

DS #:

4922

APN:

138-13-512.061

PROJECT:

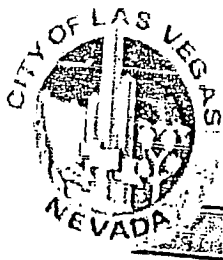
Crystal Parc Apartments

SUBMITTAL:

5th

SCANNED BY/DATE:

CHECKED BY/DATE:



|                                                                            |                                                       |                                                                                               |
|----------------------------------------------------------------------------|-------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| <b>CITY OF LAS VEGAS<br/>INTER-OFFICE MEMORANDUM</b>                       |                                                       | <b>DATE:</b><br>October 23, 2018                                                              |
| <b>TO:</b><br>Land Development Services<br>Department of Building & Safety |                                                       | <b>FROM:</b><br>Jennifer Shinn<br>Flood Control Engr, Associate<br>Department of Public Works |
| <b>SUBJECT:</b>                                                            | Drainage Study for:<br><b>Crystal Park Apartments</b> | <b>COPIES TO:</b><br>VTN, Nevada                                                              |
| <b>Cross Streets:</b>                                                      | SEQ of Cheyenne Boulevard & Michael Way               | EAB Investment Company                                                                        |
| <b>File Number:</b>                                                        | F:\Depot\DSMemos\DS4922G.doc                          | Bart Anderson, P.E., DevCo                                                                    |
| <b>Parcel Number:</b>                                                      | 138-13-512-001                                        | CCRFCD                                                                                        |
| <b>Zoning Action:</b>                                                      | SDR-41779 & EOT-71642                                 |                                                                                               |
| <b>FEMA Flood Zone</b>                                                     | YES <b>X</b> NO                                       |                                                                                               |
| <b>Proposed Storm Drain</b>                                                | YES      NO <b>X</b>                                  |                                                                                               |

| HISTORY                          | DATE RECEIVED          | DATE REVIEWED | COMMENTS             | REVIEW FEES       | FEES PAID<br>Payment Trn # |
|----------------------------------|------------------------|---------------|----------------------|-------------------|----------------------------|
| 1 <sup>st</sup> Submittal        | 10/2/2017 & 10/11/2017 | 10/25/2017    | Not Approved         | \$400.00          | 490395: \$400              |
| 2 <sup>nd</sup> Submittal        | 12/20/2017             | 1/18/2018     | Not Approved         | \$400.00          | 492266: \$400              |
| 3 <sup>rd</sup> Submittal        | 2/13/2018              | 2/22/2018     | Not Approved         | \$400.00          | 493368: \$400              |
| 4 <sup>th</sup> Submittal        | 3/12/2018              | 3/27/2018     | Not Approved         | \$400.00          | 494071: \$400              |
| Supplement                       | 7/11/2018              | 7/31/2018     | Conditional Approval | N/C               | N/C                        |
| Revision for Contribution Amount | 8/30/2018              | 8/30/2018     | Conditional Approval | N/C               | N/C                        |
| 5 <sup>th</sup> Submittal        | 10/22/2018             | 10/23/2018    | See Comments Below   | \$400.00          | ????                       |
| <b>TOTAL FEES (LDDRS):</b>       |                        |               |                      | <b>\$2,000.00</b> | <b>----</b>                |

**REMARKS:**

5<sup>th</sup> Submittal: Address CCRFCD comments

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

|          |                                                                                                |
|----------|------------------------------------------------------------------------------------------------|
|          | is approved subject to conformance to all City standards and the following conditions:         |
|          | must be resubmitted or supplemented including the following:                                   |
| <b>X</b> | is conditionally approved subject to Clark County Regional Flood Control District concurrence. |

**Note to Land Development: A monetary contribution for future storm drain construction in the amount of \$180,000.00 must be collected from the developer prior to the final approval of the improvement plans.**

1. **This drainage study is acceptable in concept;** however, *City of Las Vegas* will not formally accept the study until the *Clark County Regional Flood Control District (CCRFCD)* has issued a letter of concurrence. The engineer should contact the CCRFCD to confirm that they have begun their review.
2. In lieu of the construction of a required storm drain system in the frontage of the subject site in *Michael Way*, the developer and the *City Flood Control* has reached an agreement for monetary contribution in the amount of \$180,000.00. The contribution money will be collected prior to the final approval of the improvement plans.



3. The approval of this drainage study is limited to the interim or Phase 1 partial development of the subject site which clears away from the FEMA flood zone area. Note that future development encroaching into the remaining flood zone area will require a drainage study update to obtain a CLOMR prior to any future building permits being issued. The FEMA flood zone must be removed by a LOMR prior to the full build out and occupancy permits of the site.
4. **Sheet DT2:** Section R: Clearly show that the 6'-wall is to be solid grouted at the bottom three courses.

**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, conditional acceptance 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.

**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**  
Jks/ays

T/R/S: T20S/R60E/13  
AREA L-13

Addendum # 4 to the  
Technical Drainage Study for

**Crystal Park Apartments**  
*Las Vegas, Nevada*

W.O. # 7844

*Prepared for:*

EAB Investment Company

*Submitted to:*

City of Las Vegas



**ADDENDUM #4 TO THE  
TECHNICAL DRAINAGE STUDY  
FOR  
CRYSTAL PARK APARTMENTS  
CITY OF LAS VEGAS, NEVADA  
W.O. # 7844**

Prepared for:  
**EAB INVESTMENT COMPANY**

Submitted To:  
**CITY OF LAS VEGAS**





October 16, 2017

W.O. #7844

City of Las Vegas  
Public Works Department  
Development Services Center

Attention: Albert Sung, P.E., CFM  
Flood Control Project Engineer

**SUBJECT: ADDENDUM #4 TO THE TECHNICAL DRAINAGE STUDY FOR CRYSTAL PARK APARTMENTS**

Mr. Sung:

This *Addendum #4 to the Technical Drainage Study for Crystal Park Apartments (DS4922E)* is being submitted to the City of Las Vegas Land Department of Public Works to address review comments dated September 10, 2018.

**Comment #1**

**The project is proposing a 6-ft wall along the alleyway on the northern boundary of the project site. In the existing condition, there is a chain link fence and the flow split of 53 cfs appears to overtop into the project site. The proposed improvements will potentially raise the water surface elevation in the alleyway and may adversely impact the adjacent properties to the north and must be quantified and addressed. Per discussion with the City of Las Vegas, provide pre-development and post-project hydraulic analysis for this section to ensure that the project does not impose a negative impact on adjacent properties.**

RESPONSE: Typically, normal depth cross sections extend from the property line regardless of the flow depth. The site property line is also at the outside face of the proposed block wall. Therefore, the pre and post section geometry are the same, and no existing condition normal depth calculations have been included with this submittal. Developed Condition normal depth calculations and the cross section exhibit are included in the appendix of this submittal.

Note that the included drainage map takes into consideration the full buildout condition and includes sections 99, 101, 103, and 105. The Phase 1 portion of the site will consider Sections 101, 103, and 105. Hydraulic characteristics are consistent for both the full build out and Phase 1 conditions at Sections 101, 103, and 105. The existing building finish floor elevations are based on the AutoCad surface developed

from the existing topographic information. The building finish floors were moved to the center of each building to more accurately reflect the correct interpolated value.

**Comment #2**

**Address solid grouting the proposed 6-ft wall along the alleyway on the northern boundary of the project site as required for flows against the proposed wall.**

RESPONSE: Solid grouting height is shown on the grading plans. Copies of the Normal Depth calculations and the exhibit are included in the appendix of this letter.

I hope this addresses your concerns regarding this project. If there are any questions or any additional information is required, please contact this office.

Sincerely,

VTN Consulting

William J. Meyer, P.E.  
Project Manager

**From:** Ching Wang [<mailto:CWang@regionalflood.org>]

**Sent:** Monday, September 10, 2018 9:38 AM

**To:** Bill Meyer; [YSung@LasVegasNevada.GOV](mailto:YSung@LasVegasNevada.GOV)

**Cc:** Ching Wang

**Subject:** CRYSTAL PARK APARTMENTS

Subject: CRYSTAL PARK APARTMENTS

We have received your submittal for the TECHNICAL Drainage Study.

\*\*\*Title: CRYSTAL PARK APARTMENTS

\*\*\*Entity #: DS4922E

\*\*\*RFCD #: 18-10117

Please note that we did not receive the following item(s):

Notes: In order for the District to process the concurrence letter, the Engineer must address the following and provide supplemental calculations and any revised grading plans to City of Las Vegas and Regional Flood Control District:

1. The project is proposing a 6-ft wall along the alleyway on the northern boundary of the project site. In the existing condition, there is a chain link fence and the flow split of 53 cfs appears to overtop into the project site. The proposed improvements will potentially raise the water surface elevation in the alleyway and may adversely impact the adjacent properties to the north and must be quantified and addressed. Per discussion with the City of Las Vegas, provide pre-development and post-project hydraulic analysis for this section to ensure that the project does not impose a negative impact on adjacent properties.
2. Address solid grouting the proposed 6-ft wall along the alleyway on the northern boundary of the project site as required for flows against the proposed wall.

The above referenced comment is sent as an email comment to be addressed with a supplemental submittal to expedite concurrence of this project.

In order to begin review of the study, please submit the above item(s). If the above item(s) are not received within 60 days, this submittal will be discarded.

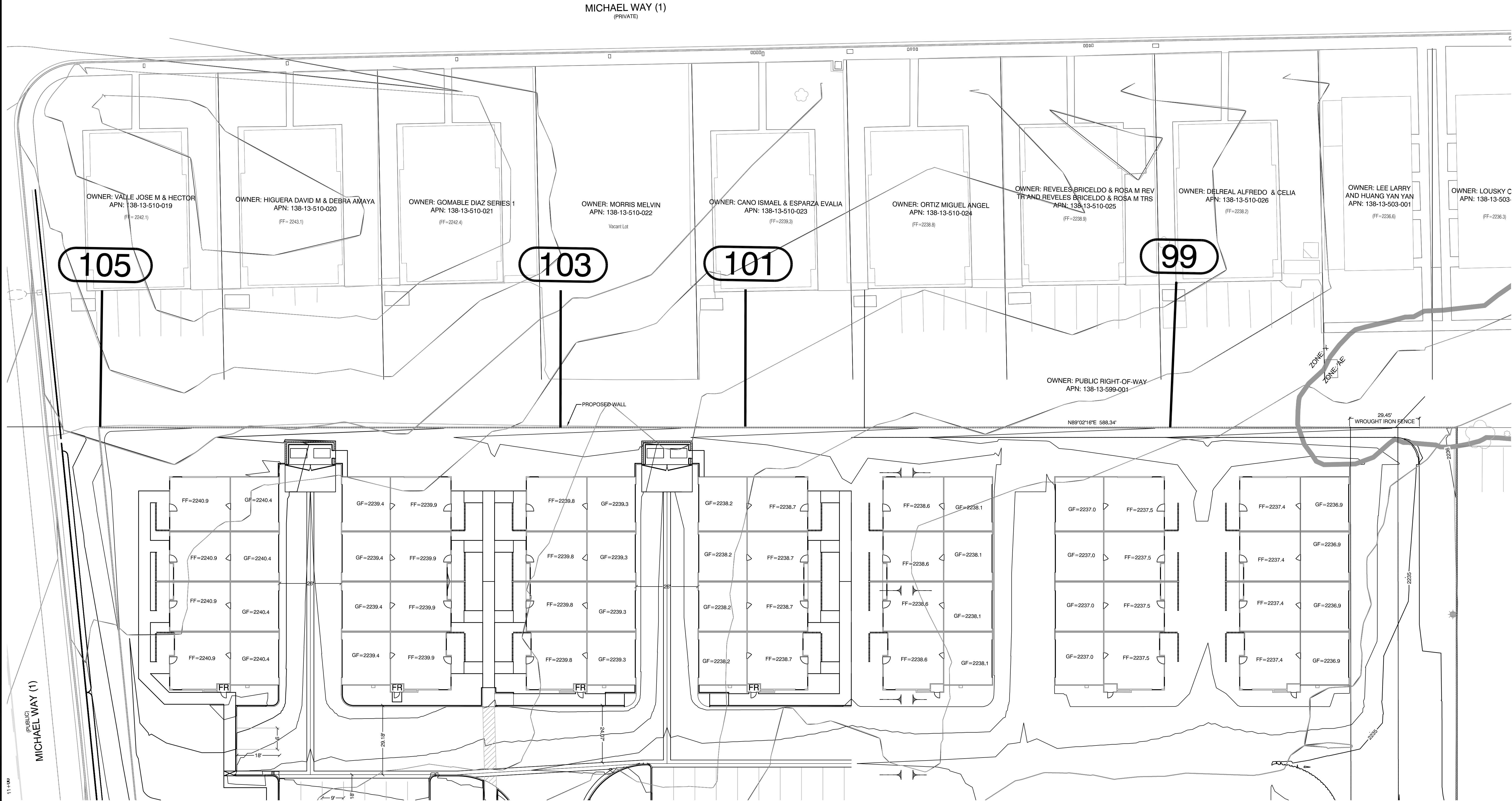
Regional Flood Control District  
600 S Grand Central PKWY Suite 300

Phone: 702-685-0000

Fax: 702-685-0001

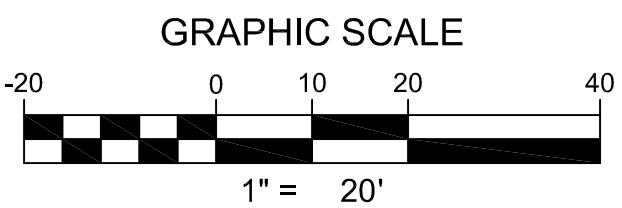
**FIGURE**





| River Sta | Slope (%) | Flow (cfs) | Velocity (ft/s) | Froude # | Flow Depth (ft) | D x V | Total Req'd. Depth |
|-----------|-----------|------------|-----------------|----------|-----------------|-------|--------------------|
| 105       | 0.3       | 53         | 3.19            | 0.82     | 0.95            | 3.03  | 1.90               |
| 103       | 2.9       | 53         | 6.22            | 2.19     | 0.50            | 3.11  | 1.00               |
| 101       | 1.0       | 53         | 4.81            | 1.37     | 0.76            | 3.66  | 1.52               |
| 99        | 1.9       | 53         | 7.00            | 1.90     | 0.84            | 5.88  | 1.68               |

| Parcel         | Flow Depth (ft) | Flowline (ft) | Flow Depth (ft) | Req'd FF (ft) | Actual FF (ft) | Difference | Flowmaster Section |
|----------------|-----------------|---------------|-----------------|---------------|----------------|------------|--------------------|
| 138-13-510-019 | 0.95            | 2240.19       | 2241.14         | 2242.09       | 2242.1         | 0.0        | 105                |
| 138-13-510-020 | 0.95            | 2240.17       | 2241.12         | 2242.07       | 2243.1         | 1.0        | 105                |
| 138-13-510-021 | 0.95            | 2239.94       | 2240.89         | 2241.84       | 2242.4         | 0.6        | 105                |
| 138-13-510-022 | 0.50            | 2238.14       | 2238.64         | NA            | Vacant Lot     | NA         | 103                |
| 138-13-510-023 | 0.76            | 2237.71       | 2238.47         | 2239.23       | 2239.3         | 0.1        | 101                |
| 138-13-510-024 | 0.76            | 2237.30       | 2238.06         | 2238.82       | 2238.8         | 0.0        | 101                |
| 138-13-510-025 | 0.71            | 2236.77       | 2237.48         | 2238.19       | 2239.0         | 0.8        | 99                 |
| 138-13-510-026 | 0.71            | 2236.28       | 2236.99         | 2237.70       | 2237.9         | 0.2        | 99                 |



ALLEYWAY NORMAL  
DEPTH EXHIBIT

CRYSTAL PARK APARTMENTS

EAB INVESTMENT COMPANY

3065 N. RANCHO #130  
LAS VEGAS, NV 89113

CITY OF LAS VEGAS

2727 SOUTH RAINBOW BOULEVARD  
LAS VEGAS, NEVADA 89146-5148  
PH: (702) 673-7550 FAX: (702) 362-2597  
WEB: WWW.VTNV.COM  
CONSULTING ENGINEERS • PLANNERS • LAND SURVEYORS

|                     |                                      |
|---------------------|--------------------------------------|
| DRAWN BY:<br>ATM    | SEPTEMBER 2018                       |
| DESIGNED BY:        |                                      |
| CHECKED BY:<br>WJA  |                                      |
| PROJECT NO:<br>7844 | SCALE: 1"=20'<br>HORIZ.<br>VERT. N/A |

|             |
|-------------|
| SHEET       |
| OF SHEETS   |
| DRAWING NO. |

H:\7844\Drawings\840034-A\_Figures\7844 - HCD-18-10117 Revised.dwg



# **NORMAL DEPTH SECTIONS**

## Worksheet for Proposed Alley XS99

### Project Description

|                 |                 |
|-----------------|-----------------|
| Friction Method | Manning Formula |
| Solve For       | Normal Depth    |

### Input Data

|                     |         |       |
|---------------------|---------|-------|
| Channel Slope       | 0.01900 | ft/ft |
| Discharge           | 53.00   | ft³/s |
| Section Definitions |         |       |

| Station (ft) | Elevation (ft) |
|--------------|----------------|
| 1+00         | 1.98           |
| 1+42         | 0.00           |
| 1+42         | 6.00           |

### Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---------------|----------------|-----------------------|
| (1+00, 1.98)  | (1+42, 0.00)   | 0.016                 |
| (1+42, 0.00)  | (1+42, 6.00)   | 0.015                 |

### 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     | 0.84            | ft    |
| Elevation Range  | 0.00 to 6.00 ft |       |
| Flow Area        | 7.57            | ft²   |
| Wetted Perimeter | 18.79           | ft    |
| Hydraulic Radius | 0.40            | ft    |
| Top Width        | 17.92           | ft    |
| Normal Depth     | 0.84            | ft    |
| Critical Depth   | 1.09            | ft    |
| Critical Slope   | 0.00483         | ft/ft |

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## Worksheet for Proposed Alley XS99

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### Results

|                 |               |      |
|-----------------|---------------|------|
| Velocity        | 7.00          | ft/s |
| Velocity Head   | 0.76          | ft   |
| Specific Energy | 1.61          | ft   |
| Froude Number   | 1.90          |      |
| 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        | 0.84     | ft    |
| Critical Depth      | 1.09     | ft    |
| Channel Slope       | 0.01900  | ft/ft |
| Critical Slope      | 0.00483  | ft/ft |

## Cross Section for Proposed Alley XS99

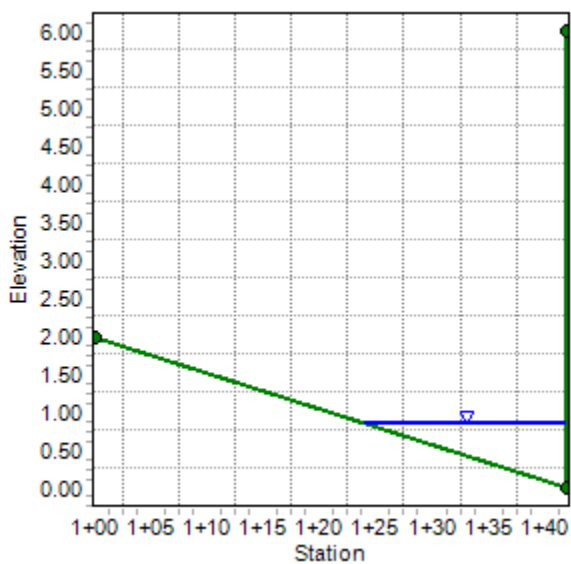
### Project Description

|                 |                 |
|-----------------|-----------------|
| Friction Method | Manning Formula |
| Solve For       | Normal Depth    |

### Input Data

|               |         |                    |
|---------------|---------|--------------------|
| Channel Slope | 0.01900 | ft/ft              |
| Normal Depth  | 0.84    | ft                 |
| Discharge     | 53.00   | ft <sup>3</sup> /s |

### Cross Section Image



## Project Description

## Input Data

| Station (ft) | Elevation (ft) |
|--------------|----------------|
|--------------|----------------|

## Roughness Segment Definitions

|              |              |       |
|--------------|--------------|-------|
| (1+00, 1.11) | (1+42, 0.00) | 0.016 |
| (1+42, 0.00) | (1+42, 6.00) | 0.015 |

## Options

## Results

Bentley Systems, Inc. Haestad Methods Solution Center  
Bentley Software Master V8i (SELECTseries 1) [08.11.01.03]

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## Worksheet for Proposed Alley XS101

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### Results

|                 |               |      |
|-----------------|---------------|------|
| Velocity        | 4.81          | ft/s |
| Velocity Head   | 0.36          | ft   |
| Specific Energy | 1.12          | ft   |
| Froude Number   | 1.37          |      |
| 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        | 0.76     | ft    |
| Critical Depth      | 0.87     | ft    |
| Channel Slope       | 0.01000  | ft/ft |
| Critical Slope      | 0.00509  | ft/ft |



## Cross Section for Proposed Alley XS101

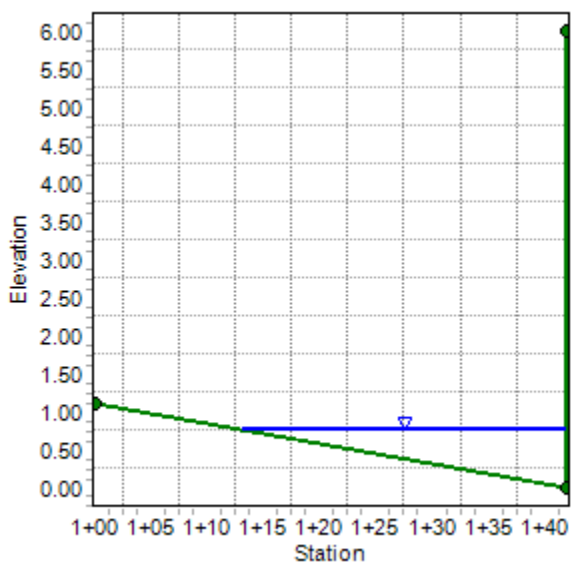
### Project Description

|                 |                 |
|-----------------|-----------------|
| Friction Method | Manning Formula |
| Solve For       | Normal Depth    |

### Input Data

|               |         |                    |
|---------------|---------|--------------------|
| Channel Slope | 0.01000 | ft/ft              |
| Normal Depth  | 0.76    | ft                 |
| Discharge     | 53.00   | ft <sup>3</sup> /s |

### Cross Section Image



## Worksheet for Proposed Alley XS103

### Project Description

Friction Method                      Manning Formula  
Solve For                              Normal Depth

### Input Data

Channel Slope                                              0.02900    ft/ft  
Discharge                                                53.00    ft<sup>3</sup>/s  
Section Definitions

| Station (ft) | Elevation (ft) |
|--------------|----------------|
| 0+00         | 2.09           |
| 1+42         | 0.00           |
| 1+42         | 6.00           |

### Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---------------|----------------|-----------------------|
| (0+00, 2.09)  | (1+42, 0.00)   | 0.016                 |
| (1+42, 0.00)  | (1+42, 6.00)   | 0.015                 |

### 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                                              0.50    ft  
Elevation Range                                        0.00 to 6.00 ft  
Flow Area                                                8.52    ft<sup>2</sup>  
Wetted Perimeter                                       34.53    ft  
Hydraulic Radius                                       0.25    ft  
Top Width                                                34.02    ft  
Normal Depth                                              0.50    ft  
Critical Depth                                            0.69    ft  
Critical Slope                                            0.00543    ft/ft

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## Worksheet for Proposed Alley XS103

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### Results

|                 |               |      |
|-----------------|---------------|------|
| Velocity        | 6.22          | ft/s |
| Velocity Head   | 0.60          | ft   |
| Specific Energy | 1.10          | ft   |
| Froude Number   | 2.19          |      |
| 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        | 0.50     | ft    |
| Critical Depth      | 0.69     | ft    |
| Channel Slope       | 0.02900  | ft/ft |
| Critical Slope      | 0.00543  | ft/ft |

## Cross Section for Proposed Alley XS103

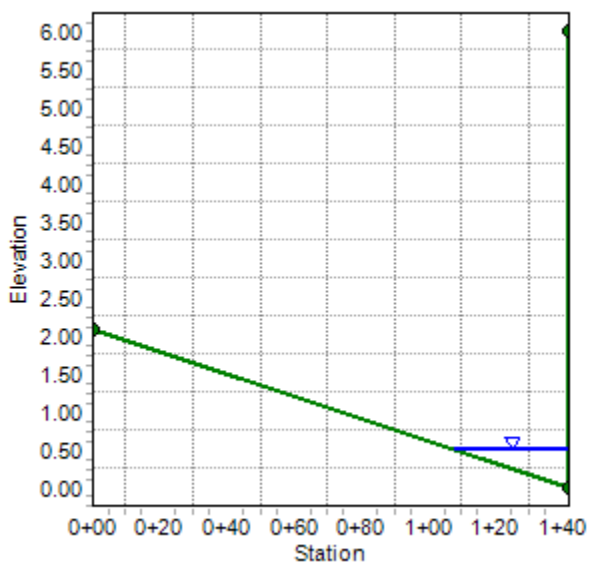
### Project Description

|                 |                 |
|-----------------|-----------------|
| Friction Method | Manning Formula |
| Solve For       | Normal Depth    |

### Input Data

|               |         |                    |
|---------------|---------|--------------------|
| Channel Slope | 0.02900 | ft/ft              |
| Normal Depth  | 0.50    | ft                 |
| Discharge     | 53.00   | ft <sup>3</sup> /s |

### Cross Section Image



## Project Description

## Input Data

Station (ft)

Elevation (ft)

## Roughness Segment Definitions

Start Station

Ending Station

### Roughness Coefficient

|              |              |       |
|--------------|--------------|-------|
| (1+00, 1.13) | (1+42, 0.00) | 0.016 |
| (1+42, 0.00) | (1+42, 6.00) | 0.015 |

## 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     | 0.95            | ft    |
| Elevation Range  | 0.00 to 6.00 ft |       |
| Flow Area        | 16.63           | ft²   |
| Wetted Perimeter | 36.12           | ft    |
| Hydraulic Radius | 0.46            | ft    |
| Top Width        | 35.16           | ft    |
| Normal Depth     | 0.95            | ft    |
| Critical Depth   | 0.87            | ft    |
| Critical Slope   | 0.00508         | ft/ft |

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## Worksheet for Proposed Alley XS105

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### Results

|                 |             |      |
|-----------------|-------------|------|
| Velocity        | 3.19        | ft/s |
| Velocity Head   | 0.16        | ft   |
| Specific Energy | 1.10        | ft   |
| Froude Number   | 0.82        |      |
| 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        | 0.95     | ft    |
| Critical Depth      | 0.87     | ft    |
| Channel Slope       | 0.00330  | ft/ft |
| Critical Slope      | 0.00508  | ft/ft |

## Cross Section for Proposed Alley XS105

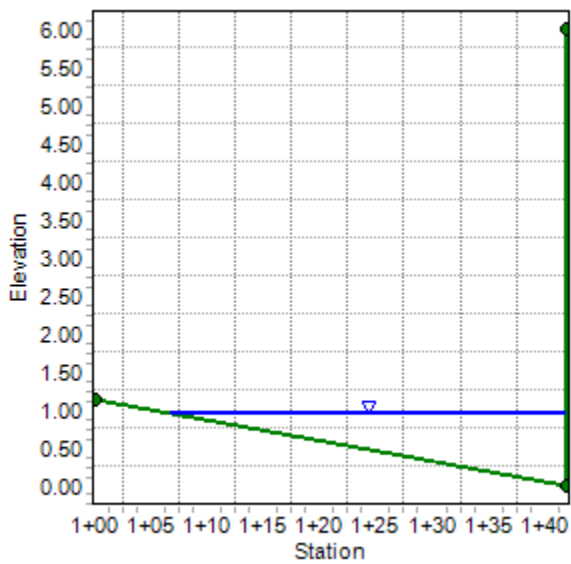
### Project Description

|                 |                 |
|-----------------|-----------------|
| Friction Method | Manning Formula |
| Solve For       | Normal Depth    |

### Input Data

|               |         |                    |
|---------------|---------|--------------------|
| Channel Slope | 0.00330 | ft/ft              |
| Normal Depth  | 0.95    | ft                 |
| Discharge     | 53.00   | ft <sup>3</sup> /s |

### Cross Section Image



# **HYDRAULIC CALCULATION SUMMARY TABLE**



## Irregular Section (North Alleyway Revised2.fm8) Report

| Label                | Solve For    | Roughness Coefficient | Channel Slope<br>(ft/ft) | Water Surface Elevation<br>(ft) | Discharge<br>(ft <sup>3</sup> /s) |
|----------------------|--------------|-----------------------|--------------------------|---------------------------------|-----------------------------------|
| Proposed Alley XS105 | Normal Depth | 0.016                 | 0.00330                  | 0.95                            | 53.00                             |
| Proposed Alley XS103 | Normal Depth | 0.016                 | 0.02900                  | 0.50                            | 53.00                             |
| Proposed Alley XS101 | Normal Depth | 0.016                 | 0.01000                  | 0.76                            | 53.00                             |
| Proposed Alley XS99  | Normal Depth | 0.016                 | 0.01900                  | 0.84                            | 53.00                             |

| Wetted Perimeter<br>(ft) | Hydraulic Radius<br>(ft) | Top Width<br>(ft) | Normal Depth<br>(ft) | Critical Depth<br>(ft) | Critical Slope<br>(ft/ft) | Velocity<br>(ft/s) |
|--------------------------|--------------------------|-------------------|----------------------|------------------------|---------------------------|--------------------|
| 36.12                    | 0.46                     | 35.16             | 0.95                 | 0.87                   | 0.00508                   | 3.19               |
| 34.53                    | 0.25                     | 34.02             | 0.50                 | 0.69                   | 0.00543                   | 6.22               |
| 29.65                    | 0.37                     | 28.88             | 0.76                 | 0.87                   | 0.00509                   | 4.81               |
| 18.79                    | 0.40                     | 17.92             | 0.84                 | 1.09                   | 0.00483                   | 7.00               |

| Velocity Head<br>(ft) | Specific Energy<br>(ft) | Froude Number | Flow Type     |
|-----------------------|-------------------------|---------------|---------------|
| 0.16                  | 1.10                    | 0.82          | Subcritical   |
| 0.60                  | 1.10                    | 2.19          | Supercritical |
| 0.36                  | 1.12                    | 1.37          | Supercritical |
| 0.76                  | 1.61                    | 1.90          | Supercritical |

---

## Irregular Section (North Alleyway Revised2.fm8) Report

---

Velocity Head  
(ft)

Specific Energy  
(ft)

Froude Number

Flow Type

**FINISH FLOOR  
VERIFICATION TABLE**

*Additional Freeboard = Actual Finished Floor - Required Finished Floor*

\*Note: Required FF for garages have been set at or above the adjacent WSE

| Parcel         | Flow Depth (ft) | Flowline (ft) | Flow Depth (ft) | Req'd FF (ft) | Actual FF (ft) | Difference |
|----------------|-----------------|---------------|-----------------|---------------|----------------|------------|
| 138-13-510-019 | 0.95            | 2240.19       | 2241.14         | 2242.09       | 2242.1         | 0.0        |
| 138-13-510-020 | 0.95            | 2240.17       | 2241.12         | 2242.07       | 2243.1         | 1.0        |
| 138-13-510-021 | 0.95            | 2239.94       | 2240.89         | 2241.84       | 2242.4         | 0.6        |
| 138-13-510-022 | 0.50            | 2238.14       | 2238.64         | NA            | Vacant Lot     | NA         |
| 138-13-510-023 | 0.76            | 2237.71       | 2238.47         | 2239.23       | 2239.3         | 0.1        |
| 138-13-510-024 | 0.76            | 2237.30       | 2238.06         | 2238.82       | 2238.8         | 0.0        |
| 138-13-510-025 | 0.71            | 2236.77       | 2237.48         | 2238.19       | 2239.0         | 0.8        |
| 138-13-510-026 | 0.71            | 2236.28       | 2236.99         | 2237.70       | 2237.9         | 0.2        |



APN: 138-13-512-001  
CITY OF LAS VEGAS  
STATE OF NEVADA

3065 N. RANCHO #130  
LAS VEGAS, NV 89113

**ENGINEERING FIRM**  
VTN  
2727 SOUTH RAINBOW BOULEVARD  
LAS VEGAS, NEVADA 89146-5148  
PH. (702) 873-7550  
FAX (702) 362-2597

THESE PLANS AND THE DESIGN CRITERIA CONTAINED WITHIN THESE PLANS ARE BASED UPON THE INFORMATION PRESENTLY KNOWN BY THE ENGINEER AND INTENDED SOLELY AS A GENERAL GUIDELINE FOR CONSTRUCTION. ALL CONSTRUCTION SHALL BE IN CONFORMANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL STATUTES, LAWS, CODES, REGULATIONS AND ORDINANCES, INCLUDING BUT NOT LIMITED TO THE FEDERAL FAIR HOUSING ACT, TITLE VIII OF THE CIVIL RIGHTS ACT, THE AMERICAN WITH DISABILITIES ACT, THE ARCHITECTURAL BARRIERS ACT AND ANY APPLICABLE UNIFORM STANDARDS, SPECIFICATIONS OR DRAWINGS. THE PERSON OR ENTITY PERFORMING THE CONSTRUCTION SHALL BE SOLELY RESPONSIBLE TO MAKE SURE CONSTRUCTION IS IN CONFORMANCE WITH ALL LOCAL, STATE AND FEDERAL STATUTES, LAWS, CODES, REGULATIONS, STANDARDS, GUIDELINES AND ORDINANCES AND FURTHER, IS IN CONFORMANCE WITH ANY APPLICABLE DESIGN CRITERIA, INCLUDING BUT NOT LIMITED TO SOILS, EROSION, WATER QUALITY, GEOTECHNICAL, REPORTS, ARCHITECTURAL PLANS AND SPECIFICATIONS, DRAINAGE PLANS OR STUDIES AND ANY OTHER CRITERIA, STANDARDS OR REQUIREMENTS LISTED IN THE PLANS OR THE GENERAL NOTES RELATED TO THESE PLANS OR PROVIDED BY ANYONE IN REFERENCE TO THIS PROJECT.

| SHEET # | SHEET | DESCRIPTION            |
|---------|-------|------------------------|
| 01      | CV    | COVER SHEET            |
| 02      | NT    | NOTE SHEET             |
| 03      | GR1   | GRADING PLAN 1         |
| 04      | GR2   | GRADING PLAN 2         |
| 05      | GR3   | GRADING PLAN 3         |
| 06      | GR4   | GRADING PLAN 4         |
| 07      | GR5   | GRADING PLAN 5         |
| 08      | GR6   | GRADING PLAN 6         |
| 09      | IG1   | INTERIM GRADING PLAN 1 |
| 10      | IG2   | INTERIM GRADING PLAN 2 |
| 11      | DT1   | DETAIL SHEET 1         |
| 12      | DT2   | DETAIL SHEET 2         |
| 13      | DT3   | DETAIL SHEET 3         |



N.T.S.

CITY ENGINEER ALLEN PAVELKA, P.E. # 9029

APPROVAL OF THESE PLANS BY THE CITY ENGINEER IS LIMITED TO THOSE IMPROVEMENTS CONSTRUCTED IN THE DEDICATED RIGHT-OF-WAY AND/OR DEDICATED EASEMENTS. THIS APPROVAL DOES NOT AUTHORIZE THE CONSTRUCTION OF ANY IMPROVEMENTS THAT DEViate FROM ADOPTED STANDARDS AND/OR SPECIFICATIONS EXCEPT THOSE SPECIFICALLY LISTED UNDER DEVIATIONS FROM STANDARD THE ENGINEER SHALL RESOLVE ANY DEVIATION OTHER THAN THOSE LISTED IN DEVIATIONS FROM STANDARDS IN FAVOR OF THE UNIFORM STANDARD DRAWINGS AND SPECIFICATIONS CLARK COUNTY AREA NEVADA.

CHRIS KNIGHT, DIRECTOR OF BUILDING & SAFETY

THIS PLAN MEETS THE APPLICABLE STANDARDS OF THE PLANNING AND  
DEVELOPMENT DEPARTMENT

CENTRAL TELEPHONE COMPANY d/b/a CENTURYLINK DATE

"THE AFFIXED CENTURY LINK 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 RULES AND REGULATIONS."

NV ENERGY DATE

NV ENERGY ACKNOWLEDGES THAT WE HAVE RECEIVED YOUR PLANS AND WILL PROVIDE SERVICE TO ALL ELECTRICAL NEEDS ASSOCIATED WITH THIS PROJECT. NVENERGY 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.

COX COMMUNICATIONS LAS VEGAS, INC. DATE

SOUTHWEST GAS CORPORATION DATE

LAS VEGAS FIRE & RESCUE DATE

**LAS VEGAS VALLEY WATER DISTRICT**

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES MANAGER

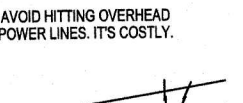
PROJECT:--- DATE:---

**SHEETS:**

**FIRE DEPARTMENT APPROVAL**

APPROVAL BY THE FIRE DEPARTMENT HAVING JURISDICTION IS REQUIRED PRIOR TO OBTAINING FINAL APPROVAL FROM THE LVVWD.

**AVOID HITTING OVERHEAD  
POWER LINES. IT'S COSTLY.**

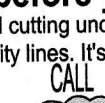


**CALL BEFORE  
YOU OVERHEAD**

**1-702-227-2929**

**Call before you Dig**

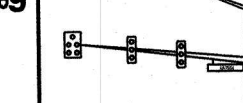
Avoid cutting underground  
utility lines. It's costly.



OR

**1-800-227-2600**  
AND  
**1-702-455-6800**

**CLARK COUNTY TRAFFIC**



**CALL  
before you  
Underground**

**1-702-455-7511**

**CLARK COUNTY TRAFFIC OPERATIONS**

**1-702-455-8611**

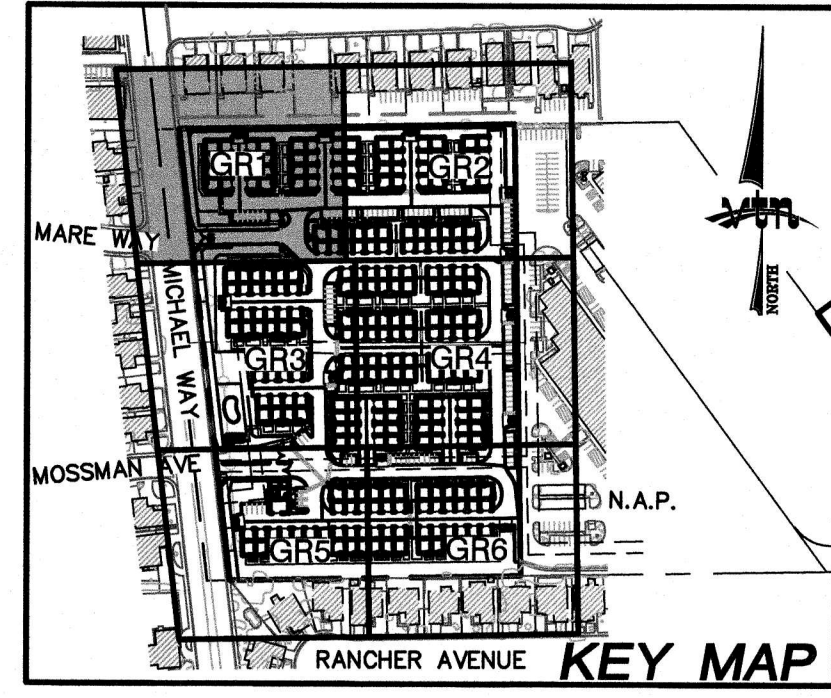
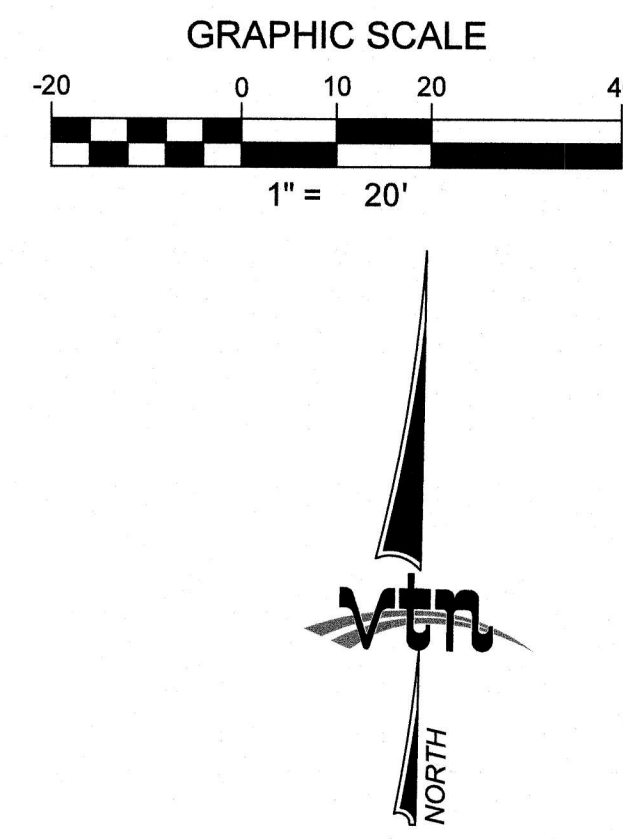
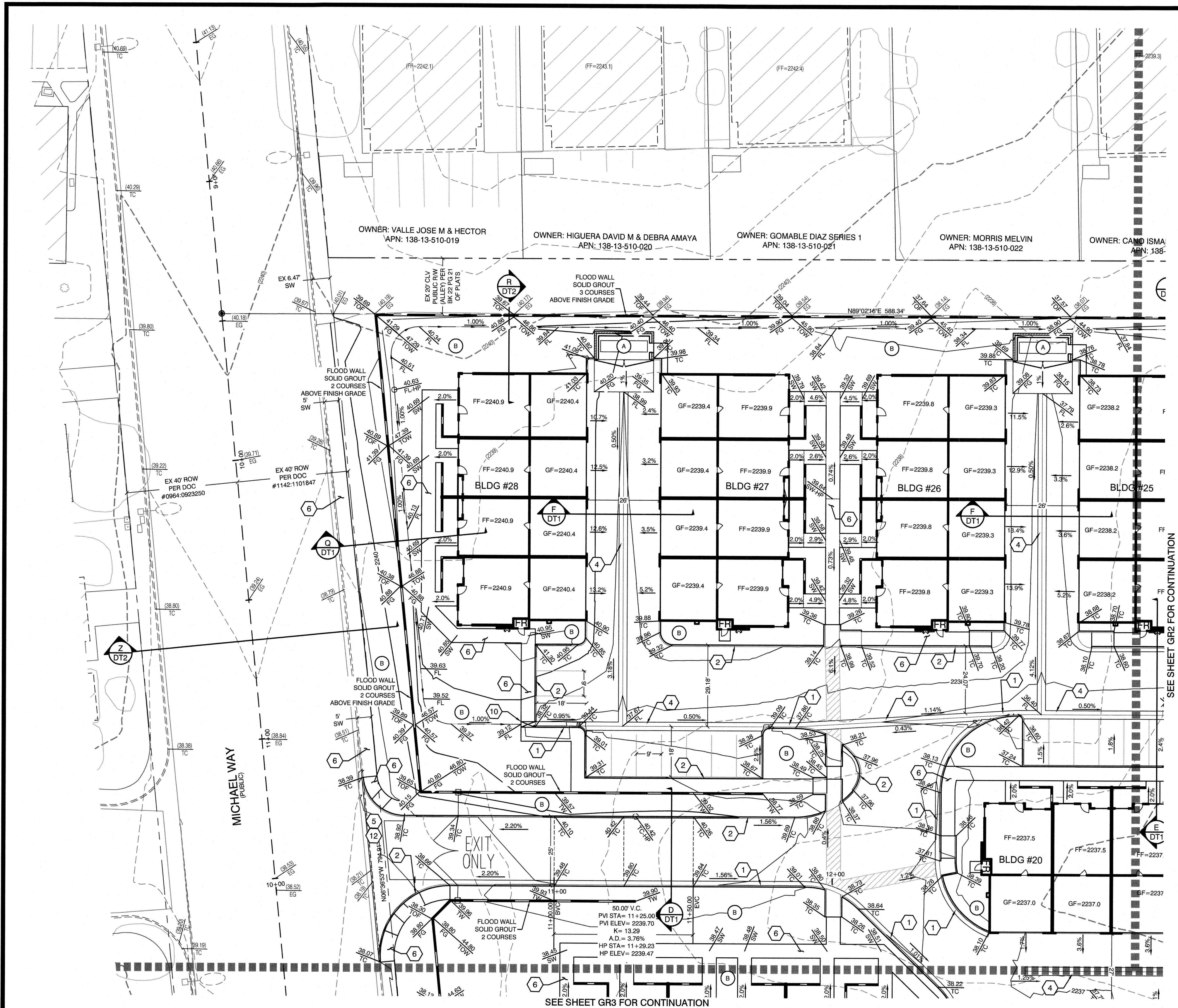
LAS VEGAS AREA COMPLETED TRAFFIC SYSTEM

|                                                                                                                                                                                    |                                       |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|--|
| <div><div><div>PROFESSIONAL ENGINEER - SITE</div><div>NO. 15745</div><div>WILLIAM J. MEYER</div><div>CIVIL</div><div>EXP: 12/31/19</div></div><div><div>10/18/18</div></div></div> | SHEET<br><b>CV</b><br>01 OF 13 SHEETS |  |
|                                                                                                                                                                                    | DRAWING NO.                           |  |
| <div><div><div>Professional Engineer</div><div>WILLIAM J. MEYER</div><div>CIVIL</div><div>EXP: 12/31/19</div></div><div><div>10/18/18</div></div></div>                            | PROJECT NO.: 7844                     |  |
|                                                                                                                                                                                    | SCALE: N/A                            |  |
| HORIZ. VERT.                                                                                                                                                                       |                                       |  |
| N/A                                                                                                                                                                                |                                       |  |
| CHECKED BY: WJM                                                                                                                                                                    |                                       |  |
| DESIGNED BY: DEH                                                                                                                                                                   |                                       |  |
| DRAWN BY: NCH                                                                                                                                                                      |                                       |  |
| 04/26/2017                                                                                                                                                                         |                                       |  |
| 04/26/2017                                                                                                                                                                         |                                       |  |
| 08/14/2017                                                                                                                                                                         |                                       |  |
| CRYSTAL PARK APARTMENTS                                                                                                                                                            |                                       |  |
| COVER SHEET                                                                                                                                                                        |                                       |  |
| EAB INVESTMENT COMPANY                                                                                                                                                             |                                       |  |
| LAS VEGAS, NV                                                                                                                                                                      |                                       |  |
| 3085 N. RANCHO #130<br>LAS VEGAS, NV 89110                                                                                                                                         |                                       |  |
| 2727 SOUTH RAINBOW BOULEVARD<br>LAS VEGAS, NEVADA 89146-5148<br>PH. (702) 878-7550 FAX (702) 382-2597 WEB WWW.VTNN.COM<br>CONSULTING ENGINEERS • PLANNERS • LAND SURVEYORS         |                                       |  |
| VTNN                                                                                                                                                                               |                                       |  |
| REV                                                                                                                                                                                |                                       |  |
| DATE                                                                                                                                                                               |                                       |  |
| BY                                                                                                                                                                                 |                                       |  |
| REVISION                                                                                                                                                                           |                                       |  |









| LEGEND                   |          |          |        |
|--------------------------|----------|----------|--------|
| DESCRIPTION              | PROPOSED | EXISTING | FUTURE |
| CONTOUR (5' INTERVAL)    | 2450     | (2450)   | (2450) |
| CONTOUR (1' INTERVAL)    |          |          |        |
| EDGE OF PAVEMENT         |          |          |        |
| SAW CUT                  |          |          |        |
| RETAINING WALL           |          |          |        |
| SCREEN WALL              |          |          |        |
| RIGHT OF WAY             |          |          |        |
| CENTER LINE              |          |          |        |
| BACK OF CURB             |          |          |        |
| LIP OF GUTTER            |          |          |        |
| FACE OF CURB             |          |          |        |
| SIDEWALK                 |          |          |        |
| UNIT BOUNDARY LINE       |          |          |        |
| PROPERTY LINE            |          |          |        |
| SLOPE AND FLOW DIRECTION |          |          |        |
| SCARP AREA               |          |          |        |
| MATCHLINE                |          |          |        |
| SIDEWALK RAMP            |          |          |        |
| SIGHT VISIBILITY ZONES   |          |          |        |
| PAVED ROAD               |          |          |        |
| PAVEMENT REMOVAL         |          |          |        |
| RIP RAP                  |          |          |        |
| LANDSCAPE ROCK           |          |          |        |

- CONSTRUCTION NOTES**
- CONSTRUCT 24" TYPE "L" CURB & GUTTER PER CCAUSD #216.
  - CONSTRUCT TYPE "A" CURB PER CCAUSD #219.
  - 0" CURB FACE PER DETAIL ON SHEET DT3
  - CONSTRUCT 3" VALLEY GUTTER PER THE DETAIL ON SHEET DT3
  - CONSTRUCT 8" VALLEY GUTTER PER CCAUSD # 228
  - CONSTRUCT 5" SIDEWALK PER CCAUSD # 234
  - INSTALL PRECAST BUMPER BLOCK PER CCAUSD #238.
  - INSTALL LANDSCAPE ROCK D50-6" 12" THK
  - CONSTRUCT 2" CURB CUT PER DETAIL ON SHEET DT3
  - CONSTRUCT SIDE WALK UNDER DRAIN PER CCAUSD #236.
  - CONSTRUCT "U" CHANNEL PER DETAIL ON SHEET DT3
  - CONSTRUCT COMMERCIAL DRIVEWAY PER CCAUSD #225
  - CONSTRUCT 6" PVC STORM DRAIN
  - INSTALL WROUGHT IRON FENCE WITH A 6" CLEAR SPACE @ THE BOTTOM FOR UNOBSTRUCTED STORM RUNOFF FLOW. SEE DETAIL "Y" ON SHEET DT2.
  - CONSTRUCT HANDICAP RAMP PER CCAUSD 235 CASE I
  - SAWCUT, MATCH EXISTING & TRENCH BACKFILL PER CCAUSD 500.3, 500.5 & 503
  - RETAINING HEIGHT (4=FEET 2=TENTH)
  - HANDICAP ACCESS TO THE RIGHT OF WAY
  - REMOVE EXISTING PAVEMENT
- COORDINATION ITEMS**
- SEE ARCHITECTURAL DRAWINGS FOR TRASH ENCLOSURE PLAN AND DETAILS. MAXIMUM 1% SLOPE ON TRASH ENCLOSURE SLAB.
  - SEE ARCHITECTURAL AND LANDSCAPE PLANS FOR DETAILS OF OPEN SPACE AREAS.

**ENGINEER DISCLAIMER NOTE:**

UTILITY LOCATIONS SHOWN HERE ON 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 AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HERE ON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

I CERTIFY THAT THIS GRADING PLAN CONFORMS TO THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE WITH LAS VEGAS, NV, #—

15745, P.E. NO. WILLIAM J. MEYER DATE 10/18/18

**BENCHMARK**

PROJECT DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

CITY OF LAS VEGAS BENCHMARK: 2LV0013NE6 (REVISED 2008)

NAVD88 ELEVATION: 679.739 METERS (2230.11 FEET)

FOUND RIVET AND PLATE IN THE TOP OF CURB ON THE WEST SIDE OF RANCHO AT 3101 RANCHO

**BASIS OF BEARING**

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS ZONE, NORTH AMERICAN DATUM OF 1983, SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

LINEAR UNIT: US SURVEY FOOT (FTUS)

DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00 SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)

ZONE: LAS VEGAS

PROJECTION: TRANSVERSE MERCATOR STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W NORTHING AT GRID ORIGIN: 200,000,000 M (656,166,667 FTUS) EASTING AT CENTRAL MERIDIAN: 100,000,000 M (328,083,333 FTUS) SCALE FACTOR ON CENTRAL MERIDIAN: 1.0001 (EXACT)

**Call before you Dig**

1-702-455-7511

1-702-227-2600

1-702-455-6000

CLARK COUNTY TRAFFIC OPERATIONS

**Call before you Dig**

1-702-227-2600

1-702-455-6000

CLARK COUNTY TRAFFIC OPERATIONS

**SIGHT VISIBILITY ZONES:**

NO STRUCTURE, WALLS, VEGETATION, OR OBJECT OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

**EARTHWORK QUANTITIES**

| CUT               | FILL               | NET                       |
|-------------------|--------------------|---------------------------|
| 8.336 CUBIC YARDS | 19,754 CUBIC YARDS | 11,418 CUBIC YARDS (FILL) |

**GRADING PERMIT NOTE**

THIS GRADING PERMIT DOES NOT INCLUDE THE CONSTRUCTION OF RETAINING WALLS AND OTHERS STRUCTURES. SEPARATE PERMITS AND APPLICATIONS ARE REQUIRED FOR THESE.

**GEOTECHNICAL NOTE:**

REFER TO SOILS REPORT: —

PROJECT #—, DATED —

HTE #—

| SIDEWALK RAMPS TABLE         |         |         |      |
|------------------------------|---------|---------|------|
| (PER CCAUSD No. 235, CASE I) |         |         |      |
| NO.                          | DIM "A" | DIM "B" | CASE |
| 1                            | 4.5'    | 12'     | I    |
| 2                            | 4.5'    | 9.5'    | I    |
| 3                            | 8'      | 8'      | I    |
| 4                            | 9.5'    | 4.5'    | I    |
| 5                            | 12'     | 4.5'    | I    |

**EAB INVESTMENT COMPANY**

3065 N. RANCHO #130  
LAS VEGAS, NV 89113

2727 SOUTH RAINBOW BOULEVARD  
LAS VEGAS, NEVADA 89146-5146  
PH: (702) 873-1550 FAX: (702) 382-2597 WEB: WWW.VTNV.COM  
CONSULTING ENGINEERS • PLANNERS • LAND SURVEYORS

**GRADING PLAN 1**

**CRYSTAL PARK APARTMENTS**

DRAWN BY: KDH 08/14/2017

DESIGNED BY: DEH 08/14/2017

CHECKED BY: WJM 08/14/2017

PROJECT NO: 7544

SCALE: 1"=20'

HORIZ. VERT.

SHEET 03 OF 13 SHEETS

DRAWING NO. —

**WILLIAM J. MEYER**

PROFESSIONAL ENGINEER - STATE OF NEVADA

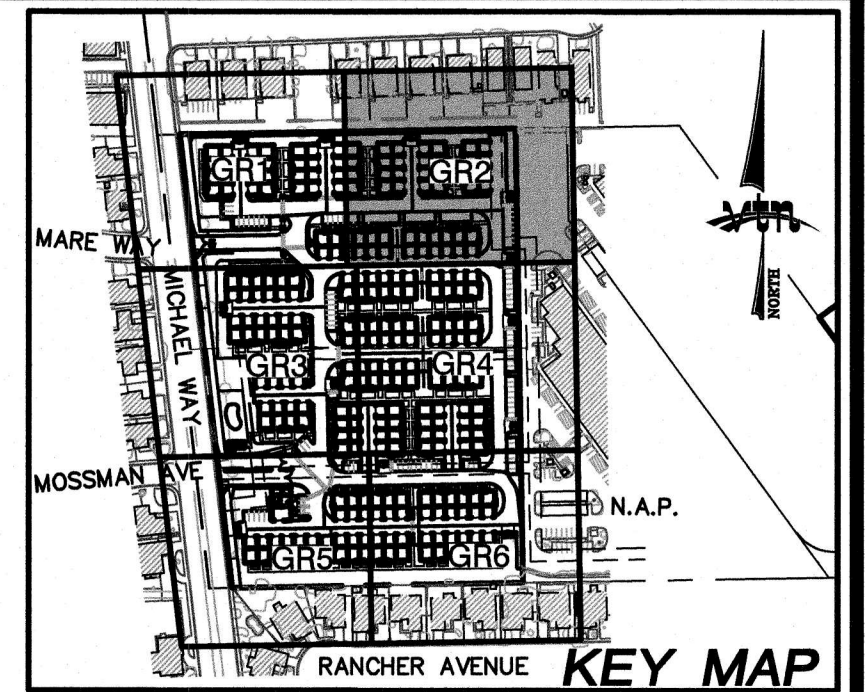
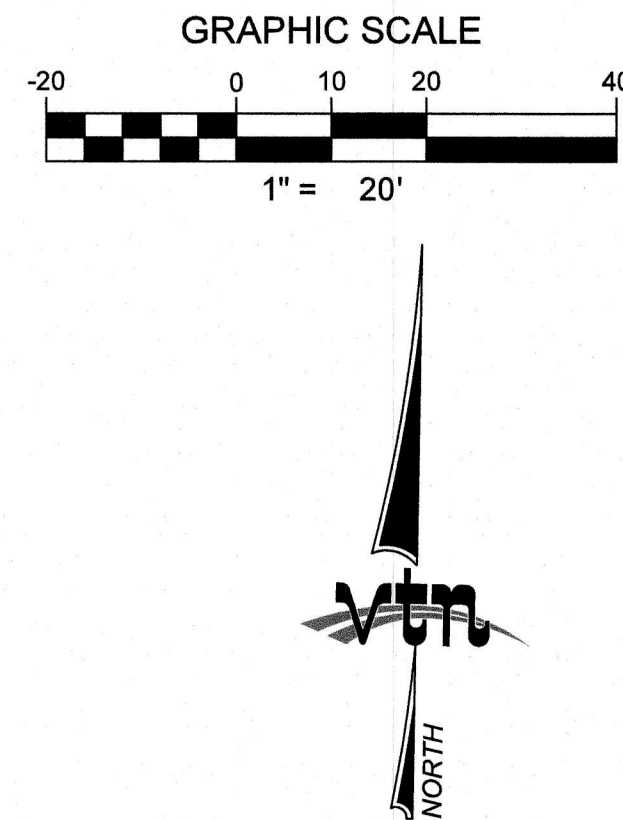
EXP: 12/31/19

CIVIL

NO. 15745

10/18/18





**CONSTRUCTION NOTES**

- (1) CONSTRUCT 24" TYPE "L" CURB & GUTTER PER CCAUSD #216.
- (2) CONSTRUCT TYPE "A" CURB PER CCAUSD #219.
- (3) 0" CURB FACE PER DETAIL ON SHEET DT3
- (4) CONSTRUCT 3' VALLEY GUTTER PER THE DETAIL ON SHEET DT3
- (5) CONSTRUCT 8' VALLEY GUTTER PER CCAUSD # 228
- (6) CONSTRUCT 5' SIDEWALK PER CCAUSD # 234
- (7) INSTALL PRECAST BUMPER BLOCK PER CCAUSD #238.
- (8) INSTALL LANDSCAPE ROCK D50=6" 12" THK
- (9) CONSTRUCT 2' CURB CUT PER DETAIL ON SHEET DT3
- (10) CONSTRUCT SIDE WALK UNDER DRAIN PER CCAUSD #236.
- (11) CONSTRUCT "U" CHANNEL PER DETAIL ON SHEET DT3
- (12) CONSTRUCT COMMERCIAL DRIVEWAY PER CCAUSD #225
- (13) CONSTRUCT 6" PVC STORM DRAIN
- (14) INSTALL WROUGHT IRON FENCE WITH A 6" CLEAR SPACE @ THE BOTTOM FOR UNOBSTRUCTED STORM RUNOFF FLOW. SEE DETAIL "Y" ON SHEET DT2.
- (15) CONSTRUCT HANDICAP RAMP PER CCAUSD 235 CASE I
- (16) SAWCUT, MATCH EXISTING & TRENCH BACKFILL PER CCAUSD 500.3, 500.5 & 503
- (42) RETAINING HEIGHT (4=FEET 2=INCH)

 HANDICAP ACCESS TO THE RIGHT OF WAY  
 REMOVE EXISTING PAVEMENT

**COORDINATION ITEMS**

- (A) SEE ARCHITECTURAL DRAWINGS FOR TRASH ENCLOSURE PLAN AND DETAILS. MAXIMUM 1% SLOPE ON TRASH ENCLOSURE SLAB.
- (B) SEE ARCHITECTURAL AND LANDSCAPE PLANS FOR DETAILS OF OPEN SPACE AREAS.

**ENGINEER DISCLAIMER NOTE:**

UTILITY LOCATIONS SHOWN HERE ON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXISTING UNDERGROUND AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HERE ON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

I CERTIFY THAT THIS GRADING PLAN CONFORMS TO THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE WITH LAS VEGAS, NV. #\_\_\_\_\_

*William J. Laves* 10/18/10

DATE OF NO. 10 WILLIAM J. LAVES DATE

AVOID HITTING OVERHEAD  
POWER LINES. IT'S COSTLY.

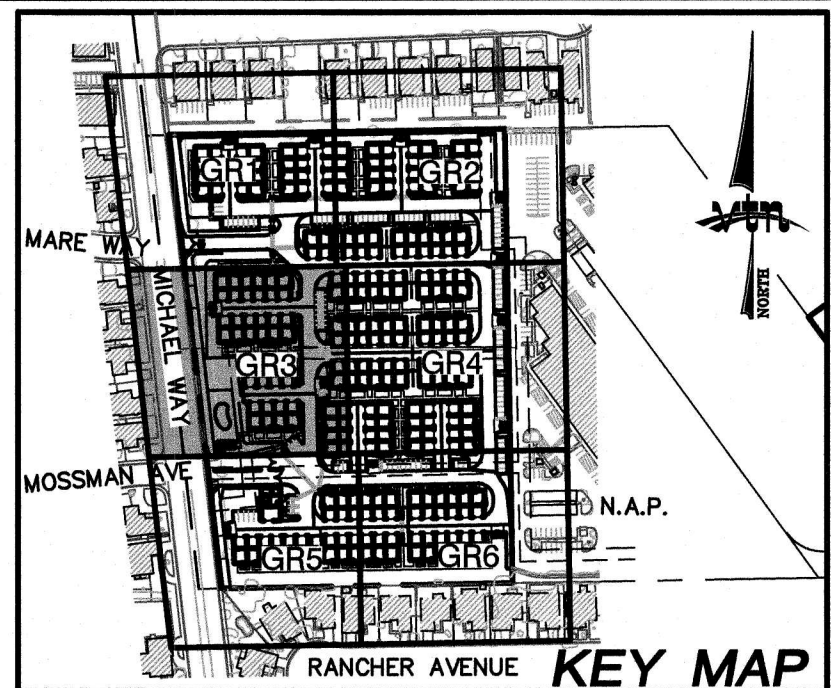
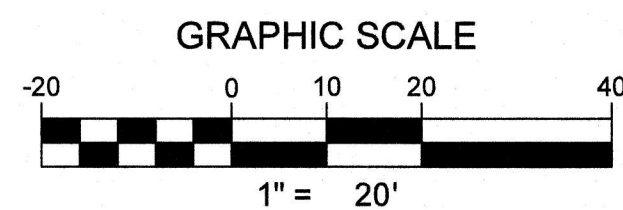
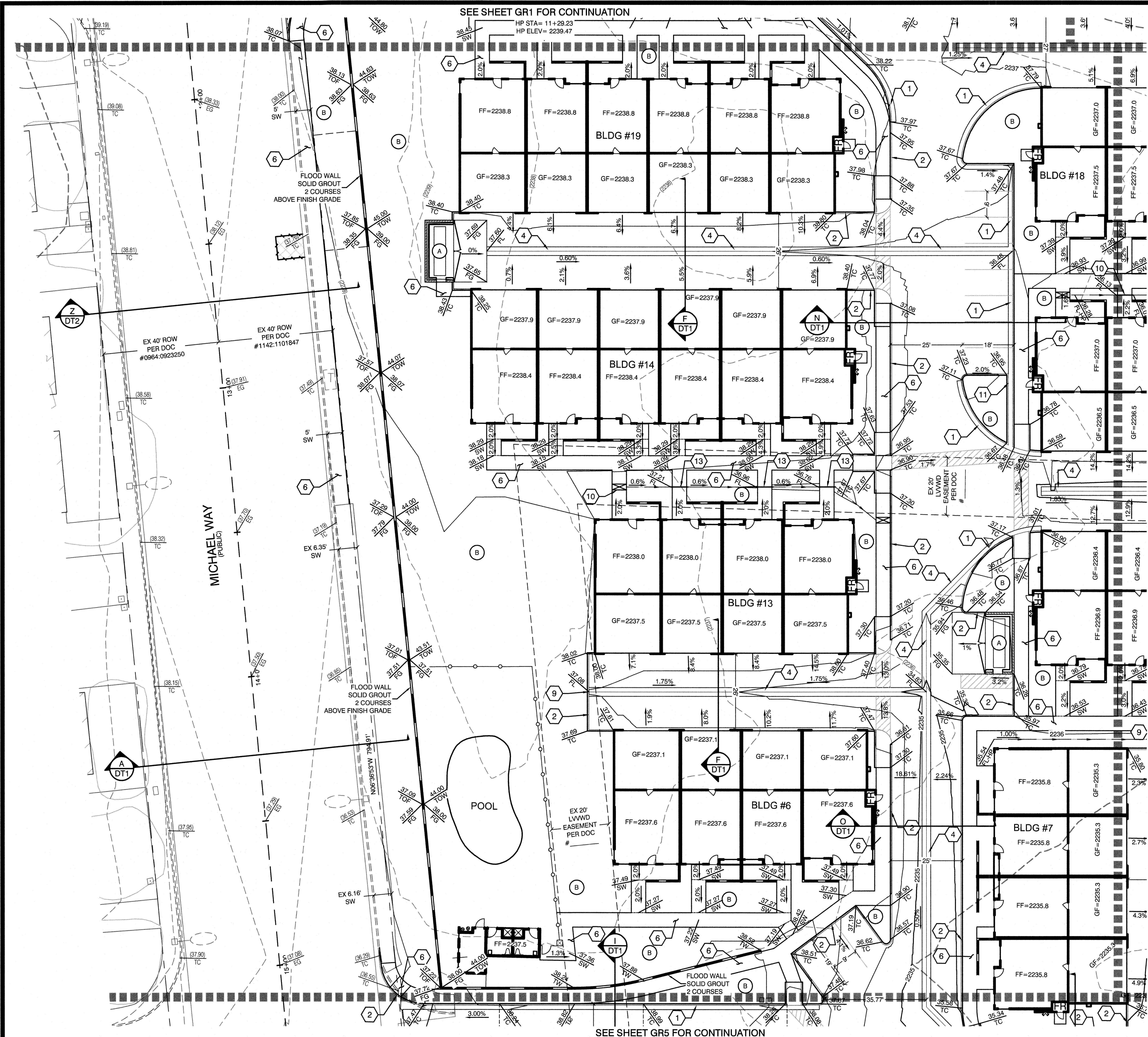
CALL BEFORE  
YOU DO  
OVERHEAD

1-702-227-2929

| NO. | DIM "A" | DIM "B" | CASE |
|-----|---------|---------|------|
| 1   | 4.5'    | 12'     | I    |
| 2   | 4.5'    | 9.5'    | I    |
| 3   | 8'      | 8'      | I    |
| 4   | 9.5'    | 4.5'    | I    |
| 5   | 12'     | 4.5'    | I    |

|                                                                                                                                                                                                                                                                                                                                        |                                                                                                                       |                            |             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|----------------------------|-------------|
| <div><div>CRYSTAL PARK APARTMENTS</div><div></div><div>2727 SOUTH RAINBOW BOULEVARD<br/>LAS VEGAS, NEVADA 89146-5146<br/>PH: (702) 873-2550 FAX: (702) 862-2567 WEB: WWW.VTNV.COM<br/>CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS</div></div> | <div><div>GRADING PLAN 2</div><div>EAB INVESTMENT COMPANY<br/>3635 N. RANCHO #130<br/>LAS VEGAS, NV 89115</div></div> | DRAWN BY: _____ 08/14/2017 |             |
|                                                                                                                                                                                                                                                                                                                                        |                                                                                                                       | DESIGNED BY: _____         |             |
|                                                                                                                                                                                                                                                                                                                                        |                                                                                                                       | KDH _____ 08/14/2017       |             |
|                                                                                                                                                                                                                                                                                                                                        |                                                                                                                       | CHECKED BY: _____          |             |
| WJM _____ 08/14/2017                                                                                                                                                                                                                                                                                                                   |                                                                                                                       |                            |             |
| <div><div>PROFESSIONAL ENGINEER - STATE OF NEVADA</div><div></div><div>WILLIAM J. MEYER<br/>EXP: 12/31/19<br/>CIVIL<br/>NO. 15745<br/>STATE OF NEVADA</div></div>                                                                                 | PROJECT NO: _____                                                                                                     | SCALE: 1"=20'              |             |
|                                                                                                                                                                                                                                                                                                                                        | 7944                                                                                                                  | HORIZ. _____               | VERT. _____ |
| <div><div>SHEET</div><div>GR2</div><div>04 OF 13 SHEETS</div><div>DRAWING NO. _____</div></div>                                                                                                                                                                                                                                        |                                                                                                                       |                            |             |





| LEGEND                   |              |              |              |
|--------------------------|--------------|--------------|--------------|
| DESCRIPTION              | PROPOSED     | EXISTING     | FUTURE       |
| CONTOUR (5' INTERVAL)    | ---(2450)--- | ---(2450)--- | ---(2450)--- |
| CONTOUR (1' INTERVAL)    | ---          | ---          | ---          |
| EDGE OF PAVEMENT         | ---          | ---          | ---          |
| SAW CUT                  | ---          | ---          | ---          |
| RETAINING WALL           | ---          | ---          | ---          |
| SCREEN WALL              | ---          | ---          | ---          |
| RIGHT OF WAY             | ---          | ---          | ---          |
| CENTER LINE              | ---          | ---          | ---          |
| BACK OF CURB             | ---          | ---          | ---          |
| LIP OF GUTTER            | ---          | ---          | ---          |
| FACE OF CURB             | ---          | ---          | ---          |
| SIDEWALK                 | ---          | ---          | ---          |
| UNIT BOUNDARY LINE       | ---          | ---          | ---          |
| PROPERTY LINE            | ---          | ---          | ---          |
| SLOPE AND FLOW DIRECTION | ---          | ---          | ---          |
| SCARP AREA               | ---          | ---          | ---          |
| MATCHLINE                | ---          | ---          | ---          |
| SIDEWALK RAMP            | ---          | ---          | ---          |
| SIGHT VISIBILITY ZONES   | ---          | ---          | ---          |
| PAVED ROAD               | ---          | ---          | ---          |
| PAVEMENT REMOVAL         | ---          | ---          | ---          |
| RIP RAP                  | ---          | ---          | ---          |
| LANDSCAPE ROCK           | ---          | ---          | ---          |

- CONSTRUCTION NOTES**
- CONSTRUCT 24" TYPE "L" CURB & GUTTER PER CCAUSD #216.
  - CONSTRUCT TYPE "A" CURB PER CCAUSD #219.
  - 0" CURB FACE PER DETAIL ON SHEET DT3
  - CONSTRUCT 3" VALLEY GUTTER PER THE DETAIL ON SHEET DT3
  - CONSTRUCT 8" VALLEY GUTTER PER CCAUSD # 228
  - CONSTRUCT 5" SIDEWALK PER CCAUSD # 234
  - INSTALL PRECAST BUMPER BLOCK PER CCAUSD #238.
  - INSTALL LANDSCAPE ROCK D50-6" 12" THK
  - CONSTRUCT 2" CURB CUT PER DETAIL ON SHEET DT3
  - CONSTRUCT SIDE WALK UNDER DRAIN PER CCAUSD #236.
  - CONSTRUCT "U" CHANNEL PER DETAIL ON SHEET DT3
  - CONSTRUCT COMMERCIAL DRIVEWAY PER CCAUSD #225
  - CONSTRUCT 6" PVC STORM DRAIN
  - INSTALL WROUGHT IRON FENCE WITH A 6" CLEAR SPACE @ THE BOTTOM FOR UNOBSTRUCTED STORM RUNOFF FLOW. SEE DETAIL "Y" ON SHEET DT2.
  - CONSTRUCT HANDICAP RAMP PER CCAUSD 235 CASE I
  - SAWCUT, MATCH EXISTING & TRENCH BACKFILL PER CCAUSD 500.3, 500.5 & 503
  - RETAINING HEIGHT (4=FEET 2=TENTH)
- HANDICAP ACCESS TO THE RIGHT OF WAY  
REMOVE EXISTING PAVEMENT
- COORDINATION ITEMS**
- SEE ARCHITECTURAL DRAWINGS FOR TRASH ENCLOSURE PLAN AND DETAILS. MAXIMUM 1% SLOPE ON TRASH ENCLOSURE SLAB.
  - SEE ARCHITECTURAL AND LANDSCAPE PLANS FOR DETAILS OF OPEN SPACE AREAS.

**ENGINEER DISCLAIMER NOTE:**

UTILITY LOCATIONS SHOWN HERE ON 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 AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HERE ON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

I CERTIFY THAT THIS GRADING PLAN CONFORMS TO THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE LAS VEGAS, NV. #---

15745, P.E. No. WILLIAM J. MEYER DATE 10/18/18

**BENCHMARK**

PROJECT DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

CITY OF LAS VEGAS BENCHMARK: 2LV0013N66 (REVISED 2008)  
NAVD88 ELEVATION: 679.738 METERS (2230.11 FEET)

FOUND RIVET AND PLATE IN THE TOP OF CURB ON THE WEST SIDE OF RANCHO AT 3101 RANCHO

**BASIS OF BEARING**

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS ZONE, NORTH AMERICAN DATUM OF 1983, SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

LINEAR UNIT: US SURVEY FOOT (FTUS)

DATUM (NEVADA FRAME): NAD 83 (2011) EPOCH 2010.00  
SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)

ZONE: LAS VEGAS

PROJECTION: TRANSVERSE MERCATOR  
STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N  
LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W  
NORTHING AT GRID ORIGIN: 200,000,000 M (656,196,667 FTUS)  
EASTING AT CENTRAL MERIDIAN: 100,000,000 M (328,083,333 FTUS)  
SCALE FACTOR ON CENTRAL MERIDIAN: 1.0001 (EXACT)

**Call before you Dig**

1-702-455-7511  
1-702-228-8611

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

811  
OR  
1-800-227-2600  
AND  
1-702-455-5000  
CLARK COUNTY TRAFFIC OPERATIONS

**Call before you Dig**

1-702-227-2929

**SIGHT VISIBILITY ZONES:**

NO STRUCTURE, WALLS, VEGETATION, OR OBJECT OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

**EARTHWORK QUANTITIES**

| CUT               | FILL               | NET                       |
|-------------------|--------------------|---------------------------|
| 8,336 CUBIC YARDS | 19,754 CUBIC YARDS | 11,418 CUBIC YARDS (FILL) |

**GRADING PERMIT NOTE**

THIS GRADING PERMIT DOES NOT INCLUDE THE CONSTRUCTION OF RETAINING WALLS AND OTHERS STRUCTURES. SEPARATE PERMITS AND APPLICATIONS ARE REQUIRED FOR THESE.

**GEOTECHNICAL NOTE:**

REFER TO SOILS REPORT: ---  
PROJECT #---, DATED ---  
HTE #---

**SIDEWALK RAMPS TABLE**

(PER CCAUSD No. 235, CASE I)

| NO. | DIM "A" | DIM "B" | CASE |
|-----|---------|---------|------|
| 1   | 4.5'    | 12'     | I    |
| 2   | 4.5'    | 9.5'    | I    |
| 3   | 8'      | 8'      | I    |
| 4   | 9.5'    | 4.5'    | I    |
| 5   | 12'     | 4.5'    | I    |

**EAB INVESTMENT COMPANY**  
3085 N. RANCHO #130  
LAS VEGAS, NV 89113

**GRADING PLAN 3**

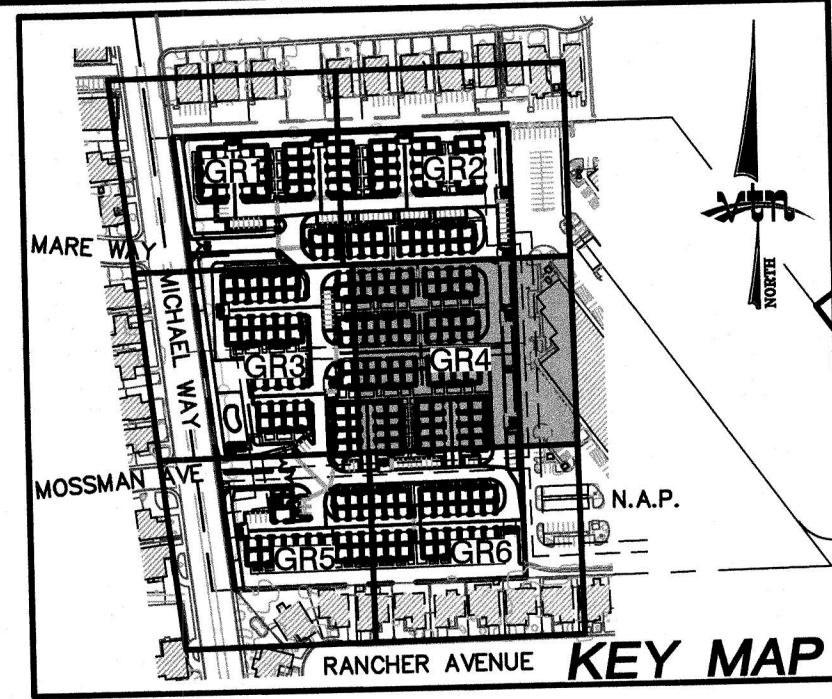
**CRYSTAL PARK APARTMENTS**

**DESIGNED BY:** DEH  
**CHECKED BY:** WJM  
**PROJECT NO:** 15745  
**SCALE:** 1"=20'  
**DATE:** 10/18/18

**WILLIAM J. MEYER**  
CIVIL  
15745, P.E. No. WILLIAM J. MEYER

**SHEET GR3**  
05 OF 13 SHEETS  
DRAWING NO. ---





**CONSTRUCTION NOTES**

- (1) CONSTRUCT 24" TYPE "L" CURB & GUTTER PER CCAUSD #216.
- (2) CONSTRUCT TYPE "A" CURB PER CCAUSD #219.
- (3) 0" CURB FACE PER DETAIL ON SHEET D3
- (4) CONSTRUCT 3' VALLEY GUTTER PER THE DETAIL ON SHEET D3
- (5) CONSTRUCT 8' VALLEY GUTTER PER CCAUSD # 228
- (6) CONSTRUCT 5' SIDEWALK PER CCAUSD # 234
- (7) INSTALL PRECAST BUMPER BLOCK PER CCAUSD #238.
- (8) INSTALL LANDSCAPE CUT D50=6" 12" THK
- (9) CONSTRUCT 2' CURB CUT PER DETAIL ON SHEET D73
- (10) CONSTRUCT SIDE WALK UNDER DRAIN PER CCAUSD #236.
- (11) CONSTRUCT "U" CHANNEL PER DETAIL ON SHEET D73
- (12) CONSTRUCT CONCREMENT DRIVEWAY PER CCAUSD #225
- (13) CONSTRUCT 6" PVC STORM DRAIN
- (14) INSTALL WROUGHT IRON FENCE WITH A 6" CLEAR SPACE @ THE BOTTOM FOR UNOBSTRUCTED STORM RUNOFF FLOW. SEE DETAIL "Y" ON SHEET D72.
- (15) CONSTRUCT HANDICAP RAMP PER CCAUSD 235 CASE 1
- (16) SAWCUT, MATCH EXISTING & TRENCH BACKFILL PER CCAUSD 500.3, 500.5 & 503
- (42) RETAINING HEIGHT (4=FEET 2=TENTH)

 HANDICAP ACCESS TO THE RIGHT OF WAY  
 REMOVE EXISTING PAVEMENT

**COORDINATION ITEMS**

- (A) SEE ARCHITECTURAL DRAWINGS FOR TRASH ENCLOSURE PLAN AND DETAILS. MAXIMUM 1% SLOPE ON TRASH ENCLOSURE SLAB.
- (B) SEE ARCHITECTURAL AND LANDSCAPE PLANS FOR DETAILS OF OPEN SPACE AREAS.

PROFESSIONAL ENGINEER - STATE OF MARYLAND

WILLIAM J. MEYER

EXP: 12/31/19

CIVIL

No. 15745

10/18/19

SHEET

**GR4**

**06 OF 13** SHEETS

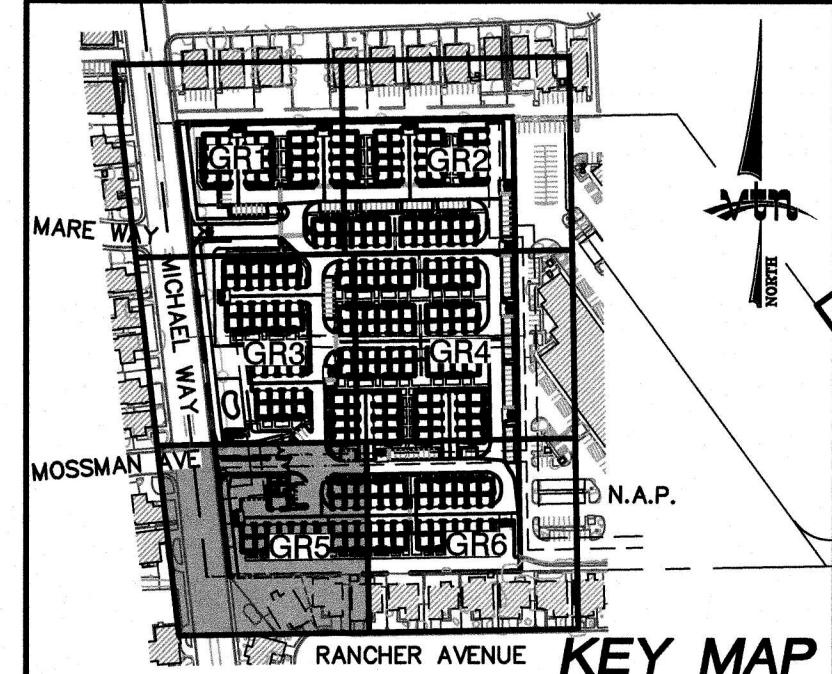
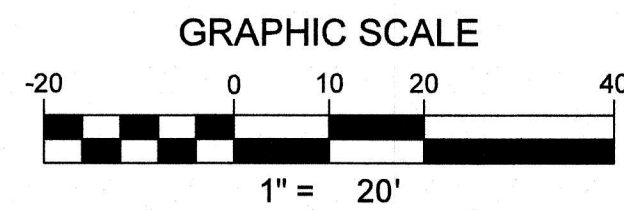
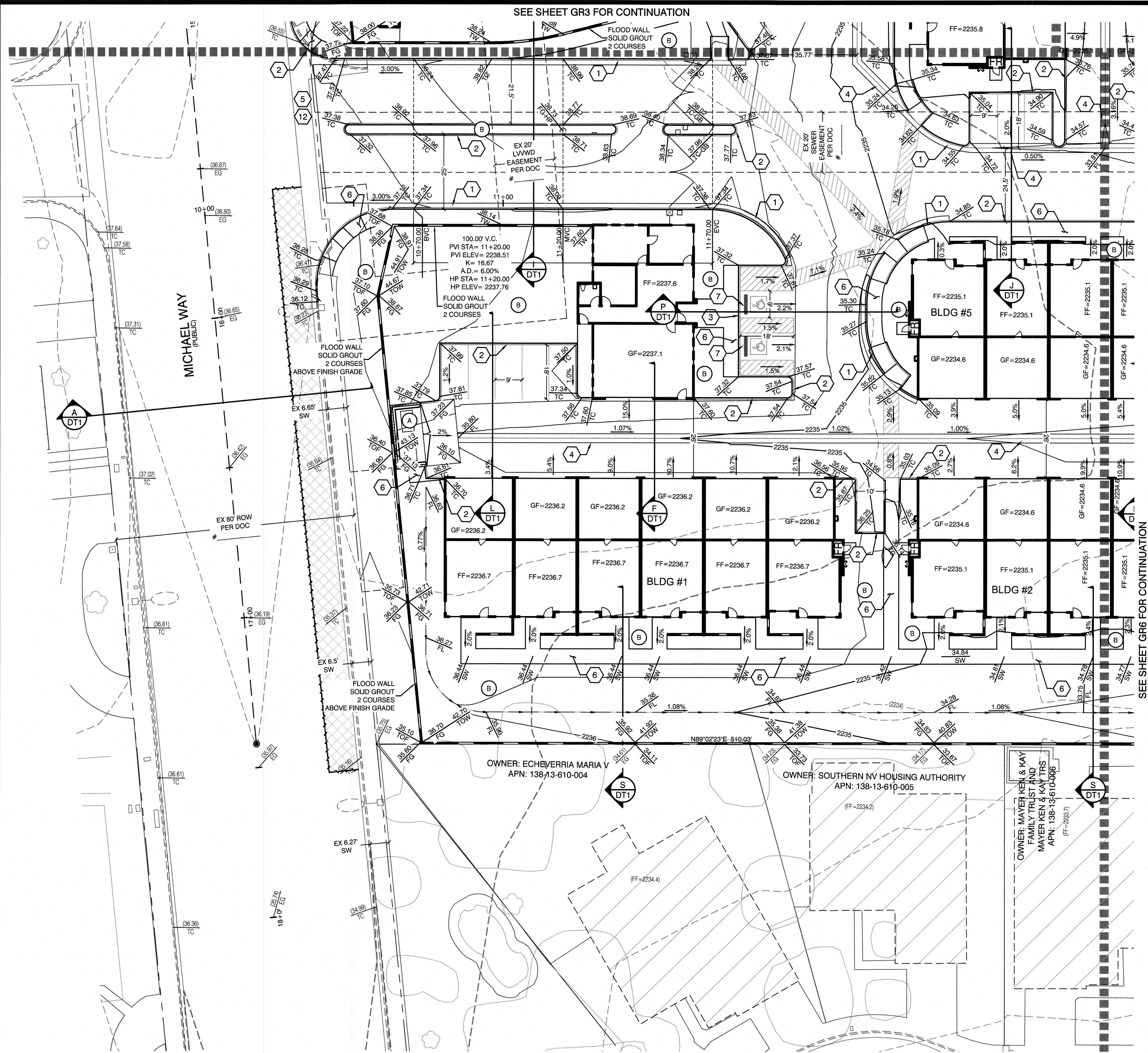
DRAWING NO.

[illegible]

**GEOTECHNICAL NOTE:**  
REFER TO SOILS REPORT: ----  
PROJECT #----, DATED ----  
HTE #----

| NO. | DIM "A" | DIM "B" | CASE |
|-----|---------|---------|------|
| 1   | 4.5'    | 12'     | I    |
| 2   | 4.5'    | 9.5'    | I    |
| 3   | 8'      | 8'      | I    |
| 4   | 9.5'    | 4.5'    | I    |
| 5   | 12'     | 4.5'    | I    |





| LEGEND                   |          |          |        |
|--------------------------|----------|----------|--------|
| DESCRIPTION              | PROPOSED | EXISTING | FUTURE |
| CONTOUR (5' INTERVAL)    | 2450     | (2450)   | (2450) |
| CONTOUR (1' INTERVAL)    |          |          |        |
| EDGE OF PAVEMENT         |          |          |        |
| SAW CUT                  |          |          |        |
| RETAINING WALL           |          |          |        |
| SCREEN WALL              |          |          |        |
| RIGHT OF WAY             |          |          |        |
| CENTER LINE              |          |          |        |
| BACK OF CURB             |          |          |        |
| LIP OF GUTTER            |          |          |        |
| FACE OF CURB             |          |          |        |
| SIDEWALK                 |          |          |        |
| UNIT BOUNDARY LINE       |          |          |        |
| PROPERTY LINE            |          |          |        |
| SLOPE AND FLOW DIRECTION |          |          |        |
| SCARP AREA               |          |          |        |
| MATCHLINE                |          |          |        |
| SIDEWALK RAMP            |          |          |        |
| SIGHT VISIBILITY ZONES   |          |          |        |
| PAVED ROAD               |          |          |        |
| PAVEMENT REMOVAL         |          |          |        |
| RIP RAP                  |          |          |        |
| LANDSCAPE ROCK           |          |          |        |

- CONSTRUCTION NOTES**
- CONSTRUCT 24" TYPE "L" CURB & GUTTER PER CCAUSD #216.
  - CONSTRUCT TYPE "A" CURB PER CCAUSD #219.
  - 0" CURB FACE PER DETAIL ON SHEET DT3
  - CONSTRUCT 3' VALLEY GUTTER PER THE DETAIL ON SHEET DT3
  - CONSTRUCT 8' VALLEY GUTTER PER CCAUSD # 228
  - CONSTRUCT 5' SIDEWALK PER CCAUSD # 234
  - INSTALL PRECAST BUMPER BLOCK PER CCAUSD #238.
  - INSTALL LANDSCAPE ROCK D50=6" 12" THK
  - CONSTRUCT 2' CURB CUT PER DETAIL ON SHEET DT3
  - CONSTRUCT SIDE WALK UNDER DRAIN PER CCAUSD #236.
  - CONSTRUCT "U" CHANNEL PER DETAIL ON SHEET DT3
  - CONSTRUCT COMMERCIAL DRIVEWAY PER CCAUSD #225
  - CONSTRUCT 6" PVC STORM DRAIN
  - INSTALL WROUGHT IRON FENCE WITH A 6" CLEAR SPACE @ THE BOTTOM FOR UNOBSTRUCTED STORM RUNOFF FLOW. SEE DETAIL "Y" ON SHEET DT2.
  - CONSTRUCT HANDICAP RAMP PER CCAUSD 235 CASE I
  - SAWCUT, MATCH EXISTING & TRENCH BACKFILL PER CCAUSD 500.3, 500.5 & 503
  - RETAINING HEIGHT (4=FEET 2=TENTH)
  - HANDICAP ACCESS TO THE RIGHT OF WAY
  - REMOVE EXISTING PAVEMENT
- COORDINATION ITEMS**
- SEE ARCHITECTURAL DRAWINGS FOR TRASH ENCLOSURE PLAN AND DETAILS. MAXIMUM 1% SLOPE ON TRASH ENCLOSURE SLAB.
- SEE ARCHITECTURAL AND LANDSCAPE PLANS FOR DETAILS OF OPEN SPACE AREAS.

**BENCHMARK**

PROJECT DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

CITY OF LAS VEGAS BENCHMARK: 2LV0013N69 (REVISED 2008)

NAVD88 ELEVATION: 679.739 METERS (2230.11 FEET)

FOUND RIVET AND PLATE IN THE TOP OF CURB ON THE WEST SIDE OF RANCHO AT 3101 RANCHO

**BASIS OF BEARING**

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS ZONE, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

LINEAR UNIT: US SURVEY FOOT (FT/US)

DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00

SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)

ZONE: LAS VEGAS

PROJECTION: TRANSVERSE MERCATOR

STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N

LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W

NORTHING AT GRID ORIGIN: 200,000.000 M (656,168.6867 FT/US)

EASTING AT CENTRAL MERIDIAN: 100,000.000 M (328,083.3333 FT/US)

SCALE FACTOR ON CENTRAL MERIDIAN: 1.0001 (EXACT)

Call before you dig

1-702-455-7511

1-702-227-2929

CLARK COUNTY TRAFFIC OPERATIONS

1-702-227-2929

**SIGHT VISIBILITY ZONES:**

NO STRUCTURE, WALLS, VEGETATION, OR OBJECT OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

**EARTHWORK QUANTITIES**

| CUT               | FILL               | NET                       |
|-------------------|--------------------|---------------------------|
| 8,336 CUBIC YARDS | 19,754 CUBIC YARDS | 11,418 CUBIC YARDS (FILL) |

**GRADING PERMIT NOTE**

THIS GRADING PERMIT DOES NOT INCLUDE THE CONSTRUCTION OF RETAINING WALLS AND OTHERS STRUCTURES. SEPARATE PERMITS AND APPLICATIONS ARE REQUIRED FOR THESE.

**GEOTECHNICAL NOTE:**

REFER TO SOILS REPORT: ---

PROJECT #---, DATED ---

HTE #---

**SIDEWALK RAMPS TABLE**

(PER CCAUSD No. 235, CASE I)

| NO. | DIM "A" | DIM "B" | CASE |
|-----|---------|---------|------|
| 1   | 4.5'    | 12'     | I    |
| 2   | 4.5'    | 9.5'    | I    |
| 3   | 8'      | 8'      | I    |
| 4   | 9.5'    | 4.5'    | I    |
| 5   | 12'     | 4.5'    | I    |

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I CERTIFY THAT THIS GRADING PLAN CONFORMS TO THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE WITH LAS VEGAS, NV. #---

15745, P.E. No. WILLIAM J. MEYER DATE 10/10/18

**EAB INVESTMENT COMPANY**

3905 N. RANCHO #130  
LAS VEGAS, NV 89113

2727 SOUTH RAINBOW BOULEVARD  
LAS VEGAS, NEVADA 89146-5148  
PH: (702) 673-7550 FAX: (702) 362-2587 WEB: WWW.VTNN.COM  
CONSULTING ENGINEERS & LAND SURVEYORS

**GRADING PLAN 5**

**CRYSTAL PARK APARTMENTS**

DRAWN BY: KDH 08/14/2017

DESIGNED BY: DEH 08/14/2017

CHECKED BY: WJM 08/14/2017

PROJECT NO: 7844

SCALE: 1"=20'

HORIZ. VERT. N/A

**WILLIAM J. MEYER**

PROFESSIONAL ENGINEER - STATE OF NEVADA

NO. 15745

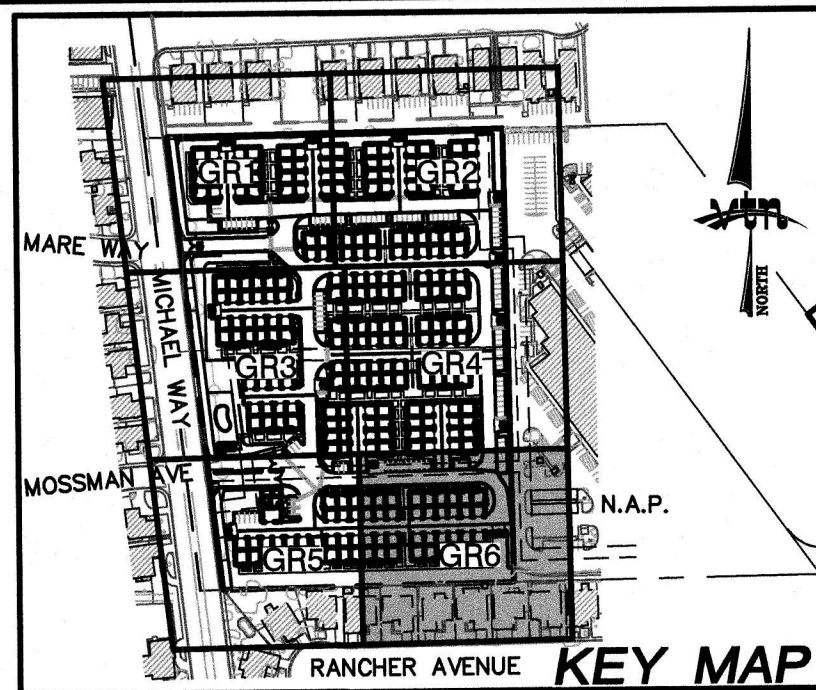
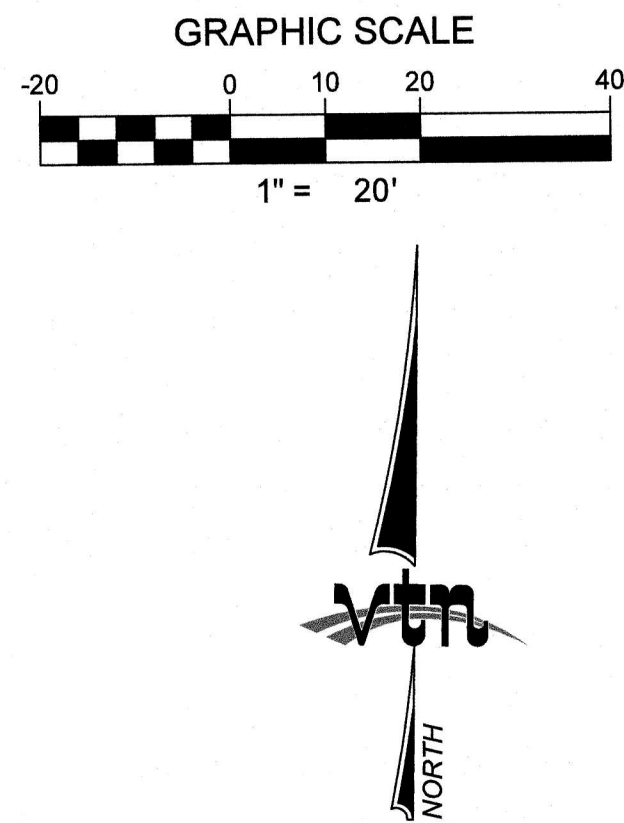
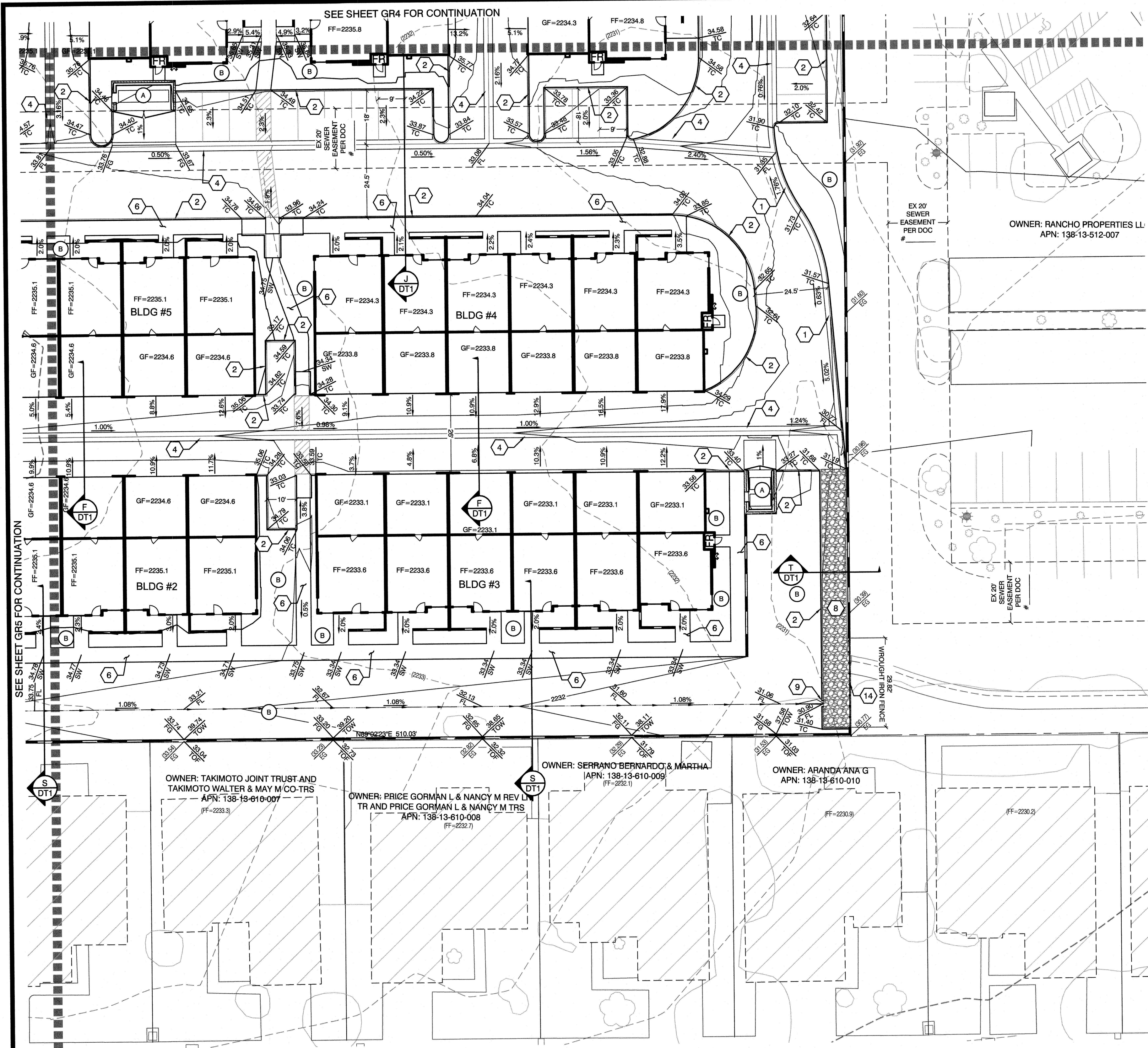
EXPIRATION DATE: 12/31/19

**GR5**

07 OF 13 SHEETS

DRAWING NO. ---





| LEGEND                   |          |          |          |
|--------------------------|----------|----------|----------|
| DESCRIPTION              | PROPOSED | EXISTING | FUTURE   |
| CONTOUR (5' INTERVAL)    | —2450—   | —(2450)— | —(2450)— |
| CONTOUR (1' INTERVAL)    |          |          |          |
| EDGE OF PAVEMENT         |          |          |          |
| SAW CUT                  |          |          |          |
| RETAINING WALL           |          |          |          |
| SCREEN WALL              |          |          |          |
| RIGHT OF WAY             |          |          |          |
| CENTER LINE              |          |          |          |
| BACK OF CURB             |          |          |          |
| LIP OF GUTTER            |          |          |          |
| FACE OF CURB             |          |          |          |
| SIDEWALK                 |          |          |          |
| UNIT BOUNDARY LINE       |          |          |          |
| PROPERTY LINE            |          |          |          |
| SLOPE AND FLOW DIRECTION |          |          |          |
| SCARP AREA               |          |          |          |
| MATCHLINE                |          |          |          |
| SIDEWALK RAMP            |          |          |          |
| SIGHT VISIBILITY ZONES   |          |          |          |
| PAVED ROAD               |          |          |          |
| PAVEMENT REMOVAL         |          |          |          |
| RIP RAP                  |          |          |          |
| LANDSCAPE ROCK           |          |          |          |

- CONSTRUCTION NOTES**
- CONSTRUCT 24" TYPE "L" CURB & GUTTER PER CCAUSD #216.
  - CONSTRUCT TYPE "A" CURB PER CCAUSD #219.
  - 0" CURB FACE PER DETAIL ON SHEET DT3
  - CONSTRUCT 3" VALLEY GUTTER PER THE DETAIL ON SHEET DT3
  - CONSTRUCT 8" VALLEY GUTTER PER CCAUSD #228
  - CONSTRUCT 5' SIDEWALK PER CCAUSD #234
  - INSTALL PRECAST BUMPER BLOCK PER CCAUSD #238.
  - INSTALL LANDSCAPE ROCK D50=6" 12" THK
  - CONSTRUCT 2" CURB CUT PER DETAIL ON SHEET DT3
  - CONSTRUCT SIDE WALK UNDER DRAIN PER CCAUSD #236.
  - CONSTRUCT "U" CHANNEL PER DETAIL ON SHEET DT3
  - CONSTRUCT COMMERCIAL DRIVEWAY PER CCAUSD #225
  - CONSTRUCT 6" PVC STORM DRAIN
  - INSTALL WROUGHT IRON FENCE WITH A 6" CLEAR SPACE @ THE BOTTOM FOR UNOBSTRUCTED STORM RUNOFF FLOW. SEE DETAIL "Y" ON SHEET DT2.
  - CONSTRUCT HANDICAP RAMP PER CCAUSD 235 CASE 1
  - SAWCUT, MATCH EXISTING & TRENCH BACKFILL PER CCAUSD 500.3, 500.5 & 503
  - RETAINING HEIGHT (4=FEET 2=TENTH)
  - HANDICAP ACCESS TO THE RIGHT OF WAY
  - REMOVE EXISTING PAVEMENT
- COORDINATION ITEMS**
- SEE ARCHITECTURAL DRAWINGS FOR TRASH ENCLOSURE PLAN AND DETAILS. MAXIMUM 1% SLOPE ON TRASH ENCLOSURE SLAB.
  - SEE ARCHITECTURAL AND LANDSCAPE PLANS FOR DETAILS OF OPEN SPACE AREAS.

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I CERTIFY THAT THIS GRADING PLAN CONFORMS TO THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE WITH LAS VEGAS, NV. #---

15745, P.E. NO. WILLIAM J. MEYER DATE 10/10/18

**BENCHMARK**

PROJECT DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

CITY OF LAS VEGAS BENCHMARK: 2LV0013NE6 (REVISED 2008)

NAVD88 ELEVATION: 679.739 METERS (2230.11 FEET)

FOUND RIVET AND PLATE IN THE TOP OF CURB ON THE WEST SIDE OF RANCHO AT 3101 RANCHO

**BASIS OF BEARING**

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS ZONE, NORTH AMERICAN DATUM OF 1983, SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

LINEAR UNIT: US SURVEY FOOT (FTUS)

DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00

SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)

ZONE: LAS VEGAS

PROJECTION: TRANSVERSE MERCATOR

STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 38°19'00"N

LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W

NORTHING AT GRID ORIGIN: 200,000,000 M (656,166,667 FTUS)

EASTING AT CENTRAL MERIDIAN: 100,000,000 M (328,083,333 FTUS)

SCALE FACTOR ON CENTRAL MERIDIAN: 1.0001 (EQA47)

Call before you Dig

1-702-455-7511

1-702-227-2600

1-702-455-8000

CLARK COUNTY TRAFFIC OPERATIONS

**SIGHT VISIBILITY ZONES:**

NO STRUCTURE, WALLS, VEGETATION, OR OBJECT OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

**EARTHWORK QUANTITIES**

| CUT               | FILL               | NET                       |
|-------------------|--------------------|---------------------------|
| 8,339 CUBIC YARDS | 19,754 CUBIC YARDS | 11,418 CUBIC YARDS (FILL) |

**GRADING PERMIT NOTE**

THIS GRADING PERMIT DOES NOT INCLUDE THE CONSTRUCTION OF RETAINING WALLS AND OTHERS STRUCTURES. SEPARATE PERMITS AND APPLICATIONS ARE REQUIRED FOR THESE.

**GEOTECHNICAL NOTE:**

REFER TO SOILS REPORT: ---

PROJECT #---, DATED ---

ITE #---

| SIDEWALK RAMPS TABLE         |         |         |      |
|------------------------------|---------|---------|------|
| (PER CCAUSD No. 235, CASE I) |         |         |      |
| NO.                          | DIM "A" | DIM "B" | CASE |
| 1                            | 4.5'    | 12'     | I    |
| 2                            | 4.5'    | 9.5'    | I    |
| 3                            | 8'      | 8'      | I    |
| 4                            | 9.5'    | 4.5'    | I    |
| 5                            | 12'     | 4.5'    | I    |

EAB INVESTMENT COMPANY

LAS VEGAS, NV

2777 SOUTH RAINBOW BOULEVARD

LAS VEGAS, NEVADA 89146-5146

PH: (702) 873-7550 FAX: (702) 862-2597 WEB: WWW.VTNV.COM

CONSULTING ENGINEERS • PLANNERS • LAND SURVEYORS

**GRADING PLAN 6**

**CRYSTAL PARK APARTMENTS**

DRAWN BY: KDH 08/14/2017

DESIGNED BY: DDT 08/14/2017

CHECKED BY: WJM 08/14/2017

PROJECT NO: 15745

SCALE: 1"=20'

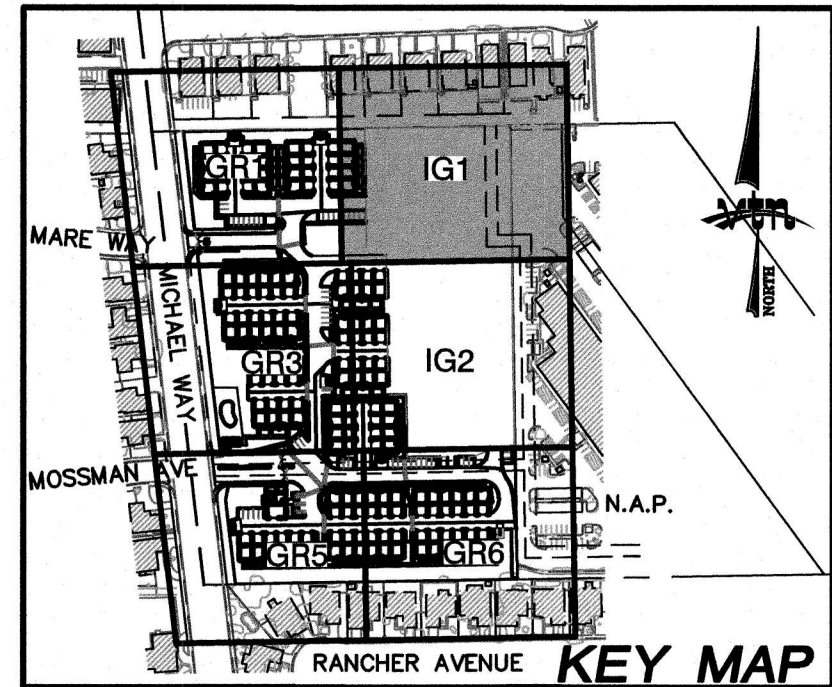
HORIZ. VERT.

15745, P.E. NO. WILLIAM J. MEYER DATE 10/10/18

SHEET 08 OF 13 SHEETS

DRAWING NO. ---





| LEGEND                   |          |          |        |
|--------------------------|----------|----------|--------|
| DESCRIPTION              | PROPOSED | EXISTING | FUTURE |
| CONTOUR (5' INTERVAL)    |          |          |        |
| CONTOUR (1' INTERVAL)    |          |          |        |
| EDGE OF PAVEMENT         |          |          |        |
| SAW CUT                  |          |          |        |
| RETAINING WALL           |          |          |        |
| SCREEN WALL              |          |          |        |
| RIGHT OF WAY             |          |          |        |
| CENTER LINE              |          |          |        |
| BACK OF CURB             |          |          |        |
| LIP OF GUTTER            |          |          |        |
| FACE OF CURB             |          |          |        |
| SIDEWALK                 |          |          |        |
| UNIT BOUNDARY LINE       |          |          |        |
| PROPERTY LINE            |          |          |        |
| SLOPE AND FLOW DIRECTION |          |          |        |
| SCARP AREA               |          |          |        |
| MATCHLINE                |          |          |        |
| SIDEWALK RAMP            |          |          |        |
| SIGHT VISIBILITY ZONES   |          |          |        |
| PAVED ROAD               |          |          |        |
| PAVEMENT REMOVAL         |          |          |        |
| RIP RAP                  |          |          |        |
| LANDSCAPE ROCK           |          |          |        |

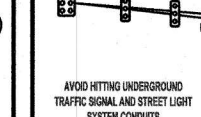
- | <b>CONSTRUCTION NOTES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| ①                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | CONSTRUCT 24" TYPE "I" CURB & GUTTER PER CCAUSD #216.                                                                          |
| ②                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | CONSTRUCT TYPE "A" CURB PER CCAUSD #219.                                                                                       |
| ③                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0" CURB FACE PER DETAIL ON SHEET DT3                                                                                           |
| ④                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | CONSTRUCT 3" VALLEY GUTTER PER THE DETAIL ON SHEET DT3                                                                         |
| ⑤                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | CONSTRUCT 8" VALLEY GUTTER PER CCAUSD # 228                                                                                    |
| ⑥                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | CONSTRUCT 5" SIDEWALK PER CCAUSD # 234                                                                                         |
| ⑦                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | INSTALL PRECAST BUMPER BLOCK PER CCAUSD #238.                                                                                  |
| ⑧                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | INSTALL LANDSCAPE ROCK D50=6" 12" THK                                                                                          |
| ⑨                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | CONSTRUCT 2" CURB CUT PER DETAIL ON SHEET DT3                                                                                  |
| ⑩                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | CONSTRUCT SIDE WALK UNDER DRAIN PER CCAUSD #236.                                                                               |
| ⑪                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | CONSTRUCT "U" CHANNEL PER DETAIL ON SHEET DT3                                                                                  |
| ⑫                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | CONSTRUCT COMMERCIAL DRIVEWAY PER CCAUSD #225                                                                                  |
| ⑬                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | CONSTRUCT 6" PVC STORM DRAIN                                                                                                   |
| ⑭                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | INSTALL WROUGHT IRON FENCE WITH A 6" CLEAR SPACE @ THE BOTTOM FOR UNOBSTRUCTED STORM RUNOFF FLOW. SEE DETAIL "V" ON SHEET DT2. |
| ⑮                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | CONSTRUCT HANDICAP RAMP PER CCAUSD 235 CASE I                                                                                  |
| ⑯                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | SAWCUT, MATCH EXISTING & TRENCH BACKFILL PER CCAUSD 500.3, 500.5 & 503                                                         |
| ⑰                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | RETAINING HEIGHT (4=FEET 2=TENTH)                                                                                              |
| ⑱                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | HANDICAP ACCESS TO THE RIGHT WAY                                                                                               |
| ⑲                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | REMOVE EXISTING PAVEMENT                                                                                                       |
| <b><u>COORDINATION ITEMS</u></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                |
| (A)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | SEE ARCHITECTURAL DRAWINGS FOR TRASH ENCLOSURE PLAN AND DETAILS. MAXIMUM 1% SLOPE ON TRASH ENCLOSURE SLAB.                     |
| (B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | SEE ARCHITECTURAL AND LANDSCAPE PLANS FOR DETAILS OF OPEN SPACE AREAS.                                                         |
| <b>ENGINEER DISCLAIMER NOTE:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                |
| UTILITY LOCATIONS SHOWN HERE ON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HERE ON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION. |                                                                                                                                |
| I CERTIFY THAT THIS GRADING PLAN CONFORMS TO THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE WITH LAS VEGAS, NV. —                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                |
| <div style="display: flex; justify-content: space-between; align-items: center;"> <div> </div> <div>             DATE <span style="font-size: 1.2em;">10/8/18</span> </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <span>15749 E.E. MC WILLIAM J. MEYER</span> <span></span> </div>                                                                                                                                                                      |                                                                                                                                |

## BENCHMARK

PROJECT DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVDS88)

CITY OF LAS VEGAS BENCHMARK: 2LV0013N66 (REVISED 2008)  
NAVDS88 ELEVATION: 679.739 METERS (2230.11 FEET)

FOUND RIVET AND PLATE IN THE TOP OF CURB ON THE WEST SIDE OF RANCHO AT 3101 RANCHO



THESE DOCUMENTS  
ARE NOT TO BE USED FOR  
ANY OTHER PURPOSE  
THAN THAT  
SPECIFIED

## BASIS OF BEARING

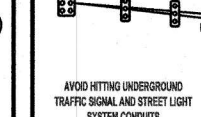
GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS ZONE, NORTH AMERICAN DATUM OF 1983, SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

LINEAR UNIT: US SURVEY FOOT (FUTS)

DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00  
SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)

ZONE: LAS VEGAS

PROJECTION: TRANSVERSE MERCATOR  
STANDARD PARALLEL: (LATITUDE OF GRID ORIGIN): 36°15'00"N  
LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W  
NORTHING AT GRID ORIGIN: 200,000.00 M (656,166.8667' FUTS)  
EASTING AT CENTRAL MERIDIAN: 100,000.00 M (328,083.3333' FUTS)  
SCALE FACTOR ON CENTRAL MERIDIAN: 1.0001 (EXACT)



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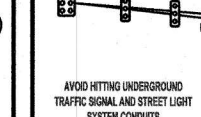
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LINEAR UNIT: US SURVEY FOOT (FUTS)

DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00  
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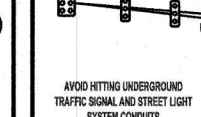
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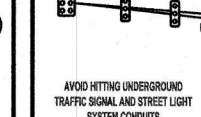
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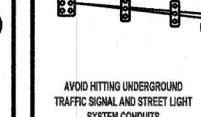
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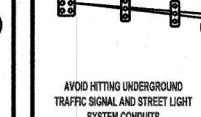
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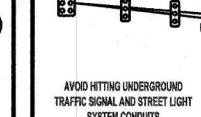
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## BASIS OF BEARING

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS ZONE, NORTH AMERICAN DATUM OF 1983, SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

LINEAR UNIT: US SURVEY FOOT (FUTS)

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EASTING AT CENTRAL MERIDIAN: 100,000.00 M (328,083.3333' FUTS)

|                                                                                                                                                                                                       |                       |                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|------------------------------|
| <b>SIGHT VISIBILITY ZONES:</b>                                                                                                                                                                        |                       |                              |
| NO STRUCTURE, WALLS, VEGETATION, OR OBJECT OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES. |                       |                              |
| <b>EARTHWORK QUANTITIES</b>                                                                                                                                                                           |                       |                              |
| CUT                                                                                                                                                                                                   | FILL                  | NET                          |
| 8,538<br>CUBIC YARDS                                                                                                                                                                                  | 19,754<br>CUBIC YARDS | 11,419<br>CUBIC YARDS (FILL) |
| <b>GRADING PERMIT NOTE</b>                                                                                                                                                                            |                       |                              |
| THIS GRADING PERMIT DOES NOT INCLUDE THE CONSTRUCTION OF RETAINING WALLS AND OTHERS STRUCTURES. SEPARATE PERMITS AND APPLICATIONS ARE REQUIRED FOR THESE.                                             |                       |                              |
| <b>GEOTECHNICAL NOTE:</b>                                                                                                                                                                             |                       |                              |
| REFER TO SOILS REPORT: ----<br>PROJECT # ----, DATED ----<br>HTE # ----                                                                                                                               |                       |                              |

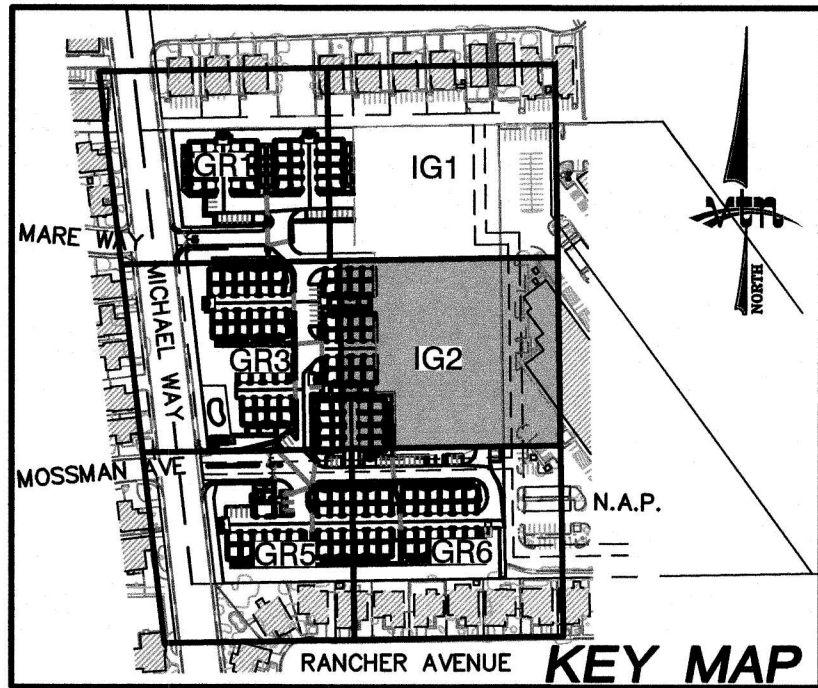
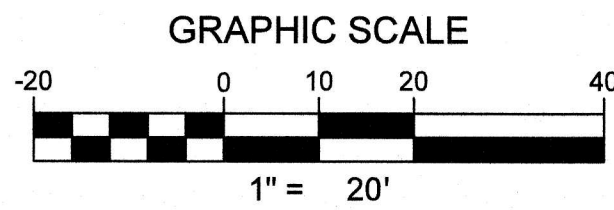
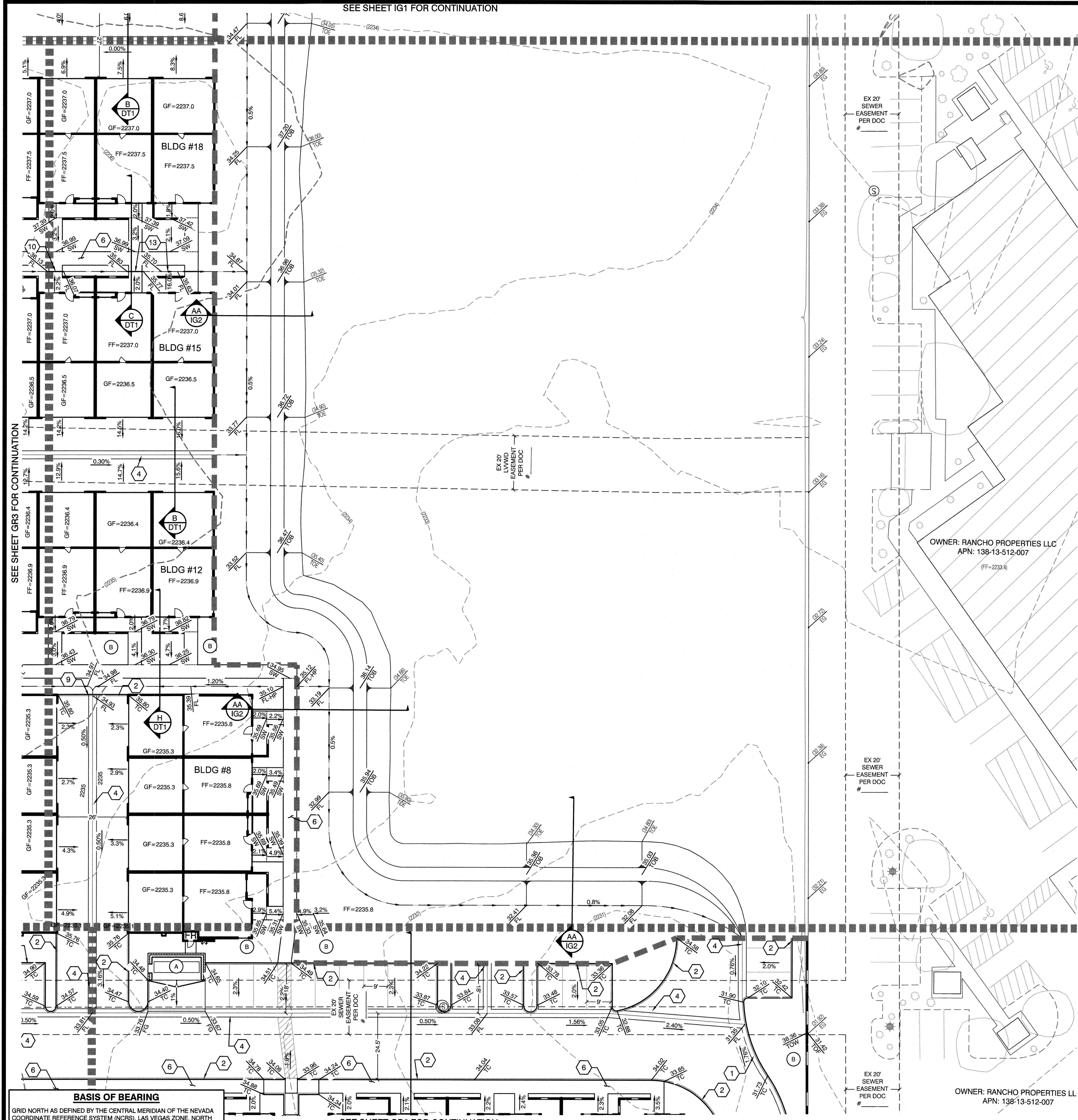
| <b><u>SIDEWALK RAMPS TABLE</u></b> |         |         |      |
|------------------------------------|---------|---------|------|
| (PER CCAUSD No. 235, CASE I)       |         |         |      |
| NO.                                | DIM "A" | DIM "B" | CASE |
| 1                                  | 4.5'    | 12'     | I    |
| 2                                  | 4.5'    | 9.5'    | I    |
| 3                                  | 8'      | 8'      | I    |
| 4                                  | 9.5'    | 4.5'    | I    |
| 5                                  | 15'     | 4.5'    | I    |

AVOID HITTING OVERHEAD  
POWER LINES. IT'S COSTLY.

CALL BEFORE  
YOU DO  
OVERHEAD

1-702-227-2929





SEE SHEET GR3 FOR CONTINUATION

SEE SHEET GR6 FOR CONTINUATION

**BASIS OF BEARING**  
GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS ZONE, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.  
LINEAR UNIT: US SURVEY FOOT (FT/US)  
DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00  
SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)  
ZONE: LAS VEGAS  
PROJECTION: TRANSVERSE MERCATOR  
STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N  
LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W  
NORTHING AT GRID ORIGIN: 200,000,000 M (656,169,666 FT/US)  
EASTING AT CENTRAL MERIDIAN: 100,000,000 M (328,083,333 FT/US)  
SCALE FACTOR ON CENTRAL MERIDIAN: 1.0001 (EXACT)

**BENCHMARK**  
PROJECT DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)  
CITY OF LAS VEGAS BENCHMARK: 2LV0013NE6 (REVISED 2008)  
NAVD88 ELEVATION: 679.739 METERS (2230.11 FEET)  
FOUND RIVET AND PLATE IN THE TOP OF CURB ON THE WEST SIDE OF RANCHO AT 3101 RANCHO

**GRADING PERMIT NOTE**  
THIS GRADING PERMIT DOES NOT INCLUDE THE CONSTRUCTION OF RETAINING WALLS AND OTHERS. SEPARATE PERMITS AND APPLICATIONS ARE REQUIRED FOR THESE.  
**GEOTECHNICAL NOTE:**  
REFER TO SOILS REPORT: ---  
PROJECT #---, DATED ---  
HTE #---

**SIGHT VISIBILITY ZONES:**  
NO STRUCTURE, WALLS, VEGETATION, OR OBJECT OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

**EARTHWORK QUANTITIES**

| CUT               | FILL               | NET                       |
|-------------------|--------------------|---------------------------|
| 8,336 CUBIC YARDS | 19,754 CUBIC YARDS | 11,418 CUBIC YARDS (FILL) |

**SIDEWALK RAMPS TABLE**  
(PER CCAUSD No. 235, CASE I)

| NO. | DIM "A" | DIM "B" | CASE |
|-----|---------|---------|------|
| 1   | 4.5'    | 12'     | I    |
| 2   | 4.5'    | 9.5'    | I    |
| 3   | 8'      | 8'      | I    |
| 4   | 9.5'    | 4.5'    | I    |
| 5   | 15'     | 4.5'    | I    |

OWNER: RANCHO PROPERTIES LL  
APN: 138-13-512-007

Call before you Dig  
1-702-227-2929  
Call before you Dig  
1-702-227-2929  
Call before you Dig  
1-702-227-2929

**LEGEND**

| DESCRIPTION              | PROPOSED | EXISTING | FUTURE |
|--------------------------|----------|----------|--------|
| CONTOUR (5' INTERVAL)    | ---      | ---      | ---    |
| CONTOUR (1' INTERVAL)    | ---      | ---      | ---    |
| EDGE OF PAVEMENT         | ---      | ---      | ---    |
| SAW CUT                  | ---      | ---      | ---    |
| RETAINING WALL           | ---      | ---      | ---    |
| SCREEN WALL              | ---      | ---      | ---    |
| RIGHT OF WAY             | ---      | ---      | ---    |
| CENTER LINE              | ---      | ---      | ---    |
| BACK OF CURB             | ---      | ---      | ---    |
| LIP OF GUTTER            | ---      | ---      | ---    |
| FACE OF CURB             | ---      | ---      | ---    |
| SIDEWALK                 | ---      | ---      | ---    |
| UNIT BOUNDARY LINE       | ---      | ---      | ---    |
| PROPERTY LINE            | ---      | ---      | ---    |
| SLOPE AND FLOW DIRECTION | ---      | ---      | ---    |
| SCARP AREA               | ---      | ---      | ---    |
| MATCHLINE                | ---      | ---      | ---    |
| SIDEWALK RAMP            | ---      | ---      | ---    |
| SIGHT VISIBILITY ZONES   | ---      | ---      | ---    |
| PAVED ROAD               | ---      | ---      | ---    |
| PAVEMENT REMOVAL         | ---      | ---      | ---    |
| RIP RAP                  | ---      | ---      | ---    |
| LANDSCAPE ROCK           | ---      | ---      | ---    |

- CONSTRUCTION NOTES**
- CONSTRUCT 24" TYPE "L" CURB & GUTTER PER CCAUSD #216.
  - CONSTRUCT TYPE "A" CURB PER CCAUSD #219.
  - 0" CURB FACE PER DETAIL ON SHEET DT3
  - CONSTRUCT 3" VALLEY GUTTER PER THE DETAIL ON SHEET DT3
  - CONSTRUCT 8" VALLEY GUTTER PER CCAUSD # 228
  - CONSTRUCT 5" SIDEWALK PER CCAUSD # 234
  - INSTALL PRECAST BUMPER BLOCK PER CCAUSD #238.
  - INSTALL LANDSCAPE ROCK D50=6" 12" THK
  - CONSTRUCT 2" CURB CUT PER DETAIL ON SHEET DT3
  - CONSTRUCT SIDE WALK UNDER DRAIN PER CCAUSD #236.
  - CONSTRUCT "U" CHANNEL PER DETAIL ON SHEET DT3
  - CONSTRUCT COMMERCIAL DRIVEWAY PER CCAUSD #225
  - CONSTRUCT 6" PVC STORM DRAIN
  - INSTALL WROUGHT IRON FENCE WITH A 6" CLEAR SPACE @ THE BOTTOM FOR UNOBSTRUCTED STORM RUNOFF FLOW. SEE DETAIL "Y" ON SHEET DT2.
  - CONSTRUCT HANDICAP RAMP PER CCAUSD 235 CASE I
  - SAWCUT, MATCH EXISTING & TRENCH BACKFILL PER CCAUSD 500.3, 500.5 & 503
  - RETAINING HEIGHT (4=FEET 2=TENTH)
  - HANDICAP ACCESS TO THE RIGHT OF WAY
  - REMOVE EXISTING PAVEMENT
- COORDINATION ITEMS**
- SEE ARCHITECTURAL DRAWINGS FOR TRASH ENCLOSURE PLAN AND DETAILS. MAXIMUM 1% SLOPE ON TRASH ENCLOSURE SLAB.
- SEE ARCHITECTURAL AND LANDSCAPE PLANS FOR DETAILS OF OPEN SPACE AREAS.

**ENGINEER DISCLAIMER NOTE:**  
UTILITY LOCATIONS SHOWN HERE ON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HERE ON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.  
I CERTIFY THAT THIS GRADING PLAN CONFORMS TO THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE WITH LAS VEGAS, NV. #---  
15746, P.E. No. WILLIAM J. MEYER DATE 10/18/18

**EAB INVESTMENT COMPANY**  
3005 N. RANCHO #130  
LAS VEGAS, NV 89113

**INTERIM GRADING PLAN 2**

**CRYSTAL PARK APARTMENTS**

**LAS VEGAS, NV**

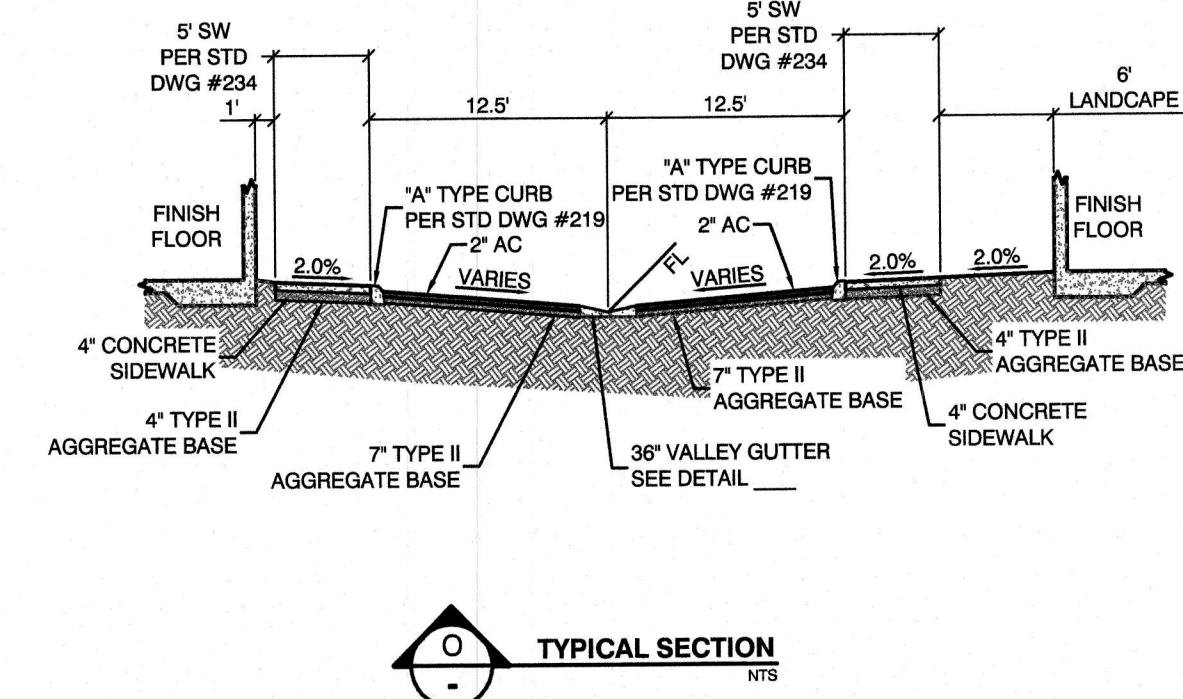
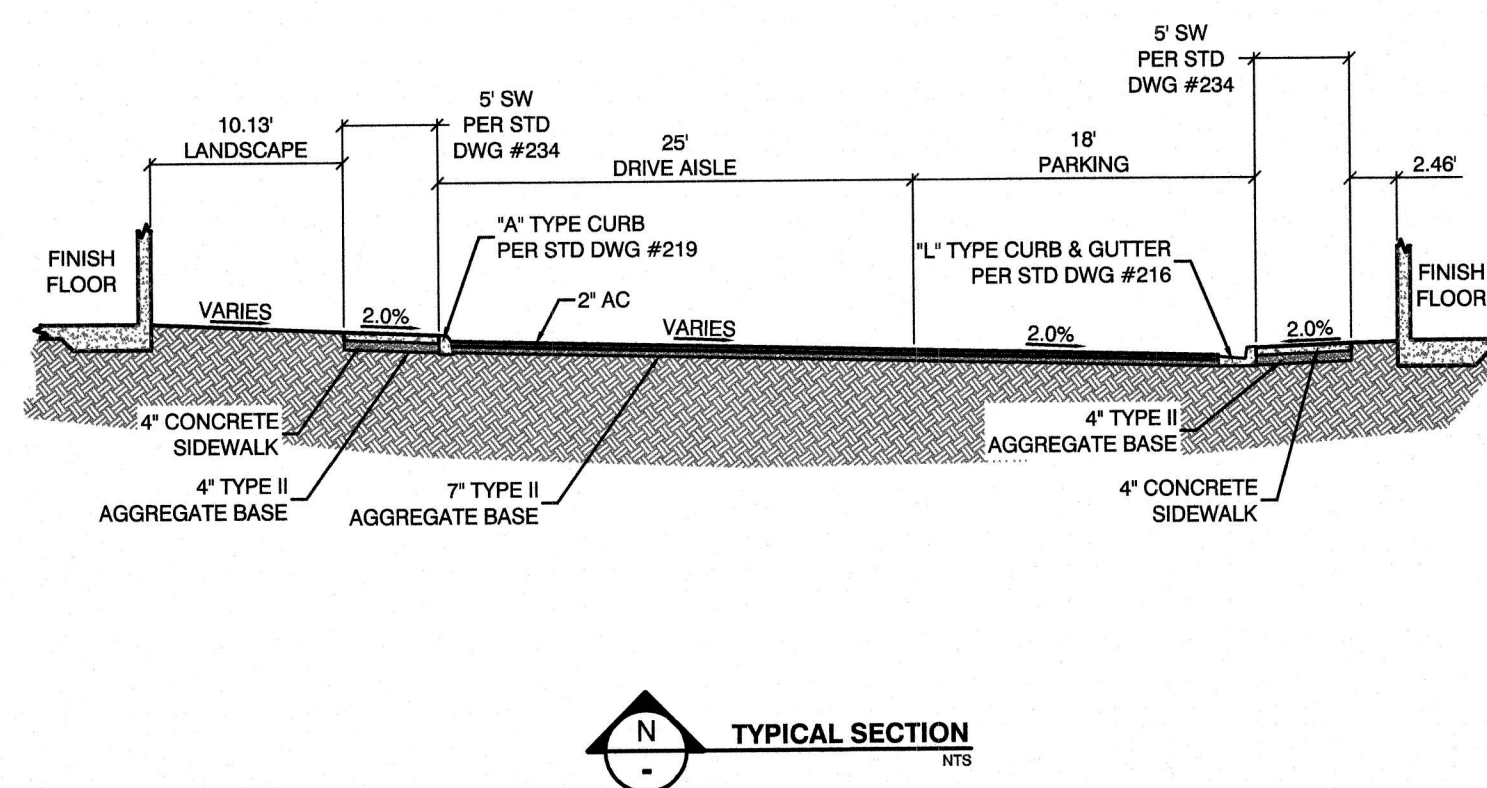
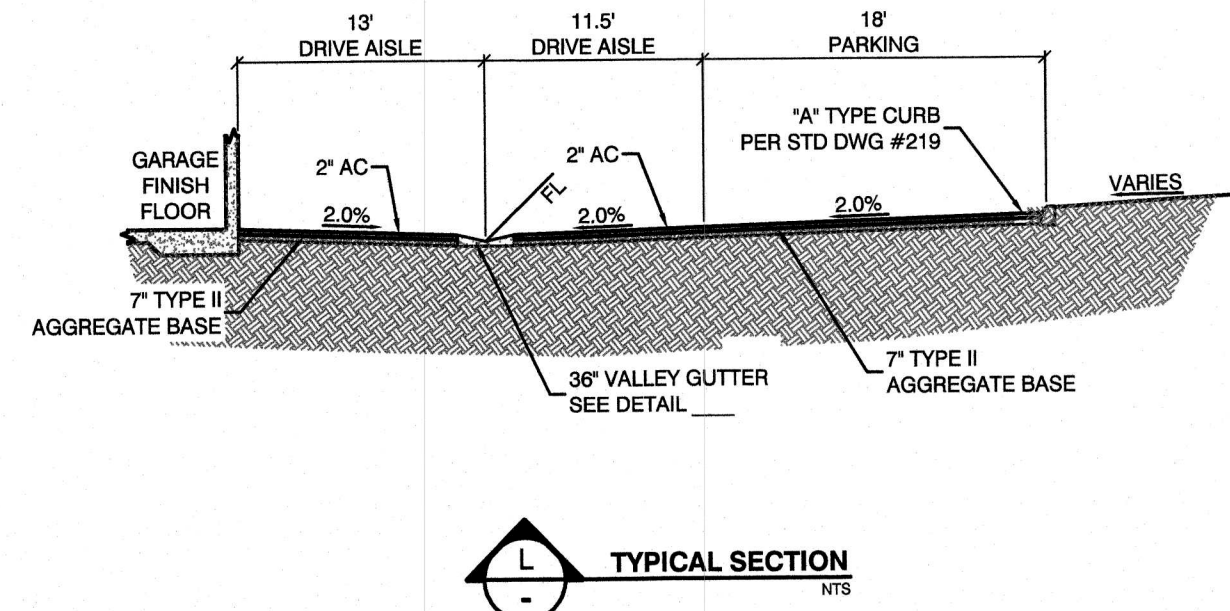
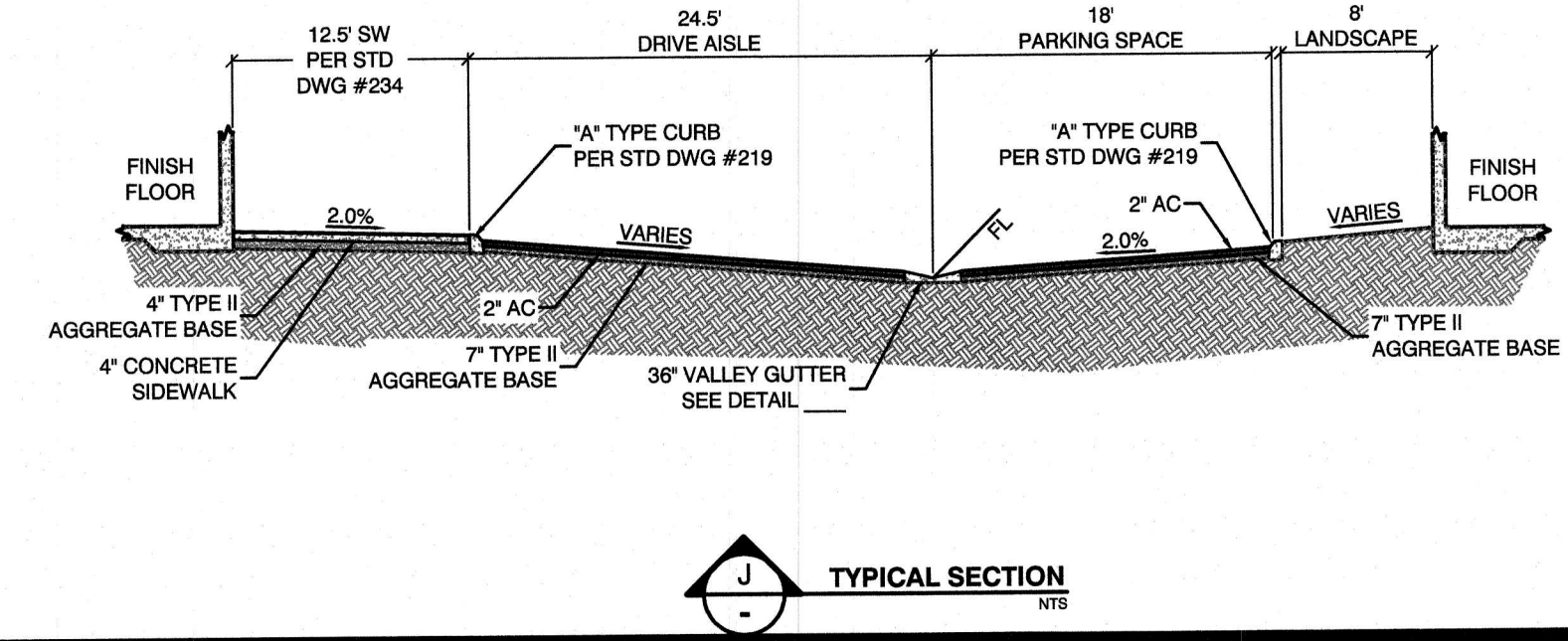
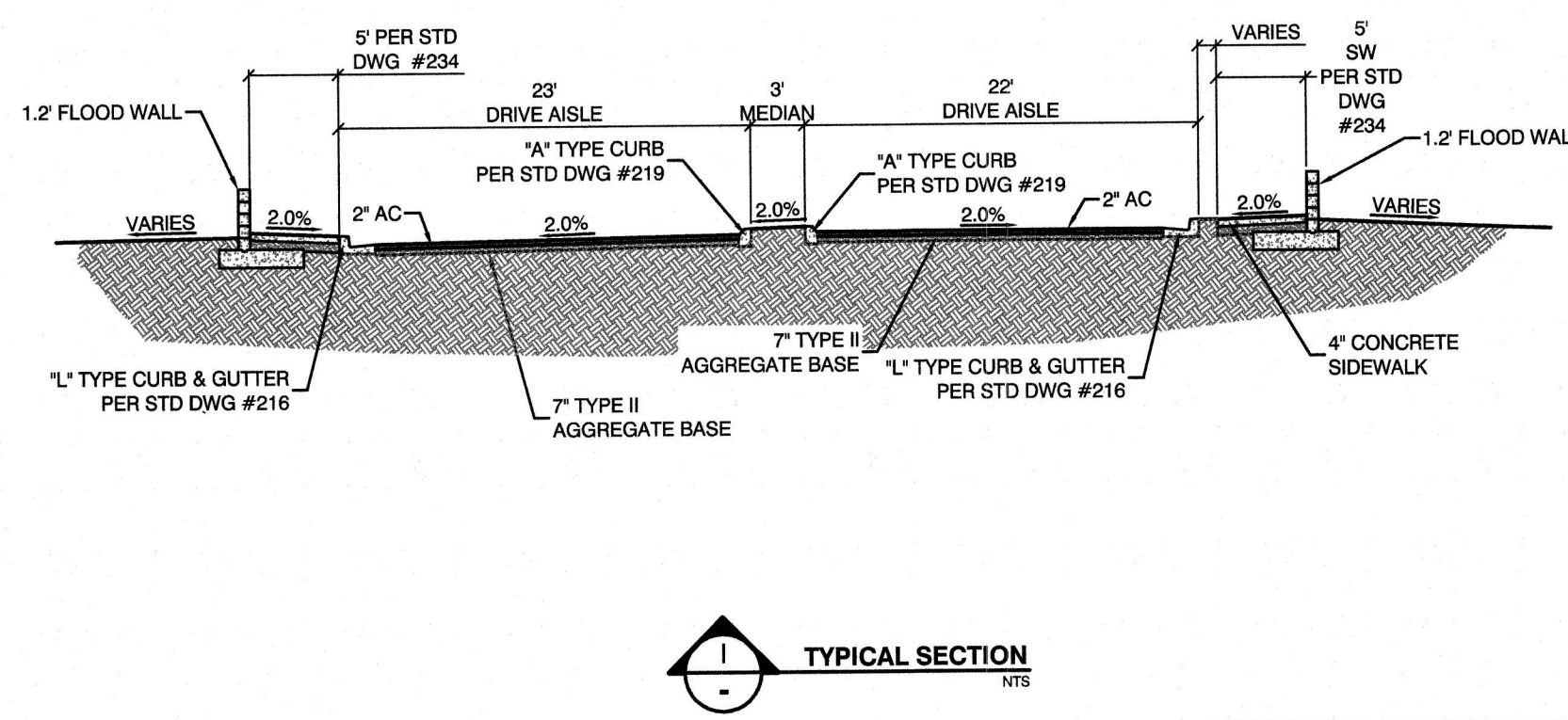
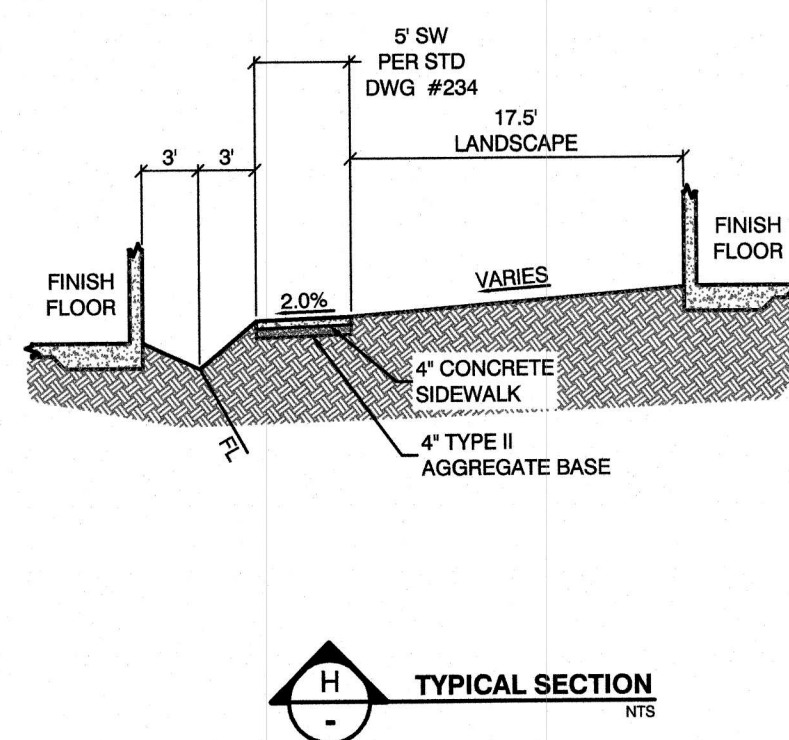
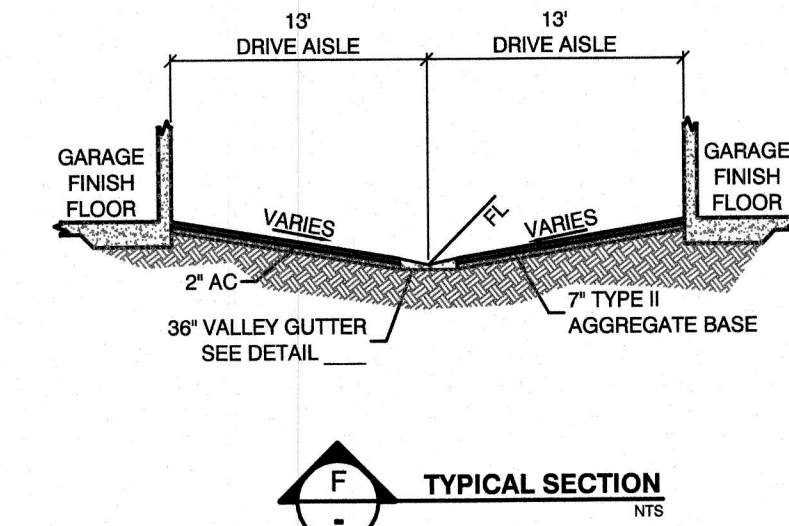
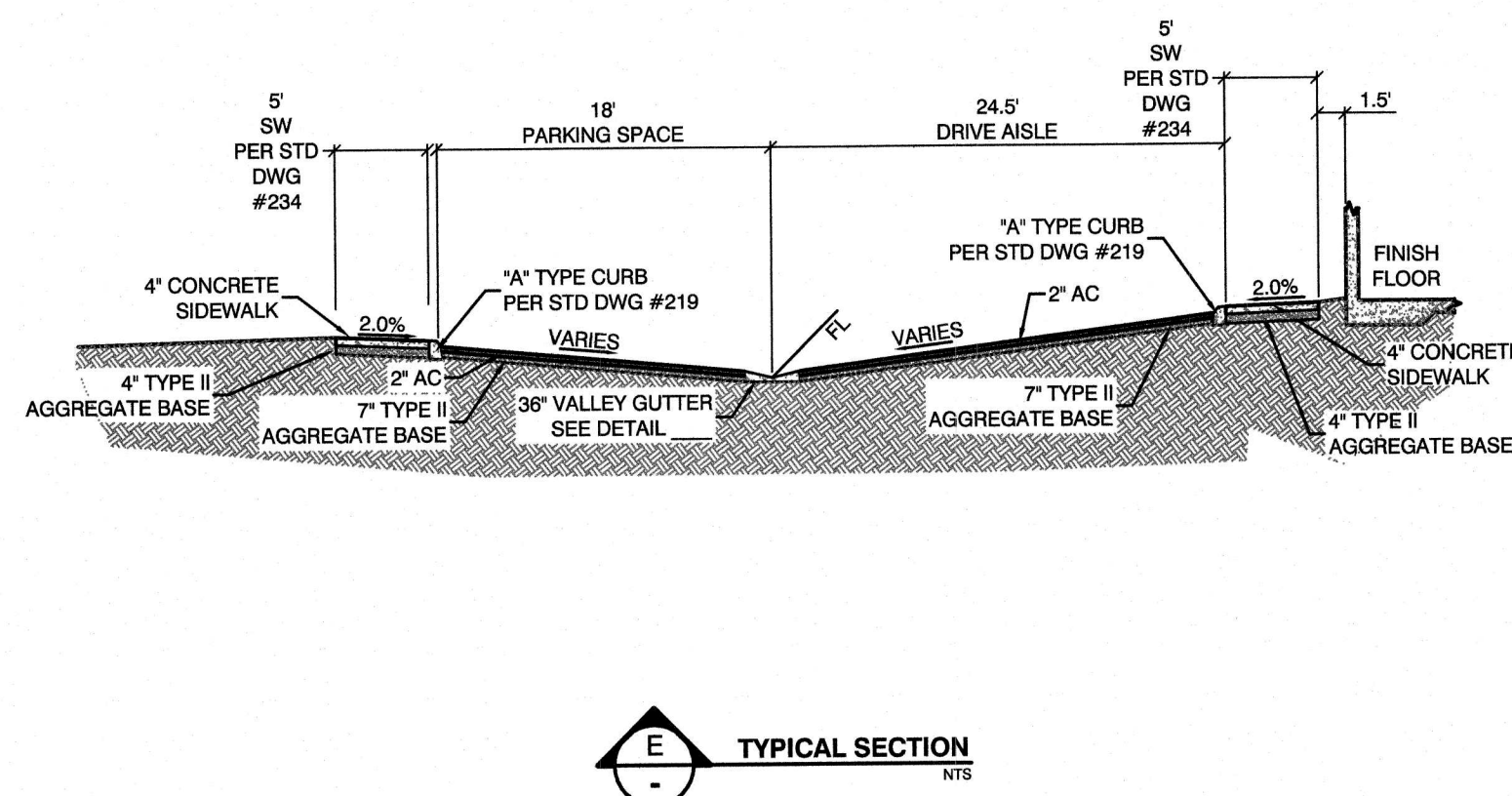
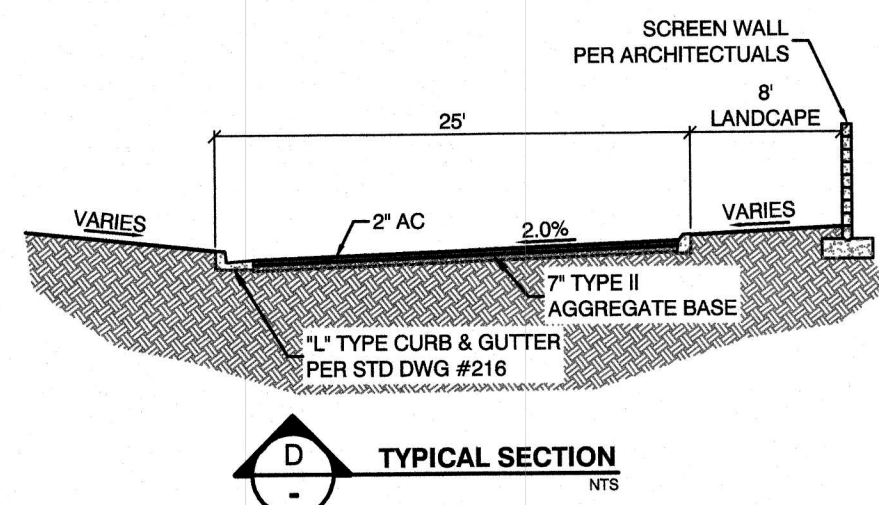
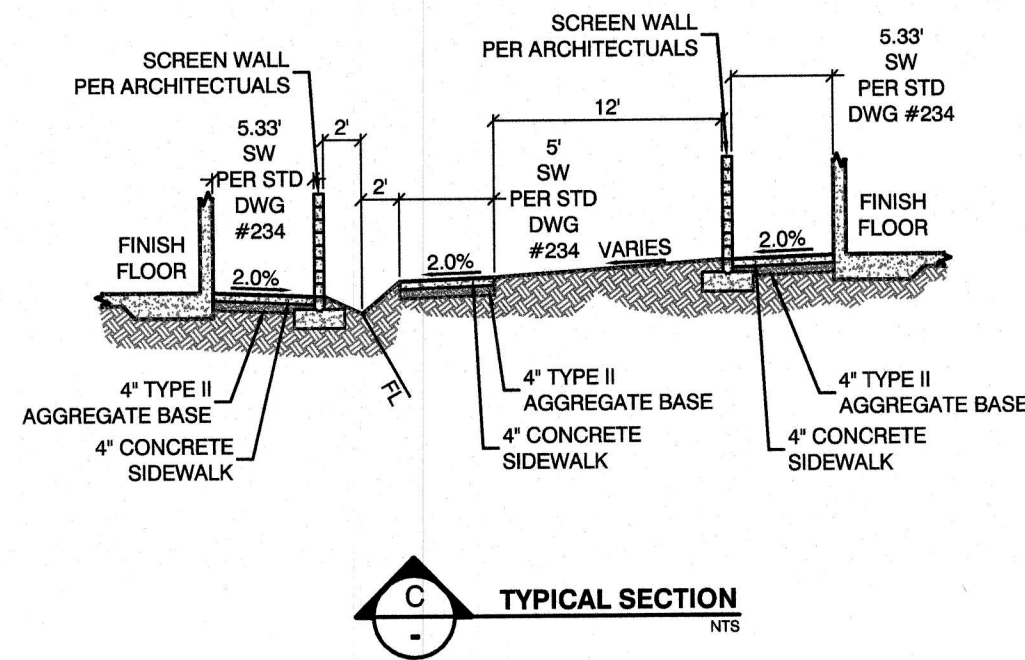
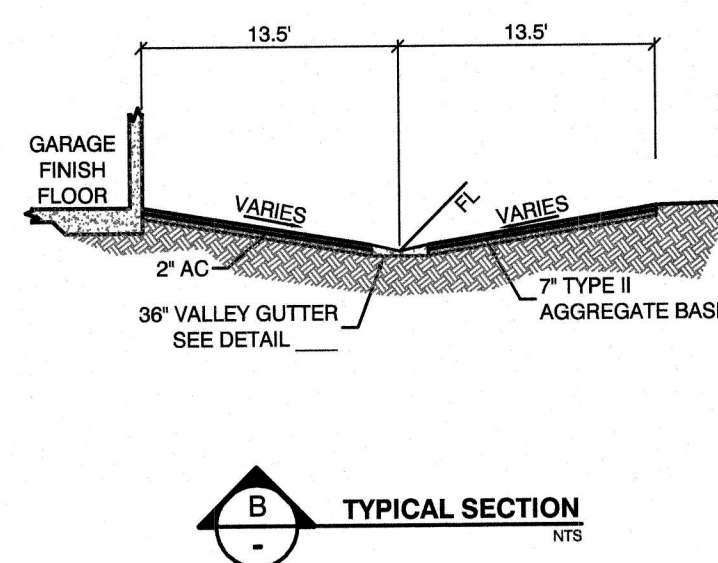
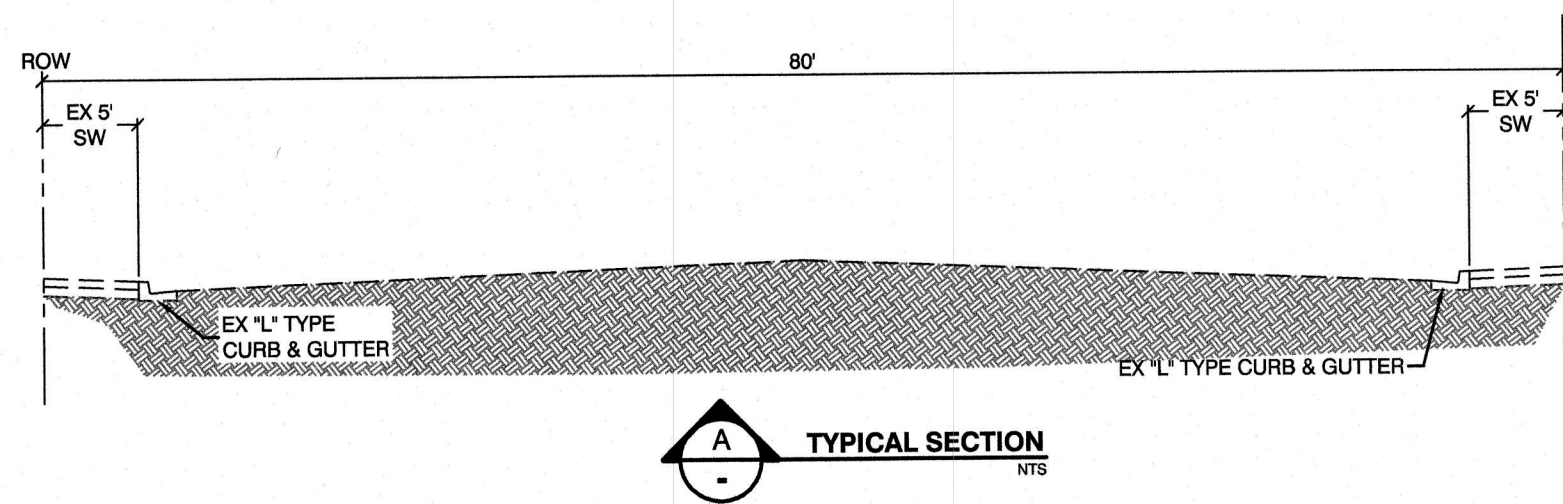
**277 SOUTH RAINBOW BOULEVARD**  
LAS VEGAS, NEVADA 89146-5146  
PH: (702) 873-7500 FAX: (702) 882-2897 WEB: WWW.VTNN.COM  
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**REVISION**

| REV | DATE | BY |
|-----|------|----|
|     |      |    |
|     |      |    |
|     |      |    |
|     |      |    |

**DESIGNED BY:** KDH  
**CHECKED BY:** WJM  
**PROJECT NO.:** 7844  
**SCALE:** 1"=20' HORIZ. 1"=20' VERT.  
**DATE:** 10/18/2018  
**10 OF 13 SHEETS**  
**DRAWING NO.:** ---  
**10/18/18**  
**IG2**  
**15746, P.E. No. WILLIAM J. MEYER**





EAB INVESTMENT COMPANY  
3065 N. RANCHO #130  
LAS VEGAS, NV 89113

LAS VEGAS, NV

277 SOUTH RAINBOW BOULEVARD  
LAS VEGAS, NEVADA 89146-5148  
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DETAIL SHEET 1

CRYSTAL PARK APARTMENTS

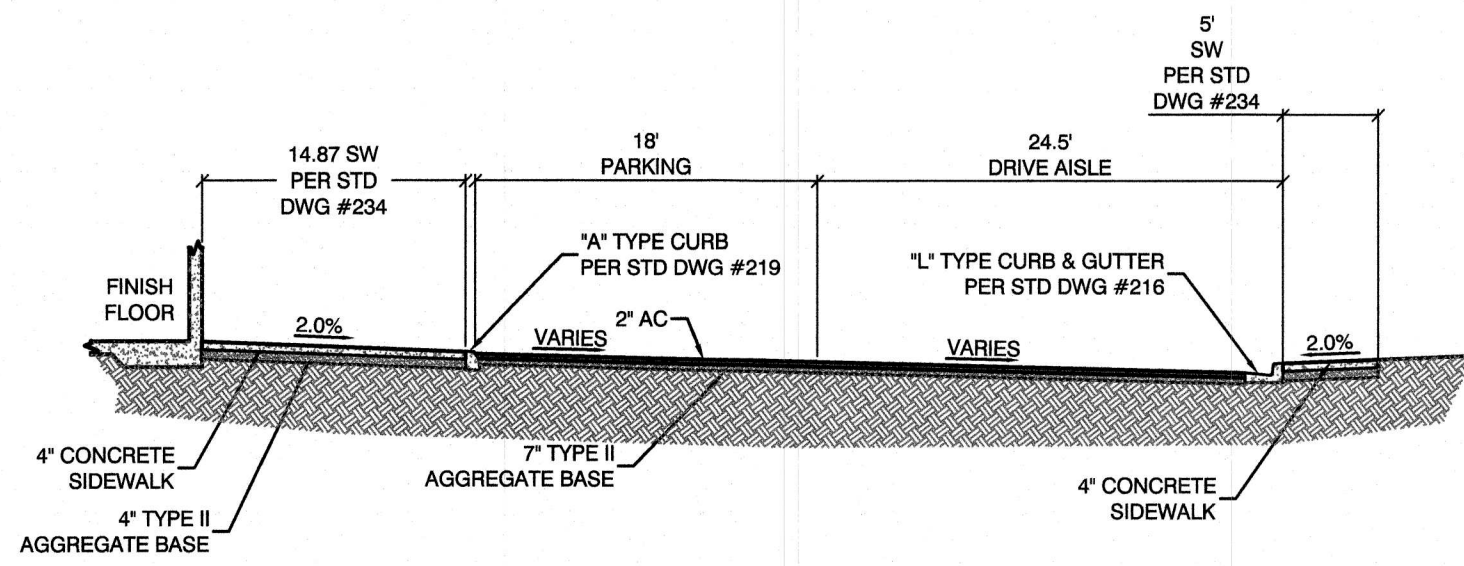
DRAWN BY: KDH  
DESIGNED BY: DBH  
CHECKED BY: WJM  
PROJECT NO: 7844

08/14/2017  
08/14/2017  
08/14/2017  
N/A  
N/A  
N/A

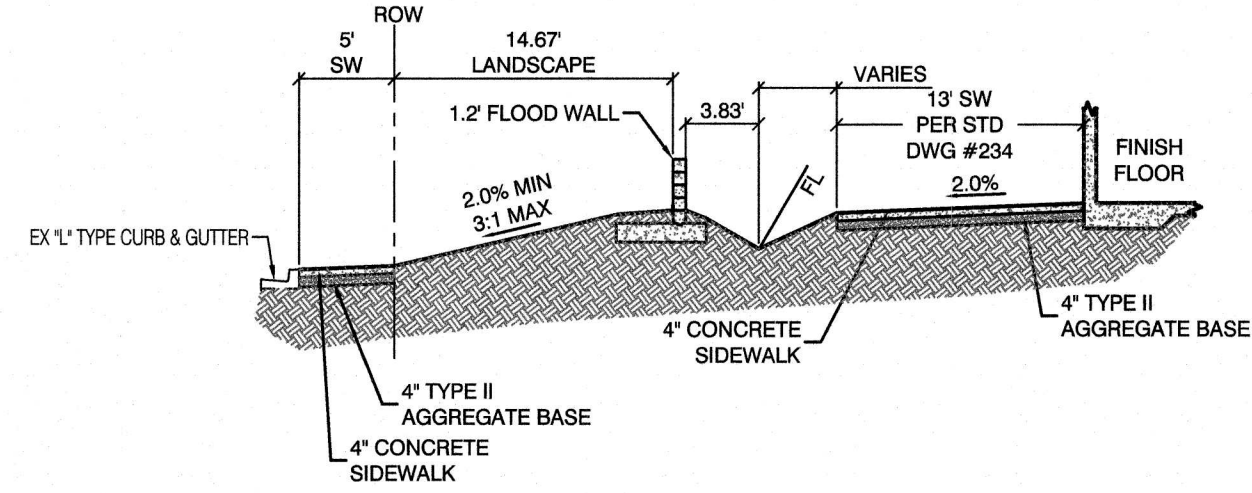
SCALE: 1/8" = 1'-0"  
SHEET  
DT1  
11 OF 13 SHEETS  
DRAWING NO.

117844-Sheet-Sub-DRAINAGE STUDY/7844-DT.dwg

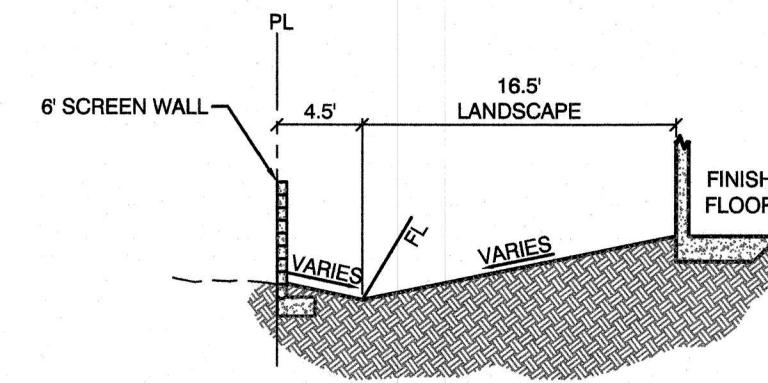




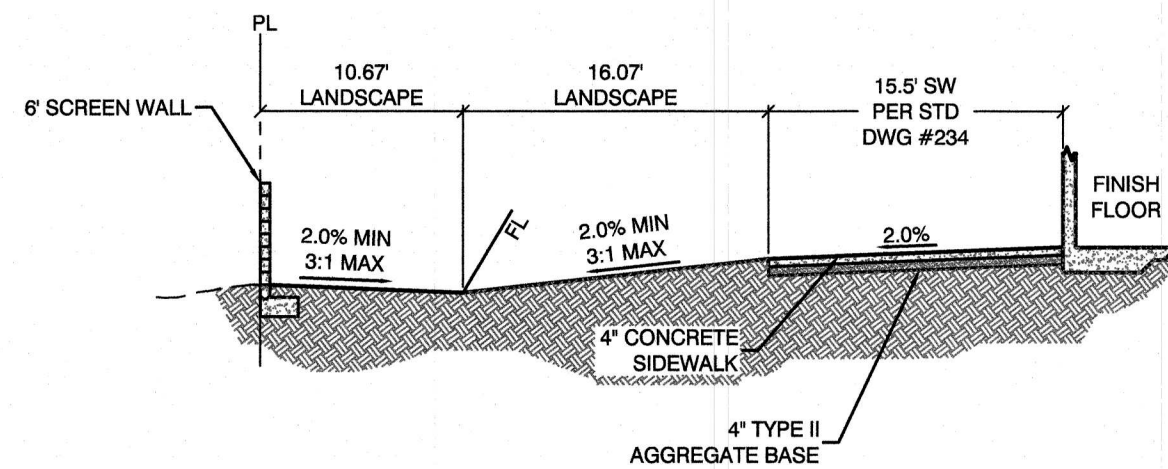
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NTS



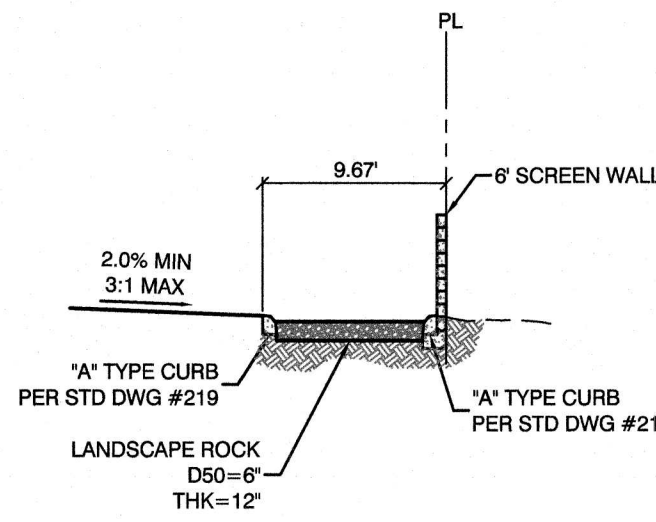
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NTS



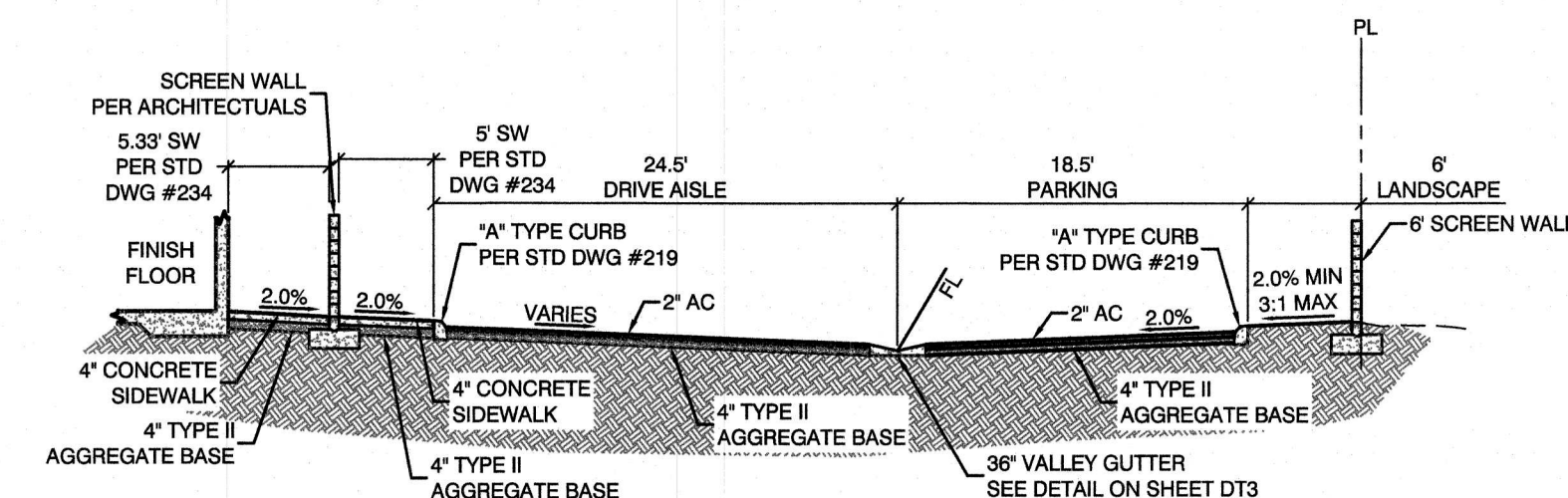
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NTS



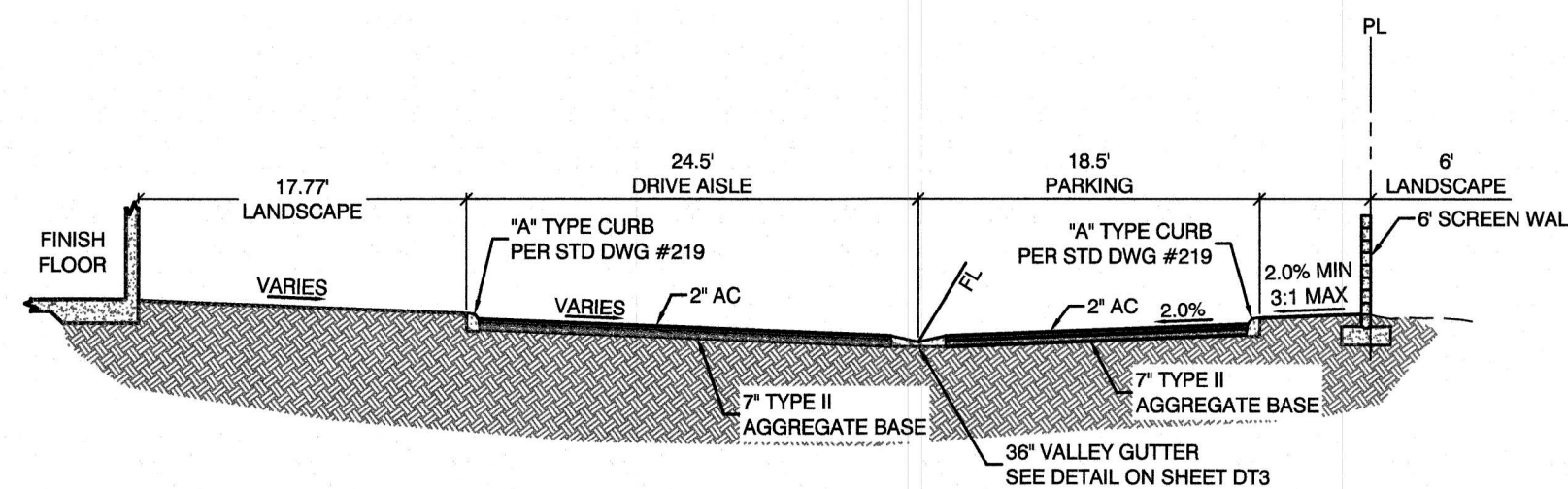
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NTS



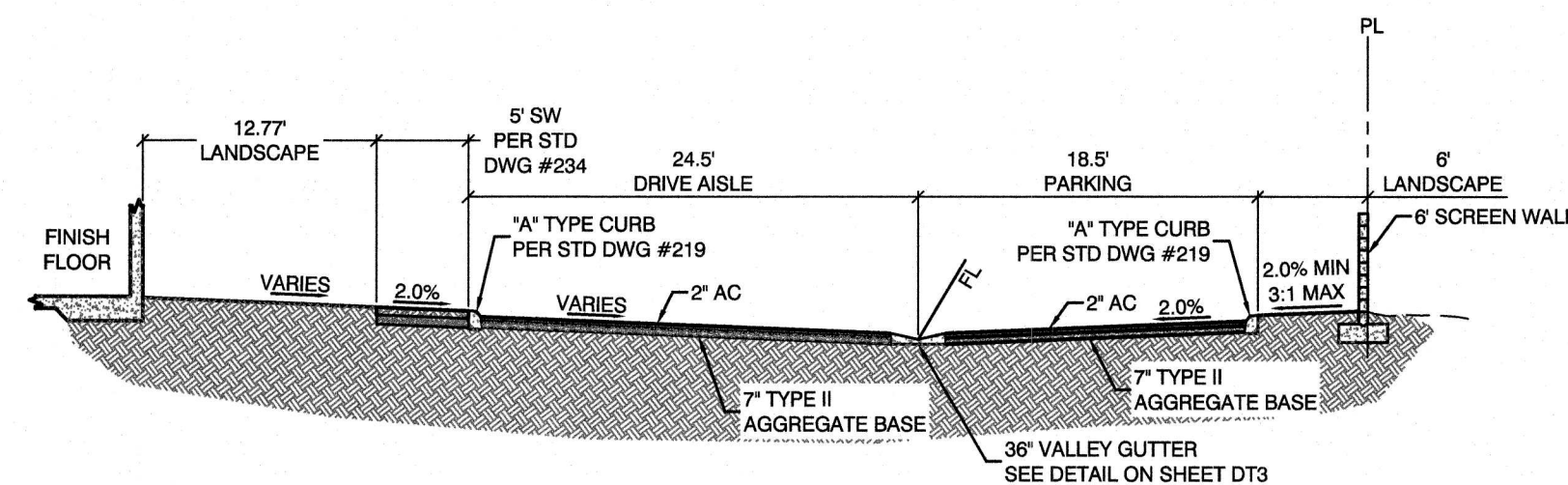
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NTS



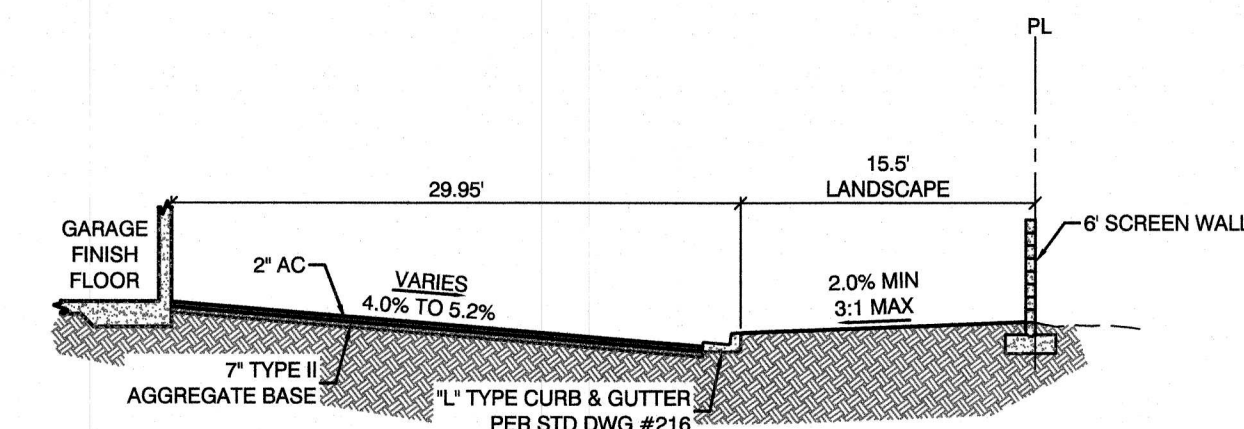
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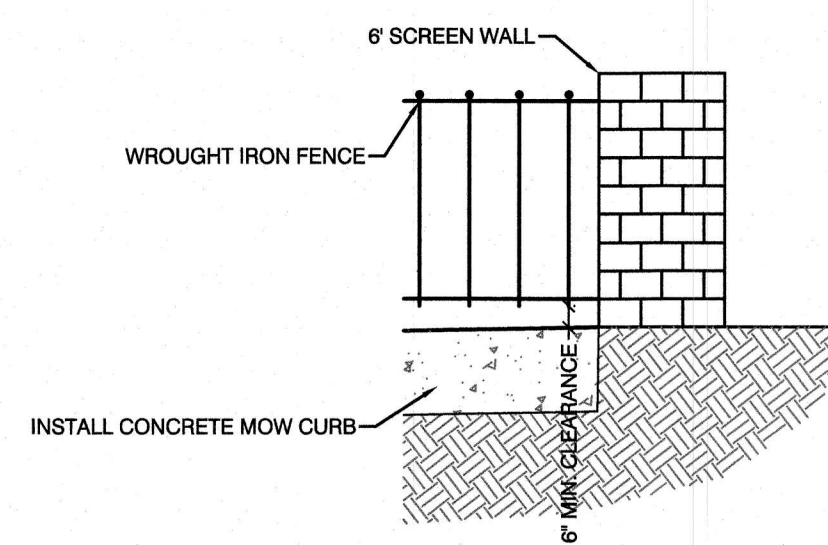
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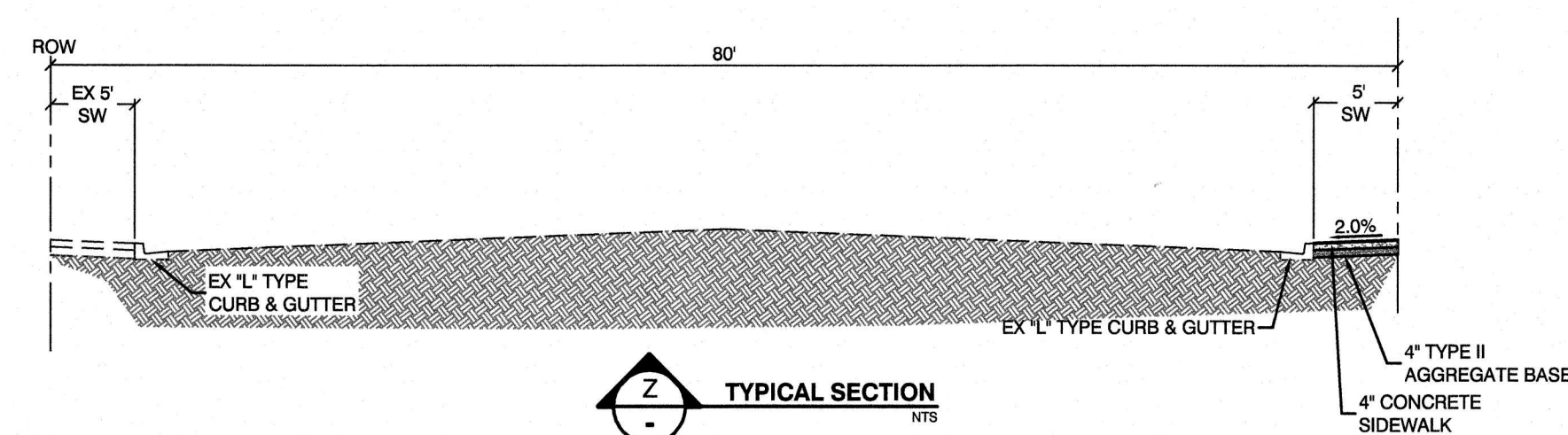
**TYPICAL SECTION**  
NTS



**TYPICAL SECTION**  
NTS



**TYPICAL SECTION**  
NTS



**TYPICAL SECTION**  
NTS

**EAB INVESTMENT COMPANY**  
3066 N. RANCHO #130  
LAS VEGAS, NV 89113

**LAS VEGAS, NV**  
2727 SOUTH RAINBOW BOULEVARD  
LAS VEGAS, NEVADA 89146-5146  
PH: (702) 873-7550 FAX: (702) 362-2287 WEB: WWW.VTNN.COM  
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**DETAIL SHEET 2**

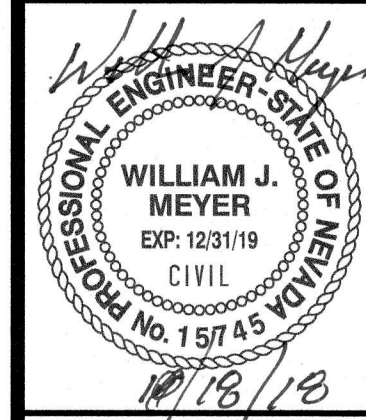
**CRYSTAL PARK APARTMENTS**

DRAWN BY: KCH 08/14/2017

DESIGNED BY: DEH 08/14/2017

CHECKED BY: WJM 08/14/2017

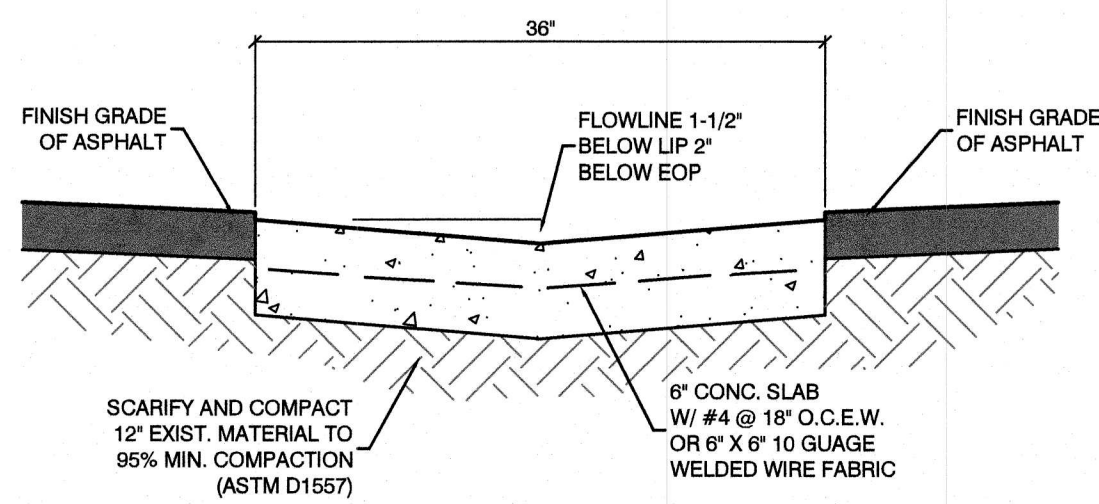
PROJECT NO: 7844 SCALE: N/A HORIZ. VERT.



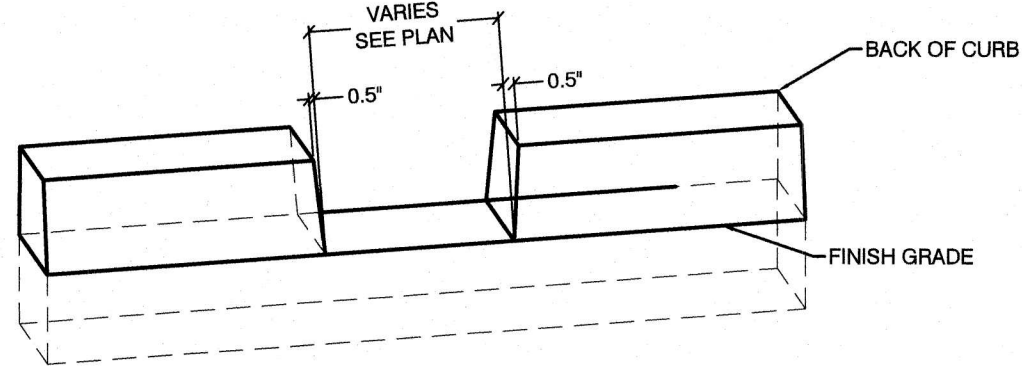
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**DT2**  
12 OF 13 SHEETS  
DRAWING NO.

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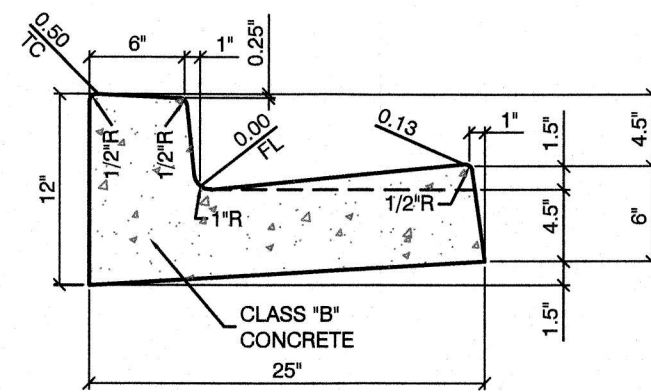




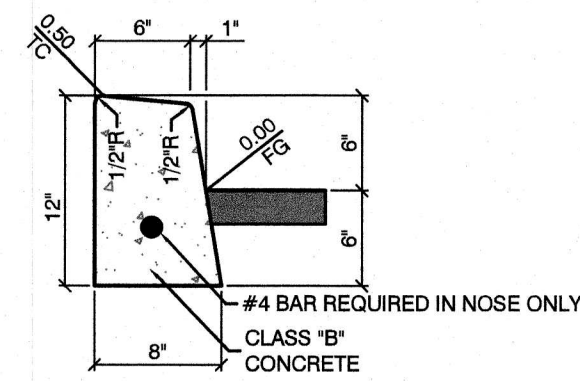
36" WIDE VALLEY GUTTER  
WITHIN PAVING AREAS  
NTS



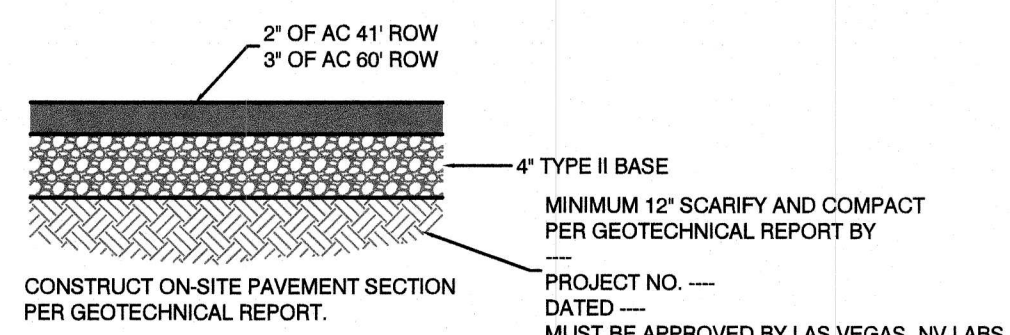
DEPRESSED "A" CURB  
NTS



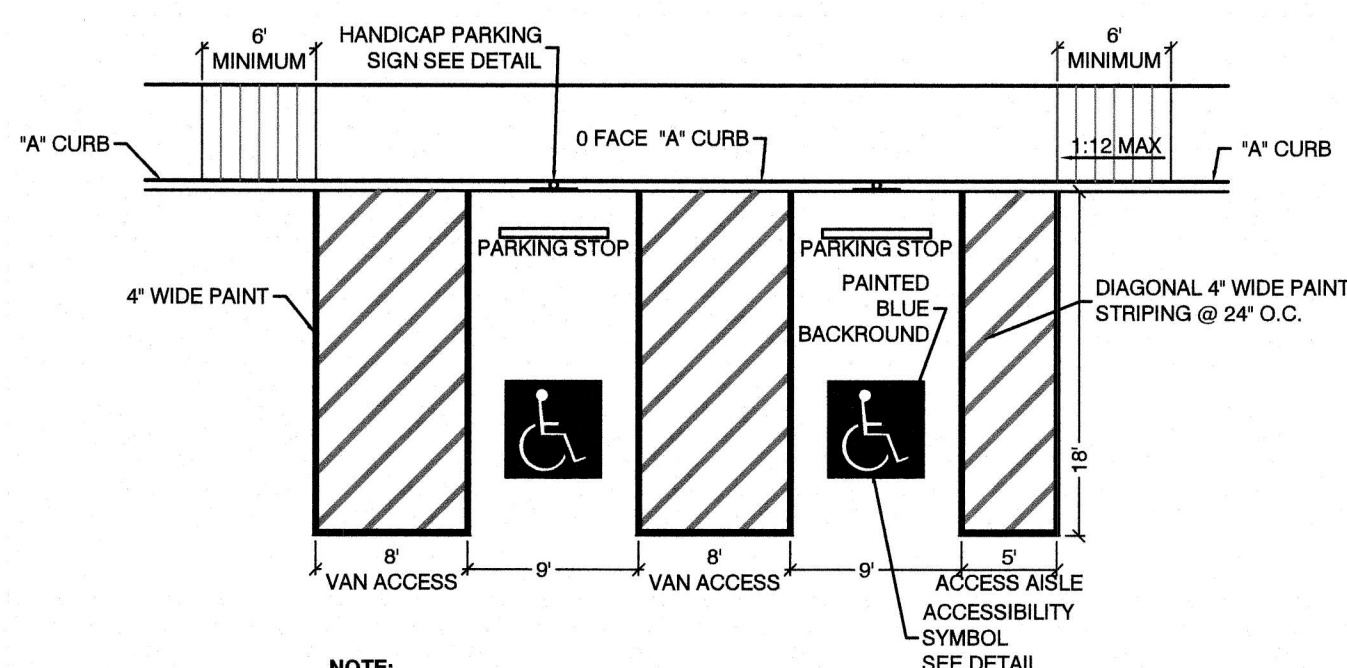
"L" TYPE CURB & GUTTER  
NTS  
REFER TO USD 216  
NOTES:  
1. 1" BATTER ON GUTTER FACE OPTIONAL



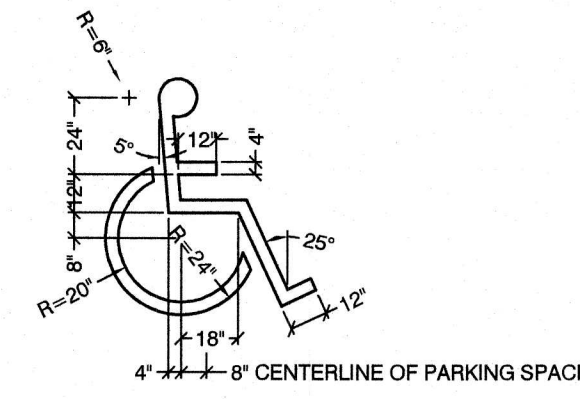
"A" CURB PRIVATE SECTION  
NTS  
REFER TO USD 219



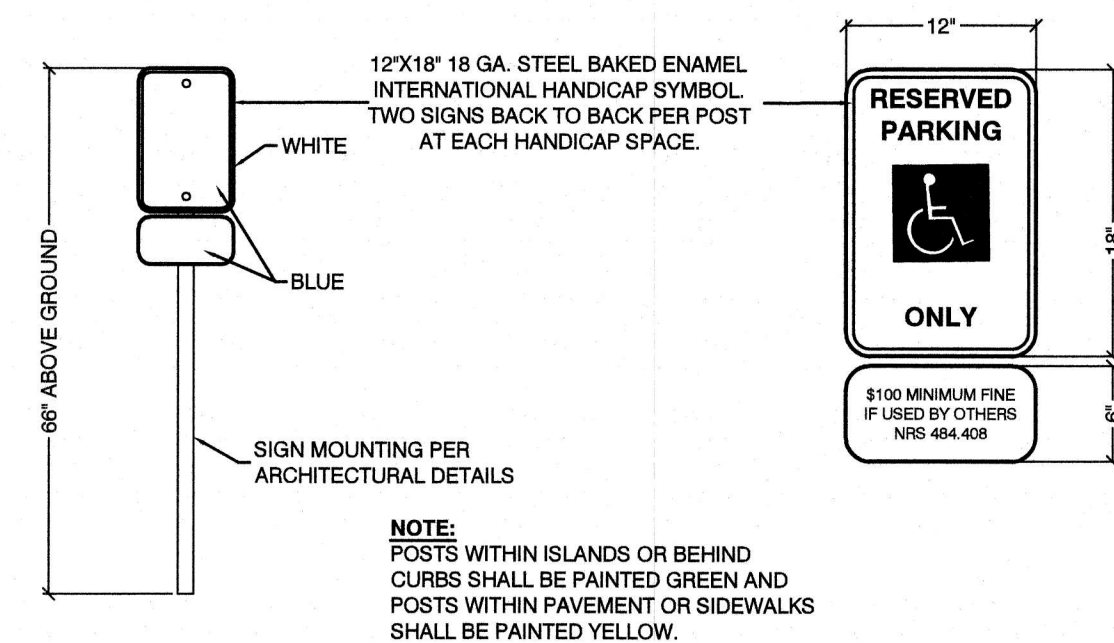
ON-SITE ASPHALT CONCRETE  
PAVEMENT SECTION  
NTS



NOTE:  
MAINTAIN A MAXIMUM OF 2% SLOPE IN ANY DIRECTION ON PAVING WITHIN HANDICAP PARKING SPACES AND PAINTED UNLOADING AREAS.  
TYPICAL ACCESSIBLE PARKING DETAIL  
NTS

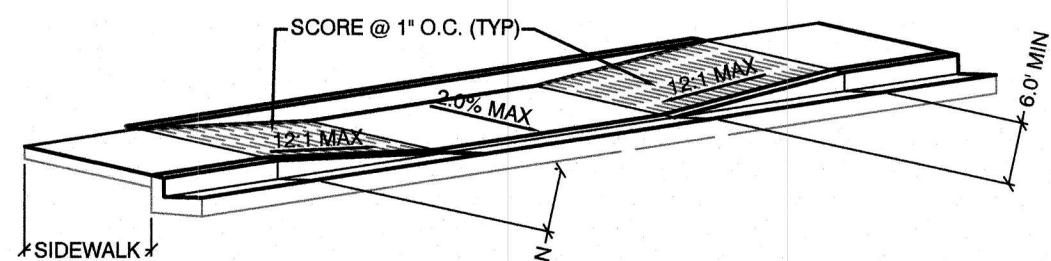


HANDICAP SYMBOL DETAIL  
NTS

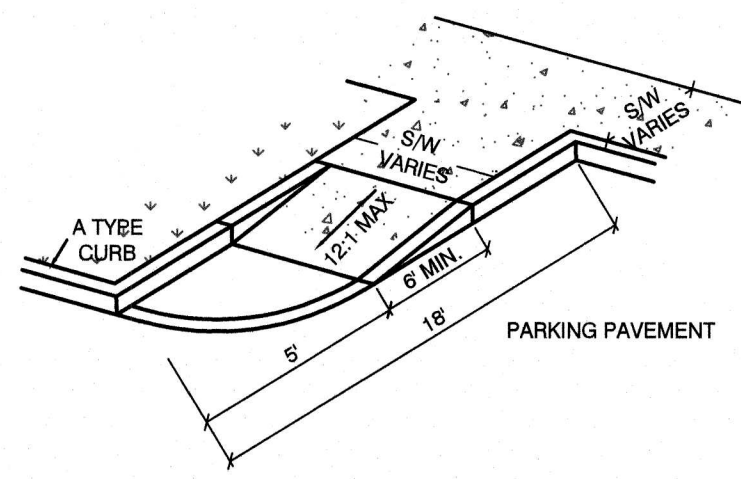


HANDICAP SIGN DETAIL  
NTS

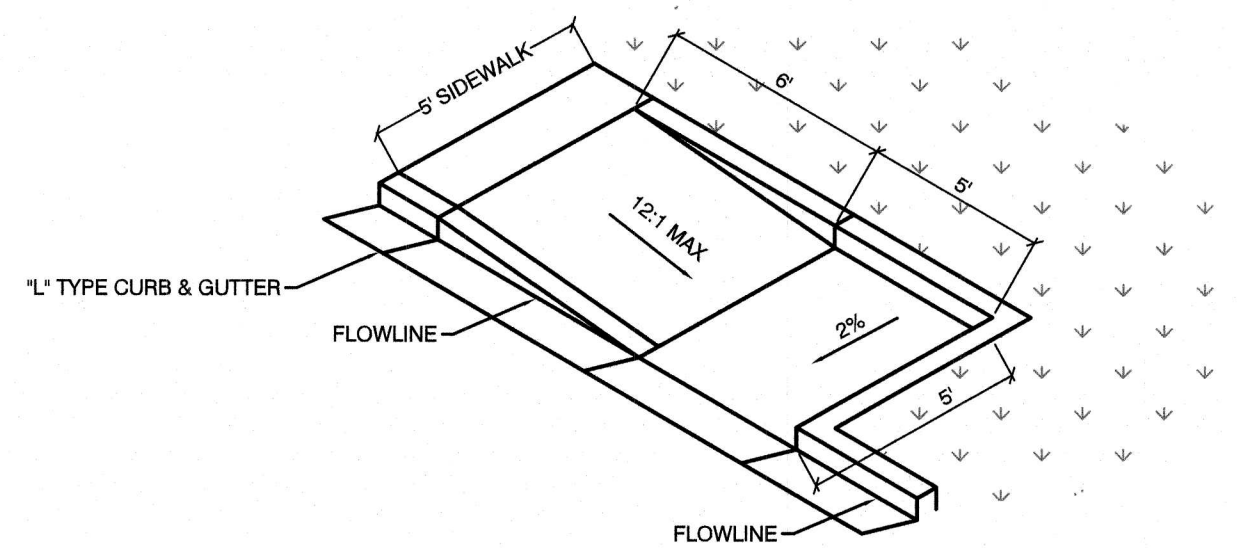
NOTE:  
ALL AGGREGATE BASES SHALL BE COMPACTED PER GEOTECHNICAL REPORT HTE #17-25528 PRELIMINARY PAVEMENT SECTIONS SHALL BE VERIFIED WITH THE FINAL PAVEMENT SECTION RECOMMENDATION REPORT (MPSR) PRIOR TO CONSTRUCTION. IF FINAL PAVEMENT SECTIONS ARE DIFFERENT, A REVISION TO THE IMPROVEMENT PLANS WILL BE REQUIRED.



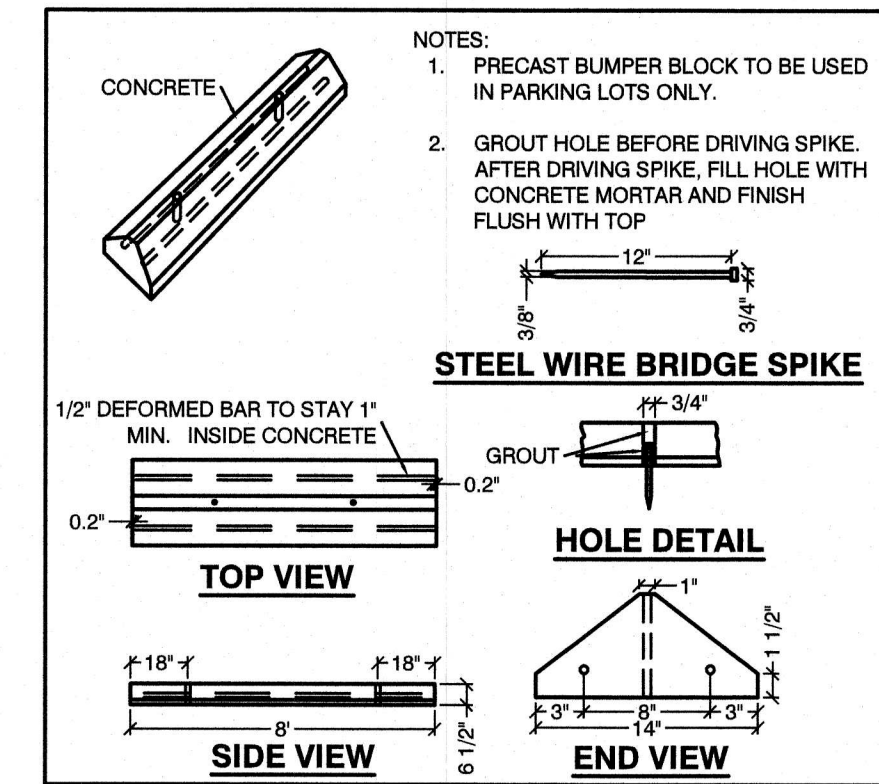
DUAL SIDEWALK RAMP  
NTS



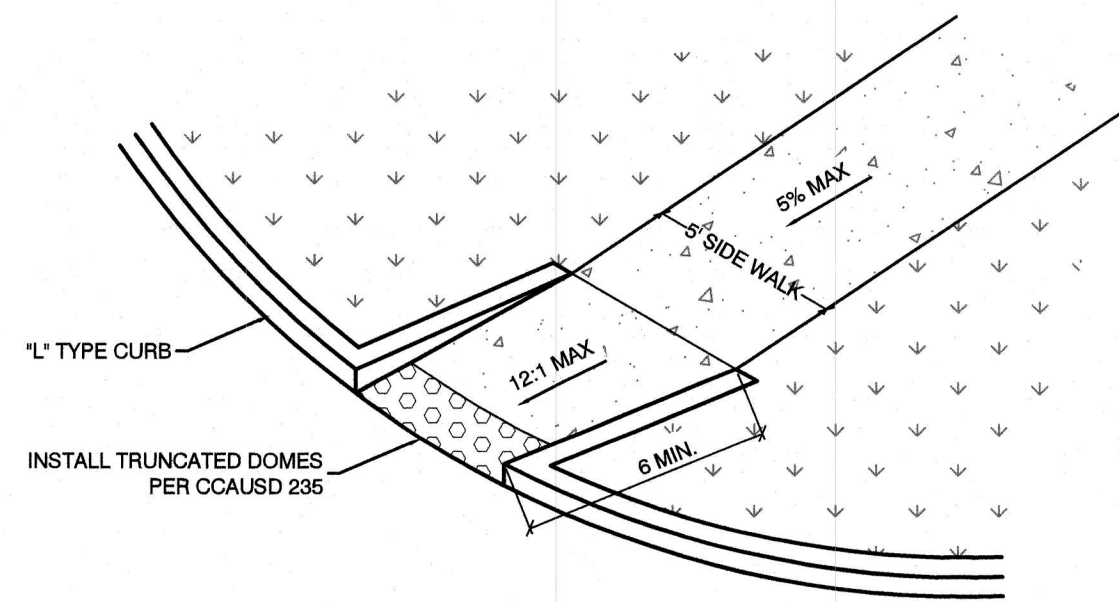
SIDEWALK RAMP AT PARKING ISLAND OR BAY (PRIVATE)  
N.T.S.



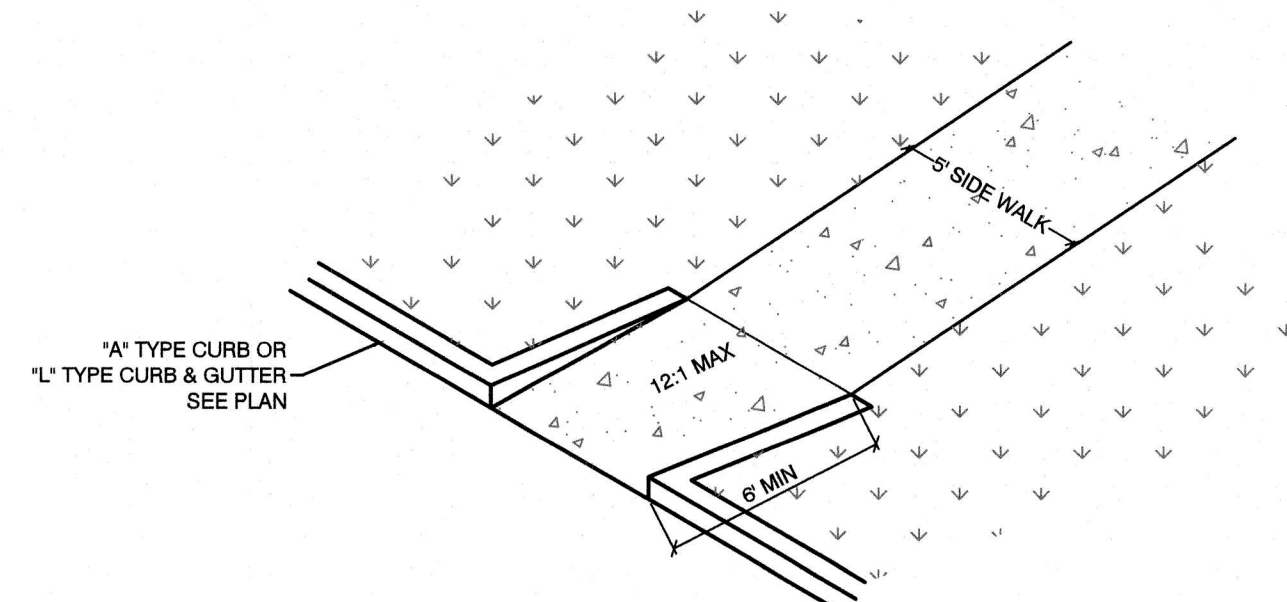
SIDE WALK RAMP (PRIVATE)  
NTS



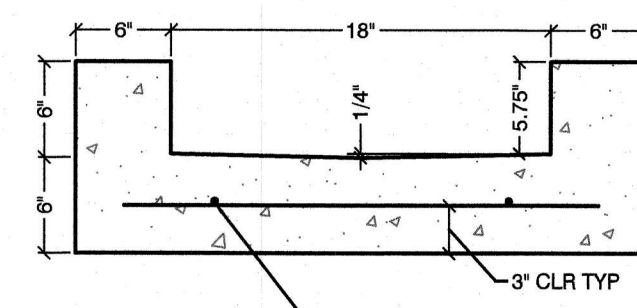
TYPICAL PARKING STOP DETAIL  
NTS



SIDE WALK RAMP AT ENTRY DRIVEWAY  
NTS



SIDE WALK RAMP (PRIVATE)  
NTS



"U" CHANNEL  
NTS

EAB INVESTMENT COMPANY  
3065 N. RANCHO #130  
LAS VEGAS, NV 89113

DETAIL SHEET 3

DRAWN BY: KDH  
DESIGNED BY: DEH  
CHECKED BY: WJM  
PROJECT NO: 7844

PROFESSIONAL ENGINEER - STATE OF NEVADA  
WILLIAM J. MEYER  
EXP. 12/31/19  
CIVIL  
No. 15745  
12/18/18

SHEET  
DT3  
13 OF 13 SHEETS  
DRAWING NO.

LAS VEGAS, NV

2777 SOUTH RAINBOW BOULEVARD  
LAS VEGAS, NEVADA 89146-5146  
PH: (702) 793-7550 FAX: (702) 382-2597 WEB: WWW.VTNN.COM  
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CRYSTAL PARK APARTMENTS

SCALE: N/A  
HORIZ. VERT.

H:\7844\Sheet\CRISTAL\CRISTAL.DWG