DS #: 5052

APN: 137-26-101-001

PROJECT: Summerlin West Village 21 - Desert Foothills Drive

SUBMITTAL: 2nd

SCANNED BY/DATE: _____

CHECKED BY/DATE: _____

CITY OF LAS VEGAS
NEVADA

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM			DATE: February 25, 2019
TO: **Land Development Services** Department of Building & Safety			FROM: Albert Sung, P.E. Flood Control Project\Engineer Department of Public Works
SUBJECT:	Drainage Study for: **Summerlin West Village 21 - Desert Foothills Drive (Redpoint Drive to Summerlin Parkway)**		**COPIES TO:** VTN Nevada
Cross Streets:	Desert Foothills Dr. from Redpoint Drive to Summerlin Parkway		Howard Hughes Company, LLC
File Number:	F:\Depot\DSMemos\DS5052B.doc		Bart Anderson, P.E., DevCo
Parcel Number:	137-26-101-001		CCRFCD
Zoning Action:	N/A		
FEMA Flood Zone	YES	NO **X**	
Proposed Storm Drain	YES **X**	NO	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	10/24/2018	11/8/2018	Not Approved	$400.00	500378: $400
2nd Submittal	2/4/2018	2/21/2018	See Comments Below	$400.00	502878: $400
			TOTAL FEES (LDDRS):	**$800.00**	----

REMARKS:

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

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

1. **This drainage study is acceptable in concept;** however, *City of Las Vegas* will not formally accept the study until the *Clark County Regional Flood Control District (CCRFCD)* has issued a letter of concurrence. The engineer should contact the CCRFCD to confirm that they have begun their review.
2. The project proposes to build temporary drainage facilities including drainage berms/swales along the west side of the proposed *Desert Foothills Drive*. Prior to final plan approval the developer must complete a ***Maintenance & Liability Agreement*** for the interim drainage improvements and post a minimum maintenance bond of $50,000 or 50-percent of the construction cost for the improvements, whichever is greater. The engineer must submit an estimate of the quantities for constructing the facilities and an exhibit that adequately shows the location and limits of the drainage facilities to *City of Las Vegas Flood Control* for approval. Once the drainage study is conditionally approved, the engineer should contact the *City's Land Development Section* (229-6371) to begin the agreement process.

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

3. All storm drain inlets that are more than 10' deep require a special structure detail and structural calculation.
4. All special structures and mainline storm drain connection require details and structural calculations to be reviewed by the *City of Las Vegas Building & Safety Department*. Approval by the *Building Department* must be obtained prior to the approval of the improvement plans.
5. **Sheet UT5**: Revise the callout for the transition structure at the northern end of the mainline storm drain in *Desert Foothills Drive* for "Sheet S2" for detail, not "S1".
6. Since the street and the associated storm drain facilities will eventually be accepted by the *City of Las Vegas*, the engineer/developer must coordinate with *City of Las Vegas Streets & Sanitation Department* for their review and approval prior to the final acceptance of the subject improvement plans.

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

END OF REMARKS
WSP/AYS

T/R/S: T20S/R59E/26
AREA K-26

REGIONAL FLOOD CONTROL DISTRICT

Steven C. Parrish, P.E.
General Manager/Chief Engineer

BOARD OF DIRECTORS

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March 28, 2019

Mr. Oh Sang Kwon, P.E.
City of Las Vegas Department of Public Works
333 North Rancho Drive
Las Vegas, NV 89106

DISTRICT COMMENT(S): **SUMMERLIN WEST VILLAGE 21-DESERT FOOTHILLS DR (REDPOINT DR TO SUMMERLIN PKWY)**
(DS5052B) (RFCD No. 19-11227)

Dear Mr. Kwon:

Clark County Regional Flood Control District (District) reviewed Technical Drainage Study dated October 24, 2018, and Addendum No. 1 dated January 30, 2019 for above-mentioned project as submitted by VTN NEVADA. In addition, District is in receipt of the Conditional Letter of Acceptance from City of Las Vegas Department of Public Works dated February 25, 2019.

District has the following comment(s):

1. Per the Drainage Study Approval Letter, the project includes a new transition structure design along the District's MPU facility APDF 0026 at the Redpoint Drive and Summerlin Parkway connection and requires structural calculations and approval by the City of Las Vegas prior to District submittal and concurrence. The Structural Approval Letter must be provided with the next submittal and prior to District concurrence.

2. Sheet UT1 callous out an additional transition structure for connecting into the existing 10'X10' RCB at Redpoint Drive per structural Sheet S2. However, Sheet S2 details the connection to a 10'X8' RCB facility located at Summerlin Parkway. Additionally, Sheet MUTSD calls out the same Redpoint Drive connection to Sheet S3, but was not provided in the submittal for review. Address accordingly.

3. Address positive drainage at the various proposed laterals and area inlets. For example, lateral #5 shown on Sheet GR2 is shown with an interim flow of 17 cfs, but is callout to be capped on Sheet UT7.

4. Address the following grading plans comments:

    a. Sheet GR1 does not detail connection to the existing 10'X10' RCB at the Redpoint Drive connection and does not show the additional transition structure as shown on Sheet MUTSD. Provide callout to the profile sheet UT1 to clarify connection to adjacent facilities.

    b. The grading and profile sheets for multiple proposed inlets are not consistent with each other. For example, Sheet GR2 shows maximum 3:1 scarping with rip-rap hatching but does not match the referenced Sheet UT7. Address consistent linework on the plan and profile and clearly label all proposed improvements with

REGIONAL FLOOD CONTROL DISTRICT

appropriate construction notes for ease of constructability. Provide fall protection as required at all inlets with substantial drops.

c. Lateral #2 on Sheet GR4 references an incorrect profile sheet. Additionally, Sheet UT16 does not provide a callout for cap for the proposed pipe. Verify and revise.

5. Note that Per District's Uniform Regulations for the Control of Drainage, Section VIII.D.13, the Lead Entity shall provide As-Built plans or record drawings to the District after completion and final inspection of such privately installed flood control facilities that have regional flood control significance.

District's review of this project was limited to issues of Regional Flood Control Significance as defined in *Uniform Regulations for the Control of Drainage.*

The consultant must be advised to submit any revisions to the Technical Drainage Study and Improvement Plans to City of Las Vegas Department of Public Works for review/re-approval. District review of any such revisions will commence upon {Entity}'s acceptance.

Please be aware that as additional information becomes available and/or restudies of Flood Insurance Studies are performed, information submitted by VTN NEVADA may be superseded. Compliance with regulatory elements and design standards specified in *Uniform Regulations for the Control of Drainage* does not imply a guarantee that properties will be free from flooding or flood damage.

The District, its officials, or employees assume no liability for information, data, or conclusions presented by consulting engineers. We, therefore, make no warranties, either expressed or implied, in conducting this review.

STEVEN C. PARRISH, P.E.
General Manager/Chief Engineer

BY:
Ching C. Wang, P.E.
Senior Civil Engineer

CCW:dd

c: Brian Troy Ruiz, P.E., VTN Nevada

P:\Letters and Memos\Local Drainage\Land Development & Drainage\2019\L-19-11227comment.doc

Addendum #1 to the Technical Drainage Study for

Summerlin West Village 21
Desert Foothills Drive
(Redpoint to Summerlin Parkway)

Las Vegas, Nevada

Prepared for:
Howard Hughes Company, LLC

Submitted to:
City of Las Vegas
Public Works

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Summerlin West Village 21 Desert Foothills (Redpoint to Summerlin Pkwy) Date: January 30, 2019

Location of Development: a) Descriptive (Cross Streets) North/South: Desert Foothills Drive

East/West: Redpoint Drive

b) Section: 26 Township: 20S Range: 59E

c) APN : 137-26-101-001

Name of Owner: The Howard Hughes Company, LLC

Telephone No.: (702) 791-4336 Fax No.: (702) 791-4453 E-Mail Address: chris.anderson@howardhughes.com

Address: 10801 W. Charleston Blvd. LV, NV, 89135

Contact Person-Name: Joanna Ayson **Telephone No.:** (702)-873-7550

* **E-Mail Address:** jayson@vtnnv.com **Fax No.:** (702)-362-2597

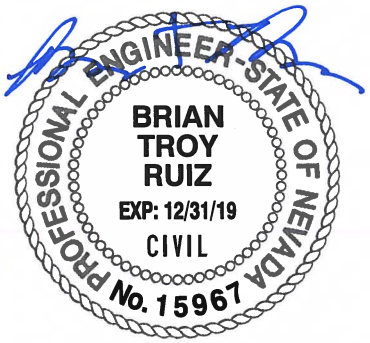
Firm: VTN Nevada

Address: 2727 S. Rainbow Blvd, LV, NV, 89146

Type of Land Development/Land Disturbance Process:

☐	Rezoning	☐	Subdivision Map	☐	Clearing and Grading Only
☐	Parcel Map	☐	Planned Unit Development	☒	Other (Please specify below)
☐	Large Parcel Map	☐	Building Permit		Roadway, Storm Drain, Grading

1. Total Owned Land Area: At Site: +/-6 Acres Being Developed/Disturbed: +/-6 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.): Roadway
5. Approximate upstream land area which drains to the subject site: +/- 640 acres
6. Has the site drainage been evaluated in the past? ☒ **YES** ☐ **NO** If yes, please identify documentation: SWPA MPU (DS4926), Desert Foothills Drive - Far Hills to Street A (DS5013)
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Existing 10x10 RCB south of the project (CCRFCD Facility in Desert Foothills)
8. Briefly describe your proposed schedule for the subject project: As soon as possible



1/30/19

Engineer's Seal

Local Entity File No.

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

*New Required Field

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

Revision	Date

REFERENCE:

STANDARD FORM 1

Updated 05/01/2008

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM			DATE: November 10, 2018
TO: **Land Development Services** Department of Building & Safety			FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT: Drainage Study for: **Summerlin West Village 21 - Desert Foothills Drive (Redpoint Drive to Summerlin Parkway)**			**COPIES TO:** VTN Nevada
Cross Streets:	Desert Foothills Dr. from Redpoint Drive to Summerlin Parkway		Howard Hughes Company, LLC
File Number:	F:\Depot\DSMemos\DS5052A.doc		Bart Anderson, P.E., DevCo
Parcel Number:	137-26-101-001		CCRFCD
Zoning Action:	N/A		
FEMA Flood Zone	YES	NO X	
Proposed Storm Drain	YES X	NO	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	10/24/2018	11/8/2018	See Comments Below	$400.00	500378: $400
			TOTAL FEES (LDDRS):	**$400.00**	----

REMARKS:

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

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

1. The site is adjacent to or crosses an existing or proposed *Clark County Regional Flood Control District* (CCRFCD) master planned facility. Therefore, CCRFCD concurrence is required prior to final approval of the drainage study.
2. The project proposes to build temporary drainage facilities including drainage berms/swales along the west side of the proposed *Desert Foothills Drive*. Prior to final plan approval the developer must complete a ***Maintenance & Liability Agreement*** for the interim drainage improvements and post a minimum maintenance bond of $50,000 or 50-percent of the construction cost for the improvements, whichever is greater. The engineer must submit an estimate of the quantities for constructing the facilities and an exhibit that adequately shows the location and limits of the drainage facilities to *City of Las Vegas Flood Control* for approval. Once the drainage study is conditionally approved, the engineer should contact the *City's Land Development Section* (229-6371) to begin the agreement process.

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

3. The subject drainage study is premised on the fully developed (ie, construted) *Desert Foothills Drive* south (from Far Hills Drive to Redpoint Drive). The subject improvement plans will not be approved prior to the buildout of *Desert Foothills Drive* south and the associated facilities.
4. All storm drain inlets that are more than 10' deep require a special structure detail and structural calculation.
5. All special structures and mainline storm drain connection require details and structural calculations to be reviewed by the *City of Las Vegas Building & Safety Department*. Approval by the *Building Department* must be obtained prior to the final approval of the subject drainage study.
6. Sheet UT1: The connection detail of the mainline storm drain in *Desert Foothills Drive* at Station 28+75.21 was noted for Sheet S3/Sheet 37. Provide Sheet S3 in the next submittal.
7. Sheet UT5: The transition structure at the northern end of the mainline storm drain in *Desert Foothills Drive* is noted for Sheet S1 for detail. Provide as such in the next submittal.
8. Since the street and the associated storm drain facilities will eventually be accepted by the *City of Las Vegas*, the engineer/developer must coordinate with *City of Las Vegas Streets & Sanitation Department* for their review and approval prior to the final acceptance of the subject improvement plans.
9. **Standard Form 4:** Lag Time calculations for basin OFF2 uses the CN value 87.8 but the CN calculations calculate the CN for OFF2 as 88.0. Update the lag time calculations accordingly.
10. **Existing Condition HEC-1:** The combination point should route basin OFF0 through basin EX and consider the routing length and material rather than just combining the basins to achieve a more accurate flow value at the combination point.
11. **Interim Condition HEC-1:** Similarly to the previous comment, the basin OFF0 should be routed through the basin ON to obtain the combination point flow.
12. Per Figure 9: Proposed Storm Drain Facilities Map, Lateral 5 receives 0 CFS in the interim condition. Per Interim 1 condition it should be receiving 17 cfs as used in the HY-8 calculations for headwater elevation. Additionally, provide an interim condition profile of Lateral 5 in the UT sheets.
13. Provide temporary maintenance access road for each lateral.
14. Provide a barricade on the grading plans at *Desert Foothills Drive* and *Summerlin Parkway* to protect cars from the interim riprap pit where OFF0 is collected.
15. The inlets just before *Redpoint Drive* are labeled as 5' on plan and profile. Per the facility map and calculations the inlets are 15'. Revise the plan and profile accordingly.
16. Show the ultimate HGL on the lateral profiles on all pertinent sheets.
17. Show the headwater elevation on all lateral parcel connections profiles in all pertinent sheets.
18. All offsite interim flood control facilities such as but not limited to berms/ditches and temporary sump are privately owned and to be privately maintained by the *Howard Hughes Company*. Provide a note as such on the grading plans.
19. Add a note in all pertinent sheets for the construction of all storm drain drop inlets per USDCCA Drawing No. 421 (*Stormwater Quality Management Stamp and Sign Detail*).

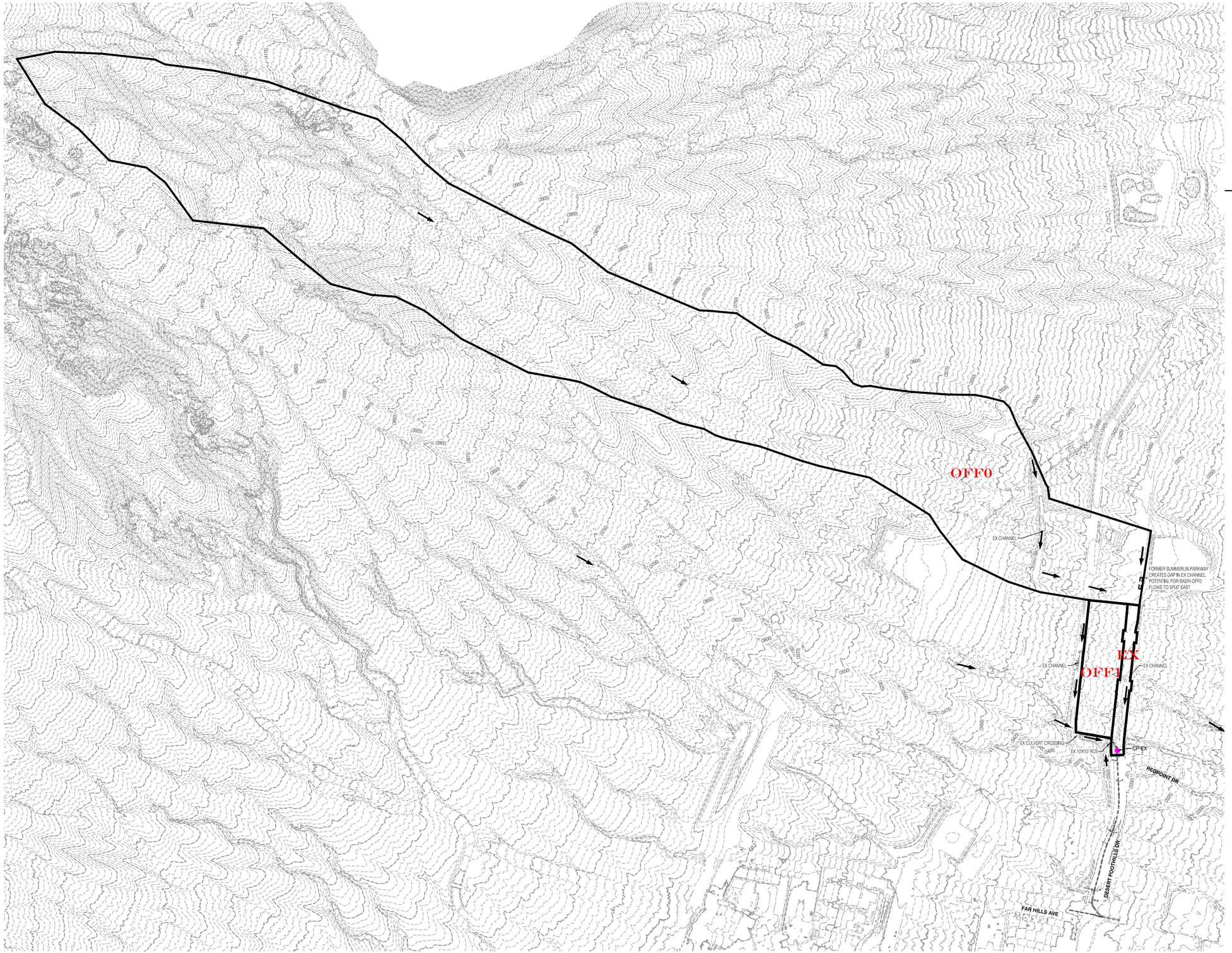
NOTE: Please be advised that all land surface area disturbances over 1 acre or any area adjacent to a water way must submit to the Nevada Division of Environmental Protection a "Notice of Intent" to discharge that certifies a stormwater pollution prevention plan has been developed and is maintained on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

END OF REMARKS
WSP/AYS

T/R/S: T20S/R59E/26
AREA K-26

APPENDIX

APPENDIX A
FIGURES



NORTH

GRAPHIC SCALE

300 0 150 300 600

1" = 300'

LEGEND

- CONCENTRATION POINT
- BASIN BOUNDARY
- OFF BASIN DESIGNATION
- FLOW ARROW

EXISTING CONDITION HEC-1 SUMMARY TABLE

BASIN ID	AREA (ac)	Q100 (CFS)
OFF0	401.38	723
OFF1	14.36	41
EX1	5.18	15
CP-EX1	-	739

REV	DATE	BY	REVISION

THE HOWARD HUGHES COMPANY, LLC
10801 WEST CHARLESTON BLVD, 3RD FLOOR
LAS VEGAS, NEVADA 89135
(702) 791-4000

CITY OF LAS VEGAS

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH. (702) 873-7500 FAX (702) 362-2597 WEB WWW.VTNNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

FIGURE 6: EXISTING CONDITION BASIN MAP

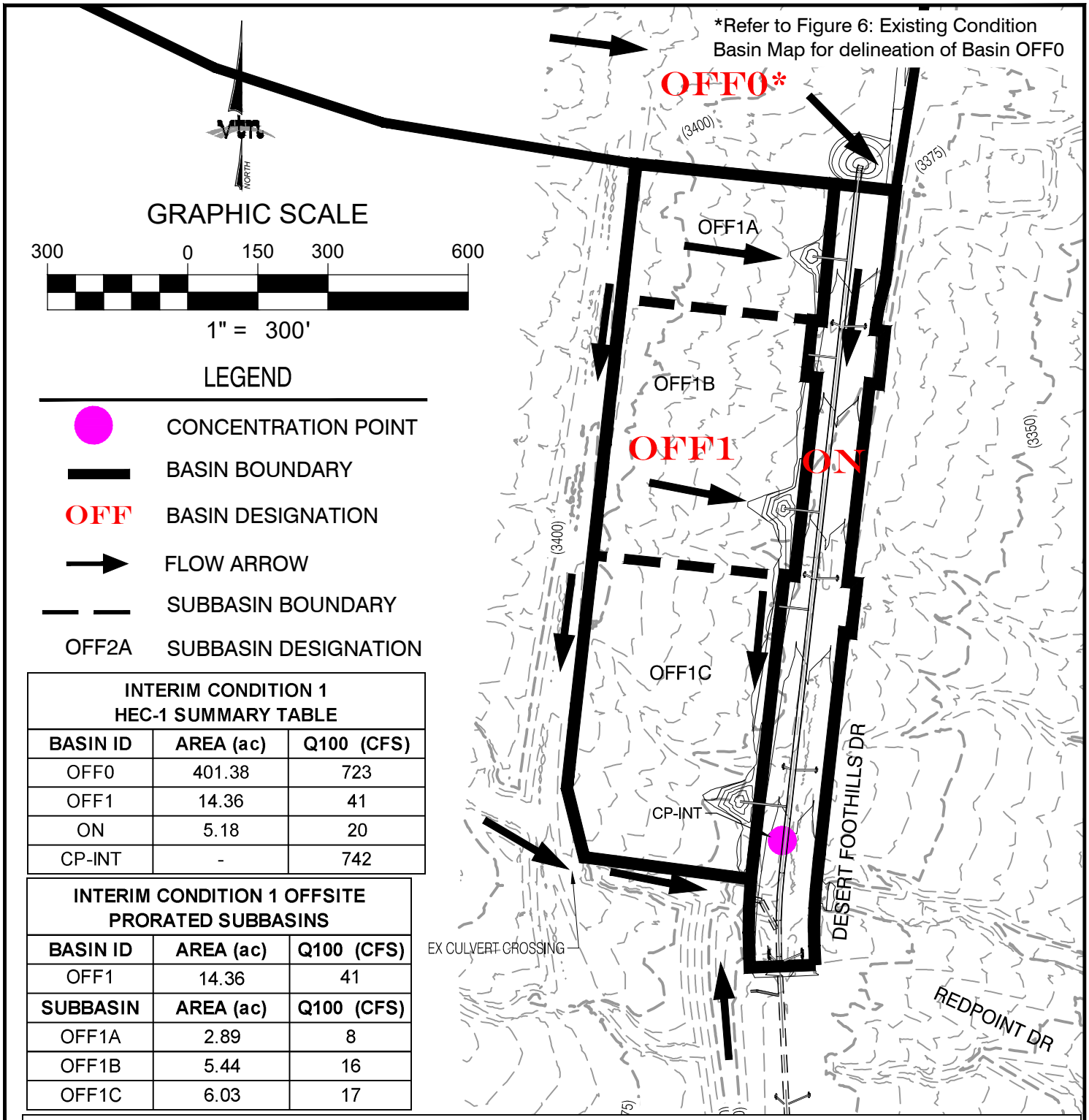
SUMMERLIN WEST VILLAGE 21 DESERT FOOTHILLS DRIVE REDPOINT TO SUMMERLIN PKWY

DRAWN BY: JYA 08/2018
DESIGNED BY: JYA 08/2018
CHECKED BY:
PROJECT NO: 7951-5.6
SCALE: 1" = 300' HORIZ N/A VERT

SHEET FIG 6 OF SHEETS

DRAWING NO.

H:\7951\Desert Foothills-Sheet A to Summerlin Pkwy\Drainage\1_TDS\A Figures\Figure 6 - Existing Condition Map.dwg



INTERIM CONDITION 1 HEC-1 SUMMARY TABLE		
BASIN ID	**AREA (ac)**	**Q100 (CFS)**
OFF0	401.38	723
OFF1	14.36	41
ON	5.18	20
CP-INT	-	742

INTERIM CONDITION 1 OFFSITE PRORATED SUBBASINS		
BASIN ID	**AREA (ac)**	**Q100 (CFS)**
OFF1	14.36	41
SUBBASIN	**AREA (ac)**	**Q100 (CFS)**
OFF1A	2.89	8
OFF1B	5.44	16
OFF1C	6.03	17

INTERIM CONDITION 1 CHANNEL SUMMARY TABLE

Channel	Q100 (cfs)	Slope	Normal Depth (ft)	Freeboard Req'd (ft)	Total Depth (ft)	Velocity (ft/s)	Side Slopes	Riprap D50	Description
OFF1C	17	1.5%	0.59	1.09	1.69	4.30	3:1/3:1	N/A	5'W Trapezoidal

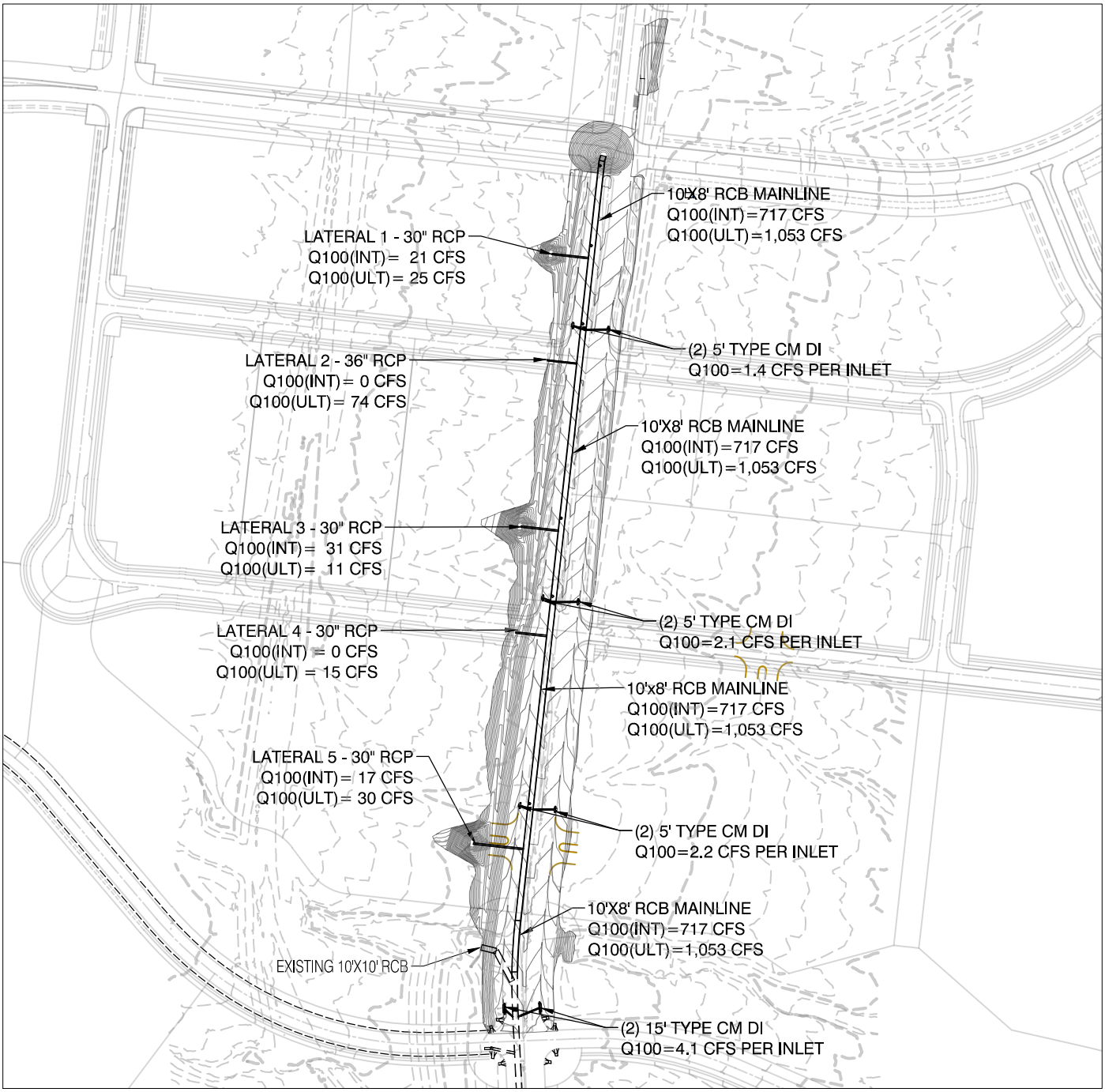
H:\7851\Desert Foothills-Street A to Summerlin Pkwy\Drainage\2_ADD#1\A Figures\Figure 7A - Interim Condition Map 1.dwg

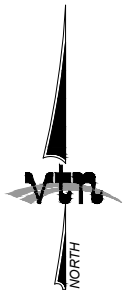
2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NV 89146-5148

FIGURE 7A
INTERIM CONDITION 1 BASIN MAP

SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

SCALE	HORZ.	1"=300'
	VERT.	N/A
W.O. NO.		7851-5.6
DRAWN BY:		JYA
DATE:		12/2018
SHEET	1	OF 1





GRAPHIC SCALE

300 0 150 300 600

1" = 300'

H:\7851\Desert Foothills-Street A to Summerlin Pkwy\Drainage\2_ADD#1\A Figures\Figure 9 - Storm Drain Facilities Map.dwg

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NV 89146-5148

SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
(STREET A TO SUMMERLIN PARKWAY)

FIGURE 9:
PROPOSED STORM DRAIN FACILITIES MAP

SCALE	HORZ. 1" = 300'
	VERT. N/A
W.O. NO.	7851-5.6
DRAWN BY:	JYA
DATE:	DEC 2018
SHEET	1 OF 1

APPENDIX B
HYDROLOGIC CALCULATIONS

LAG TIME CALCULATIONS

STANDARD FORM 4

DEVELOPMENT: Desert Foothills (Street A to Summerlin Pkwy)

CONDITION: Existing/Interim/Ultimate

W.O. # 7851-5.6 **CALCULATED BY:** JYA

V1 applies to the first 500 feet of travel distance
V2 applies to the remaining travel distance

Non-Urban:		Urban	
$V1 = 148 * S^{1/2}$	$V2 = 294 * S^{1/2}$	$V1 = 202 * S^{1/2}$	$V2 = 306 * S^{1/2}$

$$T_i = \frac{1.8(1.1-k)L^{1/2}}{S^{1/3}} \qquad T_t = \frac{L}{60V}$$

$$k = 0.0132 C_n - 0.39 \qquad T_c = T_i + T_t$$

SUB-BASIN DATA					INITIAL/OVERLAND TIME (Ti)			TRAVEL TIME (Tt)					Tc CHECK (URBANIZED BASINS)		FINAL Tc	LAG TIME	REMARKS
DESIG. (1)	Cn	K (2)	AREA Ac. (3)	AREA Mi^2	LENGTH Ft (4)	SLOPE % (5)	Ti Min. (6)	LENGTH Ft. (7)	SLOPE % (8)	V1 fps (9a)	V2 fps (9b)	Tt Min. (10)	TOTAL LENGTH (11)	Tc Min. (12)	Min.	TLAG Hr.	
UNDEVELOPED BASINS																	
EX	87.6	0.767	5.18	0.0081	200	3.0	5.88	1565	2.6	2.4	4.7	7.30	1765	19.81	13.18	0.132	
OFF0	86.3	0.749	401.38	0.6272	883	12.5	8.09	14154	6.8	3.9	7.7	31.88	15037	93.54	39.97	0.400	
OFF1	87.8	0.769	14.36	0.0224	430	6.9	6.50	1510	2.7	2.4	4.8	6.89	1940	20.78	13.39	0.134	
OFF2	88.0	0.771	6.33	0.0099	100	8.3	2.92	1117	4.3	3.1	6.1	4.40	1217	16.76	7.32	0.073	
OFF3	88.0	0.771	9.27	0.0145	100	8.3	2.92	1055	3.9	2.9	5.8	4.45	1155	16.42	7.37	0.074	
DEVELOPED BASINS																	
ON	98.0	0.904	5.18	0.0081	40	2.0	1.77	1674	1.7	2.7	4.0	7.99	1714	19.52	9.77	0.098	
P	92.2	0.826	3.02	0.0047	100	1.0	4.93	450	3.3	3.7	5.6	2.03	550	13.06	6.96	0.070	
Q	92.2	0.826	3.17	0.0050	100	1.0	4.93	611	1.1	2.2	3.3	4.42	711	13.95	9.34	0.093	
R	92.2	0.826	3.07	0.0048	100	1.0	4.93	624	1.3	2.3	3.5	4.24	724	14.02	9.17	0.092	
S	93.4	0.843	6.33	0.0099	100	1.0	4.63	864	6.1	5.0	7.6	2.47	964	15.36	7.10	0.071	
G	92.8	0.835	11.43	0.0179	100	1.0	4.76	720	6.1	5.0	7.6	2.15	820	14.56	6.92	0.069	
L	94.8	0.861	7.44	0.0116	100	1.0	4.30	943	5.1	4.6	6.9	2.90	1043	15.79	7.20	0.072	
COS-3	88.0	0.772	5.90	0.0092	60	16.2	1.81	1186	5.1	3.4	6.7	4.20	1246	16.92	6.01	0.060	Min TLAG=0.10
ST1	98.0	0.904	1.58	0.0025	20	2.0	1.25	910	6.0	5.0	7.5	2.59	930	15.17	3.84	0.038	Min TLAG=0.05
DES3	98.0	0.904	3.73	0.0058	20	2.0	1.25	1919	3.6	3.8	5.8	6.25	1939	20.77	7.51	0.075	

EXISTING CONDITION
HEC-1 ANALYSIS

```
1****************************************                    ****************************************
 *                                      *                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                    *    U.S. ARMY CORPS OF ENGINEERS      *
 *               JUN   1998             *                    *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                    *         609 SECOND STREET            *
 *                                      *                    *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   26DEC18  TIME  09:21:51  *                    *          (916) 756-1104              *
 *                                      *                    *                                      *
 ****************************************                    ****************************************

                                        X     X  XXXXXXX   XXXXX          X
                                        X     X  X        X     X        XX
                                        X     X  X        X              X
                                        XXXXXXX  XXXX     X        XXXXX  X
                                        X     X  X        X              X
                                        X     X  X        X     X        X
                                        X     X  XXXXXXX   XXXXX         XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM


```
          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

                        *DIAGRAM
 *** FREE ***
             1          ID    EXISITNG CONDITION HYDROLOGIC MODEL
             2          ID    INPUT FILE DATE = SEPTEMBER 13, 2018
             3          ID    DESIGN STORM = 100-YEAR 6-HR STORM
             4          ID    STORM DISTRIBUTION = SDN #3
             5          ID    MODELED BY VTN (JYA)
             6          ID
             7          ID    ********************************************************
             8          ID    * SUMMERLIN WEST VILLAGE 21                           *
             9          ID    * DESERT FOOTHILLS DRIVE - REDPOINT DR TO SUMMERLIN PKWY*
            10          ID    ********************************************************
            11          ID
            12          ID                          AREA    DARF
            13          ID                          SQ. MI.
            14          ID                          0-0.5   1.00
            15          ID                          0.5-1   0.98
            16          ID
            17          ID
            18          ID  JR CARD RATIOS REPRESENT DEPTH-AREA REDUCTION FACTORS (DARF'S)
            19          ID
            20          ID  100-YEAR,  6-HOUR STORM,  SDN3
            21          ID
            22          IT       5       0       0     300
            23          IO       5       0       0
            24          IN       5       0       0
            25          ID         0-0.5   0.5-1
            26          JR    PREC    1.00    0.98
                        *

            27          KK    OFF0
            28          KM   EXISTING OFFSITE BASIN
            29          BA  0.6272
            30          PB    3.53
            31          PC       0    0.02   0.057    0.07   0.087   0.108   0.124    0.13    0.13   0.130
            32          PC    0.13    0.13    0.13   0.133    0.14   0.142   0.148   0.158   0.172   0.181
            33          PC    0.19   0.197   0.199     0.2   0.201   0.204   0.214   0.229   0.241   0.249
            34          PC   0.251   0.256    0.27   0.278   0.281   0.283   0.295   0.322   0.352   0.409
            35          PC   0.499    0.59    0.71   0.744   0.781   0.812   0.819   0.835   0.851   0.856
            36          PC    0.86   0.868   0.876   0.888    0.91   0.926   0.937    0.95    0.97   0.976
            37          PC   0.982   0.985   0.987   0.989    0.99   0.993   0.993   0.994   0.995   0.998
            38          PC   0.998   0.999       1
            39          LS       0    86.3
            40          UD   0.399
                        *

            41          KK   ROFF0
            42          KM   ROUTE OFF0 to CP-EX
            43          RD    1565   0.026   0.025       0    TRAP       0       3
                        *
```

```
          LINE           ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


            44           KK    OFF1
            45           KM   EXISTING OFFSITE BASIN
            46           BA  0.0224
            47           PB    3.40
            48           LS       0    87.8
            49           UD   0.134
                         *

            50           KK      EX
            51           KM   EXISTING ONSITE BASIN
            52           BA  0.0081
            53           PB    3.40
            54           LS       0    87.6
            55           UD   0.133
                         *

            56           KK   CP-EX
            57           HC       3
                         *
            58           ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    27        OFF0
              V
              V
    41       ROFF0
              .
              .
    44        .        OFF1
              .          .
              .          .
    50        .          .          EX
              .          .           .
              .          .           .
    56       CP-EX.....................

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************                                    ****************************************
 *                                      *                                   *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                   *    U.S. ARMY CORPS OF ENGINEERS      *
 *              JUN   1998              *                                   *    HYDROLOGIC ENGINEERING CENTER     *
 *           VERSION 4.1                *                                   *         609 SECOND STREET            *
 *                                      *                                   *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   26DEC18  TIME  09:21:51  *                                   *          (916) 756-1104              *
 *                                      *                                   *                                      *
 ****************************************                                    ****************************************



                           EXISITNG CONDITION HYDROLOGIC MODEL
                           INPUT FILE DATE = SEPTEMBER 13, 2018
                           DESIGN STORM = 100-YEAR 6-HR STORM
                           STORM DISTRIBUTION = SDN #3
                           MODELED BY VTN (JYA)

                           ********************************************************
                           * SUMMERLIN WEST VILLAGE 21                            *
                           * DESERT FOOTHILLS DRIVE - REDPOINT DR TO SUMMERLIN PKWY*
                           ********************************************************

                                                AREA    DARF
                                                SQ. MI.
                                                0-0.5   1.00
                                                0.5-1   0.98


                          JR CARD RATIOS REPRESENT DEPTH-AREA REDUCTION FACTORS (DARF'S)

                          100-YEAR,  6-HOUR STORM,  SDN3


    23 IO          OUTPUT CONTROL VARIABLES
                         IPRNT           5  PRINT CONTROL
                         IPLOT           0  PLOT CONTROL
                         QSCAL          0.  HYDROGRAPH PLOT SCALE
                                  0-0.5   0.5-1

       IT          HYDROGRAPH TIME DATA
```

```
                      NMIN           5  MINUTES IN COMPUTATION INTERVAL
                     IDATE      1    0  STARTING DATE
                     ITIME        0000  STARTING TIME
                        NQ         300  NUMBER OF HYDROGRAPH ORDINATES
                    NDDATE      2    0  ENDING DATE
                    NDTIME        0055  ENDING TIME
                    ICENT           19  CENTURY MARK

                  COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE   24.92 HOURS

          ENGLISH UNITS
               DRAINAGE AREA         SQUARE MILES
               PRECIPITATION DEPTH   INCHES
               LENGTH, ELEVATION     FEET
               FLOW                  CUBIC FEET PER SECOND
               STORAGE VOLUME        ACRE-FEET
               SURFACE AREA          ACRES
               TEMPERATURE           DEGREES FAHRENHEIT

     JP          MULTI-PLAN OPTION
                       NPLAN           1  NUMBER OF PLANS

     JR          MULTI-RATIO OPTION
                     RATIOS OF PRECIPITATION
                    1.00       .98
1

               PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
                                FLOWS IN CUBIC FEET PER SECOND,  AREA IN SQUARE MILES
                                             TIME TO PEAK IN HOURS


                                                                  RATIOS APPLIED TO PRECIPITATION
 OPERATION       STATION     AREA    PLAN            RATIO 1  RATIO 2
                                                        1.00      .98

 HYDROGRAPH AT
+                   OFF0       .63     1   FLOW         744.     723.
                                           TIME         3.83     3.83

 ROUTED TO
+                  ROFF0       .63     1   FLOW         735.     715.
                                           TIME         3.83     3.83

 HYDROGRAPH AT
+                   OFF1       .02     1   FLOW          41.      40.
                                           TIME         3.58     3.58

 HYDROGRAPH AT
+                     EX       .01     1   FLOW          15.      14.
                                           TIME         3.58     3.58

  3 COMBINED AT
+                  CP-EX       .66     1   FLOW         760.     739.
                                           TIME         3.83     3.83
1
                                           SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
                                               (FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)
                                                                                 INTERPOLATED TO
                                                                               COMPUTATION INTERVAL
            ISTAQ    ELEMENT      DT       PEAK    TIME TO     VOLUME      DT       PEAK    TIME TO     VOLUME
                                                      PEAK                                    PEAK

                                  (MIN)     (CFS)      (MIN)     (IN)     (MIN)     (CFS)     (MIN)       (IN)

          FOR PLAN = 1  RATIO=  .00
             ROFF0  MANE         1.56    739.81    232.14      2.15      5.00    735.39    230.00        2.15


 CONTINUITY SUMMARY (AC-FT) - INFLOW= .7192E+02 EXCESS= .0000E+00 OUTFLOW= .7192E+02 BASIN STORAGE= .4709E-03 PERCENT ERROR=    .0


          FOR PLAN = 1  RATIO=  .00
             ROFF0  MANE         1.57    718.83    232.23      2.09      5.00    714.60    230.00        2.09


 CONTINUITY SUMMARY (AC-FT) - INFLOW= .6982E+02 EXCESS= .0000E+00 OUTFLOW= .6982E+02 BASIN STORAGE= .4504E-03 PERCENT ERROR=    .0



 *** NORMAL END OF HEC-1 ***
```

INTERIM CONDITION 1
HEC-1 ANALYSIS

```
1****************************************                                    ****************************************
 *                                      *                                   *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                   *    U.S. ARMY CORPS OF ENGINEERS      *
 *               JUN   1998             *                                   *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                                   *         609 SECOND STREET            *
 *                                      *                                   *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   26DEC18  TIME  09:36:27  *                                   *          (916) 756-1104              *
 *                                      *                                   *                                      *
 ****************************************                                    ****************************************

                                        X     X  XXXXXXX   XXXXX          X
                                        X     X  X        X     X        XX
                                        X     X  X        X              X
                                        XXXXXXX  XXXX     X        XXXXX  X
                                        X     X  X        X              X
                                        X     X  X        X     X        X
                                        X     X  XXXXXXX   XXXXX         XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM


```
          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

                        *DIAGRAM
 *** FREE ***
             1          ID    INTERIM CONDITION 1 HYDROLOGIC MODEL
             2          ID    INPUT FILE DATE = SEPTEMBER 6, 2018
             3          ID    DESIGN STORM = 100-YEAR 6-HR STORM
             4          ID    STORM DISTRIBUTION = SDN #3
             5          ID    MODELED BY VTN (JYA)
             6          ID
             7          ID    ********************************************************
             8          ID    * SUMMERLIN WEST VILLAGE 21                           *
             9          ID    * DESERT FOOTHILLS DRIVE - REDPOINT DR TO SUMMERLIN PKWY*
            10          ID    ********************************************************
            11          ID
            12          ID                          AREA    DARF
            13          ID                          SQ. MI.
            14          ID                          0-0.5   1.00
            15          ID                          0.5-1   0.98
            16          ID
            17          ID
            18          ID  JR CARD RATIOS REPRESENT DEPTH-AREA REDUCTION FACTORS (DARF'S)
            19          ID
            20          ID  100-YEAR,  6-HOUR STORM,  SDN3
            21          ID
            22          IT       5       0       0     300
            23          IO       5       0       0
            24          IN       5       0       0
            25          ID         0-0.5   0.5-1
            26          JR    PREC    1.00    0.98
                        *

            27          KK    OFF0
            28          KM   EXISTING OFFSITE BASIN
            29          BA  0.6272
            30          PB    3.53
            31          PC       0    0.02   0.057    0.07   0.087   0.108   0.124    0.13    0.13   0.130
            32          PC    0.13    0.13    0.13   0.133    0.14   0.142   0.148   0.158   0.172   0.181
            33          PC    0.19   0.197   0.199     0.2   0.201   0.204   0.214   0.229   0.241   0.249
            34          PC   0.251   0.256    0.27   0.278   0.281   0.283   0.295   0.322   0.352   0.409
            35          PC   0.499    0.59    0.71   0.744   0.781   0.812   0.819   0.835   0.851   0.856
            36          PC    0.86   0.868   0.876   0.888    0.91   0.926   0.937    0.95    0.97   0.976
            37          PC   0.982   0.985   0.987   0.989    0.99   0.993   0.993   0.994   0.995   0.998
            38          PC   0.998   0.999       1
            39          LS       0    86.3
            40          UD   0.399
                        *

            41          KK   ROFF0
            42          KM   ROUTE OFF0 to CP-INT
            43          RD    1623   0.018   0.015       0    TRAP      10       0
                        *
```

```
          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


             44          KK    OFF1
             45          KM   EXISTING OFFSITE BASIN
             46          BA  0.0224
             47          PB    3.40
             48          LS       0    87.8
             49          UD   0.134
                         *

             50          KK      ON
             51          KM   EXISTING OFFSITE BASIN
             52          BA  0.0081
             53          PB     3.4
             54          LS       0    98.0
             55          UD   0.098
                         *

             56          KK  CP-INT
             57          KM   COMBINE OFF0, OFF1, AND ON
             58          HC       3
                         *
             59          ZZ
1
                 SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    27        OFF0
                 V
                 V
    41       ROFF0
                 .
                 .
    44           .        OFF1
                 .           .
                 .           .
    50           .           .          ON
                 .           .           .
                 .           .           .
    56      CP-INT.......................

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************                                    ****************************************
*                                      *                                    *                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                    *    U.S. ARMY CORPS OF ENGINEERS      *
*               JUN   1998             *                                    *    HYDROLOGIC ENGINEERING CENTER     *
*            VERSION 4.1               *                                    *          609 SECOND STREET           *
*                                      *                                    *       DAVIS, CALIFORNIA 95616        *
*  RUN DATE   26DEC18  TIME  09:36:27  *                                    *           (916) 756-1104             *
*                                      *                                    *                                      *
****************************************                                    ****************************************



                           INTERIM CONDITION 1 HYDROLOGIC MODEL
                           INPUT FILE DATE = SEPTEMBER 6, 2018
                           DESIGN STORM = 100-YEAR 6-HR STORM
                           STORM DISTRIBUTION = SDN #3
                           MODELED BY VTN (JYA)

                           ******************************************************
                           * SUMMERLIN WEST VILLAGE 21                          *
                           * DESERT FOOTHILLS DRIVE - REDPOINT DR TO SUMMERLIN PKWY*
                           ******************************************************

                                                AREA    DARF
                                                SQ. MI.
                                                0-0.5   1.00
                                                0.5-1   0.98


                          JR CARD RATIOS REPRESENT DEPTH-AREA REDUCTION FACTORS (DARF'S)

                          100-YEAR,  6-HOUR STORM,  SDN3


   23 IO          OUTPUT CONTROL VARIABLES
                        IPRNT           5  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                                  0-0.5   0.5-1
```

```
      IT          HYDROGRAPH TIME DATA
                        NMIN           5  MINUTES IN COMPUTATION INTERVAL
                       IDATE      1    0  STARTING DATE
                       ITIME        0000  STARTING TIME
                          NQ         300  NUMBER OF HYDROGRAPH ORDINATES
                      NDDATE      2    0  ENDING DATE
                      NDTIME        0055  ENDING TIME
                      ICENT           19  CENTURY MARK

                    COMPUTATION INTERVAL     .08 HOURS
                         TOTAL TIME BASE   24.92 HOURS

           ENGLISH UNITS
                DRAINAGE AREA         SQUARE MILES
                PRECIPITATION DEPTH   INCHES
                LENGTH, ELEVATION     FEET
                FLOW                  CUBIC FEET PER SECOND
                STORAGE VOLUME        ACRE-FEET
                SURFACE AREA          ACRES
                TEMPERATURE           DEGREES FAHRENHEIT

      JP          MULTI-PLAN OPTION
                        NPLAN           1  NUMBER OF PLANS

      JR          MULTI-RATIO OPTION
                      RATIOS OF PRECIPITATION
                     1.00       .98
1

                PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
                                FLOWS IN CUBIC FEET PER SECOND,  AREA IN SQUARE MILES
                                             TIME TO PEAK IN HOURS


                                                                    RATIOS APPLIED TO PRECIPITATION
 OPERATION       STATION     AREA    PLAN            RATIO 1  RATIO 2
                                                        1.00      .98

 HYDROGRAPH AT
+                   OFF0       .63     1   FLOW         744.     723.
                                           TIME         3.83     3.83

 ROUTED TO
+                   ROFF0      .63     1   FLOW         740.     719.
                                           TIME         3.83     3.83

 HYDROGRAPH AT
+                   OFF1       .02     1   FLOW          41.      40.
                                           TIME         3.58     3.58

 HYDROGRAPH AT
+                    ON        .01     1   FLOW          20.      20.
                                           TIME         3.50     3.50

  3 COMBINED AT
+                 CP-INT       .66     1   FLOW         764.     742.
                                           TIME         3.83     3.83
1
                                           SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
                                               (FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)
                                                                                  INTERPOLATED TO
                                                                                COMPUTATION INTERVAL
             ISTAQ    ELEMENT      DT       PEAK    TIME TO     VOLUME      DT       PEAK    TIME TO     VOLUME
                                                       PEAK                                    PEAK

                                   (MIN)     (CFS)      (MIN)     (IN)     (MIN)     (CFS)     (MIN)       (IN)

           FOR PLAN = 1  RATIO=  .00
              ROFF0  MANE          .81    741.49    231.07      2.15      5.00    739.70    230.00        2.15


 CONTINUITY SUMMARY (AC-FT) - INFLOW= .7192E+02 EXCESS= .0000E+00 OUTFLOW= .7192E+02 BASIN STORAGE= .1265E-02 PERCENT ERROR=    .0


           FOR PLAN = 1  RATIO=  .00
              ROFF0  MANE          .82    720.69    230.44      2.09      5.00    718.82    230.00        2.09


 CONTINUITY SUMMARY (AC-FT) - INFLOW= .6982E+02 EXCESS= .0000E+00 OUTFLOW= .6982E+02 BASIN STORAGE= .1277E-02 PERCENT ERROR=    .0



 *** NORMAL END OF HEC-1 ***
```

APPENDIX C
HYDRAULIC CALCULATIONS

```
T1 Summerlin West Village 21
T2 Desert Foothills Drive (Redpoint to Summerlin Parkway)
T3 MAINLINE - INTERIM CONDITION
SO   1000.00 3337.584  3      .015               3347.599
WX   1000.00 3337.584  1
R    1101.69 3339.455  1      .015                                  5.17
R    1243.28 3342.060  1      .015
R    1667.25 3349.861  1      .015
R    1733.24 3351.076  1      .015
R    1876.58 3353.713  1      .015
R    2209.11 3359.832  1      .015
R    2352.95 3362.478  1      .015
R    2419.04 3363.694  1      .015                                  3.39
R    2428.07 3363.860  1      .015                                  0.42
R    2501.30 3365.206  1      .015                                 -3.86
R    2601.04 3367.041  1      .015
TS   2623.14 3367.097  2      .015
SH   2623.14 3367.097  2      .015
CD   1  3   0   0.00     8.00    10.00  0.00  0.00
CD   2  3   1   1.25     6.00    14.25  0.00  0.00
CD   3  3   0   0.00    10.00    10.00  0.00  0.00
CD   4  3   0   0.00     5.00     6.00  0.00  0.00
CD   5  3   0   0.00     6.00     7.00  0.00  0.00
CD   6  4   0   0.00     2.50     0.00  0.00  0.00
CD   7  4   0   0.00     3.00     0.00  0.00  0.00
Q           717.000   .0
```

Summerlin West Village 21
Desert Foothills Drive (Redpoint to Summerlin Parkway)
MAINLINE - INTERIM CONDITION

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	3337.584	10.015	3347.599	717.00	7.17	.80	3348.40	.00	5.42	10.00	10.000	10.000	.00	0 .0
WALL	EXIT													
1000.000	3337.584	10.016	3347.600	717.00	8.96	1.25	3348.85	.00	5.42	10.00	8.000	10.000	.00	0 .0
101.690	.0184					.0028	.29	.00	.56	3.35	.015	.00	.00	BOX
1101.690	3339.455	8.492	3347.947	717.00	8.96	1.25	3349.19	.00	5.42	10.00	8.000	10.000	.00	0 .0
21.324	.0184					.0028	.06	8.49	.56	3.35	.015	.00	.00	BOX
1123.014	3339.847	8.158	3348.005	717.00	8.96	1.25	3349.25	.00	5.42	10.00	8.000	10.000	.00	0 .0
HYDRAULIC JUMP														
1123.014	3339.847	3.353	3343.201	717.00	21.38	7.10	3350.30	.00	5.42	10.00	8.000	10.000	.00	0 .0
120.266	.0184					.0184	2.21	3.35	2.06	3.35	.015	.00	.00	BOX
1243.280	3342.060	3.353	3345.413	717.00	21.38	7.10	3352.51	.00	5.42	10.00	8.000	10.000	.00	0 .0
1.834	.0184					.0184	.03	3.35	2.06	3.35	.015	.00	.00	BOX
1245.115	3342.094	3.353	3345.447	717.00	21.38	7.10	3352.55	.00	5.42	10.00	8.000	10.000	.00	0 .0
422.135	.0184					.0184	7.75	3.35	2.06	3.35	.015	.00	.00	BOX
1667.250	3349.861	3.358	3353.219	717.00	21.35	7.08	3360.30	.00	5.42	10.00	8.000	10.000	.00	0 .0
65.990	.0184					.0183	1.21	3.36	2.05	3.35	.015	.00	.00	BOX
1733.240	3351.076	3.359	3354.435	717.00	21.34	7.07	3361.51	.00	5.42	10.00	8.000	10.000	.00	0 .0
143.340	.0184					.0183	2.62	3.36	2.05	3.35	.015	.00	.00	BOX

Summerlin West Village 21
Desert Foothills Drive (Redpoint to Summerlin Parkway)
MAINLINE - INTERIM CONDITION

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
1876.580	3353.713	3.366	3357.078	717.00	21.30	7.05	3364.13	.00	5.42	10.00	8.000	10.000	.00	0 .0
332.530	.0184					.0175	5.82	3.37	2.05	3.35	.015	.00	.00	BOX
2209.110	3359.832	3.465	3363.297	717.00	20.69	6.65	3369.95	.00	5.42	10.00	8.000	10.000	.00	0 .0
143.840	.0184					.0160	2.30	3.46	1.96	3.35	.015	.00	.00	BOX
2352.950	3362.478	3.598	3366.076	717.00	19.93	6.17	3372.24	.11	5.42	10.00	8.000	10.000	.00	0 .0
66.090	.0184					.0145	.96	3.71	1.85	3.35	.015	.00	.00	BOX
2419.040	3363.694	3.711	3367.405	717.00	19.32	5.80	3373.20	.09	5.42	10.00	8.000	10.000	.00	0 .0
9.030	.0184					.0138	.12	3.81	1.77	3.35	.015	.00	.00	BOX
2428.070	3363.860	3.731	3367.591	717.00	19.22	5.74	3373.33	.11	5.42	10.00	8.000	10.000	.00	0 .0
18.813	.0184					.0135	.25	3.84	1.75	3.35	.015	.00	.00	BOX
2446.883	3364.206	3.776	3367.982	717.00	18.99	5.60	3373.58	.10	5.42	10.00	8.000	10.000	.00	0 .0
54.417	.0184					.0124	.68	3.88	1.72	3.35	.015	.00	.00	BOX
2501.300	3365.206	3.960	3369.167	717.00	18.10	5.09	3374.26	.00	5.42	10.00	8.000	10.000	.00	0 .0
23.154	.0184					.0112	.26	3.96	1.60	3.35	.015	.00	.00	BOX

2524.454	3365.632	4.074	3369.707	717.00	17.60	4.81	3374.52	.00	5.42	10.00	8.000	10.000	.00	0	.0		
28.650	.0184					.0101	.29	4.07	1.54	3.35	.015	.00	.00	BOX			
2553.104	3366.159	4.273	3370.432	717.00	16.78	4.37	3374.80	.00	5.42	10.00	8.000	10.000	.00	0	.0		
19.790	.0184					.0089	.18	4.27	1.43	3.35	.015	.00	.00	BOX			

Program Package Serial Number: 1513

WATER SURFACE PROFILE LISTING Date: 1-31-2019 Time:11:43:54

Summerlin West Village 21

Desert Foothills Drive (Redpoint to Summerlin Parkway)

MAINLINE - INTERIM CONDITION

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	
2572.894	3366.523	4.482	3371.005	717.00	16.00	3.97	3374.98	.00	5.42	10.00	8.000	10.000	.00	0	.0
13.430	.0184					.0078	.10	4.48	1.33	3.35	.015	.00	.00	BOX	
2586.324	3366.770	4.701	3371.471	717.00	15.25	3.61	3375.08	.00	5.42	10.00	8.000	10.000	.00	0	.0
8.573	.0184					.0068	.06	4.70	1.24	3.35	.015	.00	.00	BOX	
2594.897	3366.928	4.930	3371.858	717.00	14.54	3.28	3375.14	.00	5.42	10.00	8.000	10.000	.00	0	.0
4.686	.0184					.0060	.03	4.93	1.15	3.35	.015	.00	.00	BOX	
2599.583	3367.014	5.171	3372.185	717.00	13.87	2.99	3375.17	.00	5.42	10.00	8.000	10.000	.00	0	.0
1.457	.0184					.0053	.01	5.17	1.07	3.35	.015	.00	.00	BOX	
2601.040	3367.041	5.424	3372.465	717.00	13.22	2.71	3375.18	.00	5.42	10.00	8.000	10.000	.00	0	.0
TRANS STR	.0025					.0048	.11	5.42	1.00		.015	.00	.00	BOX	
2623.140	3367.097	7.017	3374.114	717.00	9.19	1.31	3375.43	.00	4.55	14.25	6.000	14.250	.00	1	1.3

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T1 Summerlin West Village 21
T2 Desert Foothills Drive (Redpoint to Summerlin Parkway)
T3 MAINLINE - ULTIMATE CONDITION
SO   1000.00 3337.584  3      .015               3347.599
WX   1000.00 3337.584  1
R    1101.69 3339.455  1      .015                                  5.17
JX   1243.28 3342.060  1  6   .015  30.00          3342.560          90.0
R    1243.28 3342.060  1      .015
JX   1667.25 3349.861  1  6   .015  15.00          3350.361          90.0
R    1667.25 3349.861  1      .015
R    1733.24 3351.076  1      .015
JX   1876.58 3353.713  1      .015  11.00          3354.213          90.0
R    1876.58 3353.713  1      .015
JX   2209.11 3359.832  1  7   .015  74.00          3360.331          90.0
R    2209.11 3359.832  1      .015
R    2352.95 3362.478  1      .015
JX   2419.04 3363.694  1  6   .015  25.00          3364.193          90.0
R    2419.04 3363.694  1      .015                                  3.39
R    2428.07 3363.860  1      .015                                  0.42
R    2501.30 3365.206  1      .015                                 -3.86
R    2601.04 3367.041  1      .015
TS   2623.14 3367.097  2      .015
SH   2623.14 3367.097  2      .015
CD   1  3   0   0.00     8.00    10.00  0.00  0.00
CD   2  3   1   1.25     6.00    14.25  0.00  0.00
CD   3  3   0   0.00    10.00    10.00  0.00  0.00
CD   4  3   0   0.00     5.00     6.00  0.00  0.00
CD   5  3   0   0.00     6.00     7.00  0.00  0.00
CD   6  4   0   0.00     2.50     0.00  0.00  0.00
CD   7  4   0   0.00     3.00     0.00  0.00  0.00
Q           854.000   .0
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Program Package Serial Number: 1513

WATER SURFACE PROFILE LISTING Date: 1-31-2019 Time:11:41:11

Summerlin West Village 21
Desert Foothills Drive (Redpoint to Summerlin Parkway)
MAINLINE - ULTIMATE CONDITION

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	3337.584	10.015	3347.599	1009.00	10.09	1.58	3349.18	.00	6.81	10.00	10.000	10.000	.00	0 .0
WALL	EXIT													
1000.000	3337.584	10.016	3347.600	1009.00	12.61	2.47	3350.07	.00	6.81	10.00	8.000	10.000	.00	0 .0
82.297	.0184					.0056	.46	.00	.79	4.30	.015	.00	.00	BOX
1082.297	3339.098	9.057	3348.155	1009.00	12.61	2.47	3350.63	.00	6.81	10.00	8.000	10.000	.00	0 .0
HYDRAULIC JUMP														
1082.297	3339.098	4.537	3343.635	1009.00	22.24	7.68	3351.31	.14	6.81	10.00	8.000	10.000	.00	0 .0
19.393	.0184					.0158	.31	4.67	1.84	4.30	.015	.00	.00	BOX
1101.690	3339.455	4.555	3344.010	1009.00	22.15	7.62	3351.63	.00	6.81	10.00	8.000	10.000	.00	0 .0
JUNCT STR	.0184					.0166	2.35	4.56	1.83		.015	.00	.00	BOX
1243.280	3342.060	4.286	3346.346	979.00	22.84	8.10	3354.45	.00	6.68	10.00	8.000	10.000	.00	0 .0
JUNCT STR	.0184					.0167	7.07	4.29	1.94		.015	.00	.00	BOX
1667.250	3349.861	4.384	3354.245	964.00	21.99	7.51	3361.75	.00	6.61	10.00	8.000	10.000	.00	0 .0
65.990	.0184					.0155	1.02	4.38	1.85	4.15	.015	.00	.00	BOX
1733.240	3351.076	4.466	3355.542	964.00	21.59	7.24	3362.78	.00	6.61	10.00	8.000	10.000	.00	0 .0
JUNCT STR	.0184					.0144	2.07	4.47	1.80		.015	.00	.00	BOX
1876.580	3353.713	4.585	3358.298	953.00	20.79	6.71	3365.01	.00	6.56	10.00	8.000	10.000	.00	0 .0
JUNCT STR	.0184					.0146	4.85	4.58	1.71		.015	.00	.00	BOX

Program Package Serial Number: 1513

WATER SURFACE PROFILE LISTING Date: 1-31-2019 Time:11:41:11

Summerlin West Village 21
Desert Foothills Drive (Redpoint to Summerlin Parkway)
MAINLINE - ULTIMATE CONDITION

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
2209.110	3359.832	4.146	3363.978	879.00	21.20	6.98	3370.96	.00	6.21	10.00	8.000	10.000	.00	0 .0
59.857	.0184					.0149	.89	4.15	1.84	3.88	.015	.00	.00	BOX
2268.967	3360.933	4.237	3365.170	879.00	20.75	6.68	3371.85	.00	6.21	10.00	8.000	10.000	.00	0 .0
83.983	.0184					.0136	1.14	4.24	1.78	3.88	.015	.00	.00	BOX
2352.950	3362.478	4.443	3366.921	879.00	19.78	6.08	3373.00	.00	6.21	10.00	8.000	10.000	.00	0 .0
JUNCT STR	.0184					.0132	.87	4.44	1.65		.015	.00	.00	BOX
2419.040	3363.694	4.244	3367.938	854.00	20.12	6.29	3374.23	.10	6.10	10.00	8.000	10.000	.00	0 .0
9.030	.0184					.0135	.12	4.35	1.72	3.80	.015	.00	.00	BOX
2428.070	3363.860	4.266	3368.126	854.00	20.02	6.22	3374.35	.11	6.10	10.00	8.000	10.000	.00	0 .0
17.358	.0184					.0132	.23	4.38	1.71	3.80	.015	.00	.00	BOX
2445.428	3364.179	4.314	3368.493	854.00	19.80	6.09	3374.58	.11	6.10	10.00	8.000	10.000	.00	0 .0
55.872	.0184					.0122	.68	4.43	1.68	3.80	.015	.00	.00	BOX
2501.300	3365.206	4.524	3369.730	854.00	18.88	5.53	3375.26	.00	6.10	10.00	8.000	10.000	.00	0 .0
10.905	.0184					.0113	.12	4.52	1.56	3.80	.015	.00	.00	BOX

2512.205	3365.407	4.579	3369.986	854.00	18.65	5.40	3375.39	.00	6.10	10.00	8.000	10.000	.00	0	.0	
33.531	.0184					.0104	.35	4.58	1.54	3.80	.015	.00	.00	BOX		
2545.736	3366.024	4.803	3370.827	854.00	17.78	4.91	3375.74	.00	6.10	10.00	8.000	10.000	.00	0	.0	
22.968	.0184					.0092	.21	4.80	1.43	3.80	.015	.00	.00	BOX		

Program Package Serial Number: 1513

WATER SURFACE PROFILE LISTING Date: 1-31-2019 Time:11:41:11

Summerlin West Village 21
Desert Foothills Drive (Redpoint to Summerlin Parkway)
MAINLINE - ULTIMATE CONDITION

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	
2568.704	3366.446	5.037	3371.484	854.00	16.95	4.46	3375.95	.00	6.10	10.00	8.000	10.000	.00	0	.0	
15.493	.0184					.0081	.13	5.04	1.33	3.80	.015	.00	.00	BOX		
2584.197	3366.731	5.283	3372.014	854.00	16.16	4.06	3376.07	.00	6.10	10.00	8.000	10.000	.00	0	.0	
9.842	.0184					.0071	.07	5.28	1.24	3.80	.015	.00	.00	BOX		
2594.038	3366.912	5.541	3372.453	854.00	15.41	3.69	3376.14	.00	6.10	10.00	8.000	10.000	.00	0	.0	
5.354	.0184					.0063	.03	5.54	1.15	3.80	.015	.00	.00	BOX		
2599.392	3367.011	5.811	3372.822	854.00	14.70	3.35	3376.18	.00	6.10	10.00	8.000	10.000	.00	0	.0	
1.648	.0184					.0055	.01	5.81	1.07	3.80	.015	.00	.00	BOX		
2601.040	3367.041	6.096	3373.137	854.00	14.01	3.05	3376.18	.00	6.10	10.00	8.000	10.000	.00	0	.0	
TRANS STR	.0025					.0068	.15	6.10	1.00		.015	.00	.00	BOX		
2623.140	3367.097	7.477	3374.574	854.00	10.95	1.86	3376.44	.00	5.12	14.25	6.000	14.250	.00	1	1.3	

STANDARD FORM 6

DEVELOPMENT: Desert Foothills (Redpoint to Summerlin)
CALCULATED BY: JYA **WO#** 7851-5.6
STORM DRAIN SEGMENT: Lateral 3
DESCRIPTION: 100-Year Interim Condition

Starting HGL and EGL

Tailwater Elevation	Outlet Invert Elevation	Tailwater Depth (ft)	Critical Depth-Dc (ft)	Pipe Diameter-D (ft)	(Dc+D)/2 (ft)	Starting HGL (ft)	Hv (ft)	Starting EGL (ft)
3357.08	3354.21	2.86	1.43	2.5	1.967	3357.078	0.62	3357.70

$$Sf = \frac{\Phi Hv}{R^{1.33}} \qquad \Phi = \frac{2g\,(n^2)}{2.21}$$

Phi Index

n Value	Phi
0.013	0.004925

$$H_j = ({V_2}^2/_{2g}) - K_j({V_1}^2/_{2g}) \qquad H_m = K_m({V_2}^2/_{2g}) \qquad H_b = K_b({V_2}^2/_{2g}) \qquad H_i = K_i({V_2}^2/_{2g})$$

Segment Number	Segment Type	Starting Station	Ending Station	Diameter (ft)	D/S Invert	U/S Invert	Length (ft)	Area (sq, ft)	Phi	Flow (cfs)	Slope (%)	Velocity (fps)	Hv (ft)	Sf (ft/ft)	Ave. Sf (ft/ft)	Hf (ft)	Hj (ft)	Hm (ft)	Hb (ft)	Hi (ft)	H_ (ft)	H Total (ft)	U/S EGL Elevation	U/S HGL Elevation	Pressure Flow ?	D/S EGL of U/S Segment	Final U/S EGL	Final U/S HGL
1	PIPE	10+00.00	10+74.73	2.5	3354.21	3359.01	74.7	4.91	0.00492	31	6.42	6.32	0.62	0.00570	0.00570	0.43						0.43	3358.12	3357.50	Yes	3362.13	3362.13	3361.51
2	INLET	10+74.73	10+74.73	2.5	3359.01	3359.01	0.0	4.91	0.00492	31	N/A	6.32	0.62	0.00570	0.00570	0.00				0.31		0.31	3362.44	3361.82				

Manholes/Transition Losses

	Straight Through Manhole				Junction Manhole					Bend Losses				Inlet Losses		
Segment Number	Deflection Angle	Km	Hv (ft)	Hm (ft)	Junction Angle	Kj	D/S Hv (ft)	U/S Hv (ft)	Hj (ft)	Bend Angle	Kb	Hv (ft)	Hb (ft)	Ki	Hv (ft)	Hi (ft)
1																
2														0.5	0.619	0.310

HGL Criteria Check			
Segment Description	TMH Elevation	Cover (ft)	Criteria Met?
PIPE			
INLET	3379.5	17.68	Yes

Starting HGL and EGL

Tailwater Elevation	Outlet Invert Elevation	Tailwater Depth (ft)	Critical Depth-Dc (ft)	Pipe Diameter-D (ft)	(Dc+D)/2 (ft)	Starting HGL (ft)	Hv (ft)	Starting EGL (ft)
3345.41	3342.56	2.85	1.43	2.5	1.967	3345.413	0.19	3345.60

$$Sf = \frac{\Phi H v}{R^{1.33}} \qquad \Phi = \frac{2g\,(n^2)}{2.21}$$

STANDARD FORM 6

DEVELOPMENT: Desert Foothills (Redpoint to Summerlin)
CALCULATED BY: JYA **WO#** 7851-5.6
STORM DRAIN SEGMENT: Lateral 5
DESCRIPTION: 100-Year Interim Condition

Phi Index

n Value	Phi
0.013	0.004925

$$H_j = ({V_2}^2/_{2g}) - K_j({V_1}^2/_{2g}) \qquad H_m = K_m({V_2}^2/_{2g}) \qquad H_b = K_b({V_2}^2/_{2g}) \qquad H_i = K_i({V_2}^2/_{2g})$$

Segment Number	Segment Type	Starting Station	Ending Station	Diameter (ft)	D/S Invert	U/S Invert	Length (ft)	Area (sq, ft)	Phi	Flow (cfs)	Slope (%)	Velocity (fps)	Hv (ft)	Sf (ft/ft)	Ave. Sf (ft/ft)	Hf (ft)	Hj (ft)	Hm (ft)	Hb (ft)	Hi (ft)	H_ (ft)	H Total (ft)	U/S EGL Elevation	U/S HGL Elevation	Pressure Flow ?	D/S EGL of U/S Segment	Final U/S EGL	Final U/S HGL
1	PIPE	10+00.00	10+99.45	2.5	3342.56	3351.18	99.5	4.91	0.00492	17	8.67	3.46	0.19	0.00171	0.00171	0.17						0.17	3345.77	3345.58	Yes	3353.87	3353.87	3353.68
2	INLET	10+99.45	10+99.45	2.5	3351.18	3351.18	0.0	4.91	0.00492	17	N/A	3.46	0.19	0.00171	0.00171	0.00				0.09		0.09	3353.96	3353.77				

Manholes/Transition Losses

	Straight Through Manhole				Junction Manhole					Bend Losses				Inlet Losses		
Segment Number	Deflection Angle	Km	Hv (ft)	Hm (ft)	Junction Angle	Kj	D/S Hv (ft)	U/S Hv (ft)	Hj (ft)	Bend Angle	Kb	Hv (ft)	Hb (ft)	Ki	Hv (ft)	Hi (ft)
1																
2														0.5	0.186	0.093

HGL Criteria Check			
Segment Description	TMH Elevation	Cover (ft)	Criteria Met?
PIPE			
INLET	3369	15.23	Yes

Starting HGL and EGL

Tailwater Elevation	Outlet Invert Elevation	Tailwater Depth (ft)	Critical Depth-Dc (ft)	Pipe Diameter-D (ft)	(Dc+D)/2 (ft)	Starting HGL (ft)	Hv (ft)	Starting EGL (ft)
3367.94	3364.19	3.74	1.43	2.5	1.967	3367.938	0.40	3368.34

$$Sf = \frac{\Phi Hv}{R^{1.33}} \qquad \Phi = \frac{2g\,(n^2)}{2.21}$$

STANDARD FORM 6

DEVELOPMENT: Desert Foothills (Redpoint to Summerlin)
CALCULATED BY: JYA **WO#** 7851-5.6
STORM DRAIN SEGMENT: Lateral 1
DESCRIPTION: 100-Year Ultimate Condition

Phi Index

n Value	Phi
0.013	0.004925

$$H_j = ({V_2}^2/_{2g}) - K_j({V_1}^2/_{2g}) \qquad H_m = K_m({V_2}^2/_{2g}) \qquad H_b = K_b({V_2}^2/_{2g}) \qquad H_i = K_i({V_2}^2/_{2g})$$

Segment Number	Segment Type	Starting Station	Ending Station	Diameter (ft)	D/S Invert	U/S Invert	Length (ft)	Area (sq, ft)	Phi	Flow (cfs)	Slope (%)	Velocity (fps)	Hv (ft)	Sf (ft/ft)	Ave. Sf (ft/ft)	Hf (ft)	Hj (ft)	Hm (ft)	Hb (ft)	Hi (ft)	H_ (ft)	H Total (ft)	U/S EGL Elevation	U/S HGL Elevation	Pressure Flow ?	D/S EGL of U/S Segment	Final U/S EGL	Final U/S HGL
1	PIPE	10+00.00	10+75.07	2.5	3364.19	3370.04	75.07	4.91	0.00492	25.0	7.79	5.09	0.40	0.00371	0.00371	0.28						0.28	3368.62	3368.22	Yes	3372.94	3372.94	3372.54
2	INLET	10+75.07	10+75.07	2.5	3370.04	3370.04	0.00	4.91	0.00492	25.0	N/A	5.09	0.40	0.00371	0.00371	0.00						0.00	3372.94	3372.54				

Manholes/Transition Losses

	Straight Through Manhole				Junction Manhole					Bend Losses				Inlet Losses		
Segment Number	Deflection Angle	Km	Hv (ft)	Hm (ft)	Junction Angle	Kj	D/S Hv (ft)	U/S Hv (ft)	Hj (ft)	Bend Angle	Kb	Hv (ft)	Hb (ft)	Ki	Hv (ft)	Hi (ft)
1																
2																

HGL Criteria Check			
Segment Description	TMH Elevation	Cover (ft)	Criteria Met?
PIPE			
INLET	3384	11.460	Yes

Starting HGL and EGL

Tailwater Elevation	Outlet Invert Elevation	Tailwater Depth (ft)	Critical Depth-Dc (ft)	Pipe Diameter-D (ft)	(Dc+D)/2 (ft)	Starting HGL (ft)	Hv (ft)	Starting EGL (ft)
3363.98	3360.33	3.65	2.44	3.0	2.719	3363.98	1.70	3365.68

$$Sf = \frac{\Phi Hv}{R^{1.33}} \qquad \Phi = \frac{2g\,(n^2)}{2.21}$$

STANDARD FORM 6

DEVELOPMENT: Desert Foothills (Redpoint to Summerlin)
CALCULATED BY: JYA **WO#** 7851-5.6
STORM DRAIN SEGMENT: Lateral 2
DESCRIPTION: 100-Year Ultimate Condition

Phi Index

n Value	Phi
0.013	0.004925

$$H_j = ({V_2}^2/_{2g}) - K_j({V_1}^2/_{2g}) \qquad H_m = K_m({V_2}^2/_{2g}) \qquad H_b = K_b({V_2}^2/_{2g}) \qquad H_i = K_i({V_2}^2/_{2g})$$

Segment Number	Segment Type	Starting Station	Ending Station	Diameter (ft)	D/S Invert	U/S Invert	Length (ft)	Area (sq, ft)	Phi	Flow (cfs)	Slope (%)	Velocity (fps)	Hv (ft)	Sf (ft/ft)	Ave. Sf (ft/ft)	Hf (ft)	Hj (ft)	Hm (ft)	Hb (ft)	Hi (ft)	H_ (ft)	H Total (ft)	U/S EGL Elevation	U/S HGL Elevation	Pressure Flow ?	D/S EGL of U/S Segment	Final U/S EGL	Final U/S HGL
1	PIPE	10+00.00	10+59.00	3	3360.33	3364.46	59.0	7.07	0.00492	74.0	7.00	10.47	1.70	0.01229	0.01229	0.72						0.72	3366.40	3364.70	Yes	3369.16	3369.16	3367.46
2	INLET	10+59.00	10+59.00	3	3364.46	3364.46	0.0	7.07	0.00492	74.0	N/A	10.47	1.70	0.01229	0.01229	0.00						0.00	3369.16	3367.46				

Manholes/Transition Losses

	Straight Through Manhole				Junction Manhole					Bend Losses				Inlet Losses		
Segment Number	Deflection Angle	Km	Hv (ft)	Hm (ft)	Junction Angle	Kj	D/S Hv (ft)	U/S Hv (ft)	Hj (ft)	Bend Angle	Kb	Hv (ft)	Hb (ft)	Ki	Hv (ft)	Hi (ft)
1																
2																

HGL Criteria Check			
Segment Description	TMH Elevation	Cover (ft)	Criteria Met?
PIPE			
INLET	3381	13.539	Yes

Starting HGL and EGL

Tailwater Elevation	Outlet Invert Elevation	Tailwater Depth (ft)	Critical Depth-Dc (ft)	Pipe Diameter-D (ft)	(Dc+D)/2 (ft)	Starting HGL (ft)	Hv (ft)	Starting EGL (ft)
3358.30	3354.21	4.08	1.43	2.5	1.967	3358.298	0.08	3358.38

$$Sf = \frac{\Phi Hv}{R^{1.33}} \qquad \Phi = \frac{2g\,(n^2)}{2.21}$$

STANDARD FORM 6

DEVELOPMENT: Desert Foothills (Redpoint to Summerlin)
CALCULATED BY: JYA **WO#** 7851-5.6
STORM DRAIN SEGMENT: Lateral 3
DESCRIPTION: 100-Year Ultimate Condition

Phi Index

n Value	Phi
0.013	0.004925

$$H_j = ({V_2}^2/_{2g}) - K_j({V_1}^2/_{2g}) \qquad H_m = K_m({V_2}^2/_{2g}) \qquad H_b = K_b({V_2}^2/_{2g}) \qquad H_i = K_i({V_2}^2/_{2g})$$

Segment Number	Segment Type	Starting Station	Ending Station	Diameter (ft)	D/S Invert	U/S Invert	Length (ft)	Area (sq, ft)	Phi	Flow (cfs)	Slope (%)	Velocity (fps)	Hv (ft)	Sf (ft/ft)	Ave. Sf (ft/ft)	Hf (ft)	Hj (ft)	Hm (ft)	Hb (ft)	Hi (ft)	H_ (ft)	H Total (ft)	U/S EGL Elevation	U/S HGL Elevation	Pressure Flow ?	D/S EGL of U/S Segment	Final U/S EGL	Final U/S HGL
1	PIPE	10+00.00	10+74.73	2.5	3354.21	3359.01	74.7	4.91	0.00492	11.0	6.42	2.24	0.08	0.00072	0.00072	0.05						0.05	3358.43	3358.35	Yes	3361.59	3361.59	3361.51
2	INLET	10+74.73	10+74.73	2.5	3359.01	3359.01	0.0	4.91	0.00492	11.0	N/A	2.24	0.08	0.00072	0.00072	0.00						0.00	3361.59	3361.51				

Manholes/Transition Losses

	Straight Through Manhole				Junction Manhole					Bend Losses				Inlet Losses		
Segment Number	Deflection Angle	Km	Hv (ft)	Hm (ft)	Junction Angle	Kj	D/S Hv (ft)	U/S Hv (ft)	Hj (ft)	Bend Angle	Kb	Hv (ft)	Hb (ft)	Ki	Hv (ft)	Hi (ft)
1																
2																

HGL Criteria Check			
Segment Description	TMH Elevation	Cover (ft)	Criteria Met?
PIPE			
INLET	3379.5	17.99	Yes

Starting HGL and EGL

Tailwater Elevation	Outlet Invert Elevation	Tailwater Depth (ft)	Critical Depth-Dc (ft)	Pipe Diameter-D (ft)	(Dc+D)/2 (ft)	Starting HGL (ft)	Hv (ft)	Starting EGL (ft)
3354.25	3350.36	3.88	1.43	2.5	1.967	3354.245	0.14	3354.39

$$Sf = \frac{\Phi H v}{R^{1.33}} \qquad \Phi = \frac{2g\,(n^2)}{2.21}$$

Phi Index

n Value	Phi
0.013	0.004925

$$H_j = ({V_2}^2/_{2g}) - K_j({V_1}^2/_{2g}) \qquad H_m = K_m({V_2}^2/_{2g}) \qquad H_b = K_b({V_2}^2/_{2g}) \qquad H_i = K_i({V_2}^2/_{2g})$$

STANDARD FORM 6

DEVELOPMENT: Desert Foothills (Redpoint to Summerlin)
CALCULATED BY: JYA **WO#** 7851-5.6
STORM DRAIN SEGMENT: Lateral 4
DESCRIPTION: 100-Year Ultimate Condition

Segment Number	Segment Type	Starting Station	Ending Station	Diameter (ft)	D/S Invert	U/S Invert	Length (ft)	Area (sq, ft)	Phi	Flow (cfs)	Slope (%)	Velocity (fps)	Hv (ft)	Sf (ft/ft)	Ave. Sf (ft/ft)	Hf (ft)	Hj (ft)	Hm (ft)	Hb (ft)	Hi (ft)	H_ (ft)	H Total (ft)	U/S EGL Elevation	U/S HGL Elevation	Pressure Flow ?	D/S EGL of U/S Segment	Final U/S EGL	Final U/S HGL
1	PIPE	10+00.00	10+62.02	2.5	3350.36	3354.27	62.02	4.91	0.00492	15.0	6.30	3.06	0.14	0.00133	0.00133	0.08						0.08	3354.47	3354.33	Yes	3356.91	3356.91	3356.77
2	INLET	10+62.02	10+62.02	2.5	3354.27	3354.27	0.00	4.91	0.00492	15.0	N/A	3.06	0.14	0.00133	0.00133	0.00						0.00	3356.91	3356.77				

Manholes/Transition Losses

	Straight Through Manhole				Junction Manhole					Bend Losses				Inlet Losses		
Segment Number	Deflection Angle	Km	Hv (ft)	Hm (ft)	Junction Angle	Kj	D/S Hv (ft)	U/S Hv (ft)	Hj (ft)	Bend Angle	Kb	Hv (ft)	Hb (ft)	Ki	Hv (ft)	Hi (ft)
1																
2																

HGL Criteria Check			
Segment Description	TMH Elevation	Cover (ft)	Criteria Met?
PIPE			
INLET	3373	16.23	Yes

Starting HGL and EGL

Tailwater Elevation	Outlet Invert Elevation	Tailwater Depth (ft)	Critical Depth-Dc (ft)	Pipe Diameter-D (ft)	(Dc+D)/2 (ft)	Starting HGL (ft)	Hv (ft)	Starting EGL (ft)
3346.35	3342.56	3.79	1.43	2.5	1.967	3346.346	0.58	3346.93

$$Sf = \frac{\Phi Hv}{R^{1.33}} \qquad \Phi = \frac{2g\,(n^2)}{2.21}$$

STANDARD FORM 6

DEVELOPMENT: Desert Foothills (Redpoint to Summerlin)
CALCULATED BY: JYA **WO#** 7851-5.6
STORM DRAIN SEGMENT: Lateral 5
DESCRIPTION: 100-Year Ultimate Condition

Phi Index

n Value	Phi
0.013	0.004925

$$H_j = ({V_2}^2/_{2g}) - K_j({V_1}^2/_{2g}) \qquad H_m = K_m({V_2}^2/_{2g}) \qquad H_b = K_b({V_2}^2/_{2g}) \qquad H_i = K_i({V_2}^2/_{2g})$$

Segment Number	Segment Type	Starting Station	Ending Station	Diameter (ft)	D/S Invert	U/S Invert	Length (ft)	Area (sq, ft)	Phi	Flow (cfs)	Slope (%)	Velocity (fps)	Hv (ft)	Sf (ft/ft)	Ave. Sf (ft/ft)	Hf (ft)	Hj (ft)	Hm (ft)	Hb (ft)	Hi (ft)	H_ (ft)	H Total (ft)	U/S EGL Elevation	U/S HGL Elevation	Pressure Flow ?	D/S EGL of U/S Segment	Final U/S EGL	Final U/S HGL
1	PIPE	10+00.00	10+99.45	2.5	3342.56	3351.18	99.5	4.91	0.00492	30.0	8.67	6.11	0.58	0.00534	0.00534	0.53						0.53	3347.46	3346.88	Yes	3354.26	3354.26	3353.68
2	INLET	10+99.45	10+99.45	2.5	3351.18	3351.18	0.0	4.91	0.00492	30.0	N/A	6.11	0.58	0.00534	0.00534	0.00						0.00	3354.26	3353.68				

Manholes/Transition Losses

	Straight Through Manhole				Junction Manhole					Bend Losses				Inlet Losses		
Segment Number	Deflection Angle	Km	Hv (ft)	Hm (ft)	Junction Angle	Kj	D/S Hv (ft)	U/S Hv (ft)	Hj (ft)	Bend Angle	Kb	Hv (ft)	Hb (ft)	Ki	Hv (ft)	Hi (ft)
1																
2																

HGL Criteria Check			
Segment Description	TMH Elevation	Cover (ft)	Criteria Met?
PIPE			
INLET	3369	15.32	Yes

HY-8 Culvert Analysis Report

Crossing Discharge Data

Discharge Selection Method: Specify Minimum, Design, and Maximum Flow

Minimum Flow: 0 cfs

Design Flow: 21 cfs

Maximum Flow: 21 cfs

Table 1 - Summary of Culvert Flows at Crossing: Lateral 1

Headwater Elevation (ft)	Total Discharge (cfs)	Lateral 1 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
3370.04	0.00	0.00	0.00	1
3370.65	2.10	2.10	0.00	1
3370.91	4.20	4.20	0.00	1
3371.12	6.30	6.30	0.00	1
3371.30	8.40	8.40	0.00	1
3371.50	10.50	10.50	0.00	1
3371.69	12.60	12.60	0.00	1
3371.86	14.70	14.70	0.00	1
3372.02	16.80	16.80	0.00	1
3372.18	18.90	18.90	0.00	1
3372.34	21.00	21.00	0.00	1
3384.80	88.13	88.13	0.00	Overtopping

Rating Curve Plot for Crossing: Lateral 1

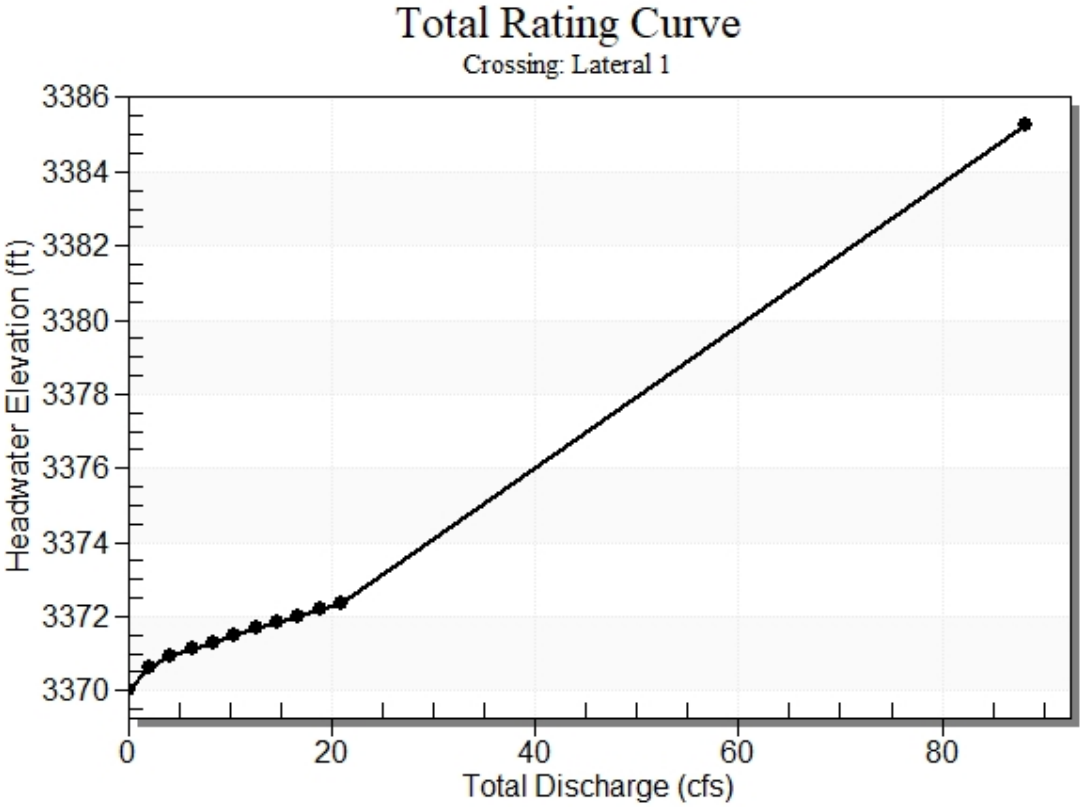


Table 2 - Culvert Summary Table: Lateral 1

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
0.00	0.00	3370.04	0.000	0.000	0-NF	0.000	0.000	2.500	3.790	0.000	0.000
2.10	2.10	3370.65	0.605	0.0*	1-JS1f	0.225	0.468	2.500	3.790	0.428	0.000
4.20	4.20	3370.91	0.868	0.0*	1-JS1f	0.316	0.669	2.500	3.790	0.856	0.000
6.30	6.30	3371.12	1.076	0.0*	1-JS1f	0.385	0.828	2.500	3.790	1.283	0.000
8.40	8.40	3371.30	1.257	0.0*	1-JS1f	0.443	0.962	2.500	3.790	1.711	0.000
10.50	10.50	3371.50	1.460	0.0*	1-JS1f	0.494	1.082	2.500	3.790	2.139	0.000
12.60	12.60	3371.69	1.646	0.0*	1-JS1f	0.541	1.192	2.500	3.790	2.567	0.000
14.70	14.70	3371.86	1.818	0.0*	1-JS1f	0.585	1.291	2.500	3.790	2.995	0.000
16.80	16.80	3372.02	1.982	0.0*	1-JS1f	0.625	1.381	2.500	3.790	3.422	0.000
18.90	18.90	3372.18	2.142	0.0*	1-JS1f	0.664	1.470	2.500	3.790	3.850	0.000
21.00	21.00	3372.34	2.303	0.0*	1-JS1f	0.701	1.554	2.500	3.790	4.278	0.000

* Full Flow Headwater elevation is below inlet invert.

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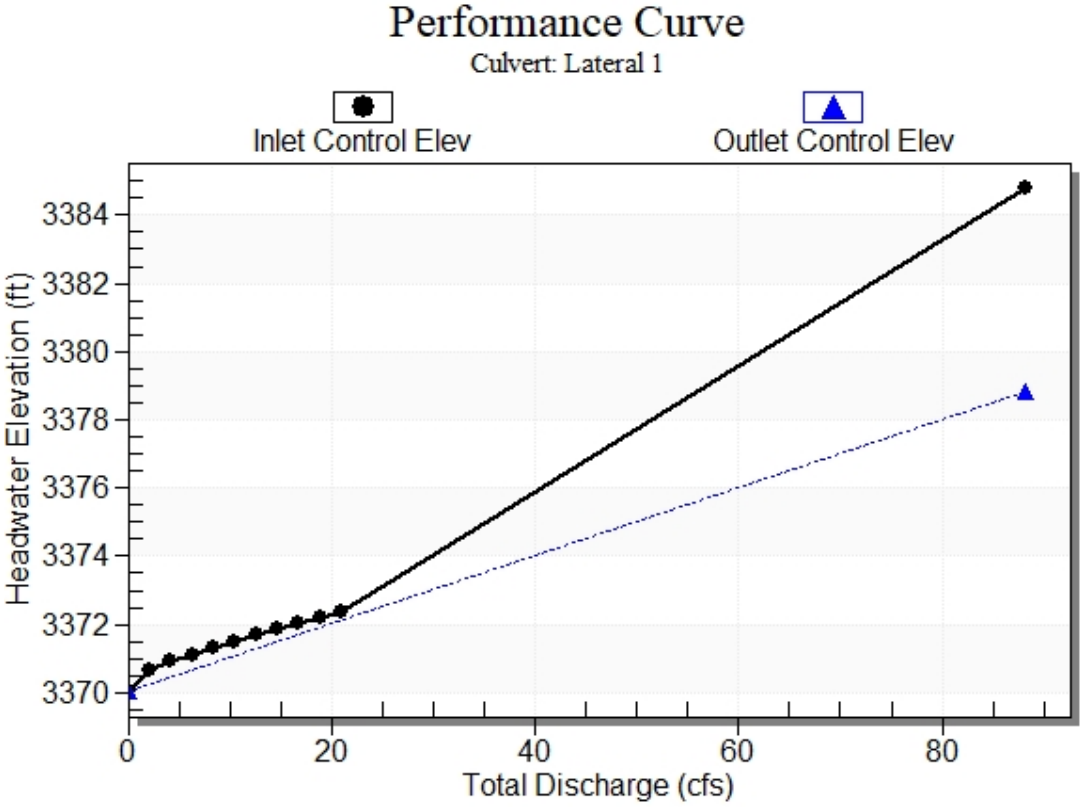
Straight Culvert

Inlet Elevation (invert): 3370.04 ft, Outlet Elevation (invert): 3364.19 ft

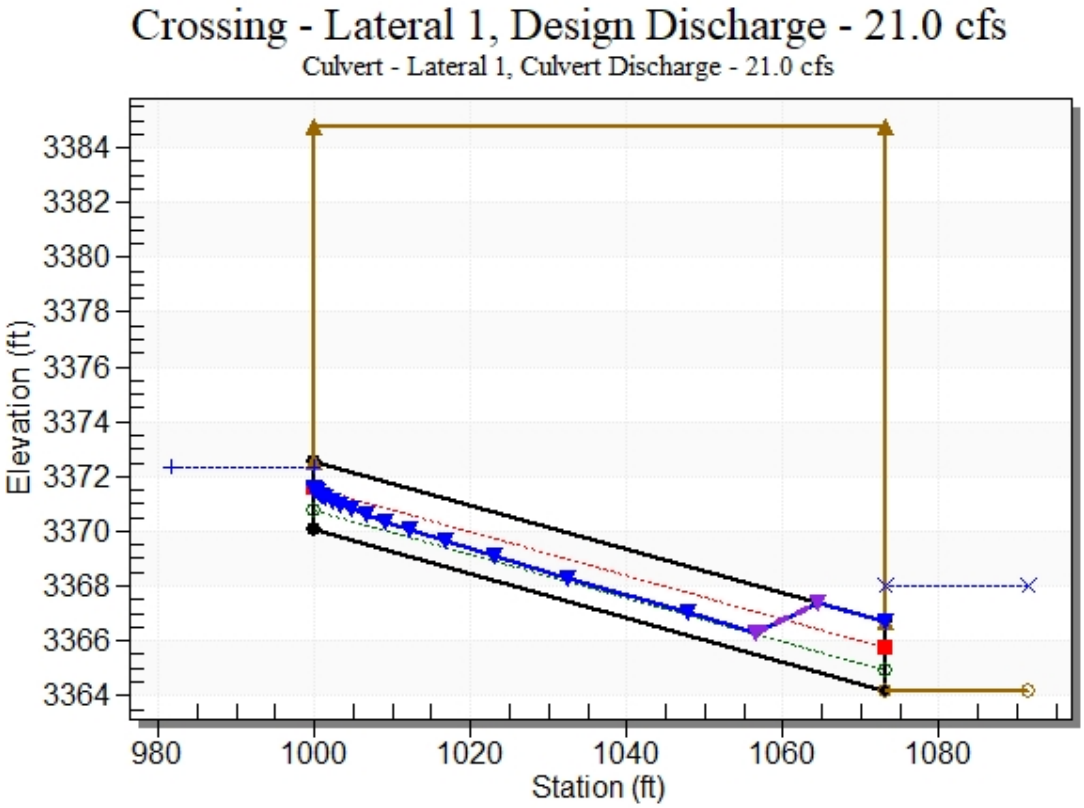
Culvert Length: 73.35 ft, Culvert Slope: 0.0800

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Culvert Performance Curve Plot: Lateral 1



Water Surface Profile Plot for Culvert: Lateral 1



Site Data - Lateral 1

Site Data Option: Culvert Invert Data

Inlet Station: 1000.00 ft

Inlet Elevation: 3370.04 ft

Outlet Station: 1073.12 ft

Outlet Elevation: 3364.19 ft

Number of Barrels: 1

Culvert Data Summary - Lateral 1

Barrel Shape: Circular

Barrel Diameter: 2.50 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0130

Culvert Type: Straight

Inlet Configuration: Square Edge with Headwall

Inlet Depression: None

Table 3 - Downstream Channel Rating Curve (Crossing: Lateral 1)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)
0.00	3367.98	3.79
2.10	3367.98	3.79
4.20	3367.98	3.79
6.30	3367.98	3.79
8.40	3367.98	3.79
10.50	3367.98	3.79
12.60	3367.98	3.79
14.70	3367.98	3.79
16.80	3367.98	3.79
18.90	3367.98	3.79
21.00	3367.98	3.79

Tailwater Channel Data - Lateral 1

Tailwater Channel Option: Enter Constant Tailwater Elevation

Constant Tailwater Elevation: 3367.98 ft

Roadway Data for Crossing: Lateral 1

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 73.12 ft

Crest Elevation: 3384.80 ft

Roadway Surface: Paved

Roadway Top Width: 73.12 ft

Crossing Discharge Data

Discharge Selection Method: Specify Minimum, Design, and Maximum Flow

Minimum Flow: 0 cfs

Design Flow: 31 cfs

Maximum Flow: 31 cfs

Table 4 - Summary of Culvert Flows at Crossing: Lateral 3

Headwater Elevation (ft)	Total Discharge (cfs)	Lateral 3 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
3359.01	0.00	0.00	0.00	1
3359.76	3.10	3.10	0.00	1
3360.09	6.20	6.20	0.00	1
3360.38	9.30	9.30	0.00	1
3360.66	12.40	12.40	0.00	1
3360.91	15.50	15.50	0.00	1
3361.15	18.60	18.60	0.00	1
3361.39	21.70	21.70	0.00	1
3361.64	24.80	24.80	0.00	1
3361.90	27.90	27.90	0.00	1
3362.19	31.00	31.00	0.00	1
3379.50	105.00	105.00	0.00	Overtopping

Rating Curve Plot for Crossing: Lateral 3

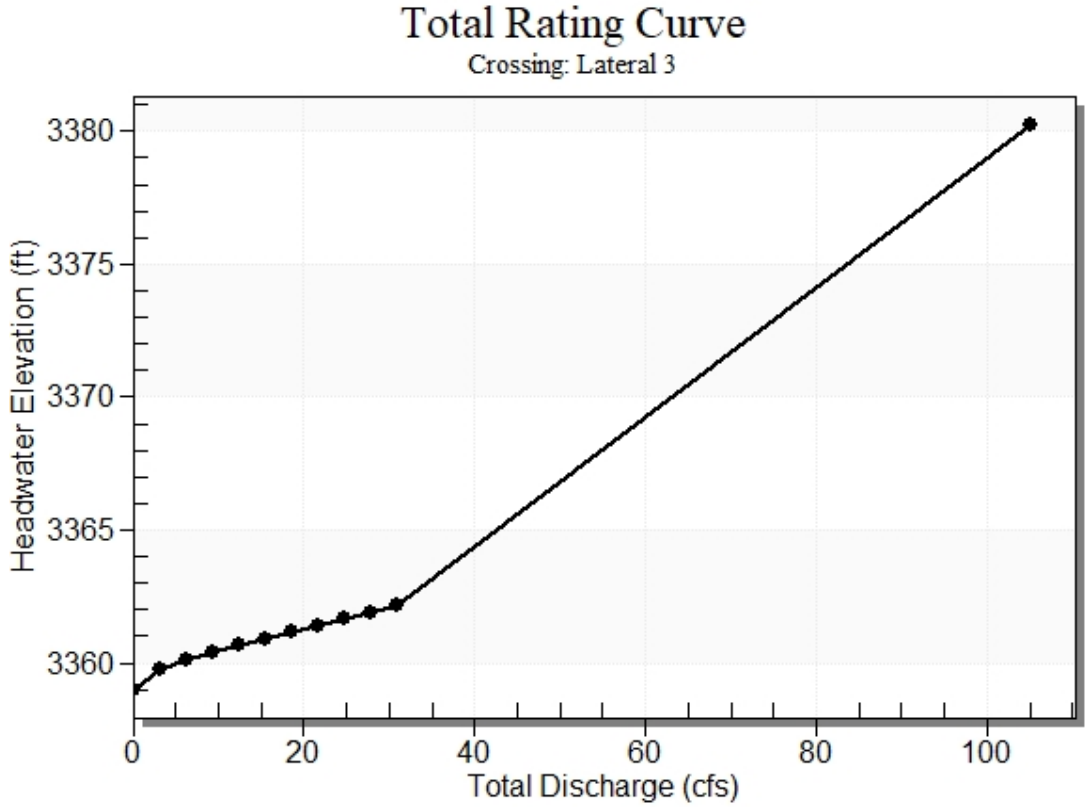


Table 5 - Culvert Summary Table: Lateral 3

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
0.00	0.00	3359.01	0.000	0.000	0-NF	0.000	0.000	2.500	2.870	0.000	0.000
3.10	3.10	3359.76	0.749	0.0*	1-JS1f	0.287	0.574	2.500	2.870	0.632	0.000
6.20	6.20	3360.09	1.079	0.0*	1-JS1f	0.402	0.822	2.500	2.870	1.263	0.000
9.30	9.30	3360.38	1.366	0.0*	1-JS1f	0.491	1.013	2.500	2.870	1.895	0.000
12.40	12.40	3360.66	1.648	0.0*	1-JS1f	0.567	1.182	2.500	2.870	2.526	0.000
15.50	15.50	3360.91	1.900	0.0*	1-S2n	0.635	1.326	0.678	2.870	13.917	0.000
18.60	18.60	3361.15	2.139	0.0*	1-S2n	0.697	1.458	0.756	2.870	14.334	0.000
21.70	21.70	3361.39	2.377	0.0*	1-S2n	0.754	1.581	0.826	2.870	14.798	0.000
24.80	24.80	3361.64	2.625	0.0*	5-S2n	0.809	1.692	0.890	2.870	15.273	0.000
27.90	27.90	3361.90	2.892	0.0*	5-S2n	0.860	1.799	0.955	2.870	15.636	0.000
31.00	31.00	3362.19	3.184	0.0*	5-S2n	0.911	1.895	1.020	2.870	15.908	0.000

* Full Flow Headwater elevation is below inlet invert.

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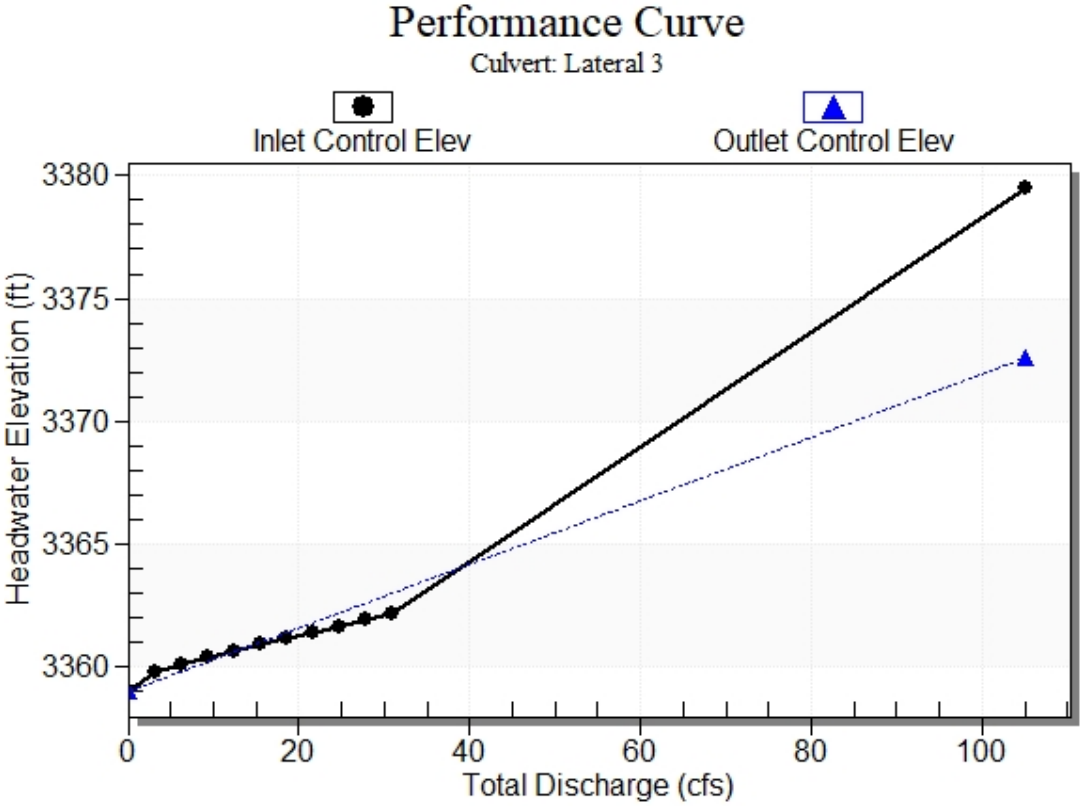
Straight Culvert

Inlet Elevation (invert): 3359.01 ft, Outlet Elevation (invert): 3354.21 ft

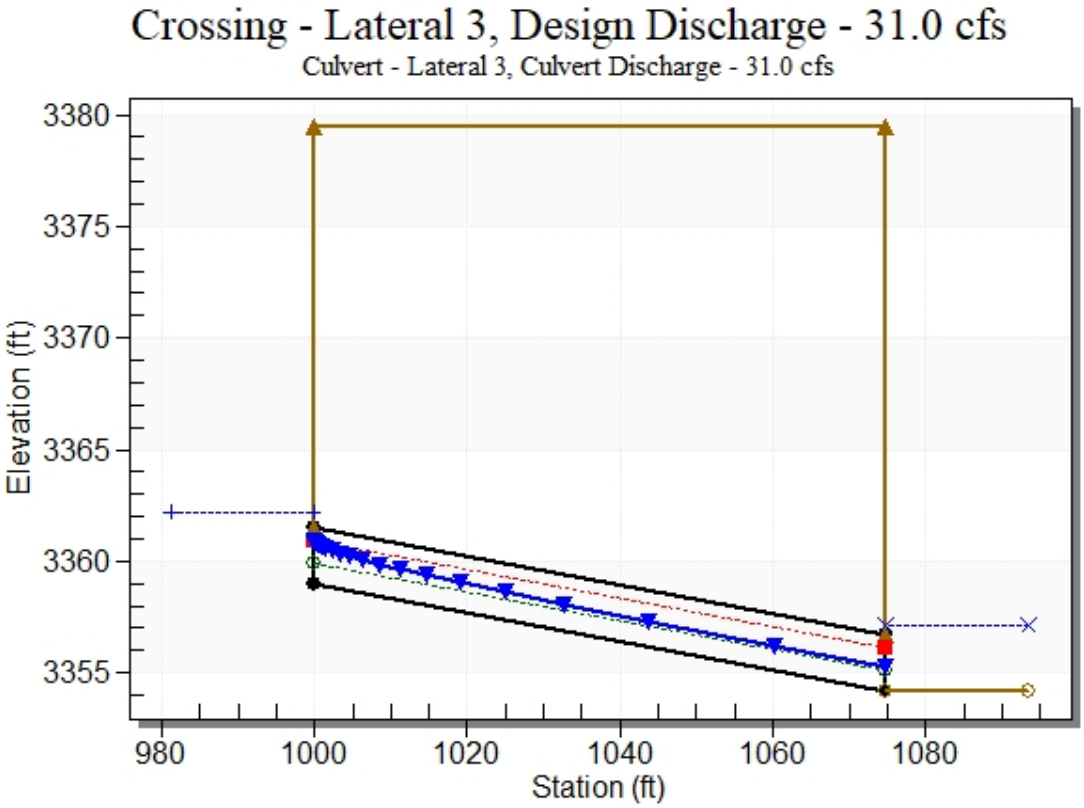
Culvert Length: 74.85 ft, Culvert Slope: 0.0643

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Culvert Performance Curve Plot: Lateral 3



Water Surface Profile Plot for Culvert: Lateral 3



Site Data - Lateral 3

Site Data Option: Culvert Invert Data

Inlet Station: 1000.00 ft

Inlet Elevation: 3359.01 ft

Outlet Station: 1074.70 ft

Outlet Elevation: 3354.21 ft

Number of Barrels: 1

Culvert Data Summary - Lateral 3

Barrel Shape: Circular

Barrel Diameter: 2.50 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0130

Culvert Type: Straight

Inlet Configuration: Square Edge with Headwall

Inlet Depression: None

Table 6 - Downstream Channel Rating Curve (Crossing: Lateral 3)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)
0.00	3357.08	2.87
3.10	3357.08	2.87
6.20	3357.08	2.87
9.30	3357.08	2.87
12.40	3357.08	2.87
15.50	3357.08	2.87
18.60	3357.08	2.87
21.70	3357.08	2.87
24.80	3357.08	2.87
27.90	3357.08	2.87
31.00	3357.08	2.87

Tailwater Channel Data - Lateral 3

Tailwater Channel Option: Enter Constant Tailwater Elevation

Constant Tailwater Elevation: 3357.08 ft

Roadway Data for Crossing: Lateral 3

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 74.70 ft

Crest Elevation: 3379.50 ft

Roadway Surface: Paved

Roadway Top Width: 74.70 ft

Crossing Discharge Data

Discharge Selection Method: Specify Minimum, Design, and Maximum Flow

Minimum Flow: 0 cfs

Design Flow: 17 cfs

Maximum Flow: 17 cfs

Table 7 - Summary of Culvert Flows at Crossing: Lateral 5

Headwater Elevation (ft)	Total Discharge (cfs)	Lateral 5 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
3351.18	0.00	0.00	0.00	1
3351.72	1.70	1.70	0.00	1
3351.95	3.40	3.40	0.00	1
3352.14	5.10	5.10	0.00	1
3352.29	6.80	6.80	0.00	1
3352.44	8.50	8.50	0.00	1
3352.60	10.20	10.20	0.00	1
3352.76	11.90	11.90	0.00	1
3352.90	13.60	13.60	0.00	1
3353.04	15.30	15.30	0.00	1
3353.17	17.00	17.00	0.00	1
3369.00	97.67	97.67	0.00	Overtopping

Rating Curve Plot for Crossing: Lateral 5

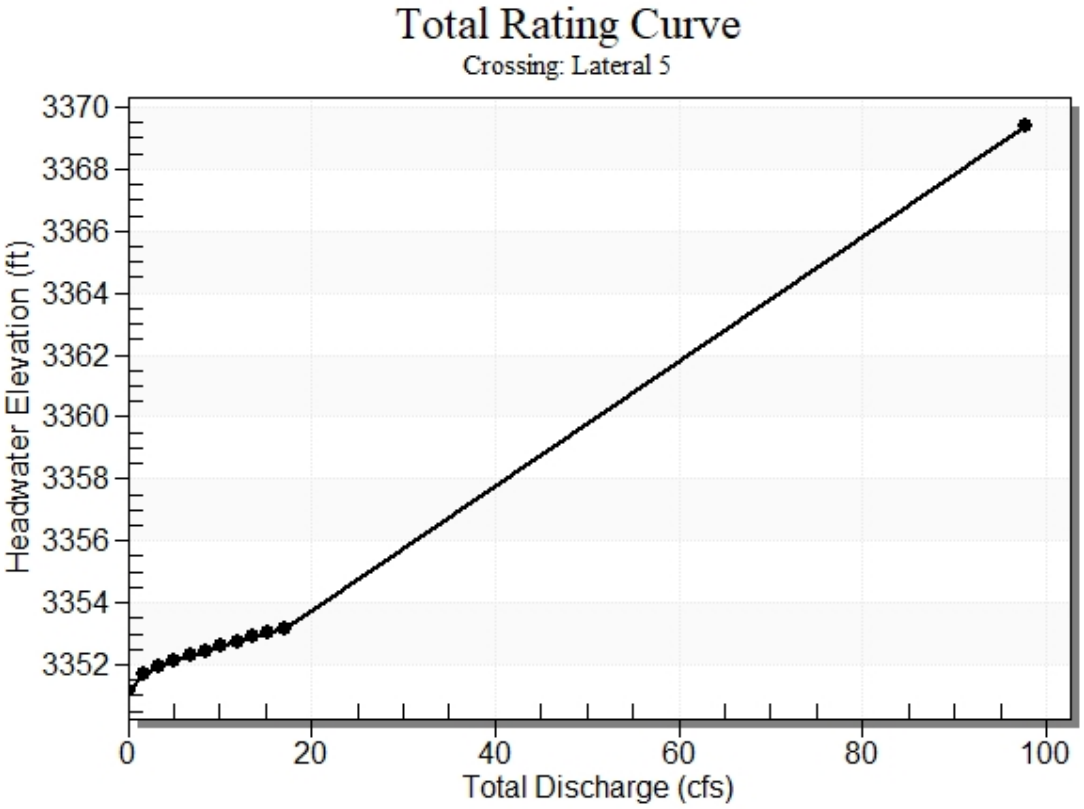


Table 8 - Culvert Summary Table: Lateral 5

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
0.00	0.00	3351.18	0.000	0.000	0-NF	0.000	0.000	2.500	2.850	0.000	0.000
1.70	1.70	3351.72	0.541	0.0*	1-JS1f	0.201	0.419	2.500	2.850	0.346	0.000
3.40	3.40	3351.95	0.774	0.0*	1-JS1f	0.279	0.602	2.500	2.850	0.693	0.000
5.10	5.10	3352.14	0.957	0.0*	1-JS1f	0.340	0.741	2.500	2.850	1.039	0.000
6.80	6.80	3352.29	1.114	0.0*	1-JS1f	0.392	0.859	2.500	2.850	1.385	0.000
8.50	8.50	3352.44	1.259	0.0*	1-JS1f	0.436	0.968	2.500	2.850	1.732	0.000
10.20	10.20	3352.60	1.424	0.0*	1-S2n	0.477	1.066	0.477	2.850	15.087	0.000
11.90	11.90	3352.76	1.577	0.0*	1-S2n	0.516	1.157	0.516	2.850	15.693	0.000
13.60	13.60	3352.90	1.720	0.0*	1-S2n	0.551	1.241	0.551	2.850	16.398	0.000
15.30	15.30	3353.04	1.857	0.0*	1-S2n	0.585	1.318	0.585	2.850	16.894	0.000
17.00	17.00	3353.17	1.989	0.0*	1-S2n	0.616	1.389	0.649	2.850	16.199	0.000

* Full Flow Headwater elevation is below inlet invert.

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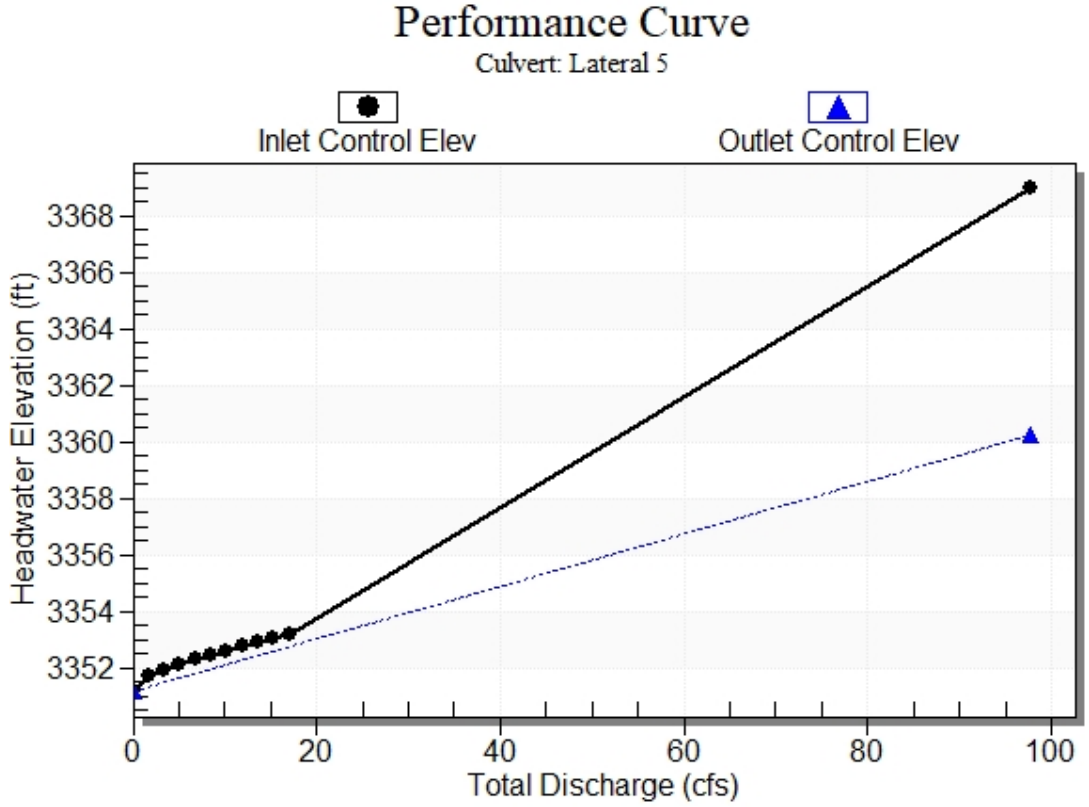
Straight Culvert

Inlet Elevation (invert): 3351.18 ft, Outlet Elevation (invert): 3342.56 ft

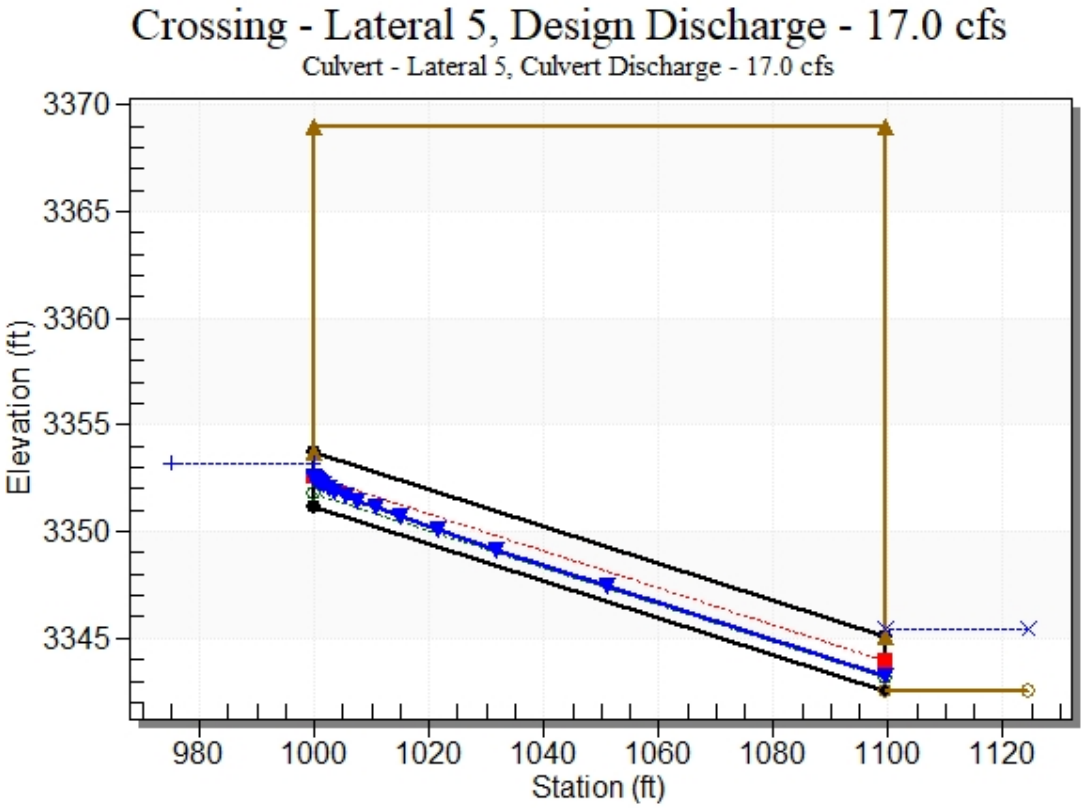
Culvert Length: 99.87 ft, Culvert Slope: 0.0866

****

Culvert Performance Curve Plot: Lateral 5



Water Surface Profile Plot for Culvert: Lateral 5



Site Data - Lateral 5

Site Data Option: Culvert Invert Data

Inlet Station: 1000.00 ft

Inlet Elevation: 3351.18 ft

Outlet Station: 1099.50 ft

Outlet Elevation: 3342.56 ft

Number of Barrels: 1

Culvert Data Summary - Lateral 5

Barrel Shape: Circular

Barrel Diameter: 2.50 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0130

Culvert Type: Straight

Inlet Configuration: Square Edge with Headwall

Inlet Depression: None

Table 9 - Downstream Channel Rating Curve (Crossing: Lateral 5)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)
0.00	3345.41	2.85
1.70	3345.41	2.85
3.40	3345.41	2.85
5.10	3345.41	2.85
6.80	3345.41	2.85
8.50	3345.41	2.85
10.20	3345.41	2.85
11.90	3345.41	2.85
13.60	3345.41	2.85
15.30	3345.41	2.85
17.00	3345.41	2.85

Tailwater Channel Data - Lateral 5

Tailwater Channel Option: Enter Constant Tailwater Elevation

Constant Tailwater Elevation: 3345.41 ft

Roadway Data for Crossing: Lateral 5

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 99.50 ft

Crest Elevation: 3369.00 ft

Roadway Surface: Paved

Roadway Top Width: 99.50 ft

SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

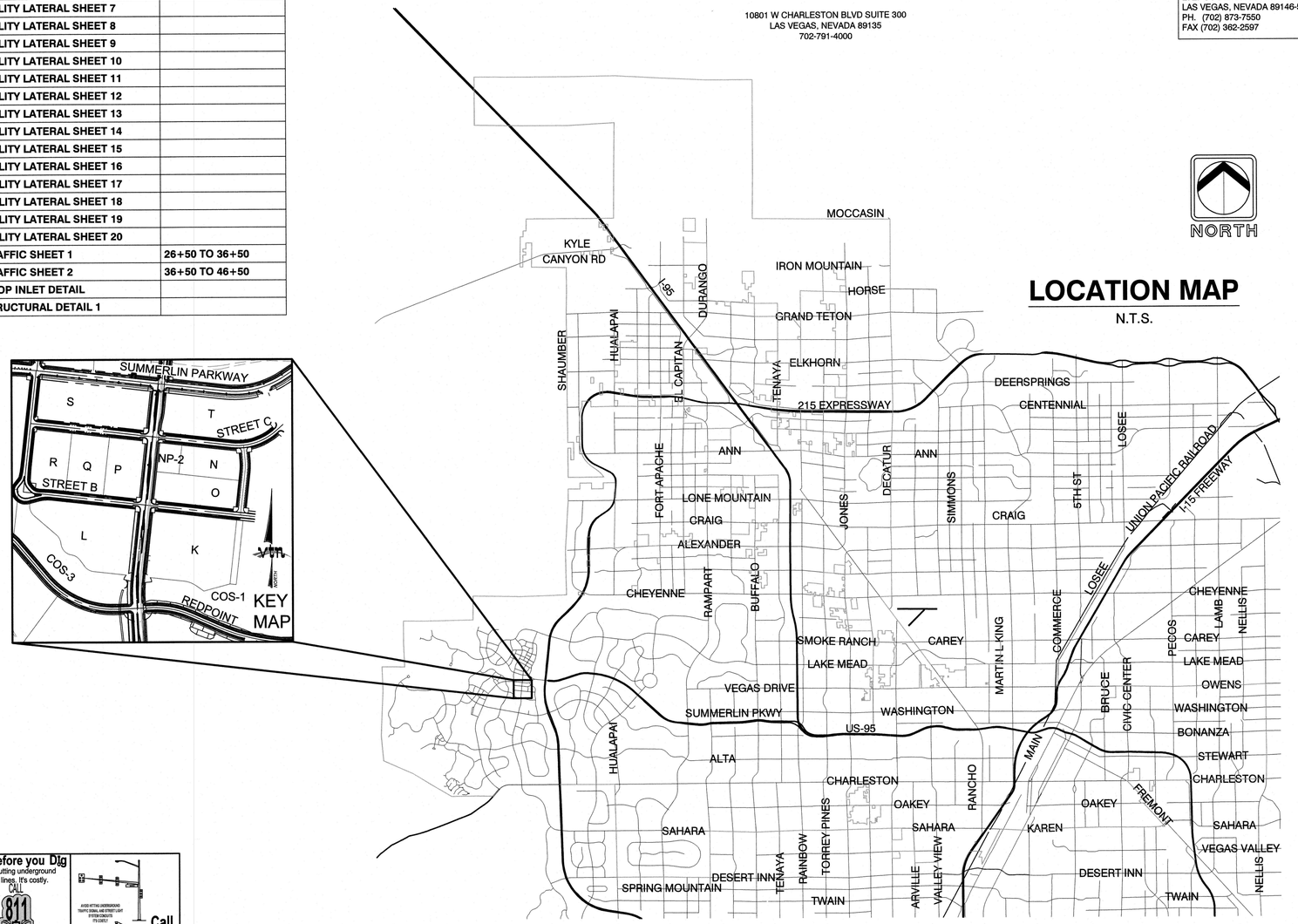
APN: 137-26-101-001
CITY OF LAS VEGAS
STATE OF NEVADA

DEVELOPED BY:

HOWARD HUGHES COMPANY, LLC

10801 W CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89135
702-791-4000

SHEET INDEX			
SHEET #	SHEET	DESCRIPTION	STATION
1	CV	COVER SHEET	
2	NT	NOTE SHEET	
3	HC	HORIZONTAL CONTROL	
4	MUTSS	MASTER UTILITY SEWER	
5	MUTSD	MASTER UTILITY STORM DRAIN	
6	MUTW	MASTER UTILITY WATER	
7	MGRD	MASTER UTILITY GRADING	
8	GR1	GRADING SHEET 1	
9	GR2	GRADING SHEET 2	
10	GR3	GRADING SHEET 3	
11	GR4	GRADING SHEET 4	
12	GR5	GRADING SHEET 5	
13	DT1	DETAIL SHEET 1	
14	DT2	DETAIL SHEET 2	
15	UT1	UTILITY SHEET 1	26+00 TO 30+00
16	UT2	UTILITY SHEET 2	30+00 TO 34+00
17	UT3	UTILITY SHEET 3	34+00 TO 38+00
18	UT4	UTILITY SHEET 4	38+00 TO 42+00
19	UT5	UTILITY SHEET 5	42+00 TO 48+00
20	UT6	UTILITY LATERAL SHEET 6	
21	UT7	UTILITY LATERAL SHEET 7	
22	UT8	UTILITY LATERAL SHEET 8	
23	UT9	UTILITY LATERAL SHEET 9	
24	UT10	UTILITY LATERAL SHEET 10	
25	UT11	UTILITY LATERAL SHEET 11	
26	UT12	UTILITY LATERAL SHEET 12	
27	UT13	UTILITY LATERAL SHEET 13	
28	UT14	UTILITY LATERAL SHEET 14	
29	UT15	UTILITY LATERAL SHEET 15	
30	UT16	UTILITY LATERAL SHEET 16	
31	UT17	UTILITY LATERAL SHEET 17	
32	UT18	UTILITY LATERAL SHEET 18	
33	UT19	UTILITY LATERAL SHEET 19	
34	UT20	UTILITY LATERAL SHEET 20	
35	TR1	TRAFFIC SHEET 1	26+50 TO 36+50
36	TR2	TRAFFIC SHEET 2	36+50 TO 46+50
37	S1	DROP INLET DETAIL	
38	S2	STRUCTURAL DETAIL 1	



LOCATION MAP
N.T.S.

NORTH

OWNER
HOWARD HUGHES COMPANY, LLC
10801 W CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89135
702-791-4000

DEVELOPER
HOWARD HUGHES COMPANY, LLC
10801 W CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89135
702-791-4000

ENGINEERING FIRM
VTN
2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH: (702) 873-7550
FAX (702) 362-2597

BENCHMARK

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

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

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

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

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

THESE PLANS AND THE DESIGN CRITERIA CONTAINED WITHIN THESE PLANS ARE BASED UPON THE INFORMATION PRESENTLY KNOWN BY THE ENGINEER AND INTENDED SOLELY AS A GENERAL GUIDELINE FOR CONSTRUCTION. ALL CONSTRUCTION SHALL BE IN CONFORMANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL STATUTES, LAWS, CODES, REGULATIONS AND ORDINANCES, INCLUDING BUT NOT LIMITED TO THE FEDERAL FAIR HOUSING AMENDMENTS ACT, AMERICANS WITH DISABILITIES ACT, THE ARCHITECTURAL BARRIERS ACT AND ANY APPLICABLE UNIFORM STANDARDS, SPECIFICATIONS OR DRAWINGS. THE PERSON OR ENTITY PERFORMING THE CONSTRUCTION SHALL BE SOLELY RESPONSIBLE TO MAKE SURE CONSTRUCTION IS IN CONFORMANCE WITH ALL LOCAL, STATE AND FEDERAL STATUES, LAWS, CODES, REGULATIONS, STANDARDS, GUIDELINES AND ORDINANCES AND FURTHER, IS IN CONFORMANCE WITH ANY APPLICABLE DESIGN CRITERIA, INCLUDING BUT NOT LIMITED TO SOILS REPORTS, TRAFFIC STUDIES, GEOTECHNICAL REPORTS, ARCHITECTURAL PLANS AND SPECIFICATIONS, DRAINAGE PLANS OR STUDIES AND ANY OTHER CRITERIA, STANDARDS OR REQUIREMENTS LISTED IN THE PLANS OR THE GENERAL NOTES RELATED TO THESE PLANS OR PROVIDED BY ANYONE IN REFERENCE TO THIS PROJECT.

APPROVALS

CITY ENGINEER ALLEN PAVELKA, P.E. # 9029

APPROVAL OF THESE PLANS BY THE CITY ENGINEER 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 STANDARD DRAWINGS AND SPECIFICATIONS CLARK COUNTY AREA NEVADA.

DIRECTOR OF BUILDING & SAFETY DATE

THIS PLAN MEETS THE APPLICABLE STANDARDS OF THE PLANNING AND DEVELOPMENT DEPARTMENT

CENTRAL TELEPHONE COMPANY d/b/a CENTURYLINK DATE

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

NV ENERGY DATE

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

COX COMMUNICATIONS LAS VEGAS, INC. DATE

SOUTHWEST GAS CORPORATION DATE

LAS VEGAS FIRE & RESCUE DATE

KEVIN T. ORROCK, VICE PRESIDENT DATE

HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY

LAS VEGAS VALLEY WATER DISTRICT

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO:---- FIRST APPROVED DATE:_____.

LVVWD APPROVED FIRE FLOW 1,500 GPM / ONSITE N/A GPM

SHEETS: CV, NT, MUTSS, MUTSD, MUTW, DT1, UT1-UT20

FIRE DEPARTMENT APPROVAL

APPROVAL BY THE FIRE DEPARTMENT HAVING JURISDICTION IS REQUIRED PRIOR TO OBTAINING FINAL APPROVAL FROM THE LVVWD.



REV	DATE	BY	REVISION

HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
10801 W CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89135
702-791-4000

CITY OF LAS VEGAS

VTN
2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH: (702) 873-7550 FAX: (702) 362-2597 WEB: WWW.VTNNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

COVER SHEET

SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

DRAWN BY:	DESIGNED BY:	CHECKED BY:	PROJECT NO:	SCALE:	HORIZ:
BCC	BCC	WJM	7951	N/A	VERT: N/A
07/03/2018	07/03/2018	01/31/2018			

PROFESSIONAL ENGINEER STATE OF NEVADA
WILLIAM J. MEYER
EXP: 12/31/19
CIVIL
No. 15745
1/31/19

SHEET
CV
1 OF 38 SHEETS
DRAWING NO.

H:\7951\Desert Foothills-Street A to Summerlin Pkwy\Sheet Set\7951-CV.dwg Jan 31, 2019

CITY OF LAS VEGAS GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLICWORKS CONSTRUCTION OFFSITE IMPROVEMENTS, CLARK COUNTY AREA NEVADA", LATEST ISSUE; THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION, CLARK COUNTY AREA NEVADA", LATEST REVISED EDITION; THE "SUMMERLIN IMPROVEMENT STANDARDS" FOR WORK IN THE SUMMERLIN AREA; AND OTHER APPLICABLE APPROVED STANDARDS ISSUED BY THE CONTROLLING AGENCY; THE UNIFORM BUILDING CODE; AND ALL LOCAL CITY CODES AND ORDINANCES APPLICABLE, EXCEPT AS NOTED ON THIS SHEET AS "DEVIATIONS FROM STANDARDS".
2. THE EXISTENCE AND LOCATION OF ANY OVERHEAD OR UNDERGROUND UTILITY LINES, PIPES, OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A RESEARCH OF THE AVAILABLE RECORDS. EXISTING UTILITIES AS SHOWN FROM CLV PLANS LIBRARY ARE APPROXIMATE AND FOR RECORD PURPOSES. EXISTING UTILITIES ARE LOCATED ON PLANS ONLY FOR THE CONVENIENCE OF THE CONTRACTOR. EXISTING UTILITY SERVICE LATERALS MAY NOT BE SHOWN ON THE PLANS. THE CONTRACTOR SHALL AT HIS OWN EXPENSE, LOCATE ALL UNDERGROUND AND OVERHEAD INTERFERENCE'S WHICH MAY AFFECT HIS OPERATION DURING CONSTRUCTION AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO SAME. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING NEAR OVERHEAD UTILITIES SO AS TO SAFELY PROTECT ALL PERSONNEL AND EQUIPMENT, AND SHALL BE RESPONSIBLE FOR ALL COST AND LIABILITY IN CONNECTION THERE WITH.
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. 12. ALL GRADING WORK SHALL CONFORM TO THE SOILS REPORT AS PREPARED BY: NOVA GEOTECHNICAL, PROJECT NO. G-18-003, DATED MARCH 5, 2018, APPROVED BY THE CITY ENGINEER, AND AS SHOWN ON THESE PLAN.
13. EXACT LOCATION OF ALL SAWCUT LINES MAY BE ADJUSTED OR DETERMINED IN THE FIELD BY A CITY OF LAS VEGAS ENGINEER IF LOCATION ON PLANS IS NOT CLEARLY SHOWN, OR EXISTING PAVEMENT CONDITION REQUIRES RELOCATIONS.
14. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT EXISTING PERMANENT SURVEY MONUMENTS. ANY MONUMENTS DISTURBED SHALL BE REPLACED AND ADJUSTED PER AVAILABLE RECORDS IN ACCORDANCE WITH N.R.S. STATUTE NO. 625.380 & CITY OF LAS VEGAS TITLE 18, APPENDIX D.
15. UTILITY COMPANY METER BOXES, MANHOLE LIDS, VALVE COVERS, ETC., SHALL BE LOCATED OUT OF DRIVEWAYS, DRIVEWAY APRONS, FLOWLINES, AND CROSS GUTTERS UNLESS WRITTEN APPROVAL IS GRANTED BY THE UTILITY COMPANY AND THE CITY ENGINEER.

WALL NOTES:

16. ALL WALLS, NEW OR EXISTING, ARE ONLY SHOWN ON CIVIL PLANS FOR THE PURPOSE OF REVIEWING GRADING RELATIONSHIPS; FLOOD CONTROL AND SIGHT DISTANCE AT INTERSECTIONS. NEW WALLS REQUIRE A SEPARATE PERMIT AND INSPECTION BY THE BUILDING DEPARTMENT.
17. ASPHALT MIX DESIGN MUST BE SUBMITTED AND APPROVED BY THE CITY ENGINEER PRIOR TO THE PLACEMENT OF ASPHALT WITHIN CITY RIGHT OF WAY.
18. CONTRACTOR SHALL ADJUST ALL NEW AND EXISTING INLETS, VALVE BOXES, MANHOLE RIMS, AND SEWER CLEAN OUTS, ETC. TO FINISH GRADE AS APPLICABLE WHETHER OR NOT THEY ARE SHOWN ON THE PLANS.
19. MATERIALS, HANDLING AND PLACEMENT OF PORTLAND CEMENT CONCRETE SHALL BE IN ACCORDANCE WITH APPLICABLE SECTIONS OF NDOT OR THE CLARK COUNTY AREA SPECIFICATIONS (AS APPLICABLE) AND THE PLANS AND DETAILS SHOWN HEREON.
20. WHEN INSTALLING UNDERGROUND FACILITIES THAT REQUIRE UNDERGROUND LOCATING DEVICES SUCH AS MARKER BALLS, LOCATING RIBBON, ETC., THE CONTRACTOR SHALL PROVIDE WRITTEN DOCUMENTATION TO OFFSITE INSPECTION AND TESTING CERTIFYING THAT ALL DEVICES HAVE BEEN PLACED AND VERIFIED TO BE IN GOOD WORKING CONDITION PRIOR TO THE CONSTRUCTION OF ANY ROAD BASE.
21. AFTER HAUNCHING AND PRIOR TO BACKFILL OPERATIONS WHICH WOULD COVER SANITARY SEWER AND STORM DRAIN FACILITIES, CONTRACTOR IS REQUIRED TO SCHEDULE CLV OPEN-TRENCH UTILITY SURVEY INSPECTION FOR DETERMINATION OF FINAL LOCATION COORDINATES. FACILITIES TO BE LOCATED BY CLV SHALL INCLUDE AT A MINIMUM THE HORIZONTAL AND VERTICAL (INVERT) LOCATION OF PUBLIC SEWER MANHOLES, STORM DRAIN MANHOLES AND TRANSITION STRUCTURES, STORM DRAIN LATERALS AT THE CONNECTION TO THE STORM DRAIN MAIN AND AT THE CONNECTION TO A DROP INLET, THE CONNECTION OF SEWER SERVICE LATERALS TO THE SEWER MAIN AND WHERE THE SEWER SERVICE LATERALS EXIT THE PUBLIC RIGHT-OF-WAY, SEWER AND STORM DRAIN MAIN ALIGNMENT, INCLUDING DEFLECTION POINTS.
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 STREETLIGHT 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 REVISION (USS), AND THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA" (USD), LATEST REVISION.
2. 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.
3. ALL EXISTING STREET LIGHTING SHALL REMAIN OPERATIONAL DURING CONSTRUCTION IN ACCORDANCE WITH SECTION 623 G.03.01 OF THE USS.
4. 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.
5. ANY STRUCTURE SUCH AS BLOCK WALLS, CHAIN LINK FENCES, RETAINING WALLS, ETC., 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.
6. 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.
7. SERVICE POINTS SHALL BE COORDINATED WITH NV ENERGY, AND WHEREVER POSSIBLE, BE LOCATED NEAR THE CENTER OF THE CIRCUIT. SERVICEPOINTS SHALL BE SHOWN ON THE PLANS.
8. 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.
9. THE CONTRACTOR SHALL FURNISH COMPLETE CONDUIT, WIRE, ETC. FROM SERVICE TO TRANSFORMERS AND CONTROL SYSTEMS IF REQUIRED ON THE PLANS.

REVISED JUNE 28, 2016 (LD VERSION)

BENCHMARK

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

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,R56E,S33

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

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

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

DEVIATION FROM CITY OF LAS VEGAS STANDARDS

- NONE

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 ORDINANCE #6325 FOR HYDRANT SPECIFICATIONS AND HYDRANT INSTALLATION SPECIFICATIONS.
2. ONLY FIRE HYDRANTS THAT ARE ON THE LAS VEGAS VALEY WATER DISTRICT'S - APPROVED PRODUCTS LIST ARE ALLOWED TO BE INSTALLED.
3. A PERMIT IS REQUIRED FROM LAS VEGAS FIRE AND RESCUE FOR THE INSTALLATION OF ON-SITE WATER LINES AND FIRE HYDRANTS. THE PERMIT AND CONTRACTORS MATERIAL TEST CERTIFICATE FOR UNDERGROUND PIPING FORM SHALL BE OBTAINED FROM THE FIRE PROTECTION ENGINEER BEFORE COMMENCEMENT OF WORK. [IFC § 105.7.12]
4. ON ANY RESIDENTIAL OR COMMERCIAL INSTALLATIONS, FIRE HYDRANTS SHALL BE INSTALLED AND FIRE APPARATUS ACCESS ROADS SHALL BE MAINTAINED BEFORE COMMENCEMENT OF ANY COMBUSTIBLE CONSTRUCTION. ALL FIRE HYDRANTS SHALL BE IN GOOD WORKING ORDER AND SHALL BE CAPABLE OF DELIVERING THE REQUIRED FIRE FLOW. [IFC § 3310, § 3312]
5. TO IDENTIFY THE FIRE HYDRANT LOCATIONS, THE CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTERLINE OF THE STREET ADJACENT TO THE FIRE HYDRANTS. [IFC § 507.5.7.3]
6. ALL UNDERGROUND INSPECTIONS, PRESSURE AND FLUSH VERIFICATIONS OF ALL FIRE HYDRANTS AND FIRE LINES, SHALL BE CONDUCTED BEFORE COVERING THE LINES. CENTER LOADING IS ACCEPTABLE FOR THE HYDRO TESTS WITH PRIOR FIRE PREVENTION APPROVAL. [IFC § 106.3]
7. ALL ON-SITE UNDERGROUND WATER MAINS AND MATERIALS SHALL BE U.L. LISTED, A.W.W.A APPROVED AND SHALL BE RATED FOR THE APPROPRIATE WORKING PRESSURE. [IFC § 507.2.1, NFPA 24]
8. PAINTING OF CURBS, FIRE HYDRANTS, PADS, PROTECTION OF FIRE HYDRANTS FROM PHYSICAL DAMAGE, AND ALL OTHER WORK NECESSARY PER PLANS SHALL BE COMPLETED BEFORE APPROVAL BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION. **IFC 507**
9. PRIVATE HYDRANTS SHALL BE PAINTED RED. [IFC § 507.5.7.1]
10. PRIOR TO THE FINAL OCCUPANCY, A FIRE FLOW TEST SHALL BE WITNESSED BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION TO VERIFY AVAILABILITY OF THE REQUIRED FIRE FLOW. [IFC § 507]
11. FIRE HYDRANT SPACING SHALL BE AS FOLLOWS: [IFC § C102]

    • RESIDENTIAL – 500 FT UNSPRINKLERED; 600 FT SPRINKLERED.
    • COMMERCIAL – 300 FT UNSPRINKLERED; 400 FT SPRINKLERED.
12. WHERE THE WATER MAINS ARE EXTENDED ALONG STREETS OR NEW STREETS ARE INSTALLED WHERE FIRE HYDRANTS ARE NOT NEEDED FOR PROTECTION OF THE STRUCTURES, FIRE HYDRANTS SHALL BE INSTALLED AT A MAXIMUM OF 1000 FT SPACING, TO PROVIDE FOR TRANSPORTATION HAZARDS. WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS OR HAVE FOUR (4) OR MORE TRAFFIC LANES AND HAVE A TRAFFIC COUNT OF MORE THAN 30,000 PER DAY, HYDRANTS ARE REQUIRED ON EACH SIDE OF THE STREET SPACED AT 500 FT ON AN ALTERNATING BASIS. [IFC § C102.8]
13. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN THE RADIUS OF A CUL-DE-SAC OR WITHIN 20 FT OF THE PERIMETER OF THE RADIUS OF THE CUL-DE-SAC.
14. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN 6 FT OF ANY CURB RETURN, DRIVEWAY, POWER POLE, STREETLIGHT OR ANY OTHER OBSTRUCTION. [IFC § C102.12]
15. A MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A ONE-TWO FAMILY DWELLING SHALL NOT EXCEED 300 FT, AS MEASURED BY AN APPROVED ROUTE. [IFC § C102.4]
16. THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A FIRE DEPARTMENT CONNECTION (FDC) SHALL NOT EXCEED 100 FT, AS MEASURED BY AN APPROVED ROUTE. [IFC § C102.7]
17. THE MAXIMUM DISTANCE FROM A HYDRANT TO THE END OF A DEAD-END STREET SHALL NOT EXCEED 200 FT. [IFC § C102.6]
18. TWO (2) SOURCES OF SUPPLY ARE REQUIRED WHENEVER THERE IS 4 OR MORE FIRE HYDRANTS/SPRINKLER LEAD-INS ARE INSTALLED ON A SINGLE SYSTEM. SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 2 FIRE HYDRANTS CAN BE OUT OF SERVICE DUE TO A BREAK IN A WATER MAIN. [IFC § C104]
19. ALL FIRE APPARATUS ACCESS ROADS SHALL BE PAVED TO PROVIDE ALL-WEATHER DRIVING CAPABILITIES, AND SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF THE FIRE APPARATUS. [IFC § 503.2.3]
20. THE GRADIENT FOR THE FIRE APPARATUS ACCESS ROADS SHALL NOT EXCEED 12%. ANGLES OF APPROACH AND ANGLES OF DEPARTURE SHALL NOT EXCEED 6% FOR 25 FT PRIOR TO OR AFTER THE GRADE CHANGE. ADJACENT TO THE STRUCTURES GRADIENT SHALL NOT EXCEED 6%. [IFC § 503.2.7, § 503.2.8]
21. THE TURNING RADIUS OF THE FIRE APPARATUS ACCESS ROADS SHALL BE NO LESS THAN 52 FT OUTSIDE AND 28 FT INSIDE TURNING RADIUS. [IFC § 503.2.4]
22. VERTICAL CLEARANCE OF ALL FIRE APPARATUS ACCESS ROADS SHALL NOT BE LESS THAN 13FT 6 INS. [IFC § 503.2.1]
23. FIRE DEPARTMENT ACCESS ROADS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF NOT LESS THAN 40 FT FLOW LINE TO FLOW LINE WITH PARALLEL PARKING PERMITTED ON BOTH SIDES. NOT LESS THAN 32 FT WIDE, FLOW-LINE TO FLOW-LINE, WHERE PARKING IS PERMITTED ONLY ON ONE SIDE OF THE FIRE APPARATUS ACCESS ROAD. NOT LESS THAN 24 FT WIDE, FLOW-LINE TO FLOW-LINE, WHERE NO PARKING IS PERMITTED ON EITHER SIDE. FIRE LANES THROUGH PARKING LOTS SHALL 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. THIS DISTANCE COULD BE INCREASED TO 250 FT IF THE BUILDING IS SPRINKLERED. [IFC § 503.1.1
25. APPROVED SECONDARY FIRE APPARATUS ACCESS SHALL BE PROVIDED FOR 100 OR MORE DWELLING UNITS, ROAD(S) WITH DEAD-ENDS OR WITH A SINGLE POINT OF ACCESS IN EXCESS OF 600 FT. COMMERCIAL AND INDUSTRIAL DEVELOPMENTS WHERE BUILDINGS EXCEED 2 STORIES OR 30 FEET IN HEIGHT, OR EXCEEDING 62,000 SQUARE FEET IN AREA. [IFC § 503.1.2]
26. ALL DEAD-END FIRE APPARATUS ROADS AND/OR FIRE LANES, PUBLIC OR PRIVATE, IN EXCESS OF 150 FT IN LENGTH SHALL BE PROVIDED WITH AN APPROVED TURN AROUND HAVING A MINIMUM DIAMETER OF 81 FT. [IFC § 503.2.5]
27. ALL FIRE APPARATUS ACCESS ROADS SHALL BE MARKED BY PLACING APPROVED SIGNS AT THE START OF THE DESIGNATED FIRE LANE, ONE SIGN AT THE END OF THE FIRE LANE AND WITH SIGNS AT INTERVALS OF 100 FT ALONG THE DESIGNATED FIRE LANES. SIGNS TO BE PLACED ON BOTH SIDES OF AN ACCESS ROADWAY IF NEEDED TO PREVENT PARKING ON EITHER SIDE. SIGNS TO BE INSTALLED NO HIGHER THAN 10 FT OR LESS THAN 6 FT FROM THE ROADWAY LEVEL. THE CURB ALONG OR ON THE PAVEMENT OR CEMENT (IF NO CURB IS PROVIDED) SHALL BE PAINTED WITH A RED WEATHER RESISTANT PAINT IN ADDITION TO THE SIGNS. [IFC § 503.3]
28. ELECTRICALLY CONTROLLED ACCESS GATES SHALL BE PROVIDED WITH AN APPROVED EMERGENCY VEHICLE DETECTOR/RECEIVER SYSTEM. SAID SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE IFC § 503.6 AND IFC APPENDIX M.

EFFECTIVE DATE: MARCH 1st, 2016

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 ZONE. THE CONTRACTOR SHALL INSTALL TEMPORARY STOP SIGNS AT ALL NEW STREET ENCROACHMENTS INTO EXISTING CITY STREETS WHERE WARRANTED IMMEDIATELY AFTER FIRST GRADING WORK IS ACCOMPLISHED, AND SHALL MAINTAIN SAID SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED.
4. WHEN A DESIGNATED "SUGGESTED ROUTE TO SCHOOL" IS ENCROACHED UPON BY A CONSTRUCTION WORK ZONE AND PUBLIC WORKS STAFF IDENTIFIES A NEED FOR STUDENTS TO BE ASSISTED IN THE SAFE CROSSING THROUGH THAT WORK ZONE, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE A QUALIFIED "CROSSING GUARD". THE GUARD SHALL BE PRESENT FOR THE FULL DURATION OF TIME THAT CHILDREN ARE LIKELY TO BE PRESENT.
5. IF THE IMPROVEMENTS NECESSITATE THE OBLITERATION, TEMPORARY OBSTRUCTION, TEMPORARY REMOVAL OR RELOCATION OF ANY EXISTING TRAFFIC PAVEMENT MARKING, SUCH PAVEMENT MARKING SHALL BE RESTORED OR REPLACED WITH LIKE MATERIALS TO THE SATISFACTION OF THE CITY TRAFFIC ENGINEER.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL PERMANENT SIGNS SHOWN ON THE PLANS. ALL NEW TRAFFIC SIGNS SHALL UTILIZE TYPE XI RETROREFLECTIVE SHEETING IN ACCORDANCE WITH CCAUSS 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 THESE PLANS.
9. STREET SIGNS AND STOP SIGNS SHALL BE INSTALLED PER CITY STANDARD SPECIFICATIONS FOR PLACEMENT OF STREET NAME SIGNS.
10. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY TRAFFIC CONTROL DEVICES AND FLAGGERS TO INSURE THE SAFETY OF THE PUBLIC IN OR AROUND THE WORK AREA. THE CONTRACTOR SHALL HAVE A CERTIFIED ATSSA TRAFFIC CONTROL TECHNICIAN OR IMSA WORK ZONE SAFETY SPECIALIST SET UP, MAINTAIN AND/OR REMOVE ALL TRAFFIC CONTROL DEVICES IN THE CITY OF LAS VEGAS RIGHT OF WAY.
11. WORK IN PUBLIC STREETS, ONCE BEGUN, SHALL BE EXPEDITED TO COMPLETION SO AS TO PROVIDE MINIMUM INCONVENIENCE TO ADJACENT PROPERTY OWNERS AND TO THE TRAVELING PUBLIC.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING CITIZENS AREA TRANSIT (C.A.T.) IF THE CONSTRUCTION INTERRUPTS OR RELOCATES A BUS STOP OR HAS AN ADVERSE EFFECT ON BUS SERVICE ON THAT STREET TO ARRANGE FOR TEMPORARY RELOCATION OF STOP.
13. GUARDS SHALL BE OBTAINED BY CONTACTING THE METROPOLITAN POLICE DEPARTMENT SPECIAL EVENTS UNIT (PHONE # 828-3442) WHO WILL PROVIDE OFFICERS PROPERLY TRAINED IN TRAFFIC CONTROL. FEES FOR THE USE OF THESE OFFICERS SHALL BE SET BY METRO AND WILL BE PAID BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR ALL ARRANGEMENTS WITH METRO.
14. ANY WORK WITHIN 300' OF A SIGNALIZED INTERSECTION WILL BE NIGHT WORK, UNLESS DIRECTED BY THE CITY OF LAS VEGAS TRAFFIC ENGINEER.
15. 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 MATCH ADJACENT ROADWAY SEGMENTS. THE CONTRACTOR SHALL PROVIDE A DRAWING FOR APPROVAL BY THE TRAFFIC ENGINEERING DIVISION DEPICTING ANY ADJUSTMENTS TO THE FINAL PAVEMENT MARKINGS AND SIGNAGE, WHICH MAY INCLUDE OMITTING, ADDING OR MODIFYING PAVEMENT MARKINGS AND TRAFFIC CONTROL SIGNS SUCH THAT ADEQUATE TRANSITIONS AND LANE TERMINATIONS BETWEEN ADJACENT ROADWAY SEGMENTS ARE CONSTRUCTED.

REVISED 7/3/13

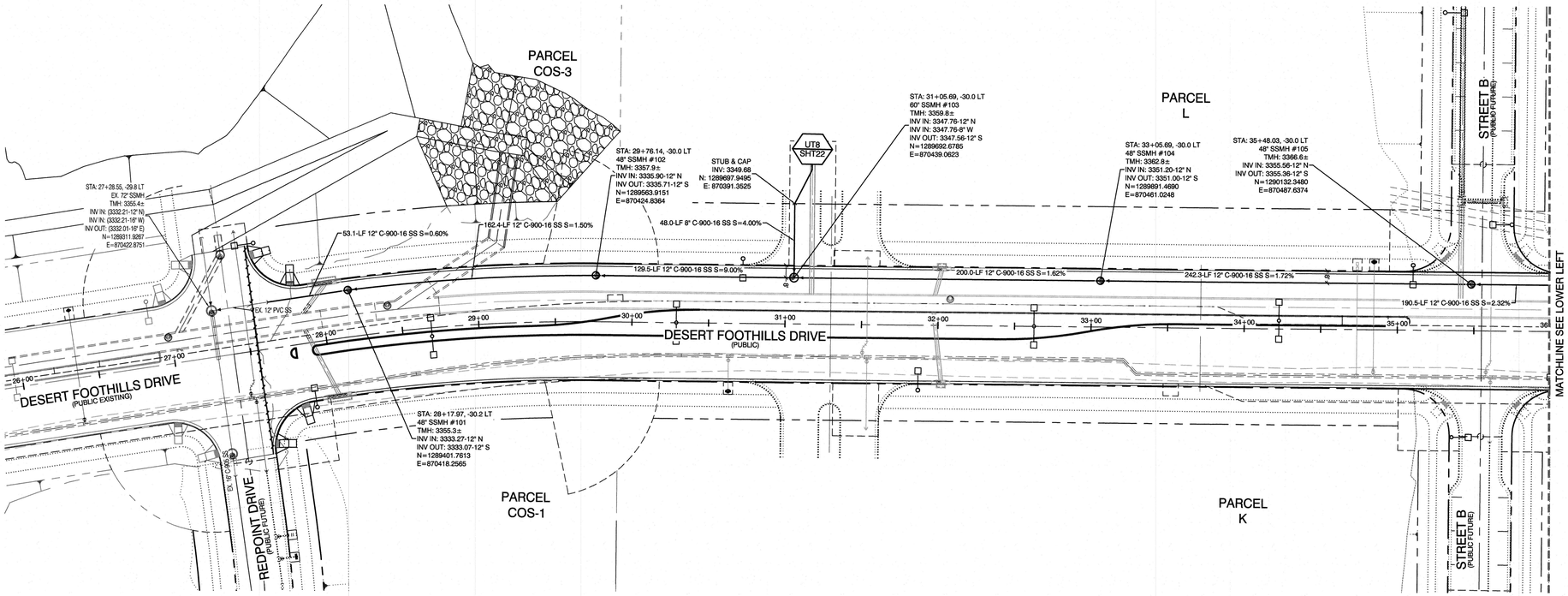
LAS VEGAS VALLEY WATER DISTRICT STANDARD NOTES

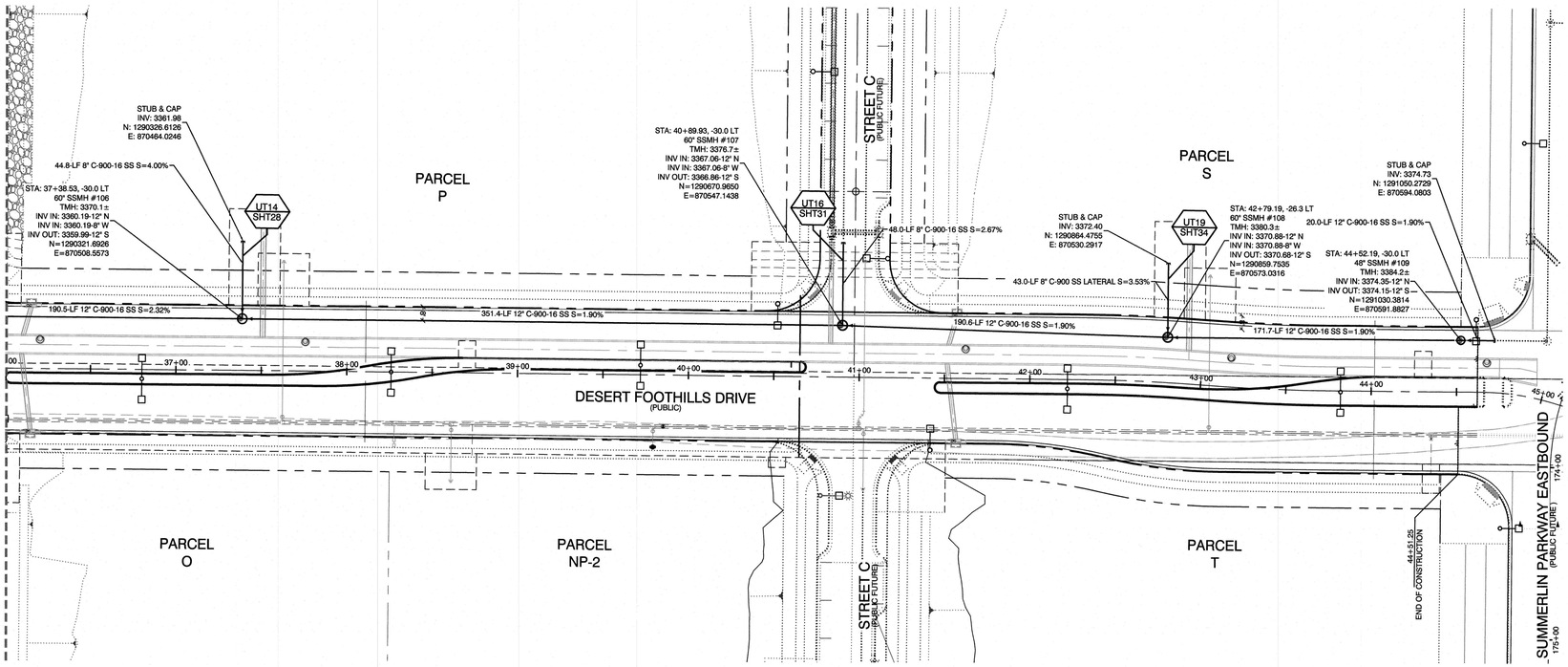
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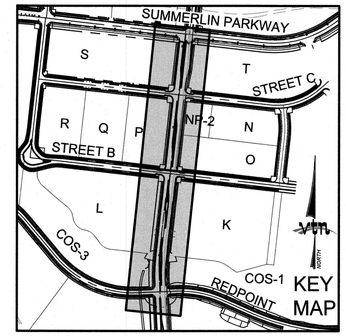
(REVISED 08/01/2017)

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

    ANY DECORATIVE PAVING SURFACE WITHIN THE STREET IS THE RESPONSIBILITY OF THE OWNERS ASSOCIATION, OR THE INDIVIDUAL PROPERTY OWNERS IF NO OWNER'S ASSOCIATION IS IN EXISTENCE, OR THE AGENCY HAVING JURISDICTION. DECORATIVE SURFACE MATERIALS PLACED WITHIN THE TEN FOOT EASEMEN







WATER PRESSURE ZONE:
WATER SERVICE LOCATED IN THE 3550 PRESSURE ZONE.

WATER MAIN COVER NOTE:
ALL NEW WATER MAIN TO HAVE MINIMUM DEPTH OF COVER PER UDACS SECTION 2.08

WATERLINE TRENCH NOTE:
CONSTRUCT WATERLINE TRENCH SECTION AND BACKFILL PER UDACS PLATE NO. 17.

LAS VEGAS FIRE & RESCUE APPROVAL

BY: _____ DATE: _____.

APPROVAL OF THESE PLANS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR, OR AN APPROVAL OF, ANY VIOLATION OF ANY OF THE PROVISIONS OF THE STATE OR COUNTY LAWS. FIRE FLOW ___ GPM AT 20 P.S.I. RESIDUAL.

UTILITY CROSSING NOTE:
ALL SEWER/STORM DRAINS CROSSING WATER LINES MUST CONFORM TO SECTION 2.22 OF UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR PORTABL WATER SYSTEMS (UDACS) FOR WATER AND STORM MAIN CROSSINGS AND CLEARANCES.

ENGINEER DISCLAIMER NOTE:
UTILITY LOCATIONS SHOWN HERE ON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HERE ON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

CONSTRUCTION NOTES

SEWER		PUBLIC
Ⓢ	STANDARD MANHOLE PER SD-1A & 1B	9 EA.
———	8" SDR-35 C-900-16 SANITARY SEWER MAIN	184 LF.
———	12" SDR-35 C-900-16 SANITARY SEWER MAIN	1,711 LF.
POC	SEWER POINT OF CONNECTION	

WATER LINE MARKER BALLS NOTE
INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING, PER UDACS PLATE No. 15

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

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

FIRE HYDRANT MARKER NOTES
BLUE COLORED REFLECTIVE RAISED PAVEMENT MARKERS ARE TO BE INSTALLED:

1. ON ROADWAYS WITH NO PARKING PERMITTED ON HYDRANT SIDE; LOCATE MAKER 8' FROM FACE OF CURB ON HYDRANT SIDE.
2. ON ROADWAYS WITH PARKING PERMITTED ON HYDRANT SIDE; LOCATE MARKER 16' FROM FACE OF CURB ON HYDRANT SIDE.

LAS VEGAS VALLEY WATER DISTRICT APPROVAL
APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES MANAGER
DATE: PROJECT:----
LVVWD APPROVED FIRE FLOW ---- GPM AT 20 P.S.I. RESIDUAL

Call before you Dig
Avoid cutting underground utility lines. It's costly.
CALL 811
OR
1-800-227-2600
AND
1-702-455-6000
CLARK COUNTY TRAFFIC OPERATIONS

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

Call 811 before you Underground
1-702-455-7511
CLARK COUNTY TRAFFIC OPERATIONS
1-702-229-4811
LAS VEGAS AREA COMPUTERIZED TRAFFIC SYSTEM

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT:---- FIRST APPROVED DATE: _____.
LVVWD APPROVED FIRE FLOW: TOTAL 1500 GPM/ONSITE N/A GPM

REV	DATE	BY	REVISION

CITY OF LAS VEGAS

HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
10801 W CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89135
702-791-4000

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5146
PH. (702) 873-7550 FAX (702) 382-2697 WEB WWW.VTNNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

MASTER UTILITY SEWER

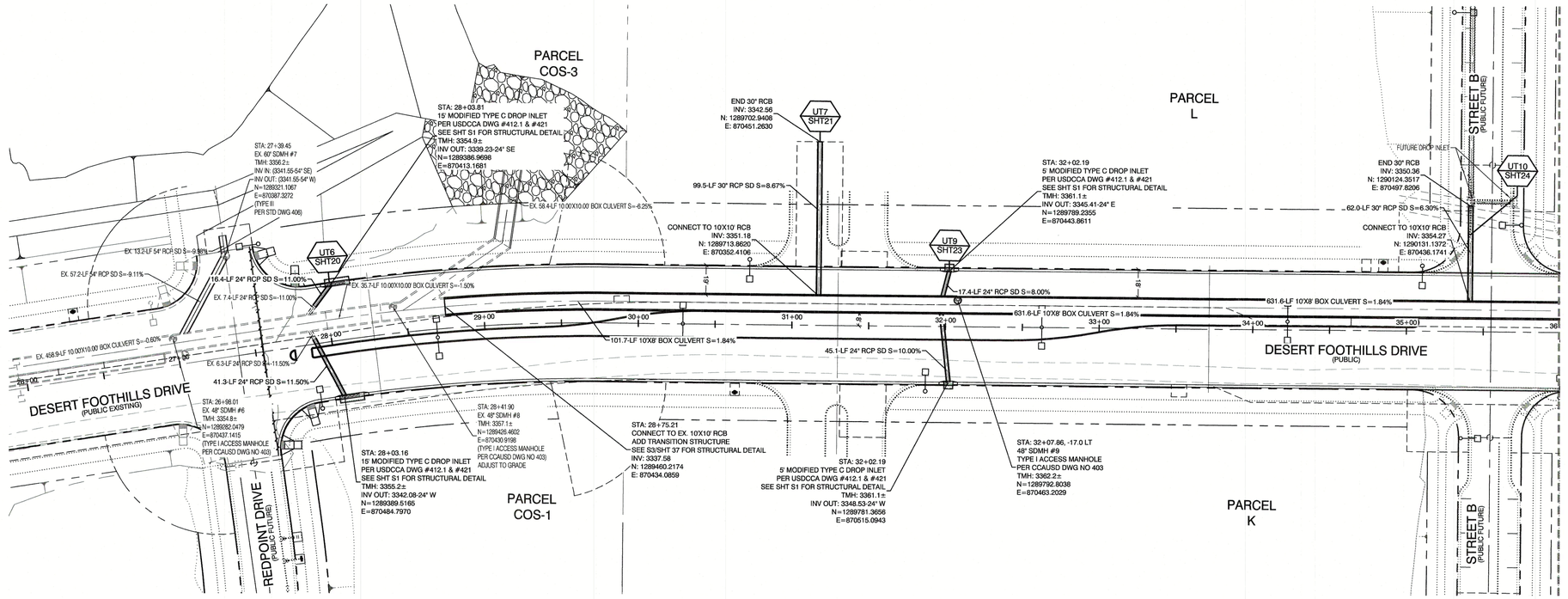
SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

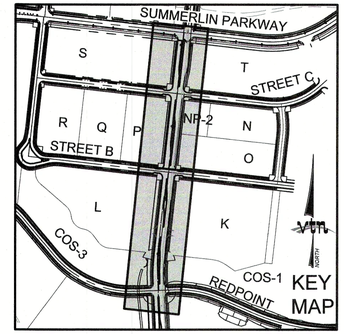
DRAWN BY: BCC	07/03/2018	SCALE:	HORIZ. N/A
DESIGNED BY: BCC	07/03/2018		VERT. N/A
CHECKED BY: WJM	01/31/2018	PROJECT NO:	7851

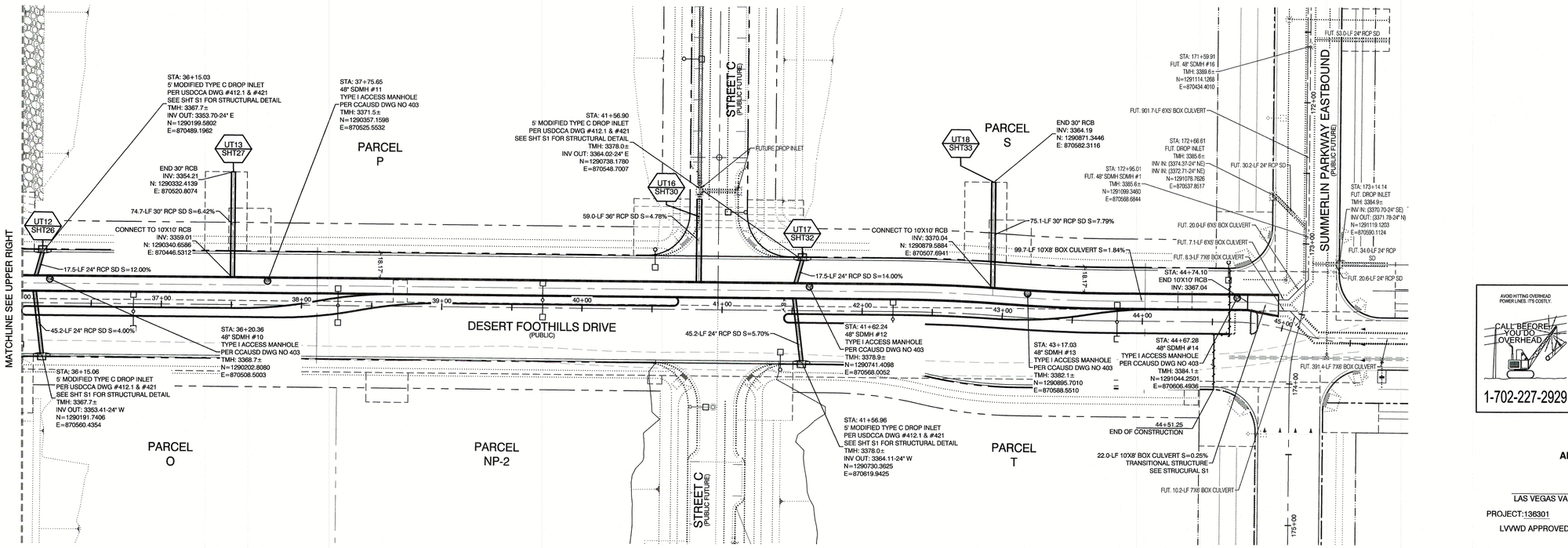
PROFESSIONAL ENGINEER STATE OF NEVADA
WILLIAM J. MEYER
EXP: 12/31/19
CIVIL
No. 15745
1/31/19

SHEET
MUTSS
4 OF **38** SHEETS
DRAWING NO.

H:\7851\Desert Foothills Street A to Summerlin Pkwy\Sheet Set\7851-MUTSS.dwg, Jan 31, 2019







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

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

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

BENCHMARK

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

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 DROP INLET NOTE:

ALL STORM DRAIN INLETS SHALL INCLUDE A STORM WATER INLET CONCRETE STAMP IN ACCORDANCE WITH CCAUSD DWG NO. 421

ENGINEER DISCLAIMER NOTE:

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I CERTIFY THAT THIS GRADING PLAN CONFORMS TO THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE WITH CITY OF LAS VEGAS, #DS0052A

WILLIAM J MEYER , P.E. No. 15745 DATE

GRADING PERMIT NOTE

THIS GRADING PERMIT DOES NOT INCLUDE THE CONSTRUCTION OF RETAINING WALLS AND OTHERS STRUCTURES. SEPARATE PERMITS AND APPLICATIONS ARE REQUIRED FOR THESE.

GEOTECHNICAL NOTE:

REFER TO SOILS REPORT: NOVA GEOTECHNICAL
PROJECT #G-18-003, DATED MARCH 5, 2018

SIGHT VISIBILITY ZONES:

NO STRUCTURE, WALLS, VEGETATION, OR OBJECT OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

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

Call before you Dig
Avoid cutting underground utility lines. It's costly.
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CLARK COUNTY TRAFFIC OPERATIONS

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1-702-455-7511
CLARK COUNTY TRAFFIC OPERATIONS
AND
1-702-229-6611
LAS VEGAS AREA CONSTRUCTION TRAFFIC SYSTEM

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT:136301 FIRST APPROVED DATE:

LVVWD APPROVED FIRE FLOW: TOTAL 1500 GPM/ONSITE N/A GPM

REV	DATE	BY	REVISION

HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
10801 W CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89135
702-791-4200

CITY OF LAS VEGAS

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH. (702) 873-7550 FAX (702) 362-2597 WEB WWW.VTNNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

MASTER UTILITY STORM DRAIN

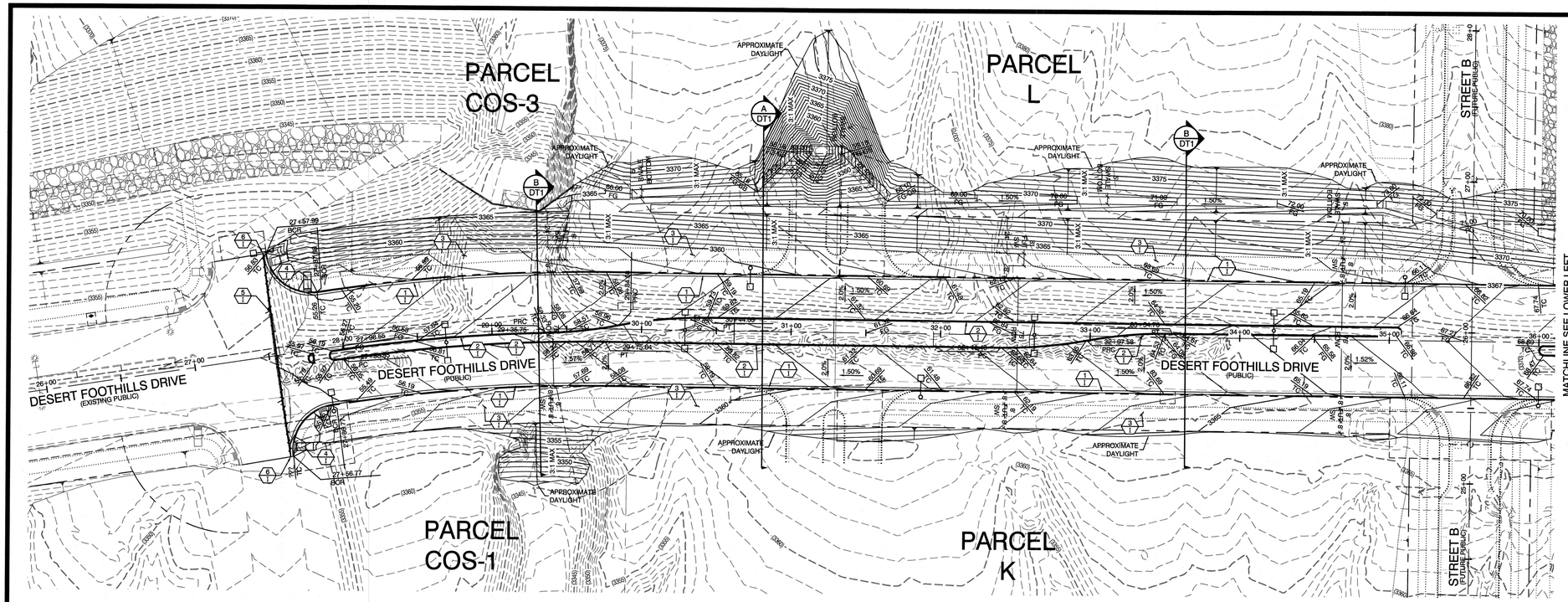
SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

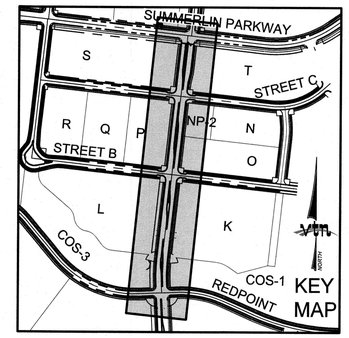
DRAWN BY:	DESIGNED BY:	CHECKED BY:	PROJECT NO:	SCALE:	HORIZ:
BCC	BCC	WJM	7851	N/A	VERT: N/A
07/03/2018	07/03/2018	02/06/2018			

PROFESSIONAL ENGINEER STATE OF NEVADA
WILLIAM J. MEYER
EXP: 12/31/19
CIVIL
No. 15745
2/12/19

SHEET
MUTSD
5 OF 38 SHEETS
DRAWING NO.

H:\7851\Desert Foothills-Street A to Summerlin Pkwy\Sheet Set\7851-MUTSD.dwg; Feb 12, 2019





CONSTRUCTION NOTES

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8. CONSTRUCT VALLEY GUTTER PER STD DWG #228

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 ORGIN):36°15'00"N
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WILLIAM J MEYER , P.E. No. 15745 DATE

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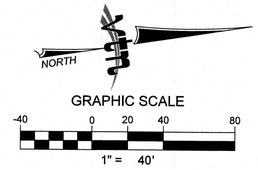
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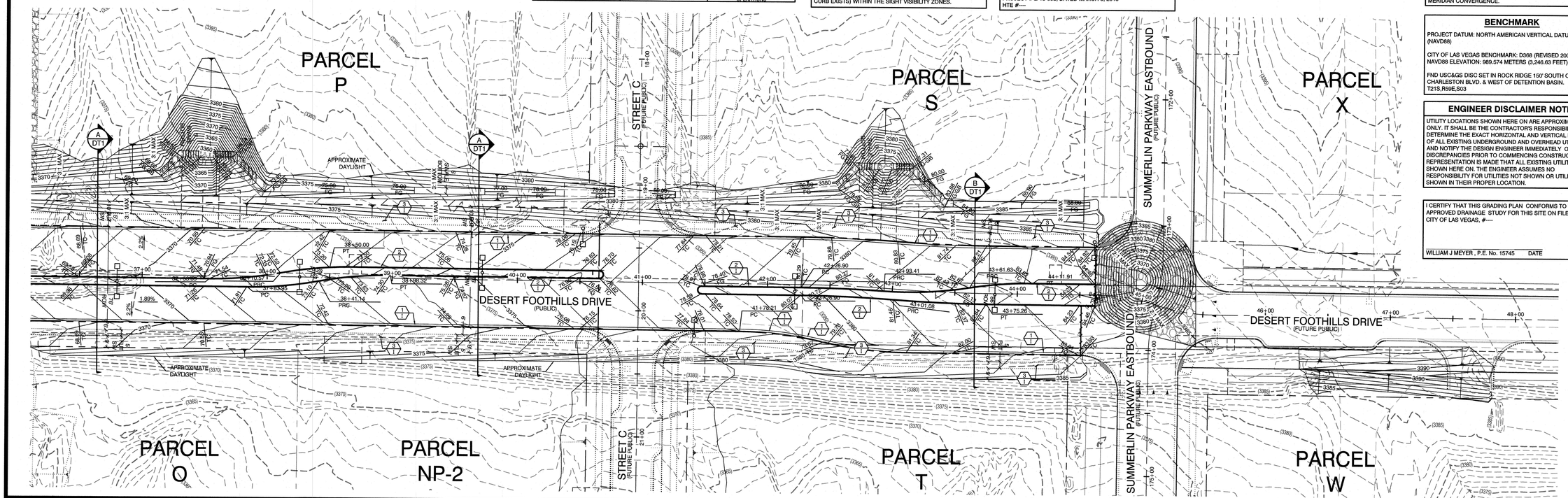
REFER TO SOILS REPORT: NOVA GEOTECHNICAL
PROJECT #G-18-003, DATED MARCH 5, 2018
HTE #---

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REV	DATE	BY	REVISION

HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
10801 W. CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89135
702-791-4000

CITY OF LAS VEGAS

VTN
2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH. (702) 873-7550 FAX (702) 382-2597 WEB WWW.VTNNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

MASTER UTILITY GRADING

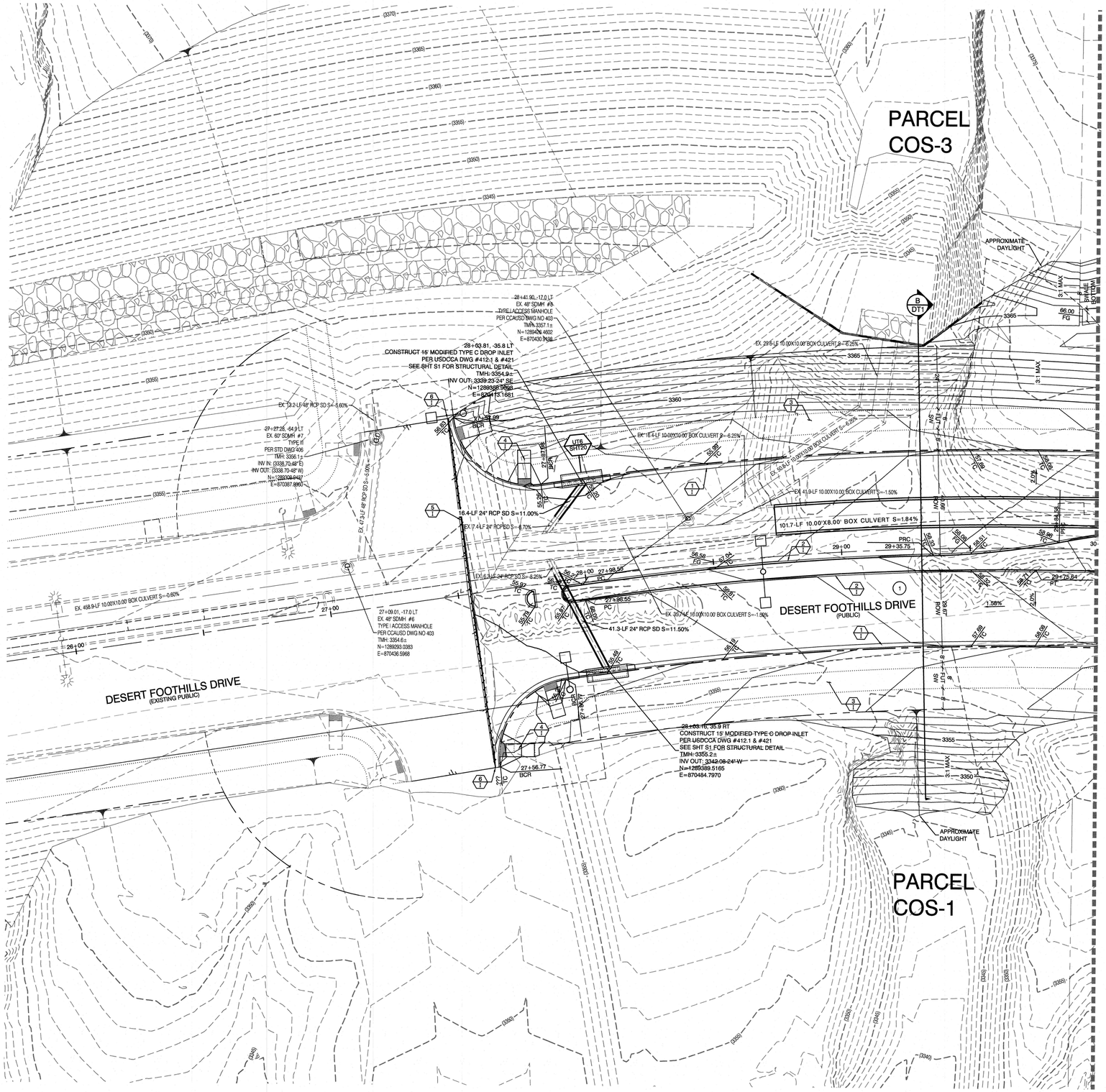
SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

DRAWN BY: BCC	07/03/2018		SCALE:	HORIZ. N/A
DESIGNED BY: BCC	07/03/2018			VERT. N/A
CHECKED BY: WJM		01/31/2018	PROJECT NO: 7851	

PROFESSIONAL ENGINEER STATE OF NEVADA
WILLIAM J. MEYER
EXP: 12/31/19
CIVIL
No. 15745
1/31/19

SHEET
MGRD
7 OF 38 SHEETS
DRAWING NO.

H:\7851\Desert Foothills-Sheet A to Summerlin Pkwy\Sheet Set\7851-MGRD.dwg; Jan 31, 2019

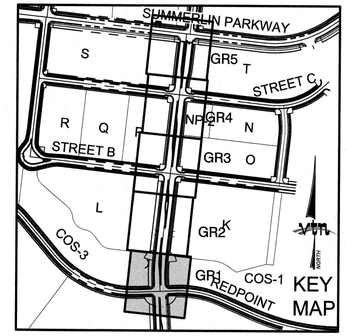


NORTH

GRAPHIC SCALE

-20 0 10 20 40

1" = 20'



CONSTRUCTION NOTES

1. CONSTRUCT 24" TYPE "L" CURB & GUTTER PER STD. DWG. 216.
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1. 50' WIDE LAS VEGAS VALLEY WATER DISTRICT EASEMENT GRANTED PER OR: 20070529:0001401.

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WILLIAM J MEYER , P.E. No. 15745 DATE

AVOID HITTING UNDERGROUND TRAFFIC SIGNAL AND STREET LIGHT CONDUITS
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1-702-455-7311
CLARK COUNTY TRAFFIC OPERATIONS
1-702-229-6811
LAS VEGAS AREA COMPUTERIZED TRAFFIC SYSTEM

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CLARK COUNTY TRAFFIC OPERATIONS

REV	DATE	BY	REVISION

HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
10801 W CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89135
702-791-4000

CITY OF LAS VEGAS

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH. (702) 873-7550 FAX (702) 362-2597 WEB WWW.VTINV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

GRADING SHEET 1

SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

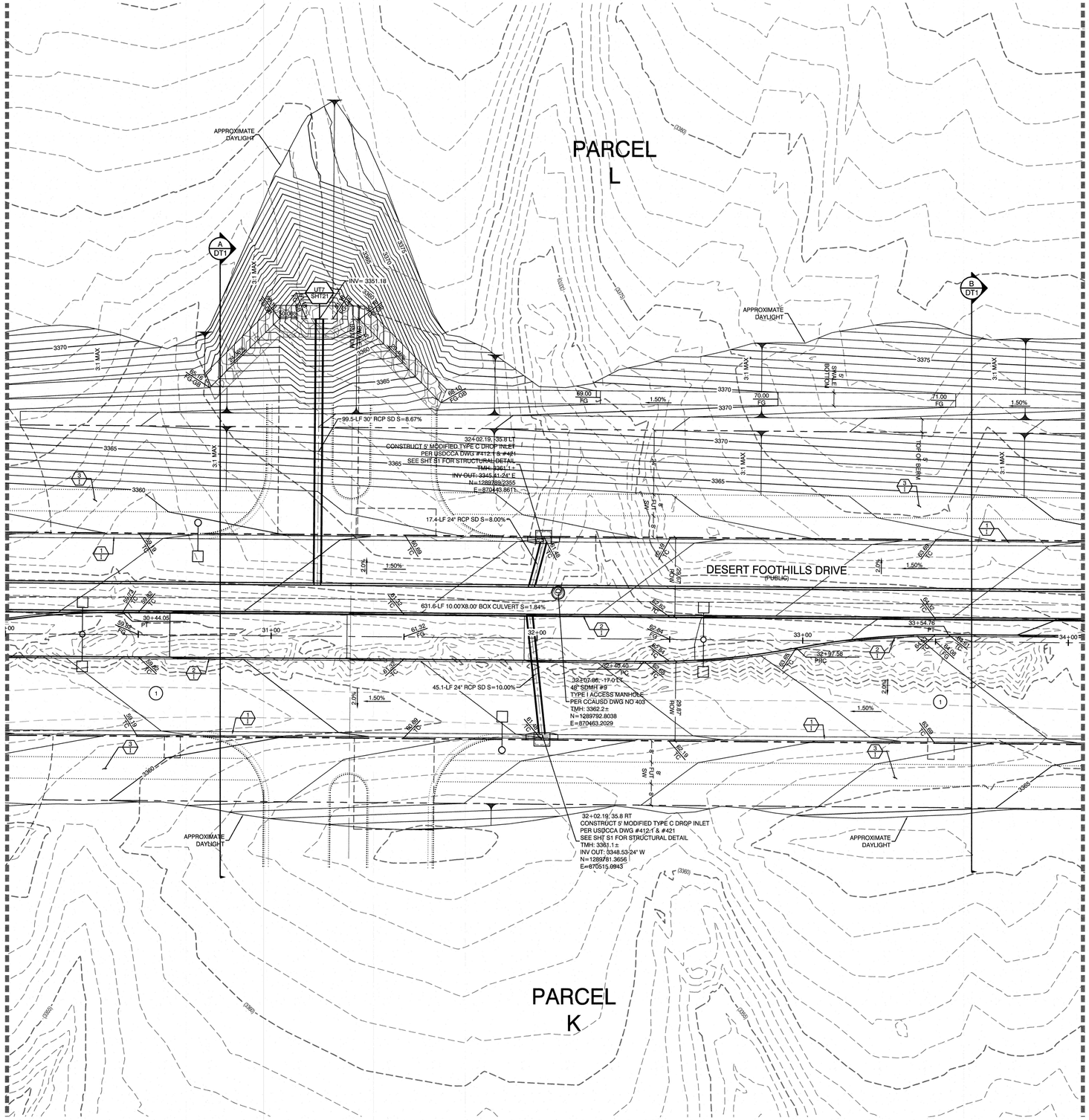
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07/17/2018	07/17/2018	01/31/2018		N/A	VERT:

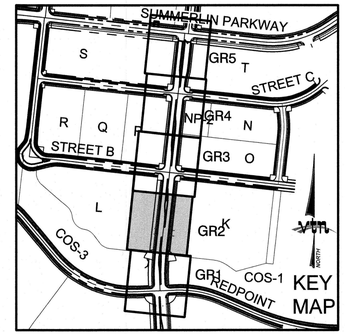
PROFESSIONAL ENGINEER STATE OF NEVADA
WILLIAM J. MEYER
EXP: 12/31/19
CIVIL
No. 15745
1/31/19

SHEET
GR1
8 OF **38** SHEETS

DRAWING NO.

H:\7851\Desert Foothills-Street A to Summerlin Pkwy\Sheet Set\7851-GRD.dwg, Jan 31, 2019







GRAPHIC SCALE

-20 0 10 20 40

1" = 20'

CONSTRUCTION NOTES

1. CONSTRUCT 24" TYPE "L" CURB & GUTTER PER STD. DWG. 216.
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REV	DATE	BY	REVISION

HOWARD HUGHES COMPANY, LLC
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702-791-4000

CITY OF LAS VEGAS

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GRADING SHEET 2

SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

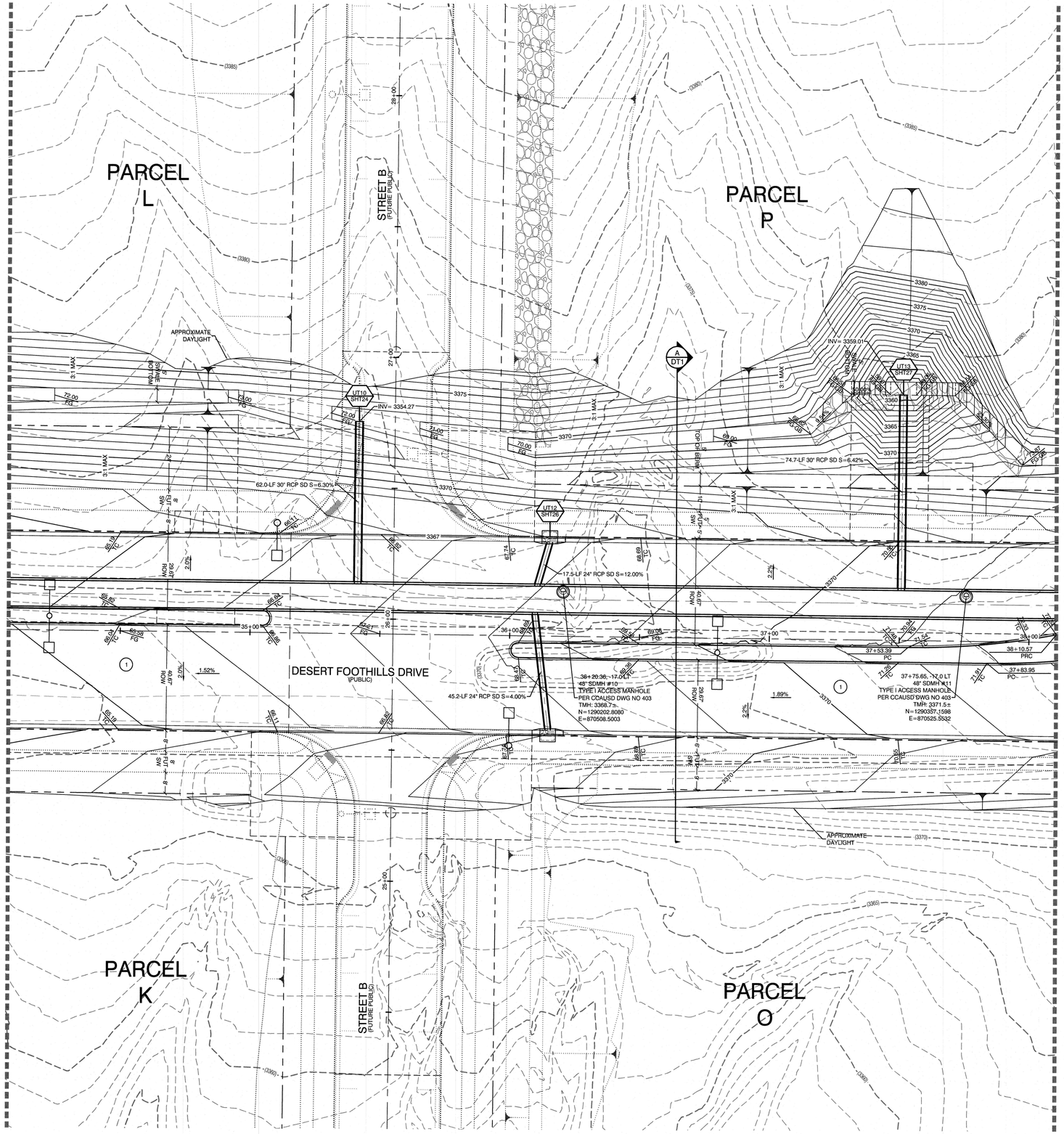
DRAWN BY: BCC	07/17/2018	SCALE:	N/A HORIZ. N/A VERT.
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CHECKED BY: WJM	01/31/2019		
PROJECT NO: 7851			

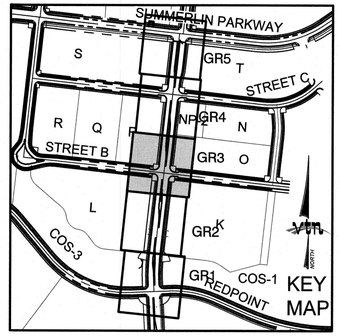
PROFESSIONAL ENGINEER STATE OF NEVADA
WILLIAM J. MEYER
EXP: 12/31/19
CIVIL
No. 15745
1/31/19

SHEET
GR2
9 OF 38 SHEETS

DRAWING NO.

H:\7851\Desert Foothills-Sheet A to Summerlin Pkwy\Sheet Set\7851-GRD.dwg, Jan 31, 2019





NORTH

GRAPHIC SCALE

-20 0 10 20 40

1" = 20'

CONSTRUCTION NOTES

1. CONSTRUCT 24" TYPE "L" CURB & GUTTER PER STD. DWG. 216.
2. CONSTRUCT TYPE "A" CURB PER STD. DWG. 219.
3. FUTURE SIDEWALK
4. CONSTRUCT HANDICAP RAMP PER STD. DWG. 235 CASE II SEE SHEET DT2
5. SAWCUT AND REMOVE ASPHALT PAVING AND MATCH WITH NEW CONSTRUCTION PER CCAUSD #500.5 & #503.
6. FIELD VERIFY AND MATCH EXISTING
7. CONSTRUCT COMMERCIAL DRIVEWAY PER STD DWG #224
8. CONSTRUCT VALLEY GUTTER PER STD DWG #228

GRADING PERMIT NOTE

THIS GRADING PERMIT DOES NOT INCLUDE THE CONSTRUCTION OF RETAINING WALLS AND OTHERS STRUCTURES. SEPARATE PERMITS AND APPLICATIONS ARE REQUIRED FOR THESE.

GEOTECHNICAL NOTE:

REFER TO SOILS REPORT: NOVA GEOTECHNICAL
PROJECT #G-18-003, DATED MARCH 5, 2018
HTE #----

SIGHT VISIBILITY ZONES:

NO STRUCTURE, WALLS, VEGETATION, OR OBJECT OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

STORM DRAIN DROP INLET NOTE:

ALL STORM DRAIN INLETS SHALL INCLUDE A STORM WATER INLET CONCRETE STAMP IN ACCORDANCE WITH CCAUSD DWG NO. 421

EASEMENT REFERENCE LEGEND

1. 50' WIDE LAS VEGAS VALLEY WATER DISTRICT EASEMENT GRANTED PER OR: 20070529:0001401.

OFFSITE FLOOD CONTROL NOTE:

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

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

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

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

BENCHMARK

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

CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET)

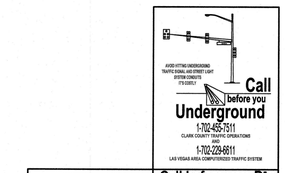
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S,R59E,S03

ENGINEER DISCLAIMER NOTE:

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

I CERTIFY THAT THIS GRADING PLAN CONFORMS TO THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE WITH CITY OF LAS VEGAS, #----

WILLIAM J MEYER , P.E. No. 15745 DATE





REV	DATE	BY	REVISION

HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
10801 W CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89135
702-791-4000

CITY OF LAS VEGAS

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH. (702) 873-7550 FAX (702) 362-2697 WEB WWW.VTNNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

GRADING SHEET 3

SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

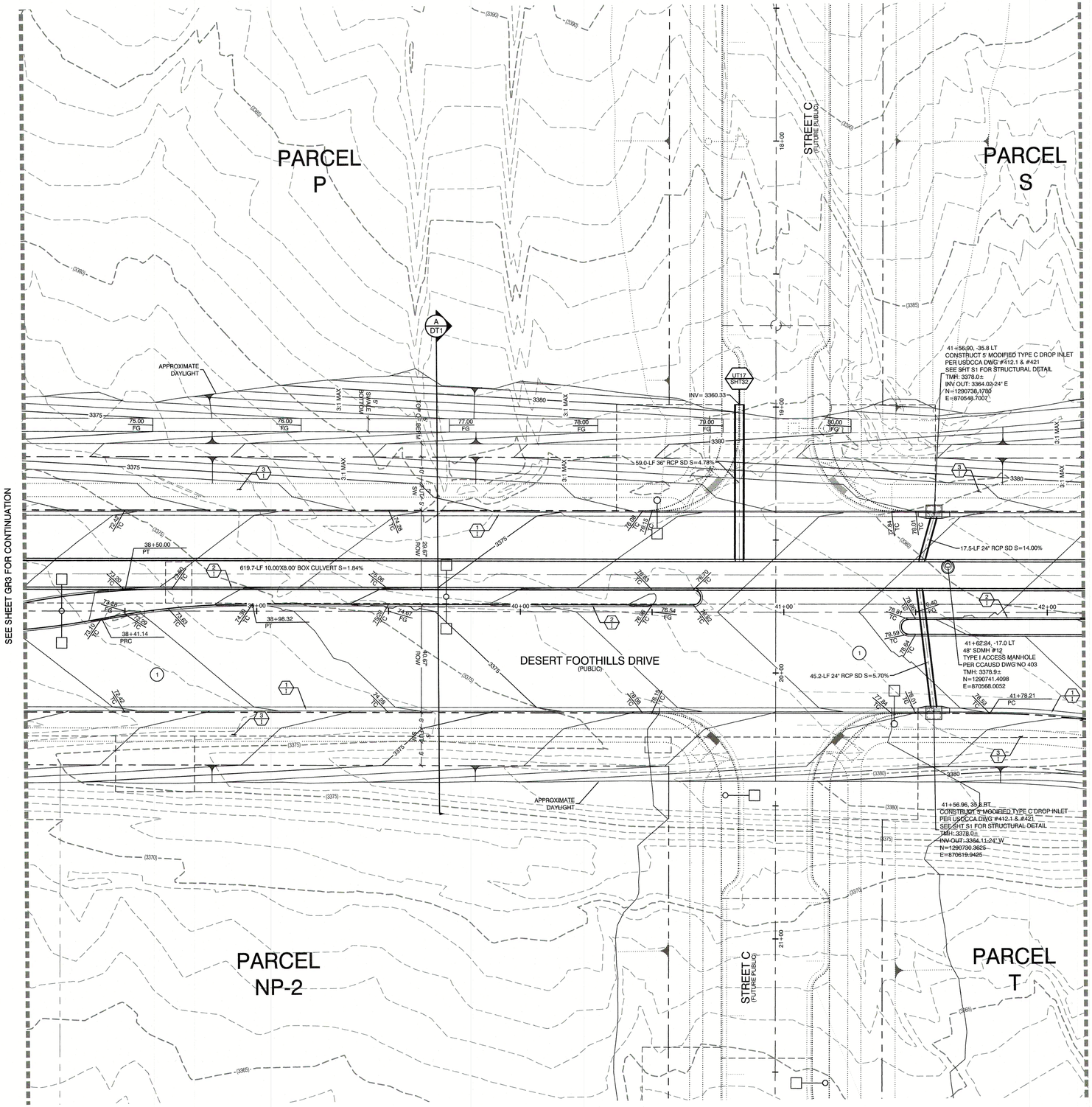
DRAWN BY: BCC	07/17/2018	SCALE:	N/A HORIZ.
DESIGNED BY: BCC	07/17/2018		N/A VERT.
CHECKED BY: WJM	01/31/2018		
PROJECT NO: 7851			

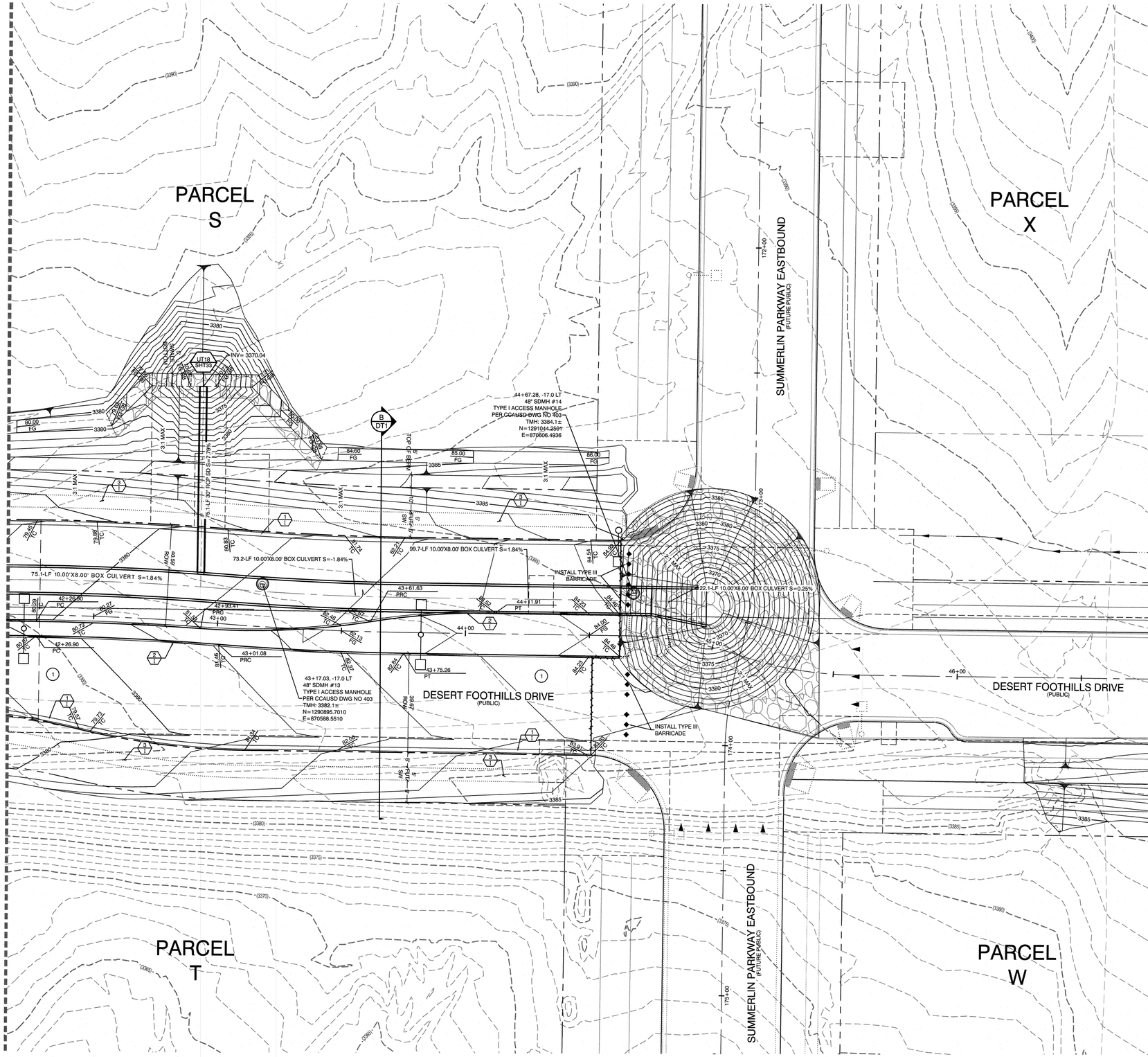
PROFESSIONAL ENGINEER STATE OF NEVADA
WILLIAM J. MEYER
EXP: 12/31/19
No. 15745
CIVIL
1/31/19

SHEET
GR3
10 OF **38** SHEETS

DRAWING NO.

H:\7851\Desert Foothills-Street A to Summerlin Pkwy\Sheet Set\7851-GRD.dwg, Jan 31, 2019


PARCEL P
PARCEL S
PARCEL NP-2
PARCEL T
STREET C (FUTURE PUBLIC)
DESERT FOOTHILLS DRIVE (PUBLIC)
STREET C (FUTURE PUBLIC)
APPROXIMATE DAYLIGHT
APPROXIMATE DAYLIGHT
SEE SHEET GR3 FOR CONTINUATION
SEE SHEET GR5 FOR CONTINUATION
619.7-LF 10.00'X8.00' BOX CULVERT S=1.84%
59.0-LF 36" RCP SD S=4.78%
17.5-LF 24" RCP SD S=14.00%
45.2-LF 24" RCP SD S=5.70%
41+56.90, -35.8 LT
CONSTRUCT 5' MODIFIED TYPE C DROP INLET
PER USDCCA DWG #412.1 & #421
SEE SHT S1 FOR STRUCTURAL DETAIL
TMH: 3378.0±
INV OUT: 3364.02-24" E
N=1290738.3780
E=870548.7002'
INV= 3360.33
41+62.94, -17.0 LT
48" SDMH #12
TYPE I ACCESS MANHOLE
PER CCAUSD DWG NO 403
TMH: 3378.9±
N=1290741.4098
E=870568.0052
41+56.96, 35.8 RT
CONSTRUCT 5' MODIFIED TYPE C DROP INLET
PER USDCCA DWG #412.1 & #421
SEE SHT S1 FOR STRUCTURAL DETAIL
TMH: 3378.0±
INV OUT: 3364.11-24" W
N=1290730.3625
E=870619.9425
38+50.00 PT
38+98.32 PT
38+41.14 PRC
41+78.21 PC
18+00
19+00
20+00
21+00
40+00
41+00
42+00
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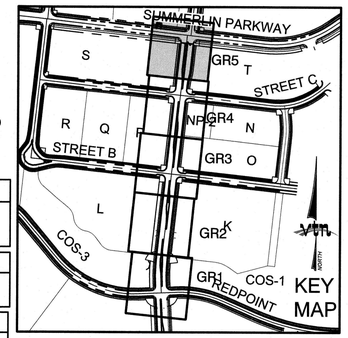


NORTH

GRAPHIC SCALE

-20 0 10 20 40

1" = 20'



GRADING PERMIT NOTE

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GEOTECHNICAL NOTE:

REFER TO SOILS REPORT: NOVA GEOTECHNICAL
PROJECT #G-18-003, DATED MARCH 5, 2018
HTE #---

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I CERTIFY THAT THIS GRADING PLAN CONFORMS TO THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE WITH CITY OF LAS VEGAS, #---

WILLIAM J MEYER , P.E. No. 15745 DATE

OFFSITE FLOOD CONTROL NOTE:

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

BENCHMARK

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

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

CONSTRUCTION NOTES

1. CONSTRUCT 24" TYPE "L" CURB & GUTTER PER STD. DWG. 216.
2. CONSTRUCT TYPE "A" CURB PER STD. DWG. 219.
3. FUTURE SIDEWALK
4. CONSTRUCT HANDICAP RAMP PER STD. DWG. 235 CASE II SEE SHEET DT2
5. SAWCUT AND REMOVE ASPHALT PAVING AND MATCH WITH NEW CONSTRUCTION PER CCAUSD #500.5 & #503.
6. FIELD VERIFY AND MATCH EXISTING
7. CONSTRUCT COMMERCIAL DRIVEWAY PER STD DWG #224
8. CONSTRUCT VALLEY GUTTER PER STD DWG #228

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

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

EASEMENT REFERENCE LEGEND

1. 50' WIDE LAS VEGAS VALLEY WATER DISTRICT EASEMENT GRANTED PER OR: 20070529:0001401.

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

AVOID HITTING UNDERGROUND TRAFFIC SIGNAL AND STREET LIGHT SYSTEM CONDUITS
IT'S COSTLY.
Call before you Underground
1-702-455-7511
CLARK COUNTY TRAFFIC OPERATIONS
AND
1-702-229-6611
LAS VEGAS AREA COMPUTERIZED TRAFFIC SYSTEM

Call before you Dig
Avoid cutting underground utility lines. It's costly.
CALL 811
OR
1-800-227-2600
AND
1-702-455-6000
CLARK COUNTY TRAFFIC OPERATIONS

REV	DATE	BY	REVISION

HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
10801 W CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89135
702-791-4000

CITY OF LAS VEGAS

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH: (702) 873-7550 FAX (702) 362-2597 WEB WWW.VTNNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

GRADING SHEET 5

SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

DRAWN BY: BCC	07/17/2018	SCALE:	HORIZ. N/A
DESIGNED BY: BCC	07/17/2018		VERT. N/A
CHECKED BY: WJM	01/31/2018		
PROJECT NO: 7651			

PROFESSIONAL ENGINEER - STATE OF NEVADA
WILLIAM J. MEYER
EXP: 12/31/19
CIVIL
No. 15745
1/31/19

SHEET
GR5
12 OF 38 SHEETS
DRAWING NO.

H:\7651\Desert Foothills-Street A to Summerlin Pkwy\Sheet Set\7651-GRD.dwg, Jan 31, 2019

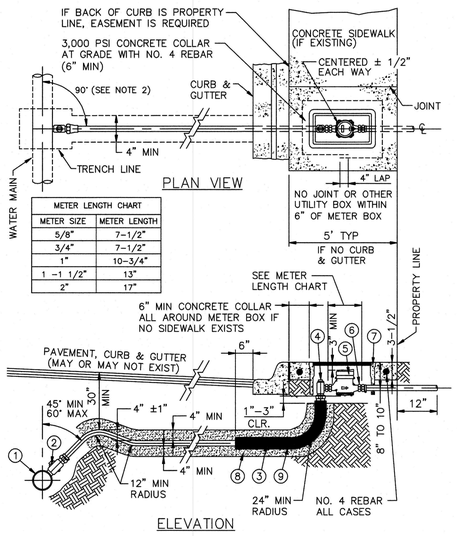
APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT:---- FIRST APPROVED DATE:_____

LVVWD APPROVED FIRE FLOW: TOTAL 1500 GPM/ONSITE N/A GPM

UNIFORM DESIGN STANDARDS FOR WATER DISTRIBUTION SYSTEMS



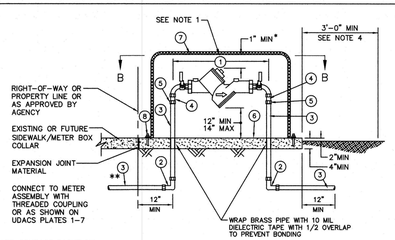
FOR NOTES AND LEGEND SEE SHEET 2

NOT TO SCALE	FILE NAME: UDACS-4 / DRAWN BY: SDM / CHECKED BY: SPM	NEW SERVICE INSTALLATION WITH SINGLE ANGLE METER STOPS COMMERCIAL & RESIDENTIAL GREATER THAN 1/4 ACRE GROSS 5/8", 3/4", 1", 1-1/2", AND 2" METER SIZES	UDACS PLATE NO. 4 / SHEET 1 OF 2

1528 Plot ● 03/15/09 \\UDACS\section 5 - standard plates_New Numbered Updated Plates\new udac-04.dwg

METER AND RPPA PER UDACS PLATE NO. 4 WITH CURB STOP

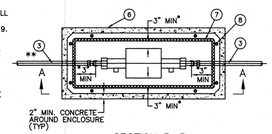
UNIFORM DESIGN STANDARDS FOR WATER DISTRIBUTION SYSTEMS



NOTES

1. APPROVED COMPACT BACKFLOW PREVENTION DEVICE INCLUDING ABOVE GRADE PIPING NOT TO BE PAINTED.
2. INSTALL BOLLARDS AS REQUIRED. SEE UDACS PLATE 75.
3. ADDITIONAL TRENCH BACKFILL REQUIREMENTS SEE UDACS PLATES 16, 17, 18, AND 19.
4. IN ORDER TO ALLOW FOR ACCESS AND MAINTENANCE OF BACKFLOW ASSEMBLIES A MINIMUM OF THREE (3) FEET ADJACENT TO BACKFLOW ASSEMBLY PAD SHALL BE LEVEL AND FREE OF SHRUBBERY AND OBSTRUCTIONS (TYP).

* INSIDE ENCLOSURE DIMENSIONS



** DEPENDING ON CONFIGURATION, ONE (1) BRASS 90° HORIZONTAL BEND (IPF x IPF) MAY BE INSTALLED BETWEEN METER AND BACKFLOW ASSEMBLY.

LEGEND

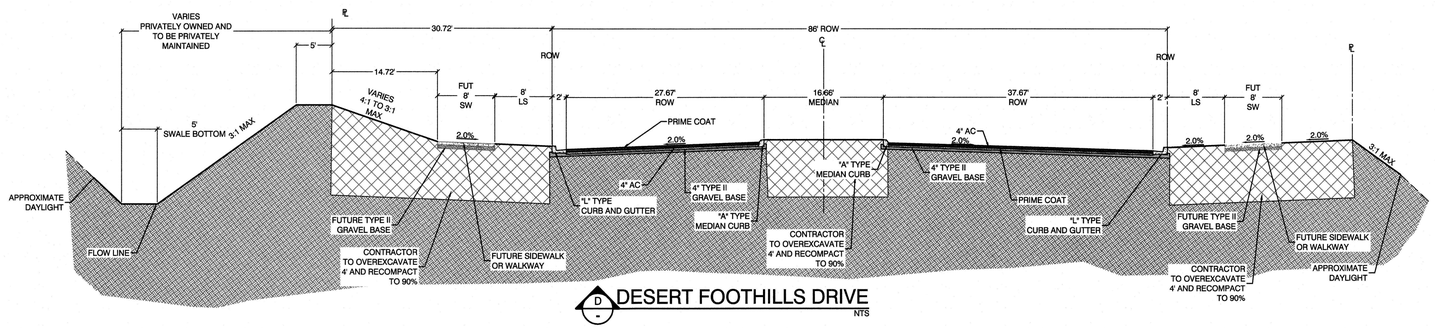
1. APPROVED BACKFLOW ASSEMBLY
2. BRASS 90° BEND – IRON PIPE THREAD (IPF x IPF)
3. BRASS PIPE – STANDARD – TBE
4. BRASS CLOSE NIPPLE
5. BRASS UNION – IRON PIPE THREAD (IPF x IPF) (IF NOT PROVIDED WITH ASSEMBLY)
6. CONCRETE PAD – 3000 PSI (PAD SIZE TO MEET ENCLOSURE MANUFACTURERS SPECIFICATIONS)
7. AGENCY APPROVED ENCLOSURE
8. ANCHOR PER MANUFACTURERS REQUIREMENTS

(IPF = IRON PIPE FEMALE, IPM = IRON PIPE MALE, TBE = THREADED BOTH ENDS)

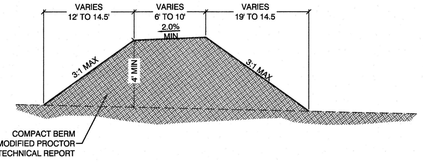
NOT TO SCALE	FILE NAME: UDACS-8 / DRAWN BY: SDM / CHECKED BY: SPM	BACKFLOW PREVENTION ASSEMBLY 1" - 2" DIAMETER	UDACS PLATE NO. 8 / SHEET 1 OF 1

07/48 Plot ● 12/31/08 \\UDACS\section 5 - standard plates_New Numbered Updated Plates\new udac-08.dwg

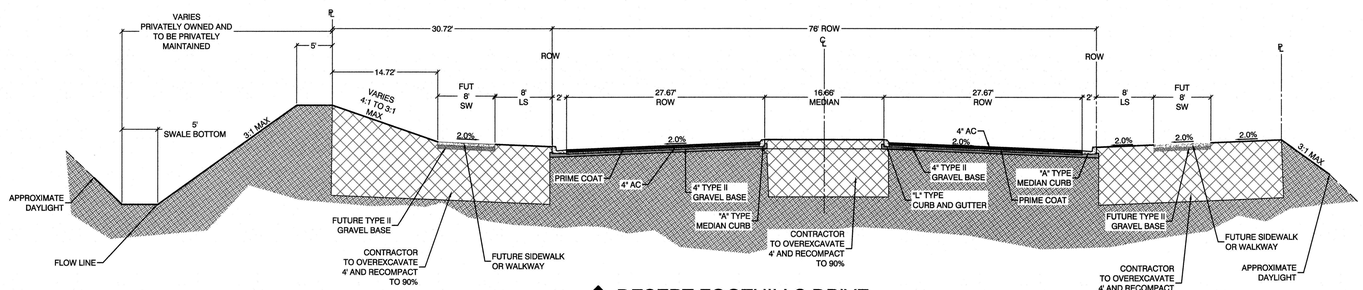
METER AND RPPA PER UDACS PLATE NO. 8 WITH CURB STOP



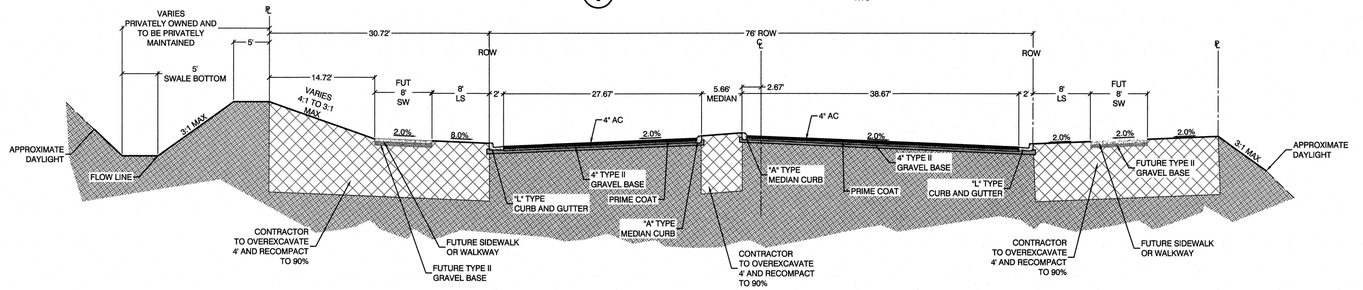
D - DESERT FOOTHILLS DRIVE NTS



C - TEMPORARY BERM NTS



B - DESERT FOOTHILLS DRIVE NTS



A - DESERT FOOTHILLS DRIVE NTS

REV	DATE	REVISION
		BY

HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
10801 W CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89135
702-791-4000

CITY OF LAS VEGAS
2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH. (702) 873-7550 FAX (702) 362-2697 WEB WWW.VTNNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

DETAIL SHEET 1

SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

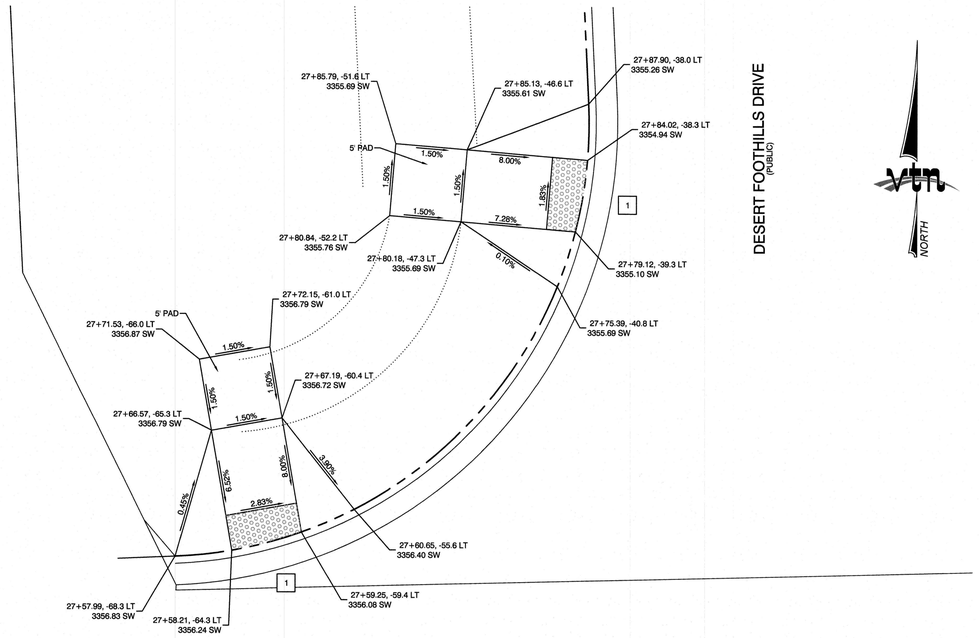
DRAWN BY: BCC	07/17/2018
DESIGNED BY: BCC	07/17/2018
CHECKED BY: WJM	01/31/2018
PROJECT NO: 7851	SCALE: HORIZ: N/A VERT: N/A

PROFESSIONAL ENGINEER STATE OF NEVADA
WILLIAM J. MEYER
EXP: 12/31/19
CIVIL
No. 15745
1/31/19

SHEET **DT1**
13 OF **38** SHEETS

DRAWING NO. ----

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DESERT FOOTHILLS AND FAR HILLS HANDICAP RAMP NORTHWEST CORNER

NTS

GRAPHIC SCALE

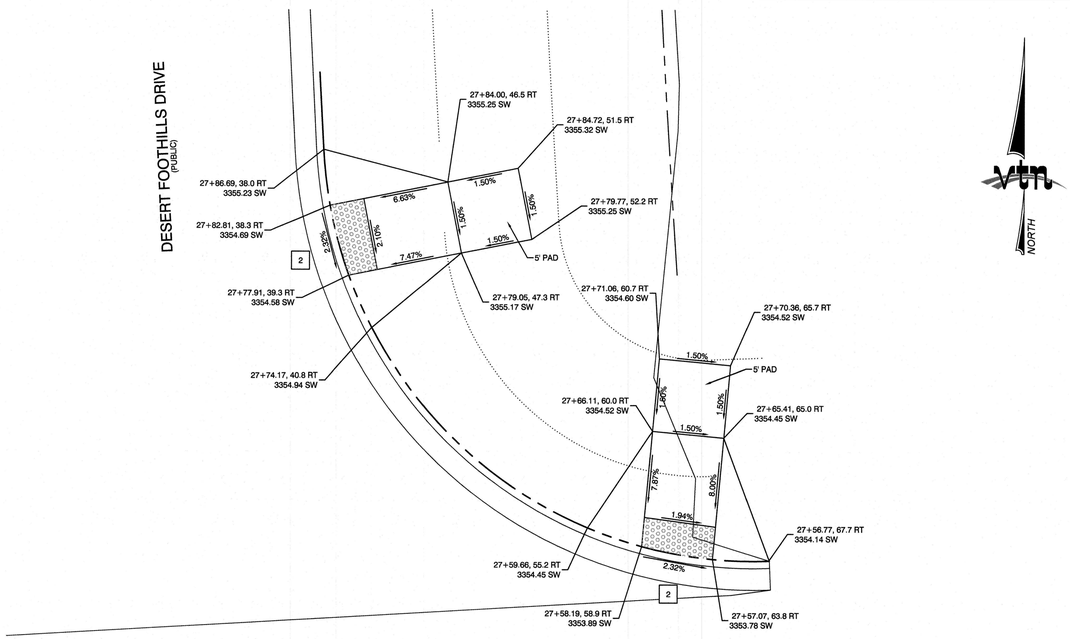
-5 0 2.5 5 10

1" = 5'

SIDEWALK RAMPS TABLE

(PER CCAUSD No. 235, CASE II)

NO.	DIM "A"	DIM "B"	CASE
1	4.5'	12'	II
2	4.5'	9.5'	II
3	8'	8'	II
4	9.5'	4.5'	II
5	12'	4.5'	II



DESERT FOOTHILLS AND FAR HILLS HANDICAP RAMP NORTHWEST CORNER

NTS

REV	DATE	BY	REVISION

HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
10801 W CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89135
702-791-4500

CITY OF LAS VEGAS

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
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CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

DETAIL SHEET 2

SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

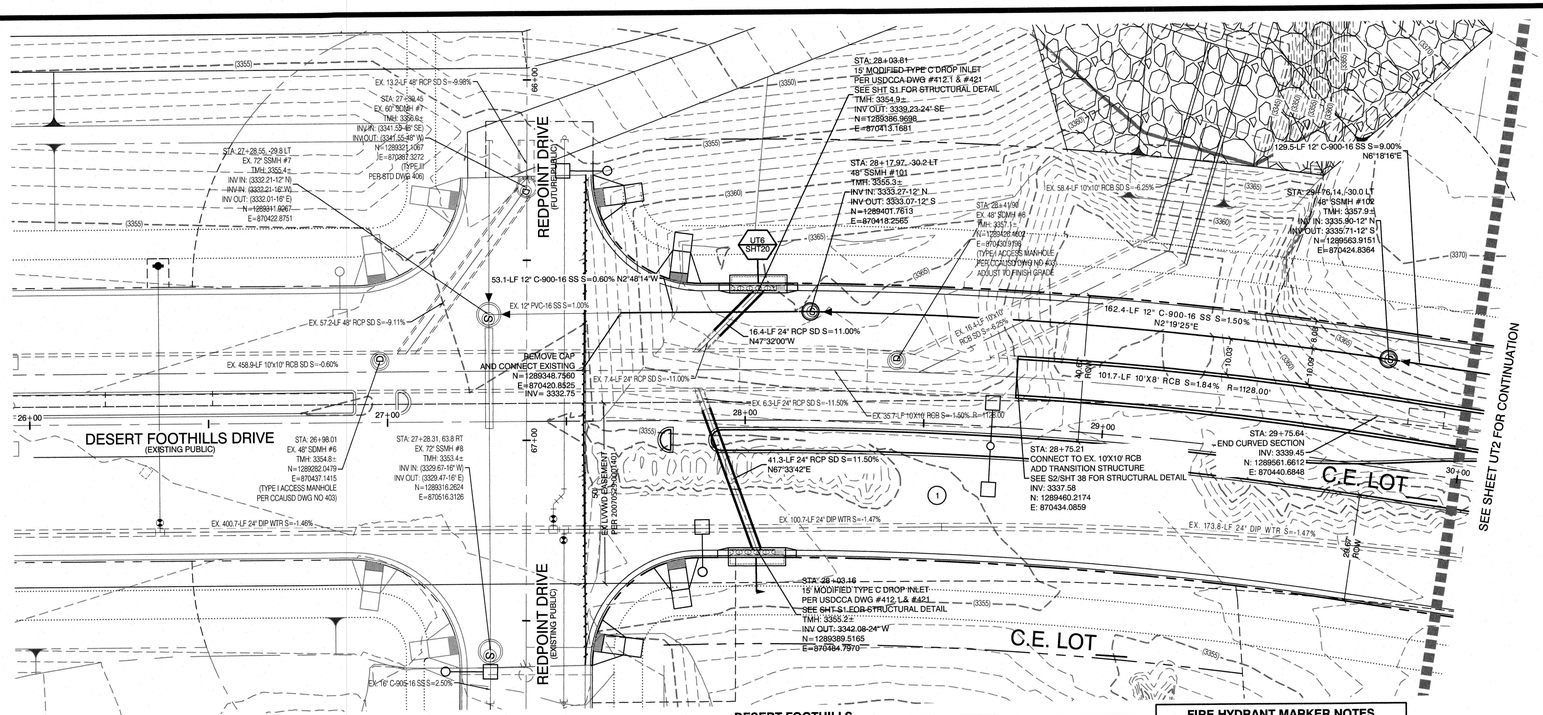
DRAWN BY: BCC	07/17/2018	SCALE:	N/A HORIZ. N/A VERT.
DESIGNED BY: BCC	07/17/2018		
CHECKED BY: WJM	01/31/2019		
PROJECT NO: 7851			

PROFESSIONAL ENGINEER STATE OF NEVADA
WILLIAM J. MEYER
EXP: 12/31/19
CIVIL
No. 15745
1/31/19

SHEET
DT2
14 OF **38** SHEETS

DRAWING NO.

H:\7851\Desert Foothills-Sheet A to Summerlin Pkwy\Sheet Set\7851-DT.dwg, Jan 31, 2019



DESERT FOOTHILLS
(PUBLIC)

PROFILE SCALES:
HORIZ. = 1"=20'
VERT. = 1"=4'

WATER PRESSURE ZONE:
WATER SERVICE LOCATED IN THE 3550 PRESSURE ZONE.

WATERLINE TRENCH NOTE:
CONSTRUCT WATERLINE TRENCH SECTION AND BACKFILL PER UDACS PLATE NO. 17.

WATER MAIN COVER NOTE:
ALL NEW WATER MAIN TO HAVE MINIMUM DEPTH OF COVER PER UDACS SECTION 2.08

FIRE HYDRANT MARKER NOTES
BLUE COLORED REFLECTIVE RAISED PAVEMENT MARKERS ARE TO BE INSTALLED:

1. ON ROADWAYS WITH NO PARKING PERMITTED ON HYDRANT SIDE; LOCATE MAKER 8' FROM FACE OF CURB ON HYDRANT SIDE.
2. ON ROADWAYS WITH PARKING PERMITTED ON HYDRANT SIDE; LOCATE MARKER 16' FROM FACE OF CURB ON HYDRANT SIDE.

STORM DRAIN DROP INLET NOTE:
ALL STORM DRAIN INLETS SHALL INCLUDE A STORM WATER INLET CONCRETE STAMP IN ACCORDANCE WITH CCAUSD DWG NO. 421

NORTH

GRAPHIC SCALE
-20 0 10 20 40
1" = 20'

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

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

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

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

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

EASEMENT REFERENCE LEGEND
(1) 50' WIDE LAS VEGAS VALLEY WATER DISTRICT EASEMENT GRANTED PER OR: 20070529-0001401.

SANITATION SEWER NOTES
1. ALL SEWER STATIONING IS BASED ON CENTER OF PIPE LENGTHS FROM MANHOLE TO MANHOLE AND IS NOT RELATIVE IN ANY WAY TO STREET CENTERLINE STATIONING. STREET CENTERLINE STATIONING IS SHOWN ON PLAN FOR ROAD REFERENCE ONLY.
2. ALL MANHOLES ARE 48" SIZED MANHOLES PER DCSWCS SD-1, UNLESS OTHERWISE NOTED ON PLAN.
3. ALL MANHOLES ARE TO BE CONSTRUCTED PER DCSWCS SD-1A AND SD-1B.
4. ALL MANHOLE COVERS AND FRAMES ARE TO BE CONSTRUCTED PER DCSWCS SD-2.
5. ALL MANHOLE COLLARS ARE TO BE CONSTRUCT PER DCSWCS SD-4.
6. ALL SEWER LATERAL CONNECTIONS TO SEWER MAINS ARET TO BE CONSTRUCTED PER DCSWCS SD-22 UNLESS OTHERWISE NOTED ON PLAN.

UTILITY CROSSING NOTE:
ALL SEWER/STORM DRAINS CROSSING WATER LINES MUST CONFORM TO SECTION 2.22 OF UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR PORTABL WATER SYSTEMS (UDACS) FOR WATER AND STORM MAIN CROSSINGS AND CLEARANCES.

ENGINEER DISCLAIMER NOTE:
UTILITY LOCATIONS SHOWN HERE ON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HERE ON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

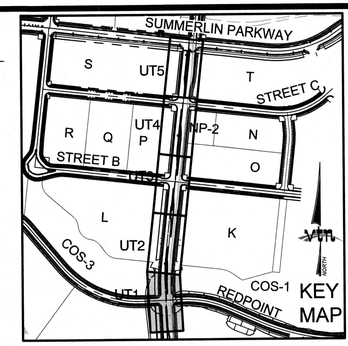
TYPICAL WATER NOTES
1. MAINTAIN A MINIMUM OF 12-INCHES VERTICAL SEPARATION AT ALL POINTS OF UTILITY CROSSINGS.
2. MAINTAIN A MINIMUM OF 3-FEET PARALLEL SEPARATION FROM ADJACENT UTILITIES.
3. ANY EXCAVATION AT THE BACK OF A CURB MUST REMAIN OPEN FOR INSPECTION OF THE COPPER SERVICE LATERALS. ANY COPPER SERVICE LATERAL WHICH IS KINKED, BENT OR OTHERWISE DAMAGED MUST BE REPLACED FROM THE MAIN TO THE ANGLE METER STOP.
4. CAUTION MUST BE EXERCISED NEAR ANY EXCAVATION AROUND AN EXISTING FIRE HYDRANT IN ORDER TO AVOID DISTURBING THE THRUST BLOCK AND SURROUNDING SOIL SUPPORTING THE THRUST BLOCK. THIS PREVENTS THE POSSIBILITY OF THE HYDRANT SEPARATING FROM THE LATERAL. PROVIDE A DETAIL OF THE PROPOSED INSTALLATION SHOWING ADEQUATE CLEARANCES TO AVOID DISTURBING EXISTING LVVWD FACILITIES.

SIGHT VISIBILITY ZONES:
NO STRUCTURE, WALLS, VEGETATION, OR OBJECT OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

WATER LINE MARKER BALLS NOTE
INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING, PER UDACS PLATE No. 15

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

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



CONSTRUCTION NOTES

	WATER	PUBLIC
	FIRE HYDRANT ASSEMBLY: INCLUDING 24"X6" TEE WITH 6" G.V. (PER UDACS PLATE 39 & 40)	3 EA.
	12" GATE VALVE (PER UDACS PLATE 30 & 39)	9 EA.
	12" 45° VERTICAL BEND (PER UDACS PLATE 31)	4 EA.
	12" 45° BEND (PER UDACS PLATE 31)	6 EA.
	24"X12" TEE (PER UDACS PLATE 31)	9 EA.
	12" CAP & BLOW OFF (PER UDACS PLATE 36)	9 EA.
	1.5" TYPE K SOFT COPPER WATER LATERAL SERVICE WITH 1.5" SUMMERLIN COUNCIL METER PER IRRIGATION MASTER PLAN AND UDACS PLATE #4 (IRRIGATION) AND 1.5" RPPA PER UDACS PLATE #8	2 EA.
	24"X1.5" TEE (PER UDACS PLATE 31)	2 EA.
	6" C-900-16 WATER MAIN PER UDACS 2.06.01 & PLATE 17	109 LF.
	12" C-900-16 WATER MAIN PER UDACS 2.06.01 & PLATE 17	365 LF.
	12" DIP WATER MAIN PER UDACS 2.06.01 & PLATE 17	247 LF.
	WATER POINT OF CONNECTION	

	SEWER	PUBLIC
S	STANDARD MANHOLE PER SD-1A & 1B	9 EA.
	8" SDR-35 C-900-16 SANITARY SEWER MAIN	184 LF.
	12" SDR-35 C-900-16 SANITARY SEWER MAIN	1,711 LF.
	SEWER POINT OF CONNECTION	

WATER CONSTRUCTION NOTES
ALL DIMENSIONS TO UTILITIES ARE TO CENTERLINE OF PIPE UNLESS INDICATED OTHERWISE.

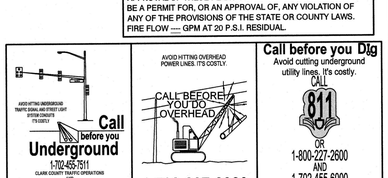
CONTRACTOR SHALL VARIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

ALL EXISTING UTILITY STRUCTURES WITHIN CONSTRUCTION AREA SHALL BE ADJUSTED TO MATCH FINISH GRADE (I.E. WV. BOX, MH, ANNODE BOX, FH, TEL BOX, ETC.)

1. WATER LINE STATIONING IS BASED ON THE CENTERLINE OF STREET RIGHT OF WAY
2. WATER LINE SHALL BE C-900 PVC APPROVED BY THE LAS VEGAS VALLEY WATER DISTRICT.
3. EXISTING ASPHALT SHALL BE REMOVED AND REPLACED PER CITY OF LAS VEGAS SPECIFICATIONS. BACKFILL AND INSTALL PERMANENT PATCH PER CITY STANDARD FOR THIS PLAN.
4. SEE SHEET __ FOR PUBLIC UTILITY NOTES AND GENERAL WATER CONSTRUCTION NOTES.
5. ALL WATER LINE IN STREET RIGHT OF WAY IS PUBLIC WATER SYSTEM AND MUST BE INSPECTED BY THE LAS VEGAS VALLEY WATER DISTRICT.

LAS VEGAS FIRE & RESCUE APPROVAL
BY: _____ DATE: _____

APPROVAL OF THESE PLANS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR, OR AN APPROVAL OF, ANY VIOLATION OF ANY OF THE PROVISIONS OF THE STATE OR COUNTY LAWS. FIRE FLOW --- GPM AT 20 P.S.I. RESIDUAL.



APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT:---- FIRST APPROVED DATE: _____

LVVWD APPROVED FIRE FLOW: TOTAL 1500 GPM/ONSITE N/A GPM

REV	DATE	BY	REVISION

HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
2300 W. SAHARA AVE., SUITE 500
LAS VEGAS, NEVADA 89135
702-791-4000

CITY OF LAS VEGAS

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH. (702) 875-7550 FAX (702) 362-2697 WEB WWW.VTNNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

UTILITY SHEET 1
26+00 TO 30+00

SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

DRAWN BY:	DESIGNED BY:	CHECKED BY:	PROJECT NO:
BCC	BCC	WJM	7951

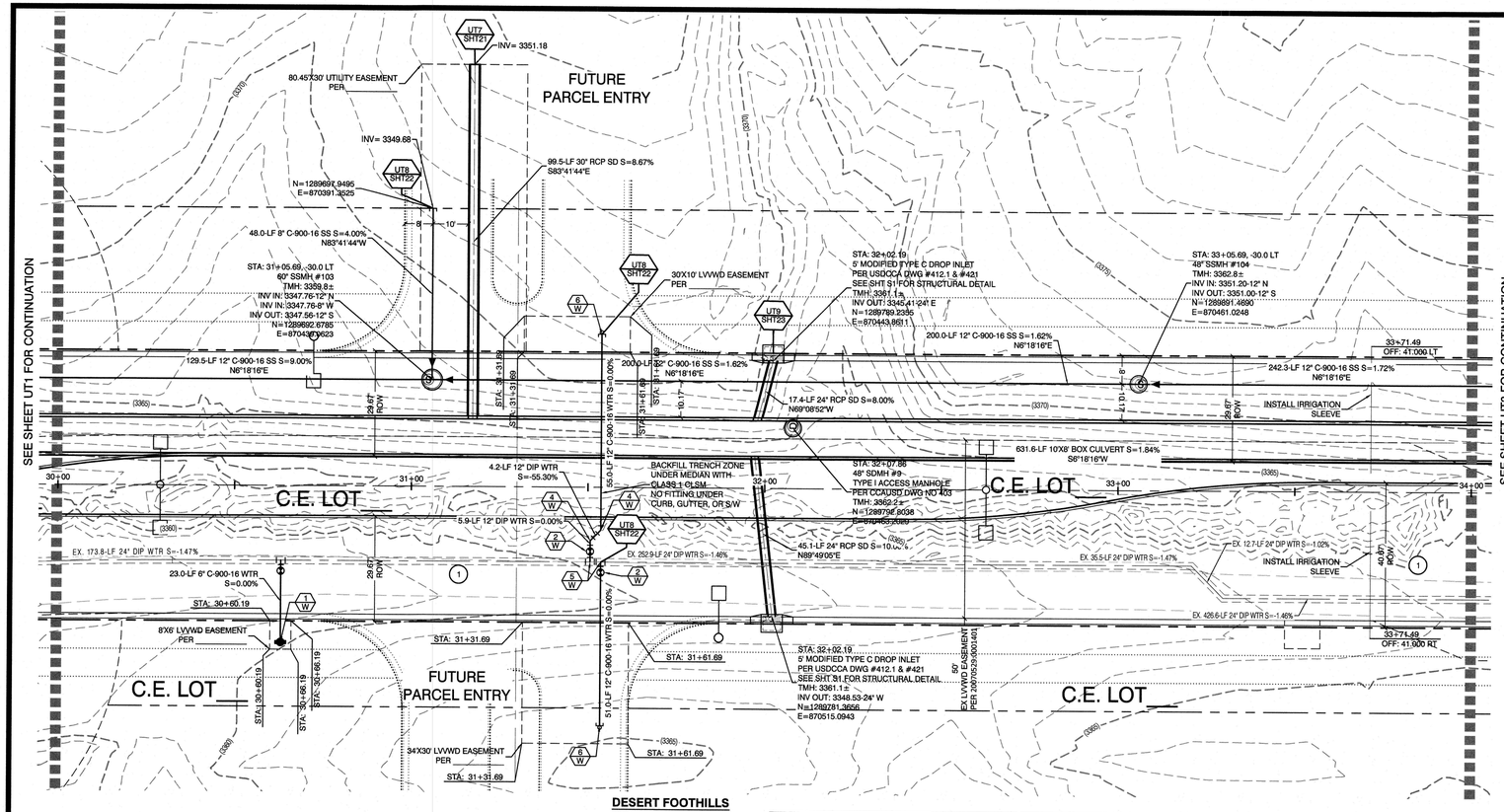
07/23/2018 | 07/23/2018 | 01/31/2018 | SCALE: 1"=20' HORIZ. 1"=4' VERT.

PROFESSIONAL ENGINEER - STATE OF NEVADA
WILLIAM J. MEYER
EXP: 12/31/19
CIVIL
No. 15749
1/21/19

SHEET
UT1
15 OF 38 SHEETS

DRAWING NO.

H:\7951\Desert Foothills Street A to Summerlin Pkwy\Sheet Set\7951-UT.dwg; Jan 31, 2019



DESERT FOOTHILLS
(PUBLIC)

PROFILE SCALES:
HORIZ. = 1"=20'
VERT. = 1"=4'

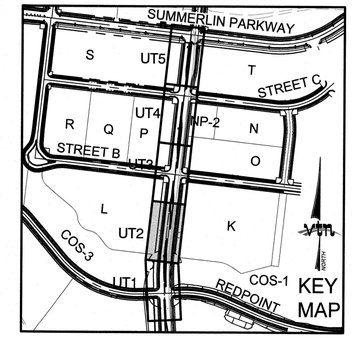
WATERLINE TRENCH NOTE:
CONSTRUCT WATERLINE TRENCH SECTION AND BACKFILL PER UDACS PLATE NO. 17.

WATER MAIN COVER NOTE:
ALL NEW WATER MAIN TO HAVE MINIMUM DEPTH OF COVER PER UDACS SECTION 2.08

WATER PRESSURE ZONE:
WATER SERVICE LOCATED IN THE 3550 PRESSURE ZONE.

NORTH

GRAPHIC SCALE
-20 0 10 20 40
1" = 20'



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

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

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

BENCHMARK

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

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 DROP INLET NOTE:

ALL STORM DRAIN INLETS SHALL INCLUDE A STORM WATER INLET CONCRETE STAMP IN ACCORDANCE WITH CCAUSD DWG NO. 421

SANITATION SEWER NOTES

1. ALL SEWER STATIONING IS BASED ON CENTER OF PIPE LENGTHS FROM MANHOLE TO MANHOLE AND IS NOT RELATIVE IN ANY WAY TO STREET CENTERLINE STATIONING. STREET CENTERLINE STATIONING IS SHOWN ON PLAN FOR ROAD REFERENCE ONLY.
2. ALL MANHOLES ARE 48" SIZED MANHOLES PER DCSWCS SD-1, UNLESS OTHERWISE NOTED ON PLAN.
3. ALL MANHOLES ARE TO BE CONSTRUCTED PER DCSWCS SD-1A AND SD-1B.
4. ALL MANHOLE COVERS AND FRAMES ARE TO BE CONSTRUCTED PER DCSWCS SD-2.
5. ALL MANHOLE COLLARS ARE TO BE CONSTRUCT PER DCSWCS SD-4.
6. ALL SEWER LATERAL CONNECTIONS TO SEWER MAINS ARET TO BE CONSTRUCTED PER DCSWCS SD-22 UNLESS OTHERWISE NOTED ON PLAN.

UTILITY CROSSING NOTE:

ALL SEWER/STORM DRAINS CROSSING WATER LINES MUST CONFORM TO SECTION 2.22 OF UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR PORTABL WATER SYSTEMS (UDACS) FOR WATER AND STORM MAIN CROSSINGS AND CLEARANCES.

ENGINEER DISCLAIMER NOTE:

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

TYPICAL WATER NOTES

1. MAINTAIN A MINIMUM OF 12-INCHES VERTICAL SEPARATION AT ALL POINTS OF UTILITY CROSSINGS.
2. MAINTAIN A MINIMUM OF 3-FEET PARALLEL SEPARATION FROM ADJACENT UTILITIES.
   ANY EXCAVATION AT THE BACK OF A CURB MUST REMAIN OPEN FOR INSPECTION OF THE COPPER SERVICE
3. LATERALS. ANY COPPER SERVICE LATERAL WHICH IS KINKED, BENT OR OTHERWISE DAMAGED MUST BE REPLACED FROM THE MAIN TO THE ANGLE METER STOP.
   CAUTION MUST BE EXERCISED NEAR ANY EXCAVATION AROUND AN EXISTING FIRE HYDRANT IN ORDER TO AVOID DISTURBING THE THRUST BLOCK AND SURROUNDING SOIL SUPPORTING THE THRUST BLOCK. THIS PREVENTS THE
4. POSSIBILITY OF THE HYDRANT SEPARATING FROM THE LATERAL. PROVIDE A DETAIL OF THE PROPOSED INSTALLATION SHOWING ADEQUATE CLEARANCES TO AVOID DISTURBING EXISTING LVVWD FACILITIES.

SIGHT VISIBILITY ZONES:

NO STRUCTURE, WALLS, VEGETATION, OR OBJECT OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

WATER LINE MARKER BALLS NOTE

INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING, PER UDACS PLATE No. 15

WATER MAIN JOINT DEFLECTION

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

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

CONSTRUCTION NOTES

	WATER	PUBLIC
FW	FIRE HYDRANT ASSEMBLY: INCLUDING 24"X6" TEE WITH 6" G.V. (PER UDACS PLATE 39 & 40)	3 EA.
GVW	12" GATE VALVE (PER UDACS PLATE 30 & 39)	9 EA.
3W	12" 45° VERTICAL BEND (PER UDACS PLATE 31)	4 EA.
4W	12" 45° BEND (PER UDACS PLATE 31)	6 EA.
5W	24"X12" TEE (PER UDACS PLATE 31)	9 EA.
6W	12" CAP & BLOW OFF (PER UDACS PLATE 36)	9 EA.
MW	1.5" TYPE K SOFT COPPER WATER LATERAL SERVICE WITH 1.5" SUMMERLIN COUNCIL METER PER IRRIGATION MASTER PLAN AND UDACS PLATE #4 (IRRIGATION) AND 1.5" RPPA PER UDACS PLATE #8	2 EA.
8W	24"X1.5" TEE (PER UDACS PLATE 31)	2 EA.
	6" C-900-16 WATER MAIN PER UDACS 2.06.01 & PLATE 17	109 LF.
	12" C-900-16 WATER MAIN PER UDACS 2.06.01 & PLATE 17	365 LF.
	12" DIP WATER MAIN PER UDACS 2.06.01 & PLATE 17	247 LF.
WPOC	WATER POINT OF CONNECTION	

	SEWER	PUBLIC
S	STANDARD MANHOLE PER SD-1A & 1B	9 EA.
	8" SDR-35 C-900-16 SANITARY SEWER MAIN	184 LF.
	12" SDR-35 C-900-16 SANITARY SEWER MAIN	1,711 LF.
SPOC	SEWER POINT OF CONNECTION	

EASEMENT REFERENCE LEGEND

(1) 50' WIDE LAS VEGAS VALLEY WATER DISTRICT EASEMENT GRANTED PER OR: 20070529:0001401.

WATER CONSTRUCTION NOTES

ALL DIMENSIONS TO UTILITIES ARE TO CENTERLINE OF PIPE UNLESS INDICATED OTHERWISE.

CONTRACTOR SHALL VARIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

ALL EXISTING UTILITY STRUCTURES WITHIN CONSTRUCTION AREA SHALL BE ADJUSTED TO MATCH FINISH GRADE (I.E. WV, BOX, MH, ANNODE BOX, FH, TEL BOX, ETC.)

1. WATER LINE STATIONING IS BASED ON THE CENTERLINE OF STREET RIGHT OF WAY
2. WATER LINE SHALL BE C-900 PVC APPROVED BY THE LAS VEGAS VALLEY WATER DISTRICT.
3. EXISTING ASPHALT SHALL BE REMOVED AND REPLACED PER CITY OF LAS VEGAS SPECIFICATIONS. BACKFILL AND INSTALL PERMANENT PATCH PER CITY STANDARD FOR THIS PLAN.
4. SEE SHEET __ FOR PUBLIC UTILITY NOTES AND GENERAL WATER CONSTRUCTION NOTES.
5. ALL WATER LINE IN STREET RIGHT OF WAY IS PUBLIC WATER SYSTEM AND MUST BE INSPECTED BY THE LAS VEGAS VALLEY WATER DISTRICT.

LAS VEGAS FIRE & RESCUE APPROVAL

BY: _____ DATE: _____

APPROVAL OF THESE PLANS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR, OR AN APPROVAL OF, ANY VIOLATION OF ANY OF THE PROVISIONS OF THE STATE OR COUNTY LAWS. FIRE FLOW ---- GPM AT 20 P.S.I. RESIDUAL.

FIRE HYDRANT MARKER NOTES

BLUE COLORED REFLECTIVE RAISED PAVEMENT MARKERS ARE TO BE INSTALLED:

1. ON ROADWAYS WITH NO PARKING PERMITTED ON HYDRANT SIDE; LOCATE MAKER 8' FROM FACE OF CURB ON HYDRANT SIDE.
2. ON ROADWAYS WITH PARKING PERMITTED ON HYDRANT SIDE; LOCATE MARKER 16' FROM FACE OF CURB ON HYDRANT SIDE.

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT:---- FIRST APPROVED DATE: _____

LVVWD APPROVED FIRE FLOW: TOTAL 1500 GPM/ONSITE N/A GPM



REV	DATE	BY	REVISION

HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
10801 W CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89135
702-791-4063

CITY OF LAS VEGAS
2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH. (702) 873-7500 FAX (702) 362-2597 WEB WWW.VTINV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

UTILITY SHEET 2
30+00 TO 34+00

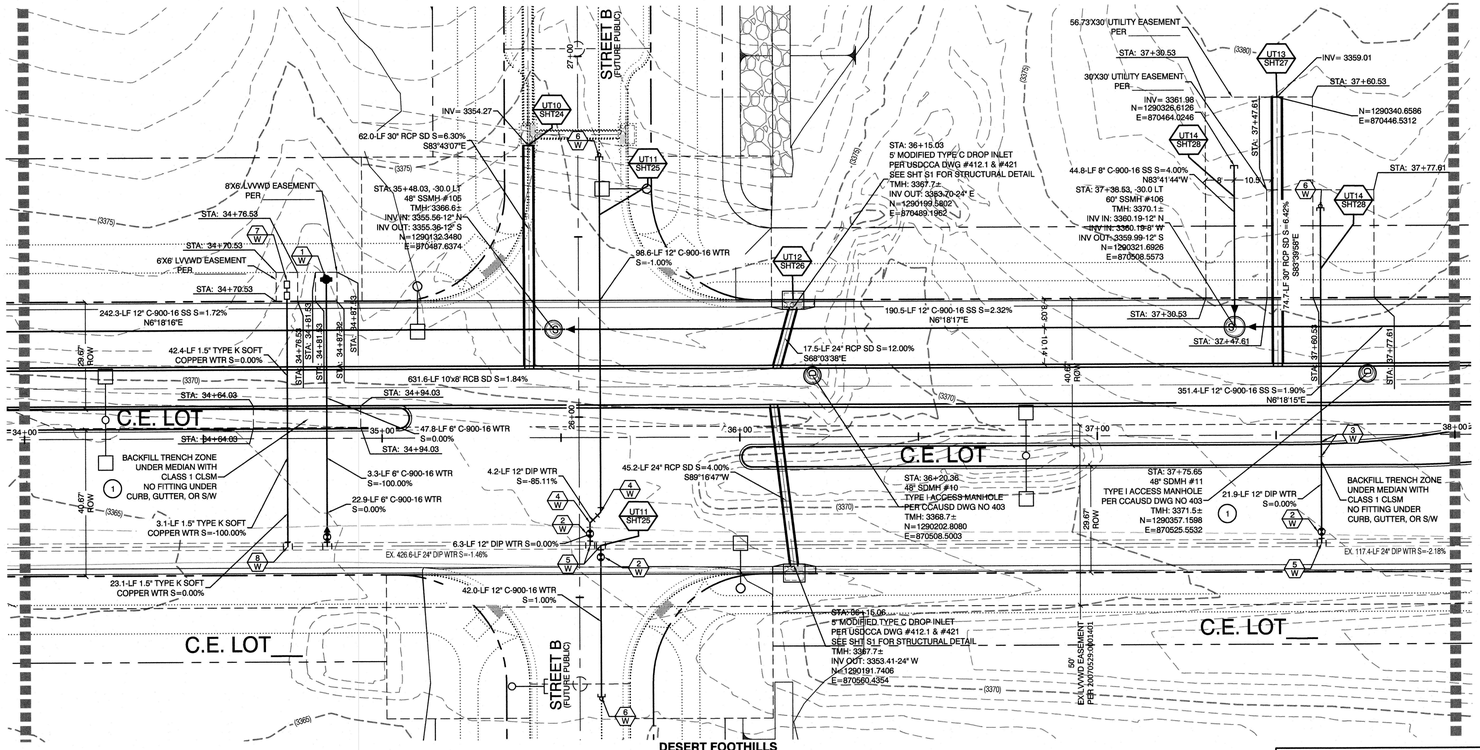
SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

DRAWN BY: BCC — 07/23/2018
DESIGNED BY: BCC — 07/23/2018
CHECKED BY: WJM — 01/31/2018
PROJECT NO: 7351 — SCALE: HORIZ. 1"=20' VERT. 1"=4'

PROFESSIONAL ENGINEER - STATE OF NEVADA
WILLIAM J. MEYER
EXP: 12/31/19
CIVIL
No. 15715
1/31/19

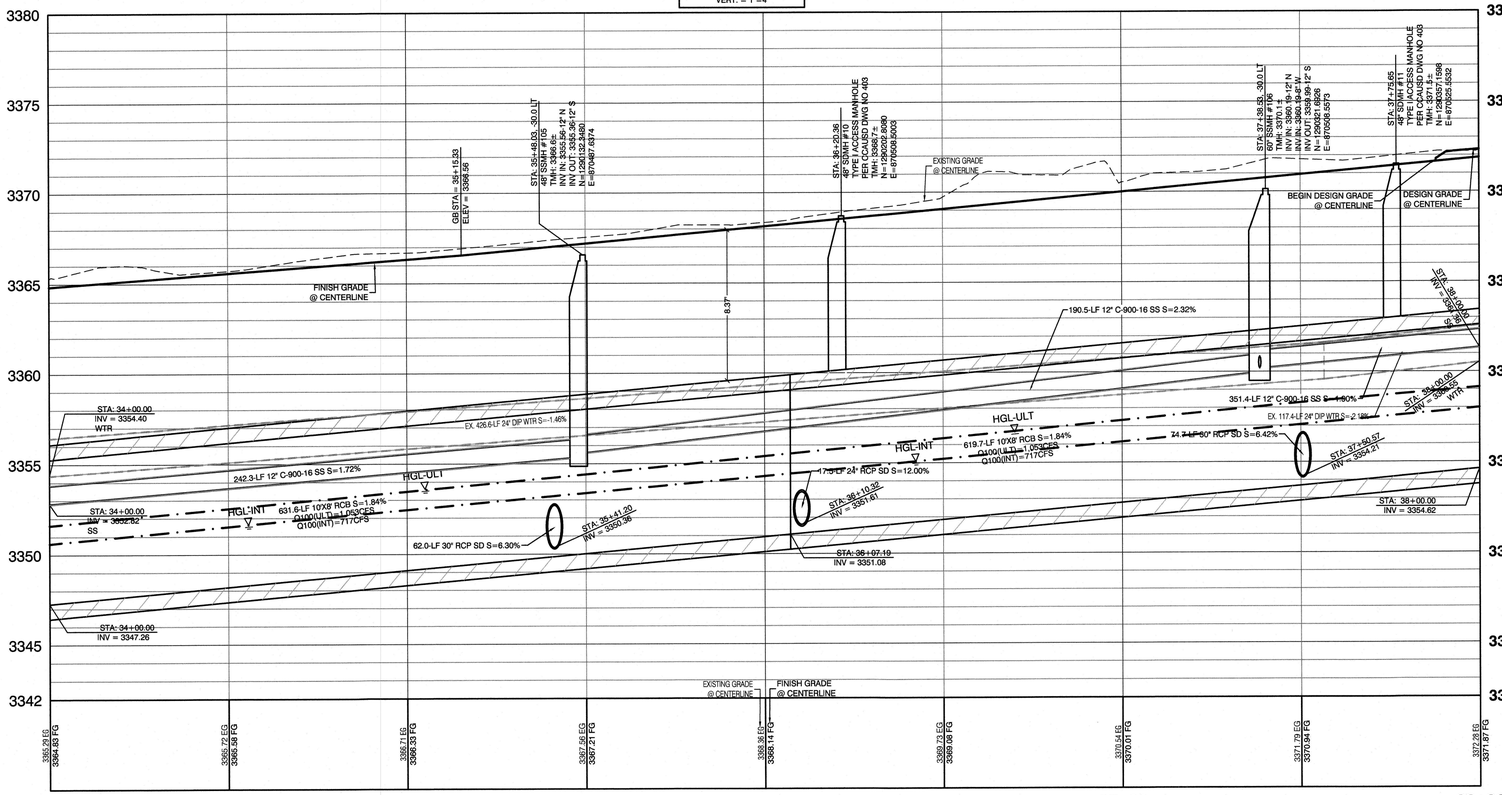
SHEET
UT2
16 OF 38 SHEETS
DRAWING NO.

H:\7351\Desert Foothills-Street A to Summerlin Pkwy\Sheet Set\7351-UT.dwg, Jan 31, 2019



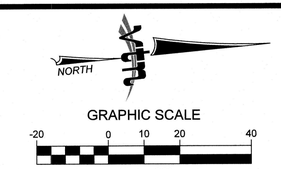
DESERT FOOTHILLS
(PUBLIC)

PROFILE SCALES:
HORIZ. = 1"=20'
VERT. = 1"=4'



STORM DRAIN DROP INLET NOTE:

ALL STORM DRAIN INLETS SHALL INCLUDE A STORM WATER INLET CONCRETE STAMP IN ACCORDANCE WITH CCAUSD DWG NO. 421



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 ORIGIN: 400,000.00 M (1,312,333.3333 FTUS)
EASTING AT CENTRAL MERIDIAN: 300,000 M (984,250.0000 FTUS)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

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

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

BENCHMARK

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

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

SANITATION SEWER NOTES

1. ALL SEWER STATIONING IS BASED ON CENTER OF PIPE LENGTHS FROM MANHOLE TO MANHOLE AND IS NOT RELATIVE IN ANY WAY TO STREET CENTERLINE STATIONING. STREET CENTERLINE STATIONING IS SHOWN ON PLAN FOR ROAD REFERENCE ONLY.
2. ALL MANHOLES ARE 48" SIZED MANHOLES PER DCSWCS SD-1, UNLESS OTHERWISE NOTED ON PLAN.
3. ALL MANHOLES ARE TO BE CONSTRUCTED PER DCSWCS SD-1A AND SD-1B.
4. ALL MANHOLE COVERS AND FRAMES ARE TO BE CONSTRUCTED PER DCSWCS SD-2.
5. ALL MANHOLE COLLARS ARE TO BE CONSTRUCT PER DCSWCS SD-4.
6. ALL SEWER LATERAL CONNECTIONS TO SEWER MAINS ARET TO BE CONSTRUCTED PER DCSWCS SD-22 UNLESS OTHERWISE NOTED ON PLAN.

UTILITY CROSSING NOTE:

ALL SEWER/STORM DRAINS CROSSING WATER LINES MUST CONFORM TO SECTION 2.22 OF UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR PORTABL WATER SYSTEMS (UDACS) FOR WATER AND STORM MAIN CROSSINGS AND CLEARANCES.

ENGINEER DISCLAIMER NOTE:

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

TYPICAL WATER NOTES

1. MAINTAIN A MINIMUM OF 12-INCHES VERTICAL SEPARATION AT ALL POINTS OF UTILITY CROSSINGS.
2. MAINTAIN A MINIMUM OF 3-FEET PARALLEL SEPARATION FROM ADJACENT UTILITIES.
   ANY EXCAVATION AT THE BACK OF A CURB MUST REMAIN OPEN FOR INSPECTION OF THE COPPER SERVICE
3. LATERALS. ANY COPPER SERVICE LATERAL WHICH IS KINKED, BENT OR OTHERWISE DAMAGED MUST BE REPLACED FROM THE MAIN TO THE ANGLE METER STOP.
   CAUTION MUST BE EXERCISED NEAR ANY EXCAVATION AROUND AN EXISTING FIRE HYDRANT IN ORDER TO AVOID DISTURBING THE THRUST BLOCK AND SURROUNDING SOIL SUPPORTING THE THRUST BLOCK. THIS PREVENTS THE
4. POSSIBILITY OF THE HYDRANT SEPARATING FROM THE LATERAL. PROVIDE A DETAIL OF THE PROPOSED INSTALLATION SHOWING ADEQUATE CLEARANCES TO AVOID DISTURBING EXISTING LVVWD FACILITIES.

SIGHT VISIBILITY ZONES:

NO STRUCTURE, WALLS, VEGETATION, OR OBJECT OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

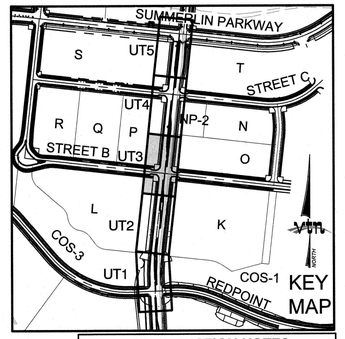
WATER LINE MARKER BALLS NOTE

INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING, PER UDACS PLATE No. 15

WATER MAIN JOINT DEFLECTION

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

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



CONSTRUCTION NOTES

	WATER	PUBLIC
W	FIRE HYDRANT ASSEMBLY: INCLUDING 24"X6" TEE WITH 6" G.V. (PER UDACS PLATE 39 & 40)	3 EA.
W	12" GATE VALVE (PER UDACS PLATE 30 & 39)	9 EA.
W	12" 45° VERTICAL BEND (PER UDACS PLATE 31)	4 EA.
W	12" 45° BEND (PER UDACS PLATE 31)	6 EA.
W	24"X12" TEE (PER UDACS PLATE 31)	9 EA.
W	12" CAP & BLOW OFF (PER UDACS PLATE 36)	9 EA.
W	1.5" TYPE K SOFT COPPER WATER LATERAL SERVICE WITH 1.5" SUMMERLIN COUNCIL METER PER IRRIGATION MASTER PLAN AND UDACS PLATE #4 (IRRIGATION) AND 1.5" RPPA PER UDACS PLATE #8	2 EA.
W	24"X1.5" TEE (PER UDACS PLATE 31)	2 EA.
	6" C-900-16 WATER MAIN PER UDACS 2.06.01 & PLATE 17	109 LF.
	12" C-900-16 WATER MAIN PER UDACS 2.06.01 & PLATE 17	365 LF.
	12" DIP WATER MAIN PER UDACS 2.06.01 & PLATE 17	247 LF.
	WATER POINT OF CONNECTION	

	SEWER	PUBLIC
S	STANDARD MANHOLE PER SD-1A & 1B	9 EA.
	8" SDR-35 C-900-16 SANITARY SEWER MAIN	184 LF.
	12" SDR-35 C-900-16 SANITARY SEWER MAIN	1,711 LF.
	SEWER POINT OF CONNECTION	

EASEMENT REFERENCE LEGEND

1 50' WIDE LAS VEGAS VALLEY WATER DISTRICT EASEMENT GRANTED PER OR: 20070529:0001401.

WATER CONSTRUCTION NOTES

ALL DIMENSIONS TO UTILITIES ARE TO CENTERLINE OF PIPE UNLESS INDICATED OTHERWISE.

CONTRACTOR SHALL VARIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

ALL EXISTING UTILITY STRUCTURES WITHIN CONSTRUCTION AREA SHALL BE ADJUSTED TO MATCH FINISH GRADE (I.E. WV. BOX, MH, ANNODE BOX, FH, TEL BOX, ETC.)

1. WATER LINE STATIONING IS BASED ON THE CENTERLINE OF STREET RIGHT OF WAY
2. WATER LINE SHALL BE C-900 PVC APPROVED BY THE LAS VEGAS VALLEY WATER DISTRICT.
3. EXISTING ASPHALT SHALL BE REMOVED AND REPLACED PER CITY OF LAS VEGAS SPECIFICATIONS. BACKFILL AND INSTALL PERMANENT PATCH PER CITY STANDARD FOR THIS PLAN.
4. SEE SHEET __ FOR PUBLIC UTILITY NOTES AND GENERAL WATER CONSTRUCTION NOTES.
5. ALL WATER LINE IN STREET RIGHT OF WAY IS PUBLIC WATER SYSTEM AND MUST BE INSPECTED BY THE LAS VEGAS VALLEY WATER DISTRICT.

WATER PRESSURE ZONE:

WATER SERVICE LOCATED IN THE 3550 PRESSURE ZONE.

WATER MAIN COVER NOTE:

ALL NEW WATER MAIN TO HAVE MINIMUM DEPTH OF COVER PER UDACS SECTION 2.08

LAS VEGAS FIRE & RESCUE APPROVAL

BY: _____ DATE: _____.

APPROVAL OF THESE PLANS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR, OR AN APPROVAL OF, ANY VIOLATION OF ANY OF THE PROVISIONS OF THE STATE OR COUNTY LAWS. FIRE FLOW ---- GPM AT 20 P.S.I. RESIDUAL.

FIRE HYDRANT MARKER NOTES

BLUE COLORED REFLECTIVE RAISED PAVEMENT MARKERS ARE TO BE INSTALLED:

1. ON ROADWAYS WITH NO PARKING PERMITTED ON HYDRANT SIDE; LOCATE MARKER 8" FROM FACE OF CURB ON HYDRANT SIDE.
2. ON ROADWAYS WITH PARKING PERMITTED ON HYDRANT SIDE; LOCATE MARKER 16' FROM FACE OF CURB ON HYDRANT SIDE.

WATERLINE TRENCH NOTE:

CONSTRUCT WATERLINE TRENCH SECTION AND BACKFILL PER UDACS PLATE NO. 17.

Call before you Dig
Avoid cutting underground utility lines. It's costly.
CALL 811
OR
1-800-227-2600
AND
1-702-455-6000
CLARK COUNTY TRAFFIC OPERATIONS

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.



1-702-227-2929



APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT:---- FIRST APPROVED DATE:_____.

LVVWD APPROVED FIRE FLOW: TOTAL 1500 GPM/ONSITE N/A GPM

REV	DATE	BY	REVISION

HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
CITY OF LAS VEGAS
10001 W CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89135
702-791-4000

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH. (702) 873-7500 FAX (702) 362-2597 WEB WWW.VTNNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

UTILITY SHEET 3
34+00 TO 38+00

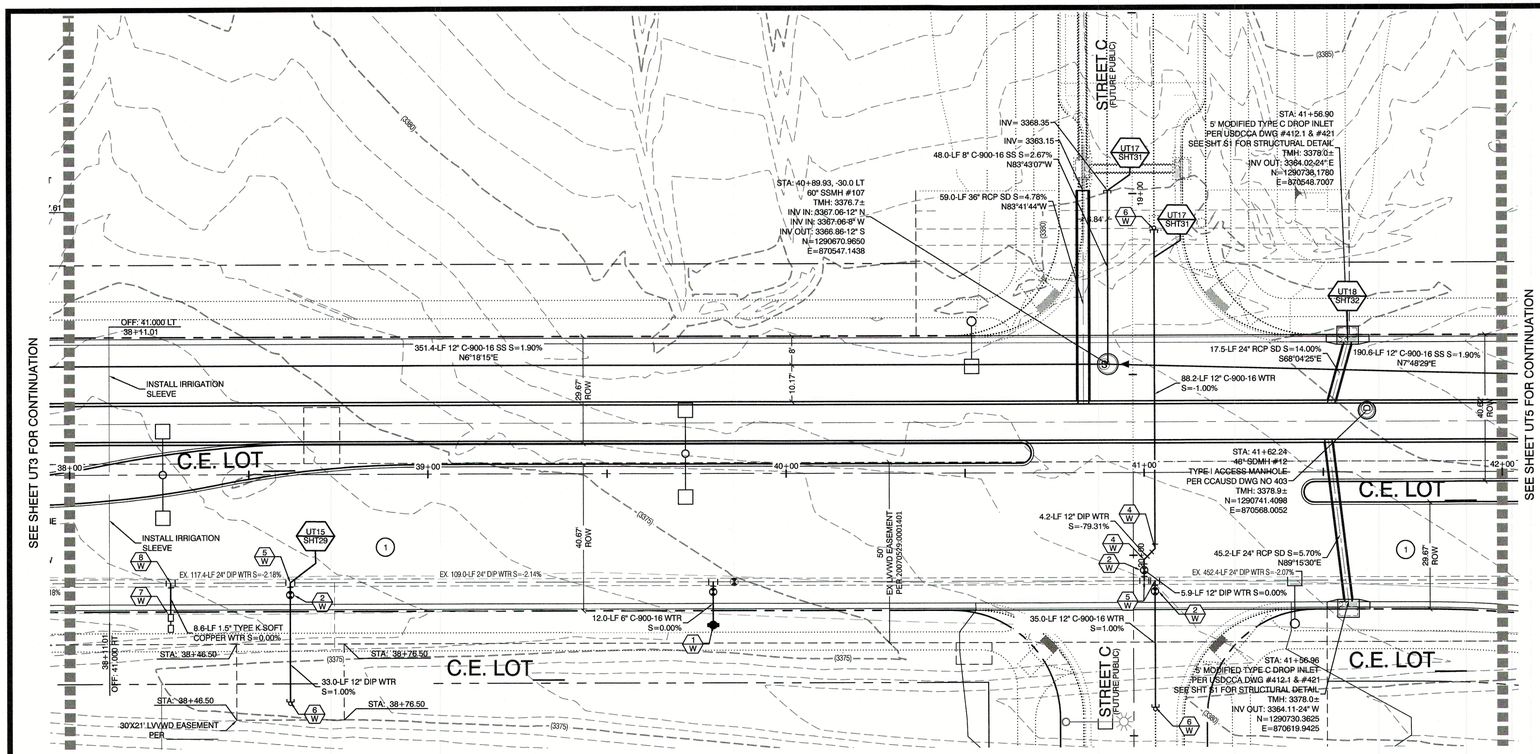
SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

DRAWN BY:	DESIGNED BY:	CHECKED BY:	PROJECT NO:	SCALE:	HORIZ:
BCC	BCC	WJM	7851	1"=20'	1"=4'
07/23/2018	07/23/2018	01/31/2019			VERT:

PROFESSIONAL ENGINEER STATE OF NEVADA
WILLIAM J. MEYER
EXP: 12/31/19
CIVIL
No. 15745
1/31/19

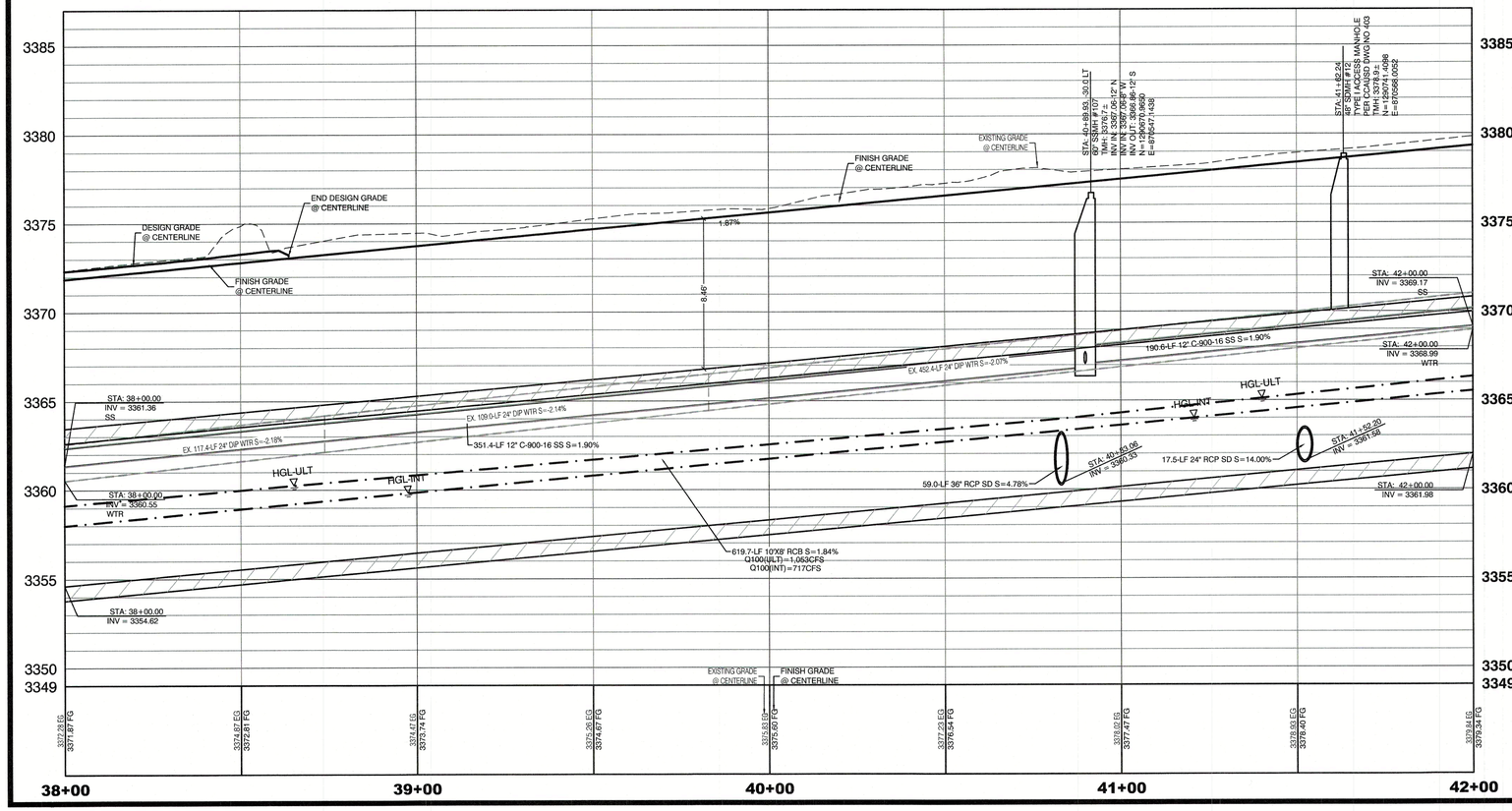
SHEET
UT3
17 OF **38** SHEETS
DRAWING NO.

H:\7851\Desert Foothills-Street A to Summerlin Pkwy\Sheet Set\7851-UT.dwg, Jan 31, 2019



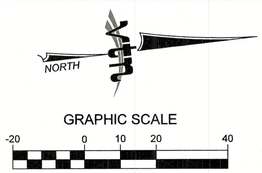
DESERT FOOTHILLS
(PUBLIC)

PROFILE SCALES:
HORIZ. = 1"=20'
VERT. = 1"=4'



STORM DRAIN DROP INLET NOTE:

ALL STORM DRAIN INLETS SHALL INCLUDE A STORM WATER INLET CONCRETE STAMP IN ACCORDANCE WITH CCAUSD DWG NO. 421



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

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

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BENCHMARK

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

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

SANITATION SEWER NOTES

1. ALL SEWER STATIONING IS BASED ON CENTER OF PIPE LENGTHS FROM MANHOLE TO MANHOLE AND IS NOT RELATIVE IN ANY WAY TO STREET CENTERLINE STATIONING. STREET CENTERLINE STATIONING IS SHOWN ON PLAN FOR ROAD REFERENCE ONLY.
2. ALL MANHOLES ARE 48" SIZED MANHOLES PER DCSWCS SD-1, UNLESS OTHERWISE NOTED ON PLAN.
3. ALL MANHOLES ARE TO BE CONSTRUCTED PER DCSWCS SD-1A AND SD-1B.
4. ALL MANHOLE COVERS AND FRAMES ARE TO BE CONSTRUCTED PER DCSWCS SD-2.
5. ALL MANHOLE COLLARS ARE TO BE CONSTRUCT PER DCSWCS SD-4.
6. ALL SEWER LATERAL CONNECTIONS TO SEWER MAINS ARET TO BE CONSTRUCTED PER DCSWCS SD-22 UNLESS OTHERWISE NOTED ON PLAN.

UTILITY CROSSING NOTE:

ALL SEWER/STORM DRAINS CROSSING WATER LINES MUST CONFORM TO SECTION 2.22 OF UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR PORTABL WATER SYSTEMS (UDACS) FOR WATER AND STORM MAIN CROSSINGS AND CLEARANCES.

ENGINEER DISCLAIMER NOTE:

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TYPICAL WATER NOTES

1. MAINTAIN A MINIMUM OF 12-INCHES VERTICAL SEPARATION AT ALL POINTS OF UTILITY CROSSINGS.
2. MAINTAIN A MINIMUM OF 3-FEET PARALLEL SEPARATION FROM ADJACENT UTILITIES.
3. ANY EXCAVATION AT THE BACK OF A CURB MUST REMAIN OPEN FOR INSPECTION OF THE COPPER SERVICE LATERALS. ANY COPPER SERVICE LATERAL WHICH IS KINKED, BENT OR OTHERWISE DAMAGED MUST BE REPLACED FROM THE MAIN TO THE ANGLE METER STOP.
4. CAUTION MUST BE EXERCISED NEAR ANY EXCAVATION AROUND AN EXISTING FIRE HYDRANT IN ORDER TO AVOID DISTURBING THE THRUST BLOCK AND SURROUNDING SOIL SUPPORTING THE THRUST BLOCK. THIS PREVENTS THE POSSIBILITY OF THE HYDRANT SEPARATING FROM THE LATERAL. PROVIDE A DETAIL OF THE PROPOSED INSTALLATION SHOWING ADEQUATE CLEARANCES TO AVOID DISTURBING EXISTING LVVWD FACILITIES.

SIGHT VISIBILITY ZONES:

NO STRUCTURE, WALLS, VEGETATION, OR OBJECT OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

WATER LINE MARKER BALLS NOTE

INSTALL PIPELINE MARKER BALLS IN
TRENCH ABOVE EACH
HORIZONTAL ELBOW FITTING, PER UDACS
PLATE No. 15

WATER MAIN JOINT DEFLECTION

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

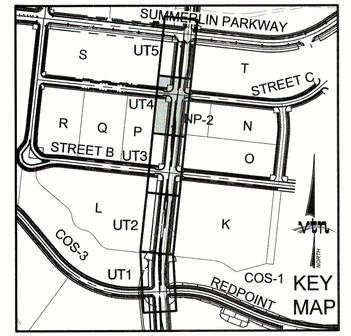
FOR CHANGES IN DIRECTION EXCEEDING THE MAXIMUM ALLOWABLE JOINT DEFLECTION, FITTINGS SHALL BE USED.

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT:136301 FIRST APPROVED DATE:_____.

LVVWD APPROVED FIRE FLOW: TOTAL 1500 GPM/ONSITE N/A GPM



CONSTRUCTION NOTES

	WATER	PUBLIC
W	FIRE HYDRANT ASSEMBLY: INCLUDING 24"X6" TEE WITH 6" G.V. (PER UDACS PLATE 39 & 40)	3 EA.
W	12" GATE VALVE (PER UDACS PLATE 30 & 39)	9 EA.
W	12" 45° VERTICAL BEND (PER UDACS PLATE 31)	4 EA.
W	12" 45° BEND (PER UDACS PLATE 31)	6 EA.
W	24"X12" TEE (PER UDACS PLATE 31)	9 EA.
W	12" CAP & BLOW OFF (PER UDACS PLATE 39)	9 EA.
W	1.5" TYPE K SOFT COPPER WATER LATERAL SERVICE WITH 1.5" SUMMERLIN COUNCIL METER PER IRRIGATION MASTER PLAN AND UDACS PLATE #4 (IRRIGATION) AND 1.5" RPPA PER UDACS PLATE #8	2 EA.
W	24"X1.5" TEE (PER UDACS PLATE 31)	2 EA.
	6" C-900-16 WATER MAIN PER UDACS 2.06.01 & PLATE 17	109 LF.
	12" C-900-16 WATER MAIN PER UDACS 2.06.01 & PLATE 17	365 LF.
	12" DIP WATER MAIN PER UDACS 2.06.01 & PLATE 17	247 LF.
POC	WATER POINT OF CONNECTION	

	SEWER	PUBLIC
S	STANDARD MANHOLE PER SD-1A & 1B	9 EA.
	8" SDR-35 C-900-16 SANITARY SEWER MAIN	184 LF.
	12" SDR-35 C-900-16 SANITARY SEWER MAIN	1,711 LF.
POC	SEWER POINT OF CONNECTION	

EASEMENT REFERENCE LEGEND

1. 50' WIDE LAS VEGAS VALLEY WATER DISTRICT EASEMENT GRANTED PER OR: 20070529:0001401.

WATER CONSTRUCTION NOTES

ALL DIMENSIONS TO UTILITIES ARE TO CENTERLINE OF PIPE UNLESS INDICATED OTHERWISE.

CONTRACTOR SHALL VARIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

ALL EXISTING UTILITY STRUCTURES WITHIN CONSTRUCTION AREA SHALL BE ADJUSTED TO MATCH FINISH GRADE (I.E. WV, BOX, MH, ANNODE BOX, FH, TEL BOX, ETC.)

1. WATER LINE STATIONING IS BASED ON THE CENTERLINE OF STREET RIGHT OF WAY
2. WATER LINE SHALL BE C-900 PVC APPROVED BY THE LAS VEGAS VALLEY WATER DISTRICT.
3. EXISTING ASPHALT SHALL BE REMOVED AND REPLACED PER CITY OF LAS VEGAS SPECIFICATIONS. BACKFILL AND INSTALL PERMANENT PATCH PER CITY STANDARD FOR THIS PLAN.
4. SEE SHEET NT FOR PUBLIC UTILITY NOTES AND GENERAL WATER CONSTRUCTION NOTES.
5. ALL WATER LINE IN STREET RIGHT OF WAY IS PUBLIC WATER SYSTEM AND MUST BE INSPECTED BY THE LAS VEGAS VALLEY WATER DISTRICT.

WATER PRESSURE ZONE:

WATER SERVICE LOCATED IN THE 3550 PRESSURE ZONE.

WATER MAIN COVER NOTE:

ALL NEW WATER MAIN TO HAVE MINIMUM DEPTH OF COVER PER UDACS SECTION 2.08

LAS VEGAS FIRE & RESCUE APPROVAL

BY: _____ DATE: _____

APPROVAL OF THESE PLANS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR, OR AN APPROVAL OF, ANY VIOLATION OF ANY OF THE PROVISIONS OF THE STATE OR COUNTY LAWS. FIRE FLOW 1500 GPM AT 20 P.S.I. RESIDUAL.

FIRE HYDRANT MARKER NOTES

BLUE COLORED REFLECTIVE RAISED PAVEMENT MARKERS ARE TO BE INSTALLED:

1. ON ROADWAYS WITH NO PARKING PERMITTED ON HYDRANT SIDE; LOCATE MAKER 8' FROM FACE OF CURB ON HYDRANT SIDE.
2. ON ROADWAYS WITH PARKING PERMITTED ON HYDRANT SIDE; LOCATE MARKER 16' FROM FACE OF CURB ON HYDRANT SIDE.

WATERLINE TRENCH NOTE:

CONSTRUCT WATERLINE TRENCH SECTION AND BACKFILL PER UDACS PLATE NO. 17.

Call before you Dig
Avoid cutting underground utility lines. It's costly.
CALL 811
OR
1-800-227-2600
AND
1-702-455-6000
CLARK COUNTY TRAFFIC OPERATIONS

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

AVOID HITTING UNDERGROUND TRAFFIC SIGNAL OR STREET LIGHT SYSTEM CONDUITS. IT'S COSTLY.
Call before you Underground
1-702-455-7511
CLARK COUNTY TRAFFIC OPERATIONS
1-702-229-6811
LAS VEGAS AREA COMPUTERIZED TRAFFIC SYSTEM

REV	DATE	BY	REVISION

HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
10801 W CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89135
702-791-4000

CITY OF LAS VEGAS
2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH. (702) 873-7500 FAX (702) 362-2597 WEB WWW.VTNNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

UTILITY SHEET 4
38+00 TO 42+00

SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

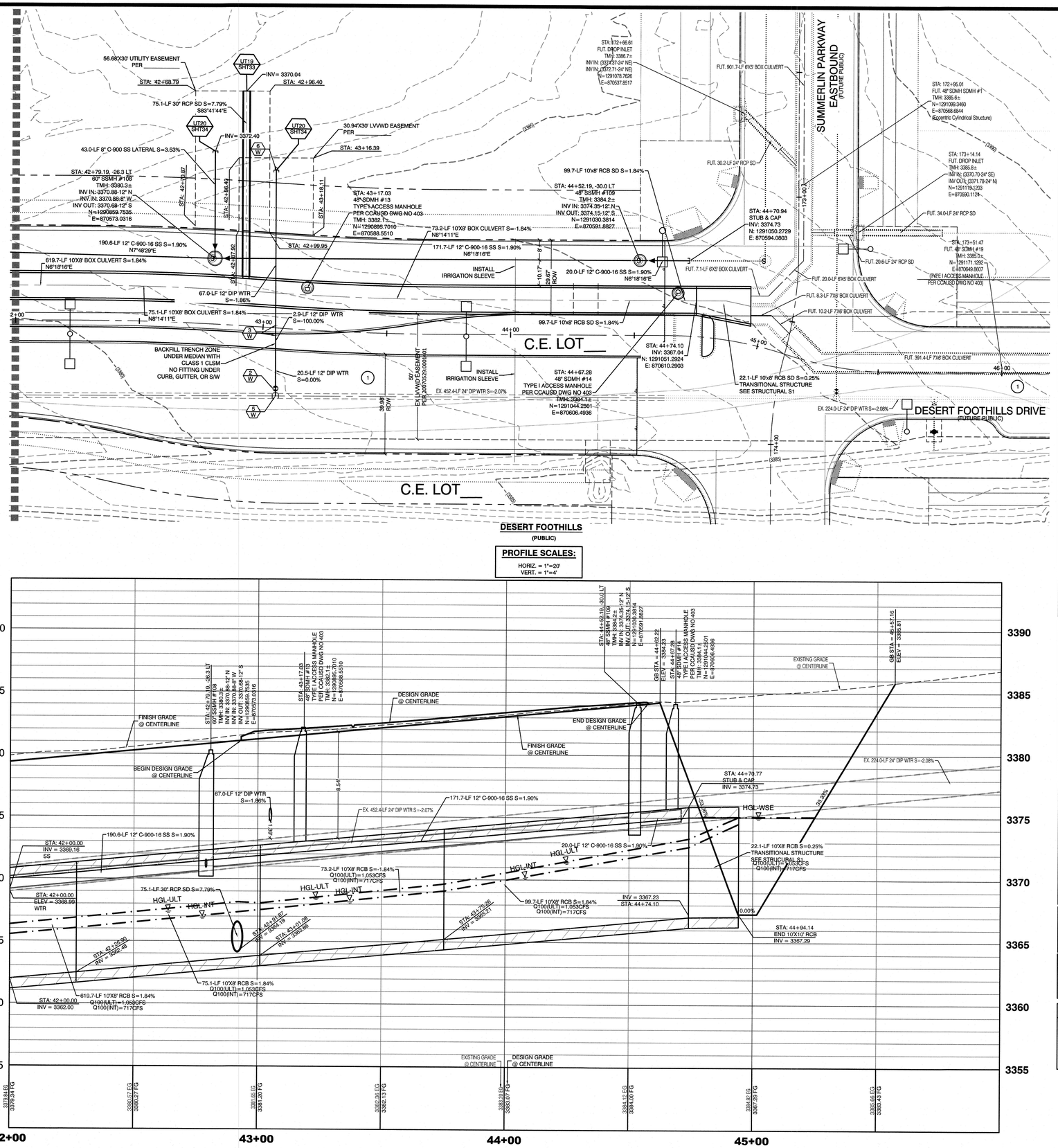
DRAWN BY:	DESIGNED BY:	CHECKED BY:	PROJECT NO:	SCALE:	HORIZ:
BCC	BCC	WJM	7851	1"=20' 1"=4'	VERT:

07/23/2018 | 07/23/2018 | 02/26/2019

PROFESSIONAL ENGINEER STATE OF NEVADA
WILLIAM J. MEYER
EXP: 12/31/19
CIVIL
No. 15745
2/12/19

SHEET
UT4
18 OF **38** SHEETS
DRAWING NO.

H:\7851\Desert Foothills-Street A to Summerlin Pkwy\Sheet Set\7851-UT.dwg; Feb 12, 2019



DESERT FOOTHILLS
(PUBLIC)

PROFILE SCALES:
HORIZ. = 1"=20'
VERT. = 1"=4'

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 ORIGIN: 400,000.00 M (1,312,333.3333 FTUS)
EASTING AT CENTRAL MERIDIAN: 300,000 M (984,250.0000 FTUS)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

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

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

BENCHMARK

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

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

SANITATION SEWER NOTES

1. ALL SEWER STATIONING IS BASED ON CENTER OF PIPE LENGTHS FROM MANHOLE TO MANHOLE AND IS NOT RELATIVE IN ANY WAY TO STREET CENTERLINE STATIONING. STREET CENTERLINE STATIONING IS SHOWN ON PLAN FOR ROAD REFERENCE ONLY.
2. ALL MANHOLES ARE 48" SIZED MANHOLES PER DCSWCS SD-1, UNLESS OTHERWISE NOTED ON PLAN.
3. ALL MANHOLES ARE TO BE CONSTRUCTED PER DCSWCS SD-1A AND SD-1B.
4. ALL MANHOLE COVERS AND FRAMES ARE TO BE CONSTRUCTED PER DCSWCS SD-2.
5. ALL MANHOLE COLLARS ARE TO BE CONSTRUCT PER DCSWCS SD-4.
6. ALL SEWER LATERAL CONNECTIONS TO SEWER MAINS ARET TO BE CONSTRUCTED PER DCSWCS SD-22 UNLESS OTHERWISE NOTED ON PLAN.

UTILITY CROSSING NOTE:

ALL SEWER/STORM DRAINS CROSSING WATER LINES MUST CONFORM TO SECTION 2.22 OF UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR PORTABL WATER SYSTEMS (UDACS) FOR WATER AND STORM MAIN CROSSINGS AND CLEARANCES.

ENGINEER DISCLAIMER NOTE:

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

TYPICAL WATER NOTES

1. MAINTAIN A MINIMUM OF 12-INCHES VERTICAL SEPARATION AT ALL POINTS OF UTILITY CROSSINGS.
2. MAINTAIN A MINIMUM OF 3-FEET PARALLEL SEPARATION FROM ADJACENT UTILITIES.
3. ANY EXCAVATION AT THE BACK OF A CURB MUST REMAIN OPEN FOR INSPECTION OF THE COPPER SERVICE LATERALS. ANY COPPER SERVICE LATERAL WHICH IS KINKED, BENT OR OTHERWISE DAMAGED MUST BE REPLACED FROM THE MAIN TO THE ANGLE METER STOP.
4. CAUTION MUST BE EXERCISED NEAR ANY EXCAVATION AROUND AN EXISTING FIRE HYDRANT IN ORDER TO AVOID DISTURBING THE THRUST BLOCK AND SURROUNDING SOIL SUPPORTING THE THRUST BLOCK. THIS PREVENTS THE POSSIBILITY OF THE HYDRANT SEPARATING FROM THE LATERAL. PROVIDE A DETAIL OF THE PROPOSED INSTALLATION SHOWING ADEQUATE CLEARANCES TO AVOID DISTURBING EXISTING LVVWD FACILITIES.

SIGHT VISIBILITY ZONES:

NO STRUCTURE, WALLS, VEGETATION, OR OBJECT OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

WATER LINE MARKER BALLS NOTE

INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING, PER UDACS PLATE No. 15

WATER MAIN JOINT DEFLECTION

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

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

CONSTRUCTION NOTES

WATER		PUBLIC
	FIRE HYDRANT ASSEMBLY: INCLUDING 24"X6" TEE WITH 6" G.V. (PER UDACS PLATE 39 & 40)	3 EA.
	12" GATE VALVE (PER UDACS PLATE 30 & 39)	9 EA.
	12" 45° VERTICAL BEND (PER UDACS PLATE 31)	4 EA.
	12" 45° BEND (PER UDACS PLATE 31)	6 EA.
	24"X12" TEE (PER UDACS PLATE 31)	9 EA.
	12" CAP & BLOW OFF (PER UDACS PLATE 36)	9 EA.
	1.5" TYPE K SOFT COPPER WATER LATERAL SERVICE WITH 1.5" SUMMERLIN COUNCIL METER PER IRRIGATION MASTER PLAN AND UDACS PLATE #4 (IRRIGATION) AND 1.5" RPPA PER UDACS PLATE #8	2 EA.
	24"X1.5" TEE (PER UDACS PLATE 31)	2 EA.
	6" C-900-16 WATER MAIN PER UDACS 2.06.01 & PLATE 17	109 LF.
	12" C-900-16 WATER MAIN PER UDACS 2.06.01 & PLATE 17	365 LF.
	12" DIP WATER MAIN PER UDACS 2.06.01 & PLATE 17	247 LF.
	WATER POINT OF CONNECTION	
SEWER		**PUBLIC**
	STANDARD MANHOLE PER SD-1A & 1B	9 EA.
	8" SDR-35 C-900-16 SANITARY SEWER MAIN	184 LF.
	12" SDR-35 C-900-16 SANITARY SEWER MAIN	1,711 LF.
	SEWER POINT OF CONNECTION	

EASEMENT REFERENCE LEGEND

(1) 50' WIDE LAS VEGAS VALLEY WATER DISTRICT EASEMENT GRANTED PER OR: 20070529:0001401.

WATER CONSTRUCTION NOTES

ALL DIMENSIONS TO UTILITIES ARE TO CENTERLINE OF PIPE UNLESS INDICATED OTHERWISE.

CONTRACTOR SHALL VARIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

ALL EXISTING UTILITY STRUCTURES WITHIN CONSTRUCTION AREA SHALL BE ADJUSTED TO MATCH FINISH GRADE (I.E. WV, BOX, MH, ANNODE BOX, FH, TEL BOX, ETC.)

1. WATER LINE STATIONING IS BASED ON THE CENTERLINE OF STREET RIGHT OF WAY
2. WATER LINE SHALL BE C-900 PVC APPROVED BY THE LAS VEGAS VALLEY WATER DISTRICT.
3. EXISTING ASPHALT SHALL BE REMOVED AND REPLACED PER CITY OF LAS VEGAS SPECIFICATIONS. BACKFILL AND INSTALL PERMANENT PATCH PER CITY STANDARD FOR THIS PLAN.
4. SEE SHEET __ FOR PUBLIC UTILITY NOTES AND GENERAL WATER CONSTRUCTION NOTES.
5. ALL WATER LINE IN STREET RIGHT OF WAY IS PUBLIC WATER SYSTEM AND MUST BE INSPECTED BY THE LAS VEGAS VALLEY WATER DISTRICT.

WATER PRESSURE ZONE:

WATER SERVICE LOCATED IN THE 3550 PRESSURE ZONE.

WATER MAIN COVER NOTE:

ALL NEW WATER MAIN TO HAVE MINIMUM DEPTH OF COVER PER UDACS SECTION 2.08

LAS VEGAS FIRE & RESCUE APPROVAL

BY: _____ DATE: _____;

APPROVAL OF THESE PLANS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR, OR AN APPROVAL OF, ANY VIOLATION OF ANY OF THE PROVISIONS OF THE STATE OR COUNTY LAWS. FIRE FLOW ---- GPM AT 20 P.S.I. RESIDUAL.

FIRE HYDRANT MARKER NOTES

BLUE COLORED REFLECTIVE RAISED PAVEMENT MARKERS ARE TO BE INSTALLED:

1. ON ROADWAYS WITH NO PARKING PERMITTED ON HYDRANT SIDE; LOCATE MAKER 8' FROM FACE OF CURB ON HYDRANT SIDE.
2. ON ROADWAYS WITH PARKING PERMITTED ON HYDRANT SIDE; LOCATE MARKER 16' FROM FACE OF CURB ON HYDRANT SIDE.

WATERLINE TRENCH NOTE:

CONSTRUCT WATERLINE TRENCH SECTION AND BACKFILL PER UDACS PLATE NO. 17.

Call before you Dig
Avoid cutting underground utility lines. It's costly.
CALL 811
OR
1-800-227-2600
AND
1-702-455-6000
CLARK COUNTY TRAFFIC OPERATIONS

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

AVOID HITTING UNDERGROUND TRAFFIC SIGNAL AND STREET LIGHT SYSTEM CONDUITS. IT'S COSTLY.
Call before you Underground
1-702-455-7511
CLARK COUNTY TRAFFIC OPERATIONS
AND
1-702-229-6611
LAS VEGAS AREA COMPUTERIZED TRAFFIC SYSTEM

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT:---- FIRST APPROVED DATE: _____;

LVVWD APPROVED FIRE FLOW: TOTAL 1500 GPM/ONSITE N/A GPM

REV	DATE	BY	REVISION

HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
10801 W CHARLESTON BLVD
LAS VEGAS, NEVADA 89135
702-791-4000

CITY OF LAS VEGAS
2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 891-46-5148
PH. (702) 873-7550 FAX: (702) 382-2597 WEB WWW.VTNNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

UTILITY SHEET 5
42+00 TO 48+00

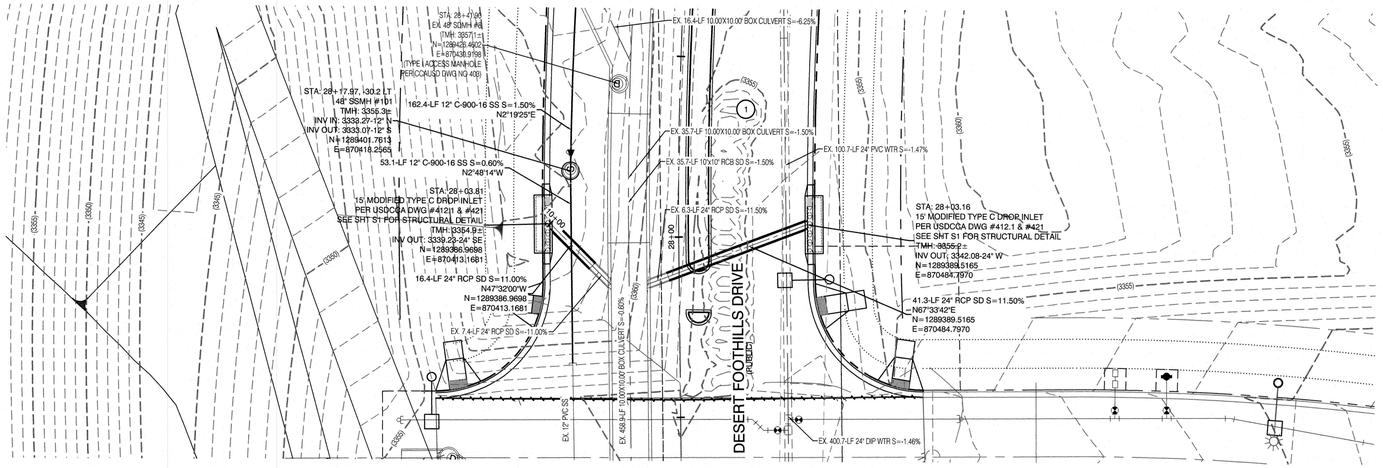
SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

DRAWN BY:	DATE:	SCALE:	HORIZ.
BCC	07/23/2018	1"=20'	
DESIGNED BY:	DATE:	1"=4'	VERT.
BCC	07/23/2018		
CHECKED BY:	DATE:		
WJM	01/31/2018		
PROJECT NO:			
7851			

PROFESSIONAL ENGINEER - STATE OF NEVADA
WILLIAM J. MEYER
EXP: 12/31/19
CIVIL
No. 15745
1/31/19

SHEET
UT5
19 OF **38** SHEETS
DRAWING NO.

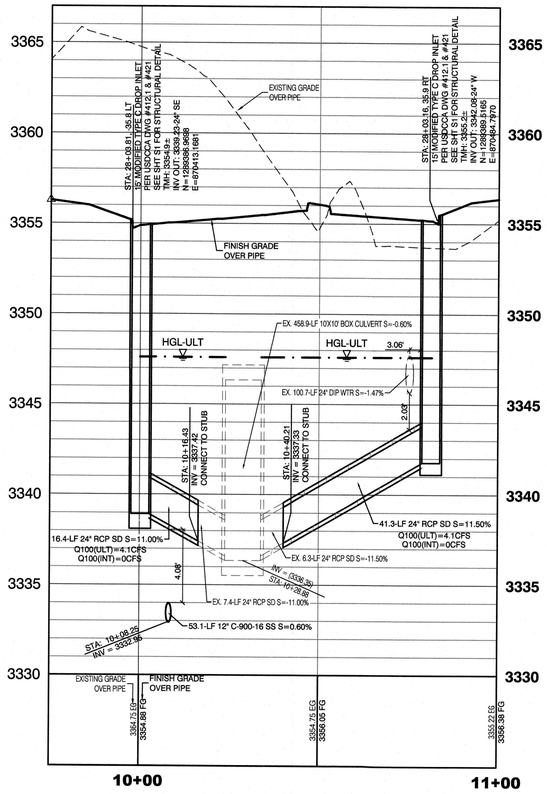
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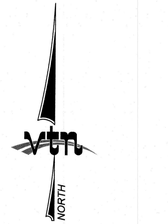


DESERT FOOTHILLS
(PUBLIC)

PROFILE SCALES:

HORIZ. = 1"=20'
VERT. = 1"=4'





CONSTRUCTION NOTES

WATER	PUBLIC
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WATER POINT OF CONNECTION	

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STANDARD MANHOLE PER SD-1A & 1B	9 EA.
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WATER LINE MARKER BALLS NOTE

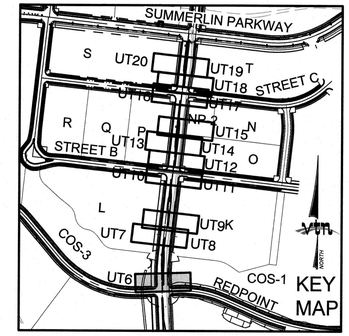
INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING, PER UDACS PLATE No. 15

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT:---- FIRST APPROVED DATE:

LVVWD APPROVED FIRE FLOW: TOTAL 1500 GPM/ONSITE N/A GPM



STORM DRAIN DROP INLET NOTE:

ALL STORM DRAIN INLETS SHALL INCLUDE A STORM WATER INLET CONCRETE STAMP IN ACCORDANCE WITH CCAUSD DWG NO. 421

SANITATION SEWER NOTES

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6. ALL SEWER LATERAL CONNECTIONS TO SEWER MAINS ARET TO BE CONSTRUCTED PER DCSWCS SD-22 UNLESS OTHERWISE NOTED ON PLAN.

WATER CONSTRUCTION NOTES

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WATER PRESSURE ZONE:

WATER SERVICE LOCATED IN THE 3550 PRESSURE ZONE.

WATER MAIN COVER NOTE:

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WATERLINE TRENCH NOTE:

CONSTRUCT WATERLINE TRENCH SECTION AND BACKFILL PER UDACS PLATE NO. 17.

LAS VEGAS FIRE & RESCUE APPROVAL

BY: _____ DATE: _____.

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Call before you Underground
1-702-455-7511
CLARK COUNTY TRAFFIC OPERATIONS
AND
1-702-229-8511
LAS VEGAS AREA COMPUTERIZED TRAFFIC SYSTEM

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

Call before you Dig
Avoid cutting underground utility lines. It's costly.
CALL 811
OR
1-800-227-2600
AND
1-702-455-6000
CLARK COUNTY TRAFFIC OPERATIONS

REV	DATE	BY	REVISION

HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
10801 W CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89135
702-791-4000

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH. (702) 873-7550 FAX (702) 362-2597 WEB WWW.VTNNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

CITY OF LAS VEGAS

UTILITY LATERAL SHEET 6

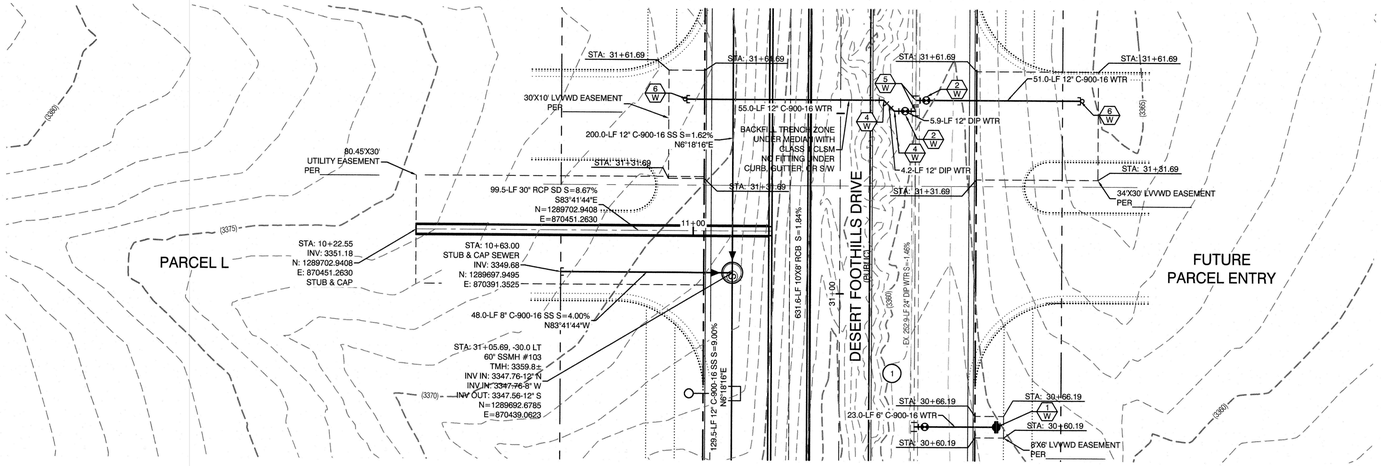
SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

DRAWN BY:	DESIGNED BY:	CHECKED BY:	PROJECT NO:	SCALE:	HORIZ.
BCC	BCC	WJM	7851	1"=20'	VERT.
08/02/2018	08/02/2018	01/31/2018		1"=4'	

WILLIAM J. MEYER
EXP: 12/31/19
CIVIL
No. 13745
STATE OF NEVADA
PROFESSIONAL ENGINEER
1/21/19

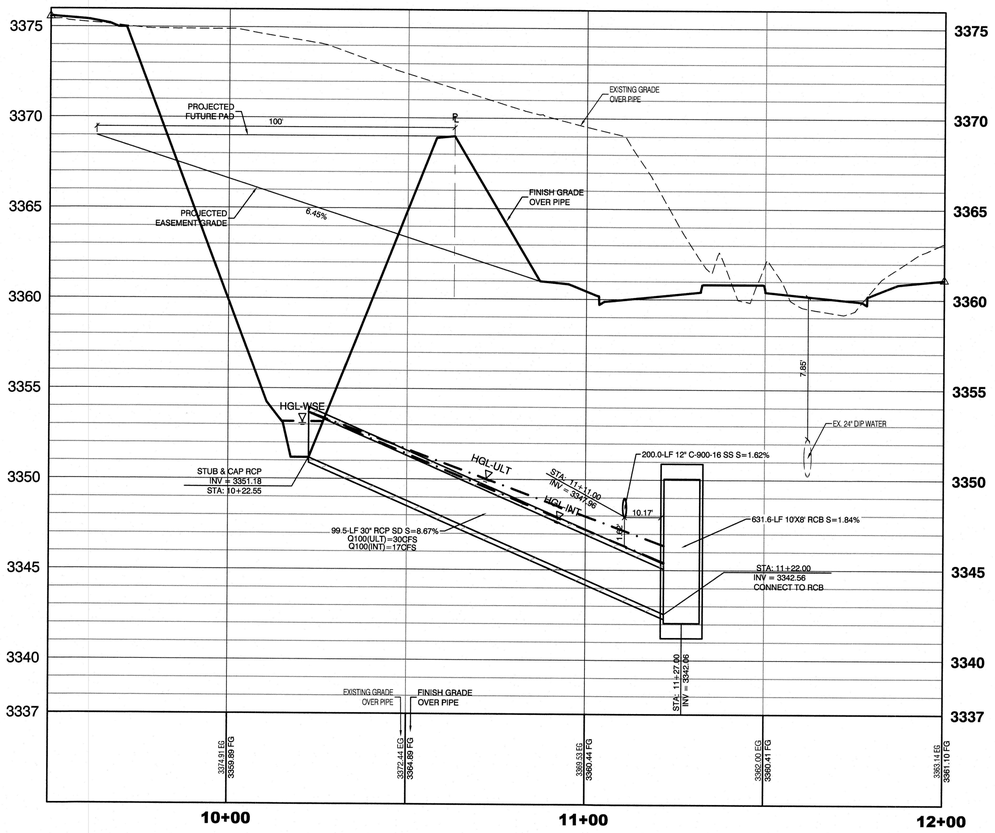
SHEET
UT6
20 OF 38 SHEETS
DRAWING NO.

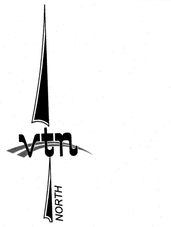
H:\7851\Desert Foothills-Street A to Summerlin Pkwy\Sheet Set\7851 UT LAT 1.dwg; Jan 31, 2019



DESERT FOOTHILLS
(PUBLIC)

PROFILE SCALES:
HORIZ. = 1"=20'
VERT.= 1"=4'





CONSTRUCTION NOTES

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	WATER POINT OF CONNECTION	

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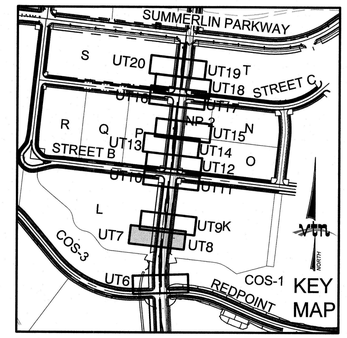
WATER LINE MARKER BALLS NOTE
INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING, PER UDACS PLATE No. 15

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT:--- FIRST APPROVED DATE:_____.

LVVWD APPROVED FIRE FLOW: TOTAL 1500 GPM/ONSITE N/A GPM



EASEMENT REFERENCE LEGEND
(1) 50' WIDE LAS VEGAS VALLEY WATER DISTRICT EASEMENT GRANTED PER OR: 20070529:0001401.

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CONTRACTOR SHALL VARIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

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4. SEE SHEET ___ FOR PUBLIC UTILITY NOTES AND GENERAL WATER CONSTRUCTION NOTES.
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WATER SERVICE LOCATED IN THE 3550 PRESSURE ZONE.

WATER MAIN COVER NOTE:
ALL NEW WATER MAIN TO HAVE MINIMUM DEPTH OF COVER PER UDACS SECTION 2.08

WATERLINE TRENCH NOTE:
CONSTRUCT WATERLINE TRENCH SECTION AND BACKFILL PER UDACS PLATE NO. 17.

LAS VEGAS FIRE & RESCUE APPROVAL
BY: _____ DATE: _____.

APPROVAL OF THESE PLANS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR, OR AN APPROVAL OF, ANY VIOLATION OF ANY OF THE PROVISIONS OF THE STATE OR COUNTY LAWS. FIRE FLOW ---- GPM AT 20 P.S.I. RESIDUAL.

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Call before you Underground
1-702-455-7511 CLARK COUNTY TRAFFIC OPERATIONS AND 1-702-229-6611 LAS VEGAS AREA COMPUTERIZED TRAFFIC SYSTEM

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

Call before you Dig
Avoid cutting underground utility lines. It's costly.
CALL 811 OR 1-800-227-2600 AND 1-702-455-6000
CLARK COUNTY TRAFFIC OPERATIONS

HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
10801 W CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89135
702-371-8000

CITY OF LAS VEGAS

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH. (702) 873-7550 FAX (702) 362-2397 WEB WWW.VTINNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

REV	DATE	BY	REVISION

UTILITY LATERAL SHEET 7

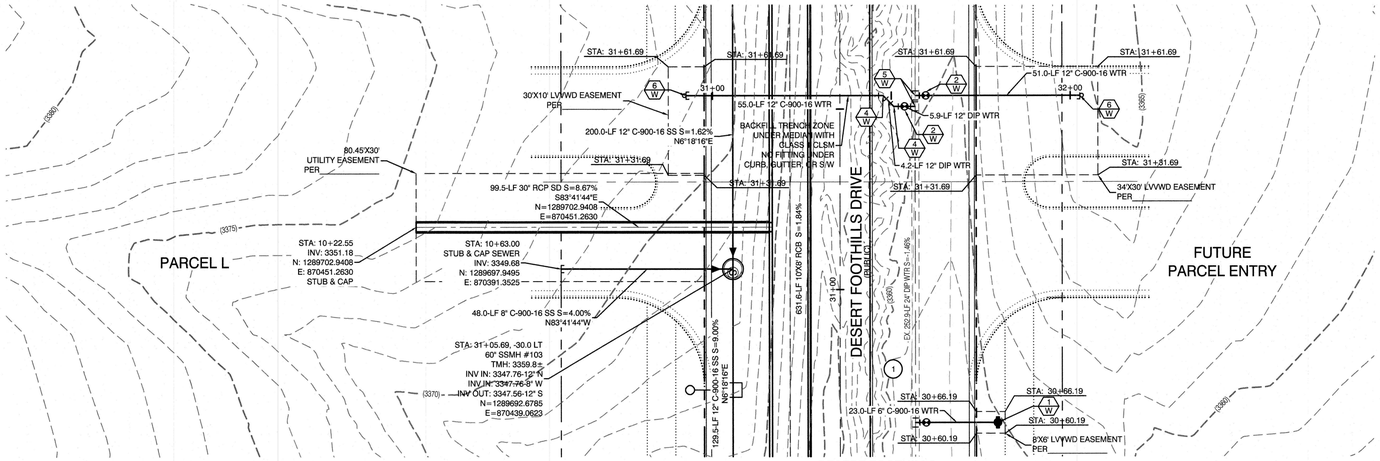
SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

DRAWN BY: BCC
DESIGNED BY: BCC
CHECKED BY: WJM
PROJECT NO: 7951
SCALE: 1"=20' HORZ. 1"=4' VERT.
08/02/2018
08/02/2018
01/31/2018

PROFESSIONAL ENGINEER STATE OF NEVADA
WILLIAM J. MEYER
EXP: 12/31/19
CIVIL
No. 15715
3/13/19

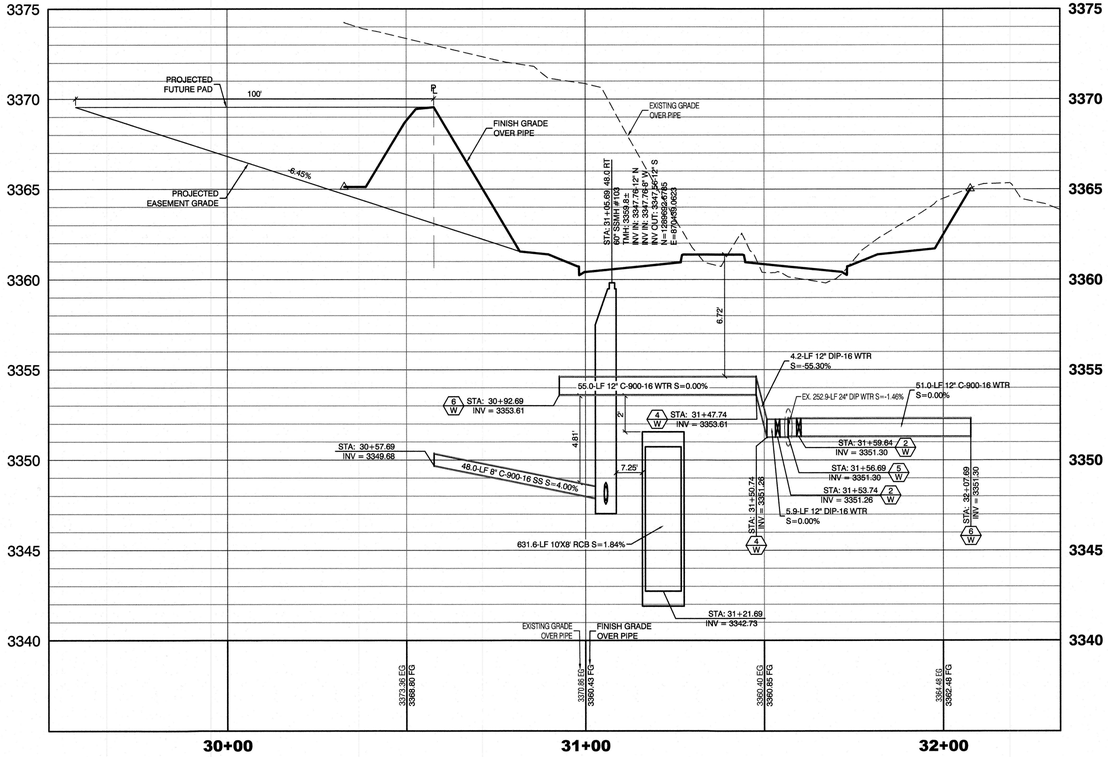
SHEET
UT7
21 OF 38 SHEETS
DRAWING NO.

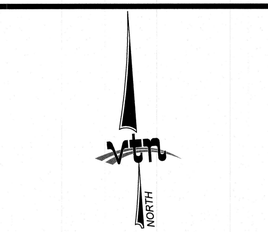
H:\7951\Desert Foothills-Street A to Summerlin Pkwy\Sheet Set\7951-UT LAT 1.dwg, Jan 31, 2019



DESERT FOOTHILLS
(PUBLIC)

PROFILE SCALES:
HORIZ. = 1"=20'
VERT. = 1"=4'





CONSTRUCTION NOTES

	WATER	PUBLIC
	FIRE HYDRANT ASSEMBLY: INCLUDING 24"X6" TEE WITH 6" G.V. (PER UDACS PLATE 39 & 40)	3 EA.
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	WATER POINT OF CONNECTION	

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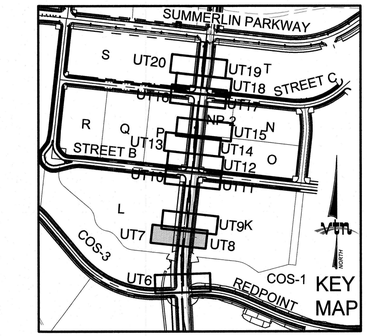
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APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT:---- FIRST APPROVED DATE:

LVVWD APPROVED FIRE FLOW: TOTAL 1500 GPM/ONSITE N/A GPM



EASEMENT REFERENCE LEGEND
(1) 50' WIDE LAS VEGAS VALLEY WATER DISTRICT EASEMENT GRANTED PER OR: 20070529:0001401.

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BY: _____ DATE: _____

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OR
1-800-227-2600
AND
1-702-455-6000
CLARK COUNTY TRAFFIC OPERATIONS

REV	DATE	BY	REVISION

HOWARD HUGES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
10801 W CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89135
702-791-4000

CITY OF LAS VEGAS

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH. (702) 873-7500 FAX (702) 362-2597 WEB WWW.LTRNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

UTILITY LATERAL SHEET 8

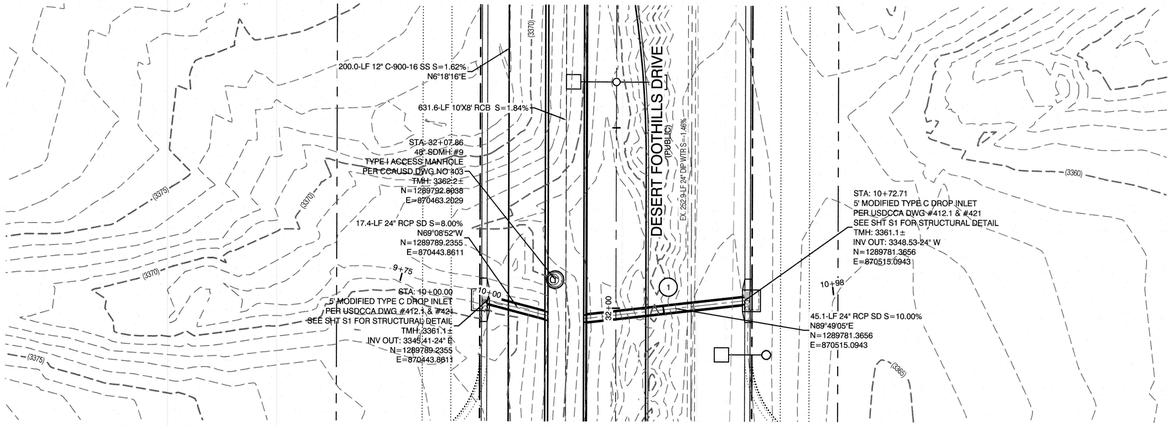
SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

DRAWN BY:	BCC 08/02/2018
DESIGNED BY:	BCC 08/02/2018
CHECKED BY:	WJM 01/31/2018
PROJECT NO:	7951
SCALE:	HORIZ. 1"=20' VERT. 1"=4'

PROFESSIONAL ENGINEER — STATE OF NEVADA
WILLIAM J. MEYER
EXP: 12/31/19
CIVIL
No. 15245
1/31/19

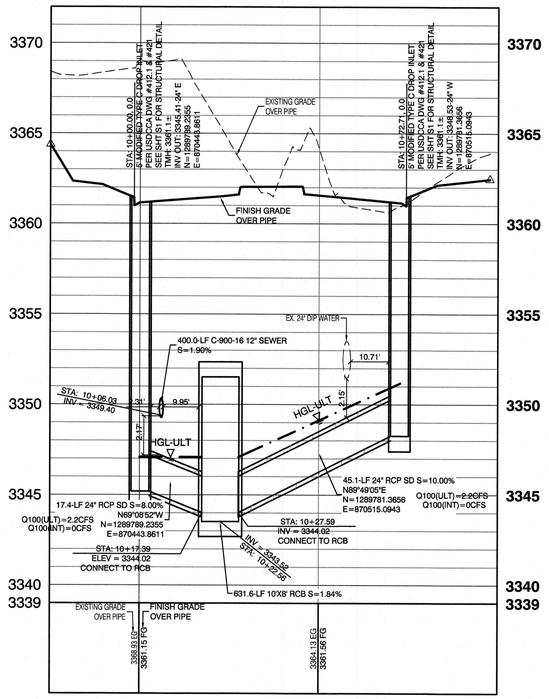
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22 OF **38** SHEETS
DRAWING NO.

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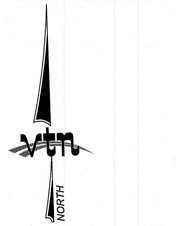


DESERT FOOTHILLS
(PUBLIC)

PROFILE SCALES:
HORIZ. = 1"=20'
VERT. = 1"=4'



10+00



GRAPHIC SCALE
-20 0 10 20 40
1" = 20'

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PCC	WATER POINT OF CONNECTION	

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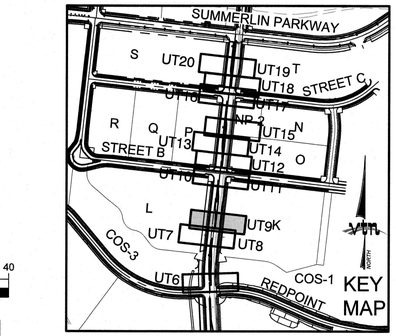
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APPROVED FOR CONSTRUCTION

_____
LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT:---- FIRST APPROVED DATE:_____

LVVWD APPROVED FIRE FLOW: TOTAL 1500 GPM/ONSITE N/A GPM



EASEMENT REFERENCE LEGEND

(1) 60' WIDE LAS VEGAS VALLEY WATER DISTRICT EASEMENT GRANTED PER OR: 20070529:0001401.

STORM DRAIN DROP INLET NOTE:

ALL STORM DRAIN INLETS SHALL INCLUDE A STORM WATER INLET CONCRETE STAMP IN ACCORDANCE WITH CCAUSD DWG NO. 421

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2. ON ROADWAYS WITH PARKING PERMITTED ON HYDRANT SIDE; LOCATE MARKER 16' FROM FACE OF CURB ON HYDRANT SIDE.





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OR
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AND
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CITY OF LAS VEGAS

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REV	DATE	BY	REVISION

UTILITY LATERAL SHEET 9

SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

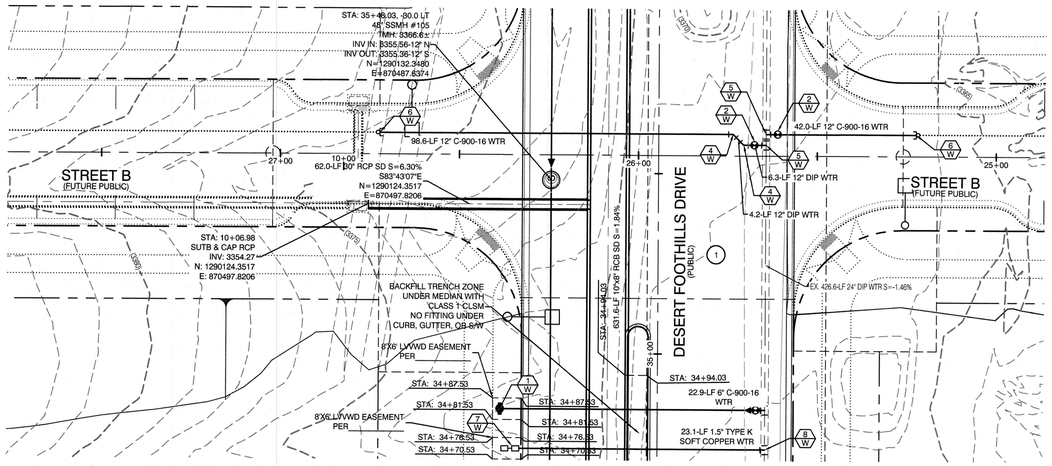
DRAWN BY: BCC	08/02/2018	SCALE:	1"=20'
DESIGNED BY: BCC	08/02/2018		1"=4'
CHECKED BY: WJM	01/31/2019	HORIZ. VERT.	
PROJECT NO: 7851			

PROFESSIONAL ENGINEER STATE OF NEVADA
No. 15191
WILLIAM J. MEYER
EXP: 12/31/19
CIVIL
1/31/19

SHEET
UT9
23 OF 38 SHEETS

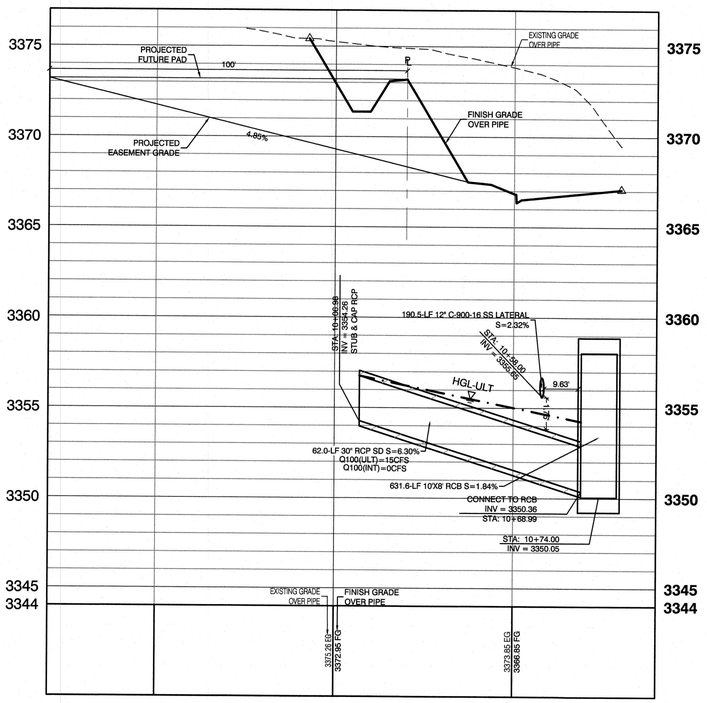
DRAWING NO.

H:\7851\Desert Foothills-Street A to Summerlin Pkwy\Sheet Set\7851-UT LAT 1.dwg, Jan 31, 2019

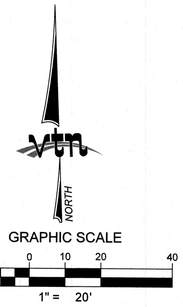


DESERT FOOTHILLS
(PUBLIC)

PROFILE SCALES:
HORIZ. = 1"=20'
VERT. = 1"=4'



10+00



GRAPHIC SCALE
-20 0 10 20 40
1" = 20'

CONSTRUCTION NOTES

	WATER	PUBLIC
	FIRE HYDRANT ASSEMBLY: INCLUDING 24"X6" TEE WITH 6" G.V. (PER UDACS PLATE 39 & 40)	3 EA.
	12" GATE VALVE (PER UDACS PLATE 30 & 39)	9 EA.
	12" 45° VERTICAL BEND (PER UDACS PLATE 31)	4 EA.
	12" 45° BEND (PER UDACS PLATE 31)	6 EA.
	24"X12" TEE (PER UDACS PLATE 31)	9 EA.
	12" CAP & BLOW OFF (PER UDACS PLATE 36)	9 EA.
	1.5" TYPE K SOFT COPPER WATER LATERAL SERVICE WITH 1.5" SUMMERLIN COUNCIL METER PER IRRIGATION MASTER PLAN AND UDACS PLATE #4 (IRRIGATION) AND 1.5" RPPA PER UDACS PLATE #8	2 EA.
	24"X1.5" TEE (PER UDACS PLATE 31)	2 EA.
	6" C-900-16 WATER MAIN PER UDACS 2.06.01 & PLATE 17	109 LF.
	12" C-900-16 WATER MAIN PER UDACS 2.06.01 & PLATE 17	365 LF.
	12" DIP WATER MAIN PER UDACS 2.06.01 & PLATE 17	247 LF.
POC	WATER POINT OF CONNECTION	
	SEWER	**PUBLIC**
S	STANDARD MANHOLE PER SD-1A & 1B	9 EA.
	8" SDR-35 C-900-16 SANITARY SEWER MAIN	184 LF.
	12" SDR-35 C-900-16 SANITARY SEWER MAIN	1,711 LF.
POC	SEWER POINT OF CONNECTION	

UTILITY CROSSING NOTE:
ALL SEWER/STORM DRAINS CROSSING WATER LINES MUST CONFORM TO SECTION 2.22 OF UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR PORTABL WATER SYSTEMS (UDACS) FOR WATER AND STORM MAIN CROSSINGS AND CLEARANCES.

ENGINEER DISCLAIMER NOTE:
UTILITY LOCATIONS SHOWN HERE ON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HERE ON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

TYPICAL WATER NOTES
1. MAINTAIN A MINIMUM OF 12-INCHES VERTICAL SEPARATION AT ALL POINTS OF UTILITY CROSSINGS.
2. MAINTAIN A MINIMUM OF 3-FEET PARALLEL SEPARATION FROM ADJACENT UTILITIES.
3. ANY EXCAVATION AT THE BACK OF A CURB MUST REMAIN OPEN FOR INSPECTION OF THE COPPER SERVICE LATERALS. ANY COPPER SERVICE LATERAL WHICH IS KINKED, BENT OR OTHERWISE DAMAGED MUST BE REPLACED FROM THE MAIN TO THE ANGLE METER STOP.
   CAUTION MUST BE EXERCISED NEAR ANY EXCAVATION AROUND AN EXISTING FIRE HYDRANT IN ORDER TO AVOID DISTURBING THE THRUST BLOCK AND SURROUNDING SOIL SUPPORTING THE THRUST BLOCK. THIS PREVENTS THE POSSIBILITY OF THE HYDRANT SEPARATING FROM THE LATERAL. PROVIDE A DETAIL OF THE PROPOSED INSTALLATION SHOWING ADEQUATE CLEARANCES TO AVOID DISTURBING EXISTING LVVWD FACILITIES.
4.

SIGHT VISIBILITY ZONES:
NO STRUCTURE, WALLS, VEGETATION, OR OBJECT OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

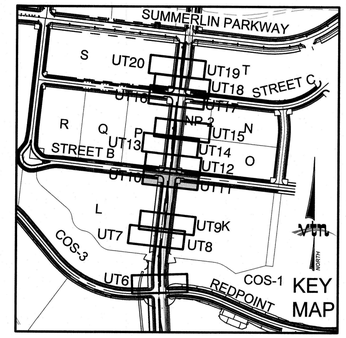
WATER LINE MARKER BALLS NOTE
INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING, PER UDACS PLATE No. 15

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT:---- FIRST APPROVED DATE:

LVVWD APPROVED FIRE FLOW: TOTAL 1500 GPM/ONSITE N/A GPM



EASEMENT REFERENCE LEGEND
(1) 50' WIDE LAS VEGAS VALLEY WATER DISTRICT EASEMENT GRANTED PER OR: 20070529:0001401.

SANITATION SEWER NOTES
1. ALL SEWER STATIONING IS BASED ON CENTER OF PIPE LENGTHS FROM MANHOLE TO MANHOLE AND IS NOT RELATIVE IN ANY WAY TO STREET CENTERLINE STATIONING. STREET CENTERLINE STATIONING IS SHOWN ON PLAN FOR ROAD REFERENCE ONLY.
2. ALL MANHOLES ARE 48" SIZED MANHOLES PER DCSWCS SD-1, UNLESS OTHERWISE NOTED ON PLAN.
3. ALL MANHOLES ARE TO BE CONSTRUCTED PER DCSWCS SD-1A AND SD-1B.
4. ALL MANHOLE COVERS AND FRAMES ARE TO BE CONSTRUCTED PER DCSWCS SD-2.
5. ALL MANHOLE COLLARS ARE TO BE CONSTRUCT PER DCSWCS SD-4.
6 ALL SEWER LATERAL CONNECTIONS TO SEWER MAINS ARET TO BE CONSTRUCTED PER DCSWCS SD-22 UNLESS OTHERWISE NOTED ON PLAN.

WATER CONSTRUCTION NOTES
ALL DIMENSIONS TO UTILITIES ARE TO CENTERLINE OF PIPE UNLESS INDICATED OTHERWISE.

CONTRACTOR SHALL VARIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

ALL EXISTING UTILITY STRUCTURES WITHIN CONSTRUCTION AREA SHALL BE ADJUSTED TO MATCH FINISH GRADE (I.E. WV. BOX, MH, ANNODE BOX, FH, TEL BOX, ETC.)

1. WATER LINE STATIONING IS BASED ON THE CENTERLINE OF STREET RIGHT OF WAY
2. WATER LINE SHALL BE C-900 PVC APPROVED BY THE LAS VEGAS VALLEY WATER DISTRICT.
3. EXISTING ASPHALT SHALL BE REMOVED AND REPLACED PER CITY OF LAS VEGAS SPECIFICATIONS. BACKFILL AND INSTALL PERMANENT PATCH PER CITY STANDARD FOR THIS PLAN.
4 SEE SHEET __ FOR PUBLIC UTILITY NOTES AND GENERAL WATER CONSTRUCTION NOTES.
5. ALL WATER LINE IN STREET RIGHT OF WAY IS PUBLIC WATER SYSTEM AND MUST BE INSPECTED BY THE LAS VEGAS VALLEY WATER DISTRICT.

WATER PRESSURE ZONE:
WATER SERVICE LOCATED IN THE 3550 PRESSURE ZONE.

WATER MAIN COVER NOTE:
ALL NEW WATER MAIN TO HAVE MINIMUM DEPTH OF COVER PER UDACS SECTION 2.08

WATERLINE TRENCH NOTE:
CONSTRUCT WATERLINE TRENCH SECTION AND BACKFILL PER UDACS PLATE NO. 17.

LAS VEGAS FIRE & RESCUE APPROVAL
BY: _____ DATE: _____.

APPROVAL OF THESE PLANS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR, OR AN APPROVAL OF, ANY VIOLATION OF ANY OF THE PROVISIONS OF THE STATE OR COUNTY LAWS. FIRE FLOW ---- GPM AT 20 P.S.I. RESIDUAL.

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

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

FIRE HYDRANT MARKER NOTES
BLUE COLORED REFLECTIVE RAISED PAVEMENT MARKERS ARE TO BE INSTALLED:
1. ON ROADWAYS WITH NO PARKING PERMITTED ON HYDRANT SIDE; LOCATE MAKER 8' FROM FACE OF CURB ON HYDRANT SIDE.
2. ON ROADWAYS WITH PARKING PERMITTED ON HYDRANT SIDE; LOCATE MARKER 16' FROM FACE OF CURB ON HYDRANT SIDE.

Call before you Dig
Avoid cutting underground utility lines. It's costly.
CALL 811 OR 1-800-227-2600 AND 1-702-455-6000
CLARK COUNTY TRAFFIC OPERATIONS

Call before you Underground
1-702-455-7511
CLARK COUNTY TRAFFIC OPERATIONS AND 1-702-229-6611
LAS VEGAS AREA COMPUTERIZED TRAFFIC SYSTEM

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

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CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

CITY OF LAS VEGAS

REV	DATE	BY	REVISION

UTILITY LATERAL SHEET 10

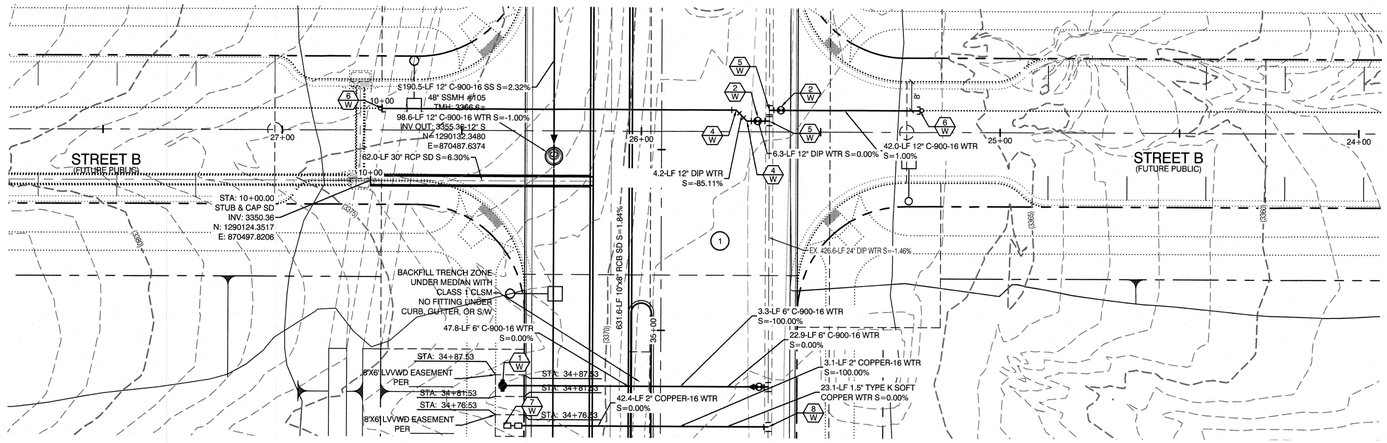
SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

DRAWN BY: BCC	08/02/2018	SCALE:	1"=20' HORIZ. 1"=4' VERT.
DESIGNED BY: BCC	08/02/2018	CHECKED BY: WJM	01/31/2018
		PROJECT NO: 7951	

PROFESSIONAL ENGINEER STATE OF NEVADA
WILLIAM J. MEYER
EXP: 12/31/19
No. 15745
CIVIL
31/19

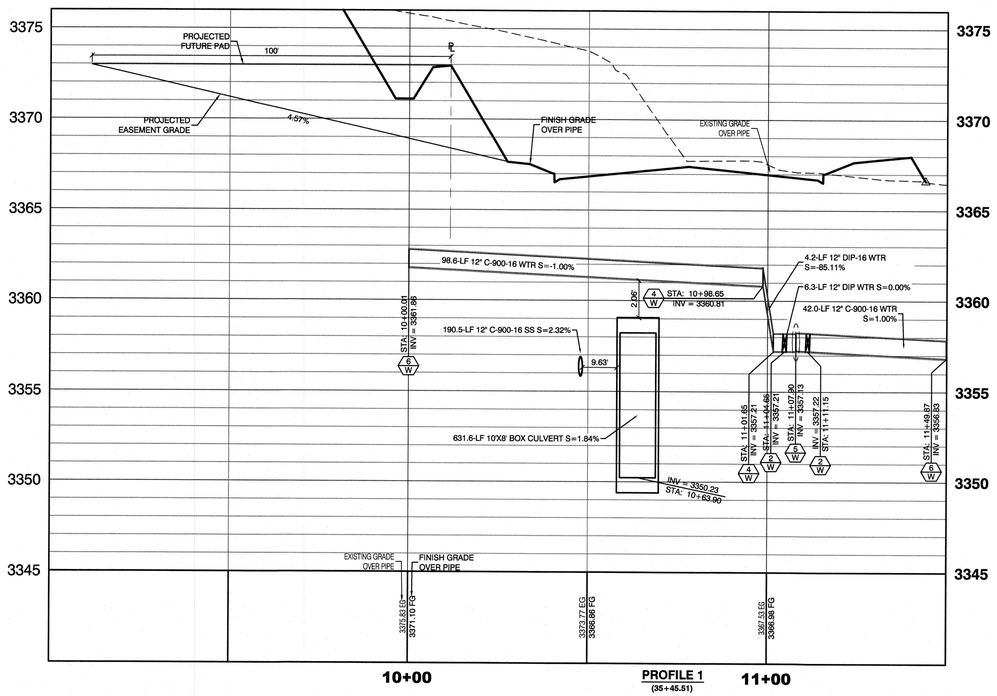
SHEET
UT10
24 OF **38** SHEETS
DRAWING NO.

H:\7951\Desert Foothills-Street A to Summerlin Pkwy\Sheet Set\7951-UT LAT 1.dwg, Jan 31, 2019



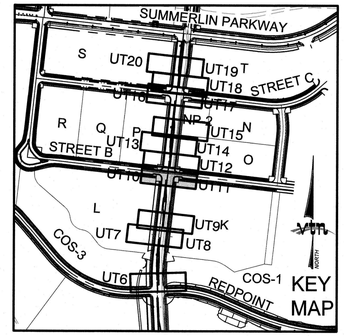
DESERT FOOTHILLS
(PUBLIC)

PROFILE SCALES:
HORIZ. = 1"=20'
VERT. = 1"=4'



GRAPHIC SCALE
-20 0 10 20 40
1" = 20'

NORTH



CONSTRUCTION NOTES

	WATER	PUBLIC
W	FIRE HYDRANT ASSEMBLY: INCLUDING 24"X6" TEE WITH 6" G.V. (PER UDACS PLATE 39 & 40)	3 EA.
W	12" GATE VALVE (PER UDACS PLATE 30 & 39)	9 EA.
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W	1.5" TYPE K SOFT COPPER WATER LATERAL SERVICE WITH 1.5" SUMMERLIN COUNCIL METER PER IRRIGATION MASTER PLAN AND UDACS PLATE #4 (IRRIGATION) AND 1.5" RPPA PER UDACS PLATE #8	2 EA.
W	24"X1.5" TEE (PER UDACS PLATE 31)	2 EA.
	6" C-900-16 WATER MAIN PER UDACS 2.06.01 & PLATE 17	109 LF.
	12" C-900-16 WATER MAIN PER UDACS 2.06.01 & PLATE 17	365 LF.
	12" DIP WATER MAIN PER UDACS 2.06.01 & PLATE 17	247 LF.
POC	WATER POINT OF CONNECTION	

	SEWER	PUBLIC
S	STANDARD MANHOLE PER SD-1A & 1B	9 EA.
	8" SDR-35 C-900-16 SANITARY SEWER MAIN	184 LF.
	12" SDR-35 C-900-16 SANITARY SEWER MAIN	1,711 LF.
POC	SEWER POINT OF CONNECTION	

EASEMENT REFERENCE LEGEND

(1) 50' WIDE LAS VEGAS VALLEY WATER DISTRICT EASEMENT GRANTED PER OR: 20070529:0001401.

UTILITY CROSSING NOTE:

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WATER LINE MARKER BALLS NOTE

INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING, PER UDACS PLATE No. 15

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT:---- FIRST APPROVED DATE:

LVVWD APPROVED FIRE FLOW: TOTAL 1500 GPM/ONSITE N/A GPM

SANITATION SEWER NOTES

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5. ALL MANHOLE COLLARS ARE TO BE CONSTRUCT PER DCSWCS SD-4.
6. ALL SEWER LATERAL CONNECTIONS TO SEWER MAINS ARET TO BE CONSTRUCTED PER DCSWCS SD-22 UNLESS OTHERWISE NOTED ON PLAN.

WATER CONSTRUCTION NOTES

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4. SEE SHEET __ FOR PUBLIC UTILITY NOTES AND GENERAL WATER CONSTRUCTION NOTES.
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WATER PRESSURE ZONE:

WATER SERVICE LOCATED IN THE 3550 PRESSURE ZONE.

WATER MAIN COVER NOTE:

ALL NEW WATER MAIN TO HAVE MINIMUM DEPTH OF COVER PER UDACS SECTION 2.08

WATERLINE TRENCH NOTE:

CONSTRUCT WATERLINE TRENCH SECTION AND BACKFILL PER UDACS PLATE NO. 17.

LAS VEGAS FIRE & RESCUE APPROVAL

BY: _____ DATE: _____

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2. ON ROADWAYS WITH PARKING PERMITTED ON HYDRANT SIDE; LOCATE MARKER 16' FROM FACE OF CURB ON HYDRANT SIDE.

AVOID HITTING UNDERGROUND TRAFFIC SIGNAL AND STREET LIGHT SYSTEM CONDUITS IT'S COSTLY
Call before you Underground
1-702-455-7511
CLARK COUNTY TRAFFIC SIGNAL OPERATIONS ONLY
1-702-229-6811
LAS VEGAS AREA COMPUTERIZED TRAFFIC SYSTEM

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

Call before you Dig
Avoid cutting underground utility lines. It's costly.
CALL 811
OR
1-800-227-2600
AND
1-702-455-6000
CLARK COUNTY TRAFFIC OPERATIONS

HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
1980 FESTIVAL PLAZA DRIVE, SUITE 300
LAS VEGAS, NEVADA 89135
702-791-4000

CITY OF LAS VEGAS

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LAS VEGAS, NEVADA 89146-5148
PH. (702) 873-7500 FAX (702) 362-2697 WEB WWW.VTNNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

REV	DATE	BY	REVISION

UTILITY LATERAL SHEET 11

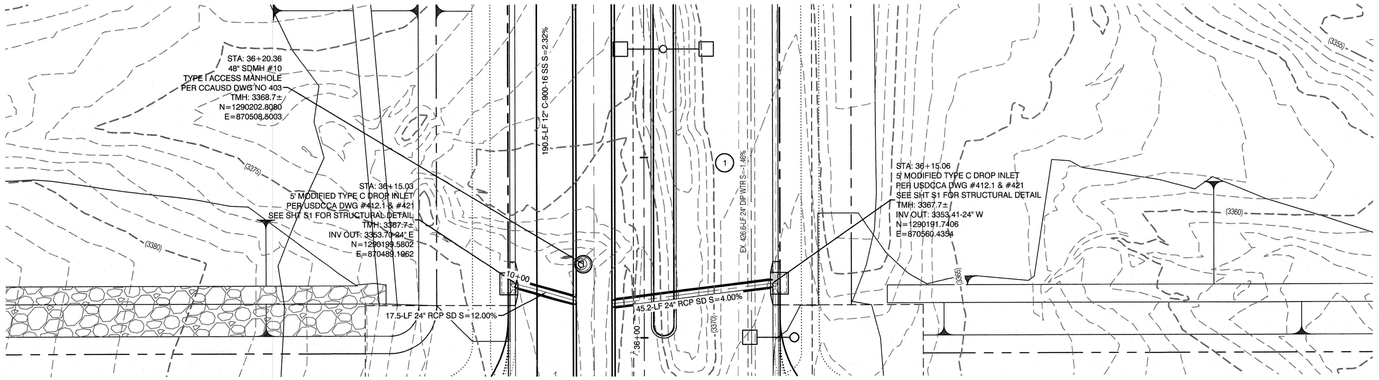
SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

DRAWN BY: BCC 08/02/2018
DESIGNED BY: BCC 08/02/2018
CHECKED BY: WJM 01/31/2018
PROJECT NO: 7851
SCALE: HORIZ. 1"=20' VERT. 1"=4'

PROFESSIONAL ENGINEER STATE OF NEVADA
WILLIAM J. MEYER
EXP: 12/31/19
No. 15745
CIVIL
1/31/19

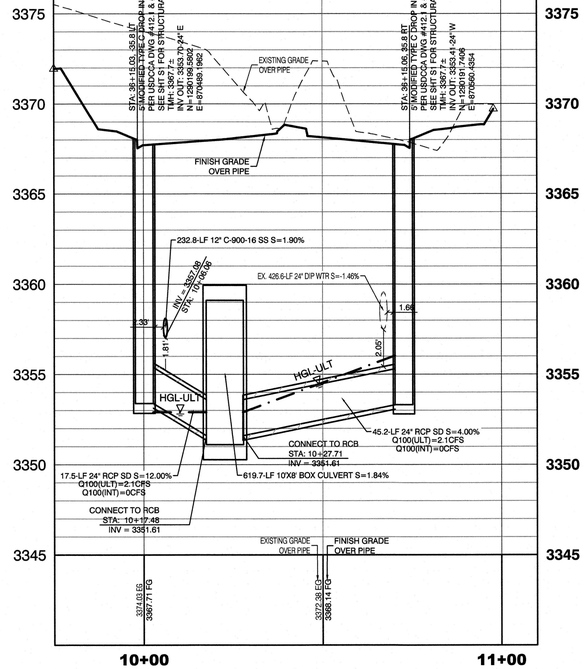
SHEET
UT11
25 OF **38** SHEETS
DRAWING NO.

H:\7851\Diseart Foothills-Street A to Summerlin Pkwy\Sheet Set\7851-UT LAT 2.dwg, Jan 31, 2019



DESERT FOOTHILLS
(PUBLIC)

PROFILE SCALES:
HORIZ. = 1"=20'
VERT. = 1"=4'





GRAPHIC SCALE
-20 0 10 20 40
1" = 20'

CONSTRUCTION NOTES

	WATER	PUBLIC
	FIRE HYDRANT ASSEMBLY: INCLUDING 24"X6" TEE WITH 6" G.V. (PER UDACS PLATE 39 & 40)	3 EA.
	12" GATE VALVE (PER UDACS PLATE 30 & 39)	9 EA.
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	6" C-900-16 WATER MAIN PER UDACS 2.06.01 & PLATE 17	109 LF.
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	12" DIP WATER MAIN PER UDACS 2.06.01 & PLATE 17	247 LF.
POC	WATER POINT OF CONNECTION	

	SEWER	PUBLIC
S	STANDARD MANHOLE PER SD-1A & 1B	9 EA.
	8" SDR-35 C-900-16 SANITARY SEWER MAIN	184 LF.
	12" SDR-35 C-900-16 SANITARY SEWER MAIN	1,711 LF.
SPOC	SEWER POINT OF CONNECTION	

EASEMENT REFERENCE LEGEND

(1) 50' WIDE LAS VEGAS VALLEY WATER DISTRICT EASEMENT GRANTED PER OR: 20070529:0001401.

UTILITY CROSSING NOTE:

ALL SEWER/STORM DRAINS CROSSING WATER LINES MUST CONFORM TO SECTION 2.22 OF UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR PORTABL WATER SYSTEMS (UDACS) FOR WATER AND STORM MAIN CROSSINGS AND CLEARANCES.

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TYPICAL WATER NOTES

1. MAINTAIN A MINIMUM OF 12-INCHES VERTICAL SEPARATION AT ALL POINTS OF UTILITY CROSSINGS.
2. MAINTAIN A MINIMUM OF 3-FEET PARALLEL SEPARATION FROM ADJACENT UTILITIES.

   ANY EXCAVATION AT THE BACK OF A CURB MUST REMAIN OPEN FOR INSPECTION OF THE COPPER SERVICE
3. LATERALS. ANY COPPER SERVICE LATERAL WHICH IS KINKED, BENT OR OTHERWISE DAMAGED MUST BE REPLACED FROM THE MAIN TO THE ANGLE METER STOP.

   CAUTION MUST BE EXERCISED NEAR ANY EXCAVATION AROUND AN EXISTING FIRE HYDRANT IN ORDER TO AVOID DISTURBING THE THRUST BLOCK AND SURROUNDING SOIL SUPPORTING THE THRUST BLOCK. THIS PREVENTS THE
4. POSSIBILITY OF THE HYDRANT SEPARATING FROM THE LATERAL. PROVIDE A DETAIL OF THE PROPOSED INSTALLATION SHOWING ADEQUATE CLEARANCES TO AVOID DISTURBING EXISTING LVVWD FACILITIES.

SIGHT VISIBILITY ZONES:

NO STRUCTURE, WALLS, VEGETATION, OR OBJECT OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

WATER LINE MARKER BALLS NOTE

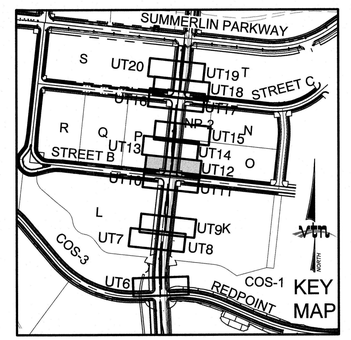
INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING, PER UDACS PLATE No. 15

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT:---- FIRST APPROVED DATE: .

LVVWD APPROVED FIRE FLOW: TOTAL 1500 GPM/ONSITE N/A GPM



STORM DRAIN DROP INLET NOTE:

ALL STORM DRAIN INLETS SHALL INCLUDE A STORM WATER INLET CONCRETE STAMP IN ACCORDANCE WITH CCAUSD DWG NO. 421

SANITATION SEWER NOTES

1. ALL SEWER STATIONING IS BASED ON CENTER OF PIPE LENGTHS FROM MANHOLE TO MANHOLE AND IS NOT RELATIVE IN ANY WAY TO STREET CENTERLINE STATIONING. STREET CENTERLINE STATIONING IS SHOWN ON PLAN FOR ROAD REFERENCE ONLY.
2. ALL MANHOLES ARE 48" SIZED MANHOLES PER DCSWCS SD-1, UNLESS OTHERWISE NOTED ON PLAN.
3. ALL MANHOLES ARE TO BE CONSTRUCTED PER DCSWCS SD-1A AND SD-1B.
4. ALL MANHOLE COVERS AND FRAMES ARE TO BE CONSTRUCTED PER DCSWCS SD-2.
5. ALL MANHOLE COLLARS ARE TO BE CONSTRUCT PER DCSWCS SD-4.
6. ALL SEWER LATERAL CONNECTIONS TO SEWER MAINS ARET TO BE CONSTRUCTED PER DCSWCS SD-22 UNLESS OTHERWISE NOTED ON PLAN.

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CONTRACTOR SHALL VARIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

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4. SEE SHEET __ FOR PUBLIC UTILITY NOTES AND GENERAL WATER CONSTRUCTION NOTES.
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WATER PRESSURE ZONE:

WATER SERVICE LOCATED IN THE 3550 PRESSURE ZONE.

WATER MAIN COVER NOTE:

ALL NEW WATER MAIN TO HAVE MINIMUM DEPTH OF COVER PER UDACS SECTION 2.08

WATERLINE TRENCH NOTE:

CONSTRUCT WATERLINE TRENCH SECTION AND BACKFILL PER UDACS PLATE NO. 17.

LAS VEGAS FIRE & RESCUE APPROVAL

BY: _____ DATE: _____

APPROVAL OF THESE PLANS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR, OR AN APPROVAL OF, ANY VIOLATION OF ANY OF THE PROVISIONS OF THE STATE OR COUNTY LAWS. FIRE FLOW ---- GPM AT 20 P.S.I. RESIDUAL.

WATER MAIN JOINT DEFLECTION

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

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

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BLUE COLORED REFLECTIVE RAISED PAVEMENT MARKERS ARE TO BE INSTALLED:

1. ON ROADWAYS WITH NO PARKING PERMITTED ON HYDRANT SIDE; LOCATE MAKER 8' FROM FACE OF CURB ON HYDRANT SIDE.
2. ON ROADWAYS WITH PARKING PERMITTED ON HYDRANT SIDE; LOCATE MARKER 16' FROM FACE OF CURB ON HYDRANT SIDE.







REV	DATE	BY	REVISION

HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
10801 W CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89135
702-791-4000

CITY OF LAS VEGAS

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH. (702) 873-7500 FAX (702) 362-2597 WEB WWW.VTNNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

UTILITY LATERAL SHEET 12

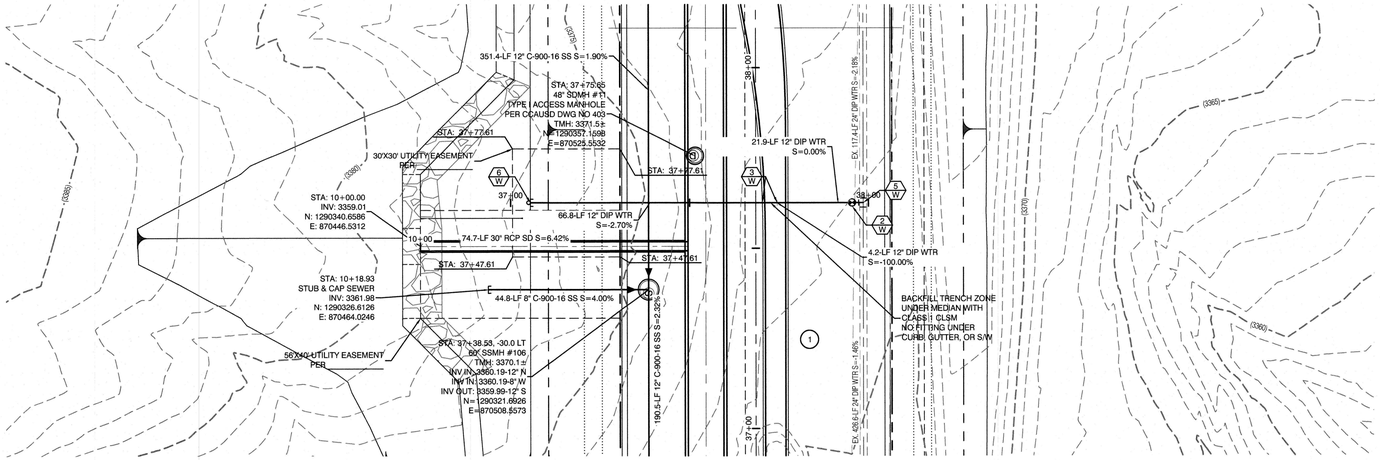
SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

DRAWN BY:	DESIGNED BY:	CHECKED BY:	PROJECT NO:	SCALE:	HORIZ. / VERT.
BCC 08/02/2018	BCC 08/02/2018	WJM 01/31/2018	7851	1"=20' 1"=4'	

PROFESSIONAL ENGINEER STATE OF NEVADA
WILLIAM J. MEYER
EXP. 12/31/19
CIVIL
No. 15745
01/31/19

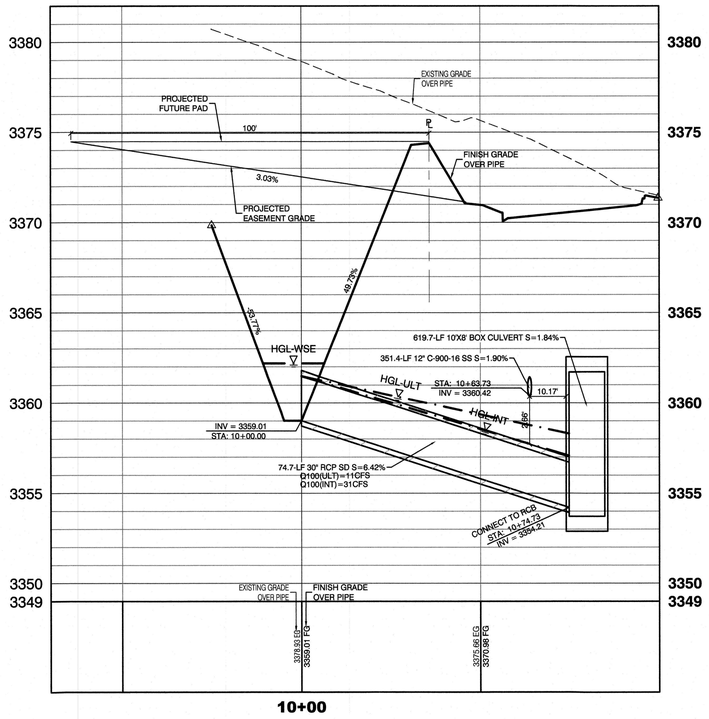
SHEET
UT12
26 OF **38** SHEETS
DRAWING NO.

H:\7851\Desert Foothills-Street A to Summerlin Pkwy\Sheet Set\7851-UT LAT 2.dwg, Jan 31, 2019

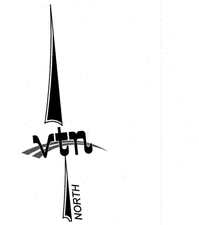


DESERT FOOTHILLS
(PUBLIC)

PROFILE SCALES:
HORIZ. = 1"=20'
VERT. = 1"=4'



10+00



GRAPHIC SCALE

-20 0 10 20 40

1" = 20'

CONSTRUCTION NOTES

	WATER	PUBLIC
	FIRE HYDRANT ASSEMBLY: INCLUDING 24"X6" TEE WITH 6" G.V. (PER UDACS PLATE 39 & 40)	3 EA.
	12" GATE VALVE (PER UDACS PLATE 30 & 39)	9 EA.
	12" 45° VERTICAL BEND (PER UDACS PLATE 31)	4 EA.
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	1.5" TYPE K SOFT COPPER WATER LATERAL SERVICE WITH 1.5" SUMMERLIN COUNCIL METER PER IRRIGATION MASTER PLAN AND UDACS PLATE #4 (IRRIGATION) AND 1.5" RPPA PER UDACS PLATE #8	2 EA.
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WPOC	WATER POINT OF CONNECTION	

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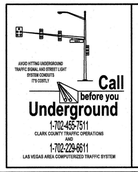
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APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

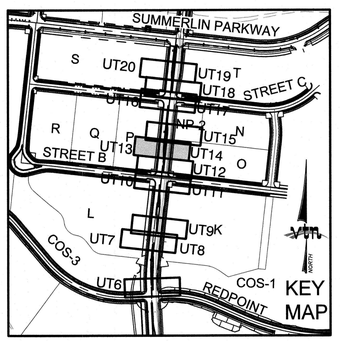
PROJECT:---- FIRST APPROVED DATE:_____.

LVVWD APPROVED FIRE FLOW: TOTAL 1500 GPM/ONSITE N/A GPM









KEY MAP

EASEMENT REFERENCE LEGEND

1. 50' WIDE LAS VEGAS VALLEY WATER DISTRICT EASEMENT GRANTED PER OR: 20070529:0001401.

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REV	DATE	BY	REVISION

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10801 W CHARLESTON BLVD SUITE 500
LAS VEGAS, NEVADA 89135
702-791-4000

CITY OF LAS VEGAS

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CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

UTILITY LATERAL SHEET 13

SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

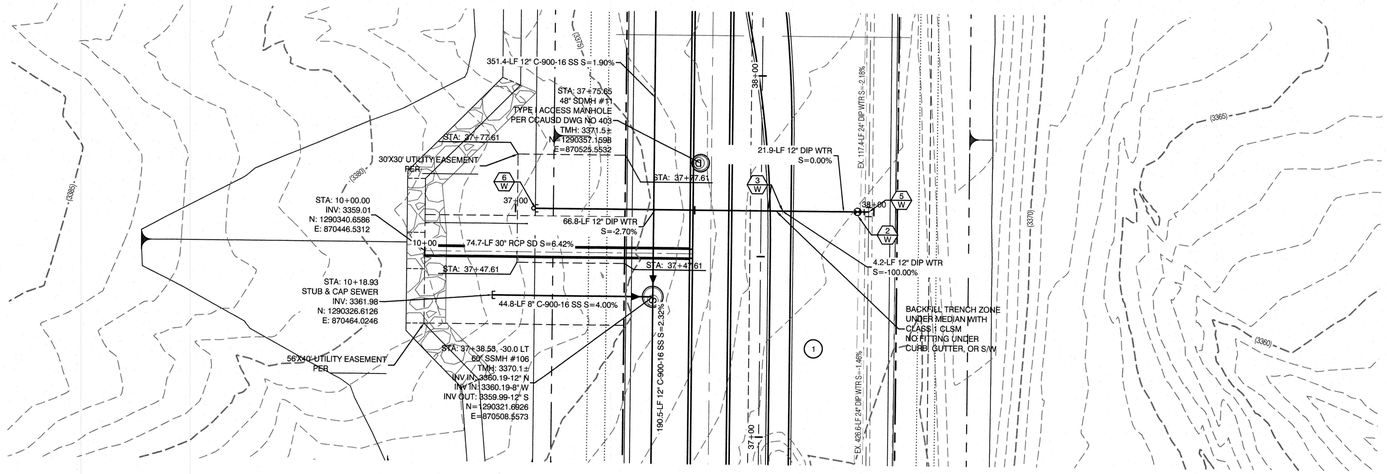
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				1"=4'	VERT.
08/02/2018	08/02/2018	01/31/2018			

PROFESSIONAL ENGINEER - STATE OF NEVADA
WILLIAM J. MEYER
EXP: 12/31/19
CIVIL
No. 15745
1/31/19

SHEET
UT13
27 OF **38** SHEETS

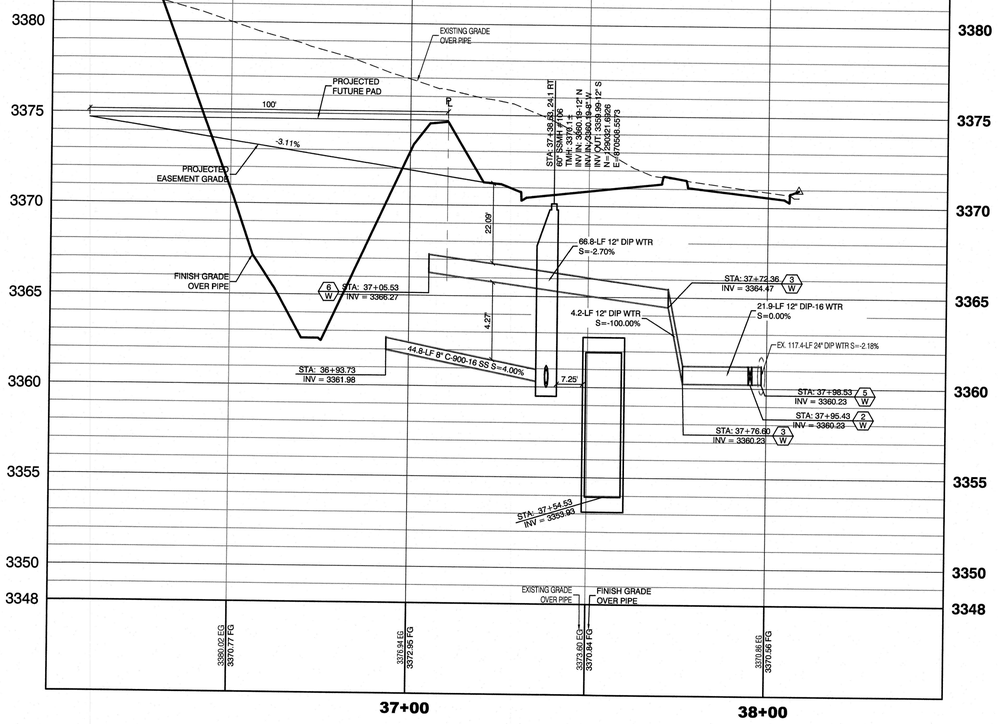
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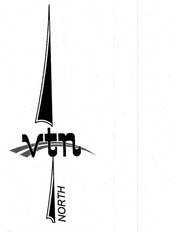
H:\7851\Desert Foothills-Street A to Summerlin Pkwy\Sheet Set\7851-UT-LAT 2.dwg, Jan 31, 2019



DESERT FOOTHILLS
(PUBLIC)

PROFILE SCALES:
HORIZ. = 1"=20'
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GRAPHIC SCALE
-20 0 10 20 40
1" = 20'

CONSTRUCTION NOTES

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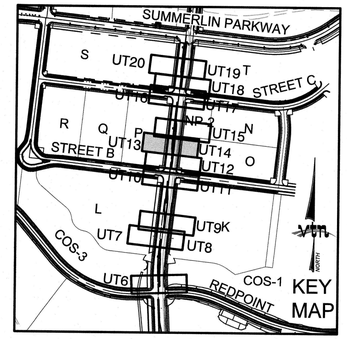
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APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT:---- FIRST APPROVED DATE:

LVVWD APPROVED FIRE FLOW: TOTAL 1500 GPM/ONSITE N/A GPM



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1. WATER LINE STATIONING IS BASED ON THE CENTERLINE OF STREET RIGHT OF WAY
2. WATER LINE SHALL BE C-900 PVC APPROVED BY THE LAS VEGAS VALLEY WATER DISTRICT.
3. EXISTING ASPHALT SHALL BE REMOVED AND REPLACED PER CITY OF LAS VEGAS SPECIFICATIONS. BACKFILL AND INSTALL PERMANENT PATCH PER CITY STANDARD FOR THIS PLAN.
4. SEE SHEET __ FOR PUBLIC UTILITY NOTES AND GENERAL WATER CONSTRUCTION NOTES.
5. ALL WATER LINE IN STREET RIGHT OF WAY IS PUBLIC WATER SYSTEM AND MUST BE INSPECTED BY THE LAS VEGAS VALLEY WATER DISTRICT.

WATER PRESSURE ZONE:
WATER SERVICE LOCATED IN THE 3550 PRESSURE ZONE.

WATER MAIN COVER NOTE:
ALL NEW WATER MAIN TO HAVE MINIMUM DEPTH OF COVER PER UDACS SECTION 2.08

WATERLINE TRENCH NOTE:
CONSTRUCT WATERLINE TRENCH SECTION AND BACKFILL PER UDACS PLATE NO. 17.

LAS VEGAS FIRE & RESCUE APPROVAL
BY: _____ DATE: _____

APPROVAL OF THESE PLANS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR, OR AN APPROVAL OF, ANY VIOLATION OF ANY OF THE PROVISIONS OF THE STATE OR COUNTY LAWS. FIRE FLOW ---- GPM AT 20 P.S.I. RESIDUAL.

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

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

FIRE HYDRANT MARKER NOTES
BLUE COLORED REFLECTIVE RAISED PAVEMENT MARKERS ARE TO BE INSTALLED:

1. ON ROADWAYS WITH NO PARKING PERMITTED ON HYDRANT SIDE; LOCATE MAKER 8' FROM FACE OF CURB ON HYDRANT SIDE.
2. ON ROADWAYS WITH PARKING PERMITTED ON HYDRANT SIDE; LOCATE MARKER 16' FROM FACE OF CURB ON HYDRANT SIDE.

Call before you Underground
1-702-455-7511
CLARK COUNTY TRAFFIC OPERATIONS AND
1-702-229-6611
LAS VEGAS AREA COMPUTERIZED TRAFFIC SYSTEM

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

Call before you Dig
Avoid cutting underground utility lines. It's costly.
CALL 811
OR
1-800-227-2600
AND
1-702-455-6000
CLARK COUNTY TRAFFIC OPERATIONS

REV	DATE	BY	REVISION

HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
10801 W CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89135
702-791-4000

CITY OF LAS VEGAS

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH: (702) 873-7550 FAX (702) 362-2597 WEB WWW.VTNNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

UTILITY LATERAL SHEET 14

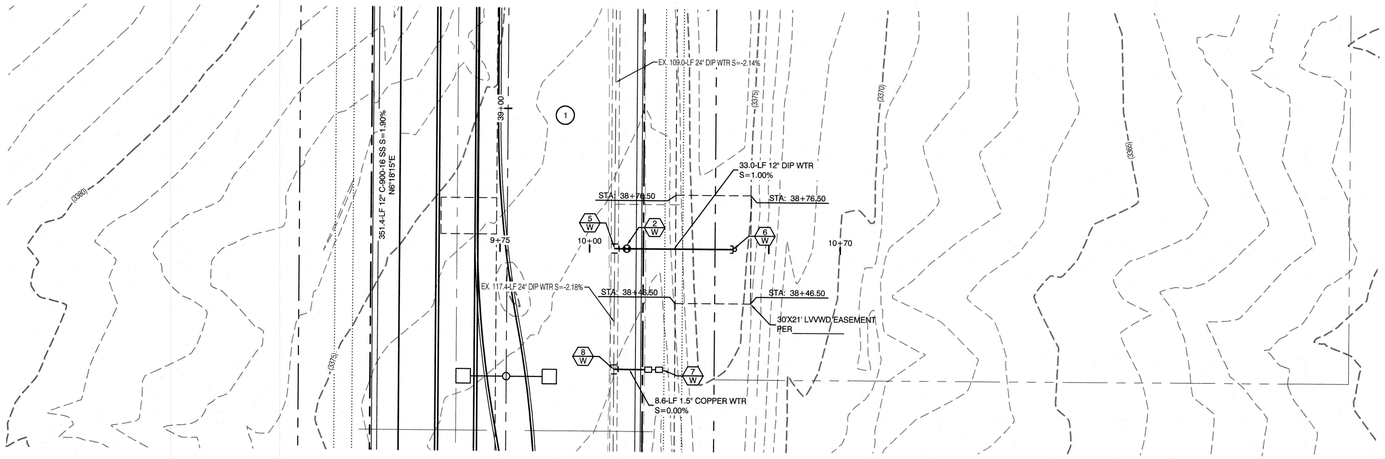
SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

DRAWN BY: BCC	08/02/2018	SCALE:	HORIZ: 1"=20' VERT: 1"=4'
DESIGNED BY: BCC	08/02/2018	CHECKED BY: WJM	01/31/2018
PROJECT NO: 7851			

PROFESSIONAL ENGINEER STATE OF NEVADA
WILLIAM J. MEYER
EXP: 12/31/19
CIVIL
No. 15745
1/31/19

SHEET
UT14
28 OF **38** SHEETS
DRAWING NO.

H:\7851\Desert Foothills-Street A to Summerlin Pkwy\Sheet Set\7851-UT LAT 2.dwg; Jan 31, 2019

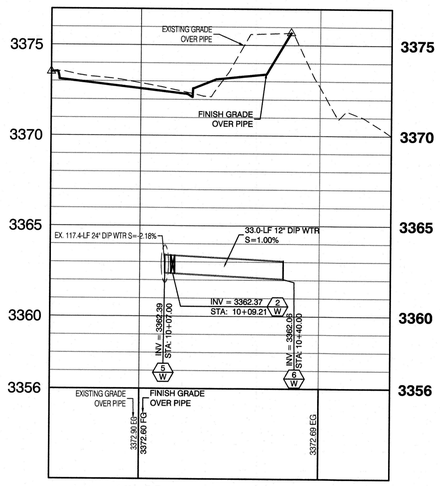


DESERT FOOTHILLS

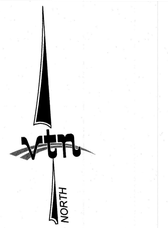
(PUBLIC)

PROFILE SCALES:

HORIZ. = 1"=20'
VERT. = 1"=4'



10+00



GRAPHIC SCALE

-20 0 10 20 40

1" = 20'

CONSTRUCTION NOTES

	WATER	PUBLIC
W	FIRE HYDRANT ASSEMBLY; INCLUDING 24"X6" TEE WITH 6" G.V. (PER UDACS PLATE 39 & 40)	3 EA.
W	12" GATE VALVE (PER UDACS PLATE 30 & 39)	9 EA.
W	12" 45° VERTICAL BEND (PER UDACS PLATE 31)	4 EA.
W	12" 45° BEND (PER UDACS PLATE 31)	6 EA.
W	24"X12" TEE (PER UDACS PLATE 31)	9 EA.
W	12" CAP & BLOW OFF (PER UDACS PLATE 36)	9 EA.
W	1.5" TYPE K SOFT COPPER WATER LATERAL SERVICE WITH 1.5" SUMMERLIN COUNCIL METER PER IRRIGATION MASTER PLAN AND UDACS PLATE #4 (IRRIGATION) AND 1.5" RPPA PER UDACS PLATE #8	2 EA.
W	24"X1.5" TEE (PER UDACS PLATE 31)	2 EA.
	6" C-900-16 WATER MAIN PER UDACS 2.06.01 & PLATE 17	109 LF.
	12" C-900-16 WATER MAIN PER UDACS 2.06.01 & PLATE 17	365 LF.
	12" DIP WATER MAIN PER UDACS 2.06.01 & PLATE 17	247 LF.
POC	WATER POINT OF CONNECTION	

	SEWER	PUBLIC
S	STANDARD MANHOLE PER SD-1A & 1B	9 EA.
	8" SDR-35 C-900-16 SANITARY SEWER MAIN	184 LF.
	12" SDR-35 C-900-16 SANITARY SEWER MAIN	1,711 LF.
POC	SEWER POINT OF CONNECTION	

UTILITY CROSSING NOTE:

ALL SEWER/STORM DRAINS CROSSING WATER LINES MUST CONFORM TO SECTION 2.22 OF UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR PORTABL WATER SYSTEMS (UDACS) FOR WATER AND STORM MAIN CROSSINGS AND CLEARANCES.

ENGINEER DISCLAIMER NOTE:

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TYPICAL WATER NOTES

1. MAINTAIN A MINIMUM OF 12-INCHES VERTICAL SEPARATION AT ALL POINTS OF UTILITY CROSSINGS.
2. MAINTAIN A MINIMUM OF 3-FEET PARALLEL SEPARATION FROM ADJACENT UTILITIES.
3. ANY EXCAVATION AT THE BACK OF A CURB MUST REMAIN OPEN FOR INSPECTION OF THE COPPER SERVICE LATERALS. ANY COPPER SERVICE LATERAL WHICH IS KINKED, BENT OR OTHERWISE DAMAGED MUST BE REPLACED FROM THE MAIN TO THE ANGLE METER STOP.
4. CAUTION MUST BE EXERCISED NEAR ANY EXCAVATION AROUND AN EXISTING FIRE HYDRANT IN ORDER TO AVOID DISTURBING THE THRUST BLOCK AND SURROUNDING SOIL SUPPORTING THE THRUST BLOCK. THIS PREVENTS THE POSSIBILITY OF THE HYDRANT SEPARATING FROM THE LATERAL. PROVIDE A DETAIL OF THE PROPOSED INSTALLATION SHOWING ADEQUATE CLEARANCES TO AVOID DISTURBING EXISTING LVVWD FACILITIES.

SIGHT VISIBILITY ZONES:

NO STRUCTURE, WALLS, VEGETATION, OR OBJECT OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

WATER LINE MARKER BALLS NOTE

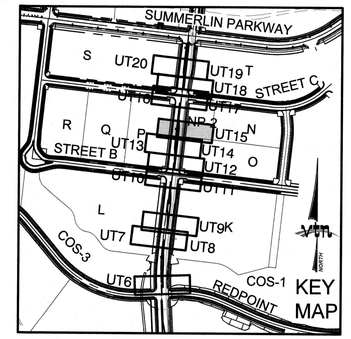
INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING, PER UDACS PLATE No. 15

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT:---- FIRST APPROVED DATE: _____;

LVVWD APPROVED FIRE FLOW: TOTAL 1500 GPM/ONSITE N/A GPM



EASEMENT REFERENCE LEGEND

(1) 60' WIDE LAS VEGAS VALLEY WATER DISTRICT EASEMENT GRANTED PER OR: 20070529:0001401.

SANITATION SEWER NOTES

1. ALL SEWER STATIONING IS BASED ON CENTER OF PIPE LENGTHS FROM MANHOLE TO MANHOLE AND IS NOT RELATIVE IN ANY WAY TO STREET CENTERLINE STATIONING. STREET CENTERLINE STATIONING IS SHOWN ON PLAN FOR ROAD REFERENCE ONLY.
2. ALL MANHOLES ARE 48" SIZED MANHOLES PER DCSWCS SD-1, UNLESS OTHERWISE NOTED ON PLAN.
3. ALL MANHOLES ARE TO BE CONSTRUCTED PER DCSWCS SD-1A AND SD-1B.
4. ALL MANHOLE COVERS AND FRAMES ARE TO BE CONSTRUCTED PER DCSWCS SD-2.
5. ALL MANHOLE COLLARS ARE TO BE CONSTRUCT PER DCSWCS SD-4.
6. ALL SEWER LATERAL CONNECTIONS TO SEWER MAINS ARET TO BE CONSTRUCTED PER DCSWCS SD-22 UNLESS OTHERWISE NOTED ON PLAN.

WATER CONSTRUCTION NOTES

ALL DIMENSIONS TO UTILITIES ARE TO CENTERLINE OF PIPE UNLESS INDICATED OTHERWISE.

CONTRACTOR SHALL VARIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

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4. SEE SHEET __ FOR PUBLIC UTILITY NOTES AND GENERAL WATER CONSTRUCTION NOTES.
5. ALL WATER LINE IN STREET RIGHT OF WAY IS PUBLIC WATER SYSTEM AND MUST BE INSPECTED BY THE LAS VEGAS VALLEY WATER DISTRICT.

WATER PRESSURE ZONE:

WATER SERVICE LOCATED IN THE 3550 PRESSURE ZONE.

WATER MAIN COVER NOTE:

ALL NEW WATER MAIN TO HAVE MINIMUM DEPTH OF COVER PER UDACS SECTION 2.08

WATERLINE TRENCH NOTE:

CONSTRUCT WATERLINE TRENCH SECTION AND BACKFILL PER UDACS PLATE NO. 17.

LAS VEGAS FIRE & RESCUE APPROVAL

BY: _____ DATE: _____.

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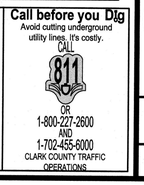
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2. ON ROADWAYS WITH PARKING PERMITTED ON HYDRANT SIDE: LOCATE MARKER 16' FROM FACE OF CURB ON HYDRANT SIDE.







REV	DATE	BY	REVISION

HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
10801 W CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89135
(702) 701-4000

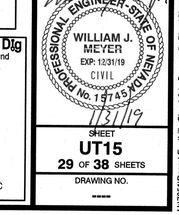
CITY OF LAS VEGAS

2707 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH. (702) 873-7550 FAX (702) 362-2597 WEB WWW.VTNNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

UTILITY LATERAL SHEET 15

SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

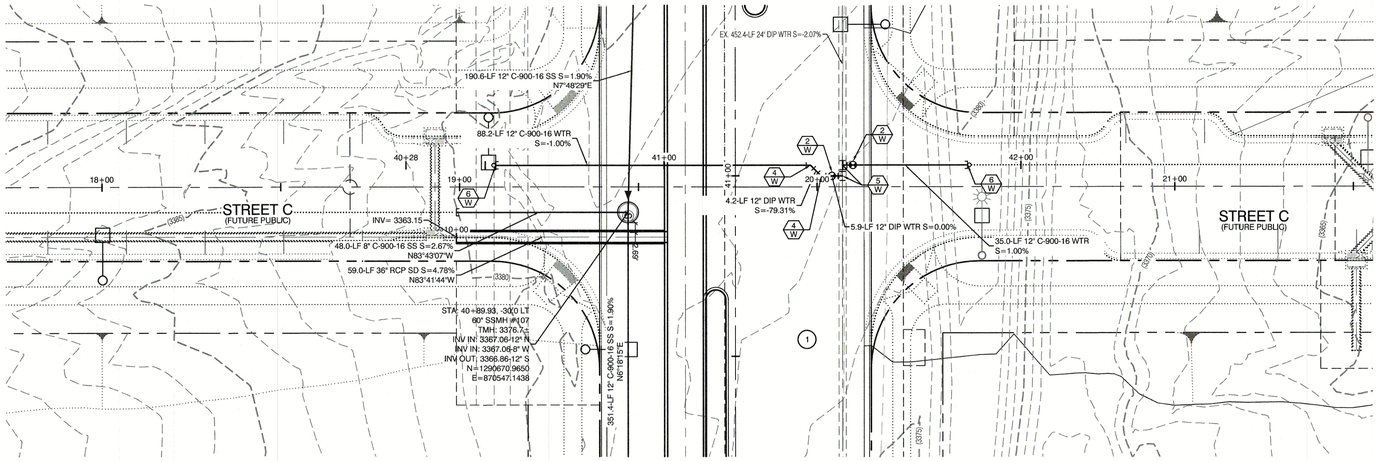
DRAWN BY: BCC — 08/02/2018
DESIGNED BY: BCC — 08/02/2018
CHECKED BY: WJM — 01/31/2018
PROJECT NO: 7851 — SCALE: 1"=20' HORIZ. 1"=4' VERT.



SHEET
UT15
29 OF **38** SHEETS

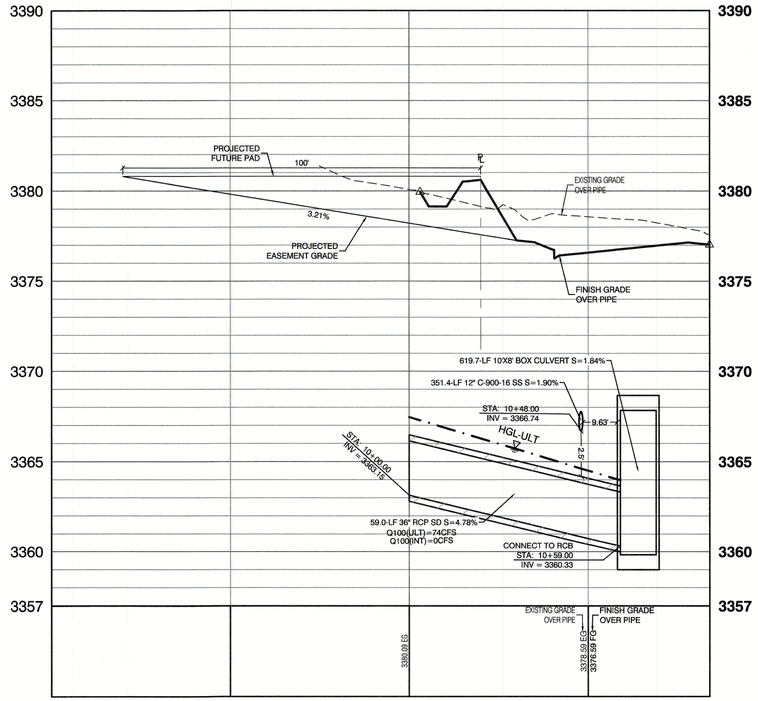
DRAWING NO.

H:\7851\Desert Foothills-Street A to Summerlin Pkwy\Sheet Set\7851-UT LAT 3.dwg, Jan 31, 2019



DESERT FOOTHILLS
(PUBLIC)

PROFILE SCALES:
HORIZ. = 1"=20'
VERT. = 1"=4'



10+00

GRAPHIC SCALE
-20 0 10 20 40
1" = 20'

CONSTRUCTION NOTES

	WATER	PUBLIC
	FIRE HYDRANT ASSEMBLY: INCLUDING 24"X6" TEE WITH 6" G.V. (PER UDACS PLATE 39 & 40)	3 EA.
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	12" CAP & BLOW OFF (PER UDACS PLATE 36)	9 EA.
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	24"X1.5" TEE (PER UDACS PLATE 31)	2 EA.
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POC	WATER POINT OF CONNECTION	

	SEWER	PUBLIC
S	STANDARD MANHOLE PER SD-1A & 1B	9 EA.
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POC	SEWER POINT OF CONNECTION	

UTILITY CROSSING NOTE:
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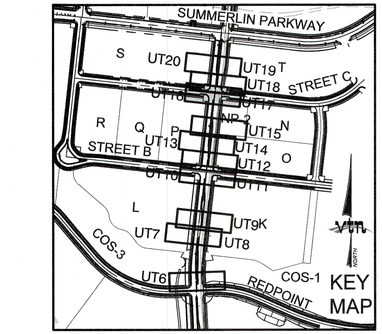
WATER LINE MARKER BALLS NOTE
INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING, PER UDACS PLATE No. 15

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT:136301 FIRST APPROVED DATE:

LVVWD APPROVED FIRE FLOW: TOTAL 1500 GPM/ONSITE N/A GPM



EASEMENT REFERENCE LEGEND
(1) 50' WIDE LAS VEGAS VALLEY WATER DISTRICT EASEMENT GRANTED PER OR: 20070529:0001401.

SANITATION SEWER NOTES
1. ALL SEWER STATIONING IS BASED ON CENTER OF PIPE LENGTHS FROM MANHOLE TO MANHOLE AND IS NOT RELATIVE IN ANY WAY TO STREET CENTERLINE STATIONING. STREET CENTERLINE STATIONING IS SHOWN ON PLAN FOR ROAD REFERENCE ONLY.
2. ALL MANHOLES ARE 48" SIZED MANHOLES PER DCSWCS SD-1, UNLESS OTHERWISE NOTED ON PLAN.
3. ALL MANHOLES ARE TO BE CONSTRUCTED PER DCSWCS SD-1A AND SD-1B.
4. ALL MANHOLE COVERS AND FRAMES ARE TO BE CONSTRUCTED PER DCSWCS SD-2.
5. ALL MANHOLE COLLARS ARE TO BE CONSTRUCT PER DCSWCS SD-4.
6. ALL SEWER LATERAL CONNECTIONS TO SEWER MAINS ARET TO BE CONSTRUCTED PER DCSWCS SD-22 UNLESS OTHERWISE NOTED ON PLAN.

WATER CONSTRUCTION NOTES
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WATER PRESSURE ZONE:
WATER SERVICE LOCATED IN THE 3550 PRESSURE ZONE.

WATER MAIN COVER NOTE:
ALL NEW WATER MAIN TO HAVE MINIMUM DEPTH OF COVER PER UDACS SECTION 2.08

WATERLINE TRENCH NOTE:
CONSTRUCT WATERLINE TRENCH SECTION AND BACKFILL PER UDACS PLATE NO. 17.

LAS VEGAS FIRE & RESCUE APPROVAL
BY: _____ DATE: _____

APPROVAL OF THESE PLANS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR, OR AN APPROVAL OF, ANY VIOLATION OF ANY OF THE PROVISIONS OF THE STATE OR COUNTY LAWS. FIRE FLOW 1500 GPM AT 20 P.S.I. RESIDUAL.

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

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BLUE COLORED REFLECTIVE RAISED PAVEMENT MARKERS ARE TO BE INSTALLED:
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2. ON ROADWAYS WITH PARKING PERMITTED ON HYDRANT SIDE; LOCATE MARKER 16' FROM FACE OF CURB ON HYDRANT SIDE.



HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
10801 W CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89135
702-791-4500

CITY OF LAS VEGAS

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH. (702) 873-7550 FAX (702) 362-2697 WEB WWW.VTNNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

REV	DATE	BY	REVISION

UTILITY LATERAL SHEET 16

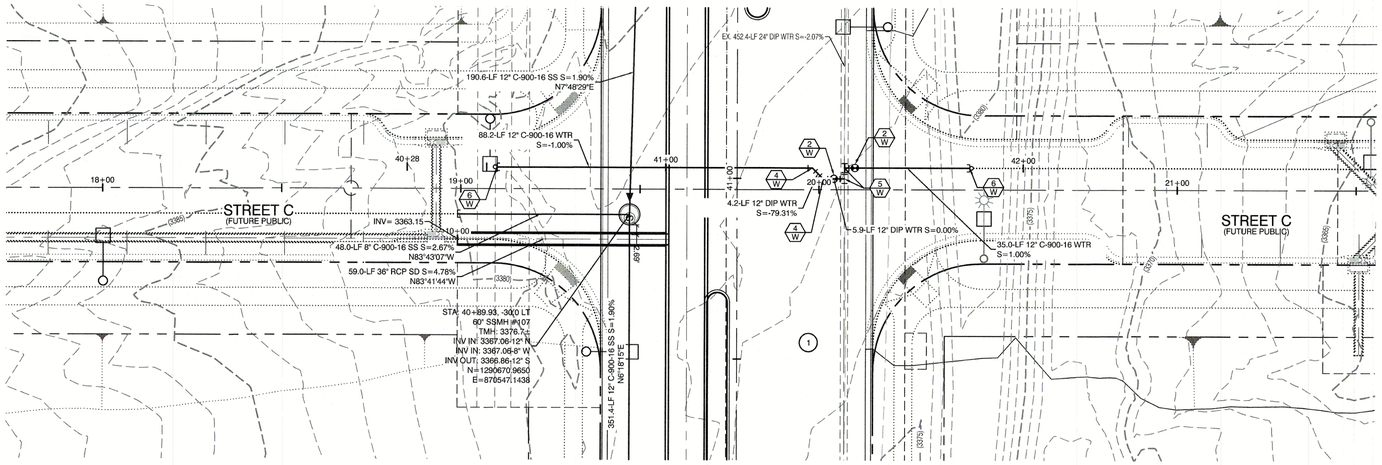
SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

DRAWN BY: BCC 10/10/2018
DESIGNED BY: BCC 10/10/2018
CHECKED BY: WJM 02/26/2018
PROJECT NO: 7851
SCALE: N/A HORIZ. N/A VERT.

PROFESSIONAL ENGINEER STATE OF NEVADA
WILLIAM J. MEYER
EXP: 12/31/19
No. 15745
CIVIL
2/12/19

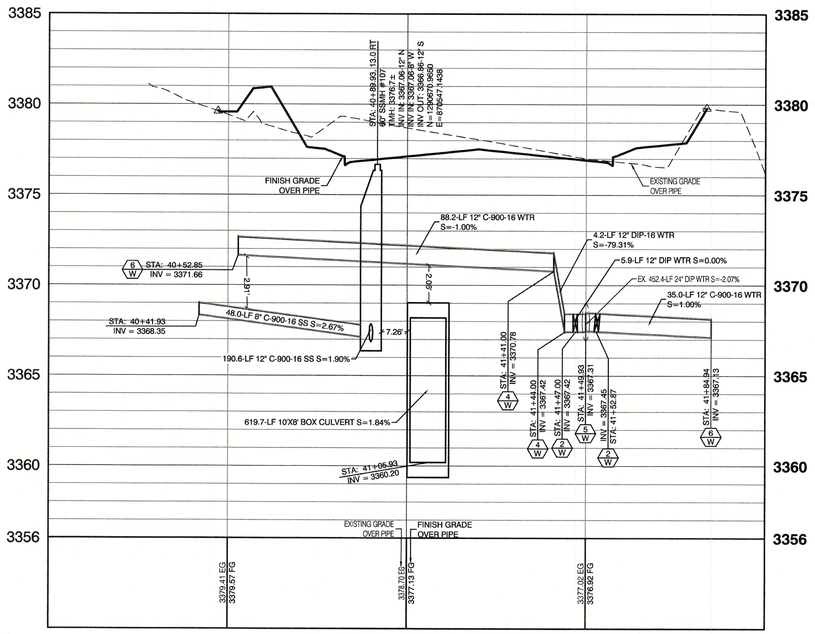
SHEET
UT16
30 OF 38 SHEETS
DRAWING NO.

H:\7851\Desert Foothills-Sheet A to Summerlin Pkwy\Sheet Set\7851-UT LAT 3.dwg, Feb 12, 2019



DESERT FOOTHILLS
(PUBLIC)

PROFILE SCALES:
HORIZ. = 1"=20'
VERT. = 1"=4'



41+00



GRAPHIC SCALE
-20 0 10 20 40
1" = 20'

CONSTRUCTION NOTES

	WATER	PUBLIC
	FIRE HYDRANT ASSEMBLY: INCLUDING 24"X6" TEE WITH 6" G.V. (PER UDACS PLATE 39 & 40)	3 EA.
	12" GATE VALVE (PER UDACS PLATE 30 & 39)	9 EA.
	12" 45° VERTICAL BEND (PER UDACS PLATE 31)	4 EA.
	12" 45° BEND (PER UDACS PLATE 31)	6 EA.
	24"X12" TEE (PER UDACS PLATE 31)	9 EA.
	12" CAP & BLOW OFF (PER UDACS PLATE 36)	9 EA.
	1.5" TYPE K SOFT COPPER WATER LATERAL SERVICE WITH 1.5" SUMMERLIN COUNCIL METER PER IRRIGATION MASTER PLAN AND UDACS PLATE #4 (IRRIGATION) AND 1.5" RPPA PER UDACS PLATE #8	2 EA.
	24"X1.5" TEE (PER UDACS PLATE 31)	2 EA.
	6" C-900-16 WATER MAIN PER UDACS 2.06.01 & PLATE 17	109 LF.
	12" C-900-16 WATER MAIN PER UDACS 2.06.01 & PLATE 17	365 LF.
	12" DIP WATER MAIN PER UDACS 2.06.01 & PLATE 17	247 LF.
	WATER POINT OF CONNECTION	
	SEWER	**PUBLIC**
	STANDARD MANHOLE PER SD-1A & 1B	9 EA.
	8" SDR-35 C-900-16 SANITARY SEWER MAIN	184 LF.
	12" SDR-35 C-900-16 SANITARY SEWER MAIN	1,711 LF.
	SEWER POINT OF CONNECTION	

UTILITY CROSSING NOTE:
ALL SEWER/STORM DRAINS CROSSING WATER LINES MUST CONFORM TO SECTION 2.22 OF UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR PORTABL WATER SYSTEMS (UDACS) FOR WATER AND STORM MAIN CROSSINGS AND CLEARANCES.

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TYPICAL WATER NOTES
1. MAINTAIN A MINIMUM OF 12-INCHES VERTICAL SEPARATION AT ALL POINTS OF UTILITY CROSSINGS.
2. MAINTAIN A MINIMUM OF 3-FEET PARALLEL SEPARATION FROM ADJACENT UTILITIES.

   ANY EXCAVATION AT THE BACK OF A CURB MUST REMAIN OPEN FOR INSPECTION OF THE COPPER SERVICE
3. LATERALS. ANY COPPER SERVICE LATERAL WHICH IS KINKED, BENT OR OTHERWISE DAMAGED MUST BE REPLACED FROM THE MAIN TO THE ANGLE METER STOP.

   CAUTION MUST BE EXERCISED NEAR ANY EXCAVATION AROUND AN EXISTING FIRE HYDRANT IN ORDER TO AVOID DISTURBING THE THRUST BLOCK AND SURROUNDING SOIL
4. SUPPORTING THE THRUST BLOCK. THIS PREVENTS THE POSSIBILITY OF THE HYDRANT SEPARATING FROM THE LATERAL. PROVIDE A DETAIL OF THE PROPOSED INSTALLATION SHOWING ADEQUATE CLEARANCES TO AVOID DISTURBING EXISTING LVVWD FACILITIES.

SIGHT VISIBILITY ZONES:
NO STRUCTURE, WALLS, VEGETATION, OR OBJECT OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

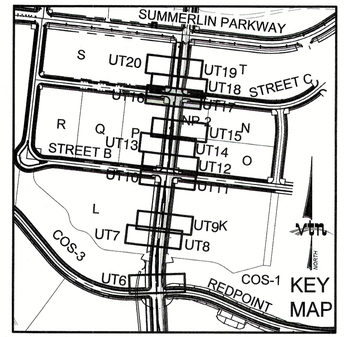
WATER LINE MARKER BALLS NOTE
INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING, PER UDACS PLATE No. 15

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT: 136301 FIRST APPROVED DATE:

LVVWD APPROVED FIRE FLOW: TOTAL 1500 GPM/ONSITE N/A GPM



EASEMENT REFERENCE LEGEND
(1) 50' WIDE LAS VEGAS VALLEY WATER DISTRICT EASEMENT GRANTED PER OR: 20070529:0001401.

SANITATION SEWER NOTES
1. ALL SEWER STATIONING IS BASED ON CENTER OF PIPE LENGTHS FROM MANHOLE TO MANHOLE AND IS NOT RELATIVE IN ANY WAY TO STREET CENTERLINE STATIONING. STREET CENTERLINE STATIONING IS SHOWN ON PLAN FOR ROAD REFERENCE ONLY.
2. ALL MANHOLES ARE 48" SIZED MANHOLES PER DCSWCS SD-1, UNLESS OTHERWISE NOTED ON PLAN.
3. ALL MANHOLES ARE TO BE CONSTRUCTED PER DCSWCS SD-1A AND SD-1B.
4. ALL MANHOLE COVERS AND FRAMES ARE TO BE CONSTRUCTED PER DCSWCS SD-2.
5. ALL MANHOLE COLLARS ARE TO BE CONSTRUCT PER DCSWCS SD-4.
6. ALL SEWER LATERAL CONNECTIONS TO SEWER MAINS ARET TO BE CONSTRUCTED PER DCSWCS SD-22 UNLESS OTHERWISE NOTED ON PLAN.

WATER CONSTRUCTION NOTES
ALL DIMENSIONS TO UTILITIES ARE TO CENTERLINE OF PIPE UNLESS INDICATED OTHERWISE.

CONTRACTOR SHALL VARIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

ALL EXISTING UTILITY STRUCTURES WITHIN CONSTRUCTION AREA SHALL BE ADJUSTED TO MATCH FINISH GRADE (I.E. WV. BOX, MH, ANNODE BOX, FH, TEL BOX, ETC.)

1. WATER LINE STATIONING IS BASED ON THE CENTERLINE OF STREET RIGHT OF WAY
2. WATER LINE SHALL BE C-900 PVC APPROVED BY THE LAS VEGAS VALLEY WATER DISTRICT.
3. EXISTING ASPHALT SHALL BE REMOVED AND REPLACED PER CITY OF LAS VEGAS SPECIFICATIONS. BACKFILL AND INSTALL PERMANENT PATCH PER CITY STANDARD FOR THIS PLAN.
4. SEE SHEET NT FOR PUBLIC UTILITY NOTES AND GENERAL WATER CONSTRUCTION NOTES.
5. ALL WATER LINE IN STREET RIGHT OF WAY IS PUBLIC WATER SYSTEM AND MUST BE INSPECTED BY THE LAS VEGAS VALLEY WATER DISTRICT.

WATER PRESSURE ZONE:
WATER SERVICE LOCATED IN THE 3550 PRESSURE ZONE.

WATER MAIN COVER NOTE:
ALL NEW WATER MAIN TO HAVE MINIMUM DEPTH OF COVER PER UDACS SECTION 2.08

WATERLINE TRENCH NOTE:
CONSTRUCT WATERLINE TRENCH SECTION AND BACKFILL PER UDACS PLATE NO. 17.

LAS VEGAS FIRE & RESCUE APPROVAL
BY: _____ DATE: _____

APPROVAL OF THESE PLANS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR, OR AN APPROVAL OF, ANY VIOLATION OF ANY OF THE PROVISIONS OF THE STATE OR COUNTY LAWS. FIRE FLOW 1500 GPM AT 20 P.S.I. RESIDUAL.

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

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

FIRE HYDRANT MARKER NOTES
BLUE COLORED REFLECTIVE RAISED PAVEMENT MARKERS ARE TO BE INSTALLED:

1. ON ROADWAYS WITH NO PARKING PERMITTED ON HYDRANT SIDE; LOCATE MAKER 8' FROM FACE OF CURB ON HYDRANT SIDE.
2. ON ROADWAYS WITH PARKING PERMITTED ON HYDRANT SIDE; LOCATE MARKER 16' FROM FACE OF CURB ON HYDRANT SIDE.



AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.
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1-702-227-2929
Call before you Dig
Avoid cutting underground utility lines. It's costly.
CALL 811
OR
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AND
1-702-455-6000
CLARK COUNTY TRAFFIC OPERATIONS

HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
10801 W CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89135
702-791-4000

CITY OF LAS VEGAS

VTN
2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH. (702) 873-7550 FAX (702) 382-2597 WEB WWW.VTNNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

REV	DATE	BY	REVISION

UTILITY LATERAL SHEET 17

SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

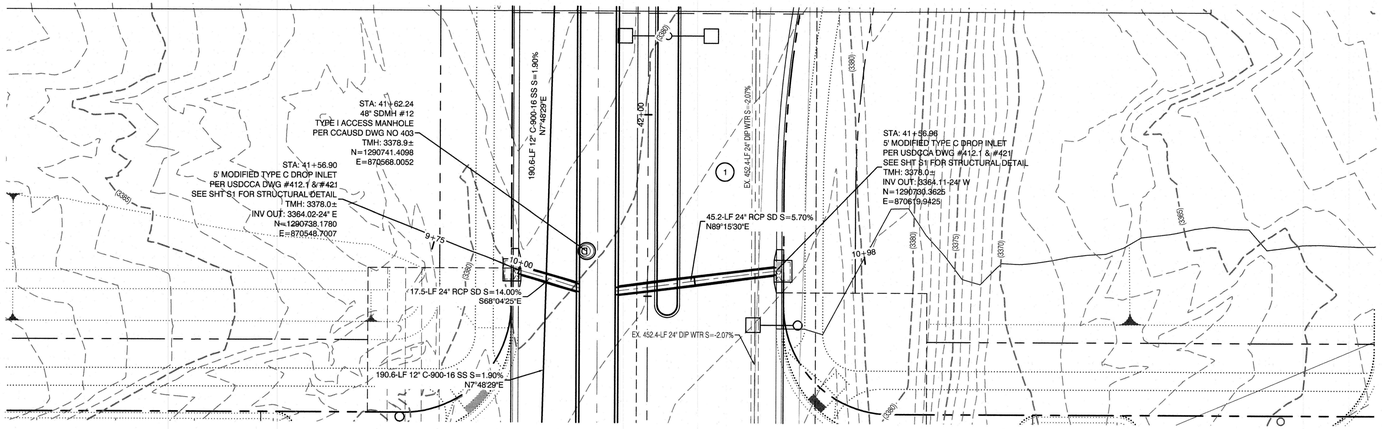
DRAWN BY: BCC	08/02/2018			
DESIGNED BY: BCC	08/02/2018	CHECKED BY: WJM	02/06/2018	SCALE: 1"=20' HORIZ. 1"=4' VERT.
		PROJECT NO: 7951		

PROFESSIONAL ENGINEER STATE OF NEVADA
WILLIAM J. MEYER
EXP: 12/31/19
CIVIL
No. 15745
2/12/19

SHEET
UT17
31 OF 38 SHEETS

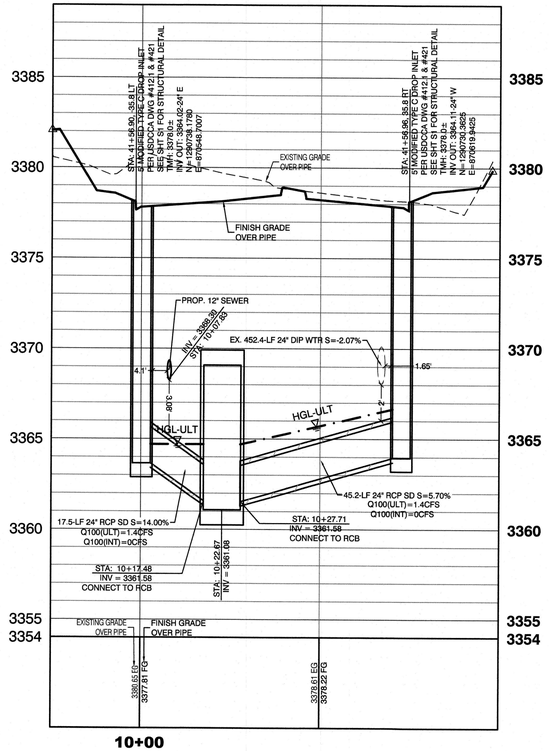
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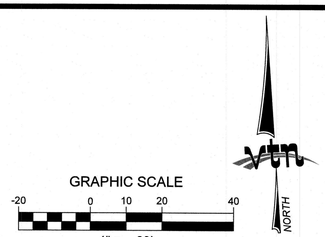
H:\7951\Desert Foothills-Sheet A to Summerlin Pkwy\Sheet Set\7951-UT LAT 3.dwg, Feb 12, 2019



DESERT FOOTHILLS
(PUBLIC)

PROFILE SCALES:
HORIZ. = 1"=20'
VERT. = 1"=4'





CONSTRUCTION NOTES

	WATER	PUBLIC
	FIRE HYDRANT ASSEMBLY: INCLUDING 24"X6" TEE WITH 6" G.V. (PER UDACS PLATE 39 & 40)	3 EA.
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	1.5" TYPE K SOFT COPPER WATER LATERAL SERVICE WITH 1.5" SUMMERLIN COUNCIL METER PER IRRIGATION MASTER PLAN AND UDACS PLATE #4 (IRRIGATION) AND 1.5" RPPA PER UDACS PLATE #6	2 EA.
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	12" C-900-16 WATER MAIN PER UDACS 2.06.01 & PLATE 17	365 LF.
	12" DIP WATER MAIN PER UDACS 2.06.01 & PLATE 17	247 LF.
POC	WATER POINT OF CONNECTION	

	SEWER	PUBLIC
S	STANDARD MANHOLE PER SD-1A & 1B	9 EA.
	8" SDR-35 C-900-16 SANITARY SEWER MAIN	184 LF.
	12" SDR-35 C-900-16 SANITARY SEWER MAIN	1,711 LF.
POC	SEWER POINT OF CONNECTION	

UTILITY CROSSING NOTE:

ALL SEWER/STORM DRAINS CROSSING WATER LINES MUST CONFORM TO SECTION 2.22 OF UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR PORTABL WATER SYSTEMS (UDACS) FOR WATER AND STORM MAIN CROSSINGS AND CLEARANCES.

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   CAUTION MUST BE EXERCISED NEAR ANY EXCAVATION AROUND AN EXISTING FIRE HYDRANT IN ORDER TO AVOID DISTURBING THE THRUST BLOCK AND SURROUNDING SOIL SUPPORTING THE THRUST BLOCK. THIS PREVENTS THE POSSIBILITY OF THE HYDRANT SEPARATING FROM THE LATERAL. PROVIDE A DETAIL OF THE PROPOSED INSTALLATION SHOWING ADEQUATE CLEARANCES TO AVOID DISTURBING EXISTING LVVWD FACILITIES.
4.

SIGHT VISIBILITY ZONES:

NO STRUCTURE, WALLS, VEGETATION, OR OBJECT OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

WATER LINE MARKER BALLS NOTE

INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING, PER UDACS PLATE No. 15

EASEMENT REFERENCE LEGEND

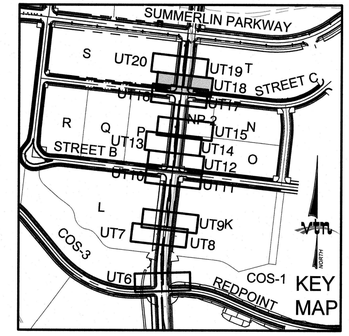
(1) 50' WIDE LAS VEGAS VALLEY WATER DISTRICT EASEMENT GRANTED PER OR: 20070529:00001401.

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT:---- FIRST APPROVED DATE:_____

LVVWD APPROVED FIRE FLOW: TOTAL 1500 GPM/ONSITE N/A GPM



STORM DRAIN DROP INLET NOTE:

ALL STORM DRAIN INLETS SHALL INCLUDE A STORM WATER INLET CONCRETE STAMP IN ACCORDANCE WITH CCAUSD DWG NO. 421

SANITATION SEWER NOTES

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3. ALL MANHOLES ARE TO BE CONSTRUCTED PER DCSWCS SD-1A AND SD-1B.
4. ALL MANHOLE COVERS AND FRAMES ARE TO BE CONSTRUCTED PER DCSWCS SD-2.
5. ALL MANHOLE COLLARS ARE TO BE CONSTRUCT PER DCSWCS SD-4.
6 ALL SEWER LATERAL CONNECTIONS TO SEWER MAINS ARET TO BE CONSTRUCTED PER DCSWCS SD-22 UNLESS OTHERWISE NOTED ON PLAN.

WATER CONSTRUCTION NOTES

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WATER PRESSURE ZONE:

WATER SERVICE LOCATED IN THE 3550 PRESSURE ZONE.

WATER MAIN COVER NOTE:

ALL NEW WATER MAIN TO HAVE MINIMUM DEPTH OF COVER PER UDACS SECTION 2.08

WATERLINE TRENCH NOTE:

CONSTRUCT WATERLINE TRENCH SECTION AND BACKFILL PER UDACS PLATE NO. 17.

LAS VEGAS FIRE & RESCUE APPROVAL

BY: _____ DATE: _____.

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HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
10801 W CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89135
702-791-4000

CITY OF LAS VEGAS

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH. (702) 873-7550 FAX (702) 362-2597 WEB WWW.VTNNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

REV	DATE	BY	REVISION

UTILITY LATERAL SHEET 18

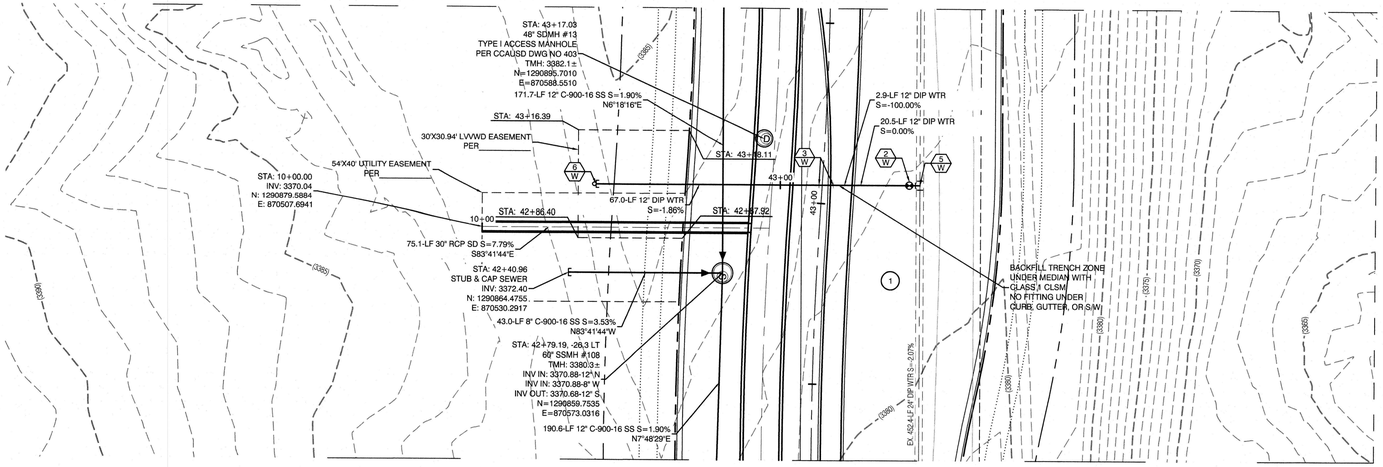
SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

DRAWN BY:	DESIGNED BY:	CHECKED BY:	PROJECT NO:	SCALE:
BCC	BCC	VUM	7851	HORIZ. 1"=20' VERT. 1"=4'
08/02/2018	08/02/2018	01/31/2018		

PROFESSIONAL ENGINEER STATE OF NEVADA
WILLIAM J. MEYER
EXP: 12/31/19
CIVIL
No. 16745
1/31/19

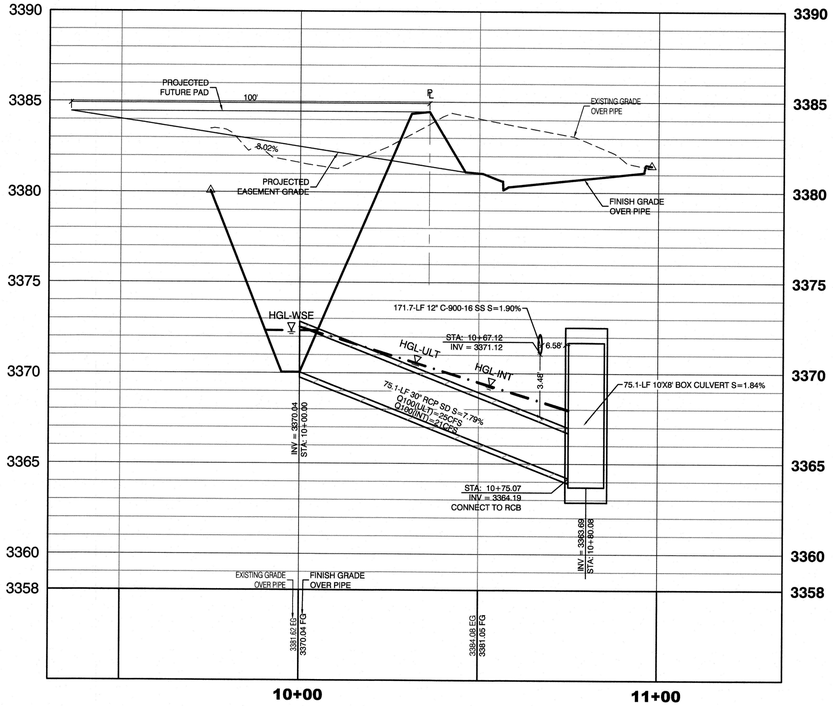
SHEET
UT18
32 OF **38** SHEETS
DRAWING NO.

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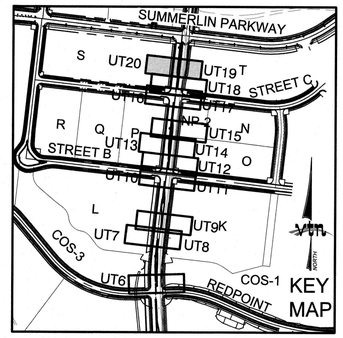
DESERT FOOTHILLS
(PUBLIC)

PROFILE SCALES:
HORIZ. = 1"=20'
VERT. = 1"=4'



GRAPHIC SCALE
-20 0 10 20 40
1" = 20'

NORTH



CONSTRUCTION NOTES

	WATER	PUBLIC
	FIRE HYDRANT ASSEMBLY: INCLUDING 24"X6" TEE WITH 6" G.V. (PER UDACS PLATE 39 & 40)	3 EA.
	12" GATE VALVE (PER UDACS PLATE 30 & 39)	9 EA.
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	12" DIP WATER MAIN PER UDACS 2.06.01 & PLATE 17	247 LF.
	WATER POINT OF CONNECTION	

	SEWER	PUBLIC
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	12" SDR-35 C-900-16 SANITARY SEWER MAIN	1,711 LF.
	SEWER POINT OF CONNECTION	

UTILITY CROSSING NOTE:

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TYPICAL WATER NOTES

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3. ANY EXCAVATION AT THE BACK OF A CURB MUST REMAIN OPEN FOR INSPECTION OF THE COPPER SERVICE LATERALS. ANY COPPER SERVICE LATERAL WHICH IS KINKED, BENT OR OTHERWISE DAMAGED MUST BE REPLACED FROM THE MAIN TO THE ANGLE METER STOP.
4. CAUTION MUST BE EXERCISED NEAR ANY EXCAVATION AROUND AN EXISTING FIRE HYDRANT IN ORDER TO AVOID DISTURBING THE THRUST BLOCK AND SURROUNDING SOIL SUPPORTING THE THRUST BLOCK. THIS PREVENTS THE POSSIBILITY OF THE HYDRANT SEPARATING FROM THE LATERAL. PROVIDE A DETAIL OF THE PROPOSED INSTALLATION SHOWING ADEQUATE CLEARANCES TO AVOID DISTURBING EXISTING LVVWD FACILITIES.

SIGHT VISIBILITY ZONES:

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WATER LINE MARKER BALLS NOTE

INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING, PER UDACS PLATE No. 15

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT:---- FIRST APPROVED DATE:

LVVWD APPROVED FIRE FLOW: TOTAL 1500 GPM/ONSITE N/A GPM

EASEMENT REFERENCE LEGEND

1. 50' WIDE LAS VEGAS VALLEY WATER DISTRICT EASEMENT GRANTED PER OR: 20070529:0001401.

SANITATION SEWER NOTES

1. ALL SEWER STATIONING IS BASED ON CENTER OF PIPE LENGTHS FROM MANHOLE TO MANHOLE AND IS NOT RELATIVE IN ANY WAY TO STREET CENTERLINE STATIONING. STREET CENTERLINE STATIONING IS SHOWN ON PLAN FOR ROAD REFERENCE ONLY.
2. ALL MANHOLES ARE 48" SIZED MANHOLES PER DCSWCS SD-1, UNLESS OTHERWISE NOTED ON PLAN.
3. ALL MANHOLES ARE TO BE CONSTRUCTED PER DCSWCS SD-1A AND SD-1B.
4. ALL MANHOLE COVERS AND FRAMES ARE TO BE CONSTRUCTED PER DCSWCS SD-2.
5. ALL MANHOLE COLLARS ARE TO BE CONSTRUCT PER DCSWCS SD-4.
6. ALL SEWER LATERAL CONNECTIONS TO SEWER MAINS ARET TO BE CONSTRUCTED PER DCSWCS SD-22 UNLESS OTHERWISE NOTED ON PLAN.

WATER CONSTRUCTION NOTES

ALL DIMENSIONS TO UTILITIES ARE TO CENTERLINE OF PIPE UNLESS INDICATED OTHERWISE.

CONTRACTOR SHALL VARIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

ALL EXISTING UTILITY STRUCTURES WITHIN CONSTRUCTION AREA SHALL BE ADJUSTED TO MATCH FINISH GRADE (I.E. WV. BOX, MH, ANNODE BOX, FH, TEL BOX, ETC.)

1. WATER LINE STATIONING IS BASED ON THE CENTERLINE OF STREET RIGHT OF WAY
2. WATER LINE SHALL BE C-900 PVC APPROVED BY THE LAS VEGAS VALLEY WATER DISTRICT.
3. EXISTING ASPHALT SHALL BE REMOVED AND REPLACED PER CITY OF LAS VEGAS SPECIFICATIONS. BACKFILL AND INSTALL PERMANENT PATCH PER CITY STANDARD FOR THIS PLAN.
4. SEE SHEET __ FOR PUBLIC UTILITY NOTES AND GENERAL WATER CONSTRUCTION NOTES.
5. ALL WATER LINE IN STREET RIGHT OF WAY IS PUBLIC WATER SYSTEM AND MUST BE INSPECTED BY THE LAS VEGAS VALLEY WATER DISTRICT.

WATER PRESSURE ZONE:

WATER SERVICE LOCATED IN THE 3550 PRESSURE ZONE.

WATER MAIN COVER NOTE:

ALL NEW WATER MAIN TO HAVE MINIMUM DEPTH OF COVER PER UDACS SECTION 2.08

WATERLINE TRENCH NOTE:

CONSTRUCT WATERLINE TRENCH SECTION AND BACKFILL PER UDACS PLATE NO. 17.

LAS VEGAS FIRE & RESCUE APPROVAL

BY: _____ DATE: _____

APPROVAL OF THESE PLANS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR, OR AN APPROVAL OF, ANY VIOLATION OF ANY OF THE PROVISIONS OF THE STATE OR COUNTY LAWS. FIRE FLOW ---- GPM AT 20 P.S.I. RESIDUAL.

WATER MAIN JOINT DEFLECTION

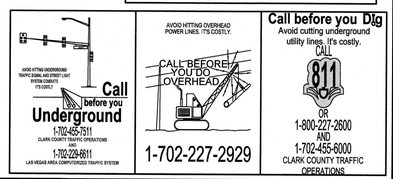
PVC PIPE SHALL BE DEFLECTED AT THE JOINT ONLY. THE MAXIMUM ALLOWABLE DEFLECTION SHALL BE ONE (1) DEGREE PER JOINT WITH A MINIMUM RADIUS OF CURVATURE OF 1,150 FEET, PER UDACS 2.07.01 AND 2.07.02.

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

FIRE HYDRANT MARKER NOTES

BLUE COLORED REFLECTIVE RAISED PAVEMENT MARKERS ARE TO BE INSTALLED:

1. ON ROADWAYS WITH NO PARKING PERMITTED ON HYDRANT SIDE; LOCATE MAKER 8' FROM FACE OF CURB ON HYDRANT SIDE.
2. ON ROADWAYS WITH PARKING PERMITTED ON HYDRANT SIDE; LOCATE MARKER 16' FROM FACE OF CURB ON HYDRANT SIDE.



REV	DATE	BY	REVISION

HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
10801 W CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89135
702-791-4000

CITY OF LAS VEGAS

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH. (702) 873-7550 FAX (702) 362-2597 WEB WWW.VTNNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

UTILITY LATERAL SHEET 19

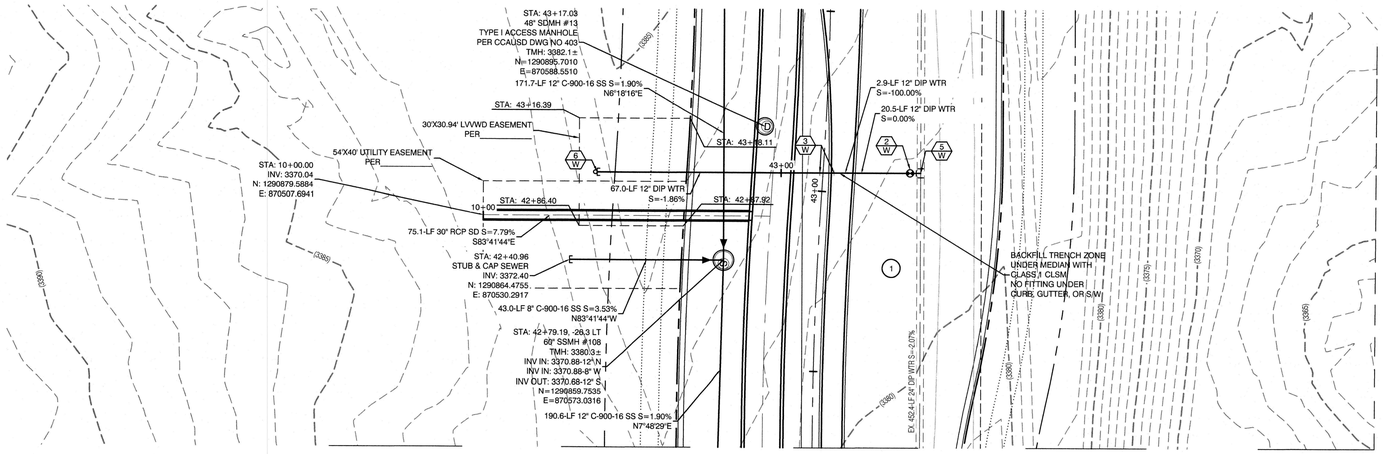
SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

DRAWN BY: BCC
DESIGNED BY: BCC
CHECKED BY: WJM
PROJECT NO: 7851
DATE: 08/02/2018 | 08/02/2018 | 01/31/2018
SCALE: 1"=20' HORIZ. | 1"=4' VERT.

PROFESSIONAL ENGINEER - STATE OF NEVADA
WILLIAM J. MEYER
EXP: 12/31/19
CIVIL
No. 15745
1/31/19

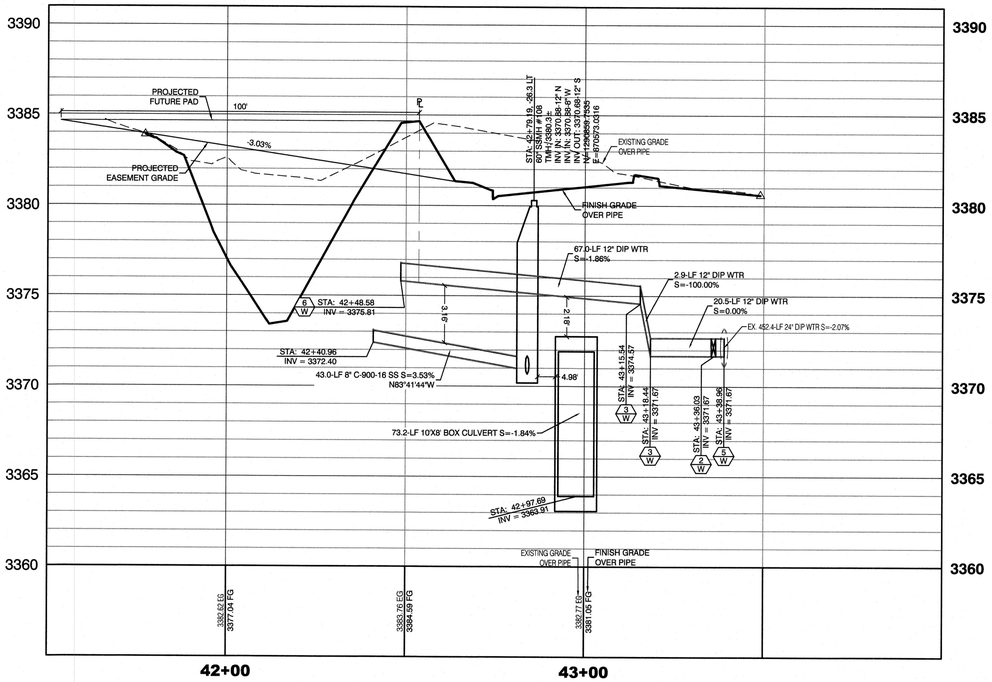
SHEET
UT19
33 OF **38** SHEETS
DRAWING NO.

H:\7851\Desert Foothills Sheet A to Summerlin Pkwy\Sheet Set\7851-UT LAT 3.dwg, Jan 31, 2019



DESERT FOOTHILLS
(PUBLIC)

PROFILE SCALES:
HORIZ. = 1"=20'
VERT. = 1"=4'



GRAPHIC SCALE
-20 0 10 20 40
1" = 20'

NORTH

CONSTRUCTION NOTES

	WATER	PUBLIC
	FIRE HYDRANT ASSEMBLY: INCLUDING 24"X6" TEE WITH 6" G.V. (PER UDACS PLATE 39 & 40)	3 EA.
	12" GATE VALVE (PER UDACS PLATE 30 & 39)	9 EA.
	12" 45° VERTICAL BEND (PER UDACS PLATE 31)	4 EA.
	12" 45° BEND (PER UDACS PLATE 31)	6 EA.
	24"X12" TEE (PER UDACS PLATE 31)	9 EA.
	12" CAP & BLOW OFF (PER UDACS PLATE 36)	9 EA.
	1.5" TYPE K SOFT COPPER WATER LATERAL SERVICE WITH 1.5" SUMMERLIN COUNCIL METER PER IRRIGATION MASTER PLAN AND UDACS PLATE #4 (IRRIGATION) AND 1.5" RPPA PER UDACS PLATE #8	2 EA.
	24"X1.5" TEE (PER UDACS PLATE 31)	2 EA.
	6" C-900-16 WATER MAIN PER UDACS 2.06.01 & PLATE 17	109 LF.
	12" C-900-16 WATER MAIN PER UDACS 2.06.01 & PLATE 17	365 LF.
	12" DIP WATER MAIN PER UDACS 2.06.01 & PLATE 17	247 LF.
POC	WATER POINT OF CONNECTION	

	SEWER	PUBLIC
S	STANDARD MANHOLE PER SD-1A & 1B	9 EA.
	8" SDR-35 C-900-16 SANITARY SEWER MAIN	184 LF.
	12" SDR-35 C-900-16 SANITARY SEWER MAIN	1,711 LF.
POC	SEWER POINT OF CONNECTION	

UTILITY CROSSING NOTE:

ALL SEWER/STORM DRAINS CROSSING WATER LINES MUST CONFORM TO SECTION 2.22 OF UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR PORTABL WATER SYSTEMS (UDACS) FOR WATER AND STORM MAIN CROSSINGS AND CLEARANCES.

ENGINEER DISCLAIMER NOTE:

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

TYPICAL WATER NOTES

1. MAINTAIN A MINIMUM OF 12-INCHES VERTICAL SEPARATION AT ALL POINTS OF UTILITY CROSSINGS.
2. MAINTAIN A MINIMUM OF 3-FEET PARALLEL SEPARATION FROM ADJACENT UTILITIES.
3. ANY EXCAVATION AT THE BACK OF A CURB MUST REMAIN OPEN FOR INSPECTION OF THE COPPER SERVICE LATERALS. ANY COPPER SERVICE LATERAL WHICH IS KINKED, BENT OR OTHERWISE DAMAGED MUST BE REPLACED FROM THE MAIN TO THE ANGLE METER STOP.

   CAUTION MUST BE EXERCISED NEAR ANY EXCAVATION AROUND AN EXISTING FIRE HYDRANT IN ORDER TO AVOID DISTURBING THE THRUST BLOCK AND SURROUNDING SOIL SUPPORTING THE THRUST BLOCK. THIS PREVENTS THE POSSIBILITY OF THE HYDRANT SEPARATING FROM THE LATERAL. PROVIDE A DETAIL OF THE PROPOSED INSTALLATION SHOWING ADEQUATE CLEARANCES TO AVOID DISTURBING EXISTING LVVWD FACILITIES.

SIGHT VISIBILITY ZONES:

NO STRUCTURE, WALLS, VEGETATION, OR OBJECT OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

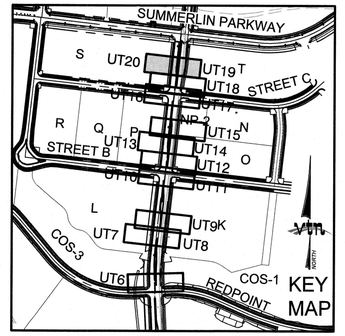
WATER LINE MARKER BALLS NOTE

INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING, PER UDACS PLATE No. 15

Call before you Dig Underground
1-702-455-7511
CLARK COUNTY TRAFFIC OPERATIONS
1-702-229-6811
LAS VEGAS AREA COMPUTERIZED TRAFFIC SYSTEM

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

Call before you Dig
Avoid cutting underground utility lines. It's costly.
CALL 811
OR
1-800-227-2600
AND
1-702-455-6000
CLARK COUNTY TRAFFIC OPERATIONS



EASEMENT REFERENCE LEGEND

(1) 50' WIDE LAS VEGAS VALLEY WATER DISTRICT EASEMENT GRANTED PER OR: 20070529:0001401.

SANITATION SEWER NOTES

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LAS VEGAS FIRE & RESCUE APPROVAL

BY: _____ DATE: _____.

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APPROVED FOR CONSTRUCTION

_____
LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT:---- FIRST APPROVED DATE: _____.

LVVWD APPROVED FIRE FLOW: TOTAL 1500 GPM/ONSITE N/A GPM

REV	DATE	BY	REVISION

HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
10801 W CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89135
(702) 791-4000

CITY OF LAS VEGAS

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH. (702) 873-7550 FAX (702) 362-2697 WEB WWW.VTNNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

UTILITY LATERAL SHEET 20

SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
REDPOINT TO SUMMERLIN PARKWAY

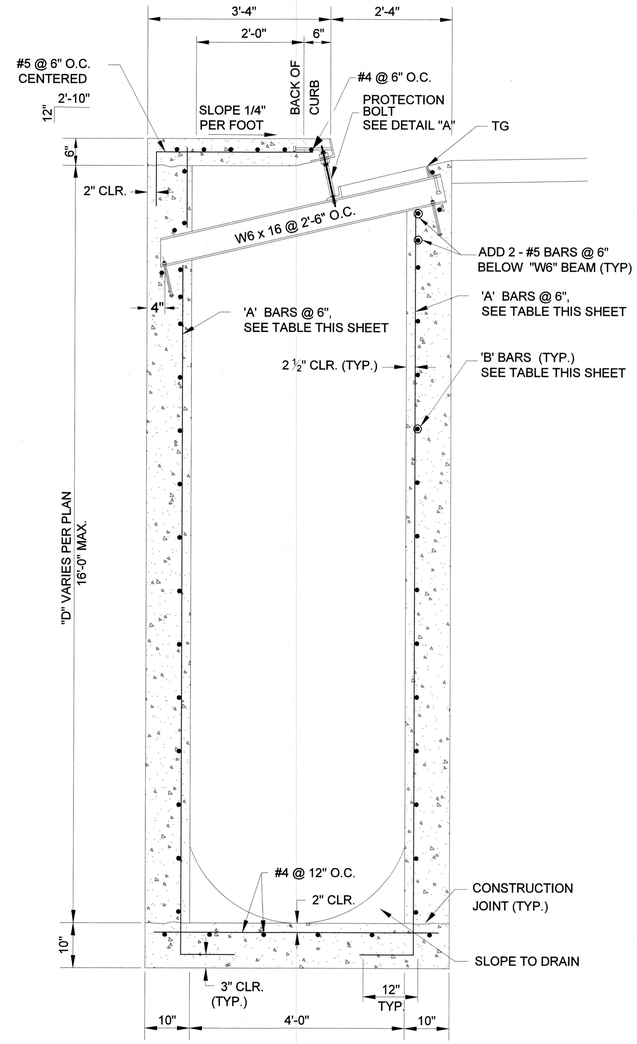
DRAWN BY: BCC 08/02/2018
DESIGNED BY: BCC 08/02/2018
CHECKED BY: WJM 01/31/2018
PROJECT NO: 7851
SCALE: HORIZ. 1"=20' VERT. 1"=4'

PROFESSIONAL ENGINEER - STATE OF NEVADA
No. 17545
WILLIAM J. MEYER
EXP: 12/31/19
CIVIL
1/31/19

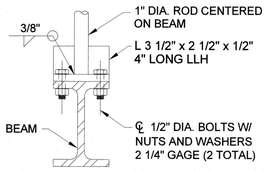
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34 OF 38 SHEETS

DRAWING NO.

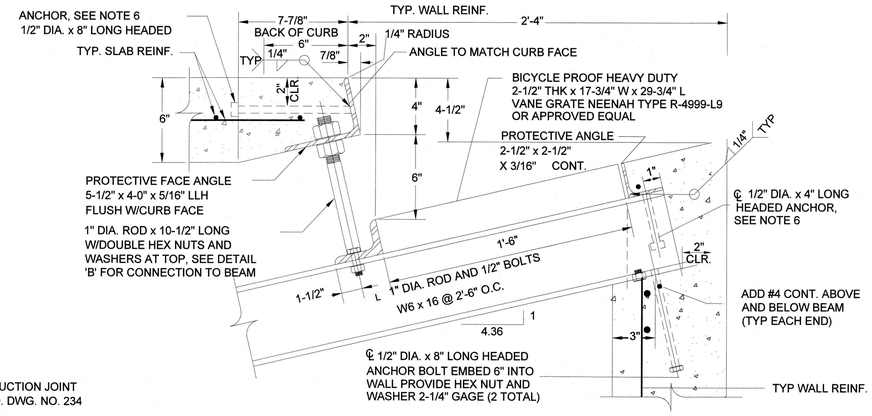
H:\7851\Desert Foothills Street A to Summerlin Pkwy\Sheet Set\7851-UT LAT 3.dwg, Jan 31, 2019



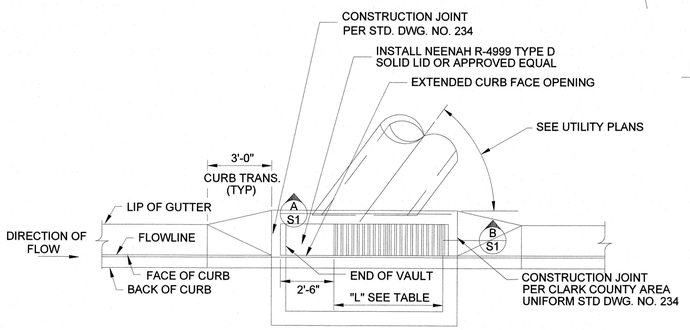
TYPE C MODIFIED DROP INLET SECTION



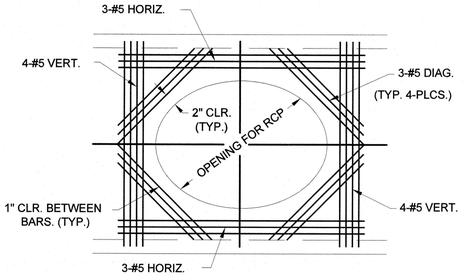
DETAIL "B"



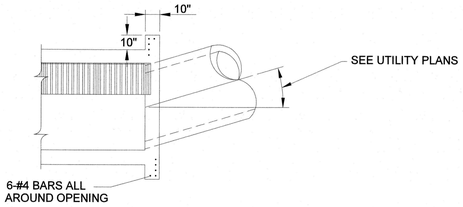
PROTECTIVE FACE & ROD - DETAIL "A"



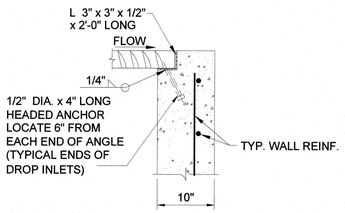
DROP INLET LAYOUT PLAN



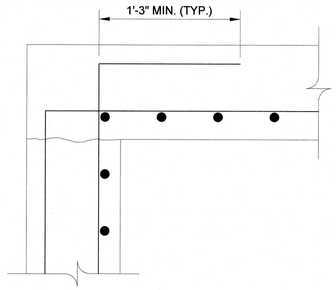
SECTION "A"



ALTERNATE CONNECTION DETAIL



SECTION "B"



DROP INLET CORNER DETAIL

STATION OF DROP INLET	TG ±	INV. ELEV.	D ±	'A' BARS VERTICAL	'B' BARS HORIZONTAL	L
28+03.16 RIGHT	3355.2	3342.08	13'-1 ½"	# 6	# 4 @ 12"	15'
28+03.81 LEFT	3354.9	3339.23	15'-8"	# 4	# 5 @ 6"	15'
32+02.19 RIGHT	3361.1	3348.53	12'-6 ¾"	# 6	# 4 @ 12"	5'
32+02.19 LEFT	3361.1	3345.41	15'-8 ¼"	# 4	# 5 @ 6"	5'
36+15.06 RIGHT	3367.7	3353.41	14'-3 ½"	# 4	# 5 @ 6"	5'
36+15.03 LEFT	3367.7	3353.70	14'-0"	# 4	# 5 @ 6"	5'
41+56.96 RIGHT	3378.0	3366.10	11'-10 ¾ "	# 5	# 4 @ 12"	5'
41+56.90 LEFT	3378.0	3364.02	14'-0"	# 4	# 5 @ 6"	5'

NOTE: WALLS WITH D 14' AND OVER WERE DESIGNED WITH THE MAIN FLEXURAL REINFORCEMENT IN THE HORIZONTAL DIRECTION

NOTES:

1. ALL EXPOSED METALS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
2. PROVIDE 1/2" (MIN.) CLEARANCE ALL AROUND THE STEEL BEAM, DRY PACK AFTER INSTALLATION.
3. WHEN REQUIRED BY LENGTH OF OPENING, PLATE ANGLE MAY BE DELIVERED IN SECTIONS AND BUTT WELDED IN PLACE.
4. ALL GALVANIZED DAMAGED BY WELDING SHALL RECEIVE TWO COATS OF GALVALLOY OR EQUAL.
5. CONCRETE SHALL BE MODIFIED CLASS DA 4000 PSI
6. ANGLE ANCHORS SHALL BE EMBEDDED MIDPOINT IN EACH ENDWALL AND EVENLY SPACED, (MAXIMUM SPACING OF 2').

REV	DATE	BY	REVISION

CITY OF LAS VEGAS

HOWARD HUGHES COMPANY, LLC
A DELWARE LIMITED LIABILITY COMPANY
1980 W. CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89130
702-791-4400

HORROCKS ENGINEERS
1401 N. GREEN VALLEY PARKWAY, STE. 160
HENDERSON, NV 89074
PH. (702) 968-4065 WEB WWW.HORROCKSENGINEERS.COM

SPECIAL TYPE C MODIFIED DROP INLETS

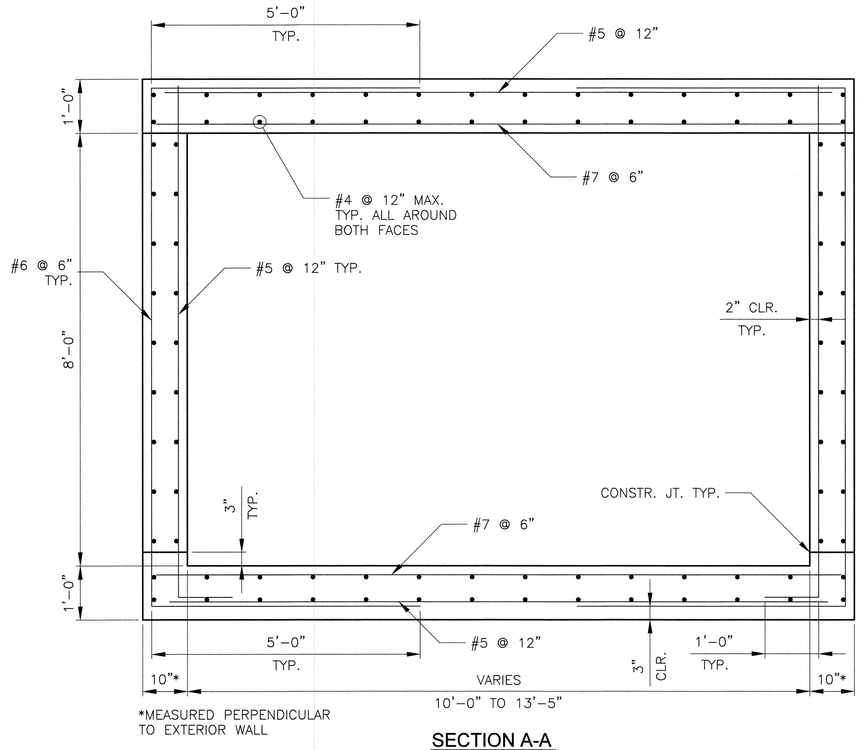
SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS - REDPOINT TO SUMMERLIN PKWY.

DRAWN BY: AF 01-28-19
DESIGNED BY: PLK 01-28-19
CHECKED BY: NJW CHECKDATE
SCALE: N.T.S HORIZ. N.T.S VERT.
PROJECT NO: NV-1817-1808

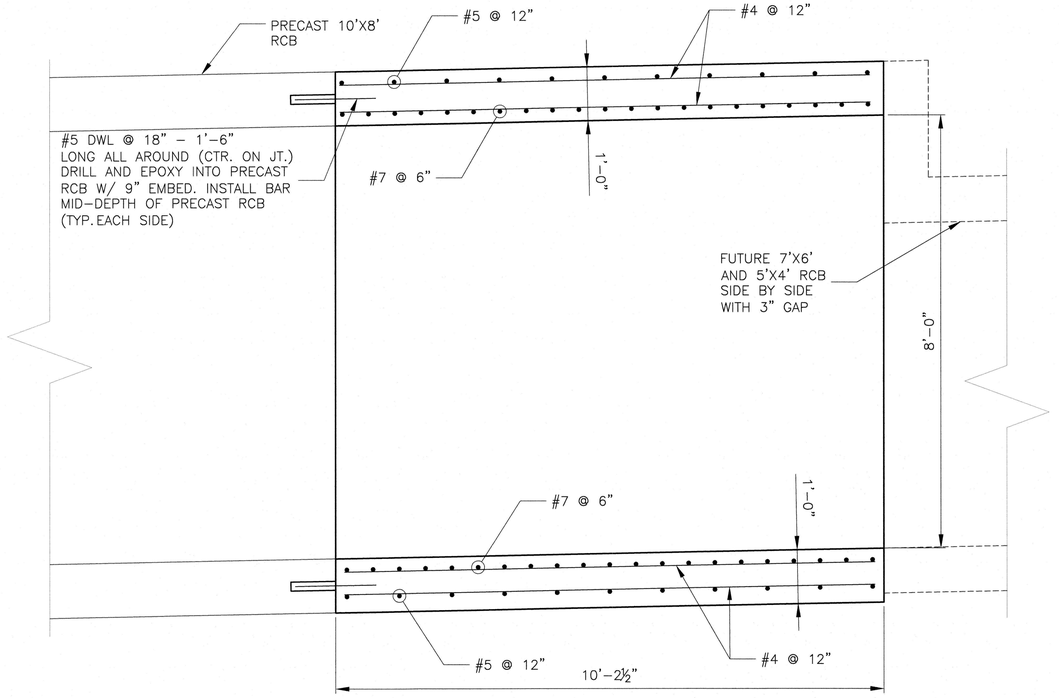
PROFESSIONAL ENGINEER STATE OF NEVADA
PEGGY KNOTT
EXP. 6/30/19
CIVIL
No. 7374
01/29/2019

SHEET
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37 OF 38 SHEETS
DRAWING NO.

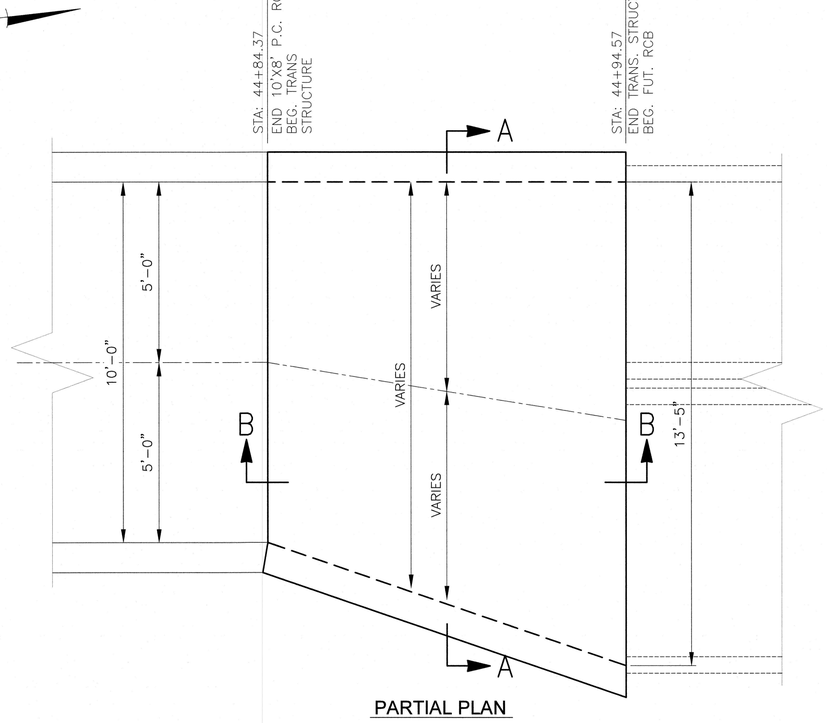
DRAWINGNAME



SECTION A-A



SECTION B-B



PARTIAL PLAN

GENERAL STRUCTURAL NOTES

1. DESIGN SPECIFICATIONS: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 8TH. EDITION, 2017
2. CONSTRUCTION SPECIFICATIONS: STATE OF NEVADA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2014" EXCEPT AS NOTED BELOW AND IN THE SPECIAL PROVISIONS FOR THIS CONTRACT.
3. DESIGN LIVE LOAD IS AASHTO HL-93
4. PORTLAND CEMENT SHALL CONFORM TO ASTM C-150, TYPE V. AGGREGATE SHALL CONFORM TO ASTM C-33.
5. ALL STRUCTURAL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4500 PSI AT 28 DAYS.
6. ALL REINFORCEMENT STEEL SHALL BE ASTM DESIGNATION A615 GRADE 60.
7. COVER FOR REINFORCING BARS, EXCEPT WHERE OTHERWISE SHOWN, SHALL BE: 3" FOR CONCRETE PLACED AGAINST EARTH; 2" FOR OTHERS.
8. USE 3/4" CHAMFER ON ALL EXPOSED CORNERS.
9. PRECAST RCB WALL AND SLAB THICKNESSES ARE ASSUMED. CONTRACTOR SHALL VERIFY ACTUAL RCB THICKNESSES.

REV	DATE	BY	REVISION

HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
FORTY N. CHEYENNE EVANS, 10-5TH SUITE 500
LAS VEGAS, NEVADA 89135
702.792.4400

CITY OF LAS VEGAS

HORROCKS ENGINEERS
1401 N. GREEN VALLEY PARKWAY, STE. 180
HENDERSON, NV 89074
PH. (702) 966-4063 WEB WWW.HORROCKSENGINEERS.COM

TRANSITION STRUCTURE

SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS - REDPOINT
TO SUMMERLIN PKWY.

DRAWN BY: AF	12/14/18	CHECKDATE	
DESIGNED BY: PLK	12/14/18		
CHECKED BY: NJW		SCALE:	N.T.S HORIZ. N.T.S VERT.
PROJECT NO: NV-1317-1808			

PEGGY KNOTT
PROFESSIONAL ENGINEER
STATE OF NEVADA
EXP. 6/30/19
CIVIL
No. 7374

01/29/2019

SHEET
S2
38 OF 38 SHEETS

DRAWING NO.

DRAWINGNAME