

DS #: 4534

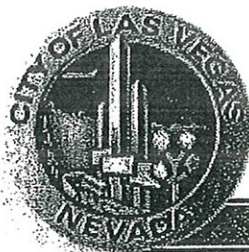
APN: 139-33-511-009 & 139-33-511-101

PROJECT: SYMPHONY PARK - UNION PARKS PARCELS M-1 & M-2

SUBMITTAL: 1ST

SCANNED BY/DATE: _____

CHECKED BY/DATE: _____



CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM

DATE:

August 16, 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:

Symphony Park – Update to Union Park Parcels M-1 & M-2

COPIES TO:

Martin & Martin Civil Engineers

Cross Streets:

Grand Central Pkwy. & Symphony Park Ave.

City Parkway V, Inc.

File Number:

F:\Depot\DSMemos\DS4534A.doc

Bart Anderson, P.E., DevCo

Parcel Number:

139-33-511-009 & 139-33-511-101

Zoning Action:

SDR-42260

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 & Supplement	7/28/2011 & 8/15/2011	8/4/2011 & 8/16/2011	See Comments Below	\$400.00	173842: \$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. A proposed 20'-wide public drainage easement (privately maintained) across Parcel M-2 must be granted and to be recorded by separate document prior to the final acceptance of the improvement plans.
2. **Sheet C4.01:** Revise Construction Note #6 to show the length of the drop inlet in a multiple of 2.5', ie L=5'.
3. Add a note 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*).

In an effort to increase administrative efficiency, the City of Las Vegas Public Works Department requires all soil reports, drainage studies and traffic impact analysis submittals to be accompanied by an electronic copy of the submittal. Electronic documents must be submitted with one original hard copy of the study. Electronic documents should be on a universal computer-readable digital output replicating your submittal to be used for archival or display purposes. This may be more than one file if necessary. An Indexed Portable Document Format (PDF) or Print Ready CAD file formats with a minimum of 300dpi are the desired formats, but provided it is a high quality digitized replication of the submittal, other formats may be acceptable. If figures are in color, they must be scanned in color and saved as a separate file. The new submittal requirement is effective on July 1, 2011. If there are any questions regarding these new requirements, please contact Robert Welch in the Flood Section at (702) 229-2177 or Rick Schroder in Traffic Engineering at (702) 229-6327.

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: T20S/R61E/34
AREA M-34

TRANSACTION REPORT

P. 01

AUG-16-2011 TUE 08:40 AM

FOR: CITY OF LAS VEGAS

7023828551

SEND

DATE	START	RECEIVER	TX TIME	PAGES	TYPE	NOTE	M#	DP
AUG-16	08:39 AM	2488070	33"	2	FAX TX	OK	865	

TOTAL : 33S PAGES: 2

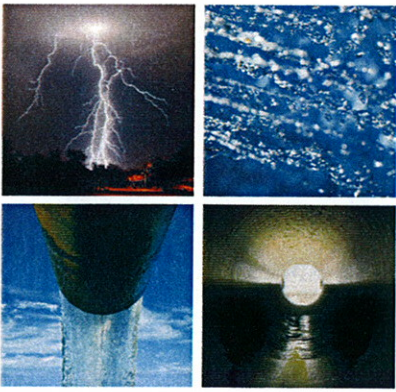
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END OF REMARKS
ays

T/R/S: T20S/R61E/34
AREA M-34

Post-it® Fax Note	7671	Date	8/16/11	# of pages	2
To	Tom Miller	From	Albert SUNG		



TECHNICAL DRAINAGE STUDY

Update # 3 for Symphony Park

(at Union Park, Parcel M-2, M-1)
Las Vegas, NV

Rec'd: 7/28/11
DS4534
M-34
\$400

July 2011

MARTIN & MARTIN PROJECT NO. 3119

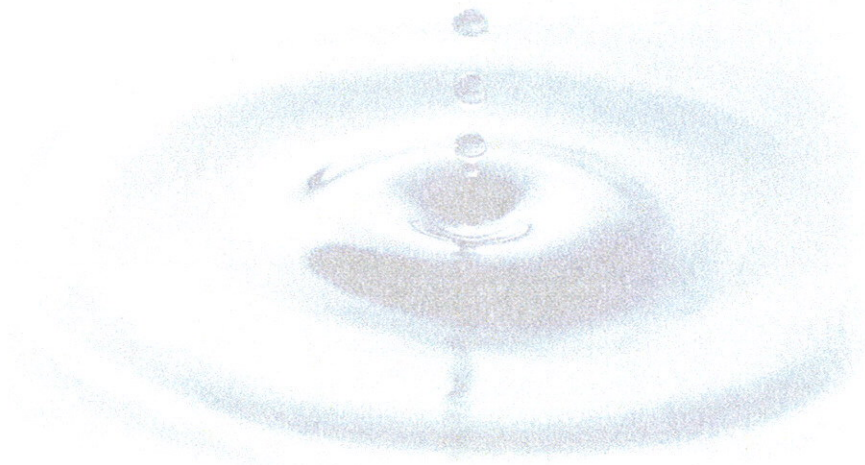
Prepared for:

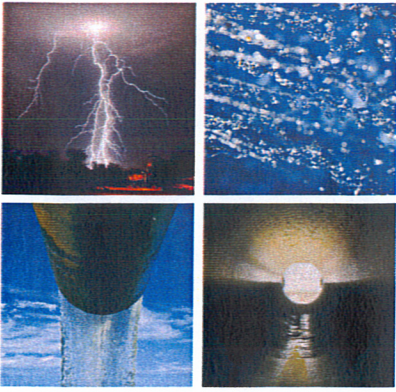
DESIGN WORK SHOP
224 South 200 West Suite 150
Salt Lake City, Utah 84101
(801) 359-4771

SDR-42260



Civil Engineers
2355 Red Rock Street, Suite 103
Las Vegas, Nevada 89146
Phone (702) 248-8000
Fax (702) 248-8070
www.mmcivil.com





TECHNICAL DRAINAGE STUDY

Update # 3 for Symphony Park

(at Union Park, Parcel M-2, M-1)
Las Vegas, NV

July 2011

MARTIN & MARTIN PROJECT NO. 3119

Prepared for:

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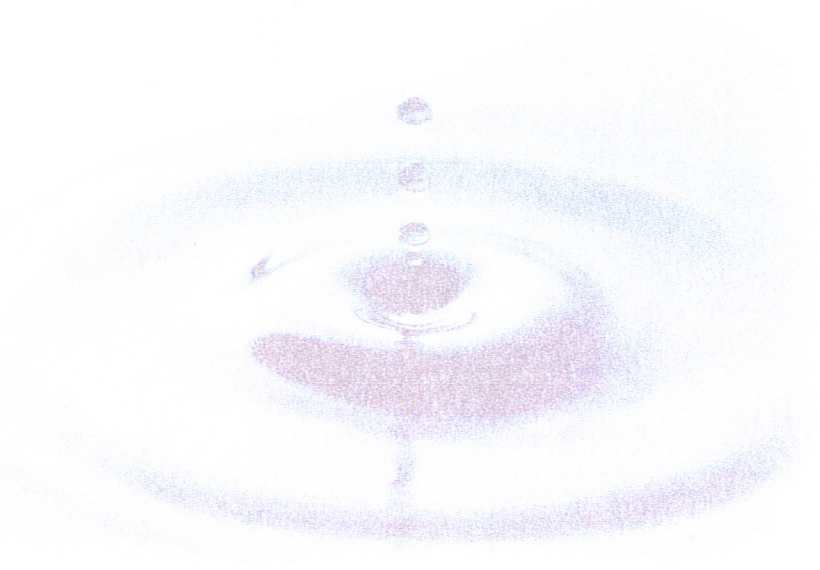


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UPDATE LETTER

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- Depth-Duration-Frequency Value (Table 505)
- McCarran Airport Rainfall Area (Figure 513)
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- Weighted Curve Number Calculations
- Standard Form 4 – Existing and Developed Conditions
- TR-55 INPUT /OUTPUT FILE – Existing and Developed Conditions

APPENDIX D (REFERENCES)

- Kimley-Horn and Associates , *“Technical Drainage Study for Union Park”*

APPENDIX E (IMPROVEMENT PLANS)

- Grading Plans
- Detail Sheets

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

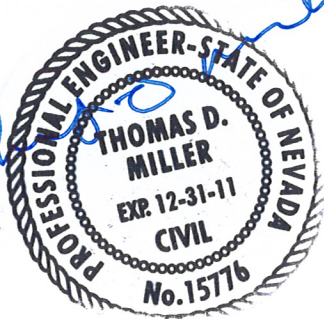
DRAINAGE STUDY INFORMATION FORM

Name of Development: **Symphony Park (at Union Park, Parcel M-1, M-2)**Date: **1/11/2011**Location of Development: a) Descriptive (Cross Streets) **Northeast of Bonneville Ave. and Grand Central Pkwy.**b) Section **34** Township **20 South** Range **61 East**Name of Owner: **City Parkway V INC.,** Assessors Parcel Number: **139-33-511-009,101**
Symphony Park Master Assn INC.Telephone Number: **801-359-4771**Address: **224 South 200 West Suite 150**
Salt Lake City, Utah 84101Contact Person Name: **Tom Miller, PE**Telephone Number: **(702) 834-7706**Firm: **Martin & Martin Civil Engineers**Fax Number: **(702) 248-8070**Address: **2355 Red Rock Street Suite 103**
Las Vegas, NV 89146Email: **tmiller@mmcivil.com**

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	X	Building Permit		

1. Total Owned Land Area: At Site: **± 0.58 Ac** Being Developed: **± 0.58 Ac**
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.)? **Park**
5. Approximate upstream land area which drains to the subject site? **N/A**
6. Has the site drainage been evaluated in the past? **YES** NO
If yes, please identify documentation:
Technical Drainage Study for Union Park by Kimley -Horn
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site:
All flow is discharged to the adjacent streets
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.

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

Local Entity File No.

Revision	Date

REFERENCE: **M&M Project No. 4021**

STANDARD FORM 1

July 28, 2011

Albert Sung
City of Las Vegas Flood Control
333 North Rancho Road
Las Vegas, Nevada 89106



**RE: Technical Drainage Study Update #3 for Symphony Park
(at Union Park, Parcel M-1 & M-2)
(APN 139-33-511-009,101)
Martin & Martin Project No. 4021**

Mr. Sung,

DesignWorkshop has retained Martin & Martin Civil Engineers to provide a Technical Drainage Study Update for the proposed Symphony Park (at Union Park, Parcel M-1 & M-2). The project site is within APN 139-33-511-009, 101 and located in the City of Las Vegas, Nevada between currently planned Symphony Park Ave one way streets, west of City Parkway. This letter, Standard Form 1, the current proposed Grading Plan & Drainage Basin Map and drainage calculations are to serve as an update to the referenced approved Technical Drainage Study prepared by Kimley Horn and Associates (KHA).

The purpose of this study is to establish a technical drainage analysis of the 24 hour peak flow rates affecting the site under existing and developed conditions for the 2, 10, and 100 year storm events. It includes an analysis of drainage patterns and flow rates for use in the design of flood protection facilities.

The previously approved Union Park Study by Kimley Horn and Associates, Inc. (KHA) depicts the M-1 and M-2 project sites (basins OND8U & OND15U) draining to the north edges of their respective sites, (See Appendix "D") which discharge into the existing streets. The attached grading plans for the proposed development match the same drainage patterns as in the original study. The historical basin drainage patterns and quantities of the approved Union Park Study will not be significantly altered as part of the proposed improvements; and therefore, this update will conform to the latest City of Las Vegas Approved Drainage Study.

Originally, the two year 24 hour design storm calculations were to be provided to show compliance to LEED point 6.1 for new construction. This site is no longer going for an independent LEED accreditation at this time but it should be noted that the improvement of the land from a newly graded area to grass reduced the peak flow rate in the 2 year from 0.17 & 0.27 cfs to 0.00 & 0.19 cfs for M-1 & M-2 Respectively. Since this reduction in peak flow is from infiltration and not attenuation of flow, the volume (quantity) of runoff leaving the project site has also been reduced as part of this project. TR-55 was used in accordance with the criteria set forth by Clark County Regional Flood Control District (CCRFCD) Hydrologic Criteria and Drainage Design Manual (Criteria Manual) to calculate these peak flow rates. (See Appendix "B")

The results of this study indicate that if construction is in accordance with the recommendations of this study, the proposed improvements will not significantly impact surrounding or downstream properties.

We hope all your concerns have been addressed. If you have any comments or questions, please feel free to contact us at any time.

Sincerely,



Tom Miller, P.E.
Principal
Martin & Martin Civil Engineers



Richard Robinson, E.I.
Sr. Hydrologist
Martin & Martin Civil Engineers

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SIX HOUR DEPTH-AREA REDUCTION FACTORS

<u>Drainage Area (Square Miles)</u>	<u>Six-Hour Depth-Area Reduction Factor</u>
0.0	1.00
0.5	0.98
1.0	0.97
2.0	0.93
4.0	0.91
6.0	0.90
8.0	0.88
10.0	0.86
20.0	0.79
30.0	0.74
50.0	0.68
100.0	0.60
150.0	0.55
200.0	0.51
300.0	0.46
400.0	0.42
500.0	0.39

- NOTES: 1. A graphical representation of these factors is presented in Figure 514.
2. Consult with the local entity and/or the CCRFCD for guidance in using the Depth-Area Reduction Factors for drainage areas greater than 200 square miles.

<i>Revision</i>	<i>Date</i>

DEPTH-DURATION-FREQUENCY VALUES FOR McCARRAN AIRPORT RAINFALL AREA (IN INCHES)

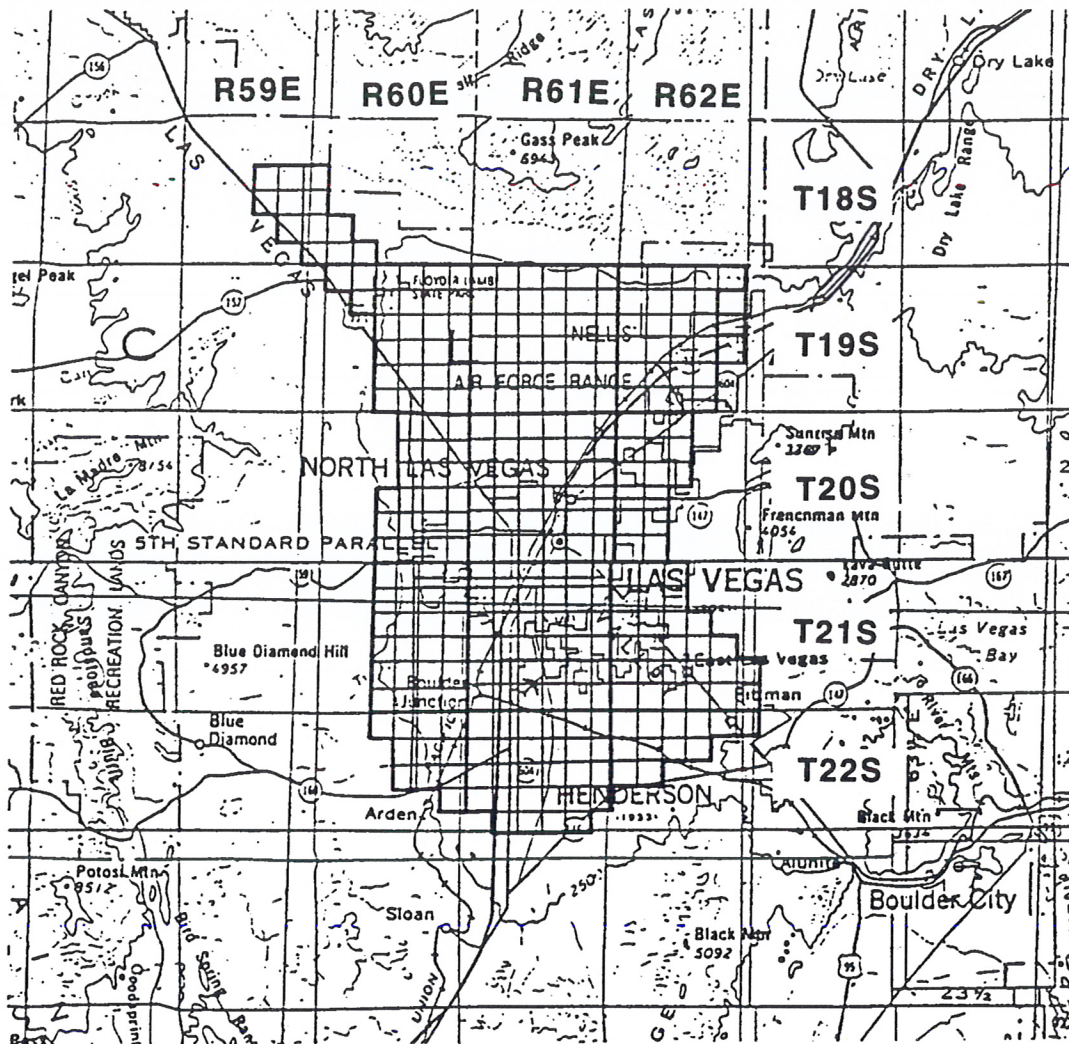
<u>TIME</u>	<u>RECURRENCE INTERVAL</u>					
	<u>2-YR</u>	<u>5-YR</u>	<u>10-YR</u>	<u>25-YR</u>	<u>50-YR</u>	<u>100-YR</u>
5 min.	0.15	0.27	0.35	0.46	0.54	0.63
10 min.	0.25	0.44	0.57	0.74	0.89	1.02
15 min.	0.33	0.57	0.74	0.97	1.15	1.32
30 min.	0.44	0.78	1.01	1.31	1.55	1.79
1 hour	0.52	0.89	1.15	1.50	1.78	2.06
2 hour	0.59	1.01	1.30	1.70	2.01	2.30
3 hour	0.64	1.08	1.39	1.82	2.15	2.48
6 hour	0.72	1.22	1.58	2.05	2.41	2.77
24 hour (TR-55)	1.20	1.60	1.80	2.40	2.70	2.96

- NOTE: 1. Refer to Figure 513 for a description and drawing of the area included in the McCarran Airport Rainfall Area.
2. The 24 hour values presented above are for use with TR-55 only.
3. Table 501 adjustments not required.

<i>Revision</i>	<i>Date</i>

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

McCARRAN AIRPORT RAINFALL AREA



TOWNSHIP RANGE SECTIONS

18 South	59 East	13-15,22-26,36
18 South	60 East	30-32
19 South	60 East	1-6,8-16,21-28,33-36
19 South	61 East	ALL SECTIONS
19 South	62 East	2-11,14-23,27-34
20 South	60 East	1-3,10-15,21-28,33-36
20 South	61 East	ALL SECTIONS

TOWNSHIP RANGE SECTIONS

20 South	62 East	4-9,16-20,29-32
21 South	60 East	1-4,9-16,21-28,33-36
21 South	61 East	ALL SECTIONS
21 South	62 East	4-9,15-23, 25-36
22 South	60 East	1-4,10-15,24
22 South	61 East	1-24,26-29
22 South	62 East	1-10,17-18

Notes:

1. Refer to Table 505 and Figure 516 Depth-Duration-Frequency values in the McCarran Airport Rainfall Area.
2. Refer to Table 506 and Figure 517 for Time-Intensity-Frequency values on the McCarran Airport Rainfall Area.

Revision	Date

RUNOFF CURVE NUMBERS (URBAN AREAS¹)

Cover description		Curve numbers for hydrologic soil group—			
Cover type and hydrologic condition	Average percent impervious area ²	A	B	C	D
<i>Fully developed urban areas (vegetation established)</i>					
Open space (lawns, parks, golf courses, cemeteries, etc.): ³					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved: curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved: open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) ⁴ ...		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					

See Table 602A

Developing urban areas

Newly graded areas (pervious areas only, no vegetation) ⁵	77	86	91	94
--	----	----	----	----

1 Average runoff condition, and $I_p = 0.2S$.

2 The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system. Impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using Figure 603.

3 CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

4 Composite CN's for natural desert landscaping should be computed using Figure 603 based on the impervious area percentage (CN #98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

5 Composite CN's to use for the design of temporary measures during grading and construction should be computed using Figure 603 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Revision	Date

Project Symphony Park By RRR Date 1/25/2011
 Location Las Vegas Checked _____ Date _____
 Circle one: Present Developed OND1

1. Runoff Curve Number (CN)

Soil Name and hydrologic group (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN ^{1,2}			Area ☒ acres ☐ mi² ☐ %	Product of CN x area
		Table 601	Table 602 1 of 4	Table 602A		
C	Grass	74			0.20	14.80
C	Impervious	98			0.02	1.96
Totals =					0.22	16.76

1 Use only one CN source per line

2 Tables from the CCRFCD Hydrologic Criteria and Drainage Design Manual

$$\text{CN (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{16.76}{0.22} = 76.18 \quad \text{Use CN} = \boxed{76}$$

Project Symphony Park By RRR Date 1/25/2011
 Location Las Vegas Checked _____ Date _____
 Circle one: Present Developed OND2

1. Runoff Curve Number (CN)

Soil Name and hydrologic group (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN ^{1,2}			Area ☒ acres ☐ mi ² ☐ %	Product of CN x area
		Table 601	Table 602 1 of 4	Table 602A		
C	Grass	74			0.14	10.36
C	Impervious	98			0.21	20.58
Totals =					0.35	30.94

1 Use only one CN source per line

2 Tables from the CCRFCD Hydrologic Criteria and Drainage Design Manual

$$\text{CN (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{30.94}{0.35} = 88.40 \quad \text{Use CN} = \boxed{88}$$

TIME OF CONCENTRATION																						
DEVELOPMENT: Symphony Park				CALCULATED BY: RRR				DATE: 7/7/2011		STANDARD FORM 4												
SUB-BASIN DATA				INITIAL / OVERLAND TIME (t_i)				TRAVEL TIME (t_t)				t_c CHECK (URBANIZED BASINS)		FINAL t_c		REMARKS						
DES.	K	AREA	AREA	LEN.	SLOPE	t_i	LEN	SLOPE	VEL (V_1)	VEL (V_2)	t_t	TOTAL LENGTH Ft	$t_c = (L/180) + 10$ Min	Min	CN	T_{LAG} Min	T_{LAG} TR-55 HR					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10a)	(10b)	(11)	(12)	(13)	(14)	(15)	(16)						
EXISTING ONSITE																						
ONX2	0.8112	0.35	0.0005	153	1.9	5.19	0	0.0	0.00	N/A	0.00	153	10.85	5.19	91	0.052	0.10					
ONX1	0.8112	0.22	0.0003	45	0.8	3.76	190	2.6	3.26	N/A	0.97	235	11.31	5.00	91	0.050	0.10					
DEVELOPED ONSITE																						
OND2	0.7716	0.35	0.0005	102	2.8	4.24	81	0.5	1.43	N/A	0.95	183	11.02	5.18	88	0.052	0.10					
OND1	0.6132	0.22	0.0003	45	0.8	6.33	190	2.6	3.26	N/A	0.97	235	11.31	7.30	76	0.073	0.12					
* - Note minimum T_{LAG} for TR-55 is 6 min of 0.1 hours																						
K = 0.0132 * CN ^{-0.39}				$t_i = t_c * 0.6$				Travel Time Velocity Formulas*														
$t_c = 1.8(1.1-K)L^{1/2}/S^{1/3}$								Existing				Developed										
Velocity obtained from Manning's Equation								$V_1 = 14.8 * (S/100)^{1/2}$				$V_1 = 20.2 * (S/100)^{1/2}$				For the travel time (T_t) calculations:						
								$V_2 = 29.4 * (S/100)^{1/2}$				$V_2 = 30.6 * (S/100)^{1/2}$				V ₁ applies to the first 500 feet of travel distance V ₂ applies to the remaining travel distance						

WinTR-55 Current Data Description

--- Identification Data ---

User: RRR Date: 7/7/2011
 Project: Symphony Park Units: English
 SubTitle: Areal Units: Acres
 State: Nevada
 County: Clark
 Filename: H:\Cad\Land\4021\Admin\Drainage\Update M1 & M2\Hydrology\4021-TR55-EX.w55

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
ONX2		Outlet	0.35	91	0.100
ONX1		Outlet	0.22	91	0.100

Total area: .57 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
1.2	1.6	1.8	2.4	2.7	2.96	.0

Storm Data Source: User-provided custom storm data
 Rainfall Distribution Type: Type II
 Dimensionless Unit Hydrograph: <standard>

RRR

Symphony Park

Clark County, Nevada

Watershed Peak Table

Sub-Area or Reach Identifier	ANALYSIS: (cfs)	Peak Flow by 10-Yr (cfs)	Rainfall Return Period 100-Yr (cfs)
------------------------------------	--------------------	--------------------------------	---

SUBAREAS

ONX2	0.27	0.54	1.09
------	------	------	------

ONX1	0.17	0.33	0.67
------	------	------	------

REACHES

OUTLET	0.44	0.87	1.76
--------	------	------	------

WinTR-55 Current Data Description

--- Identification Data ---

User: RRR Date: 7/7/2011
 Project: Symphony Park Units: English
 SubTitle: Areal Units: Acres
 State: Nevada
 County: Clark
 Filename: H:\Cad\Land\4021\Admin\Drainage\Update M1 & M2\Hydrology\4021-TR55-DEV.w55

--- Sub-Area Data ---

Name	Description	Reach	Area (ac)	RCN	Tc
OND2		Outlet	0.35	88	0.100
OND1		Outlet	0.22	76	0.120

Total area: .57 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
1.2	1.6	1.8	2.4	2.7	2.96	.0

Storm Data Source: User-provided custom storm data
 Rainfall Distribution Type: Type II
 Dimensionless Unit Hydrograph: <standard>

RRR

Symphony Park
Clark County, Nevada
Watershed Peak Table

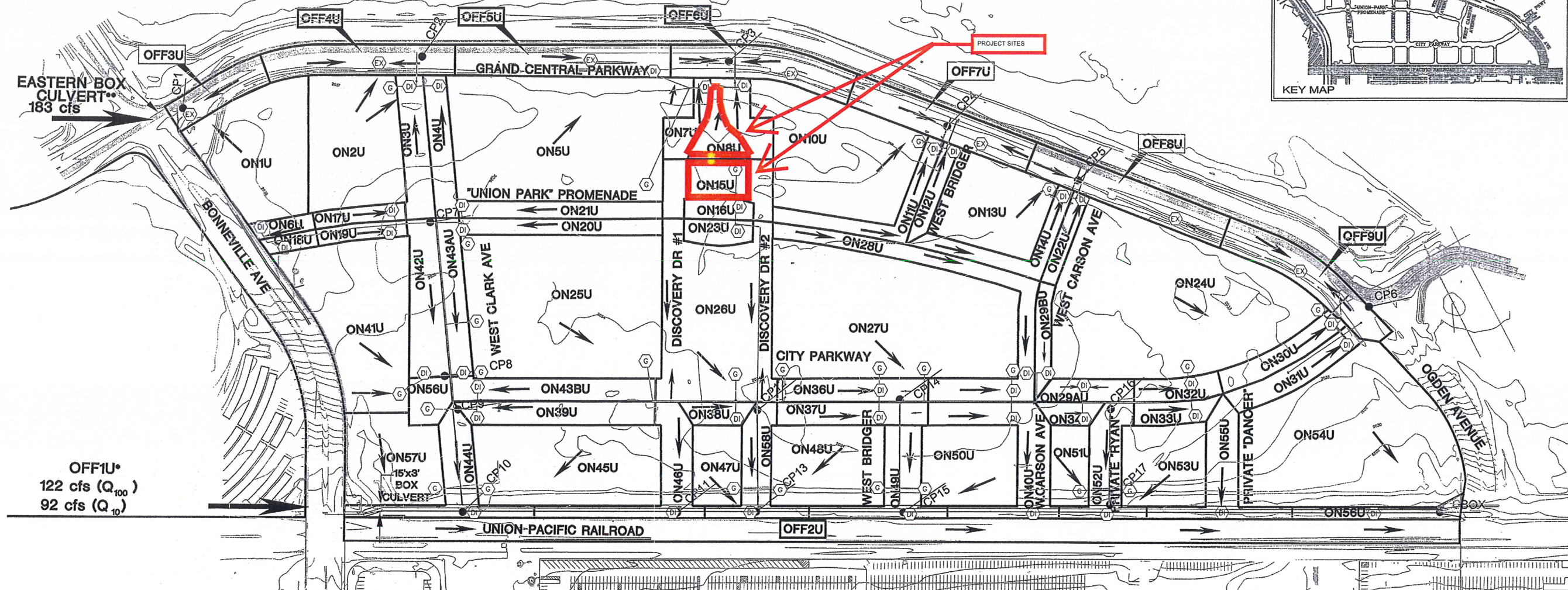
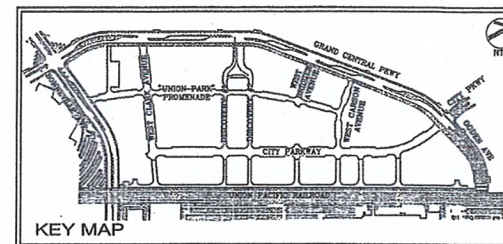
Sub-Area or Reach Identifier	ANALYSIS: (cfs)	Peak Flow by 10-Yr (cfs)	Rainfall Return Period 100-Yr (cfs)

SUBAREAS			
OND2	0.19	0.44	0.96
OND1	.00	0.09	0.31
REACHES			
OUTLET	0.19	0.51	1.26

APPENDIX D

(REFERENCE MATERIAL)

- Kimley-Horn and Associates , “*Technical Drainage Study for Union Park*”



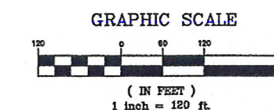
BASIN RUNOFF

CONCENTRATION POINT REPORT																		
BASIN	AREA (AC)	Q ₁₀ /Q ₁₀₀ (cfs)	BASIN	AREA (AC)	Q ₁₀ /Q ₁₀₀ (cfs)	BASIN	AREA (AC)	Q ₁₀ /Q ₁₀₀ (cfs)	BASIN	AREA (AC)	Q ₁₀ /Q ₁₀₀ (cfs)	BASIN	AREA (AC)	Q ₁₀ /Q ₁₀₀ (cfs)	COMBINATION POINT	Q ₁₀ /Q ₁₀₀ (cfs)	COMBINATION POINT	Q ₁₀ /Q ₁₀₀ (cfs)
ON1U	1.83	3/6	ON15U	0.75	1/2	ON29AU	0.29	1/2	ON43AU	0.60	1/2	ON56U	0.11	0/0	CP1	4/8	CP10	111/157
ON2U	1.55	2/5	ON16U	0.19	0/0	ON29BU	0.25	1/2	ON43BU	0.65	1/2	ON57U	1.23	2/4	CP2	10/20	CP11	142/159
ON3U	0.52	1/2	ON17U	0.25	0/1	ON30U	0.43	1/2	ON44U	0.76	2/3	ON58U	0.63	1/2	CP3	19/38	CP12	8/18
ON4U	0.46	2/3	ON18U	0.19	0/1	ON31U	0.48	1/2	ON45U	2.16	3/6	OFF1U	N/A	92/122	CP4	26/52	CP13	153/184
ON5U	3.93	5/10	ON19U	0.25	0/1	ON32U	0.29	1/1	ON46U	0.77	2/3	OFF2U	3.71	3/7	CP5	28/56	CP14	10/18
ON6U	0.15	0/0	ON20U	0.47	1/1	ON33U	0.30	1/1	ON47U	0.57	0/1	OFF3U	0.78	1/3	CP6	38/77	CP15	166/207
ON7U	0.30	1/1	ON21U	0.47	1/1	ON34U	0.30	1/1	ON48U	1.32	2/4	OFF4U	0.82	2/3	CP7	3/6	CP16	3/5
ON8U	0.67	1/2	ON22U	0.22	0/1	ON36U	0.50	1/2	ON49U	0.67	1/2	OFF5U	0.93	2/3	CP8	10/19	CP17	8/14
ON10U	2.37	3/7	ON23U	0.19	0/0	ON37U	0.50	1/2	ON50U	1.11	2/3	OFF6U	0.80	2/3	CP9	12/22	CPBOX	146/229
ON11U	0.53	1/2	ON24U	4.71	7/14	ON38U	0.20	0/1	ON51U	0.46	1/1	OFF7U	0.82	2/3	NOTES: * OFF1U REFERENCED FROM 61 ACRES @ 100 GRAND CENTRAL PARKWAY TDS ** FLOWS FOR THE EASTERN BOX CULVERT REFERENCED FROM 61 ACRES @ 100 GRAND CENTRAL PARKWAY TDS			
ON12U	0.24	1/1	ON25U	3.93	5/10	ON39U	0.64	1/2	ON52U	0.65	1/2	OFF8U	0.90	2/3				
ON13U	1.02	2/3	ON26U	2.56	2/6	ON40U	0.96	1/2	ON53U	1.01	2/3	OFF9U	0.80	2/3				
ON14U	0.49	1/2	ON27U	4.09	5/11	ON41U	2.29	3/7	ON54U	3.95	5/11							
			ON28U	1.14	2/4	ON42U	0.87	2/3	ON55U	0.70	1/2							

NOTES:

* OFF1U REFERENCED FROM 61 ACRES @ 100 GRAND CENTRAL PARKWAY TDS

** FLOWS FOR THE EASTERN BOX CULVERT REFERENCED FROM 61 ACRES @ 100 GRAND CENTRAL PARKWAY TDS



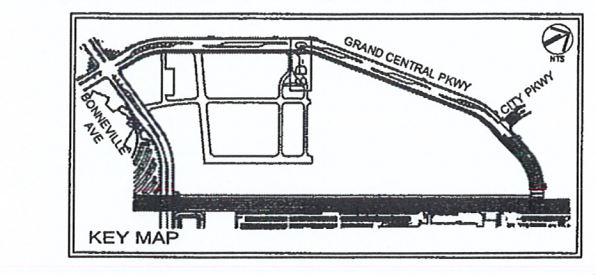
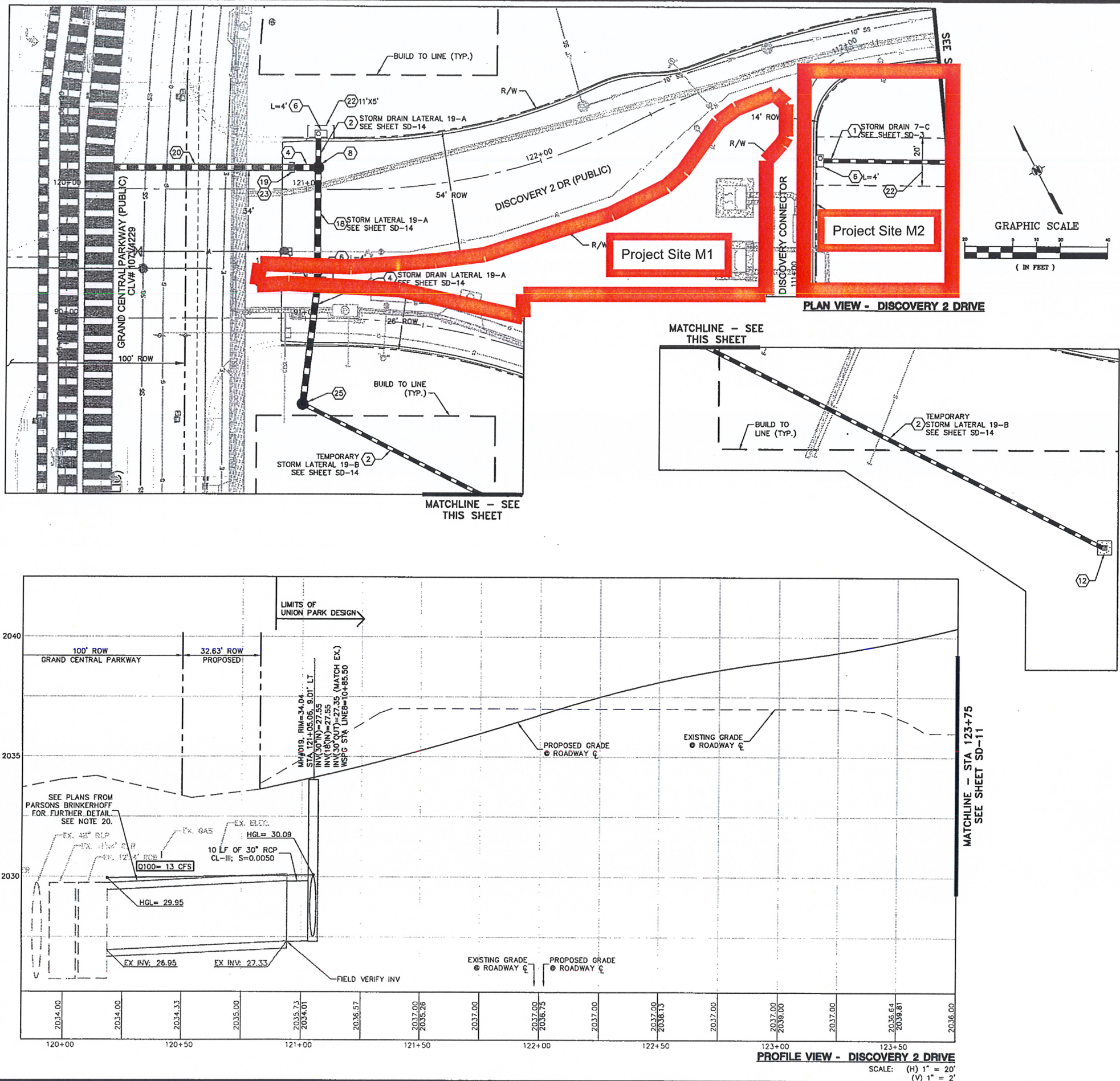
LEGEND

- DIRECTION OF FLOW
- BASIN BOUNDARY
- ON1U BASIN NAME
- DI PROPOSED DROP INLET
- G PROPOSED FRAME AND GRATE
- CP1 COMBINATION POINT
- EX EXISTING CURB INLET
- PROPOSED STORM DRAIN

ULTIMATE DRAINAGE BASIN MAP

Kimley-Horn and Associates, Inc.

Drawn by: J. H. 1/15/08 User: J. H. 1/15/08
Checked by: J. H. 1/15/08 User: J. H. 1/15/08
Date: January 07, 2008
Project: Discovery 2 Drive Storm Drain
Sheet: SD-10
Drawing No. 107V4816
The Engineer, Designer, or Drafter, as the case may be, is not responsible for the accuracy of the information provided by the client or for the accuracy of the information provided by the client's representatives. The Engineer, Designer, or Drafter, as the case may be, is not responsible for the accuracy of the information provided by the client or for the accuracy of the information provided by the client's representatives. The Engineer, Designer, or Drafter, as the case may be, is not responsible for the accuracy of the information provided by the client or for the accuracy of the information provided by the client's representatives.



BASIS OF BEARING

NORTH 03°50'03" WEST, BEING THE BEARING OF A PORTION OF THE CENTERLINE OF GRAND CENTRAL PARKWAY, AS SHOWN ON BOOK 43, PAGE 61 OF PLATS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

CITY OF LAS VEGAS VERTICAL CONTROL POINT "DLV01 33E6", BEING A RIVET AND PLATE IN TOP OF CURB AT NW CORNER OF BONNEVILLE AVENUE & GRAND CENTRAL PARKWAY.

ELEVATION: 2036.09 (FEET)

620.6014 (METERS)

CITY OF LAS VEGAS VERTICAL CONTROL v.2002 BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).

- STORM DRAIN NOTES**
- 1) INSTALL 18" RCP STORM DRAIN PIPE (CLASS III).
 - 2) INSTALL 18" RCP STORM DRAIN LATERAL (CLASS III), SEE LATERAL PROFILE ON SHEET NOTED PER PLAN.
 - 4) INSTALL 30" RCP STORM DRAIN PIPE (CLASS III).
 - 6) INSTALL MODIFIED TYPE "DM" DROP INLET SEE DETAIL ON SHEET DT-3 (LENGTH "L" PER PLAN)
 - 8) INSTALL 60" TYPE I MANHOLE PER CCAUSD No. 403.
 - 11) CAP AND MARK END OF DRAIN. SEE DETAIL ON SHEET DT-2.
 - 12) INSTALL TYPE 2A DROP INLET PER NDOT DETAIL No. R-4.2.1. CONSTRUCT CONCRETE COLLAR AROUND PERIMETER OF INLET(AT GRADE) PER DETAIL D ON SHEET DT-1.
 - 14) INSTALL 48" TYPE I MANHOLE PER CCAUSD No. 403 WITH "OPEN LID TOP."
 - 18) INSTALL 30" TYPE C905 PVC PER AWWA STANDARDS.
 - 19) REMOVE STORM DRAIN CAP
 - 20) EXISTING UTILITY STUB.
 - 22) STORM DRAIN EASEMENT, SIZE NOTED PER PLAN.
 - 23) INSTALL CONCRETE COLLAR.
 - 25) INSTALL 60" TYPE II MANHOLE PER CCAUSD No. 405 WITH "OPEN LID TOP."

GENERAL NOTES

1. PROTECT ALL EXISTING UNDERGROUND UTILITIES IN PLACE DURING EXCAVATION BACKFILL.
2. ALL SD PLAN-VIEW DIMENSIONS ARE SHOWN FROM C OF PIPE TO C OF PIPE (OR OUTSIDE DIAMETER OF SDMH TO OUTSIDE DIAMETER OF ADJACENT SDMH).

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PROJECT# 114360

DATE

SAFETY ALERT

Call before you Dig

Call before you Overhead

Call before you UnderGround

1-702-455-7511

1-702-227-2329

1-702-229-6611

LAS VEGAS AREA COMPREHENSIVE TRAFFIC DESIGN

DEPARTMENT OF PUBLIC WORKS

UNION PARK

PHASE 1

DISCOVERY 2 DRIVE STORM DRAIN

STA: 120+00 - 123+75

SD-10

107V4816

Kimley-Horn and Associates, Inc.

Engineering, Planning, and Environmental Consultants

2000 East Flamingo Road Suite 210

Las Vegas, Nevada 89119

TEL No. (702) 734-5666

FAX No. (702) 734-5668

DAVID D. WILSON

Exp. 6/30/08

CIVIL

PROFESSIONAL ENGINEER-STATE OF NEVADA

NO. 8441

SHEET NO. SD-10

SHEET NO. OF 166

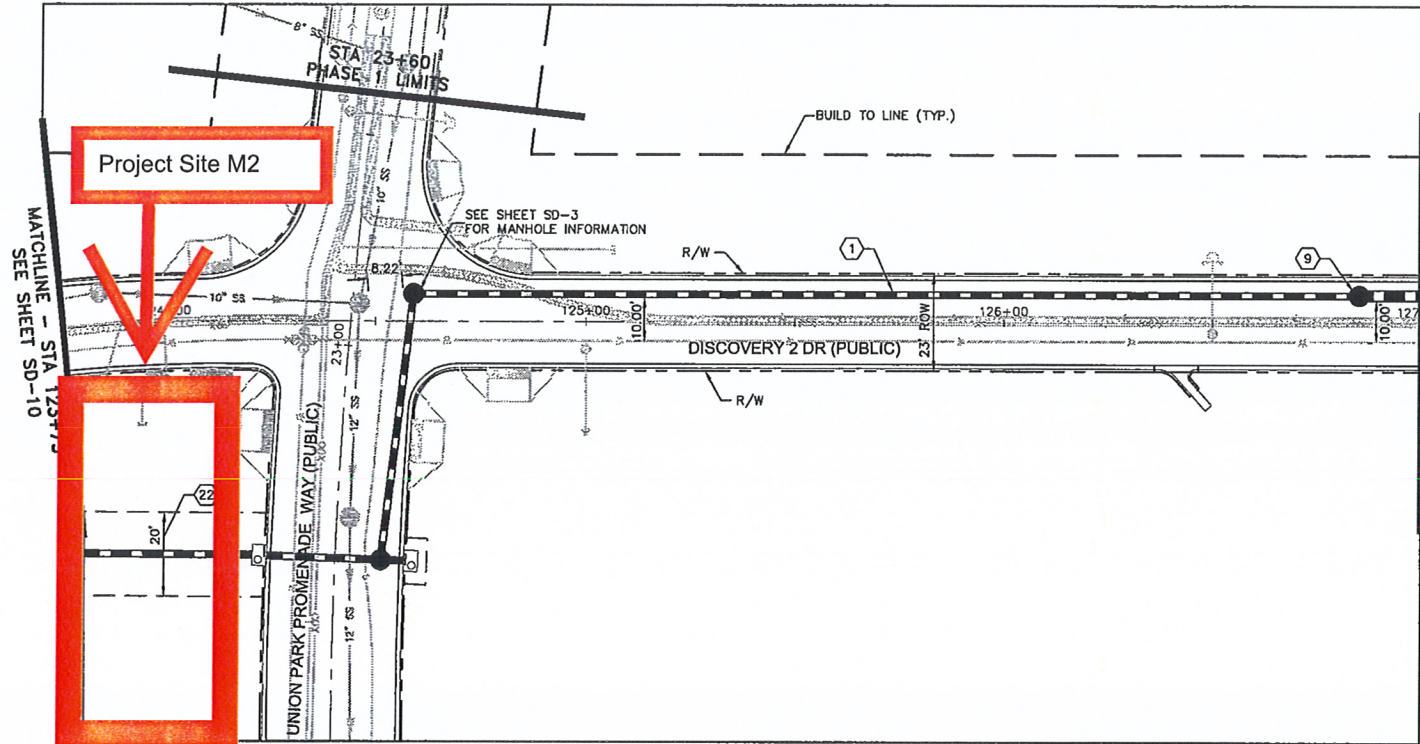
DRAWING NO. 107V4816

REV. DATE BY

092587003 - UNION PARK PHASE 1

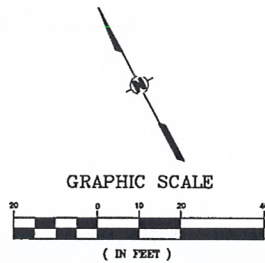
REV. DATE BY

Date: January 07, 2008 - 1:54pm / User: fernando.rast
Path: K:\COW\092587 - Newell\003 - Phase 1\CA00\092587-Discovery.dwg
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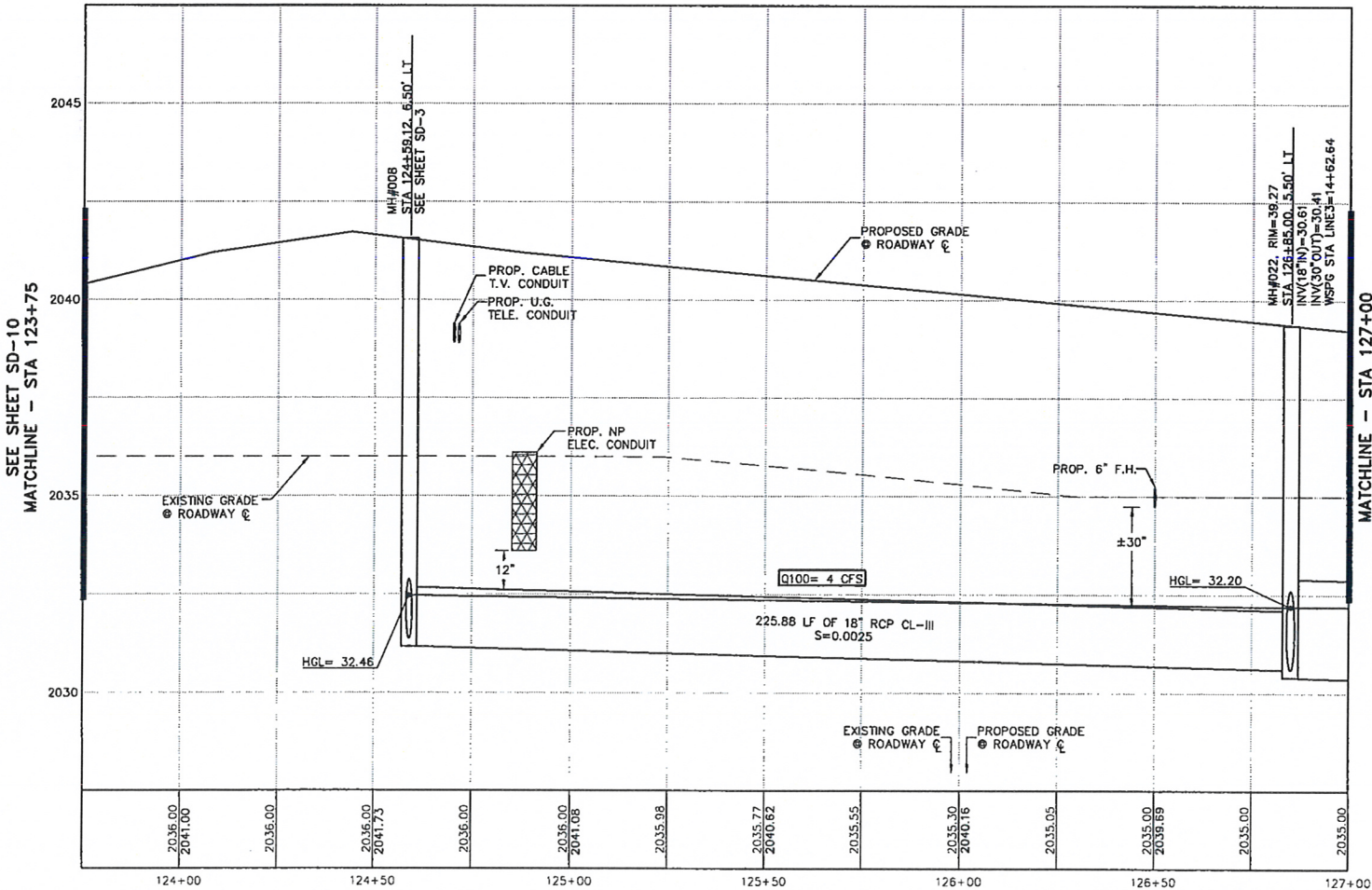


PLAN VIEW - DISCOVERY 2 DRIVE

MATCHLINE - STA 127+00
SEE SHEET SD-12

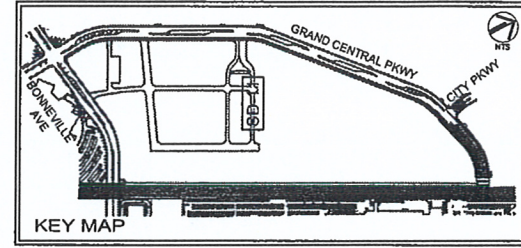


MATCHLINE - STA 127+00
SEE SHEET SD-12



PROFILE VIEW - DISCOVERY 2 DRIVE

SCALE: (H) 1" = 20'
(V) 1" = 2'



BASIS OF BEARING

NORTH 03°50'03" WEST, BEING THE BEARING OF A PORTION OF THE CENTERLINE OF GRAND CENTRAL PARKWAY, AS SHOWN ON BOOK 43, PAGE 61 OF PLATS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE

BENCHMARK

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ELEVATION: 2036.09 (FEET)

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② STORM DRAIN EASEMENT, SIZE NOTED PER PLAN.

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2. ALL SD PLAN-VIEW DIMENSIONS ARE SHOWN FROM C OF PIPE TO C OF PIPE (OR OUTSIDE DIAMETER OF SDMH TO OUTSIDE DIAMETER OF ADJACENT SSMH).

APPROVED FOR CONSTRUCTION	
LAS VEGAS VALLEY WATER DISTRICT PROJECT# 114260	DATE

SAFETY ALERT
Avoid cutting underground utility lines. It's costly.
Call before you Dig
811
1-702-221-2829

Underground
1-702-455-7511
1-702-229-6611
LAS VEGAS AREA COMPREHENSIVE WATER SYSTEM

DEPARTMENT OF PUBLIC WORKS	
PROJECT: UNION PARK PHASE 1	
SHEET: DISCOVERY 2 DRIVE STORM DRAIN STA: 123+75 - 127+00	
SHEET NO. SD-11 SHEET 20 OF 38 DRAWING NO. 107V4816	
PROFESSIONAL ENGINEER-STATE OF NEVADA DAVID D. WILSON Exp. 6/30/08 CIVIL Professional No. 8441	
Kimley-Horn and Associates, Inc. Engineering, Planning, and Environmental Consultants 2080 East Flamingo Road Suite 210 Las Vegas, Nevada 89119 TEL No. (702) 734-5666 FAX No. (702) 733-1949	092587003 - UNION PARK PHASE 1

APPENDIX E

(IMPROVEMENT PLANS)

- Grading Plans
- Detail Sheets



LAS VEGAS CITY COUNCIL

CAROLYN G. GOODMAN
MAYOR

STAVROS S. ANTHONY
MAYOR PRO TEM

STEVE WOLFSON

LOIS TARKANIAN

STEVEN D. ROSS

RICKI Y. BARLOW

BOB COFFIN

ELIZABETH N. FRETWELL
CITY MANAGER

August 10, 2011

Mr. Sam Gladstein
Symphony Park Master Association, Inc.
6130 Elton Avenue, Suite #212
Las Vegas, Nevada 89107

**RE: SDR-42260 - SITE DEVELOPMENT PLAN REVIEW
PLANNING COMMISSION MEETING OF AUGUST 9, 2011**

Dear Mr. Gladstein:

Your request for a Site Development Plan Review FOR A PRIVATE PARK on 0.58 acres at the intersection of Symphony Park Avenue and Grand Central Parkway (APNs 139-33-511-009 and 010), PD (Planned Development) Zone, Ward 5 (Barlow), was considered by the Planning Commission on August 9, 2011.

The Planning Commission voted to **APPROVE** your request, subject to the following:

Planning

1. Conformance to the Conditions of Approval for Site Development Plan Review (SDR-16267) shall be required.
2. Revised plans and other materials shall be submitted to and approved by the Symphony Park Design Review Committee (SP-DRC) as required on the SP-DRC action letter dated 07/12/11. Approved plans shall be submitted to the Department of Planning.
3. This approval shall be void two years from the date of final approval, unless exercised pursuant to the provisions of LVMC Title 19.16. An Extension of Time may be filed for consideration by the City of Las Vegas.
4. All development shall be in conformance with the site plan date stamped 07/07/11 and landscape plan date stamped 07/14/11, except as amended by conditions herein.

CITY OF LAS VEGAS
DEPARTMENT OF PLANNING
DEVELOPMENT SERVICES CENTER
300 NORTH RANCHO DRIVE
3RD FLOOR
LAS VEGAS, NEVADA 89105

VOICE 702.229.6301

FAX 702.474.0352

TTY 702.386.9108

www.lasvegasnevada.gov

11-0013 07/11



5. Any changes based upon right-of-way, traffic or drainage studies or street improvements required by the city or public utilities shall not reduce the widths of perimeter landscape buffers, height of walls or quantities of plant materials from that on submitted landscape plans date stamped 07/14/11. Any changes based upon subsequently submitted studies must be accommodated elsewhere on the site.
6. All necessary building permits shall be obtained and final inspections shall be completed in compliance with Title 19 and all codes as required by the Department of Building and Safety.
7. These Conditions of Approval shall be affixed to the cover sheet of any plan set submitted for building permit.
8. A technical landscape plan, signed and sealed by a Registered Architect, Landscape Architect, Residential Designer or Civil Engineer, must be submitted prior to or at the same time application is made for a building permit. A permanent underground sprinkler system is required, and shall be permanently maintained in a satisfactory manner; the landscape plan shall include irrigation specifications. Installed landscaping shall not impede visibility of any traffic control device.
9. All City Code requirements and design standards of all City Departments must be satisfied, except as modified herein.

Public Works

10. Unless already constructed or guaranteed by the Master Developer, construct all incomplete half street improvements adjacent to this site concurrent with development of this site. All existing paving damaged or removed by this development shall be restored at its original location and to its original width concurrent with the development of this site.
11. All landscaping and private improvements installed with this project shall be situated and maintained so as to not create sight visibility obstructions for vehicular traffic at all development access drives and abutting street intersections.

Mr. Sam Gladstein
SDR-42260 - Page Three
August 10, 2011

12. An update to the previously approved Drainage Plan and Technical Drainage Study must be submitted to and approved by the Department of Public Works prior to the issuance of any grading or building permits or submittal of any construction drawings, whichever may occur first. Provide and improve all drainageways as recommended in the approved drainage plan/study.
13. Comply with all applicable previous conditions of approval for SDR-16267 and all other site related actions.

This action by the Planning Commission on **August 9, 2011** is final unless a written appeal is filed with the City Clerk within ten days of the date of the Planning Commission's decision as allowed by code or there is a review action filed by the City Council within the same time period. For additional information on appeals or review requests please access <http://www.lasvegasnevada.gov/CheckStatus/DevelopmentApp.htm>, or contact the Department of Planning and Development at 702.229.6301 after **August 22, 2011**. No building permits or business licenses related to these items shall be issued prior to the expiration of the required ten day waiting period, or until any filed appeal is resolved pursuant to LVMC Title 19.18.

Sincerely,



Steve Gebeke, AICP
Planning Supervisor
Case Planning Division

SG:clb

cc: Mr. Christopher Langham
JW Zunino Landscape Architecture
3191 South Jones Boulevard
Las Vegas, Nevada 89146

Albert Sung

From: Tom Miller [TMiller@mmcivil.com]
Sent: Monday, August 15, 2011 10:27 AM
To: Albert Sung
Subject: RE: (3119) M1 M2 Parcel Symphony Park - Drainage Study Request for SDR Conditions
Attachments: 08025.02 Site Dev. Plan Rev. 8-11-11.pdf

Albert,

Please find attached the letter of conditions.

Thanks,

Tom Miller, P.E.

Principal

Martin & Martin Civil Engineers
2355 Red Rock Street, Suite 103
Las Vegas, NV 89146
Phone (702) 248-8000
Cell (702) 245-6173
Fax (702) 248-8070
Email tmiller@mmcivil.com

Please note that we have moved and update your address book accordingly.

Notice of Confidentiality: This e-mail message and the information it contains are intended to be privileged and confidential communications protected from disclosure. If you are not the intended recipient, any dissemination, distribution or copying is strictly prohibited. If you have received this e-mail message in error, please notify the administrator by e-mail at administrator@mmcivil.com and permanently delete this message.

From: Albert Sung [<mailto:YSung@LasVegasNevada.GOV>]
Sent: Monday, August 08, 2011 8:37 AM
To: Tom Miller
Subject: RE: (3119) M1 M2 Parcel Symphony Park - Drainage Study Request for SDR Conditions

Looks like we can have the DS approved at the latest by Thursday. Looking forward to receiving the SDR-42260. Thanks.

Albert

From: Tom Miller [<mailto:TMiller@mmcivil.com>]
Sent: Thursday, August 04, 2011 5:48 PM
To: Albert Sung
Cc: David Bratcher
Subject: (3119) M1 M2 Parcel Symphony Park - Drainage Study Request for SDR Conditions

Albert,

Received your request for SDR 42260 Conditions of Approval so you can finalize the drainage study review. This goes to planning commission on August 9 (next Tuesday) and we should have the conditions from planning within the next few days.

Thanks,

Tom Miller, P.E.
Principal

Martin & Martin Civil Engineers
2355 Red Rock Street, Suite 103
Las Vegas, NV 89146
Phone (702) 248-8000
Cell (702) 245-6173
Fax (702) 248-8070
Email tmiller@mmcivil.com

Please note that we have moved and update your address book accordingly.

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Albert Sung

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Sent: Thursday, August 04, 2011 5:48 PM
To: Albert Sung
Cc: David Bratcher
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Thanks,

Tom Miller, P.E.
Principal

Martin & Martin Civil Engineers
2355 Red Rock Street, Suite 103
Las Vegas, NV 89146
Phone (702) 248-8000
Cell (702) 245-6173
Fax (702) 248-8070
Email tmiller@mmcivil.com

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LETTER OF TRANSMITTAL

DATE: 7/28/11

TO: Albert Sung
FIRM: City of Las Vegas Flood Control
ADDRESS: 333 N Rancho Dr
Las Vegas, NV 89107

MARTIN & MARTIN
Civil Engineers
2355 Red Rock Street, Suite 103
Las Vegas, Nevada 89146
Phone (702) 248-8000
Fax (702) 248-8070
www.mmcivil.com

PROJECT NAME: Symphony Park (M1 & M2)
PROJECT #: 3119
REGARDING: Drainage Study

TRANSMITTED:	☐	Prints/Mylars/Vellums	☐	Proposal	☒	Studies	☒	CD's/Disks	☐	Other
VIA:	☒	Hand Delivery	☐	Pickup	☐	Air/ Overnight	☐	U.S. Mail	☐	E-Mail

COPIES	NUMBER OF SHEETS	DESCRIPTION (SHEET NAMES)	DATE
1	-	Update to Technical Drainage Study	7/28/11
1	2	Grading Plans	7/28/11
1	-	Electronic copy on CD	7/28/11
1		\$400 CHECK #74897	7/18/11

☐	For Your Use	☒	Review	☐	Per Your Request	☐	Signature	☐	Approval	☐	For Your Records
--------------------------	--------------	-------------------------------------	--------	--------------------------	------------------	--------------------------	-----------	--------------------------	----------	--------------------------	------------------

THANK YOU,



FROM: TOM MILLER, P.E.
PRINCIPAL

CC:

** Duplicate Receipt **

City of Las Vegas
Development Services Center
731 South Fourth Street
Las Vegas, NV 89101

07/28/2011 14:11 Trn 173842
Cashier 970040

PRJ Permit # DS4534 \$400.00

Subtotal \$400.00

Tax \$0.00

Total \$400.00

Received CHECK \$400.00

Check # 74897

Change \$0.00

For questions related to this receipt call

702-229-6251