

DS #: 4425-2

APN: 126-24-201-020

PROJECT: KNICKERBOCKER PARK - UPDATE

SUBMITTAL: 6TH

SCANNED BY/DATE: _____

CHECKED BY/DATE: _____





CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM		DATE: March 28, 2011	
TO: Land Development Services Department of Public Works		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works	
SUBJECT: Drainage Study for: Knickerbocker Park - Update		COPIES TO: Slater Hanifan Group	
Cross Streets:	SEC of Dorrell Lane & Shaumber Road	Providence Master HOA	
File Number:	F:\Depot\DSMemos\DS4425F.doc	Bart Anderson, P.E., DevCo	
Parcel Number:	126-24-201-020		
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 Transaction #
1 st Submittal	6/29/2010	7/13/2010	Not Approved	\$400.00	147690: \$400
2 nd Submittal	7/30/2010 & 8/11/2010	8/12/2010	Approved	\$400.00	150050: \$400
3 rd Submittal	8/24/2010	9/7/2010	Conditional Approval	\$100.00	151947: \$100
Supplement	11/4/2010	11/15/2010	Approved	N/C	N/C
4 th Submittal	1/31/2011	2/14/2011	Not Approved	\$100.00	161730: \$100
5 th Submittal	3/14/2011	3/28/2011	See Comments Below	\$400.00	164441 & 164442: \$400
TOTAL FEES (LDDRS):				\$1,400.00	----

REMARKS:

5th & 4th Submittals: Update & Addendum for half-street improvements in Deer Springs Way

Supplement: To raise the baseball court and soccer field by 1'

3rd Submittal: Update #1 to construct half-street improvements to Brighton Village Street

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 the receipt of a notarized letter of permission from Clark County School District for offsite grading

1. Extend all utilities such as gas, water, power etc. to the full frontage of the subject park in *Deer Springs Way*.

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 Amendment 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
ays

T/R/S: T19S/R59E/24
AREA F-24

Post-it® Fax Note 7671		Date	3/28/11	# of pages	2
To	Steve Jones	From	Albert Sung		
Co./Dept.	SHG	Co.	CLV		
Phone #		Phone #	229-2001		
Fax #	284-5399	Fax #			

TRANSACTION REPORT

P. 01

MAR-28-2011 MON 02:57 PM

FOR: CITY OF LAS VEGAS

7023828551

SEND

DATE	START	RECEIVER	TX TIME	PAGES	TYPE	NOTE	M#	DP
MAR-28	02:57 PM	2845399	27"	2	FAX TX	OK	687	

TOTAL : 27S PAGES: 2

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
ays

T/R/S: T19S/R59E/24
AREA F-24

Post-it® Fax Note	7671	Date	3/28/11	# of pages	2
To	Steve Jones	From	Albert SUNG		
Co./Dept.	SHG	Co.	CLV		
Phone #		Phone #	229-200		
Fax #	284-5399	Fax #			

TECHNICAL DRAINAGE STUDY
ADDENDUM No. 1 to UPDATE No. 2

Knickerbocker Park

City of Las Vegas, Nevada

Job No.: LTK1003.001

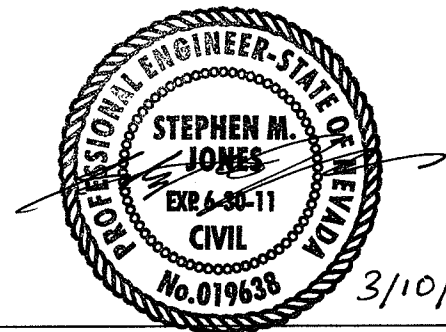
Date: March 2011

Prepared By:

Slater Hanifan Group, Inc.
5740 S. Arville Street, Suite 216
Las Vegas, Nevada 89118
Phone: 702-284-5300 • Fax: 702-284-5399

Prepared For:

Providence Master Homeowners Association
3425 Cliff Shadows Parkway, Suite 250
Las Vegas, NV 89129
Phone: 702-777-1221 • Fax: 702-216-2037



Steve Jones, P.E.
NV Professional Engineer No. 19638

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL
DRAINAGE STUDY INFORMATION FORM

Name of Development: Knickerbocker Park – TDS Update #2, Addendum No. 1 Date: March 2011
 Location of Development: a) Descriptive (Cross Streets): North/South: Shaumber Road
East/West: Dorrell Lane
 b) Section: 24 Township: 19 Range: 59
 c) APN: 126-24-201-020

Name of Owner: Providence Master Homeowners Association
 Telephone No.: 702-777-1221 Fax No.: 702-216-2037 E-mail Address: cchamplin@fcglv.com
 Address: 3425 Cliff Shadows Parkway, Suite 250, Las Vegas, NV 89129

Contact Person – Name: Steve Jones, P.E. Telephone No.: 702-284-5300
 *E-mail Address: sjones@shg-inc.com Fax No.: 702-284-5399
 Firm: Slater Hanifan Group
 Address: 5740 S. Arville Street, Suite 216, Las Vegas, NV 89118

Type of Land Development/Land Disturbance Process:

<input type="checkbox"/>	Rezoning	<input type="checkbox"/>	Subdivision Map	<input type="checkbox"/>	Clearing and grading Only
<input type="checkbox"/>	Parcel Map	<input type="checkbox"/>	Planned Unit Development	<input checked="" type="checkbox"/>	Other (Please specify below)
<input type="checkbox"/>	Large Parcel Map	<input type="checkbox"/>	Building Permit		Park & Roadway

1. Total Owned Land Area: At Site: 16.5 ± acres Being Developed/Disturbed: 16.5 ± acres

2. Is a portion or all of the subject property located in a 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.): Park, Street Improvements to Deer Springs (Subject of Update #2)

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: Update #1 and Technical Drainage Study for Knickerbocker Park (DS4425), by Slater Hanifan Group, 8/2010

7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: East onto Brighton Village Street

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



Engineer's Seal

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

*Newly Required Field

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

Local Entity File No. _____	Revision	Date

REFERENCE: LTK 1003-001

STANDARD FORM 1

Updated 05/01/2008



CONSULTING ENGINEERS & PLANNERS

LTK1003.001

March 10, 2011

Albert Sung, P.E. – Flood Control Project Engineer
City of Las Vegas Department of Public Works
333 N. Rancho Drive
Las Vegas, Nevada 89107

**Subject: Addendum No. 1 to Update No. 2 to the
Technical Drainage Study for Knickerbocker Park
(CLV # DS4425)**

Dear Mr. Sung:

This letter is submitted in response to comments contained in the February 14, 2011 review memorandum, regarding the above referenced project. A copy of the City of Las Vegas (CLV) comment letter has been provided in Appendix A of this submittal. The comments have been individually addressed as follows:

1. **Comment:** *The engineer/owner of the subject park must coordinate with Rebecca Rury (229-6262) and Mary Wulff (229-2139) of the City for any necessary applications (for example, public drainage easements to accommodate proposed drainage facilities) to BLM to accomplish for the proposed works in the BLM land. All necessary permits, easements or approvals must be obtained from the BLM prior to the final acceptance of the improvement plans;*

Response: After coordination with CLV, it has been determined that improvements on the adjacent BLM property to the south would require an easement from BLM. Therefore, the proposed storm drain facilities and outlet have been revised to be maintained completely within the existing 30-ft BLM grant; therefore, no easements are required.

2. **Comment:** *According to the engineer (Martin & Martin Civil Engineers) for the future Regional Public Safety Complex project to the south of Deer Springs Way, the proposed 54-inch RCP located right on top of the future street sidewalk and curb and gutter which will provide potential conflict with the dry utilities. It is recommended to shift the proposed 54-inch pipe to the north towards the center line of the street. Review and revise accordingly;*

Response: After coordination with CLV and Martin & Martin, the alignment of the proposed 54-inch RCP storm drain has been skewed from the proposed NDOT Type 4 Manhole to direct its alignment towards the centerline of the street and remove any future conflicts with future sidewalk, curb and gutter. Exhibit B has been revised to incorporate the storm drain's shifted alignment.

As a result of the shifted alignment, the WSPG analyses have been revised accordingly. Two (2) WSPG models, extended to the north and to the south, have been prepared to show that existing storm drain in Shaumber Road is not negatively impacted by the proposed 54-inch RCP. Similar to the previous submittal, the starting HGL utilized in the WSPG analyses has been conservatively estimated at the top of pipe, since it has been determined that the storm drain is not flowing full and the flow depth in the downstream existing wash is less than the top of pipe elevation. Note that because the storm drain remains the same size at the same slope and discharges into the same existing wash, the design of the outlet protection included in the previous submittal remains valid. The revised WSPG analyses have been included in Appendix B. In addition, referenced Cliffs Edge Infrastructure Phase 2 storm drain profile sheets have also been included in Appendix B to assist in reviewing the WSPG analyses.

3. **Comment:** *It appears that the subject improvement project requires some coordination between the engineers for the developments on both sides of Deer Springs Way. A mutual agreeable design must be reached among all the entities involved. It may be beneficial to call for a meeting for all the parties to resolve all the issues prior to the further design of the project;*

Response: Coordination has been performed between SHG, CLV and Martin & Martin, and all parties are in agreement in regards to the proposed design.

4. **Comment:** *14-ft overpaving is normally required in all half street improvements in the City of Las Vegas. The proposed 2-ft overpaving is not acceptable. The engineer shall consult with Land Development Section for the acceptable extent of overpaving in Deer Springs Way prior to the next submittal. Review and revise accordingly;*

Response: SHG has coordinated the proposed design with Victor Bolanos, and the requested 14-ft of overpaving is not required and the 2-ft of overpaving is considered acceptable with barrier rail. In locations where barrier rail is not provided, 15-ft in width of 4:1 slope is proposed.

5. **Comment:** *Relocate/extend the headwall structure and the riprap pad to be completely within the City leased BLM land;*

Response: This project does not wish to pursue obtaining the appropriate easements from BLM; therefore, after coordination with CLV, the storm drain facilities and riprap serving as storm drain outlet protection has been revised to be fully contained within the existing 30-ft BLM grant. Note that the previously provided headwall has been revised to a combination of storm drain end section and retaining wall.

6. **Comment:** *Provide guard rail around the riprap pad for traffic safety. Consult with City Traffic Section (Mr. Victor Bolanos 229-6901) for the extent of the traffic barricades;*

Response: The design has been revised to provide barrier rail around the 54-inch RCP outlet.

7. **Comment:** *The location of a storm drain manhole connecting an existing 72-inch RCP and a proposed 54-inch RCP appears to conflict with the curb return of Deer Springs Way. Address the constructability of the design or relocate the manhole to a better location;*

Response: The location of the NDOT Type 4 Manhole has been proposed to avoid conflict with underground utilities below the existing sidewalk. Only a corner of the manhole structure will actually be below the curb return and due to the depth of the structure it will not conflict. The manhole cover and concrete ring are offset sufficiently that they will not impact the curb and gutter. Therefore, the location of the manhole has not been revised.

8. **Comment:** *Add in all pertinent sheets for the construction of all storm drain drop inlets per a newly adopted USDCCA Drawing No. 421 (Stormwater Quality Management Stamp and Sign Detail);*

Response: The construction note to construct the drop inlet has been revised to reference the requested stamp detail.

9. **Comment:** *Revise Construction Note #35 to indicate per drawing number 406 instead of 306;*

Response: The grading plan has been revised accordingly.

The revised plan, profile and detail sheets adopting the revisions addressed in this letter and the comments from CLV have been included in Appendix C. If you have any questions or require additional information, please do not hesitate to contact us at 284-5300.

Respectfully Submitted,

SLATER HANIFAN GROUP



Steve Jones, P.E.
Flood Control Division

pc: Mark Failla, SHG
Brent Parrish, SHG
Travis Poechmann, SHG

APPENDIX

1. **Appendix A** – CLV Comment Letter
2. **Appendix B** – Response to Comment No. 2 (Storm Drain Hydraulic Analysis)
 - a) Revised Exhibit B – Proposed Condition Hydraulic Summary Map
 - b) WSPG Analysis – Extended North to Pod 301
 - c) WSPG Analysis – Extended South to Pod 303A
 - d) Storm Drain Profile Sheets, Referenced from Cliffs Edge Infrastructure Phase 2
3. **Appendix C** – Revised Grading Plan and Detail Sheets

APPENDIX A
CLV Comment Letter

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM		DATE: February 14, 2011
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Cross Streets:	SEC of Dorrell Lane & Shaumber Road	Providence Master HOA
File Number:	F:\Depot\DSMemos\DS4425E.doc	Bart Anderson, P.E., DevCo
Parcel Number:	126-24-201-020	
Zoning Action:	N/A	
FEMA Flood Zone	YES	NO <input checked="" type="checkbox"/>
Proposed Storm Drain	YES	NO <input checked="" type="checkbox"/>

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Transaction #
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TOTAL FEES (LDDRS):				\$1,000.00	

REMARKS:

4th Submittal: Update to address half-street improvements in Deer Springs Way

Supplement: To raise the baseball court and soccer field by 1'

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

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5. Relocate / extend the headwall structure and the riprap pad to be completely within the City leased BLM land.
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END OF REMARKS
ays

T/R/S: T19S/R59E/24
AREA F-24

Post-It#	Fax Note	7671	Date	2/14/11	# of pages	2
To	Steve Jones		From	Albert Sainz		
Co./Dept.	SHG		Co.	CLV		
Phone #			Phone #	229-2001		
Fax #	284-5399		Fax #			

APPENDIX B

Response to Comment No. 2
(Storm Drain Hydraulic Analysis)

Revised Drainage Exhibit B

WSPG Analysis

Storm Drain Extended North to Pod 301

DEER-N.WSP

0	T1	Knickerbocker Park - LTK1003.002							
	T2	Update No. 2 (Deer Springs Way) - Addendum No. 1							
	T3	Extend 72-inch RCP in Deer Springs (Extension of Model 43.51)							
	SO	1000.00	39.01	54					
	R	1013.00	39.33	54	.013				16.
	R	1180.00	43.46	54	.013				5.
	TS	1185.00	43.50	72	.013				
	R	1234.36	43.75	72	.013				
	JX	1234.36	45.42	48	60	.013	119.	44.42	46.
	R	1265.67	48.40	48	.013				44.
	R	1286.72	48.77	48	.013				
	JX	1286.72	50.27	30	30	.013	47.	3.	50.27
	R	1325.56	50.97	30	.013				45.
	R	1682.60	56.30	30	.013				83.
	SH	1682.60	56.30	30					1
	CD	18	4						
	CD	24	4						
	CD	30	4						
	CD	36	4						
	CD	42	4						
	CD	48	4						
	CD	54	4						
	CD	60	4						
	CD	66	4						
	CD	72	4						
	CD	78	4						
	CD	90	4						

DEER-N. MSQ

0
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38.

DATE: 3/10/2011
 TIME: 8:48

DEER-N.OUT

F0515P
 WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

PAGE 1

CARD CODE	SECT NO	CHN TYPE	NO OF PIERS	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)	
CD	18	4			1.50															
CD	24	4			2.00															
CD	30	4			2.50															
CD	36	4			3.00															
CD	42	4			3.50															
CD	48	4			4.00															
CD	54	4			4.50															
CD	60	4			5.00															
CD	66	4			5.50															
CD	72	4			6.00															
CD	78	4			6.50															
CD	90	4			7.50															

F 0 5 1 5 P

PAGE NO 3

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

Knickerbocker Park - LTK1003.002

HEADING LINE NO 2 IS -

Update No. 2 (Deer Springs way) - Addendum No. 1

HEADING LINE NO 3 IS -

Extend 72-inch RCP in Deer Springs (Extension of Model - North in Shaumberg
 F 0 5 1 5 P

PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	IS	A	SYSTEM OUTLET U/S DATA	STATION	INVERT	SECT	W S ELEV	RADIUS	ANGLE	ANG PT	MAN H
1	IS	A	SYSTEM OUTLET U/S DATA	1000.00	39.01	54	43.51				
2	IS	A	REACH U/S DATA	1013.00	39.33	54		0.00	0.00	16.00	0
3	IS	A	REACH U/S DATA	1180.00	43.46	54		0.00	0.00	5.00	0
4	IS	A	TRANSITION U/S DATA	1185.00	43.50	72		0.00	0.00		
5	IS	A	REACH U/S DATA	1234.36	43.75	72		0.00	0.00	0.00	0
6	IS	A	JUNCTION								

DEER-N,OUT
0.26

19.86 0.02473 .013275 2.693 0.00

1154.37 42.83 3.464 46.290 207.0 15.76 3.855 50.145 0.00 4.081 4.50 0.00 0.00 0 0.00

13.82 0.02473 .011961 2.693 0.00

1168.19 43.17 3.638 46.806 207.0 15.02 3.504 50.310 0.00 4.081 4.50 0.00 0.00 0 0.00

8.56 0.02473 .010869 2.693 0.00

1176.75 43.38 3.838 47.218 207.0 14.32 3.186 50.404 0.00 4.081 4.50 0.00 0.00 0 0.00

3.25 0.02473 .010039 2.693 0.00

1180.00 43.46 4.081 47.541 207.0 13.66 2.895 50.436 0.00 4.081 4.50 0.00 0.00 0 0.00

TRANS STR 0.00800 .006044 0.03 0.00

1185.00 43.50 6.341 49.841 207.0 7.32 0.832 50.673 0.00 3.935 6.00 0.00 0.00 0 0.00

49.36 0.00507 .002389 3.652 0.00

1234.36 43.75 6.209 49.959 207.0 7.32 0.832 50.791 0.00 3.935 6.00 0.00 0.00 0 0.00

JUNCT STR 0.00000 .003071 0.00 0.00

LICENSEE: SLATER HANIFAN GROUP F0515P

WATER SURFACE PROFILE LISTING
Knickerbocker Park - LTK1003.002
Update No. 2 (Deer Springs way) - Addendum No. 1
Extend 72-inch RCP in Deer Springs (Extension of Model - North in Shaumber

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.ELEV.	SUPER ELEV	CRITICAL DEPTH	HGT/DIA	BASE/ID NO.	ZL PIER	NO AVBPR
L/ELEM	SO					SF AVE	HF		NORM DEPTH				
1234.36	45.42	5.144	50.564	88.0	7.00	0.762	51.326	0.00	2.844	4.00	0.00	0.00	0 0.00
3.75	0.09518					.003753	0.01		1.208			0.00	
1238.11	45.78	4.835	50.612	88.0	7.00	0.762	51.374	0.00	2.844	4.00	0.00	0.00	0 0.00
HYDRAULIC JUMP													
1238.11	45.78	1.589	47.366	88.0	18.92	5.556	52.922	0.00	2.844	4.00	0.00	0.00	0 0.00
4.17	0.09518					.032584	0.14		1.208			0.00	
1242.28	46.17	1.623	47.797	88.0	18.38	5.248	53.045	0.00	2.844	4.00	0.00	0.00	0 0.00
6.34	0.09518					.029396	0.19		1.208			0.00	
1248.62	46.78	1.683	48.460	88.0	17.53	4.770	53.230	0.00	2.844	4.00	0.00	0.00	0 0.00
5.35	0.09518					.025821	0.14		1.208			0.00	
1253.97	47.29	1.745	49.032	88.0	16.71	4.336	53.368	0.00	2.844	4.00	0.00	0.00	0 0.00
4.56	0.09518					.022684	0.10		1.208			0.00	

DEER-N. OUT

1636.32	39.01	41.06	43.12	45.17	47.23	49.28	51.34	53.39	55.45	57.50	59.56
1647.89									I	W C H	E
1659.46									I	W C H	E
1671.03									I	W C H	E
1682.60									I	W C H	E

N O T E S

- GLOSSARY
 - I = INVERT ELEVATION
 - C = CRITICAL DEPTH
 - W = WATER SURFACE ELEVATION
 - H = HEIGHT OF CHANNEL
 - E = ENERGY GRADE LINE
 - X = CURVES CROSSING OVER
 - B = BRIDGE ENTRANCE OR EXIT
 - Y = WALL ENTRANCE OR EXIT
- STATIONS FOR POINTS AT A JUMP MAY NOT BE PLOTTED EXACTLY?

WSPG Analysis

Storm Drain Extended South to Pod 303A

T1	Knickerbocker Park - LTK1003.002								
T2	Update No. 2 (Deer Springs Way) - Addendum No. 1								
T3	Extend 72-inch RCP in Deer Springs (Extension of Model - south in Shaumber)								
SO	1000.00	39.01	54						
R	1013.00	39.33	54						
R	1180.00	43.46	54						
TS	1185.00	43.50	72						
R	1234.36	43.75	72						
JX	1234.36	44.42	60	48					
R	1264.71	44.57	60						
R	1525.48	45.89	60						
SH	1525.48	45.89	60						
CD	18	4						1.5	
CD	24	4						2.5	
CD	30	4						3.5	
CD	36	4						4.5	
CD	42	4						5.5	
CD	48	4						6.5	
CD	54	4						7.5	
CD	60	4							
CD	66	4							
CD	72	4							
CD	78	4							
CD	90	4							

16.
5.

→ LESS Q THAN Q DESIGN IN NORTH
MODEL TO ADD UP TO CPIO
REFERENCED Q

45.42 46. 45. 2



DEER-S.WSQ

Q

149.

DEER-S.OUT

DATE: 3/10/2011
 TIME: 8:49

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING
 F0515P
 PAGE 1

CARD NO	SECT NO	CHN TYPE	NO OF PIERS	AVE WIDTH	PIER WIDTH	HEIGHT 1	BASE DIAMETER	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)	
CD	18	4	4			1.50															
CD	24	4	4			2.00															
CD	30	4	4			2.50															
CD	36	4	4			3.00															
CD	42	4	4			3.50															
CD	48	4	4			4.00															
CD	54	4	4			4.50															
CD	60	4	4			5.00															
CD	66	4	4			5.50															
CD	72	4	4			6.00															
CD	78	4	4			6.50															
CD	90	4	4			7.50															

PAGE NO 3

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

Knickerbocker Park - LTK1003.002

HEADING LINE NO 2 IS -

Update No. 2 (Deer Springs way) - Addendum No. 1

HEADING LINE NO 3 IS -

Extend 72-inch RCP in Deer Springs (Extension of Model - South in Shaumberg

PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	IS A	SYSTEM OUTLET U/S DATA	STATION	INVERT	SECT	W S ELEV	RADIUS	ANGLE	ANG PT	MAN H
1	IS A	SYSTEM OUTLET U/S DATA	1000.00	39.01	54	43.51	0.00	0.00	16.00	0
2	IS A	REACH U/S DATA	1013.00	39.33	54		0.00	0.00	16.00	0
3	IS A	REACH U/S DATA	1180.00	43.46	54		0.00	0.00	5.00	0
4	IS A	TRANSITION U/S DATA	1185.00	43.50	72		0.00	0.00	5.00	0
5	IS A	REACH								

Page 1

DEER-S.OUT
N 0.013

U/S DATA STATION INVERT SECT
1234.36 43.75 72

ELEMENT NO 6 IS A JUNCTION
U/S DATA STATION INVERT SECT
1234.36 44.42 60

ELEMENT NO 7 IS A REACH
U/S DATA STATION INVERT SECT
1264.71 44.57 60

ELEMENT NO 8 IS A REACH
U/S DATA STATION INVERT SECT
1525.48 45.89 60

ELEMENT NO 9 IS A SYSTEM HEADWORKS
U/S DATA STATION INVERT SECT
1525.48 45.89 60

NO EDIT ERRORS ENCOUNTERED-COMPUTATION IS NOW BEGINNING
** WARNING NO. 2 ** - WATER SURFACE ELEVATION GIVEN IS LESS THAN OR EQUALS INVERT ELEVATION IN HDWKDS, W.S.ELEV = INV + DC
LICENSEE: SLATER HANIFAN GROUP

WATER SURFACE PROFILE LISTING
Knickerbocker Park - LTK1003.002
Update No. 2 (Deer Springs way) - Addendum No. 1
Extend 72-inch RCP in Deer Springs (Extension of Model - south in Shamber)

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.LEL.	SUPER ELEV	CRITICAL DEPTH	NORM DEPTH	HGT/DIA	BASE/ID NO.	ZL	NO AVBPR PIER	RADIUS	ANGLE	ANG PT	MAN H	
1000.00	39.01	2.904	41.914	207.0	19.07	5.648	47.562	0.00	4.081	4.50	0.00	0.00	0	0.00	0.00	0.00	0	0	
13.00	0.02462					.019583	0.25			2.697									
1013.00	39.33	2.923	42.253	207.0	18.93	5.563	47.816	0.00	4.081	4.50	0.00	0.00	0	0.00	0.00	0.00	0	0	
52.27	0.02473					.018478	0.97			2.693									
1065.27	40.62	3.029	43.652	207.0	18.18	5.131	48.783	0.00	4.081	4.50	0.00	0.00	0	0.00	0.00	0.00	0	0	
41.00	0.02473					.016599	0.68			2.693									
1106.27	41.64	3.162	44.799	207.0	17.33	4.665	49.464	0.00	4.081	4.50	0.00	0.00	0	0.00	0.00	0.00	0	0	
28.24	0.02473					.014814	0.42			2.693									
1134.51	42.34	3.306	45.641	207.0	16.53	4.241	49.882	0.00	4.081	4.50	0.00	0.00	0	0.00	0.00	0.00	0	0	
19.86	0.02473					.013275	0.26			2.693									
1154.37	42.83	3.464	46.290	207.0	15.76	3.855	50.145	0.00	4.081	4.50	0.00	0.00	0	0.00	0.00	0.00	0	0	
13.82	0.02473					.011961	0.17			2.693									
1168.19	43.17	3.638	46.806	207.0	15.02	3.504	50.310	0.00	4.081	4.50	0.00	0.00	0	0.00	0.00	0.00	0	0	

Relevant Storm Drain Profile Sheets
Referenced from Cliffs Edge Infrastructure Phase 2

TRANSMITTAL

To: Albert Sung, P.E. – Project Engineer
City of Las Vegas
333 N. Rancho Drive
Las Vegas, NV 89107

Date: March 14, 2011
Project No.: LTK1003.002

From: Steve Jones, P.E.

Subject: Update No. 2 to Technical Drainage Study for Knickerbocker Park

CC: Mark Failla, SHG CC: Todd Steadham, SHG
CC: Brent Parrish, SHG CC: _____
CC: Travis Poechmann, SHG CC: _____

Transmitting Via:

- Mail
- Messenger / MDS
- Federal Express
- Pickup

For:

- Review & Comment
- Per your Request
- Information/File

Acknowledgement of Receipt:

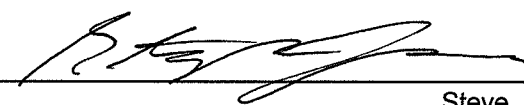
- Not Required
 - Acknowledgement Required
- Received By: _____
Date: _____ Time: _____

<u>Copies</u>	<u>Description</u>
<u>1</u>	<u>Addendum No. 1 to the Subject Study</u>
<u>1</u>	<u>Submittal Fee of \$400.00</u>

Comments:

Enclosed within is the *Addendum No. 1 to Update No. 2 to Technical Drainage Study for Knickerbocker Park*. This package responds to comments received from CLV on February 14, 2011.

If you have any questions, please feel free to contact us. Thanks.

Signed: 
Steve Jones, P.E.
Flood Control Department

Please, notify us at (702) 284-5300 if there are any problems receiving this transmission.

