

DS #: 5176-1

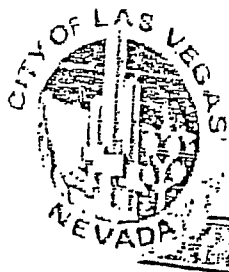
APN: 137-14-401-006 ? 137-23-101-002

PROJECT: Summitin West V22 - Desert Foothills Drive Street Improvements
from Lake Mead Boulevard to Fleet Wing Avenue (Street 6)

SUBMITTAL: 3rd

SCANNED BY/DATE:

CHECKED BY/DATE:



CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		August 3, 2020
TO: Land Development Services Department of Building & Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT: Drainage Study for: Summerlin West V22 – Desert Foothills Drive Street Improvements from Lake Mead Boulevard to Fleet Wing Avenue (Street G)		COPIES TO: Atkins
Cross Streets:	Lake Mead Boulevard & Desert Foothill Drive	Howard Hughes Company, LLC
File Number:	F:\Depot\DSMemos\DS5170D.doc	Bart Anderson, P.E., DevCo
Parcel Number:	137-14-401-006 & 137-23-101-002	CCRFCD
Zoning Action:	N/A	
FEMA Flood Zone	YES NO X	
Proposed Storm Drain	YES X NO	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	8/5/2019	9/5/2019	Not Approved	\$400.00	3518204: \$400
2 nd Submittal	10/16/2019	11/7/2019	Not Approved	\$400.00	3612960: \$400
Supplement	11/14/2019	12/2/2019	Conditional Approval	N/C	N/C
CCRFCD	3/23/2020	3/24/2020	Concurrence Recv'd	N/C	N/C
3 rd Submittal	6/2/2020 & 7/22/2020	8/3/2020	See Comments Below	\$100.00	3869177: \$100
TOTAL FEES (LDDRS):				\$900.00	----

REMARKS:

3rd Submittal: Update #1

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

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

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

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

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

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

END OF REMARKS

ays

T/R/S: T20S/R59E/14

AREA K-14

Albert Sung

From: Albert Sung
Sent: Tuesday, June 16, 2020 3:59 PM
To: Anderson, Molly
Subject: Summerlin V22 Desert Foothills Drive & Summerlin V22 Kestrel Creek Avenue - Updates

Hi Molly,

You'd submitted two Updates for the above stated studies couple weeks ago. As I was looking at the updates, I found out that the updates were misplaced with the original studies or I am missing something?!

When you have a chance, please call my office at (702) 229-2001 to discuss the issue. I am putting the review on hold for both projects in the meantime.

Albert Y. Sung

Project Engineer
Public Works Dept. / Flood Control
(702) 229-6541
333 N. Rancho Dr. 7th Floor
Las Vegas, NV 89106



lasvegasnevada.gov



Your opinion is important! Click [here](#) to take a short survey.



Summerlin Village West 22

Desert Foothills Drive
Fleet Wing Avenue to Lake Mead Boulevard

May 2020

Update #1

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL
DRAINAGE STUDY INFORMATION FORM

Name of Development: Update #1: Desert Foothills Drive : Fleet Wing Avenue (Street G) to Lake Mead Boulevard Date: May 2020

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

East/West: Clowder Pass Way & Lake Mead Blvd

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

c) APN : 137-23-201-001

Name of Owner: Howard Hughes Company, LLC

Telephone No.: (702) 791-4000 Fax No.: (702) 791-4450 E-Mail Address: 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	☒	Roadway Improvements

1. Total Owned Land Area: At Site: +/- 446 acres Being Developed/Disturbed: 11.7 acres

2. Is a portion or all of the subject property located in a designated FEMA Flood Hazard Area? ☐ Yes** ☒ No

3. Is the property bordered or crossed by an existing or proposed Clark County Regional Flood Control District Master Planned Facility? ☐ Yes** ☒ No

4. Proposed type of development (Residential, Commercial, Etc.): Public - Roadway Improvements

5. Approximate upstream land area which drains to the subject site: 0 acres

6. Has the site drainage been evaluated in the past? ☒ YES ☐ NO If yes, please identify documentation: Master Conceptual Drainage Study for Summerlin West Village 22

7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Existing CC-215 Western Beltway Channel

8. Briefly describe your proposed schedule for the subject project: ASAP

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

***New Required Field**

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

DS #5170 Local Entity File No.	Revision	Date

REFERENCE:

STANDARD FORM 1

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C.2. Ultimate Condition	
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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 **Technical Drainage Study for Desert Foothills Drive: Fleet Wing Avenue (Street G) to Lake Mead Boulevard** electronic submittal matches the paper version bound into the study.



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

Your reference: DS #5170

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

May 2020

RE: UPDATE #1 TO THE TECHNICAL DRAINAGE STUDY FOR SUMMERLIN WEST VILLAGE 22 DESERT FOOTHILLS DRIVE: FLEET WING AVENUE (STREET G) TO LAKE MEAD BOULEVARD

Dear Albert,

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

In response to the comments on the Conditional Approval Letter:

Comment #1: Drop inlets deeper than 10' require special structural design and structural calculations. Provide a soils report, structural calculations and specifications, two wet stamped structural sets, and a grading plan to the Building Department for processing. The engineer must provide a copy of Building Department approval of the structures to Flood Control prior to final acceptance of the drainage study.

Comment response: The structural design and calculations have been approved by CLV Building Department. The approval is included in Appendix A.

Comment #2: Sheet 20/33, Sheet 21/33 and all pertinent sheets: SDMH #1 which ties the existing 66"-RCP in Lake Mead Boulevard and the proposed 54"-RCP in Desert Foothills Drive is noted to be constructed by the subject project. However, shouldn't it that SDMH #1 be already constructed by the "Summerlin West V22 – Lake Mead Boulevard (Desert Foothills Drive to Kettle Ridge Drive)" project which should go prior to the subject improvements?

The response was that the manhole SDMH #1 will be constructed and break into an existing 66"-RCP with the proposed subject improvements.

It appears that pipe to pipe (new to existing) connections will be required. Provide connection detail in the next submittal.

Comment response: The Summerlin West V22 – Lake Mead Boulevard (Desert Foothills Drive to Kettle Ridge Drive) (TDS#5155) project connects to the existing Lake Mead plan upstream of this project. This project will connect a 54" RCP into the existing 66" RCP (from the Existing Lake Mead TDS#4791) at the intersection of Desert Foothills and Lake Mead with the proposed SDMH#1. The connection, detailed on sheet 41/51, will occur with the proposed pavement cut in this project.

Comment #3: The subject street improvement of Desert Foothills Drive is premised on the existence of Lake Mead Boulevard and Kettle Ridge Drive on the north and west for flood cut-off protection. The subject drainage study will not be approved prior to the final approval of the technical drainage studies of "Summerlin West V22 – Lake Mead Boulevard (Desert Foothills Drive to Kettle Ridge Drive)" and "Summerlin West V22 – Kettle Ridge Drive (Lake Mead Boulevard to Fleet Wing Avenue)".

Comment response: Final approval of the two studies mentioned as been received. Approval letters are given in Appendix A.

Comment #4: The project proposes to build temporary drainage facilities, i.e., 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 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: The report was submitted to the Land Development section to begin the agreement process.

1. Update #1 Revisions

1.1. Hydrology

1.1.1. Interim Condition

The interim condition flows have been revised in two places due to recent relevant submittals for Summerlin West Village 22. The flow to the upstream end of the project has changed due to the revision in the nearby combination point from the Village 22 Master Conceptual Drainage Study #2. This flow decreased from 189 cfs to 185 cfs. See Village 22 Master Conceptual Drainage Study Update #2 reference information in **Appendix B.1**.

The interim condition flows have also been revised due to an increase in flow in the swale along the Scurry Bend Drive Rough Grade. INT-N was originally calculated to be 270 cfs, however with a more detailed analysis for Scurry Bend Drive Rough Grade, the flow in the “Pipe Outlet Swale” is 282 cfs. See Figure 4: Hydraulics Workmap in **Appendix B.2**. Revised Interim Condition Flows are shown in Table 1.

Table 1 – Revised Interim Condition Flows

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

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

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

1.1.2. Ultimate Condition

Ultimate condition flows have been revised due to the changes at the upstream end of the project site from the Summerlin West Village 22 Master Conceptual Drainage Study – Update #2. In addition to referencing the MCDS hydrology, the proposed Desert Foothills Drive update combines parcels G&H and J&K, now referred to as GH and JK, respectively. These parcel combinations were conservatively mathematically added together from the MCDS hydrology results. Results are summarized in Table 2 and are referenced in **Appendix B.1**.

Table 2 – Revised Ultimate Condition Flows

Basin ID	Tributary Area (sq mi)	Tributary Area (acres)	100-Year Discharge (cfs)
A	0.027172	17.39	68
C	0.018828	12.05	51
D	0.018688	11.96	50
STI	0.003781	2.42	11
GH	0.022953	14.69	63
STH	0.003578	2.29	10
DES1	0.006969	4.46	20
DES2	0.004828	3.09	13
JK	0.017516	11.21	46
COS-2	0.011734	7.51	22

1.1.3. Interim vs. Ultimate Condition Mainline Comparison

Table 3 represents a comparison of the interim condition flows and the ultimate condition flows along the proposed mainline storm drain at each combination point. Since the interim condition flows are higher in some locations than the ultimate condition flows and are lower in other locations, both conditions must be re-run in WSPG-W.

Table 3 – Mainline Interim vs. Ultimate Condition Flows

Combination Point	Interim Condition 100-year Flow (cfs)	Ultimate Condition 100-year Flow (cfs)
CP1	269	269
CP2	300	333
CP3	345	343
CP4	404	406
CP5	686	635

1.2. Hydraulics

The debris basin is being removed with this proposed Update #1. The Kettle Bend Road – Sunset Run Drive to Kestrel Creek Avenue (DS#5204C) by VTN has been approved upstream of the debris basin. The storm drain was designed to take in the original CP5. Therefore, there will be no flow getting to the debris basin from the proposed Kettle Ridge Drive improvements and it can be removed from the improvement plans. Reference information is located in **Appendix B.3**.

The WSPG-W models for the proposed improvement plans were re-run for both conditions to analyze the revised flows. WSPG-W output is located in **Appendix C**. Updated WSPG-W summary information is located in Table 4.

Table 4 – WSPG-W Mainline Summary Table

SDMH#	Plan Station	WSPG-W Station	Interim Condition			Ultimate Condition		
			Q₁₀₀	ΣQ₁₀₀	HGL (ft)	Q₁₀₀	ΣQ₁₀₀	HGL (ft)
Upstream	73+57.28	18+70.76	269	269	3449.68	269	269	3449.34
SDMH #8	70+59.52	15+74.56	0	269	3432.49	0	269	3432.40
SDMH #7	69+00.53	14+15.57	3	272	3423.10	3	272	3423.07
SDMH #6	68+31.25	13+46.29	28	300	3419.12	61	333	3426.11
SDMH #5	66+01.36	11+30.70	0	300	3421.66	0	333	3422.36
SDMH #4	63+83.02	9+18.57	0	300	3418.65	0	333	3418.75
SDMH #3	61+81.97	7+18.03	45	345	3418.81	11	344	3418.89
SDMH #2	58+75.60	4+12.82	55	400	3415.94	59	403	3415.97
SDMH #1	56+90.93	2+26.86	4.1	404.1	3407.26	267	670	3412.90
Downstream	54+60	0	0.1	404.2	3411.74	0	670	3411.74

Pedestrian Tunnel
68 cfs

Interim Hydrology			
HEC-1 Node	Tributary Area (sq mi)	Tributary Area (acres)	100-Year Discharge (cfs)
DFD-1E	0.00183	1.17	5
DFD-1W	0.00279	1.78	7
DFD-2E	0.00113	0.72	3
DFD-2W	0.00216	1.38	6
DFD-3E	0.00249	1.59	6
DFD-3W	0.00244	1.56	6
DFD-4W	0.00173	1.11	4
INT-DFD1	0.01821	11.65	35
INT-DFD2	0.03876	24.81	71
INT-DFD3	0.02627	16.81	48
INT-DFD4	0.02169	13.88	42
INT-DFD5	0.02606	16.68	50
CP1.1	0.02779	17.79	54
CP1.2	0.05198	33.27	101
CP1.3	0.05442	34.83	108
CP2.1	0.11340	72.58	55
CP2.2	0.15216	97.39	192
CP2.3	0.17037	109.04	227
CP2.4	0.17316	110.82	235

Ultimate Hydrology			
Basin ID	Tributary Area (sq mi)	Tributary Area (acres)	100-Year Discharge (cfs)
A	0.02717	17.39	68
C	0.01883	12.05	51
D	0.01869	11.96	50
STI	0.00378	2.42	11
GH	0.02295	14.69	63
STH	0.00358	2.29	10
DES1	0.00697	4.46	20
DES2	0.00483	3.09	13
JK	0.01752	11.21	46
COS-2	0.01173	7.51	22

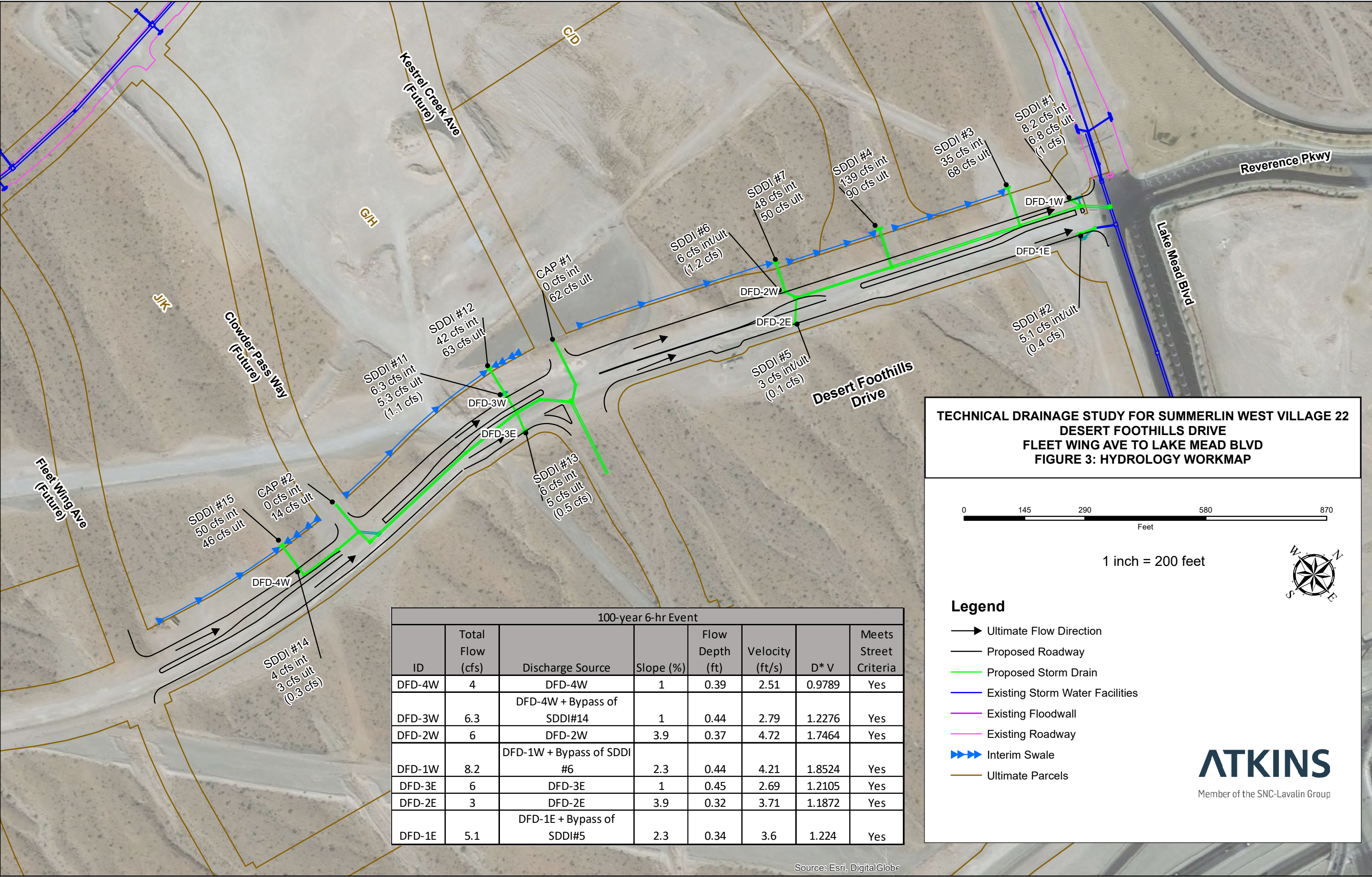
**TECHNICAL DRAINAGE STUDY FOR SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE
FLEET WING AVE TO LAKE MEAD BLVD
FIGURE 3: HYDROLOGY WORKMAP**

0 250 500 1,000 1,500
Feet
1 inch = 350 feet

Legend

- Proposed Roadway
- Proposed Storm Drain
- Existing Storm Water Facilities
- Existing Floodwall
- Existing Roadway
- Interim Swale
- Interim Condition Subbasins
- Ultimate Parcels
- Interim Flow Direction
- Interim Condition Combination Points

ATKINS
Member of the SNC-Lavalin Group



Appendices



Appendix A. Approval Letters

- A.1. Conditional Approval Letter for Desert Foothills Drive
- A.2. Desert Foothills Drive Structural Approval
- A.3. Final Approval Letter for Kettle Ridge Drive
- A.4. Final Approval Letter for Lake Mead Boulevard
- A.5. Approval for Summerlin West Village 22 Master Conceptual Drainage Study – Update #2 (by others)

A.1 Conditional Approval Letter for Desert Foothills Drive

CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		December 2, 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 – Desert Foothills Drive Street Improvements from Lake Mead Boulevard to Fleet Wing Avenue (Street G)		COPIES TO: Atkins
Cross Streets:	Lake Mead Boulevard & Desert Foothill Drive	Howard Hughes Company, LLC
File Number:	F:\Depot\DSMemos\DS5170C.doc	Bart Anderson, P.E., DevCo
Parcel Number:	137-14-401-006 & 137-23-101-002	CCRFCD
Zoning Action:	N/A	
FEMA Flood Zone	YES	NO X
Proposed Storm Drain	YES X	NO

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	8/5/2019	9/5/2019	Not Approved	\$400.00	3518204: \$400
2 nd Submittal	10/16/2019	11/7/2019	Not Approved	\$400.00	3612960: \$400
Supplement	11/14/2019	12/2/2019	See Comments Below	N/C	N/C
TOTAL FEES (LDDRS):				\$800.00	----

REMARKS:

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

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

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

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

- Second Request:** Drop inlets deeper than 10' require special structural design and structural calculations. Provide a soils report, structural calculations and specifications, two wet stamped structural sets, and a grading plan to the Building Department for processing. The engineer must provide a copy of Building Department approval of the structures to Flood Control prior to final acceptance of the drainage study.
- Second Request: Sheet 20/33, Sheet 21/33** and all pertinent sheets: SDMH #1 which ties the existing 66"-RCP in Lake Mead Boulevard and the proposed 54"-RCP in Desert Foothills Drive is noted to be constructed by the subject project. However, shouldn't it that SDMH #1 be already constructed by the "Summerlin West V22 – Lake Mead Boulevard (Desert Foothills Drive to Kettle Ridge Drive)" project which should go prior to the subject improvements?

The response was that the manhole SDMH #1 will be constructed and break into an existing 66"-RCP with the proposed subject improvements.

It appears that pipe to pipe (new to existing) connections will be required. Provide connection detail in the next submittal.

A supplemental **Sheet 33/38** was submitted on November 14, 2019, **Detail Section E/33** must include detail of reinforcement connection from the existing pipe to the new manhole wall. Structural calculations must be approved by *City Building Department* prior to the final approval of the drainage study.

The following conditions are repeated until they are complete:

3. The subject street improvement of *Desert Foothills Drive* is premised on the existence of *Lake Mead Boulevard* and *Kettle Ridge Drive* on the north and west for flood cut-off protection. The subject drainage study will not be approved prior to the final approval of the technical drainage studies of "Summerlin West V22 – *Lake Mead Boulevard (Desert Foothills Drive to Kettle Ridge Drive)*" and "Summerlin West V22 – *Kettle Ridge Drive (Lake Mead Boulevard to Fleet Wing Avenue)*".
4. The site is adjacent to or crosses an existing or proposed *Clark County Regional Flood Control District (CCRFCD)* master planned facility. Therefore, CCRFCD concurrence is required prior to final approval of the drainage study.

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

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

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

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

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

END OF REMARKS

ays

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

A.2 Desert Foothills Drive Structural Approval

Anderson, Carl E

From: Luis Morales <lmorales@LasVegasNevada.GOV>
Sent: Tuesday, February 11, 2020 9:51 PM
To: Anderson, Carl E; Milstead, Caron
Cc: Shaun Boulton; Rolando Karagdag; David Guerra
Subject: RE: Atkins requesting update on structural reviews

Categories: SV22N: Overall & Miscellaneous

Hi Carl,

I have completed the structural review for L19-02745 and have conditionally approved it. My only comments are to provide a digitally signed pdf of the structural calcs. Also on sheet 33 make sure the PE stamp is digitally signed on the plan as well for the structural detail D.

For your project L19-02540 I am not too sure that I can do the structural review for the tunnel. I believe that is Dave's project and I need to coordinate with him regarding the tunnel before I can make that determination. I will wait until tomorrow morning to speak to Dave and then I will get back to you on that one.

Let me know if you have any other questions or concerns.

Thanks,

Luis Morales, P.E.

Engineering Project Manager
Building and Safety Department | Land Development Division
702-229-2097 phone | 702-631-3000 fax | 702-752-3414 Cell
333 North Rancho Drive, Las Vegas, NV 89106



lasvegasnevada.gov



Your opinion is important! Click [here](#) to take a short survey.

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From: Anderson, Carl E <Carl.Anderson@atkinsglobal.com>
Sent: Tuesday, February 11, 2020 8:02 AM
To: Luis Morales <lmorales@LasVegasNevada.GOV>; Milstead, Caron <Caron.Milstead@atkinsglobal.com>
Cc: Shaun Boulton <sboulton@LasVegasNevada.GOV>
Subject: RE: Atkins requesting update on structural reviews

A.3 Final Approval Letter for Kettle Ridge Drive

CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		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.)	
Cross Streets:	Lake Mead Boulevard & Desert Foothill Drive	Howards 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	CCRFC
Zoning Action:	N/A	
FEMA Flood Zone	YES	NO X
Proposed Storm Drain	YES X	NO

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	7/16/2019	8/8/2019	Not Approved	\$400.00	3490122: \$400
2 nd Submittal	9/11/2019	9/25/2019	Not Approved	\$400.00	3563447: \$400
3 rd Submittal	10/16/2019	10/30/2019	Conditional Approval	\$400.00	3612958: \$400
4 th Submittal & CCRFC	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:

- 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

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T/R/S: T20S/R59E/14

AREA K-14

A.4 Final Approval Letter for Lake Mead Boulevard

CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		May 18, 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 V22 – Lake Mead Blvd. Street Improvements from Desert Foothill Boulevard to Kettle Ridge Drive (Street J) (also Lake Mead Rough Grade from Kettle Ridge to Scurry Bend)	
Cross Streets:	Lake Mead Boulevard & Desert Foothill Drive	COPIES TO: Atkins
File Number:	F:\Depot\DSMemos\DS5155D.doc	Howard Hughes Company, LLC
Parcel Number:	137-14-401-006 & 137-23-101-002	Bart Anderson, P.E., DevCo
Zoning Action:	N/A	CCRFCD
FEMA Flood Zone	YES	NO X
Proposed Storm Drain	YES	NO X

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	7/16/2019	8/2/2019	Not Approved	\$400.00	3490116: \$400
2 nd Submittal	9/11/2019	9/28/2019	Not Approved	\$400.00	3563449: \$400
3 rd Submittal & Supplement	10/16/2019 & 11/7/2019	11/7/2019	Conditional Approval	\$400.00	3612959: \$400
CCRFCD	4/20/2020	5/18/2020	Concurrence Recv'd	N/C	N/C
TOTAL FEES (LDDRS):				\$1,200.00	----

REMARKS:

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

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

The following conditions are repeated until they are complete:

1. The *Master Drainage Study Update* for *Summerlin West Planning Area* proposes a modification to internal flow patterns that alters the flow patterns to the *Beltway Channel* system downstream of the *Summerlin Parkway* interchange. The modification proposes a storm drain system within *Summerlin Village 22* area (Storm Drain F) that will collect flows from the Gowan channel tributary area and route them into the *Beltway Channel* (MPU Facility APBE 0122). This resulted in increased flows in the *Beltway Channel* segment between *Summerlin Parkway* and *Far Hills Boulevard*, ie, mitigation measures are required for the impacted *Beltway Channel* segment.

A technical drainage study for the modification of the *Beltway Channel* has been submitted and has just been conditionally approved. The subject improvement plans will not be approved prior to the construction bond of the *Beltway Channel Modification* project has been executed.

2. **Second Request:** Clearly label "Public" and Private" storm drains in all pertinent sheets. For example, storm drains in the perimeter streets such as *Lake Mead Boulevard* are "Public"; storm drains in the common elements such as SDDI #10, SDDI #11 and the connecting pipes are "Private". Review and revise accordingly in the next submittal.

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

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T/R/S: T20S/R59E/14

AREA K-14

A.5 Summerlin West Village 22 Master Conceptual Drainage Study – Update #2 (by others)

CITY OF LAS VEGAS			DATE:
INTER-OFFICE MEMORANDUM			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
Cross Streets:	I-215 Western Beltway & Summerlin Parkway		Howard Hughes Company, LLC
File Number:	F:\Depot\DSMemos\DS5005H.doc		Bart Anderson, P.E., DevCo
Parcel Number:	137-14-401-006, 137-23-101-002		CCRFCFCD
Zoning Action:	MDR-73901		CCPW
FEMA Flood Zone	YES	NO	X
Proposed Storm Drain	YES	X	NO

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	6/12/2018	6/28/2018 & 7/13/2018	Not Approved	\$400.00	49696: \$400
2 nd Submittal	7/31/2018	8/22/2018	Not Approved	\$400.00	497790: \$400
3 rd 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
CCRFCFCD	1/10/2019	1/10/2019	Concurrence Recv'd	N/C	N/C
4 th Submittal	2/12/2019	3/6/2019	Not Approved	\$100.00	503164: \$100
5 th Submittal	3/21/2019	4/4/2019	Conditional Approval	\$400.00	3057847: \$400
CCPW & CCRFCFCD	4/25/2019 & 5/23/2019	5/29/2019	Concurrence Received	N/C	N/C
6 th 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 & CCRFCFCD	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

Appendix B. Reference Material

- B.1. Summerlin West Village 22 Master Conceptual Drainage Study
– Update #2 (by others)
- B.2. Scurry Bend Drive Rough Grade
- B.3. Kettle Bend Road Improvement Plans (by others)

B.1 Summerlin West Village 22 Master Conceptual Drainage Study – Update #2 (by others)

November 5, 2019
W.O. #7861-3A

City of Las Vegas
Land Development Services
333 N. Rancho Drive, 7th Floor
Las Vegas, NV 89106

Attention: Albert Sung, P.E.
Flood Control Project Engineer

**SUBJECT: UPDATE #2 TO THE MASTER CONCEPTUAL DRAINAGE STUDY FOR
SUMMERLIN WEST VILLAGE 22**

Mr. Sung:

This Update #2 to the approved *Master Conceptual Drainage Study for Summerlin West Village 22* (DS#5005) is being submitted to address revisions to the overall Summerlin West Planning Area land plan. Since the approval of the original study, the *Update #2 to the 2017 Summerlin West Planning Area Flood Control Master Plan Update* (hereinafter referred to as the Overall Master Plan Update study) was submitted to the City of Las Vegas on October 28, 2019. The Overall Master Plan Update study included revisions to the overall Summerlin West hydrology and proposed CCRFCD facilities in the area. This update reanalyzes Village 22 according to the revisions submitted in the Overall Master Plan Update study. In addition, this update reconfigures the conceptual storm drain alignment previously presented. The revisions addressed in this update are summarized below and are discussed in more detail throughout this document:

1. The alignment of Carriage Hill Drive has shifted slightly to the west. The areas of the adjacent parcels B, I, Q, R, V, W, W EE, HH, II have been revised as a result. In addition, the areas of the basins which represent Carriage Hill have been updated as a result.
2. Hive Bluff Lane (Street FF) has been removed. Parcels N, O, and P have been combined into a single parcel N-O-P.
3. Bask Ridge Drive (Street L) between Parcels L and M has been removed. Parcels L and M have been combined into a single parcel L-M as a result.
4. Bask Ridge Drive (Street L) between basins Y and Z, and Flight Edge Way between Parcels AA and Z have been removed. Parcels Y and Z have been combined into single parcel Y-Z and an open space area COS-3 has been added between Y-Z and AA as a result.
5. The boundary of Parcel COS-2 has changed and the corresponding basin boundary has been updated accordingly. The areas of Parcels A, C, and D were impacted as a result.
6. Landscaped areas previously considered portions of street basins within Fleet Wing Avenue (Street G) and Flight Edge Way (Street EE) at the intersections of Kettle Ridge Drive and Desert Foothills Drive are now considered portions of parcel basins. Roadway basin areas have decreased as a result, and the areas have been added to the adjacent parcels.
7. Parcel S and NP-3 have been combined into a single Parcel S.

8. The park NP-1 previously located southeast of the Clowder Pass Way and Desert Foothills Drive intersection has been relocated southwest of the Fleet Wing Ave and Desert Foothills Drive intersection.
9. Offsite parcels have been reconfigured. The boundaries of offsite basins have been updated accordingly, and the naming convention of the offsite basins have been updated to match the parcel designations.
10. The length of storm drain designated as Regional Facility SD-J has reduced to only include the portion of storm drain within Desert Foothills Drive. Storm drain tributary to SD-J has also been reconfigured.

The analysis presented in this update has been completed in accordance with the criteria established in the Clark County Regional Flood Control District (CCRFCD) *Hydrologic Criteria and Drainage Design Manual*, hereinafter referred to as the Manual.

I. HYDROLOGY

As discussed previously, the Overall Master Plan Update study included changes to the land uses and parcel configurations throughout the SWPA and revisions to the proposed CCRFCD MPU facilities. The new parcel areas and land uses have been utilized in this drainage study to revise the curve numbers and hydrologic basins within Village 22. Revised hydrologic calculations and HEC-1 analysis for Village 22 have been included in Appendix B of this report. Updated basin boundaries and flow rates are depicted on *Figure 6: Ultimate Condition Basin Map* in Appendix A.

II. STORM DRAIN ANALYSIS

a. ONSITE LOCAL AND CCRFCD STORM DRAIN FACILITIES

As discussed in the approved study, flows generated by Village 22 are discharged to three CCRFCD Facility Locations: (1) the existing 215 Western Beltway Channel, (2) the proposed storm drain system SD-F, and (3) the storm drain system SD-J. The discharge locations shown in this update are consistent with those in the approved study. The following table compares the flows discharged in this Update #2 versus the approved Update #1. In general the discharge flow rates in this study are less than the approved study. The reduction of discharge flows are due to the removal of streets, the reduction of developed offsite tributary flows, and combining separate parcels into single parcels.

DISCHARGE FLOW COMPARISON TABLE					
Discharge Location	Description	New (Update #2)		Old (Update #1)	
		Basin/CP	Discharge Q100 (cfs)	Basin/CP	Discharge Q100 (cfs)
1A	Existing Lake Mead Blvd SD	CP1	191	CP1	201
1B	Existing Beltway Channel	DUMMY1	1024	DUMMY1	1103
2	CCRFCD Facility SD-F	DUMMY2	708	DUMMY6	859
3	CCRFCD Facility SD-J	DUMMY4	282	DUMMY11	299

The SD-F system was re-evaluated in the Update #2 to the Overall MCDS. The facility map has been updated to reflect the latest Regional Facility sizes shown in the latest Update to the Overall MCDS.

Previously, a portion of the regional system SD-J was located in Flight Range Avenue between Kettle Ridge Drive and Desert Foothills Drive. The Update #2 to the Overall MCDS shortened the total length of SD-J so that only the segment of storm drain within Desert Foothills Drive would be considered a regional facility. This was done to more realistically coincide with where a majority of design flows would be conveyed by the system. This drainage study update for Village 22 provides a specific analysis of the local flows tributary to SD-J. In addition, the local storm drain facilities 77 to 82 previously discharging flows to SD-J at the intersection of Kettle Ridge Drive and Flight Range Ave have been re-routed south in Kettle Ridge Drive to discharge flow into the existing storm drain in Sunset Run Drive. The additional flow to be discharged at Sunset Run Drive was accounted for in the *Technical Drainage Study for Summerlin Parkway Extension*, therefore the storm drain re-routing will not adversely impact downstream facilities.

The following technical drainage studies within Village 22 have been submitted since Update #1 was approved:

1. *Technical Drainage Study for Summerlin West Village 22 Kestrel Creek Avenue (Street I): Desert Foothills Drive to Kettle Ridge Drive (Street J)*, DS5171A
2. *Technical Drainage Study for Summerlin West Village 22 Kettle Ridge Drive (Street J) and Scurry Bend Drive (Street N) Street Improvements: Lake Mead Blvd to Fleet Wing Ave*, DS5156
3. *Technical Drainage Study for Summerlin West Village 22 Lake Mead Blvd Street Improvements from Desert Foothills Drive to Kettle Ridge Drive (Street J) – also Lake Mead Blvd Rough Grade from Kettle Ridge Drive to Scurry Bend Drive*; DS5155
4. *Technical Drainage Study for Village 22 Kettle Bend Road*; DS5204

This facilities shown in this update match those presented in the referenced Village 22 technical studies. The updated local and CCRFCD facilities have been depicted on *Figure 7: Local Flood Control Facilities Map*. Normal depth calculations have been included in Appendix C. Pertinent reference material has been included in Appendix D.

I hope this addresses your concerns regarding this project. If there are any questions or any additional information is required, please contact this office.

Respectfully Submitted,

VTN Consulting



Joanna Ayson, P.E.


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1*****
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* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* JUN 1998 *
* VERSION 4.1 *
* RUN DATE 23OCT19 TIME 13:10:22 *
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*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 756-1104 *
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      X  X  X      X  X  X
      X  X  X      X  X  X
      X  X  XXXXXX  XXXXX  XXX

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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

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
*** FREE ***
          *DIAGRAM
1         ID    ULTIMATE CONDITION HYDROLOGIC MODEL
2         ID    INPUT FILE DATE = OCTOBER 2019
3         ID    DESIGN STORM = 100-YEAR 6-HR STORM
4         ID    STORM DISTRIBUTION = SDN #3
5         ID    MODELED BY VTN (JYA)
6         ID
7         ID    *****
8         ID    * UPDATE #2 - SUMMERLIN WEST VILLAGE 22 *
9         ID    *****
10        ID
11        ID
12        ID
13        ID
14        ID    JR CARD RATIOS REPRESENT DEPTH-AREA REDUCTION FACTORS (DARF'S)
15        ID
16        ID    100-YEAR, 6-HOUR STORM, SDN3
17        ID
18        IT      5      0      0      100
19        IO      5      0      0
20        IN      5      0      0
21        JR      PREC  1.00
          *
22        KK      LM
23        BA      0.0157
24        PB      3.41
25        PC      0      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
33        LS      0      98.0
34        UD      0.118
          *
35        KK      D
36        BA      0.0187
37        PB      3.39
38        LS      0      95.0
39        UD      0.058
          *
40        KK      DES1
41        BA      0.0070
42        PB      3.39
43        LS      0      98.0
44        UD      0.058
          *

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LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
45	KK CDES1
46	KM COMBINE D AND DES1
47	HC 2
	*
48	KK RCDES1
49	KM ROUTE CDES1 TO CCOS-2
50	RD 241 0.027 0.013 0 CIRC 2.5
	*
51	KK COS-2
52	BA 0.0117
53	PB 3.41
54	LS 0 89.0
55	UD 0.142
	*
56	KK CCOS-2
57	KM COMBINE CDES1 AND COS-2
58	HC 2
	*
59	KK RCCOS-2
60	KM ROUTE CCOS-2 TO CA
61	RD 325 0.007 0.013 0 CIRC 3.0
	*
62	KK A
63	BA 0.0272
64	PB 3.41
65	LS 0 95.0
66	UD 0.078
	*
67	KK CA
68	KM COMBINE CCOS-2 AND A
69	HC 2
	*
70	KK RCA
71	KM ROUTE CA TO CP1
72	RD 325 0.050 0.013 0 CIRC 3.5
	*
73	KK CP1
74	KM COMBINE LM AND CA
75	HC 2
	*

LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
76	KK STI
77	KM KESTREL CREEK AVE
78	BA 0.0038
79	PB 3.41
80	LS 0 98.0
81	UD 0.050
	*
82	KK C
83	BA 0.0188
84	PB 3.41
85	LS 0 95.0
86	UD 0.054
	*
87	KK CSTI
88	KM COMBINE C AND STI
89	HC 2
	*
90	KK G
91	BA 0.0110
92	PB 3.41
93	LS 0 95.0
94	UD 0.056
	*
95	KK CG
96	KM COMBINE CSTI AND CG
97	HC 2
	*
98	KK RCG

99	KM	ROUTE CG TO CH				
100	RD	556 0.081 0.013	0	CIRC	3.5	
	*					
101	KK	H				
102	BA	0.0119				
103	PB	3.41				
104	LS	0	95.0			
105	UD	0.053				
	*					
106	KK	CH				
107	KM	COMBINE CG AND CH				
108	HC	2				
	*					

1

HEC-1 INPUT

PAGE 4

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

109	KK	RCH				
110	KM	ROUTE CH TO CP2				
111	RD	255 0.093 0.013	0	CIRC	3.5	
	*					
112	KK	STH				
113	KM	CLOWDER PASS WAY				
114	BA	0.0036				
115	PB	3.41				
116	LS	0	98.0			
117	UD	0.050				
	*					
118	KK	J				
119	BA	0.0093				
120	PB	3.41				
121	LS	0	92.0			
122	UD	0.058				
	*					
123	KK	CJ				
124	KM	COMBINE J AND STH				
125	HC	2				
	*					
126	KK	RCJ				
127	KM	ROUTE CJ TO CDES2				
128	RD	637 0.080 0.013	0	CIRC	2.5	
	*					
129	KK	K				
130	BA	0.0081				
131	PB	3.40				
132	LS	0	95.0			
133	UD	0.050				
	*					
134	KK	DES2				
135	BA	0.0048				
136	PB	3.38				
137	LS	0	98.0			
138	UD	0.071				
	*					
139	KK	CDES2				
140	KM	COMBINE DES2, CJ, AND K				
141	HC	3				
	*					

1

HEC-1 INPUT

PAGE 5

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

142	KK	RCDES2				
143	KM	ROUTE CDES2 TO CP2				
144	RD	643 0.014 0.013	0	CIRC	3.5	
	*					
145	KK	CP2				
146	KM	COMBINE CDES2 & CH				
147	HC	2				
	*					
148	KK	RCP2				
149	KM	ROUTE CP2 TO CP5				
150	RD	1226 0.039 0.013	0	CIRC	4.5	
	*					
151	KK	CARR1				
152	BA	0.0109				
153	PB	3.38				

154 LS 0 98.0
155 UD 0.070
*

156 KK I
157 BA 0.0165
158 PB 3.38
159 LS 0 92.0
160 UD 0.083
*

161 KK N-O-P
162 BA 0.0227
163 PB 3.40
164 LS 0 90.3
165 UD 0.090
*

166 KK NP-1
167 BA 0.0027
168 PB 3.40
169 LS 0 89.0
170 UD 0.059
*

171 KK STG2
172 KM FLEET WING AVE
173 BA 0.0045
174 PB 3.40
175 LS 0 98.0
176 UD 0.050
*

1

HEC-1 INPUT

PAGE 6

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

177 KK CSTG2
178 KM COMBINE N-O-P, NP-1 AND STG2
179 HC 3
*

180 KK DES3
181 BA 0.0031
182 PB 3.38
183 LS 0 98.0
184 UD 0.050
*

185 KK CP3
186 KM COMBINES CSTG2 & DES3
187 HC 2
*

188 KK RCP3
189 KM ROUTE CP3 TO CSTG3
190 RD 513 0.080 0.013 0 CIRC 3.0
*

191 KK STG3
192 BA 0.0011
193 PB 3.38
194 LS 0 98.0
195 UD 0.050
*

196 KK CSTG3
197 KM COMBINES CP3 AND STG
198 HC 2
*

199 KK Q
200 BA 0.0072
201 PB 3.38
202 LS 0 92.2
203 UD 0.069
*

204 KK R
205 BA 0.0078
206 PB 3.37
207 LS 0 93.2
208 UD 0.065
*

209 KK CQR
210 KM COMBINE R AND Q
211 HC 2
*

1

HEC-1 INPUT

PAGE 7

LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
212	KK CARR2
213	BA 0.0056
214	PB 3.37
215	LS 0 98.0
216	UD 0.064
	*
217	KK CCARR2
218	KM COMBINE CQR AND CARR2
219	HC 2
	*
220	KK RCCARR2
221	KM ROUTE CCARR2 TO CP4
222	RD 414 0.033 0.013 0 CIRC 2.5
	*
223	KK CP4
224	KM COMBINE CP3 AND CCARR2
225	HC 2
	*
226	KK RCP4
227	KM ROUTE CP4 TO CP5
228	RD 582 0.010 0.013 0 CIRC 3.5
	*
229	KK CP5
230	KM COMBINE CARR1, I, CP2 AND CP4
231	HC 4
	*
232	KK II
233	BA 0.0250
234	PB 3.37
235	LS 0 93.2
236	UD 0.072
	*
237	KK X
238	BA 0.0273
239	PB 3.37
240	LS 0 90.0
241	UD 0.080
	*
242	KK B
243	BA 0.1262
244	PB 3.36
245	LS 0 93.5
246	UD 0.077
	*

1

HEC-1 INPUT

PAGE 8

LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
247	KK DC-1
248	BA 0.0197
249	PB 3.35
250	LS 0 98
251	UD 0.257
	*
252	KK COS-4
253	BA 0.0009
254	PB 3.35
255	LS 0 88.0
256	UD 0.077
	*
257	KK DUMMY1A
258	KM REGIONAL FACILITY - BELTWAY CHANNEL NORTH
259	KM COMBINE II, X, B, DC1, AND COS-4
260	HC 5
	*
261	KK COS-1
262	BA 0.0045
263	PB 3.41
264	LS 0 79.8
265	UD 0.118
	*
266	KK DUMMY1
267	KM REGIONAL FACILITY - BELTWAY CHANNEL NORTH
268	KM COMBINE CP1, CP5, DUMMY1A, AND COS-1
269	HC 4

*
 270 KK 27-F
 271 BA 0.0299
 272 PB 3.48
 273 LS 0 94.2
 274 UD 0.050
 *

275 KK 27-COS2
 276 BA 0.0082
 277 PB 3.46
 278 LS 0 89.0
 279 UD 0.052
 *

280 KK LM2
 281 BA 0.0113
 282 PB 3.41
 283 LS 0 98.0
 284 UD 0.093
 *

1

HEC-1 INPUT

PAGE 9

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

285 KK CLM2
 286 KM COMBINES OFFSITE V27 BASINS 27-F, V27-COS2, AND LM2
 287 HC 3
 *

288 KK 27-COS3
 289 BA 0.0273
 290 PB 3.47
 291 LS 0 89.0
 292 UD 0.113
 *

293 KK COFF
 294 KM COMBINES OFFSITE V27 BASINS
 295 KM COMBINE CLM2 AND V27-COS3
 296 HC 2
 *

297 KK RCOFF
 298 KM ROUTE COFF TO CSTJ1
 299 RD 744 0.058 0.013 0 CIRC 4.5
 *

300 KK E
 301 BA 0.0217
 302 PB 3.43
 303 LS 0 95.0
 304 UD 0.062
 *

305 KK STJ1
 306 KM KETTLE RIDGE
 307 BA 0.0055
 308 PB 3.43
 309 LS 0 98.0
 310 UD 0.069
 *

311 KK CSTJ1
 312 KM COMBINE COFF, E, AND STJ1
 313 HC 3
 *

314 KK RCSTJ1
 315 KM ROUTE COFF TO CSTJ1
 316 RD 380 0.005 0.013 0 CIRC 5
 *

317 KK NP-2
 318 BA 0.0021
 319 PB 3.43
 320 LS 0 89.0
 321 UD 0.058
 *

1

HEC-1 INPUT

PAGE 10

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

322 KK CNP-2
 323 KM COMBINE CSTJ1 AND CNP-2
 324 HC 2
 *

325 KK RCNP-2
 326 KM ROUTE CNP-2 TO CF
 327 RD 390 0.005 0.013 0 DEEP 6
 *

328 KK F
 329 BA 0.0222
 330 PB 3.43
 331 LS 0 95.0
 332 UD 0.063
 *

333 KK CF
 334 KM COMBINE CNP-1 AND CF
 335 HC 2
 *

336 KK RCF
 337 KM ROUTE CF TO CP6
 338 RD 320 0.005 0.013 0 DEEP 6
 *

339 KK 25-HS1
 340 BA 0.0773
 341 PB 3.44
 342 LS 0 94.8
 343 UD 0.056
 *

344 KK STN1
 345 KM SCURRY BEND
 346 BA 0.0056
 347 PB 3.44
 348 LS 0 98.0
 349 UD 0.125
 *

350 KK CSTN1
 351 KM COMBINE 25-HS1 AND STN1
 352 HC 2
 *

353 KK RCSTN1
 354 KM ROUTE CSTN1 TO CSTG1
 355 RD 1010 0.000 0.013 0 CIRC 4.5
 *

1

HEC-1 INPUT

PAGE 11

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

356 KK STG1
 357 BA 0.0029
 358 PB 3.42
 359 LS 0 98.0
 360 UD 0.050
 *

361 KK CSTG1
 362 KM COMBINE CSTN1 AND STG1
 363 HC 2
 *

364 KK CP6
 365 KM COMBINE CF AND CSTG1
 366 HC 2
 *

367 KK RCP6
 368 KM ROUTE CP6 TO CSTJ2
 369 RD 530 0.005 0.013 0 DEEP 6 0
 *

370 KK L-M
 371 BA 0.0330
 372 PB 3.42
 373 LS 0 94.4
 374 UD 0.084
 *

375 KK STJ2
 376 BA 0.0048
 377 PB 3.42
 378 LS 0 98.0
 379 UD 0.058
 *

380 KK CSTJ2
 381 KM COMBINE CP6, L-M AND STJ2
 382 HC 3
 *

383 KK RCSTJ2
 384 KM ROUTE CSTJ2 TO CSTF
 385 RD 1000 0.069 0.015 0 DEEP 6 0
 *
 386 KK STF
 387 BA 0.0029
 388 PB 3.40
 389 LS 0 98.0
 390 UD 0.050
 *

1

HEC-1 INPUT

PAGE 12

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

391 KK CSTF
 392 KM COMBINE CSTJ2 AND CSTF
 393 HC 2
 *

394 KK U
 395 BA 0.0055
 396 PB 3.40
 397 LS 0 86.3
 398 UD 0.069
 *

399 KK DES4
 400 BA 0.0028
 401 PB 3.40
 402 LS 0 98.0
 403 UD 0.050
 *

404 KK CDES4
 405 KM COMBINE U AND DES4
 406 HC 2
 *

407 KK S
 408 BA 0.0047
 409 PB 3.40
 410 LS 0 87.9
 411 UD 0.088
 *

412 KK CS
 413 KM CDES4 AND S
 414 HC 2
 *

415 KK CP7
 416 KM COMBINE CSTF AND CS
 417 HC 2
 *

418 KK RCP7
 419 KM ROUTE CP7 TO CSTF2
 420 RD 710 0.066 0.015 0 DEEP 6 0
 *

421 KK STF2
 422 BA 0.0019
 423 PB 3.37
 424 LS 0 98.0
 425 UD 0.050
 *

1

HEC-1 INPUT

PAGE 13

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

426 KK CSTF2
 427 KM COMBINE CP7 AND STF2
 428 HC 2
 *

429 KK RCSTF2
 430 KM ROUTE CSTF2 TO CCARR3
 431 RD 420 0.005 0.015 0 DEEP 8 0
 *

432 KK V
 433 BA 0.0078
 434 PB 3.37
 435 LS 0 90.0
 436 UD 0.075
 *

437 KK W
 438 BA 0.0083
 439 PB 3.40
 440 LS 0 90.0
 441 UD 0.074
 *
 442 KK CVW
 443 KM COMBINE W AND V
 444 HC 2
 *
 445 KK CARR3
 446 BA 0.0033
 447 PB 3.37
 448 LS 0 98.0
 449 UD 0.101
 *
 450 KK RCARR3
 451 KM ROUTE CCARR3 TO CP8
 452 RD 360 0.005 0.015 0 DEEP 8 0
 *
 453 KK CCARR3
 454 KM COMBINE STF2, CVW AND CARR3
 455 HC 3
 *
 456 KK STE3
 457 BA 0.0021
 458 PB 3.40
 459 LS 0 98.0
 460 UD 0.050
 *

1

HEC-1 INPUT

PAGE 14

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

461 KK CP8
 462 KM COMBINE STE3 AND CCARR3
 463 HC 2
 *
 464 KK RCP8
 465 KM ROUTE CP8 TO CEE
 466 RD 240 0.005 0.015 0 DEEP 8 0
 *
 467 KK EE
 468 BA 0.0106
 469 PB 3.39
 470 LS 0 90.2
 471 UD 0.068
 *
 472 KK CEE
 473 KM COMBINES CP8 AND EE
 474 HC 2
 *
 475 KK RCP8
 476 KM ROUTE CEE TO CP9
 477 RD 220 0.005 0.015 0 DEEP 8 0
 *
 478 KK NP-3
 479 BA 0.0011
 480 PB 3.39
 481 LS 0 80.5
 482 UD 0.080
 *
 483 KK STEE3
 484 BA 0.0019
 485 PB 3.39
 486 LS 0 98.0
 487 UD 0.050
 *
 488 KK CSTEE3
 489 KM COMBINES NP-3 AND CSTEE3
 490 HC 2
 *
 491 KK CP9
 492 KM COMBINES CSTEE3 AND CEE
 493 HC 2
 *

1

HEC-1 INPUT

PAGE 15

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

494 KK RCP9
495 KM ROUTE CP9 TO DUMMY2
496 RD 281 0.005 0.015 0 DEEP 8 0
*

497 KK HH
498 BA 0.0076
499 PB 3.39
500 LS 0 94.2
501 UD 0.058
*

502 KK CARR4
503 BA 0.0036
504 PB 3.37
505 LS 0 98.0
506 UD 0.059
*

507 KK DUMMY2
508 KM REGIONAL FACILITY - BELTWAY CHANNEL SOUTH
509 HC 3
*

510 KK 25-HS1B
511 BA 0.0182
512 PB 3.44
513 LS 0 92.2
514 UD 0.050
*

515 KK STN2
516 BA 0.0068
517 PB 3.44
518 LS 0 98.0
519 UD 0.065
*

520 KK CSTN2
521 KM COMBINE 25-HS1B AND STN2
522 HC 2
*

523 KK RCSTN2
524 KM ROUTE CSTN2 TO CSTE1
525 RD 1000 0.067 0.015 0 CIRC 3
*

526 KK Y-Z
527 BA 0.0176
528 PB 3.42
529 LS 0 92.2
530 UD 0.075
*

1

HEC-1 INPUT

PAGE 16

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

531 KK STE1
532 BA 0.0027
533 PB 3.42
534 LS 0 98.0
535 UD 0.050
*

536 KK CSTE1
537 KM COMBINE CSTN2, Y-Z AND STE1
538 HC 3
*

539 KK RCSTE1
540 KM ROUTE CSTE1 TO CSTJ3
541 RD 980 0.005 0.015 0 DEEP 5 0
*

542 KK COS-3
543 BA 0.0027
544 PB 3.42
545 LS 0 83.2
546 UD 0.105
*

547 KK STJ3
548 BA 0.0050
549 PB 3.42
550 LS 0 98.0

551 UD 0.059
 *
 552 KK CSTJ3
 553 KM COMBINE CSTE1, COS-3 AND STJ3
 554 HC 3
 *
 555 KK AA
 556 BA 0.0158
 557 PB 3.44
 558 LS 0 88.4
 559 UD 0.088
 *
 560 KK DUMMY3
 561 KM COMBINE CSTJ3 AND AA
 562 HC 2
 *
 563 KK STE2
 564 BA 0.0028
 565 PB 3.40
 566 LS 0 98.0
 567 UD 0.050
 *

1

HEC-1 INPUT

PAGE 17

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

568 KK BB
 569 BA 0.0098
 570 PB 3.42
 571 LS 0 91.1
 572 UD 0.074
 *
 573 KK CBB
 574 HC 2
 *
 575 KK T
 576 BA 0.0063
 577 PB 3.42
 578 LS 0 86.3
 579 UD 0.069
 *
 580 KK CT
 581 HC 2
 *
 582 KK CC
 583 BA 0.0083
 584 PB 3.42
 585 LS 0 90.7
 586 UD 0.079
 *
 587 KK CCC
 588 HC 2
 *
 589 KK RCCC
 590 KM ROUTE CCC TO CDD
 591 RD 570 0.005 0.015 0 CIRC 3
 *
 592 KK DD
 593 BA 0.0074
 594 PB 3.40
 595 LS 0 90.5
 596 UD 0.075
 *
 597 KK CDD
 598 HC 2
 *

1

HEC-1 INPUT

PAGE 18

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

599 KK RCDD
 600 KM ROUTE CCDD TO CDESS
 601 RD 390 0.005 0.015 0 CIRC 3.5
 *
 602 KK DESS
 603 BA 0.0025

604	PB	3.40							
605	LS	0	98.0						
606	UD	0.053							
	*								
607	KK	CDES5							
608	HC	2							
	*								
609	KK	RCDES5							
610	KM	ROUTE CDES5 TO CGG							
611	RD	280 0.005 0.015 0 CIRC 3.5							
	*								
612	KK	STEE2							
613	BA	0.0028							
614	PB	3.41							
615	LS	0	98.0						
616	UD	0.050							
	*								
617	KK	CSTEE2							
618	HC	2							
	*								
619	KK	GG							
620	BA	0.0078							
621	PB	3.41							
622	LS	0	94.2						
623	UD	0.055							
	*								
624	KK	CGG							
625	HC	2							
	*								
626	KK	FF							
627	BA	0.0055							
628	PB	3.41							
629	LS	0	94.2						
630	UD	0.050							
	*								

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HEC-1 INPUT

PAGE 19

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

631	KK	DUMMY4
632	KM	COMBINE DUMMY3, FF, AND CGG
633	HC	3
	*	
634	ZZ	

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE	(V) ROUTING	(--->) DIVERSION OR PUMP FLOW
NO.	(.) CONNECTOR	(<---) RETURN OF DIVERTED OR PUMPED FLOW
22	LM	
	.	
	.	
35	.	D
	.	
	.	
40	.	DES1
	.	
	.	
45	.	CDES1.....
	.	V
	.	V
48	.	RCDES1
	.	
	.	
51	.	COS-2
	.	
	.	
56	.	CCOS-2.....
	.	V
	.	V
59	.	RCCOS-2
	.	
	.	
62	.	A
	.	
	.	
67	.	CA.....
	.	V
	.	V
70	.	RCA
	.	

73		CP1.....							
	.								
76		STI							
	.								
	.								
82	.			C					
	.								
	.								
87		CSTI.....							
	.								
	.								
90				G					
	.								
	.								
95		CG.....							
	.	V							
	.	V							
98		RCG							
	.								
	.								
101				H					
	.								
	.								
106		CH.....							
	.	V							
	.	V							
109		RCH							
	.								
	.								
112				STH					
	.								
	.								
118					J				
	.								
	.								
	.								
123				CJ.....					
	.			V					
	.			V					
126				RCJ					
	.								
	.								
129					K				
	.								
	.								
134						DES2			
	.								
	.								
	.								
139				CDES2.....					
	.			V					
	.			V					
142				RCDES2					
	.								
	.								
145		CP2.....							
	.	V							
	.	V							
148		RCP2							
	.								
	.								
151				CARR1					
	.								
	.								
156					I				
	.								
	.								
161						N-O-P			
	.								
	.								
166							NP-1		
	.								
	.								
171								STG2	
	.								
	.								
177						CSTG2.....			
	.								
	.								
180							DES3		
	.								
	.								
185						CP3.....			
	.					V			
	.					V			
188						RCP3			
	.								

196	.	.	.	.	CSTG3.....			
	.	.	.	.	.			
199	.	.	.	.	.	Q		
	.	.	.	.	.	.		
204	.	.	.	.	.	.	R	
	.	.	.	.	.	.	.	
209	.	.	.	.	.	CQR.....		
	.	.	.	.	.	.		
212	.	.	.	.	.	.	CARR2	
	.	.	.	.	.	.	.	
217	.	.	.	.	.	CCARR2.....		
	.	.	.	.	.	V		
	.	.	.	.	.	V		
220	.	.	.	.	.	RCCARR2		
	.	.	.	.	.	.		
223	.	.	.	.	.	CP4.....		
	.	.	.	.	.	V		
	.	.	.	.	.	V		
226	.	.	.	.	.	RCP4		
	.	.	.	.	.	.		
229	.	.	.	.	.	.		
	.	.	.	.	.	CP5.....		
	.	.	.	.	.	.		
232	.	.	.	.	.	II		
	.	.	.	.	.	.		
237	.	.	.	.	.	X		
	.	.	.	.	.	.		
242	.	.	.	.	.	B		
	.	.	.	.	.	.		
247	.	.	.	.	.	.	DC-1	
	.	.	.	.	.	.	.	
252	.	.	.	.	.	.	.	COS-4
	.	.	.	.	.	.	.	.
257	.	.	.	.	.	.	.	.
	.	.	.	.	.	DUMMY1A.....		
	.	.	.	.	.	.		
261	.	.	.	.	.	.	COS-1	
	.	.	.	.	.	.	.	
266	.	.	.	.	.	DUMMY1.....		
	.	.	.	.	.	.		
270	.	.	.	.	.	27-F		
	.	.	.	.	.	.		
275	.	.	.	.	.	27-COS2		
	.	.	.	.	.	.		
280	.	.	.	.	.	.	LM2	
	.	.	.	.	.	.	.	
285	.	.	.	.	.	CLM2.....		
	.	.	.	.	.	.		
288	.	.	.	.	.	27-COS3		
	.	.	.	.	.	.		
293	.	.	.	.	.	COFF.....		
	.	.	.	.	.	V		
	.	.	.	.	.	V		
297	.	.	.	.	.	RCOFF		
	.	.	.	.	.	.		
300	.	.	.	.	.	.	E	
	.	.	.	.	.	.	.	
305	.	.	.	.	.	.	STJ1	
	.	.	.	.	.	.	.	
311	.	.	.	.	.	CSTJ1.....		
	.	.	.	.	.	V		
	.	.	.	.	.	V		
314	.	.	.	.	.	RCSTJ1		
	.	.	.	.	.	.		
317	.	.	.	.	.	.	NP-2	
	.	.	.	.	.	.	.	
322	.	.	.	.	.	CNP-2.....		

	.	V	
	.	V	
325	.	RCNP-2	
	.	.	
	.	.	
328	.	.	F
	.	.	
	.	.	
333	.	CF.....	
	.	V	
	.	V	
336	.	RCF	
	.	.	
	.	.	
339	.	.	25-HS1
	.	.	
	.	.	
344	.	.	STN1
	.	.	
	.	.	
350	.	CSTN1.....	
	.	V	
	.	V	
353	.	RCSTN1	
	.	.	
	.	.	
356	.	.	STG1
	.	.	
	.	.	
361	.	CSTG1.....	
	.	.	
	.	.	
364	.	CP6.....	
	.	V	
	.	V	
367	.	RCP6	
	.	.	
	.	.	
370	.	.	L-M
	.	.	
	.	.	
375	.	.	STJ2
	.	.	
	.	.	
380	.	CSTJ2.....	
	.	V	
	.	V	
383	.	RCSTJ2	
	.	.	
	.	.	
386	.	.	STF
	.	.	
	.	.	
391	.	CSTF.....	
	.	.	
	.	.	
394	.	.	U
	.	.	
	.	.	
399	.	.	DES4
	.	.	
	.	.	
404	.	CDES4.....	
	.	.	
	.	.	
407	.	.	S
	.	.	
	.	.	
412	.	CS.....	
	.	.	
	.	.	
415	.	CP7.....	
	.	V	
	.	V	
418	.	RCP7	
	.	.	
	.	.	
421	.	.	STF2
	.	.	
	.	.	
426	.	CSTF2.....	
	.	V	
	.	V	
429	.	RCSTF2	
	.	.	
	.	.	
432	.	.	V
	.	.	
	.	.	
437	.	.	W
	.	.	

442	.	.	.	CVW.....
	.	.	.	
445	.	.	.	CARR3
	.	.	.	V
	.	.	.	V
450	.	.	.	RCARR3
	.	.	.	
	.	.	.	
453	.	CCARR3.....	.	
	.	.	.	
	.	.	.	
456	.	.	STE3	
	.	.	.	
	.	.	.	
461	.	CP8.....	.	
	.	V	.	
	.	V	.	
464	.	RCP8	.	
	.	.	.	
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467	.	.	EE	
	.	.	.	
	.	.	.	
472	.	CEE.....	.	
	.	V	.	
	.	V	.	
475	.	RCP8	.	
	.	.	.	
	.	.	.	
478	.	.	NP-3	
	.	.	.	
	.	.	.	
483	.	.	.	STEE3
	.	.	.	
	.	.	.	
488	.	.	CSTEE3.....	
	.	.	.	
	.	.	.	
491	.	CP9.....	.	
	.	V	.	
	.	V	.	
494	.	RCP9	.	
	.	.	.	
	.	.	.	
497	.	.	HH	
	.	.	.	
	.	.	.	
502	.	.	.	CARR4
	.	.	.	
	.	.	.	
507	.	DUMMY2.....	.	
	.	.	.	
	.	.	.	
510	.	.	25-HS1B	
	.	.	.	
	.	.	.	
515	.	.	.	STN2
	.	.	.	
	.	.	.	
520	.	.	CSTN2.....	
	.	.	V	
	.	.	V	
523	.	.	RCSTN2	
	.	.	.	
	.	.	.	
526	.	.	.	Y-Z
	.	.	.	
	.	.	.	
531	.	.	.	STE1
	.	.	.	
	.	.	.	
536	.	.	CSTE1.....	
	.	.	V	
	.	.	V	
539	.	.	RCSTE1	
	.	.	.	
	.	.	.	
542	.	.	.	COS-3
	.	.	.	
	.	.	.	
547	.	.	.	STJ3
	.	.	.	
	.	.	.	
552	.	.	CSTJ3.....	
	.	.	.	
	.	.	.	
555	.	.	.	AA
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560      .      .      DUMMY3.....
      .      .      .
563      .      .      .      STE2
      .      .      .      .
568      .      .      .      .      BB
      .      .      .      .      .
573      .      .      .      CBB.....
      .      .      .      .
575      .      .      .      .      T
      .      .      .      .      .
580      .      .      .      CT.....
      .      .      .      .
582      .      .      .      .      CC
      .      .      .      .      .
587      .      .      .      CCC.....
      .      .      .      V
      .      .      .      V
589      .      .      .      RCCC
      .      .      .      .
592      .      .      .      .      DD
      .      .      .      .      .
597      .      .      .      CDD.....
      .      .      .      V
      .      .      .      V
599      .      .      .      RCDD
      .      .      .      .
602      .      .      .      .      DESS
      .      .      .      .      .
607      .      .      .      CDESS.....
      .      .      .      V
      .      .      .      V
609      .      .      .      RCDESS
      .      .      .      .
612      .      .      .      .      STEE2
      .      .      .      .      .
617      .      .      .      CSTEE2.....
      .      .      .      .
619      .      .      .      .      GG
      .      .      .      .      .
624      .      .      .      CGG.....
      .      .      .      .
626      .      .      .      .      FF
      .      .      .      .      .
631      .      .      DUMMY4.....

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(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* JUN 1998 *
* VERSION 4.1 *
* RUN DATE 23OCT19 TIME 13:10:22 *
*
*****

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

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ULTIMATE CONDITION HYDROLOGIC MODEL
 INPUT FILE DATE = OCTOBER 2019
 DESIGN STORM = 100-YEAR 6-HR STORM
 STORM DISTRIBUTION = SDN #3
 MODELED BY VTN (JYA)

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*****
* UPDATE #2 - SUMMERLIN WEST VILLAGE 22 *
*****

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

100-YEAR, 6-HOUR STORM, SDN3

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 100 NUMBER OF HYDROGRAPH ORDINATES
 NDDATE 1 0 ENDING DATE
 NDTIME 0815 ENDING TIME
 ICENT 19 CENTURY MARK

 COMPUTATION INTERVAL .08 HOURS
 TOTAL TIME BASE 8.25 HOURS

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

JP MULTI-PLAN OPTION
 NPLAN 1 NUMBER OF PLANS

JR MULTI-RATIO OPTION
 RATIOS OF PRECIPITATION
 1.00

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	
				1.00	
HYDROGRAPH AT					
+	LM	.02	1	FLOW	36.
				TIME	3.50
HYDROGRAPH AT					
+	D	.02	1	FLOW	50.
				TIME	3.50
HYDROGRAPH AT					
+	DES1	.01	1	FLOW	20.
				TIME	3.50
2 COMBINED AT					
+	CDES1	.03	1	FLOW	70.
				TIME	3.50
ROUTED TO					
+	RCDES1	.03	1	FLOW	69.
				TIME	3.50
HYDROGRAPH AT					
+	COS-2	.01	1	FLOW	22.
				TIME	3.58
2 COMBINED AT					
+	CCOS-2	.04	1	FLOW	89.
				TIME	3.50
ROUTED TO					
+	RCCOS-2	.04	1	FLOW	87.
				TIME	3.50
HYDROGRAPH AT					
+	A	.03	1	FLOW	68.
				TIME	3.50
2 COMBINED AT					
+	CA	.06	1	FLOW	156.
				TIME	3.50
ROUTED TO					
+	RCA	.06	1	FLOW	155.
				TIME	3.50

2 COMBINED AT					
+	CP1	.08	1	FLOW TIME	191. 3.50
HYDROGRAPH AT					
+	STI	.00	1	FLOW TIME	11. 3.50
HYDROGRAPH AT					
+	C	.02	1	FLOW TIME	51. 3.50
2 COMBINED AT					
+	CSTI	.02	1	FLOW TIME	62. 3.50
HYDROGRAPH AT					
+	G	.01	1	FLOW TIME	30. 3.50
2 COMBINED AT					
+	CG	.03	1	FLOW TIME	92. 3.50
ROUTED TO					
+	RCG	.03	1	FLOW TIME	91. 3.50
HYDROGRAPH AT					
+	H	.01	1	FLOW TIME	33. 3.50
2 COMBINED AT					
+	CH	.05	1	FLOW TIME	124. 3.50
ROUTED TO					
+	RCH	.05	1	FLOW TIME	123. 3.50
HYDROGRAPH AT					
+	STH	.00	1	FLOW TIME	10. 3.50
HYDROGRAPH AT					
+	J	.01	1	FLOW TIME	24. 3.50
2 COMBINED AT					
+	CJ	.01	1	FLOW TIME	34. 3.50
ROUTED TO					
+	RCJ	.01	1	FLOW TIME	33. 3.50
HYDROGRAPH AT					
+	K	.01	1	FLOW TIME	22. 3.50
HYDROGRAPH AT					
+	DES2	.00	1	FLOW TIME	13. 3.50
3 COMBINED AT					
+	CDES2	.03	1	FLOW TIME	68. 3.50
ROUTED TO					
+	RCDES2	.03	1	FLOW TIME	66. 3.50
2 COMBINED AT					
+	CP2	.07	1	FLOW TIME	189. 3.50
ROUTED TO					
+	RCP2	.07	1	FLOW TIME	184. 3.50
HYDROGRAPH AT					
+	CARR1	.01	1	FLOW TIME	29. 3.50
HYDROGRAPH AT					
+	I	.02	1	FLOW TIME	38. 3.50
HYDROGRAPH AT					
+	N-O-P	.02	1	FLOW TIME	49. 3.50

HYDROGRAPH AT +	NP-1	.00	1	FLOW TIME	6. 3.50
HYDROGRAPH AT +	STG2	.00	1	FLOW TIME	13. 3.50
3 COMBINED AT +	CSTG2	.03	1	FLOW TIME	68. 3.50
HYDROGRAPH AT +	DES3	.00	1	FLOW TIME	9. 3.50
2 COMBINED AT +	CP3	.03	1	FLOW TIME	77. 3.50
ROUTED TO +	RCP3	.03	1	FLOW TIME	76. 3.50
HYDROGRAPH AT +	STG3	.00	1	FLOW TIME	3. 3.50
2 COMBINED AT +	CSTG3	.03	1	FLOW TIME	79. 3.50
HYDROGRAPH AT +	Q	.01	1	FLOW TIME	17. 3.50
HYDROGRAPH AT +	R	.01	1	FLOW TIME	20. 3.50
2 COMBINED AT +	CQR	.01	1	FLOW TIME	37. 3.50
HYDROGRAPH AT +	CARR2	.01	1	FLOW TIME	15. 3.50
2 COMBINED AT +	CCARR2	.02	1	FLOW TIME	52. 3.50
ROUTED TO +	RCCARR2	.02	1	FLOW TIME	51. 3.50
2 COMBINED AT +	CP4	.05	1	FLOW TIME	131. 3.50
ROUTED TO +	RCP4	.05	1	FLOW TIME	127. 3.50
4 COMBINED AT +	CP5	.15	1	FLOW TIME	379. 3.50
HYDROGRAPH AT +	II	.03	1	FLOW TIME	61. 3.50
HYDROGRAPH AT +	X	.03	1	FLOW TIME	60. 3.50
HYDROGRAPH AT +	B	.13	1	FLOW TIME	304. 3.50
HYDROGRAPH AT +	DC-1	.02	1	FLOW TIME	36. 3.67
HYDROGRAPH AT +	COS-4	.00	1	FLOW TIME	2. 3.50
5 COMBINED AT +	DUMMY1A	.20	1	FLOW	454.

				TIME	3.50
HYDROGRAPH AT					
+	COS-1	.00	1	FLOW	6.
				TIME	3.58
4 COMBINED AT					
+	DUMMY1	.44	1	FLOW	1030.
				TIME	3.50
HYDROGRAPH AT					
+	27-F	.03	1	FLOW	83.
				TIME	3.50
HYDROGRAPH AT					
+	27-COS2	.01	1	FLOW	20.
				TIME	3.50
HYDROGRAPH AT					
+	LM2	.01	1	FLOW	28.
				TIME	3.50
3 COMBINED AT					
+	CLM2	.05	1	FLOW	132.
				TIME	3.50
HYDROGRAPH AT					
+	27-COS3	.03	1	FLOW	53.
				TIME	3.50
2 COMBINED AT					
+	COFF	.08	1	FLOW	185.
				TIME	3.50
ROUTED TO					
+	RCOFF	.08	1	FLOW	182.
				TIME	3.50
HYDROGRAPH AT					
+	E	.02	1	FLOW	58.
				TIME	3.50
HYDROGRAPH AT					
+	STJ1	.01	1	FLOW	15.
				TIME	3.50
3 COMBINED AT					
+	CSTJ1	.10	1	FLOW	255.
				TIME	3.50
ROUTED TO					
+	RCSTJ1	.10	1	FLOW	250.
				TIME	3.50
HYDROGRAPH AT					
+	NP-2	.00	1	FLOW	5.
				TIME	3.50
2 COMBINED AT					
+	CNP-2	.11	1	FLOW	255.
				TIME	3.50
ROUTED TO					
+	RCNP-2	.11	1	FLOW	250.
				TIME	3.50
HYDROGRAPH AT					
+	F	.02	1	FLOW	59.
				TIME	3.50
2 COMBINED AT					
+	CF	.13	1	FLOW	309.
				TIME	3.50
ROUTED TO					
+	RCF	.13	1	FLOW	303.
				TIME	3.50
HYDROGRAPH AT					
+	25-HS1	.08	1	FLOW	211.
				TIME	3.50
HYDROGRAPH AT					
+	STN1	.01	1	FLOW	13.
				TIME	3.58
2 COMBINED AT					
+	CSTN1	.08	1	FLOW	224.
				TIME	3.50
ROUTED TO					

+	RCSTN1	.08	1	FLOW TIME	220. 3.50
HYDROGRAPH AT +	STG1	.00	1	FLOW TIME	8. 3.50
2 COMBINED AT +	CSTG1	.09	1	FLOW TIME	229. 3.50
2 COMBINED AT +	CP6	.21	1	FLOW TIME	532. 3.50
ROUTED TO +	RCP6	.21	1	FLOW TIME	518. 3.50
HYDROGRAPH AT +	L-M	.03	1	FLOW TIME	81. 3.50
HYDROGRAPH AT +	STJ2	.00	1	FLOW TIME	13. 3.50
3 COMBINED AT +	CSTJ2	.25	1	FLOW TIME	612. 3.50
ROUTED TO +	RCSTJ2	.25	1	FLOW TIME	602. 3.50
HYDROGRAPH AT +	STF	.00	1	FLOW TIME	8. 3.50
2 COMBINED AT +	CSTF	.25	1	FLOW TIME	610. 3.50
HYDROGRAPH AT +	U	.01	1	FLOW TIME	11. 3.50
HYDROGRAPH AT +	DES4	.00	1	FLOW TIME	8. 3.50
2 COMBINED AT +	CDES4	.01	1	FLOW TIME	19. 3.50
HYDROGRAPH AT +	S	.00	1	FLOW TIME	10. 3.50
2 COMBINED AT +	CS	.01	1	FLOW TIME	29. 3.50
2 COMBINED AT +	CP7	.27	1	FLOW TIME	639. 3.50
ROUTED TO +	RCP7	.27	1	FLOW TIME	632. 3.50
HYDROGRAPH AT +	STF2	.00	1	FLOW TIME	5. 3.50
2 COMBINED AT +	CSTF2	.27	1	FLOW TIME	637. 3.50
ROUTED TO +	RCSTF2	.27	1	FLOW TIME	623. 3.50
HYDROGRAPH AT +	V	.01	1	FLOW TIME	17. 3.50
HYDROGRAPH AT +	W	.01	1	FLOW TIME	19. 3.50

2 COMBINED AT					
+	CVW	.02	1	FLOW TIME	36. 3.50
HYDROGRAPH AT					
+	CARR3	.00	1	FLOW TIME	8. 3.50
ROUTED TO					
+	RCARR3	.00	1	FLOW TIME	8. 3.50
3 COMBINED AT					
+	CCARR3	.29	1	FLOW TIME	667. 3.50
HYDROGRAPH AT					
+	STE3	.00	1	FLOW TIME	6. 3.50
2 COMBINED AT					
+	CP8	.29	1	FLOW TIME	673. 3.50
ROUTED TO					
+	RCP8	.29	1	FLOW TIME	664. 3.50
HYDROGRAPH AT					
+	EE	.01	1	FLOW TIME	25. 3.50
2 COMBINED AT					
+	CEE	.30	1	FLOW TIME	689. 3.50
ROUTED TO					
+	RCP8	.30	1	FLOW TIME	680. 3.50
HYDROGRAPH AT					
+	NP-3	.00	1	FLOW TIME	2. 3.50
HYDROGRAPH AT					
+	STEE3	.00	1	FLOW TIME	5. 3.50
2 COMBINED AT					
+	CSTEE3	.00	1	FLOW TIME	7. 3.50
2 COMBINED AT					
+	CP9	.30	1	FLOW TIME	688. 3.50
ROUTED TO					
+	RCP9	.30	1	FLOW TIME	678. 3.50
HYDROGRAPH AT					
+	HH	.01	1	FLOW TIME	20. 3.50
HYDROGRAPH AT					
+	CARR4	.00	1	FLOW TIME	10. 3.50
3 COMBINED AT					
+	DUMMY2	.32	1	FLOW TIME	708. 3.50
HYDROGRAPH AT					
+	25-HS1B	.02	1	FLOW TIME	48. 3.50
HYDROGRAPH AT					
+	STN2	.01	1	FLOW TIME	19. 3.50
2 COMBINED AT					
+	CSTN2	.03	1	FLOW TIME	67. 3.50
ROUTED TO					
+	RCSTN2	.03	1	FLOW TIME	65. 3.50
HYDROGRAPH AT					
+	Y-Z	.02	1	FLOW TIME	42. 3.50

HYDROGRAPH AT +	STE1	.00	1	FLOW TIME	8. 3.50
3 COMBINED AT +	CSTE1	.05	1	FLOW TIME	115. 3.50
ROUTED TO +	RCSTE1	.05	1	FLOW TIME	107. 3.50
HYDROGRAPH AT +	COS-3	.00	1	FLOW TIME	4. 3.50
HYDROGRAPH AT +	STJ3	.00	1	FLOW TIME	14. 3.50
3 COMBINED AT +	CSTJ3	.05	1	FLOW TIME	126. 3.50
HYDROGRAPH AT +	AA	.02	1	FLOW TIME	33. 3.50
2 COMBINED AT +	DUMMY3	.07	1	FLOW TIME	159. 3.50
HYDROGRAPH AT +	STE2	.00	1	FLOW TIME	8. 3.50
HYDROGRAPH AT +	BB	.01	1	FLOW TIME	23. 3.50
2 COMBINED AT +	CBB	.01	1	FLOW TIME	31. 3.50
HYDROGRAPH AT +	T	.01	1	FLOW TIME	13. 3.50
2 COMBINED AT +	CT	.02	1	FLOW TIME	44. 3.50
HYDROGRAPH AT +	CC	.01	1	FLOW TIME	19. 3.50
2 COMBINED AT +	CCC	.03	1	FLOW TIME	63. 3.50
ROUTED TO +	RCCC	.03	1	FLOW TIME	60. 3.50
HYDROGRAPH AT +	DD	.01	1	FLOW TIME	17. 3.50
2 COMBINED AT +	CDD	.03	1	FLOW TIME	77. 3.50
ROUTED TO +	RCDD	.03	1	FLOW TIME	74. 3.50
HYDROGRAPH AT +	DESS	.00	1	FLOW TIME	7. 3.50
2 COMBINED AT +	CDESS	.04	1	FLOW TIME	81. 3.50
ROUTED TO +	RCDESS	.04	1	FLOW TIME	80. 3.50
HYDROGRAPH AT +	STEE2	.00	1	FLOW	8.

				TIME	3.50
2 COMBINED AT					
+	CSTEE2	.04	1	FLOW TIME	88.3.50
HYDROGRAPH AT					
+	GG	.01	1	FLOW TIME	21.3.50
2 COMBINED AT					
+	CGG	.05	1	FLOW TIME	109.3.50
HYDROGRAPH AT					
+	FF	.01	1	FLOW TIME	15.3.50
3 COMBINED AT					
+	DUMMY4	.12	1	FLOW TIME	282.3.50

1

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	DT	INTERPOLATED TO COMPUTATION PEAK	INTERVAL TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR PLAN = 1	RATIO=	.00							
RCDES1	MANE	.22	69.31	210.22	2.92	5.00	69.07	210.00	2.92
CONTINUITY SUMMARY (AC-FT) - INFLOW= .4002E+01 EXCESS= .0000E+00 OUTFLOW= .4002E+01 BASIN STORAGE= .1969E-04 PERCENT ERROR= .0									
FOR PLAN = 1	RATIO=	.00							
RCCOS-2	MANE	.47	87.71	210.20	2.72	5.00	87.19	210.00	2.72
CONTINUITY SUMMARY (AC-FT) - INFLOW= .5425E+01 EXCESS= .0000E+00 OUTFLOW= .5424E+01 BASIN STORAGE= .4464E-04 PERCENT ERROR= .0									
FOR PLAN = 1	RATIO=	.00							
RCA	MANE	.19	155.37	210.19	2.77	5.00	154.65	210.00	2.78
CONTINUITY SUMMARY (AC-FT) - INFLOW= .9561E+01 EXCESS= .0000E+00 OUTFLOW= .9561E+01 BASIN STORAGE= .1942E-04 PERCENT ERROR= .0									
FOR PLAN = 1	RATIO=	.00							
RCG	MANE	.29	91.58	210.20	2.89	5.00	91.06	210.00	2.89
CONTINUITY SUMMARY (AC-FT) - INFLOW= .5175E+01 EXCESS= .0000E+00 OUTFLOW= .5175E+01 BASIN STORAGE= .2873E-04 PERCENT ERROR= .0									
FOR PLAN = 1	RATIO=	.00							
RCH	MANE	.12	123.23	210.04	2.88	5.00	123.08	210.00	2.88
CONTINUITY SUMMARY (AC-FT) - INFLOW= .6989E+01 EXCESS= .0000E+00 OUTFLOW= .6989E+01 BASIN STORAGE= .1204E-04 PERCENT ERROR= .0									
FOR PLAN = 1	RATIO=	.00							
RCJ	MANE	.43	33.61	210.51	2.73	5.00	33.37	210.00	2.73
CONTINUITY SUMMARY (AC-FT) - INFLOW= .1875E+01 EXCESS= .0000E+00 OUTFLOW= .1875E+01 BASIN STORAGE= .3567E-04 PERCENT ERROR= .0									
FOR PLAN = 1	RATIO=	.00							
RCDES2	MANE	.73	67.25	210.43	2.84	5.00	66.40	210.00	2.85
CONTINUITY SUMMARY (AC-FT) - INFLOW= .3910E+01 EXCESS= .0000E+00 OUTFLOW= .3910E+01 BASIN STORAGE= .7532E-04 PERCENT ERROR= .0									
FOR PLAN = 1	RATIO=	.00							
RCP2	MANE	.73	186.67	210.84	2.87	5.00	184.26	210.00	2.87
CONTINUITY SUMMARY (AC-FT) - INFLOW= .1091E+02 EXCESS= .0000E+00 OUTFLOW= .1091E+02 BASIN STORAGE= .8878E-04 PERCENT ERROR= .0									
FOR PLAN = 1	RATIO=	.00							
RCP3	MANE	.29	76.78	210.29	2.55	5.00	76.14	210.00	2.55

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4490E+01 EXCESS= .0000E+00 OUTFLOW= .4490E+01 BASIN STORAGE= .2690E-04 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCCARR2 MANE .37 51.68 210.13 2.74 5.00 51.44 210.00 2.74

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3006E+01 EXCESS= .0000E+00 OUTFLOW= .3006E+01 BASIN STORAGE= .3196E-04 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP4 MANE .66 129.07 210.69 2.64 5.00 127.48 210.00 2.64

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7688E+01 EXCESS= .0000E+00 OUTFLOW= .7688E+01 BASIN STORAGE= .6725E-04 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCOFF MANE .38 183.88 210.27 2.65 5.00 182.24 210.00 2.65

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1084E+02 EXCESS= .0000E+00 OUTFLOW= .1084E+02 BASIN STORAGE= .4273E-04 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCSTJ1 MANE .48 250.37 210.43 2.73 5.00 250.31 210.00 2.73

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1511E+02 EXCESS= .0000E+00 OUTFLOW= .1511E+02 BASIN STORAGE= .5607E-04 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCNP-2 MANE .52 250.86 210.48 2.72 5.00 250.12 210.00 2.72

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1538E+02 EXCESS= .0000E+00 OUTFLOW= .1538E+02 BASIN STORAGE= .1047E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCF MANE .41 304.65 210.23 2.75 5.00 303.48 210.00 2.75

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1879E+02 EXCESS= .0000E+00 OUTFLOW= .1878E+02 BASIN STORAGE= .8389E-04 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCSTN1 MANE .41 221.54 210.18 2.88 5.00 220.20 210.00 2.89

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1275E+02 EXCESS= .0000E+00 OUTFLOW= .1275E+02 BASIN STORAGE= .5014E-04 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP6 MANE .59 520.09 210.36 2.81 5.00 517.62 210.00 2.81

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3204E+02 EXCESS= .0000E+00 OUTFLOW= .3203E+02 BASIN STORAGE= .1553E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCSTJ2 MANE .45 608.79 210.39 2.81 5.00 602.17 210.00 2.82

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3779E+02 EXCESS= .0000E+00 OUTFLOW= .3779E+02 BASIN STORAGE= .1206E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP7 MANE .32 635.65 210.19 2.80 5.00 631.67 210.00 2.80

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3994E+02 EXCESS= .0000E+00 OUTFLOW= .3994E+02 BASIN STORAGE= .8070E-04 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCSTF2 MANE .50 626.08 210.22 2.80 5.00 622.83 210.00 2.80

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4028E+02 EXCESS= .0000E+00 OUTFLOW= .4027E+02 BASIN STORAGE= .1270E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCARR3 MANE 1.27 7.90 211.47 3.14 5.00 7.63 210.00 3.14

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5521E+00 EXCESS= .0000E+00 OUTFLOW= .5521E+00 BASIN STORAGE= .1050E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP8 MANE .28 665.68 210.11 2.78 5.00 664.00 210.00 2.78

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4321E+02 EXCESS= .0000E+00 OUTFLOW= .4320E+02 BASIN STORAGE= .7574E-04 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP8 MANE .26 681.97 210.12 2.77 5.00 680.39 210.00 2.77

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4455E+02 EXCESS= .0000E+00 OUTFLOW= .4454E+02 BASIN STORAGE= .6454E-04 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCP9 MANE .33 679.63 210.08 2.77 5.00 677.90 210.00 2.77

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4497E+02 EXCESS= .0000E+00 OUTFLOW= .4496E+02 BASIN STORAGE= .8376E-04 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCSTN2 MANE .70 65.57 210.88 2.76 5.00 65.03 210.00 2.77

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3685E+01 EXCESS= .0000E+00 OUTFLOW= .3685E+01 BASIN STORAGE= .6612E-04 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCSTE1 MANE 1.78 110.49 211.63 2.72 5.00 107.44 210.00 2.72

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6575E+01 EXCESS= .0000E+00 OUTFLOW= .6571E+01 BASIN STORAGE= .3348E-03 PERCENT ERROR= .1

FOR PLAN = 1 RATIO= .00
RCCC MANE 1.13 61.16 210.84 2.44 5.00 59.99 210.00 2.44

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3534E+01 EXCESS= .0000E+00 OUTFLOW= .3533E+01 BASIN STORAGE= .1137E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCDD MANE .73 75.16 210.34 2.43 5.00 74.39 210.00 2.43

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4482E+01 EXCESS= .0000E+00 OUTFLOW= .4481E+01 BASIN STORAGE= .7532E-04 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCDESS MANE .52 80.22 210.45 2.48 5.00 79.73 210.00 2.48

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4905E+01 EXCESS= .0000E+00 OUTFLOW= .4903E+01 BASIN STORAGE= .5246E-04 PERCENT ERROR= .0

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

B.2 Scurry Bend Drive Rough Grade

CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		March 17, 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 V22 – Scurry Bend Drive Rough Grade (from Sunset Run <Street Q> to Fleet Wing <Street G>)	
Cross Streets:	Scurry Bend Drive & Fleet Wing Avenue	COPIES TO:
File Number:	F:\Depot\DSMemos\DS5253A.doc	Atkins
Parcel Number:	137-23-201-001	
Zoning Action:	N/A	
FEMA Flood Zone	YES	NO X
Proposed Storm Drain	YES	NO X

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	2/25/2020	3/17/2020	See Comments Below	\$400.00	3755825: \$400
TOTAL FEES (LDDRS):				\$400.00	----

REMARKS:

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

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

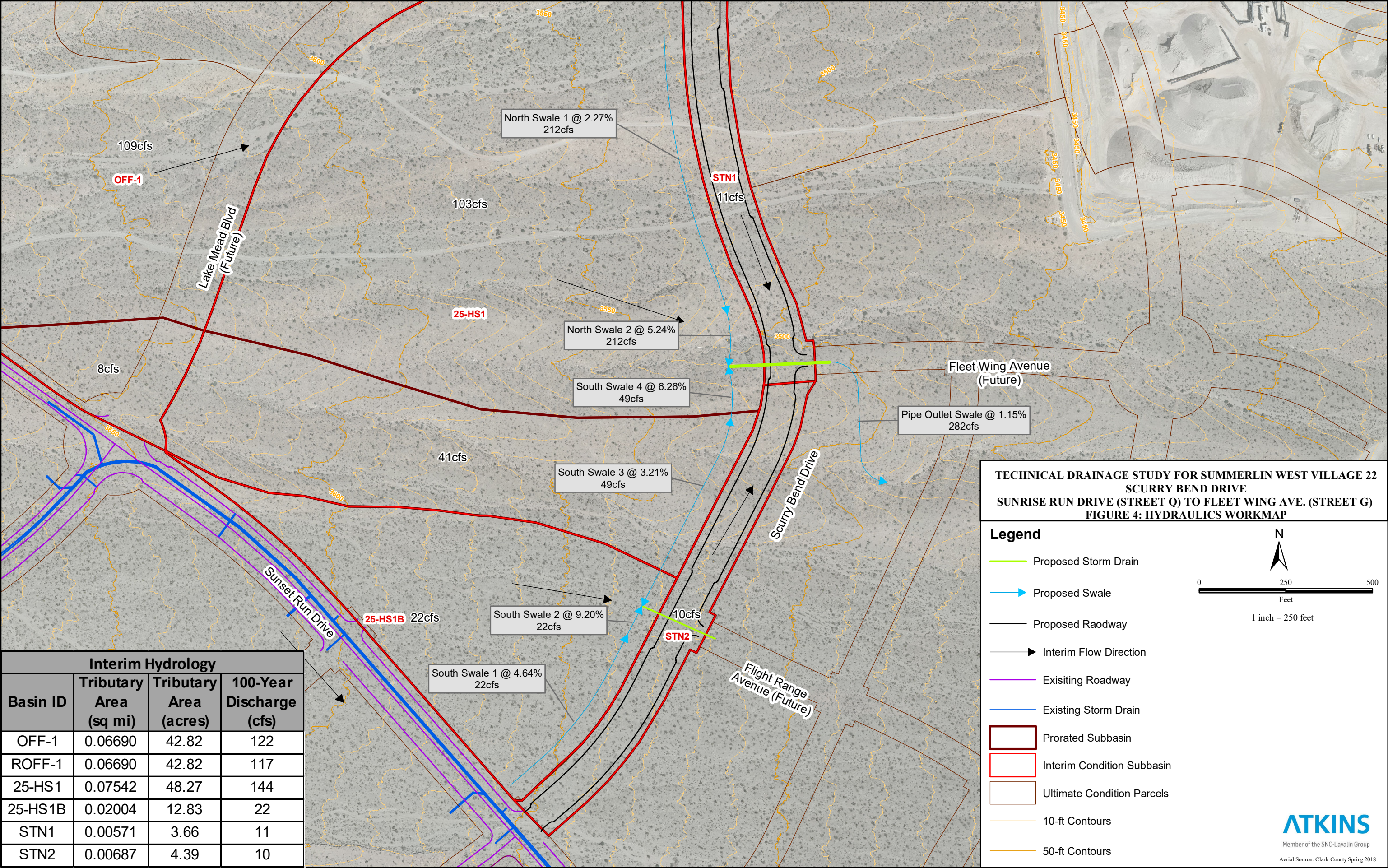
1. The approval of this drainage study is for the issuance of rough grading permit for future streets and temporary construction access only.
2. *Howard Hughes Company (Summerlin)* is solely responsible for the maintenance and erosion control of the interim facilities.

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.

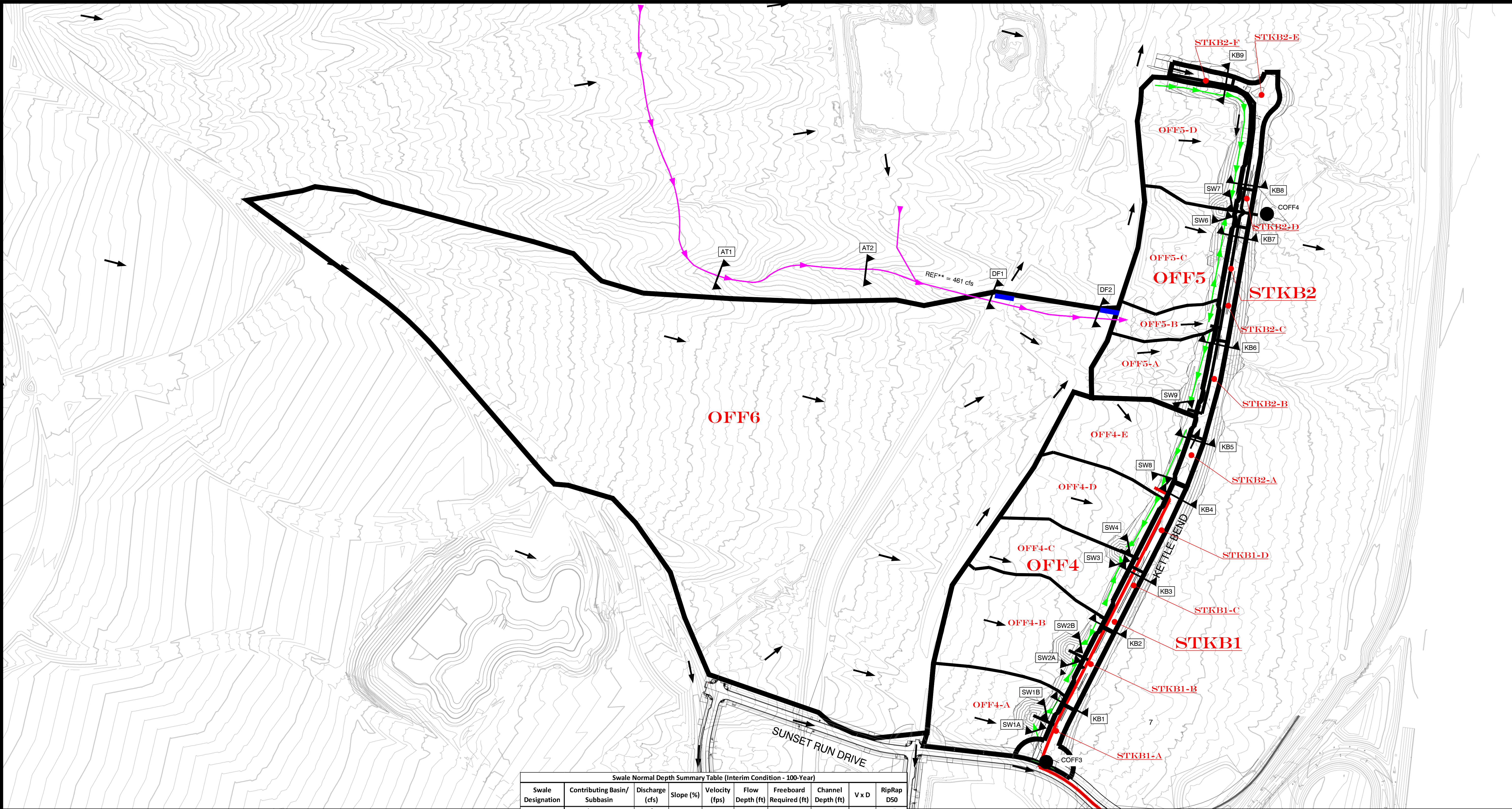
NOTE: Any future changes to the proposed design (or design assumptions) as outlined in the approved drainage study and attached preliminary grading plan which affect drainage must be addressed in a Drainage Study Update and accepted by the *City of Las Vegas Flood Control Section*. Additionally, conditional 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
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T/R/S: T20S/R59E/23
AREA K-23

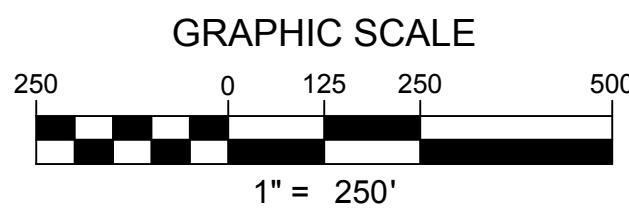
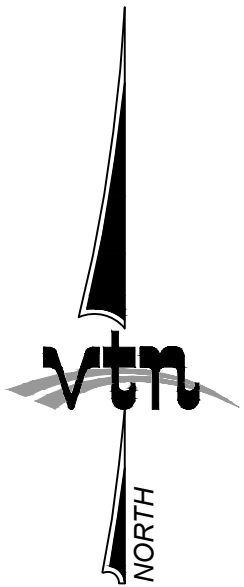


B.3 Kettle Bend Road Improvement Plans (by others)



LEGEND

- BASIN BOUNDARY
- BASIN DESIGNATION
- FLOW ARROW
- ATKINS INTERIM FLOWLINE
- LOCAL STORM DRAIN ALIGNMENT
- CCRFCD STORM DRAIN ALIGNMENT
- SUBBASIN BOUNDARY
- FLOW CONCENTRATION POINT
- INTERIM CHANNEL FLOWLINE
- PROPOSED BERM LOCATIONS



Swale Normal Depth Summary Table (Interim Condition - 100-Year)										
Swale Designation	Contributing Basin/ Subbasin	Discharge (cfs)	Slope (%)	Velocity (fps)	Flow Depth (ft)	Freeboard Required (ft)	Channel Depth (ft)	V x D	RipRap D50	
SW1A	1/2 OFF4-A	6	25.87%	5.76	0.19	1.08	1.27	1.09	12"	
SW1B	1/2 OFF4-A	6	20.17%	5.32	0.20	1.08	1.28	1.06	12"	
SW2A	1/2 OFF4-B	9	24.27%	6.51	0.24	1.10	1.34	1.56	12"	
SW2B	1/2 OFF4-B	9	22.67%	6.35	0.24	1.10	1.34	1.52	12"	
SW3	OFF4-C	11	23.04%	6.85	0.28	1.11	1.39	1.92	12"	
SW4	OFF4-D	12	22.54%	7.00	0.29	1.12	1.41	2.03	12"	
SW6	OFF5-C	18	25.14%	8.31	0.36	1.15	1.51	2.99	12"	
SW7	OFF5-D	23	21.85%	8.59	0.43	1.16	1.59	3.69	12"	
SW8	OFF4-E	12	20.74%	6.82	0.30	1.11	1.41	2.05	12"	
SW9	OFF5-A+B + REF**	480	1.00%	6.54	4.18	1.26	5.44	27.34	12"	
DF1	OFF3+REF**	694	0.90%	7.58	2.42	1.25	3.67	18.34	8"	
DF2	OFF3+REF**	694	2.40%	9.63	1.90	1.30	3.20	18.30	8"	
AT1	REF**	461	9.86%	18.28	1.78	Existing	1.78	32.54	N/A	
AT2	REF**	461	7.58%	17.96	1.95	Existing	1.95	35.02	N/A	

Street Section Normal Depth Summary Table (100-year)						
Cross Section Designation	Contributing Basin/ Subbasin	Discharge (cfs)	Slope (%)	Velocity (fps)	Flow Depth (ft)	V x D
KB1	STKB1-A	4	3.00%	3.33	0.31	1.03
KB2	STKB1-B	3	0.70%	1.74	0.35	0.61
KB3	STKB1-C	2	0.70%	1.62	0.31	0.50
KB4	STKB1-D	3	0.70%	1.74	0.35	0.61
KB5	STKB2-A	2	3.60%	3.50	0.25	0.88
KB6	STKB2-B	3	0.70%	1.74	0.35	0.61
KB7	STKB2-C	4	0.70%	1.83	0.37	0.68
KB8	STKB2-E	5	0.70%	1.93	0.39	0.75
KB9	STKB2-F	2	10.20%	5.47	0.24	1.31

INTERIM CONDITION 2 HEC-1 SUMMARY TABLE		
BASIN ID	AREA (ac)	Q100 (CFS)
OFF4	33.12	64
STKB1	3.58	13
OFF6	129.13	229
COFF3	-	291
REF**	-	461
OFF5	21.09	62
STBK2	5.02	18
COFF4	-	80
COFF4 + REF**	-	541

*Referenced from Kettle Ridge Drive Technical Drainage Study by Atkins

PRORATED ONSITE SUBBASIN SUMMARY			
INTERIM CONDITION			
BASIN	BASIN AREA		Q100
OFF4	33.12		64
STKB1	3.58		13
STKB2	5.02		18
SUBBASIN	SUB AREA	SUB AREA	Q100
STKB1-A	1.16	32.4%	4
STKB1-B	0.84	23.5%	3
STKB1-C	0.66	18.4%	2
STKB1-D	0.92	25.7%	3
TOTAL	3.58	100.0%	13
STKB2-A	0.49	9.8%	2
STKB2-B	0.95	18.9%	3
STKB2-C	1.13	22.5%	4
STKB2-D	0.37	7.4%	1
STKB2-E	1.48	29.5%	5
STKB2-F	0.60	12.0%	2
TOTAL	5.02	100.0%	18

PRORATED OFFSITE SUBBASIN SUMMARY			
INTERIM CONDITION 2			
BASIN	BASIN AREA		Q100
OFF4	33.12		64
OFF5	21.09		62
SUBBASIN	SUB AREA	SUB AREA	Q100
OFF4-A	6.21	18.4%	12
OFF4-B	9.16	27.2%	18
OFF4-C	5.49	16.3%	11
OFF4-D	6.05	17.9%	12
OFF4-E	6.21	18.4%	12
TOTAL	33.12	100.0%	65
OFF5-A	4.70	22.8%	13
OFF5-B	2.02	9.8%	6
OFF5-C	6.44	31.2%	18
OFF5-D	7.93	38.4%	23
TOTAL	21.09	100.0%	60

4/12/19
ACV

DESIGNED BY:
JDA

CHECKED BY:
JDA

PROJECT NO:
7881-5.2

SCALE:
1" = 250' HORIZ.
1" = 250' VERT.

INTERIM CONDITION 2 MAP
FIGURE 7B

INTERIM CONDITION 2 MAP
FIGURE 7B

INTERIM CONDITION 2 MAP
FIGURE 7B

####

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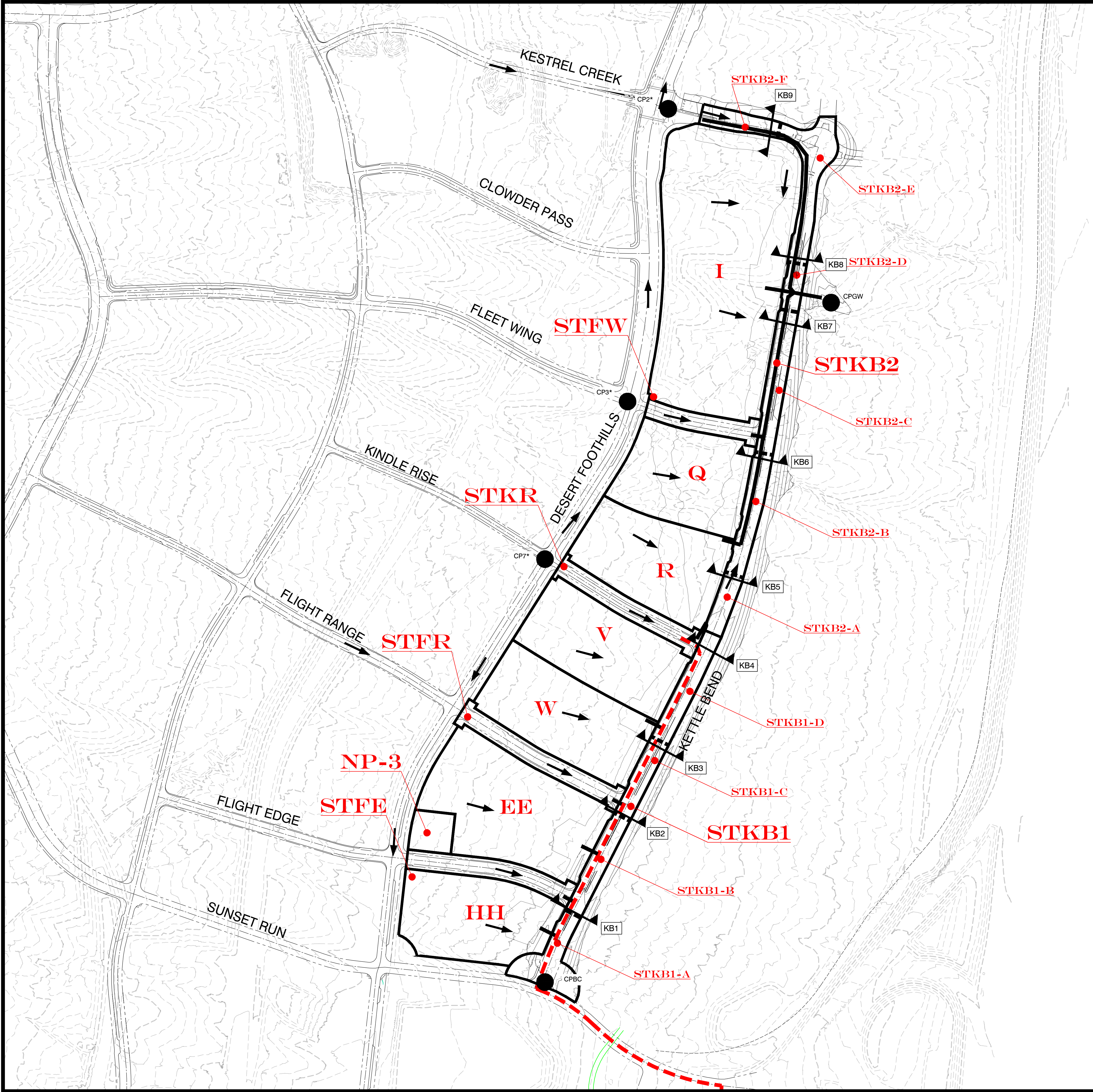
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SHEET
FIG 7
SHEETS

DRAWING NO.
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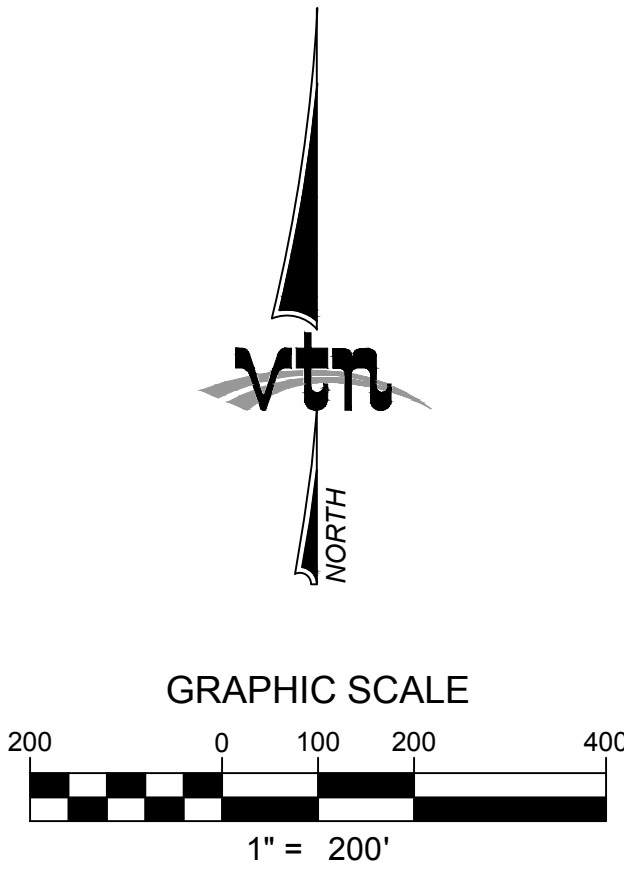


ULTIMATE CONDITION HEC-1 SUMMARY TABLE		
BASIN ID	AREA (ac)	Q100 (CFS)
CP7*	-	639
STKR	1.32	6
STKB1	3.58	13
V	5.01	16
W	5.28	16
STFR	1.50	7
EE	6.8	22
NP-3	0.7	2
STFE	1.36	6
CPFE	-	8
HH	4.85	19
CPBC	-	747
CP2*	-	190
CP3*	-	77
STKB2	5.02	18
I	13.44	50
STFW	0.9	4
Q	4.58	17
R	4.97	18
CPGW	-	374

*Referenced from V22 MCDS by VTN (DS#5005)

PRORATED ONSITE SUBBASIN SUMMARY ULTIMATE CONDITION			
BASIN	BASIN AREA	Q100	
STKB1	3.58	13	
STKB2	5.02	18	
SUBBASIN	SUB AREA	SUB AREA	Q100
STKB1-A	1.16	32.4%	4
STKB1-B	0.84	23.5%	3
STKB1-C	0.66	18.4%	2
STKB1-D	0.92	25.7%	3
TOTAL	3.58	100.0%	13
STKB2-A	0.49	9.8%	2
STKB2-B	0.95	18.9%	3
STKB2-C	1.13	22.5%	4
STKB2-D	0.37	7.4%	1
STKB2-E	1.48	29.5%	5
STKB2-F	0.60	12.0%	2
TOTAL	5.02	100.0%	18

Street Section Normal Depth Summary Table (100-year)						
Cross Section Designation	Contributing Basin/ Subbasin	Discharge (cfs)	Slope (%)	Velocity (fps)	Flow Depth (ft)	V x D
KB1	STKB1-A	4	3.00%	3.33	0.31	1.03
KB2	STKB1-B	3	0.70%	1.74	0.35	0.61
KB3	STKB1-C	2	0.70%	1.62	0.31	0.50
KB4	STKB1-D	3	0.70%	1.74	0.35	0.61
KB5	STKB2-A	2	3.60%	3.50	0.25	0.88
KB6	STKB2-B	3	0.70%	1.74	0.35	0.61
KB7	STKB2-C	4	0.70%	1.83	0.37	0.68
KB8	STKB2-E	5	0.70%	1.93	0.39	0.75
KB9	STKB2-F	2	10.20%	5.47	0.24	1.31



- LEGEND
- BASIN BOUNDARY
 - ST7 BASIN DESIGNATION
 - FLOW ARROW
 - LOCAL STORM DRAIN ALIGNMENT
 - - - CCRFCD STORM DRAIN ALIGNMENT
 - - - SUBBASIN BOUNDARY
 - FLOW CONCENTRATION POINT

####

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ULTIMATE CONDITION MAP
FIGURE 8

SUMMERLIN WEST VILLAGE 22
KETTLE BEND ROAD

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RBR

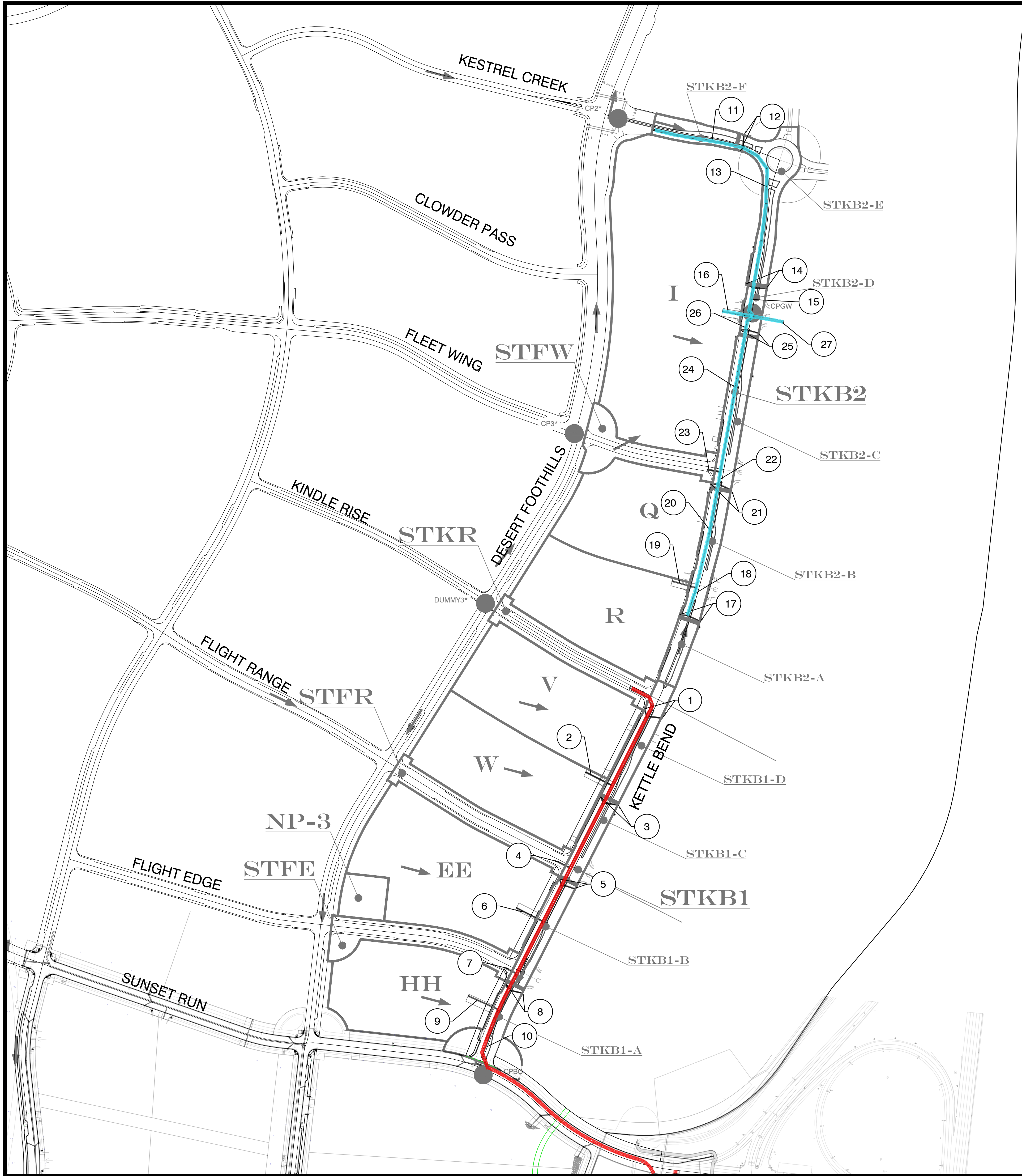
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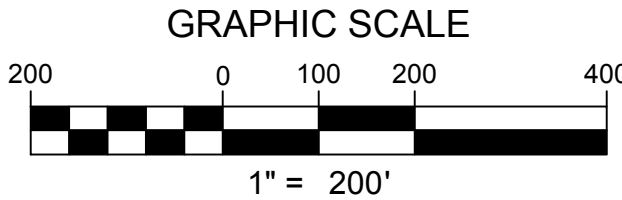
PROJECT NO: 7881-5.2
SCALE: 1" = 200' HORIZ.
1" = 200' VERT.

SHEET
FIG 8
SHEETS

DRAWING NO.
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LOCAL FLOOD PROTECTION FACILITIES				
System	Facility #	Q100 cfs	Tributary Basin/CP	Facility
Beltway Channel	1	3	STKB1-D	(2) DI W/ 24" RCP
	2	32	V+W	30" RCP
	3	2	STKB1-C	(2) DI W/ 24" RCP
	4	7	STFR	30" RCP
	5	3	STKB1-B	(2) DI W/ 24" RCP
	6	22	EE	30" RCP
	7	8	NP-3+STFE	30" RCP
	8	4	STKB1-A	(2) DI W/ 24" RCP
	9	19	HH	30" RCP
	10	747	CPBC	8'x8' RCB
Gowan Lone Mountain Beltway	11	190	CP2*	54" RCP
	12	2	STKB2-F	(2) DI W/ 24" RCP
	13	192	CP2*+STKB2-F	54" RCP
	14	5	STKB2-E	(2) DI W/ 24" RCP
	15	197	CP2*+STKB2-F,E	60" RCP
	16	50	I	30" RCP
	17	2	STKB2-A	(2) DI W/ 24" RCP
	18	2	STKB2-A	24" RCP
	19	35	R+Q	30" RCP
	20	37	STKB2-A+R+Q	36" RCP
	21	3	STKB2-B	(2) DI W/ 24" RCP
	22	40	STKB2-A,B+R+Q	36" RCP
	23	81	STFW + CP3*	36" RCP
	24	121	STKB2-A,B+R+Q+STFW+CP3*	42" RCP
	25	4	STKB2-C	(2) DI W/ 24" RCP
	26	125	STKB2-A,B,C+R+Q+STFW+CP3*	42" RCP
	27	374	CPGW	6'x6' RCB



- LEGEND
- ST7 BASIN BOUNDARY
 - ST7 BASIN DESIGNATION
 - FLOW ARROW
 - GOWAN CHANNEL SYSTEM
 - BELTWAY CHANNEL SYSTEM
 - SUBBASIN BOUNDARY
 - FLOW CONCENTRATION POINT
 - ① LOCAL FACILITY DESIGNATION

####

FACILITY MAP
FIGURE 9

9/12/19
ACV

DESIGNED BY:
####

CHECKED BY:
####

PROJECT NO:
7181-5.2

SCALE: 1"= 200' HORIZ.
1"= 200' VERT.

SHEET
FIG 9
SHEETS

DRAWING NO.
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Appendix C. Revised WSPG-W

C.1. Interim Condition

C.2. Ultimate Condition

C.1 Interim Condition

DFD2LMB_Int.WSW

0

T1 Summerlin V22 - Atkins Update #1

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

T3 Interim Condition 100-Yr 6-Hr Storm Event

SO -01.85 3287.13 54 3290.000

R 002.85 3287.23 54

REM SDMH#1

REM END OF SDMH#3

R 68.19 3290.57 54 .013

.000 .000 0

R 69.19 3290.60 54 .013

.000 10.000 0

R 70.19 3290.74 54 .013

.000 10.000 1

JX 71.19 3290.67 54 24 .013 7.000

3290.72

47.0 .000

R 72.19 3290.70 54 .013

.000 00.000 0

R 73.19 3290.73 54 .013

.000 00.000 0

R 74.19 3290.77 54 .013

.000 00.000 0

REM BEG OF SDMH#3

REM END OF SDMH#4

R 221.75 3293.07 54 .013

.000 0.000 0

R 222.75 3293.10 54 .013

.000 0.000 0

R 223.75 3293.14 54 .013

.000 0.000 1

JX 224.75 3293.17 54 30 .013 35.000

3293.27

90.0 .000

R 225.75 3293.20 54 .013

.000 0.000 0

R 226.75 3293.23 54 .013

.000 0.000 0

R 227.75 3293.27 54 .013

.000 0.000 0

REM BEG OF SDMH#4

REM END OF SDMH#5

R 545.18 3301.09 54 .013

.000 0.000 0

R 546.18 3301.12 54 .013

.000 0.000 0

R 547.18 3301.15 54 .013

.000 0.000 1

JX 548.18 3301.19 54 42 .013 139.000

3301.29

90.0 .000

TS 549.18 3301.22 54 .013

.000 0.000 0

R 550.18 3301.25 42 .013

.000 0.000 0

R 551.18 3301.29 42 .013

.000 0.000 0

REM BEG OF SDMH#5

REM END OF SDMH#6

R 785.29 3305.92 42 .013

.000 0.000 0

R 786.29 3305.95 42 .013

.000 15.000 0

R 787.29 3305.98 42 .013

.000 15.000 1

JX 788.29 3306.02 42 24 .013 3.000

3306.12

-45.0 .000

R 789.29 3306.05 42 .013

.000 15.000 0

R 790.29 3306.08 42 .013

.000 0.000 0

R 791.29 3306.12 42 .013

.000 0.000 0

REM BEG OF SDMH#6

REM END OF SDDI#6

R 815.34 3311.38 42 .013

.000 0.000 0

R 816.34 3311.41 42 .013

.000 15.000 1

R 817.34 3311.44 42 .013

.000 15.000 0

JX 818.34 3311.48 42 42 .013 6.000

3311.58

0.0 .000

R 819.34 3311.51 42 .013

.000 15.000 0

R 820.34 3311.54 42 .013

.000 0.000 0

R 821.34 3311.58 42 .013

.000 0.000 0

REM BEG OF SDDI#6

REM SDDI#7

R 893.84 3312.85 42 .013

.000 0.000 1

SH 896.84 3312.85 42

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

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

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

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

Q 48.000 .0

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WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time:11:37:47

Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-1.850	3287.130	2.972	3290.102	238.00	21.36	7.08	3297.18	.00	4.23	4.26	4.500	.000	.00	1 .0
4.700	.0213					.0285	.13	2.97	2.33	3.32	.014	.00	.00	PIPE
2.850	3287.230	2.964	3290.194	238.00	21.42	7.13	3297.32	.00	4.23	4.27	4.500	.000	.00	1 .0
12.567	.0511					.0238	.30	2.96	2.34	2.34	.013	.00	.00	PIPE
15.417	3287.873	3.046	3290.918	238.00	20.78	6.70	3297.62	.00	4.23	4.21	4.500	.000	.00	1 .0
16.099	.0511					.0216	.35	3.05	2.22	2.34	.013	.00	.00	PIPE
31.516	3288.696	3.180	3291.875	238.00	19.81	6.09	3297.97	.00	4.23	4.10	4.500	.000	.00	1 .0
12.834	.0511					.0193	.25	3.18	2.04	2.34	.013	.00	.00	PIPE
44.349	3289.352	3.326	3292.677	238.00	18.89	5.54	3298.22	.00	4.23	3.95	4.500	.000	.00	1 .0
10.183	.0511					.0173	.18	3.33	1.86	2.34	.013	.00	.00	PIPE
54.533	3289.872	3.485	3293.357	238.00	18.01	5.04	3298.39	.00	4.23	3.76	4.500	.000	.00	1 .0
7.897	.0511					.0156	.12	3.49	1.69	2.34	.013	.00	.00	PIPE
62.429	3290.276	3.662	3293.938	238.00	17.17	4.58	3298.52	.00	4.23	3.50	4.500	.000	.00	1 .0
5.761	.0511					.0142	.08	3.66	1.52	2.34	.013	.00	.00	PIPE
68.190	3290.570	3.866	3294.436	238.00	16.37	4.16	3298.60	.00	4.23	3.13	4.500	.000	.00	1 .0
1.000	.0300					.0135	.01	3.87	1.34	2.77	.013	.00	.00	PIPE
69.190	3290.600	3.887	3294.488	238.00	16.30	4.12	3298.61	.00	4.23	3.09	4.500	.000	.00	1 .0
.338	.1399					.0133	.00	3.89	1.32	1.76	.013	.00	.00	PIPE

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Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
69.528	3290.647	3.951	3294.598	238.00	16.08	4.02	3298.62	.00	4.23	2.95	4.500	.000	.00	1 .0
	.662	.1399				.0129	.01	3.95	1.26	1.76	.013	.00	.00	PIPE
70.190	3290.740	4.233	3294.973	238.00	15.33	3.65	3298.62	.00	4.23	2.13	4.500	.000	.00	1 .0
JUNCT STR	-.0701					.0132	.01	4.23	1.00		.013	.00	.00	PIPE
71.190	3290.670	4.877	3295.547	231.00	14.52	3.28	3298.82	.00	4.20	.00	4.500	.000	.00	1 .0
	1.000	.0300				.0138	.01	4.88	.00	2.72	.013	.00	.00	PIPE
72.190	3290.700	4.861	3295.561	231.00	14.52	3.28	3298.84	.00	4.20	.00	4.500	.000	.00	1 .0
	1.000	.0300				.0138	.01	4.86	.00	2.72	.013	.00	.00	PIPE
73.190	3290.730	4.845	3295.575	231.00	14.52	3.28	3298.85	.00	4.20	.00	4.500	.000	.00	1 .0
	1.000	.0400				.0138	.01	4.84	.00	2.48	.013	.00	.00	PIPE
74.190	3290.770	4.818	3295.589	231.00	14.52	3.28	3298.86	.00	4.20	.00	4.500	.000	.00	1 .0
147.560	.0156					.0138	2.04	4.82	.00	3.47	.013	.00	.00	PIPE
221.750	3293.070	4.555	3297.625	231.00	14.52	3.28	3300.90	.00	4.20	.00	4.500	.000	.00	1 .0
	1.000	.0300				.0138	.01	4.55	.00	2.72	.013	.00	.00	PIPE
222.750	3293.100	4.538	3297.639	231.00	14.52	3.28	3300.91	.00	4.20	.00	4.500	.000	.00	1 .0
	1.000	.0398				.0138	.01	4.54	.00	2.48	.013	.00	.00	PIPE
223.750	3293.140	4.676	3297.816	231.00	14.52	3.28	3301.09	.00	4.20	.00	4.500	.000	.00	1 .0
JUNCT STR	.0300					.0119	.01	4.68	.00		.013	.00	.00	PIPE

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Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

*****																	*****	
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/I.D.	ZL	No Wth Prs/Pip				
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch				
*****																	*****	
224.750	3293.170	6.493	3299.663	196.00	12.32	2.36	3302.02	.00	4.01	.00	4.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
1.000	.0300					.0099	.01	6.49	.00	2.45	.013	.00	.00	PIPE				
225.750	3293.200	6.473	3299.673	196.00	12.32	2.36	3302.03	.00	4.01	.00	4.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
1.000	.0300					.0099	.01	6.47	.00	2.45	.013	.00	.00	PIPE				
226.750	3293.230	6.453	3299.683	196.00	12.32	2.36	3302.04	.00	4.01	.00	4.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
1.000	.0400					.0099	.01	6.45	.00	2.24	.013	.00	.00	PIPE				
227.750	3293.270	6.423	3299.693	196.00	12.32	2.36	3302.05	.00	4.01	.00	4.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
45.513	.0246					.0099	.45	6.42	.00	2.60	.013	.00	.00	PIPE				
273.263	3294.391	5.754	3300.145	196.00	12.32	2.36	3302.50	.00	4.01	.00	4.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
HYDRAULIC JUMP																		
273.263	3294.391	2.712	3297.104	196.00	19.57	5.94	3303.05	.00	4.01	4.40	4.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
54.104	.0246					.0212	1.15	2.71	2.29	2.60	.013	.00	.00	PIPE				
327.367	3295.724	2.755	3298.479	196.00	19.20	5.73	3304.21	.00	4.01	4.39	4.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
79.473	.0246					.0195	1.55	2.76	2.22	2.60	.013	.00	.00	PIPE				
406.840	3297.682	2.869	3300.551	196.00	18.31	5.21	3305.76	.00	4.01	4.33	4.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
48.076	.0246					.0173	.83	2.87	2.05	2.60	.013	.00	.00	PIPE				
454.916	3298.866	2.991	3301.857	196.00	17.46	4.73	3306.59	.00	4.01	4.25	4.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
32.479	.0246					.0154	.50	2.99	1.89	2.60	.013	.00	.00	PIPE				

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Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
487.394	3299.666	3.122	3302.788	196.00	16.65	4.30	3307.09	.00	4.01	4.15	4.500	.000	.00	1 .0
22.990	.0246					.0137	.32	3.12	1.74	2.60	.013	.00	.00	PIPE
510.384	3300.233	3.262	3303.495	196.00	15.87	3.91	3307.41	.00	4.01	4.02	4.500	.000	.00	1 .0
16.406	.0246					.0123	.20	3.26	1.60	2.60	.013	.00	.00	PIPE
526.791	3300.637	3.415	3304.052	196.00	15.13	3.56	3307.61	.00	4.01	3.85	4.500	.000	.00	1 .0
11.353	.0246					.0111	.13	3.42	1.45	2.60	.013	.00	.00	PIPE
538.143	3300.917	3.585	3304.501	196.00	14.43	3.23	3307.73	.00	4.01	3.62	4.500	.000	.00	1 .0
7.037	.0246					.0100	.07	3.58	1.31	2.60	.013	.00	.00	PIPE
545.180	3301.090	3.776	3304.866	196.00	13.76	2.94	3307.80	.00	4.01	3.31	4.500	.000	.00	1 .0
1.000	.0300					.0094	.01	3.78	1.17	2.45	.013	.00	.00	PIPE
546.180	3301.120	3.842	3304.962	196.00	13.55	2.85	3307.81	.00	4.01	3.18	4.500	.000	.00	1 .0
1.000	.0298					.0091	.01	3.84	1.12	2.45	.013	.00	.00	PIPE
547.180	3301.150	4.008	3305.158	196.00	13.10	2.67	3307.82	.00	4.01	2.81	4.500	.000	.00	1 .0
JUNCT STR	.0400					.0048	.00	4.01	1.00		.013	.00	.00	PIPE
548.180	3301.190	8.729	3309.919	57.00	3.58	.20	3310.12	.00	2.19	.00	4.500	.000	.00	1 .0
TRANS STR	.0300					.0008	.00	8.73	.00		.013	.00	.00	PIPE
549.180	3301.220	8.700	3309.920	57.00	5.92	.55	3310.46	.00	2.36	.00	3.500	.000	.00	1 .0
1.000	.0300					.0032	.00	8.70	.00	1.38	.013	.00	.00	PIPE

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Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

*****																	*****	
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip				
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch				
*****																	*****	
550.180	3301.250	8.673	3309.923	57.00	5.92	.55	3310.47	.00	2.36	.00	3.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
1.000	.0400					.0032	.00	8.67	.00	1.27	.013	.00	.00	PIPE				
551.180	3301.290	8.636	3309.926	57.00	5.92	.55	3310.47	.00	2.36	.00	3.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
234.110	.0198					.0032	.75	8.64	.00	1.55	.013	.00	.00	PIPE				
785.290	3305.920	4.758	3310.677	57.00	5.92	.55	3311.22	.00	2.36	.00	3.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
1.000	.0300					.0032	.00	4.76	.00	1.38	.013	.00	.00	PIPE				
786.290	3305.950	4.758	3310.708	57.00	5.92	.55	3311.25	.00	2.36	.00	3.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
1.000	.0300					.0032	.00	4.76	.00	1.38	.013	.00	.00	PIPE				
787.290	3305.980	4.785	3310.765	57.00	5.92	.55	3311.31	.00	2.36	.00	3.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
JUNCT STR	.0400					.0030	.00	4.79	.00		.013	.00	.00	PIPE				
788.290	3306.020	4.853	3310.874	54.00	5.61	.49	3311.36	.00	2.30	.00	3.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
1.000	.0300					.0029	.00	4.85	.00	1.34	.013	.00	.00	PIPE				
789.290	3306.050	4.851	3310.901	54.00	5.61	.49	3311.39	.00	2.30	.00	3.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
1.000	.0300					.0029	.00	4.85	.00	1.34	.013	.00	.00	PIPE				
790.290	3306.080	4.823	3310.904	54.00	5.61	.49	3311.39	.00	2.30	.00	3.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
1.000	.0400					.0029	.00	4.82	.00	1.24	.013	.00	.00	PIPE				
791.290	3306.120	4.786	3310.906	54.00	5.61	.49	3311.40	.00	2.30	.00	3.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
1.579	.2187					.0029	.00	4.79	.00	.80	.013	.00	.00	PIPE				

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WATER SURFACE PROFILE LISTING

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Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

*****																	*****														
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip																	
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch																	
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****																
792.869	3306.466	4.446	3310.911	54.00	5.61	.49	3311.40	.00	2.30	.00	3.500	.000	.00	1	.0																
HYDRAULIC JUMP																															
792.869	3306.466	1.118	3307.584	54.00	20.39	6.45	3314.04	.00	2.30	3.26	3.500	.000	.00	1	.0																
.722	.2187					.0580	.04	1.12	3.99	.80	.013	.00	.00	PIPE																	
793.591	3306.623	1.128	3307.751	54.00	20.15	6.31	3314.06	.00	2.30	3.27	3.500	.000	.00	1	.0																
3.229	.2187					.0535	.17	1.13	3.92	.80	.013	.00	.00	PIPE																	
796.820	3307.329	1.168	3308.497	54.00	19.21	5.73	3314.23	.00	2.30	3.30	3.500	.000	.00	1	.0																
2.792	.2187					.0469	.13	1.17	3.67	.80	.013	.00	.00	PIPE																	
799.611	3307.940	1.209	3309.149	54.00	18.32	5.21	3314.36	.00	2.30	3.33	3.500	.000	.00	1	.0																
2.425	.2187					.0411	.10	1.21	3.43	.80	.013	.00	.00	PIPE																	
802.036	3308.470	1.252	3309.722	54.00	17.47	4.74	3314.46	.00	2.30	3.36	3.500	.000	.00	1	.0																
2.112	.2187					.0360	.08	1.25	3.21	.80	.013	.00	.00	PIPE																	
804.148	3308.932	1.297	3310.229	54.00	16.65	4.31	3314.54	.00	2.30	3.38	3.500	.000	.00	1	.0																
1.843	.2187					.0316	.06	1.30	3.00	.80	.013	.00	.00	PIPE																	
805.991	3309.335	1.344	3310.679	54.00	15.88	3.92	3314.59	.00	2.30	3.40	3.500	.000	.00	1	.0																
1.609	.2187					.0277	.04	1.34	2.80	.80	.013	.00	.00	PIPE																	
807.600	3309.687	1.392	3311.079	54.00	15.14	3.56	3314.64	.00	2.30	3.43	3.500	.000	.00	1	.0																
1.404	.2187					.0243	.03	1.39	2.61	.80	.013	.00	.00	PIPE																	

DFD2LMB_Int.OUT

FILE: DFD2LMB_Int.WSW

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WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time:11:37:47

Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
809.004	3309.994	1.443	3311.437	54.00	14.44	3.24	3314.67	.00	2.30	3.45	3.500	.000	.00	1 .0
1.222	.2187					.0213	.03	1.44	2.44	.80	.013	.00	.00	PIPE
810.227	3310.261	1.496	3311.757	54.00	13.76	2.94	3314.70	.00	2.30	3.46	3.500	.000	.00	1 .0
1.061	.2187					.0188	.02	1.50	2.28	.80	.013	.00	.00	PIPE
811.288	3310.494	1.551	3312.044	54.00	13.12	2.67	3314.72	.00	2.30	3.48	3.500	.000	.00	1 .0
.917	.2187					.0165	.02	1.55	2.13	.80	.013	.00	.00	PIPE
812.205	3310.694	1.608	3312.303	54.00	12.51	2.43	3314.73	.00	2.30	3.49	3.500	.000	.00	1 .0
.787	.2187					.0145	.01	1.61	1.98	.80	.013	.00	.00	PIPE
812.992	3310.866	1.669	3312.535	54.00	11.93	2.21	3314.75	.00	2.30	3.50	3.500	.000	.00	1 .0
.669	.2187					.0127	.01	1.67	1.85	.80	.013	.00	.00	PIPE
813.661	3311.013	1.732	3312.745	54.00	11.37	2.01	3314.75	.00	2.30	3.50	3.500	.000	.00	1 .0
.561	.2187					.0112	.01	1.73	1.72	.80	.013	.00	.00	PIPE
814.222	3311.135	1.798	3312.934	54.00	10.85	1.83	3314.76	.00	2.30	3.50	3.500	.000	.00	1 .0
.462	.2187					.0099	.00	1.80	1.60	.80	.013	.00	.00	PIPE
814.685	3311.237	1.868	3313.104	54.00	10.34	1.66	3314.76	.00	2.30	3.49	3.500	.000	.00	1 .0
.371	.2187					.0087	.00	1.87	1.49	.80	.013	.00	.00	PIPE
815.055	3311.318	1.941	3313.258	54.00	9.86	1.51	3314.77	.00	2.30	3.48	3.500	.000	.00	1 .0
.285	.2187					.0077	.00	1.94	1.38	.80	.013	.00	.00	PIPE

DFD2LMB_Int.OUT

FILE: DFD2LMB_Int.WSW

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WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time:11:37:47

Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

*****																	*****	
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip				
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch				
*****																	*****	
815.340	3311.380	2.018	3313.398	54.00	9.40	1.37	3314.77	.00	2.30	3.46	3.500	.000	.00	1	.0			
	1.000	.0300				.0070	.01	2.02	1.29	1.34	.013	.00	.00	PIPE				
816.340	3311.410	2.056	3313.466	54.00	9.19	1.31	3314.78	.00	2.30	3.45	3.500	.000	.00	1	.0			
	1.000	.0300				.0066	.01	2.06	1.24	1.34	.013	.00	.00	PIPE				
817.340	3311.440	2.105	3313.545	54.00	8.93	1.24	3314.78	.00	2.30	3.43	3.500	.000	.00	1	.0			
JUNCT STR	.0400					.0101	.01	2.11	1.19		.013	.00	.00	PIPE				
818.340	3311.480	1.549	3313.029	48.00	11.68	2.12	3315.15	.00	2.16	3.48	3.500	.000	.00	1	.0			
	1.000	.0300				.0138	.01	1.55	1.89	1.26	.013	.00	.00	PIPE				
819.340	3311.510	1.556	3313.066	48.00	11.62	2.10	3315.16	.00	2.16	3.48	3.500	.000	.00	1	.0			
	1.000	.0300				.0136	.01	1.56	1.88	1.26	.013	.00	.00	PIPE				
820.340	3311.540	1.562	3313.102	48.00	11.56	2.07	3315.18	.00	2.16	3.48	3.500	.000	.00	1	.0			
	1.000	.0400				.0133	.01	1.56	1.86	1.16	.013	.00	.00	PIPE				
821.340	3311.580	1.573	3313.153	48.00	11.45	2.04	3315.19	.00	2.16	3.48	3.500	.000	.00	1	.0			
	10.160	.0175				.0129	.13	1.57	1.84	1.45	.013	.00	.00	PIPE				
831.500	3311.758	1.593	3313.351	48.00	11.26	1.97	3315.32	.00	2.16	3.49	3.500	.000	.00	1	.0			
	21.054	.0175				.0118	.25	1.59	1.80	1.45	.013	.00	.00	PIPE				
852.554	3312.127	1.653	3313.779	48.00	10.74	1.79	3315.57	.00	2.16	3.49	3.500	.000	.00	1	.0			
	14.141	.0175				.0104	.15	1.65	1.67	1.45	.013	.00	.00	PIPE				

DFD2LMB_Int.OUT

FILE: DFD2LMB_Int.WSW

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WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time:11:37:47

Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

*****																	*****	
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/I.D.	ZL	No Wth Prs/Pip				
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch				
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****				
866.695	3312.375	1.715	3314.090	48.00	10.24	1.63	3315.72	.00	2.16	3.50	3.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
9.907	.0175					.0092	.09	1.72	1.56	1.45	.013	.00	.00	PIPE				
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
876.602	3312.548	1.780	3314.328	48.00	9.76	1.48	3315.81	.00	2.16	3.50	3.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
6.975	.0175					.0081	.06	1.78	1.45	1.45	.013	.00	.00	PIPE				
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
883.577	3312.670	1.849	3314.519	48.00	9.31	1.35	3315.86	.00	2.16	3.49	3.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
4.830	.0175					.0071	.03	1.85	1.35	1.45	.013	.00	.00	PIPE				
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
888.407	3312.755	1.921	3314.676	48.00	8.87	1.22	3315.90	.00	2.16	3.48	3.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
3.133	.0175					.0063	.02	1.92	1.26	1.45	.013	.00	.00	PIPE				
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
891.540	3312.810	1.997	3314.807	48.00	8.46	1.11	3315.92	.00	2.16	3.46	3.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
1.745	.0175					.0056	.01	2.00	1.17	1.45	.013	.00	.00	PIPE				
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
893.286	3312.840	2.077	3314.918	48.00	8.07	1.01	3315.93	.00	2.16	3.44	3.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
.554	.0175					.0049	.00	2.08	1.08	1.45	.013	.00	.00	PIPE				
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
893.840	3312.850	2.163	3315.013	48.00	7.69	.92	3315.93	.00										

DFD2LMB_Int_LAT_SDDI#1.WSW

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T1 Summerlin V22 - Atkins Update #1

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

T3 Interim Condition 100-Yr 6-Hr Storm Event

SO	71.19	3290.67	54		3295.55				
R	74.19	3290.72	24	.013		.000	.000	0	
R	97.12	3294.14	24	.013		.000	.000	0	
SH	100.12	3294.14	24						
CD	54	4	1	.000	4.500	.000	.000	.000	.00
CD	24	4	1	.000	2.000	.000	.000	.000	.00
CD	30	4	1	.000	2.500	.000	.000	.000	.00
CD	42	4	1	.000	3.500	.000	.000	.000	.00
Q		7.000	.0						

DFD2LMB_Int_LAT_SDDI#1.OUT

FILE: DFD2LMB_Int_LAT_SDDI#1.WSW

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WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time:11:44:56

Summerlin V22 - Atkins Update #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Interim Condition 100-Yr 6-Hr Storm Event

*****															*****	
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip		
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch		
*****															*****	
71.190	3290.670	4.880	3295.550	7.00	2.23	.08	3295.63	.00	.94	.00	2.000	.000	.00	1 .0		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
3.000	.0167					.0010	.00	4.88	.00	.67	.013	.00	.00	PIPE		
74.190	3290.720	4.833	3295.553	7.00	2.23	.08	3295.63	.00	.94	.00	2.000	.000	.00	1 .0		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
19.117	.1491					.0009	.02	4.83	.00	.38	.013	.00	.00	PIPE		
93.307	3293.571	2.000	3295.571	7.00	2.23	.08	3295.65	.00	.94	.00	2.000	.000	.00	1 .0		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
1.192	.1491					.0009	.00	2.00	.00	.38	.013	.00	.00	PIPE		
94.499	3293.749	1.815	3295.564	7.00	2.34	.08	3295.65	.00	.94	1.16	2.000	.000	.00	1 .0		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
.669	.1491					.0009	.00	1.81	.26	.38	.013	.00	.00	PIPE		
95.168	3293.849	1.707	3295.556	7.00	2.45	.09	3295.65	.00	.94	1.41	2.000	.000	.00	1 .0		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
.536	.1491					.0009	.00	1.71	.30	.38	.013	.00	.00	PIPE		
95.704	3293.929	1.618	3295.547	7.00	2.57	.10	3295.65	.00	.94	1.57	2.000	.000	.00	1 .0		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
.456	.1491					.0010	.00	1.62	.34	.38	.013	.00	.00	PIPE		
96.160	3293.997	1.540	3295.537	7.00	2.70	.11	3295.65	.00	.94	1.68	2.000	.000	.00	1 .0		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
.397	.1491					.0011	.00	1.54	.38	.38	.013	.00	.00	PIPE		
96.557	3294.056	1.470	3295.526	7.00	2.83	.12	3295.65	.00	.94	1.77	2.000	.000	.00	1 .0		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
.350	.1491					.0013	.00	1.47	.42	.38	.013	.00	.00	PIPE		
96.906	3294.108	1.406	3295.515	7.00	2.97	.14	3295.65	.00	.94	1.83	2.000	.000	.00	1 .0		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
.214	.1491					.0014	.00	1.41	.46	.38	.013	.00	.00	PIPE		

DFD2LMB_Int_LAT_SDDI#1.OUT

FILE: DFD2LMB_Int_LAT_SDDI#1.WSW

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WATER SURFACE PROFILE LISTING

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Summerlin V22 - Atkins Update #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Interim Condition 100-Yr 6-Hr Storm Event

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*****
| Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
Station | Elev | (FT) | Elev | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
-|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|-
L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
| | | | | | | | | | | | | | | |
97.120 3294.140 1.366 3295.506 7.00 3.06 .15 3295.65 .00 .94 1.86 2.000 .000 .00 1 .0
-|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|-
3.000 .1491 .0466 1.07 1.37 .49 .38 .013 .00 .00 PIPE
| | | | | | | | | | | | | | | |
100.120 3294.140 1.366 3295.506 7.00 3.06 .15 3295.65 .00 .94 1.86 2.000 .000 .00 1 .0
-|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|-

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DFD2LMB_Int_LAT_SDDI#2.WSW

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T1 Summerlin V22 - Atkins Update #1
T2 DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD
T3 Interim Condition 100-Yr 6-Hr Storm Event

SO	0.00	3289.22	54		3290.000				
R	3.00	3289.32	30	.013		.000	.000	0	
REM END OF SDMH#2									
R	46.63	3289.50	30	.013		.000	.000	0	
R	47.63	3289.53	30	.013		.000	10.000	0	
R	48.63	3289.56	30	.013		.000	10.000	0	
R	49.63	3289.60	30	.013		.000	10.000	1	
TS	50.63	3289.63	24	.013		.000	00.000	0	
R	51.63	3289.66	24	.013		.000	00.000	0	
R	53.63	3289.70	24	.013		.000	00.000	0	
REM BEG OF SDMH#2									
REM END OF SDDI#2									
R	86.55	3295.25	24	.013		.000	00.000	0	
SH	89.55	3295.25	24						
CD	54	4	1	.000	4.500	.000	.000	.000	.00
CD	24	4	1	.000	2.000	.000	.000	.000	.00
CD	30	4	1	.000	2.500	.000	.000	.000	.00
CD	42	4	1	.000	3.500	.000	.000	.000	.00
Q				5.000	.0				

DFD2LMB_Int_LAT_SDDI#2.OUT

FILE: DFD2LMB_Int_LAT_SDDI#2.WSW

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WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time:11:45:12

Summerlin V22 - Atkins Update #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Interim Condition 100-Yr 6-Hr Storm Event

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
.000	3289.220	.508	3289.728	5.00	7.00	.76	3290.49	.00	.74	2.01	2.500	.000	.00	1 .0
3.000	.0334					.0172	.05	.51	2.07	.44	.013	.00	.00	PIPE
3.000	3289.320	.523	3289.844	5.00	6.71	.70	3290.54	.00	.74	2.03	2.500	.000	.00	1 .0
3.673	.0041					.0172	.06	.52	1.95	.74	.013	.00	.00	PIPE
6.673	3289.335	.507	3289.843	5.00	7.01	.76	3290.61	.00	.74	2.01	2.500	.000	.00	1 .0
3.856	.0041					.0196	.08	.51	2.07	.74	.013	.00	.00	PIPE
10.530	3289.351	.491	3289.842	5.00	7.35	.84	3290.68	.00	.74	1.99	2.500	.000	.00	1 .0
3.704	.0041					.0224	.08	.49	2.21	.74	.013	.00	.00	PIPE
14.233	3289.367	.475	3289.841	5.00	7.71	.92	3290.76	.00	.74	1.96	2.500	.000	.00	1 .0
3.564	.0041					.0257	.09	.47	2.36	.74	.013	.00	.00	PIPE
17.797	3289.381	.459	3289.841	5.00	8.08	1.01	3290.86	.00	.74	1.94	2.500	.000	.00	1 .0
3.428	.0041					.0294	.10	.46	2.52	.74	.013	.00	.00	PIPE
21.225	3289.396	.444	3289.840	5.00	8.48	1.12	3290.96	.00	.74	1.91	2.500	.000	.00	1 .0
3.291	.0041					.0336	.11	.44	2.69	.74	.013	.00	.00	PIPE
24.517	3289.409	.430	3289.839	5.00	8.89	1.23	3291.07	.00	.74	1.89	2.500	.000	.00	1 .0
3.164	.0041					.0385	.12	.43	2.87	.74	.013	.00	.00	PIPE
27.681	3289.422	.416	3289.838	5.00	9.33	1.35	3291.19	.00	.74	1.86	2.500	.000	.00	1 .0
3.044	.0041					.0441	.13	.42	3.06	.74	.013	.00	.00	PIPE

DFD2LMB_Int_LAT_SDDI#2.OUT

FILE: DFD2LMB_Int_LAT_SDDI#2.WSW

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time:11:45:12

Summerlin V22 - Atkins Update #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Interim Condition 100-Yr 6-Hr Storm Event

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
30.725	3289.435	.402	3289.837	5.00	9.78	1.49	3291.32	.00	.74	1.84	2.500	.000	.00	1 .0
2.922	.0041					.0505	.15	.40	3.27	.74	.013	.00	.00	PIPE
33.647	3289.447	.389	3289.836	5.00	10.26	1.63	3291.47	.00	.74	1.81	2.500	.000	.00	1 .0
2.809	.0041					.0578	.16	.39	3.49	.74	.013	.00	.00	PIPE
36.455	3289.458	.377	3289.835	5.00	10.76	1.80	3291.63	.00	.74	1.79	2.500	.000	.00	1 .0
2.700	.0041					.0662	.18	.38	3.72	.74	.013	.00	.00	PIPE
39.155	3289.469	.365	3289.834	5.00	11.28	1.98	3291.81	.00	.74	1.76	2.500	.000	.00	1 .0
2.592	.0041					.0759	.20	.36	3.97	.74	.013	.00	.00	PIPE
41.747	3289.480	.353	3289.833	5.00	11.84	2.18	3292.01	.00	.74	1.74	2.500	.000	.00	1 .0
2.490	.0041					.0869	.22	.35	4.23	.74	.013	.00	.00	PIPE
44.237	3289.490	.341	3289.832	5.00	12.41	2.39	3292.22	.00	.74	1.72	2.500	.000	.00	1 .0
2.393	.0041					.0995	.24	.34	4.52	.74	.013	.00	.00	PIPE
46.630	3289.500	.330	3289.830	5.00	13.02	2.63	3292.46	.00	.74	1.69	2.500	.000	.00	1 .0
1.000	.0300					.1087	.11	.33	4.82	.45	.013	.00	.00	PIPE
47.630	3289.530	.327	3289.857	5.00	13.23	2.72	3292.57	.00	.74	1.69	2.500	.000	.00	1 .0
1.000	.0300					.1138	.11	.33	4.92	.45	.013	.00	.00	PIPE
48.630	3289.560	.323	3289.883	5.00	13.44	2.81	3292.69	.00	.74	1.68	2.500	.000	.00	1 .0
1.000	.0400					.1196	.12	.32	5.03	.42	.013	.00	.00	PIPE

DFD2LMB_Int_LAT_SDDI#2.OUT

FILE: DFD2LMB_Int_LAT_SDDI#2.WSW

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WATER SURFACE PROFILE LISTING

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Summerlin V22 - Atkins Update #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Interim Condition 100-Yr 6-Hr Storm Event

*****																	*****	
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/I.D.	ZL	No Wth Prs/Pip				
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch				
*****																	*****	
49.630	3289.600	.319	3289.919	5.00	13.69	2.91	3292.83	.00	.74	1.67	2.500	.000	.00	1	.			
TRANS STR	.0298					.1220	.12	.32	5.16		.013	.00	.00	PIPE				
50.630	3289.630	.341	3289.971	5.00	14.03	3.06	3293.03	.00	.79	1.51	2.000	.000	.00	1	.0			
1.000	.0300					.1242	.12	.34	5.08	.48	.013	.00	.00	PIPE				
51.630	3289.660	.338	3289.998	5.00	14.26	3.16	3293.15	.00	.79	1.50	2.000	.000	.00	1	.0			
2.000	.0200					.1340	.27	.34	5.19	.53	.013	.00	.00	PIPE				
53.630	3289.700	.329	3290.029	5.00	14.79	3.40	3293.42	.00	.79	1.48	2.000	.000	.00	1	.0			
5.910	.1686					.1350	.80	.33	5.46	.32	.013	.00	.00	PIPE				
59.540	3290.696	.336	3291.032	5.00	14.34	3.19	3294.23	.00	.79	1.50	2.000	.000	.00	1	.0			
5.868	.1686					.1210	.71	.34	5.24	.32	.013	.00	.00	PIPE				
65.408	3291.686	.348	3292.033	5.00	13.68	2.90	3294.94	.00	.79	1.52	2.000	.000	.00	1	.0			
4.012	.1686					.1057	.42	.35	4.91	.32	.013	.00	.00	PIPE				
69.420	3292.362	.359	3292.721	5.00	13.04	2.64	3295.36	.00	.79	1.54	2.000	.000	.00	1	.0			
2.989	.1686					.0923	.28	.36	4.60	.32	.013	.00	.00	PIPE				
72.409	3292.866	.371	3293.237	5.00	12.43	2.40	3295.64	.00	.79	1.56	2.000	.000	.00	1	.0			
2.338	.1686					.0807	.19	.37	4.31	.32	.013	.00	.00	PIPE				
74.747	3293.260	.384	3293.644	5.00	11.85	2.18	3295.83	.00	.79	1.58	2.000	.000	.00	1	.0			
1.889	.1686					.0705	.13	.38	4.04	.32	.013	.00	.00	PIPE				

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WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time:11:45:12

Summerlin V22 - Atkins Update #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Interim Condition 100-Yr 6-Hr Storm Event

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
76.637	3293.579	.397	3293.976	5.00	11.30	1.98	3295.96	.00	.79	1.60	2.000	.000	.00	1 .0
1.560	.1686					.0616	.10	.40	3.78	.32	.013	.00	.00	PIPE
78.197	3293.842	.410	3294.252	5.00	10.78	1.80	3296.06	.00	.79	1.62	2.000	.000	.00	1 .0
1.307	.1686					.0538	.07	.41	3.54	.32	.013	.00	.00	PIPE
79.504	3294.062	.424	3294.487	5.00	10.28	1.64	3296.13	.00	.79	1.64	2.000	.000	.00	1 .0
1.107	.1686					.0470	.05	.42	3.32	.32	.013	.00	.00	PIPE
80.611	3294.249	.439	3294.688	5.00	9.80	1.49	3296.18	.00	.79	1.66	2.000	.000	.00	1 .0
.946	.1686					.0411	.04	.44	3.11	.32	.013	.00	.00	PIPE
81.557	3294.408	.454	3294.862	5.00	9.34	1.35	3296.22	.00	.79	1.68	2.000	.000	.00	1 .0
.812	.1686					.0359	.03	.45	2.91	.32	.013	.00	.00	PIPE
82.368	3294.545	.469	3295.014	5.00	8.91	1.23	3296.25	.00	.79	1.69	2.000	.000	.00	1 .0
.699	.1686					.0314	.02	.47	2.73	.32	.013	.00	.00	PIPE
83.067	3294.663	.485	3295.148	5.00	8.49	1.12	3296.27	.00	.79	1.71	2.000	.000	.00	1 .0
.603	.1686					.0275	.02	.49	2.55	.32	.013	.00	.00	PIPE
83.670	3294.765	.502	3295.267	5.00	8.10	1.02	3296.28	.00	.79	1.73	2.000	.000	.00	1 .0
.521	.1686					.0240	.01	.50	2.39	.32	.013	.00	.00	PIPE
84.191	3294.852	.519	3295.372	5.00	7.72	.93	3296.30	.00	.79	1.75	2.000	.000	.00	1 .0
.449	.1686					.0210	.01	.52	2.24	.32	.013	.00	.00	PIPE

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Summerlin V22 - Atkins Update #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Interim Condition 100-Yr 6-Hr Storm Event

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
84.640	3294.928	.537	3295.465	5.00	7.36	.84	3296.31	.00	.79	1.77	2.000	.000	.00	1 .0
	.385	.1686				.0184	.01	.54	2.10	.32	.013	.00	.00	PIPE
85.025	3294.993	.556	3295.549	5.00	7.02	.76	3296.31	.00	.79	1.79	2.000	.000	.00	1 .0
	.329	.1686				.0161	.01	.56	1.96	.32	.013	.00	.00	PIPE
85.354	3295.048	.575	3295.623	5.00	6.69	.70	3296.32	.00	.79	1.81	2.000	.000	.00	1 .0
	.280	.1686				.0141	.00	.58	1.84	.32	.013	.00	.00	PIPE
85.634	3295.095	.595	3295.690	5.00	6.38	.63	3296.32	.00	.79	1.83	2.000	.000	.00	1 .0
	.234	.1686				.0123	.00	.60	1.72	.32	.013	.00	.00	PIPE
85.868	3295.135	.616	3295.751	5.00	6.08	.57	3296.33	.00	.79	1.85	2.000	.000	.00	1 .0
	.194	.1686				.0108	.00	.62	1.61	.32	.013	.00	.00	PIPE
86.062	3295.168	.638	3295.805	5.00	5.80	.52	3296.33	.00	.79	1.86	2.000	.000	.00	1 .0
	.158	.1686				.0095	.00	.64	1.50	.32	.013	.00	.00	PIPE
86.220	3295.194	.660	3295.854	5.00	5.53	.47	3296.33	.00	.79	1.88	2.000	.000	.00	1 .0
	.123	.1686				.0083	.00	.66	1.41	.32	.013	.00	.00	PIPE
86.343	3295.215	.683	3295.898	5.00	5.27	.43	3296.33	.00	.79	1.90	2.000	.000	.00	1 .0
	.093	.1686				.0073	.00	.68	1.31	.32	.013	.00	.00	PIPE
86.436	3295.231	.708	3295.938	5.00	5.03	.39	3296.33	.00	.79	1.91	2.000	.000	.00	1 .0
	.064	.1686				.0064	.00	.71	1.23	.32	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING

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Summerlin V22 - Atkins Update #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Interim Condition 100-Yr 6-Hr Storm Event

*****															*****	
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip		
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch		
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****		
86.500	3295.241	.733	3295.974	5.00	4.79	.36	3296.33	.00	.79	1.93	2.000	.000	.00	1 .0		
	-.038	-.1686				.0056	.00	.73	1.15	.32	.013	.00	.00	PIPE		
86.538	3295.248	.759	3296.007	5.00	4.57	.32	3296.33	.00	.79	1.94	2.000	.000	.00	1 .0		
	-.012	-.1686				.0049	.00	.76	1.07	.32	.013	.00	.00	PIPE		
86.550	3295.250	.788	3296.038	5.00	4.35	.29	3296.33	.00	.79	1.95	2.000	.000	.00	1 .0		
	-.012	-.1686				.0049	.00	.76	1.07	.32	.013	.00	.00	PIPE		
89.550	3295.250	.788	3296.038	5.00	4.35	.29	3296.33	.00	.79	1.95	2.000	.000	.00	1 .0		
	-.012	-.1686				.0049	.00	.76	1.07	.32	.013	.00	.00	PIPE		

DFD2LMB_Int_LAT_SDDI#3.WSW

T1 Summerlin V22 - Atkins Update #1
 T2 DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD
 T3 Interim Condition 100-Yr 6-Hr Storm Event
 SO 224.75 3293.17 54 3297.67
 R 227.75 3293.27 30 .013 .000 .000 0
 R 321.58 3298.12 30 .013 .000 .000 0
 SH 324.58 3298.12 30
 CD 54 4 1 .000 4.500 .000 .000 .000 .00
 CD 24 4 1 .000 2.000 .000 .000 .000 .00
 CD 30 4 1 .000 2.500 .000 .000 .000 .00
 CD 42 4 1 .000 3.500 .000 .000 .000 .00
 Q 35.000 .0

DFD2LMB_Int_LAT_SDDI#3.OUT

FILE: DFD2LMB_Int_LAT_SDDI#3.WSW

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WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time:11:45:26

Summerlin V22 - Atkins Update #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Interim Condition 100-Yr 6-Hr Storm Event

*****																	*****	
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip				
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch				
*****																	*****	
224.750	3293.170	4.500	3297.670	35.00	7.13	.79	3298.46	.00	2.01	.00	2.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
3.000	.0334					.0073	.02	4.50	.00	1.20	.013	.00	.00	PIPE				
227.750	3293.270	4.422	3297.692	35.00	7.13	.79	3298.48	.00	2.01	.00	2.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
24.590	.0517					.0073	.18	4.42	.00	1.06	.013	.00	.00	PIPE				
252.340	3294.541	3.328	3297.869	35.00	7.13	.79	3298.66	.00	2.01	.00	2.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
HYDRAULIC JUMP																		
252.340	3294.541	1.170	3295.711	35.00	15.53	3.74	3299.45	.00	2.01	2.49	2.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
3.304	.0517					.0362	.12	1.17	2.88	1.06	.013	.00	.00	PIPE				
255.644	3294.712	1.178	3295.890	35.00	15.39	3.68	3299.57	.00	2.01	2.50	2.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
16.001	.0517					.0336	.54	1.18	2.84	1.06	.013	.00	.00	PIPE				
271.646	3295.539	1.222	3296.762	35.00	14.67	3.34	3300.10	.00	2.01	2.50	2.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
11.623	.0517					.0296	.34	1.22	2.65	1.06	.013	.00	.00	PIPE				
283.269	3296.140	1.269	3297.409	35.00	13.99	3.04	3300.45	.00	2.01	2.50	2.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
8.863	.0517					.0260	.23	1.27	2.46	1.06	.013	.00	.00	PIPE				
292.132	3296.598	1.318	3297.916	35.00	13.34	2.76	3300.68	.00	2.01	2.50	2.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
6.952	.0517					.0230	.16	1.32	2.29	1.06	.013	.00	.00	PIPE				
299.084	3296.958	1.369	3298.327	35.00	12.72	2.51	3300.84	.00	2.01	2.49	2.500	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
5.543	.0517					.0203	.11	1.37	2.13	1.06	.013	.00	.00	PIPE				

DFD2LMB_Int_LAT_SDDI#3.OUT

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WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time:11:45:26

Summerlin V22 - Atkins Update #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Interim Condition 100-Yr 6-Hr Storm Event

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
304.627	3297.244	1.423	3298.667	35.00	12.13	2.28	3300.95	.00	2.01	2.48	2.500	.000	.00	1 .0
4.453	.0517					.0179	.08	1.42	1.98	1.06	.013	.00	.00	PIPE
309.080	3297.474	1.480	3298.955	35.00	11.56	2.08	3301.03	.00	2.01	2.46	2.500	.000	.00	1 .0
3.578	.0517					.0158	.06	1.48	1.84	1.06	.013	.00	.00	PIPE
312.658	3297.659	1.541	3299.200	35.00	11.02	1.89	3301.09	.00	2.01	2.43	2.500	.000	.00	1 .0
2.850	.0517					.0140	.04	1.54	1.70	1.06	.013	.00	.00	PIPE
315.508	3297.807	1.605	3299.412	35.00	10.51	1.72	3301.13	.00	2.01	2.40	2.500	.000	.00	1 .0
2.231	.0517					.0125	.03	1.61	1.57	1.06	.013	.00	.00	PIPE
317.740	3297.922	1.673	3299.595	35.00	10.02	1.56	3301.15	.00	2.01	2.35	2.500	.000	.00	1 .0
1.684	.0517					.0111	.02	1.67	1.45	1.06	.013	.00	.00	PIPE
319.423	3298.009	1.747	3299.756	35.00	9.56	1.42	3301.17	.00	2.01	2.29	2.500	.000	.00	1 .0
1.191	.0517					.0099	.01	1.75	1.33	1.06	.013	.00	.00	PIPE
320.614	3298.070	1.826	3299.896	35.00	9.11	1.29	3301.19	.00	2.01	2.22	2.500	.000	.00	1 .0
.718	.0517					.0088	.01	1.83	1.22	1.06	.013	.00	.00	PIPE
321.333	3298.107	1.912	3300.020	35.00	8.69	1.17	3301.19	.00	2.01	2.12	2.500	.000	.00	1 .0
.247	.0517					.0080	.00	1.91	1.11	1.06	.013	.00	.00	PIPE
321.580	3298.120	2.009	3300.129	35.00	8.28	1.06	3301.19	.00	2.01	1.99	2.500	.000	.00	1 .0
324.580	3298.120	2.009	3300.129	35.00	8.28	1.06	3301.19	.00	2.01	1.99	2.500	.000	.00	1 .0

DFD2LMB_Int_LAT_SDDI#4.WSW

0

T1 Summerlin V22 - Atkins Update #1

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

T3 Interim Condition 100-Yr 6-Hr Storm Event

SO	548.18	3301.19	54		3305.69				
R	551.18	3301.29	42	.013		.000	.000	0	
R	645.01	3306.13	42	.013		.000	.000	0	
SH	648.01	3306.13	42						
CD	54	4	1	.000	4.500	.000	.000	.000	.00
CD	24	4	1	.000	2.000	.000	.000	.000	.00
CD	30	4	1	.000	2.500	.000	.000	.000	.00
CD	42	4	1	.000	3.500	.000	.000	.000	.00
Q		139.00		.0					

DFD2LMB_Int_LAT_SDDI#4.OUT

FILE: DFD2LMB_Int_LAT_SDDI#4.WSW

W S P G W - CIVILDESIGN Version 14.08

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time:11:45:53

Summerlin V22 - Atkins Update #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Interim Condition 100-Yr 6-Hr Storm Event

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
548.180	3301.190	2.275	3303.465	139.00	21.00	6.85	3310.31	.00	3.35	3.34	3.500	.000	.00	1 .0
	3.000	.0334				.0333	.10	2.27	2.63	2.27	.013	.00	.00	PIPE
551.180	3301.290	2.276	3303.566	139.00	20.99	6.84	3310.41	.00	3.35	3.34	3.500	.000	.00	1 .0
	14.500	.0516				.0323	.47	2.28	2.63	1.97	.013	.00	.00	PIPE
565.680	3302.038	2.326	3304.364	139.00	20.48	6.51	3310.87	.00	3.35	3.31	3.500	.000	.00	1 .0
	22.351	.0516				.0296	.66	2.33	2.52	1.97	.013	.00	.00	PIPE
588.031	3303.191	2.427	3305.618	139.00	19.52	5.92	3311.54	.00	3.35	3.23	3.500	.000	.00	1 .0
	17.045	.0516				.0264	.45	2.43	2.32	1.97	.013	.00	.00	PIPE
605.076	3304.070	2.536	3306.606	139.00	18.62	5.38	3311.99	.00	3.35	3.13	3.500	.000	.00	1 .0
	13.252	.0516				.0236	.31	2.54	2.12	1.97	.013	.00	.00	PIPE
618.327	3304.754	2.655	3307.409	139.00	17.75	4.89	3312.30	.00	3.35	3.00	3.500	.000	.00	1 .0
	10.338	.0516				.0213	.22	2.66	1.93	1.97	.013	.00	.00	PIPE
628.665	3305.287	2.787	3308.073	139.00	16.92	4.45	3312.52	.00	3.35	2.82	3.500	.000	.00	1 .0
	7.918	.0516				.0193	.15	2.79	1.75	1.97	.013	.00	.00	PIPE
636.583	3305.695	2.935	3308.630	139.00	16.14	4.04	3312.67	.00	3.35	2.58	3.500	.000	.00	1 .0
	5.670	.0516				.0177	.10	2.93	1.55	1.97	.013	.00	.00	PIPE
642.253	3305.988	3.110	3309.098	139.00	15.38	3.68	3312.77	.00	3.35	2.20	3.500	.000	.00	1 .0
	2.757	.0516				.0168	.05	3.11	1.34	1.97	.013	.00	.00	PIPE

DFD2LMB_Int_LAT_SDDI#4.OUT

FILE: DFD2LMB_Int_LAT_SDDI#4.WSW

W S P G W - CIVILDESIGN Version 14.08

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time:11:45:53

Summerlin V22 - Atkins Update #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Interim Condition 100-Yr 6-Hr Storm Event

```

*****
| Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
Station | Elev | (FT) | Elev | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
-|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|-
L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
| | | | | | | | | | | | | | | |
645.010 3306.130 3.349 3309.479 139.00 14.67 3.34 3312.82 .00 3.35 1.42 3.500 .000 .00 1 .0
-|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|-
| | | | | | | | | | | | | | | |
648.010 3306.130 3.349 3309.479 139.00 14.67 3.34 3312.82 .00 3.35 1.42 3.500 .000 .00 1 .0
-|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|-

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DFD2LMB_Int_LAT_SDDI#5.WSW

0

T1 Summerlin V22 - Atkins Update #1
T2 DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD
T3 Interim Condition 100-Yr 6-Hr Storm Event
SO 788.29 3306.02 42 3310.87
R 791.29 3306.12 24 .013 .000 .000 0
R 850.75 3307.12 24 .013 .000 .000 0
SH 853.75 3307.12 24
CD 54 4 1 .000 4.500 .000 .000 .000 .00
CD 24 4 1 .000 2.000 .000 .000 .000 .00
CD 30 4 1 .000 2.500 .000 .000 .000 .00
CD 42 4 1 .000 3.500 .000 .000 .000 .00
Q 3.000 .0

DFD2LMB_Int_LAT_SDDI#5.OUT

FILE: DFD2LMB_Int_LAT_SDDI#5.WSW

W S P G W - CIVILDESIGN Version 14.08

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WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time:11:46: 5

Summerlin V22 - Atkins Update #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Interim Condition 100-Yr 6-Hr Storm Event

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip			
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	*****		
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****		
788.290	3306.020	4.850	3310.870	3.00	.95	.01	3310.88	.00	.60	.00	2.000	.000	.00	1	.0		
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -			
3.000	.0334					.0002	.00	4.85	.00	.36	.013	.00	.00	PIPE			
791.290	3306.120	4.751	3310.871	3.00	.95	.01	3310.88	.00	.60	.00	2.000	.000	.00	1	.0		
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -			
59.460	.0168					.0002	.01	4.75	.00	.43	.013	.00	.00	PIPE			
850.750	3307.120	3.761	3310.881	3.00	.95	.01	3310.90	.00	.60	.00	2.000	.000	.00	1	.0		
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -			
3.000	.0168					.0085	.50	3.76	.00	.43	.013	.00	.00	PIPE			
853.750	3307.120	3.761	3310.881	3.00	.95	.01	3310.90	.00	.60	.00	2.000	.000	.00	1	.0		
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -			

DFD2KCA_Int.WSW

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T1 SUMMERLIN WEST VILLAGE 22
T2 T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADDENDUM #1
T3 ATKINS / Interim CONDITIONS
SO -191.33 3316.19 54 3318.99
REM ##### Tailwater Daylights. Elev. solved for in flowmaster 54" pipe 2% 200cfs
R -191.33 3316.19 54 .013 .000 00.0 0
TS -4.00 3320.01 54
REM ##### Stub Ultimate Condition Cap #1 Street I (Kestrel Creek)
R 0.00 3320.11 48 .013 .000 0.0 0
R 1.00 3320.14 48 .013 .000 15.0 1
R 2.00 3320.17 48 .013 .000 15.0 0
R 3.00 3320.19 48 .013 .000 15.0 0
R 4.00 3320.21 48 .013 .000 14.0 0
REM ##### SDMH#12 DS
R 72.84 3321.92 48 .013 .000 11.67 0
R 75.84 3322.02 48 .013 .000 11.67 1
R 78.84 3322.12 48 .013 .000 11.66 0
REM ##### SDMH#12 US
REM ##### SDMH#13 DS JX SDDI# 11/12/13
R 136.89 3323.55 48 .013 .000 04.00 0
JX 139.89 3323.65 48 30 24.013 48.0 6.0 3323.75 3323.75 90.0-75.0 .000
TS 142.89 3323.75 42 .013 .000 04.00 1
REM ##### SDMH#13 US JX SDDI# 11/12/13
REM ##### SDMH#14 DS
R 293.48 3327.14 42 .013 .000 02.50 0
R 296.48 3327.24 42 .013 .000 00.00 1
R 299.48 3327.34 42 .013 .000 02.50 0
REM ##### SDMH#14 US
REM ##### SDMH#15 DS
R 607.21 3330.48 42 .013 .000 15.00 0
R 609.21 3330.54 42 .013 .000 15.00 0
R 610.21 3330.58 42 .013 .000 15.00 1
R 611.21 3330.61 42 .013 .000 15.00 0
R 612.21 3330.65 42 .013 .000 15.00 0
R 613.21 3330.68 42 .013 .000 11.00 0
REM ##### SDMH#15 US
REM ##### SDMH#16 DS JX Cap#2 Street H (Clowder Pass)
R 643.21 3331.04 42 .013 .000 15.00 0
R 644.21 3331.07 42 .013 .000 15.00 0
R 645.21 3331.10 42 .013 .000 15.00 0
R 646.21 3331.14 42 .013 .000 0.00 1
TS 647.21 3331.17 30 .013 .000 15.00 0
R 648.21 3331.20 30 .013 .000 15.00 0
R 649.21 3331.24 30 .013 .000 08.00 0
REM ##### SDMH#16 US JX Cap#2 Street H (Clowder Pass)
REM ##### SDMH#17 DS
R 711.35 3332.26 30 .013 .000 00.00 0
R 714.35 3332.36 30 .013 .000 03.00 1
R 717.35 3332.46 30 .013 .000 00.00 0
REM ##### SDMH#17 US
REM ##### SDMH#18 DS
R 811.17 3333.96 30 .013 .000 00.00 0
R 812.17 3333.99 30 .013 .000 15.00 0
R 813.17 3334.03 30 .013 .000 15.00 0
R 814.17 3334.06 30 .013 .000 15.00 1
R 815.17 3334.09 30 .013 .000 15.00 0
R 816.17 3334.12 30 .013 .000 15.00 0
R 817.17 3334.16 30 .013 .000 15.00 0
REM ##### SDMH#18 US
REM ##### SDDI#14 JX DS
R 831.77 3334.57 30 .013 .000 00.00 0
JX 834.77 3334.67 30 30 .013 04.0 3335.61 00.0
R 837.77 3334.77 30 .013 .000 00.00 1
REM ##### SDDI #14 JX US

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DFD2KCA_Int.WSW

.000 00.00 0

DFD2KCA_Int.OUT

FILE: DFD2KCA_Int.WSW

W S P G W - CIVILDESIGN Version 14.08

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time: 7: 1:10

SUMMERLIN WEST VILLAGE 22

T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADD

EN ATKINS / Interim CONDITIONS

```

*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
        | Elev  | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|
-191.330 | 3316.190 | 2.028 | 3318.218 | 108.00 | 15.53 | 3.75 | 3321.96 | .00 | 3.06 | 4.48 | 4.500 | .000 | .00 | 0 | .0
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
TRANS STR .0204 | | | | | .0191 | 3.58 | 2.03 | 2.20 | | | .014 | .00 | .00 | PIPE
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
-4.000 | 3320.010 | 2.087 | 3322.097 | 108.00 | 16.29 | 4.12 | 3326.22 | .00 | 3.14 | 4.00 | 4.000 | .000 | .00 | 0 | .0
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
4.000 | .0250 | | | | .0195 | .08 | 2.09 | 2.23 | 1.94 | .013 | .00 | .00 | PIPE
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
.000 | 3320.110 | 2.093 | 3322.203 | 108.00 | 16.23 | 4.09 | 3326.29 | .00 | 3.14 | 4.00 | 4.000 | .000 | .00 | 0 | .0
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
1.000 | .0298 | | | | .0194 | .02 | 2.09 | 2.22 | 1.85 | .013 | .00 | .00 | PIPE
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
1.000 | 3320.140 | 2.095 | 3322.235 | 108.00 | 16.21 | 4.08 | 3326.31 | .00 | 3.14 | 4.00 | 4.000 | .000 | .00 | 0 | .0
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
1.000 | .0300 | | | | .0193 | .02 | 2.10 | 2.21 | 1.84 | .013 | .00 | .00 | PIPE
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
2.000 | 3320.170 | 2.098 | 3322.268 | 108.00 | 16.18 | 4.07 | 3326.33 | .00 | 3.14 | 4.00 | 4.000 | .000 | .00 | 0 | .0
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
1.000 | .0200 | | | | .0193 | .02 | 2.10 | 2.21 | 2.07 | .013 | .00 | .00 | PIPE
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
3.000 | 3320.190 | 2.098 | 3322.288 | 108.00 | 16.18 | 4.07 | 3326.35 | .00 | 3.14 | 4.00 | 4.000 | .000 | .00 | 0 | .0
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
1.000 | .0200 | | | | .0193 | .02 | 2.10 | 2.21 | 2.07 | .013 | .00 | .00 | PIPE
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
4.000 | 3320.210 | 2.098 | 3322.308 | 108.00 | 16.18 | 4.07 | 3326.37 | .00 | 3.14 | 4.00 | 4.000 | .000 | .00 | 0 | .0
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
39.489 | .0248 | | | | .0182 | .72 | 2.10 | 2.21 | 1.95 | .013 | .00 | .00 | PIPE
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
43.489 | 3321.191 | 2.171 | 3323.362 | 108.00 | 15.50 | 3.73 | 3327.09 | .00 | 3.14 | 3.99 | 4.000 | .000 | .00 | 0 | .0
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
29.351 | .0248 | | | | .0162 | .48 | 2.17 | 2.07 | 1.95 | .013 | .00 | .00 | PIPE
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
72.840 | 3321.920 | 2.256 | 3324.177 | 108.00 | 14.78 | 3.39 | 3327.57 | .00 | 3.14 | 3.97 | 4.000 | .000 | .00 | 0 | .0
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
3.000 | .0334 | | | | .0150 | .04 | 2.26 | 1.92 | 1.79 | .013 | .00 | .00 | PIPE

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DFD2KCA_Int.OUT

FILE: DFD2KCA_Int.WSW

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WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time: 7: 1:10

SUMMERLIN WEST VILLAGE 22

T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADD

EN ATKINS / Interim CONDITIONS

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
75.840	3322.020	2.278	3324.298	108.00	14.61	3.32	3327.61	.00	3.14	3.96	4.000	.000	.00	0 .0
3.000	.0334					.0145	.04	2.28	1.89	1.79	.013	.00	.00	PIPE
78.840	3322.120	2.300	3324.420	108.00	14.44	3.24	3327.66	.00	3.14	3.95	4.000	.000	.00	0 .0
6.026	.0246					.0140	.08	2.30	1.85	1.95	.013	.00	.00	PIPE
84.866	3322.268	2.327	3324.595	108.00	14.24	3.15	3327.74	.00	3.14	3.95	4.000	.000	.00	0 .0
16.471	.0246					.0130	.21	2.33	1.81	1.95	.013	.00	.00	PIPE
101.337	3322.674	2.421	3325.095	108.00	13.57	2.86	3327.96	.00	3.14	3.91	4.000	.000	.00	0 .0
12.192	.0246					.0115	.14	2.42	1.68	1.95	.013	.00	.00	PIPE
113.529	3322.974	2.521	3325.496	108.00	12.94	2.60	3328.10	.00	3.14	3.86	4.000	.000	.00	0 .0
9.006	.0246					.0102	.09	2.52	1.55	1.95	.013	.00	.00	PIPE
122.535	3323.196	2.628	3325.824	108.00	12.34	2.36	3328.19	.00	3.14	3.80	4.000	.000	.00	0 .0
6.507	.0246					.0091	.06	2.63	1.43	1.95	.013	.00	.00	PIPE
129.043	3323.357	2.741	3326.098	108.00	11.77	2.15	3328.25	.00	3.14	3.72	4.000	.000	.00	0 .0
4.408	.0246					.0081	.04	2.74	1.32	1.95	.013	.00	.00	PIPE
133.451	3323.465	2.864	3326.329	108.00	11.22	1.95	3328.28	.00	3.14	3.61	4.000	.000	.00	0 .0
2.580	.0246					.0072	.02	2.86	1.21	1.95	.013	.00	.00	PIPE
136.031	3323.529	2.996	3326.525	108.00	10.70	1.78	3328.30	.00	3.14	3.47	4.000	.000	.00	0 .0
.859	.0246					.0065	.01	3.00	1.10	1.95	.013	.00	.00	PIPE

DFD2KCA_Int.OUT

FILE: DFD2KCA_Int.WSW

W S P G W - CIVILDESIGN Version 14.08
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WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time: 7: 1:10

SUMMERLIN WEST VILLAGE 22

T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADD

EN ATKINS / Interim CONDITIONS

*****																	*****	
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt I.D.	ZL	No Wth Prs/Pip				
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch				
*****																	*****	
136.890	3323.550	3.143	3326.693	108.00	10.20	1.61	3328.31	.00	3.14	3.28	4.000	.000	.00	0	.0			
JUNCT STR	.0333					.0038	.01	3.14	1.00		.013	.00	.00	PIPE				
139.890	3323.650	5.377	3329.027	54.00	4.30	.29	3329.31	.00	2.21	.00	4.000	.000	.00	0	.0			
TRANS STR	.0334					.0021	.01	5.38	.00		.013	.00	.00	PIPE				
142.890	3323.750	5.122	3328.872	54.00	5.61	.49	3329.36	.00	2.30	.00	3.500	.000	.00	0	.0			
82.825	.0225					.0029	.24	5.12	.00	1.45	.013	.00	.00	PIPE				
225.715	3325.615	3.500	3329.115	54.00	5.61	.49	3329.60	.00	2.30	.00	3.500	.000	.00	0	.0			
9.138	.0225					.0027	.02	3.50	.00	1.45	.013	.00	.00	PIPE				
234.853	3325.820	3.296	3329.116	54.00	5.75	.51	3329.63	.00	2.30	1.64	3.500	.000	.00	0	.0			
HYDRAULIC JUMP																		
234.853	3325.820	1.558	3327.378	54.00	13.05	2.64	3330.02	.00	2.30	3.48	3.500	.000	.00	0	.0			
24.598	.0225					.0163	.40	1.56	2.11	1.45	.013	.00	.00	PIPE				
259.451	3326.374	1.609	3327.983	54.00	12.51	2.43	3330.41	.00	2.30	3.49	3.500	.000	.00	0	.0			
19.959	.0225					.0145	.29	1.61	1.98	1.45	.013	.00	.00	PIPE				
279.410	3326.823	1.669	3328.492	54.00	11.92	2.21	3330.70	.00	2.30	3.50	3.500	.000	.00	0	.0			
14.070	.0225					.0127	.18	1.67	1.85	1.45	.013	.00	.00	PIPE				
293.480	3327.140	1.733	3328.872	54.00	11.37	2.01	3330.88	.00	2.30	3.50	3.500	.000	.00	0	.0			
3.000	.0334					.0115	.03	1.73	1.72	1.30	.013	.00	.00	PIPE				

DFD2KCA_Int.OUT

FILE: DFD2KCA_Int.WSW

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SUMMERLIN WEST VILLAGE 22

T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADD

EN ATKINS / Interim CONDITIONS

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
296.480	3327.240	1.768	3329.008	54.00	11.08	1.91	3330.92	.00	2.30	3.50	3.500	.000	.00	0 .0
3.000	.0334					.0107	.03	1.77	1.66	1.30	.013	.00	.00	PIPE
299.480	3327.340	1.809	3329.150	54.00	10.76	1.80	3330.95	.00	2.30	3.50	3.500	.000	.00	0 .0
131.754	.0102					.0107	1.42	1.81	1.58	1.81	.013	.00	.00	PIPE
431.234	3328.685	1.765	3330.449	54.00	11.11	1.92	3332.36	.00	2.30	3.50	3.500	.000	.00	0 .0
72.121	.0102					.0120	.86	1.76	1.66	1.81	.013	.00	.00	PIPE
503.355	3329.420	1.700	3331.120	54.00	11.65	2.11	3333.23	.00	2.30	3.50	3.500	.000	.00	0 .0
43.989	.0102					.0136	.60	1.70	1.78	1.81	.013	.00	.00	PIPE
547.343	3329.869	1.638	3331.507	54.00	12.22	2.32	3333.83	.00	2.30	3.49	3.500	.000	.00	0 .0
32.940	.0102					.0155	.51	1.64	1.91	1.81	.013	.00	.00	PIPE
580.284	3330.205	1.579	3331.785	54.00	12.81	2.55	3334.33	.00	2.30	3.48	3.500	.000	.00	0 .0
26.926	.0102					.0176	.47	1.58	2.05	1.81	.013	.00	.00	PIPE
607.210	3330.480	1.523	3332.003	54.00	13.44	2.80	3334.81	.00	2.30	3.47	3.500	.000	.00	0 .0
2.000	.0300					.0186	.04	1.52	2.20	1.34	.013	.00	.00	PIPE
609.210	3330.540	1.529	3332.069	54.00	13.37	2.78	3334.84	.00	2.30	3.47	3.500	.000	.00	0 .0
1.000	.0400					.0183	.02	1.53	2.18	1.24	.013	.00	.00	PIPE
610.210	3330.580	1.534	3332.115	54.00	13.31	2.75	3334.86	.00	2.30	3.47	3.500	.000	.00	0 .0
1.000	.0300					.0181	.02	1.53	2.17	1.34	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22

T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADD

EN ATKINS / Interim CONDITIONS

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
611.210	3330.610	1.538	3332.148	54.00	13.27	2.73	3334.88	.00	2.30	3.47	3.500	.000	.00	0 .0
1.000	.0398					.0180	.02	1.54	2.16	1.24	.013	.00	.00	PIPE
612.210	3330.650	1.543	3332.193	54.00	13.21	2.71	3334.90	.00	2.30	3.48	3.500	.000	.00	0 .0
1.000	.0300					.0178	.02	1.54	2.15	1.34	.013	.00	.00	PIPE
613.210	3330.680	1.547	3332.227	54.00	13.17	2.69	3334.92	.00	2.30	3.48	3.500	.000	.00	0 .0
30.000	.0120					.0189	.57	1.55	2.14	1.73	.013	.00	.00	PIPE
643.210	3331.040	1.494	3332.534	54.00	13.79	2.95	3335.49	.00	2.30	3.46	3.500	.000	.00	0 .0
1.000	.0300					.0200	.02	1.49	2.28	1.34	.013	.00	.00	PIPE
644.210	3331.070	1.496	3332.566	54.00	13.76	2.94	3335.51	.00	2.30	3.46	3.500	.000	.00	0 .0
1.000	.0300					.0199	.02	1.50	2.28	1.34	.013	.00	.00	PIPE
645.210	3331.100	1.498	3332.598	54.00	13.73	2.93	3335.53	.00	2.30	3.46	3.500	.000	.00	0 .0
1.000	.0398					.0197	.02	1.50	2.27	1.24	.013	.00	.00	PIPE
646.210	3331.140	1.503	3332.643	54.00	13.67	2.90	3335.55	.00	2.30	3.46	3.500	.000	.00	0 .0
TRANS STR	.0300					.0186	.02	1.50	2.26		.013	.00	.00	PIPE
647.210	3331.170	2.037	3333.207	54.00	12.61	2.47	3335.68	.00	2.34	1.94	2.500	.000	.00	0 .0
1.000	.0300					.0174	.02	2.04	1.50	1.63	.013	.00	.00	PIPE
648.210	3331.200	2.047	3333.247	54.00	12.55	2.45	3335.69	.00	2.34	1.93	2.500	.000	.00	0 .0
1.000	.0400					.0172	.02	2.05	1.48	1.48	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22

T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADD

EN ATKINS / Interim CONDITIONS

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
649.210	3331.240	2.067	3333.307	54.00	12.44	2.40	3335.71	.00	2.34	1.89	2.500	.000	.00	0 .0
62.140	.0164					.0175	1.09	2.07	1.45	2.12	.013	.00	.00	PIPE
711.350	3332.260	2.013	3334.273	54.00	12.75	2.52	3336.80	.00	2.34	1.98	2.500	.000	.00	0 .0
3.000	.0334					.0176	.05	2.01	1.54	1.57	.013	.00	.00	PIPE
714.350	3332.360	2.050	3334.410	54.00	12.54	2.44	3336.85	.00	2.34	1.92	2.500	.000	.00	0 .0
3.000	.0333					.0170	.05	2.05	1.48	1.57	.013	.00	.00	PIPE
717.350	3332.460	2.095	3334.555	54.00	12.29	2.35	3336.90	.00	2.34	1.84	2.500	.000	.00	0 .0
15.859	.0160					.0168	.27	2.10	1.40	2.16	.013	.00	.00	PIPE
733.209	3332.714	2.083	3334.796	54.00	12.36	2.37	3337.17	.00	2.34	1.86	2.500	.000	.00	0 .0
77.961	.0160					.0177	1.38	2.08	1.42	2.16	.013	.00	.00	PIPE
811.170	3333.960	1.979	3335.938	54.00	12.96	2.61	3338.55	.00	2.34	2.03	2.500	.000	.00	0 .0
1.000	.0300					.0185	.02	1.98	1.59	1.63	.013	.00	.00	PIPE
812.170	3333.990	1.986	3335.976	54.00	12.91	2.59	3338.57	.00	2.34	2.02	2.500	.000	.00	0 .0
1.000	.0400					.0183	.02	1.99	1.58	1.48	.013	.00	.00	PIPE
813.170	3334.030	2.001	3336.031	54.00	12.82	2.55	3338.58	.00	2.34	2.00	2.500	.000	.00	0 .0
1.000	.0300					.0181	.02	2.00	1.56	1.63	.013	.00	.00	PIPE
814.170	3334.060	2.009	3336.069	54.00	12.77	2.53	3338.60	.00	2.34	1.99	2.500	.000	.00	0 .0
1.000	.0300					.0179	.02	2.01	1.54	1.63	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22

T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADD

EN ATKINS / Interim CONDITIONS

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
815.170	3334.090	2.017	3336.107	54.00	12.72	2.51	3338.62	.00	2.34	1.97	2.500	.000	.00	0 .0
1.000	.0300					.0178	.02	2.02	1.53	1.63	.013	.00	.00	PIPE
816.170	3334.120	2.027	3336.147	54.00	12.67	2.49	3338.64	.00	2.34	1.96	2.500	.000	.00	0 .0
1.000	.0398					.0175	.02	2.03	1.51	1.48	.013	.00	.00	PIPE
817.170	3334.160	2.044	3336.204	54.00	12.57	2.45	3338.66	.00	2.34	1.93	2.500	.000	.00	0 .0
2.768	.0281					.0172	.05	2.04	1.48	1.67	.013	.00	.00	PIPE
819.938	3334.238	2.070	3336.308	54.00	12.42	2.40	3338.70	.00	2.34	1.89	2.500	.000	.00	0 .0
8.366	.0281					.0164	.14	2.07	1.44	1.67	.013	.00	.00	PIPE
828.303	3334.473	2.190	3336.662	54.00	11.85	2.18	3338.84	.00	2.34	1.65	2.500	.000	.00	0 .0
3.467	.0281					.0153	.05	2.19	1.26	1.67	.013	.00	.00	PIPE
831.770	3334.570	2.345	3336.915	54.00	11.29	1.98	3338.89	.00	2.34	1.21	2.500	.000	.00	0 .0
JUNCT STR	.0333					.0149	.04	2.34	1.00		.013	.00	.00	PIPE
834.770	3334.670	2.913	3337.583	50.00	10.19	1.61	3339.19	.00	2.30	.00	2.500	.000	.00	0 .0
3.000	.0334					.0149	.04	2.91	.00	1.49	.013	.00	.00	PIPE
837.770	3334.770	2.938	3337.708	50.00	10.19	1.61	3339.32	.00	2.30	.00	2.500	.000	.00	0 .0
66.000	.0209					.0149	.98	2.94	.00	1.76	.013	.00	.00	PIPE
903.770	3336.150	2.539	3338.688	50.00	10.19	1.61	3340.30	.00	2.30	.00	2.500	.000	.00	0 .0
3.000	.0209					.0164	1.08	2.54	.00	1.76	.013	.00	.00	PIPE

DFD2KCA_Int.OUT

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WATER SURFACE PROFILE LISTING

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SUMMERLIN WEST VILLAGE 22

T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADD

EN ATKINS / Interim CONDITIONS

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*****
| Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
Station | Elev | (FT) | Elev | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
-|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|-
L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
| | | | | | | | | | | | | | | |
906.770 3336.150 2.539 3338.688 50.00 10.19 1.61 3340.30 .00 2.30 .00 2.500 .000 .00 0 .0
-|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|-

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DFD2KCA_Int_SDDI_11_12

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T1 SUMMERLIN WEST VILLAGE 22
T2 T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADDENDUM #1
T3 ATKINS / Ultimate CONDITIONS CAP #1
SO 139.89 3323.65 48 3329.03
REM ##### JX DS SDMH#13
R 142.89 3323.75 30 .013 .000 00.00 1
REM ##### JX US SDMH#13
REM ##### JX DS SDDI #11
R 181.59 3326.87 30 .013 .000 00.00 0
JX 184.59 3326.97 30 30 .013 06.0 3326.97 .00.0
R 187.59 3327.07 30 .013 .000 00.00 1
REM ##### JX US SDDI #11
REM ##### JX DS SDDI #12
R 264.31 3330.50 30 .013 .000 00.00 1
SH 267.31 3330.50 30
CD 24 4 0 .000 2.000 .000 .000 .000 .00
CD 30 4 0 .000 2.500 .000 .000 .000 .00
CD 36 4 0 .000 3.000 .000 .000 .000 .00
CD 42 4 0 .000 3.500 .000 .000 .000 .00
CD 48 4 0 .000 4.000 .000 .000 .000 .00
CD 54 4 0 .000 4.500 .000 .000 .000 .00
CD 60 4 0 .000 5.000 .000 .000 .000 .00
CD 66 3 0 0.000 6.000 6.000
CD 106 3 0 0.000 10.00 6.000
Q 042.00 .0

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FILE: DFD2KCA_Int_SDDI_11_12.WSW

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SUMMERLIN WEST VILLAGE 22

T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADD

EN ATKINS / Ultimate CONDITIONS CAP #1

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
139.890	3323.650	5.380	3329.030	48.00	9.78	1.48	3330.51	.00	2.27	.00	2.500	.000	.00	0 .0
3.000	.0334					.0137	.04	5.38	.00	1.45	.013	.00	.00	PIPE
142.890	3323.750	5.395	3329.145	48.00	9.78	1.48	3330.63	.00	2.27	.00	2.500	.000	.00	0 .0
37.870	.0806					.0137	.52	5.40	.00	1.12	.013	.00	.00	PIPE
180.760	3326.803	2.860	3329.663	48.00	9.78	1.48	3331.15	.00	2.27	.00	2.500	.000	.00	0 .0
HYDRAULIC JUMP														
180.760	3326.803	1.732	3328.535	48.00	13.23	2.72	3331.25	.00	2.27	2.31	2.500	.000	.00	0 .0
.830	.0806					.0198	.02	1.73	1.86	1.12	.013	.00	.00	PIPE
181.590	3326.870	1.753	3328.624	48.00	13.05	2.64	3331.27	.00	2.27	2.29	2.500	.000	.00	0 .0
JUNCT STR	.0333					.0261	.08	1.75	1.81		.013	.00	.00	PIPE
184.590	3326.970	1.347	3328.317	42.00	15.58	3.77	3332.08	.00	2.17	2.49	2.500	.000	.00	0 .0
3.000	.0334					.0327	.10	1.35	2.64	1.34	.013	.00	.00	PIPE
187.590	3327.071	1.347	3328.417	42.00	15.58	3.77	3332.18	.00	2.17	2.49	2.500	.000	.00	0 .0
18.312	.0447					.0310	.57	1.35	2.64	1.23	.013	.00	.00	PIPE
205.902	3327.889	1.392	3329.281	42.00	14.95	3.47	3332.75	.00	2.17	2.48	2.500	.000	.00	0 .0
15.276	.0447					.0277	.42	1.39	2.48	1.23	.013	.00	.00	PIPE
221.178	3328.572	1.447	3330.019	42.00	14.26	3.16	3333.18	.00	2.17	2.47	2.500	.000	.00	0 .0
11.280	.0447					.0245	.28	1.45	2.30	1.23	.013	.00	.00	PIPE

DFD2KCA_Int_SDDI_11_12.OUT

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SUMMERLIN WEST VILLAGE 22

T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADD

EN ATKINS / Ultimate CONDITIONS CAP #1

*****																	*****	
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/I.D.	ZL	No Wth Prs/Pip				
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch				
*****																	*****	
232.459	3329.076	1.506	3330.582	42.00	13.59	2.87	3333.45	.00	2.17	2.45	2.500	.000	.00	0	.0			
	8.624	.0447				.0216	.19	1.51	2.13	1.23	.013	.00	.00	PIPE				
241.083	3329.462	1.568	3331.030	42.00	12.96	2.61	3333.64	.00	2.17	2.42	2.500	.000	.00	0	.0			
	6.712	.0447				.0192	.13	1.57	1.97	1.23	.013	.00	.00	PIPE				
247.795	3329.762	1.634	3331.396	42.00	12.36	2.37	3333.77	.00	2.17	2.38	2.500	.000	.00	0	.0			
	5.250	.0447				.0170	.09	1.63	1.82	1.23	.013	.00	.00	PIPE				
253.045	3329.997	1.704	3331.701	42.00	11.78	2.16	3333.86	.00	2.17	2.33	2.500	.000	.00	0	.0			
	4.075	.0447				.0152	.06	1.70	1.68	1.23	.013	.00	.00	PIPE				
257.120	3330.179	1.780	3331.958	42.00	11.24	1.96	3333.92	.00	2.17	2.26	2.500	.000	.00	0	.0			
	3.086	.0447				.0136	.04	1.78	1.54	1.23	.013	.00	.00	PIPE				
260.206	3330.317	1.862	3332.178	42.00	10.71	1.78	3333.96	.00	2.17	2.18	2.500	.000	.00	0	.0			
	2.213	.0447				.0122	.03	1.86	1.41	1.23	.013	.00	.00	PIPE				
262.419	3330.416	1.952	3332.367	42.00	10.21	1.62	3333.99	.00	2.17	2.07	2.500	.000	.00	0	.0			
	1.384	.0447				.0110	.02	1.95	1.28	1.23	.013	.00	.00	PIPE				
263.803	3330.477	2.053	3332.530	42.00	9.74	1.47	3334.00	.00	2.17	1.92	2.500	.000	.00	0	.0			
	.507	.0447				.0100	.01	2.05	1.14	1.23	.013	.00	.00	PIPE				
264.310	3330.500	2.170	3332.670	42.00	9.28	1.34	3334.01	.00	2.17	1.69	2.500	.000	.00	0	.0			
267.310	3330.500	2.170	3332.670	42.00	9.28	1.34	3334.01	.00	2.17	1.69	2.500	.000	.00	0	.0			

DFD2KCA_Int_SDDI_13

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T1 SUMMERLIN WEST VILLAGE 22
T2 T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADDENDUM #1
T3 ATKINS / Ultimate CONDITIONS SDDI #13
SO 139.89 3323.65 48 3329.03
REM ##### JX DS SDMH#13
R 142.89 3323.75 24 .013 .000 00.00 1
REM ##### JX US SDMH#13
REM ##### JX DS SDDI #13
R 188.70 3324.47 24 .013 .000 00.00 1
SH 191.70 3324.47 24
CD 24 4 0 .000 2.000 .000 .000 .000 .00
CD 30 4 0 .000 2.500 .000 .000 .000 .00
CD 36 4 0 .000 3.000 .000 .000 .000 .00
CD 42 4 0 .000 3.500 .000 .000 .000 .00
CD 48 4 0 .000 4.000 .000 .000 .000 .00
CD 54 4 0 .000 4.500 .000 .000 .000 .00
CD 60 4 0 .000 5.000 .000 .000 .000 .00
CD 66 3 0 0.000 6.000 6.000
CD 106 3 0 0.000 10.00 6.000
Q 006.00 .0

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SUMMERLIN WEST VILLAGE 22

T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADD

EN ATKINS / Ultimate CONDITIONS SDDI #13

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*****
| Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
Station | Elev | (FT) | Elev | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
-|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|-
L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
|
139.890 | 3323.650 | 5.380 | 3329.030 | 6.00 | 1.91 | .06 | 3329.09 | .00 | .87 | .00 | 2.000 | .000 | .00 | 0 | .0
-|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|-
3.000 | .0334 | | | | | .0007 | .00 | 5.38 | .00 | .51 | .013 | .00 | .00 | PIPE
|
142.890 | 3323.750 | 5.285 | 3329.035 | 6.00 | 1.91 | .06 | 3329.09 | .00 | .87 | .00 | 2.000 | .000 | .00 | 0 | .0
-|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|-
45.810 | .0157 | | | | | .0007 | .03 | 5.28 | .00 | .62 | .013 | .00 | .00 | PIPE
|
188.700 | 3324.470 | 4.600 | 3329.070 | 6.00 | 1.91 | .06 | 3329.13 | .00 | .87 | .00 | 2.000 | .000 | .00 | 0 | .0
-|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|-
3.000 | .0157 | | | | | .0075 | .34 | 4.60 | .00 | .62 | .013 | .00 | .00 | .0

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C.2 Ultimate Condition

DFD2LMB_ULT.WSW

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T1 Summerlin V22 - Atkins Addendum #1
T2 DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD
T3 Ultimate Condition 100-Yr 6-Hr Storm Event
SO -01.85 3287.13 54 3290.000
R 002.85 3287.23 54
REM SDMH#1
REM END OF SDMH#3
R 68.19 3290.57 54 .013 .000 .000 0
R 69.19 3290.60 54 .013 .000 10.000 0
R 70.19 3290.74 54 .013 .000 10.000 1
JX 71.19 3290.67 54 24 .013 6.000 3290.72 47.0 .000
R 72.19 3290.70 54 .013 .000 00.000 0
R 73.19 3290.73 54 .013 .000 00.000 0
R 74.19 3290.77 54 .013 .000 00.000 0
REM BEG OF SDMH#3
REM END OF SDMH#4
R 221.75 3293.07 54 .013 .000 0.000 0
R 222.75 3293.10 54 .013 .000 0.000 0
R 223.75 3293.14 54 .013 .000 0.000 1
JX 224.75 3293.17 54 30 .013 68.000 3293.27 90.0 .000
R 225.75 3293.20 54 .013 .000 0.000 0
R 226.75 3293.23 54 .013 .000 0.000 0
R 227.75 3293.27 54 .013 .000 0.000 0
REM BEG OF SDMH#4
REM END OF SDMH#5
R 545.18 3301.09 54 .013 .000 0.000 0
R 546.18 3301.12 54 .013 .000 0.000 0
R 547.18 3301.15 54 .013 .000 0.000 1
JX 548.18 3301.19 54 42 .013 90.000 3301.29 90.0 .000
TS 549.18 3301.22 54 .013 .000 0.000 0
R 550.18 3301.25 42 .013 .000 0.000 0
R 551.18 3301.29 42 .013 .000 0.000 0
REM BEG OF SDMH#5
REM END OF SDMH#6
R 785.29 3305.92 42 .013 .000 0.000 0
R 786.29 3305.95 42 .013 .000 15.000 0
R 787.29 3305.98 42 .013 .000 15.000 1
JX 788.29 3306.02 42 24 .013 3.000 3306.12 -45.0 .000
R 789.29 3306.05 42 .013 .000 15.000 0
R 790.29 3306.08 42 .013 .000 0.000 0
R 791.29 3306.12 42 .013 .000 0.000 0
REM BEG OF SDMH#6
REM END OF SDDI#6
R 815.34 3311.38 42 .013 .000 0.000 0
R 816.34 3311.41 42 .013 .000 15.000 1
R 817.34 3311.44 42 .013 .000 15.000 0
JX 818.34 3311.48 42 42 .013 6.000 3311.58 0.0 .000
R 819.34 3311.51 42 .013 .000 15.000 0
R 820.34 3311.54 42 .013 .000 0.000 0
R 821.34 3311.58 42 .013 .000 0.000 0
REM BEG OF SDDI#6
REM SDDI#7
R 893.84 3312.85 42 .013 .000 0.000 1
SH 896.84 3312.85 42
CD 54 4 1 .000 4.500 .000 .000 .000 .00
CD 24 4 1 .000 2.000 .000 .000 .000 .00
CD 30 4 1 .000 2.500 .000 .000 .000 .00
CD 42 4 1 .000 3.500 .000 .000 .000 .00
Q 50.000 .0

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WATER SURFACE PROFILE LISTING

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Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-1.850	3287.130	2.849	3289.979	223.00	21.00	6.85	3296.83	.00	4.17	4.34	4.500	.000	.00	1 .0
4.700	.0213					.0282	.13	2.85	2.37	3.15	.014	.00	.00	PIPE
2.850	3287.230	2.842	3290.072	223.00	21.06	6.89	3296.96	.00	4.17	4.34	4.500	.000	.00	1 .0
16.209	.0511					.0232	.38	2.84	2.38	2.25	.013	.00	.00	PIPE
19.059	3288.059	2.948	3291.006	223.00	20.20	6.33	3297.34	.00	4.17	4.28	4.500	.000	.00	1 .0
14.781	.0511					.0208	.31	2.95	2.22	2.25	.013	.00	.00	PIPE
33.840	3288.814	3.075	3291.889	223.00	19.26	5.76	3297.65	.00	4.17	4.19	4.500	.000	.00	1 .0
11.853	.0511					.0185	.22	3.08	2.04	2.25	.013	.00	.00	PIPE
45.693	3289.420	3.212	3292.632	223.00	18.36	5.24	3297.87	.00	4.17	4.07	4.500	.000	.00	1 .0
9.470	.0511					.0165	.16	3.21	1.87	2.25	.013	.00	.00	PIPE
55.163	3289.904	3.360	3293.265	223.00	17.51	4.76	3298.02	.00	4.17	3.91	4.500	.000	.00	1 .0
7.433	.0511					.0148	.11	3.36	1.71	2.25	.013	.00	.00	PIPE
62.597	3290.284	3.523	3293.807	223.00	16.69	4.33	3298.13	.00	4.17	3.71	4.500	.000	.00	1 .0
5.593	.0511					.0134	.07	3.52	1.55	2.25	.013	.00	.00	PIPE
68.190	3290.570	3.706	3294.276	223.00	15.92	3.93	3298.21	.00	4.17	3.43	4.500	.000	.00	1 .0
1.000	.0300					.0127	.01	3.71	1.39	2.65	.013	.00	.00	PIPE
69.190	3290.600	3.725	3294.325	223.00	15.84	3.90	3298.22	.00	4.17	3.40	4.500	.000	.00	1 .0
1.000	.1399					.0122	.01	3.72	1.37	1.70	.013	.00	.00	PIPE

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Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
70.190	3290.740	3.914	3294.654	223.00	15.18	3.58	3298.23	.00	4.17	3.03	4.500	.000	.00	1 .0
JUNCT STR	-.0701					.0130	.01	3.91	1.22		.013	.00	.00	PIPE
71.190	3290.670	3.414	3294.083	217.00	16.76	4.36	3298.45	.00	4.14	3.85	4.500	.000	.00	1 .0
1.000	.0300					.0142	.01	3.41	1.61	2.61	.013	.00	.00	PIPE
72.190	3290.700	3.423	3294.123	217.00	16.72	4.34	3298.46	.00	4.14	3.84	4.500	.000	.00	1 .0
1.000	.0300					.0141	.01	3.42	1.60	2.61	.013	.00	.00	PIPE
73.190	3290.730	3.433	3294.163	217.00	16.67	4.31	3298.48	.00	4.14	3.83	4.500	.000	.00	1 .0
1.000	.0400					.0140	.01	3.43	1.59	2.39	.013	.00	.00	PIPE
74.190	3290.770	3.450	3294.220	217.00	16.58	4.27	3298.49	.00	4.14	3.81	4.500	.000	.00	1 .0
45.766	.0156					.0137	.63	3.45	1.58	3.29	.013	.00	.00	PIPE
119.956	3291.483	3.514	3294.997	217.00	16.29	4.12	3299.12	.00	4.14	3.72	4.500	.000	.00	1 .0
68.563	.0156					.0128	.88	3.51	1.52	3.29	.013	.00	.00	PIPE
188.520	3292.552	3.695	3296.247	217.00	15.53	3.74	3299.99	.00	4.14	3.45	4.500	.000	.00	1 .0
33.230	.0156					.0116	.39	3.69	1.36	3.29	.013	.00	.00	PIPE
221.750	3293.070	3.904	3296.974	217.00	14.81	3.40	3300.38	.00	4.14	3.05	4.500	.000	.00	1 .0
1.000	.0300					.0111	.01	3.90	1.19	2.61	.013	.00	.00	PIPE
222.750	3293.100	3.955	3297.055	217.00	14.65	3.33	3300.39	.00	4.14	2.94	4.500	.000	.00	1 .0
1.000	.0398					.0108	.01	3.96	1.15	2.39	.013	.00	.00	PIPE

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Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

*****																	*****	
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/I.D.	ZL	No Wth Prs/Pip				
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch				
*****																	*****	
223.750	3293.140	4.137	3297.277	217.00	14.18	3.12	3300.40	.00	4.14	2.45	4.500	.000	.00	1	.0			
JUNCT STR	.0300					.0082	.01	4.14	1.00		.013	.00	.00	PIPE				
224.750	3293.170	7.462	3300.632	149.00	9.37	1.36	3302.00	.00	3.58	.00	4.500	.000	.00	1	.0			
1.000	.0300					.0057	.01	7.46	.00	2.08	.013	.00	.00	PIPE				
225.750	3293.200	7.438	3300.638	149.00	9.37	1.36	3302.00	.00	3.58	.00	4.500	.000	.00	1	.0			
1.000	.0300					.0057	.01	7.44	.00	2.08	.013	.00	.00	PIPE				
226.750	3293.230	7.414	3300.644	149.00	9.37	1.36	3302.01	.00	3.58	.00	4.500	.000	.00	1	.0			
1.000	.0400					.0057	.01	7.41	.00	1.92	.013	.00	.00	PIPE				
227.750	3293.270	7.380	3300.650	149.00	9.37	1.36	3302.01	.00	3.58	.00	4.500	.000	.00	1	.0			
112.418	.0246					.0057	.65	7.38	.00	2.20	.013	.00	.00	PIPE				
340.168	3296.040	5.255	3301.294	149.00	9.37	1.36	3302.66	.00	3.58	.00	4.500	.000	.00	1	.0			
HYDRAULIC JUMP																		
340.168	3296.040	2.330	3298.370	149.00	17.92	4.99	3303.36	.00	3.58	4.50	4.500	.000	.00	1	.0			
54.113	.0246					.0196	1.06	2.33	2.32	2.20	.013	.00	.00	PIPE				
394.281	3297.373	2.392	3299.764	149.00	17.35	4.67	3304.44	.00	3.58	4.49	4.500	.000	.00	1	.0			
47.222	.0246					.0176	.83	2.39	2.21	2.20	.013	.00	.00	PIPE				
441.504	3298.536	2.485	3301.021	149.00	16.54	4.25	3305.27	.00	3.58	4.48	4.500	.000	.00	1	.0			
31.677	.0246					.0156	.49	2.49	2.05	2.20	.013	.00	.00	PIPE				

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Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
473.181	3299.316	2.584	3301.900	149.00	15.77	3.86	3305.76	.00	3.58	4.45	4.500	.000	.00	1 .0
22.689	.0246					.0137	.31	2.58	1.91	2.20	.013	.00	.00	PIPE
495.870	3299.875	2.688	3302.563	149.00	15.04	3.51	3306.07	.00	3.58	4.41	4.500	.000	.00	1 .0
16.756	.0246					.0122	.20	2.69	1.77	2.20	.013	.00	.00	PIPE
512.626	3300.288	2.798	3303.086	149.00	14.34	3.19	3306.28	.00	3.58	4.36	4.500	.000	.00	1 .0
12.499	.0246					.0108	.13	2.80	1.64	2.20	.013	.00	.00	PIPE
525.125	3300.596	2.915	3303.511	149.00	13.67	2.90	3306.41	.00	3.58	4.30	4.500	.000	.00	1 .0
9.214	.0246					.0096	.09	2.91	1.51	2.20	.013	.00	.00	PIPE
534.339	3300.823	3.040	3303.863	149.00	13.03	2.64	3306.50	.00	3.58	4.21	4.500	.000	.00	1 .0
6.560	.0246					.0085	.06	3.04	1.39	2.20	.013	.00	.00	PIPE
540.899	3300.985	3.174	3304.158	149.00	12.43	2.40	3306.56	.00	3.58	4.10	4.500	.000	.00	1 .0
4.281	.0246					.0076	.03	3.17	1.28	2.20	.013	.00	.00	PIPE
545.180	3301.090	3.319	3304.409	149.00	11.85	2.18	3306.59	.00	3.58	3.96	4.500	.000	.00	1 .0
1.000	.0300					.0070	.01	3.32	1.17	2.08	.013	.00	.00	PIPE
546.180	3301.120	3.392	3304.512	149.00	11.58	2.08	3306.60	.00	3.58	3.88	4.500	.000	.00	1 .0
.202	.0298					.0068	.00	3.39	1.12	2.09	.013	.00	.00	PIPE
546.382	3301.126	3.411	3304.538	149.00	11.52	2.06	3306.60	.00	3.58	3.85	4.500	.000	.00	1 .0
.798	.0298					.0064	.01	3.41	1.11	2.09	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING

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Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
547.180	3301.150	3.581	3304.731	149.00	10.98	1.87	3306.60	.00	3.58	3.63	4.500	.000	.00	1 .0
JUNCT STR	.0400					.0035	.00	3.58	1.00		.013	.00	.00	PIPE
548.180	3301.190	6.530	3307.720	59.00	3.71	.21	3307.93	.00	2.23	.00	4.500	.000	.00	1 .0
TRANS STR	.0300					.0009	.00	6.53	.00		.013	.00	.00	PIPE
549.180	3301.220	6.501	3307.721	59.00	6.13	.58	3308.31	.00	2.41	.00	3.500	.000	.00	1 .0
1.000	.0300					.0034	.00	6.50	.00	1.40	.013	.00	.00	PIPE
550.180	3301.250	6.475	3307.725	59.00	6.13	.58	3308.31	.00	2.41	.00	3.500	.000	.00	1 .0
1.000	.0400					.0034	.00	6.47	.00	1.30	.013	.00	.00	PIPE
551.180	3301.290	6.438	3307.728	59.00	6.13	.58	3308.31	.00	2.41	.00	3.500	.000	.00	1 .0
152.467	.0198					.0034	.52	6.44	.00	1.58	.013	.00	.00	PIPE
703.647	3304.305	3.947	3308.252	59.00	6.13	.58	3308.84	.00	2.41	.00	3.500	.000	.00	1 .0
HYDRAULIC JUMP														
703.647	3304.305	1.391	3305.696	59.00	16.56	4.26	3309.96	.00	2.41	3.43	3.500	.000	.00	1 .0
14.784	.0198					.0319	.47	1.39	2.86	1.58	.013	.00	.00	PIPE
718.431	3304.598	1.370	3305.968	59.00	16.90	4.43	3310.40	.00	2.41	3.42	3.500	.000	.00	1 .0
25.889	.0198					.0351	.91	1.37	2.95	1.58	.013	.00	.00	PIPE
744.320	3305.110	1.323	3306.432	59.00	17.72	4.88	3311.31	.00	2.41	3.39	3.500	.000	.00	1 .0
21.886	.0198					.0400	.87	1.32	3.15	1.58	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time: 9:27:44

Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
766.206	3305.542	1.277	3306.819	59.00	18.58	5.36	3312.18	.00	2.41	3.37	3.500	.000	.00	1 .0
19.084	.0198					.0456	.87	1.28	3.37	1.58	.013	.00	.00	PIPE
785.290	3305.920	1.233	3307.153	59.00	19.49	5.90	3313.05	.00	2.41	3.34	3.500	.000	.00	1 .0
1.000	.0300					.0487	.05	1.23	3.61	1.40	.013	.00	.00	PIPE
786.290	3305.950	1.231	3307.181	59.00	19.53	5.92	3313.10	.00	2.41	3.34	3.500	.000	.00	1 .0
1.000	.0300					.0489	.05	1.23	3.62	1.40	.013	.00	.00	PIPE
787.290	3305.980	1.230	3307.210	59.00	19.56	5.94	3313.15	.00	2.41	3.34	3.500	.000	.00	1 .0
JUNCT STR	.0400					.0545	.05	1.23	3.63		.013	.00	.00	PIPE
788.290	3306.020	1.135	3307.155	56.00	20.72	6.67	3313.82	.00	2.34	3.28	3.500	.000	.00	1 .0
1.000	.0300					.0601	.06	1.13	4.02	1.36	.013	.00	.00	PIPE
789.290	3306.050	1.133	3307.183	56.00	20.77	6.70	3313.88	.00	2.34	3.28	3.500	.000	.00	1 .0
1.000	.0300					.0605	.06	1.13	4.03	1.36	.013	.00	.00	PIPE
790.290	3306.080	1.131	3307.211	56.00	20.82	6.73	3313.94	.00	2.34	3.27	3.500	.000	.00	1 .0
1.000	.0400					.0609	.06	1.13	4.05	1.26	.013	.00	.00	PIPE
791.290	3306.120	1.129	3307.249	56.00	20.86	6.76	3314.01	.00	2.34	3.27	3.500	.000	.00	1 .0
1.392	.2187					.0596	.08	1.13	4.06	.82	.013	.00	.00	PIPE
792.682	3306.425	1.144	3307.568	56.00	20.50	6.52	3314.09	.00	2.34	3.28	3.500	.000	.00	1 .0
3.366	.2187					.0545	.18	1.14	3.96	.82	.013	.00	.00	PIPE

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Date: 5-12-2020 Time: 9:27:44

Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip		
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch		

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

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Date: 5-12-2020 Time: 9:27:44

Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
812.064	3310.663	1.633	3312.296	56.00	12.73	2.52	3314.81	.00	2.34	3.49	3.500	.000	.00	1 .0
	.820	.2187				.0148	.01	1.63	2.00	.82	.013	.00	.00	PIPE
812.884	3310.843	1.694	3312.537	56.00	12.13	2.29	3314.82	.00	2.34	3.50	3.500	.000	.00	1 .0
	.698	.2187				.0130	.01	1.69	1.86	.82	.013	.00	.00	PIPE
813.582	3310.995	1.758	3312.754	56.00	11.57	2.08	3314.83	.00	2.34	3.50	3.500	.000	.00	1 .0
	.586	.2187				.0115	.01	1.76	1.73	.82	.013	.00	.00	PIPE
814.168	3311.124	1.826	3312.949	56.00	11.03	1.89	3314.84	.00	2.34	3.50	3.500	.000	.00	1 .0
	.484	.2187				.0101	.00	1.83	1.61	.82	.013	.00	.00	PIPE
814.652	3311.229	1.897	3313.126	56.00	10.52	1.72	3314.84	.00	2.34	3.49	3.500	.000	.00	1 .0
	.388	.2187				.0089	.00	1.90	1.50	.82	.013	.00	.00	PIPE
815.040	3311.314	1.972	3313.286	56.00	10.03	1.56	3314.85	.00	2.34	3.47	3.500	.000	.00	1 .0
	.300	.2187				.0079	.00	1.97	1.39	.82	.013	.00	.00	PIPE
815.340	3311.380	2.050	3313.430	56.00	9.56	1.42	3314.85	.00	2.34	3.45	3.500	.000	.00	1 .0
	1.000	.0300				.0072	.01	2.05	1.29	1.36	.013	.00	.00	PIPE
816.340	3311.410	2.087	3313.497	56.00	9.36	1.36	3314.86	.00	2.34	3.43	3.500	.000	.00	1 .0
	1.000	.0300				.0068	.01	2.09	1.25	1.36	.013	.00	.00	PIPE
817.340	3311.440	2.133	3313.573	56.00	9.12	1.29	3314.86	.00	2.34	3.41	3.500	.000	.00	1 .0
JUNCT STR	.0400					.0102	.01	2.13	1.20		.013	.00	.00	PIPE

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Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
818.340	3311.480	1.587	3313.067	50.00	11.79	2.16	3315.22	.00	2.21	3.48	3.500	.000	.00	1 .0
1.000	.0300					.0138	.01	1.59	1.88	1.28	.013	.00	.00	PIPE
819.340	3311.510	1.593	3313.104	50.00	11.73	2.14	3315.24	.00	2.21	3.49	3.500	.000	.00	1 .0
1.000	.0300					.0136	.01	1.59	1.87	1.28	.013	.00	.00	PIPE
820.340	3311.540	1.600	3313.140	50.00	11.66	2.11	3315.25	.00	2.21	3.49	3.500	.000	.00	1 .0
1.000	.0400					.0133	.01	1.60	1.85	1.19	.013	.00	.00	PIPE
821.340	3311.580	1.611	3313.191	50.00	11.56	2.08	3315.27	.00	2.21	3.49	3.500	.000	.00	1 .0
6.342	.0175					.0130	.08	1.61	1.83	1.49	.013	.00	.00	PIPE
827.682	3311.691	1.624	3313.315	50.00	11.44	2.03	3315.35	.00	2.21	3.49	3.500	.000	.00	1 .0
22.522	.0175					.0120	.27	1.62	1.80	1.49	.013	.00	.00	PIPE
850.204	3312.086	1.685	3313.771	50.00	10.91	1.85	3315.62	.00	2.21	3.50	3.500	.000	.00	1 .0
15.015	.0175					.0106	.16	1.68	1.68	1.49	.013	.00	.00	PIPE
865.220	3312.349	1.749	3314.097	50.00	10.40	1.68	3315.78	.00	2.21	3.50	3.500	.000	.00	1 .0
10.462	.0175					.0093	.10	1.75	1.56	1.49	.013	.00	.00	PIPE
875.682	3312.532	1.816	3314.348	50.00	9.92	1.53	3315.88	.00	2.21	3.50	3.500	.000	.00	1 .0
7.362	.0175					.0082	.06	1.82	1.46	1.49	.013	.00	.00	PIPE
883.044	3312.661	1.886	3314.547	50.00	9.46	1.39	3315.94	.00	2.21	3.49	3.500	.000	.00	1 .0
5.079	.0175					.0072	.04	1.89	1.35	1.49	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time: 9:27:44

Summerlin V22 - Atkins Addendum #1

DESERT FOOTHILLS DRIVE - KESTREL CREEK AVE TO LAKE MEAD BOULEVARD

Ultimate Condition 100-Yr 6-Hr Storm Event

*****																	*****	
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt I.D.	ZL	No Wth	Prs/Pip			
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type	Ch			
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****		
888.123	3312.750	1.960	3314.710	50.00	9.02	1.26	3315.97	.00	2.21	3.47	3.500	.000	.00	1	.0			
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		
3.300	.0175					.0064	.02	1.96	1.26	1.49	.013	.00	.00	PIPE				
891.423	3312.808	2.038	3314.846	50.00	8.60	1.15	3315.99	.00	2.21	3.45	3.500	.000	.00	1	.0			
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		
1.835	.0175					.0057	.01	2.04	1.17	1.49	.013	.00	.00	PIPE				
893.258	3312.840	2.121	3314.961	50.00	8.20	1.04	3316.00	.00	2.21	3.42	3.500	.000	.00	1	.0			
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		
.582	.0175					.0050	.00	2.12	1.08	1.49	.013	.00	.00	PIPE				
893.840	3312.850	2.209	3315.060	50.00	7.81	.95	3316.01	.00	2.21	3.38	3.500	.000	.00	1	.0			
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		
896.840	3312.850	2.209	3315.060	50.00	7.81	.95	3316.01	.00	2.21	3.38	3.500	.000	.00	1	.0			
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		

DFD2LMB_ULI_LAT_SDDI#1.WSW

T1 Summerlin V22 - Atkins											
T2 Desert Foothills Drive to Lake Mead Boulevard (North) SDDI#1											
T3 Int/Ult Flow w/ Critical HGL Tailwater Condition											
SO	71.19	3290.67	54						3294.08		
R	74.19	3290.72	24		.013					.000	.000 0
R	97.12	3294.14	24		.013					.000	.000 0
SH	100.12	3294.14	24								
CD	54	4	1	.000	4.500	.000	.000	.000	.00		
CD	24	4	1	.000	2.000	.000	.000	.000	.00		
CD	30	4	1	.000	2.500	.000	.000	.000	.00		
CD	42	4	1	.000	3.500	.000	.000	.000	.00		
Q				6.000	.0						

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WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time:10:35:25

Summerlin V22 - Atkins

Desert Foothills Drive to Lake Mead Boulevard (North) SDDI#1

Int/Ult Flow w/ Critical HGL Tailwater Condition

*****																	*****	
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/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				
*****																	*****	
71.190	3290.670	3.410	3294.080	6.00	1.91	.06	3294.14	.00	.87	.00	2.000	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
3.000	.0167					.0007	.00	3.41	.00	.61	.013	.00	.00	PIPE				
74.190	3290.720	3.362	3294.082	6.00	1.91	.06	3294.14	.00	.87	.00	2.000	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
9.177	.1491					.0007	.01	3.36	.00	.35	.013	.00	.00	PIPE				
83.367	3292.089	2.000	3294.089	6.00	1.91	.06	3294.15	.00	.87	.00	2.000	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
1.204	.1491					.0007	.00	2.00	.00	.35	.013	.00	.00	PIPE				
84.570	3292.268	1.815	3294.083	6.00	2.00	.06	3294.15	.00	.87	1.16	2.000	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
.683	.1491					.0006	.00	1.81	.22	.35	.013	.00	.00	PIPE				
85.254	3292.370	1.707	3294.077	6.00	2.10	.07	3294.15	.00	.87	1.41	2.000	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
.552	.1491					.0007	.00	1.71	.26	.35	.013	.00	.00	PIPE				
85.806	3292.452	1.618	3294.070	6.00	2.20	.08	3294.15	.00	.87	1.57	2.000	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
.474	.1491					.0008	.00	1.62	.30	.35	.013	.00	.00	PIPE				
86.279	3292.523	1.540	3294.063	6.00	2.31	.08	3294.15	.00	.87	1.68	2.000	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
.055	.1491					.0008	.00	1.54	.33	.35	.013	.00	.00	PIPE				
86.334	3292.531	1.540	3294.071	6.00	2.31	.08	3294.15	.00	.87	1.68	2.000	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
HYDRAULIC JUMP																		
86.334	3292.531	.448	3292.979	6.00	11.40	2.02	3295.00	.00	.87	1.67	2.000	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
1.548	.1491					.0543	.08	.45	3.58	.35	.013	.00	.00	PIPE				

DFD2LMB_ULT_LAT_SDDI#1.OUT

FILE: DFD2LMB_ULT_LAT_SDDI#1.WSW

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time:10:35:25

Summerlin V22 - Atkins

Desert Foothills Drive to Lake Mead Boulevard (North) SDDI#1

Int/Ult Flow w/ Critical HGL Tailwater Condition

*****																	*****	
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/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				
*****																	*****	
87.882	3292.762	.464	3293.226	6.00	10.87	1.84	3295.06	.00	.87	1.69	2.000	.000	.00	1	.0			
	1.485	.1491				.0475	.07	.46	3.35	.35	.013	.00	.00	PIPE				
89.367	3292.984	.479	3293.463	6.00	10.36	1.67	3295.13	.00	.87	1.71	2.000	.000	.00	1	.0			
	1.256	.1491				.0415	.05	.48	3.14	.35	.013	.00	.00	PIPE				
90.622	3293.171	.496	3293.667	6.00	9.88	1.52	3295.18	.00	.87	1.73	2.000	.000	.00	1	.0			
	1.071	.1491				.0363	.04	.50	2.94	.35	.013	.00	.00	PIPE				
91.693	3293.331	.513	3293.844	6.00	9.42	1.38	3295.22	.00	.87	1.75	2.000	.000	.00	1	.0			
	.917	.1491				.0317	.03	.51	2.75	.35	.013	.00	.00	PIPE				
92.610	3293.468	.531	3293.998	6.00	8.98	1.25	3295.25	.00	.87	1.77	2.000	.000	.00	1	.0			
	.787	.1491				.0278	.02	.53	2.57	.35	.013	.00	.00	PIPE				
93.397	3293.585	.549	3294.134	6.00	8.57	1.14	3295.27	.00	.87	1.79	2.000	.000	.00	1	.0			
	.677	.1491				.0243	.02	.55	2.41	.35	.013	.00	.00	PIPE				
94.075	3293.686	.568	3294.254	6.00	8.17	1.04	3295.29	.00	.87	1.80	2.000	.000	.00	1	.0			
	.582	.1491				.0213	.01	.57	2.26	.35	.013	.00	.00	PIPE				
94.656	3293.773	.588	3294.361	6.00	7.79	.94	3295.30	.00	.87	1.82	2.000	.000	.00	1	.0			
	.499	.1491				.0186	.01	.59	2.11	.35	.013	.00	.00	PIPE				
95.155	3293.847	.608	3294.456	6.00	7.42	.86	3295.31	.00	.87	1.84	2.000	.000	.00	1	.0			
	.425	.1491				.0163	.01	.61	1.97	.35	.013	.00	.00	PIPE				

DFD2LMB_ULT_LAT_SDDI#1.OUT

FILE: DFD2LMB_ULT_LAT_SDDI#1.WSW

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time:10:35:25

Summerlin V22 - Atkins

Desert Foothills Drive to Lake Mead Boulevard (North) SDDI#1

Int/Ult Flow w/ Critical HGL Tailwater Condition

*****																	*****														
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ 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																	
95.580	3293.910	.630	3294.540	6.00	7.08	.78	3295.32	.00	.87	1.86	2.000	.000	.00	1 .0																	
	.361	.1491				.0143	.01	.63	1.85	.35	.013	.00	.00	PIPE																	
95.941	3293.964	.652	3294.616	6.00	6.75	.71	3295.32	.00	.87	1.87	2.000	.000	.00	1 .0																	
	.302	.1491				.0125	.00	.65	1.73	.35	.013	.00	.00	PIPE																	
96.242	3294.009	.675	3294.684	6.00	6.44	.64	3295.33	.00	.87	1.89	2.000	.000	.00	1 .0																	
	.250	.1491				.0110	.00	.67	1.62	.35	.013	.00	.00	PIPE																	
96.492	3294.046	.699	3294.745	6.00	6.14	.58	3295.33	.00	.87	1.91	2.000	.000	.00	1 .0																	
	.202	.1491				.0096	.00	.70	1.51	.35	.013	.00	.00	PIPE																	
96.694	3294.076	.724	3294.800	6.00	5.85	.53	3295.33	.00	.87	1.92	2.000	.000	.00	1 .0																	
	.159	.1491				.0084	.00	.72	1.41	.35	.013	.00	.00	PIPE																	
96.854	3294.100	.750	3294.850	6.00	5.58	.48	3295.33	.00	.87	1.94	2.000	.000	.00	1 .0																	
	.119	.1491				.0074	.00	.75	1.32	.35	.013	.00	.00	PIPE																	
96.973	3294.118	.777	3294.895	6.00	5.32	.44	3295.33	.00	.87	1.95	2.000	.000	.00	1 .0																	
	.082	.1491				.0065	.00	.78	1.23	.35	.013	.00	.00	PIPE																	
97.055	3294.130	.805	3294.935	6.00	5.07	.40	3295.33	.00	.87	1.96	2.000	.000	.00	1 .0																	
	.049	.1491				.0057	.00	.80	1.15	.35	.013	.00	.00	PIPE																	
97.104	3294.137	.834	3294.972	6.00	4.84	.36	3295.33	.00	.87	1.97	2.000	.000	.00	1 .0																	
	.016	.1491				.0050	.00	.83	1.07	.35	.013	.00	.00	PIPE																	

DFD2LMB_ULT_LAT_SDDI#1.OUT

FILE: DFD2LMB_ULT_LAT_SDDI#1.WSW

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time:10:35:25

Summerlin V22 - Atkins

Desert Foothills Drive to Lake Mead Boulevard (North) SDDI#1

Int/Ult Flow w/ Critical HGL Tailwater Condition

```

*****
| Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
Station | Elev | (FT) | Elev | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
-|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|-
L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
| | | | | | | | | | | | | | | |
97.120 3294.140 .866 3295.006 6.00 4.60 .33 3295.33 .00 .87 1.98 2.000 .000 .00 1 .0
-|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|-
| | | | | | | | | | | | | | | |
100.120 3294.140 .866 3295.006 6.00 4.60 .33 3295.33 .00 .87 1.98 2.000 .000 .00 1 .0
-|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|-

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DFD2LMB_ULT_LAT_SDDI#2.WSW

0

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T1 Summerlin V22 Atkins
T2 Desert Foothills Drive- Kestrel Creek Ave to Lake Mead Boulevard SDDI#2
T3 INT/ULT Condition 100-Yr 6-Hr Storm Event
SO      0.00 3289.22 54      3290.000
R      3.00 3289.32 30      .013      .000      .000 0
REM  END OF SDMH#2
R      46.63 3289.50 30      .013      .000      .000 0
R      47.63 3289.53 30      .013      .000     10.000 0
R      48.63 3289.56 30      .013      .000     10.000 0
R      49.63 3289.60 30      .013      .000     10.000 1
TS      50.63 3289.63 24      .013      .000     00.000 0
R      51.63 3289.66 24      .013      .000     00.000 0
R      53.63 3289.70 24      .013      .000     00.000 0
REM  BEG OF SDMH#2
REM  END OF SDDI#2
R      86.55 3295.25 24      .013      .000     00.000 0
SH      89.55 3295.25 24
CD  54  4  1      .000  4.500      .000      .000      .000      .00
CD  24  4  1      .000  2.000      .000      .000      .000      .00
CD  30  4  1      .000  2.500      .000      .000      .000      .00
CD  42  4  1      .000  3.500      .000      .000      .000      .00
Q      5.000      .0

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DFD2LMB_ULT_LAT_SDDI#2.OUT

FILE: DFD2LMB_ULT_LAT_SDDI#2.WSW

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PAGE 1

Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time:10:35:39

Summerlin V22 Atkins

Desert Foothills Drive- Kestrel Creek Ave to Lake Mead Boulevard SDDI#2

INT/ULT Condition 100-Yr 6-Hr Storm Event

*****															*****	
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip		
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch		
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****		
.000	3289.220	.508	3289.728	5.00	7.00	.76	3290.49	.00	.74	2.01	2.500	.000	.00	1 .0		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
3.000	.0334					.0172	.05	.51	2.07	.44	.013	.00	.00	PIPE		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
3.000	3289.320	.523	3289.844	5.00	6.71	.70	3290.54	.00	.74	2.03	2.500	.000	.00	1 .0		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
3.673	.0041					.0172	.06	.52	1.95	.74	.013	.00	.00	PIPE		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
6.673	3289.335	.507	3289.843	5.00	7.01	.76	3290.61	.00	.74	2.01	2.500	.000	.00	1 .0		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
3.856	.0041					.0196	.08	.51	2.07	.74	.013	.00	.00	PIPE		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
10.530	3289.351	.491	3289.842	5.00	7.35	.84	3290.68	.00	.74	1.99	2.500	.000	.00	1 .0		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
3.704	.0041					.0224	.08	.49	2.21	.74	.013	.00	.00	PIPE		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
14.233	3289.367	.475	3289.841	5.00	7.71	.92	3290.76	.00	.74	1.96	2.500	.000	.00	1 .0		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
3.564	.0041					.0257	.09	.47	2.36	.74	.013	.00	.00	PIPE		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
17.797	3289.381	.459	3289.841	5.00	8.08	1.01	3290.86	.00	.74	1.94	2.500	.000	.00	1 .0		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
3.428	.0041					.0294	.10	.46	2.52	.74	.013	.00	.00	PIPE		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
21.225	3289.396	.444	3289.840	5.00	8.48	1.12	3290.96	.00	.74	1.91	2.500	.000	.00	1 .0		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
3.291	.0041					.0336	.11	.44	2.69	.74	.013	.00	.00	PIPE		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
24.517	3289.409	.430	3289.839	5.00	8.89	1.23	3291.07	.00	.74	1.89	2.500	.000	.00	1 .0		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
3.164	.0041					.0385	.12	.43	2.87	.74	.013	.00	.00	PIPE		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
27.681	3289.422	.416	3289.838	5.00	9.33	1.35	3291.19	.00	.74	1.86	2.500	.000	.00	1 .0		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
3.044	.0041					.0441	.13	.42	3.06	.74	.013	.00	.00	PIPE		

DFD2LMB_ULT_LAT_SDDI#2.OUT

FILE: DFD2LMB_ULT_LAT_SDDI#2.WSW

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time:10:35:39

Summerlin V22 Atkins

Desert Foothills Drive- Kestrel Creek Ave to Lake Mead Boulevard SDDI#2

INT/ULT Condition 100-Yr 6-Hr Storm Event

*****																	*****	
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip				
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch				
*****																	*****	
30.725	3289.435	.402	3289.837	5.00	9.78	1.49	3291.32	.00	.74	1.84	2.500	.000	.00	1	.0			
2.922	.0041					.0505	.15	.40	3.27	.74	.013	.00	.00	PIPE				
33.647	3289.447	.389	3289.836	5.00	10.26	1.63	3291.47	.00	.74	1.81	2.500	.000	.00	1	.0			
2.809	.0041					.0578	.16	.39	3.49	.74	.013	.00	.00	PIPE				
36.455	3289.458	.377	3289.835	5.00	10.76	1.80	3291.63	.00	.74	1.79	2.500	.000	.00	1	.0			
2.700	.0041					.0662	.18	.38	3.72	.74	.013	.00	.00	PIPE				
39.155	3289.469	.365	3289.834	5.00	11.28	1.98	3291.81	.00	.74	1.76	2.500	.000	.00	1	.0			
2.592	.0041					.0759	.20	.36	3.97	.74	.013	.00	.00	PIPE				
41.747	3289.480	.353	3289.833	5.00	11.84	2.18	3292.01	.00	.74	1.74	2.500	.000	.00	1	.0			
2.490	.0041					.0869	.22	.35	4.23	.74	.013	.00	.00	PIPE				
44.237	3289.490	.341	3289.832	5.00	12.41	2.39	3292.22	.00	.74	1.72	2.500	.000	.00	1	.0			
2.393	.0041					.0995	.24	.34	4.52	.74	.013	.00	.00	PIPE				
46.630	3289.500	.330	3289.830	5.00	13.02	2.63	3292.46	.00	.74	1.69	2.500	.000	.00	1	.0			
1.000	.0300					.1087	.11	.33	4.82	.45	.013	.00	.00	PIPE				
47.630	3289.530	.327	3289.857	5.00	13.23	2.72	3292.57	.00	.74	1.69	2.500	.000	.00	1	.0			
1.000	.0300					.1138	.11	.33	4.92	.45	.013	.00	.00	PIPE				
48.630	3289.560	.323	3289.883	5.00	13.44	2.81	3292.69	.00	.74	1.68	2.500	.000	.00	1	.0			
1.000	.0400					.1196	.12	.32	5.03	.42	.013	.00	.00	PIPE				

DFD2LMB_ULT_LAT_SDDI#2.OUT

FILE: DFD2LMB_ULT_LAT_SDDI#2.WSW

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time:10:35:39

Summerlin V22 Atkins

Desert Foothills Drive- Kestrel Creek Ave to Lake Mead Boulevard SDDI#2

INT/ULT Condition 100-Yr 6-Hr Storm Event

*****																	*****	
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Width	Top Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip				
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch				
*****																	*****	
49.630	3289.600	.319	3289.919	5.00	13.69	2.91	3292.83	.00	.74	1.67	2.500	.000	.00	1	.0	TRANS STR		
	.0298					.1220	.12	.32	5.16		.013	.00	.00	PIPE				
50.630	3289.630	.341	3289.971	5.00	14.03	3.06	3293.03	.00	.79	1.51	2.000	.000	.00	1	.0	1.000		
	.0300					.1242	.12	.34	5.08	.48	.013	.00	.00	PIPE				
51.630	3289.660	.338	3289.998	5.00	14.26	3.16	3293.15	.00	.79	1.50	2.000	.000	.00	1	.0	2.000		
	.0200					.1340	.27	.34	5.19	.53	.013	.00	.00	PIPE				
53.630	3289.700	.329	3290.029	5.00	14.79	3.40	3293.42	.00	.79	1.48	2.000	.000	.00	1	.0	5.910		
	.1686					.1350	.80	.33	5.46	.32	.013	.00	.00	PIPE				
59.540	3290.696	.336	3291.032	5.00	14.34	3.19	3294.23	.00	.79	1.50	2.000	.000	.00	1	.0	5.868		
	.1686					.1210	.71	.34	5.24	.32	.013	.00	.00	PIPE				
65.408	3291.686	.348	3292.033	5.00	13.68	2.90	3294.94	.00	.79	1.52	2.000	.000	.00	1	.0	4.012		
	.1686					.1057	.42	.35	4.91	.32	.013	.00	.00	PIPE				
69.420	3292.362	.359	3292.721	5.00	13.04	2.64	3295.36	.00	.79	1.54	2.000	.000	.00	1	.0	2.989		
	.1686					.0923	.28	.36	4.60	.32	.013	.00	.00	PIPE				
72.409	3292.866	.371	3293.237	5.00	12.43	2.40	3295.64	.00	.79	1.56	2.000	.000	.00	1	.0	2.338		
	.1686					.0807	.19	.37	4.31	.32	.013	.00	.00	PIPE				
74.747	3293.260	.384	3293.644	5.00	11.85	2.18	3295.83	.00	.79	1.58	2.000	.000	.00	1	.0	1.889		
	.1686					.0705	.13	.38	4.04	.32	.013	.00	.00	PIPE				

DFD2LMB_ULT_LAT_SDDI#2.OUT

FILE: DFD2LMB_ULT_LAT_SDDI#2.WSW

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time:10:35:39

Summerlin V22 Atkins

Desert Foothills Drive- Kestrel Creek Ave to Lake Mead Boulevard SDDI#2

INT/ULT Condition 100-Yr 6-Hr Storm Event

*****																	*****	
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip				
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch				
*****																	*****	
76.637	3293.579	.397	3293.976	5.00	11.30	1.98	3295.96	.00	.79	1.60	2.000	.000	.00	1	.0			
	1.560	.1686				.0616	.10	.40	3.78	.32	.013	.00	.00	PIPE				
78.197	3293.842	.410	3294.252	5.00	10.78	1.80	3296.06	.00	.79	1.62	2.000	.000	.00	1	.0			
	1.307	.1686				.0538	.07	.41	3.54	.32	.013	.00	.00	PIPE				
79.504	3294.062	.424	3294.487	5.00	10.28	1.64	3296.13	.00	.79	1.64	2.000	.000	.00	1	.0			
	1.107	.1686				.0470	.05	.42	3.32	.32	.013	.00	.00	PIPE				
80.611	3294.249	.439	3294.688	5.00	9.80	1.49	3296.18	.00	.79	1.66	2.000	.000	.00	1	.0			
	.946	.1686				.0411	.04	.44	3.11	.32	.013	.00	.00	PIPE				
81.557	3294.408	.454	3294.862	5.00	9.34	1.35	3296.22	.00	.79	1.68	2.000	.000	.00	1	.0			
	.812	.1686				.0359	.03	.45	2.91	.32	.013	.00	.00	PIPE				
82.368	3294.545	.469	3295.014	5.00	8.91	1.23	3296.25	.00	.79	1.69	2.000	.000	.00	1	.0			
	.699	.1686				.0314	.02	.47	2.73	.32	.013	.00	.00	PIPE				
83.067	3294.663	.485	3295.148	5.00	8.49	1.12	3296.27	.00	.79	1.71	2.000	.000	.00	1	.0			
	.603	.1686				.0275	.02	.49	2.55	.32	.013	.00	.00	PIPE				
83.670	3294.765	.502	3295.267	5.00	8.10	1.02	3296.28	.00	.79	1.73	2.000	.000	.00	1	.0			
	.521	.1686				.0240	.01	.50	2.39	.32	.013	.00	.00	PIPE				
84.191	3294.852	.519	3295.372	5.00	7.72	.93	3296.30	.00	.79	1.75	2.000	.000	.00	1	.0			
	.449	.1686				.0210	.01	.52	2.24	.32	.013	.00	.00	PIPE				

DFD2LMB_ULT_LAT_SDDI#2.OUT

FILE: DFD2LMB_ULT_LAT_SDDI#2.WSW

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WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time:10:35:39

Summerlin V22 Atkins

Desert Foothills Drive- Kestrel Creek Ave to Lake Mead Boulevard SDDI#2

INT/ULT Condition 100-Yr 6-Hr Storm Event

*****																	*****	
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip				
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch				
*****																	*****	
84.640	3294.928	.537	3295.465	5.00	7.36	.84	3296.31	.00	.79	1.77	2.000	.000	.00	1	.0			
	.385	.1686				.0184	.01	.54	2.10	.32	.013	.00	.00	PIPE				
85.025	3294.993	.556	3295.549	5.00	7.02	.76	3296.31	.00	.79	1.79	2.000	.000	.00	1	.0			
	.329	.1686				.0161	.01	.56	1.96	.32	.013	.00	.00	PIPE				
85.354	3295.048	.575	3295.623	5.00	6.69	.70	3296.32	.00	.79	1.81	2.000	.000	.00	1	.0			
	.280	.1686				.0141	.00	.58	1.84	.32	.013	.00	.00	PIPE				
85.634	3295.095	.595	3295.690	5.00	6.38	.63	3296.32	.00	.79	1.83	2.000	.000	.00	1	.0			
	.234	.1686				.0123	.00	.60	1.72	.32	.013	.00	.00	PIPE				
85.868	3295.135	.616	3295.751	5.00	6.08	.57	3296.33	.00	.79	1.85	2.000	.000	.00	1	.0			
	.194	.1686				.0108	.00	.62	1.61	.32	.013	.00	.00	PIPE				
86.062	3295.168	.638	3295.805	5.00	5.80	.52	3296.33	.00	.79	1.86	2.000	.000	.00	1	.0			
	.158	.1686				.0095	.00	.64	1.50	.32	.013	.00	.00	PIPE				
86.220	3295.194	.660	3295.854	5.00	5.53	.47	3296.33	.00	.79	1.88	2.000	.000	.00	1	.0			
	.123	.1686				.0083	.00	.66	1.41	.32	.013	.00	.00	PIPE				
86.343	3295.215	.683	3295.898	5.00	5.27	.43	3296.33	.00	.79	1.90	2.000	.000	.00	1	.0			
	.093	.1686				.0073	.00	.68	1.31	.32	.013	.00	.00	PIPE				
86.436	3295.231	.708	3295.938	5.00	5.03	.39	3296.33	.00	.79	1.91	2.000	.000	.00	1	.0			
	.064	.1686				.0064	.00	.71	1.23	.32	.013	.00	.00	PIPE				

DFD2LMB_UL_T_LAT_SDDI#2.OUT

FILE: DFD2LMB_UL_T_LAT_SDDI#2.WSW

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WATER SURFACE PROFILE LISTING

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Summerlin V22 Atkins

Desert Foothills Drive- Kestrel Creek Ave to Lake Mead Boulevard SDDI#2

INT/ULT Condition 100-Yr 6-Hr Storm Event

*****															*****	
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/I.D.	ZL	No Wth Prs/Pip		
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch		
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****		
86.500	3295.241	.733	3295.974	5.00	4.79	.36	3296.33	.00	.79	1.93	2.000	.000	.00	1 .0		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
.038	.1686					.0056	.00	.73	1.15	.32	.013	.00	.00	PIPE		
86.538	3295.248	.759	3296.007	5.00	4.57	.32	3296.33	.00	.79	1.94	2.000	.000	.00	1 .0		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
.012	.1686					.0049	.00	.76	1.07	.32	.013	.00	.00	PIPE		
86.550	3295.250	.788	3296.038	5.00	4.35	.29	3296.33	.00	.79	1.95	2.000	.000	.00	1 .0		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
89.550	3295.250	.788	3296.038	5.00	4.35	.29	3296.33	.00	.79	1.95	2.000	.000	.00	1 .0		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

DFD2LMB_ULT_LAT_SDDI#3.WSW

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T1 Summerlin V22 - Atkins

T2 Desert Foothills Drive- Kestrel Creek Ave to Lake Mead Boulevard SDDI#3

T3 ULtimate Flow w/ Critical HGL Tailwater Condition

SO	224.75	3293.17	54		3300.632				
R	227.75	3293.27	30	.013		.000	.000	0	
R	321.58	3298.12	30	.013		.000	.000	0	
SH	324.58	3298.12	30						
CD	54	4	1	.000	4.500	.000	.000	.000	.00
CD	24	4	1	.000	2.000	.000	.000	.000	.00
CD	30	4	1	.000	2.500	.000	.000	.000	.00
CD	42	4	1	.000	3.500	.000	.000	.000	.00
Q		68.000	.0						

DFD2LMB_UL_T_LAT_SDDI#3.OUT

FILE: DFD2LMB_UL_T_LAT_SDDI#3.WSW

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Summerlin V22 - Atkins

Desert Foothills Drive- Kestrel Creek Ave to Lake Mead Boulevard SDDI#3

Ultimate Flow w/ Critical HGL Tailwater Condition

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth	Prs/Pip		
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch			

224.750	3293.170	7.462	3300.632	68.00	13.85	2.98	3303.61	.00	2.43	.00	2.500	.000	.00	1	.0		
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
3.000	.0334					.0275	.08	7.46	.00	1.87	.013	.00	.00	PIPE			
227.750	3293.270	7.445	3300.715	68.00	13.85	2.98	3303.69	.00	2.43	.00	2.500	.000	.00	1	.0		
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
93.830	.0517					.0275	2.58	7.44	.00	1.58	.013	.00	.00	PIPE			
321.580	3298.120	5.173	3303.293	68.00	13.85	2.98	3306.27	.00	2.43	.00	2.500	.000	.00	1	.0		
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
3.000	.0517					.0340	3.19	5.17	.00	1.58	.013	.00	.00	PIPE			
324.580	3298.120	5.173	3303.293	68.00	13.85	2.98	3306.27	.00	2.43	.00	2.500	.000	.00	1	.0		
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -

DFD2LMB_ULT_LAT_SDDI#4.WSW

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T1 Summerlin V22 - Atkins

T2 Desert Foothills Drive- Kestrel Creek Ave to Lake Mead Boulevard SDDI#4

T3 Ultimate Flow w/ Critical HGL Tailwater Condition

SO	548.18	3301.19	54		3307.72				
R	551.18	3301.29	42	.013		.000	.000	0	
R	645.01	3306.13	42	.013		.000	.000	0	
SH	648.01	3306.13	42						
CD	54	4	1	.000	4.500	.000	.000	.000	.00
CD	24	4	1	.000	2.000	.000	.000	.000	.00
CD	30	4	1	.000	2.500	.000	.000	.000	.00
CD	42	4	1	.000	3.500	.000	.000	.000	.00
Q		90.00		.0					

DFD2LMB_ULT_LAT_SDDI#4.OUT

FILE: DFD2LMB_ULT_LAT_SDDI#4.WSW

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Summerlin V22 - Atkins

Desert Foothills Drive- Kestrel Creek Ave to Lake Mead Boulevard SDDI#4

Ultimate Flow w/ Critical HGL Tailwater Condition

*****																	*****														
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ 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																	
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****																	
548.180	3301.190	6.530	3307.720	90.00	9.35	1.36	3309.08	.00	2.94	.00	3.500	.000	.00	1	.0																
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-																	
3.000	.0334					.0080	.02	6.53	.00	1.73	.013	.00	.00	PIPE																	
551.180	3301.290	6.454	3307.744	90.00	9.35	1.36	3309.10	.00	2.94	.00	3.500	.000	.00	1	.0																
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-																	
49.302	.0516					.0080	.39	6.45	.00	1.53	.013	.00	.00	PIPE																	
600.482	3303.833	4.304	3308.137	90.00	9.35	1.36	3309.50	.00	2.94	.00	3.500	.000	.00	1	.0																
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-																	
HYDRAULIC JUMP																															
600.482	3303.833	1.931	3305.763	90.00	16.54	4.25	3310.01	.00	2.94	3.48	3.500	.000	.00	1	.0																
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-																	
7.551	.0516					.0222	.17	1.93	2.33	1.53	.013	.00	.00	PIPE																	
608.033	3304.222	1.982	3306.205	90.00	16.01	3.98	3310.18	.00	2.94	3.47	3.500	.000	.00	1	.0																
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-																	
8.939	.0516					.0200	.18	1.98	2.22	1.53	.013	.00	.00	PIPE																	
616.972	3304.683	2.062	3306.745	90.00	15.26	3.62	3310.36	.00	2.94	3.44	3.500	.000	.00	1	.0																
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-																	
7.224	.0516					.0177	.13	2.06	2.06	1.53	.013	.00	.00	PIPE																	
624.196	3305.056	2.146	3307.202	90.00	14.55	3.29	3310.49	.00	2.94	3.41	3.500	.000	.00	1	.0																
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-																	
5.844	.0516					.0157	.09	2.15	1.90	1.53	.013	.00	.00	PIPE																	
630.039	3305.357	2.235	3307.592	90.00	13.88	2.99	3310.58	.00	2.94	3.36	3.500	.000	.00	1	.0																
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-																	
4.695	.0516					.0139	.07	2.23	1.76	1.53	.013	.00	.00	PIPE																	
634.734	3305.600	2.330	3307.929	90.00	13.23	2.72	3310.65	.00	2.94	3.30	3.500	.000	.00	1	.0																
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-																	
3.705	.0516					.0124	.05	2.33	1.62	1.53	.013	.00	.00	PIPE																	

DFD2LMB_ULT_LAT_SDDI#4.OUT

FILE: DFD2LMB_ULT_LAT_SDDI#4.WSW

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Summerlin V22 - Atkins

Desert Foothills Drive- Kestrel Creek Ave to Lake Mead Boulevard SDDI#4

Ultimate Flow w/ Critical HGL Tailwater Condition

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/ 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	*****		
638.439	3305.791	2.432	3308.222	90.00	12.61	2.47	3310.69	.00	2.94	3.22	3.500	.000	.00	1	.0		
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		
2.834	.0516					.0110	.03	2.43	1.49	1.53	.013	.00	.00	PIPE			
641.273	3305.937	2.541	3308.478	90.00	12.03	2.25	3310.72	.00	2.94	3.12	3.500	.000	.00	1	.0		
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		
2.033	.0516					.0099	.02	2.54	1.37	1.53	.013	.00	.00	PIPE			
643.306	3306.042	2.661	3308.703	90.00	11.47	2.04	3310.74	.00	2.94	2.99	3.500	.000	.00	1	.0		
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		
1.256	.0516					.0089	.01	2.66	1.25	1.53	.013	.00	.00	PIPE			
644.563	3306.107	2.793	3308.899	90.00	10.93	1.86	3310.76	.00	2.94	2.81	3.500	.000	.00	1	.0		
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		
.447	.0516					.0080	.00	2.79	1.13	1.53	.013	.00	.00	PIPE			
645.010	3306.130	2.943	3309.073	90.00	10.42	1.69	3310.76	.00	2.94	2.56	3.500	.000	.00	1	.0		
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		
648.010	3306.130	2.943	3309.073	90.00	10.42	1.69	3310.76	.00	2.94	2.56	3.500	.000	.00	1	.0		
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		

DFD2LMB_ULT_LAT_SDDI#5.WSW

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T1 Summerlin V22 - Atkins

T2 Desert Foothills Drive- Kestrel Creek Ave to Lake Mead Boulevard SDDI#5

T3 INT/ULT Flow w/ Critical HGL Tailwater Condition

SO	788.29	3306.02	42		3307.16				
R	791.29	3306.12	24	.013		.000	.000	0	
R	850.75	3307.12	24	.013		.000	.000	0	
SH	853.75	3307.12	24						
CD	54	4	1	.000	4.500	.000	.000	.000	.00
CD	24	4	1	.000	2.000	.000	.000	.000	.00
CD	30	4	1	.000	2.500	.000	.000	.000	.00
CD	42	4	1	.000	3.500	.000	.000	.000	.00
Q				3.000	.0				

DFD2LMB_ULT_LAT_SDDI#5.OUT

FILE: DFD2LMB_ULT_LAT_SDDI#5.WSW

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WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time:10:48:51

Summerlin V22 - Atkins

Desert Foothills Drive- Kestrel Creek Ave to Lake Mead Boulevard SDDI#5

INT/ULT Flow w/ Critical HGL Tailwater Condition

*****																	*****	
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ 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				
*****																	*****	
788.290	3306.020	1.140	3307.160	3.00	1.62	.04	3307.20	.00	.60	1.98	2.000	.000	.00	1	.0			
	1.195	.0334				.0005	.00	1.14	.30	.36	.013	.00	.00	PIPE				
789.485	3306.060	1.097	3307.156	3.00	1.70	.04	3307.20	.00	.60	1.99	2.000	.000	.00	1	.0			
	1.119	.0334				.0006	.00	1.10	.32	.36	.013	.00	.00	PIPE				
790.604	3306.097	1.055	3307.153	3.00	1.78	.05	3307.20	.00	.60	2.00	2.000	.000	.00	1	.0			
	.686	.0334				.0006	.00	1.06	.34	.36	.013	.00	.00	PIPE				
791.290	3306.120	1.030	3307.150	3.00	1.84	.05	3307.20	.00	.60	2.00	2.000	.000	.00	1	.0			
	2.026	.0168				.0007	.00	1.03	.36	.43	.013	.00	.00	PIPE				
793.316	3306.154	.992	3307.146	3.00	1.93	.06	3307.20	.00	.60	2.00	2.000	.000	.00	1	.0			
	1.896	.0168				.0008	.00	.99	.39	.43	.013	.00	.00	PIPE				
795.211	3306.186	.956	3307.142	3.00	2.02	.06	3307.21	.00	.60	2.00	2.000	.000	.00	1	.0			
	1.772	.0168				.0009	.00	.96	.41	.43	.013	.00	.00	PIPE				
796.983	3306.216	.921	3307.137	3.00	2.12	.07	3307.21	.00	.60	1.99	2.000	.000	.00	1	.0			
	1.650	.0168				.0010	.00	.92	.44	.43	.013	.00	.00	PIPE				
798.633	3306.244	.888	3307.132	3.00	2.23	.08	3307.21	.00	.60	1.99	2.000	.000	.00	1	.0			
	1.524	.0168				.0011	.00	.89	.48	.43	.013	.00	.00	PIPE				
800.158	3306.270	.857	3307.126	3.00	2.33	.08	3307.21	.00	.60	1.98	2.000	.000	.00	1	.0			
	1.407	.0168				.0013	.00	.86	.51	.43	.013	.00	.00	PIPE				

DFD2LMB_ULT_LAT_SDDI#5.OUT

FILE: DFD2LMB_ULT_LAT_SDDI#5.WSW

W S P G W - CIVILDESIGN Version 14.08

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time:10:48:51

Summerlin V22 - Atkins

Desert Foothills Drive- Kestrel Creek Ave to Lake Mead Boulevard SDDI#5

INT/ULT Flow w/ Critical HGL Tailwater Condition

*****																	*****														
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ 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																	
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****																	
801.564	3306.293	.826	3307.120	3.00	2.45	.09	3307.21	.00	.60	1.97	2.000	.000	.00	1	.0																
	.540	.0168				.0015	.00	.83	.55	.43	.013	.00	.00	PIPE																	
802.105	3306.302	.797	3307.100	3.00	2.57	.10	3307.20	.00	.60	1.96	2.000	.000	.00	1	.0																
HYDRAULIC JUMP																															
802.105	3306.302	.432	3306.735	3.00	6.00	.56	3307.29	.00	.60	1.65	2.000	.000	.00	1	.0																
	21.120	.0168				.0159	.33	.43	1.92	.43	.013	.00	.00	PIPE																	
823.225	3306.657	.445	3307.102	3.00	5.77	.52	3307.62	.00	.60	1.66	2.000	.000	.00	1	.0																
	11.371	.0168				.0140	.16	.44	1.82	.43	.013	.00	.00	PIPE																	
834.596	3306.849	.460	3307.308	3.00	5.50	.47	3307.78	.00	.60	1.68	2.000	.000	.00	1	.0																
	5.923	.0168				.0123	.07	.46	1.70	.43	.013	.00	.00	PIPE																	
840.519	3306.948	.476	3307.424	3.00	5.24	.43	3307.85	.00	.60	1.70	2.000	.000	.00	1	.0																
	3.691	.0168				.0107	.04	.48	1.59	.43	.013	.00	.00	PIPE																	
844.210	3307.010	.492	3307.502	3.00	5.00	.39	3307.89	.00	.60	1.72	2.000	.000	.00	1	.0																
	2.469	.0168				.0094	.02	.49	1.49	.43	.013	.00	.00	PIPE																	
846.680	3307.052	.509	3307.561	3.00	4.77	.35	3307.91	.00	.60	1.74	2.000	.000	.00	1	.0																
	1.691	.0168				.0082	.01	.51	1.40	.43	.013	.00	.00	PIPE																	
848.370	3307.080	.526	3307.606	3.00	4.54	.32	3307.93	.00	.60	1.76	2.000	.000	.00	1	.0																
	1.136	.0168				.0072	.01	.53	1.31	.43	.013	.00	.00	PIPE																	

DFD2LMB_ULT_LAT_SDDI#5.OUT

FILE: DFD2LMB_ULT_LAT_SDDI#5.WSW

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date: 5-12-2020 Time:10:48:51

Summerlin V22 - Atkins

Desert Foothills Drive- Kestrel Creek Ave to Lake Mead Boulevard SDDI#5

INT/ULT Flow w/ Critical HGL Tailwater Condition

*****																	*****	
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip				
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch				
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****		
849.506	3307.099	.544	3307.644	3.00	4.33	.29	3307.94	.00	.60	1.78	2.000	.000	.00	1	.0			
	.721	.0168				.0063	.00	.54	1.22	.43	.013	.00	.00	PIPE				
850.228	3307.111	.563	3307.675	3.00	4.13	.27	3307.94	.00	.60	1.80	2.000	.000	.00	1	.0			
	.397	.0168				.0055	.00	.56	1.15	.43	.013	.00	.00	PIPE				
850.625	3307.118	.583	3307.701	3.00	3.94	.24	3307.94	.00	.60	1.82	2.000	.000	.00	1	.0			
	.125	.0168				.0048	.00	.58	1.07	.43	.013	.00	.00	PIPE				
850.750	3307.120	.604	3307.724	3.00	3.75	.22	3307.94	.00	.60	1.84	2.000	.000	.00	1	.0			
853.750	3307.120	.604	3307.724	3.00	3.75	.22	3307.94	.00	.60	1.84	2.000	.000	.00	1	.0			

DFD2KCA_ULT.WSW

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T1 SUMMERLIN WEST VILLAGE 22
T2 T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADDENDUM #1
T3 ATKINS / Ultimate CONDITIONS
SO -191.33 3316.19 54 3318.99
REM ##### Tailwater Daylights. Elev. solved for in flowmaster 54" pipe 2% 200cfs
R -191.33 3316.19 54 .013 .000 00.0 0
TS -4.00 3320.01 54
REM ##### Stub Ultimate Condition Cap #1 Street I (Kestrel Creek)
JX 0.00 3320.11 48 36 .013 62.00 3320.20 38.0
R 1.00 3320.14 48 .013 .000 15.0 1
R 2.00 3320.17 48 .013 .000 15.0 0
R 3.00 3320.19 48 .013 .000 15.0 0
R 4.00 3320.21 48 .013 .000 14.0 0
REM ##### SDMH#12 DS
R 72.84 3321.92 48 .013 .000 11.67 0
R 75.84 3322.02 48 .013 .000 11.67 1
R 78.84 3322.12 48 .013 .000 11.66 0
REM ##### SDMH#12 US
REM ##### SDMH#13 DS JX SDDI# 11/12/13
R 136.89 3323.55 48 .013 .000 04.00 0
JX 139.89 3323.65 48 30 24.013 68.0 5.0 3323.75 3323.75 90.0-75.0 .000
TS 142.89 3323.75 42 .013 .000 04.00 1
REM ##### SDMH#13 US JX SDDI# 11/12/13
REM ##### SDMH#14 DS
R 293.48 3327.14 42 .013 .000 02.50 0
R 296.48 3327.24 42 .013 .000 00.00 1
R 299.48 3327.34 42 .013 .000 02.50 0
REM ##### SDMH#14 US
REM ##### SDMH#15 DS
R 607.21 3330.48 42 .013 .000 15.00 0
R 609.21 3330.54 42 .013 .000 15.00 0
R 610.21 3330.58 42 .013 .000 15.00 1
R 611.21 3330.61 42 .013 .000 15.00 0
R 612.21 3330.65 42 .013 .000 15.00 0
R 613.21 3330.68 42 .013 .000 11.00 0
REM ##### SDMH#15 US
REM ##### SDMH#16 DS JX Cap#2 Street H (Clowder Pass)
R 643.21 3331.04 42 .013 .000 15.00 0
R 644.21 3331.07 42 .013 .000 15.00 0
R 645.21 3331.10 42 .013 .000 15.00 0
JX 646.21 3331.14 42 30 .013 14.0 3331.24 90.0
TS 647.21 3331.17 30 .013 .000 15.00 0
R 648.21 3331.20 30 .013 .000 15.00 0
R 649.21 3331.24 30 .013 .000 08.00 1
REM ##### SDMH#16 US JX Cap#2 Street H (Clowder Pass)
REM ##### SDMH#17 DS
R 711.35 3332.26 30 .013 .000 00.00 0
R 714.35 3332.36 30 .013 .000 03.00 1
R 717.35 3332.46 30 .013 .000 00.00 0
REM ##### SDMH#17 US
REM ##### SDMH#18 DS
R 811.17 3333.96 30 .013 .000 00.00 0
R 812.17 3333.99 30 .013 .000 15.00 0
R 813.17 3334.03 30 .013 .000 15.00 0
R 814.17 3334.06 30 .013 .000 15.00 1
R 815.17 3334.09 30 .013 .000 15.00 0
R 816.17 3334.12 30 .013 .000 15.00 0
R 817.17 3334.16 30 .013 .000 15.00 0
REM ##### SDMH#18 US
REM ##### SDDI#14 JX DS
R 831.77 3334.57 30 .013 .000 00.00 0
JX 834.77 3334.67 30 30 .013 03.0 3335.61 00.0
R 837.77 3334.77 30 .013 .000 00.00 1
REM ##### SDDI #14 JX US

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DFD2KCA_ULT.WSW

R		903.77	3336.15	30	.013				
SH		906.77	3336.15	30					
CD	24	4	0	.000	2.000	.000	.000	.000	.00
CD	30	4	0	.000	2.500	.000	.000	.000	.00
CD	36	4	0	.000	3.000	.000	.000	.000	.00
CD	42	4	0	.000	3.500	.000	.000	.000	.00
CD	48	4	0	.000	4.000	.000	.000	.000	.00
CD	54	4	0	.000	4.500	.000	.000	.000	.00
CD	60	4	0	.000	5.000	.000	.000	.000	.00
CD	66	3	0	0.000	6.000	6.000			
CD	106	3	0	0.000	10.00	6.000			
Q			046.00	.0					

.000 00.00 0

DFD2KCA_ULT.OUT

FILE: DFD2KCA_ULT.WSW

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date: 5-11-2020 Time:11:49:42

SUMMERLIN WEST VILLAGE 22

T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADD

EN ATKINS / Ultimate CONDITIONS

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*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
        | Elev  | (FT)  | Elev  | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
L/Elem | Ch Slope | | | | | | | | | | | | | | |
***** |*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|
-191.330 | 3316.190 | 3.051 | 3319.241 | 198.00 | 17.25 | 4.62 | 3323.86 | .00 | 4.02 | 4.20 | 4.500 | .000 | .00 | 0 | .0
TRANS STR | .0204 | | | | | | .0143 | 2.69 | 3.05 | 1.84 | .014 | .00 | .00 | PIPE
-4.000 | 3320.010 | 4.022 | 3324.032 | 198.00 | 13.20 | 2.71 | 3326.74 | .00 | 4.02 | 2.77 | 4.500 | .000 | .00 | 0 | .0
JUNCT STR | .0250 | | | | | | .0090 | .04 | 4.02 | 1.00 | .013 | .00 | .00 | PIPE
.000 | 3320.110 | 5.565 | 3325.675 | 136.00 | 10.82 | 1.82 | 3327.49 | .00 | 3.47 | .00 | 4.000 | .000 | .00 | 0 | .0
1.000 | .0298 | | | | | | .0090 | .01 | 5.56 | .00 | 2.11 | .013 | .00 | .00 | PIPE
1.000 | 3320.140 | 5.725 | 3325.865 | 136.00 | 10.82 | 1.82 | 3327.68 | .00 | 3.47 | .00 | 4.000 | .000 | .00 | 0 | .0
1.000 | .0300 | | | | | | .0090 | .01 | 5.72 | .00 | 2.11 | .013 | .00 | .00 | PIPE
2.000 | 3320.170 | 5.794 | 3325.964 | 136.00 | 10.82 | 1.82 | 3327.78 | .00 | 3.47 | .00 | 4.000 | .000 | .00 | 0 | .0
1.000 | .0200 | | | | | | .0090 | .01 | 5.79 | .00 | 2.39 | .013 | .00 | .00 | PIPE
3.000 | 3320.190 | 5.873 | 3326.063 | 136.00 | 10.82 | 1.82 | 3327.88 | .00 | 3.47 | .00 | 4.000 | .000 | .00 | 0 | .0
1.000 | .0200 | | | | | | .0090 | .01 | 5.87 | .00 | 2.39 | .013 | .00 | .00 | PIPE
4.000 | 3320.210 | 5.946 | 3326.156 | 136.00 | 10.82 | 1.82 | 3327.97 | .00 | 3.47 | .00 | 4.000 | .000 | .00 | 0 | .0
68.840 | .0248 | | | | | | .0090 | .62 | 5.95 | .00 | 2.23 | .013 | .00 | .00 | PIPE
72.840 | 3321.920 | 4.923 | 3326.843 | 136.00 | 10.82 | 1.82 | 3328.66 | .00 | 3.47 | .00 | 4.000 | .000 | .00 | 0 | .0
3.000 | .0334 | | | | | | .0090 | .03 | 4.92 | .00 | 2.04 | .013 | .00 | .00 | PIPE
75.840 | 3322.020 | 5.010 | 3327.031 | 136.00 | 10.82 | 1.82 | 3328.85 | .00 | 3.47 | .00 | 4.000 | .000 | .00 | 0 | .0
3.000 | .0334 | | | | | | .0090 | .03 | 5.01 | .00 | 2.04 | .013 | .00 | .00 | PIPE

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DFD2KCA_ULT.OUT

FILE: DFD2KCA_ULT.WSW

W S P G W - CIVILDESIGN Version 14.08

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date: 5-11-2020 Time:11:49:42

SUMMERLIN WEST VILLAGE 22

T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADD

EN ATKINS / Ultimate CONDITIONS

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*****
| Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth |
| Station | Elev | (FT) | Elev | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch |
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|
78.840 | 3322.120 | 5.007 | 3327.127 | 136.00 | 10.82 | 1.82 | 3328.95 | .00 | 3.47 | .00 | 4.000 | .000 | .00 | 0 .0 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
58.050 | .0246 | | | | | .0090 | .52 | 5.01 | .00 | 2.24 | .013 | .00 | .00 | PIPE |
136.890 | 3323.550 | 4.122 | 3327.672 | 136.00 | 10.82 | 1.82 | 3329.49 | .00 | 3.47 | .00 | 4.000 | .000 | .00 | 0 .0 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
JUNCT STR | .0333 | | | | | .0054 | .02 | 4.12 | .00 | .013 | .00 | .00 | PIPE |
139.890 | 3323.650 | 6.890 | 3330.540 | 63.00 | 5.01 | .39 | 3330.93 | .00 | 2.39 | .00 | 4.000 | .000 | .00 | 0 .0 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
TRANS STR | .0334 | | | | | .0029 | .01 | 6.89 | .00 | .013 | .00 | .00 | PIPE |
142.890 | 3323.750 | 6.578 | 3330.328 | 63.00 | 6.55 | .67 | 3330.99 | .00 | 2.49 | .00 | 3.500 | .000 | .00 | 0 .0 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
150.590 | .0225 | | | | | .0039 | .59 | 6.58 | .00 | 1.58 | .013 | .00 | .00 | PIPE |
293.480 | 3327.140 | 3.784 | 3330.924 | 63.00 | 6.55 | .67 | 3331.59 | .00 | 2.49 | .00 | 3.500 | .000 | .00 | 0 .0 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
3.000 | .0334 | | | | | .0039 | .01 | 3.78 | .00 | 1.41 | .013 | .00 | .00 | PIPE |
296.480 | 3327.240 | 3.729 | 3330.969 | 63.00 | 6.55 | .67 | 3331.64 | .00 | 2.49 | .00 | 3.500 | .000 | .00 | 0 .0 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
3.000 | .0334 | | | | | .0039 | .01 | 3.73 | .00 | 1.41 | .013 | .00 | .00 | PIPE |
299.480 | 3327.340 | 3.647 | 3330.987 | 63.00 | 6.55 | .67 | 3331.65 | .00 | 2.49 | .00 | 3.500 | .000 | .00 | 0 .0 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
28.589 | .0102 | | | | | .0039 | .11 | 3.65 | .00 | 1.99 | .013 | .00 | .00 | PIPE |
328.069 | 3327.632 | 3.500 | 3331.132 | 63.00 | 6.55 | .67 | 3331.80 | .00 | 2.49 | .00 | 3.500 | .000 | .00 | 0 .0 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
39.175 | .0102 | | | | | .0036 | .14 | 3.50 | .00 | 1.99 | .013 | .00 | .00 | PIPE |
367.244 | 3328.031 | 3.176 | 3331.207 | 63.00 | 6.87 | .73 | 3331.94 | .00 | 2.49 | 2.03 | 3.500 | .000 | .00 | 0 .0 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
9.932 | .0102 | | | | | .0035 | .03 | 3.18 | .57 | 1.99 | .013 | .00 | .00 | PIPE |

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date: 5-11-2020 Time:11:49:42

SUMMERLIN WEST VILLAGE 22

T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADD

EN ATKINS / Ultimate CONDITIONS

*****															*****	
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt I.D.	ZL	No Wth		
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch		
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****		
377.176	3328.133	3.072	3331.205	63.00	7.04	.77	3331.97	.00	2.49	2.29	3.500	.000	.00	0 .0		
HYDRAULIC JUMP																
377.176	3328.133	1.994	3330.127	63.00	11.12	1.92	3332.05	.00	2.49	3.47	3.500	.000	.00	0 .0		
61.853	.0102					.0102	.63	1.99	1.53	1.99	.013	.00	.00	PIPE		
439.029	3328.764	1.994	3330.758	63.00	11.12	1.92	3332.68	.00	2.49	3.47	3.500	.000	.00	0 .0		
168.181	.0102					.0104	1.75	1.99	1.53	1.99	.013	.00	.00	PIPE		
607.210	3330.480	1.973	3332.453	63.00	11.27	1.97	3334.43	.00	2.49	3.47	3.500	.000	.00	0 .0		
2.000	.0300					.0103	.02	1.97	1.57	1.45	.013	.00	.00	PIPE		
609.210	3330.540	2.001	3332.541	63.00	11.08	1.91	3334.45	.00	2.49	3.46	3.500	.000	.00	0 .0		
1.000	.0400					.0099	.01	2.00	1.52	1.34	.013	.00	.00	PIPE		
610.210	3330.580	2.024	3332.604	63.00	10.93	1.85	3334.46	.00	2.49	3.46	3.500	.000	.00	0 .0		
1.000	.0300					.0096	.01	2.02	1.49	1.45	.013	.00	.00	PIPE		
611.210	3330.610	2.041	3332.651	63.00	10.82	1.82	3334.47	.00	2.49	3.45	3.500	.000	.00	0 .0		
1.000	.0398					.0093	.01	2.04	1.47	1.35	.013	.00	.00	PIPE		
612.210	3330.650	2.068	3332.718	63.00	10.65	1.76	3334.48	.00	2.49	3.44	3.500	.000	.00	0 .0		
1.000	.0300					.0090	.01	2.07	1.43	1.45	.013	.00	.00	PIPE		
613.210	3330.680	2.089	3332.769	63.00	10.52	1.72	3334.49	.00	2.49	3.43	3.500	.000	.00	0 .0		
18.734	.0120					.0083	.16	2.09	1.40	1.90	.013	.00	.00	PIPE		

DFD2KCA_ULT.OUT

FILE: DFD2KCA_ULT.WSW

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date: 5-11-2020 Time:11:49:42

SUMMERLIN WEST VILLAGE 22

T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADD

EN ATKINS / Ultimate CONDITIONS

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*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
        | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
L/Elem | Ch Slope |
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|
631.944 | 3330.905 | 2.171 | 3333.076 | 63.00 | 10.05 | 1.57 | 3334.64 | .00 | 2.49 | 3.40 | 3.500 | .000 | .00 | 0 .0
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
11.266 | .0120 |
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
643.210 | 3331.040 | 2.262 | 3333.302 | 63.00 | 9.58 | 1.43 | 3334.73 | .00 | 2.49 | 3.35 | 3.500 | .000 | .00 | 0 .0
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
1.000 | .0300 |
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
644.210 | 3331.070 | 2.323 | 3333.394 | 63.00 | 9.29 | 1.34 | 3334.73 | .00 | 2.49 | 3.31 | 3.500 | .000 | .00 | 0 .0
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
.601 | .0300 |
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
644.811 | 3331.088 | 2.381 | 3333.469 | 63.00 | 9.04 | 1.27 | 3334.74 | .00 | 2.49 | 3.26 | 3.500 | .000 | .00 | 0 .0
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
.399 | .0300 |
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
645.210 | 3331.100 | 2.487 | 3333.588 | 63.00 | 8.61 | 1.15 | 3334.74 | .00 | 2.49 | 3.17 | 3.500 | .000 | .00 | 0 .0
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
JUNCT STR | .0398 |
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
646.210 | 3331.140 | 3.527 | 3334.667 | 49.00 | 5.09 | .40 | 3335.07 | .00 | 2.19 | .00 | 3.500 | .000 | .00 | 0 .0
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
TRANS STR | .0300 |
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
647.210 | 3331.170 | 2.933 | 3334.103 | 49.00 | 9.98 | 1.55 | 3335.65 | .00 | 2.29 | .00 | 2.500 | .000 | .00 | 0 .0
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
1.000 | .0300 |
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
648.210 | 3331.200 | 2.994 | 3334.194 | 49.00 | 9.98 | 1.55 | 3335.74 | .00 | 2.29 | .00 | 2.500 | .000 | .00 | 0 .0
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
1.000 | .0400 |
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
649.210 | 3331.240 | 3.086 | 3334.326 | 49.00 | 9.98 | 1.55 | 3335.87 | .00 | 2.29 | .00 | 2.500 | .000 | .00 | 0 .0
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
62.140 | .0164 |
        |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

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DFD2KCA_ULT.OUT

FILE: DFD2KCA_ULT.WSW

W S P G W - CIVILDESIGN Version 14.08

PAGE 5

Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date: 5-11-2020 Time:11:49:42

SUMMERLIN WEST VILLAGE 22

T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADD

EN ATKINS / Ultimate CONDITIONS

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*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | Elev | (FT) | Elev | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
L/Elem | Ch Slope | | | | | | | | | | | | | | |
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|
711.350 | 3332.260 | 2.953 | 3335.213 | 49.00 | 9.98 | 1.55 | 3336.76 | .00 | 2.29 | .00 | 2.500 | .000 | .00 | 0 .0
      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
3.000 | .0334 | | | | | | | | | | | | | | |
      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
714.350 | 3332.360 | 2.988 | 3335.348 | 49.00 | 9.98 | 1.55 | 3336.90 | .00 | 2.29 | .00 | 2.500 | .000 | .00 | 0 .0
      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
3.000 | .0333 | | | | | | | | | | | | | | |
      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
717.350 | 3332.460 | 2.931 | 3335.391 | 49.00 | 9.98 | 1.55 | 3336.94 | .00 | 2.29 | .00 | 2.500 | .000 | .00 | 0 .0
      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
75.593 | .0160 | | | | | | | | | | | | | | |
      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
792.943 | 3333.668 | 2.801 | 3336.469 | 49.00 | 9.98 | 1.55 | 3338.02 | .00 | 2.29 | .00 | 2.500 | .000 | .00 | 0 .0
      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
HYDRAULIC JUMP
792.943 | 3333.668 | 1.785 | 3335.453 | 49.00 | 13.07 | 2.65 | 3338.11 | .00 | 2.29 | 2.26 | 2.500 | .000 | .00 | 0 .0
      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
18.227 | .0160 | | | | | | | | | | | | | | |
      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
811.170 | 3333.960 | 1.768 | 3335.728 | 49.00 | 13.21 | 2.71 | 3338.44 | .00 | 2.29 | 2.28 | 2.500 | .000 | .00 | 0 .0
      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
1.000 | .0300 | | | | | | | | | | | | | | |
      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
812.170 | 3333.990 | 1.772 | 3335.762 | 49.00 | 13.17 | 2.69 | 3338.46 | .00 | 2.29 | 2.27 | 2.500 | .000 | .00 | 0 .0
      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
1.000 | .0400 | | | | | | | | | | | | | | |
      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
813.170 | 3334.030 | 1.781 | 3335.811 | 49.00 | 13.10 | 2.66 | 3338.48 | .00 | 2.29 | 2.26 | 2.500 | .000 | .00 | 0 .0
      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
HYDRAULIC DROP
813.170 | 3334.030 | 2.882 | 3336.912 | 49.00 | 9.98 | 1.55 | 3338.46 | .00 | 2.29 | .00 | 2.500 | .000 | .00 | 0 .0
      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
1.000 | .0300 | | | | | | | | | | | | | | |
      |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

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DFD2KCA_ULT.OUT

FILE: DFD2KCA_ULT.WSW

W S P G W - CIVILDESIGN Version 14.08

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date: 5-11-2020 Time:11:49:42

SUMMERLIN WEST VILLAGE 22

T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADD

EN ATKINS / Ultimate CONDITIONS

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*****
| Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth | |
| Station | Elev | (FT) | Elev | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip |
| L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch |
*****
814.170 | 3334.060 | 3.020 | 3337.080 | 49.00 | 9.98 | 1.55 | 3338.63 | .00 | 2.29 | .00 | 2.500 | .000 | .00 | 0 | .0 |
| | | | | | | | | | | | | | | | |
1.000 | .0300 | | | | | .0143 | .01 | 3.02 | .00 | 1.53 | .013 | .00 | .00 | PIPE |
815.170 | 3334.090 | 3.081 | 3337.171 | 49.00 | 9.98 | 1.55 | 3338.72 | .00 | 2.29 | .00 | 2.500 | .000 | .00 | 0 | .0 |
| | | | | | | | | | | | | | | | |
1.000 | .0300 | | | | | .0143 | .01 | 3.08 | .00 | 1.53 | .013 | .00 | .00 | PIPE |
816.170 | 3334.120 | 3.141 | 3337.261 | 49.00 | 9.98 | 1.55 | 3338.81 | .00 | 2.29 | .00 | 2.500 | .000 | .00 | 0 | .0 |
| | | | | | | | | | | | | | | | |
1.000 | .0398 | | | | | .0143 | .01 | 3.14 | .00 | 1.39 | .013 | .00 | .00 | PIPE |
817.170 | 3334.160 | 3.192 | 3337.352 | 49.00 | 9.98 | 1.55 | 3338.90 | .00 | 2.29 | .00 | 2.500 | .000 | .00 | 0 | .0 |
| | | | | | | | | | | | | | | | |
14.600 | .0281 | | | | | .0143 | .21 | 3.19 | .00 | 1.56 | .013 | .00 | .00 | PIPE |
831.770 | 3334.570 | 2.991 | 3337.561 | 49.00 | 9.98 | 1.55 | 3339.11 | .00 | 2.29 | .00 | 2.500 | .000 | .00 | 0 | .0 |
| | | | | | | | | | | | | | | | |
JUNCT STR | .0333 | | | | | .0134 | .04 | 2.99 | .00 | .013 | .00 | .00 | PIPE |
834.770 | 3334.670 | 3.287 | 3337.957 | 46.00 | 9.37 | 1.36 | 3339.32 | .00 | 2.24 | .00 | 2.500 | .000 | .00 | 0 | .0 |
| | | | | | | | | | | | | | | | |
3.000 | .0334 | | | | | .0126 | .04 | 3.29 | .00 | 1.42 | .013 | .00 | .00 | PIPE |
837.770 | 3334.770 | 3.292 | 3338.063 | 46.00 | 9.37 | 1.36 | 3339.43 | .00 | 2.24 | .00 | 2.500 | .000 | .00 | 0 | .0 |
| | | | | | | | | | | | | | | | |
66.000 | .0209 | | | | | .0126 | .83 | 3.29 | .00 | 1.65 | .013 | .00 | .00 | PIPE |
903.770 | 3336.150 | 2. | | | | | | | | | | | | | | |

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DFD2KCA_ULT_Cap1

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T1 SUMMERLIN WEST VILLAGE 22
T2 T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADDENDUM #1
T3 ATKINS / Ultimate CONDITIONS CAP #1
SO      00.00 3320.11  54                      3325.68
REM ##### JX DS SDMH#11
R      1.00 3320.14  36      .013                      .000 09.5  1
R      2.00 3320.17  36      .013                      .000 09.5  0
R      3.00 3320.19  36      .013                      .000 09.5  0
R      4.00 3320.21  36      .013                      .000 09.5  0
REM ##### SDMH#11 US
REM ##### SDMH#19 DS
R      39.67 3321.14  36      .013                      .000 12.67  0
R      42.67 3321.24  36      .013                      .000 12.67  1
R      45.67 3321.34  36      .013                      .000 12.66  0
REM ##### SDMH#19 US
REM ##### CAP #1 DS
R      162.51 3327.78  36      .013                      .000 00.00  0
SH      162.51 3327.78  36
CD 24  4  0      .000  2.000      .000  .000  .000  .00
CD 30  4  0      .000  2.500      .000  .000  .000  .00
CD 36  4  0      .000  3.000      .000  .000  .000  .00
CD 42  4  0      .000  3.500      .000  .000  .000  .00
CD 48  4  0      .000  4.000      .000  .000  .000  .00
CD 54  4  0      .000  4.500      .000  .000  .000  .00
CD 60  4  0      .000  5.000      .000  .000  .000  .00
CD 66  3  0      0.000  6.000      6.000
CD 106 3  0      0.000  10.00     6.000
Q      062.00      .0

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DFD2KCA_ULT_Cap1.OUT

FILE: DFD2KCA_ULT_Cap1.WSW

W S P G W - CIVILDESIGN Version 14.08

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date: 5-11-2020 Time: 1:32: 0

SUMMERLIN WEST VILLAGE 22

T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADD

EN ATKINS / Ultimate CONDITIONS CAP #1

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
0.000	3320.110	5.570	3325.680	62.00	8.77	1.19	3326.87	.00	2.54	.00	3.000	.000	.00	0 .0
1.000	.0298					.0086	.01	5.57	.00	1.57	.013	.00	.00	PIPE
1.000	3320.140	5.646	3325.786	62.00	8.77	1.19	3326.98	.00	2.54	.00	3.000	.000	.00	0 .0
1.000	.0300					.0086	.01	5.65	.00	1.56	.013	.00	.00	PIPE
2.000	3320.170	5.662	3325.832	62.00	8.77	1.19	3327.03	.00	2.54	.00	3.000	.000	.00	0 .0
1.000	.0200					.0086	.01	5.66	.00	1.77	.013	.00	.00	PIPE
3.000	3320.190	5.688	3325.878	62.00	8.77	1.19	3327.07	.00	2.54	.00	3.000	.000	.00	0 .0
1.000	.0200					.0086	.01	5.69	.00	1.77	.013	.00	.00	PIPE
4.000	3320.210	5.714	3325.924	62.00	8.77	1.19	3327.12	.00	2.54	.00	3.000	.000	.00	0 .0
35.670	.0261					.0086	.31	5.71	.00	1.63	.013	.00	.00	PIPE
39.670	3321.140	5.142	3326.282	62.00	8.77	1.19	3327.48	.00	2.54	.00	3.000	.000	.00	0 .0
3.000	.0334					.0086	.03	5.14	.00	1.52	.013	.00	.00	PIPE
42.670	3321.240	5.178	3326.418	62.00	8.77	1.19	3327.61	.00	2.54	.00	3.000	.000	.00	0 .0
3.000	.0334					.0086	.03	5.18	.00	1.52	.013	.00	.00	PIPE
45.670	3321.340	5.153	3326.494	62.00	8.77	1.19	3327.69	.00	2.54	.00	3.000	.000	.00	0 .0
15.209	.0551					.0086	.13	5.15	.00	1.31	.013	.00	.00	PIPE
60.879	3322.178	4.445	3326.624	62.00	8.77	1.19	3327.82	.00	2.54	.00	3.000	.000	.00	0 .0

HYDRAULIC JUMP

DFD2KCA_ULT_Cap1.OUT

FILE: DFD2KCA_ULT_Cap1.WSW

W S P G W - CIVILDESIGN Version 14.08

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date: 5-11-2020 Time: 1:32: 0

SUMMERLIN WEST VILLAGE 22

T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADD

EN ATKINS / Ultimate CONDITIONS CAP #1

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
60.879	3322.178	1.433	3323.612	62.00	18.59	5.37	3328.98	.00	2.54	3.00	3.000	.000	.00	0 .0
15.320	.0551					.0389	.60	1.43	3.11	1.31	.013	.00	.00	PIPE
76.199	3323.023	1.465	3324.488	62.00	18.08	5.08	3329.56	.00	2.54	3.00	3.000	.000	.00	0 .0
20.399	.0551					.0352	.72	1.46	2.98	1.31	.013	.00	.00	PIPE
96.598	3324.147	1.521	3325.668	62.00	17.24	4.61	3330.28	.00	2.54	3.00	3.000	.000	.00	0 .0
14.991	.0551					.0310	.47	1.52	2.77	1.31	.013	.00	.00	PIPE
111.588	3324.974	1.579	3326.553	62.00	16.44	4.20	3330.75	.00	2.54	3.00	3.000	.000	.00	0 .0
11.521	.0551					.0274	.32	1.58	2.58	1.31	.013	.00	.00	PIPE
123.110	3325.609	1.641	3327.250	62.00	15.67	3.81	3331.06	.00	2.54	2.99	3.000	.000	.00	0 .0
9.102	.0551					.0241	.22	1.64	2.40	1.31	.013	.00	.00	PIPE
132.212	3326.110	1.706	3327.816	62.00	14.94	3.47	3331.28	.00	2.54	2.97	3.000	.000	.00	0 .0
7.305	.0551					.0213	.16	1.71	2.23	1.31	.013	.00	.00	PIPE
139.517	3326.513	1.774	3328.287	62.00	14.25	3.15	3331.44	.00	2.54	2.95	3.000	.000	.00	0 .0
5.910	.0551					.0189	.11	1.77	2.07	1.31	.013	.00	.00	PIPE
145.427	3326.839	1.846	3328.685	62.00	13.58	2.87	3331.55	.00	2.54	2.92	3.000	.000	.00	0 .0
4.781	.0551					.0167	.08	1.85	1.91	1.31	.013	.00	.00	PIPE
150.208	3327.102	1.923	3329.025	62.00	12.95	2.60	3331.63	.00	2.54	2.88	3.000	.000	.00	0 .0
3.846	.0551					.0148	.06	1.92	1.77	1.31	.013	.00	.00	PIPE

DFD2KCA_ULT_Cap1.OUT

FILE: DFD2KCA_ULT_Cap1.WSW

W S P G W - CIVILDESIGN Version 14.08

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date: 5-11-2020 Time: 1:32: 0

SUMMERLIN WEST VILLAGE 22

T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADD

EN ATKINS / Ultimate CONDITIONS CAP #1

*****																	*****														
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip																	
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch																	
154.054	3327.314	2.005	3329.319	62.00	12.35	2.37	3331.69	.00	2.54	2.82	3.000	.000	.00	0 .0																	
	3.041	.0551				.0132	.04	2.01	1.63	1.31	.013	.00	.00	PIPE																	
157.095	3327.482	2.093	3329.575	62.00	11.77	2.15	3331.73	.00	2.54	2.76	3.000	.000	.00	0 .0																	
	2.330	.0551				.0118	.03	2.09	1.50	1.31	.013	.00	.00	PIPE																	
159.426	3327.610	2.188	3329.798	62.00	11.23	1.96	3331.75	.00	2.54	2.67	3.000	.000	.00	0 .0																	
	1.674	.0551				.0105	.02	2.19	1.37	1.31	.013	.00	.00	PIPE																	
161.100	3327.702	2.291	3329.993	62.00	10.70	1.78	3331.77	.00	2.54	2.55	3.000	.000	.00	0 .0																	
	1.038	.0551				.0095	.01	2.29	1.25	1.31	.013	.00	.00	PIPE																	
162.137	3327.760	2.405	3330.165	62.00	10.21	1.62	3331.78	.00	2.54	2.39	3.000	.000	.00	0 .0																	
	.373	.0551				.0086	.00	2.41	1.13	1.31	.013	.00	.00	PIPE																	
162.510	3327.780	2.536	3330.316	62.00	9.73	1.47	3331.79	.00	2.54	2.17	3.000	.000	.00	0 .0																	

DFD2KCA_ULT_Cap2

0

T1 SUMMERLIN WEST VILLAGE 22
T2 T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADDENDUM #1
T3 ATKINS / Ultimate CONDITIONS Cap #2
SO 646.21 3331.14 42 3331.14
REM ##### JX DS SDMH#16
R 649.21 3331.24 30 .013 .000 00.00 1
REM ##### JX US SDMH#16
REM ##### JX DS Cap#2
R 731.48 3335.74 30 .013 .000 00.00 1
SH 734.48 3335.74 30
CD 24 4 0 .000 2.000 .000 .000 .000 .00
CD 30 4 0 .000 2.500 .000 .000 .000 .00
CD 36 4 0 .000 3.000 .000 .000 .000 .00
CD 42 4 0 .000 3.500 .000 .000 .000 .00
CD 48 4 0 .000 4.000 .000 .000 .000 .00
CD 54 4 0 .000 4.500 .000 .000 .000 .00
CD 60 4 0 .000 5.000 .000 .000 .000 .00
CD 66 3 0 0.000 6.000 6.000
CD 106 3 0 0.000 10.00 6.000
Q 014.00 .0

DFD2KCA_ULT_Cap2.OUT

FILE: DFD2KCA_ULT_Cap2.WSW

W S P G W - CIVILDESIGN Version 14.08

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date: 5-11-2020 Time: 1:32:18

SUMMERLIN WEST VILLAGE 22

T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADD

EN ATKINS / Ultimate CONDITIONS Cap #2

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
646.210	3331.140	.669	3331.809	14.00	13.27	2.73	3334.54	.00	1.26	2.21	2.500	.000	.00	0 .0
3.000	.0334					.0482	.14	.67	3.39	.73	.013	.00	.00	PIPE
649.210	3331.240	.664	3331.904	14.00	13.40	2.79	3334.69	.00	1.26	2.21	2.500	.000	.00	0 .0
4.237	.0547					.0486	.21	.66	3.43	.65	.013	.00	.00	PIPE
653.447	3331.472	.666	3332.138	14.00	13.33	2.76	3334.90	.00	1.26	2.21	2.500	.000	.00	0 .0
24.041	.0547					.0452	1.09	.67	3.41	.65	.013	.00	.00	PIPE
677.487	3332.787	.689	3333.476	14.00	12.71	2.51	3335.99	.00	1.26	2.23	2.500	.000	.00	0 .0
13.501	.0547					.0396	.53	.69	3.19	.65	.013	.00	.00	PIPE
690.989	3333.525	.713	3334.238	14.00	12.12	2.28	3336.52	.00	1.26	2.26	2.500	.000	.00	0 .0
9.100	.0547					.0346	.32	.71	2.99	.65	.013	.00	.00	PIPE
700.089	3334.023	.738	3334.761	14.00	11.56	2.07	3336.84	.00	1.26	2.28	2.500	.000	.00	0 .0
6.675	.0547					.0303	.20	.74	2.79	.65	.013	.00	.00	PIPE
706.764	3334.388	.764	3335.152	14.00	11.02	1.89	3337.04	.00	1.26	2.30	2.500	.000	.00	0 .0
5.137	.0547					.0265	.14	.76	2.61	.65	.013	.00	.00	PIPE
711.900	3334.669	.791	3335.460	14.00	10.51	1.71	3337.17	.00	1.26	2.33	2.500	.000	.00	0 .0
4.071	.0547					.0232	.09	.79	2.45	.65	.013	.00	.00	PIPE
715.971	3334.892	.818	3335.710	14.00	10.02	1.56	3337.27	.00	1.26	2.35	2.500	.000	.00	0 .0
3.282	.0547					.0204	.07	.82	2.29	.65	.013	.00	.00	PIPE

DFD2KCA_ULT_Cap2.OUT

FILE: DFD2KCA_ULT_Cap2.WSW

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WATER SURFACE PROFILE LISTING

Date: 5-11-2020 Time: 1:32:18

SUMMERLIN WEST VILLAGE 22

T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADD

EN ATKINS / Ultimate CONDITIONS Cap #2

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
719.253	3335.071	.847	3335.919	14.00	9.55	1.42	3337.34	.00	1.26	2.37	2.500	.000	.00	0 .0
2.678	.0547					.0178	.05	.85	2.14	.65	.013	.00	.00	PIPE
721.931	3335.218	.878	3336.095	14.00	9.11	1.29	3337.38	.00	1.26	2.39	2.500	.000	.00	0 .0
2.196	.0547					.0156	.03	.88	2.00	.65	.013	.00	.00	PIPE
724.128	3335.338	.909	3336.247	14.00	8.68	1.17	3337.42	.00	1.26	2.41	2.500	.000	.00	0 .0
1.802	.0547					.0137	.02	.91	1.87	.65	.013	.00	.00	PIPE
725.930	3335.437	.941	3336.378	14.00	8.28	1.06	3337.44	.00	1.26	2.42	2.500	.000	.00	0 .0
1.473	.0547					.0120	.02	.94	1.75	.65	.013	.00	.00	PIPE
727.403	3335.517	.975	3336.492	14.00	7.89	.97	3337.46	.00	1.26	2.44	2.500	.000	.00	0 .0
1.191	.0547					.0106	.01	.98	1.63	.65	.013	.00	.00	PIPE
728.594	3335.582	1.011	3336.593	14.00	7.53	.88	3337.47	.00	1.26	2.45	2.500	.000	.00	0 .0
.948	.0547					.0093	.01	1.01	1.52	.65	.013	.00	.00	PIPE
729.542	3335.634	1.048	3336.682	14.00	7.18	.80	3337.48	.00	1.26	2.47	2.500	.000	.00	0 .0
.735	.0547					.0081	.01	1.05	1.42	.65	.013	.00	.00	PIPE
730.276	3335.674	1.086	3336.760	14.00	6.84	.73	3337.49	.00	1.26	2.48	2.500	.000	.00	0 .0
.545	.0547					.0071	.00	1.09	1.33	.65	.013	.00	.00	PIPE
730.821	3335.704	1.126	3336.830	14.00	6.52	.66	3337.49	.00	1.26	2.49	2.500	.000	.00	0 .0
.372	.0547					.0063	.00	1.13	1.24	.65	.013	.00	.00	PIPE

DFD2KCA_ULT_Cap2.OUT

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date: 5-11-2020 Time: 1:32:18

SUMMERLIN WEST VILLAGE 22

T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADD

EN ATKINS / Ultimate CONDITIONS Cap #2

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*****
| Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
Station | Elev | (FT) | Elev | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
-|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|-
L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
| | | | | | | | | | | | | | | |
731.193 3335.724 1.168 3336.893 14.00 6.22 .60 3337.49 .00 1.26 2.49 2.500 .000 .00 0 .0
-|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|-
.216 .0547 .0055 .00 1.17 1.15 .65 .013 .00 .00 PIPE
| | | | | | | | | | | | | | | |
731.409 3335.736 1.212 3336.948 14.00 5.93 .55 3337.49 .00 1.26 2.50 2.500 .000 .00 0 .0
-|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|-
.071 .0547 .0049 .00 1.21 1.08 .65 .013 .00 .00 PIPE
| | | | | | | | | | | | | | | |
731.480 3335.740 1.260 3337.000 14.00 5.65 .50 3337.50 .00 1.26 2.50 2.500 .000 .00 0 .0
-|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|-
| | | | | | | | | | | | | | | |
734.480 3335.740 1.260 3337.000 14.00 5.65 .50 3337.50 .00 1.26 2.50 2.500 .000 .00 0 .0
-|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|-

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DFD2KCA_ULT_SDDI_11_12

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T1 SUMMERLIN WEST VILLAGE 22
T2 T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADDENDUM #1
T3 ATKINS / Ultimate CONDITIONS CAP #1
SO 139.89 3323.65 48 3330.54
REM ##### JX DS SDMH#13
R 142.89 3323.75 30 .013 .000 00.00 1
REM ##### JX US SDMH#13
REM ##### JX DS SDDI #11
R 181.59 3326.87 30 .013 .000 00.00 0
JX 184.59 3326.97 30 30 .013 05.0 3326.97 .00.0
R 187.59 3327.07 30 .013 .000 00.00 1
REM ##### JX US SDDI #11
REM ##### JX DS SDDI #12
R 264.31 3330.50 30 .013 .000 00.00 1
SH 267.31 3330.50 30
CD 24 4 0 .000 2.000 .000 .000 .000 .00
CD 30 4 0 .000 2.500 .000 .000 .000 .00
CD 36 4 0 .000 3.000 .000 .000 .000 .00
CD 42 4 0 .000 3.500 .000 .000 .000 .00
CD 48 4 0 .000 4.000 .000 .000 .000 .00
CD 54 4 0 .000 4.500 .000 .000 .000 .00
CD 60 4 0 .000 5.000 .000 .000 .000 .00
CD 66 3 0 0.000 6.000 6.000
CD 106 3 0 0.000 10.00 6.000
Q 063.00 .0

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DFD2KCA_ULT_SDDI_11_12.OUT

FILE: DFD2KCA_ULT_SDDI_11_12.WSW

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WATER SURFACE PROFILE LISTING

Date: 5-11-2020 Time: 1:32:36

SUMMERLIN WEST VILLAGE 22

T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADD

EN ATKINS / Ultimate CONDITIONS CAP #1

*****																	*****	
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt/I.D.	ZL	No Wth Prs/Pip				
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch				
*****																	*****	
139.890	3323.650	6.890	3330.540	68.00	13.85	2.98	3333.52	.00	2.43	.00	2.500	.000	.00	0	.0			
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -			
3.000	.0334					.0275	.08	6.89	.00	1.87	.013	.00	.00	PIPE				
142.890	3323.750	7.021	3330.771	68.00	13.85	2.98	3333.75	.00	2.43	.00	2.500	.000	.00	0	.0			
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -			
38.700	.0806					.0275	1.06	7.02	.00	1.37	.013	.00	.00	PIPE				
181.590	3326.870	4.965	3331.835	68.00	13.85	2.98	3334.81	.00	2.43	.00	2.500	.000	.00	0	.0			
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -			
JUNCT STR	.0333					.0255	.08	4.97	.00		.013	.00	.00	PIPE				
184.590	3326.970	5.754	3332.724	63.00	12.83	2.56	3335.28	.00	2.41	.00	2.500	.000	.00	0	.0			
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -			
3.000	.0334					.0236	.07	5.75	.00	1.76	.013	.00	.00	PIPE				
187.590	3327.070	5.852	3332.922	63.00	12.83	2.56	3335.48	.00	2.41	.00	2.500	.000	.00	0	.0			
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -			
76.720	.0447					.0236	1.81	5.85	.00	1.58	.013	.00	.00	PIPE				
264.310	3330.500	4.360	3334.860	63.00	12.83	2.56	3337.42	.00	2.41	.00	2.500	.000	.00	0	.0			
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -			
3.000	.0447					.0287	2.20	4.36	.00	1.58	.013	.00	.00	PIPE				
267.310	3330.500	4.360	3334.860	63.00	12.83	2.56	3337.42	.00	2.41	.00	2.500	.000	.00	0	.0			
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -			

DFD2KCA_ULT_SDDI_13

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T1 SUMMERLIN WEST VILLAGE 22
T2 T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADDENDUM #1
T3 ATKINS / Ultimate CONDITIONS SDDI #13
SO 139.89 3323.65 48 3330.54
REM ##### JX DS SDMH#13
R 142.89 3323.75 24 .013 .000 00.00 1
REM ##### JX US SDMH#13
REM ##### JX DS SDDI #13
R 188.70 3324.47 24 .013 .000 00.00 1
SH 191.70 3324.47 24
CD 24 4 0 .000 2.000 .000 .000 .000 .00
CD 30 4 0 .000 2.500 .000 .000 .000 .00
CD 36 4 0 .000 3.000 .000 .000 .000 .00
CD 42 4 0 .000 3.500 .000 .000 .000 .00
CD 48 4 0 .000 4.000 .000 .000 .000 .00
CD 54 4 0 .000 4.500 .000 .000 .000 .00
CD 60 4 0 .000 5.000 .000 .000 .000 .00
CD 66 3 0 0.000 6.000 6.000
CD 106 3 0 0.000 10.00 6.000
Q 005.00 .0

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DFD2KCA_ULT_SDDI_13.OUT

FILE: DFD2KCA_ULT_SDDI_13.WSW

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WATER SURFACE PROFILE LISTING

Date: 5-11-2020 Time: 1:33: 1

SUMMERLIN WEST VILLAGE 22

T2 DESERT FOOTHILLS DRIVE - CLOWDER PASS WAY TO KESTREL CREEK AVENUE ADD

EN ATKINS / Ultimate CONDITIONS SDDI #13

*****																*****	
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	*****		

139.890	3323.650	6.890	3330.540	5.00	1.59	.04	3330.58	.00	.79	.00	2.000	.000	.00	0	.0		
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -			
3.000	.0334					.0005	.00	6.89	.00	.47	.013	.00	.00	PIPE			
142.890	3323.750	6.793	3330.543	5.00	1.59	.04	3330.58	.00	.79	.00	2.000	.000	.00	0	.0		
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -			
45.810	.0157					.0005	.02	6.79	.00	.57	.013	.00	.00	PIPE			
188.700	3324.470	6.098	3330.568	5.00	1.59	.04	3330.61	.00	.79	.00	2.000	.000	.00	0	.0		
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -			
3.000	.0157					.0076	.35	6.10	.00	.57	.013	.00	.00	PIPE			
191.700	3324.470	6.098	3330.568	5.00	1.59	.04	3330.61	.00	.79	.00	2.000	.000	.00	0	.0		
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -			

Appendix D. CD-ROM



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