

DS #: 05170.2

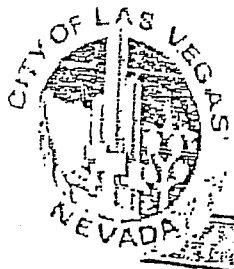
APN: 137-14-401-006 & 137-23-101-002

PROJECT: Summerlin West V22 - Desert Foothills Drive Street Improvements
from Lake Mead Boulevard to Fleet Wing Avenue (Street G)
Update #2

SUBMITTAL: 4th

SCANNED BY/DATE:

CHECKED BY/DATE:



CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM		DATE: July 15, 2021
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 V22 – Desert Foothills Drive Street Improvements from Lake Mead Boulevard to Fleet Wing Avenue (Street G) – Update #2		COPIES TO: Atkins
Cross Streets:	Lake Mead Boulevard & Desert Foothill Drive	Howard Hughes Company, LLC
File Number:	F:\Depot\DSMemos\DS5170E.doc	Bart Anderson, P.E., DevCo
Parcel Number:	137-14-401-006 & 137-23-101-002	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 #
1 st Submittal	8/5/2019	9/5/2019	Not Approved	\$400.00	3518204: \$400
2 nd Submittal	10/16/2019	11/7/2019	Not Approved	\$400.00	3612960: \$400
Supplement	11/14/2019	12/2/2019	Conditional Approval	N/C	N/C
CCRFCD	3/23/2020	3/24/2020	Concurrence Recv'd	N/C	N/C
3 rd Submittal	6/2/2020 & 7/22/2020	8/3/2020	Approved	\$100.00	3869177: \$100
4 th Submittal	7/13/2021	7/15/2021	See Comments Below	\$100.00	4368590: \$100
TOTAL FEES (LDDRS):				\$1,000.00	----

REMARKS:

4th Submittal: Update #2 for a minor shift of storm drain connection from *Desert Foothills Drive* to *Lake mead Boulevard*

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 project proposes to build temporary drainage facilities, ie, berms/swales along the west side of *Desert Foothills Drive* for interim flood protection. Prior to final plan approval the developer must complete a maintenance and liability agreement for the interim drainage improvements (berms or channels) 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 facility and an exhibit that adequately shows the location and limits of the drainage facility 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.

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.

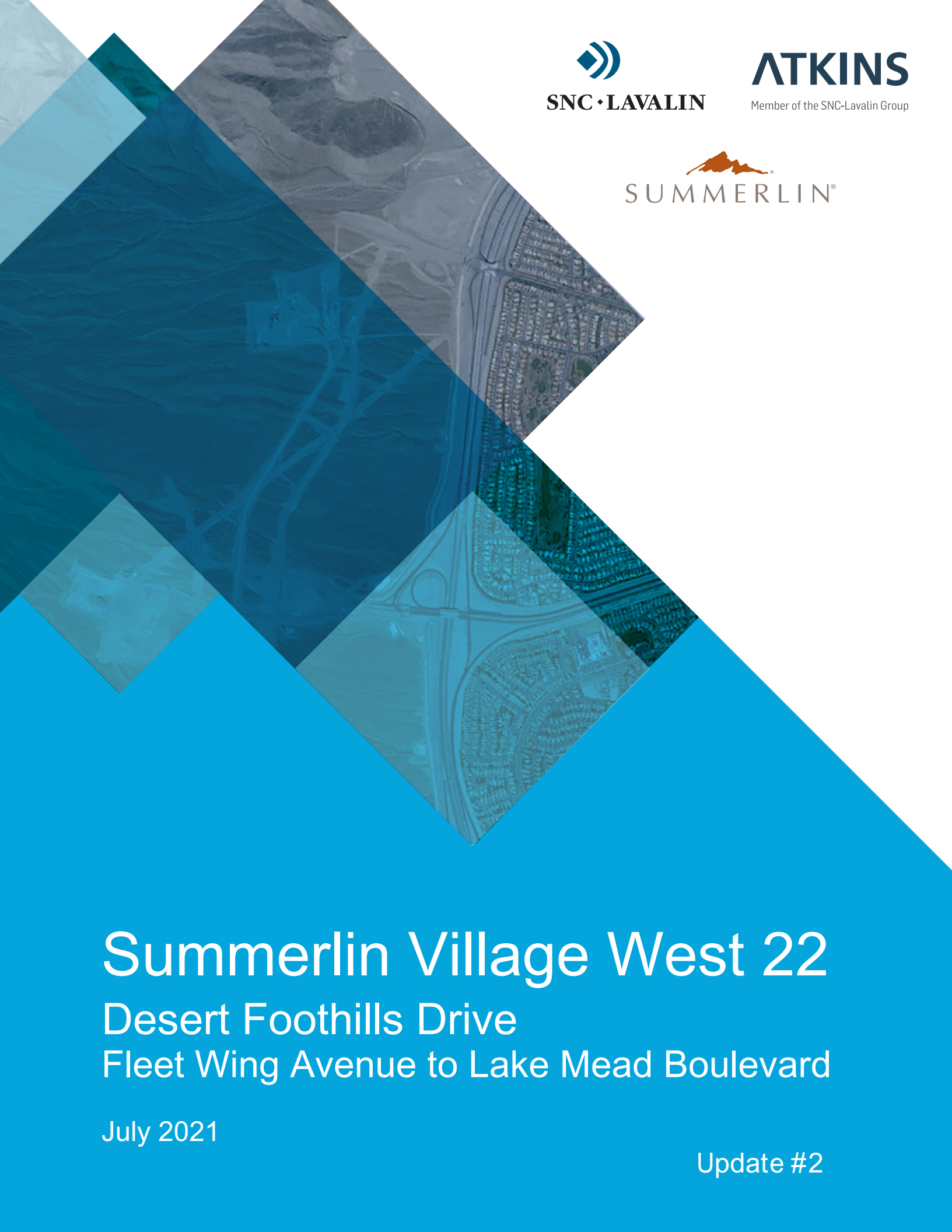
NOTE: Any future changes to the proposed design (or design assumptions) as outlined in the approved drainage study and attached preliminary grading plan which affect drainage must be addressed in a Drainage Study Update and accepted by the *City of Las Vegas Flood Control Section*. Additionally, conditional 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

ays

T/R/S: T20S/R59E/14

AREA K-14



Summerlin Village West 22

Desert Foothills Drive Fleet Wing Avenue to Lake Mead Boulevard

July 2021

Update #2

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL
DRAINAGE STUDY INFORMATION FORM

Name of Development: Update #2: Desert Foothills Drive: Fleet Wing to Lake Mead Date: July 12, 2021
Location of Development: a) Descriptive (Cross Streets) North/South: Desert Foothills Drive
East/West: Clowder Pass Way & Lake Mead Blvd
b) Section: 23 and 14 Township: 20S Range: 59E
c) APN : 137-23-201-001

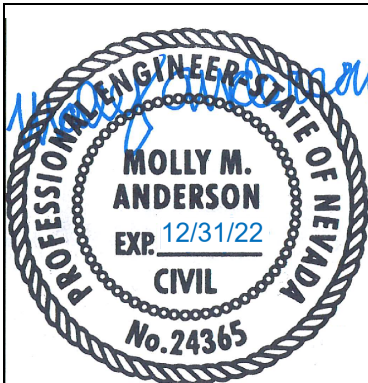
Name of Owner: Howard Hughes Company, LLC
Telephone No.: (702) 791-4000 Fax No.: (702) 791-4450 E-Mail Address: april.chapman@howardhughes.com
Address: 10845 Griffith Peak Drive, Suite 160, Las Vegas, NV 89135

Contact Person-Name: Molly Anderson, PE Telephone No.: (702) 551-0330
* E-Mail Address: molly.anderson@atkinsglobal.com Fax No.: (702) 263-7200
Firm: Atkins
Address: 2270 Corporate Circle, Ste 200, Henderson, NV 89074

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	☐	Building Permit	☒	Roadway Improvements

1. Total Owned Land Area: At Site: +/- 446 acres Being Developed/Disturbed: 11.7 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.): Public - Roadway Improvements
5. Approximate upstream land area which drains to the subject site: 0 acres
6. Has the site drainage been evaluated in the past? ☒ YES ☐ NO If yes, please identify documentation: Master Conceptual Drainage Study for Summerlin West Village 22
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Existing CC-215 Western Beltway Channel
8. Briefly describe your proposed schedule for the subject project: ASAP



Engineer's Seal

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

***New Required Field**

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

DS #5170 Local Entity File No.	Revision	Date

REFERENCE:

STANDARD FORM 1

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

Project Name: Desert Foothills Drive: Fleet Wing Ave - Lake Mead Blvd

Map ID:

Firm Name: **Atkins**

Engineer: **Molly Anderson, PE**

Address: **2270 Corporate Circle, Ste 200**

City: **Henderson**

State:

NV

Zip: **89074**

Phone Number: **(702) 551-0330**

Fax Number: **(702) 263-7200**

Property Owner: **Howard Hughes Company, LLC**

Address: **10845 Griffith Peak Drive**

City: **Las Vegas**

State: **NV**

Zip: **89135**

Reviewed By:

Date Received:

Date Accepted for Review:

The following checklist is intended as a guide for the engineer preparing a Technical Drainage Study to submit to the local entity and Clark County Regional Flood Control District (if necessary). The listed items are the minimum information required prior to the entity performing a review. The engineer will remain responsible to ensure the Technical Drainage Study is prepared within the guidelines as set forth in the Clark County Regional Flood Control District (CCRFCD) Hydrologic Criteria and Drainage Design Manual (MANUAL).

This document is intended as an aid in preparing Technical Drainage Studies. Each study submitted is reviewed for compliance with local and regional criteria. This form is not intended to be all inclusive and does not limit the extent of the information, calculations or exhibits which may be necessary to properly evaluate the intended land use.

If items are not applicable for the subject site, provide N/A.

I. GENERAL REQUIREMENT

Yes

No

☒

☐

Design Manual **Standard Form 1** with the engineer's seal and signature.

☒

☐

Design Manual **Standard Form 4**.

☒

☐

2 copies of the 24" x 36" Drainage Plan.

☐ **N/A**

A notarized letter from the adjacent property owner(s) allowing off-site grading or discharge.

II. MAPS AND EXHIBITS

Yes

No

☒

☐

A copy of a current Flood Insurance Rate Map (FIRM) with the site delineated.

☒

☐

A copy of the current CCRFCD Master Plan Update Figure, (F-x), for Flood Control Facilities and Environmental areas with the site delineated.

REFERENCE:

STANDARD FORM 2

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

II. MAPS AND EXHIBITS (Continued)

Yes	No	
<u>X</u>	_____	Off-site drainage basin maps for existing, interim and future conditions showing the existing topography, basin boundaries, concentration points, and flows in cfs.
<u>X</u>	_____	On-site drainage basin maps for existing and proposed conditions showing the existing topography, basin boundaries, concentration points, and on-site and off-site flows in cfs.
<u>X</u>	_____	Vicinity Map with local and major cross streets identified and a north arrow.

III. DRAINAGE PLAN

Yes	No	
<u>X</u>	_____	Sheet size: 24" x 36" sealed by a registered engineer in the State of Nevada.
<u>X</u>	_____	Minimum scale: 1" = 60'.
<u>X</u>	_____	Project name.
<u>X</u>	_____	Vicinity Map with local and major cross streets.
<u>X</u>	_____	Revision box.
<u>X</u>	_____	North arrow and bar scale.
<u>X</u>	_____	Engineer's/consultant's address and phone number.
<u>X</u>	_____	Elevation datum and benchmark.
<u>X</u>	_____	Legend for symbols and abbreviations.
<u>X</u>	_____	Cut/fill scarps, where applicable.
<u>X</u>	_____	Street names, grades, widths.
<u>X</u>	_____	Proposed future and existing spot grades for top of curbs and street crowns at lot lines, grade breaks, and along curb returns on both sides of the street.
<u>X</u>	_____	Existing contours encompassing the site and 100 feet beyond with spot elevations for important locations, where appropriate.
<u>X</u>	_____	Minimum finish floor elevations with top-of-curb elevations at upstream end of lot.
<u>X</u>	_____	Proposed typical street sections.

REFERENCE:

STANDARD FORM 2

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

III. DRAINAGE PLAN (Continued)

Yes	No	
<u>X</u>	<u> </u>	Streets with off-set crowns.
<u>X</u>	<u> </u>	Proposed contours or spot elevations in sufficient detail to exhibit intended drainage patterns and slopes.
<u>X</u>	<u> </u>	Property lines.
<u>X</u>	<u> </u>	Right-of-way lines and widths, existing and proposed.
<u>X</u>	<u> </u>	Existing improvements and their elevations.
<u>X</u>	<u> </u>	Delineation of proposed on-site drainage basins indicating area and 10-year and 100-year storm peak flows at basin concentration points.
<u>X</u>	<u> </u>	Concentration points and drainage flow direction with Q_{100} and V_{100} and D_{100} in streets.
<u>X</u>	<u> </u>	Cumulative flows, velocity, and direction of flow at upstream and downstream ends of site for the 10-year and 100-year flows.
<u>X</u>	<u> </u>	Location and cross-section of street capacity calculations.
<u>X</u>	<u> </u>	Cross-sectional detail for channels, including cutoff wall locations.
<u>X</u>	<u> </u>	Existing and proposed drainage facilities, appurtenances, and connections (i.e., sidewalk, ditches, swales, storm drain systems, unimproved and improved channels, and culverts, etc.) stating size, material, shape, and slope with plan and profile and HGL calculations.
<u>X</u>	<u> </u>	Existing and proposed drainage easements and widths shown with sufficient detail. A cross sectional detail must be provided that shows appropriate lining and reinforcement.
<u> </u>	<u>N/A</u>	Location and detail of existing, proposed, and future block wall openings. Minimum size is 16" x 48". Wrought iron gate is required for flows > 10 cfs.
<u> </u>	<u>N/A</u>	Location and detail of flood walls illustrating depth of flow, proposed grouting height, etc.
<u> </u>	<u>N/A</u>	Perimeter retaining wall locations. All existing and proposed walls (retaining screen and flood) must be shown with adjacent ground elevations. Flood walls with 8-inch concrete masonry unit.
<u>X</u>	<u> </u>	Building and/or lot numbers.
<u>X</u>	<u> </u>	Alignment of all existing, proposed, or future Regional Facilities adjacent to the site.
<u>X</u>	<u> </u>	Limits of existing floodplain based on current FIRM or best available information; limits of proposed floodplains based on best available information.

REFERENCE:

STANDARD FORM 2

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

III. DRAINAGE PLAN (Continued)

Yes No

- | | | |
|--------------|---------------|--|
| <u> X </u> | <u> </u> | For areas in Zone A, AE, AH, and AO, base flood elevations (BFEs) must be shown for each lot; BFEs may be listed on each lot, or in a table. Finish floor elevations must be a minimum of 18 inches above BFE. |
| <u> X </u> | <u> </u> | Appropriately elevated "humps" 6 inches above the 100 year water surface elevation at site accesses where the intent is to protect the site from the Q_{100} flows. |
| <u> X </u> | <u> </u> | Street slopes for perimeter and interior streets. The minimum slope is 0.4 percent. |
| <u> X </u> | <u> </u> | Location and detail of best management practice (BMP) for parking lots and low impact development (LID) (if required). |

IV. HYDROLOGIC ANALYSIS

Yes No

- | | | |
|---------------|----------------|--|
| <u> X </u> | <u> </u> | Appropriate soil information and Soils Map for existing and future conditions with subbasins and property delineated. |
| <u> X </u> | <u> </u> | Input and output information for existing conditions from computer models (HEC-1 or TR-55). The flow routing diagram must be provided with HEC-1 models. |
| <u> X </u> | <u> </u> | Input and output information for future conditions from computer models (HEC-1 or TR-55). The flow routing diagram must be provided with HEC-1 models. |
| <u> X </u> | <u> </u> | Use of correct precipitation values in and around the McCarran Airport rainfall area. |
| <u> X </u> | <u> </u> | A discussion in the text of the hydrologic analysis justifying subbasin boundaries and cutoffs, supporting assumptions, and calculations. |
| <u> X </u> | <u> </u> | A summary table of stormwater flows showing basin area, Q_{10} and Q_{100} for both individual basins and combined basin flows, where applicable. |
| <u> X </u> | <u> </u> | Copies of supporting technical information referenced from a previously approved study and a statement accepting these results. |
| <u> X </u> | <u> </u> | On-site facilities must perpetuate flows through or around the site without significantly impacting adjacent property owners in accordance with current Nevada Drainage Law. |
| <u> </u> | <u> N/A </u> | Calculation for impervious area for parking lots and LIDs (if required). |

REFERENCE:

STANDARD FORM 2

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

V. HYDRAULIC ANALYSIS

Yes	No	
☐	<u>N/A</u>	Flow split calculations and supporting documentation or reference for the method of flow split calculations used.
<u>X</u>	☐	Normal depth street flow calculations and cross section diagrams for all interior and perimeter streets. Provide "d x v" products for the Q_{100} and Q_{10} flows representing the worst case for interior and all perimeter streets. $Q_{100} d \times v \leq 8$. $Q_{10} d \times v \leq 6$ and 12 foot dry lane for rights-of-way ≥ 80 feet. Calculations must be labeled by street name as indicated on the Grading Plan.
<u>X</u>	☐	A summary table of interior and exterior street capacity calculations showing the street name, Q_{100} flow, slope, depth of flow, velocity and depth times velocity product and streets needing to meet 12 foot dry lane criteria.
☐	<u>N/A</u>	Appropriate hydraulic calculations for block wall openings assuming a 50 percent vertical clogging factor. (Assume the lower half of the opening is plugged.)
☐	<u>N/A</u>	Appropriate hydraulic calculations at drainage easement entrance and discharge locations to set finish floor elevations. Hydraulic calculations must include submerged weir, superelevation and tee intersection losses, where appropriate.
☐	<u>N/A</u>	Provide necessary freeboard requirements to set the finished floor elevations of all proposed buildings, 2 x depth of flow or depth of flow plus 18 inches of freeboard, whichever is less. The minimum requirement is 6 inches above adjacent upstream top of curb. Buildings adjacent to drainage easements must always be provided with 18 inches of freeboard above the Q_{100} weir height or flow depth, whichever is greater.
☐	<u>N/A</u>	A complete water surface profile analysis (HEC-2, HEC-RAS, etc.) for channel flows and FEMA Zone A flood zones. • Field survey data. • Input and output information. • Plotted cross-sections based on survey with proper encroachments. • A map showing the location of the cross-sections. • Analysis of both sub and super-critical flow segments. • A summary table and a discussion of the results in the text of the report.
<u>X</u>	☐	Provide a 50 percent clogging factor in the capacity calculation for drop inlets.
<u>X</u>	☐	Hydraulic calculations for culverts and storm drains. D-Load calculations must be provided for storm drain pipes in public rights-of-way, including headwater pool inundation.
<u>X</u>	☐	The mitigation of nuisance water, both during construction and in the fully developed condition, must be addressed.
☐	<u>N/A</u>	Provide BMP type, size and supporting calculations for parking lots and LIDs (if required).

REFERENCE:

STANDARD FORM 2

Engineer's Certification

Atkins certifies that the information contained herein has been prepared in accordance with generally accepted engineering principles and practices, and to the best of our knowledge, is true and correct.

This letter certifies that all items in the **Technical Drainage Study for Desert Foothills Drive: Update #2 Fleet Wing Avenue (Street G) to Lake Mead Boulevard** electronic submittal matches the paper version bound into the study.



Molly M. Anderson, PE (NV, #24365)
Senior Engineer

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Executive Summary

This Technical Drainage Study (TDS), prepared on behalf of Howard Hughes Company, LLC represents the hydrologic and hydraulic analysis for the Desert Foothills Drive roadway improvements of the Summerlin West Village 22 development. Summerlin West Village 22 is located in the northwest Las Vegas Valley west of the I-215 beltway and is bounded by Lake Mead Boulevard and Summerlin Parkway.

A Master Conceptual Drainage Study (MCDS) for Summerlin West Village 22 (W.O. 7861-3A) was approved November 28, 2018. Update #2 of the MCDS was approved January 23, 2020. A technical drainage study for Clowder Pass Way (Street H) was conditionally approved by the City of Las Vegas on February 10, 2020. Flows from the Clowder Pass way storm drain facilities entering Desert Foothills drive, are referenced in this report. This report is an update to the Drainage Study for Summerlin West V22 Desert Foothills Drive Street Improvements from Lake Mead Boulevard to Fleet Wing Avenue, approved August 3, 2020.



1. Hydrologic Analysis

The Hydrology for the has not changed from the analysis presented in the Desert Foothills Drive: Update #1 Fleet Wing Avenue to Lake Mead Boulevard.

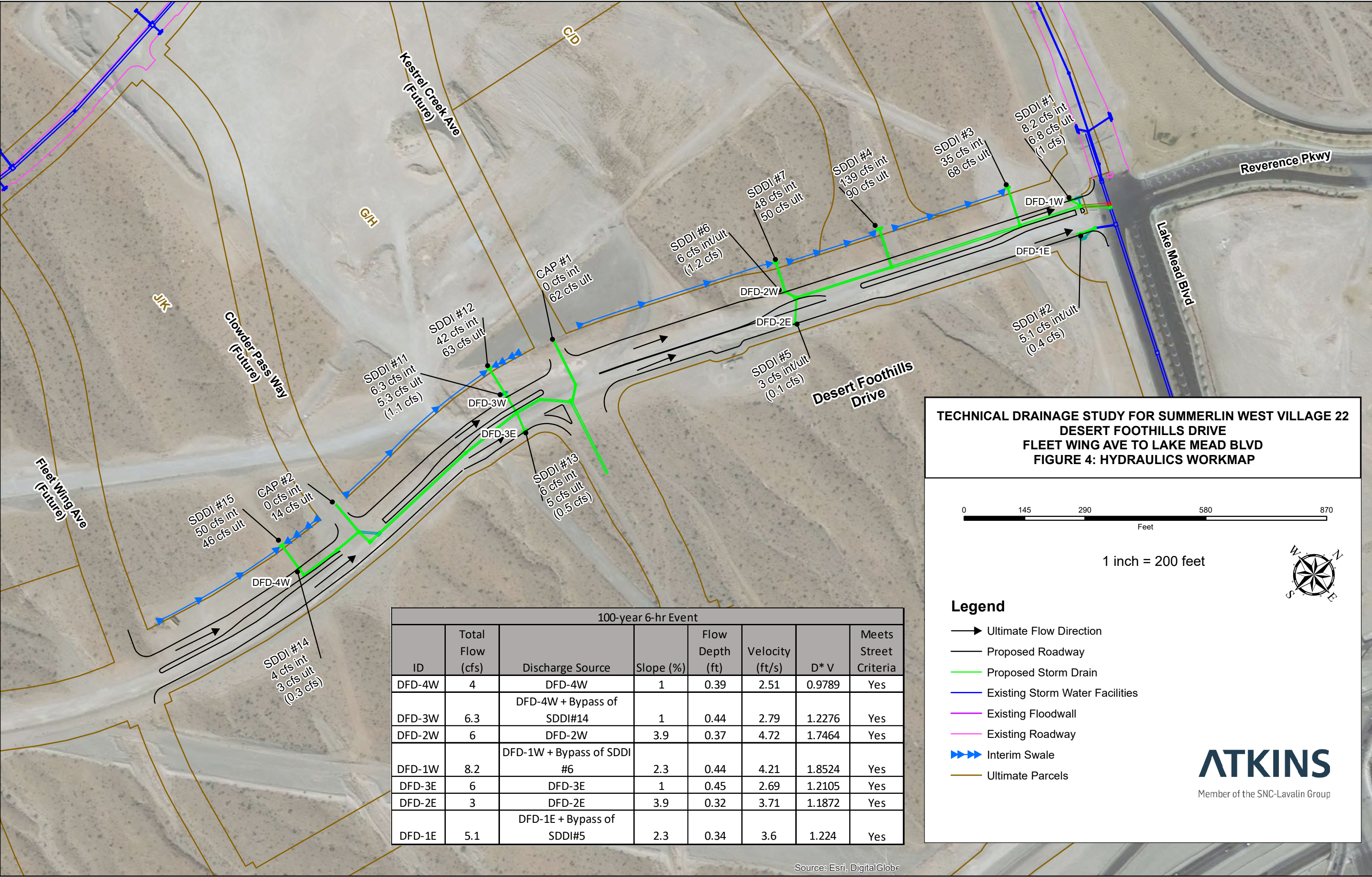
2. Hydraulic Analysis

2.1. Storm Drain System Modeling

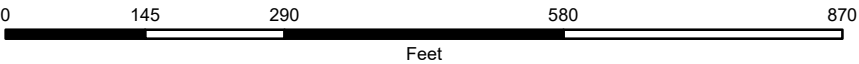
The connection of the proposed storm drain system in Desert Foothills Drive to the existing storm drain in Lake Mead Boulevard was shifted approximately 8-feet upstream to avoid a conflict with an existing high-pressure gas line that. The system was modeled using Water Surface Pressure Gradient (WSPG-W) Software. Two conditions were analyzed for the storm drain mainline, the interim condition and ultimate condition. Mainlines have been appropriately sized to safely convey flow from the interim to the ultimate condition and handle the worst-case scenario triggered by phases in parcel development. Table 6 below summarizes flows and HGLs for each condition. There has not been a significant change to the HGL based on the revised connection design.

Table 6 Desert Foothills Drive - Kestrel Creek Ave to Lake Mead Blvd WSPGW Flow Conditions

SDMH#	WSPG-W Station	Ultimate Condition			Interim Condition		
		Q ₁₀₀	ΣQ ₁₀₀	HGL (ft)	Q ₁₀₀	ΣQ ₁₀₀	HGL
SDMH #1	3.26	0	223	3,290.46	0	238	3,290.59
SDMH #3	68.19	6	223	3,294.28	7	238	3,294.44
SDMH #4	221.75	68	217	3,296.97	35	231	3,297.63
SDMH #5	545.18	90	149	3,304.41	139	196	3,304.87
SDMH #6	785.29	3	59	3,307.15	3	57	3,310.68
SDDI #6	815.34	6	56	3,313.43	6	54	3,313.40
SDDI #7	896.84	50	50	3,315.06	48	48	3,315.01



TECHNICAL DRAINAGE STUDY FOR SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE
FLEET WING AVE TO LAKE MEAD BLVD
FIGURE 4: HYDRAULICS WORKMAP



1 inch = 200 feet



Legend

- Ultimate Flow Direction
- Proposed Roadway
- Proposed Storm Drain
- Existing Storm Water Facilities
- Existing Floodwall
- Existing Roadway
- Interim Swale
- Ultimate Parcels

100-year 6-hr Event							
ID	Total Flow (cfs)	Discharge Source	Slope (%)	Flow Depth (ft)	Velocity (ft/s)	D* V	Meets Street Criteria
DFD-4W	4	DFD-4W	1	0.39	2.51	0.9789	Yes
DFD-3W	6.3	DFD-4W + Bypass of SDDI#14	1	0.44	2.79	1.2276	Yes
DFD-2W	6	DFD-2W	3.9	0.37	4.72	1.7464	Yes
DFD-1W	8.2	DFD-1W + Bypass of SDDI #6	2.3	0.44	4.21	1.8524	Yes
DFD-3E	6	DFD-3E	1	0.45	2.69	1.2105	Yes
DFD-2E	3	DFD-2E	3.9	0.32	3.71	1.1872	Yes
DFD-1E	5.1	DFD-1E + Bypass of SDDI#5	2.3	0.34	3.6	1.224	Yes

Appendices



Appendix A. City of Las Vegas Approval Letter

CITY OF LAS VEGAS			DATE:
INTER-OFFICE MEMORANDUM			August 3, 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 V22 – Desert Foothills Drive Street Improvements from Lake Mead Boulevard to Fleet Wing Avenue (Street G)		Atkins
Cross Streets:	Lake Mead Boulevard & Desert Foothill Drive		Howard Hughes Company, LLC
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3 rd Submittal	6/2/2020 & 7/22/2020	8/3/2020	See Comments Below	\$100.00	3869177: \$100
			TOTAL FEES (LDDRS):	\$900.00	----

REMARKS:

3rd Submittal: Update #1

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:
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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.

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

ays

T/R/S: T20S/R59E/14

AREA K-14

Appendix B. Hydraulics Appendix

D.1 WSPG-W Models

DFD2LMB_Int.WSW

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T1 Summerlin V22 - Atkins Update #1

T2 DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

T3 Interim Condition 100-Yr 6-Hr Storm Event

SO 0.26 3287.46 54 3291.166

R 003.26 3287.56 54

REM SDMH#1

REM END OF SDMH#3

R 68.19 3290.57 54 .013

.000 .000 0

R 69.19 3290.60 54 .013

.000 10.000 0

R 70.19 3290.74 54 .013

.000 10.000 1

JX 71.19 3290.67 54 24 .013 7.000

3290.72

47.0

.000

R 72.19 3290.70 54 .013

.000 00.000 0

R 73.19 3290.73 54 .013

.000 00.000 0

R 74.19 3290.77 54 .013

.000 00.000 0

REM BEG OF SDMH#3

REM END OF SDMH#4

R 221.75 3293.07 54 .013

.000 0.000 0

R 222.75 3293.10 54 .013

.000 0.000 0

R 223.75 3293.14 54 .013

.000 0.000 1

JX 224.75 3293.17 54 30 .013 35.000

3293.27

90.0

.000

R 225.75 3293.20 54 .013

.000 0.000 0

R 226.75 3293.23 54 .013

.000 0.000 0

R 227.75 3293.27 54 .013

.000 0.000 0

REM BEG OF SDMH#4

REM END OF SDMH#5

R 545.18 3301.09 54 .013

.000 0.000 0

R 546.18 3301.12 54 .013

.000 0.000 0

R 547.18 3301.15 54 .013

.000 0.000 1

JX 548.18 3301.19 54 42 .013 139.000

3301.29

90.0

.000

TS 549.18 3301.22 54 .013

.000 0.000 0

R 550.18 3301.25 42 .013

.000 0.000 0

R 551.18 3301.29 42 .013

.000 0.000 0

REM BEG OF SDMH#5

REM END OF SDMH#6

R 785.29 3305.92 42 .013

.000 0.000 0

R 786.29 3305.95 42 .013

.000 15.000 0

R 787.29 3305.98 42 .013

.000 15.000 1

JX 788.29 3306.02 42 24 .013 3.000

3306.12

-45.0

.000

R 789.29 3306.05 42 .013

.000 15.000 0

R 790.29 3306.08 42 .013

.000 0.000 0

R 791.29 3306.12 42 .013

.000 0.000 0

REM BEG OF SDMH#6

REM END OF SDDI#6

R 815.34 3311.38 42 .013

.000 0.000 0

R 816.34 3311.41 42 .013

.000 15.000 1

R 817.34 3311.44 42 .013

.000 15.000 0

JX 818.34 3311.48 42 42 .013 6.000

3311.58

0.0

.000

R 819.34 3311.51 42 .013

.000 15.000 0

R 820.34 3311.54 42 .013

.000 0.000 0

R 821.34 3311.58 42 .013

.000 0.000 0

REM BEG OF SDDI#6

REM SDDI#7

R 893.84 3312.85 42 .013

.000 0.000 1

SH 896.84 3312.85 42

CD 54 4 1 .000 4.500 .000 .000 .000 .00

CD 24 4 1 .000 2.000 .000 .000 .000 .00

CD 30 4 1 .000 2.500 .000 .000 .000 .00

CD 42 4 1 .000 3.500 .000 .000 .000 .00

Q 48.000 .0

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FILE: DFD2LMB_INT.WSW

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PAGE 1

Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date: 7- 2-2021 Time: 7:47:47

Summerlin V22 - Atkins Update #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Interim Condition 100-Yr 6-Hr Storm Event

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Width	Top Height/ Dia.-FT	Base Wt/ 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
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
.260	3287.460	3.023	3290.483	238.00	20.95	6.81	3297.30	.00	4.23	4.23	4.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.000	.0334					.0270	.08	3.02	2.25	2.81	.014	.00	.00	PIPE
3.260	3287.560	3.028	3290.588	238.00	20.91	6.79	3297.38	.00	4.23	4.22	4.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.053	.0464					.0231	.07	3.03	2.24	2.41	.013	.00	.00	PIPE
6.313	3287.701	3.046	3290.747	238.00	20.78	6.70	3297.45	.00	4.23	4.21	4.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.198	.0464					.0216	.42	3.05	2.22	2.41	.013	.00	.00	PIPE
25.511	3288.591	3.180	3291.771	238.00	19.81	6.09	3297.86	.00	4.23	4.10	4.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.093	.0464					.0193	.29	3.18	2.04	2.41	.013	.00	.00	PIPE
40.604	3289.291	3.326	3292.617	238.00	18.89	5.54	3298.16	.00	4.23	3.95	4.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.853	.0464					.0173	.21	3.33	1.86	2.41	.013	.00	.00	PIPE
52.457	3289.841	3.485	3293.326	238.00	18.01	5.04	3298.36	.00	4.23	3.76	4.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.119	.0464					.0156	.14	3.49	1.69	2.41	.013	.00	.00	PIPE
61.576	3290.263	3.662	3293.926	238.00	17.17	4.58	3298.50	.00	4.23	3.50	4.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.614	.0464					.0142	.09	3.66	1.52	2.41	.013	.00	.00	PIPE
68.190	3290.570	3.866	3294.436	238.00	16.37	4.16	3298.60	.00	4.23	3.13	4.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.000	.0300					.0135	.01	3.87	1.34	2.77	.013	.00	.00	PIPE
69.190	3290.600	3.887	3294.488	238.00	16.30	4.12	3298.61	.00	4.23	3.09	4.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.338	.1399					.0133	.00	3.89	1.32	1.76	.013	.00	.00	PIPE

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FILE: DFD2LMB_INT.WSW

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date: 7- 2-2021 Time: 7:47:47

Summerlin V22 - Atkins Update #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Interim Condition 100-Yr 6-Hr Storm Event

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/ 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
69.528	3290.647	3.951	3294.598	238.00	16.08	4.02	3298.62	.00	4.23	2.95	4.500	.000	.00	1 .0
.662	.1399					.0129	.01	3.95	1.26	1.76	.013	.00	.00	PIPE
70.190	3290.740	4.233	3294.973	238.00	15.33	3.65	3298.62	.00	4.23	2.13	4.500	.000	.00	1 .0
JUNCT STR	-.0701					.0132	.01	4.23	1.00		.013	.00	.00	PIPE
71.190	3290.670	4.877	3295.547	231.00	14.52	3.28	3298.82	.00	4.20	.00	4.500	.000	.00	1 .0
1.000	.0300					.0138	.01	4.88	.00	2.72	.013	.00	.00	PIPE
72.190	3290.700	4.861	3295.561	231.00	14.52	3.28	3298.84	.00	4.20	.00	4.500	.000	.00	1 .0
1.000	.0300					.0138	.01	4.86	.00	2.72	.013	.00	.00	PIPE
73.190	3290.730	4.845	3295.575	231.00	14.52	3.28	3298.85	.00	4.20	.00	4.500	.000	.00	1 .0
1.000	.0400					.0138	.01	4.84	.00	2.48	.013	.00	.00	PIPE
74.190	3290.770	4.818	3295.589	231.00	14.52	3.28	3298.86	.00	4.20	.00	4.500	.000	.00	1 .0
147.560	.0156					.0138	2.04	4.82	.00	3.47	.013	.00	.00	PIPE
221.750	3293.070	4.555	3297.625	231.00	14.52	3.28	3300.90	.00	4.20	.00	4.500	.000	.00	1 .0
1.000	.0300					.0138	.01	4.55	.00	2.72	.013	.00	.00	PIPE
222.750	3293.100	4.538	3297.639	231.00	14.52	3.28	3300.91	.00	4.20	.00	4.500	.000	.00	1 .0
1.000	.0398					.0138	.01	4.54	.00	2.48	.013	.00	.00	PIPE
223.750	3293.140	4.676	3297.816	231.00	14.52	3.28	3301.09	.00	4.20	.00	4.500	.000	.00	1 .0
JUNCT STR	.0300					.0119	.01	4.68	.00		.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING

Date: 7- 2-2021 Time: 7:47:47

Summerlin V22 - Atkins Update #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Interim Condition 100-Yr 6-Hr Storm Event

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/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
224.750	3293.170	6.493	3299.663	196.00	12.32	2.36	3302.02	.00	4.01	.00	4.500	.000	.00	1 .0
1.000	.0300					.0099	.01	6.49	.00	2.45	.013	.00	.00	PIPE
225.750	3293.200	6.473	3299.673	196.00	12.32	2.36	3302.03	.00	4.01	.00	4.500	.000	.00	1 .0
1.000	.0300					.0099	.01	6.47	.00	2.45	.013	.00	.00	PIPE
226.750	3293.230	6.453	3299.683	196.00	12.32	2.36	3302.04	.00	4.01	.00	4.500	.000	.00	1 .0
1.000	.0400					.0099	.01	6.45	.00	2.24	.013	.00	.00	PIPE
227.750	3293.270	6.423	3299.693	196.00	12.32	2.36	3302.05	.00	4.01	.00	4.500	.000	.00	1 .0
45.513	.0246					.0099	.45	6.42	.00	2.60	.013	.00	.00	PIPE
273.263	3294.391	5.754	3300.145	196.00	12.32	2.36	3302.50	.00	4.01	.00	4.500	.000	.00	1 .0
HYDRAULIC JUMP														
273.263	3294.391	2.712	3297.104	196.00	19.57	5.94	3303.05	.00	4.01	4.40	4.500	.000	.00	1 .0
54.104	.0246					.0212	1.15	2.71	2.29	2.60	.013	.00	.00	PIPE
327.367	3295.724	2.755	3298.479	196.00	19.20	5.73	3304.21	.00	4.01	4.39	4.500	.000	.00	1 .0
79.473	.0246					.0195	1.55	2.76	2.22	2.60	.013	.00	.00	PIPE
406.840	3297.682	2.869	3300.551	196.00	18.31	5.21	3305.76	.00	4.01	4.33	4.500	.000	.00	1 .0
48.076	.0246					.0173	.83	2.87	2.05	2.60	.013	.00	.00	PIPE
454.916	3298.866	2.991	3301.857	196.00	17.46	4.73	3306.59	.00	4.01	4.25	4.500	.000	.00	1 .0
32.479	.0246					.0154	.50	2.99	1.89	2.60	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING

Date: 7- 2-2021 Time: 7:47:47

Summerlin V22 - Atkins Update #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Interim Condition 100-Yr 6-Hr Storm Event

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/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
487.394	3299.666	3.122	3302.788	196.00	16.65	4.30	3307.09	.00	4.01	4.15	4.500	.000	.00	1 .0
22.990	.0246					.0137	.32	3.12	1.74	2.60	.013	.00	.00	PIPE
510.384	3300.233	3.262	3303.495	196.00	15.87	3.91	3307.41	.00	4.01	4.02	4.500	.000	.00	1 .0
16.406	.0246					.0123	.20	3.26	1.60	2.60	.013	.00	.00	PIPE
526.791	3300.637	3.415	3304.052	196.00	15.13	3.56	3307.61	.00	4.01	3.85	4.500	.000	.00	1 .0
11.353	.0246					.0111	.13	3.42	1.45	2.60	.013	.00	.00	PIPE
538.143	3300.917	3.585	3304.501	196.00	14.43	3.23	3307.73	.00	4.01	3.62	4.500	.000	.00	1 .0
7.037	.0246					.0100	.07	3.58	1.31	2.60	.013	.00	.00	PIPE
545.180	3301.090	3.776	3304.866	196.00	13.76	2.94	3307.80	.00	4.01	3.31	4.500	.000	.00	1 .0
1.000	.0300					.0094	.01	3.78	1.17	2.45	.013	.00	.00	PIPE
546.180	3301.120	3.842	3304.962	196.00	13.55	2.85	3307.81	.00	4.01	3.18	4.500	.000	.00	1 .0
1.000	.0298					.0091	.01	3.84	1.12	2.45	.013	.00	.00	PIPE
547.180	3301.150	4.008	3305.158	196.00	13.10	2.67	3307.82	.00	4.01	2.81	4.500	.000	.00	1 .0
JUNCT STR	.0400					.0048	.00	4.01	1.00		.013	.00	.00	PIPE
548.180	3301.190	8.729	3309.919	57.00	3.58	.20	3310.12	.00	2.19	.00	4.500	.000	.00	1 .0
TRANS STR	.0300					.0008	.00	8.73	.00		.013	.00	.00	PIPE
549.180	3301.220	8.700	3309.920	57.00	5.92	.55	3310.46	.00	2.36	.00	3.500	.000	.00	1 .0
1.000	.0300					.0032	.00	8.70	.00	1.38	.013	.00	.00	PIPE

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FILE: DFD2LMB_INT.WSW

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WATER SURFACE PROFILE LISTING

Date: 7- 2-2021 Time: 7:47:47

Summerlin V22 - Atkins Update #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Interim Condition 100-Yr 6-Hr Storm Event

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/ 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
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
550.180	3301.250	8.673	3309.923	57.00	5.92	.55	3310.47	.00	2.36	.00	3.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.000	.0400					.0032	.00	8.67	.00	1.27	.013	.00	.00	PIPE
551.180	3301.290	8.636	3309.926	57.00	5.92	.55	3310.47	.00	2.36	.00	3.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
234.110	.0198					.0032	.75	8.64	.00	1.55	.013	.00	.00	PIPE
785.290	3305.920	4.758	3310.677	57.00	5.92	.55	3311.22	.00	2.36	.00	3.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.000	.0300					.0032	.00	4.76	.00	1.38	.013	.00	.00	PIPE
786.290	3305.950	4.758	3310.708	57.00	5.92	.55	3311.25	.00	2.36	.00	3.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.000	.0300					.0032	.00	4.76	.00	1.38	.013	.00	.00	PIPE
787.290	3305.980	4.785	3310.765	57.00	5.92	.55	3311.31	.00	2.36	.00	3.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JUNCT STR	.0400					.0030	.00	4.79	.00		.013	.00	.00	PIPE
788.290	3306.020	4.853	3310.874	54.00	5.61	.49	3311.36	.00	2.30	.00	3.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.000	.0300					.0029	.00	4.85	.00	1.34	.013	.00	.00	PIPE
789.290	3306.050	4.851	3310.901	54.00	5.61	.49	3311.39	.00	2.30	.00	3.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.000	.0300					.0029	.00	4.85	.00	1.34	.013	.00	.00	PIPE
790.290	3306.080	4.823	3310.904	54.00	5.61	.49	3311.39	.00	2.30	.00	3.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.000	.0400					.0029	.00	4.82	.00	1.24	.013	.00	.00	PIPE
791.290	3306.120	4.786	3310.906	54.00	5.61	.49	3311.40	.00	2.30	.00	3.500	.000	.00	1 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.579	.2187					.0029	.00	4.79	.00	.80	.013	.00	.00	PIPE

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FILE: DFD2LMB_INT.WSW

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WATER SURFACE PROFILE LISTING

Date: 7- 2-2021 Time: 7:47:47

Summerlin V22 - Atkins Update #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Interim Condition 100-Yr 6-Hr Storm Event

*****															*****	
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/ 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		
*****															*****	
792.869	3306.466	4.446	3310.911	54.00	5.61	.49	3311.40	.00	2.30	.00	3.500	.000	.00	1 .0		
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		
HYDRAULIC JUMP																
792.869	3306.466	1.118	3307.584	54.00	20.39	6.45	3314.04	.00	2.30	3.26	3.500	.000	.00	1 .0		
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		
.722	.2187					.0580	.04	1.12	3.99	.80	.013	.00	.00	PIPE		
793.591	3306.623	1.128	3307.751	54.00	20.15	6.31	3314.06	.00	2.30	3.27	3.500	.000	.00	1 .0		
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		
3.229	.2187					.0535	.17	1.13	3.92	.80	.013	.00	.00	PIPE		
796.820	3307.329	1.168	3308.497	54.00	19.21	5.73	3314.23	.00	2.30	3.30	3.500	.000	.00	1 .0		
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		
2.792	.2187					.0469	.13	1.17	3.67	.80	.013	.00	.00	PIPE		
799.611	3307.940	1.209	3309.149	54.00	18.32	5.21	3314.36	.00	2.30	3.33	3.500	.000	.00	1 .0		
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		
2.425	.2187					.0411	.10	1.21	3.43	.80	.013	.00	.00	PIPE		
802.036	3308.470	1.252	3309.722	54.00	17.47	4.74	3314.46	.00	2.30	3.36	3.500	.000	.00	1 .0		
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		
2.112	.2187					.0360	.08	1.25	3.21	.80	.013	.00	.00	PIPE		
804.148	3308.932	1.297	3310.229	54.00	16.65	4.31	3314.54	.00	2.30	3.38	3.500	.000	.00	1 .0		
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		
1.843	.2187					.0316	.06	1.30	3.00	.80	.013	.00	.00	PIPE		
805.991	3309.335	1.344	3310.679	54.00	15.88	3.92	3314.59	.00	2.30	3.40	3.500	.000	.00	1 .0		
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		
1.609	.2187					.0277	.04	1.34	2.80	.80	.013	.00	.00	PIPE		
807.600	3309.687	1.392	3311.079	54.00	15.14	3.56	3314.64	.00	2.30	3.43	3.500	.000	.00	1 .0		
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		
1.404	.2187					.0243	.03	1.39	2.61	.80	.013	.00	.00	PIPE		

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WATER SURFACE PROFILE LISTING

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Summerlin V22 - Atkins Update #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Interim Condition 100-Yr 6-Hr Storm Event

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/ 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
809.004	3309.994	1.443	3311.437	54.00	14.44	3.24	3314.67	.00	2.30	3.45	3.500	.000	.00	1 .0
1.222	.2187					.0213	.03	1.44	2.44	.80	.013	.00	.00	PIPE
810.227	3310.261	1.496	3311.757	54.00	13.76	2.94	3314.70	.00	2.30	3.46	3.500	.000	.00	1 .0
1.061	.2187					.0188	.02	1.50	2.28	.80	.013	.00	.00	PIPE
811.288	3310.494	1.551	3312.044	54.00	13.12	2.67	3314.72	.00	2.30	3.48	3.500	.000	.00	1 .0
.917	.2187					.0165	.02	1.55	2.13	.80	.013	.00	.00	PIPE
812.205	3310.694	1.608	3312.303	54.00	12.51	2.43	3314.73	.00	2.30	3.49	3.500	.000	.00	1 .0
.787	.2187					.0145	.01	1.61	1.98	.80	.013	.00	.00	PIPE
812.992	3310.866	1.669	3312.535	54.00	11.93	2.21	3314.75	.00	2.30	3.50	3.500	.000	.00	1 .0
.669	.2187					.0127	.01	1.67	1.85	.80	.013	.00	.00	PIPE
813.661	3311.013	1.732	3312.745	54.00	11.37	2.01	3314.75	.00	2.30	3.50	3.500	.000	.00	1 .0
.561	.2187					.0112	.01	1.73	1.72	.80	.013	.00	.00	PIPE
814.222	3311.135	1.798	3312.934	54.00	10.85	1.83	3314.76	.00	2.30	3.50	3.500	.000	.00	1 .0
.462	.2187					.0099	.00	1.80	1.60	.80	.013	.00	.00	PIPE
814.685	3311.237	1.868	3313.104	54.00	10.34	1.66	3314.76	.00	2.30	3.49	3.500	.000	.00	1 .0
.371	.2187					.0087	.00	1.87	1.49	.80	.013	.00	.00	PIPE
815.055	3311.318	1.941	3313.258	54.00	9.86	1.51	3314.77	.00	2.30	3.48	3.500	.000	.00	1 .0
.285	.2187					.0077	.00	1.94	1.38	.80	.013	.00	.00	PIPE

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Summerlin V22 - Atkins Update #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Interim Condition 100-Yr 6-Hr Storm Event

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/ 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
815.340	3311.380	2.018	3313.398	54.00	9.40	1.37	3314.77	.00	2.30	3.46	3.500	.000	.00	1 .0
1.000	.0300					.0070	.01	2.02	1.29	1.34	.013	.00	.00	PIPE
816.340	3311.410	2.056	3313.466	54.00	9.19	1.31	3314.78	.00	2.30	3.45	3.500	.000	.00	1 .0
1.000	.0300					.0066	.01	2.06	1.24	1.34	.013	.00	.00	PIPE
817.340	3311.440	2.105	3313.545	54.00	8.93	1.24	3314.78	.00	2.30	3.43	3.500	.000	.00	1 .0
JUNCT STR	.0400					.0101	.01	2.11	1.19		.013	.00	.00	PIPE
818.340	3311.480	1.549	3313.029	48.00	11.68	2.12	3315.15	.00	2.16	3.48	3.500	.000	.00	1 .0
1.000	.0300					.0138	.01	1.55	1.89	1.26	.013	.00	.00	PIPE
819.340	3311.510	1.556	3313.066	48.00	11.62	2.10	3315.16	.00	2.16	3.48	3.500	.000	.00	1 .0
1.000	.0300					.0136	.01	1.56	1.88	1.26	.013	.00	.00	PIPE
820.340	3311.540	1.562	3313.102	48.00	11.56	2.07	3315.18	.00	2.16	3.48	3.500	.000	.00	1 .0
1.000	.0400					.0133	.01	1.56	1.86	1.16	.013	.00	.00	PIPE
821.340	3311.580	1.573	3313.153	48.00	11.45	2.04	3315.19	.00	2.16	3.48	3.500	.000	.00	1 .0
10.160	.0175					.0129	.13	1.57	1.84	1.45	.013	.00	.00	PIPE
831.500	3311.758	1.593	3313.351	48.00	11.26	1.97	3315.32	.00	2.16	3.49	3.500	.000	.00	1 .0
21.054	.0175					.0118	.25	1.59	1.80	1.45	.013	.00	.00	PIPE
852.554	3312.127	1.653	3313.779	48.00	10.74	1.79	3315.57	.00	2.16	3.49	3.500	.000	.00	1 .0
14.141	.0175					.0104	.15	1.65	1.67	1.45	.013	.00	.00	PIPE

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Summerlin V22 - Atkins Update #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Interim Condition 100-Yr 6-Hr Storm Event

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/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
866.695	3312.375	1.715	3314.090	48.00	10.24	1.63	3315.72	.00	2.16	3.50	3.500	.000	.00	1 .0
9.907	.0175					.0092	.09	1.72	1.56	1.45	.013	.00	.00	PIPE
876.602	3312.548	1.780	3314.328	48.00	9.76	1.48	3315.81	.00	2.16	3.50	3.500	.000	.00	1 .0
6.975	.0175					.0081	.06	1.78	1.45	1.45	.013	.00	.00	PIPE
883.577	3312.670	1.849	3314.519	48.00	9.31	1.35	3315.86	.00	2.16	3.49	3.500	.000	.00	1 .0
4.830	.0175					.0071	.03	1.85	1.35	1.45	.013	.00	.00	PIPE
888.407	3312.755	1.921	3314.676	48.00	8.87	1.22	3315.90	.00	2.16	3.48	3.500	.000	.00	1 .0
3.133	.0175					.0063	.02	1.92	1.26	1.45	.013	.00	.00	PIPE
891.540	3312.810	1.997	3314.807	48.00	8.46	1.11	3315.92	.00	2.16	3.46	3.500	.000	.00	1 .0
1.745	.0175					.0056	.01	2.00	1.17	1.45	.013	.00	.00	PIPE
893.286	3312.840	2.077	3314.918	48.00	8.07	1.01	3315.93	.00	2.16	3.44	3.500	.000	.00	1 .0
.554	.0175					.0049	.00	2.08	1.08	1.45	.013	.00	.00	PIPE
893.840	3312.850	2.163	3315.013	48.00	7.69	.92	3315.93	.00	2.16	3.40	3.500	.000	.00	1 .0
896.840	3312.850	2.163	3315.013	48.00	7.69	.92	3315.93	.00	2.16	3.40	3.500	.000	.00	1 .0

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T1 Summerlin V22 - Atkins Addendum #1
T2 DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD
T3 Ultimate Condition 100-Yr 6-Hr Storm Event
SO      0.26 3287.46 54      3291.166
R      003.26 3287.56 54
REM  SDMH#1
REM  END OF SDMH#3
R      68.19 3290.57 54      .013      .000      .000 0
R      69.19 3290.60 54      .013      .000     10.000 0
R      70.19 3290.74 54      .013      .000     10.000 1
JX      71.19 3290.67 54 24      .013      6.000      3290.72      47.0      .000
R      72.19 3290.70 54      .013      .000     00.000 0
R      73.19 3290.73 54      .013      .000     00.000 0
R      74.19 3290.77 54      .013      .000     00.000 0
REM  BEG OF SDMH#3
REM  END OF SDMH#4
R      221.75 3293.07 54      .013      .000      0.000 0
R      222.75 3293.10 54      .013      .000      0.000 0
R      223.75 3293.14 54      .013      .000      0.000 1
JX      224.75 3293.17 54 30      .013      68.000      3293.27      90.0      .000
R      225.75 3293.20 54      .013      .000      0.000 0
R      226.75 3293.23 54      .013      .000      0.000 0
R      227.75 3293.27 54      .013      .000      0.000 0
REM  BEG OF SDMH#4
REM  END OF SDMH#5
R      545.18 3301.09 54      .013      .000      0.000 0
R      546.18 3301.12 54      .013      .000      0.000 0
R      547.18 3301.15 54      .013      .000      0.000 1
JX      548.18 3301.19 54 42      .013      90.000      3301.29      90.0      .000
TS      549.18 3301.22 54      .013      .000      0.000 0
R      550.18 3301.25 42      .013      .000      0.000 0
R      551.18 3301.29 42      .013      .000      0.000 0
REM  BEG OF SDMH#5
REM  END OF SDMH#6
R      785.29 3305.92 42      .013      .000      0.000 0
R      786.29 3305.95 42      .013      .000     15.000 0
R      787.29 3305.98 42      .013      .000     15.000 1
JX      788.29 3306.02 42 24      .013      3.000      3306.12     -45.0      .000
R      789.29 3306.05 42      .013      .000     15.000 0
R      790.29 3306.08 42      .013      .000      0.000 0
R      791.29 3306.12 42      .013      .000      0.000 0
REM  BEG OF SDMH#6
REM  END OF SDDI#6
R      815.34 3311.38 42      .013      .000      0.000 0
R      816.34 3311.41 42      .013      .000     15.000 1
R      817.34 3311.44 42      .013      .000     15.000 0
JX      818.34 3311.48 42 42      .013      6.000      3311.58      0.0      .000
R      819.34 3311.51 42      .013      .000     15.000 0
R      820.34 3311.54 42      .013      .000      0.000 0
R      821.34 3311.58 42      .013      .000      0.000 0
REM  BEG OF SDDI#6
REM  SDDI#7
R      893.84 3312.85 42      .013      .000      0.000 1
SH      896.84 3312.85 42
CD 54 4 1 .000 4.500 .000 .000 .000 .00
CD 24 4 1 .000 2.000 .000 .000 .000 .00
CD 30 4 1 .000 2.500 .000 .000 .000 .00
CD 42 4 1 .000 3.500 .000 .000 .000 .00
Q      50.000 .0

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Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

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/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
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
.260	3287.460	2.899	3290.358	223.00	20.59	6.58	3296.94	.00	4.17	4.31	4.500	.000	.00	1 .0
3.000	.0334					.0267	.08	2.90	2.29	2.69	.014	.00	.00	PIPE
3.260	3287.560	2.903	3290.463	223.00	20.55	6.56	3297.02	.00	4.17	4.31	4.500	.000	.00	1 .0
7.580	.0464					.0225	.17	2.90	2.28	2.32	.013	.00	.00	PIPE
10.840	3287.911	2.948	3290.859	223.00	20.20	6.33	3297.19	.00	4.17	4.28	4.500	.000	.00	1 .0
17.531	.0464					.0208	.36	2.95	2.22	2.32	.013	.00	.00	PIPE
28.371	3288.724	3.075	3291.799	223.00	19.26	5.76	3297.56	.00	4.17	4.19	4.500	.000	.00	1 .0
13.879	.0464					.0185	.26	3.08	2.04	2.32	.013	.00	.00	PIPE
42.250	3289.367	3.212	3292.579	223.00	18.36	5.24	3297.81	.00	4.17	4.07	4.500	.000	.00	1 .0
10.982	.0464					.0165	.18	3.21	1.87	2.32	.013	.00	.00	PIPE
53.232	3289.876	3.360	3293.237	223.00	17.51	4.76	3298.00	.00	4.17	3.91	4.500	.000	.00	1 .0
8.556	.0464					.0148	.13	3.36	1.71	2.32	.013	.00	.00	PIPE
61.788	3290.273	3.523	3293.796	223.00	16.69	4.33	3298.12	.00	4.17	3.71	4.500	.000	.00	1 .0
6.402	.0464					.0134	.09	3.52	1.55	2.32	.013	.00	.00	PIPE
68.190	3290.570	3.706	3294.276	223.00	15.92	3.93	3298.21	.00	4.17	3.43	4.500	.000	.00	1 .0
1.000	.0300					.0127	.01	3.71	1.39	2.65	.013	.00	.00	PIPE
69.190	3290.600	3.725	3294.325	223.00	15.84	3.90	3298.22	.00	4.17	3.40	4.500	.000	.00	1 .0
1.000	.1399					.0122	.01	3.72	1.37	1.70	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING

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Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

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/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
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
70.190	3290.740	3.914	3294.654	223.00	15.18	3.58	3298.23	.00	4.17	3.03	4.500	.000	.00	1 .0
JUNCT STR	-.0701					.0130	.01	3.91	1.22		.013	.00	.00	PIPE
71.190	3290.670	3.414	3294.083	217.00	16.76	4.36	3298.45	.00	4.14	3.85	4.500	.000	.00	1 .0
1.000	.0300					.0142	.01	3.41	1.61	2.61	.013	.00	.00	PIPE
72.190	3290.700	3.423	3294.123	217.00	16.72	4.34	3298.46	.00	4.14	3.84	4.500	.000	.00	1 .0
1.000	.0300					.0141	.01	3.42	1.60	2.61	.013	.00	.00	PIPE
73.190	3290.730	3.433	3294.163	217.00	16.67	4.31	3298.48	.00	4.14	3.83	4.500	.000	.00	1 .0
1.000	.0400					.0140	.01	3.43	1.59	2.39	.013	.00	.00	PIPE
74.190	3290.770	3.450	3294.220	217.00	16.58	4.27	3298.49	.00	4.14	3.81	4.500	.000	.00	1 .0
45.766	.0156					.0137	.63	3.45	1.58	3.29	.013	.00	.00	PIPE
119.956	3291.483	3.514	3294.997	217.00	16.29	4.12	3299.12	.00	4.14	3.72	4.500	.000	.00	1 .0
68.563	.0156					.0128	.88	3.51	1.52	3.29	.013	.00	.00	PIPE
188.520	3292.552	3.695	3296.247	217.00	15.53	3.74	3299.99	.00	4.14	3.45	4.500	.000	.00	1 .0
33.230	.0156					.0116	.39	3.69	1.36	3.29	.013	.00	.00	PIPE
221.750	3293.070	3.904	3296.974	217.00	14.81	3.40	3300.38	.00	4.14	3.05	4.500	.000	.00	1 .0
1.000	.0300					.0111	.01	3.90	1.19	2.61	.013	.00	.00	PIPE
222.750	3293.100	3.955	3297.055	217.00	14.65	3.33	3300.39	.00	4.14	2.94	4.500	.000	.00	1 .0
1.000	.0398					.0108	.01	3.96	1.15	2.39	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING

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Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

*****																	*****	
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/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				
*****																	*****	
223.750	3293.140	4.137	3297.277	217.00	14.18	3.12	3300.40	.00	4.14	2.45	4.500	.000	.00	1	.0			
JUNCT STR	.0300					.0082	.01	4.14	1.00		.013	.00	.00	PIPE				
224.750	3293.170	7.462	3300.632	149.00	9.37	1.36	3302.00	.00	3.58	.00	4.500	.000	.00	1	.0			
1.000	.0300					.0057	.01	7.46	.00	2.08	.013	.00	.00	PIPE				
225.750	3293.200	7.438	3300.638	149.00	9.37	1.36	3302.00	.00	3.58	.00	4.500	.000	.00	1	.0			
1.000	.0300					.0057	.01	7.44	.00	2.08	.013	.00	.00	PIPE				
226.750	3293.230	7.414	3300.644	149.00	9.37	1.36	3302.01	.00	3.58	.00	4.500	.000	.00	1	.0			
1.000	.0400					.0057	.01	7.41	.00	1.92	.013	.00	.00	PIPE				
227.750	3293.270	7.380	3300.650	149.00	9.37	1.36	3302.01	.00	3.58	.00	4.500	.000	.00	1	.0			
112.418	.0246					.0057	.65	7.38	.00	2.20	.013	.00	.00	PIPE				
340.168	3296.040	5.255	3301.294	149.00	9.37	1.36	3302.66	.00	3.58	.00	4.500	.000	.00	1	.0			
HYDRAULIC JUMP																		
340.168	3296.040	2.330	3298.370	149.00	17.92	4.99	3303.36	.00	3.58	4.50	4.500	.000	.00	1	.0			
54.113	.0246					.0196	1.06	2.33	2.32	2.20	.013	.00	.00	PIPE				
394.281	3297.373	2.392	3299.764	149.00	17.35	4.67	3304.44	.00	3.58	4.49	4.500	.000	.00	1	.0			
47.222	.0246					.0176	.83	2.39	2.21	2.20	.013	.00	.00	PIPE				
441.504	3298.536	2.485	3301.021	149.00	16.54	4.25	3305.27	.00	3.58	4.48	4.500	.000	.00	1	.0			
31.677	.0246					.0156	.49	2.49	2.05	2.20	.013	.00	.00	PIPE				

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Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

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/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
473.181	3299.316	2.584	3301.900	149.00	15.77	3.86	3305.76	.00	3.58	4.45	4.500	.000	.00	1 .0
22.689	.0246					.0137	.31	2.58	1.91	2.20	.013	.00	.00	PIPE
495.870	3299.875	2.688	3302.563	149.00	15.04	3.51	3306.07	.00	3.58	4.41	4.500	.000	.00	1 .0
16.756	.0246					.0122	.20	2.69	1.77	2.20	.013	.00	.00	PIPE
512.626	3300.288	2.798	3303.086	149.00	14.34	3.19	3306.28	.00	3.58	4.36	4.500	.000	.00	1 .0
12.499	.0246					.0108	.13	2.80	1.64	2.20	.013	.00	.00	PIPE
525.125	3300.596	2.915	3303.511	149.00	13.67	2.90	3306.41	.00	3.58	4.30	4.500	.000	.00	1 .0
9.214	.0246					.0096	.09	2.91	1.51	2.20	.013	.00	.00	PIPE
534.339	3300.823	3.040	3303.863	149.00	13.03	2.64	3306.50	.00	3.58	4.21	4.500	.000	.00	1 .0
6.560	.0246					.0085	.06	3.04	1.39	2.20	.013	.00	.00	PIPE
540.899	3300.985	3.174	3304.158	149.00	12.43	2.40	3306.56	.00	3.58	4.10	4.500	.000	.00	1 .0
4.281	.0246					.0076	.03	3.17	1.28	2.20	.013	.00	.00	PIPE
545.180	3301.090	3.319	3304.409	149.00	11.85	2.18	3306.59	.00	3.58	3.96	4.500	.000	.00	1 .0
1.000	.0300					.0070	.01	3.32	1.17	2.08	.013	.00	.00	PIPE
546.180	3301.120	3.392	3304.512	149.00	11.58	2.08	3306.60	.00	3.58	3.88	4.500	.000	.00	1 .0
.202	.0298					.0068	.00	3.39	1.12	2.09	.013	.00	.00	PIPE
546.382	3301.126	3.411	3304.538	149.00	11.52	2.06	3306.60	.00	3.58	3.85	4.500	.000	.00	1 .0
.798	.0298					.0064	.01	3.41	1.11	2.09	.013	.00	.00	PIPE

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Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

*****															*****	
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/ 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		
*****															*****	
547.180	3301.150	3.581	3304.731	149.00	10.98	1.87	3306.60	.00	3.58	3.63	4.500	.000	.00	1 .0		
JUNCT STR	.0400					.0035	.00	3.58	1.00		.013	.00	.00	PIPE		
548.180	3301.190	6.530	3307.720	59.00	3.71	.21	3307.93	.00	2.23	.00	4.500	.000	.00	1 .0		
TRANS STR	.0300					.0009	.00	6.53	.00		.013	.00	.00	PIPE		
549.180	3301.220	6.501	3307.721	59.00	6.13	.58	3308.31	.00	2.41	.00	3.500	.000	.00	1 .0		
1.000	.0300					.0034	.00	6.50	.00	1.40	.013	.00	.00	PIPE		
550.180	3301.250	6.475	3307.725	59.00	6.13	.58	3308.31	.00	2.41	.00	3.500	.000	.00	1 .0		
1.000	.0400					.0034	.00	6.47	.00	1.30	.013	.00	.00	PIPE		
551.180	3301.290	6.438	3307.728	59.00	6.13	.58	3308.31	.00	2.41	.00	3.500	.000	.00	1 .0		
152.467	.0198					.0034	.52	6.44	.00	1.58	.013	.00	.00	PIPE		
703.647	3304.305	3.947	3308.252	59.00	6.13	.58	3308.84	.00	2.41	.00	3.500	.000	.00	1 .0		
HYDRAULIC JUMP																
703.647	3304.305	1.391	3305.696	59.00	16.56	4.26	3309.96	.00	2.41	3.43	3.500	.000	.00	1 .0		
14.784	.0198					.0319	.47	1.39	2.86	1.58	.013	.00	.00	PIPE		
718.431	3304.598	1.370	3305.968	59.00	16.90	4.43	3310.40	.00	2.41	3.42	3.500	.000	.00	1 .0		
25.889	.0198					.0351	.91	1.37	2.95	1.58	.013	.00	.00	PIPE		
744.320	3305.110	1.323	3306.432	59.00	17.72	4.88	3311.31	.00	2.41	3.39	3.500	.000	.00	1 .0		
21.886	.0198					.0400	.87	1.32	3.15	1.58	.013	.00	.00	PIPE		

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Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

*****																	*****	
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/ 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				
*****																	*****	
766.206	3305.542	1.277	3306.819	59.00	18.58	5.36	3312.18	.00	2.41	3.37	3.500	.000	.00	1	.0			
19.084	.0198					.0456	.87	1.28	3.37	1.58	.013	.00	.00	PIPE				
785.290	3305.920	1.233	3307.153	59.00	19.49	5.90	3313.05	.00	2.41	3.34	3.500	.000	.00	1	.0			
1.000	.0300					.0487	.05	1.23	3.61	1.40	.013	.00	.00	PIPE				
786.290	3305.950	1.231	3307.181	59.00	19.53	5.92	3313.10	.00	2.41	3.34	3.500	.000	.00	1	.0			
1.000	.0300					.0489	.05	1.23	3.62	1.40	.013	.00	.00	PIPE				
787.290	3305.980	1.230	3307.210	59.00	19.56	5.94	3313.15	.00	2.41	3.34	3.500	.000	.00	1	.0			
JUNCT STR	.0400					.0545	.05	1.23	3.63		.013	.00	.00	PIPE				
788.290	3306.020	1.135	3307.155	56.00	20.72	6.67	3313.82	.00	2.34	3.28	3.500	.000	.00	1	.0			
1.000	.0300					.0601	.06	1.13	4.02	1.36	.013	.00	.00	PIPE				
789.290	3306.050	1.133	3307.183	56.00	20.77	6.70	3313.88	.00	2.34	3.28	3.500	.000	.00	1	.0			
1.000	.0300					.0605	.06	1.13	4.03	1.36	.013	.00	.00	PIPE				
790.290	3306.080	1.131	3307.211	56.00	20.82	6.73	3313.94	.00	2.34	3.27	3.500	.000	.00	1	.0			
1.000	.0400					.0609	.06	1.13	4.05	1.26	.013	.00	.00	PIPE				
791.290	3306.120	1.129	3307.249	56.00	20.86	6.76	3314.01	.00	2.34	3.27	3.500	.000	.00	1	.0			
1.392	.2187					.0596	.08	1.13	4.06	.82	.013	.00	.00	PIPE				
792.682	3306.425	1.144	3307.568	56.00	20.50	6.52	3314.09	.00	2.34	3.28	3.500	.000	.00	1	.0			
3.366	.2187					.0545	.18	1.14	3.96	.82	.013	.00	.00	PIPE				

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Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

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/ 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
796.048	3307.161	1.184	3308.345	56.00	19.54	5.93	3314.28	.00	2.34	3.31	3.500	.000	.00	1 .0
2.909	.2187					.0478	.14	1.18	3.70	.82	.013	.00	.00	PIPE
798.956	3307.797	1.226	3309.023	56.00	18.63	5.39	3314.41	.00	2.34	3.34	3.500	.000	.00	1 .0
2.524	.2187					.0419	.11	1.23	3.46	.82	.013	.00	.00	PIPE
801.481	3308.349	1.270	3309.619	56.00	17.77	4.90	3314.52	.00	2.34	3.37	3.500	.000	.00	1 .0
2.199	.2187					.0367	.08	1.27	3.24	.82	.013	.00	.00	PIPE
803.679	3308.830	1.316	3310.145	56.00	16.94	4.46	3314.60	.00	2.34	3.39	3.500	.000	.00	1 .0
1.918	.2187					.0322	.06	1.32	3.02	.82	.013	.00	.00	PIPE
805.597	3309.249	1.363	3310.612	56.00	16.15	4.05	3314.66	.00	2.34	3.41	3.500	.000	.00	1 .0
1.674	.2187					.0283	.05	1.36	2.82	.82	.013	.00	.00	PIPE
807.271	3309.615	1.412	3311.027	56.00	15.40	3.68	3314.71	.00	2.34	3.43	3.500	.000	.00	1 .0
1.461	.2187					.0248	.04	1.41	2.64	.82	.013	.00	.00	PIPE
808.732	3309.935	1.464	3311.398	56.00	14.68	3.35	3314.75	.00	2.34	3.45	3.500	.000	.00	1 .0
1.272	.2187					.0218	.03	1.46	2.46	.82	.013	.00	.00	PIPE
810.004	3310.213	1.518	3311.731	56.00	14.00	3.04	3314.77	.00	2.34	3.47	3.500	.000	.00	1 .0
1.105	.2187					.0191	.02	1.52	2.30	.82	.013	.00	.00	PIPE
811.110	3310.455	1.574	3312.028	56.00	13.35	2.77	3314.80	.00	2.34	3.48	3.500	.000	.00	1 .0
.955	.2187					.0168	.02	1.57	2.14	.82	.013	.00	.00	PIPE

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Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

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/ 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
812.064	3310.663	1.633	3312.296	56.00	12.73	2.52	3314.81	.00	2.34	3.49	3.500	.000	.00	1 .0
	.820	.2187				.0148	.01	1.63	2.00	.82	.013	.00	.00	PIPE
812.884	3310.843	1.694	3312.537	56.00	12.13	2.29	3314.82	.00	2.34	3.50	3.500	.000	.00	1 .0
	.698	.2187				.0130	.01	1.69	1.86	.82	.013	.00	.00	PIPE
813.582	3310.995	1.758	3312.754	56.00	11.57	2.08	3314.83	.00	2.34	3.50	3.500	.000	.00	1 .0
	.586	.2187				.0115	.01	1.76	1.73	.82	.013	.00	.00	PIPE
814.168	3311.124	1.826	3312.949	56.00	11.03	1.89	3314.84	.00	2.34	3.50	3.500	.000	.00	1 .0
	.484	.2187				.0101	.00	1.83	1.61	.82	.013	.00	.00	PIPE
814.652	3311.229	1.897	3313.126	56.00	10.52	1.72	3314.84	.00	2.34	3.49	3.500	.000	.00	1 .0
	.388	.2187				.0089	.00	1.90	1.50	.82	.013	.00	.00	PIPE
815.040	3311.314	1.972	3313.286	56.00	10.03	1.56	3314.85	.00	2.34	3.47	3.500	.000	.00	1 .0
	.300	.2187				.0079	.00	1.97	1.39	.82	.013	.00	.00	PIPE
815.340	3311.380	2.050	3313.430	56.00	9.56	1.42	3314.85	.00	2.34	3.45	3.500	.000	.00	1 .0
	1.000	.0300				.0072	.01	2.05	1.29	1.36	.013	.00	.00	PIPE
816.340	3311.410	2.087	3313.497	56.00	9.36	1.36	3314.86	.00	2.34	3.43	3.500	.000	.00	1 .0
	1.000	.0300				.0068	.01	2.09	1.25	1.36	.013	.00	.00	PIPE
817.340	3311.440	2.133	3313.573	56.00	9.12	1.29	3314.86	.00	2.34	3.41	3.500	.000	.00	1 .0
JUNCT STR	.0400					.0102	.01	2.13	1.20		.013	.00	.00	PIPE

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Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

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/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
818.340	3311.480	1.587	3313.067	50.00	11.79	2.16	3315.22	.00	2.21	3.48	3.500	.000	.00	1 .0
1.000	.0300					.0138	.01	1.59	1.88	1.28	.013	.00	.00	PIPE
819.340	3311.510	1.593	3313.104	50.00	11.73	2.14	3315.24	.00	2.21	3.49	3.500	.000	.00	1 .0
1.000	.0300					.0136	.01	1.59	1.87	1.28	.013	.00	.00	PIPE
820.340	3311.540	1.600	3313.140	50.00	11.66	2.11	3315.25	.00	2.21	3.49	3.500	.000	.00	1 .0
1.000	.0400					.0133	.01	1.60	1.85	1.19	.013	.00	.00	PIPE
821.340	3311.580	1.611	3313.191	50.00	11.56	2.08	3315.27	.00	2.21	3.49	3.500	.000	.00	1 .0
6.342	.0175					.0130	.08	1.61	1.83	1.49	.013	.00	.00	PIPE
827.682	3311.691	1.624	3313.315	50.00	11.44	2.03	3315.35	.00	2.21	3.49	3.500	.000	.00	1 .0
22.522	.0175					.0120	.27	1.62	1.80	1.49	.013	.00	.00	PIPE
850.204	3312.086	1.685	3313.771	50.00	10.91	1.85	3315.62	.00	2.21	3.50	3.500	.000	.00	1 .0
15.015	.0175					.0106	.16	1.68	1.68	1.49	.013	.00	.00	PIPE
865.220	3312.349	1.749	3314.097	50.00	10.40	1.68	3315.78	.00	2.21	3.50	3.500	.000	.00	1 .0
10.462	.0175					.0093	.10	1.75	1.56	1.49	.013	.00	.00	PIPE
875.682	3312.532	1.816	3314.348	50.00	9.92	1.53	3315.88	.00	2.21	3.50	3.500	.000	.00	1 .0
7.362	.0175					.0082	.06	1.82	1.46	1.49	.013	.00	.00	PIPE
883.044	3312.661	1.886	3314.547	50.00	9.46	1.39	3315.94	.00	2.21	3.49	3.500	.000	.00	1 .0
5.079	.0175					.0072	.04	1.89	1.35	1.49	.013	.00	.00	PIPE

DFD2LMB_ULT.OUT

FILE: DFD2LMB_ULT.WSW

W S P G W - CIVILDESIGN Version 14.08

PAGE 10

Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date: 7- 2-2021 Time: 7:48:17

Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

*****																	*****	
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			
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****		
888.123	3312.750	1.960	3314.710	50.00	9.02	1.26	3315.97	.00	2.21	3.47	3.500	.000	.00	1	.0			
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		
3.300	.0175					.0064	.02	1.96	1.26	1.49	.013	.00	.00	PIPE				
891.423	3312.808	2.038	3314.846	50.00	8.60	1.15	3315.99	.00	2.21	3.45	3.500	.000	.00	1	.0			
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		
1.835	.0175					.0057	.01	2.04	1.17	1.49	.013	.00	.00	PIPE				
893.258	3312.840	2.121	3314.961	50.00	8.20	1.04	3316.00	.00	2.21	3.42	3.500	.000	.00	1	.0			
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		
.582	.0175					.0050	.00	2.12	1.08	1.49	.013	.00	.00	PIPE				
893.840	3312.850	2.209	3315.060	50.00	7.81	.95	3316.01	.00	2.21	3.38	3.500	.000	.00	1	.0			
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		
896.840	3312.850	2.209	3315.060	50.00	7.81	.95	3316.01	.00	2.21	3.38	3.500	.000	.00	1	.0			
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		

Appendix C. CD-ROM



2270 Corporate Circle
Suite 200
Henderson NV 89074-7755
Tel: 702.263.7275
www.atkinsglobal.com/northamerica

SHEET INDEX

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5	HORIZONTAL CONTROL PLAN	
6	HORIZONTAL CONTROL PLAN	
7	MASTER DRAINAGE PLAN	
8	MASTER DRAINAGE PLAN	
9	MASTER WATER PLAN	
10	MASTER SEWER PLAN	
11	ROADWAY GRADING PLAN	BEGIN TO STA. 259+00
12	ROADWAY PLAN AND PROFILE	BEGIN TO STA. 259+00
13	ROADWAY GRADING PLAN	STA. 259+00 TO STA. 263+50
14	ROADWAY PLAN AND PROFILE	STA. 259+00 TO STA. 263+50
15	ROADWAY GRADING PLAN	STA. 263+50 TO STA. 268+00
16	ROADWAY PLAN AND PROFILE	STA. 263+50 TO STA. 268+00
17	ROADWAY GRADING PLAN	STA. 268+00 TO STA. 272+50
18	ROADWAY PLAN AND PROFILE	STA. 268+00 TO STA. 272+50
19	ROADWAY GRADING PLAN	STA. 272+50 TO STA. 277+00
20	ROADWAY PLAN AND PROFILE	STA. 272+50 TO STA. 277+00
21	ROADWAY GRADING PLAN	STA. 277+00 TO END
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23	INTERSECTION PLAN AND PROFILE	
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31	SIGNAGE AND STRIPING PLAN	
32	TRAFFIC SIGNAL NOTES	
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34	TRAFFIC SIGNAL PLAN	
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36	TRAFFIC SIGNAL PLAN DETAILS - D2	
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39	TRAFFIC SIGNAL PLAN DETAILS - D4	
40	TYPICAL SECTION	
41	STORM DRAIN DETAILS	
42	STREETLIGHT DETAILS	
43	WATER DETAILS	
44	INTERSECTION DETAILS	DESERT FOOTHILLS DR & CLOWDER PASS WAY
45	INTERSECTION DETAILS	DESERT FOOTHILLS DR & CLOWDER PASS WAY
46	INTERSECTION DETAILS	DESERT FOOTHILLS DR & KESTREL CREEK AVE
47	INTERSECTION DETAILS	DESERT FOOTHILLS DR & LAKE MEAD BLVD
48	INTERSECTION DETAILS	DESERT FOOTHILLS DR & LAKE MEAD BLVD
49	INTERSECTION DETAILS	DESERT FOOTHILLS DR & LAKE MEAD BLVD

UTILITY NOTE

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

CALL BEFORE YOU DIG: 1-800-642-2444

THIS PROPERTY MAY HAVE STATIC WATER PRESSURE IN EXCESS OF 80 PSI. THE UNIFORM PLUMBING CODE REQUIRES THAT INDIVIDUAL, ON-SITE (PRIVATE) PRESSURE REDUCING VALVES BE INSTALLED WHENEVER THE PRESSURE EXCEEDS 80 PSI. PRV'S ARE THE DEVELOPER'S RESPONSIBILITY AND WILL NOT BE INSPECTED OR INCLUDED IN THE ACCEPTANCE OF THE LAS VEGAS VALLEY WATER DISTRICT FACILITIES.

NOTICE OF INTENT NOTE

NOTE: ALL LAND SURFACE AREA DISTURBANCES OVER 1 ACRE REQUIRE A STORMWATER DISCHARGE PERMIT ISSUED BY THE NEVADA DIVISION OF ENVIRONMENTAL PROTECTION (NDEP). A PHASED CONSTRUCTION UNIT IN A CONTIGUOUS SUBDIVISION IS CONSIDERED UNDER CONSTRUCTION UNTIL ALL STRIPPED SURFACE AREAS HAVE BEEN COVERED BY PAVING, BUILDING CONSTRUCTION OR PLANTING. A STORMWATER DISCHARGE PERMIT APPLICATION AND ASSOCIATED INFORMATION MAY BE DOWNLOADED FROM THE WEB SITE: [HTTP://WWW.STATE.NV.US/BWPC/STORM01.HTM](http://www.state.nv.us/bwpc/storm01.htm) PROJECTS THAT DISTURB MORE THAN ONE ACRE OF LAND MUST SUBMIT TO NDEP A "NOTICE OF INTENT" FOR INCLUSION UNDER STORMWATER PERMIT NO. NVR100000 ALONG WITH APPROPRIATE FILLING FEE.

DISCLAIMER NOTE

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

PROPOSED RIGHT-OF-WAY ACREAGE
5.29 AC.

PROPOSED DISTURBED AREA ACREAGE
12.45 AC.

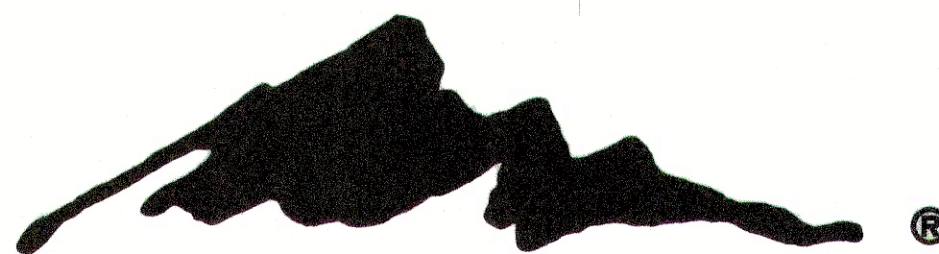
GEOTECHNICAL ENGINEER
PREPARED BY: NOVA GEOTECHNICAL & INSPECTION SERVICES
4480 W. HACIENDA AVENUE, SUITE 104, LAS VEGAS, NV 89118
PHONE: 702-873-3478
PROJECT NO.: G-18-176
DATED: DECEMBER 3, 2018 & DECEMBER 30, 2019

SUMMERLIN WEST VILLAGE 22
IMPROVEMENT PLANS FOR:

DESERT FOOTHILLS DRIVE

FLEET WING AVENUE (STREET G) TO LAKE MEAD BOULEVARD
FUTURE SID PROJECT

APN:137-14-410-005/006/007/010/012/013,137-14-411-001,
137-23-110-003/009, AND 137-23-211-001



SUMMERLIN®

OWNER / DEVELOPER

OWNER

CONTACT: KEVIN ORROCK
HOWARD HUGHES COMPANY LLC, A DELAWARE LIMITED LIABILITY COMPANY
10845 GRIFFITH PEAK DRIVE, SUITE 160
LAS VEGAS, NV 89135

ENGINEER / CONSULTANT

CIVIL

CONTACT: DAVID WILSON P.E.
ATKINS
2270 CORPORATE CIRCLE SUITE 200
HENDERSON, NEVADA 89074
(702) 263-7275

NPDES PERMIT NOTE

THE ENGINEER SHOULD CONTACT THE NEVADA DIVISION OF ENVIRONMENTAL PROTECTION (NDEP) TO OBTAIN A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT PRIOR TO CONSTRUCTION. ALL CONSTRUCTION PROJECTS ONE ACRE OR LARGER MUST APPLY FOR THE PERMIT THROUGH NDEP. ALL QUESTIONS REGARDING THE NPDES PERMIT REQUIREMENTS SHOULD BE DIRECTED TO THE NDEP AT (775) 687-9429.

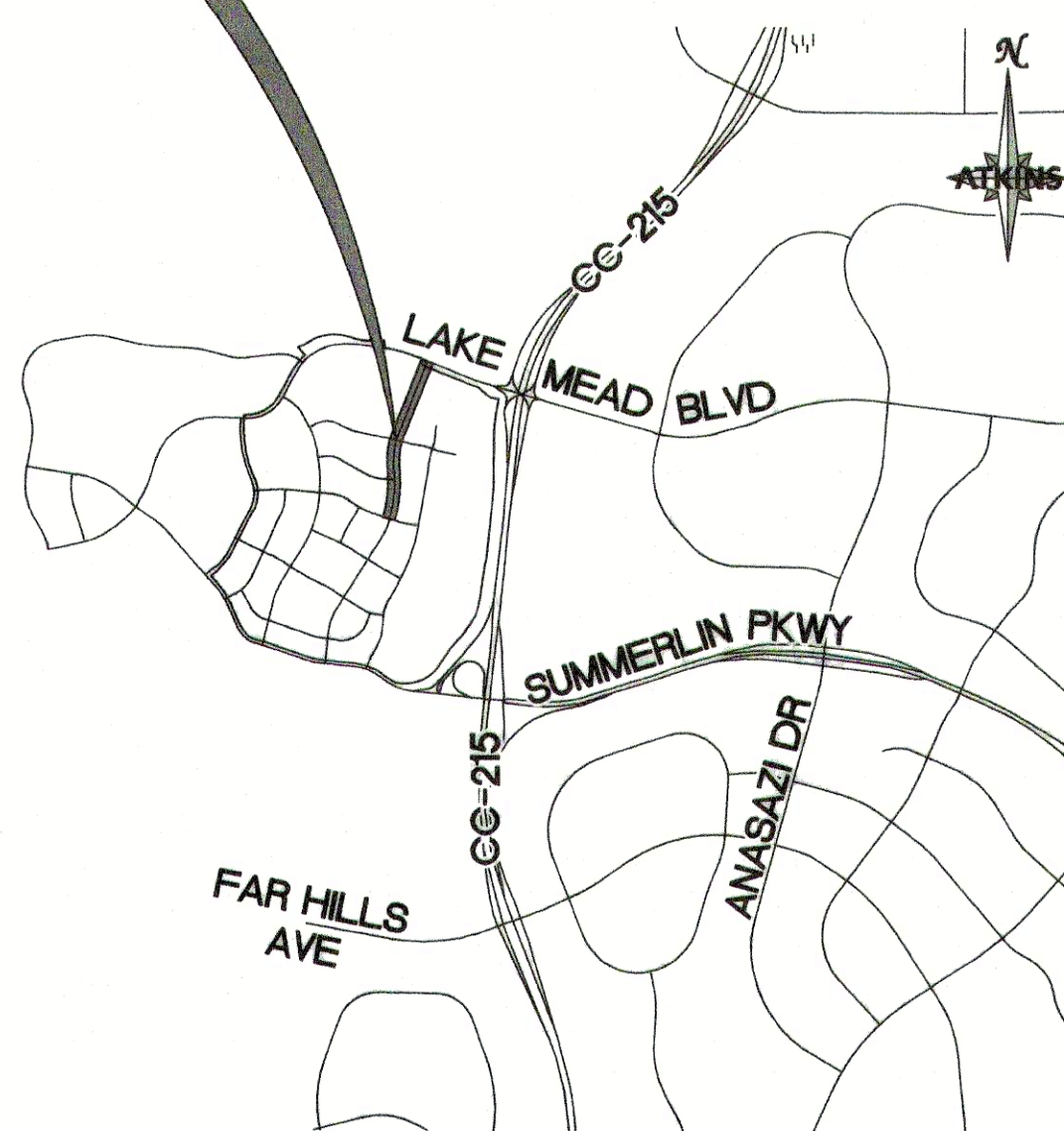
FEMA FLOOD ZONE INFORMATION

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C2150E, DATED 9/27/2002. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

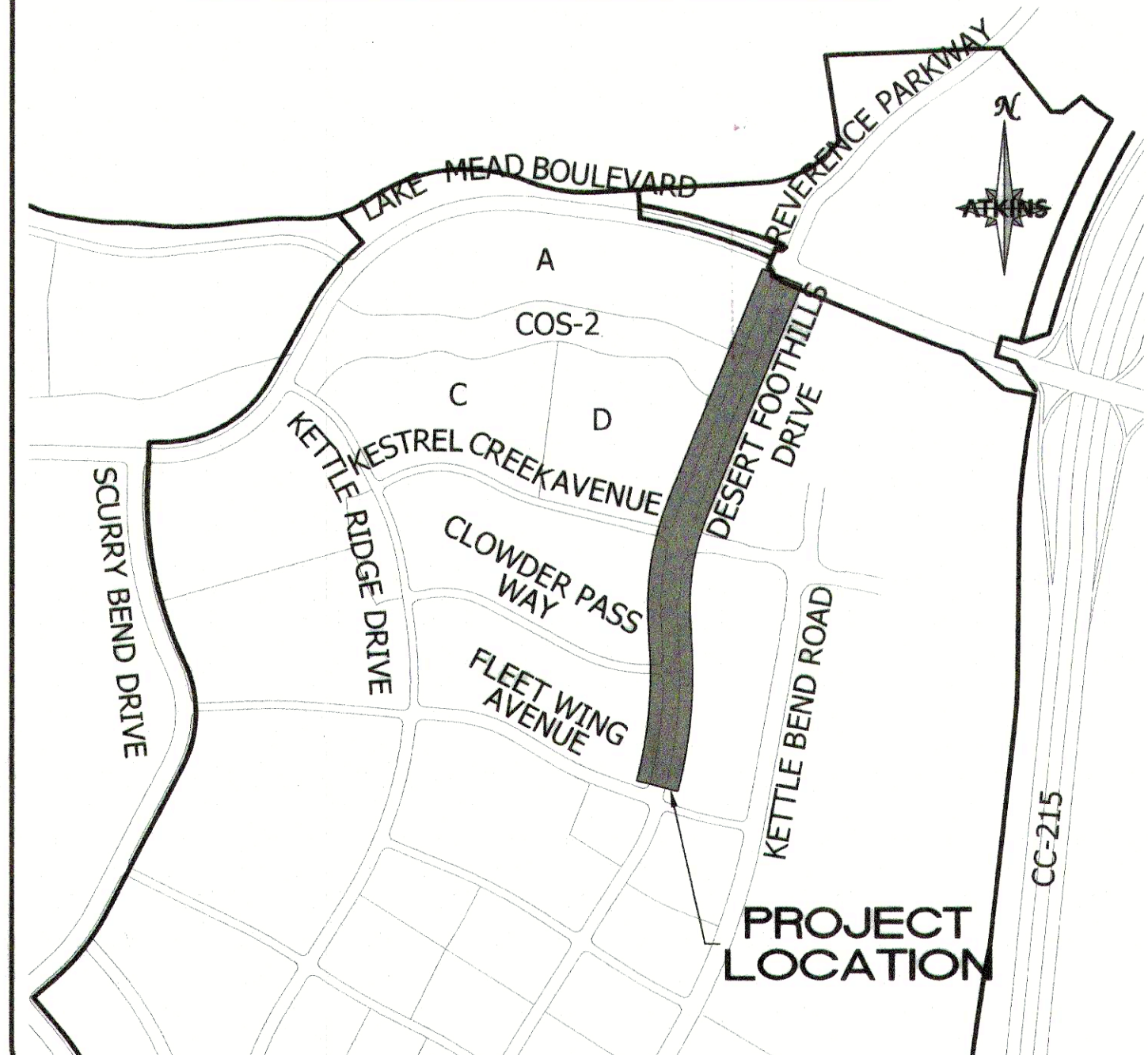
LOCATION MAP

PROJECT SITE

APN 137-14-410-007



VICINITY MAP



APPROVALS

HOWARD HUGHES COMPANY LLC, A DELAWARE LIMITED LIABILITY COMPANY

KEVIN T. ORROCK, VICE PRESIDENT

4/1/20
DATE

STEVEN FORD, P.E. #012175
CITY ENGINEER

DATE

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

CITY OF LAS VEGAS PLANNING DEPARTMENT

DATE

NOTE: THIS PLAN CONFORMS TO THE APPLICABLE STANDARDS OF THE PLANNING DEPARTMENT.

LAS VEGAS FIRE AND RESCUE

DATE

UNIVERSITY OF NEVADA

CENTRAL TELEPHONE COMPANY d/b/a CENTURYLINK

3-26-2020

DATE

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

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. 136925

FIRST APPROVED DATE: 3/17/2021

LVVWD APPROVED FIRE FLOW 1500 GPM AT 20PSI RESIDUAL

SHEETS: 1-4, 7-27, 40, 44, 45

BARBARA GRAMIAN
NV ENERGY

3-26-2020
DATE

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

SW GAS UI-2020AGH35455
PLANNER NAME: AMANDA HENDERSON
DATE: 09-17-2020

DATE

SOUTHWEST GAS CORPORATION

COX COMMUNICATIONS OF LAS VEGAS, INC.

BASIS OF BEARING

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 OF 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 PROJECTED AREA.

2. GRID BEARINGS SHOWN HEREON (OR IMPLIED BY GRID COORDINATES) DO NOT EQUAL GEODETIC BEARINGS DUE TO MERIDIAN CONVERGENCE.

BENCHMARK

PROJECT DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

CITY OF LAS VEGAS BENCHMARK: 0368 (REVISED 2008)

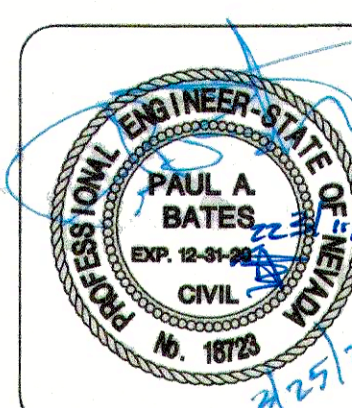
NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET)

FIND US&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.

T215.R59E.S03

LEGAL DESCRIPTION

BEING A PORTION OF LOT 2 AS SHOWN ON THE MAP THEREOF IN BOOK 123 OF PLATS, PAGE 08, OFFICIAL RECORDS, CITY OF LAS VEGAS CLARK COUNTY, NEVADA



ATKINS
2270 Corporate Circle, Suite 200
Henderson, NV 89074
Tel: 702.263.7275
Fax: 702.263.7200

SUMMERLIN®

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE
FLEET WING AVENUE (STREET G) TO LAKE MEAD BOULEVARD

COVER SHEET

DESIGNED BY: N. BARCOS
DRAWN BY: M. WILSON
CHECKED BY: P. BATES
DATE: MARCH, 2020
DRAWING NO.:
HORIZ.: NONE
VERT.: NONE
CLV L19-02745
DATE: MARCH, 2020
DRAWING NO.:
HORIZ.: NONE
VERT.: NONE
JOB NO. 100060652

X: Projects \SummWest\ Village 22\100060652 - V22N Desert Foothills (Lake Mead to Street I)\ Sheets\60652-01-T1L-C1.dwg LAYOUT: COVER SHEET Mar 24, 2020 - 7:25PM

ROADWAY ALIGNMENT DESIGNATIONS "DFD" = DESERT FOOTHILLS DRIVE "LMB" = LAKE MEAD BOULEVARD "KBR" = KETTLE BEND ROAD "FWA" = FLEET WING AVENUE "CPW" = CLOWDER PASS WAY "KCA" = KESTREL CREEK AVENUE	
---	---

ED FOR CONSTRUCTION

J. SHAW

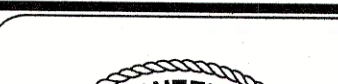
GAS VALLEY WATER DISTRICT
G AND ENGINEERING SERVICES

5 FIRST APPROVED DATE: 3/17/2021

BASIS

GRID NO. 1
CENTRAL
COORDINATE
(NCRS),
ZONE, N
1983, N
S. 4
COINCIDE
TH. GRE

IRING IGNED BY THE F THE NEVADA CE SYSTEM HIGH ELEVATION AN DATUM OF BEING 58" WEST OF	BENCHMARK CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008) NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET) FIND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.	FAST Call before you Underground 1-702-432-5300 PREVENTING AND REMEDYING UNDERGROUND UTILITY DAMAGE	Call before you dig or call 800-4-A-ROOTS to avoid hitting or damaging underground utility lines the SAFER way. Call before you dig 811 ON 24 1-800-642-2444	AVOID HITTING OR POWER LINES. IT'S THE SAFER WAY. CALL BEFORE YOU D dig 1-702-227-2- 2
---	---	--	--	--

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR		DESIGNED BY: N. BARCOS DRAWN BY: N. BARCOS CHECKED BY: L. MAMACALA IN CHARGE: J. HORTZ HORZ.: NONE VERT.: NONE
		107078165 1719-02745 DATE: MARCH, 2021 SHEET: 2 / 2

X: \\Projects\\SummWest\\Village 22\\100060652 - V22N Desert Foothills (Lake Mead to Street 1)_Sheets\\60652-02-LGND-C2.dwg LAYOUT: LEGEND AND ABBREVIATIONS Mar 03, 2021 - 4:40PM

CITY OF LAS VEGAS GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, CLARK COUNTY AREA NEVADA", LATEST 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 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 THE (COMPANY, REPORT #, DATE) 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 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 APPROX. FLOW LINES, 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 SPECIFICATIONS OF DOT 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. 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 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 DETECTION 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 CERTANTIES OF ± 0.09 METERS (± 0.3 FEET) HORIZONTALLY AND VERTICALLY. A SEPARATE ELECTRONIC COMMA DELIMITED FILE FOR THE COORDINATES FOR THE 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 06/04/2018

CITY OF LAS VEGAS GRADING NOTES

1. IN THE EVENT THAT ANY UNFORESEEN CONDITIONS NOT COVERED BY THESE NOTES ARE ENCOUNTERED DURING GRADING OPERATIONS, THE OWNER/ENGINEER SHALL BE IMMEDIATELY NOTIFIED FOR DIRECTION.
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM ALL NECESSARY CUTS AND FILLS WITHIN THE LIMITS OF THIS PROJECT AND THE RELATED OFF-SITE WORK, SO AS TO GENERATE THE DESIRED SUBGRADE, FINISH GRADES AND SLOPES SHOWN.
3. CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR ALL EXCAVATION. ADEQUATE SHORING SHALL BE DESIGNED AND PROVIDED BY THE CONTRACTOR TO PREVENT UNDERMINING OF ANY ADJACENT FEATURES OR FACILITIES AND/OR CAVING OF THE EXCAVATION.
4. THE CONTRACTOR IS WARNED THAT AN EARTHWORK BALANCE WAS NOT NECESSARILY THE INTENT OF THIS PROJECT. ANY ADDITIONAL MATERIAL REQUIRED OR LEFTOVER MATERIAL FOLLOWING EARTHWORK OPERATIONS BECOMES THE RESPONSIBILITY OF THE CONTRACTOR.
5. THE GRADING CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE OWNER TO PROVIDE FOR THE REQUIREMENTS OF THE PROJECT STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND ASSOCIATED PERMIT.
6. CONTRACTOR SHALL GRADE TO THE LINES AND ELEVATIONS SHOWN ON THE PLANS WITHIN THE FOLLOWING HORIZONTAL AND VERTICAL TOLERANCES AND DEGREES OF COMPACTION, IN THE AREAS INDICATED:
- | | HORIZONTAL | VERTICAL | COMPACTION |
|---------------------------|------------|---------------|------------------|
| A. PAVEMENT AREA SUBGRADE | 0.1+ " | +0.0 TO -0.1" | SEE SOILS REPORT |
| B. ENGINEERED FILL | 0.5+ " | +0.1 TO -0.1" | SEE SOILS REPORT |
- COMPACTION TESTING WILL BE PERFORMED BY THE OWNER OR HIS REPRESENTATIVE.
7. ALL CUT AND FILL SLOPES SHALL BE PROTECTED UNTIL EFFECTIVE EROSION CONTROL HAS BEEN ESTABLISHED.
8. THE USE OF POTABLE WATER WITHOUT A SPECIAL PERMIT FOR BUILDING OR CONSTRUCTION PURPOSES INCLUDING CONSOLIDATION OR DUST CONTROL IS PROHIBITED. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR CONSTRUCTION WATER.
9. THE CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS AND ALL OTHER PUBLIC RIGHT-OF-WAY IN A CLEAN, SAFE AND USABLE CONDITION. ALL SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE PUBLICLY OWNED PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT. ALL ADJACENT PROPERTY, PRIVATE OR PUBLIC SHALL BE MAINTAINED IN A CLEAN, SAFE AND USABLE CONDITION.
10. IN THE EVENT THAT ANY TEMPORARY CONSTRUCTION ITEM IS REQUIRED THAT IS NOT SHOWN ON THESE DRAWINGS, THE OWNER AGREES TO PROVIDE AND INSTALL SUCH ITEM AT HIS OWN EXPENSE AND AT THE DIRECTION OF THE CITY ENGINEER. TEMPORARY CONSTRUCTION INCLUDES DITCHES, BERMS, ROAD SIGNS AND BARRICADES, ETC.

REVISED 04/15/10

PLAN CONCURRENCE NOTE

THE FOLLOWING SEPARATE VILLAGE 22 ROADWAY IMPROVEMENT PLANS ARE TO BE CONSTRUCTED CONCURRENTLY AND ARE SHOWN AS FUTURE (BY OTHERS):

1. KETTLE RIDGE DRIVE (STREET V) (FLEET WING DRIVE (STREET G) TO LAKE MEAD BLVD)
2. LAKE MEAD BOULEVARD (DESERT FOOTHILLS DRIVE TO SCURRY BEND DRIVE (STREET N))
3. KESTREL CREEK AVENUE (STREET I) (DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J))
4. CLOWDER PASS WAY (STREET H) (DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET U))

CITY OF LAS VEGAS FIRE DEPARTMENT NOTES

1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LAS VEGAS FIRE AND RESCUE ADOPTED FIRE CODE OR ANY LATER EDITION THEREOF. LATEST EDITION OF THE FIRE 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 CONTRACTOR'S MATERIAL TEST CERTIFICATE FOR UNDERGROUND PIPING FORM SHALL BE OBTAINED FROM THE FIRE PROTECTION ENGINEER BEFORE COMMENCEMENT OF WORK. IFC § 105.6.15
4. ON ANY RESIDENTIAL OR COMMERCIAL INSTALLATIONS, FIRE HYDRANTS SHALL BE INSTALLED AND FIRE APPARATUS SHALL BE INSTALLED PRIOR TO THE START OF CONSTRUCTION. 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 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.
5. TO IDENTIFY THE FIRE HYDRANT LOCATIONS, THE CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER OF THE LINE TO THE FIRE HYDRANT. THE FIRE HYDRANT SHALL BE INSTALLED AT THE END OF THE LINE.
6. UNDERGROUND INSPECTIONS, PRESSURE, AND FLUSH VERIFICATIONS OF ALL FIRE HYDRANTS AND FIRE LINES, SHALL BE CONDUCTED BEFORE COVERING THE LINES. CENTER LOADING IS ACCEPTABLE FOR THE HYDRO TESTS WITH PRIOR FIRE PREVENTION APPROVAL. IFC § 106.3
7. ALL ON-SITE UNDERGROUND WATER MAINS AND MATERIALS SHALL BE U.L. LISTED, A.W.W.A APPROVED AND SHALL BE RATED FOR THE APPROPRIATE WORKING PRESSURE. IFC § 507.2.1, NFPA 24.
8. PAINTING OF CURBS, FIRE HYDRANTS, PADS, PROTECTION OF FIRE HYDRANTS FROM PHYSICAL DAMAGE, AND ALL OTHER WORK NECESSARY PER PLANS SHALL BE COMPLETED BEFORE APPROVAL BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION. IFC § 507
9. PRIVATE HYDRANTS SHALL BE PAINTED RED. IFC § 507.5.7.1
10. FIRE PREVENTION DIVISION SHALL VERIFY AVAILABILITY OF THE REQUIRED FIRE FLOW. IFC § 507
11. FIRE HYDRANT SPACING SHALL BE AS FOLLOWS: IFC § C102
- RESIDENTIAL – 500 FT UNSPRINKLERED; 600 FT SPRINKLERED.
 - COMMERCIAL – 300 FT UNSPRINKLERED; 400 FT SPRINKLERED.
12. WHERE THE WATER MAINS ARE EXTENDED ALONG STREETS OR NEW STREETS ARE INSTALLED WHERE FIRE HYDRANTS ARE NOT NEEDED FOR THE STRUCTURE, FIRE HYDRANTS SHALL BE INSTALLED AT A MAXIMUM OF 1000 FT SPACING, TO PROVIDE FOR TRANSPORTATION HAZARDS. WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS OR HAVE FOUR (4) OR MORE TRAFFIC LANES AND HAVE A TRAFFIC COUNT OF MORE THAN 3000 PER DAY, HYDRANTS CANNOT BE REQUIRED ON EACH SIDE OF THE STREET SPACED AT 500 FT ON AN ALTERNATING BASIS. IFC § C102.8
13. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN THE RADIUS OF A CUL-DE-SAC OR WITHIN 20 FT OF THE PERIMETER OF THE RADIUS OF THE CUL-DE-SAC.
14. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN 6 FT OF ANY CURB RETURN, DRIVEWAY, POWER POLE, STREETLIGHT OR ANY OTHER OBSTRUCTION. IFC § C102.10
15. A MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A ONE-TWO FAMILY DWELLING SHALL NOT EXCEED 300 FT, AS MEASURED BY AN APPROVED ROUTE. IFC § 102.4
16. THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A FIRE DEPARTMENT CONNECTION (FDC) SHALL NOT EXCEED 100 FT, AS MEASURED BY AN APPROVED ROUTE. IFC § C102.7
17. THE MAXIMUM DISTANCE FROM A HYDRANT TO THE END OF A DEAD-END STREET SHALL NOT EXCEED 200 FT. IFC § C102.6
18. TWO (2) SOURCES OF SUPPLY ARE REQUIRED WHENEVER THERE IS 4 OR MORE FIRE HYDRANTS/SPRINKLER LEAD-INS ARE INSTALLED ON A SINGLE SYSTEM. FOR SYSTEMS REQUIRED TO HAVE TWO (2) SOURCES OF WATER SUPPLY, SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 2 FIRE HYDRANTS AND/OR FIRE SPRINKLER LEAD-INS BE OUT OF SERVICE DUE TO A SERVICE INTERRUPTION. IFC § C10
19. ALL FIRE APPARATUS ACCESS ROADS SHALL BE PAVED TO PROVIDE ALL-WEATHER DRIVING CAPABILITIES, AND SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF THE FIRE APPARATUS. IFC § 503.2.3
20. THE GRADIENT FOR THE FIRE APPARATUS ACCESS ROADS SHALL NOT EXCEED 12% ANGLES OF APPROACH AND ANGLES OF DEPARTURE SHALL NOT EXCEED 6% FOR 25 FT PRIOR TO AND AFTER THE GRADE CHANGE. ADJACENT TO THE STRUCTURES GRADIENT SHALL NOT EXCEED 6%. IFC § 503.2.7
21. THE TURNING RADIUS OF THE FIRE APPARATUS ACCESS ROADS SHALL BE NO LESS THAN 52 FT OUTSIDE AND 28 FT INSIDE TURNING RADIUS. IFC § 503.2.4
22. VERTICAL CLEARANCE OF ALL FIRE APPARATUS ACCESS ROADS SHALL NOT BE LESS THAN 13FT 6 INS. IFC § 503.2.1
23. FIRE DEPARTMENT ACCESS ROADS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF NOT LESS THAN 33 FT WITH PARKING ON BOTH SIDES MEASURED TO FACE OF CURB, NOT LESS THAN 28 FT WIDE WITH PARKING RESTRICTED TO ONE SIDE MEASURED TO FACE OF CURB, NOT LESS THAN 24 FT WIDE WITH NO PARKING ON EITHER SIDE MEASURED TO FACE OF CURB. FIRE LINES THROUGH PARKING LOTS SHALL BE NOT LESS THAN 24 FT. IFC § 503.2.1.1
24. A FIRE APPARATUS ACCESS ROAD SHALL BE REQUIRED WHEN ANY PORTION OF AN EXTERIOR WALL OF THE FIRST STORY IS LOCATED MORE THAN 150 FT FROM A FIRE DEPARTMENT VEHICLE ACCESS. IFC § 503.1.1
25. APPROVED SECONDARY FIRE APPARATUS ACCESS SHALL BE PROVIDED FOR 200 OR MORE DWELLING UNITS, ROAD(S) WITH DEAD-ENDS OR A SINGLE POINT OF ACCESS IN EXCESS OF 600 FT. CLV REGULATION AND MOU ROAD(S) WITH DEAD-ENDS OR A SINGLE POINT OF ACCESS IN EXCESS OF 150 FT.
26. ALL DEAD-END FIRE APPARATUS ACCESS ROADS AND FIRE LINES SHALL BE PROVIDED WITH A MINIMUM DURATION 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. SIGNS TO BE PLACED ON THE PAVED SIDE OF THE ROAD. (IF 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 CERTANTIES OF ± 0.09 METERS (± 0.3 FEET) HORIZONTALLY AND VERTICALLY. A SEPARATE ELECTRONIC COMMA DELIMITED FILE FOR THE COORDINATES FOR THE STORM DRAIN COORDINATES SHALL ALSO ACCOMPANY THE SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S).
28. ELECTRICALLY CONTROLLED ACCESS GATES SHALL BE PROVIDED WITH AN APPROVED EMERGENCY VEHICLE DETECTOR/RECEIVER SYSTEM. IFC § 503.6
29. WHEN STREETS ARE PROVIDED WITH MEDIAN DIVIDERS, OR HAVING FOUR OR MORE TRAVEL LANES AND A TRAFFIC COUNT OF MORE THAN 3000 PER DAY, ALL FIRE HYDRANTS BE REQUIRED ON EACH SIDE OF THE FIRE FLOW TO THE PROPOSED LOCATION SHALL BE LOCATED ON THE SAME SIDE OF THE STREET AS THE PROPOSED DEVELOPMENT. CLV REGULATION

REVISED FEBRUARY 4, 2019

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 ADVANCE WARNING SIGNS FOR THE CONSTRUCTION. THE CONTRACTOR SHALL INSTALL TEMPORARY STOP SIGNS AT ALL NEW STREET ENCROACHMENTS INTO EXISTING CITY STREETS WHERE WARRANTED IMMEDIATELY AFTER FIRST GRADING 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 THE 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 TRAFFIC SIGNS SHALL UTILIZE TYPE XI RETROREFLECTIVE SHEETING IN ACCORDANCE WITH COAUSGS 627 AND 716 AND SHALL HAVE AN ANTI-GRAFFITI PROTECTIVE OVERLAY FILM THAT IS A MATCHING COMPONENT TO, AND OF THE SAME MANUFACTURER AS THE RETROREFLECTIVE SHEETING TO WHICH IT IS APPLIED. STREET NAME SIGNS SHALL CONFORM IN THEIR ENTIRETY TO CURRENT CITY STANDARDS. ALL OTHER SIGNS SHALL BE STANDARD SIZE UNLESS OTHERWISE SPECIFIED ON THE PLANS. ALL SIGN POSTS SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENT CITY STANDARDS.
7. WHEN A PROPOSED STREET LIGHT STANDARD IS LOCATED WITHIN FIVE (5') FEET OF ANY PROPOSED SIGN SHOWN ON THE PLANS TO BE MOUNTED ON A SIGNPOST, THE SIGN SHALL BE MOUNTED ON THE STREET LIGHT STANDARD AND THE SIGNPOST SHALL BE ELIMINATED.
8. ALL PERMANENT TRAFFIC CONTROL DEVICES CALLED FOR HEREON SHALL BE IN PLACE AND IN FINAL POSITION PRIOR TO ALLOWING ANY PUBLIC TRAFFIC ONTO THE PORTIONS OF THE ROAD(S) BEING IMPROVED HERE UNDER, REGARDLESS OF THE STATUS OF COMPLETION OF PAVING OR OTHER OFF-SITE IMPROVEMENTS CALLED FOR BY THE PLANS.
9. STREET SIGNS AND STOP SIGNS SHALL BE INSTALLED PER CITY STANDARD SPECIFICATIONS FOR PLACEMENT OF STREET NAME SIGNS.
10. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY TRAFFIC CONTROL DEVICES AND FLAGGERS TO INSURE THE SAFETY OF THE PUBLIC IN OR AROUND THE WORK THE CONTRACTOR SHALL HAVE A CERTIFIED ATSSA TRAFFIC CONTROL TECHNICIAN OR MSA WORK ZONE SAFETY SPECIALIST SET UP, MAINTAIN AND/OR REMOVE ALL TRAFFIC CONTROL DEVICES IN THE CITY OF LAS VEGAS RIGHT OF WAY.
11. WORK IN PUBLIC STREETS, ONCE BEGUN, SHALL BE EXPEDITED TO COMPLETION SO AS TO PROVIDE MINIMUM INCONVENIENCE TO ADJACENT PROPERTY OWNERS AND TO THE TRAVELING PUBLIC.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING REGIONAL TRANSPORTATION COMMISSION OF SOUTHERN NEVADA (RTC). IF THE CONSTRUCTION INTERRUPTS OR RELOCATES A BUS STOP OR HAS AN ADVERSE EFFECT ON BUS SERVICE ON THAT STREET TO ARRANGE FOR TEMPORARY RELOCATION OF STOP.
13. GUARDS SHALL BE OBTAINED BY CONTACTING THE METROPOLITAN POLICE DEPARTMENT SPECIAL EVENTS UNIT. (PHONE: 828-3428) WHO WILL PROVIDE THE GUARDS. THE GUARDS SHALL BE IN TRAFFIC CONTROL. FEES FOR THE USE OF THESE OFFICERS SHALL BE SET BY METRO AND WILL BE PAID BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR ALL ARRANGEMENTS WITH METRO.
14. ANY WORK WITHIN 300' OF A SIGNALIZED INTERSECTION WILL BE NIGHT WORK, UNLESS DIRECTED BY THE CITY OF LAS VEGAS TRAFFIC ENGINEER.
15. THE CONTRACTOR SHALL CONTACT THE TRAFFIC ENGINEERING DIVISION (TRANSPORTATION SECTION) THROUGH THE PROJECT'S OFFSITE INSPECTOR PRIOR TO INITIATING PAVING TO RECEIVE DIRECTION FOR ANY PERMANENT OR TEMPORARY MODIFICATIONS TO THE APPROVED DRAWINGS REGARDING FINAL PAVEMENT TRANSITIONS, MARKINGS AND SIGNING THAT ARE REQUIRED TO MAINTAIN ADEQUATE TRAFFIC FLOW. THE CONTRACTOR SHALL CONTACT THE TRAFFIC ENGINEERING DIVISION FOR APPROVAL BY THE TRAFFIC ENGINEERING DIVISION DEPICTING ANY ADJUSTMENTS TO THE FINAL PAVEMENT MARKINGS AND SIGNAGE, WHICH MAY INCLUDE OMITTING, ADDING OR MODIFYING PAVEMENT MARKINGS AND TRAFFIC CONTROL SIGNS SUCH THAT ADEQUATE TRANSITIONS AND LANE TERMINATIONS BETWEEN ADJACENT ROADWAY SEGMENTS ARE CONSTRUCTED.

REVISED JUNE 4, 2018

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. CHSEL "S" OR "G" IN CURBS WHERE SEWER OR GAS LATERALS PASS UNDER THE CURB.
4. POLYVYL (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 LVWVD 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 TOLERANCES SHALL 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

CITY OF LAS VEGAS STREET LIGHT NOTES

1. ALL STREET LIGHTING INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE STREET LIGHTING PLANS, THE "UNIFORM STANDARD SPECIFICATION FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST EDITION (USS), AND THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA" (USD). LATEST REVISION.
2. DESIGN PROFESSIONAL AND CONTRACTOR SHALL VERIFY CITY'S LATEST LED FIXTURE SPECIFICATIONS AND APPROVED FIXTURES PER CLV WEBSITE, UNDER BUILDING AND SAFETY FORMS, PRIOR TO ORDERING MATERIALS.
3. NO DEVIATION OF STREET LIGHT, PULL BOX, CONDUITS, ETC., LOCATIONS SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL OF THE TRAFFIC AND CITY ENGINEER. ANY DEVIATION FROM THE PLAN LOCATION WILL REQUIRE COMPLIANCE WITH SECTION 623 OF THE USS.
4. ALL EXISTING STREET LIGHTING SHALL REMAIN OPERATIONAL DURING CONSTRUCTION IN ACCORDANCE WITH SECTION 623 G.03.01 OF THE USS.
5. ALL EMPTY CONDUIT SHALL HAVE AT LEAST ONE GREEN NO. #8 AWG WIRE INSTALLED AS TRACER WIRE IN ACCORDANCE WITH SECTION 623 G.02.01 OF THE USS PRIOR TO BACKFILLING AND FINAL INSPECTION.
6. ANY STRUCTURE SUCH AS BLOCK WALLS, CHAIN LINK FENCES, RETAINING WALLS, SHALL LEAVE A MINIMUM CLEARANCE IN COMPLIANCE WITH USD NO. 320A WHEN POLE IS INSTALLED BEHIND SIDEWALK, AND SHALL AT NO TIME COMPLETELY ENCLOSE THE STREET LIGHTING POLE.
7. AS-BUILT DRAWINGS SHALL BE SUPPLIED TO THE TRAFFIC ENGINEERING DIVISION PRIOR TO ANY PRE-FINAL INSPECTION. THE AS-BUILT DRAWING NEEDS TO BE STAMPED AS-BUILT AND SIGNED BY THE PREPARER.
8. SERVICE POINTS SHALL BE COORDINATED WITH NV ENERGY, AND WHEREVER POSSIBLE, BE LOCATED NEAR THE CENTER OF THE CIRCUIT. SERVICE POINTS SHALL BE SHOWN ON THE PLANS.
9. WHEREVER THERE IS AN OVERHEAD UTILITY THAT MAY CONFLICT WITH THE INSTALLATION OF STREETLIGHTING CIRCUITS AND/OR POLES, THESE CONFLICTS MUST BE RESOLVED BETWEEN THE DEVELOPER AND THE UTILITIES INVOLVED BEFORE STREETLIGHT BASES ARE INSTALLED, AT NO EXPENSE TO THE CITY OF LAS VEGAS.
10. THE CONTRACTOR SHALL FURNISH COMPLETE CONDUIT, WIRE, ETC. FROM SERVICE TO TRANSFORMERS AND CONTROL SYSTEMS IF REQUIRED ON THE PLANS.

REVISED 6/4/2018 (LD VERSION)

LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

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

SOUTHWEST 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 CLEARANCE 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/OR STRUCTURES CONTACT 702-365-2099

ALL CIVIL IMPROVEMENT PLANS MUST INCLUDE SOUTHWEST GAS CORPORATION HIGH PRESSURE NOTES ON THE NOTES SHEET AND ALL SHEETS DEPICTING HIGH PRESSURE NATURAL GAS MAINS AS INDICATED BELOW:

CAUTION: HIGH PRESSURE GAS!
CALL SOUTHWEST GAS AT 702-278-8481 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES 48 HOURS PRIOR TO CONSTRUCTION

SOUTHWEST GAS CORPORATION

DATE

NOTES:

1. EXISTING UTILITY LOCATIONS SHOWN HEREIN ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES SHOWN ON THESE PLANS ARE ACCURATE. THE CONTRACTOR ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION. ALL DISCREPANCIES MUST BE IMMEDIATELY REPORTED TO THE ENGINEER.

GRADING NOTES

1. INDICATED GRADES OTHER THAN TC, FG & GUTTER FL ARE ROUGH GRADES.
2. THE ROUGH GRADING PLANS SHALL BE ON THE JOB SITE AT ALL TIMES. THE ROUGH GRADING SHALL BE FINISHED IN CONFORMANCE WITH THE LINES AND GRADES SHOWN ON THE PLANS. THE GRADING QUANTITIES ARE BASED ON THE ELEVATION AND DETAILS SHOWN ON THE PLANS. ANY DEVIATIONS FROM THE PLAN WILL RESULT IN QUANTITY CHANGES.
3. SOILS REPORT PREPARED BY: NOVA GEOTECHNICAL & INSPECTION SERVICES, 4480 W. HACIENDA AVENUE, SUITE 104, LAS VEGAS, NV 89118, PHONE: 702-873-3478, PROJECT NO.: G-18-176, DATED: DECEMBER 3, 2018.
4. EARTHWORK QUANTITIES (RAW):
- CUT = 57,900 CUBIC YARDS
 - FILL = 7,200 CUBIC YARDS
- A. THE ABOVE QUANTITIES DO NOT REFLECT LOSSES DUE TO SUBSIDENCE OR SHRINKAGE.
- B. THE ABOVE QUANTITIES DO REFLECT USING NATIVE MATERIAL IN LIEU OF TYPE 1 GRAVEL BASE MATERIAL FOR STREET SECTIONS.
- C. THE ABOVE QUANTITIES DO NOT REFLECT ANY EARTHWORK WHICH MAY BE REQUIRED BY THE ENGINEER TO CONSTRUCT ADDITIONAL PROTECTIVE DITCHES OR BERMS NOT SHOWN ON THESE DRAWINGS.

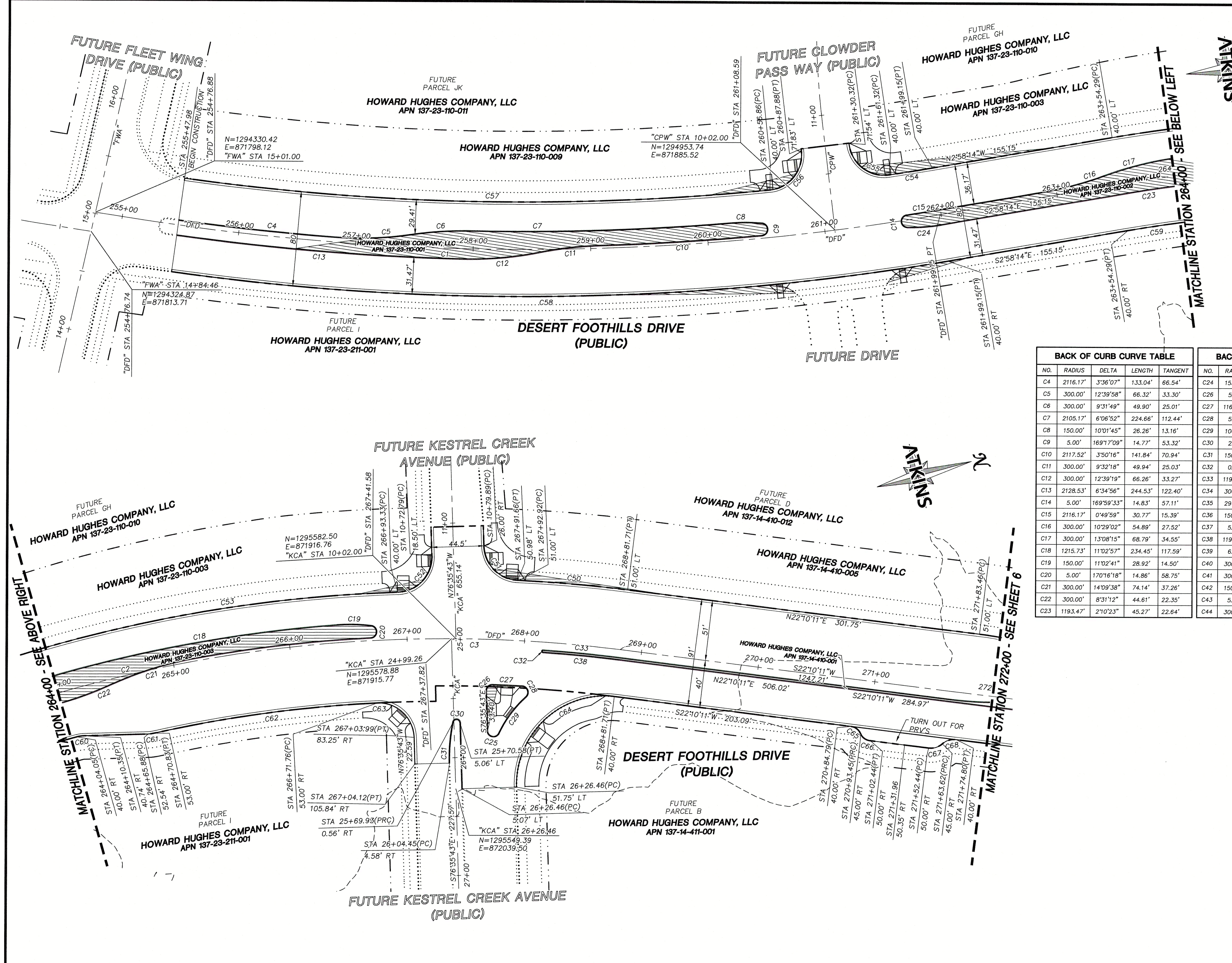
GENERAL NOTES

1. THE CONTRACTOR SHALL NOTIFY ALL AFFECTED PUBLIC ENTITIES, THE PROJECT ENGINEER AND THE CITY OF LAS VEGAS AT LEAST 48 HOURS PRIOR TO THE COMMENCEMENT OF WORK.
2. ALL CONSTRUCTION SHALL BE AS SHOWN ON THESE CONTRACT DRAWINGS. ANY REVISIONS SHALL HAVE THE PRIOR WRITTEN APPROVAL OF THE PROJECT ENGINEER.
3. 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 ISSUE, AND OTHER APPLICABLE APPROVED STANDARDS ISSUED BY THE CONTROLLING AGENCY; THE "UNIFORM BUILDING CODE"; AND ALL LOCAL CITY CODES AND ORDINANCES APPLICABLE.
4. LOCATIONS OF UNDERGROUND UTILITIES SHOWN ON THE DRAWINGS WERE OBTAINED FROM INFORMATION RECEIVED FROM THE APPLICABLE UTILITY COMPANIES. NEITHER THE OWNER NOR ENGINEER ASSUMES ANY RESPONSIBILITY FOR UTILITIES OR STRUCTURES NOT SHOWN, OR NOT IN THE LOCATION SHOWN ON THE DRAWINGS. CONTRACTOR TO VERIFY EXACT LOCATION OF UTILITIES PRIOR TO START OF CONSTRUCTION. THE CONTRACTOR'S RESPONSIBILITY REGARDING UTILITIES SHALL BE AS REQUIRED UNDER SECTION 107.17 OF THE "UNIFORM STANDARD SPECIFICATIONS FOR CLARK COUNTY AREA, NEVADA" AND AS PROVIDED IN THE SPECIFICATIONS.
5. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES TO PROTECT EXISTING UTILITY LINES, STRUCTURES, AND STREET IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE, FROM DAMAGE. ALL SUCH IMPROVEMENTS OR STRUCTURES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE COUNTY ENGINEER OR OWNING UTILITY COMPANY AT THE EXPENSE OF THE CONTRACTOR.
6. THE CONTRACTOR SHALL NOT REMOVE TREES, SHRUBS, LAWNS, WALLS, FENCES, SIGNS, STRUCTURES, LIGHTS, OR ANY OTHER EXISTING IMPROVEMENTS OUTSIDE OF STREET RIGHT-OF-WAY, EXCEPT WHERE REQUIRED TO DO SO BY THE CONTRACT DRAWINGS OR THE PROJECT ENGINEER. REPLACEMENT, RELOCATION OR IMPROVEMENTS OF EXISTING IMPROVEMENTS INCLUDING SPRINKLER SYSTEMS, LAWNS, FENCES, WALLS, SIGNS, STEPS, SIDEWALKS, DRIVEWAYS, LAWN LIGHTS, AND ALL OTHER ITEMS APPLICABLE TO THIS CONTRACT SHALL BE REQUIRED BY THE PROJECT ENGINEER.
7. THE CONTRACTOR SHALL BACKFILL AND FINE GRADE ALL CUT OR FILL SLOPES TO MATCH EXISTING CONDITIONS TO THE SATISFACTION OF THE PROJECT ENGINEER, WHERE EXISTING LAWNS ARE DAMAGED BY THE CONTRACTOR'S OPERATIONS. THE CONTRACTOR SHALL PROVIDE A LETTER TO THE CITY OF LAS VEGAS, DATED PRIOR TO THE PROJECT START DATE, WHICH EXISTED PRIOR TO CONSTRUCTION.
8. THE 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 TRANSITIONS TO BE AS SHOWN PER CONTRACT DRAWINGS.
9. 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. 626.560.
10. THE ACTUAL LOCATIONS OF SAW CUT LINES, LIMITS OF COLD MILLING, LIMITS OF DRIVEWAY TRANSITIONS, AND LANDSCAPE REPAIR SHALL BE DETERMINED IN THE FIELD BY THE RESIDENT PROJECT REPRESENTATIVE.
11. THE ACTUAL LIMITS OF EXISTING OPEN GRADE REMOVAL AND UDACS APPLICATION SHALL BE DETERMINED IN THE FIELD BY THE RESIDENT PROJECT REPRESENTATIVE.
12. ALL STANDARD DRAWINGS REFERENCED IN THIS SET ARE BASED ON THE CURRENT "UNIFORM STANDARD DRAWINGS REVISION SET II-1997 RELEASE".
13. UNLESS OTHERWISE SHOWN ON THE CONTRACT DRAWINGS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OR RELOCATION OF ALL WATER SERVICES AND METERS WHICH INTERFERE WITH IMPROVEMENTS SHOWN ON THE CONTRACT DRAWINGS.
14. THE CONTRACTOR SHALL MAINTAIN AN ONGOING REMOVAL PROCESS OF ALL SPILLAGE OF EXCAVATION MATERIAL ON ALL PAVED STREETS.
15. CURB AND GUTTER OF A GRADE OF LESS THAN 4/10 OF ONE PERCENT SHALL BE CONSTRUCTED BY FORMING. EACH JOINT SHALL BE CHECKED FOR GRADE PRIOR TO CONSTRUCTION AND WATER TESTED AS SOON AS POSSIBLE AFTER CONSTRUCTION.
16. THE CONTRACTOR SHALL VERIFY IN THE FIELD ALL DIMENSIONS, EXISTING CONDITIONS AND POINTS OF CONNECTION WITH ADJOINING PROPERTY (PUBLIC AND PRIVATE). ANY DISCREPANCIES SHALL BE CALLED TO THE ATTENTION OF THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH THE WORK.
17. REMOVAL OR RELOCATION OF POWER POLES, TELEPHONE POLES, JOINTLY-OWNED POLES, AND APPURTENANCES WHICH INTERFERE WITH IMPROVEMENTS REQUIRED TO BE CONSTRUCTED UNDER THIS CONTRACT, SHALL BE THE RESPONSIBILITY OF THE RESPECTIVE UTILITY COMPANY. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH THE UTILITY COMPANIES FAR ENOUGH IN ADVANCE SO AS TO NOT IMPACT THE SCHEDULE.
18. COX COMMUNICATIONS SHALL BE RESPONSIBLE FOR THE VERTICAL OR HORIZONTAL ADJUSTMENT OF ALL CATV FACILITIES WHICH INTERFERE WITH IMPROVEMENTS SHOWN ON THE CONTRACT DRAWINGS, UNLESS NOTED OTHERWISE.
19. NV ENERGY SHALL BE RESPONSIBLE FOR THE RELOCATION OF UNDERGROUND OR OVERHEAD POWER LINES THAT INTERFERE WITH THE REQUIRED IMPROVEMENTS AS SHOWN ON THE CONTRACT DRAWINGS.
20. EMBARQ SHALL BE RESPONSIBLE FOR THE VERTICAL OR HORIZONTAL ADJUSTMENT OF ALL TELEPHONE FACILITIES WHICH INTERFERE WITH IMPROVEMENTS SHOWN ON CONTRACT DRAWINGS, UNLESS NOTED OTHERWISE.

LAS VEGAS VALLEY WATER DISTRICT (LVWVD) NOTES

LVWVD PROJECT #136925
(REVISED 08/01/2017)

1. NO WORK SHALL BEGIN UNTIL THE WATER PLANS HAVE BEEN APPROVED FOR CONSTRUCTION BY THE LVWVD. FOLLOWING THE APPROVAL OF THE WATER PLANS, THE CONTRACTOR SHALL NOT COMMENCE CONSTRUCTION UNTIL TWO (2) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION, FOR FUTURE INSPECTIONS, NOTICE MUST BE GIVEN BY 2:00 P.M. THE BUSINESS DAY PRIOR TO THE REQUESTED LVWVD INSPECTION. WHEN REQUESTING INSPECTIONS, PLEASE REFER TO THE PROJECT # IDENTIFIED ABOVE.
2. ALL WORK SHALL CONFORM TO LVWVD 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 SUPERCEDE 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



SUMMARY OF QUANTITIES

DESCRIPTION	QUANTITY	UNIT
ROADWAY		
4" AGGREGATE BASE, TYPE II	2350	CY
4.5" PLANT MIX BITUMINOUS PAVEMENT	21015	SY
STANDARD "L" TYPE CURB & GUTTER W/ TYPE II AGGREGATE BASE	5300	LF
STANDARD "A" TYPE ISLAND CURB	4600	LF
SIDEWALK RAMP, CASE II	19	EA

ROADWAY NOTES

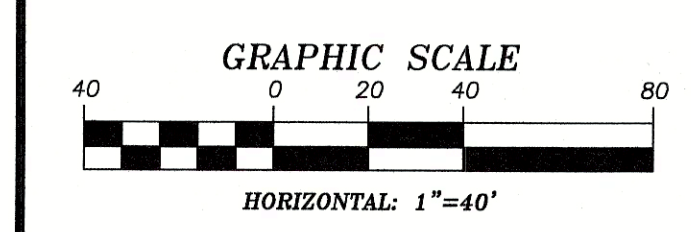
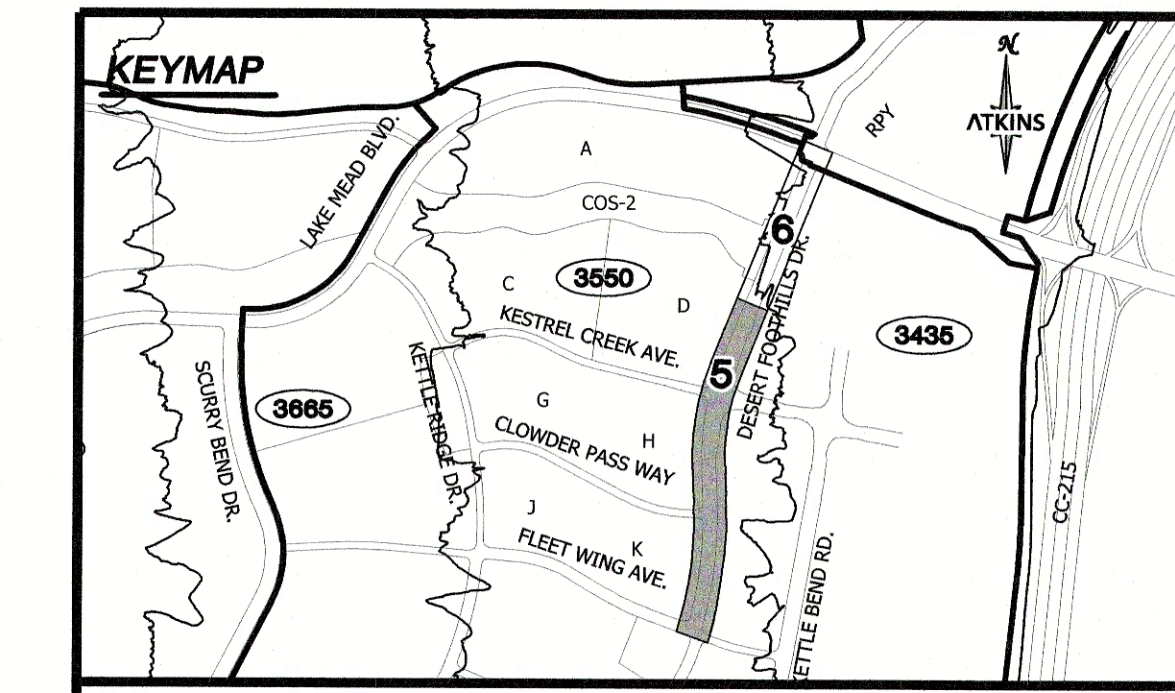
- SEE SHEET 40 FOR TYPICAL SECTIONS, DETAILS
- SEE SHEET 2 FOR ROADWAY ALIGNMENT ABBREVIATIONS

NO.	RADIUS	DELTA	LENGTH	TANGENT
C4	2116.17'	3'36"07"	133.04'	66.54'
C5	300.00'	12'39"58"	66.32'	33.30'
C6	300.00'	9'31'49"	49.90'	25.01'
C7	2105.17'	6'06"52"	224.66'	112.44'
C8	150.00'	10'01'45"	26.26'	13.16'
C9	5.00'	169'17'09"	14.77'	53.32'
C10	2117.52'	3'50'16"	141.84'	70.94'
C11	300.00'	9'32'18"	49.94'	25.03'
C12	300.00'	12'39'19"	66.26'	33.27'
C13	2128.53'	6'34'56"	244.53'	122.40'
C14	5.00'	169'59'33"	14.83'	57.11'
C15	2116.17'	0'49'59"	30.77'	15.39'
C16	300.00'	10'29'02"	54.89'	27.52'
C17	300.00'	13'08'15"	68.79'	34.55'
C18	1215.73'	11'02'57"	234.45'	117.59'
C19	150.00'	11'02'41"	28.92'	14.50'
C20	5.00'	170'16'18"	14.86'	58.75'
C21	300.00'	14'09'38"	74.14'	37.26'
C22	300.00'	8'31'12"	44.61'	22.35'
C23	1193.47'	2'10'23"	45.27'	22.64'

NO.	RADIUS	DELTA	LENGTH	TANGENT
C24	153.69'	11'54'44"	31.95'	16.03'
C26	5.00'	89'57'48"	7.85'	5.00'
C27	1163.33'	1'14'37"	25.25'	12.62'
C28	5.00'	134'39'06"	11.75'	11.97'
C29	100.17'	22'04'59"	38.61'	19.55'
C30	2.85'	166'41'21"	8.29'	24.43'
C31	150.00'	13'18'13"	34.83'	17.49'
C32	0.68'	180'01'00"	2.15'	4726.42'
C33	1194.83'	3'06'59"	64.99'	32.50'
C34	300.00'	15'34'04"	81.51'	41.01'
C35	294.90'	15'44'29"	81.02'	40.77'
C36	150.00'	24'41'10"	64.63'	32.82'
C37	5.00'	155'12'19"	13.54'	22.75'
C38	1193.47'	3'06'59"	64.92'	32.47'
C39	6.18'	180'00'00"	19.43'	INFINITY'
C40	300.00'	10'59'17"	57.53'	28.86'
C41	300.00'	10'59'17"	57.53'	28.86'
C42	150.00'	10'21'58"	27.14'	13.61'
C43	5.00'	169'38'02"	14.80'	55.12'
C44	300.00'	10'32'07"	55.16'	27.66'

NO.	RADIUS	DELTA	LENGTH	TANGENT
C45	300.00'	12'04'54"	63.26'	31.75'
C46	30.00'	90'00'00"	47.12'	30.00'
C47	30.00'	90'00'00"	47.12'	30.00'
C48	300.00'	10'59'17"	57.53'	28.86'
C49	300.00'	10'59'17"	57.53'	28.86'
C50	1253.00'	4'13'56"	92.55'	46.30'
C51	30.00'	86'07'37"	45.09'	28.04'
C52	30.00'	89'47'08"	47.01'	29.89'
C53	1242.00'	16'09'39"	350.32'	176.33'
C54	2080.00'	1'01'20"	37.11'	18.55'
C55	30.00'	91'49'27"	48.08'	30.97'
C56	30.00'	90'59'57"	47.65'	30.53'
C57	2080.00'	13'45'12"	499.29'	250.85'
C58	2160.00'	17'35'56"	663.46'	334.36'
C59	1162.00'	2'22'18"	48.10'	24.05'
C60	25.00'	14'05'23"	6.15'	3.09'
C61	25.00'	10'54'23"	4.76'	2.39'
C62	1149.00'	9'34'41"	192.08'	96.26'
C63	30.00'	91'14'32"	47.77'	30.66'
C64	75.02'	97'53'41"	128.17'	86.14'

NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	2120.00'	18'28'04"	683.33'	344.65'
C2	1202.00'	25'08'25"	527.41'	268.02'
C3	1202.00'	25'08'25"	527.41'	268.02'



BASIS OF BEARING
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.

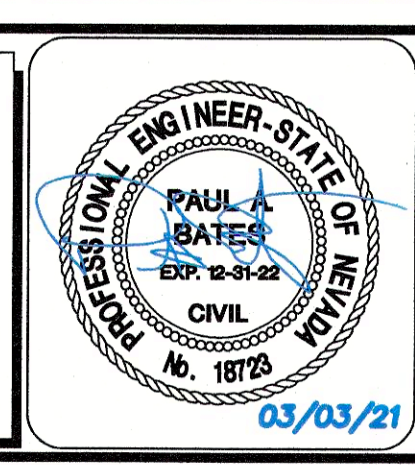
BENCHMARK
CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S,R59E,S03

FAST
Call before you dig
UnderGround
1-702-432-5300
PREMIER AND NATIONAL SYSTEM OF TRANSPORTATION

Call before you dig
Call 811
1-800-642-2444

AVOID WITHIN OVERHEAD POWER LINES ITS CORRECTION
CALL BEFORE YOU DIG OVERHEAD
1-702-227-2929

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



ATKINS
2270 Corporate Circle, Suite 200
Henderson, Nevada 89074
Telephone: +1702.263.2775
Fax: +1702.263.7200

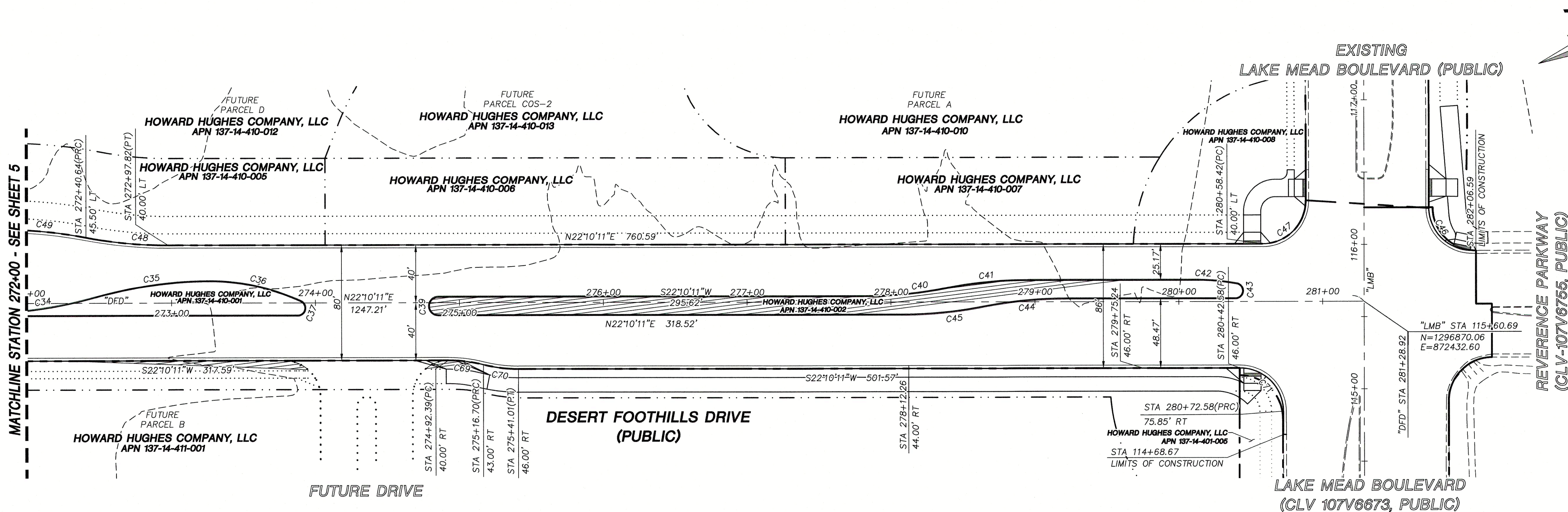
SUMMERLIN

DESIGNER BY: N. BARCOS
DRAWN BY: L. MAMCLAY
CHECKED BY: P. BATES
DRAWING NO.: 5 / 52
DATE: MARCH, 2021
HORIZ.: 1"=40'
VERT.: NONE

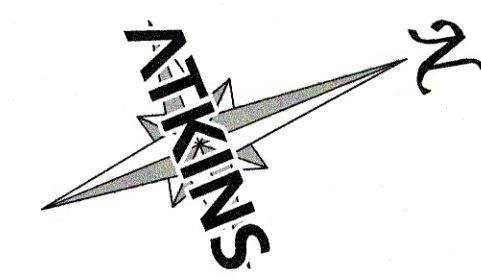
REVISIONS

REV.	DESCRIPTION	DATE	APPROVAL

PROJECT: Summerlin Village 22
LOCATION: Desert Foothills (Lake Mead to Street 1)
DATE: 03/03/21
JOB NO.: 100060652



MATCHLINE STATION 272+00 - SEE SHEET 5

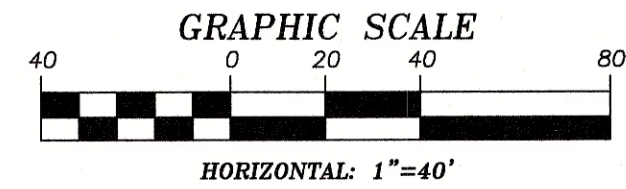


BACK OF CURB CURVE TABLE				
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C62	1149.00'	9°34'41"	192.08'	96.26'
C63	30.00'	91°14'32"	47.77'	30.66'
C64	75.02'	97°53'41"	128.17'	86.14'

CENTERLINE CURVE TABLE				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	2120.00'	18°28'04"	683.33'	344.65'
C2	1202.00'	25°08'25"	527.41'	268.02'
C3	1202.00'	25°08'25"	527.41'	268.02'



ROADWAY NOTES

- SEE SHEET 40 FOR TYPICAL SECTIONS, DETAILS
- SEE SHEET 2 FOR ROADWAY ALIGNMENT ABBREVIATIONS

BASIS OF BEARING

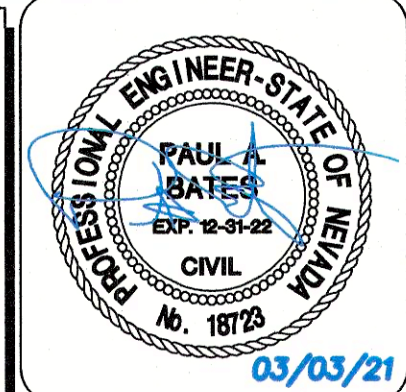
GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008) NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET) FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN. T21S,R59E,S03



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



DESIGNED BY:	N. BARCOS
DRAWN BY:	CLAY
CHECKED BY:	P. BATES
DATE:	MARCH, 2021
DRAWING NO.	6 /52
HORIZ. 1"=40'	
VERT. 1"=NONE	

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE
FLEET WING AVENUE (STREET G) TO LAKE MEAD BOULEVARD

HORIZONTAL CONTROL PLAN

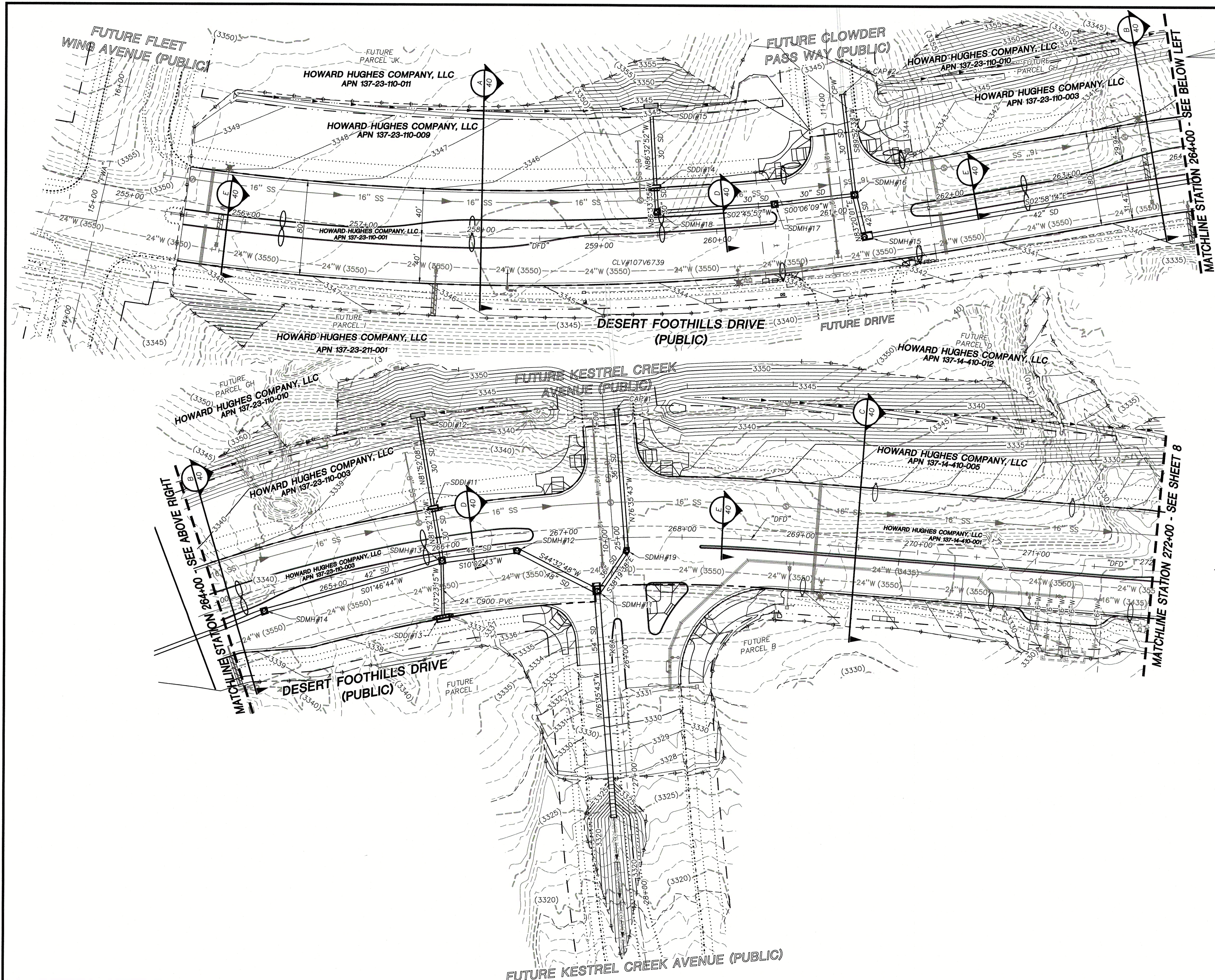


ATKINS
2270 Corporate Circle Suite 200
Henderson, NV 89014
Tel: 702.263.7275
Fax: 702.263.7200

REV.	DESCRIPTION	BY	DATE	APPROVAL

REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

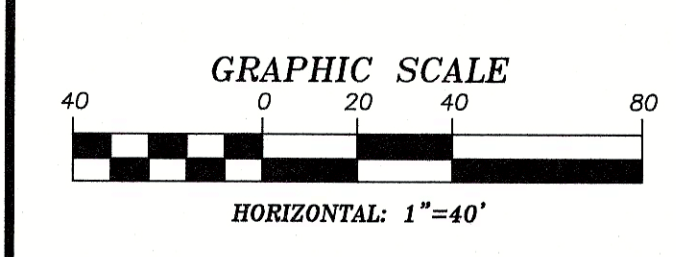
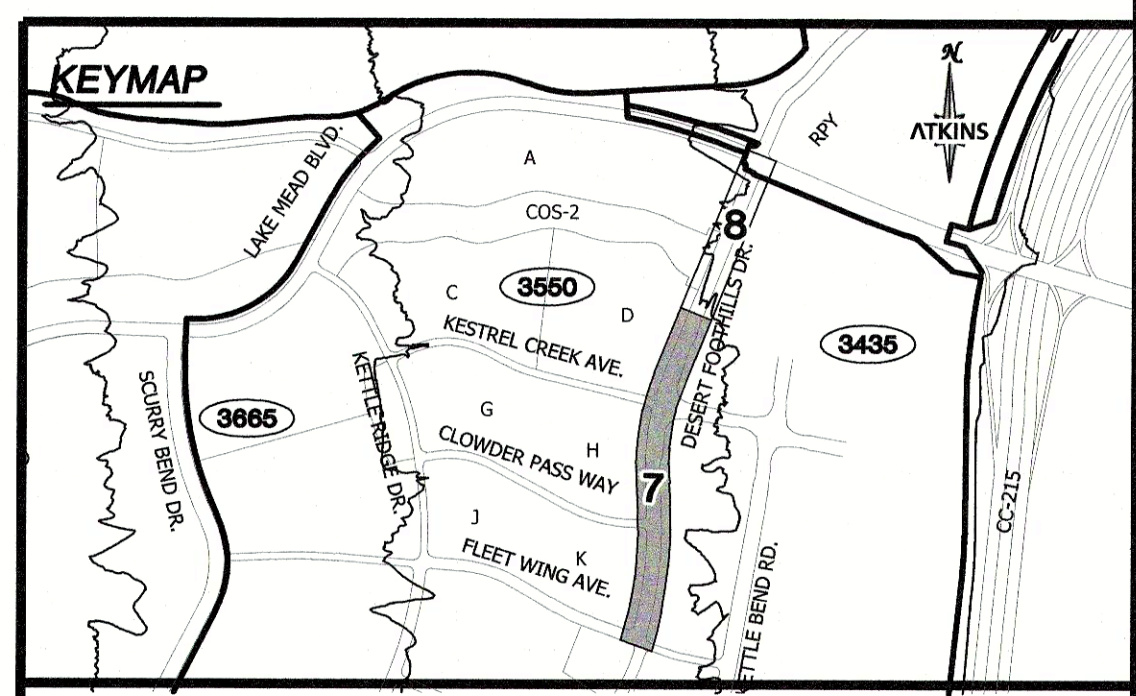


SUMMARY OF QUANTITIES		
DESCRIPTION	QUANTITY	UNIT
DRAINAGE		
7.5' TYPE "CM2" DROP INLET	4	EACH
10' TYPE "CM" DROP INLET	1	EACH
10' TYPE "CM2" DROP INLET	1	EACH
12.5' TYPE "CM2" DROP INLET	1	EACH
4' X 12' TYPE 2 DROP INLET	4	EACH
4' X 16' TYPE 2 DROP INLET	1	EACH
48" TYPE II MANHOLE	5	EACH
60" TYPE III MANHOLE	9	EACH
72" TYPE II MANHOLE	1	EACH
24" CLASS III RCP SD	70	LF
24" C900 SD	113	LF
30" CLASS III RCP SD	568	LF
36" CLASS III RCP SD	163	LF
42" CLASS III RCP SD	681	LF
42" CLASS IV RCP SD	271	LF
48" CLASS III RCP SD	65	LF
48" CLASS IV RCP SD	77	LF
54" CLASS IV RCP SD	734	LF

MASTER PLAN NOTE
THIS SHEET IS FOR INFORMATIONAL PURPOSES ONLY. IT IS AN OVERALL REPRESENTATION OF THE UTILITY FOR REVIEW AND COORDINATION WITH OTHER PROJECT DETAILS WITHIN THIS PLAN SET.

- STORM DRAIN NOTES**
- SEE PROFILE SHEETS FOR CONSTRUCTION NOTES AND INFORMATION RELATED TO PIPE SIZE (INNER DIAMETER), MANHOLE BASE SIZE (INSIDE DIMENSIONS), AND DROP INLET LENGTHS (CURB OPENING).
 - ALL STORM DRAIN MATERIAL TO BE CLASS III REINFORCED CONCRETE PIPE, UNLESS OTHERWISE NOTED IN PROFILES.
 - CONTRACTOR TO PROVIDE 6" MINIMUM OF CLEARANCE BETWEEN OUTSIDE OF PIPE TO INSIDE WALL OF STORM DRAIN STRUCTURES.

SOILS REPORT
BY NOVA
PROJECT NO. G-18-176
DATED 12/03/18 AND
SUBSEQUENT UPDATE LETTER
DATED 12/30/19
EARTHWORK QUANTITIES (RAW):
CUT= 57,900 CU YDS
FILL= 7,200 CU YDS



APPROVED FOR CONSTRUCTION
LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES
PROJECT NO. 136925 FIRST APPROVED DATE: 3/17/2021

GRADING PLAN CERTIFICATION
PAUL BATES PE#18723 DATE 3/16/21
CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT. DS#5170

BASIS OF BEARING
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.

BENCHMARK
CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S,R59E,S03

FAST
Call before you dig
Underground
1-702-432-5300
PRESERVE AND PROTECT
UTILITY LOCATIONS

811
Call before you dig
1-800-642-2444

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

PAUL A. BATES
REGISTERED PROFESSIONAL ENGINEER
CIVIL
No. 18128
03/03/21

ATKINS

SUMMERLIN

SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRIVE

FLEET WING AVENUE (STREET G) TO LAKE MEAD BOULEVARD

MASTER DRAINAGE PLAN

DESIGNED BY: CLV L19-02745

DRAWN BY: P. BATES

CHECKED BY: P. BATES

DATE: MARCH, 2021

DRAWING NO. 7 / 52

VERT: NONE

1078165

CLV L19-02745

DATE: MARCH, 2021

DRAWING NO. 7 / 52

JOB NO. 100060652

REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

ATKINS

2270 Corporate Circle Suite 200

Henderson, Nevada 89074

Telephone: +1702.263.7755

Fax: +1702.263.7200

Project: Summerlin West Village 22 100060652 - V22N Desert Foothills (Lake Mead to Street G) - Sheets 60652-05-STRM-SD1.dwg LA YOUT: DR-1 Mar 04, 2021 - 9:04AM

MASTER PLAN NOTE

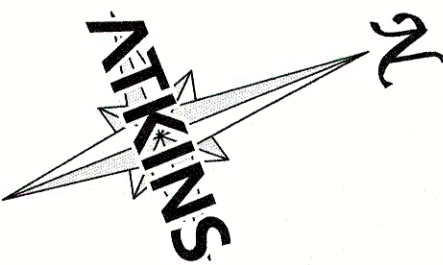
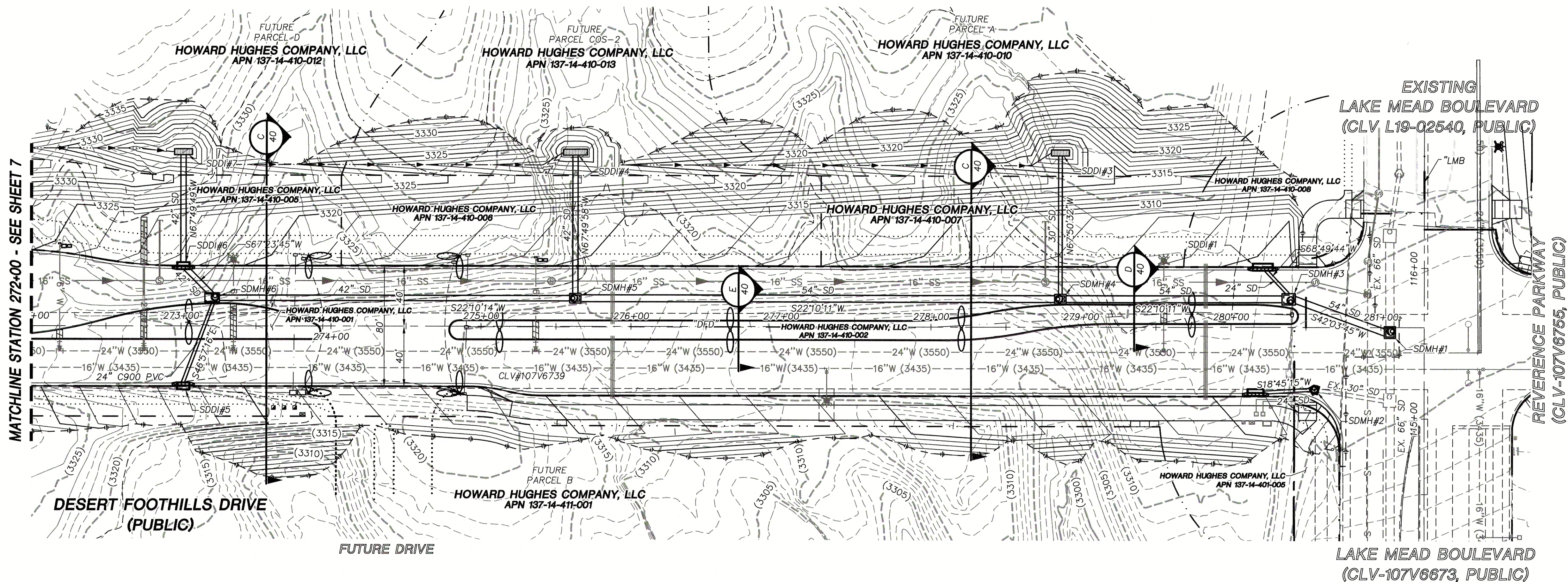
THIS SHEET IS FOR INFORMATIONAL PURPOSES ONLY. IT IS AN OVERALL REPRESENTATION OF THE UTILITY FOR REVIEW AND COORDINATION WITH OTHER PROJECT DETAILS WITHIN THIS PLAN SET.

STORM DRAIN NOTES

- SEE PROFILE SHEETS FOR CONSTRUCTION NOTES AND INFORMATION RELATED TO PIPE SIZE (INNER DIAMETER), MANHOLE BASE SIZE (INSIDE DIMENSIONS), AND DROP INLET LENGTHS (CURB OPENING).
- ALL STORM DRAIN MATERIAL TO BE CLASS III REINFORCED CONCRETE PIPE, UNLESS OTHERWISE NOTED IN PROFILES.
- CONTRACTOR TO PROVIDE 6" MINIMUM OF CLEARANCE BETWEEN OUTSIDE OF PIPE TO INSIDE WALL OF STORM DRAIN STRUCTURES.

SOILS REPORT

BY: NOVA
PROJECT NO. G-18-176
DATED: 12-03-2018
EARTHWORK QUANTITIES (RAW):
CUT= 57,900 CU YDS
FILL= 7,200 CU YDS

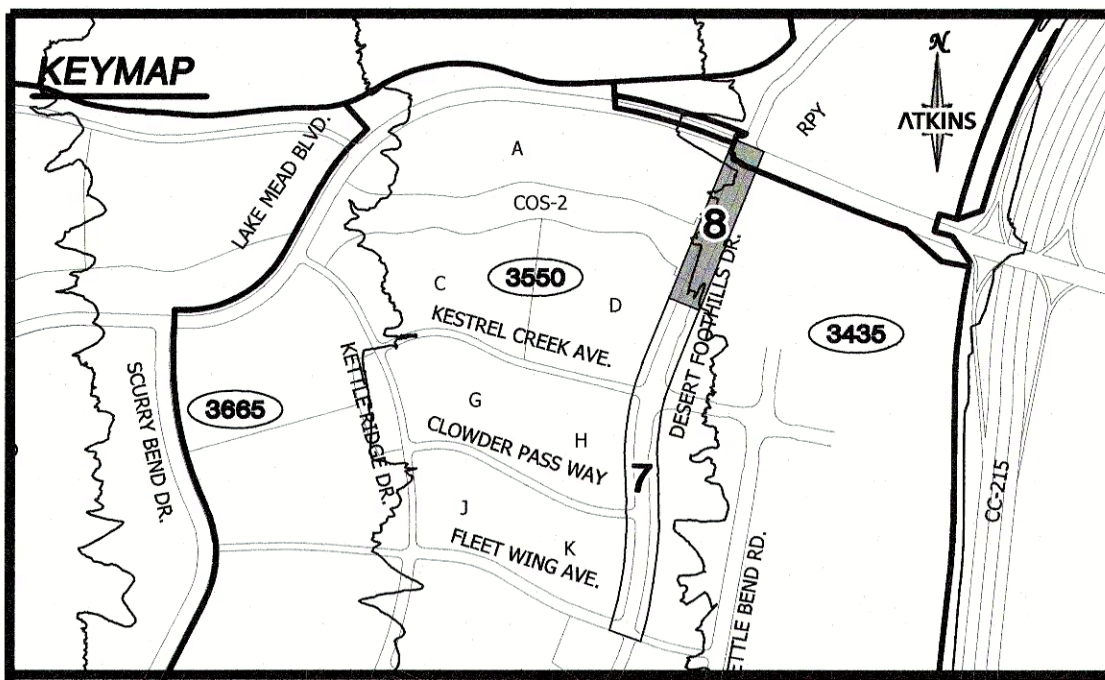


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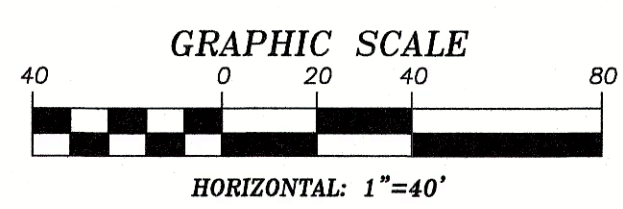
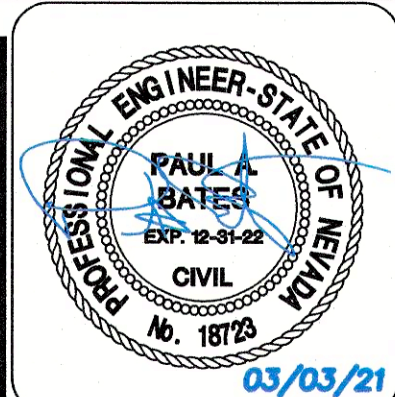
SUMMERLIN

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE
FLEET WING AVENUE (STREET G) TO LAKE MEAD BOULEVARD

MASTER DRAINAGE PLAN



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



APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES
PROJECT NO. 136925 FIRST APPROVED DATE: 3/17/2021

GRADING PLAN CERTIFICATION

PAUL BATES PE#18723 DATE 3/17/21

CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT. DS#5170

BASIS OF BEARING

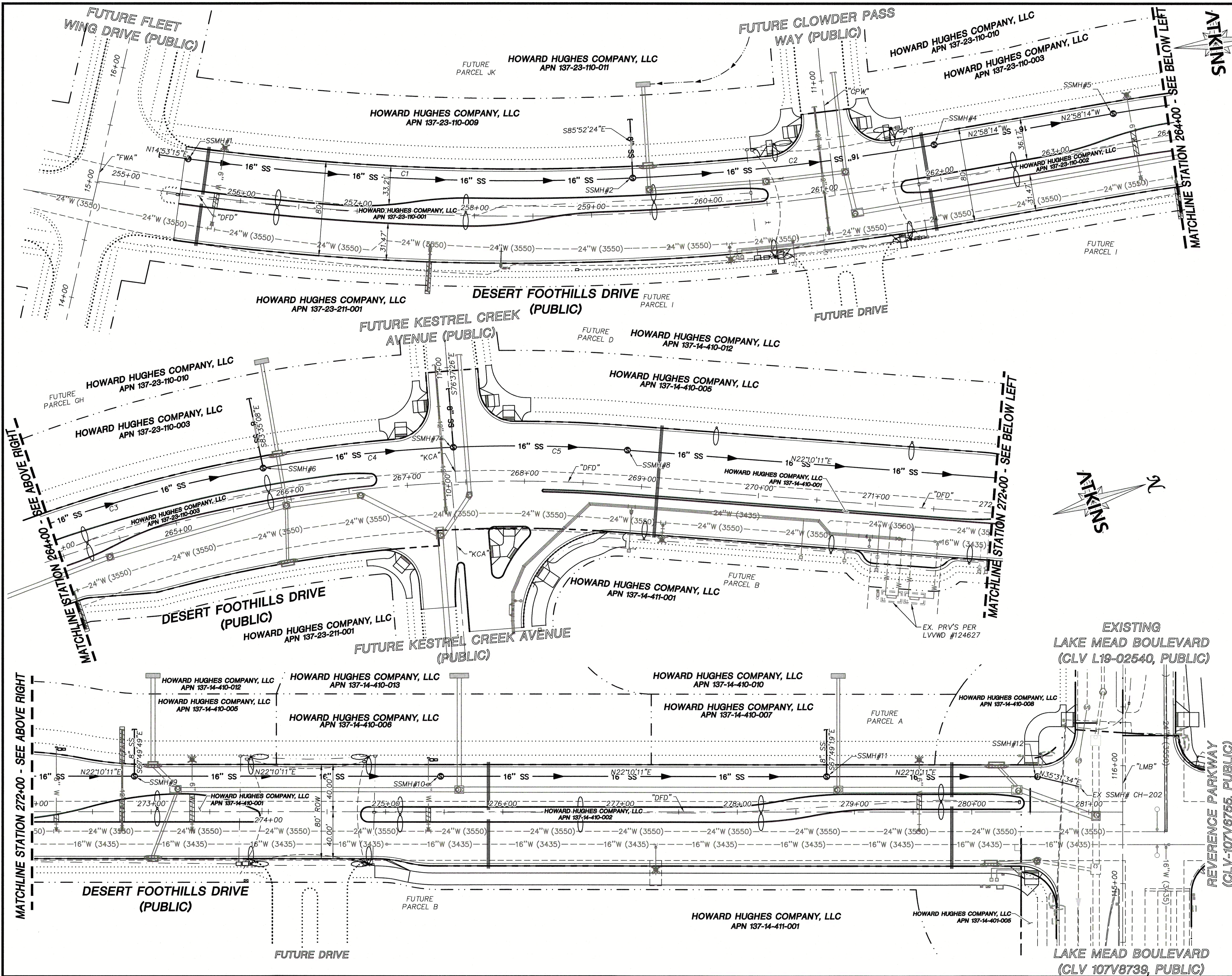
GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS). LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983. SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008) NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET) FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN. T21S,R59E,S03



DESIGNED BY: N. BARKOS
CHECKED BY: L. MAMAGLAY
DATE: MARCH, 2021
DRAWING NO. 8 / 52
JOB NO. 100060652



SUMMARY OF QUANTITIES

DESCRIPTION	QUANTITY	UNIT
SEWER		
8" C-900 SEWER PIPE	240	LF
15" SDR-35 SEWER PIPE	36	LF
16" C-900 SEWER PIPE	2534	LF
SEWER MANHOLE	11	EA
SEWER CAP	6	EA

MASTER PLAN NOTE

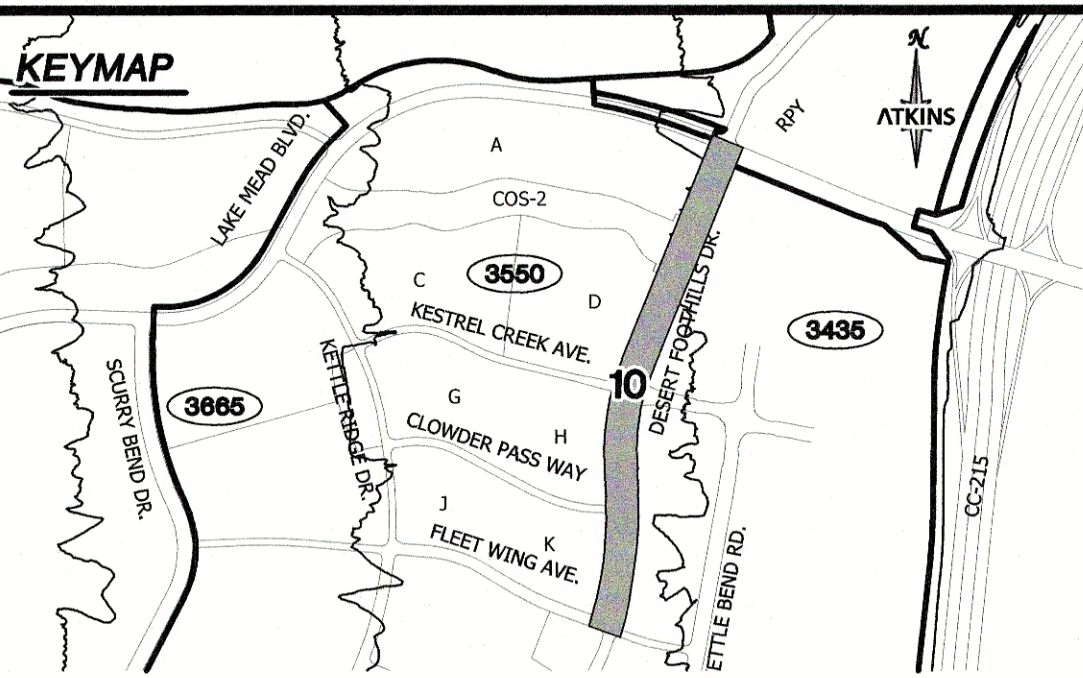
THIS SHEET IS FOR INFORMATIONAL PURPOSES ONLY. IT IS AN OVERALL REPRESENTATION OF THE UTILITY FOR REVIEW AND COORDINATION WITH OTHER PROJECT DETAILS WITHIN THIS PLAN SET.

SEWER NOTES

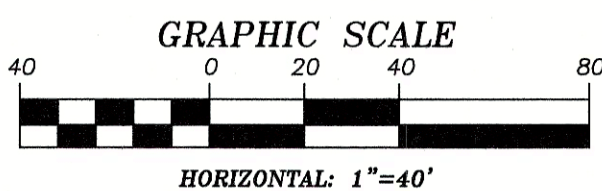
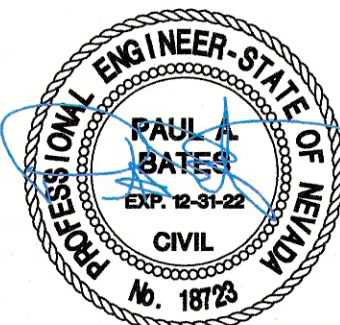
- SEE ROADWAY PLAN AND PROFILE SHEETS FOR CONSTRUCTION NOTES AND INFORMATION RELATED TO PIPE SIZE, SLOPE, INVERT, RIM INFORMATION, AND MANHOLE BASE SIZE.
- ALL SEWER PIPE MATERIAL TO BE WATER QUALITY RATED AWWA C-900, UNLESS OTHERWISE NOTED IN PROFILES.

SEWER LINE CURVE TABLE

NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	2090.00'	10°16'58"	375.09'	188.05'
C2	2090.00'	6°57'37"	253.89'	127.10'
C3	1231.95'	10°35'05"	227.59'	114.12'
C4	1232.06'	7°21'42"	158.30'	79.26'
C5	1233.75'	6°40'13"	143.63'	71.90'



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APPROVED FOR CONSTRUCTION

DISHA
LAS VEGAS VALLEY WATER DISTRICT
PLANNING AND ENGINEERING SERVICES
PROJECT NO. 136925 FIRST APPROVED DATE: 3/17/2021
LVVWD APPROVED FIRE FLOW 1500 GPM AT 20 PSI RESIDUAL

BASIS OF BEARING

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.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
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FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S, R59E, S03

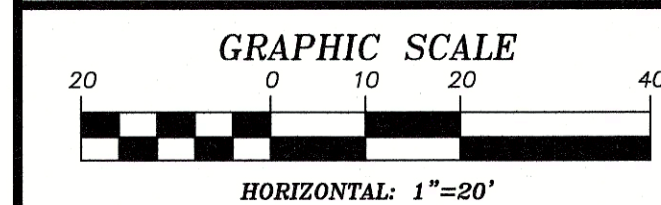


ATKINS
2270 Corporate Circle, Suite 200
Las Vegas, NV 89074
Telephone: +1702.263.7275
Fax: +1702.263.7200

SUMMERLIN

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE
FLEET WING AVENUE (STREET G) TO LAKE MEAD BOULEVARD

DESIGNED BY: CLV L19-02145
DRAWN BY: M. BATES
CHECKED BY: P. BATES
DATE: MARCH, 2021
DRAWING NO.: 10/52
JOB NO: 8101926252
VERT.: NONE



4 1 DISHAR
LAS VEGAS VALLEY WATER DISTRICT
PLANNING AND ENGINEERING SERVICES
PROJECT NO. 136925 FIRST APPROVED DATE: 3/17/2021
LVVWD APPROVED FIRE FLOW 1500 GPM AT 20 PSI RESIDUAL

CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH
THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT
THE CITY OF LAS VEGAS FOR THIS PROJECT.

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.

CITY OF LAS VEGAS BENCHMARK: D368
(REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS
(3,246.63 FEET)
END USC&GS DISC SET IN ROCK RIDGE
150' SOUTH OF CHARLESTON BLVD. &
WEST OF DETENTION BASIN.
T21S,R59E,S03



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AVOID CUTTING UNDERGROUND
UTILITY LINES. IT'S COSTLY.

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OR
1-800-642-2444

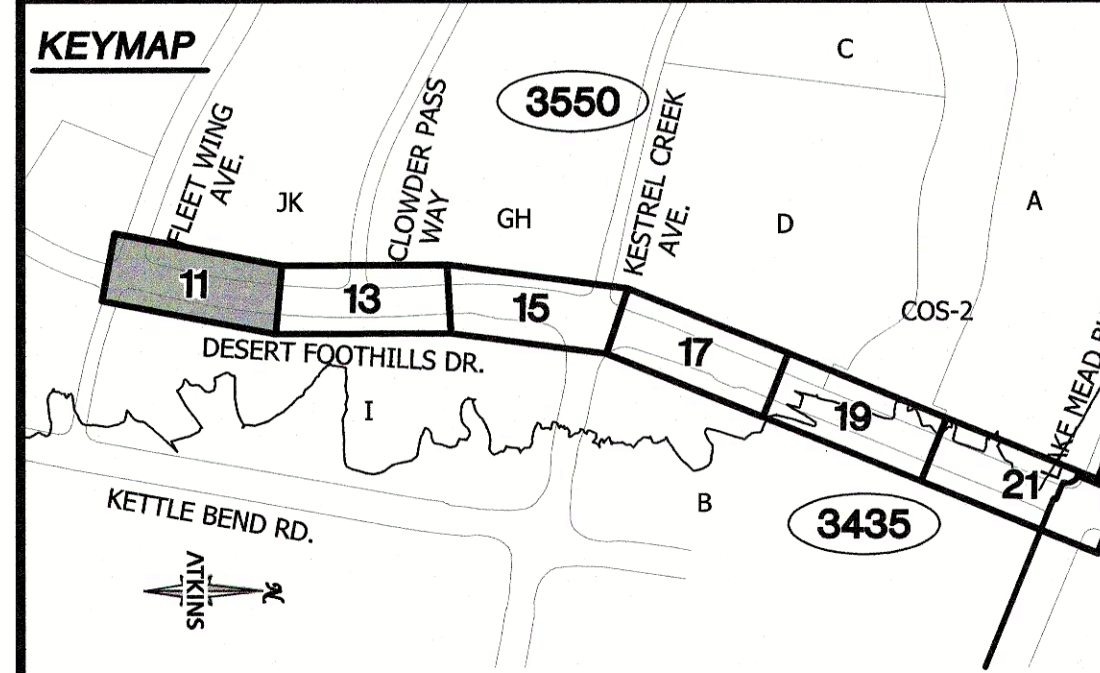


LVVWD CONSTRUCTION NOTES

- ① EXISTING LVVWD FACILITY TO BE PROTECTED IN PLACE.
- ② ADJUST EXISTING WATER VALVE TO GRADE PER UDACS PLATE NO. 39.
- ③ EXISTING LVVWD FACILITY TO BE RELOCATED.

EXISTING LVVWD FACILITIES

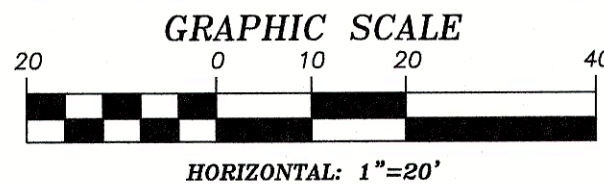
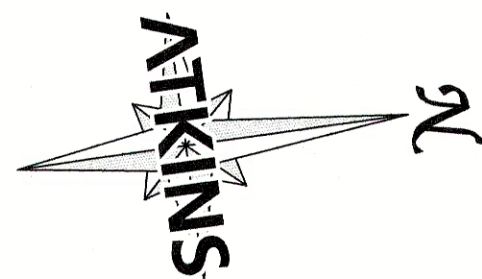
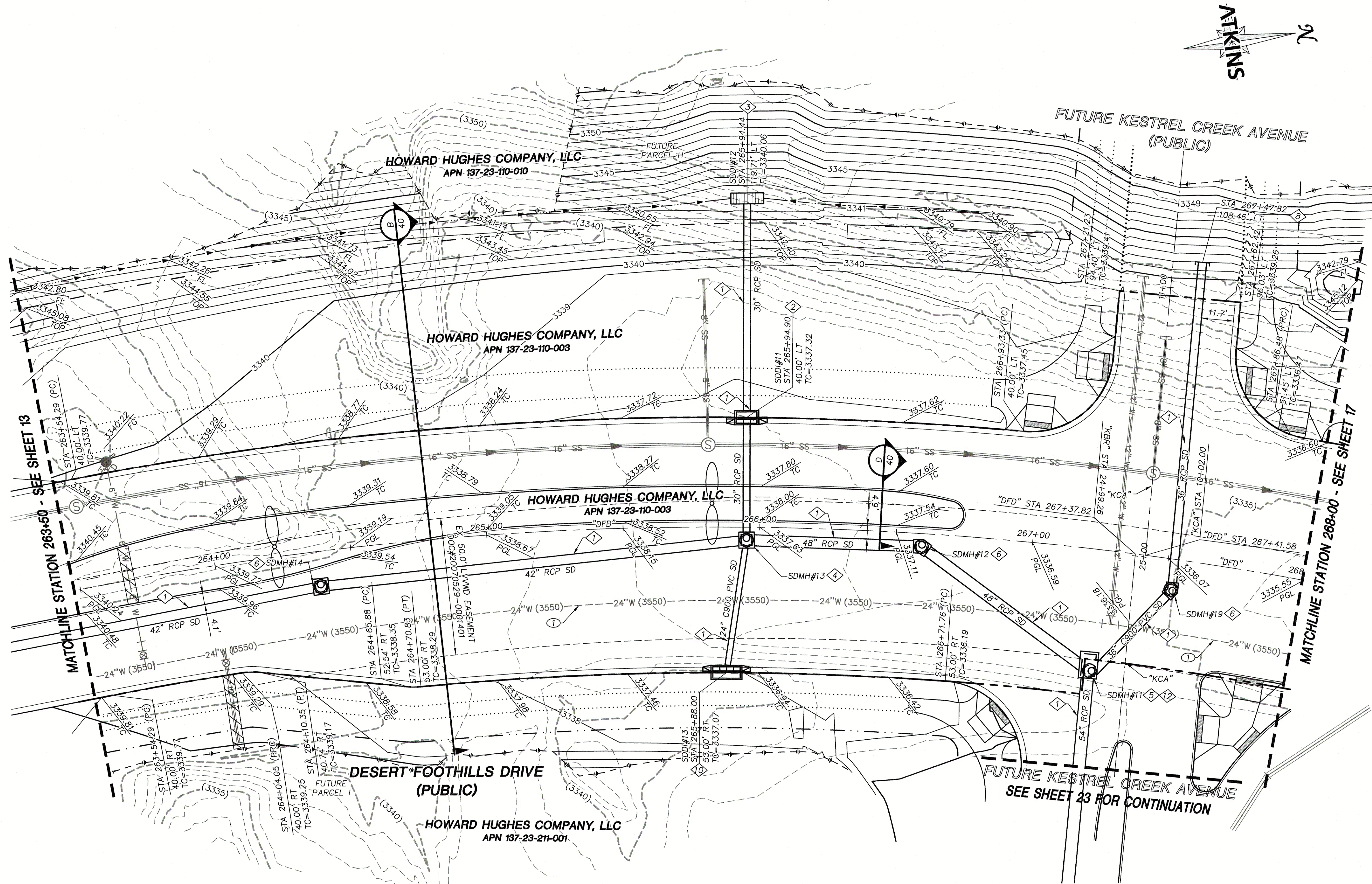
PROTECT IN PLACE AND ADJUST LVVWD EXISTING FACILITIES TO FINISHED GRADE PER UDACS. ALL LVVWD FACILITIES SHALL BE ACCESSIBLE AT ALL TIMES.



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

05/03/2

	DESIGNED BY: CLV L19-02745 N. BARCOS DATE:		SUMMERLIN WEST VILLAGE 22 DESERT FOOTHILLS DRIVE FLEET WING AVENUE (STREET 6) TO LAKE MEAD BOULEVARD ROADWAY GRADING PLAN BEGIN TO STA 289+00		ATKINS 2270 Corporate Circle Suite 200 Henderson, Nevada 89074 Telephone: 417.022.283, 7275 Fax: 417.022.2657, 2100	REVISIONS DESCRIPTION BY DATE APPROVAL
	CHECKED BY: MARCH, 2021 P. BATES DRAWING NO. 11 / 52 NOTE: 1"=240' VERT.: NONE					

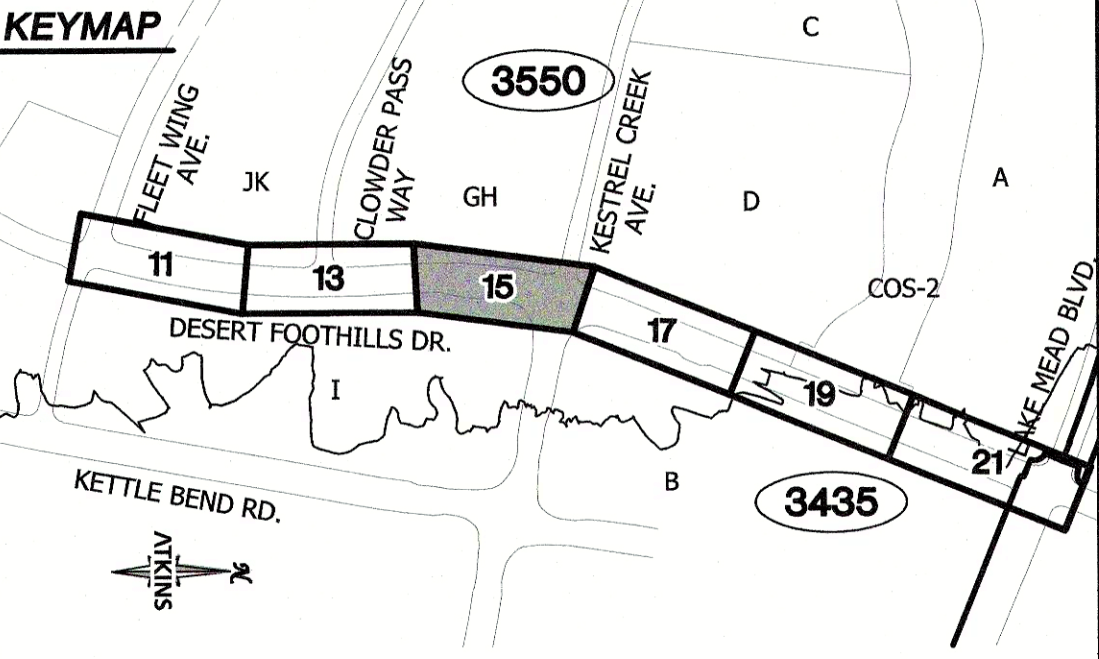


APPROVED FOR CONSTRUCTION
LAS VEGAS VALLEY WATER DISTRICT
PLANNING AND ENGINEERING SERVICES
PROJECT NO. 136925 FIRST APPROVED DATE: 3/17/2021
LVVWD APPROVED FIRE FLOW 1500 GPM AT 20 PSI RESIDUAL

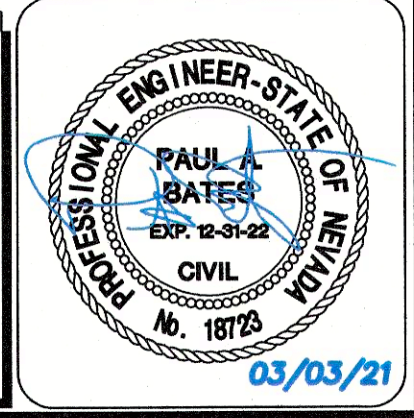
GRADING PLAN CERTIFICATION
PAUL BATES PE#18723 DATE 3/17/21
CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT. DS#5170

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

BENCHMARK
CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN. T21S,R59E,S03



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- STORM DRAIN CONSTRUCTION NOTES**
1. INSTALL STORM DRAIN. SEE SHEET 41 FOR ADDITIONAL STORM DRAIN NOTES AND INFORMATION.
 2. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421
 3. INSTALL NDOT TYPE 2 DROP INLET PER NDOT R-4.2.1 (SEE SHEET 41)
 4. INSTALL TYPE II SD MANHOLE PER CCAUSD #405
 5. INSTALL TYPE II SD MANHOLE PER CCAUSD #405.2.
 6. INSTALL TYPE III SD MANHOLE PER CCAUSD #406
 7. REMOVE CAP AND CONNECT TO EXISTING STORM DRAIN STUB
 8. STUB & PLUG STORM DRAIN FOR FUTURE CONNECTION PER MANUFACTURER'S PLUG, OR APPROVED EQUAL SEE SHEET 41
 9. INSTALL RIP-RAP (D50=8", THICKNESS=16")
 10. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421 AND DETAIL D ON SHEET 41
 11. INSTALL TYPE "CM" DROP INLET PER CCAUSD #421 & #422
 12. INSTALL MANHOLE WITH WATERTIGHT JOINTS.
- LVVWD CONSTRUCTION NOTES**
1. EXISTING LVVWD FACILITY TO BE PROTECTED IN PLACE.
 2. ADJUST EXISTING WATER VALVE TO GRADE PER UDACS PLATE NO. 39.
 3. EXISTING LVVWD FACILITY TO BE RELOCATED.
- EXISTING LVVWD FACILITIES**
- PROTECT IN PLACE AND ADJUST LVVWD EXISTING FACILITIES TO FINISHED GRADE PER UDACS. ALL LVVWD FACILITIES SHALL BE ACCESSIBLE AT ALL TIMES.

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2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1702.263.7275
Fax: +1702.263.7200

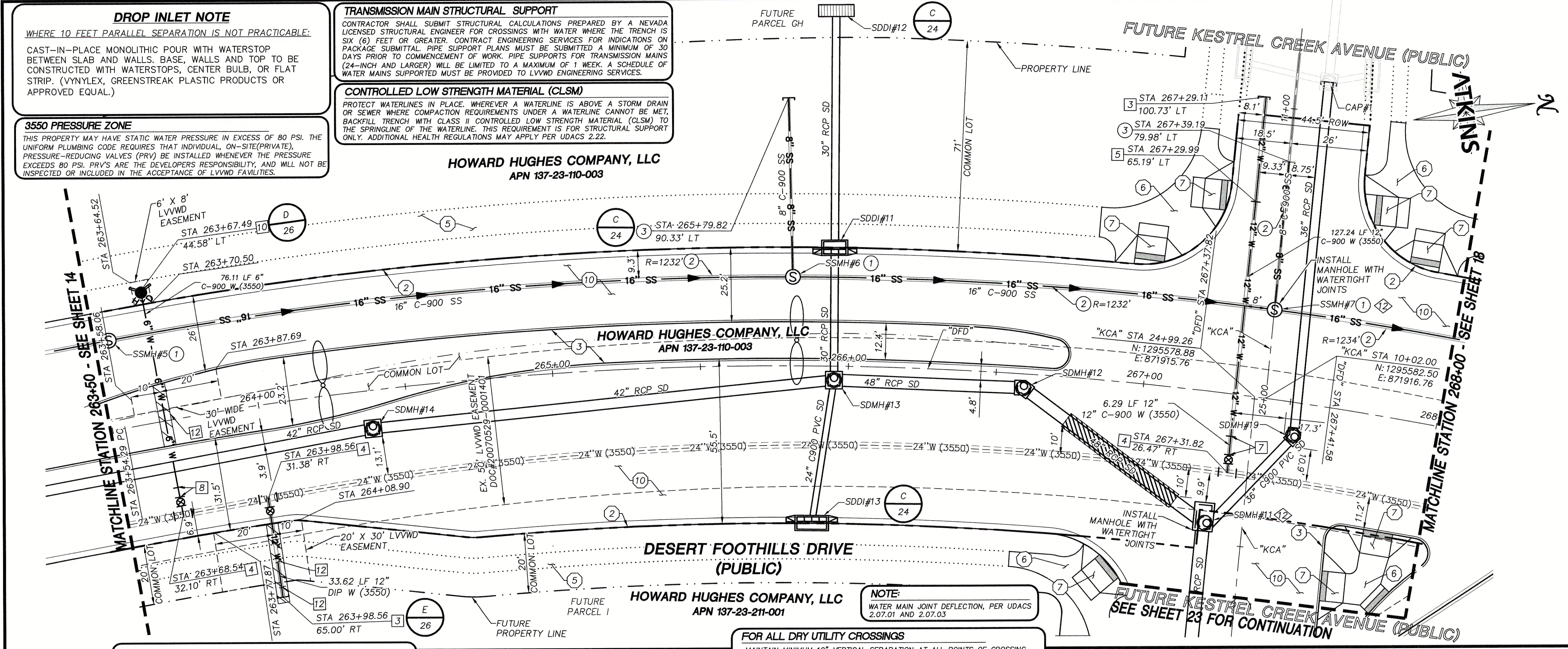
SUMMERLIN

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE
FLEET WING AVENUE (STREET G) TO LAKE MEAD BOULEVARD
ROADWAY GRADING PLAN
STA 263+50 TO STA 268+00

DESIGNED BY: N. BARCOS
DRAWN BY: N. BARCOS
CHECKED BY: P. BATES
DATE: MARCH, 2021
DRAWING NO. 15/52
VERT: NONE

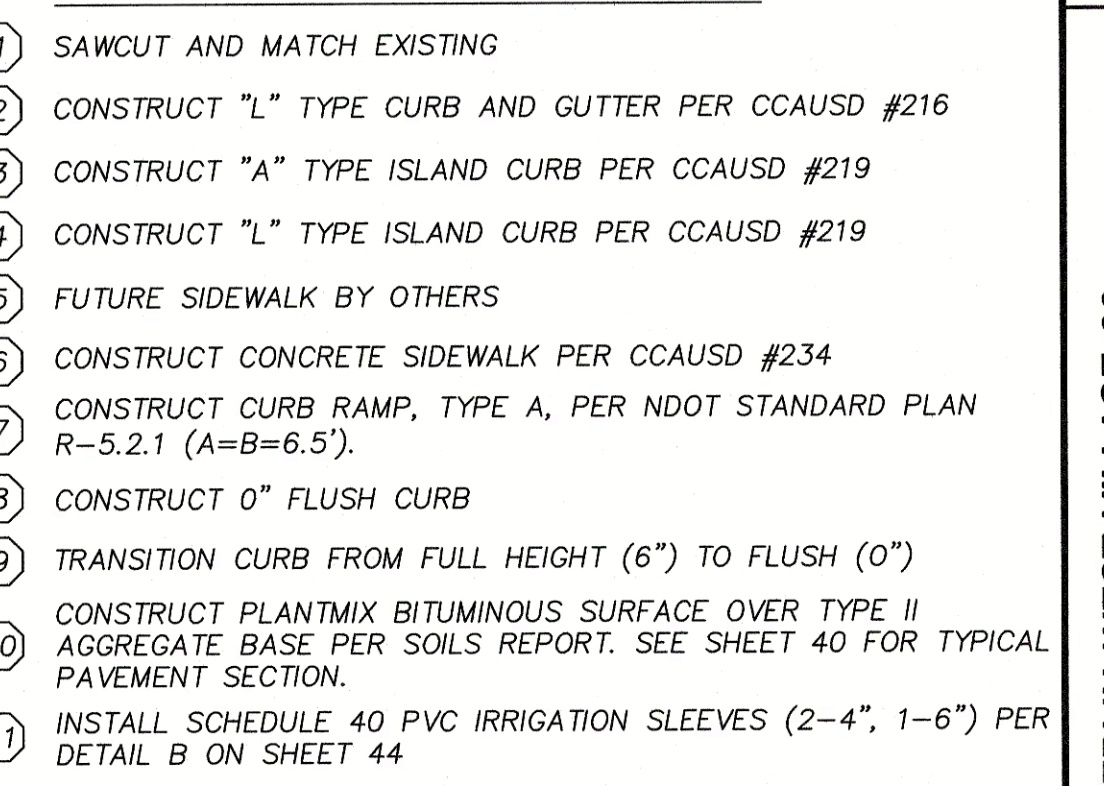
1078165
CLV L19-02745
JOB NO. 100060652

03/03/21



- STORM DRAIN CONSTRUCTION NOTES**
1. INSTALL STORM DRAIN. SEE SHEET 41 FOR ADDITIONAL STORM DRAIN NOTES AND INFORMATION.
 2. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421
 3. INSTALL NDOT TYPE 2 DROP INLET PER NDOT R-4.2.1 (SEE SHEET 41)
 4. INSTALL TYPE II SD MANHOLE PER CCAUSD #405
 5. INSTALL TYPE II SD MANHOLE PER CCAUSD #405.2.
 6. INSTALL TYPE III SD MANHOLE PER CCAUSD #406
 7. REMOVE CAP AND CONNECT TO EXISTING STORM DRAIN STUB
 8. STUB & PLUG STORM DRAIN FOR FUTURE CONNECTION PER MANUFACTURER'S PLUG, OR APPROVED EQUAL SEE SHEET 41
 9. INSTALL RIP-RAP (D50=8", THICKNESS=16")
 10. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421 AND DETAIL D ON SHEET 41
 11. INSTALL TYPE "CM" DROP INLET PER CCAUSD #421 & #422
 12. INSTALL MANHOLE WITH WATERTIGHT JOINTS.
- SEWER CONSTRUCTION NOTES**
1. INSTALL SEWER MANHOLE PER DCSWCS SD-11 AND SD-4 WITH DUAL CONCENTRIC LIDS PER SD-2 AND WITH CORROSION PROTECTION PER DCSWCS 3.16.8.
 2. INSTALL SEWER MAIN PER DCSWCS SD-17. WHERE CURVED PIPE RADIUS IS LESS THAN 1150', CONSTRUCT IN 10' SECTIONS OF CURVED SEWER PER DCSWCS 2.3.4.5
 3. STUB AND CAP SEWER PIPE. PLACE 4"x4" POST, DOUGLAS FIR, OVER END OF PIPE AND INSTALL THRUST BLOCK (1 CU.FT. MIN).
 4. CONNECT TO EXISTING SANITARY SEWER MANHOLE. CORE DRILL AND REFORM SSMH BASE PER DCSWCS SD-9, AND ADD CORROSION PROTECTION PER DCSWCS 3.16.8.
 5. ADJUST EXISTING MANHOLE TO GRADE PER DCSWCS SD-5.
 6. PROTECT SEWER AT UTILITY CROSSING PER DCSWCS SD-19

- WATERLINE CONSTRUCTION NOTES**
1. INSTALL WATER MAIN WITH MECHANICALLY RESTRAINED JOINTS PER UDACS PLATES #17 AND #19
 2. INSTALL 1.5" SERVICE SADDLE PER UDACS PLATE #4
 3. INSTALL CAP AND 2" MANUAL BLOWOFF ASSEMBLY
 4. INSTALL TAPPING SLEEVE WITH TAPPING VALVE AND LATERAL PER UDACS PLATES #17, #19, #30, #34, AND #39 & SECTION 2.24.01 A(>75%) AND 2.24.01 B(<=75%)
 5. ADJUST GATE VALVE TO GRADE PER UDACS PLATE #39
 6. INSTALL 5" BEND WITH MECHANICALLY RESTRAINED JOINTS
 7. INSTALL 22.5" BEND WITH MECHANICALLY RESTRAINED JOINTS
 8. INSTALL 45" BEND WITH MECHANICALLY RESTRAINED JOINTS
 9. REMOVE CAP AND 2" BLOWOFF AND CONNECT TO EXISTING WATERLINE STUB
 10. INSTALL FIRE HYDRANT WITH APPURTENANCES (CONCRETE PAD, LATERAL, VALVE, AND TEE) PER UDACS PLATES #30, #31, #39, AND #40.
 11. INSTALL 1-1/2" IRRIGATION METER WITH 1-1/2" RPPA PER UDACS PLATES #4 AND #8 AND DETAIL D ON SHEET 44
 12. BACKFILL TRENCH ZONE WITH CLASS I CLSM
 13. INSTALL END CAP WITH MECHANICALLY RESTRAINED JOINTS
 14. INSTALL 6" BLOW-OFF VALVE PER UDACS PLATE NO. 37
- ROADWAY CONSTRUCTION NOTES**
1. SAWCUT AND MATCH EXISTING
 2. CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD #216
 3. CONSTRUCT "A" TYPE ISLAND CURB PER CCAUSD #219
 4. CONSTRUCT "L" TYPE ISLAND CURB PER CCAUSD #219
 5. FUTURE SIDEWALK BY OTHERS
 6. CONSTRUCT CONCRETE SIDEWALK PER CCAUSD #234
 7. CONSTRUCT CURB RAMP, TYPE A, PER NDOT STANDARD PLAN R-5.2.1 (A=B=6.5').
 8. CONSTRUCT 0" FLUSH CURB
 9. TRANSITION CURB FROM FULL HEIGHT (6") TO FLUSH (0")
 10. CONSTRUCT PLANTMIX BITUMINOUS SURFACE OVER TYPE II AGGREGATE BASE PER SOILS REPORT. SEE SHEET 40 FOR TYPICAL PAVEMENT SECTION.
 11. INSTALL SCHEDULE 40 PVC IRRIGATION SLEEVES (2-4", 1-6") PER DETAIL B ON SHEET 44



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

DESIGNED BY: N. BARCOS
DRAWN BY: L. MACALAY
CHECKED BY: C. BATES
DATE: MARCH, 2021
DRAWING NO.: 16/52

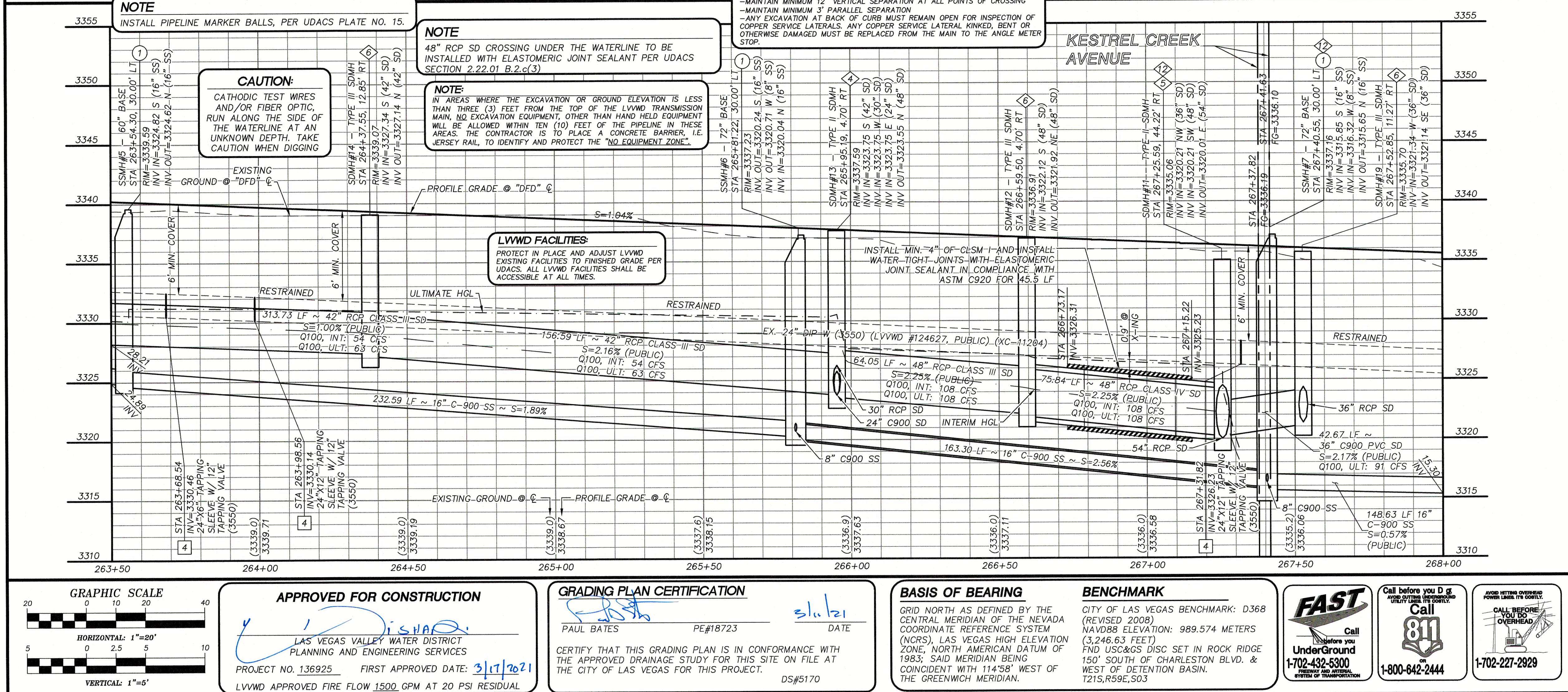
1078165
CLV L19-02745
DATE: MARCH, 2021
DRAWING NO. 16/52

100060652
JOB NO. 100060652

ATKINS
2270 Corporate Circle Suite 200
Nevada 89074
Telephone: +1702.263.2725
Fax: +1702.263.2700

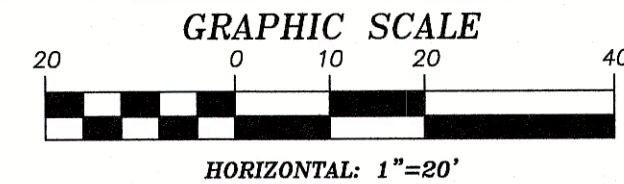
SUMMERLIN
SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE
FLEET WING AVENUE (STREET G) TO LAKE MEAD BOULEVARD
ROADWAY PLAN AND PROFILE
STA 263+50 TO STA 268+00

PAUL A. BATES
REGISTERED PROFESSIONAL ENGINEER
STATE OF NEVADA
No. 18783
03/03/21



MATCHLINE STATION 268+00 - SEE SHEET 15

MATCHLINE STATION 272+50 - SEE SHEET 19



APPROVED FOR CONSTRUCTION

PAUL A. BATES
LAS VEGAS VALLEY WATER DISTRICT
PLANNING AND ENGINEERING SERVICES
PROJECT NO. 136925 FIRST APPROVED DATE: 3/17/2021
LVVWD APPROVED FIRE FLOW 1500 GPM AT 20 PSI RESIDUAL

GRADING PLAN CERTIFICATION

PAUL A. BATES PE#18723 DATE: 3/17/21
CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT. DS#5170

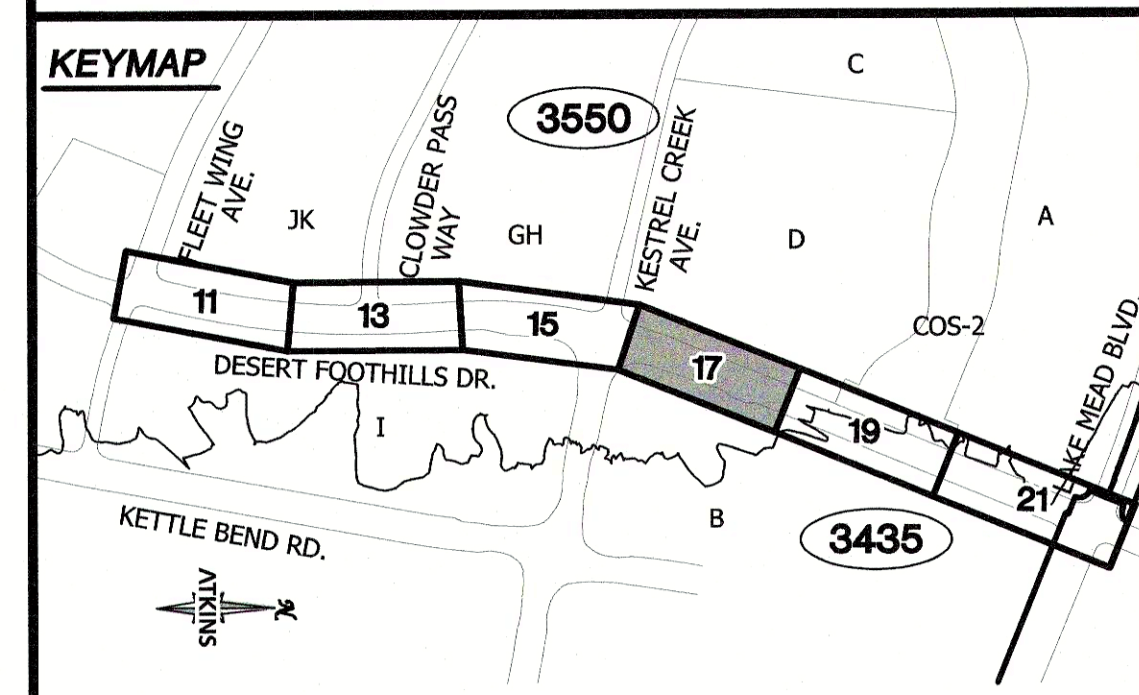
BASIS OF BEARING
GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

BENCHMARK
CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN. T21S,R59E,S03

FAST
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UnderGround
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811
Call before you dig
1-800-642-2444

CALL BEFORE YOU DIG
OVERHEAD
1-702-227-2929



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PAUL A. BATES
Professional Engineer - State of Nevada
No. 18723
03/03/21

- STORM DRAIN CONSTRUCTION NOTES**
1. INSTALL STORM DRAIN. SEE SHEET 41 FOR ADDITIONAL STORM DRAIN NOTES AND INFORMATION.
 2. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421
 3. INSTALL NDOT TYPE 2 DROP INLET PER NDOT R-4.2.1 (SEE SHEET 41)
 4. INSTALL TYPE II SD MANHOLE PER CCAUSD #405
 5. INSTALL TYPE II SD MANHOLE PER CCAUSD #405.2.
 6. INSTALL TYPE III SD MANHOLE PER CCAUSD #406
 7. REMOVE CAP AND CONNECT TO EXISTING STORM DRAIN STUB
 8. STUB & PLUG STORM DRAIN FOR FUTURE CONNECTION PER MANUFACTURER'S PLUG, OR APPROVED EQUAL SEE SHEET 41
 9. INSTALL RIP-RAP (D50=8", THICKNESS=16")
 10. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421 AND DETAIL D ON SHEET 41
 11. INSTALL TYPE "CM" DROP INLET PER CCAUSD #421 & #422
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 2. ADJUST EXISTING WATER VALVE TO GRADE PER UDACS PLATE NO. 39.
 3. EXISTING LVVWD FACILITY TO BE RELOCATED.
- EXISTING LVVWD FACILITIES**
- PROTECT IN PLACE AND ADJUST LVVWD EXISTING FACILITIES TO FINISHED GRADE PER UDACS. ALL LVVWD FACILITIES SHALL BE ACCESSIBLE AT ALL TIMES.

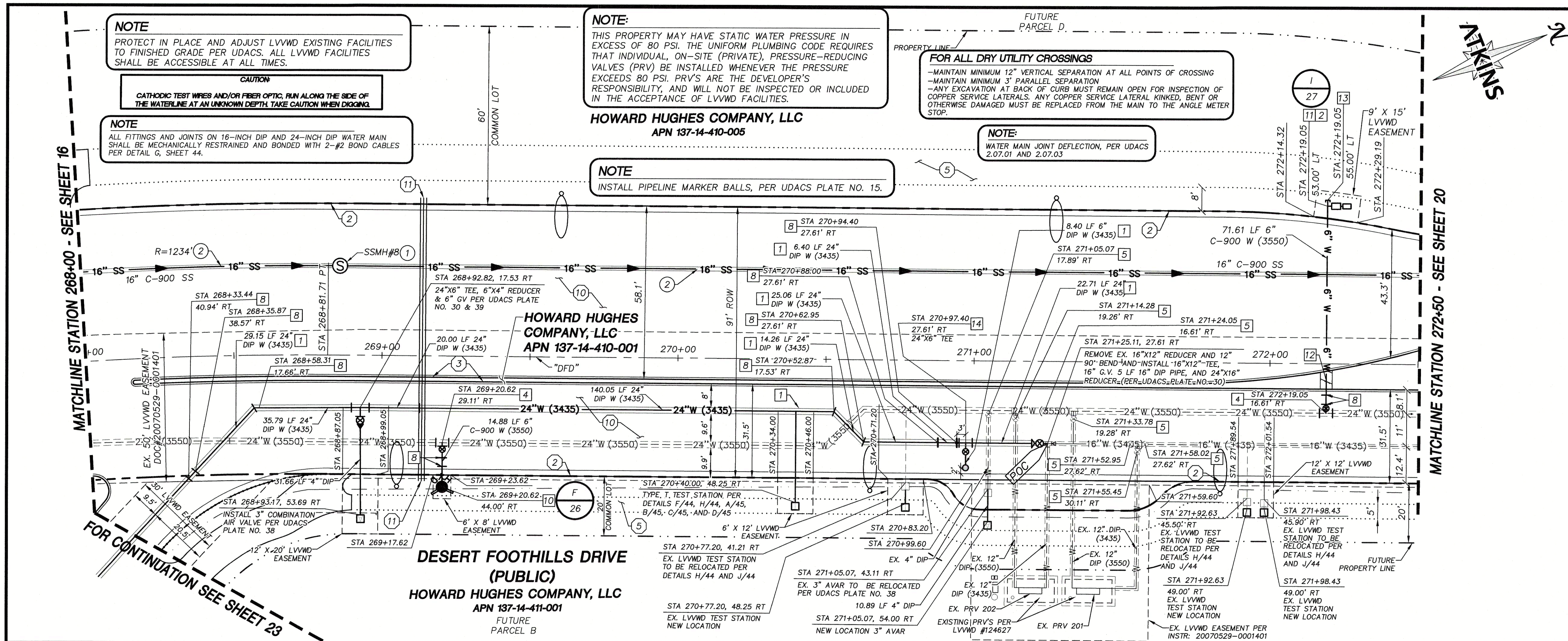
ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: 702.263.7275
Fax: 702.263.7200

SUMMERLIN

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE
FLEET WING AVENUE (STREET G) TO LAKE MEAD BOULEVARD
ROADWAY GRADING PLAN
STA 268+00 TO STA 272+50

DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMACJAY
CHECKED BY: P. BATES
DATE: MARCH, 2021
DRAWING NO. 17 / 52
VERT.: NONE

JOE NO. 100060652

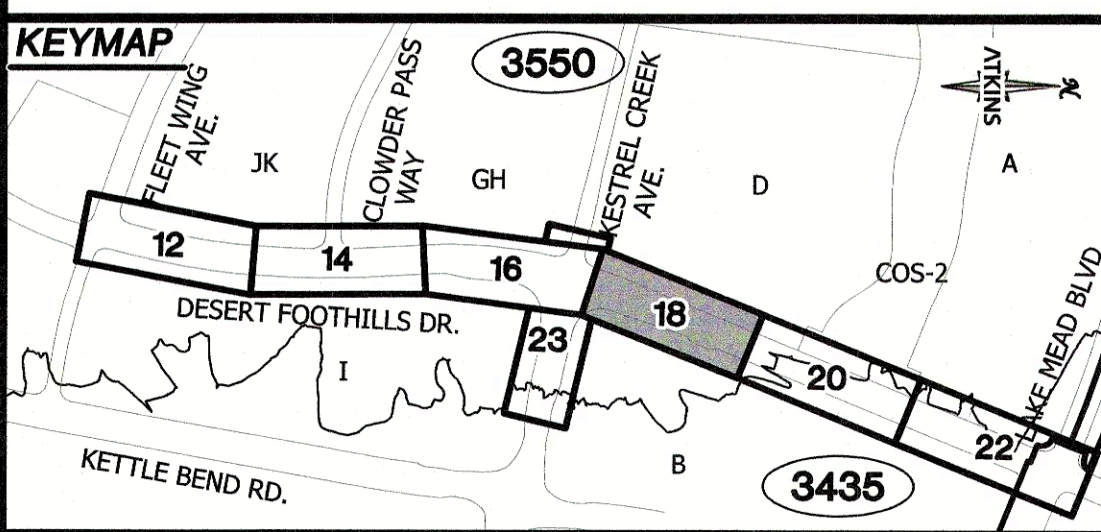


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 - INSTALL SEWER MAIN PER DCSWCS SD-17. WHERE CURVED PIPE RADIUS IS LESS THAN 1150', CONSTRUCT IN 10' SECTIONS OF CURVED SEWER PER DCSWCS 2.3.4.5
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 - INSTALL 6" BLOW-OFF VALVE PER UDACS PLATE NO. 37

- ### ROADWAY CONSTRUCTION NOTES
- SAWCUT AND MATCH EXISTING
 - CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD #216
 - CONSTRUCT "A" TYPE ISLAND CURB PER CCAUSD #219
 - CONSTRUCT "L" TYPE ISLAND CURB PER CCAUSD #219
 - FUTURE SIDEWALK BY OTHERS
 - CONSTRUCT CONCRETE SIDEWALK PER CCAUSD #234
 - CONSTRUCT CURB RAMP, TYPE A, PER NDOT STANDARD PLAN R-5.2.1 (A=B=6.5')
 - CONSTRUCT 0" FLUSH CURB
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 - INSTALL SCHEDULE 40 PVC IRRIGATION SLEEVES (2-4", 1-6") PER DETAIL B ON SHEET 44

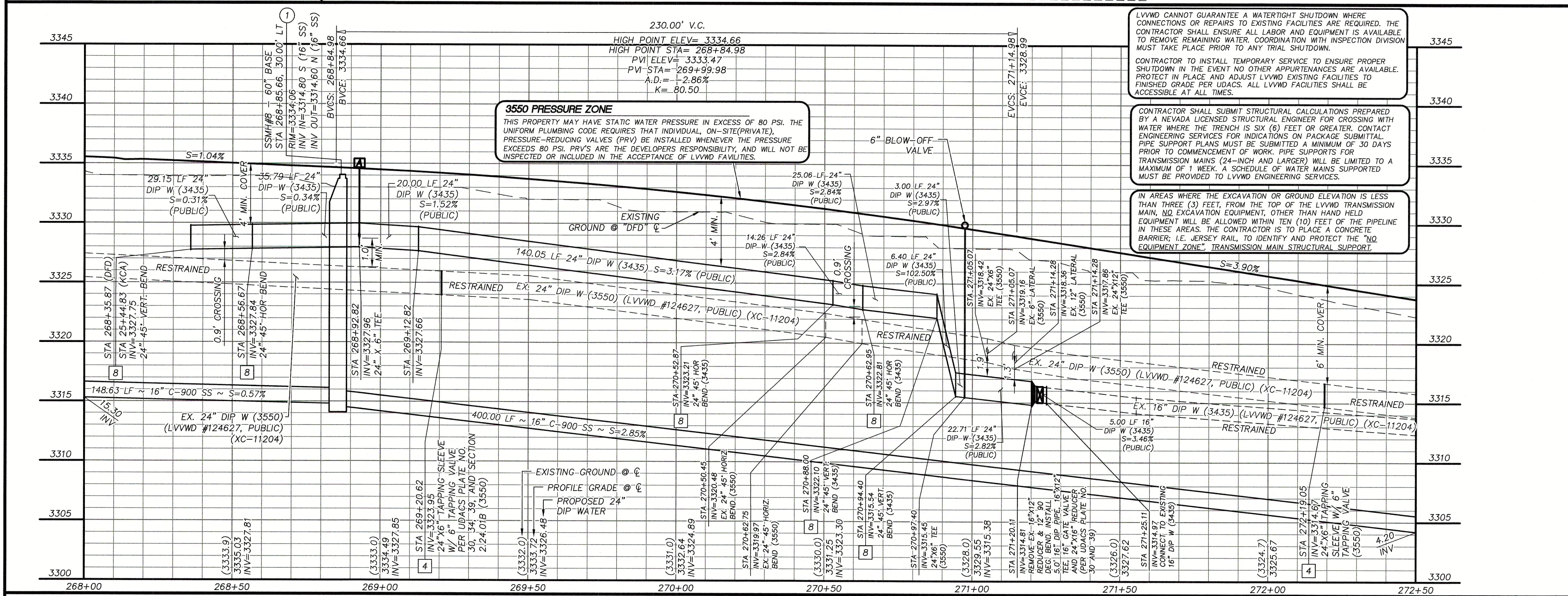


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107V8165
CLV L19-02745
DATE: MARCH 2021
DRAWING NO. 18 /52
JOB NO. 100060652

DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMACLAY
CHECKED BY: P. BATES
HORIZ. 1"=20'
VERT. 1"=5'

03/03/21



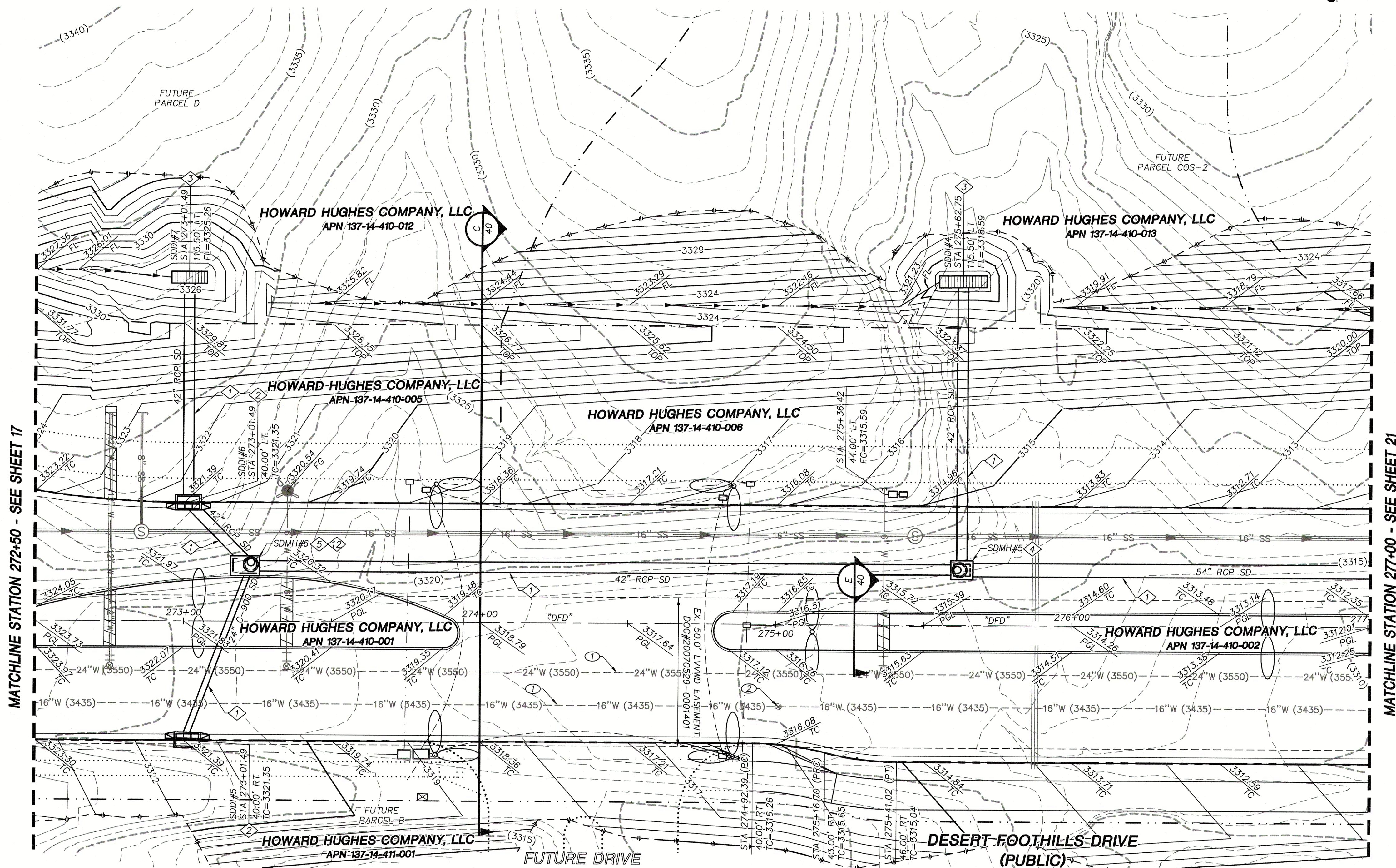
ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1702.263.7275
Fax: +1702.263.7200

SUMMERLIN
SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE
FLEET WING AVENUE (STREET G) TO LAKE MEAD BOULEVARD
ROADWAY PLAN AND PROFILE
STA. 268+00 TO STA. 272+50

REVISIONS
BY DATE APPROVAL
DESCRIPTION
REV.

107V8165
CLV L19-02745
DATE: MARCH 2021
DRAWING NO. 18 /52
JOB NO. 100060652

03/03/21

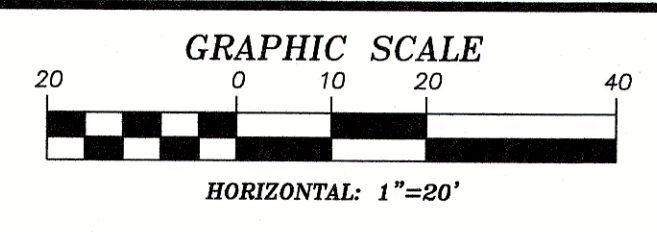
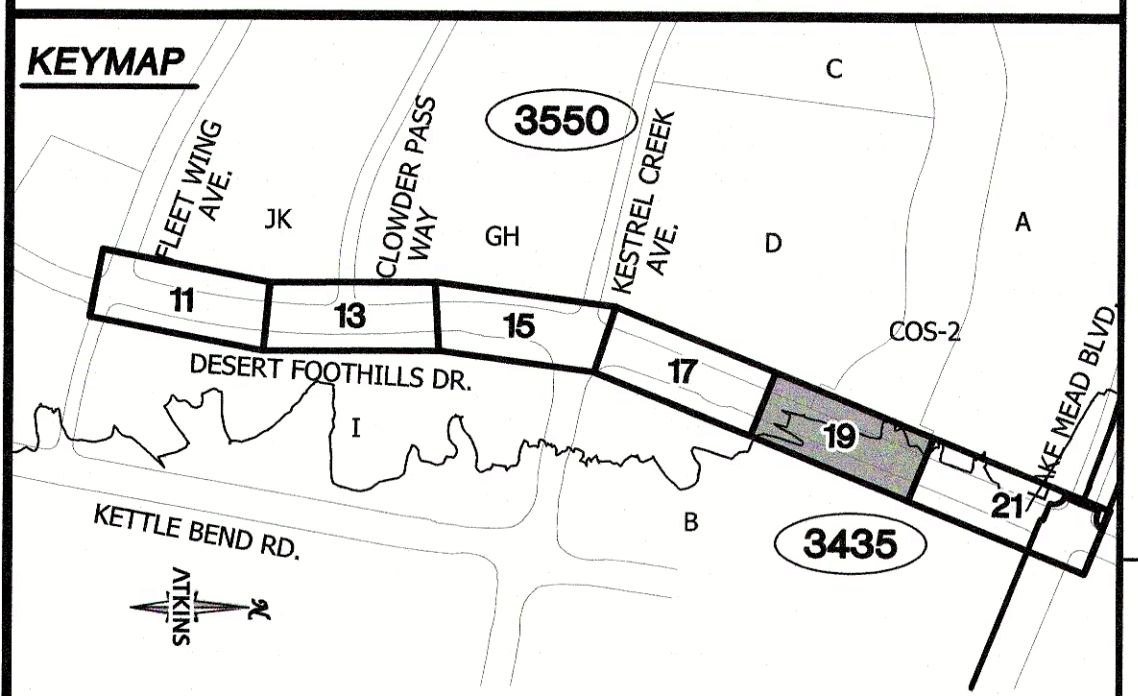


MATCHLINE STATION 272+60 - SEE SHEET 17

MATCHLINE STATION 277+00 - SEE SHEET 21

- ### STORM DRAIN CONSTRUCTION NOTES
1. INSTALL STORM DRAIN. SEE SHEET 41 FOR ADDITIONAL STORM DRAIN NOTES AND INFORMATION.
 2. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421
 3. INSTALL NDOT TYPE 2 DROP INLET PER NDOT R-4.2.1 (SEE SHEET 41)
 4. INSTALL TYPE II SD MANHOLE PER CCAUSD #405
 5. INSTALL TYPE II SD MANHOLE PER CCAUSD #405.2.
 6. INSTALL TYPE III SD MANHOLE PER CCAUSD #406
 7. REMOVE CAP AND CONNECT TO EXISTING STORM DRAIN STUB
 8. STUB & PLUG STORM DRAIN FOR FUTURE CONNECTION PER MANUFACTURER'S PLUG, OR APPROVED EQUAL SEE SHEET 41
 9. INSTALL RIP-RAP (D50=8", THICKNESS=16")
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 12. INSTALL MANHOLE WITH WATERTIGHT JOINTS.

- ### LVVWD CONSTRUCTION NOTES
1. EXISTING LVVWD FACILITY TO BE PROTECTED IN PLACE.
 2. ADJUST EXISTING WATER VALVE TO GRADE PER UDACS PLATE NO. 39.
 3. EXISTING LVVWD FACILITY TO BE RELOCATED.
- ### EXISTING LVVWD FACILITIES
- PROTECT IN PLACE AND ADJUST LVVWD EXISTING FACILITIES TO FINISHED GRADE PER UDACS. ALL LVVWD FACILITIES SHALL BE ACCESSIBLE AT ALL TIMES.



APPROVED FOR CONSTRUCTION

Paul Bates
LAS VEGAS VALLEY WATER DISTRICT
PLANNING AND ENGINEERING SERVICES
PROJECT NO. 136925 FIRST APPROVED DATE: 3/17/2021
LVVWD APPROVED FIRE FLOW 1500 GPM AT 20 PSI RESIDUAL

GRADING PLAN CERTIFICATION

PAUL BATES PE#18723 DATE 3/17/21
CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT. DS#5170

BASIS OF BEARING

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.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008) NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET) FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN. T21S,R59E,S03

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FEDERAL AND NATIONAL SYSTEMS OF TRANSPORTATION

Call before you dig
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1-800-642-2444

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PAUL A. BATES
REGISTERED PROFESSIONAL ENGINEER
No. 18723
03/03/21

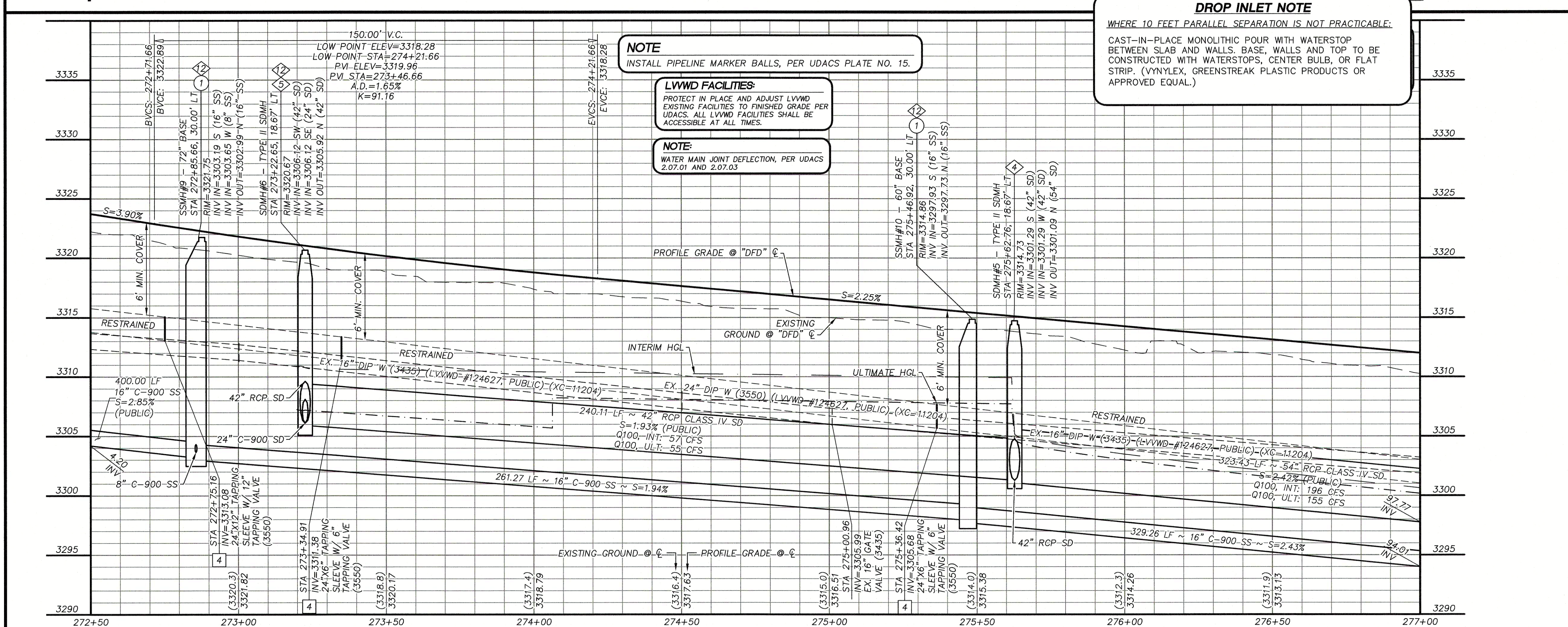
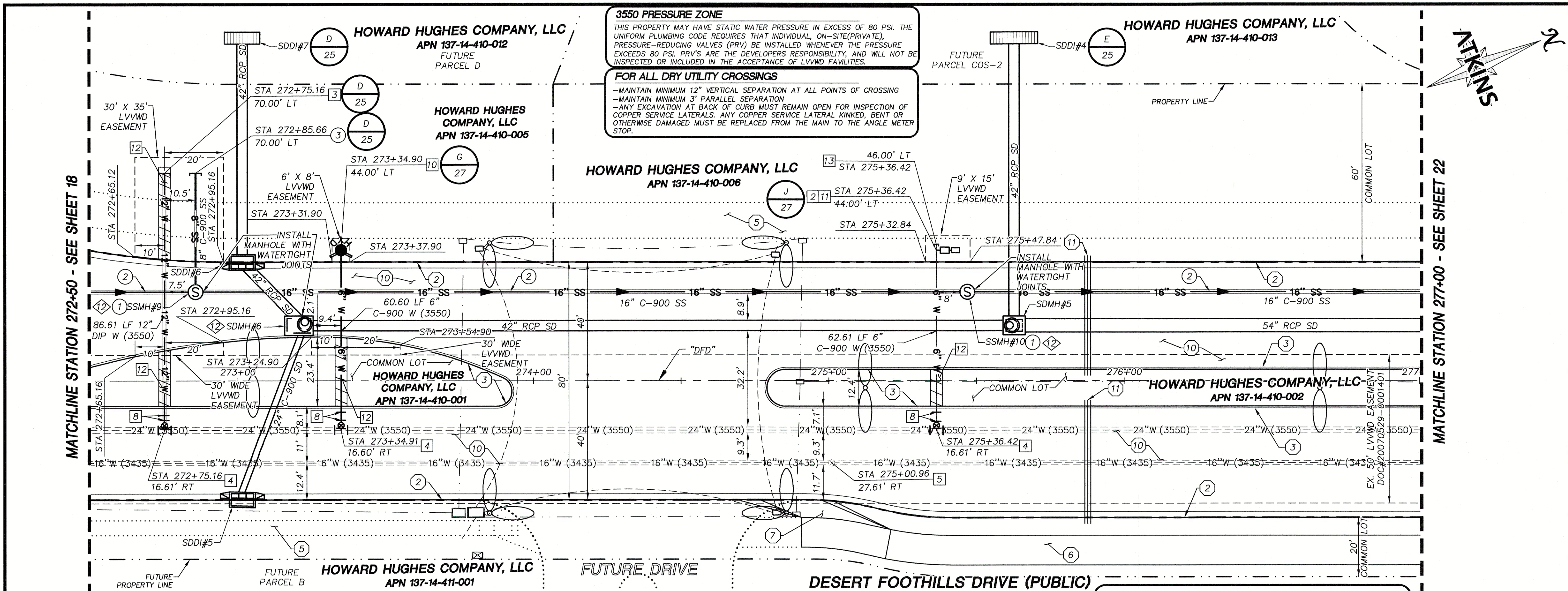
2270 Corporate Circle Suite 200
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Fax: +1702.263.7200

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE
FLEET WING AVENUE (STREET G) TO LAKE MEAD BOULEVARD
ROADWAY GRADING PLAN
STA. 272+50 TO STA. 277+00

DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMACLAY
CHECKED BY: P. BATES
HORIZ.: 1"=20'
VERT.: NONE

107/8165
CLV L19-027/45
DATE: MARCH, 2021
DRAWING NO.
19/52

JOB NO. 100060652



GRAPHIC SCALE

HORIZONTAL: 1"=20'

VERTICAL: 1"=5'

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT
PLANNING AND ENGINEERING SERVICES

PROJECT NO. 136925 FIRST APPROVED DATE: 3/17/2021

LVWMD APPROVED FIRE FLOW 1500 GPM AT 20 PSI RESIDUAL

GRADING PLAN CERTIFICATION

PAUL BATES PE#18723 DATE 3/17/21

CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.

DS#5170

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FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S,R59E,S03

FAST

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811

Call before you dig
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AVOID HITTING OVERHEAD POWER LINES

CALL BEFORE YOU DIG
1-702-227-2929

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- CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD #216
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- CONSTRUCT "L" TYPE ISLAND CURB PER CCAUSD #219
- FUTURE SIDEWALK BY OTHERS
- CONSTRUCT CONCRETE SIDEWALK PER CCAUSD #234
- CONSTRUCT CURB RAMP, TYPE A, PER NDOT STANDARD PLAN R-5.2.1 (A=B=6.5).
- CONSTRUCT 0" FLUSH CURB
- TRANSITION CURB FROM FULL HEIGHT (6") TO FLUSH (0")
- CONSTRUCT PLANTMIX BITUMINOUS SURFACE OVER TYPE II AGGREGATE BASE PER SOILS REPORT. SEE SHEET 40 FOR TYPICAL PAVEMENT SECTION.
- INSTALL SCHEDULE 40 PVC IRRIGATION SLEEVES (2-4", 1-6") PER DETAIL B ON SHEET 44

KEYMAP

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

DESIGNED BY: J. BATES
DRAWN BY: L. MANICLAY
CHECKED BY: P. BATES
DRAWING NO.: 20/52
DATE: MARCH, 2021
HORIZ. 1"=20'
VERT. 1"=5'

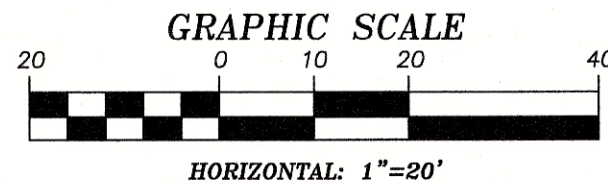
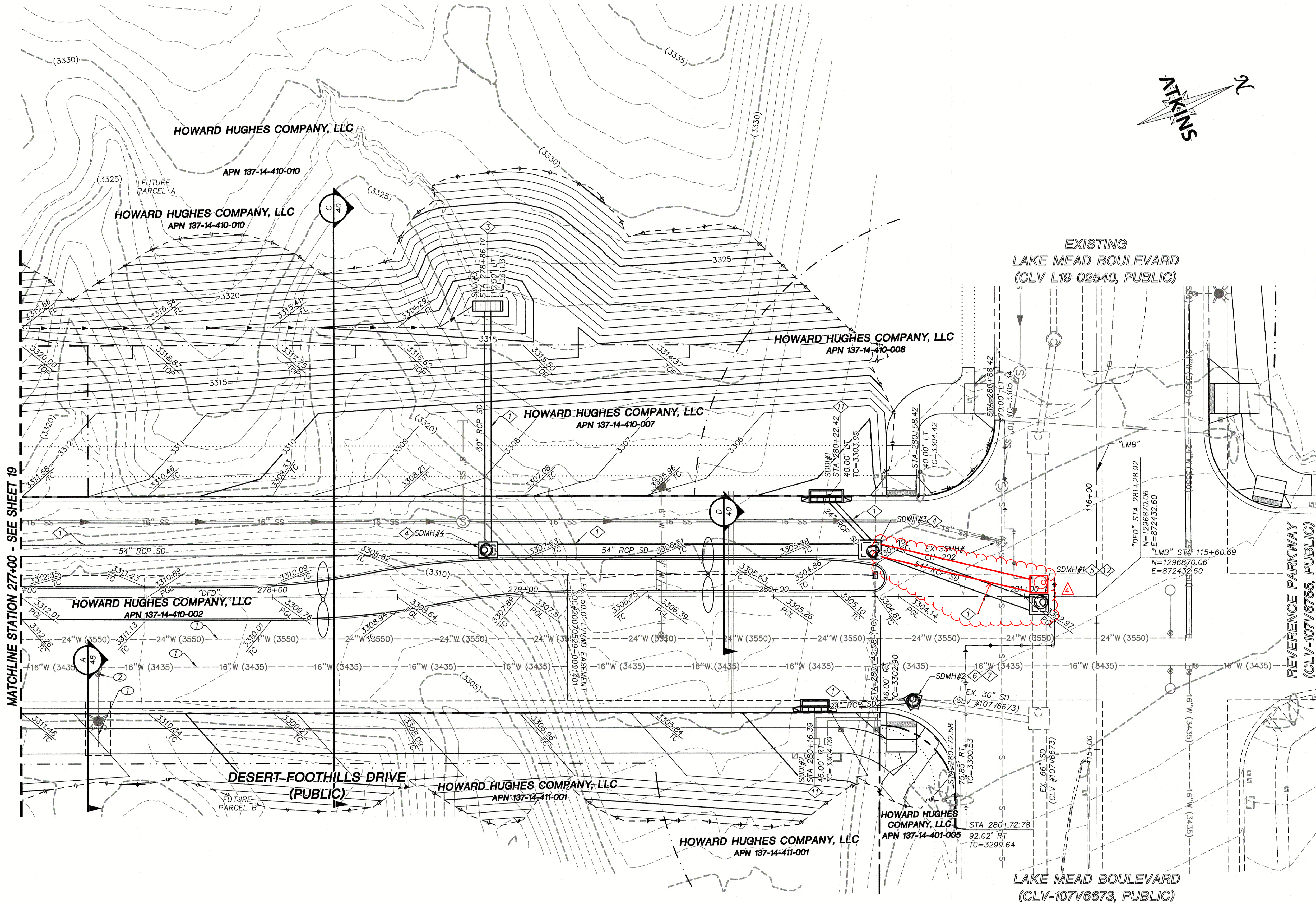
ATKINS
2270 Corporate Circle, Suite 200
Henderson, Nevada 89074
Telephone: +1702.263.7275
Fax: +1702.263.7200

SUMMERLIN

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE
FLEET WING AVENUE (STREET 6) TO LAKE MEAD BOULEVARD
STA. 272+50 TO STA. 277+00

JOB NO. 100060652

MATCHLINE STATION 277+00 - SEE SHEET 19



APPROVED FOR CONSTRUCTION

Paul Bates
LAS VEGAS VALLEY WATER DISTRICT
PLANNING AND ENGINEERING SERVICES
PROJECT NO. 136925 FIRST APPROVED DATE: 3/17/2021
LVVWD APPROVED FIRE FLOW 1500 GPM AT 20 PSI RESIDUAL

GRADING PLAN CERTIFICATION

Paul Bates PE#18723 DATE: 3/17/21
CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT. DS#5170

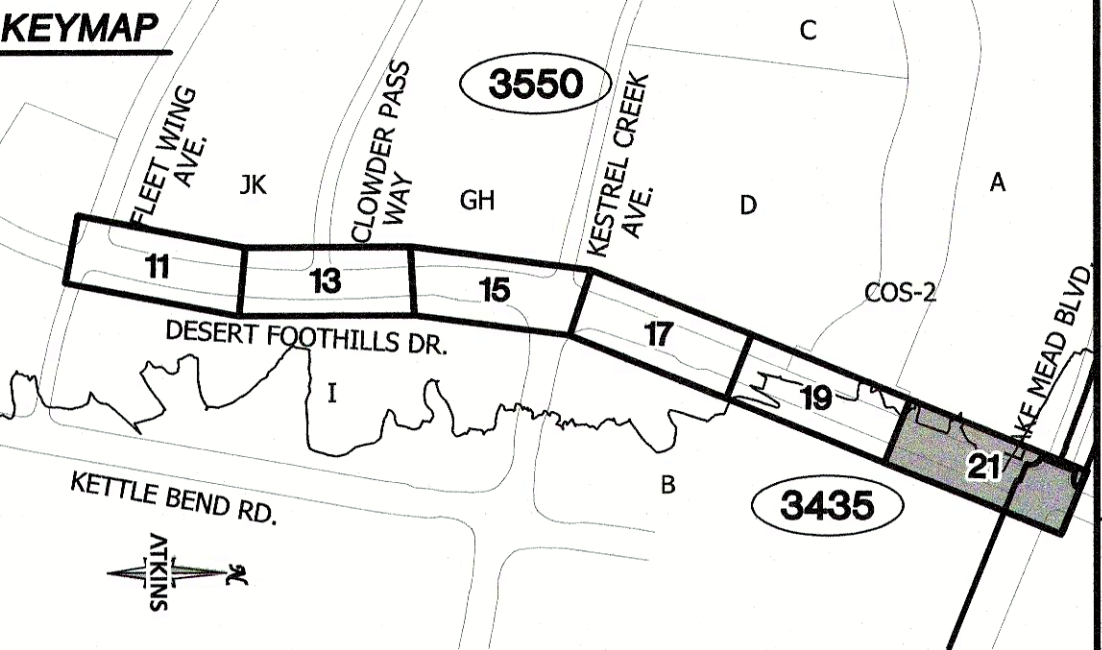
BASIS OF BEARING
GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

BENCHMARK
CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S, R59E, S03

FAST Call before you dig
1-702-432-6300
1-800-842-2444

Call before you dig
811
1-800-842-2444

Call before you dig
1-702-227-2929



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

PAUL A. BATES
PE#18723
CIVIL
03/03/21

- STORM DRAIN CONSTRUCTION NOTES**
1. INSTALL STORM DRAIN. SEE SHEET 41 FOR ADDITIONAL STORM DRAIN NOTES AND INFORMATION.
 2. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421
 3. INSTALL NDOT TYPE 2 DROP INLET PER NDOT R-4.2.1 (SEE SHEET 41)
 4. INSTALL TYPE II SD MANHOLE PER CCAUSD #405
 5. INSTALL TYPE II SD MANHOLE PER CCAUSD #405.2.
 6. INSTALL TYPE III SD MANHOLE PER CCAUSD #406
 7. REMOVE CAP AND CONNECT TO EXISTING STORM DRAIN STUB
 8. STUB & PLUG STORM DRAIN FOR FUTURE CONNECTION PER MANUFACTURER'S PLUG, OR APPROVED EQUAL SEE SHEET 41
 9. INSTALL RIP-RAP (D50=8", THICKNESS=16")
 10. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421 AND DETAIL D ON SHEET 41
 11. INSTALL TYPE "CM" DROP INLET PER CCAUSD #421 & #422
 12. INSTALL MANHOLE WITH WATERTIGHT JOINTS.

- LVVWD CONSTRUCTION NOTES**
1. EXISTING LVVWD FACILITY TO BE PROTECTED IN PLACE.
 2. ADJUST EXISTING WATER VALVE TO GRADE PER UDACS PLATE NO. 39.
 3. EXISTING LVVWD FACILITY TO BE RELOCATED.
- EXISTING LVVWD FACILITIES**
- PROTECT IN PLACE AND ADJUST LVVWD EXISTING FACILITIES TO FINISHED GRADE PER UDACS. ALL LVVWD FACILITIES SHALL BE ACCESSIBLE AT ALL TIMES.

ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1702.263.7755
Fax: +1702.263.7200

SUMMERLIN

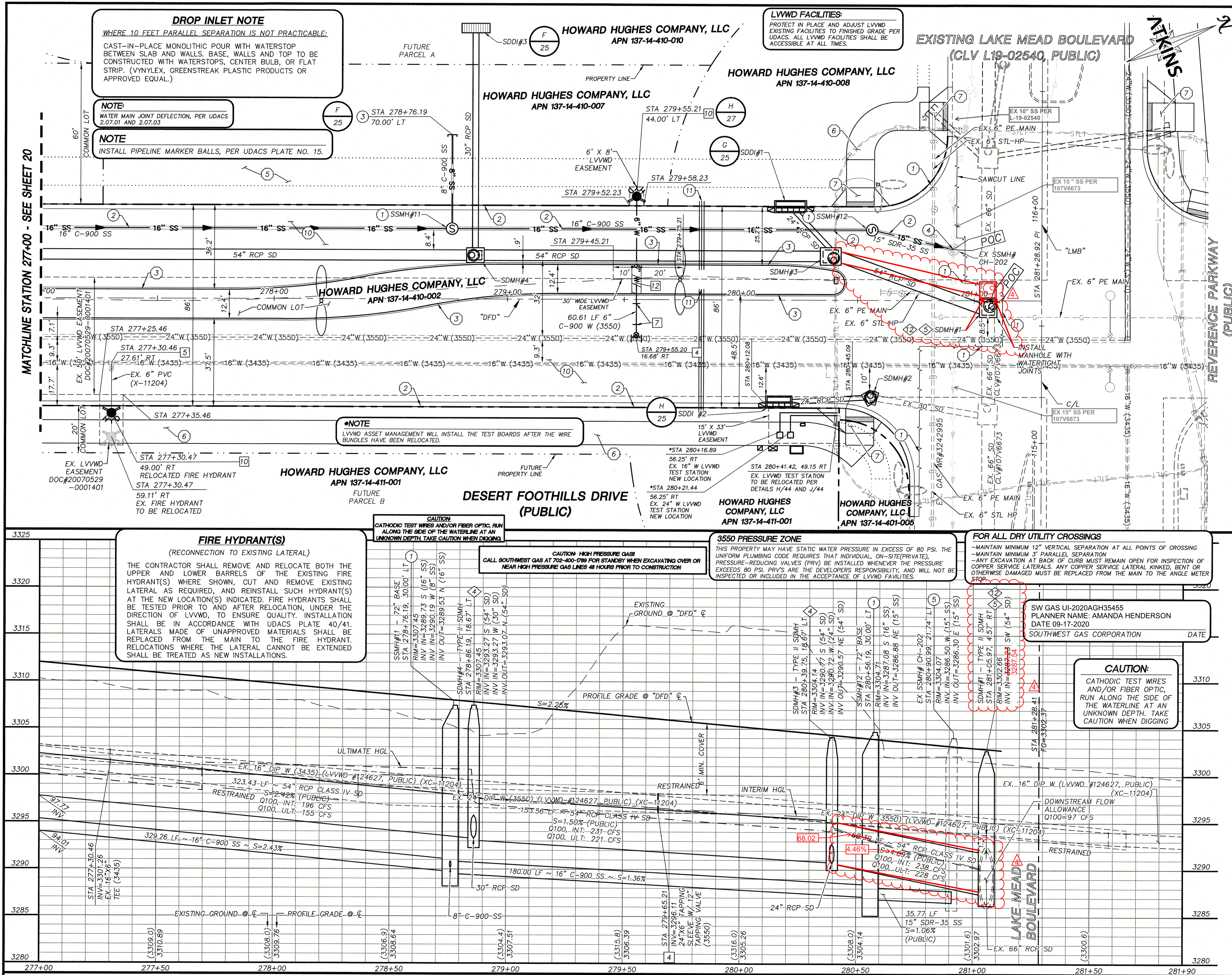
SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE
FLEET WING AVENUE (STREET 6) TO LAKE MEAD BOULEVARD
ROADWAY GRADING PLAN
STA 277+00 TO END

DESIGNED BY: N. BARCOS
DATE: 03/19/21
CHECKED BY: L. WACCLAY
DRAWING NO.: 136925
HORIZ.: 1"=20'
VERT.: NONE

10718.65
CLV L19-02745
DATE: MARCH, 2021
DRAWING NO.: 136925
HORIZ.: 1"=20'
VERT.: NONE

21/52

JOB NO. 100060652

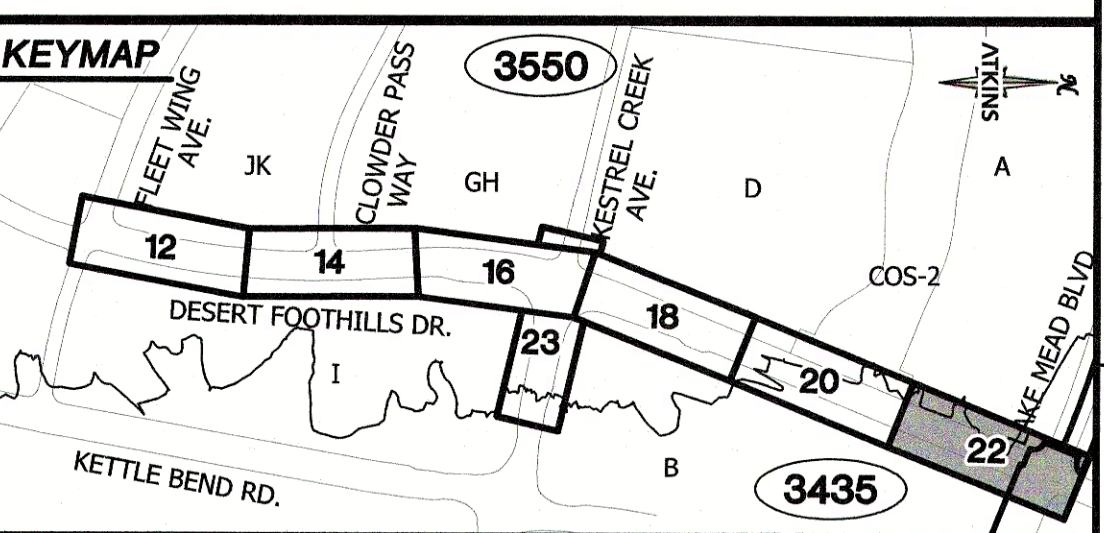


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 12. INSTALL MANHOLE WITH WATERTIGHT JOINTS.

- SEWER CONSTRUCTION NOTES**
1. INSTALL SEWER MANHOLE PER DCSWCS SD-1 AND SD-4 WITH DUAL CONCENTRIC LIDS PER SD-2 AND WITH CORROSION PROTECTION PER DCSWCS 3.16.8.
 2. INSTALL SEWER MAIN PER DCSWCS SD-17. WHERE CURVED PIPE RADIUS IS LESS THAN 1150', CONSTRUCT IN 10' SECTIONS OF CURVED SEWER PER DCSWCS 2.3.4.5
 3. STUB AND CAP SEWER PIPE. PLACE 4"x4" POST, DOUGLAS FIR, OVER END OF PIPE AND INSTALL THRUST BLOCK (1 CU.FT. MIN).
 4. CONNECT TO EXISTING SANITARY SEWER MANHOLE. CORE DRILL AND REFORM. SMH BASE PER DCSWCS SD-9, AND ADD CORROSION PROTECTION PER DCSWCS 3.16.8
 5. ADJUST EXISTING MANHOLE TO GRADE PER DCSWCS SD-5.
 6. PROTECT SEWER AT UTILITY CROSSING PER DCSWCS SD-19

- WATERLINE CONSTRUCTION NOTES**
1. INSTALL WATER MAIN WITH MECHANICALLY RESTRAINED JOINTS PER UDACS PLATES #17 AND #19
 2. INSTALL 1.5" SERVICE SADDLE PER UDACS PLATE #4
 3. INSTALL CAP AND 2" MANUAL BLOWOFF ASSEMBLY
 4. INSTALL TAPPING SLEEVE WITH TAPPING VALVE, AND LATERAL PER UDACS PLATES #17, #19, #30, #34, AND #39 & SECTION 2.24.01 A(>75%) AND 2.24.01 B(<75%)
 5. ADJUST GATE VALVE TO GRADE PER UDACS PLATE #39
 6. INSTALL 5" BEND WITH MECHANICALLY RESTRAINED JOINTS
 7. INSTALL 22.5" BEND WITH MECHANICALLY RESTRAINED JOINTS
 8. INSTALL 45" BEND WITH MECHANICALLY RESTRAINED JOINTS
 9. REMOVE CAP AND 2" BLOWOFF AND CONNECT TO EXISTING WATERLINE STUB
 10. INSTALL FIRE HYDRANT WITH APPURTENANCES (CONCRETE PAD, LATERAL VALVE, AND TEE) PER UDACS PLATES #30, #31, #39, AND #40.
 11. INSTALL 1-1/2" IRRIGATION METER WITH 1-1/2" RPPA PER UDACS PLATES #4 AND #8 AND DETAIL D ON SHEET 44
 12. BACKFILL TRENCH ZONE WITH CLASS I CLSM
 13. INSTALL END CAP WITH MECHANICALLY RESTRAINED JOINTS
 14. INSTALL 6" BLOW-OFF VALVE PER UDACS PLATE NO. 37

- ROADWAY CONSTRUCTION NOTES**
1. SAWCUT AND MATCH EXISTING
 2. CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD #216
 3. CONSTRUCT "A" TYPE ISLAND CURB PER CCAUSD #219
 4. CONSTRUCT "L" TYPE ISLAND CURB PER CCAUSD #219
 5. FUTURE SIDEWALK BY OTHERS
 6. CONSTRUCT CONCRETE SIDEWALK PER CCAUSD #234
 7. CONSTRUCT CURB RAMP, TYPE A, PER NDOT STANDARD PLAN R-5.2.1 (A=B=6.5').
 8. CONSTRUCT 0" FLUSH CURB
 9. TRANSITION CURB FROM FULL HEIGHT (6") TO FLUSH (0")
 10. CONSTRUCT PLANTMIX BITUMINOUS SURFACE OVER TYPE II AGGREGATE BASE PER SOILS REPORT. SEE SHEET 40 FOR TYPICAL PAVEMENT SECTION.
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UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE. ONLY IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: 702.263.7275
Fax: 702.263.7260

SUMMERLIN
ROADWAY PLAN AND PROFILE
STA. 277+00 TO END

DESIGNED BY:
N. BARCOS
DATE: 03/03/21

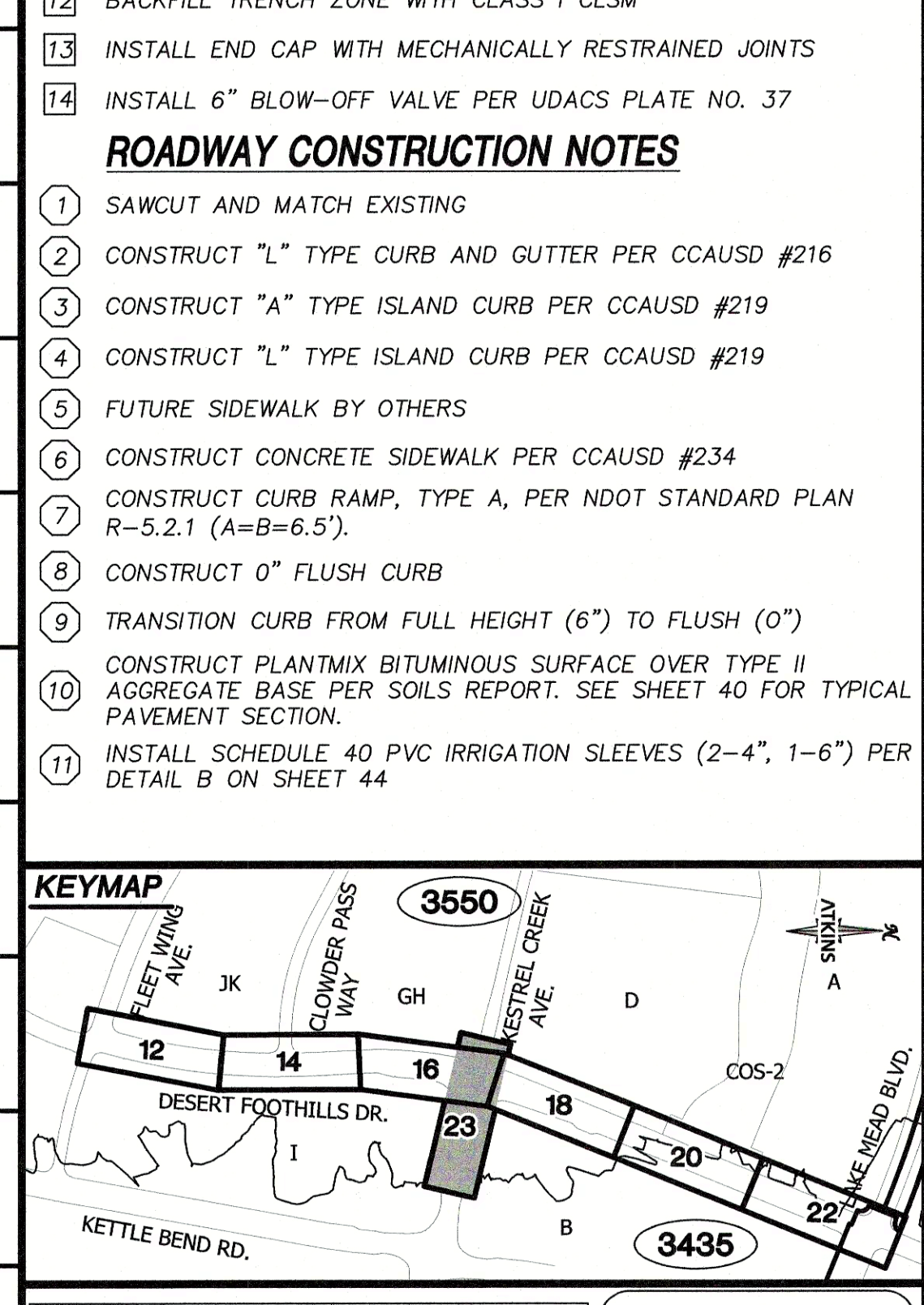
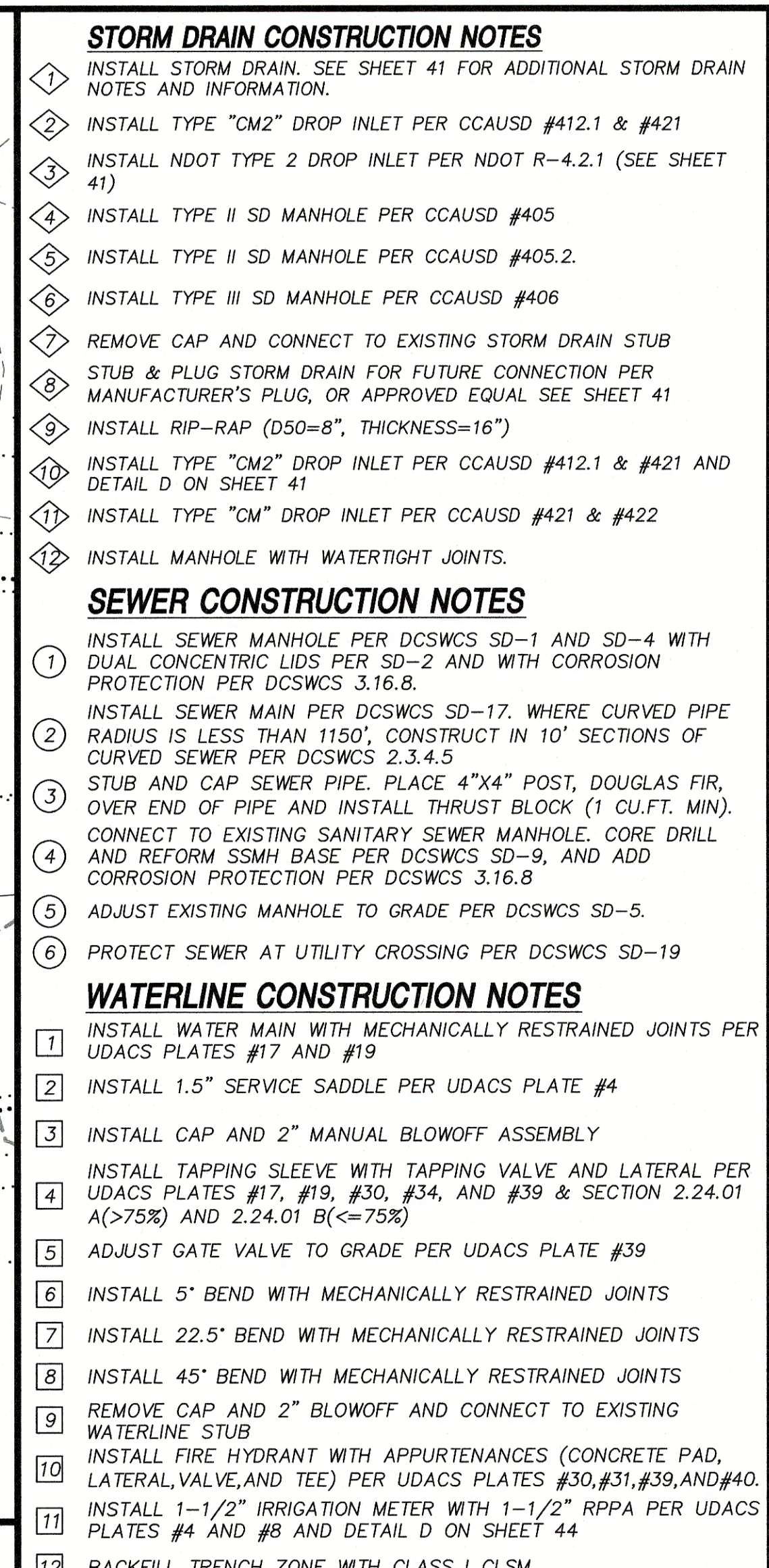
CHECKED BY:
P. BATES
DATE: 03/03/21

DRAWING NO.
22/52

JOB NO.
100060652

REVISIONS

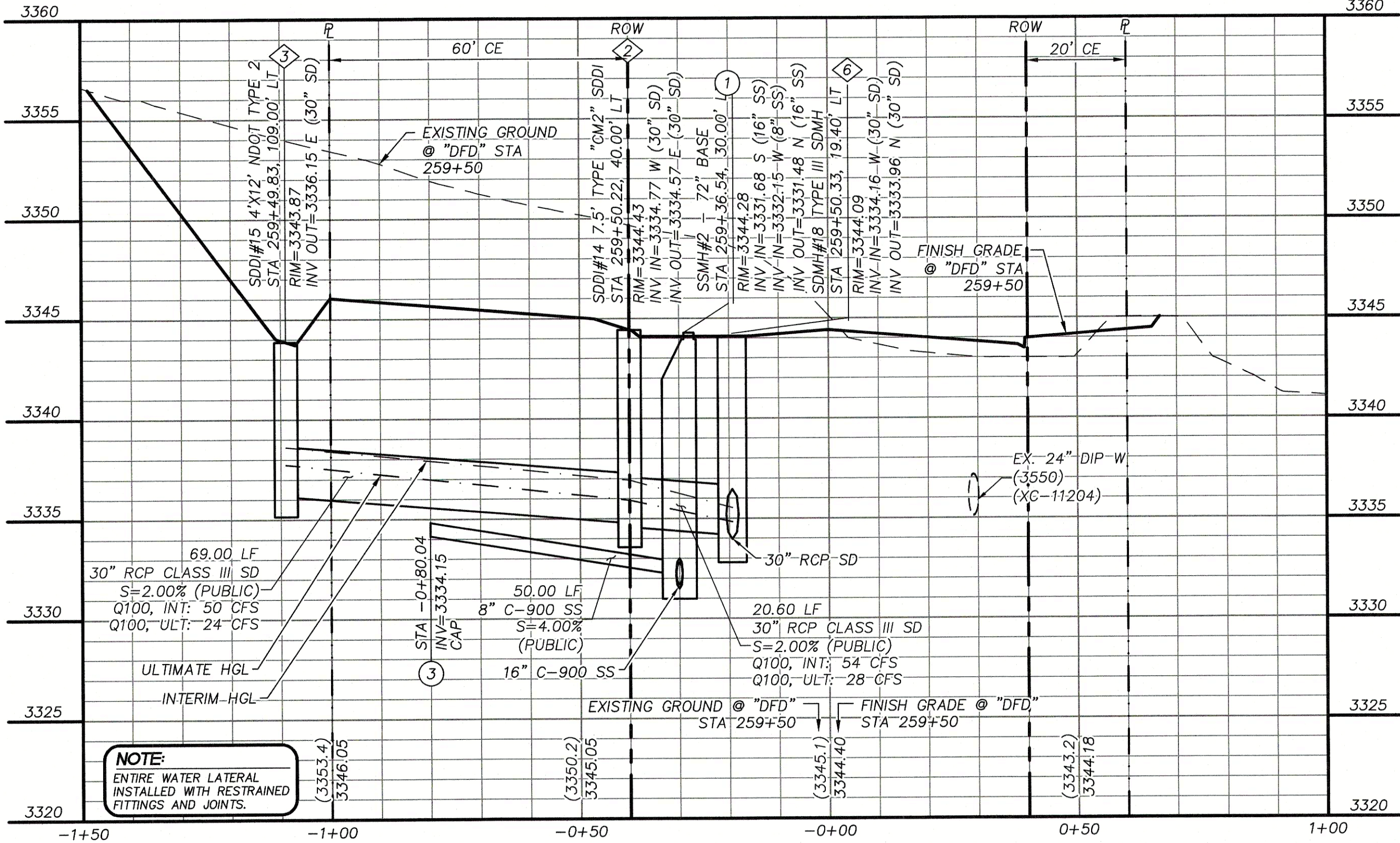
NO.	DESCRIPTION	DATE	BY	APPROVAL
1	SHIFT STORM DRAIN TO AVOID GAS CONFLICT	03/03/21	JLK	



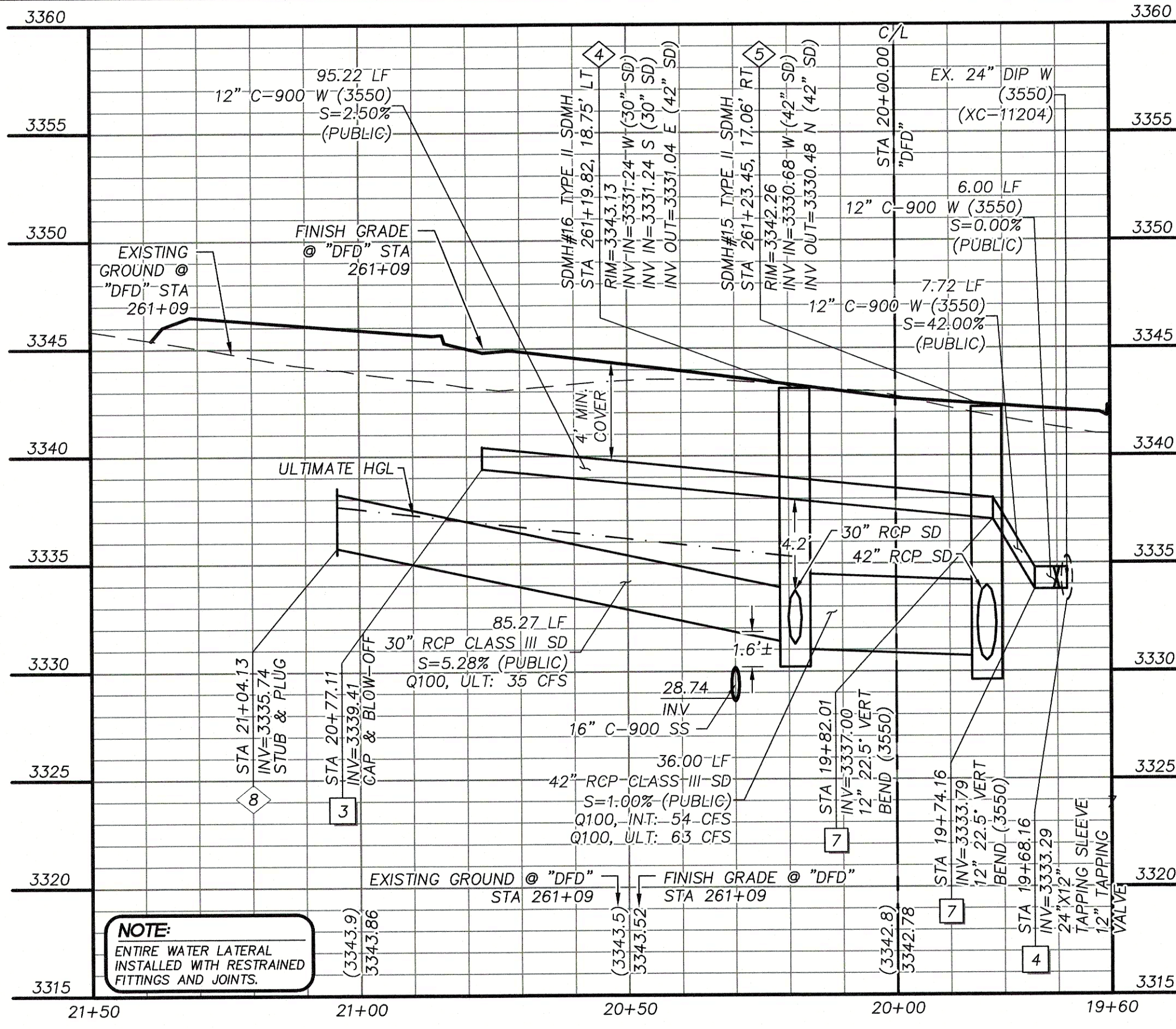
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PAUL A. BATES
D.P. 0-31-02
CIVIL
No. 18728

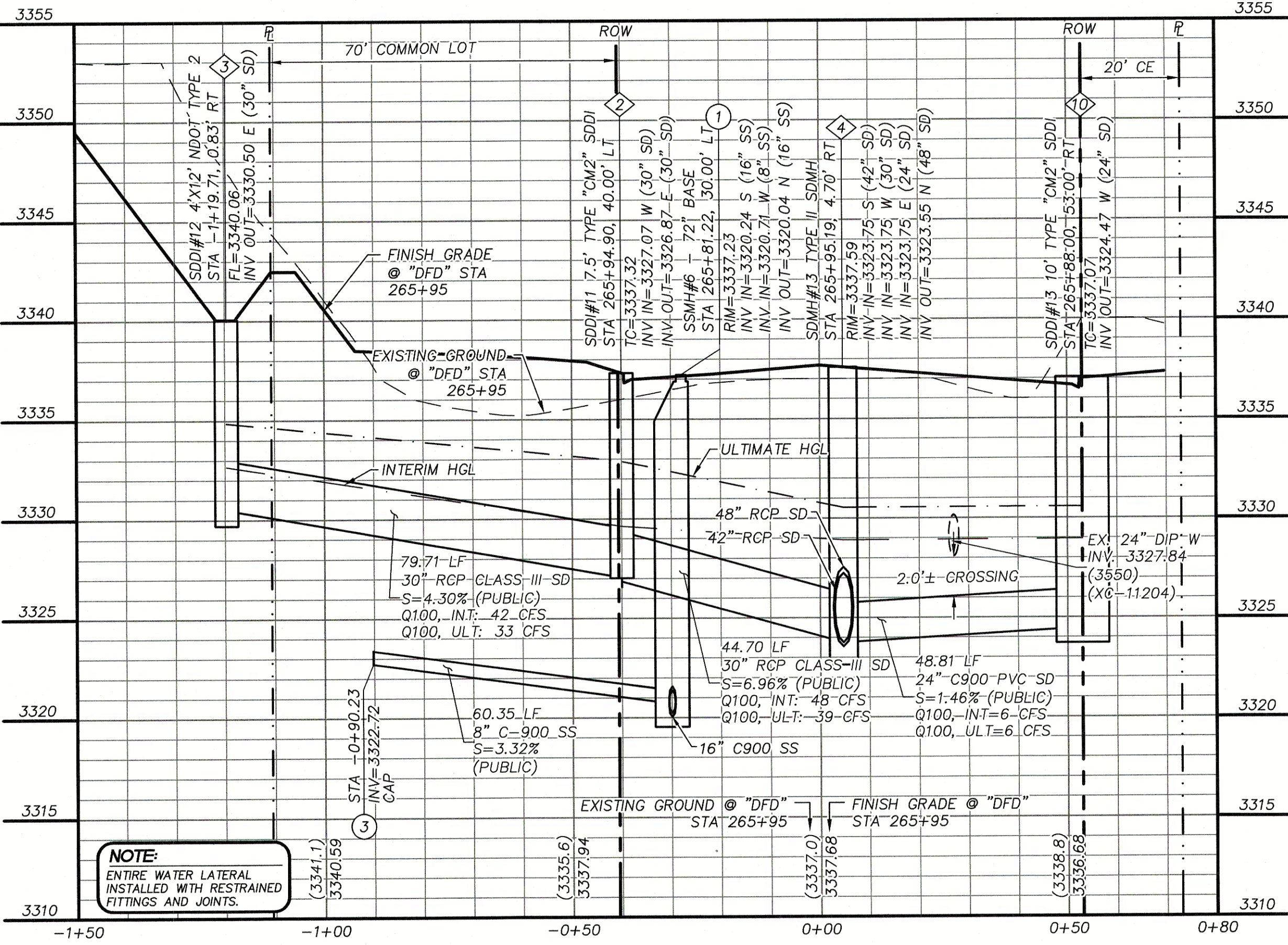
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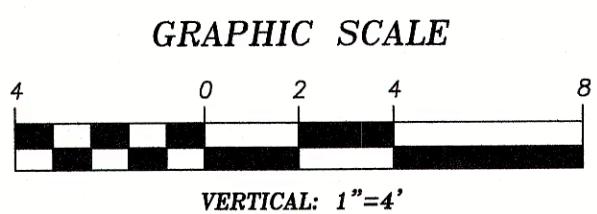
STORM DRAIN LATERAL PROFILE
"DFD" STA. 259+50 SEE SHEET 14



STORM DRAIN LATERAL PROFILE
"DFD" STA. 261+09 SEE SHEET 14



STORM DRAIN LATERAL PROFILE
"DFD" STA. 265+95 SEE SHEET 16



CAUTION:

CATHODIC TEST WIRES AND/OR FIBER OPTIC RUN ALONG THE SIDE OF THE WATERLINE AT AN UNKNOWN DEPTH. TAKE CAUTION WHEN DIGGING.

APPROVED FOR CONSTRUCTION

DISHA
LAS VEGAS VALLEY WATER DISTRICT
PLANNING AND ENGINEERING SERVICES

PROJECT NO. 136925 FIRST APPROVED DATE: 3/17/2021
LVVWD APPROVED FIRE FLOW 1500 GPM AT 20 PSI RESIDUAL

BASIS OF BEARING

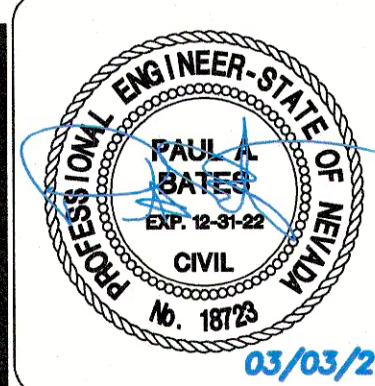
GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS). LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
721S,R59E,S03



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DESIGNED BY: 1078165
N. BARCOS
DRAWN BY: CLY L19-02745
CHECKED BY: DATE: MARCH, 2021
F. BATES
DRAWING NO. 24/52
HORIZ: NONE
VERT: 1"=4'
JOB NO. 100060652

STORM DRAIN CONSTRUCTION NOTES

1. INSTALL STORM DRAIN. SEE SHEET 41 FOR ADDITIONAL STORM DRAIN NOTES AND INFORMATION.
2. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421
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12. INSTALL MANHOLE WITH WATERTIGHT JOINTS.

SEWER CONSTRUCTION NOTES

1. INSTALL SEWER MANHOLE PER DCSWCS SD-1 AND SD-4 WITH DUAL CONCENTRIC LIDS PER SD-2 AND WITH CORROSION PROTECTION PER DCSWCS 3.16.8.
2. INSTALL SEWER MAIN PER DCSWCS SD-17. WHERE CURVED PIPE RADIUS IS LESS THAN 1150', CONSTRUCT IN 10' SECTIONS OF CURVED SEWER PER DCSWCS 2.3.4.5
3. STUB AND CAP SEWER PIPE. PLACE 4"x4" POST, DOUGLAS FIR, OVER END OF PIPE AND INSTALL THRUST BLOCK (1 CU.FT. MIN). CONNECT TO EXISTING SANITARY SEWER MANHOLE. CORE DRILL AND REFORM SSMH BASE PER DCSWCS SD-9, AND ADD CORROSION PROTECTION PER DCSWCS 3.16.8
5. ADJUST EXISTING MANHOLE TO GRADE PER DCSWCS SD-5.
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WATERLINE CONSTRUCTION NOTES

1. INSTALL WATER MAIN WITH MECHANICALLY RESTRAINED JOINTS PER UDACS PLATES #17 AND #19
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4. INSTALL TAPPING SLEEVE WITH TAPPING VALVE AND LATERAL PER UDACS PLATES #17, #19, #30, #34, AND #39 & SECTION 2.24.01 A(>75%) AND 2.24.01 B(<=75%)
5. ADJUST GATE VALVE TO GRADE PER UDACS PLATE #39
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12. BACKFILL TRENCH ZONE WITH CLASS I CLSM
13. INSTALL END CAP WITH MECHANICALLY RESTRAINED JOINTS
14. INSTALL 6" BLOW-OFF VALVE PER UDACS PLATE NO. 37

ROADWAY CONSTRUCTION NOTES

CONTROLLED LOW STRENGTH MATERIAL (CLSM)

PROTECT WATERLINES IN PLACE. WHEREVER A WATERLINE IS ABOVE A STORM DRAIN OR SEWER WHERE COMPACTION REQUIREMENTS UNDER A WATERLINE CANNOT BE MET BACKFILL TRENCH WITH CLASS II CONTROLLED LOW STRENGTH MATERIAL (CLSM) TO THE SPRINGLINE OF THE WATERLINE. THIS REQUIREMENT IS FOR STRUCTURAL SUPPORT ONLY. ADDITIONAL LOCAL REGULATIONS MAY APPLY PER UDACS 2.22

FOR FIRE HYDRANT PAD ELEVATIONS AND GRADES REFER TO THE FINISHED GRADE INDICATED ON SHEETS 11, 13, 15, 17, 19, 21 AND THE HYDRANT PAD DETAIL ON SHEET 44.

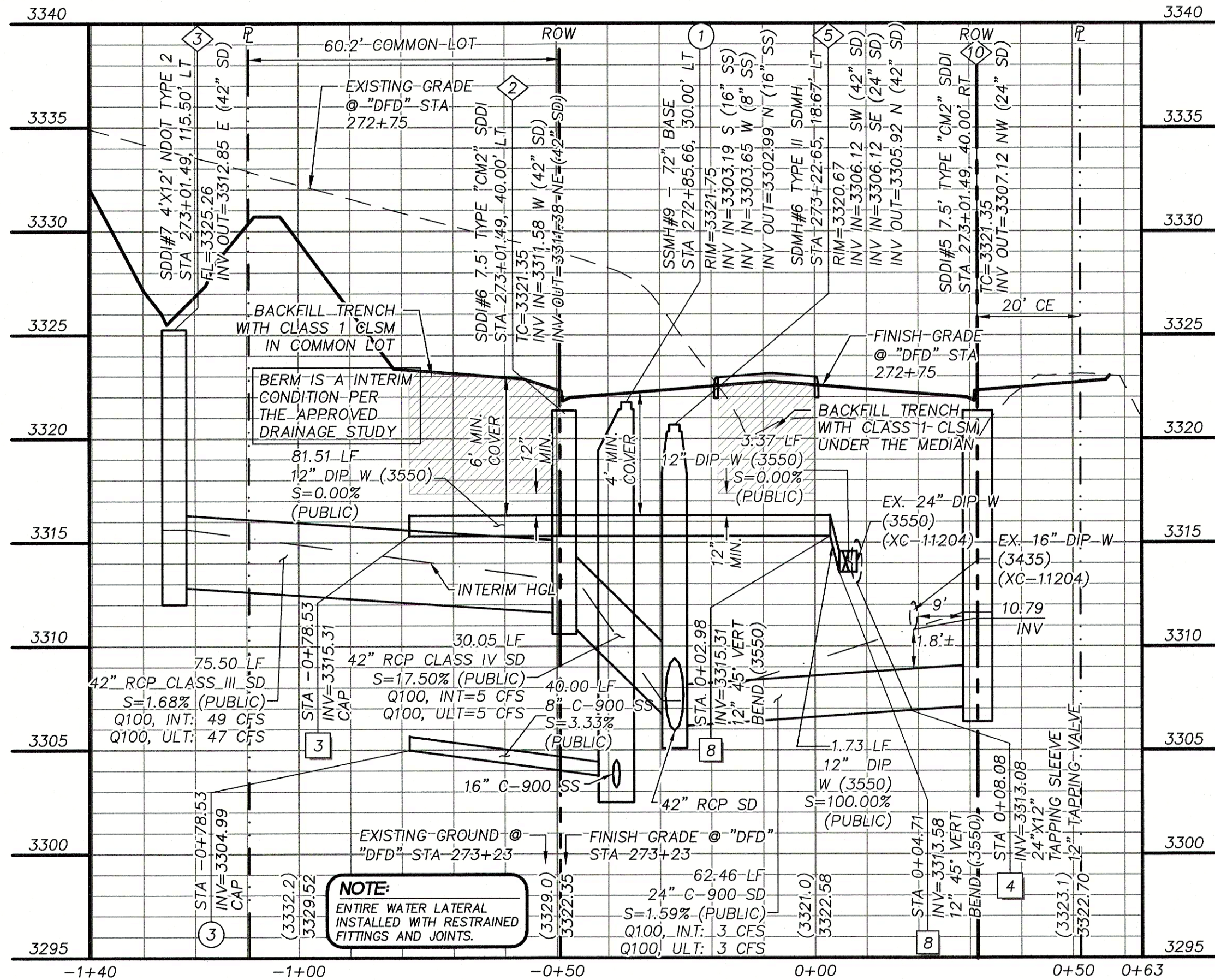
CONTRACTOR SHALL SUBMIT STRUCTURAL CALCULATIONS PREPARED BY A NEVADA LICENSED STRUCTURAL ENGINEER FOR CROSSING WITH WATER WHERE THE TRENCH IS SIX (6) FEET OR GREATER. CONTACT ENGINEERING SERVICES FOR INDICATIONS ON PACKAGE SUBMITTAL. PIPE SUPPORT PLANS MUST BE SUBMITTED A MINIMUM OF 30 DAYS PRIOR TO COMMENCEMENT OF WORK. PIPE SUPPORTS FOR TRANSMISSION MAINS (24-INCH AND LARGER) WILL BE LIMITED TO A MAXIMUM OF 1 WEEK. A SCHEDULE OF WATER MAINS SUPPORTED MUST BE PROVIDED TO LVVWD ENGINEERING SERVICES.

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", TRANSMISSION MAIN STRUCTURAL SUPPORT.

NOTE: ALL WATERLINE LATERALS ARE CONNECTED TO THE 24" 3550 WATER MAIN.

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE
FLEET WING AVENUE (STREET G) TO LAKE MEAD BOULEVARD

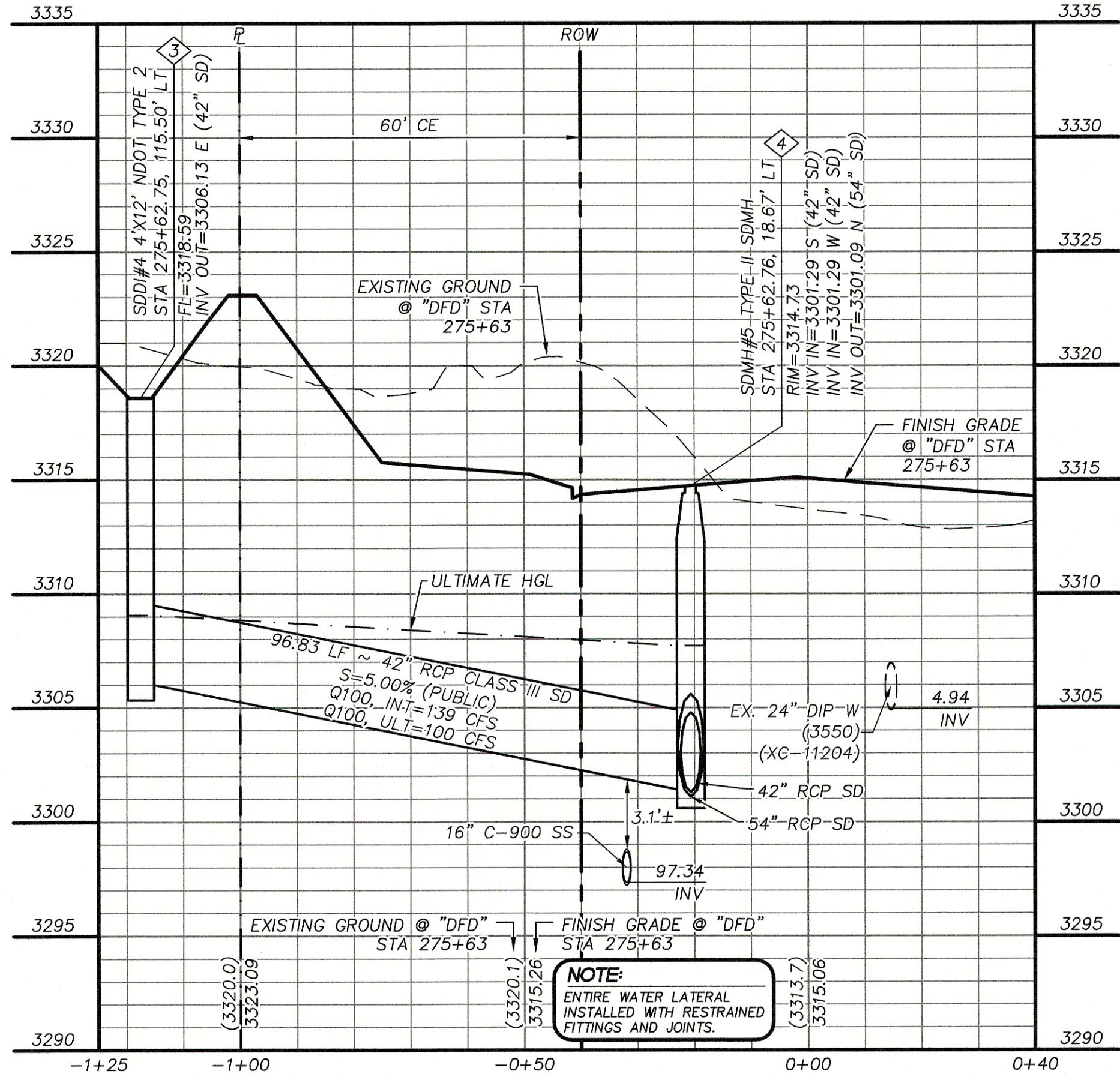
STORM DRAIN LATERAL PROFILES



STORM DRAIN LATERAL PROFILE

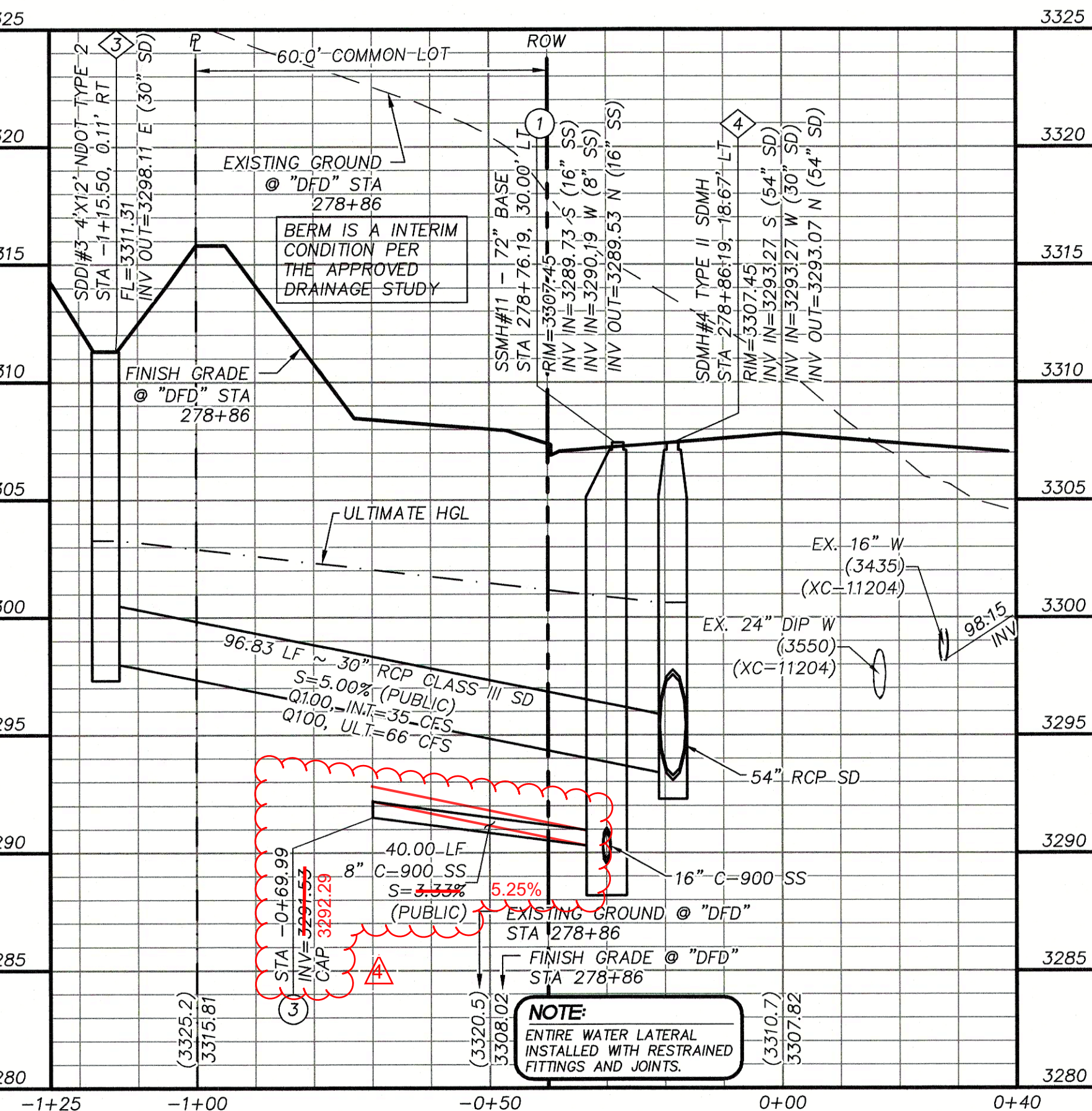
"DFD" STA. 272+75 SEE SHEET 20

CAUTION:
CATHODIC TEST WIRES AND/OR FIBER OPTIC, RUN ALONG THE SIDE OF THE WATERLINE AT AN UNKNOWN DEPTH. TAKE CAUTION WHEN DIGGING



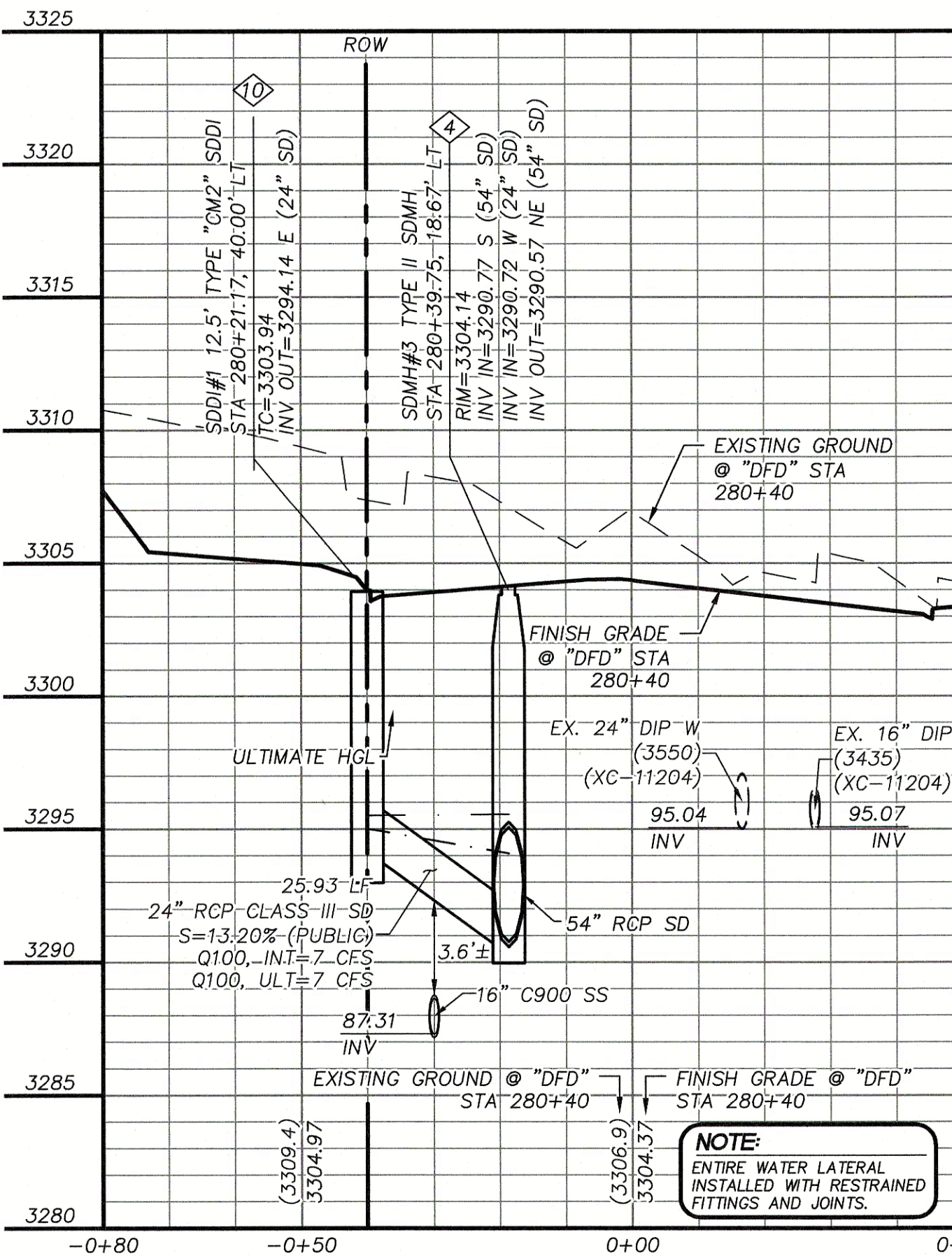
STORM DRAIN LATERAL PROFILE

"DFD" STA. 275+63 SEE SHEET 20



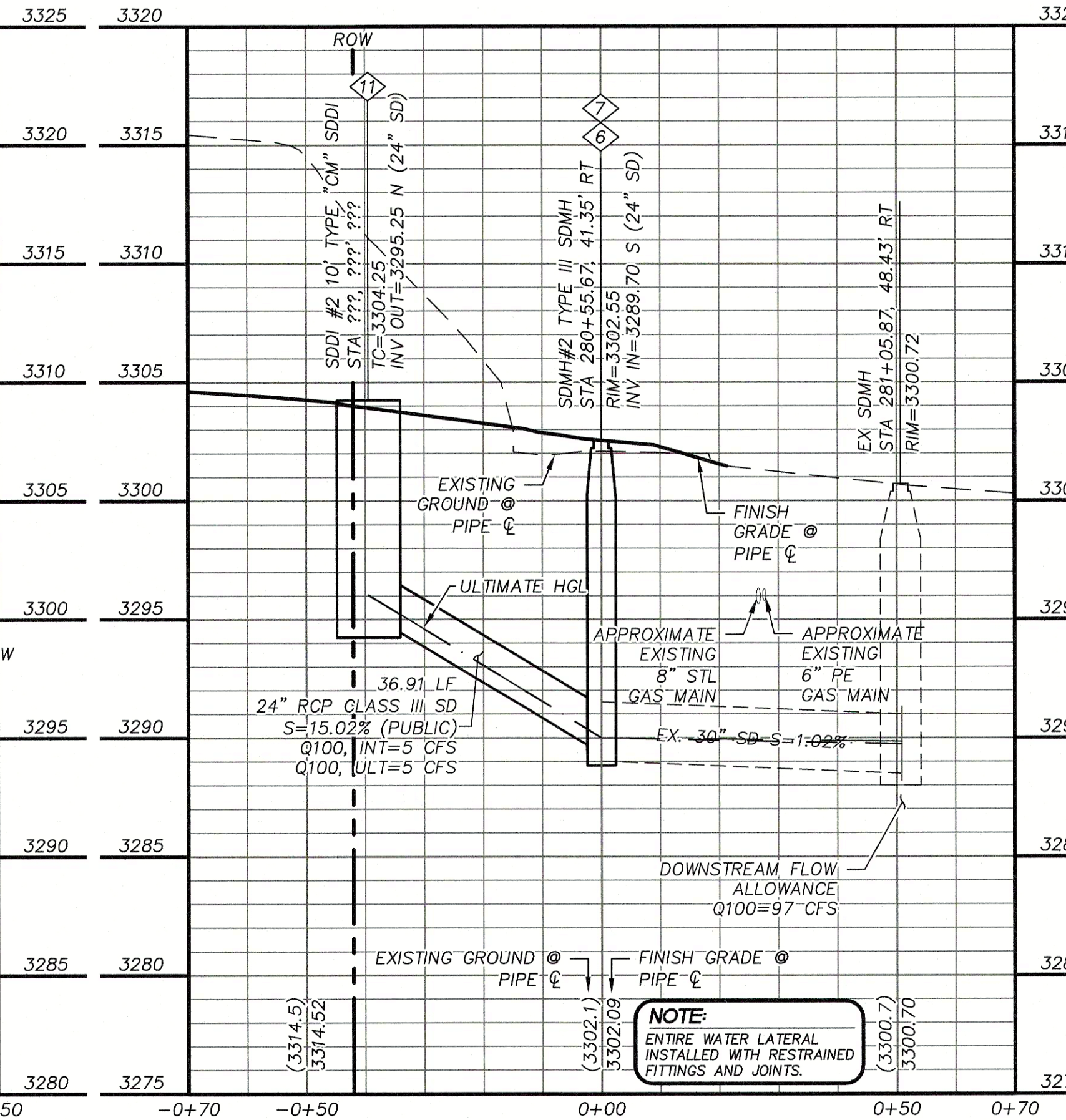
STORM DRAIN LATERAL PROFILE

"DFD" STA. 278+86 SEE SHEET 22



STORM DRAIN LATERAL PROFILE

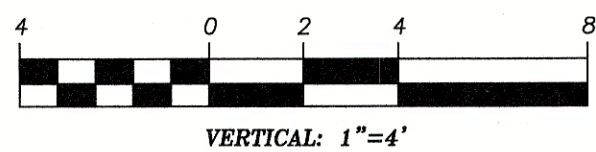
"DFD" STA. 280+40 SEE SHEET 22



STORM DRAIN LATERAL PROFILE

"DFD" @ PIPE @ SEE SHEET 22

GRAPHIC SCALE



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. (VYNLEK, GREENSTREAK PLASTIC PRODUCTS OR APPROVED EQUAL.)

APPROVED FOR CONSTRUCTION

Las Vegas Valley Water District
LAS VEGAS VALLEY WATER DISTRICT
PLANNING AND ENGINEERING SERVICES
PROJECT NO. 136925 FIRST APPROVED DATE: 3/17/2021
LVVWD APPROVED FIRE FLOW 1500 GPM AT 20 PSI RESIDUAL

BASIS OF BEARING

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.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S,R59E,S03



STORM DRAIN CONSTRUCTION NOTES

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4. INSTALL TYPE II SD MANHOLE PER CCAUSD #405
5. INSTALL TYPE II SD MANHOLE PER CCAUSD #405.2.
6. INSTALL TYPE III SD MANHOLE PER CCAUSD #406
7. REMOVE CAP AND CONNECT TO EXISTING STORM DRAIN STUB
8. STUB & PLUG STORM DRAIN FOR FUTURE CONNECTION PER MANUFACTURER'S PLUG, OR APPROVED EQUAL SEE SHEET 41
9. INSTALL RIP-RAP (D50=8", THICKNESS=16")
10. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421 AND DETAIL D ON SHEET 41
11. INSTALL TYPE "CM" DROP INLET PER CCAUSD #421 & #422
12. INSTALL MANHOLE WITH WATERTIGHT JOINTS.

SEWER CONSTRUCTION NOTES

1. INSTALL SEWER MANHOLE PER DCSWCS SD-1 AND SD-4 WITH DUAL CONCENTRIC LIDS PER SD-2 AND WITH CORROSION PROTECTION PER DCSWCS 3.16.8.
2. INSTALL SEWER MAIN PER DCSWCS SD-17, WHERE CURVED PIPE RADIUS IS LESS THAN 1150', CONSTRUCT IN 10' SECTIONS OF CURVED SEWER PER DCSWCS 2.3.4.5
3. STUB AND CAP SEWER PIPE. PLACE 4"x4" POST, DOUGLAS FIR, OVER END OF PIPE AND INSTALL THRUST BLOCK (1 CU.FT. MIN). CONNECT TO EXISTING SANITARY SEWER MANHOLE. CORE DRILL AND REFORM SSMH BASE PER DCSWCS SD-9, AND ADD CORROSION PROTECTION PER DCSWCS 3.16.8
5. ADJUST EXISTING MANHOLE TO GRADE PER DCSWCS SD-5.
6. PROTECT SEWER AT UTILITY CROSSING PER DCSWCS SD-19

WATERLINE CONSTRUCTION NOTES

1. INSTALL WATER MAIN WITH MECHANICALLY RESTRAINED JOINTS PER UDACS PLATES #17 AND #19
2. INSTALL 1.5" SERVICE SADDLE PER UDACS PLATE #4
3. INSTALL CAP AND 2" MANUAL BLOWOFF ASSEMBLY
4. INSTALL TAPPING SLEEVE WITH TAPPING VALVE AND LATERAL PER UDACS PLATES #17, #19, #30, #34, AND #39 & SECTION 2.24.01 A(>75%) AND 2.24.01 B(<=75%)
5. ADJUST GATE VALVE TO GRADE PER UDACS PLATE #39
6. INSTALL 5" BEND WITH MECHANICALLY RESTRAINED JOINTS
7. INSTALL 22.5" BEND WITH MECHANICALLY RESTRAINED JOINTS
8. INSTALL 45" BEND WITH MECHANICALLY RESTRAINED JOINTS
9. REMOVE CAP AND 2" BLOWOFF AND CONNECT TO EXISTING WATERLINE STUB
10. INSTALL FIRE HYDRANT WITH APPURTENANCES (CONCRETE PAD, LATERAL, VALVE, AND TEE) PER UDACS PLATES #30, #31, #39, AND #40.
11. INSTALL 1-1/2" IRRIGATION METER WITH 1-1/2" RPPA PER UDACS PLATES #4 AND #8 AND DETAIL D ON SHEET 44
12. BACKFILL TRENCH ZONE WITH CLASS I CLSM
13. INSTALL END CAP WITH MECHANICALLY RESTRAINED JOINTS
14. INSTALL 6" BLOW-OFF VALVE PER UDACS PLATE NO. 37

ROADWAY CONSTRUCTION NOTES

NOTE
WATER MAIN JOINT DEFLECTION, PER UDACS 2.07.01 AND 2.07.03.

NOTE
INSTALL PIPELINE MARKER BALLS, PER UDACS PLATE NO. 15.

CONTROLLED LOW STRENGTH MATERIAL (CLSM)
PROTECT WATERLINES IN PLACE. WHEREVER A WATERLINE IS ABOVE A STORM DRAIN OR SEWER WHERE COMPACTION REQUIREMENTS UNDER A WATERLINE CANNOT BE MET BACKFILL TRENCH WITH CLASS II CONTROLLED LOW STRENGTH MATERIAL (CLSM) TO THE SPRINGLINE OF THE WATERLINE. THIS REQUIREMENT IS FOR STRUCTURAL SUPPORT ONLY. ADDITIONAL HEAL REQUIREMENTS MAY APPLY PER UDACS 2.22

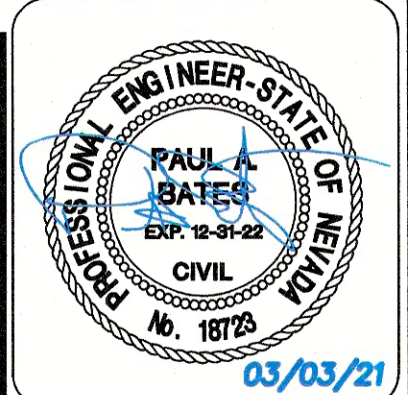
FOR FIRE HYDRANT PAD ELEVATIONS AND GRADES REFER TO THE FINISHED GRADE INDICATED ON SHEETS 11, 13, 15, 17, 19, 21 AND THE HYDRANT PAD DETAIL ON SHEET 44.

CONTRACTOR SHALL SUBMIT STRUCTURAL CALCULATIONS PREPARED BY A NEVADA LICENSED STRUCTURAL ENGINEER FOR CROSSING WITH WATER WHERE THE TRENCH IS SIX (6) FEET OR GREATER. CONTACT ENGINEERING SERVICES FOR INDICATIONS ON PACKAGE SUBMITTAL. PIPE SUPPORT PLANS MUST BE SUBMITTED A MINIMUM OF 30 DAYS PRIOR TO COMMENCEMENT OF WORK. PIPE SUPPORTS FOR TRANSMISSION MAINS (24-INCH AND LARGER) WILL BE LIMITED TO A MAXIMUM OF 1 WEEK. A SCHEDULE OF WATER MAINS SUPPORTED MUST BE PROVIDED TO LVVWD ENGINEERING SERVICES.

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", TRANSMISSION MAIN STRUCTURAL SUPPORT.

NOTE: ALL WATERLINE LATERALS ARE CONNECTED TO THE 24" 3550 WATER MAIN.

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



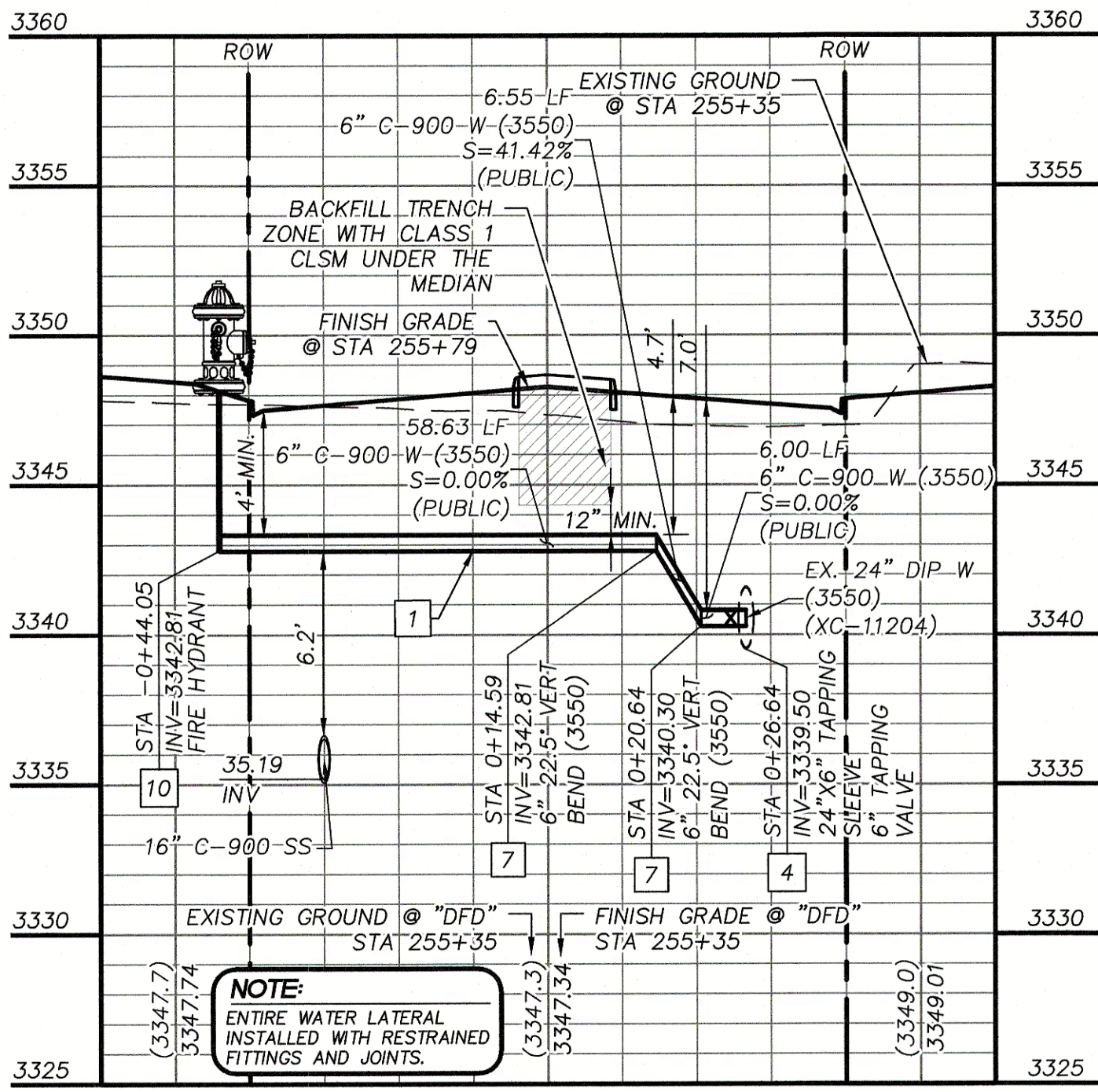
REVISIONS		DESCRIPTION
REV.	DATE	DESCRIPTION
4	7/7/21	REVISE SLOPE OF SEWER LATERAL

ATKINS
2270 Corporate Circle, Suite 200
Henderson, Nevada 89074
Telephone: +1702.263.2725
Fax: +1702.263.2700

SUMMERLIN

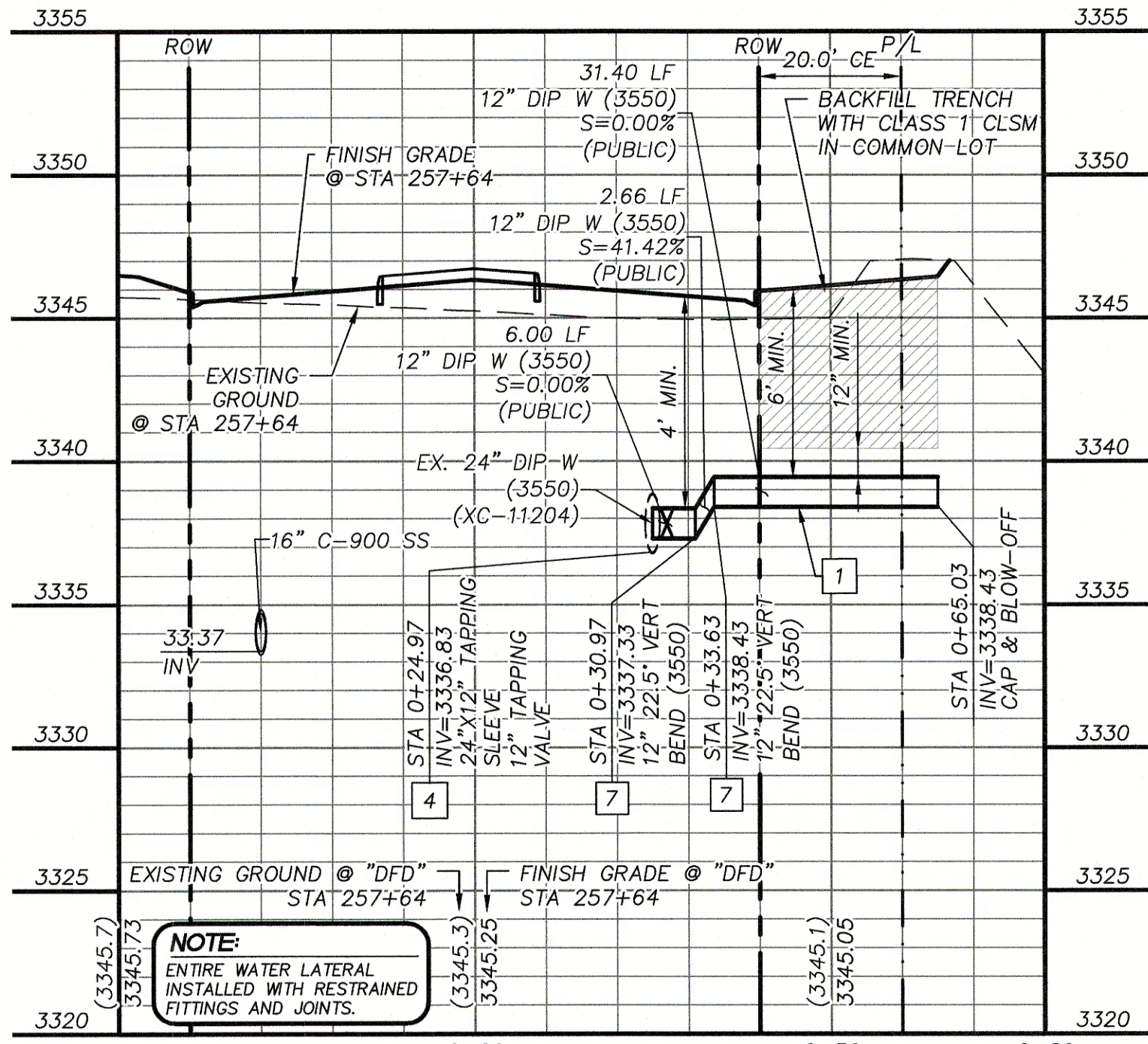
SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE
FLEET WING AVENUE (STREET G) TO LAKE MEAD BOULEVARD
STORM DRAIN LATERAL PROFILES

DESIGNED BY: N. BARCOS
DRAWN BY: P. CLAY
CHECKED BY: P. BATES
DATE: MARCH, 2021
DRAWING NO.:
VERT.: 1"=4'
1078165
CLV L19-02745
25/52
JOB NO. 100060652



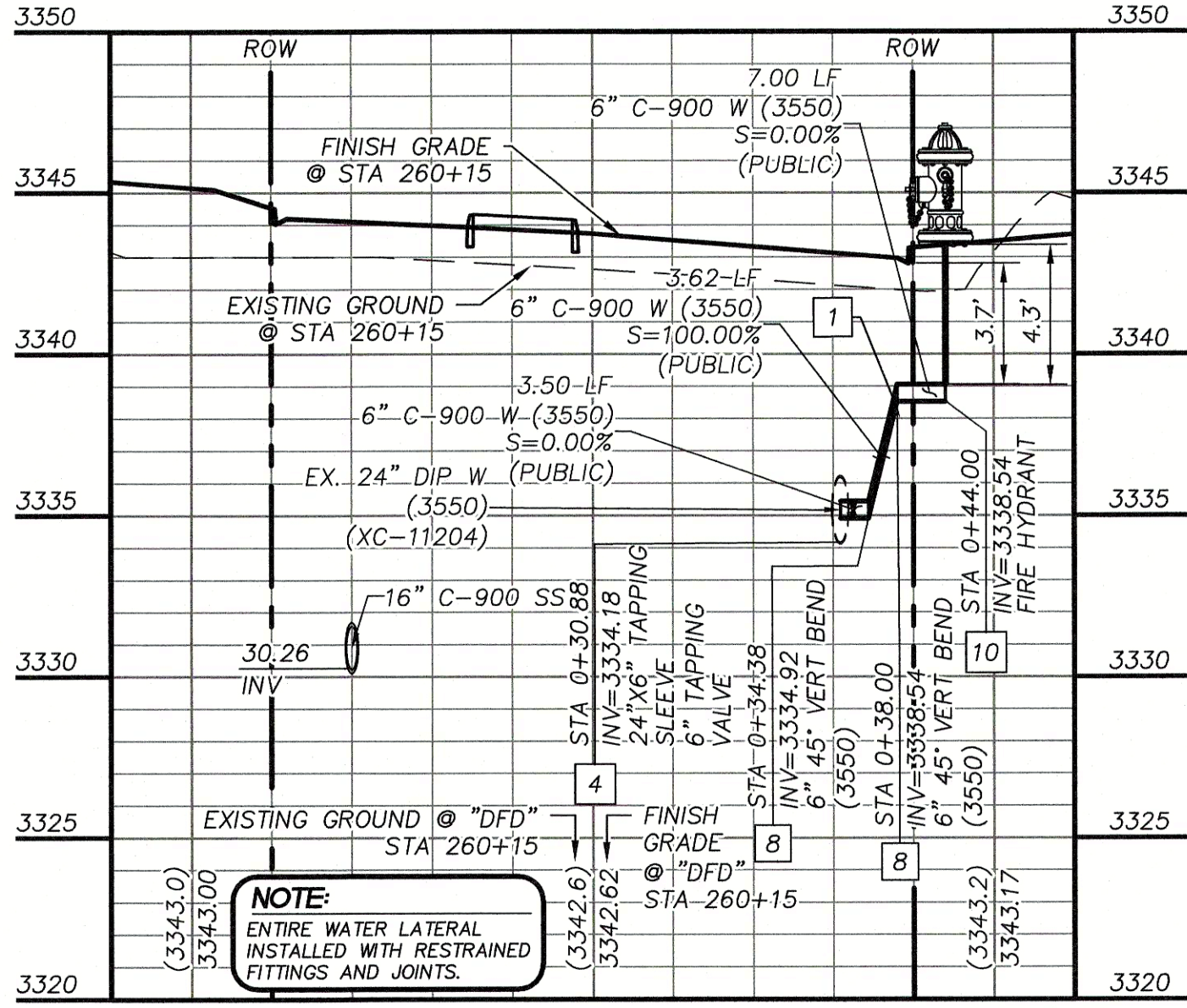
WATER LATERAL

"DFD" STA. 255+35.60 SEE SHEET 12



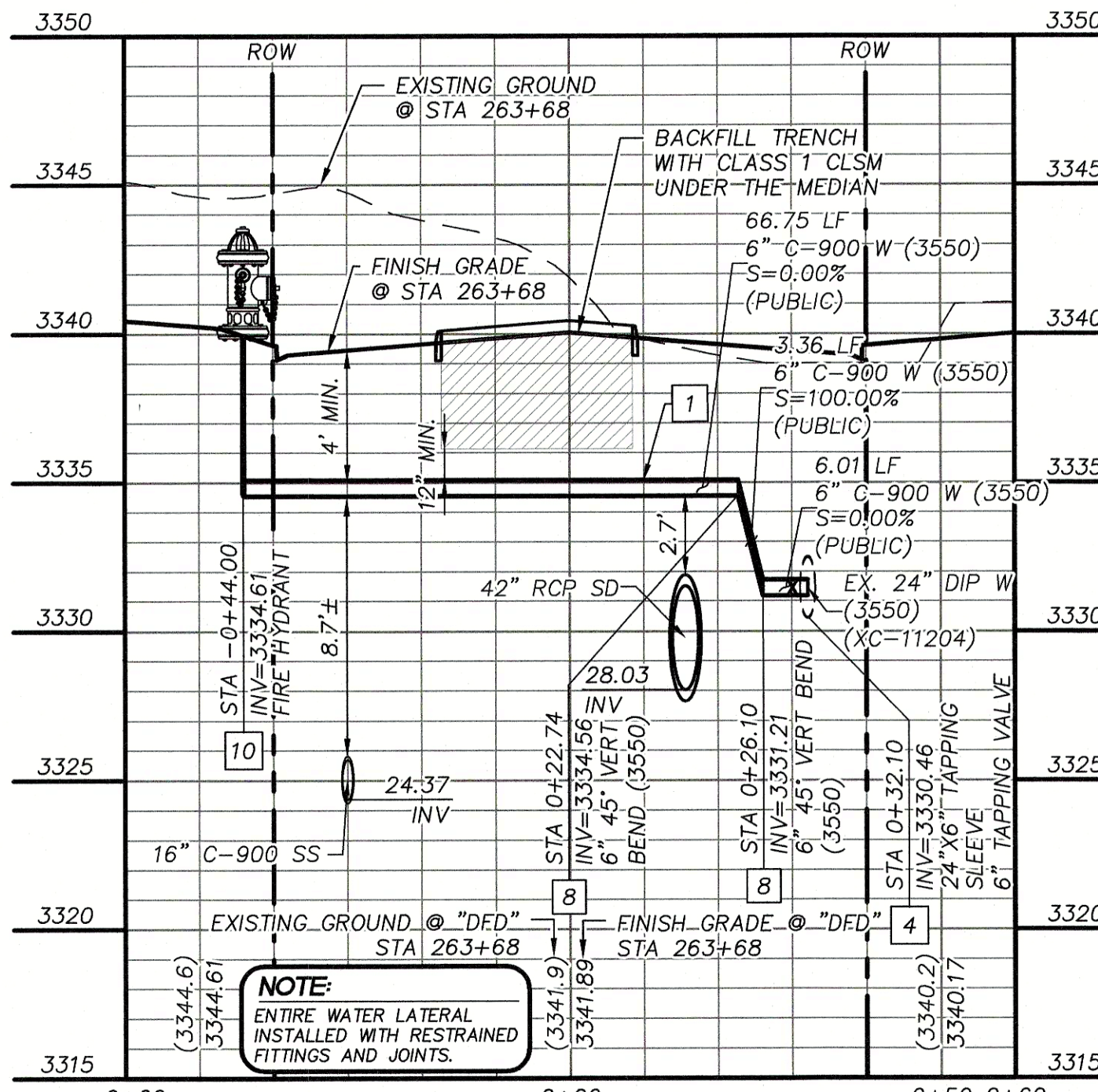
WATER LATERAL

"DFD" STA. 257+64.20 SEE SHEET 12



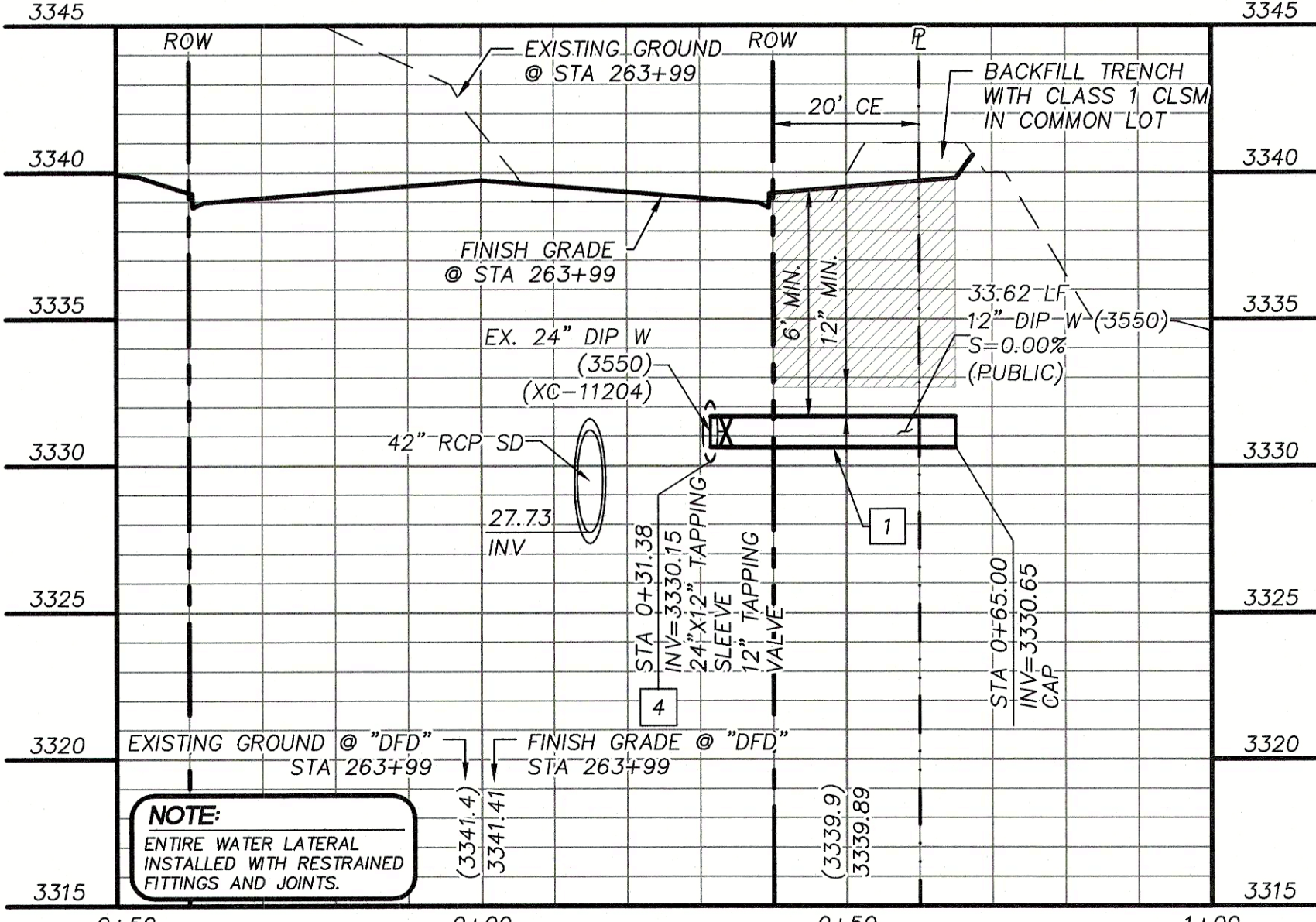
WATER LATERAL

"DFD" STA. 260+14.99 SEE SHEET 14



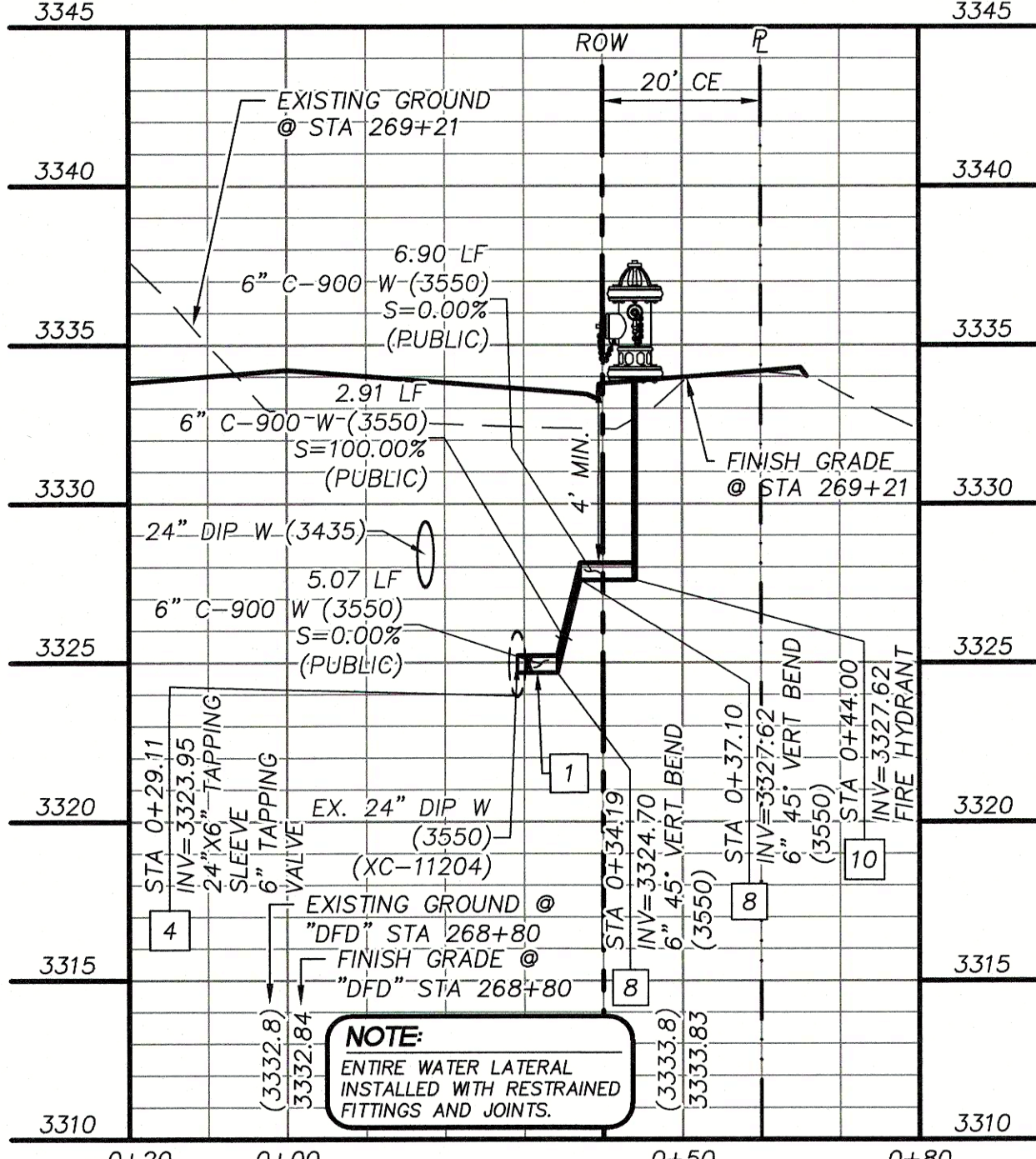
WATER LATERAL

"DFD" STA. 263+68.15 SEE SHEET 16



WATER LATERAL

"DFD" STA. 263+98.56 SEE SHEET 16



WATER LATERAL

"DFD" STA. 269+20.62 SEE SHEET 18

CAUTION:
CATHODIC TEST WIRES AND/OR FIBER OPTIC RUN
ALONG THE SIDE OF THE WATERLINE AT AN
UNKNOWN DEPTH. TAKE CAUTION WHEN DIGGING.

APPROVED FOR CONSTRUCTION
Las Vegas Valley Water District
LAS VEGAS VALLEY WATER DISTRICT
PLANNING AND ENGINEERING SERVICES
PROJECT NO. 136925 FIRST APPROVED DATE: 3/17/2021
LVVWD APPROVED FIRE FLOW 1500 GPM AT 20 PSI RESIDUAL

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

BENCHMARK
CITY OF LAS VEGAS BENCHMARK: D368
(REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS
(3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE
150' SOUTH OF CHARLESTON BLVD. &
WEST OF DETENTION BASIN.
T21S,R59E,S03

FAST
Call before you dig
Underground
1-702-432-5300
Call before you dig
Underground
1-800-642-2444
Call before you dig
Underground
1-702-227-2929

STORM DRAIN CONSTRUCTION NOTES

1. INSTALL STORM DRAIN. SEE SHEET 41 FOR ADDITIONAL STORM DRAIN NOTES AND INFORMATION.
2. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421
3. INSTALL NDOT TYPE 2 DROP INLET PER NDOT R-4.2.1 (SEE SHEET 41)
4. INSTALL TYPE II SD MANHOLE PER CCAUSD #405
5. INSTALL TYPE II SD MANHOLE PER CCAUSD #405.2
6. INSTALL TYPE III SD MANHOLE PER CCAUSD #406
7. REMOVE CAP AND CONNECT TO EXISTING STORM DRAIN STUB
8. STUB & PLUG STORM DRAIN FOR FUTURE CONNECTION PER MANUFACTURER'S PLUG, OR APPROVED EQUAL SEE SHEET 41
9. INSTALL RIP-RAP (D50=8", THICKNESS=16")
10. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421 AND DETAIL D ON SHEET 41
11. INSTALL TYPE "CM" DROP INLET PER CCAUSD #421 & #422
12. INSTALL MANHOLE WITH WATERTIGHT JOINTS.

SEWER CONSTRUCTION NOTES

1. INSTALL SEWER MANHOLE PER DCSWCS SD-1 AND SD-4 WITH DUAL CONCENTRIC LIDS PER SD-2 AND WITH CORROSION PROTECTION PER DCSWCS 3.16.8.
2. INSTALL SEWER MAIN PER DCSWCS SD-17. WHERE CURVED PIPE RADIUS IS LESS THAN 1150', CONSTRUCT IN 10' SECTIONS OF CURVED SEWER PER DCSWCS 2.3.4.5
3. STUB AND CAP SEWER PIPE. PLACE 4"x4" POST, DOUGLAS FIR, OVER END OF PIPE AND INSTALL THRUST BLOCK (1 CU.FT. MIN).
4. CONNECT TO EXISTING SANITARY SEWER MANHOLE. CORE DRILL AND REFORM SSMH BASE PER DCSWCS SD-9, AND ADD CORROSION PROTECTION PER DCSWCS 3.16.8.
5. ADJUST EXISTING MANHOLE TO GRADE PER DCSWCS SD-5.
6. PROTECT SEWER AT UTILITY CROSSING PER DCSWCS SD-19

WATERLINE CONSTRUCTION NOTES

1. INSTALL WATER MAIN WITH MECHANICALLY RESTRAINED JOINTS PER UDACS PLATES #17 AND #19
2. INSTALL 1.5" SERVICE SADDLE PER UDACS PLATE #4
3. INSTALL CAP AND 2" MANUAL BLOWOFF ASSEMBLY
4. INSTALL TAPPING SLEEVE WITH TAPPING VALVE AND LATERAL PER UDACS PLATES #17, #19, #30, #34, AND #39 & SECTION 2.24.01 A(>75%) AND 2.24.01 B(<=75%)
5. ADJUST GATE VALVE TO GRADE PER UDACS PLATE #39
6. INSTALL 5' BEND WITH MECHANICALLY RESTRAINED JOINTS
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10. INSTALL FIRE HYDRANT WITH APPURTENANCES (CONCRETE PAD, LATERAL, VALVE, AND TEE) PER UDACS PLATES #30, #31, #39, AND #40.
11. INSTALL 1-1/2" IRRIGATION METER WITH 1-1/2" RPPA PER UDACS PLATES #4 AND #8 AND DETAIL D ON SHEET 44
12. BACKFILL TRENCH ZONE WITH CLASS I CLSM
13. INSTALL END CAP WITH MECHANICALLY RESTRAINED JOINTS
14. INSTALL 6" BLOW-OFF VALVE PER UDACS PLATE NO. 37

ROADWAY CONSTRUCTION NOTES

- NOTE:**
WATER MAIN JOINT DEFLECTION, PER UDACS 2.07.01 AND 2.07.03
- NOTE**
INSTALL PIPELINE MARKER BALLS, PER UDACS PLATE NO. 15.

CONTROLLED LOW STRENGTH MATERIAL (CLSM)

PROTECT WATERLINES IN PLACE, WHEREVER A WATERLINE IS ABOVE A STORM DRAIN OR SEWER WHERE COMPACTION REQUIREMENTS UNDER A WATERLINE CANNOT BE MET. BACKFILL TRENCH WITH CLASS II CONTROLLED LOW STRENGTH MATERIAL (CLSM) TO THE SPRINGLINE OF THE WATERLINE. THIS REQUIREMENT IS FOR STRUCTURAL SUPPORT ONLY. ADDITIONAL HEAL REGULATIONS MAY APPLY PER UDACS 2.22

FOR FIRE HYDRANT PAD ELEVATIONS AND GRADES REFER TO THE FINISHED GRADE INDICATED ON SHEETS 11, 13, 15, 17, 19, 21 AND THE HYDRANT PAD DETAIL ON SHEET 44.

CONTRACTOR SHALL SUBMIT STRUCTURAL CALCULATIONS PREPARED BY A NEVADA LICENSED STRUCTURAL ENGINEER FOR CROSSING WITH WATER WHERE THE TRENCH IS SIX (6) FEET OR GREATER. CONTACT ENGINEERING SERVICES FOR INDICATIONS ON PACKAGE SUBMITTAL. PIPE SUPPORT PLANS MUST BE SUBMITTED A MINIMUM OF 30 DAYS PRIOR TO COMMENCEMENT OF WORK. PIPE SUPPORTS FOR TRANSMISSION MAINS (24-INCH AND LARGER) WILL BE LIMITED TO A MAXIMUM OF 1 WEEK. A SCHEDULE OF WATER MAINS SUPPORTED MUST BE PROVIDED TO LVVWD ENGINEERING SERVICES.

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PAUL A. BATES
Professional Engineer
State of Nevada
No. 1872
03/03/21

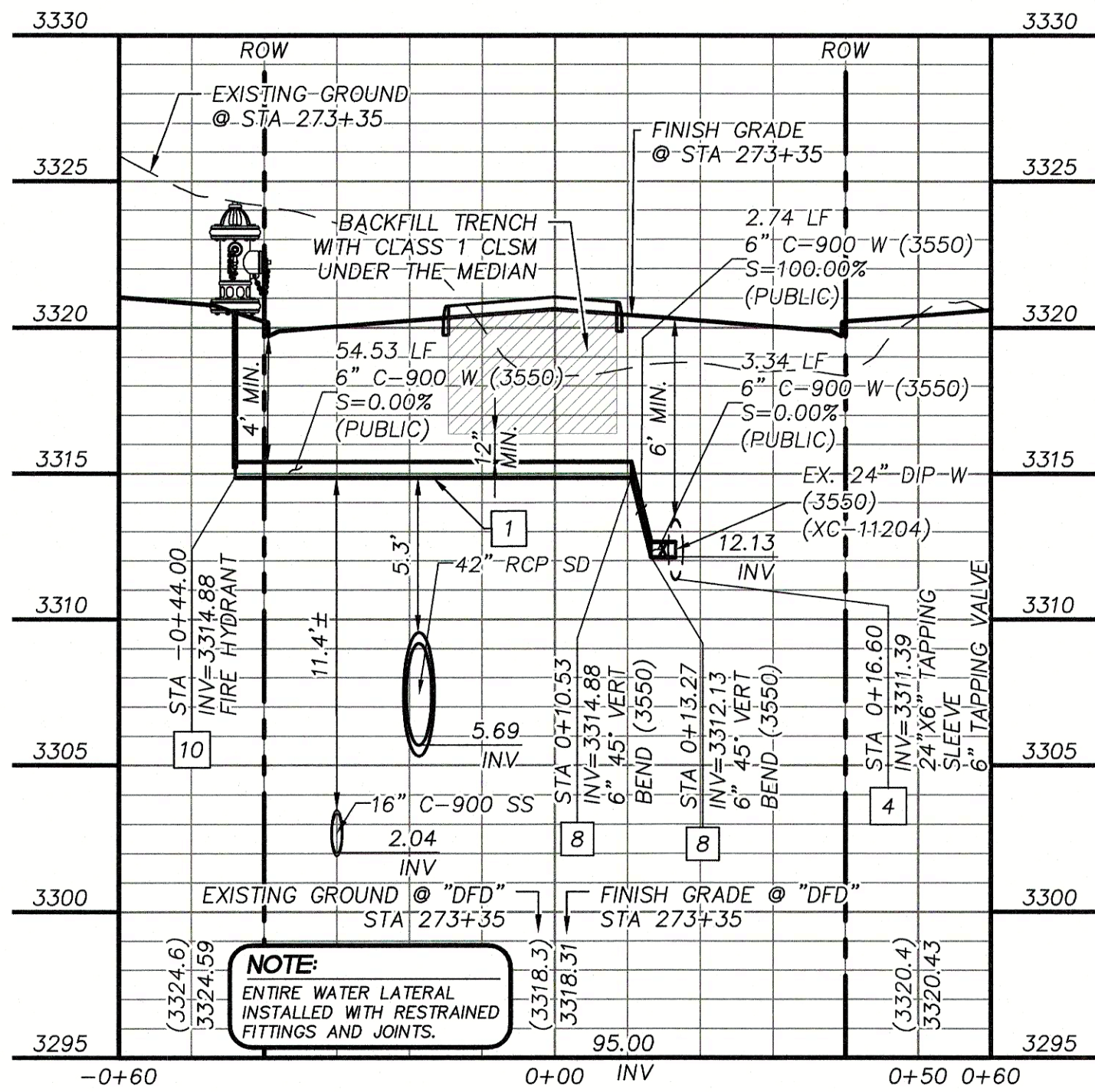
REV.	DESCRIPTION	BY	DATE	APPROVAL

ATKINS
2270 Corporate Circle Suite 200
Henderson, NV 89014
Tel: 702.263.7275
Fax: 702.263.7200

SUMMERLIN
DESERT FOOTHILLS DRIVE
FLEET WING AVENUE (STREET G) TO LAKE MEAD BOULEVARD

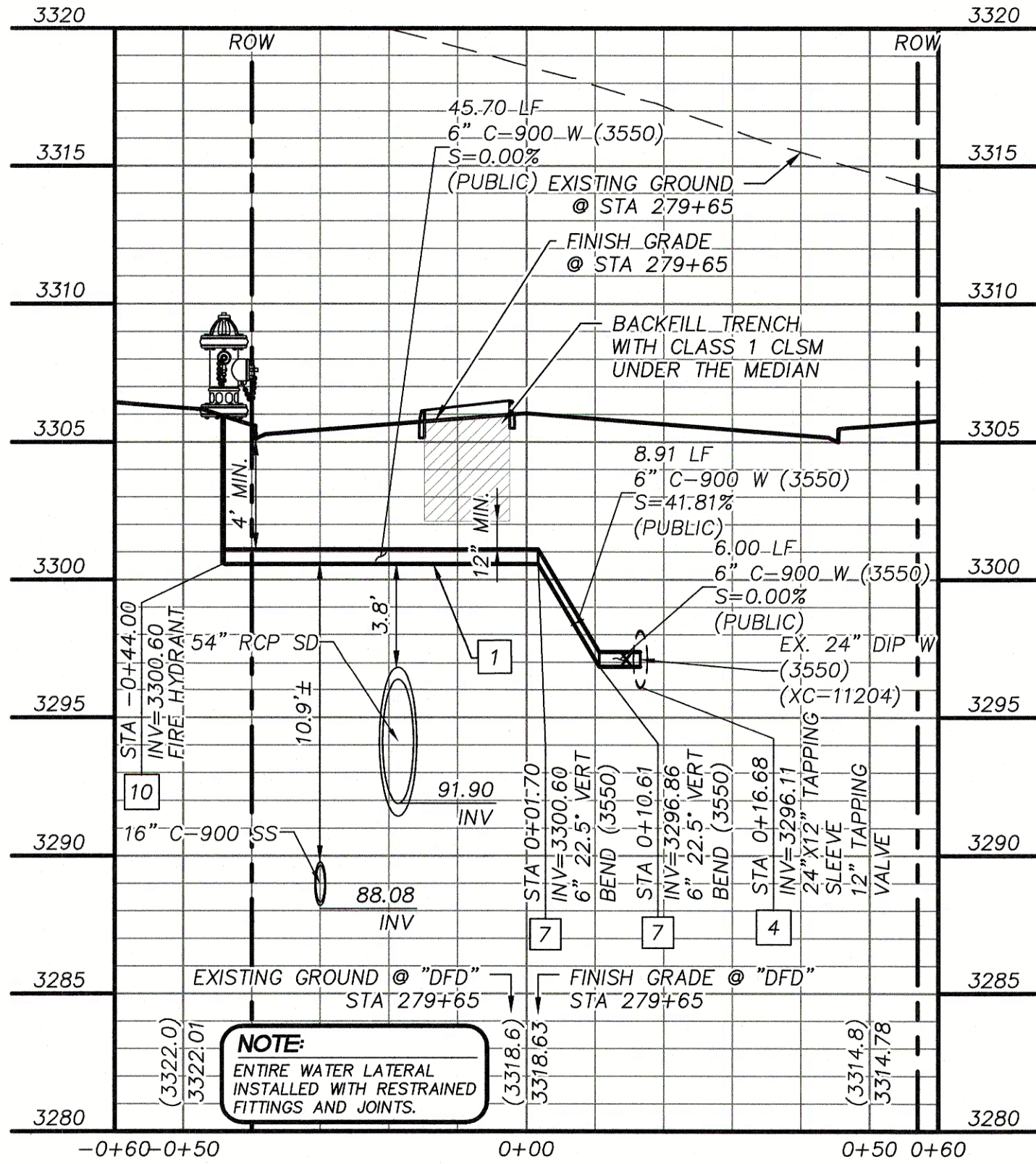
SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE
FLEET WING AVENUE (STREET G) TO LAKE MEAD BOULEVARD

DESIGNED BY: N. BARCOS
DRAWN BY: L. MANICLAY
DATE: MARCH, 2021
DRAWING NO. 26/52
JOB NO. 100060652



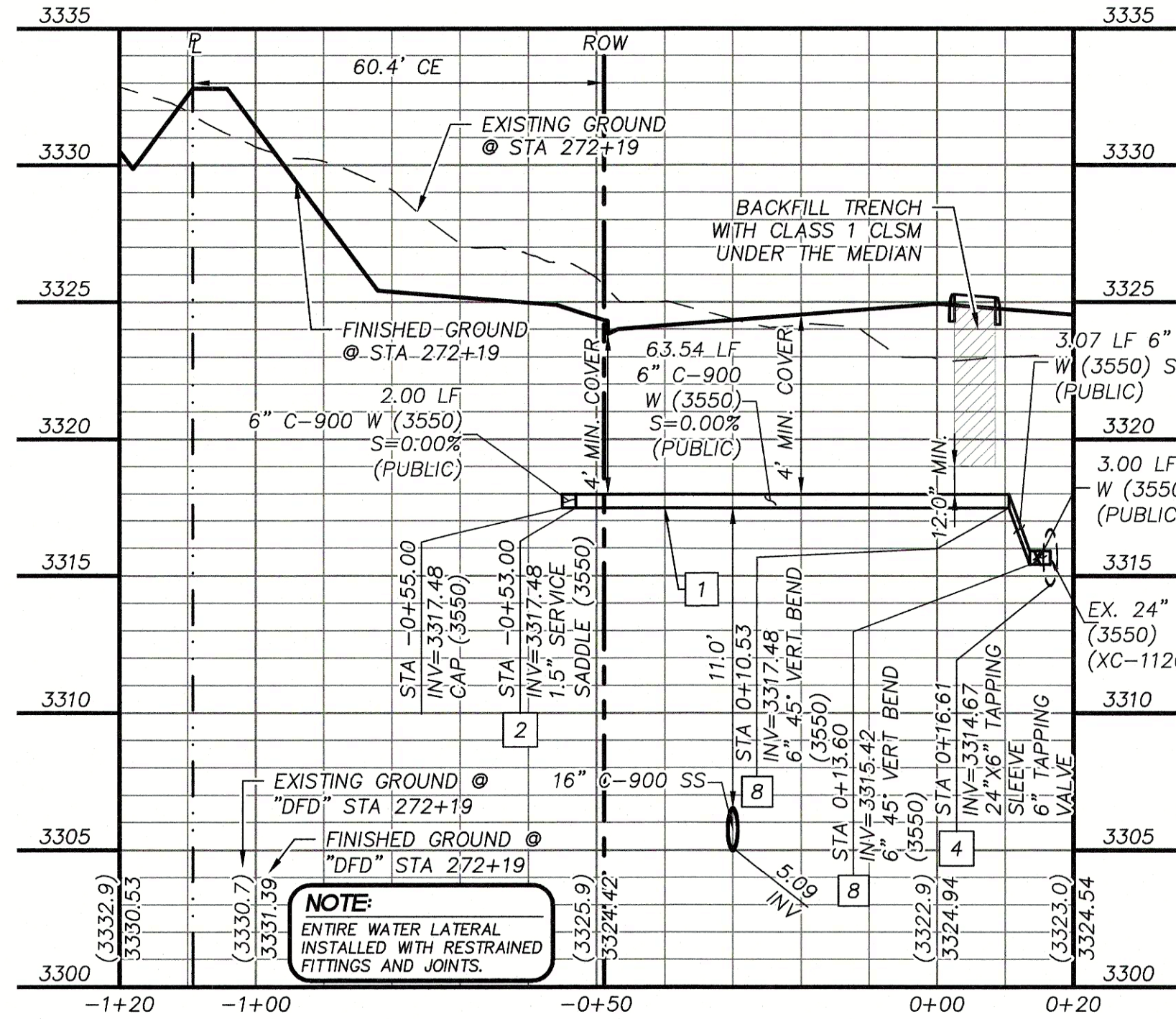
WATER LATERAL

"DFD" STA. 273+34.90 SEE SHEET 20



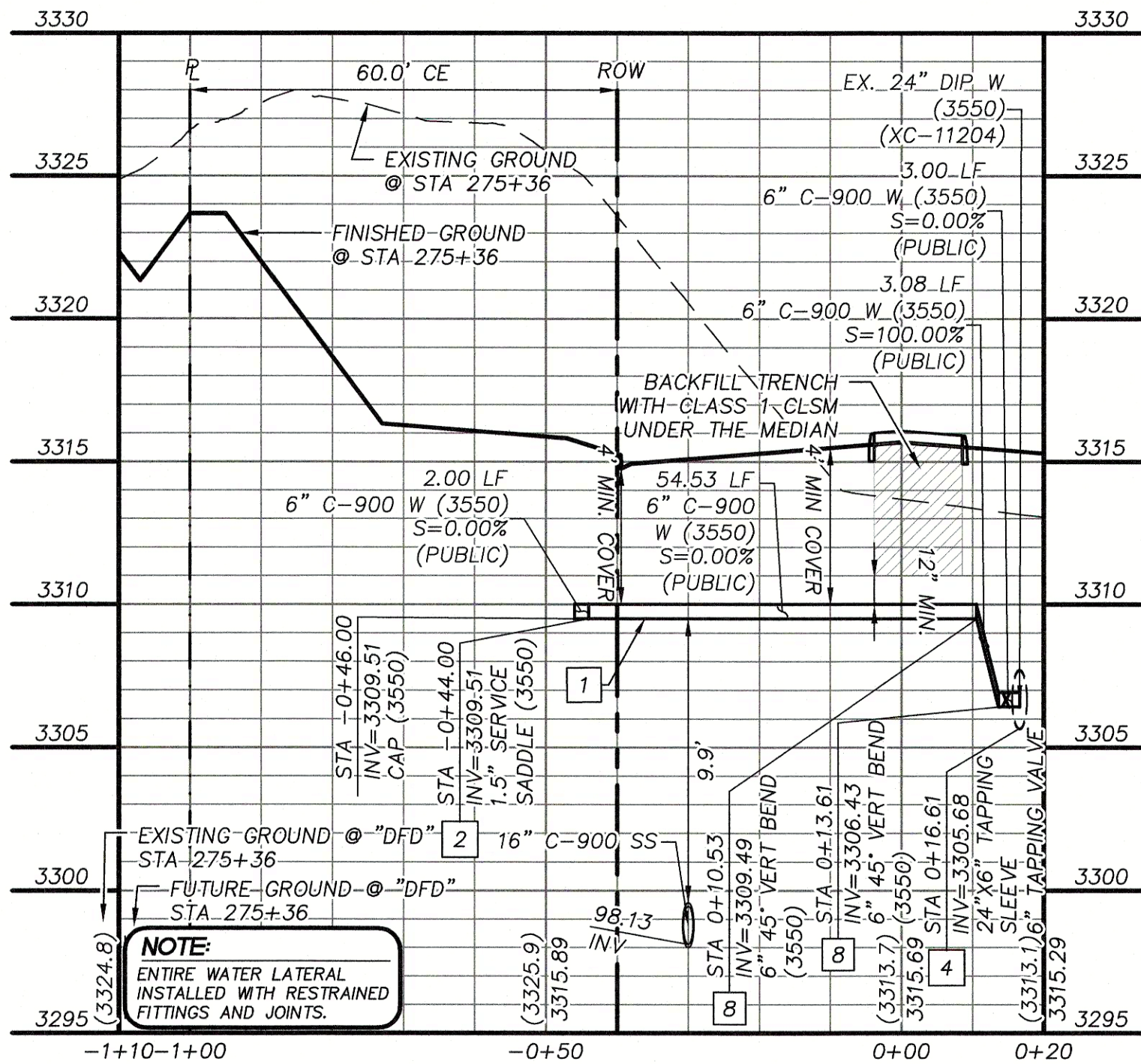
WATER LATERAL

"DFD" STA. 279+65.22 SEE SHEET 22



WATER LATERAL

"DFD" STA. 272+19.05 SEE SHEET 18



WATER LATERAL

"DFD" STA. 275+36.42 SEE SHEET 20

STORM DRAIN CONSTRUCTION NOTES

1. INSTALL STORM DRAIN. SEE SHEET 41 FOR ADDITIONAL STORM DRAIN NOTES AND INFORMATION.
2. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421
3. INSTALL NDOT TYPE 2 DROP INLET PER NDOT R-4.2.1 (SEE SHEET 41)
4. INSTALL TYPE II SD MANHOLE PER CCAUSD #405
5. INSTALL TYPE II SD MANHOLE PER CCAUSD #405.2.
6. INSTALL TYPE III SD MANHOLE PER CCAUSD #406
7. REMOVE CAP AND CONNECT TO EXISTING STORM DRAIN STUB
8. STUB & PLUG STORM DRAIN FOR FUTURE CONNECTION PER MANUFACTURER'S PLUG, OR APPROVED EQUAL SEE SHEET 41
9. INSTALL RIP-RAP (D50=8", THICKNESS=16")
10. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421 AND DETAIL D ON SHEET 41
11. INSTALL TYPE "CM" DROP INLET PER CCAUSD #421 & #422
12. INSTALL MANHOLE WITH WATERTIGHT JOINTS.

SEWER CONSTRUCTION NOTES

1. INSTALL SEWER MANHOLE PER DCSWCS SD-1 AND SD-4 WITH DUAL CONCENTRIC LIDS PER SD-2 AND WITH CORROSION PROTECTION PER DCSWCS 3.16.8.
2. INSTALL SEWER MAIN PER DCSWCS SD-17. WHERE CURVED PIPE RADIUS IS LESS THAN 1150', CONSTRUCT IN 10' SECTIONS OF CURVED SEWER PER DCSWCS 2.3.4.5
3. STUB AND CAP SEWER PIPE. PLACE 4"x4" POST, DOUGLAS FIR, OVER END OF PIPE AND INSTALL THRUST BLOCK (1 CU.FT. MIN).
4. CONNECT TO EXISTING SANITARY SEWER MANHOLE. CORE DRILL AND REFORM SSMH BASE PER DCSWCS SD-9, AND ADD CORROSION PROTECTION PER DCSWCS 3.16.8
5. ADJUST EXISTING MANHOLE TO GRADE PER DCSWCS SD-5.
6. PROTECT SEWER AT UTILITY CROSSING PER DCSWCS SD-19

WATERLINE CONSTRUCTION NOTES

1. INSTALL WATER MAIN WITH MECHANICALLY RESTRAINED JOINTS PER UDACS PLATES #17 AND #19
2. INSTALL 1.5" SERVICE SADDLE PER UDACS PLATE #4
3. INSTALL CAP AND 2" MANUAL BLOWOFF ASSEMBLY
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10. INSTALL FIRE HYDRANT WITH APPURTENANCES (CONCRETE PAD, LATERAL, VALVE, AND TEE) PER UDACS PLATES #30, #31, #39, AND #40.
11. INSTALL 1-1/2" IRRIGATION METER WITH 1-1/2" RPPA PER UDACS PLATES #4 AND #8 AND DETAIL D ON SHEET 44
12. BACKFILL TRENCH ZONE WITH CLASS I CLSM
13. INSTALL END CAP WITH MECHANICALLY RESTRAINED JOINTS
14. INSTALL 6" BLOW-OFF VALVE PER UDACS PLATE NO. 37

ROADWAY CONSTRUCTION NOTES

NOTE:
WATER MAIN JOINT DEFLECTION, PER UDACS 2.07.01 AND 2.07.03

NOTE
INSTALL PIPELINE MARKER BALLS, PER UDACS PLATE NO. 15.

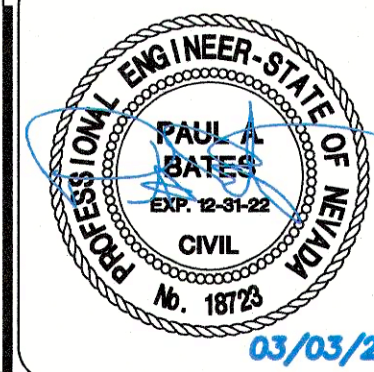
CONTROLLED LOW STRENGTH MATERIAL (CLSM)
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DESIGNED BY: CLV L19-02745
DATE: MARCH, 2021
CHECKED BY: L. WAGGLEY
DRAWING NO. 27/52
JOB NO. 100060652

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE
FLEET WING AVENUE (STREET 6) TO LAKE MEAD BOULEVARD

WATER LATERAL PROFILES

ATKINS
2270 Corporate Circle, Suite 200
Henderson, Nevada 89074
Telephone: +1702.263.7275
Fax: +1702.263.7200

SUMMERLIN

REVISIONS

REV.	DESCRIPTION	DATE	APPROVAL

CAUTION:

CATHODIC TEST WIRES AND/OR FIBER OPTIC RUN ALONG THE SIDE OF THE WATERLINE AT AN UNKNOWN DEPTH. TAKE CAUTION WHEN DIGGING.

APPROVED FOR CONSTRUCTION

Las Vegas Valley Water District
PLANNING AND ENGINEERING SERVICES
PROJECT NO. 136925 FIRST APPROVED DATE: 3/17/2021
LVWD APPROVED FIRE FLOW 1500 GPM AT 20 PSI RESIDUAL

BASIS OF BEARING

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA NAVD83 ELEVATION: 989.574 METERS (3,246.63 FEET)
FND USCG&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S,R59E,S03

BENCHMARK

CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
NAV088 ELEVATION: 989.574 METERS (3,246.63 FEET)
FND USCG&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S,R59E,S03

