

DS #:

5034

APN:

139-34-110-009

PROJECT:

View at Symphony Park Apartments

SUBMITTAL:

187

SCANNED BY/DATE:

CHECKED BY/DATE:



CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		September 17, 2018
TO: Land Development Services Department of Building & Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	COPIES TO:	
Drainage Study for:	Kimley-Horn	
View at Symphony Park Apartments		
Cross Streets:	NWC of City Pkwy. & Symphony Park Ave.	Symphony Park Vegas, LLC
File Number:	F:\Depot\DSMemos\DS5034A.doc	Bart Anderson, P.E., DevCo
Parcel Number:	139-34-110-009	
Zoning Action:	SDR-73363 & SUP-73362	
FEMA Flood Zone	YES NO X	
Proposed Storm Drain	YES X NO	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	8/30/2018 & 9/10/2018	9/17/2018	See Comments Below	\$400.00	498356: \$400
			TOTAL FEES (LDDRS):	\$400.00	----

REMARKS:

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

	is approved subject to conformance to all City standards and the following conditions:
X	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.

- Contact the *City Engineer Office* to coordinate the development of this project with the Symphony Park project and any other public improvement projects to this site. The L-curb of *Promenade Place* and *Carson Avenue* must either be already in place or to be constructed concurrently with the subject project improvements. Comply with the recommendations of the *City Engineer Office*.
- EX-1** The flow depth and velocity shown for the 100-year event for cross section HS-3 does not match the flow master output results provided in the report, revise accordingly.
- EX-2** The flow depth and velocity shown for the 10-year event for cross section HS-4 and the 100-year event for cross section HS-11 do not match the flow master output results provided in the report, revise in the next submittal.
- The wrong Township/Range/Section is highlighted on the McCarran Airport Rainfall map, please revise.
- The following finish floors do not meet the Regional Flood Control District minimum criteria of twice the Q_{100} depth of flow up to 18-inches above the water surface (CCRFCD Manual Section 304.4.E.1) or 6-inch minimum above the highest adjacent top of curb (CCRFCD Manual Section 1602 304.4.E.1). The following finish floors should be revised or alternate flood protection provided.

<u>Building</u>	<u>FF shown</u>	<u>Min FF</u>
RETAIL (SEC)	2040.17	2040.26
RETAIL (SWC)	2042.50	2042.69
OFFICE (SWC)	2041.50	2042.25

6. The courtyard within the southern portion of the site appears to have problem if Inlet #3 and Inlet #4 are totally clogged during a major storm event. Under such event, water will pond up to elevation 2041.0 before it can drain out to *Symphony Park Avenue*. However, this water surface elevation will flood the adjacent RETAIL buildings to the south and the RESIDENTIAL UNITS to the east which are lower than 2041.0. Address and resolve in the next submittal.
7. Address whether there is an emergency overflow path provided in the courtyard in the northern portion of the site.
8. Show the roof drain downspout locations of the PARKING GARAGE and if they connect to any storm drain systems in the next submittal.

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
WSP/AYS

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



Addendum #1 to the Technical Drainage Study for
View at Symphony Park Apartments
(DS5034A)

APN: 139-34-110-009

**NWC of Symphony Park Avenue & South City
Parkway**

City of Las Vegas, Nevada

Prepared for:

Symphony Park Vegas, LLC
4514 Cole Avenue, Suite 810
Dallas, TX 75205
214.420.3055

Date Prepared:

September 25, 2018

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL
DRAINAGE STUDY INFORMATION FORM

Name of Development: View at Symphony Park Apartments Date: Sep 25, 2018

Location of Development: a) Descriptive (Cross Streets) North/South: South City Parkway
East/West: Symphony Park Avenue

b) Section: 34 Township: 20S Range: 61E

c) APN : 139-34-110-009

Name of Owner: Symphony Park Vegas, LLC

Telephone No.: (214) 420-3055 Fax No.: _____ E-Mail Address: jeremy.cyr@southernland.com

Address: 4514 Cole Avenue, Suite 810, Dallas, TX 75205

Contact Person-Name: Michael Schwab, P.E. Telephone No.: 702.790.0206

* E-Mail Address: michael.schwab@kimley-horn.com Fax No.: _____

Firm: Kimley-Horn

Address: 6671 Las Vegas Boulevard South, Suite 320 Las Vegas, NV 89119

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	☒	Building Permit		GRADING PERMIT

1. Total Owned Land Area: At Site: +/- 5.25 acres Being Developed/Disturbed: +/- 5.25 acres

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

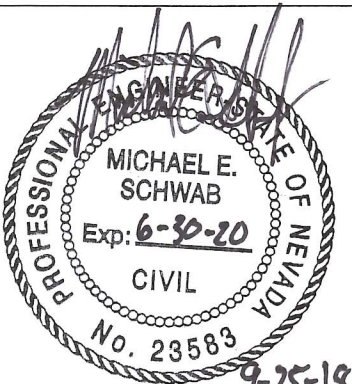
4. Proposed type of development (Residential, Commercial, Etc.): Residential/Commercial

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: 61 Acres @ 100 Grand Central Parkway TDS (DS3477B); Union Park TDS (DS4486)

7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Majority of flow is collected onsite and conveyed to existing storm drain in adjacent streets. Other runoff sheet flows off the hardscape into adjacent streets

8. Briefly describe your proposed schedule for the subject project: The Client intends to start construction as soon as practicable. Any expediting of this permit would be appreciated.



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.

***New Required Field**

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

	Revision	Date
	ADD #1	Sep 25, 2018
DS5034A		
Local Entity File No.		

REFERENCE:

STANDARD FORM 1



September 25, 2018
KH Project No. 192005000

Mr. Albert Sung, P.E.
City of Las Vegas Flood Control
333 Rancho Drive
Las Vegas, NV 89106

**RE: *Addendum #1 to the Technical Drainage Study for View at Symphony Park Apartments
(APN:139-34-110-009) (DS5034A)***

Mr. Sung:

This letter is being submitted in response to the City of Las Vegas Flood Control Department TDS comments dated September 18, 2018. A copy of the comment letter is included in **Appendix A**. These comments have been reviewed and are addressed as follows:

1. **Contact the City Engineer Office to coordinate the development of this project with the Symphony Park project and any other public improvement projects to the site. The L-curb of Promenade Place and Carson Avenue must either be already in place or to be constructed concurrently with subject project improvements. Comply with the recommendations of the City Engineer Office.**

Response: The L-curb along Promenade Place and Carson Avenue will be constructed as part of this project. Construction Note #7 on sheet **C3.1** calls out the gutter to be constructed. As shown in the Promenade Place & Carson Avenue Offsite Improvements plan set (**Hansen #60311**), The City of Las Vegas will be constructing the road to the edge of pavement adjacent to this project. Refer to **Appendix C** for the referenced plans. Refer to **Appendix D** for sheet **C3.1**.

2. **EX-1 The flow depth and velocity shown for the 100-year event for cross section HS-3 does not match the flow master output results provided in the report, revise accordingly.**

Response: The Offsite Hydraulic Summary Table on EX-1 has been updated to reflect the correct output from FlowMaster. Refer to **Appendix B**.

3. **EX-2 The flow depth and velocity shown for the 10-year event for cross section HS-4 and the 100-year event for cross section HS-11 do not match the flow master output results provided in the report, revise the next submittal.**

Response: The Offsite Hydraulic Summary Table on PR-1 has been updated to reflect the correct output from FlowMaster. Refer to **Appendix B**.

4. **The wrong Township/Range/Section is highlighted on the McCarran Airport Rainfall map, please revise.**

Response: Figure 513 McCarran Airport Rainfall Map has been revised to highlight the correct Township/Range/Section. Refer to **Appendix A**.

5. The following finish floors do not meet the Regional Flood Control District minimum criteria of twice the Q100 depth of flow up to 18-inches above the water surface (CCRFC Manual Section 304.4E.1) or 6-inch minimum above the highest adjacent top of curb (CCRFC Manual Section 1602 304.4E.1). The following finish floors should be revised or alternate flood protection provided.

<u>Building</u>	<u>FF shown</u>	<u>Min FF</u>
RETAIL (SEC)	2040.17	2040.26
RETAIL (SWC)	2042.50	2042.69
OFFICE (SWC)	2041.50	2042.25

Response: The hydraulic sections representative of the areas in question are **HS-11** for the retail at the southeast corner, **HS-6A** for the retail at the southwest corner, and **HS-6B** for the office at the southwest corner. As shown in these cross sections, the Finished Floor elevations are elevated more than twice the depth of flow. The Finished Floors at the south end of the site could not be elevated 6-inches above the highest adjacent top of curb due to accessibility issues into the commercial sites because slopes would be greater than 2 percent. In a telephone conversation with Mr. Sung on September 24, 2018, it was discussed the City requires Finished Floors to be 6-inches above adjacent to of curb but waives this requirement when site constraints and accessibility makes this unfeasible. Further, with the relatively small amount of flow in the adjacent streets at these locations (upstream end of subbasins, but total subbasin flow used), the buildings on the southern end are flood protected from the 100-year design storm while being elevated more than twice the depth of flow. It is respectfully requested that the 6-inches above top curb requirement be waived in this specific case. Refer to **Table 1 – Finished Floor Elevation** Check below for a summary of the worst-case scenarios around all four sides of the project site. Refer to Proposed Conditions Map **PR-1** in **Appendix D** for the location of the Hydraulic Sections. The Hydraulic Sections can be found in **Appendix B**.

Table 1: Finished Floor Elevation Check

SECTION	Q ₁₀₀	FLOW DEPTH	FL	FL+2D	FFE	BLDG PROTECTED?
	(cfs)	(ft)		(ft)	(ft)	
HS-4	4	0.46	39.07	39.99	40.17	YES
HS-5	4	0.41	40.27	41.09	42.50	YES
HS-6A	2	0.17	41.69	42.23	42.50	YES
HS-6B	2	0.19	40.54	40.92	41.50	YES
HS-7	3	0.21	36.46	36.88	40.50	YES
HS-8	4	0.37	33.84	34.58	38.50	YES
HS-9	4	0.44	33.65	34.53	38.50	YES
HS-10	1	0.27	36.57	37.11	38.50	YES
HS-11	2	0.32	38.84	39.48	40.17	YES

6. The courtyard within the southern portion of the site appears to have problem if Inlet #3 and Inlet #4 are totally clogged during a major storm event. Under such event, water will pond up to elevation 2041.0 before it can drain out to Symphony park Avenue. However, this water surface elevation will flood the adjacent RETAIL buildings to the south and the RESIDENTIAL UNITS to the east which are lower than 2041.0. Address and resolve in the next submittal.

Response: If Inlet #3 and #4 are clogged, water will pond up to elevation 2039.50 before draining to City Parkway via an emergency overflow path. Grading tags and labels have been added to the grading plan to clearly define the emergency overflow path.

7. Address whether there is an emergency overflow path provided in the courtyard in the northern portion of the site

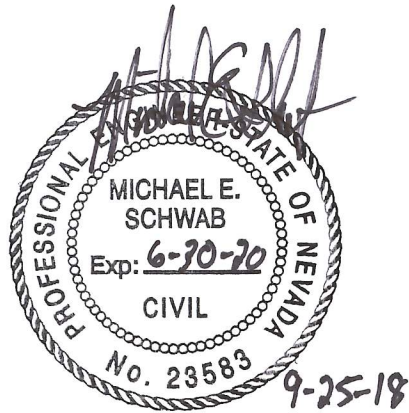
Response: There is an emergency overflow path for the north courtyard that drains to Carson Avenue. Grade tags and labels have been added to the grading plan to clearly define the emergency overflow path.

8. Show the roof drain downspout locations of the PARKING GARAGE and if they connect to any storm drain system in the next submittal.

Response: The roof drain downspout locations and schematic of how they connect to the stormceptor are shown on the grading plan.

We have included one (1) set of the required revised calculations and plans as well as one (1) CD containing the identical information included in this Addendum. Please contact me at 702.790.0206 or michael.schwab@kimley-horn.com should you have any questions or concerns.

Kind regards,
Kimley-Horn and Associates



Michael Schwab, PE

Appendix A – Documents & Figures

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM		DATE: September 17, 2018
TO: Land Development Services Department of Building & Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for:	
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Cross Streets:	NWC of City Pkwy. & Symphony Park Ave.	
File Number:	F:\Depot\DSMemos\DS5034A.doc	
Parcel Number:	139-34-110-009	
Zoning Action:	SDR-73363 & SUP-73362	
FEMA Flood Zone	YES	NO X
Proposed Storm Drain	YES X	NO
		COPIES TO: Kimley-Horn Symphony Park Vegas, LLC Bart Anderson, P.E., DevCo

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TOTAL FEES (LDDRS):				\$400.00	----

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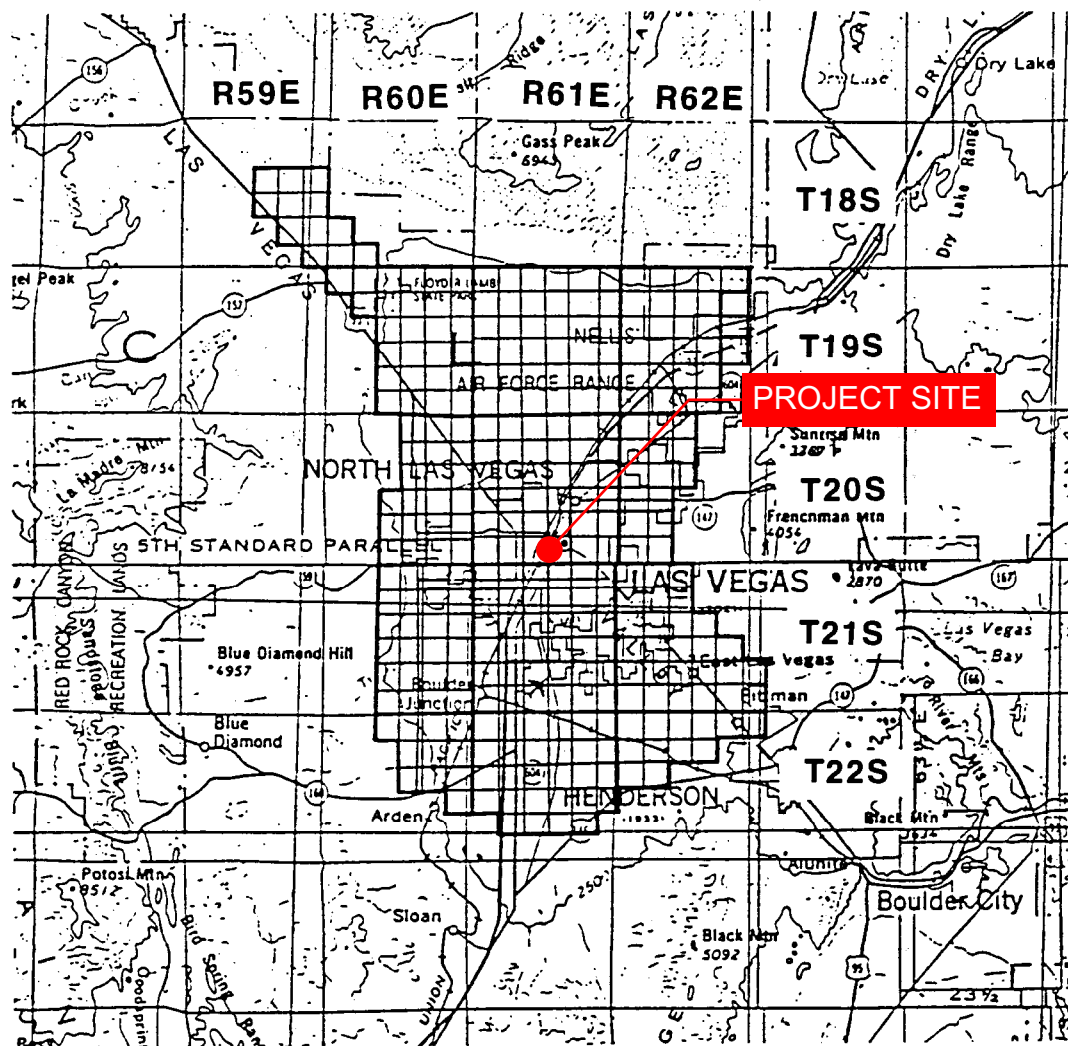
NOTE: Please be advised that all land surface area disturbances over 1 acre or any area adjacent to a water way must submit to the Nevada Division of Environmental Protection a "Notice of Intent" to discharge that certifies a stormwater pollution prevention plan has been developed and is maintained on 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
WSP/AYS

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

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

Appendix B – Hydraulic Sections

Cross Section for HS-3 SYMPHONY PARK Q100 EX COND

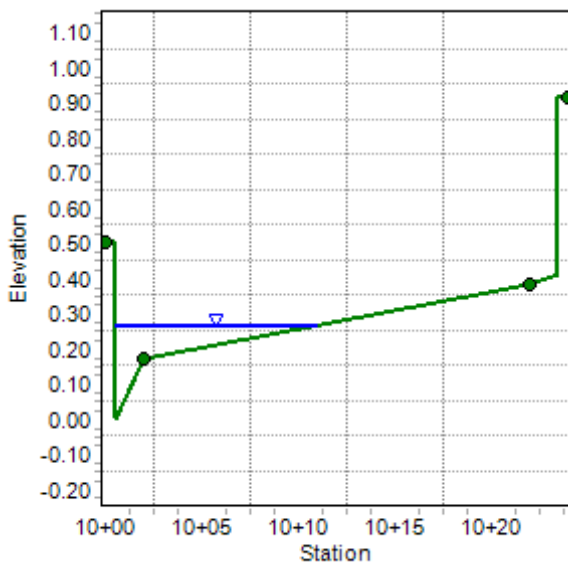
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00960	ft/ft
Normal Depth	0.26	ft
Discharge	1.00	ft ³ /s

Cross Section Image



MAJOR STORM CHECK
 $D*V = (0.26)(1.43) = 0.37 < 8$ OK

Worksheet for HS-3 SYMPHONY PARK Q100 EX COND

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.00960 ft/ft
Discharge 1.00 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
10+00.00	0.50
10+00.50	0.50
10+00.50	0.00
10+02.00	0.17
10+22.00	0.38
10+23.50	0.41
10+23.50	0.91
10+24.00	0.91

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(10+00.00, 0.50)	(10+02.00, 0.17)	0.013
(10+02.00, 0.17)	(10+22.00, 0.38)	0.017
(10+22.00, 0.38)	(10+24.00, 0.91)	0.013

Options

Current Roughness Weighted Method Pavlovskii's Method
Open Channel Weighting Method Pavlovskii's Method
Closed Channel Weighting Method Pavlovskii's Method

Results

Normal Depth 0.26 ft
Elevation Range 0.00 to 0.91 ft
Flow Area 0.70 ft²

Worksheet for HS-3 SYMPHONY PARK Q100 EX COND

Results

Wetted Perimeter	10.82	ft
Hydraulic Radius	0.06	ft
Top Width	10.54	ft
Normal Depth	0.26	ft
Critical Depth	0.26	ft
Critical Slope	0.01006	ft/ft
Velocity	1.43	ft/s
Velocity Head	0.03	ft
Specific Energy	0.30	ft
Froude Number	0.98	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.26	ft
Critical Depth	0.26	ft
Channel Slope	0.00960	ft/ft
Critical Slope	0.01006	ft/ft

Cross Section for HS-4 SYMPHONY PARK AVE 10YR PR COND

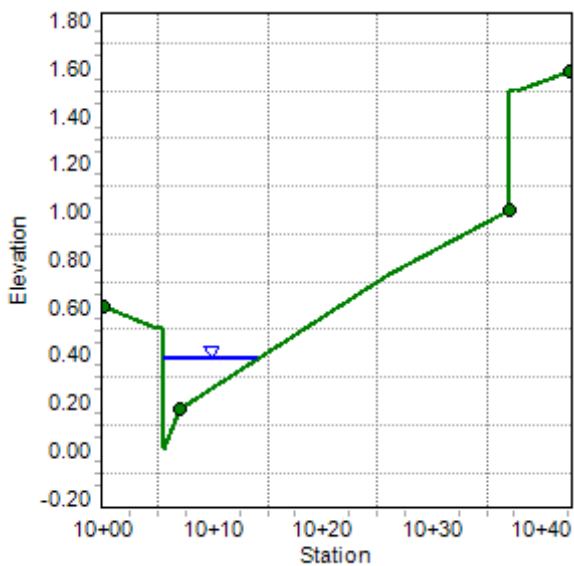
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.00500 ft/ft
Normal Depth 0.38 ft
Discharge 2.00 ft³/s

Cross Section Image



DEPTH OF FLOW

$$WSE = 0.0 + 0.38 = 0.38 < 1 \quad \text{OK}$$

MINOR STORM CHECK

$$D*V = (0.38)(1.68) = 0.64 < 6 \quad \text{OK}$$

Worksheet for HS-4 SYMPHONY PARK AVE 10YR PR COND

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.00500 ft/ft
Discharge 2.00 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
10+00.00	0.60
10+05.00	0.50
10+05.50	0.50
10+05.50	0.00
10+07.00	0.17
10+26.00	0.73
10+37.00	1.00
10+37.00	1.50
10+37.50	1.50
10+42.50	1.58

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(10+00.00, 0.60)	(10+07.00, 0.17)	0.013
(10+07.00, 0.17)	(10+37.00, 1.00)	0.017
(10+37.00, 1.00)	(10+42.50, 1.58)	0.013

Options

Current Roughness Weighted Method Pavlovskii's Method
Open Channel Weighting Method Pavlovskii's Method
Closed Channel Weighting Method Pavlovskii's Method

Results

Normal Depth 0.38 ft

Worksheet for HS-4 SYMPHONY PARK AVE 10YR PR COND

Results

Elevation Range	0.00 to 1.58 ft	
Flow Area	1.19	ft ²
Wetted Perimeter	9.02	ft
Hydraulic Radius	0.13	ft
Top Width	8.63	ft
Normal Depth	0.38	ft
Critical Depth	0.36	ft
Critical Slope	0.00814	ft/ft
Velocity	1.68	ft/s
Velocity Head	0.04	ft
Specific Energy	0.42	ft
Froude Number	0.80	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.38	ft
Critical Depth	0.36	ft
Channel Slope	0.00500	ft/ft
Critical Slope	0.00814	ft/ft

Cross Section for HS-6A - PROMENADE PLACE 10YR PR COND

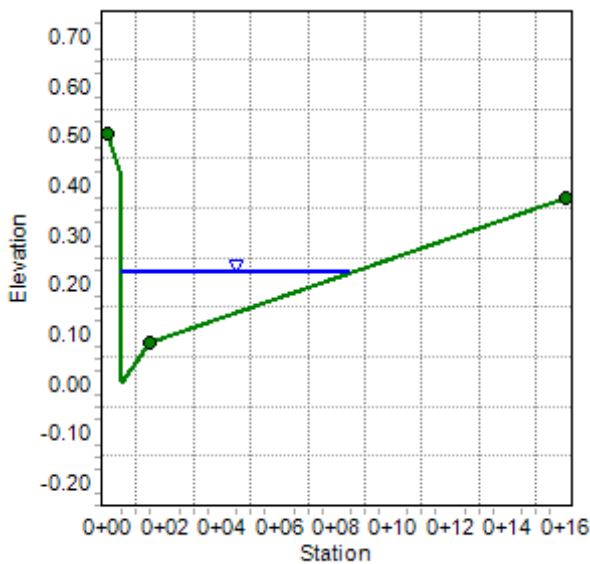
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00700	ft/ft
Normal Depth	0.22	ft
Discharge	1.00	ft ³ /s

Cross Section Image



DEPTH OF FLOW

$$WSE = 0.0 + 0.22 = 0.22 < 1 \quad \text{OK}$$

MINOR STORM CHECK

$$D*V = (0.22)(1.50) = 0.33 < 6 \quad \text{OK}$$

Project Description

Input Data

Worksheet for HS-6A - PROMENADE PLACE 10YR PR COND

Results

Critical Depth	0.22	ft
Critical Slope	0.00850	ft/ft
Velocity	1.50	ft/s
Velocity Head	0.03	ft
Specific Energy	0.26	ft
Froude Number	0.91	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.22	ft
Critical Depth	0.22	ft
Channel Slope	0.00700	ft/ft
Critical Slope	0.00850	ft/ft

Cross Section for HS-6A - PROMENADE PLACE 100YR PR COND

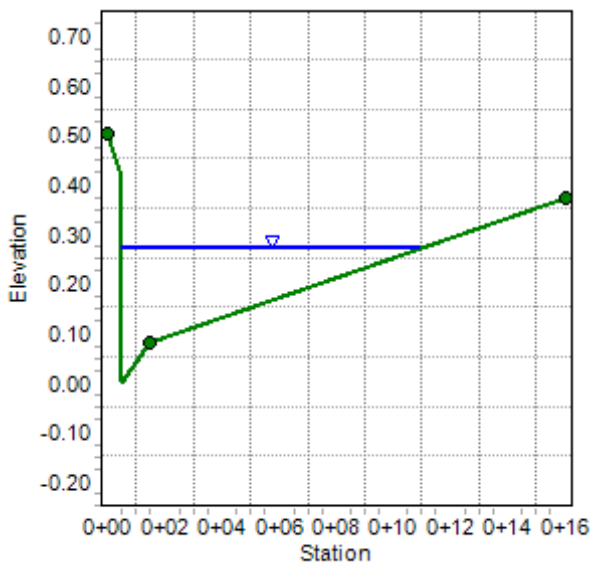
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.00700 ft/ft
Normal Depth 0.27 ft
Discharge 2.00 ft³/s

Cross Section Image



MAJOR STORM CHECK

$$D \cdot V = (0.27)(1.77) = 0.48 < 8 \quad \text{OK}$$

FFE CHECK

$$2D = 2(0.27) = 0.54$$

$$\text{RETAIL FFE} = 2042.50$$

$$\text{FL@BLDG} = 2041.69$$

$$\text{FL} + 2D = 2041.69 + 0.54 = 2042.23$$

$$2042.50 > 2042.23 \text{ BLDG}$$

ADEQUATELY PROTECTED OK

Worksheet for HS-6A - PROMENADE PLACE 100YR PR COND

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.00700 ft/ft
Discharge 2.00 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.41
0+00.50	0.00
0+01.50	0.08
0+16.00	0.37

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+01.50, 0.08)	0.013
(0+01.50, 0.08)	(0+16.00, 0.37)	0.016

Options

Current Roughness Weighted Method Pavlovskii's Method
Open Channel Weighting Method Pavlovskii's Method
Closed Channel Weighting Method Pavlovskii's Method

Results

Normal Depth 0.27 ft
Elevation Range 0.00 to 0.50 ft
Flow Area 1.13 ft²
Wetted Perimeter 10.76 ft
Hydraulic Radius 0.11 ft
Top Width 10.48 ft
Normal Depth 0.27 ft

Worksheet for HS-6A - PROMENADE PLACE 100YR PR COND

Results

Critical Depth	0.27	ft
Critical Slope	0.00784	ft/ft
Velocity	1.77	ft/s
Velocity Head	0.05	ft
Specific Energy	0.32	ft
Froude Number	0.95	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.27	ft
Critical Depth	0.27	ft
Channel Slope	0.00700	ft/ft
Critical Slope	0.00784	ft/ft

Cross Section for HS-6B-PROMENADE PLACE 10YR PR COND

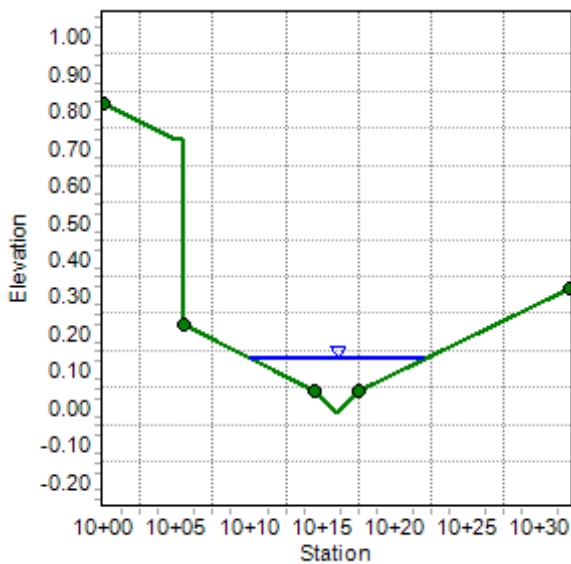
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00700	ft/ft
Normal Depth	0.15	ft
Discharge	1.00	ft ³ /s

Cross Section Image



DEPTH OF FLOW

$$WSE = 0.0 + 0.15 = 0.15 < 1 \quad \text{OK}$$

MINOR STORM CHECK

$$D*V = (0.15)(1.30) = 0.20 < 6 \quad \text{OK}$$

Worksheet for HS-6B-PROMENADE PLACE 10YR PR COND

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.00700 ft/ft
Discharge 1.00 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
10+00.00	0.82
10+05.00	0.72
10+05.50	0.72
10+05.50	0.22
10+14.50	0.04
10+16.00	-0.02
10+17.50	0.04
10+32.00	0.32

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(10+00.00, 0.82)	(10+05.50, 0.22)	0.013
(10+05.50, 0.22)	(10+14.50, 0.04)	0.016
(10+14.50, 0.04)	(10+17.50, 0.04)	0.013
(10+17.50, 0.04)	(10+32.00, 0.32)	0.016

Options

Current Roughness Weighted Method Pavlovskii's Method
Open Channel Weighting Method Pavlovskii's Method
Closed Channel Weighting Method Pavlovskii's Method

Results

Normal Depth 0.15 ft
Elevation Range -0.02 to 0.82 ft

Worksheet for HS-6B-PROMENADE PLACE 10YR PR COND

Results

Flow Area	0.77	ft ²
Wetted Perimeter	12.15	ft
Hydraulic Radius	0.06	ft
Top Width	12.15	ft
Normal Depth	0.15	ft
Critical Depth	0.15	ft
Critical Slope	0.00868	ft/ft
Velocity	1.30	ft/s
Velocity Head	0.03	ft
Specific Energy	0.18	ft
Froude Number	0.91	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.15	ft
Critical Depth	0.15	ft
Channel Slope	0.00700	ft/ft
Critical Slope	0.00868	ft/ft

Cross Section for HS-6B-PROMENADE PLACE 100YR PR COND

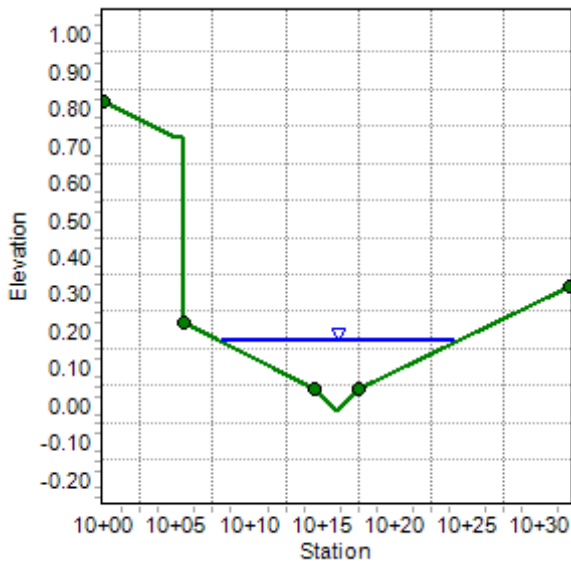
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00700	ft/ft
Normal Depth	0.19	ft
Discharge	2.00	ft ³ /s

Cross Section Image



MAJOR STORM CHECK

$$D \cdot V = (0.19)(1.51) = 0.29 < 8 \quad \text{OK}$$

FFE CHECK

$$2D = 2(0.19) = 0.38$$

$$\text{RETAIL FFE} = 2042.00$$

$$\text{FL@BLDG} = 2041.04$$

$$\text{FL} + 2D = 2041.04 + 0.38 = 2041.42$$

$$2042.00 > 2041.42 \text{ BLDG}$$

ADEQUATELY PROTECTED OK

$$\text{OFFICE FFE} = 2041.50$$

$$\text{FL@BLDG} = 2040.54$$

$$\text{FL} + 2D = 2040.54 + 0.38 = 2040.92$$

$$2041.50 > 2040.92 \text{ BLDG}$$

ADEQUATELY PROTECTED OK

Worksheet for HS-6B-PROMENADE PLACE 100YR PR COND

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.00700 ft/ft
Discharge 2.00 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
10+00.00	0.82
10+05.00	0.72
10+05.50	0.72
10+05.50	0.22
10+14.50	0.04
10+16.00	-0.02
10+17.50	0.04
10+32.00	0.32

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(10+00.00, 0.82)	(10+05.50, 0.22)	0.013
(10+05.50, 0.22)	(10+14.50, 0.04)	0.016
(10+14.50, 0.04)	(10+17.50, 0.04)	0.013
(10+17.50, 0.04)	(10+32.00, 0.32)	0.016

Options

Current Roughness Weighted Method Pavlovskii's Method
Open Channel Weighting Method Pavlovskii's Method
Closed Channel Weighting Method Pavlovskii's Method

Results

Normal Depth 0.19 ft
Elevation Range -0.02 to 0.82 ft

Worksheet for HS-6B-PROMENADE PLACE 100YR PR COND

Results

Flow Area	1.32	ft ²
Wetted Perimeter	16.11	ft
Hydraulic Radius	0.08	ft
Top Width	16.10	ft
Normal Depth	0.19	ft
Critical Depth	0.19	ft
Critical Slope	0.00812	ft/ft
Velocity	1.51	ft/s
Velocity Head	0.04	ft
Specific Energy	0.23	ft
Froude Number	0.93	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.19	ft
Critical Depth	0.19	ft
Channel Slope	0.00700	ft/ft
Critical Slope	0.00812	ft/ft

Cross Section for HS-11-CITY PARKWAY 100YR PR COND

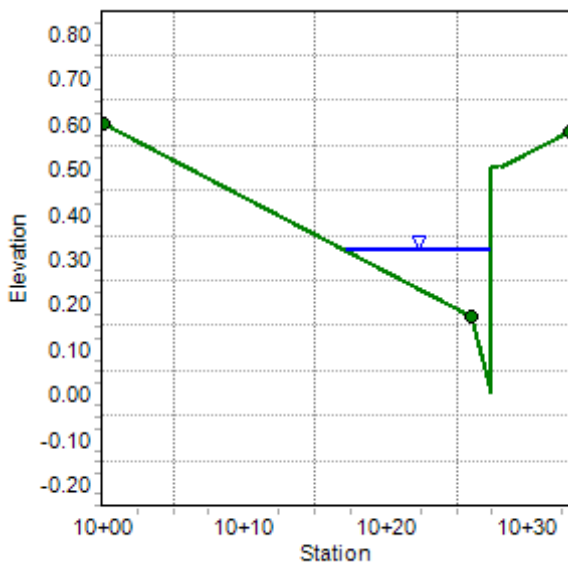
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.01200 ft/ft
Normal Depth 0.32 ft
Discharge 2.00 ft³/s

Cross Section Image



MAJOR STORM CHECK

$$D*V = (0.32)(2.04) = 0.65 < 8 \quad \text{OK}$$

FFE CHECK

$$2D = 2(0.32) = 0.64$$

$$\text{FFE} = 2040.17$$

$$\text{FL@BLDG} = 2038.84$$

$$\text{FL} + 2D = 2038.84 + 0.64 = 2039.48$$

$$2040.17 > 2039.48 \text{ BLDG}$$

ADEQUATELY PROTECTED OK

$$\text{FFE} = 2040.00$$

$$\text{FL@BLDG} = 2037.80$$

$$\text{FL} + 2D = 2037.80 + 0.64 = 2038.44$$

$$2040.00 > 2038.44 \text{ BLDG}$$

ADEQUATELY PROTECTED OK

Worksheet for HS-11-CITY PARKWAY 100YR PR COND

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.01200 ft/ft
Discharge 2.00 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
10+00.00	0.60
10+26.00	0.17
10+27.50	0.00
10+27.50	0.50
10+28.00	0.50
10+33.00	0.58

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(10+00.00, 0.60)	(10+26.00, 0.17)	0.017
(10+26.00, 0.17)	(10+33.00, 0.58)	0.013

Options

Current Roughness Weighted Method Pavlovskii's Method
Open Channel Weighting Method Pavlovskii's Method
Closed Channel Weighting Method Pavlovskii's Method

Results

Normal Depth 0.32 ft
Elevation Range 0.00 to 0.60 ft
Flow Area 0.98 ft²
Wetted Perimeter 10.61 ft
Hydraulic Radius 0.09 ft
Top Width 10.28 ft

Worksheet for HS-11-CITY PARKWAY 100YR PR COND

Results

Normal Depth	0.32	ft
Critical Depth	0.33	ft
Critical Slope	0.00875	ft/ft
Velocity	2.04	ft/s
Velocity Head	0.06	ft
Specific Energy	0.38	ft
Froude Number	1.16	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.32	ft
Critical Depth	0.33	ft
Channel Slope	0.01200	ft/ft
Critical Slope	0.00875	ft/ft

Appendix C – Reference Plans

DEPARTMENT OF PUBLIC WORKS

Mayor:
CAROLYN G. GOODMAN

City Council:
LOIS TARKANIAN (MAYOR PRO-TEM)
STAVROS S. ANTHONY
BOB COFFIN
STEVEN G. SEROKA
MICHELE FIORE
CEDRIC CREAR

City Manager:
SCOTT D. ADAMS

Director of Public Works:
MIKE JANSSEN, P.E. (ACTING)
City Engineer:
ALLEN E. PAVELKA, P.E.



PRELIMINARY -
NOT FOR
CONSTRUCTION

Funded By:
CITY OF LAS VEGAS
RTC OF SOUTHERN NEVADA

SYMPHONY  PARK

***PROMENADE PLACE &
CARSON AVE. OFFSITE
IMPROVEMENTS***

Reviewed By:

CLV CITY ENGINEER _____ DATE _____

CLV PROJECT MANAGER
DATE

CLV CITY TRAFFIC ENGINEER _____ DATE _____

CLV CONSTRUCTION MANAGER _____ DATE _____

N/A	
CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT	DATE

REGIONAL TRANSPORTATION COMMISSION OF SOUTHERN NEVADA	DATE
--	------

SOUTHWEST GAS CORPORATION DATE

CENTRAL TELEPHONE COMPANY, d/b/a CENTURYLINK DATE

THE AFFIXED CENTURYLINK NEVADA APPROVAL DOES NOT ASSUME OR GUARANTEE LIABILITY FOR KNOWN OR UNKNOWN CONFLICTS WITH EXISTING OR PROPOSED IMPROVEMENTS. RESOLUTION OF ANY CONFLICT WILL BE ACCOMPLISHED PURSUANT TO LOCAL ORDINANCES, NEVADA REVISED STATUTES AND/OR PUBLIC UTILITY COMMISSION STANDARD REGULATIONS.

COX COMMUNICATIONS LAS VEGAS, INC.	DATE
------------------------------------	------

NV ENERGY – DISTRIBUTION	DATE
--------------------------	------

NV ENERGY ACKNOWLEDGES THAT WE HAVE RECEIVED YOUR PLANS AND WILL PROVIDE SERVICE TO ALL ELECTRICAL NEEDS ASSOCIATED WITH THIS PROJECT. NV ENERGY RESERVES THE RIGHT TO ADDRESS ANY EXISTING OR FUTURE CONFLICTS ONCE THE FINAL DESIGN IS COMPLETED. THE NEW SERVICE AND THE RESOLUTION OF ANY CONFLICTS WILL BE ACCOMPLISHED PURSUANT TO THE NEVADA PUBLIC UTILITY COMMISSION'S RULES AND REGULATIONS.

N/A	
NV ENERGY – TRANSMISSION	DATE

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT No. 126442 FIRST APPROVED DATE: _____
 SHEET: GN1-GN3, TYP1, DT1, DD1-DD4, WT1-WT3, UTD1-UTD3
 THIS PROJECT PROVIDES FOR THE INSTALLATION OF OFF-SITE WATER
 MAINS ONLY, AND DOES NOT PROVIDE OR IMPLY ANY WATER COMMITMENT

THE SIGNATURE ABOVE ACKNOWLEDGES THAT THE UTILITY COMPANY REPRESENTATIVE HAS REVIEWED THE PLANS, AND THAT TO THE BEST OF HIS OR HER KNOWLEDGE THE UTILITY LINES ARE SHOWN IN THE CORRECT LOCATIONS AND ARE THE CORRECT SIZES. WHILE SUCH DATA HAS BEEN COLLECTED WITH REASONABLE CARE, THERE IS NO EXPRESSED OR IMPLIED GUARANTEE THAT THE LOCATIONS ARE EXACT. THE CONTRACTOR SHALL BEAR THE RESPONSIBILITY OF OBTAINING THE ACTUAL FIELD LOCATIONS.

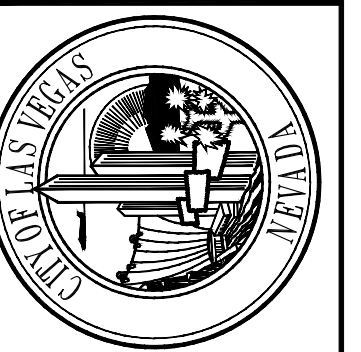
THE SIGNATURE ABOVE FURTHER ACKNOWLEDGES THAT THE UTILITY COMPANY DOES NOT ANTICIPATE CONSTRUCTION OR MAINTENANCE IN THE PROJECT AREA FOR FIVE (5) YEARS IN CONFORMANCE WITH THE CLV NO-CUT POLICY.

[illegible]

SCALE (H):	—	SCALE (V):	—	DATE:	JULY 9, 2018
------------	---	------------	---	-------	--------------

Kimley»Horn

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 6671 LAS VEGAS BLVD., SUITE 200, LAS VEGAS, NV 89119
 PHONE: 702-862-3600
WWW.KIMLEY-HORN.COM



PUBLIC WORKS

PROJECT:

SYMPHONY PARK

PROMENADE PLACE & CARSON

WAVE. OFF-SITE IMPROVEMENTS

DEPARTMENT OF

SHEET:

COVER SHEET

10% SUBMITTAL
NOT FOR CONSTRUCTION

SHEET NUMBER

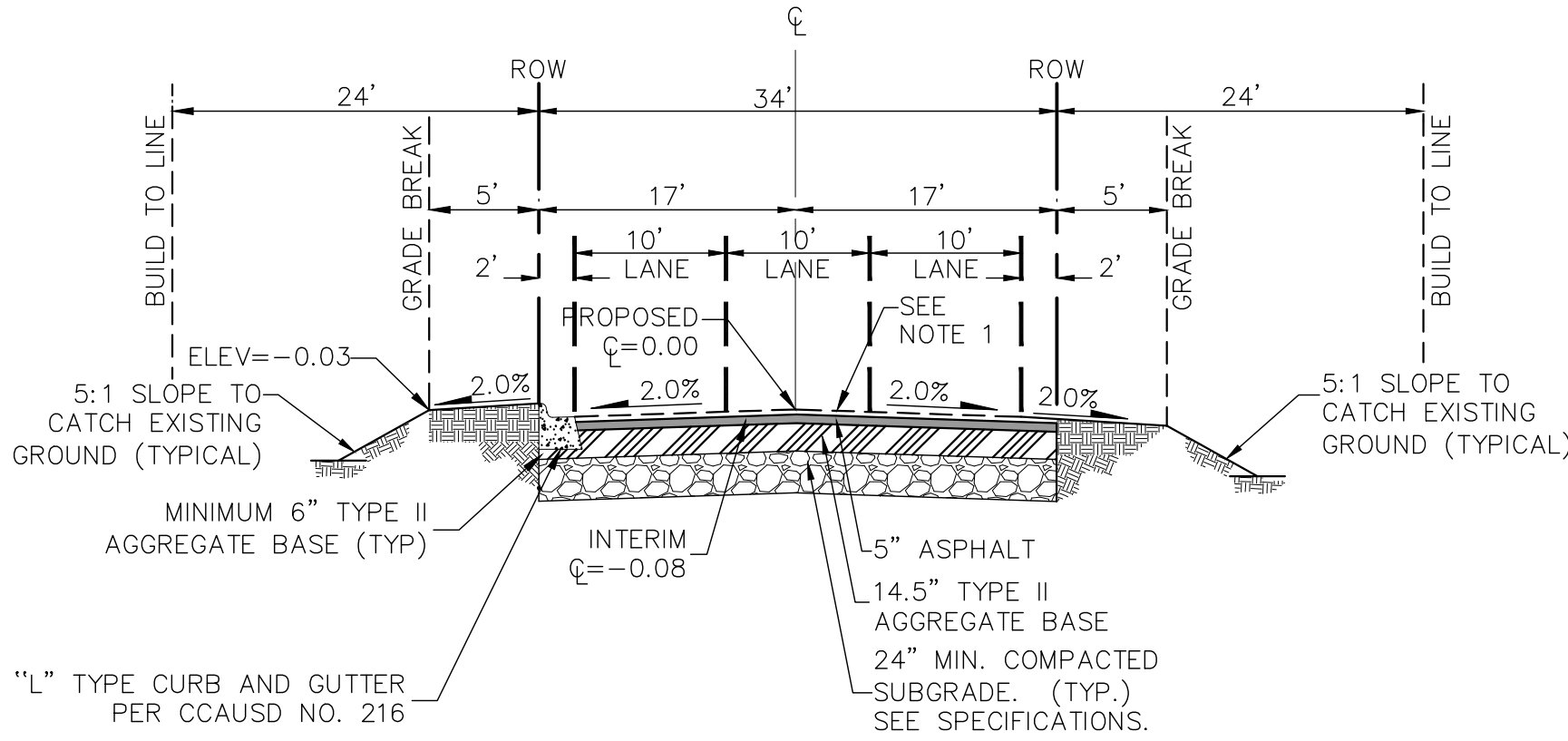
GN-1

SHEET 1 OF 27

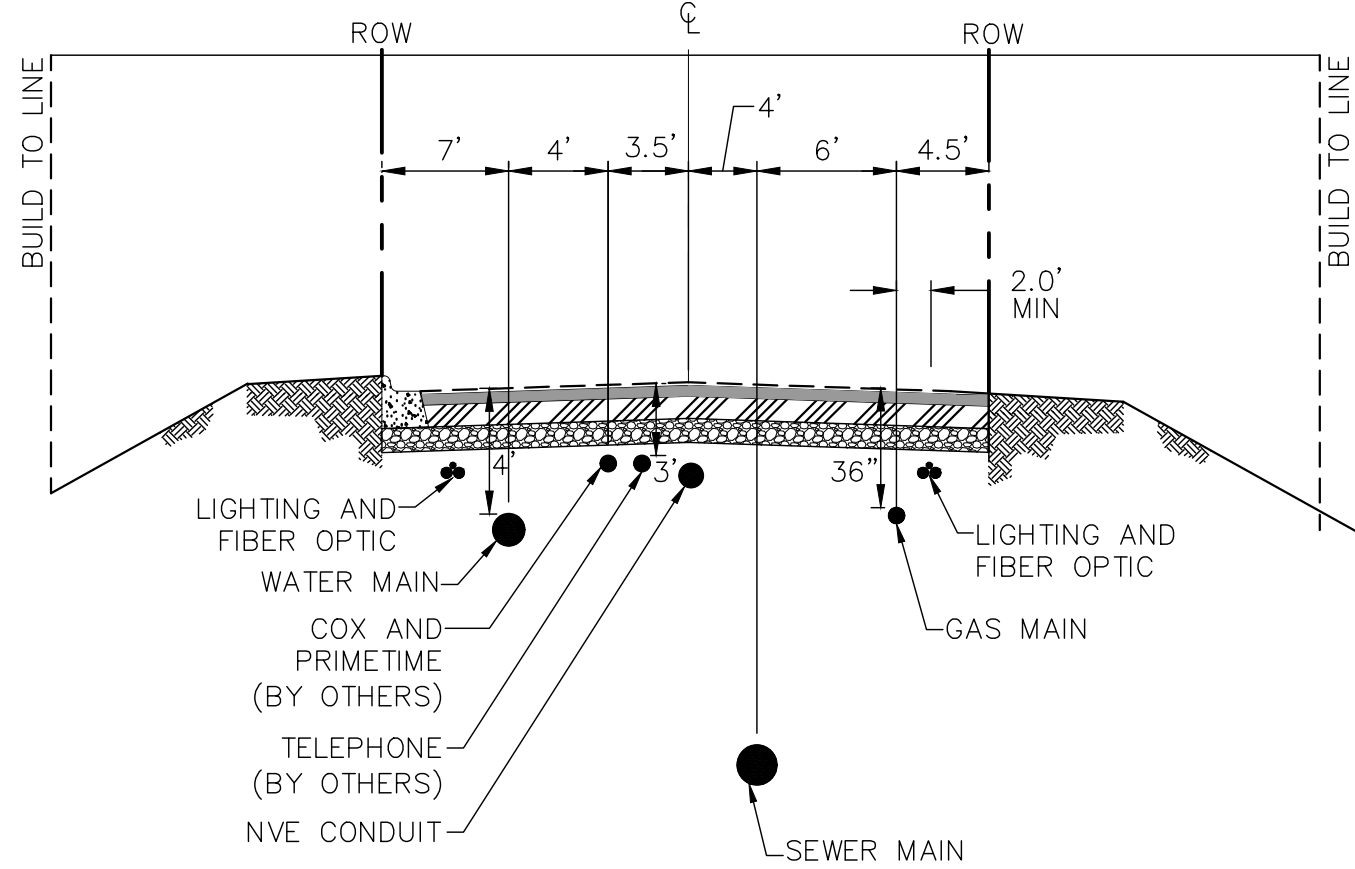
CLV HANDBOOK #6028

ENCLOSURE

Plotted By: Ortiz, Tony Sheet Set: kha Layout: TYP-1 August 14, 2018 04:36:52pm K:\LAV_Civil\092256032 - Symphony Park\CAD\Packages\Parcel C Offsites\Plansheets\092256032-DT.dwg
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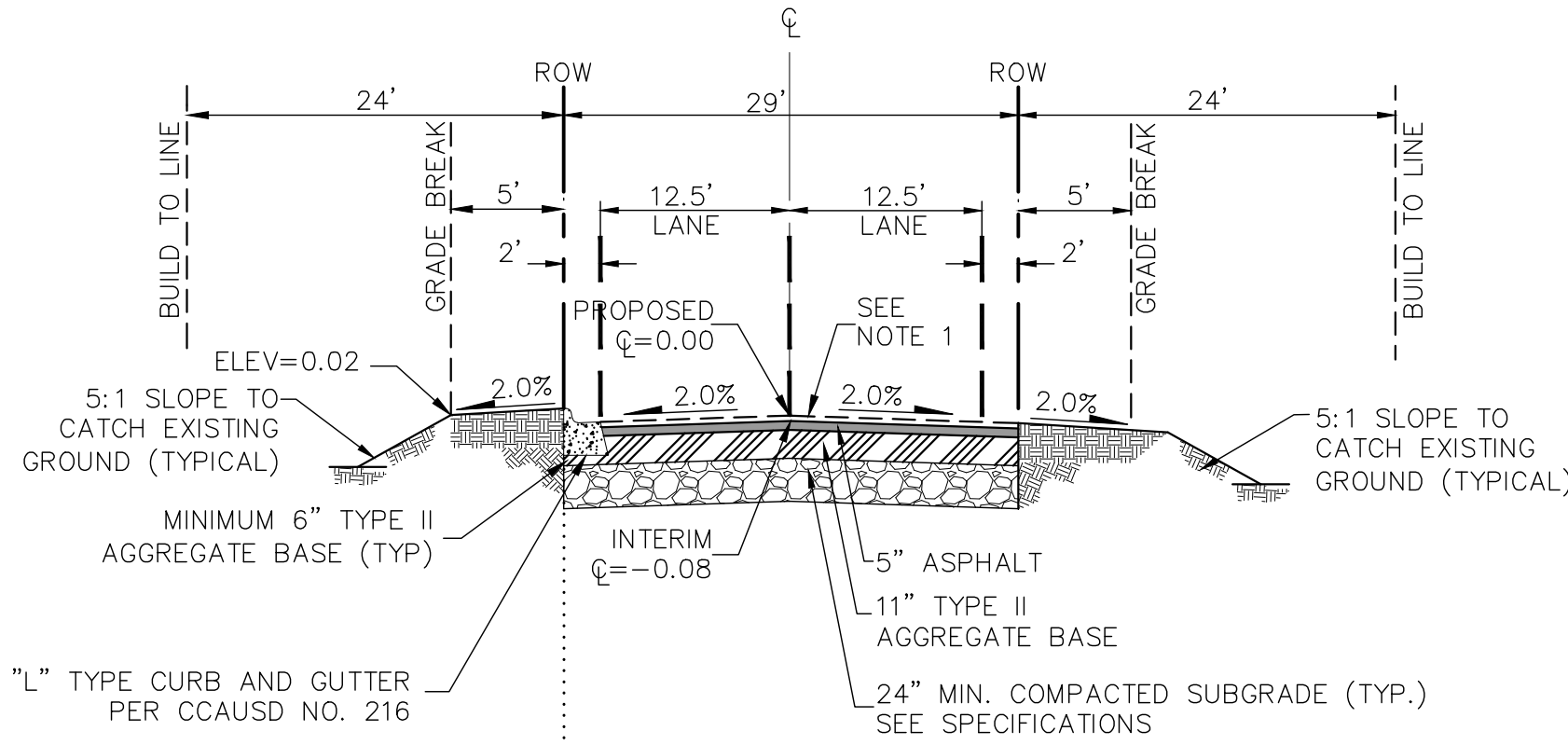


A WEST CARSON AVE
STA 102+79 TO 105+88
NOT TO SCALE



C PROMENADE PLACE TYPICAL UTILITIES SECTION
NOT TO SCALE

PRELIMINARY -
NOT FOR
CONSTRUCTION



B PROMENADE PLACE
STA 24+00 TO 30+29
NOT TO SCALE

NOTES
1. THE ASPHALT SURFACE HAS BEEN SET 1" LOWER THAN FINAL FINISHED GRADE FOR FUTURE UTILITY CONNECTIONS. THE FINAL 1" UTACS OVERLAY SHALL BE INSTALLED BY OTHERS.

APPROVED FOR CONSTRUCTION
LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT No. 126442 FIRST APPROVED DATE:

Call before you dig
1-702-432-5300
1-800-227-2600

Call before you dig
1-702-432-5300
1-800-227-2600

Call before you dig
1-702-432-5300
1-800-227-2600

DEPARTMENT OF PUBLIC WORKS

PROJECT: SYMPHONY PARK
PROMENADE PLACE & CARSON AVE, OFF-SITE IMPROVEMENTS

SHEET: TYP-1

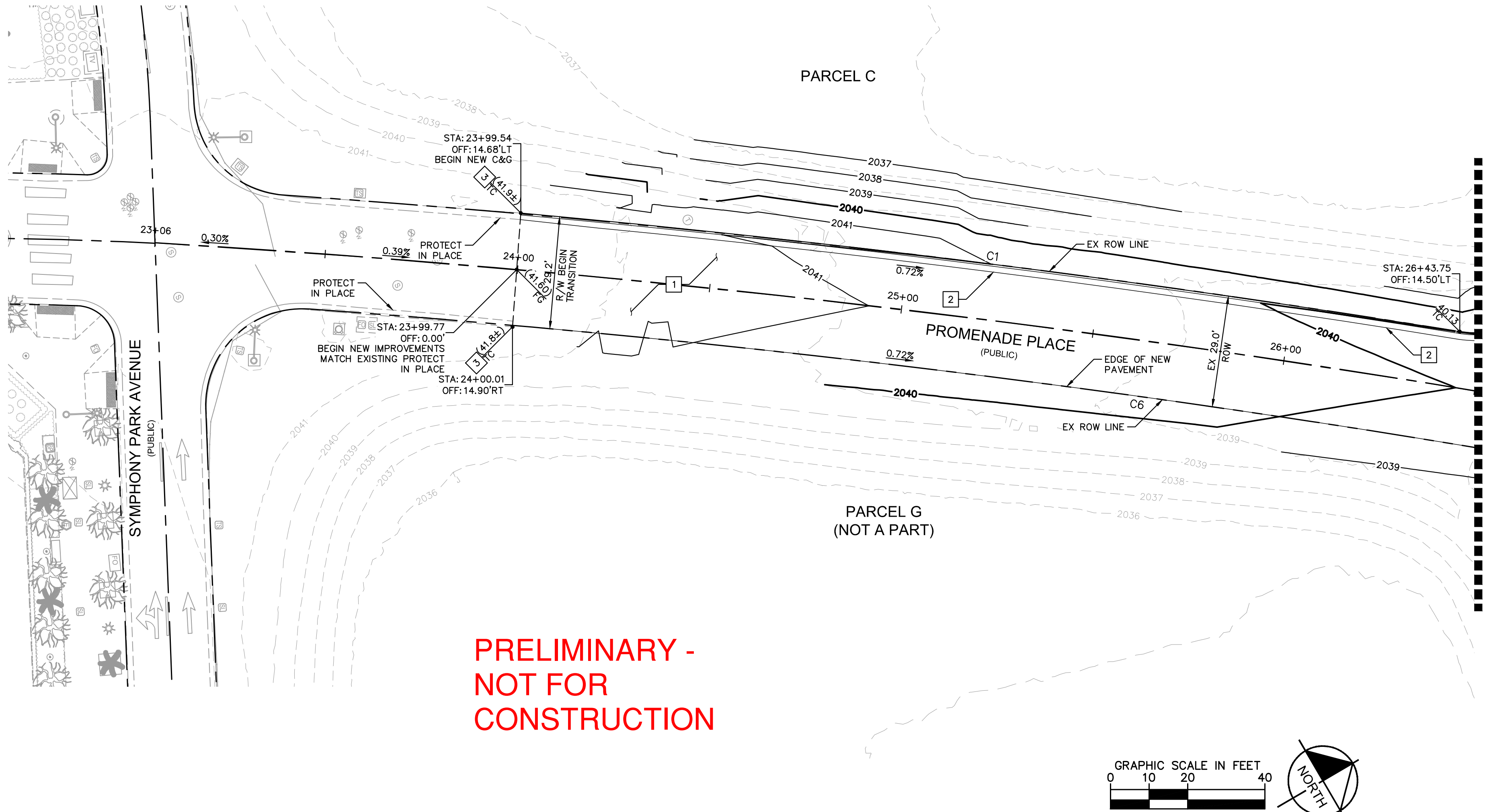
90% SUBMITTAL
NOT FOR CONSTRUCTION

Kimley-Horn

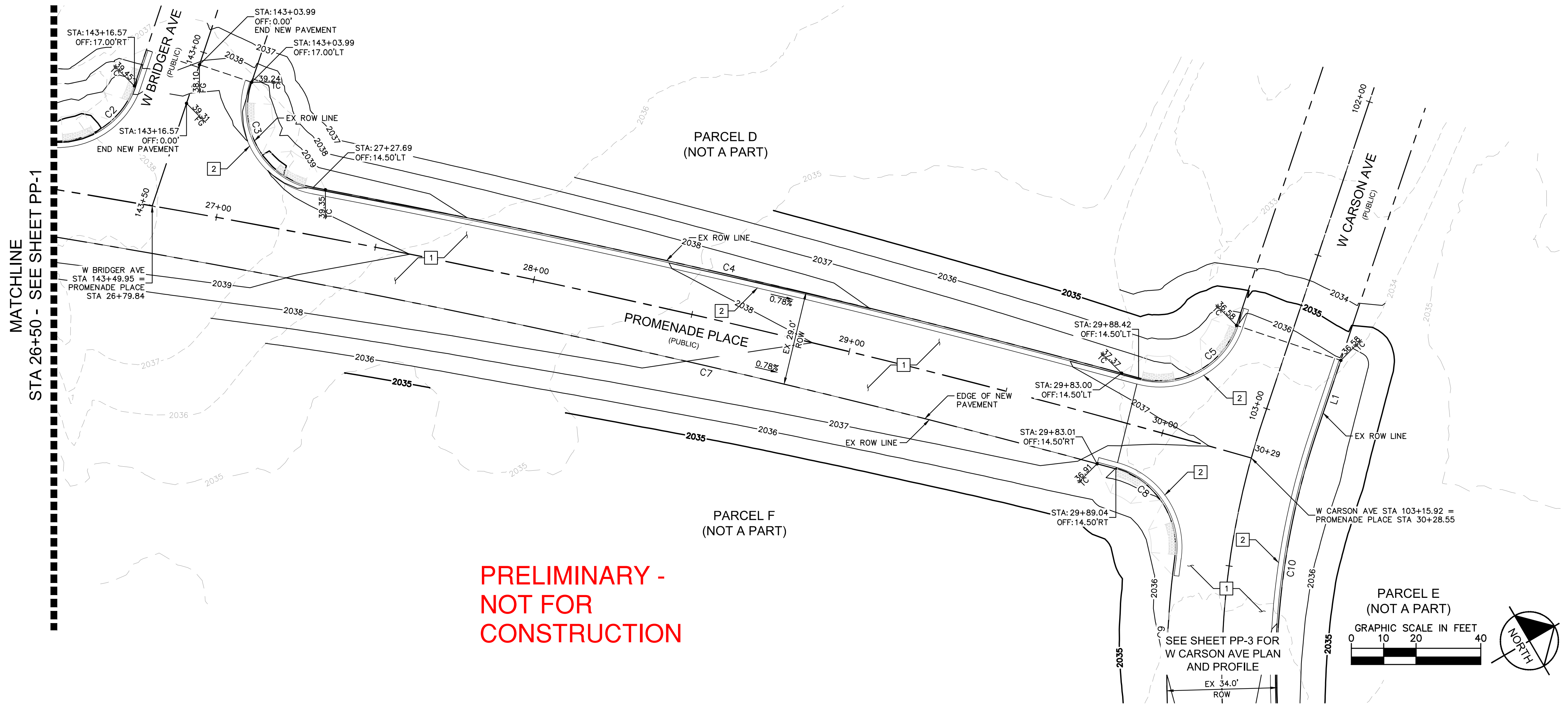
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6671 LAS VEGAS BLVD., SUITE 320 LAS VEGAS, NV 89119
PHONE: 702-862-3600
WWW.KIMLEY-HORN.COM

092256032 - PARCEL C OFFSITE IMPROVEMENTS

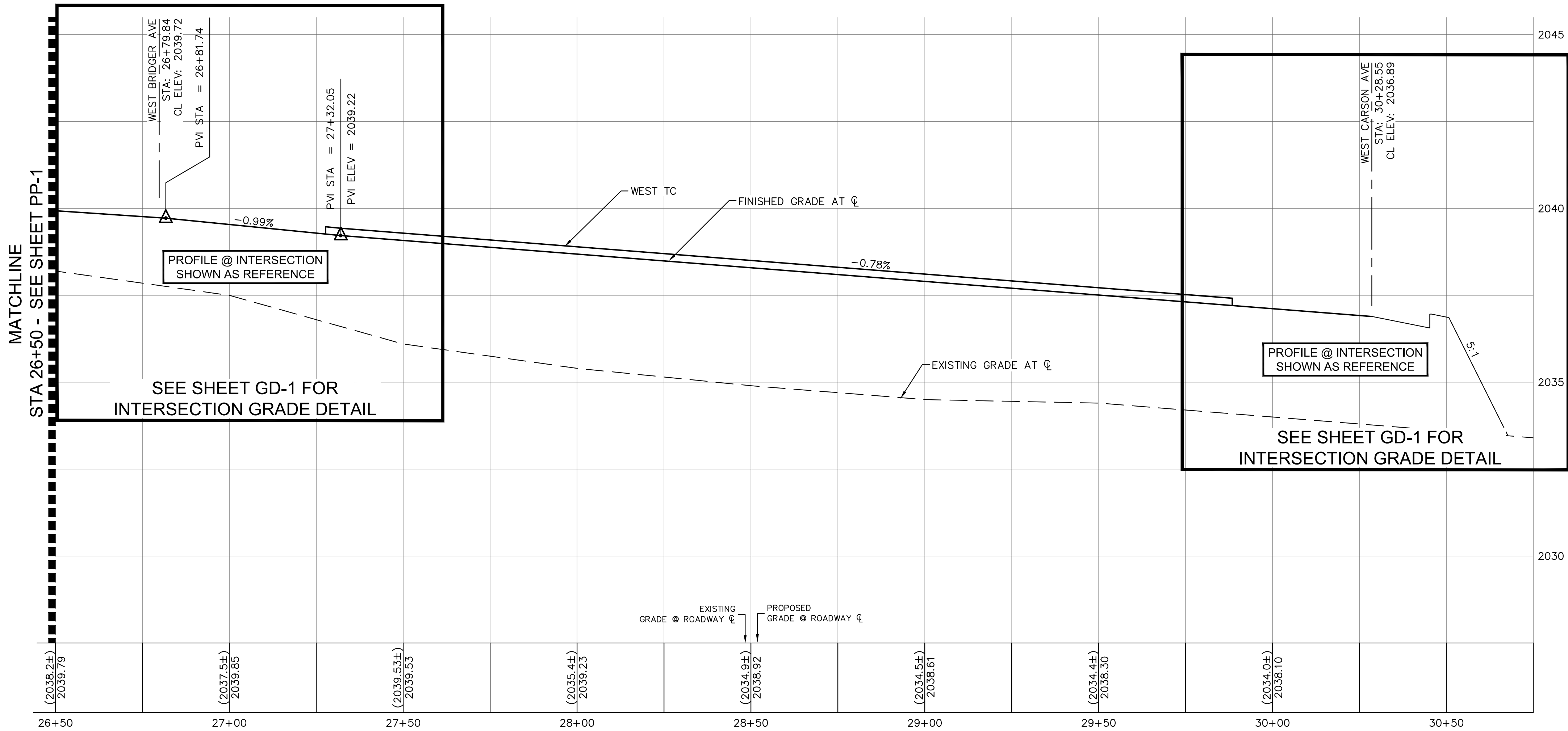
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Plotted By: Ortiz, Tony Sheet Set: kha Layout: PP-2 August 14, 2018 04:39:58pm K:\LAV-Civil\092256032 - Symphony Park\CAD Packages\Parcel C Offsites\Plan Sheets\092256032-PP-Promenade.dwg
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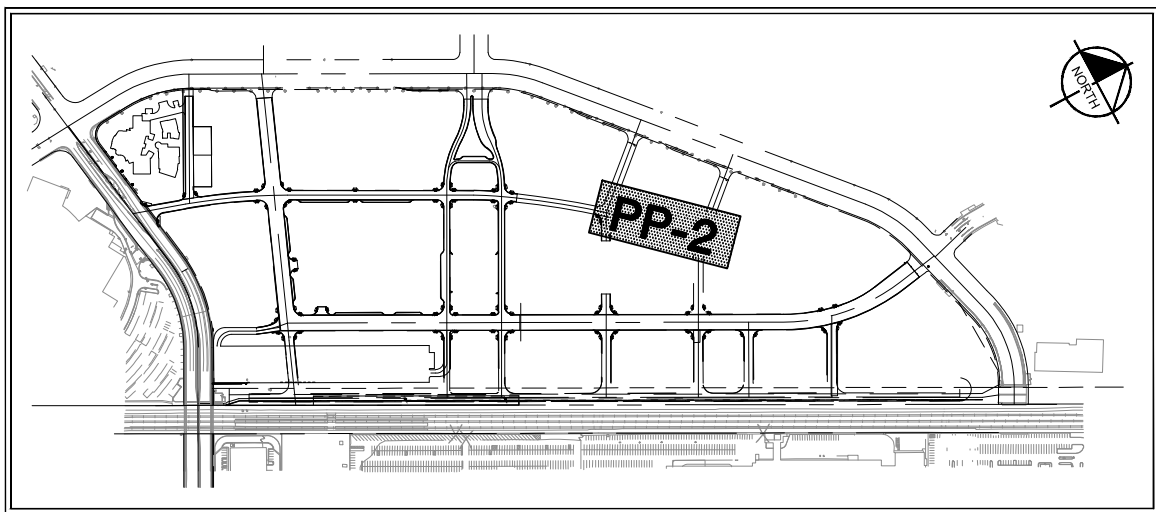


PLAN VIEW - PROMENADE PLACE



PROFILE VIEW - PROMENADE PLACE

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



KEY MAP

GENERAL NOTES

- REFER TO SHEET GD-1 FOR INTERSECTION GRADING
- ADD 2000 FEET TO ALL 2-DIGIT SPOT ELEVATIONS.

ROADWAY CONSTRUCTION NOTES

- INSTALL PAVEMENT SECTION TO LIMITS SHOWN ON PLANS. SEE TYPICAL SECTIONS SHEETS TYP-1 FOR STRUCTURAL DIMENSIONS AND DETAILS
- INSTALL "L" TYPE CURB AND GUTTER PER CCAUSD NO. 216
- INSTALL CONSTRUCTION JOINT

LINE TABLE		
LINE	LENGTH	BEARING
L1	24.36	N41°16'08.57"W

CURVE TABLE						
CURVE	RADIUS	LENGTH	CHORD BEARING	CHORD	DELTA	TANGENT
C2	25.00'	35.24'	S0°53'21"E	32.39'	80°45'11"	21.26'
C3	25.00'	42.67'	S89°50'14"W	37.68'	97°47'38"	28.65'
C4	3324.50'	261.87'	S43°11'49"W	261.80'	4°30'48"	131.00'
C5	25.00'	37.84'	S2°05'32"W	34.33'	86°43'21"	23.61'
C7	3295.50'	260.20'	N43°12'08"E	260.14'	4°31'26"	130.17'
C8	25.00'	36.00'	N86°43'17"E	32.97'	82°30'50"	21.93'
C9	267.00'	46.25'	S56°59'04"E	46.20'	9°55'32"	23.18'
C10	233.00'	84.09'	N51°36'30"W	83.64'	20°40'42"	42.51'

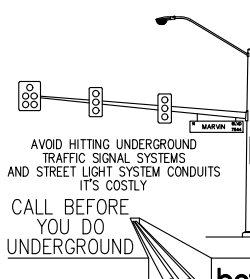
BASIS OF BEARING

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS AND LAS VEGAS HIGH ELEVATION ZONES, NORTH AMERICAN DATUM OF 1983 SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN, THE REFERENCE FRAME UTILIZED BEING NAD 83 (2011) EPOCH 2010.0.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK 8LV0133NE6, BEING A RIVET & PLATE IN TOP OF CURB ON THE SOUTHWEST CORNER OF SYMPHONY PARK AVENUE AND GRAND CENTRAL PARKWAY.

ELEVATION: 2034.12' (NAVD88 - 2008 CLV ADJUSTMENT)



Call before you dig

Call before you dig

Call before you dig

Call before you dig

Call before you dig

Call before you dig

Call before you dig

Call before you dig

Call before you dig

Call before you dig

DEPARTMENT OF PUBLIC WORKS

PROJECT: SYMPHONY PARK

PROMENADE PLACE & CARSON AVE. OFF-SITE IMPROVEMENTS

SHEET: PLAN AND PROFILE - PROMENADE PLACE

STA 26+50 - 30+29

90% SUBMITTAL

NOT FOR CONSTRUCTION

SHEET NUMBER

PP-2

SHEET 9 OF 27

CLV HANSEN #6031

REVISION

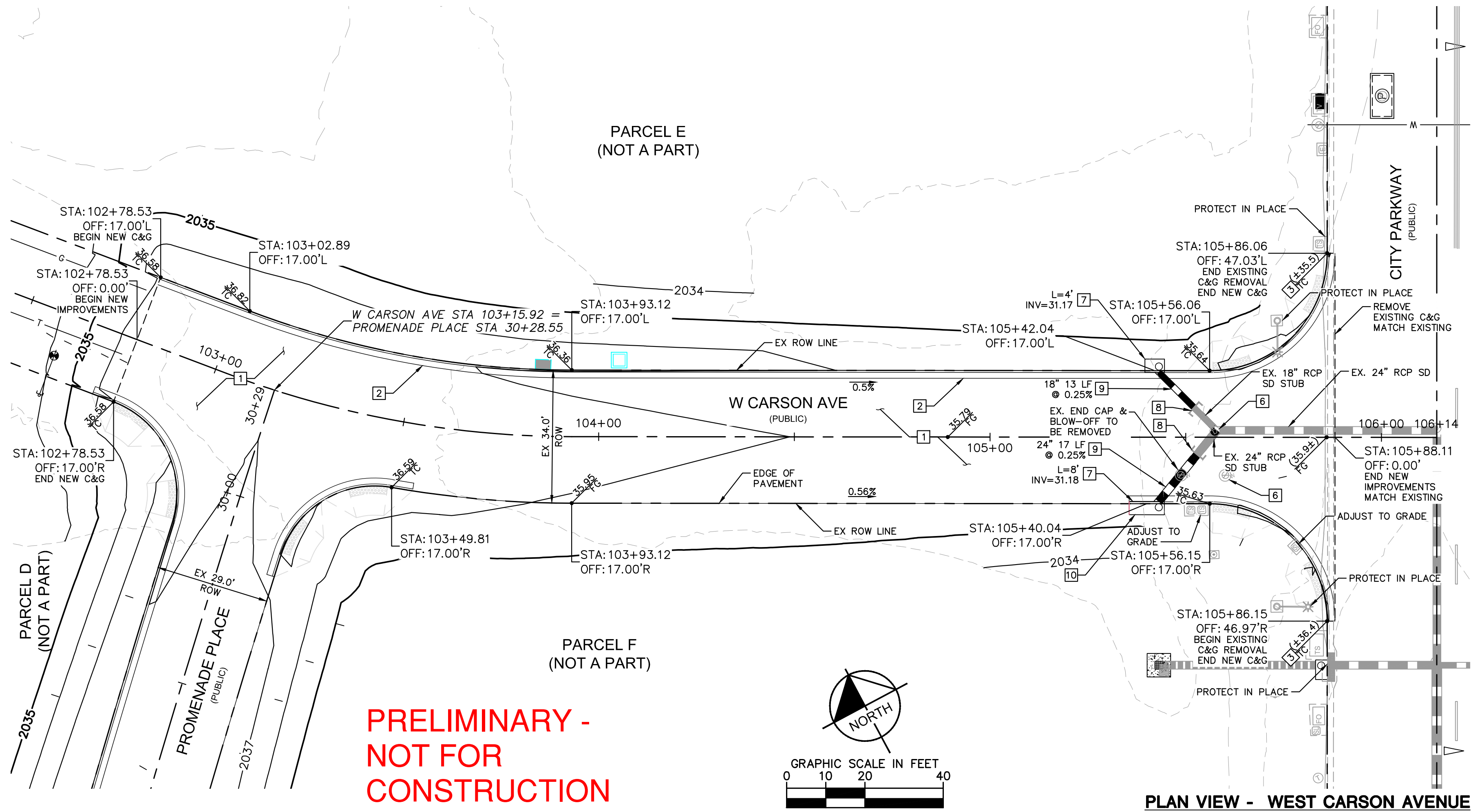
DATE

BY

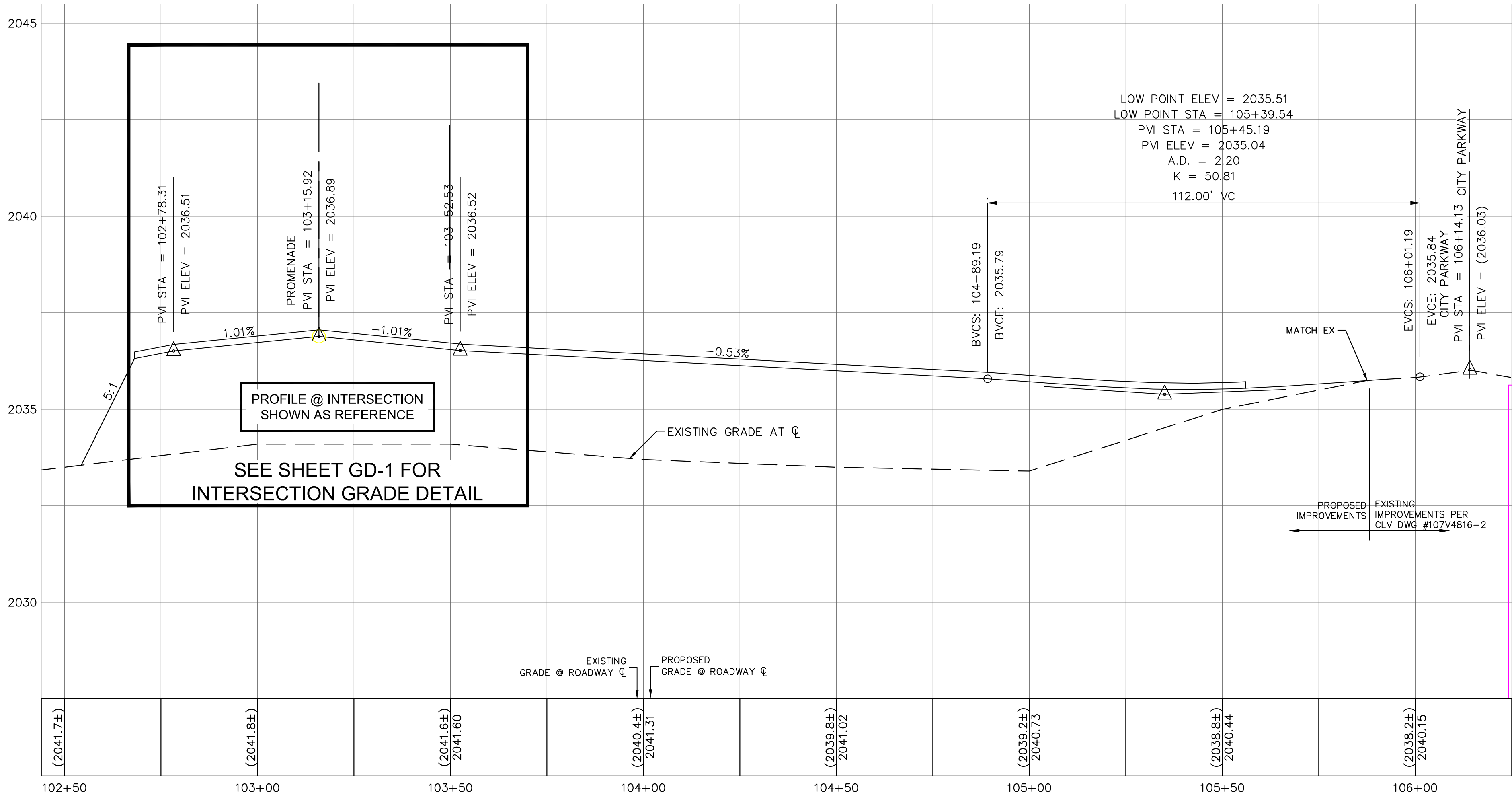
REV

092256032 - PARCEL C OFFSITE IMPROVEMENTS

Plotted By: Ortiz, Tony Sheet Set: kha Layout: PLAN AND PROFILE - WEST CARSON AVE. August 14, 2018 04:41:37pm K:\LAV-Civil\092256032 - Symphony Park\CAD\Plotsheets\092256032-PP-Carson.dwg
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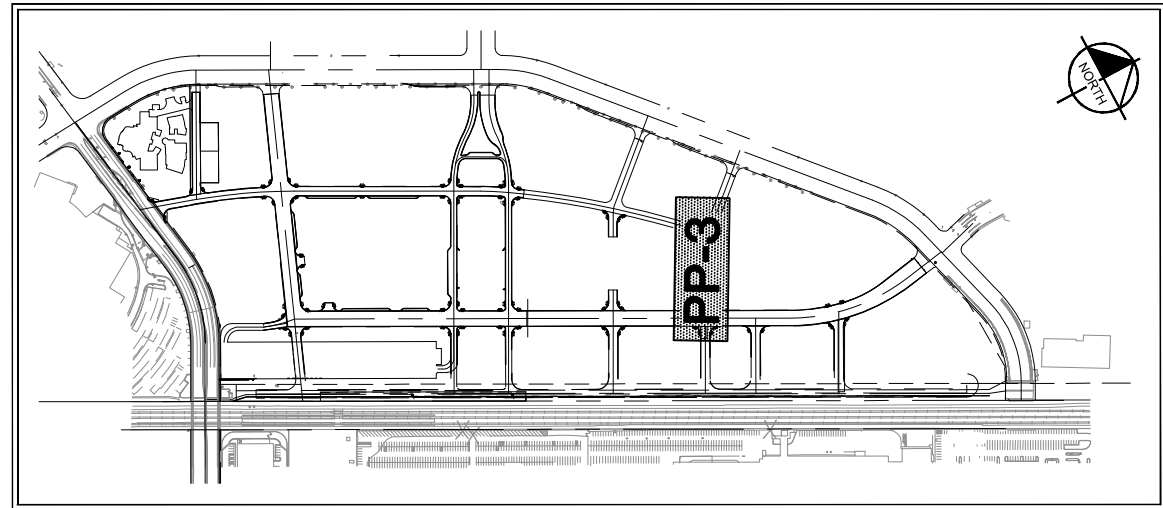


PLAN VIEW - WEST CARSON AVENUE



PROFILE VIEW - WEST CARSON AVENUE

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



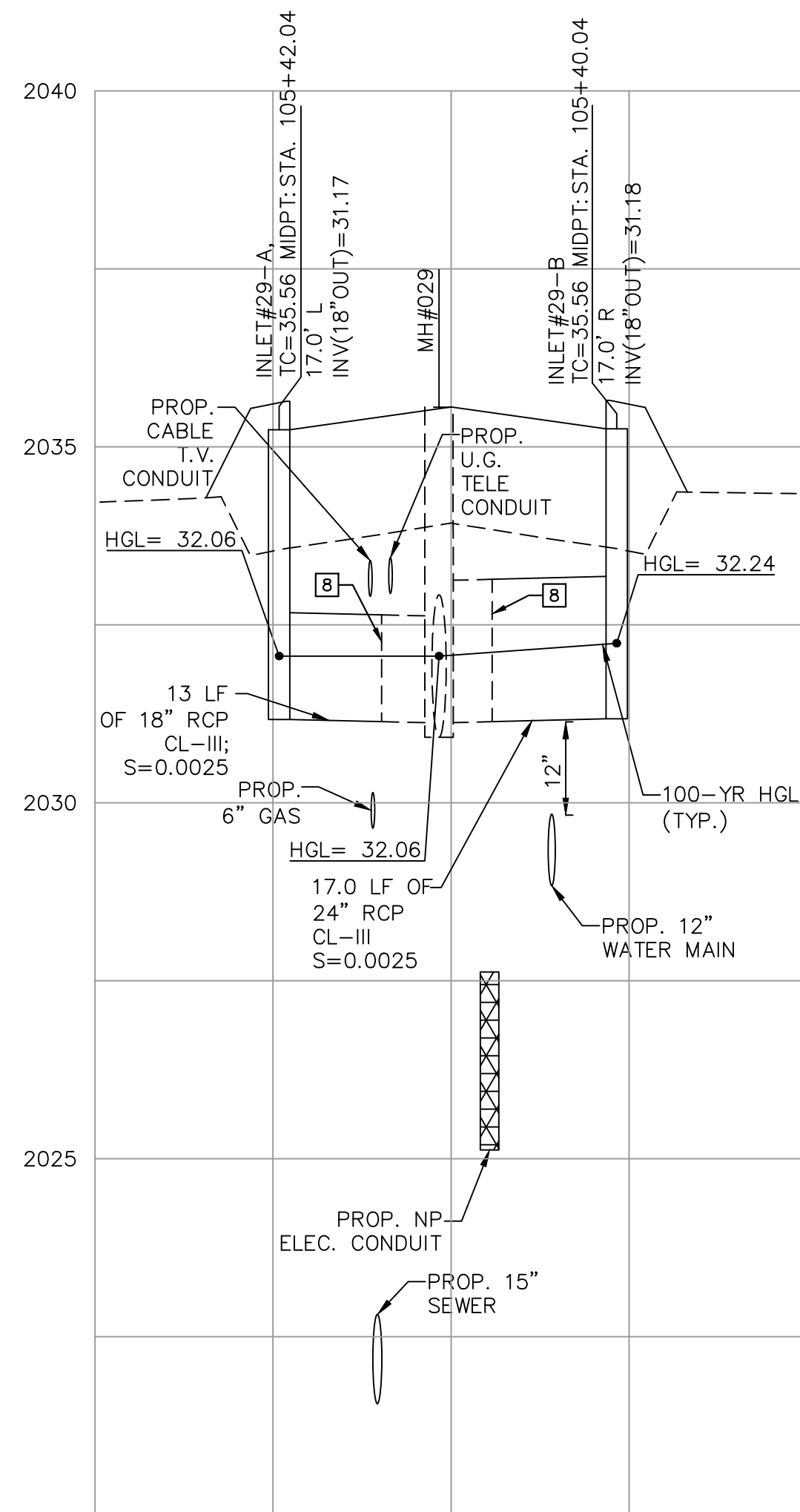
KEY MAP

GENERAL NOTES

1. REFER TO SHEET GD-1 FOR INTERSECTION GRADING
2. ADD 2000 FEET TO ALL 2-DIGIT SPOT ELEVATIONS

ROADWAY CONSTRUCTION NOTES

1. INSTALL PAVEMENT SECTION TO LIMITS SHOWN ON PLANS. SEE TYPICAL SECTIONS SHEETS TYP-1 FOR STRUCTURAL DIMENSIONS AND DETAILS
2. INSTALL "L" TYPE CURB AND GUTTER PER CCAUSD NO. 216
3. MATCH EXISTING CONSTRUCTION BY OTHERS
6. ADJUST MANHOLE TO PROPOSED GRADE
7. INSTALL TYPE "C-D" MODIFIED DROP INLET PER CCAUSD DWG. NO. 412.1, LENGTH PER PLAN
8. CONNECT TO EXISTING RCB SD STUB
9. INSTALL RCP SD, SIZE AND SLOPE PER PLAN. REFER TO SD PROFILE, THIS SHEET.
10. PROVIDE KNOCK OUT IN PRE-CAST DROP INLET FOR FUTURE CONNECTION.



SD PROFILE

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

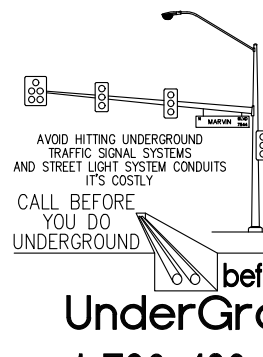
BASIS OF BEARING

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS). LAS VEGAS AND LAS VEGAS HIGH ELEVATION ZONES, NORTH AMERICAN DATUM OF 1983 SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN. THE REFERENCE FRAME UTILIZED BEING NAD 83 (2011) EPOCH 2010.0.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK 8LV0133NE6, BEING A RIVET & PLATE IN TOP OF CURB ON THE SOUTHWEST CORNER OF SYMPHONY PARK AVENUE AND GRAND CENTRAL PARKWAY.

ELEVATION: 2034.12' (NAVD88 - 2008 CLV ADJUSTMENT)



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1-800-227-2600 1-702-227-2929

DEPARTMENT OF PUBLIC WORKS

PROJECT:
SYMPHONY PARK
PROMENADE PLACE & CARSON
AVE. OFF-SITE IMPROVEMENTS

SHEET:
PLAN AND PROFILE -
WEST CARSON AVE.
STA 102+50 - 106+14

NOT SUBMITTAL
NOT FOR CONSTRUCTION

SHEET NUMBER

PP-3

SHEET 10 OF 27

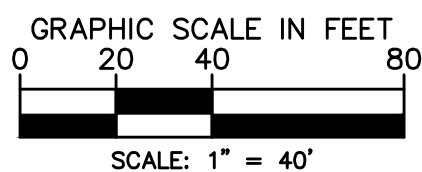
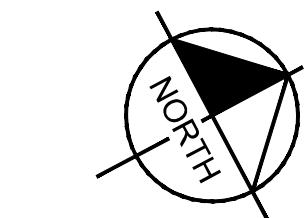
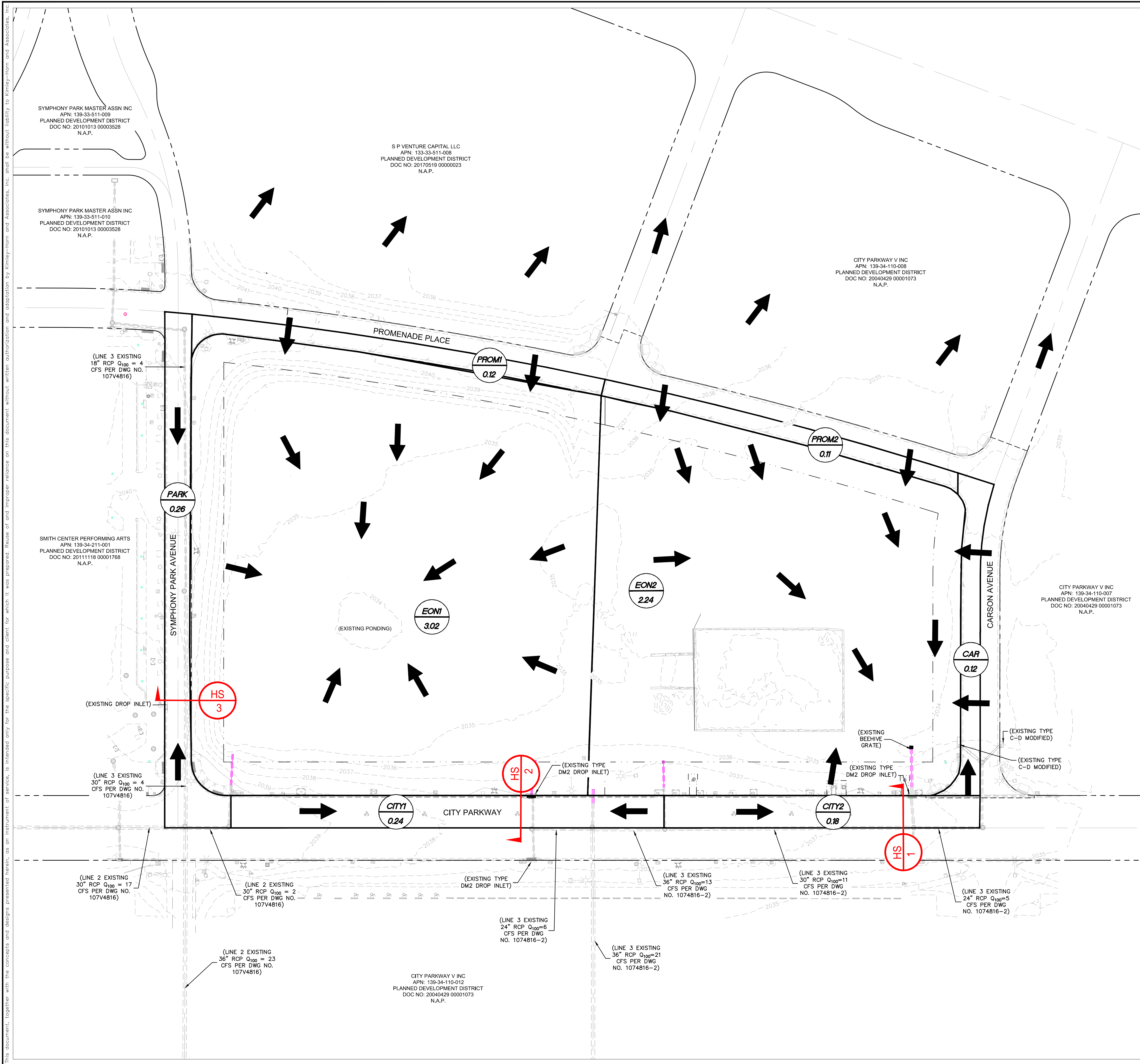
CLV HANSEN #6031

REVISION
BY
DATE

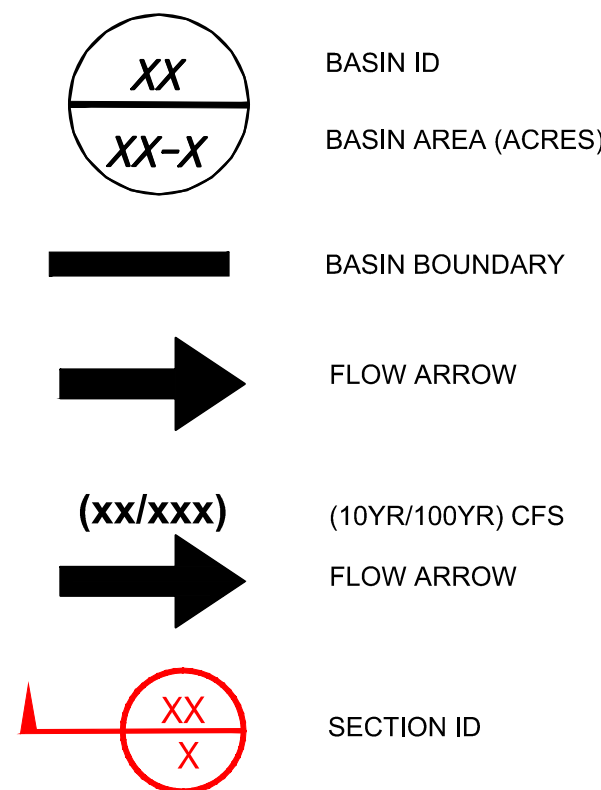
092256032 - PARCEL C OFFSITE IMPROVEMENTS

Appendix D – Basin Maps & Plans

This document, together with the concepts and designs presented herein, as an instrument of service, 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 Kinley-Horn and Associates, Inc. shall be without liability to Kinley-Horn and Associates, Inc.



LEGEND



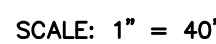
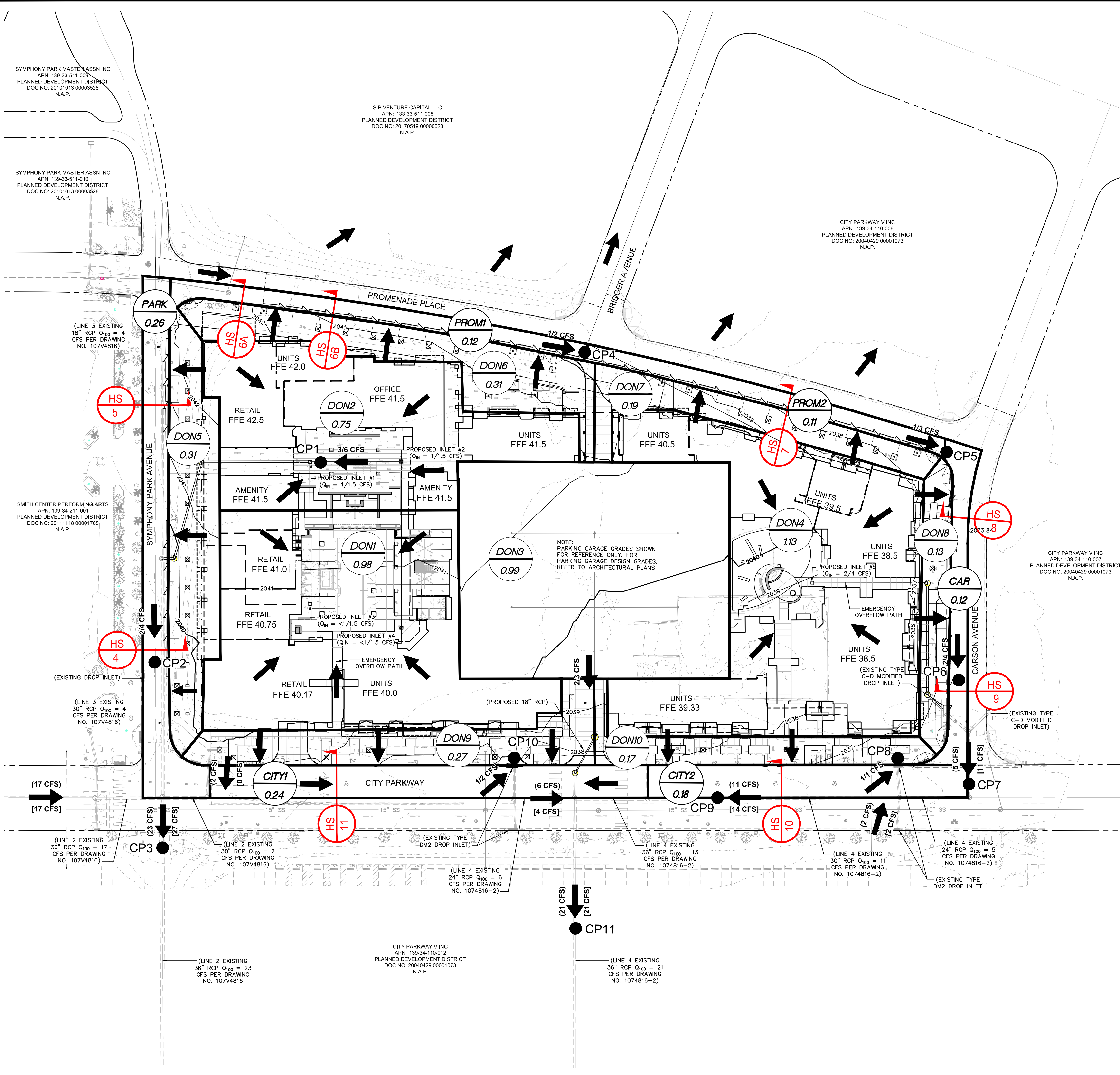
FLOW SUMMARY TABLE

BASIN ID/ COMB. PT.	BASIN AREA	10-YR FLOW	100-YR FLOW
	(ac)	(cfs)	(cfs)
EON1	3.02	3	8
PARK	0.26	1	1
PROM1	0.12	<1	<1
PROM2	0.11	<1	<1
CAR	0.12	<1	<1
EON2	2.24	3	6
CITY2	0.18	<1	1
CITY1	0.24	<1	1

OFF-SITE HYDRAULIC CALCULATION SUMMARY

SECTION	SLOPE (%)	Q10 (cfs)	Flow Depth (ft)	V10 (fps)	V*D	Q100 (cfs)	Flow Depth (ft)	V100 (fps)	V*D	DRY LANE
HS-1	0.69	0.50	0.23	1.00	0.23	1.00	0.27	1.15	0.31	N/A
HS-2	0.95	0.50	0.23	1.28	0.29	1.00	0.27	1.44	0.39	N/A
HS-3	0.96	0.50	0.23	1.26	0.29	1.00	0.26	1.43	0.37	N/A

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BASIN ID

BASIN AREA (ACRES)

BASIN BOUNDARY

FLOW ARROW

xx/xxx

10YR/100YR CFS

SURFACE FLOW ARROW

(xx CFS)

100YR REFERENCED STORM DRAIN FLOW

● CPX

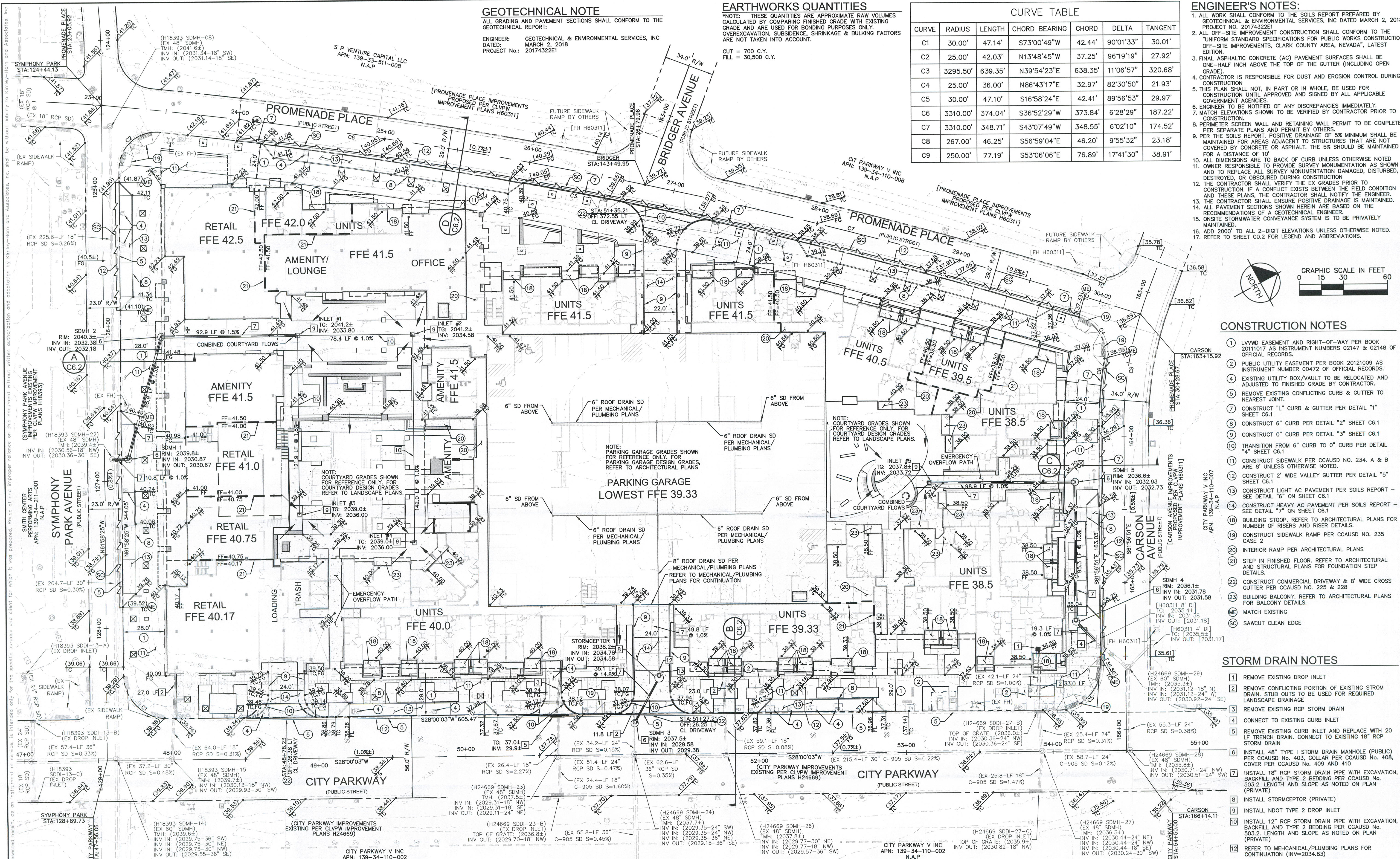
CONCENTRATION POINT



SECTION ID

BASIN ID/ COMB. PT.	BASIN AREA	10-YR FLOW	100-YR FLOW
	(ac)	(cfs)	(cfs)
DON1	0.98	2	3
DON2	0.75	1	3
CP1	DON1 + DON2	3	6
DON5	0.31	1	3
PARK	0.26	1	1
CP2	DON5 + PARK	2	4
CP3	CP1 + CP2	5	9
DON6	0.31	1	1
PROM1	0.12	<1	<1
CP4	DON6 + PROM1	1	2
DON7	0.19	<1	1
PROM2	0.11	<1	<1
CP5	CP4 + DON7 + PROM2	1	3
DON8	0.13	<1	<1
CAR	0.12	<1	<1
CP6	CP5 + DON8 + CAR	2	4
DON4	1.13	4	7
CP7	CP6 + DON4	6	11
DON10	0.17	<1	1
CITY2	0.18	<1	1
CP8	DON10 + CITY2	1	1
CP9	CP7 + CP8 + EX. DI	6	14
DON9	0.27	<1	1
CITY1	0.24	1	1
CP10	DON9 + CITY1	1	2
DON3	0.99	2	3
CP11	CP9 + CP10 + DON3	9	17

SECTION	SLOPE (%)	Q10 (cfs)	Flow Depth (ft)	V10 (fps)	V*D	Q100 (cfs)	Flow Depth (ft)	V100 (fps)	V*D	DRY LANE
HS-4	0.50	2	0.38	1.68	0.64	4	0.46	1.97	0.91	N/A
HS-5	0.83	2	0.34	1.92	0.65	4	0.41	2.25	0.92	N/A
HS-6A	0.70	1	0.22	1.50	0.33	2	0.27	1.77	0.48	N/A
HS-6B	0.70	1	0.15	1.30	0.20	2	0.19	1.51	0.29	N/A
HS-7	0.83	1	0.14	1.33	0.19	3	0.21	1.76	0.37	N/A
HS-8	1.66	2	0.31	2.43	0.75	4	0.37	2.83	1.05	N/A
HS-9	0.45	2	0.36	1.46	0.53	4	0.44	1.70	0.75	N/A
HS-10	0.84	1	0.27	1.38	0.37	1	0.27	1.38	0.37	N/A
HS-11	1.20	1	0.27	1.77	0.48	2	0.32	2.04	0.65	N/A

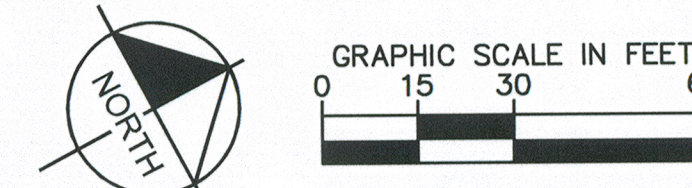


GEOTECHNICAL NOTE
ALL GRADING AND PAYMENT SECTIONS SHALL CONFORM TO THE GEOTECHNICAL REPORT:
ENGINEER: GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.
DATED: MARCH 2, 2018
PROJECT No.: 20174322E1

EARTHWORKS QUANTITIES
NOTE: THESE QUANTITIES ARE APPROXIMATE RAW VOLUMES CALCULATED BY COMPARING FINISHED GRADE WITH EXISTING GRADE AND ARE USED FOR BONDING PURPOSES ONLY. OVEREXCAVATION, SUBSIDENCE, SHRINKAGE & BULKING FACTORS ARE NOT TAKEN INTO ACCOUNT.
OUT = 700 C.Y.
FILL = 30,500 C.Y.

CURVE TABLE						
CURVE	RADIUS	LENGTH	CHORD BEARING	CHORD	DELTA	TANGENT
C1	30.00'	47.14'	S73°00'49"W	42.44'	90°01'33"	30.01'
C2	25.00'	42.03'	N13°48'45"W	37.25'	96°19'19"	27.92'
C3	3295.50'	639.35'	N39°54'23"E	638.35'	11°06'57"	320.68'
C4	25.00'	36.00'	N86°43'17"E	32.97'	82°30'50"	21.93'
C5	30.00'	47.10'	S16°58'24"E	42.41'	89°56'53"	29.97'
C6	3310.00'	374.04'	S36°52'29"W	373.84'	6°28'29"	187.22'
C7	3310.00'	348.71'	S43°07'49"W	348.55'	6°02'10"	174.52'
C8	267.00'	46.25'	S56°59'04"E	46.20'	9°55'32"	23.18'
C9	250.00'	77.19'	S53°06'06"E	76.89'	17°41'30"	38.91'

ENGINEER'S NOTES:
1. ALL WORK SHALL CONFORM TO THE SOILS REPORT PREPARED BY GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC. DATED MARCH 2, 2018, PROJECT NO. 20174322E1.
2. ALL OFF-SITE IMPROVEMENT CONSTRUCTION SHALL CONFORM TO THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST EDITION.
3. FINAL ASPHALTIC CONCRETE (AC) PAVEMENT SURFACES SHALL BE ONE-HALF INCH ABOVE THE TOP OF THE GUTTER (INCLUDING OPEN GRADE).
4. CONTRACTOR IS RESPONSIBLE FOR DUST AND EROSION CONTROL DURING CONSTRUCTION.
5. THIS PLAN SHALL NOT, IN PART OR IN WHOLE, BE USED FOR CONSTRUCTION UNTIL APPROVED AND SIGNED BY ALL APPLICABLE GOVERNMENT AGENCIES.
6. ENGINEER TO BE NOTIFIED OF ANY DISCREPANCIES IMMEDIATELY.
7. MATCH ELEVATIONS SHOWN TO BE VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION.
8. PERIMETER SCREEN WALL AND RETAINING WALL PERMIT TO BE COMPLETED PER SEPARATE PLANS AND PERMIT BY OTHERS.
9. PER THE SOILS REPORT, POSITIVE DRAINAGE OF 5% MINIMUM SHALL BE MAINTAINED FOR AREAS ADJACENT TO STRUCTURES THAT ARE NOT COVERED BY CONCRETE OR ASPHALT. THE 5% SHOULD BE MAINTAINED FOR A DISTANCE OF 10'.
10. ALL DIMENSIONS ARE TO BACK OF CURB UNLESS OTHERWISE NOTED.
11. OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DISTURBED, DESTROYED, OR OBTURED DURING CONSTRUCTION.
12. THE CONTRACTOR SHALL VERIFY THE EX GRADES PRIOR TO CONSTRUCTION. IF A CONFLICT EXISTS BETWEEN THE FIELD CONDITION AND THESE PLANS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.
13. THE CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE IS MAINTAINED.
14. ALL PAVEMENT SECTIONS SHOWN HEREIN ARE BASED ON THE RECOMMENDATIONS OF A GEOTECHNICAL ENGINEER.
15. ONSITE STORMWATER CONVEYANCE SYSTEM IS TO BE PRIVATELY MAINTAINED.
16. ADD 200 TO ALL 2"-DIGIT ELEVATIONS UNLESS OTHERWISE NOTED.
17. REFER TO SHEET C0.2 FOR LEGEND AND ABBREVIATIONS.



- CONSTRUCTION NOTES**
1. LVWD EASEMENT AND RIGHT-OF-WAY PER BOOK 2011017 AS INSTRUMENT NUMBERS 02147 & 02148 OF OFFICIAL RECORDS.
 2. PUBLIC UTILITY EASEMENT PER BOOK 20121009 AS INSTRUMENT NUMBER 00472 OF OFFICIAL RECORDS.
 3. EXISTING UTILITY BOX/VAULT TO BE RELOCATED AND ADJUSTED TO FINISHED GRADE BY CONTRACTOR.
 4. REMOVE EXISTING CONFLICTING CURB & GUTTER TO NEAREST JOINT.
 5. CONSTRUCT "L" CURB & GUTTER PER DETAIL "1" SHEET C6.1.
 6. CONSTRUCT 6" CURB PER DETAIL "2" SHEET C6.1.
 7. CONSTRUCT 0" CURB PER DETAIL "3" SHEET C6.1.
 8. TRANSITION FROM 6" CURB TO 0" CURB PER DETAIL "4" SHEET C6.1.
 9. CONSTRUCT SIDEWALK PER CAUSD NO. 234, A & B ARE 8" UNLESS OTHERWISE NOTED.
 10. CONSTRUCT 2" WIDE VALLEY GUTTER PER DETAIL "5" SHEET C6.1.
 11. CONSTRUCT LIGHT AC PAVEMENT PER SOILS REPORT - SEE DETAIL "6" ON SHEET C6.1.
 12. CONSTRUCT HEAVY AC PAVEMENT PER SOILS REPORT - SEE DETAIL "7" ON SHEET C6.1.
 13. BUILDING STOOP. REFER TO ARCHITECTURAL PLANS FOR NUMBER OF RISERS AND RISER DETAILS.
 14. CONSTRUCT SIDEWALK RAMP PER CAUSD NO. 235 CASE 2.
 15. INTERIOR RAMP PER ARCHITECTURAL PLANS.
 16. STEP IN FINISHED FLOOR. REFER TO ARCHITECTURAL AND STRUCTURAL PLANS FOR FOUNDATION STEP DETAILS.
 17. BUILDING BALCONY. REFER TO ARCHITECTURAL PLANS FOR BALCONY DETAILS.
 18. MATCH EXISTING
 19. SAWCUT CLEAN EDGE

- STORM DRAIN NOTES**
1. REMOVE EXISTING DROP INLET
 2. REMOVE EXISTING PORTION OF EXISTING STORM DRAIN. STUB OUTS TO BE USED FOR REQUIRED LANDSCAPE DRAINAGE.
 3. REMOVE EXISTING RCP STORM DRAIN
 4. CONNECT TO EXISTING CURB INLET
 5. REMOVE EXISTING CURB INLET AND REPLACE WITH 20 LF TRENCH DRAIN. CONNECT TO EXISTING 18" RCP STORM DRAIN
 6. INSTALL 48" TYPE I STORM DRAIN MANHOLE (PUBLIC) PER CAUSD No. 403, COLLAR PER CAUSD No. 408, COVER PER CAUSD No. 409 AND 410
 7. INSTALL 18" RCP STORM DRAIN PIPE WITH EXCAVATION, BACKFILL AND TYPE 2 BEDDING PER CAUSD No. 503.2. LENGTH AND SLOPE AS NOTED ON PLAN (PRIVATE)
 8. INSTALL STORMCEPTOR (PRIVATE)
 9. INSTALL NDOT TYPE 2 DROP INLET
 10. INSTALL 12" RCP STORM DRAIN PIPE WITH EXCAVATION, BACKFILL AND TYPE 2 BEDDING PER CAUSD No. 503.2. LENGTH AND SLOPE AS NOTED ON PLAN (PRIVATE)
 11. REFER TO MECHANICAL/PLUMBING PLANS FOR CONTINUATION (INV=2034.83)
 12. INSTALL 5 LF 8" PVC SD AT 1.0% (PRIVATE)

FLOOD ZONE NOTE
THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) PANEL NUMBER 320032170F, EFFECTIVE NOVEMBER 16, 2011, INDICATE THAT THE SITE IS LOCATED IN UNSHADED ZONE "X", WHICH IS DEFINED BY FEMA AS "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN."

DRAINAGE CERTIFICATION
I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY ON FILE WITH CITY OF LAS VEGAS FOR THIS PROJECT, CLV XXXXXX
MATTHEW J. MCALEY, PE No. 24594 DATE: CLV#:-

LEGAL DESCRIPTION
SEE C0.1 SHEET FOR FULL LEGAL DESCRIPTION.
LEGEND & ABBREVIATIONS
SEE C0.2 SHEET FOR MASTER LEGEND AND ABBREVIATIONS

NOTES
ALL DIMENSIONS ARE TO BACK OF CURB UNLESS OTHERWISE NOTED.
OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DISTURBED, DESTROYED, OR OBTURED DURING CONSTRUCTION.

BASIS OF BEARING
SOUTH 62°04'44" EAST, BEING THE CENTERLINE BEARING OF SYMPHONY PARK AVENUE BETWEEN PROMENADE PLACE AND CITY PARKWAY AS SHOWN ON MAP THEREOF ON FILE IN FILE 184 OF SURVEYS, PAGE 79, CLARK COUNTY OFFICIAL RECORDS.

BENCHMARK
BLV0133NEE: A RIVET AND PLATE IN TOP OF CURB AT THE SOUTHWEST CORNER OF SYMPHONY PARK AVENUE AND GRAND CENTRAL PARKWAY = 2034.12ft. (NAVD 88 - 2008 CLV ADJUSTMENT)

ACCESSIBILITY NOTES
1. MAXIMUM SLOPE ON THE ACCESSIBLE ROUTE IS 5.0% IN THE DIRECTION OF TRAVEL, 2.0% CROSS SLOPE.
2. MAXIMUM SLOPE IN ACCESSIBLE PARKING STALL LOADING AISLES IS 2.0% IN ANY DIRECTION.
3. PROVIDE ACCESSIBLE PARKING STALL SIGNAGE FOR HANDICAP AND VAN ACCESSIBLE STALLS PER NRS 484.408.
4. HANDICAP STALLS SHALL BE 9' WIDE AND 20' LONG. HANDICAP STALL LOADING AISLES ARE 5' WIDE X THE ENTIRE LENGTH OF THE PARKING STALL (8' WIDE FOR VAN ACCESSIBLE SPACES).

SIGHT VISIBILITY ZONES NOTE
NO WALLS, FENCES, SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAN TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT POLES MAY BE CONSTRUCTED OR INSTALLED WITHIN THE SIGHT VISIBILITY ZONE UNLESS SAID OBJECT IS MAINTAINED LESS THAN 24 INCHES IN HEIGHT MEASURED FROM TOP OF CURB, OR WHERE NO CURB EXISTS, A HEIGHT OF 27 INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT, GRAVEL, OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.

STORMWATER MANAGEMENT NOTES
1. THE OWNER, SITE DEVELOPER, CONTRACTOR, AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATED IN, THE PUBLIC RIGHTS OF WAY OF THE CITY OF LAS VEGAS AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM DRAIN SYSTEM.
2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN THE CITY OF LAS VEGAS BUILDING ADMINISTRATIVE CODE 24.40 AND THE LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDANCE MANUAL.
3. TEMPORARY OR PERMANENT STABILIZATION PRACTICES WILL BE INSTALLED ON DISTURBED AREAS AS SOON AS PRACTICABLE AND NO LATER THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. SOME EXCEPTIONS MAY APPLY; REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVRI00000, SECTION III.A.5.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND BMPs WEEKLY, AND WITHIN 24 HOURS AFTER ANY RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVRI00000, SECTION III.A.12.
5. ACCUMULATED SEDIMENT IN BMPs SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

Kimley»Horn
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6671 LAS VEGAS BOULEVARD, SUITE 320, LAS VEGAS, NV 89118
PHONE: 702-862-3600
WWW.KIMLEY-HORN.COM

STATE OF NEVADA
Professional Engineer
Matthew J. McAuley
Exp. 12/31/19
Civil
No. 24594

KHA PROJECT 1920030000
DATE 09/25/2018
SCALE AS SHOWN
DESIGNED BY MK
DRAWN BY MK
CHECKED BY MJM

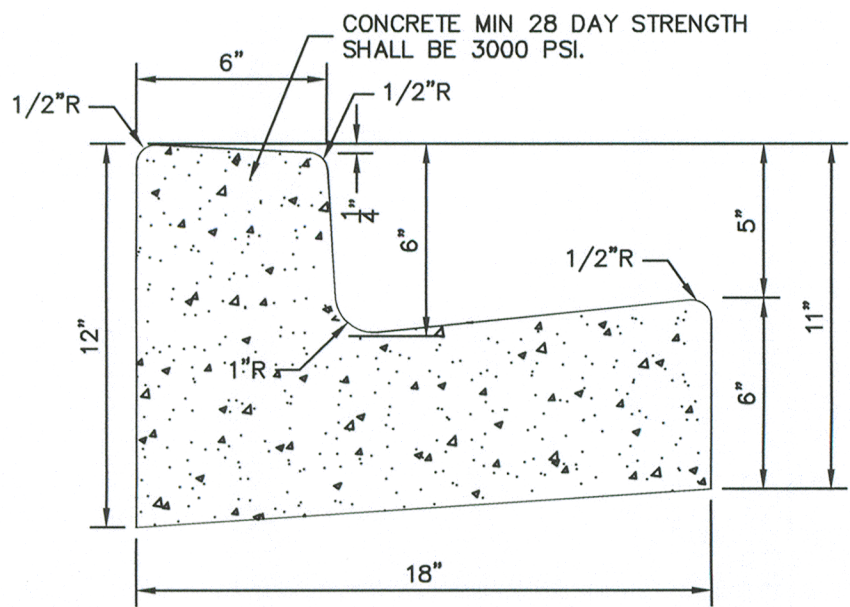
GRADING PLAN

**SYMPHONY PARK
BLOCK F & G**

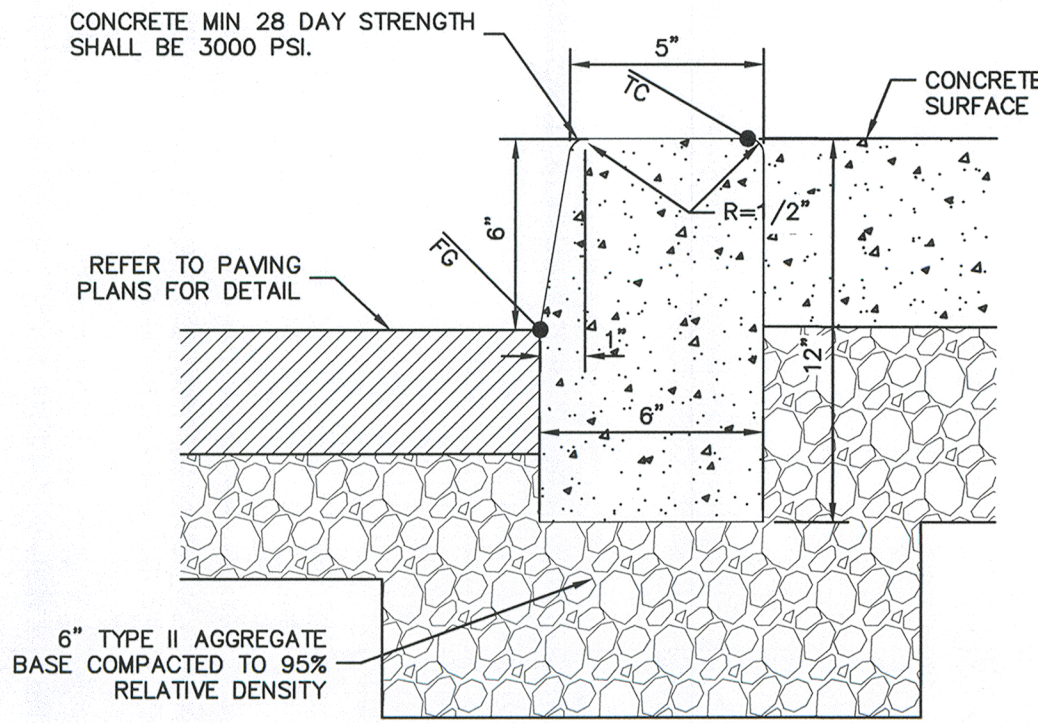
NEVADA
CITY OF LAS VEGAS

6 OF 10 SHEETS
C3.1

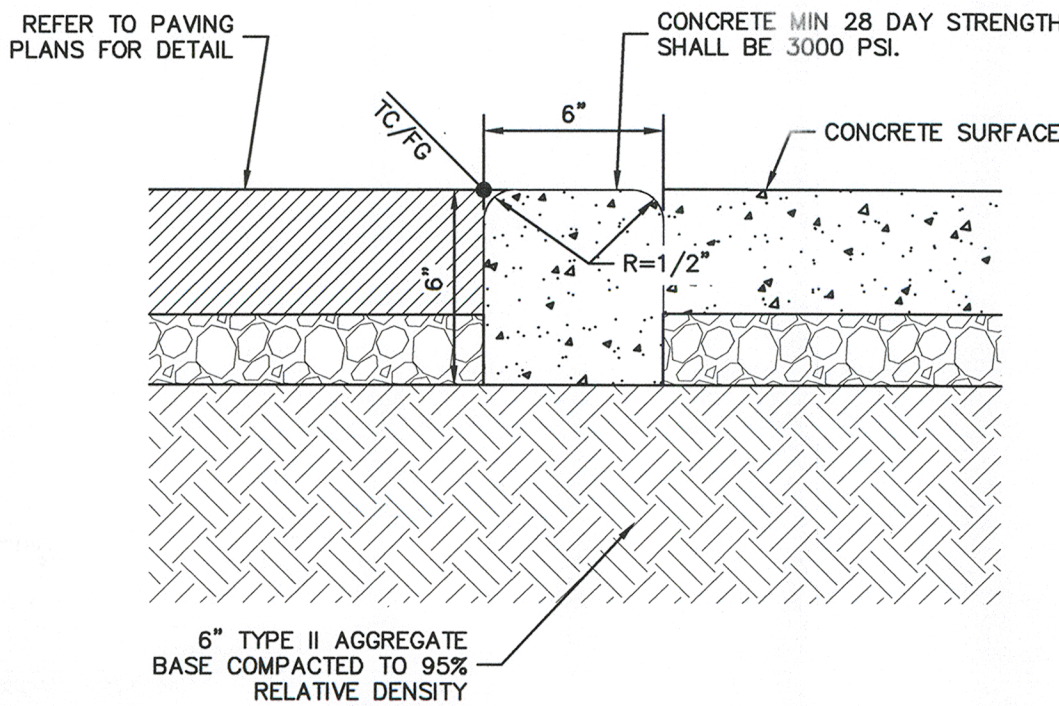
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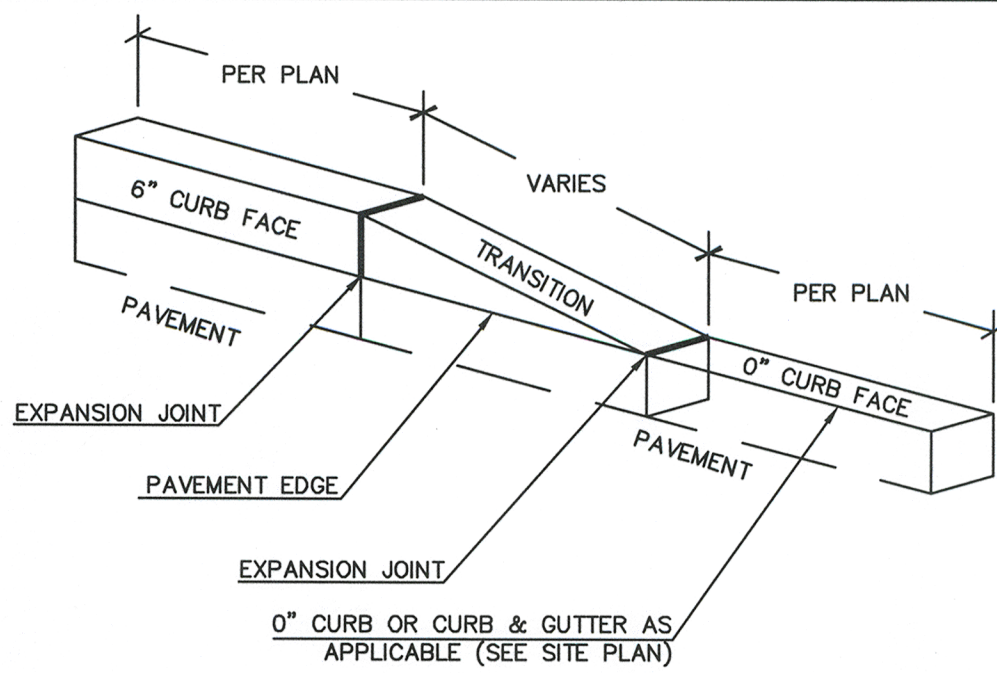
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C6.1 MODIFIED "L" CURB & GUTTER NTS



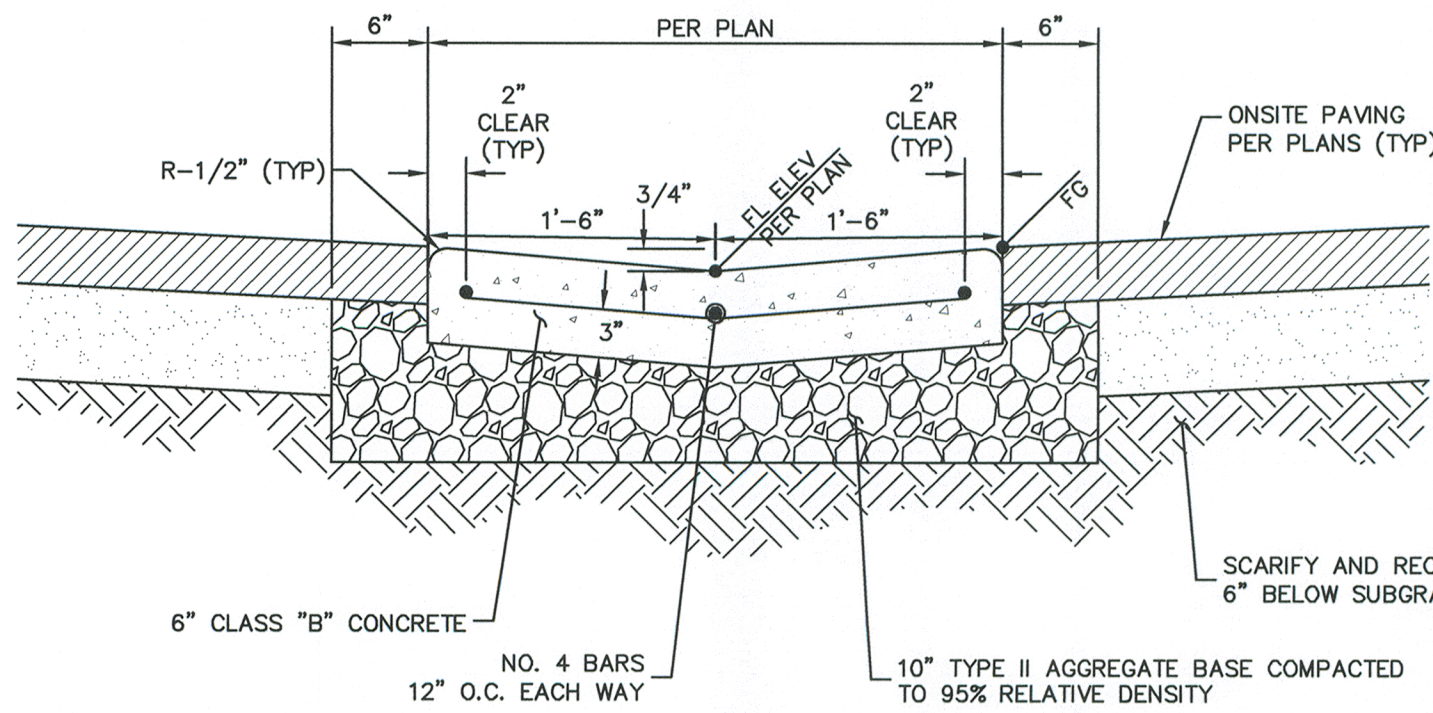
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C6.1 6" CURB NTS



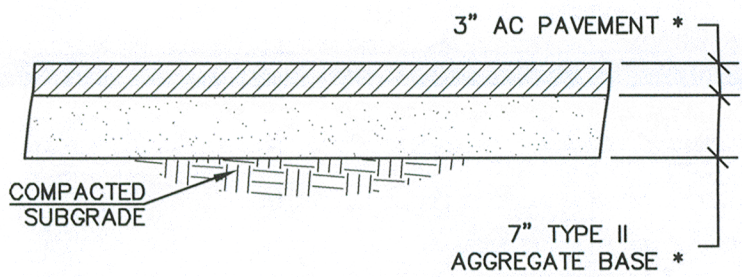
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C6.1 0" CURB NTS



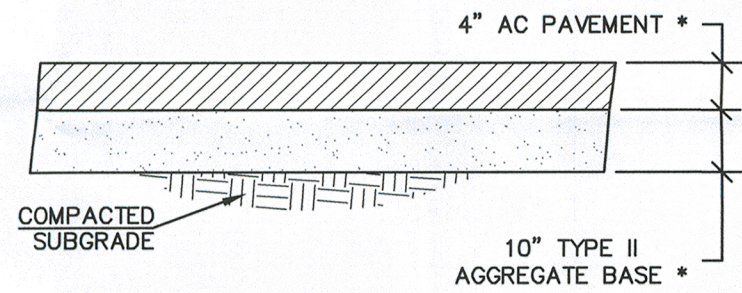
4
C6.1 TRANSITION FROM 6" CURB TO 0" CURB NTS



5
C6.1 CONCRETE VALLEY GUTTER NTS

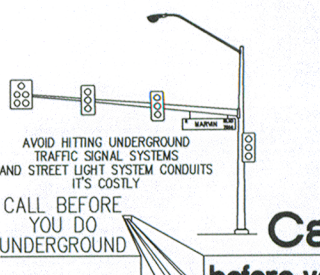


6
C6.1 LIGHT ASPHALT PAVEMENT (PARKING STALLS) NTS



7
C6.1 HEAVY ASPHALT PAVEMENT (DRIVEWAYS) NTS

GEOTECHNICAL NOTE
ALL GRADING AND PAVEMENT SECTIONS SHALL CONFORM TO THE GEOTECHNICAL REPORT:
ENGINEER: GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC
DATED: MARCH 2, 2018
PROJECT No.: 20174322E1



Call before you dig
1-702-455-6000
CLARK COUNTY TRAFFIC OPERATIONS
AND
1-702-432-5300

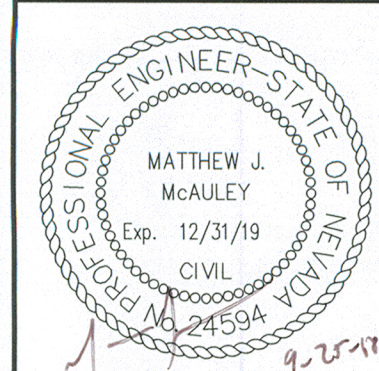


Call 811
Before You Overhead
1-800-227-2600
OR
1-702-227-2929

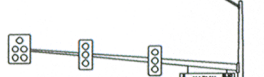
KHA PROJECT 192005000		DATE 09/25/2018	SCALE AS SHOWN	DESIGNED BY MK	DRAWN BY MK	CHECKED BY MJM
TYPICAL DETAILS						
SYMPHONY PARK BLOCK F & G			NEVADA CITY OF LAS VEGAS			
9 OF 10 SHEETS C6.1			CLV#:			



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6671 LAS VEGAS BOULEVARD S., SUITE 320, LAS VEGAS, NV 89119
PHONE: 702-862-3500
WWW.KIMLEY-HORN.COM



9.25.18



 AVOID REDDING UNDERGROUND
 TRAFFIC SIGNAL SYSTEMS
 AND STREET LIGHT SYSTEM CONDUITS
 TO PREVENT
 CALL BEFORE
 YOU DO
 UNDERGROUND

Call Call before you Dig
 Avoid cutting underground
 utility lines. It's costly.

Avoid overhead power
 line contact. It's costly.

Call Before You Overhead

CLEAR COUNTY TRAFFIC OPERATIONS
 AND
 FREWAY AND INTERSTATE TRAFFIC (FAST)

1-702-455-6000
 1-702-432-5300
 1-800-227-2600
 1-702-227-2929



- (1) LYVING EASEMENT AND RIGHT-OF-WAY PER BOOK 0211017 AS INSTRUMENT NUMBERS 02147 & 02148 OF OFFICIAL RECORDS.
- (7) CONSTRUCT "L" CURB & GUTTER PER DETAIL "1" SHEET C6.1
- (8) CONSTRUCT "6" CURB PER DETAIL "2" SHEET C6.1
- (11) CONSTRUCT SIDEWALK PER CAAUSD NO. 234. A & B ARE 8' UNLESS OTHERWISE NOTED.
- (12) CONSTRUCT 2' WIDE VALLEY GUTTER PER DETAIL "5" SHEET C6.1
- (13) CONSTRUCT LIGHT AC PAVEMENT PER SOILS REPORT - SEE DETAIL "6" ON SHEET C6.1
- (15) LANDSCAPE AREA
- (16) SAWCUT CLEAN EDGE

SYMPHONY PARK
BLOCK F & G

10 OF 10 SHEETS

C6.2

[illegible]

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