

**TECHNICAL DRAINAGE STUDY ADDENDUM #2 FOR  
IDEAWARE – THREE LOT PARCEL MAP  
SECTION 04, TOWNSHIP 21 SOUTH, RANGE 60 EAST  
CITY OF LAS VEGAS, NEVADA**

October 1, 2024

**PREPARED FOR:**

**BACK LISA LV, LLC**  
6570 SPENCER STREET  
LAS VEGAS, NV 89119

**PREPARED BY:**

**BAUGHMAN & TURNER, INC.**  
1210 HINSON STREET  
LAS VEGAS, NEVADA 89102  
TEL: (702) 870-8771/FAX: (702) 878-2695



# HYDROLOGIC CRITERIA AND DRAINAGE MANUAL

## DRAINAGE STUDY INFORMATION FORM

Name of Development: Three Lot Parcel Map (PMP) Date: October 1, 2024, 2024  
 Location of Development: a) Descriptive (Cross Streets) North/South: Lisa lane  
 East/West: O'Bannon Drive  
 b) Section: 4 Township: 21 S Range: 60 E  
 c) APN: 163-04-305-004 & 006

Name of Owner: Back Lisa LV, LLC  
 Telephone No.: (949) 870-2504 Fax No.: \_\_\_\_\_ E-Mail Address: kris@mintbistro.com  
 Address 6570 Spencer Street Las Vegas NV 89119

Contact Person-Name: Pamela Pitcher Telephone No.: 702-870-8771  
 \*E-Mail Address: pamp@baughman-turner.com Fax No.: 702-878-2695

Firm: Baughman & Turner, Inc.  
 Address: 1210 Hinson Street Las Vegas, NV 89102

Type of Land Development/Land Disturbance Process:

<input type="checkbox"/>	Rezoning	<input type="checkbox"/>	Subdivision Map	<input type="checkbox"/>	Clearing and Grading Only
<input checked="" type="checkbox"/>	Parcel Map	<input type="checkbox"/>	Planned Unit Development	<input type="checkbox"/>	Other (Please specify below)
<input type="checkbox"/>	Large Parcel Map	<input type="checkbox"/>	Building Permit		

- Total Owned Land Area: At Site: 2.41 acres Being Developed/Disturbed: 2.41 acres
- Is a portion or all of the subject property located in a designated FEMA Flood Hazard Area?  Yes\*\*  No
- Is the property bordered or crossed by an existing or proposed Clark County Regional Flood Control District Master Planned Facility?  Yes\*\*  No
- Proposed type of development (Residential, Commercial, Etc.): Residential – Single Family
- Approximate upstream land area which drains to the subject site: 1.75 acres
- Has the site drainage been evaluated in the past?  YES  NO If yes, please identify documentation: TDS for Single Family Housing Project (Lisa Lane & O'Bannon Drive) (DS 3659)
- If known, please briefly identify the proposed discharge point(s) of runoff from the site:  
Southeast to O'Bannon Drive and through existing blockwall opening to property to the east.
- Briefly describe your proposed schedule for the subject project: Fall 2024

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.**



Engineer's Seal

Local Entity File No. \_\_\_\_\_

Revision

Date

REFERENCE:

STANDARD FORM 1

**Baughman & Turner, Inc.**  
*Consulting Engineers & Land Surveyors*  
 1210 Hinson Street Las Vegas, Nevada 89102-1604  
 Phone (702) 870-8771

October 1, 2024

**City of Las Vegas**  
**Department of Community Development -Building & Safety Division**  
**Attn: Mr. Jefferson Torrecampo, P.E.**  
 495 S. Main Street  
 Las Vegas, NV 89101

**RE: Drainage Study for Ideaware – Three Lot Parcel Map**  
**APN: 163-04-305-004 and 006**

Dear Mr. Torrecampo:

The following is our response to the comments and conditions of approval placed on the above-referenced project. In a memo dated September 30, 2024, City of Las Vegas expressed concern about the following items:

**Comment No. 1: Developed Condition: Provide a new basin map and HEC-1 model per revised grading plan.**

Response: Please find attached the revised Figure 9, Developed Basin Map. See Appendix A for the revised Standard Form 4 and HEC-1 analysis. Below is the revised Table 2.

**Table 2. Peak Flow Summary - Revised**

<b>Developed Condition</b>			
<b>Source</b>	<b>Basin Area (ac)</b>	<b>100-year Flow (cfs)</b>	<b>10-year Flow (cfs)</b>
<b>REF1*</b> (In 48" RCP)	--	115	66
<b>LL1*</b> (Lisa Ln)	0.89	3	2
<b>OFF2*</b>	3.12	10	6
<b>CP2*</b> (LL1*+OFF2*)	--	13	7
<b>ON1-D</b>	0.62	5	2
<b>ON3-D</b>	0.34	1	<1
<b>OBAN</b>	0.41	1	1
<b>CP3</b> (CP2* + ON1-D + ON3-D + OBAN)	--	20	10

\*Includes referenced flows from Single Family Housing Project Study

**Comment No. 2: Provide new flow master street calculations for cross section HS5 Private St. per vised street flow.**

Response: See Appendix B for revised flow master street calculations for HS5. See below for revised Table 3.

**Table 3.**

<b>Street Capacity Summary w/storm drain - Revised</b>							
<b>Section</b>	<b>Location</b>	<b>Slope</b>	<b>Q (cfs)</b>	<b>D (ft)</b>	<b>V (fps)</b>	<b>V x D</b>	<b>Remarks</b>
<b>10-Year Flow</b>							
<b>HS1</b>	<b>O'Bannon Dr</b>	2.89%	7	0.38	3.73	1.42	VxD <6 is met; D less than 1;
<b>HS2</b>	<b>O'Bannon Dr</b>	3.4%	8	0.32	3.34	1.07	VxD <6 is met; D less than 1;
<b>HS3</b>	<b>Lisa Lane</b>	0.38%	2	0.39	1.52	0.59	VxD <6 is met; D less than 1;
<b>HS4</b>	<b>Lisa Lane</b>	0.40%	2	0.39	1.52	0.59	VxD <6 is met; D less than 1;
<b>HS5</b>	<b>Private Drive</b>	0.40%	2	0.25	1.09	0.27	VxD <6 is met; D less than 1;
<b>100-Year Flow</b>							
<b>HS1</b>	<b>O'Bannon Dr</b>	2.89%	13	0.44	4.31	1.90	VxD <8 is met; D less than 2
<b>HS2</b>	<b>O'Bannon Dr</b>	3.4%	17	0.39	3.96	1.54	VxD <8 is met; D less than 2
<b>HS3</b>	<b>Lisa Lane</b>	0.38%	3	0.44	1.66	0.73	VxD <8 is met; D less than 2
<b>HS4</b>	<b>Lisa Lane</b>	0.40%	3	0.40	1.42	0.57	VxD <8 is met; D less than 2
<b>HS5</b>	<b>Private Drive</b>	0.40%	5	0.32	1.34	0.43	VxD <8 is met; D less than 2

**Comment No. 3: Grading Plan: Label the slope around the bulb of a cul-de-sac. Slope to be not less than 0.6%.**

Response: Please find attached the revised Grading Plan showing a minimum 0.6% slope around the bulb of the cul-de-sac.

**Comment No. 4: Section D/C2.1: Add in the street cross section the maximum slope.**

Response: Please find attached the revised Detail Sheet. Section D/C2.1 has been revised to add the maximum cross slope.

We trust that this letter addresses the comments and conditions raised with the technical drainage study addendum for Ideaware – Three Lot Parcel Map (DS5794A). If you have any further questions, please feel free to contact this office.

Sincerely,  
**Baughman & Turner, Inc.**

Pamela Pitcher  
 Drainage and Traffic Manager



HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

BAUGHMAN & TURNER, INC.  
CONSULTING ENGINEERS

TIME OF CONCENTRATION

PROJECT NO.: 04-21-60 DEVELOPMENT : Ideaware DATE : 10/01/24  
FILE : Existing & Developed Condition CALCULATED BY: PJP

Sub-Basin Data		Initial/Overland Time (T <sub>i</sub> )				Travel Time (T <sub>t</sub> )				T <sub>c</sub>		T <sub>c</sub> Check (Urbanized Basins)		Final T <sub>c</sub>		T <sub>lag</sub>		Remarks									
DESIG	CN	K	AREA (acres)	AREA (mi <sup>2</sup> )	LENGTH (ft)	SLOPE (%)	T <sub>i</sub> (min)	LENGTH (ft)	SLOPE (%)	V <sub>1</sub> (fps)	V <sub>2</sub> (fps)	T <sub>t</sub> (min)	T <sub>c</sub> = T <sub>i</sub> + T <sub>t</sub> (min)	TOTAL (ft)	T <sub>c</sub> (min)	T <sub>c</sub> (min)	T <sub>lag</sub> (hrs)	T <sub>lag</sub> (hrs)	Remarks								
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(18)	(19)								
<b>Existing Condition</b>																											
OBAN	98	0.904	0.41	0.0006	24.5	2.00	1.4	300	3.15	3.59	N/A	1.4	2.8	324.5	11.8	2.8	0.050	0.050	Dev.								
<b>Developed Condition</b>																											
ON1-D	87	0.758	2.04	0.0032	25	2.00	2.4	462	1.00	2.02	N/A	3.8	6.3	487.0	12.7	6.3	0.063	0.063	Dev.								
ON3-D	87	0.758	0.34	0.0005	25	1.00	3.1	135	1.11	2.13	N/A	1.1	4.1	160.0	10.9	4.1	0.050	0.050	Dev.								
OBAN	98	0.904	0.41	0.0006	24.5	2.00	1.4	300	3.15	3.59	N/A	1.4	2.8	324.5	11.8	2.8	0.050	0.050	Dev.								
<b>Travel Time Velocity Formulas</b>																											
For the travel time (T <sub>t</sub> ) calculations, V <sub>1</sub> applies to the first 500 feet of travel distance; V <sub>2</sub> applies to the remaining travel distance.										<table border="1"> <tr> <th colspan="2">Travel Time Velocity Formulas</th> </tr> <tr> <td>Existing</td> <td>Developed</td> </tr> <tr> <td>V<sub>1</sub> = 14.8*(S/100)<sup>1/2</sup></td> <td>V<sub>1</sub> = 20.2*(S/100)<sup>1/2</sup></td> </tr> <tr> <td>V<sub>2</sub> = 29.4*(S/100)<sup>1/2</sup></td> <td>V<sub>2</sub> = 30.6*(S/100)<sup>1/2</sup></td> </tr> </table>										Travel Time Velocity Formulas		Existing	Developed	V <sub>1</sub> = 14.8*(S/100) <sup>1/2</sup>	V <sub>1</sub> = 20.2*(S/100) <sup>1/2</sup>	V <sub>2</sub> = 29.4*(S/100) <sup>1/2</sup>	V <sub>2</sub> = 30.6*(S/100) <sup>1/2</sup>
Travel Time Velocity Formulas																											
Existing	Developed																										
V <sub>1</sub> = 14.8*(S/100) <sup>1/2</sup>	V <sub>1</sub> = 20.2*(S/100) <sup>1/2</sup>																										
V <sub>2</sub> = 29.4*(S/100) <sup>1/2</sup>	V <sub>2</sub> = 30.6*(S/100) <sup>1/2</sup>																										
All basins over one square mile are calculated by the equation T <sub>lag</sub> = 20Kn(L*L <sub>d</sub> /S <sup>0.5</sup> ) <sup>0.33</sup> and denoted by shaded gray (See Worksheet).																											

REFERENCE: STANDARD FORM 4

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1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* JUN 1998 *
* VERSION 4.1 *
*
* RUN DATE 01OCT24 TIME 11:32:35 *
*
*****

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*****
*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 756-1104 *
*
*****

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X X XXXXXXX XXXXX X
X X X X X XX
X X X X X
XXXXXXXX XXXX X XXXXX X
X X X X X
X X X X X
X X XXXXXXX XXXXX XXX

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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIME- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1

HEC-1 INPUT

PAGE 1

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LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
*DIAGRAM
1 ID
2 ID Ideaware
3 ID
4 ID Developed Condition
5 ID
6 ID File N:\Ideaware Lisa Lane\DOCS\HYDROLOGY\HEC1\ideadv.DAT
7 ID
8 ID
9 IT 5 300
10 IO 5
11 IN 5
12 JR PREC 0.57 1.0
* *****
* Developed Conditions *
* *****
13 KK ON1-D
14 BA 0.0032
15 PB 2.77
16 PC 0.00 2 5.7 7 8.7 10.8 12.4 13 13 13
17 PC 13 13 13.3 14 14.2 14.8 15.8 17.2 18.1
18 PC 19 19.7 19.7 20.1 20.1 20.4 21.4 22.9 24.1 24.9
19 PC 25.1 25.6 27 27.8 28.1 28.3 29.5 32.2 35.2 40.9
20 PC 49.9 59 71 74.4 78.1 81.2 81.9 83.5 85.1 85.6
21 PC 86 86.8 87.6 88.8 91 92.6 93.7 95 97 97.6
22 PC 98.2 98.5 98.7 98.9 99 99.3 99.3 99.4 99.5 99.6
23 PC 99.8 99.9 100
24 LS 87
25 UD 0.063
26 KK ON3-D
27 BA 0.0005
28 LS 87
29 UD 0.050
30 KK OBAN
31 BA 0.0006
32 LS 98
33 UD 0.050
34 KK CP3
35 HC 3
36 ZZ

```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```

INPUT
LINE (V) ROUTING (--->) DIVERSION OR PUMP FLOW
NO. (.) CONNECTOR (<---) RETURN OF DIVERTED OR PUMPED FLOW
13 ON1-D
.
.
26 . ON3-D
.
.
30 . OBAN
.
.
34 CP3.....

```

(\*\*\*) RUNOFF ALSO COMPUTED AT THIS LOCATION  
 \*\*\*\*\*  
 \* FLOOD HYDROGRAPH PACKAGE (HEC-1) \*  
 \* JUN 1998 \*  
 \* VERSION 4.1 \*  
 \* RUN DATE 01OCT24 TIME 11:32:35 \*  
 \*\*\*\*\*

\*\*\*\*\*  
 \* U.S. ARMY CORPS OF ENGINEERS \*  
 \* HYDROLOGIC ENGINEERING CENTER \*  
 \* 609 SECOND STREET \*  
 \* DAVIS, CALIFORNIA 95616 \*  
 \* (916) 756-1104 \*  
 \*\*\*\*\*

Ideaware

Developed Condition

File N:\Ideaware Lisa Lane\DOCS\HYDROLOGY\HEC1\ideadv.DAT

10 IO OUTPUT CONTROL VARIABLES  
 IPRNT 5 PRINT CONTROL  
 IPLOT 0 PLOT CONTROL  
 QSCAL 0. HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA  
 NMIN 5 MINUTES IN COMPUTATION INTERVAL  
 IDATE 1 0 STARTING DATE  
 ITIME 0000 STARTING TIME  
 NQ 300 NUMBER OF HYDROGRAPH ORDINATES  
 NDDATE 2 0 ENDING DATE  
 NDTIME 0055 ENDING TIME  
 ICENT 19 CENTURY MARK

COMPUTATION INTERVAL .08 HOURS  
 TOTAL TIME BASE 24.92 HOURS

ENGLISH UNITS  
 DRAINAGE AREA SQUARE MILES  
 PRECIPITATION DEPTH INCHES  
 LENGTH, ELEVATION FEET  
 FLOW CUBIC FEET PER SECOND  
 STORAGE VOLUME ACRE-Feet  
 SURFACE AREA ACRES  
 TEMPERATURE DEGREES FAHRENHEIT

JP MULTI-PLAN OPTION  
 NPLAN 1 NUMBER OF PLANS

JR MULTI-RATIO OPTION  
 RATIOS OF PRECIPITATION  
 .57 1.00

1

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS  
 FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES  
 TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN	RATIOS APPLIED TO PRECIPITATION	
				RATIO 1	RATIO 2
				.57	1.00
HYDROGRAPH AT					
+	ON1-D	.00	1	FLOW TIME	2. 3.50
					5. 3.50
HYDROGRAPH AT					
+	ON3-D	.00	1	FLOW TIME	0. 3.50
					1. 3.50
HYDROGRAPH AT					
+	OBAN	.00	1	FLOW TIME	1. 3.50
					1. 3.50
3 COMBINED AT					
+	CP3	.00	1	FLOW TIME	3. 3.50
					7. 3.50

\*\*\* NORMAL END OF HEC-1 \*\*\*



## HS5 Private St Q100

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### Project Description

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Friction Method	Manning Formula
Solve For	Normal Depth

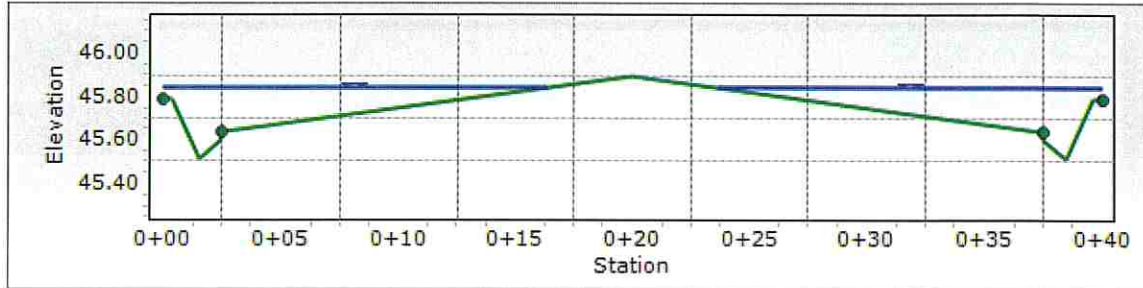
---

### Input Data

---

Channel Slope	0.0040 ft/ft
Normal Depth	0.32 ft
Discharge	5.00 cfs

---



## Worksheet for HS5 Private St Q100

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth
Input Data	
Channel Slope	0.0040 ft/ft
Discharge	5.00 cfs

### Section Definitions

Station (ft)	Elevation (ft)
0+00.00	45.79
0+00.38	45.79
0+01.50	45.52
0+02.50	45.60
0+02.50	45.64
0+20.00	45.89
0+37.50	45.64
0+37.50	45.60
0+38.50	45.52
0+39.63	45.79
0+40.00	45.79

### Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 45.79)	(0+02.50, 45.64)	0.013
(0+02.50, 45.64)	(0+37.50, 45.64)	0.017
(0+37.50, 45.64)	(0+40.00, 45.79)	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
Roughness Coefficient	0.016
Elevation	45.84 ft
Elevation Range	45.52 to 45.89 ft
Flow Area	3.7 ft <sup>2</sup>
Wetted Perimeter	32.88 ft
Hydraulic Radius	0.11 ft
Top Width	32.63 ft

## Worksheet for HS5 Private St Q100

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### Results

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Normal Depth	0.32 ft
Critical Depth	0.29 ft
Critical Slope	0.0086 ft/ft
Velocity	1.34 ft/s
Velocity Head	0.03 ft
Specific Energy	0.35 ft
Froude Number	0.700
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	N/A
Profile Headloss	0.00 ft
Downstream Velocity	0.00 ft/s
Upstream Velocity	0.00 ft/s
Normal Depth	0.32 ft
Critical Depth	0.29 ft
Channel Slope	0.0040 ft/ft
Critical Slope	0.0086 ft/ft

---

## Worksheet for HS5 Private St Q100

Messages:

Water Surface Elevation exceeds lowest end station by 0.0473515894142622ft. Flow is divided.

# HS5 Private St Q10

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## Project Description

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Friction Method	Manning Formula
Solve For	Normal Depth

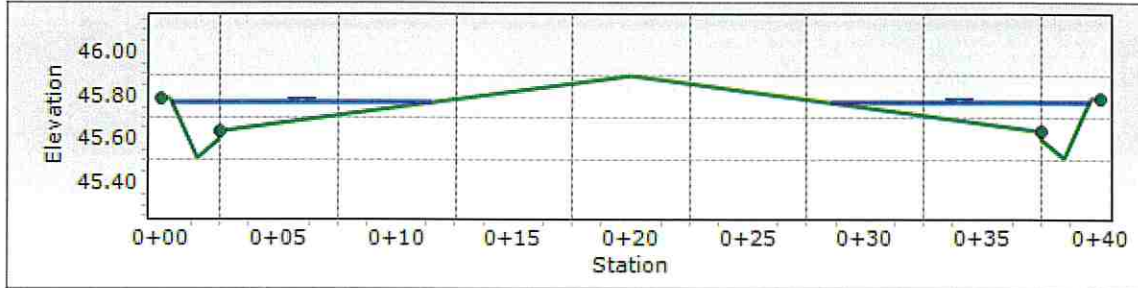
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## Input Data

---

Channel Slope	0.0040 ft/ft
Normal Depth	0.25 ft
Discharge	2.00 cfs

---



## Worksheet for HS5 Private St Q10

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth
Input Data	
Channel Slope	0.0040 ft/ft
Discharge	2.00 cfs

### Section Definitions

Station (ft)	Elevation (ft)
0+00.00	45.79
0+00.38	45.79
0+01.50	45.52
0+02.50	45.60
0+02.50	45.64
0+20.00	45.89
0+37.50	45.64
0+37.50	45.60
0+38.50	45.52
0+39.63	45.79
0+40.00	45.79

### Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 45.79)	(0+02.50, 45.64)	0.013
(0+02.50, 45.64)	(0+37.50, 45.64)	0.017
(0+37.50, 45.64)	(0+40.00, 45.79)	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	0.25 ft
Roughness Coefficient	0.016
Elevation	45.77 ft
Elevation Range	45.52 to 45.89 ft
Flow Area	1.8 ft <sup>2</sup>
Wetted Perimeter	22.21 ft
Hydraulic Radius	0.08 ft
Top Width	22.06 ft

## Worksheet for HS5 Private St Q10

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### Results

---

Normal Depth	0.25 ft
Critical Depth	0.22 ft
Critical Slope	0.0094 ft/ft
Velocity	1.09 ft/s
Velocity Head	0.02 ft
Specific Energy	0.27 ft
Froude Number	0.669
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	N/A
Profile Headloss	0.00 ft
Downstream Velocity	0.00 ft/s
Upstream Velocity	0.00 ft/s
Normal Depth	0.25 ft
Critical Depth	0.22 ft
Channel Slope	0.0040 ft/ft
Critical Slope	0.0094 ft/ft

---

## Worksheet for HS5 Private St Q10

Messages:

Flow is divided.



<b>CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM</b>		<b>DATE:</b> September 30, 2024
<b>TO:</b> Land Development Services Department of Community Development – Building & Safety Division		<b>FROM:</b> Jefferson Torrecampo, P.E. Flood Control Engineering Associate Department of Public Works
<b>SUBJECT:</b> Drainage Study for: <b>Ideaware - Three Lot Parcel Map</b>		<b>COPIES TO:</b> Baughman & Turner, Inc.
<b>Cross Streets:</b>	NEC of Lisa Lane and O'Bannon Drive	Back Lisa LV, LLC
<b>File Number:</b>	F:\Depot\DSMemos\DS5794B.doc	Bart Anderson, P.E., DevCo
<b>Parcel Number:</b>	163-04-305-004 & 163-04-305-006	
<b>Zoning Action:</b>		
<b>FEMA Flood Zone</b>	YES	NO <b>X</b>
<b>Proposed Storm Drain</b>	YES	NO <b>X</b>

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 <sup>st</sup> Submittal	7/31/2024	8/19/2024	See Comments Below	\$400.00	5868242: \$400
2 <sup>nd</sup> Submittal	9/16/2024	9/26/2024	See Comments Below	\$400.00	5929206: \$400
<b>TOTAL FEES (LDDRS):</b>				<b>\$800.00</b>	----

**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:
<b>X</b>	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. Developed Condition: Provide a new basin map and HEC-1 model per revised grading plan.
2. Provide new flow master street calculation for cross section HS5 Private St. per revised street flow.
3. Grading Plan: Label the slope around the bulb of a cul-de-sac. Slope to be not less than 0.6%.
4. Section D/C2.1: Add in the street cross section the maximum slope.

**\*\*\* The City of Las Vegas Flood Control is standardizing the file naming of drainage studies and plans during the digitizing process. When saving the project files in the CD or thumb drive, please follow the system below:**

**If drainage study only contains one combined file, use the following naming convention in Document Title:**

- 1<sup>st</sup> Submittal DS and Plans (for first and original submittal);
- 2<sup>nd</sup> Submittal DS and Plans (for second submittal (addendum #1)) etc.

**If drainage study contains multiple files, use the following naming convention in Document Title:**

**1<sup>st</sup> Submittal DS (for the report of the drainage study)**

**1<sup>st</sup> Submittal Plan 1 (could be the drainage condition maps)**

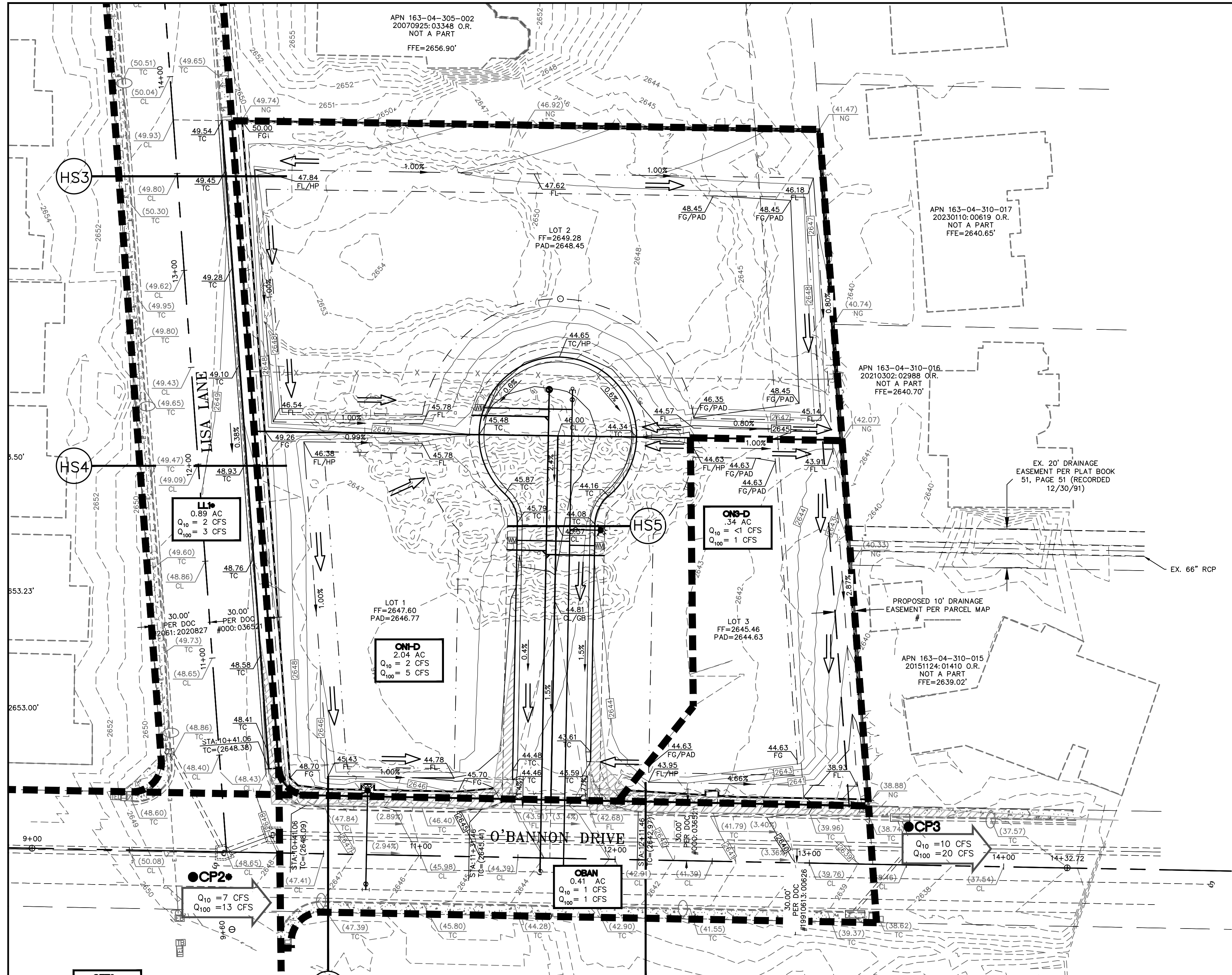
**1<sup>st</sup> Submittal Plan 2 (could be the improvement plans) etc.**

**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.

**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 Update and accepted by the *City of Las Vegas Flood Control Section*. Additionally, final approval 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.

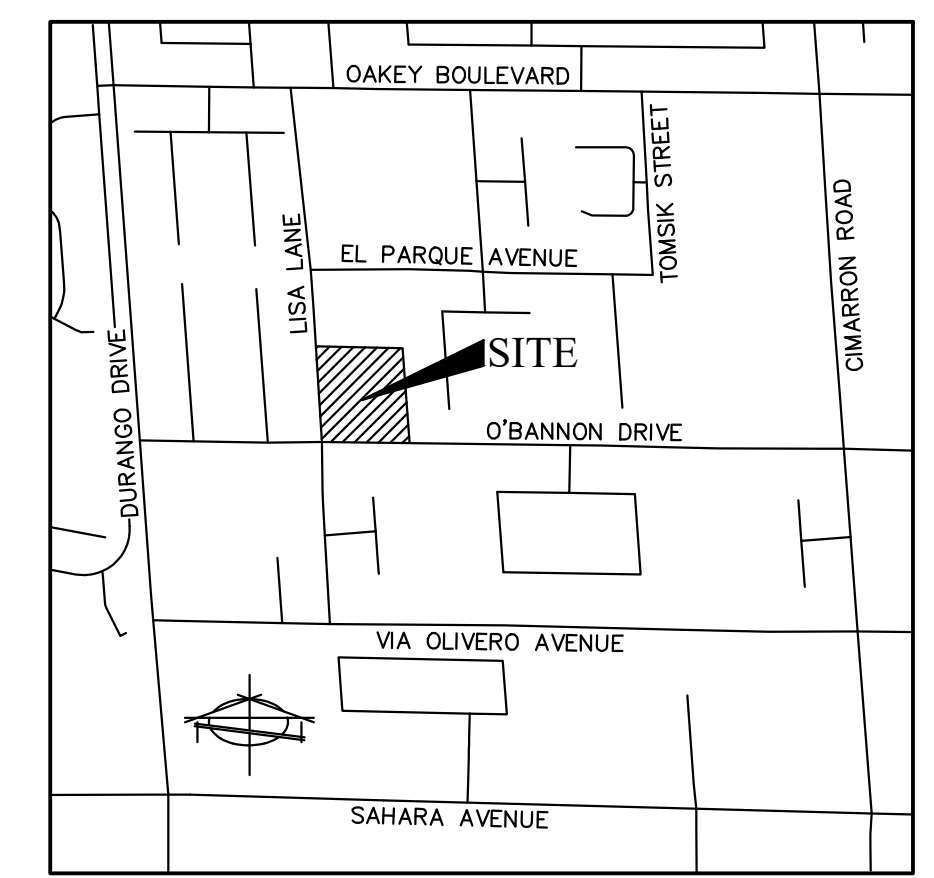
**END OF REMARKS**  
JRT

T/R/S: T21S/R60E/S4  
AREA Q-04



**DRAINAGE LEGEND**

- PROPERTY LINE
- - - LOT LINE
- STREET CENTERLINE
- - - PROPOSED WALL
- - - EXISTING WALL
- - - RETAINING FLOOD WALL
- - - PROPOSED "L" CURB & GUTTER
- - - EXISTING "L" CURB & GUTTER
- - - EXISTING CONTOUR LINES
- - - PROPOSED CONTOUR LINES
- - - EXISTING EDGE OF PAVEMENT
- 00.00 LOC PROPOSED GRADE
- 00.00 LOC EXISTING GRADE
- 0.00% EX. ELEVATION & LOCATION
- 0.00% PROPOSED GRADE
- EXISTING DRAINAGE FLOW
- CL CENTERLINE
- TC TOP OF CURB
- EP EDGE OF PAVEMENT
- FG FINISHED GRADE
- GB GRADE BREAK
- FF FINISHED FLOOR
- HP HIGHPOINT
- AC ASPHALTIC CONCRETE
- THK BLANKET THICKNESS
- - - OVERHEAD ELECTRIC LINES
- - - DRAINAGE BASIN BOUNDARY
- - - FLOOD ZONE A - ANTICIPATED REMOVAL BY A LOMR PRIOR CERTIFICATION OF OCCUPANCY INSURANCE FOR THIS PROJECT
- CPI COMBINATION POINT
- NAME BASIN NAME & FLOW DATA
- Q<sub>10</sub> = - CFS
- Q<sub>100</sub> = - CFS
- Q<sub>10</sub> = - CFS
- Q<sub>100</sub> = - CFS
- XXX HYDRAULIC SECTION (STREET CAPACITY)
- - - DETENTION BASIN BOUNDARY



VICINITY MAP  
NOT TO SCALE

Peak Flow Summary			
Source	Basin Area (ac)	100-year Flow (cfs)	10-year Flow (cfs)
REF1* (In 48" RCP)	--	115	66
LL1* (Lisa Ln)	0.89	3	2
OFF2*	3.12	10	6
CP2* (LL1*+OFF2*)	--	13	7
ON1-D	0.62	5	2
ON3-D	0.34	1	<1
OBAN	0.41	1	1
CP3 (CP2* + ON1-D + ON3-D + OBAN)	--	20	10

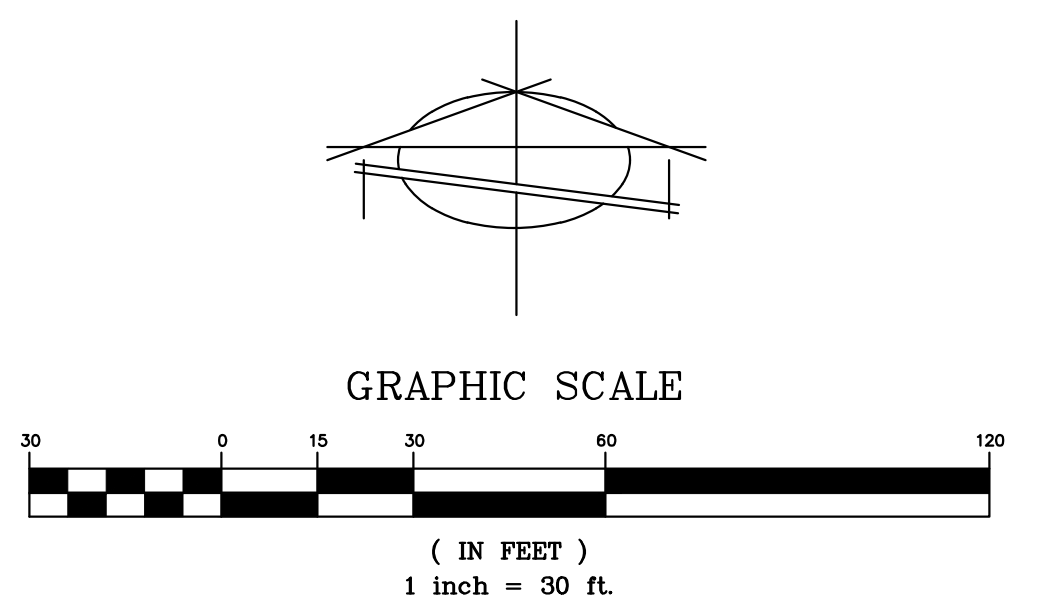
\*Includes referenced flows from Single Family Housing Project Study  
\*\*Includes referenced flows from Jones Wigam Study

**Street Capacity Summary w/storm drain - Revised**

Section	Location	Slope	Q (cfs)	D (ft)	V (fps)	V x D	Remarks
<b>10-Year Flow</b>							
HS1	O'Bannon Dr	2.89%	7	0.38	3.73	1.42	VxD <6 is met; D less than 1;
HS2	O'Bannon Dr	3.40%	8	0.32	3.34	1.07	VxD <6 is met; D less than 1;
HS3	Lisa Lane	0.38%	2	0.39	1.52	0.59	VxD <6 is met; D less than 1;
HS4	Lisa Lane	0.40%	2	0.39	1.52	0.59	VxD <6 is met; D less than 1;
HS5	Private Drive	0.40%	2	0.25	1.09	0.27	VxD <6 is met; D less than 1;
<b>100-Year Flow</b>							
HS1	O'Bannon Dr	2.89%	13	0.44	4.31	1.90	VxD <8 is met; D less than 2
HS2	O'Bannon Dr	3.40%	17	0.39	3.96	1.54	VxD <8 is met; D less than 2
HS3	Lisa Lane	0.38%	3	0.44	1.66	0.73	VxD <8 is met; D less than 2
HS4	Lisa Lane	0.40%	3	0.40	1.42	0.57	VxD <8 is met; D less than 2
HS5	Private Drive	0.40%	5	0.32	1.34	0.43	VxD <8 is met; D less than 2

**BASIS OF BEARING**  
NORTH 04°09'14" WEST - BEING THE CENTERLINE OF LISA LANE BETWEEN O'BANNON DRIVE AND EL PARQUE AVENUE, AS SHOWN IN FILE 23, PAGE 79 OF PARCEL MAPS, CLARK COUNTY RECORDER'S OFFICE, CLARK COUNTY, NEVADA.

**BENCHMARK**  
CITY OF LAS VEGAS BENCHMARK #1LV1055EE6  
RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, WEST SIDE OF DURANGO DRIVE AT O'BANNON DRIVE.  
812.65 METERS 2666.17 FEET  
NAVD 88 DATUM V.2018

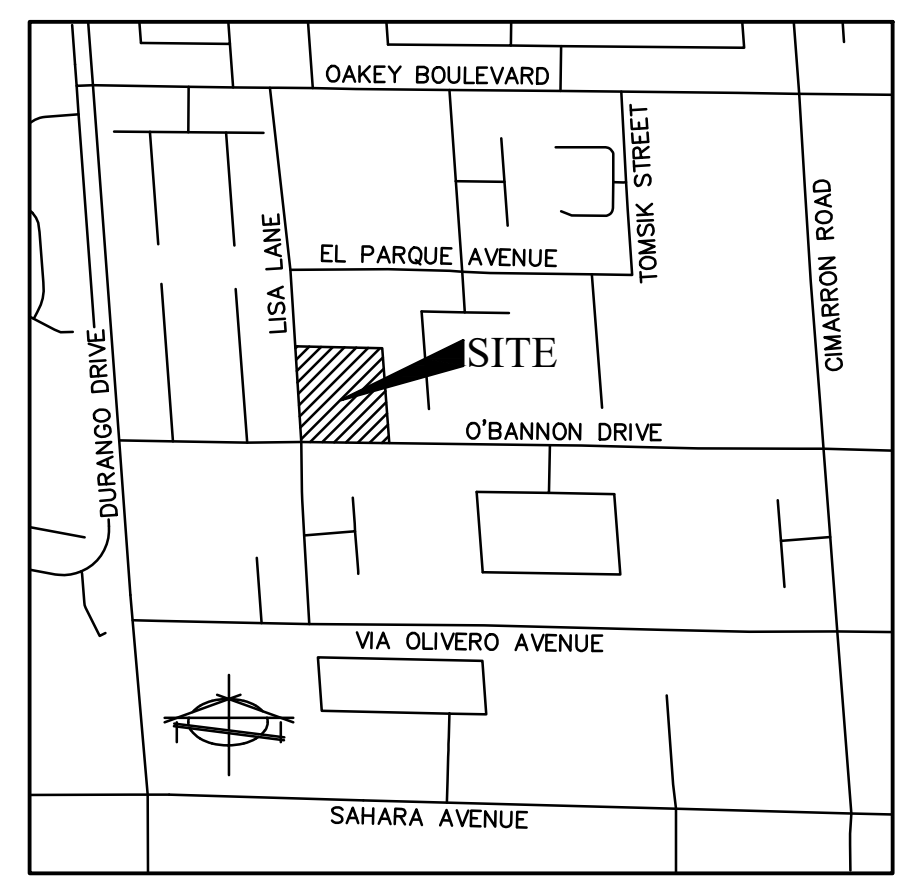
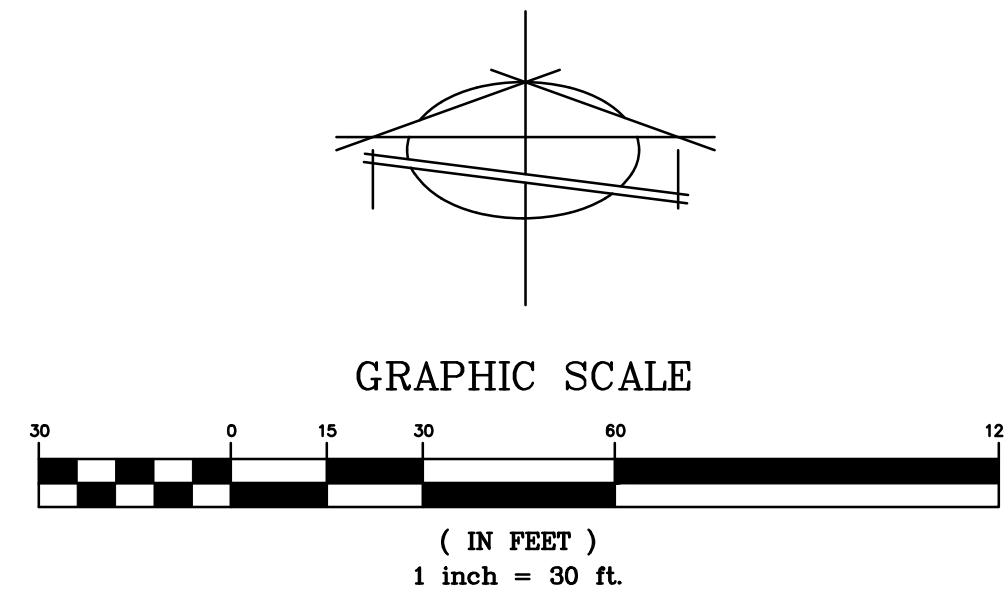
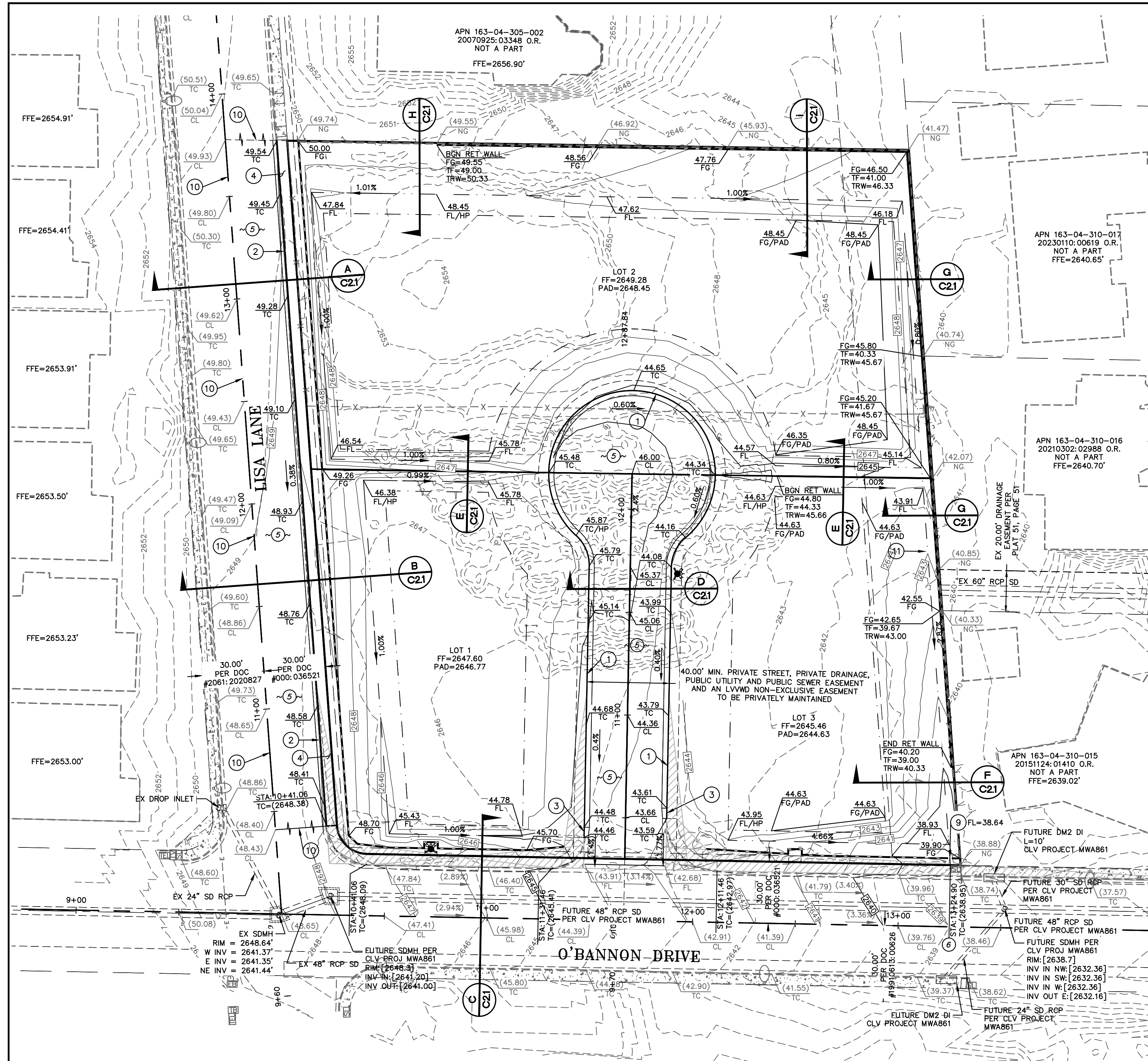


PREPARED FOR: **BACK LISA LV LLC**  
 1210 HINSON STREET, LAS VEGAS, NEVADA 89102  
 PHONE: (702) 878-2504 FAX: (702) 878-2504

DATE: 10/1/2024  
 DESIGN: BAUGHMAN & TURNER, INC.  
 DRAWN: CIVIL ENGINEERS  
 CHECK: LAND SURVEYORS  
 SCALE: LAS VEGAS, NEVADA  
 PHONE: (702) 878-2695 FAX: (702) 878-8771

**IDEAWARE**  
**DEVELOPED BASIN MAP**  
 SECTION 4, TOWNSHIP 21 SOUTH, RANGE 80 EAST, M.D.B. & M. NEVADA  
 CITY OF LAS VEGAS  
**APN 163-04-305-006 AND 004**

**FIG9**  
 PROJ. NO. 1041

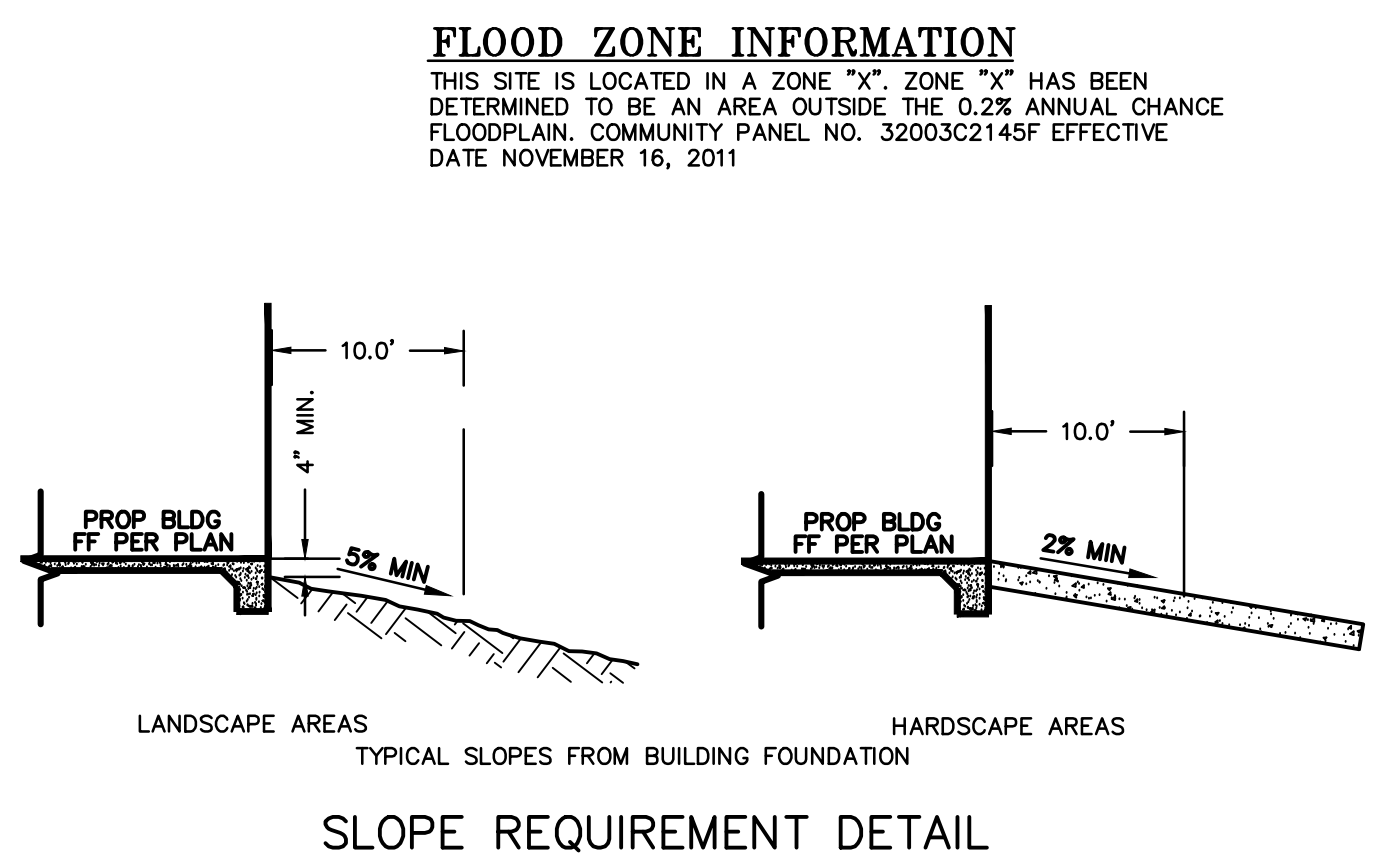


#	ITEM	UNIT	QUANTITY	
			PUBLIC	PRIVATE
1	INSTALL 30" ROLL CURB PER CCAUSD #217.2.S1	LF	-	-
2	INSTALL "L" CURB PER CCAUSD #216.	LF	-	-
3	INSTALL 5' LONG TRANSITION FROM "L" CURB AND GUTTER TO 30" ROLL CURB	EA	-	-
4	INSTALL SIDEWALK PER CCAUSD #234.	SF	-	-
5	CONSTRUCT 3" MIN AC PAVEMENT OVER 4" MIN TYPE II A.G. BASE.	SY	-	-
6	INSTALL SIDEWALK UNDERDRAIN PER CCAUSD #236	EA	-	-
7	CONSTRUCT RETAINING WALL PER SNBORS DWG. B-100-2	LF	-	-
8	CONSTRUCT MASONRY WALL PER SNBORS DWG. B-101	LF	-	-
9	INSTALL 48"x16" WALL OPENING PER DETAIL 1 ON SHEET C2.1	EA	-	-
10	SAWCUT NEAT AND MATCH EXISTING	LF	-	-

LEGEND	
	PROPERTY LINE
	STREET CENTERLINE
	LOT LINE
	BUILDING SETBACK LINE
	PROPOSED ROLL CURB
	EXISTING "L" CURB & GUTTER
	EXISTING CONTOUR LINES
	PROPOSED FLOW LINE
	SAW CUT LINE
	PROPOSED EDGE OF PAVEMENT
	EXIST. EDGE OF PAVEMENT
	PROPOSED BLOCK WALL
	PROPOSED SCARP
	EXIST. BLOCK WALL
	SAW CUT AREA
	MATCHLINE
	PROPOSED ELEVATION & LOCATION
	EXISTING ELEVATION & LOCATION
	PROPOSED GRADE
	CONSTRUCTION NOTE
	PROPOSED HYDRANT
	SIGHT VISIBILITY ZONE*
	ROADWAY EASEMENT
	ASPHALTIC CONCRETE
	CENTERLINE
	TOP OF CURB
	EDGE OF PAVEMENT
	FINISHED GRADE
	TOP OF FOOTING
	TOP OF RETAINING WALL
	TOP OF FLOOD WALL
	TOP OF STEM WALL
	BACK OF SIDEWALK
	GRADE BREAK
	BEGIN VERTICAL CURVE
	END VERTICAL CURVE
	FINISHED FLOOR
	FLOW LINE
	HIGH POINT
	INVERT
	LINEAR FEET
	LOW POINT
	LANDSCAPE
	SOUTHWEST GAS
	PUBLIC UTILITY EASEMENT
	PRIVATE DRAINAGE EASEMENT
	PRIVATE SEWER EASEMENT
	PRIVATE LANDSCAPE EASEMENT
	MINIMUM
	MAXIMUM
	TOP OF CONCRETE SLAB
	EXISTING
	PROPERTY LINE
	NATURAL GRADE
	EDGE OF PAYMENT
	ASSESSOR'S PARCEL NUMBER
	NOT TO SCALE
	SANITARY SEWER
	DIAMETER
	REINFORCED CONCRETE PIPE
	RIGHT-OF-WAY

**STORMWATER MANAGEMENT NOTES**

- THE OWNER, SITE DEVELOPER, CONTRACTOR, AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATED IN, THE PUBLIC RIGHTS OF WAYS OF THE CITY OF LAS VEGAS AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
- 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 LVMC 14.18.130 AND THE LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDANCE MANUAL.
- TEMPORARY OR PERMANENT STABILIZATION PRACTICES WILL BE INSTALLED ON DISTURBED AREAS AS SOON AS PRACTICABLE AND NO LONGER 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 NVR10000, SECTION III.A.5.
- 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 ALL 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 PROTECTION 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 NVR10000, SECTION III.A.12.
- 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.
- POST-CONSTRUCTION BMPs (PCBMPs)/CONTROL MEASURES NOTED ON THE GRADING PLANS ARE MANDATORY PERMANENT REGULATORY STORMWATER POLLUTION CONTROLS. THESE PCBMPs MUST BE INSTALLED PER THE APPROVED PLANS AND MUST BE PERMANENTLY MAINTAINED.



**RECORDED DEED LEGAL DESCRIPTION**

THAT PORTION OF GOVERNMENT LOT FIFTY-FIVE (55) LYING WITHIN THE NORTHWEST QUARTER (NW 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF SECTION 4, TOWNSHIP 21 SOUTH, RANGE 60 EAST, M.D.B. & M., DESCRIBED AS FOLLOWS:

LOTS THREE (3) AND FOUR (4) AS SHOWN BY MAP THEREOF ON FILE IN FILE 23 OF PARCEL MAPS, PAGE 79, IN THE OFFICE OF THE COUNTY RECORDER, CLARK COUNTY, NEVADA.

**BASIS OF BEARING**

NORTH 04°09'14" WEST - BEING THE CENTERLINE OF LISA LANE BETWEEN O'BANNON DRIVE AND EL PARQUE AVENUE, AS SHOWN IN FILE 23, PAGE 79 OF PARCEL MAPS, CLARK COUNTY RECORDER'S OFFICE, CLARK COUNTY, NEVADA.

**BENCHMARK**

CITY OF LAS VEGAS BENCHMARK #1LV105566

RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, WEST SIDE OF DURANGO DRIVE AT O'BANNON DRIVE.

812.65 METERS NAVD 88 DATUM V.2018 2666.17 FEET

ALL FUTURE IMPROVEMENTS PER CLV PROJECT MWA861 MEADOWS-CHARLESTON STORM DRAIN VIA OLIVERO

**AREA OF DISTURBANCE**

OFFSITE: 0.29 AC  
ONSITE: 2.41 AC

**EARTHWORK QUANTITIES**

OFFSITE:      ONSITE:  
CUT: 450 CY      3550 CY  
FILL: 125 CY      5040 CY  
NET: 325 CY CUT      1490 CY FILL

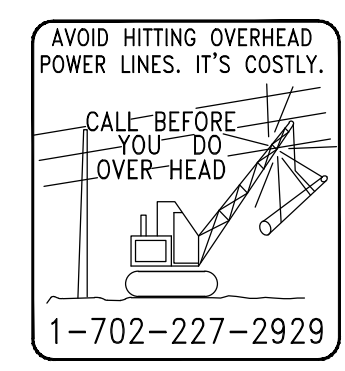
**ENGINEERS CERTIFICATE**

I CERTIFY THAT THIS GRADING PLAN CONFORMS TO THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT THE CITY OF LAS VEGAS, NEVADA. #055794

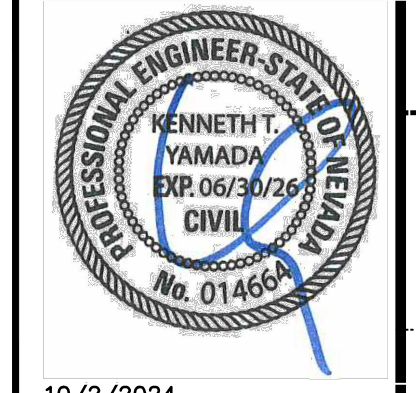
KENNETH T. YAMADA, P.E. 014664      DATE

**DISCLAIMER NOTE**

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.



**CLV PROJECT # ----**



PREPARED FOR: BAUGHMAN & TURNER, INC. DATE: 2/29/2024

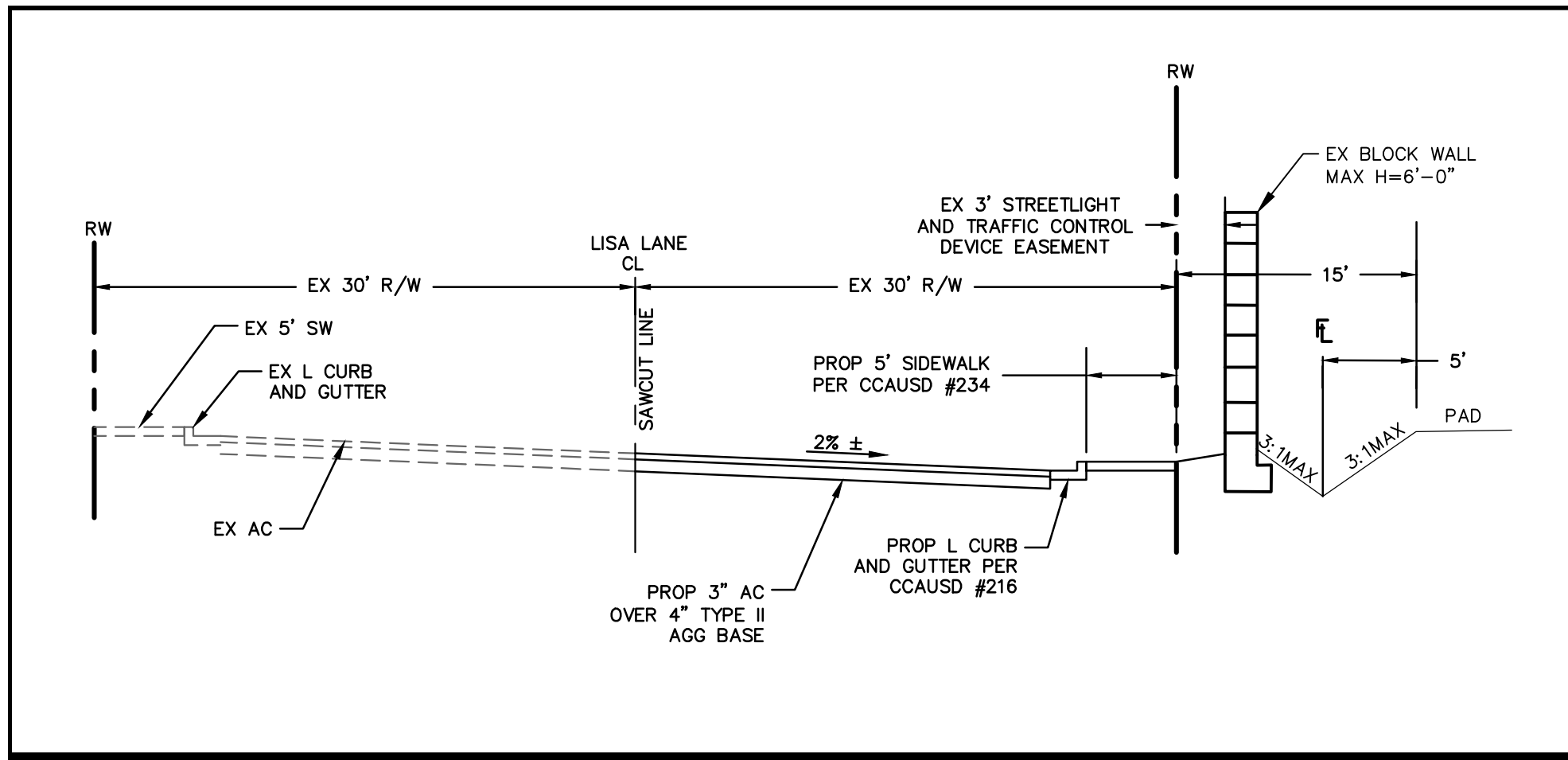
DESIGN: MJ      DRAWN: MJ      CHECK: KTY

CIVIL ENGINEERS      LAND SURVEYORS      LAND PLANNERS      LAS VEGAS, NEVADA

1210 HINSON STREET      PHONE: (702) 870-8771      FAX: (702) 878-2695      89102

IDEAWARE      SECTION 4, TOWNSHIP 21 SOUTH, RANGE 60 EAST, M.D.B. & M., NEVADA      CITY OF LAS VEGAS      APN 163-04-305-006 AND 004

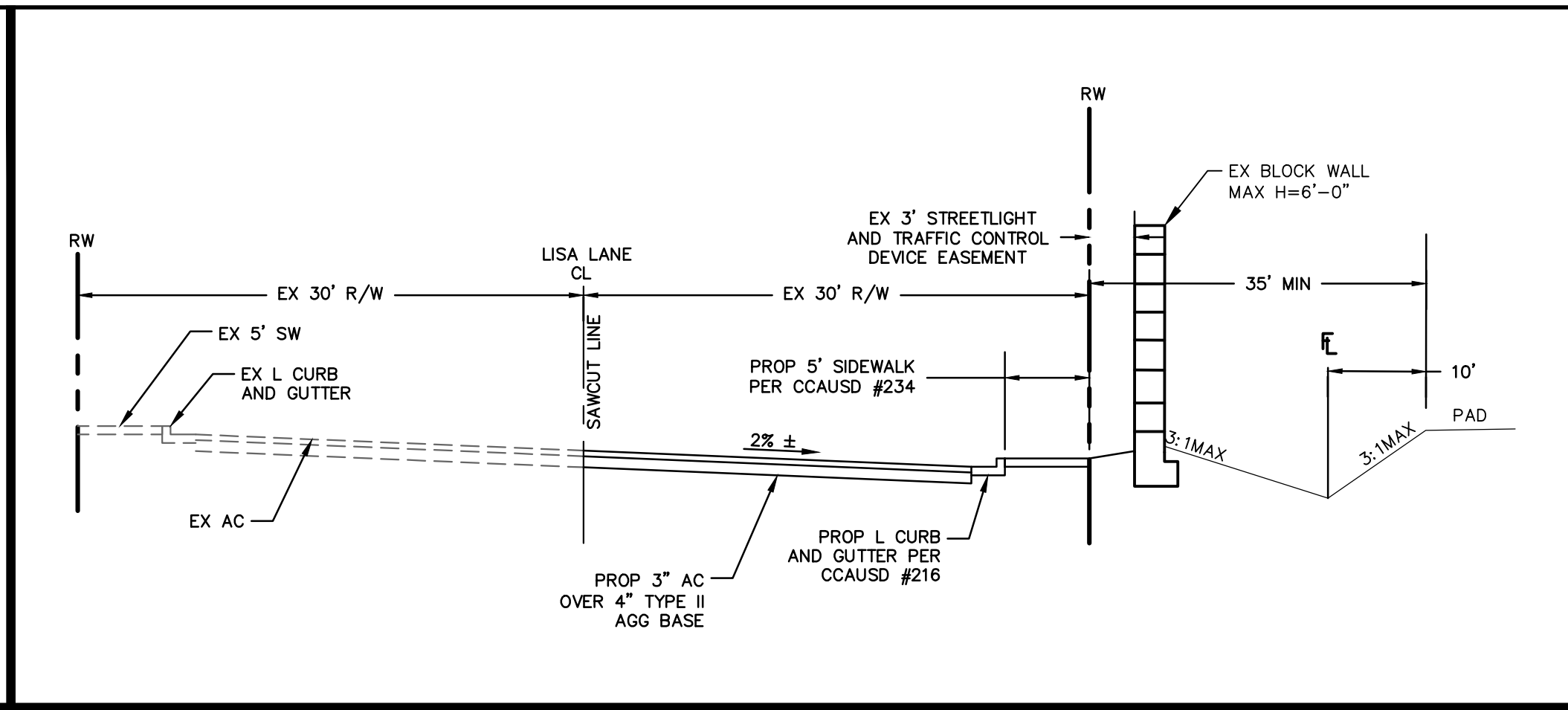
SHEET C2.0      OF      PROJ. NO. 1041



SECTION

N.T.S.

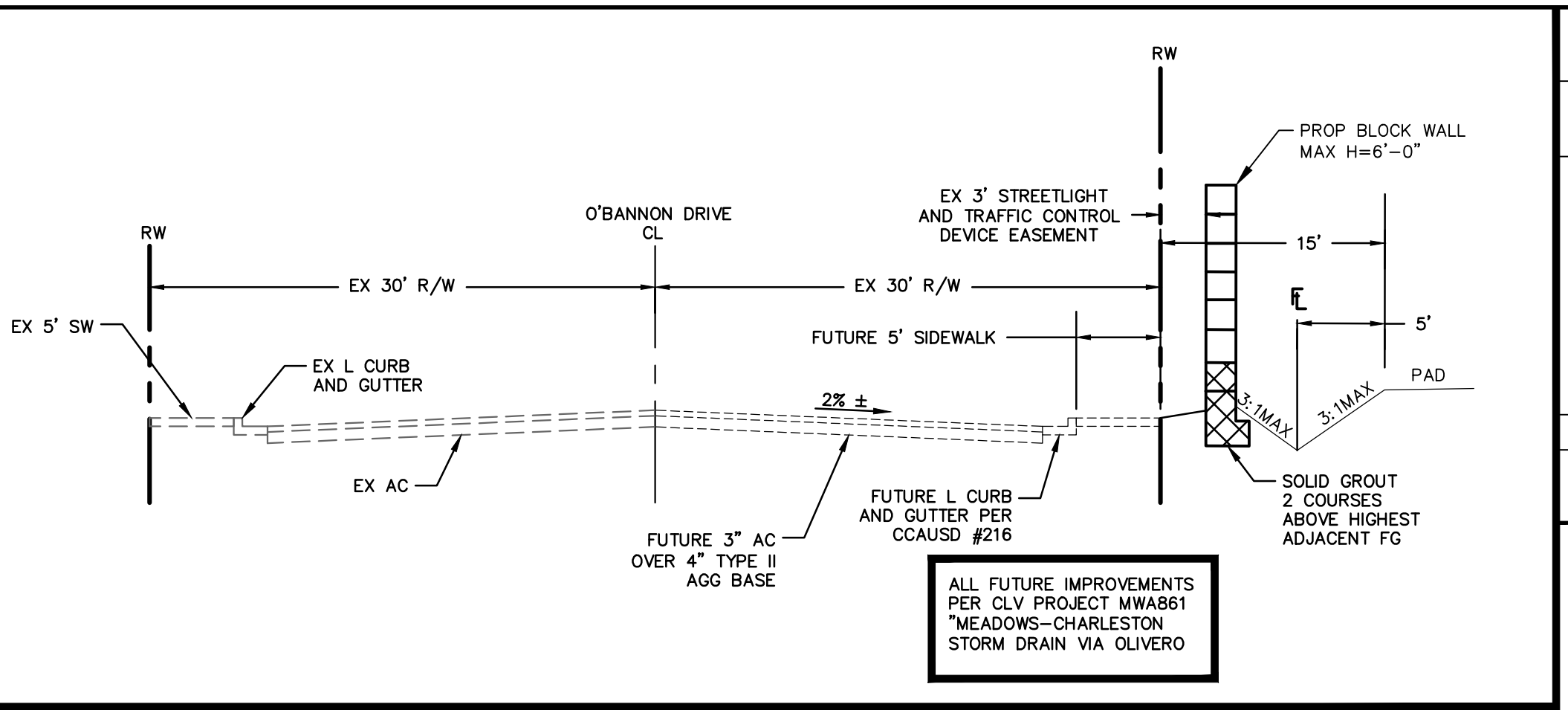
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SECTION

N.T.S.

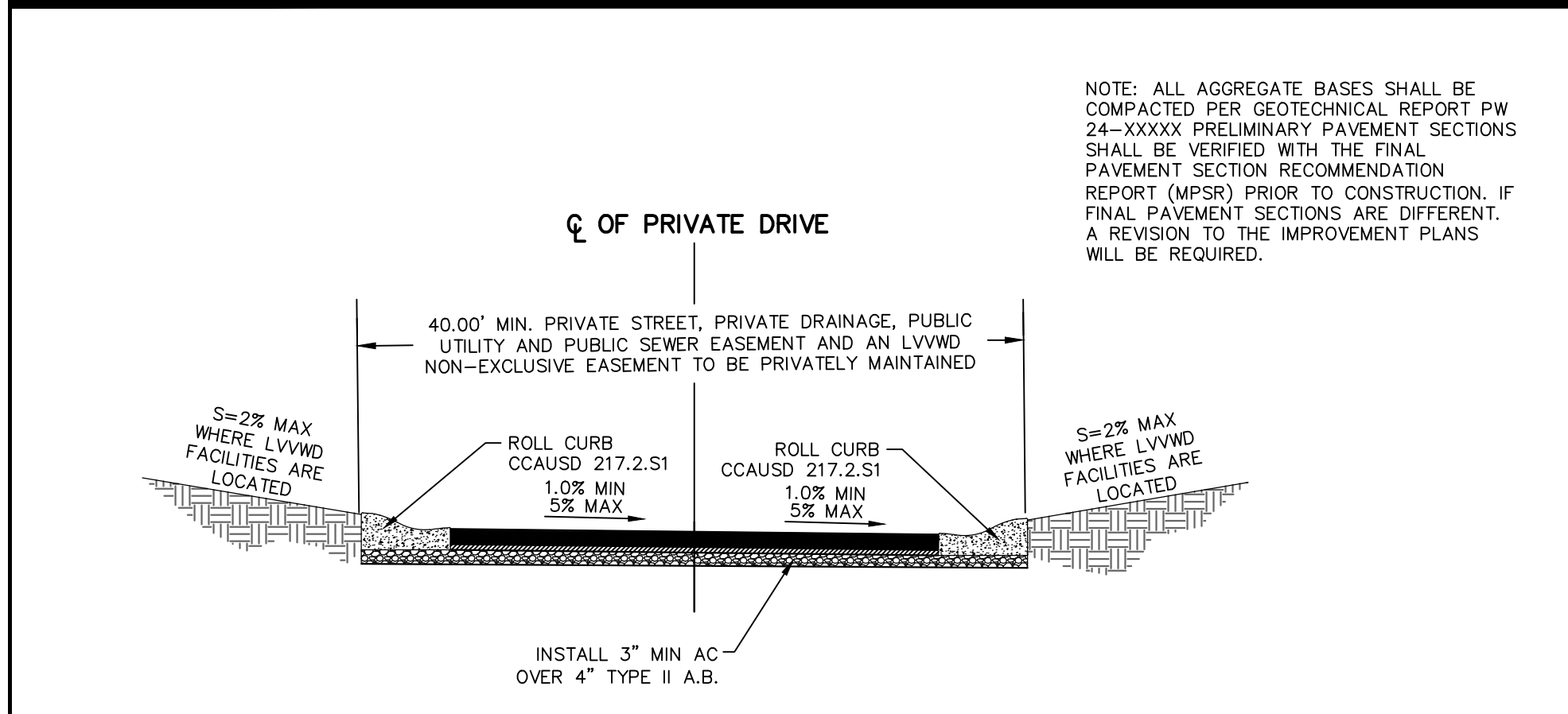
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SECTION

N.T.S.

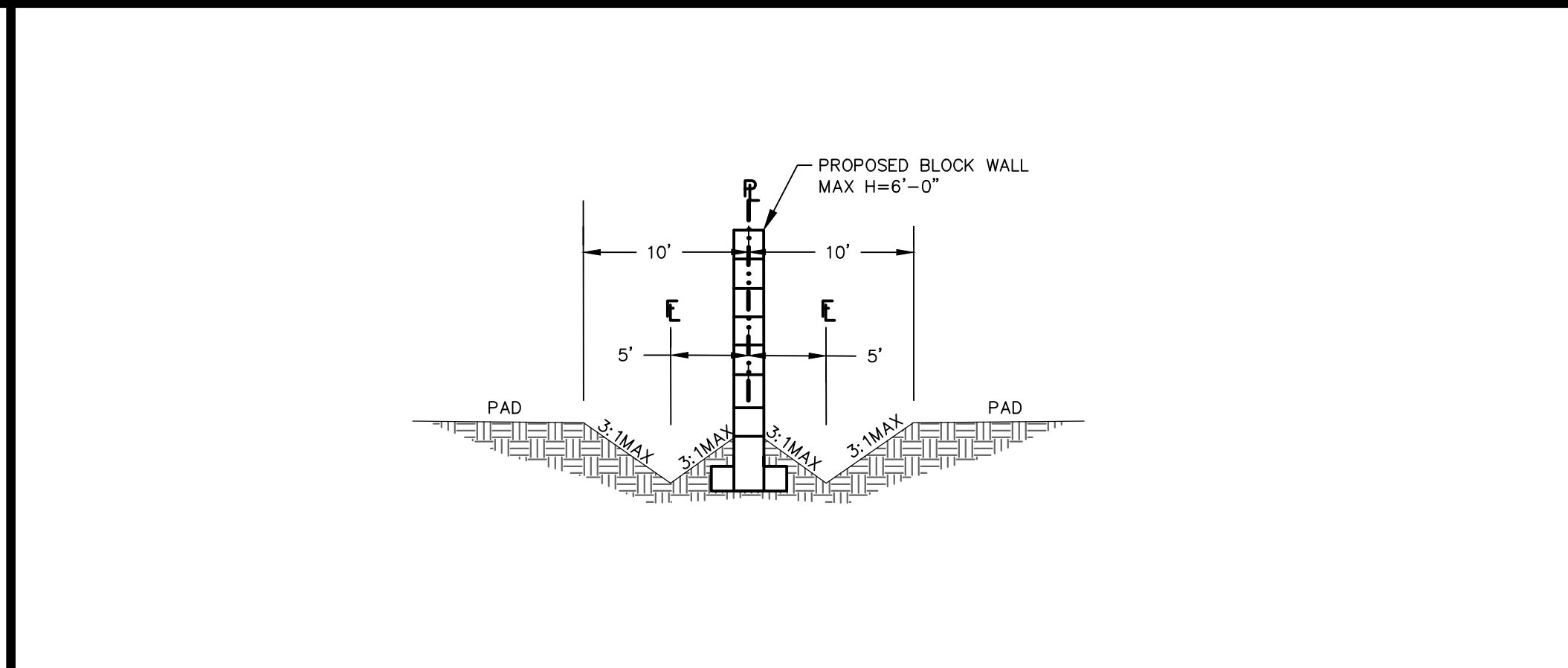
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SECTION.

N.T.S.

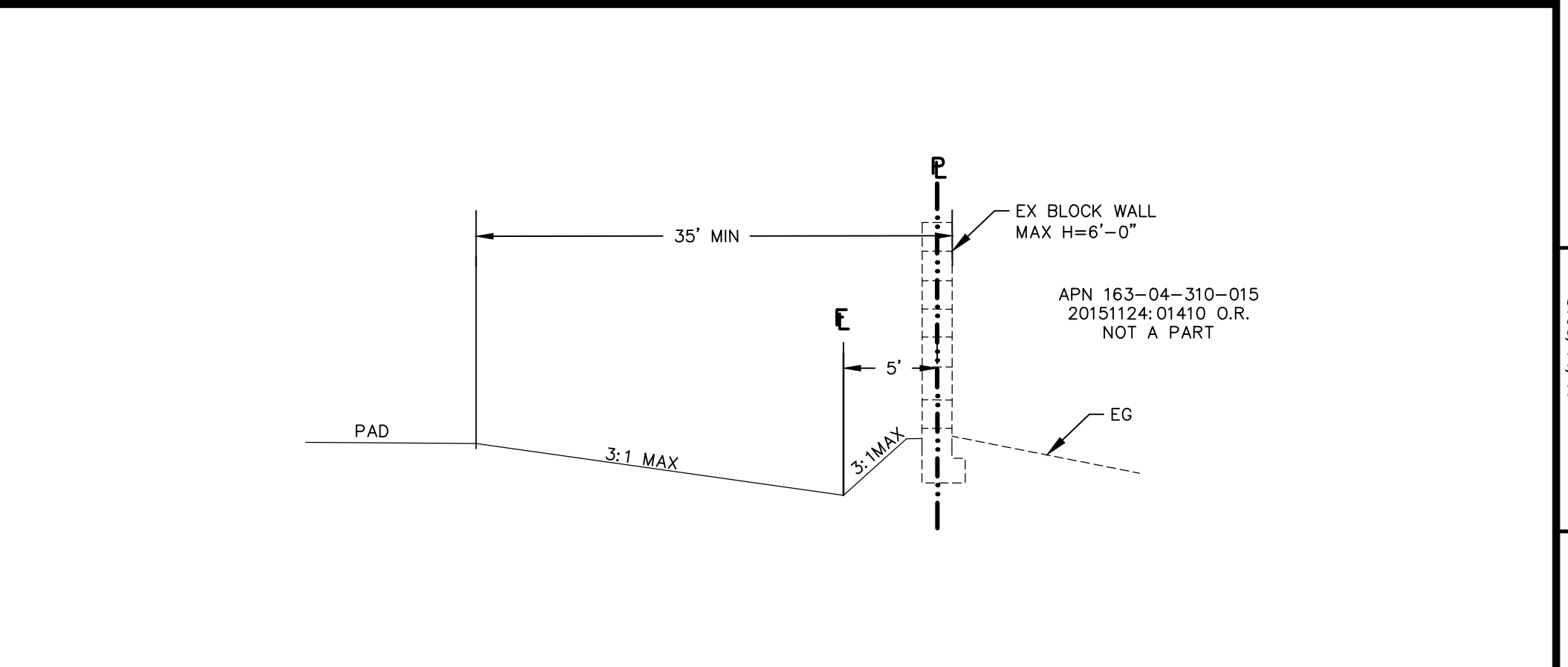
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SECTION

N.T.S.

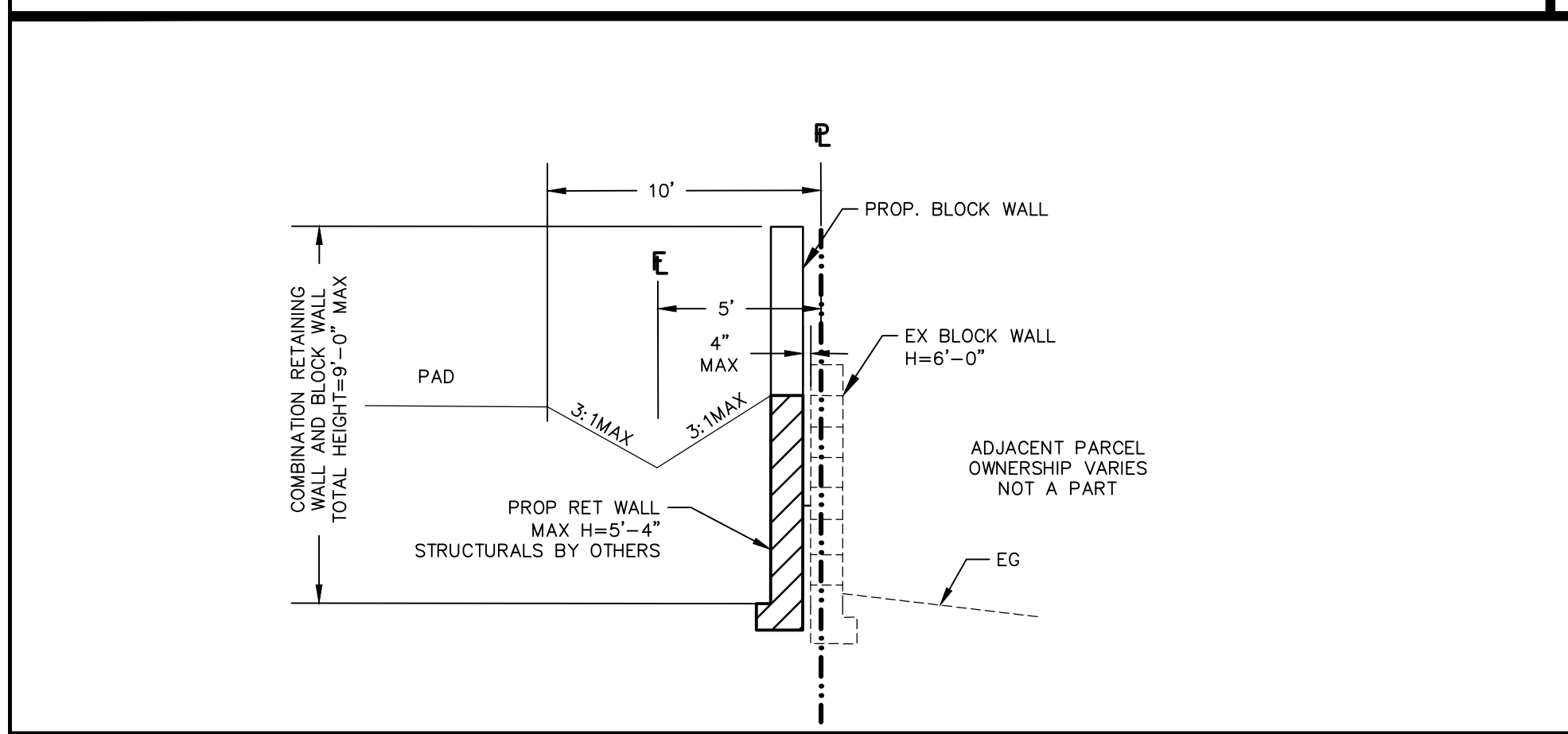
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SECTION

N.T.S.

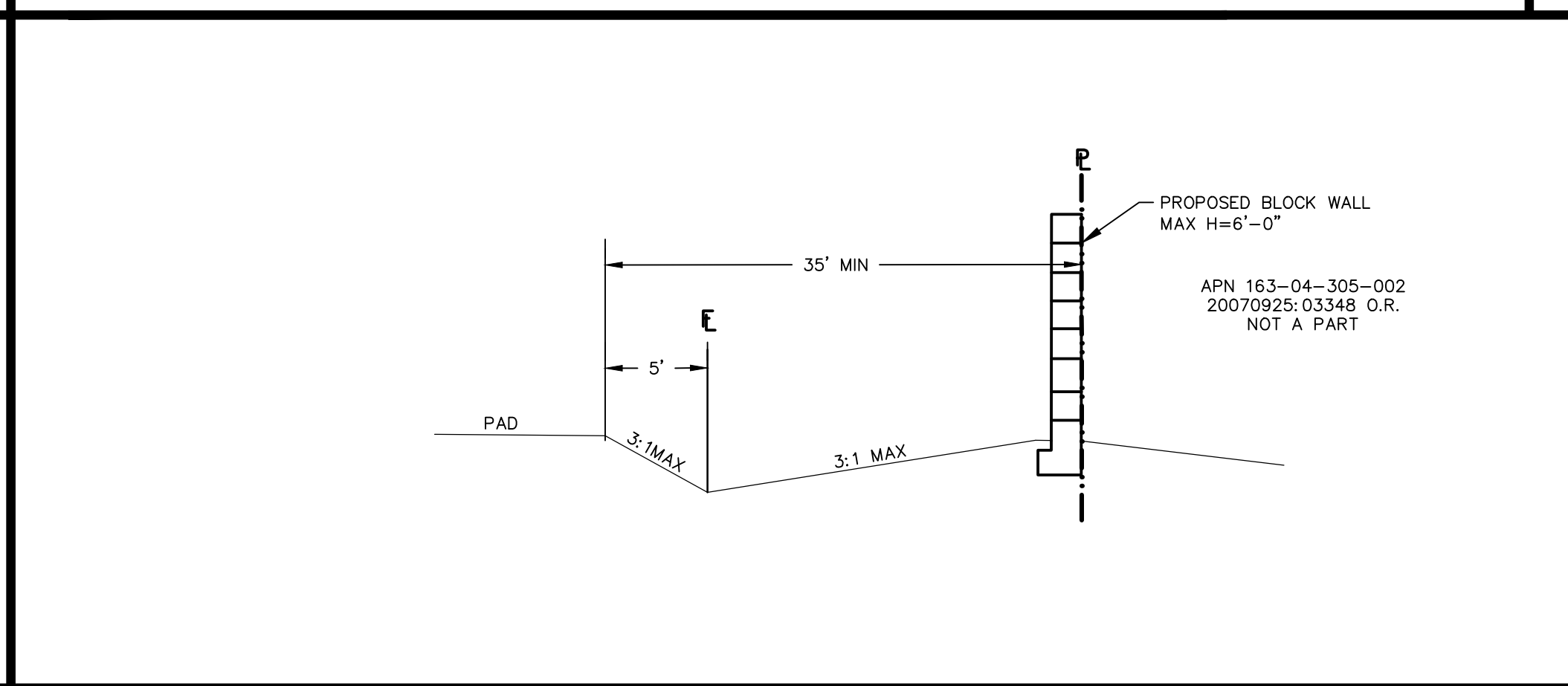
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SECTION.

N.T.S.

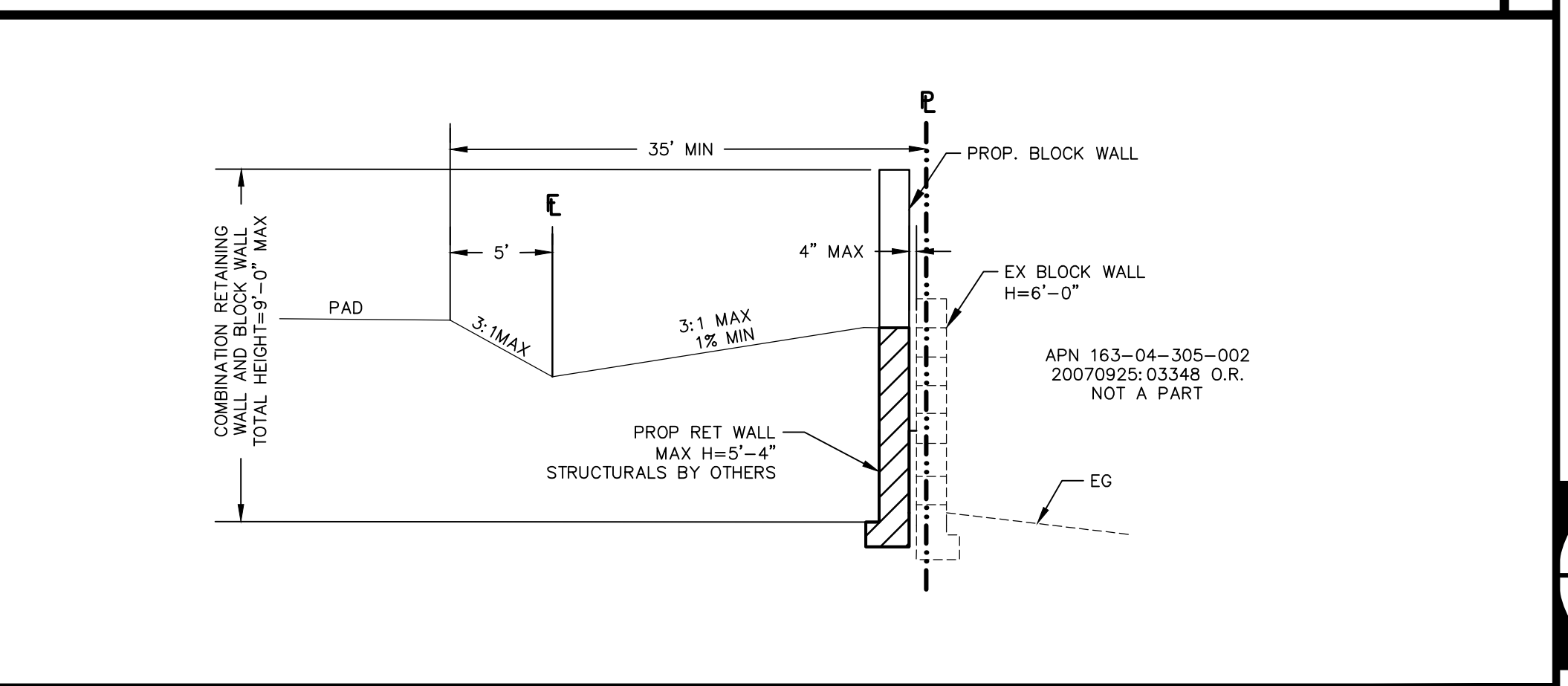
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SECTION

N.T.S.

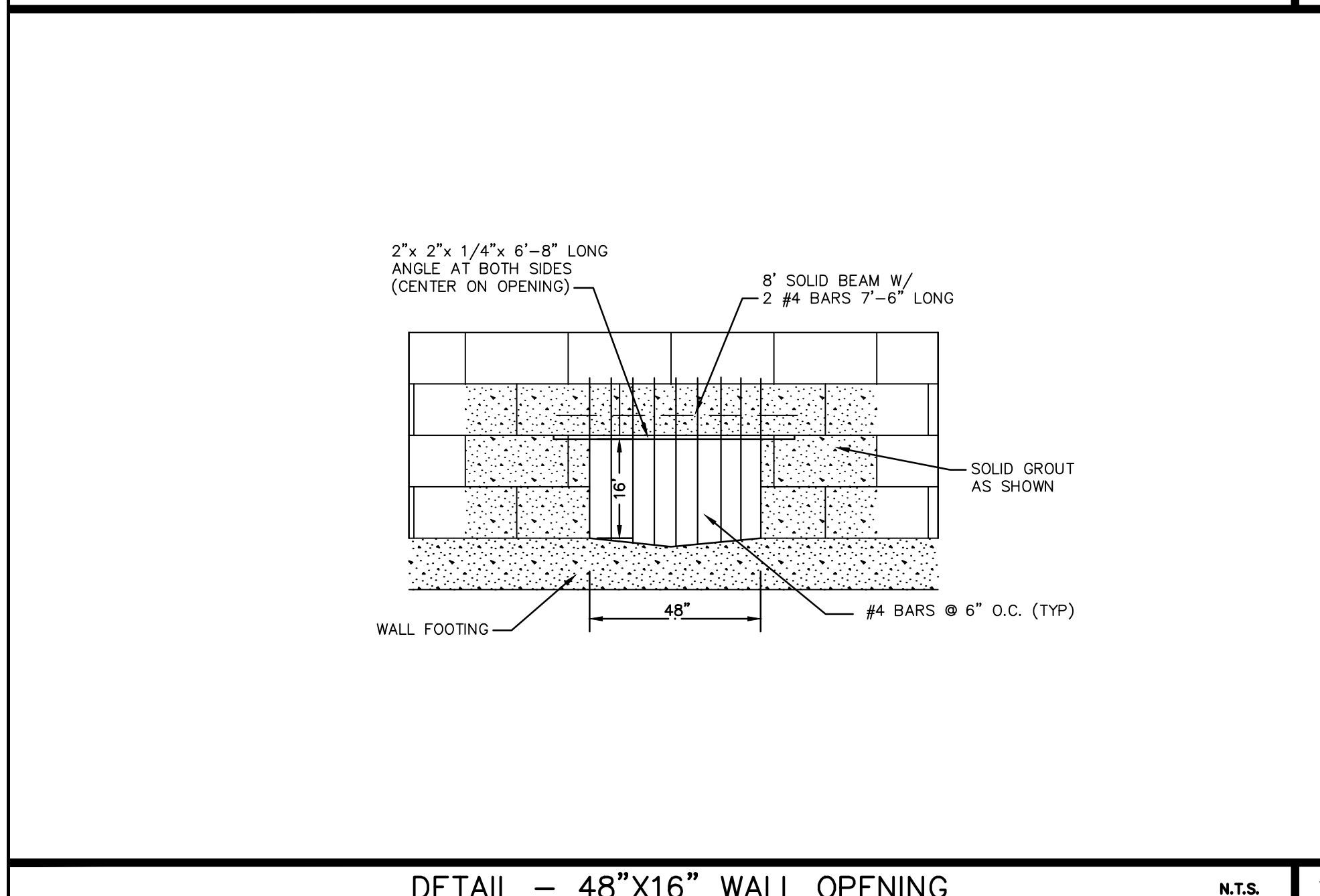
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SECTION

N.T.S.

I



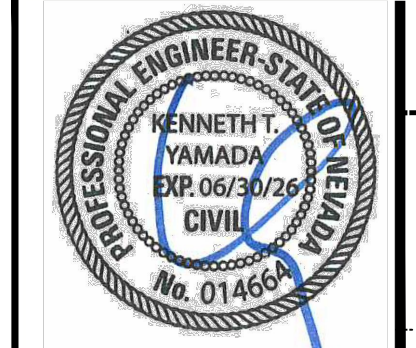
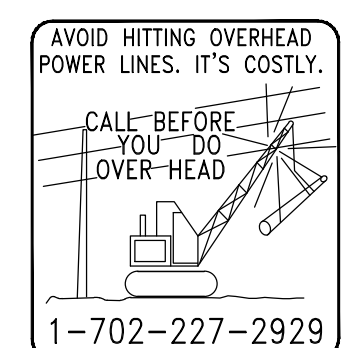
DETAIL - 48"X16" WALL OPENING

N.T.S.

I

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IDEAREWARE  
 SECTIONS AND DETAIL SHEET  
 SECTION 4, TOWNSHIP 21 SOUTH, RANGE 80 EAST, M.D.B. & M.  
 CITY OF LAS VEGAS  
 APN 163-04-305-006 AND 004  
 SHEET C2.1 OF 1041  
 PROJ. NO. 1041  
 DATE 10/2/2024  
 PREPARED FOR: BACK LISA L.V. LLC  
 949-970-2504  
 DATE 11/14/2018  
 DESIGN MU  
 DRAWN MU  
 CHECK KTY  
 SCALE  
 BAUGHMAN & TURNER, INC.  
 LAND PLANNERS  
 LAS VEGAS, NEVADA  
 1210 HINSON STREET  
 PHONE: (702) 870-8771  
 FAX: (702) 878-2695  
 89102