

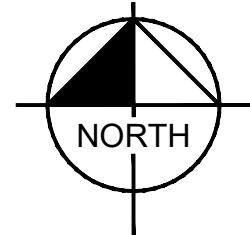
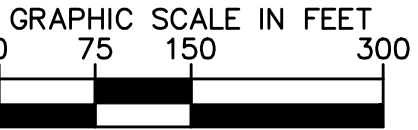
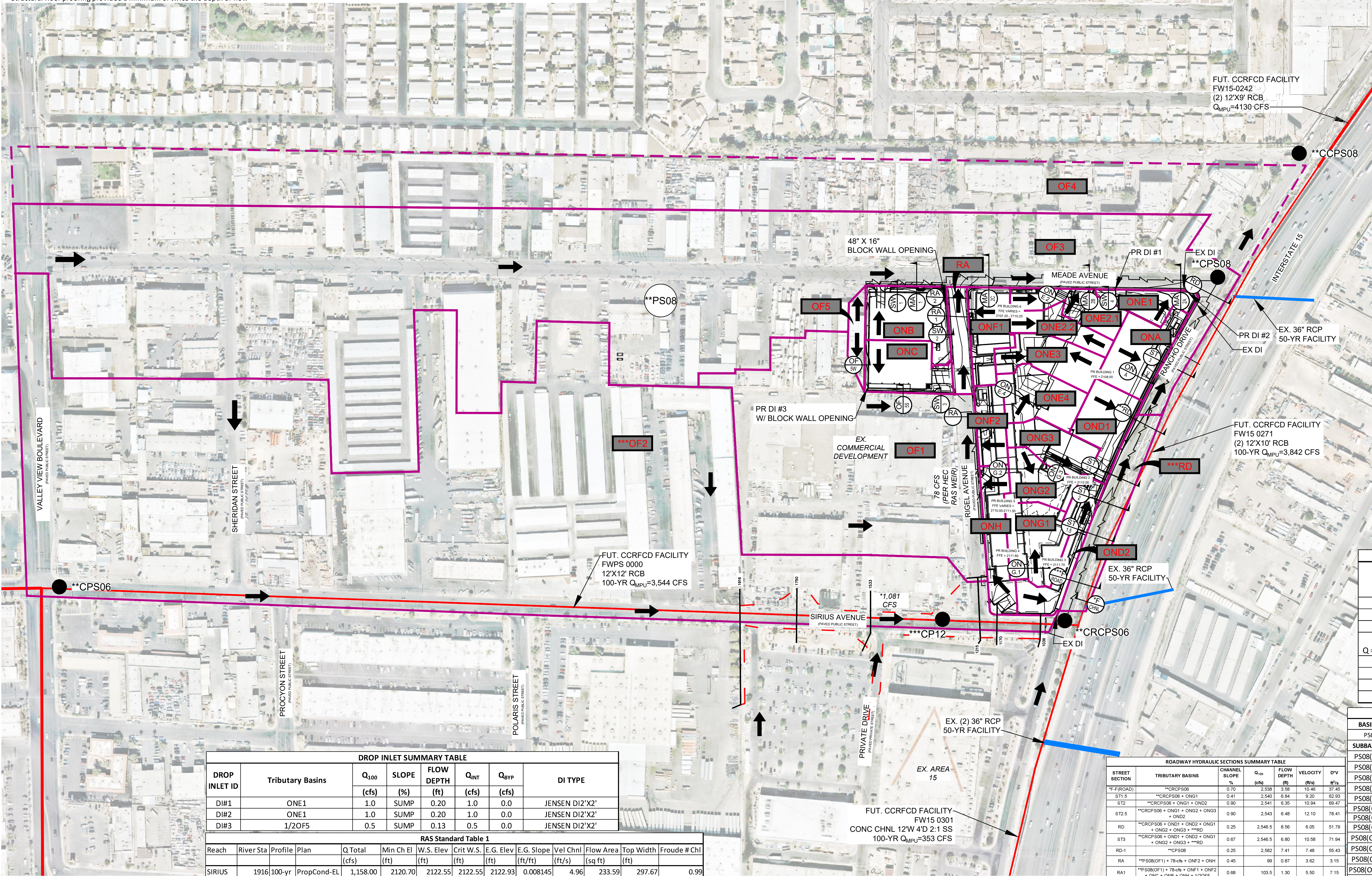
Appendix A – Documents & Figures

- PRO-1: Overall Proposed Condition Drainage Map
- PRO-2: Onsite Proposed Condition Drainage Map
- FAC-1: Onsite Facility Map
- FAC-2: Parking Garage Facility Map

Plotted By: Schofield, Sean Sheet Set: KHA Layout: PRO-1 February 21, 2023 04:50:43pm K:\LAV Civil\092965019 - Area 15 District 2 (Fisher Brothers)\Reports\DRAINAGE\03_ADD2\Figures\PRO_ADD2.dwg
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ONSITE HYDRAULIC SECTIONS													
ONSITE SECTION	TRIBUTARY BASINS	SLOPE %	Q ₁₀₀ (cfs)	FLOW DEPTH (ft)	FLOW LINE (ft)	FLOW LINE + 2D (ft)	FFE BLDG1 (ft)	FFE BLDG2 (ft)	FFE BLDG3 (ft)	FFE BLDG4 (ft)	FFE BLDG5 (ft)	FFE BLDG6 (ft)	BLDG PROTECT ED?
ONA	ONA	0.54	2	0.35	2107.10	2107.80	2108.00	-	-	-	-	2107.20	YES
ONE2	ONE2	0.50	2.5	0.14	2106.90	2107.18	2108.00	-	-	-	-	-	YES
ONE4	ONE4	3.60	1	0.06	2107.25	2107.37	2108.00	-	-	-	2110.00	-	YES
ONG1	ONG1	0.15	2	0.19	2111.35	2111.73	-	-	2111.70	2111.80	-	-	*
ONG2	ONG2	0.80	1	0.10	2110.90	2111.10	-	2112.00	-	-	2110.00	-	YES
ONG3N	ONG3	0.10	1	0.20	2107.40	2107.80	2108.00	-	-	-	-	-	YES
ONG3S	ONG3	3.02	1	0.11	2111.70	2111.92	-	2112.00	-	-	-	-	YES

*Trench Drains have been provided adjacent to building
**Structural floor proofing provided a minimum of twice the depth of flow



LEGEND

- XXX BASIN ID
- XXXX PRORATED BASIN ID
- BASIN BOUNDARY
- PRORATED BASIN BOUNDARY
- FUTURE CCRFCD REGIONAL FACILITY
- EXITING DRAINAGE FACILITY
- FLOW ARROW
- CONCENTRATION POINT
- SECTION ID
- HEC-RAS CROSS SECTION & ID
- 2-FT CONTOURS
- 1-FT CONTOURS
- PROPOSED CONTOURS
- PROPOSED 100-YR INUNDATION LIMITS

* REFERENCED FROM AREA 15 STUDY (DS-4921)
** REFERENCED FROM CITY OF LAS VEGAS CENTRAL NEIGHBORHOOD STUDY
*** REFERENCED FROM AREA 15 EVENT PARKING LOT (DS-5288)

NOTE:
1,081-CFS REFERENCED FOR FLOWRATE AT INTERSECTION OF PRIVATE DRIVEWAY & SIRIUS AVENUE. REFER TO APPENDIX D FOR REFERENCE Q.

Existing / Proposed Condition Flow Summary			
Basin ID / Comb Pt	Area / Tributary Area (ac)	Q ₁₀₀ (cfs)	Q ₁₀ (cfs)
**CPS06	N/A	1045	405
*CP05	N/A	31	18
*EX10	N/A	7	4
Q = 1081-CFS + **PS08(OFF2)	N/A	1158	459
**CRCP06	N/A	2538	873
**PS08	114.56	235	100
**CPS08	N/A	2582	917
**CCPS08	N/A	3762	1226

Prorated Flow Summary				
BASIN ID	Q ₁₀₀ (cfs)	Q ₁₀ (cfs)	AREA (ac)	Q ₁₀₀ (cfs/ac)
PS08	235	100	114.6	2.05
SUBBASIN ID	Q ₁₀₀ (cfs)	Q ₁₀ (cfs)	AREA (ac)	Q ₁₀₀ (cfs/ac)
PS08(OFF1)	19	8	9.2	2.05
PS08(OFF2)	77	33	37.5	2.05
PS08(OFF3)	84	36	40.9	2.05
PS08(OFF4)	29	12	14.2	2.05
PS08(OFF5)	1	<1	0.3	2.05
PS08(ONA)	2	1	0.8	2.05
PS08(ONB)	2	1	1.0	2.05
PS08(ONC)	2	1	0.8	2.05
PS08(OND1)	1	0.5	0.7	2.05
PS08(OND2)	1	0.5	0.7	2.05
PS08(ONE1)	1	<1	0.4	2.05
PS08(ONE2.1)	1.5	0.5	0.6	2.05
PS08(ONE2.2)	1	0.5	0.5	2.05
PS08(ONE3)	1	0.5	0.7	2.05
PS08(ONE4)	2	1	0.8	2.05
PS08(ONF1)	1	0.5	0.5	2.05
PS08(ONF2)	1	0.5	0.5	2.05
PS08(ONG1)	2	1	0.9	2.05
PS08(ONG2)	1	0.5	0.6	2.05
PS08(ONG3)	1	0.5	0.6	2.05
PS08(ONH)	1	0.5	0.7	2.05
PS08(RD)	2.5	1	1.1	2.05
PS08(RA)	1	<1	0.4	2.05
SUBTOTAL	235	100	114.6	-

DROP INLET SUMMARY TABLE						
DROP INLET ID	Tributary Basins	Q ₁₀₀ (cfs)	SLOPE (%)	FLOW DEPTH (ft)	Q _{INT} (cfs)	DI TYPE
DI#1	ONE1	1.0	SUMP	0.20	1.0	JENSEN DI2'X2'
DI#2	ONE1	1.0	SUMP	0.20	1.0	JENSEN DI2'X2'
DI#3	1/2OF5	0.5	SUMP	0.13	0.5	JENSEN DI2'X2'

RAS Standard Table 1										
Reach	RiverSta	Profile	Plan	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)
SIRIUS	1916	100-yr	PropCond-EL	1,158.00	2120.70	2122.55	2122.55	2122.93	0.008145	4.96
SIRIUS	1750	100-yr	PropCond-EL	1,158.00	2116.50	2118.23	2118.93	2120.74	0.015487	14.09
SIRIUS	1533	100-yr	PropCond-EL	1,158.00	2112.00	2113.71	2114.66	2117.09	0.017377	15.05
SIRIUS	1245		Lat Struct							
SIRIUS	1215	100-yr	PropCond-EL	1,095.50	2109.25	2110.68	2111.04	2111.89	0.011742	10.27
SIRIUS	1170	100-yr	PropCond-EL	1,081.44	2108.93	2109.81	2110.22	2111.24	0.016094	9.89
SIRIUS	1036	100-yr	PropCond-EL	1,081.44	2108.20	2110.52	2110.52	2111.60	0.002889	8.52

CHANNEL HYDRAULIC SECTIONS SUMMARY TABLE										
ID	TRIBUTARY BASINS	CHANNEL SLOPE %	Q ₁₀₀ (cfs)	FLOW DEPTH (ft)	VELOCITY (ft/s)	D/V	TYPE	SIDE SLOPES	BOTTOM WIDTH (ft)	Req'd d ₅₀ (in)
*F-F(CHNL)	Channel Capacity	0.70	270.1	3.00	6.43	19.29	TRAP	4:1	N/A	N/A
SW1	ONB	1.00	2	0.54	1.73	0.93	V-Ditch	4:1	N/A	6"
SW2	ONB	0.25	2	0.70	1.03	0.72	V-Ditch	4:1	N/A	6"
SW3	ONC+ 1/2OF5	1.00	2.5	0.58	1.83	1.06	V-Ditch	4:1	N/A	6"
SW4	ONE1	1.01	1	0.15	2.36	0.35	V-Ditch	50:1	N/A	N/A
OF5W	1/2OF5	2.74	0.5	0.06	2.81	0.17	Concrete Flume	0:1	3	N/A
OF5S	1/2OF5 + ONC	1.01	2.5	0.40	3.87	1.55	V-Ditch	4:1	N/A	N/A

ROADWAY HYDRAULIC SECTIONS SUMMARY TABLE						
STREET SECTION	TRIBUTARY BASINS	CHANNEL SLOPE %	Q ₁₀₀ (cfs)	FLOW DEPTH (ft)	VELOCITY (ft/s)	D/V
*F-F(ROAD)	**CRCP06	0.70	2,538	3.58	10.46	37.45
ST1.5	**CRCP06 + ONG1	0.41	2,540	6.84	9.20	62.93
ST2	**CRCP06 + ONG1 + OND2	0.50	2,541	6.35	10.94	69.47
ST2.5	**CRCP06 + ONG1 + ONG2 + ONG3 + OND2	0.90	2,543	6.48	12.10	78.41
RD	**CRCP06 + OND1 + ONG2 + ONG1 + ONG2 + ONG3 + **RD	0.25	2,546.5	6.56	10.58	51.79
ST3	**CRCP06 + OND1 + OND2 + ONG1 + ONG2 + ONG3 + **RD	0.67	2,546.5	6.80	10.58	71.94
RD1	**CPS08	0.25	2,552	7.41	7.48	65.43
RA	**PS08(OFF1) + 78-in + ONF2 + ONH	0.45	99	0.87	3.62	3.15
RA1	**PS08(OFF1) + 78-in + ONF1 + ONF2 + ONC + ONB + ONH + 1/2OF5	0.68	103.5	1.30	5.50	7.15
RA2	**PS08(OFF1) + 78-in + ONF1 + ONF2 + ONC + ONB + ONH + 1/2OF5	0.60	103.5	1.33	5.26	7.00
MA1	**PS08(OFF3) + 1/2OF5	3.37	85.0	0.69	6.32	4.36
MA2A	**PS08(OFF1) + **PS08(OFF3) + **PS08(OFF5) + 78-in + RA + ONB + ONC + ONG1 + ONG2 + ONG3 + ONG4 + ONF1 + ONF2 + ONH	0.30	196.5	1.22	4.21	5.14
MA2B	**PS08(OFF1) + 78-in + RA + ONB + ONC + ONG1 + ONG2 + ONG3 + ONG4 + ONF1 + ONF2 + ONH	0.51	195.5	1.07	4.92	5.26
MA2C	**PS08(OFF1) + **PS08(OFF3) + **PS08(OFF5) + 78-in + RA + ONB + ONC + ONG1 + ONG2 + ONH	1.40	190	0.87	6.62	5.76

SECTIONS *F-F(ROAD) & RD: FLOW DEPTH TAKEN FROM CHANNEL FLOWLINE OFFSET CROWN AT BRANCH FOR SECTION *F-F 78-CFS PER RAS ANALYSIS FLOWS NORTH IN RIGEL AVENUE

OVERALL
PROPOSED CONDITION
DRAINAGE MAP

AREA 15
DISTRICT 2
PREPARED FOR
NEW VEGAS HOLDING COMPANY, LLC
CITY OF LAS VEGAS

KHA PROJECT
092965011

DATE
01/05/2023

SCALE
AS SHOWN

DESIGNED BY
TEA

DRAWN BY
SS

CHECKED BY
RD

01/05/2023

REVISIONS

DATE

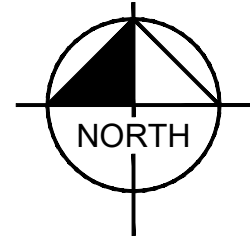
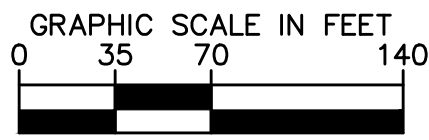
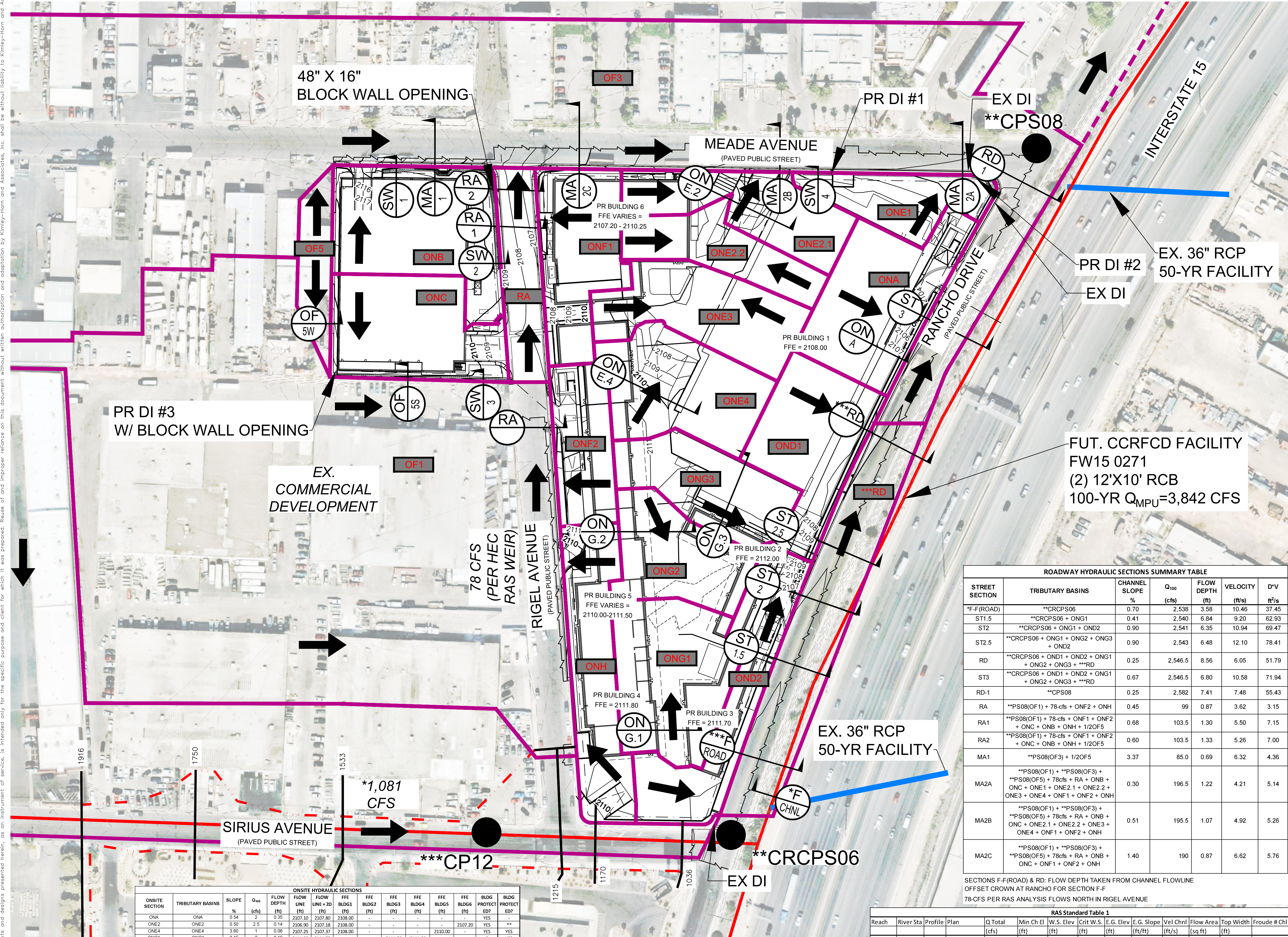
BY

Kimley»Horn

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PHONE: 702-862-3600
WWW.KIMLEY-HORN.COM

PRO-1

Noted By: Schofield, Sean Sheet Set: KHA-Layout-PRO-2 February 21, 2023 04:48:28pm K:\LAV\Civil\092965012 - Area 15 District 2 (Fisher Brothers)\Reports\DRAINAGE\03_ADD2\Figures\PRO_ADD2.dwg
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LEGEND

- XXX BASIN ID
- BASIN BOUNDARY
- PRORATED BASIN BOUNDARY
- FUTURE CCRFCD REGIONAL FACILITY
- EXITING DRAINAGE FACILITY
- FLOW ARROW
- SECTION ID
- CPX CONCENTRATION POINT
- PRORATED BASIN ID
- HEC-RAS CROSS SECTION & ID
- 2-FT CONTOURS
- 1-FT CONTOURS
- PROPOSED CONTOURS
- PROPOSED 100-YR INUNDATION LIMITS

* REFERENCED FROM AREA 15 STUDY (DS-4921)
** REFERENCED FROM CITY OF LAS VEGAS CENTRAL NEIGHBORHOOD STUDY
*** REFERENCED FROM AREA 15 EVENT PARKING LOT (DS-5288)

NOTE:
1,081-CFS REFERENCED FOR FLOWRATE AT INTERSECTION OF PRIVATE DRIVEWAY & SIRIUS AVENUE. REFER TO APPENDIX D FOR REFERENCE Q.

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KHA PROJECT	092965011	01/05/2023	AS SHOWN	TEA	SS	RD
DATE	01/05/2023	SCALE	AS SHOWN	DESIGNED BY	DRAWN BY	CHECKED BY

ONSITE
PROPOSED CONDITION
DRAINAGE MAP

AREA 15
DISTRICT 2
PREPARED FOR
NEW VEGAS HOLDING COMPANY, LLC
CITY OF LAS VEGAS
NEVADA

PRO-2

BY	
DATE	
REVISIONS	
No.	

ROADWAY HYDRAULIC SECTIONS SUMMARY TABLE						
STREET SECTION	TRIBUTARY BASINS	CHANNEL SLOPE %	Q ₁₀₀ (cfs)	FLOW DEPTH (ft)	VELOCITY (ft/s)	D'V (ft/s)
*F-F(ROAD)	**CRCP506	0.70	2,538	3.58	10.46	37.45
ST1.5	**CRCP506 + ONG1	0.41	2,540	6.84	9.20	62.93
ST2	**CRCP506 + ONG1 + OND2	0.90	2,541	6.35	10.94	69.47
ST2.5	**CRCP506 + ONG1 + ONG2 + ONG3 + OND2	0.90	2,543	6.48	12.10	78.41
RD	**CRCP506 + OND1 + OND2 + ONG1 + ONG2 + ONG3 + **RD	0.25	2,546.5	8.56	6.05	51.79
ST3	**CRCP506 + OND1 + OND2 + ONG1 + ONG2 + ONG3 + **RD	0.67	2,546.5	6.80	10.58	71.94
RD-1	**CPS08	0.25	2,582	7.41	7.48	55.43
RA	**PS08(OFF1) + 78-cfs + ONF2 + ONH	0.45	99	0.87	3.62	3.15
RA1	**PS08(OFF1) + 78-cfs + ONF1 + ONF2 + ONC + ONB + ONH + 1/2OF5	0.68	103.5	1.30	5.50	7.15
RA2	**PS08(OFF1) + 78-cfs + ONF1 + ONF2 + ONC + ONB + ONH + 1/2OF5	0.60	103.5	1.33	5.26	7.00
MA1	**PS08(OFF3) + 1/2OF5	3.37	85.0	0.69	6.32	4.36
MA2A	**PS08(OFF1) + **PS08(OFF3) + **PS08(OFF5) + 78cfs + RA + ONB + ONC + ONE1 + ONE2.1 + ONE2.2 + ONE3 + ONE4 + ONF1 + ONF2 + ONH	0.30	196.5	1.22	4.21	5.14
MA2B	**PS08(OFF1) + **PS08(OFF3) + **PS08(OFF5) + 78cfs + RA + ONB + ONC + ONE2.1 + ONE2.2 + ONE3 + ONE4 + ONF1 + ONF2 + ONH	0.51	195.5	1.07	4.92	5.26
MA2C	**PS08(OFF1) + **PS08(OFF3) + **PS08(OFF5) + 78cfs + RA + ONB + ONC + ONF1 + ONF2 + ONH	1.40	190	0.87	6.62	5.76

SECTIONS F-F(ROAD) & RD: FLOW DEPTH TAKEN FROM CHANNEL FLOWLINE OFFSET CROWN AT RANCHO FOR SECTION F-F
78-CFS PER RAS ANALYSIS FLOWS NORTH IN RIGEL AVENUE

RAS Standard Table 1												
Reach	River Sta	Profile	Plan	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)
SIRIUS	1916	100-yr	PropCond-EL	1,158.00	2120.70	2122.55	2122.55	2122.93	0.008145	4.96	233.59	297.67
SIRIUS	1750	100-yr	PropCond-EL	1,158.00	2116.50	2118.23	2118.93	2120.74	0.015487	14.09	95.80	97.00
SIRIUS	1533	100-yr	PropCond-EL	1,158.00	2112.00	2113.71	2114.66	2117.09	0.017377	15.05	79.46	83.06
SIRIUS	1245		Lat Struct									
SIRIUS	1215	100-yr	PropCond-EL	1,095.50	2109.25	2110.68	2111.04	2111.89	0.011742	10.27	129.87	184.50
SIRIUS	1170	100-yr	PropCond-EL	1,081.44	2108.93	2109.81	2110.22	2111.24	0.016094	9.89	117.19	197.44
SIRIUS	1036	100-yr	PropCond-EL	1,081.44	2108.20	2110.52	2110.52	2111.60	0.002889	8.52	132.14	61.50

CHANNEL HYDRAULIC SECTIONS SUMMARY TABLE										
ID	TRIBUTARY BASINS	CHANNEL SLOPE %	Q ₁₀₀ (cfs)	Flow Depth (ft)	VELOCITY (ft/s)	D'V (ft/s)	TYPE	SIDE SLOPES	BOTTOM WIDTH (ft)	Req'd d ₅₀ (in)
*F(CHNL)	Channel Capacity	0.70	270	3.00	6.43	19.29	TRAP	4:1	7	N/A
SW1	ONB	1.00	2	0.54	1.73	0.93	V-Ditch	4:1	N/A	6"
SW2	ONB	0.25	2	0.70	1.83	0.72	V-Ditch	4:1	N/A	6"
SW3	ONC+1/2OF5	1.00	2.5	0.58	1.86	1.06	V-Ditch	4:1	N/A	6"
SW4	ONE1	1.01	1	0.15	2.36	0.35	V-Ditch	50:1	N/A	N/A
OFSS	1/2OF5	2.74	0.5	0.06	2.81	0.17	Concrete Flume	0:1	3	N/A
OFSS	1/2OF5 + ONC	1.01	2.5	0.40	3.87	1.55	V-Ditch	4:1	N/A	N/A

ONSITE HYDRAULIC SECTIONS												
ONSITE SECTION	TRIBUTARY BASINS	SLOPE %	Q ₁₀₀ (cfs)	FLOW DEPTH (ft)	FLOW LINE + 2D (ft)	FFE BLDG1 (ft)	FFE BLDG2 (ft)	FFE BLDG3 (ft)	FFE BLDG4 (ft)	FFE BLDG5 (ft)	FFE BLDG6 (ft)	BLDG PROTECT ED?
ONA	ONA	0.54	2	0.35	2107.30	2107.80	2108.00	-	-	-	2107.20	YES
ONE2	ONE2	0.50	2.5	0.14	2106.90	2107.18	2108.00	-	-	-	-	YES
ONE4	ONE4	3.60	1	0.06	2107.25	2107.37	2108.00	-	-	2110.00	-	YES
ONG1	ONG1	0.15	2	0.19	2111.55	2111.73	-	2112.00	2111.70	2111.80	-	YES
ONG2	ONG2	0.80	1	0.10	2110.95	2111.10	-	-	-	2110.00	-	YES
ONG3N	ONG3	0.10	1	0.20	2107.40	2107.80	2108.00	-	-	-	-	YES
ONG3S	ONG3	3.02	1	0.11	2111.70	2111.92	-	2112.00	-	-	-	YES

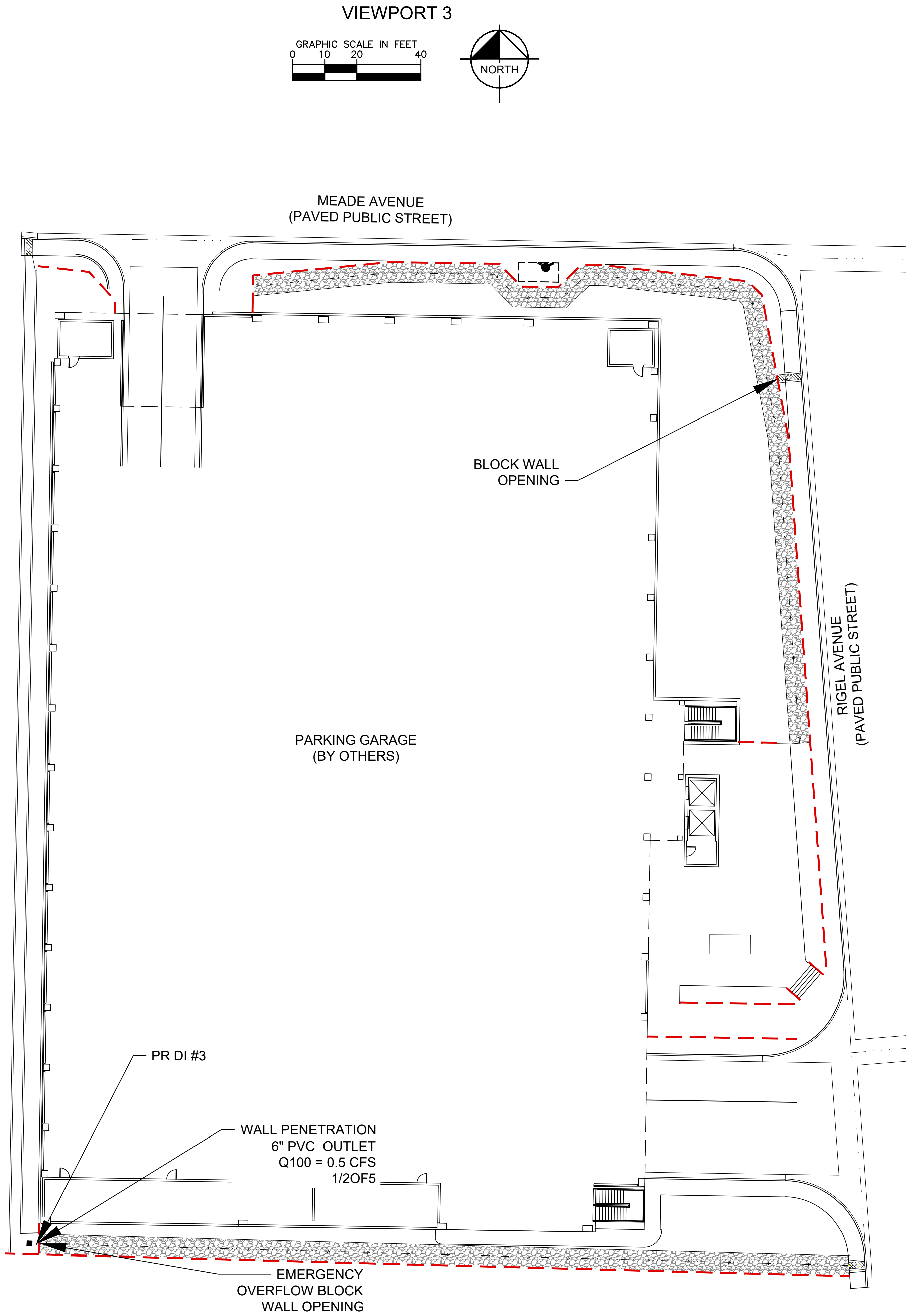
*Trench Drains have been provided adjacent to building
**Structural floor proofing provided a minimum of twice the depth of flow

DROP INLET SUMMARY TABLE						
DROP INLET ID	Tributary Basins	Q ₁₀₀ (cfs)	SLOPE (%)	FLOW DEPTH (ft)	Q _{INT} (cfs)	Q _{BYP} (cfs)
D#1	ONE1	1.0	SUMP	0.20	1.0	0.0
D#2	ONE1	1.0	SUMP	0.20	1.0	0.0
D#3	1/2OF5	0.5	SUMP	0.13	0.5	0.0

DI TYPE	
JENSEN DI2'X2'	
JENSEN DI2'X2'	

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DROP INLET SUMMARY TABLE							
DROP INLET ID	Tributary Basins	Q ₁₀₀	SLOPE	FLOW DEPTH	Q _{INT}	Q _{8YP}	DI TYPE
		(cfs)	(%)	(ft)	(cfs)	(cfs)	
DI#1	ONE1	1.0	SUMP	0.20	1.0	0.0	JENSEN DI2'X2'
DI#2	ONE1	1.0	SUMP	0.20	1.0	0.0	JENSEN DI2'X2'
DI#3	1/20F5	0.5	SUMP	0.13	0.5	0.0	JENSEN DI2'X2'

LEGEND

- PROPOSED ONSITE TRENCH DRAIN
- PROPOSED TRENCH DRAIN FLOW DIRECTION
- PROPOSED STORM DRAIN AND FLOW DIRECTION
- PROPOSED WALL

AREA 15
DISTRICT 2
PREPARED FOR
NEW VEGAS HOLDING COMPANY, LLC
CITY OF LAS VEGAS

FAC-2

KHA PROJECT
092965011

DATE
01/05/2023

SCALE
AS SHOWN

DESIGNED BY
TEA

DRAWN BY
SS

CHECKED BY
RD

PARKING GARAGE
FACILITY MAP

Kimley»»Horn

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6671 LAS VEGAS BOULEVARD S., SUITE 320, LAS VEGAS, NV 89119
PHONE: 702-862-3600
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01/05/2023

REVISIONS

No.

DATE

BY