

DS #:

4804

APN:

125-35-701-0015 More

PROJECT:

Maverick's Washburn Residential Development

SUBMITTAL:

2nd Submittal & Supplement

SCANNED BY/DATE:

CHECKED BY/DATE:



|                                                                            |                                                        |                                                                                                   |
|----------------------------------------------------------------------------|--------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <b>CITY OF LAS VEGAS<br/>INTER-OFFICE MEMORANDUM</b>                       |                                                        | <b>DATE:</b><br>September 1, 2016                                                                 |
| <b>TO:</b><br>Land Development Services<br>Department of Building & Safety |                                                        | <b>FROM:</b><br>Albert Sung, P.E.<br>Flood Control Project Engineer<br>Department of Public Works |
| <b>SUBJECT:</b>                                                            | Drainage Study for:                                    |                                                                                                   |
|                                                                            | <b>Maverick &amp; Washburn Residential Development</b> |                                                                                                   |
| <b>Cross Streets:</b>                                                      | SEC of Maverick Street & Washburn Avenue               | <b>COPIES TO:</b>                                                                                 |
| <b>File Number:</b>                                                        | F:\Depot\DSMemos\DS4804B.doc                           | Triton Engineering                                                                                |
| <b>Parcel Number:</b>                                                      | 125-35-701-001 & more                                  | D. R. Horton Inc.                                                                                 |
| <b>Zoning Action:</b>                                                      | TMP-63989, ZON-63988 & ZON-63987                       | Bart Anderson, P.E., DevCo                                                                        |
| <b>FEMA Flood Zone</b>                                                     | YES                                                    | NO <b>X</b>                                                                                       |
| <b>Proposed Storm Drain</b>                                                | YES                                                    | NO <b>X</b>                                                                                       |

| HISTORY                                   | DATE RECEIVED            | DATE REVIEWED | COMMENTS           | REVIEW FEES     | FEES PAID<br>Payment Trn # |
|-------------------------------------------|--------------------------|---------------|--------------------|-----------------|----------------------------|
| 1 <sup>st</sup> Submittal                 | 5/24/2016                | 6/15/2016     | Not Approved       | \$400.00        | 444949: \$400              |
| 2 <sup>nd</sup> Submittal<br>& Supplement | 7/18/2016 &<br>8/29/2016 | 9/1/2016      | See Comments Below | \$400.00        | 451510: \$400              |
| <b>TOTAL FEES (LDDRS):</b>                |                          |               |                    | <b>\$800.00</b> | <b>----</b>                |

#### REMARKS:

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

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

1. The rough graded onsite without any permanent cover such as paving, building construction or planting, is considered ongoing project under construction whereas a *Stormwater Pollution Prevention Plan* must be kept active under the NDEP Permit. In order to close out the permit, the developer must install permanent cover to the site to stabilize and control stormwater pollution to the satisfaction of NDEP.

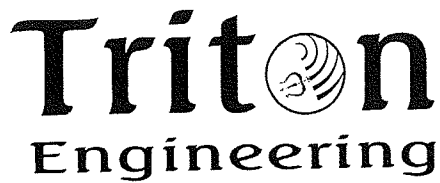
**NOTE:** Any future changes to the proposed design (or design assumptions) as outlined in the approved drainage study and attached preliminary grading plan which affect drainage must be addressed in a Drainage Study Update and accepted by the *City of Las Vegas Flood Control Section*. Additionally, 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**

ays

T/R/S: T19S/R60E/35  
AREA G-35



## TRANSMITTAL

**Date:** August 29, 2016

**Project No.:** 007.098

**To:** City of Las Vegas  
**Attn: Albert Sung**  
**Flood Control**  
333 N. Rancho Dr.  
Las Vegas, NV 89106  
Albert Sung

**Subject:** MAVERICK & WASHBURN - ADD#1 TO TECHNICAL DRAINAGE STUDY  
DS#4804

The following items are forwarded by: HAND DELIVERY

### Description

1 Copy of the Grading Plans

### These items are submitted :

☐ At your request  
☒ For your action

☒ For your review & approval  
☒ For your review & comments

☐ For your file  
☐ For information only

### Remarks

By:   
Aimee English, Project Coordinator

Copies to:



May 25, 2016

City of Las Vegas -Building and Safety  
333 North Rancho Drive  
Las Vegas, Nevada 89106  
Attn: Linda Hartman

Re: Difference in elevation across boundaries with existing developments  
DR Horton – Maverick & Washburn Project  
APN: 125-35-701-001, 002, 003, 005, 006, 007, 008, 009 & 010

Dear Linda,

Our project is a 15.44 acre development which is bounded by existing development on virtually all sides. The elevation of our project is set basically by the natural fall of this site and the existing surrounding development. As you can see from the drainage plans that accompanied our letter we have a slope of 1.2% from the northwest corner of the site to the southeast corner of the site.

We must convey storm flows and keep them within their historic path as much as possible. Under these conditions the pad grades shown on the plans are the lowest practical elevations possible. The pads on the existing development to the east of our site were built at grade at the time which makes the difference in pads across the boundary wall about 2 to 3.3 feet. It should be noted that our site is slightly higher than this existing adjacent development. We have virtually no flexibility with the constraints we have on the project. It should also be noted that we clearly showed the worst case condition on the sections that were part of the Tentative Map (TMP-63989) that was approved on 5/10/16.

If you have any questions or need any additional information feel free to call our office.

Thank you,

A handwritten signature in black ink, appearing to read "James M. Pearce".

James M. Pearce, PE  
Sr. Vice President  
Triton Engineering

CC: Albert Sung, CLV Flood Control

PLANS APPROVED  
PLANNING  
Building & Safety Dept.  
City of Las Vegas, Nevada  
*2' GRADE DIFFERENCE ONLY*  
LHM MAY 31 2016

Conforms to the minimum requirements of  
LVMC Title 19, applicable Master Plan  
development standards and/or Conditions of  
Approval. Make No Change Without Approval.  
Plan is Not a Permit to Violate Any Ordinance.



## TRANSMITTAL

**Date:** July 18, 2016

**Project No.:** 007.098

**To:** City of Las Vegas  
**Attn: Albert Sung**  
**Flood Control**  
333 N. Rancho Dr.  
Las Vegas, NV 89106  
Albert Sung

**Subject: MAVERICK & WASHBURN - ADD#1 TO TECHNICAL DRAINAGE STUDY DS#4804**

The following items are forwarded by: HAND DELIVERY

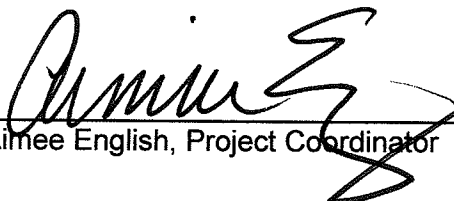
### Description

1 Copy of the Addendum #1 to Drainage Study  
1- Check for \$400.00

### These items are submitted :

|                                                     |                                                                |                                               |
|-----------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------|
| <input type="checkbox"/> At your request            | <input checked="" type="checkbox"/> For your review & approval | <input type="checkbox"/> For your file        |
| <input checked="" type="checkbox"/> For your action | <input checked="" type="checkbox"/> For your review & comments | <input type="checkbox"/> For information only |

### Remarks

By:   
Aimee English, Project Coordinator

Copies to: Mark Jones, DR Horton  
File

**ADDENDUM #1**  
TO THE  
**TECHNICAL DRAINAGE STUDY**  
FOR  
**Washburn & Maverick**  
**Residential Development**

City of Las Vegas, Nevada

Prepared for:  
**DR Horton**  
1081 Whitney Ranch Drive, #141  
Henderson, NV 89014  
Office: (702)635-3600 - Fax: (702)538.0735

Prepared by:  
**Triton Engineering**  
6757 W. Charleston Blvd., Suite B  
Las Vegas, NV 89146  
Office: (702) 254-1480 - Fax: (702) 254-3062

APN 125-35-701-001; -002; -003, 125-35-701-005; -006; -007; -008; -009; -010

July 2016

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL  
**DRAINAGE STUDY INFORMATION FORM**

Name of Development: Technical Drainage Study for Washburn & Maverick Addendum 1 Date: July 2016

Location of Development: a) Descriptive (Cross Streets) North/South: Maverick

East/West: Washburn

b) Section: 35 Township: 19S Range: 60E

c) APN : 125-35-701-001; -002; -003, 125-35-701-005; -006; -007; -008; -009; -010

Name of Owner: Various Owners, - DR Horton, Developers

Telephone No.: (702)672-1939 Fax No.: (702) 538-0735 E-Mail Address: MEJones3@DRHorton.com

Address: 1081 Whitney Ranch Drive #141, Henderson, NV 89014

Contact Person-Name: Kelly J. Wittwer, P.E. Telephone No.: (702) 254-1480

\* E-Mail Address: KWittwer@tritoneng.com Fax No.: (702) 254-3062

Firm: Triton Engineering, LLC

Address: 6757 West Charleston Boulevard, Suite B, Las Vegas, NV 89146

Type of Land Development/Land Disturbance Process:

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

1. Total Owned Land Area: At Site: 16.47 ac Being Developed/Disturbed: 16.47 ac.

2. Is a portion or all of the subject property located in a designated FEMA Flood Hazard Area? ☐ Yes\*\* ☒ No

3. Is the property bordered or crossed by an existing or proposed Clark County Regional Flood Control District Master Planned Facility? ☐ Yes\*\* ☒ No

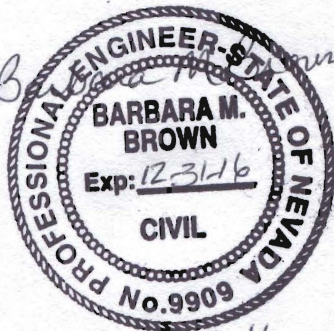
4. Proposed type of development (Residential, Commercial, Etc.): Residential

5. Approximate upstream land area which drains to the subject site: 60 acres + / -

6. Has the site drainage been evaluated in the past? ☐ YES ☒ NO If yes, please identify documentation: \_\_\_\_\_

7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: \_\_\_\_\_  
Discharge to the east to Bronco Street and to the south to La Madre Way

8. Briefly describe your proposed schedule for the subject project: ASAP



Engineer's Seal

Submit this form as part of the required drainage study to the local entity which has jurisdiction over the subject property. This form may provide sufficient information to serve as the Conceptual Drainage Study.

\*New Required Field

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

|                             | Revision | Date |
|-----------------------------|----------|------|
|                             |          |      |
|                             |          |      |
|                             |          |      |
| Local Entity File No. _____ |          |      |

REFERENCE:

STANDARD FORM 1



July 14, 2016

Albert Sung, P.E  
Land Development Services  
333 North Rancho Drive  
Las Vegas, NV 89106

**Subject: Addendum #1 to the Technical Drainage Study for  
Washburn & Maverick Residential Development  
DS4804**

Mr. Sung:

Triton Engineering has received the City's review comments for the above-referenced study, dated June 16, 2016 by the City.

The purpose of this addendum submittal is to provide a response to all of the comments, as follows:

1. **Provide a copy of the zoning/planning conditions associated with this site (TMP-63989; ZON-63988 & ZON-63987) with the next submittal to verify compliance with all conditions. Flood Control will not issue conditional approval of the drainage study without the associated zoning/planning conditions (issued by the City Council). Any associated conditions of approval that revise the site drainage parameters will require that the drainage study be revised and resubmitted.**

The requested zoning/planning conditions have been copied and included in the Appendix of this submittal.

2. **The City of Las Vegas does not allow interim rough grading such as rough pad and interior street grading. Obtain acceptance from Land Development Section (Mr. Mike Cunningham, P.E., at (702) 229-2002 for the proposed interim rough grading prior to the final approval of the subject drainage study.**

James Pearce of our staff has performed the proper coordination with Mike Cunningham as requested. The Land Development Section agrees that the onsite design is acceptable for the subject site.

3. **Clark County Regional Flood Control District has adopted the "2013 Las Vegas Valley Flood Control Master Plan Update". The engineer must reference all the pertinent figures in the most recent Master Plan Update. Provide all the latest figures in the next submittal. Address if there are any impacts to the subject development since the latest update.**

There are no changes or impacts to the MPU. The exhibits were included in the digital version of the original submittal, but may have been omitted in one or more of the paper copies. The exhibits have been re-printed and are included in the Appendix of this submittal.

4. **Currently, the August 2014 NRCS Soils Data represents the latest and best available soils data. Verify in the next submittal that the latest soils data are being used in the drainage study which may change the results of all subsequent hydrologic and hydraulic calculations.**

The soils data for the project was referenced from the NRCS website, and is considered most current information. Since the Hydrologic Soils Group (HSG) for the areas studied was found to be HSG "D", which is the highest potential for runoff, any calculations prepared in the previous submittal would be the most conservative estimate and we therefore accept usage of the HSG "D" and no further validation is necessary.

5. **In Page 4 of the study, it was stated that because there is no valley gutter across Maverick Street at Washburn Road, therefore all flow at the intersection flows south in Maverick Street. This is inaccurate. The 100-year flow at the intersection may split to the east and to the south depending on the slopes of the individual streets. Provide a Pima County split flow analysis in the next submittal and revise all hydrologic (Existing and Developed Drainage Maps) and hydraulic calculations accordingly.**

A flow split was performed at the intersection using the Pima County method in this submittal as requested. Hydrology was revised for the existing and developed conditions for the 10- and 10-year 6-hour storm events. Calculations are included in the appendix and summarized on revised Figures 3 and 4 of this submittal.

6. **Comparing Figure 3 (Existing Conditions Drainage Map) and Figure 4 (Developed Conditions Drainage Map), it is proposed to divert portions of flood flow in Washburn Road into the site through Denver Street and discharge at La Madre Way. This results in a significant increase of flow at "LAMA2" at the intersection of La Madre Way and Bronco Street while reducing the developed flow at Washburn and Bronco.  
Provide a hump in Denver Street to keep the developed flow in Washburn Road from entering the subject site. Try to reduce the impact of flow increase at "LAMA2" as much as possible.**



The street design with the hump has been implemented in the revised drawings of this submittal as requested.

- 7. An 18-inch storm drain identified in the City of Las Vegas Northwest Neighborhood Master Plan fronting the project site in Washburn Road may be waived if it is proven that the regional criteria has been met without the storm drain. Otherwise, install the storm drain in Washburn Road accordingly.**

The storm drain is shown on the drawings. However the pipe is not located adjacent to the subject site, as the site does not extend as far east as Bronco Street. Street criteria have been met, hence storm drain improvements are not required along the subject site in Washburn Road.

- 8. Provide street improvements for Bronco Street in the next submittal. Review and revise the pertinent grading plans, details sheet and plan & profile sheets accordingly.**

This was discussed with Albert Sung from the City of Las Vegas. It was agreed that since the approved Tentative Map shows improvements on Bronco Street, the full design must be included in the grading plans, even if it possibly would not be constructed until a later date. The design is included on the revised drawings in this submittal.

- 9. Show an existing storm drain system in Washburn Road and label with City of Las Vegas recorded drawing number on the grading plan.**

The labeling has been so revised on the drawings in this submittal.

- 10. Show finished floor elevations of all existing houses adjacent to the perimeter streets on the grading plans.**

All finished floor elevations have been noted on the revised drawings in this submittal.

- 11. The rough graded onsite without any permanent cover such as paving, building construction, or planting, is considered ongoing project under construction whereas a Stormwater Pollution Prevention Plan must be kept active under the NDEP Permit. In order to close out the permit, the developer must install permanent cover to the site to stabilize and control stormwater pollution to the satisfaction of the NDEP.**

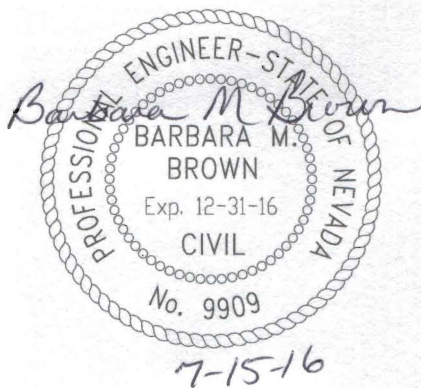
This is noted.

- 12. Add a note in all pertinent sheets for the construction of all storm drain drop inlets per a newly adopted USDCCA Drawing No. 421 (Stormwater Quality Management Stamp and Sign Detail).**

The notes have been added on the drawings in this submittal.

We hope that this response satisfies all your issues concerning the project. If you have any questions, please contact me at 702-376-8801, email [Momentum1@cox.net](mailto:Momentum1@cox.net).

Sincerely,



**Momentum Engineers, Ltd.**  
Barbara M. Brown, P. E.  
Subcontractor for  
**Triton Engineering, LLC**

## **APPENDIX**



**COPY OF COMMENT LETTER**

# CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM

DATE:

June 16, 2016

TO:

Land Development Services  
Department of Building & Safety

FROM:

Albert Sung, P.E.  
Flood Control Project Engineer  
Department of Public Works

SUBJECT:

Drainage Study for:

**Maverick & Washburn Residential Development**

COPIES TO:

Triton Engineering

Cross Streets:

SEC of Maverick Street & Washburn Avenue

D. R. Horton Inc.

File Number:

F:\Depot\DSMemos\DS4804A.doc

Bart Anderson, P.E., DevCo

Parcel Number:

125-35-701-001 & more

Zoning Action:

TMP-63989, ZON-63988 & ZON-63987

FEMA Flood Zone

YES

NO

X

Proposed Storm Drain

YES

NO

X

| HISTORY                   | DATE RECEIVED | DATE REVIEWED | COMMENTS           | REVIEW FEES | FEES PAID<br>Payment Trn # |
|---------------------------|---------------|---------------|--------------------|-------------|----------------------------|
| 1 <sup>st</sup> Submittal | 5/24/2016     | 6/15/2016     | See Comments Below | \$400.00    | 444949: \$400              |
| TOTAL FEES (LDDRS):       |               |               |                    | \$400.00    | ----                       |

## REMARKS:

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

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

1. Provide a copy of the zoning/planning conditions associated with this site (**TMP-63989; ZON-63988 & ZON-63987**) with the next submittal to verify compliance with conditions. *Flood Control* will not issue conditional approval of the drainage study without the associated zoning/planning conditions (issued by the *City Council*). Any associated conditions of approval that revise the site drainage parameters will require that the drainage study be revised and resubmitted.
2. **City of Las Vegas** does not allow interim rough grading such as rough pad and interior street grading. Obtain acceptance from **Land Development Section** (Mr. Mike Cunningham, P.E. at (702) 229-2002) for the proposed interim rough grading prior to the final approval of the subject drainage study.
3. *Clark County Regional Flood Control District* has adopted the "2013 Las Vegas Valley Flood Control Master Plan Update". The engineer must reference all the pertinent figures in the most recent *Master Plan Update*. Provide all latest figures in the next submittal. Address if there are any impacts to the subject development since the latest update.
4. Currently, the *August 2014 NRCS Soils Data* represents the latest and best available soils data. Verify in the next submittal that the latest soils data are being used in the drainage study which may change the results of all subsequent hydrologic and hydraulic calculations.

5. In Page 4 of the subject study, it was stated that because there is no valley gutter across *Maverick Street* at *Washburn Road*, therefore all flow at the intersection flows south in *Maverick Street*. This is inaccurate. The 100-year flow at the intersection may split to the east and to the south depending on the slopes of the individual streets. Provide a Pima County split flow analysis in the next submittal and revise all hydrologic (*Existing and Developed Drainage Maps*) and hydraulic calculations accordingly.
6. Comparing **Figure 3 (Existing Conditions Drainage Map)** and **Figure 4 (Developed Conditions Drainage Map)**, it is proposed to divert portions of flood flow in *Washburn Road* into the site through *Denver Street* and discharges at *La Madre Way*. This results in significant increase of flow at "LAMA2" at the intersection of *La Madre Way* and *Bronco Street* while reducing the developed flow at *Washburn* and *Bronco*.

Provide a hump in *Denver Street* to keep the developed flow in *Washburn Road* from entering the subject site. Try to reduce the impact of flow increase at "LAMA2" as much as possible.

7. An 18"-storm drain identified in the *City of Las Vegas Northwest Neighborhood Master Plan* fronting the project site in *Washburn Road* may be waived if it is proven that the regional criteria has been met without the storm drain. Otherwise, install the storm drain in *Washburn Road* accordingly.
8. Provide street improvements for *Bronco Street* in the next submittal. Review and revise the pertinent grading plans, details sheet and plan & profile sheets accordingly.
9. Show an existing storm drain system in *Washburn Road* and label with *City of Las Vegas* recorded drawing number on the grading plan.
10. Show finished floor elevations of all existing houses adjacent to the perimeter streets on the grading plans.
11. The rough graded onsite without any permanent cover such as paving, building construction or planting, is considered ongoing project under construction whereas a *Stormwater Pollution Prevention Plan* must be kept active under the NDEP Permit. In order to close out the permit, the developer must install permanent cover to the site to stabilize and control stormwater pollution to the satisfaction of NDEP.
12. Add a note in all pertinent sheets for the construction of all storm drain drop inlets per a newly adopted USDCCA Drawing No. 421 (*Stormwater Quality Management Stamp and Sign Detail*).

**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**

ays

T/R/S: T19S/R60E/35  
AREA G-35

## **COMMENT 1 ZONING INFORMATION**



LAS VEGAS  
CITY COUNCIL

CAROLYN G. GOODMAN  
MAYOR

STAVROS S. ANTHONY  
MAYOR PRO TEM

LOIS TARKANIAN  
STEVEN D. ROSS  
RICKI Y. BARLOW  
BOB COFFIN  
BOB BEERS

ELIZABETH N. FRETWELL  
CITY MANAGER

June 16, 2016

Khusrow Roohani  
Remark Revocable Trust  
9500 Hillwood Drive  
Las Vegas, Nevada 89134

**RE: ZON-63987 [PRJ-63443] - REZONING RELATED TO ZON-63988 AND  
TMP-63989  
CITY COUNCIL MEETING OF JUNE 15, 2016**

Dear Applicant:

The City Council at a regular meeting held on June 15, 2016 **APPROVED** a request for a Rezoning FROM: U (UNDEVELOPED) [R (RURAL DENSITY RESIDENTIAL) GENERAL PLAN DESIGNATION] TO: R-D (SINGLE FAMILY RESIDENTIAL-RESTRICTED) on 2.94 acres at the southeast corner of Washburn Road and Maverick Street (APNs 125-35-701-001 through 003), Ward 4 (Anthony) [PRJ-63443].

The Notice of Final Action was filed with the Las Vegas City Clerk on June 16, 2016.

Sincerely,

A handwritten signature in black ink, appearing to read "Thomas A. Perrigo".

Thomas A. Perrigo

Director  
Department of Planning

TAP:clb

cc: Mr. Mark Jones  
DR Horton  
1081 Whitney Ranch Drive, Suite #141  
Henderson, Nevada 89014

CITY OF LAS VEGAS  
495 S. MAIN STREET  
LAS VEGAS, NEVADA 89101

VOICE 702.229.6011  
TTY 702.386.9108  
www.lasvegasnevada.gov



Khusrow Roohani  
Remark Revocable Trust  
ZON-63987 [PRJ-63443] - Page Two  
June 16, 2016

Ms. Aimee Ignatowicz-English  
Triton Engineering  
6757 West Charleston Boulevard, Suite B  
Las Vegas, Nevada 89146

Mosaic Land 2 LLC  
Investor Equity Homes LLC  
3960 Howard Hughes Parkway, Suite #150  
Las Vegas, Nevada 89169

Mr. Vince Schettler  
Mosaic Five LLC  
3960 Howard Hughes Parkway, Suite #150  
Las Vegas, Nevada 89169



LAS VEGAS  
CITY COUNCIL

CAROLYN G. GOODMAN  
MAYOR

STAVROS S. ANTHONY  
MAYOR PRO TEM

LOIS TARKANIAN  
STEVEN D. ROSS  
RICKI Y. BARLOW  
BOB COFFIN  
BOB BEERS

ELIZABETH N. FRETWELL  
CITY MANAGER

June 16, 2016

Khusrow Roohani  
Remark Revocable Trust  
9500 Hillwood Drive  
Las Vegas, Nevada 89134

**RE: ZON-63988 [PRJ-63443] - REZONING RELATED TO ZON-63987 AND  
TMP-63989  
CITY COUNCIL MEETING OF JUNE 15, 2016**

Dear Applicant:

The City Council at a regular meeting held on June 15, 2016 **APPROVED** a request for a Rezoning FROM: U (UNDEVELOPED) [R (RURAL DENSITY RESIDENTIAL) GENERAL PLAN DESIGNATION] TO: R-D (SINGLE FAMILY RESIDENTIAL-RESTRICTED) on 3.92 acres at the northeast corner of La Madre Way and Maverick Street (APN 125-35-701-010), Ward 4 (Anthony) [PRJ-63443].

The Notice of Final Action was filed with the Las Vegas City Clerk on June 16, 2016.

Sincerely,

A handwritten signature in black ink, appearing to read "Thomas A. Perrigo".

Thomas A. Perrigo  
Director  
Department of Planning

TAP:clb

cc: Mr. Mark Jones  
DR Horton  
1081 Whitney Ranch Drive, Suite #141  
Henderson, Nevada 89014

CITY OF LAS VEGAS  
495 S. MAIN STREET  
LAS VEGAS, NEVADA 89101

VOICE 702.229.6011  
TTY 702.386.9108  
www.lasvegasnevada.gov



Khusrow Roohani  
Remark Revocable Trust  
ZON-63988 [PRJ-63443] - Page Two  
June 16, 2016

Ms. Aimee Ignatowicz-English  
Triton Engineering  
6757 West Charleston Boulevard, Suite B  
Las Vegas, Nevada 89146

Mosaic Land 2 LLC  
Investor Equity Homes LLC  
3960 Howard Hughes Parkway, Suite #150  
Las Vegas, Nevada 89169

Mr. Vince Schettler  
Mosaic Five LLC  
3960 Howard Hughes Parkway, Suite #150  
Las Vegas, Nevada 89169



June 16, 2016

Khusrow Roohani  
Remark Revocable Trust  
9500 Hillwood Drive  
Las Vegas, Nevada 89134

**RE: TMP-63989 [PRJ-63443] - RELATED TO ZON-63987 AND ZON-63988  
CITY COUNCIL MEETING OF JUNE 15, 2016**

LAS VEGAS  
CITY COUNCIL

CAROLYN G. GOODMAN  
MAYOR

STAVROS S. ANTHONY  
MAYOR PRO TEM

LOIS TARKANIAN  
STEVEN D. ROSS  
RICKI Y. BARLOW  
BOB COFFIN  
BOB BEERS

ELIZABETH N. FRETWELL  
CITY MANAGER

Dear Applicant:

The City Council at a regular meeting held on June 15, 2016 **APPROVED** a request for a Tentative Map FOR A 55-LOT SINGLE FAMILY RESIDENTIAL SUBDIVISION on 15.47 acres at the northeast corner of La Madre Way and Maverick Street (APNs 125-35-701-001 through 003 and 005 through 010), U (Undeveloped) Zone [R (Rural Density Residential) General Plan Designation] and R-D (Single Family Residential-Restricted) Zone [PROPOSED: R-D (Single Family Residential-Restricted)], Ward 4 (Anthony) [PRJ-63443].

This approval is subject to the following conditions:

**Planning**

1. Approval of the Tentative Map shall be for no more than four (4) years. If a Final Map is not recorded on all or a portion of the area embraced by the Tentative Map with four (4) years of the approval of the Tentative Map, this action is void.
2. In conjunction with creation, declaration and recordation of the subject common-interest community, and prior to recordation of the Covenants, Codes and Restrictions "CC&R", or conveyance of any unit within the community, the Developer is required to record a Declaration of Private Maintenance Requirements ("DPMR") as a covenant on all associated properties, and on behalf of all current and future property owners. The DPMR is to include a listing of all privately owned and/or maintained infrastructure improvements, along with assignment of maintenance responsibility for each to the common interest community or the respective individual property owners, and is to provide a brief description of the required level of maintenance for privately maintained components. The DPMR must be reviewed and approved by the City of Las Vegas Department of Field Operations prior to recordation, and must include a statement that all properties within the community are subject to assessment for all associated costs should private maintenance obligations not be met, and the City of Las Vegas be required to provide for said maintenance. Also, the CC&R are to include a statement of obligation of compliance with the DPMR. Following recordation, the Developer is to submit copies of the recorded DPMR and CC&R documents to the City of Las Vegas Department of Field Operations.

CITY OF LAS VEGAS  
495 S. MAIN STREET  
LAS VEGAS, NEVADA 89101

VOICE 702.229.6011  
TTY 702.386.9108  
www.lasvegasnevada.gov



3. All development is subject to the conditions of City Departments and State Subdivision Statutes.

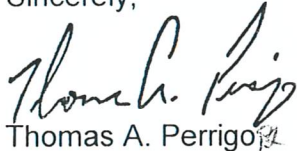
**Public Works**

4. Dedicate a 20-foot radius on the northeast corner of La Madre Way and Maverick Street and a 20-foot radius at the northwest corner of La Madre Way and Bronco Lane on the Final Map for this site.
5. Construct half street improvements on Washburn Road, Bronco Lane, La Madre Way and Maverick Street matching adjacent public street standards including appropriate transition paving, were legally able, concurrent with the development of this site. All existing paving damaged or removed by this development shall be restored at its original location and to its original width concurrent with development of this site.
6. All public sewers not located in the public right-of-way for this site must be within a Public Sewer Easement or in a Patent Easement with a Declaration of Intent. Prior to approval of construction drawing for this site, provide documentation that a legal right to construct public sewer in La Madre Way exists. Additionally, prepare a Declaration of Utilization for any patent easements that are to be used for the off-site sewer in La Madre Way if required by the Sanitary Sewer Planning Section of the Department of Public Works.
7. A working sanitary sewer connection shall be in place prior to final inspection of any units within this development. Full permanent improvements on all major access streets, including all required landscaped areas between the perimeter wall and adjacent public street, shall be constructed and accepted by the City prior to issuance of any building permits beyond 50% of all units within this development. All off-site improvements adjacent to this site, including all required landscaped areas between the perimeter walls and adjacent public streets, shall be constructed and accepted prior to issuance of building permits beyond 75%. The above thresholds notwithstanding, all required Improvements shall be constructed in accordance with Title 19.02.130.D.
8. A Drainage Plan and Technical Drainage Study must be submitted to and approved by the Department of Public Works prior to the issuance of any building or grading permits or submittal of any construction drawings, whichever may occur first. Provide and improve all drainageways recommended in the approved drainage plan/study. The developer of this site shall be responsible to construct such neighborhood or local drainage facility improvements as are recommended by the City of Las Vegas Neighborhood Drainage Studies and approved Drainage Plan/Study concurrent with development of this site.
9. As per Unified Development Code (UDC) 19.16.060.G, all requirements must be complied with or such future compliance must be guaranteed by an approved performance security method in accordance with UDC sections 19.02.130.C and 19.02.130.E.

10. The approval of all Public Works related improvements shown on this Tentative Map is in concept only. Specific design and construction details relating to size, type and/or alignment of improvements, including but not limited to street, sewer and drainage improvements, shall be resolved prior to approval of the construction plans by the City. No deviations from adopted City Standards shall be allowed unless specific written approval for such is received from the City Engineer prior to the recordation of a Final Map or the approval of subdivision-related construction plans, whichever may occur first. Approval of this Tentative Map does not constitute approval of any deviations. If such approval cannot be obtained, a revised Tentative Map must be submitted showing elimination of such deviations.

The Notice of Final Action was filed with the Las Vegas City Clerk on June 16, 2016.

Sincerely,



Thomas A. Perrigo  
Director  
Department of Planning

TAP:clb

cc: Mr. Mark Jones  
DR Horton  
1081 Whitney Ranch Drive, Suite #141  
Henderson, Nevada 89014

Mr. Vince Schettler  
Mosaic Five LLC  
3960 Howard Hughes Parkway, Suite #150  
Las Vegas, Nevada 89169

Ms. Aimee Ignatowicz-English  
Triton Engineering  
6757 W. Charleston Boulevard, Suite B  
Las Vegas, Nevada 89146

Michael Loudermilk  
SWDE 13009, LLC  
2056 Glenview Drive  
Las Vegas, Nevada 89134

Mosaic Land 2 LLC  
Investor Equity Homes LLC  
3960 Howard Hughes Pkwy, Suite #150  
Las Vegas, Nevada 89169

Mr. Tom Devore  
Southwest Desert Equities LLC  
3455 Cliff Shadows Parkway, Suite #220  
Las Vegas, Nevada 89129

Mr. Tom Devore  
Saguaro Equities LLC  
3455 Cliff Shadows Parkway, Suite #220  
Las Vegas, Nevada 89129



(APN'S: 125-35-701-001, 002 & 003)

THAT PORTION OF THE NORTHEAST QUARTER (NE 1/4) OF THE  
SOUTHEAST QUARTER (SE 1/4) OF SECTION 35, TOWNSHIP 19 SOUTH,  
RANGE 60 EAST, M.D.M., DESCRIBED AS FOLLOWS:

LOTS ONE (1), TWO (2) AND THREE (3), AS SHOWN BY MAP THEREOF  
ON FILE IN FILE 32 OF PARCEL MAPS, PAGE 3, IN THE OFFICE OF THE  
COUNTY RECORDER OF CLARK COUNTY, NEVADA.

TOGETHER WITH THAT PORTION OF WASHBURN ROAD, THAT WOULD PASS BY OPERATION OF LAW, AS VACATED BY THAT CERTAIN ORDER OF VACATION RECORDED JUNE 29, 2005 IN BOOK 20050629 AS INSTRUMENT NO. 0006068 OF OFFICIAL RECORDS.

(APN'S: 125-35-701-005 & 007)

PARCEL 1 (APN 125-35-701-005):

THE SOUTHWEST QUARTER (SW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 35, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.B. & M., CLARK COUNTY, NEVADA.

EXCEPTING THAT PORTION AS CONVEYED IN DEED RECORDED AUGUST 17, 1966 IN BOOK 381 AS INSTRUMENT NO. 307317 CLARK COUNTY, NEVADA.

PARCEL 2 (125-35-701-007)

NORTHWEST QUARTER (NW 1/4) OF THE SOUTHWEST QUARTER (SW 1/4)  
OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER  
(SE 1/4) OF SECTION 35, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.B.  
& M.

EXCEPTING THAT PORTION AS CONVEYED IN DEED RECORDED AUGUST 17, 1966 IN BOOK 381 INSTRUMENT NO. 307317 CLARK COUNTY NEVADA.

(APN: 125-35-701-006)

THE EAST HALF (E 1/2) OF THE SOUTH HALF (S 1/2) OF THE  
NORTHWEST QUARTER (NW 1/4) OF THE NORTHEAST QUARTER (NE 1/4)  
OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 35, TOWNSHIP 19  
SOUTH, RANGE 60 EAST M.D.M.

EXCEPTING THEREFROM THE EASTERLY THIRTY (30.00) FEET FOR ROAD  
PURPOSES AS  
CONVEYED TO CLARK COUNTY BY DEED RECORDED AUGUST 17, 1962 IN  
BOOK 381 AS  
DOCUMENT NO. 307314, OFFICIAL RECORDS.

(APN'S: 125-35-701-008 & 009)

THAT PORTION OF THE NORTHEAST QUARTER (NE 1/4) OF THE  
SOUTHEAST QUARTER (SE 1/4) OF SECTION 35, TOWNSHIP 19 SOUTH,  
RANGE 60 EAST M.D.M., MORE PARTICULARLY DESCRIBED AS FOLLOWS:

PARCELS ONE (1) AND TWO (2) AS SHOWN BY MAP THEREOF OF FILE  
IN FILE 14 OF PARCEL MAPS, PAGE 60 IN THE OFFICE OF THE COUNTY  
RECORDER OF CLARK COUNTY, NEVADA.

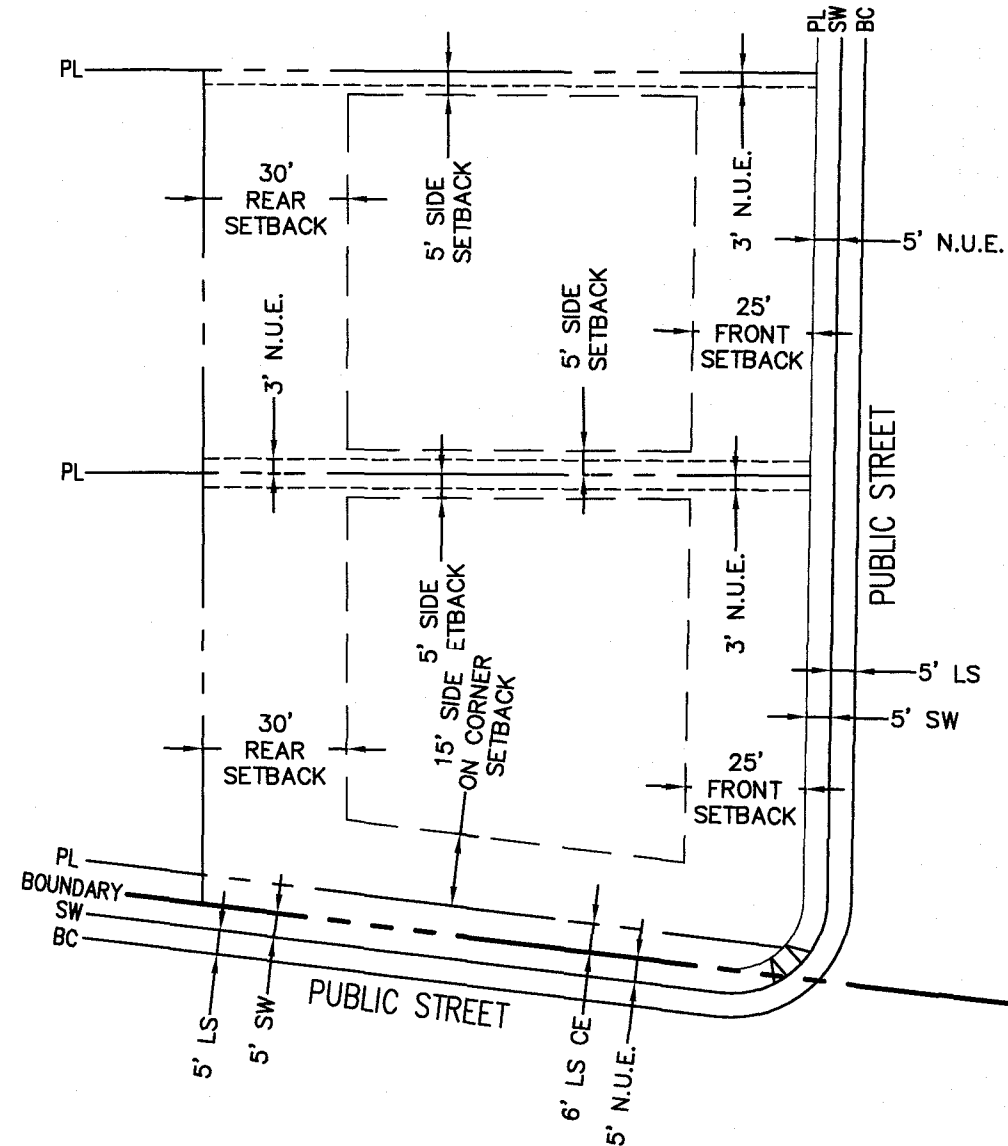
(APN: 125-35-701-010)

THE SOUTH HALF (S 1/2) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 35, TOWNSHIP 19 SOUTH, RANGE 60 EAST M.D.M.

EXCEPTING THEREFROM THOSE PORTIONS AS CONVEYED TO CLARK COUNTY BY THOSE CERTAIN GRANT DEEDS RECORDED AUGUST 17, 1962 IN BOOK 381 AS INSTRUMENT NOS. 307314, 307316 AND 307317 OF OFFICIAL RECORDS.

NORTH 82°59'56" WEST, BEING THE BEARING OF THE SOUTH LINE OF THE NORTH HALF (N 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 35, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA AS SHOWN ON THAT CERTAIN MAP ON FILE IN THE CLARK COUNTY RECORDER'S OFFICE IN BOOK 117, PAGE 9 OF PLATS.

CITY OF LAS VEGAS BENCHMARK No. 8LV9035E6  
RIVET & PLATE IN TOP OF CURB AT THE SOUTHWEST  
CORNER OF WASHBURN ROAD & MAVERICK STREET.  
ELEVATION = 700.720 METERS (NAVD'88 2008 ADJ.)  
ELEVATION = 2298.95 U.S. FEET (NAVD'88 2008 ADJ.)

 $(1'' = 40')$ 

**AREA MAP**

SCALE: NONE

PROJECT SITE

93 15 85 515 215 10

NORTH

## NO DEVIATIONS

|                                   |     |
|-----------------------------------|-----|
| TOTAL LOTS:                       | 55  |
| REQUIRED SPACES:<br>(2 PER HOUSE) | 110 |
| PROVIDED SPACES:<br>(2 PER HOUSE) | 110 |

|                             |           |
|-----------------------------|-----------|
| <u>LAND USE DESIGNATION</u> |           |
| EXISTING CLV ZONING         | U/R       |
| PROPOSED CLV ZONING         | U/R       |
| MINIMUM LOT SIZE (SF)       | 10,129 SF |

## SITE SUMMARY

|               |                |
|---------------|----------------|
| TOTAL UNITS   | 55 UNITS       |
| GROSS ACREAGE | 15.44 ACRES    |
| GROSS DENSITY | 3.6 UNITS/ACRE |

OPEN SPACE REQUIRED

|                            |                 |
|----------------------------|-----------------|
| <u>OPEN SPACE PROVIDED</u> |                 |
| COMMON LOT A               | 1,428 SF        |
| COMMON LOT B               | 687 SF          |
| COMMON LOT C               | 1,432 SF        |
| COMMON LOT D               | <u>1,473 SF</u> |
| TOTAL                      | 5,020 SF        |

VICINITY MAP

SCALE: NONE

FISHER

FISHER

JONES

WASHBURN

WASHBURN

PROJECT SITE

ROSA DA

LA MADRE

LA MADRE

VERDE

JONES

TORREY PINES

TORREY PINES

MAVERICK

MAVERICK

BRONCO

NORTH

|  |                                    |
|--|------------------------------------|
|  | EXISTING MAJOR CONTOUR             |
|  | EXISTING MINOR CONTOUR             |
|  | RIGHT-OF-WAY                       |
|  | BOUNDARY LINE                      |
|  | STREET CENTERLINE                  |
|  | EDGE OF PAVEMENT                   |
|  | EXISTING CURB, GUTTER, & SIDEWALK  |
|  | PROPOSED CURB, GUTTER, & SIDEWALK  |
|  | PROPOSED WATER                     |
|  | EXISTING WATER                     |
|  | PROPOSED SEWER WITH FLOW DIRECTION |
|  | EXISTING SEWER                     |
|  | FIRE HYDRANT                       |
|  | RETAINING WALL                     |
|  | PROPOSED AC PAVING                 |
|  | SAWCUT LINE                        |
|  | EXISTING FENCE                     |
|  | EXISTING GAS                       |
|  | EXISTING SEWER MAIN                |
|  | PROPOSED SEWER MAIN                |
|  | PROPOSED SEWER LATERAL             |
|  | EXISTING STORM DRAIN               |
|  | PROPOSED STORM DRAIN               |
|  | EXISTING WATER MAIN                |
|  | PROPOSED WATER MAIN                |
|  | PROPOSED FIRE HYDRANT              |
|  | LOT NUMBER                         |
|  | PROPOSED STREETLIGHT               |
|  | EXISTING STREETLIGHT               |

125-35-701-001 THRU 003  
125-35-701-005 THRU 010

REMARK REVOCABLE TRUST ETAL MOSAIC FIVE L L C  
9500 HILLWOOD DR #201  
LAS VEGAS, NV 89134

S W D E 13009 L L C ETAL MAUPERTUIS FRED & JANICE  
2056 GLENVIEW DR  
LAS VEGAS,NV 89134

BIG T L P ETAL CUSUMANO SHARON  
8375 W FLAMINGO RD #4200  
LAS VEGAS,NV 89147

SAGUARO EQUITIES L L C  
3455 CLIFF SHADOWS PKWY #220  
LAS VEGAS, NV 89129-1077

SOUTHWEST DESERT EQUITIES L L C  
3455 CLIFF SHADOWS PKWY #220  
LAS VEGAS, NV 89129-1077

INVESTOR EQUITY HOMES L L C  
AND MOSAIC LAND 2 L L C  
3960 HOWARD HUGHES PKWY #150  
LAS VEGAS, NV 89169

**DR HORTON**  
1081 WHITNEY RANCH DRIVE, SUITE #141  
HENDERSON, NEVADA 89014  
PHONE: (702) 635-3600

**TRITON ENGINEERING**  
6757 WEST CHARLESTON BOULEVARD, SUITE B  
LAS VEGAS, NV 89146  
OFFICE: (702) 254-1480  
FAX: (702) 254-3062

**TRI-CORE SURVEYING**  
6755 W. CHARLESTON BLVD STE A  
LAS VEGAS, NV 89146  
OFFICE: (702) 524-4085

| SHEET NUMBER | DESCRIPTION   |
|--------------|---------------|
| 1            | COVER SHEET   |
| 2            | TENTATIVE MAP |
| 3            | DETAILS       |
| 4            | SECTIONS      |

**Triton**  
Engineering

6757 W. Charleston Boulevard  
Suite B  
Las Vegas, Nevada 89146

Office: (702) 254-1480  
Fax: (702) 254-3062  
[www.tritoneng.com](http://www.tritoneng.com)











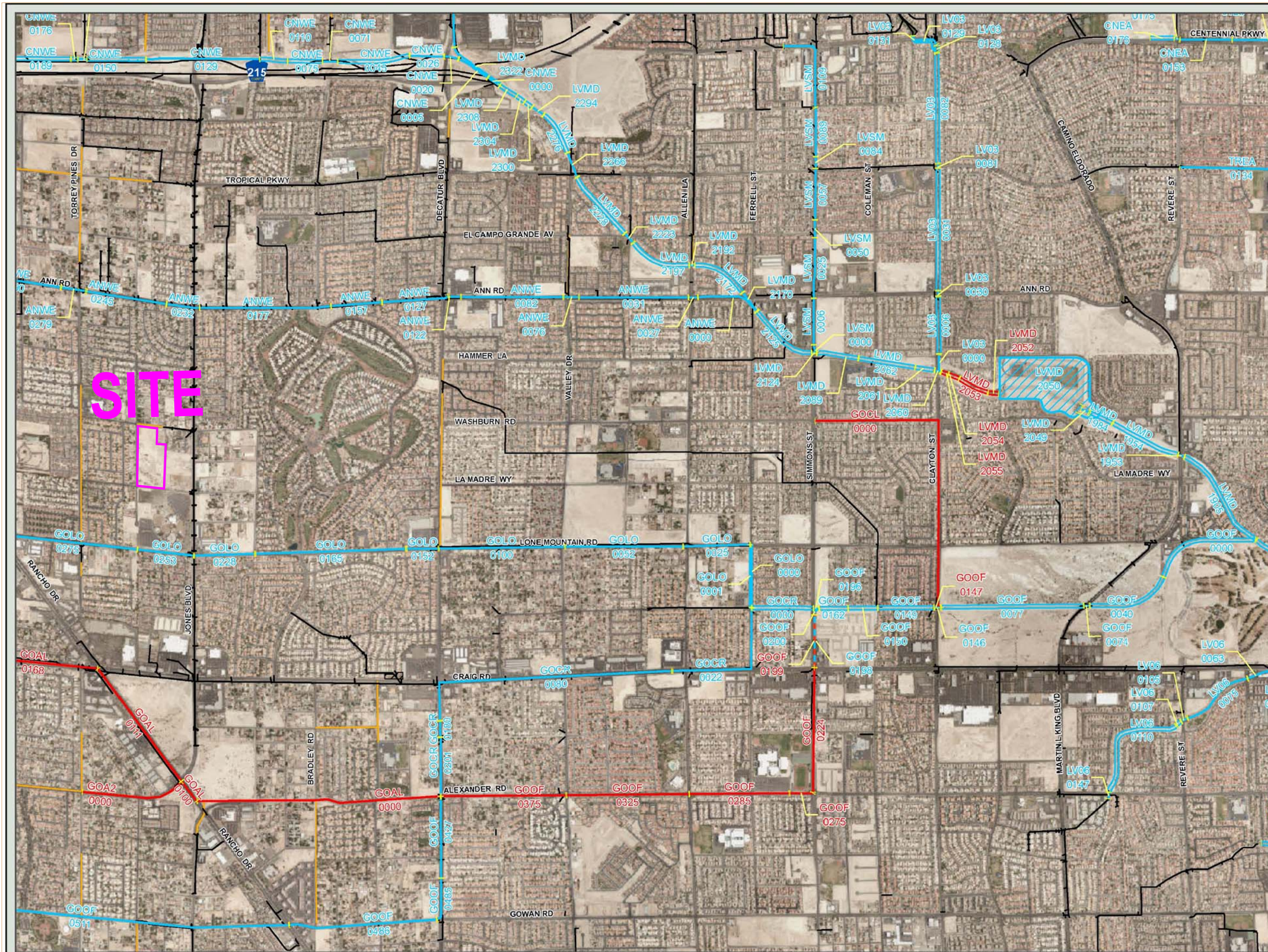


**COMMENT 3 COPY OF MPU DISPLAYS**









2013  
LAS VEGAS VALLEY  
FLOOD CONTROL  
MASTER PLAN UPDATE

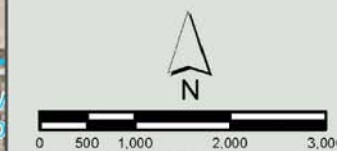
**FIGURE F- 20**  
**FLOOD CONTROL FACILITIES**

**LEGEND**

- Ultimate Development Boundary
- Existing Facilities
- Category A Proposed Facilities
- Category B Proposed Facilities
- Local Existing Facilities
- Local Proposed Facilities
- Detention Basin

- Stormdrain
- Lined Channel
- Unlined Channel
- Levee/Dike
- Natural Wash/Floodway
- ID-Mile Separator

- Remove & Replace/Parallel Facilities**
- | Category A | Category B |
|------------|------------|
| Channel    | Channel    |
| Stormdrain | Stormdrain |



Washburn & Maverick



**COMMENT 6 REVISED EXHIBITS**





Source: Esri, DigitalGlobe, GeoEye, Earthstar  
Getmapping, Aerogrid, IGN, IGP, swisstopo, a  
Mannville, a, © OpenStreetMap contributors,

- NOTES: 1. FOR EXTENT OF OFFSITE BASINS, SEE REFERENCE MATERIAL.  
2. HYDROLOGIC SOILS GROUPS ARE NOT MAPPED, SINCE ALL  
AREAS STUDIED ARE IN THE WORST-CASE CONDITION,  
SOILS GROUP "D".

NORTH

80080160

1 INCH = 80 FEET

DRAINAGE LEGEND

XT32

—

CPT4

→

BASIN IDENTIFICATION

BASIN BOUNDARY

CONCENTRATION POINT

FLOW PATH

| SUMMARY OF PEAK FLOW RATES                                                                                                  |                |                |        |       |  |  |  |
|-----------------------------------------------------------------------------------------------------------------------------|----------------|----------------|--------|-------|--|--|--|
| CONC. POINT/<br>DRAINAGE AREA                                                                                               | AREA,<br>ACRES | PEAK FLOW, CFS |        | NOTES |  |  |  |
|                                                                                                                             |                | 10-YR          | 100-YR |       |  |  |  |
| DOF1                                                                                                                        | 4.26           | 3              | 8      |       |  |  |  |
| MAV                                                                                                                         | 1.71           | 3              | 5      |       |  |  |  |
| CPMAV                                                                                                                       |                | 8              | 19     | 3     |  |  |  |
| XON1                                                                                                                        | 2.93           | 3              | 7      |       |  |  |  |
| DOF3                                                                                                                        | 0.49           | <1             | 1      |       |  |  |  |
| BR3                                                                                                                         | 0.22           | <1             | 1      |       |  |  |  |
| WB                                                                                                                          | 0.95           | 2              | 3      |       |  |  |  |
| DOF4                                                                                                                        | 1.26           | 1              | 2      |       |  |  |  |
| CPWB                                                                                                                        |                | 11             | 31     | 5     |  |  |  |
| DOF2                                                                                                                        | 0.47           | <1             | 1      |       |  |  |  |
| BR2                                                                                                                         | 0.22           | <1             | 1      |       |  |  |  |
| CPBR2                                                                                                                       |                | 1              | 2      |       |  |  |  |
| XON2                                                                                                                        | 12.80          | 12             | 28     |       |  |  |  |
| WASH                                                                                                                        |                | 7              | 23     | 1     |  |  |  |
| WSHE                                                                                                                        |                | 5              | 17     | 4     |  |  |  |
| WSHS                                                                                                                        |                | 2              | 6      | 4     |  |  |  |
| LA                                                                                                                          | 0.90           | 2              | 3      |       |  |  |  |
| LAMA                                                                                                                        |                | 62             | 200    | 1     |  |  |  |
| LAMA1                                                                                                                       |                | 71             | 221    | 2     |  |  |  |
| Notes:                                                                                                                      |                | 7/14/2016      |        |       |  |  |  |
| 1. Referenced from City of Las Vegas, Northwest Neighborhood Study, by PBS & J, Revised September 1999, Existing Conditions |                |                |        |       |  |  |  |
| 2. Includes flow from WSHS and LAMA (7/15+62/200+2/6=71/221)                                                                |                |                |        |       |  |  |  |
| 3. Includes flow from WSHS (6/13+2/6=8/19)                                                                                  |                |                |        |       |  |  |  |
| 4. Flow split, WASH to WSHS and WSHE determined by Pima County methods.                                                     |                |                |        |       |  |  |  |
| 5. Includes flow from WSHE (6/14+5/17=11/31)                                                                                |                |                |        |       |  |  |  |

FIGURE 3

Technical Drainage Study for Washburn & Maverick  
EXISTING CONDITIONS DRAINAGE MAP

 Triton  
Engineering





## **COMMENT 5 FLOW SPLIT CALCULATIONS**



# **FLOW SPLIT CALCULATION** **FLOW SPLIT ESTIMATE BY PIMA COUNTY METHODOLOGY**

**Assumptions:**

5.5-foot sidewalks on left and right sides of curb faces  
 0.5-foot curb depth  
 sidewalk slope of 2%  
 Normal depth flow in the street section

Boxed cells must be input for proper computation, results are double-underlined  
 Normal crown configuration in both streets  
 No crest to impede flow to lateral street  
 Nearly constant velocity across the entire street section and overbanks

MAIN STREET: WASHBURN RIGHT-OF-WAY WIDTH: 60 FEET  
 LONGITUDINAL SLOPE: 0.01 FEET/FOOT

FLOW SPLITS TO THE: RIGHT or SOUTH

LATERAL STREET: MAVERICK RIGHT-OF-WAY WIDTH: 60 FEET  
 LONGITUDINAL SLOPE: 0.004 FEET/FOOT

**10-YEAR FLOW SPLIT**

$Q_{10}$ =10-Year peak flow rate in main street 7 cfs  
 $D_{10}$ =10-Year normal depth determined by other means: 0.37 ft.

$$Q_L = 0.042 \{ Q_m^{0.93} \cdot W_{ss}^{0.85} / S_m^{0.41} \cdot W_m^{0.75} \}$$

$A_m$ =Approximate area of flow between curbs 18.1 sf  
 $A_{ob}$ =Approximate total flow area on overbanks 0.0 sf  
 $Q_m$  = Main street flow between curbs 7 cfs  
 $Q_{ob}$ =Total flow in both overbanks 0  
 $W_{ss}$  = Width of side street between curbs 49 ft.  
 $S_m$  = Longitudinal slope of main street 0.01 ft/ft  
 $W_m$  = Width of main street between curbs 49 ft.

$Q_L$  = Lateral flow in side street (cfs) 2 cfs

$$Q_o = 46.8 \{ Y_o \cdot W_{ss} \cdot S_s^{0.5} \} - Q_L$$

$Y_o$ =Average flow depth in overbank area 0 ft.  
 $S_s$  = Longitudinal slope of the side street 0.004 ft/ft

$Q_o$  = Allowable overbank flow laterally to side street 0 cfs

$Q_{aob}$  = Actual overbank flow available for split 0 cfs

If  $Q_o$  is greater than  $Q_{aob}$ , all of the actual overbank flow turns and flows down the side street and total Q that splits to side street is  $Q_L + Q_{aob}$  2 cfs

If  $Q_o$  is negative, assume zero overbank flow turns and flows down the side street, so the total Q that splits to side street is  $Q_L$  N/A cfs

**100-YEAR FLOW SPLIT**

$Q_{100}$ =100-Year peak flow rate in main street 23 cfs  
 $D_{100}$ =100-Year normal depth determined by other means: 0.53 ft.

$$Q_L = 0.042 \{ Q_m^{0.93} \cdot W_{ss}^{0.85} / S_m^{0.41} \cdot W_m^{0.75} \}$$

$A_m$ =Approximate area of flow between curbs 26.0 sf  
 $A_{ob}$ =Approximate total flow area on overbanks 0.0 sf  
 $Q_m$  = Main street flow between curbs 23 cfs  
 $Q_{ob}$ =Total flow in both overbanks 0  
 $W_{ss}$  = Width of side street between curbs 49 ft.  
 $S_m$  = Longitudinal slope of main street 0.01 ft/ft  
 $W_m$  = Width of main street between curbs 49 ft.

$Q_L$  = Lateral flow in side street (cfs) 6 cfs

$$Q_o = 46.8 \{ Y_o \cdot W_{ss} \cdot S_s^{0.5} \} - Q_L$$

$Y_o$ =Average flow depth in overbank area 0 ft.  
 $S_s$  = Longitudinal slope of the side street 0.004 ft/ft

$Q_o$  = Allowable overbank flow laterally to side street 0 cfs

$Q_{aob}$  = Actual overbank flow available for split 0 cfs

If  $Q_o$  is greater than  $Q_{aob}$ , all of the actual overbank flow turns and flows down the side street and total Q that splits to side street is  $Q_L + Q_{aob}$  6 cfs

If  $Q_o$  is negative, assume zero overbank flow turns and flows down the side street, so the total Q that splits to side street is  $Q_L$  N/A cfs

WASHBURN

WSHS ↓ .4%

2/6

7/23  
1%

MAVERICK

5/17  
WSHE

SITE

## Worksheet for Washburn Road - 10yr flow split depth

### Project Description

Friction Method                      Manning Formula  
Solve For                              Normal Depth

### Input Data

Channel Slope                              0.01000    ft/ft  
Discharge                                      7    ft<sup>3</sup>/s  
Section Definitions

| Station (ft) | Elevation (ft) |
|--------------|----------------|
| 0+00.00      | 0.60           |
| 0+05.00      | 0.50           |
| 0+05.50      | 0.50           |
| 0+05.50      | 0.00           |
| 0+07.00      | 0.13           |
| 0+07.00      | 0.17           |
| 0+30.00      | 0.63           |
| 0+53.00      | 0.17           |
| 0+53.00      | 0.13           |
| 0+54.50      | 0.00           |
| 0+54.50      | 0.50           |
| 0+55.00      | 0.50           |
| 0+60.00      | 0.60           |

### Roughness Segment Definitions

| Start Station   | Ending Station  | Roughness Coefficient |
|-----------------|-----------------|-----------------------|
| (0+00.00, 0.60) | (0+60.00, 0.60) | 0.016                 |

### Options

Current Roughness Weighted Method                      Improved Lotter's Method  
Open Channel Weighting Method                      Improved Lotter's Method  
Closed Channel Weighting Method                      Horton's Method



## Worksheet for Washburn Road - 10yr flow split depth

### Results

|                  |                 |                 |
|------------------|-----------------|-----------------|
| Normal Depth     | 0.37            | ft              |
| Elevation Range  | 0.00 to 0.63 ft |                 |
| Flow Area        | 3.02            | ft <sup>2</sup> |
| Wetted Perimeter | 24.32           | ft              |
| Hydraulic Radius | 0.12            | ft              |
| Top Width        | 23.47           | ft              |
| Normal Depth     | 0.37            | ft              |
| Critical Depth   | 0.39            | ft              |
| Critical Slope   | 0.00761         | ft/ft           |
| Velocity         | 2.31            | ft/s            |
| Velocity Head    | 0.08            | ft              |
| Specific Energy  | 0.46            | ft              |
| Froude Number    | 1.14            |                 |
| 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        | 0.37     | ft    |
| Critical Depth      | 0.39     | ft    |
| Channel Slope       | 0.01000  | ft/ft |
| Critical Slope      | 0.00761  | ft/ft |

## Cross Section for Washburn Road - 10yr flow split depth

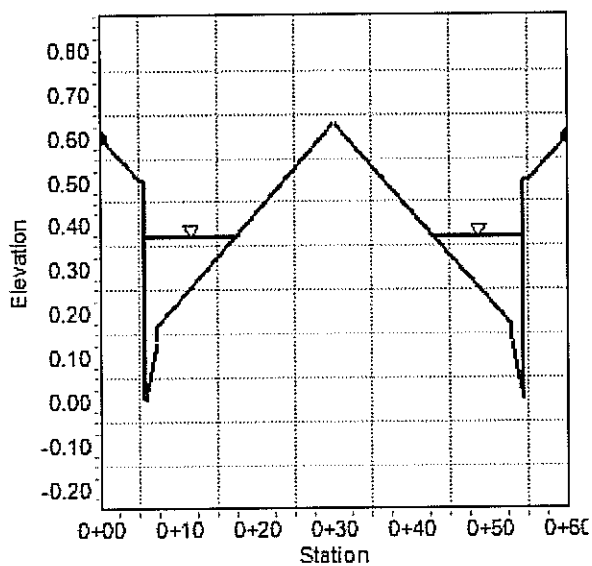
### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Channel Slope                                              0.01000    ft/ft  
Normal Depth                                              0.37    ft  
Discharge                                                      7    ft<sup>3</sup>/s

### Cross Section Image





## Worksheet for Washburn Road - 100yr flow split depth

### Project Description

Friction Method                      Manning Formula  
Solve For                              Normal Depth

### Input Data

Channel Slope                                              0.01000    ft/ft  
Discharge                                                      23    ft<sup>3</sup>/s  
Section Definitions

| Station (ft) | Elevation (ft) |
|--------------|----------------|
| 0+00.00      | 0.60           |
| 0+05.00      | 0.50           |
| 0+05.50      | 0.50           |
| 0+05.50      | 0.00           |
| 0+07.00      | 0.13           |
| 0+07.00      | 0.17           |
| 0+30.00      | 0.63           |
| 0+53.00      | 0.17           |
| 0+53.00      | 0.13           |
| 0+54.50      | 0.00           |
| 0+54.50      | 0.50           |
| 0+55.00      | 0.50           |
| 0+60.00      | 0.60           |

### Roughness Segment Definitions

| Start Station   | Ending Station  | Roughness Coefficient |
|-----------------|-----------------|-----------------------|
| (0+00.00, 0.60) | (0+60.00, 0.60) | 0.016                 |

### Options

Current Roughness Weighted Method                      Improved Lotter's Method  
Open Channel Weighting Method                      Improved Lotter's Method  
Closed Channel Weighting Method                      Horton's Method

## Worksheet for Washburn Road - 100yr flow split depth

### Results

|                  |               |                 |
|------------------|---------------|-----------------|
| Normal Depth     | 0.53          | ft              |
| Elevation Range  | 0.00 to 0.63  | ft              |
| Flow Area        | 7.78          | ft <sup>2</sup> |
| Wetted Perimeter | 43.29         | ft              |
| Hydraulic Radius | 0.18          | ft              |
| Top Width        | 42.19         | ft              |
| Normal Depth     | 0.53          | ft              |
| Critical Depth   | 0.56          | ft              |
| Critical Slope   | 0.00668       | ft/ft           |
| Velocity         | 2.96          | ft/s            |
| Velocity Head    | 0.14          | ft              |
| Specific Energy  | 0.66          | ft              |
| Froude Number    | 1.21          |                 |
| 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        | 0.53     | ft    |
| Critical Depth      | 0.56     | ft    |
| Channel Slope       | 0.01000  | ft/ft |
| Critical Slope      | 0.00668  | ft/ft |



## Cross Section for Washburn Road - 100yr flow split depth

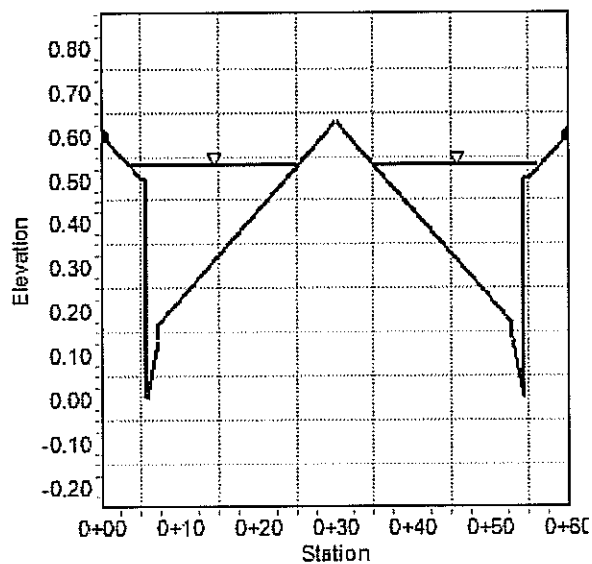
### Project Description

Friction Method                      Manning Formula  
Solve For                              Normal Depth

### Input Data

Channel Slope                              0.01000    ft/ft  
Normal Depth                              0.53    ft  
Discharge                                  23    ft<sup>3</sup>/s

### Cross Section Image



**COMMENT 6 REVISED HYDROLOGY**



# HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL - STANDARD FORM 4

Momentum Engineers, Ltd.

6101 Kings Brook Ct.  
Las Vegas NV 89149

| Sub-Basin Data                                                                                                |           |          |                        |                      | Initial/Overland Time<br>(T <sub>i</sub> ) |                     |                                | Travel Time<br>(T <sub>t</sub> ) |                                                        |                                                                                                                                                                                     |                                 |                                 | T <sub>c</sub>                                                  | T <sub>c</sub> Check<br>(Urbanized Basins)                                                                 |                                 | Final T <sub>c</sub>                                                | T <sub>lag</sub>                  | Remarks                                                                                                                                           |  |  |
|---------------------------------------------------------------------------------------------------------------|-----------|----------|------------------------|----------------------|--------------------------------------------|---------------------|--------------------------------|----------------------------------|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|---------------------------------|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|---------------------------------|---------------------------------------------------------------------|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| DESIG<br>(1)                                                                                                  | CN<br>(2) | K<br>(3) | AREA<br>(acres)<br>(4) | AREA<br>(mi²)<br>(5) | LENGTH<br>(ft)<br>(6)                      | SLOPE<br>(%)<br>(7) | T <sub>i</sub><br>(min)<br>(8) | LENGTH<br>(ft)<br>(9)            | SLOPE<br>(%)<br>(10)                                   | V <sub>1</sub><br>(fps)<br>(11)                                                                                                                                                     | V <sub>2</sub><br>(fps)<br>(12) | T <sub>t</sub><br>(min)<br>(13) | T <sub>c</sub> =T <sub>i</sub> +T <sub>t</sub><br>(min)<br>(14) | TOTAL<br>(ft)<br>(15)                                                                                      | T <sub>c</sub><br>(min)<br>(16) | T <sub>c</sub><br>(min)<br>(17)                                     | T <sub>lag</sub><br>(hrs)<br>(18) | Remarks<br>(19)                                                                                                                                   |  |  |
| <b>DEVELOPED CONDITION</b>                                                                                    |           |          |                        |                      |                                            |                     |                                |                                  |                                                        |                                                                                                                                                                                     |                                 |                                 |                                                                 |                                                                                                            |                                 |                                                                     |                                   |                                                                                                                                                   |  |  |
| DOF1                                                                                                          | 86        | 0.745    | 4.26                   | 0.0067               | 120                                        | 1.0                 | 7.0                            | 1200                             | 0.6                                                    | 1.6                                                                                                                                                                                 | 2.4                             | 10.2                            | 17.2                                                            | 1320                                                                                                       | 17.3                            | 17.2                                                                | 0.172                             |                                                                                                                                                   |  |  |
| DOF2                                                                                                          | 84        | 0.719    | 0.47                   | 0.0007               | 50                                         | 1.0                 | 4.9                            | 50                               | 1.0                                                    | 2.0                                                                                                                                                                                 | N/A                             | 0.4                             | 5.3                                                             | 100                                                                                                        | 10.6                            | 5.3                                                                 | 0.053                             |                                                                                                                                                   |  |  |
| DOF3                                                                                                          | 84        | 0.719    | 0.49                   | 0.0008               | 50                                         | 1.0                 | 4.9                            | 50                               | 1.0                                                    | 2.0                                                                                                                                                                                 | N/A                             | 0.4                             | 5.3                                                             | 100                                                                                                        | 10.6                            | 5.3                                                                 | 0.053                             |                                                                                                                                                   |  |  |
| DOF4                                                                                                          | 84        | 0.719    | 1.26                   | 0.0020               | 50                                         | 1.0                 | 4.9                            | 650                              | 1.1                                                    | 2.1                                                                                                                                                                                 | 3.2                             | 4.7                             | 9.6                                                             | 700                                                                                                        | 13.9                            | 9.6                                                                 | 0.096                             |                                                                                                                                                   |  |  |
| DOF4R                                                                                                         | 84        | 0.719    | 0.69                   | 0.0011               | 50                                         | 1.0                 | 4.9                            | 450                              | 1.1                                                    | 2.1                                                                                                                                                                                 | N/A                             | 3.5                             | 8.4                                                             | 500                                                                                                        | 12.8                            | 8.4                                                                 | 0.084                             |                                                                                                                                                   |  |  |
| DOF4S                                                                                                         | 84        | 0.719    | 0.57                   | 0.0009               | 50                                         | 1.0                 | 4.9                            | 200                              | 0.8                                                    | 1.8                                                                                                                                                                                 | N/A                             | 1.8                             | 6.7                                                             | 250                                                                                                        | 11.4                            | 6.7                                                                 | 0.067                             |                                                                                                                                                   |  |  |
| DON1                                                                                                          | 87        | 0.758    | 3.69                   | 0.0058               | 125                                        | 1.0                 | 6.9                            | 1200                             | 0.6                                                    | 1.6                                                                                                                                                                                 | 2.4                             | 10.2                            | 17.1                                                            | 1325                                                                                                       | 17.4                            | 17.1                                                                | 0.171                             |                                                                                                                                                   |  |  |
| DON2                                                                                                          | 87        | 0.758    | 8.45                   | 0.0132               | 120                                        | 1.0                 | 6.7                            | 1150                             | 0.5                                                    | 1.4                                                                                                                                                                                 | 2.2                             | 10.8                            | 17.6                                                            | 1270                                                                                                       | 17.1                            | 17.1                                                                | 0.171                             |                                                                                                                                                   |  |  |
| DON3                                                                                                          | 87        | 0.758    | 2.83                   | 0.0044               | 125                                        | 1.0                 | 6.9                            | 970                              | 0.7                                                    | 1.7                                                                                                                                                                                 | 2.6                             | 8.0                             | 14.9                                                            | 1095                                                                                                       | 16.1                            | 14.9                                                                | 0.149                             |                                                                                                                                                   |  |  |
| WB                                                                                                            | 98        | 0.904    | 0.95                   | 0.0015               | 23                                         | 2.0                 | 1.3                            | 650                              | 1.1                                                    | 2.1                                                                                                                                                                                 | 3.2                             | 4.7                             | 6.1                                                             | 673                                                                                                        | 13.7                            | 6.1                                                                 | 0.061                             |                                                                                                                                                   |  |  |
| WBR                                                                                                           | 98        | 0.904    | 1.12                   | 0.0018               | 23                                         | 2.0                 | 1.3                            | 450                              | 1.1                                                    | 2.1                                                                                                                                                                                 | N/A                             | 3.5                             | 4.9                                                             | 473                                                                                                        | 12.6                            | 4.9                                                                 | 0.050                             |                                                                                                                                                   |  |  |
| WBS                                                                                                           | 98        | 0.904    | 0.42                   | 0.0007               | 23                                         | 2.0                 | 1.3                            | 200                              | 0.8                                                    | 1.8                                                                                                                                                                                 | N/A                             | 1.8                             | 3.2                                                             | 223                                                                                                        | 11.2                            | 3.2                                                                 | 0.050                             |                                                                                                                                                   |  |  |
| MAV                                                                                                           | 98        | 0.904    | 1.71                   | 0.0027               | 23                                         | 2.0                 | 1.3                            | 1200                             | 0.6                                                    | 1.6                                                                                                                                                                                 | 2.4                             | 10.2                            | 11.6                                                            | 1223                                                                                                       | 16.8                            | 11.6                                                                | 0.116                             |                                                                                                                                                   |  |  |
| BR1                                                                                                           | 98        | 0.904    | 1.36                   | 0.0021               | 23                                         | 2.0                 | 1.3                            | 970                              | 0.7                                                    | 1.7                                                                                                                                                                                 | 2.6                             | 8.0                             | 9.3                                                             | 993                                                                                                        | 15.5                            | 9.3                                                                 | 0.093                             |                                                                                                                                                   |  |  |
| BR2                                                                                                           | 98        | 0.904    | 0.22                   | 0.0003               | 23                                         | 2.0                 | 1.3                            | 120                              | 0.5                                                    | 1.4                                                                                                                                                                                 | N/A                             | 1.4                             | 2.7                                                             | 143                                                                                                        | 10.8                            | 2.7                                                                 | 0.050                             |                                                                                                                                                   |  |  |
| BR3                                                                                                           | 98        | 0.904    | 0.22                   | 0.0003               | 23                                         | 2.0                 | 1.3                            | 120                              | 0.5                                                    | 1.4                                                                                                                                                                                 | N/A                             | 1.4                             | 2.7                                                             | 143                                                                                                        | 10.8                            | 2.7                                                                 | 0.050                             |                                                                                                                                                   |  |  |
| LA                                                                                                            | 98        | 0.904    | 0.90                   | 0.0014               | 23                                         | 2.0                 | 1.3                            | 650                              | 0.8                                                    | 1.8                                                                                                                                                                                 | 2.7                             | 5.5                             | 6.9                                                             | 673                                                                                                        | 13.7                            | 6.9                                                                 | 0.069                             |                                                                                                                                                   |  |  |
| <b>UNDEVELOPED CONDITION</b>                                                                                  |           |          |                        |                      |                                            |                     |                                |                                  |                                                        |                                                                                                                                                                                     |                                 |                                 |                                                                 |                                                                                                            |                                 |                                                                     |                                   |                                                                                                                                                   |  |  |
| XON1                                                                                                          | 88        | 0.77     | 2.93                   | 0.0046               | 100                                        | 0.6                 | 7.0                            | 160                              | 0.9                                                    | 1.4                                                                                                                                                                                 | N/A                             | 1.9                             | 8.9                                                             | N/A                                                                                                        | N/A                             | 8.9                                                                 | 0.100                             |                                                                                                                                                   |  |  |
| XON2                                                                                                          | 88        | 0.77     | 12.80                  | 0.0200               | 100                                        | 0.9                 | 6.1                            | 780                              | 1.6                                                    | 1.9                                                                                                                                                                                 | 3.7                             | 5.7                             | 11.8                                                            | N/A                                                                                                        | N/A                             | 11.8                                                                | 0.118                             |                                                                                                                                                   |  |  |
| $T_i = (1.8(1.1-K)L^{1/2}) / (S^{1/3})$<br>$T_o = T_i + T_t$<br>$K = 0.0132(CN) - 0.39$<br>$T_{lag} = 0.6T_c$ |           |          |                        |                      |                                            |                     |                                |                                  |                                                        | For the travel time (T <sub>t</sub> ) calculations,<br>V <sub>1</sub> applies to the first 500 feet of travel distance;<br>V <sub>2</sub> applies to the remaining travel distance. |                                 |                                 |                                                                 | <b>Travel Time Velocity Formulas</b><br>Existing<br>$V_1 = 14.8(S/100)^{1/2}$<br>$V_2 = 29.4(S/100)^{1/2}$ |                                 | Developed<br>$V_1 = 20.2(S/100)^{1/2}$<br>$V_2 = 30.6(S/100)^{1/2}$ |                                   | All basins over one square mile<br>are calculated by the equation<br>$T_{lag} = 20Kn(L \cdot L_e / S^{0.5})^{0.33}$<br>(SEE SEPARATE SPREADSHEET) |  |  |
| REFERENCE:                                                                                                    |           |          |                        |                      |                                            |                     |                                |                                  | CCRFC D HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL |                                                                                                                                                                                     |                                 |                                 |                                                                 |                                                                                                            |                                 |                                                                     |                                   |                                                                                                                                                   |  |  |
| <b>STANDARD FORM 4</b>                                                                                        |           |          |                        |                      |                                            |                     |                                |                                  |                                                        |                                                                                                                                                                                     |                                 |                                 |                                                                 |                                                                                                            |                                 |                                                                     |                                   |                                                                                                                                                   |  |  |

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

```

X      X  XXXXXXXX  XXXXXX  X
X      X  X      X      X  XX
X      X  X      X      X  X
XXXXXXXXX XXXX  X      XXXXXX  X
X      X  X      X      X      X
X      X  X      X      X      X
X      X  XXXXXXXX  XXXXXX  XXXX

```

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

PAGE 1

EXISTING +  
DEVELOPED  
CONDITIONS



|    |    |        |       |       |       |       |       |       |       |       |       |
|----|----|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 21 | PC | 0.000  | 0.020 | 0.057 | 0.070 | 0.087 | 0.108 | 0.124 | 0.130 | 0.130 | 0.130 |
| 22 | PC | 0.130  | 0.130 | 0.130 | 0.133 | 0.140 | 0.142 | 0.148 | 0.158 | 0.172 | 0.181 |
| 23 | PC | 0.190  | 0.197 | 0.199 | 0.200 | 0.201 | 0.204 | 0.214 | 0.229 | 0.241 | 0.249 |
| 24 | PC | 0.251  | 0.256 | 0.270 | 0.278 | 0.281 | 0.283 | 0.295 | 0.322 | 0.352 | 0.409 |
| 25 | PC | 0.499  | 0.590 | 0.710 | 0.744 | 0.781 | 0.812 | 0.819 | 0.835 | 0.851 | 0.856 |
| 26 | PC | 0.860  | 0.868 | 0.876 | 0.888 | 0.910 | 0.926 | 0.937 | 0.950 | 0.970 | 0.976 |
| 27 | PC | 0.982  | 0.985 | 0.987 | 0.989 | 0.990 | 0.993 | 0.993 | 0.994 | 0.995 | 0.998 |
| 28 | PC | 0.998  | 0.999 | 1.000 |       |       |       |       |       |       |       |
| 29 | LS | 0      | 86    |       |       |       |       |       |       |       |       |
| 30 | UD | 0.1720 |       |       |       |       |       |       |       |       |       |
|    | *  |        |       |       |       |       |       |       |       |       |       |
| 31 | KK | MAV    |       |       |       |       |       |       |       |       |       |
| 32 | BA | .0027  |       |       |       |       |       |       |       |       |       |
| 33 | LS | 0      | 98    |       |       |       |       |       |       |       |       |
| 34 | UD | 0.1160 |       |       |       |       |       |       |       |       |       |
|    | *  |        |       |       |       |       |       |       |       |       |       |
| 35 | KK | CEMAV  |       |       |       |       |       |       |       |       |       |
| 36 | HC | 2      |       |       |       |       |       |       |       |       |       |
|    | *  |        |       |       |       |       |       |       |       |       |       |
| 37 | KK | LA     |       |       |       |       |       |       |       |       |       |
| 38 | BA | .0014  |       |       |       |       |       |       |       |       |       |
| 39 | LS | 0      | 98    |       |       |       |       |       |       |       |       |
| 40 | UD | 0.0690 |       |       |       |       |       |       |       |       |       |
|    | *  |        |       |       |       |       |       |       |       |       |       |

1

HEC-1 INPUT

PAGE 2

| LINE | ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10 |
|------|-----------------------------------------------------------------|
| 41   | KK LAMA1                                                        |
| 42   | HC 2                                                            |
|      | *                                                               |
| 43   | KK XON1                                                         |
| 44   | BA .0046                                                        |
| 45   | LS 0 88                                                         |
| 46   | UD 0.1000                                                       |
|      | *                                                               |
| 47   | KK DOF3                                                         |
| 48   | BA .0008                                                        |
| 49   | LS 0 84                                                         |
| 50   | UD 0.0530                                                       |
|      | *                                                               |
| 51   | KK BR3                                                          |
| 52   | BA .0003                                                        |
| 53   | LS 0 98                                                         |
| 54   | UD 0.0500                                                       |
|      | *                                                               |
| 55   | KK WB                                                           |
| 56   | BA .0015                                                        |
| 57   | LS 0 98                                                         |
| 58   | UD 0.0610                                                       |
|      | *                                                               |





|     |    |        |    |
|-----|----|--------|----|
| 100 | KK | LA     |    |
| 101 | BA | .0014  |    |
| 102 | LS | 0      | 98 |
| 103 | UD | 0.0690 |    |
|     | *  |        |    |

PAGE 4

128                      KK                      WBR

|     |    |        |    |
|-----|----|--------|----|
| 129 | BA | .0018  |    |
| 130 | LS | 0      | 98 |
| 131 | UD | 0.0500 |    |
|     | *  |        |    |
| 132 | KK | DOF4R  |    |
| 133 | BA | .0011  |    |
| 134 | LS | 0      | 84 |
| 135 | UD | 0.0840 |    |
|     | *  |        |    |

1

# HEC-1 INPUT

PAGE 5

| LINE | ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10 |
|------|-----------------------------------------------------------------|
|------|-----------------------------------------------------------------|

|     |    |        |    |
|-----|----|--------|----|
| 136 | KK | CPBR   |    |
| 137 | HC | 2      |    |
|     | *  |        |    |
| 138 | KK | DOF3   |    |
| 139 | BA | .0008  |    |
| 140 | LS | 0      | 84 |
| 141 | UD | 0.0530 |    |
|     | *  |        |    |
| 142 | KK | BR3    |    |
| 143 | BA | .0003  |    |
| 144 | LS | 0      | 98 |
| 145 | UD | 0.0500 |    |
|     | *  |        |    |
| 146 | KK | WBS    |    |
| 147 | BA | .0007  |    |
| 148 | LS | 0      | 98 |
| 149 | UD | 0.0500 |    |
|     | *  |        |    |
| 150 | KK | DOF4S  |    |
| 151 | BA | .0009  |    |
| 152 | LS | 0      | 84 |
| 153 | UD | 0.0670 |    |
|     | *  |        |    |
| 154 | KK | CPWB   |    |
| 155 | HC | 5      |    |
|     | *  |        |    |
| 156 | ZZ |        |    |

1

## SCHEMATIC DIAGRAM OF STREAM NETWORK

| INPUT<br>LINE | (V) ROUTING   | (--->) DIVERSION OR PUMP FLOW            |
|---------------|---------------|------------------------------------------|
| NO.           | (.) CONNECTOR | (<---) RETURN OF DIVERTED OR PUMPED FLOW |
| 16            | DOF1          |                                          |
|               | .             |                                          |
|               | .             |                                          |
| 31            | MAV           |                                          |
|               | .             |                                          |
|               | .             |                                          |

|     |            |            |            |      |      |
|-----|------------|------------|------------|------|------|
| 35  | CPMAV..... |            |            |      |      |
|     | .          |            |            |      |      |
| 37  | .          | LA         |            |      |      |
|     | .          |            |            |      |      |
| 41  | LAMA1..... |            |            |      |      |
|     | .          |            |            |      |      |
| 43  | .          | XON1       |            |      |      |
|     | .          |            |            |      |      |
| 47  | .          |            | DOF3       |      |      |
|     | .          |            | .          |      |      |
| 51  | .          |            |            | BR3  |      |
|     | .          |            |            | .    |      |
| 55  | .          |            |            |      | WB   |
|     | .          |            |            |      | .    |
| 59  | .          |            |            |      |      |
|     | .          |            |            |      | DOF4 |
|     | .          |            |            |      | .    |
| 63  | .          | CFWB.....  |            |      |      |
|     | .          |            |            |      |      |
| 65  | .          |            | DOF2       |      |      |
|     | .          |            | .          |      |      |
| 69  | .          |            |            | BR2  |      |
|     | .          |            |            | .    |      |
| 73  | .          |            | CPBR2..... |      |      |
|     | .          |            | .          |      |      |
| 75  | .          |            |            | XON2 |      |
|     | .          |            |            | .    |      |
| 79  | .          |            |            |      |      |
|     | DUMMY..... |            |            |      |      |
|     | .          |            |            |      |      |
| 81  | .          | DOF1       |            |      |      |
|     | .          |            |            |      |      |
| 86  | .          |            | DON1       |      |      |
|     | .          |            | .          |      |      |
| 90  | .          |            |            | MAV  |      |
|     | .          |            |            | .    |      |
| 94  | .          | CPMAV..... |            |      |      |
|     | .          |            |            |      |      |
| 96  | .          |            | DON2       |      |      |
|     | .          |            | .          |      |      |
| 100 | .          |            |            | LA   |      |
|     | .          |            |            | .    |      |
|     | .          |            |            | .    |      |



```

104      .      LAMA1.....
      .
      .
106      .      .      DOF2
      .      .
      .      .      .
110      .      .      .      BR2
      .      .      .
      .      .      .
114      .      .      CPBR2.....
      .      .
      .      .      .
116      .      .      .      DON3
      .      .      .
      .      .      .
120      .      .      .      .      BR1
      .      .      .      .
      .      .      .
124      .      .      CPBR1.....
      .      .
      .      .
126      .      LAMA2.....
      .
      .
128      .      .      WBR
      .      .
      .      .
132      .      .      .      DOF4R
      .      .      .
      .      .      .
136      .      .      CPBR.....
      .      .
      .      .
138      .      .      .      DOF3
      .      .      .
      .      .      .
142      .      .      .      .      BR3
      .      .      .      .
      .      .      .
146      .      .      .      .      .      WBS
      .      .      .      .
      .      .      .
150      .      .      .      .      .      .      DOF4S
      .      .      .      .      .
      .      .      .
154      .      .      CPWB.....

```

(\*\*\*) RUNOFF ALSO COMPUTED AT THIS LOCATION

```

1*****
*
*   FLOOD HYDROGRAPH PACKAGE (HEC-1)
*   JUN   1998
*   VERSION 4.1
*
*   RUN DATE   14JUL16   TIME   19:34:48
*
*****

```

```

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

```

EXISTING AND DEVELOPED CONDITIONS MODEL  
WASHBURN & MAVERICK  
MOMENTUM ENGINEERS FOR TRITON ENGINEERING - B BROWN

6-HOUR STORM DISTRIBUTION #3  
10- AND 100-YEAR STORM EVENTS  
NO REDUCTION FOR DEPTH AREA  
NO HYDROGRAPH ROUTING LOSSES

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

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

            COMPUTATION INTERVAL      .08 HOURS  
            TOTAL TIME BASE      24.92 HOURS

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

JP          MULTI-PLAN OPTION  
            NPLAN            1   NUMBER OF PLANS

JR          MULTI-RATIO OPTION  
            RATIOS OF PRECIPITATION  
            .57      1.00

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

| OPERATION     | STATION | AREA | PLAN | RATIOS APPLIED TO PRECIPITATION |              |
|---------------|---------|------|------|---------------------------------|--------------|
|               |         |      |      | RATIO 1                         | RATIO 2      |
|               |         |      |      | .57                             | 1.00         |
| HYDROGRAPH AT |         |      |      |                                 |              |
| +             | DOF1    | .01  | 1    | FLOW                            | 3.      8.   |
|               |         |      |      | TIME                            | 3.58    3.58 |

|                    |       |     |   |              |             |             |
|--------------------|-------|-----|---|--------------|-------------|-------------|
| HYDROGRAPH AT<br>+ | MAV   | .00 | 1 | FLOW<br>TIME | 3.<br>3.50  | 5.<br>3.50  |
| 2 COMBINED AT<br>+ | CPMAV | .01 | 1 | FLOW<br>TIME | 6.<br>3.58  | 13.<br>3.58 |
| HYDROGRAPH AT<br>+ | LA    | .00 | 1 | FLOW<br>TIME | 2.<br>3.50  | 3.<br>3.50  |
| 2 COMBINED AT<br>+ | LAMA1 | .01 | 1 | FLOW<br>TIME | 7.<br>3.58  | 15.<br>3.58 |
| HYDROGRAPH AT<br>+ | XON1  | .00 | 1 | FLOW<br>TIME | 3.<br>3.50  | 7.<br>3.50  |
| HYDROGRAPH AT<br>+ | DOF3  | .00 | 1 | FLOW<br>TIME | 0.<br>3.50  | 1.<br>3.50  |
| HYDROGRAPH AT<br>+ | BR3   | .00 | 1 | FLOW<br>TIME | 0.<br>3.50  | 1.<br>3.50  |
| HYDROGRAPH AT<br>+ | WB    | .00 | 1 | FLOW<br>TIME | 2.<br>3.50  | 3.<br>3.50  |
| HYDROGRAPH AT<br>+ | DOF4  | .00 | 1 | FLOW<br>TIME | 1.<br>3.50  | 2.<br>3.50  |
| 5 COMBINED AT<br>+ | CPWB  | .01 | 1 | FLOW<br>TIME | 6.<br>3.50  | 14.<br>3.50 |
| HYDROGRAPH AT<br>+ | DOF2  | .00 | 1 | FLOW<br>TIME | 0.<br>3.50  | 1.<br>3.50  |
| HYDROGRAPH AT<br>+ | BR2   | .00 | 1 | FLOW<br>TIME | 0.<br>3.50  | 1.<br>3.50  |
| 2 COMBINED AT<br>+ | CPBR2 | .00 | 1 | FLOW<br>TIME | 1.<br>3.50  | 2.<br>3.50  |
| HYDROGRAPH AT<br>+ | XON2  | .02 | 1 | FLOW<br>TIME | 12.<br>3.58 | 28.<br>3.58 |
| 4 COMBINED AT<br>+ | DUMMY | .04 | 1 | FLOW<br>TIME | 25.<br>3.50 | 58.<br>3.50 |

[WSHS]

$$+ 2/6 = 8/19$$

[WSHS]

[LAMA]

$$+ 2/6 + 62/200 = 71/221$$

[WSHE]

$$+ 5/17 = 11/31$$



|                    |       |     |   |              |             |             |
|--------------------|-------|-----|---|--------------|-------------|-------------|
| HYDROGRAPH AT<br>+ | DOF1  | .01 | 1 | FLOW<br>TIME | 3.<br>3.58  | 8.<br>3.58  |
| HYDROGRAPH AT<br>+ | DON1  | .01 | 1 | FLOW<br>TIME | 3.<br>3.58  | 7.<br>3.58  |
| HYDROGRAPH AT<br>+ | MAV   | .00 | 1 | FLOW<br>TIME | 3.<br>3.50  | 5.<br>3.50  |
| 3 COMBINED AT<br>+ | CPMAV | .02 | 1 | FLOW<br>TIME | 9.<br>3.58  | 20.<br>3.58 |
| HYDROGRAPH AT<br>+ | DON2  | .01 | 1 | FLOW<br>TIME | 6.<br>3.58  | 16.<br>3.58 |
| HYDROGRAPH AT<br>+ | LA    | .00 | 1 | FLOW<br>TIME | 2.<br>3.50  | 3.<br>3.50  |
| 3 COMBINED AT<br>+ | LAMA1 | .03 | 1 | FLOW<br>TIME | 16.<br>3.58 | 39.<br>3.58 |
| HYDROGRAPH AT<br>+ | DOF2  | .00 | 1 | FLOW<br>TIME | 0.<br>3.50  | 1.<br>3.50  |
| HYDROGRAPH AT<br>+ | BR2   | .00 | 1 | FLOW<br>TIME | 0.<br>3.50  | 1.<br>3.50  |
| 2 COMBINED AT<br>+ | CPBR2 | .00 | 1 | FLOW<br>TIME | 1.<br>3.50  | 2.<br>3.50  |
| HYDROGRAPH AT<br>+ | DON3  | .00 | 1 | FLOW<br>TIME | 2.<br>3.58  | 6.<br>3.58  |
| HYDROGRAPH AT<br>+ | BR1   | .00 | 1 | FLOW<br>TIME | 2.<br>3.50  | 4.<br>3.50  |
| 3 COMBINED AT<br>+ | CPBR1 | .01 | 1 | FLOW<br>TIME | 5.<br>3.50  | 11.<br>3.50 |
| 2 COMBINED AT<br>+ | LAMA2 | .04 | 1 | FLOW<br>TIME | 21.<br>3.58 | 49.<br>3.58 |
| HYDROGRAPH AT<br>+ | WER   | .00 | 1 | FLOW<br>TIME | 2.<br>3.50  | 4.<br>3.50  |

$$[WISHS] + 2/6 = 11/26$$

$$[WISHS] + 2/6 + [LAMA] 62/200 = 80/295$$

$$[WISHS] + 2/6 + [LAMA] 62/200 = 85/255$$

|               |       |     |   |      |      |      |
|---------------|-------|-----|---|------|------|------|
| HYDROGRAPH AT |       |     |   |      |      |      |
| +             | DOF4R | .00 | 1 | FLOW | 1.   | 1.   |
|               |       |     |   | TIME | 3.50 | 3.50 |
| 2 COMBINED AT |       |     |   |      |      |      |
| +             | CPBR  | .00 | 1 | FLOW | 3.   | 6.   |
|               |       |     |   | TIME | 3.50 | 3.50 |
| HYDROGRAPH AT |       |     |   |      |      |      |
| +             | DOF3  | .00 | 1 | FLOW | 0.   | 1.   |
|               |       |     |   | TIME | 3.50 | 3.50 |
| HYDROGRAPH AT |       |     |   |      |      |      |
| +             | BR3   | .00 | 1 | FLOW | 0.   | 1.   |
|               |       |     |   | TIME | 3.50 | 3.50 |
| HYDROGRAPH AT |       |     |   |      |      |      |
| +             | WBS   | .00 | 1 | FLOW | 1.   | 2.   |
|               |       |     |   | TIME | 3.50 | 3.50 |
| HYDROGRAPH AT |       |     |   |      |      |      |
| +             | DOF4S | .00 | 1 | FLOW | 0.   | 1.   |
|               |       |     |   | TIME | 3.50 | 3.50 |
| 5 COMBINED AT |       |     |   |      |      |      |
| +             | CPWB  | .01 | 1 | FLOW | 5.   | 10.  |
|               |       |     |   | TIME | 3.50 | 3.50 |

[WSHE]  
+ 5/17 = 8/23

[WSHE]  
+ 5/17 = 10/27

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

**COMMENT 6 REVISED HYDRAULICS**



## Worksheet for A - Maverick Street - 10yr

### Project Description

Friction Method                      Manning Formula  
Solve For                              Normal Depth

### Input Data

Channel Slope                              0.00510    ft/ft  
Discharge                                      11    ft<sup>3</sup>/s  
Section Definitions

| Station (ft) | Elevation (ft) |
|--------------|----------------|
| 0+00.00      | 0.60           |
| 0+05.00      | 0.50           |
| 0+05.50      | 0.50           |
| 0+05.50      | 0.00           |
| 0+07.00      | 0.13           |
| 0+07.00      | 0.17           |
| 0+30.00      | 0.63           |
| 0+53.00      | 0.17           |
| 0+53.00      | 0.13           |
| 0+54.50      | 0.00           |
| 0+54.50      | 0.50           |
| 0+55.00      | 0.50           |
| 0+60.00      | 0.60           |

### Roughness Segment Definitions

| Start Station   | Ending Station  | Roughness Coefficient |
|-----------------|-----------------|-----------------------|
| (0+00.00, 0.60) | (0+60.00, 0.60) | 0.016                 |

### Options

Current roughness weighted      Improved Lotter's Method  
Method  
Open Channel Weighting Method      Improved Lotter's Method  
Closed Channel Weighting Method      Horton's Method

---

## Worksheet for A - Maverick Street - 10yr

---

### Results

|                  |                 |                 |
|------------------|-----------------|-----------------|
| Normal Depth     | 0.46            | ft              |
| Elevation Range  | 0.00 to 0.63 ft |                 |
| Flow Area        | 5.51            | ft <sup>2</sup> |
| Wetted Perimeter | 33.39           | ft              |
| Hydraulic Radius | 0.16            | ft              |
| Top Width        | 32.37           | ft              |
| Normal Depth     | 0.46            | ft              |
| Critical Depth   | 0.44            | ft              |
| Critical Slope   | 0.00717         | ft/ft           |
| Velocity         | 2.00            | ft/s            |
| Velocity Head    | 0.06            | ft              |
| Specific Energy  | 0.53            | ft              |
| Froude Number    | 0.85            |                 |
| 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        | 0.46     | ft    |
| Critical Depth      | 0.44     | ft    |
| Channel Slope       | 0.00510  | ft/ft |
| Critical Slope      | 0.00717  | ft/ft |

## Cross Section for A - Maverick Street - 10yr

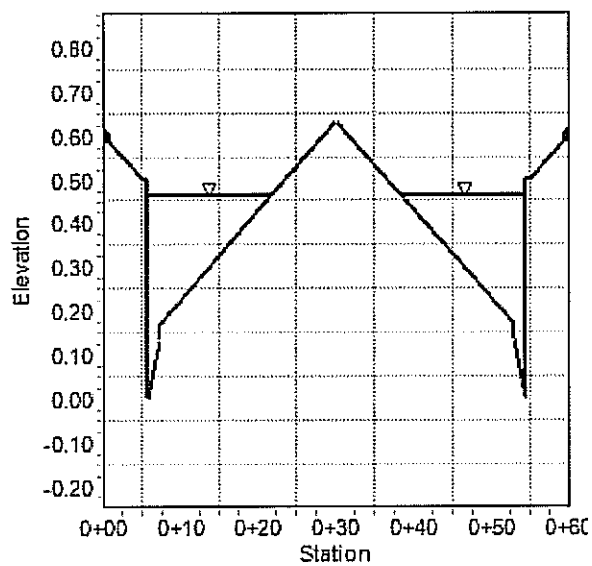
### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Channel Slope                                              0.00510    ft/ft  
Normal Depth                                              0.46    ft  
Discharge                                                    11    ft<sup>3</sup>/s

### Cross Section Image





## Worksheet for A - Maverick Street - 100yr

### Project Description

Friction Method                      Manning Formula  
Solve For                              Normal Depth

### Input Data

Channel Slope                              0.00510    ft/ft  
Discharge                                      26    ft<sup>3</sup>/s  
Section Definitions

| Station (ft) | Elevation (ft) |
|--------------|----------------|
| 0+00.00      | 0.60           |
| 0+05.00      | 0.50           |
| 0+05.50      | 0.50           |
| 0+05.50      | 0.00           |
| 0+07.00      | 0.13           |
| 0+07.00      | 0.17           |
| 0+30.00      | 0.63           |
| 0+53.00      | 0.17           |
| 0+53.00      | 0.13           |
| 0+54.50      | 0.00           |
| 0+54.50      | 0.50           |
| 0+55.00      | 0.50           |
| 0+60.00      | 0.60           |

### Roughness Segment Definitions

| Start Station   | Ending Station  | Roughness Coefficient |
|-----------------|-----------------|-----------------------|
| (0+00.00, 0.60) | (0+60.00, 0.60) | 0.016                 |

### Options

Current Roughness Weighted Method                      Improved Lotter's Method  
Open Channel Weighting Method                      Improved Lotter's Method  
Closed Channel Weighting Method                      Horton's Method

## Worksheet for A - Maverick Street - 100yr

### Results

|                  |                 |                 |
|------------------|-----------------|-----------------|
| Normal Depth     | 0.60            | ft              |
| Elevation Range  | 0.00 to 0.63 ft |                 |
| Flow Area        | 11.55           | ft <sup>2</sup> |
| Wetted Perimeter | 58.27           | ft              |
| Hydraulic Radius | 0.20            | ft              |
| Top Width        | 57.17           | ft              |
| Normal Depth     | 0.60            | ft              |
| Critical Depth   | 0.58            | ft              |
| Critical Slope   | 0.00661         | ft/ft           |
| Velocity         | 2.25            | ft/s            |
| Velocity Head    | 0.08            | ft              |
| Specific Energy  | 0.68            | ft              |
| Froude Number    | 0.88            |                 |
| 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        | 0.60     | ft    |
| Critical Depth      | 0.58     | ft    |
| Channel Slope       | 0.00510  | ft/ft |
| Critical Slope      | 0.00661  | ft/ft |

## Cross Section for A - Maverick Street - 100yr

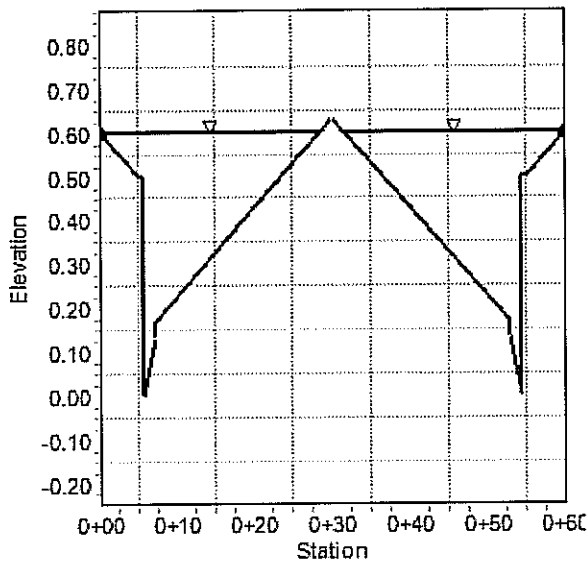
### Project Description

Friction Method                      Manning Formula  
Solve For                              Normal Depth

### Input Data

Channel Slope                              0.00510    ft/ft  
Normal Depth                              0.60    ft  
Discharge                                  26    ft<sup>3</sup>/s

### Cross Section Image





**Worksheet for B - Denver 10yr**

## Project Description

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

```

$ gcc 1.c -o 1
$ ./1
Enter a string: Input Data
You entered: Input Data

```

|                     |         |                    |
|---------------------|---------|--------------------|
| Channel Slope       | 0.00500 | ft/ft              |
| Discharge           | 6       | ft <sup>3</sup> /s |
| Section Definitions |         |                    |

| Station (ft) | Elevation (ft) |
|--------------|----------------|
| -0+05.00     | 0.60           |
| 0+00.00      | 0.50           |
| 0+00.50      | 0.50           |
| 0+00.50      | 0.00           |
| 0+02.00      | 0.13           |
| 0+02.00      | 0.17           |
| 0+18.50      | 0.50           |
| 0+34.50      | 0.17           |
| 0+34.50      | 0.13           |
| 0+36.50      | 0.00           |
| 0+36.50      | 0.50           |
| 0+37.00      | 0.50           |
| 0+42.00      | 0.60           |

### Roughness Segment Definitions

| Start Station    | Ending Station  | Roughness Coefficient |
|------------------|-----------------|-----------------------|
| (-0+05.00, 0.60) | (0+42.00, 0.60) | 0.016                 |

## Options

|                                   |                          |
|-----------------------------------|--------------------------|
| Current Roughness weighted Method | Improved Lotter's Method |
| Open Channel Weighting Method     | Improved Lotter's Method |
| Closed Channel Weighting Method   | Horton's Method          |

---

## Worksheet for B - Denver 10yr

---

### Results

|                  |                 |                 |
|------------------|-----------------|-----------------|
| Normal Depth     | 0.39            | ft              |
| Elevation Range  | 0.00 to 0.60 ft |                 |
| Flow Area        | 3.48            | ft <sup>2</sup> |
| Wetted Perimeter | 25.89           | ft              |
| Hydraulic Radius | 0.13            | ft              |
| Top Width        | 25.02           | ft              |
| Normal Depth     | 0.39            | ft              |
| Critical Depth   | 0.37            | ft              |
| Critical Slope   | 0.00774         | ft/ft           |
| Velocity         | 1.72            | ft/s            |
| Velocity Head    | 0.05            | ft              |
| Specific Energy  | 0.43            | ft              |
| Froude Number    | 0.81            |                 |
| 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        | 0.39     | ft    |
| Critical Depth      | 0.37     | ft    |
| Channel Slope       | 0.00500  | ft/ft |
| Critical Slope      | 0.00774  | ft/ft |

## Cross Section for B - Denver 10yr

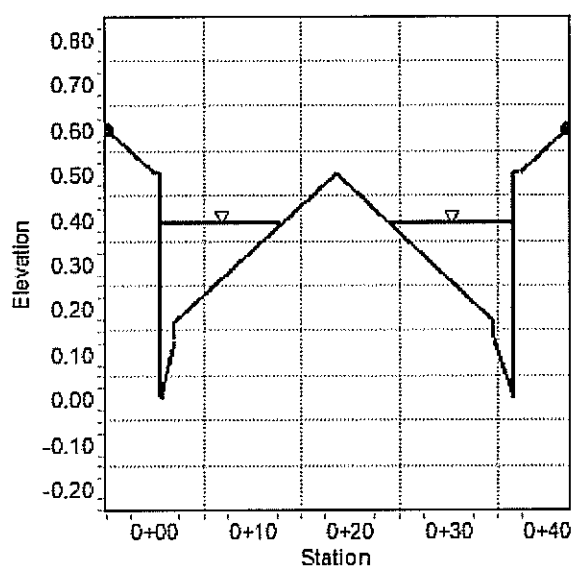
### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Channel Slope                                              0.00500    ft/ft  
Normal Depth                                              0.39    ft  
Discharge                                                      6    ft<sup>3</sup>/s

### Cross Section Image





## Worksheet for B - Denver 100yr

### Project Description

Friction Method                      Manning Formula  
Solve For                              Normal Depth

### Input Data

Channel Slope                              0.00500    ft/ft  
Discharge                                      16    ft<sup>3</sup>/s  
Section Definitions

| Station (ft) | Elevation (ft) |
|--------------|----------------|
| -0+05.00     | 0.60           |
| 0+00.00      | 0.50           |
| 0+00.50      | 0.50           |
| 0+00.50      | 0.00           |
| 0+02.00      | 0.13           |
| 0+02.00      | 0.17           |
| 0+18.50      | 0.50           |
| 0+34.50      | 0.17           |
| 0+34.50      | 0.13           |
| 0+36.50      | 0.00           |
| 0+36.50      | 0.50           |
| 0+37.00      | 0.50           |
| 0+42.00      | 0.60           |

### Roughness Segment Definitions

| Start Station    | Ending Station  | Roughness Coefficient |
|------------------|-----------------|-----------------------|
| (-0+05.00, 0.60) | (0+42.00, 0.60) | 0.016                 |

### Options

Current roughness weighted      Improved Lotter's Method  
Method  
Open Channel Weighting Method      Improved Lotter's Method  
Closed Channel Weighting Method      Horton's Method

---

## Worksheet for B - Denver 100yr

---

### Results

|                  |                 |                 |
|------------------|-----------------|-----------------|
| Normal Depth     | 0.51            | ft              |
| Elevation Range  | 0.00 to 0.60 ft |                 |
| Flow Area        | 7.44            | ft <sup>2</sup> |
| Wetted Perimeter | 39.56           | ft              |
| Hydraulic Radius | 0.19            | ft              |
| Top Width        | 38.46           | ft              |
| Normal Depth     | 0.51            | ft              |
| Critical Depth   | 0.49            | ft              |
| Critical Slope   | 0.00680         | ft/ft           |
| Velocity         | 2.15            | ft/s            |
| Velocity Head    | 0.07            | ft              |
| Specific Energy  | 0.59            | ft              |
| Froude Number    | 0.86            |                 |
| 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        | 0.51     | ft    |
| Critical Depth      | 0.49     | ft    |
| Channel Slope       | 0.00500  | ft/ft |
| Critical Slope      | 0.00680  | ft/ft |

## Cross Section for B - Denver 100yr

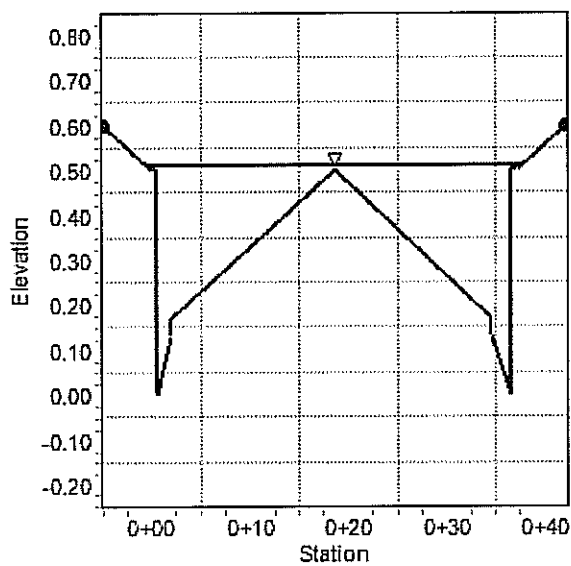
### Project Description

Friction Method                      Manning Formula  
Solve For                               Normal Depth

### Input Data

Channel Slope                                              0.00500    ft/ft  
Normal Depth                                              0.51    ft  
Discharge                                                      16    ft<sup>3</sup>/s

### Cross Section Image



## Worksheet for C - Bronco Street - 10yr

### Project Description

Friction Method                      Manning Formula  
Solve For                              Normal Depth

### Input Data

Channel Slope                                              0.00550    ft/ft  
Discharge                                                                                              5    ft<sup>3</sup>/s  
Section Definitions

| Station (ft) | Elevation (ft) |
|--------------|----------------|
| 0+00.00      | 0.60           |
| 0+05.00      | 0.50           |
| 0+05.50      | 0.50           |
| 0+05.50      | 0.00           |
| 0+07.00      | 0.13           |
| 0+07.00      | 0.17           |
| 0+30.00      | 0.63           |
| 0+53.00      | 0.17           |
| 0+53.00      | 0.13           |
| 0+54.50      | 0.00           |
| 0+54.50      | 0.50           |
| 0+55.00      | 0.50           |
| 0+60.00      | 0.60           |

### Roughness Segment Definitions

| Start Station   | Ending Station  | Roughness Coefficient |
|-----------------|-----------------|-----------------------|
| (0+00.00, 0.60) | (0+60.00, 0.60) | 0.016                 |

### Options

Current Roughness Weighted Method                      Improved Lotter's Method  
Open Channel Weighting Method                      Improved Lotter's Method  
Closed Channel Weighting Method                      Horton's Method



---

## Worksheet for C - Bronco Street - 10yr

---

### Results

|                  |                 |                 |
|------------------|-----------------|-----------------|
| Normal Depth     | 0.37            | ft              |
| Elevation Range  | 0.00 to 0.63 ft |                 |
| Flow Area        | 2.94            | ft <sup>2</sup> |
| Wetted Perimeter | 23.96           | ft              |
| Hydraulic Radius | 0.12            | ft              |
| Top Width        | 23.12           | ft              |
| Normal Depth     | 0.37            | ft              |
| Critical Depth   | 0.35            | ft              |
| Critical Slope   | 0.00796         | ft/ft           |
| Velocity         | 1.70            | ft/s            |
| Velocity Head    | 0.04            | ft              |
| Specific Energy  | 0.42            | ft              |
| Froude Number    | 0.84            |                 |
| 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        | 0.37     | ft    |
| Critical Depth      | 0.35     | ft    |
| Channel Slope       | 0.00550  | ft/ft |
| Critical Slope      | 0.00796  | ft/ft |

## Cross Section for C - Bronco Street - 10yr

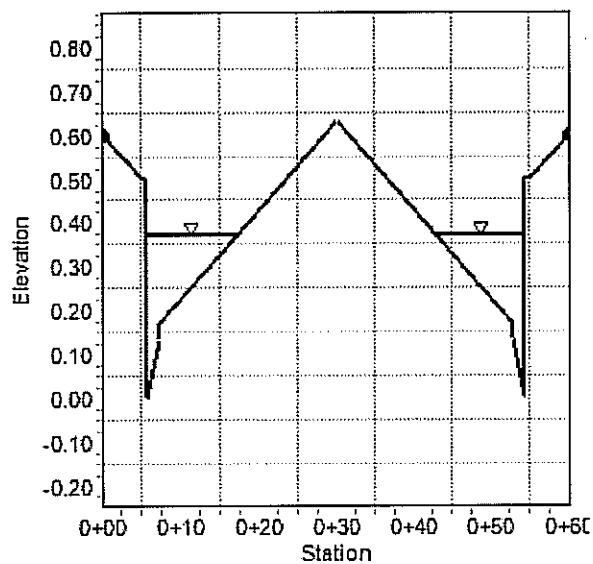
### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Channel Slope                                              0.00550    ft/ft  
Normal Depth                                              0.37    ft  
Discharge                                                      5    ft<sup>3</sup>/s

### Cross Section Image



## Worksheet for C - Bronco Street - 100yr

### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Channel Slope                                              0.00550    ft/ft  
Discharge                                                              11    ft<sup>3</sup>/s  
Section Definitions

| Station (ft) | Elevation (ft) |
|--------------|----------------|
| 0+00.00      | 0.60           |
| 0+05.00      | 0.50           |
| 0+05.50      | 0.50           |
| 0+05.50      | 0.00           |
| 0+07.00      | 0.13           |
| 0+07.00      | 0.17           |
| 0+30.00      | 0.63           |
| 0+53.00      | 0.17           |
| 0+53.00      | 0.13           |
| 0+54.50      | 0.00           |
| 0+54.50      | 0.50           |
| 0+55.00      | 0.50           |
| 0+60.00      | 0.60           |

### Roughness Segment Definitions

| Start Station   | Ending Station  | Roughness Coefficient |
|-----------------|-----------------|-----------------------|
| (0+00.00, 0.60) | (0+60.00, 0.60) | 0.016                 |

### Options

Current Roughness Weighted Method                      Improved Lotter's Method  
Open Channel Weighting Method                      Improved Lotter's Method  
Closed Channel Weighting Method                      Horton's Method

---

## Worksheet for C - Bronco Street - 100yr

---

### Results

|                  |                 |       |
|------------------|-----------------|-------|
| Normal Depth     | 0.46            | ft    |
| Elevation Range  | 0.00 to 0.63 ft |       |
| Flow Area        | 5.36            | ft²   |
| Wetted Perimeter | 32.93           | ft    |
| Hydraulic Radius | 0.16            | ft    |
| Top Width        | 31.91           | ft    |
| Normal Depth     | 0.46            | ft    |
| Critical Depth   | 0.44            | ft    |
| Critical Slope   | 0.00717         | ft/ft |
| Velocity         | 2.05            | ft/s  |
| Velocity Head    | 0.07            | ft    |
| Specific Energy  | 0.52            | ft    |
| Froude Number    | 0.88            |       |
| 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        | 0.46     | ft    |
| Critical Depth      | 0.44     | ft    |
| Channel Slope       | 0.00550  | ft/ft |
| Critical Slope      | 0.00717  | ft/ft |



## Cross Section for C - Bronco Street - 100yr

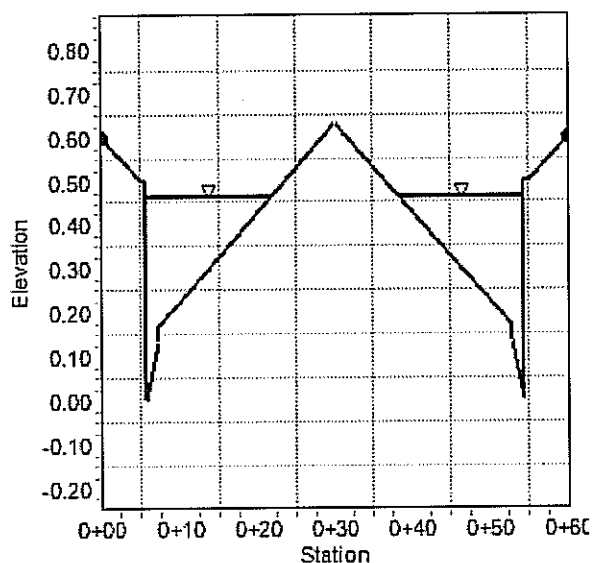
### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Channel Slope                                              0.00550    ft/ft  
Normal Depth                                              0.46    ft  
Discharge                                                      11    ft<sup>3</sup>/s

### Cross Section Image



## Worksheet for D - Washburn Road 1/2 st 10 yr

### Project Description

Friction Method                      Manning Formula  
Solve For                              Normal Depth

### Input Data

Channel Slope                              0.01160    ft/ft  
Discharge                                      8    ft<sup>3</sup>/s  
Section Definitions

| Station (ft) | Elevation (ft) |
|--------------|----------------|
| 0+00.00      | 0.60           |
| 0+05.00      | 0.50           |
| 0+05.50      | 0.50           |
| 0+05.50      | 0.00           |
| 0+07.00      | 0.13           |
| 0+07.00      | 0.17           |
| 0+30.00      | 0.63           |

### Roughness Segment Definitions

| Start Station   | Ending Station  | Roughness Coefficient |
|-----------------|-----------------|-----------------------|
| (0+00.00, 0.60) | (0+30.00, 0.63) | 0.016                 |

### Options

Current Roughness Weighted Method                      Improved Lotter's Method  
Open Channel Weighting Method                      Improved Lotter's Method  
Closed Channel Weighting Method                      Horton's Method

### Results

Normal Depth                              0.46    ft  
Elevation Range                              0.00 to 0.63 ft  
Flow Area                                      2.68    ft<sup>2</sup>  
Wetted Perimeter                              16.48    ft  
Hydraulic Radius                              0.16    ft  
Top Width                                      15.97    ft

---

## Worksheet for D - Washburn Road 1/2 st 10 yr

---

### Results

|                 |               |       |
|-----------------|---------------|-------|
| Normal Depth    | 0.46          | ft    |
| Critical Depth  | 0.49          | ft    |
| Critical Slope  | 0.00682       | ft/ft |
| Velocity        | 2.98          | ft/s  |
| Velocity Head   | 0.14          | ft    |
| Specific Energy | 0.60          | ft    |
| Froude Number   | 1.28          |       |
| 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        | 0.46     | ft    |
| Critical Depth      | 0.49     | ft    |
| Channel Slope       | 0.01160  | ft/ft |
| Critical Slope      | 0.00682  | ft/ft |

## Cross Section for D - Washburn Road 1/2 st 10 yr

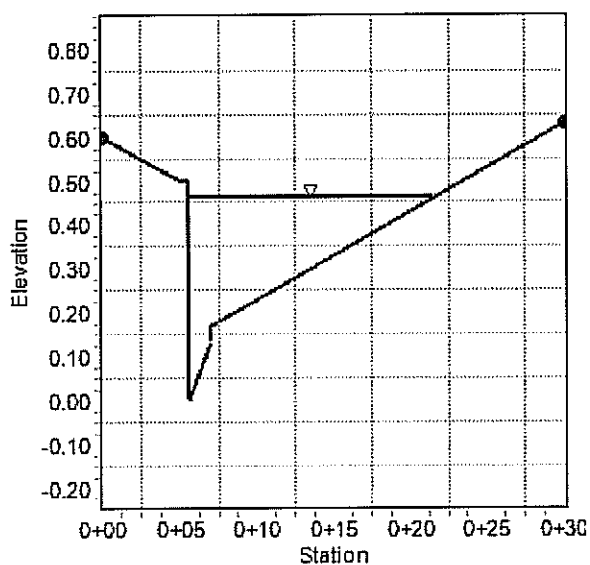
### Project Description

Friction Method                      Manning Formula  
Solve For                              Normal Depth

### Input Data

Channel Slope                              0.01160    ft/ft  
Normal Depth                              0.46    ft  
Discharge                                  8    ft<sup>3</sup>/s

### Cross Section Image





## Worksheet for D - Washburn Road 1/2 st 100 yr

### Project Description

Friction Method                      Manning Formula  
Solve For                              Normal Depth

### Input Data

Channel Slope                              0.01160    ft/ft  
Discharge                                      26    ft<sup>3</sup>/s  
Section Definitions

| Station (ft) | Elevation (ft) |
|--------------|----------------|
| 0+00.00      | 0.60           |
| 0+05.00      | 0.50           |
| 0+05.50      | 0.50           |
| 0+05.50      | 0.00           |
| 0+07.00      | 0.13           |
| 0+07.00      | 0.17           |
| 0+30.00      | 0.63           |

### Roughness Segment Definitions

| Start Station   | Ending Station  | Roughness Coefficient |
|-----------------|-----------------|-----------------------|
| (0+00.00, 0.60) | (0+30.00, 0.63) | 0.016                 |

### Options

Current Roughness Weighted Method                      Improved Lotter's Method  
Open Channel Weighting Method                      Improved Lotter's Method  
Closed Channel Weighting Method                      Horton's Method

### Results

Normal Depth                              0.64    ft  
Elevation Range                              0.00 to 0.63 ft  
Flow Area                                      6.97    ft<sup>2</sup>  
Wetted Perimeter                              30.61    ft  
Hydraulic Radius                              0.23    ft  
Top Width                                      30.00    ft

---

## Worksheet for D - Washburn Road 1/2 st 100 yr

---

### Results

|                 |               |       |
|-----------------|---------------|-------|
| Normal Depth    | 0.64          | ft    |
| Critical Depth  | 0.70          | ft    |
| Critical Slope  | 0.00584       | ft/ft |
| Velocity        | 3.73          | ft/s  |
| Velocity Head   | 0.22          | ft    |
| Specific Energy | 0.86          | 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        | 0.64     | ft    |
| Critical Depth      | 0.70     | ft    |
| Channel Slope       | 0.01160  | ft/ft |
| Critical Slope      | 0.00584  | ft/ft |

## Cross Section for D - Washburn Road 1/2 st 100 yr

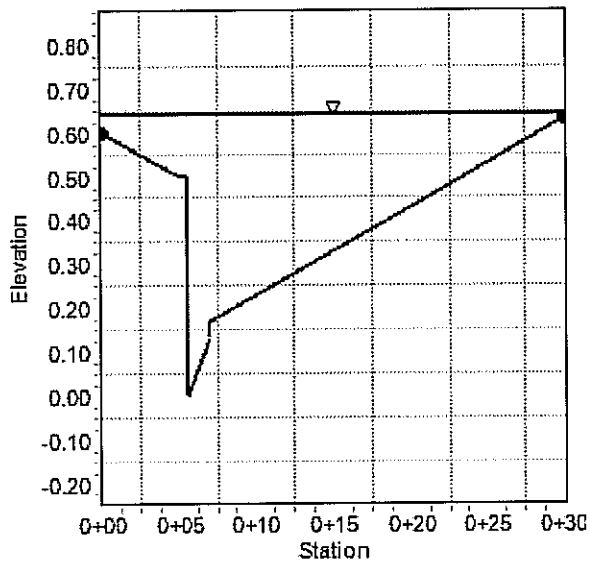
### Project Description

Friction Method                      Manning Formula  
Solve For                              Normal Depth

### Input Data

Channel Slope                              0.01160    ft/ft  
Normal Depth                              0.64    ft  
Discharge                                  26    ft<sup>3</sup>/s

### Cross Section Image



## Worksheet for E - La Madre Way - 10yr

### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Channel Slope                                              0.00500    ft/ft  
Discharge                                                      80    ft<sup>3</sup>/s  
Section Definitions

| Station (ft) | Elevation (ft) |
|--------------|----------------|
| 0+00.00      | 0.60           |
| 0+05.00      | 0.50           |
| 0+05.50      | 0.50           |
| 0+05.50      | 0.00           |
| 0+07.00      | 0.13           |
| 0+07.00      | 0.17           |
| 0+30.00      | 0.63           |
| 0+53.00      | 0.17           |
| 0+53.00      | 0.13           |
| 0+54.50      | 0.00           |
| 0+54.50      | 0.50           |
| 0+55.00      | 0.50           |
| 0+60.00      | 0.60           |

### Roughness Segment Definitions

| Start Station   | Ending Station  | Roughness Coefficient |
|-----------------|-----------------|-----------------------|
| (0+00.00, 0.60) | (0+60.00, 0.60) | 0.016                 |

### Options

Current Roughness Weighted Method                      Improved Lotter's Method  
Open Channel Weighting Method                      Improved Lotter's Method  
Closed Channel Weighting Method                      Horton's Method



## Worksheet for E - La Madre Way - 10yr

### Results

|                  |                 |                 |
|------------------|-----------------|-----------------|
| Normal Depth     | 0.80            | ft              |
| Elevation Range  | 0.00 to 0.63 ft |                 |
| Flow Area        | 23.28           | ft <sup>2</sup> |
| Wetted Perimeter | 61.50           | ft              |
| Hydraulic Radius | 0.38            | ft              |
| Top Width        | 60.00           | ft              |
| Normal Depth     | 0.80            | ft              |
| Critical Depth   | 0.79            | ft              |
| Critical Slope   | 0.00532         | ft/ft           |
| Velocity         | 3.44            | ft/s            |
| Velocity Head    | 0.18            | ft              |
| Specific Energy  | 0.98            | ft              |
| Froude Number    | 0.97            |                 |
| 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        | 0.80     | ft    |
| Critical Depth      | 0.79     | ft    |
| Channel Slope       | 0.00500  | ft/ft |
| Critical Slope      | 0.00532  | ft/ft |

## Cross Section for E - La Madre Way - 10yr

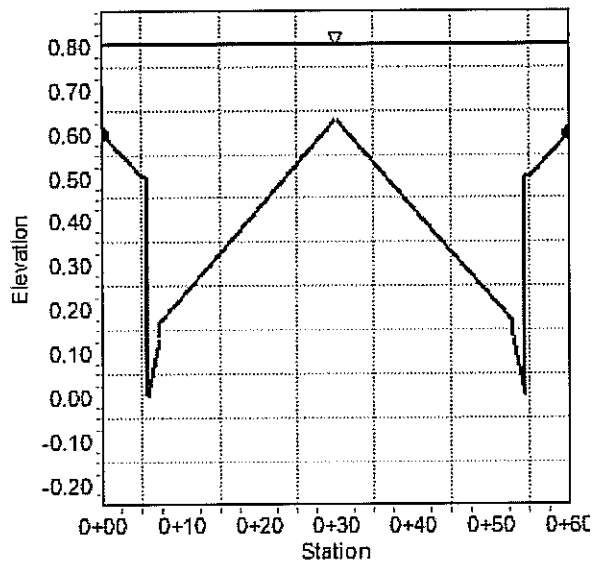
### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Channel Slope                                              0.00500    ft/ft  
Normal Depth                                              0.80    ft  
Discharge                                                      80    ft<sup>3</sup>/s

### Cross Section Image



## Worksheet for E - La Madre Way - 100yr

### Project Description

Friction Method                      Manning Formula  
Solve For                               Normal Depth

### Input Data

Channel Slope                                              0.00500    ft/ft  
Discharge                                                      245    ft<sup>3</sup>/s  
Section Definitions

| Station (ft) | Elevation (ft) |
|--------------|----------------|
| 0+00.00      | 0.60           |
| 0+05.00      | 0.50           |
| 0+05.50      | 0.50           |
| 0+05.50      | 0.00           |
| 0+07.00      | 0.13           |
| 0+07.00      | 0.17           |
| 0+30.00      | 0.63           |
| 0+53.00      | 0.17           |
| 0+53.00      | 0.13           |
| 0+54.50      | 0.00           |
| 0+54.50      | 0.50           |
| 0+55.00      | 0.50           |
| 0+60.00      | 0.60           |

### Roughness Segment Definitions

| Start Station   | Ending Station  | Roughness Coefficient |
|-----------------|-----------------|-----------------------|
| (0+00.00, 0.60) | (0+60.00, 0.60) | 0.016                 |

### Options

Current Roughness Weighted Method                      Improved Lotter's Method  
Open Channel Weighting Method                      Improved Lotter's Method  
Closed Channel Weighting Method                      Horton's Method

---

## Worksheet for E - La Madre Way - 100yr

---

### Results

|                  |               |       |
|------------------|---------------|-------|
| Normal Depth     | 1.17          | ft    |
| Elevation Range  | 0.00 to 0.63  | ft    |
| Flow Area        | 45.79         | ft²   |
| Wetted Perimeter | 62.25         | ft    |
| Hydraulic Radius | 0.74          | ft    |
| Top Width        | 60.00         | ft    |
| Normal Depth     | 1.17          | ft    |
| Critical Depth   | 1.21          | ft    |
| Critical Slope   | 0.00422       | ft/ft |
| Velocity         | 5.35          | ft/s  |
| Velocity Head    | 0.44          | ft    |
| Specific Energy  | 1.62          | ft    |
| Froude Number    | 1.08          |       |
| 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        | 1.17     | ft    |
| Critical Depth      | 1.21     | ft    |
| Channel Slope       | 0.00500  | ft/ft |
| Critical Slope      | 0.00422  | ft/ft |



## Cross Section for E - La Madre Way - 100yr

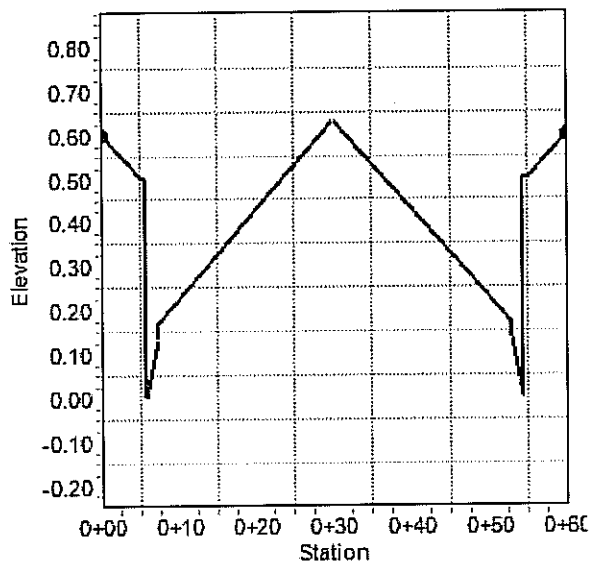
### Project Description

Friction Method                      Manning Formula  
Solve For                                Normal Depth

### Input Data

Channel Slope                                              0.00500    ft/ft  
Normal Depth                                              1.17    ft  
Discharge                                                  245    ft<sup>3</sup>/s

### Cross Section Image



## **REVISED GRADING PLANS**

### ASSESSOR'S PARCEL NUMBERS

125-35-701-001 THRU 003  
125-35-701-005 THRU 010

### OWNER

REMARK REVOCABLE TRUST ETAL MOSAIC FIVE L L C  
9500 HILLWOOD DR #201  
LAS VEGAS, NV 89134  
S W D E 13009 L L C ETAL MAUPERTUIS FRED & JANICE  
2056 GLENVIEW DR  
LAS VEGAS, NV 89134  
BIG T L P ETAL CUSUMANO SHARON  
8375 W FLAMINGO RD #4200  
LAS VEGAS, NV 89147  
SAGUARO EQUITIES L L C  
3455 CLIFF SHADOWS PKWY #220  
LAS VEGAS, NV 89129-1077  
SOUTHWEST DESERT EQUITIES L L C  
3455 CLIFF SHADOWS PKWY #220  
LAS VEGAS, NV 89129-1077  
INVESTOR EQUITY HOMES L L C  
AND MOSAIC LAND 2 L L C  
3960 HOWARD HUGHES PKWY #150  
LAS VEGAS, NV 89169

### LEGAL DESCRIPTION

APN'S: 125-35-701-001, 002 & 003:

THAT PORTION OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 35, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., DESCRIBED AS FOLLOWS:

LOTS ONE (1), TWO (2) AND THREE (3), AS SHOWN BY MAP THEREOF ON FILE IN FILE 32 OF PARCEL MAPS, PAGE 3, IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA.

TOGETHER WITH THAT PORTION OF WASHBURN ROAD, THAT WOULD PASS BY OPERATION OF LAW, AS VACATED BY THAT CERTAIN ORDER OF VACATION RECORDED JUNE 29, 2005 IN BOOK 20050629 AS INSTRUMENT NO. 0006068 OF OFFICIAL RECORDS.

APN'S: 125-35-701-005 & 007:

PARCEL 1 (APN 125-35-701-005):

THE SOUTHWEST QUARTER (SW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 35, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.B. & M., CLARK COUNTY, NEVADA.

EXCEPTING THAT PORTION AS CONVEYED IN DEED RECORDED AUGUST 17, 1966 IN BOOK 381 AS INSTRUMENT NO. 307317 CLARK COUNTY, NEVADA.

PARCEL 2 (125-35-701-007):

NORTHWEST QUARTER (NW 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 35, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.B. & M.

EXCEPTING THAT PORTION AS CONVEYED IN DEED RECORDED AUGUST 17, 1966 IN BOOK 381 INSTRUMENT NO. 307317 CLARK COUNTY NEVADA.

APN: 125-35-701-006

THE EAST HALF (E 1/2) OF THE SOUTH HALF (S 1/2) OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 35, TOWNSHIP 19 SOUTH, RANGE 60 EAST M.D.M.

EXCEPTING THEREFROM THE EASTERLY THIRTY (30.00) FEET FOR ROAD PURPOSES AS CONVEYED TO CLARK COUNTY BY DEED RECORDED AUGUST 17, 1962 IN BOOK 381 AS DOCUMENT NO. 307314, OFFICIAL RECORDS.

APN'S: 125-35-701-008 & 009:

THAT PORTION OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 35, TOWNSHIP 19 SOUTH, RANGE 60 EAST M.D.M., MORE PARTICULARLY DESCRIBED AS FOLLOWS:

PARCELS ONE (1) AND TWO (2) AS SHOWN BY MAP THEREOF OF FILE IN FILE 14 OF PARCEL MAPS, PAGE 60 IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA.

APN: 125-35-701-010:

THE SOUTH HALF (S 1/2) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 35, TOWNSHIP 19 SOUTH, RANGE 60 EAST M.D.M.

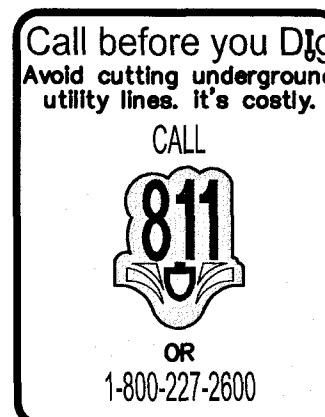
EXCEPTING THEREFROM THOSE PORTIONS AS CONVEYED TO CLARK COUNTY BY THOSE CERTAIN GRANT DEEDS RECORDED AUGUST 17, 1962 IN BOOK 381 AS INSTRUMENT NOS. 307314, 307316 AND 307317 OF OFFICIAL RECORDS.

### BASIS OF BEARING

NORTH 82°59'56" WEST, BEING THE BEARING OF THE SOUTH LINE OF THE NORTH HALF (N 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 35, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA AS SHOWN ON THAT CERTAIN MAP ON FILE IN THE CLARK COUNTY RECORDER'S OFFICE IN BOOK 117, PAGE 9 OF PLATS.

### BENCHMARK

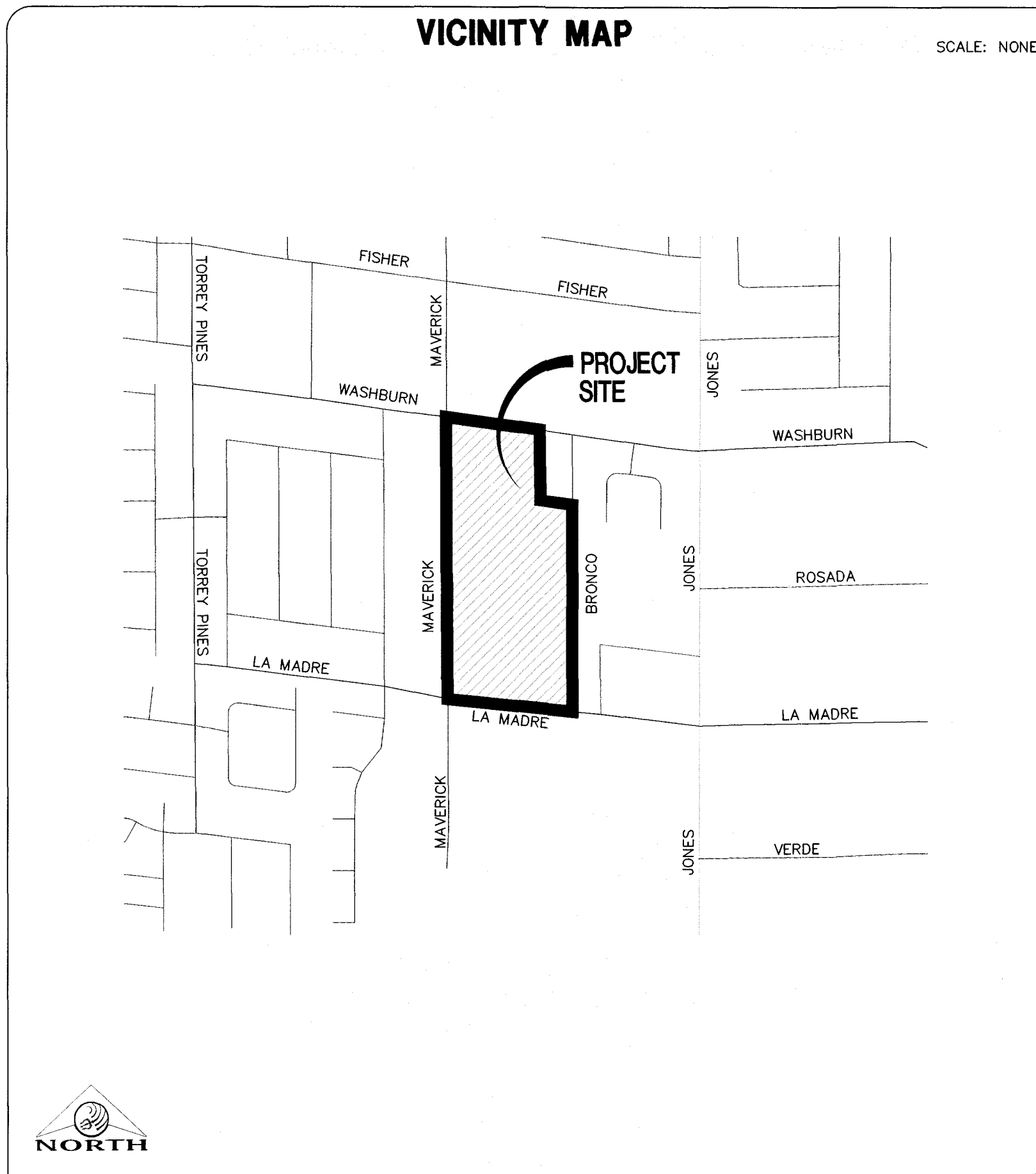
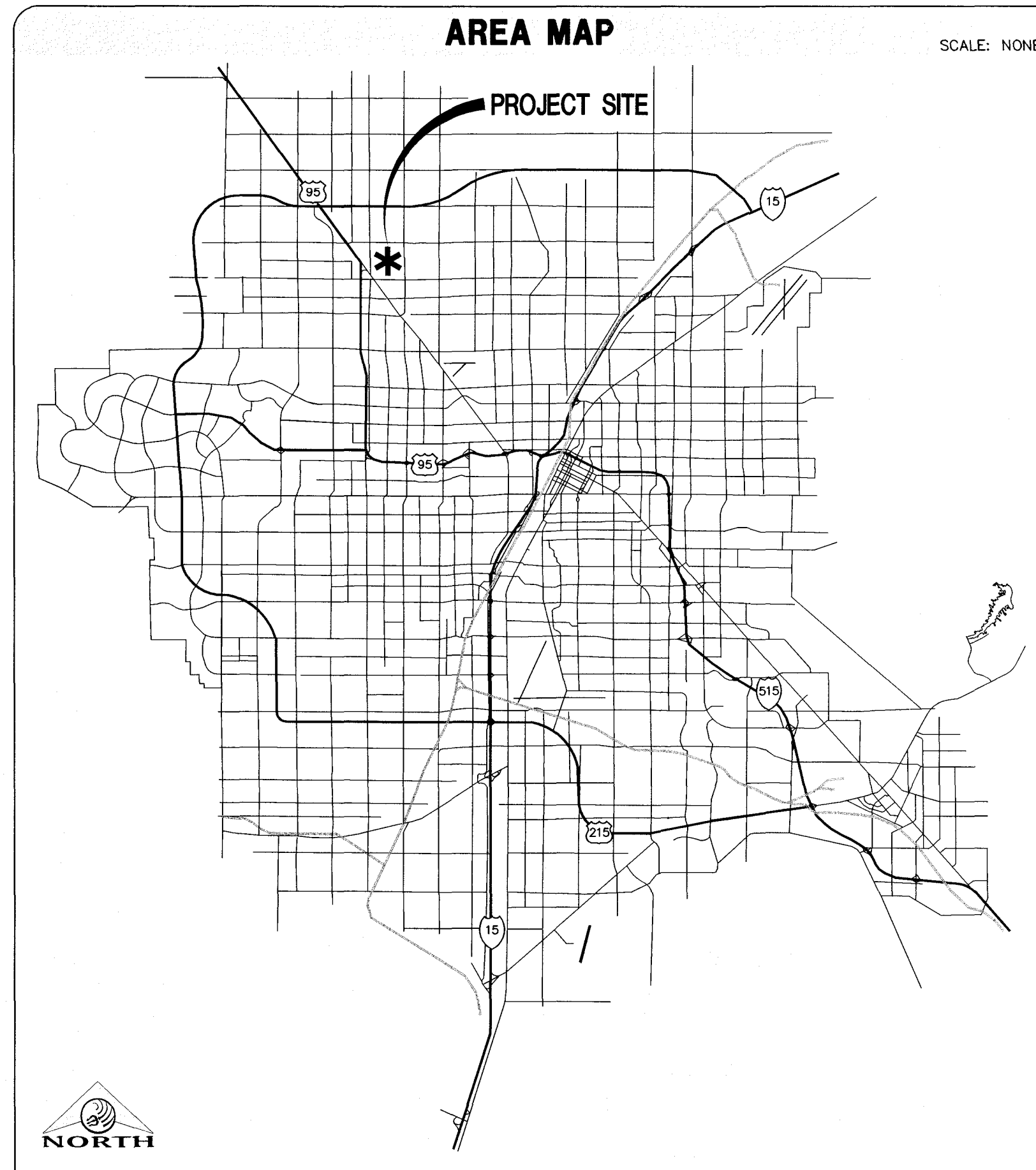
CITY OF LAS VEGAS BENCHMARK No. 8LV9035E6  
RIVET & PLATE IN TOP OF CURB AT THE SOUTHWEST CORNER OF WASHBURN ROAD & MAVERICK STREET  
ELEVATION = 700.720 METERS (NAVD'88 2008 ADJ.)  
ELEVATION = 2298.95 U.S. FEET (NAVD'88 2008 ADJ.)



APN: 125-35-701-001 THRU 003; 125-35-701-005 THRU 010

# MAVERICK & WASHBURN TECHNICAL DRAINAGE STUDY

A RESIDENTIAL SUBDIVISION  
CITY OF LAS VEGAS, NEVADA



FOR

**DR HORTON**

1081 WHITNEY RANCH DRIVE #141

HENDERSON, NEVADA 89014

OFFICE: (702) 635-3600

FAX: (800) 538-0735

BY



**Triton**  
Engineering

6757 W. Charleston Boulevard  
Suite B  
Las Vegas, Nevada 89146

Office: (702) 254-1480  
Fax: (702) 254-3062  
www.tritoneng.com

### DEVELOPER

DR HORTON  
1081 WHITNEY RANCH DRIVE, SUITE #141  
HENDERSON, NEVADA 89014  
OFFICE: (702) 635-3600

### ENGINEER

TRITON ENGINEERING  
6757 WEST CHARLESTON BOULEVARD, SUITE B  
LAS VEGAS, NV 89146  
OFFICE: (702) 254-1480  
FAX: (702) 254-3062

### SURVEYOR

TRI-CORE SURVEYING  
6755 W. CHARLESTON BLVD STE A  
LAS VEGAS, NV 89146  
OFFICE: (702) 524-4085

### LAND USE TABULATION

| LAND USE DESIGNATION  |                |
|-----------------------|----------------|
| EXISTING CLV ZONING   | U/R            |
| PROPOSED CLV ZONING   | U/R            |
| MINIMUM LOT SIZE (SF) | 10,129 SF      |
| SITE SUMMARY          |                |
| TOTAL UNITS           | 55 UNITS       |
| GROSS ACREAGE         | 15.44 ACRES    |
| GROSS DENSITY         | 3.6 UNITS/ACRE |
| OPEN SPACE REQUIRED   |                |
| OPEN SPACE PROVIDED   | NONE           |
| COMMON LOT A          | 1,428 SF       |
| COMMON LOT B          | 687 SF         |
| COMMON LOT C          | 1,432 SF       |
| COMMON LOT D          | 1,473 SF       |
| TOTAL                 | 5,020 SF       |

### SHEET INDEX

- COVER SHEET
- GENERAL NOTES AND LEGEND
- GRADING PLAN I
- GRADING PLAN II
- GRADING DETAILS
- MAVERICK STREET PLAN AND PROFILE  
STA 10+00 TO STA 17+00
- MAVERICK STREET PLAN AND PROFILE  
STA 17+00 TO STA 24+00
- WASHBURN ROAD PLAN AND PROFILE  
STA 10+00 TO STA 16+50
- LA MADRE WAY PLAN AND PROFILE  
STA 10+00 TO STA 17+00
- LA MADRE WAY PLAN AND PROFILE  
STA 17+00 TO STA 24+00
- DENVER STREET PLAN AND PROFILE  
STA 1+00 TO STA 9+00
- DENVER STREET PLAN AND PROFILE  
STA 9+00 TO STA 15+00
- DENVER STREET PLAN AND PROFILE  
STA 10+00 TO STA 17+00
- BRONCO STREET PLAN AND PROFILE  
STA 17+00 TO STA 24+00

**Triton**  
Engineering



Office: (702) 254-1480  
Fax: (702) 254-3062  
www.tritoneng.com

DR HORTON  
MAVERICK & WASHBURN

COVER SHEET

SHEET **1** OF 10  
C.L.V. DWG.#



CITY OF LAS VEGAS GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA NEVADA", LATEST ISSUE; THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION, CLARK COUNTY AREA NEVADA", LATEST REVISED EDITION; THE "SUMMERLIN IMPROVEMENT STANDARDS" FOR WORK IN THE SUMMERLIN AREA; AND OTHER APPLICABLE APPROVED STANDARDS ISSUED BY THE CONTROLLING AGENCY; THE UNIFORM BUILDING CODE; AND ALL LOCAL CITY CODES AND ORDINANCES APPLICABLE, EXCEPT AS NOTED ON THIS SHEET AS "DEVIATIONS FROM STANDARDS".
2. THE EXISTENCE AND LOCATION OF ANY OVERHEAD OR UNDERGROUND UTILITY LINES, PIPES, OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A RESEARCH OF THE AVAILABLE RECORDS. EXISTING UTILITIES AS SHOWN FROM CLV PLANS LIBRARY ARE APPROXIMATE AND FOR RECORD PURPOSES. EXISTING UTILITIES ARE LOCATED ON PLANS ONLY FOR THE CONVENIENCE OF THE CONTRACTOR. EXISTING UTILITY SERVICE LATERALS MAY NOT BE SHOWN ON THE PLANS. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, LOCATE ALL UNDERGROUND AND OVERHEAD INTERFERENCE'S WHICH MAY AFFECT HIS OPERATION DURING CONSTRUCTION AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO SAME. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING NEAR OVERHEAD UTILITIES SO AS TO SAFELY PROTECT ALL PERSONNEL AND EQUIPMENT, AND SHALL BE RESPONSIBLE FOR ALL COST AND LIABILITY IN CONNECTION THEREWITH.
3. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING UTILITY LINES, STRUCTURES AND STREET IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE. FOR ALL SUCH IMPROVEMENTS OR STRUCTURES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED SATISFACTORY TO THE CITY ENGINEER AND OWNING UTILITY COMPANY AT THE EXPENSE OF THE CONTRACTOR.
4. ALL CONSTRUCTION SHALL BE AS SHOWN ON THESE PLANS, ANY REVISIONS SHALL HAVE THE PRIOR WRITTEN APPROVAL OF THE CITY ENGINEER.
5. TYPE V CEMENT SHALL BE USED IN ALL OFF-SITE CONCRETE WORK. CONCRETE TO BE 3000 P.S.I. MINIMUM @ 28 DAYS. MIX DESIGNS TO BE APPROVED BY THE CITY, PRIOR TO THE USE ON THE PROJECT.
6. PERMITS ARE REQUIRED FOR ANY WORK IN THE PUBLIC RIGHT-OF-WAY. THE CONTRACTOR SHALL SECURE ALL PERMITS AND INSPECTIONS REQUIRED FOR THIS CONSTRUCTION.
7. EXPANSION JOINTS REQUIRED, MAXIMUM EVERY 300' IN EXTRUDED-TYPE CURB.
8. AC PAVEMENT TO BE ONE-HALF INCH (1/2") ABOVE LIP OF ALL GUTTERS AFTER COMPACTION, EXCEPT AT SIDEWALK RAMPS AND CROSS GUTTERS.
9. CURB AND GUTTER FOUND TO BE UNACCEPTABLE TO THE CITY OF LAS VEGAS SHALL BE REMOVED AND REPLACED PER STANDARD DRAWING 216.
10. SIDEWALK RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING 235. EXACT LOCATION OF RAMPS MAY BE ADJUSTED IN THE FIELD BY A CITY INSPECTOR.
11. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITIONS BETWEEN EXISTING SURVEY MONUMENTS, ANY MONUMENTS DISTURBED SHALL BE REPLACED AND FOR INGRESS AND EGRESS TO NEW CONSTRUCTION. THE EXTENT OF THE TRANSITIONS TO BE AS SHOWN ON PLANS.
12. ALL GRADING WORK SHALL CONFORM TO THE SOILS REPORT AS PREPARED BY THE ( COMPANY, \_ REPORT #, DATE ) APPROVED BY THE CITY ENGINEER, AND AS SHOWN ON THESE PLANS.
13. EXACT LOCATION OF ALL SAWCUT LINES MAY BE ADJUSTED OR DETERMINED IN THE FIELD BY A CITY OF LAS VEGAS ENGINEER IF LOCATION ON PLANS IS NOT CLEARLY SHOWN, OR EXISTING PAVEMENT CONDITION REQUIRES RELOCATIONS.
14. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT EXISTING PERMANENT SURVEY MONUMENTS. ANY MONUMENTS DISTURBED SHALL BE REPLACED AND ADJUSTED PER AVAILABLE RECORDS IN ACCORDANCE WITH N.E.S. STATUTE NO. 625.360 & CITY OF LAS VEGAS TITLE 18, APPENDIX D.
15. UTILITY COMPANY METER BOXES, MANHOLE LIDS, VALVE COVERS, ETC., SHALL BE LOCATED OUT OF DRIVEWAYS, DRIVEWAY APRONS, FLOWLINES, AND CROSS GUTTERS UNLESS WRITTEN APPROVAL IS GRANTED BY THE UTILITY COMPANY AND THE CITY ENGINEER.
- WALL NOTES:
16. ALL WALLS, NEW OR EXISTING, ARE ONLY SHOWN ON CIVIL PLANS FOR THE PURPOSE OF REVIEWING GRADING RELATIONSHIPS; FLOOD CONTROL AND SIGHT DISTANCE AT INTERSECTIONS. NEW WALLS REQUIRE A SEPARATE PERMIT AND INSPECTION BY THE BUILDING DEPARTMENT.
17. ASPHALT MIX DESIGN MUST BE SUBMITTED AND APPROVED BY THE CITY ENGINEER PRIOR TO THE PLACEMENT OF ASPHALT WITHIN CITY RIGHT OF WAY.
18. CONTRACTOR SHALL ADJUST ALL NEW AND EXISTING INLETS, VALVE BOXES, MANHOLE RIMS, AND SEWER CLEAN OUTS, ETC. TO FINISH GRADE AS APPLICABLE WHETHER OR NOT THEY ARE SHOWN ON THE PLANS.
19. MATERIALS, HANDLING AND PLACEMENT OF PORTLAND CEMENT CONCRETE SHALL BE IN ACCORDANCE WITH APPLICABLE SECTIONS OF NDOT OR THE CLARK COUNTY AREA SPECIFICATIONS (AS APPLICABLE) AND THE PLANS AND DETAILS SHOWN HEREON.
20. WHEN INSTALLING UNDERGROUND FACILITIES THAT REQUIRE UNDERGROUND LOCATING DEVICES SUCH AS MARKER BALLS, LOCATING RIBBON, ETC, THE CONTRACTOR SHALL PROVIDE WRITTEN DOCUMENTATION TO OFFSITE INSPECTION AND TESTING CERTIFYING THAT ALL DEVICES HAVE BEEN PLACED AND VERIFIED TO BE IN GOOD WORKING CONDITION PRIOR TO THE CONSTRUCTION OF ANY ROAD BASE.
21. SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S) SHALL BE PROVIDED TO THE CITY AND APPROVED PRIOR TO ACCEPTANCE OF FACILITY VIDEO INSPECTION. THE MAP(S) SHALL INCLUDE THE HORIZONTAL AND VERTICAL (INVERT) LOCATION OF PUBLIC SEWER MANHOLES, STORM DRAIN MANHOLES AND TRANSITION STRUCTURES, STORM DRAIN LATERALS AT THE CONNECTION TO THE STORM DRAIN MAIN AND AT THE CONNECTION TO A DROP INLET, THE CONNECTION OF SEWER SERVICE LATERALS TO THE SEWER MAIN AND WHERE THE SEWER SERVICE LATERALS EXIT THE PUBLIC RIGHT-OF-WAY, AND STORM DRAIN MAIN ALIGNMENT INCLUDING DEFLECTION POINTS. THE LOCATION SHALL BE DESCRIBED BY COORDINATES WHICH SHALL BE BASED ON THE OFFICIAL HORIZONTAL AND VERTICAL CONTROL NETWORKS OF THE CITY OF LAS VEGAS. FINAL LOCATION MAPS MUST BE SEALED AND CERTIFIED BY A NEVADA PROFESSIONAL LAND SURVEYOR TO HAVE POSITIONAL CERTAINTIES OF ± 0.09 METERS (± 0.3 FEET) HORIZONTALLY AND VERTICALLY. A SEPARATE ELECTRONIC COMMA DELIMITED FILE FOR THE SANITARY SEWER AND STORM DRAIN COORDINATES SHALL ALSO ACCOMPANY THE SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S).
- OR
- ~~SANITARY SEWER AND STORM DRAIN FACILITIES SHOWN ON THESE PLANS SHALL BE USED TO MEET THE REQUIREMENTS OF NRS 455 AND SHALL SHOW AT A MINIMUM THE HORIZONTAL AND VERTICAL (INVERT) LOCATION OF PUBLIC SEWER MANHOLES, STORM DRAIN MANHOLES, STORM DRAIN LATERALS AT THE CONNECTION TO THE STORM DRAIN MAIN AND AT THE CONNECTION TO A DROP INLET, AND THE CONNECTION OF SEWER SERVICE LATERALS TO THE SEWER MAIN AND WHERE THE SEWER SERVICE LATERALS EXIT THE PUBLIC RIGHT-OF-WAY. ANY DEVIATIONS FROM THE INFORMATION SHOWN SHALL BE NOTED AND SUBMITTED AS A REVISION TO THE PLANS AND APPROVED PRIOR TO ACCEPTANCE OF FACILITY VIDEO INSPECTION.~~
22. CCTV VIDEO INSPECTION IS REQUIRED FOR ALL SEWER AND STORM DRAINS. THE CCTV VIDEO INSPECTIONS NEED TO BE PERFORMED PER THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS LATEST EDITION.
23. A SEPARATE BORING PERMIT IS REQUIRED FOR ALL BORING ACTIVITIES.
- REvised 02/03/15

CITY OF LAS VEGAS FIRE DEPARTMENT NOTES

1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LAS VEGAS FIRE AND RESCUE ADOPTED FIRE CODE ORDINANCE # 6325 FOR HYDRANT SPECIFICATIONS AND HYDRANT INSTALLATION SPECIFICATIONS.
2. ONLY FIRE HYDRANTS THAT ARE ON THE LAS VEGAS VALLEY WATER DISTRICT'S - APPROVED PRODUCTS LIST ARE ALLOWED TO BE INSTALLED.
3. A PERMIT IS REQUIRED FROM LAS VEGAS FIRE AND RESCUE FOR THE INSTALLATION OF ON-SITE WATER LINES AND FIRE HYDRANTS. THE PERMIT AND CONTRACTORS MATERIAL TEST CERTIFICATE FOR UNDERGROUND PIPING FORM SHALL BE OBTAINED FROM THE FIRE PROTECTION ENGINEER BEFORE COMMENCEMENT OF WORK. [IFC § 105.7.12]
4. ON ANY RESIDENTIAL OR COMMERCIAL INSTALLATIONS, FIRE HYDRANTS SHALL BE INSTALLED AND FIRE APPARATUS ACCESS ROADS SHALL BE MAINTAINED BEFORE COMMENCEMENT OF ANY COMBUSTIBLE CONSTRUCTION. ALL FIRE HYDRANTS SHALL BE IN GOOD WORKING ORDER AND SHALL BE CAPABLE OF DELIVERING THE REQUIRED FIRE FLOW. [IFC § 3310, § 3312]
5. TO IDENTIFY THE FIRE HYDRANT LOCATIONS, THE CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER LINE OF THE STREET ADJACENT TO THE FIRE HYDRANTS. [IFC § 507.5.7.3]
6. ALL UNDERGROUND INSPECTIONS, PRESSURE AND FLUSH VERIFICATIONS OF ALL FIRE HYDRANTS AND FIRE LINES, SHALL BE CONDUCTED BEFORE COVERING THE LINES. CENTER LOADING IS ACCEPTABLE FOR THE HYDRO TESTS WITH PRIOR FIRE PREVENTION APPROVAL. [IFC 106.3]
7. ALL ON-SITE UNDERGROUND WATER MAINS AND MATERIALS SHALL BE U.L. LISTED, A.W.W.A APPROVED AND SHALL BE RATED FOR THE APPROPRIATE WORKING PRESSURE. [IFC § 507.2.1, NFPA 24]
8. PAINTING OF CURBS, FIRE HYDRANTS, PADS, PROTECTION OF FIRE HYDRANTS FROM PHYSICAL DAMAGE, AND ALL OTHER WORK NECESSARY PER PLANS SHALL BE COMPLETED BEFORE APPROVAL BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION. [IFC § 507]
9. PRIVATE HYDRANTS SHALL BE PAINTED RED. [IFC § 507.5.7.1]
10. PRIOR TO THE FINAL OCCUPANCY, A FIRE FLOW TEST SHALL BE WITNESSED BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION TO VERIFY AVAILABILITY OF THE REQUIRED FIRE FLOW. [IFC § 507]
11. FIRE HYDRANT SPACING SHALL BE AS FOLLOWS: [IFC § C102]
- RESIDENTIAL – 500 FT UNSPRINKLERED; 600 FT SPRINKLERED.
  - COMMERCIAL – 300 FT UNSPRINKLERED; 400 FT SPRINKLERED.
12. WHERE THE WATER MAINS ARE EXTENDED ALONG STREETS OR NEW STREETS ARE INSTALLED WHERE FIRE HYDRANTS ARE NOT NEEDED FOR PROTECTION OF THE STRUCTURES, FIRE HYDRANTS SHALL BE INSTALLED AT A MAXIMUM OF 1000 FT SPACING, TO PROVIDE FOR TRANSPORTATION HAZARDS, WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS OR HAVE FOUR (4) OR MORE TRAFFIC LANES AND HAVE A TRAFFIC COUNT OF MORE THAN 30,000 PER DAY, HYDRANTS ARE REQUIRED ON EACH SIDE OF THE STREET SPACED AT 500 FT ON AN ALTERNATING BASIS. [IFC § C102.6]
13. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN THE RADIUS OF A CUL-DE-SAC OR WITHIN 20 FT OF THE PERIMETER OF THE RADIUS OF THE CUL-DE-SAC.
14. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN 6 FT OF ANY CURB RETURN, DRIVEWAY, POWER POLE, STREETLIGHT OR ANY OTHER OBSTRUCTION. [IFC § C102.12]
15. A MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A ONE-TWO FAMILY DWELLING SHALL NOT EXCEED 300 FT, AS MEASURED BY AN APPROVED ROUTE. [IFC § C102.4]
16. THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A FIRE DEPARTMENT CONNECTION (FDC) SHALL NOT EXCEED 100 FT, AS MEASURED BY AN APPROVED ROUTE. [IFC § C102.7]
17. THE MAXIMUM DISTANCE FROM A HYDRANT TO THE END OF A DEAD-END STREET SHALL NOT EXCEED 200 FT. [IFC § C102.6]
18. TWO (2) SOURCES OF SUPPLY ARE REQUIRED WHENEVER THERE IS 4 OR MORE FIRE HYDRANTS/SPRINKLER LEAD-INS ARE INSTALLED ON A SINGLE SYSTEM. SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 2 FIRE HYDRANTS CAN BE OUT OF SERVICE DUE TO A BREAK IN A WATER MAIN. [IFC § C104]
19. ALL FIRE APPARATUS ACCESS ROADS SHALL BE PAVED TO PROVIDE ALL-WEATHER DRIVING CAPABILITIES, AND SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF THE FIRE APPARATUS. [IFC § 503.2.3]
20. THE GRADIENT FOR THE FIRE APPARATUS ACCESS ROADS SHALL NOT EXCEED 12% ANGLES OF APPROACH AND ANGLES OF DEPARTURE SHALL NOT EXCEED 6% FOR 25 FT PRIOR TO OR AFTER THE GRADE CHANGE, ADJACENT TO THE STRUCTURES GRADIENT SHALL NOT EXCEED 6%. [IFC § 503.2.7, § 503.2.8]
21. THE TURNING RADIUS OF THE FIRE APPARATUS ACCESS ROADS SHALL BE NO LESS THAN 52 FT OUTSIDE AND 28 FT INSIDE TURNING RADIUS. IFC § 503.2.4]
22. VERTICAL CLEARANCE OF ALL FIRE APPARATUS ACCESS ROADS SHALL NOT BE LESS THAN 13FT 6 INS. [IFC § 503.2.1]
23. FIRE DEPARTMENT ACCESS ROADS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF NOT LESS THAN 40 FT FLOW LINE TO FLOW LINE WITH PARALLEL PARKING PERMITTED ON BOTH SIDES. NOT LESS THAN 32 FT WIDE, FLOW-LINE TO FLOW-LINE, WHERE PARKING IS PERMITTED ONLY ON ONE SIDE OF THE FIRE APPARATUS ACCESS ROAD. NOT LESS THAN 24 FT WIDE, FLOW-LINE TO FLOW-LINE, WHERE NO PARKING IS PERMITTED ON EITHER SIDE. FIRE LANES THROUGH PARKING LOTS SHALL BE NOT LESS THAN 24 FT. [IFC § 503.2.1.1]
24. A FIRE APPARATUS ACCESS ROAD SHALL BE REQUIRED WHEN ANY PORTION OF AN EXTERIOR WALL OF THE FIRST STORY IS LOCATED MORE THAN 150 FT FROM A FIRE DEPARTMENT VEHICLE ACCESS. THIS DISTANCE COULD BE INCREASED TO 250 FT IF THE BUILDING IS SPRINKLERED. [IFC § 503.1.1]
25. APPROVED SECONDARY FIRE APPARATUS ACCESS SHALL BE PROVIDED FOR 100 OR MORE DWELLING UNITS, ROAD(S) WITH DEAD-ENDS OR WITH A SINGLE POINT OF ACCESS IN EXCESS OF 600 FT. COMMERCIAL AND INDUSTRIAL DEVELOPMENTS WHERE BUILDINGS EXCEED 2 STORIES OR 30 FEET IN HEIGHT, OR EXCEEDING 62,000 SQUARE FEET IN AREA. [IFC § 503.1.2]
26. ALL DEAD-END FIRE APPARATUS ROADS AND/OR FIRE LANES, PUBLIC OR PRIVATE, IN EXCESS OF 150 FT IN LENGTH SHALL BE PROVIDED WITH AN APPROVED TURN AROUND HAVING A MINIMUM DIAMETER OF 81 FT. [IFC § 503.2.5]
27. ALL FIRE APPARATUS ACCESS ROADS SHALL BE MARKED BY PLACING APPROVED SIGNS AT THE START OF THE DESIGNATED FIRE LANE, ONE SIGN AT THE END OF THE FIRE LANE AND WITH SIGNS AT 100 FT INTERVALS OR 100 FT ALONG THE DESIGNATED FIRE LANES. SIGNS TO BE PLACED ON BOTH SIDES OF AN ACCESS ROADWAY IF NEEDED TO PREVENT PARKING ON EITHER SIDE. SIGNS TO BE INSTALLED NO HIGHER THAN 10 FT OR LESS THAN 6 FT FROM THE ROADWAY LEVEL. THE CURB ALONG OR ON THE PAVEMENT OR CEMENT (IF NO CURB IS PROVIDED) SHALL BE PAINTED WITH A RED WEATHER RESISTANT PAINT IN ADDITION TO THE SIGNS. [IFC § 503.3]
28. ELECTRICALLY CONTROLLED ACCESS GATES SHALL BE PROVIDED WITH AN APPROVED EMERGENCY VEHICLE DETECTOR/RECEIVER SYSTEM. SAID SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE IFC § 503.6 AND IFC APPENDIX M.
- EFFECTIVE 03/01/16

CITY OF LAS VEGAS SEWER NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS AND THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS' CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, AS AMENDED. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BE AWARE OF THE CONTENTS OF THE ABOVE SPECIFICATIONS.
2. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM CONSTRUCTION AS PER PLANS. ANY ADDITIONS, DELETIONS, OR CHANGES SHALL FIRST MEET WITH THE APPROVAL OF THE CITY ENGINEER.
3. CHISEL "S" OR "G" IN CURBS WHERE SEWER OR GAS LATERALS PASS UNDER THE CURB.
4. POLYVNYL (PVC) SEWER PIPE SHALL MEET ASTM D-3034 SDR 35 SPECIFICATIONS, INSTALLED WITH SAND BEDDING AND BACKFILL OF TYPE II AGGREGATE BASE.
5. ALL MANHOLES PAVED IN STREETS EIGHTY (80') FOOT R/W AND LARGER SHALL HAVE CONCRETE COLLARS. STREETS LESS THAN EIGHTY (80') FOOT R/W WILL REQUIRE RETROFIT IF PAVING DOES NOT CONFORM TO CITY STANDARDS AT THE MANHOLE.
6. TEE SADDLES SHALL BE USED TO CONNECT SEWER LATERALS TO EXISTING MAIN LINES UP TO TWELVE INCH (12") DIAMETER. CONNECTIONS TO FIFTEEN INCH (15") OR LARGER MAINS SHALL REQUIRE SPECIAL PROCEDURES. IN LINE "Y" S SHALL BE USED ON LINES TWELVE INCHES (12") OR ABOVE.
7. WATER MAINS SHALL BE PROTECTED IN ACCORDANCE WITH LVVWD STANDARDS WHENEVER A SEWER MAIN CROSSES OVER A WATER MAIN OR THE SEWER IS LESS THAN EIGHTEEN INCH (18") UNDER A WATER MAIN.
8. ALL CONTRACTORS INSTALLING SEWER MAINS THAT WILL BE UNDER THE JURISDICTION OF THE CITY OF LAS VEGAS MUST BE STATE OF NEVADA CLASS "A" CONTRACTORS.
9. THE CITY OF LAS VEGAS WILL NOT ACCEPT ANY SEWER MAINS WHICH HAVE A VERTICAL DEFLECTION OF MORE THAN ONE TENTH (0.1) OF A FOOT FROM THE APPROVED CONSTRUCTION PLANS AT ANY LOCATION. SEWER MAINS FOUND TO EXCEED THIS TOLERANCE WILL HAVE TO BE REPAIRED OR REMOVED OR REPLACED TO THE SATISFACTION OF THE CITY ENGINEER PRIOR TO ACCEPTANCE BY THE CITY OF LAS VEGAS.
10. INSTALLATION OF CURVED SEWER REQUIRES THE USE OF C-900 PVC PIPE WHICH ALLOWS FOR PIPE DEFLECTION AT THE JOINTS.
- A-BW - ABANDON  
AC - ASPHALTIC CONCRETE  
AGGR - AGGREGATE  
A& - AND  
APN - ASSESSOR PARCEL NUMBER  
APPROX - APPROXIMATE  
ASSY - ASSEMBLY  
AVE - AVENUE  
BC - BACK OF CURB  
BCR - BACK OF CURVE RETURN  
BK - BACK/BACK  
BLDG - BUILDING  
BLK - BLOCK  
BLM - BUREAU OF LAND MANAGEMENT  
BLVD - BOULEVARD  
BM - BENCHMARK  
BO - BLOW OFF ASSEMBLY  
BOC - BACK OF CURB  
BOT - BOTTOM  
BOW - BACK OF WALK  
BRG - BEARING  
BVC - BEGIN VERTICAL CURVE  
BW - BACK OF WALK  
BWV - BACK WATER VALVE  
C/C - CENTER TO CENTER  
C&G - CURB & GUTTER  
CL - CLARK COUNTY  
CE - COMMON ELEMENT  
CI - CAST IRON  
CP - CAST IRON PIPE/CAST IN PLACE  
CR - CIRCLE  
CR OR C - CENTERLINE ONLY  
LAS VEGAS  
CO - COUNTY  
COW - CITY OF HENDERSON  
CONC - CONCRETE  
CONT - CONTINUOUS  
COORD - COORDINATE  
CTR - CENTER  
CV - CONTROL VALVE  
Δ - DELTA ANGLE  
D/W OR DWY - DRIVEWAY  
DEPT - DEPARTMENT  
DET - DETAIL  
DEV - DEVELOPMENT  
DG - DESIGN GRADE  
DI - DROP INLET/DIVULE IRON  
DIA OR Ø - DIAMETER  
DIM - DIMENSION  
DIP - DUCTILE IRON PIPE  
DIR - DIRECTION  
DIST - DISTANCE  
DMH - DROP MANHOLE  
DN - DOWN  
DR - DRIVE  
DWG - DRAWING  
E - EAST/EDGE  
EA - EACH  
EG - EXISTING GROUND  
ELEV - ELEVATION  
EOP - EDGE OF PAVEMENT  
EOS - EDGE OF SHOULDER  
EQ - EQUAL OR EQUATION  
EQ SP - EQUALLY SPACED  
ESMT - EASEMENT  
EST - ESTIMATE  
EVC - END OF VERTICAL CURVE  
EW - EACH WAY  
EXIST - EXISTING  
F/F - FACE TO FACE  
FC - FACE OF CURB  
FF - FINISHED FLOOR  
FG - FINISHED GRADE  
FH - FIRE HYDRANT  
FIG - FIGURE  
FL OR F - FLOW LINE  
FLR - FLOOR  
FN - FENCE  
FND - FOUND  
FOC - FACE OF CURB  
FOW - FACE OF WALL  
FPM - FEET PER MINUTE  
FPS - FEET PER SECOND  
FT - FOOT OR FEET  
FTG - FOOTING  
FUT - FUTURE  
G/B - GRADE BREAK  
GALV - GALVANIZED  
GB - GRADE BREAK  
GND - GROUND  
GPD - GALLONS PER DAY  
GPH - GALLONS PER HOUR  
GPM - GALLONS PER MINUTE  
GRD - GRADE  
GRT - GRATE  
GV - GATE VALVE  
HORIZ - HORIZONTAL  
HP - HIGH POINT  
HPG - HIGH PRESSURE GAS  
HT - HEIGHT  
HWY - HIGHWAY  
IN - INCH  
INST - INSTALL  
INT - INTERIOR  
INV - INVERT  
IRR - IRRIGATION  
LB OR # - POUND  
LEN OR L - LENGTH OF CURVATURE  
LF - LINEAR FOOT  
LG - LONG  
LN - LANE  
LT - LEFT/LIGHT  
LVVWD - LAS VEGAS VALLEY WATER DISTRICT  
LWR - LOWER  
M - METER  
MATL - MATERIAL  
MAX - MAXIMUM  
MECH - MECHANICAL  
MFR - MANUFACTURER  
MG - MILLION GALLONS  
MOD - MILLION GALLONS PER DAY  
MH - MANHOLE  
MIN - MINIMUM  
MISC - MISCELLANEOUS  
MJ - MECHANICAL JOINT  
MKR - MARKER  
ML - MORTAR LINED  
MLC - MORTAR LINED & COATED  
MVC - MIDDLE OF VERTICAL CURVE  
N - NORTH  
N/A - NOT APPLICABLE  
NAP - NOT A PART  
NDOT - NEVADA DEPARTMENT OF TRANSPORTATION  
NE - NORTHEAST  
NF - NORTH FACE  
NG - NATURAL GROUING  
NO - NUMBER  
NTS - NOT TO SCALE  
NW - NORTHWEST  
O/O - OUT TO OUT  
OC - ON CENTER  
OF - OUTSIDE DIAMETER  
OHP - OVER HEAD POWER  
OHEL - OVER HEAD TELEPHONE  
ORIG - ORIGINAL  
OVFL - OVERFLOW  
O/O - OUT TO OUT  
OC - ON CENTER  
OF - OUTSIDE DIAMETER  
OHP - OVER HEAD POWER  
OHEL - OVER HEAD TELEPHONE  
ORIG - ORIGINAL  
OVFL - OVERFLOW  
PL OR P - PROPERTY LINE  
PAINT - PAINTMENT  
PB - PULL BOX  
PC - POINT OF CURVE  
POC - POINT OF COMPOUND CURVE  
PE - POLYETHYLENE  
PED - PEDESTAL  
PERM - PERMANENT  
PERP - PERPENDICULAR  
PH - PHASE  
PI - POINT OF INTERSECTION  
PKG - PACKAGE  
PKWY - PARKWAY  
PL - PLACE/PLATE/PARCEL LINE  
PLT - PLATE (DRAWING)  
POLY - POLYETHYLENE  
PP - POWER POLE  
PR - PAIR  
PRC - POINT OF REVERSE CURVE/  
PRECAST REINFORCED CONCRETE  
PRELIM - PRELIMINARY  
PROP - PROPOSED  
PRV - PRESSURE REGULATING VALVE  
PS - PUMP STATION  
PSF - POUNDS PER SQUARE FOOT  
PSI - POUNDS PER SQUARE INCH  
PT - POINT/POINT OF TANGENT  
PUE - PUBLIC UTILITY EASEMENT  
PV - POINT OF VERTICAL INTERSECTION  
PVC - POLYVINYL CHLORIDE PIPE  
QTR - QUARTER  
QTY - QUANTITY  
R - RADIUS  
(R) - RADIAL  
R/W - RIGHT OF WAY  
RCP - REINFORCED CONCRETE BOX  
RCP - REINFORCED CONCRETE PIPE  
RD - ROAD  
RED - REDUCER  
REQD - REQUIRED  
RET - RETURN  
REV - REVISION OR REVERSE  
ROW - RIGHT OF WAY  
RPPA - REDUCED PRESSURE  
PRNPLE - PRINCIPLE ASSEMBLY  
RR - RAILROAD  
RT - RIGHT  
S - SOUTH/SLOPE  
S/C - SAW CUT  
SCOP - STEEL CYLINDER CONCRETE PIPE  
SCH - SCHEDULE  
SD - STORM DRAIN  
SDMH - STORM DRAIN MANHOLE  
SDMK - SIDEWALK  
SE - SEWER  
SEC - SECTION/SECOND  
SEG - SEGMENT  
SHDR - SHOULDER  
SHT - SPECIAL IMPROVEMENT  
SID - DISTRICT  
SIG - SIGNAL  
SL - SLOPE  
SLV - SLEEVE  
SNWA - SOUTHERN NEVADA WATER AUTHORITY  
SPEC(S) - SPECIFICATION(S)  
SQ - SQUARE  
SQ FT - SQUARE FOOT/FEET  
SQ YD - SQUARE YARD  
SS - SANITARY SEWER  
ST - STREET  
STA - STATION  
STD - STANDARD  
STL - STEEL  
STL - STREET LIGHT  
SUR - SURVEY  
SW - SIDEWALK OR SOUTHWEST  
SY - SQUARE YARD  
SYM - SYMBOL  
SYS - SYSTEM  
TAB - TOP & BOTTOM  
TAN - TANGENT  
TBM - TEMPORARY BENCH MARK  
TC - TOP OF CURB  
TD - TRENCH DRAIN  
TEMP - TEMPORARY  
THK - THICK(NESS)  
THR BLK - THRUST BLOCK  
TMH - TOP OF MANHOLE  
TOP - TOP OF FOOTING  
TOGR - TOP OF GRATE  
TOP - TOP OF PIPE  
TOR - TOP OF RIM  
TOS - TOP OF SLAB  
TOSW - TOP OF SIDEWALK  
TOT - TOTAL  
TOW - TOP OF WALL  
(TYP) - TYPICAL  
UNO - UNLESS NOTED OTHERWISE  
UPRR - UNION PACIFIC RAILROAD  
USGS - UNITED STATES GEODETIC SURVEY  
UTIL - UTILITY  
V - VOLT OR VALVE  
VAR - VARIES  
VB - VALVE BOX  
VCP - VITRIFIED  
VC - VERTICAL CURVE  
VEL - VELOCITY  
VERT - VERTICAL  
VS - VALLEY GUTTER  
VOL - VOLUME  
VP - VERTICAL POINT OF INTERSECTION  
W/ - WITH  
W - WEST/WATER  
W/O - WITH OUT  
WD - WIDTH  
WON - WASTE DRAIN  
WI - WISDOMIT IRON  
WL - WASTE LINE  
WP - WORK POINT/WEATHER PROOF  
WS - WATER SURFACE  
WT - WEIGHT  
WTR - WATER  
WV - WATER VALVE  
WVF - WELDED WIRE FABRIC  
WWM - WELDED WIRE MESH  
XTMR - TRANSFORMER  
XTR - TRANSFER  
XSEC - CROSS SECTION  
YD - YARD  
YLD - YIELD

ABBREVIATIONS

- IN - INCH  
INST - INSTALL  
INT - INTERIOR  
INV - INVERT  
IRR - IRRIGATION  
LB OR # - POUND  
LEN OR L - LENGTH OF CURVATURE  
LF - LINEAR FOOT  
LG - LONG  
LN - LANE  
LT - LEFT/LIGHT  
LVVWD - LAS VEGAS VALLEY WATER DISTRICT  
LWR - LOWER  
M - METER  
MATL - MATERIAL  
MAX - MAXIMUM  
MECH - MECHANICAL  
MFR - MANUFACTURER  
MG - MILLION GALLONS  
MOD - MILLION GALLONS PER DAY  
MH - MANHOLE  
MIN - MINIMUM  
MISC - MISCELLANEOUS  
MJ - MECHANICAL JOINT  
MKR - MARKER  
ML - MORTAR LINED  
MLC - MORTAR LINED & COATED  
MVC - MIDDLE OF VERTICAL CURVE  
N - NORTH  
N/A - NOT APPLICABLE  
NAP - NOT A PART  
NDOT - NEVADA DEPARTMENT OF TRANSPORTATION  
NE - NORTHEAST  
NF - NORTH FACE  
NG - NATURAL GROUING  
NO - NUMBER  
NTS - NOT TO SCALE  
NW - NORTHWEST  
O/O - OUT TO OUT  
OC - ON CENTER  
OF - OUTSIDE DIAMETER  
OHP - OVER HEAD POWER  
OHEL - OVER HEAD TELEPHONE  
ORIG - ORIGINAL  
OVFL - OVERFLOW  
O/O - OUT TO OUT  
OC - ON CENTER  
OF - OUTSIDE DIAMETER  
OHP - OVER HEAD POWER  
OHEL - OVER HEAD TELEPHONE  
ORIG - ORIGINAL  
OVFL - OVERFLOW  
PL OR P - PROPERTY LINE  
PAINT - PAINTMENT  
PB - PULL BOX  
PC - POINT OF CURVE  
POC - POINT OF COMPOUND CURVE  
PE - POLYETHYLENE  
PED - PEDESTAL  
PERM - PERMANENT  
PERP - PERPENDICULAR  
PH - PHASE  
PI - POINT OF INTERSECTION  
PKG - PACKAGE  
PKWY - PARKWAY  
PL - PLACE/PLATE/PARCEL LINE  
PLT - PLATE (DRAWING)  
POLY - POLYETHYLENE  
PP - POWER POLE  
PR - PAIR  
PRC - POINT OF REVERSE CURVE/  
PRECAST REINFORCED CONCRETE  
PRELIM - PRELIMINARY  
PROP - PROPOSED  
PRV - PRESSURE REGULATING VALVE  
PS - PUMP STATION  
PSF - POUNDS PER SQUARE FOOT  
PSI - POUNDS PER SQUARE INCH  
PT - POINT/POINT OF TANGENT  
PUE - PUBLIC UTILITY EASEMENT  
PV - POINT OF VERTICAL INTERSECTION  
PVC - POLYVINYL CHLORIDE PIPE  
QTR - QUARTER  
QTY - QUANTITY  
R - RADIUS  
(R) - RADIAL  
R/W - RIGHT OF WAY  
RCP - REINFORCED CONCRETE BOX  
RCP - REINFORCED CONCRETE PIPE  
RD - ROAD  
RED - REDUCER  
REQD - REQUIRED  
RET - RETURN  
REV - REVISION OR REVERSE  
ROW - RIGHT OF WAY  
RPPA - REDUCED PRESSURE  
PRNPLE - PRINCIPLE ASSEMBLY  
RR - RAILROAD  
RT - RIGHT  
S - SOUTH/SLOPE  
S/C - SAW CUT  
SCOP - STEEL CYLINDER CONCRETE PIPE  
SCH - SCHEDULE  
SD - STORM DRAIN  
SDMH - STORM DRAIN MANHOLE  
SDMK - SIDEWALK  
SE - SEWER  
SEC - SECTION/SECOND  
SEG - SEGMENT  
SHDR - SHOULDER  
SHT - SPECIAL IMPROVEMENT  
SID - DISTRICT  
SIG - SIGNAL  
SL - SLOPE  
SLV - SLEEVE  
SNWA - SOUTHERN NEVADA WATER AUTHORITY  
SPEC(S) - SPECIFICATION(S)  
SQ - SQUARE  
SQ FT - SQUARE FOOT/FEET  
SQ YD - SQUARE YARD  
SS - SANITARY SEWER  
ST - STREET  
STA - STATION  
STD - STANDARD  
STL - STEEL  
STL - STREET LIGHT  
SUR - SURVEY  
SW - SIDEWALK OR SOUTHWEST  
SY - SQUARE YARD  
SYM - SYMBOL  
SYS - SYSTEM  
TAB - TOP & BOTTOM  
TAN - TANGENT  
TBM - TEMPORARY BENCH MARK  
TC - TOP OF CURB  
TD - TRENCH DRAIN  
TEMP - TEMPORARY  
THK - THICK(NESS)  
THR BLK - THRUST BLOCK  
TMH - TOP OF MANHOLE  
TOP - TOP OF FOOTING  
TOGR - TOP OF GRATE  
TOP - TOP OF PIPE  
TOR - TOP OF RIM  
TOS - TOP OF SLAB  
TOSW - TOP OF SIDEWALK  
TOT - TOTAL  
TOW - TOP OF WALL  
(TYP) - TYPICAL  
UNO - UNLESS NOTED OTHERWISE  
UPRR - UNION PACIFIC RAILROAD  
USGS - UNITED STATES GEODETIC SURVEY  
UTIL - UTILITY  
V - VOLT OR VALVE  
VAR - VARIES  
VB - VALVE BOX  
VCP - VITRIFIED  
VC - VERTICAL CURVE  
VEL - VELOCITY  
VERT - VERTICAL  
VS - VALLEY GUTTER  
VOL - VOLUME  
VP - VERTICAL POINT OF INTERSECTION  
W/ - WITH  
W - WEST/WATER  
W/O - WITH OUT  
WD - WIDTH  
WON - WASTE DRAIN  
WI - WISDOMIT IRON  
WL - WASTE LINE  
WP - WORK POINT/WEATHER PROOF  
WS - WATER SURFACE  
WT - WEIGHT  
WTR - WATER  
WV - WATER VALVE  
WVF - WELDED WIRE FABRIC  
WWM - WELDED WIRE MESH  
XTMR - TRANSFORMER  
XTR - TRANSFER  
XSEC - CROSS SECTION  
YD - YARD  
YLD - YIELD

GENERAL LEGEND

- CENTERLINE  
UNIT BOUNDARY  
PROPOSED 1' GRADE CONTOUR  
PROPOSED 5' GRADE CONTOUR  
EXISTING 1' GRADE CONTOUR  
EXISTING 5' GRADE CONTOUR  
PROPOSED PROPERTY LINE  
PROPOSED SETBACK LINE  
PROPOSED HINGE LINE  
PROPOSED SWALE  
EXISTING CURB AND GUTTER  
PROPOSED CURB AND GUTTER  
RETAINING WALL  
GARDEN WALL WITH SOLID GROUT  
8" WIDE CMU FLOOD WALL  
EXISTING FENCE  
EXISTING EDGE OF PAVEMENT  
PROPOSED EDGE OF PAVEMENT  
PROPOSED STREETLIGHT CONDUIT  
PROPOSED NO. 3 1/2 CONCRETE PULL BOX w/ METAL COVER  
EXISTING GAS  
EXISTING SEWER MAIN  
PROPOSED SEWER MAIN  
PROPOSED SEWER LATERAL  
EXISTING STORM DRAIN  
PROPOSED STORM DRAIN  
EXISTING WATER MAIN  
PROPOSED WATER MAIN  
PROPOSED FIRE HYDRANT  
LOT NUMBER  
PROPOSED FINISH FLOOR  
PROPOSED PAD ELEVATION  
EXISTING STREET LIGHT  
PROPOSED 100w HPS STREET LIGHT  
PROPOSED 150w HPS STREET LIGHT  
PROPOSED 200w HPS STREET LIGHT  
PROPOSED 250w HPS STREET LIGHT  
PROPOSED 400w HPS STREET LIGHT  
PROPOSED HANDICAP RAMP  
PROPOSED CONCRETE DRIVEWAY  
0" LIP DRIVEWAY  
2:1 SCARP  
COURSES OF 8" CMU  
NUMBER OF COURSES  
CUL-DE-SAC BACK OF CURB STATION  
KNUCKLE BACK OF CURB STATION  
SIGHT VISIBILITY ZONE  
PROPOSED RATE & FLOW DIRECTION  
PROPOSED ELEVATION WITH DESCRIPTION  
EXISTING ELEVATION WITH DESCRIPTION

DATE: 07/14/2016  
DWN BY: J. PEARCE  
DESIGNED BY: D.I.  
CHECKED BY: D.I.  
ADA CHECKED BY: Y.  
JOB NO.: 007.088  
SCALE: NONE

DR HORTON  
MAVERICK & WASHBURN  
GENERAL NOTES AND LEGEND

Office: (702) 254-1480  
Fax: (702) 254-1406  
6957 W. Charleston Blvd.,  
Las Vegas, Nevada 89146  
www.tritoneng.com

TRITON Engineering

SHEET 2 OF 10  
C.L.V. DWG.#

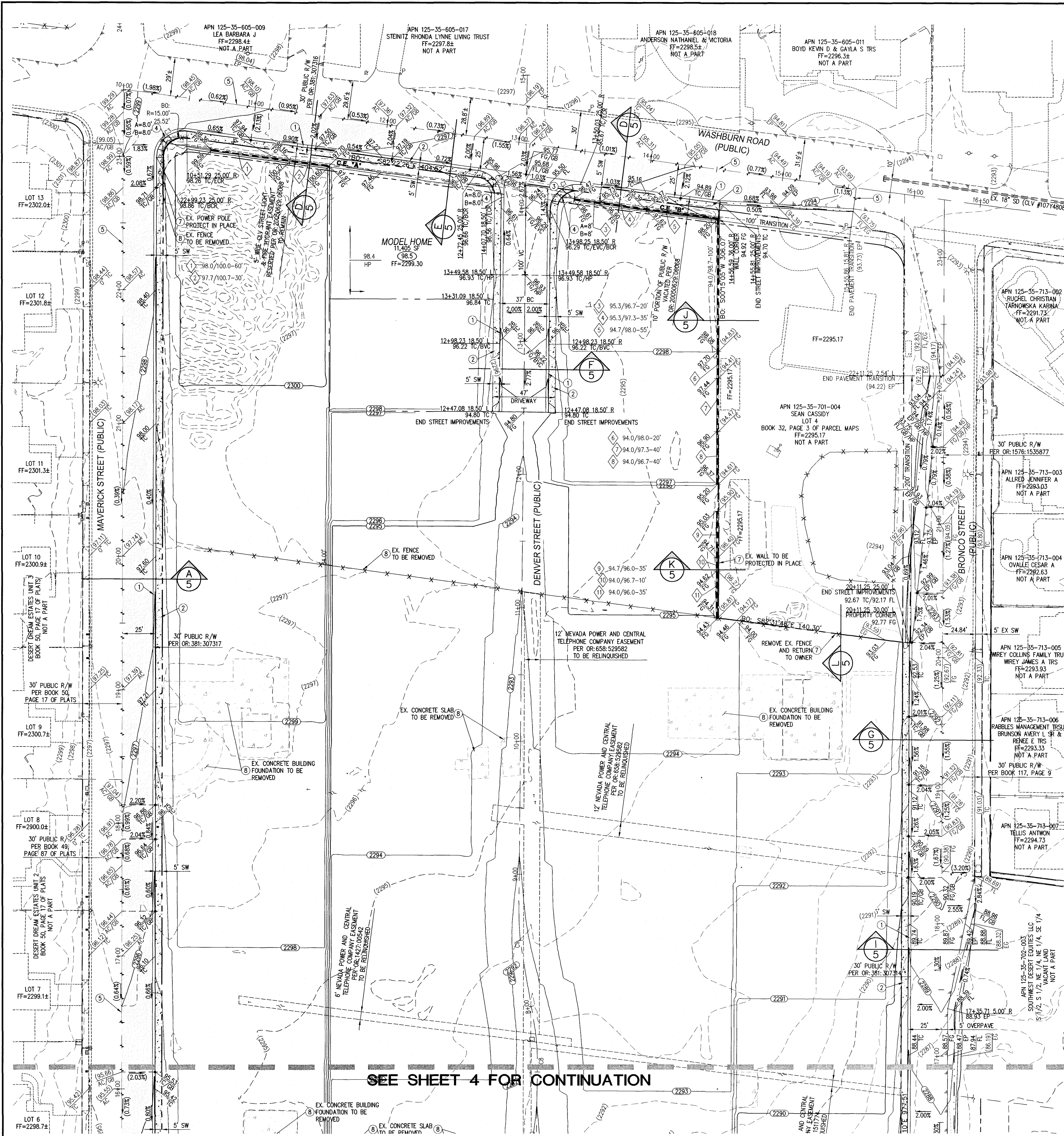
FAST  
Call before you Dig  
Underground  
1-702-432-5300

Avoid overhead power line contact. It's costly.  
Call before you Overhead  
1-702-227-2929

Call before you Dig  
Avoid cutting underground utility lines. It's costly.  
811  
OR  
1-800-227-2600



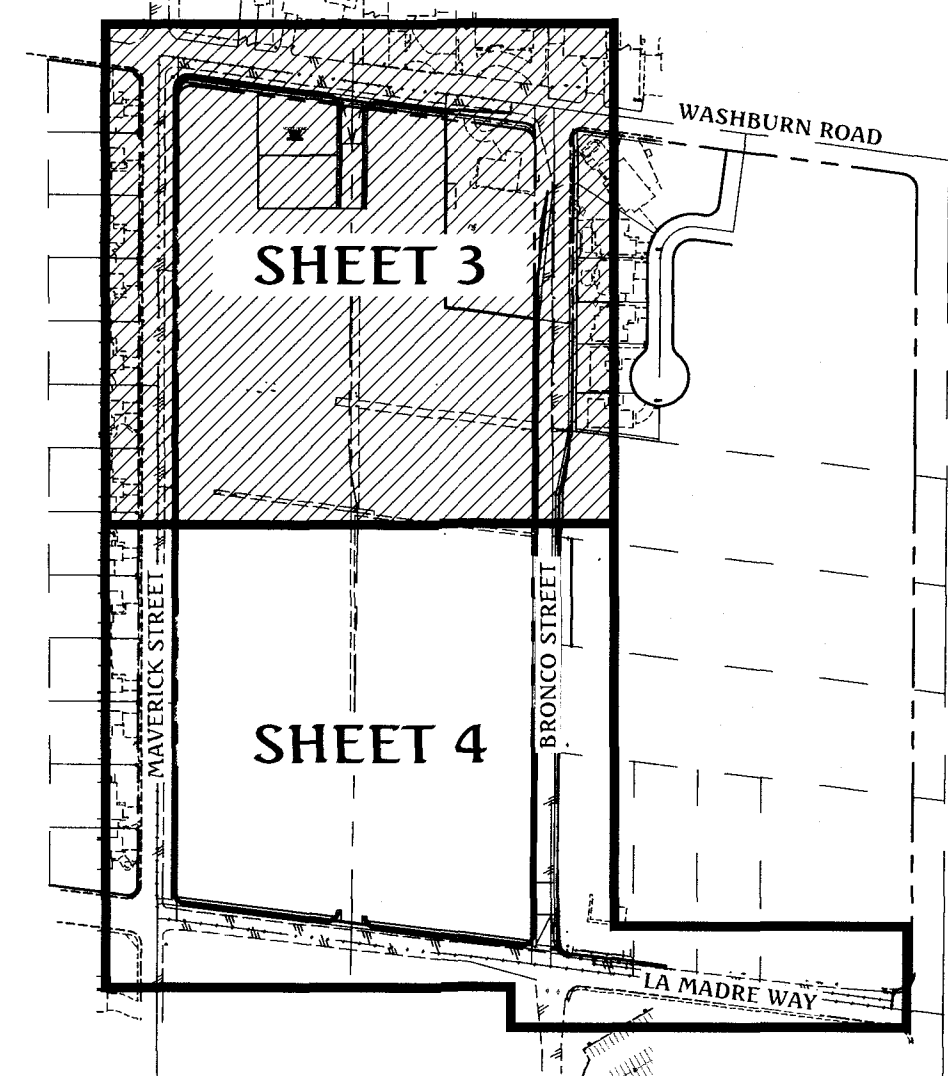
C:\triton\drawings\007098 maverick washburn\Drawings\DRAINAGE\03.drainage grading-detailed.dwg divarow Thu, 14 Jul 2016 - 12:00pm



SEE SHEET 4 FOR CONTINUATION

## KEY MAP

SCALE: NONE



## BASIS OF BEARING

NORTH 82°59'56" WEST, BEING THE BEARING OF THE SOUTH LINE OF THE NORTH HALF (N 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 35, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA AS SHOWN ON THAT CERTAIN MAP ON FILE IN THE CLARK COUNTY RECORDER'S OFFICE IN BOOK 117, PAGE 9 OF PLATS.

## BENCHMARK

CITY OF LAS VEGAS BENCHMARK No. 8LV903566  
RIVET & PLATE IN TOP OF CURB AT THE SOUTHWEST CORNER OF WASHBURN ROAD & MAVERICK STREET.  
ELEVATION = 700.720 METERS (NAV88 2008 ADJ.)  
ELEVATION = 2298.95 U.S. FEET (NAV88 2008 ADJ.)

## FLOOD ZONE NOTE

THE PROJECT SITE IS LOCATED ON FEMA FLOOD INSURANCE RATE MAP #32003C1765F. THE SITE IS LOCATED WITHIN DESIGNATED FLOOD HAZARD ZONE X BEING AN AREA DETERMINED TO BE OUTSIDE THE 100 YEAR FLOOD PLAIN.

## SOILS INFORMATION

- SOILS REPORT BY: GEOTEK RESIDENTIAL, LLC  
PROJECT No. 12565-LVR  
DATED: SEPTEMBER 14, 2015
- CUT TOTAL: 19,866 C.Y.  
FILL TOTAL: 19,839 C.Y.  
NET: 27 C.Y. (CUT)

## PUBLIC DRAINAGE QUANTITIES

WITHIN PUBLIC DRAINAGE EASEMENTS

- |                                   |           |
|-----------------------------------|-----------|
| 1. 2" ASPHALTIC CONCRETE PAVEMENT | 7,416 SY  |
| 2. TYPE II GRAVEL                 | 1,319 CY  |
| 3. "L" TYPE CURB AND GUTTER (24") | 2,037 LF  |
| 4. 6" THICK 3000 PSI CONCRETE     | 1,327 SF  |
| 5. SIDEWALK                       | 11,158 SF |

## GRADING NOTES

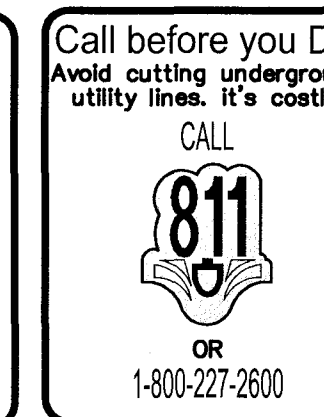
- ALL PROPOSED PAD ELEVATIONS AND SWALE ELEVATIONS ARE ROUGH GRADES. ALL OTHER PROPOSED ELEVATIONS ARE FINISHED GRADES.
- THE GRADING PLANS SHALL BE AT THE PROJECT SITE THROUGHOUT THE COURSE OF CONSTRUCTION.
- ALL GRADING SHALL BE PERFORMED IN CONFORMANCE WITH THE LINES, GRADES AND DETAILS AS SHOWN ON THESE PLANS. ANY DEVIATION FROM THESE PLANS WILL ONLY BE PERMITTED UPON WRITTEN APPROVAL FROM THE ENGINEER.
- ALL PADS ARE TO BE GRADED WITHIN ±0.3' OF THE ELEVATIONS AS SHOWN ON THE PLANS. GRADING IS NOT COMPLETE UNTIL THE ENGINEER HAS CERTIFIED THAT THE PADS HAVE BEEN GRADED IN SUBSTANTIAL CONFORMANCE TO THE PLANS.
- ALL PLACEMENT OF OVERSIZED MATERIALS AND/OR FILL MATERIALS SHALL BE PER THE SOILS REPORT REFERENCED ON THIS PLAN.
- ADD 2200 TO ALL SPOT GRADES AND TOP OF CURB, FLOW LINE AND FINISH GRADE ELEVATIONS.
- ANY CURVED CURB LESS THAN 125 MUST BE WATER TESTED BY CONTRACTOR AS REQUIRED BY CITY INSPECTOR.

## GRADING LEGEND

- |              |                                   |
|--------------|-----------------------------------|
| (---1395---) | EX. MAJOR CONTOUR                 |
| (---1395---) | EX. MINOR CONTOUR                 |
| (---1395---) | BOUNDARY LINE                     |
| (---1395---) | STREET CENTERLINE                 |
| (---1395---) | EDGE OF PAVEMENT                  |
| (---1395---) | EXISTING CURB, GUTTER, & SIDEWALK |
| (---1395---) | PROPOSED CURB, GUTTER, & SIDEWALK |
| (---1395---) | PROPOSED AC PAVING                |
| (---1395---) | EX. FENCE                         |
| (---1395---) | EX. BLOCK WALL                    |
| (---1395---) | PROPOSED RETAINING WALL           |
| (---1395---) | TOP OF FOOTING                    |
| (---1395---) | APPROX. WALL LENGTH               |
| (---1395---) | TOP OF RETAINING WALL             |
| (---1395---) | PROPOSED SCARP                    |

## CONSTRUCTION NOTES

- CONSTRUCT "L" TYPE CURB & GUTTER PER CCAUSD #216.
- CONSTRUCT 5" WIDE SIDEWALK PER CCAUSD #234.
- CONSTRUCT 8" WIDE VALLEY GUTTER PER CCAUSD #228.
- CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOWNS OR EQUIVALENT PER CCAUSD #235, CASE 1.
- SAWCUT AND MATCH EXISTING ASPHALT.
- RELOCATE EXISTING FEATURE.
- PROTECT IN PLACE EXISTING FEATURE.
- REMOVE AND REPLACE EXISTING FEATURE.



GRAPHIC SCALE



( IN FEET )  
1 inch = 40 ft.

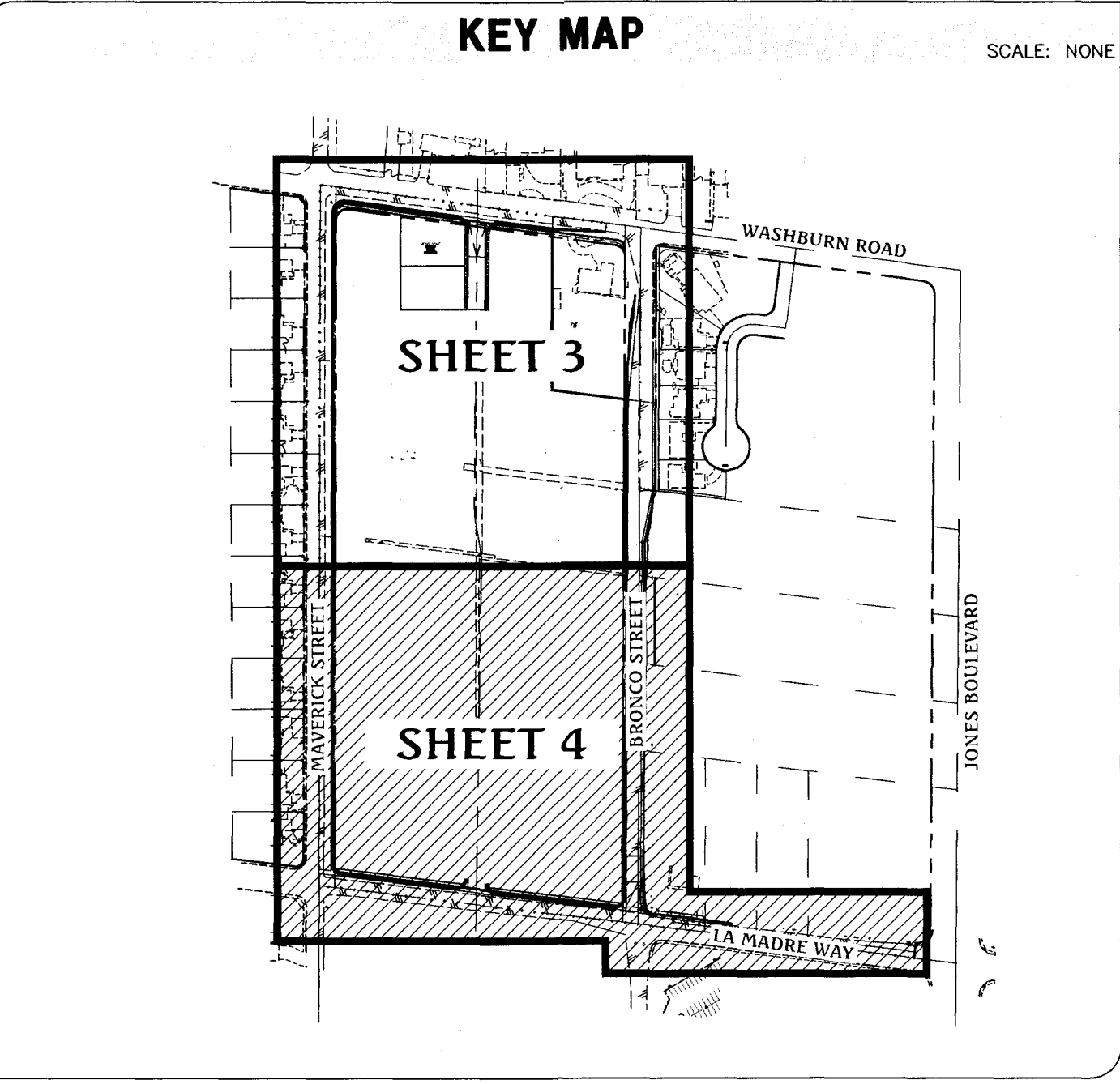
| DATE | 07/14/2016 | PM | J. PEARCE | DRAWN BY | D.L. | DESIGNED BY | D.L. | CHECKED BY | ADA | JOE NO. | 007098 | SCALE | 1" = 40' | NO. | DESCRIPTION | DATE | APP'D |
|------|------------|----|-----------|----------|------|-------------|------|------------|-----|---------|--------|-------|----------|-----|-------------|------|-------|
|------|------------|----|-----------|----------|------|-------------|------|------------|-----|---------|--------|-------|----------|-----|-------------|------|-------|

**Triton Engineering**  
Office: (702) 254-1480  
6757 W. Charleston Blvd.  
Suite B  
Las Vegas, Nevada 89146  
Fax: (702) 254-1462  
www.tritoneng.com



|              |                     |                |
|--------------|---------------------|----------------|
| DR HORTON    | MAVERICK & WASHBURN | GRADING PLAN 1 |
| SHEET        | 3                   | OF 10          |
| C.L.V. DWG.# |                     |                |





NORTH 82°59'56" WEST, BEING THE BEARING OF THE SOUTH LINE OF THE NORTH HALF (N 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 35, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA AS SHOWN ON THAT CERTAIN MAP ON FILE IN THE CLARK COUNTY RECORDER'S OFFICE IN BOOK 117, PAGE 9 OF PLATS.

CITY OF LAS VEGAS BENCHMARK No. 8LV9035E6  
RIVET & PLATE IN TOP OF CURB AT THE SOUTHWEST CORNER OF  
WASHBURN ROAD & MAVERICK STREET.  
ELEVATION = 700.720 METERS (NAVD'88 2008 ADJ.)  
ELEVATION = 2298.95 U.S. FEET (NAVD'88 2008 ADJ.)

THE PROJECT SITE IS LOCATED ON FEMA FLOOD INSURANCE RATE MAP #32003C1765F. THE SITE IS LOCATED WITHIN DESIGNATED FLOOD HAZARD ZONE X BEING AN AREA DETERMINED TO BE OUTSIDE THE 100 YEAR FLOOD PLAIN.

1. SOILS REPORT BY: GEOTEK RESIDENTIAL, LLC  
PROJECT No. 12565-LVR  
DATED: SEPTEMBER 14, 2015

2. CUT TOTAL: 19,866 C.Y.  
FILL TOTAL: 19,839 C.Y.

---

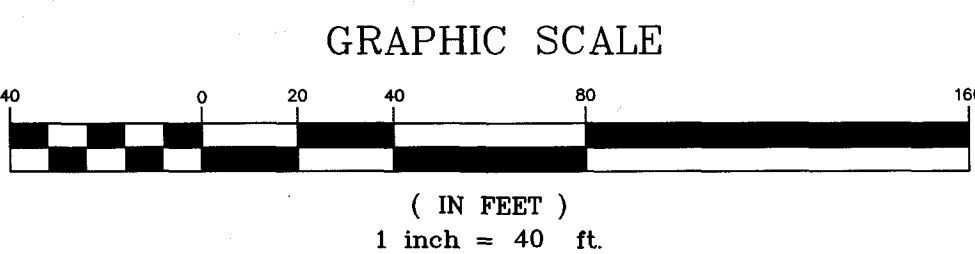
NET: 27 C.Y. (CUT)

|                                   |           |
|-----------------------------------|-----------|
| 1. 2" ASPHALTIC CONCRETE PAVEMENT | 7,416 SY  |
| 2. TYPE II GRAVEL                 | 1,319 CY  |
| 3. "L" TYPE CURB AND GUTTER (24") | 2,037 LF  |
| 4. 6" THICK 3000 PSI CONCRETE     | 1,327 SF  |
| 5. SIDEWALK                       | 11,158 SF |

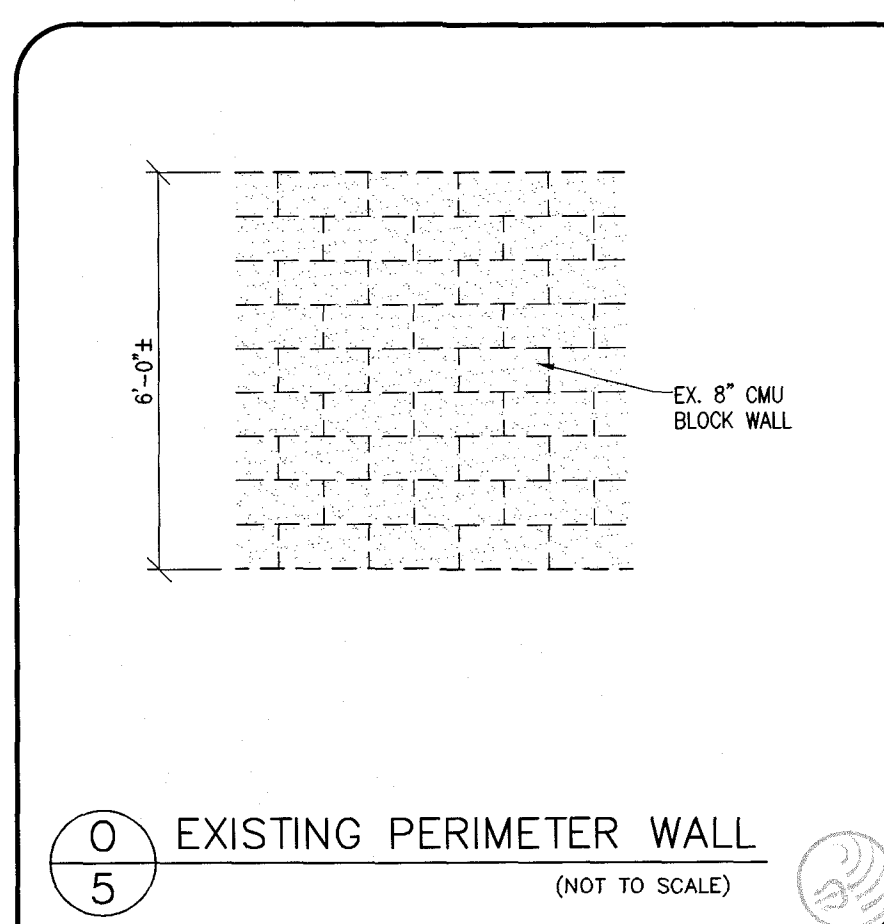
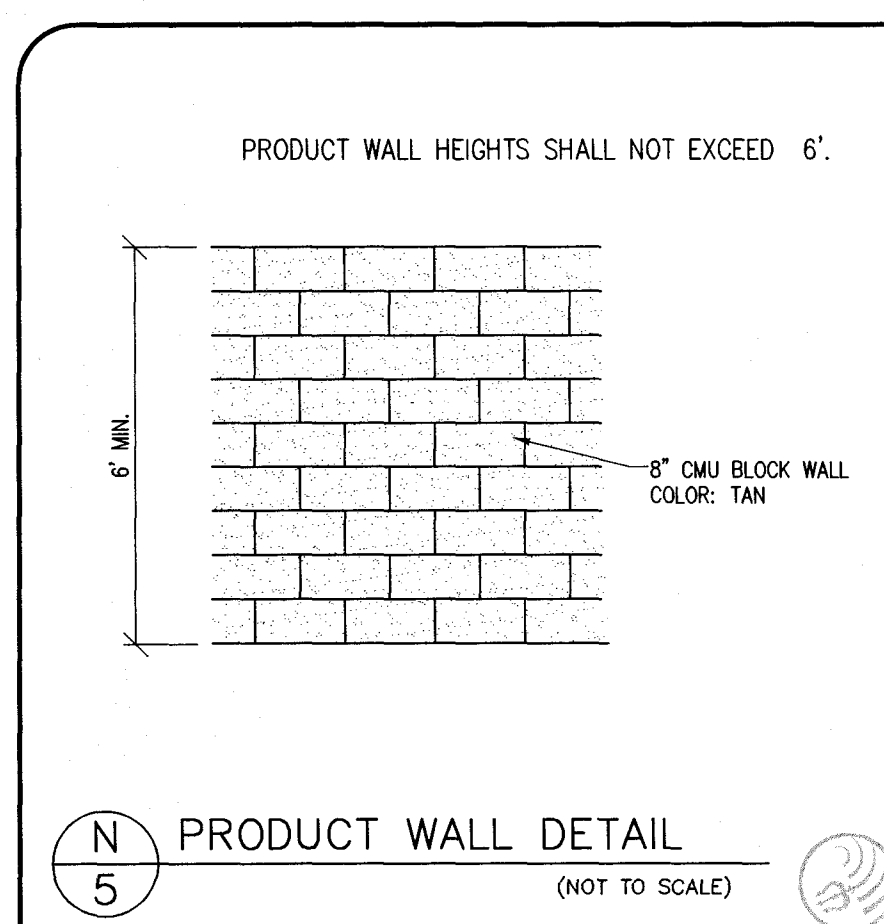
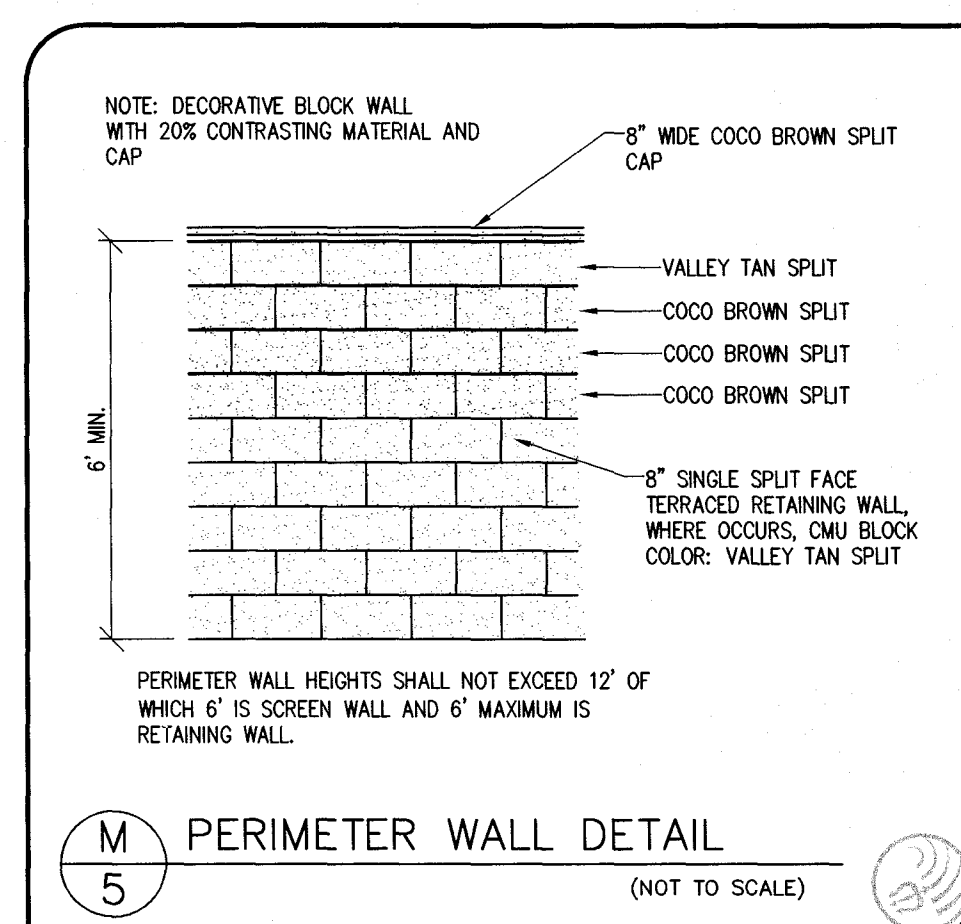
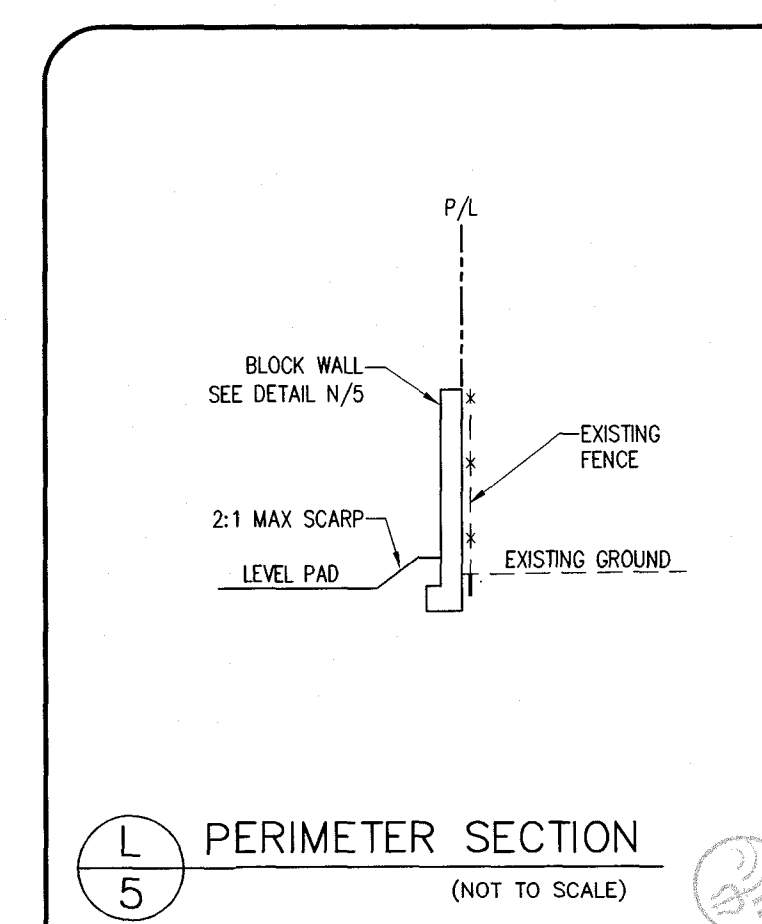
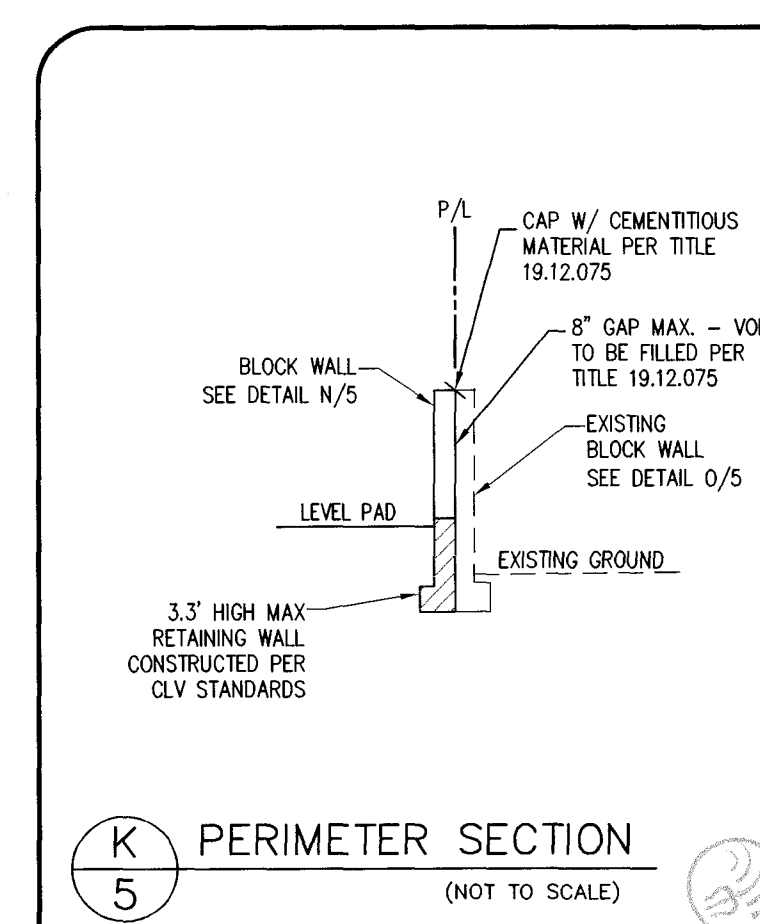
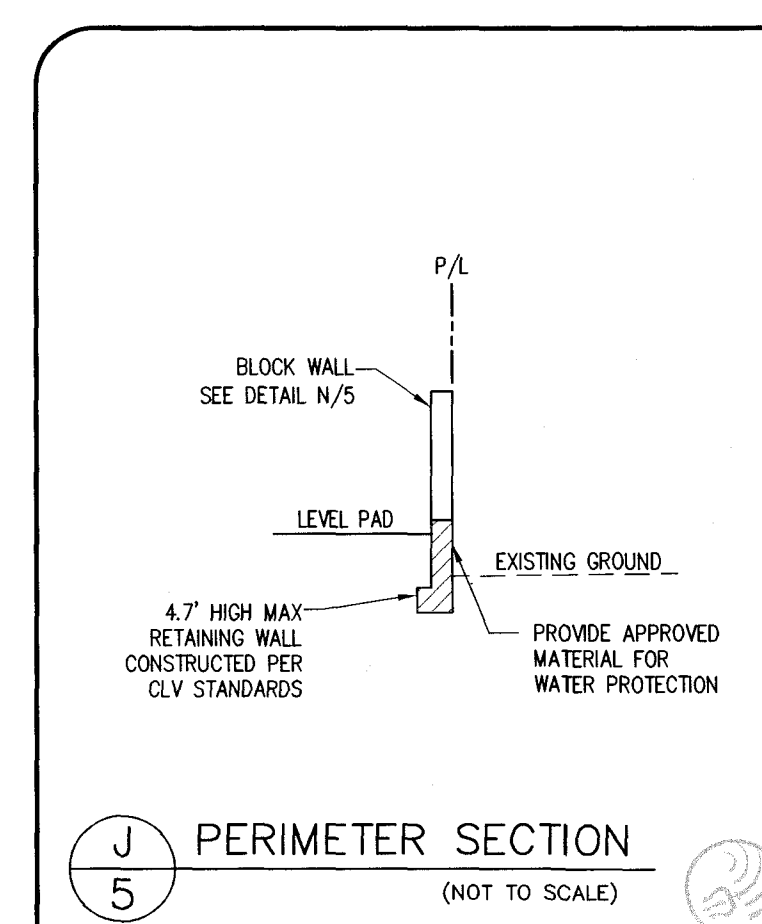
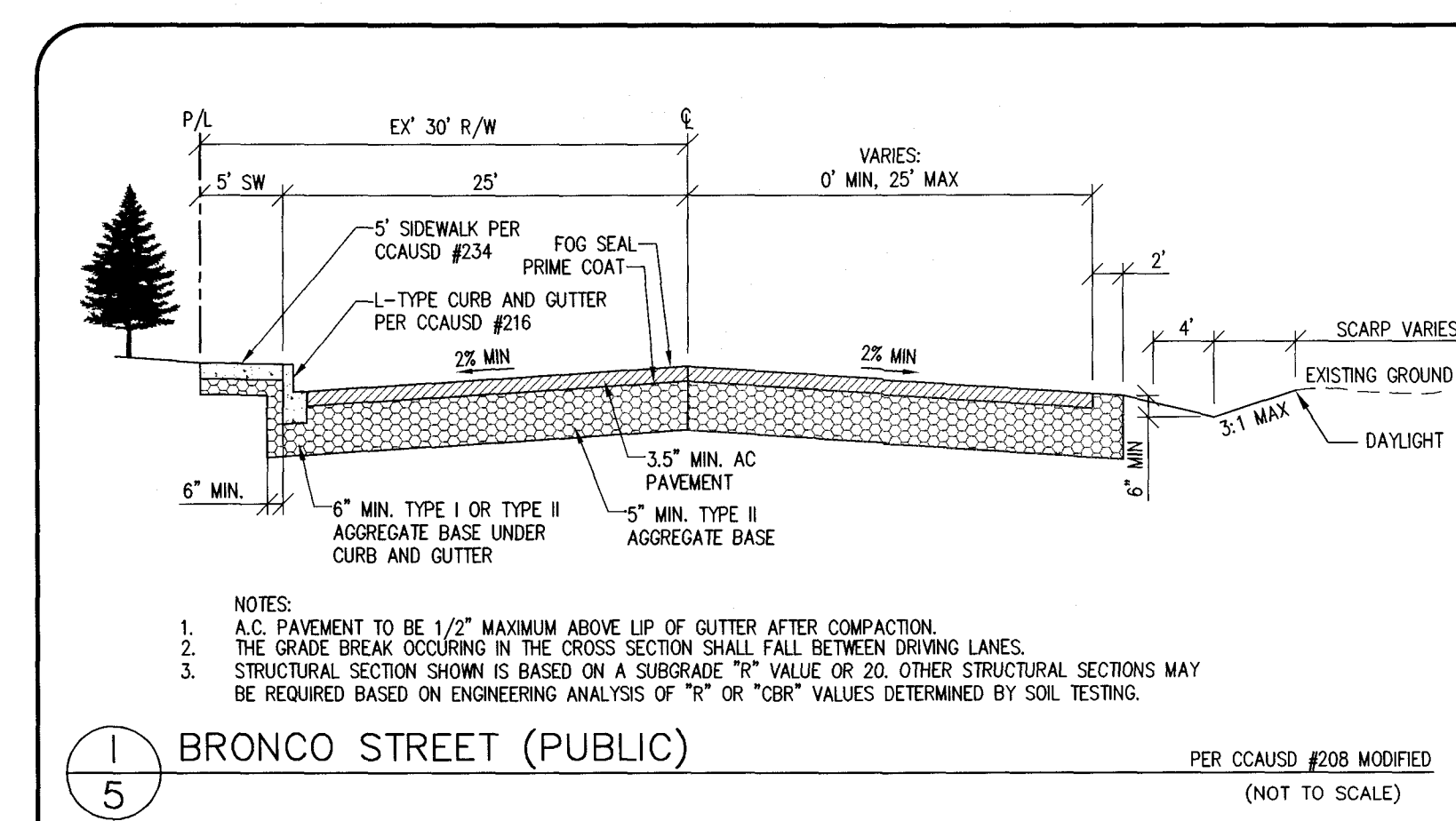
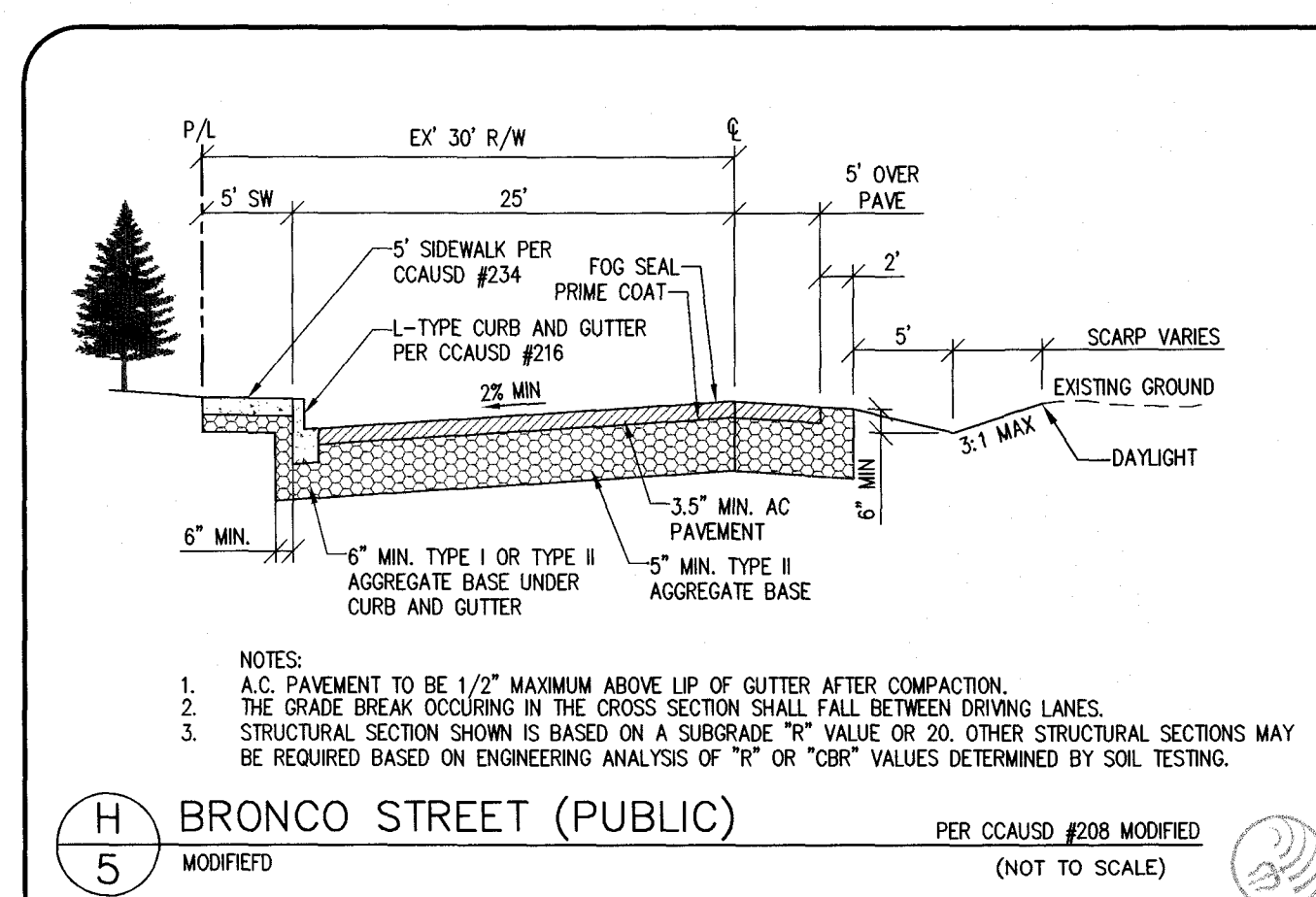
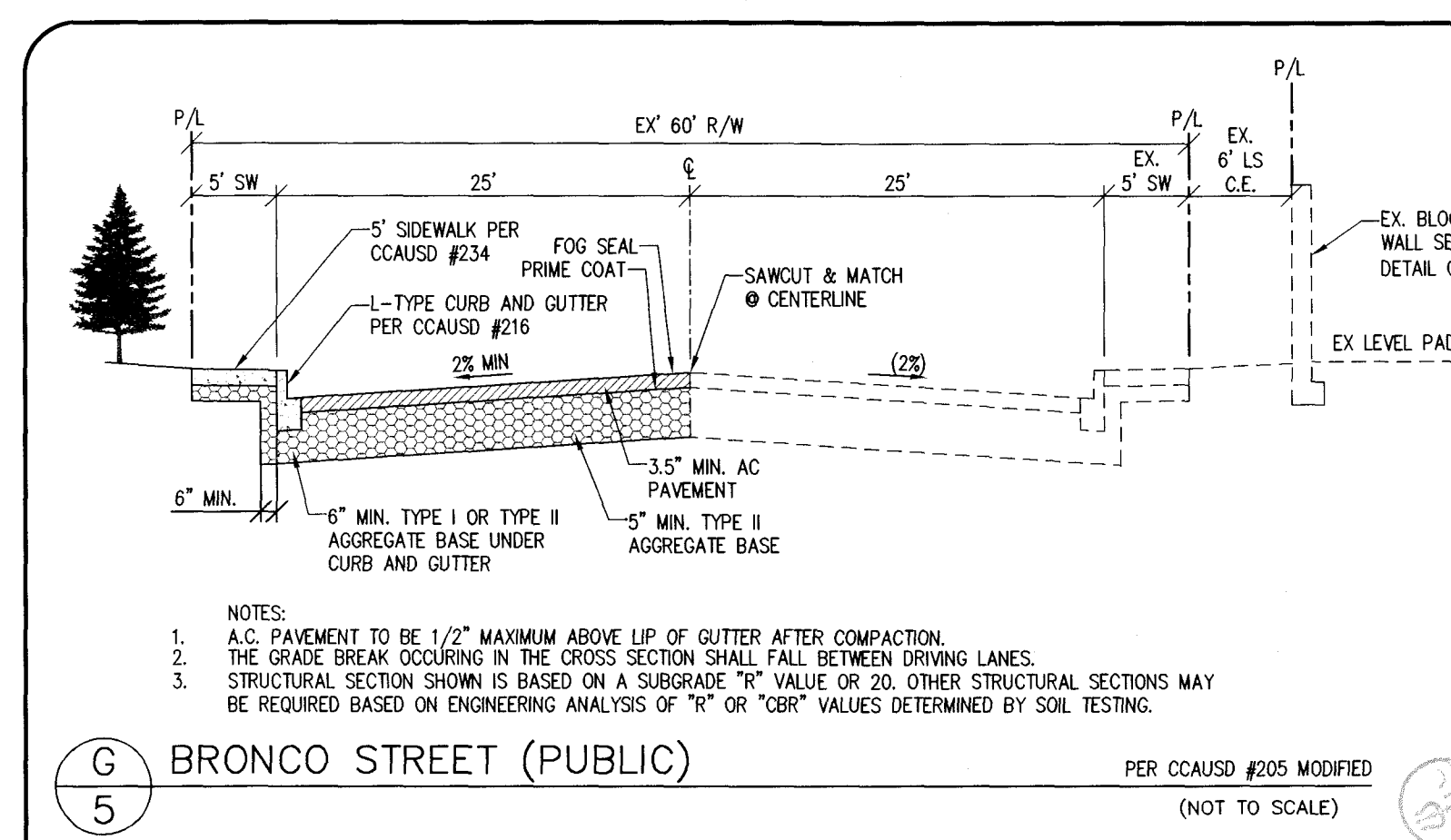
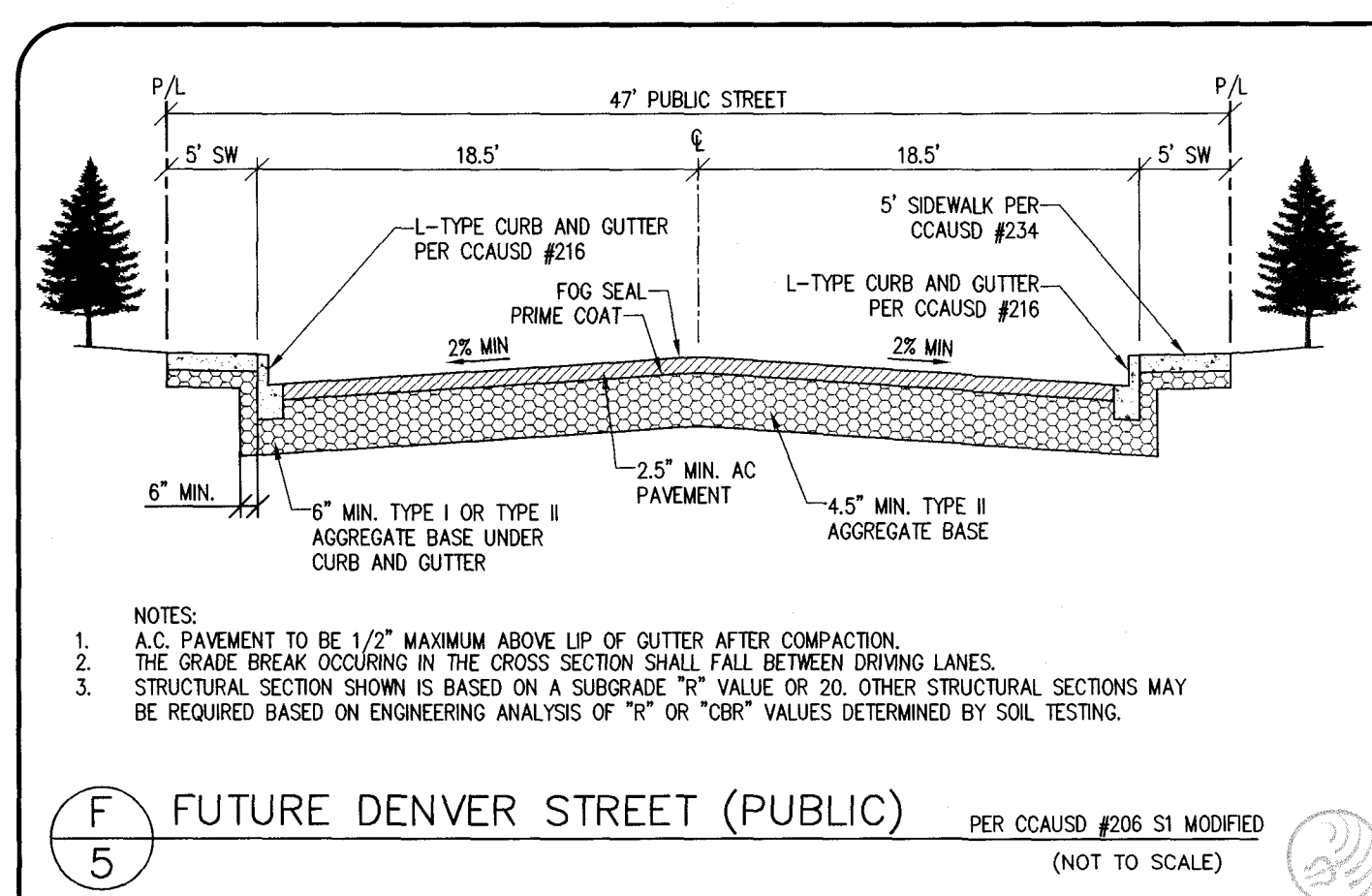
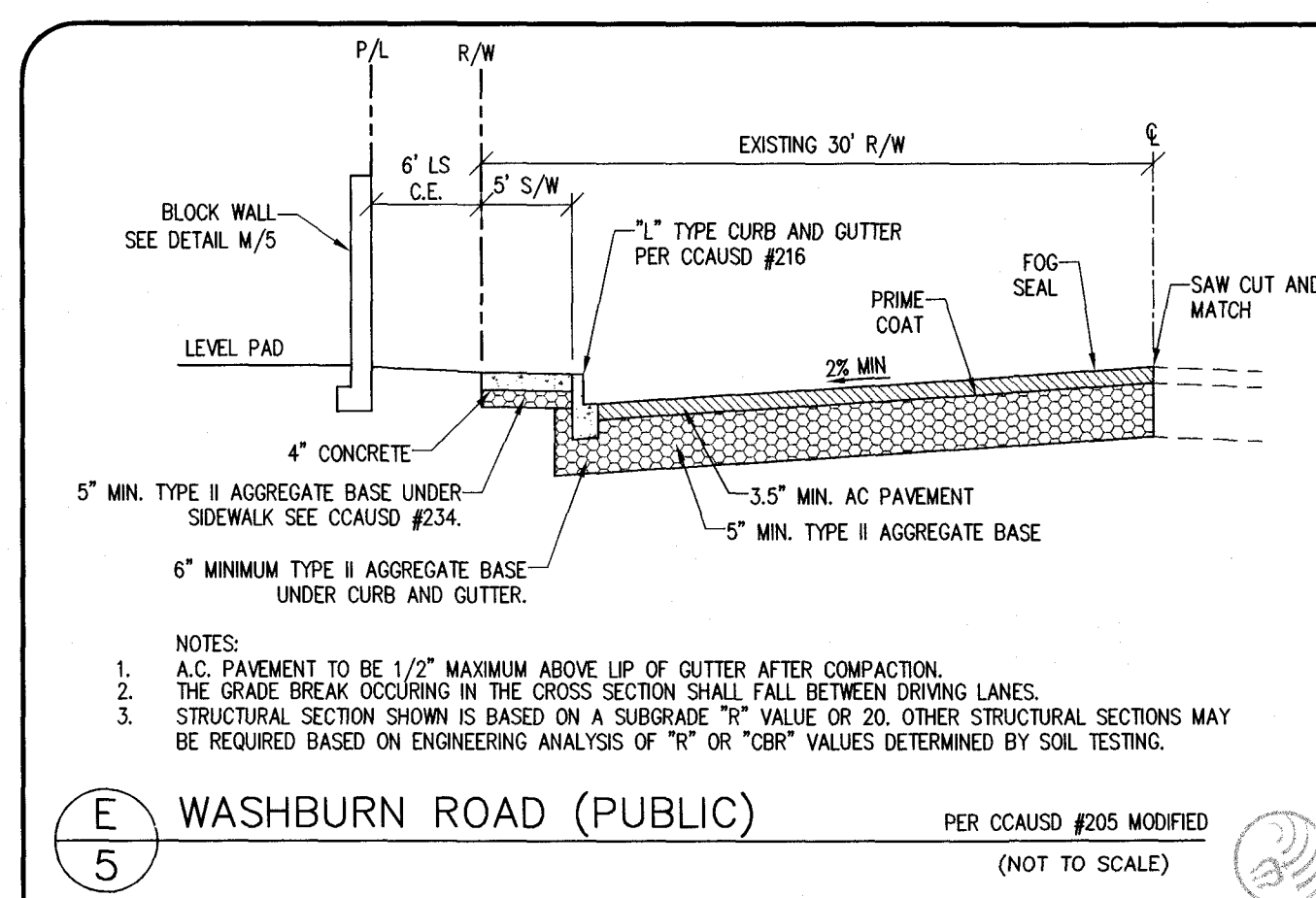
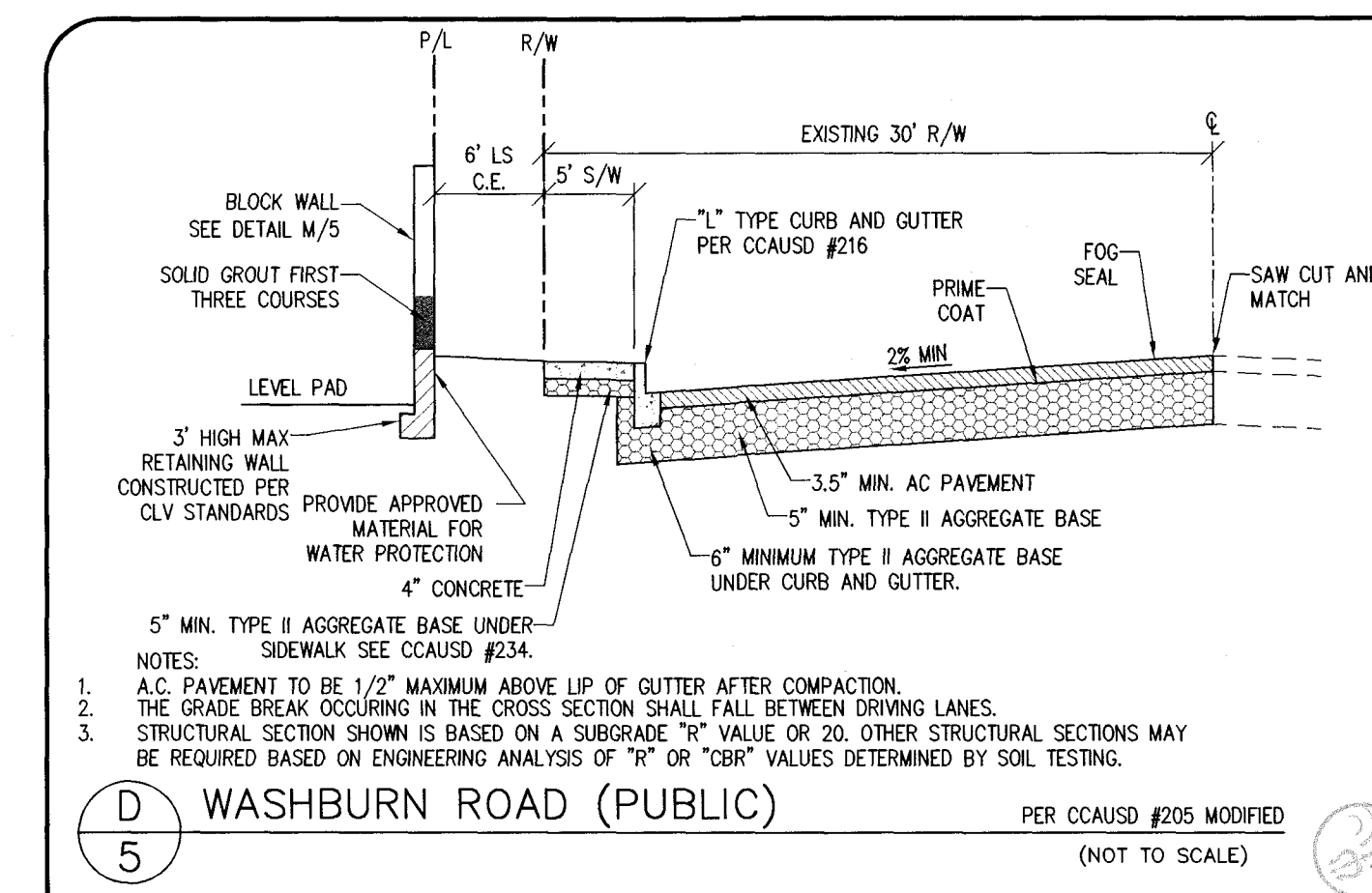
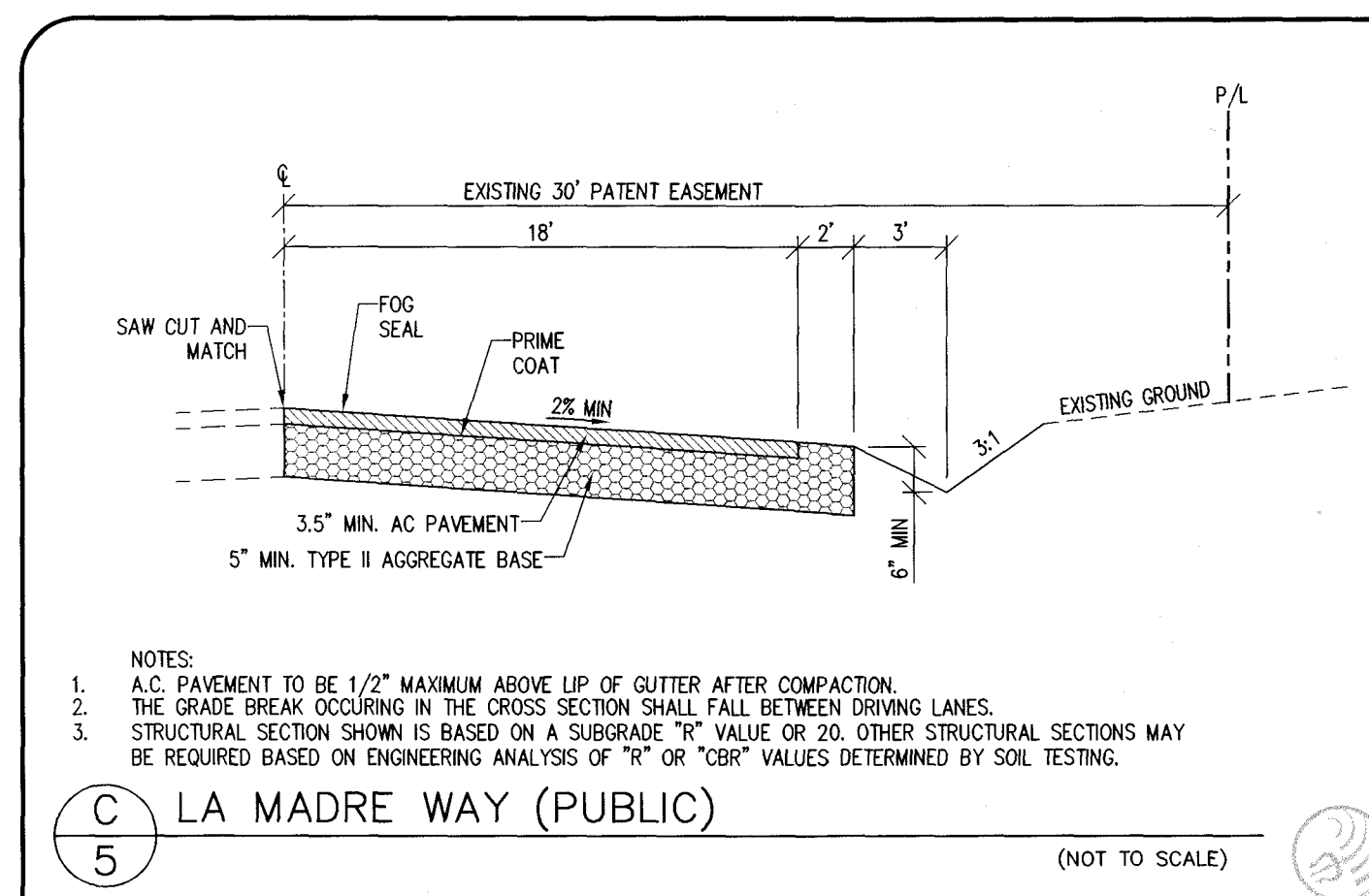
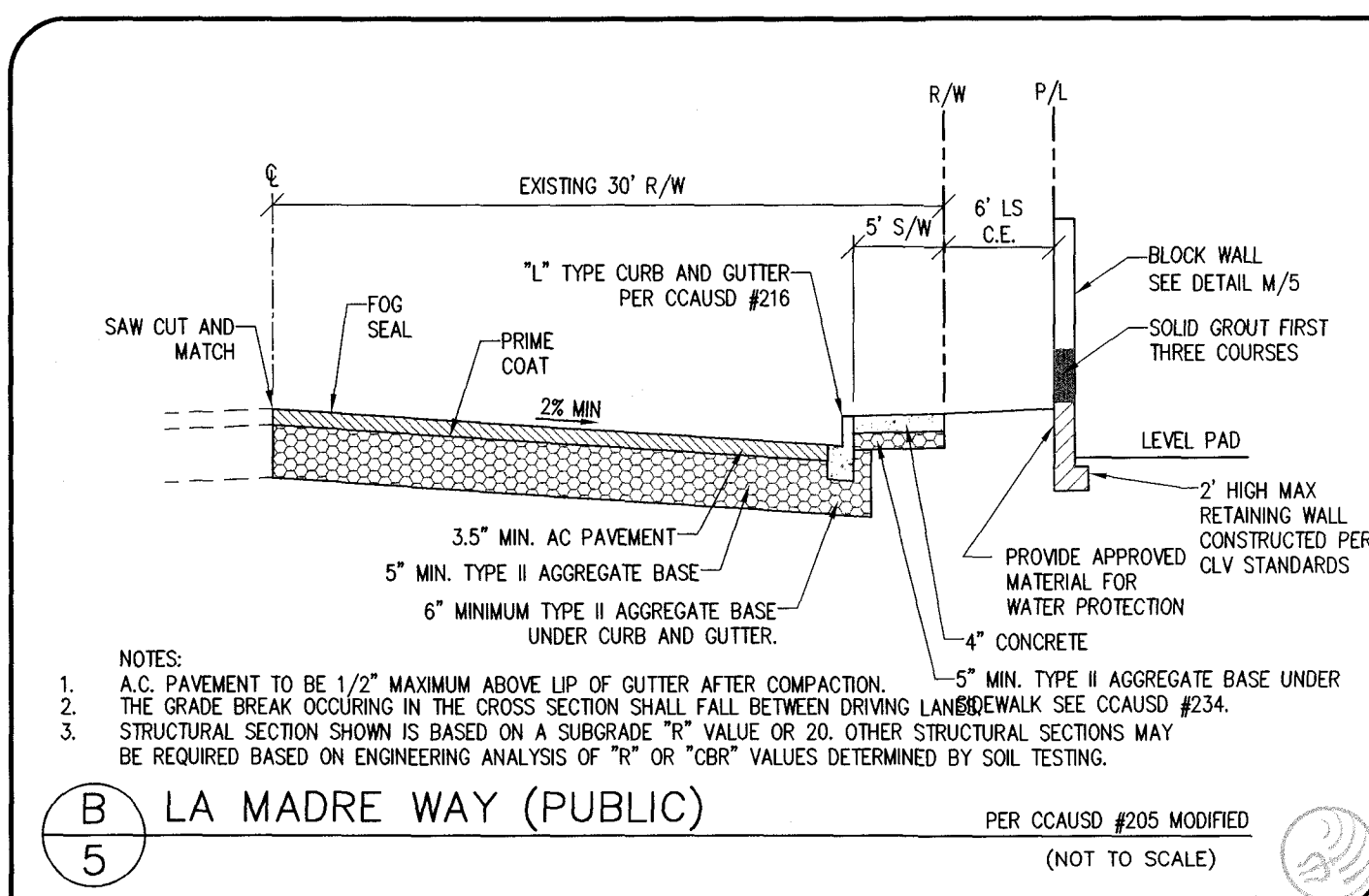
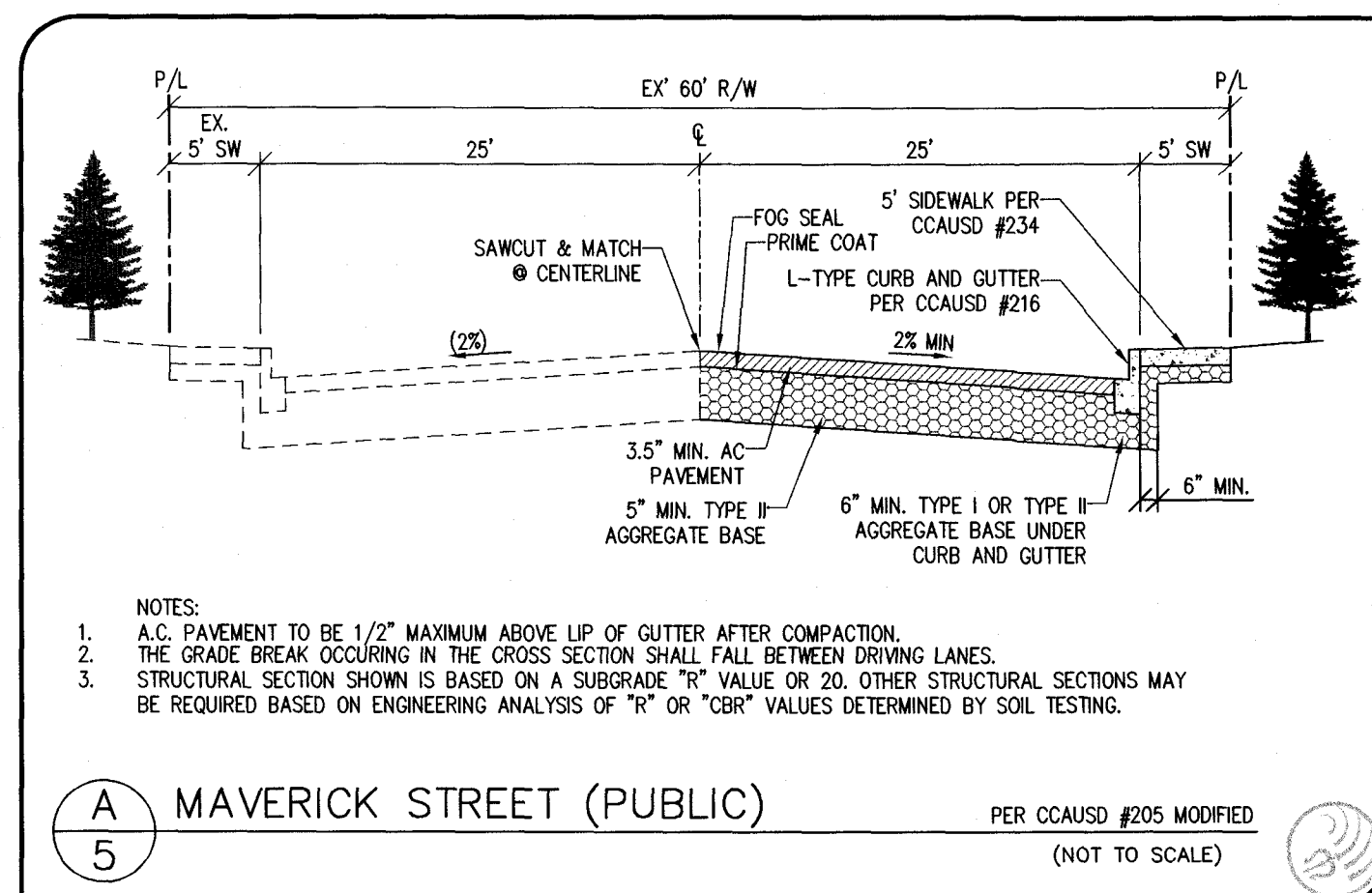
1. ALL PROPOSED PAD ELEVATIONS AND SWALE ELEVATIONS ARE ROUGH GRADES. ALL OTHER PROPOSED ELEVATIONS ARE FINISH GRADES.
2. THE GRADING PLANS SHALL BE AT THE PROJECT SITE THROUGHOUT THE COURSE OF CONSTRUCTION.
3. ALL GRADING SHALL BE PERFORMED IN CONFORMANCE WITH THE LINES, GRADES AND DETAILS AS SHOWN ON THE GRADING PLANS. ANY DEVIATION FROM THESE PLANS WILL ONLY BE PERMITTED UPON WRITTEN APPROVAL FROM THE ENGINEER.
4. ALL PADS ARE TO BE GRADED WITHIN  $\pm 0.3'$  OF THE ELEVATION AS SHOWN ON THE PLANS. GRADING IS NOT COMPLETE UNTIL THE ENGINEER HAS CERTIFIED THAT THE PADS HAVE BEEN GRADED IN SUBSTANTIAL CONFORMANCE TO THE PLANS.
5. ALL PLACEMENT OF OVERSIZED MATERIALS AND/OR FILL MATERIALS SHALL BE PER THE SOILS REPORT REFERENCED ON THIS PLAN.
6. ADD 2200 TO ALL SPOT GRADES AND TOP OF CURB, FLOW LINE AND FINISH GRADE ELEVATIONS.
7. ANY CURVED CURB SHALL BE 18" MAXIMUM WATER TESTED BY CONTRACTOR AS REQUIRED BY CITY INSPECTOR.

Figure 10: Typical Section of a Roadway with a 15% Slope. The diagram shows a cross-section of a road with a 15% slope. Key features include: EX. MAJOR CONTOUR, EX. MINOR CONTOUR, BOUNDARY LINE, STREET CENTERLINE, EDGE OF PAVEMENT, EXISTING CURB, GUTTER, & SIDEWALK, PROPOSED CURB, GUTTER, & SIDEWALK, PROPOSED AC PAVING, EX. FENCE WALL, EX. BLOCK WALL, PROPOSED RETAINING WALL, TOP OF FOOTING, APPROX. WALL WITH 10% TOP OF RETAINING WALL, and PROPOSED SCARP. A dimension of 37.3/38.7-12' is shown for the retaining wall section.

- ① CONSTRUCT "L" TYPE CURB & GUTTER PER CCAUSD #216.
- ② CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234.
- ③ CONSTRUCT 8' WIDE VALLEY GUTTER PER CCAUSD #228.
- ④ CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD #235, CASE 1.
- ⑤ SAWCUT AND MATCH EXISTING ASPHALT.
- ⑥ RELOCATE EXISTING FEATURE.
- ⑦ PROTECT IN PLACE EXISTING FEATURE.
- ⑧ REMOVE AND REPLACE EXISTING FEATURE.





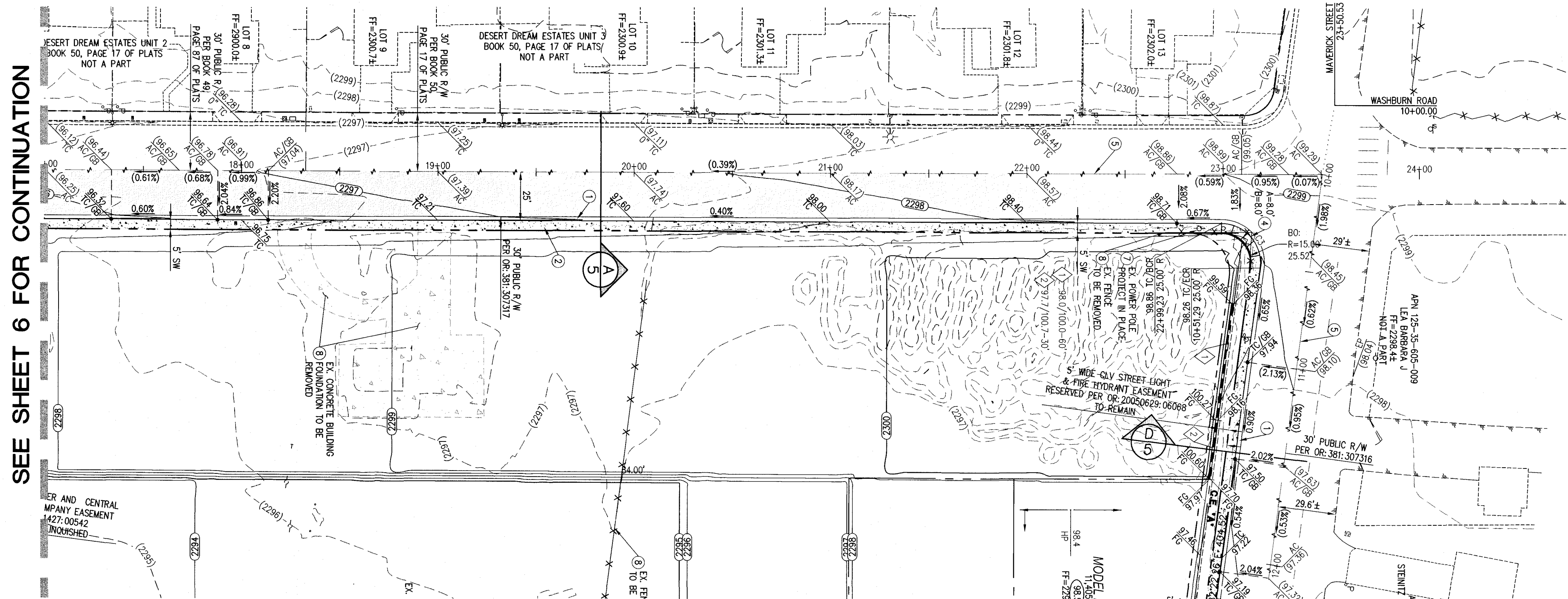








C:\vtron\drawings\007098 maverick washburn\Drawings\URBAN\06 drainage plan-profiles.dwg dironov Thu, 14 Jul 2016 12:03pm



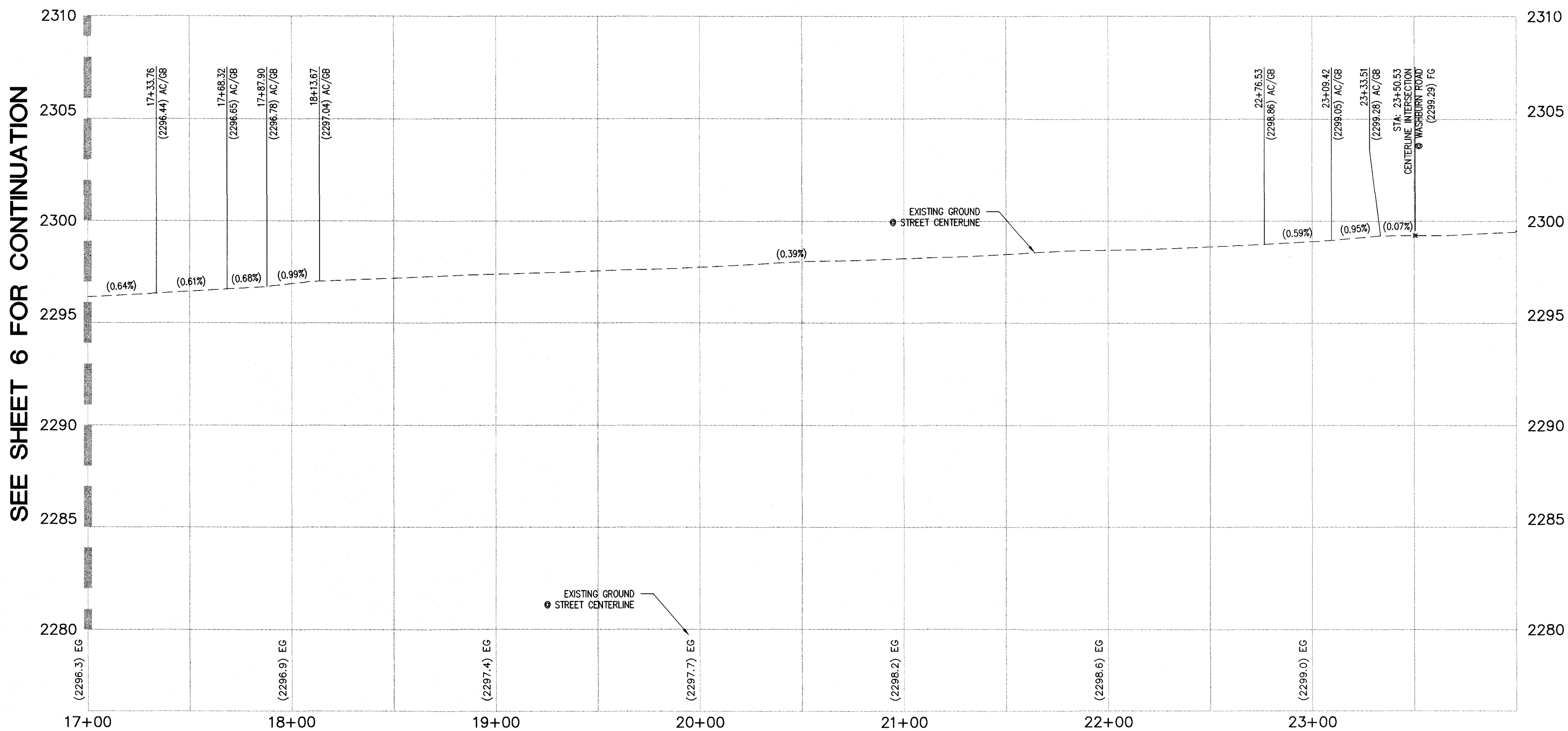
## MAVERICK STREET (PUBLIC)

PLAN

SCALE: HORIZ. 1" = 40'

## WASHBURN ROAD

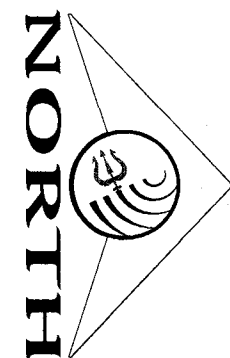
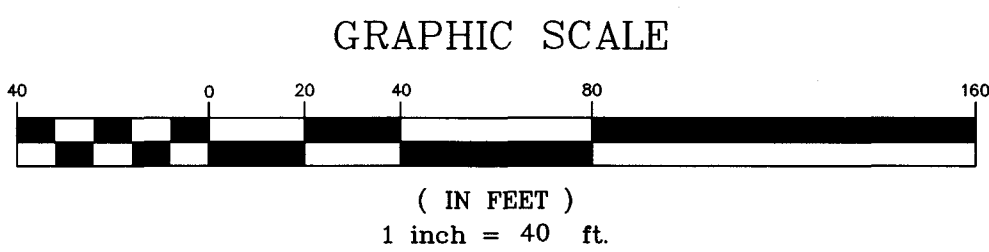
SEE SHEET 8



## MAVERICK STREET (PUBLIC)

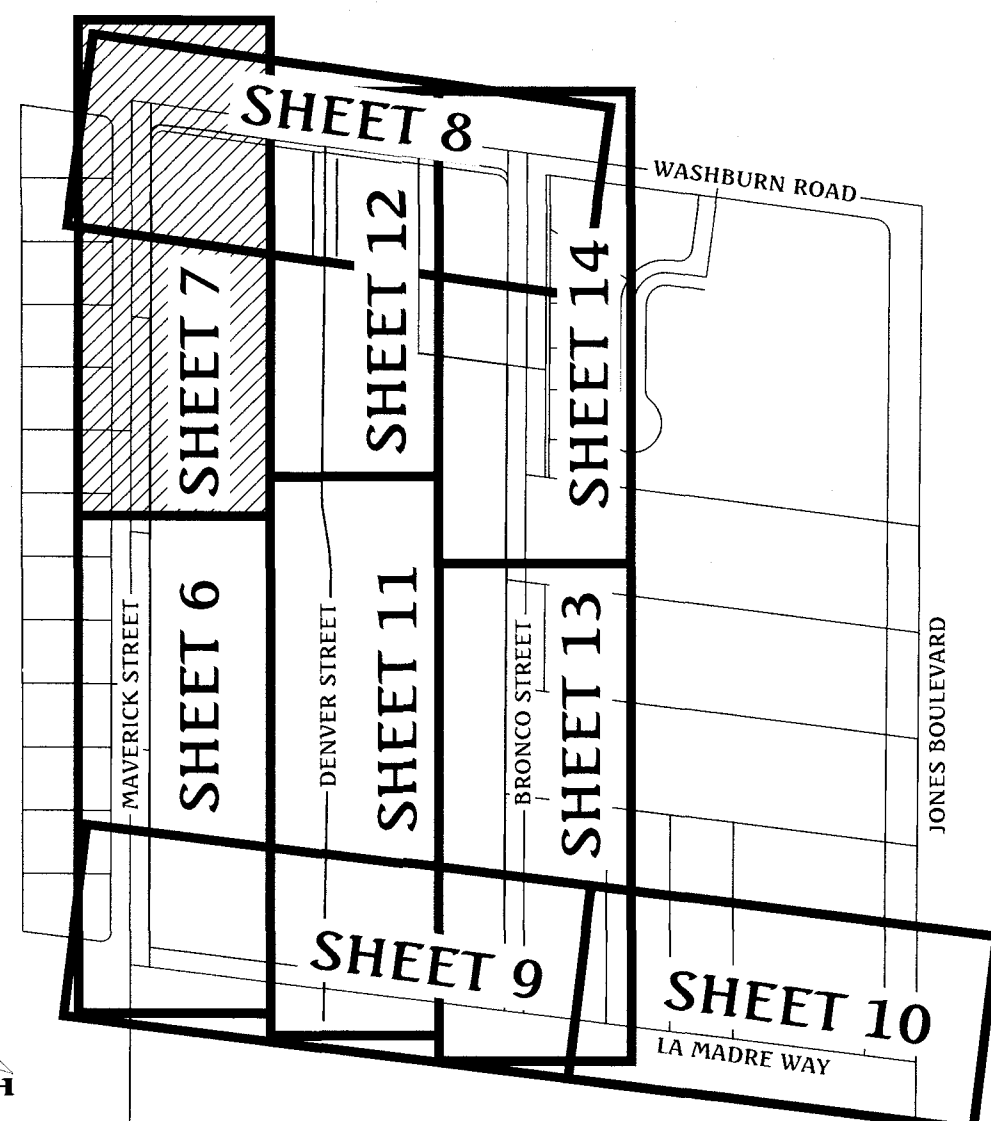
PROFILE

SCALE: HORIZ. 1" = 40'  
VERT. 1" = 4'



## KEY MAP

SCALE: 1" = 300'



| CURVE TABLE |            |         |        |         |
|-------------|------------|---------|--------|---------|
| CURVE       | DELTA      | RADIUS  | LENGTH | TANGENT |
| C1          | 097°00'52" | 20.00'  | 33.86' | 22.61'  |
| C2          | 082°59'08" | 20.00'  | 28.97' | 17.69'  |
| C3          | 097°28'44" | 20.00'  | 34.03' | 22.80'  |
| C4          | 083°08'46" | 20.00'  | 29.02' | 17.74'  |
| C5          | 096°01'31" | 20.00'  | 33.52' | 22.22'  |
| C6          | 083°58'29" | 20.00'  | 29.31' | 18.00'  |
| C7          | 096°42'54" | 20.00'  | 33.76' | 22.49'  |
| C8          | 010°43'47" | 200.00' | 37.45' | 18.78'  |
| C9          | 010°21'56" | 200.00' | 36.18' | 18.14'  |

## BASIS OF BEARING

NORTH 82°59'56" WEST, BEING THE BEARING OF THE SOUTH LINE OF THE NORTH HALF (N 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 35, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA AS SHOWN ON THAT CERTAIN MAP ON FILE IN THE CLARK COUNTY RECORDER'S OFFICE IN BOOK 117, PAGE 9 OF PLATS.

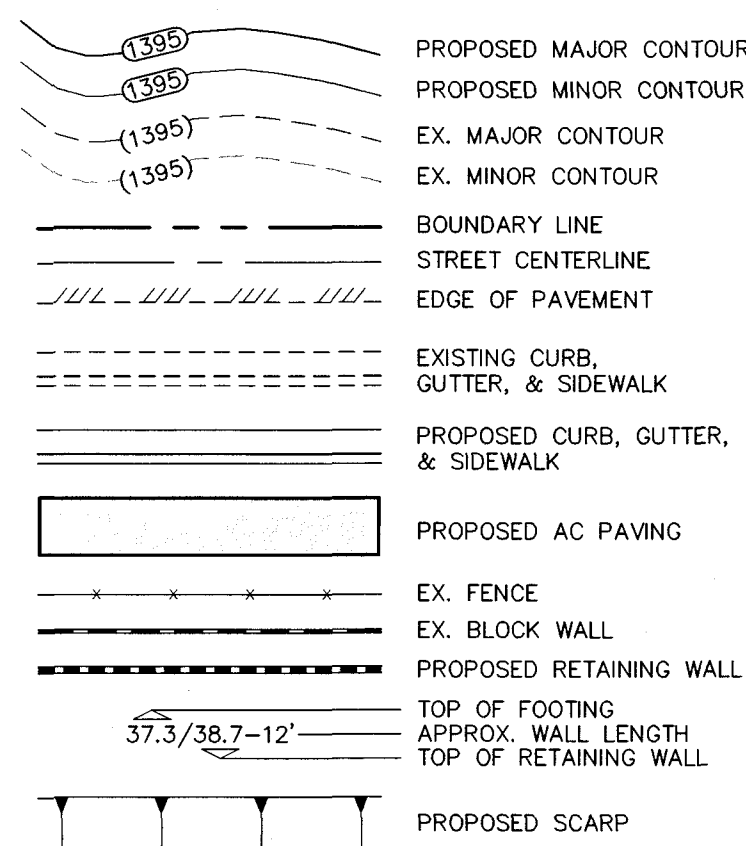
## BENCHMARK

CITY OF LAS VEGAS BENCHMARK No. BLV9035E6  
RIVET & PLATE IN TOP OF CURB AT THE SOUTHWEST CORNER OF WASHBURN ROAD & MAVERICK STREET.  
ELEVATION = 700.720 METERS (NAVD'88 2008 ADJ.)  
ELEVATION = 2298.95 U.S. FEET (NAVD'88 2008 ADJ.)

## FLOOD ZONE NOTE

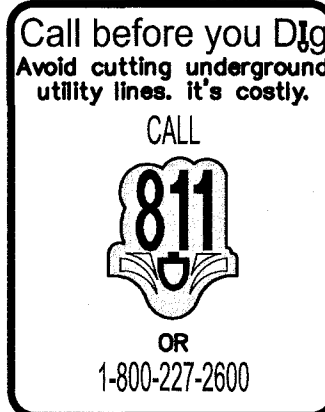
THE PROJECT SITE IS LOCATED ON FEMA FLOOD INSURANCE RATE MAP #32003C1765F. THE SITE IS LOCATED WITHIN DESIGNATED FLOOD HAZARD ZONE X BEING AN AREA DETERMINED TO BE OUTSIDE THE 100 YEAR FLOOD PLAIN.

## GRADING LEGEND



## CONSTRUCTION NOTES

- CONSTRUCT "L" TYPE CURB & GUTTER PER CCAUSD #216.
- CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234.
- CONSTRUCT 8' WIDE VALLEY GUTTER PER CCAUSD #235.
- CONSTRUCT SIDEWALK RAMP USING ARMOR TILE TRUNCATED DOWNS OR EQUIVALENT PER CCAUSD #235, CASE 1.
- SAWCUT AND MATCH EXISTING ASPHALT.
- RELOCATE EXISTING FEATURE.
- PROTECT IN PLACE EXISTING FEATURE.
- REMOVE AND REPLACE EXISTING FEATURE.



**Triton Engineering**

Office: (702) 254-1480  
6757 W. Charleston Blvd.  
Suite B  
Las Vegas, Nevada 89146  
Fax: (702) 254-1062  
www.tritoneng.com

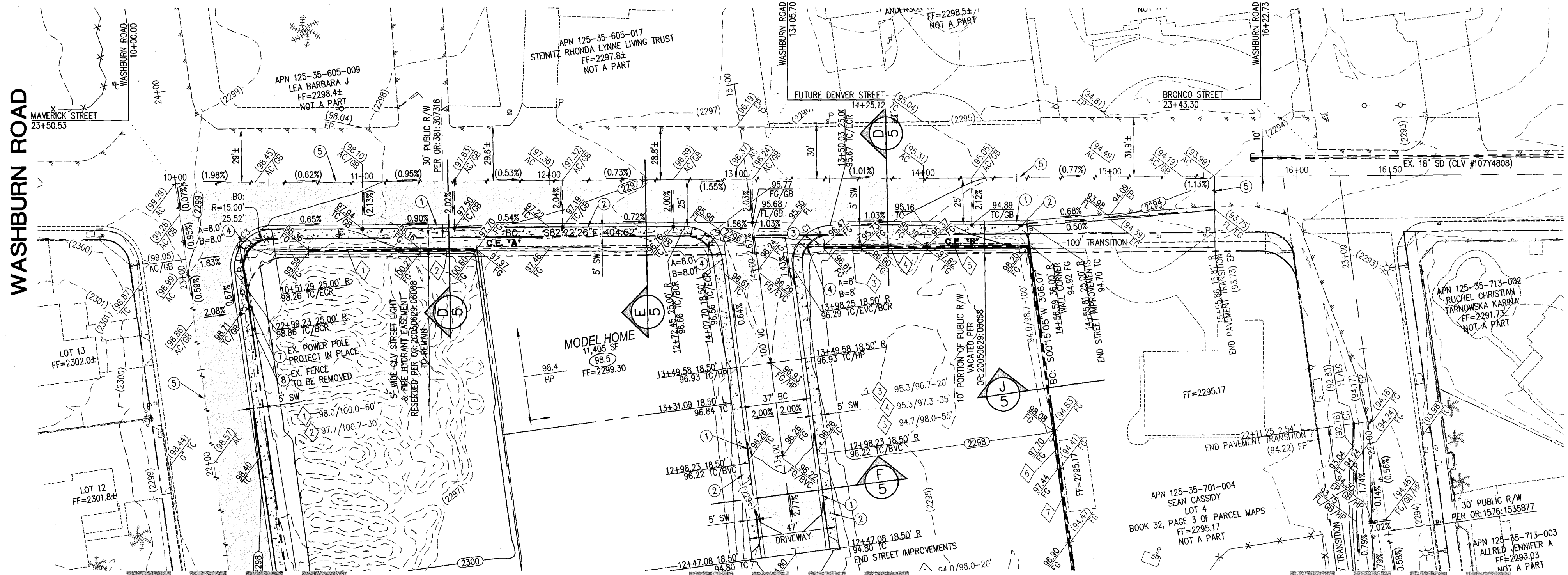
DR HORTON  
MAVERICK & WASHBURN

MAVERICK STREET  
PLAN AND PROFILE

STA 17+00 TO STA 24+00

SHEET  
7  
OF 10  
C.L.V. DWG.#





MAVERICK STREET  
SEE SHEET 7

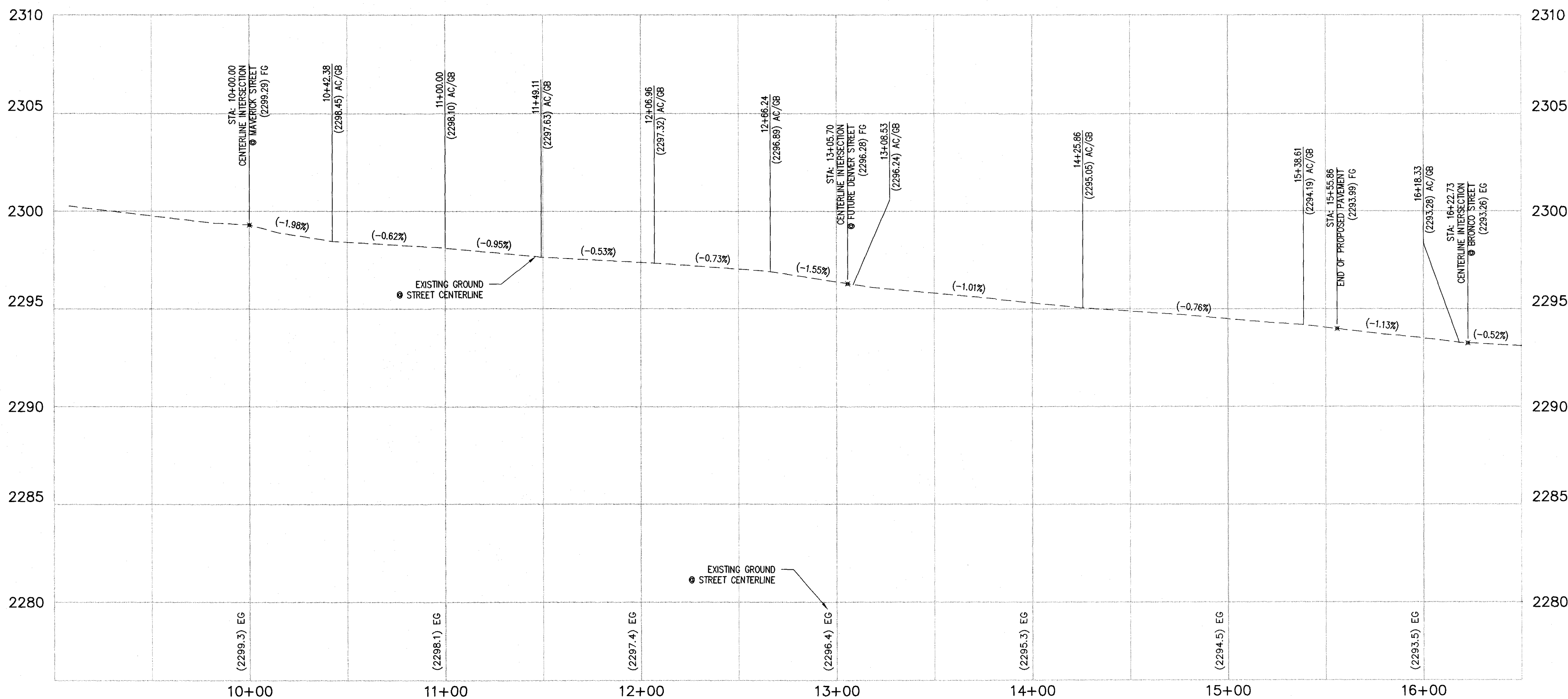
FUTURE DENVER STREET  
SEE SHEET 12

BRONCO STREET  
SEE SHEET 14

## WASHBURN ROAD (PUBLIC)

PLAN

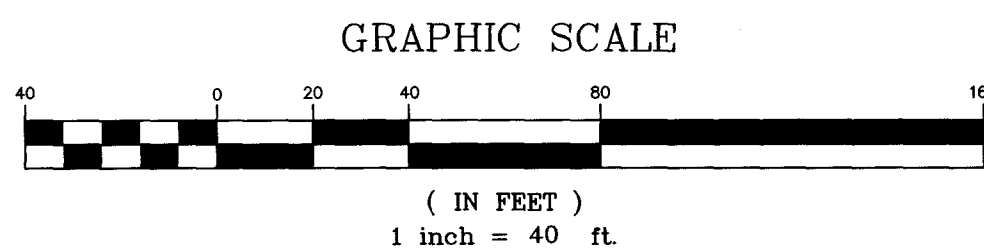
SCALE: HORIZ. 1" = 40'



## WASHBURN ROAD (PUBLIC)

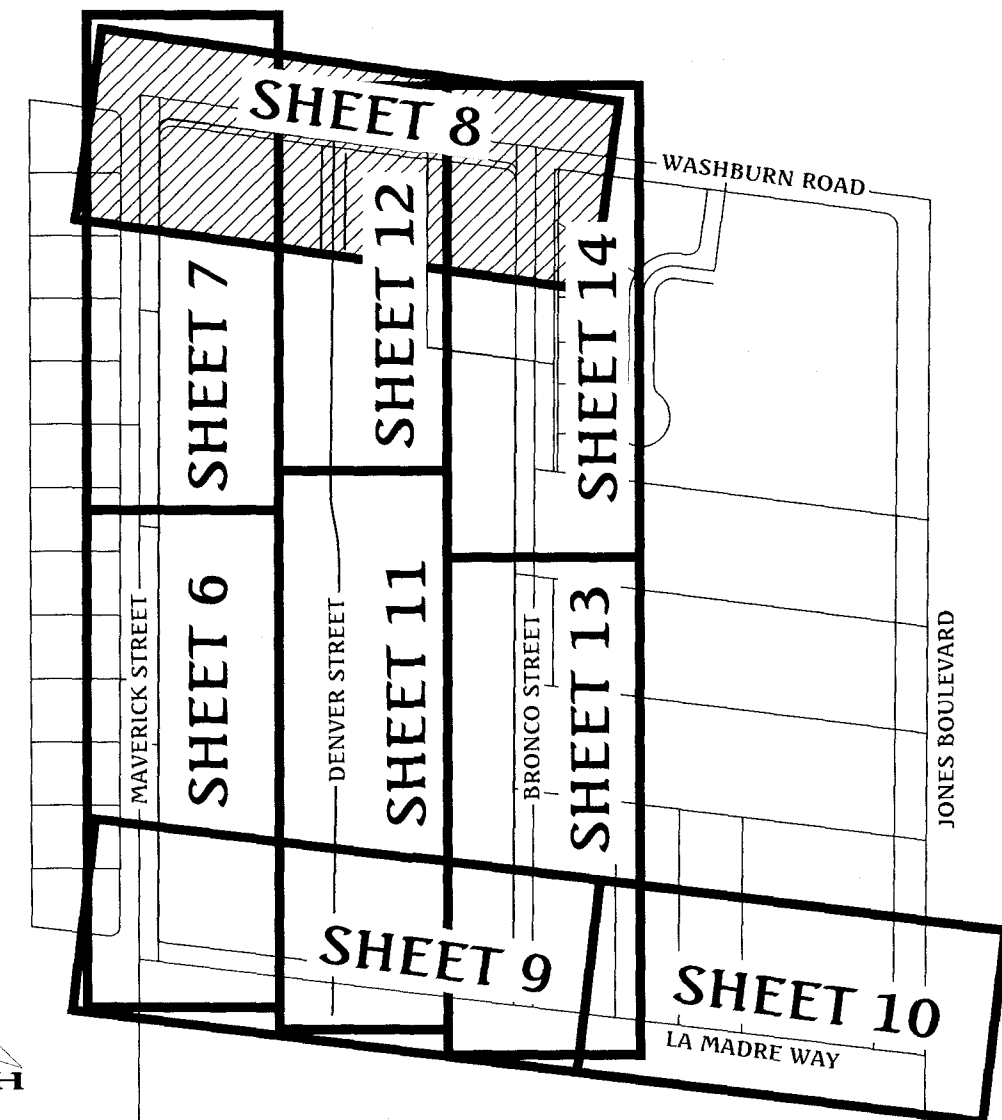
PROFILE

SCALE: HORIZ. 1" = 40'  
VERT. 1" = 4'



### KEY MAP

SCALE: 1" = 300'



| CURVE TABLE |            |         |        |         |
|-------------|------------|---------|--------|---------|
| CURVE       | DELTA      | RADIUS  | LENGTH | TANGENT |
| C1          | 097°00'52" | 20.00'  | 33.86' | 22.61'  |
| C2          | 082°59'08" | 20.00'  | 28.97' | 17.69'  |
| C3          | 097°28'44" | 20.00'  | 34.03' | 22.80'  |
| C4          | 083°08'46" | 20.00'  | 29.02' | 17.74'  |
| C5          | 096°01'31" | 20.00'  | 33.52' | 22.22'  |
| C6          | 083°58'29" | 20.00'  | 29.31' | 18.00'  |
| C7          | 096°42'54" | 20.00'  | 33.76' | 22.49'  |
| C8          | 010°43'47" | 200.00' | 37.45' | 18.78'  |
| C9          | 010°21'56" | 200.00' | 36.18' | 18.14'  |

### BASIS OF BEARING

NORTH 82°59'56" WEST, BEING THE BEARING OF THE SOUTH LINE OF THE NORTH HALF (N 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 35, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M. CITY OF LAS VEGAS, CLARK COUNTY, NEVADA AS SHOWN ON THAT CERTAIN MAP ON FILE IN THE CLARK COUNTY RECORDER'S OFFICE IN BOOK 117, PAGE 9 OF PLATS.

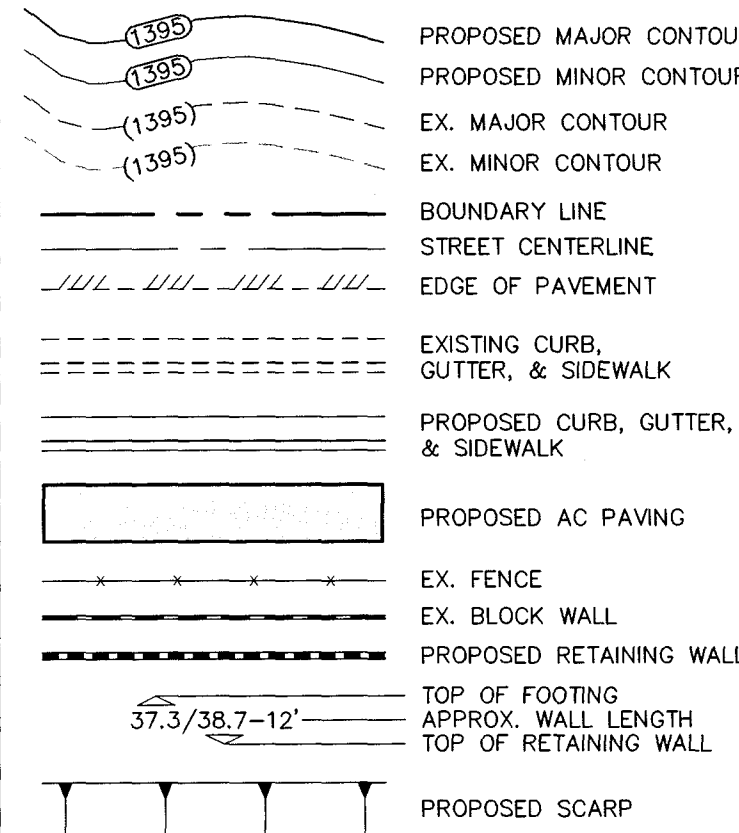
### BENCHMARK

CITY OF LAS VEGAS BENCHMARK No. 8LV9035E6  
RIVET & PLATE IN TOP OF CURB AT THE SOUTHWEST CORNER OF WASHBURN ROAD & MAVERICK STREET.  
ELEVATION = 700.720 METERS (NAVD'88 2008 ADJ.)  
ELEVATION = 2298.95 U.S. FEET (NAVD'88 2008 ADJ.)

### FLOOD ZONE NOTE

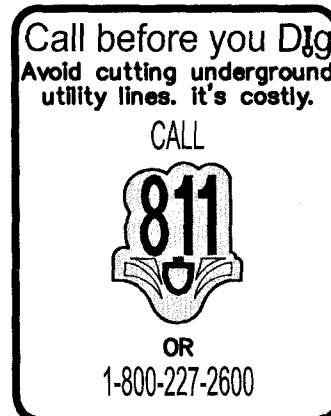
THE PROJECT SITE IS LOCATED ON FEMA FLOOD INSURANCE RATE MAP #32003C1765F. THE SITE IS LOCATED WITHIN DESIGNATED FLOOD HAZARD ZONE X BEING AN AREA DETERMINED TO BE OUTSIDE THE 100 YEAR FLOOD PLAIN.

### GRADING LEGEND

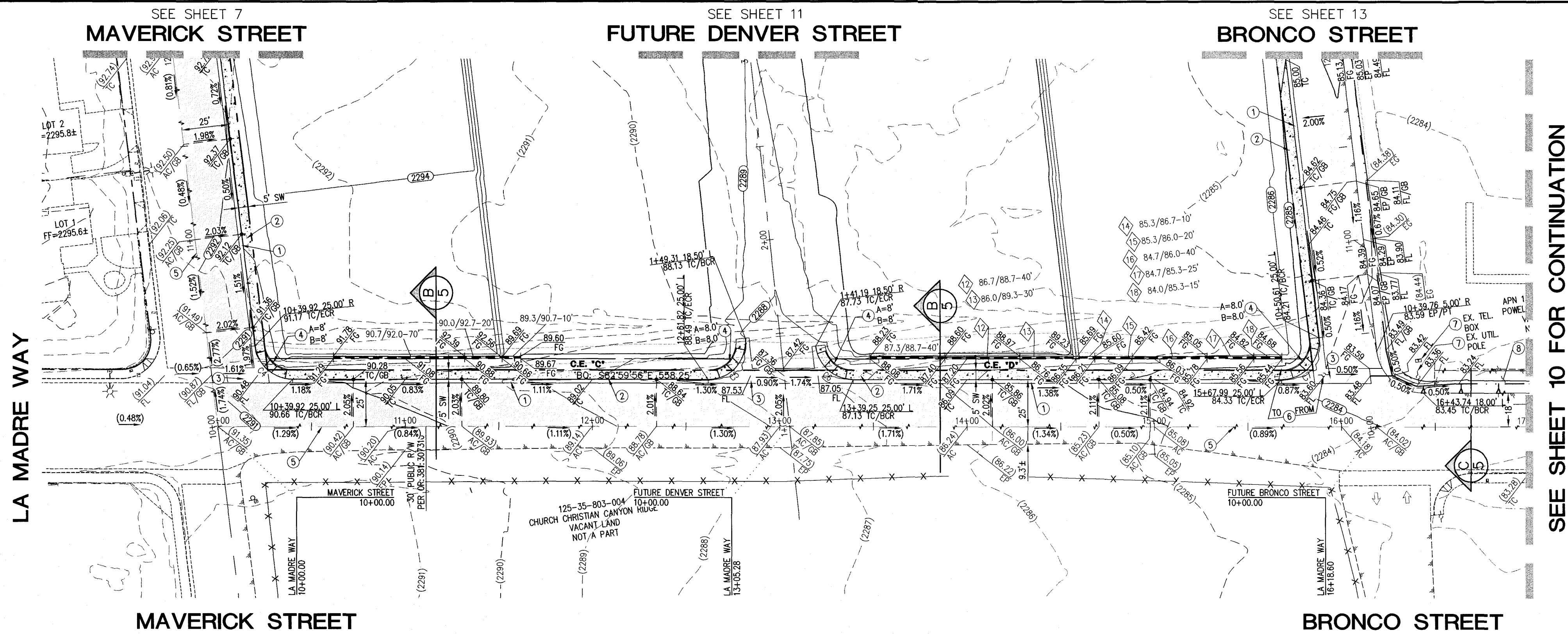


### CONSTRUCTION NOTES

1. CONSTRUCT "L" TYPE CURB & GUTTER PER CCAUSD #216.
2. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234.
3. CONSTRUCT 8' WIDE VALLEY GUTTER PER CCAUSD #228.
4. CONSTRUCT SIDEWALK RAMP USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD #235, CASE I.
5. SAWCUT AND MATCH EXISTING ASPHALT.
6. RELOCATE EXISTING FEATURE.
7. PROTECT IN PLACE EXISTING FEATURE.
8. REMOVE AND REPLACE EXISTING FEATURE.



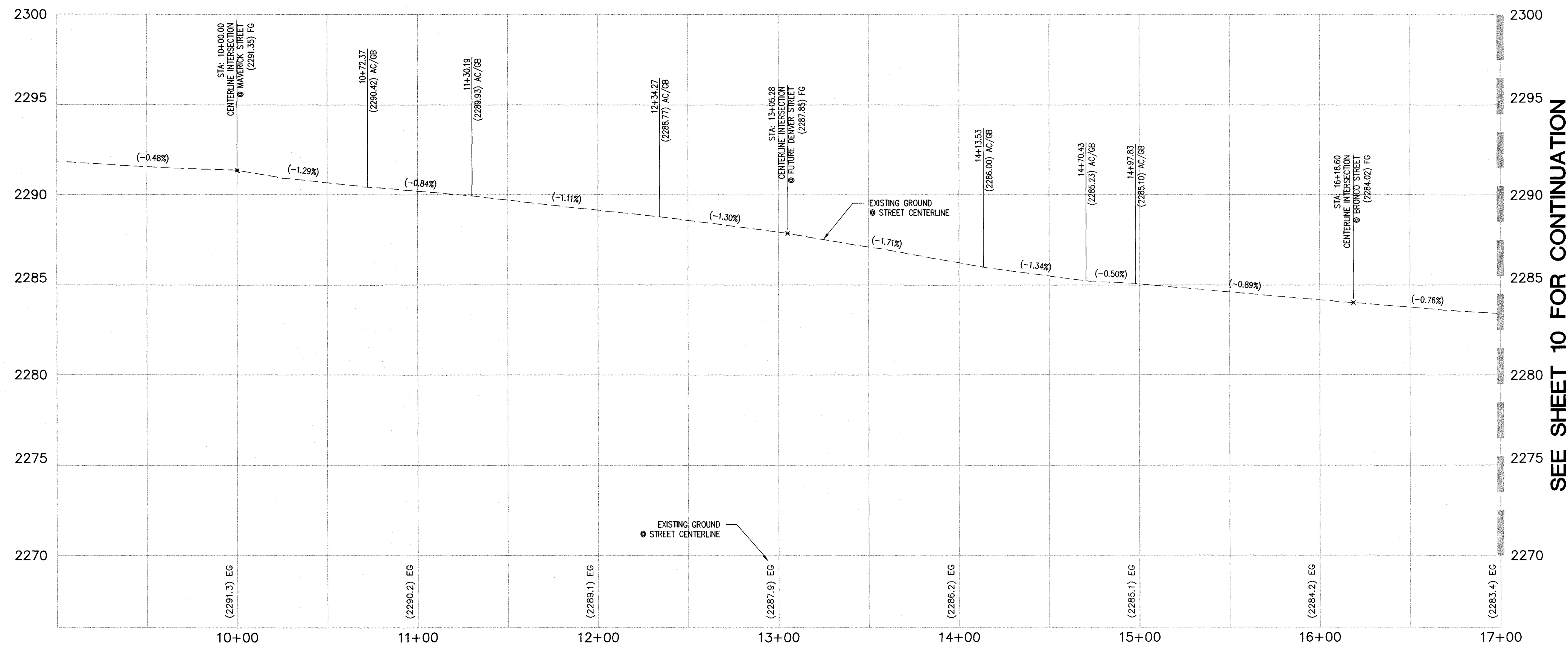




## LA MADRE WAY (PUBLIC)

### PLAN

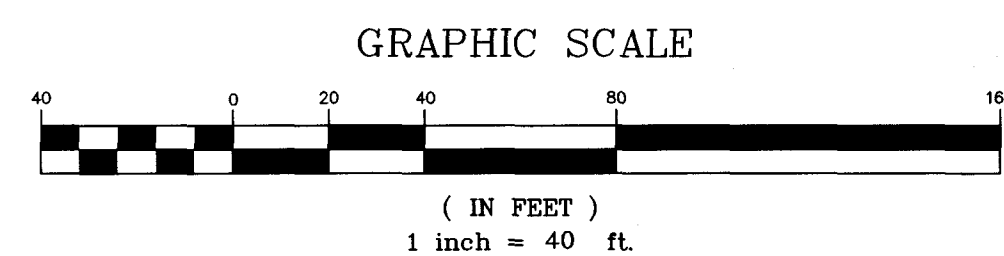
SCALE: HORIZ. 1" = 40'



## LA MADRE WAY (PUBLIC)

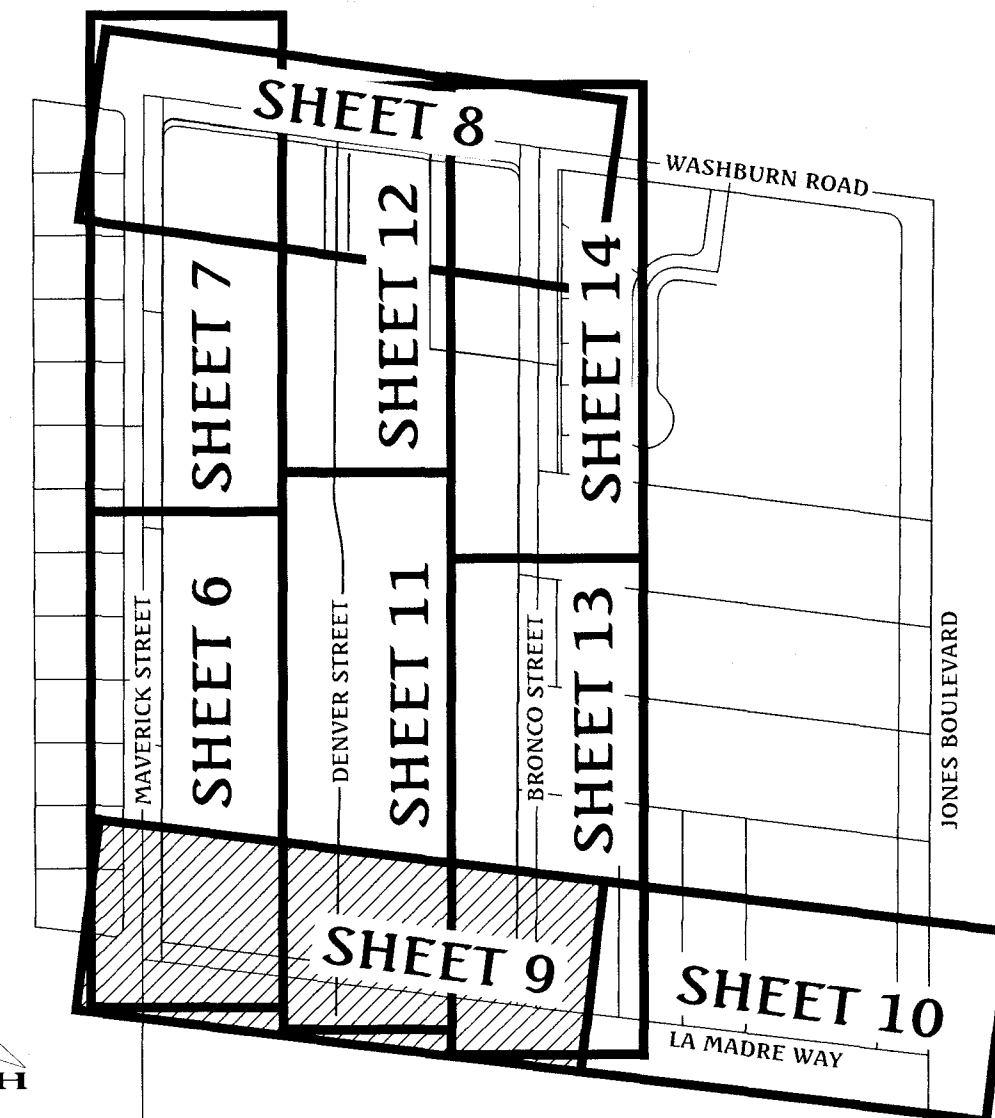
### PROFILE

SCALE: HORIZ. 1" = 40'  
VERT. 1" = 4'



### KEY MAP

SCALE: 1" = 300'



| CURVE TABLE |            |         |        |         |
|-------------|------------|---------|--------|---------|
| CURVE       | DELTA      | RADIUS  | LENGTH | TANGENT |
| C1          | 097°00'52" | 20.00'  | 33.86' | 22.61'  |
| C2          | 082°59'08" | 20.00'  | 28.97' | 17.69'  |
| C3          | 097°28'44" | 20.00'  | 34.03' | 22.80'  |
| C4          | 083°08'46" | 20.00'  | 29.02' | 17.74'  |
| C5          | 096°01'31" | 20.00'  | 33.52' | 22.22'  |
| C6          | 083°58'29" | 20.00'  | 29.31' | 18.00'  |
| C7          | 096°42'54" | 20.00'  | 33.76' | 22.49'  |
| C8          | 010°43'47" | 200.00' | 37.45' | 18.78'  |
| C9          | 010°21'56" | 200.00' | 36.18' | 18.14'  |

### BASIS OF BEARING

NORTH 62°59'56" WEST, BEING THE BEARING OF THE SOUTH LINE OF THE NORTH HALF (N 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 35, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA AS SHOWN ON THAT CERTAIN MAP ON FILE IN THE CLARK COUNTY RECORDER'S OFFICE IN BOOK 117, PAGE 9 OF PLATS.

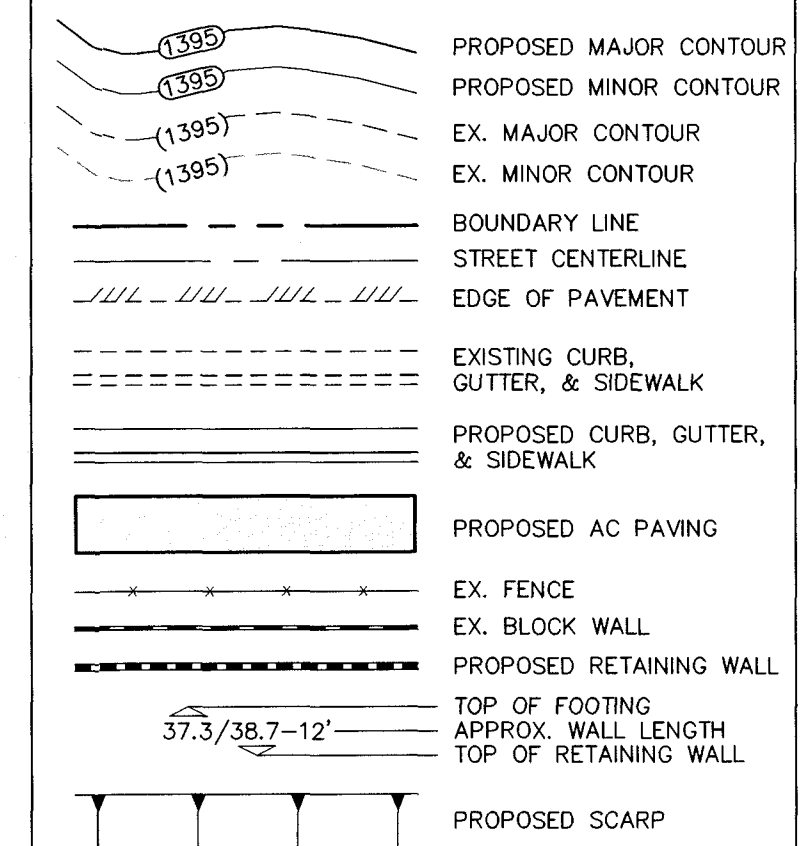
### BENCHMARK

CITY OF LAS VEGAS BENCHMARK No. BLV903566  
RIVET & PLATE IN TOP OF CURB AT THE SOUTHWEST CORNER OF WASHBURN ROAD & MAVERICK STREET.  
ELEVATION = 700.720 METERS (NAVD'88 2008 ADJ.)  
ELEVATION = 2298.95 U.S. FEET (NAVD'88 2008 ADJ.)

### FLOOD ZONE NOTE

THE PROJECT SITE IS LOCATED ON FEMA FLOOD INSURANCE RATE MAP #32003C1765F. THE SITE IS LOCATED WITHIN DESIGNATED FLOOD HAZARD ZONE X BEING AN AREA DETERMINED TO BE OUTSIDE THE 100 YEAR FLOOD PLAIN.

### GRADING LEGEND



### CONSTRUCTION NOTES

- CONSTRUCT "L" TYPE CURB & GUTTER PER CCAUSD #216.
- CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234.
- CONSTRUCT 8' WIDE VALLEY GUTTER PER CCAUSD #228.
- CONSTRUCT SIDEWALK RAMP USING ARMOR TILE TRUNCATED DOWNS OR EQUIVALENT PER CCAUSD #235, CASE 1.
- SAWCUT AND MATCH EXISTING ASPHALT.
- RELOCATE EXISTING FEATURE.
- PROTECT IN PLACE EXISTING FEATURE.
- REMOVE AND REPLACE EXISTING FEATURE.

Call before you Dig  
Underground  
1-702-432-5300

Avoid overhead power line contact. It's costly.

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

Call before you Dig  
OR  
1-800-227-2600

| NO. | DESCRIPTION | DATE | APP'D. |
|-----|-------------|------|--------|
| 1   |             |      |        |
| 2   |             |      |        |
| 3   |             |      |        |
| 4   |             |      |        |
| 5   |             |      |        |
| 6   |             |      |        |
| 7   |             |      |        |
| 8   |             |      |        |
| 9   |             |      |        |
| 10  |             |      |        |
| 11  |             |      |        |
| 12  |             |      |        |
| 13  |             |      |        |
| 14  |             |      |        |
| 15  |             |      |        |
| 16  |             |      |        |
| 17  |             |      |        |
| 18  |             |      |        |
| 19  |             |      |        |
| 20  |             |      |        |
| 21  |             |      |        |
| 22  |             |      |        |
| 23  |             |      |        |
| 24  |             |      |        |
| 25  |             |      |        |
| 26  |             |      |        |
| 27  |             |      |        |
| 28  |             |      |        |
| 29  |             |      |        |
| 30  |             |      |        |
| 31  |             |      |        |
| 32  |             |      |        |
| 33  |             |      |        |
| 34  |             |      |        |
| 35  |             |      |        |
| 36  |             |      |        |
| 37  |             |      |        |
| 38  |             |      |        |
| 39  |             |      |        |
| 40  |             |      |        |
| 41  |             |      |        |
| 42  |             |      |        |
| 43  |             |      |        |
| 44  |             |      |        |
| 45  |             |      |        |
| 46  |             |      |        |
| 47  |             |      |        |
| 48  |             |      |        |
| 49  |             |      |        |
| 50  |             |      |        |
| 51  |             |      |        |
| 52  |             |      |        |
| 53  |             |      |        |
| 54  |             |      |        |
| 55  |             |      |        |
| 56  |             |      |        |
| 57  |             |      |        |
| 58  |             |      |        |
| 59  |             |      |        |
| 60  |             |      |        |
| 61  |             |      |        |
| 62  |             |      |        |
| 63  |             |      |        |
| 64  |             |      |        |
| 65  |             |      |        |
| 66  |             |      |        |
| 67  |             |      |        |
| 68  |             |      |        |
| 69  |             |      |        |
| 70  |             |      |        |
| 71  |             |      |        |
| 72  |             |      |        |
| 73  |             |      |        |
| 74  |             |      |        |
| 75  |             |      |        |
| 76  |             |      |        |
| 77  |             |      |        |
| 78  |             |      |        |
| 79  |             |      |        |
| 80  |             |      |        |
| 81  |             |      |        |
| 82  |             |      |        |
| 83  |             |      |        |
| 84  |             |      |        |
| 85  |             |      |        |
| 86  |             |      |        |
| 87  |             |      |        |
| 88  |             |      |        |
| 89  |             |      |        |
| 90  |             |      |        |
| 91  |             |      |        |
| 92  |             |      |        |
| 93  |             |      |        |
| 94  |             |      |        |
| 95  |             |      |        |
| 96  |             |      |        |
| 97  |             |      |        |
| 98  |             |      |        |
| 99  |             |      |        |
| 100 |             |      |        |

DATE: 07/14/2016  
PM: J. PEARCE  
DRAWN BY: D.L.  
DESIGNED BY: D.L.  
CHECKED BY: D.L.  
ADA CHECKED: D.L.  
JOB NO.: 007098  
SCALE: 1" = 40'

DR HORTON  
MAVERICK & WASHBURN  
LA MADRE WAY  
PLAN AND PROFILE  
STA 10+00 TO STA 17+00



DR HORTON  
MAVERICK & WASHBURN  
LA MADRE WAY  
PLAN AND PROFILE  
STA 10+00 TO STA 17+00

DATE: 07/14/2016  
PM: J. PEARCE  
DRAWN BY: D.L.  
DESIGNED BY: D.L.  
CHECKED BY: D.L.  
ADA CHECKED: D.L.  
JOB NO.: 007098  
SCALE: 1" = 40'

SHEET 9 OF 10  
C.L.V. DWG.#

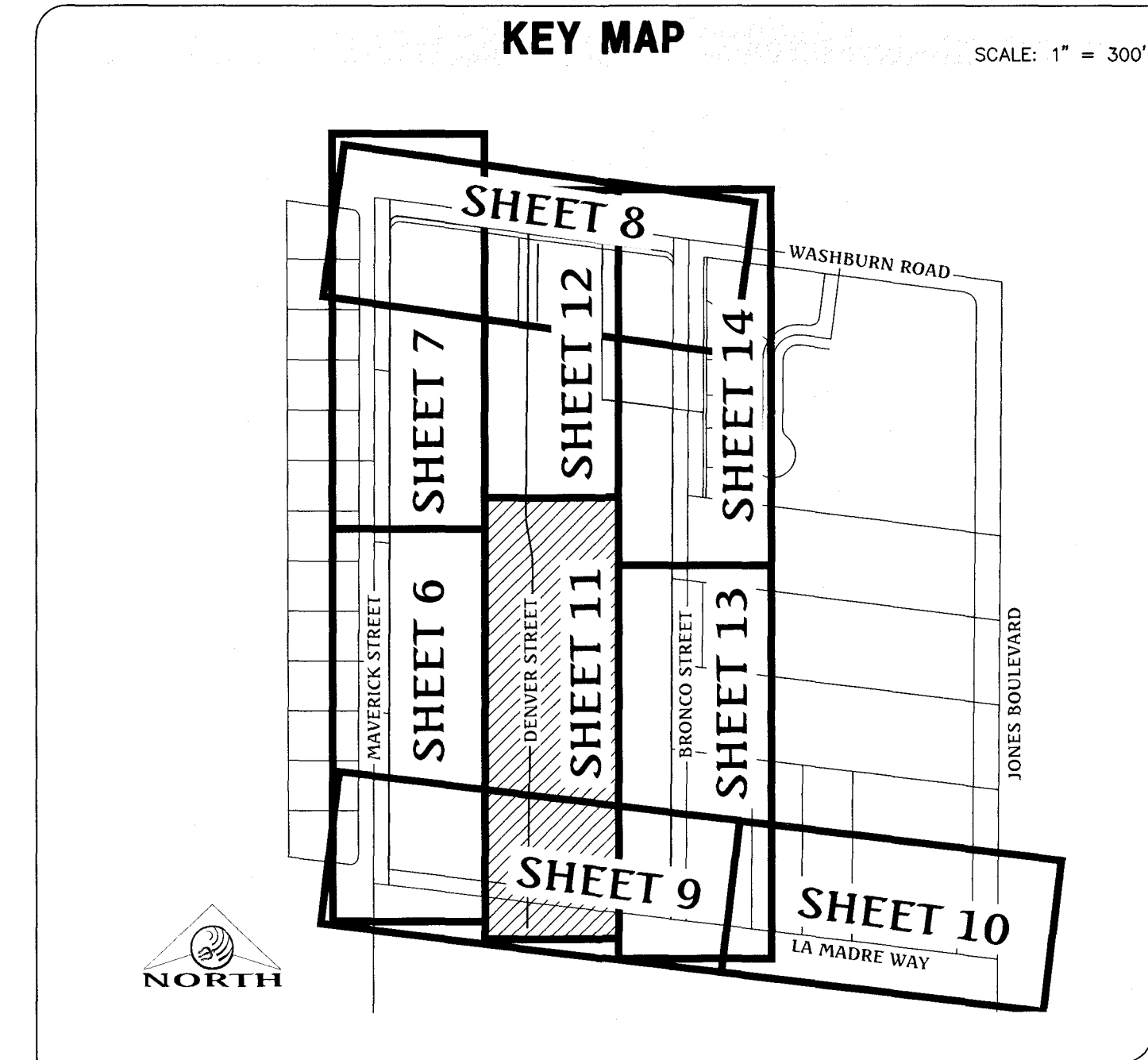
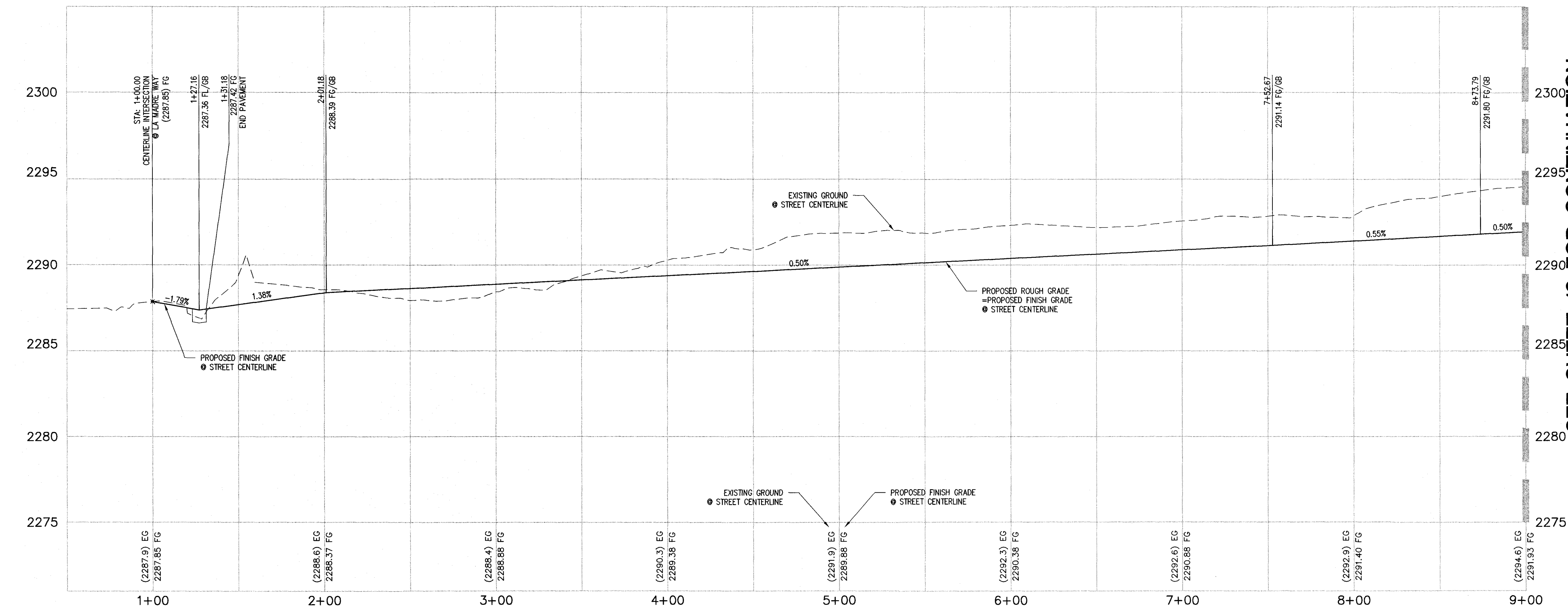
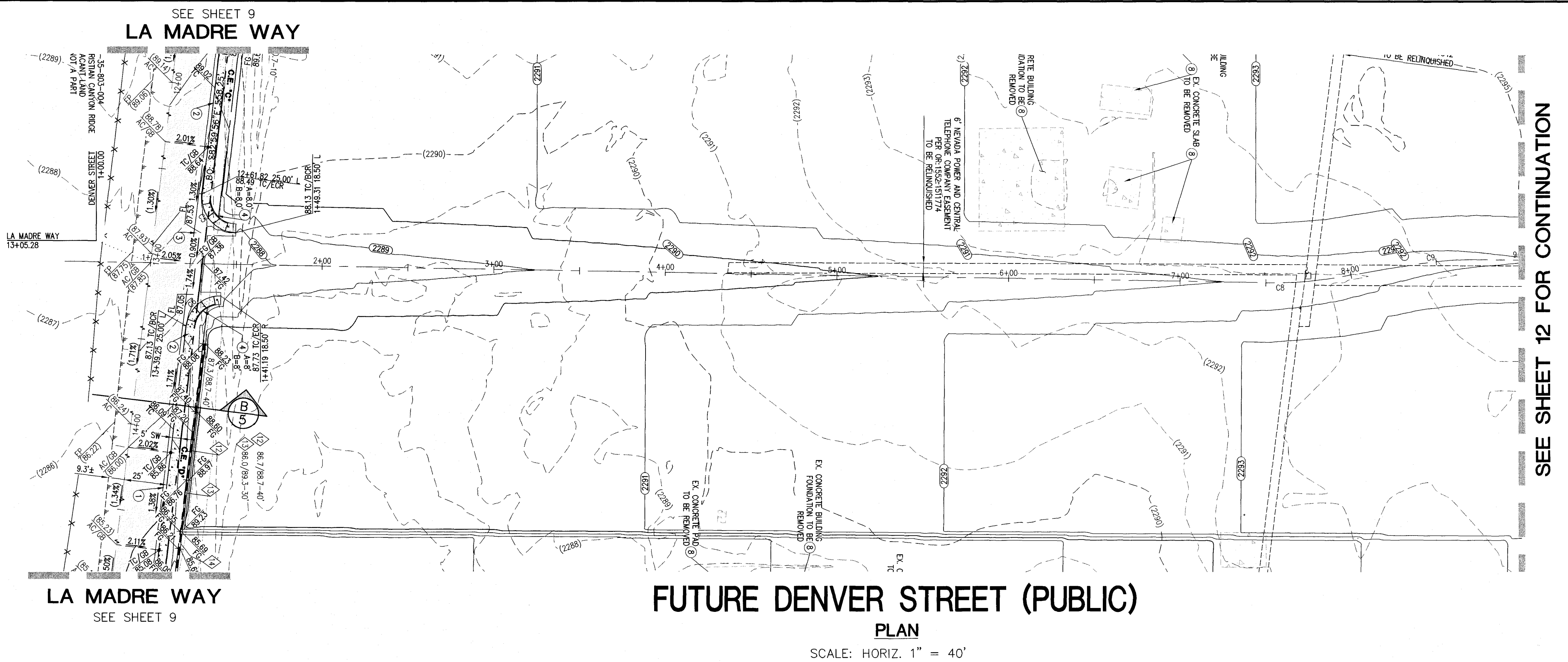
DATE: 07/14/2016  
PM: J. PEARCE  
DRAWN BY: D.L.  
DESIGNED BY: D.L.  
CHECKED BY: D.L.  
ADA CHECKED: D.L.  
JOB NO.: 007098  
SCALE: 1" = 40'



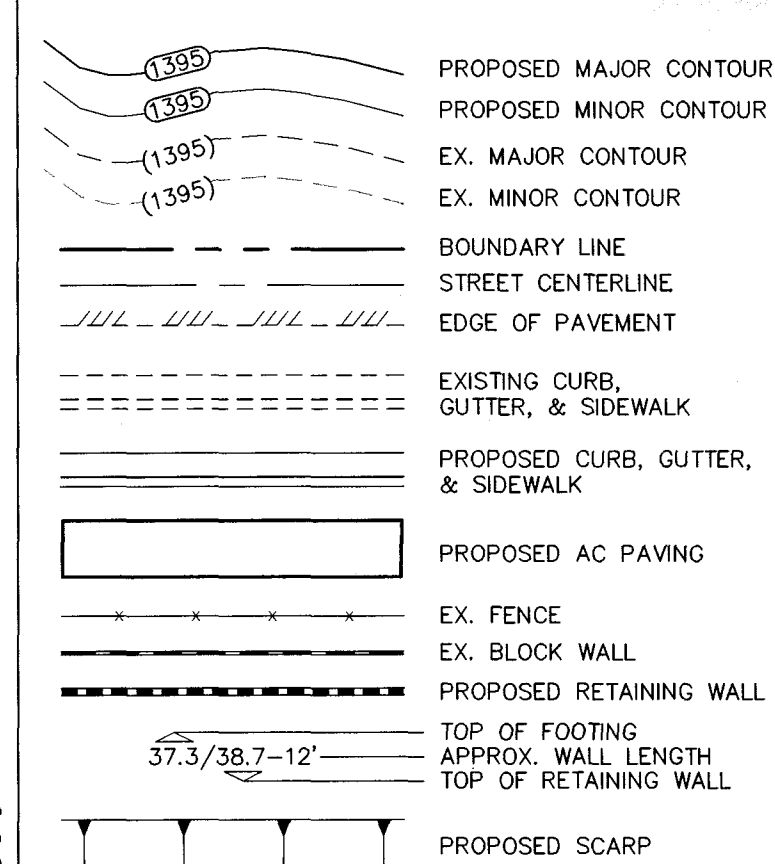




Q:\triton drawings\007 098 maverick washburn\Drawings\DRAINAGE\06\_drainage plan-profiles.dwg d:\maverick Thu, 14 Jul 2016 - 12:08pm



**GRADING LEGEND**



**BASIS OF BEARINGS**

NORTH 82°59'56" WEST, BEING THE BEARING OF THE SOUTH LINE OF THE NORTH HALF (N 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 35, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA AS SHOWN ON THAT CERTAIN MAP ON FILE IN THE CLARK COUNTY RECORDER'S OFFICE IN BOOK 117, PAGE 9 OF PLATS.

**BENCHMARK**

CITY OF LAS VEGAS BENCHMARK No. BLV9035E6  
RIVET & PLATE IN TOP OF CURB AT THE SOUTHWEST CORNER OF WASHBURN ROAD & MAVERICK STREET.  
ELEVATION = 700.720 METERS (NAVD'88 2008 ADJ.)  
ELEVATION = 2298.95 U.S. FEET (NAVD'88 2008 ADJ.)

**FLOOD ZONE NOTE**

THE PROJECT SITE IS LOCATED ON FEMA FLOOD INSURANCE RATE MAP #52003C1765F. THE SITE IS LOCATED WITHIN DESIGNATED FLOOD HAZARD ZONE X BEING AN AREA DETERMINED TO BE OUTSIDE THE 100 YEAR FLOOD PLAIN.

**CONSTRUCTION NOTES**

1. CONSTRUCT "L" TYPE CURB & GUTTER PER CCAUSD #216.
2. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234.
3. CONSTRUCT 8' WIDE VALLEY GUTTER PER CCAUSD #228.
4. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOWNS OR EQUIVALENT PER CCAUSD #235, CASE I.
5. SAWCUT AND MATCH EXISTING ASPHALT.
6. RELOCATE EXISTING FEATURE.
7. PROTECT IN PLACE EXISTING FEATURE.
8. REMOVE AND REPLACE EXISTING FEATURE.

| CURVE TABLE |           |         |        |         |
|-------------|-----------|---------|--------|---------|
| CURVE       | DELTA     | RADIUS  | LENGTH | TANGENT |
| C1          | 09°00'52" | 20.00'  | 33.86' | 22.61'  |
| C2          | 08°25'08" | 20.00'  | 28.97' | 17.69'  |
| C3          | 09°28'44" | 20.00'  | 34.03' | 22.80'  |
| C4          | 08°30'46" | 20.00'  | 29.02' | 17.74'  |
| C5          | 09°01'31" | 20.00'  | 33.52' | 22.22'  |
| C6          | 08°58'29" | 20.00'  | 29.31' | 18.00'  |
| C7          | 09°42'54" | 20.00'  | 33.76' | 22.49'  |
| C8          | 01°43'47" | 200.00' | 37.45' | 18.78'  |
| C9          | 01°21'56" | 200.00' | 36.18' | 18.14'  |

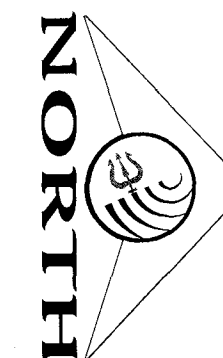
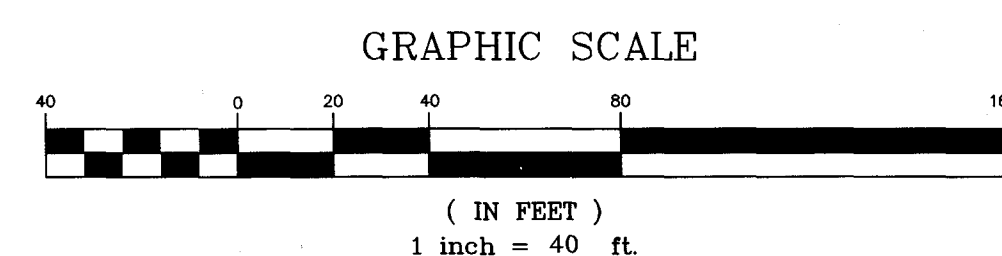
**FAST**  
Call before you Dig  
Underground  
1-702-432-5300

Avoid overhead power line contact. It's costly.  
Call before you Dig  
Overhead  
1-702-227-2929

Call before you Dig  
Avoid cutting underground utility lines. It's costly.  
CALL 811  
OR 1-800-227-2600

**FUTURE DENVER STREET (PUBLIC)**

SCALE: HORIZ. 1" = 40'  
VERT. 1" = 4'



| DATE              | NO. | DESCRIPTION | DATE | APP'D |
|-------------------|-----|-------------|------|-------|
| 07/14/2016        |     |             |      |       |
| PM: J. PEARCE     |     |             |      |       |
| DRAWN BY: D.L.    |     |             |      |       |
| DESIGNED BY: D.L. |     |             |      |       |
| CHECKED BY:       |     |             |      |       |
| ADA CHECKED:      |     |             |      |       |
| JOB NO.: 007.098  |     |             |      |       |
| SCALE: 1" = 40'   |     |             |      |       |

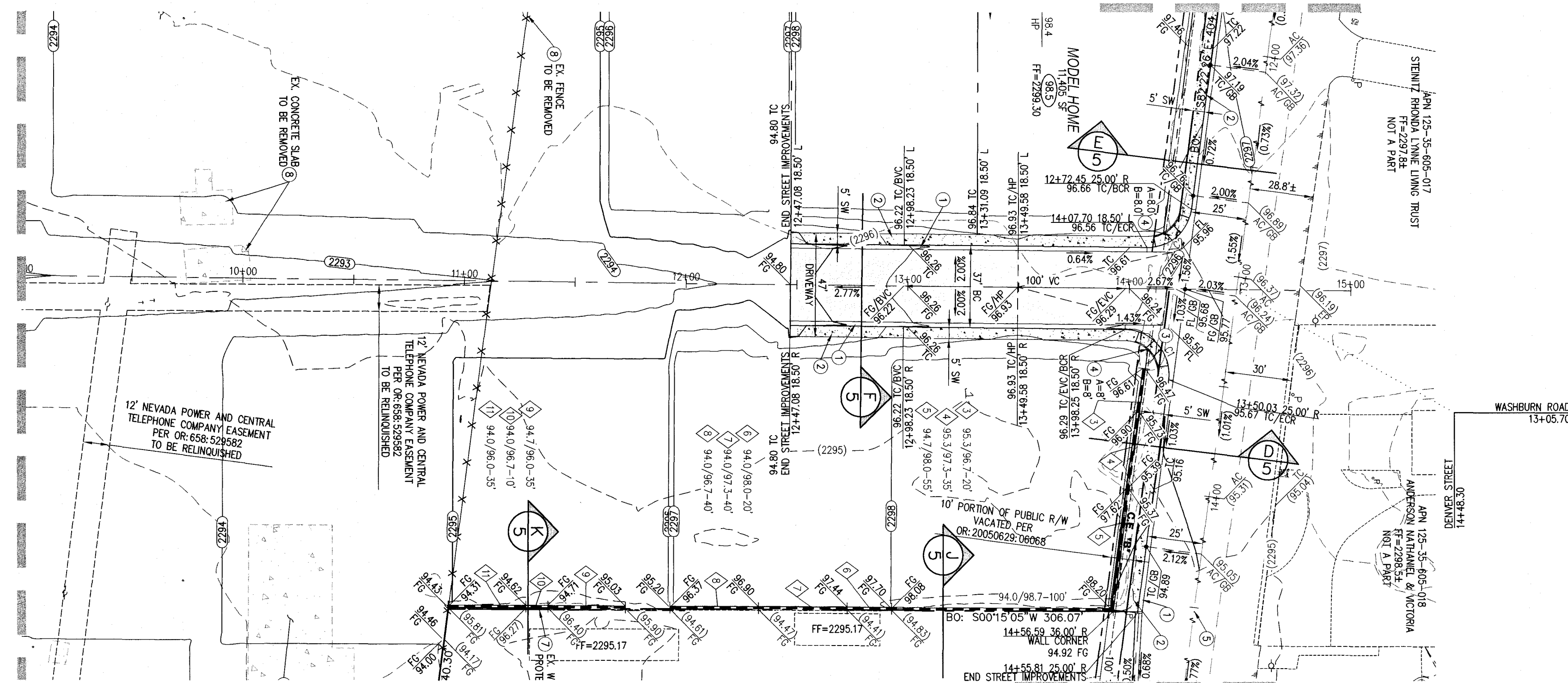
**Triton Engineering**

Office: (702) 354-1480  
Fax: (702) 354-1480  
www.tritoneng.com

6737 W. Charleston Blvd.  
Suite B  
Las Vegas, Nevada 89146

DR HORTON  
MAVERICK & WASHBURN  
DENVER STREET  
PLAN AND PROFILE  
STA 1+00 TO STA 9+00



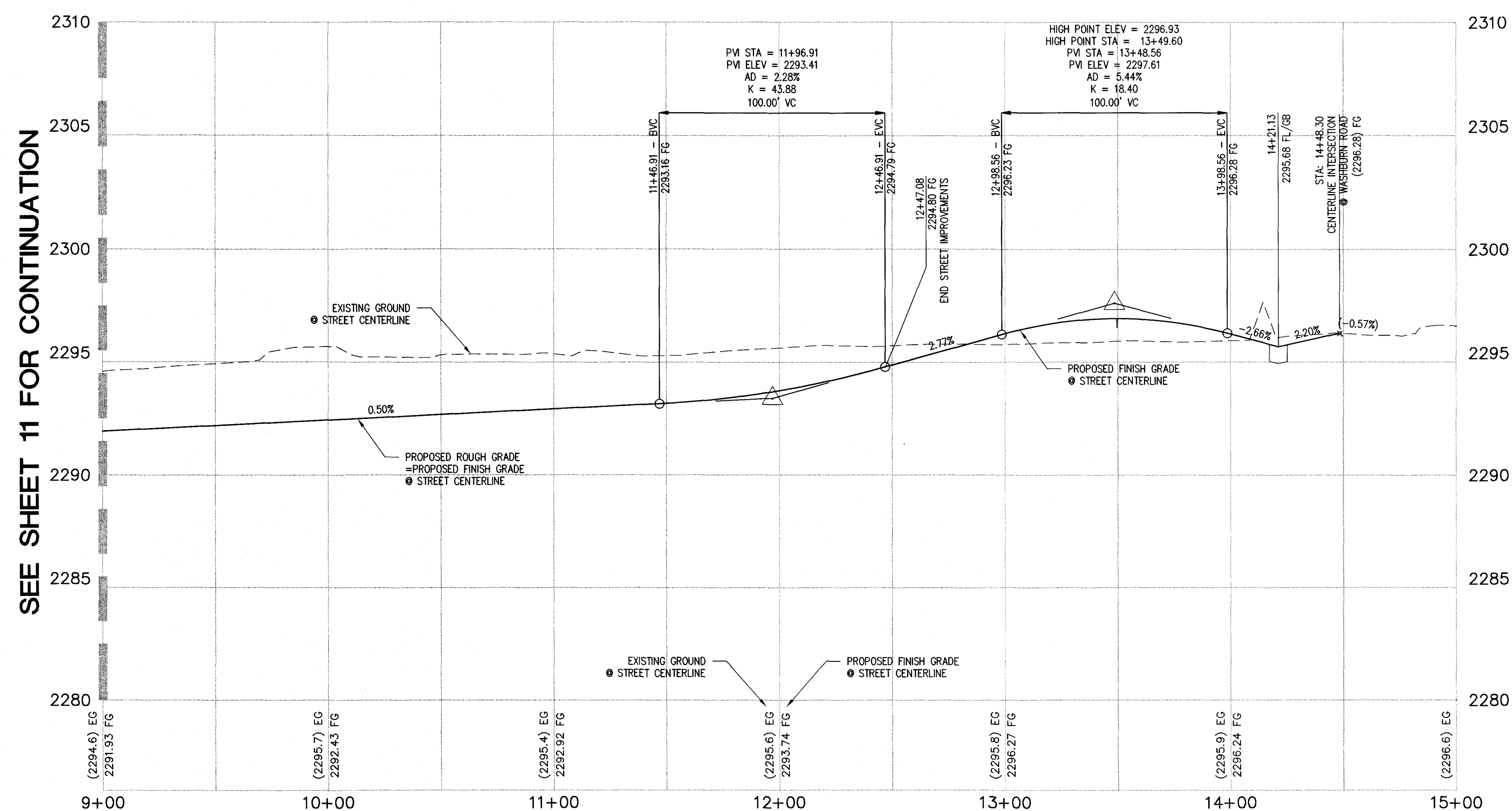


# FUTURE DENVER STREET (PUBLIC) WASHBURN ROAD

## PLAN

SCALE: HORIZ. 1" = 40'

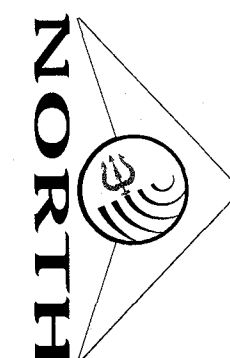
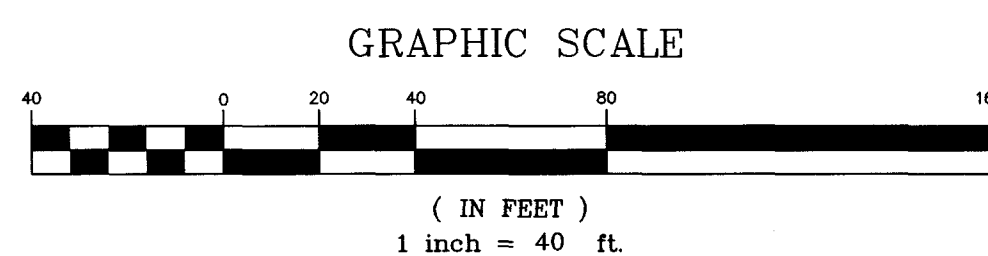
SEE SHEET 8



## FUTURE DENVER STREET (PUBLIC)

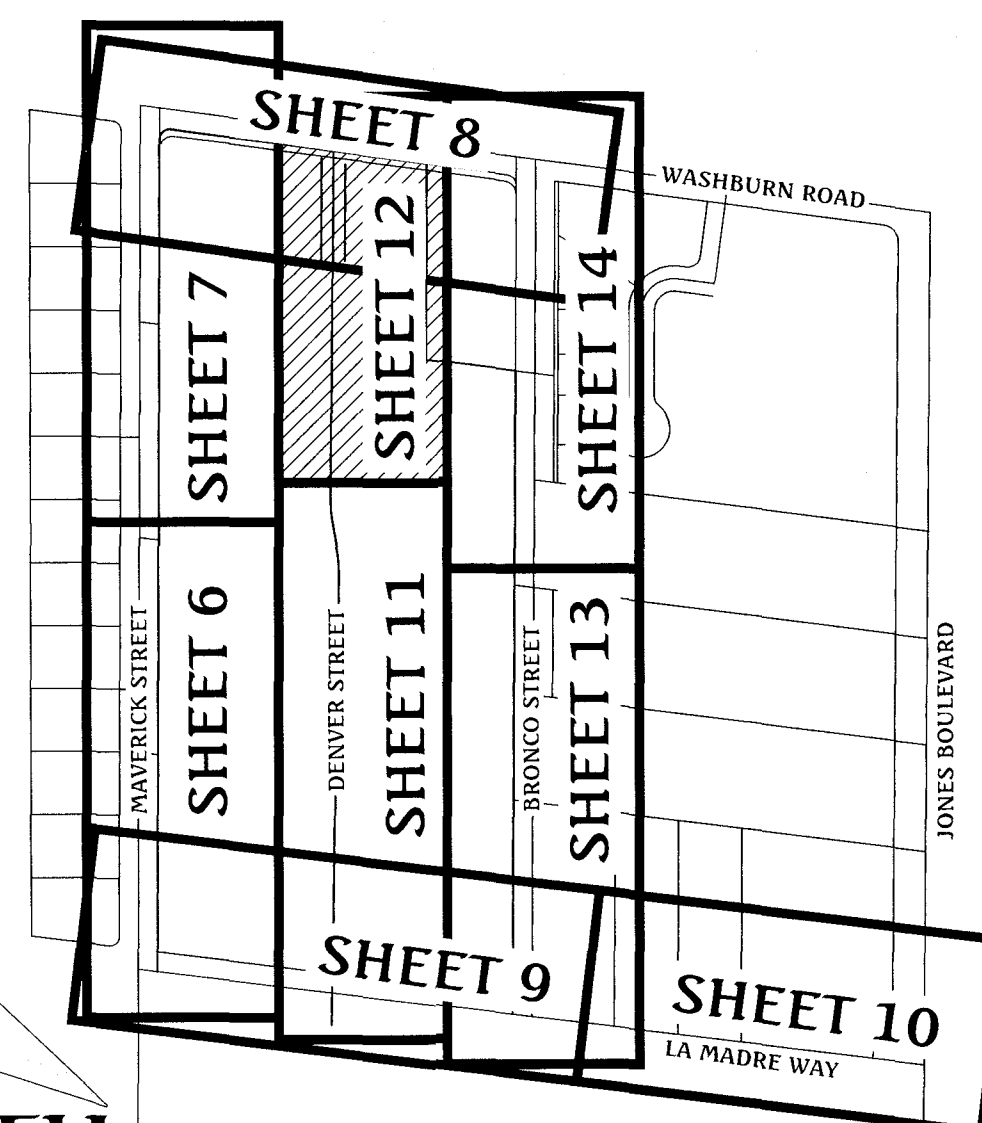
## PROFILE

SCALE: HORIZ. 1" = 40'  
VERT. 1" = 4'

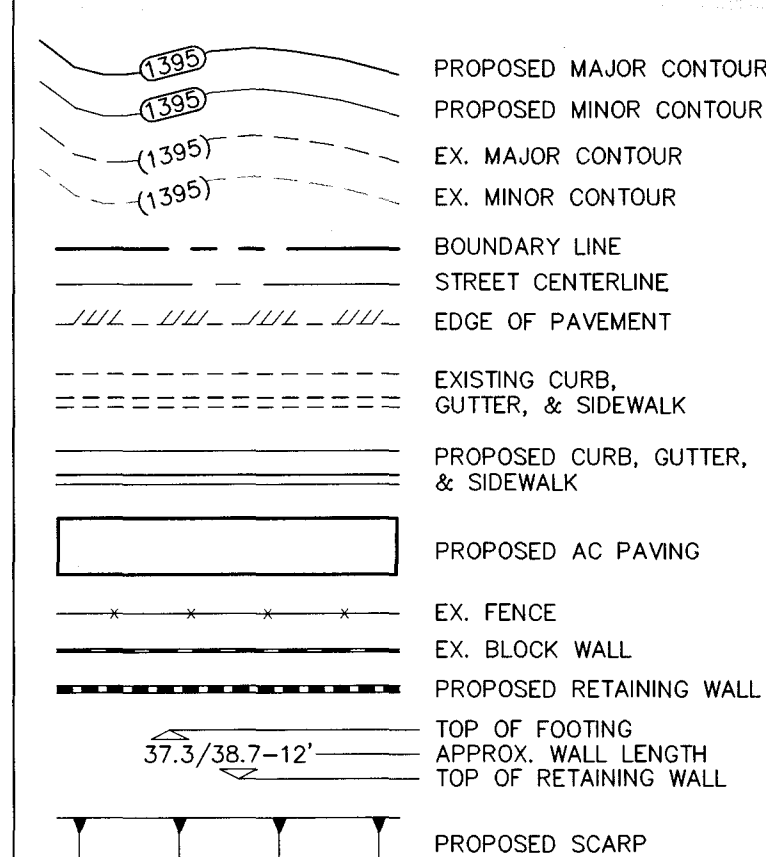


## KEY MAP

SCALE: 1" = 300'



## GRADING LEGEND



## BASIS OF BEARING

NORTH 82°59'56" WEST, BEING THE BEARING OF THE SOUTH LINE OF THE NORTH HALF (N 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 35, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA AS SHOWN ON THAT CERTAIN MAP ON FILE IN THE CLARK COUNTY RECORDER'S OFFICE IN BOOK 117, PAGE 9 OF PLATS.

## BENCHMARK

CITY OF LAS VEGAS BENCHMARK No. 8LV9035E6  
RIVET & PLATE IN TOP OF CURB AT THE SOUTHWEST CORNER OF  
WASHBURN ROAD & MAVERICK STREET.  
ELEVATION = 700.720 METERS (NAVD'88 2008 ADJ.)  
ELEVATION = 2298.95 U.S. FEET (NAVD'88 2008 ADJ.)

### FLOOD ZONE NOTE

THE PROJECT SITE IS LOCATED ON FEMA FLOOD INSURANCE RATE MAP #32003C1765F. THE SITE IS LOCATED WITHIN DESIGNATED FLOOD HAZARD ZONE X BEING AN AREA DETERMINED TO BE OUTSIDE THE 100 YEAR FLOOD PLAIN.

## CONSTRUCTION NOTES

- ① CONSTRUCT "L" TYPE CURB & GUTTER PER CCAUSD #216.
- ② CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234.
- ③ CONSTRUCT 8' WIDE VALLEY GUTTER PER CCAUSD #228.
- ④ CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOWNS OR EQUIVALENT PER CCAUSD #235, CASE I.
- ⑤ SAWCUT AND MATCH EXISTING ASPHALT.
- ⑥ RELOCATE EXISTING FEATURE.
- ⑦ PROTECT IN PLACE EXISTING FEATURE.
- ⑧ REMOVE AND REPLACE EXISTING FEATURE.

| CURVE TABLE |            |         |        |         |
|-------------|------------|---------|--------|---------|
| CURVE       | DELTA      | RADIUS  | LENGTH | TANGENT |
| C1          | 097°00'52" | 20.00'  | 33.86' | 22.61'  |
| C2          | 082°59'08" | 20.00'  | 28.97' | 17.69'  |
| C3          | 097°28'44" | 20.00'  | 34.03' | 22.80'  |
| C4          | 083°08'46" | 20.00'  | 29.02' | 17.74'  |
| C5          | 096°10'31" | 20.00'  | 33.52' | 22.22'  |
| C6          | 083°58'29" | 20.00'  | 29.31' | 18.00'  |
| C7          | 096°42'54" | 20.00'  | 33.76' | 22.49'  |
| C8          | 010°43'47" | 200.00' | 37.45' | 18.78'  |
| C9          | 012°01'56" | 200.00' | 36.18' | 18.14'  |

|                                                                                                                                                                                                                                                                             |                                                                                                                                            |                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b><i>FAST</i></b></p>  <p><b>Call</b><br/>before you<br/><b>Underground</b><br/><b>1-702-432-5300</b></p> <p><small>FIREFEAT &amp; ARTERIAL<br/>SYSTEM OF TRANSPORTATION</small></p> | <p>Avoid overhead power<br/>line contact. It's costly.</p> <p><b>Call</b><br/>before you<br/><b>Overhead</b><br/><b>1-702-227-2929</b></p> | <p>Call before you Dig<br/>Avoid cutting underground<br/>utility lines. It's costly.</p> <p><b>CALL</b><br/><b>811</b></p> <p><b>OR</b><br/><b>1-800-227-2600</b></p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|



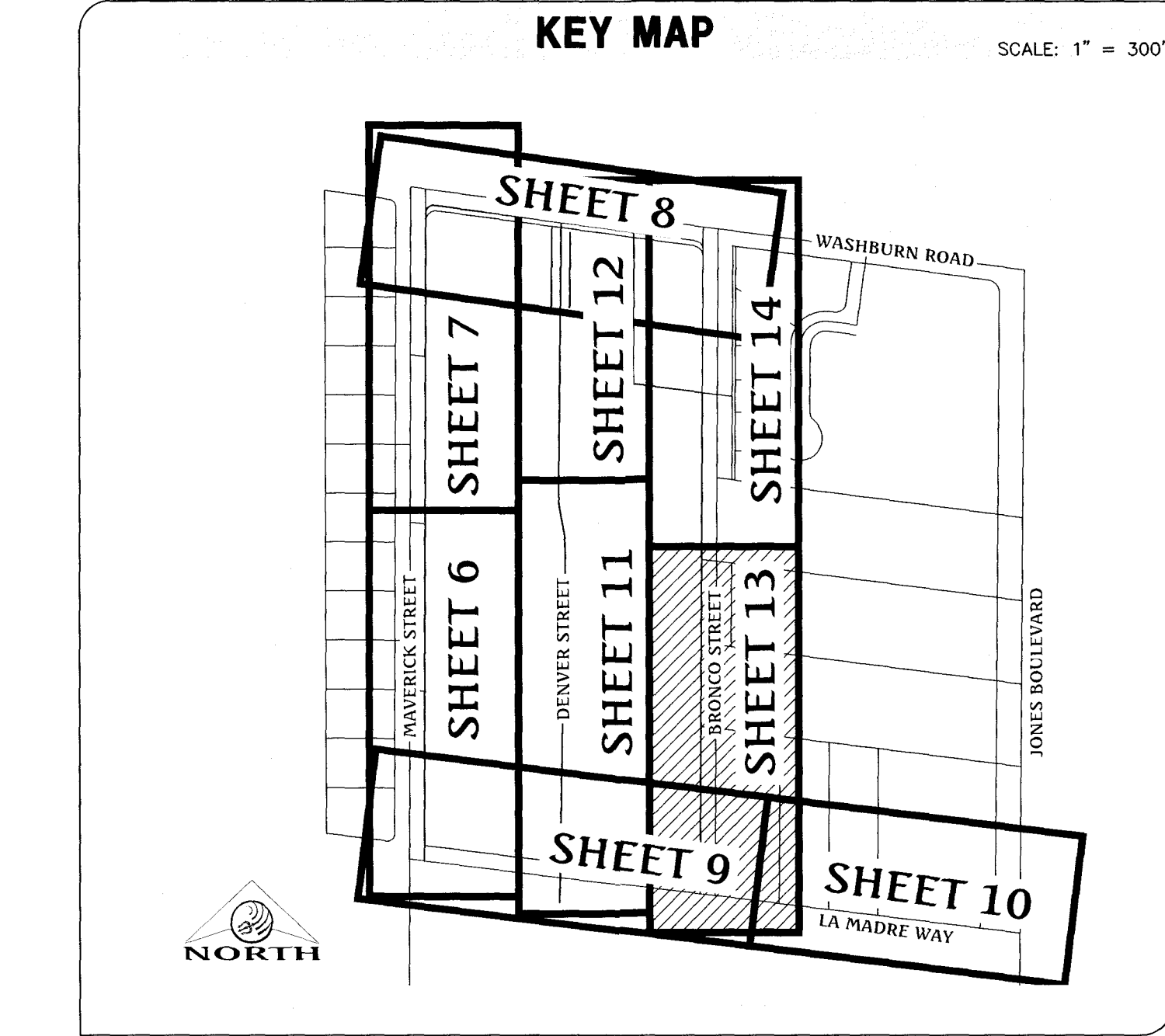
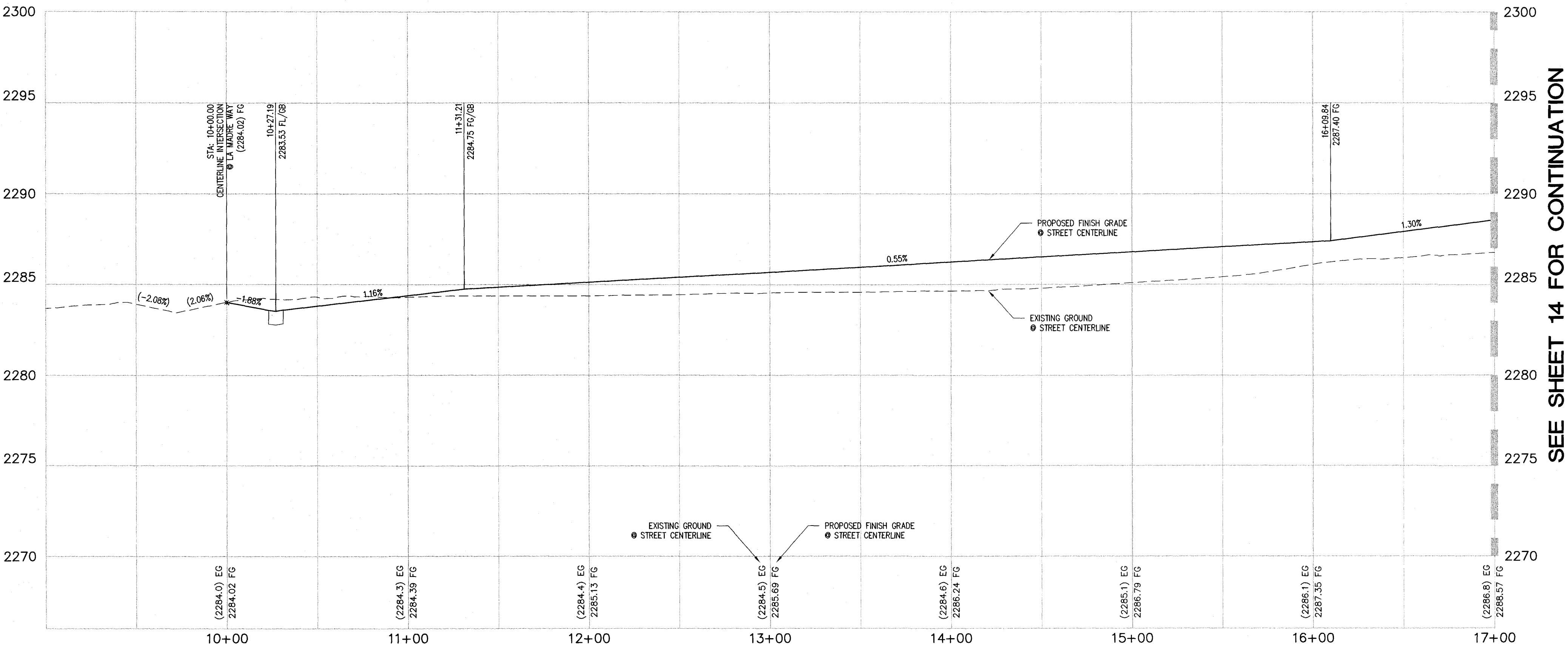
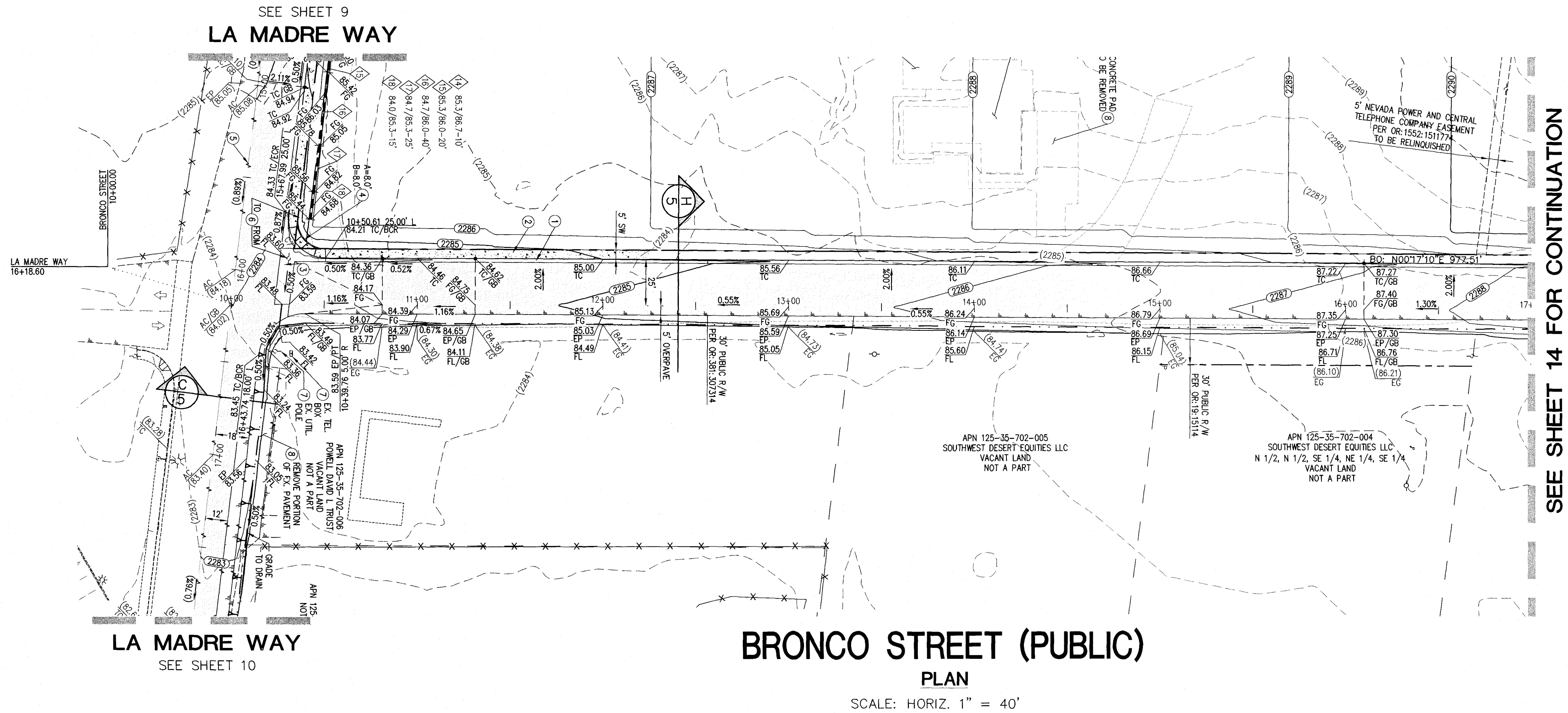
**Triton**  
Engineering

6757 W. Charleston Blvd.  
Suite B  
Las Vegas, Nevada 89146

Office: (702) 544-1480  
Fax: (702) 544-3062  
[www.tritongroup.com](http://www.tritongroup.com)

DR HORTON  
MAVERICK & WASHBURN  
DENVER STREET  
PLAN AND PROFILE  
STA 9+00 TO STA 15+00





| CURVE TABLE |           |         |        |         |
|-------------|-----------|---------|--------|---------|
| CURVE       | DELTA     | RADIUS  | LENGTH | TANGENT |
| C1          | 09°00'52" | 20.00'  | 33.86' | 22.61'  |
| C2          | 08°25'08" | 20.00'  | 28.97' | 17.69'  |
| C3          | 09°28'44" | 20.00'  | 34.03' | 22.80'  |
| C4          | 08°30'46" | 20.00'  | 29.02' | 17.74'  |
| C5          | 09°01'31" | 20.00'  | 33.52' | 22.22'  |
| C6          | 08°58'29" | 20.00'  | 29.31' | 18.00'  |
| C7          | 09°42'54" | 20.00'  | 33.76' | 22.49'  |
| C8          | 01°04'37" | 200.00' | 37.45' | 18.78'  |
| C9          | 01°21'56" | 200.00' | 36.18' | 18.14'  |

**BASIS OF BEARING**

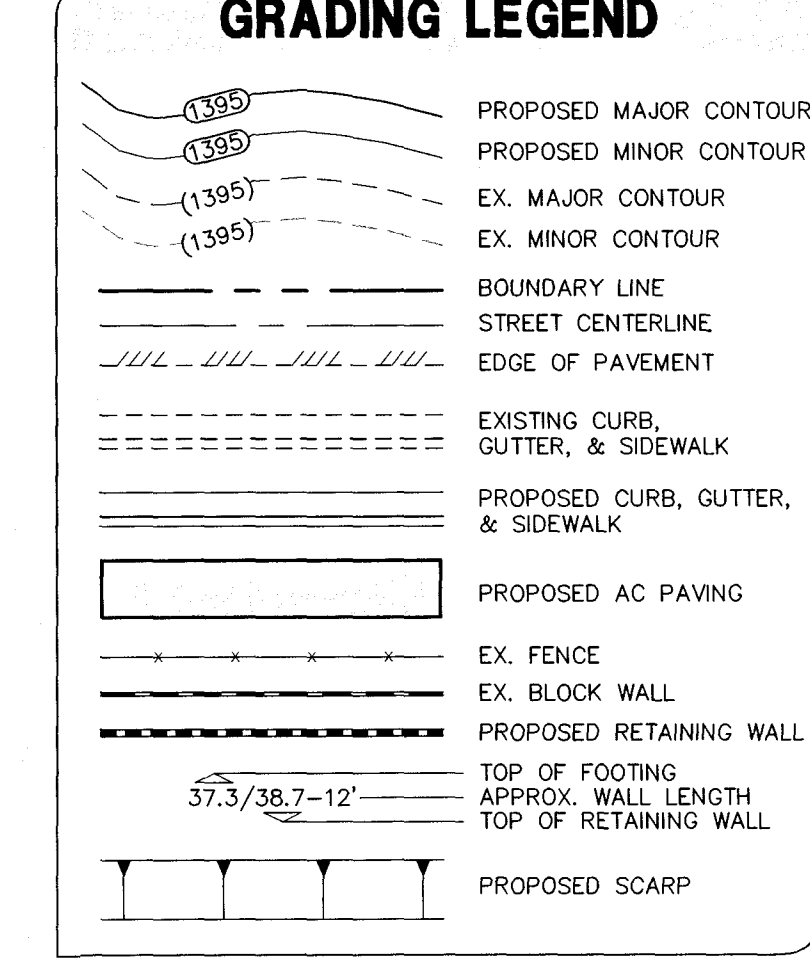
NORTH 82°59'56" WEST, BEING THE BEARING OF THE SOUTH LINE OF THE NORTH HALF (N 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 35, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN ON THAT CERTAIN MAP ON FILE IN THE CLARK COUNTY RECORDER'S OFFICE IN BOOK 117, PAGE 9 OF PLATS.

**BENCHMARK**

CITY OF LAS VEGAS BENCHMARK No. 8LV9035E6  
RIVET & PLATE IN TOP OF CURB AT THE SOUTHWEST CORNER OF WASHBURN ROAD & MAVERICK STREET.  
ELEVATION = 700.720 METERS (NAVD'88 2008 ADJ.)  
ELEVATION = 2298.95 U.S. FEET (NAVD'88 2008 ADJ.)

**FLOOD ZONE NOTE**

THE PROJECT SITE IS LOCATED ON FEMA FLOOD INSURANCE RATE MAP #32003C1785F. THE SITE IS LOCATED WITHIN DESIGNATED FLOOD HAZARD ZONE X BEING AN AREA DETERMINED TO BE OUTSIDE THE 100 YEAR FLOOD PLAIN.

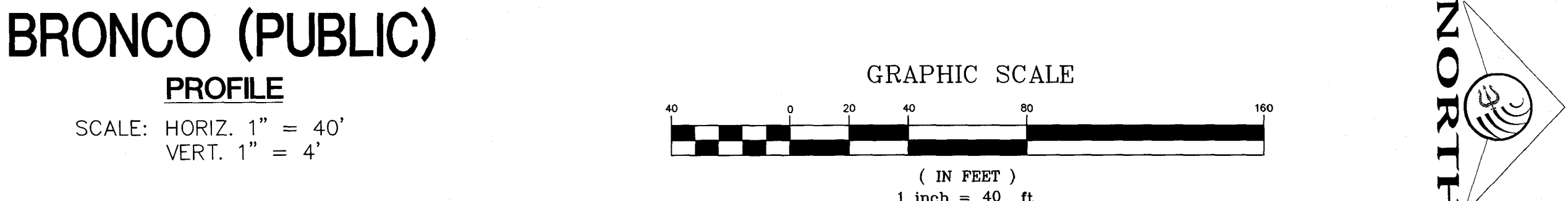


- CONSTRUCTION NOTES**
1. CONSTRUCT "L" TYPE CURB & GUTTER PER CCAUSD #216.
  2. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234.
  3. CONSTRUCT 8' WIDE VALLEY GUTTER PER CCAUSD #228.
  4. CONSTRUCT SIDEWALK RAMP USING ARMOR TILE TRUNCATED DORIES OR EQUIVALENT PER CCAUSD #235, CASE I.
  5. SAWCUT AND MATCH EXISTING ASPHALT.
  6. RELOCATE EXISTING FEATURE.
  7. PROTECT IN PLACE EXISTING FEATURE.
  8. REMOVE AND REPLACE EXISTING FEATURE.

**FAST**  
Call before you  
Underground  
1-702-432-5300  
FREEWAY & ARTERIAL  
SYSTEM OF TRANSPORTATION

Avoid overhead power  
line contact. It's costly.  
**Call before you  
Overhead**  
1-702-227-2929

Call before you Dig  
Avoid cutting underground  
utility lines. It's costly.  
**811**  
CALL  
OR  
1-800-227-2600



DATE : 07/14/2016  
PM : J. FEARCE  
DRAWN BY : D.L.  
DESIGNED BY : D.L.  
CHECKED BY :  
ADA CHECKED :  
JOB NO. : 007098  
SCALE : 1" = 40'  
NO. DESCRIPTION DATE APP'D

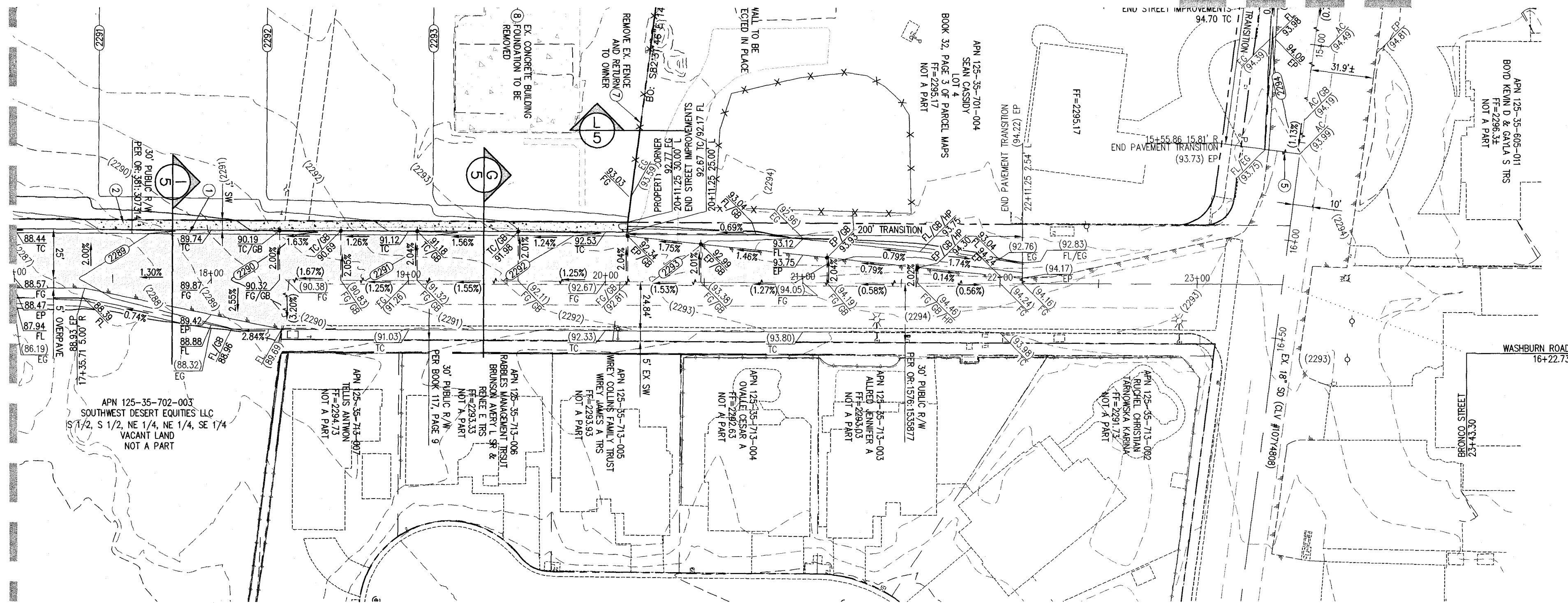
**Triton**  
Engineering  
6757 W. Charleston Blvd.  
Suite B  
Las Vegas, Nevada 89146  
Office: (702) 254-1480  
Fax: (702) 254-3062  
www.tritoneng.com

DR. HORTON  
MAVERICK & WASHBURN  
BRONCO STREET  
PLAN AND PROFILE  
STA 10+00 TO STA 17+00

SHEET **13** OF 10  
C.L.V. DWG.#



SEE SHEET 13 FOR CONTINUATION



## BRONCO STREET (PUBLIC)

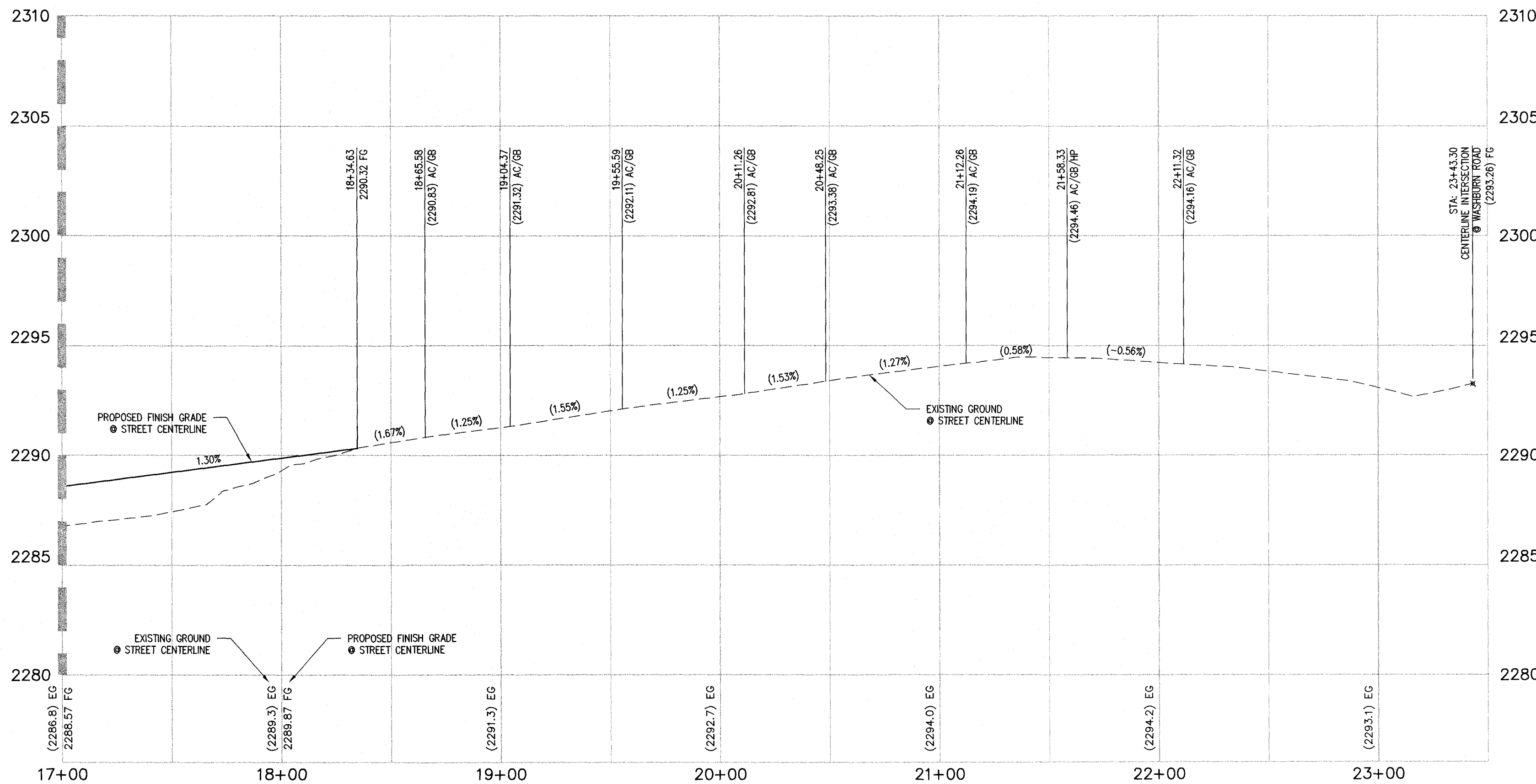
PLAN

SCALE: HORIZ. 1" = 40'

SEE SHEET 8

## WASHBURN ROAD

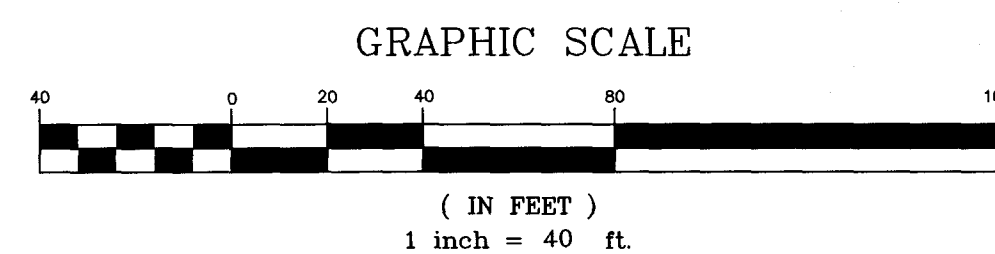
SEE SHEET 13 FOR CONTINUATION



## BRONCO (PUBLIC)

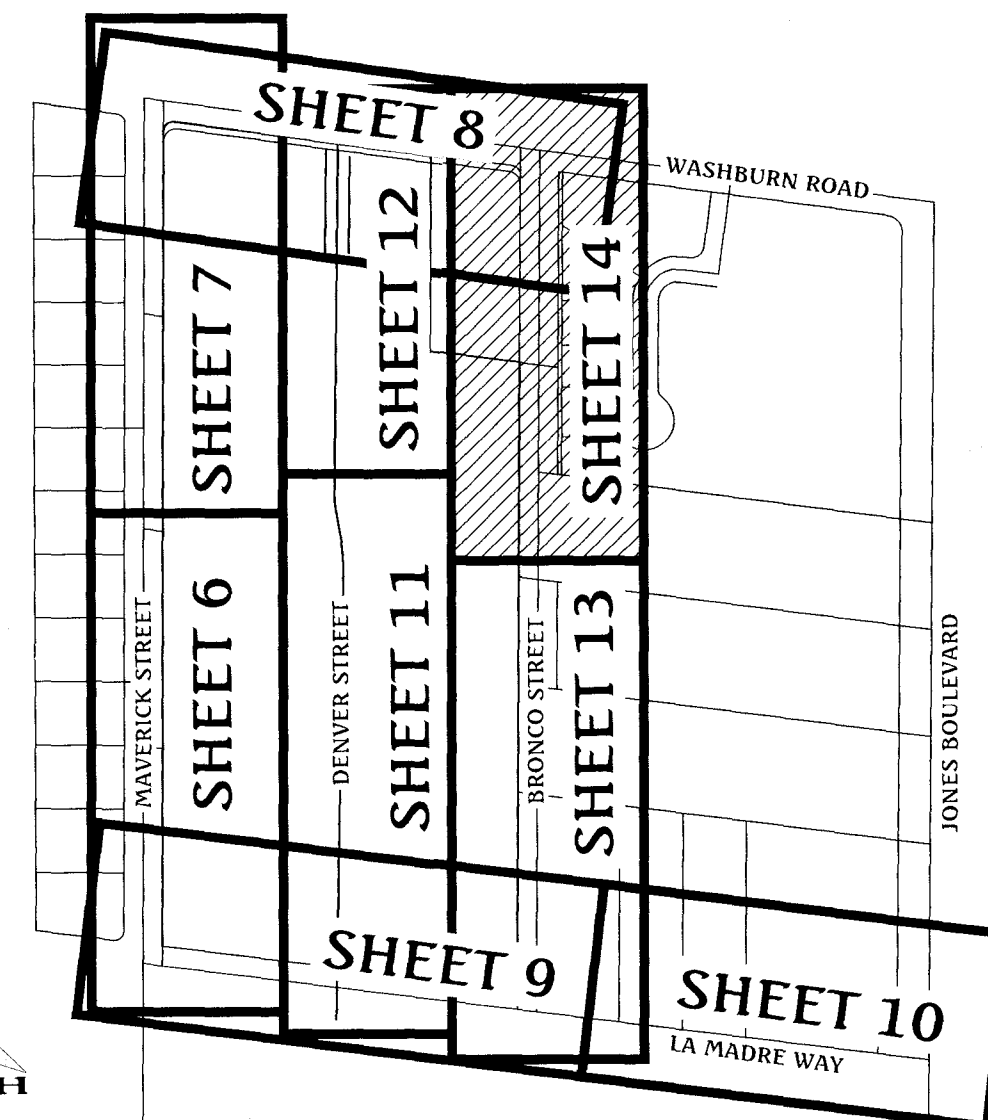
PROFILE

SCALE: HORIZ. 1" = 40'  
VERT. 1" = 4'



## KEY MAP

SCALE: 1" = 300'



| CURVE TABLE |            |         |        |         |
|-------------|------------|---------|--------|---------|
| CURVE       | DELTA      | RADIUS  | LENGTH | TANGENT |
| C1          | 097°00'52" | 20.00'  | 33.86' | 22.61'  |
| C2          | 082°59'08" | 20.00'  | 28.97' | 17.69'  |
| C3          | 097°28'44" | 20.00'  | 34.03' | 22.80'  |
| C4          | 083°08'46" | 20.00'  | 29.02' | 17.74'  |
| C5          | 096°01'31" | 20.00'  | 33.52' | 22.22'  |
| C6          | 083°58'29" | 20.00'  | 29.31' | 18.00'  |
| C7          | 096°42'54" | 20.00'  | 33.76' | 22.49'  |
| C8          | 010°43'47" | 200.00' | 37.45' | 18.78'  |
| C9          | 010°21'56" | 200.00' | 36.18' | 18.14'  |

## BASIS OF BEARING

NORTH 82°59'56" WEST, BEING THE BEARING OF THE SOUTH LINE OF THE NORTH HALF (N 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 35, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA AS SHOWN ON THAT CERTAIN MAP ON FILE IN THE CLARK COUNTY RECORDER'S OFFICE IN BOOK 117, PAGE 9 OF PLATS.

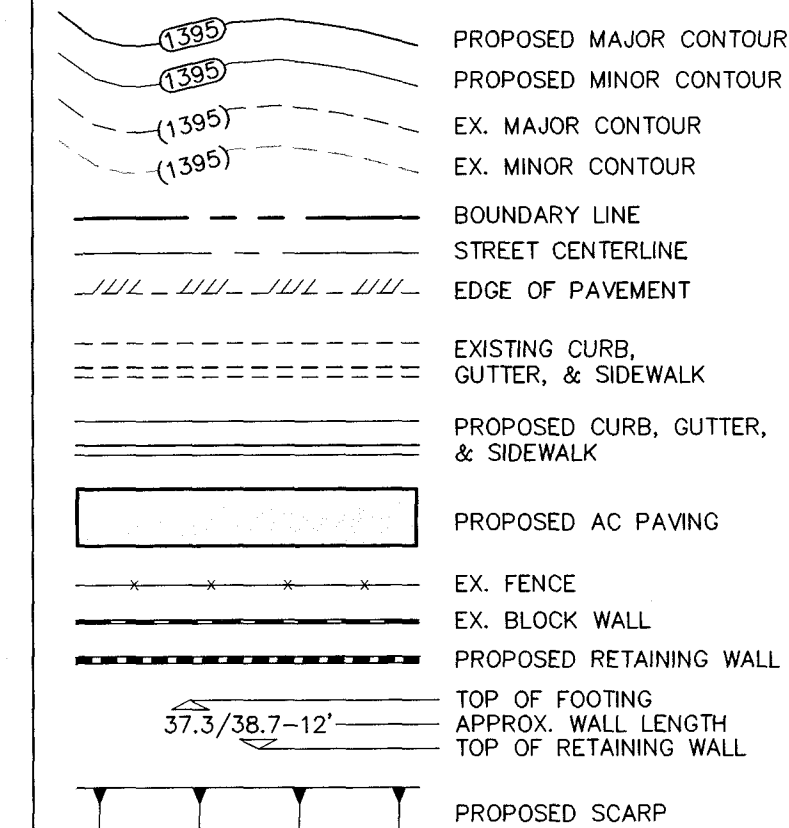
## BENCHMARK

CITY OF LAS VEGAS BENCHMARK No. 8LV9035E6  
RIVET & PLATE IN TOP OF CURB AT THE SOUTHWEST CORNER OF WASHBURN ROAD & MAVERICK STREET.  
ELEVATION = 700.720 METERS (NAVD'88 2008 ADJ.)  
ELEVATION = 2298.95 U.S. FEET (NAVD'88 2008 ADJ.)

## FLOOD ZONE NOTE

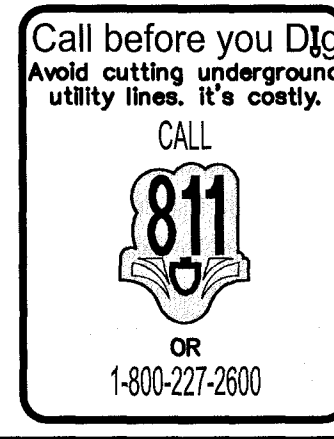
THE PROJECT SITE IS LOCATED ON FEMA FLOOD INSURANCE RATE MAP #32003C1785F. THE SITE IS LOCATED WITHIN DESIGNATED FLOOD HAZARD ZONE X BEING AN AREA DETERMINED TO BE OUTSIDE THE 100 YEAR FLOOD PLAIN.

## GRADING LEGEND



## CONSTRUCTION NOTES

- CONSTRUCT "L" TYPE CURB & GUTTER PER CCAUSD #216.
- CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234.
- CONSTRUCT 8' WIDE VALLEY GUTTER PER CCAUSD #228.
- CONSTRUCT SIDEWALK RAMP USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD #235, CASE 1.
- SAW CUT AND MATCH EXISTING ASPHALT.
- RELOCATE EXISTING FEATURE.
- PROTECT IN PLACE EXISTING FEATURE.
- REMOVE AND REPLACE EXISTING FEATURE.



DR HORTON  
MAVERICK & WASHBURN  
BRONCO STREET  
PLAN AND PROFILE  
STA 17+00 TO STA 24+00

SHEET  
**14**  
OF 10  
C.L.V. DWG.#