SPECIFICATIONS: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, EIGHTH EDITION, 2018.
2. CONSTRUCTION SPECIFICATIONS: UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA.
3. EXISTING UTILITIES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL EXISTING UTILITIES WITHIN THE WORK AREA, AND PROVIDING PROTECTION FOR THE VARIOUS UTILITIES AFFECTED PRIOR TO PROCEEDING WITH THE WORK.
4. CONCRETE: CONCRETE SHALL BE CLASS D MODIFIED AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF f'c=4,500 PSI AND A MAXIMUM WATER TO CEMENT RATIO, BY WEIGHT, OF 0.45. USE TYPE V CEMENT PER ASTM C-150. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4", UNLESS NOTED OTHERWISE.
5. REINFORCING STEEL: ALL REINFORCING STEEL SHALL BE ASTM A615 GRADE 60. DIMENSIONS ARE FROM OUT TO OUT OF BARS. MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE 3" WHERE CONCRETE IS CAST AGAINST SOIL AND 2" ELSEWHERE, UNLESS NOTED OTHERWISE. HOOKS MAY BE ROTATED OR TILTED AS NECESSARY TO PROVIDE THE PROPER CLEARANCES.
6. BEDDING MATERIAL: BEDDING MATERIAL SHALL BE 6-INCHES OF TYPE II AGGREGATE BASE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY. EXPOSED NATIVE SOILS IN BOTTOMS OF EXCAVATIONS SHALL BE SCARIFIED TO A DEPTH OF 6-INCHES, MOISTURE-CONDITIONED TO WITHIN 2% OF OPTIMUM MOISTURE CONTENT AND COMPACTED TO 90%.
7. INVERTS, SLOPES, BEARINGS, ALIGNMENTS, AND ELEVATIONS SHOWN ARE FOR "REFERENCE ONLY". INFORMATION ON CIVIL DRAWINGS SHALL GOVERN.
8. CONTRACTOR SHALL PROVIDE SLOPE STABILIZATION, SHEETING, BRACING, AND/OR SHORING AS REQUIRED TO PROTECT EXISTING EMBANKMENTS, STRUCTURES, AND UNDERGROUND ITEMS.
9. THE DESIGN IS BASED ON THE GEOTECHNICAL REPORT PREPARED BY NOVA GEOTECHNICAL AND INSPECTION SERVICES, PROJECT NO. G-19-026, DATED MAY 9, 2019.

SPECIAL INSPECTION:

	CONTINUOUS MONITORING	PERIODIC MONITORING
FOUNDATION SOILS, EXCAVATIONS, FILL MATERIALS, SUBGRADE		X
PLACEMENT AND COMPACTION OF FILL	X	
REBAR PLACEMENT IN CONCRETE		X
ANCHORS CAST IN CONCRETE		X
VERIFICATION OF CONCRETE MIX DESIGN		X
SAMPLING OF FRESH CONCRETE AND PLACEMENT	X	
CONCRETE CURING AND FORMWORK		X
EMBEDDED PLATES	X	
POST-INSTALLED ANCHORS	X	

1. SPECIAL INSPECTIONS ARE TO BE PERFORMED BY QUALIFIED FIRMS OR PERSONNEL. THE SPECIAL INSPECTOR MUST BE ICC CERTIFIED AND APPROVED BY CLARK COUNTY IN THE CATEGORY OF WORK REQUIRED TO HAVE SPECIAL INSPECTION.
2. THE CONSTRUCTION MATERIALS TESTING LABORATORY MUST BE APPROVED BY CLARK COUNTY, FOR TESTING OF MATERIALS, SYSTEMS, COMPONENTS, AND EQUIPMENTS.
3. AS IDENTIFIED WITHIN THE CONTRACT DOCUMENTS, AND THE IBC 2018 BUILDING CODE CHAPTER 17. THE SPECIAL INSPECTORS SHALL MAINTAIN RECORDS OF ALL INSPECTIONS PERTAINING TO THE PORTIONS OF WORK THEY ARE TO INSPECT. PROVIDE COPIES OF REPORTS TO THE OWNER AND ARCHITECT/ ENGINEER PERIODICALLY AND AS REQUIRED FOR ADEQUATE COMMUNICATION AS WORK PROGRESSES.

STATE OF NEVADA — PROFESSIONAL ENGINEER — DAVID A. TURNER — No. 18912 — STRUCTURAL — 09/30/2022 — DATE: 10/09/2020

90% REVIEW - NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION
	DATE	AGEN APP
	DATE	GCW APP

PROJECT NO. 62025-209
DESIGN: DAT
DRAWN: DAT
CHECK: EGO
PLOT DATE: 10-09-20
PLOT TIME: 16:13:08

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

F:\PROJECTS\6XXX\62025-209\UMC\PRODUCTION\62025-209S01_STRUCT.DWG
ALEXANDER SANTIAGO

THE HOWARD HUGHES COMPANY, LLC

VILLAGE 25 GRAND PARK BLVD IMPROVEMENTS (SANDSTONE RISE DRIVE TO FOX HILL DRIVE)

MODIFIED TYPE CM2 DROP INLET

DRAWING S1
33 OF 33 SHTS

L#: LXX-XXXXX-XXXX | CLV#: 107XXXXX

HTE: 00-00000