

DS #: 4789-1

APN: 126-25-761-001

PROJECT: BLM Site II - Update for Onsite Residential Development

SUBMITTAL: 4th Submittal

SCANNED BY/DATE:

CHECKED BY/DATE:



CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		September 21, 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:	
	BLM Site 11 – Update for Onsite Residential Development	
Cross Streets:	SWC of Tropical Pkwy & Michelli Crest Way	
File Number:	F:\Depot\DSMemos\DS4789D.doc	
Parcel Number:	126-25-701-001	
Zoning Action:	ZON-62343; VAR-63098; WVR-63099; TMP-63100 & VAR-63259	
FEMA Flood Zone	YES	NO X
Proposed Storm Drain	YES	NO X
		COPIES TO: Triton Engineering DR Horton Inc. Bart Anderson, P.E., DevCo CCPW

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	3/23/2016	4/12/2016	Not Approved	\$400.00	437883: \$400
2 nd Submittal	5/5/2016	5/31/2016	Not Approved	\$400.00	442871: \$400
3 rd Submittal	6/14/2016 & 8/10/2016	8/16/2016	Conditional Approval	\$400.00	447535: \$400
4 th Submittal	9/7/2016	9/21/2016	See Comments Below	\$100.00	457457: \$100
			TOTAL FEES (LDDRS):	\$1,300.00	----

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. The site is adjacent to the jurisdiction of the *County of Clark*. The engineer must coordinate with *Clark County Department of Public Works (CCPW)* and incorporate any concerns for boundary conditions along the common borders. CCPW concurrence is required prior to the final acceptance of the study.
2. **Figure 4 (Developed Conditions Drainage Map):** Is subbasin "DN5" being deliberately eliminated from the plan and the "**Summary of Peak Flow Rates**" Table or merely missing on the drainage map? Address and revise accordingly in the next submittal.
3. **Page 3** in the subject drainage study under section "*Interim Offsite Drainage Description*": The page described the hydrology of onsite area DN5, street area MC4, concentration point CPMC4, street area ARW2 and concentration point CPARW2 etc. However, all these subbains and concentration points are missing in the existing and developed conditions drainage map.

Review and revise the write-up of page 3 and the drainage conditions maps in the next submittal.

4. The grading plans in the last submittal showed existing contours without any annotation. Provide elevations of existing contour lines in the next submittal so that the difference in elevation between proposed and existing grades can be determined.
5. Identify the easement between Lot 13 and Lot 14 as 20'-public drainage easement and common lot to be privately maintained by the Homeowners Association on *Grading Plan I* (Sheet 3) and *Grading Plan II* (Sheet 4).
6. The developer/engineer proposed R-curb for interior streets. Note that R-curb is only allowed at driveway locations. Clearly identify all the driveway locations of individual lots on the grading plans for R-curb. Specify the construction of standard L-curb in all interior streets other than the driveway locations.
7. **Previous Comment:** An existing 24"-storm drain and a 12"-bleeder line appears to be within the *Clark County* jurisdiction. Consult with the *Clark County Public Works Department* what need to be done with the bleeder system.

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.

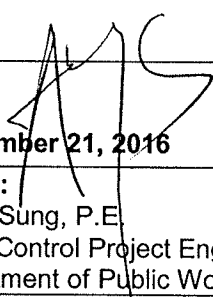
END OF REMARKS
ays

T/R/S: T19S/R59E/25
AREA F-25

 *** FAX TX REPORT ***

TRANSMISSION OK

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 PSWD/SUBADDRESS
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CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM		DATE:  September 21, 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: BLM Site 11 – Update for Onsite Residential Development		COPIES TO: Triton Engineering
Cross Streets:	SWC of Tropical Pkwy & Michelli Crest Way	DR Horton Inc.
File Number:	F:\Depot\DSMemos\DS4789D.doc	Bart Anderson, P.E., DevCo
Parcel Number:	126-25-701-001	CCPW
Zoning Action:	ZON-62343; VAR-63098; WVR-63099; TMP-63100 & VAR-63259	
FEMA Flood Zone	YES NO X	
Proposed Storm Drain	YES NO X	

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UPDATE #1
TO THE
TECHNICAL DRAINAGE STUDY
FOR
BLM Site 11
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 126-25-701-001

August 2016

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Update #1 to the Technical Drainage Study for BLM Site 11 Date: August 2016

Location of Development: a) Descriptive (Cross Streets) North/South: Alpine Ridge
East/West: Tropical

b) Section: 25 Township: 19S Range: 59E

c) APN: 126-25-701-001

Name of Owner: USA BLM, 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:

☐ Rezoning	☒ Subdivision Map	☐ Clearing and Grading Only
☐ Parcel Map	☐ Planned Unit Development	☐ Other (Please specify below)
☐ Large Parcel Map	☐ Building Permit	

1. Total Owned Land Area: At Site: 25 ac Being Developed/Disturbed: 25 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

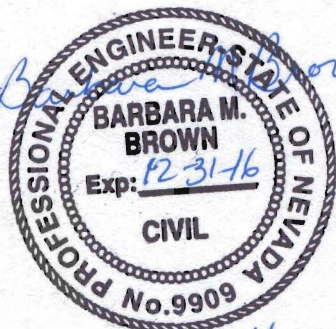
4. Proposed type of development (Residential, Commercial, Etc.): Residential

5. Approximate upstream land area which drains to the subject site: 5 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 historical flow paths

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



CITY OF LAS VEGAS

MINIMUM DRAINAGE STUDY CRITERIA STANDARD FORM 2 CHECKLIST SUPPLEMENT

(Revised 5/18/11)

The following checklist is intended as a supplemental guide for the engineer preparing a Technical Drainage Study submittal to the City of Las Vegas. This supplement focuses on requirements specific to the City of Las Vegas. The requirements presented are in addition to the Clark County Regional Flood Control District (CCRFCDD) Manual Standard Form 2. The listed items are the minimum information required prior to the City performing a review. The engineer will remain responsible to ensure the Technical Drainage Study is prepared within the guidelines as set forth in the CCRFCDD Hydrologic Criteria and Drainage Design Manual (Design Manual).

An appointment must be made to preview this checklist in conjunction with CCRFCDD Standard Form 2 prior to the City accepting a new drainage study for review. The engineer must contact the Flood Control Section at (702) 229-6541 to schedule a submittal appointment.

If items are not applicable for the subject site, provide N/A.

I. GENERAL REQUIREMENT		
Yes	No	
	X	A notarized letter from the adjacent property owner(s) allowing off-site grading. (A copy of the letter must be received prior to final acceptance of the drainage study.)
X		Copies of all conditions of approval for development related to this property. (e.g. zoning, use permit, tentative map, etc.) Verify compliance with conditions.
X		An electronic copy of the complete submittal is required to be submitted with one original hard copy of the study. Electronic documents should be on a universal computer-readable digital output device replicating your submittal. An Indexed Portable Document Format (PDF) or Print Ready CAD file formats with a minimum of 300dpi are the desired formats. If figures are in color, they must be scanned in color and saved as a separate file.  by initial here, the engineer on record acknowledges that the electronic copy is an identical replicate of the original hard copy submitted to the City of Las Vegas.

II. GRADING PLAN INFORMATION		
Yes	No	
X		(1) 24" X 36" copy of the Grading Plan, (including all Detail Sheets) sealed by the engineer.
X		Proposed future and existing spot grades for top of curbs and street crowns at lot lines, grade breaks, and along curb returns on both sides of the street. Note: Proposed top of curb elevations must be provided for both sides of roadways even if only half street construction is required.
X		Label existing topography at a minimum 5 foot elevation interval including adjacent developments, finished floor elevations of existing buildings and top of existing curbs extending 100 feet around the perimeter of the site. (*Measured from the centerline of the adjacent roadway.)

CITY OF LAS VEGAS MINIMUM DRAINAGE STUDY CRITERIA CHECKLIST

II. GRADING PLAN INFORMATION		
Yes	No	
X		Proposed on-site and off-site storm drains and other flood control facilities with plan and profile sheets for public storm drains showing the class of pipe, (Class III, IV, V, etc.), design hydraulic grade line, (HGL) and 100 year storm flow. A public drainage easement must be provided over on-site storm drains conveying off-site flows. An overflow path must be provided over all storm drains.
X		All existing and "to be constructed" walls with cross-sections showing wall type, (e.g. block wall, retaining wall, flood wall, etc.), with limits clearly defined, adjacent ground elevations. Wall heights must meet current ordinances and in no case exceed 14 feet above the adjacent property.
X		Street slopes for both interior and perimeter streets. Note: The minimum slope for a roadway is 0.4 percent, a minimum 18-inch storm drain must be provided where minimum slopes cannot be met.
X		Back of lot elevations and lot drainage pattern for all lots including common lots.
	X	Sites with a grade difference two feet above or below existing ground are required to have approval from City of Las Vegas Current Planning. Current Planning approval is required prior to final approval of the drainage study.
X		On-site facilities must perpetuate flows through or around the site without significantly impacting adjacent property owners. (The project must pass flows through the site every 600 feet where the project is blocking flow paths.)
	X	This project uses a solid grouted stem wall (or approved alternate) at the back of sidewalk to provide erosion protection for landscaped areas where the depth of flow in the roadway exceeds the back of walk elevation. A corresponding cross-section detail is included.
	X	Commercial and Common Lot Landscape areas are not allowed to drain over the sidewalk. The grading plans show flow lines with grades and sidewalk under drains for all landscape areas draining to the public ROW.

III. Local Entity Criteria - City of Las Vegas – Manual Section 1600		
Yes	No	
	X	Concrete valley gutters are required in parking lots with slopes less than 1 percent. Slopes through cul-de-sac must be at a 1 percent minimum where flow is drained through the cul-de-sac.
X		Ten-foot wide public drainage easements to be privately maintained are allowed for flow less than 20 cfs. The depth of flow entering the easement must be checked using the submerged weir calculation.
	X	The limits of the flood zones and the base flood elevations (BFE) must be shown on all grading plans for all developments within a Special Flood Hazard Zone A, AO, AE, etc.
X		Minimum finish floor elevation is 6 inches above highest adjacent top of curb. Finish floor calculations must include allowances for super elevations on curves and velocity head for tee intersections.
X		Finished floor elevations for buildings adjacent to public drainage easements must be a minimum of 18 inches above the Q100 weir of submerged weir elevation, whichever is greater.

CITY OF LAS VEGAS MINIMUM DRAINAGE STUDY CRITERIA CHECKLIST

III. Local Entity Criteria - City of Las Vegas – Manual Section 1600		
Yes	No	
	X	Lots with "B and C Type Drainage" that drain from one lot to another through a drainage easement shall be required to install an underground nuisance drainage system or a 2-foot valley gutter. 16" x 24" minimum block wall openings are required for both options.
	X	Bubblers are required across 80 foot and greater ROW streets. When flows exceed 10 cfs, bubblers larger than 18 inches will be required up to a maximum of 36". Inlets must be sized to match the pipe size provided.

- Contact the Flood Control Section regarding the drainage study review fee. These fees are payable at the time of submittal.
- The Drainage Study must be conditionally approved prior to submitting improvement plans to the Civil and Planning Development of the Department of Building and Safety for review.

This document is intended as an aid in preparing Technical Drainage Studies for the City of Las Vegas. Each study submitted is reviewed for compliance with local and regional criteria. This form is not intended to be all-inclusive and does not limit the extent of the information, calculations or exhibits which may be necessary to properly evaluate the intended land use.



August 25, 2016

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

**Subject: Update #1 to the Technical Drainage Study for
BLM Site 11 Residential Development
DS4789**

Mr. Sung:

This document and attachments will serve as an Update to the original Technical Drainage Study for BLM Site 11 Residential Development, which was approved by the City of Las Vegas on August 16, 2016. The original drainage study was prepared to address drainage and grading improvements only for the offsite surrounding streets, showing the onsite basins as rough graded areas. This Update #1 supports the grading and drainage plans that show precise grading for the entire onsite area, which is planned for 49 single-family residential lots. The site plan has not changed since approval of this drainage study.

It is noted that the original drainage study for the subject site had been submitted to Clark County Public Works Department for review and approval, plus two addendums. At this time, the written concurrence has not been obtained from Clark County. As a result, we respectfully ask that this update drainage study be conditionally approved based on the future concurrence by Clark County.

INTRODUCTION

The site is in the northwest portion of the Las Vegas Valley, in the City of Las Vegas, on a 25.8 acre site on the southwest corner of Michelli Crest Way and Tropical Parkway. The subject site is located in an area which is being developed at regular intervals with residential development. The subject site has several historical braided stream flow paths crossing the site from west to east. The west side of the site is bound on the west and north by existing medium density residential development. There are undeveloped parcels bordering the subject site on the north and south in several areas.

The subject site is not located adjacent to, nor crossed by any existing or planned CCRFCD Regional Drainage Facilities, as shown on Figure F-18 of the CCRFCD MPU updated 2013. Figures F-18 and H-18 of the MPU have been copied, annotated and included in the appendix of this report.

The subject site is not located within a Federal Emergency Management Agency (FEMA) Special Flood Hazard Zone. According to the Flood Insurance Rate Map (FIRM) Map 32003C1750F, dated September 27, 2002, the subject site is located within "Zone X", which is described as "Areas determined to be outside the 0.2% annual chance floodplain". The FIRM panel has been annotated and included in the appendix of this report.

HYDROLOGY

The hydrology for the subject project is the same as what was submitted with the original drainage study Addendum #1 and no revisions have been made. Hydrologic analysis for the developed conditions has been reproduced in the Appendix of this submittal, under "Hydrology". Results of the analysis are shown on Figure 4, *Developed Conditions Drainage Basins*, included in the Appendix of this submittal, under "Figures". Although the future conditions hydrologic analysis would normally result in the highest peak runoff flows, intended for design, that is not the case for the subject study. The following explains the more conservative interim conditions that were used for design:

INTERIM ONSITE DRAINAGE DESCRIPTION

Interim Condition creates the higher runoff potential for the subject site and is used for design. A Future Conditions analysis is not required since it would produce lower runoff rates. To better explain, the subject site becomes developed as proposed with 49 large residential lots, and the offsite basin XF1 remains in existing condition. Note that under existing conditions, basin XF1 has a curve number of CN=88, while under developed conditions it would actually have a lower curve number, of CN=86, if developed as the subject site or possibly lower, if larger lots are developed. Please refer to *Figure 4, Developed Conditions Drainage Basins*.

Runoff from onsite areas DN1 and DN2 discharges to the east to the Alpine Ridge Way alignment.

Runoff from onsite area DN3 discharges runoff flow to the Tropical Parkway alignment to the north.

Runoff flow from onsite areas DN4, DN5, and DN6 discharge runoff flow to the east to the Michelli Crest Way alignment.

INTERIM OFFSITE DRAINAGE DESCRIPTION

Under interim conditions, the subject site is impacted by runoff flow in the bordering street sections of Tropical Parkway, El Campo Grande Avenue, and Alpine Ridge Way.

Referring to Figure 4, *Developed Conditions Drainage Map*, runoff flow from the existing subdivision to the west enters Tropical Parkway and flows easterly at point CD6. Peak flow rates at point CD6 have been referenced directly from the Technical Drainage Study for Tropical & 215 (Taney Engineering, 2013, H T E #13-4178) as 6 cfs and 18 cfs in the 10- and 100-year storm events, respectively. From point CD6, runoff flow is conveyed easterly in the Tropical Parkway alignment, for combination with flow from area TRPW at point CTPRP1. From point CTPRP1, runoff flow continues easterly in the street alignment, combining with flow from area ARW1, which is a street area of Alpine Ridge Way to the north of Tropical Parkway, and street area TRPE, and onsite area DN3 at point CTPRP2. From point CTPRP2, runoff flow continues easterly in the Tropical Parkway alignment, away from the subject site.

Street area MC1 and front yard area XF2 combine at point CPMC1 in Michelli Crest Way. From point CPMC1, runoff flow continues easterly in the Tropical Parkway alignment, away from the subject site.

Onsite area DN4 discharges runoff flow to the east to the Michelli Crest alignment, where it is conveyed southerly, for combination with flow from street area MC2 at point CPMC2. At point CPMC2, Section A confirms that flows less than the 100-year event are contained on the west half of the crown at that point and no flow is expected to continue easterly on Corbett Street. From point CPMC2, runoff flow continues southerly for combination as described as follows.

Onsite area DN5 discharges runoff flow to the Michelli Crest Way alignment to the east, combining with runoff flow from point CPMC2 and from street area MC3 at point CPMC3. No runoff flow is expected to flow to the east at the local cul-de-sac bulb at CPMC3.

Onsite area DN4 discharges runoff flow to the Michelli Crest Way alignment to the east, combining with runoff flow from point CPMC3 and from street area MC4 at point CPMC4. From point CPMC4, runoff flow continues easterly in the El Campo Grande Avenue alignment, away from the subject site.

Onsite area DN5 discharges runoff flow to the Alpine Ridge Way alignment, where it combines with runoff from street area ARW2 at point CPARW2. From point CPARW2, runoff flow continues southerly on Alpine Ridge Way, where it turns to the east on the El Campo Grande Avenue alignment, toward point CPCMP1.

Offsite area XF1 discharges runoff flow into the partially-improved street section of Alpine Ridge Way. Offsite area FD1 is an area currently rough-graded for residential development, hence is assumed to be fully developed as 14,000 square-foot residential lots (note that the lots may actually be larger than 14,000 sf, this is a conservative approach to the hydrology).

Runoff flow from offsite areas XF1 and FD1 combines with flow from point CPARW2 at point CPCMP1, where it continues easterly in the street area LCMP, combining with single-lot basin DN7 at the Michelli Crest Way intersection at point CPCMP2. From point CPCMP2, runoff flow continues easterly in the El Campo Grande Avenue alignment, away from the subject site.

HYDRAULICS

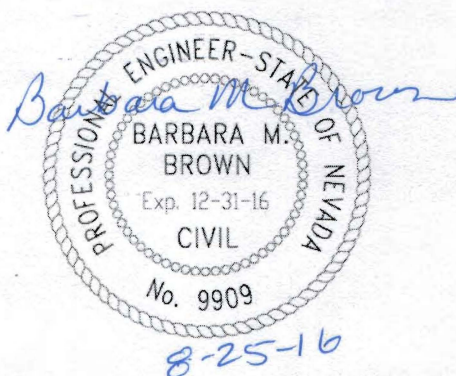
The hydraulic calculations for the subject project are the same as were submitted in the original study, and have not been revised. Hydraulic analysis for the developed conditions from the prior submittal has been reproduced in the Appendix of this submittal, under "Hydraulics". Results of the analysis are shown on Figure 4, *Developed Conditions Drainage Basins*, included in the Appendix of this submittal, under "Figures".

CONCLUSION

The intent of this Update drainage study and grading plans is to provide analysis for the onsite development of 49 individual residential lots, where the previous study was applicable only to the offsite streets. The attached grading plans have been revised to show the residential lots, with applicable details, which have been found to meet criteria specified by the City of Las Vegas, Clark County and the CCRFCD.

We hope that this document satisfies requirements for drainage concerning the project. If you have any questions, please contact me at 702-376-8801, email Momentum1@cox.net.

Sincerely,



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

FIGURES

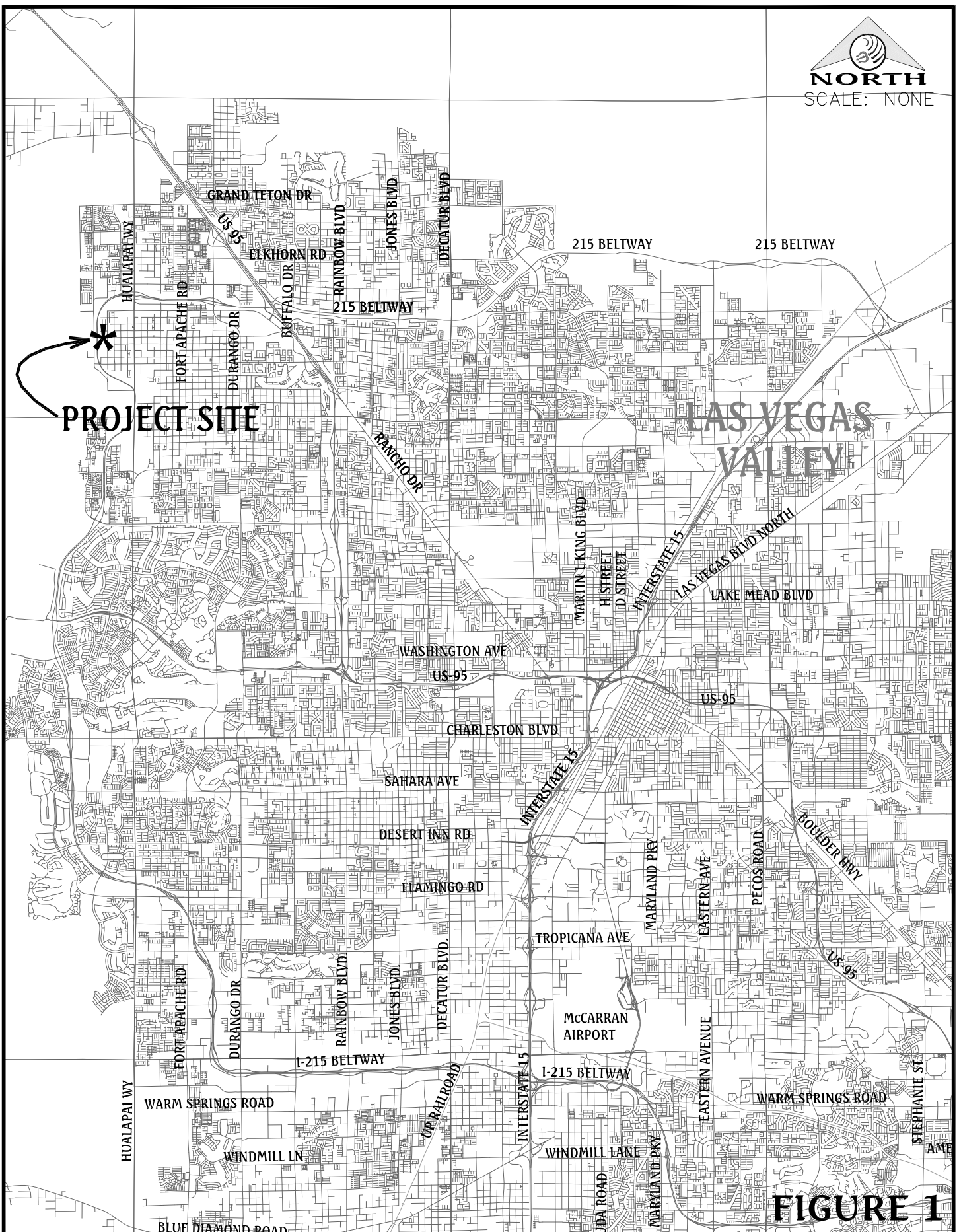


FIGURE 1



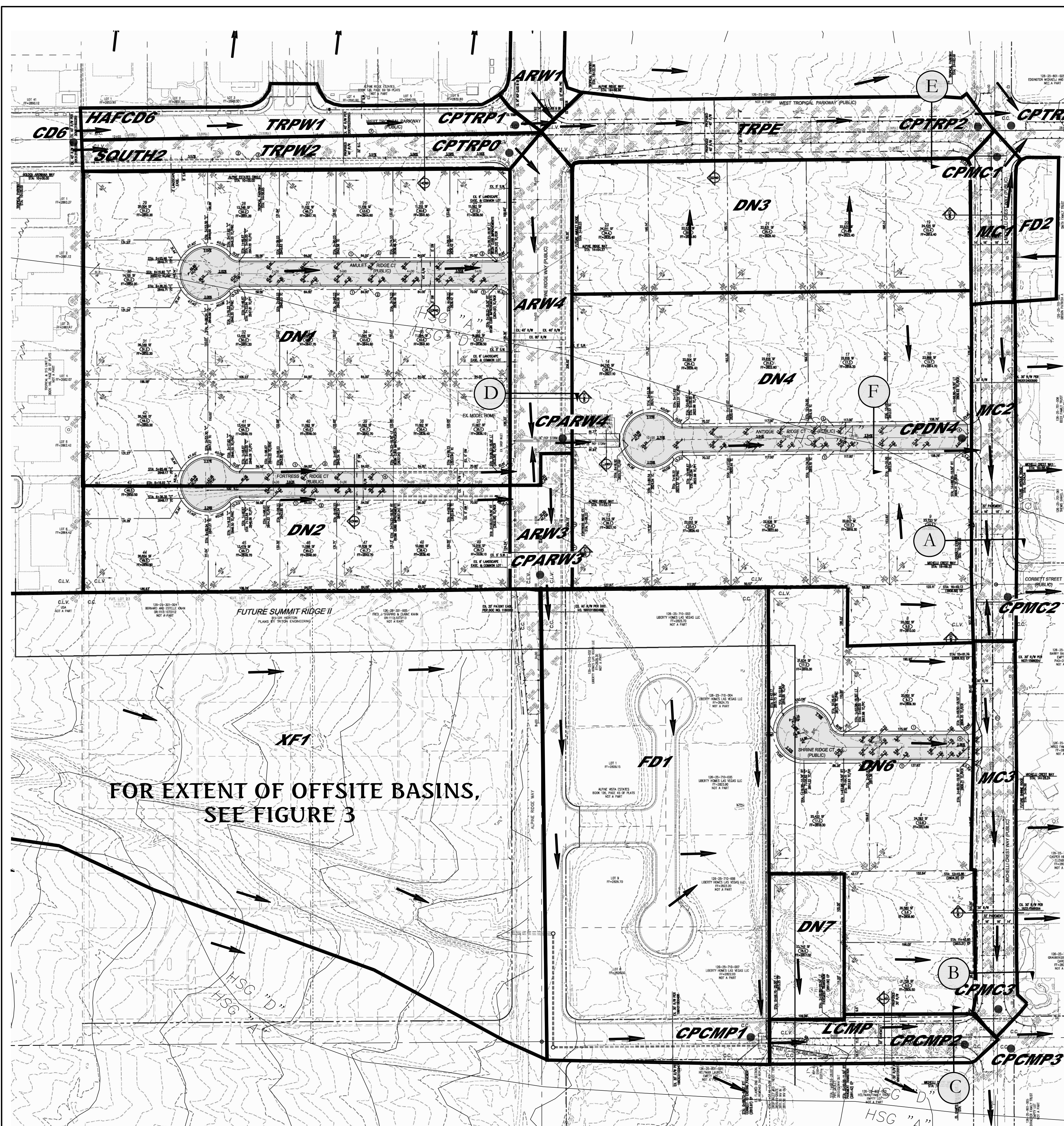
FIGURE 2

Technical Drainage Study for BLM Site 11 Residential Development

LOCATION MAP

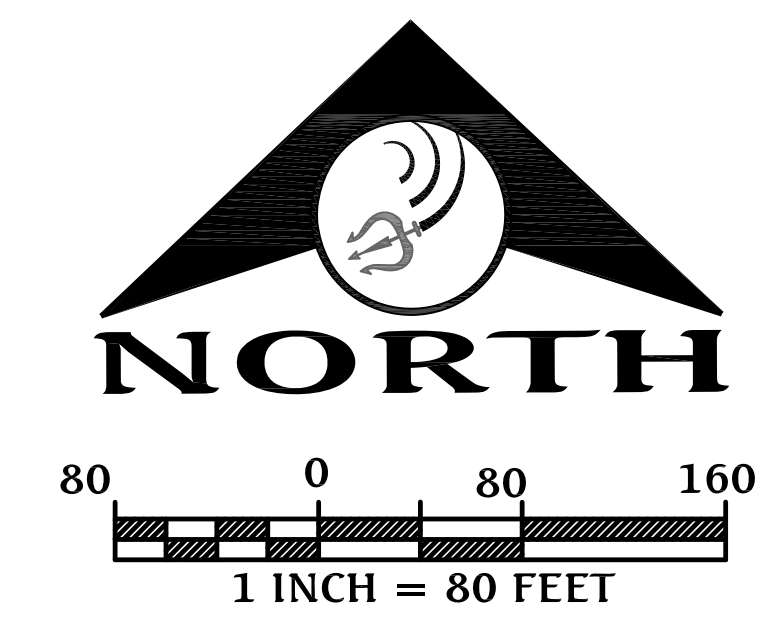


Triton
Engineering



SUMMARY OF PEAK FLOW RATES				
CONC. POINT/ DRAINAGE AREA	AREA, ACRES	PEAK FLOW, CFS		NOTES
		10-YR	100-YR	
ARW1	0.63	1	3	
ARW3	0.37	1	2	
ARW4	0.96	2	4	
CD6		6	18	1
CPARW3		3	8	
CPARW4		12	31	
CPCMP1		19	49	
CPCMP2		21	53	
CPCMP3		26	65	
CPDN4		14	40	
CPMC1		1	2	
CPMC2		15	42	
CPMC3		5	13	
CPTRP0		5	12	
CPTRP1		5	12	
CPTRP2		9	22	
CPTRP3		10	24	
DN1	6.74	5	15	
DN2	2.18	2	6	
DN3	2.58	1	3	
DN4	6.23	3	10	
DN6	0.54	3	9	
DN7	0.54	1	1	
FD1	5.32	5	14	
FD2	0.30	<1	<1	
HAFCD6		3	9	
LCMP	0.51	1	2	
MC1	0.36	1	2	
MC2	0.73	2	3	
MC3	0.82	2	3	
SOUTH2		3	9	
TOTRP0		3	9	
TRPE	1.33	3	5	
TRPW1	0.73	2	3	
TRPW2	0.76	2	3	
XF1	10.52	11	28	

Notes:
1. Referenced from Technical Drainage Study for Tropical & 215 Units
1&2, H T E 13-4178, by Taney Engineering, May 2013.



DRAINAGE LEGEND	
XT32	BASIN IDENTIFICATION
—	BASIN BOUNDARY
CPT4	CONCENTRATION POINT
→	FLOW PATH

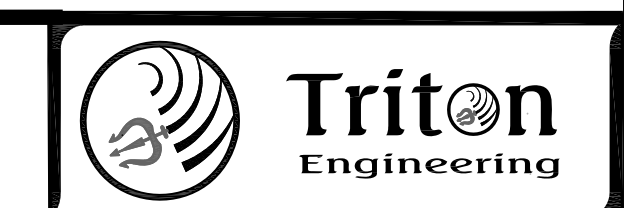
NORMAL DEPTH FLOW CALCULATIONS					
HYDRAULIC SECTION	SLOPE, %	Q ₁₀ / Q ₁₀₀ CFS	D ₁₀ / D ₁₀₀ , FEET	V ₁₀ / V ₁₀₀ , FPS	V ₁₀ * D ₁₀ / V ₁₀₀ * D ₁₀₀
*A - Michelli Crest Way - 60-foot rural standard street	0.60	15 / 42	0.69 / 0.94	2.1 / 3.0	1.4 / 2.8
*B - Michelli Crest Way - 60-foot rural standard street	0.85	5 / 13	0.45 / 0.63	1.8 / 2.3	0.8 / 1.4
C - El Campo Grande Ave - 60-foot rural standard street	3.90	21 / 53	0.49 / 0.66	3.1 / 4.1	1.5 / 2.7
D - Alpine Ridge Way - 80-foot full street improvements	0.50	12 / 31	0.48 / 0.64	2.0 / 2.3	1.0 / 1.5
E - Tropical Parkway - 80-foot rural standard street	3.79	9 / 22	0.36 / 0.50	2.5 / 3.1	0.9 / 1.6
F - Onsite Street - 32' A/C with valley gutters	2.85	3 / 10	0.11 / 0.19	2.7 / 3.6	0.2 / 0.6

*All flow is assumed to be contained on the west side of the crown for worst-case conditions

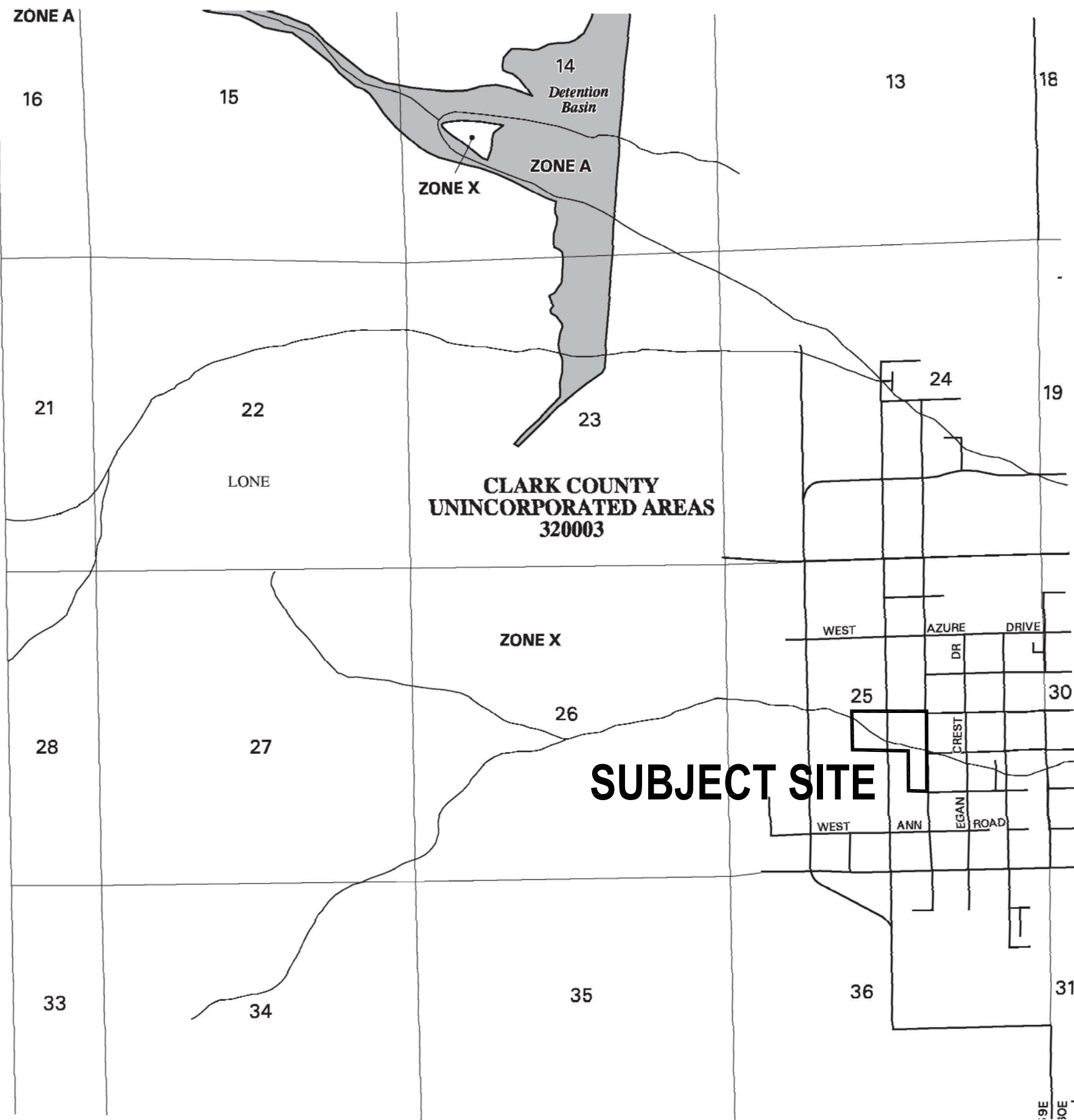
8/22/2016

Update #1 to the Technical Drainage Study for BLM Site 11 Residential Development
DEVELOPED CONDITIONS DRAINAGE MAP

FIGURE 4



APPENDIX



FEDERAL EMERGENCY MANAGEMENT AGENCY

PANEL 1750 E

FIRM
FLOOD INSURANCE RATE MAP
 CLARK COUNTY,
 NEVADA AND
 INCORPORATED AREAS

PANEL 1750 OF 4090
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

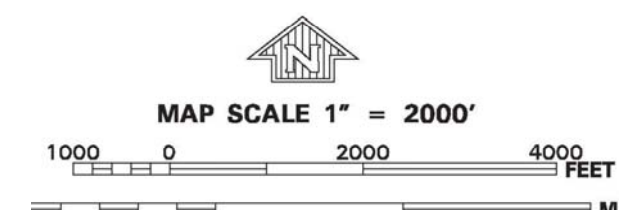
COMMUNITY	NUMBER	PANEL	SUFFIX
LAS VEGAS, CITY OF	325278	1750	E
CLARK COUNTY, UNINCORPORATED AREAS	320003	1750	E

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
32003C1750 E

MAP REVISED:
SEPTEMBER 27, 2002

Federal Emergency Management Agency



NOTES

This map is for assessment use only and does NOT represent a survey.

No liability is assumed for the accuracy of the data delineated herein. Information on roads and other non-assessed parcels may be obtained from the Road Document Listing in the Assessor's Office.

This map is compiled from official records, including surveys and deeds, but only contains the information required for assessment. See the recorded documents for more detailed legal information.

USE THIS SCALE(FEET) WHEN MAP REDUCED FROM 11X17 ORIGINAL

0

100

200

400

600

800

MAP LEGEND

PARCEL BOUNDARY

SUB BOUNDARY

PM/LD BOUNDARY

ROAD EASEMENT

MATCH / LEADER LINE

HISTORIC LOT LINE

HISTORIC SUB BOUNDARY

HISTORIC PM/LD BOUNDARY

SECTION LINE

CONDOMINIUM UNIT

AIR SPACE PCL

RIGHT OF WAY PCL

SUB-SURFACE PCL

001

ROAD PARCEL NUMBER

001

PARCEL NUMBER

1.00

ACREAGE

202

PARCEL SUB/SEQ NUMBER

PB 24-45

PLAT RECORDING NUMBER

5

BLOCK NUMBER

5

LOT NUMBER

GL5

GOV. LOT NUMBER

BOOK

T19S R59E

SEC.

25

MAP

N 2 SW 4

126

125

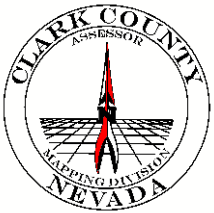
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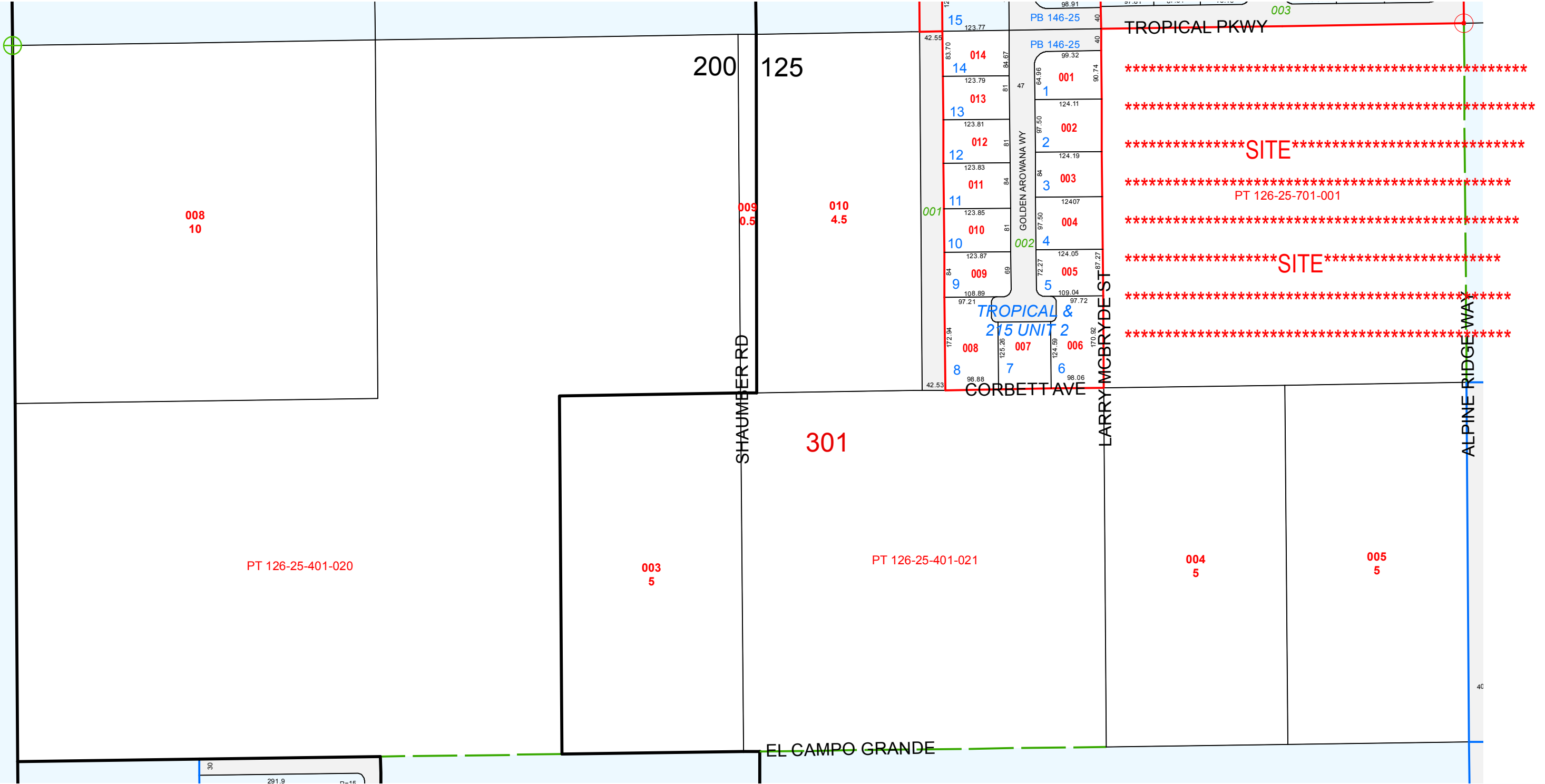
138

Scale: 1" = 200'

Rev: 1/31/2014

126-25-3





NOTES

This map is for assessment use only and does NOT represent a survey.

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This map is compiled from official records, including surveys and deeds, but only contains the information required for assessment. See the recorded documents for more detailed legal information.

MAP LEGEND

PARCEL BOUNDARY

SUB BOUNDARY

PM/LD BOUNDARY

ROAD EASEMENT

MATCH / LEADER LINE

HISTORIC LOT LINE

HISTORIC SUB BOUNDARY

HISTORIC PM/LD BOUNDARY

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001

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PB 24-45

PLAT RECORDING NUMBER

5

BLOCK NUMBER

5

LOT NUMBER

GL5

GOV. LOT NUMBER

BOOK

T19S R59E

SEC.

25

MAP

N 2 SE 4

126-25-7

098099100101

127126125124

136137138139

165164163162

654321

789101112

181716151413

192021222324

302928272625

313233343536

Scale: 1" = 200'

Rev: 02/09/2011

8484

5151

6262

7373

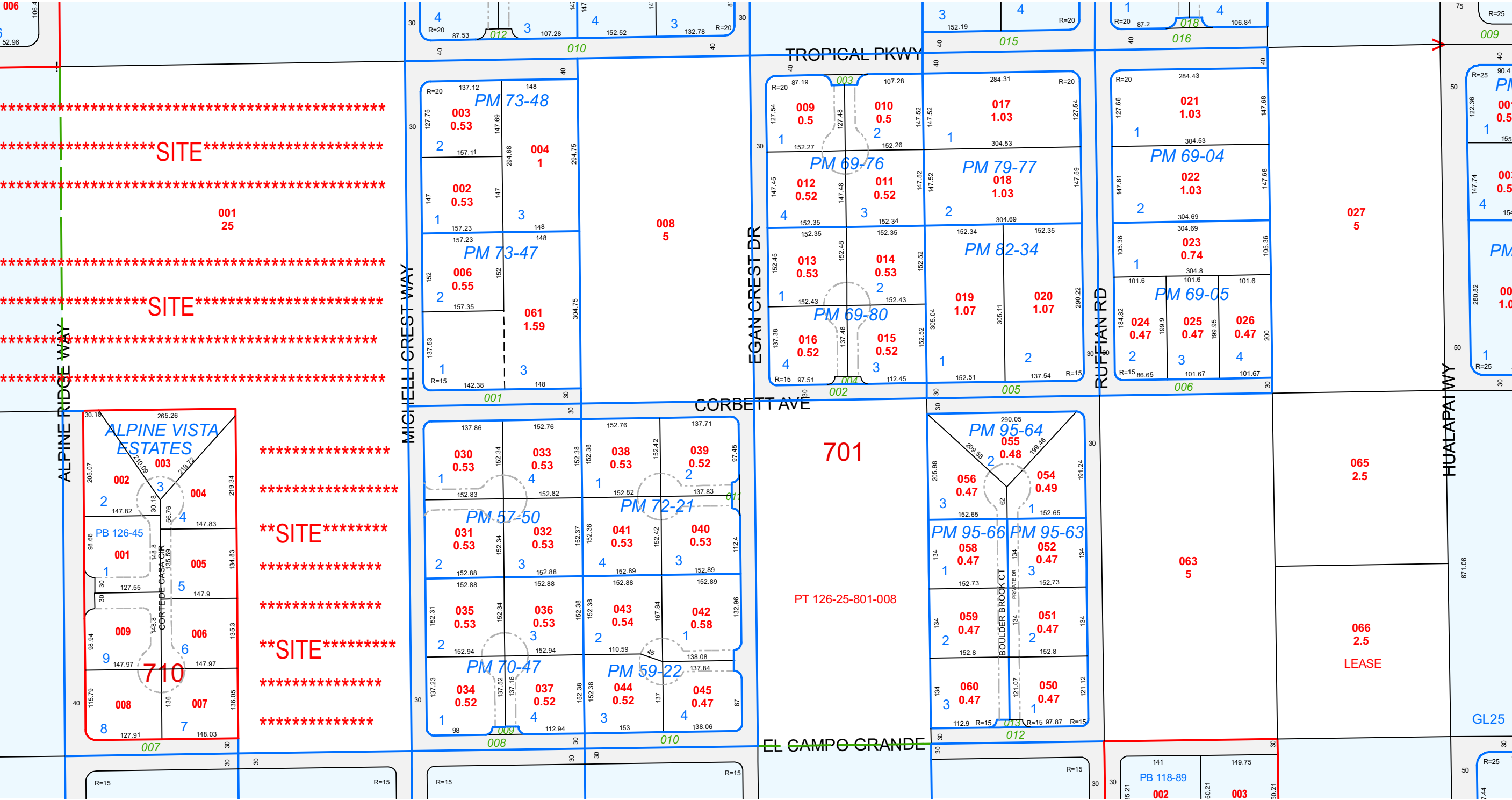
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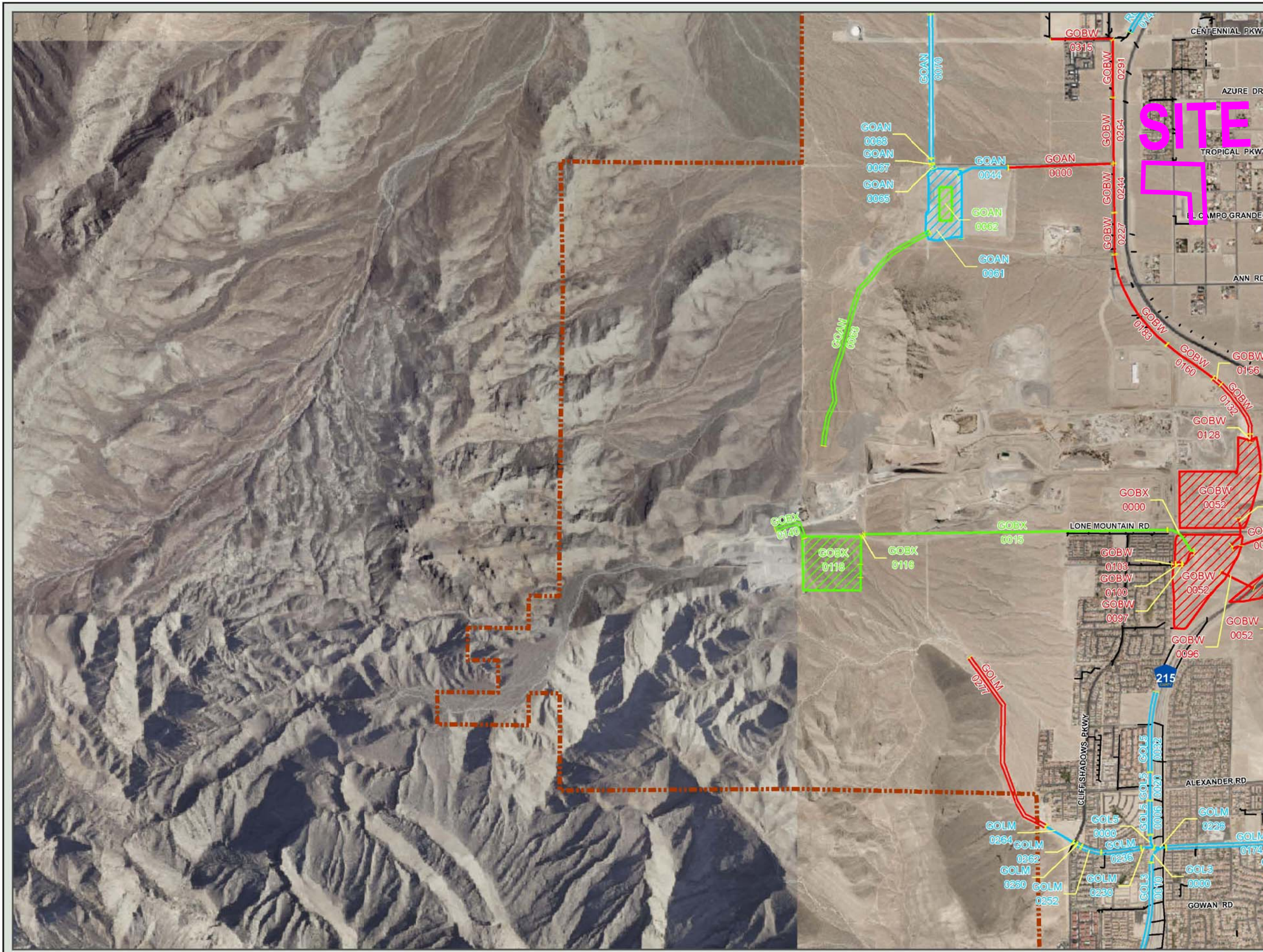
5151

CLARK COUNTY

ASSESSOR

NEVADA







2013
LAS VEGAS VALLEY
FLOOD CONTROL
MASTER PLAN UPDATE
FIGURE F- 18
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

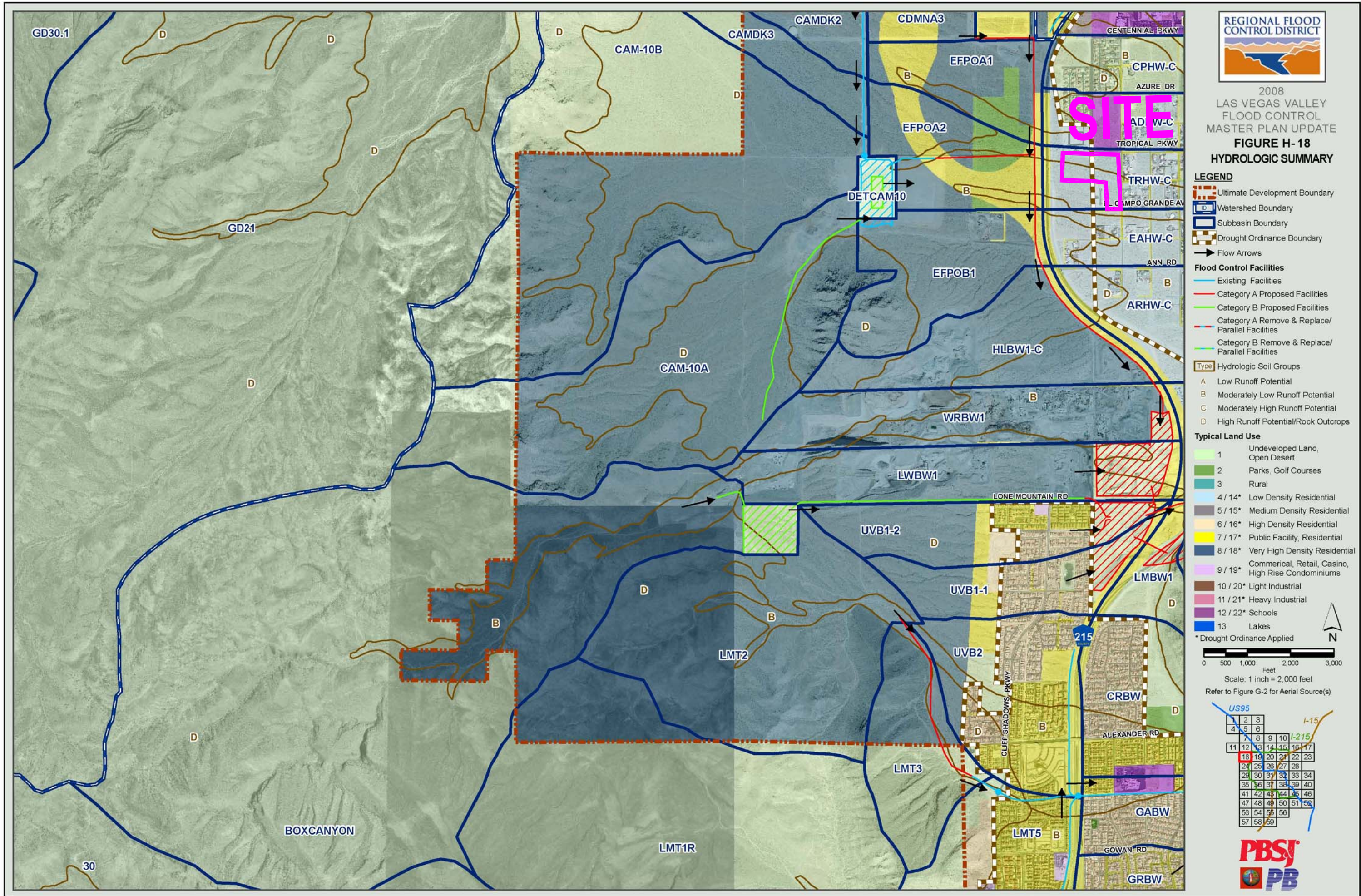
Stormdrain
Lined Channel
Unlined Channel
Levee/Dike
Natural Wash/Floodway
ID-Mile Separator

Remove & Replace/Parallel Facilities

Category A	Category B
Channel	Channel
Stormdrain	Stormdrain

0 500 1,000 2,000 3,000
Feet
Scale: 1 inch = 2,000 feet
Refer to Figure G-2 for Aerial Source(s)





**APPROVAL LETTER
FOR ORIGINAL STUDY**

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM		DATE: August 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: BLM Site 11 – Residential Development	COPIES TO: Triton Engineering
Cross Streets:	SWC of Tropical Pkwy & Michelli Crest Way	DR Horton Inc.
File Number:	F:\Depot\DSMemos\DS4789C.doc	Bart Anderson, P.E., DevCo
Parcel Number:	126-25-701-001	CCPW
Zoning Action:	ZON-62343; VAR-63098; WVR-63099; TMP-63100 & VAR-63259	
FEMA Flood Zone	YES	NO X
Proposed Storm Drain	YES	NO X

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	3/23/2016	4/12/2016	Not Approved	\$400.00	437883: \$400
2 nd Submittal	5/5/2016	5/31/2016	Not Approved	\$400.00	442871: \$400
3 rd Submittal	6/14/2016 & 8/10/2016	8/16/2016	See Comments Below	\$400.00	447535: \$400
TOTAL FEES (LDDRS):				\$1,200.00	----

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:
	must be resubmitted or supplemented including the following:
	is conditionally approved subject to Clark County Regional Flood Control District concurrence.
X	is conditionally approved subject to Clark County Public Works Department concurrence.

- The site is adjacent to the jurisdiction of the *County of Clark*. The engineer must coordinate with *Clark County Department of Public Works (CCPW)* and incorporate any concerns for boundary conditions along the common borders. CCPW concurrence is required prior to the final acceptance of the study.
- Second Request: Sheet 5 (Grading Plan III):** An existing 24"-storm drain and a 12"-bleeder line appears to be within the *Clark County* jurisdiction. Consult with the *Clark County Public Works Department* what need to be done with the bleeder system.
- The subject drainage study proposed only onsite rough grading without any permanent grading and building elevations etc. A drainage study update will be required to address the building elevations and permanent onsite drainage pattern upon future development.
- 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: 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/R59E/25

AREA F-25

HYDROLOGY

PRECIPITATION ADJUSTMENT RATIOS

<u>Recurrence Interval</u>	<u>Ratio to NOAA Atlas 2</u>
2-year	1.00
5-year	1.16
10-year	1.24
25-year	1.33
50-year	1.39
100-year	1.43

- NOTE: 1. Multiply the values obtained from the NOAA Atlas 2 by the above ratios to obtain the adjusted precipitation values.
2. NOAA Atlas 2 values for use with TR-55 shall not be adjusted by the above ratios.
3. Tables 505 and 506 require no adjustments.

<i>Revision</i>	<i>Date</i>

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

SIX-HOUR STORM DISTRIBUTIONS

Percent of Total Storm Depth				Percent of Total Storm Depth			
Storm Time (In Minutes)	SDN3	SDN4	SDN5	Storm Time (In Minutes)	SDN3	SDN4	SDN5
0	0.0	0.0	0.0	185	32.2	37.6	43.0
5	2.0	2.0	2.0	190	35.2	41.5	47.7
10	5.7	5.8	5.9	195	40.9	46.2	51.4
15	7.0	7.5	8.0	200	49.9	53.0	56.1
20	8.7	9.9	11.0	205	59.0	61.0	63.0
25	10.8	12.6	14.4	210	71.0	71.0	71.0
30	12.4	13.7	15.0	215	74.4	73.2	72.0
35	13.0	14.5	16.0	220	78.1	75.6	73.1
40	13.0	14.9	16.8	225	81.2	78.2	75.2
45	13.0	15.1	17.1	230	81.9	79.9	77.9
50	13.0	15.5	18.0	235	83.5	81.3	79.0
55	13.0	15.6	18.2	240	85.1	82.3	79.5
60	13.0	15.9	18.7	245	85.6	83.0	80.4
65	13.3	16.2	19.0	250	86.0	83.5	81.0
70	14.0	16.9	19.7	255	86.8	84.4	82.0
75	14.2	17.2	20.2	260	87.6	85.1	82.6
80	14.8	17.9	21.0	265	88.8	86.4	84.0
85	15.8	18.9	22.0	270	91.0	88.5	85.9
90	17.2	20.1	23.0	275	92.6	90.8	88.9
95	18.1	21.1	24.1	280	93.7	92.4	91.0
100	19.0	22.0	25.0	285	95.0	94.4	93.8
105	19.7	22.8	25.9	290	97.0	96.8	96.6
110	19.9	23.2	26.5	295	97.6	97.3	97.0
115	20.0	24.0	28.0	300	98.2	97.8	97.4
120	20.1	24.6	29.0	305	98.5	98.2	97.9
125	20.4	25.2	30.0	310	98.7	98.4	98.1
130	21.4	26.0	30.5	315	98.9	98.6	98.3
135	22.9	26.9	30.9	320	99.0	98.8	98.5
140	24.1	27.6	31.0	325	99.3	99.1	98.9
145	24.9	28.3	31.7	330	99.3	99.2	99.0
150	25.1	28.6	32.1	335	99.4	99.3	99.2
155	25.6	29.2	32.7	340	99.5	99.4	99.3
160	27.0	30.2	33.3	345	99.8	99.7	99.6
165	27.8	31.2	34.6	350	99.8	99.8	99.7
170	28.1	32.1	36.1	355	99.9	99.9	99.9
175	28.3	33.2	38.1	360	100.0	100.0	100.0
180	29.5	35.2	40.8				

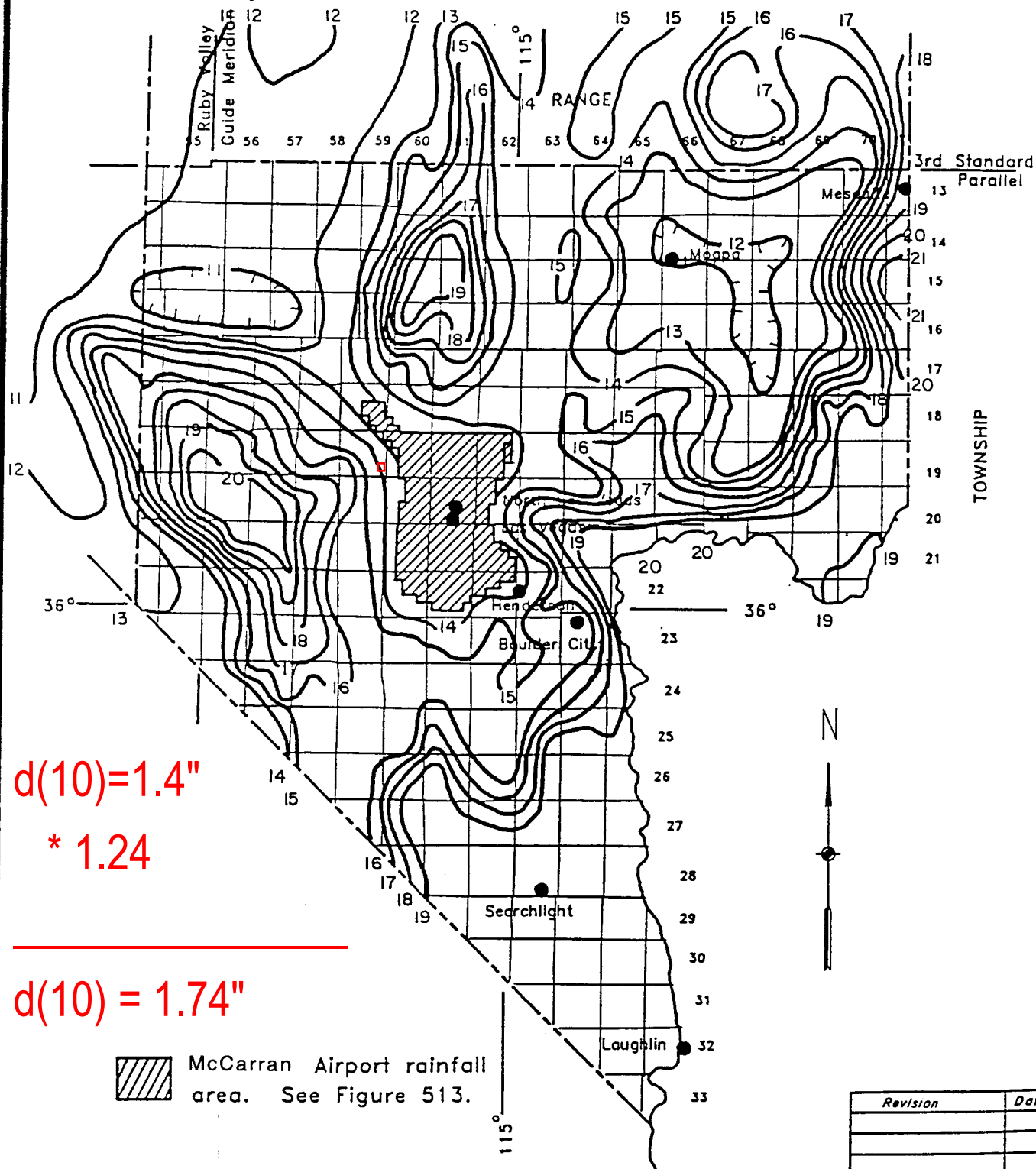
- Notes: 1. For drainage areas less than 8 square miles in size, use SDN 3.
 2. For drainage areas greater than or equal to 8 square miles and less than 12 square miles in size, use SDN 4.
 3. For drainage areas greater than or equal to 12 square miles, use SDN 5.
 4. A graphical representation of these values is presented on **Figure 515**.

Revision	Date

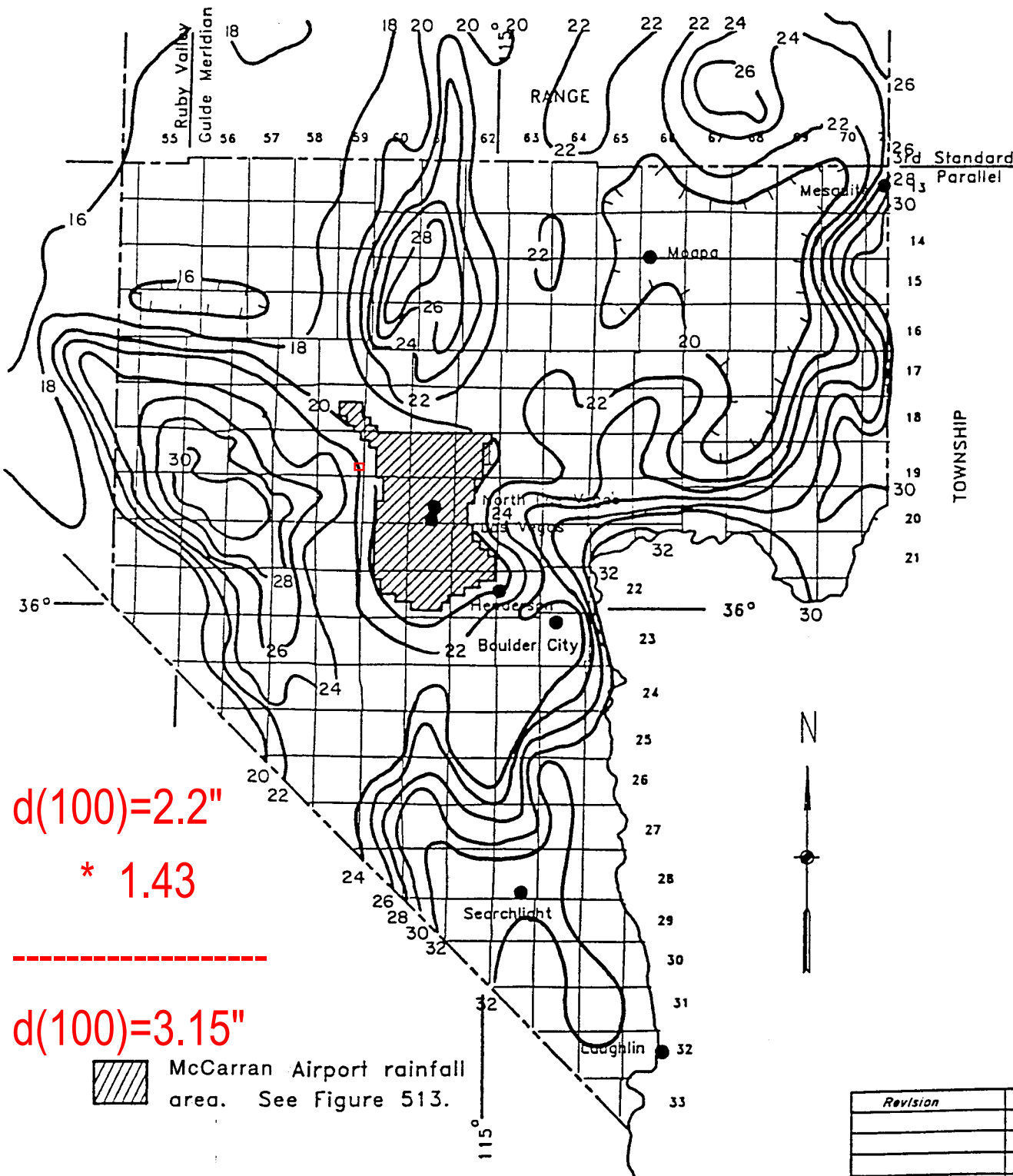
REFERENCE:

TABLE 503

RAINFALL DEPTH-DURATION-FREQUENCY 10-YEAR, 6-HOUR (DEPTHS IN TENTHS OF INCHES)



RAINFALL DEPTH-DURATION-FREQUENCY 100-YEAR, 6-HOUR (DEPTHS IN TENTHS OF INCHES)



Revision	Date

RUNOFF CURVE NUMBERS (URBAN AREAS¹)

Cover description		Curve numbers for hydrologic soil group—			
Cover type and hydrologic condition	Average percent impervious area ²	A	B	C	D
<i>Fully developed urban areas (vegetation established)</i>					
Open space (lawns, parks, golf courses, cemeteries, etc.): ³					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved: curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved: open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) ⁴ ...		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					

See Table 602A

Developing urban areas

Newly graded areas (pervious areas only, no vegetation) ⁵	77	86	91	94
--	----	----	----	----

1 Average runoff condition, and $I_p = 0.2S$.

2 The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system. Impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using Figure 603.

3 CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

4 Composite CN's for natural desert landscaping should be computed using Figure 603 based on the impervious area percentage (CN #98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

5 Composite CN's to use for the design of temporary measures during grading and construction should be computed using Figure 603 based on the degree of development impervious area percentage) and the CN's for the newly graded pervious areas.

Revision	Date

RUNOFF CURVE NUMBERS (SEMIARID RANGELANDS¹)

Cover description		Curve numbers for hydrologic soil group—			
Cover type	Hydrologic condition ²	A ³	B	C	D
Herbaceous—mixture of grass, weeds, and low-growing brush, with brush the minor element.	Poor		80	87	93
	Fair		71	81	89
	Good		62	74	85
Oak-aspen—mountain brush mixture of oak brush, aspen, mountain mahogany, bitter brush, maple, and other brush.	Poor		66	74	79
	Fair		48	57	63
	Good		30	41	48
Pinyon-juniper—pinyon, juniper, or both; grass understory.	Poor		75	85	89
	Fair		58	73	80
	Good		41	61	71
Sagebrush with grass understory.	Poor		67	80	85
	Fair		51	63	70
	Good		35	47	55
Desert shrub—major plants include saltbush, greasewood, creosotebush, blackbrush, bursage, palo verde, mesquite, and cactus.	Poor	63	77	85	88
	Fair	55	72	81	86
	Good	49	68	79	84

¹Average runoff condition, and $I_a = 0.2S$.

²Poor: <30% ground cover (litter, grass, and brush overstory).

Fair: 30 to 70% ground cover.

Good: >70% ground cover.

³Curve numbers for group A have been developed only for desert shrub.

Revision	Date

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

RUNOFF CURVE NUMBERS - RESIDENTIAL DISTRICTS

Average Lot Size or Usage ¹	Percent Impervious ²	Curve Number for Hydrologic Soil Groups			
		A	B	C	D
Apartments/Condos	72	81	88	91	93
Townhouses/6,000 sq ft lots or less ³	69	80	87	90	92
7,000 sq ft lots	63	76	84	89	91
8,000 sq ft lots	58	73	82	88	90
10,000 sq ft lots	38	61	75	83	87
14,000 sq ft lots	30	57	72	81	86
20,000 sq ft lots	25	54	70	80	85
40,000 sq ft lots	20	51	68	79	84
80,000 sq ft lots	12	46	65	77	82

1 Lot size should represent the size of the average lot and not the gross acreage divided by the number of lots.

2 Actual percent impervious value should be compared to selected land use type.

3 In cases where average residential lots are smaller than 6,000 sq ft, commercial/business/industrial land use should be used.

Revision	Date

REFERENCE:

TABLE 602A

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 (T _i)			Travel Time (T _t)					T _c	T _c Check (Urbanized Basins)		Final T _c	T _{lag}	Remarks
DESIG (1)	CN (2)	K (3)	AREA (acres) (4)	AREA (mi²) (5)	LENGTH (ft) (6)	SLOPE (%) (7)	T _i (min) (8)	LENGTH (ft) (9)	SLOPE (%) (10)	V ₁ (fps) (11)	V ₂ (fps) (12)	T _t (min) (13)	T _c =T _i +T _t (min) (14)	TOTAL (ft) (15)	T _c (min) (16)	T _c (min) (17)	T _{lag} (hrs) (18)	Remarks (19)
DEVELOPED CONDITION																		
TRPW1	98	0.904	0.73	0.0011	34	2.0	1.6	630	3.5	3.8	5.7	2.6	4.2	664	13.7	4.2	0.050	
TRPW2	98	0.904	0.76	0.0012	34	2.0	1.6	630	3.5	3.8	5.7	2.6	4.2	664	13.7	4.2	0.050	
TRPE	98	0.904	1.33	0.0021	34	2.0	1.6	630	3.5	1.0	5.7	8.7	10.3	664	13.7	10.3	0.103	
ARW1	98	0.904	0.63	0.0010	24	2.0	1.4	290	0.4	1.3	N/A	3.8	5.2	314	11.7	5.2	0.052	
ARW2	98	0.904	1.32	0.0021	24	2.0	1.4	420	0.5	1.4	N/A	4.9	6.3	444	12.5	6.3	0.063	
ARW3	98	0.904	0.37	0.0006	24	2.0	1.4	140	1.0	2.0	N/A	1.2	2.5	164	10.9	2.5	0.050	
ARW4	98	0.904	0.96	0.0015	24	2.0	1.4	140	1.0	2.0	N/A	1.2	2.5	164	10.9	2.5	0.050	
MC1	98	0.904	0.36	0.0006	24	2.0	1.4	200	0.4	1.3	N/A	2.6	4.0	224	11.2	4.0	0.050	
MC2	98	0.904	0.73	0.0011	24	2.0	1.4	430	0.5	1.4	N/A	5.0	6.4	454	12.5	6.4	0.064	
MC3	98	0.904	0.82	0.0013	24	2.0	1.4	560	1.1	2.1	3.2	4.2	5.6	584	13.2	5.6	0.056	
LCMP	98	0.904	0.51	0.0008	24	2.0	1.4	290	3.8	3.9	N/A	1.2	2.6	314	11.7	2.6	0.050	
DN1	82	0.692	6.74	0.0105	105	1.0	7.5	440	3.3	3.7	N/A	2.0	9.5	545	13.0	9.5	0.095	
DN2	87	0.758	2.18	0.0034	105	1.0	6.3	440	3.5	3.8	N/A	1.9	8.2	545	13.0	8.2	0.082	
DN3	72	0.560	2.58	0.0040	195	1.0	13.6	490	3.3	3.7	N/A	2.2	15.8	685	13.8	13.8	0.138	
DN4	77	0.626	6.23	0.0097	195	1.0	11.9	460	3.5	3.8	N/A	2.0	13.9	655	13.6	13.6	0.136	
DN6	86	0.745	3.47	0.0054	105	1.0	6.5	340	1.8	2.7	N/A	2.1	8.6	445	12.5	8.6	0.086	
DN7	86	0.745	0.54	0.0008	195	1.0	8.9	50	3.8	3.9	N/A	0.2	9.1	245	11.4	9.1	0.091	
FD1	86	0.745	5.32	0.0083	100	1.0	6.4	430	1.0	2.0	N/A	3.5	9.9	530	12.9	9.9	0.099	
FD2	72	0.560	0.30	0.0005	50	1.0	6.9	220	0.5	1.4	N/A	2.6	9.4	270	11.5	9.4	0.094	

UNDEVELOPED CONDITION																		
XTRPE	77	0.63	1.33	0.0021	100	3.5	5.6	550	3.5	2.8	5.5	3.2	8.8	N/A	N/A	8.8	0.100	
XLCMP	88	0.77	0.51	0.0008	100	3.3	4.0	220	3.3	2.7	N/A	1.4	5.3	N/A	N/A	5.3	0.100	
XF1	88	0.77	10.52	0.0164	200	3.1	5.7	1010	3.1	2.6	5.2	4.8	10.6	N/A	N/A	10.6	0.106	
XN1	85	0.73	8.97	0.0140	200	3.1	6.4	510	3.1	2.6	5.2	3.2	9.7	N/A	N/A	9.7	0.100	
XN2	77	0.63	2.60	0.0041	200	3.5	7.9	400	3.5	2.8	N/A	2.4	10.3	N/A	N/A	10.3	0.103	
XN3	83	0.71	4.25	0.0066	200	3.7	6.5	460	3.7	2.8	N/A	2.7	9.2	N/A	N/A	9.2	0.100	
XN4	88	0.77	1.80	0.0028	200	3.7	5.4	500	3.7	2.8	N/A	2.9	8.3	N/A	N/A	8.3	0.100	
XN5	88	0.77	4.31	0.0067	200	3.6	5.5	120	3.6	2.8	N/A	0.7	6.2	N/A	N/A	6.2	0.100	

$T_i = (1.8(1-K)L^{1/2}) / (S^{1/3})$ $T_c = T_i + T_t$ $K = 0.0132(CN) - 39$ $T_{lag} = 0.6T_c$					For the travel time (T _t) calculations, V ₁ applies to the first 500 feet of travel distance; V ₂ applies to the remaining travel distance.					Travel Time Velocity Formulas Existing $V_1 = 14.8(S/100)^{1/2}$ $V_2 = 29.4(S/100)^{1/2}$				Developed $V_1 = 20.2(S/100)^{1/2}$ $V_2 = 30.6(S/100)^{1/2}$				All basins over one square mile are calculated by the equation $T_{lag} = 20Kn(L \cdot L_p / S^{0.5})^{0.33}$ (SEE SEPARATE SPREADSHEET)	
---	--	--	--	--	---	--	--	--	--	---	--	--	--	---	--	--	--	---	--

CURVE NUMBER DETERMINATION*

BLM Site 11 Residential

5/2/2016

BY B.BROWN

BASIN	HYDROLOGIC SOIL GROUP	LAND USE	CURVE NUMBER	PERCENT OF TOTAL	FINAL CN	REMARKS
FD2, DN3	**B	14,000 SF LOTS RESIDENTIAL	72	100	72	TABLE 602A, Assume HSG "B" for conservative approach
FD1 DN6, DN7	D	14,000 SF LOTS RESIDENTIAL	86	100	86	TABLE 602A although lots are larger for conservative approach
DN2	D	10,000 SF LOTS RESIDENTIAL	87	100	87	TABLE 602A although lots are larger for conservative approach
XTRPE, XN2	**B	DESERT SHRUB	77	100	77	Table 602, 4 of 4 Semiarid Rangeland
XN4, XN5, XF1, XLCMP	D	DESERT SHRUB	88	100	88	Table 602, 4 of 4 Semiarid Rangeland
ARW3, ARW4 TRPW, TRPE, ARW1, ARW2 MC1, MC2, MC3, MC4, LCMP	ANY	PAVED AREAS	98	100	98	Table 602, 1 of 4 Urban districts
XN1	**B	DESERT SHRUB	77	30		Table 602, 4 of 4 Semiarid Rangeland
	D	DESERT SHRUB	88	70	85	Table 602, 4 of 4 Semiarid Rangeland
XN3	**B	DESERT SHRUB	77	50		Table 602, 4 of 4 Semiarid Rangeland
	D	DESERT SHRUB	88	50	83	Table 602, 4 of 4 Semiarid Rangeland
DN1	**B	10,000 SF LOTS RESIDENTIAL	75	40		TABLE 602A, Assume HSG "B" for conservative approach
	D	10,000 SF LOTS RESIDENTIAL	87	60	82	TABLE 602A,
DN4	**B	14,000 SF LOTS RESIDENTIAL	72	65		TABLE 602A, Assume HSG "B" for conservative approach
	D	14,000 SF LOTS RESIDENTIAL	86	35	77	TABLE 602A,

*Based on Clark County Regional Flood Control District Hydrologic Criteria and Drainage Design Manual, Latest update.

**Actual Hydrologic Soils Group is "A"...Group "B" is assumed as a more conservative result.

```

1*****
*
*   FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*   JUN 1998                      *
*   VERSION 4.1                   *
*
*   RUN DATE 02MAY16 TIME 20:31:52 *
*
*****

```

```

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

```

```

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

```

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

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

1

HEC-1 INPUT

PAGE 1

```

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
1          ID
2          ID      6- HOUR, 10- AND 100-YEAR EXISTING AND DEVELOPED CONDITIONS MODEL
3          ID      BLM SITE 11 RESIDENTIAL
4          ID      MOMENTUM ENGINEERS FOR TRITON ENGINEERING - B BROWN
5          ID
6          ID
7          ID      6-HOUR STORM DISTRIBUTION #3
8          ID      10- AND 100-YEAR STORM EVENTS
9          ID
10         ID
11         ID
12         ID
13         IT      5      0      0      300
14         IO      5      0      0
15         IN      5      0      0
16         JR      PREC  0.55      1
17         KK      TRPW1

```


KM		<<<<<<<<<BEGIN EXISTING CONDITIONS>>>>>>>>>>>>>>>>>>					
BA	0.0011						
PB	3.15						
KM		SDN #3					
PC	0.000	0.020 0.057 0.070 0.087 0.108 0.124 0.130					
PC	0.130	0.130 0.130 0.133 0.140 0.142 0.148 0.158					
PC	0.190	0.197 0.199 0.200 0.201 0.204 0.214 0.229					
PC	0.251	0.256 0.270 0.278 0.281 0.283 0.295 0.322					
PC	0.499	0.590 0.710 0.744 0.781 0.812 0.819 0.835					
PC	0.860	0.868 0.876 0.888 0.910 0.926 0.937 0.950					
PC	0.982	0.985 0.987 0.989 0.990 0.993 0.993 0.994					
PC	0.998	0.999 1.000					
LS	0	98					
UD	0.050						
*							

KK	DOF9	
KM		THIS BASIN REFERENCED FROM TDS FOR TROPICAL AND 215
BA	0.0041	
LS	0	98
UD	0.066	
*		

KK	DON2	
KM		THIS BASIN REFERENCED FROM TDS FOR TROPICAL AND 215
BA	.0120	
LS	0	72.2
UD	0.149	
*		

KK	CD6	
KM		THIS COMBO REFERENCED FROM TDS FOR TROPICAL AND 215
HC	2	
*		

HEC-1 INPUT

PAGE 2

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

KK	HAFCD6				
KM	HALF OF TOTAL FLOW (SOUTHS) FLOWS IN SOUTH HALF OF TROPICAL				
KM	REMAINDER CONTINUES EAST IN NORTH HALF OF TROPICAL				
DT	SOUTH2				
DI	0	4	8	10	20
DQ	0	2	4	5	10
*					

KK CPTRP1
HC 2
*

KK	ARW1	
BA	0.0010	
LS	0	98
UD	0.052	
*		

57	KK	XTRPE	
58	BA	0.0021	
59	LS	0	77
60	UD	0.100	
	*		
61	KK	CPTRP2	
62	HC	3	
	*		
63	KK	XN2	
64	BA	0.0041	
65	LS	0	77
66	UD	0.103	
	*		
67	KK	MC1	
68	BA	0.0006	
69	LS	0	98
70	UD	0.050	
	*		
71	KK	FD2	
72	BA	0.0005	
73	LS	0	72
74	UD	0.094	
	*		
75	KK	CPMC1	
76	HC	3	
	*		

1

HEC-1 INPUT

PAGE 3

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

77	KK	CPTRP3
78	HC	2
	*	

79	KK	TOTRP0	
80	KM		RECALL DIVERTED FLOW FROM HALF OF CD6
81	DR	SOUTH2	
	*		

82	KK	TRPW2	
83	BA	0.0012	
84	LS	0	98
85	UD	0.050	
	*		

86	KK	CPTRP0
87	HC	2
	*	

88	KK	XN1
89	BA	0.0140

90	LS	0	85
91	UD	0.100	
	*		
92	KK	ARW2	
93	BA	0.0021	
94	LS	0	98
95	UD	0.063	
	*		
96	KK	CPARW2	
97	HC	3	
	*		
98	KK	XN4	
99	BA	0.0028	
100	LS	0	88
101	UD	0.100	
	*		
102	KK	CPXN4	
103	HC	2	
	*		
104	KK	XN3	
105	BA	0.0056	
106	LS	0	83
107	UD	0.100	
	*		

HEC-1 INPUT

PAGE 4

LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
108	KK MC2
109	BA 0.0011
110	LS 0 98
111	UD 0.064
	*
112	KK CPMC2
113	HC 3
	*
114	KK CORB
115	KM
116	KM
117	KM
118	DT SOUTH
119	DI 0 13 200
120	DQ 0 13 13
	*
121	KK XN5
122	BA 0.0057
123	LS 0 88
124	UD 0.100

DIVERTED FLOW (SOUTH) IS CROWN CAPACITY, FLOWS
 SOUTH ALONG THE CROWN OF MICHELLI CREST WAY
 REMAINDER EXITS THE WATERSHED ON CORBETT ST TO THE EAST


```

*
125      KK      MC3
126      BA 0.0013
127      LS      0      98
128      UD 0.056
*

129      KK      SOUTH
130      KM      RECALL DIVERTED FLOW FORM MICHELLI CREST/CORBETT
131      DR      SOUTH
*

132      KK      CPMC3
133      HC      3
*

134      KK      XF1
135      BA 0.0164
136      LS      0      88
137      UD 0.106
*

138      KK      FD1
139      BA 0.0083
140      LS      0      86
141      UD 0.099
*

```

1

HEC-1 INPUT

PAGE 5

```

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

142      KK      CPCMP1
143      HC      2
*

144      KK      XLCMP
145      BA 0.0008
146      LS      0      88
147      UD 0.100
*

148      KK      CPCMP2
149      HC      2
*

150      KK      CPCMP3
151      HC      2
*

152      KK      DUMMY
153      HC      3
*

154      KK      TRPW1
155      KM      *****BEGIN DEVELOPED CONDITIONS*****

```

156	BA	0.0011		
157	LS	0	98	
158	UD	0.050		
	*			
159	KK	DOF9		
160	KM		THIS BASIN REFERENCED FROM TDS FOR TROPICAL AND 215	
161	BA	0.0041		
162	LS	0	98	
163	UD	0.066		
	*			
164	KK	DON2		
165	KM		THIS BASIN REFERENCED FROM TDS FOR TROPICAL AND 215	
166	BA	.0120		
167	LS	0	72.2	
168	UD	0.149		
	*			
169	KK	CD6		
170	KM		THIS COMBO REFERENCED FROM TDS FOR TROPICAL AND 215	
171	HC	2		
	*			
172	KK	HAFCD6		
173	KM		HALF OF TOTAL FLOW (SOUTHS) FLOWS IN SOUTH HALF OF TROPICAL	
174	KM		REMAINDER CONTINUES EAST IN NORTH HALF OF TROPICAL	
175	DT	SOUTH2		
176	DI	0	4	8 10 20
177	DQ	0	2	4 5 10
	*			

HEC-1 INPUT

PAGE 6

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

178	KK	CPTRP1
179	HC	2
	*	

180	KK	ARW1
181	BA	0.0010
182	LS	0
183	UD	0.052
	*	

184	KK	TRPE
185	BA	0.0021
186	LS	0
187	UD	0.103
	*	

188	KK	DN3
189	BA	0.0040
190	LS	0
191	UD	0.138
	*	

192 KK CPTRP2
193 HC 4
*

194 KK MC1
195 BA 0.0006
196 LS 0 98
197 UD 0.050
*

198 KK FD2
199 BA 0.0005
200 LS 0 72
201 UD 0.094
*

202 KK CPMC1
203 HC 2
*

204 KK CPTRP3
205 HC 2
*

206 KK TOTRP0
207 KM RECALL DIVERTED FLOW FROM HALF OF CD6
208 DR SOUTH2
*

1

HEC-1 INPUT

PAGE 7

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

209 KK TRPW2
210 BA 0.0012
211 LS 0 98
212 UD 0.050
*

213 KK CPTRP0
214 HC 2
*

215 KK ARW4
216 BA 0.0015
217 LS 0 98
218 UD 0.050
*

219 KK DN1
220 BA 0.0105
221 LS 0 82
222 UD 0.095
*

223 KK CPARW4

224	HC	3	
	*		
225	KK	DN4	
226	BA	0.0097	
227	LS	0	77
228	UD	0.136	
	*		
229	KK	CPDN4	
230	HC	2	
	*		
231	KK	MC2	
232	BA	0.0011	
233	LS	0	98
234	UD	0.064	
	*		
235	KK	CPMC2	
236	HC	2	
	*		
237	KK	DN6	
238	BA	0.0054	
239	LS	0	86
240	UD	0.086	
	*		

1

HEC-1 INPUT

PAGE 8

LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10		
241	KK	MC3	
242	BA	0.0013	
243	LS	0	98
244	UD	0.056	
	*		
245	KK	CPMC3	
246	HC	2	
	*		
247	KK	DN2	
248	BA	0.0034	
249	LS	0	87
250	UD	0.082	
	*		
251	KK	ARW3	
252	BA	0.0006	
253	LS	0	98
254	UD	0.050	
	*		
255	KK	CPARW3	
256	HC	2	

```

*
257      KK      XF1
258      BA  0.0164
259      LS      0      88
260      UD  0.106
*

261      KK      FD1
262      BA  0.0083
263      LS      0      86
264      UD  0.099
*

265      KK  CPCMP1
266      HC      3
*

267      KK      DN7
268      BA  0.0008
269      LS      0      86
270      UD  0.091
*

271      KK      LCMP
272      BA  0.0008
273      LS      0      98
274      UD  0.050
*

```

1

HEC-1 INPUT

PAGE 9

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

```

275      KK  CPCMP2
276      HC      3
*

277      KK  CPCMP3
278      HC      2
*

279      ZZ

```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```

INPUT
LINE  (V) ROUTING      (--->) DIVERSION OR PUMP FLOW

NO.   (.) CONNECTOR    (<---) RETURN OF DIVERTED OR PUMPED FLOW

17    TRPW1
      .
      .
32    .      DOF9
      .      .
      .      .
37    .      .      DON2
      .      .      .

```

```

42      .      .      .
      .      .      .
      .      .      .
48      .      .      .
45      .      .      .
      .      .      .
      .      .      .
51      .      .      .
      .      .      .
      .      .      .
53      .      .      .
      .      .      .
      .      .      .
57      .      .      .
      .      .      .
      .      .      .
61      .      .      .
      .      .      .
      .      .      .
63      .      .      .
      .      .      .
      .      .      .
67      .      .      .
      .      .      .
      .      .      .
71      .      .      .
      .      .      .
      .      .      .
75      .      .      .
      .      .      .
      .      .      .
77      .      .      .
      .      .      .
      .      .      .
81      .      .      .
79      .      .      .
      .      .      .
      .      .      .
82      .      .      .
      .      .      .
      .      .      .
86      .      .      .
      .      .      .
      .      .      .
88      .      .      .
      .      .      .
      .      .      .
92      .      .      .
      .      .      .
      .      .      .
96      .      .      .
      .      .      .
      .      .      .
98      .      .      .
      .      .      .
      .      .      .

```

CD6.....
 SOUTH2
 HAFCD6
 CPTRP1.....
 ARW1
 XTRPE
 CPTRP2.....
 XN2
 MC1
 FD2
 CPMC1.....
 CPTRP3.....
 SOUTH2
 TOTRP0
 TRPW2
 CPTRP0.....
 XN1
 ARW2
 CPARW2.....
 XN4

102	.	CPXN4.....		
	.	.		
104	.	.	XN3	
	.	.	.	
108	.	.	.	MC2
	.	.	.	.
112	.	CPMC2.....		
	.	.		
118	.	----->	SOUTH	
114	.	CORB		
	.	.		
121	.	.	XN5	
	.	.	.	
125	.	.	.	MC3
	.	.	.	.
131	.	.	.	.
129	.	.	.	SOUTH
	.	.	.	.
132	.	.	CPMC3.....	
	.	.	.	
134	.	.	.	XF1
	.	.	.	.
138	.	.	.	FD1
	.	.	.	.
142	.	.	.	CPCMP1.....
	.	.	.	.
144	.	.	.	XLCMP
	.	.	.	.
148	.	.	.	CPCMP2.....
	.	.	.	.
150	.	.	.	CPCMP3.....
	.	.	.	.
152	.	DUMMY.....		
	.	.		
154	.	TRPW1		
	.	.		
159	.	.	DOF9	
	.	.	.	
164	.	.	.	DON2

	.	.	.	.
169	.	.	CD6.....	.
	.	.	.	.
175	.	.	----->	SOUTH2
172	.	.	HAFC06	.
	.	.	.	.
178	.	.	CPTRP1.....	.
	.	.	.	.
180	.	.	ARW1	.
	.	.	.	.
184	.	.	.	TRPE
	.	.	.	.
188	.	.	.	.
	.	.	.	DN3
	.	.	.	.
192	.	.	CPTRP2.....	.
	.	.	.	.
194	.	.	MC1	.
	.	.	.	.
198	.	.	.	FD2
	.	.	.	.
202	.	.	CPMC1.....	.
	.	.	.	.
204	.	.	CPTRP3.....	.
	.	.	.	.
208	.	.	.	----->
206	.	.	TOTRP0	SOUTH2
	.	.	.	.
209	.	.	.	TRPW2
	.	.	.	.
213	.	.	CPTRP0.....	.
	.	.	.	.
215	.	.	.	ARW4
	.	.	.	.
219	.	.	.	.
	.	.	.	DN1
	.	.	.	.
223	.	.	CPARW4.....	.
	.	.	.	.
225	.	.	.	DN4
	.	.	.	.

229	.	.	.	CPDN4.....	.
	.	.	.	.	.
231	.	.	.	MC2	.
	.	.	.	.	.
235	.	.	.	CPMC2.....	.
	.	.	.	.	.
237	.	.	.	DN6	.
	.	.	.	.	.
241	.	.	.	MC3	.
	.	.	.	.	.
245	.	.	.	CPMC3.....	.
	.	.	.	.	.
247	.	.	.	DN2	.
	.	.	.	.	.
251	.	.	.	ARW3	.
	.	.	.	.	.
255	.	.	.	CPARW3.....	.
	.	.	.	.	.
257	.	.	.	XF1	.
	.	.	.	.	.
261	.	.	.	FD1	.
	.	.	.	.	.
265	.	.	.	CPCMP1.....	.
	.	.	.	.	.
267	.	.	.	DN7	.
	.	.	.	.	.
271	.	.	.	LCMP	.
	.	.	.	.	.
275	.	.	.	CPCMP2.....	.
	.	.	.	.	.
277	.	.	.	CPCMP3.....	.

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```

1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
*   JUN   1998
*   VERSION 4.1
*
* RUN DATE  02MAY16  TIME  20:31:52
*

```

```

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

```

6- HOUR, 10- AND 100-YEAR EXISTING AND DEVELOPED CONDITIONS MODEL
BLM SITE 11 RESIDENTIAL
MOMENTUM ENGINEERS FOR TRITON ENGINEERING - B BROWN

6-HOUR STORM DISTRIBUTION #3
10- AND 100-YEAR STORM EVENTS

14 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
 .55 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	
				.55	1.00	
HYDROGRAPH AT +	TRPW1	.00	1	FLOW TIME	2. 3.50	3. 3.50
HYDROGRAPH AT +	DOF9	.00	1	FLOW TIME	6. 3.50	10. 3.50
HYDROGRAPH AT +	DON2	.01	1	FLOW TIME	2. 3.67	9. 3.58
2 COMBINED AT +	CD6	.02	1	FLOW TIME	6. 3.50	18. 3.50
DIVERSION TO +	SOUTH2	.02	1	FLOW TIME	3. 3.50	9. 3.50
HYDROGRAPH AT +	HAFC06	.02	1	FLOW TIME	3. 3.50	9. 3.50
2 COMBINED AT +	CPTRP1	.02	1	FLOW TIME	5. 3.50	12. 3.50
HYDROGRAPH AT +	ARW1	.00	1	FLOW TIME	1. 3.50	3. 3.50
HYDROGRAPH AT +	XTRPE	.00	1	FLOW TIME	1. 3.58	2. 3.50
3 COMBINED AT +	CPTRP2	.02	1	FLOW TIME	7. 3.50	17. 3.50
HYDROGRAPH AT +	XN2	.00	1	FLOW TIME	1. 3.58	4. 3.58
HYDROGRAPH AT +	MC1	.00	1	FLOW TIME	1. 3.50	2. 3.50
HYDROGRAPH AT +	FD2	.00	1	FLOW TIME	0. 3.58	0. 3.50

3 COMBINED AT						
+	CPMC1	.01	1	FLOW	2.	6.
				TIME	3.50	3.50
2 COMBINED AT						
+	CPTRP3	.03	1	FLOW	9.	23.
				TIME	3.50	3.50
HYDROGRAPH AT						
+	TOTRP0	.00	1	FLOW	3.	9.
				TIME	3.50	3.50
HYDROGRAPH AT						
+	TRPW2	.00	1	FLOW	2.	3.
				TIME	3.50	3.50
2 COMBINED AT						
+	CPTRP0	.00	1	FLOW	5.	12.
				TIME	3.50	3.50
HYDROGRAPH AT						
+	XN1	.01	1	FLOW	8.	22.
				TIME	3.58	3.50
HYDROGRAPH AT						
+	ARW2	.00	1	FLOW	3.	5.
				TIME	3.50	3.50
3 COMBINED AT						
+	CPARW2	.02	1	FLOW	16.	39.
				TIME	3.50	3.50
HYDROGRAPH AT						
+	XN4	.00	1	FLOW	2.	5.
				TIME	3.50	3.50
2 COMBINED AT						
+	CPXN4	.02	1	FLOW	18.	44.
				TIME	3.50	3.50
HYDROGRAPH AT						
+	XN3	.01	1	FLOW	3.	9.
				TIME	3.58	3.50
HYDROGRAPH AT						
+	MC2	.00	1	FLOW	2.	3.
				TIME	3.50	3.50
3 COMBINED AT						
+	CPMC2	.03	1	FLOW	22.	56.
				TIME	3.50	3.50
DIVERSION TO						
+	SOUTH	.03	1	FLOW	13.	13.
				TIME	3.42	3.25
HYDROGRAPH AT						

+	CORB	.03	1	FLOW TIME	9. 3.50	43. 3.50
HYDROGRAPH AT						
+	XN5	.01	1	FLOW TIME	5. 3.50	12. 3.50
HYDROGRAPH AT						
+	MC3	.00	1	FLOW TIME	2. 3.50	3. 3.50
HYDROGRAPH AT						
+	SOUTH	.00	1	FLOW TIME	13. 3.42	13. 3.25
3 COMBINED AT						
+	CPMC3	.01	1	FLOW TIME	19. 3.50	28. 3.50
HYDROGRAPH AT						
+	XF1	.02	1	FLOW TIME	11. 3.58	28. 3.50
HYDROGRAPH AT						
+	FD1	.01	1	FLOW TIME	5. 3.50	14. 3.50
2 COMBINED AT						
+	CPCMP1	.02	1	FLOW TIME	16. 3.58	41. 3.50
HYDROGRAPH AT						
+	XLCP	.00	1	FLOW TIME	1. 3.50	1. 3.50
2 COMBINED AT						
+	CPCMP2	.03	1	FLOW TIME	17. 3.58	43. 3.50
2 COMBINED AT						
+	CPCMP3	.03	1	FLOW TIME	36. 3.50	71. 3.50
3 COMBINED AT						
+	DUMMY	.09	1	FLOW TIME	54. 3.50	137. 3.50
HYDROGRAPH AT						
+	TRPW1	.00	1	FLOW TIME	2. 3.50	3. 3.50
HYDROGRAPH AT						
+	DOF9	.00	1	FLOW TIME	6. 3.50	10. 3.50
HYDROGRAPH AT						
+	DON2	.01	1	FLOW	2.	9.

				TIME	3.67	3.58
2 COMBINED AT						
+	CD6	.02	1	FLOW TIME	6. 3.50	18. 3.50
DIVERSION TO						
+	SOUTH2	.02	1	FLOW TIME	3. 3.50	9. 3.50
HYDROGRAPH AT						
+	HAFC6	.02	1	FLOW TIME	3. 3.50	9. 3.50
2 COMBINED AT						
+	CPTRP1	.02	1	FLOW TIME	5. 3.50	12. 3.50
HYDROGRAPH AT						
+	ARW1	.00	1	FLOW TIME	1. 3.50	3. 3.50
HYDROGRAPH AT						
+	TRPE	.00	1	FLOW TIME	3. 3.50	5. 3.50
HYDROGRAPH AT						
+	DN3	.00	1	FLOW TIME	1. 3.67	3. 3.58
4 COMBINED AT						
+	CPTRP2	.02	1	FLOW TIME	9. 3.50	22. 3.50
HYDROGRAPH AT						
+	MC1	.00	1	FLOW TIME	1. 3.50	2. 3.50
HYDROGRAPH AT						
+	FD2	.00	1	FLOW TIME	0. 3.58	0. 3.50
2 COMBINED AT						
+	CPMC1	.00	1	FLOW TIME	1. 3.50	2. 3.50
2 COMBINED AT						
+	CPTRP3	.03	1	FLOW TIME	10. 3.50	24. 3.50
HYDROGRAPH AT						
+	TOTRP0	.00	1	FLOW TIME	3. 3.50	9. 3.50
HYDROGRAPH AT						
+	TRPW2	.00	1	FLOW TIME	2. 3.50	3. 3.50

2 COMBINED AT						
+	CPTRP0	.00	1	FLOW	5.	12.
				TIME	3.50	3.50
HYDROGRAPH AT						
+	ARW4	.00	1	FLOW	2.	4.
				TIME	3.50	3.50
HYDROGRAPH AT						
+	DN1	.01	1	FLOW	5.	15.
				TIME	3.50	3.50
3 COMBINED AT						
+	CPARW4	.01	1	FLOW	12.	31.
				TIME	3.50	3.50
HYDROGRAPH AT						
+	DN4	.01	1	FLOW	3.	10.
				TIME	3.58	3.58
2 COMBINED AT						
+	CPDN4	.02	1	FLOW	14.	40.
				TIME	3.50	3.50
HYDROGRAPH AT						
+	MC2	.00	1	FLOW	2.	3.
				TIME	3.50	3.50
2 COMBINED AT						
+	CPMC2	.02	1	FLOW	15.	42.
				TIME	3.50	3.50
HYDROGRAPH AT						
+	DN6	.01	1	FLOW	3.	9.
				TIME	3.50	3.50
HYDROGRAPH AT						
+	MC3	.00	1	FLOW	2.	3.
				TIME	3.50	3.50
2 COMBINED AT						
+	CPMC3	.01	1	FLOW	5.	13.
				TIME	3.50	3.50
HYDROGRAPH AT						
+	DN2	.00	1	FLOW	2.	6.
				TIME	3.50	3.50
HYDROGRAPH AT						
+	ARW3	.00	1	FLOW	1.	2.
				TIME	3.50	3.50
2 COMBINED AT						
+	CPARW3	.00	1	FLOW	3.	8.
				TIME	3.50	3.50

HYDROGRAPH AT						
+	XF1	.02	1	FLOW	11.	28.
				TIME	3.50	3.50

HYDROGRAPH AT						
+	FD1	.01	1	FLOW	5.	14.
				TIME	3.50	3.50

3 COMBINED AT						
+	CPCMP1	.03	1	FLOW	19.	49.
				TIME	3.50	3.50

HYDROGRAPH AT						
+	DN7	.00	1	FLOW	1.	1.
				TIME	3.50	3.50

HYDROGRAPH AT						
+	LCMP	.00	1	FLOW	1.	2.
				TIME	3.50	3.50

3 COMBINED AT						
+	CPCMP2	.03	1	FLOW	21.	53.
				TIME	3.50	3.50

2 COMBINED AT						
+	CPCMP3	.04	1	FLOW	26.	65.
				TIME	3.50	3.50

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

HYDRAULICS

Worksheet for Combination Inlet In Sag - INLETS AT CPARW4

Project Description

Solve For Equal Opening Lengths

Input Data

Discharge	16.00	ft ³ /s
Spread	30.00	ft
Gutter Width	1.50	ft
Gutter Cross Slope	0.09	ft/ft
Road Cross Slope	0.02	ft/ft
Local Depression	2.00	in
Local Depression Width	1.50	ft
Grate Width	1.50	ft
Grate Type	P-50 mm (P-1-7/8")	
Clogging	50.00	%
Opening Height	0.50	ft
Curb Throat Type	Horizontal	
Throat Incline Angle	90.00	degrees

Options

Calculation Option Use Both

Results

Curb Opening Length	5.41	ft
Grate Length	5.41	ft
Depth	0.70	ft
Gutter Depression	0.11	ft
Total Depression	0.27	ft
Open Grate Area	3.65	ft ²
Active Grate Weir Length	6.91	ft

Cross Section for Combination Inlet In Sag - INLETS AT CPARW4

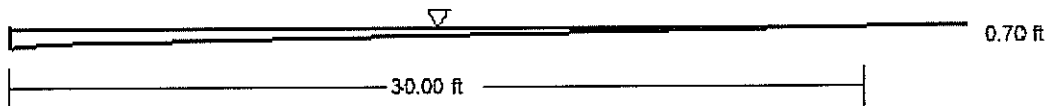
Project Description

Solve For Equal Opening Lengths

Input Data

Discharge	16.00	ft ³ /s
Spread	30.00	ft
Gutter Width	1.50	ft
Gutter Cross Slope	0.09	ft/ft
Road Cross Slope	0.02	ft/ft
Local Depression	2.00	in
Local Depression Width	1.50	ft
Grate Width	1.50	ft
Grate Length	5.41	ft
Grate Type	P-50 mm (P-1-7/8")	
Clogging	50.00	%
Curb Opening Length	5.41	ft
Opening Height	0.50	ft
Curb Throat Type	Horizontal	
Throat Incline Angle	90.00	degrees

Cross Section Image



V: 1
H: 1

Worksheet for CPARW4 DI OUTLET PIPE

Project Description

Solve For Headwater Elevation

Input Data

Discharge	31	ft ³ /s
Centroid Elevation	1.50	ft
Tailwater Elevation	-0.10	ft
Discharge Coefficient	0.30	
Diameter	3.00	ft

Results

Headwater Elevation	4.82	ft
Headwater Height Above Centroid	3.32	ft
Tailwater Height Above Centroid	-1.60	ft
Flow Area	7.07	ft ²
Velocity	4.39	ft/s

Worksheet for Sec A - Michelli Crest rural 1/2 st 10yr

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.00600 ft/ft
Discharge 15 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+07.00	0.00
0+14.00	0.50
0+30.00	0.82

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+14.00, 0.50)	0.028
(0+14.00, 0.50)	(0+30.00, 0.82)	0.018

Options

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

Results

Normal Depth 0.69 ft
Elevation Range 0.00 to 0.82 ft
Flow Area 7.13 ft²
Wetted Perimeter 23.88 ft
Hydraulic Radius 0.30 ft
Top Width 23.65 ft
Normal Depth 0.69 ft
Critical Depth 0.60 ft

Worksheet for Sec A - Michelli Crest rural 1/2 st 10yr

Results

Critical Slope	0.01361	ft/ft
Velocity	2.10	ft/s
Velocity Head	0.07	ft
Specific Energy	0.76	ft
Froude Number	0.67	
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	0.69	ft
Critical Depth	0.60	ft
Channel Slope	0.00600	ft/ft
Critical Slope	0.01361	ft/ft

Worksheet for Sec A - Michelli Crest rural 1/2 st 100yr

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.00600 ft/ft
Discharge 42 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+07.00	0.00
0+14.00	0.50
0+30.00	0.82

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+14.00, 0.50)	0.028
(0+14.00, 0.50)	(0+30.00, 0.82)	0.018

Options

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

Results

Normal Depth 0.94 ft
Elevation Range 0.00 to 0.82 ft
Flow Area 14.18 ft²
Wetted Perimeter 30.60 ft
Hydraulic Radius 0.46 ft
Top Width 30.00 ft
Normal Depth 0.94 ft
Critical Depth 0.86 ft

Worksheet for Sec A - Michelli Crest rural 1/2 st 100yr

Results

Critical Slope	0.01098	ft/ft
Velocity	2.96	ft/s
Velocity Head	0.14	ft
Specific Energy	1.08	ft
Froude Number	0.76	
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	0.94	ft
Critical Depth	0.86	ft
Channel Slope	0.00600	ft/ft
Critical Slope	0.01098	ft/ft

Cross Section for Sec A - Michelli Crest rural 1/2 st 100yr

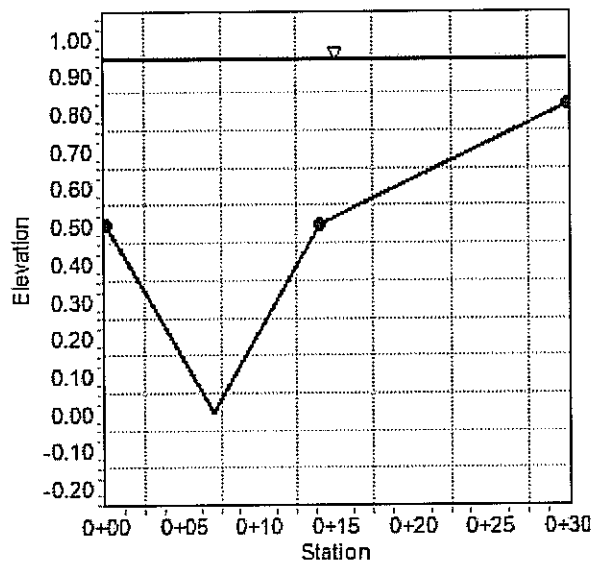
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.00600 ft/ft
Normal Depth 0.94 ft
Discharge 42 ft³/s

Cross Section Image



Worksheet for Sec B - Michelli Crest rural 1/2 st 10yr

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.00850 ft/ft
Discharge 5 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+07.00	0.00
0+14.00	0.50
0+30.00	0.82

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+14.00, 0.50)	0.028
(0+14.00, 0.50)	(0+30.00, 0.82)	0.018

Options

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

Results

Normal Depth 0.45 ft
Elevation Range 0.00 to 0.82 ft
Flow Area 2.78 ft²
Wetted Perimeter 12.51 ft
Hydraulic Radius 0.22 ft
Top Width 12.48 ft
Normal Depth 0.45 ft
Critical Depth 0.38 ft

Worksheet for Sec B - Michelli Crest rural 1/2 st 10yr

Results

Critical Slope	0.01994	ft/ft
Velocity	1.80	ft/s
Velocity Head	0.05	ft
Specific Energy	0.50	ft
Froude Number	0.67	
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	0.45	ft
Critical Depth	0.38	ft
Channel Slope	0.00850	ft/ft
Critical Slope	0.01994	ft/ft

Cross Section for Sec B - Michelli Crest rural 1/2 st 10yr

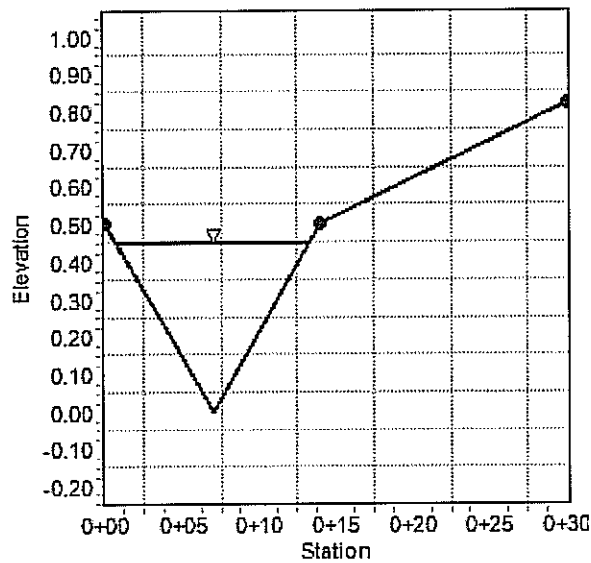
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.00850 ft/ft
Normal Depth 0.45 ft
Discharge 5 ft³/s

Cross Section Image



Worksheet for Sec B - Michelli Crest rural 1/2 st 100yr

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.00850 ft/ft
Discharge 13 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+07.00	0.00
0+14.00	0.50
0+30.00	0.82

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+14.00, 0.50)	0.028
(0+14.00, 0.50)	(0+30.00, 0.82)	0.018

Options

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

Results

Normal Depth 0.63 ft
Elevation Range 0.00 to 0.82 ft
Flow Area 5.66 ft²
Wetted Perimeter 20.47 ft
Hydraulic Radius 0.28 ft
Top Width 20.31 ft
Normal Depth 0.63 ft
Critical Depth 0.56 ft

Worksheet for Sec B - Michelli Crest rural 1/2 st 100yr

Results

Critical Slope	0.01475	ft/ft
Velocity	2.30	ft/s
Velocity Head	0.08	ft
Specific Energy	0.71	ft
Froude Number	0.77	
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	0.63	ft
Critical Depth	0.56	ft
Channel Slope	0.00850	ft/ft
Critical Slope	0.01475	ft/ft

Cross Section for Sec B - Michelli Crest rural 1/2 st 100yr

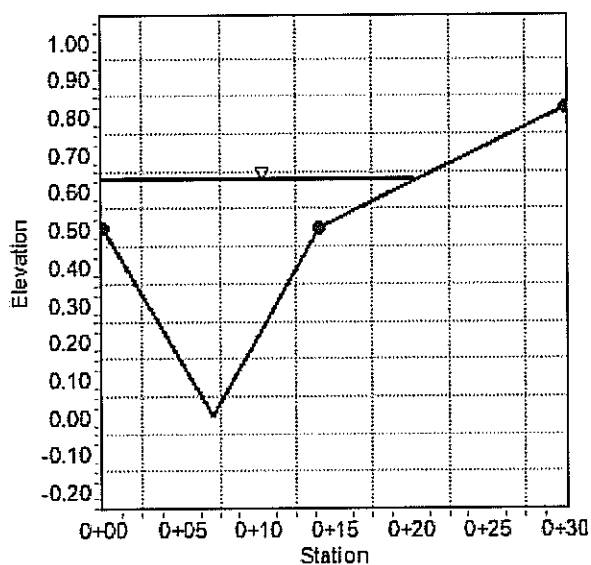
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.00850 ft/ft
Normal Depth 0.63 ft
Discharge 13 ft³/s

Cross Section Image



Worksheet for Sec C - El Campo Grande 10yr

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.03900 ft/ft
Discharge 21 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+07.00	0.00
0+14.00	0.50
0+30.00	0.82
0+46.00	0.50
0+53.00	0.00
0+60.00	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+14.00, 0.50)	0.037
(0+14.00, 0.50)	(0+46.00, 0.50)	0.018
(0+46.00, 0.50)	(0+60.00, 0.50)	0.037

Options

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

Results

Normal Depth 0.49 ft
Elevation Range 0.00 to 0.82 ft
Flow Area 6.76 ft²
Wetted Perimeter 27.59 ft

Worksheet for Sec C - El Campo Grande 10yr

Results

Hydraulic Radius	0.25	ft
Top Width	27.52	ft
Normal Depth	0.49	ft
Critical Depth	0.51	ft
Critical Slope	0.03174	ft/ft
Velocity	3.11	ft/s
Velocity Head	0.15	ft
Specific Energy	0.64	ft
Froude Number	1.10	
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	0.49	ft
Critical Depth	0.51	ft
Channel Slope	0.03900	ft/ft
Critical Slope	0.03174	ft/ft

Cross Section for Sec C - El Campo Grande 10yr

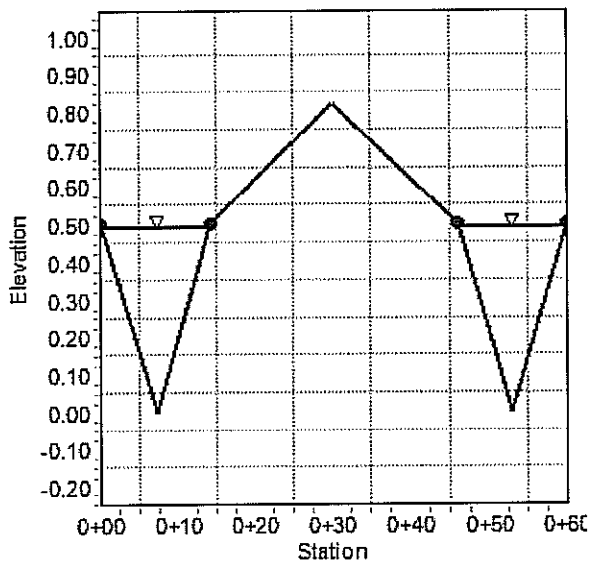
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.03900 ft/ft
Normal Depth 0.49 ft
Discharge 21 ft³/s

Cross Section Image



Worksheet for Sec C - El Campo Grande 100yr

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.03900 ft/ft
Discharge 53 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+07.00	0.00
0+14.00	0.50
0+30.00	0.82
0+46.00	0.50
0+53.00	0.00
0+60.00	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+14.00, 0.50)	0.037
(0+14.00, 0.50)	(0+46.00, 0.50)	0.018
(0+46.00, 0.50)	(0+60.00, 0.50)	0.037

Options

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

Results

Normal Depth 0.66 ft
Elevation Range 0.00 to 0.82 ft
Flow Area 12.98 ft²
Wetted Perimeter 44.89 ft

Worksheet for Sec C - El Campo Grande 100yr

Results

Hydraulic Radius	0.29	ft
Top Width	44.49	ft
Normal Depth	0.66	ft
Critical Depth	0.74	ft
Critical Slope	0.02131	ft/ft
Velocity	4.08	ft/s
Velocity Head	0.26	ft
Specific Energy	0.92	ft
Froude Number	1.33	
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	0.66	ft
Critical Depth	0.74	ft
Channel Slope	0.03900	ft/ft
Critical Slope	0.02131	ft/ft

Cross Section for Sec C - El Campo Grande 100yr

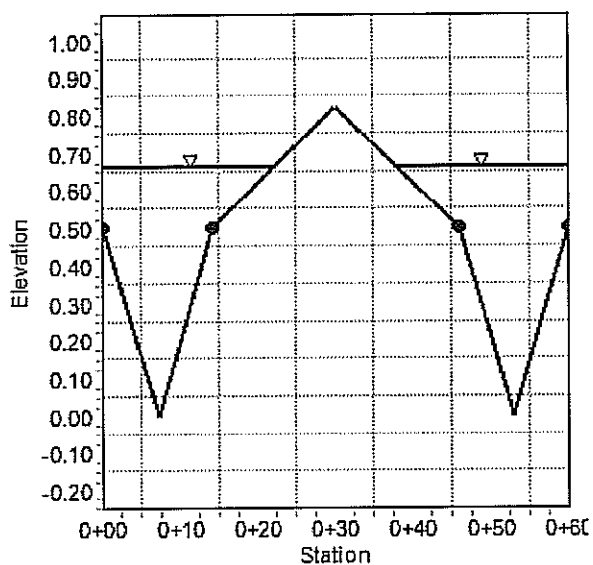
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.03900 ft/ft
Normal Depth 0.66 ft
Discharge 53 ft³/s

Cross Section Image



Project Description

Input Data

Station (ft)	Elevation (ft)
0+00.00	0.6
0+05.00	0.5
0+05.50	0.5
0+05.50	0.0
0+07.00	0.1
0+07.00	0.1
0+40.00	0.8
0+73.00	0.1
0+73.00	0.1
0+74.50	0.0
0+74.50	0.5
0+75.00	0.5
0+80.00	0.6

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.60)	(0+07.00, 0.13)	0.014
(0+07.00, 0.13)	(0+73.00, 0.13)	0.018
(0+73.00, 0.13)	(0+80.00, 0.60)	0.014

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 Sec D - Alpine Ridge 10yr

Results

Normal Depth	0.48	ft
Elevation Range	0.00 to 0.83	ft
Flow Area	5.90	ft ²
Wetted Perimeter	34.60	ft
Hydraulic Radius	0.17	ft
Top Width	33.55	ft
Normal Depth	0.48	ft
Critical Depth	0.45	ft
Critical Slope	0.00696	ft/ft
Velocity	2.03	ft/s
Velocity Head	0.06	ft
Specific Energy	0.54	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	0.48	ft
Critical Depth	0.45	ft
Channel Slope	0.00500	ft/ft
Critical Slope	0.00696	ft/ft

Cross Section for Sec D - Alpine Ridge 10yr

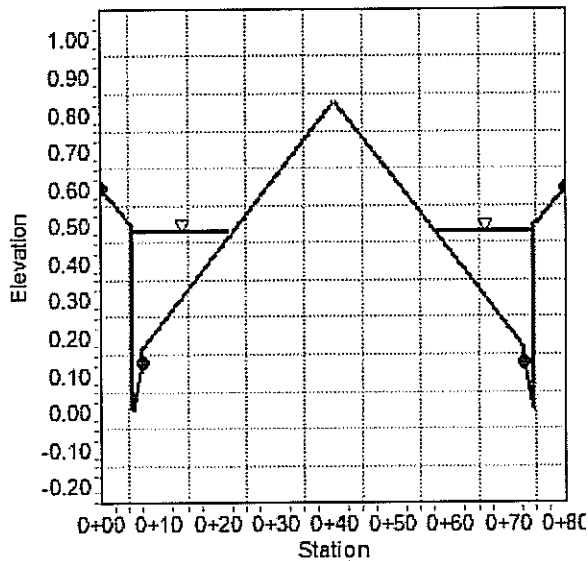
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.00500 ft/ft
Normal Depth 0.48 ft
Discharge 12.00 ft³/s

Cross Section Image



Worksheet for Sec D - Alpine Ridge 100yr

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.00500 ft/ft
Discharge 31.00 ft³/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+40.00	0.83
0+73.00	0.17
0+73.00	0.13
0+74.50	0.00
0+74.50	0.50
0+75.00	0.50
0+80.00	0.60

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.60)	(0+07.00, 0.13)	0.014
(0+07.00, 0.13)	(0+73.00, 0.13)	0.018
(0+73.00, 0.13)	(0+80.00, 0.60)	0.014

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 Sec D - Alpine Ridge 100yr

Results

Normal Depth	0.64	ft
Elevation Range	0.00 to 0.83 ft	
Flow Area	13.75	ft ²
Wetted Perimeter	62.08	ft
Hydraulic Radius	0.22	ft
Top Width	60.90	ft
Normal Depth	0.64	ft
Critical Depth	0.61	ft
Critical Slope	0.00734	ft/ft
Velocity	2.25	ft/s
Velocity Head	0.08	ft
Specific Energy	0.72	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	0.64	ft
Critical Depth	0.61	ft
Channel Slope	0.00500	ft/ft
Critical Slope	0.00734	ft/ft

Cross Section for Sec D - Alpine Ridge 100yr

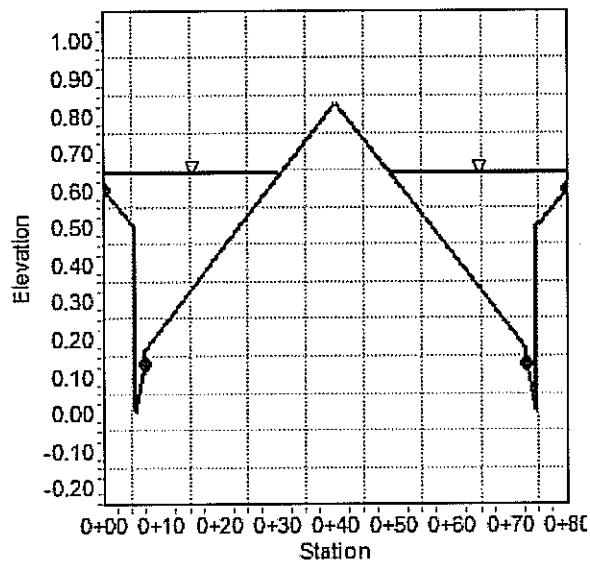
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.00500 ft/ft
Normal Depth 0.64 ft
Discharge 31.00 ft³/s

Cross Section Image



Worksheet for Sec E - Tropical 10yr

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.03790 ft/ft
Discharge 9 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+07.00	0.00
0+14.00	0.50
0+30.00	0.82
0+46.00	0.50
0+53.00	0.00
0+60.00	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+14.00, 0.50)	0.037
(0+14.00, 0.50)	(0+46.00, 0.50)	0.018
(0+46.00, 0.50)	(0+60.00, 0.50)	0.037

Options

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

Results

Normal Depth 0.36 ft
Elevation Range 0.00 to 0.82 ft
Flow Area 3.62 ft²
Wetted Perimeter 20.17 ft

Worksheet for Sec E - Tropical 10yr

Results

Hydraulic Radius	0.18	ft
Top Width	20.12	ft
Normal Depth	0.36	ft
Critical Depth	0.36	ft
Critical Slope	0.03531	ft/ft
Velocity	2.49	ft/s
Velocity Head	0.10	ft
Specific Energy	0.46	ft
Froude Number	1.04	
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	0.36	ft
Critical Depth	0.36	ft
Channel Slope	0.03790	ft/ft
Critical Slope	0.03531	ft/ft

Cross Section for Sec E - Tropical 10yr

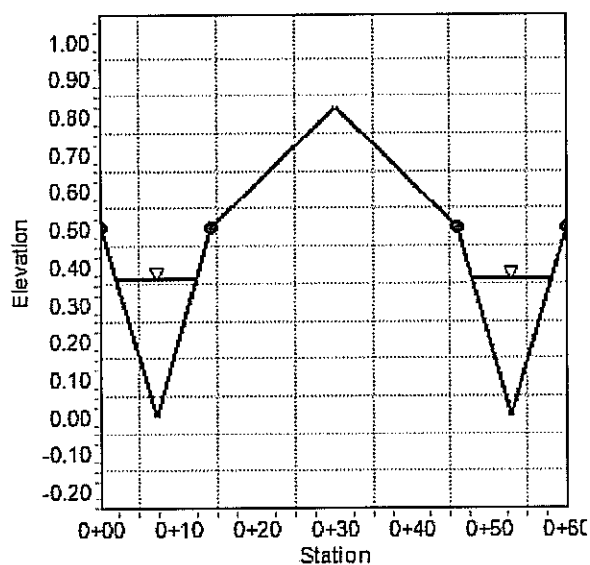
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.03790 ft/ft
Normal Depth 0.36 ft
Discharge 9 ft³/s

Cross Section Image



Worksheet for Sec E - Tropical 100yr

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.03790 ft/ft
Discharge 22 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+07.00	0.00
0+14.00	0.50
0+30.00	0.82
0+46.00	0.50
0+53.00	0.00
0+60.00	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+14.00, 0.50)	0.037
(0+14.00, 0.50)	(0+46.00, 0.50)	0.018
(0+46.00, 0.50)	(0+60.00, 0.50)	0.037

Options

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

Results

Normal Depth 0.50 ft
Elevation Range 0.00 to 0.82 ft
Flow Area 7.07 ft²
Wetted Perimeter 28.34 ft

Worksheet for Sec E - Tropical 100yr

Results

Hydraulic Radius	0.25	ft
Top Width	28.26	ft
Normal Depth	0.50	ft
Critical Depth	0.52	ft
Critical Slope	0.03147	ft/ft
Velocity	3.11	ft/s
Velocity Head	0.15	ft
Specific Energy	0.65	ft
Froude Number	1.10	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.50	ft
Critical Depth	0.52	ft
Channel Slope	0.03790	ft/ft
Critical Slope	0.03147	ft/ft

Cross Section for Sec E - Tropical 100yr

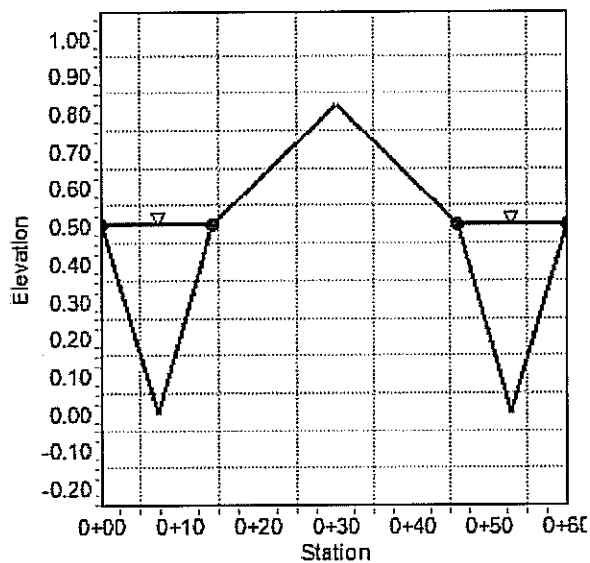
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.03790 ft/ft
Normal Depth 0.50 ft
Discharge 22 ft³/s

Cross Section Image



Worksheet for Sec F - Onsite st worst case 10yr

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.02850 ft/ft
Discharge 3 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.06
0+03.00	0.00
0+06.00	0.06
0+22.00	0.38
0+38.00	0.06
0+41.00	0.00
0+44.00	0.06

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.06)	(0+06.00, 0.06)	0.014
(0+06.00, 0.06)	(0+38.00, 0.06)	0.018
(0+38.00, 0.06)	(0+44.00, 0.06)	0.014

Options

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

Results

Normal Depth 0.11 ft
Elevation Range 0.00 to 0.38 ft
Flow Area 1.13 ft²
Wetted Perimeter 17.38 ft

Worksheet for Sec F - Onsite st worst case 10yr

Results

Hydraulic Radius	0.07	ft
Top Width	17.27	ft
Normal Depth	0.11	ft
Critical Depth	0.15	ft
Critical Slope	0.00783	ft/ft
Velocity	2.65	ft/s
Velocity Head	0.11	ft
Specific Energy	0.22	ft
Froude Number	1.83	
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	0.11	ft
Critical Depth	0.15	ft
Channel Slope	0.02850	ft/ft
Critical Slope	0.00783	ft/ft

Cross Section for Sec F - Onsite st worst case 10yr

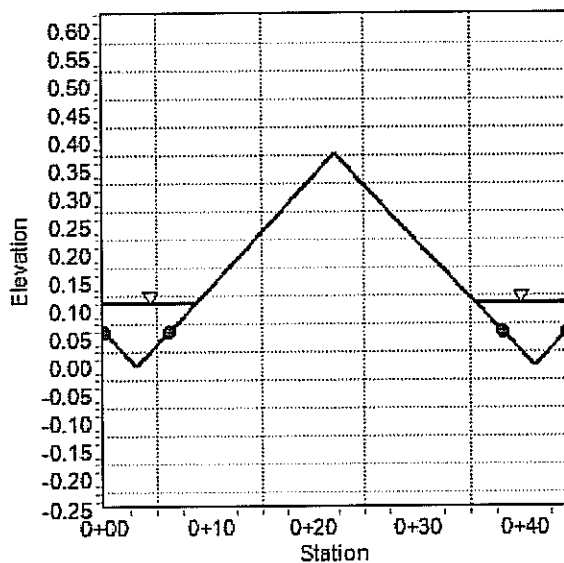
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.02850 ft/ft
Normal Depth 0.11 ft
Discharge 3 ft³/s

Cross Section Image



Worksheet for Sec F - Onsite st worst case 100yr

Project Description

Friction Method Manning Formula

Solve For	Normal Depth
-----------	--------------

Input Data

Channel Slope	0.02850	ft/ft
---------------	---------	-------

Discharge 10 ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.06
0+03.00	0.00
0+06.00	0.06
0+22.00	0.38
0+38.00	0.06
0+41.00	0.00
0+44.00	0.06

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.06)	(0+06.00, 0.06)	0.014
(0+06.00, 0.06)	(0+38.00, 0.06)	0.018
(0+38.00, 0.06)	(0+44.00, 0.06)	0.014

Options

Current Roughness Weighted Method Pavlovskii's Method

Open Channel Weighting Method Pavlovskii's Method

Closed Channel Weighting Method	Pavlovskii's Method
1.00	1.00
0.99	0.99
0.98	0.98
0.97	0.97
0.96	0.96
0.95	0.95
0.94	0.94
0.93	0.93
0.92	0.92
0.91	0.91
0.90	0.90
0.89	0.89
0.88	0.88
0.87	0.87
0.86	0.86
0.85	0.85
0.84	0.84
0.83	0.83
0.82	0.82
0.81	0.81
0.80	0.80
0.79	0.79
0.78	0.78
0.77	0.77
0.76	0.76
0.75	0.75
0.74	0.74
0.73	0.73
0.72	0.72
0.71	0.71
0.70	0.70
0.69	0.69
0.68	0.68
0.67	0.67
0.66	0.66
0.65	0.65
0.64	0.64
0.63	0.63
0.62	0.62
0.61	0.61
0.60	0.60
0.59	0.59
0.58	0.58
0.57	0.57
0.56	0.56
0.55	0.55
0.54	0.54
0.53	0.53
0.52	0.52
0.51	0.51
0.50	0.50
0.49	0.49
0.48	0.48
0.47	0.47
0.46	0.46
0.45	0.45
0.44	0.44
0.43	0.43
0.42	0.42
0.41	0.41
0.40	0.40
0.39	0.39
0.38	0.38
0.37	0.37
0.36	0.36
0.35	0.35
0.34	0.34
0.33	0.33
0.32	0.32
0.31	0.31
0.30	0.30
0.29	0.29
0.28	0.28
0.27	0.27
0.26	0.26
0.25	0.25
0.24	0.24
0.23	0.23
0.22	0.22
0.21	0.21
0.20	0.20
0.19	0.19
0.18	0.18
0.17	0.17
0.16	0.16
0.15	0.15
0.14	0.14
0.13	0.13
0.12	0.12
0.11	0.11
0.10	0.10
0.09	0.09
0.08	0.08
0.07	0.07
0.06	0.06
0.05	0.05
0.04	0.04
0.03	0.03
0.02	0.02
0.01	0.01
0.00	0.00

Results

Normal Depth 0.19 ft

Elevation Range 0.00 to 0.38 ft

Flow Area	2.80 ft ²
-----------	----------------------

Wetted Perimeter 25.43 ft

Worksheet for Sec F - Onsite st worst case 100yr

Results

Hydraulic Radius	0.11	ft
Top Width	25.16	ft
Normal Depth	0.19	ft
Critical Depth	0.26	ft
Critical Slope	0.00738	ft/ft
Velocity	3.57	ft/s
Velocity Head	0.20	ft
Specific Energy	0.39	ft
Froude Number	1.88	
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	0.19	ft
Critical Depth	0.26	ft
Channel Slope	0.02850	ft/ft
Critical Slope	0.00738	ft/ft

Cross Section for Sec F - Onsite st worst case 100yr

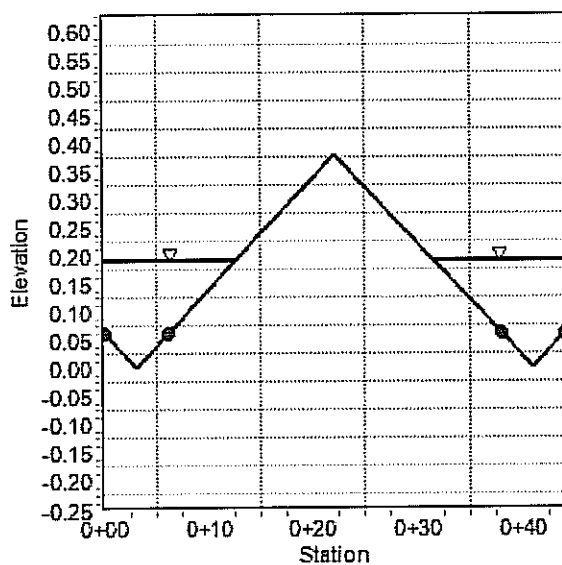
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.02850 ft/ft
Normal Depth 0.19 ft
Discharge 10 ft³/s

Cross Section Image

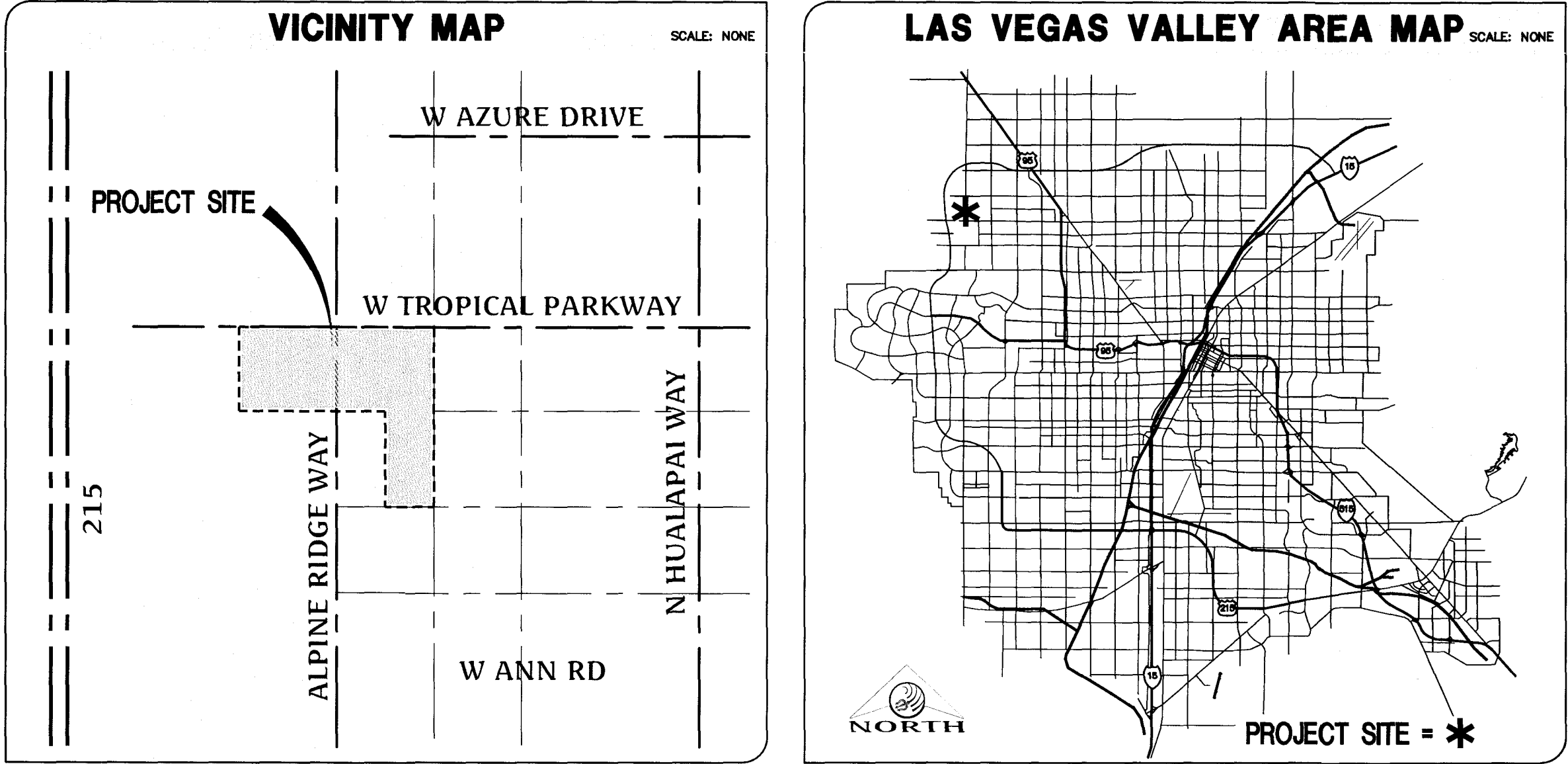


GRADING PLANS

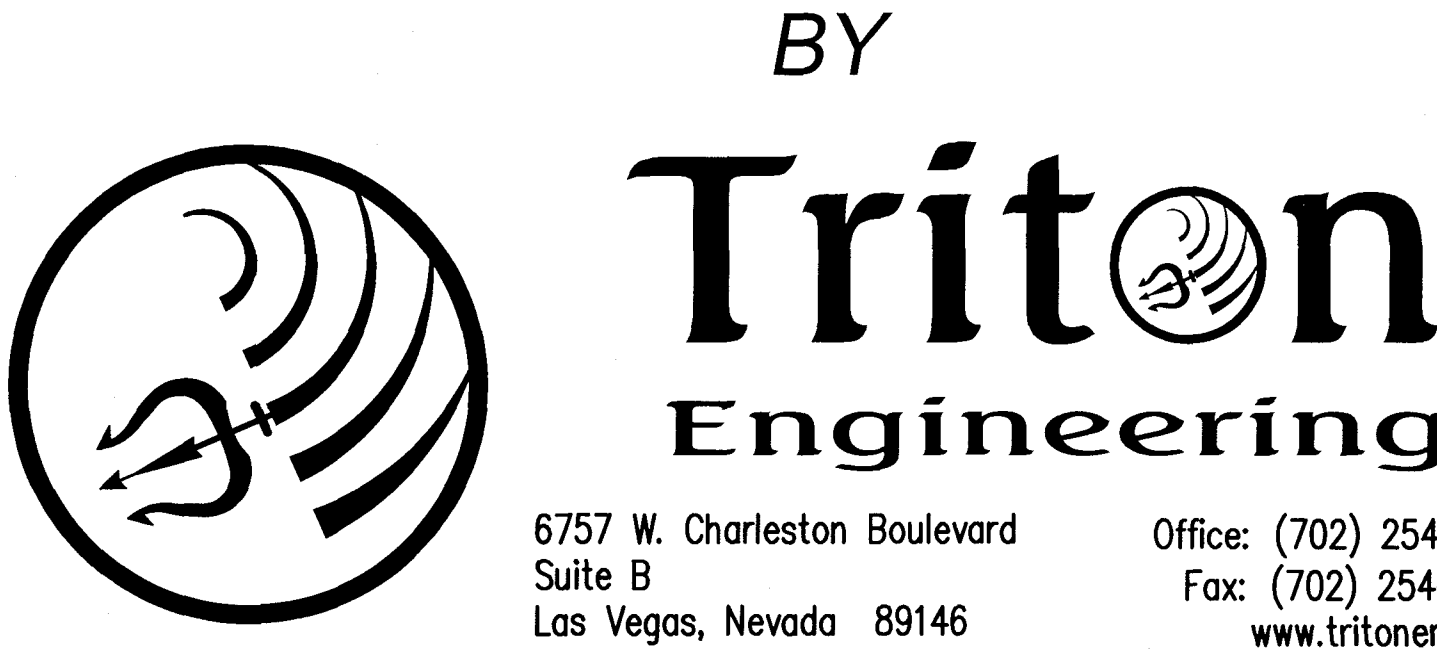
APNs: 126-25-701-001

BLM SITE 11 ON-SITE DRAINAGE PLANS

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



DRAINAGE QUANTITIES		
ITEMS	PUBLIC	PRIVATE
1. 2" ASPHALTIC CONCRETE PAVEMENT	0 SY	6,829 SY
2. TYPE II GRAVEL	0 CY	2,053 CY
3. "R" TYPE CURB AND GUTTER (24")	0 LF	3,397 LF
4. SIDEWALK	0 SF	8,430 SF

SHEET INDEX	
1. COVER SHEET	
2. GENERAL NOTES AND LEGEND	
3. GRADING PLAN I	
4. GRADING PLAN II	
5. GRADING PLAN III	
6. GRADING DETAILS I	
7. GRADING DETAILS II	
8. FORTRESS RIDGE WAY (PRIVATE)	
PLAN & PROFILE 0+50.00 - 3+74.23	
9. AMULET RIDGE WAY (PRIVATE)	
PLAN & PROFILE 0+50.00 - 5+88.23	
10. TROPICAL PARKWAY (PUBLIC)	
PLAN & PROFILE 10+00.00 - 18+00.00	
11. ALPINE RIDGE WAY (PUBLIC)	
PLAN & PROFILE 8+00.00 - 17+00.00	
12. TROPICAL PARKWAY (PUBLIC)	
PLAN & PROFILE 18+00.00 - 25+50.00	
13. MICHELLI CREST WAY (PUBLIC)	
PLAN & PROFILE 17+00.00 - 24+00.00	
14. MICHELLI CREST WAY (PUBLIC)	
PLAN & PROFILE 9+00.00 - 17+00.00	
15. EL CAMPO GRANDE AVENUE (PUBLIC)	
PLAN & PROFILE 1+00.00 - 5+00.00	
16. ANTIQUE RIDGE COURT (PRIVATE)	
PLAN & PROFILE 1+00.00 - 5+00.00	
17. SHRINE RIDGE COURT (PRIVATE)	
PLAN & PROFILE 1+00.00 - 5+00.00	

LAND USE TABULATION	
LAND USE DESIGNATION	
EXISTING CLV ZONING	R-E
PROPOSED CLV ZONING	R-D
MINIMUM LOT SIZE (SF)	10,932 SF
SITE SUMMARY	
TOTAL UNITS	49 UNITS
GROSS ACREAGE	25.8 ACRES
GROSS DENSITY	1.9 UNITS/ACRE
OPEN SPACE REQUIRED	
	NONE

ASSESSOR'S PARCEL NUMBERS	
126-25-701-001	

BASIS OF BEARING
NORTH 89°27'31" EAST, BEING THE BEARING OF THE NORTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 25, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., AS SHOWN IN FILE 196, PAGE 87 OF SURVEYS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK
BENCHMARK # 1C9925SSW6
RIVET AND SQUARE ALUMINUM PLATE IN NORTHEAST CORNER OF A CONCRETE BASE FOR LARGE POWER POLE (#40-8) AT THE WEST END OF ANN ROAD
ELEVATION = 880.365 METERS (NAVD'88)
ELEVATION = 2,888.33 U.S. FEET (NAVD'88)

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

LEGAL
THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 25, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M. AND THE EAST HALF (E 1/2) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 25, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M.

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
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FREEWAY & ARTERIAL
SYSTEM OF TRANSPORTATION

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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.
CALL 811
OR
1-800-227-2600

DATE: 08/17/2016
DRAWN BY: J. PEARCE
DESIGNED BY:
CHECKED BY:
ADA CHECKED:
JOB NO.: 007104
SCALE: NONE

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

DR HORTON
BLM SITE 11
ON-SITE DRAINAGE PLANS
COVER SHEET

PROFESSIONAL ENGINEER STATE OF NEVADA
JAMES M. PEARCE
Exp. 12-31-17
CIVIL
No. 9552

SHEET 1 OF 17
C.L.V. DWG.#

ABAN - ABANDON
 AC - ASPHALTIC CONCRETE
 AGGR - AGGREGATE
 & - AND
 API - ASSESSOR PARCEL NUMBER
 APPROX - APPROXIMATE
 ASSY - ASSEMBLY
 AVE - AVENUE
 BC - BACK OF CURB
 BCR - BACK OF CURVE RETURN
 BK - BOOK/BANK
 BLDG - BUILDING
 BLT - BLOCK
 BLM - BUREAU OF LAND MANAGEMENT
 BLVD - BOULEVARD
 BM - BENCHMARK
 BO - BLOW OFF ASSEMBLY
 BOC - BACK OF CURB
 BOT - BOTTOM
 BOW - BACK OF WALL
 BWR - BEARING
 BWT - BACK OF WALL
 BW - BACK OF WALL
 BWW - BACK WATER VALVE
 C/C - CENTER TO CENTER
 C&G - CURB & GUTTER
 CC - CLARK COUNTY
 CCM - COMMON ELEMENT
 C - CAST IRON
 CP - CAST IRON PIPE/
 CAST IN PLACE
 CR - CIRCLE
 CL OR C - CENTERLINE
 ONLY - CITY OF NORTON
 LAS VEGAS
 CO - COUNTY
 COH - CITY OF HENDERSON
 CONC - CONCRETE
 CONT - CONTINUOUS
 COORD - COORDINATE
 CTR - CENTER
 CV - CENTER VALVE
 Δ - DELTA ANGLE
 D/O OR DWY - DRIVEWAY
 DEPT - DEPARTMENT
 DET - DETAIL
 DEV - DEVELOPMENT
 DD - DESIGN GRADE
 DI - DRAIN INLET/DUCTILE IRON
 DIA OR - DIAMETER
 DIM - DIMENSION
 DIP - DUCTILE IRON PIPE
 DR - DRIVE
 DIST - DISTANCE
 DMH - DROP MANHOLE
 DN - DOWN
 DRG - DRAWING
 DWO - DRAWING
 E - EAST/EAST
 EA - EACH
 EG - EXISTING GROUND
 ELEV - ELEVATION
 EOP - EDGE OF PAVEMENT
 EOS - EDGE OF SHOULDER
 EQ - EQUAL OR EQUAL
 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
 FG - FIGURE
 FL OR F - FLOW LINE
 FN - FENCE
 FND - FOUND
 FOC - FACE OF CURB
 FFC - 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
 GP - GALLONS PER HOUR
 GPM - GALLONS PER MINUTE
 GRD - GRADE
 GRT - GRATE
 GV - GATE VALVE
 HORIZ - HORIZONTAL
 HP - HIGH POINT
 HPC - HIGH PRESSURE GAS
 HT - HEIGHT
 HWY - HIGHWAY
 IN - INCH
 INST - INSTALL
 INT - INTERIOR
 INV - INVERT
 IRR - IRRIGATION
 LB OR L - POUND
 LEN OR L - LENGTH OF CURVATURE
 LF - LINEAR FOOT
 LG - LONG
 LN - LANE
 LT - LEFT/LIGHT
 LVWD - LAS VEGAS VALLEY
 WATER DISTRICT
 LWR - LOWER
 M - METER
 MAT - MATERIAL
 MAX - MAXIMUM
 MECH - MECHANICAL
 MFG - MANUFACTURING
 MG - MILLION GALLONS
 MGD - MILLION GALLONS PER DAY
 MH - MANHOLE
 MIN - MINIMUM
 MSC - MISCELLANEOUS
 MW - MECHANICAL JOINT
 MWR - MARKER
 ML - MORTAR LINED
 MLC - MORTAR LINED & COATED
 NW - MIDDLE OF VERTICAL CURVE
 N - NORTH
 N/A - NOT APPLICABLE
 NAP - NOT A PART
 NEOT - NEVADA DEPARTMENT
 OF TRANSPORTATION
 NE - NORTHEAST
 NO - NORTH FACE
 NG - NATURAL GROUND
 NO OR # - NUMBER
 NTS - NOT TO SCALE
 NW - NORTHWEST
 O/O - OUT TO OUT
 OC - ON CENTER
 OD - OUTSIDE DIAMETER
 OF - OUTSIDE FACE
 OHP - OVER HEAD POWER
 OTEL - OVER HEAD TELEPHONE
 ORIG - ORIGINAL
 OVEL - OVERFLOW
 O/O - OUT TO OUT
 OC - ON CENTER
 OD - OUTSIDE DIAMETER
 OF - OUTSIDE FACE
 OHP - OVER HEAD POWER
 OTEL - OVER HEAD TELEPHONE
 ORIG - ORIGINAL
 OVEL - OVERFLOW
 PL OR P - PROPERTY LINE
 PAWMT - PAVEMENT
 PB - PULL BOX
 PC - POINT OF CURVE
 PCC - POINT OF COMPOUND CURVE
 PE - POLYETHYLENE
 PED - PEDESTAL
 PERM - PERMANENT
 PERP - PERPENDICULAR
 PH - PHASE
 PI - POINT OF INTERSECTION
 PKW - PARKWAY
 PKWY - PARKWAY
 PL - PLACE/PLATE/PARCEL LINE
 PLT - PLATE (DRAWING)
 POLY - POLYETHYLENE
 PP - POWER FILE
 PR - PAIR
 PRC - POINT OF REVERSE CURVE/
 PRECAST REINFORCED CONCRETE
 PRELIM - PRELIMINARY
 PROP - PROPOSED
 PRP - 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
 PVI - POINT OF VERTICAL
 INTERSECTION
 PVC - POLYVINYL CHLORIDE PIPE
 QTR - QUARTER
 QTY - QUANTITY
 R - RADIUS
 (R) - RADIAL
 R/W - RIGHT OF WAY
 RCB - REINFORCED CONCRETE BOX
 GRD - REINFORCED CONCRETE PIPE
 RO - ROAD
 RED - REDUCER
 REQD - REQUIRED
 RET - RETURN
 REV - REVISION OF REVERSE
 ROW - RIGHT OF WAY
 RPPA - REDUCED PRESSURE
 PRINCIPLE ASSEMBLY
 RR - RAILROAD
 RT - RIGHT
 S - SOUTH/SLOPE
 S/C - SAW CUT
 SCH - SCHED. CYLINDER CONCRETE
 SOD - SCHEDULE
 SO - STORM DRAIN
 SDMH - STORM DRAIN MANHOLE
 S - SIDEWALK
 SEC - SECTION
 SE - SOUTHEAST
 SEC - SOUTHWEST/SECOND
 SEG - SEGMENT
 SHLD - SHOULDER
 SH - SHEET
 SHD - SPECIAL IMPROVEMENT
 SHD - DISTRICT
 SIG - SIGNAL
 SL - SLOPE
 SLE - 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
 STLT - STEEL
 STLT - STEEL LIGHT
 SUR - SURVEY
 SW - SOUTHWEST OR SOUTHWEST
 SY - SQUARE YARD
 SYM - SYMBOL
 SYS - SYSTEM
 TAB8 - TOP & BOTTOM
 TAN - TANGENT
 TBH - TEMPORARY BENCH MARK
 TC - TOP OF CURB
 TD - TRENCH DRAIN
 TE - TEMPORARY
 THK - THICKNESS
 THR BLK - THRUST BLOCK
 TMR - TOP OF MANHOLE
 TOF - TOP OF FOOTING
 TOR - TOP OF GRATE
 TOP - TOP OF PIPE
 TOP - TOP OF RIM
 TOS - TOP OF SLAB
 TOW - TOP OF SIDEWALK
 TOT - TOTAL
 TOWP - TOP OF WALL
 (TYP) - TYPICAL
 UN - UNLESS NOTED OTHERWISE
 UPRR - UNION PACIFIC RAILROAD
 UTIL - UTILITIES
 SURVEY
 UTL - UTILITY
 V - VOLT OR VALVE
 VAR - VARIES
 VB - VERTICAL
 VOP - VERTICAL
 VC - VERTICAL CURVE
 VE - VELOCITY
 VERT - VERTICAL
 VGL - VALVE GUTTER
 VL - VOLUME
 VPI - VERTICAL POINT OF
 INTERSECTION
 W/ - WITH
 W/ - WITH OUT
 W/O - WIDTH
 WDM - WASTE DRAIN
 W - WROUGHT IRON
 WL - WASTE LINE
 WP - WORK POINT/WEATHER PROOF
 WS - WATER SURFACE
 WTR - WATER
 WTR - WATER
 WVF - WELDED WIRE FABRIC
 WNW - WELDED WIRE MESH
 YMR - TRANSFORMER
 YFR - TRANSFER
 YSEC - CROSS SECTION
 YD - YARD
 YD - YIELD

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 STANDARD SPECIFICATIONS FOR ALL LOCAL UTILITIES AND DRINKING WATER APPLICATIONS, 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 BE SHOWN ON THE PLANS. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, LOCATE ALL UNDERGROUND AND OVERHEAD INTERFERENCE 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, FROM DAMAGE, AND 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 UP 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 NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND PREVENT DAMAGE 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 USING THE AVAILABLE RECORDS IN ACCORDANCE WITH N.R.S. STATUTE NO. 625.380 & CITY OF LAS VEGAS TITLE 18, APPENDIX D.

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.R.S. STATUTE NO. 625.380 & 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 APPROACHES, DOWNLINES, AND CROSSLINGS 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 MDTOT OR THE CLARK COUNTY AREA SPECIFICATIONS (AS APPLICABLE) AND THE PLANS AND DETAILS SHOWN HEREON.

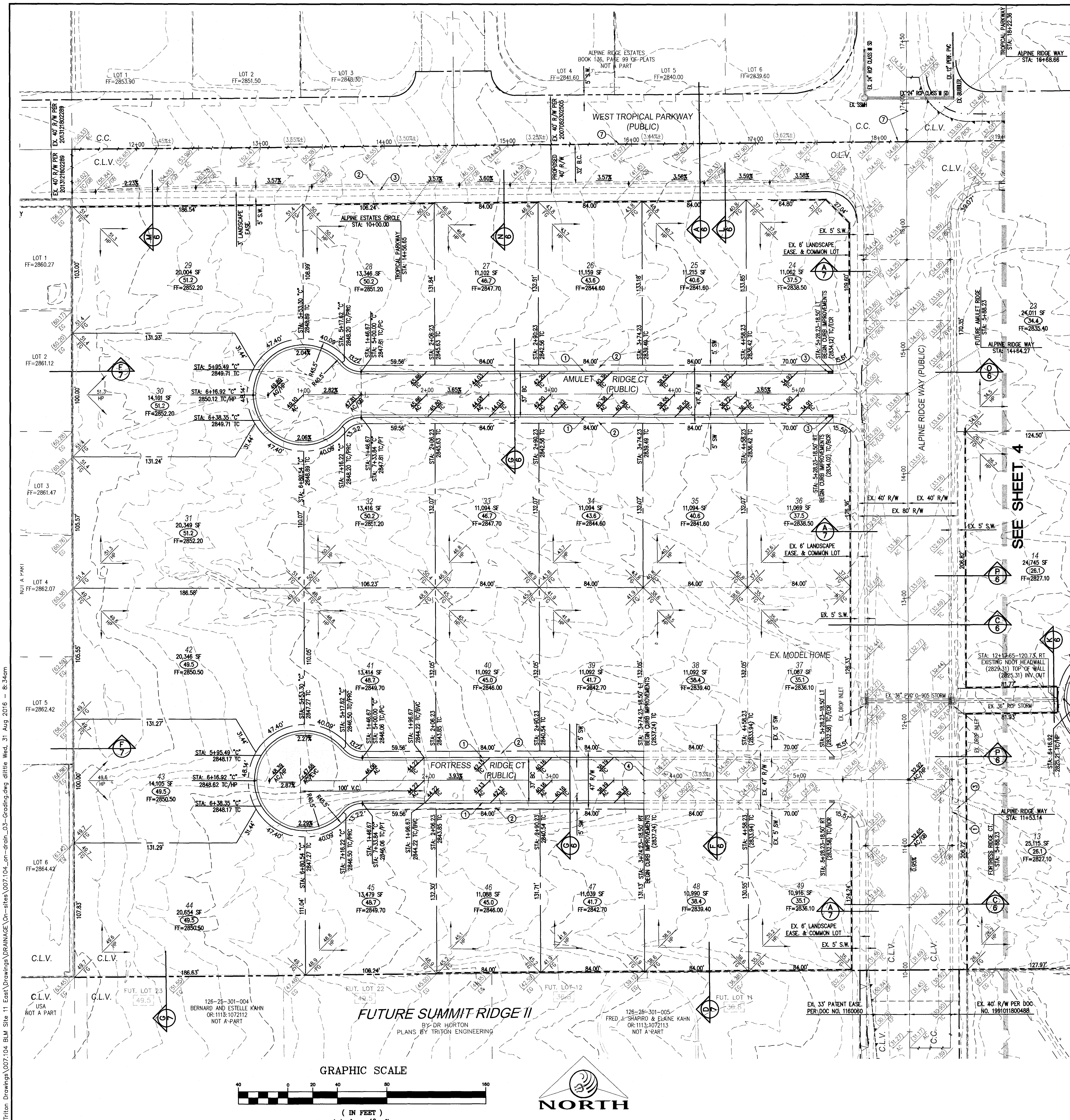
20. WHEN INSTALLING UNDERGROUND FACILITIES THAT REQUIRE UNDERGROUND LOCATING DEVICES SUCH AS MARKER BAILS, LOCATING RIBBON, ETC., THE CONTRACTOR SHALL PROVIDE WRITTEN DOCUMENTATION TO OFFSITE INSPECTION AND TESTING CERTIFYING THAT ALL DEVICES HAVE BEEN PLACED AND VERIFIED TO BE IN GOOD WORKING CONDITION 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 UDE INSPECTION. THE CONTRACTOR SHALL PROVIDE THE CITY ENGINEER WITH A LOCATION MAP 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 THE CONNECTION OF SEWER SERVICE LATERALS TO 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

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 FOR LAS VEGAS FIRE AND RESCUE FOR THE INSTALLATION OF ON-SITE WATER MAINS 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. [FC § 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. [FC § 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. [FC § 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. [FC 106.3]
7. ALL ON-SITE UNDERGROUND WATER MAINS AND MATERIALS SHALL BE U.L. LISTED, P.W.M.I. APPROVED AND SHALL BE RATED FOR THE APPROPRIATE WORKING PRESSURE. [FC § 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. [FC § 507]
9. PRIVATE HYDRANTS SHALL BE PAINTED RED. [FC § 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. [FC § 507]
11. FIRE HYDRANT SPACING SHALL BE AS FOLLOWS: [FC § 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. [FC § 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, BLUE, POWER POLE, STREETLIGHT OR ANY OTHER OBSTRUCTION. [FC § 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. [FC § 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. [FC § C102.7]
17. THE MAXIMUM DISTANCE FROM A HYDRANT TO THE END OF A DEAD-END STREET SHALL NOT EXCEED 200 FT. [FC § 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. A 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. [FC C104.3]
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. [FC § 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%. [FC § 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. [FC § 503.2.4]
22. VERTICAL CLEARANCE OF ALL FIRE APPARATUS ACCESS ROADS SHALL NOT BE LESS THAN 13FT 6 INS. [FC § 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. BOTH SIDES OF THE ROAD SHALL NOT BE LESS THAN 32 FT 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. [FC § 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. [FC § 503.1.1]

	CENTERLINE
(2614)	UNIT BOUNDARY
(2610)	PROPOSED 1' GRADE CONTOUR
(2614)	PROPOSED 5' GRADE CONTOUR
(2610)	EXISTING 1' GRADE CONTOUR
	EXISTING 5' GRADE CONTOUR
	PROPOSED PROPERTY LINE
	PROPOSED SET BACK LINE
	PROPOSED HINGE LINE
	PROPOSED SWALE
	EXISTING CURB AND GUTTER
	PROPOSED CURB AND GUTTER
	RETAINING WALL WITH SOLID GROUT
	8\"/>
	X 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\"/>
	2:1 SCARP
	COURSES OF 8\"/>
	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

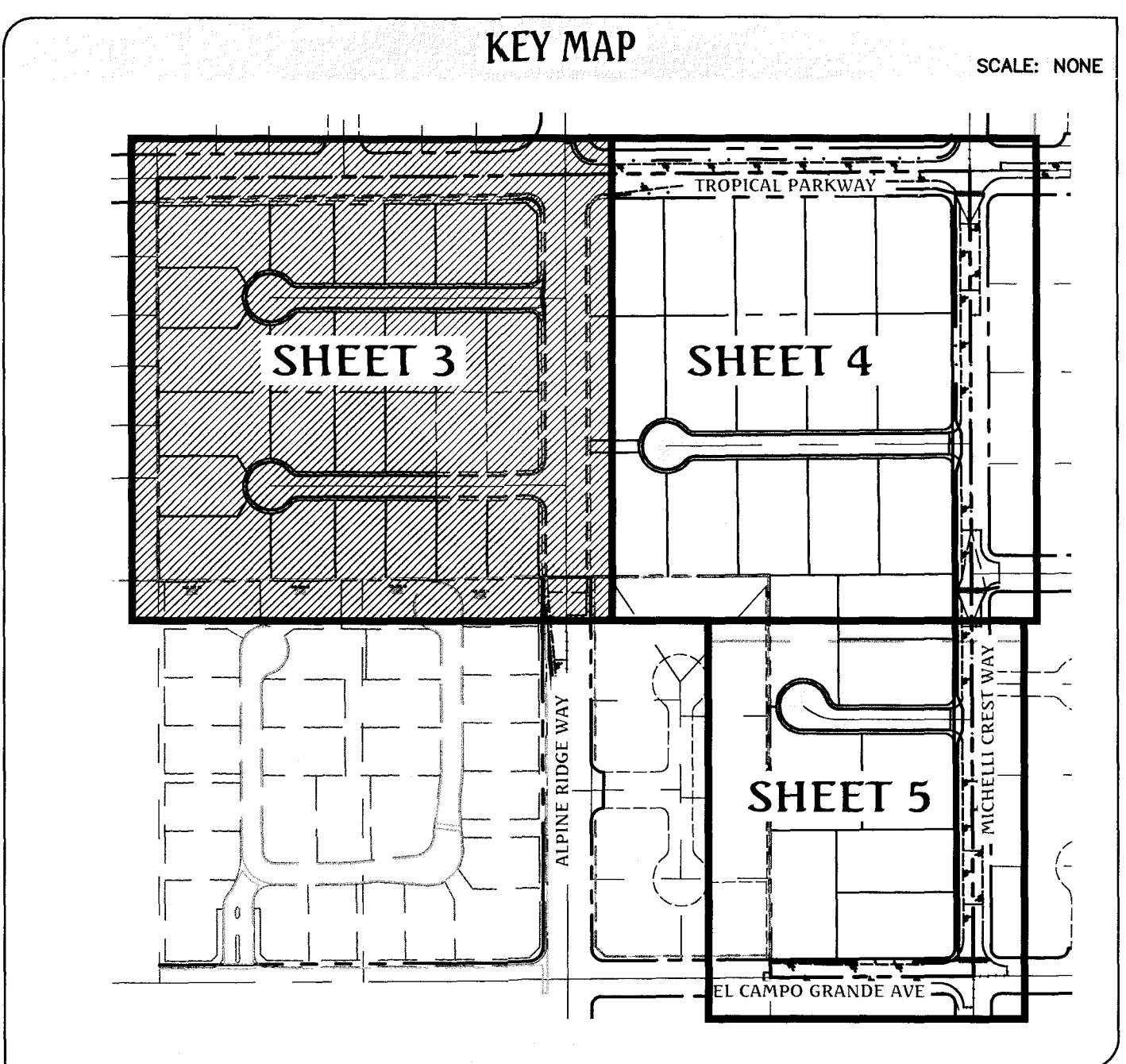
1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS AND THE UNIFORM STANDARDS FOR SPECIFICATIONS FOR PUBLIC WORKS. ALL CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, AS AMENDED, IT 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. POLYVINYL (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. TIE SADDLES SHALL BE USED TO CONNECT SEWER LATERALS TO EXISTING MAIN LINES TO TWELVE INCH (12") DIAMETER. CONNECTIONS TO FIFTEEN (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 LVWD 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 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.



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

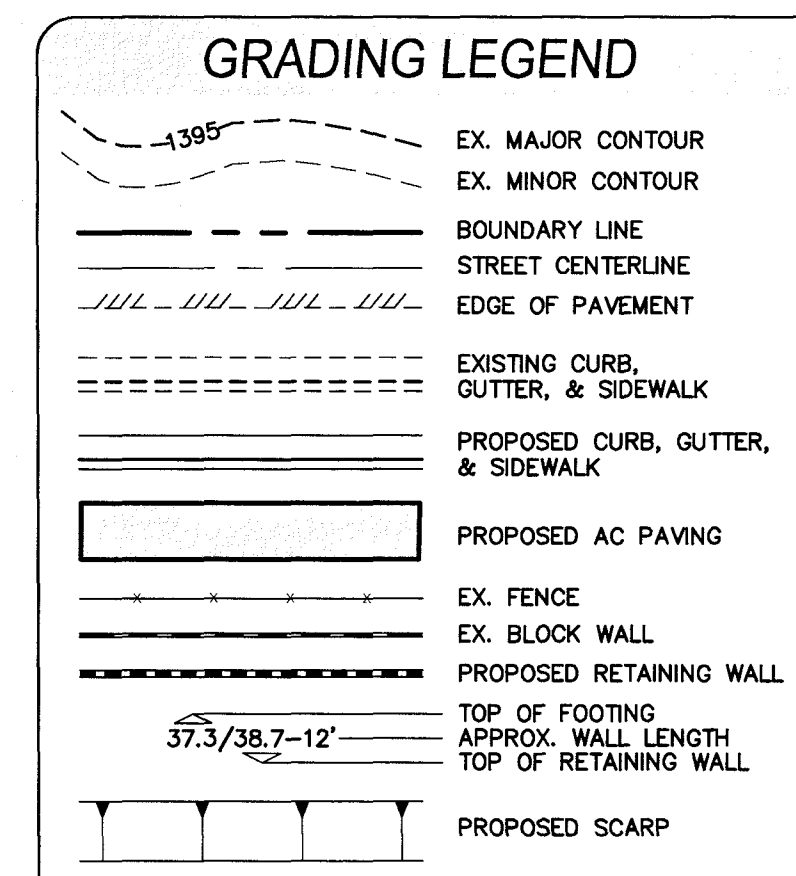
Avoid overhead power
line contact. It's costly.
Call before you
Overhead
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Call before you Dig
Avoid cutting underground
utility lines. It's costly.
CALL
811
OR
1-800-227-2600



- CONSTRUCTION NOTES**
- CONSTRUCT "R" TYPE CURB & GUTTER PER CCAUSD #217.52.
 - CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234.
 - 4' LONG CURB TRANSITION FROM "R" CURB TO "L" CURB
 - SAWCUT AND MATCH EXISTING ASPHALT.
- SOILS INFORMATION**
- SOILS REPORT BY: GEOTEK RESIDENTIAL, LLC
PROJECT No. 12899-LVR
DATED: DECEMBER 8, 2015
 - CUT TOTAL: 54,709 C.Y.
FILL TOTAL: 45,071 C.Y.
NET: 9,638 C.Y. (CUT)

- 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 2800 TO ALL SPOT GRADES AND TOP OF CURB, FLOW LINE AND FINISH GRADE ELEVATIONS.
 - ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA.
 - ANY CURVED CURB LESS THAN 1% MUST BE WATER TESTED BY CONTRACTOR AS REQUIRED BY CITY INSPECTOR.



FLOOD ZONE NOTE

THE PROJECT SITE IS LOCATED ON FEMA FLOOD INSURANCE RATE MAP #32003C1750E. THE SITE IS LOCATED WITHIN DESIGNATED FLOOD HAZARD ZONE X BEING AN AREA DETERMINED TO BE OUTSIDE THE 100 YEAR FLOOD PLAIN.

BASIS OF BEARING

NORTH 89°27'31" EAST, BEING THE BEARING OF THE NORTH LINE OF THE NORTHWEST QUARTER (NW1/4) OF THE SOUTHEAST QUARTER (SE1/4) OF SECTION 25, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., AS SHOWN IN FILE 196, PAGE 87 OF SURVEYS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

BENCHMARK # 1C9925SSW6
RIVET AND SQUARE ALUMINUM PLATE IN NORTHEAST CORNER OF A CONCRETE BASE FOR LARGE POWER POLE (#40-8) AT THE WEST END OF ANN ROAD
ELEVATION = 880.365 METERS (NAVD'88)
ELEVATION = 2,888.33 U.S. FEET (NAVD'88)

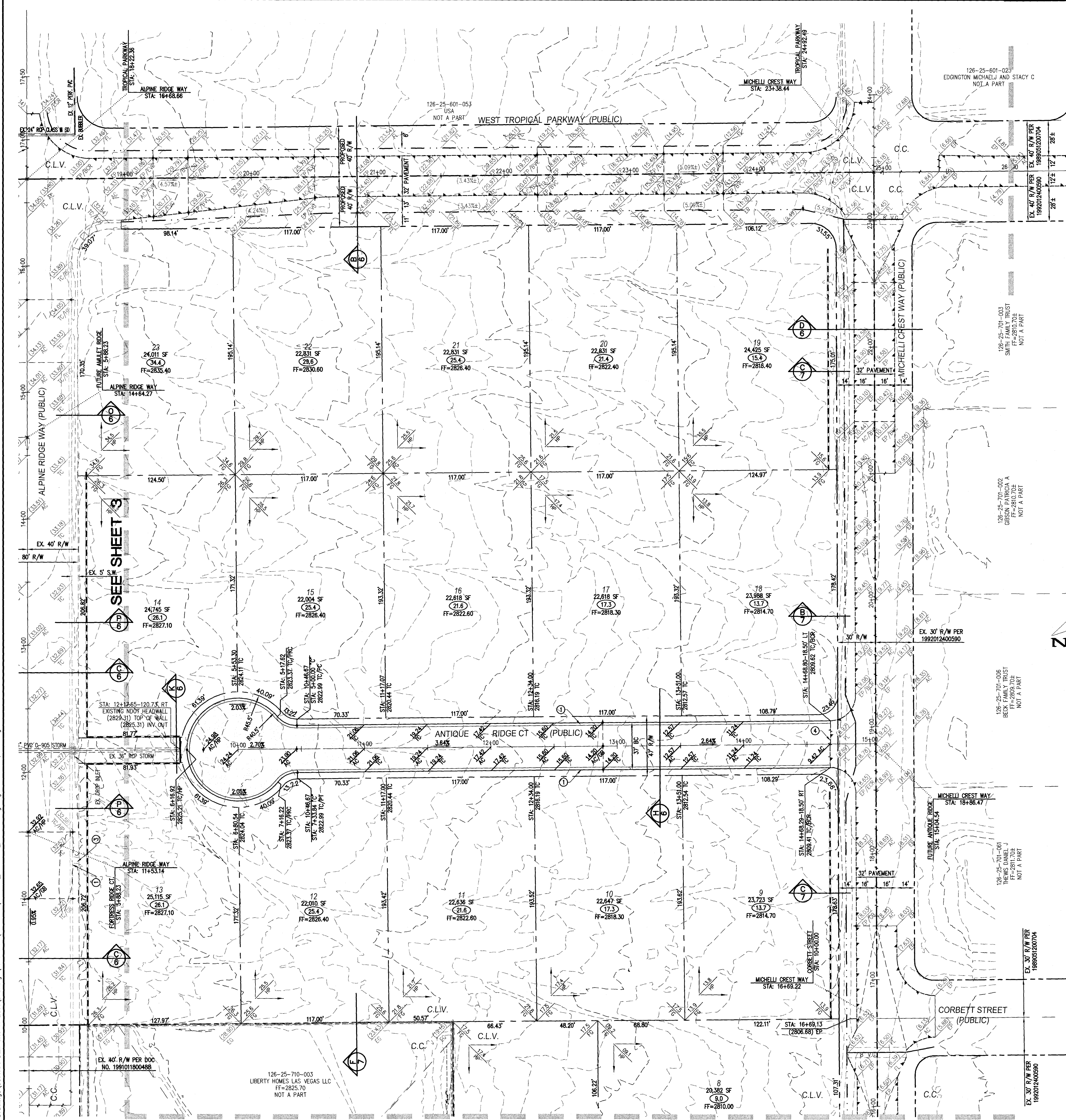
DATE: 08/21/2016
PM: J. PEARCE
DRAWN BY:
DESIGNED BY:
CHECKED BY:
ADA CHECKED:
JOB NO.: 007104
SCALE: 1" = 40'

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

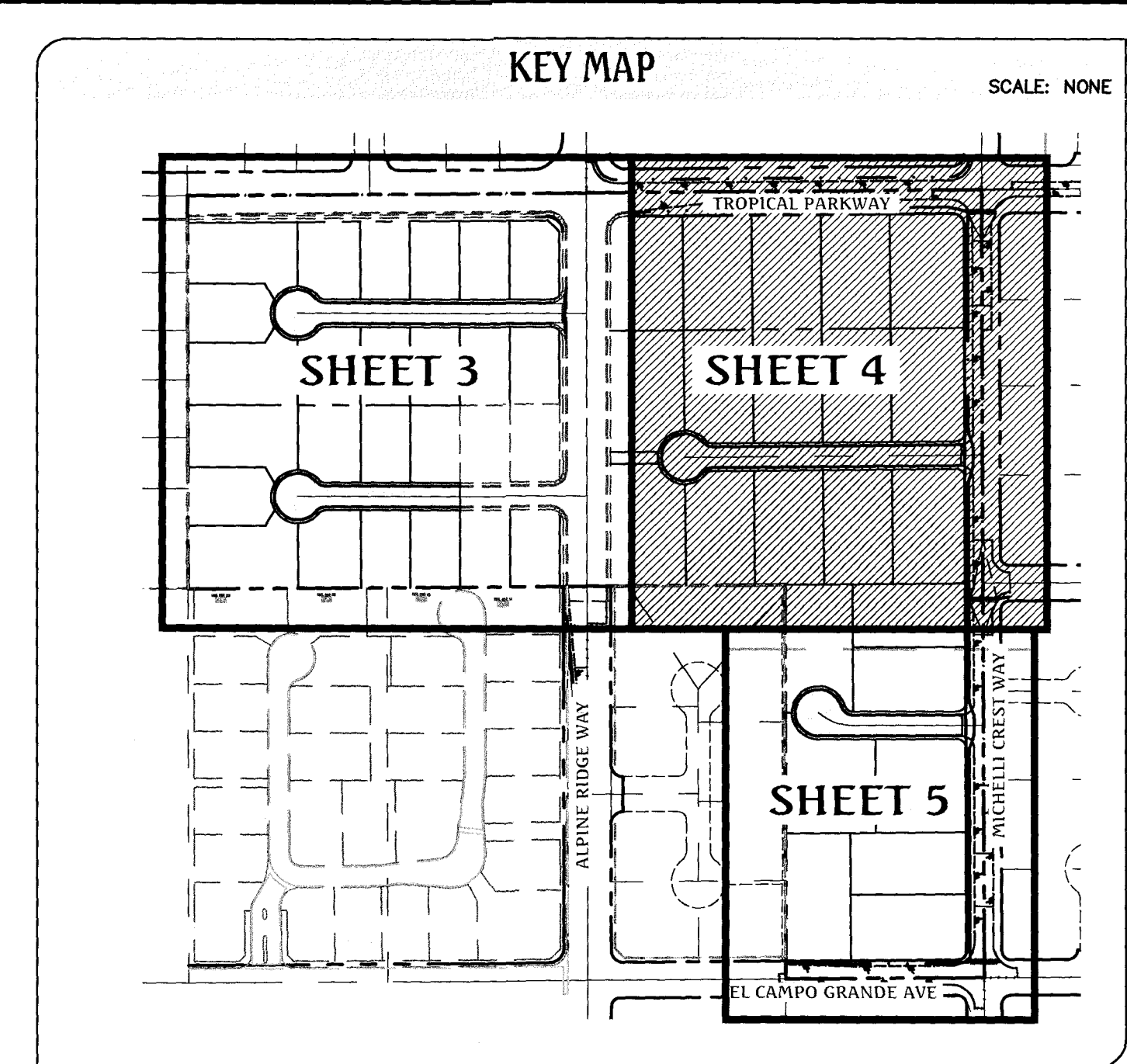
DR. HORTON
BLM SITE 11
ON-SITE DRAINAGE PLANS
GRADING PLAN 1

PROFESSIONAL ENGINEER-STATE OF NEVADA
JAMES M. PEARCE
Exp. 12-31-
CIVIL
No. 9552

SHEET **3** OF 17
C.L.V. DWG.#



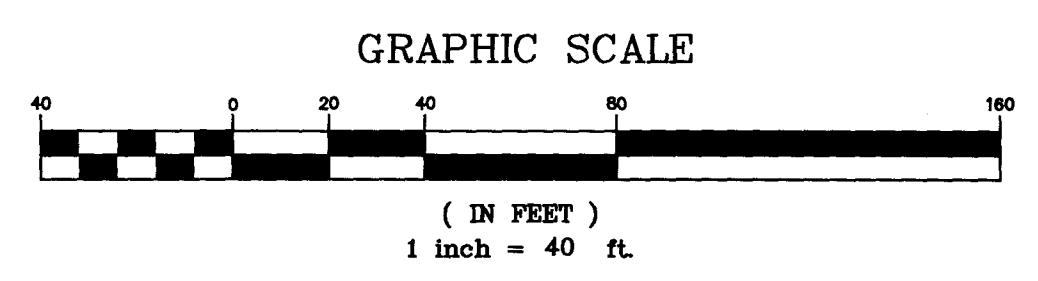
SEE SHEET 10



FAST
Call before you Dig
1-702-432-5300
FIREWAY & UTILITIES
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.
CALL 811
OR
1-800-227-2600



- CONSTRUCTION NOTES**
1. CONSTRUCT "R" TYPE CURB & GUTTER PER CCAUSD #217.52.
 2. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234.
 3. 4' LONG CURB TRANSITION FROM "R" CURB TO "L" CURB.
 4. SAWCUT AND MATCH EXISTING ASPHALT.

- SOILS INFORMATION**
1. SOILS REPORT BY: GEOTEK RESIDENTIAL, LLC
PROJECT No. 12699-LVR
DATED: DECEMBER 8, 2015
 2. CUT TOTAL: 54,709 C.Y.
FILL TOTAL: 45,071 C.Y.
NET: 9,638 C.Y. (GUT)

- GRADING NOTES**
1. ALL PROPOSED PAD ELEVATIONS AND SWALE ELEVATIONS ARE ROUGH GRADES. ALL OTHER PROPOSED ELEVATIONS ARE FINISHED 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 THESE 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 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.
 5. ALL PLACEMENT OF OVERSIZED MATERIALS AND/OR FILL MATERIALS SHALL BE PER THE SOILS REPORT REFERENCED ON THIS PLAN.
 6. ADD 2800 TO ALL SPOT GRADES AND TOP OF CURB, FLOW LINE AND FINISH GRADE ELEVATIONS.
 7. ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA.
 8. ANY CURVED CURB LESS THAN 12" MUST BE WATER TESTED BY CONTRACTOR AS REQUIRED BY CITY INSPECTOR.

- GRADING LEGEND**
- 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
 - EX. BLOCK WALL
 - PROPOSED RETAINING WALL
 - TOP OF FOOTING
 - APPROX. WALL LENGTH
 - TOP OF RETAINING WALL
 - PROPOSED SCARP

FLOOD ZONE NOTE

THE PROJECT SITE IS LOCATED ON FEMA FLOOD INSURANCE RATE MAP #12003017502. THE SITE IS LOCATED WITHIN DESIGNATED FLOOD HAZARD ZONE X BEING AN AREA DETERMINED TO BE OUTSIDE THE 100 YEAR FLOOD PLAIN.

BASIS OF BEARING

NORTH 89°27'31" EAST, BEING THE BEARING OF THE NORTH LINE OF THE NORTHWEST QUARTER (NW1/4) OF THE SOUTHEAST QUARTER (SE1/4) OF SECTION 25, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., AS SHOWN IN FILE 196, PAGE 87 OF SURVEYS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

BENCHMARK # 1C9925SSW6
RIVET AND SQUARE ALUMINUM PLATE IN NORTHEAST CORNER OF A CONCRETE BASE FOR LARGE POWER POLE (#40-S) AT THE WEST END OF ANN ROAD
ELEVATION = 880.365 METERS (NAVD'88)
ELEVATION = 2,888.33 U.S. FEET (NAVD'88)

DATE : 08/27/2016	NO. DESCRIPTION	DATE	APP'D
PM : J. RANCE			
DRAWN BY :			
DESIGNED BY :			
CHECKED BY :			
ADA CHECKED :			
JOB NO. : 007104			
SCALE : 1" = 40'			

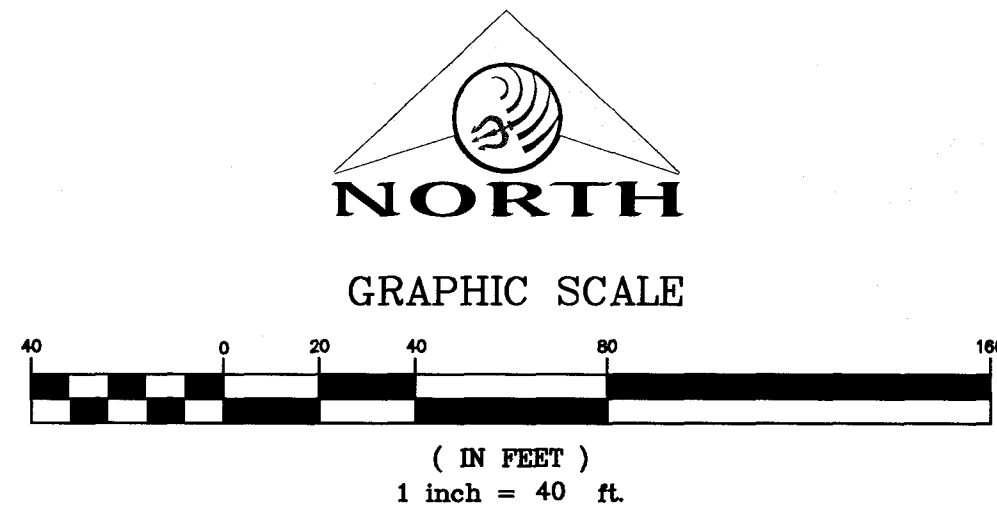
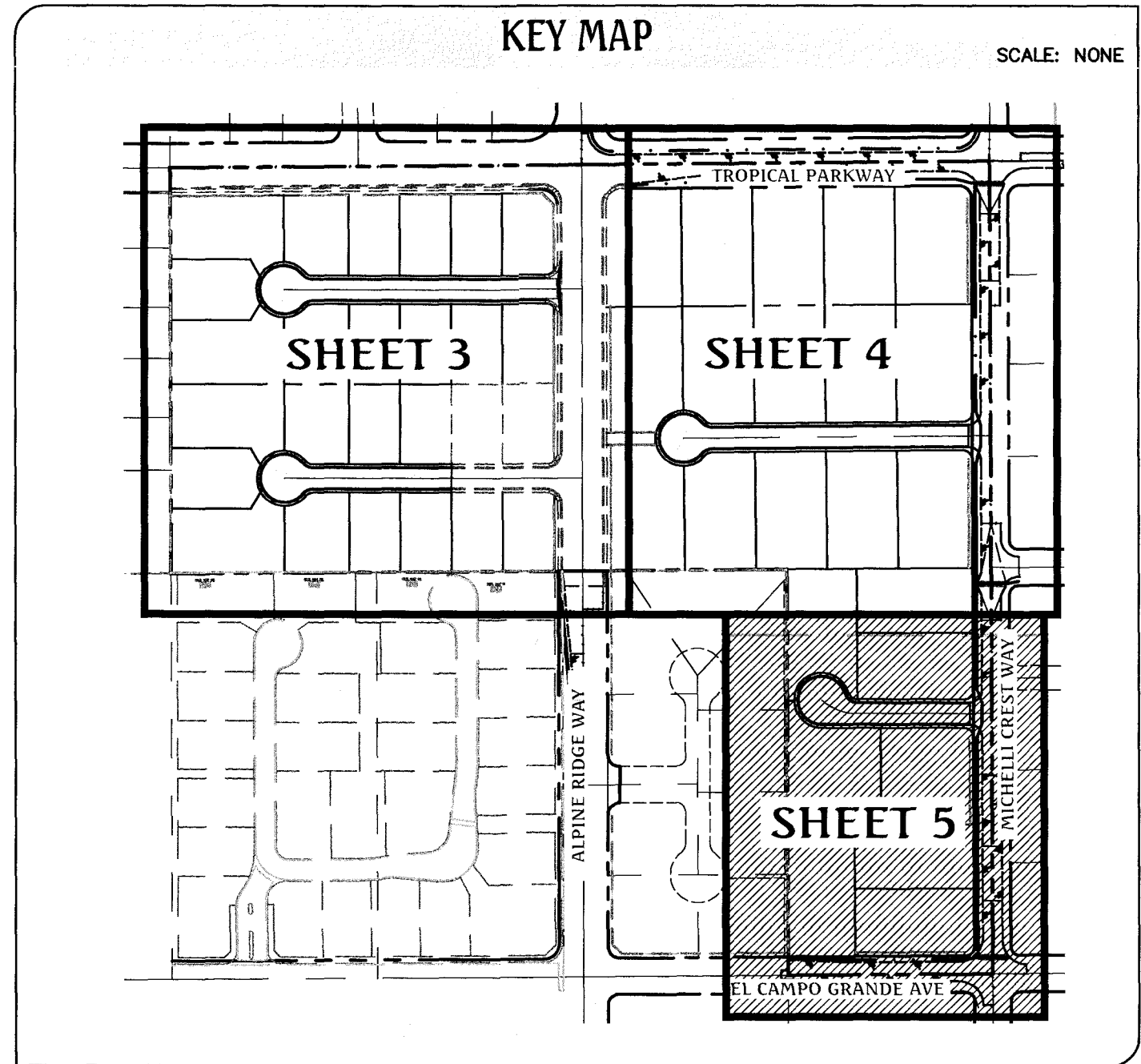
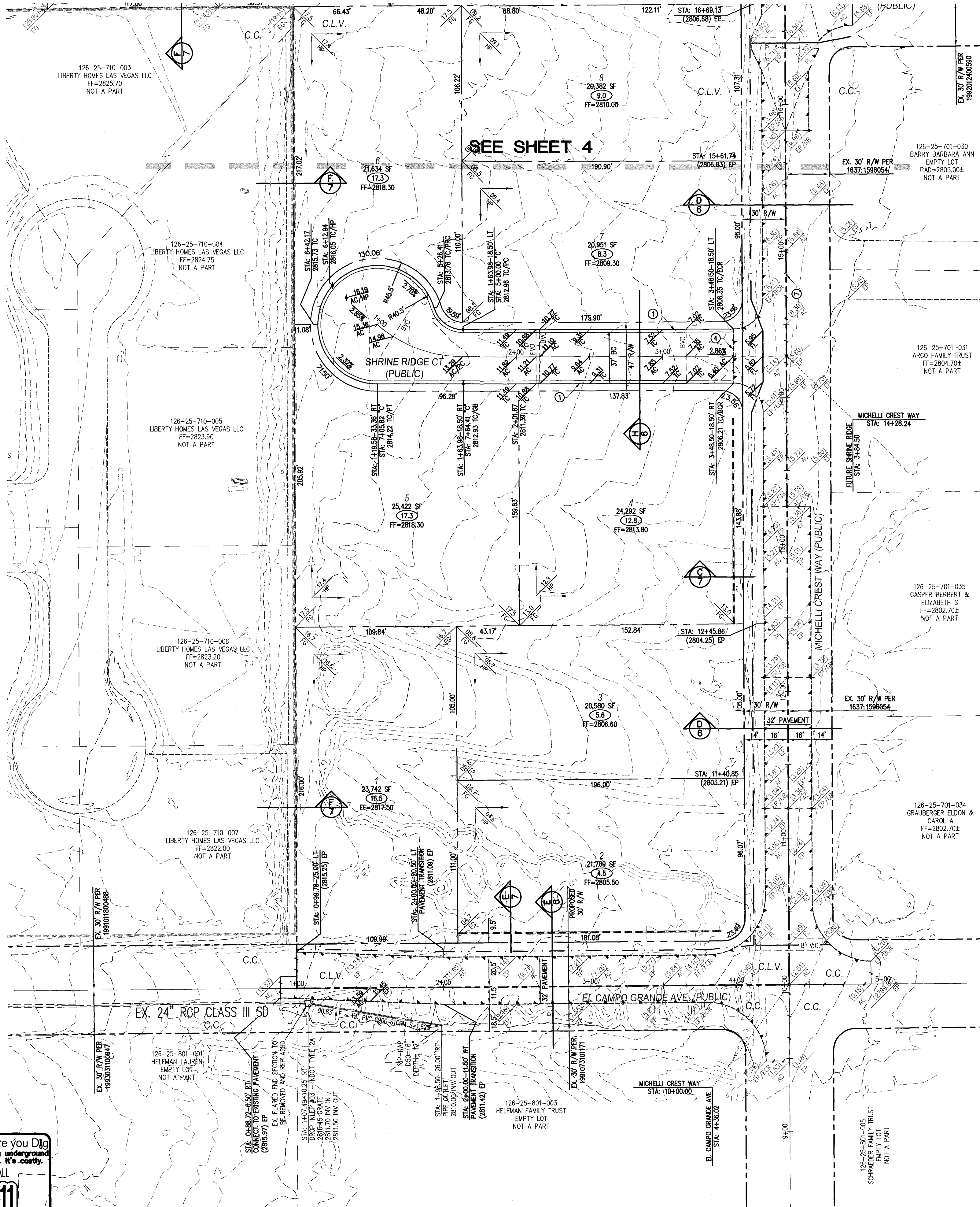
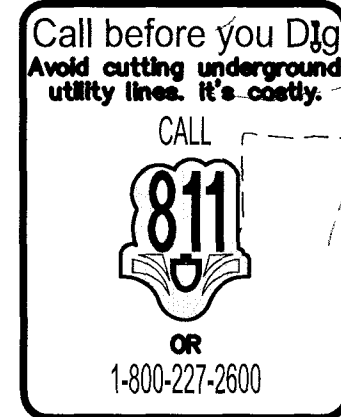
Triton Engineering
Office: (702) 354-1480
Fax: (702) 354-1062
www.tritoneng.com
6757 W. Charleston Blvd.
Suite B
Las Vegas, Nevada 89146

DR HORTON
BLM SITE 11
ON-SITE DRAINAGE PLANS
GRADING PLAN II

PROFESSIONAL ENGINEER - STATE OF NEVADA
JAMES M. PEARCE
Exp. 12-31-
CIVIL
Professional Seal No. 9558

SHEET **4** OF 17
C.L.V. DWG.#

C:\Triton Drawings\007104 BLM Site 11 East\Drawings\GRADING\On-site\007104_03-Grading.dwg dltt Wed 31 Aug 2016 - 8:34am



CONSTRUCTION NOTES

1. CONSTRUCT "R" TYPE CURB & GUTTER PER CCAUSD #217.52.
2. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234.
3. 4' LONG CURB TRANSITION FROM "R" CURB TO "L" CURB
4. SAWCUT AND MATCH EXISTING ASPHALT.

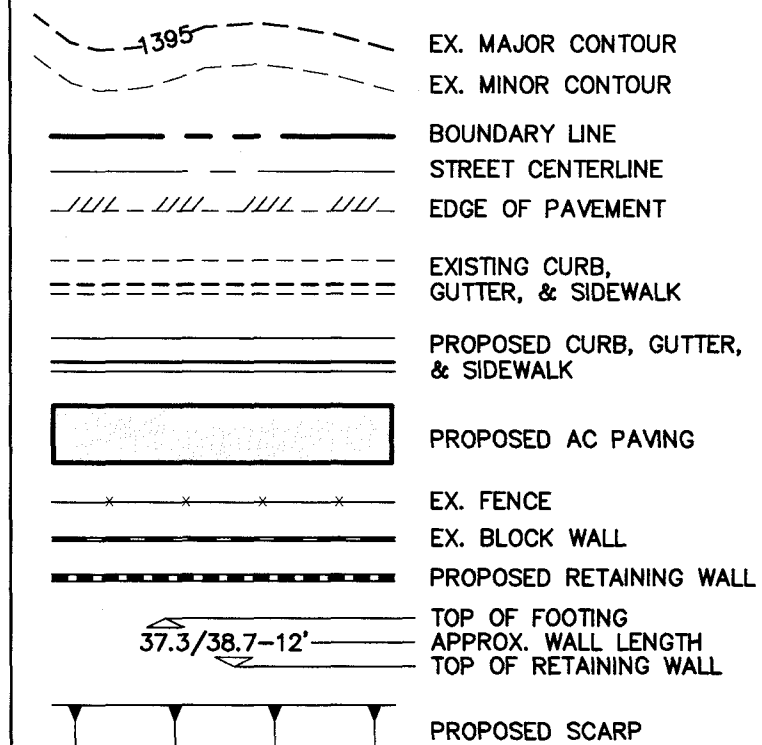
SOILS INFORMATION

1. SOILS REPORT BY: GEOTEK RESIDENTIAL, LLC
PROJECT No. 12899-LVR
DATED: DECEMBER 8, 2015
2. CUT TOTAL: 54,709 C.Y.
FILL TOTAL: 45,071 C.Y.
NET: 9,638 C.Y. (CUT)

GRADING NOTES

1. ALL PROPOSED PAD ELEVATIONS AND SWALE ELEVATIONS ARE FINISHED GRADES. ALL OTHER PROPOSED ELEVATIONS ARE FINISHED 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 THESE 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 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.
5. ALL PLACEMENT OF OVERSIZED MATERIALS AND/OR FILL MATERIALS SHALL BE PER THE SOILS REPORT REFERENCED ON THIS PLAN.
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7. ALL PRIVATE STREETS ARE P.U.E. PUBLIC SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA.
8. ANY CURVED CURB LESS THAN 1% MUST BE WATER TESTED BY CONTRACTOR AS REQUIRED BY CITY INSPECTOR.

GRADING LEGEND



FLOOD ZONE NOTE

THE PROJECT SITE IS LOCATED ON FEMA FLOOD INSURANCE RATE MAP #32003C1750E. THE SITE IS LOCATED WITHIN DESIGNATED FLOOD HAZARD ZONE X AN AREA DETERMINED TO BE OUTSIDE THE 100 YEAR FLOOD PLAIN.

BASIS OF BEARING

NORTH 89°27'31" EAST, BEING THE BEARING OF THE NORTH LINE OF THE NORTHWEST QUARTER (NW/4) OF THE SOUTHEAST QUARTER (SE/4) OF SECTION 25, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., AS SHOWN IN FILE 196, PAGE 87 OF SURVEYS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

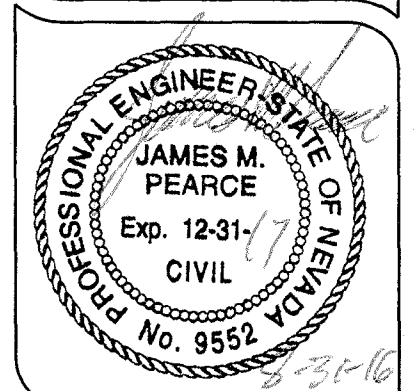
BENCHMARK # 1099255SSW6
RIVET AND SQUARE ALUMINUM PLATE IN NORTHEAST CORNER OF A CONCRETE BASE FOR LARGE POWER POLE (#40-8) AT THE WEST END OF ANN ROAD
ELEVATION = 880.365 METERS (NAVD'88)
ELEVATION = 2,888.33 U.S. FEET (NAVD'88)

DATE	NO.	DESCRIPTION	DATE	APPROVED
08/31/2016				
DESIGNED BY:				
CHECKED BY:				
ADJ. CHECKED:				
JOB NO.:				
SCALE:				

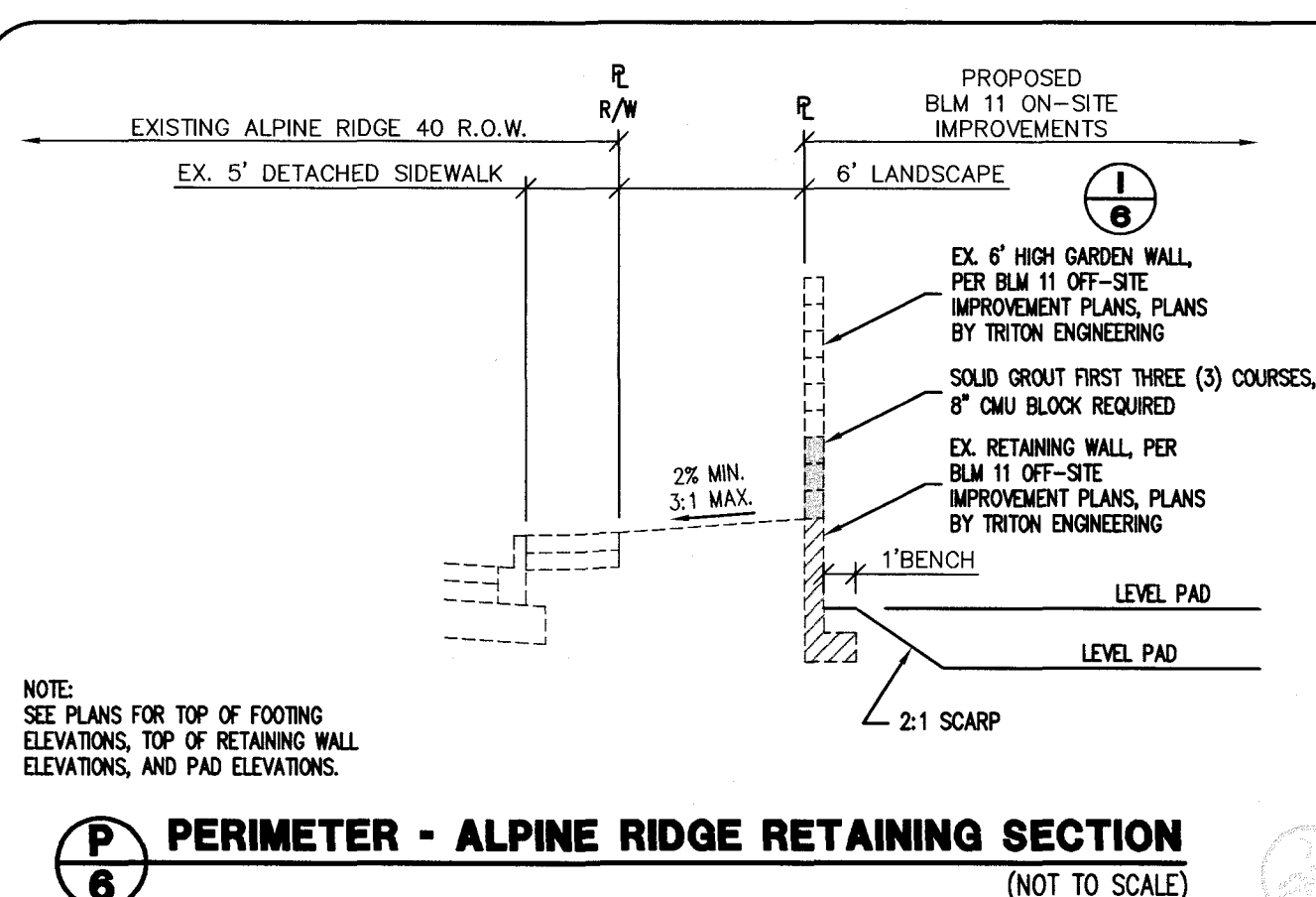
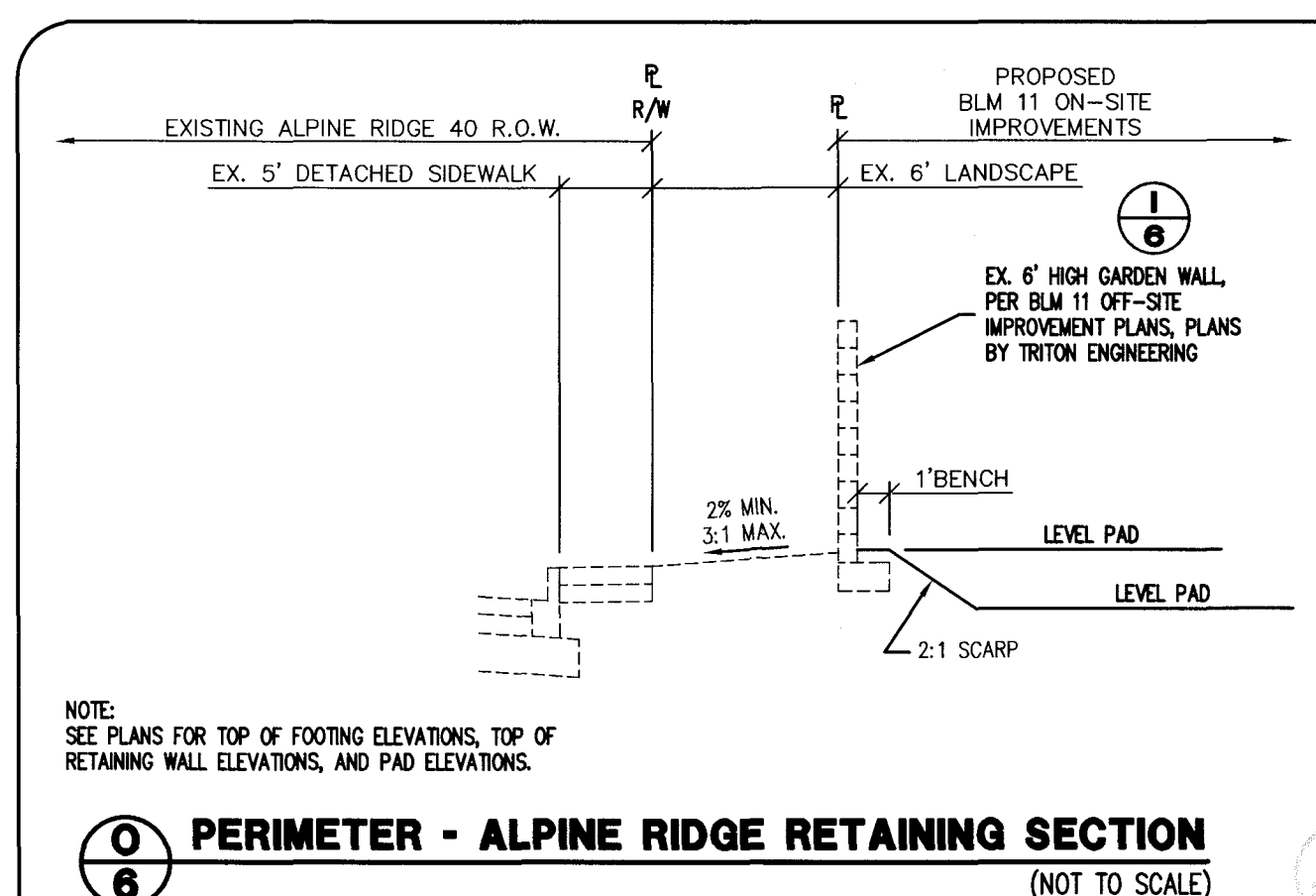
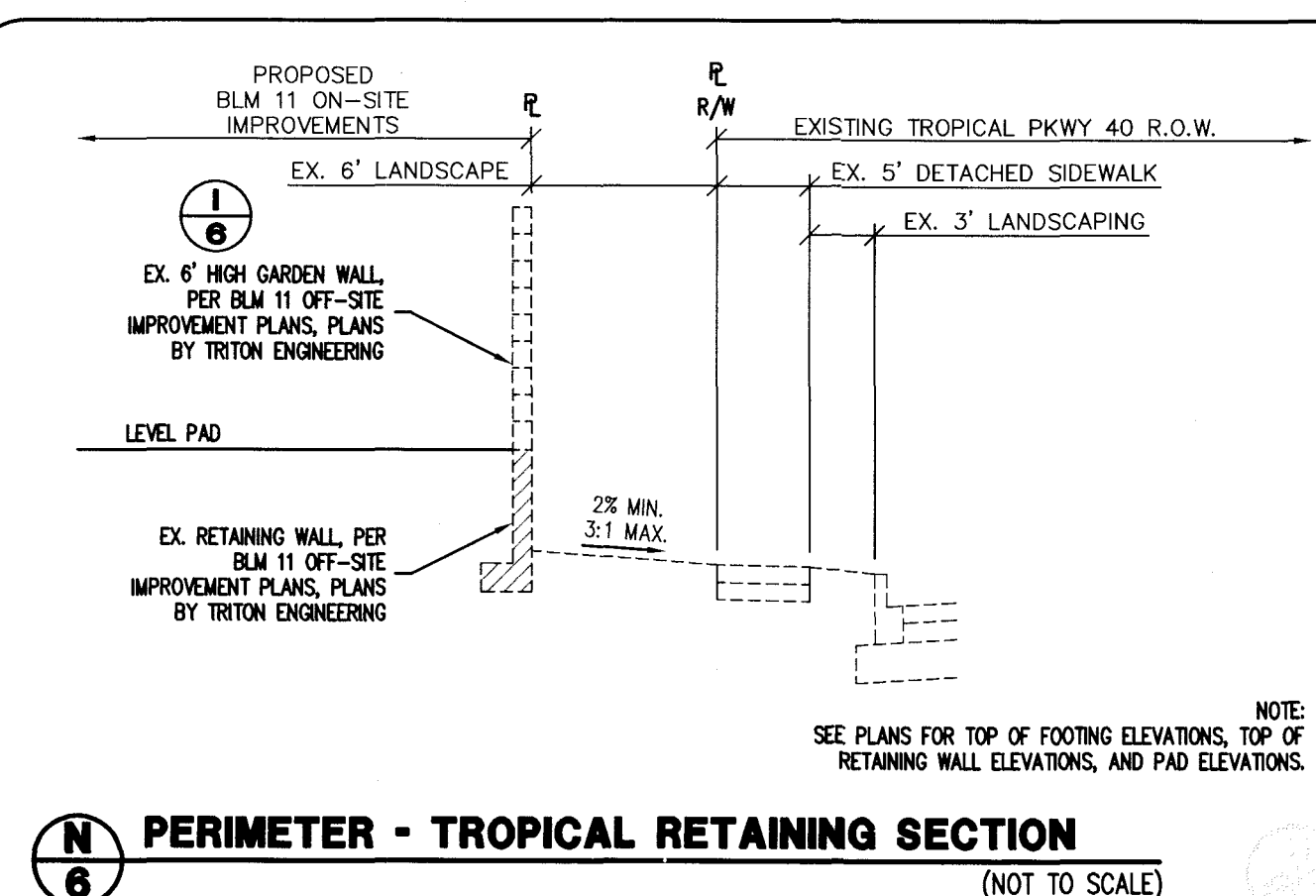
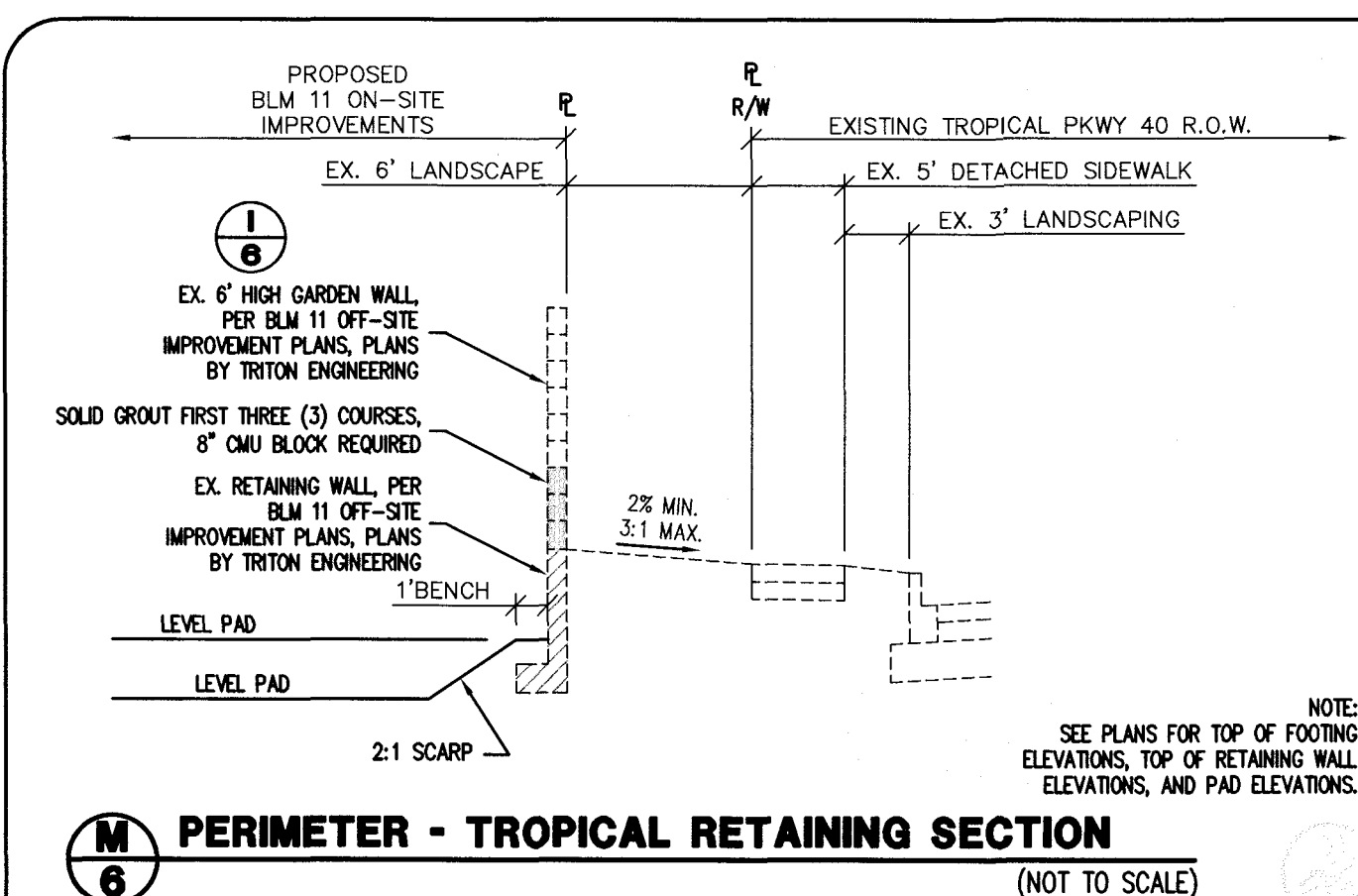
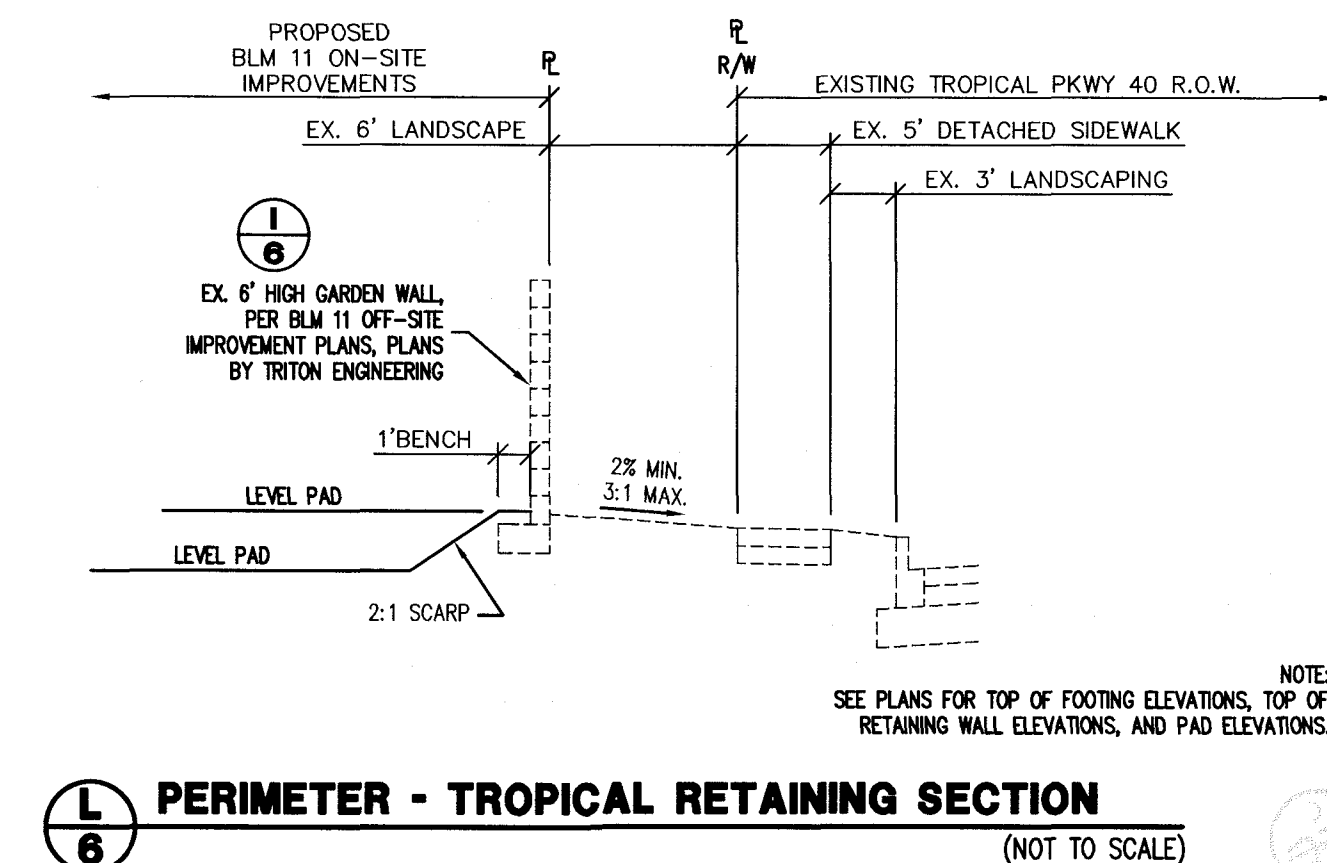
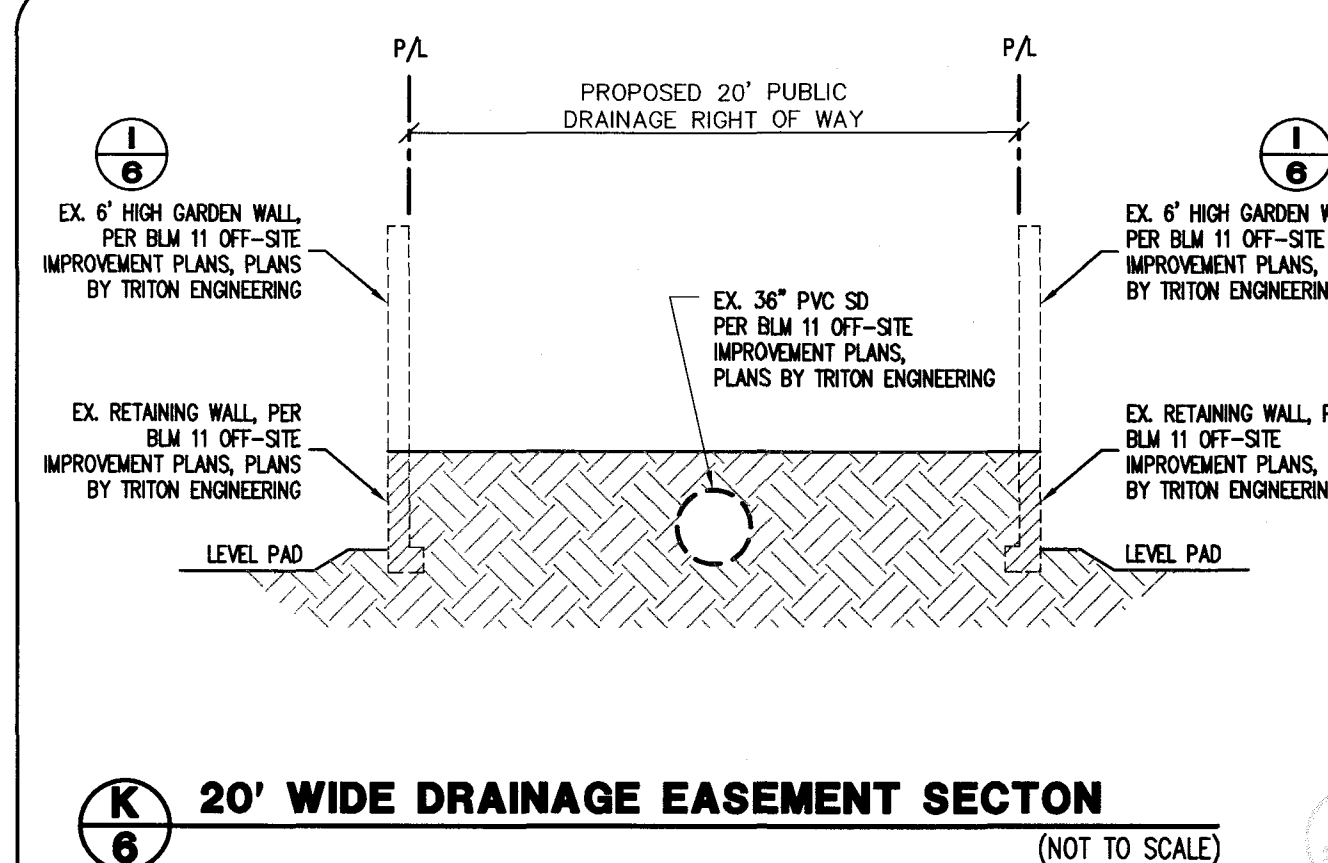
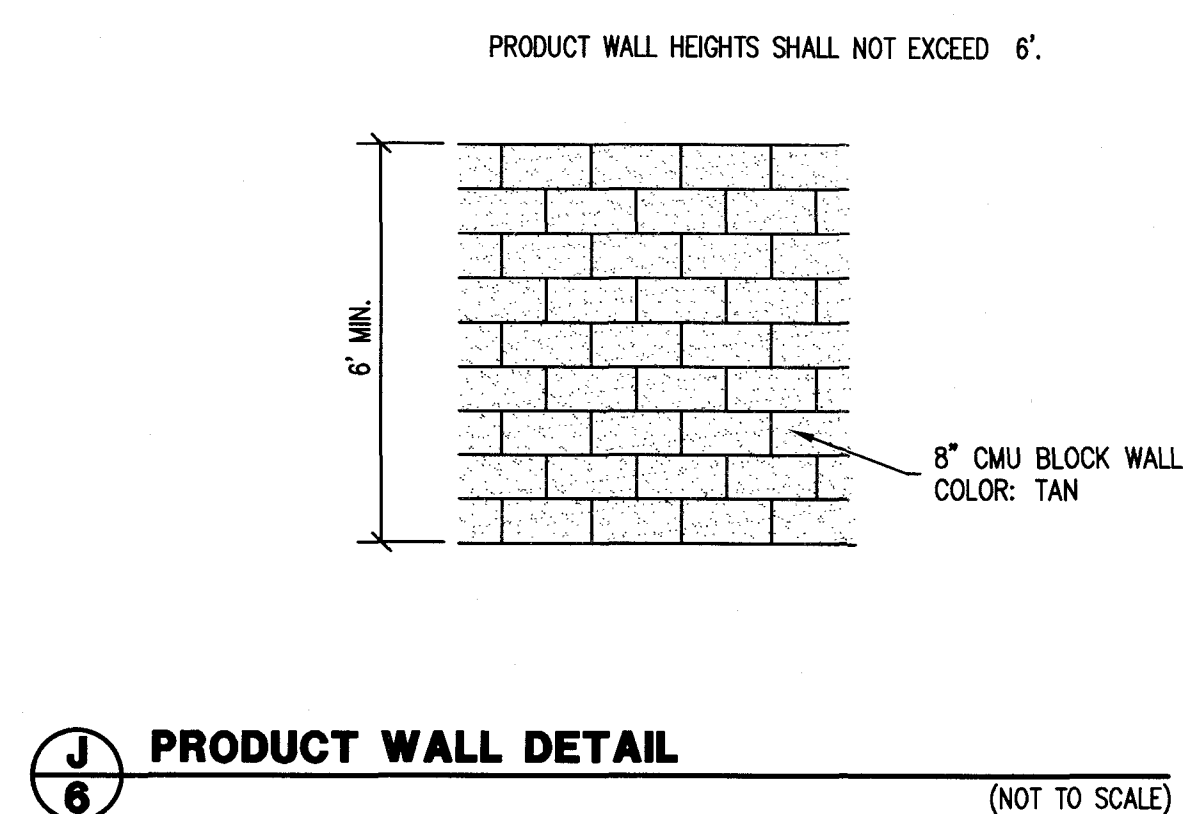
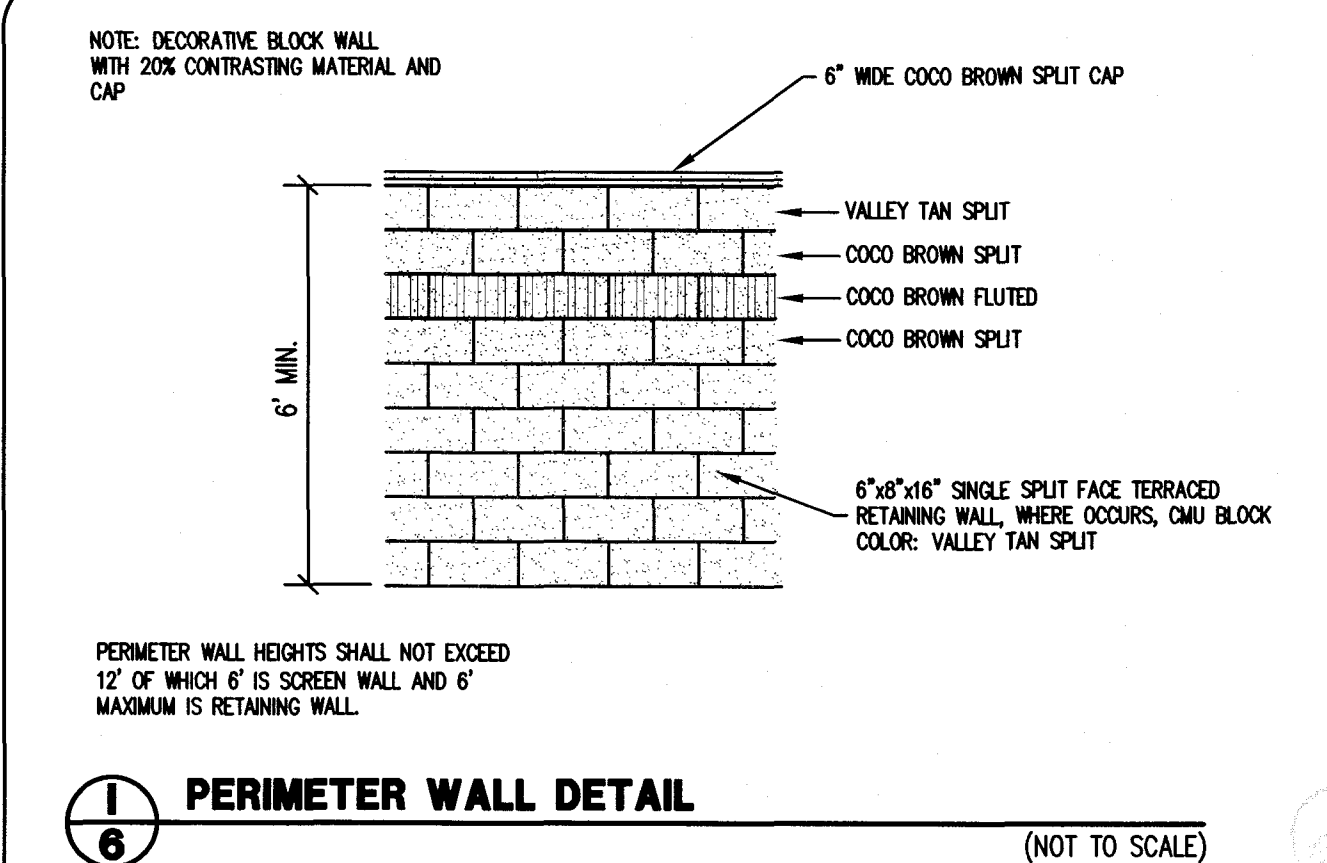
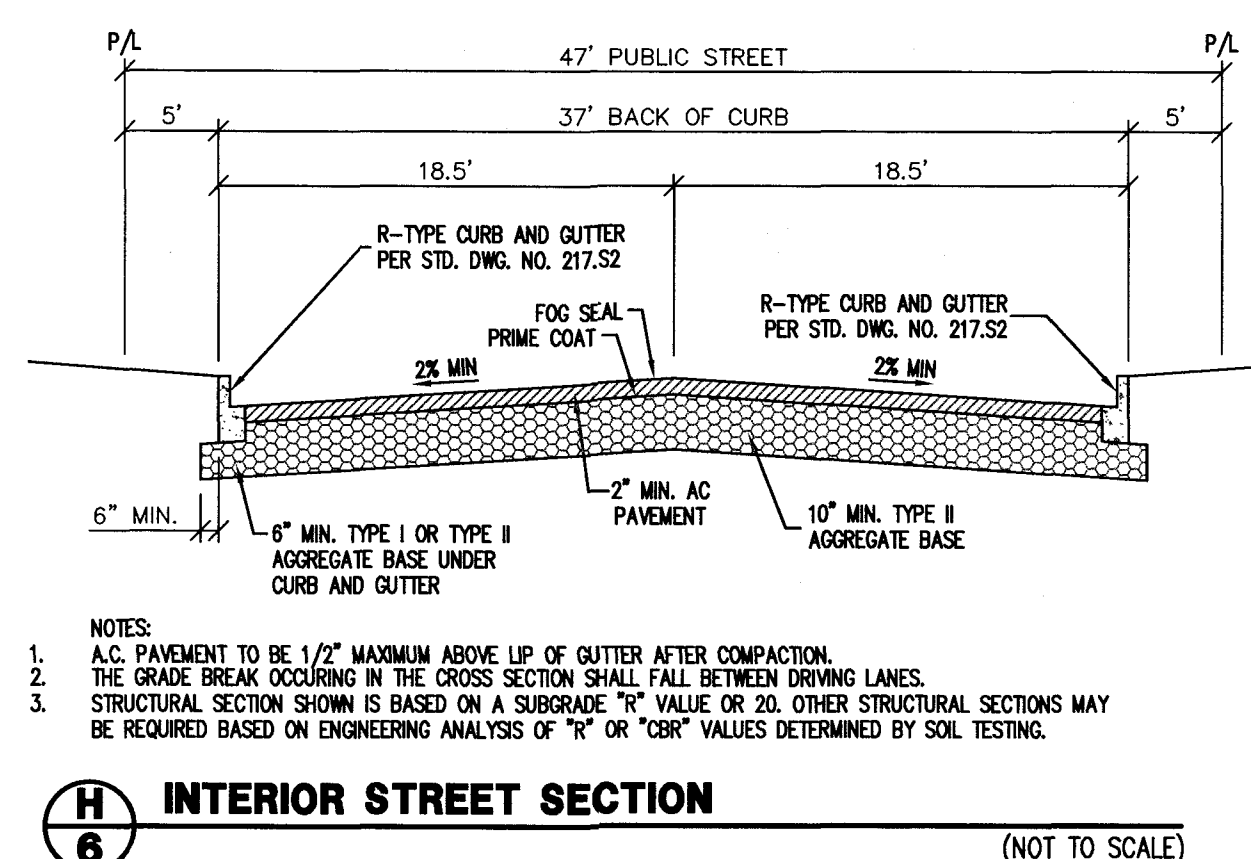
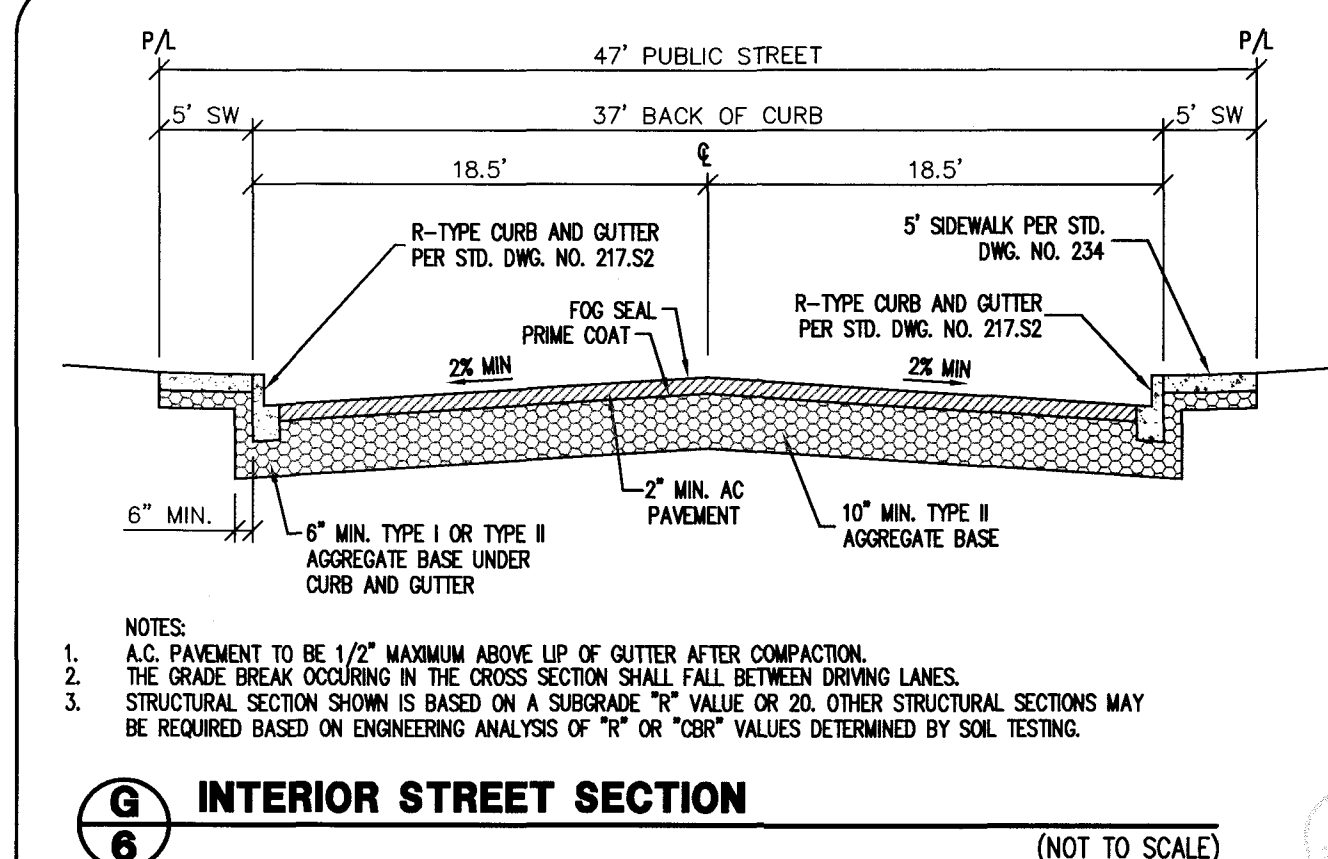
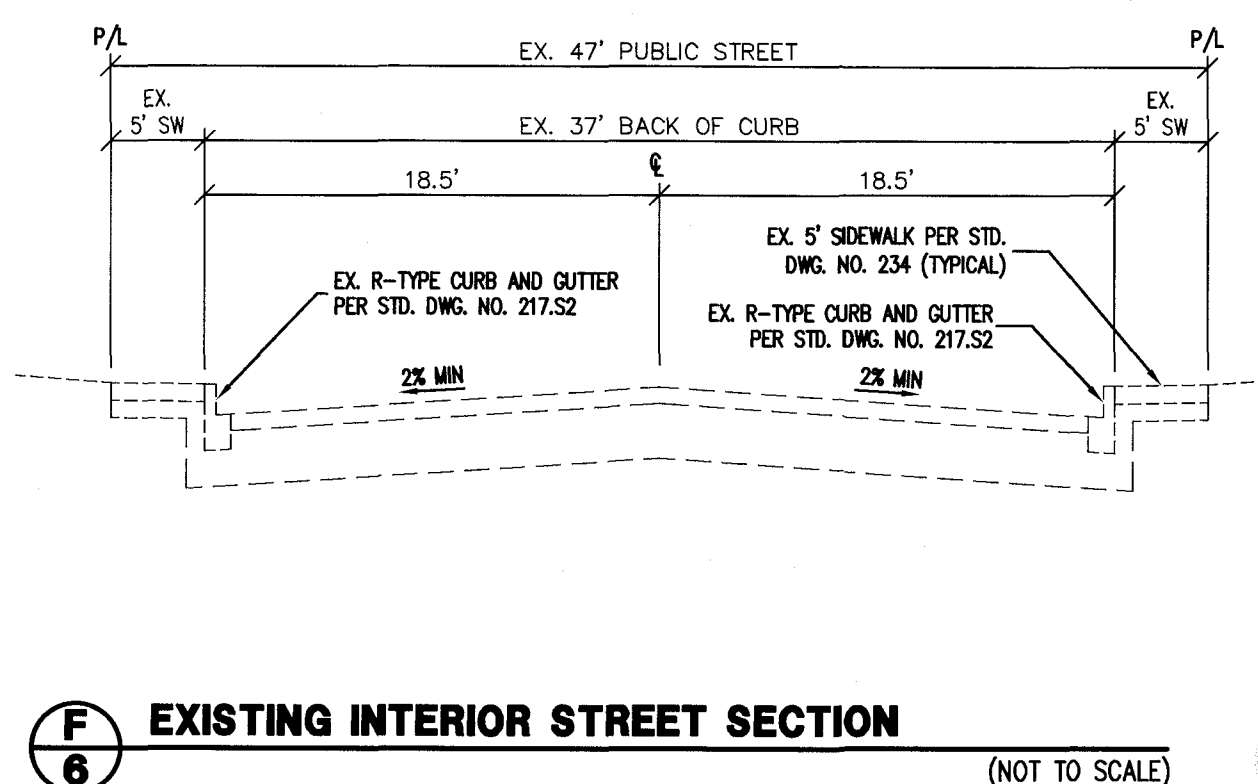
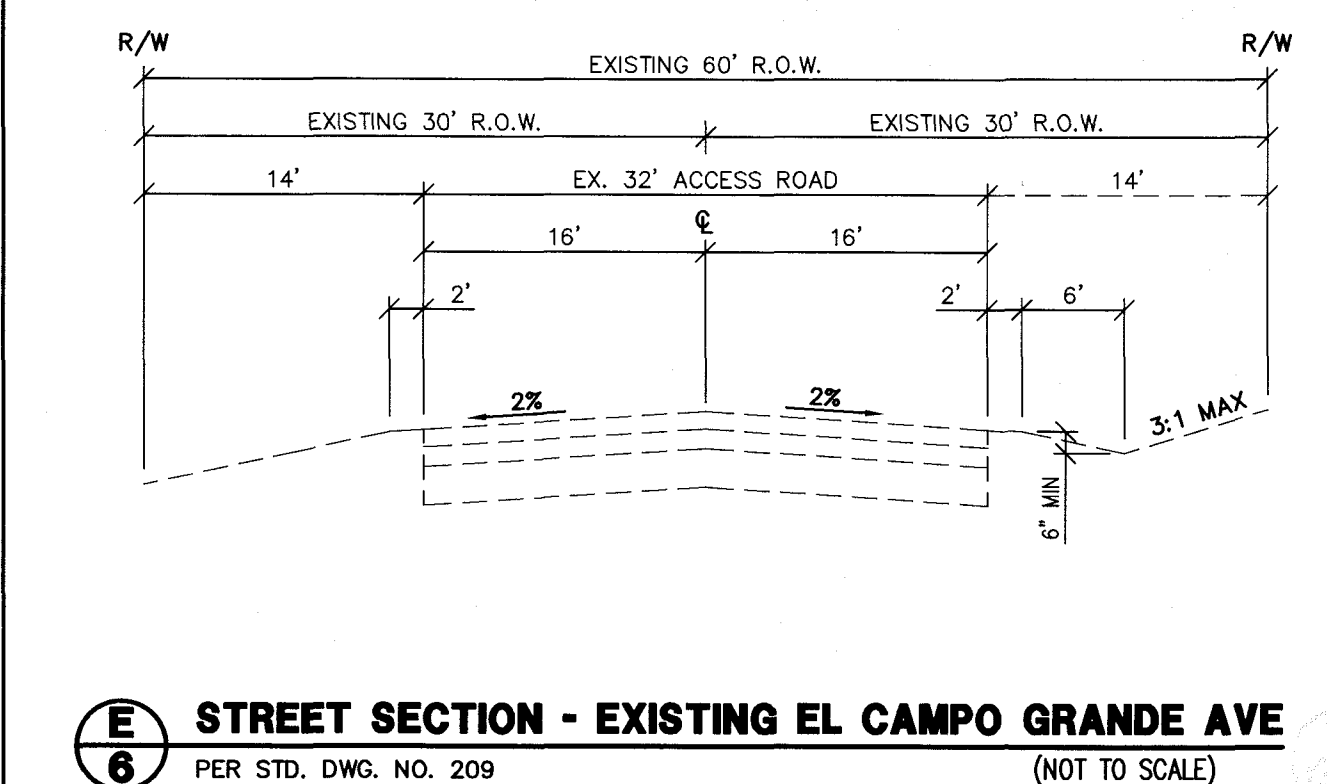
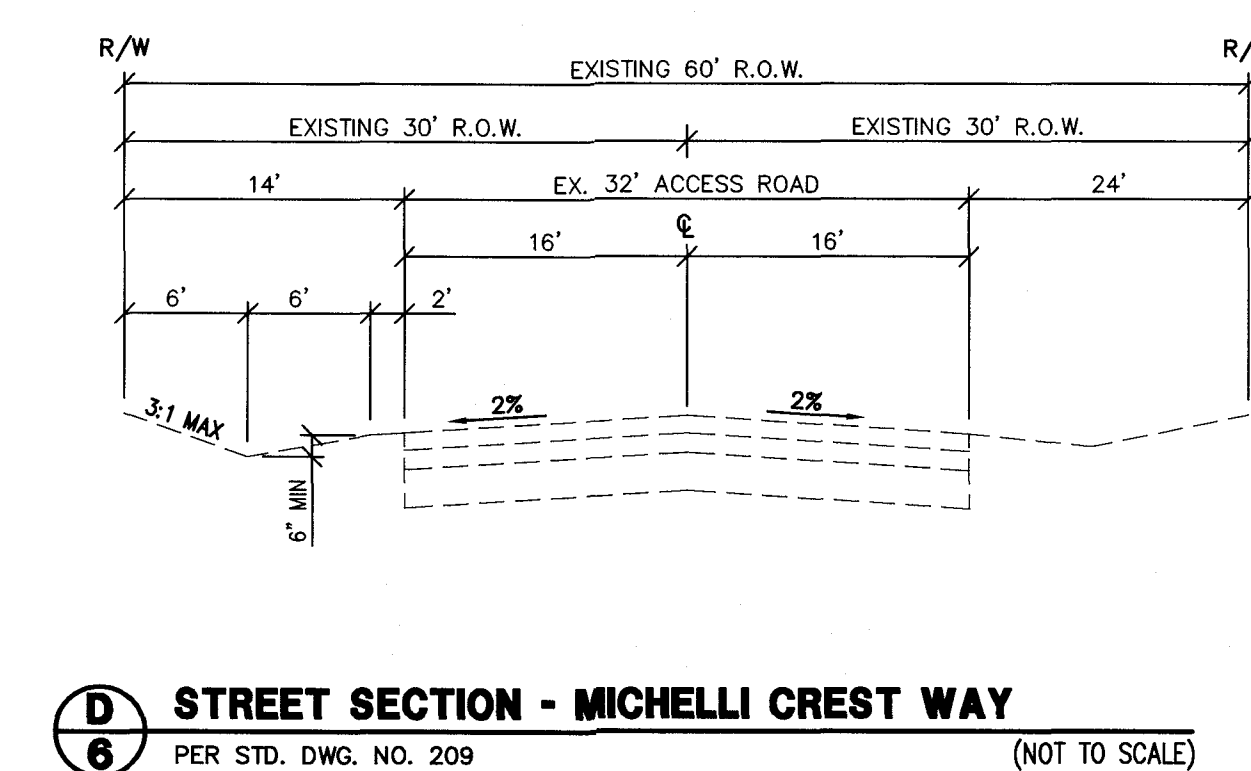
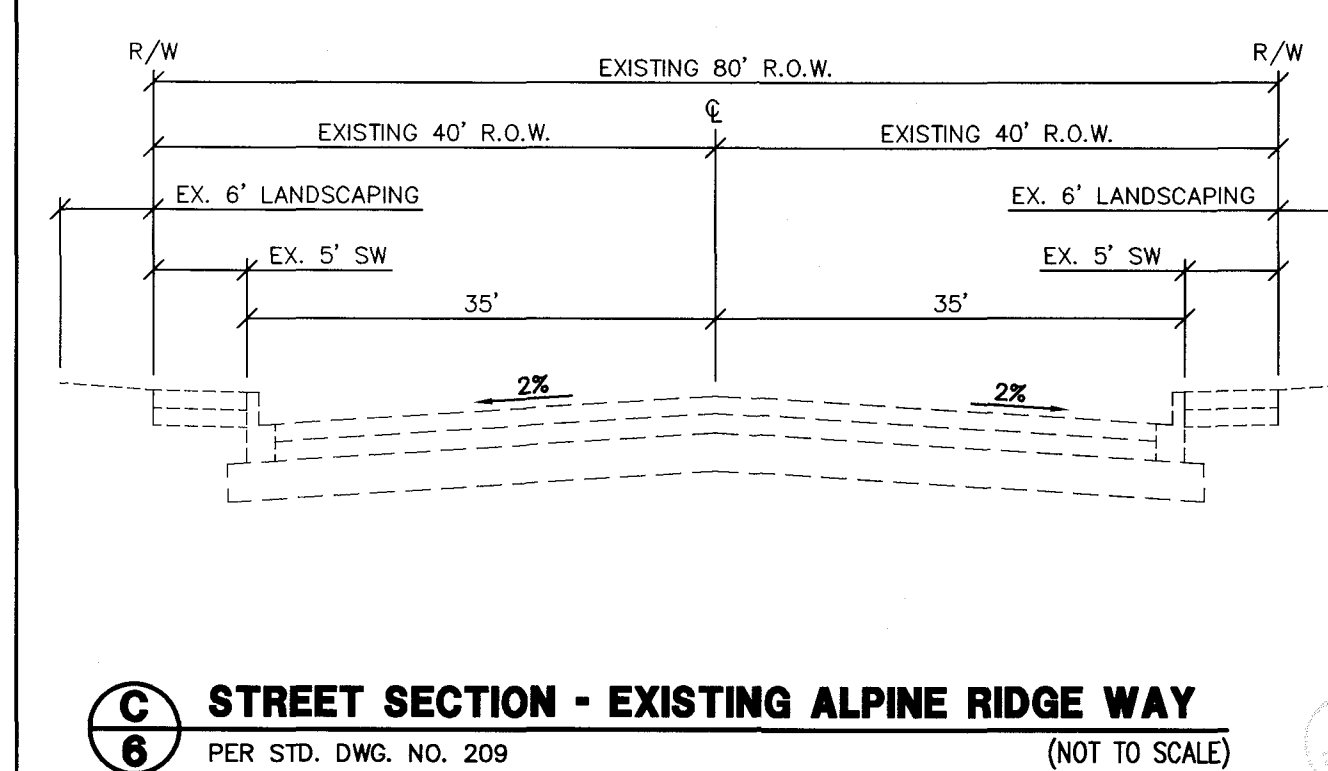
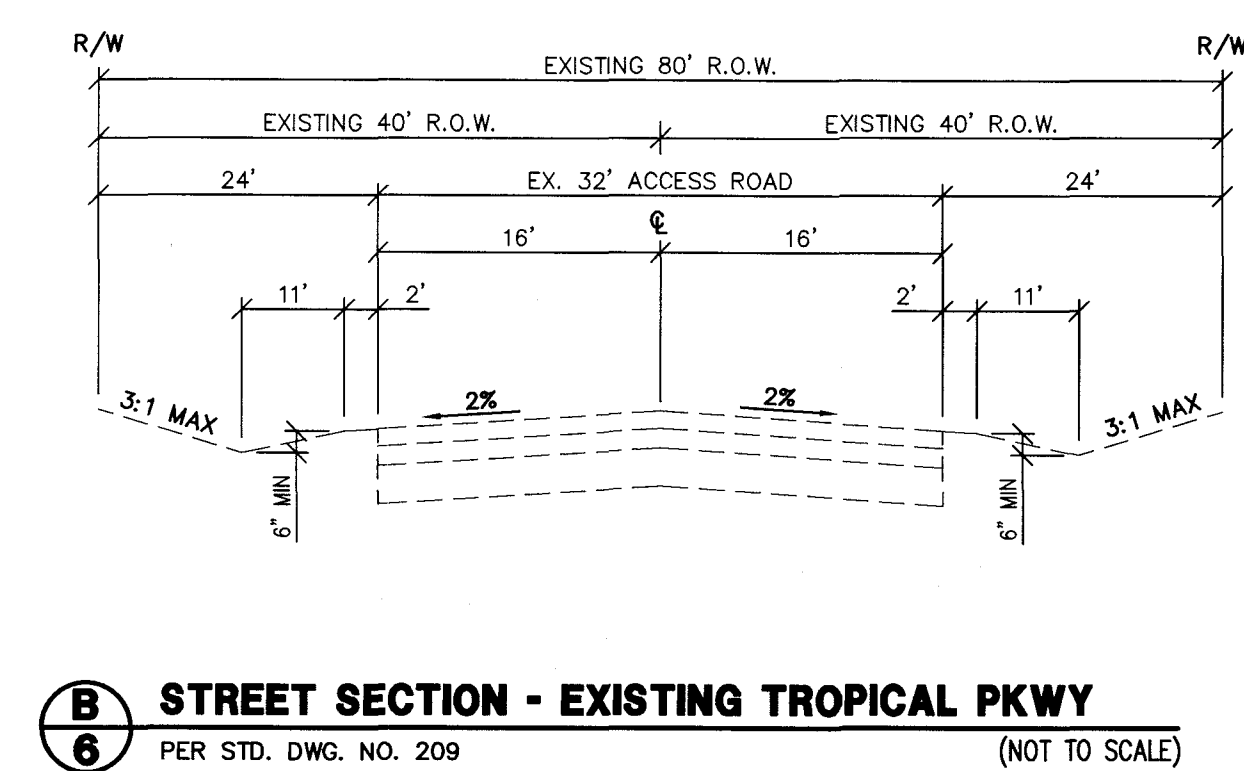
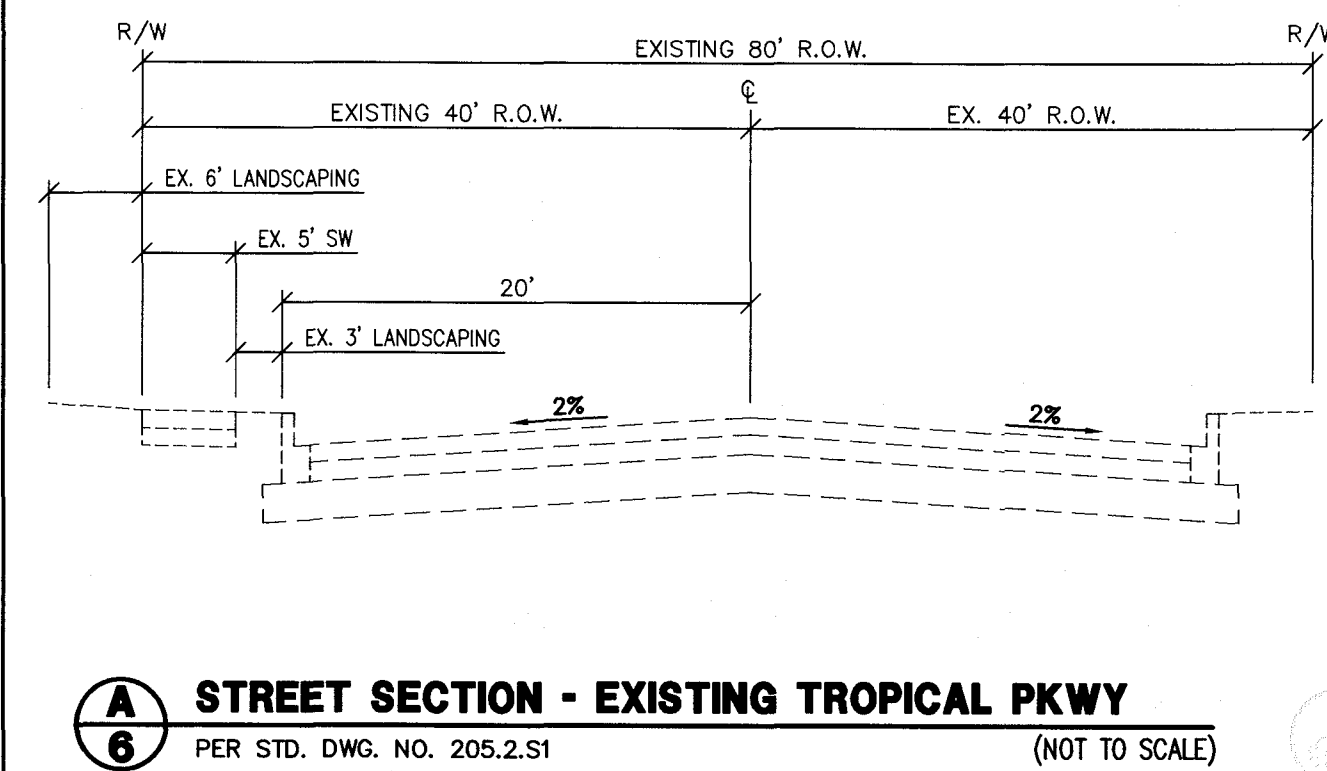
Triton Engineering
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6757 W. Charleston Blvd.
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Las Vegas, Nevada 89146
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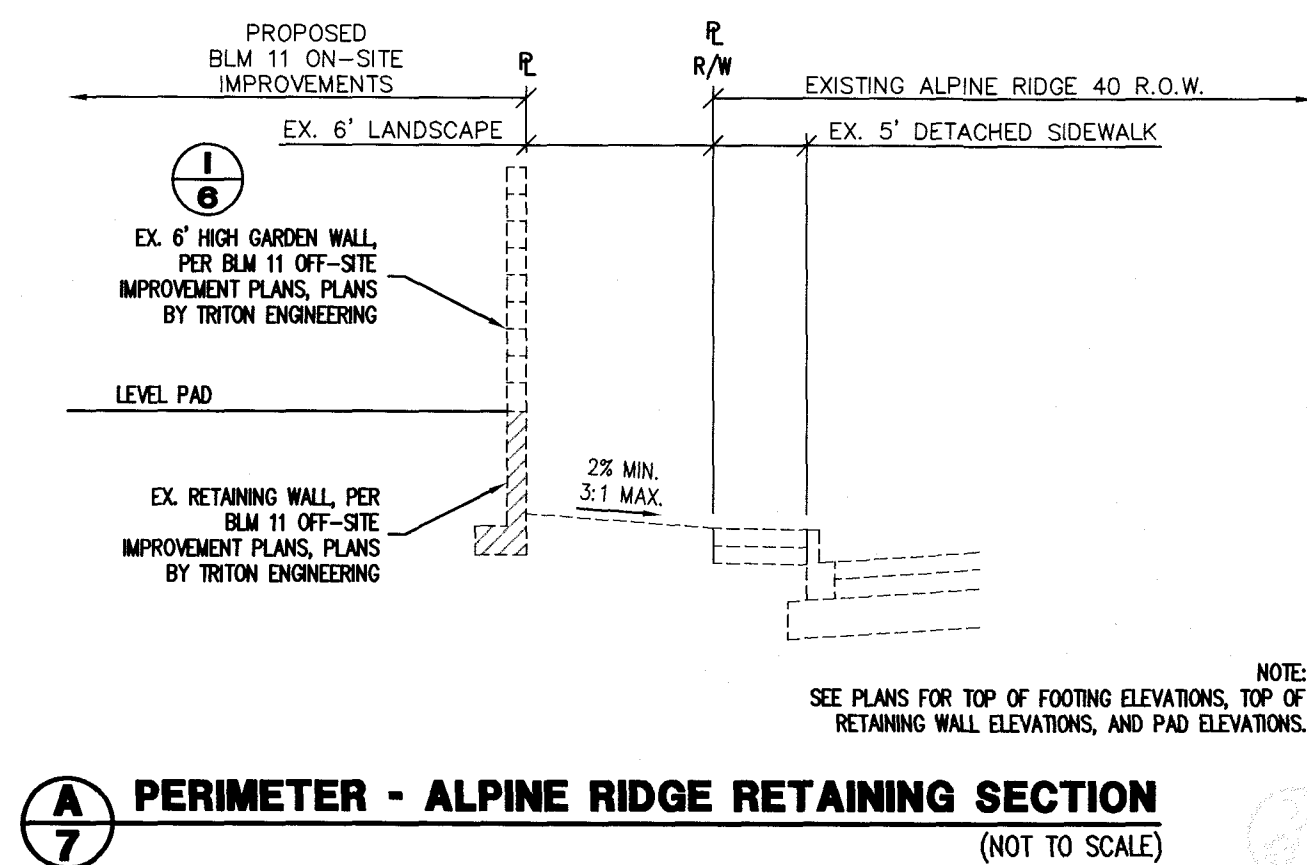


DR HORTON
BLM SITE 11
ON-SITE DRAINAGE PLANS
GRADING PLAN III

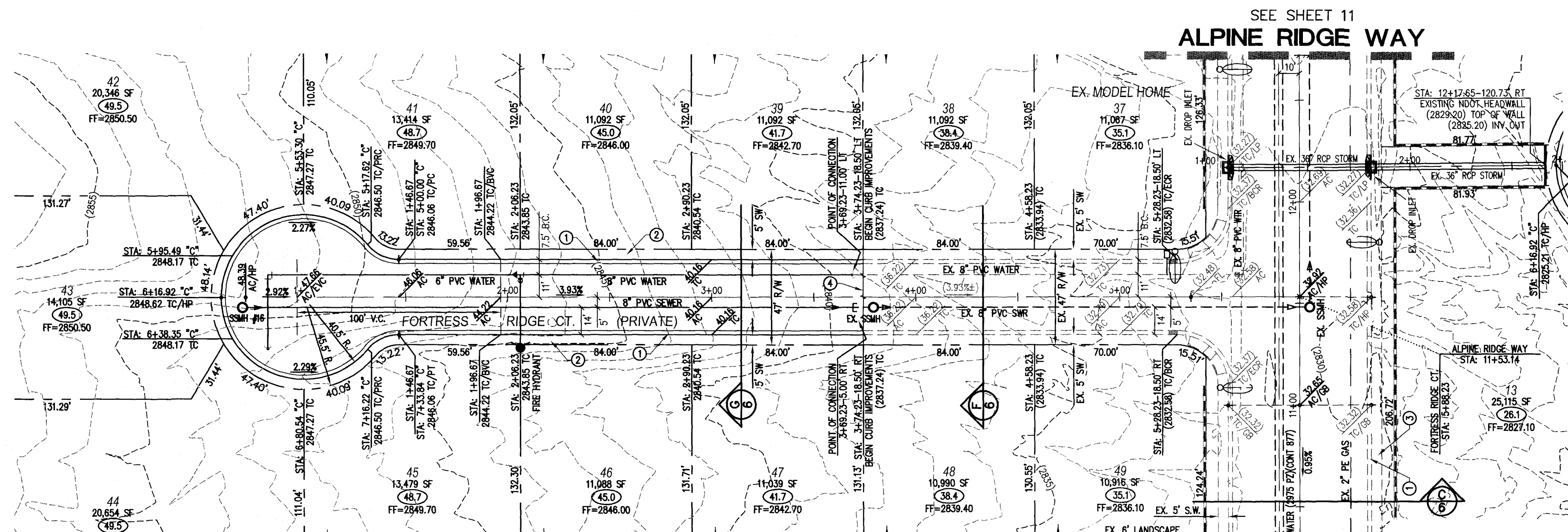
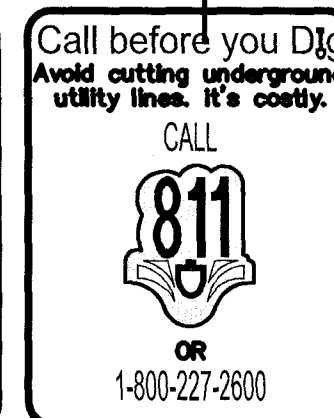


SHEET **5** OF 17
C.L.V. DWG.#





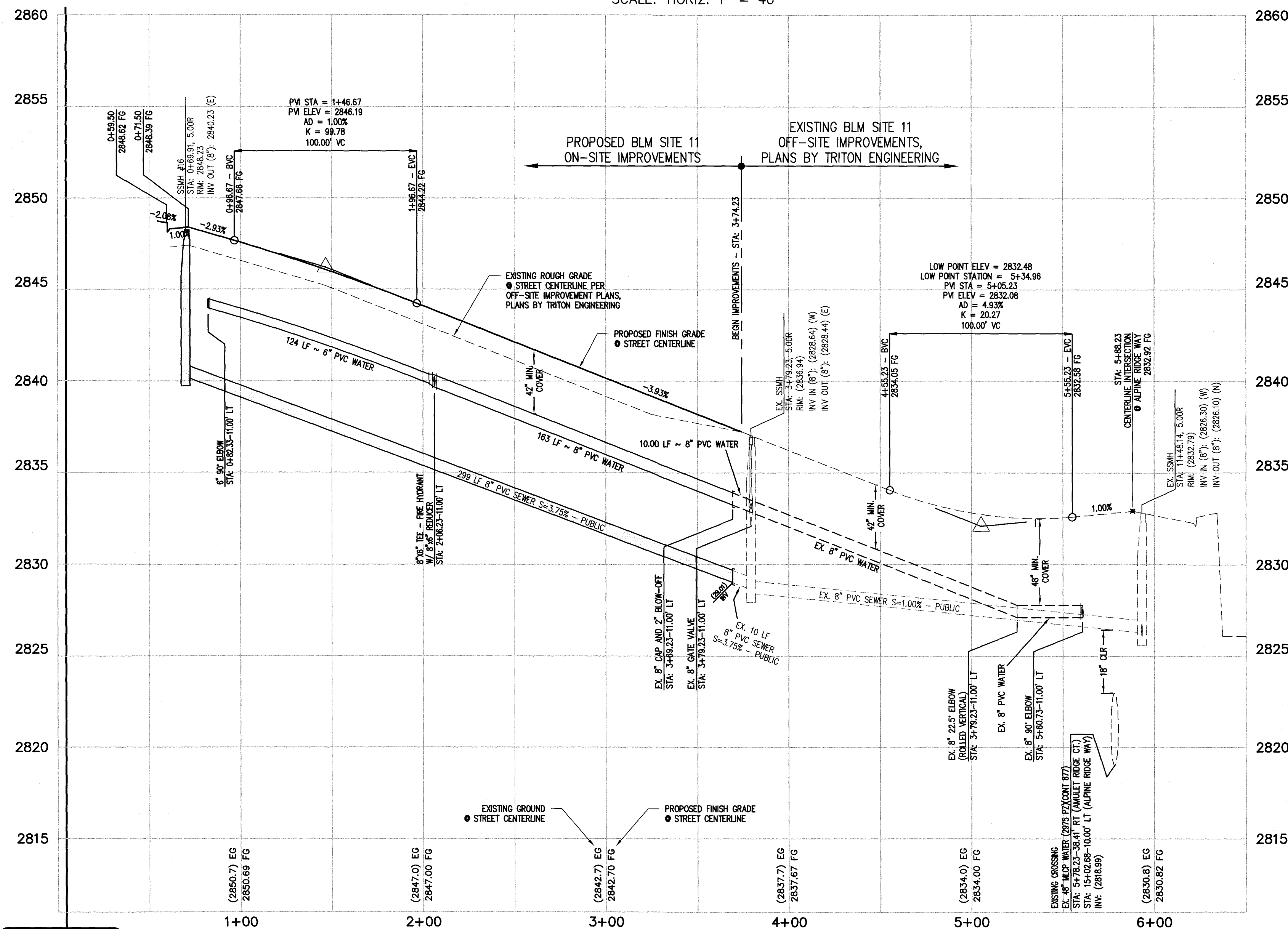
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FORTRESS RIDGE COURT (PUBLIC)

PLAN

SCALE: HORIZ. 1" = 40'



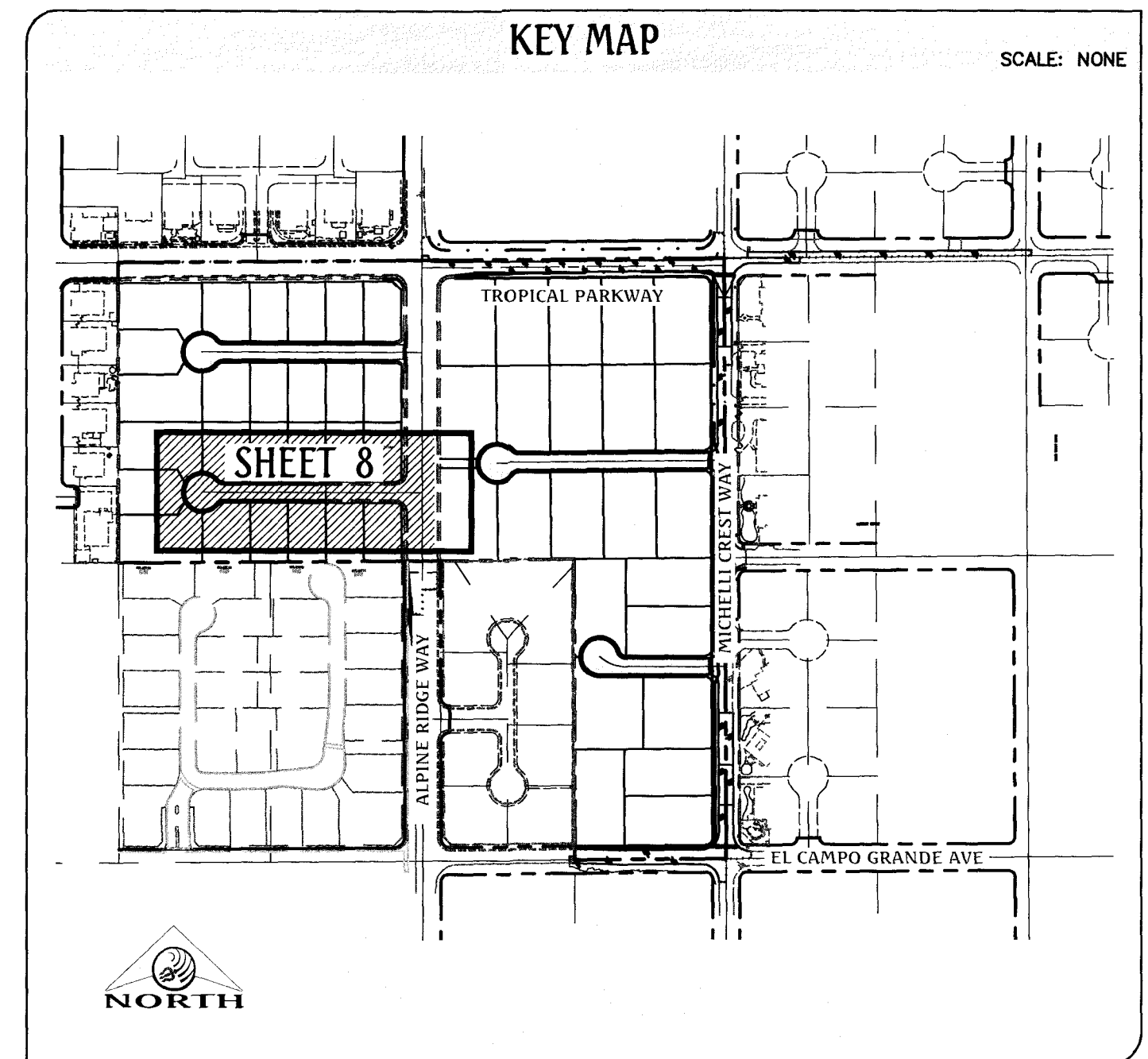
FORTRESS RIDGE COURT (PUBLIC)

PROFILE

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

SEE SHEET 11

ALPINE RIDGE WAY



KEY MAP

SCALE: NONE

CONSTRUCTION NOTES

1. CONSTRUCT "R" TYPE CURB & GUTTER PER CCAUSD #217.52.
2. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234.
3. 4' LONG CURB TRANSITION FROM "R" CURB TO "L" CURB
4. SAWCUT AND MATCH EXISTING ASPHALT.

GRADING NOTES

1. ALL PROPOSED PAD ELEVATIONS AND SWALE ELEVATIONS ARE ROUGH GRADES. ALL OTHER PROPOSED ELEVATIONS ARE FINISHED 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 THESE 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 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.
5. ALL PLACEMENT OF OVERSIZED MATERIALS AND/OR FILL MATERIALS SHALL BE PER THE SOILS REPORT REFERENCED ON THIS PLAN.
6. ADD 2800 TO ALL SPOT GRADES AND TOP OF CURB, FLOW LINE AND FINISH GRADE ELEVATIONS.
7. ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA.
8. ANY CURVED CURB LESS THAN 1% MUST BE WATER TESTED BY CONTRACTOR AS REQUIRED BY CITY INSPECTOR.

GRADING LEGEND

- 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
- EX. BLOCK WALL
- PROPOSED RETAINING WALL
- TOP OF FOOTING
- APPROX. WALL LENGTH
- TOP OF RETAINING WALL
- PROPOSED SCARP

FLOOD ZONE NOTE

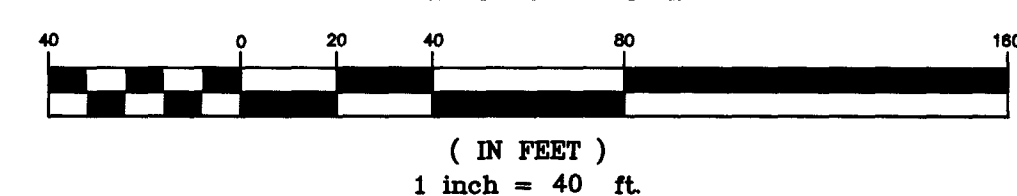
THE PROJECT SITE IS LOCATED ON FEMA FLOOD INSURANCE RATE MAP #32003C1750E. THE SITE IS LOCATED WITHIN DESIGNATED FLOOD HAZARD ZONE X BEING AN AREA DETERMINED TO BE OUTSIDE THE 100 YEAR FLOOD PLAIN.

BASIS OF BEARING

NORTH 89°27'31" EAST, BEING THE BEARING OF THE NORTH LINE OF THE NORTHWEST QUARTER (NW1/4) OF THE SOUTHEAST QUARTER (SE1/4) OF SECTION 25, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., AS SHOWN IN FILE 196, PAGE 87 OF SURVEYS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

BENCHMARK # 1099255SW6
RIVET AND SQUARE ALUMINUM PLATE IN NORTHEAST CORNER OF A CONCRETE BASE FOR LARGE POWER POLE (#40-8) AT THE WEST END OF ANN ROAD
ELEVATION = 880.365 METERS (NAV88)
ELEVATION = 2,888.33 U.S. FEET (NAV88)



DATE: 08/31/2016

PM: J. PEARCE

DRAWN BY:

CHECKED BY:

ADA CHECKED:

JOB NO.: 007104

SCALE: 1" = 40'

NO. DESCRIPTION

DATE

APP'D

DATE

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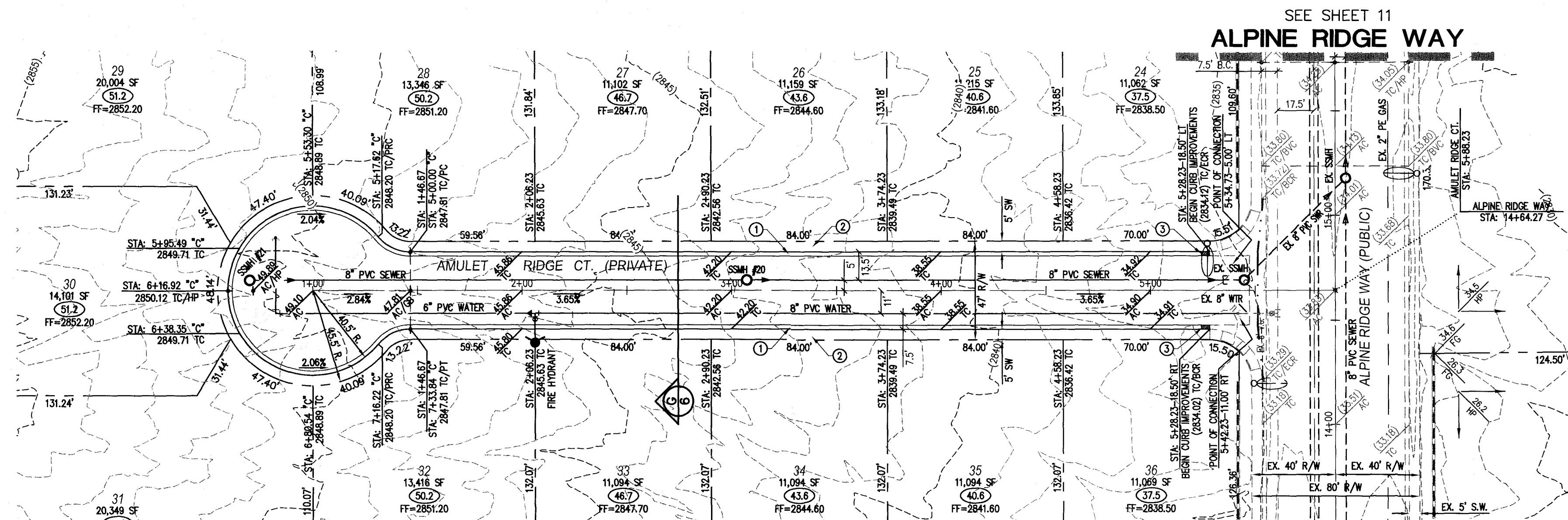
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DATE

APP'D

DATE

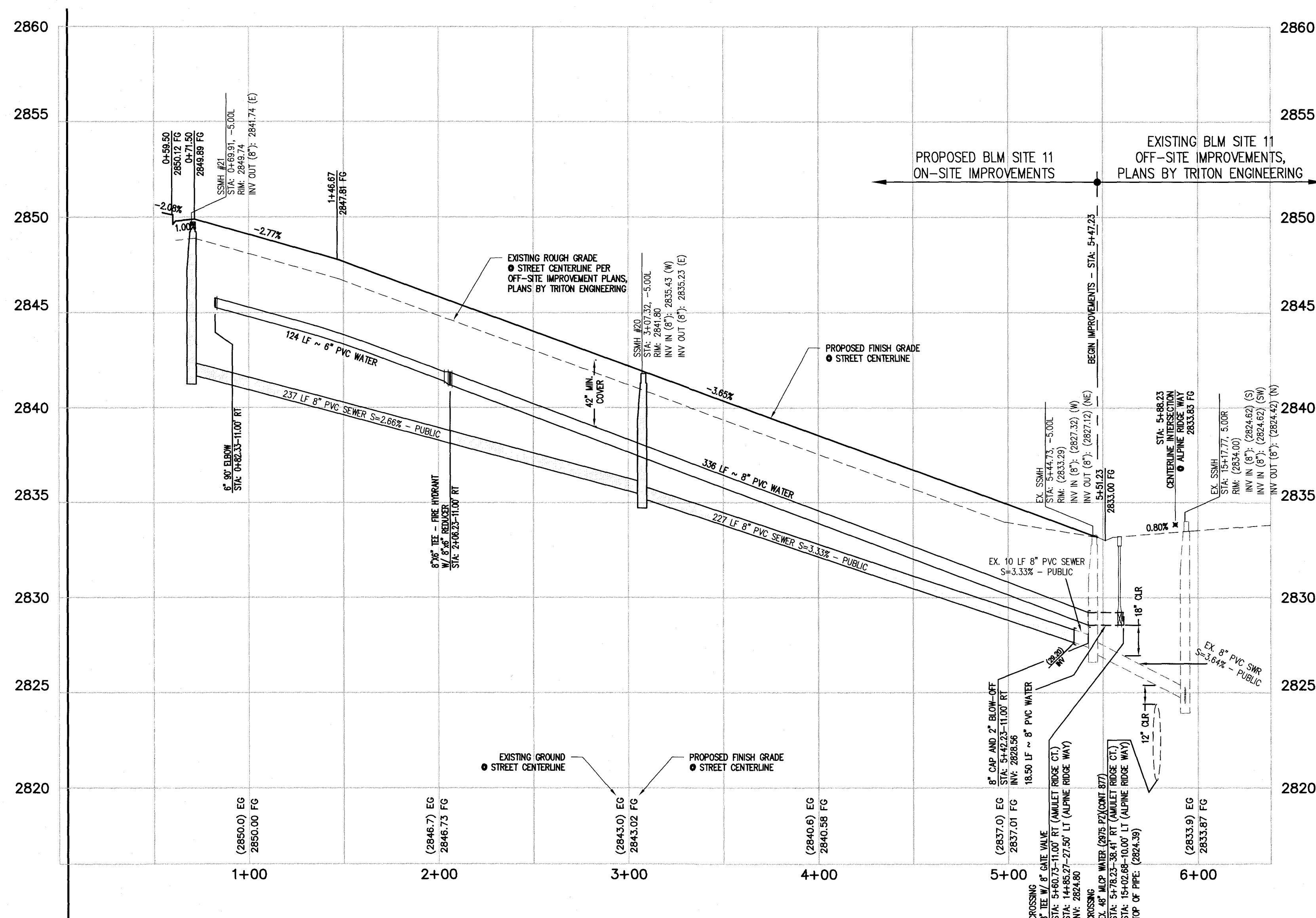
APP'D



AMULET RIDGE COURT (PUBLIC)

PLAN

SCALE: HORIZ. 1" = 40'

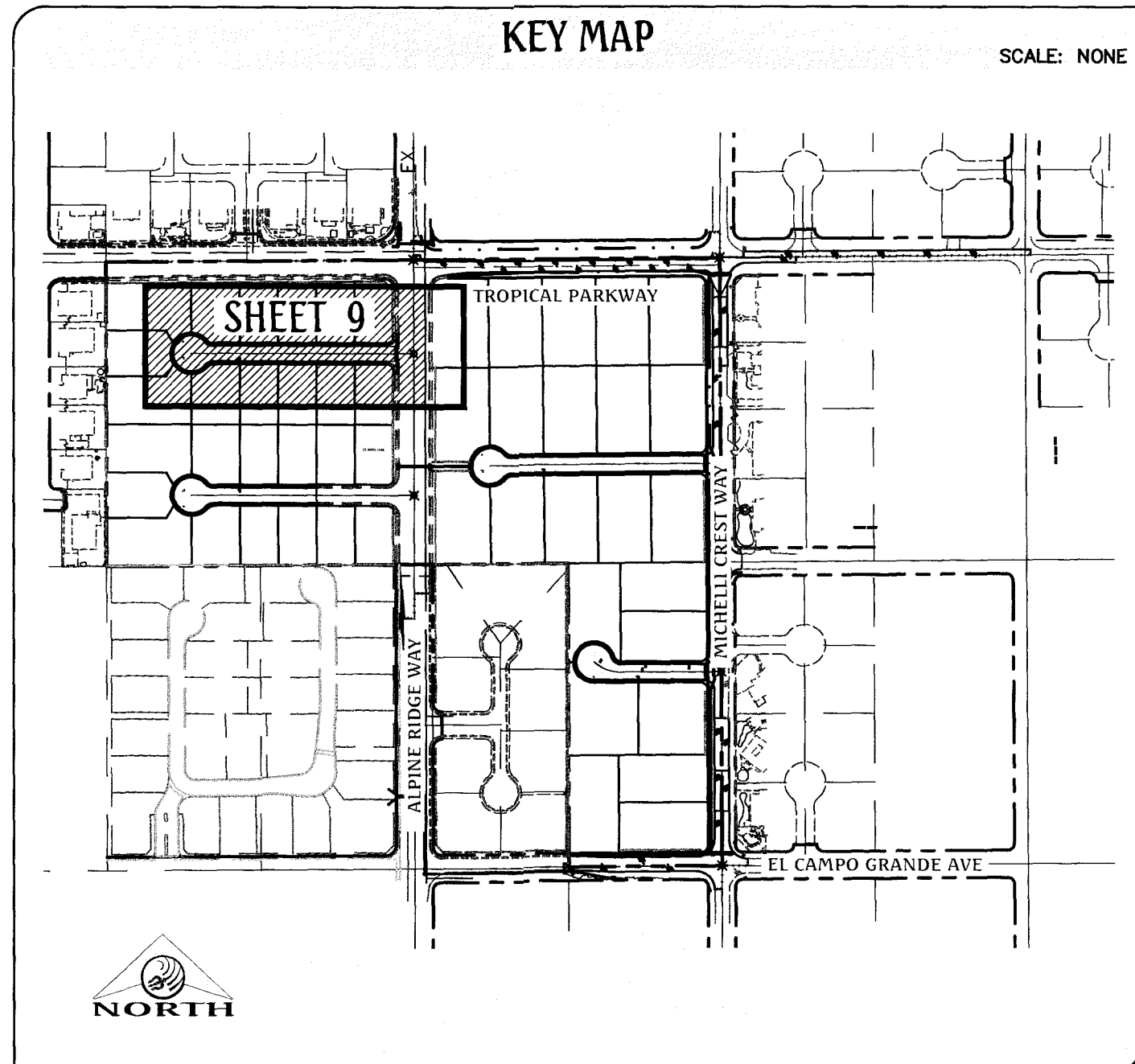


AMULET RIDGE COURT (PUBLIC)

PROFILE

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

SEE SHEET 11
ALPINE RIDGE WAY



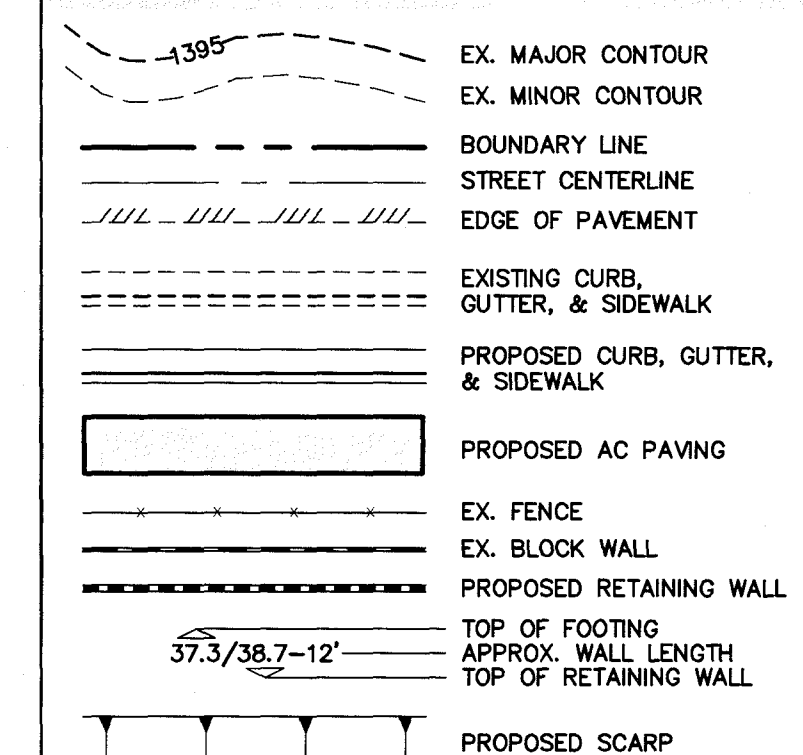
CONSTRUCTION NOTES

- CONSTRUCT "R" TYPE CURB & GUTTER PER CCAUSD #217.52.
- CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234.
- 4' LONG CURB TRANSITION FROM "R" CURB TO "L" CURB
- SAWCUT AND MATCH EXISTING ASPHALT.

GRADING NOTES

- ALL PROPOSED PAD ELEVATIONS AND SWALE ELEVATIONS ARE FINISHED 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.
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- ALL PRIVATE STREETS ARE P.U.E. PUBLIC SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA.
- ANY CURVED CURB LESS THAN 1% MUST BE WATER TESTED BY CONTRACTOR AS REQUIRED BY CITY INSPECTOR.

GRADING LEGEND



FLOOD ZONE NOTE

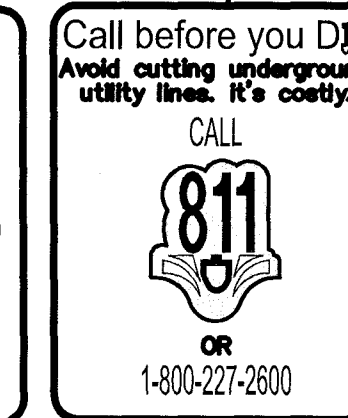
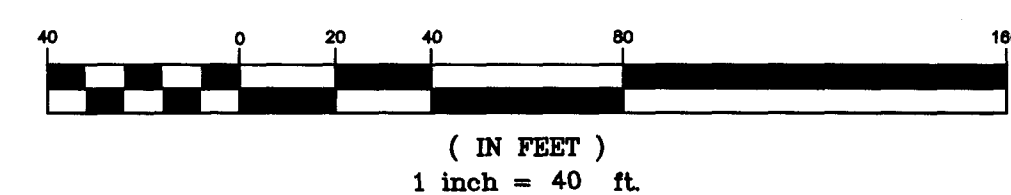
THE PROJECT SITE IS LOCATED ON FEMA FLOOD INSURANCE RATE MAP #32003C1750E. THE SITE IS LOCATED WITHIN DESIGNATED FLOOD HAZARD ZONE X BEING AN AREA DETERMINED TO BE OUTSIDE THE 100 YEAR FLOOD PLAIN.

BASIS OF BEARING

NORTH 89°27'31" EAST, BEING THE BEARING OF THE NORTH LINE OF THE NORTHWEST QUARTER (NW1/4) OF THE SOUTHEAST QUARTER (SE1/4) OF SECTION 25, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., AS SHOWN IN FILE 198, PAGE 87 OF SURVEYS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

BENCHMARK # 1C9925SSW6
RIVET AND SQUARE ALUMINUM PLATE IN NORTHEAST CORNER OF A CONCRETE BASE FOR LARGE POWER POLE (#40-8) AT THE WEST END OF ANN ROAD
ELEVATION = 880.365 METERS (NAVD'88)
ELEVATION = 2,888.33 U.S. FEET (NAVD'88)



DATE: 08/31/2016

DRAWN BY: J. PEARCE

DESIGNED BY: A.D.A.

CHECKED BY: A.D.A.

JOB NO.: 007104

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.tritongeng.com

DR HORTON

BLM SITE 11

ON-SITE DRAINAGE PLANS & PROFILE

AMULET RIDGE WAY PLAN & PROFILE

STA 0+50.00 TO STA 5+88.23

PROFESSIONAL ENGINEER-STATE OF NEVADA

JAMES M. PEARCE

Exp. 12-31-

CIVIL

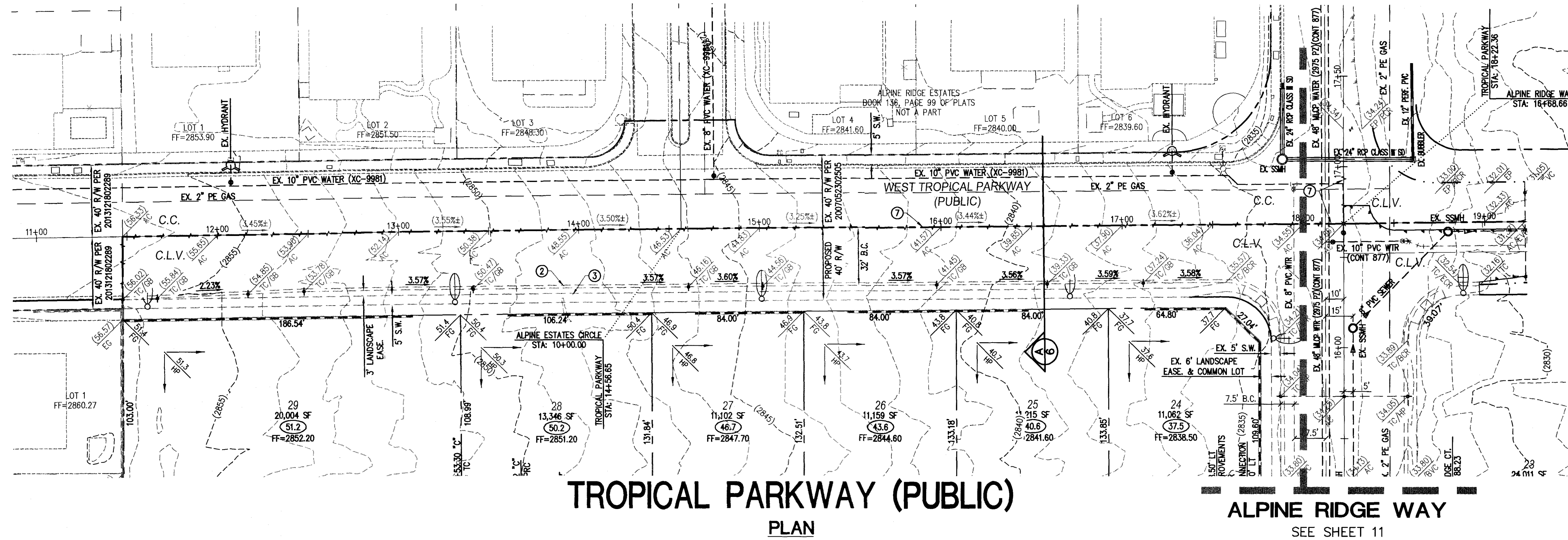
No. 9552

SHEET 9 OF 17

C.L.V. DWG.#

C:\Triton Drawings\007104 BLM Site 11 East\Drawings\UR\UR\007104_08-Profiles West.dwg dltile Wed, 31 Aug 2016 - 8:36am

BY OTHERS
EX. ALPINE ESTATES CIR



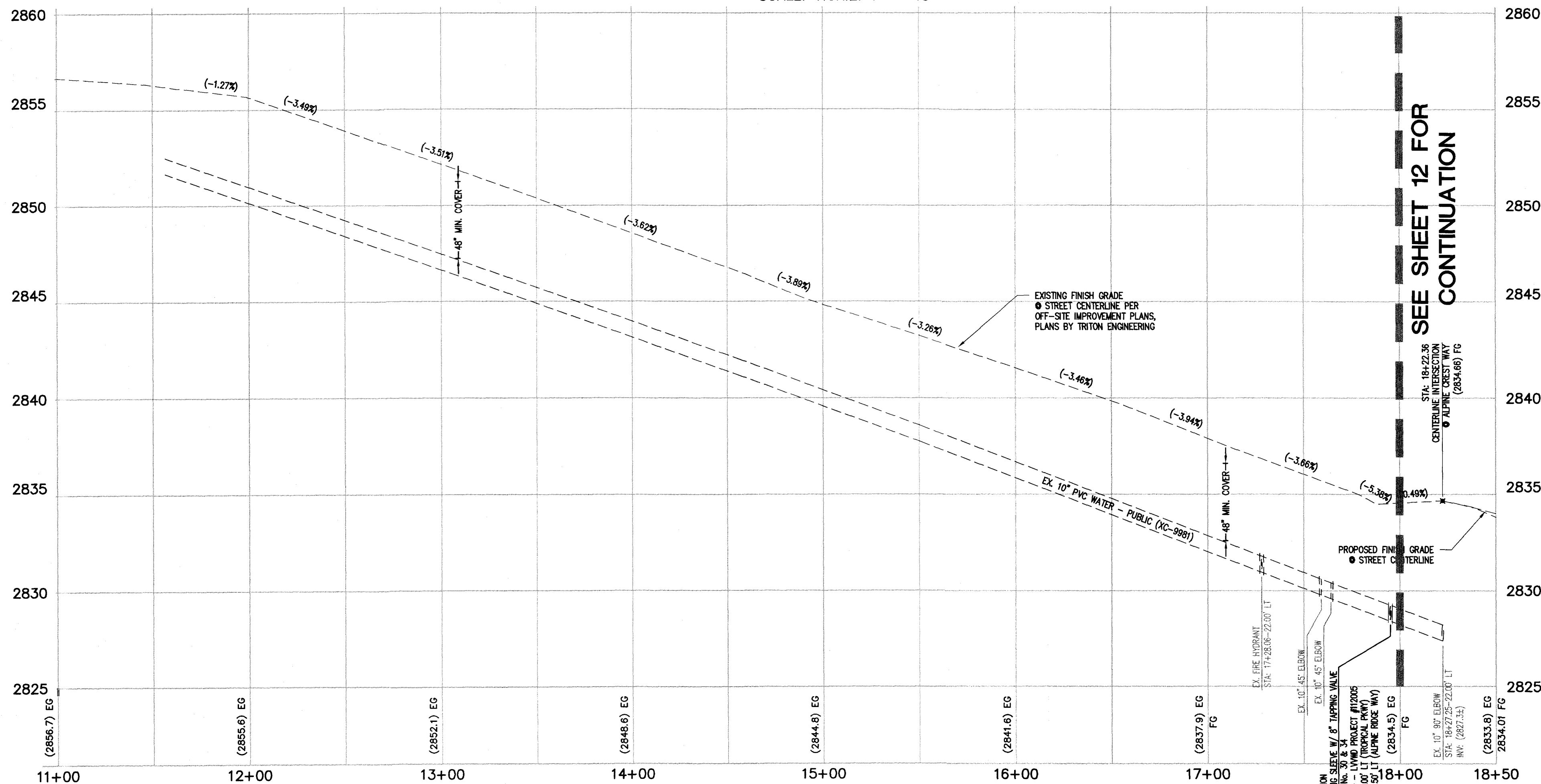
SEE SHEET 12 FOR CONTINUATION

TROPICAL PARKWAY (PUBLIC)
PLAN

SCALE: HORIZ. 1" = 40'

ALPINE RIDGE WAY

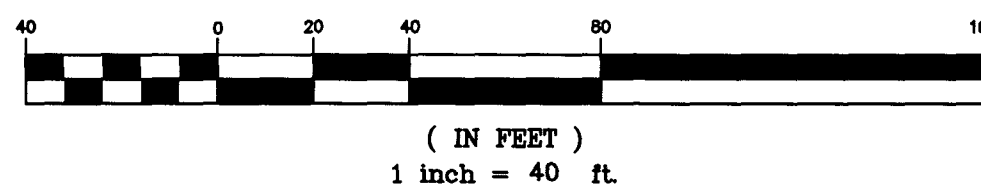
SEE SHEET 11



TROPICAL PARKWAY (PUBLIC)
PROFILE

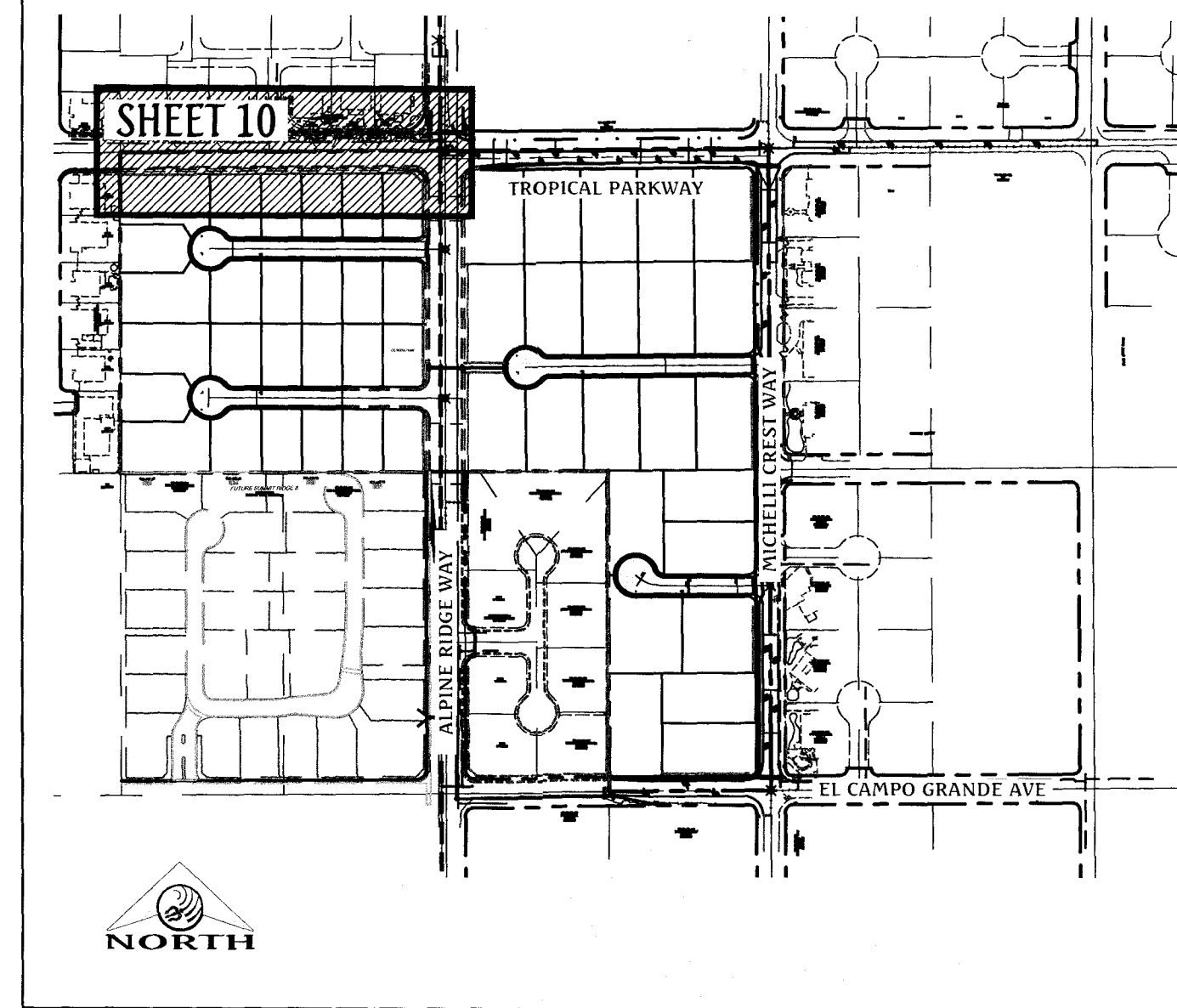
SCALE: HORIZ. 1" = 40'
VERT. 1" = 4'

GRAPHIC SCALE



KEY MAP

SCALE: NONE



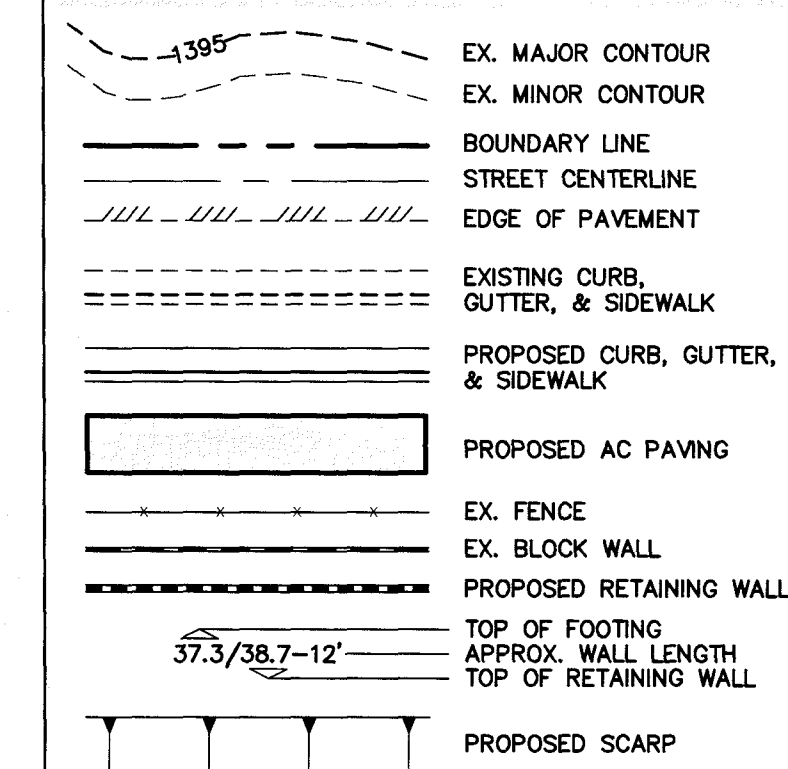
CONSTRUCTION NOTES

1. CONSTRUCT "R" TYPE CURB & GUTTER PER CCAUSD #217.S2.
2. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234.
3. 4' LONG CURB TRANSITION FROM "R" CURB TO 1" CURB
4. SAWCUT AND MATCH EXISTING ASPHALT.

GRADING NOTES

1. ALL PROPOSED PAD ELEVATIONS AND SWALE ELEVATIONS ARE ROUGH GRADES. ALL OTHER PROPOSED ELEVATIONS ARE FINISHED 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 THESE PLANS. ANY DEVIATION FROM THESE PLANS WILL ONLY BE PERMITTED UPON WRITTEN APPROVAL FROM THE ENGINEER.
4. 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.
5. ALL PLACEMENT OF OVERSIZED MATERIALS AND/OR FILL MATERIALS SHALL BE PER THE SOILS REPORT REFERENCED ON THIS PLAN.
6. ADD 2800 TO ALL SPOT GRADES AND TOP OF CURB, FLOW LINE AND FINISH GRADE ELEVATIONS.
7. ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA.
8. ANY CURVED CURB LESS THAN 1% MUST BE WATER TESTED BY CONTRACTOR AS REQUIRED BY CITY INSPECTOR.

GRADING LEGEND



FLOOD ZONE NOTE

THE PROJECT SITE IS LOCATED ON FEMA FLOOD INSURANCE RATE MAP #32003C1750E. THE SITE IS LOCATED WITHIN DESIGNATED FLOOD HAZARD ZONE X BEING AN AREA DETERMINED TO BE OUTSIDE THE 100 YEAR FLOOD PLAIN.

BASIS OF BEARING

NORTH 89°27'31" EAST, BEING THE BEARING OF THE NORTH LINE OF THE NORTHWEST QUARTER (NW1/4) OF THE SOUTHEAST QUARTER (SE1/4) OF SECTION 25, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., AS SHOWN IN FILE 196, PAGE 87 OF SURVEYS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

BENCHMARK # 1C9925SSW6
RIVET AND SQUARE ALUMINUM PLATE IN NORTHEAST CORNER OF A CONCRETE BASE FOR LARGE POWER POLE (#40-8) AT THE WEST END OF ANN ROAD
ELEVATION = 880.365 METERS (NAVD'83)
ELEVATION = 2,888.33 U.S. FEET (NAVD'83)

DATE: 08/31/2016

FW: J. PEARCE

DRAWN BY:

CHECKED BY:

ADA CHECKED:

JOB NO.: 007104

SCALE: 1" = 40'

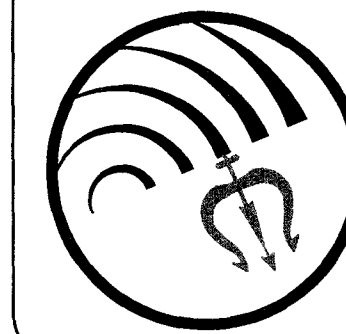
NO. DESCRIPTION

DATE

APP'D

Triton
Engineering

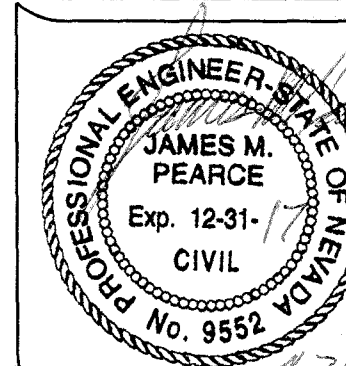
Office: (702) 254-1480
6757 W. Charleston Blvd.
Suite B
Las Vegas, Nevada 89146
Fax: (702) 254-1062
www.tritoneng.com



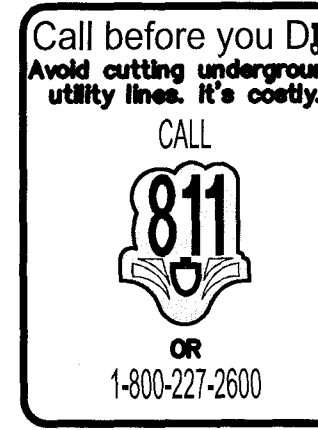
DR HORTON

BLM SITE 11

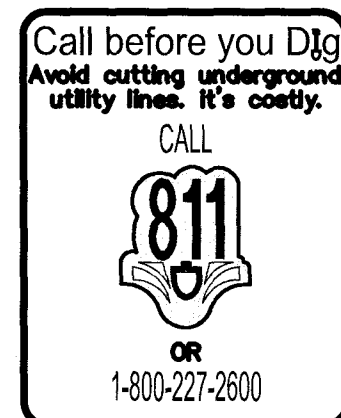
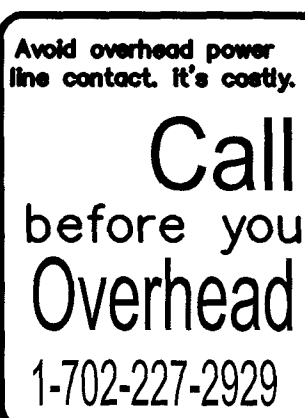
ON-SITE DRAINAGE PLANS
TROPICAL PARKWAY PLAN & PROFILE
STA 10+00.00 TO STA 18+00.00



SHEET 10 OF 17
C.L.V. DWG.#



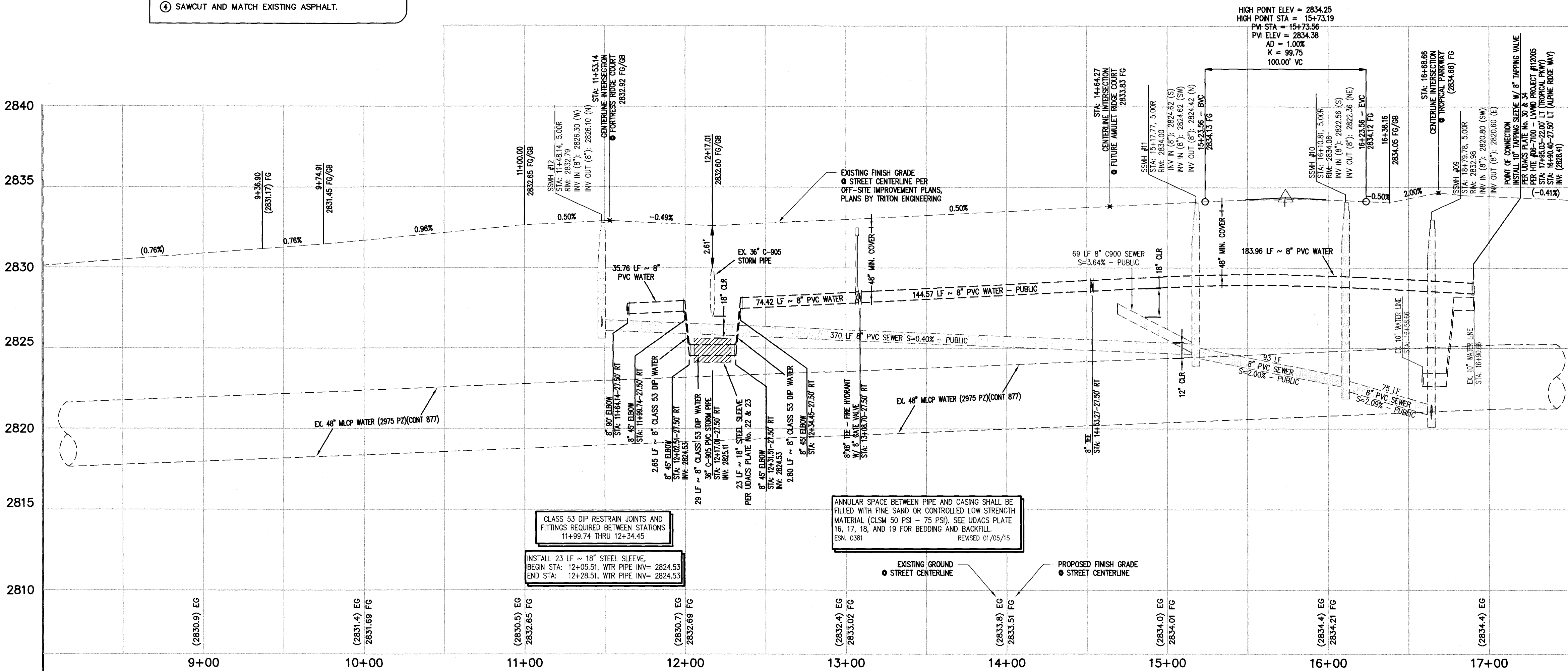
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ALPINE RIDGE WAY (PUBLIC)

PROFILE

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



CONSTRUCTION NOTES

1. CONSTRUCT "R" TYPE CURB & GUTTER PER CCAUSD #217.52.
2. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234.
3. 4' LONG CURB TRANSITION FROM "R" CURB TO "I" CURB
4. SAWCUT AND MATCH EXISTING ASPHALT.

ALPINE RIDGE WAY (PUBLIC)

PLAN

SCALE: HORIZ. 1" = 40'

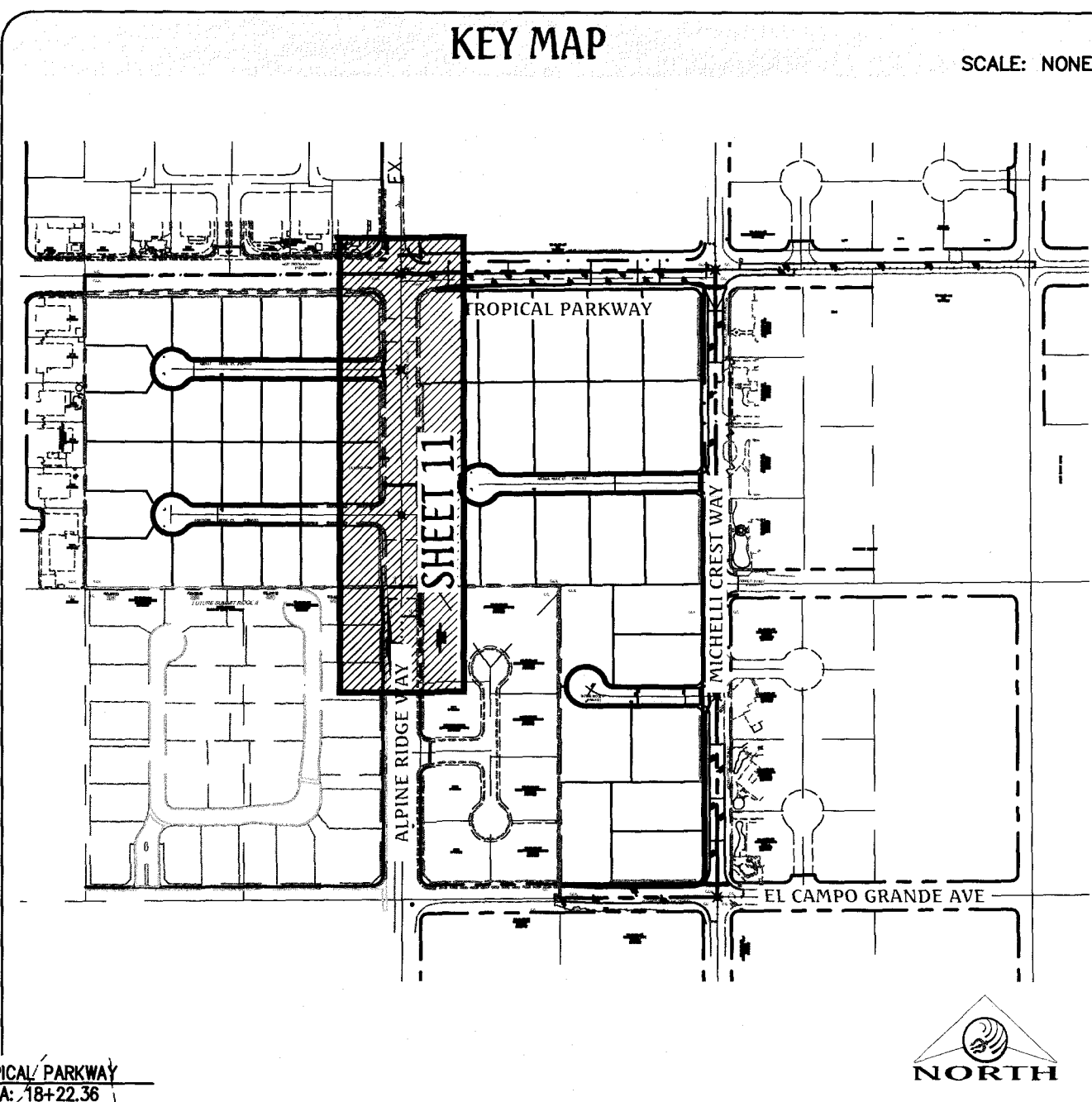
FORTRESS RIDGE CT.

AMULET RIDGE CT.

TROPICAL PARKWAY

KEY MAP

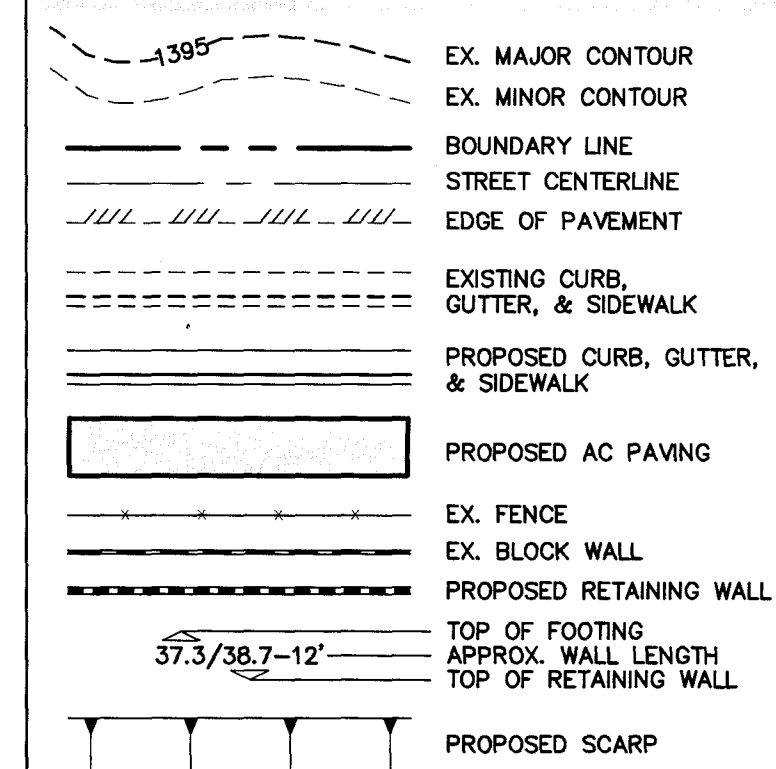
SCALE: NONE



GRADING NOTES

1. ALL PROPOSED PAD ELEVATIONS AND SWALE ELEVATIONS ARE TO BE FINISHED GRADES. ALL OTHER PROPOSED ELEVATIONS ARE FINISHED GRADES.
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GRADING LEGEND



FLOOD ZONE NOTE

THE PROJECT SITE IS LOCATED ON FEMA FLOOD INSURANCE RATE MAP #32003C1750C. THE SITE IS LOCATED WITHIN DESIGNATED FLOOD HAZARD ZONE X BEING AN AREA DETERMINED TO BE OUTSIDE THE 100 YEAR FLOOD PLAIN.

BASIS OF BEARING

NORTH 89°27'31" EAST, BEING THE BEARING OF THE NORTH LINE OF THE NORTHWEST QUARTER (NW1/4) OF THE SOUTHEAST QUARTER (SE1/4) OF SECTION 25, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., AS SHOWN IN FILE 196, PAGE 87 OF SURVEYS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

BENCHMARK # 1C99255SWS6
RIVET AND SQUARE ALUMINUM PLATE IN NORTHEAST CORNER OF A CONCRETE BASE FOR LARGE POWER POLE (#40-8) AT THE WEST END OF ANN ROAD
ELEVATION = 880.365 METERS (NAVD'88)
ELEVATION = 2,888.33 U.S. FEET (NAVD'88)

DATE	NO.	DESCRIPTION	DATE
08/31/2016			
PM: J. PEARCE			
DRAWN BY:			
DESIGNED BY:			
ADA CHECKED BY:			
CHECKED BY:			
JOB NO.: 007104			
SCALE: 1" = 40'			

Triton
Engineering

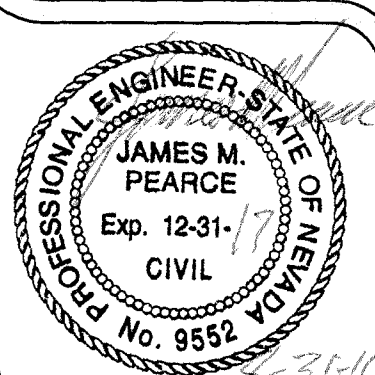
Office: (702) 254-1480
Suite B, Charleston Blvd.
Las Vegas, Nevada 89146
Fax: (702) 254-1062
www.tritoneng.com



DR. HORTON

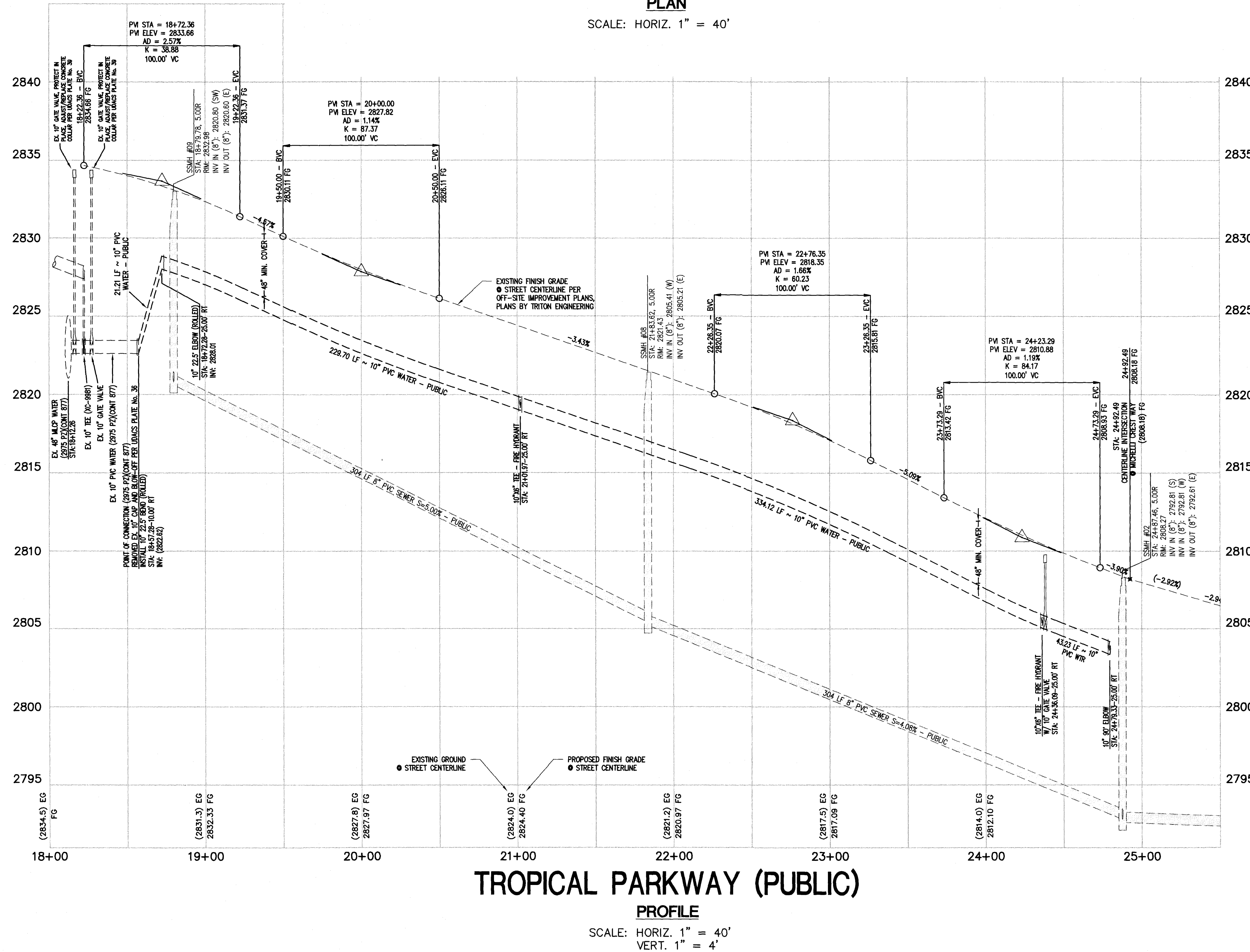
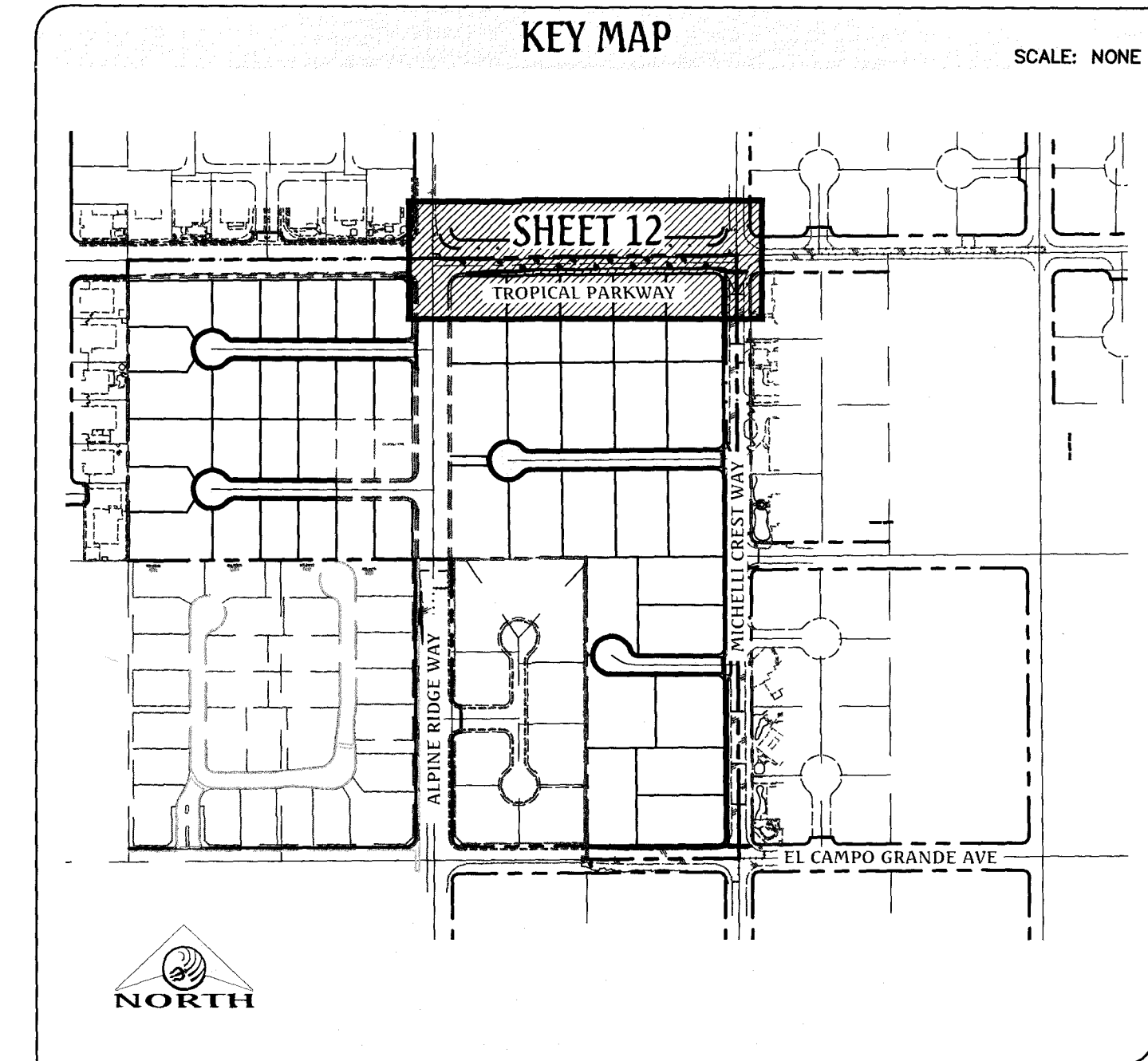
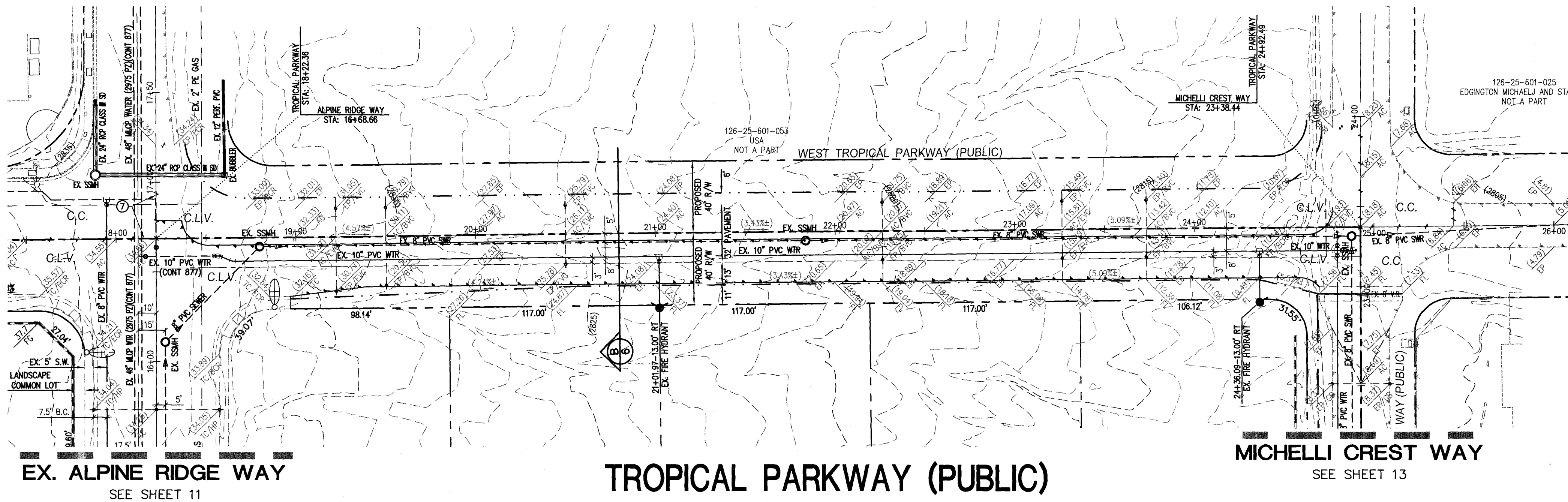
BLM SITE 11

ON-SITE DRAINAGE PLANS
ALPINE RIDGE WAY PLAN & PROFILE
STA 8+00.00 TO STA 17+00.00



SHEET 11 OF 17
C.L.V. DWG.#

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CONSTRUCTION NOTES

1. CONSTRUCT "R" TYPE CURB & GUTTER PER CCAUSD #217.SZ.
2. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234.
3. 4' LONG CURB TRANSITION FROM "R" CURB TO "L" CURB.
4. SAWCUT AND MATCH EXISTING ASPHALT.

GRADING NOTES

1. ALL PROPOSED PAD ELEVATIONS AND SWALE ELEVATIONS ARE ROUGH GRADES. ALL OTHER PROPOSED ELEVATIONS ARE FINISHED GRADES.
2. THE GRADING PLANS SHALL BE AT THE PROJECT SITE THROUGHOUT THE COURSE OF CONSTRUCTION.
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8. ANY CURVED CURB LESS THAN 1% MUST BE WATER TESTED BY CONTRACTOR AS REQUIRED BY CITY INSPECTOR.

GRADING LEGEND

- 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
- EX. BLOCK WALL
- PROPOSED RETAINING WALL
- TOP OF FOOTING
- APPROX. WALL LENGTH
- PROPOSED SCARP

FLOOD ZONE NOTE

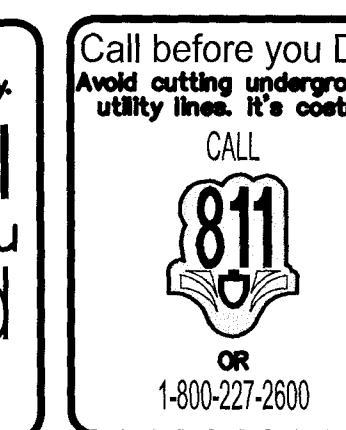
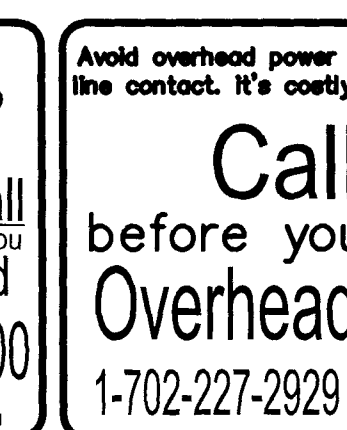
THE PROJECT SITE IS LOCATED ON FEMA FLOOD INSURANCE RATE MAP #32003C1750E. THE SITE IS LOCATED WITHIN DESIGNATED FLOOD HAZARD ZONE X BEING AN AREA DETERMINED TO BE OUTSIDE THE 100 YEAR FLOOD PLAIN.

BASIS OF BEARING

NORTH 89°27'31" EAST, BEING THE BEARING OF THE NORTH LINE OF THE NORTHWEST QUARTER (NW1/4) OF THE SOUTHEAST QUARTER (SE1/4) OF SECTION 25, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., AS SHOWN IN FILE 196, PAGE 87 OF SURVEYS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

BENCHMARK # 1099255SW6
RIVET AND SQUARE ALUMINUM PLATE IN NORTHEAST CORNER OF A CONCRETE BASE FOR LARGE POWER POLE (#40-8) AT THE WEST END OF ANN ROAD
ELEVATION = 880.365 METERS (NAVD'88)
ELEVATION = 2,888.33 U.S. FEET (NAVD'88)

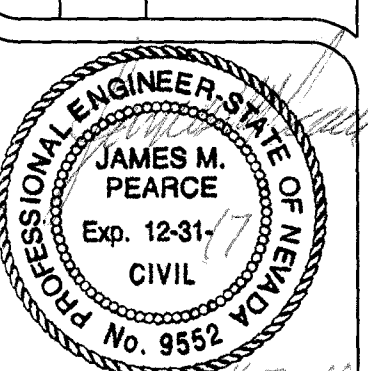


DATE: 08/31/2016	NO. DESCRIPTION	DATE
PM: J. PEARCE		
DRAWN BY:		
DESIGNED BY:		
CHECKED BY:		
ADA CHECKED:		
JOB NO.: 007104		
SCALE: 1" = 40'		

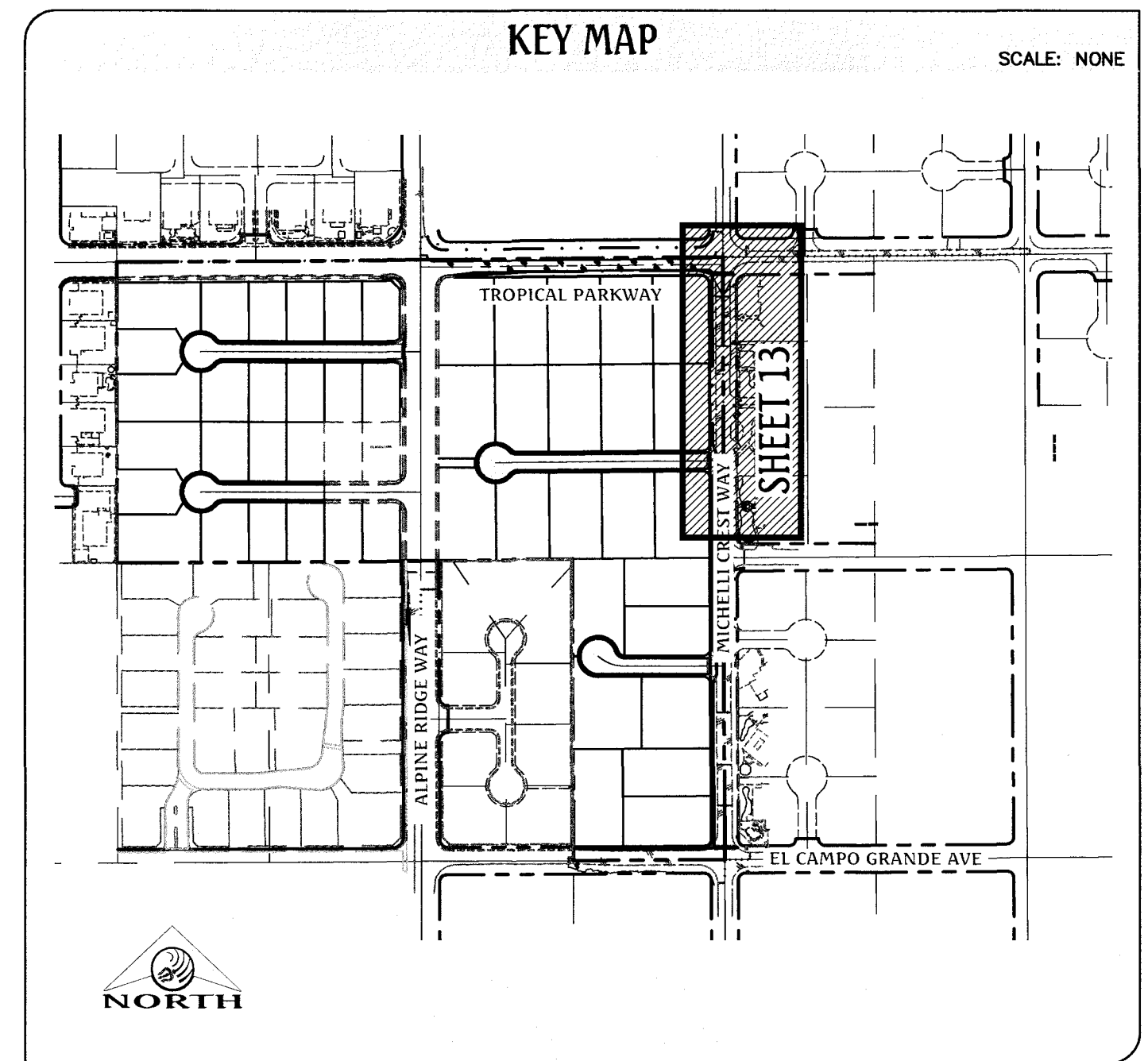
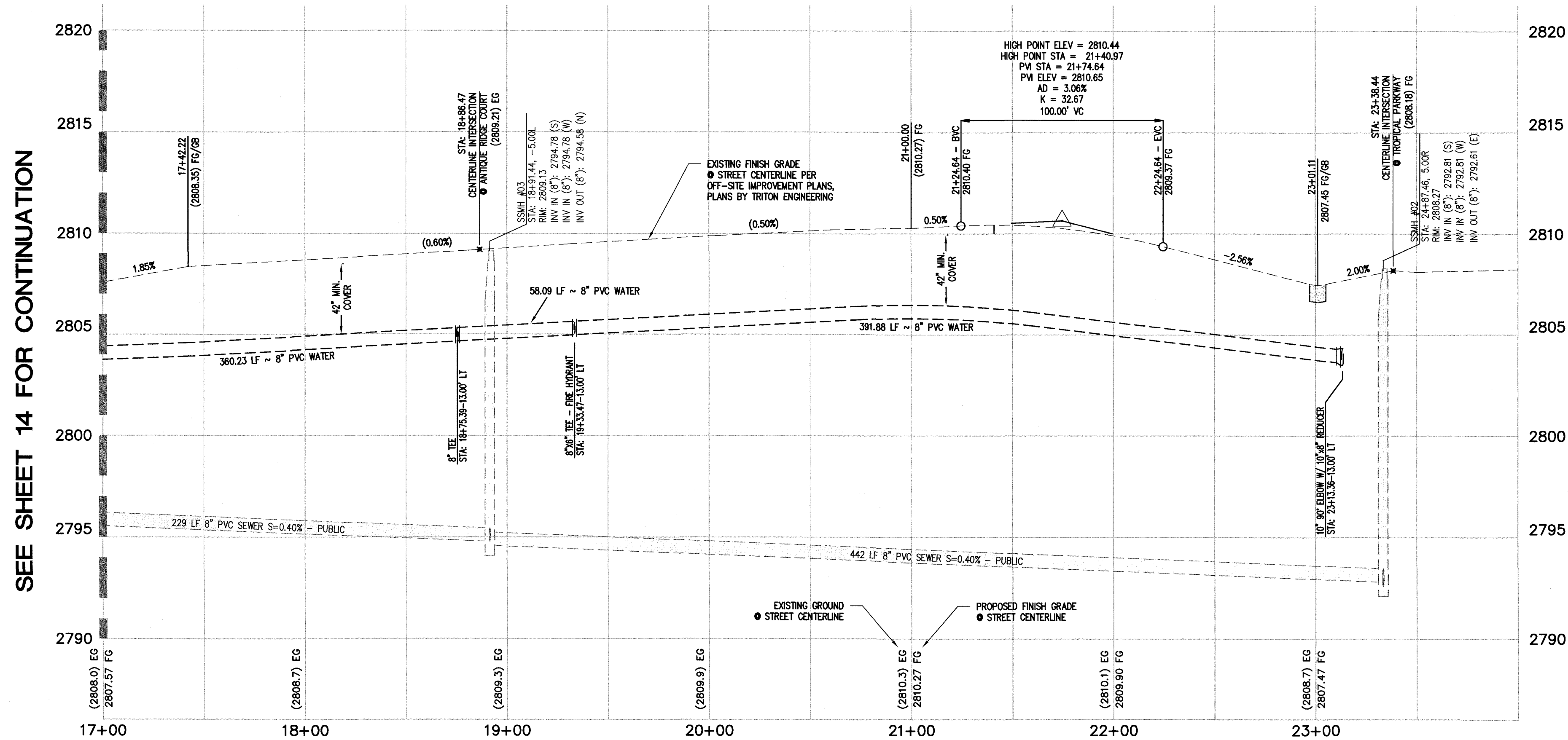
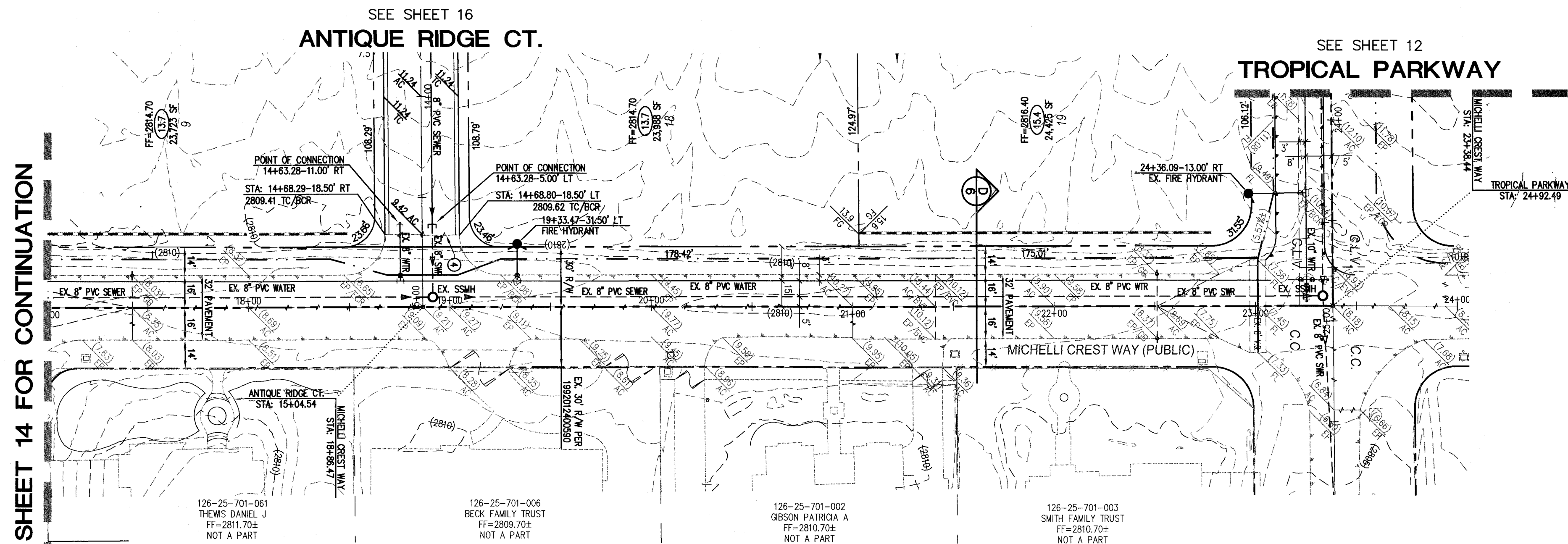
Triton Engineering
6757 W. Charleston Blvd.
Suite B
Las Vegas, Nevada 89146
Office: (702) 254-1480
Fax: (702) 254-3062
www.tritonenr.com



DR HORTON
BLM SITE 11
ON-SITE DRAINAGE PLANS
TROPICAL PARKWAY PLAN & PROFILE
STA 18+00.00 TO STA 25+50.00



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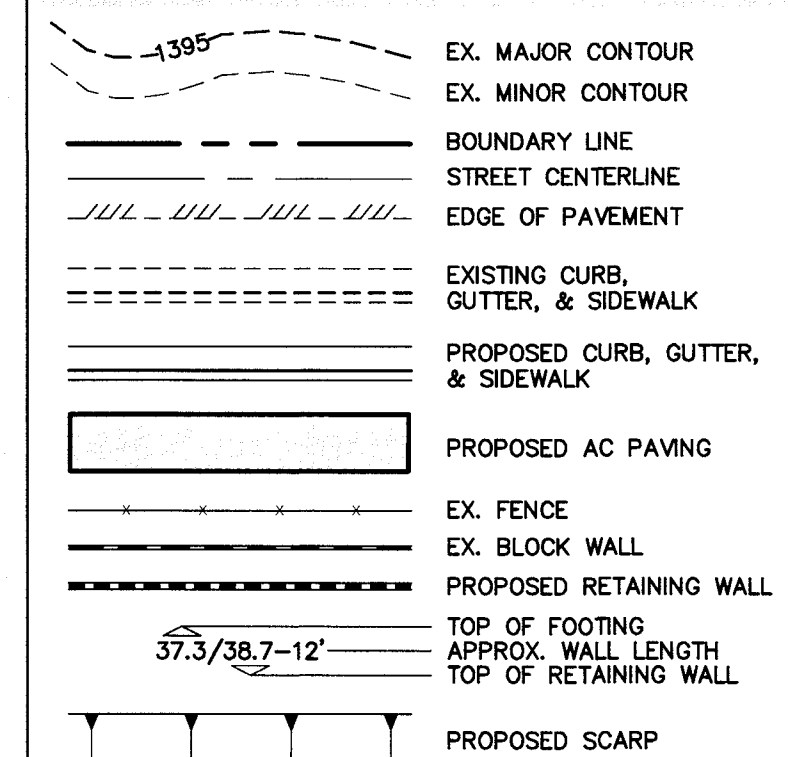
CONSTRUCTION NOTES

1. CONSTRUCT "R" TYPE CURB & GUTTER PER CCAUSD #217.52.
2. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234.
3. 4' LONG CURB TRANSITION FROM "R" CURB TO "L" CURB
4. SAWCUT AND MATCH EXISTING ASPHALT.

GRADING NOTES

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2. THE GRADING PLANS SHALL BE AT THE PROJECT SITE THROUGHOUT THE COURSE OF CONSTRUCTION.
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8. ANY CURVED CURB LESS THAN 1% MUST BE WATER TESTED BY CONTRACTOR AS REQUIRED BY CITY INSPECTOR.

GRADING LEGEND



FLOOD ZONE NOTE

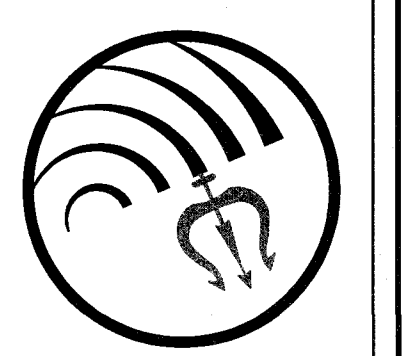
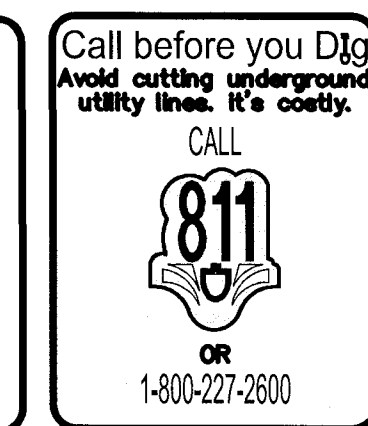
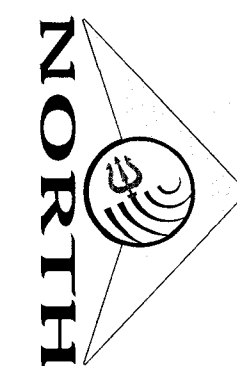
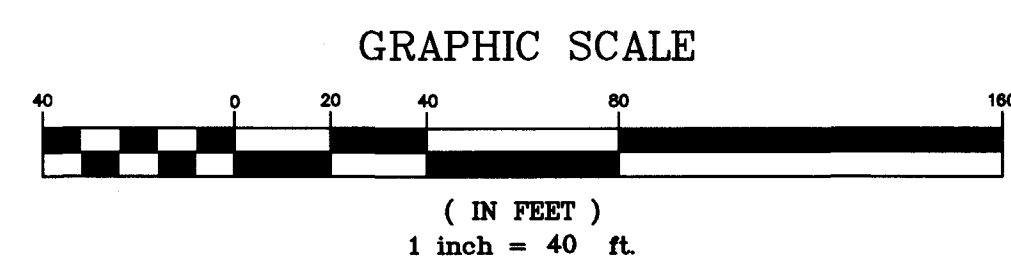
THE PROJECT SITE IS LOCATED ON FEMA FLOOD INSURANCE RATE MAP #32003C1750E. THE SITE IS LOCATED WITHIN DESIGNATED FLOOD HAZARD ZONE X BEING AN AREA DETERMINED TO BE OUTSIDE THE 100 YEAR FLOOD PLAIN.

BASIS OF BEARING

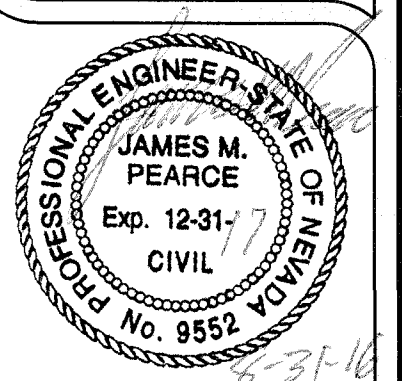
NORTH 89°27'31" EAST, BEING THE BEARING OF THE NORTH LINE OF THE NORTHWEST QUARTER (NW1/4) OF THE SOUTHEAST QUARTER (SE1/4) OF SECTION 25, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., AS SHOWN IN FILE 196, PAGE 87 OF SURVEYS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

BENCHMARK # 1C99255SW6
RIVET AND SQUARE ALUMINUM PLATE IN NORTHEAST CORNER OF A CONCRETE BASE FOR LARGE POWER POLE (#40-8) AT THE WEST END OF ANN ROAD
ELEVATION = 880.365 METERS (NAVD'88)
ELEVATION = 2,888.33 U.S. FEET (NAVD'88)



DR HORTON
BLM SITE 11
ON-SITE DRAINAGE PLANS
MICHELLI CREST PLAN & PROFILE
STA 17+00.00 TO STA 24+00.00

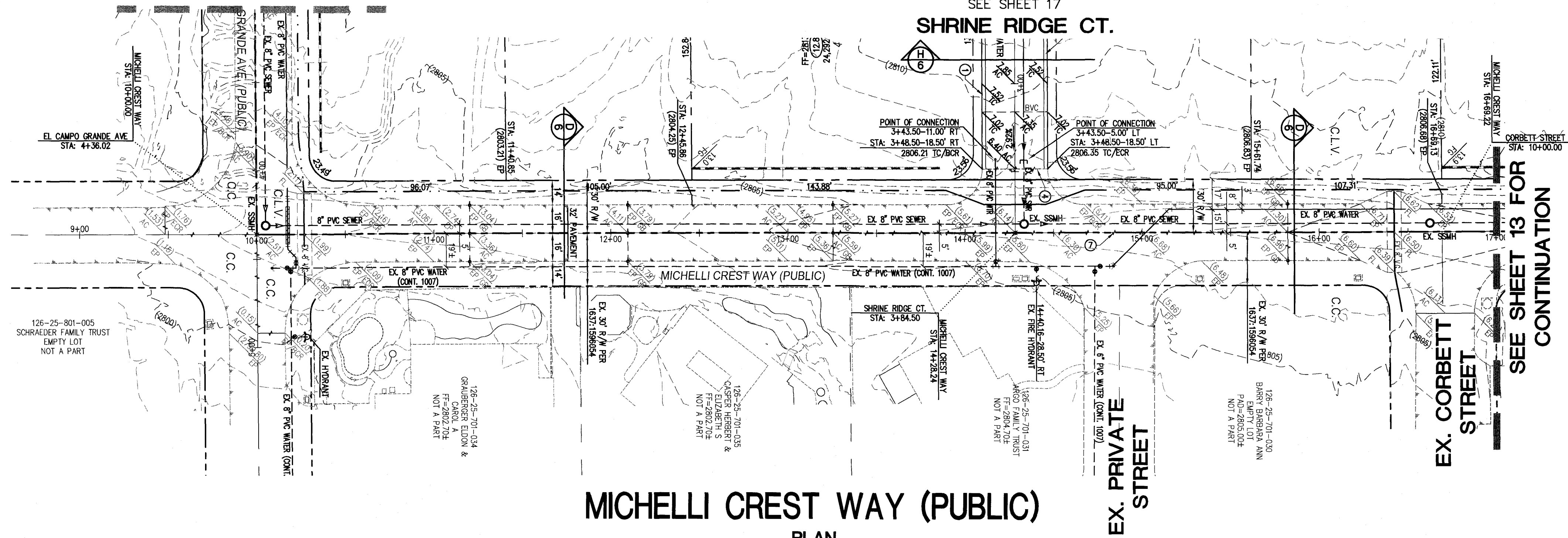


SHEET **13** OF 17
C.L.V. DWG.#

C:\Triton Drawings\007104_BLM_Site 11_East\Drawings\DRAINAGE\On-site\007104_on-drain-12-Profiles East.dwg dltt Wed, 31 Aug 2016 - 8:35am

SEE SHEET 15
EL CAMPO GRANDE AVENUE

SEE SHEET 17
SHRINE RIDGE CT.



MICHELLI CREST WAY (PUBLIC)

PLAN

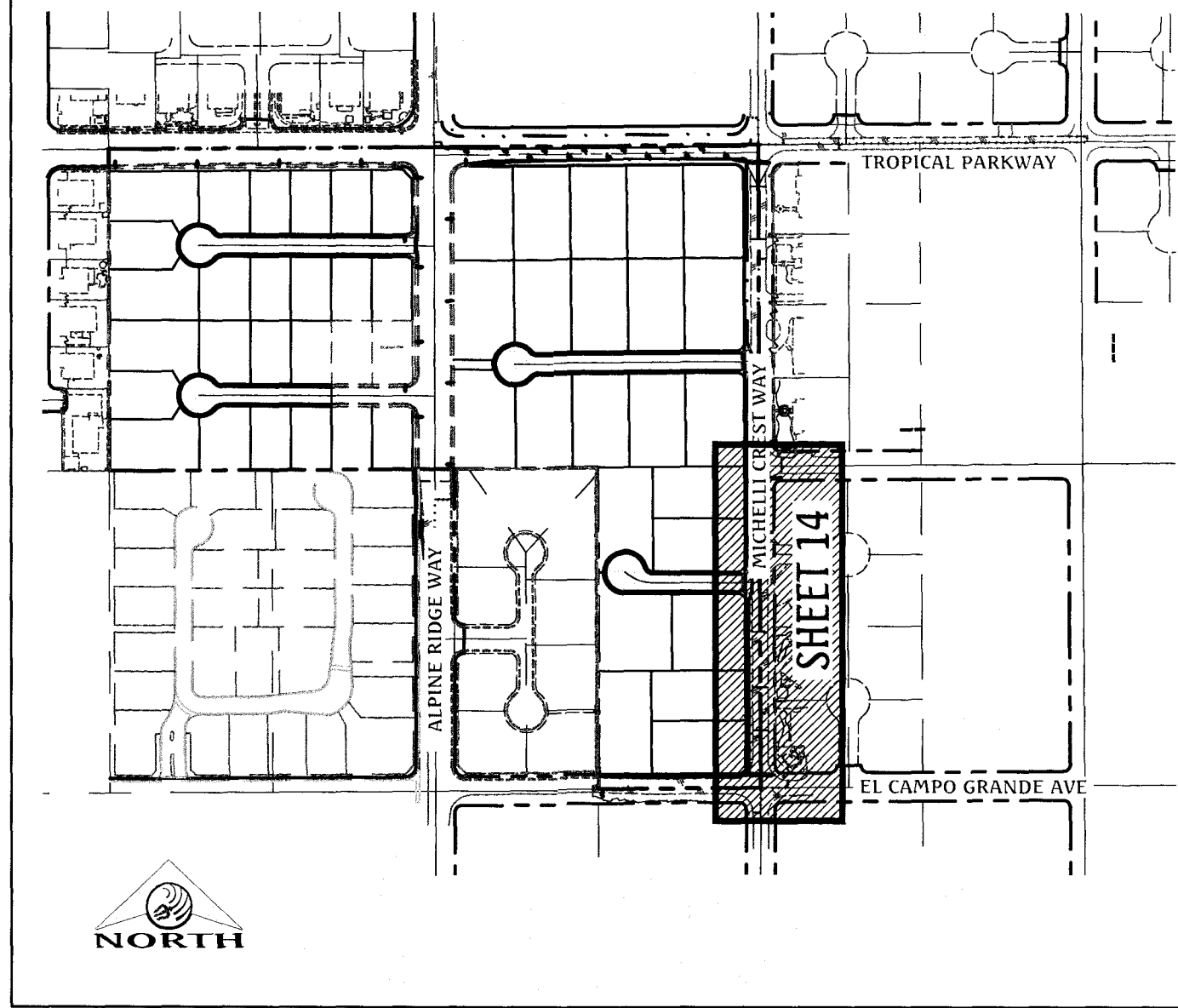
SCALE: HORIZ. 1" = 40'

EX. PRIVATE STREET

SEE SHEET 13 FOR CONTINUATION

KEY MAP

SCALE: NONE



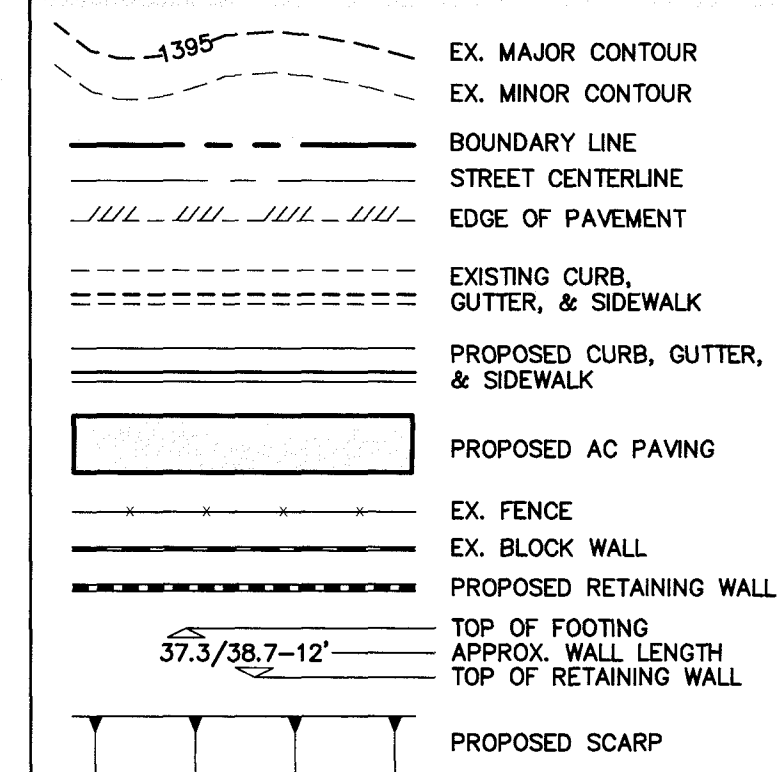
CONSTRUCTION NOTES

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GRADING LEGEND



FLOOD ZONE NOTE

THE PROJECT SITE IS LOCATED ON FEMA FLOOD INSURANCE RATE MAP #32003C1750E. THE SITE IS LOCATED WITHIN DESIGNATED FLOOD HAZARD ZONE X BEING AN AREA DETERMINED TO BE OUTSIDE THE 100 YEAR FLOOD PLAIN.

BASIS OF BEARING

NORTH 89°27'31" EAST, BEING THE BEARING OF THE NORTH LINE OF THE NORTHWEST QUARTER (NW1/4) OF THE SOUTHEAST QUARTER (SE1/4) OF SECTION 25, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., AS SHOWN IN FILE 195, PAGE 87 OF SURVEY'S ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

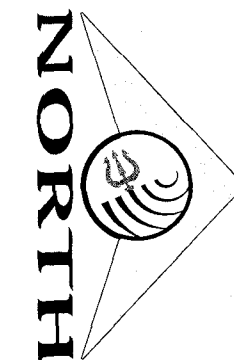
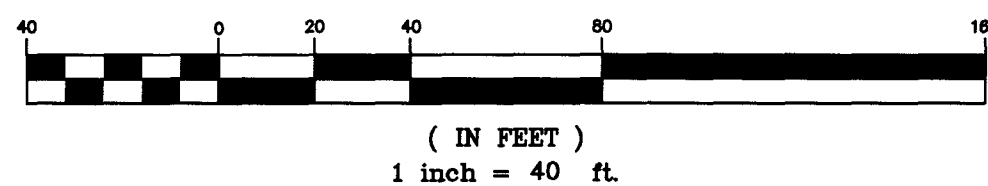
BENCHMARK # 109925SSW6
RIVET AND SQUARE ALUMINUM PLATE IN NORTHEAST CORNER OF A CONCRETE BASE FOR LARGE POWER POLE (#40-8) AT THE WEST END OF ANN ROAD
ELEVATION = 880.365 METERS (NAVD'88)
ELEVATION = 2,888.33 U.S. FEET (NAVD'88)

MICHELLI CREST WAY (PUBLIC)

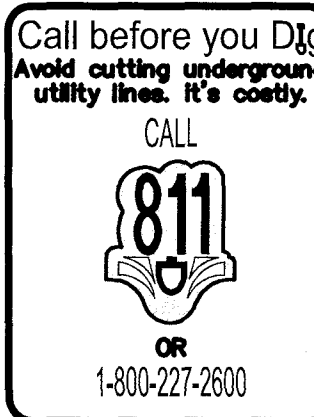
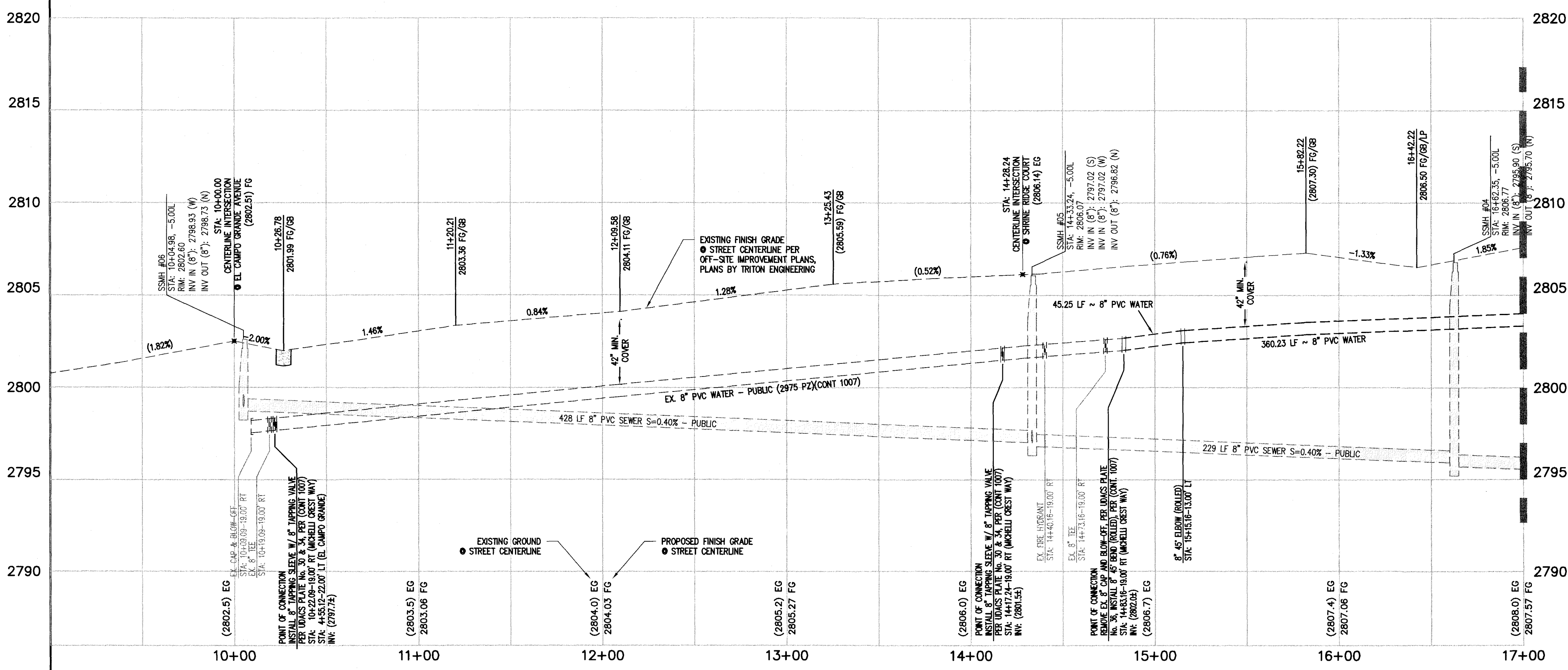
PROFILE

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

GRAPHIC SCALE



SEE SHEET 13 FOR CONTINUATION



DATE: 08/31/2016
FM: J. PEARCE
DRAWN BY:
DESIGNED BY:
CHECKED BY:
ADA CHECKED:
JOB NO.: 007104
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) 254-3662
www.tritongroup.com

DR HORTON
BLM SITE 11
ON-SITE DRAINAGE PLANS
MICHELLI CREST PLAN & PROFILE
STA 9+00.00 TO STA 17+00.00

PROFESSIONAL ENGINEER - STATE OF NEVADA
JAMES M. PEARCE
Exp. 12-31-16
CIVIL
No. 9552

SHEET 14 OF 17
C.L.V. DWG.#



SCALE: HORIZ. 1" = 40'



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



1. ALL PROPOSED PAD ELEVATIONS AND SWALE ELEVATIONS ARE ROUGH GRADES. ALL OTHER PROPOSED ELEVATIONS ARE FINISHED GRADES.
2. THE GRADING PLANS SHALL BE AT THE PROJECT SITE TO BE USED IN CONJUNCTION WITH THE CONSTRUCTION.
3. ALL GRADING SHALL BE PERFORMED IN CONFORMANCE WITH THE LINES, GRADES AND DETAILS AS SHOWN ON THESE PLANS. ANY DEVIATION FROM THESE PLANS WILL NOT BE PERMITTED UNLESS WRITTEN APPROVAL FROM THE ENGINEER.
4. ALL PADS ARE TO BE GRADED WITHIN $\pm 0.3'$ 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.
5. ALL PLACEMENT OF OVERSIZED MATERIALS AND/OR FILL MATERIAL SHALL BE PER THE SOILS REPORT REFERENCED ON THIS PLAN.
6. ADD 2800 TO ALL SPOT GRADES AND TOP OF CURB, FLOW LINE AND FINISH GRADE ELEVATIONS.
7. THE STREET, DRIVE AND ALLEY GRADING SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA.
8. ANY CURVED CURB LESS THAN 1% MUST BE WATER TESTED BY CONTRACTOR AS REQUIRED BY CITY INSPECTOR.

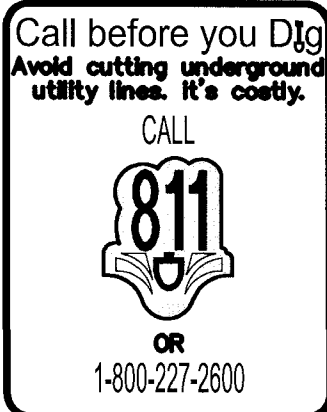
	EX. MAJOR CONTOUR
	EX. MINOR CONTOUR
	BOUNDARY LINE
	STREET CENTERLINE
	EDGE OF PAVEMENT
	EXISTING CURB, GUTTER, & SIDEWALK
	PROPOSED CURB, GUTTER, & SIDEWALK
	PROPOSED AC PAVING
	EX. FENCE
	EX. BLOCK WALL
	PROPOSED RETAINING WALL
	TOP OF FOOTING
	APPROX. WALL LENGTH
	TOP OF RETAINING WALL
	PROPOSED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

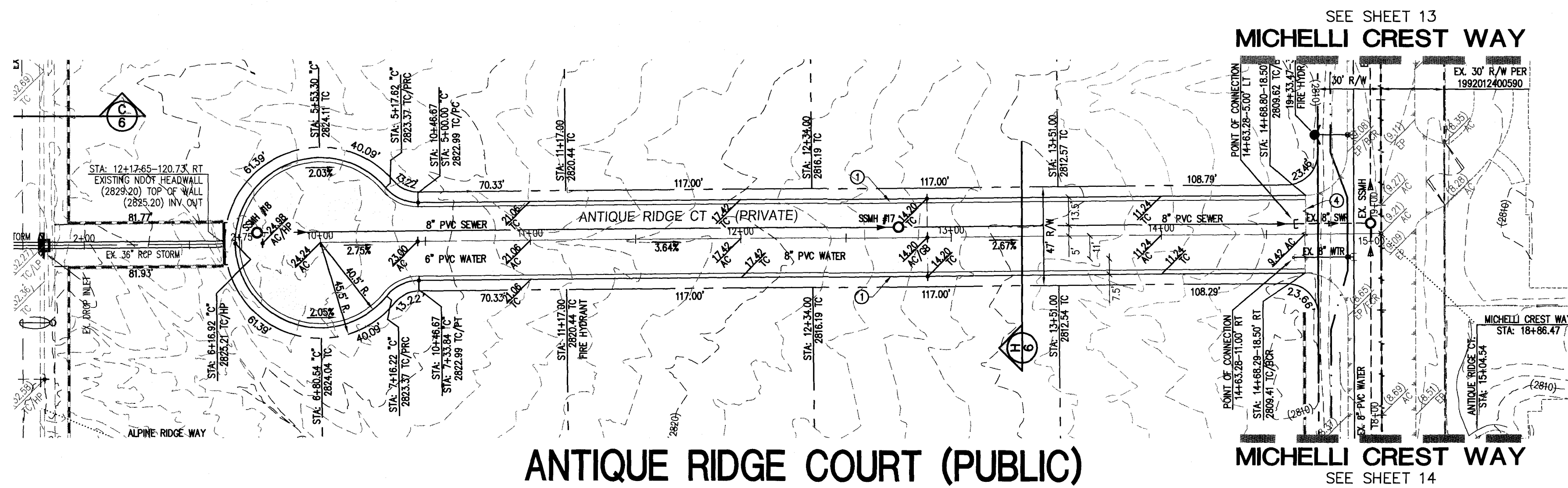
THE PROJECT SITE IS LOCATED ON FEMA FLOOD INSURANCE RATE MAP #32003C1750E. THE SITE IS LOCATED WITHIN DESIGNATED FLOOD HAZARD ZONE X BEING AN AREA DETERMINED TO BE OUTSIDE THE 100 YEAR FLOOD PLAIN.

NORTH 89°27'31" EAST, BEING THE BEARING OF THE NORTH LINE OF THE NORTHWEST QUARTER (NW1/4) OF THE SOUTHEAST QUARTER (SE1/4) OF SECTION 25, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., AS SHOWN IN FILE 196, PAGE 87 OF SURVEYS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK # 1C9925SSW6
RIVET AND SQUARE ALUMINUM PLATE IN NORTHEAST CORNER OF
A CONCRETE BASE FOR LARGE POWER POLE (#40-8) AT THE
WEST END OF ANN ROAD
ELEVATION = 880.365 METERS (NAVD'88)
ELEVATION = 2,888.33 U.S. FEET (NAVD'88)

- ① CONSTRUCT "R" TYPE CURB & GUTTER PER CCAUSD #217.S2.
- ② CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234.
- ③ 4' LONG CURB TRANSITION FROM "R" CURB TO "L" CURB
- ④ SAWCUT AND MATCH EXISTING ASPHALT.

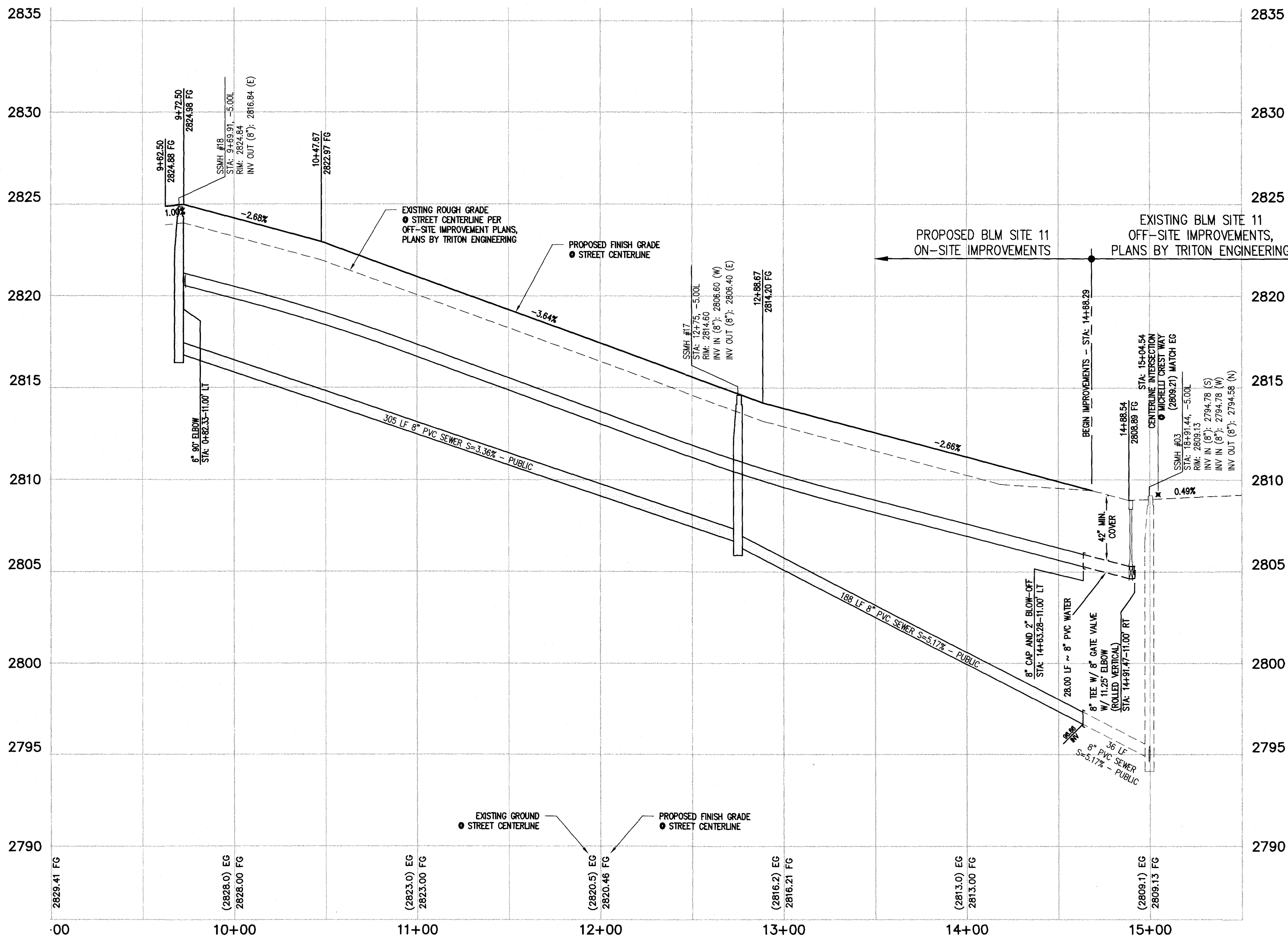




ANTIQUE RIDGE COURT (PUBLIC)

PLAN

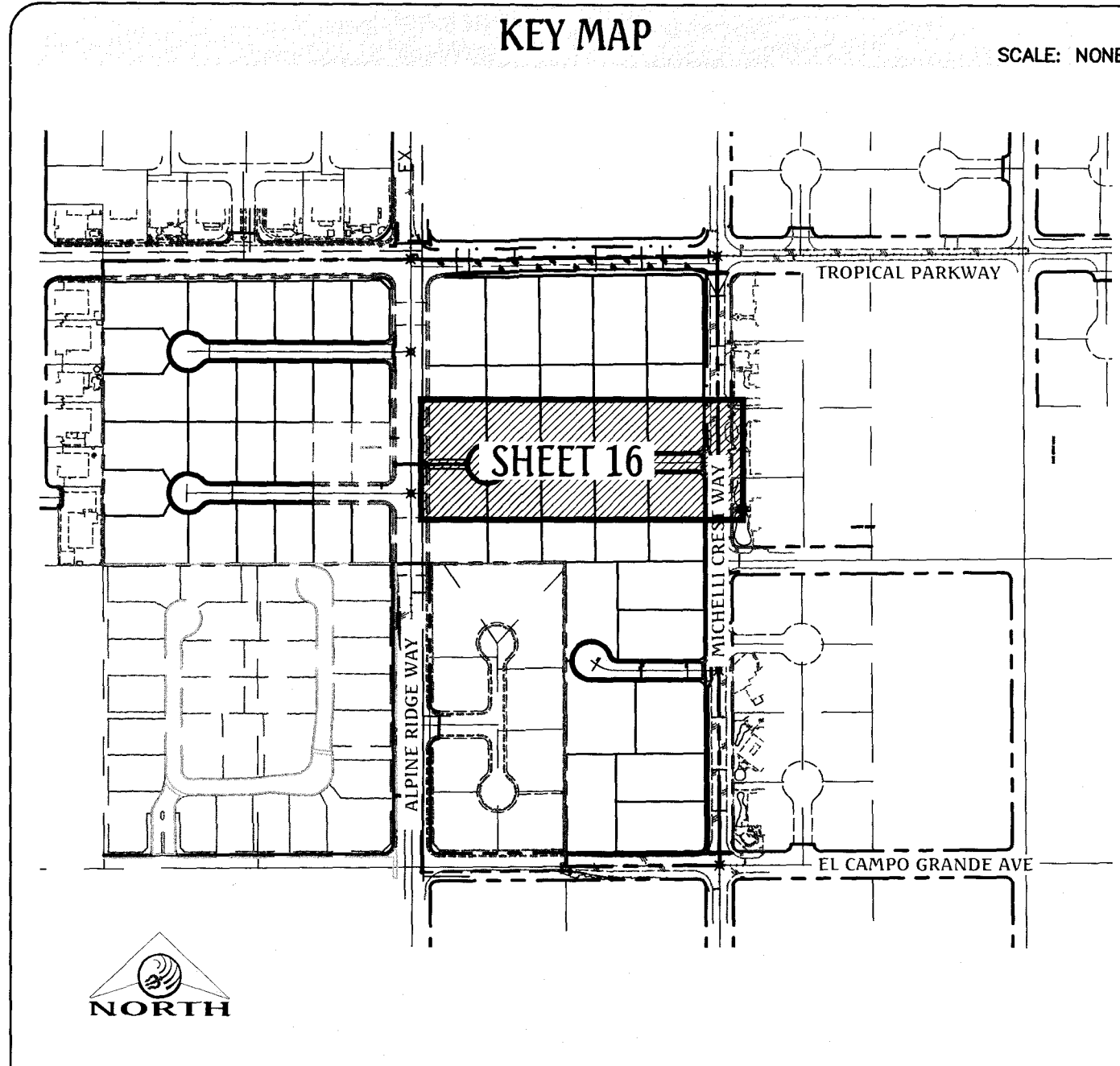
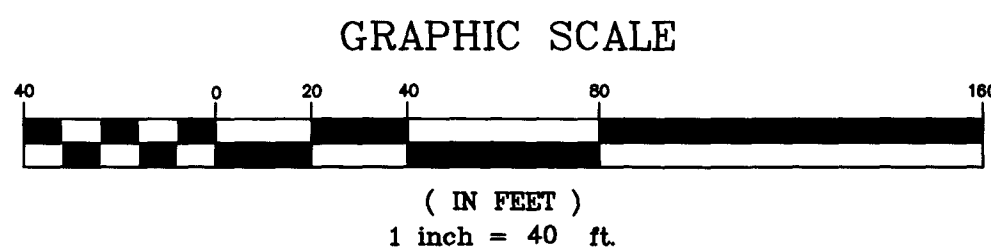
SCALE: HORIZ. 1" = 40'



ANTIQUE RIDGE COURT (PUBLIC)

PROFILE

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



GRADING NOTES

1. ALL PROPOSED PAD ELEVATIONS AND SWALE ELEVATIONS ARE TO BE FINISHED GRADES. ALL OTHER PROPOSED ELEVATIONS ARE TO BE FINISHED 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 THESE 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 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.
5. ALL PLACEMENT OF OVERSIZED MATERIALS AND/OR FILL MATERIALS SHALL BE PER THE SOILS REPORT REFERENCED ON THIS PLAN.
6. ADD 2800 TO ALL SPOT GRADES AND TOP OF CURB, FLOW LINE AND FINISH GRADE ELEVATIONS.
7. ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA.
8. ANY CURVED CURBS LESS THAN 12' MUST BE WATER TESTED BY CONTRACTOR AS REQUIRED BY CITY INSPECTOR.

GRADING LEGEND

- 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
- EX. BLOCK WALL
- PROPOSED RETAINING WALL
- TOP OF FOOTING
- APPROX. WALL LENGTH
- PROPOSED SCARP

FLOOD ZONE NOTE

THE PROJECT SITE IS LOCATED ON FEMA FLOOD INSURANCE RATE MAP #220301750E. THE SITE IS LOCATED WITHIN DESIGNATED FLOOD HAZARD ZONE X BEING AN AREA DETERMINED TO BE OUTSIDE THE 100 YEAR FLOOD PLAIN.

BASIS OF BEARING

NORTH 89°27'31" EAST, BEING THE BEARING OF THE NORTH LINE OF THE NORTHWEST QUARTER (NW1/4) OF THE SOUTHEAST QUARTER (SE1/4) OF SECTION 25, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., AS SHOWN IN FILE 196, PAGE 87 OF SURVEYS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

BENCHMARK # 109925SSW6
RIVET AND SQUARE ALUMINUM PLATE IN NORTHEAST CORNER OF A CONCRETE BASE FOR LARGE POWER POLE (#40-8) AT THE WEST END OF ANN ROAD
ELEVATION = 880.365 METERS (NAVD'88)
ELEVATION = 2,888.33 U.S. FEET (NAVD'88)

CONSTRUCTION NOTES

1. CONSTRUCT "R" TYPE CURB & GUTTER PER CCAUSD #217.S2.
2. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234.
3. 4' LONG CURB TRANSITION FROM "R" CURB TO 1" CURB
4. SAWCUT AND MATCH EXISTING ASPHALT.

DATE: 08/21/2018

FW: J. PEARCE

DRAWN BY:

DESIGNED BY:

ADA CHECKED:

JOB NO.: 007104

SCALE: 1" = 40'

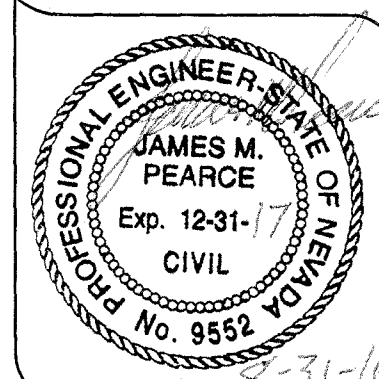
Triton Engineering
Office: (702) 254-1480
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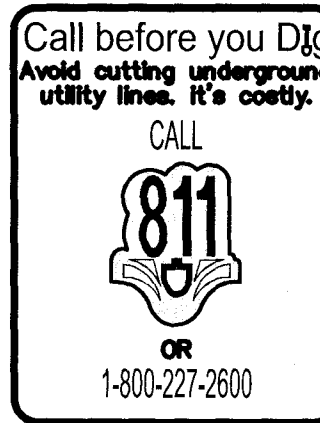
DR HORTON

BLM SITE 11

ON-SITE DRAINAGE PLANS
ANTIQUE RIDGE COURT PLAN & PROFILE
STA 1+00.00 TO STA 5+00.00



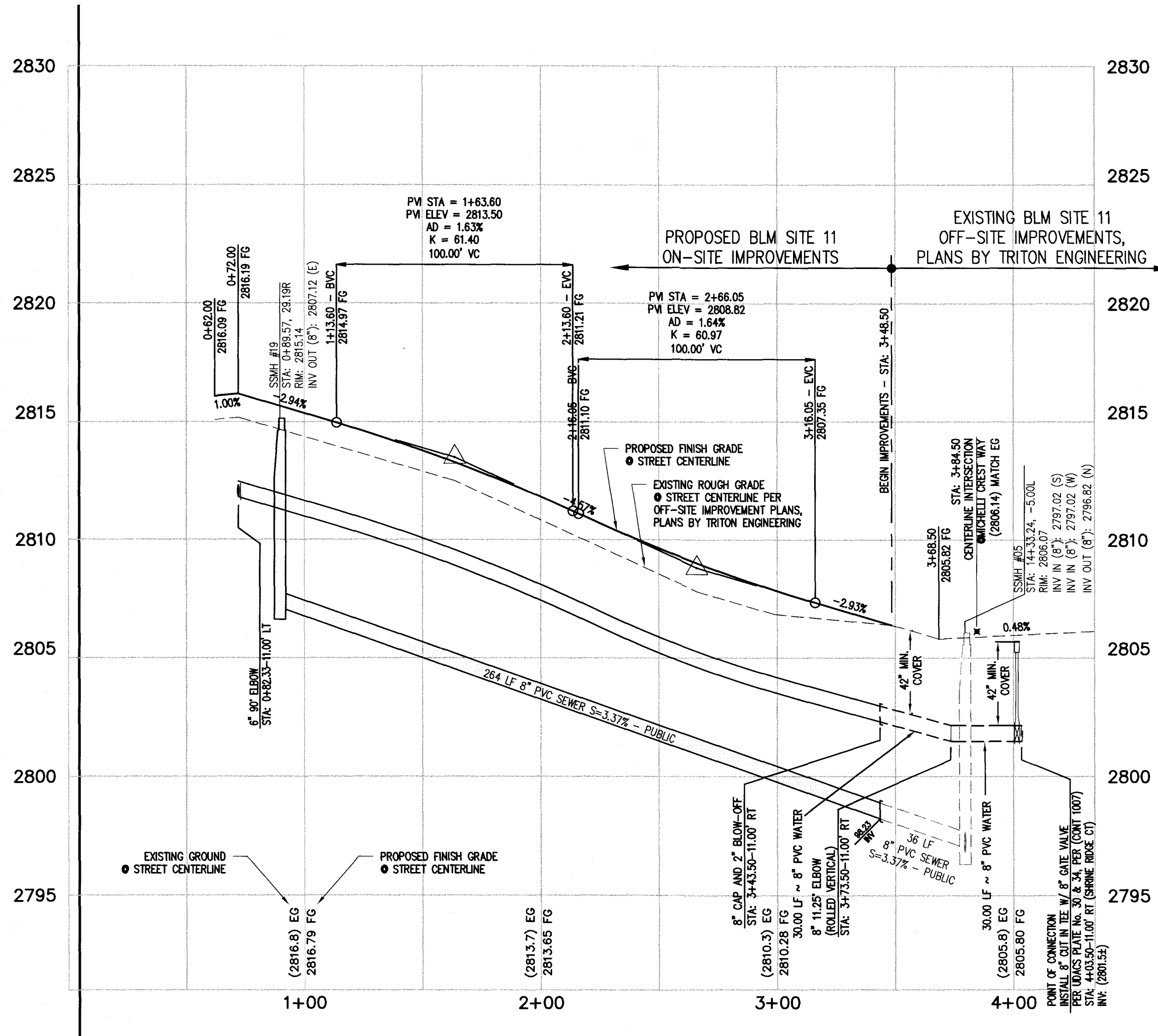
SHEET **16** OF 17
C.L.V. DWG.#



SHRINE RIDGE COURT (PUBLIC)

PLAN

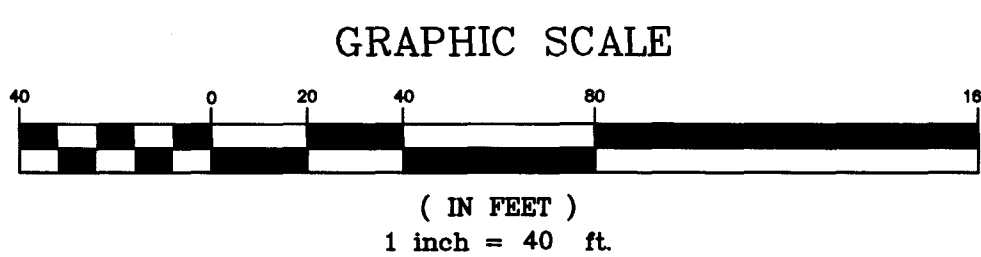
SCALE: HORIZ. 1" = 40'



SHRINE RIDGE COURT (PUBLIC)

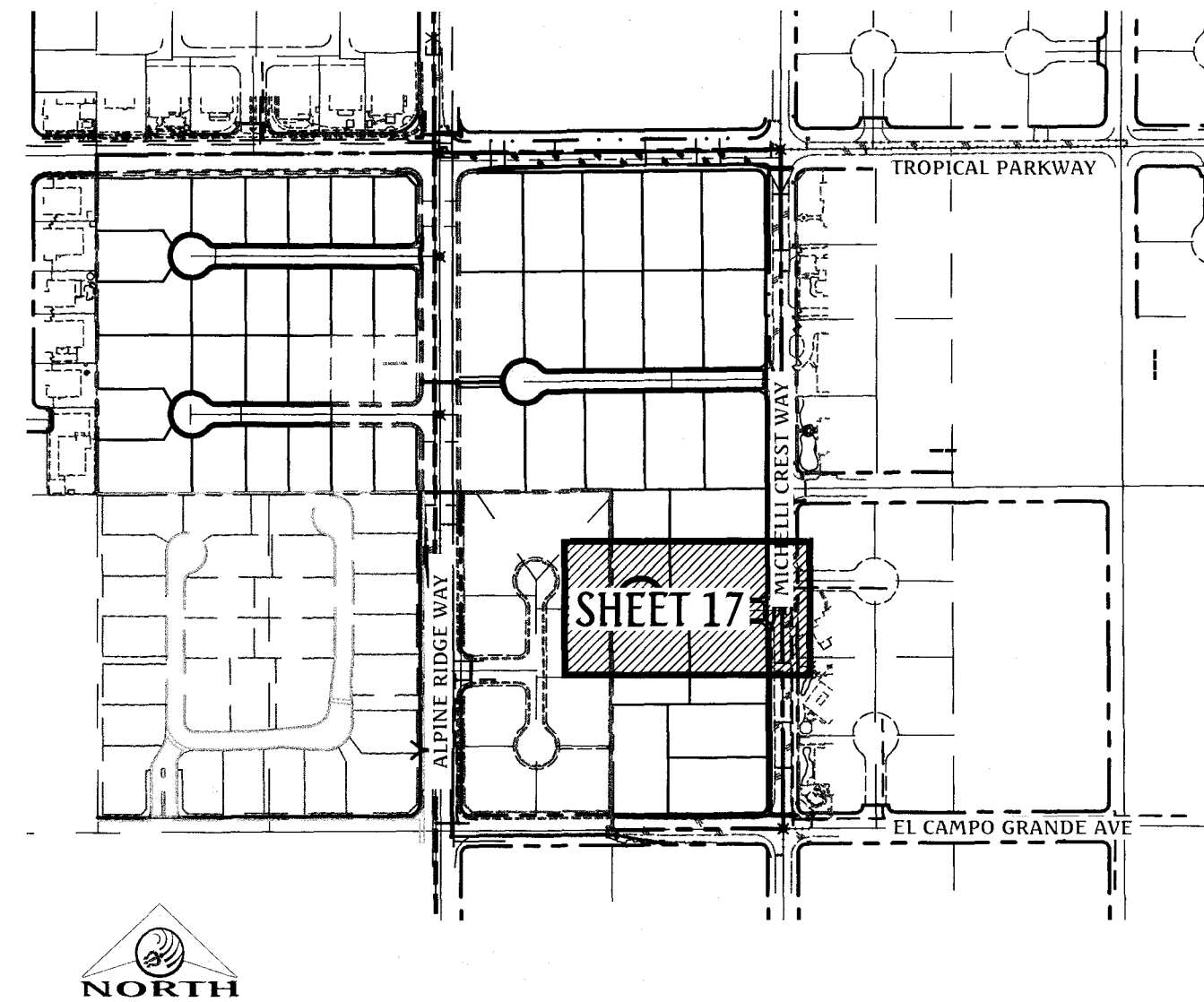
PROFILE

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



KEY MAP

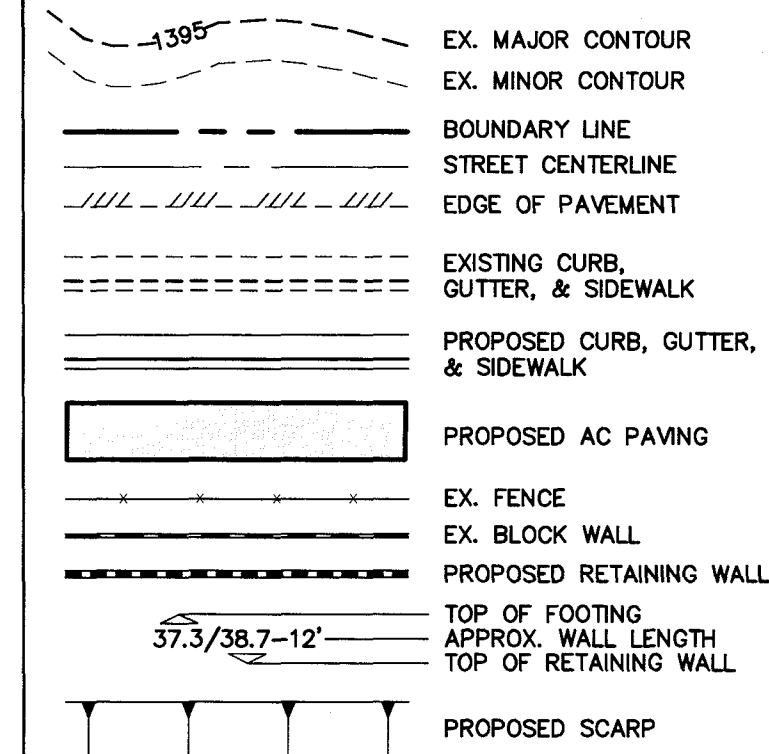
SCALE: NONE



GRADING NOTES

1. ALL PROPOSED PAD ELEVATIONS AND SWALE ELEVATIONS ARE FINISHED GRADES. ALL OTHER PROPOSED ELEVATIONS ARE FINISHED 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 THESE 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 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.
5. ALL PLACEMENT OF OVERSIZED MATERIALS AND/OR FILL MATERIALS SHALL BE PER THE SOILS REPORT REFERENCED ON THIS PLAN.
6. ADD 2800 TO ALL SPOT GRADES AND TOP OF CURB, FLOW LINE AND FINISH GRADE ELEVATIONS.
7. ALL PRIVATE STREETS ARE P.U.E. PUBLIC SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA.
8. ANY CURVED CURB LESS THAN 12' MUST BE WATER TESTED BY CONTRACTOR AS REQUIRED BY CITY INSPECTOR.

GRADING LEGEND



FLOOD ZONE NOTE

THE PROJECT SITE IS LOCATED ON FEMA FLOOD INSURANCE RATE MAP #32003C1750E. THE SITE IS LOCATED WITHIN DESIGNATED FLOOD HAZARD ZONE X BEING AN AREA DETERMINED TO BE OUTSIDE THE 100 YEAR FLOOD PLAIN.

BASIS OF BEARING

NORTH 89°27'31" EAST, BEING THE BEARING OF THE NORTH LINE OF THE NORTHWEST QUARTER (NW1/4) OF THE SOUTHEAST QUARTER (SE1/4) OF SECTION 25, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., AS SHOWN IN FILE 196, PAGE 87 OF SURVEYS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

BENCHMARK # 1C99255SW6
RIVET AND SQUARE ALUMINUM PLATE IN NORTHEAST CORNER OF A CONCRETE BASE FOR LARGE POWER POLE (#40-8) AT THE WEST END OF ANN ROAD
ELEVATION = 880.365 METERS (NAVD'83)
ELEVATION = 2,888.33 U.S. FEET (NAVD'83)

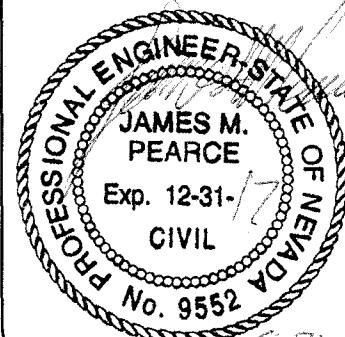
CONSTRUCTION NOTES

1. CONSTRUCT "R" TYPE CURB & GUTTER PER CCAUSD #217.32.
2. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234.
3. 4' LONG CURB TRANSITION FROM "R" CURB TO "L" CURB
4. SAWCUT AND MATCH EXISTING ASPHALT.

Triton
Engineering



DR HORTON
BLM SITE 11
ON-SITE DRAINAGE PLANS
SHRINE RIDGE COURT PLAN & PROFILE
STA 1+00.00 TO STA 5+00.00



SHEET 17 OF 17
C.L.V. DWG.#

