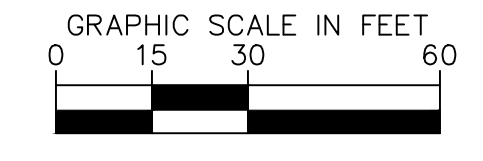
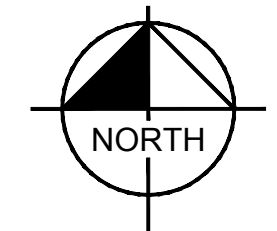
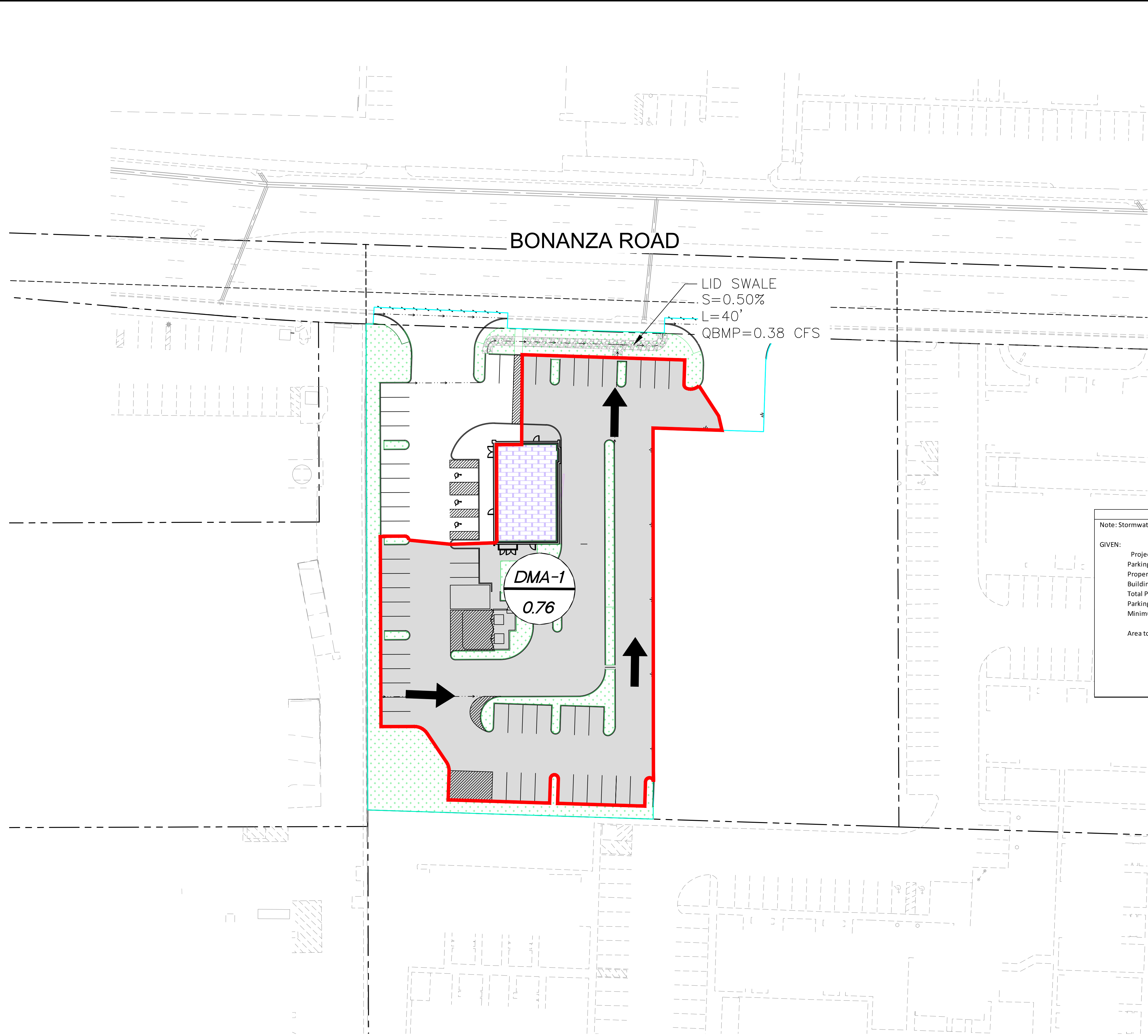


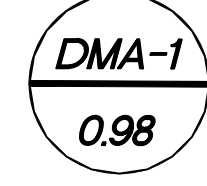


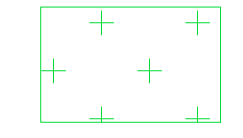

## **Appendix D – LID Figure and Calculations**

- LID Basin Map
- LID Parking Lot Calculations

Plotted By: Seefeld, Sean. Sheet Set No.: Layouts/KHA - March 27, 2024. -09-00-41.com. K:\LAV\_Civil\192453004-Panda Express Eastern & Bonanza\Research\DRAINAGE\_01\_TDS\Figures\CAD\LID.dwg  
 This document, together with the concepts and designs presented herein, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



**LEGEND**

-  DRAINAGE MANAGEMENT AREA
-  ON-SITE FLOW ARROW
-  TREATED IMPERVIOUS AREA
-  PERVIOUS AREA
-  BUILDING AREA

**PARKING LOT DATA CALCULATIONS**

Note: Stormwater Quality Design Volume calculated using steps from Section 1500 Figures 1501-1503 of the CCRFCD HCDDM, Revised 2013

GIVEN:	Project Description:	Panda Express - Eastern and Bonanza	Acres
	Parking Lot Data		
	Property Size (PS)	=	1.41
	Building Area (BA)	=	0.05
	Total Pervious Area (TPA)	=	0.41
	Parking Lot Area (PLA) = (PLA = PS-BA-TPA)	=	0.95
	Minimum PLA to be treated = (PLA * 0.75)	=	0.71 acres
	Area to be treated by the proposed LID BMPs		
	Drainage Area 1	=	0.76
	Total	=	0.76 acres

Since 0.76 ac >= 0.71 ac then site satisfies Parking Lot LID criteria

<b>PANDA EXPRESS - EASTERN AND BONANZA</b> PREPARED FOR <b>PANDA RESTAURANT GROUP</b> <small>CITY OF LAS VEGAS NEVADA</small>	<b>LID BASIN MAP</b>				<small>DATE</small> MARCH 20, 2024 <small>DESIGNED BY</small> SM <small>DRAWN BY</small> SS <small>CHECKED BY</small> MS	<small>03/20/24</small>	
	<small>KHA PROJECT</small> 192404000	<small>DATE</small> MARCH 20, 2024	<small>SCALE</small> AS SHOWN	<small>DESIGNED BY</small> SM			<small>DRAWN BY</small> SS
<b>Kimley»Horn</b> <small>© 2024 KIMLEY-HORN AND ASSOCIATES, INC.          6671 LAS VEGAS BLVD S., SUITE 320, LAS VEGAS, NV 89119          PHONE: 702-862-8600          WWW.KIMLEY-HORN.COM</small>						<small>REVISIONS</small> No.	<small>DATE</small> BY

PROJECT NAME: Panda Express - Eastern and Bonanza  
 CALC'D BY: SS CHECKED BY: MS  
 DATE: 3/27/24 KH No. 192363004

**PARKING LOT DATA CALCULATIONS**

Note: Stormwater Quality Design Volume calculated using steps from Section 1500 Figures 1501-1503 of the CCRFCD HCDDM, Revised 2013

GIVEN:

Project Description:	<u>Panda Express - Eastern and Bonanza</u>		
Parking Lot Data			Acreage
Property Size (PS)	=	<u>1.41</u>	
Building Area (BA)	=	<u>0.05</u>	
Total Pervious Area (TPA)	=	<u>0.41</u>	
Parking Lot Area (PLA) = (PS-BA-TPA)	=	<u>0.95</u>	
Minimum PLA to be treated = (PLA * 0.75)	=	<b>0.71</b>	acres
Area to be treated by the proposed LID BMPs			
Drainage Area 1	=	<u>0.96</u>	
Total	=	<b>0.96</b>	acres

Since 0.96 ac >= 0.71 ac then site satisfies Parking Lot LID criteria

PROJECT NAME: Panda Express - Eastern and Bonanza  
 CALC'D BY: SS CHECKED BY: MS  
 DATE: 3/27/24 KH No. 192363004

**PARKING LOT LID CALCULATIONS - Peak QBMP FOR DRAINAGE AREA "1"**

Note: Stormwater Quality Design Volume calculated using steps from Section 1502.3 of the CCRFCD HCDDM, Revised 2013

GIVEN:

Project Description: Panda Express - Eastern and Bonanza  
 Drainage Area = 0.96 acres  
 Avg % Impervious = 100 %

Determine BMP Design Precipitation - 85th Percentile Rainfall Depth

Is site located within McCarran Airport Rainfall Area? (Yes/No?) **YES**  
 If yes, use Table 505 to obtain 2-year 6-hour rainfall depth; this is your **D2**  
 If no, use Figure 501 to obtain 2-year 6-hour rainfall depth; this is your **D2**  
**D2** = 0.72

Compute ratio of D2 of site to D2 for the McCarran Area

$$D_{2,site}/D_{2, McCarran} = 1.00$$

Compute 85th Percentile Rainfall depth **D<sub>85</sub>** using following equation

$$D_{85} = 0.32 * D_{2,site}/D_{2,McCarran}$$

$$= 0.32$$

Calculate BMP Design Peak Discharge, **QBMP**

Page 1 of 2 Use the following regression equation to calculate the unit discharge (**Qp/A**) for the 90 percent average percent impervious area condition based on **D<sub>85</sub>** value

$$Y = 1.5042X - 0.0066$$

where, **Y** = Average **Qp/A** in cfs/ac  
**X** = **D<sub>85</sub>** in inches  
**Qp/A** = 0.47 cfs/ac

Adjust the **Qp/A** for site based on actual percent impervious using the following regression equation

$$Y = 0.0059X + 0.4688$$

where, **Y** = Ratio **Qp/A** to 90% Impervious Value (unitless)  
**X** = Percent Impervious  
**Y** = 1.06  
**Qp/A (adjusted)** = 0.50 cfs/ac

$$QBMP = Qp/A (adjusted) * Area$$

$$= 0.48 \text{ cfs}$$