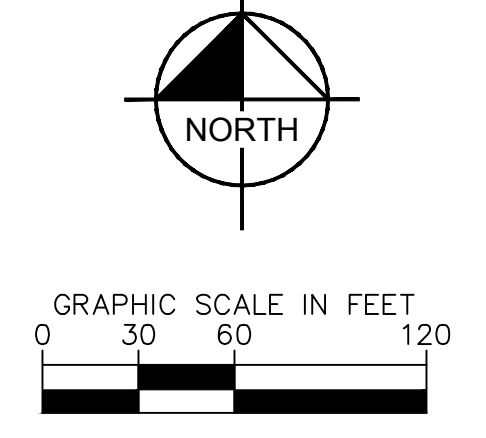
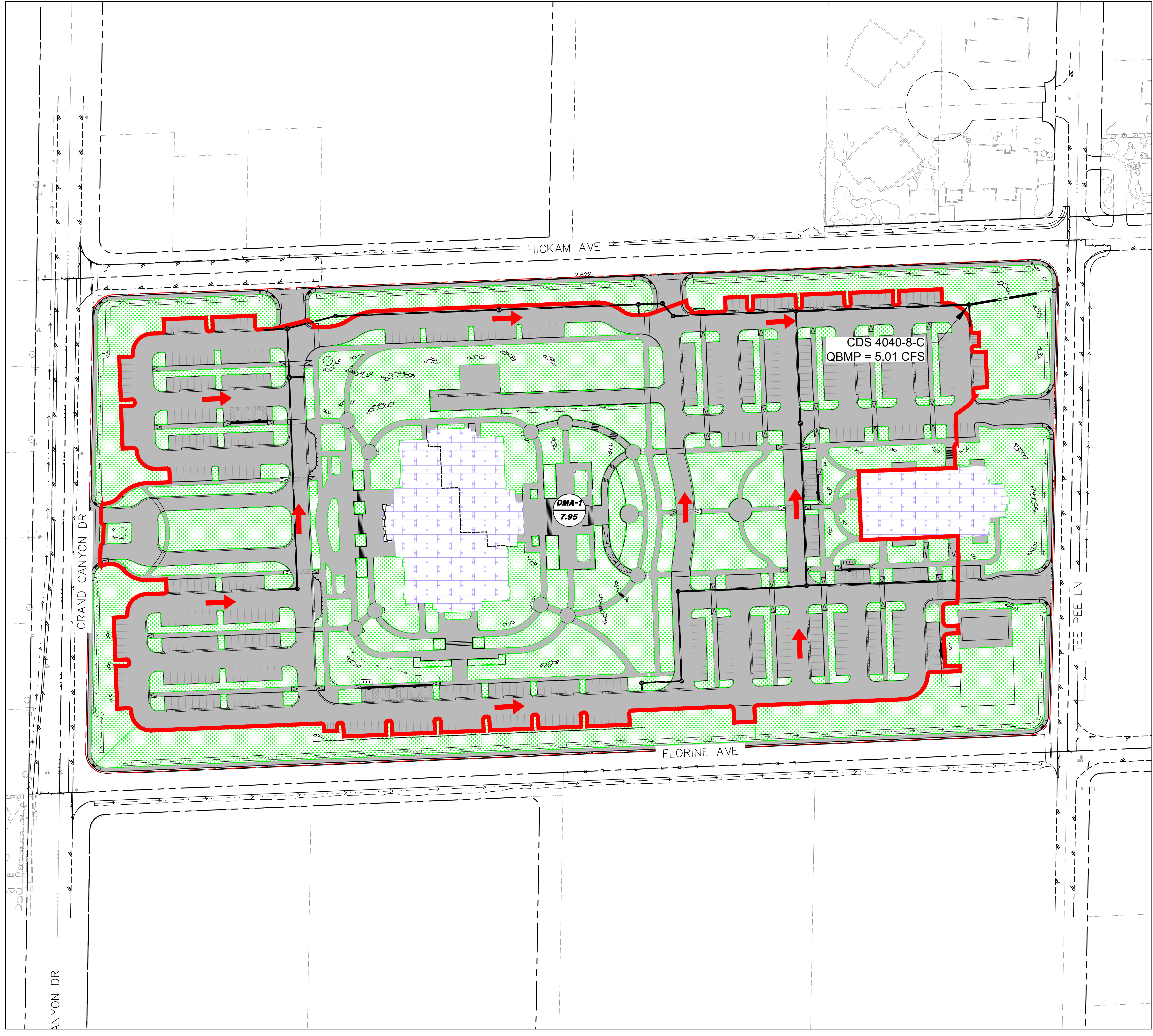


## **Appendix D – Parking Lot LID Calculations**

- LID Parking Lot LID Map & Calculations
- Figure 501 2YR 6 HR Rainfall
- CDS Detail

Plotted By: Schofield, Sean - Sheet Set: kha - Layout: KHA - May 13, 2024 - 10:09:24pm - K:\VAV\_CIVIL\192156002-LDS Lone Mountain Temple\Reports\DRAINAGE\01\_TDS\Figures\CAD\LD.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**

- DMA-1 DRAINAGE MANAGEMENT AREA
- 0.98 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 HCCDDM, Revised 2013

GIVEN:

Project Description:	LDS Lone Mountain Temple
Parking Lot Data	Acreage
Property Size (PS)	= 37.64
Building Area (BA)	= 1.12
Total Pervious Area (TPA)	= 7.70
Parking Lot Area (PLA) = (PLA = PS-BA-TPA)	= 8.82
Minimum PLA to be treated = (PLA * 0.75)	= 6.61 acres
Area to be treated by the proposed LID BMPs	
Drainage Area 1	= 7.95
Total	= 7.95 acres

Since 7.95 ac >= 6.61 ac then site satisfies Parking Lot LID criteria

<b>LDS LONE MOUNTAIN TEMPLE PREPARED FOR PGAL</b>	KHA PROJECT 192156002	DATE 5/13/2024	SCALE AS SHOWN	DESIGNED BY CL	DRAWN BY CL	CHECKED BY RRD	
	<b>LID BASIN MAP</b>						
LID	CITY OF LAS VEGAS NEVADA					REVISIONS	DATE

**Kimley & Horn**

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6671 LAS VEGAS BLVD. S. SUITE 320, LAS VEGAS, NV 89119  
PHONE: 702-862-3600  
WWW.KIMLEY-HORN.COM

PROJECT NAME: LDS Lone Mountain Temple  
 CALC'D BY: SS CHECKED BY: RRD  
 DATE: 5/9/24 KH No. 192156002

**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>LDS Lone Mountain Temple</u>		
Parking Lot Data			Acreage
Property Size (PS)	=	<u>17.64</u>	
Building Area (BA)	=	<u>1.12</u>	
Total Pervious Area (TPA)	=	<u>7.70</u>	
Parking Lot Area (PLA) = (PS-BA-TPA)	=	<u>8.82</u>	
Minimum PLA to be treated = (PLA * 0.75)	=	<u>6.61</u>	acres
Area to be treated by the proposed LID BMPs			
Drainage Area 1	=	<u>7.95</u>	
Total	=	<u>7.95</u>	acres

Since 7.95 ac >= 6.61 ac then site satisfies Parking Lot LID criteria

PROJECT NAME: LDS Lone Mountain Temple  
 CALC'D BY: SS CHECKED BY: RRD  
 DATE: 5/9/24 KH No. 192156002

**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: LDS Lone Mountain Temple  
 Drainage Area = 7.95 acres  
 Avg % Impervious = 100 %

Determine BMP Design Precipitation - 85th Percentile Rainfall Depth

Is site located within McCarran Airport Rainfall Area? (Yes/No?) NO

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** = 0.9

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

**D2<sub>site</sub>/D2<sub>McCarran</sub>** = 1.25

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

**D<sub>85</sub>** =  $0.32 * D2_{site}/D2_{McCarran}$   
 = 0.40

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** = 0.60 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)

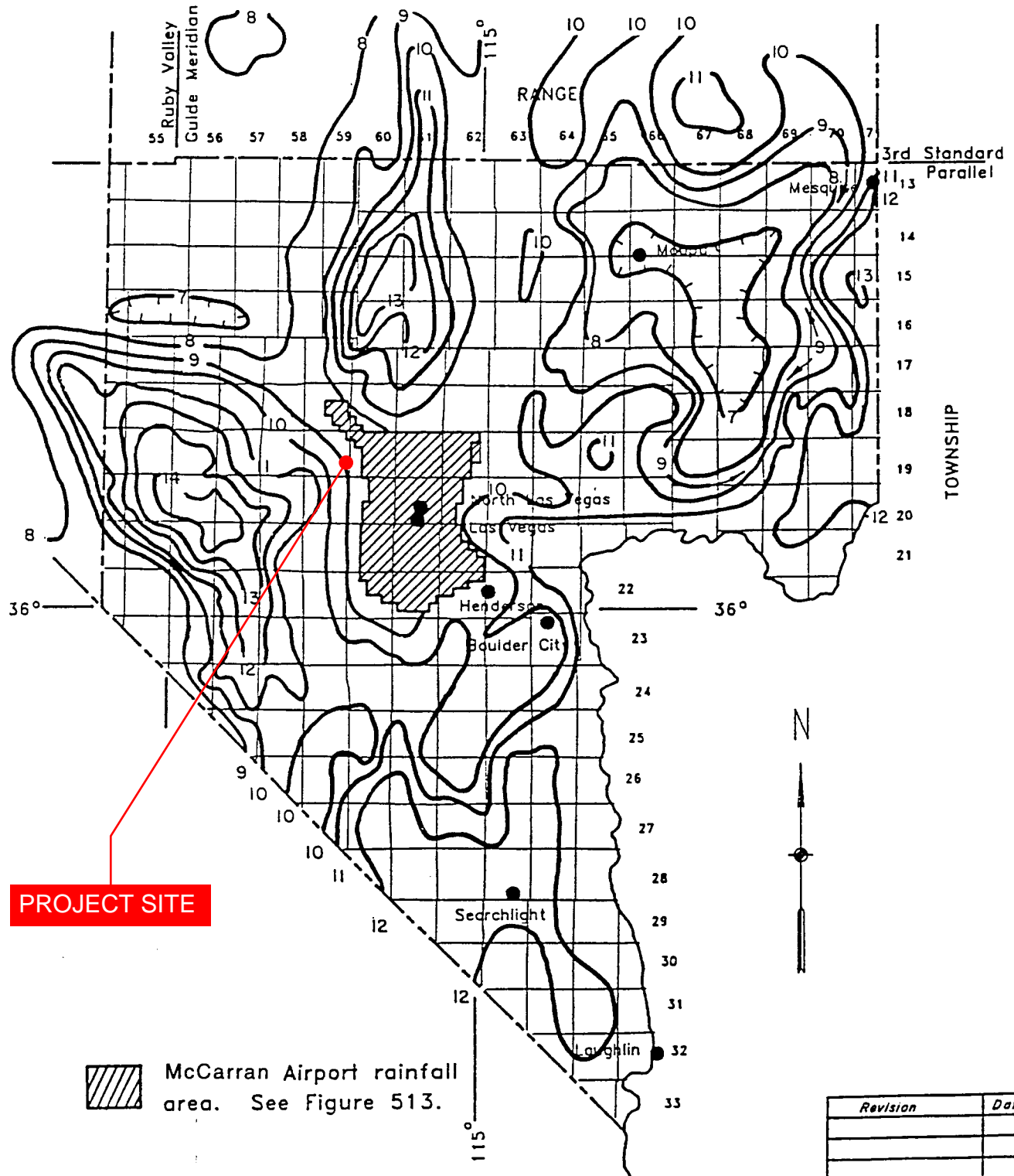
**X** = Percent Impervious

**Y** = 1.06


**Qp/A (adjusted)** = 0.63 cfs/ac

**QBMP** = **Qp/A (adjusted) \* Area**  
 = 5.01 cfs

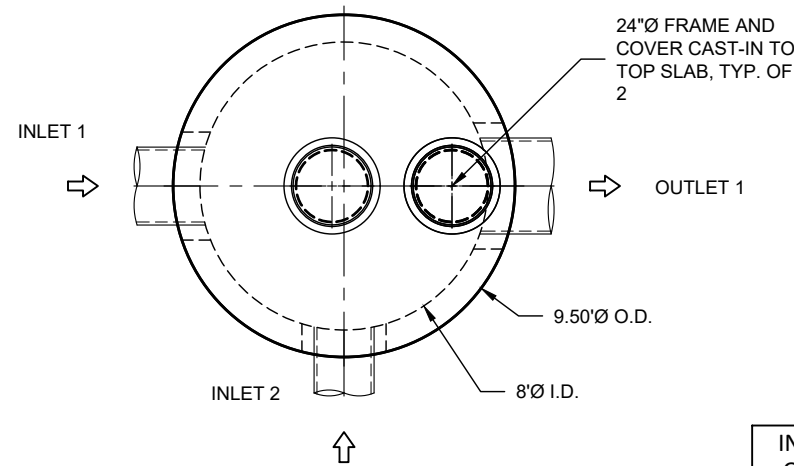
**RAINFALL DEPTH-DURATION-FREQUENCY  
2-YEAR, 6-HOUR  
(DEPTHS IN TENTHS OF INCHES)**



**PROJECT SITE**

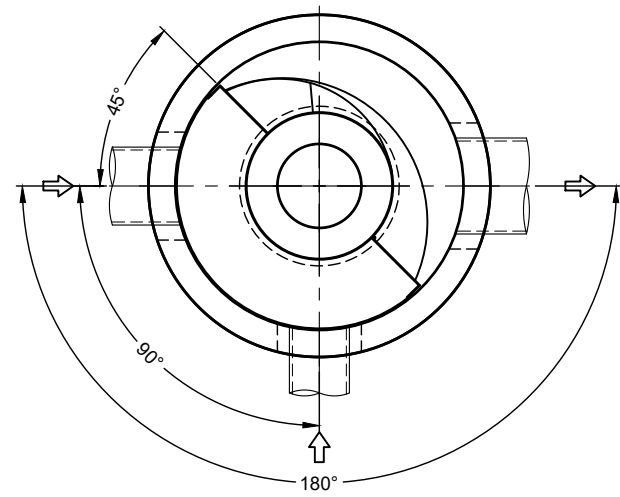
 McCarran Airport rainfall area. See Figure 513.

Revision	Date



**PLAN VIEW**  
INTERNALS NOT SHOWN

INTERNAL COMPONENTS TO BE INSTALLED ON SITE BY CONTECH FIELD CONSULTANT. PLEASE CONTACT CONTECH FOR CURRENT INSTALLATION LEAD TIME



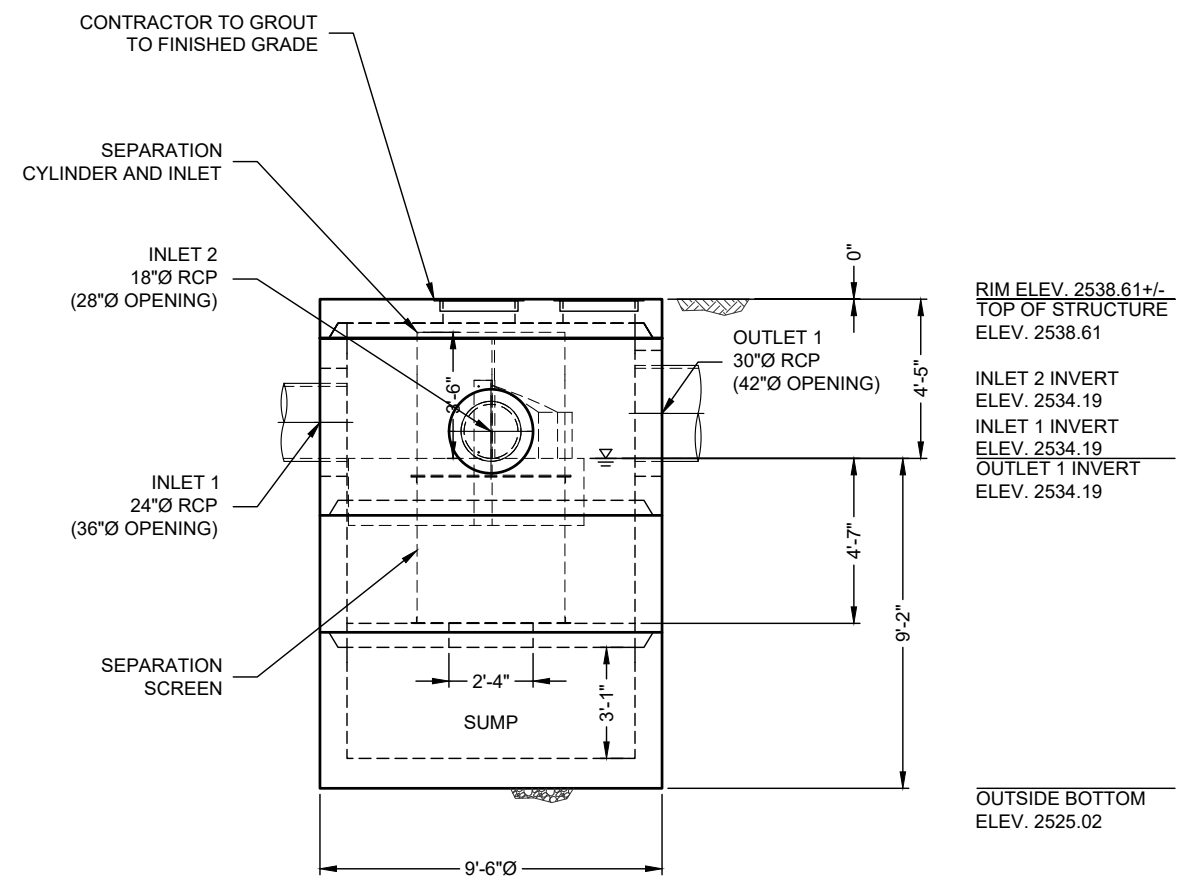
**PLAN VIEW FOR PIPE ORIENTATION**  
TOP SLAB NOT SHOWN

**MATERIAL LIST** (PROVIDED BY CONTECH)

COUNT	DESCRIPTION	INSTALLED BY
1	4040-8 CONCENTRIC FIBERGLASS INSERT	CONTRACTOR
1	4040, 4700 micron, 4.1' O.D. x 4.08' SCREEN, GREEN FLANGE UP	CONTRACTOR
1	20, 30, 40 SERIES HARDWARE KIT	CONTRACTOR
1	SEALANT FOR JOINTS	CONTRACTOR
2	24"Ø X 4" FRAME AND COVER, EJ #416003009A01, NV, CAST-IN	CONTECH

**SITE DESIGN DATA**

WATER QUALITY FLOW RATE	6.0 CFS
PEAK FLOW RATE	27 CFS
RETURN PERIOD OF PEAK FLOW	100 YRS



**ELEVATION VIEW**

**GENERAL NOTES**

- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
- FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. [www.ContechES.com](http://www.ContechES.com)
- CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
- STRUCTURE SHALL MEET AASHTO HS-20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2'. AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
- IF REQUIRED, PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.
- CDS STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

**INSTALLATION NOTES**

- ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE.
- CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
- CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
- CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

**STRUCTURE WEIGHT**

APPROXIMATE HEAVIEST PICK = 21000 LBS.  
STRUCTURE IS DELIVERED IN 4 PIECES

MAX FOOTPRINT = 9.50'Ø

CONTECH  
**PROPOSAL**  
DRAWING

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MARK	DATE	REVISION DESCRIPTION	BY

CDS4040-8-C - 803883-10  
LONE MOUNTAIN TEMPLE  
LAS VEGAS, NV  
SITE DESIGNATION: AREA 1

**CONTECH**  
ENGINEERED SOLUTIONS LLC  
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800-566-4887 503-240-3393 800-561-1271 FAX  
FOR PATENT INFORMATION, GO TO [www.ContechES.com/FP](http://www.ContechES.com/FP)

DATE:	5/10/24		
DESIGNED:	GH	DRAWN:	GH
CHECKED:	GH	APPROVED:	GH
PROJECT No.:	803883	SEQUENCE No.:	10
SHEET:	1	OF	1

RVRSD  
LAYOUT 1E