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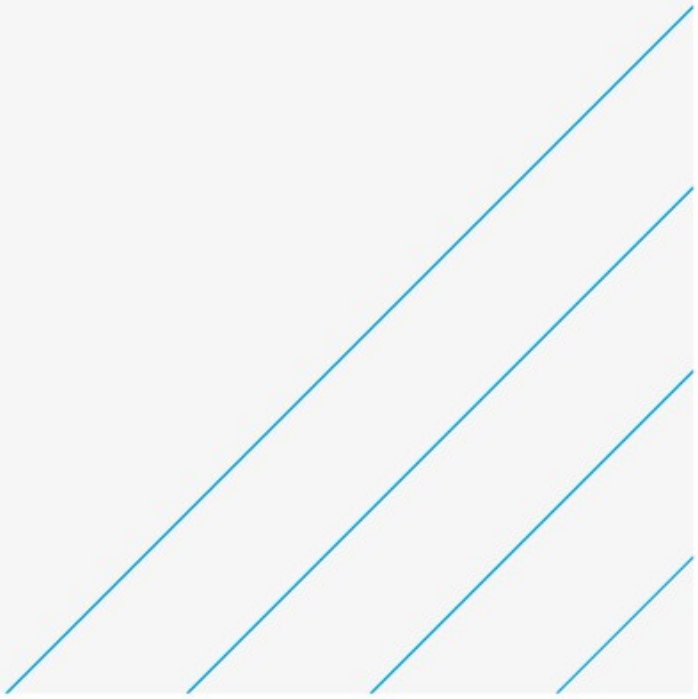
SUMMERLIN®

Summerlin West Village 22

Desert Foothills Drive: Sunset Run Drive to Fleet Wing Avenue (Street G)

Prepared for Howard Hughes Company, LLC

October 2020



HYDROLOGIC CRITERIA AND DRAINAGE MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Desert Foothills Drive: Sunset Run Drive to Fleet Wing Avenue (Street G) Date: October 22, 2020

Location of Development: a) Descriptive (Cross Streets) North/South: Kettle Bend Road

East/West: Sunset Run Drive (Summerlin Parkway WB)

b) Section: 23 Township: 20S Range: 59E

c) APN : 137-23-201-001

Name of Owner: Howard Hughes Company, LLC

Telephone No.: (702) 791-4000 Fax No.: (702) 791-4450 E-Mail Address: chris.anderson@howardhughes.com

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

Contact Person-Name: Janelle Klein, PE **Telephone No.:** (702) 551-0365

* **E-Mail Address:** janelle.klein@atkinsglobal.com **Fax No.:** (702) 263-7200

Firm: Atkins

Address: 2270 Corporate Circle, Ste 200, Henderson, NV 89074

Type of Land Development/Land Disturbance Process:

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

1. Total Owned Land Area: At Site: +/- 446 acres Being Developed/Disturbed: 8.60 acres
2. Is a portion or all of the subject property located in a designated FEMA Flood Hazard Area? ☐ **Yes**** ✔ **No**
3. Is the property bordered or crossed by an existing or proposed Clark County Regional Flood Control District Master Planned Facility? **Yes**** ✔ **No**
4. Proposed type of development (Residential, Commercial, Etc.): Public - Roadway Improvements
5. Approximate upstream land area which drains to the subject site:
6. Has the site drainage been evaluated in the past? ✔ **YES** **NO** If yes, please identify documentation: Update #2 to the Master Conceptual Drainage Study for Summerlin West Village 22
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Existing CC-215 Western Beltway Channel
8. Briefly describe your proposed schedule for the subject project: ASAP

Engineer's Seal

CLV # 5344

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

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Engineer's Certification

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

This letter certifies that all items in the **Addendum #1 to the Technical Drainage Study for Desert Foothills Drive: Sunset Run Drive to Fleet Wing Avenue (Street G)** electronic submittal matches the paper version bound into the study.

_____

Janelle L. Klein, PE (NV #17313)

Senior Engineer

Comment Response Letter

Your reference: DS #5344

Albert Sung
City of Las Vegas Public Works
333 N. Rancho Dr, 7th Floor
Las Vegas, NV 89106

October 19, 2020

RE: ADDENDUM #1 TECHNICAL DRAINAGE STUDY FOR SUMMERLIN WEST VILLAGE 22 DESERT FOOTHILLS DRIVE: SUNSET RUN DRIVE TO FLEET WING AVENUE (STREET G)

Dear Albert,

This letter and the attached documents have been prepared as an Addendum #1 to the *Technical Drainage Study (TDS) for Summerlin West Village 22 Desert Foothills Drive: Sunset Run Drive to Fleet Wing Avenue (Street G).*

Comment #1: The subject street improvement of *Desert Foothills Drive* is premised on the existence of *Fleet Wing Avenue, Kindle Rise Way, Flight Range Avenue, Sunset Run Drive* and the associated storm drain facilities are in place for downstream flood perpetuation. The subject drainage study will not be approved prior to the posting of the construction bonds of all of the above stated street improvements projects.

Comment response: Understood.

Comment #2: The subject project is also premised on the existence of roadway networks to the west for flood protection. Roadways to the west such as *Kettle Ridge Drive, Scurry Bend Drive* and *Lake Mead Boulevard* are all non-existing relative to the subject *Desert Foothills Drive*. In the next submittal, address whether any interim berm/swales will be provided for flood protection.

Provide a true existing/interim condition drainage map.

Comment response: The existing/interim condition is shown in the referenced figures from the Technical Drainage Study for Scurry Bend Rough Grade provided in Appendix D of this submittal.

Comment #3: The site is adjacent to or crosses an existing or proposed *Clark County Regional Flood Control District* (CCRFCD) master planned facility. Therefore, CCRFCD concurrence is required prior to final approval of the drainage study.

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

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

Comment response: This report will be submitted to CCRFCD for concurrence.

Comment #4: The project proposes to build temporary drainage facilities, ie, berms/swales along the sides of *Desert Foothills Drive* for interim flood protection. Prior to final plan approval the developer must complete a maintenance and liability agreement for the interim drainage improvements (berms or channels) and post a minimum maintenance bond of $50,000 or 50-percent of the construction cost for the improvements, whichever is greater. The engineer must submit an estimate of the quantities for constructing the facility

and an exhibit that adequately shows the location and limits of the drainage facility to *City of Las Vegas Flood Control* for approval. Once the drainage study is conditionally approved, the engineer should contact the *City's Land Development Section* (229-6371) to begin the agreement process.

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

Comment response: Once this drainage study is conditionally approved, the report will be submitted to the Land Development Section to begin the agreement process.

Comment #5: All storm drain inlets that are more than 10' deep require a special structural detail and calculations. Submit structural design and calculations to *City Building & Safety Department* for review and approval prior to the final approval of the drainage study.

Comment response: Structural details have been provided in this submittal for the deep drop inlets. Per coordination with Luis Morales of CLV Land Development, structural review will be concurrent with the Civil Improvement Plans. Atkins will provide approval letter of structural design to CLV Flood Control for final acceptance of drainage study.

Comment #6: Per the CCRFCD HCDDM the curve number for roadways is 98 not 94 as was used in the *Standard Form 4*. Review and revise accordingly.

Comment response: Standard Form 4 and the associated HEC-1 have been revised to have a CN of 98 for paved areas and 96 for desert landscaped areas proportionate to the areas within each basin.

Comment #7: Provide elevations for the contours shown on Figure 3: Hydrology Workmap.

Comment response: The major contours have been labeled on the Figure included with this submittal.

Comment #8: Label Fleet Wing Avenue and Kindle Rise Way on Figure 3: Hydrology Workmap.

Comment response: The proposed streets have been labeled on the Figure 3 included with this submittal.

Comment #9: INT-FEW and ULT-FEW have areas of 0.00016 and 0.00201 sq miles respectively. Similarly, *INT-GG and GG* have areas of 0.00303 and 0.0078 sq miles respectively. Explain this discrepancy in size since the basins are shown to be the same in Figure 3.

Comment response: Figure 3 displays the Interim condition, Figure 6 referenced from the MCDS displays the Ultimate condition.

Comment #10: In the Interim Condition description it is stated that "Table 6 in Section 3.0 compares proposed roadway names", but it is actually Table 8. Revise accordingly.

Comment response: Table 8 compares the road labels from the MCDS to the roadway names used in the TDS and improvement plans.

Comment #11: The Interim Condition HEC-1 calculations are in Appendix E, not C, as stated in the report.

Comment response: The HEC-1 calculations have been revised and are provided in Appendix B of this submittal, the revised Table 1 – Interim Condition HEC-1 Model Results is provided following the response to comments letter.

Comment #12: There is a discrepancy between the basin area for the streets in the MP and in the proposed study. Example: DES 3 should be the same area as DFD-5W and DFD-5E but the basin area for DES 3 is 2.0 acres and the total area of DFD-5W and DFD-5E is 0.72 acres. Explain this discrepancy.

Comment response: The basin area for the streets in the MP included the adjacent landscape areas. Our hydrology basins have been updated to include the entire right-of-way width including the landscape and bike path.

Comment #13: Hydraulic Section DFD-5 was missing in *Figure 4: Hydraulic Workmap***.** Provide normal depth and velocity calculation for DFD-5 in the next submittal.

Comment response: The Hydraulic Section is labeled on Figure 4 provided in this submittal, depth and velocity calculations are provided.

Comment #14: The DFD2-FEW-ULT WSPGW provided has pipe inverts along the mainline going in opposite directions. This does not match the downward slope of the proposed pipes in the profile. Address this discrepancy.

Comment response: The stations of the plans do not match, or go in the same direction as, the stations of the WSPG. The WSPG stations always start at the downstream end and go up, the street stations are from South to North regardless of the slope.

Comment #15: Sheet 21/46: In the *Profile* panel, the Interim/Ultimate HGLs are shown below the proposed storm drain mainline which are seemingly incorrect. Review the hydraulic calculations and the drafting in all pertinent sheets accordingly in the next submittal**.**

Comment response: The HGL profiles have been revised to accurately reflect the calculated values and are within the storm drain pipe.

Comment #16: The WSPGW for the Lateral 7 does not match the profile provided.

Comment response: The WSPG has been revised and the plan updated to match.

_____
Janelle L. Klein, PE (NV #17313)
Senior Engineer

Table 2 – Interim Condition HEC-1 Model Results

HEC-1 Node	Tributary Area (sq mi)	Tributary Area (ac)	100-year Flow (cfs)
INT-FEW	0.00024	0.16	1
DFD-1W	0.00033	0.21	1
DFD-1E	0.00072	0.46	2
CP 1.1	Combine INT-FEW, DFD-1W & DFD-1E		4
INT-GG	0.00303	1.94	6
CP 1.2	Combine CP 1.1, and INT-GG		9
INT-DD	0.00744	4.76	14
DFD-2W	0.00046	0.29	1
CP 2.1	Combine INT-DD and DFD-2W		15
DFD-2E	0.00056	0.36	2
CP 2.2	Combine CP 2.1 and DFD-2E		18
DFD-3W	0.00035	0.22	1
DFD-3E	0.00058	0.37	2
CP 3.1	Combine DFD-3W and DFD-3E		3
INT-U	0.00545	3.49	10
CP 3.2	Combine CP 3.1 and INT-U		13
INT-S	0.00470	3.01	9
DFD-4W	0.00026	0.16	1
CP 3.3	Combine INT-S and DFD-4W		9
DFD-4E	0.00058	0.37	2
CP 3.4	Combine CP3.2, CP3.3. and DFD-4E		24
DFD-5E	0.00116	0.74	2
DFD-5W	0.00056	0.36	3
CP 4.1	Combine DFD-5E and DFD-5W		5

Table 3 – Drop Inlet Calculations

ID	Station (ft)	Total Flow (cfs)	Discharge Source (Controlling Flow Condition)	Intercepted Flow (cfs)	Bypass Flow (cfs)
100-year					
SDDI #1	232+14	6	INT-GG (INT Q)	6	0
SDDI #2	232+14	1	DFD-1W (INT/ULT Q)	0.88	0.12
SDDI #3	232+14	2	DFF-1E (INT/ULT Q)	1.45	0.55
SDDI #4	233+56	5.12	ULT-FEW (ULT Q) + Bypass SDDI#2	4.67	0.45
SDDI #5	239+14	14	INT-DD (INT Q)	14	0
SDDI #6	239+14	1.45	DFD-2W (INT/ULT Q) + Bypass SDDI#4	1.16	0.29
SDDI #7	239+14	2.55	DFD-2E (INT/ULT Q) + Bypass SDDI#3	1.71	0.84
SDDI #8	242+84	1.29	DFD-3W (INT/ULT Q) + Bypass SDDI#6	1.06	0.23
SDDI #9	242+84	2.84	DFD-3E (INT/ULT Q) + Bypass SDDI#7	1.83	1.01
SDDI #11	246+60	1.23	DFD-4W (INT/ULT Q) + Bypass SDDI#8	1.05	0.18
SDDI #12	246+60	3.01	DFD-4E (INT/ULT Q) + Bypass SDDI#9	1.97	1.04

Table 4 – Normal Depth Calculations

ID	Total Flow (cfs)	Discharge Source	Slope (%)	Flow Depth (ft)	Velocity (ft/s)	D* V
100-year						
DFD-1	3	DFD-1W + DFD-1E	0.97	0.24	1.99	0.48
DFD-2	4.00	DFD-2W + DFD-2E + Bypass of SDDI #3 & 4	0.97	0.26	2.12	0.55
DFD-3	4.13	DFD-3W + DFD-3E + Bypass of SDDI #6 & 7	0.97	0.26	2.13	0.55
DFD-4	4.24	DFD-4W + DFD-4E + Bypass of SDDI#8 & 9	2.63	0.23	3.17	0.73
DFD-5	6.22	DFD-5W + DFD-5E + Bypass of SDDI#11 & 12	2.63	0.31	3.64	1.13
Swale GG	6	INT-GG (INT Q)	0.97	0.81	3.08	
Swale DD	14	INT-DD (INT Q)	0.97	1.11	3.81	
Swale S	9	INT-S (INT Q)	2.63	0.78	4.96	

Table 5 - Desert Foothills Drive – Flight Edge Way to Sunset Run Drive WSPGW Flow Conditions

SDMH#	WSPG-W Station	Ultimate Condition			Interim Condition		
		Q_{100}	ΣQ_{100}	HGL (ft)	Q_{100}	ΣQ_{100}	HGL
Ex. Box	0.00	0	28.00	3378.074	0	9.33	3378.074
EX MH#30	32.80	0	28.00	3378.006	0	9.33	3378.068
SDMH#1	272.30	21	28.00	3379.510	6	9.33	3378.379
SDMH#2	397.63	2.33	7.00	3379.485	2.33	3.33	3378.488
SDDI#4	542.05	4.67	4.67	3381.120	1	1	3380.634

Table 6 - Desert Foothills Drive – Flight Range Avenue WSPGW Flow Conditions

SDMH#	WSPG-W Station	Ultimate Condition			Interim Condition		
		Q_{100}	ΣQ_{100}	HGL (ft)	Q_{100}	ΣQ_{100}	HGL
SDMH#3	905.47	19.98	19.98	3375.507	16.98	16.98	3369.857
SDMH#4	844.55	58	77.98	3375.269	0.1	16.99	3369.275

Table 7 - Desert Foothills Drive – Flight Range Avenue to Kindle Rise Way WSPGW Flow Conditions

SDMH#	WSPG-W Station	Ultimate Condition			Interim Condition		
		Q_{100}	ΣQ_{100}	HGL (ft)	Q_{100}	ΣQ_{100}	HGL
SDMH#5	432.63	2.95	2.95	3361.962	2.95	2.95	3361.962
SDMH#6	371.28	11	13.95	3361.077	0	2.95	3359.622
SDMH#7	175.11	10	23.95	3359.062	0	2.95	3357.088
SDMH#8	56.83	3.04	26.99	3353.819	3.04	5.99	3353.668
Ex. Box	0.00	0	26.99	3353.358	0	5.99	3353.621

Table 8 – Village 22 MCDS and TDS Roadway Names

MCDS Street Name	TDS Street Name
Street E	Flight Range Avenue
Street EE	Flight Edge Way
Street F	Kindle Rise Way
Street FF	Hive Bluff Lane
Street G	Fleet Wing Ave
Street H	Clowder Pass Way
Street I	Kestrel Creek Ave
Street J	Kettle Ridge Drive
Street L	Bask Ridge Drive
Street N	Scurry Bend Drive
Summerlin Parkway WB/Street Q	Sunset Run Drive
Summerlin Parkway EB	Sky Vista Drive
Carriage Hill Drive	Kettle Bend Road

Appendices

Appendix A. Comment Letter

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: September 14, 2020
TO: **Land Development Services** Department of Building & Safety				FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for: **Summerlin West Village 22 - Desert Foothills Drive Impr. (from Sunset Run Drive to Fleet Wing Avenue)**			**COPIES TO:** Atkins Global
Cross Streets:	Kettle Bend Road and Sunset Run Drive			Howard Hughes Company, LLC.
File Number:	F:\Depot\DSMemos\DS5344A.doc			Bart Anderson, P.E., DevCo
Parcel Number:	137-23-201-001			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	8/26/2020	9/10/2020	See Comments Below	$400.00	3966922: $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 subject street improvement of *Desert Foothills Drive* is premised on the existence of *Fleet Wing Avenue, Kindle Rise Way, Flight Range Avenue, Sunset Run Drive* and the associated storm drain facilities are in place for downstream flood perpetuation. The subject drainage study will not be approved prior to the posting of the construction bonds of all of the above stated street improvements projects.
2. The subject project is also premised on the existence of roadway networks to the west for flood protection. Roadways to the west such as *Kettle Ridge Drive*, *Scurry Bend Drive* and *Lake Mead Boulevard* are all non-existing relative to the subject *Desert Foothill Drive*. In the next submittal, address whether any interim berm/swales will be provided for flood protection.

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

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

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

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

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

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

6. Per the CCRFCD HCDDM the curve number for roadways is 98 not 94 as was used in the *Standard Form 4*. Review and revise accordingly.

7. Provide elevations for the contours shown on *Figure 3: Hydrology Workmap*.

8. Label *Fleet Wing Avenue* and *Kindle Rise Way* on *Figure 3: Hydrology Workmap*.

9. INT-FEW and ULT-FEW have areas of 0.00016 and 0.00201 sq miles respectively. Similarly *INT-GG and GG* have areas of 0.00303 and 0.0078 sq miles respectively. Explain this discrepancy in size since the basins are shown to be the same in *Figure 3*.

10. In the Interim Condition description it is stated that "Table 6 in Section 3.0 compares proposed roadway names", but it is actually Table 8. Revise accordingly.

11. The Interim Condition HEC-1 calculations are in Appendix E, not C, as stated in the report.

12. There is a discrepancy between the basin are for the streets in the MP and in the proposed study. Example: DES 3 should be the same area as DFD-5W and DFD-5E but the basin area for DES 3 is 2.0 acres and the total area of DFD-5W and DFD-5E is 0.72 acres. Explain this discrepancy.

13. *Hydraulic Section DFD-5* was missing in *Figure 4: Hydraulic Workmap*. Provide normal depth and velocity calculation for DFD-5 in the next submittal.

14. The DFD2-FEW-ULT WSPGW provided has pipe inverts along the mainline going in opposite directions. This does not match the downward slope of the proposed pipes in the profile. Address this discrepancy.

15. **Sheet 21/46**: In the *Profile* panel, the Interim/Ultimate HGLs are shown below the proposed storm drain mainline which are seemingly incorrect. Review the hydraulic calculations and the drafting in all pertinent sheets accordingly in the next submittal.

16. The WSPGW for the Lateral 7 does not match the profile provided.

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

END OF REMARKS
HDR/AYS

T/R/S: T20S/R59E/23
AREA K-23

Appendix B. Revised Hydrology

B.1 Interim Condition Hydrology Parameters

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL
TIME OF CONCENTRATION

ATKINS
Member of the SNC-Lavalin Group

TDS for Summerlin West Village 22
Desert Foothills Drive (Sunset Run Drive to Fleet Wing Avenue)
INTERIM CONDITION

BY: JLK
DATE: 10/14/20

SUB-BASIN DATA						INITIAL / OVERLAND TIME (Ti)			TRAVEL TIME (Tt)					Tc	Tc Check	Tlag
DESIG: (1)	DEV./EX. (D or E)	CN	K (2)	AREA Ac (3)	AREA Mi^2	INITIAL LENGTH Feet (4)	SLOPE % (5)	Ti Min (6)	TRAVEL LENGTH Feet (7)	SLOPE % (8)	V1 VELOCITY FPS (9a)	V2 VELOCITY FPS (9b)	Tt Min (10)	Min (13)	Min (14)	Tlag= 0.6Tc/60 Hours
DFD-1E	D	97.0	0.890	0.46	0.00072	26	2.0	1.5	476	1.0	2.0	3.0	4.0	5.5	12.8	**0.055**
DFD-1W	D	98.0	0.904	0.21	0.00033	18.5	2.0	1.2	476	1.0	2.0	3.0	4.0	5.2	12.7	**0.052**
INT-FEW	D	97.3	0.894	0.16	0.00024	20	2.0	1.3	128	1.0	2.0	3.0	1.1	2.4	10.8	**0.05***
DFD-2E	D	97.2	0.893	0.54	0.00085	26	2.0	1.5	565	1.0	2.0	3.0	4.5	6.1	13.3	**0.061**
DFD-2W	D	97.7	0.899	0.29	0.00046	18.5	2.0	1.2	686	1.0	2.0	3.0	5.2	6.5	13.9	**0.065**
DFD-3E	D	97.0	0.891	0.36	0.00056	26	2.0	1.5	369	1.0	2.0	3.0	3.1	4.6	12.2	**0.05***
DFD-3W	D	98.0	0.904	0.22	0.00035	18.5	2.0	1.2	369	1.0	2.0	3.0	3.1	4.3	12.2	**0.05***
DFD-4E	D	97.0	0.890	0.37	0.00058	26	2.0	1.5	385	2.6	3.3	5.0	2.0	3.5	12.3	**0.05***
DFD-4W	D	98.0	0.903	0.16	0.00026	18.5	2.0	1.2	385	2.6	3.3	5.0	2.0	3.2	12.2	**0.05***
DFD-5E	D	97.0	0.890	0.74	0.00116	26	2.0	1.5	770	2.6	3.3	5.0	3.5	5.0	14.4	**0.05***
DFD-5W	D	98.0	0.904	0.36	0.00056	18.5	2.0	1.2	770	2.6	3.3	5.0	3.5	4.7	14.4	**0.05***
INT-GG	E	88.0	0.772	1.94	0.00303	267	9.4	4.6	380	8.0	4.2	8.3	1.5	6.1	N/A	**0.10****
INT-DD	E	88.0	0.772	4.76	0.00744	256	6.0	5.2	614	6.5	3.8	7.5	2.5	7.7	N/A	**0.10****
INT-U	E	88.0	0.772	3.49	0.00545	440	5.0	7.3	315	6.1	3.7	7.3	1.4	8.7	N/A	**0.10****
INT-S	E	88.0	0.772	3.01	0.00470	945	7.0	9.5	315	8.0	4.2	8.3	1.3	10.8	N/A	**0.108**

Tc = Ti + Tt Tlag = 0.6 Tc
Ti = 1.8 (1.1 - K) L^1/2 / S^1/3
K = 0.0132 (CN) - 0.39
Tc Check = L/180+10

For the travel time (Tt) calculations,
V1 applies to the first 500 feet of travel distance;
V2 applies to the remaining travel distance.

V1 = 14.8*(S/100)^1/2 Developed V1 = 20.2*(S/100)^1/2
V2 = 29.4*(S/100)^1/2 Developed V2 = 30.6*(S/100)^1/2

REFERENCE : **STANDARD FORM 4**

*Minimum recommended Tc for developed subbasins is 5 mins. A value of 0.05 was use for the Tlag where the calculated Tc was less than 5 mins.

**Minimum recommended Tc for undeveloped subbasins is 10 mins. A value of 0.10 was use for the Tlag where the calculated Tc was less than 10 mins.

B.2 Interim Conditions HEC-1 Model

```
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   14OCT20  TIME  11:24:04  *                 *           (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

1                                                  HEC-1 INPUT                                                  PAGE  1

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

                         *DIAGRAM
 *** FREE ***
               1         ID  TECHNICAL DRAINAGE STUDY
               2         ID  SUMMERLIN VILLAGE 22
               3         ID  DESERT FOOTHILLS DRIVE (SUNSET RUN DRIVE TO FLEET WING AVE)
               4         ID  INTERIM CONDITION
               5         ID  100-YEAR 6-HR STORM
               6         ID  SDN #3 STORM DISTRIBUTION
               7         ID  OCTOBER 2020
               8         ID  INT_DFD2.DAT
               9         ID  ATKINS MODELED BY JANELLE KLEIN
              10         ID  CHECKED BY MOLLY ANDERSON
              11         ID  JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES
              12         ID
              13         ID    AREA (SQUARE MILES)       DARF
              14         ID
              15         ID         0 - 0.5              0.99
              16         ID         Estimated 10-year    0.57
              17         ID
              18         IT       5       0       0     300
              19         IO       5       0       0
              20         IN       5       0       0
              21         JR    PREC    0.99    0.57
                         *

              22         KK INT-FEW
              23         BA 0.00024
              24         PB    3.41
              25         PC   0.000   0.020   0.057   0.070   0.087   0.108   0.124   0.130   0.130   0.130
              26         PC   0.130   0.130   0.130   0.133   0.140   0.142   0.148   0.158   0.172   0.181
              27         PC   0.190   0.197   0.199   0.200   0.201   0.204   0.214   0.229   0.241   0.249
              28         PC   0.251   0.256   0.270   0.278   0.281   0.283   0.295   0.322   0.352   0.409
              29         PC   0.499   0.590   0.710   0.744   0.781   0.812   0.819   0.835   0.851   0.856
              30         PC   0.860   0.868   0.876   0.888   0.910   0.926   0.937   0.950   0.970   0.976
              31         PC   0.982   0.985   0.987   0.989   0.990   0.993   0.993   0.994   0.995   0.998
              32         PC   0.998   0.999   1.000
              33         LS       0    97.3
              34         UD   0.050
                         *

              35         KK  DFD-1W
              36         BA 0.00033
              37         PB    3.40
              38         LS       0    98.0
              39         UD   0.052
                         *

              40         KK  DFD-1E
              41         BA 0.00072
              42         PB    3.40
              43         LS       0    97.0
              44         UD   0.055
```

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

  45      KK   CP1.1
  46      HC       3
          *
  47      KK  INT-GG
  48      BA 0.00303
  49      PB    3.41
  50      LS       0    88.0
  51      UD   0.100
          *
  52      KK   CP1.2
  53      HC       2
          *
  54      KK  INT-DD
  55      BA 0.00744
  56      PB    3.40
  57      LS       0    88.0
  58      UD   0.100
          *
  59      KK  DFD-2W
  60      BA 0.00046
  61      PB    3.40
  62      LS       0    97.7
  63      UD   0.065
          *
  64      KK   CP2.1
  65      HC       2
          *
  66      KK  DFD-2E
  67      BA 0.00085
  68      PB    3.40
  69      LS       0    97.2
  70      UD   0.061
          *
  71      KK   CP2.2
  72      HC       2
          *
  73      KK  DFD-3W
  74      BA 0.00035
  75      PB    3.40
  76      LS       0    98.0
  77      UD   0.050
          *
```



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

  78      KK  DFD-3E
  79      BA 0.00056
  80      PB    3.40
  81      LS       0    97.0
  82      UD   0.050
          *
  83      KK   CP3.1
  84      HC       2
          *
  85      KK   INT-U
  86      BA 0.00545
  87      PB    3.40
  88      LS       0    88.0
  89      UD   0.100
          *
  90      KK   CP3.2
  91      HC       2
          *
  92      KK   INT-S
  93      BA 0.00470
  94      PB    3.40
  95      LS       0    88.0
  96      UD   0.108
          *
```

```
             97          KK  DFD-4W
             98          BA 0.00026
             99          PB    3.40
            100          LS       0    98.0
            101          UD   0.050
                         *

            102          KK   CP3.3
            103          HC       2
                         *

            104          KK  DFD-4E
            105          BA 0.00058
            106          PB    3.40
            107          LS       0    97.0
            108          UD   0.050
                         *

            109          KK   CP3.4
            110          HC       3
                         *
```



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


            111          KK  DFD-5W
            112          BA 0.00056
            113          PB    3.40
            114          LS       0    98.0
            115          UD   0.050
                         *

            116          KK  DFD-5E
            117          BA 0.00116
            118          PB    3.40
            119          LS       0    97.0
            120          UD   0.050
                         *

            121          KK   CP4.1
            122          HC       2
                         *
            123          ZZ
```

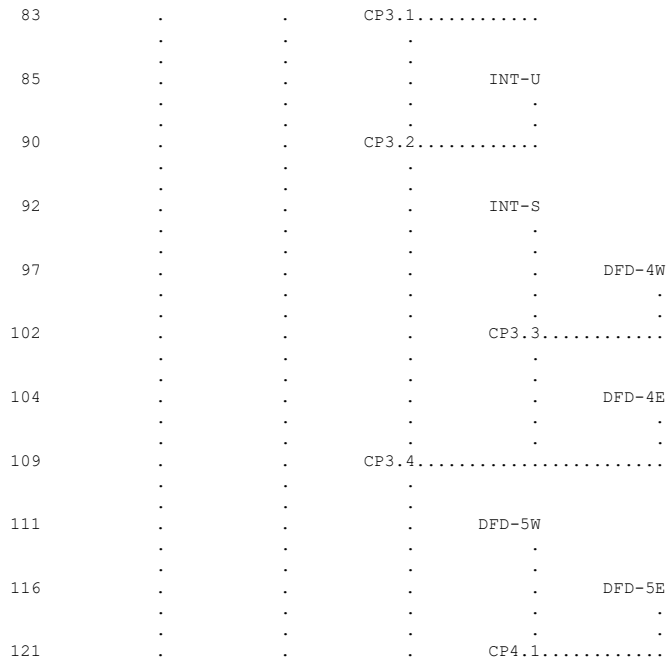
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SCHEMATIC DIAGRAM OF STREAM NETWORK

```
 INPUT
  LINE      (V) ROUTING          (---->) DIVERSION OR PUMP FLOW

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

    22     INT-FEW
                .
                .
    35          .      DFD-1W
                .           .
                .           .
    40          .           .      DFD-1E
                .           .           .
                .           .           .
    45       CP1.1.........................
                .
                .
    47          .      INT-GG
                .           .
                .           .
    52       CP1.2............
                .
                .
    54          .      INT-DD
                .           .
                .           .
    59          .           .      DFD-2W
                .           .           .
                .           .           .
    64          .       CP2.1............
                .           .
                .           .
    66          .           .      DFD-2E
                .           .           .
                .           .           .
    71          .       CP2.2............
                .           .
                .           .
    73          .           .      DFD-3W
                .           .           .
                .           .           .
    78          .           .           .      DFD-3E
                .           .           .           .
                .           .           .           .
```



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*               JUN   1998              *
*            VERSION 4.1                *
*                                       *
*  RUN DATE   14OCT20  TIME  11:24:04   *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
*****************************************
```

TECHNICAL DRAINAGE STUDY
SUMMERLIN VILLAGE 22
DESERT FOOTHILLS DRIVE (SUNSET RUN DRIVE TO FLEET WING AVE)
INTERIM CONDITION
100-YEAR 6-HR STORM
SDN #3 STORM DISTRIBUTION
OCTOBER 2020
INT_DFD2.DAT
ATKINS MODELED BY JANELLE KLEIN
CHECKED BY MOLLY ANDERSON
JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES

AREA (SQUARE MILES)	DARF
0 - 0.5	0.99
Estimated 10-year	0.57

```
  19 IO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

     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
                      .99       .57
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

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO PRECIPITATION RATIO 1 .99	RATIO 2 .57
HYDROGRAPH AT						
+	INT-FEW	.00	1	FLOW	1.	0.
				TIME	3.50	3.50
HYDROGRAPH AT						
+	DFD-1W	.00	1	FLOW	1.	1.
				TIME	3.50	3.50
HYDROGRAPH AT						
+	DFD-1E	.00	1	FLOW	2.	1.
				TIME	3.50	3.50
3 COMBINED AT						
+	CP1.1	.00	1	FLOW	4.	2.
				TIME	3.50	3.50
HYDROGRAPH AT						
+	INT-GG	.00	1	FLOW	6.	3.
				TIME	3.50	3.50
2 COMBINED AT						
+	CP1.2	.00	1	FLOW	9.	5.
				TIME	3.50	3.50
HYDROGRAPH AT						
+	INT-DD	.01	1	FLOW	14.	6.
				TIME	3.50	3.50
HYDROGRAPH AT						
+	DFD-2W	.00	1	FLOW	1.	1.
				TIME	3.50	3.50
2 COMBINED AT						
+	CP2.1	.01	1	FLOW	15.	7.
				TIME	3.50	3.50
HYDROGRAPH AT						
+	DFD-2E	.00	1	FLOW	2.	1.
				TIME	3.50	3.50
2 COMBINED AT						
+	CP2.2	.01	1	FLOW	18.	8.
				TIME	3.50	3.50
HYDROGRAPH AT						
+	DFD-3W	.00	1	FLOW	1.	1.
				TIME	3.50	3.50
HYDROGRAPH AT						
+	DFD-3E	.00	1	FLOW	2.	1.
				TIME	3.50	3.50
2 COMBINED AT						
+	CP3.1	.00	1	FLOW	3.	1.
				TIME	3.50	3.50
HYDROGRAPH AT						
+	INT-U	.01	1	FLOW	10.	5.
				TIME	3.50	3.50
2 COMBINED AT						
+	CP3.2	.01	1	FLOW	13.	6.
				TIME	3.50	3.50
HYDROGRAPH AT						
+	INT-S	.00	1	FLOW	9.	4.
				TIME	3.50	3.58
HYDROGRAPH AT						
+	DFD-4W	.00	1	FLOW	1.	0.
				TIME	3.50	3.50

```
  2 COMBINED AT
+                  CP3.3       .00     1   FLOW          9.       4.
                                             TIME        3.50     3.50

 HYDROGRAPH AT
+                 DFD-4E       .00     1   FLOW          2.       1.
                                             TIME        3.50     3.50

  3 COMBINED AT
+                  CP3.4       .01     1   FLOW         24.      11.
                                             TIME        3.50     3.50

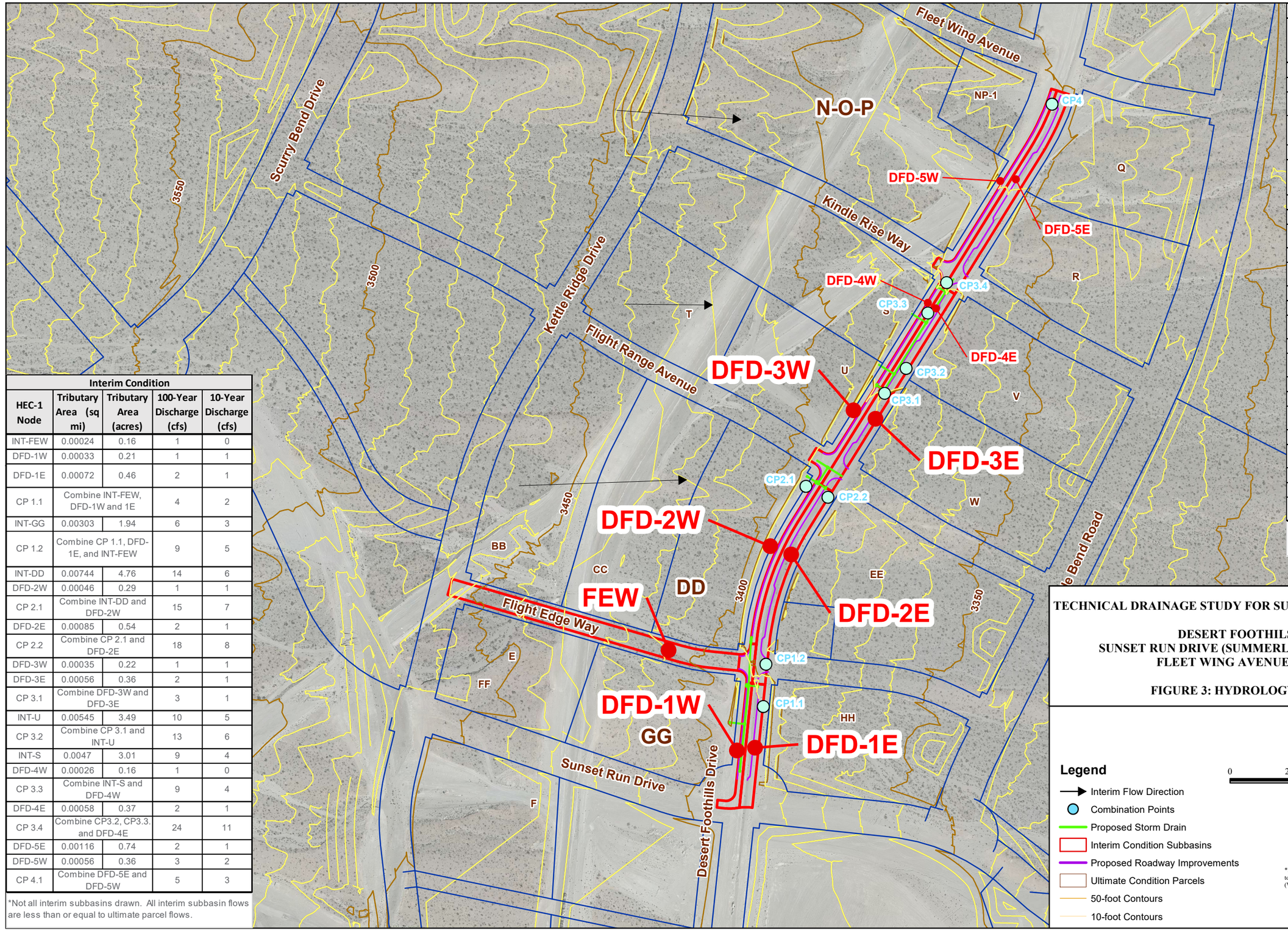
 HYDROGRAPH AT
+                 DFD-5W       .00     1   FLOW          2.       1.
                                             TIME        3.50     3.50

 HYDROGRAPH AT
+                 DFD-5E       .00     1   FLOW          3.       2.
                                             TIME        3.50     3.50

  2 COMBINED AT
+                  CP4.1       .00     1   FLOW          5.       3.
                                             TIME        3.50     3.50


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

B.3 Updated Hydrology Workmap



Interim Condition				
HEC-1 Node	Tributary Area (sq mi)	Tributary Area (acres)	100-Year Discharge (cfs)	10-Year Discharge (cfs)
INT-FEW	0.00024	0.16	1	0
DFD-1W	0.00033	0.21	1	1
DFD-1E	0.00072	0.46	2	1
CP 1.1	Combine INT-FEW, DFD-1W and 1E		4	2
INT-GG	0.00303	1.94	6	3
CP 1.2	Combine CP 1.1, DFD-1E, and INT-FEW		9	5
INT-DD	0.00744	4.76	14	6
DFD-2W	0.00046	0.29	1	1
CP 2.1	Combine INT-DD and DFD-2W		15	7
DFD-2E	0.00085	0.54	2	1
CP 2.2	Combine CP 2.1 and DFD-2E		18	8
DFD-3W	0.00035	0.22	1	1
DFD-3E	0.00056	0.36	2	1
CP 3.1	Combine DFD-3W and DFD-3E		3	1
INT-U	0.00545	3.49	10	5
CP 3.2	Combine CP 3.1 and INT-U		13	6
INT-S	0.0047	3.01	9	4
DFD-4W	0.00026	0.16	1	0
CP 3.3	Combine INT-S and DFD-4W		9	4
DFD-4E	0.00058	0.37	2	1
CP 3.4	Combine CP3.2, CP3.3. and DFD-4E		24	11
DFD-5E	0.00116	0.74	2	1
DFD-5W	0.00056	0.36	3	2
CP 4.1	Combine DFD-5E and DFD-5W		5	3

*Not all interim subbasins drawn. All interim subbasin flows are less than or equal to ultimate parcel flows.

Ultimate Condition			
HEC-1 Node	Tributary Area (sq mi)	Tributary Area (acres)	100-Year Discharge (cfs)
ULT-FEW	0.00201	1.28	5
GG*	0.0078	4.98	21
DFD-1W	0.00033	0.21	1
CP 1.1	Combine DFD-1W, and GG		22
DFD-1E	0.00072	0.46	2
CP 1.2	Combine CP1.1, DFD-1E, and ULT-FEW		29
DD*	0.0074	1.76	17
DFD-2W	0.00046	0.29	1
CP 2.1	Combine DFD-2W and DD		18
DFD-2E	0.00085	0.54	2
CP 2.2	Combine CP 2.1 and DFD-2E		20
DFD-3W	0.00035	0.22	1
DFD-3E	0.00056	0.36	2
CP 3.1	Combine DFD-3W and DFD-3E		3
U*	0.0055	3.49	11
CP 3.2	Combine CP 3.1 and U		14
S*	0.0047	3.01	10
DFD-4W	0.00026	0.16	1
CP 3.3	Combine S and DFD-4W		11
DFD-4E	0.00058	0.37	2
CP 3.4	Combine CP3.2, CP3.3. and DFD-4E		27
DFD-5E	0.00116	0.74	2
DFD-5W	0.00056	0.36	3
CP 4.1	Combine DFD-5E and DFD-5W		5

*Referenced from Update #2 to the Village 22 MCDS

TECHNICAL DRAINAGE STUDY FOR SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRIVE:
SUNSET RUN DRIVE (SUMMERLIN PARKWAY WB) TO FLEET WING AVENUE (STREET G)

FIGURE 3: HYDROLOGY WORKMAP

Legend

- Interim Flow Direction
- Combination Points
- Proposed Storm Drain
- Interim Condition Subbasins
- Proposed Roadway Improvements
- Ultimate Condition Parcels
- 50-foot Contours
- 10-foot Contours

N

0 200 400 800

Feet

1 inch = 300 feet

ATKINS

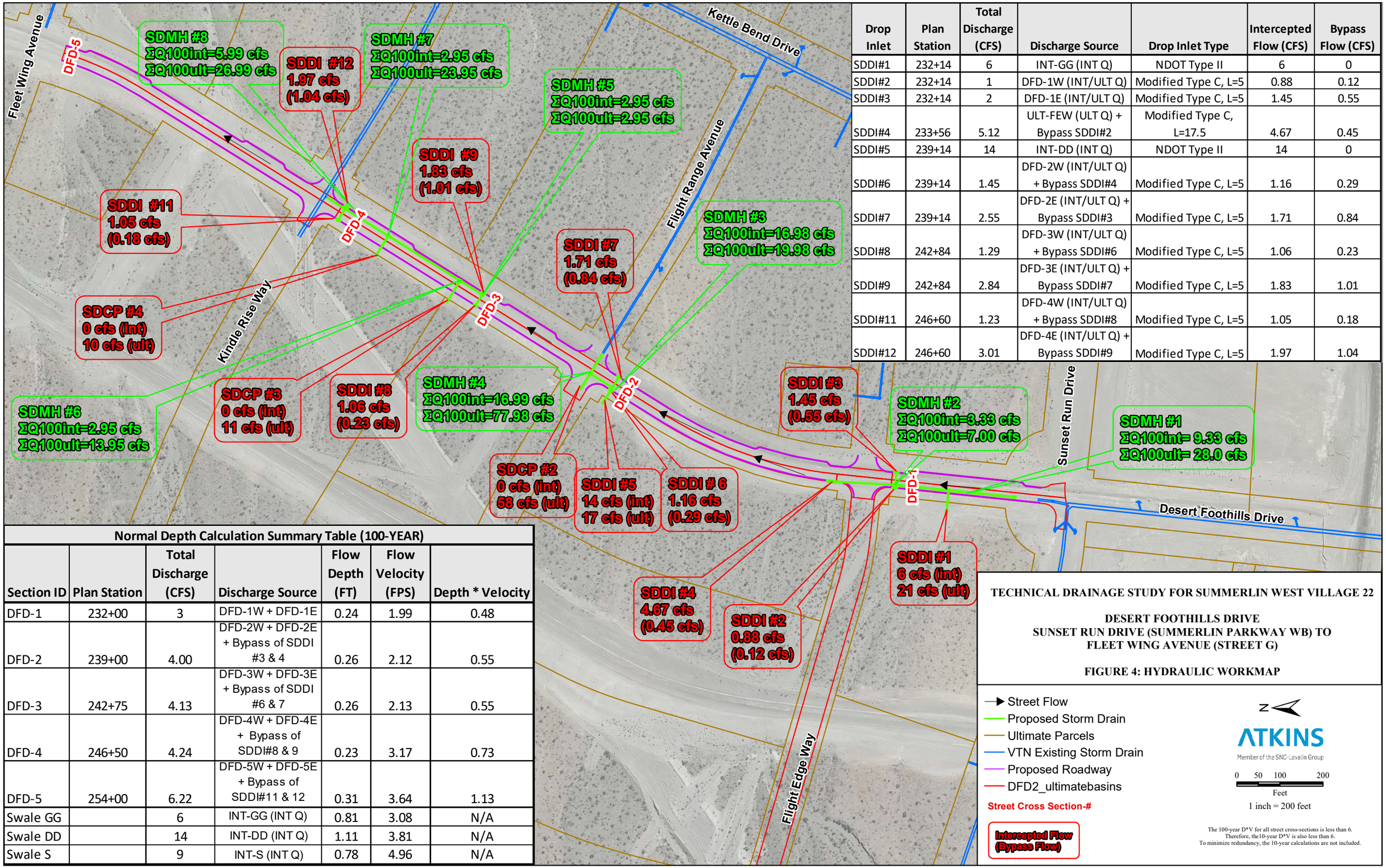
Member of the SNC-Lavalin Group

*Per the Master Conceptual Drainage Study (MCDS) Addendum #1 to Update #2 for Summerlin West Village 22 (W.O. 7861-3A) dated December, 2019 in Appendix A

Aerial Source: Clark County Spring 2019

Appendix C. Revised Hydraulics

C.1. Revised Hydraulics Workmap



Drop Inlet	Plan Station	Total Discharge (CFS)	Discharge Source	Drop Inlet Type	Intercepted Flow (CFS)	Bypass Flow (CFS)
SDDI#1	232+14	6	INT-GG (INT Q)	NDOT Type II	6	0
SDDI#2	232+14	1	DFD-1W (INT/ULT Q)	Modified Type C, L=5	0.88	0.12
SDDI#3	232+14	2	DFD-1E (INT/ULT Q)	Modified Type C, L=5	1.45	0.55
SDDI#4	233+56	5.12	ULT-FEW (ULT Q) + Bypass SDDI#2	Modified Type C, L=17.5	4.67	0.45
SDDI#5	239+14	14	INT-DD (INT Q)	NDOT Type II	14	0
SDDI#6	239+14	1.45	DFD-2W (INT/ULT Q) + Bypass SDDI#4	Modified Type C, L=5	1.16	0.29
SDDI#7	239+14	2.55	DFD-2E (INT/ULT Q) + Bypass SDDI#3	Modified Type C, L=5	1.71	0.84
SDDI#8	242+84	1.29	DFD-3W (INT/ULT Q) + Bypass SDDI#6	Modified Type C, L=5	1.06	0.23
SDDI#9	242+84	2.84	DFD-3E (INT/ULT Q) + Bypass SDDI#7	Modified Type C, L=5	1.83	1.01
SDDI#11	246+60	1.23	DFD-4W (INT/ULT Q) + Bypass SDDI#8	Modified Type C, L=5	1.05	0.18
SDDI#12	246+60	3.01	DFD-4E (INT/ULT Q) + Bypass SDDI#9	Modified Type C, L=5	1.97	1.04

Normal Depth Calculation Summary Table (100-YEAR)

Section ID	Plan Station	Total Discharge (CFS)	Discharge Source	Flow Depth (FT)	Flow Velocity (FPS)	Depth * Velocity
DFD-1	232+00	3	DFD-1W + DFD-1E	0.24	1.99	0.48
DFD-2	239+00	4.00	DFD-2W + DFD-2E + Bypass of SDDI #3 & 4	0.26	2.12	0.55
DFD-3	242+75	4.13	DFD-3W + DFD-3E + Bypass of SDDI #6 & 7	0.26	2.13	0.55
DFD-4	246+50	4.24	DFD-4W + DFD-4E + Bypass of SDDI#8 & 9	0.23	3.17	0.73
DFD-5	254+00	6.22	DFD-5W + DFD-5E + Bypass of SDDI#11 & 12	0.31	3.64	1.13
Swale GG		6	INT-GG (INT Q)	0.81	3.08	N/A
Swale DD		14	INT-DD (INT Q)	1.11	3.81	N/A
Swale S		9	INT-S (INT Q)	0.78	4.96	N/A

TECHNICAL DRAINAGE STUDY FOR SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRIVE
SUNSET RUN DRIVE (SUMMERLIN PARKWAY WB) TO
FLEET WING AVENUE (STREET G)

FIGURE 4: HYDRAULIC WORKMAP

- Street Flow
- Proposed Storm Drain
- Ultimate Parcels
- VTN Existing Storm Drain
- Proposed Roadway
- DFD2_ultimatebasins

Street Cross Section-#

Intercepted Flow (Bypass Flow)

ATKINS
Member of the SNC-Lavalin Group

0 50 100 200
Feet
1 inch = 200 feet

The 100-year D*V for all street cross-sections is less than 6.
Therefore, the10-year D*V is also less than 6.
To minimize redundancy, the 10-year calculations are not included.

C.2. Revised WSPG-W Models

```
T1 SUMMERLIN WEST VILLAGE 22                                                0
T2 DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE
T3 INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT
SO       .0003375.220  1                          3378.074
R      27.8003375.510  1      .013                                .000    .000 0
R      32.8003375.710  1      .013                                .000    .000 1
REM*****     VTN     *****   EX.SDMH#30
R     116.2003376.290  1      .013                                .000    .000 0
R     121.2003376.49   1      .013                                .000    .000 1
REM*****     ATKINS     *****     SDMH#9
R     269.8003376.950  1      .013                                .000    .000 0
JX    272.3003377.050  1  2   .013    6.000         3377.150       -90.0         .000
REM*****     ATKINS     *****     PARCEL GG
R     274.8003377.150  1      .013                                .000    .000 1
REM*****     ATKINS     *****    SDMH#1
R     395.1303377.520  1      .013                                .000    .000 0
JX    397.6303377.620  3  2  3.013    0.880    1.4503377.7203377.720-90.0 90.0    .000
REM*****     ATKINS     *****     SDDI#2 & 3
R     400.1303377.720  3      .013                                .000  -5.000 1
REM*****     ATKINS     *****     SDMH#2
R     542.0503380.290  3      .013                                .000    .000 0
REM*****     ATKINS     *****     SDDI#4
SH    542.0503380.290  3                          3380.290
CD   1  4   1    .000   3.500     .000  .000  .000   .00
CD   2  4   1    .000   2.500     .000  .000  .000   .00
CD   3  4   1    .000   2.000     .000  .000  .000   .00
Q            1.000   .0
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SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE

INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
.000	3375.220	2.854	3378.074	9.33	1.11	.02	3378.09	.00	.92	2.72	3.500	.000	.00	1 .0
13.216	.0104					.0001	.00	2.85	.11	.71	.013	.00	.00	PIPE
13.216	3375.358	2.715	3378.073	9.33	1.16	.02	3378.09	.00	.92	2.92	3.500	.000	.00	1 .0
11.836	.0104					.0001	.00	2.72	.12	.71	.013	.00	.00	PIPE
25.053	3375.481	2.591	3378.073	9.33	1.22	.02	3378.10	.00	.92	3.07	3.500	.000	.00	1 .0
2.747	.0104					.0001	.00	2.59	.14	.71	.013	.00	.00	PIPE
27.800	3375.510	2.562	3378.072	9.33	1.24	.02	3378.10	.00	.92	3.10	3.500	.000	.00	1 .0
2.733	.0400					.0001	.00	2.56	.14	.51	.013	.00	.00	PIPE
30.533	3375.619	2.451	3378.070	9.33	1.30	.03	3378.10	.00	.92	3.21	3.500	.000	.00	1 .0
2.267	.0400					.0001	.00	2.45	.15	.51	.013	.00	.00	PIPE
32.800	3375.710	2.358	3378.068	9.33	1.35	.03	3378.10	.00	.92	3.28	3.500	.000	.00	1 .0
13.799	.0070					.0001	.00	2.36	.16	.79	.013	.00	.00	PIPE
46.599	3375.806	2.261	3378.067	9.33	1.42	.03	3378.10	.00	.92	3.35	3.500	.000	.00	1 .0
12.892	.0070					.0002	.00	2.26	.18	.79	.013	.00	.00	PIPE
59.491	3375.896	2.171	3378.066	9.33	1.49	.03	3378.10	.00	.92	3.40	3.500	.000	.00	1 .0
12.103	.0070					.0002	.00	2.17	.19	.79	.013	.00	.00	PIPE
71.594	3375.980	2.085	3378.065	9.33	1.56	.04	3378.10	.00	.92	3.44	3.500	.000	.00	1 .0
11.384	.0070					.0002	.00	2.09	.21	.79	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE

INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
82.978	3376.059	2.005	3378.063	9.33	1.64	.04	3378.11	.00	.92	3.46	3.500	.000	.00	1 .0
10.748	.0070					.0002	.00	2.00	.22	.79	.013	.00	.00	PIPE
93.726	3376.134	1.928	3378.062	9.33	1.72	.05	3378.11	.00	.92	3.48	3.500	.000	.00	1 .0
10.154	.0070					.0003	.00	1.93	.24	.79	.013	.00	.00	PIPE
103.880	3376.204	1.856	3378.060	9.33	1.80	.05	3378.11	.00	.92	3.49	3.500	.000	.00	1 .0
9.598	.0070					.0003	.00	1.86	.26	.79	.013	.00	.00	PIPE
113.478	3376.271	1.787	3378.058	9.33	1.89	.06	3378.11	.00	.92	3.50	3.500	.000	.00	1 .0
2.722	.0070					.0003	.00	1.79	.28	.79	.013	.00	.00	PIPE
116.200	3376.290	1.768	3378.058	9.33	1.91	.06	3378.11	.00	.92	3.50	3.500	.000	.00	1 .0
1.491	.0400					.0004	.00	1.77	.29	.51	.013	.00	.00	PIPE
117.691	3376.350	1.703	3378.053	9.33	2.01	.06	3378.12	.00	.92	3.50	3.500	.000	.00	1 .0
1.405	.0400					.0004	.00	1.70	.31	.51	.013	.00	.00	PIPE
119.097	3376.406	1.641	3378.047	9.33	2.11	.07	3378.12	.00	.92	3.49	3.500	.000	.00	1 .0
1.321	.0400					.0005	.00	1.64	.33	.51	.013	.00	.00	PIPE
120.418	3376.458	1.582	3378.041	9.33	2.21	.08	3378.12	.00	.92	3.48	3.500	.000	.00	1 .0
.782	.0400					.0005	.00	1.58	.35	.51	.013	.00	.00	PIPE
121.200	3376.490	1.547	3378.037	9.33	2.27	.08	3378.12	.00	.92	3.48	3.500	.000	.00	1 .0
18.589	.0031					.0006	.01	1.55	.37	.97	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE

INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
139.789	3376.548	1.492	3378.040	9.33	2.39	.09	3378.13	.00	.92	3.46	3.500	.000	.00	1 .0
17.884	.0031					.0006	.01	1.49	.40	.97	.013	.00	.00	PIPE
157.673	3376.603	1.439	3378.042	9.33	2.50	.10	3378.14	.00	.92	3.44	3.500	.000	.00	1 .0
17.256	.0031					.0007	.01	1.44	.42	.97	.013	.00	.00	PIPE
174.929	3376.656	1.389	3378.045	9.33	2.62	.11	3378.15	.00	.92	3.42	3.500	.000	.00	1 .0
16.721	.0031					.0008	.01	1.39	.45	.97	.013	.00	.00	PIPE
191.650	3376.708	1.340	3378.049	9.33	2.75	.12	3378.17	.00	.92	3.40	3.500	.000	.00	1 .0
16.200	.0031					.0010	.02	1.34	.49	.97	.013	.00	.00	PIPE
207.850	3376.758	1.294	3378.052	9.33	2.89	.13	3378.18	.00	.92	3.38	3.500	.000	.00	1 .0
15.795	.0031					.0011	.02	1.29	.52	.97	.013	.00	.00	PIPE
223.645	3376.807	1.249	3378.056	9.33	3.03	.14	3378.20	.00	.92	3.35	3.500	.000	.00	1 .0
15.427	.0031					.0012	.02	1.25	.56	.97	.013	.00	.00	PIPE
239.072	3376.855	1.206	3378.061	9.33	3.17	.16	3378.22	.00	.92	3.33	3.500	.000	.00	1 .0
15.231	.0031					.0014	.02	1.21	.60	.97	.013	.00	.00	PIPE
254.303	3376.902	1.165	3378.067	9.33	3.33	.17	3378.24	.00	.92	3.30	3.500	.000	.00	1 .0
15.146	.0031					.0016	.02	1.17	.64	.97	.013	.00	.00	PIPE
269.448	3376.949	1.125	3378.074	9.33	3.49	.19	3378.26	.00	.92	3.27	3.500	.000	.00	1 .0
.352	.0031					.0017	.00	1.13	.68	.97	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE

INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
269.800	3376.950	1.125	3378.074	9.33	3.50	.19	3378.26	.00	.92	3.27	3.500	.000	.00	1 .0
JUNCT STR	.0400					.0009	.00	1.12	.68		.013	.00	.00	PIPE
272.300	3377.050	1.329	3378.379	3.33	.99	.02	3378.39	.00	.55	3.40	3.500	.000	.00	1 .0
1.119	.0399					.0001	.00	1.33	.18	.31	.013	.00	.00	PIPE
273.419	3377.095	1.283	3378.377	3.33	1.04	.02	3378.39	.00	.55	3.37	3.500	.000	.00	1 .0
1.071	.0399					.0001	.00	1.28	.19	.31	.013	.00	.00	PIPE
274.490	3377.137	1.239	3378.376	3.33	1.09	.02	3378.39	.00	.55	3.35	3.500	.000	.00	1 .0
.310	.0399					.0002	.00	1.24	.20	.31	.013	.00	.00	PIPE
274.800	3377.150	1.226	3378.376	3.33	1.11	.02	3378.40	.00	.55	3.34	3.500	.000	.00	1 .0
13.835	.0031					.0002	.00	1.23	.21	.58	.013	.00	.00	PIPE
288.635	3377.192	1.184	3378.376	3.33	1.16	.02	3378.40	.00	.55	3.31	3.500	.000	.00	1 .0
13.286	.0031					.0002	.00	1.18	.22	.58	.013	.00	.00	PIPE
301.921	3377.233	1.144	3378.377	3.33	1.22	.02	3378.40	.00	.55	3.28	3.500	.000	.00	1 .0
12.814	.0031					.0002	.00	1.14	.24	.58	.013	.00	.00	PIPE
314.735	3377.272	1.105	3378.377	3.33	1.28	.03	3378.40	.00	.55	3.25	3.500	.000	.00	1 .0
12.343	.0031					.0003	.00	1.10	.25	.58	.013	.00	.00	PIPE
327.078	3377.311	1.067	3378.378	3.33	1.34	.03	3378.41	.00	.55	3.22	3.500	.000	.00	1 .0
11.908	.0031					.0003	.00	1.07	.27	.58	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE

INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
338.987	3377.347	1.031	3378.378	3.33	1.41	.03	3378.41	.00	.55	3.19	3.500	.000	.00	1 .0
11.511	.0031					.0003	.00	1.03	.29	.58	.013	.00	.00	PIPE
350.498	3377.383	.997	3378.379	3.33	1.48	.03	3378.41	.00	.55	3.16	3.500	.000	.00	1 .0
11.152	.0031					.0004	.00	1.00	.31	.58	.013	.00	.00	PIPE
361.650	3377.417	.963	3378.380	3.33	1.55	.04	3378.42	.00	.55	3.13	3.500	.000	.00	1 .0
10.759	.0031					.0004	.00	.96	.33	.58	.013	.00	.00	PIPE
372.409	3377.450	.931	3378.381	3.33	1.62	.04	3378.42	.00	.55	3.09	3.500	.000	.00	1 .0
10.406	.0031					.0005	.01	.93	.35	.58	.013	.00	.00	PIPE
382.815	3377.482	.900	3378.382	3.33	1.70	.04	3378.43	.00	.55	3.06	3.500	.000	.00	1 .0
10.097	.0031					.0006	.01	.90	.38	.58	.013	.00	.00	PIPE
392.912	3377.513	.870	3378.383	3.33	1.79	.05	3378.43	.00	.55	3.03	3.500	.000	.00	1 .0
2.218	.0031					.0006	.00	.87	.40	.58	.013	.00	.00	PIPE
395.130	3377.520	.864	3378.384	3.33	1.80	.05	3378.43	.00	.55	3.02	3.500	.000	.00	1 .0
JUNCT STR	.0400					.0004	.00	.86	.41		.013	.00	.00	PIPE
397.630	3377.620	.868	3378.488	1.00	.77	.01	3378.50	.00	.34	1.98	2.000	.000	.00	1 .0
.751	.0399					.0001	.00	.87	.17	.21	.013	.00	.00	PIPE
398.381	3377.650	.837	3378.487	1.00	.80	.01	3378.50	.00	.34	1.97	2.000	.000	.00	1 .0
.714	.0399					.0002	.00	.84	.18	.21	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
399.095	3377.679	.807	3378.486	1.00	.84	.01	3378.50	.00	.34	1.96	2.000	.000	.00	1 .0
.684	.0399					.0002	.00	.81	.19	.21	.013	.00	.00	PIPE
399.779	3377.706	.779	3378.485	1.00	.88	.01	3378.50	.00	.34	1.95	2.000	.000	.00	1 .0
.351	.0399					.0002	.00	.78	.20	.21	.013	.00	.00	PIPE
400.130	3377.720	.765	3378.485	1.00	.91	.01	3378.50	.00	.34	1.94	2.000	.000	.00	1 .0
1.413	.0181					.0002	.00	.76	.21	.25	.013	.00	.00	PIPE
401.543	3377.746	.738	3378.484	1.00	.95	.01	3378.50	.00	.34	1.93	2.000	.000	.00	1 .0
1.349	.0181					.0002	.00	.74	.23	.25	.013	.00	.00	PIPE
402.892	3377.770	.713	3378.483	1.00	1.00	.02	3378.50	.00	.34	1.92	2.000	.000	.00	1 .0
1.288	.0181					.0003	.00	.71	.24	.25	.013	.00	.00	PIPE
404.180	3377.793	.688	3378.481	1.00	1.04	.02	3378.50	.00	.34	1.90	2.000	.000	.00	1 .0
1.226	.0181					.0003	.00	.69	.26	.25	.013	.00	.00	PIPE
405.406	3377.816	.665	3378.480	1.00	1.10	.02	3378.50	.00	.34	1.88	2.000	.000	.00	1 .0
1.174	.0181					.0004	.00	.66	.28	.25	.013	.00	.00	PIPE
406.581	3377.837	.642	3378.479	1.00	1.15	.02	3378.50	.00	.34	1.87	2.000	.000	.00	1 .0
1.117	.0181					.0004	.00	.64	.30	.25	.013	.00	.00	PIPE
407.697	3377.857	.620	3378.477	1.00	1.21	.02	3378.50	.00	.34	1.85	2.000	.000	.00	1 .0
1.058	.0181					.0005	.00	.62	.32	.25	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
408.755	3377.876	.599	3378.475	1.00	1.26	.02	3378.50	.00	.34	1.83	2.000	.000	.00	1 .0
1.009	.0181					.0005	.00	.60	.34	.25	.013	.00	.00	PIPE
409.764	3377.895	.579	3378.474	1.00	1.33	.03	3378.50	.00	.34	1.81	2.000	.000	.00	1 .0
.959	.0181					.0006	.00	.58	.36	.25	.013	.00	.00	PIPE
410.723	3377.912	.560	3378.471	1.00	1.39	.03	3378.50	.00	.34	1.80	2.000	.000	.00	1 .0
.903	.0181					.0007	.00	.56	.39	.25	.013	.00	.00	PIPE
411.626	3377.928	.541	3378.469	1.00	1.46	.03	3378.50	.00	.34	1.78	2.000	.000	.00	1 .0
.856	.0181					.0008	.00	.54	.41	.25	.013	.00	.00	PIPE
412.482	3377.944	.523	3378.466	1.00	1.53	.04	3378.50	.00	.34	1.76	2.000	.000	.00	1 .0
.802	.0181					.0009	.00	.52	.44	.25	.013	.00	.00	PIPE
413.283	3377.958	.505	3378.463	1.00	1.60	.04	3378.50	.00	.34	1.74	2.000	.000	.00	1 .0
.752	.0181					.0011	.00	.51	.47	.25	.013	.00	.00	PIPE
414.035	3377.972	.489	3378.460	1.00	1.68	.04	3378.50	.00	.34	1.72	2.000	.000	.00	1 .0
.699	.0181					.0012	.00	.49	.50	.25	.013	.00	.00	PIPE
414.734	3377.984	.472	3378.457	1.00	1.76	.05	3378.51	.00	.34	1.70	2.000	.000	.00	1 .0
.375	.0181					.0014	.00	.47	.54	.25	.013	.00	.00	PIPE
415.110	3377.991	.457	3378.448	1.00	1.85	.05	3378.50	.00	.34	1.68	2.000	.000	.00	1 .0

HYDRAULIC JUMP

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WATER SURFACE PROFILE LISTING Date:10-14-2020 Time: 6:14:35

SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE

INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
415.110	3377.991	.248	3378.240	1.00	4.45	.31	3378.55	.00	.34	1.32	2.000	.000	.00	1 .0
95.891	.0181					.0181	1.74	.25	1.90	.25	.013	.00	.00	PIPE
511.001	3379.728	.248	3379.976	1.00	4.45	.31	3380.28	.00	.34	1.32	2.000	.000	.00	1 .0
17.215	.0181					.0171	.29	.25	1.90	.25	.013	.00	.00	PIPE
528.216	3380.039	.255	3380.295	1.00	4.28	.28	3380.58	.00	.34	1.34	2.000	.000	.00	1 .0
5.724	.0181					.0151	.09	.26	1.80	.25	.013	.00	.00	PIPE
533.940	3380.143	.264	3380.407	1.00	4.08	.26	3380.67	.00	.34	1.35	2.000	.000	.00	1 .0
2.967	.0181					.0132	.04	.26	1.69	.25	.013	.00	.00	PIPE
536.908	3380.197	.273	3380.469	1.00	3.89	.23	3380.70	.00	.34	1.37	2.000	.000	.00	1 .0
1.864	.0181					.0115	.02	.27	1.58	.25	.013	.00	.00	PIPE
538.772	3380.230	.282	3380.512	1.00	3.71	.21	3380.73	.00	.34	1.39	2.000	.000	.00	1 .0
1.237	.0181					.0100	.01	.28	1.48	.25	.013	.00	.00	PIPE
540.009	3380.253	.291	3380.544	1.00	3.53	.19	3380.74	.00	.34	1.41	2.000	.000	.00	1 .0
.837	.0181					.0088	.01	.29	1.39	.25	.013	.00	.00	PIPE
540.846	3380.268	.301	3380.569	1.00	3.37	.18	3380.75	.00	.34	1.43	2.000	.000	.00	1 .0
.576	.0181					.0076	.00	.30	1.30	.25	.013	.00	.00	PIPE
541.422	3380.279	.311	3380.589	1.00	3.21	.16	3380.75	.00	.34	1.45	2.000	.000	.00	1 .0
.365	.0181					.0067	.00	.31	1.22	.25	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date:10-14-2020 Time: 6:14:35

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
541.786	3380.285	.321	3380.606	1.00	3.06	.15	3380.75	.00	.34	1.47	2.000	.000	.00	1 .0
.199	.0181					.0058	.00	.32	1.14	.25	.013	.00	.00	PIPE
541.985	3380.289	.332	3380.621	1.00	2.92	.13	3380.75	.00	.34	1.49	2.000	.000	.00	1 .0
.065	.0181					.0051	.00	.33	1.07	.25	.013	.00	.00	PIPE
542.050	3380.290	.344	3380.634	1.00	2.77	.12	3380.75	.00	.34	1.51	2.000	.000	.00	1 .0

```
T1 SUMMERLIN WEST VILLAGE 22                                                0
T2 DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE
T3 INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT
SO    274.8003377.150  2                          3378.376
REM*****     ATKINS     *****    SDMH#1
R     322.8903378.680  2      .013                                  .000    .000 0
REM*****     PARCEL GG
SH    322.8903378.680  2                          3378.680
CD   1  4   1    .000   3.500     .000  .000  .000   .00
CD   2  4   1    .000   2.500     .000  .000  .000   .00
Q             6.000   .0
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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:10-14-2020 Time: 6:27:13

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
274.800	3377.150	.499	3377.648	6.00	8.62	1.15	3378.80	.00	.81	2.00	2.500	.000	.00	1 .0
6.225	.0318					.0277	.17	.50	2.57	.48	.013	.00	.00	PIPE
281.025	3377.348	.503	3377.851	6.00	8.50	1.12	3378.97	.00	.81	2.01	2.500	.000	.00	1 .0
13.281	.0318					.0254	.34	.50	2.52	.48	.013	.00	.00	PIPE
294.306	3377.770	.521	3378.291	6.00	8.11	1.02	3379.31	.00	.81	2.03	2.500	.000	.00	1 .0
7.818	.0318					.0222	.17	.52	2.37	.48	.013	.00	.00	PIPE
302.124	3378.019	.538	3378.557	6.00	7.73	.93	3379.48	.00	.81	2.06	2.500	.000	.00	1 .0
5.324	.0318					.0194	.10	.54	2.22	.48	.013	.00	.00	PIPE
307.448	3378.188	.557	3378.745	6.00	7.37	.84	3379.59	.00	.81	2.08	2.500	.000	.00	1 .0
3.884	.0318					.0170	.07	.56	2.08	.48	.013	.00	.00	PIPE
311.332	3378.312	.576	3378.887	6.00	7.03	.77	3379.65	.00	.81	2.10	2.500	.000	.00	1 .0
2.944	.0318					.0148	.04	.58	1.94	.48	.013	.00	.00	PIPE
314.276	3378.406	.595	3379.001	6.00	6.70	.70	3379.70	.00	.81	2.13	2.500	.000	.00	1 .0
2.279	.0318					.0130	.03	.60	1.82	.48	.013	.00	.00	PIPE
316.555	3378.478	.616	3379.094	6.00	6.39	.63	3379.73	.00	.81	2.15	2.500	.000	.00	1 .0
1.777	.0318					.0113	.02	.62	1.70	.48	.013	.00	.00	PIPE
318.333	3378.535	.637	3379.172	6.00	6.09	.58	3379.75	.00	.81	2.18	2.500	.000	.00	1 .0
1.391	.0318					.0099	.01	.64	1.60	.48	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date:10-14-2020 Time: 6:27:13

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
319.724	3378.579	.659	3379.238	6.00	5.81	.52	3379.76	.00	.81	2.20	2.500	.000	.00	1 .0
1.072	.0318					.0087	.01	.66	1.49	.48	.013	.00	.00	PIPE
320.795	3378.613	.682	3379.295	6.00	5.54	.48	3379.77	.00	.81	2.23	2.500	.000	.00	1 .0
.812	.0318					.0076	.01	.68	1.40	.48	.013	.00	.00	PIPE
321.607	3378.639	.705	3379.344	6.00	5.28	.43	3379.78	.00	.81	2.25	2.500	.000	.00	1 .0
.589	.0318					.0066	.00	.71	1.31	.48	.013	.00	.00	PIPE
322.196	3378.658	.730	3379.387	6.00	5.03	.39	3379.78	.00	.81	2.27	2.500	.000	.00	1 .0
.394	.0318					.0058	.00	.73	1.22	.48	.013	.00	.00	PIPE
322.590	3378.670	.755	3379.426	6.00	4.80	.36	3379.78	.00	.81	2.30	2.500	.000	.00	1 .0
.225	.0318					.0051	.00	.76	1.15	.48	.013	.00	.00	PIPE
322.815	3378.677	.782	3379.459	6.00	4.58	.33	3379.78	.00	.81	2.32	2.500	.000	.00	1 .0
.075	.0318					.0045	.00	.78	1.07	.48	.013	.00	.00	PIPE
322.890	3378.680	.810	3379.490	6.00	4.35	.29	3379.78	.00	.81	2.34	2.500	.000	.00	1 .0

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T1 SUMMERLIN WEST VILLAGE 22                                                0
T2 DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE
T3 INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT
SO    400.1303377.720  3                          3378.485
REM*****     ATKINS     *****     SDMH#2
R     429.6303378.020  3      .013                                .000    .000 0
REM*****     ATKINS     *****     SDDI#3
SH    429.6303378.020  3                          3378.020
CD   1  4   1    .000   3.500     .000  .000  .000   .00
CD   2  4   1    .000   2.500     .000  .000  .000   .00
CD   3  4   1    .000   2.000     .000  .000  .000   .00
Q             1.450   .0
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WATER SURFACE PROFILE LISTING Date:10-14-2020 Time: 6:27:33

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
400.130	3377.720	.765	3378.485	1.45	1.31	.03	3378.51	.00	.42	1.94	2.000	.000	.00	1 .0
2.466	.0102					.0005	.00	.77	.31	.34	.013	.00	.00	PIPE
402.596	3377.745	.739	3378.484	1.45	1.38	.03	3378.51	.00	.42	1.93	2.000	.000	.00	1 .0
2.338	.0102					.0005	.00	.74	.33	.34	.013	.00	.00	PIPE
404.933	3377.769	.713	3378.482	1.45	1.44	.03	3378.51	.00	.42	1.92	2.000	.000	.00	1 .0
2.220	.0102					.0006	.00	.71	.35	.34	.013	.00	.00	PIPE
407.154	3377.792	.689	3378.480	1.45	1.51	.04	3378.52	.00	.42	1.90	2.000	.000	.00	1 .0
2.101	.0102					.0007	.00	.69	.38	.34	.013	.00	.00	PIPE
409.255	3377.813	.665	3378.478	1.45	1.59	.04	3378.52	.00	.42	1.88	2.000	.000	.00	1 .0
1.999	.0102					.0008	.00	.67	.40	.34	.013	.00	.00	PIPE
411.254	3377.833	.642	3378.476	1.45	1.66	.04	3378.52	.00	.42	1.87	2.000	.000	.00	1 .0
1.884	.0102					.0009	.00	.64	.43	.34	.013	.00	.00	PIPE
413.137	3377.852	.621	3378.473	1.45	1.75	.05	3378.52	.00	.42	1.85	2.000	.000	.00	1 .0
1.775	.0102					.0010	.00	.62	.46	.34	.013	.00	.00	PIPE
414.912	3377.870	.600	3378.470	1.45	1.83	.05	3378.52	.00	.42	1.83	2.000	.000	.00	1 .0
1.662	.0102					.0012	.00	.60	.49	.34	.013	.00	.00	PIPE
416.575	3377.887	.579	3378.467	1.45	1.92	.06	3378.52	.00	.42	1.81	2.000	.000	.00	1 .0
1.555	.0102					.0013	.00	.58	.52	.34	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date:10-14-2020 Time: 6:27:33

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
418.130	3377.903	.560	3378.463	1.45	2.01	.06	3378.53	.00	.42	1.80	2.000	.000	.00	1 .0
1.430	.0102					.0015	.00	.56	.56	.34	.013	.00	.00	PIPE
419.560	3377.918	.541	3378.459	1.45	2.11	.07	3378.53	.00	.42	1.78	2.000	.000	.00	1 .0
1.321	.0102					.0017	.00	.54	.60	.34	.013	.00	.00	PIPE
420.881	3377.931	.523	3378.454	1.45	2.22	.08	3378.53	.00	.42	1.76	2.000	.000	.00	1 .0
1.191	.0102					.0020	.00	.52	.64	.34	.013	.00	.00	PIPE
422.073	3377.943	.506	3378.449	1.45	2.32	.08	3378.53	.00	.42	1.74	2.000	.000	.00	1 .0
1.062	.0102					.0022	.00	.51	.68	.34	.013	.00	.00	PIPE
423.134	3377.954	.489	3378.443	1.45	2.44	.09	3378.54	.00	.42	1.72	2.000	.000	.00	1 .0
.709	.0102					.0026	.00	.49	.73	.34	.013	.00	.00	PIPE
423.844	3377.961	.473	3378.434	1.45	2.56	.10	3378.54	.00	.42	1.70	2.000	.000	.00	1 .0
HYDRAULIC JUMP														
423.844	3377.961	.352	3378.313	1.45	3.90	.24	3378.55	.00	.42	1.52	2.000	.000	.00	1 .0
.930	.0102					.0085	.01	.35	1.39	.34	.013	.00	.00	PIPE
424.774	3377.971	.363	3378.334	1.45	3.72	.21	3378.55	.00	.42	1.54	2.000	.000	.00	1 .0
2.623	.0102					.0074	.02	.36	1.30	.34	.013	.00	.00	PIPE
427.397	3377.997	.376	3378.373	1.45	3.55	.20	3378.57	.00	.42	1.56	2.000	.000	.00	1 .0
1.369	.0102					.0065	.01	.38	1.22	.34	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date:10-14-2020 Time: 6:27:33

SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE

INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
428.766	3378.011	.388	3378.400	1.45	3.38	.18	3378.58	.00	.42	1.58	2.000	.000	.00	1 .0
.675	.0102					.0057	.00	.39	1.14	.34	.013	.00	.00	PIPE
429.441	3378.018	.401	3378.419	1.45	3.22	.16	3378.58	.00	.42	1.60	2.000	.000	.00	1 .0
.189	.0102					.0049	.00	.40	1.07	.34	.013	.00	.00	PIPE
429.630	3378.020	.416	3378.436	1.45	3.06	.15	3378.58	.00	.42	1.62	2.000	.000	.00	1 .0

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T1 SUMMERLIN WEST VILLAGE 22                                                0
T2 DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE
T3 INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT
SO    400.1303377.720  2                          3378.485
REM*****     ATKINS     *****     SDMH#2
R     407.6303377.870  2      .013                                .000    .000 0
REM*****     ATKINS     *****     SDDI#2
SH    407.6303377.870  2                          3377.870
CD   1  4   1    .000   3.500     .000  .000  .000   .00
CD   2  4   1    .000   2.500     .000  .000  .000   .00
CD   3  4   1    .000   2.000     .000  .000  .000   .00
Q             0.880   .0
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WATER SURFACE PROFILE LISTING Date:10-14-2020 Time: 6:27:49

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
400.130	3377.720	.765	3378.485	.88	.69	.01	3378.49	.00	.30	2.30	2.500	.000	.00	1 .0
1.266	.0200					.0001	.00	.77	.16	.21	.013	.00	.00	PIPE
401.396	3377.745	.739	3378.485	.88	.72	.01	3378.49	.00	.30	2.28	2.500	.000	.00	1 .0
1.206	.0200					.0001	.00	.74	.18	.21	.013	.00	.00	PIPE
402.602	3377.770	.714	3378.484	.88	.76	.01	3378.49	.00	.30	2.26	2.500	.000	.00	1 .0
1.163	.0200					.0002	.00	.71	.19	.21	.013	.00	.00	PIPE
403.765	3377.793	.690	3378.483	.88	.80	.01	3378.49	.00	.30	2.24	2.500	.000	.00	1 .0
1.114	.0200					.0002	.00	.69	.20	.21	.013	.00	.00	PIPE
404.879	3377.815	.667	3378.482	.88	.84	.01	3378.49	.00	.30	2.21	2.500	.000	.00	1 .0
1.071	.0200					.0002	.00	.67	.21	.21	.013	.00	.00	PIPE
405.950	3377.836	.645	3378.481	.88	.88	.01	3378.49	.00	.30	2.19	2.500	.000	.00	1 .0
1.021	.0200					.0002	.00	.65	.23	.21	.013	.00	.00	PIPE
406.971	3377.857	.624	3378.480	.88	.92	.01	3378.49	.00	.30	2.16	2.500	.000	.00	1 .0
.659	.0200					.0003	.00	.62	.24	.21	.013	.00	.00	PIPE
407.630	3377.870	.610	3378.480	.88	.95	.01	3378.49	.00	.30	2.15	2.500	.000	.00	1 .0

```
T1 SUMMERLIN WEST VILLAGE 22                                                0
T2 DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE
T3 ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT
SO       .0003375.220  1                          3378.074
R      27.8003375.510  1      .013                                .000    .000 0
R      32.8003375.710  1      .013                                .000    .000 1
REM*****     VTN     *****   EX.SDMH#30
R     116.2003376.290  1      .013                                .000    .000 0
R     121.2003376.49   1      .013                                .000    .000 1
REM*****     ATKINS     *****     SDMH#9
R     269.8003376.950  1      .013                                .000    .000 0
JX    272.3003377.050  1  2   .013   21.000         3377.150        -90.0         .000
REM*****     ATKINS     *****     PARCEL GG
R     274.8003377.150  1      .013                                .000    .000 1
REM*****     ATKINS     *****    SDMH#1
R     395.1303377.520  1      .013                                .000    .000 0
JX    397.6303377.620  3  2  3.013    0.880    1.4503377.7203377.720-90.0 90.0    .000
REM*****     ATKINS     *****     SDDI#2 & 3
R     400.1303377.720  3      .013                                .000  -5.000 1
REM*****     ATKINS     *****     SDMH#2
R     542.0503380.290  3      .013                                .000    .000 0
REM*****     ATKINS     *****     SDDI#4
SH    542.0503380.290  3                          3380.290
CD   1  4   1    .000   3.500     .000  .000  .000   .00
CD   2  4   1    .000   2.500     .000  .000  .000   .00
CD   3  4   1    .000   1.500     .000  .000  .000   .00
Q             4.670   .0
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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:10-21-2020 Time: 6: 0:41

SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE

ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
.000	3375.220	2.854	3378.074	28.00	3.33	.17	3378.25	.00	1.63	2.72	3.500	.000	.00	1 .0
12.626	.0104					.0008	.01	2.85	.33	1.25	.013	.00	.00	PIPE
12.626	3375.352	2.715	3378.067	28.00	3.50	.19	3378.26	.00	1.63	2.92	3.500	.000	.00	1 .0
11.072	.0104					.0009	.01	2.72	.37	1.25	.013	.00	.00	PIPE
23.699	3375.467	2.591	3378.058	28.00	3.67	.21	3378.27	.00	1.63	3.07	3.500	.000	.00	1 .0
4.101	.0104					.0010	.00	2.59	.41	1.25	.013	.00	.00	PIPE
27.800	3375.510	2.545	3378.055	28.00	3.74	.22	3378.27	.00	1.63	3.12	3.500	.000	.00	1 .0
2.271	.0400					.0011	.00	2.54	.42	.88	.013	.00	.00	PIPE
30.071	3375.601	2.435	3378.036	28.00	3.92	.24	3378.27	.00	1.63	3.22	3.500	.000	.00	1 .0
2.012	.0400					.0012	.00	2.43	.46	.88	.013	.00	.00	PIPE
32.082	3375.681	2.333	3378.014	28.00	4.11	.26	3378.28	.00	1.63	3.30	3.500	.000	.00	1 .0
.718	.0400					.0013	.00	2.33	.50	.88	.013	.00	.00	PIPE
32.800	3375.710	2.296	3378.006	28.00	4.19	.27	3378.28	.00	1.63	3.33	3.500	.000	.00	1 .0
11.821	.0070					.0014	.02	2.30	.52	1.39	.013	.00	.00	PIPE
44.621	3375.792	2.203	3377.995	28.00	4.39	.30	3378.29	.00	1.63	3.38	3.500	.000	.00	1 .0
10.677	.0070					.0016	.02	2.20	.56	1.39	.013	.00	.00	PIPE
55.298	3375.866	2.116	3377.982	28.00	4.60	.33	3378.31	.00	1.63	3.42	3.500	.000	.00	1 .0
9.554	.0070					.0018	.02	2.12	.61	1.39	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date:10-21-2020 Time: 6: 0:41

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
64.852	3375.933	2.033	3377.966	28.00	4.83	.36	3378.33	.00	1.63	3.45	3.500	.000	.00	1 .0
8.428	.0070					.0020	.02	2.03	.66	1.39	.013	.00	.00	PIPE
73.280	3375.991	1.956	3377.947	28.00	5.06	.40	3378.35	.00	1.63	3.48	3.500	.000	.00	1 .0
.832	.0070					.0021	.00	1.96	.71	1.39	.013	.00	.00	PIPE
74.113	3375.997	1.956	3377.953	28.00	5.06	.40	3378.35	.00	1.63	3.48	3.500	.000	.00	1 .0
HYDRAULIC JUMP														
74.113	3375.997	1.365	3377.362	28.00	8.06	1.01	3378.37	.00	1.63	3.41	3.500	.000	.00	1 .0
42.087	.0070					.0080	.34	1.36	1.41	1.39	.013	.00	.00	PIPE
116.200	3376.290	1.317	3377.607	28.00	8.45	1.11	3378.72	.00	1.63	3.39	3.500	.000	.00	1 .0
1.585	.0400					.0080	.01	1.32	1.51	.88	.013	.00	.00	PIPE
117.785	3376.353	1.362	3377.715	28.00	8.09	1.02	3378.73	.00	1.63	3.41	3.500	.000	.00	1 .0
1.304	.0400					.0071	.01	1.36	1.41	.88	.013	.00	.00	PIPE
119.088	3376.406	1.411	3377.816	28.00	7.71	.92	3378.74	.00	1.63	3.43	3.500	.000	.00	1 .0
.960	.0400					.0062	.01	1.41	1.32	.88	.013	.00	.00	PIPE
120.048	3376.444	1.463	3377.906	28.00	7.35	.84	3378.75	.00	1.63	3.45	3.500	.000	.00	1 .0
.654	.0400					.0055	.00	1.46	1.23	.88	.013	.00	.00	PIPE
120.702	3376.470	1.516	3377.986	28.00	7.01	.76	3378.75	.00	1.63	3.47	3.500	.000	.00	1 .0
.376	.0400					.0048	.00	1.52	1.15	.88	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
121.079	3376.485	1.572	3378.057	28.00	6.68	.69	3378.75	.00	1.63	3.48	3.500	.000	.00	1 .0
.121	.0400					.0042	.00	1.57	1.07	.88	.013	.00	.00	PIPE
121.200	3376.490	1.632	3378.122	28.00	6.37	.63	3378.75	.00	1.63	3.49	3.500	.000	.00	1 .0
6.875	.0031					.0037	.03	1.63	1.00	1.75	.013	.00	.00	PIPE
128.075	3376.511	1.693	3378.205	28.00	6.07	.57	3378.78	.00	1.63	3.50	3.500	.000	.00	1 .0
59.326	.0031					.0033	.19	1.69	.93	1.75	.013	.00	.00	PIPE
187.401	3376.695	1.750	3378.445	28.00	5.82	.53	3378.97	.00	1.63	3.50	3.500	.000	.00	1 .0
82.399	.0031					.0031	.25	1.75	.87	1.75	.013	.00	.00	PIPE
269.800	3376.950	1.750	3378.700	28.00	5.82	.53	3379.23	.00	1.63	3.50	3.500	.000	.00	1 .0
JUNCT STR	.0400					.0016	.00	1.75	.87		.013	.00	.00	PIPE
272.300	3377.050	2.460	3379.510	7.00	.97	.01	3379.52	.00	.80	3.20	3.500	.000	.00	1 .0
2.500	.0399					.0001	.00	2.46	.11	.45	.013	.00	.00	PIPE
274.800	3377.150	2.359	3379.509	7.00	1.01	.02	3379.52	.00	.80	3.28	3.500	.000	.00	1 .0
31.805	.0031					.0001	.00	2.36	.12	.84	.013	.00	.00	PIPE
306.605	3377.248	2.262	3379.510	7.00	1.06	.02	3379.53	.00	.80	3.35	3.500	.000	.00	1 .0
29.836	.0031					.0001	.00	2.26	.13	.84	.013	.00	.00	PIPE
336.441	3377.340	2.171	3379.511	7.00	1.12	.02	3379.53	.00	.80	3.40	3.500	.000	.00	1 .0
28.078	.0031					.0001	.00	2.17	.14	.84	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
364.519	3377.426	2.086	3379.512	7.00	1.17	.02	3379.53	.00	.80	3.43	3.500	.000	.00	1 .0
26.551	.0031					.0001	.00	2.09	.16	.84	.013	.00	.00	PIPE
391.070	3377.508	2.005	3379.513	7.00	1.23	.02	3379.54	.00	.80	3.46	3.500	.000	.00	1 .0
4.060	.0031					.0001	.00	2.01	.17	.84	.013	.00	.00	PIPE
395.130	3377.520	1.993	3379.513	7.00	1.24	.02	3379.54	.00	.80	3.47	3.500	.000	.00	1 .0
JUNCT STR	.0400					.0011	.00	1.99	.17		.013	.00	.00	PIPE
397.630	3377.620	1.865	3379.485	4.67	2.64	.11	3379.59	.00	.83	.00	1.500	.000	.00	1 .0
2.500	.0399					.0020	.00	1.86	.00	.48	.013	.00	.00	PIPE
400.130	3377.720	1.777	3379.497	4.67	2.64	.11	3379.61	.00	.83	.00	1.500	.000	.00	1 .0
17.173	.0181					.0020	.03	1.78	.00	.59	.013	.00	.00	PIPE
417.303	3378.031	1.500	3379.531	4.67	2.64	.11	3379.64	.00	.83	.00	1.500	.000	.00	1 .0
7.817	.0181					.0018	.01	1.50	.00	.59	.013	.00	.00	PIPE
425.120	3378.173	1.361	3379.533	4.67	2.77	.12	3379.65	.00	.83	.87	1.500	.000	.00	1 .0
4.220	.0181					.0018	.01	1.36	.35	.59	.013	.00	.00	PIPE
429.340	3378.249	1.280	3379.529	4.67	2.91	.13	3379.66	.00	.83	1.06	1.500	.000	.00	1 .0
3.307	.0181					.0019	.01	1.28	.42	.59	.013	.00	.00	PIPE
432.647	3378.309	1.214	3379.522	4.67	3.05	.14	3379.67	.00	.83	1.18	1.500	.000	.00	1 .0
2.745	.0181					.0021	.01	1.21	.47	.59	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
435.392	3378.359	1.155	3379.514	4.67	3.20	.16	3379.67	.00	.83	1.26	1.500	.000	.00	1 .0
.952	.0181					.0024	.00	1.16	.52	.59	.013	.00	.00	PIPE
436.344	3378.376	1.103	3379.479	4.67	3.35	.17	3379.65	.00	.83	1.32	1.500	.000	.00	1 .0
HYDRAULIC JUMP														
436.344	3378.376	.594	3378.969	4.67	7.18	.80	3379.77	.00	.83	1.47	1.500	.000	.00	1 .0
33.556	.0181					.0180	.61	.59	1.90	.59	.013	.00	.00	PIPE
469.900	3378.983	.595	3379.578	4.67	7.16	.80	3380.37	.00	.83	1.47	1.500	.000	.00	1 .0
40.596	.0181					.0169	.68	.59	1.89	.59	.013	.00	.00	PIPE
510.496	3379.719	.617	3380.335	4.67	6.82	.72	3381.06	.00	.83	1.48	1.500	.000	.00	1 .0
13.081	.0181					.0148	.19	.62	1.77	.59	.013	.00	.00	PIPE
523.577	3379.955	.639	3380.594	4.67	6.51	.66	3381.25	.00	.83	1.48	1.500	.000	.00	1 .0
7.080	.0181					.0130	.09	.64	1.65	.59	.013	.00	.00	PIPE
530.657	3380.083	.663	3380.746	4.67	6.20	.60	3381.34	.00	.83	1.49	1.500	.000	.00	1 .0
4.448	.0181					.0114	.05	.66	1.54	.59	.013	.00	.00	PIPE
535.105	3380.164	.687	3380.851	4.67	5.91	.54	3381.39	.00	.83	1.49	1.500	.000	.00	1 .0
2.925	.0181					.0100	.03	.69	1.43	.59	.013	.00	.00	PIPE
538.030	3380.217	.713	3380.930	4.67	5.64	.49	3381.42	.00	.83	1.50	1.500	.000	.00	1 .0
1.941	.0181					.0088	.02	.71	1.34	.59	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
539.971	3380.252	.740	3380.992	4.67	5.38	.45	3381.44	.00	.83	1.50	1.500	.000	.00	1 .0
1.212	.0181					.0078	.01	.74	1.25	.59	.013	.00	.00	PIPE
541.182	3380.274	.768	3381.042	4.67	5.13	.41	3381.45	.00	.83	1.50	1.500	.000	.00	1 .0
.658	.0181					.0069	.00	.77	1.16	.59	.013	.00	.00	PIPE
541.840	3380.286	.798	3381.084	4.67	4.89	.37	3381.46	.00	.83	1.50	1.500	.000	.00	1 .0
.210	.0181					.0060	.00	.80	1.08	.59	.013	.00	.00	PIPE
542.050	3380.290	.830	3381.120	4.67	4.65	.34	3381.46	.00	.83	1.49	1.500	.000	.00	1 .0

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T1 SUMMERLIN WEST VILLAGE 22                                                0
T2 DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE
T3 ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT
SO    274.8003377.150  2                          3379.545
REM*****     ATKINS     *****    SDMH#1
R     322.8903378.680  2      .013                                  .000    .000 0
REM*****     PARCEL GG
SH    322.8903378.680  2                          3378.680
CD   1  4   1    .000   3.500     .000  .000  .000   .00
CD   2  4   1    .000   2.500     .000  .000  .000   .00
Q            21.000   .0
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Program Package Serial Number: 7271

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SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE

ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
274.800	3377.150	2.395	3379.545	21.00	4.34	.29	3379.84	.00	1.56	1.00	2.500	.000	.00	1 .0
2.570	.0318					.0023	.01	2.40	.35	.92	.013	.00	.00	PIPE
277.370	3377.232	2.306	3379.538	21.00	4.44	.31	3379.84	.00	1.56	1.34	2.500	.000	.00	1 .0
HYDRAULIC JUMP														
277.370	3377.232	1.011	3378.243	21.00	11.28	1.98	3380.22	.00	1.56	2.45	2.500	.000	.00	1 .0
3.808	.0318					.0215	.08	1.01	2.28	.92	.013	.00	.00	PIPE
281.178	3377.353	1.028	3378.380	21.00	11.05	1.89	3380.27	.00	1.56	2.46	2.500	.000	.00	1 .0
11.051	.0318					.0196	.22	1.03	2.21	.92	.013	.00	.00	PIPE
292.229	3377.704	1.065	3378.770	21.00	10.53	1.72	3380.49	.00	1.56	2.47	2.500	.000	.00	1 .0
8.048	.0318					.0172	.14	1.07	2.07	.92	.013	.00	.00	PIPE
300.277	3377.960	1.104	3379.065	21.00	10.04	1.57	3380.63	.00	1.56	2.48	2.500	.000	.00	1 .0
6.082	.0318					.0152	.09	1.10	1.93	.92	.013	.00	.00	PIPE
306.360	3378.154	1.145	3379.300	21.00	9.57	1.42	3380.72	.00	1.56	2.49	2.500	.000	.00	1 .0
4.678	.0318					.0133	.06	1.15	1.80	.92	.013	.00	.00	PIPE
311.038	3378.303	1.188	3379.491	21.00	9.13	1.29	3380.79	.00	1.56	2.50	2.500	.000	.00	1 .0
3.615	.0318					.0117	.04	1.19	1.68	.92	.013	.00	.00	PIPE
314.653	3378.418	1.233	3379.651	21.00	8.70	1.18	3380.83	.00	1.56	2.50	2.500	.000	.00	1 .0
2.784	.0318					.0103	.03	1.23	1.56	.92	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE

ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
317.437	3378.507	1.280	3379.787	21.00	8.30	1.07	3380.86	.00	1.56	2.50	2.500	.000	.00	1 .0
2.105	.0318					.0091	.02	1.28	1.45	.92	.013	.00	.00	PIPE
319.542	3378.573	1.330	3379.903	21.00	7.91	.97	3380.88	.00	1.56	2.49	2.500	.000	.00	1 .0
1.529	.0318					.0080	.01	1.33	1.35	.92	.013	.00	.00	PIPE
321.071	3378.622	1.382	3380.004	21.00	7.54	.88	3380.89	.00	1.56	2.49	2.500	.000	.00	1 .0
1.033	.0318					.0071	.01	1.38	1.26	.92	.013	.00	.00	PIPE
322.104	3378.655	1.437	3380.092	21.00	7.19	.80	3380.90	.00	1.56	2.47	2.500	.000	.00	1 .0
.593	.0318					.0063	.00	1.44	1.17	.92	.013	.00	.00	PIPE
322.697	3378.674	1.495	3380.168	21.00	6.86	.73	3380.90	.00	1.56	2.45	2.500	.000	.00	1 .0
.193	.0318					.0055	.00	1.49	1.08	.92	.013	.00	.00	PIPE
322.890	3378.680	1.557	3380.237	21.00	6.53	.66	3380.90	.00	1.56	2.42	2.500	.000	.00	1 .0

```
T1 SUMMERLIN WEST VILLAGE 22                                                0
T2 DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE
T3 ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT
SO    400.1303377.720  3                          3379.518
REM*****     ATKINS     *****     SDMH#2
R     429.6303378.020  3      .013                                .000    .000 0
REM*****     ATKINS     *****     SDDI#3
SH    429.6303378.020  3                          3378.020
CD   1  4   1    .000   3.500     .000  .000  .000   .00
CD   2  4   1    .000   2.500     .000  .000  .000   .00
CD   3  4   1    .000   1.500     .000  .000  .000   .00
Q             1.450   .0
```

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SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE

ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
400.130	3377.720	1.798	3379.518	1.45	.82	.01	3379.53	.00	.45	.00	1.500	.000	.00	1 .0
29.500	.0102				.0002	.01	1.80	.00	.37	.013	.00	.00	PIPE	
429.630	3378.020	1.504	3379.524	1.45	.82	.01	3379.53	.00	.45	.00	1.500	.000	.00	1 .0

```
T1 SUMMERLIN WEST VILLAGE 22                                                0
T2 DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE
T3 ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT
SO    400.7003377.350  2                          3378.970
REM*****     ATKINS     *****     SDMH#2
R     401.2003377.570  2      .013                                .000    .000 0
JX    406.7003377.770  3  3   .013    1.000         3377.770          0.0         .000
REM*****     ATKINS     *****     SDDI#2
R     435.7003380.470  3      .013                                .000    .000 0
REM*****     ATKINS     *****     SDDI#1
SH    435.7003380.470  3                          3380.470
CD   1  4   1    .000   3.500     .000  .000  .000   .00
CD   2  4   1    .000   2.500     .000  .000  .000   .00
CD   3  4   1    .000   1.500     .000  .000  .000   .00
Q             1.000   .0
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WATER SURFACE PROFILE LISTING Date:10-14-2020 Time: 8: 3:41

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
400.130	3377.720	.228	3377.949	.88	3.94	.24	3378.19	.00	.30	1.44	2.500	.000	.00	1 .0
2.006	.0200					.0148	.03	.23	1.76	.21	.013	.00	.00	PIPE
402.136	3377.760	.233	3377.994	.88	3.81	.23	3378.22	.00	.30	1.45	2.500	.000	.00	1 .0
1.869	.0200					.0132	.02	.23	1.68	.21	.013	.00	.00	PIPE
404.004	3377.798	.241	3378.039	.88	3.63	.20	3378.24	.00	.30	1.48	2.500	.000	.00	1 .0
1.246	.0200					.0115	.01	.24	1.58	.21	.013	.00	.00	PIPE
405.251	3377.823	.249	3378.072	.88	3.46	.19	3378.26	.00	.30	1.50	2.500	.000	.00	1 .0
.874	.0200					.0100	.01	.25	1.48	.21	.013	.00	.00	PIPE
406.124	3377.840	.257	3378.098	.88	3.30	.17	3378.27	.00	.30	1.52	2.500	.000	.00	1 .0
.611	.0200					.0088	.01	.26	1.39	.21	.013	.00	.00	PIPE
406.736	3377.853	.266	3378.118	.88	3.15	.15	3378.27	.00	.30	1.54	2.500	.000	.00	1 .0
.419	.0200					.0076	.00	.27	1.30	.21	.013	.00	.00	PIPE
407.155	3377.861	.275	3378.135	.88	3.00	.14	3378.28	.00	.30	1.56	2.500	.000	.00	1 .0
.271	.0200					.0067	.00	.27	1.22	.21	.013	.00	.00	PIPE
407.425	3377.866	.284	3378.150	.88	2.86	.13	3378.28	.00	.30	1.59	2.500	.000	.00	1 .0
.152	.0200					.0058	.00	.28	1.15	.21	.013	.00	.00	PIPE
407.577	3377.869	.293	3378.162	.88	2.73	.12	3378.28	.00	.30	1.61	2.500	.000	.00	1 .0
.053	.0200					.0050	.00	.29	1.07	.21	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRIVE - FLIGHT EDGE WAY TO SUNSET RIDGE DRIVE

ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
407.630	3377.870	.304	3378.174	.88	2.59	.10	3378.28	.00	.30	1.63	2.500	.000	.00	1 .0

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T1 SUMMERLIN WEST VILLAGE 22                                                0
T2 DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE
T3 INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT
SO      0.0003313.820  1                          3320.437
R      47.3003318.800  1      .013                                .000    .000 0
JX     49.8003318.800  1  5   .013    3.000         3318.800        50.0         .000
REM*****     VTN     *****     SDDI#2
R      52.3003318.800  1      .013                                .000    .000 1
REM*****     VTN     *****     SDMH#4
R     358.5003341.380  1      .013                                .000    .000 0
R     363.5003341.380  1      .013                                .000    .000 1
REM*****     VTN     *****     SDMH#3
R     543.3003358.010  1      .013                                .000    .000 0
JX    545.8003358.010  1  5   .013    3.000         3358.010       -50.0         .000
REM*****     VTN     *****     SDDI#1
R     548.3003358.010  1      .013                                .000    .000 1
REM*****     VTN     *****     SDMH#1
R     787.7003362.240  1      .013                                .000    .000 1
REM***** POINT OF CONNECTION *****
R     839.5503368.080  1      .013                                .000    .000 0
JX    842.0503368.180  2  1   .013    0.010         3368.280        90.0         .000
REM*****     ATKINS     *****     FLIGHT RANGE AVENUE WEST
R     844.5503368.280  2      .013                                .000 -90.000 1
REM*****     ATKINS     *****     SDMH#4
R     900.4703368.920  2      .013                                .000    .000 0
JX    902.9703369.020  2  5   .013    1.710         3369.120        90.0         .000
REM*****     ATKINS     *****     SDDI#7
R     905.4703369.120  2      .013                                .000    .000 1
REM*****     ATKINS     *****     SDMH#3
R     909.9703369.230  2      .013                                .000    .000 0
JX    912.9703369.430  2  3   .013    1.270         3369.430          .0         .000
REM*****     ATKINS     *****     SDDI#6
R     946.9803372.500  2      .013                                .000    .000 0
REM*****     ATKINS     *****     SDDI#5 (PARCEL DD)
SH    946.9803372.500  2                          3372.500
CD   1  4   1    .000   3.000     .000  .000  .000   .00
CD   2  4   1    .000   2.500     .000  .000  .000   .00
CD   3  2   0    .000   6.000    2.000  .000  .000   .00
CD   4  4   1    .000   1.500     .000  .000  .000   .00
CD   5  4   1    .000   2.000     .000  .000  .000   .00
Q            14.000   .0
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SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE

INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
.000	3313.820	6.617	3320.437	22.01	3.11	.15	3320.59	.00	1.51	.00	3.000	.000	.00	1 .0
34.713	.1053					.0011	.04	6.62	.00	.65	.013	.00	.00	PIPE
34.713	3317.475	3.000	3320.475	22.01	3.11	.15	3320.63	.00	1.51	.00	3.000	.000	.00	1 .0
2.513	.1053					.0010	.00	3.00	.00	.65	.013	.00	.00	PIPE
37.226	3317.740	2.722	3320.461	22.01	3.27	.17	3320.63	.00	1.51	1.74	3.000	.000	.00	1 .0
.150	.1053					.0010	.00	2.72	.29	.65	.013	.00	.00	PIPE
37.376	3317.755	2.704	3320.460	22.01	3.28	.17	3320.63	.00	1.51	1.79	3.000	.000	.00	1 .0
HYDRAULIC JUMP														
37.376	3317.755	.778	3318.533	22.01	15.14	3.56	3322.09	.00	1.51	2.63	3.000	.000	.00	1 .0
1.010	.1053					.0497	.05	.78	3.59	.65	.013	.00	.00	PIPE
38.386	3317.862	.783	3318.644	22.01	15.00	3.50	3322.14	.00	1.51	2.63	3.000	.000	.00	1 .0
4.904	.1053					.0460	.23	.78	3.54	.65	.013	.00	.00	PIPE
43.290	3318.378	.810	3319.188	22.01	14.31	3.18	3322.37	.00	1.51	2.66	3.000	.000	.00	1 .0
4.010	.1053					.0402	.16	.81	3.32	.65	.013	.00	.00	PIPE
47.300	3318.800	.838	3319.638	22.01	13.64	2.89	3322.53	.00	1.51	2.69	3.000	.000	.00	1 .0
JUNCT STR	.0000					.0532	.13	.84	3.10		.013	.00	.00	PIPE
49.800	3318.800	.667	3319.468	19.01	16.23	4.09	3323.56	.00	1.40	2.50	3.000	.000	.00	1 .0
2.500	.0000					.0713	.18	.67	4.17	.00	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE

INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
52.300	3318.800	.656	3319.456	19.01	16.62	4.29	3323.74	.00	1.40	2.48	3.000	.000	.00	1 .0
229.136	.0737					.0737	16.90	.66	4.31	.66	.013	.00	.00	PIPE
281.436	3335.697	.656	3336.353	19.01	16.62	4.29	3340.64	.00	1.40	2.48	3.000	.000	.00	1 .0
77.064	.0737					.0771	5.94	.66	4.31	.66	.013	.00	.00	PIPE
358.500	3341.380	.642	3342.022	19.01	17.14	4.56	3346.58	.00	1.40	2.46	3.000	.000	.00	1 .0
5.000	.0000					.0862	.43	.64	4.50	.00	.013	.00	.00	PIPE
363.500	3341.380	.621	3342.001	19.01	17.97	5.01	3347.01	.00	1.40	2.43	3.000	.000	.00	1 .0
69.105	.0925					.0897	6.20	.62	4.80	.62	.013	.00	.00	PIPE
432.605	3347.772	.629	3348.401	19.01	17.65	4.84	3353.24	.00	1.40	2.44	3.000	.000	.00	1 .0
39.415	.0925					.0819	3.23	.63	4.68	.62	.013	.00	.00	PIPE
472.020	3351.417	.651	3352.068	19.01	16.83	4.40	3356.46	.00	1.40	2.47	3.000	.000	.00	1 .0
18.041	.0925					.0716	1.29	.65	4.39	.62	.013	.00	.00	PIPE
490.061	3353.086	.673	3353.759	19.01	16.04	4.00	3357.76	.00	1.40	2.50	3.000	.000	.00	1 .0
11.374	.0925					.0626	.71	.67	4.11	.62	.013	.00	.00	PIPE
501.435	3354.138	.696	3354.834	19.01	15.30	3.63	3358.47	.00	1.40	2.53	3.000	.000	.00	1 .0
8.109	.0925					.0547	.44	.70	3.85	.62	.013	.00	.00	PIPE
509.544	3354.888	.720	3355.608	19.01	14.58	3.30	3358.91	.00	1.40	2.56	3.000	.000	.00	1 .0
6.169	.0925					.0478	.30	.72	3.60	.62	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE

INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
515.713	3355.459	.744	3356.203	19.01	13.91	3.00	3359.21	.00	1.40	2.59	3.000	.000	.00	1 .0
4.882	.0925					.0418	.20	.74	3.37	.62	.013	.00	.00	PIPE
520.596	3355.910	.770	3356.680	19.01	13.26	2.73	3359.41	.00	1.40	2.62	3.000	.000	.00	1 .0
3.963	.0925					.0366	.14	.77	3.16	.62	.013	.00	.00	PIPE
524.559	3356.277	.796	3357.073	19.01	12.64	2.48	3359.55	.00	1.40	2.65	3.000	.000	.00	1 .0
3.275	.0925					.0320	.10	.80	2.96	.62	.013	.00	.00	PIPE
527.834	3356.580	.824	3357.404	19.01	12.05	2.26	3359.66	.00	1.40	2.68	3.000	.000	.00	1 .0
2.737	.0925					.0280	.08	.82	2.77	.62	.013	.00	.00	PIPE
530.570	3356.833	.853	3357.686	19.01	11.49	2.05	3359.74	.00	1.40	2.71	3.000	.000	.00	1 .0
2.306	.0925					.0245	.06	.85	2.59	.62	.013	.00	.00	PIPE
532.876	3357.046	.882	3357.928	19.01	10.96	1.86	3359.79	.00	1.40	2.73	3.000	.000	.00	1 .0
1.952	.0925					.0215	.04	.88	2.42	.62	.013	.00	.00	PIPE
534.828	3357.227	.913	3358.140	19.01	10.45	1.69	3359.83	.00	1.40	2.76	3.000	.000	.00	1 .0
1.656	.0925					.0188	.03	.91	2.27	.62	.013	.00	.00	PIPE
536.485	3357.380	.945	3358.325	19.01	9.96	1.54	3359.87	.00	1.40	2.79	3.000	.000	.00	1 .0
1.404	.0925					.0165	.02	.95	2.12	.62	.013	.00	.00	PIPE
537.889	3357.510	.978	3358.488	19.01	9.50	1.40	3359.89	.00	1.40	2.81	3.000	.000	.00	1 .0
1.188	.0925					.0144	.02	.98	1.98	.62	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
539.077	3357.620	1.013	3358.633	19.01	9.06	1.27	3359.91	.00	1.40	2.84	3.000	.000	.00	1 .0
1.000	.0925					.0126	.01	1.01	1.86	.62	.013	.00	.00	PIPE
540.077	3357.712	1.049	3358.761	19.01	8.63	1.16	3359.92	.00	1.40	2.86	3.000	.000	.00	1 .0
.832	.0925					.0111	.01	1.05	1.73	.62	.013	.00	.00	PIPE
540.909	3357.789	1.086	3358.875	19.01	8.23	1.05	3359.93	.00	1.40	2.88	3.000	.000	.00	1 .0
.686	.0925					.0097	.01	1.09	1.62	.62	.013	.00	.00	PIPE
541.594	3357.853	1.125	3358.978	19.01	7.85	.96	3359.93	.00	1.40	2.90	3.000	.000	.00	1 .0
.553	.0925					.0085	.00	1.13	1.51	.62	.013	.00	.00	PIPE
542.148	3357.904	1.166	3359.070	19.01	7.48	.87	3359.94	.00	1.40	2.92	3.000	.000	.00	1 .0
.432	.0925					.0075	.00	1.17	1.42	.62	.013	.00	.00	PIPE
542.580	3357.944	1.208	3359.152	19.01	7.14	.79	3359.94	.00	1.40	2.94	3.000	.000	.00	1 .0
.323	.0925					.0066	.00	1.21	1.32	.62	.013	.00	.00	PIPE
542.903	3357.974	1.252	3359.226	19.01	6.80	.72	3359.94	.00	1.40	2.96	3.000	.000	.00	1 .0
.223	.0925					.0058	.00	1.25	1.23	.62	.013	.00	.00	PIPE
543.126	3357.994	1.298	3359.292	19.01	6.49	.65	3359.95	.00	1.40	2.97	3.000	.000	.00	1 .0
.130	.0925					.0051	.00	1.30	1.15	.62	.013	.00	.00	PIPE
543.257	3358.006	1.346	3359.352	19.01	6.19	.59	3359.95	.00	1.40	2.98	3.000	.000	.00	1 .0
.043	.0925					.0044	.00	1.35	1.07	.62	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date: 7- 9-2020 Time: 5:35: 2

SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE

INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
543.300	3358.010	1.397	3359.407	19.01	5.89	.54	3359.95	.00	1.40	2.99	3.000	.000	.00	1 .0
JUNCT STR	.0000					.0027	.01	1.40	1.00		.013	.00	.00	PIPE
545.800	3358.010	1.830	3359.840	16.01	3.54	.20	3360.04	.00	1.28	2.93	3.000	.000	.00	1 .0
2.500	.0000					.0012	.00	1.83	.50	.00	.013	.00	.00	PIPE
548.300	3358.010	1.834	3359.844	16.01	3.54	.19	3360.04	.00	1.28	2.92	3.000	.000	.00	1 .0
.262	.0177					.0012	.00	1.83	.50	.86	.013	.00	.00	PIPE
548.562	3358.015	1.834	3359.849	16.01	3.54	.19	3360.04	.00	1.28	2.92	3.000	.000	.00	1 .0
HYDRAULIC JUMP														
548.562	3358.015	.859	3358.873	16.01	9.59	1.43	3360.30	.00	1.28	2.71	3.000	.000	.00	1 .0
42.413	.0177					.0180	.77	.86	2.15	.86	.013	.00	.00	PIPE
590.975	3358.764	.859	3359.623	16.01	9.59	1.43	3361.05	.00	1.28	2.71	3.000	.000	.00	1 .0
68.343	.0177					.0193	1.32	.86	2.15	.86	.013	.00	.00	PIPE
659.319	3359.972	.830	3360.802	16.01	10.05	1.57	3362.37	.00	1.28	2.68	3.000	.000	.00	1 .0
29.171	.0177					.0221	.64	.83	2.30	.86	.013	.00	.00	PIPE
688.490	3360.487	.802	3361.289	16.01	10.54	1.73	3363.02	.00	1.28	2.66	3.000	.000	.00	1 .0
19.224	.0177					.0253	.49	.80	2.46	.86	.013	.00	.00	PIPE
707.714	3360.827	.775	3361.602	16.01	11.06	1.90	3363.50	.00	1.28	2.63	3.000	.000	.00	1 .0
14.649	.0177					.0289	.42	.78	2.62	.86	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date: 7- 9-2020 Time: 5:35: 2

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
722.363	3361.086	.749	3361.835	16.01	11.60	2.09	3363.92	.00	1.28	2.60	3.000	.000	.00	1 .0
11.998	.0177					.0330	.40	.75	2.80	.86	.013	.00	.00	PIPE
734.360	3361.298	.725	3362.022	16.01	12.16	2.30	3364.32	.00	1.28	2.57	3.000	.000	.00	1 .0
10.245	.0177					.0378	.39	.72	2.99	.86	.013	.00	.00	PIPE
744.606	3361.479	.701	3362.179	16.01	12.76	2.53	3364.71	.00	1.28	2.54	3.000	.000	.00	1 .0
8.998	.0177					.0432	.39	.70	3.20	.86	.013	.00	.00	PIPE
753.604	3361.637	.677	3362.315	16.01	13.38	2.78	3365.10	.00	1.28	2.51	3.000	.000	.00	1 .0
8.061	.0177					.0494	.40	.68	3.41	.86	.013	.00	.00	PIPE
761.665	3361.780	.655	3362.435	16.01	14.03	3.06	3365.49	.00	1.28	2.48	3.000	.000	.00	1 .0
7.320	.0177					.0565	.41	.66	3.65	.86	.013	.00	.00	PIPE
768.985	3361.909	.634	3362.543	16.01	14.72	3.36	3365.91	.00	1.28	2.45	3.000	.000	.00	1 .0
6.716	.0177					.0647	.43	.63	3.89	.86	.013	.00	.00	PIPE
775.702	3362.028	.613	3362.641	16.01	15.44	3.70	3366.34	.00	1.28	2.42	3.000	.000	.00	1 .0
6.213	.0177					.0740	.46	.61	4.15	.86	.013	.00	.00	PIPE
781.915	3362.138	.593	3362.730	16.01	16.19	4.07	3366.80	.00	1.28	2.39	3.000	.000	.00	1 .0
5.785	.0177					.0847	.49	.59	4.43	.86	.013	.00	.00	PIPE
787.700	3362.240	.573	3362.813	16.01	16.98	4.48	3367.29	.00	1.28	2.36	3.000	.000	.00	1 .0
9.261	.1126					.0870	.81	.57	4.73	.54	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE

INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
796.961	3363.283	.584	3363.867	16.01	16.52	4.24	3368.10	.00	1.28	2.38	3.000	.000	.00	1 .0
10.641	.1126					.0783	.83	.58	4.56	.54	.013	.00	.00	PIPE
807.602	3364.481	.604	3365.086	16.01	15.75	3.85	3368.94	.00	1.28	2.41	3.000	.000	.00	1 .0
7.456	.1126					.0684	.51	.60	4.27	.54	.013	.00	.00	PIPE
815.057	3365.321	.625	3365.946	16.01	15.02	3.50	3369.45	.00	1.28	2.44	3.000	.000	.00	1 .0
5.623	.1126					.0598	.34	.62	4.00	.54	.013	.00	.00	PIPE
820.680	3365.955	.646	3366.601	16.01	14.32	3.18	3369.78	.00	1.28	2.47	3.000	.000	.00	1 .0
4.429	.1126					.0523	.23	.65	3.75	.54	.013	.00	.00	PIPE
825.108	3366.453	.668	3367.121	16.01	13.65	2.89	3370.01	.00	1.28	2.50	3.000	.000	.00	1 .0
3.589	.1126					.0457	.16	.67	3.51	.54	.013	.00	.00	PIPE
828.697	3366.858	.691	3367.548	16.01	13.02	2.63	3370.18	.00	1.28	2.53	3.000	.000	.00	1 .0
2.965	.1126					.0399	.12	.69	3.29	.54	.013	.00	.00	PIPE
831.662	3367.192	.714	3367.906	16.01	12.41	2.39	3370.30	.00	1.28	2.56	3.000	.000	.00	1 .0
2.482	.1126					.0349	.09	.71	3.08	.54	.013	.00	.00	PIPE
834.144	3367.471	.739	3368.210	16.01	11.83	2.17	3370.38	.00	1.28	2.59	3.000	.000	.00	1 .0
2.098	.1126					.0305	.06	.74	2.88	.54	.013	.00	.00	PIPE
836.242	3367.708	.764	3368.472	16.01	11.28	1.98	3370.45	.00	1.28	2.61	3.000	.000	.00	1 .0
1.784	.1126					.0267	.05	.76	2.70	.54	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
838.026	3367.908	.791	3368.699	16.01	10.76	1.80	3370.50	.00	1.28	2.64	3.000	.000	.00	1 .0
1.524	.1126					.0234	.04	.79	2.53	.54	.013	.00	.00	PIPE
839.550	3368.080	.818	3368.898	16.01	10.26	1.63	3370.53	.00	1.28	2.67	3.000	.000	.00	1 .0
JUNCT STR	.0399					.0201	.05	.82	2.36		.013	.00	.00	PIPE
842.050	3368.180	.919	3369.099	16.00	9.78	1.48	3370.58	.00	1.35	2.41	2.500	.000	.00	1 .0
2.500	.0400					.0177	.04	.92	2.09	.75	.013	.00	.00	PIPE
844.550	3368.280	.936	3369.216	16.00	9.53	1.41	3370.63	.00	1.35	2.42	2.500	.000	.00	1 .0
9.432	.0114					.0177	.17	.94	2.02	1.04	.013	.00	.00	PIPE
853.982	3368.388	.918	3369.306	16.00	9.79	1.49	3370.80	.00	1.35	2.41	2.500	.000	.00	1 .0
14.206	.0114					.0197	.28	.92	2.10	1.04	.013	.00	.00	PIPE
868.189	3368.551	.886	3369.437	16.00	10.27	1.64	3371.08	.00	1.35	2.39	2.500	.000	.00	1 .0
12.102	.0114					.0225	.27	.89	2.24	1.04	.013	.00	.00	PIPE
880.291	3368.689	.856	3369.545	16.00	10.77	1.80	3371.35	.00	1.35	2.37	2.500	.000	.00	1 .0
10.631	.0114					.0256	.27	.86	2.40	1.04	.013	.00	.00	PIPE
890.922	3368.811	.826	3369.637	16.00	11.30	1.98	3371.62	.00	1.35	2.35	2.500	.000	.00	1 .0
9.548	.0114					.0293	.28	.83	2.57	1.04	.013	.00	.00	PIPE
900.470	3368.920	.798	3369.718	16.00	11.85	2.18	3371.90	.00	1.35	2.33	2.500	.000	.00	1 .0
JUNCT STR	.0400					.0361	.09	.80	2.74		.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE

INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
902.970	3369.020	.720	3369.740	15.00	12.83	2.55	3372.29	.00	1.31	2.26	2.500	.000	.00	1 .0
2.500	.0400					.0410	.10	.72	3.15	.72	.013	.00	.00	PIPE
905.470	3369.120	.719	3369.839	15.00	12.84	2.56	3372.40	.00	1.31	2.26	2.500	.000	.00	1 .0
4.500	.0244					.0421	.19	.72	3.15	.82	.013	.00	.00	PIPE
909.970	3369.230	.710	3369.940	15.00	13.06	2.65	3372.59	.00	1.31	2.26	2.500	.000	.00	1 .0
JUNCT STR	.0667					.0490	.15	.71	3.22		.013	.00	.00	PIPE
912.970	3369.430	.645	3370.075	14.00	13.96	3.03	3373.10	.00	1.26	2.19	2.500	.000	.00	1 .0
6.552	.0903					.0516	.34	.64	3.63	.57	.013	.00	.00	PIPE
919.522	3370.021	.666	3370.688	14.00	13.33	2.76	3373.45	.00	1.26	2.21	2.500	.000	.00	1 .0
5.059	.0903					.0452	.23	.67	3.41	.57	.013	.00	.00	PIPE
924.581	3370.478	.689	3371.167	14.00	12.71	2.51	3373.68	.00	1.26	2.23	2.500	.000	.00	1 .0
4.029	.0903					.0396	.16	.69	3.19	.57	.013	.00	.00	PIPE
928.610	3370.842	.713	3371.555	14.00	12.12	2.28	3373.84	.00	1.26	2.26	2.500	.000	.00	1 .0
3.282	.0903					.0346	.11	.71	2.99	.57	.013	.00	.00	PIPE
931.892	3371.138	.738	3371.876	14.00	11.56	2.07	3373.95	.00	1.26	2.28	2.500	.000	.00	1 .0
2.715	.0903					.0303	.08	.74	2.79	.57	.013	.00	.00	PIPE
934.607	3371.383	.764	3372.147	14.00	11.02	1.89	3374.03	.00	1.26	2.30	2.500	.000	.00	1 .0
2.270	.0903					.0265	.06	.76	2.61	.57	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE

INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
936.877	3371.588	.791	3372.379	14.00	10.51	1.71	3374.09	.00	1.26	2.33	2.500	.000	.00	1 .0
1.910	.0903					.0232	.04	.79	2.45	.57	.013	.00	.00	PIPE
938.787	3371.760	.818	3372.579	14.00	10.02	1.56	3374.14	.00	1.26	2.35	2.500	.000	.00	1 .0
1.612	.0903					.0204	.03	.82	2.29	.57	.013	.00	.00	PIPE
940.399	3371.906	.847	3372.753	14.00	9.55	1.42	3374.17	.00	1.26	2.37	2.500	.000	.00	1 .0
1.363	.0903					.0178	.02	.85	2.14	.57	.013	.00	.00	PIPE
941.762	3372.029	.878	3372.906	14.00	9.11	1.29	3374.19	.00	1.26	2.39	2.500	.000	.00	1 .0
1.150	.0903					.0156	.02	.88	2.00	.57	.013	.00	.00	PIPE
942.911	3372.133	.909	3373.042	14.00	8.68	1.17	3374.21	.00	1.26	2.41	2.500	.000	.00	1 .0
.965	.0903					.0137	.01	.91	1.87	.57	.013	.00	.00	PIPE
943.876	3372.220	.941	3373.161	14.00	8.28	1.06	3374.23	.00	1.26	2.42	2.500	.000	.00	1 .0
.804	.0903					.0120	.01	.94	1.75	.57	.013	.00	.00	PIPE
944.680	3372.292	.975	3373.268	14.00	7.89	.97	3374.24	.00	1.26	2.44	2.500	.000	.00	1 .0
.659	.0903					.0106	.01	.98	1.63	.57	.013	.00	.00	PIPE
945.339	3372.352	1.011	3373.363	14.00	7.53	.88	3374.24	.00	1.26	2.45	2.500	.000	.00	1 .0
.532	.0903					.0093	.00	1.01	1.52	.57	.013	.00	.00	PIPE
945.871	3372.400	1.048	3373.448	14.00	7.18	.80	3374.25	.00	1.26	2.47	2.500	.000	.00	1 .0
.416	.0903					.0081	.00	1.05	1.42	.57	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
946.287	3372.438	1.086	3373.524	14.00	6.84	.73	3374.25	.00	1.26	2.48	2.500	.000	.00	1 .0
.312	.0903					.0071	.00	1.09	1.33	.57	.013	.00	.00	PIPE
946.599	3372.466	1.126	3373.592	14.00	6.52	.66	3374.25	.00	1.26	2.49	2.500	.000	.00	1 .0
.214	.0903					.0063	.00	1.13	1.24	.57	.013	.00	.00	PIPE
946.813	3372.485	1.168	3373.654	14.00	6.22	.60	3374.25	.00	1.26	2.49	2.500	.000	.00	1 .0
.125	.0903					.0055	.00	1.17	1.15	.57	.013	.00	.00	PIPE
946.938	3372.496	1.212	3373.709	14.00	5.93	.55	3374.25	.00	1.26	2.50	2.500	.000	.00	1 .0
.042	.0903					.0049	.00	1.21	1.08	.57	.013	.00	.00	PIPE
946.980	3372.500	1.260	3373.760	14.00	5.65	.50	3374.26	.00	1.26	2.50	2.500	.000	.00	1 .0

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T1 SUMMERLIN WEST VILLAGE 22                                                0
T2 DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE
T3 ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT
SO    905.4703369.120  5      .013               3369.857
REM*****     ATKINS     *****     SDMH#3
R     934.9703369.280  5      .013                          .000    .000 0
REM*****     ATKINS     *****     SDDI#7
SH    934.9703369.280  5                         3369.280
CD   1  4   1    .000   3.000     .000  .000  .000   .00
CD   2  4   1    .000   2.500     .000  .000  .000   .00
CD   3  2   0    .000   6.000    2.000  .000  .000   .00
CD   4  4   1    .000   1.500     .000  .000  .000   .00
CD   5  4   1    .000   2.000     .000  .000  .000   .00
Q            1.710   .0
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FILE: DFD2-FRA-INT-LAT3.WSW W S P G W - CIVILDESIGN Version 14.08 PAGE 1

Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:10-15-2020 Time: 9:30:37

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
905.470	3369.120	.737	3369.857	1.71	1.63	.04	3369.90	.00	.45	1.93	2.000	.000	.00	1 .0
4.560	.0054					.0007	.00	.74	.39	.43	.013	.00	.00	PIPE
910.030	3369.145	.711	3369.856	1.71	1.71	.05	3369.90	.00	.45	1.91	2.000	.000	.00	1 .0
4.332	.0054					.0008	.00	.71	.42	.43	.013	.00	.00	PIPE
914.362	3369.168	.687	3369.855	1.71	1.79	.05	3369.90	.00	.45	1.90	2.000	.000	.00	1 .0
4.143	.0054					.0009	.00	.69	.44	.43	.013	.00	.00	PIPE
918.505	3369.191	.663	3369.854	1.71	1.88	.05	3369.91	.00	.45	1.88	2.000	.000	.00	1 .0
3.949	.0054					.0011	.00	.66	.48	.43	.013	.00	.00	PIPE
922.454	3369.212	.641	3369.853	1.71	1.97	.06	3369.91	.00	.45	1.87	2.000	.000	.00	1 .0
3.772	.0054					.0012	.00	.64	.51	.43	.013	.00	.00	PIPE
926.226	3369.233	.619	3369.852	1.71	2.07	.07	3369.92	.00	.45	1.85	2.000	.000	.00	1 .0
3.562	.0054					.0014	.01	.62	.54	.43	.013	.00	.00	PIPE
929.788	3369.252	.598	3369.850	1.71	2.17	.07	3369.92	.00	.45	1.83	2.000	.000	.00	1 .0
3.366	.0054					.0016	.01	.60	.58	.43	.013	.00	.00	PIPE
933.155	3369.270	.578	3369.848	1.71	2.27	.08	3369.93	.00	.45	1.81	2.000	.000	.00	1 .0
1.815	.0054					.0018	.00	.58	.62	.43	.013	.00	.00	PIPE
934.970	3369.280	.567	3369.847	1.71	2.33	.08	3369.93	.00	.45	1.80	2.000	.000	.00	1 .0

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T1 SUMMERLIN WEST VILLAGE 22                                                0
T2 DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE
T3 ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT
SO      0.0003313.820  1                          3320.437
R      47.3003318.800  1      .013                                .000    .000 0
JX     49.8003318.800  1  5   .013    3.000         3318.800       50.0         .000
REM*****     VTN     *****     SDDI#2
R      52.3003318.800  1      .013                                .000    .000 1
REM*****     VTN     *****     SDMH#4
R     358.5003341.380  1      .013                                .000    .000 0
R     363.5003341.380  1      .013                                .000    .000 1
REM*****     VTN     *****     SDMH#3
R     543.3003358.010  1      .013                                .000    .000 0
JX    545.8003358.010  1  5   .013    3.000         3358.010      -50.0         .000
REM*****     VTN     *****     SDDI#1
R     548.3003358.010  1      .013                                .000    .000 1
REM*****     VTN     *****     SDMH#1
R     787.7003362.240  1      .013                                .000    .000 1
REM***** POINT OF CONNECTION *****
R     839.5503368.080  1      .013                                .000    .000 0
JX    842.0503368.180  2  1   .013   58.000         3368.280       90.0         .000
REM*****     ATKINS     *****     FLIGHT RANGE AVENUE WEST
R     844.5503368.280  2      .013                                .000 -90.000 1
REM*****     ATKINS     *****     SDMH#4
R     900.4703368.920  2      .013                                .000    .000 0
JX    902.9703369.020  2  5   .013    1.710         3369.120       90.0         .000
REM*****     ATKINS     *****     SDDI#7
R     905.4703369.120  2      .013                                .000    .000 1
REM*****     ATKINS     *****     SDMH#3
R     909.9703369.230  2      .013                                .000    .000 0
JX    912.9703369.430  2  3   .013    1.270         3369.430         .0         .000
REM*****     ATKINS     *****     SDDI#6
R     946.9803372.500  2      .013                                .000    .000 0
REM*****     ATKINS     *****     SDDI#5 (PARCEL DD)
SH    946.9803372.500  2                          3372.500
CD   1  4   1    .000   3.000     .000  .000  .000   .00
CD   2  4   1    .000   2.500     .000  .000  .000   .00
CD   3  2   0    .000   6.000    2.000  .000  .000   .00
CD   4  4   1    .000   1.500     .000  .000  .000   .00
CD   5  4   1    .000   2.000     .000  .000  .000   .00
Q            17.000   .0
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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:10-15-2020 Time: 8:44:24

SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE

ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
.000	3313.820	1.409	3315.229	83.98	25.75	10.30	3325.53	.00	2.80	2.99	3.000	.000	.00	1 .0
27.273	.1053					.0741	2.02	1.41	4.35	1.30	.013	.00	.00	PIPE
27.273	3316.692	1.460	3318.151	83.98	24.60	9.40	3327.55	.00	2.80	3.00	3.000	.000	.00	1 .0
20.027	.1053					.0654	1.31	1.46	4.06	1.30	.013	.00	.00	PIPE
47.300	3318.800	1.515	3320.315	83.98	23.45	8.54	3328.86	.00	2.80	3.00	3.000	.000	.00	1 .0
JUNCT STR	.0000					.0665	.17	1.52	3.78		.013	.00	.00	PIPE
49.800	3318.800	1.417	3320.217	80.98	24.65	9.44	3329.66	.00	2.78	3.00	3.000	.000	.00	1 .0
2.500	.0000					.0727	.18	1.42	4.15	.00	.013	.00	.00	PIPE
52.300	3318.800	1.406	3320.206	80.98	24.91	9.63	3329.84	.00	2.78	2.99	3.000	.000	.00	1 .0
123.800	.0737					.0737	9.13	1.41	4.21	1.41	.013	.00	.00	PIPE
176.100	3327.929	1.406	3329.335	80.98	24.91	9.63	3338.97	.00	2.78	2.99	3.000	.000	.00	1 .0
182.400	.0737					.0751	13.69	1.41	4.21	1.41	.013	.00	.00	PIPE
358.500	3341.380	1.391	3342.771	80.98	25.24	9.89	3352.66	.00	2.78	2.99	3.000	.000	.00	1 .0
5.000	.0000					.0786	.39	1.39	4.29	.00	.013	.00	.00	PIPE
363.500	3341.380	1.370	3342.750	80.98	25.76	10.31	3353.06	.00	2.78	2.99	3.000	.000	.00	1 .0
52.116	.0925					.0762	3.97	1.37	4.43	1.32	.013	.00	.00	PIPE
415.616	3346.200	1.417	3347.617	80.98	24.65	9.43	3357.05	.00	2.78	3.00	3.000	.000	.00	1 .0
32.026	.0925					.0674	2.16	1.42	4.15	1.32	.013	.00	.00	PIPE

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:10-15-2020 Time: 8:44:24

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
447.642	3349.162	1.471	3350.633	80.98	23.50	8.58	3359.21	.00	2.78	3.00	3.000	.000	.00	1 .0
21.811	.0925					.0593	1.29	1.47	3.86	1.32	.013	.00	.00	PIPE
469.453	3351.180	1.527	3352.706	80.98	22.41	7.80	3360.50	.00	2.78	3.00	3.000	.000	.00	1 .0
16.154	.0925					.0523	.84	1.53	3.60	1.32	.013	.00	.00	PIPE
485.608	3352.674	1.585	3354.259	80.98	21.36	7.09	3361.35	.00	2.78	3.00	3.000	.000	.00	1 .0
12.548	.0925					.0461	.58	1.59	3.35	1.32	.013	.00	.00	PIPE
498.155	3353.834	1.647	3355.482	80.98	20.37	6.44	3361.92	.00	2.78	2.99	3.000	.000	.00	1 .0
10.046	.0925					.0407	.41	1.65	3.11	1.32	.013	.00	.00	PIPE
508.201	3354.764	1.712	3356.476	80.98	19.42	5.86	3362.33	.00	2.78	2.97	3.000	.000	.00	1 .0
8.198	.0925					.0359	.29	1.71	2.89	1.32	.013	.00	.00	PIPE
516.399	3355.522	1.781	3357.303	80.98	18.52	5.32	3362.63	.00	2.78	2.95	3.000	.000	.00	1 .0
6.775	.0925					.0318	.22	1.78	2.68	1.32	.013	.00	.00	PIPE
523.174	3356.149	1.854	3358.003	80.98	17.66	4.84	3362.84	.00	2.78	2.92	3.000	.000	.00	1 .0
5.638	.0925					.0282	.16	1.85	2.48	1.32	.013	.00	.00	PIPE
528.812	3356.670	1.931	3358.602	80.98	16.83	4.40	3363.00	.00	2.78	2.87	3.000	.000	.00	1 .0
4.707	.0925					.0250	.12	1.93	2.29	1.32	.013	.00	.00	PIPE
533.519	3357.105	2.014	3359.119	80.98	16.05	4.00	3363.12	.00	2.78	2.82	3.000	.000	.00	1 .0
3.918	.0925					.0223	.09	2.01	2.11	1.32	.013	.00	.00	PIPE

FILE: DFD2-FRA-ULT.WSW W S P G W - CIVILDESIGN Version 14.08 PAGE 3

Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:10-15-2020 Time: 8:44:24

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
537.437	3357.468	2.102	3359.570	80.98	15.30	3.64	3363.21	.00	2.78	2.75	3.000	.000	.00	1 .0
3.237	.0925					.0199	.06	2.10	1.94	1.32	.013	.00	.00	PIPE
540.674	3357.767	2.198	3359.965	80.98	14.59	3.31	3363.27	.00	2.78	2.66	3.000	.000	.00	1 .0
2.626	.0925					.0178	.05	2.20	1.78	1.32	.013	.00	.00	PIPE
543.300	3358.010	2.302	3360.312	80.98	13.91	3.01	3363.32	.00	2.78	2.53	3.000	.000	.00	1 .0
JUNCT STR	.0000					.0187	.05	2.30	1.62		.013	.00	.00	PIPE
545.800	3358.010	2.058	3360.069	77.98	15.08	3.53	3363.60	.00	2.75	2.78	3.000	.000	.00	1 .0
2.500	.0000					.0208	.05	2.06	1.95	.00	.013	.00	.00	PIPE
548.300	3358.010	2.040	3360.050	77.98	15.23	3.60	3363.65	.00	2.75	2.80	3.000	.000	.00	1 .0
31.762	.0177					.0217	.69	2.04	1.99	2.18	.013	.00	.00	PIPE
580.062	3358.571	1.999	3360.570	77.98	15.59	3.77	3364.34	.00	2.75	2.83	3.000	.000	.00	1 .0
49.225	.0177					.0237	1.17	2.00	2.07	2.18	.013	.00	.00	PIPE
629.287	3359.441	1.917	3361.359	77.98	16.35	4.15	3365.51	.00	2.75	2.88	3.000	.000	.00	1 .0
37.558	.0177					.0267	1.00	1.92	2.24	2.18	.013	.00	.00	PIPE
666.845	3360.105	1.841	3361.946	77.98	17.15	4.56	3366.51	.00	2.75	2.92	3.000	.000	.00	1 .0
30.872	.0177					.0301	.93	1.84	2.42	2.18	.013	.00	.00	PIPE
697.716	3360.650	1.769	3362.419	77.98	17.98	5.02	3367.44	.00	2.75	2.95	3.000	.000	.00	1 .0
26.491	.0177					.0341	.90	1.77	2.61	2.18	.013	.00	.00	PIPE

FILE: DFD2-FRA-ULT.WSW W S P G W - CIVILDESIGN Version 14.08 PAGE 4

Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:10-15-2020 Time: 8:44:24

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
724.208	3361.118	1.701	3362.819	77.98	18.86	5.52	3368.34	.00	2.75	2.97	3.000	.000	.00	1 .0
23.364	.0177				.0385	.90	1.70	2.82	2.18	.013	.00	.00	PIPE	
747.572	3361.531	1.636	3363.167	77.98	19.78	6.08	3369.24	.00	2.75	2.99	3.000	.000	.00	1 .0
20.994	.0177				.0437	.92	1.64	3.03	2.18	.013	.00	.00	PIPE	
768.565	3361.902	1.575	3363.477	77.98	20.75	6.68	3370.16	.00	2.75	3.00	3.000	.000	.00	1 .0
19.135	.0177				.0496	.95	1.57	3.26	2.18	.013	.00	.00	PIPE	
787.700	3362.240	1.517	3363.757	77.98	21.76	7.35	3371.11	.00	2.75	3.00	3.000	.000	.00	1 .0
4.116	.1126				.0514	.21	1.52	3.51	1.22	.013	.00	.00	PIPE	
791.816	3362.704	1.539	3364.243	77.98	21.35	7.08	3371.32	.00	2.75	3.00	3.000	.000	.00	1 .0
8.911	.1126				.0471	.42	1.54	3.41	1.22	.013	.00	.00	PIPE	
800.727	3363.708	1.599	3365.306	77.98	20.35	6.43	3371.74	.00	2.75	2.99	3.000	.000	.00	1 .0
7.347	.1126				.0416	.31	1.60	3.17	1.22	.013	.00	.00	PIPE	
808.074	3364.535	1.662	3366.197	77.98	19.41	5.85	3372.05	.00	2.75	2.98	3.000	.000	.00	1 .0
6.133	.1126				.0367	.22	1.66	2.95	1.22	.013	.00	.00	PIPE	
814.207	3365.226	1.727	3366.953	77.98	18.50	5.32	3372.27	.00	2.75	2.97	3.000	.000	.00	1 .0
5.157	.1126				.0324	.17	1.73	2.74	1.22	.013	.00	.00	PIPE	
819.364	3365.807	1.797	3367.604	77.98	17.64	4.83	3372.44	.00	2.75	2.94	3.000	.000	.00	1 .0
4.356	.1126				.0287	.12	1.80	2.54	1.22	.013	.00	.00	PIPE	

FILE: DFD2-FRA-ULT.WSW W S P G W - CIVILDESIGN Version 14.08 PAGE 5

Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:10-15-2020 Time: 8:44:24

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
823.719	3366.297	1.871	3368.168	77.98	16.82	4.39	3372.56	.00	2.75	2.91	3.000	.000	.00	1 .0
3.682	.1126					.0254	.09	1.87	2.35	1.22	.013	.00	.00	PIPE
827.401	3366.712	1.949	3368.661	77.98	16.04	3.99	3372.66	.00	2.75	2.86	3.000	.000	.00	1 .0
3.103	.1126					.0226	.07	1.95	2.17	1.22	.013	.00	.00	PIPE
830.505	3367.062	2.033	3369.094	77.98	15.29	3.63	3372.73	.00	2.75	2.80	3.000	.000	.00	1 .0
2.596	.1126					.0201	.05	2.03	2.00	1.22	.013	.00	.00	PIPE
833.101	3367.354	2.123	3369.477	77.98	14.58	3.30	3372.78	.00	2.75	2.73	3.000	.000	.00	1 .0
2.141	.1126					.0180	.04	2.12	1.84	1.22	.013	.00	.00	PIPE
835.243	3367.595	2.220	3369.815	77.98	13.90	3.00	3372.82	.00	2.75	2.63	3.000	.000	.00	1 .0
1.723	.1126					.0161	.03	2.22	1.68	1.22	.013	.00	.00	PIPE
836.966	3367.789	2.327	3370.116	77.98	13.26	2.73	3372.84	.00	2.75	2.50	3.000	.000	.00	1 .0
1.318	.1126					.0145	.02	2.33	1.52	1.22	.013	.00	.00	PIPE
838.284	3367.938	2.446	3370.383	77.98	12.64	2.48	3372.86	.00	2.75	2.33	3.000	.000	.00	1 .0
.896	.1126					.0132	.01	2.45	1.37	1.22	.013	.00	.00	PIPE
839.180	3368.039	2.582	3370.620	77.98	12.05	2.25	3372.88	.00	2.75	2.08	3.000	.000	.00	1 .0
.370	.1126					.0123	.00	2.58	1.20	1.22	.013	.00	.00	PIPE
839.550	3368.080	2.751	3370.831	77.98	11.49	2.05	3372.88	.00	2.75	1.66	3.000	.000	.00	1 .0
JUNCT STR	.0399					.0071	.02	2.75	1.00		.013	.00	.00	PIPE

FILE: DFD2-FRA-ULT.WSW W S P G W - CIVILDESIGN Version 14.08 PAGE 6

Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:10-15-2020 Time: 8:44:24

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
842.050	3368.180	6.993	3375.173	19.98	4.07	.26	3375.43	.00	1.52	.00	2.500	.000	.00	1 .0
2.500	.0400					.0024	.01	6.99	.00	.84	.013	.00	.00	PIPE
844.550	3368.280	6.989	3375.269	19.98	4.07	.26	3375.53	.00	1.52	.00	2.500	.000	.00	1 .0
55.920	.0114					.0024	.13	6.99	.00	1.18	.013	.00	.00	PIPE
900.470	3368.920	6.481	3375.401	19.98	4.07	.26	3375.66	.00	1.52	.00	2.500	.000	.00	1 .0
JUNCT STR	.0400					.0022	.01	6.48	.00		.013	.00	.00	PIPE
902.970	3369.020	6.471	3375.491	18.27	3.72	.22	3375.71	.00	1.45	.00	2.500	.000	.00	1 .0
2.500	.0400					.0020	.00	6.47	.00	.80	.013	.00	.00	PIPE
905.470	3369.120	6.387	3375.507	18.27	3.72	.22	3375.72	.00	1.45	.00	2.500	.000	.00	1 .0
4.500	.0244					.0020	.01	6.39	.00	.91	.013	.00	.00	PIPE
909.970	3369.230	6.286	3375.516	18.27	3.72	.22	3375.73	.00	1.45	.00	2.500	.000	.00	1 .0
JUNCT STR	.0667					.0019	.01	6.29	.00		.013	.00	.00	PIPE
912.970	3369.430	6.148	3375.578	17.00	3.46	.19	3375.76	.00	1.39	.00	2.500	.000	.00	1 .0
34.010	.0903					.0017	.06	6.15	.00	.63	.013	.00	.00	PIPE
946.980	3372.500	3.136	3375.636	17.00	3.46	.19	3375.82	.00	1.39	.00	2.500	.000	.00	1 .0

```
T1 SUMMERLIN WEST VILLAGE 22                                                0
T2 DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE
T3 ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT
SO    905.4703369.120  5      .013               3375.507
REM*****     ATKINS     *****     SDMH#3
R     934.9703369.280  5      .013                              .000    .000 0
REM*****     ATKINS     *****     SDDI#7
SH    934.9703369.280  5                         3369.280
CD   1  4   1    .000   3.000     .000  .000  .000   .00
CD   2  4   1    .000   2.500     .000  .000  .000   .00
CD   3  2   0    .000   6.000    2.000  .000  .000   .00
CD   4  4   1    .000   1.500     .000  .000  .000   .00
CD   5  4   1    .000   2.000     .000  .000  .000   .00
Q            1.710   .0
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WATER SURFACE PROFILE LISTING Date:10-15-2020 Time: 9:30:56

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	ZR	No Wth Prs/Pip	Type Ch
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall				
905.470	3369.120	6.387	3375.507	1.71	.54	.00	3375.51	.00	.45	.00	2.000	.000	.00	1	.0	
29.500	.0054					.0001	.00	6.39	.00	.43	.013	.00	.00	PIPE		
934.970	3369.280	6.229	3375.509	1.71	.54	.00	3375.51	.00	.45	.00	2.000	.000	.00	1	.0	

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T1 SUMMERLIN WEST VILLAGE 22                                                0
T2 DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE
T3 ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT
SO      0.0003313.820  1                          3320.437
R      47.3003318.800  1      .013                                .000    .000 0
JX     49.8003318.800  1  5   .013    3.000         3318.800        50.0         .000
REM*****     VTN     *****     SDDI#2
R      52.3003318.800  1      .013                                .000    .000 1
REM*****     VTN     *****     SDMH#4
R     358.5003341.380  1      .013                                .000    .000 0
R     363.5003341.380  1      .013                                .000    .000 1
REM*****     VTN     *****     SDMH#3
R     543.3003358.010  1      .013                                .000    .000 0
JX    545.8003358.010  1  5   .013    3.000         3358.010       -50.0         .000
REM*****     VTN     *****     SDDI#1
R     548.3003358.010  1      .013                                .000    .000 1
REM*****     VTN     *****     SDMH#1
R     787.7003362.240  1      .013                                .000    .000 1
REM***** POINT OF CONNECTION *****
R     839.5503368.080  1      .013                                .000    .000 0
JX    842.0503368.180  2  1   .013   19.980         3368.280        90.0         .000
REM*****     ATKINS     *****     DESERT FOOTHILLS DRIVE
R     844.5503368.280  2      .013                                .000 -90.000 1
REM*****     ATKINS     *****     SDMH#4
R     887.2003373.010  1      .013                                .000    .000 0
REM*****     ATKINS     ******     FLIGHT RANGE AVENUE WEST
SH    887.2003373.010  1                          3373.010
CD   1  4   1    .000   3.000     .000  .000  .000   .00
CD   2  4   1    .000   2.500     .000  .000  .000   .00
CD   3  2   0    .000   6.000    2.000  .000  .000   .00
CD   4  4   1    .000   1.500     .000  .000  .000   .00
CD   5  4   1    .000   2.000     .000  .000  .000   .00
Q            58.000   .0
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SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
.000	3313.820	1.409	3315.229	83.98	25.75	10.30	3325.53	.00	2.80	2.99	3.000	.000	.00	1 .0
27.273	.1053					.0741	2.02	1.41	4.35	1.30	.013	.00	.00	PIPE
27.273	3316.692	1.460	3318.151	83.98	24.60	9.40	3327.55	.00	2.80	3.00	3.000	.000	.00	1 .0
20.027	.1053					.0654	1.31	1.46	4.06	1.30	.013	.00	.00	PIPE
47.300	3318.800	1.515	3320.315	83.98	23.45	8.54	3328.86	.00	2.80	3.00	3.000	.000	.00	1 .0
JUNCT STR	.0000					.0665	.17	1.52	3.78		.013	.00	.00	PIPE
49.800	3318.800	1.417	3320.217	80.98	24.65	9.44	3329.66	.00	2.78	3.00	3.000	.000	.00	1 .0
2.500	.0000					.0727	.18	1.42	4.15	.00	.013	.00	.00	PIPE
52.300	3318.800	1.406	3320.206	80.98	24.91	9.63	3329.84	.00	2.78	2.99	3.000	.000	.00	1 .0
123.814	.0737					.0737	9.13	1.41	4.21	1.41	.013	.00	.00	PIPE
176.114	3327.930	1.406	3329.336	80.98	24.91	9.63	3338.97	.00	2.78	2.99	3.000	.000	.00	1 .0
182.386	.0737					.0751	13.70	1.41	4.21	1.41	.013	.00	.00	PIPE
358.500	3341.380	1.391	3342.771	80.98	25.24	9.90	3352.67	.00	2.78	2.99	3.000	.000	.00	1 .0
5.000	.0000					.0786	.39	1.39	4.30	.00	.013	.00	.00	PIPE
363.500	3341.380	1.369	3342.749	80.98	25.77	10.31	3353.06	.00	2.78	2.99	3.000	.000	.00	1 .0
42.655	.0925					.0773	3.30	1.37	4.43	1.32	.013	.00	.00	PIPE
406.155	3345.325	1.405	3346.730	80.98	24.92	9.65	3356.38	.00	2.78	2.99	3.000	.000	.00	1 .0
35.732	.0925					.0694	2.48	1.40	4.22	1.32	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
441.887	3348.630	1.458	3350.088	80.98	23.76	8.77	3358.86	.00	2.78	3.00	3.000	.000	.00	1 .0
23.640	.0925					.0611	1.44	1.46	3.93	1.32	.013	.00	.00	PIPE
465.527	3350.817	1.513	3352.330	80.98	22.66	7.97	3360.30	.00	2.78	3.00	3.000	.000	.00	1 .0
17.239	.0925					.0538	.93	1.51	3.66	1.32	.013	.00	.00	PIPE
482.766	3352.411	1.571	3353.983	80.98	21.60	7.25	3361.23	.00	2.78	3.00	3.000	.000	.00	1 .0
13.271	.0925					.0475	.63	1.57	3.40	1.32	.013	.00	.00	PIPE
496.037	3353.639	1.633	3355.271	80.98	20.60	6.59	3361.86	.00	2.78	2.99	3.000	.000	.00	1 .0
10.559	.0925					.0419	.44	1.63	3.16	1.32	.013	.00	.00	PIPE
506.597	3354.615	1.697	3356.313	80.98	19.64	5.99	3362.30	.00	2.78	2.97	3.000	.000	.00	1 .0
8.586	.0925					.0370	.32	1.70	2.94	1.32	.013	.00	.00	PIPE
515.183	3355.410	1.765	3357.175	80.98	18.73	5.44	3362.62	.00	2.78	2.95	3.000	.000	.00	1 .0
7.079	.0925					.0327	.23	1.76	2.73	1.32	.013	.00	.00	PIPE
522.262	3356.064	1.837	3357.901	80.98	17.85	4.95	3362.85	.00	2.78	2.92	3.000	.000	.00	1 .0
5.885	.0925					.0290	.17	1.84	2.53	1.32	.013	.00	.00	PIPE
528.147	3356.609	1.913	3358.521	80.98	17.02	4.50	3363.02	.00	2.78	2.88	3.000	.000	.00	1 .0
4.910	.0925					.0257	.13	1.91	2.34	1.32	.013	.00	.00	PIPE
533.056	3357.063	1.994	3359.057	80.98	16.23	4.09	3363.15	.00	2.78	2.83	3.000	.000	.00	1 .0
4.091	.0925					.0229	.09	1.99	2.16	1.32	.013	.00	.00	PIPE

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
537.147	3357.441	2.081	3359.522	80.98	15.48	3.72	3363.24	.00	2.78	2.77	3.000	.000	.00	1 .0
3.388	.0925					.0204	.07	2.08	1.98	1.32	.013	.00	.00	PIPE
540.535	3357.754	2.175	3359.929	80.98	14.76	3.38	3363.31	.00	2.78	2.68	3.000	.000	.00	1 .0
2.765	.0925					.0182	.05	2.17	1.82	1.32	.013	.00	.00	PIPE
543.300	3358.010	2.277	3360.287	80.98	14.07	3.07	3363.36	.00	2.78	2.57	3.000	.000	.00	1 .0
JUNCT STR	.0000					.0191	.05	2.28	1.66		.013	.00	.00	PIPE
545.800	3358.010	2.042	3360.052	77.98	15.22	3.60	3363.65	.00	2.75	2.80	3.000	.000	.00	1 .0
2.500	.0000					.0213	.05	2.04	1.98	.00	.013	.00	.00	PIPE
548.300	3358.010	2.023	3360.033	77.98	15.37	3.67	3363.70	.00	2.75	2.81	3.000	.000	.00	1 .0
4.737	.0177					.0216	.10	2.02	2.02	2.18	.013	.00	.00	PIPE
553.037	3358.094	2.017	3360.111	77.98	15.43	3.70	3363.81	.00	2.75	2.82	3.000	.000	.00	1 .0
52.983	.0177					.0231	1.22	2.02	2.03	2.18	.013	.00	.00	PIPE
606.020	3359.030	1.935	3360.964	77.98	16.18	4.07	3365.03	.00	2.75	2.87	3.000	.000	.00	1 .0
39.483	.0177					.0260	1.03	1.93	2.20	2.18	.013	.00	.00	PIPE
645.503	3359.727	1.857	3361.584	77.98	16.97	4.47	3366.06	.00	2.75	2.91	3.000	.000	.00	1 .0
32.068	.0177					.0293	.94	1.86	2.38	2.18	.013	.00	.00	PIPE
677.572	3360.294	1.784	3362.078	77.98	17.80	4.92	3367.00	.00	2.75	2.95	3.000	.000	.00	1 .0
27.297	.0177					.0332	.91	1.78	2.57	2.18	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
704.869	3360.776	1.715	3362.491	77.98	18.67	5.41	3367.90	.00	2.75	2.97	3.000	.000	.00	1 .0
23.958	.0177					.0375	.90	1.72	2.77	2.18	.013	.00	.00	PIPE
728.827	3361.200	1.650	3362.849	77.98	19.58	5.95	3368.80	.00	2.75	2.99	3.000	.000	.00	1 .0
21.460	.0177					.0425	.91	1.65	2.99	2.18	.013	.00	.00	PIPE
750.287	3361.579	1.588	3363.167	77.98	20.53	6.55	3369.71	.00	2.75	2.99	3.000	.000	.00	1 .0
19.498	.0177					.0482	.94	1.59	3.21	2.18	.013	.00	.00	PIPE
769.785	3361.923	1.529	3363.452	77.98	21.54	7.20	3370.65	.00	2.75	3.00	3.000	.000	.00	1 .0
17.915	.0177					.0547	.98	1.53	3.45	2.18	.013	.00	.00	PIPE
787.700	3362.240	1.473	3363.712	77.98	22.59	7.92	3371.63	.00	2.75	3.00	3.000	.000	.00	1 .0
1.519	.1126					.0578	.09	1.47	3.71	1.22	.013	.00	.00	PIPE
789.219	3362.411	1.479	3363.890	77.98	22.46	7.83	3371.72	.00	2.75	3.00	3.000	.000	.00	1 .0
11.169	.1126					.0539	.60	1.48	3.68	1.22	.013	.00	.00	PIPE
800.388	3363.669	1.536	3365.205	77.98	21.42	7.12	3372.33	.00	2.75	3.00	3.000	.000	.00	1 .0
9.032	.1126					.0475	.43	1.54	3.43	1.22	.013	.00	.00	PIPE
809.420	3364.686	1.595	3366.281	77.98	20.42	6.47	3372.76	.00	2.75	2.99	3.000	.000	.00	1 .0
7.441	.1126					.0419	.31	1.59	3.19	1.22	.013	.00	.00	PIPE
816.861	3365.524	1.657	3367.182	77.98	19.47	5.89	3373.07	.00	2.75	2.98	3.000	.000	.00	1 .0
6.205	.1126					.0370	.23	1.66	2.96	1.22	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
823.066	3366.223	1.723	3367.946	77.98	18.56	5.35	3373.30	.00	2.75	2.97	3.000	.000	.00	1 .0
5.216	.1126					.0327	.17	1.72	2.75	1.22	.013	.00	.00	PIPE
828.283	3366.811	1.792	3368.603	77.98	17.70	4.86	3373.47	.00	2.75	2.94	3.000	.000	.00	1 .0
4.405	.1126					.0289	.13	1.79	2.55	1.22	.013	.00	.00	PIPE
832.687	3367.307	1.866	3369.173	77.98	16.88	4.42	3373.60	.00	2.75	2.91	3.000	.000	.00	1 .0
3.723	.1126					.0256	.10	1.87	2.36	1.22	.013	.00	.00	PIPE
836.411	3367.727	1.944	3369.670	77.98	16.09	4.02	3373.69	.00	2.75	2.87	3.000	.000	.00	1 .0
3.139	.1126					.0228	.07	1.94	2.18	1.22	.013	.00	.00	PIPE
839.550	3368.080	2.027	3370.107	77.98	15.34	3.65	3373.76	.00	2.75	2.81	3.000	.000	.00	1 .0
JUNCT STR	.0399					.0445	.11	2.03	2.01		.013	.00	.00	PIPE
842.050	3368.180	1.315	3369.495	58.00	22.17	7.63	3377.13	.00	2.38	2.50	2.500	.000	.00	1 .0
2.500	.0400					.0680	.17	1.31	3.82	1.55	.013	.00	.00	PIPE
844.550	3368.280	1.309	3369.589	58.00	19.57	5.95	3375.54	.00	2.47	2.98	3.000	.000	.00	1 .0
4.183	.1109					.0470	.20	1.31	3.46	1.05	.013	.00	.00	PIPE
848.732	3368.744	1.335	3370.079	58.00	19.08	5.65	3375.73	.00	2.47	2.98	3.000	.000	.00	1 .0
6.799	.1109					.0426	.29	1.33	3.33	1.05	.013	.00	.00	PIPE
855.532	3369.498	1.384	3370.883	58.00	18.19	5.14	3376.02	.00	2.47	2.99	3.000	.000	.00	1 .0
5.656	.1109					.0375	.21	1.38	3.11	1.05	.013	.00	.00	PIPE

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
861.188	3370.125	1.436	3371.562	58.00	17.35	4.67	3376.23	.00	2.47	3.00	3.000	.000	.00	1 .0
4.753	.1109					.0330	.16	1.44	2.89	1.05	.013	.00	.00	PIPE
865.941	3370.652	1.491	3372.143	58.00	16.54	4.25	3376.39	.00	2.47	3.00	3.000	.000	.00	1 .0
4.020	.1109					.0290	.12	1.49	2.70	1.05	.013	.00	.00	PIPE
869.960	3371.098	1.548	3372.646	58.00	15.77	3.86	3376.51	.00	2.47	3.00	3.000	.000	.00	1 .0
3.413	.1109					.0256	.09	1.55	2.51	1.05	.013	.00	.00	PIPE
873.373	3371.477	1.608	3373.084	58.00	15.04	3.51	3376.59	.00	2.47	2.99	3.000	.000	.00	1 .0
2.900	.1109					.0226	.07	1.61	2.33	1.05	.013	.00	.00	PIPE
876.273	3371.798	1.671	3373.469	58.00	14.34	3.19	3376.66	.00	2.47	2.98	3.000	.000	.00	1 .0
2.458	.1109					.0199	.05	1.67	2.17	1.05	.013	.00	.00	PIPE
878.731	3372.071	1.737	3373.808	58.00	13.67	2.90	3376.71	.00	2.47	2.96	3.000	.000	.00	1 .0
2.075	.1109					.0176	.04	1.74	2.01	1.05	.013	.00	.00	PIPE
880.806	3372.301	1.808	3374.108	58.00	13.03	2.64	3376.75	.00	2.47	2.94	3.000	.000	.00	1 .0
1.735	.1109					.0156	.03	1.81	1.87	1.05	.013	.00	.00	PIPE
882.541	3372.493	1.882	3374.375	58.00	12.43	2.40	3376.77	.00	2.47	2.90	3.000	.000	.00	1 .0
1.431	.1109					.0138	.02	1.88	1.73	1.05	.013	.00	.00	PIPE
883.971	3372.652	1.961	3374.613	58.00	11.85	2.18	3376.79	.00	2.47	2.85	3.000	.000	.00	1 .0
1.151	.1109					.0123	.01	1.96	1.59	1.05	.013	.00	.00	PIPE

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:10-15-2020 Time: 9:35:10

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE - FLIGHT RANGE AVENUE
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
885.123	3372.780	2.046	3374.825	58.00	11.30	1.98	3376.81	.00	2.47	2.79	3.000	.000	.00	1 .0
.893	.1109					.0109	.01	2.05	1.47	1.05	.013	.00	.00	PIPE
886.015	3372.879	2.137	3375.015	58.00	10.77	1.80	3376.82	.00	2.47	2.72	3.000	.000	.00	1 .0
.645	.1109					.0098	.01	2.14	1.35	1.05	.013	.00	.00	PIPE
886.661	3372.950	2.235	3375.185	58.00	10.27	1.64	3376.82	.00	2.47	2.62	3.000	.000	.00	1 .0
.399	.1109					.0088	.00	2.24	1.23	1.05	.013	.00	.00	PIPE
887.060	3372.994	2.343	3375.337	58.00	9.79	1.49	3376.83	.00	2.47	2.48	3.000	.000	.00	1 .0
.140	.1109					.0079	.00	2.34	1.12	1.05	.013	.00	.00	PIPE
887.200	3373.010	2.465	3375.475	58.00	9.33	1.35	3376.83	.00	2.47	2.30	3.000	.000	.00	1 .0

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T1 SUMMERLIN WEST VILLAGE 22                                                0
T2 DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
T3 INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT
SO       .0003348.648  1                         3353.621
R       5.0003348.740  1      .013                                 .000    .000 0
R      51.8303349.648  1      .013                                 .000    .000 0
JX     54.3303349.748  1  1  1.013    1.070    1.9703349.8503349.850-90.0 90.0    .000
REM*****     ATKINS     *****     SDDI#11 & 12
R      56.8303349.848  1      .013                                 .000    .000 1
REM*****     ATKINS     *****     SDMH#8
R     170.1103356.460  1      .013                                 .000    .000 0
R     175.1103356.660  1      .013                                 .000    .000 1
REM*****     ATKINS     *****     SDMH#7
R     366.2803359.080  1      .013                                 .000    .000 0
R     371.2803359.280  1      .013                                 .000    .000 1
REM*****     ATKINS     *****     SDMH#6
R     427.6303361.100  1      .013                                 .000    .000 0
JX    430.1303361.200  2  2   .013    1.830         3361.030        -90.0         .000
REM*****     ATKINS     *****     SDDI#9
R     432.6303361.300  2      .013                                 .000  90.000 1
REM*****     ATKINS     *****     SDMH#5
R     458.3803361.490  2      .013                                 .000    .000 0
REM*****     ATKINS     *****     SDDI#8
SH    458.3803361.490  2                        3361.490
CD   1  4   1    .000   2.500     .000  .000  .000   .00
CD   2  4   1    .000   2.000     .000  .000  .000   .00
Q             1.120   .0
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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:10-15-2020 Time:10: 1:52

SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY

INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
.000	3348.648	4.973	3353.621	5.99	1.22	.02	3353.64	.00	.81	.00	2.500	.000	.00	1 .0
5.000	.0184					.0002	.00	4.97	.00	.55	.013	.00	.00	PIPE
5.000	3348.740	4.882	3353.622	5.99	1.22	.02	3353.65	.00	.81	.00	2.500	.000	.00	1 .0
46.830	.0194					.0002	.01	4.88	.00	.55	.013	.00	.00	PIPE
51.830	3349.648	3.984	3353.632	5.99	1.22	.02	3353.66	.00	.81	.00	2.500	.000	.00	1 .0
JUNCT STR	.0400					.0001	.00	3.98	.00		.013	.00	.00	PIPE
54.330	3349.748	3.919	3353.667	2.95	.60	.01	3353.67	.00	.56	.00	2.500	.000	.00	1 .0
2.500	.0399					.0001	.00	3.92	.00	.32	.013	.00	.00	PIPE
56.830	3349.848	3.820	3353.668	2.95	.60	.01	3353.67	.00	.56	.00	2.500	.000	.00	1 .0
22.635	.0584					.0001	.00	3.82	.00	.30	.013	.00	.00	PIPE
79.465	3351.169	2.500	3353.669	2.95	.60	.01	3353.67	.00	.56	.00	2.500	.000	.00	1 .0
3.948	.0584					.0000	.00	2.50	.00	.30	.013	.00	.00	PIPE
83.412	3351.399	2.268	3353.668	2.95	.63	.01	3353.67	.00	.56	1.45	2.500	.000	.00	1 .0
2.297	.0584					.0000	.00	2.27	.06	.30	.013	.00	.00	PIPE
85.709	3351.533	2.134	3353.667	2.95	.66	.01	3353.67	.00	.56	1.77	2.500	.000	.00	1 .0
1.892	.0584					.0001	.00	2.13	.07	.30	.013	.00	.00	PIPE
87.601	3351.644	2.023	3353.667	2.95	.69	.01	3353.67	.00	.56	1.97	2.500	.000	.00	1 .0
1.654	.0584					.0001	.00	2.02	.08	.30	.013	.00	.00	PIPE

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:10-15-2020 Time:10: 1:52

SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY

INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
89.255	3351.740	1.925	3353.666	2.95	.73	.01	3353.67	.00	.56	2.10	2.500	.000	.00	1 .0
1.488	.0584					.0001	.00	1.93	.09	.30	.013	.00	.00	PIPE
90.744	3351.827	1.838	3353.665	2.95	.76	.01	3353.67	.00	.56	2.21	2.500	.000	.00	1 .0
1.358	.0584					.0001	.00	1.84	.10	.30	.013	.00	.00	PIPE
92.102	3351.906	1.758	3353.664	2.95	.80	.01	3353.67	.00	.56	2.28	2.500	.000	.00	1 .0
1.254	.0584					.0001	.00	1.76	.11	.30	.013	.00	.00	PIPE
93.356	3351.980	1.684	3353.663	2.95	.84	.01	3353.67	.00	.56	2.34	2.500	.000	.00	1 .0
1.167	.0584					.0001	.00	1.68	.12	.30	.013	.00	.00	PIPE
94.523	3352.048	1.615	3353.662	2.95	.88	.01	3353.67	.00	.56	2.39	2.500	.000	.00	1 .0
1.090	.0584					.0001	.00	1.61	.13	.30	.013	.00	.00	PIPE
95.613	3352.112	1.550	3353.661	2.95	.92	.01	3353.67	.00	.56	2.43	2.500	.000	.00	1 .0
1.024	.0584					.0001	.00	1.55	.14	.30	.013	.00	.00	PIPE
96.637	3352.171	1.489	3353.660	2.95	.97	.01	3353.67	.00	.56	2.45	2.500	.000	.00	1 .0
.962	.0584					.0001	.00	1.49	.15	.30	.013	.00	.00	PIPE
97.599	3352.228	1.431	3353.659	2.95	1.02	.02	3353.67	.00	.56	2.47	2.500	.000	.00	1 .0
.910	.0584					.0001	.00	1.43	.17	.30	.013	.00	.00	PIPE
98.509	3352.281	1.377	3353.657	2.95	1.06	.02	3353.68	.00	.56	2.49	2.500	.000	.00	1 .0
.858	.0584					.0002	.00	1.38	.18	.30	.013	.00	.00	PIPE

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:10-15-2020 Time:10: 1:52

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
99.367	3352.331	1.325	3353.656	2.95	1.12	.02	3353.68	.00	.56	2.50	2.500	.000	.00	1 .0
.812	.0584					.0002	.00	1.33	.19	.30	.013	.00	.00	PIPE
100.180	3352.378	1.276	3353.654	2.95	1.17	.02	3353.68	.00	.56	2.50	2.500	.000	.00	1 .0
.770	.0584					.0002	.00	1.28	.21	.30	.013	.00	.00	PIPE
100.949	3352.423	1.229	3353.652	2.95	1.23	.02	3353.68	.00	.56	2.50	2.500	.000	.00	1 .0
.730	.0584					.0002	.00	1.23	.22	.30	.013	.00	.00	PIPE
101.680	3352.466	1.184	3353.650	2.95	1.29	.03	3353.68	.00	.56	2.50	2.500	.000	.00	1 .0
.691	.0584					.0003	.00	1.18	.24	.30	.013	.00	.00	PIPE
102.370	3352.506	1.141	3353.647	2.95	1.35	.03	3353.68	.00	.56	2.49	2.500	.000	.00	1 .0
.656	.0584					.0003	.00	1.14	.25	.30	.013	.00	.00	PIPE
103.026	3352.544	1.101	3353.645	2.95	1.42	.03	3353.68	.00	.56	2.48	2.500	.000	.00	1 .0
.620	.0584					.0003	.00	1.10	.27	.30	.013	.00	.00	PIPE
103.646	3352.581	1.061	3353.642	2.95	1.49	.03	3353.68	.00	.56	2.47	2.500	.000	.00	1 .0
.586	.0584					.0004	.00	1.06	.29	.30	.013	.00	.00	PIPE
104.232	3352.615	1.024	3353.639	2.95	1.56	.04	3353.68	.00	.56	2.46	2.500	.000	.00	1 .0
.556	.0584					.0004	.00	1.02	.31	.30	.013	.00	.00	PIPE
104.788	3352.647	.988	3353.635	2.95	1.63	.04	3353.68	.00	.56	2.44	2.500	.000	.00	1 .0
.291	.0584					.0005	.00	.99	.34	.30	.013	.00	.00	PIPE

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:10-15-2020 Time:10: 1:52

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
105.079	3352.664	.954	3353.618	2.95	1.71	.05	3353.66	.00	.56	2.43	2.500	.000	.00	1 .0
HYDRAULIC JUMP														
105.079	3352.664	.296	3352.960	2.95	9.01	1.26	3354.22	.00	.56	1.62	2.500	.000	.00	1 .0
11.112	.0584					.0584	.65	.30	3.53	.30	.013	.00	.00	PIPE
116.190	3353.313	.296	3353.609	2.95	9.01	1.26	3354.87	.00	.56	1.62	2.500	.000	.00	1 .0
28.203	.0584					.0550	1.55	.30	3.53	.30	.013	.00	.00	PIPE
144.394	3354.959	.305	3355.264	2.95	8.63	1.16	3356.42	.00	.56	1.64	2.500	.000	.00	1 .0
9.494	.0584					.0484	.46	.30	3.33	.30	.013	.00	.00	PIPE
153.888	3355.513	.315	3355.828	2.95	8.23	1.05	3356.88	.00	.56	1.66	2.500	.000	.00	1 .0
5.266	.0584					.0422	.22	.32	3.12	.30	.013	.00	.00	PIPE
159.154	3355.821	.326	3356.146	2.95	7.85	.96	3357.10	.00	.56	1.68	2.500	.000	.00	1 .0
3.536	.0584					.0368	.13	.33	2.93	.30	.013	.00	.00	PIPE
162.690	3356.027	.336	3356.363	2.95	7.48	.87	3357.23	.00	.56	1.71	2.500	.000	.00	1 .0
2.588	.0584					.0322	.08	.34	2.74	.30	.013	.00	.00	PIPE
165.278	3356.178	.348	3356.525	2.95	7.13	.79	3357.32	.00	.56	1.73	2.500	.000	.00	1 .0
1.988	.0584					.0281	.06	.35	2.57	.30	.013	.00	.00	PIPE
167.266	3356.294	.359	3356.653	2.95	6.80	.72	3357.37	.00	.56	1.75	2.500	.000	.00	1 .0
1.574	.0584					.0245	.04	.36	2.41	.30	.013	.00	.00	PIPE

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:10-15-2020 Time:10: 1:52

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
168.840	3356.386	.371	3356.757	2.95	6.49	.65	3357.41	.00	.56	1.78	2.500	.000	.00	1 .0
1.270	.0584					.0214	.03	.37	2.26	.30	.013	.00	.00	PIPE
170.110	3356.460	.384	3356.844	2.95	6.18	.59	3357.44	.00	.56	1.80	2.500	.000	.00	1 .0
.738	.0400					.0195	.01	.38	2.12	.32	.013	.00	.00	PIPE
170.848	3356.490	.388	3356.877	2.95	6.08	.57	3357.45	.00	.56	1.81	2.500	.000	.00	1 .0
1.766	.0400					.0178	.03	.39	2.07	.32	.013	.00	.00	PIPE
172.614	3356.560	.401	3356.961	2.95	5.80	.52	3357.48	.00	.56	1.83	2.500	.000	.00	1 .0
1.393	.0400					.0155	.02	.40	1.94	.32	.013	.00	.00	PIPE
174.007	3356.616	.414	3357.030	2.95	5.53	.47	3357.50	.00	.56	1.86	2.500	.000	.00	1 .0
1.103	.0400					.0136	.01	.41	1.82	.32	.013	.00	.00	PIPE
175.110	3356.660	.428	3357.088	2.95	5.27	.43	3357.52	.00	.56	1.88	2.500	.000	.00	1 .0
105.385	.0127					.0127	1.33	.43	1.70	.43	.013	.00	.00	PIPE
280.495	3357.994	.428	3358.422	2.95	5.27	.43	3358.85	.00	.56	1.88	2.500	.000	.00	1 .0
31.399	.0127					.0129	.41	.43	1.70	.43	.013	.00	.00	PIPE
311.894	3358.391	.424	3358.815	2.95	5.35	.44	3359.26	.00	.56	1.88	2.500	.000	.00	1 .0
20.196	.0127					.0142	.29	.42	1.74	.43	.013	.00	.00	PIPE
332.090	3358.647	.410	3359.057	2.95	5.61	.49	3359.55	.00	.56	1.85	2.500	.000	.00	1 .0
9.943	.0127					.0162	.16	.41	1.86	.43	.013	.00	.00	PIPE

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:10-15-2020 Time:10: 1:52

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
342.033	3358.773	.397	3359.170	2.95	5.89	.54	3359.71	.00	.56	1.83	2.500	.000	.00	1 .0
6.888	.0127					.0186	.13	.40	1.98	.43	.013	.00	.00	PIPE
348.921	3358.860	.384	3359.244	2.95	6.17	.59	3359.84	.00	.56	1.80	2.500	.000	.00	1 .0
5.415	.0127					.0213	.12	.38	2.11	.43	.013	.00	.00	PIPE
354.336	3358.929	.372	3359.300	2.95	6.48	.65	3359.95	.00	.56	1.78	2.500	.000	.00	1 .0
4.525	.0127					.0244	.11	.37	2.25	.43	.013	.00	.00	PIPE
358.861	3358.986	.360	3359.346	2.95	6.79	.72	3360.06	.00	.56	1.75	2.500	.000	.00	1 .0
3.927	.0127					.0279	.11	.36	2.41	.43	.013	.00	.00	PIPE
362.787	3359.036	.348	3359.384	2.95	7.12	.79	3360.17	.00	.56	1.73	2.500	.000	.00	1 .0
3.493	.0127					.0320	.11	.35	2.57	.43	.013	.00	.00	PIPE
366.280	3359.080	.337	3359.417	2.95	7.47	.87	3360.28	.00	.56	1.71	2.500	.000	.00	1 .0
5.000	.0400					.0331	.17	.34	2.74	.32	.013	.00	.00	PIPE
371.280	3359.280	.342	3359.622	2.95	7.30	.83	3360.45	.00	.56	1.72	2.500	.000	.00	1 .0
27.572	.0323					.0301	.83	.34	2.65	.34	.013	.00	.00	PIPE
398.852	3360.171	.353	3360.524	2.95	6.97	.76	3361.28	.00	.56	1.74	2.500	.000	.00	1 .0
9.524	.0323					.0263	.25	.35	2.49	.34	.013	.00	.00	PIPE
408.376	3360.479	.365	3360.843	2.95	6.65	.69	3361.53	.00	.56	1.76	2.500	.000	.00	1 .0
5.387	.0323					.0230	.12	.36	2.34	.34	.013	.00	.00	PIPE

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:10-15-2020 Time:10: 1:52

SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY

INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
413.763	3360.653	.377	3361.030	2.95	6.34	.62	3361.65	.00	.56	1.79	2.500	.000	.00	1 .0
3.607	.0323					.0201	.07	.38	2.19	.34	.013	.00	.00	PIPE
417.370	3360.769	.390	3361.158	2.95	6.05	.57	3361.73	.00	.56	1.81	2.500	.000	.00	1 .0
2.604	.0323					.0175	.05	.39	2.05	.34	.013	.00	.00	PIPE
419.974	3360.853	.403	3361.256	2.95	5.76	.52	3361.77	.00	.56	1.84	2.500	.000	.00	1 .0
1.965	.0323					.0153	.03	.40	1.92	.34	.013	.00	.00	PIPE
421.939	3360.917	.416	3361.333	2.95	5.50	.47	3361.80	.00	.56	1.86	2.500	.000	.00	1 .0
1.512	.0323					.0134	.02	.42	1.80	.34	.013	.00	.00	PIPE
423.451	3360.965	.430	3361.396	2.95	5.24	.43	3361.82	.00	.56	1.89	2.500	.000	.00	1 .0
1.181	.0323					.0117	.01	.43	1.69	.34	.013	.00	.00	PIPE
424.632	3361.003	.445	3361.448	2.95	5.00	.39	3361.84	.00	.56	1.91	2.500	.000	.00	1 .0
.915	.0323					.0102	.01	.44	1.58	.34	.013	.00	.00	PIPE
425.547	3361.033	.460	3361.492	2.95	4.76	.35	3361.84	.00	.56	1.94	2.500	.000	.00	1 .0
.707	.0323					.0089	.01	.46	1.48	.34	.013	.00	.00	PIPE
426.254	3361.056	.475	3361.531	2.95	4.54	.32	3361.85	.00	.56	1.96	2.500	.000	.00	1 .0
.531	.0323					.0078	.00	.48	1.39	.34	.013	.00	.00	PIPE
426.785	3361.073	.491	3361.564	2.95	4.33	.29	3361.86	.00	.56	1.99	2.500	.000	.00	1 .0
.387	.0323					.0068	.00	.49	1.30	.34	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date:10-15-2020 Time:10: 1:52

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
427.172	3361.085	.508	3361.593	2.95	4.13	.26	3361.86	.00	.56	2.01	2.500	.000	.00	1 .0
.261	.0323					.0059	.00	.51	1.22	.34	.013	.00	.00	PIPE
427.433	3361.094	.525	3361.619	2.95	3.94	.24	3361.86	.00	.56	2.04	2.500	.000	.00	1 .0
.147	.0323					.0052	.00	.52	1.14	.34	.013	.00	.00	PIPE
427.580	3361.098	.543	3361.641	2.95	3.75	.22	3361.86	.00	.56	2.06	2.500	.000	.00	1 .0
.050	.0323					.0045	.00	.54	1.07	.34	.013	.00	.00	PIPE
427.630	3361.100	.562	3361.662	2.95	3.57	.20	3361.86	.00	.56	2.09	2.500	.000	.00	1 .0
JUNCT STR	.0399					.0022	.01	.56	1.00		.013	.00	.00	PIPE
430.130	3361.200	.769	3361.969	1.12	1.01	.02	3361.98	.00	.36	1.95	2.000	.000	.00	1 .0
.632	.0400					.0003	.00	.77	.23	.22	.013	.00	.00	PIPE
430.762	3361.225	.742	3361.968	1.12	1.06	.02	3361.99	.00	.36	1.93	2.000	.000	.00	1 .0
.603	.0400					.0003	.00	.74	.25	.22	.013	.00	.00	PIPE
431.365	3361.250	.717	3361.966	1.12	1.11	.02	3361.99	.00	.36	1.92	2.000	.000	.00	1 .0
.572	.0400					.0003	.00	.72	.27	.22	.013	.00	.00	PIPE
431.937	3361.272	.692	3361.965	1.12	1.16	.02	3361.99	.00	.36	1.90	2.000	.000	.00	1 .0
.545	.0400					.0004	.00	.69	.29	.22	.013	.00	.00	PIPE
432.482	3361.294	.668	3361.963	1.12	1.22	.02	3361.99	.00	.36	1.89	2.000	.000	.00	1 .0
.148	.0400					.0004	.00	.67	.31	.22	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
432.630	3361.300	.662	3361.962	1.12	1.23	.02	3361.99	.00	.36	1.88	2.000	.000	.00	1 .0
2.933	.0074					.0005	.00	.66	.31	.33	.013	.00	.00	PIPE
435.563	3361.322	.639	3361.961	1.12	1.29	.03	3361.99	.00	.36	1.87	2.000	.000	.00	1 .0
2.792	.0074					.0005	.00	.64	.33	.33	.013	.00	.00	PIPE
438.355	3361.342	.618	3361.960	1.12	1.36	.03	3361.99	.00	.36	1.85	2.000	.000	.00	1 .0
2.652	.0074					.0006	.00	.62	.36	.33	.013	.00	.00	PIPE
441.007	3361.362	.597	3361.959	1.12	1.42	.03	3361.99	.00	.36	1.83	2.000	.000	.00	1 .0
2.554	.0074					.0007	.00	.60	.38	.33	.013	.00	.00	PIPE
443.561	3361.381	.577	3361.957	1.12	1.49	.03	3361.99	.00	.36	1.81	2.000	.000	.00	1 .0
2.408	.0074					.0008	.00	.58	.41	.33	.013	.00	.00	PIPE
445.969	3361.398	.557	3361.956	1.12	1.57	.04	3361.99	.00	.36	1.79	2.000	.000	.00	1 .0
2.304	.0074					.0009	.00	.56	.44	.33	.013	.00	.00	PIPE
448.273	3361.416	.539	3361.954	1.12	1.64	.04	3362.00	.00	.36	1.77	2.000	.000	.00	1 .0
2.181	.0074					.0010	.00	.54	.47	.33	.013	.00	.00	PIPE
450.454	3361.432	.521	3361.952	1.12	1.72	.05	3362.00	.00	.36	1.76	2.000	.000	.00	1 .0
2.053	.0074					.0012	.00	.52	.50	.33	.013	.00	.00	PIPE
452.507	3361.447	.503	3361.950	1.12	1.81	.05	3362.00	.00	.36	1.74	2.000	.000	.00	1 .0
1.935	.0074					.0014	.00	.50	.53	.33	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
454.442	3361.461	.487	3361.948	1.12	1.89	.06	3362.00	.00	.36	1.72	2.000	.000	.00	1 .0
1.827	.0074					.0016	.00	.49	.57	.33	.013	.00	.00	PIPE
456.268	3361.474	.471	3361.945	1.12	1.99	.06	3362.01	.00	.36	1.70	2.000	.000	.00	1 .0
1.675	.0074					.0018	.00	.47	.61	.33	.013	.00	.00	PIPE
457.943	3361.487	.455	3361.942	1.12	2.08	.07	3362.01	.00	.36	1.68	2.000	.000	.00	1 .0
.437	.0074					.0019	.00	.46	.65	.33	.013	.00	.00	PIPE
458.380	3361.490	.451	3361.941	1.12	2.11	.07	3362.01	.00	.36	1.67	2.000	.000	.00	1 .0

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T1 SUMMERLIN WEST VILLAGE 22                                                0
T2 DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
T3 INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT
SO    432.6303361.300  2                          3361.805
REM*****     ATKINS     *****     SDMH#5
R     436.3803363.000  2      .013                                .000    .000 0
REM*****     ATKINS     *****     SDDI#9
SH    436.3803363.000  2                          3363.000
CD   1  4   1    .000   2.500     .000  .000  .000   .00
CD   2  4   1    .000   2.000     .000  .000  .000   .00
Q             1.000   .0
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WATER SURFACE PROFILE LISTING Date:10-15-2020 Time:11:48:15

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
432.630	3361.300	.204	3361.504	1.83	10.90	1.84	3363.35	.00	.47	1.21	2.000	.000	.00	1 .0
.161	.4533					.1369	.02	.20	5.15	.15	.013	.00	.00	PIPE
432.791	3361.373	.205	3361.578	1.83	10.78	1.80	3363.38	.00	.47	1.21	2.000	.000	.00	1 .0
.481	.4533					.1262	.06	.21	5.08	.15	.013	.00	.00	PIPE
433.272	3361.591	.212	3361.803	1.83	10.28	1.64	3363.44	.00	.47	1.23	2.000	.000	.00	1 .0
.414	.4533					.1101	.05	.21	4.76	.15	.013	.00	.00	PIPE
433.686	3361.779	.219	3361.998	1.83	9.80	1.49	3363.49	.00	.47	1.25	2.000	.000	.00	1 .0
.359	.4533					.0960	.03	.22	4.47	.15	.013	.00	.00	PIPE
434.044	3361.941	.226	3362.168	1.83	9.34	1.36	3363.52	.00	.47	1.27	2.000	.000	.00	1 .0
.313	.4533					.0838	.03	.23	4.19	.15	.013	.00	.00	PIPE
434.358	3362.083	.234	3362.317	1.83	8.91	1.23	3363.55	.00	.47	1.28	2.000	.000	.00	1 .0
.274	.4533					.0731	.02	.23	3.93	.15	.013	.00	.00	PIPE
434.632	3362.208	.241	3362.449	1.83	8.49	1.12	3363.57	.00	.47	1.30	2.000	.000	.00	1 .0
.241	.4533					.0638	.02	.24	3.68	.15	.013	.00	.00	PIPE
434.873	3362.317	.249	3362.566	1.83	8.10	1.02	3363.58	.00	.47	1.32	2.000	.000	.00	1 .0
.212	.4533					.0557	.01	.25	3.45	.15	.013	.00	.00	PIPE
435.085	3362.413	.258	3362.671	1.83	7.72	.93	3363.60	.00	.47	1.34	2.000	.000	.00	1 .0
.187	.4533					.0486	.01	.26	3.24	.15	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date:10-15-2020 Time:11:48:15

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
435.271	3362.498	.266	3362.764	1.83	7.36	.84	3363.61	.00	.47	1.36	2.000	.000	.00	1 .0
.165	.4533					.0424	.01	.27	3.03	.15	.013	.00	.00	PIPE
435.436	3362.572	.275	3362.847	1.83	7.02	.77	3363.61	.00	.47	1.38	2.000	.000	.00	1 .0
.145	.4533					.0371	.01	.28	2.84	.15	.013	.00	.00	PIPE
435.581	3362.638	.284	3362.922	1.83	6.69	.70	3363.62	.00	.47	1.40	2.000	.000	.00	1 .0
.128	.4533					.0323	.00	.28	2.67	.15	.013	.00	.00	PIPE
435.709	3362.696	.294	3362.990	1.83	6.38	.63	3363.62	.00	.47	1.42	2.000	.000	.00	1 .0
.112	.4533					.0282	.00	.29	2.50	.15	.013	.00	.00	PIPE
435.821	3362.747	.304	3363.050	1.83	6.08	.57	3363.63	.00	.47	1.44	2.000	.000	.00	1 .0
.098	.4533					.0247	.00	.30	2.34	.15	.013	.00	.00	PIPE
435.919	3362.791	.314	3363.105	1.83	5.80	.52	3363.63	.00	.47	1.45	2.000	.000	.00	1 .0
.086	.4533					.0215	.00	.31	2.20	.15	.013	.00	.00	PIPE
436.005	3362.830	.324	3363.154	1.83	5.53	.48	3363.63	.00	.47	1.47	2.000	.000	.00	1 .0
.074	.4533					.0188	.00	.32	2.06	.15	.013	.00	.00	PIPE
436.079	3362.864	.335	3363.199	1.83	5.27	.43	3363.63	.00	.47	1.49	2.000	.000	.00	1 .0
.064	.4533					.0164	.00	.34	1.93	.15	.013	.00	.00	PIPE
436.143	3362.893	.347	3363.239	1.83	5.03	.39	3363.63	.00	.47	1.51	2.000	.000	.00	1 .0
.055	.4533					.0143	.00	.35	1.81	.15	.013	.00	.00	PIPE

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:10-15-2020 Time:11:48:15

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
436.198	3362.917	.358	3363.276	1.83	4.79	.36	3363.63	.00	.47	1.53	2.000	.000	.00	1 .0
.046	.4533					.0125	.00	.36	1.69	.15	.013	.00	.00	PIPE
436.244	3362.938	.370	3363.309	1.83	4.57	.32	3363.63	.00	.47	1.55	2.000	.000	.00	1 .0
.038	.4533					.0109	.00	.37	1.59	.15	.013	.00	.00	PIPE
436.282	3362.956	.383	3363.339	1.83	4.36	.29	3363.63	.00	.47	1.57	2.000	.000	.00	1 .0
.031	.4533					.0096	.00	.38	1.49	.15	.013	.00	.00	PIPE
436.314	3362.970	.396	3363.365	1.83	4.16	.27	3363.63	.00	.47	1.59	2.000	.000	.00	1 .0
.025	.4533					.0084	.00	.40	1.39	.15	.013	.00	.00	PIPE
436.338	3362.981	.409	3363.390	1.83	3.96	.24	3363.63	.00	.47	1.61	2.000	.000	.00	1 .0
.019	.4533					.0073	.00	.41	1.30	.15	.013	.00	.00	PIPE
436.357	3362.990	.423	3363.412	1.83	3.78	.22	3363.63	.00	.47	1.63	2.000	.000	.00	1 .0
.013	.4533					.0064	.00	.42	1.22	.15	.013	.00	.00	PIPE
436.370	3362.995	.437	3363.433	1.83	3.60	.20	3363.63	.00	.47	1.65	2.000	.000	.00	1 .0
.008	.4533					.0056	.00	.44	1.15	.15	.013	.00	.00	PIPE
436.377	3362.999	.452	3363.451	1.83	3.43	.18	3363.63	.00	.47	1.67	2.000	.000	.00	1 .0
.003	.4533					.0049	.00	.45	1.07	.15	.013	.00	.00	PIPE

```
T1 SUMMERLIN WEST VILLAGE 22                                                0
T2 DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
T3 INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT
SO     56.8303349.848  2                          3353.621
REM*****      ATKINS     *****     SDMH#8
R      63.0803351.410  2      .013                                 .000    .000 0
REM*****     ATKINS     *****     SDDI#12
SH     63.0803351.410  2                          3351.410
CD   1  4   1    .000   2.500     .000  .000  .000   .00
CD   2  4   1    .000   2.000     .000  .000  .000   .00
Q             1.970   .0
```

FILE: DFD2-KRW-INT-LAT8-E.WSW W S P G W - CIVILDESIGN Version 14.08 PAGE 1

Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:10-15-2020 Time:11:48:59

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
56.830	3349.848	3.773	3353.621	1.97	.63	.01	3353.63	.00	.49	.00	2.000	.000	.00	1 .0
6.250	.2499				.0001	.00	3.77	.00	.18	.013		.00	.00	PIPE
63.080	3351.410	2.212	3353.622	1.97	.63	.01	3353.63	.00	.49	.00	2.000	.000	.00	1 .0

```
T1 SUMMERLIN WEST VILLAGE 22                                                0
T2 DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
T3 INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT
SO     56.8303349.848  2                          3353.621
REM*****      ATKINS     *****     SDMH#8
R      87.7503354.820  2      .013                                  .000    .000 0
REM*****     ATKINS     *****     SDDI#11
SH     87.7503354.820  2                          3354.820
CD   1  4   1    .000   2.500     .000  .000  .000   .00
CD   2  4   1    .000   2.000     .000  .000  .000   .00
Q             1.070   .0
```

FILE: DFD2-KRW-INT-LAT8-W.WSW W S P G W - CIVILDESIGN Version 14.08 PAGE 1

Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:10-15-2020 Time:11:49:14

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
56.830	3349.848	3.773	3353.621	1.07	.34	.00	3353.62	.00	.36	.00	2.000	.000	.00	1 .0
11.028	.1608					.0000	.00	3.77	.00	.15	.013	.00	.00	PIPE
67.858	3351.621	2.000	3353.621	1.07	.34	.00	3353.62	.00	.36	.00	2.000	.000	.00	1 .0
1.146	.1608					.0000	.00	2.00	.00	.15	.013	.00	.00	PIPE
69.004	3351.806	1.815	3353.620	1.07	.36	.00	3353.62	.00	.36	1.16	2.000	.000	.00	1 .0
.669	.1608					.0000	.00	1.81	.04	.15	.013	.00	.00	PIPE
69.673	3351.913	1.707	3353.620	1.07	.37	.00	3353.62	.00	.36	1.41	2.000	.000	.00	1 .0
.551	.1608					.0000	.00	1.71	.05	.15	.013	.00	.00	PIPE
70.224	3352.002	1.618	3353.620	1.07	.39	.00	3353.62	.00	.36	1.57	2.000	.000	.00	1 .0
.482	.1608					.0000	.00	1.62	.05	.15	.013	.00	.00	PIPE
70.706	3352.079	1.540	3353.620	1.07	.41	.00	3353.62	.00	.36	1.68	2.000	.000	.00	1 .0
.434	.1608					.0000	.00	1.54	.06	.15	.013	.00	.00	PIPE
71.140	3352.149	1.470	3353.619	1.07	.43	.00	3353.62	.00	.36	1.77	2.000	.000	.00	1 .0
.397	.1608					.0000	.00	1.47	.06	.15	.013	.00	.00	PIPE
71.537	3352.213	1.406	3353.619	1.07	.45	.00	3353.62	.00	.36	1.83	2.000	.000	.00	1 .0
.367	.1608					.0000	.00	1.41	.07	.15	.013	.00	.00	PIPE
71.903	3352.272	1.347	3353.619	1.07	.48	.00	3353.62	.00	.36	1.88	2.000	.000	.00	1 .0
.342	.1608					.0000	.00	1.35	.08	.15	.013	.00	.00	PIPE

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:10-15-2020 Time:11:49:14

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
72.245	3352.327	1.292	3353.618	1.07	.50	.00	3353.62	.00	.36	1.91	2.000	.000	.00	1 .0
.320	.1608					.0000	.00	1.29	.08	.15	.013	.00	.00	PIPE
72.565	3352.378	1.240	3353.618	1.07	.52	.00	3353.62	.00	.36	1.94	2.000	.000	.00	1 .0
.301	.1608					.0000	.00	1.24	.09	.15	.013	.00	.00	PIPE
72.866	3352.427	1.191	3353.618	1.07	.55	.00	3353.62	.00	.36	1.96	2.000	.000	.00	1 .0
.283	.1608					.0001	.00	1.19	.10	.15	.013	.00	.00	PIPE
73.149	3352.472	1.145	3353.617	1.07	.58	.01	3353.62	.00	.36	1.98	2.000	.000	.00	1 .0
.268	.1608					.0001	.00	1.15	.10	.15	.013	.00	.00	PIPE
73.417	3352.516	1.101	3353.617	1.07	.60	.01	3353.62	.00	.36	1.99	2.000	.000	.00	1 .0
.254	.1608					.0001	.00	1.10	.11	.15	.013	.00	.00	PIPE
73.671	3352.556	1.060	3353.616	1.07	.63	.01	3353.62	.00	.36	2.00	2.000	.000	.00	1 .0
.241	.1608					.0001	.00	1.06	.12	.15	.013	.00	.00	PIPE
73.913	3352.595	1.021	3353.616	1.07	.66	.01	3353.62	.00	.36	2.00	2.000	.000	.00	1 .0
.229	.1608					.0001	.00	1.02	.13	.15	.013	.00	.00	PIPE
74.142	3352.632	.983	3353.615	1.07	.70	.01	3353.62	.00	.36	2.00	2.000	.000	.00	1 .0
.218	.1608					.0001	.00	.98	.14	.15	.013	.00	.00	PIPE
74.360	3352.667	.947	3353.615	1.07	.73	.01	3353.62	.00	.36	2.00	2.000	.000	.00	1 .0
.208	.1608					.0001	.00	.95	.15	.15	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date:10-15-2020 Time:11:49:14

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
74.567	3352.701	.913	3353.614	1.07	.77	.01	3353.62	.00	.36	1.99	2.000	.000	.00	1 .0
.198	.1608					.0001	.00	.91	.16	.15	.013	.00	.00	PIPE
74.765	3352.732	.880	3353.613	1.07	.80	.01	3353.62	.00	.36	1.99	2.000	.000	.00	1 .0
.189	.1608					.0001	.00	.88	.17	.15	.013	.00	.00	PIPE
74.954	3352.763	.849	3353.612	1.07	.84	.01	3353.62	.00	.36	1.98	2.000	.000	.00	1 .0
.179	.1608					.0002	.00	.85	.19	.15	.013	.00	.00	PIPE
75.133	3352.792	.819	3353.611	1.07	.88	.01	3353.62	.00	.36	1.97	2.000	.000	.00	1 .0
.172	.1608					.0002	.00	.82	.20	.15	.013	.00	.00	PIPE
75.305	3352.819	.790	3353.610	1.07	.93	.01	3353.62	.00	.36	1.96	2.000	.000	.00	1 .0
.163	.1608					.0002	.00	.79	.21	.15	.013	.00	.00	PIPE
75.468	3352.845	.763	3353.608	1.07	.97	.01	3353.62	.00	.36	1.94	2.000	.000	.00	1 .0
.156	.1608					.0003	.00	.76	.23	.15	.013	.00	.00	PIPE
75.624	3352.870	.736	3353.607	1.07	1.02	.02	3353.62	.00	.36	1.93	2.000	.000	.00	1 .0
.148	.1608					.0003	.00	.74	.24	.15	.013	.00	.00	PIPE
75.772	3352.894	.711	3353.605	1.07	1.07	.02	3353.62	.00	.36	1.91	2.000	.000	.00	1 .0
.142	.1608					.0003	.00	.71	.26	.15	.013	.00	.00	PIPE
75.913	3352.917	.687	3353.604	1.07	1.12	.02	3353.62	.00	.36	1.90	2.000	.000	.00	1 .0
.010	.1608					.0004	.00	.69	.28	.15	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date:10-15-2020 Time:11:49:14

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
75.924	3352.919	.663	3353.582	1.07	1.18	.02	3353.60	.00	.36	1.88	2.000	.000	.00	1 .0
HYDRAULIC JUMP														
75.924	3352.919	.157	3353.076	1.07	9.34	1.35	3354.43	.00	.36	1.08	2.000	.000	.00	1 .0
1.169	.1608					.1329	.16	.16	5.04	.15	.013	.00	.00	PIPE
77.093	3353.106	.162	3353.269	1.07	8.90	1.23	3354.50	.00	.36	1.09	2.000	.000	.00	1 .0
2.371	.1608					.1159	.27	.16	4.73	.15	.013	.00	.00	PIPE
79.464	3353.488	.168	3353.655	1.07	8.48	1.12	3354.77	.00	.36	1.11	2.000	.000	.00	1 .0
1.609	.1608					.1011	.16	.17	4.43	.15	.013	.00	.00	PIPE
81.073	3353.746	.173	3353.919	1.07	8.09	1.02	3354.94	.00	.36	1.12	2.000	.000	.00	1 .0
1.193	.1608					.0882	.11	.17	4.16	.15	.013	.00	.00	PIPE
82.266	3353.938	.179	3354.117	1.07	7.71	.92	3355.04	.00	.36	1.14	2.000	.000	.00	1 .0
.931	.1608					.0769	.07	.18	3.90	.15	.013	.00	.00	PIPE
83.197	3354.088	.185	3354.273	1.07	7.35	.84	3355.11	.00	.36	1.16	2.000	.000	.00	1 .0
.750	.1608					.0671	.05	.18	3.66	.15	.013	.00	.00	PIPE
83.947	3354.208	.191	3354.399	1.07	7.01	.76	3355.16	.00	.36	1.18	2.000	.000	.00	1 .0
.617	.1608					.0585	.04	.19	3.43	.15	.013	.00	.00	PIPE
84.564	3354.308	.197	3354.505	1.07	6.69	.69	3355.20	.00	.36	1.19	2.000	.000	.00	1 .0
.516	.1608					.0511	.03	.20	3.22	.15	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date:10-15-2020 Time:11:49:14

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
85.080	3354.391	.204	3354.594	1.07	6.37	.63	3355.23	.00	.36	1.21	2.000	.000	.00	1 .0
.436	.1608					.0446	.02	.20	3.02	.15	.013	.00	.00	PIPE
85.516	3354.461	.210	3354.671	1.07	6.08	.57	3355.24	.00	.36	1.23	2.000	.000	.00	1 .0
.371	.1608					.0389	.01	.21	2.83	.15	.013	.00	.00	PIPE
85.887	3354.520	.217	3354.738	1.07	5.79	.52	3355.26	.00	.36	1.24	2.000	.000	.00	1 .0
.317	.1608					.0339	.01	.22	2.65	.15	.013	.00	.00	PIPE
86.203	3354.571	.224	3354.796	1.07	5.53	.47	3355.27	.00	.36	1.26	2.000	.000	.00	1 .0
.271	.1608					.0296	.01	.22	2.49	.15	.013	.00	.00	PIPE
86.475	3354.615	.232	3354.847	1.07	5.27	.43	3355.28	.00	.36	1.28	2.000	.000	.00	1 .0
.234	.1608					.0258	.01	.23	2.33	.15	.013	.00	.00	PIPE
86.709	3354.653	.240	3354.892	1.07	5.02	.39	3355.28	.00	.36	1.30	2.000	.000	.00	1 .0
.200	.1608					.0225	.00	.24	2.19	.15	.013	.00	.00	PIPE
86.908	3354.685	.248	3354.932	1.07	4.79	.36	3355.29	.00	.36	1.32	2.000	.000	.00	1 .0
.171	.1608					.0197	.00	.25	2.05	.15	.013	.00	.00	PIPE
87.080	3354.712	.256	3354.968	1.07	4.57	.32	3355.29	.00	.36	1.34	2.000	.000	.00	1 .0
.146	.1608					.0172	.00	.26	1.92	.15	.013	.00	.00	PIPE
87.226	3354.736	.264	3355.000	1.07	4.35	.29	3355.29	.00	.36	1.35	2.000	.000	.00	1 .0
.123	.1608					.0150	.00	.26	1.80	.15	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date:10-15-2020 Time:11:49:14

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
INTERIM CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
87.349	3354.756	.273	3355.029	1.07	4.15	.27	3355.30	.00	.36	1.37	2.000	.000	.00	1 .0
.103	.1608					.0131	.00	.27	1.69	.15	.013	.00	.00	PIPE
87.452	3354.772	.282	3355.054	1.07	3.96	.24	3355.30	.00	.36	1.39	2.000	.000	.00	1 .0
.085	.1608					.0114	.00	.28	1.58	.15	.013	.00	.00	PIPE
87.537	3354.786	.292	3355.077	1.07	3.77	.22	3355.30	.00	.36	1.41	2.000	.000	.00	1 .0
.068	.1608					.0100	.00	.29	1.48	.15	.013	.00	.00	PIPE
87.605	3354.797	.301	3355.098	1.07	3.60	.20	3355.30	.00	.36	1.43	2.000	.000	.00	1 .0
.054	.1608					.0087	.00	.30	1.39	.15	.013	.00	.00	PIPE
87.660	3354.806	.311	3355.117	1.07	3.43	.18	3355.30	.00	.36	1.45	2.000	.000	.00	1 .0
.040	.1608					.0076	.00	.31	1.30	.15	.013	.00	.00	PIPE
87.700	3354.812	.322	3355.134	1.07	3.27	.17	3355.30	.00	.36	1.47	2.000	.000	.00	1 .0
.028	.1608					.0066	.00	.32	1.22	.15	.013	.00	.00	PIPE
87.727	3354.816	.333	3355.149	1.07	3.12	.15	3355.30	.00	.36	1.49	2.000	.000	.00	1 .0
.017	.1608					.0058	.00	.33	1.15	.15	.013	.00	.00	PIPE
87.744	3354.819	.344	3355.163	1.07	2.97	.14	3355.30	.00	.36	1.51	2.000	.000	.00	1 .0
.006	.1608					.0050	.00	.34	1.07	.15	.013	.00	.00	PIPE
87.750	3354.820	.356	3355.177	1.07	2.82	.12	3355.30	.00	.36	1.53	2.000	.000	.00	1 .0

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T1 SUMMERLIN WEST VILLAGE 22                                                0
T2 DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
T3 ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT
SO       .0003348.648  1                          3353.358
R       5.0003348.740  1      .013                                .000    .000 0
R      51.8303349.648  1      .013                                .000    .000 0
JX     54.3303349.748  1  1  1.013    1.070    1.9703350.7603350.760-90.0 90.0    .000
REM*****     ATKINS     *****     SDDI#11 & 12
R      56.8303349.848  1      .013                                .000    .000 1
REM*****      ATKINS     *****     SDMH#8
R     170.1103356.460  1      .013                                .000    .000 0
JX    172.6103356.560  1  1   .013   10.000         3356.660         90.0         .000
REM*****     ATKINS     *****     PARCEL S
R     175.1103356.660  1      .013                                .000    .000 1
REM*****     ATKINS     *****     SDMH#7
R     366.2803359.080  1      .013                                .000    .000 0
JX    368.7803359.180  1  1   .013   11.000         3359.280         90.0         .000
REM*****     ATKINS     *****     PARCEL U
R     371.2803359.280  1      .013                                .000    .000 1
REM*****     ATKINS     *****     SDMH#6
R     427.6303361.100  1      .013                                .000    .000 0
JX    430.1303361.200  2  2   .013    1.830         3361.300        -90.0         .000
REM*****     ATKINS     *****     SDDI#9
R     432.6303361.300  2      .013                                .000  90.000 1
REM*****     ATKINS     *****     SDMH#5
R     458.3803361.490  2      .013                                .000    .000 0
REM*****     ATKINS     *****     SDDI#8
SH    458.3803361.490  2                          3361.490
CD   1  4   1    .000   2.500     .000  .000  .000   .00
CD   2  4   1    .000   2.000     .000  .000  .000   .00
Q             1.120   .0
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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:10-15-2020 Time:10: 2: 9

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
.000	3348.648	4.710	3353.358	26.99	5.50	.47	3353.83	.00	1.77	.00	2.500	.000	.00	1 .0
5.000	.0184					.0043	.02	4.71	.00	1.23	.013	.00	.00	PIPE
5.000	3348.740	4.640	3353.380	26.99	5.50	.47	3353.85	.00	1.77	.00	2.500	.000	.00	1 .0
46.830	.0194					.0043	.20	4.64	.00	1.21	.013	.00	.00	PIPE
51.830	3349.648	3.934	3353.583	26.99	5.50	.47	3354.05	.00	1.77	.00	2.500	.000	.00	1 .0
JUNCT STR	.0400					.0039	.01	3.93	.00		.013	.00	.00	PIPE
54.330	3349.748	4.044	3353.792	23.95	4.88	.37	3354.16	.00	1.67	.00	2.500	.000	.00	1 .0
2.500	.0399					.0034	.01	4.04	.00	.93	.013	.00	.00	PIPE
56.830	3349.848	3.971	3353.819	23.95	4.88	.37	3354.19	.00	1.67	.00	2.500	.000	.00	1 .0
17.677	.0584					.0034	.06	3.97	.00	.84	.013	.00	.00	PIPE
74.507	3350.880	2.999	3353.878	23.95	4.88	.37	3354.25	.00	1.67	.00	2.500	.000	.00	1 .0
HYDRAULIC JUMP														
74.507	3350.880	.873	3351.753	23.95	15.69	3.82	3355.58	.00	1.67	2.38	2.500	.000	.00	1 .0
9.937	.0584					.0489	.49	.87	3.46	.84	.013	.00	.00	PIPE
84.444	3351.460	.881	3352.340	23.95	15.50	3.73	3356.07	.00	1.67	2.39	2.500	.000	.00	1 .0
23.268	.0584					.0451	1.05	.88	3.40	.84	.013	.00	.00	PIPE
107.712	3352.818	.912	3353.730	23.95	14.78	3.39	3357.12	.00	1.67	2.41	2.500	.000	.00	1 .0
14.676	.0584					.0396	.58	.91	3.17	.84	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date:10-15-2020 Time:10: 2: 9

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
122.388	3353.675	.945	3354.619	23.95	14.09	3.08	3357.70	.00	1.67	2.42	2.500	.000	.00	1 .0
10.413	.0584					.0347	.36	.94	2.97	.84	.013	.00	.00	PIPE
132.801	3354.282	.979	3355.261	23.95	13.44	2.80	3358.07	.00	1.67	2.44	2.500	.000	.00	1 .0
7.862	.0584					.0305	.24	.98	2.77	.84	.013	.00	.00	PIPE
140.663	3354.741	1.015	3355.756	23.95	12.81	2.55	3358.30	.00	1.67	2.46	2.500	.000	.00	1 .0
6.153	.0584					.0267	.16	1.01	2.59	.84	.013	.00	.00	PIPE
146.816	3355.101	1.052	3356.152	23.95	12.22	2.32	3358.47	.00	1.67	2.47	2.500	.000	.00	1 .0
4.929	.0584					.0235	.12	1.05	2.42	.84	.013	.00	.00	PIPE
151.746	3355.388	1.090	3356.479	23.95	11.65	2.11	3358.59	.00	1.67	2.48	2.500	.000	.00	1 .0
4.004	.0584					.0206	.08	1.09	2.25	.84	.013	.00	.00	PIPE
155.750	3355.622	1.131	3356.752	23.95	11.11	1.92	3358.67	.00	1.67	2.49	2.500	.000	.00	1 .0
3.279	.0584					.0181	.06	1.13	2.10	.84	.013	.00	.00	PIPE
159.029	3355.813	1.173	3356.986	23.95	10.59	1.74	3358.73	.00	1.67	2.50	2.500	.000	.00	1 .0
2.689	.0584					.0160	.04	1.17	1.96	.84	.013	.00	.00	PIPE
161.718	3355.970	1.217	3357.187	23.95	10.10	1.58	3358.77	.00	1.67	2.50	2.500	.000	.00	1 .0
2.202	.0584					.0140	.03	1.22	1.83	.84	.013	.00	.00	PIPE
163.920	3356.099	1.263	3357.362	23.95	9.63	1.44	3358.80	.00	1.67	2.50	2.500	.000	.00	1 .0
1.787	.0584					.0124	.02	1.26	1.70	.84	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
165.707	3356.203	1.312	3357.515	23.95	9.18	1.31	3358.82	.00	1.67	2.50	2.500	.000	.00	1 .0
1.429	.0584					.0109	.02	1.31	1.58	.84	.013	.00	.00	PIPE
167.135	3356.286	1.363	3357.649	23.95	8.75	1.19	3358.84	.00	1.67	2.49	2.500	.000	.00	1 .0
1.114	.0584					.0096	.01	1.36	1.47	.84	.013	.00	.00	PIPE
168.249	3356.351	1.417	3357.768	23.95	8.34	1.08	3358.85	.00	1.67	2.48	2.500	.000	.00	1 .0
.834	.0584					.0085	.01	1.42	1.37	.84	.013	.00	.00	PIPE
169.083	3356.400	1.474	3357.874	23.95	7.96	.98	3358.86	.00	1.67	2.46	2.500	.000	.00	1 .0
.577	.0584					.0075	.00	1.47	1.27	.84	.013	.00	.00	PIPE
169.660	3356.434	1.534	3357.967	23.95	7.59	.89	3358.86	.00	1.67	2.43	2.500	.000	.00	1 .0
.337	.0584					.0067	.00	1.53	1.17	.84	.013	.00	.00	PIPE
169.997	3356.453	1.597	3358.051	23.95	7.23	.81	3358.86	.00	1.67	2.40	2.500	.000	.00	1 .0
.113	.0584					.0059	.00	1.60	1.09	.84	.013	.00	.00	PIPE
170.110	3356.460	1.666	3358.126	23.95	6.89	.74	3358.86	.00	1.67	2.36	2.500	.000	.00	1 .0
JUNCT STR	.0400					.0034	.01	1.67	1.00		.013	.00	.00	PIPE
172.610	3356.560	2.504	3359.063	13.95	2.84	.13	3359.19	.00	1.26	.00	2.500	.000	.00	1 .0
.097	.0399					.0011	.00	2.50	.00	.70	.013	.00	.00	PIPE
172.707	3356.564	2.500	3359.064	13.95	2.84	.13	3359.19	.00	1.26	.00	2.500	.000	.00	1 .0
2.403	.0399					.0011	.00	2.50	.00	.70	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
175.110	3356.660	2.402	3359.062	13.95	2.88	.13	3359.19	.00	1.26	.97	2.500	.000	.00	1 .0
13.873	.0127					.0010	.01	2.40	.23	.94	.013	.00	.00	PIPE
188.983	3356.835	2.228	3359.063	13.95	3.02	.14	3359.21	.00	1.26	1.56	2.500	.000	.00	1 .0
9.683	.0127					.0011	.01	2.23	.31	.94	.013	.00	.00	PIPE
198.665	3356.958	2.102	3359.060	13.95	3.17	.16	3359.22	.00	1.26	1.83	2.500	.000	.00	1 .0
7.926	.0127					.0012	.01	2.10	.36	.94	.013	.00	.00	PIPE
206.591	3357.058	1.995	3359.053	13.95	3.32	.17	3359.22	.00	1.26	2.01	2.500	.000	.00	1 .0
6.783	.0127					.0013	.01	1.99	.40	.94	.013	.00	.00	PIPE
213.374	3357.144	1.901	3359.045	13.95	3.48	.19	3359.23	.00	1.26	2.13	2.500	.000	.00	1 .0
5.915	.0127					.0014	.01	1.90	.45	.94	.013	.00	.00	PIPE
219.289	3357.219	1.815	3359.035	13.95	3.65	.21	3359.24	.00	1.26	2.23	2.500	.000	.00	1 .0
5.211	.0127					.0016	.01	1.82	.49	.94	.013	.00	.00	PIPE
224.500	3357.285	1.737	3359.022	13.95	3.83	.23	3359.25	.00	1.26	2.30	2.500	.000	.00	1 .0
4.580	.0127					.0018	.01	1.74	.54	.94	.013	.00	.00	PIPE
229.080	3357.343	1.664	3359.007	13.95	4.02	.25	3359.26	.00	1.26	2.36	2.500	.000	.00	1 .0
1.099	.0127					.0019	.00	1.66	.58	.94	.013	.00	.00	PIPE
230.179	3357.357	1.664	3359.021	13.95	4.02	.25	3359.27	.00	1.26	2.36	2.500	.000	.00	1 .0

HYDRAULIC JUMP

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SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
230.179	3357.357	.943	3358.300	13.95	8.24	1.05	3359.35	.00	1.26	2.42	2.500	.000	.00	1 .0
2.107	.0127					.0127	.03	.94	1.74	.94	.013	.00	.00	PIPE
232.285	3357.384	.943	3358.326	13.95	8.24	1.05	3359.38	.00	1.26	2.42	2.500	.000	.00	1 .0
79.621	.0127					.0119	.95	.94	1.74	.94	.013	.00	.00	PIPE
311.906	3358.392	.974	3359.365	13.95	7.88	.97	3360.33	.00	1.26	2.44	2.500	.000	.00	1 .0
24.797	.0127					.0105	.26	.97	1.63	.94	.013	.00	.00	PIPE
336.703	3358.706	1.009	3359.715	13.95	7.52	.88	3360.59	.00	1.26	2.45	2.500	.000	.00	1 .0
12.623	.0127					.0093	.12	1.01	1.52	.94	.013	.00	.00	PIPE
349.326	3358.865	1.046	3359.911	13.95	7.17	.80	3360.71	.00	1.26	2.47	2.500	.000	.00	1 .0
7.529	.0127					.0081	.06	1.05	1.42	.94	.013	.00	.00	PIPE
356.855	3358.961	1.084	3360.045	13.95	6.83	.73	3360.77	.00	1.26	2.48	2.500	.000	.00	1 .0
4.680	.0127					.0071	.03	1.08	1.33	.94	.013	.00	.00	PIPE
361.534	3359.020	1.124	3360.144	13.95	6.52	.66	3360.80	.00	1.26	2.49	2.500	.000	.00	1 .0
2.810	.0127					.0063	.02	1.12	1.24	.94	.013	.00	.00	PIPE
364.344	3359.056	1.166	3360.222	13.95	6.21	.60	3360.82	.00	1.26	2.49	2.500	.000	.00	1 .0
1.483	.0127					.0055	.01	1.17	1.15	.94	.013	.00	.00	PIPE
365.827	3359.074	1.210	3360.285	13.95	5.92	.54	3360.83	.00	1.26	2.50	2.500	.000	.00	1 .0
.453	.0127					.0049	.00	1.21	1.08	.94	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
366.280	3359.080	1.257	3360.337	13.95	5.64	.49	3360.83	.00	1.26	2.50	2.500	.000	.00	1 .0
JUNCT STR	.0399					.0023	.01	1.26	1.00		.013	.00	.00	PIPE
368.780	3359.180	1.898	3361.078	2.95	.74	.01	3361.09	.00	.56	2.14	2.500	.000	.00	1 .0
2.109	.0400					.0001	.00	1.90	.10	.32	.013	.00	.00	PIPE
370.889	3359.264	1.813	3361.077	2.95	.77	.01	3361.09	.00	.56	2.23	2.500	.000	.00	1 .0
.391	.0400					.0001	.00	1.81	.10	.32	.013	.00	.00	PIPE
371.280	3359.280	1.797	3361.077	2.95	.78	.01	3361.09	.00	.56	2.25	2.500	.000	.00	1 .0
2.361	.0323					.0001	.00	1.80	.11	.34	.013	.00	.00	PIPE
373.641	3359.356	1.720	3361.076	2.95	.82	.01	3361.09	.00	.56	2.32	2.500	.000	.00	1 .0
2.187	.0323					.0001	.00	1.72	.12	.34	.013	.00	.00	PIPE
375.828	3359.427	1.648	3361.075	2.95	.86	.01	3361.09	.00	.56	2.37	2.500	.000	.00	1 .0
2.038	.0323					.0001	.00	1.65	.13	.34	.013	.00	.00	PIPE
377.867	3359.493	1.582	3361.074	2.95	.90	.01	3361.09	.00	.56	2.41	2.500	.000	.00	1 .0
1.911	.0323					.0001	.00	1.58	.14	.34	.013	.00	.00	PIPE
379.778	3359.554	1.519	3361.073	2.95	.95	.01	3361.09	.00	.56	2.44	2.500	.000	.00	1 .0
1.796	.0323					.0001	.00	1.52	.15	.34	.013	.00	.00	PIPE
381.575	3359.613	1.460	3361.072	2.95	.99	.02	3361.09	.00	.56	2.46	2.500	.000	.00	1 .0
1.694	.0323					.0001	.00	1.46	.16	.34	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
383.268	3359.667	1.404	3361.071	2.95	1.04	.02	3361.09	.00	.56	2.48	2.500	.000	.00	1 .0
1.599	.0323					.0002	.00	1.40	.17	.34	.013	.00	.00	PIPE
384.868	3359.719	1.350	3361.069	2.95	1.09	.02	3361.09	.00	.56	2.49	2.500	.000	.00	1 .0
1.511	.0323					.0002	.00	1.35	.18	.34	.013	.00	.00	PIPE
386.379	3359.768	1.300	3361.068	2.95	1.14	.02	3361.09	.00	.56	2.50	2.500	.000	.00	1 .0
1.432	.0323					.0002	.00	1.30	.20	.34	.013	.00	.00	PIPE
387.811	3359.814	1.252	3361.066	2.95	1.20	.02	3361.09	.00	.56	2.50	2.500	.000	.00	1 .0
1.358	.0323					.0002	.00	1.25	.21	.34	.013	.00	.00	PIPE
389.169	3359.858	1.206	3361.064	2.95	1.26	.02	3361.09	.00	.56	2.50	2.500	.000	.00	1 .0
1.287	.0323					.0002	.00	1.21	.23	.34	.013	.00	.00	PIPE
390.456	3359.899	1.163	3361.062	2.95	1.32	.03	3361.09	.00	.56	2.49	2.500	.000	.00	1 .0
1.221	.0323					.0003	.00	1.16	.25	.34	.013	.00	.00	PIPE
391.677	3359.939	1.121	3361.060	2.95	1.38	.03	3361.09	.00	.56	2.49	2.500	.000	.00	1 .0
1.158	.0323					.0003	.00	1.12	.26	.34	.013	.00	.00	PIPE
392.835	3359.976	1.081	3361.057	2.95	1.45	.03	3361.09	.00	.56	2.48	2.500	.000	.00	1 .0
1.097	.0323					.0004	.00	1.08	.28	.34	.013	.00	.00	PIPE
393.932	3360.012	1.042	3361.054	2.95	1.52	.04	3361.09	.00	.56	2.47	2.500	.000	.00	1 .0
1.035	.0323					.0004	.00	1.04	.30	.34	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
394.967	3360.045	1.006	3361.051	2.95	1.60	.04	3361.09	.00	.56	2.45	2.500	.000	.00	1 .0
.982	.0323					.0005	.00	1.01	.32	.34	.013	.00	.00	PIPE
395.949	3360.077	.971	3361.048	2.95	1.67	.04	3361.09	.00	.56	2.44	2.500	.000	.00	1 .0
.927	.0323					.0005	.00	.97	.35	.34	.013	.00	.00	PIPE
396.876	3360.107	.937	3361.044	2.95	1.76	.05	3361.09	.00	.56	2.42	2.500	.000	.00	1 .0
.872	.0323					.0006	.00	.94	.37	.34	.013	.00	.00	PIPE
397.748	3360.135	.904	3361.039	2.95	1.84	.05	3361.09	.00	.56	2.40	2.500	.000	.00	1 .0
.818	.0323					.0007	.00	.90	.40	.34	.013	.00	.00	PIPE
398.565	3360.161	.873	3361.035	2.95	1.93	.06	3361.09	.00	.56	2.38	2.500	.000	.00	1 .0
.682	.0323					.0008	.00	.87	.43	.34	.013	.00	.00	PIPE
399.247	3360.183	.843	3361.027	2.95	2.03	.06	3361.09	.00	.56	2.36	2.500	.000	.00	1 .0
HYDRAULIC JUMP														
399.247	3360.183	.353	3360.536	2.95	6.98	.76	3361.29	.00	.56	1.74	2.500	.000	.00	1 .0
9.129	.0323					.0263	.24	.35	2.49	.34	.013	.00	.00	PIPE
408.376	3360.479	.365	3360.843	2.95	6.65	.69	3361.53	.00	.56	1.76	2.500	.000	.00	1 .0
5.387	.0323					.0230	.12	.36	2.34	.34	.013	.00	.00	PIPE
413.763	3360.653	.377	3361.030	2.95	6.34	.62	3361.65	.00	.56	1.79	2.500	.000	.00	1 .0
3.607	.0323					.0201	.07	.38	2.19	.34	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
417.370	3360.769	.390	3361.158	2.95	6.05	.57	3361.73	.00	.56	1.81	2.500	.000	.00	1 .0
2.604	.0323					.0175	.05	.39	2.05	.34	.013	.00	.00	PIPE
419.974	3360.853	.403	3361.256	2.95	5.76	.52	3361.77	.00	.56	1.84	2.500	.000	.00	1 .0
1.965	.0323					.0153	.03	.40	1.92	.34	.013	.00	.00	PIPE
421.939	3360.917	.416	3361.333	2.95	5.50	.47	3361.80	.00	.56	1.86	2.500	.000	.00	1 .0
1.512	.0323					.0134	.02	.42	1.80	.34	.013	.00	.00	PIPE
423.451	3360.965	.430	3361.396	2.95	5.24	.43	3361.82	.00	.56	1.89	2.500	.000	.00	1 .0
1.181	.0323					.0117	.01	.43	1.69	.34	.013	.00	.00	PIPE
424.632	3361.003	.445	3361.448	2.95	5.00	.39	3361.84	.00	.56	1.91	2.500	.000	.00	1 .0
.915	.0323					.0102	.01	.44	1.58	.34	.013	.00	.00	PIPE
425.547	3361.033	.460	3361.492	2.95	4.76	.35	3361.84	.00	.56	1.94	2.500	.000	.00	1 .0
.707	.0323					.0089	.01	.46	1.48	.34	.013	.00	.00	PIPE
426.254	3361.056	.475	3361.531	2.95	4.54	.32	3361.85	.00	.56	1.96	2.500	.000	.00	1 .0
.531	.0323					.0078	.00	.48	1.39	.34	.013	.00	.00	PIPE
426.785	3361.073	.491	3361.564	2.95	4.33	.29	3361.86	.00	.56	1.99	2.500	.000	.00	1 .0
.387	.0323					.0068	.00	.49	1.30	.34	.013	.00	.00	PIPE
427.172	3361.085	.508	3361.593	2.95	4.13	.26	3361.86	.00	.56	2.01	2.500	.000	.00	1 .0
.261	.0323					.0059	.00	.51	1.22	.34	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
427.433	3361.094	.525	3361.619	2.95	3.94	.24	3361.86	.00	.56	2.04	2.500	.000	.00	1 .0
.147	.0323					.0052	.00	.52	1.14	.34	.013	.00	.00	PIPE
427.580	3361.098	.543	3361.641	2.95	3.75	.22	3361.86	.00	.56	2.06	2.500	.000	.00	1 .0
.050	.0323					.0045	.00	.54	1.07	.34	.013	.00	.00	PIPE
427.630	3361.100	.562	3361.662	2.95	3.57	.20	3361.86	.00	.56	2.09	2.500	.000	.00	1 .0
JUNCT STR	.0399					.0022	.01	.56	1.00		.013	.00	.00	PIPE
430.130	3361.200	.769	3361.969	1.12	1.01	.02	3361.98	.00	.36	1.95	2.000	.000	.00	1 .0
.632	.0400					.0003	.00	.77	.23	.22	.013	.00	.00	PIPE
430.762	3361.225	.742	3361.968	1.12	1.06	.02	3361.99	.00	.36	1.93	2.000	.000	.00	1 .0
.603	.0400					.0003	.00	.74	.25	.22	.013	.00	.00	PIPE
431.365	3361.250	.717	3361.966	1.12	1.11	.02	3361.99	.00	.36	1.92	2.000	.000	.00	1 .0
.572	.0400					.0003	.00	.72	.27	.22	.013	.00	.00	PIPE
431.937	3361.272	.692	3361.965	1.12	1.16	.02	3361.99	.00	.36	1.90	2.000	.000	.00	1 .0
.545	.0400					.0004	.00	.69	.29	.22	.013	.00	.00	PIPE
432.482	3361.294	.668	3361.963	1.12	1.22	.02	3361.99	.00	.36	1.89	2.000	.000	.00	1 .0
.148	.0400					.0004	.00	.67	.31	.22	.013	.00	.00	PIPE
432.630	3361.300	.662	3361.962	1.12	1.23	.02	3361.99	.00	.36	1.88	2.000	.000	.00	1 .0
2.933	.0074					.0005	.00	.66	.31	.33	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY

ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
435.563	3361.322	.639	3361.961	1.12	1.29	.03	3361.99	.00	.36	1.87	2.000	.000	.00	1 .0
2.792	.0074					.0005	.00	.64	.33	.33	.013	.00	.00	PIPE
438.355	3361.342	.618	3361.960	1.12	1.36	.03	3361.99	.00	.36	1.85	2.000	.000	.00	1 .0
2.652	.0074					.0006	.00	.62	.36	.33	.013	.00	.00	PIPE
441.007	3361.362	.597	3361.959	1.12	1.42	.03	3361.99	.00	.36	1.83	2.000	.000	.00	1 .0
2.554	.0074					.0007	.00	.60	.38	.33	.013	.00	.00	PIPE
443.561	3361.381	.577	3361.957	1.12	1.49	.03	3361.99	.00	.36	1.81	2.000	.000	.00	1 .0
2.408	.0074					.0008	.00	.58	.41	.33	.013	.00	.00	PIPE
445.969	3361.398	.557	3361.956	1.12	1.57	.04	3361.99	.00	.36	1.79	2.000	.000	.00	1 .0
2.304	.0074					.0009	.00	.56	.44	.33	.013	.00	.00	PIPE
448.273	3361.416	.539	3361.954	1.12	1.64	.04	3362.00	.00	.36	1.77	2.000	.000	.00	1 .0
2.181	.0074					.0010	.00	.54	.47	.33	.013	.00	.00	PIPE
450.454	3361.432	.521	3361.952	1.12	1.72	.05	3362.00	.00	.36	1.76	2.000	.000	.00	1 .0
2.053	.0074					.0012	.00	.52	.50	.33	.013	.00	.00	PIPE
452.507	3361.447	.503	3361.950	1.12	1.81	.05	3362.00	.00	.36	1.74	2.000	.000	.00	1 .0
1.935	.0074					.0014	.00	.50	.53	.33	.013	.00	.00	PIPE
454.442	3361.461	.487	3361.948	1.12	1.89	.06	3362.00	.00	.36	1.72	2.000	.000	.00	1 .0
1.827	.0074					.0016	.00	.49	.57	.33	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
456.268	3361.474	.471	3361.945	1.12	1.99	.06	3362.01	.00	.36	1.70	2.000	.000	.00	1 .0
1.675	.0074					.0018	.00	.47	.61	.33	.013	.00	.00	PIPE
457.943	3361.487	.455	3361.942	1.12	2.08	.07	3362.01	.00	.36	1.68	2.000	.000	.00	1 .0
.437	.0074					.0019	.00	.46	.65	.33	.013	.00	.00	PIPE
458.380	3361.490	.451	3361.941	1.12	2.11	.07	3362.01	.00	.36	1.67	2.000	.000	.00	1 .0

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T1 SUMMERLIN WEST VILLAGE 22                                                0
T2 DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
T3 ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT
SO    432.6303361.300  2                          3361.962
REM*****     ATKINS     *****     SDMH#5
R     436.3803363.000  2      .013                                .000    .000 0
REM*****     ATKINS     *****     SDDI#9
SH    436.3803363.000  2                          3363.000
CD   1  4   1    .000   2.500     .000  .000  .000   .00
CD   2  4   1    .000   2.000     .000  .000  .000   .00
Q             1.830   .0
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SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
432.630	3361.300	.204	3361.504	1.83	10.90	1.84	3363.35	.00	.47	1.21	2.000	.000	.00	1 .0
.161	.4533					.1369	.02	.20	5.15	.15	.013	.00	.00	PIPE
432.791	3361.373	.205	3361.578	1.83	10.78	1.80	3363.38	.00	.47	1.21	2.000	.000	.00	1 .0
.481	.4533					.1262	.06	.21	5.08	.15	.013	.00	.00	PIPE
433.272	3361.591	.212	3361.803	1.83	10.28	1.64	3363.44	.00	.47	1.23	2.000	.000	.00	1 .0
.414	.4533					.1101	.05	.21	4.76	.15	.013	.00	.00	PIPE
433.686	3361.779	.219	3361.998	1.83	9.80	1.49	3363.49	.00	.47	1.25	2.000	.000	.00	1 .0
.359	.4533					.0960	.03	.22	4.47	.15	.013	.00	.00	PIPE
434.044	3361.941	.226	3362.168	1.83	9.34	1.36	3363.52	.00	.47	1.27	2.000	.000	.00	1 .0
.313	.4533					.0838	.03	.23	4.19	.15	.013	.00	.00	PIPE
434.358	3362.083	.234	3362.317	1.83	8.91	1.23	3363.55	.00	.47	1.28	2.000	.000	.00	1 .0
.274	.4533					.0731	.02	.23	3.93	.15	.013	.00	.00	PIPE
434.632	3362.208	.241	3362.449	1.83	8.49	1.12	3363.57	.00	.47	1.30	2.000	.000	.00	1 .0
.241	.4533					.0638	.02	.24	3.68	.15	.013	.00	.00	PIPE
434.873	3362.317	.249	3362.566	1.83	8.10	1.02	3363.58	.00	.47	1.32	2.000	.000	.00	1 .0
.212	.4533					.0557	.01	.25	3.45	.15	.013	.00	.00	PIPE
435.085	3362.413	.258	3362.671	1.83	7.72	.93	3363.60	.00	.47	1.34	2.000	.000	.00	1 .0
.187	.4533					.0486	.01	.26	3.24	.15	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
435.271	3362.498	.266	3362.764	1.83	7.36	.84	3363.61	.00	.47	1.36	2.000	.000	.00	1 .0
.165	.4533					.0424	.01	.27	3.03	.15	.013	.00	.00	PIPE
435.436	3362.572	.275	3362.847	1.83	7.02	.77	3363.61	.00	.47	1.38	2.000	.000	.00	1 .0
.145	.4533					.0371	.01	.28	2.84	.15	.013	.00	.00	PIPE
435.581	3362.638	.284	3362.922	1.83	6.69	.70	3363.62	.00	.47	1.40	2.000	.000	.00	1 .0
.128	.4533					.0323	.00	.28	2.67	.15	.013	.00	.00	PIPE
435.709	3362.696	.294	3362.990	1.83	6.38	.63	3363.62	.00	.47	1.42	2.000	.000	.00	1 .0
.112	.4533					.0282	.00	.29	2.50	.15	.013	.00	.00	PIPE
435.821	3362.747	.304	3363.050	1.83	6.08	.57	3363.63	.00	.47	1.44	2.000	.000	.00	1 .0
.098	.4533					.0247	.00	.30	2.34	.15	.013	.00	.00	PIPE
435.919	3362.791	.314	3363.105	1.83	5.80	.52	3363.63	.00	.47	1.45	2.000	.000	.00	1 .0
.086	.4533					.0215	.00	.31	2.20	.15	.013	.00	.00	PIPE
436.005	3362.830	.324	3363.154	1.83	5.53	.48	3363.63	.00	.47	1.47	2.000	.000	.00	1 .0
.074	.4533					.0188	.00	.32	2.06	.15	.013	.00	.00	PIPE
436.079	3362.864	.335	3363.199	1.83	5.27	.43	3363.63	.00	.47	1.49	2.000	.000	.00	1 .0
.064	.4533					.0164	.00	.34	1.93	.15	.013	.00	.00	PIPE
436.143	3362.893	.347	3363.239	1.83	5.03	.39	3363.63	.00	.47	1.51	2.000	.000	.00	1 .0
.055	.4533					.0143	.00	.35	1.81	.15	.013	.00	.00	PIPE

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:10-15-2020 Time:11:47:51

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
436.198	3362.917	.358	3363.276	1.83	4.79	.36	3363.63	.00	.47	1.53	2.000	.000	.00	1 .0
.046	.4533					.0125	.00	.36	1.69	.15	.013	.00	.00	PIPE
436.244	3362.938	.370	3363.309	1.83	4.57	.32	3363.63	.00	.47	1.55	2.000	.000	.00	1 .0
.038	.4533					.0109	.00	.37	1.59	.15	.013	.00	.00	PIPE
436.282	3362.956	.383	3363.339	1.83	4.36	.29	3363.63	.00	.47	1.57	2.000	.000	.00	1 .0
.031	.4533					.0096	.00	.38	1.49	.15	.013	.00	.00	PIPE
436.314	3362.970	.396	3363.365	1.83	4.16	.27	3363.63	.00	.47	1.59	2.000	.000	.00	1 .0
.025	.4533					.0084	.00	.40	1.39	.15	.013	.00	.00	PIPE
436.338	3362.981	.409	3363.390	1.83	3.96	.24	3363.63	.00	.47	1.61	2.000	.000	.00	1 .0
.019	.4533					.0073	.00	.41	1.30	.15	.013	.00	.00	PIPE
436.357	3362.990	.423	3363.412	1.83	3.78	.22	3363.63	.00	.47	1.63	2.000	.000	.00	1 .0
.013	.4533					.0064	.00	.42	1.22	.15	.013	.00	.00	PIPE
436.370	3362.995	.437	3363.433	1.83	3.60	.20	3363.63	.00	.47	1.65	2.000	.000	.00	1 .0
.008	.4533					.0056	.00	.44	1.15	.15	.013	.00	.00	PIPE
436.377	3362.999	.452	3363.451	1.83	3.43	.18	3363.63	.00	.47	1.67	2.000	.000	.00	1 .0
.003	.4533					.0049	.00	.45	1.07	.15	.013	.00	.00	PIPE
436.380	3363.000	.469	3363.469	1.83	3.26	.17	3363.63	.00	.47	1.69	2.000	.000	.00	1 .0

```
T1 SUMMERLIN WEST VILLAGE 22                                                0
T2 DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
T3 ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT
SO    371.2803359.280  1                          3361.077
REM*****     ATKINS     *****     SDMH#6
R     455.7103361.619  1      .013                                  .000    .000 0
REM*****     ATKINS     *****     PARCEL U
SH    455.7103361.619  1                          3361.619
CD   1  4   1    .000   2.500     .000  .000  .000   .00
CD   2  4   1    .000   2.000     .000  .000  .000   .00
Q            11.000   .0
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FILE: DFD2-KRW-ULT-LAT6.WSW W S P G W - CIVILDESIGN Version 14.08 PAGE 1

Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:10-15-2020 Time:11:47:31

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
371.280	3359.280	1.797	3361.077	11.00	2.91	.13	3361.21	.00	1.11	2.25	2.500	.000	.00	1 .0
2.391	.0277					.0010	.00	1.80	.40	.68	.013	.00	.00	PIPE
373.671	3359.346	1.720	3361.066	11.00	3.05	.14	3361.21	.00	1.11	2.32	2.500	.000	.00	1 .0
.740	.0277					.0011	.00	1.72	.43	.68	.013	.00	.00	PIPE
374.411	3359.367	1.692	3361.059	11.00	3.11	.15	3361.21	.00	1.11	2.34	2.500	.000	.00	1 .0
HYDRAULIC JUMP														
374.411	3359.367	.691	3360.058	11.00	9.95	1.54	3361.59	.00	1.11	2.24	2.500	.000	.00	1 .0
17.988	.0277					.0249	.45	.69	2.49	.68	.013	.00	.00	PIPE
392.399	3359.865	.703	3360.568	11.00	9.72	1.47	3362.03	.00	1.11	2.25	2.500	.000	.00	1 .0
21.415	.0277					.0226	.48	.70	2.41	.68	.013	.00	.00	PIPE
413.814	3360.458	.727	3361.186	11.00	9.27	1.33	3362.52	.00	1.11	2.27	2.500	.000	.00	1 .0
12.125	.0277					.0198	.24	.73	2.26	.68	.013	.00	.00	PIPE
425.939	3360.794	.753	3361.547	11.00	8.84	1.21	3362.76	.00	1.11	2.29	2.500	.000	.00	1 .0
8.092	.0277					.0173	.14	.75	2.11	.68	.013	.00	.00	PIPE
434.031	3361.018	.779	3361.797	11.00	8.42	1.10	3362.90	.00	1.11	2.32	2.500	.000	.00	1 .0
5.812	.0277					.0152	.09	.78	1.98	.68	.013	.00	.00	PIPE
439.843	3361.179	.807	3361.986	11.00	8.03	1.00	3362.99	.00	1.11	2.34	2.500	.000	.00	1 .0
4.343	.0277					.0133	.06	.81	1.85	.68	.013	.00	.00	PIPE

FILE: DFD2-KRW-ULT-LAT6.WSW W S P G W - CIVILDESIGN Version 14.08 PAGE 2

Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:10-15-2020 Time:11:47:31

SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY

ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
444.186	3361.300	.835	3362.135	11.00	7.66	.91	3363.05	.00	1.11	2.36	2.500	.000	.00	1 .0
3.314	.0277					.0116	.04	.84	1.73	.68	.013	.00	.00	PIPE
447.500	3361.391	.865	3362.256	11.00	7.30	.83	3363.08	.00	1.11	2.38	2.500	.000	.00	1 .0
2.542	.0277					.0102	.03	.86	1.62	.68	.013	.00	.00	PIPE
450.042	3361.462	.895	3362.357	11.00	6.96	.75	3363.11	.00	1.11	2.40	2.500	.000	.00	1 .0
1.942	.0277					.0089	.02	.90	1.51	.68	.013	.00	.00	PIPE
451.985	3361.515	.927	3362.443	11.00	6.64	.68	3363.13	.00	1.11	2.42	2.500	.000	.00	1 .0
1.451	.0277					.0078	.01	.93	1.41	.68	.013	.00	.00	PIPE
453.435	3361.556	.961	3362.516	11.00	6.33	.62	3363.14	.00	1.11	2.43	2.500	.000	.00	1 .0
1.045	.0277					.0069	.01	.96	1.32	.68	.013	.00	.00	PIPE
454.480	3361.585	.996	3362.580	11.00	6.03	.57	3363.15	.00	1.11	2.45	2.500	.000	.00	1 .0
.702	.0277					.0060	.00	1.00	1.23	.68	.013	.00	.00	PIPE
455.182	3361.604	1.032	3362.636	11.00	5.75	.51	3363.15	.00	1.11	2.46	2.500	.000	.00	1 .0
.399	.0277					.0053	.00	1.03	1.15	.68	.013	.00	.00	PIPE
455.581	3361.615	1.070	3362.685	11.00	5.49	.47	3363.15	.00	1.11	2.47	2.500	.000	.00	1 .0
.129	.0277					.0047	.00	1.07	1.07	.68	.013	.00	.00	PIPE
455.710	3361.619	1.110	3362.729	11.00	5.22	.42	3363.15	.00	1.11	2.48	2.500	.000	.00	1 .0

```
T1 SUMMERLIN WEST VILLAGE 22                                                0
T2 DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
T3 ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT
SO    175.1103356.660  1                          3359.062
REM*****     ATKINS     *****     SDMH#7
R     228.3603357.060  1      .013                                .000    .000 0
REM*****     ATKINS     *****     PARCEL S
SH    228.3603357.060  1                          3357.060
CD   1  4   1    .000   2.500     .000  .000  .000   .00
CD   2  4   1    .000   2.000     .000  .000  .000   .00
Q            10.000   .0
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FILE: DFD2-KRW-ULT-LAT7.WSW W S P G W - CIVILDESIGN Version 14.08 PAGE 1

Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:10-15-2020 Time:11:47:13

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
175.110	3356.660	2.402	3359.062	10.00	2.06	.07	3359.13	.00	1.06	.97	2.500	.000	.00	1 .0
23.983	.0075					.0005	.01	2.40	.16	.91	.013	.00	.00	PIPE
199.093	3356.840	2.228	3359.068	10.00	2.16	.07	3359.14	.00	1.06	1.56	2.500	.000	.00	1 .0
17.101	.0075					.0005	.01	2.23	.22	.91	.013	.00	.00	PIPE
216.194	3356.969	2.101	3359.070	10.00	2.27	.08	3359.15	.00	1.06	1.83	2.500	.000	.00	1 .0
12.166	.0075					.0006	.01	2.10	.26	.91	.013	.00	.00	PIPE
228.360	3357.060	2.010	3359.070	10.00	2.36	.09	3359.16	.00	1.06	1.98	2.500	.000	.00	1 .0

```
T1 SUMMERLIN WEST VILLAGE 22                                                0
T2 DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
T3 ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT
SO     56.8303349.848  2                          3353.819
REM*****      ATKINS     *****     SDMH#8
R      63.0803351.410  2      .013                                  .000    .000 0
REM*****     ATKINS     *****     SDDI#12
SH     63.0803351.410  2                          3351.410
CD   1  4   1    .000   2.500     .000  .000  .000   .00
CD   2  4   1    .000   2.000     .000  .000  .000   .00
Q             1.970   .0
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FILE: DFD2-KRW-ULT-LAT8-E.WSW W S P G W - CIVILDESIGN Version 14.08 PAGE 1

Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:10-15-2020 Time:11:46:36

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
56.830	3349.848	3.971	3353.819	1.97	.63	.01	3353.83	.00	.49	.00	2.000	.000	.00	1 .0
6.250	.2499				.0001	.00	3.97	.00	.18	.013		.00	.00	PIPE
63.080	3351.410	2.410	3353.820	1.97	.63	.01	3353.83	.00	.49	.00	2.000	.000	.00	1 .0

```
T1 SUMMERLIN WEST VILLAGE 22                                                0
T2 DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
T3 ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT
SO     56.8303349.848  2                          3353.819
REM*****      ATKINS     *****     SDMH#8
R      87.7503354.820  2      .013                                  .000    .000 0
REM*****     ATKINS     *****     SDDI#11
SH     87.7503354.820  2                          3351.340
CD   1  4   1    .000   2.500     .000  .000  .000   .00
CD   2  4   1    .000   2.000     .000  .000  .000   .00
Q             1.070   .0
```

FILE: DFD2-KRW-ULT-LAT8-W.WSW W S P G W - CIVILDESIGN Version 14.08 PAGE 1

Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date: 6-16-2020 Time: 1:13:42

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
56.830	3349.848	3.860	3353.708	1.00	.32	.00	3353.71	.00	.34	.00	2.000	.000	.00	1 .0
11.569	.1608					.0000	.00	3.86	.00	.15	.013	.00	.00	PIPE
68.399	3351.708	2.000	3353.708	1.00	.32	.00	3353.71	.00	.34	.00	2.000	.000	.00	1 .0
1.146	.1608					.0000	.00	2.00	.00	.15	.013	.00	.00	PIPE
69.544	3351.893	1.815	3353.707	1.00	.33	.00	3353.71	.00	.34	1.16	2.000	.000	.00	1 .0
.669	.1608					.0000	.00	1.81	.04	.15	.013	.00	.00	PIPE
70.213	3352.000	1.707	3353.707	1.00	.35	.00	3353.71	.00	.34	1.41	2.000	.000	.00	1 .0
.551	.1608					.0000	.00	1.71	.04	.15	.013	.00	.00	PIPE
70.764	3352.089	1.618	3353.707	1.00	.37	.00	3353.71	.00	.34	1.57	2.000	.000	.00	1 .0
.483	.1608					.0000	.00	1.62	.05	.15	.013	.00	.00	PIPE
71.247	3352.166	1.540	3353.707	1.00	.39	.00	3353.71	.00	.34	1.68	2.000	.000	.00	1 .0
.434	.1608					.0000	.00	1.54	.05	.15	.013	.00	.00	PIPE
71.681	3352.236	1.470	3353.706	1.00	.40	.00	3353.71	.00	.34	1.77	2.000	.000	.00	1 .0
.397	.1608					.0000	.00	1.47	.06	.15	.013	.00	.00	PIPE
72.078	3352.300	1.406	3353.706	1.00	.42	.00	3353.71	.00	.34	1.83	2.000	.000	.00	1 .0
.367	.1608					.0000	.00	1.41	.07	.15	.013	.00	.00	PIPE
72.445	3352.359	1.347	3353.706	1.00	.44	.00	3353.71	.00	.34	1.88	2.000	.000	.00	1 .0
.342	.1608					.0000	.00	1.35	.07	.15	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date: 6-16-2020 Time: 1:13:42

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
72.787	3352.414	1.292	3353.706	1.00	.47	.00	3353.71	.00	.34	1.91	2.000	.000	.00	1 .0
.320	.1608					.0000	.00	1.29	.08	.15	.013	.00	.00	PIPE
73.107	3352.466	1.240	3353.705	1.00	.49	.00	3353.71	.00	.34	1.94	2.000	.000	.00	1 .0
.301	.1608					.0000	.00	1.24	.08	.15	.013	.00	.00	PIPE
73.408	3352.514	1.191	3353.705	1.00	.51	.00	3353.71	.00	.34	1.96	2.000	.000	.00	1 .0
.284	.1608					.0000	.00	1.19	.09	.15	.013	.00	.00	PIPE
73.692	3352.560	1.145	3353.705	1.00	.54	.00	3353.71	.00	.34	1.98	2.000	.000	.00	1 .0
.268	.1608					.0001	.00	1.15	.10	.15	.013	.00	.00	PIPE
73.960	3352.603	1.101	3353.704	1.00	.56	.00	3353.71	.00	.34	1.99	2.000	.000	.00	1 .0
.254	.1608					.0001	.00	1.10	.11	.15	.013	.00	.00	PIPE
74.215	3352.644	1.060	3353.704	1.00	.59	.01	3353.71	.00	.34	2.00	2.000	.000	.00	1 .0
.242	.1608					.0001	.00	1.06	.11	.15	.013	.00	.00	PIPE
74.457	3352.683	1.021	3353.703	1.00	.62	.01	3353.71	.00	.34	2.00	2.000	.000	.00	1 .0
.230	.1608					.0001	.00	1.02	.12	.15	.013	.00	.00	PIPE
74.686	3352.719	.983	3353.703	1.00	.65	.01	3353.71	.00	.34	2.00	2.000	.000	.00	1 .0
.219	.1608					.0001	.00	.98	.13	.15	.013	.00	.00	PIPE
74.905	3352.755	.947	3353.702	1.00	.68	.01	3353.71	.00	.34	2.00	2.000	.000	.00	1 .0
.208	.1608					.0001	.00	.95	.14	.15	.013	.00	.00	PIPE

FILE: DFD2-KRW-ULT-LAT8-W.WSW W S P G W - CIVILDESIGN Version 14.08 PAGE 3

Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date: 6-16-2020 Time: 1:13:42

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
75.113	3352.788	.913	3353.701	1.00	.72	.01	3353.71	.00	.34	1.99	2.000	.000	.00	1 .0
.199	.1608					.0001	.00	.91	.15	.15	.013	.00	.00	PIPE
75.312	3352.820	.880	3353.700	1.00	.75	.01	3353.71	.00	.34	1.99	2.000	.000	.00	1 .0
.189	.1608					.0001	.00	.88	.16	.15	.013	.00	.00	PIPE
75.501	3352.851	.849	3353.700	1.00	.79	.01	3353.71	.00	.34	1.98	2.000	.000	.00	1 .0
.180	.1608					.0001	.00	.85	.17	.15	.013	.00	.00	PIPE
75.681	3352.880	.819	3353.699	1.00	.83	.01	3353.71	.00	.34	1.97	2.000	.000	.00	1 .0
.173	.1608					.0002	.00	.82	.19	.15	.013	.00	.00	PIPE
75.854	3352.907	.790	3353.698	1.00	.87	.01	3353.71	.00	.34	1.96	2.000	.000	.00	1 .0
.164	.1608					.0002	.00	.79	.20	.15	.013	.00	.00	PIPE
76.018	3352.934	.763	3353.697	1.00	.91	.01	3353.71	.00	.34	1.94	2.000	.000	.00	1 .0
.157	.1608					.0002	.00	.76	.21	.15	.013	.00	.00	PIPE
76.175	3352.959	.736	3353.695	1.00	.95	.01	3353.71	.00	.34	1.93	2.000	.000	.00	1 .0
.149	.1608					.0003	.00	.74	.23	.15	.013	.00	.00	PIPE
76.324	3352.983	.711	3353.694	1.00	1.00	.02	3353.71	.00	.34	1.91	2.000	.000	.00	1 .0
.143	.1608					.0003	.00	.71	.24	.15	.013	.00	.00	PIPE
76.467	3353.006	.687	3353.692	1.00	1.05	.02	3353.71	.00	.34	1.90	2.000	.000	.00	1 .0
.135	.1608					.0003	.00	.69	.26	.15	.013	.00	.00	PIPE

FILE: DFD2-KRW-ULT-LAT8-W.WSW W S P G W - CIVILDESIGN Version 14.08 PAGE 4

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WATER SURFACE PROFILE LISTING Date: 6-16-2020 Time: 1:13:42

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
76.603	3353.028	.663	3353.691	1.00	1.10	.02	3353.71	.00	.34	1.88	2.000	.000	.00	1 .0
.021	.1608					.0004	.00	.66	.28	.15	.013	.00	.00	PIPE
76.624	3353.031	.641	3353.672	1.00	1.15	.02	3353.69	.00	.34	1.87	2.000	.000	.00	1 .0
HYDRAULIC JUMP														
76.624	3353.031	.152	3353.183	1.00	9.17	1.31	3354.49	.00	.34	1.06	2.000	.000	.00	1 .0
.765	.1608					.1339	.10	.15	5.04	.15	.013	.00	.00	PIPE
77.389	3353.154	.157	3353.311	1.00	8.74	1.19	3354.50	.00	.34	1.08	2.000	.000	.00	1 .0
2.327	.1608					.1167	.27	.16	4.72	.15	.013	.00	.00	PIPE
79.716	3353.528	.162	3353.690	1.00	8.33	1.08	3354.77	.00	.34	1.09	2.000	.000	.00	1 .0
1.569	.1608					.1018	.16	.16	4.43	.15	.013	.00	.00	PIPE
81.285	3353.781	.167	3353.948	1.00	7.94	.98	3354.93	.00	.34	1.11	2.000	.000	.00	1 .0
1.161	.1608					.0888	.10	.17	4.15	.15	.013	.00	.00	PIPE
82.445	3353.967	.173	3354.140	1.00	7.57	.89	3355.03	.00	.34	1.12	2.000	.000	.00	1 .0
.903	.1608					.0775	.07	.17	3.90	.15	.013	.00	.00	PIPE
83.349	3354.113	.179	3354.291	1.00	7.22	.81	3355.10	.00	.34	1.14	2.000	.000	.00	1 .0
.727	.1608					.0676	.05	.18	3.65	.15	.013	.00	.00	PIPE
84.076	3354.229	.184	3354.414	1.00	6.89	.74	3355.15	.00	.34	1.16	2.000	.000	.00	1 .0
.597	.1608					.0589	.04	.18	3.43	.15	.013	.00	.00	PIPE

FILE: DFD2-KRW-ULT-LAT8-W.WSW W S P G W - CIVILDESIGN Version 14.08 PAGE 5

Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date: 6-16-2020 Time: 1:13:42

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
84.673	3354.325	.191	3354.516	1.00	6.57	.67	3355.19	.00	.34	1.17	2.000	.000	.00	1 .0
.499	.1608					.0514	.03	.19	3.21	.15	.013	.00	.00	PIPE
85.172	3354.406	.197	3354.602	1.00	6.26	.61	3355.21	.00	.34	1.19	2.000	.000	.00	1 .0
.421	.1608					.0449	.02	.20	3.01	.15	.013	.00	.00	PIPE
85.593	3354.473	.203	3354.677	1.00	5.97	.55	3355.23	.00	.34	1.21	2.000	.000	.00	1 .0
.358	.1608					.0391	.01	.20	2.83	.15	.013	.00	.00	PIPE
85.951	3354.531	.210	3354.741	1.00	5.69	.50	3355.24	.00	.34	1.23	2.000	.000	.00	1 .0
.306	.1608					.0342	.01	.21	2.65	.15	.013	.00	.00	PIPE
86.257	3354.580	.217	3354.797	1.00	5.43	.46	3355.25	.00	.34	1.24	2.000	.000	.00	1 .0
.263	.1608					.0298	.01	.22	2.48	.15	.013	.00	.00	PIPE
86.520	3354.622	.224	3354.846	1.00	5.17	.42	3355.26	.00	.34	1.26	2.000	.000	.00	1 .0
.225	.1608					.0260	.01	.22	2.33	.15	.013	.00	.00	PIPE
86.745	3354.658	.232	3354.890	1.00	4.93	.38	3355.27	.00	.34	1.28	2.000	.000	.00	1 .0
.194	.1608					.0227	.00	.23	2.18	.15	.013	.00	.00	PIPE
86.939	3354.689	.239	3354.929	1.00	4.70	.34	3355.27	.00	.34	1.30	2.000	.000	.00	1 .0
.165	.1608					.0198	.00	.24	2.05	.15	.013	.00	.00	PIPE
87.103	3354.716	.247	3354.963	1.00	4.48	.31	3355.28	.00	.34	1.32	2.000	.000	.00	1 .0
.141	.1608					.0173	.00	.25	1.92	.15	.013	.00	.00	PIPE

Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date: 6-16-2020 Time: 1:13:42

SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY
ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
87.244	3354.739	.255	3354.994	1.00	4.28	.28	3355.28	.00	.34	1.34	2.000	.000	.00	1 .0
.119	.1608					.0151	.00	.26	1.80	.15	.013	.00	.00	PIPE
87.363	3354.758	.264	3355.022	1.00	4.08	.26	3355.28	.00	.34	1.35	2.000	.000	.00	1 .0
.099	.1608					.0132	.00	.26	1.69	.15	.013	.00	.00	PIPE
87.462	3354.774	.273	3355.046	1.00	3.89	.23	3355.28	.00	.34	1.37	2.000	.000	.00	1 .0
.083	.1608					.0115	.00	.27	1.58	.15	.013	.00	.00	PIPE
87.545	3354.787	.282	3355.069	1.00	3.71	.21	3355.28	.00	.34	1.39	2.000	.000	.00	1 .0
.066	.1608					.0100	.00	.28	1.48	.15	.013	.00	.00	PIPE
87.611	3354.798	.291	3355.089	1.00	3.53	.19	3355.28	.00	.34	1.41	2.000	.000	.00	1 .0
.051	.1608					.0088	.00	.29	1.39	.15	.013	.00	.00	PIPE
87.662	3354.806	.301	3355.107	1.00	3.37	.18	3355.28	.00	.34	1.43	2.000	.000	.00	1 .0
.039	.1608					.0076	.00	.30	1.30	.15	.013	.00	.00	PIPE
87.702	3354.812	.311	3355.123	1.00	3.21	.16	3355.28	.00	.34	1.45	2.000	.000	.00	1 .0
.027	.1608					.0067	.00	.31	1.22	.15	.013	.00	.00	PIPE
87.729	3354.817	.321	3355.138	1.00	3.06	.15	3355.28	.00	.34	1.47	2.000	.000	.00	1 .0
.016	.1608					.0058	.00	.32	1.14	.15	.013	.00	.00	PIPE
87.745	3354.819	.332	3355.151	1.00	2.92	.13	3355.28	.00	.34	1.49	2.000	.000	.00	1 .0
.005	.1608					.0051	.00	.33	1.07	.15	.013	.00	.00	PIPE

FILE: DFD2-KRW-ULT-LAT8-W.WSW W S P G W - CIVILDESIGN Version 14.08 PAGE 7

Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date: 6-16-2020 Time: 1:13:42

SUMMERLIN WEST VILLAGE 22

DESERT FOOTHILLS DRAIVE - FLIGHT RANGE AVENUE TO KINDLE RISE WAY

ULTIMATE CONDITION 100-YEAR, 6-HOUR STORM EVENT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
87.750	3354.820	.344	3355.164	1.00	2.77	.12	3355.28	.00	.34	1.51	2.000	.000	.00	1 .0

Appendix D. Referenced Report



SNC·LAVALIN

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SUMMERLIN®

Summerlin West Village 22

Kettle Ridge Drive (Street J)

Fleet Wing Avenue (Street G) to Lake Mead Boulevard

Scurry Bend Drive (Street N) Rough Grade

Fleet Wing Avenue (Street G) to Lake Mead Boulevard

February 25, 2020

Update #1

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Update #1: Kettle Ridge Drive & Scurry Bend Drive Rough Grade : Fleet Wing Avenue to Lake Mead Boulevard Date: February 25, 2020

Location of Development: a) Descriptive (Cross Streets) North/South: Fleet Wing Avenue

East/West: Lake Mead Boulevard

b) Section: 23 and 14 Township: 20S Range: 59E

c) APN : 137-14-401-006, 137-23-101-002

Name of Owner: Howard Hughes Company, LLC

Telephone No.: (702) 791-4000 Fax No.: (702) 791-4450 E-Mail Address: chris.anderson@howardhughes.com

Address: 10801 West Charleston Blvd, Ste 300, Las Vegas, NV 89135

Contact Person-Name: Molly Anderson, PE **Telephone No.:** (702) 551-0330

* **E-Mail Address:** molly.anderson@atkinsglobal.com **Fax No.:** (702) 263-7200

Firm: Atkins

Address: 2270 Corporate Circle, Ste 200, Henderson, NV 89074

Type of Land Development/Land Disturbance Process:

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

1. Total Owned Land Area: At Site: +/- 446 acres Being Developed/Disturbed: 35.89 acres
2. Is a portion or all of the subject property located in a designated FEMA Flood Hazard Area? ☐ **Yes**** ✔ **No**
3. Is the property bordered or crossed by an existing or proposed Clark County Regional Flood Control District Master Planned Facility? **Yes**** ✔ **No**
4. Proposed type of development (Residential, Commercial, Etc.): Public - Roadway Improvements
5. Approximate upstream land area which drains to the subject site: 225.54 acres
6. Has the site drainage been evaluated in the past? ✔ **YES** **NO** If yes, please identify documentation: Master Conceptual Drainage Study for Summerlin West Village 22
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Existing CC-215 Western Beltway Channel
8. Briefly describe your proposed schedule for the subject project: ASAP

PROFESSIONAL ENGINEER STATE OF NEVADA
MOLLY M. ANDERSON
EXP. 12/31/20
CIVIL
No. 24365
2/25/20

Engineer's Seal

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

*New Required Field

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

Revision	Date
Addendum #1	September 11, 2019

DS #5156
Local Entity File No.

REFERENCE:

STANDARD FORM 1

Updated 05/01/2008

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: March 19, 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 V22 – Kettle Ridge Drive (Street J) and Scurry Bend Drive (Street N) Street Improvements (both from Lake Mead Blvd. to Fleet Wing Ave.)**			**COPIES TO:** Atkins
Cross Streets:	Lake Mead Boulevard & Desert Foothill Drive			Howard Hughes Company, LLC
File Number:	F:\Depot\DSMemos\DS5156E.doc			Bart Anderson, P.E., DevCo
Parcel Number:	137-14-401-006 & 137-23-101-002			CCRFCD
Zoning Action:	N/A			
FEMA Flood Zone	YES	NO **X**		
Proposed Storm Drain	YES **X**	NO		

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	7/16/2019	8/8/2019	Not Approved	$400.00	3490122: $400
2nd Submittal	9/11/2019	9/25/2019	Not Approved	$400.00	3563447: $400
3rd Submittal	10/16/2019	10/30/2019	Conditional Approval	$400.00	3612958: $400
4th Submittal & CCRFCD	2/25/2020 & 3/5/2020	3/10/2020	Concurrence Recv'd	$100.00	3755821: $100
Supplement	3/18/2020	3/19/2020	See Comments Below	N/C	N/C
			TOTAL FEES (LDDRS):	**$1,300.00**	----

REMARKS:

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

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

The following conditions are repeated until they are complete:

1. The project proposes to build temporary drainage facilities, ie, berms/swales along the west side of *Scurry Bend Drive* and *Kettle Ridge Drive* and at the southern end of *Kettle Ridge Drive* for interim flood protection. Prior to final plan approval the developer must complete a maintenance and liability agreement for the interim drainage improvements (berms or channels) and post a minimum maintenance bond of $50,000 or 50-percent of the construction cost for the improvements, whichever is greater. The engineer must submit an estimate of the quantities for constructing the facility and an exhibit that adequately shows the location and limits of the drainage facility to *City of Las Vegas Flood Control* for approval. Once the drainage study is conditionally approved, the engineer should contact the *City's Land Development Section* (229-6371) to begin the agreement process.

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

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

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



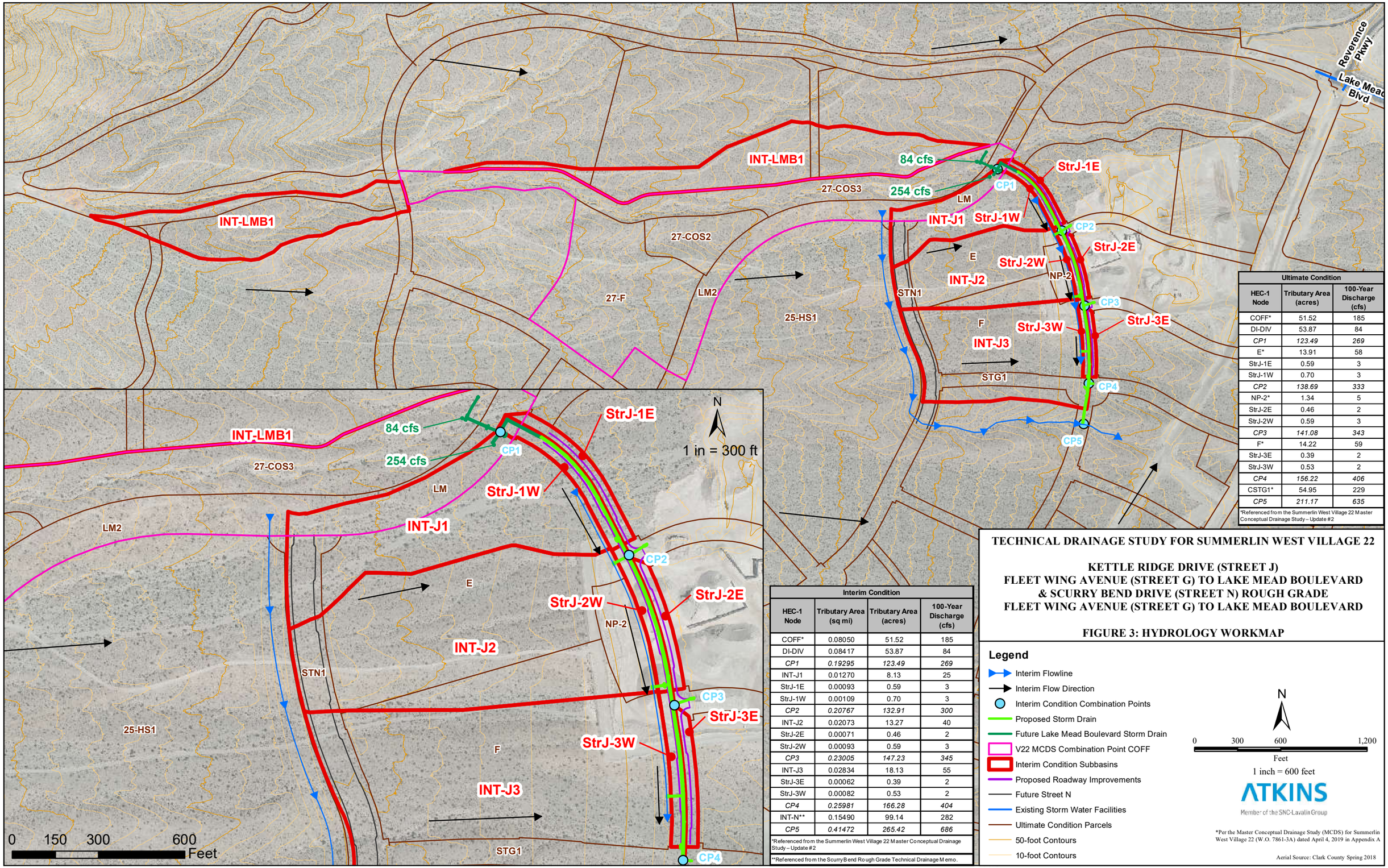
Sample Letter to certify CD.pdf

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

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

END OF REMARKS
ays

T/R/S: T20S/R59E/14
AREA K-14



Ultimate Condition		
HEC-1 Node	Tributary Area (acres)	100-Year Discharge (cfs)
COFF*	51.52	185
DI-DIV	53.87	84
CP1	*123.49*	*269*
E*	13.91	58
StrJ-1E	0.59	3
StrJ-1W	0.70	3
CP2	*138.69*	*333*
NP-2*	1.34	5
StrJ-2E	0.46	2
StrJ-2W	0.59	3
CP3	*141.08*	*343*
F*	14.22	59
StrJ-3E	0.39	2
StrJ-3W	0.53	2
CP4	*156.22*	*406*
CSTG1*	54.95	229
CP5	*211.17*	*635*

*Referenced from the Summerlin West Village 22 Master Conceptual Drainage Study – Update #2

Interim Condition			
HEC-1 Node	Tributary Area (sq mi)	Tributary Area (acres)	100-Year Discharge (cfs)
COFF*	0.08050	51.52	185
DI-DIV	0.08417	53.87	84
CP1	*0.19295*	*123.49*	*269*
INT-J1	0.01270	8.13	25
StrJ-1E	0.00093	0.59	3
StrJ-1W	0.00109	0.70	3
CP2	*0.20767*	*132.91*	*300*
INT-J2	0.02073	13.27	40
StrJ-2E	0.00071	0.46	2
StrJ-2W	0.00093	0.59	3
CP3	*0.23005*	*147.23*	*345*
INT-J3	0.02834	18.13	55
StrJ-3E	0.00062	0.39	2
StrJ-3W	0.00082	0.53	2
CP4	*0.25981*	*166.28*	*404*
INT-N**	0.15490	99.14	282
CP5	*0.41472*	*265.42*	*686*

*Referenced from the Summerlin West Village 22 Master Conceptual Drainage Study – Update #2

**Referenced from the Scurry Bend Rough Grade Technical Drainage Memo.

TECHNICAL DRAINAGE STUDY FOR SUMMERLIN WEST VILLAGE 22

KETTLE RIDGE DRIVE (STREET J)
FLEET WING AVENUE (STREET G) TO LAKE MEAD BOULEVARD
& SCURRY BEND DRIVE (STREET N) ROUGH GRADE
FLEET WING AVENUE (STREET G) TO LAKE MEAD BOULEVARD

FIGURE 3: HYDROLOGY WORKMAP

Legend

- Interim Flowline
- Interim Flow Direction
- Interim Condition Combination Points
- Proposed Storm Drain
- Future Lake Mead Boulevard Storm Drain
- V22 MCDS Combination Point COFF
- Interim Condition Subbasins
- Proposed Roadway Improvements
- Future Street N
- Existing Storm Water Facilities
- Ultimate Condition Parcels
- 50-foot Contours
- 10-foot Contours

N

0 300 600 1,200
Feet

1 inch = 600 feet

ATKINS
Member of the SNC-Lavalin Group

*Per the Master Conceptual Drainage Study (MCDS) for Summerlin West Village 22 (W.O. 7861-3A) dated April 4, 2019 in Appendix A

Aerial Source: Clark County Spring 2018

Update #2 to the Master Conceptual Drainage Study for

Summerlin West Village 22

Las Vegas, Nevada

W.O. # 7861-3A

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 22 Date: November 13, 2019

Location of Development: a) Descriptive (Cross Streets) North/South: I-215 Western Beltway

East/West: Summerlin Parkway

b) Section: 23 and 14 Township: 20S Range: 59E

c) APN : 137-14-401-006, 137-23-101-002

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

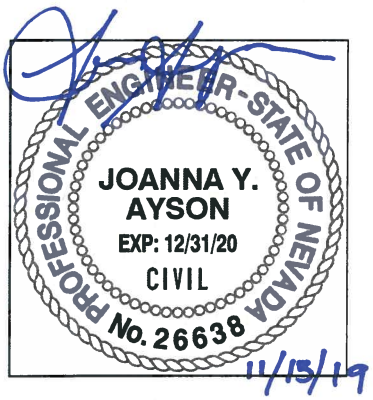
Firm: VTN Nevada

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		

1. Total Owned Land Area: At Site: +/-446 Acres Being Developed/Disturbed: +/-446 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.): Mixed-use master plan
5. Approximate upstream land area which drains to the subject site: +/- 61 acres
6. Has the site drainage been evaluated in the past? ☒ **YES** ☐ **NO** If yes, please identify documentation: SWPA MPU (DS4926), Western Segment Las Vegas Beltway from Summerlin to Cheyenne (DS2610), Summerlin Lake Mead Blvd Improvements (DS4146)
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Existing 66" RCP in Lake Mead Pkwy, Existing I-215 Western Beltway Channel, future SWPA CCRFCD storm drain facilities
8. Briefly describe your proposed schedule for the subject project: As soon as possible



Engineer's Seal

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

*New Required Field

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

Revision	Date

Local Entity File No.

REFERENCE:

STANDARD FORM 1

Updated 05/01/2008

CITY OF LAS VEGAS
INTER-OFFICE MEMORANDUM

DATE: January 23, 2020

TO:
Land Development Services
Department of Building & Safety

FROM:
Albert Sung, P.E.
Flood Control Project Engineer
Department of Public Works

SUBJECT: Drainage Study for:
Master Conceptual Drainage Study for – Update #2
Summerlin West Village 22

COPIES TO:
VTN Nevada
Howard Hughes Company, LLC
Bart Anderson, P.E., DevCo
CCRFCD
CCPW

Cross Streets:	I-215 Western Beltway & Summerlin Parkway	
File Number:	F:\Depot\DSMemos\DS5005H.doc	
Parcel Number:	137-14-401-006, 137-23-101-002	
Zoning Action:	MDR-73901	
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	6/12/2018	6/28/2018 & 7/13/2018	Not Approved	$400.00	49696: $400
2nd Submittal	7/31/2018	8/22/2018	Not Approved	$400.00	497790: $400
3rd Submittal	11/5/2018	11/27/2018	Conditional Approval	$400.00	500639: $400
Memo Revision	12/3/2018	12/3/2018	Conditional Approval	N/C	N/C
CCRFCD	1/10/2019	1/10/2019	Concurrence Recv'd	N/C	N/C
4th Submittal	2/12/2019	3/6/2019	Not Approved	$100.00	503164: $100
5th Submittal	3/21/2019	4/4/2019	Conditional Approval	$400.00	3057847: $400
CCPW & CCRFCD	4/25/2019 & 5/23/2019	5/29/2019	Concurrence Received	N/C	N/C
6th Submittal	11/13/2019	12/10/2019	Conditional Approval	$100.00	3644006: $100
Memo Revision	12/12/2019	12/12/2019	Conditional Approval	N/C	N/C
CCPW & CCRFCD	1/13/2020 & 1/16/2020	1/23/2020	Concurrence Recv'd	N/C	N/C
			TOTAL FEES (LDDRS):	**$1,800.00**	----

REMARKS:

6th Submittal: Update #2 to address Village 22 Overall Development Plan changes

4th & 5th Submittals: Update #1 & Addendum #1 to revise Village 22 in accordance to the Update of the latest overall Summerlin West Master Plan Drainage Study

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

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

1. The *Grand Park Detention Basin* is proposed to regulate and meter outflow to match the previously approved downstream flow conditions at the junction of *Far Hills* storm drain and the *Beltway Channel*. Without the *Grand Park Detention Basin*, there will be a net increase in flows at the *Beltway Channel* downstream of *Far Hills* intersection exceeding the previously approved flow.

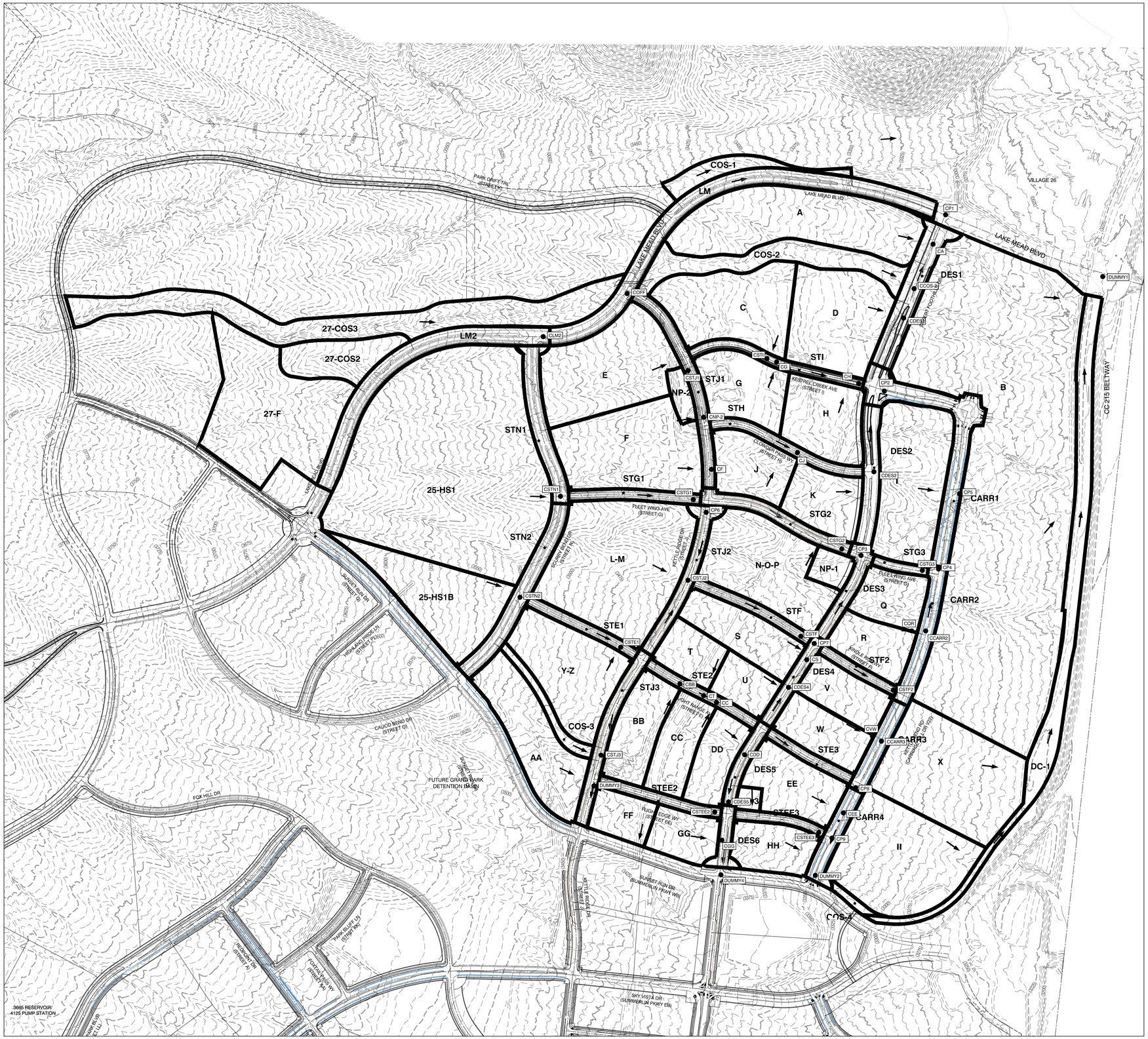
   A technical drainage study for the analysis, design and construction plans for the *Grand Park Detention Basin* must be submitted and approved by the City prior to the individual onsite parcel developments.

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

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

END OF REMARKS
WSP/AYS

T/R/S: T20S/R59E/14
AREA K-14



NORTH

GRAPHIC SCALE

350 0 175 350 700

1" = 350'

LEGEND

- BASIN BOUNDARY
- A — BASIN DESIGNATION
- CONCENTRATION POINT
- FLOW ARROW

ULTIMATE CONDITION HEC-1 SUMMARY TABLE

BASIN ID	AREA (ac)	Q100 (CFS)	BASIN ID	AREA (ac)	Q100 (CFS)
LM	10.04	36	STN1	3.61	13
D	11.96	50	CSTN1	-	244
DES1	4.46	20	STG1	1.85	8
CDES1	-	70	CSTG1	-	229
COS-2	7.51	22	CP6	-	532
CCOS-2	-	89	L-M	21.14	81
A	17.39	68	STJ2	3.10	13
CA	-	156	CSTJ2	-	612
CP1	-	191	STF	1.84	8
STI	2.42	11	CSTF	-	610
C	12.05	51	U	3.49	11
CSTI	-	62	DES4	1.77	8
G	7.05	30	CDES4	-	19
CG	-	92	S	3.01	10
H	7.64	33	CS	-	29
CH	-	124	CP7	-	639
STH	2.29	10	STF2	1.21	5
J	5.93	24	CSTF2	-	637
CJ	-	34	V	5.01	17
K	5.28	22	W	5.28	19
DES2	3.09	13	CVW	-	36
CDES2	-	68	CARR3	2.14	8
CP2	-	189	CCARR3	-	667
CARR1	6.95	29	STE3	1.36	6
I	13.44	38	CP8	-	673
N-O-P	14.52	49	EE	6.80	25
NP-1	1.73	6	CEE	-	689
STG2	2.86	13	NP3	0.70	2
CSTG2	-	68	STEE3	1.23	5
DES3	2.00	9	CSTEE3	-	7
CP3	-	77	CP9	-	205
STG3	0.72	3	HH	4.85	20
CSTG3	-	79	CARR4		10
Q	4.58	17	25-HS1B		48
R	4.97	20	STN2		19
CQR	-	37	CSTN2	-	67
CARR2	3.58	15	Y-Z	11.28	42
CCARR2	-	52	STE1	1.75	8
CP4	-	131	CSTE1	-	115
CP5	-	379	COS-3	1.70	4
II	16.03	61	STJ3	3.22	14
X	17.45	60	CSTJ3	-	126
B	80.77	304	AA	10.13	33
DC-1	12.59	36	STE2		8
COS-4	0.57	2	BB	6.29	23
COS-1	2.87	6	CBB	-	31
V27-F	19.13	83	T	4.02	13
V27-COS2	5.25	20	CT	-	44
LM2	7.23	28	CC	5.34	19
CLM2	-	132	CCC	-	63
27-COS3	17.46	53	DD	4.76	17
COFF	-	185	CDD	-	77
E	13.91	58	DES5	1.57	7
STJ1	3.52	15	CDES5	-	81
CSTJ1	-	255	STEE2	1.79	8
NP-2	1.34	5	CSTEE2	-	88
CNP-2	-	255	GG	4.98	21
F	14.22	59	CGG	-	109
CF	-	309	FF	3.49	15
25-HS1	49.49	211			

REVISION

BY

DATE

REV

THE HOWARD HUGHES COMPANY, LLC
10801 WEST CHARLESTON BLVD, 3RD FLOOR
LAS VEGAS, NEVADA 89135

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

FIGURE 6
ULTIMATE CONDITION BASIN MAP

SUMMERLIN WEST VILLAGE 22

DRAWN BY: JTA

DESIGNED BY:

CHECKED BY:

OCT 2019

SCALE: 1" = 350' HORIZ. N/A VERT.

PROJECT NO: 7861

SHEET

OF SHEETS

DRAWING NO.

H:\7861\Village 22 Master\Drainage\5_LIP2\A_Figures\Figure 6 - Village 22 Drainage Basin Map.dwg

Appendix E. CD-ROM

Atkins

2270 Corporate Circle
Suite 200
Henderson, NV 89074-7755

Tel: +1 702 263 7275/+1 800 483 6244
Fax: +1 702 263 7200
Direct: +1 702 551 0365
Janelle.Klein@atkinsglobal.com

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