

DS #:

4922

APN:

138-13-512-001

PROJECT:

Crystal Park Apartments

SUBMITTAL:

2nd

SCANNED BY/DATE:

CHECKED BY/DATE:



CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		January 22, 2018
TO: Land Development Services Department of Building & Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for:	COPIES TO:
	Crystal Park Apartments	VTN, Nevada
Cross Streets:	SEQ of Cheyenne Boulevard & Michael Way	EAB Investment Company
File Number:	F:\Depot\DSMemos\DS4922B.ZNAE.doc	Bart Anderson, P.E., DevCo
Parcel Number:	138-13-512-001	CCRFCD
Zoning Action:	SDR-41779 & EOT-71642	
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	10/2/2017 & 10/11/2017	10/25/2017	Not Approved	\$400.00	490395: \$400
2 nd Submittal	12/20/2017	1/18/2018	See Comments Below	\$400.00	492266: \$400
			TOTAL FEES (LDDRS):	\$800.00	----

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. Since the project is within a FEMA Flood Zone AE, *Clark County Regional Flood Control District* (CCRFCD) concurrence is required prior to the final approval of the drainage study by the *City of Las Vegas*.
2. A "**Flood Zone Exhibit**" for the existing condition was included in the last submittal to present interpolated base flood elevation (BFE) at the northern end of the subject development. However, a proposed condition *Flood Zone Exhibit* to present the impacted FEMA stations BFE was missing. The "*Limit of Inundation*" in the proposed condition should be behind the east property wall, ie, the proposed BFEs shall increase. Provide a proposed condition *Flood Zone Exhibit* and pertinent hydraulic calculations in the next submittal.
3. **Flood Zone Exhibit (FIG 11)**: The BFE of STA 138+41.40 as labeled 2229.87 was incorrect. The interpolated value is 2234.58. Review and revise accordingly.
4. The engineer/developer has submitted a cost estimate of \$228,614.84 in lieu of the construction of a required storm drain system in the frontage of the subject site in *Michael Way* in the last submittal. The contribution money will be collected prior to the final approval of the improvement plans.

5. This drainage study assumes that the project will be constructed in one phase. If improvement plans are submitted to break the project into separate phases, a drainage study update will be required for each phase addressing the interim condition.

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: T20S/R60E/13
AREA L-13

TRANSACTION REPORT

JAN/22/2018/MON 10:50 AM

FAX (TX)

#	DATE	START T.	RECEIVER	COM.TIME	PAGE	TYPE/NOTE	FILE
001	JAN/22	10:50AM	7023622597	0:00:46	2	MEMORY OK	ECM 0363

CITY OF LAS VEGAS		DATE:	
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Meeting Attendance Sheet

Project Name

Crystal Park Apartments

10/11/2017

Page ____ of ____
Date ____/____/____
Time ____:____ am pm

Name	Company/Department	Address	Phone	Fax
1. ERNEST BECKER II		3065 N. RANCHO DR LV NV 89130	702-497-3150	
2. EAB II		" "	702-331-9080	
3. William Meyer		2727 N Rainbow LV NV 89146	702 253 3487	
4. Oh Sang		CLV		
5. Albert Sung		CLV		
6.				
7.				
Developer / Engineer agreed on Contribution				
for storm drain future installation cost.				
The engineer will submit cost estimate				
for construction of a 48" RCP in				
the frontage of the project site in				
Michael Way.				
13.				
14.				
15.				
16.				
17.				

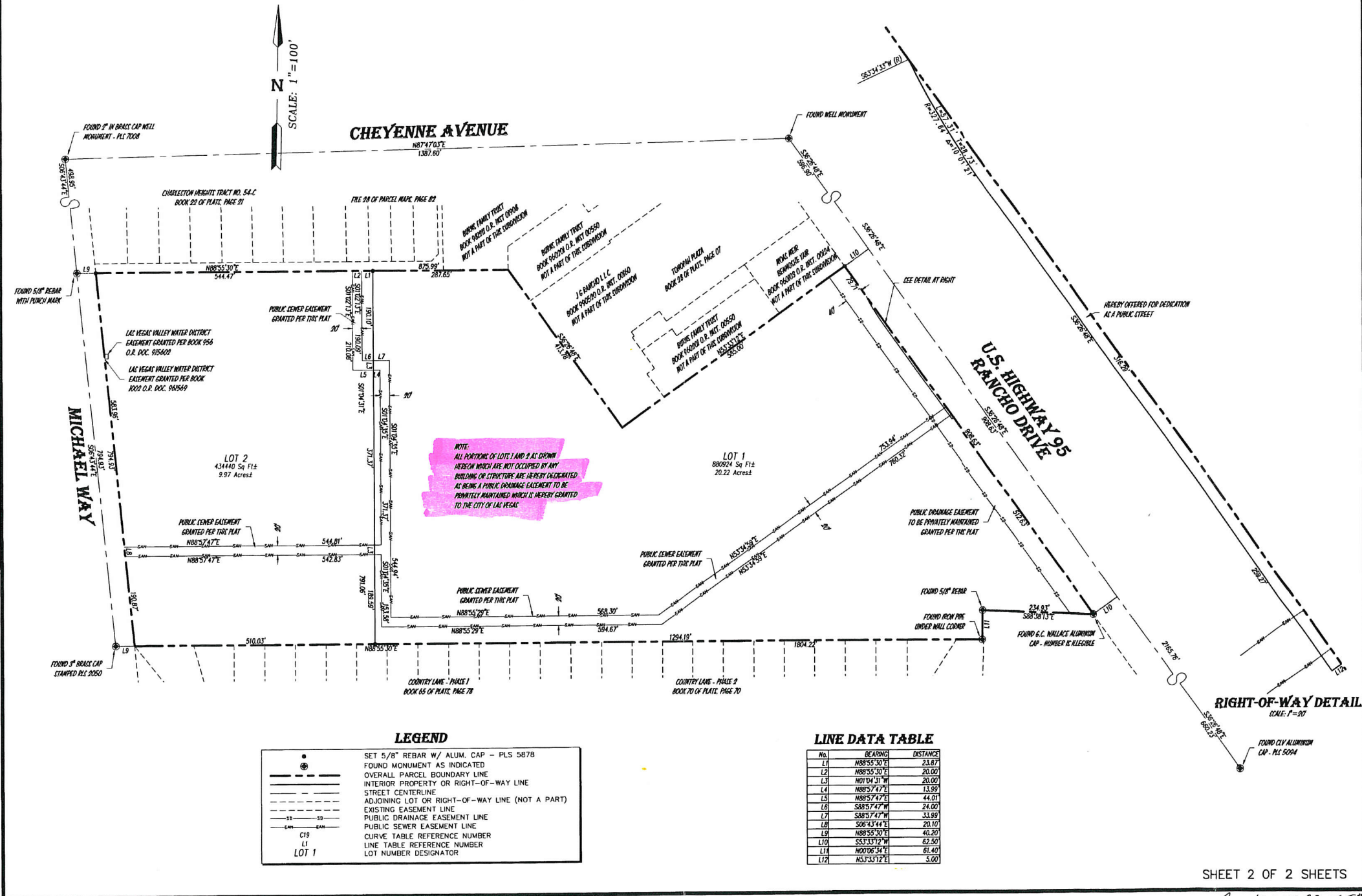
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THE PLAT OF CHEYENNE RANCHO PROFESSIONAL PLAZA

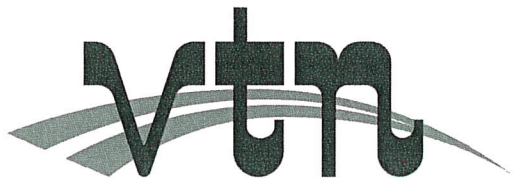
A COMMERCIAL SUBDIVISION

SITUATE IN THE CITY OF LAS VEGAS, CLARK COUNTY, NEVADA BEING A PORTION OF THE NORTH ONE-HALF OF THE NORTHEAST ONE-QUARTER OF SECTION 13, TOWNSHIP 20 SOUTH, RANGE 60 EAST, M.D.M.



SHEET 2 OF 2 SHEETS

BOOK 95 PAGE 52



LETTER OF TRANSMITTAL

TO: City of Las Vegas
Public Works Department
Flood Control 7th Floor
333 North Rancho Road

DATE: 12/20/2017

ATTN: Alber Sung, P.E., CFM

PROJECT: Crystal Park

W.O. NO.: 7844

BY MAIL: ☐

BY MESSENGER: ☒

PICK-UP: ☐

EXPRESS MAIL: ☐

FAX: ☐

FEDERAL EXPRESS: ☐

No. Copies:

Description

1	1 Copy Response to Comments
1	Set Grading Plans
1	CD of TDS and Grading Plans
1	Check Number 223

COMMENTS:

MATERIAL SENT FOR THE FOLLOWING REASONS:

CHECKING: ☐

FILING: ☐

APPROVAL: ☐

YOUR FILES: ☒

OTHER: ☐

CC:

SENDER: William J. Meyer

A handwritten signature in blue ink, appearing to read 'William J. Meyer', is written over the printed name.

ABOVE MATERIAL RECEIVED BY:

Addendum #1 to the
Technical Drainage Study for

Crystal Park Apartments

Las Vegas, Nevada

W.O. # 7844

Prepared for:

EAB Investment Company
3065 N Rancho #130
Las Vegas, NV 89113

Submitted to:

City of Las Vegas
Department of Public Works
731 South Fourth Street
Las Vegas, NV 89101



HYDROLOGIC CRITERIA AND DRAINAGE MANUAL
DRAINAGE STUDY INFORMATION FORM

Name of Development: Crystal Park Apartments Date: December 20, 2017

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

East/West: Cheyenne Avenue

b) Section: 13 Township: 20S Range: 60E

c) APN : 138-13-512-001

Name of Owner: EAB Investment Company

Telephone No.: _____ Fax No.: _____ E-Mail Address: _____

Address: 3065 N Rancho #130, Las Vegas, NV 89113

Contact Person-Name: William Meyer Telephone No.: (702)-873-7550

* E-Mail Address: bmeyer@vtnnv.com Fax No.: (702)-362-2597

Firm: VTN Nevada

Address: 2727 S. Rainbow Blvd, LV, 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: +/- 10 Acres Being Developed/Disturbed: +/- 10 Acres

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

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

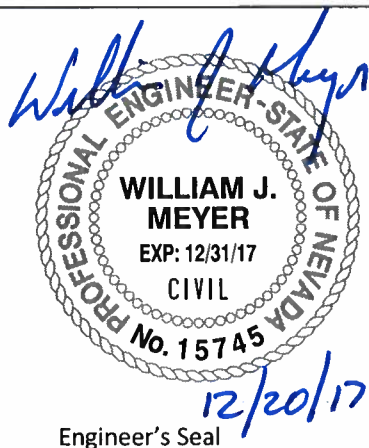
4. Proposed type of development (Residential, Commercial, Etc.): Residential (Apartments)

5. Approximate upstream land area which drains to the subject site: +/- 0.34 sq.mi

6. Has the site drainage been evaluated in the past? ☒ YES ☐ NO If yes, please identify documentation: Update to the TDS for Rancho Industrial Park (CLV DS# 2298); TDS for Crystal Park Apartments (CLV DS# 4734)

7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Runoff will discharge east as surface flow to the existing Rancho Industrial Park site.

8. Briefly describe your proposed schedule for the subject project: As soon as possible



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.**

Local Entity File No.	Revision	Date

REFERENCE:

STANDARD FORM 1

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

Project Name: **Crystal Park Apartments**

Map ID:

Firm Name: **VTN Nevada**

Engineer: **William Meyer**

Address:

City: **Las Vegas**

State: **NV**

Zip: **89146-5148**

Phone Number: **(702) 873-7550**

Fax Number: **(702) 362-2597**

Property Owner: **EAB Investment Company**

Address: **3065 N. Rancho #130**

City: **Las Vegas**

State: **NV**

Zip: **89113**

Reviewed By:

Date Received:

Date Accepted for Review:

The following checklist is intended as a guide for the engineer preparing a Technical Drainage Study to submit to the local entity and Clark County Regional Flood Control District (if necessary). The listed items are the minimum information required prior to the entity performing a review. The engineer will remain responsible to ensure the Technical Drainage Study is prepared within the guidelines as set forth in the Clark County Regional Flood Control District (CCRFCD) Hydrologic Criteria and Drainage Design Manual (MANUAL).

This document is intended as an aid in preparing Technical Drainage Studies. 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.

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

I. GENERAL REQUIREMENT

Yes	No	
<u>X</u>	<u> </u>	Design Manual Standard Form 1 with the engineer's seal and signature.
<u>X</u>	<u> </u>	Design Manual Standard Form 4 .
<u>X</u>	<u> </u>	2 copies of the 24" x 36" Drainage Plan.
<u>N/A</u>	<u> </u>	A notarized letter from the adjacent property owner(s) allowing off-site grading or discharge.

II. MAPS AND EXHIBITS

Yes	No	
<u>X</u>	<u> </u>	A copy of a current Flood Insurance Rate Map (FIRM) with the site delineated.
<u>X</u>	<u> </u>	A copy of the current CCRFCD Master Plan Update Figure, (F-x), for Flood Control Facilities and Environmental areas with the site delineated.

REFERENCE:

STANDARD FORM 2

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

II. MAPS AND EXHIBITS (Continued)

- | Yes | No | |
|----------|---------------|--|
| <u>X</u> | <u> </u> | Off-site drainage basin maps for existing, interim and future conditions showing the existing topography, basin boundaries, concentration points, and flows in cfs. |
| <u>X</u> | <u> </u> | On-site drainage basin maps for existing and proposed conditions showing the existing topography, basin boundaries, concentration points, and on-site and off-site flows in cfs. |
| <u>X</u> | <u> </u> | Vicinity Map with local and major cross streets identified and a north arrow. |

III. DRAINAGE PLAN

- | Yes | No | |
|----------|---------------|---|
| <u>X</u> | <u> </u> | Sheet size: 24" x 36" sealed by a registered engineer in the State of Nevada. |
| <u>X</u> | <u> </u> | Minimum scale: 1" = 60'. |
| <u>X</u> | <u> </u> | Project name. |
| <u>X</u> | <u> </u> | Vicinity Map with local and major cross streets. |
| <u>X</u> | <u> </u> | Revision box. |
| <u>X</u> | <u> </u> | North arrow and bar scale. |
| <u>X</u> | <u> </u> | Engineer's/consultant's address and phone number. |
| <u>X</u> | <u> </u> | Elevation datum and benchmark. |
| <u>X</u> | <u> </u> | Legend for symbols and abbreviations. |
| <u>X</u> | <u> </u> | Cut/fill scarps, where applicable. |
| <u>X</u> | <u> </u> | Street names, grades, widths. |
| <u>X</u> | <u> </u> | 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. |
| <u>X</u> | <u> </u> | Existing contours encompassing the site and 100 feet beyond with spot elevations for important locations, where appropriate. |
| <u>X</u> | <u> </u> | Minimum finish floor elevations with top-of-curb elevations at upstream end of lot. |
| <u>X</u> | <u> </u> | Proposed typical street sections. |

REFERENCE:

STANDARD FORM 2

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

III. DRAINAGE PLAN (Continued)

Yes	No	
<u>X</u>	<u> </u>	Streets with off-set crowns.
<u>X</u>	<u> </u>	Proposed contours or spot elevations in sufficient detail to exhibit intended drainage patterns and slopes.
<u>X</u>	<u> </u>	Property lines.
<u>X</u>	<u> </u>	Right-of-way lines and widths, existing and proposed.
<u>X</u>	<u> </u>	Existing improvements and their elevations.
<u>X</u>	<u> </u>	Delineation of proposed on-site drainage basins indicating area and 10-year and 100-year storm peak flows at basin concentration points.
<u>X</u>	<u> </u>	Concentration points and drainage flow direction with Q_{100} and V_{100} and D_{100} in streets.
<u>X</u>	<u> </u>	Cumulative flows, velocity, and direction of flow at upstream and downstream ends of site for the 10-year and 100-year flows.
<u>X</u>	<u> </u>	Location and cross-section of street capacity calculations.
<u>X</u>	<u> </u>	Cross-sectional detail for channels, including cutoff wall locations.
<u>X</u>	<u> </u>	Existing and proposed drainage facilities, appurtenances, and connections (i.e., sidewalk, ditches, swales, storm drain systems, unimproved and improved channels, and culverts, etc.) stating size, material, shape, and slope with plan and profile and HGL calculations.
<u>X</u>	<u> </u>	Existing and proposed drainage easements and widths shown with sufficient detail. A cross sectional detail must be provided that shows appropriate lining and reinforcement.
<u>X</u>	<u> </u>	Location and detail of existing, proposed, and future block wall openings. Minimum size is 16" x 48". Wrought iron gate is required for flows > 10 cfs.
<u>X</u>	<u> </u>	Location and detail of flood walls illustrating depth of flow, proposed grouting height, etc.
<u>X</u>	<u> </u>	Perimeter retaining wall locations. All existing and proposed walls (retaining screen and flood) must be shown with adjacent ground elevations. Flood walls with 8-inch concrete masonry unit.
<u>X</u>	<u> </u>	Building and/or lot numbers.
<u>NA</u>	<u> </u>	Alignment of all existing, proposed, or future Regional Facilities adjacent to the site.
<u>X</u>	<u> </u>	Limits of existing floodplain based on current FIRM or best available information; limits of proposed floodplains based on best available information.

REFERENCE:

STANDARD FORM 2

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

III. DRAINAGE PLAN (Continued)

Yes No

- X For areas in Zone A, AE, AH, and AO, base flood elevations (BFEs) must be shown for each lot; BFEs may be listed on each lot, or in a table. Finish floor elevations must be a minimum of 18 inches above BFE.
- X Appropriately elevated "humps" 6 inches above the 100 year water surface elevation at site accesses where the intent is to protect the site from the Q_{100} flows.
- X Street slopes for perimeter and interior streets. The minimum slope is 0.4 percent.
- X Location and detail of best management practice (BMP) for parking lots and low impact development (LID) (if required).

IV. HYDROLOGIC ANALYSIS

Yes No

- X Appropriate soil information and Soils Map for existing and future conditions with subbasins and property delineated.
- X Input and output information for existing conditions from computer models (HEC-1 or TR-55). The flow routing diagram must be provided with HEC-1 models.
- X Input and output information for future conditions from computer models (HEC-1 or TR-55). The flow routing diagram must be provided with HEC-1 models.
- X Use of correct precipitation values in and around the McCarran Airport rainfall area.
- X A discussion in the text of the hydrologic analysis justifying subbasin boundaries and cutoffs, supporting assumptions, and calculations.
- X A summary table of stormwater flows showing basin area, Q_{10} and Q_{100} for both individual basins and combined basin flows, where applicable.
- X Copies of supporting technical information referenced from a previously approved study and a statement accepting these results.
- X On-site facilities must perpetuate flows through or around the site without significantly impacting adjacent property owners in accordance with current Nevada Drainage Law.
- X Calculation for impervious area for parking lots and LIDs (if required).

REFERENCE:

STANDARD FORM 2

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

V. HYDRAULIC ANALYSIS

Yes	No	
☒	☐	Flow split calculations and supporting documentation or reference for the method of flow split calculations used.
☒	☐	Normal depth street flow calculations and cross section diagrams for all interior and perimeter streets. Provide "d x v" products for the Q_{100} and Q_{10} flows representing the worst case for interior and all perimeter streets. $Q_{100} d \times v \leq 8$. $Q_{10} d \times v \leq 6$ and 12 foot dry lane for rights-of-way ≥ 80 feet. Calculations must be labeled by street name as indicated on the Grading Plan.
☒	☐	A summary table of interior and exterior street capacity calculations showing the street name, Q_{100} flow, slope, depth of flow, velocity and depth times velocity product and streets needing to meet 12 foot dry lane criteria.
☒	☐	Appropriate hydraulic calculations for block wall openings assuming a 50 percent vertical clogging factor. (Assume the lower half of the opening is plugged.)
☒	☐	Appropriate hydraulic calculations at drainage easement entrance and discharge locations to set finish floor elevations. Hydraulic calculations must include submerged weir, superelevation and tee intersection losses, where appropriate.
☒	☐	Provide necessary freeboard requirements to set the finished floor elevations of all proposed buildings, 2 x depth of flow or depth of flow plus 18 inches of freeboard, whichever is less. The minimum requirement is 6 inches above adjacent upstream top of curb. Buildings adjacent to drainage easements must always be provided with 18 inches of freeboard above the Q_{100} weir height or flow depth, whichever is greater.
☐	☐	A complete water surface profile analysis (HEC-2, HEC-RAS, etc.) for channel flows and FEMA Zone A flood zones. • Field survey data. • Input and output information. • Plotted cross-sections based on survey with proper encroachments. • A map showing the location of the cross-sections. • Analysis of both sub and super-critical flow segments. • A summary table and a discussion of the results in the text of the report.
☐	☐	Provide a 50 percent clogging factor in the capacity calculation for drop inlets.
☐	☐	Hydraulic calculations for culverts and storm drains. D-Load calculations must be provided for storm drain pipes in public rights-of-way, including headwater pool inundation.
☒	☐	The mitigation of nuisance water, both during construction and in the fully developed condition, must be addressed.
☒	☐	Provide BMP type, size and supporting calculations for parking lots and LIDs (if required).

REFERENCE:

STANDARD FORM 2

December 20, 2017
W.O. #7844

City of Las Vegas
Land Development Services
Department of Building Safety

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

**SUBJECT: ADDENDUM #1 TO THE TECHNICAL DRAINAGE STUDY FOR CRYSTAL
PARK APARTMENTS**

Mr. Sung:

This *Addendum #1 to the Technical Drainage Study for Crystal Park Apartments (DS4922A)* is being submitted to the City of Las Vegas Land Department of Public Works to address review comments dated August 14th, 2017.

Comment #1

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

RESPONSE: A copy of the zoning/planning conditions has been included with this submittal.

Comment #2

Sites with a grade difference of 2 feet above or below existing are required to have approval from the City Planning and Development Department. The engineer must submit copies of the grading plans and detail sheet with a letter justifying the grade difference to the City Planning Department (229-6301). The engineer must provide Planning approval with the next submittal.

RESPONSE: Finish floor elevations at the northwest corner of the site have been lowered to meet the 2.0 foot Planning and Development requirement.

Comment #3

A portion of the site is within a FEMA Special Flood Hazard Area (SFHA), Zone AE. Development within the SFHA requires that changes to the adopted water surface elevation and/or the Flood Zone Boundary mandate submittal and approval by FEMA. Provide a detail analysis of the Flood Zone impact from this development.

RESPONSE: Per a meeting with Peter Jackson of the CLV and William Meyer of VTN, it was decided that a Water Surface Elevation (WSEL) using the topographic information used in the design of this project would be established. The new WSEL would be based on an interpolated value based on the current FEMA BFE's in the area. The interpolated value is 2234.6 feet. The calculation is included in Appendix C of this letter. The new WSEL was plotted on the drawing and shows that the BFE is located within the Crystal Park site. A new Figure labeled Figure 11 FEMA Flood Zone Evaluation that shows the extent of the flood inundation is included in Appendix A. Note that the Flood Zone is still located within the Crystals Park site.

Comment #4

Since the project is within a FEMA Flood Zone AE, Clark County Regional Flood Control District (CCRFCDD) concurrence is required prior to the final approval of the drainage study by the City of Las Vegas.

RESPONSE: A copy of the technical drainage study and all addenda will be submitted to CCRFCDD upon approval by the CLV.

Comment #5

In a meeting attended by the developer, engineer and the City of Las Vegas flood control staff held on October 11, 2017, it was agreed that the developer contribute funding for the future installation of a 48"-RCP storm drain in Michael Way identified in the City of Las Vegas Northwest Neighborhood Master Plan. The engineer will submit a cost estimate for the construction of the required storm drain in the frontage of the subject site in Michael Way to City Flood Control Section for approval. The contribution money will be collected prior to the final approval of the improvement plan.

RESPONSE: A preliminary storm drain design for the 10-year event has been included with this submittal. The purpose of the storm drain is to maintain dry lane criteria of the 10-year event in Michael Way, and is based on a maximum flow depth of 0.42 feet in the street. Cross sections have been developed that show the allowable Q value for each change in street slope. The normal depth calculations for the street are included in Appendix C of this letter. The design proposes 351 feet of 24-inch RCP, 256 feet of 36-inch RCP, and 38 feet of 42-inch RCP of main line storm drain in Michael Way. The normal depth storm drain and drop inlet calculations are include in Appendix C. A cost estimate has also been

included in Appendix C. The overall cost of the facility is based on the City of Las Vegas Bond Quantity spreadsheet.

Comment #6

Figure 6: Existing Condition Drainage Map shows the Q_{10}/Q_{100} for “CPE4” as 21cfs/81cfs while Page 4 of the Study (Subchapter “Onsite Drainage Basin Description) shows 11cfs/24cfs. Clarify in the next submittal.

Note: It is however, the opinion of the reviewer that $Q_{10}/Q_{100}=11\text{cfs}/24\text{cfs}$ is more reasonable because in the existing condition the flow at the northeast corner of the site (“CPA”) do sheet flow into the adjacent commercial lot. There is no berm or channel to direct the flow at the northeast corner to go south.

RESPONSE: The existing condition HEC-1 model and *Figure 6: Existing Condition Drainage Map* have been revised to show 24cfs/11cfs at CPE4. Figures have been included in Appendix A. The revised HEC-1 model has been included in Appendix B.

Comment #7

Per Figure 7: Developed Condition Drainage Map, the proposed runoff at the southeast corner of the site $Q_{10}/Q_{100}=24\text{cfs}/84\text{cfs}$ will be substantially higher and negatively impacting the adjacent commercial property. Either maintain the existing flow pattern or obtain a notarized letter of acknowledgment and acceptance of the proposed drainage from the owner of the commercial property prior to the final approval of the subject drainage study.

RESPONSE: A notarized letter of acknowledgement and acceptance of the proposed drainage from the adjacent property owner has been included in Appendix D.

Comment #8

The proposed drainage of the subject site is to drain along the east boundary and go south. However, it is noticed that parking stalls are lined up adjacent to the east property line, ie, the parking stalls are used as a drainage corridor. This is not acceptable because it is likely that the parking stalls can be parked full of vehicles during a major storm event. The tires of the vehicles will reduce the effective conveyance area. The engineer must use only the drive aisle, not the parking stalls as flow corridor. Revise the pertinent hydraulic calculations and address whether the proposed finish floor elevations of the adjacent apartment buildings are still meeting criteria.

RESPONSE: The drainage corridor along the eastern boundary of the proposed site does not include the parking stalls. The dimension from the face-of-curb to the outside face of the concrete valley is 26.0 feet,

which is the dimension used in the previously submitted Normal Depth calculations. This gives a conservative estimate of the flow depth at Sections 7 through 13.

Comment #9

Figure 7: Developed Condition Drainage Map: Four hydraulic sections in Michael Way do not have any nomenclature such as A-A, B-B etc. Review and revise accordingly.

RESPONSE: Figure 7 has been revised to show the hydraulic section nomenclature. Figures have been included in Appendix A.

Comment #10

Sheet GR6: It appears that 2' wide opening is proposed at the southeast corner of the site for the onsite discharge. However, for a 100 year flow of 84 cfs, a 2' opening is seemingly not adequate. Address and revise in the next submittal.

RESPONSE: The 2.0-foot A-curb opening occurs at the west side of the proposed channel, so it will see 2 cfs generated from Onsite Subbasin OND-1G. A weir calculation has been included in Appendix C showing that at a flow depth of 0.5 inch the required opening is 1.9 feet.

Comment #11

If wrought iron gate is proposed at the southeast corner for better discharge, please consider that the bottom of the wrought iron gate may be blocked by debris which will elevate the tailwater elevation at the discharge point and thus impact the nearest adjacent apartment building. Provide a weir calculation assuming a minimum of 6" high of debris at the gate and verify whether the nearest buildings are still adequately flood protected.

RESPONSE: A detail showing a 6-inch clear space along the bottom of the wrought iron fence has been added to the plans set. The original weir calculation provided for a 50 percent clogging factor; therefore, a new weir calculation is not provided with this submittal.

Comment #12

Sheet GR1: A proposed top of curb (39.80TC) elevation in Michael Way at the entrance driveway appears to be a typo. Review and revise accordingly.

RESPONSE: The TC elevation has been revised at the driveway entrance.

Comment #13

This drainage study assumes that the project will be constructed in one phase. If improvement plans are submitted to break the project into separate phases, a drainage study update will be required for each phase addressing the interim condition.

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.

RESPONSE: Noted.

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

Sincerely,

VTN Consulting

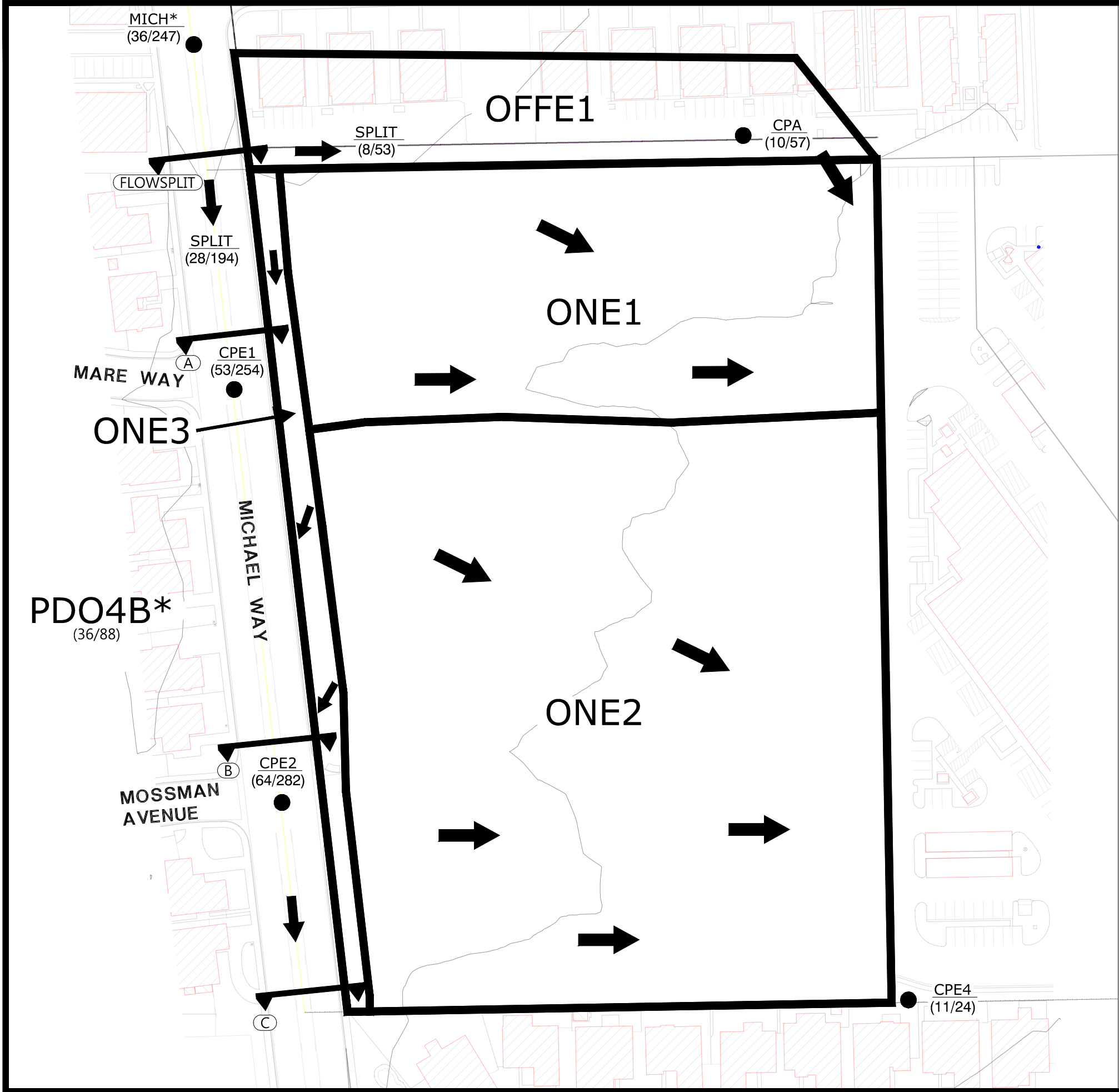
A handwritten signature in blue ink, appearing to read 'William J. Meyer', is written over the printed name.

William J. Meyer, P.E.
Project Manager

APPENDIX

APPENDIX A

FIGURES AND EXHIBITS



LEGEND

- CP-1 CONCENTRATION POINT
- ON1-D DRAINAGE BASIN
- FLOW ARROW
- FM1 FM1 NORMAL DEPTH SECTION

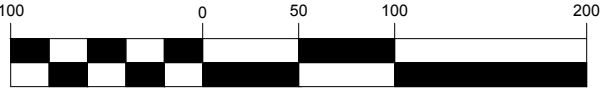
EXISTING CONDITION HEC-1 SUMMARY			
Basin	Area (ac)	Q100	Q10
OFFE1	1.31	4	2
CPA	-	57	10
ONE1	3.02	8	4
ONE2	6.46	17	7
CPE4	-	24	11
ONE3	0.48	1	1

STREET FLOW ANALYSIS SUMMARY TABLE (10-YEAR)					
Section	Q (cfs)	Slope (%)	Velocity (fps)	Depth (ft)	V x D
A	28	1.2%	3.38	0.54	1.83
B	53	0.4%	2.66	0.73	1.94
C	64	0.5%	3.07	0.75	2.30

STREET FLOW ANALYSIS SUMMARY TABLE (100-YEAR)					
Section	Q (cfs)	Slope (%)	Velocity (fps)	Depth (ft)	V x D
A	194	1.2%	5.80	0.91	5.28
B	254	0.4%	4.71	1.16	5.46
C	282	0.5%	5.29	1.16	6.14



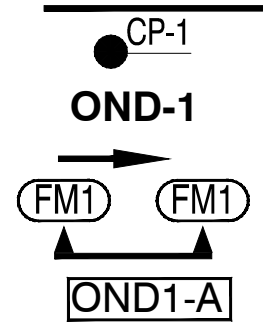
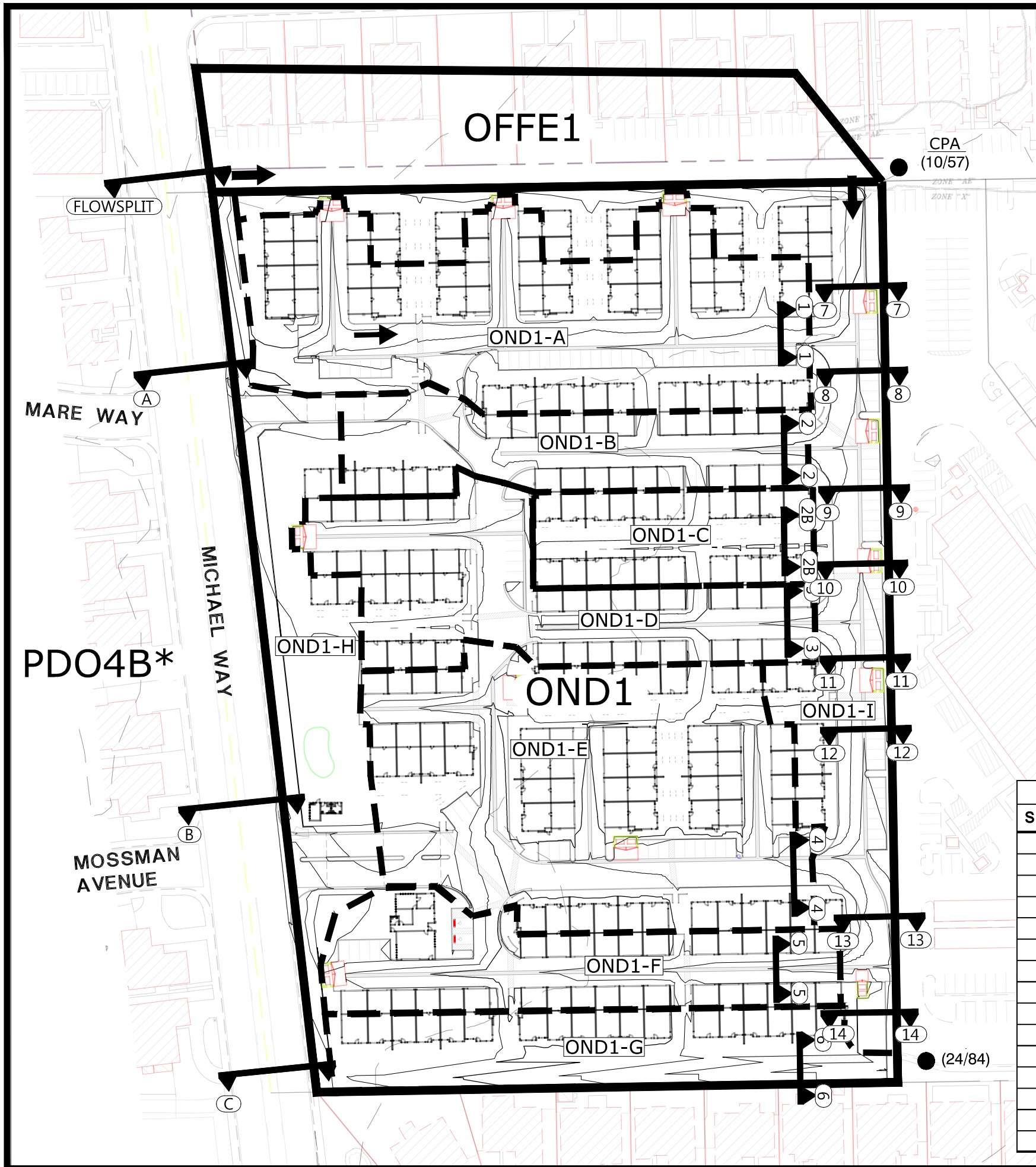
GRAPHIC SCALE



1" = 100'

W.O.#:	7844
DATE:	NOV 2017
BY:	JYA
SCALE:	1" = 100'
SHEET	OF

CRYSTAL PARK APARTMENTS
FIGURE 6: EXISTING CONDITION DRAINAGE MAP



LEGEND

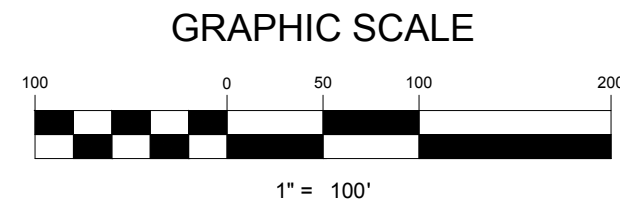
CP-1
CONCENTRATION POINT

OND-1
DRAINAGE BASIN

FM1
FLOW ARROW

OND1-A
NORMAL DEPTH SECTION

OND1-A
DRAINAGE SUB-BASIN



DEVELOPED CONDITION HEC-1 SUMMARY			
Basin	Area	Q100 (CFS)	Q10 (CFS)
OFFE1	1.31	4	2
CPA	-	57	10
ON1D	9.96	27	14

PRORATED SUBBASIN SUMMARY				
BASIN	AREA		Q100	Q10
OND1	10.0		27	14
SUB BASIN	SUB AREA	SUB AREA	SUB Q100	SUB Q10
OND1-A	1.7	17%	5	2
OND1-B	0.7	7%	2	1
OND1-C	0.5	5%	1	1
OND1-D	1.0	10%	3	1
OND1-E	1.9	19%	5	3
OND1-F	0.8	8%	2	1
OND1-G	0.7	7%	2	1
ON1-H	0.9	9%	3	1
ON1-I	1.7	17%	5	2
TOTAL	10.0	100%	27	14

STREET FLOW ANALYSIS SUMMARY TABLE (100-YEAR)						
Section	Q (cfs)	Slope (%)	Velocity (fps)	Depth (ft)	V x D	Tributary Basins
1	5	0.5%	2.60	0.54	1.40	OND1-A
2	2	0.5%	1.71	0.31	0.53	OND1-B
2B	1	1.2%	1.08	0.13	0.14	OND1-C
3	3	1.1%	2.05	0.29	0.59	OND1-D
4	8	1.5%	3.12	0.38	1.19	OND1-E, OND1-H
5	2	0.5%	2.24	0.34	0.76	OND1-F
6	2	1.5%	2.24	0.36	0.81	OND1-G
7	58	0.5%	4.00	0.98	3.92	CPA, 1/4OND1-I,
8	63	0.6%	4.84	1.23	5.95	CPA, 1/4OND1-I, -A
9	66	0.6%	5.31	1.35	7.17	CPA, 1/2OND1-I, -A, -B
10	67	0.6%	4.72	0.76	3.59	CPA, 1/2OND1-I, -A, -B, -C
11	71	0.6%	5.36	1.38	7.40	CPA, 3/4OND1-I, -A, -B, -C, -D
12	71	0.6%	4.96	1.22	6.05	CPA, 3/4OND1-I, -A, -B, -C, -D
13	80	0.6%	1.81	1.70	3.08	CPA, OND1-I, -A, -B, -C, -D -E, -H
14	82	0.6%	5.24	1.00	5.24	CPA, OND1-I, -A, -B, -C, -D -E, -H, -F

APPENDIX B HYDROLOGIC CALCULATIONS

**10 YEAR
EXISTING CONDITION
HEC-1 ANALYSIS**

1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
* JUN 1998
* VERSION 4.1
*
* RUN DATE 30OCT17 TIME 13:46:20
*

7844-EXI10.OUT

*
* 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
          *DIAGRAM
1         ID   CRYSTAL PARK APARTMENTS - TECHNICAL DRAINAGE STUDY
2         ID   EXISTING CONDITION
3         ID   FILE: 7844-EXI10.DAT
4         ID   09/05/17
5         ID   10YR STORM EVENT
6         IT     5      0      300
7         IN     5      0
8         IO     5      0
9         JR     PREC   .57
          *
10        KK   OFFE1
11        KM   BASEFLOW IS FLOW SPLITTING INTO 20' ALLEY FROM MICHAEL
12        BA   0.002
13        PC   .000   .020   .057   .070   .087   .108   .124   .130   .130
14        PC   .130   .130   .130   .133   .140   .142   .148   .158   .172
15        PC   .190   .197   .199   .200   .201   .204   .214   .229   .241
16        PC   .251   .256   .270   .278   .281   .283   .295   .322   .352
17        PC   .499   .590   .710   .744   .781   .812   .819   .835   .851
18        PC   .860   .868   .876   .888   .910   .926   .937   .950   .976
19        PC   .982   .985   .987   .989   .990   .993   .993   .994   .995
20        PC   .998   .999   1.00
21        PB   2.77
22        LS           94.0
23        UD   .064
          *
24        KK   CPA
25        KM   COMBINES FLOW SPLIT AND OFFE1
26        BF     8
          *
27        KK   ONE1
28        BF     0
29        BA   .0047
30        LS           92.0
31        UD   .108
          *
32        KK   ONE2
33        BA   .0101
34        LS           91.0
35        UD   .100
          *
36        KK   CPE4
37        KM   COMBINE BASINS ONE1 AND ONE2
38        HC     2
          *

```

1 HEC-1 INPUT PAGE 2

```

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
          *
39        KK   ONE3
40        KM   WEST PORTION OF SITE DISCHARGING WESTERLY ONTO MICHAEL WAY
41        BA   .0008
42        LS           94.0
43        UD   .100
          *
44        ZZ

```

1 SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT
LINE (V) ROUTING (--->) DIVERSION OR PUMP FLOW
NO. (.) CONNECTOR (<---) RETURN OF DIVERTED OR PUMPED FLOW
Page 1


```

10      OFFE1
      .
24      .      CPA
      .      .
27      .      .      ONE1
      .      .      .
32      .      .      .      ONE2
      .      .      .      .
36      .      .      CPE4 .....
      .      .      .
39      .      .      .      ONE3

```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*   JUN 1998                   *
*   VERSION 4.1                *
* RUN DATE 30OCT17 TIME 13:46:20 *
*                               *
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*****
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET            *
* DAVIS, CALIFORNIA 95616      *
* (916) 756-1104              *
*                               *
*****

```

CRYSTAL PARK APARTMENTS - TECHNICAL DRAINAGE STUDY
 EXISTING CONDITION
 FILE: 7844-EX110.DAT
 09/05/17
 10YR STORM EVENT

```

8 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 0  STARTING DATE
          ITIME      1200   STARTING TIME
          NQ         101   NUMBER OF HYDROGRAPH ORDINATES
          NDDATE     13 0   ENDING DATE
          NDTIME     2020   ENDING TIME
          ICENT      19    CENTURY MARK

          COMPUTATION INTERVAL .08 HOURS
          TOTAL TIME BASE     8.33 HOURS

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

JP        MULTI-PLAN OPTION
          NPLAN      1     NUMBER OF PLANS

JR        MULTI-RATIO OPTION
          RATIOS OF PRECIPITATION
          .57

```

1

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 .57
HYDROGRAPH AT +	OFFE1	.00	1	FLOW TIME 2. 3.50
HYDROGRAPH AT +	CPA	.00	1	FLOW TIME 10. 3.50
HYDROGRAPH AT +	ONE1	.00	1	FLOW TIME 4. 3.50
HYDROGRAPH AT +	ONE2	.01	1	FLOW TIME 7. 3.50
2 COMBINED AT +	CPE4	.01	1	FLOW TIME 11. 3.50
HYDROGRAPH AT +	ONE3	.00	1	FLOW TIME 1. 3.50

7844-EX110.OUT

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

**100 YEAR
EXISTING CONDITION
HEC-1 ANALYSIS**

1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
* JUN 1998
* VERSION 4.1
*
* RUN DATE 30OCT17 TIME 13:46:22
*

7844-EXI100.OUT

*
* 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

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
1          *DIAGRAM
2          ID CRYSTAL PARK APARTMENTS - TECHNICAL DRAINAGE STUDY
3          ID EXISTING CONDITION
4          ID FILE: 7844-EXI100.DAT
5          ID 09/05/17
6          ID 100YR STORM EVENT
7          IT 5 0 300
8          IN 5 0
9          IO 5 0
9          JR PREC 1.00
*
10         KK OFFE1
11         KM BASEFLOW IS FLOW SPLITTING INTO 20' ALLEY FROM MICHAEL
12         BA 0.002
13         PC .000 .020 .057 .070 .087 .108 .124 .130 .130 .130
14         PC .130 .130 .130 .133 .140 .142 .148 .158 .172 .181
15         PC .190 .197 .199 .200 .201 .204 .214 .229 .241 .249
16         PC .251 .256 .270 .278 .281 .283 .295 .322 .352 .409
17         PC .499 .590 .710 .744 .781 .812 .819 .835 .851 .856
18         PC .860 .868 .876 .888 .910 .926 .937 .950 .970 .976
19         PC .982 .985 .987 .989 .990 .993 .993 .994 .995 .998
20         PC .998 .999 1.00
21         PB 2.77
22         LS 94.0
23         UD .064
*
24         KK CPA
25         KM COMBINES FLOW SPLIT AND OFFE1
26         BF 53
*
27         KK ONE1
28         BF 0
29         BA .0047
30         LS 92.0
31         UD .108
*
32         KK ONE2
33         BA .0101
34         LS 91.0
35         UD .100
*
36         KK CPE4
37         KM COMBINE BASINS ONE1 AND ONE2
38         HC 2
*
```

1 HEC-1 INPUT PAGE 2

```

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
39         KK ONE3
40         KM WEST PORTION OF SITE DISCHARGING WESTERLY ONTO MICHAEL WAY
41         BA .0008
42         LS 94.0
43         UD .100
*
44         ZZ

```

1 SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT
LINE (V) ROUTING (--->) DIVERSION OR PUMP FLOW
NO. (.) CONNECTOR (<---) RETURN OF DIVERTED OR PUMPED FLOW
Page 1

```

10      OFFE1
24      .
      CPA
27      .
      .
      ONE1
32      .
      .
      .
      ONE2
36      .
      .
      CPE4 .....
39      .
      .
      .
      ONE3

```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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1*****
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
*   JUN 1998
*   VERSION 4.1
* RUN DATE 30OCT17 TIME 13:46:22
* *****

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```

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

```

CRYSTAL PARK APARTMENTS - TECHNICAL DRAINAGE STUDY
 EXISTING CONDITION
 FILE: 7844-EXI100.DAT
 09/05/17
 100YR STORM EVENT

```

8 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 0 STARTING DATE
          ITIME     1200 STARTING TIME
          NQ        101 NUMBER OF HYDROGRAPH ORDINATES
          NDDATE    13 0 ENDING DATE
          NDTIME    2020 ENDING TIME
          ICENT     19 CENTURY MARK

          COMPUTATION INTERVAL .08 HOURS
          TOTAL TIME BASE 8.33 HOURS

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

JP        MULTI-PLAN OPTION
          NPLAN      1 NUMBER OF PLANS

JR        MULTI-RATIO OPTION
          RATIOS OF PRECIPITATION
          1.00

```

1

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

OPERATION	STATION	AREA	PLAN	RATIOS APPLIED TO PRECIPITATION
				1.00
HYDROGRAPH AT	OFFE1	.00	1	4.
+				3.50
HYDROGRAPH AT	CPA	.00	1	57.
+				3.50
HYDROGRAPH AT	ONE1	.00	1	8.
+				3.50
HYDROGRAPH AT	ONE2	.01	1	17.
+				3.50
2 COMBINED AT	CPE4	.01	1	24.
+				3.50
HYDROGRAPH AT	ONE3	.00	1	1.
+				3.50

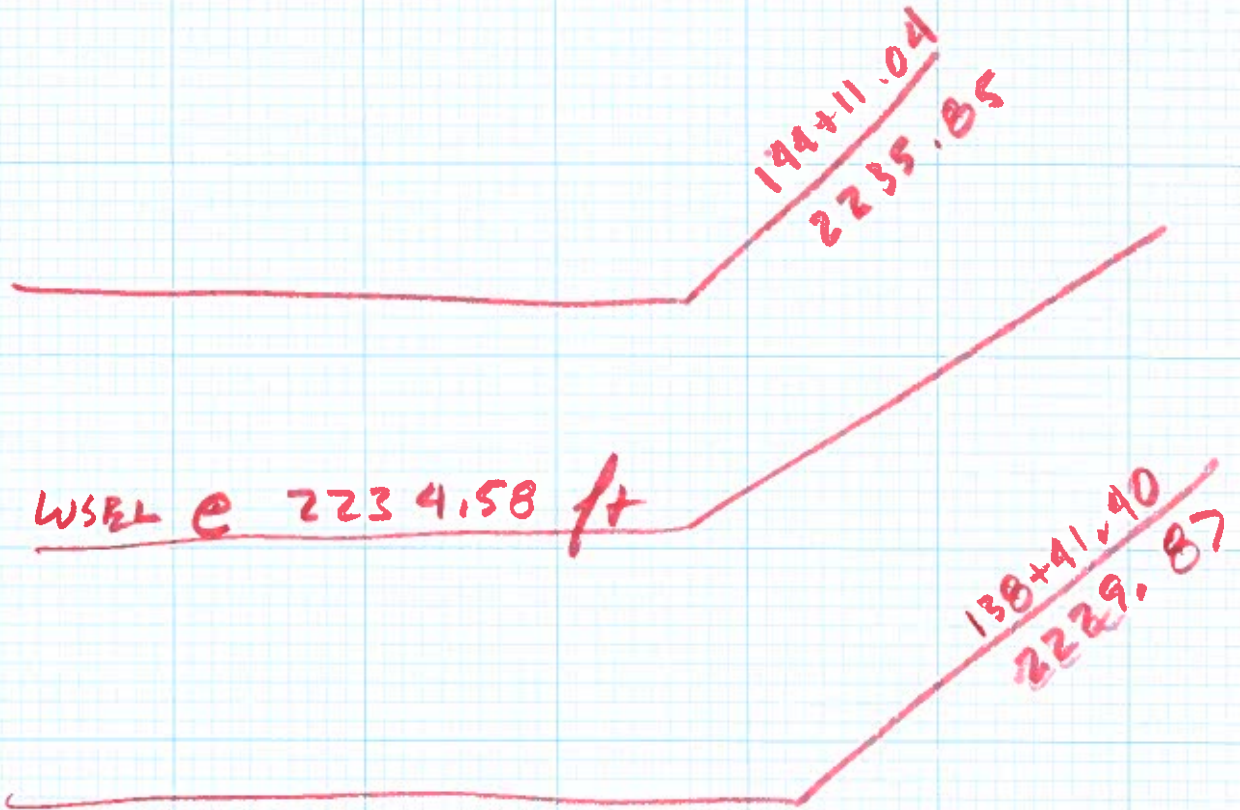
7844-EXI100.OUT

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

APPENDIX C

HYDRAULIC CALCULATIONS

INTERPOLATED WSEL



$$\frac{121.33}{570.39} \quad 0.21271 \quad 0.21271 (35.85 - 29.87) = 1.27$$

~~3524295~~

$$35.85 - 1.27 = \underline{\underline{2234.58}}$$

Lower Rancho Street only 082806

A-CURB WEIR OPENING

Client	Becker Investments	WO. No.	7844	Page No	of
Subject	A Curb Opening	Date		By	
		Checked		By	
Location	Crystal Park	Revised		By	

$$Q = CLH^{3/2} \quad \therefore \quad \frac{Q}{CH^{3/2}} = L$$

$$\begin{aligned} Q &= 12 \\ H &= 0.5 \\ C &= 3 \end{aligned}$$

$$L = \frac{Q}{CH^{3/2}} = \frac{12}{3(0.5)^{3/2}} = 1.88 \text{ ft}$$

Use a 2.0' wide opening



CONSULTING ENGINEERS • PLANNERS • SURVEYORS

2727 SOUTH RAINBOW BOULEVARD LAS VEGAS, NEVADA 89146
TEL. (702) 247-4020 FAX: 247-4262

NORMAL DEPTH STREET

Project Description

Input Data

Station (ft)	Elevation (ft)
100	100
200	100
300	100
400	100
500	100
600	100
700	100
800	100
900	100
1000	100
1100	100
1200	100
1300	100
1400	100
1500	100
1600	100
1700	100
1800	100
1900	100
2000	100
2100	100
2200	100
2300	100
2400	100
2500	100
2600	100
2700	100
2800	100
2900	100
3000	100
3100	100
3200	100
3300	100
3400	100
3500	100
3600	100
3700	100
3800	100
3900	100
4000	100
4100	100
4200	100
4300	100
4400	100
4500	100
4600	100
4700	100
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5900	100
6000	100
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6200	100
6300	100
6400	100
6500	100
6600	100
6700	100
6800	100
6900	100
7000	100
7100	100
7200	100
7300	100
7400	100
7500	100
7600	100
7700	100
7800	100
7900	100
8000	100
8100	100
8200	100
8300	100
8400	100
8500	100
8600	100
8700	100
8800	100
8900	100
9000	100
9100	100
9200	100
9300	100
9400	100
9500	100
9600	100
9700	100
9800	100
9900	100
10000	100

Roughness Segment Definitions

(0+00.00, 2.00)	(0+07.00, 0.13)	0.013
(0+07.00, 0.13)	(0+73.00, 0.13)	0.016
(0+73.00, 0.13)	(0+80.00, 2.00)	0.013

Bentley Systems, Inc. Haestad Methods Software
11/28/2017 9:06:55 AM 27 Siemons Company Drive Suite 200 W Watertown, CT 06795 USA +1-203-755-1666 Page 1 of 2

Worksheet for A-A Michael Way 10

Options

Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	0.42	ft
Elevation Range	0.00 to 2.00	ft
Flow Area	4.18	ft ²
Wetted Perimeter	28.91	ft
Hydraulic Radius	0.14	ft
Top Width	27.97	ft
Normal Depth	0.42	ft
Critical Depth	0.45	ft
Critical Slope	0.00676	ft/ft
Velocity	2.87	ft/s
Velocity Head	0.13	ft
Specific Energy	0.55	ft
Froude Number	1.31	
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	0.42	ft
Critical Depth	0.45	ft
Channel Slope	1.2	%
Critical Slope	0.00676	ft/ft

Cross Section for A-A Michael Way 10

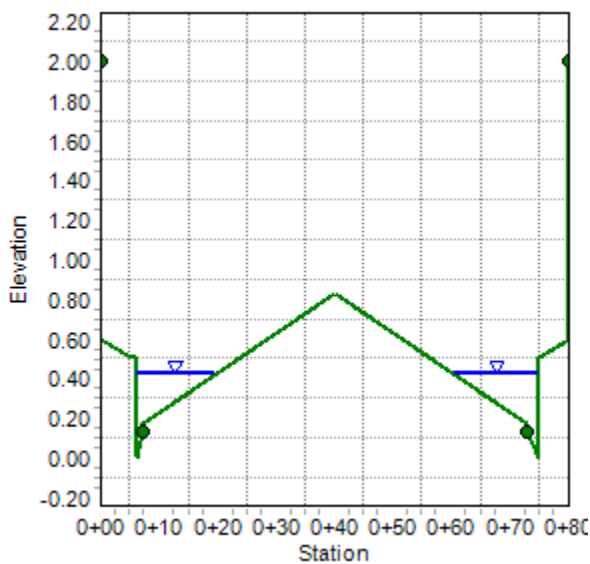
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.2	%
Normal Depth	0.42	ft
Discharge	12	ft ³ /s

Cross Section Image



Worksheet for B-B Michael Way 10

Project Description

Friction Method	Manning Formula
-----------------	-----------------

Solve For Normal Depth

Input Data

Channel Slope	0.4	%
---------------	-----	---

Discharge 7 ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	2.00
0+00.00	0.60
0+05.00	0.50
0+06.00	0.50
0+06.00	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+75.00	0.00
0+75.00	0.50
0+75.00	0.50
0+80.00	0.60
0+80.00	2.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 2.00)	(0+07.00, 0.13)	0.013
(0+07.00, 0.13)	(0+73.00, 0.13)	0.016
(0+73.00, 0.13)	(0+80.00, 2.00)	0.013

Options

Current roughness weighted Pavlovskii's Method

Worksheet for B-B Michael Way 10

Options

Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth		0.42	ft
Elevation Range	0.00 to 2.00 ft		
Flow Area		4.14	ft ²
Wetted Perimeter		28.75	ft
Hydraulic Radius		0.14	ft
Top Width		27.81	ft
Normal Depth		0.42	ft
Critical Depth		0.39	ft
Critical Slope		0.00727	ft/ft
Velocity		1.69	ft/s
Velocity Head		0.04	ft
Specific Energy		0.46	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	0.42	ft
Critical Depth	0.39	ft
Channel Slope	0.4	%
Critical Slope	0.00727	ft/ft

Cross Section for B-B Michael Way 10

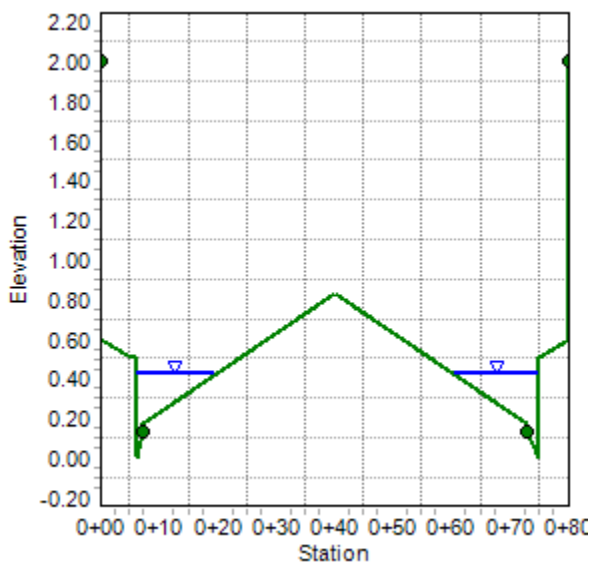
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.4	%
Normal Depth	0.42	ft
Discharge	7	ft ³ /s

Cross Section Image



DROP INLET CALCULATION

Drop Inlet Interception

Project: Crystal Park Apartments
 Work Order no.: 7844
 Calculated By: ACY
 Date: Nov-17

Inlet ID: 6 RT
 Drainage Condition: Developed/Ultimate 10-Year Storm
 Flow Summary: Bypass (3.9cfs) + Mossman (11cfs) + OFFE4 (0.5 cfs)
 Inlet Description: 12.5' Type C Modified

Equations referenced from CCRFCD HCDDM and FHWA HEC-22

Input:	Variable:	Input:
Street Flow (cfs)	Q	15.4
Longitudinal Slope (ft/ft)	S _o	0.005
Manning's Coefficient	n	0.016
Street Flow Velocity (fps)	V	2.47
Street Flow Depth (ft)	D	0.61
Street Cross Slope (ft/ft)	S _x	0.02
Grate Width (ft)	W	1.5
Grate Depression (in)	D _g	2
Length of Grate (ft)	L _g	10
Length of Curb Opening (ft)	L _c	12
Clogging Factor - Grate (%)	CF _g	50%
Clogging Factor - Curb (%)	CF _c	50%
Effective Grate Length (ft)	L _{ge}	5
Effective Curb Opening Lenth (ft)	L _{ce}	6

Output (Grate):	Equation:	Output (Grate):
R _f - Frontal Flow Factor	$1 - 0.09 * (V - V_x)$ if $V > V_x$; else 1	1.00
V _o - Splash Over Velocity (fps)	$p + q * L_{ge} - r * L_{ge}^2 + sy * L_{ge}^3$; where $p=0.30$, $q=4.85$, $r=1.31$, $sy=0.15$ (vane grate)	10.55
E - grate Flow Ratio	Q _w /Q _s	0.21
Q _w - Frontal Flow (cfs)	$Q[1 - (1 - (W/T))^{2.67}]$	2.62
Q _s - Side Flow (cfs)	Q - Q _w	12.75
T - Side Flow Spread (ft)	(D - D _g)/S _x	22.17
R _s - Side Flow Factor	$1 / (1 + (0.15 * V^{1.8}) / (S_x * L_{ge}^{2.3}))$	0.51
Q _{gi} - Intercepted Flow (cfs)	(R _f *E+R _s *(1-E))*Q	9.5

Output (Curb):	Equation:	Output (Curb):
S _e - Equivalent Cross Slope (ft/ft)	S _x + S _g * E	0.04
Q _{sx} - Remaining Flow After Grate Interception (cfs)	Q - Q _{gi}	5.93
S _g - Gutter Cross Slope (ft/ft)	D _g /W	0.11
L _t - Effective Interception Length (ft)	$0.60 * Q_{sx}^{0.42} * S_o^{0.30} * [1 / (n * S_e)]^{0.6}$	20.45
Q _{ci} - Intercepted Flow (cfs)	$(1 - (1 - L_{ce}/L_t)^{1.8}) * Q_{sx}$ or Q _{sx} if $L_t < L_{ce}$	2.8

Output (Combination):	Equation:	Output (Combination):
Total Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	12.2
Bypass Flow (cfs)	Street Flow - Total Intercepted Flow	3.2

Drop Inlet Interception

Project: Crystal Park Apartments
 Work Order no.: 7844
 Calculated By: ACY
 Date: Nov-17

Inlet ID: 5 LT
 Drainage Condition: Developed/Ultimate 10-Year Storm
 Flow Summary: Bypass (3.1cfs) + 1/2 OFFE4 (0.5cfs)
 Inlet Description: None

Equations referenced from CCRFCD HCDDM and FHWA HEC-22

Input:	Variable:	Input:
Street Flow (cfs)	Q	3.6
Longitudinal Slope (ft/ft)	S _o	0.005
Manning's Coefficient	n	0.016
Street Flow Velocity (fps)	V	1.76
Street Flow Depth (ft)	D	0.38
Street Cross Slope (ft/ft)	S _x	0.02
Grate Width (ft)	W	1.5
Grate Depression (in)	D _g	2
Length of Grate (ft)	L _g	2.5
Length of Curb Opening (ft)	L _c	4.5
Clogging Factor - Grate (%)	CF _g	50%
Clogging Factor - Curb (%)	CF _c	50%
Effective Grate Length (ft)	L _{ge}	1.25
Effective Curb Opening Length (ft)	L _{ce}	2.25

Output (Grate):	Equation:	Output (Grate):
R _f - Frontal Flow Factor	$1 - 0.09 * (V - V_x)$ if $V > V_x$; else 1	1.00
V _o - Splash Over Velocity (fps)	$p + q * L_{ge} - r * L_{ge}^2 + sy * L_{ge}^3$; where $p=0.30$, $q=4.85$, $r=1.31$, $sy=0.15$ (vane grate)	4.61
E - grate Flow Ratio	Q _w /Q _s	0.50
Q _w - Frontal Flow (cfs)	$Q[1 - (1 - (W/T))^{2.67}]$	1.19
Q _s - Side Flow (cfs)	Q - Q _w	2.39
T - Side Flow Spread (ft)	(D - D _g)/S _x	10.67
R _s - Side Flow Factor	$1 / (1 + (0.15 * V^{1.8}) / (S_x * L_{ge}^{2.3}))$	0.07
Q _{gi} - Intercepted Flow (cfs)	(R _f *E + R _s *(1-E))*Q	1.9

Output (Curb):	Equation:	Output (Curb):
S _e - Equivalent Cross Slope (ft/ft)	S _x + S _g *E	0.08
Q _{sx} - Remaining Flow After Grate Interception (cfs)	Q - Q _{gi}	1.66
S _g - Gutter Cross Slope (ft/ft)	D _g /W	0.11
L _t - Effective Interception Length (ft)	$0.60 * Q_{sx}^{0.42} * S_o^{0.30} * [1 / (n * S_e)]^{0.6}$	8.54
Q _{ci} - Intercepted Flow (cfs)	$(1 - (1 - L_{ce}/L_t)^{1.8}) * Q_{sx}$ or Q _{sx} if $L_t < L_{ce}$	0.7

Output (Combination):	Equation:	Output (Combination):
Total Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	2.6
Bypass Flow (cfs)	Street Flow - Total Intercepted Flow	1.0

Drop Inlet Interception

Project: Crystal Park Apartments
 Work Order no.: 7844
 Calculated By: ACY
 Date: Nov-17

Inlet ID: 4 Mossman Ave RT
 Drainage Condition: Developed/Ultimate 10-Year Storm
 Flow Summary: Bypass (6cfs) + Mare (25cfs) + 1/2 OFFE3 (0.5cfs)
 Inlet Description: 17.5' Type C Modified

Equations referenced from CCRFCD HCDDM and FHWA HEC-22

Input:	Variable:	Input:
Street Flow (cfs)	Q	31.5
Longitudinal Slope (ft/ft)	S _o	0.004
Manning's Coefficient	n	0.016
Street Flow Velocity (fps)	V	2.77
Street Flow Depth (ft)	D	0.76
Street Cross Slope (ft/ft)	S _x	0.02
Grate Width (ft)	W	1.5
Grate Depression (in)	D _g	2
Length of Grate (ft)	L _g	15
Length of Curb Opening (ft)	L _c	17
Clogging Factor - Grate (%)	CF _g	50%
Clogging Factor - Curb (%)	CF _c	50%
Effective Grate Length (ft)	L _{ge}	7.5
Effective Curb Opening Length (ft)	L _{ce}	8.5

Output (Grate):	Equation:	Output (Grate):
R _f - Frontal Flow Factor	$1 - 0.09 * (V - V_x)$ if $V > V_x$; else 1	1.00
V _o - Splash Over Velocity (fps)	$p + q * L_{ge} - r * L_{ge}^2 + sy * L_{ge}^3$; where $p=0.30$, $q=4.85$, $r=1.31$, $sy=0.15$ (vane grate)	26.27
E - grate Flow Ratio	Q _w /Q _s	0.15
Q _w - Frontal Flow (cfs)	$Q[1 - (1 - (W/T))^{2.67}]$	4.07
Q _s - Side Flow (cfs)	Q - Q _w	27.41
T - Side Flow Spread (ft)	(D - D _g)/S _x	29.67
R _s - Side Flow Factor	$1 / (1 + (0.15 * V^{1.8}) / (S_x * L_{ge}^{2.3}))$	0.69
Q _{gi} - Intercepted Flow (cfs)	(R _f *E + R _s *(1-E))*Q	23.1

Output (Curb):	Equation:	Output (Curb):
S _e - Equivalent Cross Slope (ft/ft)	S _x + S _g *E	0.04
Q _{sx} - Remaining Flow After Grate Interception (cfs)	Q - Q _{gi}	8.39
S _g - Gutter Cross Slope (ft/ft)	D _g /W	0.11
L _t - Effective Interception Length (ft)	$0.60 * Q_{sx}^{0.42} * S_o^{0.30} * [1 / (n * S_e)]^{0.6}$	24.37
Q _{ci} - Intercepted Flow (cfs)	$(1 - (1 - L_{ce}/L_t)^{1.8}) * Q_{sx}$ or Q _{sx} if $L_t < L_{ce}$	4.5

Output (Combination):	Equation:	Output (Combination):
Total Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	27.6
Bypass Flow (cfs)	Street Flow - Total Intercepted Flow	3.9

Drop Inlet Interception

Project: Crystal Park Apartments
 Work Order no.: 7844
 Calculated By: ACY
 Date: Nov-17

Inlet ID: 3 Mossman Ave LT
 Drainage Condition: Developed/Ultimate 10-Year Storm
 Flow Summary: Bypass (6cfs) + 1/2 OFFE3 = 6.5 cfs
 Inlet Description: 5' Type C Modified

Equations referenced from CCRFCD HCDDM and FHWA HEC-22

Input:	Variable:	Input:
Street Flow (cfs)	Q	6.5
Longitudinal Slope (ft/ft)	S_o	0.004
Manning's Coefficient	n	0.016
Street Flow Velocity (fps)	V	1.9
Street Flow Depth (ft)	D	0.48
Street Cross Slope (ft/ft)	S_x	0.02
Grate Width (ft)	W	1.5
Grate Depression (in)	D_g	2
Length of Grate (ft)	L_g	2.5
Length of Curb Opening (ft)	L_c	4.5
Clogging Factor - Grate (%)	CF_g	50%
Clogging Factor - Curb (%)	CF_c	50%
Effective Grate Length (ft)	L_{ge}	1.25
Effective Curb Opening Length (ft)	L_{ce}	2.25

Output (Grate):	Equation:	Output (Grate):
R_f - Frontal Flow Factor	$1 - 0.09 * (V - V_x)$ if $V > V_x$; else 1	1.00
V_o - Splash Over Velocity (fps)	$p + q * L_{ge} - r * L_{ge}^2 + sy * L_{ge}^3$; where $p=0.30$, $q=4.85$, $r=1.31$, $sy=0.15$ (vane grate)	4.61
E - grate Flow Ratio	Q_w / Q_s	0.31
Q_w - Frontal Flow (cfs)	$Q [1 - (1 - (W/T))^{2.67}]$	1.53
Q_s - Side Flow (cfs)	$Q - Q_w$	4.95
T - Side Flow Spread (ft)	$(D - D_g) / S_x$	15.67
R_s - Side Flow Factor	$1 / (1 + (0.15 * V^{1.8}) / (S_x * L_{ge}^{2.3}))$	0.07
Q_{gi} - Intercepted Flow (cfs)	$(R_f * E + R_s * (1 - E)) * Q$	2.3

Output (Curb):	Equation:	Output (Curb):
S_e - Equivalent Cross Slope (ft/ft)	$S_x + S_g * E$	0.05
Q_{sx} - Remaining Flow After Grate Interception (cfs)	$Q - Q_{gi}$	4.19
S_g - Gutter Cross Slope (ft/ft)	D_g / W	0.11
L_t - Effective Interception Length (ft)	$0.60 * Q_{sx}^{0.42} * S_o^{0.30} * [1 / (n * S_e)]^{0.6}$	14.35
Q_{ci} - Intercepted Flow (cfs)	$(1 - (1 - L_{ce} / L_t)^{1.8}) * Q_{sx}$ or Q_{sx} if $L_t < L_{ce}$	1.1

Output (Combination):	Equation:	Output (Combination):
Total Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	3.4
Bypass Flow (cfs)	Street Flow - Total Intercepted Flow	3.1

Drop Inlet Interception

Project: Crystal Park Apartments
 Work Order no.: 7844
 Calculated By: ACY
 Date: Nov-17

Inlet ID: 2 Mare Way RT
 Drainage Condition: Developed/Ultimate 10-Year Storm
 Flow Summary: 1/2(FLOWSPLIT + OFFE2) = 14.5 cfs
 Inlet Description: 10' Type C Modified

Equations referenced from CCRFCD HCDDM and FHWA HEC-22

Input:	Variable:	Input:
Street Flow (cfs)	Q	14.5
Longitudinal Slope (ft/ft)	S _o	0.012
Manning's Coefficient	n	0.016
Street Flow Velocity (fps)	V	3.38
Street Flow Depth (ft)	D	0.54
Street Cross Slope (ft/ft)	S _x	0.02
Grate Width (ft)	W	1.5
Grate Depression (in)	D _g	2
Length of Grate (ft)	L _g	7.5
Length of Curb Opening (ft)	L _c	9.5
Clogging Factor - Grate (%)	CF _g	50%
Clogging Factor - Curb (%)	CF _c	50%
Effective Grate Length (ft)	L _{ge}	3.75
Effective Curb Opening Length (ft)	L _{ce}	4.75

Output (Grate):	Equation:	Output (Grate):
R _f - Frontal Flow Factor	1-0.09*(V-V _x) if V>V _x ; else 1	1.00
V _o - Splash Over Velocity (fps)	p+q*L _{ge} -r*L _{ge} ² +sy*L _{ge} ³ ; where p=0.30, q=4.85, r=1.31, sy=0.15 (vane grate)	7.98
E - grate Flow Ratio	Q _w /Q _s	0.25
Q _w - Frontal Flow (cfs)	Q[1-(1-(W/T)) ^{2.67}]	2.91
Q _s - Side Flow (cfs)	Q-Q _w	11.59
T - Side Flow Spread (ft)	(D-D _g)/S _x	18.67
R _s - Side Flow Factor	1/(1+(0.15*V ^{1.8})/(S _x *L _{ge} ^{2.3}))	0.24
Q _{gi} - Intercepted Flow (cfs)	(R _f *E+R _s *(1-E))*Q	6.2

Output (Curb):	Equation:	Output (Curb):
S _e - Equivalent Cross Slope (ft/ft)	S _x +S _g *E	0.05
Q _{sx} - Remaining Flow After Grate Interception (cfs)	Q-Q _{gi}	8.29
S _g - Gutter Cross Slope (ft/ft)	D _g /W	0.11
L _t - Effective Interception Length (ft)	0.60*Q _{sx} ^{0.42} *S _o ^{0.30} *[1/(n*S _e)] ^{0.6}	28.66
Q _{ci} - Intercepted Flow (cfs)	(1-(1-L _{ce} /L _t) ^{1.8})*Q _{sx} or Q _{sx} if L _t <L _{ce}	2.3

Output (Combination):	Equation:	Output (Combination):
Total Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	8.5
Bypass Flow (cfs)	Street Flow - Total Intercepted Flow	6.0

Drop Inlet Interception

Project: Crystal Park Apartments
 Work Order no.: 7844
 Calculated By: ACY
 Date: Nov-17

Inlet ID: 1 Mare Way LT
 Drainage Condition: Developed/Ultimate 10-Year Storm
 Flow Summary: 1/2(FLOWSPLIT + OFFE2) = 14.5 cfs
 Inlet Description: 10' Type C Modified

Equations referenced from CCRFCD HCDDM and FHWA HEC-22

Input:	Variable:	Input:
Street Flow (cfs)	Q	14.5
Longitudinal Slope (ft/ft)	S _o	0.012
Manning's Coefficient	n	0.016
Street Flow Velocity (fps)	V	3.38
Street Flow Depth (ft)	D	0.54
Street Cross Slope (ft/ft)	S _x	0.02
Grate Width (ft)	W	1.5
Grate Depression (in)	D _g	2
Length of Grate (ft)	L _g	7.5
Length of Curb Opening (ft)	L _c	9.5
Clogging Factor - Grate (%)	CF _g	50%
Clogging Factor - Curb (%)	CF _c	50%
Effective Grate Length (ft)	L _{ge}	3.75
Effective Curb Opening Length (ft)	L _{ce}	4.75

Output (Grate):	Equation:	Output (Grate):
R _f - Frontal Flow Factor	1-0.09*(V-V _x) if V>V _x ; else 1	1.00
V _o - Splash Over Velocity (fps)	p+q*L _{ge} -r*L _{ge} ² +sy*L _{ge} ³ ; where p=0.30, q=4.85, r=1.31, sy=0.15 (vane grate)	7.98
E - grate Flow Ratio	Q _w /Q _s	0.25
Q _w - Frontal Flow (cfs)	Q[1-(1-(W/T)) ^{2.67}]	2.91
Q _s - Side Flow (cfs)	Q-Q _w	11.59
T - Side Flow Spread (ft)	(D-D _g)/S _x	18.67
R _s - Side Flow Factor	1/(1+(0.15*V ^{1.8})/(S _x *L _{ge} ^{2.3}))	0.24
Q _{gi} - Intercepted Flow (cfs)	(R _f *E+R _s *(1-E))*Q	6.2

Output (Curb):	Equation:	Output (Curb):
S _e - Equivalent Cross Slope (ft/ft)	S _x +S _g *E	0.05
Q _{sx} - Remaining Flow After Grate Interception (cfs)	Q-Q _{gi}	8.29
S _g - Gutter Cross Slope (ft/ft)	D _g /W	0.11
L _t - Effective Interception Length (ft)	0.60*Q _{sx} ^{0.42} *S _o ^{0.30} *[1/(n*S _e)] ^{0.6}	28.66
Q _{ci} - Intercepted Flow (cfs)	(1-(1-L _{ce} /L _t) ^{1.8})*Q _{sx} or Q _{sx} if L _t <L _{ce}	2.3

Output (Combination):	Equation:	Output (Combination):
Total Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	8.5
Bypass Flow (cfs)	Street Flow - Total Intercepted Flow	6.0

NORMAL DEPTH STORM DRAIN

Worksheet for SD Section A

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.4	%
Diameter	2.00	ft
Discharge	17	ft ³ /s

Results

Normal Depth	1.33	ft
Flow Area	3.01	ft ²
Wetted Perimeter	4.36	ft
Hydraulic Radius	0.69	ft
Top Width	2.98	ft
Critical Depth	1.32	ft
Percent Full	44.2	%
Critical Slope	0.00407	ft/ft
Velocity	5.65	ft/s
Velocity Head	0.50	ft
Specific Energy	1.82	ft
Froude Number	0.99	
Maximum Discharge	45.37	ft ³ /s
Discharge Full	42.18	ft ³ /s
Slope Full	0.00065	ft/ft
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
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	44.17	%
Downstream Velocity	Infinity	ft/s

Worksheet for SD Section A

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	1.33	ft
Critical Depth	1.32	ft
Channel Slope	0.4	%
Critical Slope	0.00407	ft/ft

BOND ESTIMATE

**City of Las Vegas
Bond Estimate Form**



Department of Building and Safety

Civil and Planning Development
333 North Rancho Drive, Las Vegas, NV 89106
(702) 229-6251 Fax (702) 382-1240
www.lasvegasnevada.gov

PROJECT NAME: Crystal Park Acres: _____
PROJECT NUMBER: DS4922A # LOT NA
PREPARED BY: wjm

	Surety Public	Surety Private
Subtotal Sewer	\$ -	\$ -
Subtotal Water	\$ -	\$ -
Subtotal Roadway	\$ -	\$ -
Subtotal Traffic	\$ -	\$ -
Subtotal Drainage	\$ 207,831.67	\$ -
Subtotal Drainage Cont.	\$ -	\$ -
Subtotal Dry Utilities and Other	\$ -	\$ -
ESTIMATED LINE ITEM COST	\$ 207,831.67	\$ -
10% CONTINGENCIES	\$ 20,783.17	\$ -
TOTAL	\$ 228,614.84	\$ -
Grand Total (Public + Private) (Declared Value)	\$	228,614.84

INSPECTION FEE	
First \$30,000.00 (2.75%)	\$825.00
Next \$90,000.00 (1.75%)	\$1,575.00
Over \$120,000.00 (1.0%)	\$1,086.15
Total Inspection fee (\$50 minimum for single residence, \$150 minimum others)	\$3,486.15
PLAN CHECK FEE	
Plan Check Fee ((\$100 minimum for single residence, \$500 minimum others)) 1.25%	\$2,857.69 <<*
IF SUBD. ENTER #LOT 0 Sub. FM \$100.00 + \$10.00/Lot	\$0.00
Improvement Agreement Required* "Y" or "N"	
Improvement Agreement Fee (\$100)	\$0.00
Admin Fee	\$54.00 <<*
N Total Fees	\$6,397.84

<<*- Plan Check Fee and Admin Fee due at time of Initial Submittal

PRIVATE QUANTITIES ONLY NEED TO BE PROVIDED FOR PRIVATE STREET OR DRIVE WITHIN A RESIDENTIAL SUBDIVISION

* - A Improvement Agreement is required whenever a performance bond must be posted.

**City of Las Vegas
Bond Line Items**

DRAINAGE IMPROVEMENTS							
LINEITEM	DESCRIPTION	Public Quantity	Private Quantity	Unit Type	100% Unit Cost for Surety	Total Public Estimate for Surety	Total Private Estimate for Surety
Storm Drain							
603.00.02	12" STORM DRAIN			LF	\$94.00	\$0.00	\$0.00
603.00.04	18" STORM DRAIN	145		LF	\$137.92	\$19,998.40	\$0.00
603.00.06	24" STORM DRAIN	351		LF	\$161.75	\$56,774.25	\$0.00
603.00.08	30" STORM DRAIN	25		LF	\$179.62	\$4,490.50	\$0.00
603.00.10	36" STORM DRAIN	256		LF	\$190.52	\$48,773.12	\$0.00
603.00.12	42" STORM DRAIN	38		LF	\$248.07	\$9,426.66	\$0.00
603.00.14	48" STORM DRAIN			LF	\$318.53	\$0.00	\$0.00
603.00.16	54" STORM DRAIN			LF	\$327.46	\$0.00	\$0.00
603.00.18	60" STORM DRAIN			LF	\$384.01	\$0.00	\$0.00
603.00.19	66" STORM DRAIN			LF	\$425.70	\$0.00	\$0.00
603.00.22	72" STORM DRAIN			LF	\$431.66	\$0.00	\$0.00
603.00.26	84" STORM DRAIN			LF	\$477.30	\$0.00	\$0.00
603.00.28	96" STORM DRAIN			LF	\$517.98	\$0.00	\$0.00
603.00.30	108" STORM DRAIN			LF	\$600.34	\$0.00	\$0.00
603.00.40	STORM DRAIN PLUG			EA	\$1,548.20	\$0.00	\$0.00
609.98.15	STORM DRAIN TAP			EA	\$1,543.56	\$0.00	\$0.00
202.02.37	ABANDON PUBLIC RCP/RCB			LF	\$110.25	\$0.00	\$0.00
208.00.08	SD CONCRETE ENCASEMENT			LF	\$43.00	\$0.00	\$0.00
Drop Inlets							
609.01.17	3' NEENAH DROP INLET D=6' MAX			EA	\$10,143.40	\$0.00	\$0.00
609.01.18	6' NEENAH DROP INLET D=6' MAX			EA	\$10,363.91	\$0.00	\$0.00
609.01.19	9' NEENAH DROP INLET D=6' MAX			EA	\$10,915.18	\$0.00	\$0.00
609.01.11	4' TYPE A DROP INLET			EA	\$6,449.89	\$0.00	\$0.00
609.01.13	6' TYPE A DROP INLET			EA	\$7,938.33	\$0.00	\$0.00
609.01.15	8' TYPE A DROP INLET			EA	\$10,419.05	\$0.00	\$0.00
609.01.16	10' TYPE A DROP INLET			EA	\$11,907.47	\$0.00	\$0.00
609.01.21	4' TYPE C DROP INLET			EA	\$7,276.80	\$0.00	\$0.00
609.01.22	6' TYPE C DROP INLET			EA	\$7,717.81	\$0.00	\$0.00
609.01.42	2.5' TYPE CM2 DI			EA	\$7,938.33	\$0.00	\$0.00
609.01.43	5' CM2 DROP INLET			EA	\$9,228.29	\$0.00	\$0.00
609.01.44	7.5' CM2 DROP INLET			EA	\$11,907.47	\$0.00	\$0.00
609.01.45	10' CM2 DROP INLET			EA	\$15,777.41	\$0.00	\$0.00
609.01.46	12.5' CM2 DROP INLET			EA	\$16,587.92	\$0.00	\$0.00
609.01.47	15' CM2 DROP INLET			EA	\$17,067.37	\$0.00	\$0.00
609.01.48	17.5' CM2 DROP INLET			EA	\$18,853.50	\$0.00	\$0.00
609.01.49	20' CM2 DROP INLET			EA	\$24,807.24	\$0.00	\$0.00
609.01.04	24" BEEHIVE INLET			EA	\$6,052.98	\$0.00	\$0.00
609.01.06	2'X2' JENSEN DROP INLET			EA	\$6,946.03	\$0.00	\$0.00
609.01.70	2.5' TYPE DM2 DI			EA	\$6,946.03	\$0.00	\$0.00
609.01.72	5.0' TYPE DM2 DI	1		EA	\$8,831.38	\$8,831.38	\$0.00
609.01.74	7.5' TYPE DM2 DI			EA	\$9,922.89	\$0.00	\$0.00
609.01.76	10.0' TYPE DM2 DI	3		EA	\$12,899.76	\$38,699.28	\$0.00
609.01.78	12.5' TYPE DM2 DI			EA	\$15,876.64	\$0.00	\$0.00
609.01.80	15.0' TYPE DM2 DI			EA	\$18,853.50	\$0.00	\$0.00
609.01.82	17.5' TYPE DM2 DI	1		EA	\$20,838.08	\$20,838.08	\$0.00
609.01.84	20.0' TYPE DM2 DI			EA	\$22,822.67	\$0.00	\$0.00
609.01.90	NDOT TYPE 2 DROP INLET			EA	\$10,022.13	\$0.00	\$0.00
609.01.91	NDOT TYPE 3 DROP INLET			EA	\$11,907.47	\$0.00	\$0.00
202.02.44	REMOVE DROP INLET			EA	\$6,782.87	\$0.00	\$0.00
Flood Control Erosion Control							
610.98.20	RIP RAP (D50=04")			CY	\$66.15	\$0.00	\$0.00
610.98.22	RIP RAP (D50=06")			CY	\$71.66	\$0.00	\$0.00
610.98.24	RIP RAP (D50=08")			CY	\$77.17	\$0.00	\$0.00
610.98.26	RIP RAP (D50=10")			CY	\$80.50	\$0.00	\$0.00
610.98.27	RIP RAP (D50=12")			CY	\$83.79	\$0.00	\$0.00
610.98.28	RIP RAP (D50=18")			CY	\$88.21	\$0.00	\$0.00
610.98.29	RIP RAP (D50=24")			CY	\$91.52	\$0.00	\$0.00
610.98.30	GROUTED RIP RAP (D50=04")			CY	\$82.69	\$0.00	\$0.00
610.98.32	GROUTED RIP RAP (D50=06")			CY	\$88.21	\$0.00	\$0.00
610.98.34	GROUTED RIP RAP (D50=08")			CY	\$93.71	\$0.00	\$0.00
610.98.36	GROUTED RIP RAP (D50=10")			CY	\$88.46	\$0.00	\$0.00
610.98.37	GROUTED RIP RAP (D50=12")			CY	\$104.75	\$0.00	\$0.00
610.98.38	GROUTED RIP RAP (D50=18")			CY	\$111.36	\$0.00	\$0.00
610.98.39	GROUTED RIP RAP (D50=24")			CY	\$116.87	\$0.00	\$0.00
610.00.70	GEOTEXTILE EROSION CONTROL			SY	\$29.87	\$0.00	\$0.00
610.00.50	GABIONS			CY	\$198.46	\$0.00	\$0.00
612.00.02	SHOTCRETE			CY	\$165.38	\$0.00	\$0.00
					Subtotal=	\$207,831.67	\$0.00

APPENDIX D

REFERENCE MATERIAL

ZONING/PLANNING CONDITIONS



LAS VEGAS CITY COUNCIL

CAROLYN G. GOODMAN
MAYOR

STAVROS S. ANTHONY
MAYOR PRO TEM

STEVE WOLFSON
LOIS TARKANIAN
STEVEN D. ROSS
RICKI Y. BARLOW
BOB COFFIN

ELIZABETH N. FRETWELL
CITY MANAGER

August 10, 2011

Mr. Ernest Becker IV
Rancho Properties, LLC
8090 South Durango Drive, Suite #115
Las Vegas, Nevada 89113

**RE: ABEYANCE - SDR-41779 - SITE DEVELOPMENT PLAN REVIEW
RELATED TO GPA-41777 AND ZON-41778
PLANNING COMMISSION MEETING OF AUGUST 9, 2011**

Dear Mr. Becker:

Your request for a Site Development Plan Review FOR A 136-UNIT APARTMENT COMPLEX WITH A WAIVER TO ALLOW NO LANDSCAPE BUFFER ALONG PORTIONS OF THE NORTH PERIMETER WHERE SIX FEET IS REQUIRED on 9.92 acres at 3000 North Michael Way (APN 138-13-512-001), O (Office) and C-M (Commercial/Industrial) Zones [PROPOSED: R-3 (Medium Density Residential)], Ward 5 (Barlow), was considered by the Planning Commission on August 9, 2011.

The Planning Commission voted to recommend **APPROVAL** of your request, subject to the following amended conditions:

Planning

1. The applicant shall provide notification to residents that the project is located within the Airport Overlay District.
2. Approval of a General Plan Amendment (GPA-41777) and Rezoning (ZON-41778) shall be required, if approved.
3. This approval shall be void two years from the date of final approval, unless exercised pursuant to the provisions of LVMC Title 19.16. An Extension of Time may be filed for consideration by the City of Las Vegas.
4. All development shall be in conformance with the site plan, landscape plan, and building elevations, date stamped 05/12/11, except as amended by conditions herein.
5. A Waiver from Title 19.06.110 is hereby approved, to allow no landscape buffer along portions of the north perimeter where six feet is required.
6. An Exception from Title 19.06.110 is hereby approved, to allow no trees in the parking lot where required due to a sewer easement and to have nine fewer additional parking lot trees than required.

CITY OF LAS VEGAS
DEPARTMENT OF PLANNING
DEVELOPMENT SERVICES CENTER
333 NORTH RANCHO DRIVE
3RD FLOOR
LAS VEGAS, NEVADA 89106

VOICE 702.229.6301
FAX 702.474.0352
TTY 702.386.9108
www.lasvegasnevada.gov



7. An Exception from Title 19.06.110 is hereby approved, to allow 126 total perimeter trees for the project.
8. Applicant is required to file a valid FAA Form 7460-1, "Notice of Proposed Construction or Alteration" with the FAA, in accordance with 14 CFR Part 77. No Building Permit or other construction permit shall be issued for any structure greater than 35 feet above the surface of land that, based upon the FAA's 7460 airspace determination (the outcome of filing the FAA Form 7460-1) would (a) constitute a hazard to air navigation, (b) would result in an increase to minimum flight altitudes during any phase of flight (unless approved by the Department of Aviation), or (c) would otherwise be determined to pose a significant adverse impact on airport or aircraft operations.
9. Any changes based upon right-of-way, traffic or drainage studies or street improvements required by the city or public utilities shall not reduce the widths of perimeter landscape buffers, height of walls or quantities of plant materials from that on submitted landscape plans date stamped 05/12/11. Any changes based upon subsequently submitted studies must be accommodated elsewhere on the site.
10. Prior to occupancy, all necessary building permits shall be obtained and final inspections shall be completed in compliance with Title 19 and all codes as required by the Department of Building and Safety.
11. These Conditions of Approval shall be affixed to the cover sheet of any plan set submitted for building permit.
12. A technical landscape plan, signed and sealed by a Registered Architect, Landscape Architect, Residential Designer or Civil Engineer, must be submitted prior to or at the same time application is made for a building permit. A permanent underground sprinkler system is required, and shall be permanently maintained in a satisfactory manner; the landscape plan shall include irrigation specifications. Installed landscaping shall not impede visibility of any traffic control device.
13. Air conditioning units shall not be mounted on rooftops.
14. All utility boxes exceeding 27 cubic feet in size shall meet the standards of LVMC Title 19.08.040.
15. Parking lot lighting standards shall be no more than 30 feet in height and shall utilize downward-directed lights with full cut-off luminaries. Lighting on the exterior of buildings shall be shielded and shall be downward-directed. Non-residential property lighting shall be directed away from residential property or screened, and shall not create fugitive lighting on adjacent properties.

16. A fully operational fire protection system, including fire apparatus roads, fire hydrants and water supply, shall be installed and shall be functioning prior to construction of any combustible structures.
17. All City Code requirements and design standards of all City Departments must be satisfied, except as modified herein.

Public Works

18. Construct all incomplete half-street improvements on Michael Way adjacent to this site concurrent with development of this site. All existing paving damaged or removed by this development shall be restored at its original location and to its original width concurrent with development of this site.
19. Remove all substandard public street improvements adjacent to this site, if any, and replace with new improvements meeting current City Standards concurrent with development of this site.
20. All landscaping and private improvements installed with this project shall be situated and maintained so as to not create sight visibility obstructions for vehicular traffic at all development access drives and abutting street intersections.
21. No new permanent structures or landscaping taller than 3 feet shall be allowed within the existing 20-foot public sewer easement granted by Plat Book 95 Page 52.
22. A Traffic Impact Analysis must be submitted to and approved by the Department of Public Works prior to the issuance of any building or grading permits or the submittal of any construction drawings for this site. Comply with the recommendations of the approved Traffic Impact Analysis prior to occupancy of the site. The Traffic Impact Analysis shall also include a section addressing Standard Drawings #234.1 #234.2 and #234.3 to determine additional right-of-way requirements for bus turnouts adjacent to this site, if any; dedicate all areas recommended by the approved Traffic Impact Analysis. All additional rights-of-way required by Standard Drawing #201.1 for exclusive right turn lanes and dualleft turn lanes shall be dedicated prior to or concurrent with the commencement of on-site development activities unless specifically noted as not required in the approved Traffic Impact Analysis. If additional rights-of-way are not required and Traffic Control devices are or may be proposed at this site outside of the public right-of-way, all necessary easements for the location and/or access of such devices shall be granted prior to the issuance of permits for this site. Phased compliance will be allowed if recommended by the approved Traffic Impact Analysis. No recommendation of the approved Traffic Impact Analysis, nor compliance therewith, shall be deemed to modify or eliminate any condition of approval imposed by the Planning Commission or the City Council on the development of this site.

Mr. Ernest Becker IV
SDR-41779 - Page Two
August 10, 2011

23. A Drainage Plan and Technical Drainage Study must be submitted to and approved by the Department of Public Works prior to the issuance of any building or grading permits or submittal of any construction drawings, whichever may occur first. Provide and improve all drainageways recommended in the approved drainage plan/study. The developer of this site shall be responsible to construct such neighborhood or local drainage facility improvements as are recommended by the City of Las Vegas Neighborhood Drainage Studies and approved Drainage Plan/Study concurrent with development of this site.

This item will be considered by the City Council on September 7, 2011, at 1:00 P.M. in the Council Chambers of City Hall, 400 Stewart Avenue, Las Vegas, Nevada. ***The Council requires that you or your representative be present at this meeting.*** If you or your representative chooses not to attend, the City Council may act in your absence without your input.

Sincerely,



Steve Gebeke, AICP
Planning Supervisor
Case Planning Division

SG:clb

cc: Mr. Brian Becker
Rancho Properties, LLC
8090 South Durango Drive, Suite #115
Las Vegas, Nevada 89113



**LAS VEGAS
CITY COUNCIL**

CAROLYN G. GOODMAN
MAYOR

STEVEN D. ROSS
MAYOR PRO TEM

LOIS TARKANIAN
RICKI Y. BARLOW
STAVROS S. ANTHONY
BOB COFFIN
BOB BEERS

ELIZABETH N. FRETWELL
CITY MANAGER

November 19, 2015

Mr. Ernest A. Becker IV
3000MW, LLC
8090 South Durango Drive, Suite #115
Las Vegas, Nevada 89113

**RE: ABEYANCE - EOT-60708 [PRJ-60625] - EXTENSION OF TIME - SITE
DEVELOPMENT PLAN REVIEW
CITY COUNCIL MEETING OF NOVEMBER 18, 2015**

Dear Mr. Becker:

The City Council at a regular meeting held on November 18, 2015 **APPROVED** a request for an Extension of Time of an approved Site Development Plan Review (SDR-41779) FOR A 136-UNIT APARTMENT COMPLEX WITH A WAIVER TO ALLOW NO LANDSCAPE BUFFER ALONG PORTIONS OF THE NORTH PERIMETER WHERE SIX FEET IS REQUIRED on 9.92 acres at 3000 North Michael Way (APN 138-13-512-001), R-3 (Medium Density Residential) Zone, Ward 5 (Barlow) [PRJ-60625].

This approval is subject to the following conditions:

Planning

1. This Site Development Plan Review (SDR-41779) shall expire on November 6, 2017 unless another Extension of Time is approved by the City Council.
2. Conformance to the conditions of approval of Site Development Plan Review (SDR-41779) and all other site related actions as required by the Department of Planning and Department of Public Works.

The Notice of Final Action was filed with the Las Vegas City Clerk on November 19, 2015.

Sincerely,

Thomas A. Perrigo
Director
Department of Planning

TAP:clb

cc: Mr. Brian Becker
8090 South Durango Drive, Suite #115
Las Vegas, Nevada 89113

2014 WINNER OF THE U.S. CONFERENCE OF MAYORS CLIMATE PROTECTION AWARD

CITY OF LAS VEGAS
DEPARTMENT OF PLANNING

DEVELOPMENT SERVICES CENTER
333 NORTH RANCHO DRIVE
3RD FLOOR
LAS VEGAS, NEVADA 89108

VOICE 702.229.6301

FAX 702.474.0352

TTY 7-1-1

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/city of las vegas



**LAS VEGAS
CITY COUNCIL**

CAROLYN G. GOODMAN
Mayor

LOIS TARKANIAN
Mayor Pro Tem

RICKI Y. BARLOW
STAVROS S. ANTHONY
BOB COFFIN
STEVEN G. SEROKA
MICHELE FIORE

SCOTT D. ADAMS
City Manager

October 19, 2017

Mr. Ernie Becker V
3000MW, LLC
3065 North Rancho Drive, Suite #130
Las Vegas, Nevada 89130

**RE: EOT-71642 [PRJ-71618] - EXTENSION OF TIME - SITE DEVELOPMENT
PLAN REVIEW – NONPUBLIC HEARING
CITY COUNCIL MEETING OF OCTOBER 18, 2017**

Dear Mr. Becker:

The City Council at a regular meeting held on October 18, 2017 voted to **APPROVE** a request for an Extension of Time of an approved Site Development Plan Review (SDR-41779) FOR A 136-UNIT APARTMENT COMPLEX WITH A WAIVER TO ALLOW NO LANDSCAPE BUFFER ALONG PORTIONS OF THE NORTH PERIMETER WHERE SIX FEET IS REQUIRED on 9.92 acres at 3000 North Michael Way (APN 138-13-512-001), R-3 (Medium Density Residential) Zone, Ward 5 (Barlow) [PRJ-71618].

This approval is subject to the following conditions:

Planning

1. This Site Development Plan Review (SDR-41779) shall expire on November 6, 2018, unless another Extension of Time is approved by the City Council.
2. Conformance to the conditions of approval of Site Development Plan Review (SDR-41779) and all other site related actions as required by the Department of Planning and Department of Public Works.

The Notice of Final Action was filed with the Las Vegas City Clerk on October 19, 2017.

Sincerely,

Peter Lowenstein, AICP
Acting Director
Department of Planning

PL:clb

cc: Ms. Jolene Granberg-Thompson
VTN Nevada
2727 South Rainbow Boulevard
Las Vegas, Nevada 89146

**DEVELOPMENT
SERVICES CENTER**
DEPARTMENT OF PLANNING

333 N. RANCHO DRIVE
3RD FLOOR
LAS VEGAS, NV 89106
702.229.6301 | VOICE
702.474.7463 | FAX
711 | TTY



cityoflasvegas
lasvegasnevada.gov

PERMISSION TO DRAIN LETTER



ERNEST A BECKER
INVESTMENT • COMPANY

November 7, 2017

Ernest A. Becker V
3000MW, L.L.C.
3065 North Rancho Drive, Suite 130
Las Vegas, Nevada 89130

Re: Drainage
Rancho Properties, L.L.C.

Dear Mr. Becker:

This letter is to confirm that Rancho Properties, L.L.C. hereby authorizes 3000MW, L.L.C. to discharge flows at the southeast corner of Parcel 138-13-512-001 to the southwest corner of 138-13-512-007.

Thank you for your cooperation. If you have any questions, please do not hesitate to contact us.

Respectfully,

RANCHO PROPERTIES, L.L.C.



Sallie E. Becker
Manager

CLV COMMENT LETTER

CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		October 28, 2017
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:	
	Crystal Park Apartments	
Cross Streets:	SEQ of Cheyenne Boulevard & Michael Way	
File Number:	F:\Depot\DSMemos\DS4922A.ZNAE.doc	
Parcel Number:	138-13-512-001	
Zoning Action:	SDR-?????	
FEMA Flood Zone	YES	NO X
Proposed Storm Drain	YES	NO X
		COPIES TO: VTN, Nevada EAB Investment Company Bart Anderson, P.E., DevCo CCRFCD

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	10/2/2017 & 10/11/2017	10/25/2017	See Comments Below	\$400.00	490395: \$400
			TOTAL FEES (LDDRS):	\$400.00	----

REMARKS:

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

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

1. Provide a copy of the zoning/planning conditions associated with this site with the next submittal to verify compliance with conditions. *Flood Control* will not issue conditional approval of the drainage study without the associated zoning/planning conditions (issued by the *City Council*). Any associated conditions of approval that revise the site drainage parameters will require that the drainage study be revised and resubmitted.
2. Sites with a grade difference of 2 feet above or below existing are required to have approval from the *City Planning and Development Department*. The engineer must submit copies of the grading plans and detail sheet with a letter justifying the grade difference to the *City Planning Department* (229-6301). The engineer must provide Planning approval with the next submittal.
3. A portion of the site is within a FEMA Special Flood Hazard Area (SFHA), Zone AE. Development within the SFHA requires that changes to the adopted water surface elevation and/or the Flood Zone Boundary mandate submittal and approval by FEMA. Provide a detail analysis of the Flood Zone impact from this development.
4. Since the project is within a FEMA Flood Zone AE, *Clark County Regional Flood Control District* (CCRFCD) concurrence is required prior to the final approval of the drainage study by the *City of Las Vegas*.

5. In a meeting attended by the developer, engineer and the *City of Las Vegas* flood control staff held on October 11, 2017, it was agreed that the developer contribute funding for the future installation of a 48"-RCP storm drain in *Michael Way* identified in the *City of Las Vegas Northwest Neighborhood Master Plan*. The engineer will submit a cost estimate for the construction of the required storm drain in the frontage of the subject site in *Michael Way* to *City Flood Control Section* for approval. The contribution money will be collected prior to the final approval of the improvement plans.
6. **Figure 6: Existing Condition Drainage Map** shows the Q_{10}/Q_{100} for "CPE4" as 21cfs/81cfs while Page 4 of the Study (Subchapter "Onsite Drainage Basin Description") shows 11cfs/24cfs. Clarify in the next submittal.

Note: It is however, the opinion of the reviewer that $Q_{10}/Q_{100}=11\text{cfs}/24\text{cfs}$ is more reasonable because in the existing condition the flow at the northeast corner of the site ("CPA") do sheet flow into the adjacent commercial lot. There is no berm or channel to direct the flow at the northeast corner to go south.

7. Per **Figure 7: Developed Condition Drainage Map**, the proposed runoff at the southeast corner of the site $Q_{10}/Q_{100}=24\text{cfs}/84\text{cfs}$ will be substantially higher and negatively impacting the adjacent commercial property. Either maintain the existing flow pattern or obtain a notarized letter of acknowledgment and acceptance of the proposed drainage from the owner of the commercial property prior to the final approval of the subject drainage study.
8. The proposed drainage of the subject site is to drain along the east boundary and go south. However, it is noticed that parking stalls are lined up adjacent to the east property line, ie, the parking stalls are used as a drainage corridor. This is not acceptable because it is likely that the parking stalls can be parked full of vehicles during a major storm event. The tires of the vehicles will reduce the effective conveyance area. The engineer must use only the drive aisle, not the parking stalls as flow corridor. Revise the pertinent hydraulic calculations and address whether the proposed finish floor elevations of the adjacent apartment buildings are still meeting criteria.
9. **Figure 7: Developed Condition Drainage Map**: Four hydraulic sections in *Michael Way* do not have any nomenclature such as A-A, B-B etc. Review and revise accordingly.
10. **Sheet GR6**: It appears that a 2'-wide opening is proposed at the southeast corner of the site for the onsite discharge. However, for a 100-year flow of 84cfs, a 2'-opening is seemingly not adequate. Address and revise in the next submittal.
11. If wrought iron gate is proposed at the southeast corner for better discharge, please consider that the bottom of the wrought iron gate may be blocked by debris which will elevate the tailwater elevation at the discharge point and thus impact the nearest adjacent apartment building. Provide a weir calculation assuming a minimum of 6"-high of debris at the gate and verify whether the nearest buildings are still adequately flood protected.
12. **Sheet GR1**: A proposed top of curb (39.80TC) elevation in *Michael Way* at the entrance driveway appears to be a typo. Review and revise accordingly.
13. This drainage study assumes that the project will be constructed in one phase. If improvement plans are submitted to break the project into separate phases, a drainage study update will be required for each phase addressing the interim condition.

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: T20S/R60E/13

AREA L-13

SHEET INDEX

SHEET # SHEET DESCRIPTION

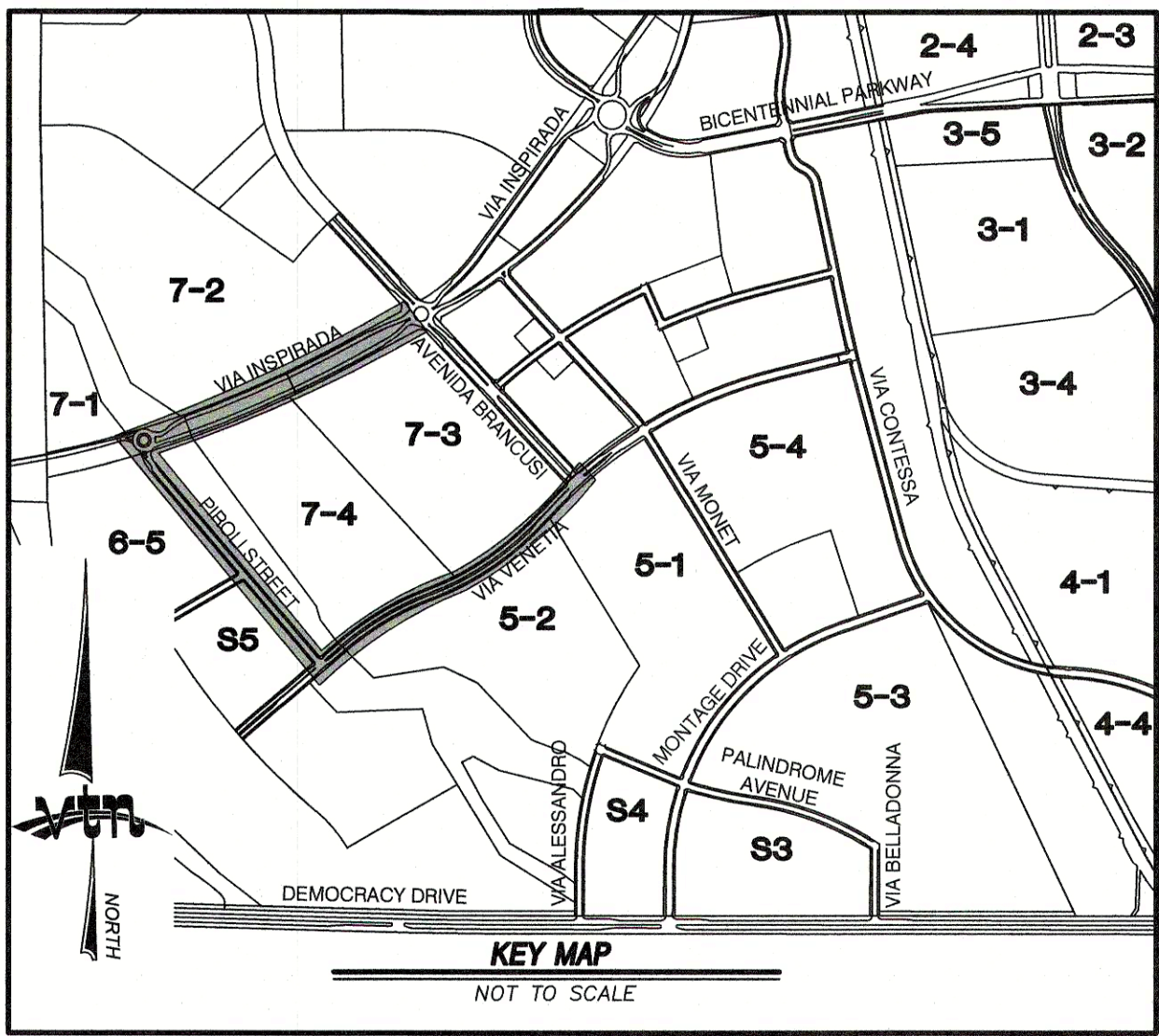
1	C1	COVER SHEET
2	C2	GENERAL NOTE SHEET
3	G1	GRADING PLAN 2 - WEST 3 NORTH ACCESS - 10+00.00 - 26+77.54
4	G2	GRADING PLAN 3 - WEST 3 SOUTH ACCESS - 10+00.00 - 26+00.00
5	G3	6 - G4 - 6 - G4 - 6 - G4 - 6 - G4
6	S1	STREET PLAN AND PROFILE - VIA VENETIA - 9+42.33 - 17+00.00
7	S2	STREET PLAN AND PROFILE - VIA INSPRIADA - 152+50.00 - 160+00.00
8	S3	STREET PLAN AND PROFILE - VIA VENETIA - 24+50.00 - 27+00.00
9	S4	STREET PLAN AND PROFILE - VIA INSPRIADA - 152+50.00 - 160+00.00
10	S5	STREET PLAN AND PROFILE - VIA INSPRIADA - 160+00.00 - 166+50.00
11	S6	STREET PLAN AND PROFILE - VIA INSPRIADA - 166+50.00 - 173+53.90
12	S7	STREET PLAN AND PROFILE - PIROLI STREET - 10+00.00 - 17+50.00
13	S8	STREET PLAN AND PROFILE - PIROLI STREET - 17+50.00 - 24+50.00
14	S9	STREET PLAN AND PROFILE - PIROLI STREET - 24+50.00 - 29+45.00
15	SD1	STORMDRAIN PLAN AND PROFILE - VIA INSPRIADA - 11+00.00 - 17+00.00
16	SD2	STORMDRAIN PLAN AND PROFILE - VIA INSPRIADA - 17+00.00 - 21+50.00
17	SD3	STORMDRAIN PLAN AND PROFILE - VIA VENETIA - 27+00.00 - 30+00.00
18	SD4	STORMDRAIN PLAN AND PROFILE - VIA VENETIA - 18+00.00 - 27+00.00
19	SD5	STORMDRAIN PLAN AND PROFILE - VIA VENETIA - 16+50.00 - 10+50.00
20	SD6	STORMDRAIN PLAN AND PROFILE - PIROLI STREET
21	D1	DETAIL SHEET 1
22	D2	DETAIL SHEET 3
23	D3	DETAIL SHEET 4

IMPROVEMENT PLANS FOR INSPIRADA VILLAGE 7 INFRASTRUCTURE VIA VENETIA AND VIA INSPIRADA

CITY OF HENDERSON
STATE OF NEVADA
APN: 191-23-799-001; 191-23-499-001,
191-23-299-001; 191-23-399-001

INSPIRADA BUILDERS, LLC

5795 W. BADURA AVE., SUITE 180
LAS VEGAS, NV 89118
PHONE (702)266-8400



*APPROVAL OF THESE PLANS BY THE CITY OF HENDERSON IS LIMITED TO THOSE IMPROVEMENTS CONSTRUCTED IN THE DEDICATED RIGHT-OF-WAY AND/OR DEDICATED EASEMENT. THIS APPROVAL DOES NOT AUTHORIZE THE CONSTRUCTION OF ANY IMPROVEMENTS THAT DEVIATE FROM ADOPTED STANDARDS AND/OR SPECIFICATIONS EXCEPT THOSE SPECIFICALLY IDENTIFIED AS "DEVIATIONS FROM STANDARD". THE ENGINEER SHALL RESOLVE ANY DEVIATION OTHER THAN THOSE LISTED IN "DEVIATIONS FROM STANDARD" IN FAVOR OF THE UNIFORM STANDARD DRAWINGS AND SPECIFICATIONS CLARK COUNTY AREA NEVADA," (CURRENT EDITION).

*OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DISTURBED, DESTROYED OR OBSCURED DURING CONSTRUCTION.

*THE ENGINEER SHOULD CONTACT THE NEVADA DIVISION OF ENVIRONMENTAL PROTECTION (NDEP) TO OBTAIN A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT PRIOR TO CONSTRUCTION. ALL CONSTRUCTION PROJECTS ONE ACRE OR LARGER MUST APPLY FOR THE PERMIT THROUGH THE NDEP. ALL QUESTIONS REGARDING THE NPDES PERMIT REQUIREMENTS SHOULD BE DIRECTED TO THE NDEP (775) 687-9429.

APPROVALS

CITY TRAFFIC ENGINEER - CITY OF HENDERSON _____ DATE _____

FIRE DEPARTMENT - CITY OF HENDERSON _____ DATE _____

BUILDING OFFICIAL - CITY OF HENDERSON _____ DATE _____

DIRECTOR OF UTILITY SERVICES - CITY OF HENDERSON _____ DATE _____

SOUTHWEST GAS CORPORATION _____ DATE _____

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

COX COMMUNICATIONS LAS VEGAS, INC _____ DATE _____

CENTRAL TELEPHONE COMPANY, D/B/A CENTURY LINK _____ DATE _____
THE AFFIXED CENTURY LINK APPROVAL DOES NOT ASSUME OR GUARANTEE LIABILITY FOR KNOWN OR UNKNOWN CONFLICTS WITH EXISTING OR PROPOSED IMPROVEMENTS. RESOLUTION OF ANY CONFLICT WILL BE ACCOMPLISHED PURSUANT TO LOCAL ORDINANCES, NEVADA REVISED STATUTES AND/OR PUBLIC UTILITY COMMISSION RULES AND REGULATIONS.

CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE (1) YEAR ONLY. PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS, PARKS AND RECREATION, CITY OF HENDERSON, IF WORK IS NOT COMPLETED WITHIN ONE YEAR OF THE APPROVAL DATE.

CITY ENGINEER - CITY OF HENDERSON _____ APPROVAL DATE _____

UWAV#2016-----

I CERTIFY THAT THIS GRADING PLAN CONFORMS TO THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE WITH THE CITY OF HENDERSON
KIVA # PHVD 2016730064
KEN NICHOLSON P.E. NO. 10539

THIS SET OF IMPROVEMENT PLANS IS CERTIFIED TO THE REQUIREMENTS OF THE CITY OF HENDERSON TRAFFIC IMPACT ANALYSIS APPROVAL LETTER
PTRF 2012-74-0016
TRAFFIC IMPACT ANALYSIS KIVA NUMBER
KEN NICHOLSON
PRINTED NAME
DATE
SIGNATURE
10639
P.E. Number

PROJECT BENCHMARK

PROJECT DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
CITY OF HENDERSON BENCHMARK: NO. 569 NAVD88 ELEVATION: 777.561 METERS (2551.04 FEET)
2" BRASS CAP IN THE TOP OF CURB AT THE NORTHWEST CORNER OF ANTHEM PARKWAY AND SCOTT'S VALLEY DRIVE.

BASIS OF BEARING

SOUTH 00°16'23" EAST - BEING THE BEARING OF THE EAST LINE OF THE SOUTHWEST QUARTER (NE 1/4) OF SECTION 23, TOWNSHIP 23 SOUTH, RANGE 61 EAST, M.D.M., CITY OF HENDERSON, CLARK COUNTY, NEVADA AS SHOWN BY THAT PLAT ON FILE IN THE OFFICE OF THE COUNTY RECORDER, CLARK COUNTY, NEVADA IN BOOK 146 OF PLATS, PAGE 52.

CONTACT INFORMATION

OWNER - INSPIRADA BUILDERS, LLC
DEVELOPER - INSPIRADA BUILDERS, LLC
ADDRESS - 5795 W. BADURA AVE., SUITE 180, LAS VEGAS, NV 89118
CONTACT NAME - JIM RIZZI
PHONE: (702) 614-1487

Avoid cutting underground utility lines. It's costly.

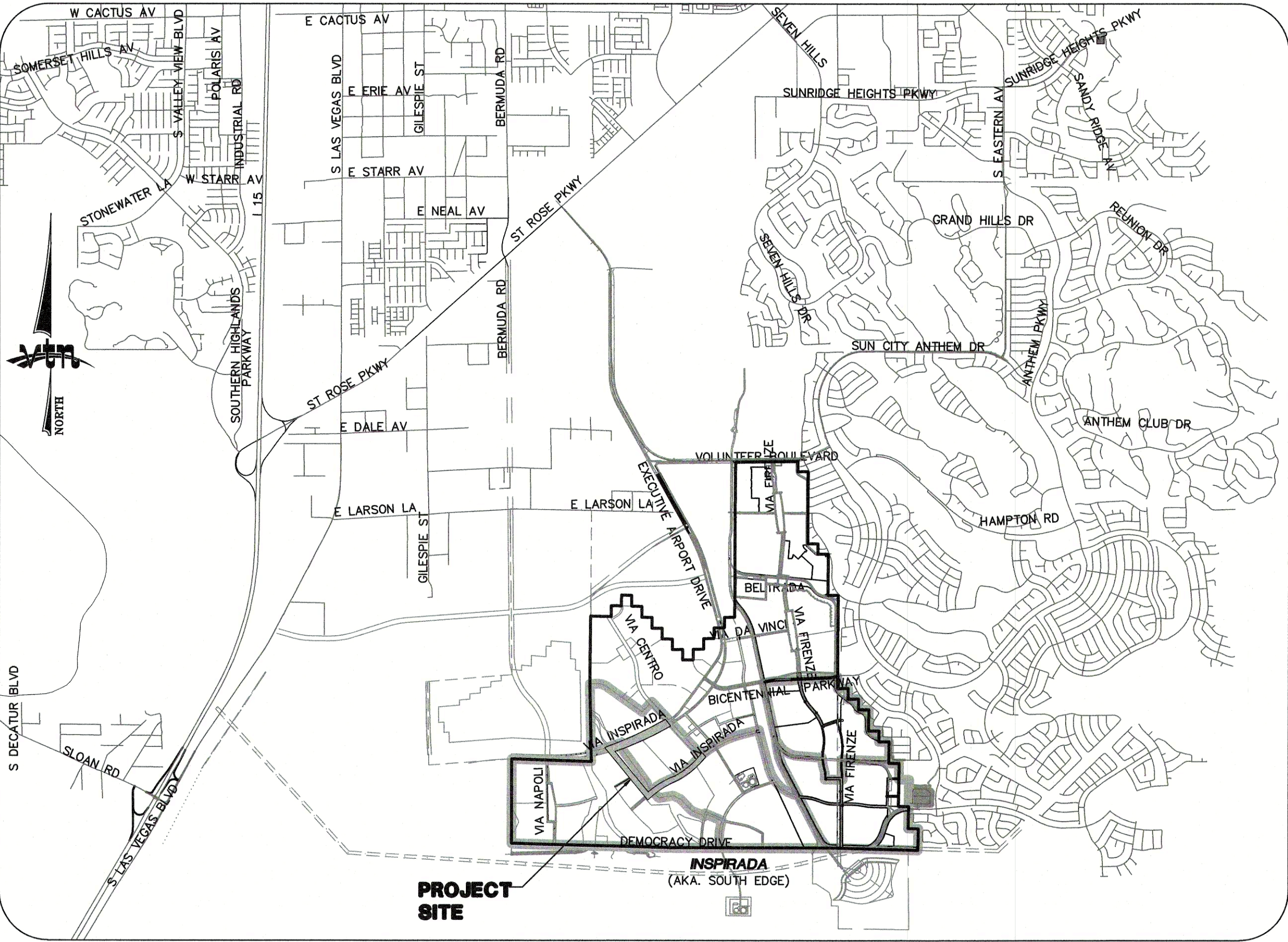
Call before you Dig
1-800-227-2800

Call before you Overhead
1-702-267-2783
1-702-432-5300
1-702-227-2828

Avoid hitting underground traffic signal and street light system conduits. It's costly.

Call before you Underground
1-702-267-2783
1-702-432-5300
1-702-227-2828

CITY OF HENDERSON UTILITY SERVICES LINE LOCATION
AND
FREQUENCY AND WIRELESS SYSTEM OF TRANSMISSION



VICINITY MAP
NTS

CITY OF HENDERSON

INSPIRADA BUILDERS, LLC
5795 W. BADURA AVE., SUITE 180
LAS VEGAS, NV 89118
(702)266-8400

COVER SHEET

INSPIRADA
VILLAGE 7 INFRASTRUCTURE
VIA VENETIA AND VIA INSPRIADA

DRAWN BY: Dec-17
DESIGNED BY: Dec-17
CHECKED BY: Dec-17
PROJECT NO.: 7430
SCALE: N/A
HORIZ. N/A
VERT. N/A

PROFESSIONAL ENGINEER
KENNETH F. NICHOLSON
EXP. 12/31/17
CIVIL
No. 10539

SHEET
1 OF 28 SHEETS
DRAWING NO.
201770----

H:\1420\ Village-7\Sheet Set\1420-V7-CV.dwg

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

3065 N. RANCHO #130
LAS VEGAS, NV 89113

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

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

CITY ENGINEER ALLEN PAVELKA, P.E. # 9029

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

CHRIS KNIGHT, DIRECTOR OF BUILDING & SAFETY DATE:

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

CENTRAL TELEPHONE COMPANY d/b/a CENTURYLINK DATE

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

NV ENERGY DATE

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

COX COMMUNICATIONS LAS VEGAS, INC. DATE

SOUTHWEST GAS CORPORATION DATE

LAS VEGAS FIRE & RESCUE DATE:

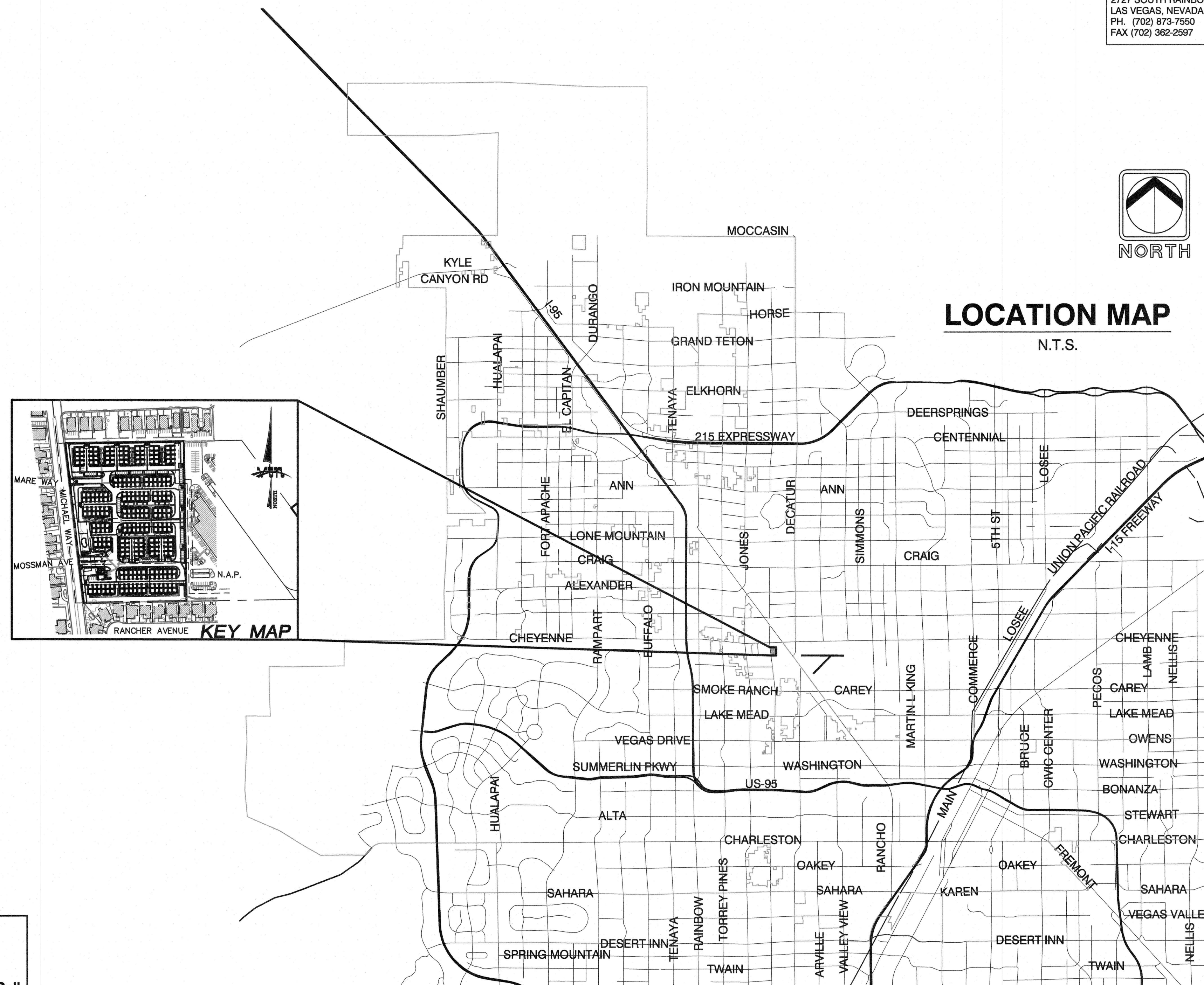
LAS VEGAS VALLEY WATER DISTRICT

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES MANAGER

PROJECT: _____ DATE: _____
SHEETS: _____

SHEET INDEX		
SHEET #	SHEET	DESCRIPTION
1	CV	COVER SHEET
2	NT	NOTE SHEET
3	GR1	GRADING PLAN 1
4	GR2	GRADING PLAN 2
5	GR3	GRADING PLAN 3
6	GR4	GRADING PLAN 4
7	GR5	GRADING PLAN 5
8	GR6	GRADING PLAN 6
9	DT1	DETAIL SHEET 1
10	DT2	DETAIL SHEET 2
11	DT3	DETAIL SHEET 3

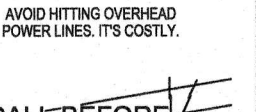


FIRE DEPARTMENT APPROVAL

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

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

**CALL BEFORE
YOU DIG
OVERHEAD**



1-702-227-2929

Call before you Dig

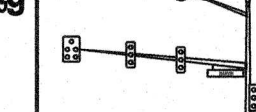
Avoid cutting underground
utility lines. It's costly.

**CALL
811**

OR
1-800-227-2600
AND
1-702-455-6000

CLARK COUNTY TRAFFIC

**AVOID HITTING UNDERGROUND
UTILITY LINES. IT'S COSTLY.**



**Call
before you
Dig**

1-702-455-6111

CLARK COUNTY TRAFFIC OPERATIONS

1-702-228-6611

LAS VEGAS AREA COMPREHENSIVE TRAFFIC SYSTEM

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 SUMMERLIN AREA; AND OTHER APPLICABLE APPROVED STANDARDS ISSUED BY THE CONTROLLING AGENCY, THE UNIFORM BUILDING CODE, AND ALL LOCAL CITY CODES AND ORDINANCES APPLICABLE, EXCEPT AS NOTED ON THIS SHEET AS "DEVIATIONS FROM STANDARDS".

2. THE EXISTENCE AND LOCATION OF ANY OVERHEAD OR UNDERGROUND UTILITY LINES, PIPES, OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A RESEARCH OF THE AVAILABLE RECORDS, EXISTING UTILITIES AS SHOWN FROM CIVIL PLANS LIBRARY ARE APPROXIMATE AND FOR RECORD PURPOSES. EXISTING UTILITIES ARE LOCATED ON PLANS ONLY FOR THE CONVENIENCE OF THE CONTRACTOR. EXISTING UTILITY SERVICE LATERALS MAY NOT BE SHOWN ON THE PLANS. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, LOCATE ALL UNDERGROUND AND OVERHEAD UTILITIES 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 SATISFACTORILY 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 DESIGN TO BE APPROVED BY THE CITY PRIOR TO THE USE ON THE PROJECT.

6. PERMITS ARE REQUIRED FOR THIS 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 FOR INGRESS AND EGRESS TO NEW CONSTRUCTION. THE EXTENT OF TRANSITIONS TO BE SHOWN ON PLANS.

12. ALL GRADING WORK SHALL CONFORM TO THE SOILS REPORT AS PREPARED BY: ____, PROJECT NO. ____, DATED ____.

13. EXACT LOCATION OF ALL SAWCUT LINES MAY BE ADJUSTED OR DETERMINED IN THE FIELD BY A CITY OF LAS VEGAS ENGINEER IF LOCATION ON PLANS IS NOT CLEARLY SHOWN, OR EXISTING PAVEMENT CONDITION REQUIRES REALLOCATIONS.

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 AND CITY OF LAS VEGAS TITLE 18, APPENDIX D.

15. UTILITY COMPANY METER BOXES, MANHOLE LIDS, VALVE COVERS, ETC., SHALL BE LOCATED OUT OF DRIVEWAYS, DRIVEWAY APRONS, FLOWLINES, AND CROSS GUTTERS UNLESS WRITTEN APPROVAL IS GRANTED BY THE UTILITY COMPANY AND THE CITY ENGINEER.

WALL NOTES:

16. ALL WALLS, NEW OR EXISTING, ARE ONLY SHOWN ON CIVIL PLANS FOR THE PURPOSE OF REVIEWING GRADING RELATIONSHIPS; FLOOD CONTROL AND SIGHT DISTANCE AT INTERSECTIONS. NEW WALLS REQUIRE A SEPARATE PERMIT AND INSPECTION BY THE BUILDING DEPARTMENT.

17. ASPHALT MIX DESIGN MUST BE SUBMITTED AND APPROVED BY THE CITY ENGINEER PRIOR TO THE PLACEMENT OF ASPHALT WITHIN CITY RIGHT OF WAY.

18. CONTRACTOR SHALL ADJUST ALL NEW AND EXISTING INLETS, VALVE BOXES, MANHOLE RIMS, AND SEWER CLEAN OUTS, ETC. TO FINISH GRADE AS APPLICABLE WHETHER OR NOT THEY ARE SHOWN ON THE PLANS.

19. MATERIALS, HANDLING AND PLACEMENT OF PORTLAND CEMENT CONCRETE SHALL BE IN ACCORDANCE WITH APPLICABLE SECTIONS OF "NDOT" OR THE CLARK COUNTY AREA SPECIFICATIONS (AS APPLICABLE) AND THE PLANS AND DETAILS SHOWN HEREON.

20. WHEN INSTALLING UNDERGROUND FACILITIES THAT REQUIRE UNDERGROUND LOCATING DEVICES SUCH AS MARKER BALLS, LOCATING RIBBON, ETC., THE CONTRACTOR SHALL PROVIDE WRITTEN DOCUMENTATION TO OFFSITE INSPECTION AND TESTING CERTIFYING THAT ALL DEVICES HAVE BEEN PLACED AND VERIFIED TO BE IN GOOD WORKING CONDITION PRIOR TO THE CONSTRUCTION OF ANY ROAD BASE.

21. SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S) SHALL BE PROVIDED TO THE CITY AND APPROVED PRIOR TO ACCEPTANCE OF FACILITY VIDEO INSPECTION. PROJECT ACCEPTANCE. THE MAP(S) SHALL INCLUDE THE HORIZONTAL AND VERTICAL (INVERT) LOCATION OF PUBLIC SEWER MANHOLES, STORM DRAIN MANHOLES TRANSITION STRUCTURES, STORM DRAIN LATERALS AT THE CONNECTION TO THE STORM DRAIN SERVICE LATERALS AT THE CONNECTION TO A DROP INLET, THE CONNECTION OF SEWER SERVICE LATERALS TO THE SEWER MAIN AND WHERE THE SEWER AND STORM DRAIN SERVICE LATERALS ENTER 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 VERTICLE AND CERTIFIED BY A NEVADA PROFESSIONAL LAND SURVEYOR TO HAVE POSITIONAL CERTAINITIES OF +/- 0.08 METER (+/- 0.3 FEET) HORIZONTALLY AND VERTICALLY. A SEPARATE ELECTRONIC COMMA DELIMITED FILE FOR THE SANITARY SEWER AND STORM DRAIN COORDINATES SHALL ALSO ACCOMPANY THE SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S).

22. CCTV VIDEO INSPECTION IS REQUIRED FOR ALL SEWER AND STORM DRAINS. THE CCTV VIDEO INSPECTIONS NEED TO BE PERFORMED PER THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS LATEST EDITION.

23. A SEPARATE BORING PERMIT IS REQUIRED FOR BORING ACTIVITIES.

1. ALL STREET LIGHTING INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE STREET LIGHTING PLANS, THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA," (LATEST REVISION, AND THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA," LATEST REVISION.
2. NO DEVIATION OF STREET LIGHT, PULL BOX, CONDUITS ETC.) LOCATIONS SHALL BE PERMITTED WITH OUT WRITTEN APPROVAL OF THE TRAFFIC/ELECTRICAL FIELD OPERATIONS DIVISION AND THE CITY ENGINEER. ANY DEVIATION FROM THE PLAN LOCATION WILL REQUIRE COMPLIANCE WITH SECTION 623.LO.03 (E) OF THE SPECIFICATIONS.
3. ALL EXISTING STREET LIGHTING SHALL REMAIN OPERATIONAL DURING CONSTRUCTION.
4. ALL EMPTY CONDUIT SHALL HAVE PULL STRINGS INSTALLED PRIOR TO FINAL INSPECTION.
5. ANY STRUCTURE SUCH AS BLOCK WALLS, CHAIN LINK FENCES, RETAINING WALLS, ETC. SHALL LEAVE A MINIMUM CLEARANCE OF EIGHTEEN INCHES (18") TO THE FACE OF STREET LIGHTING POLE ON ALL SIDES WHEN STREETLIGHT IS INSTALLED BEHIND SIDEWALK, AND SHALL AT NO TIME COMPLETELY ENCLOSE THE STREET LIGHTING POLE.
6. AS-BUILT DRAWINGS SHALL BE SUPPLIED TO THE ELECTRICAL SERVICES SECTION PRIOR TO ANY PRE-FINAL INSPECTION. THE AS-BUILT DRAWING NEEDS TO BE STAMPED AS-BUILT AND SIGNED BY THE PREPARER.
7. SERVICE POINT SHALL BE COORDINATED WITH NEVADA POWER COMPANY, AND WHEREVER POSSIBLE, BE LOCATED NEAR THE CENTER OF THE CIRCUIT. SERVICE POINTS SHALL BE SHOWN ON THE PLANS.
8. IT SHALL BE ASSUMED THAT IN THE ABSENCE OF AN EXISTING, WORKABLE CIRCUIT TO ATTACH TO ALL INSTALLATIONS SHALL REQUIRE A NEW SERVICE FOR OPERATION OF THE CIRCUIT.
9. WHEREVER THERE IS AN OVERHEAD UTILITY THAT MAY CONFLICT WITH THE INSTALLATION OF STREET LIGHTING CIRCUITS AND/OR POLES, THESE CONFLICTS MUST BE RESOLVED BETWEEN THE DEVELOPER AND THE UTILITIES INVOLVED BEFORE STREETLIGHT BASES ARE INSTALLED AT NO EXPENSE TO THE CITY OF LAS VEGAS.
10. THE CONTRACTOR SHALL FURNISH COMPLETE SERVICE TO TRANSFORMERS AND CONTROL SYSTEMS IF REQUIRED ON PLANS.

1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LAS VEGAS FIRE AND RESCUE ADOPTED FIRE CODE ORDINANCE #6324 FOR HYDRANT SPECIFICATIONS AND HYDRANT INSTALLATION SPECIFICATIONS.
2. ONLY FIRE HYDRANTS THAT ARE ON THE LAS VEGAS VALLEY WATER DISTRICTS - APPROVED PRODUCTS LIST ARE ALLOWED TO BE INSTALLED.
3. A PERMIT IS REQUIRED FROM LAS VEGAS FIRE AND RESCUE FOR THE INSTALLATION OF ON-SITE WATER LINES AND FIRE HYDRANTS. THE PERMIT AND CONTRACTORS MATERIAL TEST CERTIFICATE FOR UNDERGROUND PIPING FORM SHALL BE OBTAINED FROM THE FIRE PROTECTION ENGINEER BEFORE COMMENCEMENT OF WORK.
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. **SNFC #6124, SECTION 1412**
5. TO IDENTIFY THE FIRE HYDRANT LOCATIONS, THE CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTERLINE OF THE STREET ADJACENT TO THE FIRE HYDRANTS. **SNFC #6124 SECTION 507.5.3**
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.
7. ALL ON-SITE UNDERGROUND WATER MAINS AND MATERIALS SHALL BE U.L. LISTED, A.W.W.A APPROVED AND SHALL BE RATED FOR THE APPROPRIATE WORKING PRESSURE. **SNFC 507.2.1, NFPA 24**
8. PAINTING OF CURBS, FIRE HYDRANTS, PADS, PROTECTION OF FIRE HYDRANTS FROM PHYSICAL DAMAGE, AND ALL OTHER WORK NECESSARY PER PLANS SHALL BE COMPLETED BEFORE APPROVAL BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION. **IFC 507; SNFC 507.5.7**
9. PRIVATE HYDRANTS SHALL BE PAINTED RED. **SNFC 507.5.1**
10. PRIOR TO THE FINAL OCCUPANCY, A FIRE FLOW TEST SHALL BE WITNESSED BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION TO VERIFY AVAILABILITY OF THE REQUIRED FIRE FLOW. **IFC 507; SNFC 507.1**
11. FIRE HYDRANT SPACING SHALL BE AS FOLLOWS: **SNFC 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. **SNFC C102.14**

2) TWO (2) SOURCES OF SUPPLY ARE REQUIRED WHENEVER THERE IS 4 OR MORE FIRE HYDRANTS/SPRINKLER LEAD-INS ARE INSTALLED ON A SINGLE SYSTEM. SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN TWO FIRE HYDRANTS CAN BE OUT OF SERVICE DUE TO A BREAK IN A WATER MAIN.

9. 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. **SNFC 503.2.3**

10. THE GRADIENT FOR THE FIRE APPARATUS ACCESS ROADS SHALL NOT EXCEED 12% ANGLES OF APPROACH AND ANGLES OF DEPARTURE SHALL NOT EXCEED 8% FOR 25 FT PRIOR TO OR AFTER THE GRADE CHANGE. ADJACENT TO THE STRUCTURES GRADIENT SHALL NOT EXCEED 6%. **SNFC 503.2.7 / 503.2.8**

11. THE TURNING RADIUS OF THE FIRE APPARATUS ACCESS ROADS SHALL BE NO LESS THAN 52 FT OUTSIDE AND 28 FT INSIDE TURNING RADIUS. **IFC 503.2.4**

12. VERTICAL CLEARANCE OF ALL FIRE APPARATUS ACCESS ROADS SHALL NOT BE LESS THAN 13FT 6 INS. **SNFC 503.2.1.1 / IFC 503**

13. FIRE DEPARTMENT ACCESS ROADS ON ALL **RESIDENTIAL DEVELOPMENTS** (EXCEPT APARTMENT BUILDINGS) SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF NOT LESS THAN 36 FT FLOW LINE TO FLOW LINE (THIS WIDTH MAY BE REDUCED TO 24 FT IF ALL BUILDINGS FRONTING THE STREET ARE SPRINKLERED) FOR MAIN RESIDENTIAL STREETS, WITH PARKING PERMITTED ON BOTH SIDES OF THE STREET. PRIVATE DRIVE AISLES, DRIVEWAYS, ETC. SHALL BE ALLOWED TO BE REDUCED TO A MINIMUM WIDTH OF 24 FT FLOW LINE TO FLOW LINE WHEN SERVING NO MORE THAN THE RESIDENTS, AND WHEN ON STREET PARKING IS DISALLOWED. **SNFC 503.2.1.1 / 503.2.11**

14. ALL FIRE APPARATUS ACCESS ROADS IN **COMMERCIAL DEVELOPMENTS** AND **APARTMENT COMPLEXES** SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF NOT LESS THAN 24 FT (FLOW LINE TO FLOW LINE), PROVIDED NO PARKING IS ALLOWED ON EITHER SIDE; 32 FT (FLOW LINE TO FLOW LINE), WITH PARALLEL PARKING ON ONE SIDE, AND 36 FT (FLOW LINE TO FLOW LINE), IF PARALLEL PARKING IS ALLOWED ON BOTH SIDES. THESE WIDTHS MAY BE REDUCED TO 24 FT IF SPRINKLERED. **SNFC 503.2.1.1**

15. 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 FIRST STORY IS SPRINKLERED. **IFC 503.1.1 / SNFC 503.11**

16. APPROVED SECONDARY FIRE APPARATUS ACCESS SHALL BE PROVIDED FOR 100 OR MORE DWELLING UNITS, ROAD(S) WITH DEAD-ENDS OR WITH A SINGLE POINT OF ACCESS IN EXCESS OF 600 FT, AND FOR ALL COMMERCIAL, INDUSTRIAL, AND MULTI-FAMILY RESIDENTIAL DEVELOPMENTS. **SNFC 10.2.2**

17. ALL DEAD-END FIRE APPARATUS ROADS AND/OR FIRE LANES, PUBLIC OR PRIVATE, IN EXCESS OF 150 FT IN LENGTH SHALL BE PROVIDED WITH AN APPROVED TURN AROUND HAVING A MINIMUM DIAMETER OF 81 FT. **SNFC 503.2.5**

18. ALL FIRE APPARATUS ACCESS ROADS SHALL BE MARKED BY PLACING APPROVED SIGNS AT THE START OF THE DESIGNATED FIRE LANE, ONE SIGN AT THE END OF THE FIRE LANE AND WITH SIGNS AT INTERVALS OF 100 FT ALONG THE DESIGNATED FIRE LANES. SIGNS TO BE PLACED ON BOTH SIDES OF AN ACCESS ROADWAY IF NEEDED TO PREVENT PARKING ON EITHER SIDE. SIGNS TO BE INSTALLED NO HIGHER THAN 10 FT OR LESS THAN 6 INCHES FROM THE ROADWAY LEVEL. THE CURB ALONG OR ON THE PAVEMENT OR CEMENT (IF NO CURB IS PROVIDED) SHALL BE PAINTED WITH A RED YELLOW RESISTANT PAINT IN ADDITION TO THE SIGNS. **SNFC 503.3**

ELECTRICALLY CONTROLLED ACCESS GATES SHALL BE PROVIDED WITH AN APPROVED EMERGENCY VEHICLE DETECTOR/RECEIVER SYSTEM. SAID SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF LAS VEGAS GUIDELINES FOR AUTOMATIC EMERGENCY VEHICLE ACCESS GATES. **IFC / SNFC 503.6**

1. ALL CONSTRUCTION SIGNING, BARRICADE, AND TRAFFIC DELINEATION SHALL CONFORM TO THE LATEST 'NEVADA WORK ZONE TRAFFIC CONTROL HANDBOOK', LATEST EDITION, AND TO THE 'MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES', LATEST EDITION.

2. THE STREET SIGN CONTRACTOR SHALL OBTAIN STREET NAMES AND BLOCK NUMBERING FROM THE PLANNING DEPARTMENT PRIOR TO CONSTRUCTION.

3. BEFORE ANY WORK IS STARTED IN THE RIGHT-OF-WAY, THE CONTRACTOR SHALL INSTALL ALL ADVANCE WARNING SIGNS FOR THE CONSTRUCTION ZONE. THE CONTRACTOR SHALL INSTALL TEMPORARY STOP SIGNS AT ALL NEW STREET ENCROACHMENTS INTO EXISTING CITY STREETS WHERE WARRANTED IMMEDIATELY AFTER FIRST GRADING WORK IS ACCOMPLISHED, AND SHALL MAINTAIN SAYS SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED.

4. WHEN A DESIGNATED 'SAFE ROUTE TO SCHOOL' IS ENCLOSED UPON BY A CONSTRUCTION WORK ZONE AND PUBLIC WORKS STAFF IDENTIFIES A NEED FOR STUDENTS TO BE ASSISTED IN THE SAFE CROSSING THROUGH THAT WORK ZONE, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE A QUALIFIED 'CROSSING GUARD'. THE GUARD SHALL BE PRESENT FOR THE FULL DURATION OF TIME THAT CHILDREN ARE LIKELY TO BE PRESENT.

5. IF THE IMPROVEMENTS NECESSITATE THE OBLITERATION, TEMPORARY OBSTRUCTIONS, TEMPORARY REMOVAL OR RELOCATION OF ANY EXISTING TRAFFIC PAVEMENT MARKING, SUCH PAVEMENT MARKING SHALL BE RESTORED OR REPLACED WITH LIKE MATERIALS TO THE SATISFACTION OF THE CITY TRAFFIC ENGINEER.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL PERMANENT SIGNS SHOWN ON THE PLANS. STREET NAME SIGNS SHALL CONFORM IN THEIR ENTIRETY TO THE CURRENT CITY STANDARDS. ALL OTHER SIGNS SHALL BE STANDARD SIZE UNLESS OTHERWISE SPECIFIED ON THE PLANS. ALL SIGN POSTS SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENT CITY STANDARDS.

7. WHEN A PROPOSED STREET LIGHT STANDARD IS LOCATED WITHIN FIVE (5) FEET OF ANY PROPOSED SIGN SHOWN ON THE PLANS TO BE MOUNTED ON A SIGNPOST, THE SIGN SHALL BE MOUNTED ON THE STREET LIGHT STANDARD AND THE SIGNPOST SHALL BE ELIMINATED.

8. ALL PERMANENT TRAFFIC CONTROL DEVICES CALLED FOR HEREON SHALL BE IN PLACE AND IN FINAL POSITION PRIOR TO ALLOWING ANY PUBLIC TRAFFIC ONTO THE PORTIONS OF THE ROAD(S) BEING IMPROVED HEREUNDER, REGARDLESS OF THE STATUS OF COMPLETION OF PAVING OR OTHER OFF-SITE IMPROVEMENTS CALLED FOR BY THESE PLANS.

9. STREET SIGNS AND STOP SIGNS SHALL BE INSTALLED PER CITY STANDARD SPECIFICATIONS FOR PLACEMENT OF STREET NAME SIGNS.

10. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY TRAFFIC CONTROL DEVICES AND FLAGGERS TO ENSURE THE SAFETY OF THE PUBLIC IN OR AROUND THE WORK AREA. THE CONTRACTOR SHALL HAVE A CERTIFIED ATSSA TRAFFIC CONTROL TECHNICIAN OR MSA WORK ZONE SAFETY SPECIALIST STAFF, MAINTAIN, AND/OR REMOVE ALL TRAFFIC CONTROL DEVICES IN THE CITY OF LAS VEGAS RIGHTS-OF-WAY.

11. WORK IN PUBLIC STREETS, ONCE BEGUN, SHALL BE EXPEDITED TO COMPLETION SO AS PROVIDE MINIMUM INCONVENIENCE TO ADJACENT PROPERTY OWNERS AND TO TRAVELING PUBLIC.

12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING CITIZENS AREA TRANSIT (C.A.T.) IF THE CONSTRUCTION INTERRUPTS OR RELOCATES A BUS STOP OR HAS AN ADVERSE EFFECT ON BUS SERVICE ON THAT STREET TO ARRANGE FOR TEMPORARY RELOCATION OF STOP.

13. GUARDS SHALL BE OBTAINED BY CONTACTING THE METROPOLITAN POLICE DEPARTMENT SPECIAL EVENTS UNIT (PHONE NO. IS 229.3442) WHO WILL PROVIDE OFFICERS PROPERLY TRAINED IN TRAFFIC CONTROL. FEES FOR THE USE OF THESE OFFICERS SHALL BE SET UP BY METRO AND WILL BE PAID BY CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR ALL ARRANGEMENTS WITH METRO.

14. ANY WORK WITHIN 300' OF A SIGNALIZED INTERSECTION WILL BE NIGHT WORK, UNLESS DIRECTED BY THE CITY OF LAS VEGAS TRAFFIC ENGINEER.

1. NO WORK SHALL BEGIN UNTIL THE WATER PLANS HAVE BEEN APPROVED FOR CONSTRUCTION BY THE LVVWD. FOLLOWING WATER PLAN APPROVAL, NOTICE SHALL BE GIVEN TO THE LVVWD COMMUNICATION SUPPORT CENTER (258-7171) TWO (2) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION. FOR FUTURE INSPECTIONS, NOTICE MUST BE GIVEN BY 2:00 P.M. THE BUSINESS DAY PRIOR TO THE REQUESTED LVVWD INSPECTION. WHEN REQUESTING INSPECTIONS, PLEASE REFER TO THE PROJECT # IDENTIFIED ABOVE.
2. ALL WORK SHALL CONFORM TO LVVWD STANDARD PLANS, DRAWINGS, AND SPECIFICATIONS AND TO THE 2010 EDITION OF THE UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR POTABLE WATER SYSTEMS (UDACS).
3. ALL WORK, EXCEPT AS MODIFIED BY THESE PLANS OR BY NOTE 2 ABOVE, SHALL BE DONE IN ACCORDANCE WITH THE MOST RECENT DRAFT OF EDITION OF THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFFSITE IMPROVEMENT, CLARK COUNTY AREA.
4. A SINGLE PIPE MATERIAL SHALL BE USED THROUGHOUT THE PROJECT UNLESS OTHERWISE APPROVED BY THE LVVWD.
5. ALL SERVICE LATERALS TWO (2) INCHES IN DIAMETER AND SMALLER SHALL BE TYPE K COPPER TUBING WITH LVVWD APPROVED SERVICE SADDLES.
6. ALL WATER METER BOXES SHALL BE LOCATED OUTSIDE OF DRIVEWAY AREAS.
7. ALL VALVES SHALL BE LOCATED OUTSIDE OF DRIVEWAYS, VALLEY AND CURB GUTTERS.
8. ALL WATER AND STORM DRAIN OR SANITARY SEWER CROSSINGS SHALL CONFORM TO SECTION 2.22 OF THE 2010 EDITION OF THE UDACS.
9. ALL WATER FACILITIES SHALL BE FILLED, DISINFECTED, PRESSURE TESTED, FLUSHED, FILLED AND AN ACCEPTABLE WATER SAMPLE OBTAINED PRIOR TO CONNECTION TO THE LVVWD'S DISTRIBUTION SYSTEM.
10. THE CONTRACTOR MUST OBTAIN ALL METERS TWO (2) INCHES AND SMALLER FROM LVVWD CENTRAL STORES. TELEPHONE 258-3152 OR 258-388-2002 TWO (2) WORKING DAYS PRIOR TO METER PICKUP.
11. ANY INTERRUPTION OF SERVICE MUST BE PERFORMED IN ACCORDANCE WITH UDACS SECTION 3.14.01, AND APPROVED BY THE LVVWD INSPECTION DIVISION PRIOR TO SHUTDOWN. PROPER WRITTEN NOTIFICATION MUST BE GIVEN TO ALL AFFECTED CUSTOMERS.
12. ALL WATER FACILITY CONSTRUCTION MATERIALS USED MUST BE AS LISTED ON THE LVVWD PRE-APPROVED MATERIALS AND MANUFACTURERS LISTING FOR NEW FACILITIES, LATEST REVISION, OR SPECIFICALLY APPROVED ON THESE PLANS.
13. TELEPHONE "CALL BEFORE YOU DIG" AT "811" OR 1-800-227-2800.
14. THE INSTALLATION OF LAS VEGAS VALLEY WATER DISTRICT (LVVWD) MUNICIPAL WATER FACILITIES WITHIN ALL STREETS IS ASSUMED TO BE IN CONFORMANCE WITH THE UNIFORM STANDARDS, INCLUDING THE PLACEMENT OF ASPHALT PAVING STREET SURFACES. ANY REPAIR WORK DONE BY THE LVVWD TO THE MUNICIPAL WATER FACILITIES WILL INCLUDE THE PLACEMENT OF AN APPROPRIATELY SIZED ASPHALT REPAIR PATCH ON THE STREET SURFACE.

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS AND THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS' CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, AS AMENDED. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BE AWARE OF THE CONTENTS OF THE ABOVE SPECIFICATIONS.
2. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM CONSTRUCTION AS PER PLANS. ANY ADDITIONS, DELETIONS, OR CHANGES SHALL FIRST MEET WITH THE APPROVAL OF THE CITY ENGINEER.
3. CHISEL "S" OR "G" IN CURBS WHERE SEWER OR GAS LATERALS PASS UNDER THE CURB.
4. POLYVINYL (PVC) SEWER PIPE SHALL MEET ASTM D-3034 SDR 35 SPECIFICATIONS, INSTALLED WITH SAND BEDDING AND BACK FILL OF TYPE II AGGREGATE BASE.
5. ALL MAN-HOLES IN PAVED STREETS 80' R/W AND LARGER, SHALL HAVE CONCRETE COLLARS. STREETS LESS THAN EIGHTY (80) FOOT R/W WILL REQUIRE RETROFIT IF PAVING DOES NOT CONFORM TO CITY STANDARDS AT THE MANHOLE.
6. TEE SADDLES SHALL BE USED TO CONNECT SEWER LATERALS TO EXISTING MAIN LINES UP TO TWELVE INCH (12") DIAMETER. CONNECTIONS TO FIFTEEN INCH (15") OR LARGER MAINS SHALL REQUIRE SPECIAL PROCEDURES. IN LINE "Y" S SHALL BE USED ON LINES TWELVE INCHES (12") OR ABOVE.
7. WATER MAINS SHALL BE PROTECTED IN ACCORDANCE WITH LVWD'S 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 SHALL NOT ACCEPT ANY SEWER MAINS WHICH HAVE A VERTICAL DEFLECTION OF MORE THAN ONE TENTH (0.1) OF A FOOT FROM THE APPROVED CONSTRUCTION PLANS AT ANY LOCATION. SEWER MAINS FOUND TO EXCEED THIS TOLERANCE WILL HAVE TO BE REPAIRED OR REMOVED OR REPLACED TO THE SATISFACTION OF THE CITY ENGINEER PRIOR TO ACCEPTANCE BY THE CITY OF LAS VEGAS.
10. INSTALLATION OF CURVED SEWER REQUIRES THE USE OF C-900 PVC PIPE WHICH ALLOWS FOR PIPE DEFLECTION AT THE JOINTS.

REVISED 04/05/10

IN THE EVENT THAT ANY UNFORESEEN CONDITIONS NOT COVERED BY THESE NOTES ARE ENCOUNTERED DURING GRADING OPERATIONS, THE OWNER/ENGINEER SHALL BE IMMEDIATELY NOTIFIED FOR DIRECTION.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM ALL NECESSARY CUTS AND FILLS WITHIN THE LIMITS OF THIS PROJECT AND THE RELATED OFF-SITE WORK, SO AS TO GENERATE THE DESIRED SUBGRADE, FINISH GRADES AND SLOPES SHOWN.

CONTRACTOR SHALL TAKE RESPONSIBILITY FOR ALL EXCAVATION, ADEQUATE SHORING SHALL BE DESIGNED AND PROVIDED BY THE CONTRACTOR TO PREVENT UNDERMINING OF ANY ADJACENT FEATURES OR FACILITIES AND/OR CAVING OF THE EXCAVATION.

THE CONTRACTOR IS WARNED THAT AN EARTHWORK BALANCE WAS NOT NECESSARILY THE INTENT OF THIS PROJECT. ANY ADDITIONAL MATERIAL REQUIRED OR LEFTOVER MATERIAL FOLLOWING EARTHWORK OPERATIONS BECOMES THE RESPONSIBILITY OF THE CONTRACTOR.

THE GRADING CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE OWNER TO PROVIDE FOR THE REQUIREMENTS OF THE PROJECT STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND ASSOCIATED PERMIT.

CONTRACTOR SHALL GRADE TO THE LINES AND ELEVATIONS SHOWN ON THE PLANS WITHIN THE FOLLOWING HORIZONTAL AND VERTICAL TOLERANCES AND DEGREES OF COMPACTION, IN THE AREAS INDICED:

	HORIZONTAL	VERTICAL	COMPACTION
A.PAVEMENT AREA SUBGRADE	0.1"	+0.070-0.071	SEE SOILS REPORT
B.ENGINEERED FILL	0.5"	+0.110-0.1	SEE SOILS REPORT

COMPACTION TESTING WILL BE PERFORMED BY THE OWNER OR HIS REPRESENTATIVE.

ALL CUT AND FILL SLOPES SHALL BE PROTECTED UNTIL EFFECTIVE EROSION CONTROL HAS BEEN ESTABLISHED.

THE USE OF POTABLE WATER WITHOUT A SPECIAL PERMIT FOR BUILDING OR CONSTRUCTION PURPOSES INCLUDING CONSOLIDATION OF BACKFILL OR DUST CONTROL IS PROHIBITED. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR CONSTRUCTION WATER.

THE CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS AND ALL OTHER PUBLIC RIGHT-OF-WAY IN A CLEAN, SAFE AND USABLE CONDITION. ALL SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS SHALL BE PROMPTLY REMOVED FROM ALL THE PUBLICLY OWNED PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT. ALL ADJACENT PROPERTY, PRIVATE OR PUBLIC SHALL BE MAINTAINED IN A CLEAN, SAFE AND USABLE CONDITION.

IN THE EVENT THAT ANY TEMPORARY CONSTRUCTION ITEM IS REQUIRED THAT IS NOT SHOWN ON THESE DRAWINGS, THE OWNER AGREES TO PROVIDE AND INSTALL SUCH ITEM AT HIS OWN EXPENSE AND AT THE DIRECTION OF THE CITY ENGINEER. TEMPORARY CONSTRUCTION INCLUDES DITCHES, BERMS, ROAD SIGNS AND BARRICADES, ETC.

PROJECTION: TRANSVERSE MERCATOR

15745, P.E. LICENSE # WILLIAM J. MEYER DATE

DI	DROP INLET
DE	DEEP BLOOD ELEVATION
CCUSD	CLARK COUNTY UNIFORM STANDARD
	DRAWINGS
SW	SIDEWALK
TSW	TOP OF SIDEWALK
INT.	INTERSECTION
D.G.	DESIGN GRADE
C/L	CENTER LINE
C/G	OFFSET CROWN
BC	BACK OF CURB
BCR	BEGIN CURB RETURN
BCR	BACK OF CURB LENGTH
FT	TOP OF FOOTING
GB	GRADE BREAK
PC	POINT OF CURVATURE
TPW	TOP OF PLANTER WALL
TPW	TOP OF RETAINMENT WALL
TOB	TOP OF CHANNEL/SCARP
TOB	TOE OF CHANNEL/SCARP
TOE	TOP OF BOX
PP	POWER POLE
TRANS.	TRANSITION
RET.	RETAINMENT

DESCRIPTION	PROPOSED	EXISTING	FUTURE
CONTOUR (5' INTERVAL)	2450	(2450)	(2450)
CONTOUR (1' INTERVAL)			
EDGE OF PAVEMENT			
SAW CUT			
RETAINING WALL			
SCREEN WALL			
RIGHT OF WAY			
CENTER LINE			
BACK OF CURB			
LIP OF GUTTER			
FACE OF CURB			
SIDEWALK			
UNIT BOUNDARY LINE			
UNIT BOUNDARY / ROW			
PROPERTY LINE			
SLOPE AND FLOW DIRECTION	1.00%	1.00%	1.00%
SCARP AREA			
MATCHLINE			
SIDEWALK RAMP			
SIGHT VISIBILITY ZONES			
PAVED ROAD			
PAVEMENT REMOVAL			
WATER UNDER 18"			
WATER 18" & OVER			
SANITARY SEWER UNDER 18"			
SANITARY SEWER 18" & OVER			
STORM SEWER			
FIRE HYDRANT			
SANITARY SEWER MAN HOLE			
CLEAN OUT			
STORM DRAIN MAN HOLE			

[illegible]

2" ASPHALT CONCRETE PAVING	_ SY	_ SY
TYPE II GRAVEL BASE	_ CY	_ CY

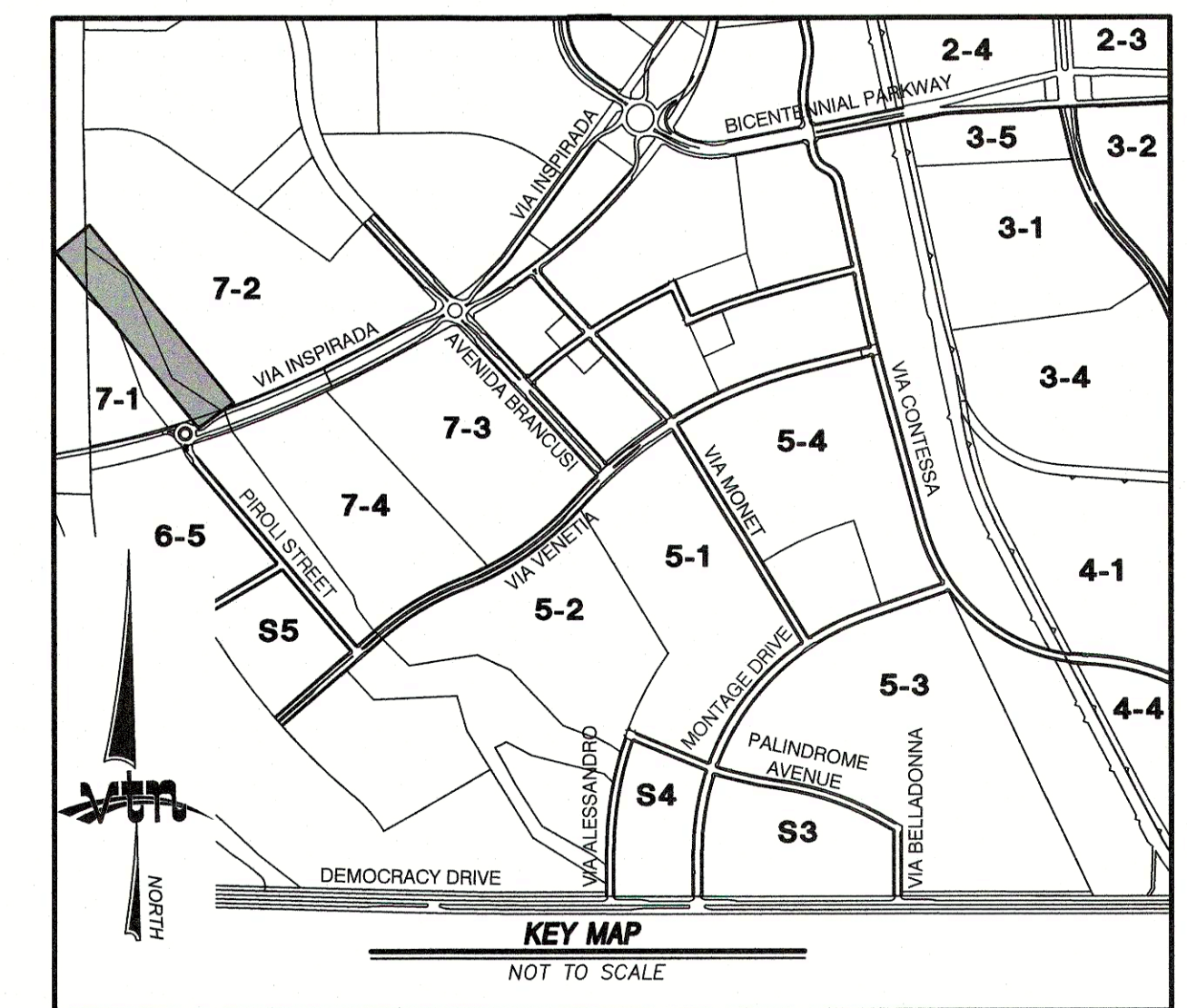
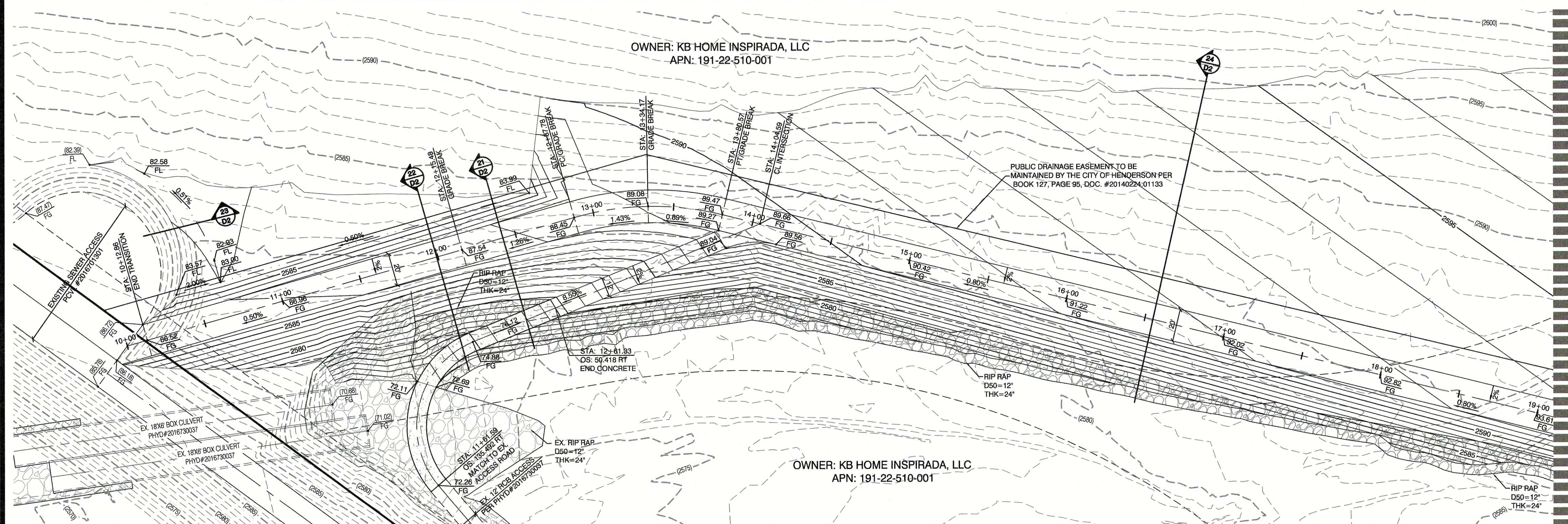
NOTE SHEET

CRYSTAL PARK APARTMENTS

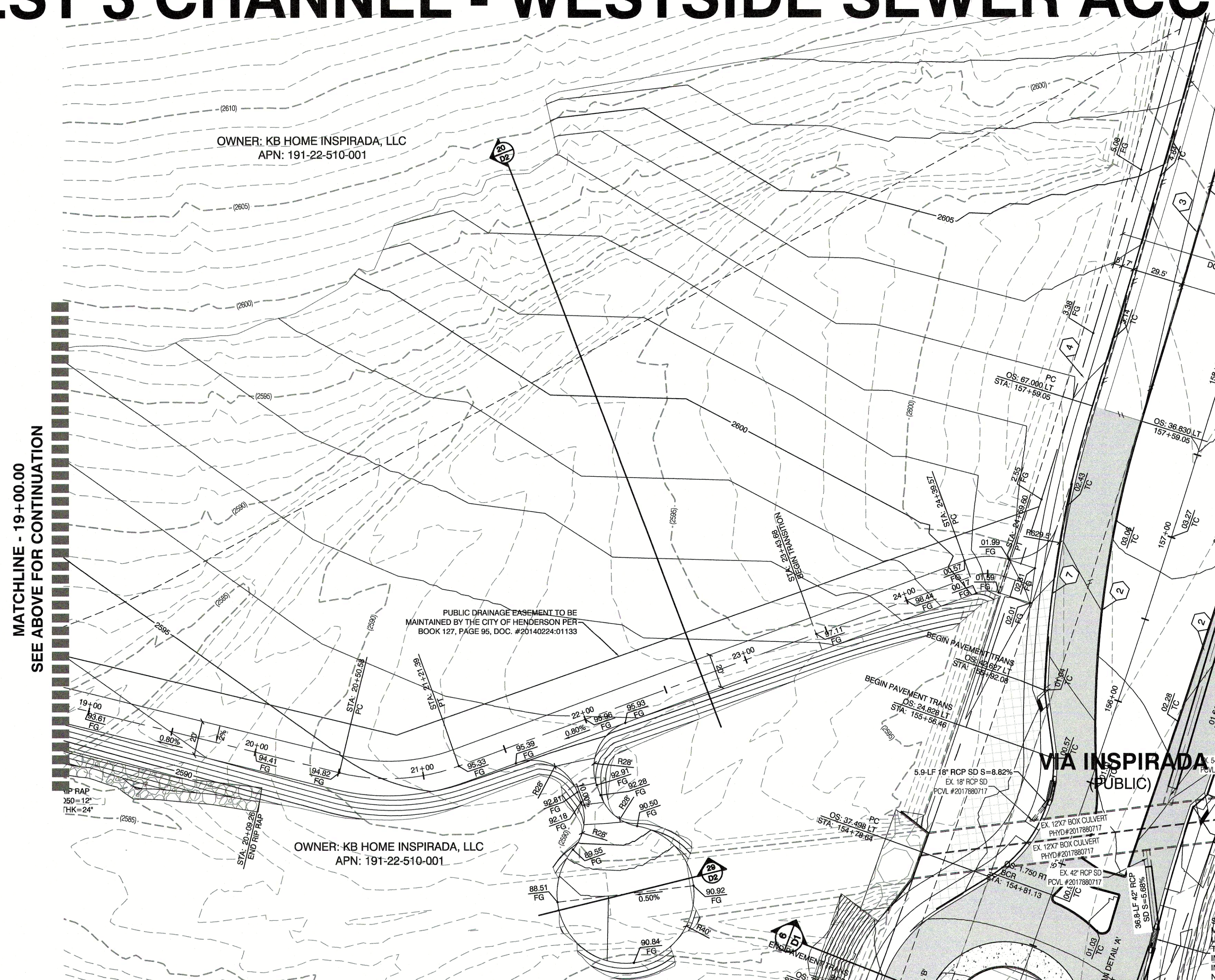
22727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148

FD

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WEST 3 CHANNEL - WESTSIDE SEWER ACCESS



LEGEND

FG	FINISH GRADE		EX. CONTOUR(5' INTERVAL)
FL	FLOW LINE		EX. CONTOUR(1' INTERVAL)
TO	TOP OF CURB		PROPOSED CONTOUR
EOP	EDGE OF ASPHALT PAVEMENT		
EG	EXISTING GROUND		
H.P.	HIGH POINT		
L.P.	LOW POINT		
C/L	CENTER LINE		SLOPE AND FLOW DIRECTION
BC	BACK OF CURB		EDGE OF EXIST A.C.
BCR	BEGIN CURB RETURN		SAW CUT & MATCH A.C.
GB	GRADE BREAK		SCARP AREA
PC	POINT OF CURVATURE		R/W OR P/L
PT	POINT OF TANGENCY		CENTER LINE
PRC	POINT OF REVERSE CURVATURE		BACK OF CURB
PCC	POINT OF COMPOUND CURVATURE		LIP OF OUTLET
BVC	BEGIN VERTICAL CURVE		EXIST. IMPROVEMENTS
MVC	MID-POINT OF VERTICAL CURVE		FUTURE IMPROVEMENTS
EV	END VERTICAL CURVE		MATCHLINE
PRVC	POINT OF REVERSE VERTICAL CURVE		CUT-FILL TRANSITION LINE
VERT.	POINT OF INTERSECTION		SAW-CUT LINE
VI	TOP OF WALL		RIP RAP
TW	TRANSITION		REMOVE AND REPLACE EX. AC
RET.	RETAINMENT		REMOVE EXISTING AC
INT.	INTERSECTION		
RCF	REINFORCED CONCRETE PIPE		
SD	STORM DRAIN		
DI	DROP INLET		
R/W	RIGHT-OF-WAY		
S/W	SIDEWALK		
M.U.E.	MUNICIPAL UTILITY EASEMENT		
	PROPOSED AC		

BASIS OF BEARING

NORTH 89°06'27" EAST - BEING THE BEARING OF THE NORTH LINE OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 22, TOWNSHIP 23 SOUTH, RANGE 61 EAST, M.D.M., CITY OF HENDERSON, CLARK COUNTY, NEVADA AS SHOWN BY THAT PLAT ON FILE IN THE OFFICE OF THE COUNTY RECORDER, CLARK COUNTY, NEVADA IN BOOK 147 OF PLATS, PAGE 94.

PROJECT BENCHMARK

PROJECT DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
CITY OF HENDERSON BENCHMARK: NO. 569 NAVD88 ELEVATION: 777.561 METERS (2551.04 FEET)
2" BRASS CAP IN THE TOP OF CURB AT THE NORTHWEST CORNER OF ANTHEM PARKWAY AND
SCOTT'S VALLEY DRIVE.

Avoid cutting underground utility lines. It's costly.

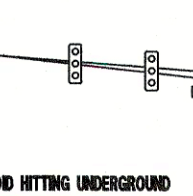
**Call
before you
Dig**

1-800-227-2600

Avoid overhead power line contact. It's costly.

**Call
before you
Overhead**

1-702-227-2929



AVOID HITTING UNDERGROUND
TRAFFIC SIGNAL AND STREET
LIGHT SYSTEM CONDUITS
IT'S COSTLY

Call
before you
Underground

1-702-267-2783

CITY OF HENDERSON UTILITY SERVICES LINE LOCATION

AND

1-702-432-5300

FOREWAY AND INTERNAL SYSTEMS OF TRANSPORTATION

CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE (1) YEAR ONLY. PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS, PARKS AND RECREATION, CITY OF HENDERSON, IF WORK IS NOT COMPLETED WITHIN ONE (1) YEAR OF THE APPROVAL DATE.

CITY ENGINEER, CITY OF HENDERSON APPROVAL DATE

INSPIRADA BUILDERS, LLC
1795 W. BADURA AVE., SUITE 180
LAS VEGAS, NV 89118

**GRADING PLAN 1
WESTSIDE SEWER ACCESS**

INSPIRADA
VILLAGE 7 INFRASTRUCTURE
VIA VENETIA AND VIA INSPIRADA

DESIGNED BY
KRJ

R.M.S.

CHECKED BY:
KFN

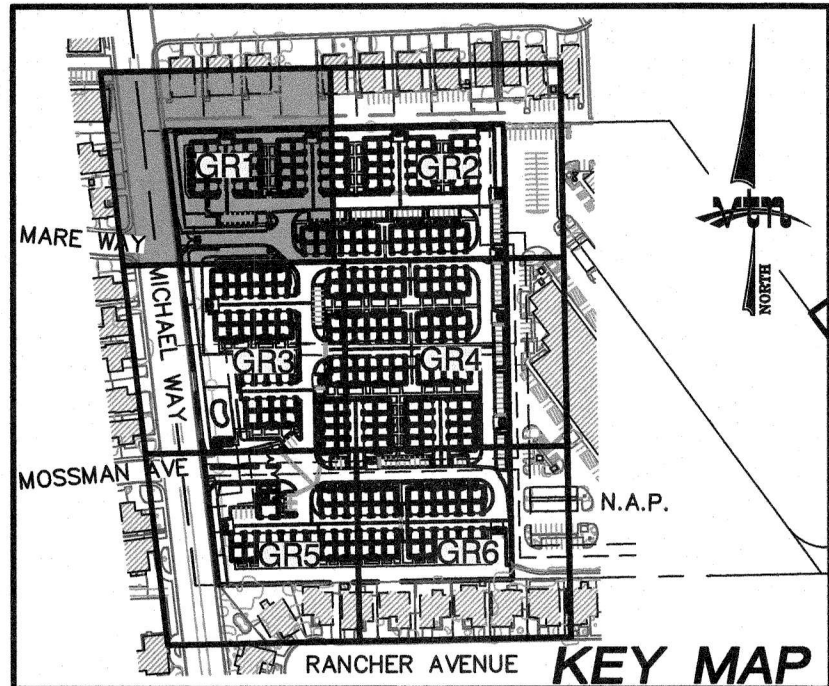
PROJECT NO:
7420

DATE	NAME	AMOUNT
10/1/10	John Doe	100.00
10/2/10	Jane Smith	200.00
10/3/10	Bob Johnson	150.00
10/4/10	Alice Brown	300.00
10/5/10	Charlie White	250.00
10/6/10	Diana Green	180.00
10/7/10	Frank Black	220.00
10/8/10	Grace King	160.00
10/9/10	Henry Lee	280.00
10/10/10	Ivy Clark	210.00
10/11/10	Jack Hall	190.00
10/12/10	Karen Young	230.00
10/13/10	Leo Adams	170.00
10/14/10	Mia Baker	260.00
10/15/10	Noah Wilson	200.00
10/16/10	Olivia Moore	180.00
10/17/10	Peter Taylor	240.00
10/18/10	Quinn Scott	160.00
10/19/10	Rachel Green	220.00
10/20/10	Samuel King	190.00
10/21/10	Tina White	270.00
10/22/10	Victor Black	210.00
10/23/10	Wendy Brown	180.00
10/24/10	Xavier Green	250.00
10/25/10	Yvonne White	200.00
10/26/10	Zoe Black	170.00
10/27/10	Adam Green	230.00
10/28/10	Eve White	190.00
10/29/10	Frank Black	260.00
10/30/10	Grace King	210.00
10/31/10	Henry Lee	180.00
11/1/10	Ivy Clark	240.00
11/2/10	Jack Hall	160.00
11/3/10	Karen Young	220.00
11/4/10	Leo Adams	190.00
11/5/10	Mia Baker	270.00
11/6/10	Noah Wilson	200.00
11/7/10	Olivia Moore	180.00
11/8/10	Peter Taylor	250.00
11/9/10	Quinn Scott	210.00
11/10/10	Rachel Green	190.00
11/11/10	Samuel King	260.00
11/12/10	Tina White	230.00
11/13/10	Victor Black	170.00
11/14/10	Wendy Brown	240.00
11/15/10	Xavier Green	200.00
11/16/10	Yvonne White	180.00
11/17/10	Zoe Black	250.00
11/18/10	Adam Green	210.00
11/19/10	Eve White	190.00
11/20/10	Frank Black	260.00
11/21/10	Grace King	230.00
11/22/10	Henry Lee	170.00
11/23/10	Ivy Clark	240.00
11/24/10	Jack Hall	200.00
11/25/10	Karen Young	180.00
11/26/10	Leo Adams	250.00
11/27/10	Mia Baker	210.00
11/28/10	Noah Wilson	190.00
11/29/10	Olivia Moore	260.00
11/30/10	Peter Taylor	230.00
12/1/10	Quinn Scott	170.00
12/2/10	Rachel Green	240.00
12/3/10	Samuel King	200.00
12/4/10	Tina White	180.00
12/5/10	Victor Black	250.00
12/6/10	Wendy Brown	210.00
12/7/10	Xavier Green	190.00
12/8/10	Yvonne White	260.00
12/9/10	Zoe Black	230.00
12/10/10	Adam Green	170.00
12/11/10	Eve White	240.00
12/12/10	Frank Black	200.00
12/13/10	Grace King	180.00
12/14/10	Henry Lee	250.00
12/15/10	Ivy Clark	210.00
12/16/10	Jack Hall	190.00
12/17/10	Karen Young	260.00
12/18/10	Leo Adams	230.00
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12/26/10	Tina White	260.00
12/27/10	Victor Black	230.00
12/28/10	Wendy Brown	170.00
12/29/10	Xavier Green	240.00
12/30/10	Yvonne White	200.00
12/31/10	Zoe Black	180.00

PROFESSIONAL ENGINEER-STATE OF NEVADA
KENNETH F. NICHOLSON
EXP: 12/31/17
CIVIL
No. 10539

SHEET
G1
3 OF 28 SHEETS
DRAWING NO.
201770---

H:\7420\Village-7\Sheet Set\7420-V7-GR.dwg



CONSTRUCTION NOTES

- (1) CONSTRUCT 24" TYPE "I" CURB & GUTTER
PER CCAUSD #216.
- (2) CONSTRUCT TYPE "A" CURB PER CCAUSD #219.
- (3) 0" CURB FACE PER DETAIL ON SHEET D73
- (4) CONSTRUCT 3' VALLEY GUTTER
PER THE DETAIL ON SHEET D73
- (5) CONSTRUCT 8' VALLEY GUTTER
PER CCAUSD # 228
- (6) CONSTRUCT 5' SIDEWALK PER CCAUSD # 234
- (7) INSTALL PRECAST BUMPER BLOCK
PER CCAUSD #238.
- (8) INSTALL LANDSCAPE ROCK D50=6" 12" THK
- (9) CONSTRUCT 2' CURB CUT
PER DETAIL ON SHEET D73
- (10) CONSTRUCT SIDE WALK UNDER DRAIN
PER CCAUSD #236.
- (11) CONSTRUCT "U" CHANNEL
PER DETAIL ON SHEET D73
- (12) CONSTRUCT COMMERCIAL DRIVEWAY
PER CCAUSD #225
- (13) CONSTRUCT 6" PVC STORM DRAIN
- (14) INSTALL WROUGHT IRON FENCE WITH A 6" CLEAR
SPACE @ THE BOTTOM FOR UNOBSTRUCTED STORM
RUNOFF FLOW. SEE DETAIL "Y" ON SHEET D72.

HANDICAP ACCESS TO THE RIGHT OF WAY

REMOVE EXISTING PAVEMENT

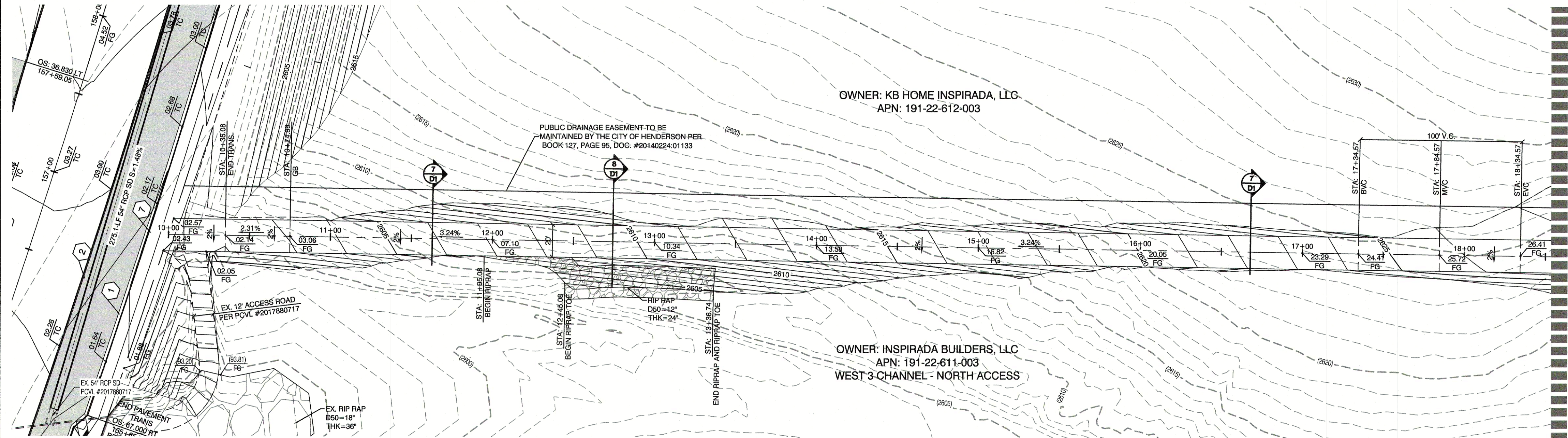
SEE ARCHITECTURAL DRAWINGS FOR TRASH ENCLOSURE PLAN AND DETAILS. MAXIMUM 1% SLOPE ON TRASH ENCLOSURE SLAB.

SEE ARCHITECTURAL AND LANDSCAPE PLANS FOR DETAILS OF OPEN SPACE AREAS.

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

15745, P.E. No. WILLIAM J. MEYER DATE _____

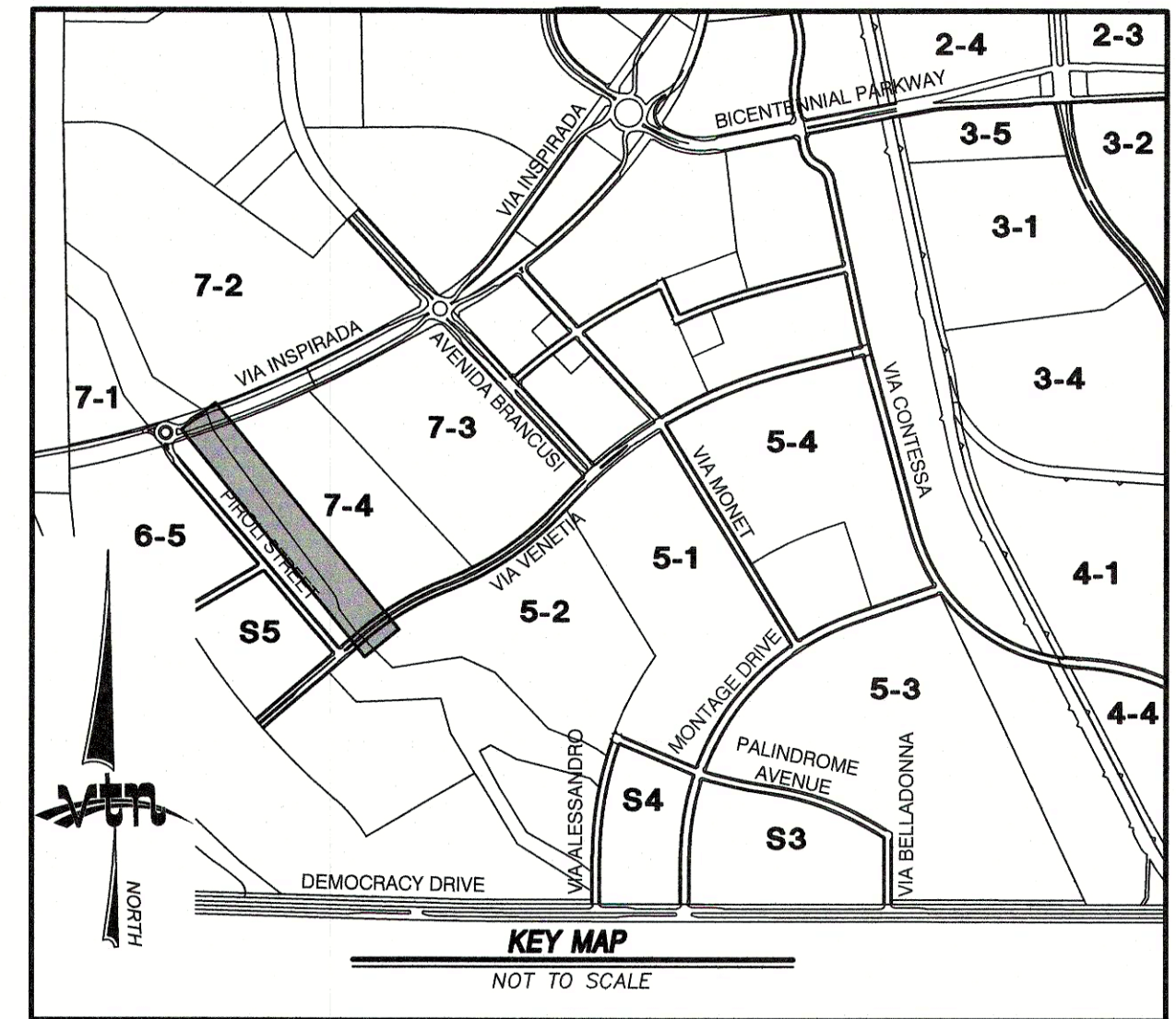
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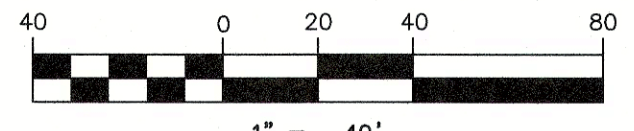
VIA INSPIRADA
(PUBLIC)

WEST 3 CHANNEL - NORTH ACCESS

MATCHLINE - 18+50.00
SEE BELOW FOR CONTINUATION



GRAPHIC SCALE



CONSTRUCTION NOTES

1. CONSTRUCT 'L' CURB & GUTTER PER STD. # 216
2. CONSTRUCT 'A' TYPE ISLAND CURB PER STD. #219
3. SAWCUT AND MATCH EXISTING PAVEMENT
4. CONSTRUCT SIDEWALK PER STD. # 234
5. 6" THICK TRUCK APRON OVER 4" TYPE II AGG. BASE
6. CONSTRUCT 8" CROSS GUTTER PER STD. #228
7. CONSTRUCT INDUSTRIAL DRIVEWAY PER STD. #224

LEGEND

FG	FINISH GRADE	EX. CONTOUR(5' INTERVAL)
FL	FLOW LINE	EX. CONTOUR(1' INTERVAL)
TC	TOP OF CURB	PROPOSED CONTOUR
EOP	EDGE OF ASPHALT PAVEMENT	
EG	EXISTING GROUND	
H.P.	HIGH POINT	
L.P.	LOW POINT	
C/L	CENTER LINE	
BC	BACK OF CURB	
BCR	BEGIN CURB RETURN	
GB	GRADE BREAK	
PC	POINT OF CURVATURE	
PT	POINT OF TANGENCY	
PRC	POINT OF REVERSE CURVATURE	
PCC	POINT OF COMPOUND CURVATURE	
BVC	BEGIN VERTICAL CURVE	
MVC	MID-POINT OF VERTICAL CURVE	
EVC	END VERTICAL CURVE	
PRVC	POINT OF REVERSE VERTICAL CURVE	
VPI	VERTICAL POINT OF INTERSECTION	
TOW	TOP OF WALL	
TRANS.	TRANSITION	
RET.	RETAINMENT	
INT.	INTERSECTION	
RCP	REINFORCED CONCRETE PIPE	
SD	STORM DRAIN	
DI	DROP INLET	
R/W	RIGHT-OF-WAY	
S/W	SIDEWALK	
M.U.E.	MUNICIPAL UTILITY EASEMENT	
	PROPOSED AC	
		SLOPE AND FLOW DIRECTION
		EDGE OF EXIST. A.C.
		SAW CUT & MATCH A.C.
		SCARP AREA
		R/W OR P/L
		CENTER LINE
		BACK OF CURB
		LIP OF GUTTER
		EXIST. IMPROVEMENTS
		FUTURE IMPROVEMENTS
		MATCHLINE
		CUT-FILL TRANSITION LINE
		SAW CUT LINE
		RIP RAP
		REMOVE AND REPLACE EX. AC
		REMOVE EXISTING AC

BASIS OF BEARING

NORTH 89°06'27" EAST - BEING THE BEARING OF THE NORTH LINE OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 22, TOWNSHIP 23 SOUTH, RANGE 61 EAST, M.D.M., CITY OF HENDERSON, CLARK COUNTY, NEVADA AS SHOWN BY THAT PLAT ON FILE IN THE OFFICE OF THE COUNTY RECORDER, CLARK COUNTY, NEVADA IN BOOK 147 OF PLATS, PAGE 34.

PROJECT BENCHMARK

PROJECT DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
CITY OF HENDERSON BENCHMARK: NO. 589 NAVD88 ELEVATION: 777.561 METERS (2551.04 FEET)
2" BRASS CAP IN THE TOP OF CURB AT THE NORTH-WEST CORNER OF ANTHEM PARKWAY AND SCOTT'S VALLEY DRIVE.

Call before you Dig
1-800-227-2600

Call before you Overhead
1-702-227-2929

Call before you Underground
1-702-267-2783
CITY OF HENDERSON UTILITY SERVICES LINE LOCATION
1-702-432-5300
FIREARM AND AIRPORT SYSTEM OF TRANSPORTATION

CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE (1) YEAR ONLY. PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS, PARKS AND RECREATION, CITY OF HENDERSON, IF WORK IS NOT COMPLETED WITHIN ONE (1) YEAR OF THE APPROVAL DATE.

CITY ENGINEER, CITY OF HENDERSON APPROVAL DATE

CITY OF HENDERSON

INSPIRADA BUILDERS, LLC
1910 S. RAINBOW BLVD., SUITE 100
LAS VEGAS, NV 89116
(702) 266-8400

GRADING PLAN 2
WEST 3 NORTH ACCESS
10+00.00 TO 26+77.54

INSPIRADA
VILLAGE 7 INFRASTRUCTURE
VIA VENETIA AND VIA INSPIRADA

DRAWN BY:
RJS

DESIGNED BY:
R.M.S.

CHECKED BY:
RPN

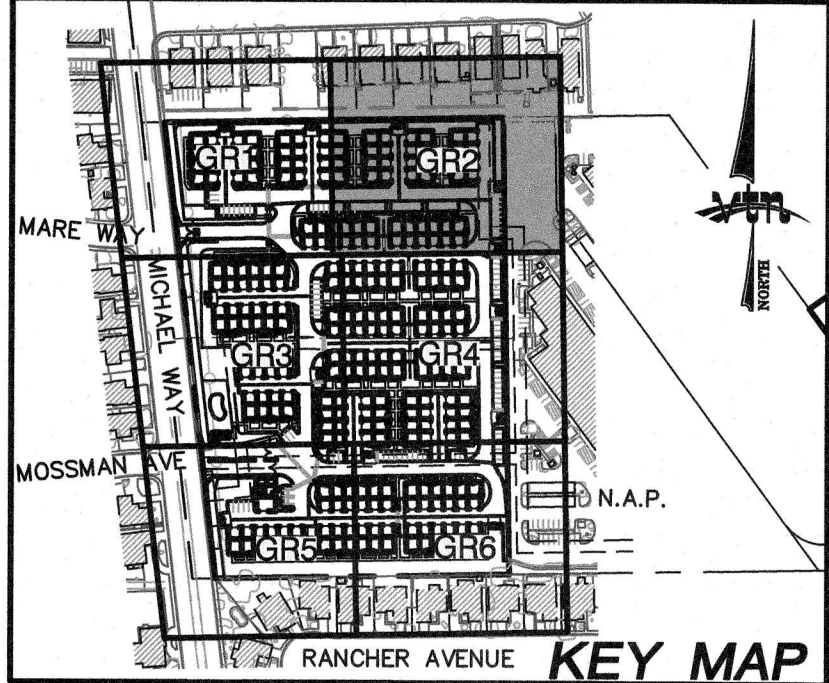
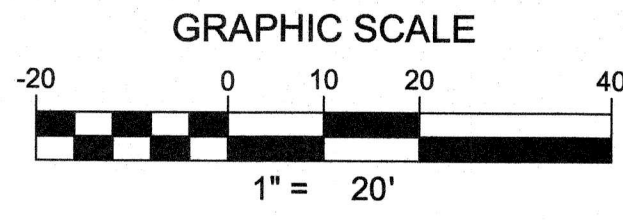
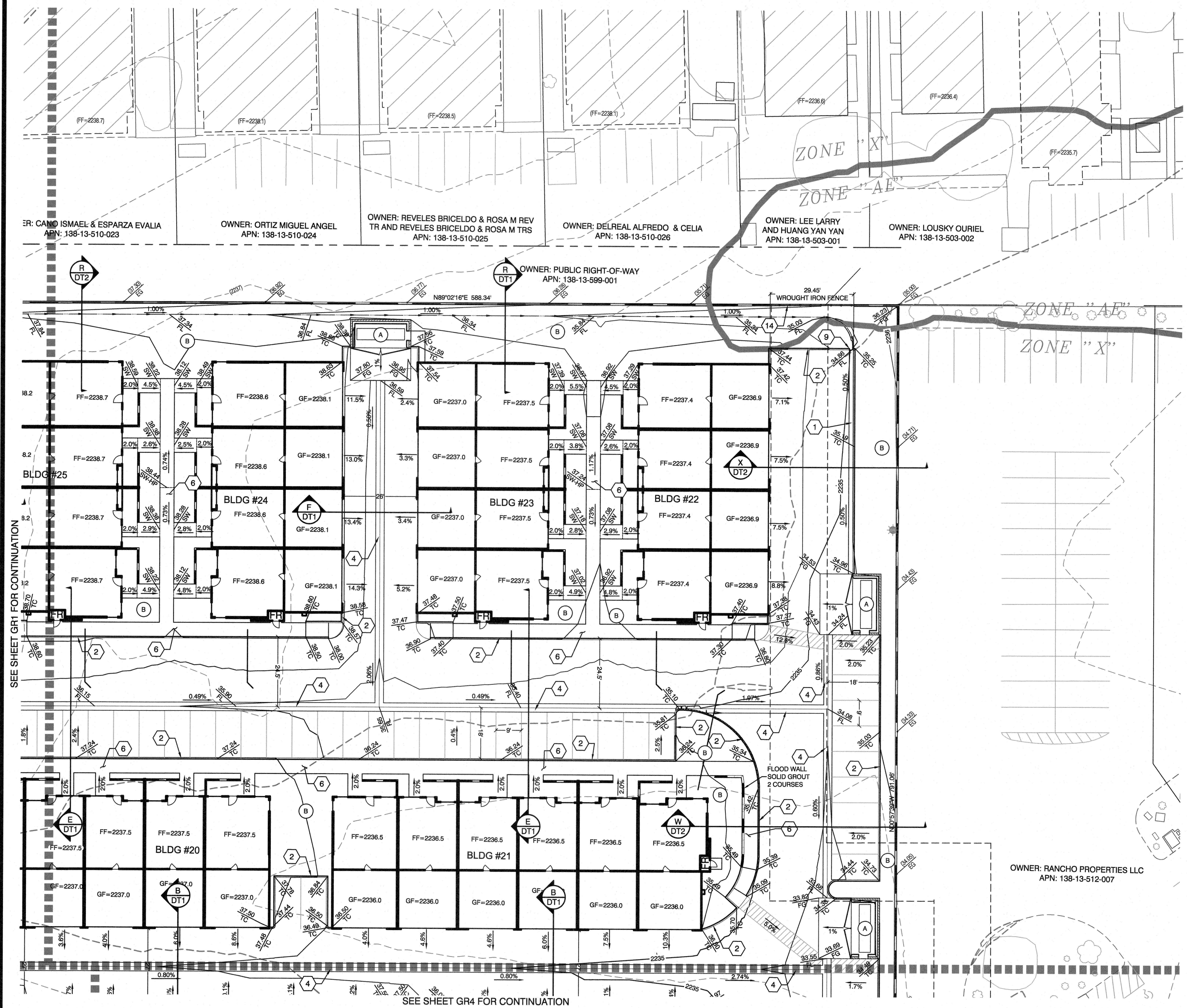
PROJECT NO.:
7420

SCALE: 1"=40'

PROFESSIONAL ENGINEER
KENNETH F. WICKHOLSON
CIVIL
No. 10539 NVENR 30

SHEET
G2
4 OF 28 SHEETS
DRAWING NO.
201770---

H:\1420 Village 7\Sheet Set\1420 V7 GR.dwg



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

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

ENGINEER DISCLAIMER NOTE:

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

15745, P.E. No. WILLIAM J. MEYER DATE

BENCHMARK

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

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

NAVD88 ELEVATION: 679.739 METERS (2230.11 FEET)

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

BASIS OF BEARING

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

LINEAR UNIT: US SURVEY FOOT (FT/US)

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

SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)

ZONE: LAS VEGAS

PROJECTION: TRANSVERSE MERCATOR

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

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

NORTHING AT GRID ORIGIN: 300,000,000 M (984,166,667 FT/US)

EASTING AT CENTRAL MERIDIAN: 100,000,000 M (328,083,333 FT/US)

SCALE FACTOR ON CENTRAL MERIDIAN: 1.0001 (EXACT)

Call before you dig

1-702-455-7511

CLARK COUNTY TRAFFIC OPERATIONS

Call before you Dig

1-702-227-2600

1-702-455-6000

CLARK COUNTY TRAFFIC OPERATIONS

SIGHT VISIBILITY ZONES:

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

EARTHWORK QUANTITIES

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

GRADING PERMIT NOTE

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

GEOTECHNICAL NOTE:

REFER TO SOILS REPORT: —

PROJECT # —, DATED —

HTE # —

SIDEWALK RAMPS TABLE

(PER CCAUSD No. 235, CASE I)

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

EAB INVESTMENT COMPANY

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH: (702) 873-1550 FAX: (702) 862-2587 WEB: WWW.VTNV.COM

GRADING PLAN 2

CRYSTAL PARK APARTMENTS

DRAWN BY: KCH 08/14/2017

DESIGNED BY: DEH 08/14/2017

CHECKED BY: WJM 08/14/2017

PROJECT NO: 15745

SCALE: 1"=20'

DATE: 08/14/2017

172017

WILLIAM J. MEYER

CIVIL

15745

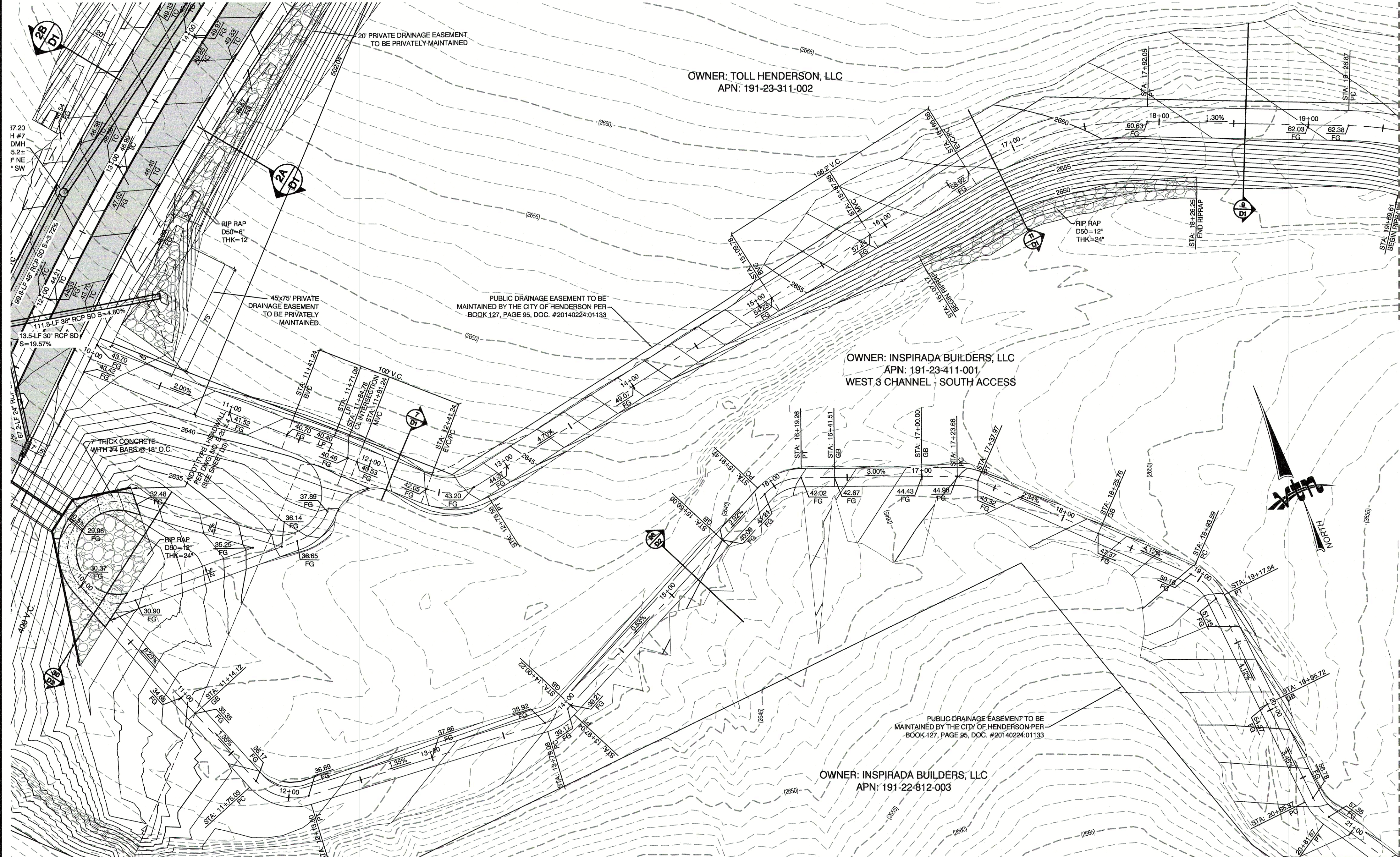
172017

GR2

4 OF 11 SHEETS

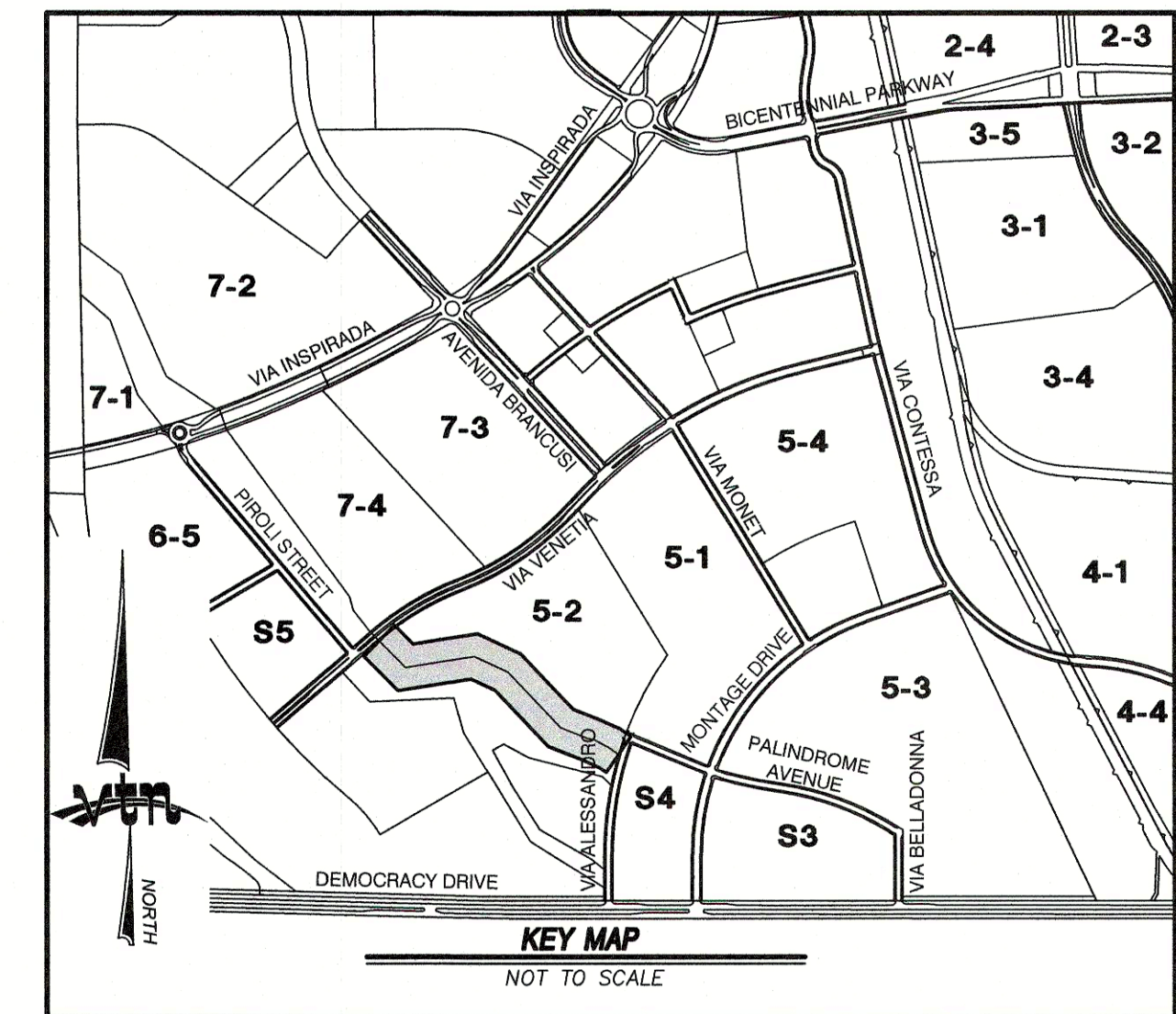
DRAWING NO.

VIA VENETIA
(PUBLIC)

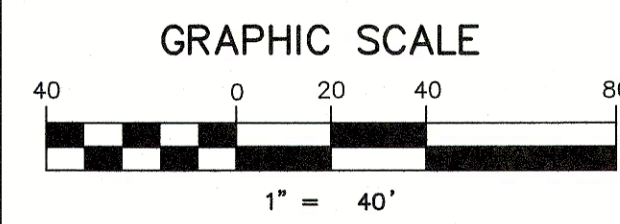


MATCHLINE - 19+50.00
SEE BELOW FOR CONTINUATION

MATCHLINE - 21+00.00
SEE SHEET G5 FOR CONTINUATION



- CONSTRUCTION NOTES**
1. CONSTRUCT 'L' CURB & GUTTER PER STD. # 216
 2. CONSTRUCT 'A' TYPE ISLAND CURB PER STD. #219
 3. SAWCUT AND MATCH EXISTING PAVEMENT
 4. CONSTRUCT SIDEWALK PER STD. # 234
 5. 6" THICK TRUCK APRON OVER 4" TYPE II AGG. BASE
 6. CONSTRUCT 8" CROSS GUTTER PER STD. #228
 7. CONSTRUCT INDUSTRIAL DRIVEWAY PER STD. #224



- LEGEND**
- | | | |
|--------|---------------------------------|--------------------------|
| FG | FINISH GRADE | EX. CONTOUR(5' INTERVAL) |
| FL | FLOW LINE | EX. CONTOUR(1' INTERVAL) |
| TC | TOP OF CURB | PROPOSED CONTOUR |
| EOP | EDGE OF ASPHALT PAVEMENT | |
| EG | EXISTING GROUND | |
| H.P. | HIGH POINT | |
| L.P. | LOW POINT | |
| C/L | CENTER LINE | |
| BC | BACK OF CURB | |
| BCR | BEGIN CURB RETURN | |
| GB | GRADE BREAK | |
| PC | POINT OF CURVATURE | |
| PT | POINT OF TANGENCY | |
| PRC | POINT OF REVERSE CURVATURE | |
| PCC | POINT OF COMPOUND CURVATURE | |
| BVC | BEGIN VERTICAL CURVE | |
| MVC | MID-POINT OF VERTICAL CURVE | |
| EVC | END VERTICAL CURVE | |
| PRVC | POINT OF REVERSE VERTICAL CURVE | |
| VPI | VERTICAL POINT OF INTERSECTION | |
| TOW | TOP OF WALL | |
| TRANS. | TRANSITION | |
| RET. | RETAINMENT | |
| INT. | INTERSECTION | |
| RCP | REINFORCED CONCRETE PIPE | |
| SD | STORM DRAIN | |
| DI | DROP INLET | |
| R/W | RIGHT-OF-WAY | |
| S/W | SIDEWALK | |
| M.U.E. | MUNICIPAL UTILITY EASEMENT | |
| | PROPOSED AC | |
| | CUT-FILL TRANSITION LINE | |
| | SAWCUT LINE | |
| | RIP RAP | |
| | REMOVE AND REPLACE EX. AC | |
| | REMOVE EXISTING AC | |

BASIS OF BEARING

NORTH 89°06'27" EAST - BEING THE BEARING OF THE NORTH LINE OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 22, TOWNSHIP 23 SOUTH, RANGE 61 EAST, M.D.M. CITY OF HENDERSON, CLARK COUNTY, NEVADA AS SHOWN BY THAT PLAT ON FILE IN THE OFFICE OF THE COUNTY RECORDER, CLARK COUNTY, NEVADA IN BOOK 147 OF PLATS, PAGE 94.

PROJECT BENCHMARK

PROJECT DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
CITY OF HENDERSON BENCHMARK: NO. 569 NAVD88 ELEVATION: 777.561 METERS (2551.04 FEET)
2" BRASS CAP IN THE TOP OF CURB AT THE NORTHWEST CORNER OF ANTHEM PARKWAY AND SCOTT'S VALLEY DRIVE.

Call before you Dig
1-800-227-2600

Call before you Overhead
1-702-227-2929

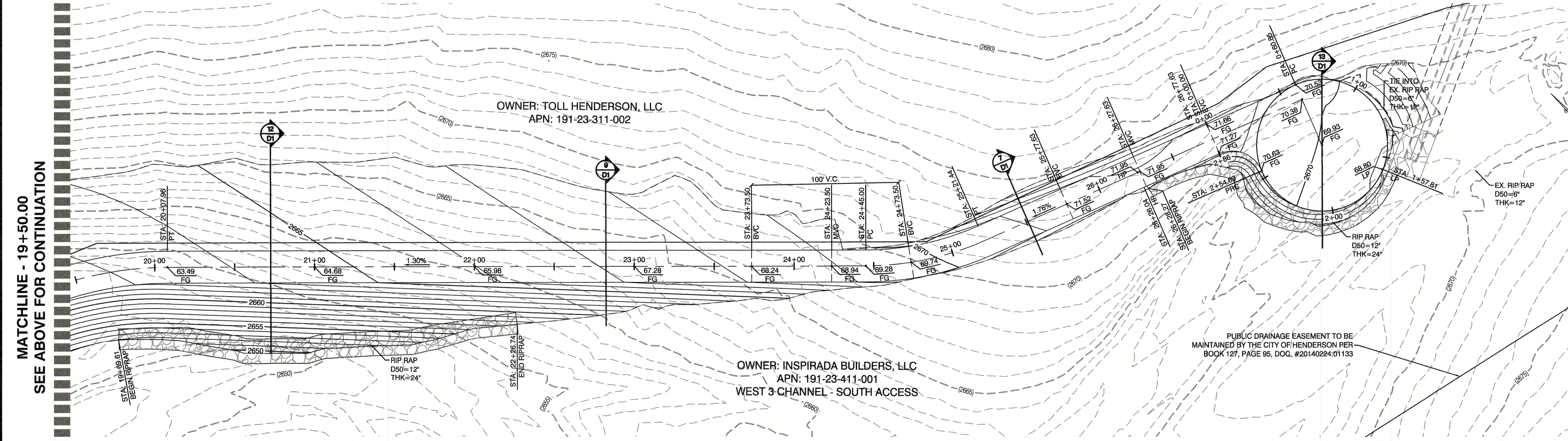
Call before you Underground
1-702-267-2783
CITY OF HENDERSON UTILITY SERVICES LINE LOCATION

1-702-432-5300
FREIGHT AND AIRMAIL SYSTEM OF TRANSPORTATION

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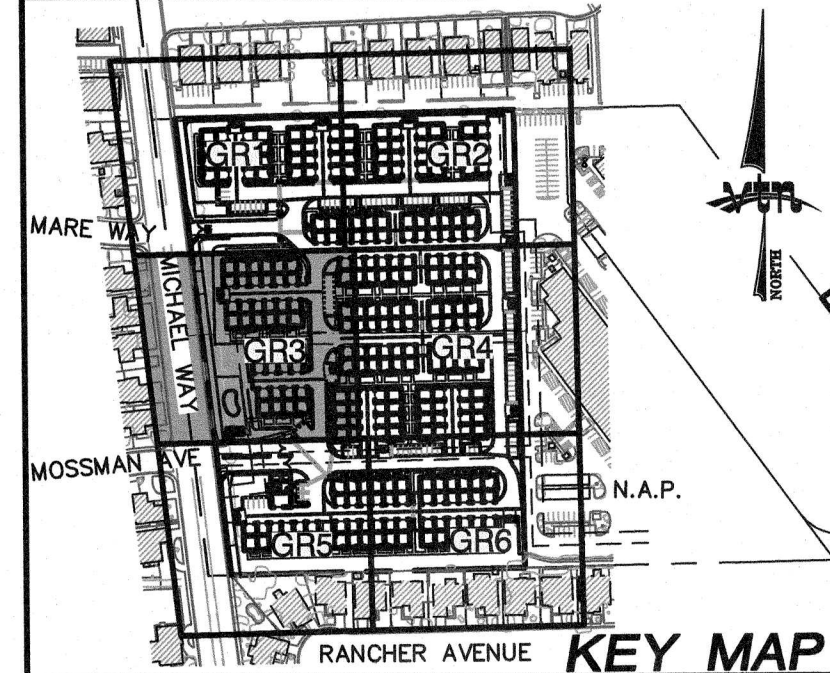
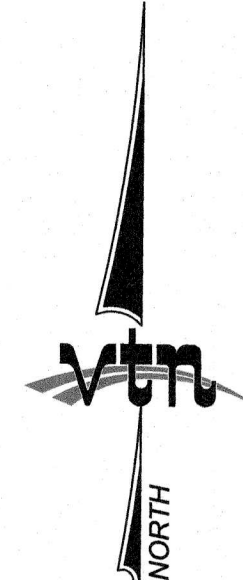
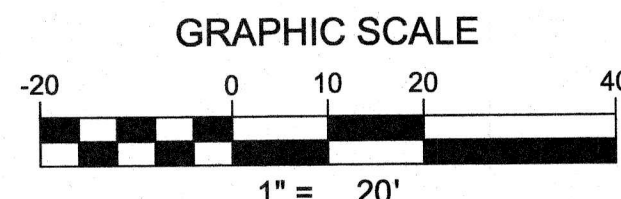
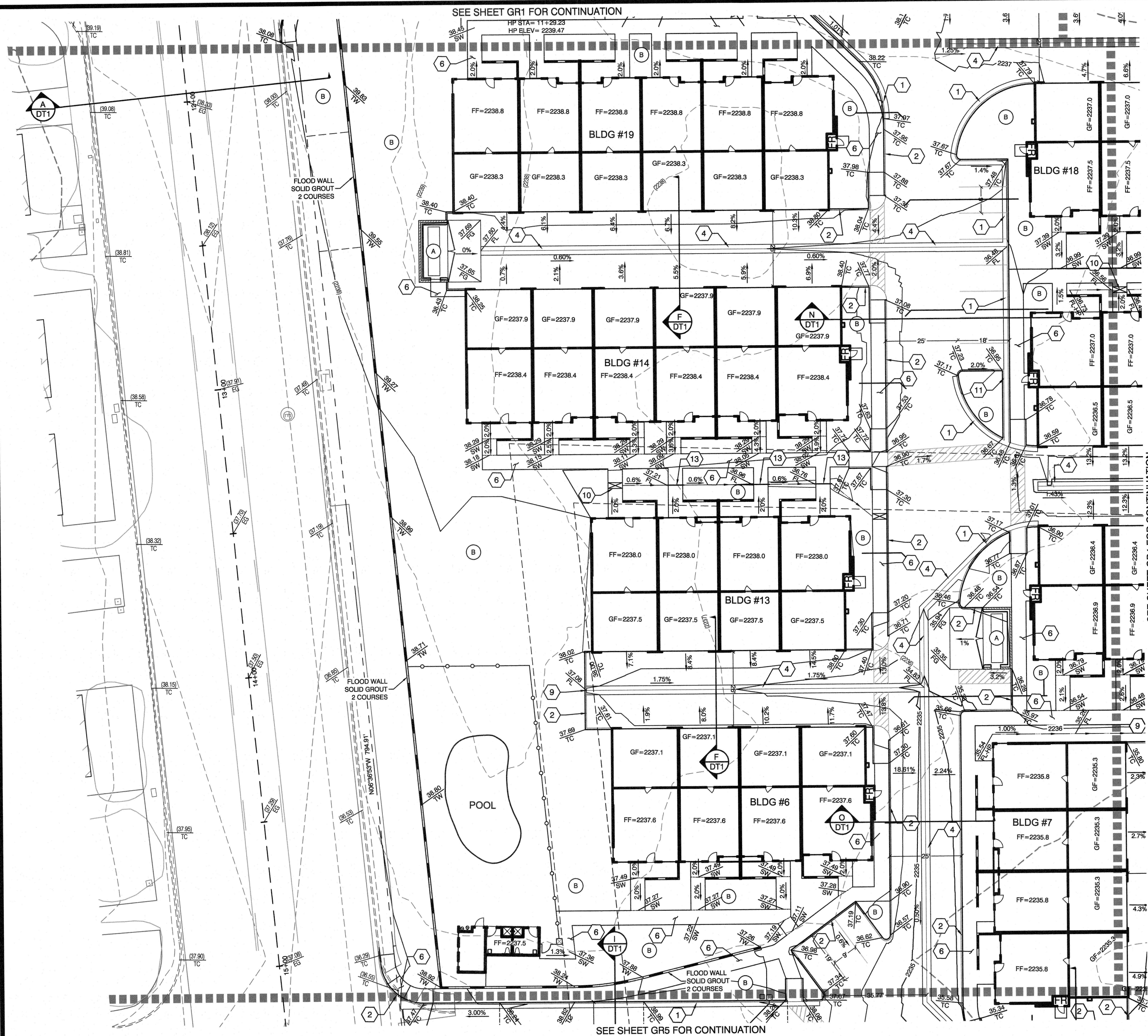
CITY ENGINEER, CITY OF HENDERSON APPROVAL DATE

WEST 3 CHANNEL - SOUTH ACCESS



MATCHLINE - 19+50.00
SEE ABOVE FOR CONTINUATION

CITY OF HENDERSON		INSPIRADA BUILDERS, LLC	
727 SOUTH RAINBOW BOULEVARD LAS VEGAS, NEVADA 89146-5148 PH: (702) 937-5550 FAX: (702) 362-2597 WEB: WWW.VTNV.COM		5795 W. BACARA AVE., SUITE 180 LAS VEGAS, NEVADA 89115 (702) 296-9400	
GRADING PLAN 3 WEST 3 SOUTH ACCESS 10+00.00 TO 26+00.00		INSPIRADA VILLAGE 7 INFRASTRUCTURE VIA VENETIA AND VIA INSPIRADA	
DRAWN BY: KJL	DESIGNED BY: RJS	CHECKED BY: KJL	PROJECT NO.: 763
SCALE: 1"=40'		HORIZ. VERT.	
SHEET G3 5 OF 28 SHEETS		DRAWING NO. 201770----	



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

- CONSTRUCTION NOTES**
- CONSTRUCT 24" TYPE "L" CURB & GUTTER PER CCAUSD #216.
 - CONSTRUCT TYPE "A" CURB PER CCAUSD #219.
 - 0" CURB FACE PER DETAIL ON SHEET DT3
 - CONSTRUCT 3" VALLEY GUTTER PER THE DETAIL ON SHEET DT3
 - CONSTRUCT 8" VALLEY GUTTER PER CCAUSD # 228
 - CONSTRUCT 5" SIDEWALK PER CCAUSD # 234
 - INSTALL PRECAST BUMPER BLOCK PER CCAUSD #238.
 - INSTALL LANDSCAPE ROCK D50=6" 12" THK
 - CONSTRUCT 2" CURB CUT PER DETAIL ON SHEET DT3
 - CONSTRUCT SIDE WALK UNDER DRAIN PER CCAUSD #236.
 - CONSTRUCT "U" CHANNEL PER DETAIL ON SHEET DT3
 - CONSTRUCT COMMERCIAL DRIVEWAY PER CCAUSD #225
 - CONSTRUCT 6" PVC STORM DRAIN
 - INSTALL WROUGHT IRON FENCE WITH A 6" CLEAR SPACE @ THE BOTTOM FOR UNOBSTRUCTED STORM RUNOFF FLOW. SEE DETAIL "Y" ON SHEET DT2.
 - HANDICAP ACCESS TO THE RIGHT OF WAY
 - REMOVE EXISTING PAVEMENT

- COORDINATION ITEMS**
- SEE ARCHITECTURAL DRAWINGS FOR TRASH ENCLOSURE PLAN AND DETAILS. MAXIMUM 1% SLOPE ON TRASH ENCLOSURE SLAB.
 - SEE ARCHITECTURAL AND LANDSCAPE PLANS FOR DETAILS OF OPEN SPACE AREAS.

ENGINEER DISCLAIMER NOTE:

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

15745, P.E. No. WILLIAM J. MEYER DATE

BENCHMARK

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

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

NAVD88 ELEVATION: 679.739 METERS (2230.11 FEET)

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

BASIS OF BEARING

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

LINEAR UNIT: US SURVEY FOOT (FT/US)

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

SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)

ZONE: LAS VEGAS

PROJECTION: TRANSVERSE MERCATOR

STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°19'00"N

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

NORTHING AT GRID ORIGIN: 200,000,000.0 M (656,166,667 FT/US)

EASTING AT CENTRAL MERIDIAN: 100,000,000.0 M (328,083,333 FT/US)

SCALE FACTOR ON CENTRAL MERIDIAN: 1.0001 (EXACT)

Call before you Dig

1-702-455-5111

1-702-228-8111

1-702-227-2800

1-702-455-6000

CLARK COUNTY TRAFFIC OPERATIONS

Call before you Dig

1-702-227-2929

SIGHT VISIBILITY ZONES:		
NO STRUCTURE, WALLS, VEGETATION, OR OBJECT OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.		
EARTHWORK QUANTITIES		
CUT	FILL	NET
8,336 CUBIC YARDS	19,754 CUBIC YARDS	11,418 CUBIC YARDS (FILL)
GRADING PERMIT NOTE		
THIS GRADING PERMIT DOES NOT INCLUDE THE CONSTRUCTION OF RETAINING WALLS AND OTHERS STRUCTURES. SEPARATE PERMITS AND APPLICATIONS ARE REQUIRED FOR THESE.		
GEOTECHNICAL NOTE:		
REFER TO SOILS REPORT: --- PROJECT #---, DATED --- HTE #---		

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

EAB INVESTMENT COMPANY

3066 N. RANCHO #130
LAS VEGAS, NV 89113

GRADING PLAN 3

CRYSTAL PARK APARTMENTS

08/14/2017
08/14/2017
08/14/2017
1:20
7844

LAS VEGAS, NV

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH: (702) 973-7550 FAX: (702) 962-2597 WEB: WWW.VTNN.COM
CONSULTING ENGINEERS • PLANNERS • LAND SURVEYORS

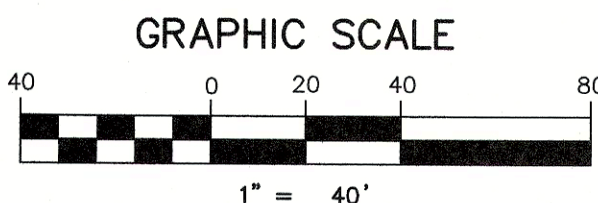
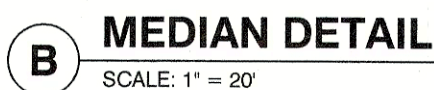
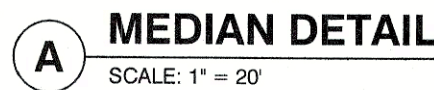
WILLIAM J. MEYER

17/20/17

GR3

5 OF 11 SHEETS

DRAWING NO.



BASIS OF BEARING

NORTH 89°06'27" EAST - BEING THE BEARING OF THE NORTH LINE OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 22, TOWNSHIP 23 SOUTH, RANGE 61 EAST, M.D.M., CITY OF HENDERSON, CLARK COUNTY, NEVADA AS SHOWN BY THAT PLAT ON FILE IN THE OFFICE OF THE COUNTY RECORDER, CLARK COUNTY, NEVADA IN BOOK 147 OF PLATS, PAGE 94.

PROJECT BENCHMARK

PROJECT DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
CITY OF HENDERSON BENCHMARK: NO. 569 NAVD88 ELEVATION: 777.561 METERS (2551.04 FEET)
2" BRASS CAP IN THE TOP OF CURB AT THE NORTHWEST CORNER OF ANTHEM PARKWAY AND
SCOTT'S VALLEY DRIVE.

CONSTRUCTION NOTES	
1	CONSTRUCT "L" CURB & GUTTER PER STD. # 216
2	CONSTRUCT "A" TYPE ISLAND CURB PER STD. #219
3	SAWCUT AND MATCH EXISTING PAVEMENT
4	CONSTRUCT SIDEWALK PER STD. # 234
5	6" THICK TRUCK APRON OVER 4" TYPE II AGG. BASE
6	CONSTRUCT 6' CROSS GUTTER PER STD. #228
7	CONSTRUCT INDUSTRIAL DRIVEWAY PER STD. #224

CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE (1) YEAR ONLY. PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS, PARKS AND RECREATION, CITY OF HENDERSON, IF WORK IS NOT COMPLETED WITHIN ONE (1) YEAR OF THE APPROVAL DATE.

CITY ENGINEER, CITY OF HENDERSON APPROVAL DATE

[illegible]

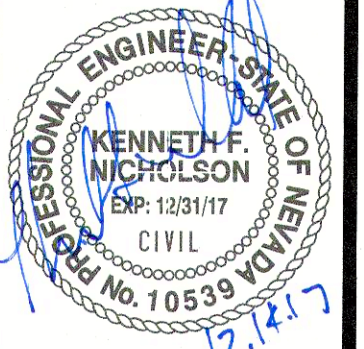
INSPIRADA BUILDERS, LLC
575 W. BROADWAY AVE., SUITE 180
LAS VEGAS, NV 89116
(702) 258-3400

CITY OF HENDERSON

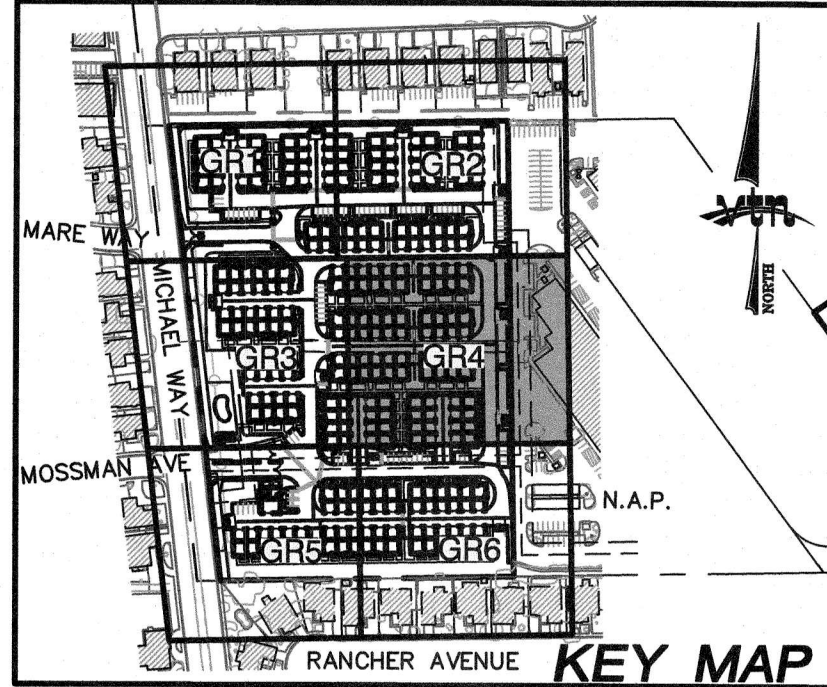
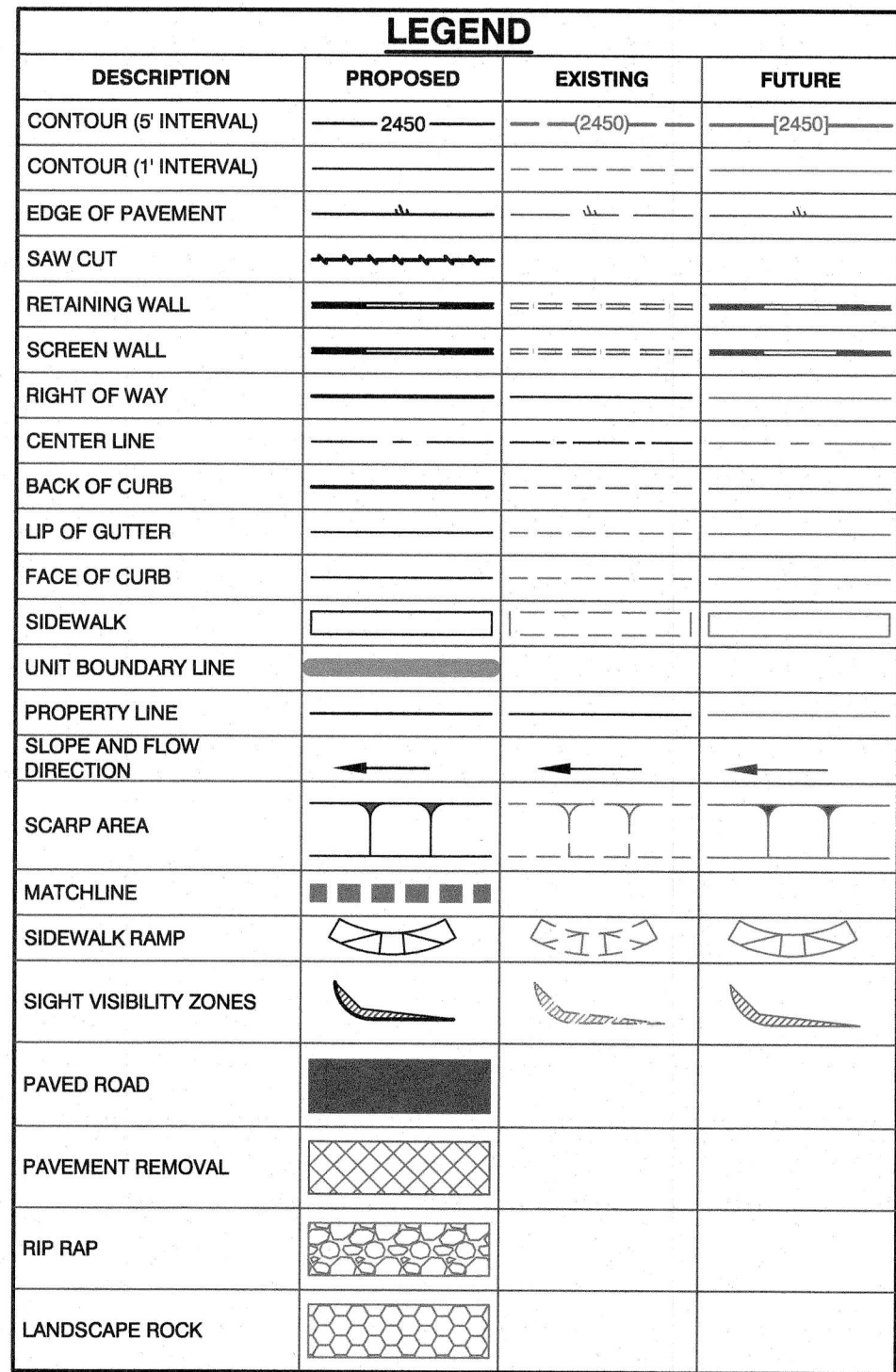
2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH: (702) 872-7550 FAX: (702) 362-2597 WEB: WWW.VTNV.COM
CONSULTING ENGINEERS • PLANNERS • LAND SURVEYORS

GRADING PLAN 4
VIA INSPIRADA
152.52.96 TO 157 +60.00

DRAWN BY:		KRFJ		DATE		11/11/01	
DESIGNED BY:		KRFJ		DATE		11/11/01	
CHECKED BY:		KRFN		DATE		11/11/01	
PROJECT NO:		7420		SCALE:		1"=40' N/A VERT.	



SHEET
G4
6 OF **28** SHEETS
DRAWING NO.
201770---

[illegible]

LAS VEGAS, NV

EAB INVESTMENT COMPANY

3065 N. RANCHO #130

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148

LAS VEGAS, NEVADA 89146-5148

LAS VEGAS, NEVADA 89146-5148

LAS VEGAS, NEVADA 89146-5148
PH. (702) 873-7550 FAX (702) 362-2597 WEB WWW.VTNNV.COM

REV	DATE	BY	REVISION
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GRADING PLAN 4

CRYSTAL PARK APARTMENTS

PV:

08/14/2017

08/14/2017

NO: SCALE: 1"=20' HORIZ

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BENCHMARK

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

BASIS OF BEARING

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

LINEAR UNIT: US SURVEY FOOT (FTUS)

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

ZONE: LAS VEGAS

PROJECTION: TRANSVERSE MERCATOR
STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N
LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W
NORTHING AT GRID ORIGIN: 200,000,000 M (656,166.6667 FTUS)
EASTING AT CENTRAL MERIDIAN: 100,000,000 M (328,083.3333 FTUS)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.0001 (EXACT)

SYSTEM CONDUITS
IT'S COME!

 **Call**
before you
Underground

1-702-455-7511
CLARK COUNTY TRAFFIC OPERATIONS
AND
1-702-228-6611
LAS VEGAS AREA COMPUTERIZED TRAFFIC SYSTEM

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

OR
1-800-227-2600
AND
1-702-455-6000
CLARK COUNTY TRAFFIC
OPERATIONS

AVOID HITTING OVERHEAD
POWER LINES. IT'S COSTLY.

CALL BEFORE
YOU DO
OVERHEAD

1-702-227-2929

SIGHT VISIBILITY ZONES:

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EARTHWORK QUANTITIES

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

GRADING PERMIT NOTE

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

GEOTECHNICAL NOTE:

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

SIDEWALK RAMPS TABLE

(PER CCAUSD No. 235, CASE I)

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

CONSTRUCTION NOTES

- ① CONSTRUCT 24" TYPE "L" CURB & GUTTER
PER CCAUSD #216.
- ② CONSTRUCT TYPE "A" CURB PER CCAUSD #219.
- ③ 0" CURB FACE PER DETAIL ON SHEET DT3
- ④ CONSTRUCT 3' VALLEY GUTTER
PER THE DETAIL ON SHEET DT3
- ⑤ CONSTRUCT 8' VALLEY GUTTER
PER CCAUSD # 228
- ⑥ CONSTRUCT 5' SIDEWALK PER CCAUSD # 234
- ⑦ INSTALL PRECAST BUMPER BLOCK
PER CCAUSD #238.
- ⑧ INSTALL LANDSCAPE ROCK D50=6" 12" THK
- ⑨ CONSTRUCT 2' CURB CUT
PER DETAIL ON SHEET DT3
- ⑩ CONSTRUCT SIDE WALK UNDER DRAIN
PER CCAUSD #236.
- ⑪ CONSTRUCT "U" CHANNEL
PER DETAIL ON SHEET DT3
- ⑫ CONSTRUCT COMMERCIAL DRIVEWAY
PER CCAUSD #225
- ⑬ CONSTRUCT 6" PVC STORM DRAIN
- ⑭ INSTALL WROUGHT IRON FENCE WITH A 6" CLEAR
SPACE @ THE BOTTOM FOR UNOBSTRUCTED STORM
RUNOFF FLOW. SEE DETAIL "Y" ON SHEET DT2.

COORDINATION ITEMS

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

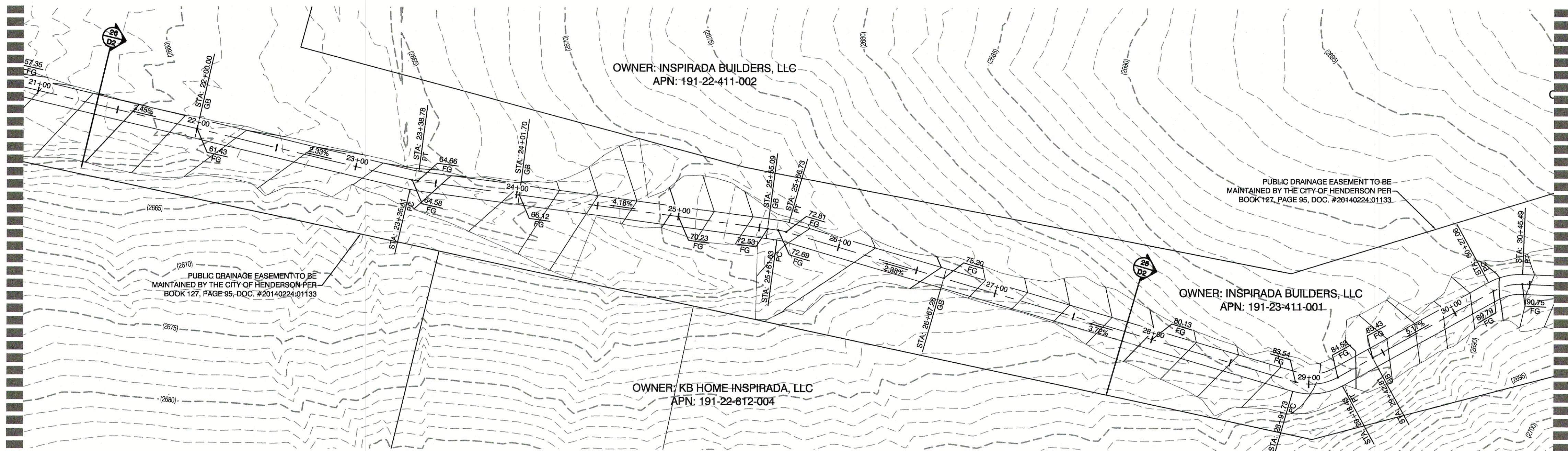
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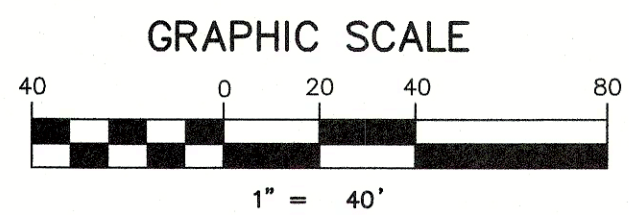
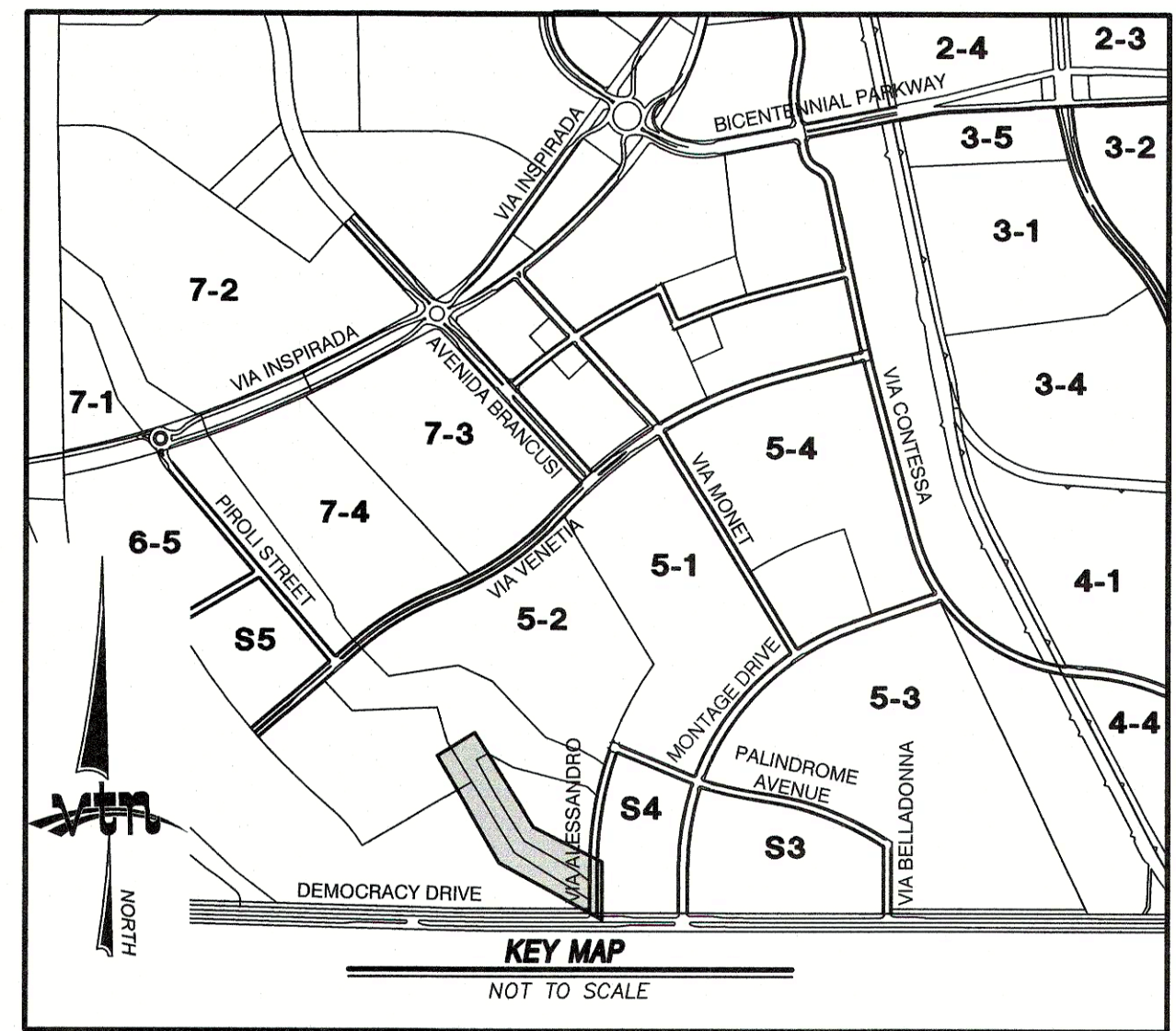
I CERTIFY THAT THIS GRADING PLAN CONFORMS TO THE
APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE WITH LAS
VEGAS, NV, #----

15745, P.E. No. WILLIAM J. MEYER DATE

MATCHLINE - 21+00.00
SEE SHEET GR3 FOR CONTINUATION



MATCHLINE - 30+50.00
SEE BELOW FOR CONTINUATION



LEGEND	
FG	FINISH GRADE
FL	FLOW LINE
TC	TOP OF CURB
EOP	EDGE OF ASPHALT PAVEMENT
EG	EXISTING GROUND
H.P.	HIGH POINT
L.P.	LOW POINT
C/L	CENTER LINE
BC	BACK OF CURB
BCR	BEGIN CURB RETURN
GB	GRADE BREAK
PC	POINT OF CURVATURE
PT	POINT OF TANGENCY
PRC	POINT OF REVERSE CURVATURE
PCC	POINT OF COMPOUND CURVATURE
BVC	BEGIN VERTICAL CURVE
MVC	MID-POINT OF VERTICAL CURVE
EVC	END VERTICAL CURVE
PRVC	POINT OF REVERSE VERTICAL CURVE
VPI	VERTICAL POINT OF INTERSECTION
TOW	TOP OF WALL
TRANS.	TRANSITION
RET.	RETAINMENT
INT.	INTERSECTION
RCP	REINFORCED CONCRETE PIPE
SD	STORM DRAIN
DI	DROP INLET
R/W	RIGHT-OF-WAY
S/W	SIDEWALK
M.U.E.	MUNICIPAL UTILITY EASEMENT
PROPOSED AC	PROPOSED AC
EX. CONTOUR(5' INTERVAL)	EX. CONTOUR(5' INTERVAL)
EX. CONTOUR(1' INTERVAL)	EX. CONTOUR(1' INTERVAL)
PROPOSED CONTOUR	PROPOSED CONTOUR
0.50%	SLOPE AND FLOW DIRECTION
EDGE OF EXIST. A.C.	EDGE OF EXIST. A.C.
SAW CUT & MATCH A.C.	SAW CUT & MATCH A.C.
SCARP AREA	SCARP AREA
CENTER LINE	CENTER LINE
BACK OF CURB	BACK OF CURB
LIP OF CUTTER	LIP OF CUTTER
EXIST. IMPROVEMENTS	EXIST. IMPROVEMENTS
FUTURE IMPROVEMENTS	FUTURE IMPROVEMENTS
MATCHLINE	MATCHLINE
CUT-FILL TRANSITION LINE	CUT-FILL TRANSITION LINE
SAWCUT LINE	SAWCUT LINE
RIP RAP	RIP RAP
REMOVE AND REPLACE EX. AC	REMOVE AND REPLACE EX. AC
REMOVE EXISTING AC	REMOVE EXISTING AC

BASIS OF BEARING

NORTH 89°06'27" EAST - BEING THE BEARING OF THE NORTH LINE OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 22, TOWNSHIP 23 SOUTH, RANGE 61 EAST, M.D.M., CITY OF HENDERSON, CLARK COUNTY, NEVADA AS SHOWN BY THAT PLAT ON FILE IN THE OFFICE OF THE COUNTY RECORDER, CLARK COUNTY, NEVADA IN BOOK 147 OF PLATS, PAGE 94.

PROJECT BENCHMARK

PROJECT DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
CITY OF HENDERSON BENCHMARK: NO. 569 NAVD88 ELEVATION: 777.561 METERS (2551.04 FEET)
2" BRASS CAP IN THE TOP OF CURB AT THE NORTHWEST CORNER OF ANTHEM PARKWAY AND SCOTT'S VALLEY DRIVE.

CONSTRUCTION NOTES

1. CONSTRUCT "L" CURB & GUTTER PER STD. # 216
2. CONSTRUCT "A" TYPE ISLAND CURB PER STD. #219
3. SAWCUT AND MATCH EXISTING PAVEMENT
4. CONSTRUCT SIDEWALK PER STD. # 234
5. 6" THICK TRUCK APRON OVER 4" TYPE II AGG. BASE
6. CONSTRUCT 8" CROSS GUTTER PER STD. #228
7. CONSTRUCT INDUSTRIAL DRIVEWAY PER STD. #224

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

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

Avoid hitting underground traffic signal and street light system conduits. It's costly.
Call before you Underground
1-702-267-2783
CITY OF HENDERSON UTILITY SERVICES LINE LOCATION
AND
1-702-432-5300
FIREARM AND MATERIAL SYSTEM OF TRANSPORTATION

CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE (1) YEAR ONLY. PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS, PARKS AND RECREATION, CITY OF HENDERSON, IF WORK IS NOT COMPLETED WITHIN ONE (1) YEAR OF THE APPROVAL DATE.

CITY ENGINEER, CITY OF HENDERSON APPROVAL DATE

INSPIRADA BUILDERS, LLC

GRADING PLAN 5
WEST 3 CHANNEL SOUTH ACCESS
21+00.00 TO 33+29.46

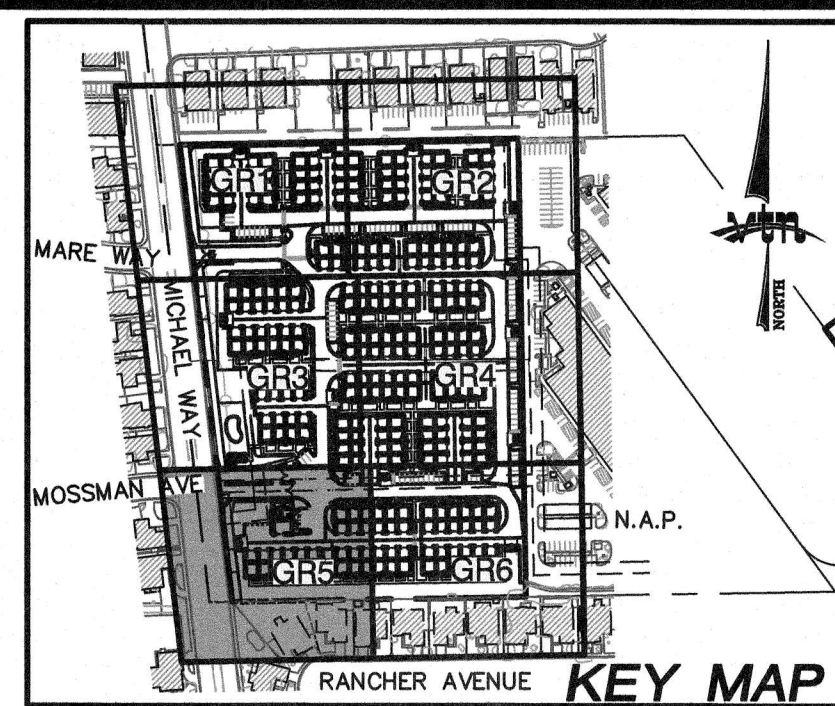
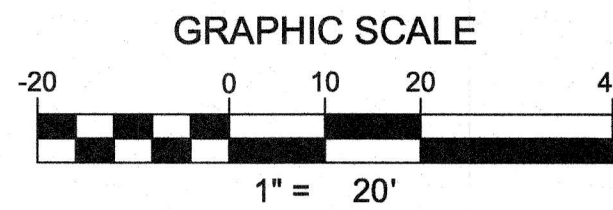
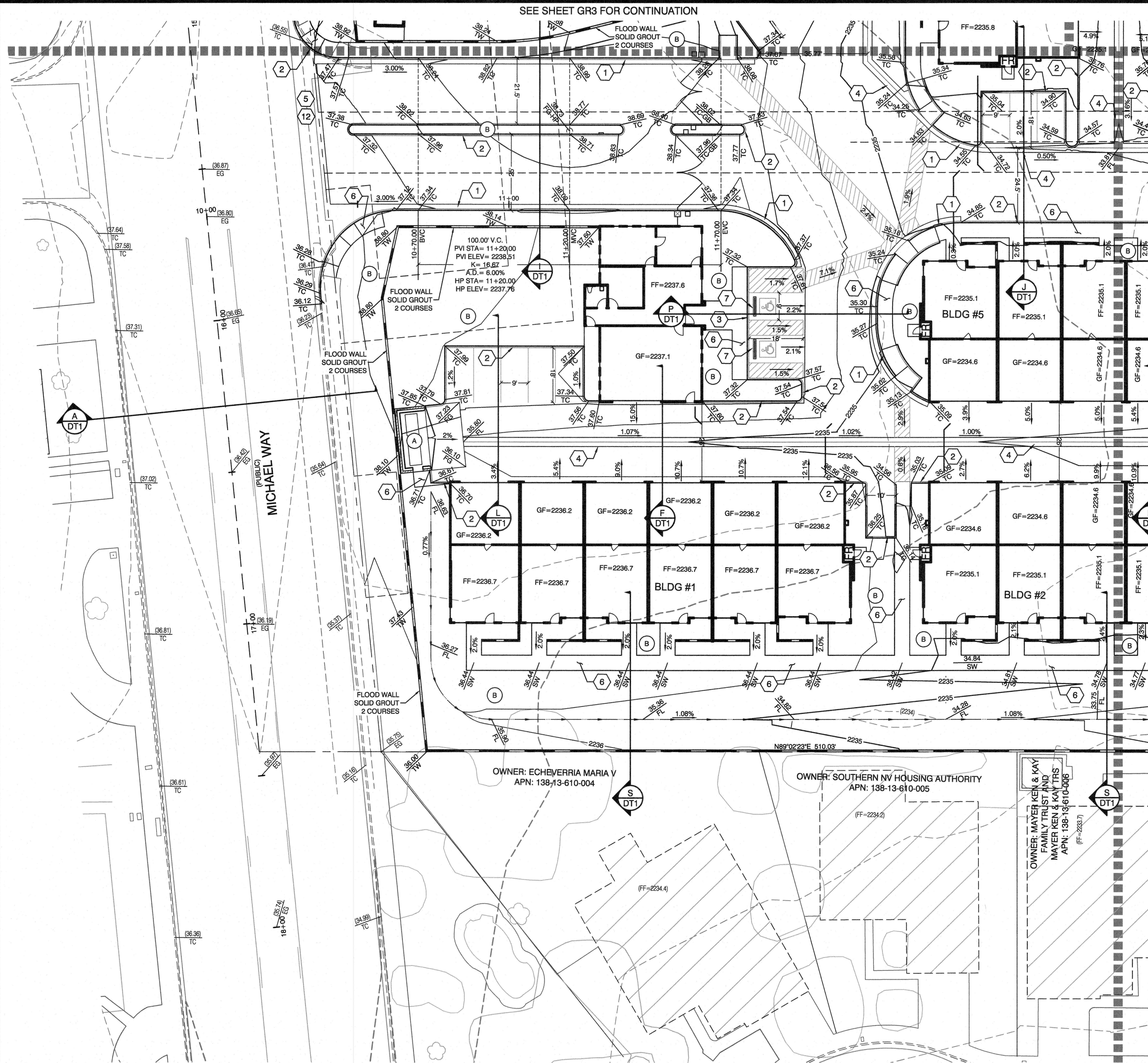
INSPIRADA
VILLAGE 7 INFRASTRUCTURE
VIA VENETIA AND VIA INSPIRADA

DRAWN BY: REJ
DESIGNED BY: R.M.S.
CHECKED BY: KFN
PROJECT NO: 7450
SCALE: 1"=40'
HORIZ. VERT.

PROFESSIONAL ENGINEER
KENNETH F. NICHOLSON
EXP: 12/31/17
CIVIL
No. 10539

SHEET
G5
7 OF 28 SHEETS
DRAWING NO.
201770

H:\17420 Village-7\Sheet Set\7450-V7-GR.dwg



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

CONSTRUCTION NOTES

- CONSTRUCT 24" TYPE "L" CURB & GUTTER PER CCAUSD #216.
- CONSTRUCT TYPE "A" CURB PER CCAUSD #219.
- 0" CURB FACE PER DETAIL ON SHEET DT3
- CONSTRUCT 3" VALLEY GUTTER PER THE DETAIL ON SHEET DT3
- CONSTRUCT 8" VALLEY GUTTER PER CCAUSD # 228
- CONSTRUCT 5' SIDEWALK PER CCAUSD # 234
- INSTALL PRECAST BUMPER BLOCK PER CCAUSD #238.
- INSTALL LANDSCAPE ROCK D50=6" 12" THK
- CONSTRUCT 2' CURB CUT PER DETAIL ON SHEET DT3
- CONSTRUCT SIDE WALK UNDER DRAIN PER CCAUSD #236.
- CONSTRUCT "U" CHANNEL PER DETAIL ON SHEET DT3
- CONSTRUCT COMMERCIAL DRIVEWAY PER CCAUSD #225
- CONSTRUCT 6" PVC STORM DRAIN
- INSTALL WROUGHT IRON FENCE WITH A 6" CLEAR SPACE @ THE BOTTOM FOR UNOBSTRUCTED STORM RUNOFF FLOW. SEE DETAIL "Y" ON SHEET DT2.
- HANDICAP ACCESS TO THE RIGHT OF WAY
- REMOVE EXISTING PAVEMENT

COORDINATION ITEMS

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

ENGINEER DISCLAIMER NOTE:

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

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

15745, P.E. No. WILLIAM J. MEYER DATE

BENCHMARK

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

CITY OF LAS VEGAS BENCHMARK: 2LV0013N66 (REVISED 2008)

NAVD88 ELEVATION: 679.739 METERS (2230.11 FEET)

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

BASIS OF BEARING

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

LINEAR UNIT: US SURVEY FOOT (FTUS)

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

SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)

ZONE: LAS VEGAS

PROJECTION: TRANSVERSE MERCATOR

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

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

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

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

SCALE FACTOR ON CENTRAL MERIDIAN: 1.0001 (EXACT)

Call before you Underground

1-702-455-7511

1-702-228-8611

CLARK COUNTY TRAFFIC OPERATIONS

1-800-227-2600

1-702-455-6000

CLARK COUNTY TRAFFIC OPERATIONS

Call before you DO OVERHEAD

1-702-227-2929

SIGHT VISIBILITY ZONES:		
NO STRUCTURE, WALLS, VEGETATION, OR OBJECT OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.		
EARTHWORK QUANTITIES		
CUT	FILL	NET
8,336	19,754	11,418
CUBIC YARDS	CUBIC YARDS	CUBIC YARDS (FILL)
GRADING PERMIT NOTE		
THIS GRADING PERMIT DOES NOT INCLUDE THE CONSTRUCTION OF RETAINING WALLS AND OTHERS STRUCTURES. SEPARATE PERMITS AND APPLICATIONS ARE REQUIRED FOR THESE.		
GEOTECHNICAL NOTE:		
REFER TO SOILS REPORT: ---		
PROJECT # ---, DATUM ---		
HTE # ---		

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

EAB INVESTMENT COMPANY

3065 N. RANCHO #130
LAS VEGAS, NV 89113

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH: (702) 973-7550 FAX: (702) 962-2597 WEB: WWW.VTNN.COM
CONSULTING ENGINEERS • PLANNERS • LAND SURVEYORS

GRADING PLAN 5

CRYSTAL PARK APARTMENTS

DRAWN BY: KGH 08/14/2017

DESIGNED BY: DBI 08/14/2017

CHECKED BY: WJM 08/14/2017

PROJECT NO: 7844

SCALE: 1"=20'

HORIZ. N/A

VERT. N/A

WILLIAM J. MEYER

PROFESSIONAL ENGINEER - STATE OF NEVADA

EXP: 12/31/17

CIVIL

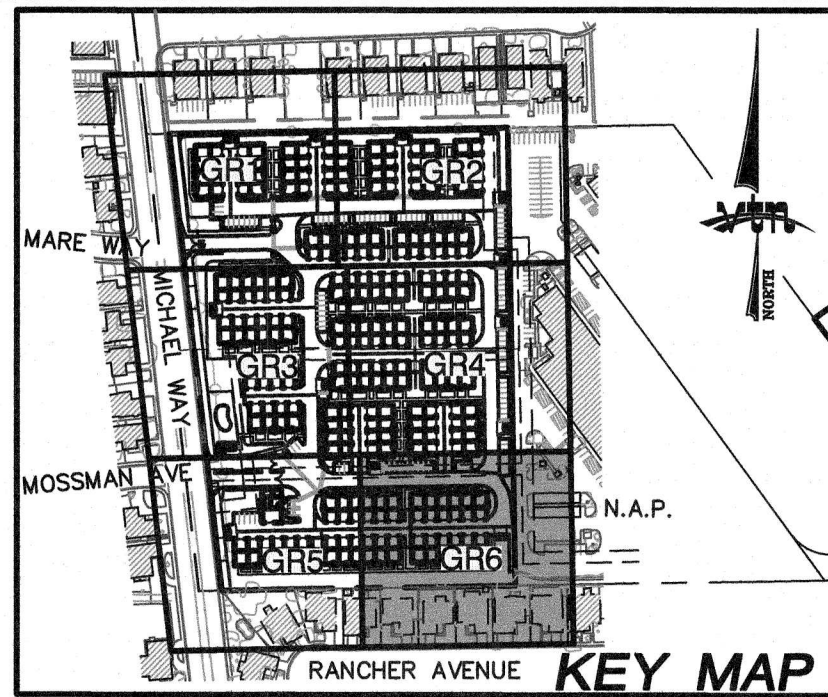
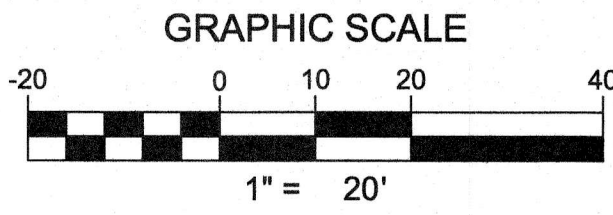
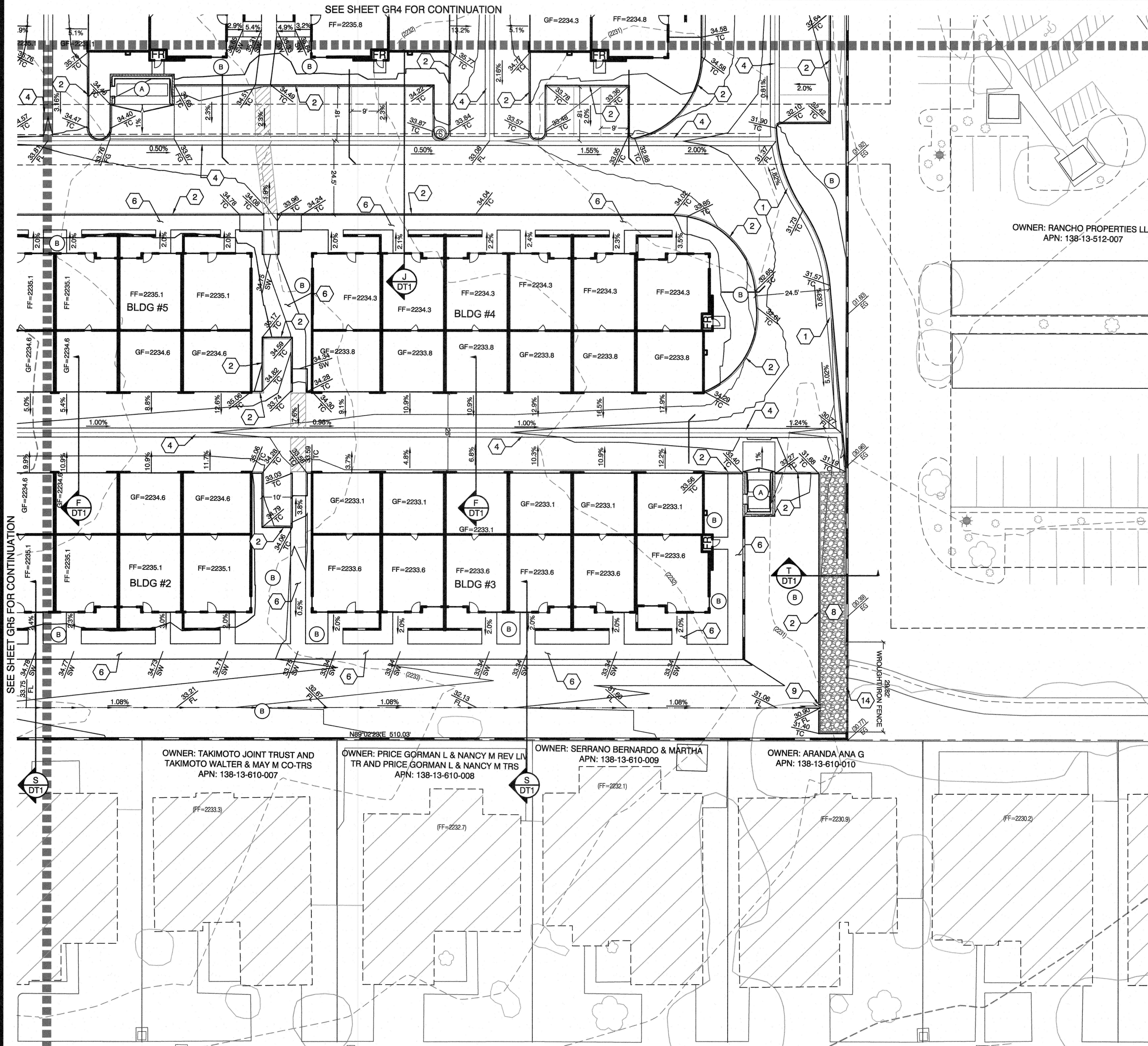
15745

SHEET

GR5

7 OF 11 SHEETS

DRAWING NO.



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

- CONSTRUCTION NOTES**
- CONSTRUCT 24" TYPE "I" CURB & GUTTER PER CCAUSD #216.
 - CONSTRUCT TYPE "A" CURB PER CCAUSD #219.
 - 0" CURB FACE PER DETAIL ON SHEET DT3
 - CONSTRUCT 3' VALLEY GUTTER PER THE DETAIL ON SHEET DT3
 - CONSTRUCT 8' VALLEY GUTTER PER CCAUSD # 228
 - CONSTRUCT 5' SIDEWALK PER CCAUSD # 234
 - INSTALL PRECAST BUMPER BLOCK PER CCAUSD #238.
 - INSTALL LANDSCAPE ROCK D50=6" 12" THK
 - CONSTRUCT 2' CURB CUT PER DETAIL ON SHEET DT3
 - CONSTRUCT SIDE WALK UNDER DRAIN PER CCAUSD #236.
 - CONSTRUCT "U" CHANNEL PER DETAIL ON SHEET DT3
 - CONSTRUCT COMMERCIAL DRIVEWAY PER CCAUSD #225
 - CONSTRUCT 6" PVC STORM DRAIN
 - INSTALL WROUGHT IRON FENCE WITH A 6" CLEAR SPACE @ THE BOTTOM FOR UNOBSTRUCTED STORM RUNOFF FLOW. SEE DETAIL "Y" ON SHEET DT2.
 - HANDICAP ACCESS TO THE RIGHT OF WAY
 - REMOVE EXISTING PAVEMENT

- COORDINATION ITEMS**
- SEE ARCHITECTURAL DRAWINGS FOR TRASH ENCLOSURE PLAN AND DETAILS. MAXIMUM 1% SLOPE ON TRASH ENCLOSURE SLAB.
 - SEE ARCHITECTURAL AND LANDSCAPE PLANS FOR DETAILS OF OPEN SPACE AREAS.

ENGINEER DISCLAIMER NOTE:

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

15745, P.E. No. WILLIAM J. MEYER DATE

BENCHMARK

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

CITY OF LAS VEGAS BENCHMARK: 2LV0013NE6 (REVISED 2008)
NAVD88 ELEVATION: 679.739 METERS (2230.11 FEET)

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

BASIS OF BEARING

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

LINEAR UNIT: US SURVEY FOOT (FTUS)

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

ZONE: LAS VEGAS

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

Call before you Dig

1-702-455-7811

1-702-227-2600

1-702-455-8000

CLARK COUNTY TRAFFIC OPERATIONS

Call before you Dig

1-702-227-2929

SIGHT VISIBILITY ZONES:		
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EARTHWORK QUANTITIES		
CUT	FILL	NET
6,336 CUBIC YARDS	19,754 CUBIC YARDS	11,418 CUBIC YARDS (FILL)
GRADING PERMIT NOTE		
THIS GRADING PERMIT DOES NOT INCLUDE THE CONSTRUCTION OF RETAINING WALLS AND OTHERS STRUCTURES. SEPARATE PERMITS AND APPLICATIONS ARE REQUIRED FOR THESE.		
GEOTECHNICAL NOTE:		
REFER TO SOILS REPORT: --- PROJECT #---, DATED --- HTE #---		

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

EAB INVESTMENT COMPANY

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH: (702) 873-7550 FAX: (702) 862-2527 WEB: WWW.VTANNV.COM

CONSULTING ENGINEERS • PLANNERS • LAND SURVEYORS

GRADING PLAN 6

CRYSTAL PARK APARTMENTS

DRAWN BY: KCH 08/14/2017

DESIGNED BY: DEH 08/14/2017

CHECKED BY: WJM 08/14/2017

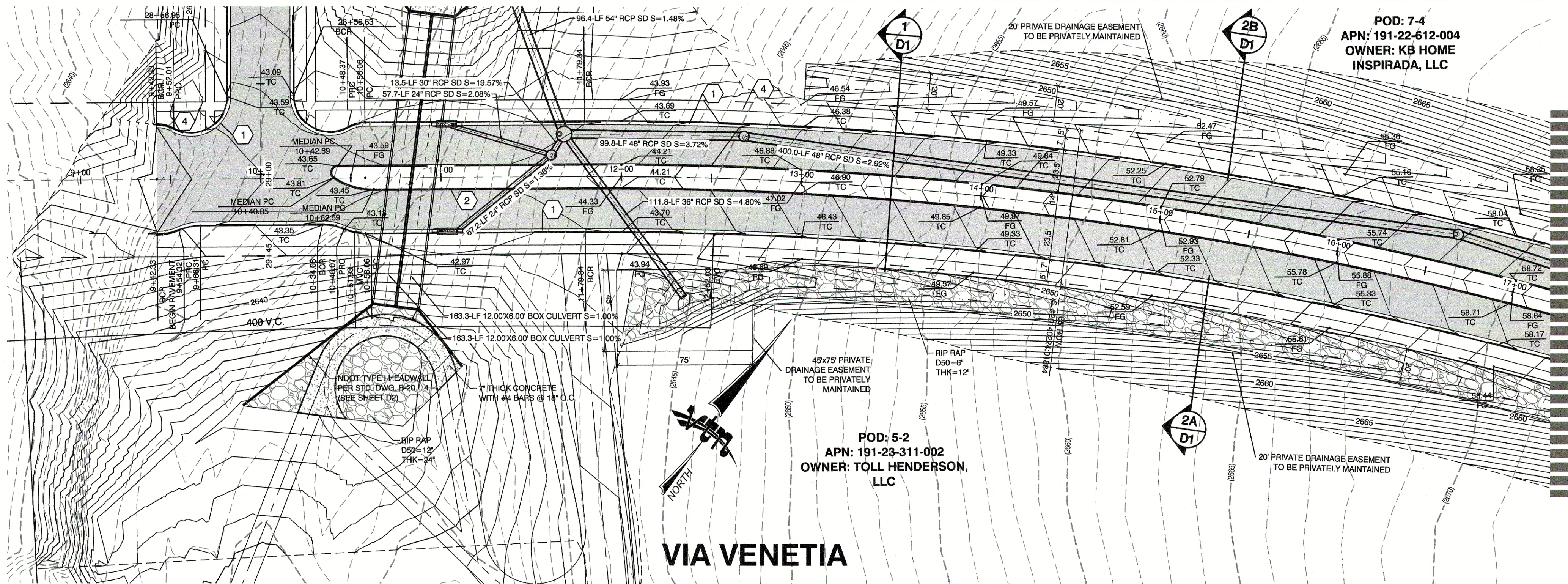
PROJECT NO: 7844

SCALE: 1"=20'

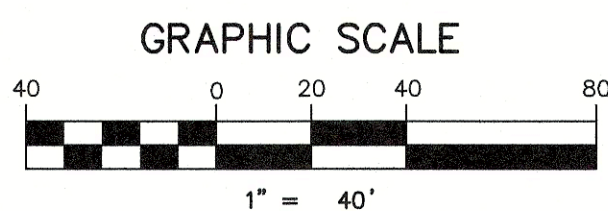
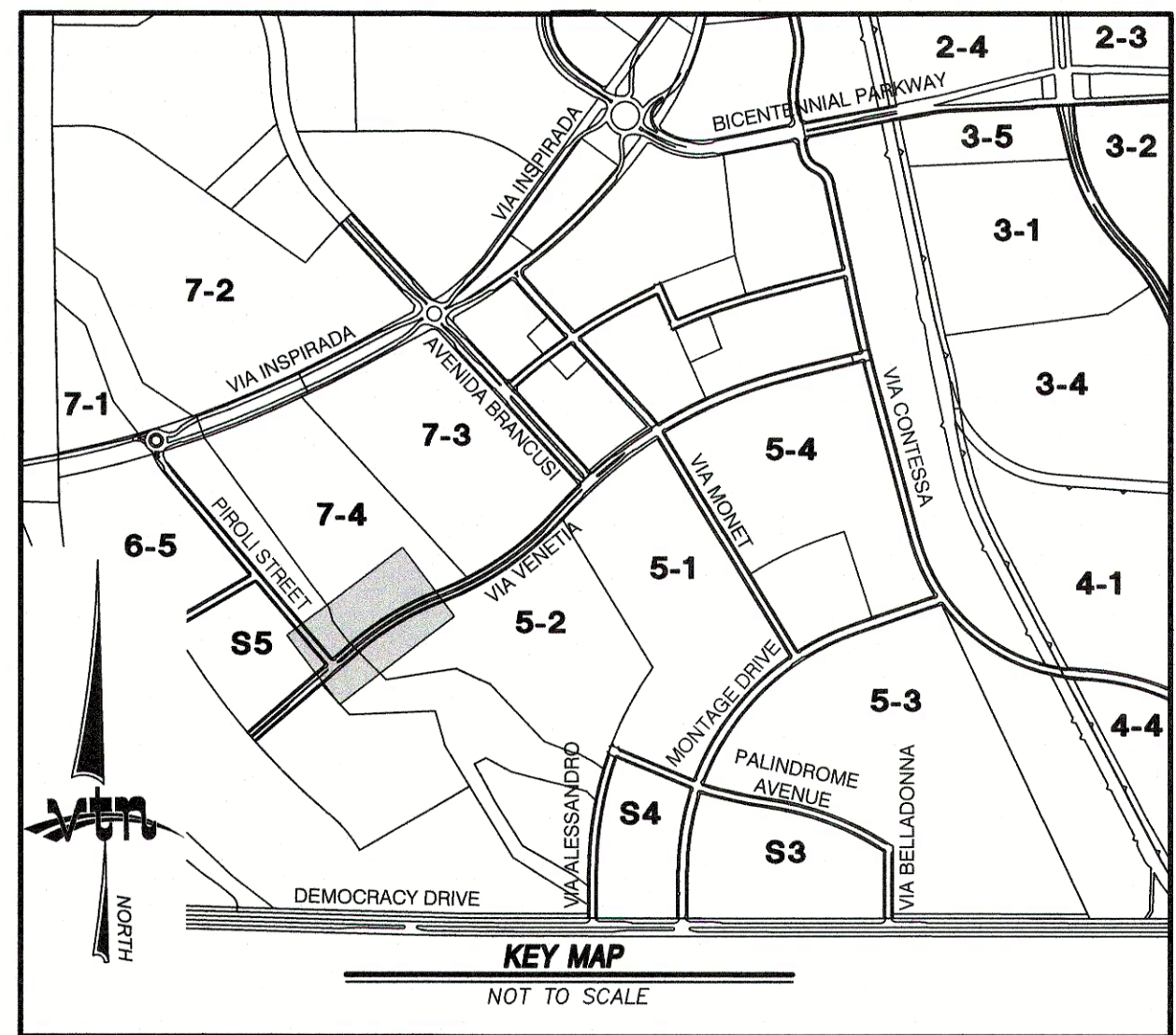
SHEET
GR6
8 OF 11 SHEETS
DRAWING NO.

WILLIAM J. MEYER
CIVIL
EXP: 12/31/17
15745 NVBCE

15745, P.E. No. WILLIAM J. MEYER DATE



MATCHLINE - 17+00.00
SEE SHEET S2 FOR CONTINUATION



LEGEND		
FG	FINISH GRADE	EX. CONTOUR(5' INTERVAL)
FL	FLOW LINE	EX. CONTOUR(1' INTERVAL)
TC	TOP OF CURB	PROPOSED CONTOUR
EOP	EDGE OF ASPHALT PAVEMENT	
EG	EXISTING GROUND	
H.P.	HIGH POINT	
L.P.	LOW POINT	
C/L	CENTER LINE	
BC	BACK OF CURB	
BCR	BEGIN CURB RETURN	
GB	GRADE BREAK	
PC	POINT OF CURVATURE	
PT	POINT OF TANGENCY	
PRC	POINT OF REVERSE CURVATURE	
PCC	POINT OF COMPOUND CURVATURE	
BVC	BEGIN VERTICAL CURVE	
MVC	MID-POINT OF VERTICAL CURVE	
EVC	END VERTICAL CURVE	
PRVC	POINT OF REVERSE VERTICAL CURVE	
VPI	VERTICAL POINT OF INTERSECTION	
TOW	TOP OF WALL	
TRANS.	TRANSITION	
RET.	RETAINMENT	
INT.	INTERSECTION	
RCP	REINFORCED CONCRETE PIPE	
SD	STORM DRAIN	
DI	DROP INLET	
R/W	RIGHT-OF-WAY	
S/W	SIDEWALK	
M.U.E.	MUNICIPAL UTILITY EASEMENT	
	PROPOSED AC	
		SLOPE AND FLOW DIRECTION
		EDGE OF EXIST. A.C.
		SAW CUT & MATCH A.C.
		SCARP AREA
		R/W OR P/L
		CENTER LINE
		BACK OF CURB
		LIP OF GUTTER
		EXIST. IMPROVEMENTS
		FUTURE IMPROVEMENTS
		CUT-FILL TRANSITION LINE
		SAWCUT LINE
		RIP RAP
		REMOVE AND REPLACE EX. AC
		REMOVE EXISTING AC

NOTE:
STORMDRAINS NOT SHOWN IN PROFILE DUE TO VERTICAL DEPTH SEE STORMDRAIN PLAN AND PROFILE SHEETS SD1-SD6 FOR STORMDRAIN DESIGN.

BASIS OF BEARING

NORTH 89°06'27" EAST - BEING THE BEARING OF THE NORTH LINE OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 22, TOWNSHIP 23 SOUTH, RANGE 63 EAST, M.D.M., CITY OF HENDERSON, CLARK COUNTY, NEVADA, AS SHOWN BY THAT PLAT ON FILE IN THE OFFICE OF THE COUNTY RECORDER, CLARK COUNTY, NEVADA IN BOOK 147 OF PLATS, PAGE 94.

PROJECT BENCHMARK

PROJECT DATUM: NORTH AMERICAN DATUM OF 1988 (NAVD88)
CITY OF HENDERSON BENCHMARK: NO. 569 NAVD88 ELEVATION: 777.561 METERS (2551.04 FEET)
2" BRASS CAP IN THE TOP OF CURB AT THE NORTHWEST CORNER OF ANTHEM PARKWAY AND SCOTT'S VALLEY DRIVE.

CONSTRUCTION NOTES

1. CONSTRUCT 'L' CURB & GUTTER PER STD. # 216
2. CONSTRUCT 'A' TYPE ISLAND CURB PER STD. #219
3. SAWCUT AND MATCH EXISTING PAVEMENT
4. CONSTRUCT SIDEWALK PER STD. # 234
5. 6" THICK TRUCK APRON OVER 4" TYPE II AGG. BASE
6. CONSTRUCT 8" CROSS GUTTER PER STD. #228
7. CONSTRUCT INDUSTRIAL DRIVEWAY PER STD. #224

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

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

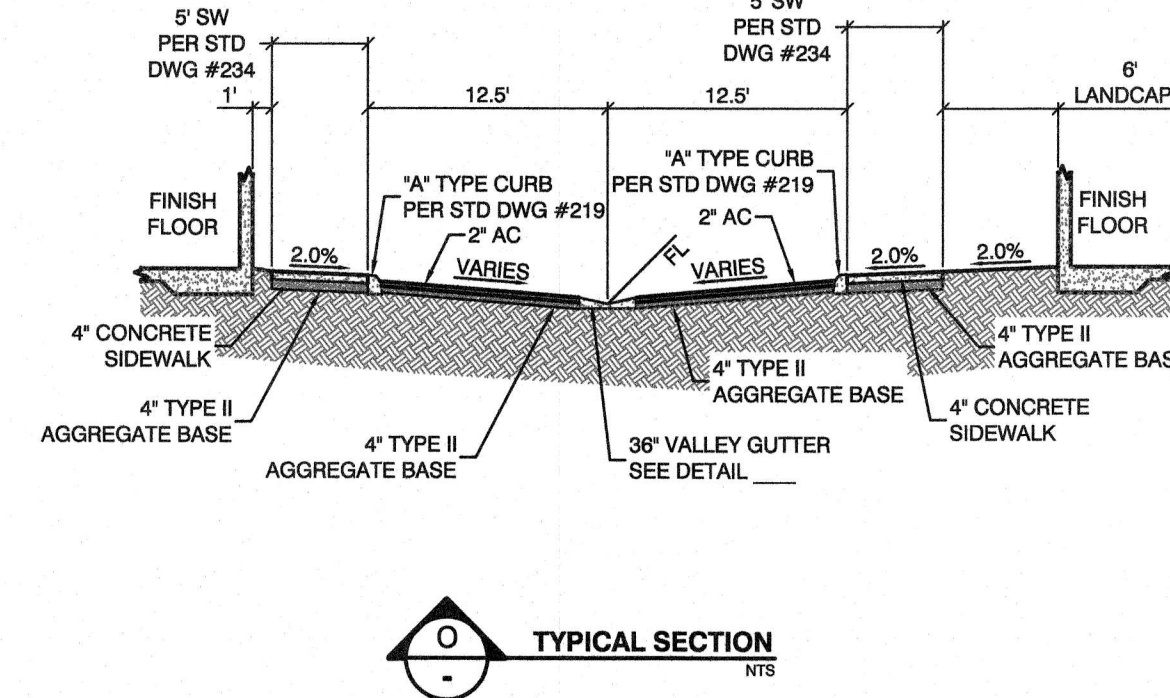
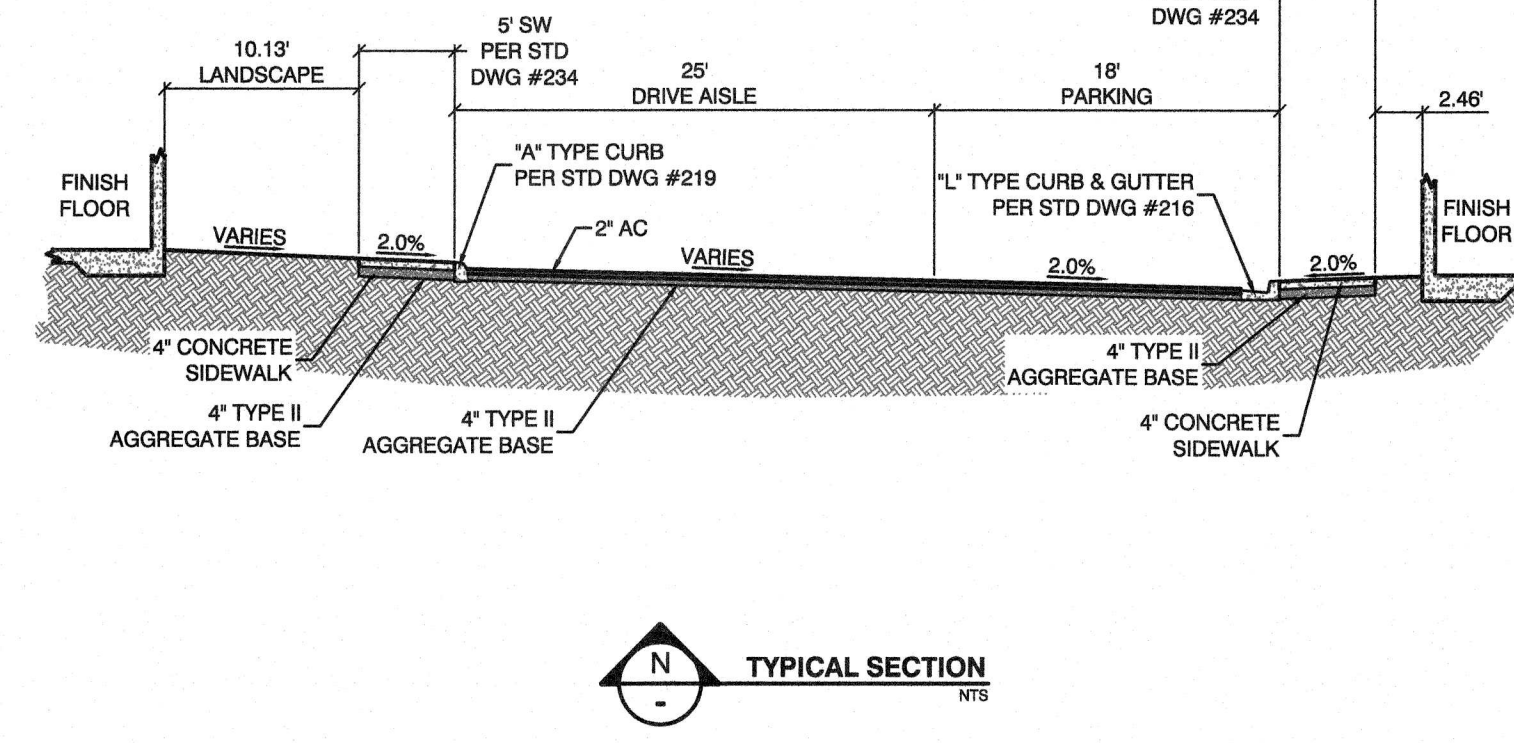
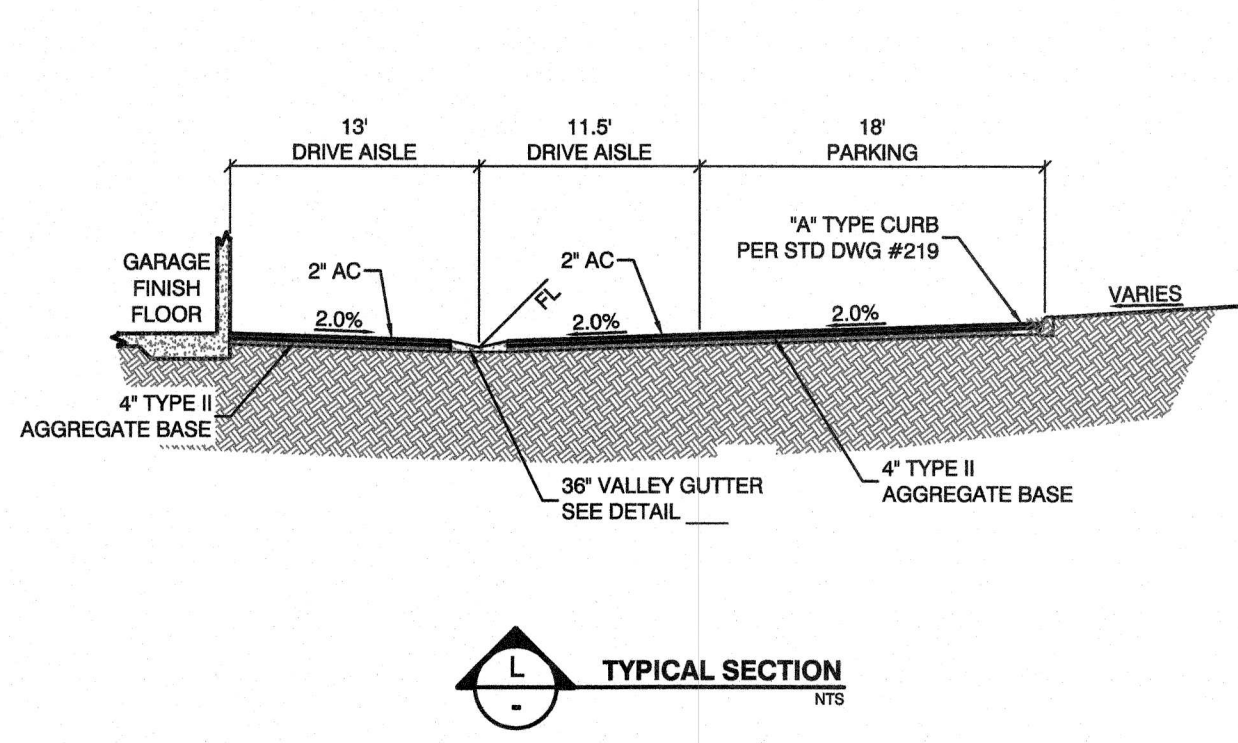
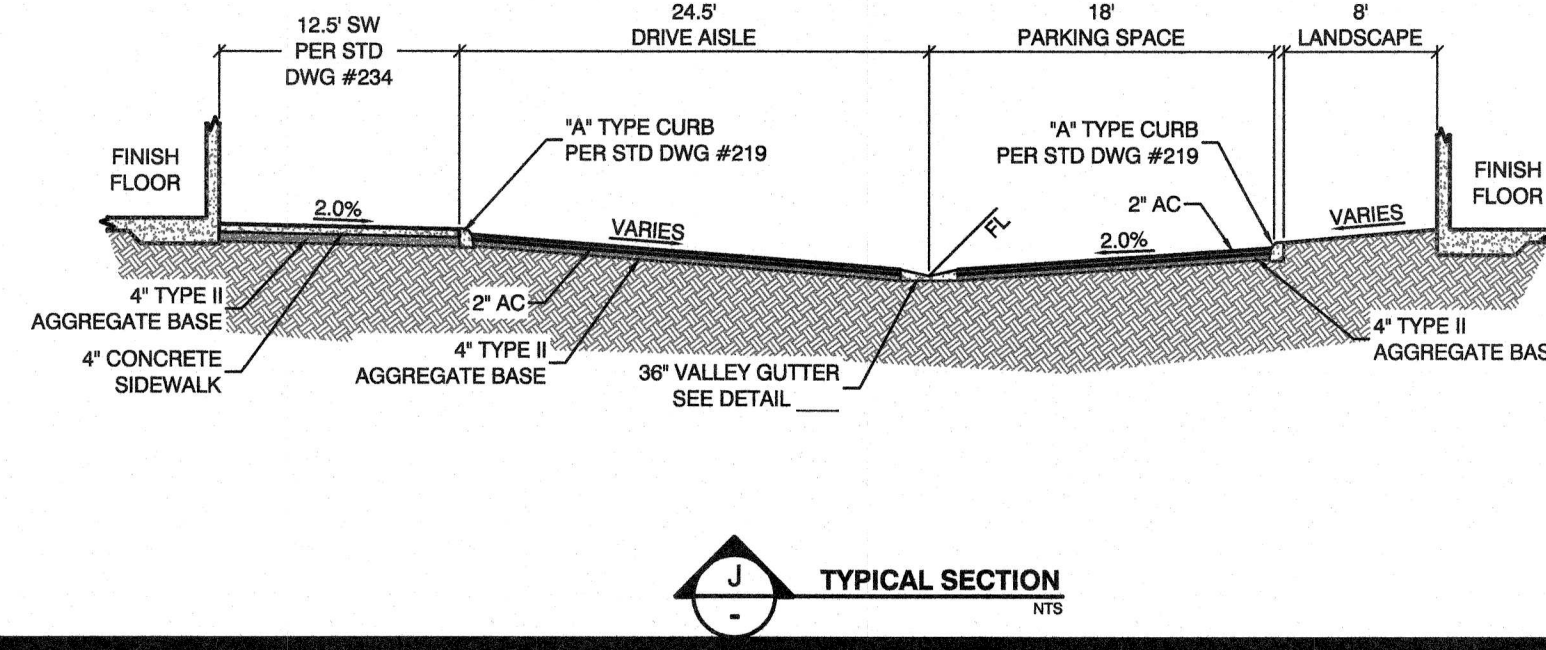
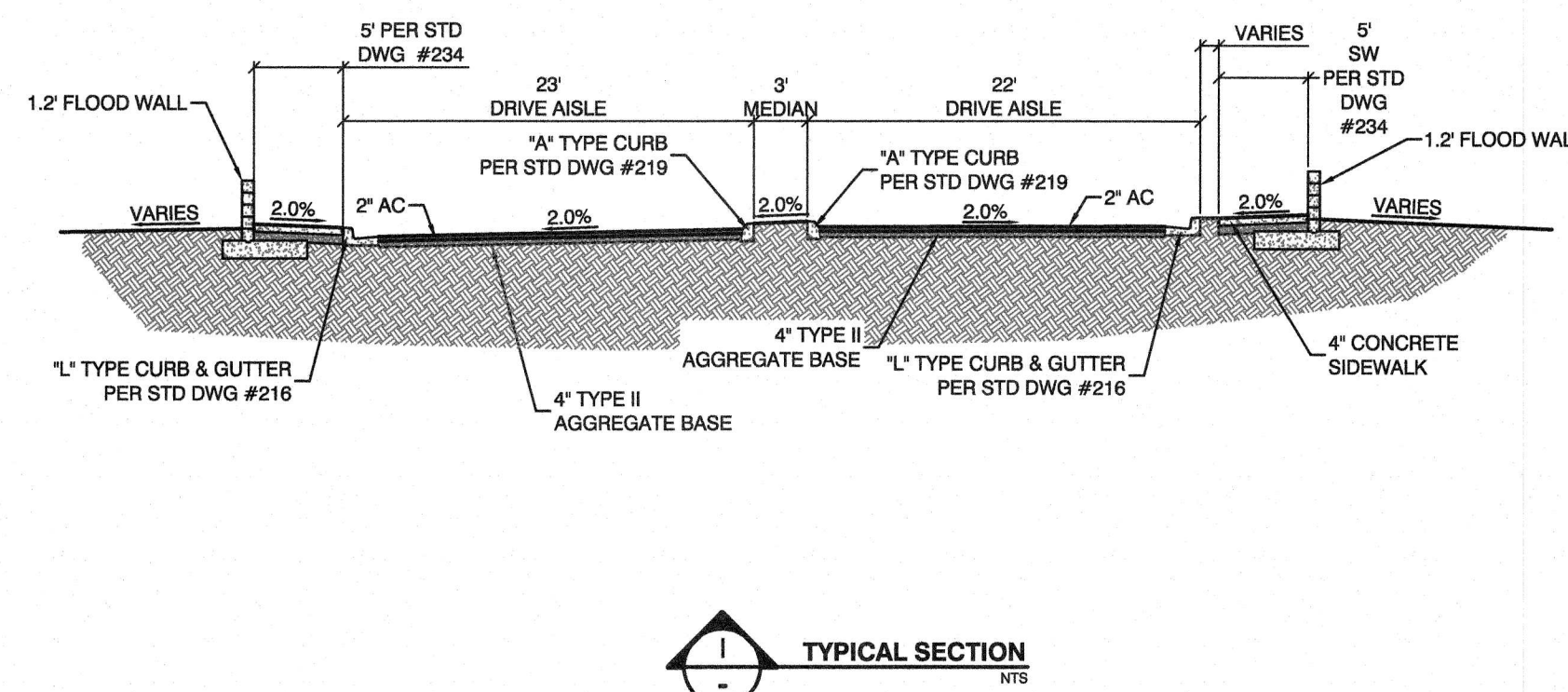
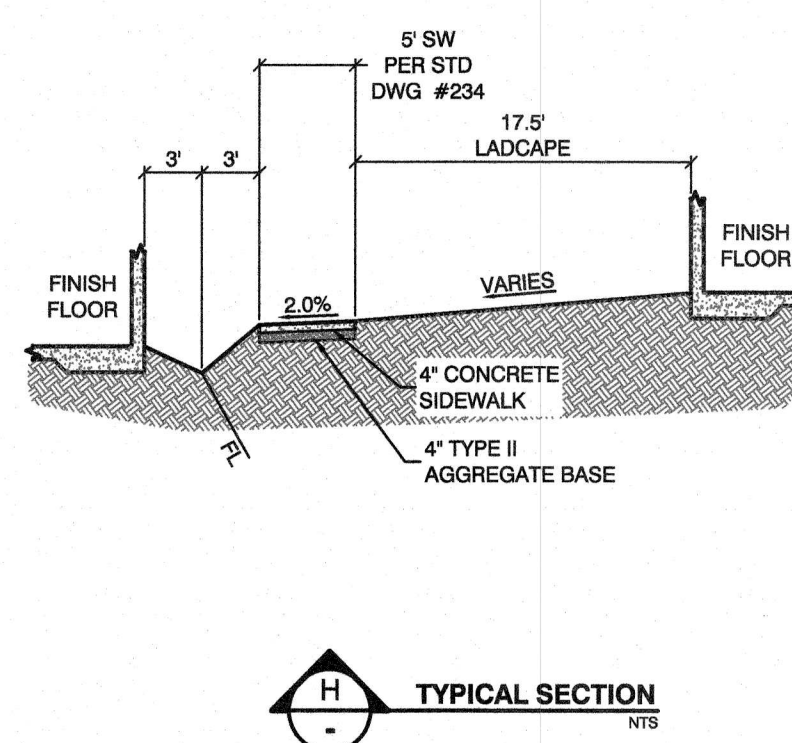
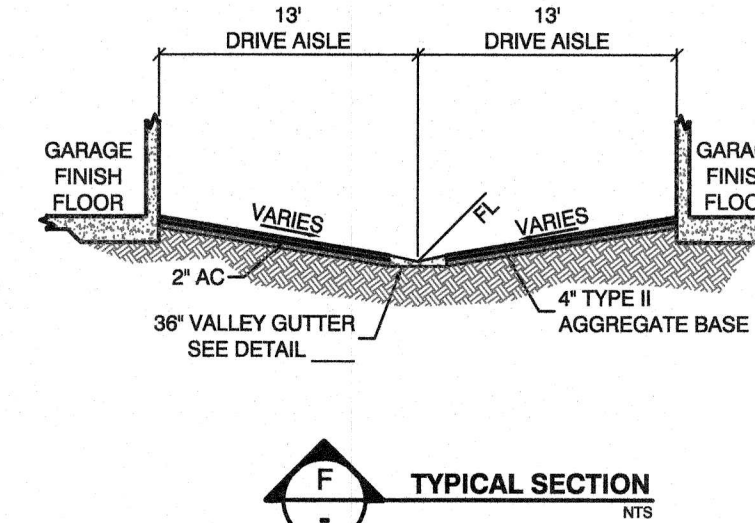
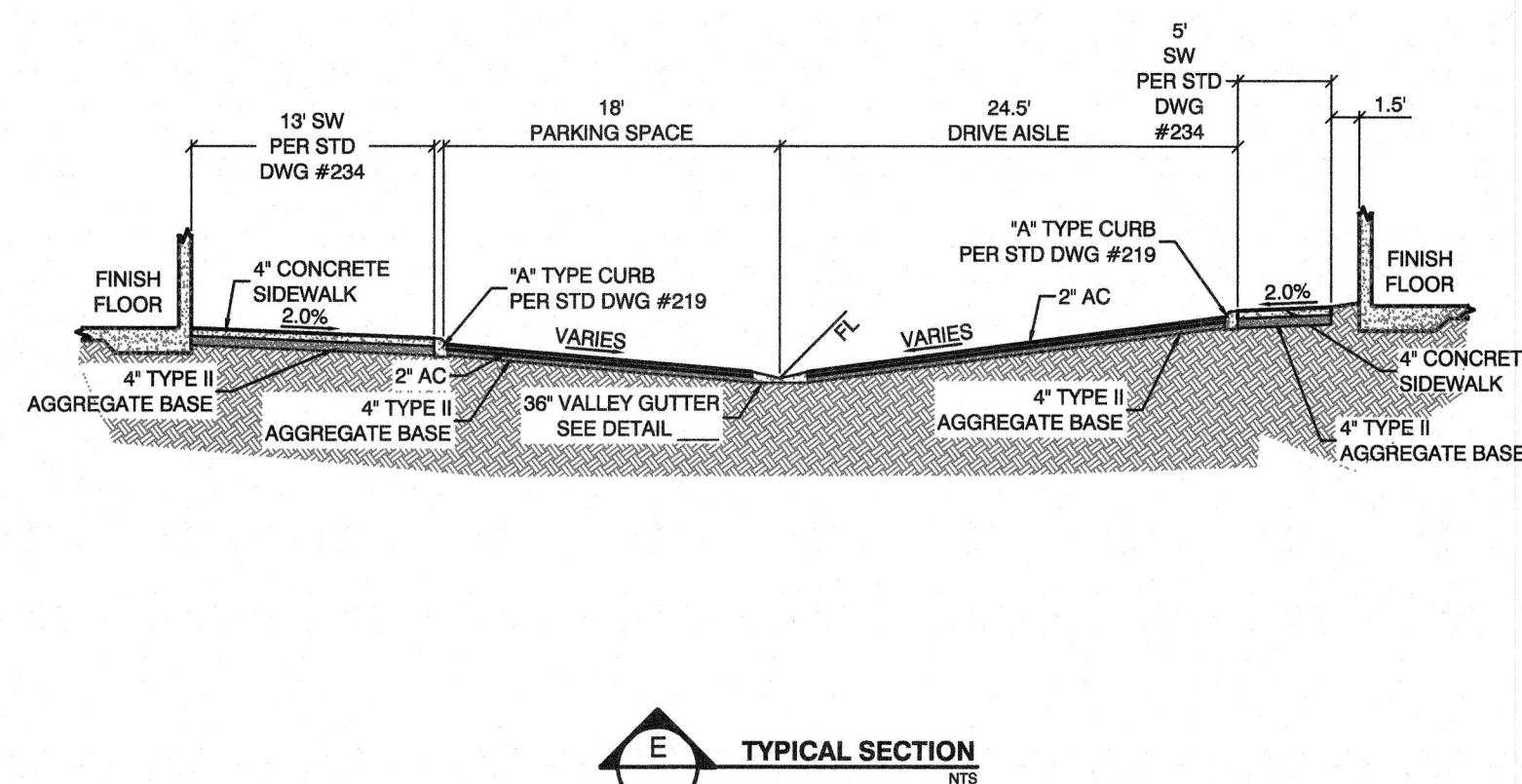
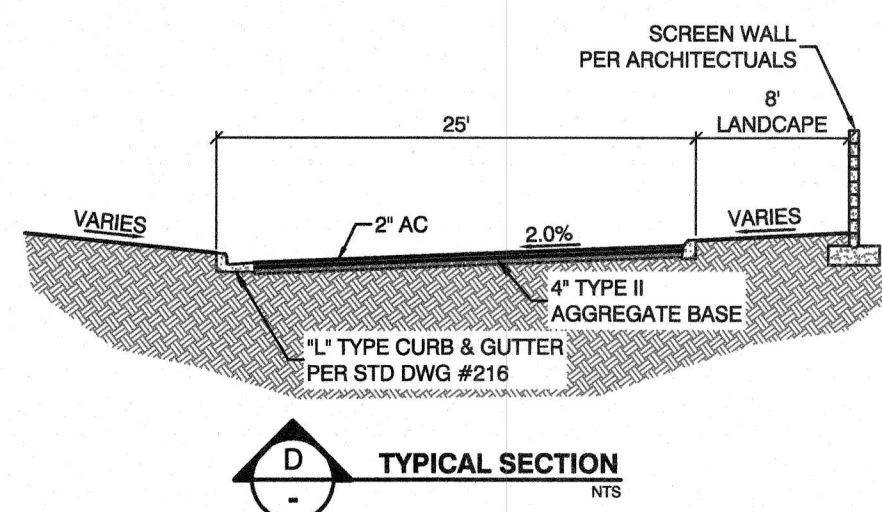
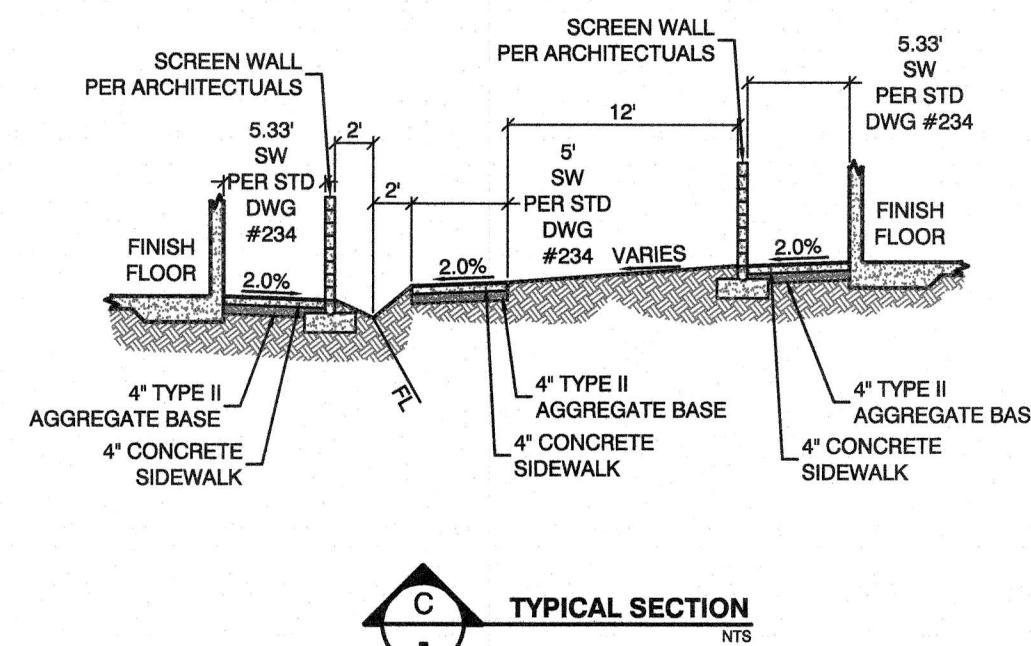
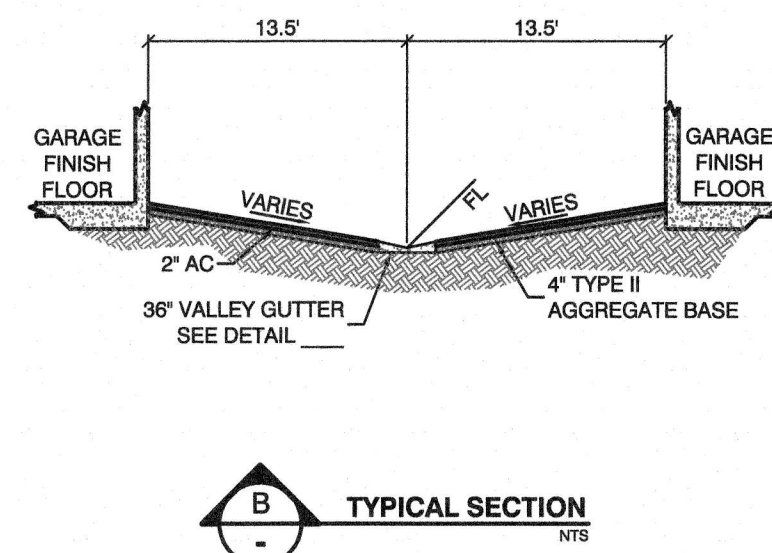
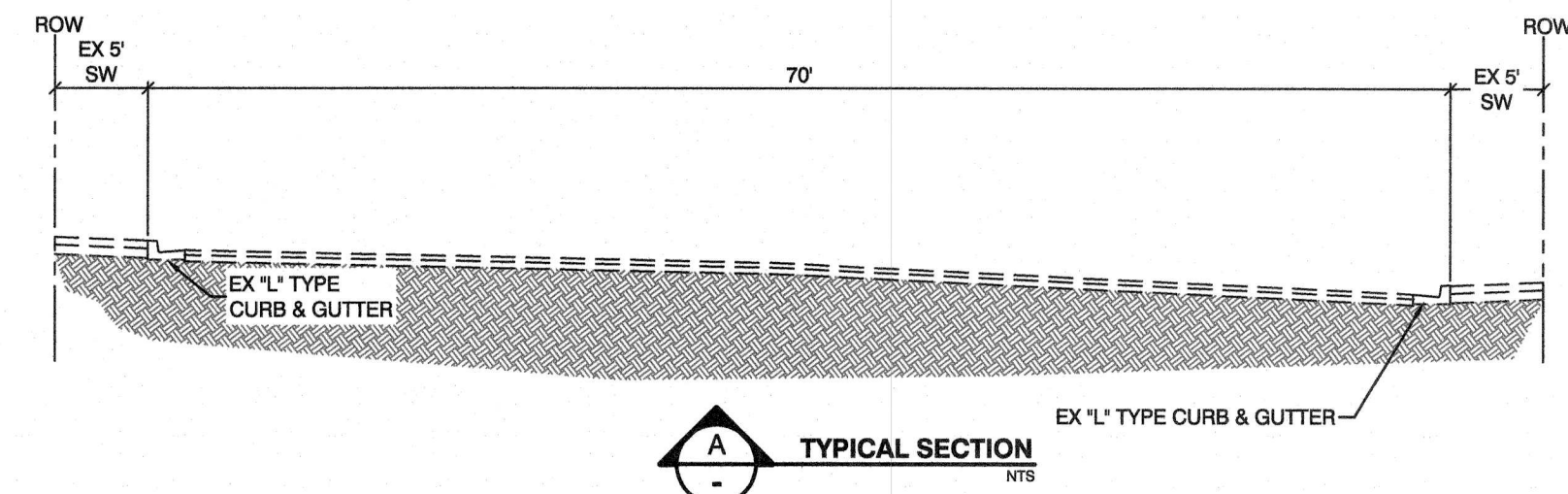
Avoid hitting underground TRAFFIC SIGNAL AND STREET LIGHT SYSTEM COMPONENTS. IT'S COSTLY.
Call before you Underground
1-702-267-2783
CITY OF HENDERSON UTILITY SERVICES LINE LOCATION
1-702-432-5300
FREEMAN AND METCAL SYSTEMS OF TRANSPORTATION

CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE (1) YEAR ONLY. PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS, PARKS AND RECREATION, CITY OF HENDERSON, IF WORK IS NOT COMPLETED WITHIN ONE (1) YEAR OF THE APPROVAL DATE.

CITY ENGINEER, CITY OF HENDERSON

APPROVAL DATE

INSPIRADA BUILDERS, LLC 5705 W. BADURA AVE., SUITE 100 LAS VEGAS, NV 89118 (702)298-9400		CITY OF HENDERSON 2727 SOUTH RAINBOW BOULEVARD LAS VEGAS, NEVADA 89146-5146 PH: (702) 673-7559 FAX: (702) 362-2987 WEB: WWW.VTNNV.COM CONSULTING ENGINEERS & PLANNERS & LAND SURVEYORS	
STREET PLAN AND PROFILE VIA VENETIA 9+42.33 TO 17+00.00		INSPIRADA VILLAGE 7 INFRASTRUCTURE	
DRAWN BY: CMM	December 17	DESIGNED BY: RMS/CMM	December 17
CHECKED BY: MKN	December 17	PROJECT NO: 7420	SCALE: 1"=40' HORIZ. 1"=4' VERT.
SHEET 8 OF 28 SHEETS		DRAWING NO. 201770---	



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

LAS VEGAS, NV

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH: (702) 573-7550 FAX: (702) 962-2997 WEB: WWW.VTNNV.COM

CONSULTING ENGINEERS PLANNERS LAND SURVEYORS

DETAIL SHEET 1

CRYSTAL PARK APARTMENTS

DRAWN BY: 08/14/2017

DESIGNED BY: 08/14/2017

CHECKED BY: 08/14/2017

PROJECT NO: 7844

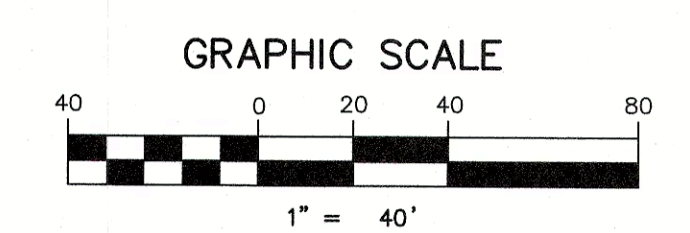
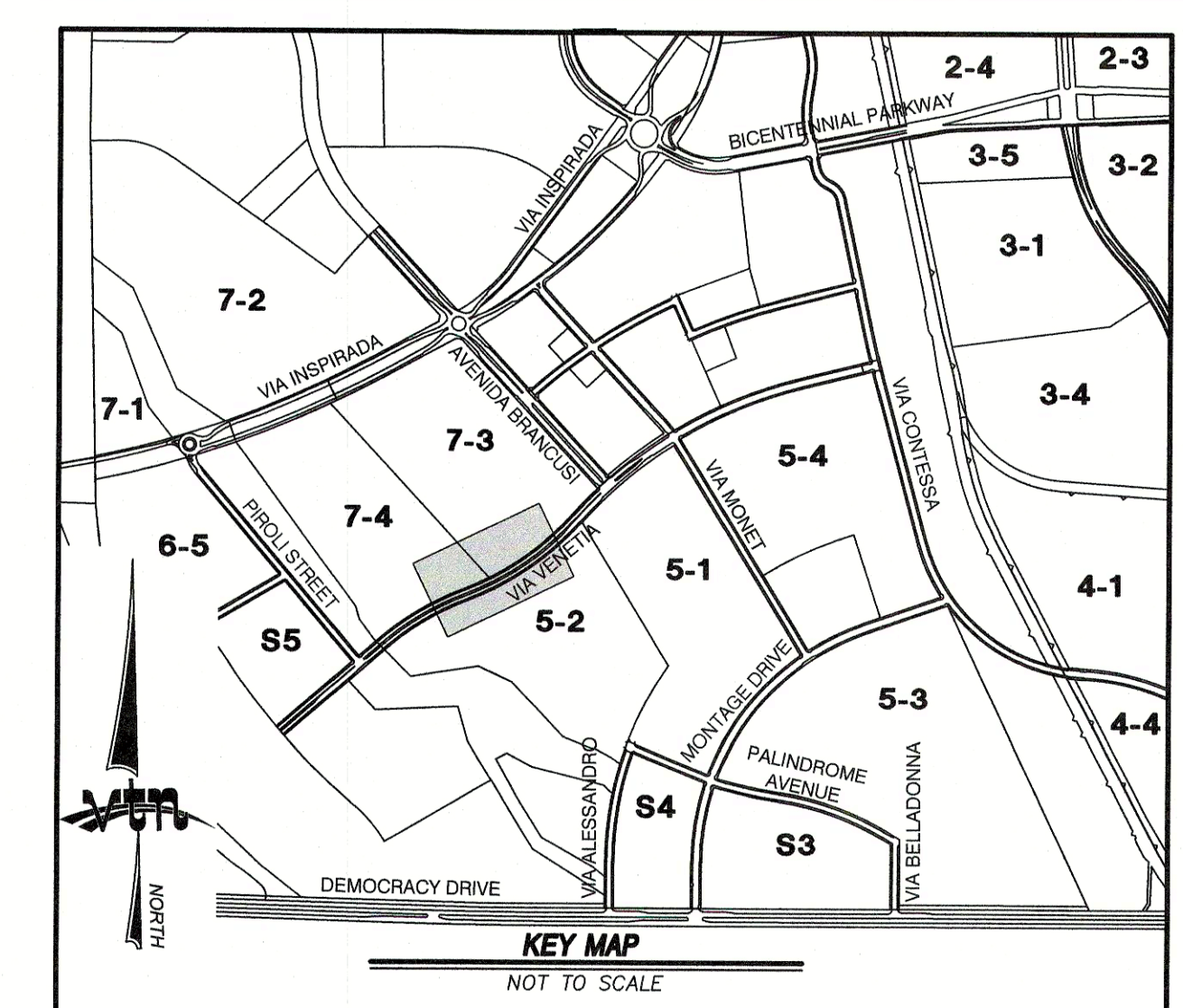
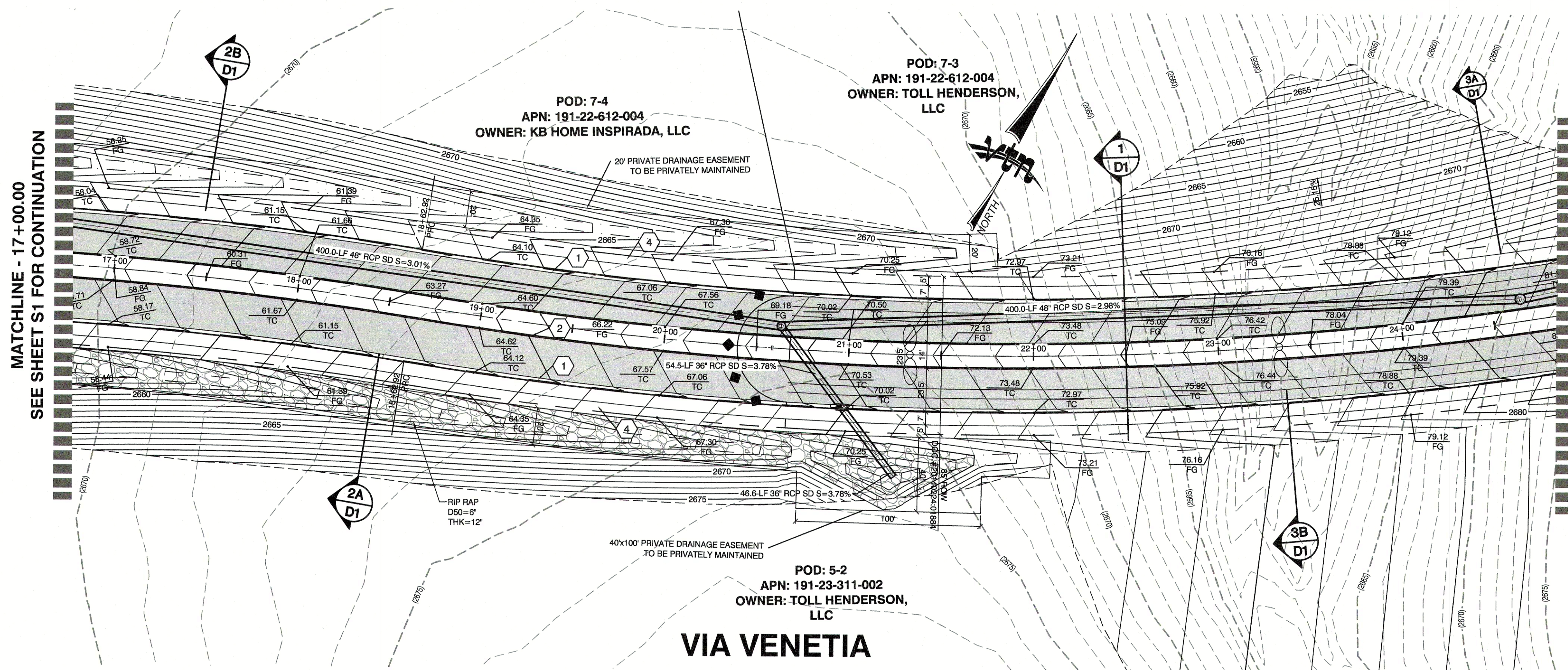
PROFESSIONAL ENGINEER - STATE OF NEVADA
WILLIAM J. MEYER
EXP: 12/31/17
CIVIL
12/20/17

SHEET
DT1

9 OF 11 SHEETS

DRAWING NO.

H:\7844\Sheet Set\7844-DT.dwg



LEGEND	
FG	FINISH GRADE
FL	FLOW LINE
TC	TOP OF CURB
EOP	EDGE OF ASPHALT PAVEMENT
EG	EXISTING GROUND
H.P.	HIGH POINT
L.P.	LOW POINT
C/L	CENTER LINE
BC	BACK OF CURB
BCR	BEGIN CURB RETURN
GB	GRADE BREAK
PC	POINT OF CURVATURE
PT	POINT OF TANGENCY
PRC	POINT OF REVERSE CURVATURE
PCC	POINT OF COMPOUND CURVATURE
BVC	BEGIN VERTICAL CURVE
MVC	MID-POINT OF VERTICAL CURVE
EVC	END VERTICAL CURVE
PRVC	POINT OF REVERSE VERTICAL CURVE
VPI	VERTICAL POINT OF INTERSECTION
TOW	TOP OF WALL
TRANS.	TRANSITION
RET.	RETAINMENT
INT.	INTERSECTION
RCP	REINFORCED CONCRETE PIPE
SD	STORM DRAIN
DI	DROP INLET
R/W	RIGHT-OF-WAY
S/W	SIDEWALK
M.U.E.	MUNICIPAL UTILITY EASEMENT
PROPOSED AC	PROPOSED ASPHALT CONCRETE
EX. CONTOUR(5' INTERVAL)	EXISTING CONTOUR(5' INTERVAL)
EX. CONTOUR(1' INTERVAL)	EXISTING CONTOUR(1' INTERVAL)
PROPOSED CONTOUR	PROPOSED CONTOUR
0.50%	SLOPE AND FLOW DIRECTION
EDGE OF EXIST. A.C.	EDGE OF EXIST. ASPHALT CONCRETE
SAW CUT & MATCH A.C.	SAW CUT AND MATCH ASPHALT CONCRETE
SCARP AREA	SCARP AREA
R/W OR P/L	RIGHT-OF-WAY OR PLAT LINE
CENTER LINE	CENTER LINE
BACK OF CURB	BACK OF CURB
LIP OF GUTTER	LIP OF GUTTER
EXIST. IMPROVEMENTS	EXISTING IMPROVEMENTS
FUTURE IMPROVEMENTS	FUTURE IMPROVEMENTS
MATCHLINE	MATCHLINE
CUT-FILL TRANSITION LINE	CUT-FILL TRANSITION LINE
SAWCUT LINE	SAWCUT LINE
RIP RAP	RIP RAP
REMOVE AND REPLACE EX. AC	REMOVE AND REPLACE EXISTING ASPHALT CONCRETE
REMOVE EXISTING AC	REMOVE EXISTING ASPHALT CONCRETE

NOTE:
STORMDRAINS NOT SHOWN IN PROFILE DUE TO VERTICAL DEPTH SEE STORMDRAIN PLAN AND PROFILE SHEETS SD1-SD6 FOR STORMDRAIN DESIGN.

- CONSTRUCTION NOTES**
1. CONSTRUCT "L" CURB & GUTTER PER STD. # 216
 2. CONSTRUCT "A" TYPE ISLAND CURB PER STD. # 219
 3. SAWCUT AND MATCH EXISTING PAVEMENT
 4. CONSTRUCT SIDEWALK PER STD. # 234
 5. 6" THICK TRUCK APRON OVER 4" TYPE II AGG. BASE
 6. CONSTRUCT 8" CROSS GUTTER PER STD. # 228
 7. CONSTRUCT INDUSTRIAL DRIVEWAY PER STD. # 224

Call before you Dig

1-800-227-2600

Call before you Overhead

1-702-227-2929

Call before you Underground

1-702-267-2783

1-702-432-5300

BASIS OF BEARING

NORTH 89°06'27" EAST - BEING THE BEARING OF THE NORTH LINE OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 22, TOWNSHIP 23 SOUTH, RANGE 61 EAST, M.D.M., CITY OF HENDERSON, CLARK COUNTY, NEVADA AS SHOWN BY THAT PLAT ON FILE IN THE OFFICE OF THE COUNTY RECORDER, CLARK COUNTY, NEVADA IN BOOK 147 OF PLATS, PAGE 94.

PROJECT BENCHMARK

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

CITY OF HENDERSON BENCHMARK: NO. 569 NAVD88 ELEVATION: 777.561 METERS (2551.04 FEET)

2" BRASS CAP IN THE TOP OF CURB AT THE NORTHWEST CORNER OF ANTHEM PARKWAY AND SCOTT'S VALLEY DRIVE.

CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE (1) YEAR ONLY. PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS, PARKS AND RECREATION, CITY OF HENDERSON, IF WORK IS NOT COMPLETED WITHIN ONE (1) YEAR OF THE APPROVAL DATE.

CITY ENGINEER, CITY OF HENDERSON APPROVAL DATE

CITY OF HENDERSON

INSPIRADA BUILDERS, LLC

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH: (702) 876-7500 FAX: (702) 382-2507 WEB: WWW.VTNV.COM

STREET PLAN AND PROFILE

VIA VENETIA

17+00.00 TO 24+50.00

INSPIRADA VILLAGE 7 INFRASTRUCTURE

DRAWN BY: December 17

DESIGNED BY: December 17

CHECKED BY: December 17

PROJECT NO: 7420

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

PROFESSIONAL ENGINEER

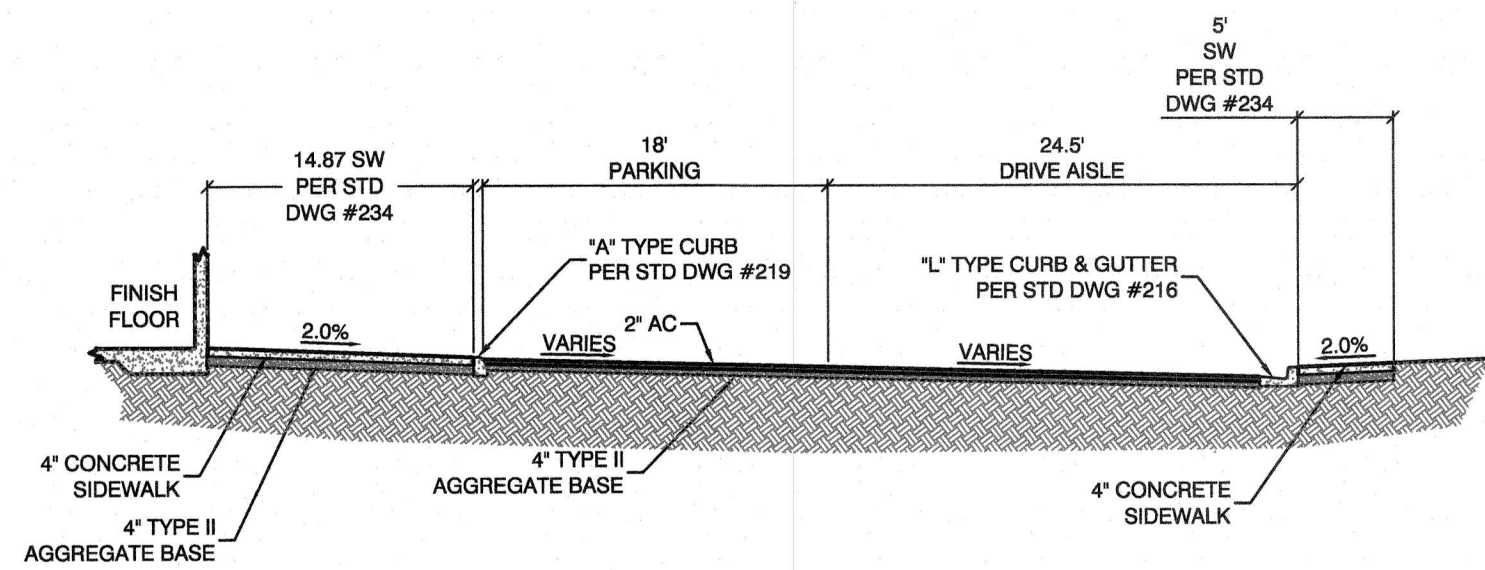
KENNETH F. NICHOLSON

EXP: 12/31/17

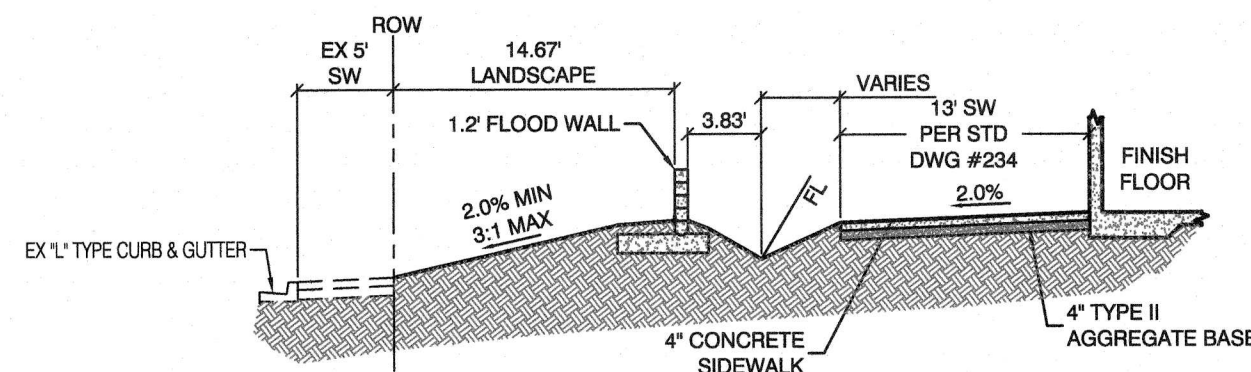
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SHEET **S2** OF 28 SHEETS

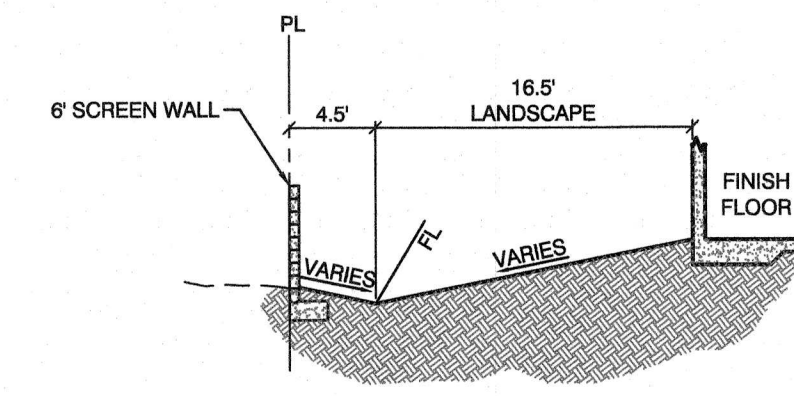
DRAWING NO. 201770---



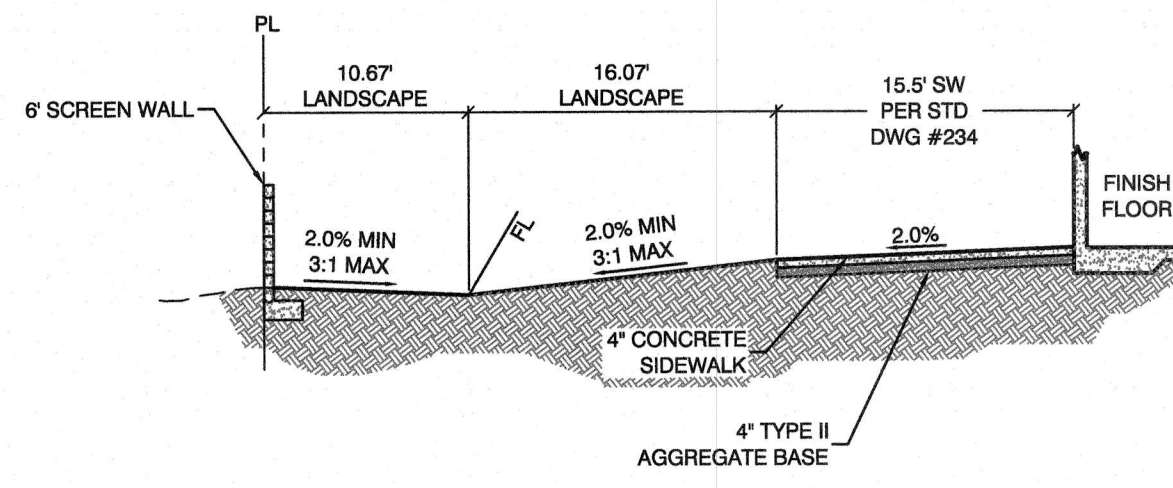
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TYPICAL SECTION
NTS



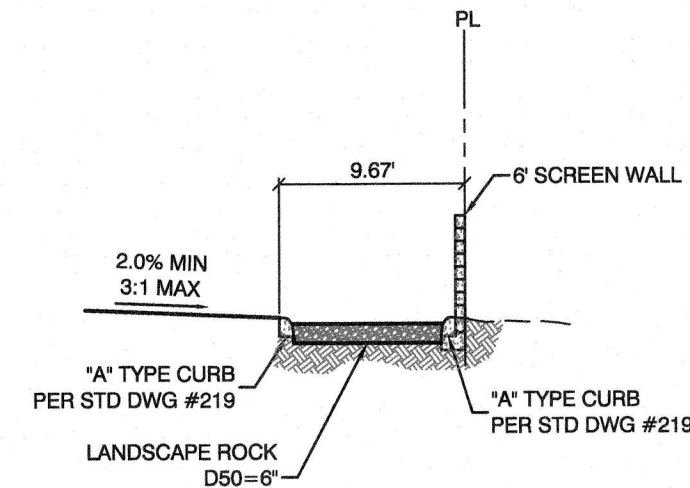
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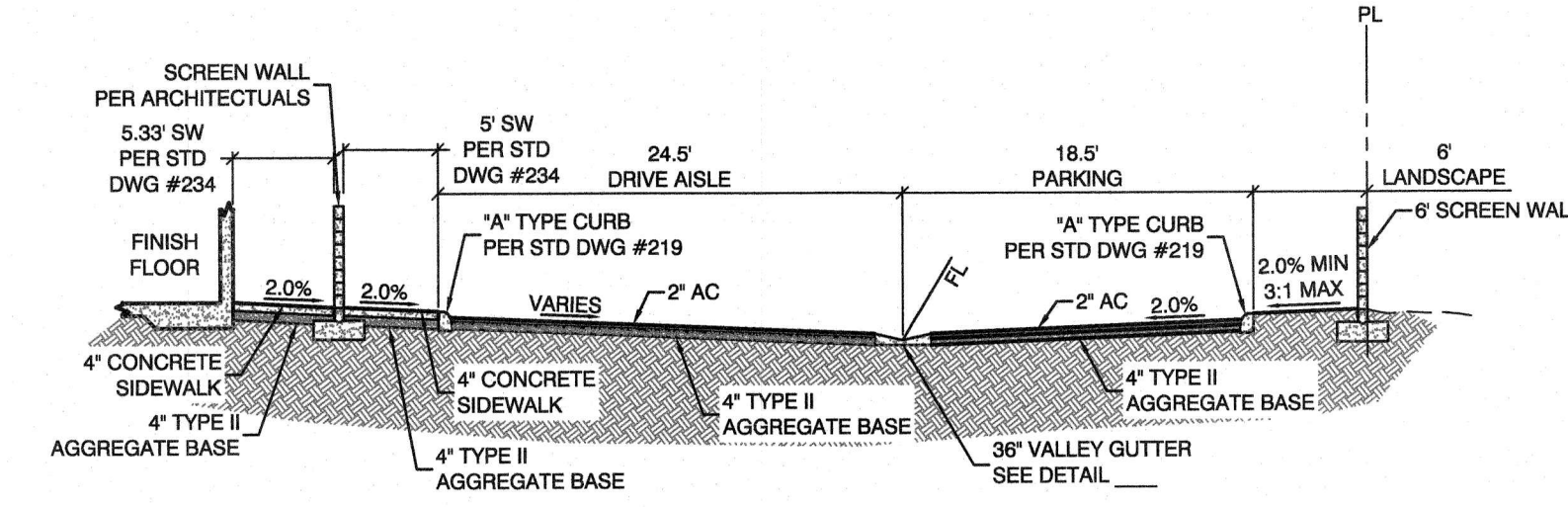
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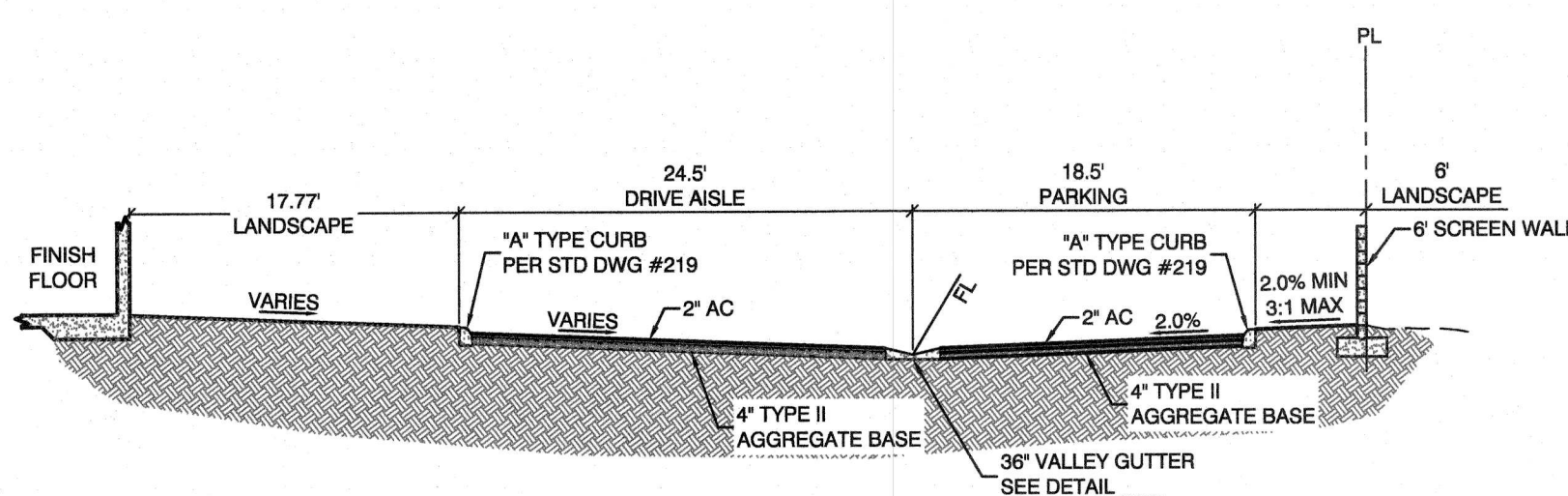
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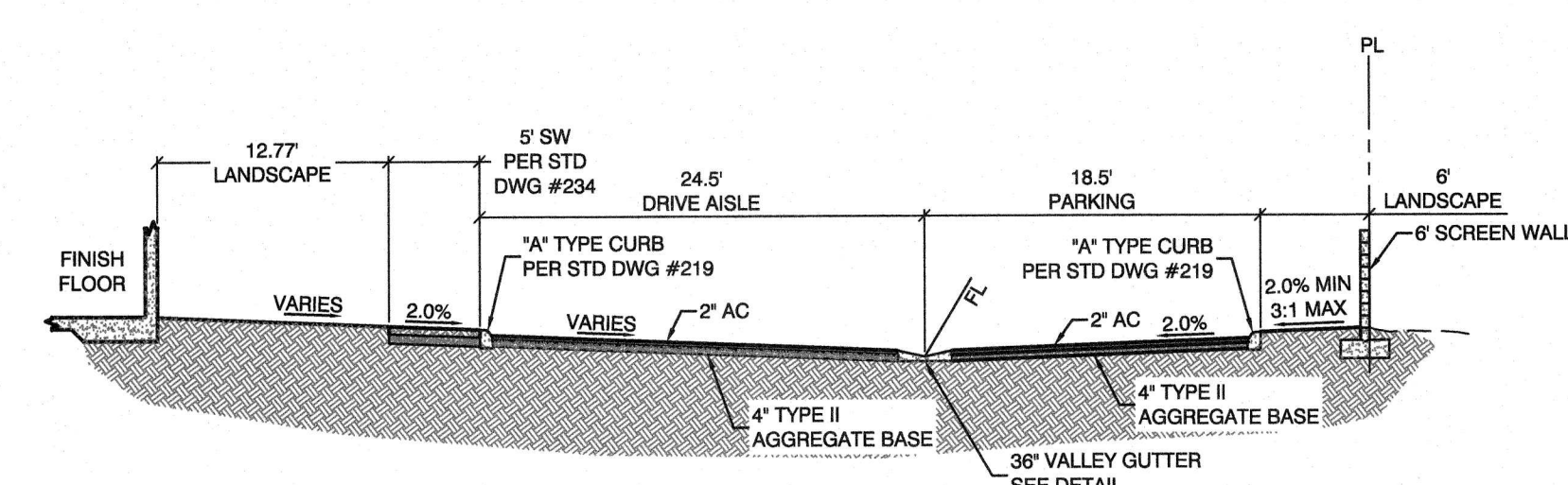
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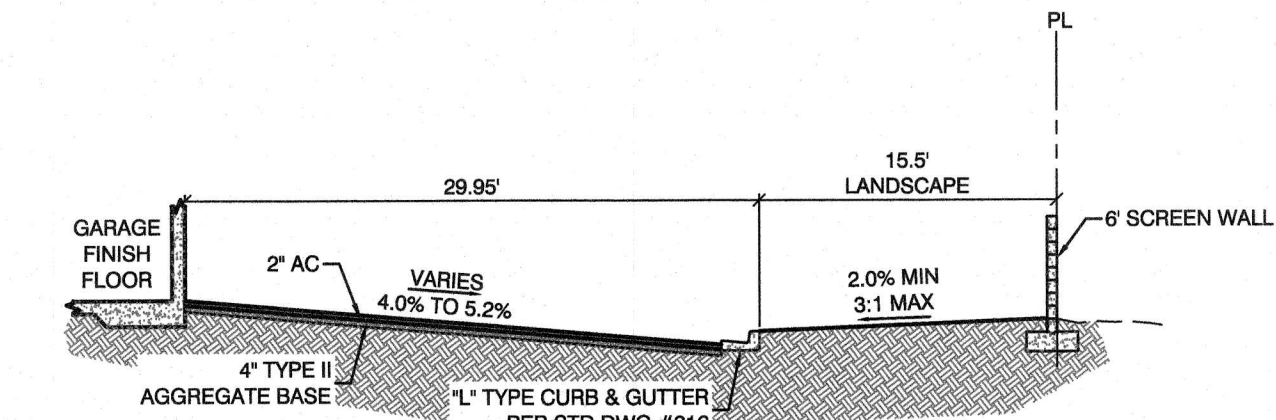
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TYPICAL SECTION
NTS



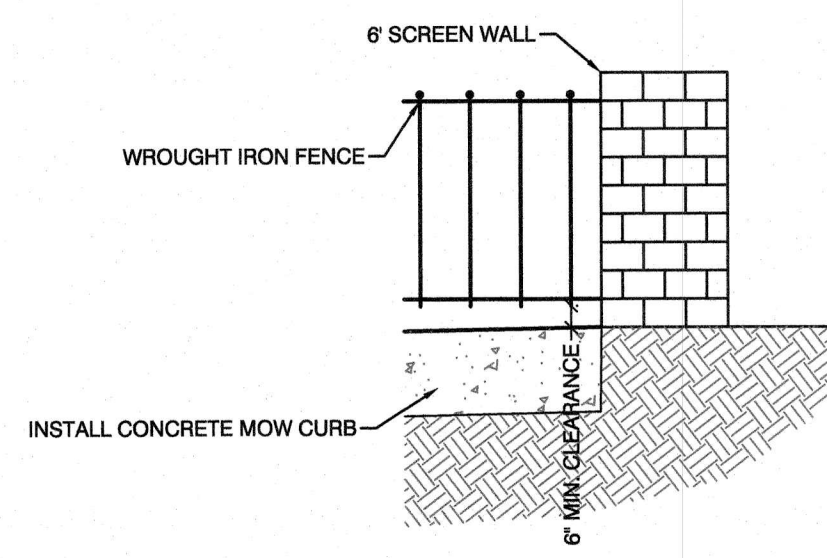
V
TYPICAL SECTION
NTS



W
TYPICAL SECTION
NTS



X
TYPICAL SECTION
NTS



Y
TYPICAL SECTION
NTS

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

LAS VEGAS, NV

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH: (702) 875-7550 FAX: (702) 362-2397 WEB: WWW.VTNV.COM
CONSULTING ENGINEERS • PLANNERS • LAND SURVEYORS

DETAIL SHEET 2

CRYSTAL PARK APARTMENTS

DRAWN BY: 08/14/2017

DESIGNED BY: 08/14/2017

CHECKED BY: 08/14/2017

PROJECT NO: 7944

SCALE: N/A

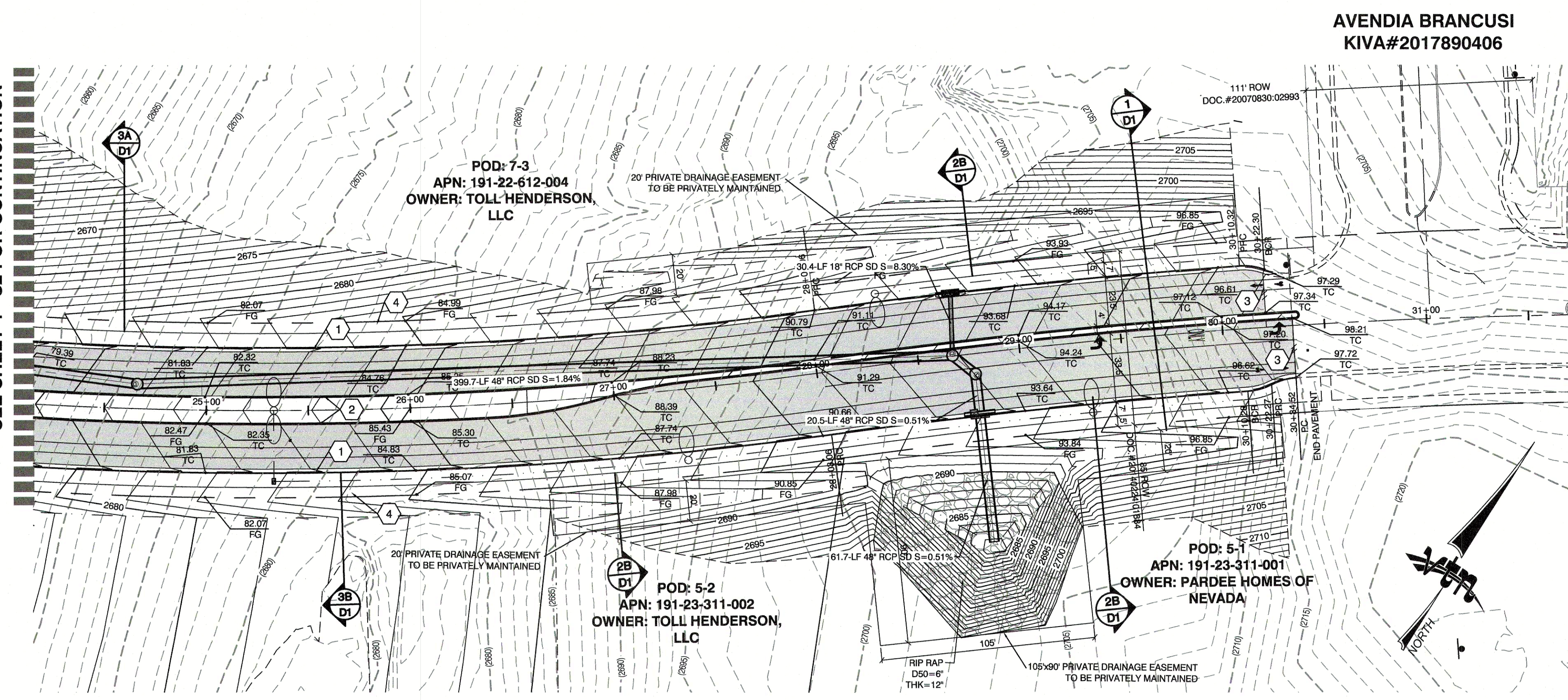
HORIZ VERT.

PROFESSIONAL ENGINEER STATE OF NEVADA
WILLIAM J. MEYER
EXP. 12/31/17
CIVIL
No. 15745

SHEET
DT2
10 OF 11 SHEETS
DRAWING NO.

H:\1944\Sheet Set\7944-DT.dwg

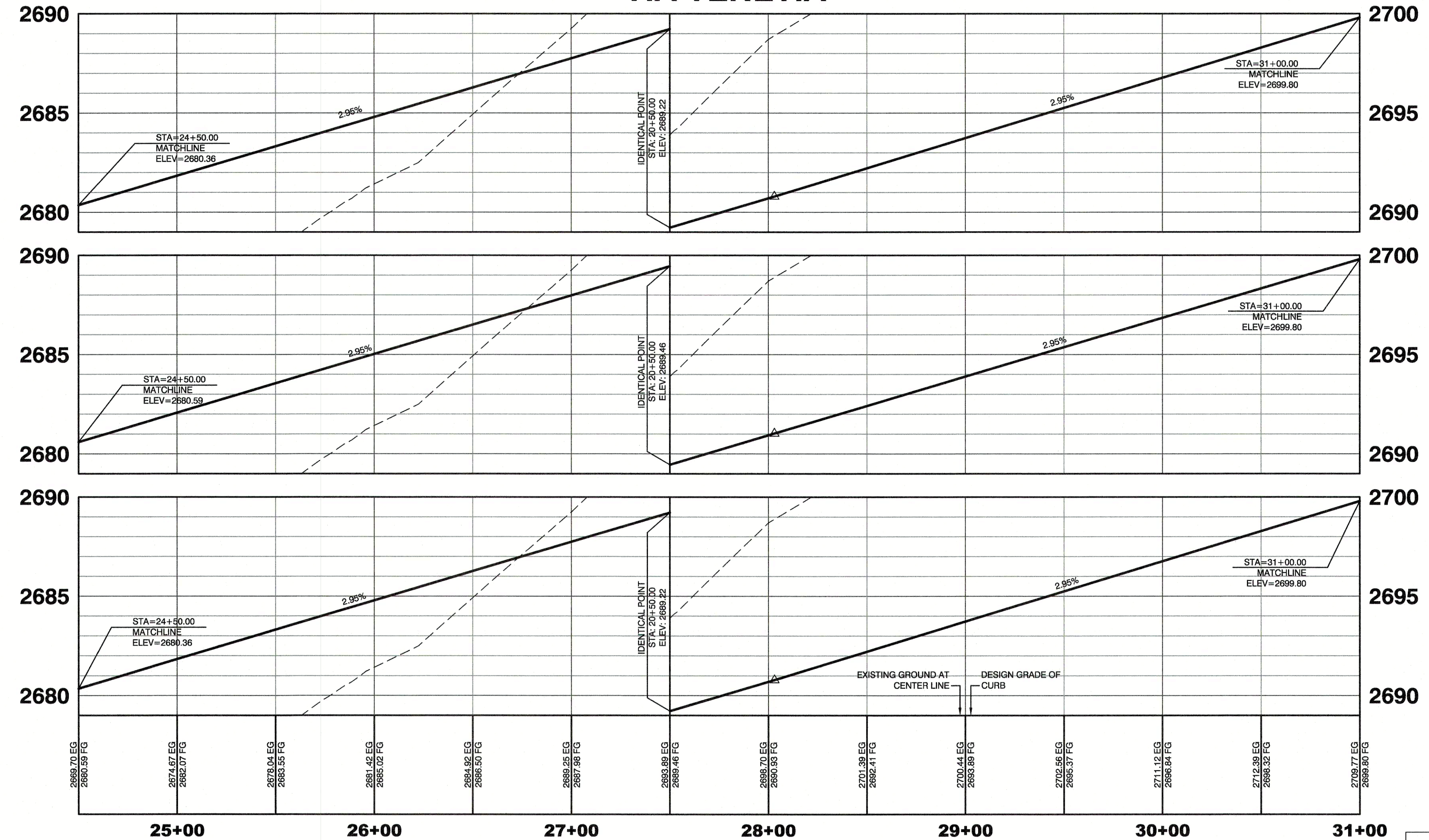
MATCHLINE - 24+50.00
SEE SHEET 4 - S2 FOR CONTINUATION



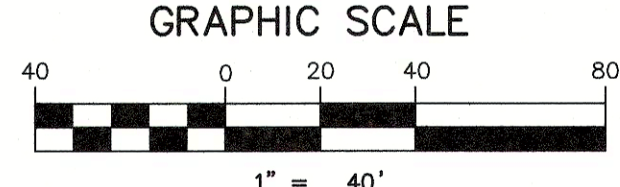
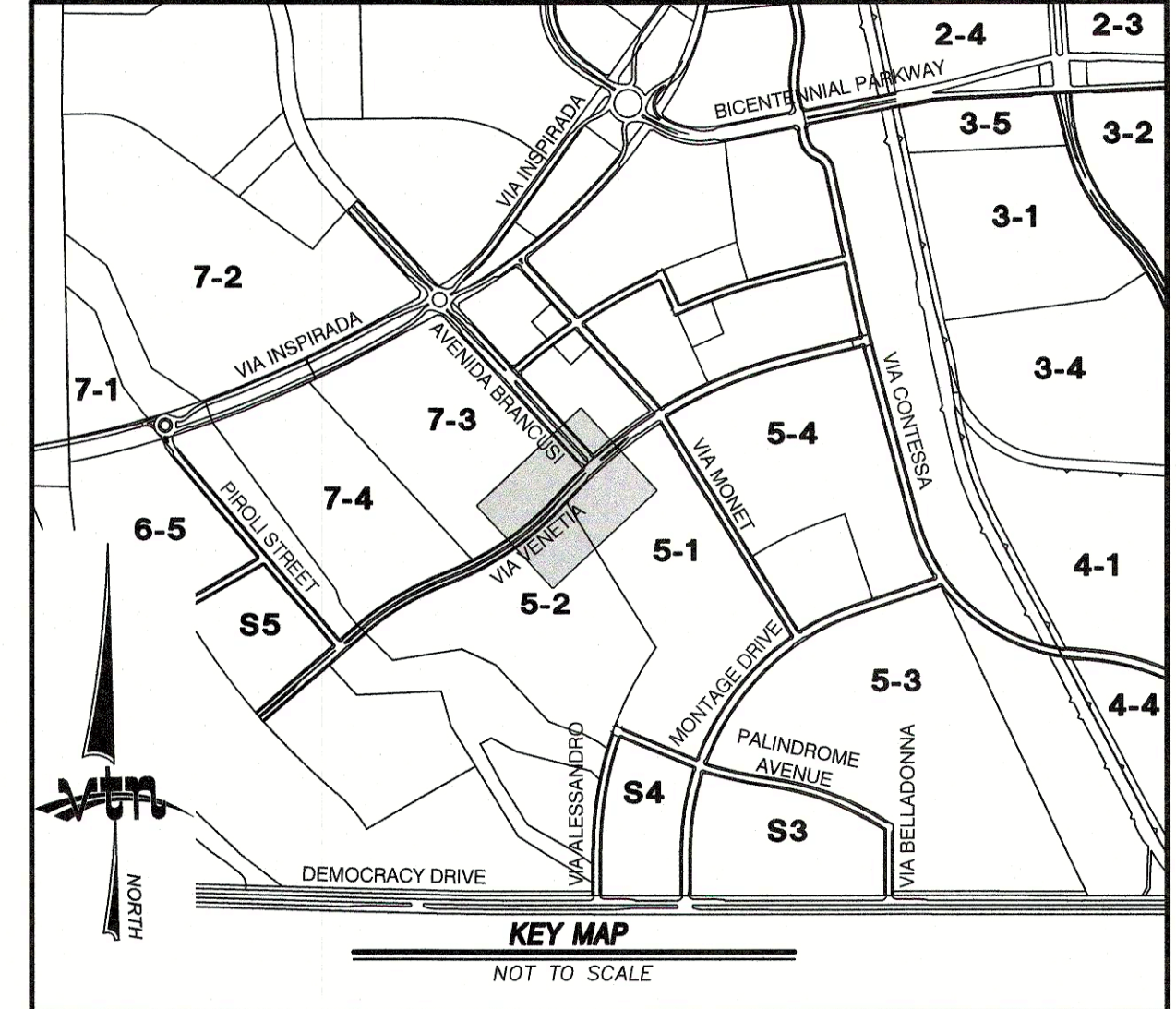
AVENDIA BRANCUSI
KIVA#2017890406

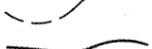
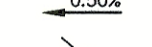
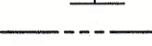
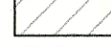
EXISTING VILLAGE 5
INFRASTRUCTURE
KIVA#2017890406

VIA VENETIA



BASIS OF BEARING	
NORTH 89°06'37" EAST - BEING THE BEARING OF THE NORTH LINE OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 22, TOWNSHIP 23 SOUTH, RANGE 61 EAST, M.D.M., CITY OF HENDERSON, CLARK COUNTY, NEVADA AS SHOWN BY THAT PLAT ON FILE IN THE OFFICE OF THE COUNTY RECORDER, CLARK COUNTY, NEVADA IN BOOK 147 OF PLATS, PAGE 94.	
PROJECT BENCHMARK	
PROJECT DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) CITY OF HENDERSON BENCHMARK: NO. 569 NAVD88 ELEVATION: 777.561 METERS (2551.04 FEET) 2" BRASS CAP IN THE TOP OF CURB AT THE NORTHWEST CORNER OF ANTHEM PARKWAY AND SCOTT'S VALLEY DRIVE.	



LEGEND	
FG FL TC EOP EG H.P. L.P. C/L BC BOR GB PC PT PRC PCC BVC MVC EVC PRVC VPI TOW TRANS. RET. INT. RCP SD DI R/W S/W M.U.E.	FINISH GRADE FLOW LINE TOP OF CURB EDGE OF ASPHALT PAVEMENT EXISTING GROUND HIGH POINT LOW POINT CENTER LINE BACK OF CURB BEGIN CURB RETURN GRADE BREAK POINT OF CURVATURE POINT OF TANGENCY POINT OF REVERSE CURVATURE POINT OF COMPOUND CURVATURE BEGIN VERTICAL CURVE MID-POINT OF VERTICAL CURVE END VERTICAL CURVE POINT OF REVERSE VERTICAL CURVE VERTICAL POINT OF INTERSECTION TOP OF WALL TRANSITION RETAINMENT INTERSECTION REINFORCED CONCRETE PIPE STORM DRAIN DROP INLET RIGHT-OF-WAY SIDEWALK MUNICIPAL UTILITY EASEMENT
	PROPOSED AC
	EX. CONTOUR(5' INTERVAL)
	EX. CONTOUR(1' INTERVAL)
	PROPOSED CONTOUR
	SLOPE AND FLOW DIRECTION
	EDGE OF EXIST. A.C.
	SAW CUT & MATCH A.C.
	SCARP AREA
	R/W OR P/L
	CENTER LINE
	BACK OF CURB
	LIP OF GUTTER
	EXIST. IMPROVEMENTS
	FUTURE IMPROVEMENTS
	MATCHLINE
	CUT-FILL TRANSITION LINE
	SAWCUT LINE
	RIP RAP
	REMOVE AND REPLACE EX. AC
	REMOVE EXISTING AC

- CONSTRUCTION NOTES**
1. CONSTRUCT "L" CURB & GUTTER PER STD. # 216
 2. CONSTRUCT "A" TYPE ISLAND CURB PER STD. #219
 3. SAWCUT AND MATCH EXISTING PAVEMENT
 4. CONSTRUCT SIDEWALK PER STD. # 234
 5. 6" THICK TRUCK APRON OVER 4" TYPE II AGG. BASE
 6. CONSTRUCT 8" CROSS GUTTER PER STD. #228
 7. CONSTRUCT INDUSTRIAL DRIVEWAY PER STD. #224

NOTE:
STORMDRAINS NOT SHOWN IN PROFILE DUE TO VERTICAL DEPTH SEE STORMDRAIN PLAN AND PROFILE SHEETS SD1-SD6 FOR STORMDRAIN DESIGN.

Call before you Dig
1-800-227-2600

Call before you Dig
1-800-227-2600

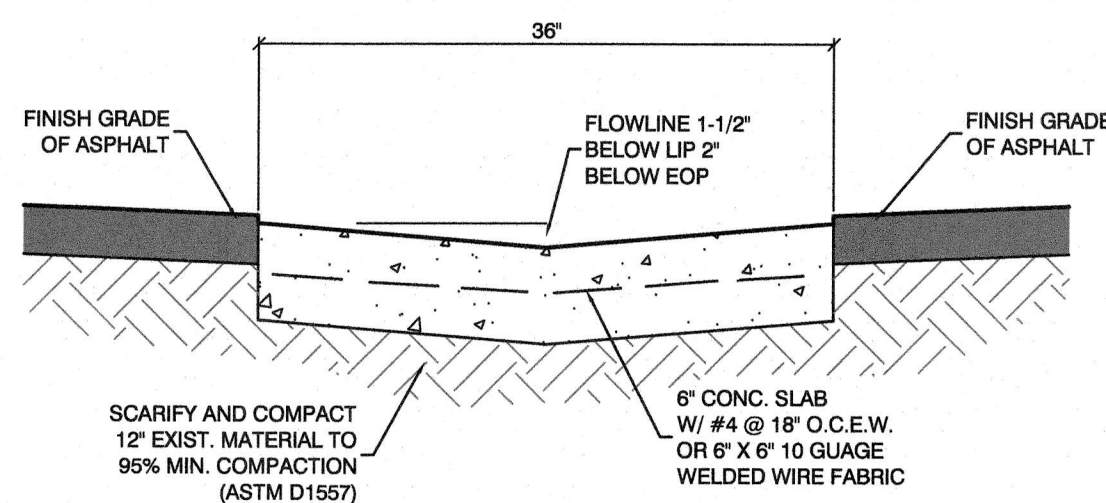
Call before you Dig
1-800-227-2600

Call before you Dig
1-800-227-2600

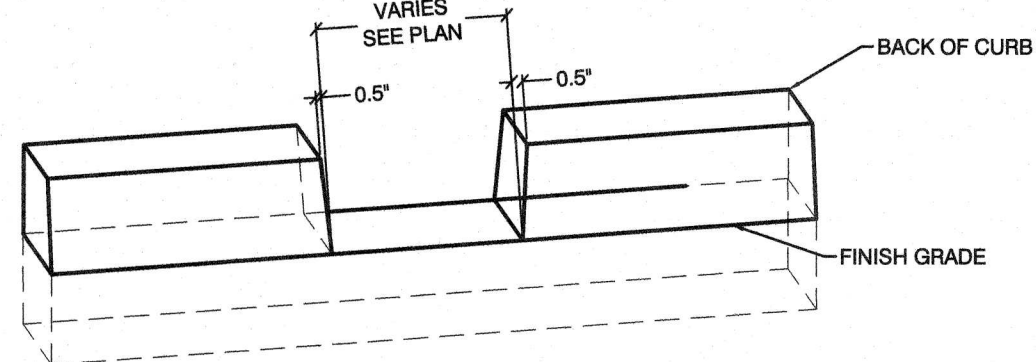
Call before you Dig
1-800-227-2600

Call before you Dig
1-800-227-2600

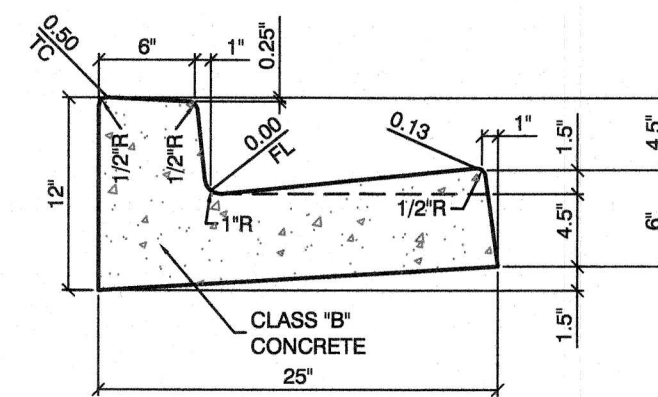
CITY OF HENDERSON		INSPIRADA BUILDERS, LLC	
727 SOUTH RAINBOW BOULEVARD LAS VEGAS, NEVADA 89146 (702) 266-6400		5795 W. BADURA AVE., SUITE 180 LAS VEGAS, NV 89118 (702) 266-6400	
STREET PLAN AND PROFILE VIA VENETIA 24 + 50.00 TO 27 + 00.00		INSPIRADA VILLAGE 7 INFRASTRUCTURE	
DRAWN BY: CMM	DESIGNED BY: RMS/CMM	CHECKED BY: KFN	PROJECT NO.: 1420
December 17	December 17	December 17	SCALE: 1"=40'
SHEET 10 OF 28 SHEETS		DRAWING NO. 201770---	



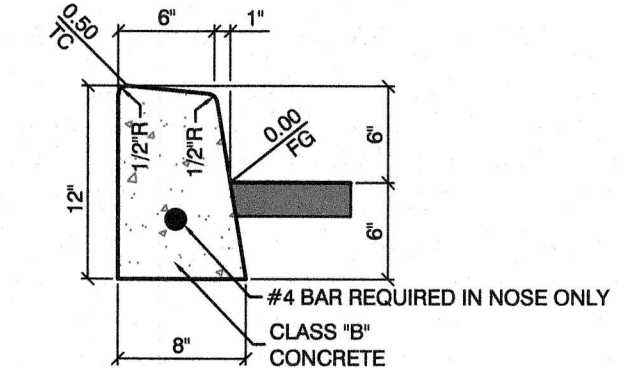
**36" WIDE VALLEY GUTTER
WITHIN PAVING AREAS**
NTS



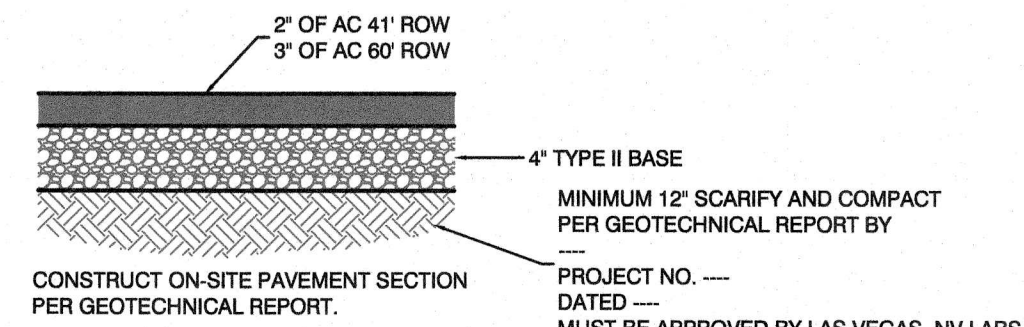
DEPRESSED "A" CURB
NTS



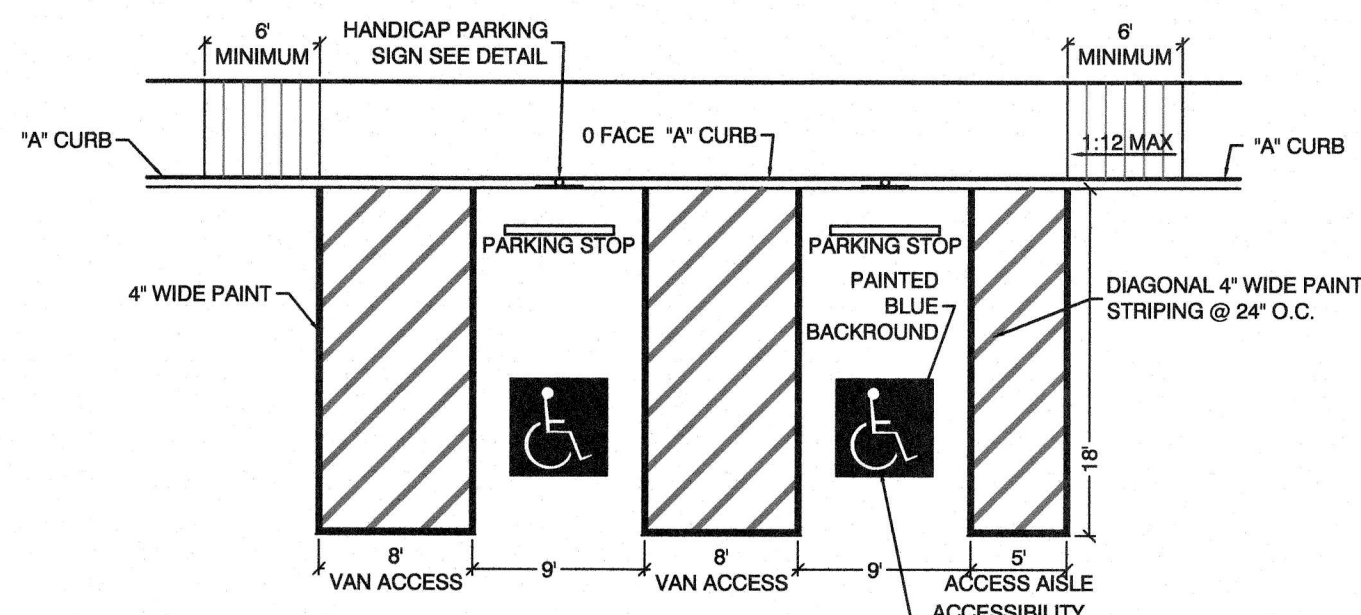
"L" TYPE CURB & GUTTER
NTS
REFER TO USD 216
NOTES:
1. 1" BATTER ON GUTTER FACE OPTIONAL.



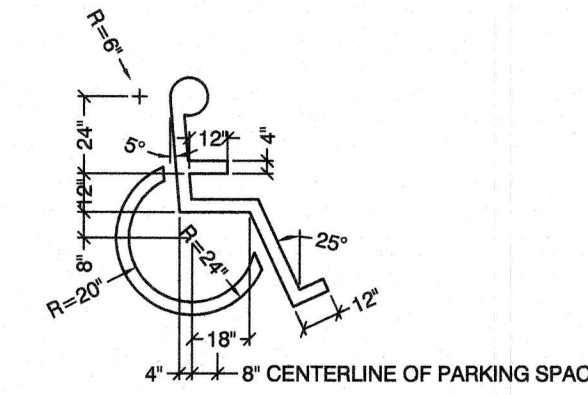
"A" CURB PRIVATE SECTION
NTS
REFER TO USD 219



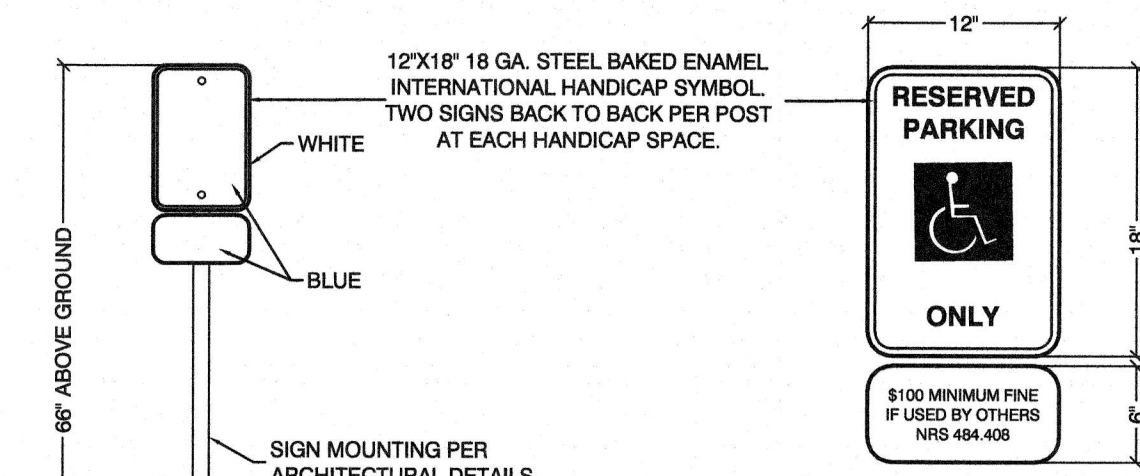
**ON-SITE ASPHALT CONCRETE
PAVEMENT SECTION**
NTS



TYPICAL ACCESSIBLE PARKING DETAIL
NTS

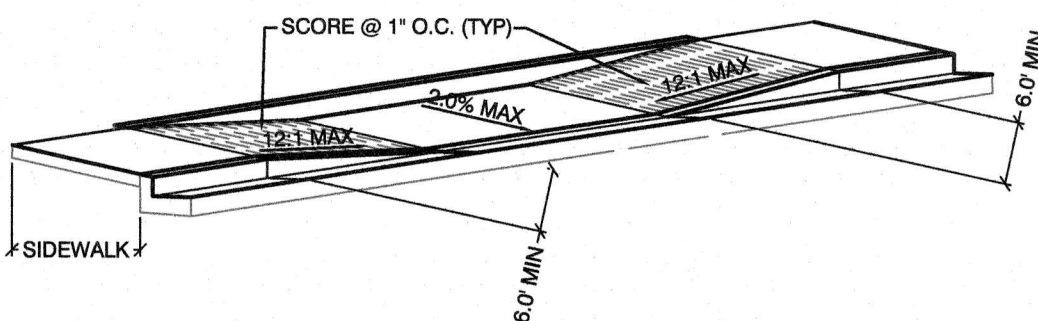


HANDICAP SYMBOL DETAIL
NTS

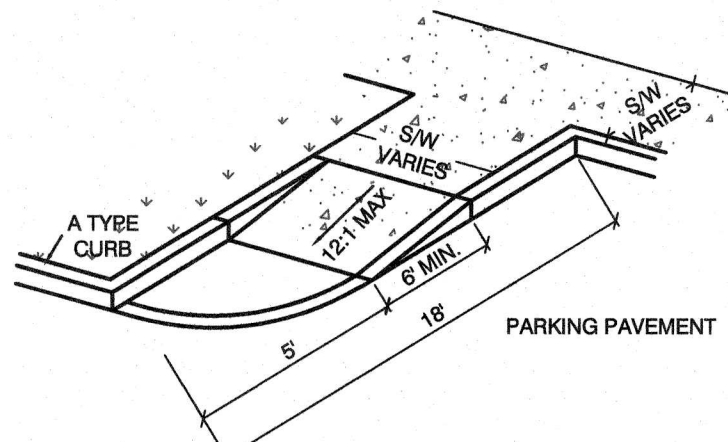


HANDICAP SIGN DETAIL
NTS

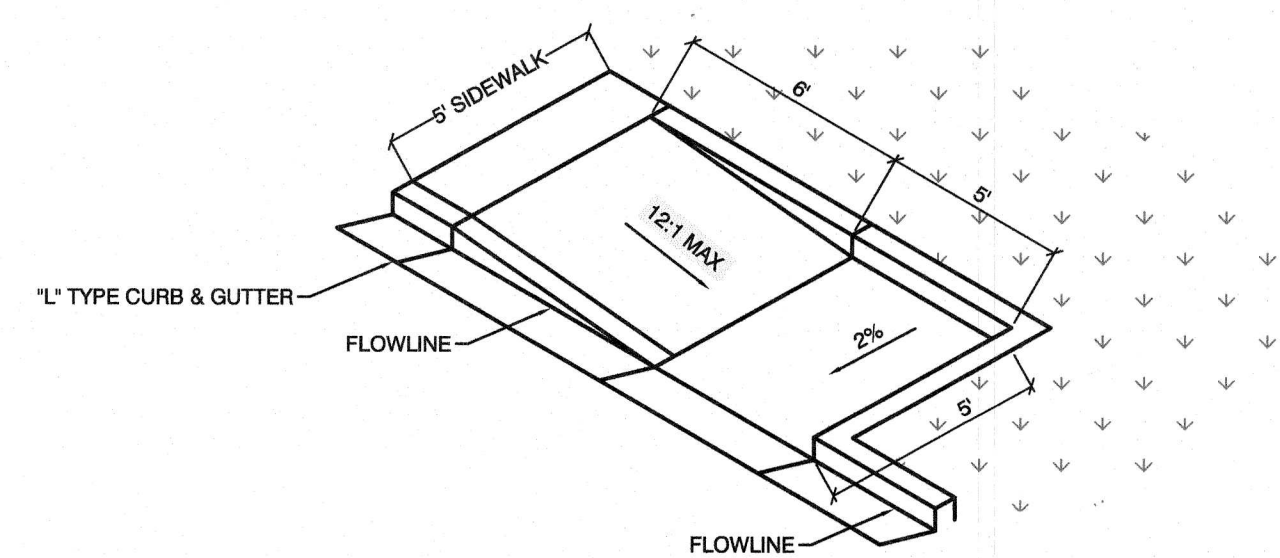
NOTE:
ALL AGGREGATE BASES SHALL BE COMPACTED PER GEOTECHNICAL REPORT HTE #17-25526 PRELIMINARY PAVEMENT SECTIONS SHALL BE VERIFIED WITH THE FINAL PAVEMENT SECTION RECOMMENDATION REPORT (MPSR) PRIOR TO CONSTRUCTION. IF FINAL PAVEMENT SECTIONS ARE DIFFERENT, A REVISION TO THE IMPROVEMENT PLANS WILL BE REQUIRED.



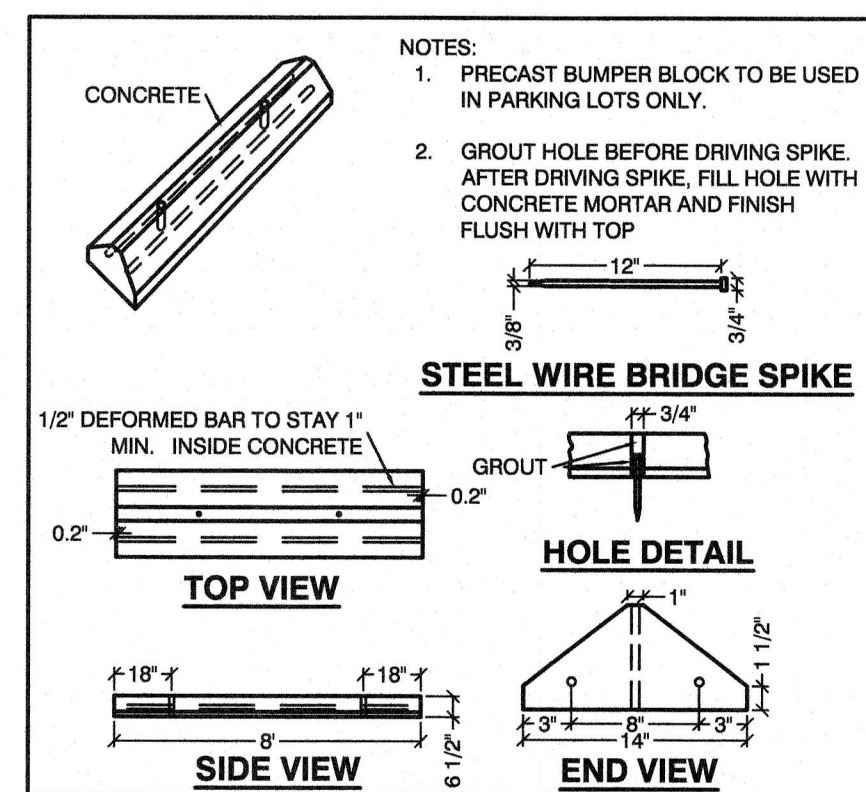
DUAL SIDEWALK RAMP
NTS



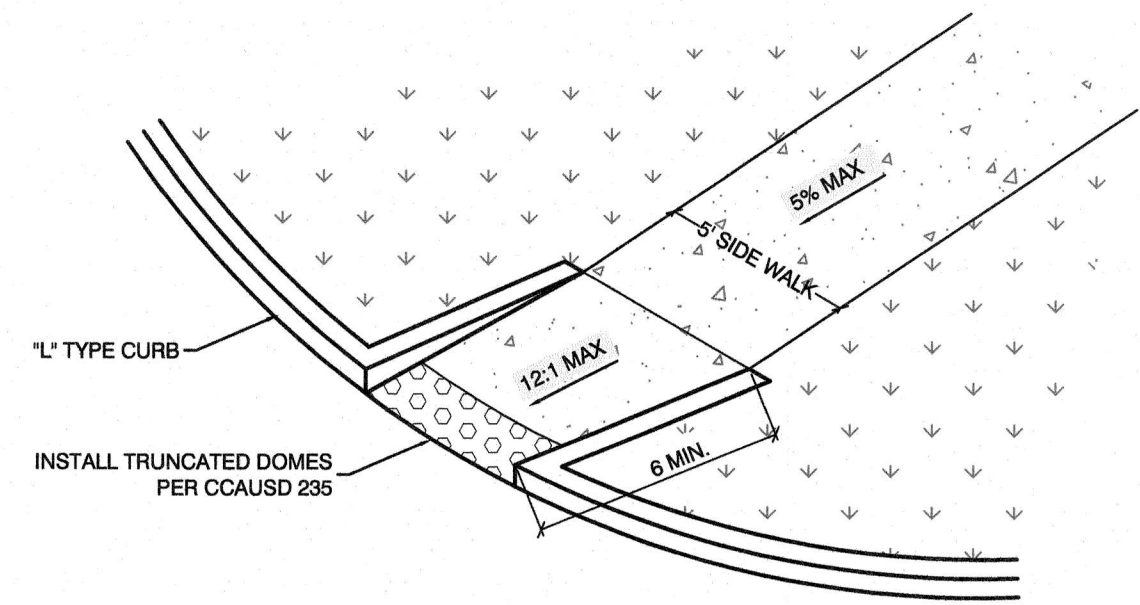
SIDEWALK RAMP AT PARKING ISLAND OR BAY (PRIVATE)
N.T.S.



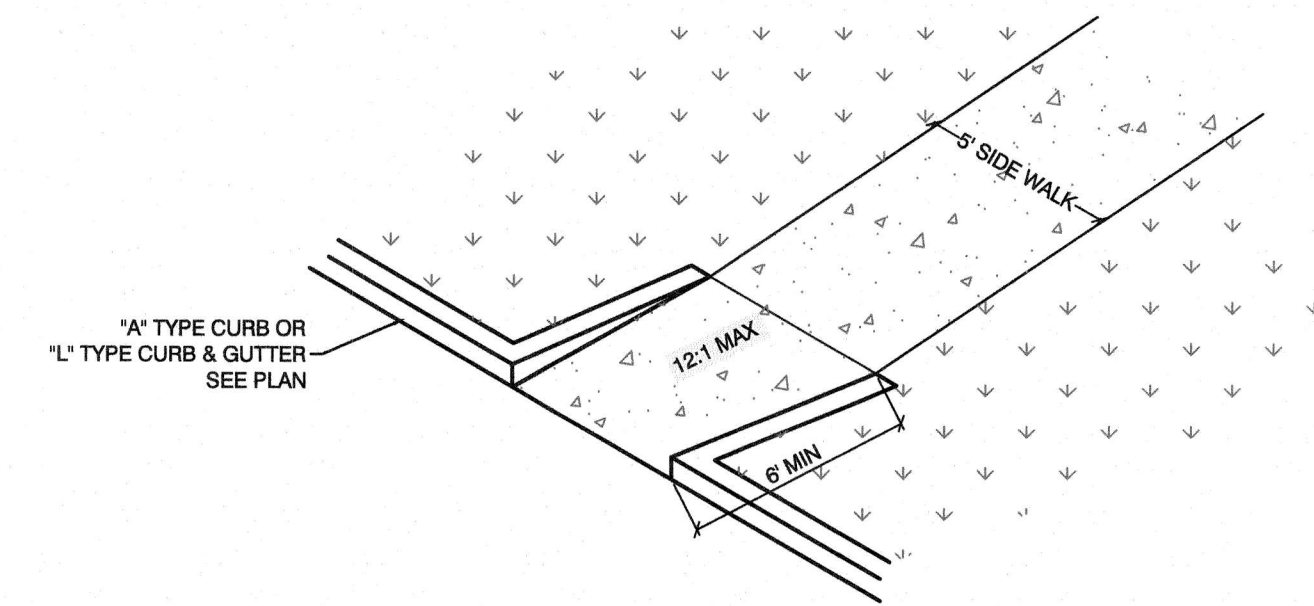
SIDE WALK RAMP (PRIVATE)
NTS



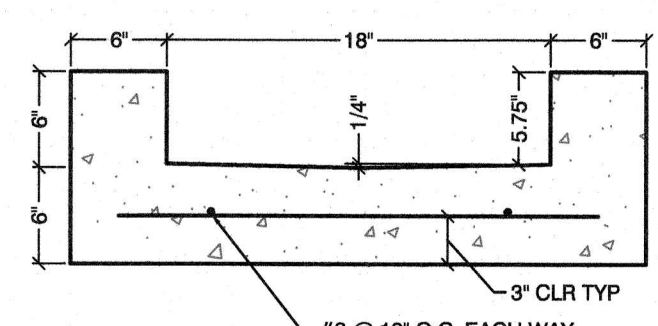
TYPICAL PARKING STOP DETAIL
NTS



SIDE WALK RAMP AT ENTRY DRIVEWAY
NTS



SIDE WALK RAMP (PRIVATE)
NTS



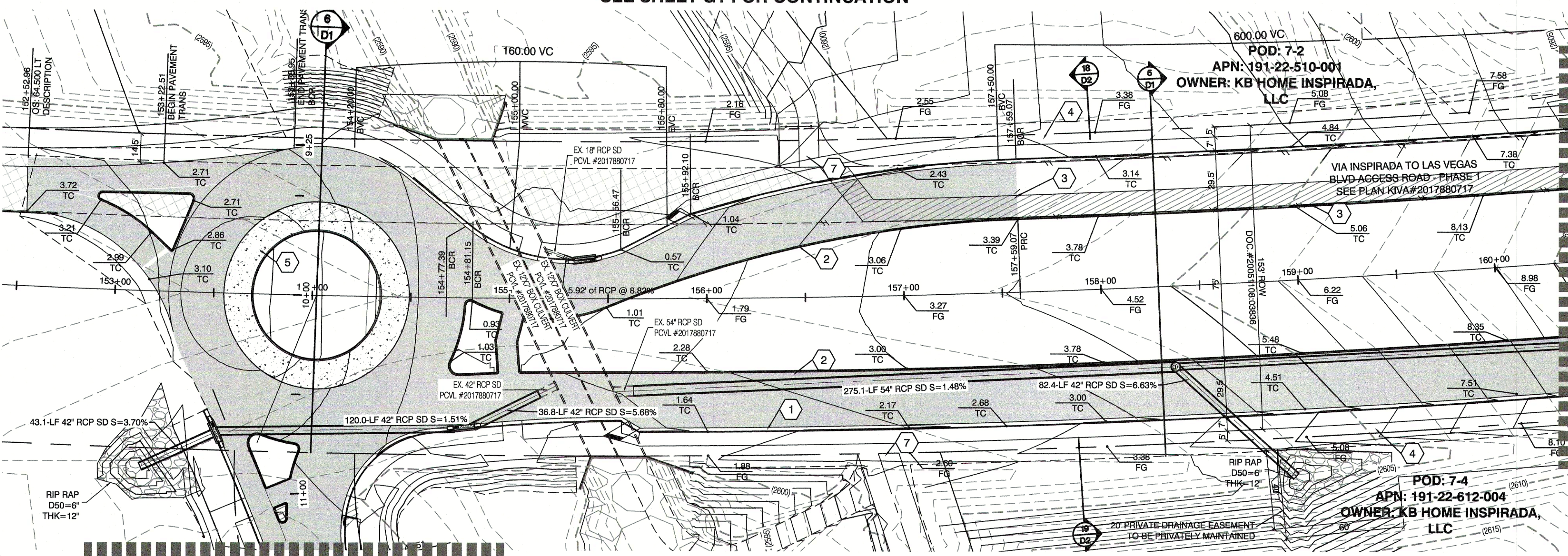
"U" CHANNEL
NTS

EAB INVESTMENT COMPANY 3065 N. RANCHO #130 LAS VEGAS, NV 89133		LAS VEGAS, NV 2727 SOUTH RAINBOW BOULEVARD LAS VEGAS, NEVADA 89146-5148 PH. (702) 873-7550 FAX (702) 982-2587 WEB WWW.VTNV.COM CONSULTING ENGINEERS • PLANNERS • LAND SURVEYORS	
DETAIL SHEET 3		CRYSTAL PARK APARTMENTS	
DRAWN BY: KCH	08/14/2017	CHECKED BY: WJM	08/14/2017
DESIGNED BY: DEH	08/14/2017	PROJECT NO: 7844	SCALE: N/A
PROFESSIONAL ENGINEER - STATE OF NEVADA WILLIAM J. MEYER EXP. 12/31/17 CIVIL No. 15745		SHEET DT3 OF 11 SHEETS DRAWING NO.	

VIA INSPIRADA TO LAS VEGAS
BLVD ACCESS ROAD - PHASE 1
SEE PLAN KIVA#2017880717

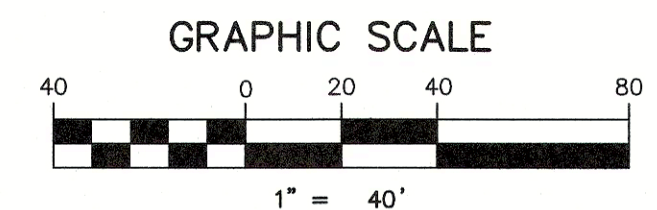
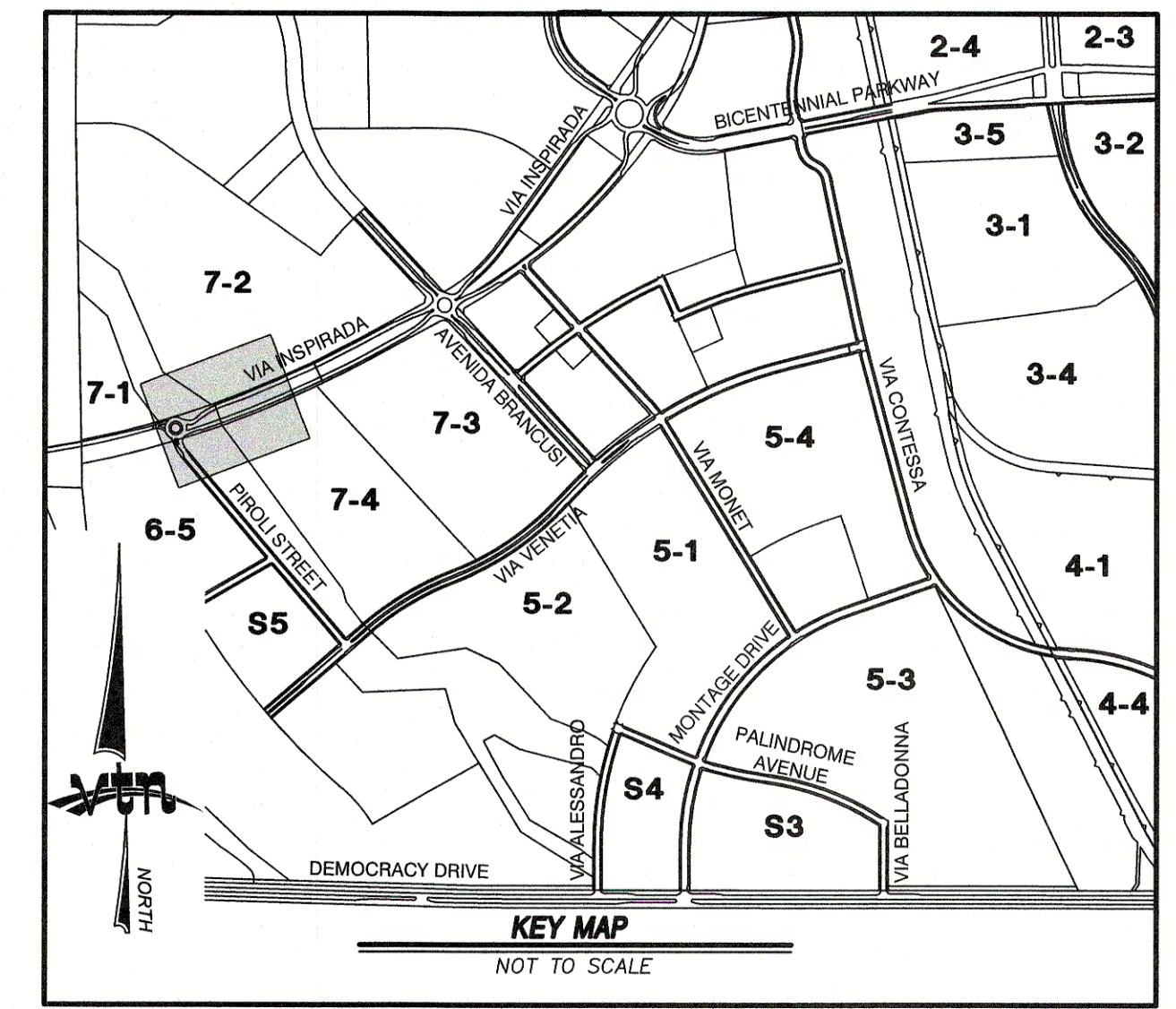
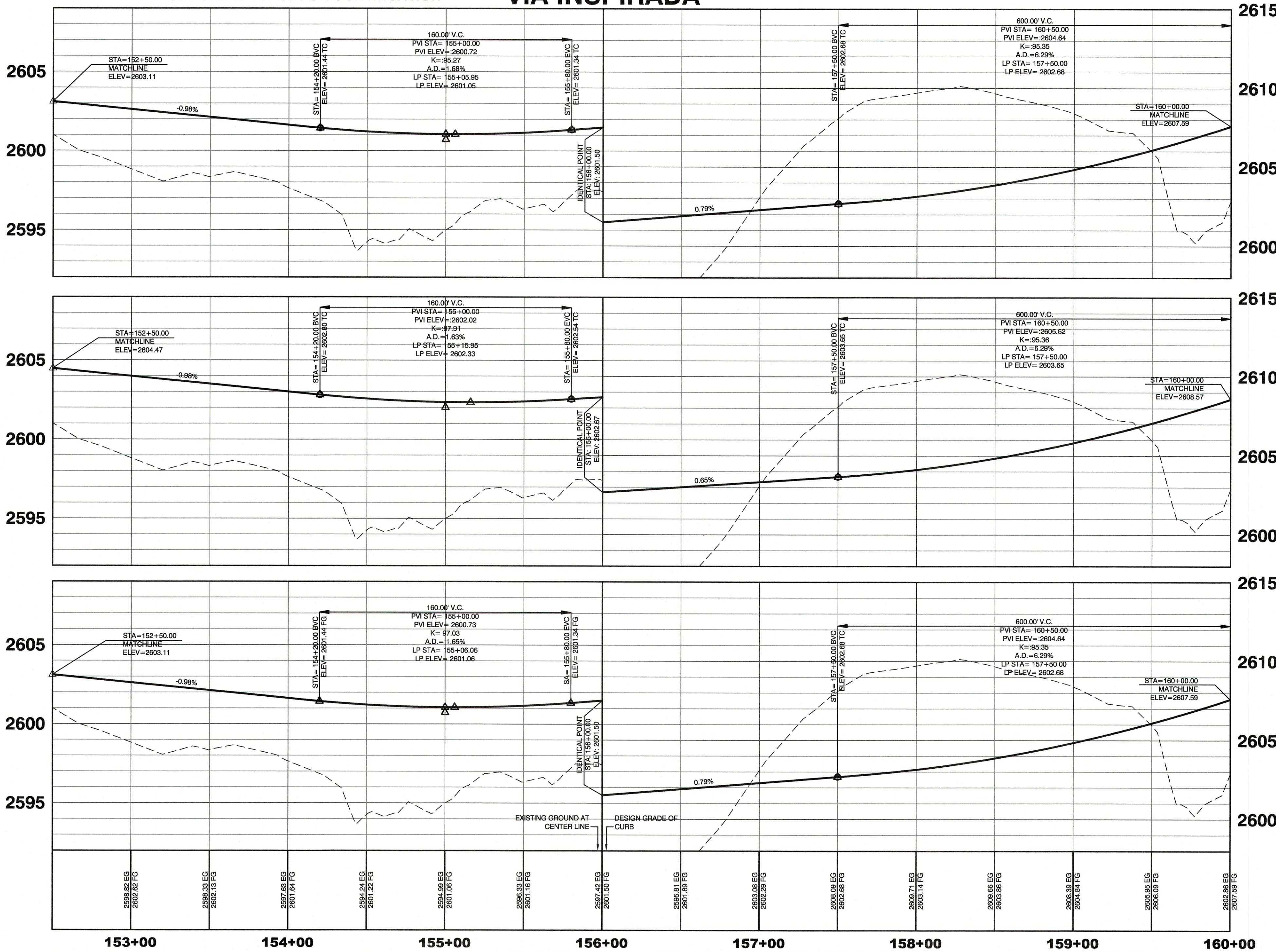
SEE SHEET G1 FOR CONTINUATION

SEE SHEET S5 FOR CONTINUATION



MATCHLINE - 11+00.00
SEE SHEET 14 - S7 FOR CONTINUATION

SEE SHEET G2 FOR CONTINUATION
VIA INSPIRADA



LEGEND	
FG	FINISH GRADE
FL	FLOW LINE
TC	TOP OF CURB
EOP	EDGE OF ASPHALT PAVEMENT
EG	EXISTING GROUND
H.P.	HIGH POINT
L.P.	LOW POINT
C/L	CENTER LINE
BC	BACK OF CURB
BCR	BEGIN CURB RETURN
GB	GRADE BREAK
PC	POINT OF CURVATURE
PT	POINT OF TANGENCY
PRC	POINT OF REVERSE CURVATURE
PCC	POINT OF COMPOUND CURVATURE
BVC	BEGIN VERTICAL CURVE
MVC	MID-POINT OF VERTICAL CURVE
EVC	END VERTICAL CURVE
PRVC	POINT OF REVERSE VERTICAL CURVE
VI	VERTICAL POINT OF INTERSECTION
TOW	TOP OF WALL
TRANS.	TRANSITION
RET.	RETAINMENT
INT.	INTERSECTION
RCP	REINFORCED CONCRETE PIPE
SD	STORM DRAIN
DI	DROP INLET
R/W	RIGHT-OF-WAY
S/W	SIDEWALK
M.U.E.	MUNICIPAL UTILITY EASEMENT
PROPOSED AC	PROPOSED ASPHALT CONCRETE
EX. CONTOUR(5' INTERVAL)	EXISTING CONTOUR(5' INTERVAL)
EX. CONTOUR(1' INTERVAL)	EXISTING CONTOUR(1' INTERVAL)
PROPOSED CONTOUR	PROPOSED CONTOUR
SLOPE AND FLOW DIRECTION	SLOPE AND FLOW DIRECTION
EDGE OF EXIST. A.C.	EDGE OF EXIST. A.C.
SAW CUT & MATCH A.C.	SAW CUT & MATCH A.C.
SCARP AREA	SCARP AREA
R/W OR P/L	RIGHT-OF-WAY OR PLAT LINE
CENTER LINE	CENTER LINE
BACK OF CURB	BACK OF CURB
LIP OF GUTTER	LIP OF GUTTER
EXIST. IMPROVEMENTS	EXIST. IMPROVEMENTS
FUTURE IMPROVEMENTS	FUTURE IMPROVEMENTS
MATCHLINE	MATCHLINE
CUT-FILL TRANSITION LINE	CUT-FILL TRANSITION LINE
SAWCUT LINE	SAWCUT LINE
RIP RAP	RIP RAP
REMOVE AND REPLACE EX. AC	REMOVE AND REPLACE EX. AC
REMOVE EXISTING AC	REMOVE EXISTING AC

NOTE:
STORMDRAINS NOT SHOWN IN PROFILE DUE TO VERTICAL
DEPTH SEE STORMDRAIN PLAN AND PROFILE SHEETS
SD1-SD6 FOR STORMDRAIN DESIGN.

BASIS OF BEARING

NORTH 89°06'27" EAST - BEING THE BEARING OF THE NORTH LINE OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 22, TOWNSHIP 23 SOUTH, RANGE 61 EAST, M.D.M., CITY OF HENDERSON, CLARK COUNTY, NEVADA AS SHOWN BY THAT PLAT ON FILE IN THE OFFICE OF THE COUNTY RECORDER, CLARK COUNTY, NEVADA IN BOOK 147 OF PLATS, PAGE 94.

PROJECT BENCHMARK

PROJECT DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
CITY OF HENDERSON BENCHMARK: NO. 569 NAVD88 ELEVATION: 777.561 METERS (2551.04 FEET)
2" BRASS CAP IN THE TOP OF CURB AT THE NORTHWEST CORNER OF ANTHEM PARKWAY AND SCOTTS VALLEY DRIVE.

CONSTRUCTION NOTES

- CONSTRUCT "L" CURB & GUTTER PER STD. # 216
- CONSTRUCT "A" TYPE ISLAND CURB PER STD. #219
- SAWCUT AND MATCH EXISTING PAVEMENT
- CONSTRUCT SIDEWALK PER STD. # 234
- 6" THICK TRUCK APRON OVER 4" TYPE II AGG. BASE
- CONSTRUCT 8" CROSS GUTTER PER STD. #228
- CONSTRUCT INDUSTRIAL DRIVEWAY PER STD. #224

Call before you Dig

1-800-227-2600

Avoid cutting underground utility lines. It's costly.

Call before you Overhead

1-702-267-2783

1-702-432-5300

Avoid overhead power line contact. It's costly.

Call before you Underground

1-702-267-2783

1-702-432-5300

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CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE (1) YEAR ONLY. PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS, PARKS AND RECREATION, CITY OF HENDERSON, IF WORK IS NOT COMPLETED WITHIN ONE (1) YEAR OF THE APPROVAL DATE.

CITY ENGINEER, CITY OF HENDERSON APPROVAL DATE

CITY OF HENDERSON

INSPIRADA BUILDERS, LLC

2727 SOUTH RAINBOW BOULEVARD

728 N. BOULEVARD, SUITE 100

LAS VEGAS, NV 89115

(702) 298-5400

STREET PLAN AND PROFILE

VIA INSPIRADA

152+50.00 TO 160+00.00

INSPIRADA

VILLAGE 7 INFRASTRUCTURE

DRAWN BY: CMM

DESIGNED BY: RRS/CMM

CHECKED BY: KFN

PROJECT NO: 7420

SCALE: 1"=40'

DATE: 12-17-2017

SHEET

S4

11 OF 28 SHEETS

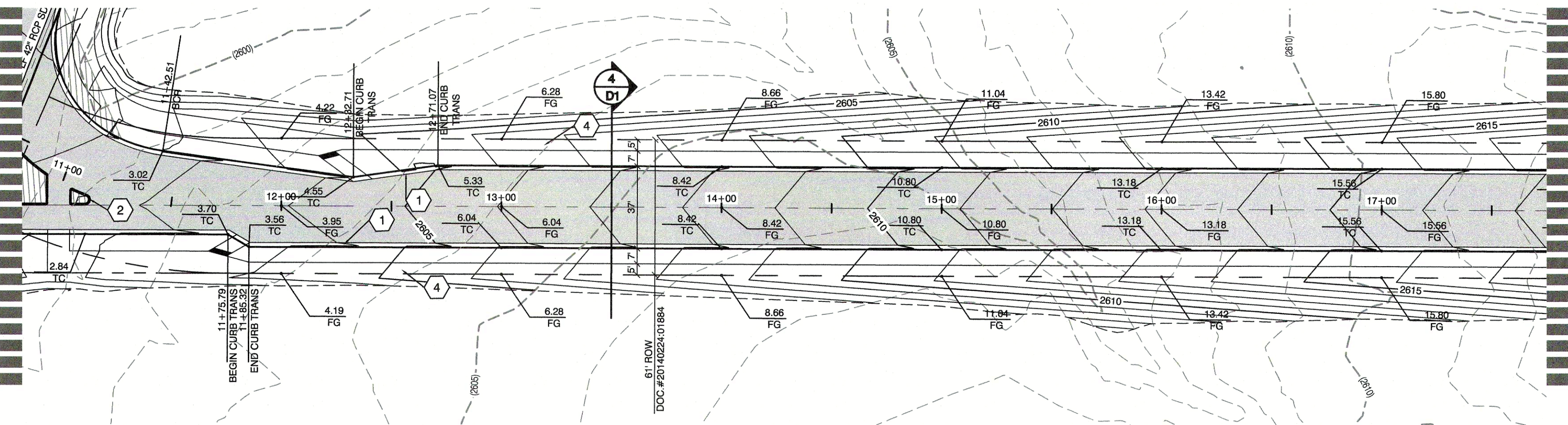
DRAWING NO.

201770---

REVISION

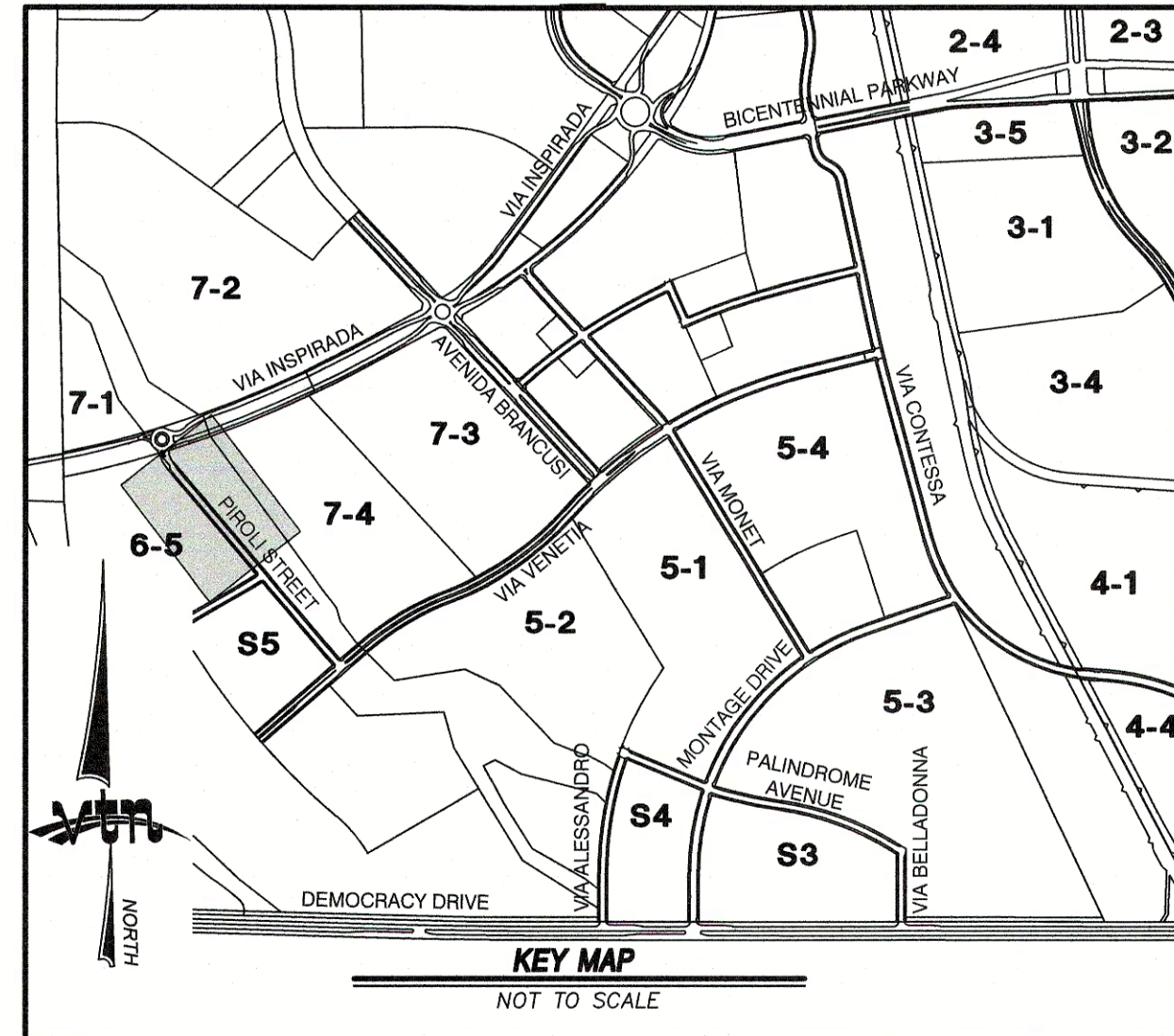
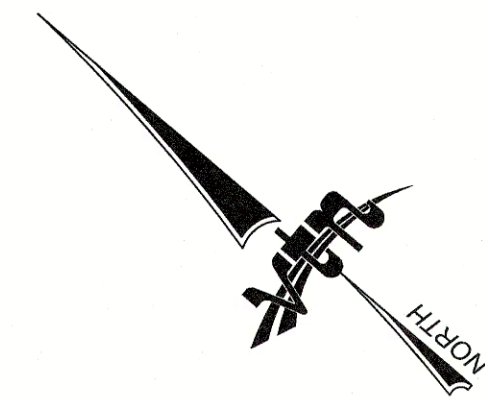
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MATCHLINE - 11+00.00
SEE SHEET S4 FOR CONTINUATION

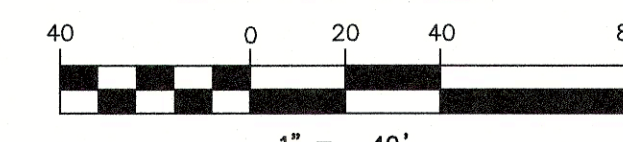


PIROLA STREET

MATCHLINE - 17+50.00
SEE SHEET S8 FOR CONTINUATION



GRAPHIC SCALE



LEGEND	
FG	FINISH GRADE
FL	FLOW LINE
TC	TOP OF CURB
EOP	EDGE OF ASPHALT PAVEMENT
EG	EXISTING GROUND
H.P.	HIGH POINT
L.P.	LOW POINT
C/L	CENTER LINE
BC	BACK OF CURB
BOR	BEGIN CURB RETURN
GB	GRADE BREAK
PC	POINT OF CURVATURE
PT	POINT OF TANGENCY
PRC	POINT OF REVERSE CURVATURE
PCC	POINT OF COMPOUND CURVATURE
BVC	BEGIN VERTICAL CURVE
MVC	MID-POINT OF VERTICAL CURVE
EVC	END VERTICAL CURVE
PRVC	POINT OF REVERSE VERTICAL CURVE
VPI	VERTICAL POINT OF INTERSECTION
TOW	TOP OF WALL
TRANS.	TRANSITION
RET.	RETAINMENT
INT.	INTERSECTION
RCS	REINFORCED CONCRETE PIPE
SD	STORM DRAIN
DI	DROP INLET
R/W	RIGHT-OF-WAY
S/W	SIDEWALK
M.U.E.	MUNICIPAL UTILITY EASEMENT
PROPOSED AC	PROPOSED ASPHALT CONCRETE
EX. CONTOUR(5' INTERVAL)	EXISTING CONTOUR(5' INTERVAL)
EX. CONTOUR(1' INTERVAL)	EXISTING CONTOUR(1' INTERVAL)
PROPOSED CONTOUR	PROPOSED CONTOUR
0.50%	SLOPE AND FLOW DIRECTION
EDGE OF EXIST. A.C.	EDGE OF EXIST. ASPHALT CONCRETE
SAW CUT & MATCH A.C.	SAW CUT & MATCH ASPHALT CONCRETE
SCARP AREA	SCARP AREA
R/W OR P/L	RIGHT-OF-WAY OR PLAT LINE
CENTER LINE	CENTER LINE
BACK OF CURB	BACK OF CURB
UP OF GUTTER	UP OF GUTTER
EXIST. IMPROVEMENTS	EXISTING IMPROVEMENTS
FUTURE IMPROVEMENTS	FUTURE IMPROVEMENTS
MATCHLINE	MATCHLINE
CUT-FILL TRANSITION LINE	CUT-FILL TRANSITION LINE
SAWCUT LINE	SAWCUT LINE
RIP RAP	RIP RAP
REMOVE AND REPLACE EX. AC	REMOVE AND REPLACE EXISTING ASPHALT CONCRETE
REMOVE EXISTING AC	REMOVE EXISTING ASPHALT CONCRETE

NOTE:
STORMDRAINS NOT SHOWN IN PROFILE DUE TO VERTICAL
DEPTH SEE STORMDRAIN PLAN AND PROFILE SHEETS
SD1-SD6 FOR STORMDRAIN DESIGN.

BASIS OF BEARING

NORTH 89°06'27" EAST - BEING THE BEARING OF THE NORTH LINE OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 22, TOWNSHIP 23 SOUTH, RANGE 61 EAST, M.D.M., CITY OF HENDERSON, CLARK COUNTY, NEVADA AS SHOWN BY THAT PLAT ON FILE IN THE OFFICE OF THE COUNTY RECORDER, CLARK COUNTY, NEVADA IN BOOK 147 OF PLATS, PAGE 94.

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- CONSTRUCT 6" CROSS GUTTER PER STD. #228
- CONSTRUCT INDUSTRIAL DRIVEWAY PER STD. #224

FLOOD ZONE NOTE

SITE IS LOCATED IN A ZONE X AS SHOWN ON FIRM MAP 32003C29500 AND 32003C29500, DATED NOVEMBER 16, 2011. A ZONE X IS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

Call before you Dig
1-800-227-2600

Call before you Overhead
1-702-267-2783
CITY OF HENDERSON UTILITY SERVICES LINE LOCATION
1-702-432-5300
FREEMAN AND NATIONAL SYSTEMS OF TRANSPORTATION

Call before you Dig
1-800-227-2600

Call before you Overhead
1-702-267-2783
CITY OF HENDERSON UTILITY SERVICES LINE LOCATION
1-702-432-5300
FREEMAN AND NATIONAL SYSTEMS OF TRANSPORTATION

INSPIRADA BUILDERS, LLC
6796 W. BADURA AVE., SUITE 180
LAS VEGAS, NV 89118
(702) 298-8400

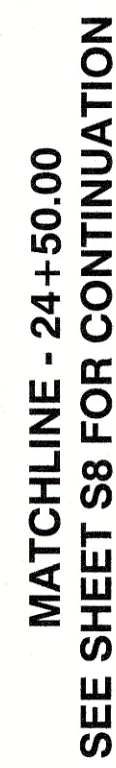
CITY OF HENDERSON
2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-6146
PH: (702) 873-7559 FAX: (702) 362-2987 WEB: WWW.VTNNV.COM
CONSULTING ENGINEERS & PLANNERS & LAND SURVEYORS

STREET PLANS AND PROFILE
PIROLA STREET
10+00.00 TO 17+50.00
INSPIRADA
VILLAGE 7 INFRASTRUCTURE

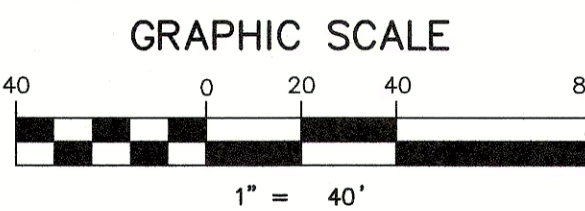
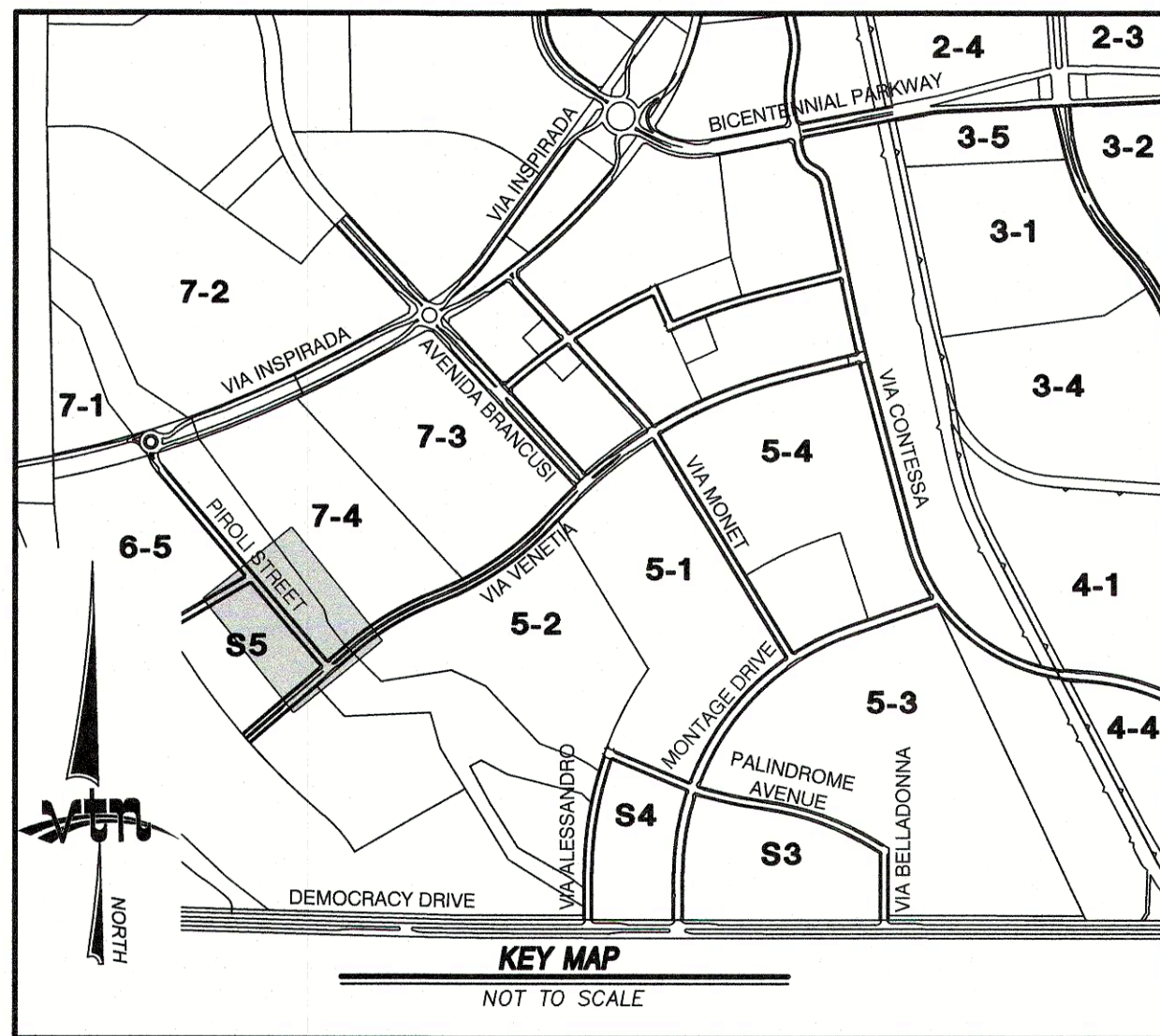
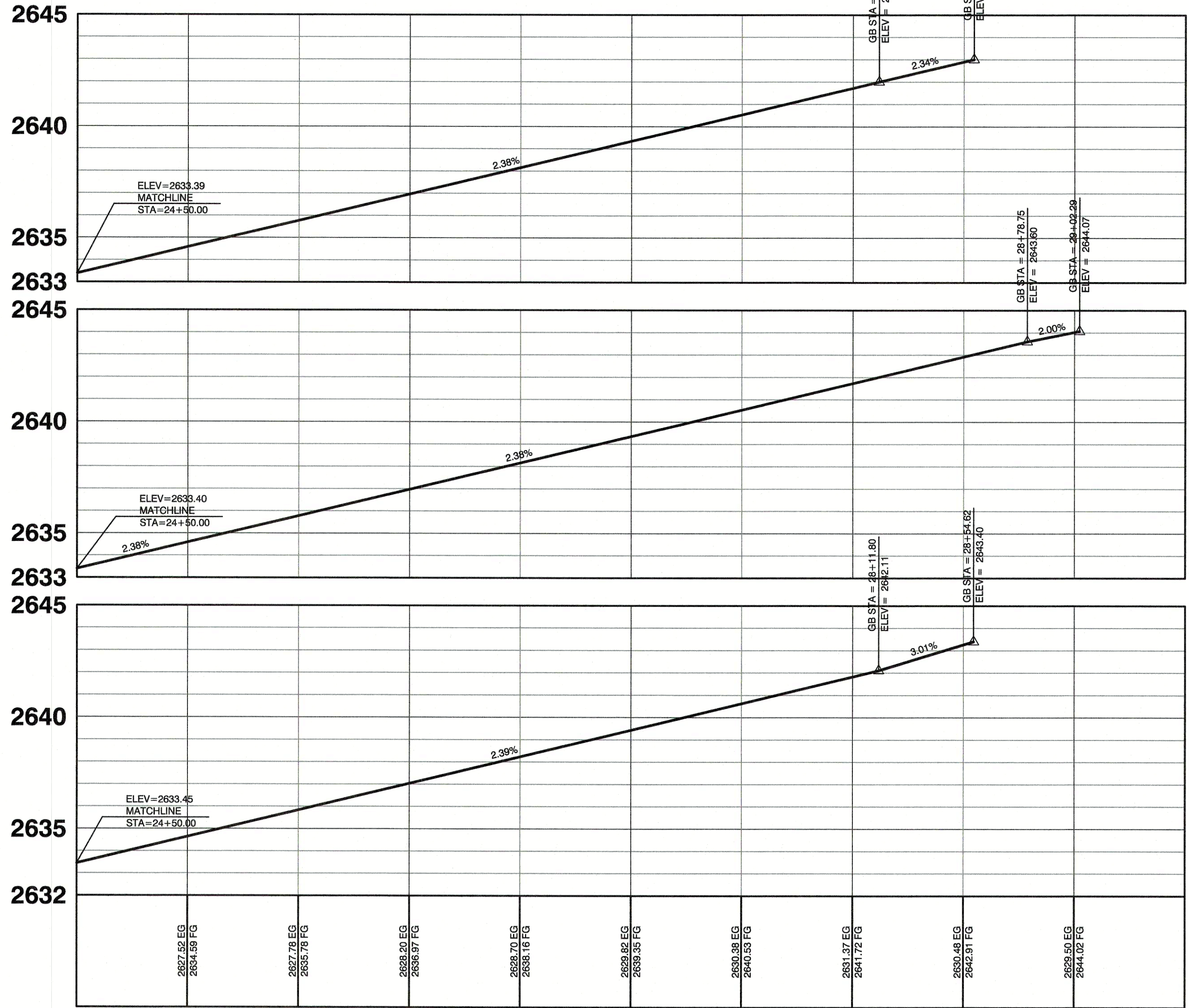
DRAWN BY: CMM
DESIGNED BY: RMS/CMM
CHECKED BY: JPN
PROJECT NO: 7420
SCALE: 1"=40' HORIZ
1"=4' VERT.



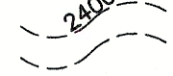
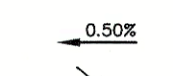
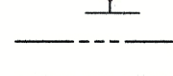
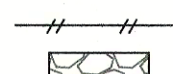
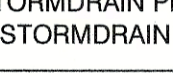
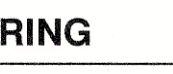
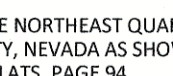
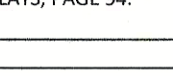
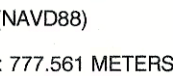
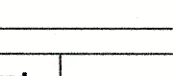
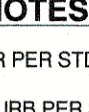
SHEET
14 OF 28 SHEETS
DRAWING NO.
201770---



PIROLI STREET



LEGEND

FG	FINISH GRADE		EX. CONTOUR(5' INTERVAL)
FL	FLOW LINE		EX. CONTOUR(1' INTERVAL)
TC	TOP OF CURB		PROPOSED CONTOUR
EOP	EXISTING ASPHALT PAVEMENT		
EG	EXISTING GROUND		
H.P.	HIGH POINT		
L.P.	LOW POINT		
C/L	CENTER LINE		SLOPE AND FLOW DIRECTION
BC	BACK OF CURB		EDGE OF EXIST. A.C.
BCR	BEGIN CURB RETURN		SAW CUT & MATCH A.C.
GB	GRADE BREAK		SCARP AREA
PC	POINT OF CURVATURE		R/W OR P/L
PT	POINT OF TANGENCY		CENTER LINE
PRC	POINT OF REVERSE CURVATURE		BACK OF CURB
PCC	POINT OF COMPOUND CURVATURE		LIP OF GUTTER
BVC	BEGIN VERTICAL CURVE		EXIST. IMPROVEMENTS
MVC	MID-POINT OF VERTICAL CURVE		FUTURE IMPROVEMENTS
EVC	END VERTICAL CURVE		MATCHLINE
PRVC	POINT OF REVERSE VERTICAL CURVE		CUT-FILL TRANSITION LINE
VPI	VERTICAL POINT OF INTERSECTION		SAW CUT LINE
TOW	TOP OF WALL		
TRANS.	TRANSITION		
RET.	RETAINMENT		
INT.	INTERSECTION		
RCP	REINFORCED CONCRETE PIPE		
SD	STORM DRAIN		
DI	DROP INLET		
R/W	RIGHT-OF-WAY		
S/W	SIDEWALK		
M.U.E.	MUNICIPAL UTILITY EASEMENT		
	PROPOSED AC		REMOVE AND REPLACE EX. AC
			REMOVE EXISTING AC

NOTE:
STORMDRAINS NOT SHOWN IN PROFILE DUE TO VERTICAL
DEPTH SEE STORMDRAIN PLAN AND PROFILE SHEETS
SD1-SD6 FOR STORMDRAIN DESIGN.

BASIS OF BEARING

NORTH 89°06'27" EAST - BEING THE BEARING OF THE NORTH LINE OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 22, TOWNSHIP 23 SOUTH, RANGE 61 EAST, M.D.M., CITY OF HENDERSON, CLARK COUNTY, NEVADA AS SHOWN BY THAT PLAT ON FILE IN THE OFFICE OF THE COUNTY RECORDER, CLARK COUNTY, NEVADA IN BOOK 147 OF PLATS, PAGE 94.

PROJECT BENCHMARK

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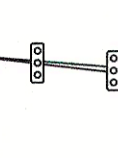
CONSTRUCTION NOTE

- | | |
|---|--|
| 1 | CONSTRUCT "L" CURB & GUTTER PER STD. # 216 |
| 2 | CONSTRUCT "A" TYPE ISLAND CURB PER STD. #216 |
| 3 | SAWCUT AND MATCH EXISTING PAVEMENT |
| 4 | CONSTRUCT SIDEWALK PER STD. # 234 |
| 5 | 6" THICK TRUCK APRON OVER 4" TYPE II AGG. BASE |
| 6 | CONSTRUCT 8" CROSS GUTTER PER STD. #228 |
| 7 | CONSTRUCT INDUSTRIAL DRIVEWAY PER STD. #228 |

Avoid cutting underground utility lines. It's costly.

Avoid overhead power line contact. It's cost

C
before y
Overhea
1-702-227-292



Call
before you
Underground

1-702-267-2783
CITY OF HENDERSON UTILITY SERVICES LINE LOCATION

1-702-432-5300
FREEMAN AND ARTERIAL SYSTEM OF TRANSPORTATION

FLOOD ZONE NOTE

SITE IS LOCATED IN A ZONE X AS SHOWN ON FIRM MAP 32003C2925D AND 32003C2950D, DATED NOVEMBER 16, 2011. A ZONE X IS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

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CITY ENGINEER, CITY OF HENDERSON

APPROVAL DATE: _____

CITY OF HENDERSON

INSPIRADA BUILDERS, LLC
575785 W. BADURA AVE., SUITE 180
LAS VEGAS, NV 89118
(702)266-8400

PIROLI STREET

**INSPIRADA
VILLAGE 7 INFRASTRUCTURE**

DRAWN BY: CMW
December 17

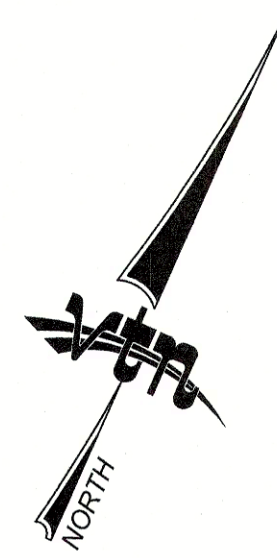
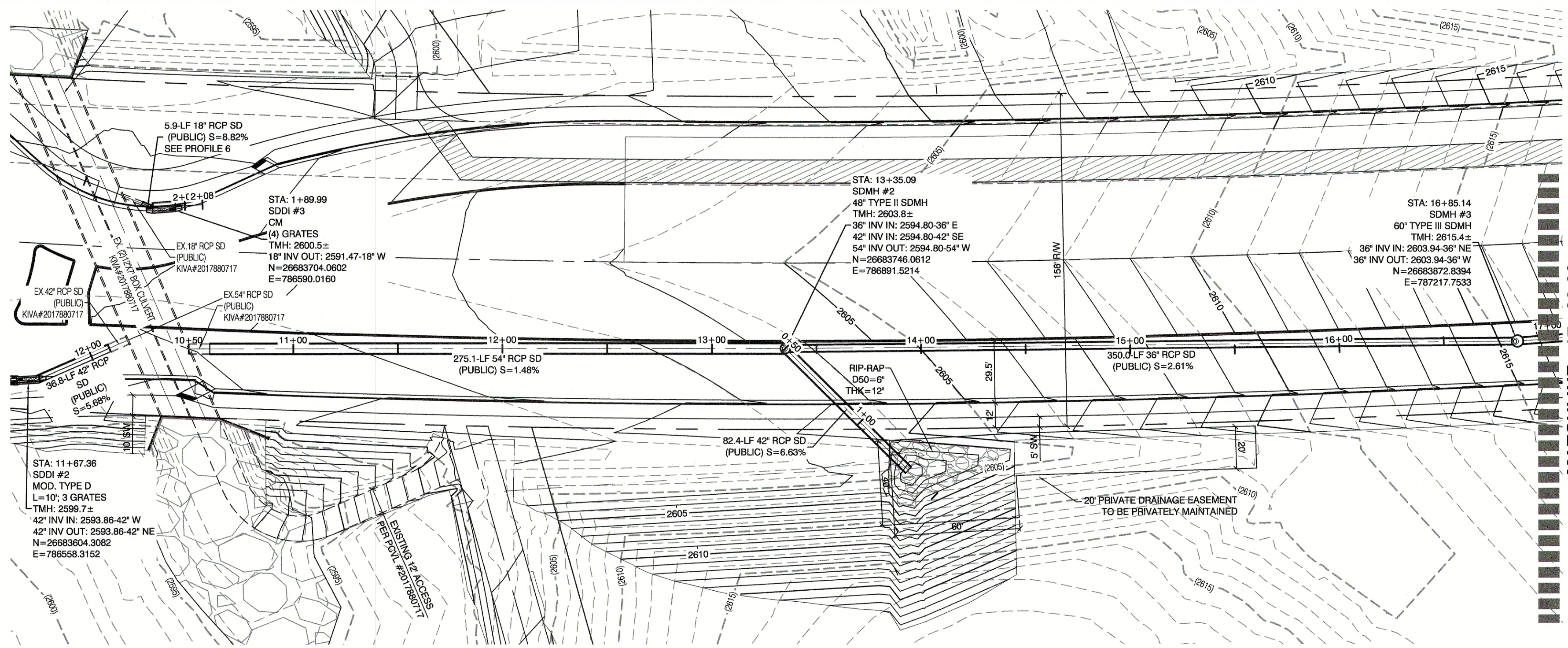
DESIGNED BY:
BMW

CHECKED BY: _____
KFN
December 17

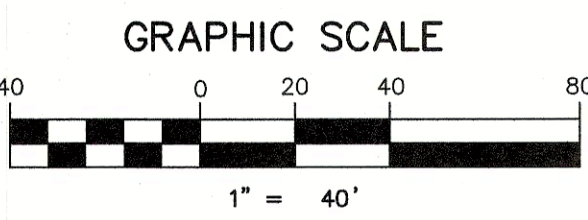
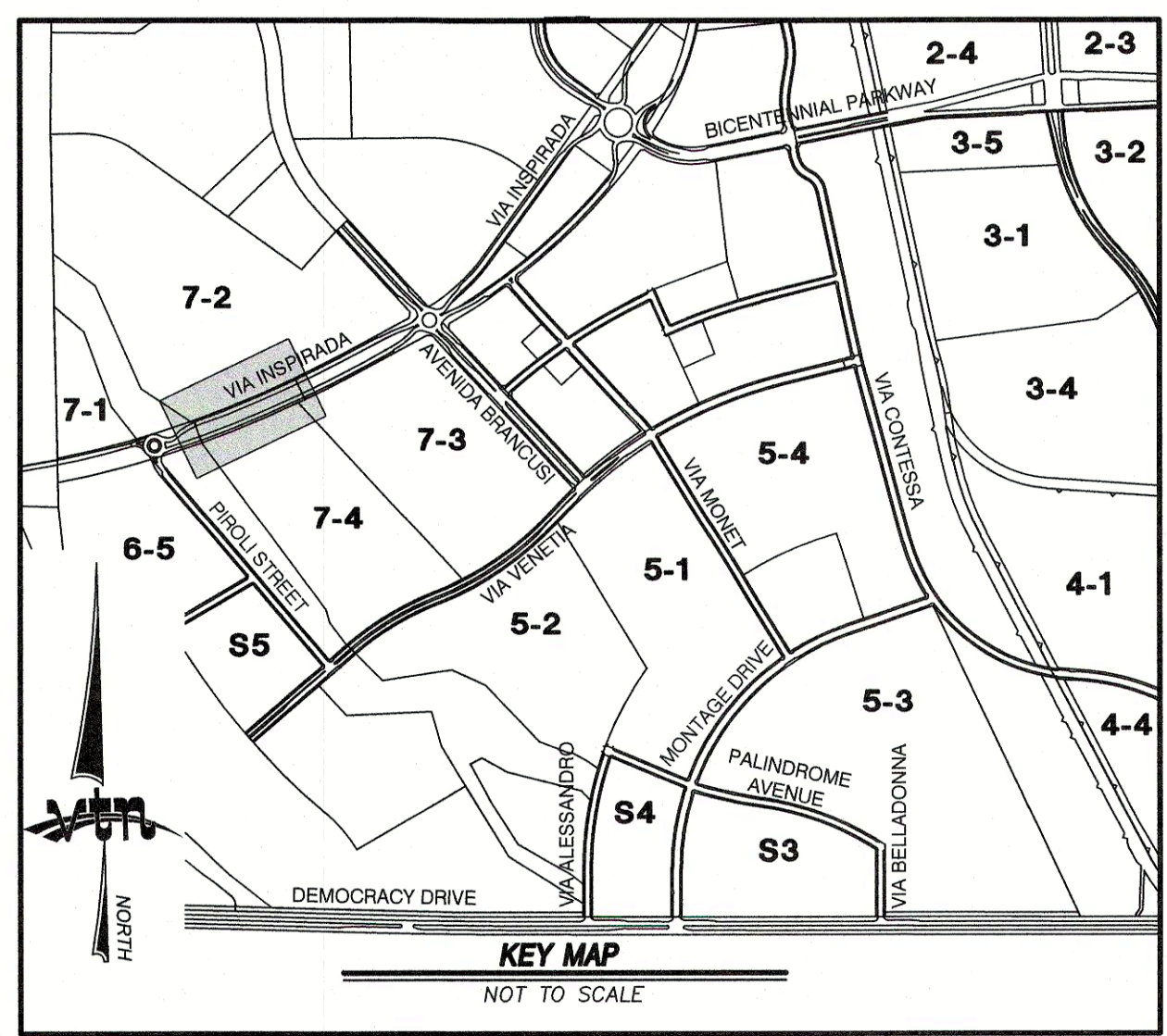
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SCALE: 1"=40'
HORI:

SHEET
S9
16 OF 28 SHEETS
DRAWING NO.
201770---

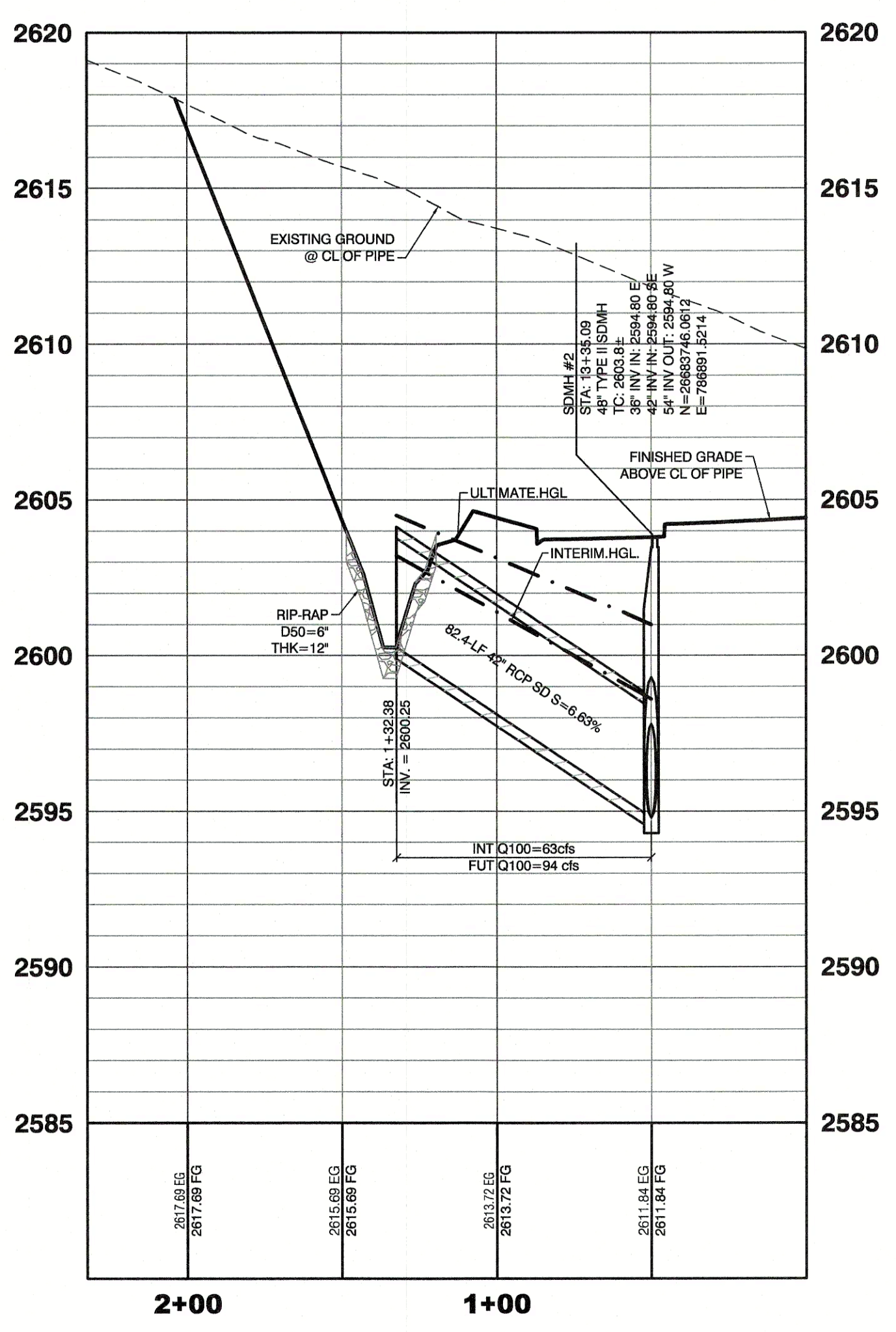
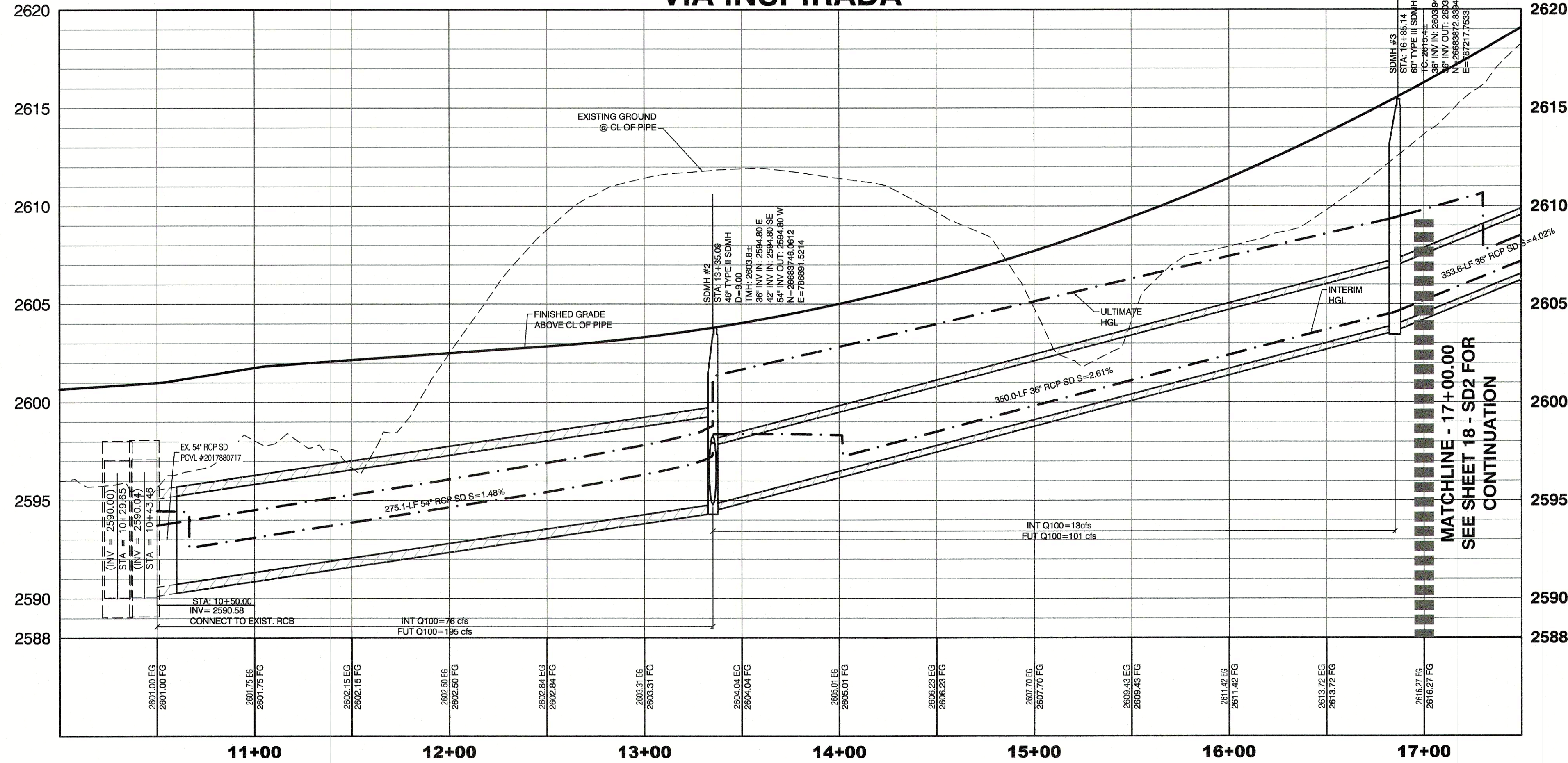
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MATCHLINE - 17+00.00
SEE SHEET 18 - SD2 FOR
CONTINUATION



VIA INSPIRADA



Avoid cutting underground utility lines. It's costly.

Call before you Dig

1-800-227-2600

Avoid overhead power line contact. It's costly.

Call before you Overhead

1-702-227-2929

Avoid hitting underground traffic signal and street light system conduits. It's costly.

Call before you Underground

1-702-267-2783

CITY OF HENDERSON UTILITY SERVICES LINE LOCATION AND PREMARK AND AERIAL SYSTEM OF TRANSPORTATION

1-702-432-5300

BASIS OF BEARING

NORTH 89°06'27" EAST - BEING THE BEARING OF THE NORTH LINE OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 22, TOWNSHIP 23 SOUTH, RANGE 61 EAST, M.D.M., CITY OF HENDERSON, CLARK COUNTY, NEVADA AS SHOWN BY THAT PLAT ON FILE IN THE OFFICE OF THE COUNTY RECORDER, CLARK COUNTY, NEVADA IN BOOK 147 OF PLATS, PAGE 94.

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CITY OF HENDERSON BENCHMARK: NO. 569 NAVD88 ELEVATION: 777.561 METERS (2551.04 FEET)

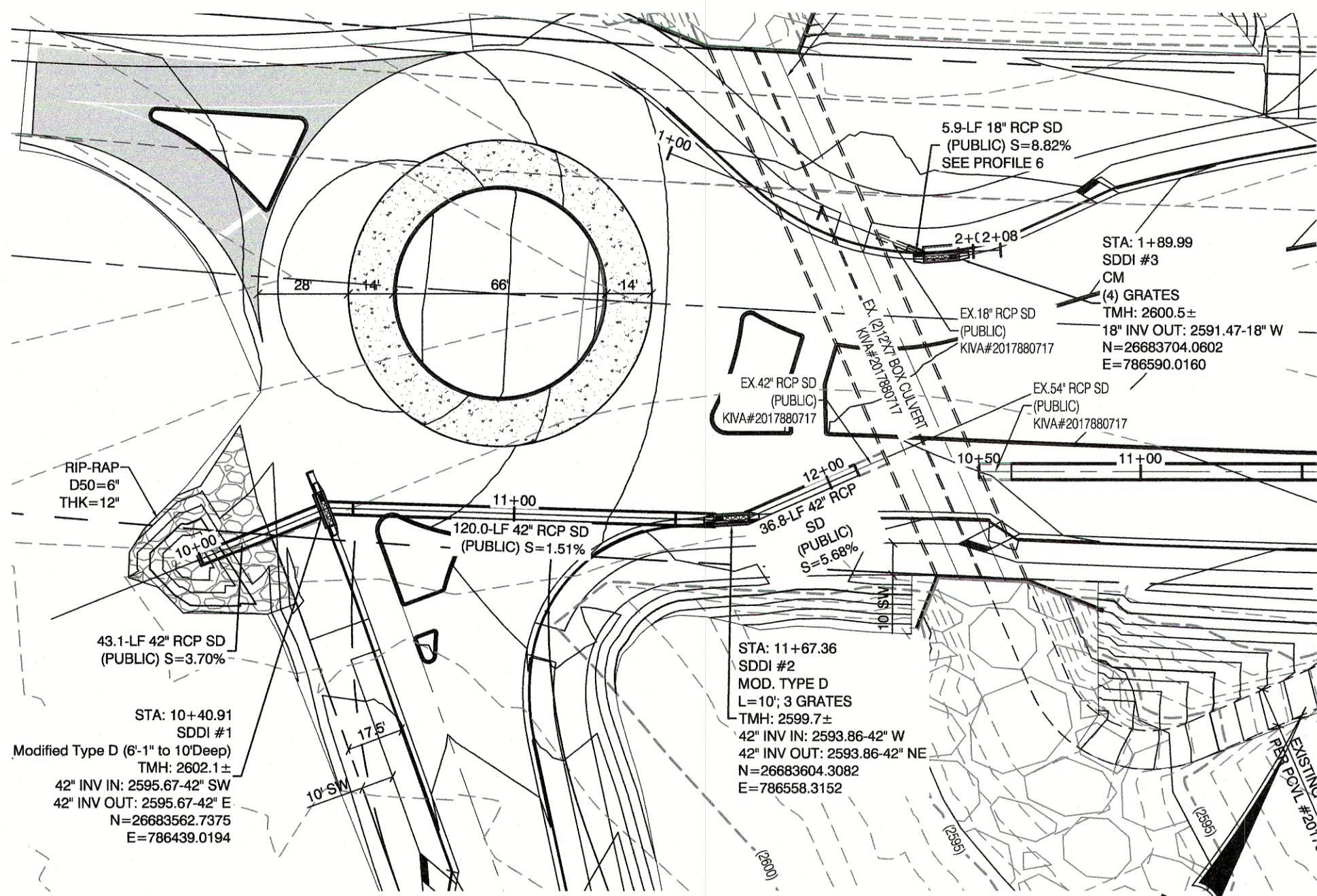
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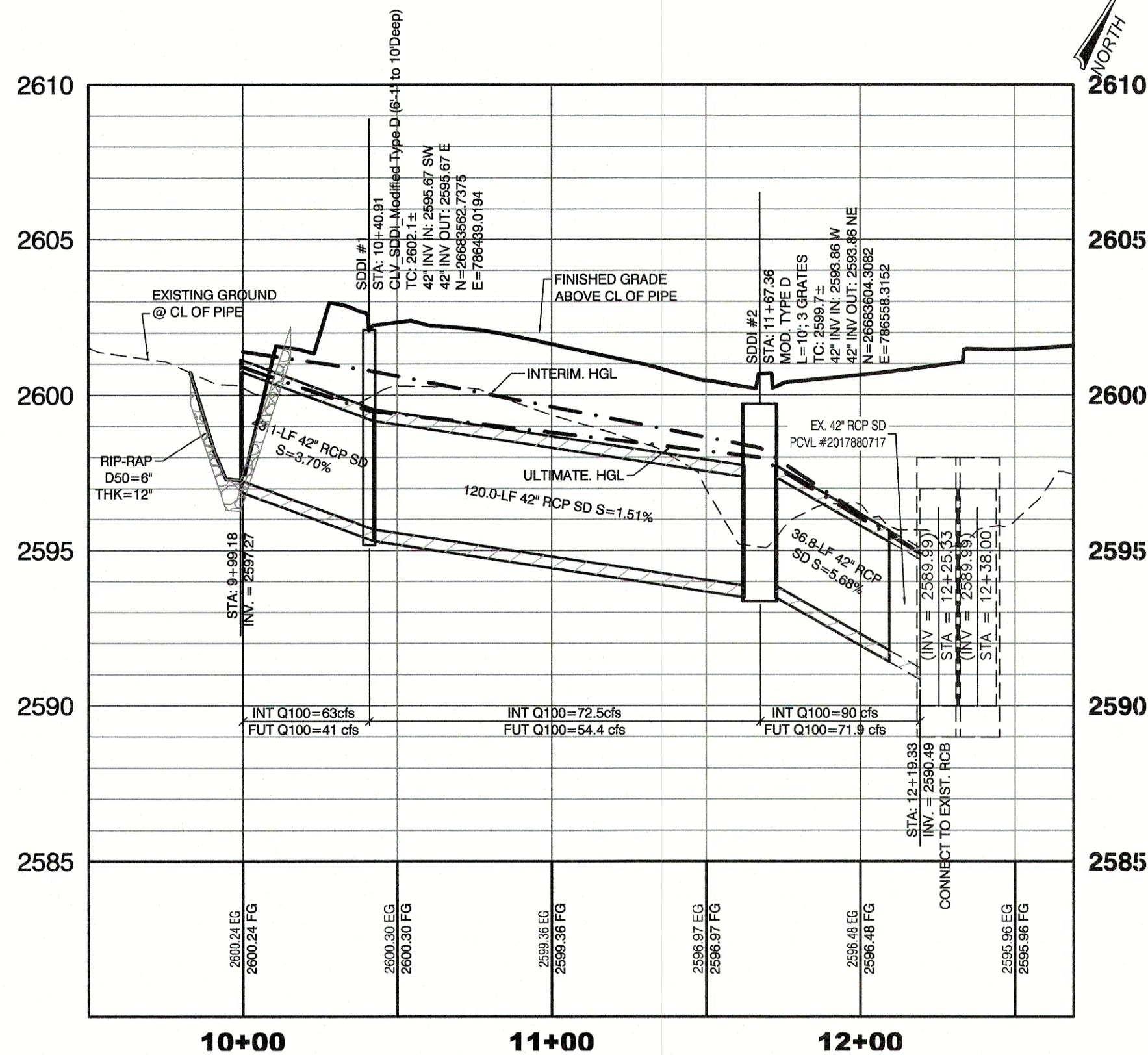
INSPIRADA BUILDERS, LLC 5705 W. BADURA AVE., SUITE 180 LAS VEGAS, NV 89118 (702) 266-1400		CITY OF HENDERSON 2727 SOUTH RAINBOW BOULEVARD LAS VEGAS, NEVADA 89146-5148 PH. (702) 872-7550 FAX (702) 392-2397 WEB WWW.VTNV.COM CONSULTING ENGINEERS • PLANNERS • LAND SURVEYORS	
STORMDRAIN PLAN AND PROFILE VIA INSPIRADA 11+00.00 TO 17+00.00		INSPIRADA VILLAGE 7 INFRASTRUCTURE VIA VENETIA AND VIA INSPIRADA	
DRAWN BY: CWW	DESIGNED BY: KJL/CWW	CHECKED BY: KFN	PROJECT NO.: 7420
December 17		December 17	
December 17		December 17	
SCALE: 1"=40' HORIZ. 1"=4' VERT.		SHEET SD1 17 OF 28 SHEETS DRAWING NO. 201770---	



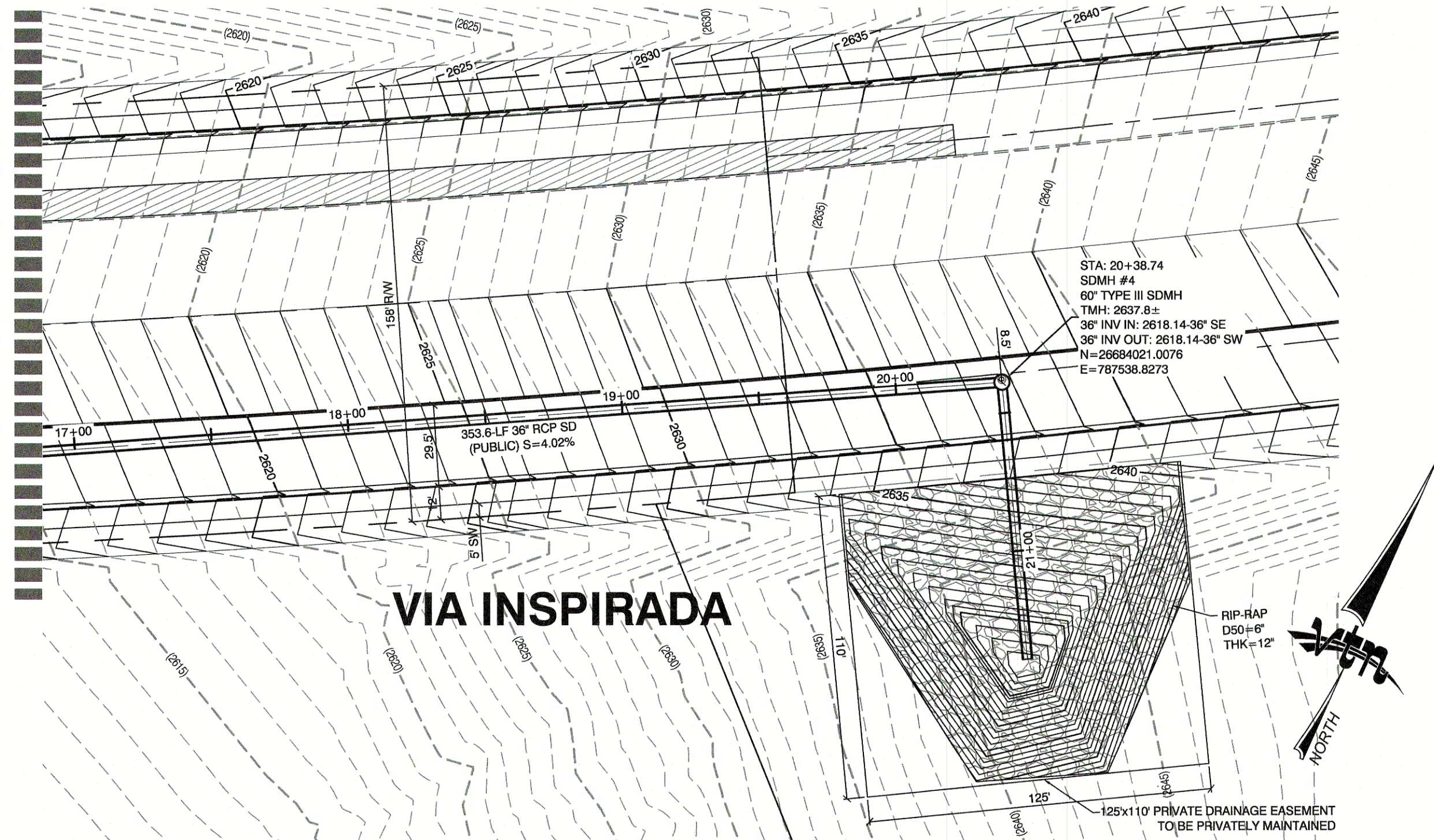
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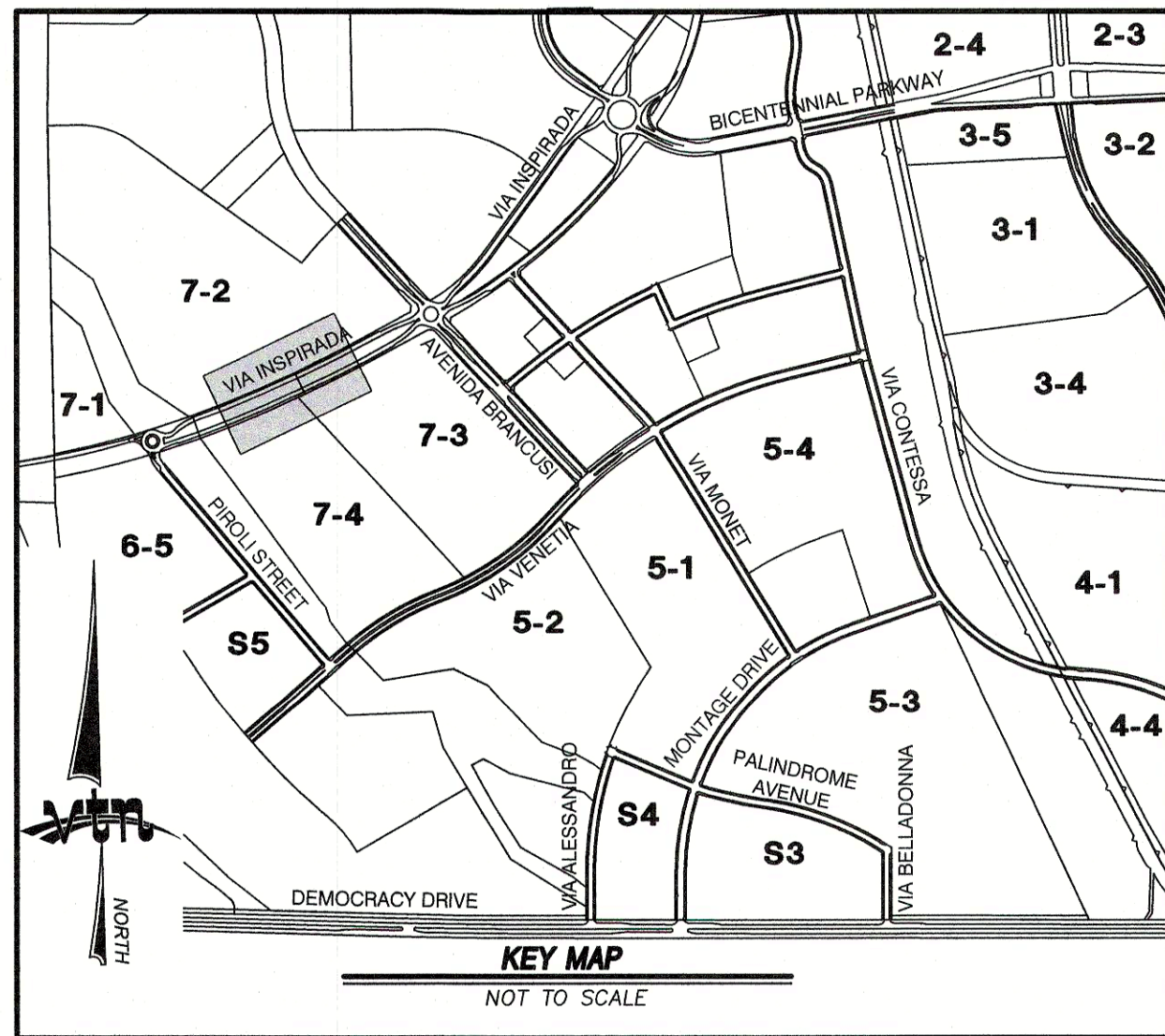
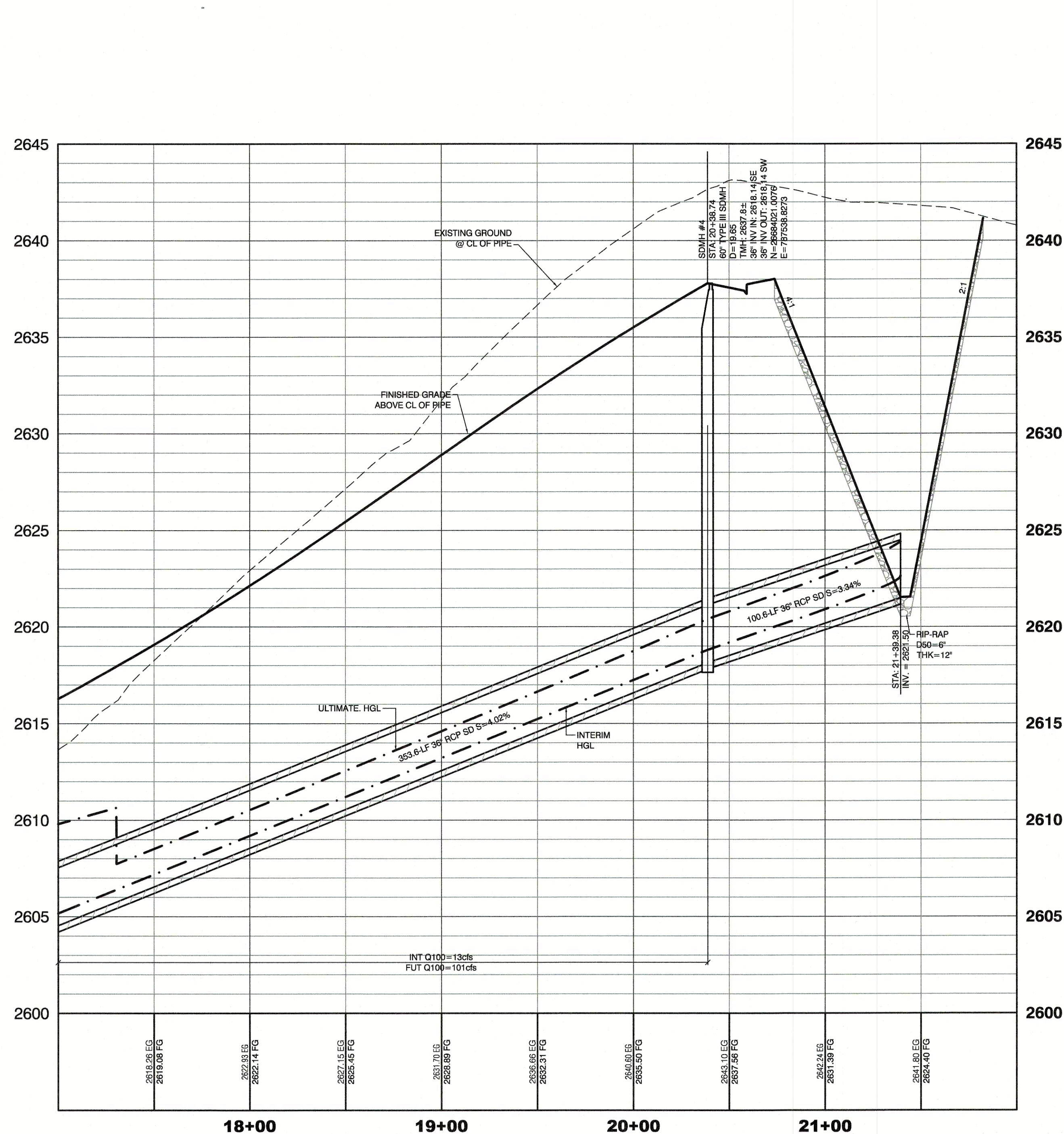
VIA INSPIRADA



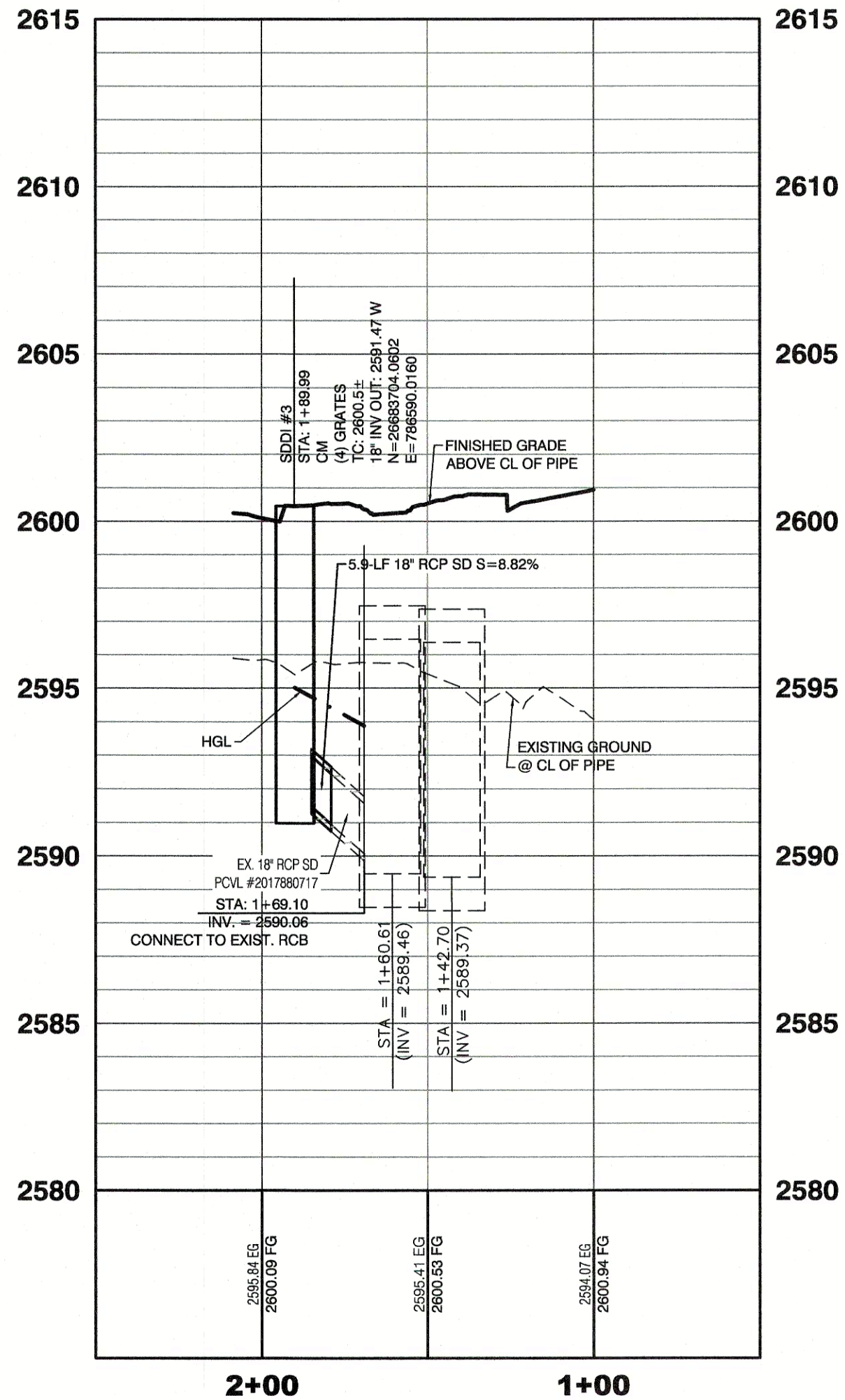
MATCHLINE - 17+00.00
SEE SHEET SD1 FOR CONTINUATION



VIA INSPIRADA



PROFILE 6



Avoid cutting underground utility lines. It's costly.

Call before you Dig

1-800-227-2600

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Call before you Overhead

1-702-227-2929

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Call before you Underground

1-702-267-2783

CITY OF HENDERSON UTILITY SERVICES LINE LOCATION

AND

1-702-432-5300

FREEMAN AND ARTERIAL SYSTEM OF TRANSPORTATION

BASIS OF BEARING

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CITY OF HENDERSON

INSPIRADA BUILDERS, LLC
5785 W. BROADWAY, SUITE 180
LAS VEGAS, NEVADA 89146-5148
PH: (702) 873-7550 FAX: (702) 362-2897 WEB: WWW.ITNNV.COM
CONSULTING ENGINEERS & PLANNERS & LAND SURVEYORS

STORMDRAIN PLAN AND PROFILE
VIA INSPIRADA
17+00.00 TO 21+50.00

INSPIRADA
VILLAGE 7 INFRASTRUCTURE
VIA VENETIA AND VIA INSPIRADA

DRAWN BY: KP/JCMW
DESIGNED BY: KP/JCMW
CHECKED BY: MFM
PROJECT NO: 7420
SCALE: 1"=40' HORIZ.
1"=4' VERT.

December 17
December 17
December 17

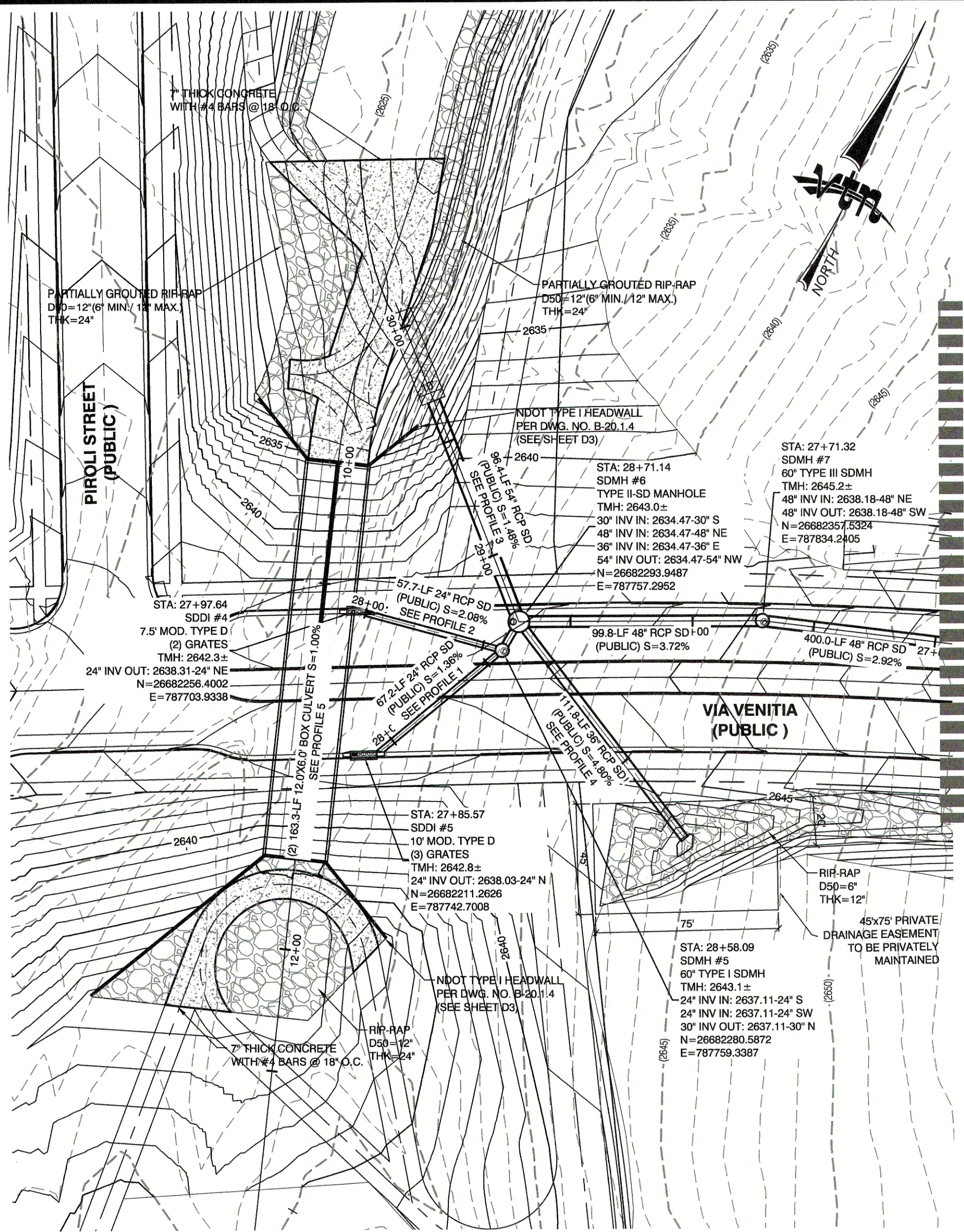
PROFESSIONAL ENGINEER
KENNETH F. NICHOLSON
No. 10559
CIVIL

SHEET
SD2
18 OF 28 SHEETS
DRAWING NO.
201770

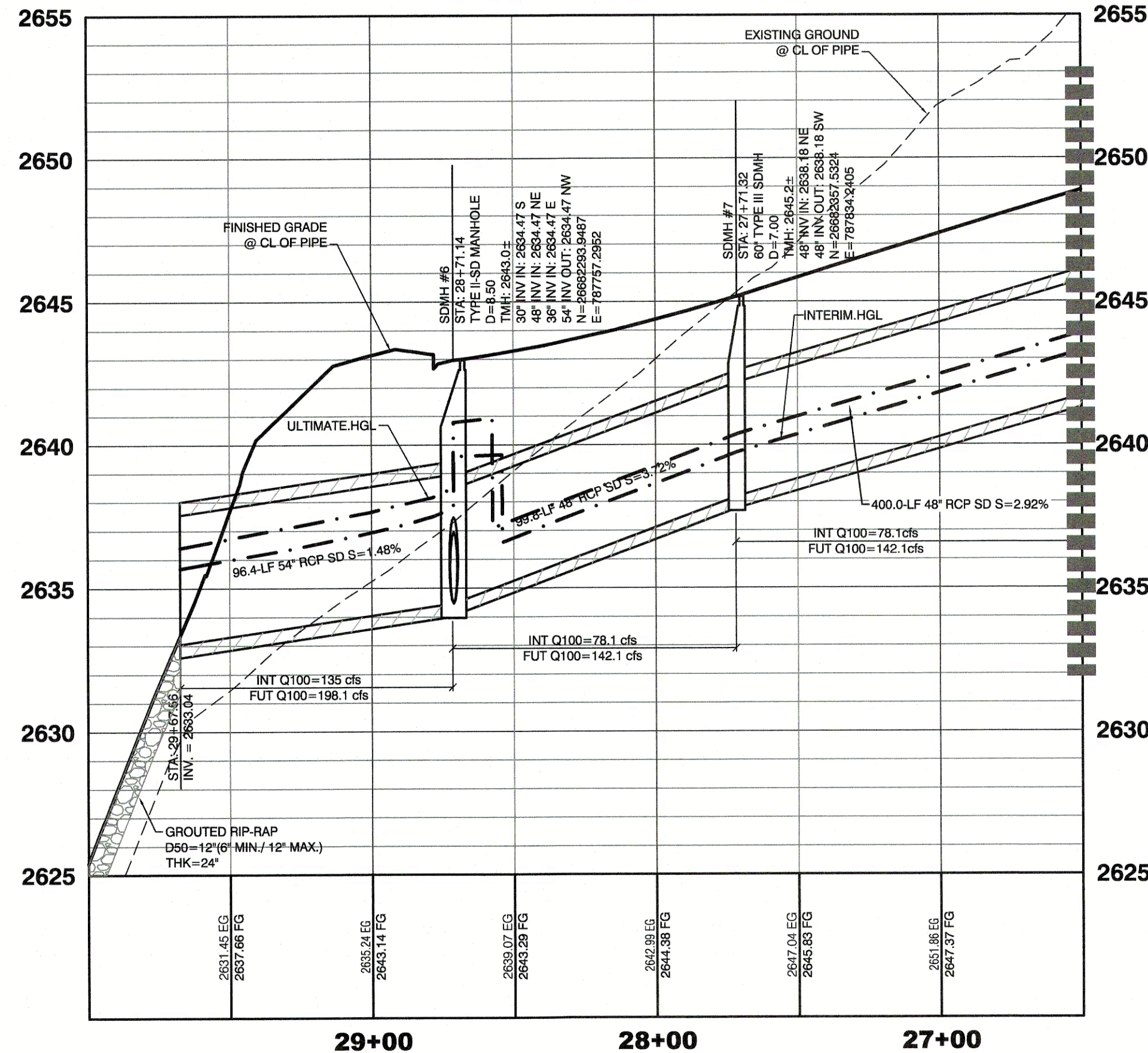
CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE (1) YEAR ONLY. PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS, PARKS AND RECREATION, CITY OF HENDERSON, IF WORK IS NOT COMPLETED WITHIN ONE (1) YEAR OF THE APPROVAL DATE.

CITY ENGINEER, CITY OF HENDERSON APPROVAL DATE

H:\17420\17420-Village-7\Sheet SD1\201770-SD-01.dwg

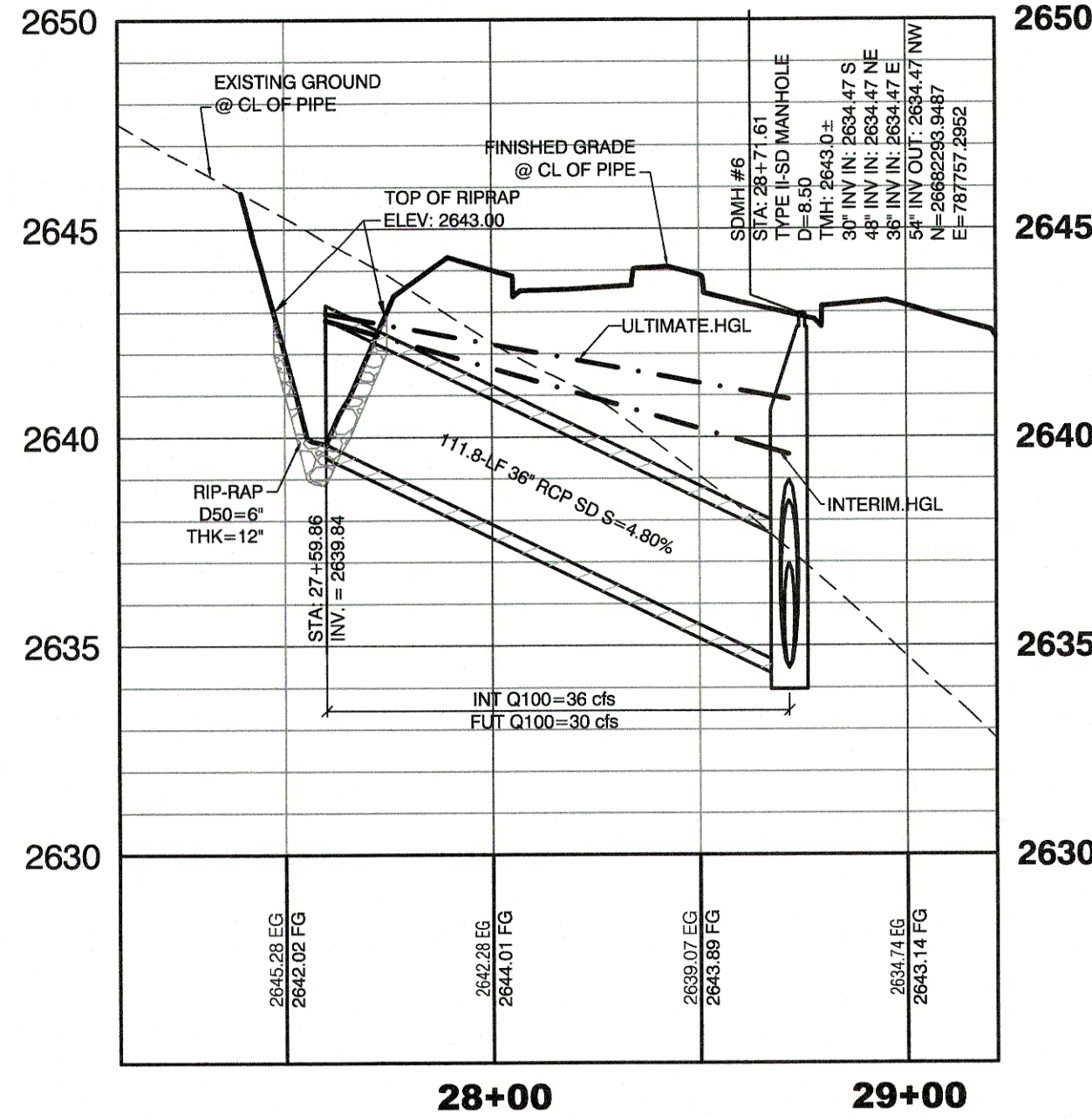


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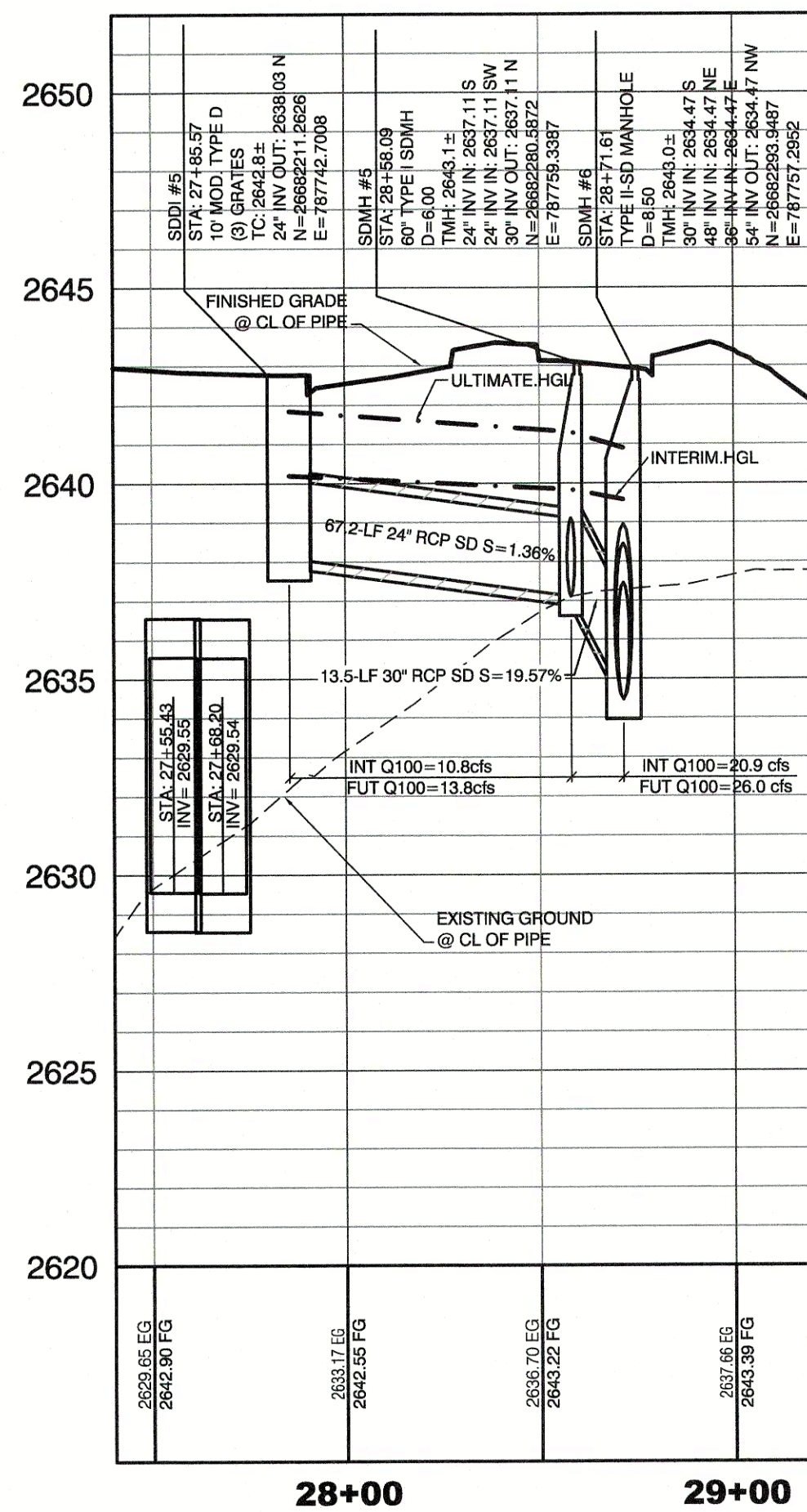


MATCHLINE - 27+00.00
SEE SHEET 20 - SD4 FOR
CONTINUATION

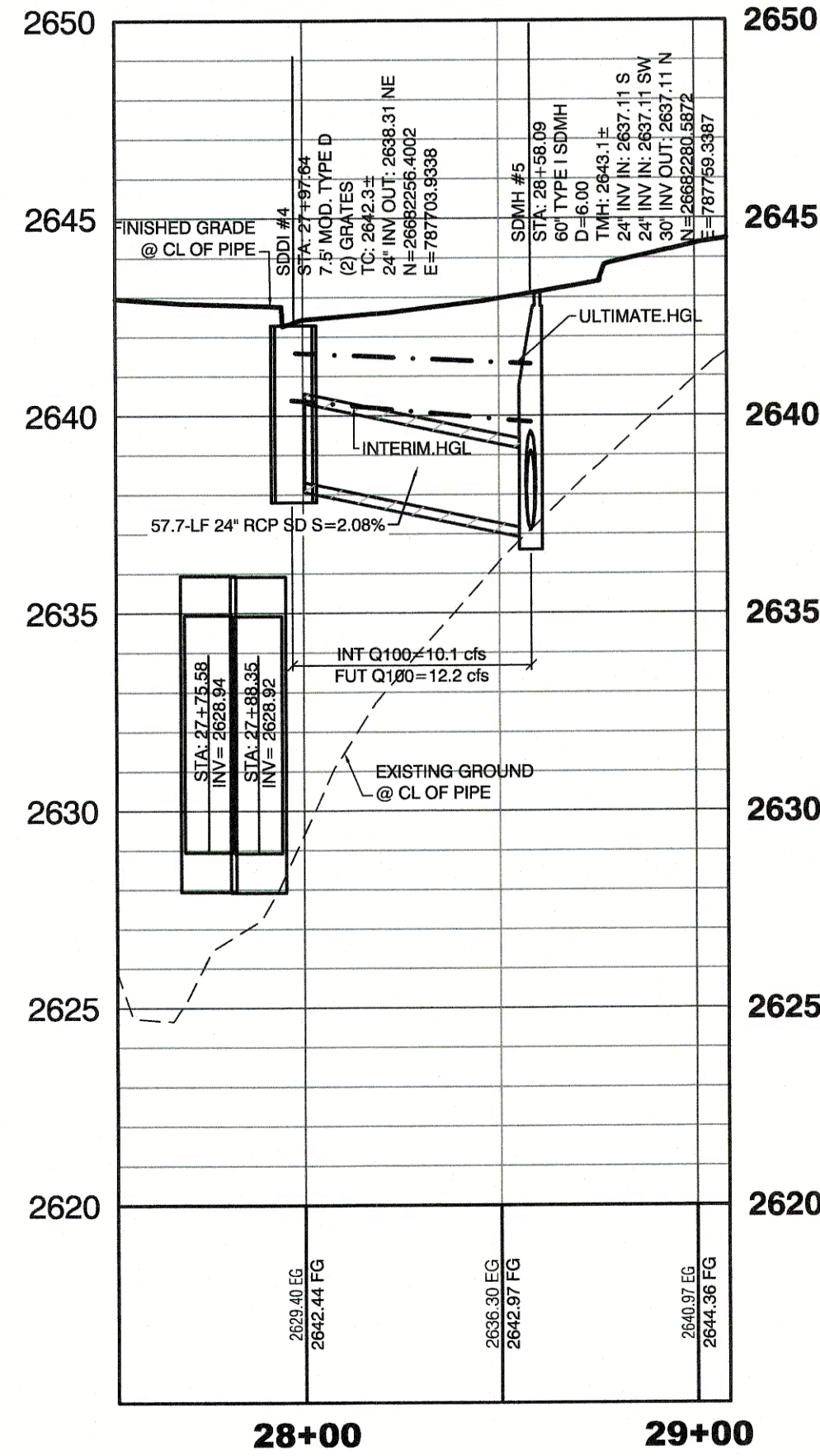
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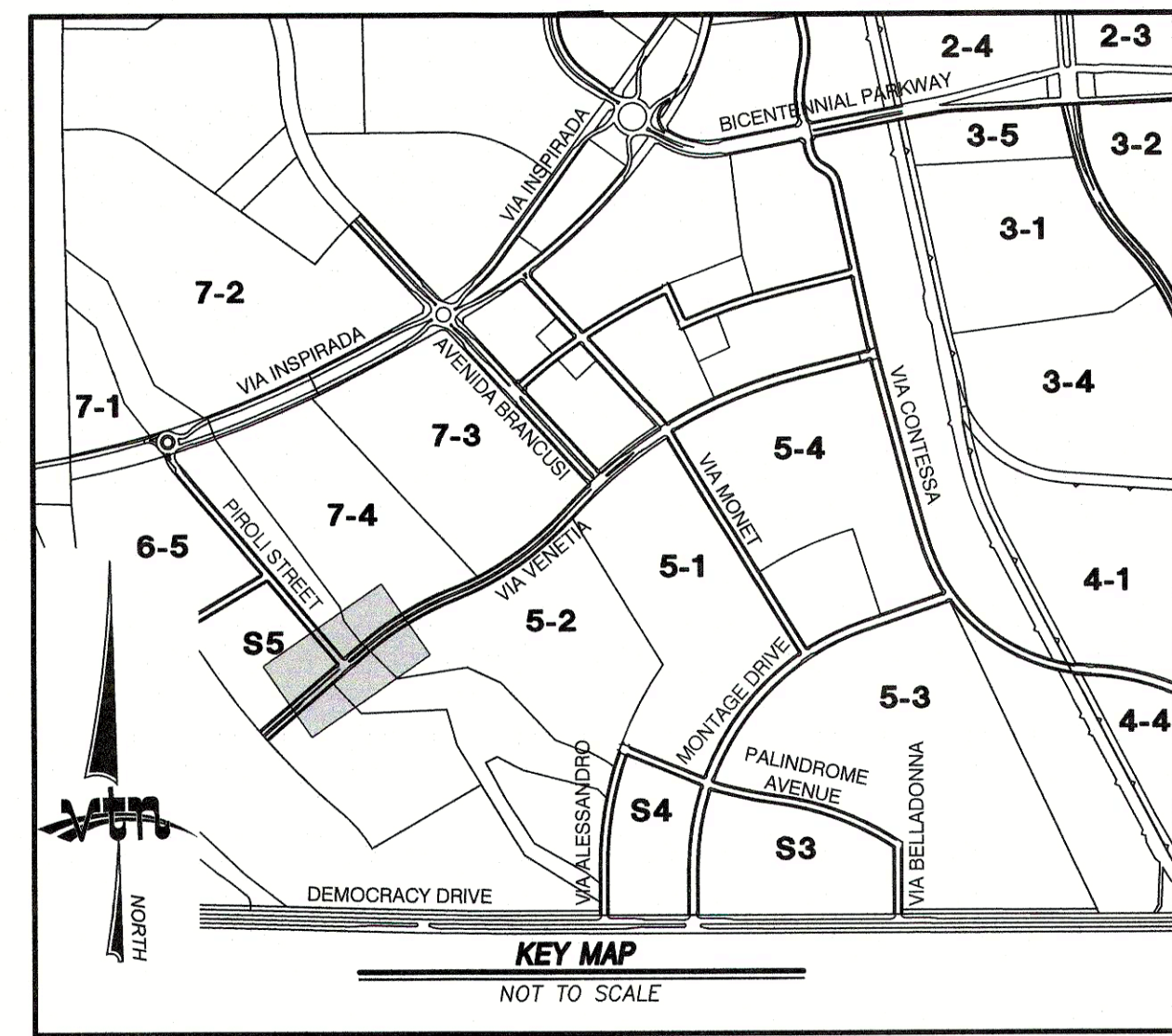
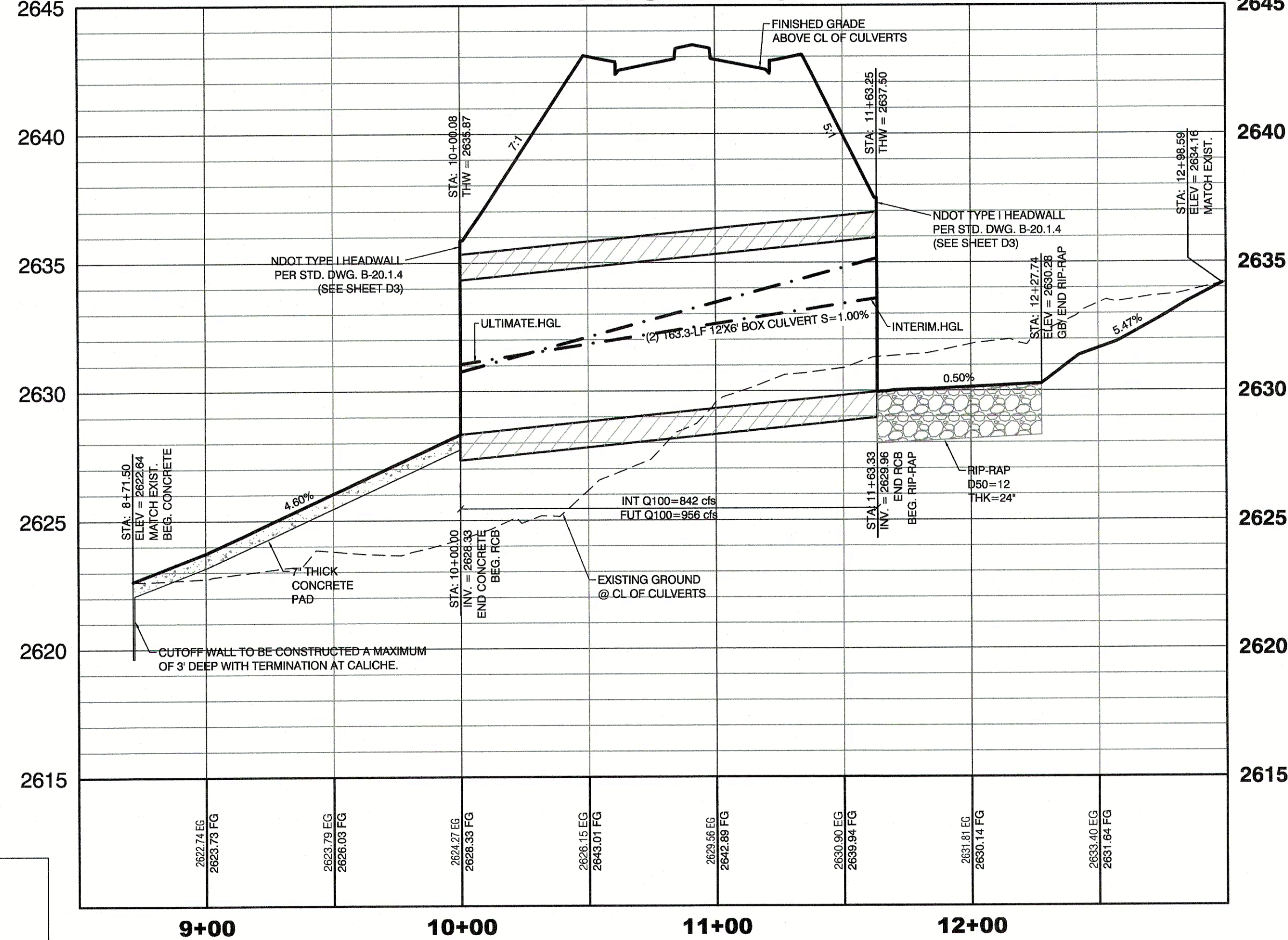
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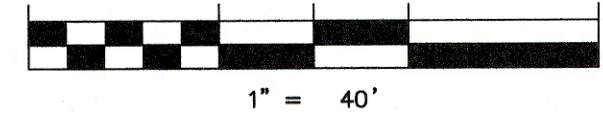
PROFILE 2



PROFILE 5



GRAPHIC SCALE



CITY OF HENDERSON

STORMDRAIN PLAN AND PROFILE
VIA VENITIA
27+00.00 TO 30+00.00

DRAWN BY:
KELICAW
DESIGNED BY:
KELICAW
CHECKED BY:
KFN
PROJECT NO.
7430



SHEET
SD3
19 OF 28 SHEETS
DRAWING NO.
201770--

H:\7420\7420-Village-7\Sheet Set\7420-V SD.dwg

Call before you Dig
1-800-227-2600
Avoid overhead power line contact. It's costly.

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1-702-267-2783
1-702-432-5300
AHEAD HITTING UNDERGROUND TRAFFIC SIGNAL AND STREET LIGHT SYSTEM COULD BE COSTLY

BASIS OF BEARING
NORTH 89°06'27" EAST - BEING THE BEARING OF THE NORTH LINE OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 22, TOWNSHIP 23 SOUTH, RANGE 61 EAST, M.D.M., CITY OF HENDERSON, CLARK COUNTY, NEVADA AS SHOWN BY THAT PLAT ON FILE IN THE OFFICE OF THE COUNTY RECORDER, CLARK COUNTY, NEVADA IN BOOK 147 OF PLATS, PAGE 94.

PROJECT BENCHMARK
PROJECT DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
CITY OF HENDERSON BENCHMARK: NO. 569 NAVD88 ELEVATION: 777.561 METERS (2551.04 FEET)
2" BRASS CAP IN THE TOP OF CURB AT THE NORTHWEST CORNER OF ANTHEM PARKWAY AND SCOTT'S VALLEY DRIVE.

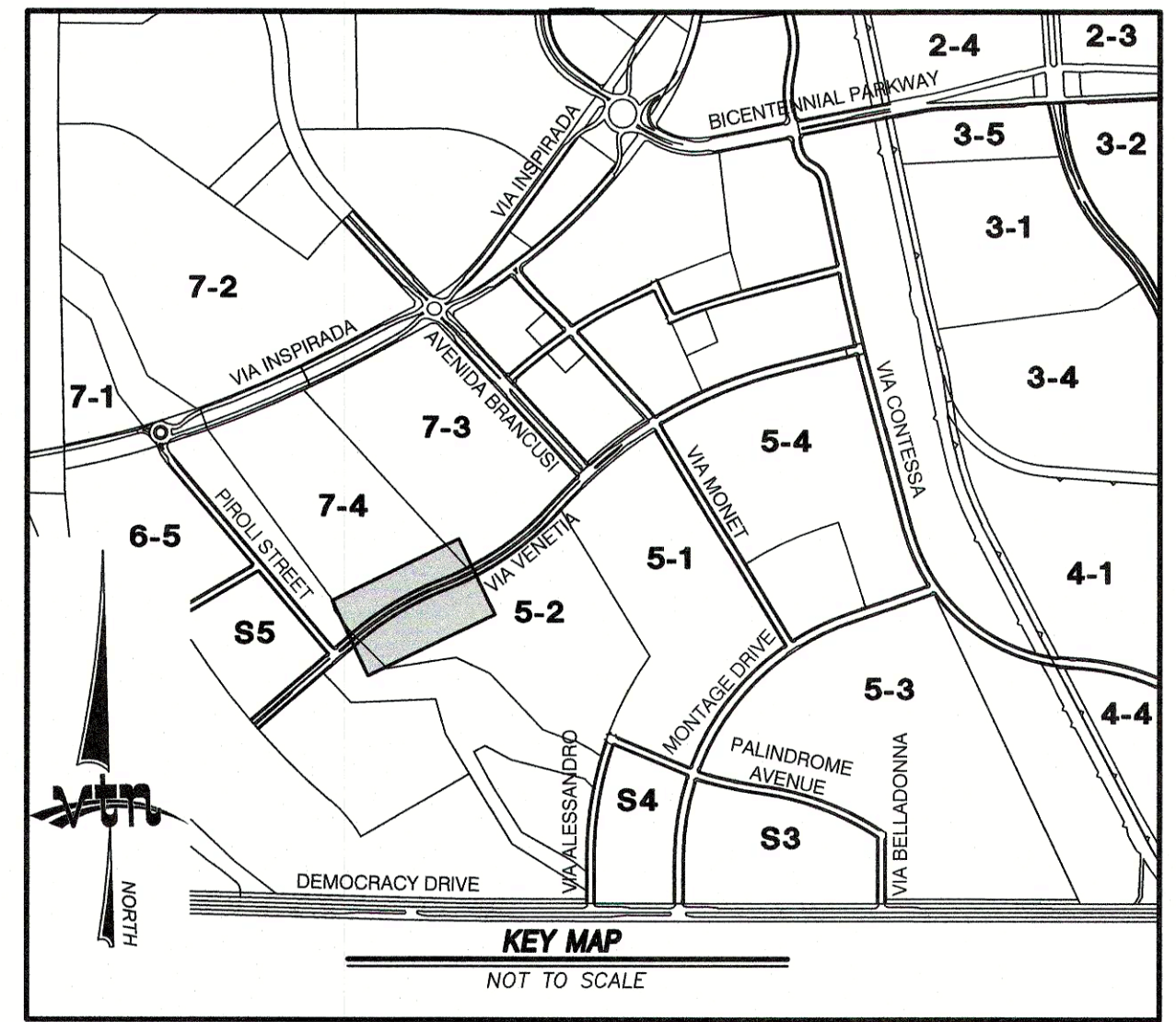
CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE (1) YEAR ONLY. PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS, PARKS AND RECREATION, CITY OF HENDERSON, IF WORK IS NOT COMPLETED WITHIN ONE (1) YEAR OF THE APPROVAL DATE.

CITY ENGINEER, CITY OF HENDERSON
APPROVAL DATE

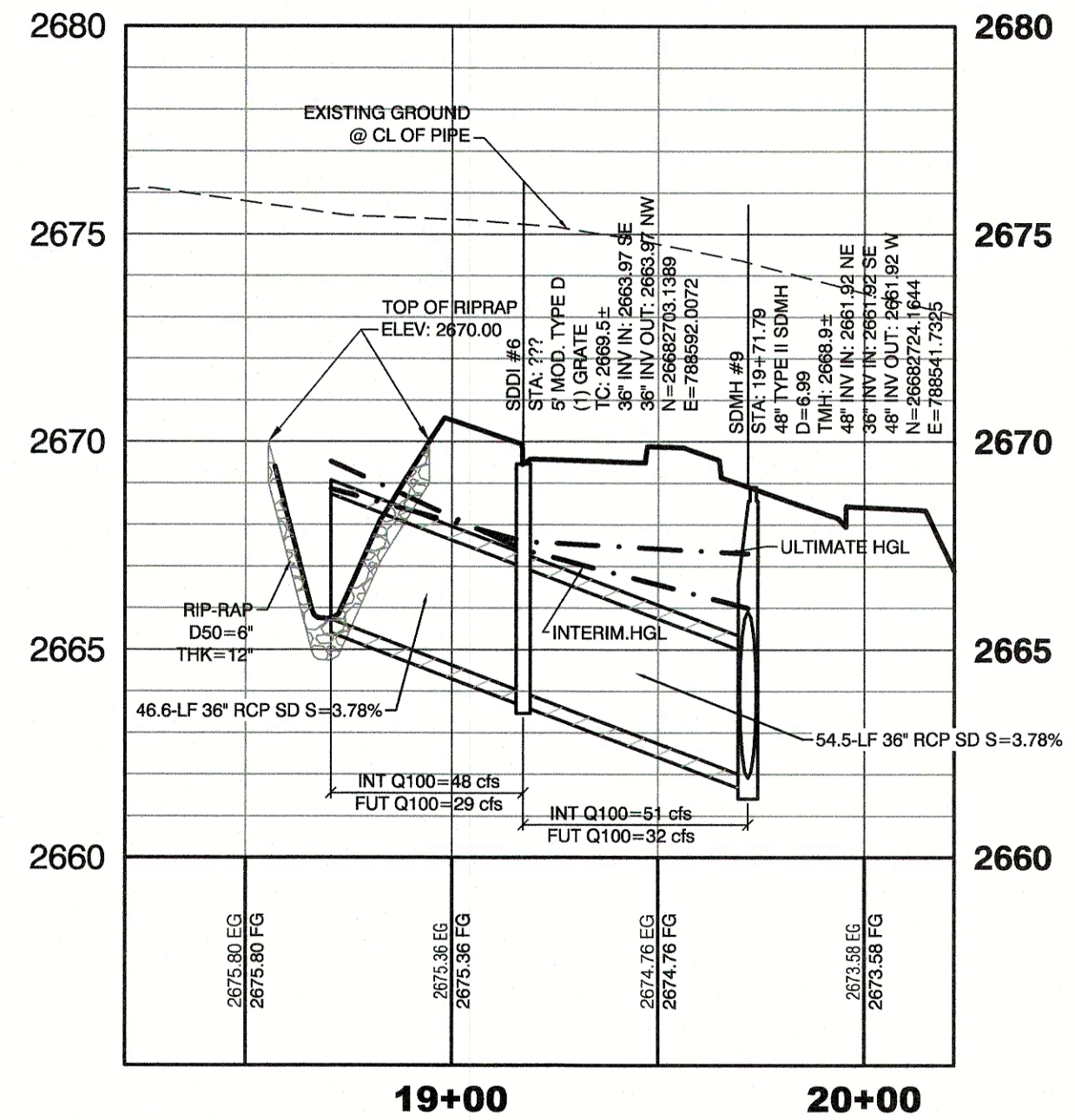
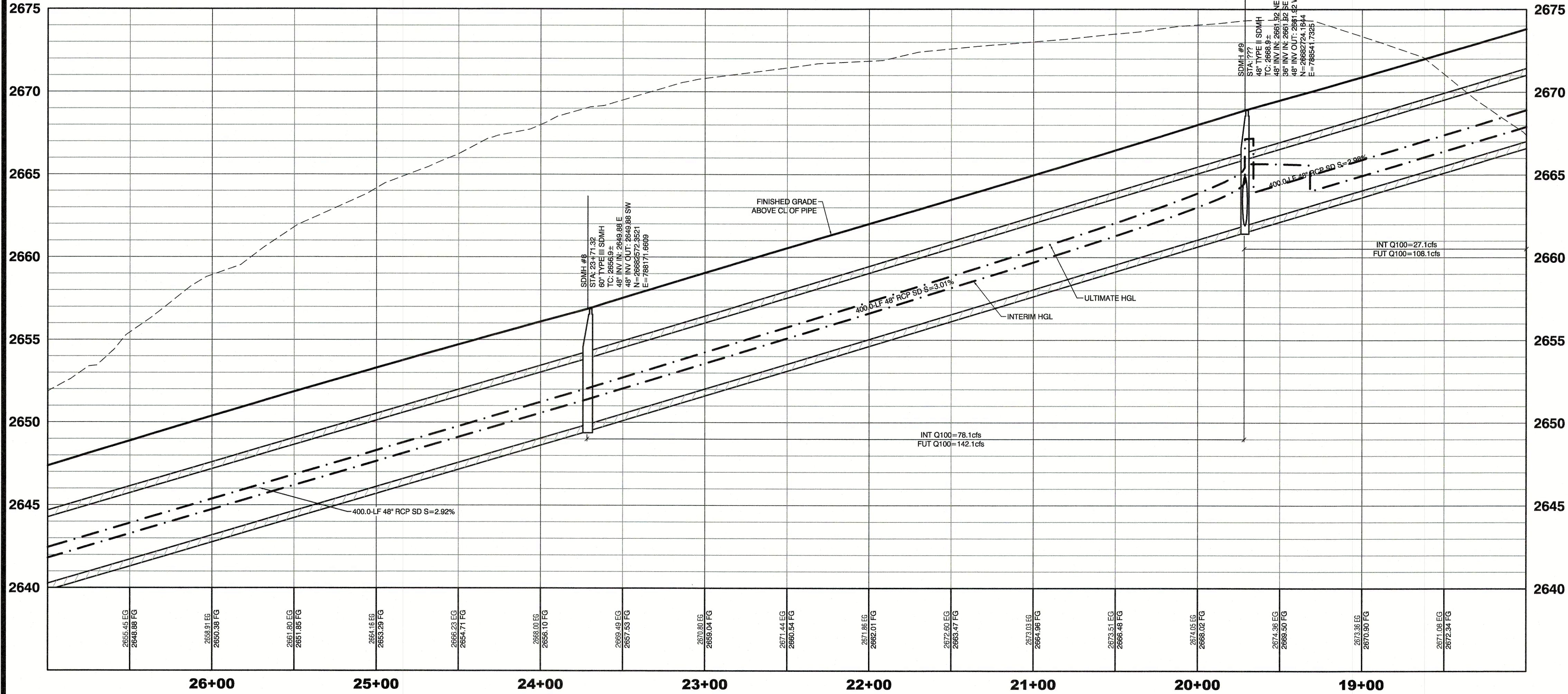
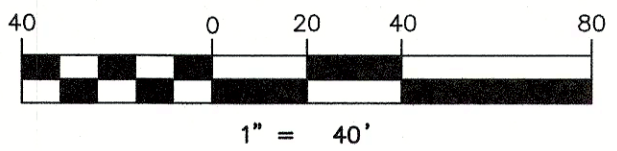
MATCHLINE - 27+00.00
SEE SHEET 19 - SD3 FOR

MATCHLINE - 18+00.00
SEE SHEET 8 - S1 FOR CONTINUATION

VIA VENETIA



GRAPHIC SCALE



BASIS OF BEARING

NORTH 89°06'27" EAST - BEING THE BEARING OF THE NORTH LINE OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 22, TOWNSHIP 23 SOUTH, RANGE 61 EAST, M.D.M., CITY OF HENDERSON, CLARK COUNTY, NEVADA AS SHOWN BY THAT PLAT ON FILE IN THE OFFICE OF THE COUNTY RECORDER, CLARK COUNTY, NEVADA IN BOOK 147 OF PLATS, PAGE 94.

PROJECT BENCHMARK

PROJECT DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
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2" BRASS CAP IN THE TOP OF CURB AT THE NORTHWEST CORNER OF ANTHEM PARKWAY AND SCOTT'S VALLEY DRIVE.

Avoid cutting underground utility lines. It's costly.
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Call before you Overhead
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Avoid hitting underground traffic signal and street light system conduits. It's costly.
Call before you Underground
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CITY OF HENDERSON UTILITY SERVICES LINE LOCATION
1-702-432-5300
FREWAY AND AIRTEL SYSTEM OF TRANSPORTATION

INSPIRADA BUILDERS, LLC
575 N. LAS VEGAS BLVD., SUITE 100
LAS VEGAS, NV 89116
(702) 256-8400

STORMDRAIN PLAN AND PROFILE
VIA VENETIA
18+00.00 TO 27+00.00

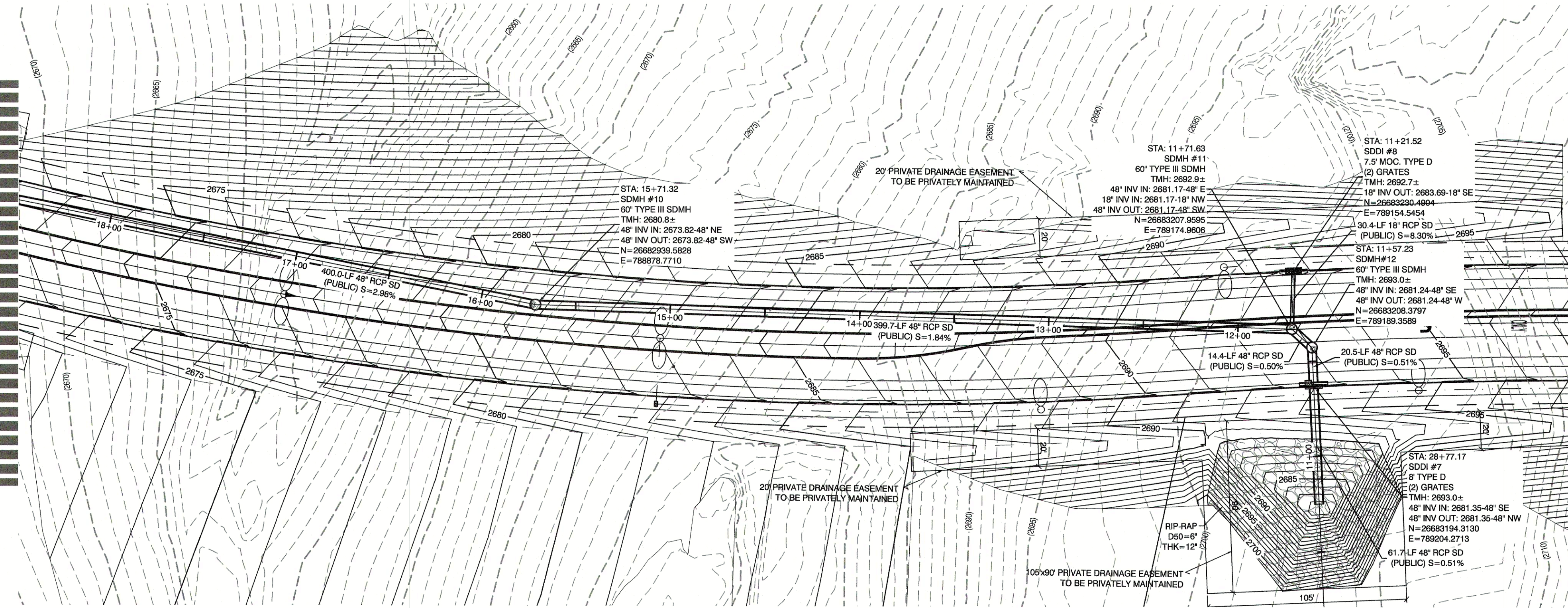
INSPIRADA
VILLAGE 7 INFRASTRUCTURE
VIA VENETIA AND VIA INSPIRADA

DRAWN BY: KJ/CJW
DESIGNED BY: KJ/CJW
CHECKED BY: KJN
PROJECT NO: 7420
SCALE: 1"=40'
1"=40'
1"=40'

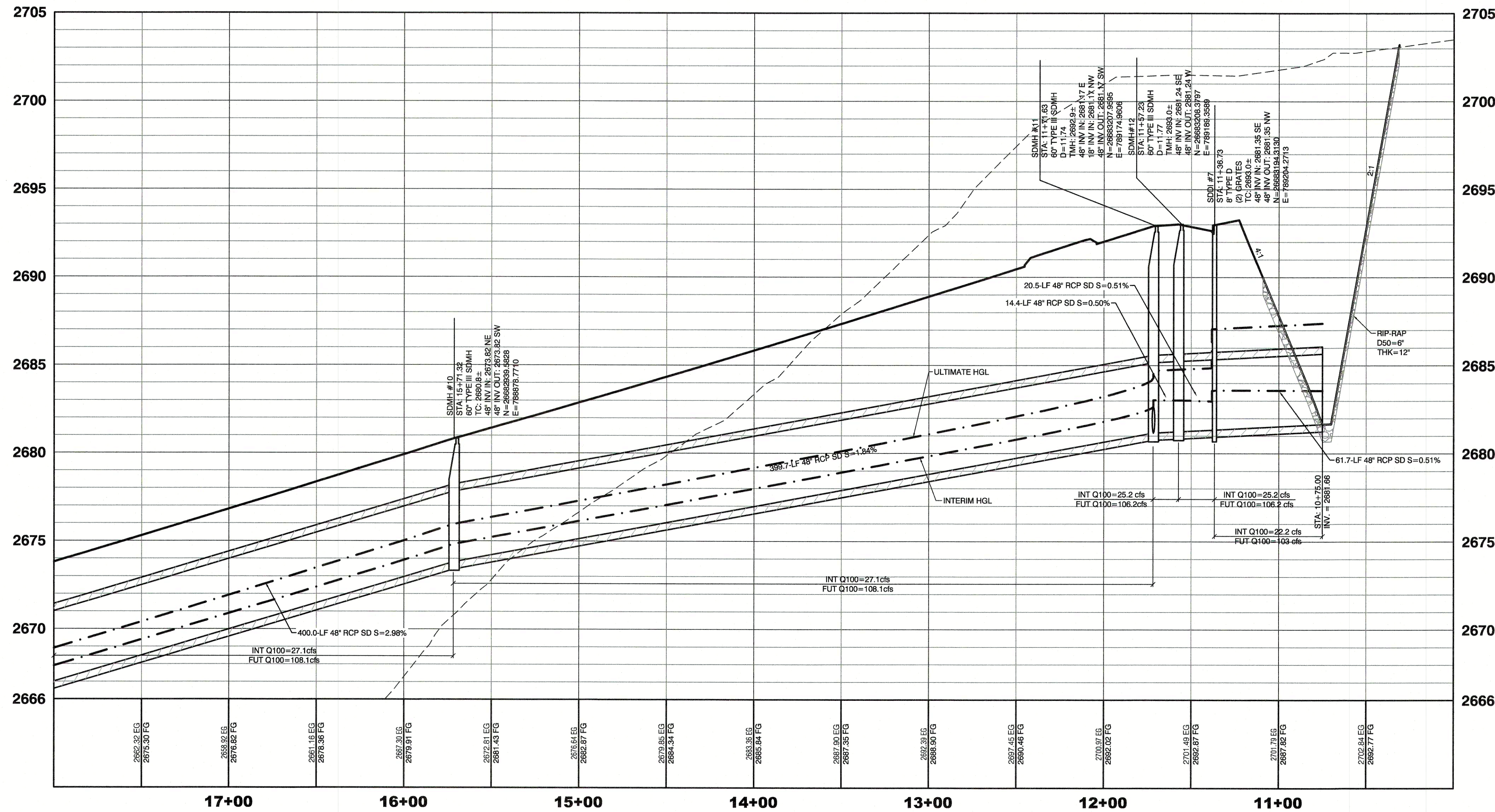
PROFESSIONAL ENGINEER
KENNETH NICHOLSON
No. 10539
CIVIL
12/31/17

SHEET
SD4
20 OF 28 SHEETS
DRAWING NO.
201770---

MATCHLINE - 26+50.00
SEE SHEET 8 - S1 FOR CONTINUATION



VIA VENETIA

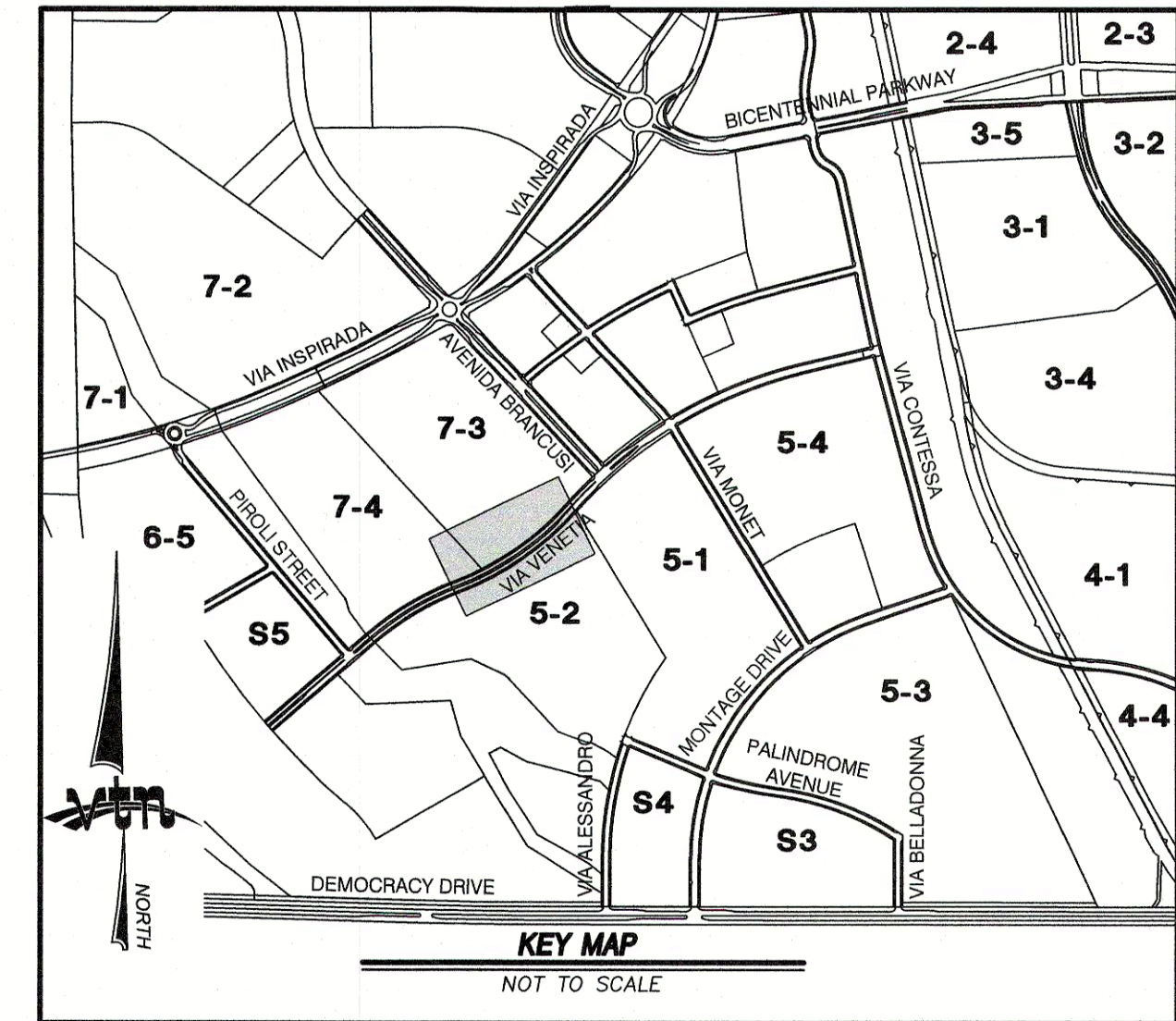


BASIS OF BEARING

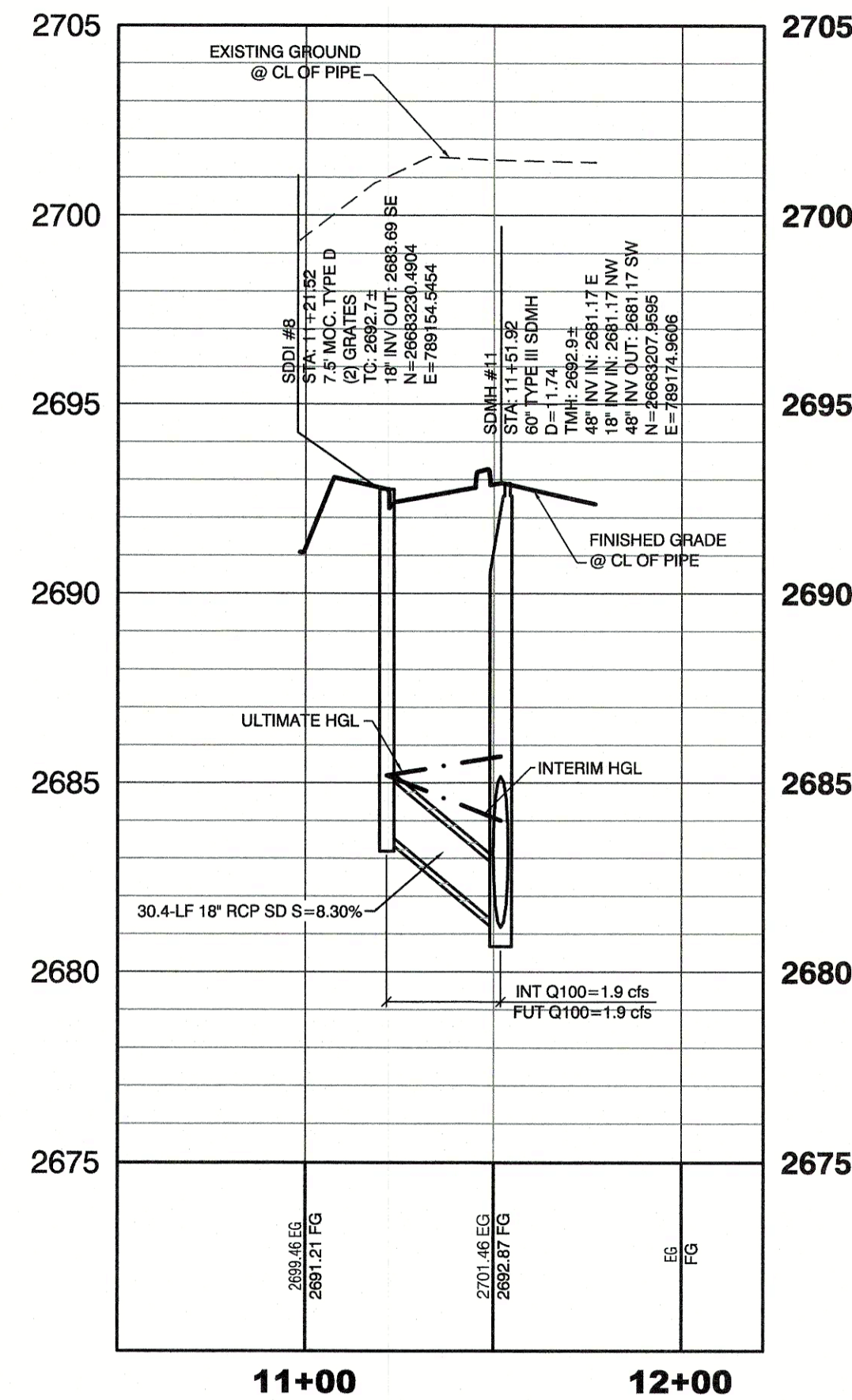
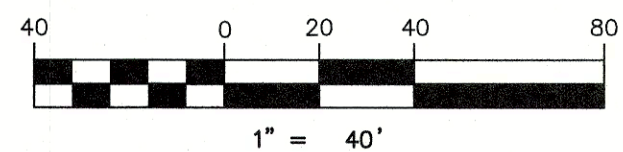
NORTH 89°06'27\"

PROJECT BENCHMARK

PROJECT DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
CITY OF HENDERSON BENCHMARK: NO. 569 NAVD88 ELEVATION: 777.561 METERS (2551.04 FEET)
2\"



GRAPHIC SCALE



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Call before you Overhead
1-702-227-2929

Call before you Underground
1-702-267-2783
CITY OF HENDERSON UTILITY SERVICES LINE LOCATION

1-702-432-5300
FREWAY AND METEOR SYSTEM OF TRANSPORTATION

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CITY ENGINEER, CITY OF HENDERSON

APPROVAL DATE

INSPIRADA BUILDERS, LLC
575 N. BOWMAN AVE., SUITE 100
LAS VEGAS, NV 89116
(702) 266-8400

CITY OF HENDERSON

STORMDRAIN PLAN AND PROFILE
VIA VENETIA
16+50.00 TO 10+50.00

INSPIRADA
VILLAGE 7 INFRASTRUCTURE
VIA VENETIA AND VIA INSPIRADA

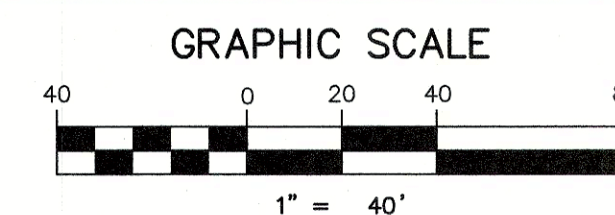
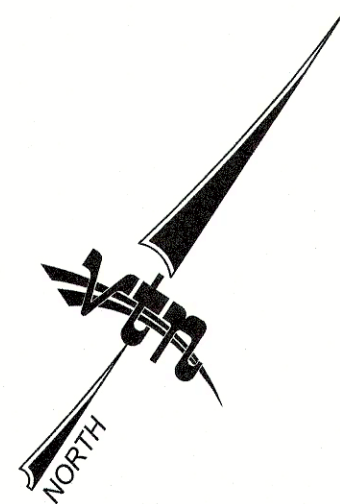
DRAWN BY: KJ/CJW
DESIGNED BY: KJ/CJW
CHECKED BY: KJ/CJW
PROJECT NO: 7420

December 17
December 17
December 17

SCALE: 1\"



SHEET
SD5
21 OF 28 SHEETS
DRAWING NO.
201770---



NORTH 89°06'27" EAST - BEING THE BEARING OF THE NORTH LINE OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 22, TOWNSHIP 23 SOUTH, RANGE 61 EAST, M.D.M., CITY OF HENDERSON, CLARK COUNTY, NEVADA AS SHOWN BY THAT PLAT ON FILE IN THE OFFICE OF THE COUNTY RECORDER, CLARK COUNTY, NEVADA IN BOOK 147 OF PLATS, PAGE 94.

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SCOTT'S VALLEY DRIVE.

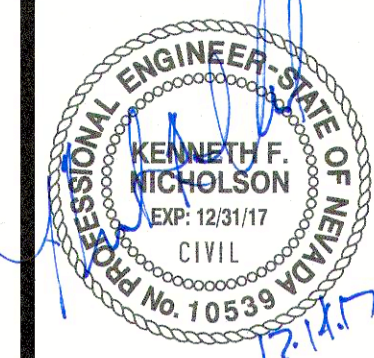
CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE (1) YEAR ONLY. PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS, PARK AND RECREATION, CITY OF HENDERSON, IF WORK IS NOT COMPLETED WITHIN ONE (1) YEAR OF THE APPROVAL DATE.

CITY ENGINEER, CITY OF HENDERSON APPROVAL DATE

STORMDRAIN PLAN AND PROFILE PIROLI STREET

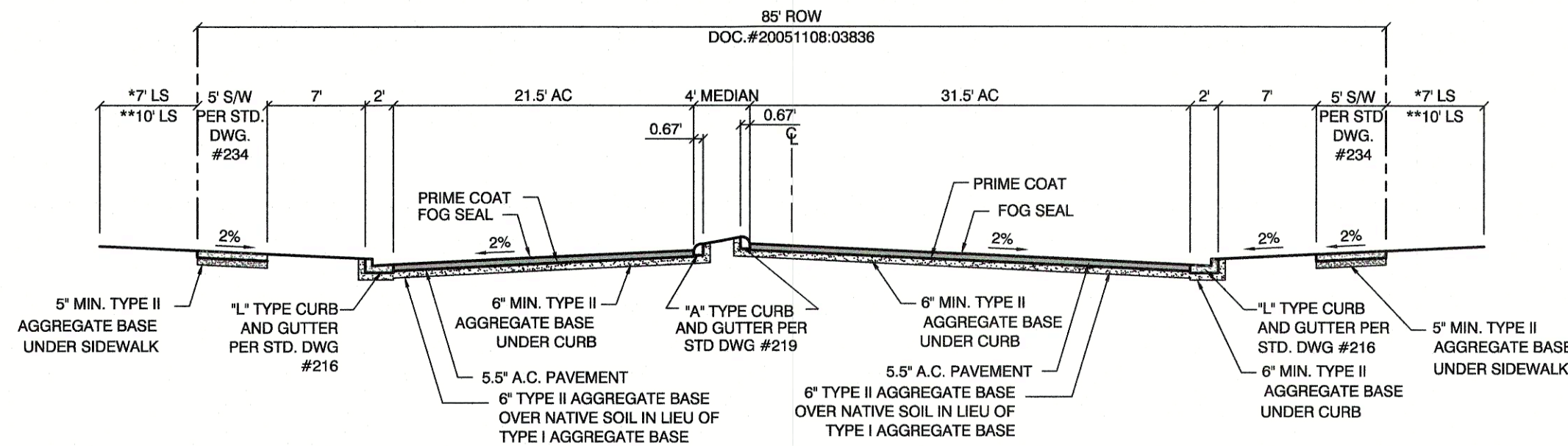
INSPIRADA
VILLAGE 7 INFRASTRUCTURE
VIA VENETIA AND VIA INSPIRADA

DRAWN BY: KR/KR/JCMW	December 17
DESIGNED BY: KR/KR/JCMW	December 17
CHECKED BY: KFN	December 17
PROJECT NO: 7420	SCALE: HORIZ: 1"=40' VERT: 1"=4'

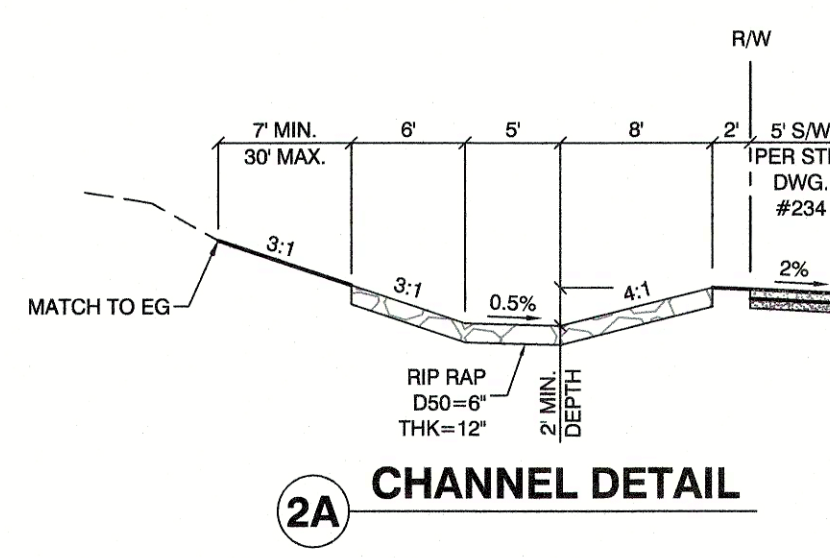


SHEET
SD6
22 OF 28 SHEETS
DRAWING NO.
201770---

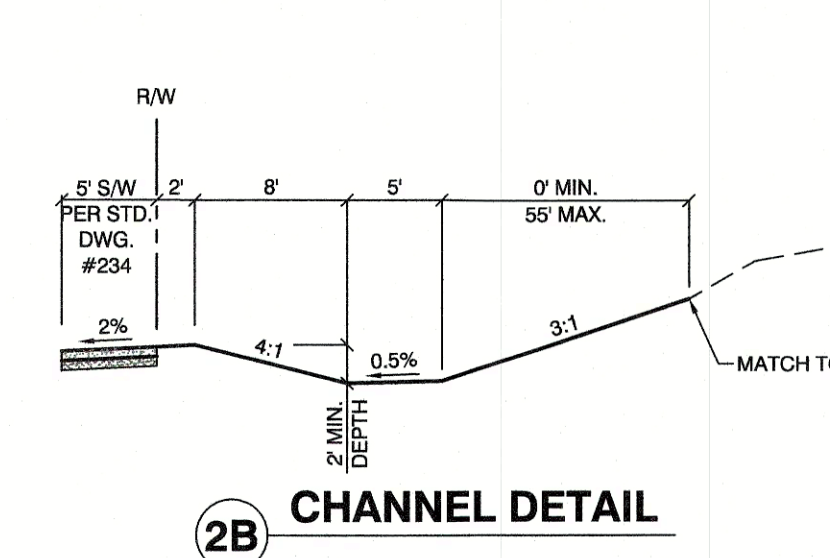
1:17420\ Village-7\ Sheet Set\ 7420-V7-SD.dwg



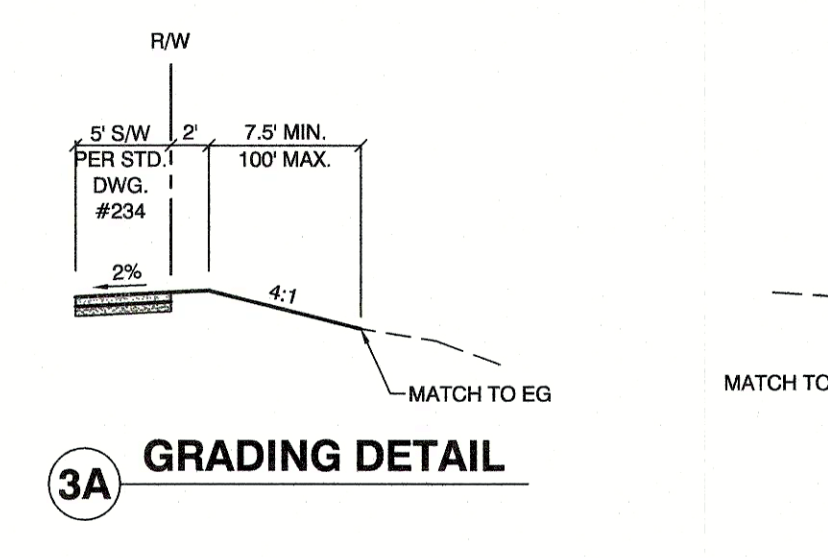
1 VIA VENETIA



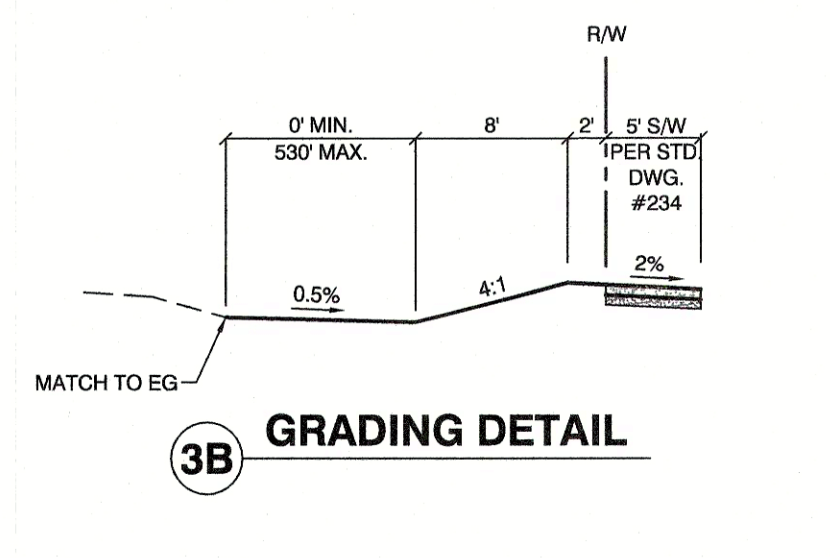
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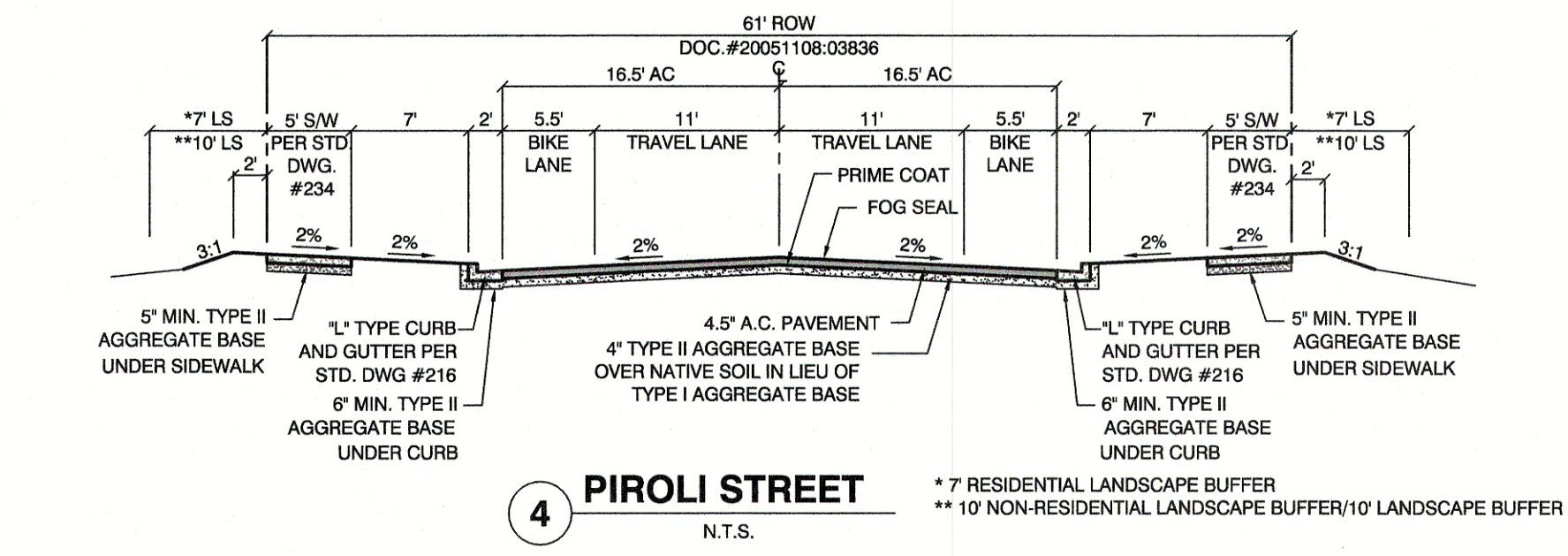
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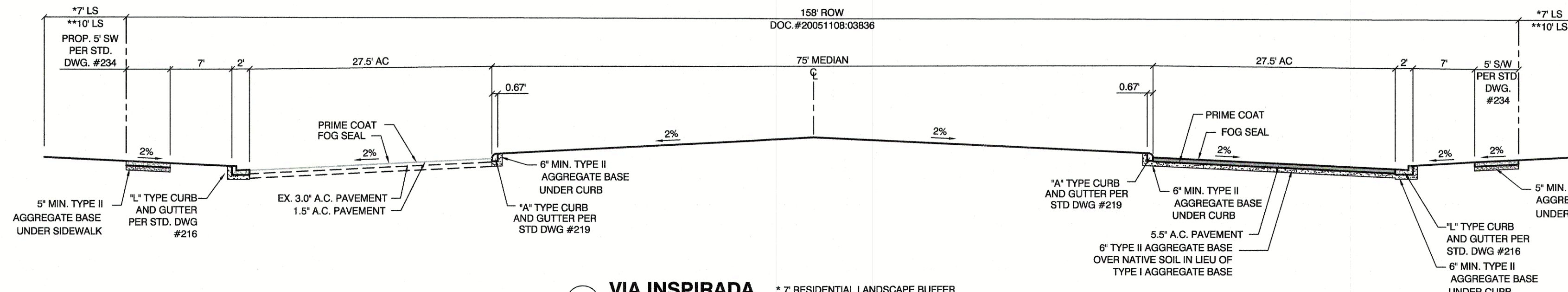
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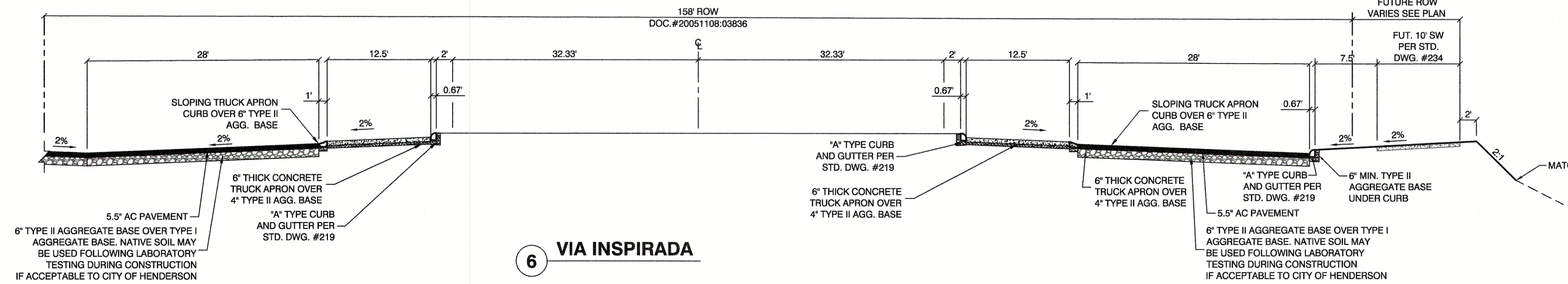
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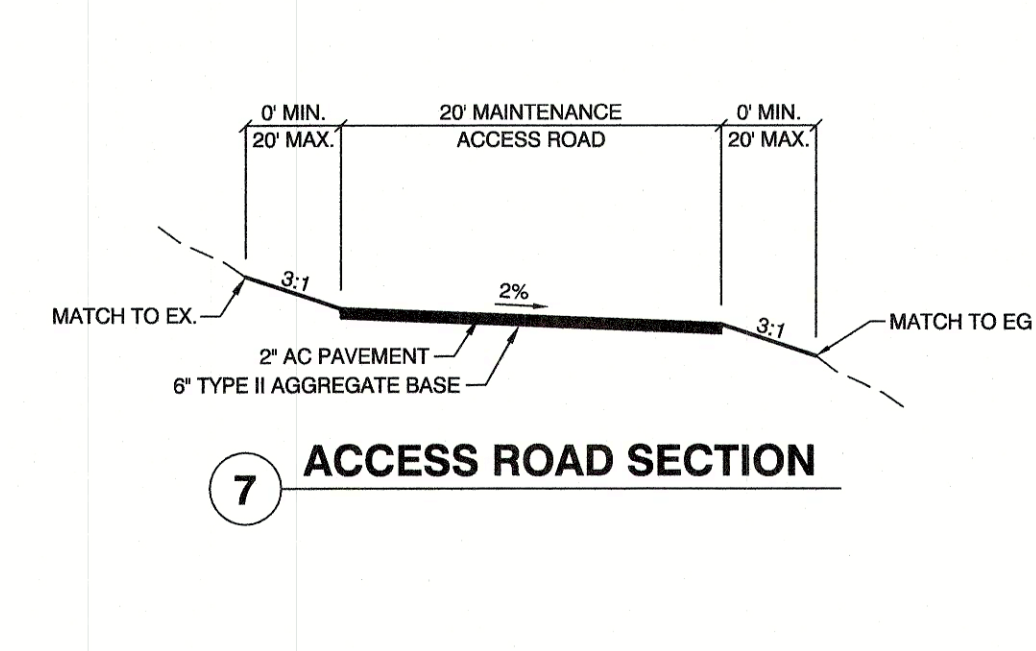
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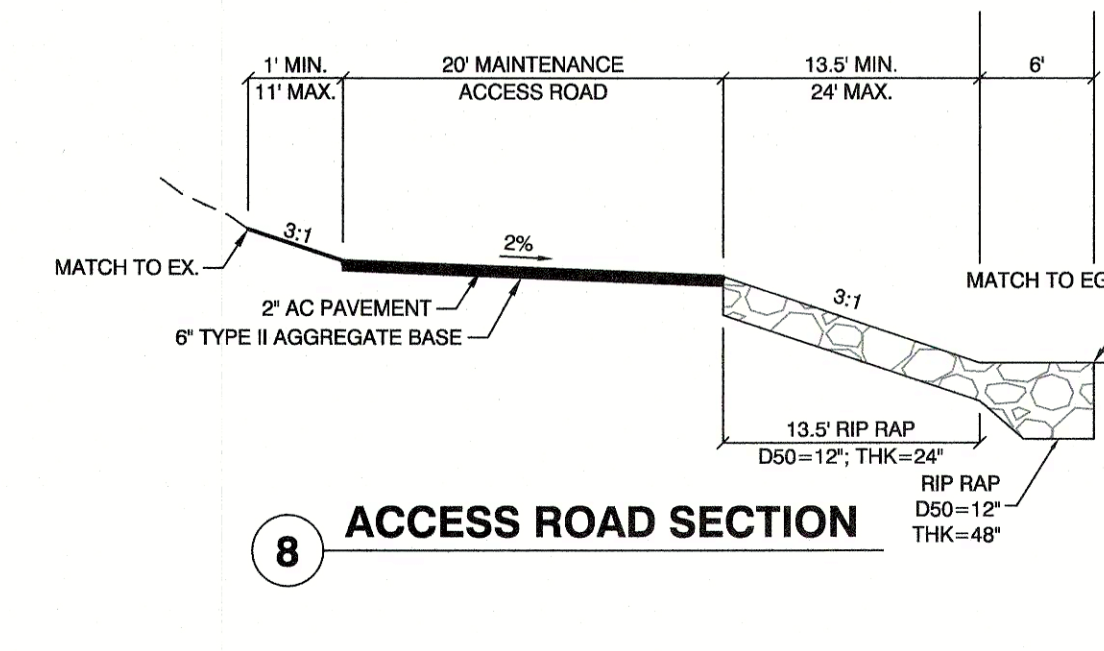
5 VIA INSPIRADA



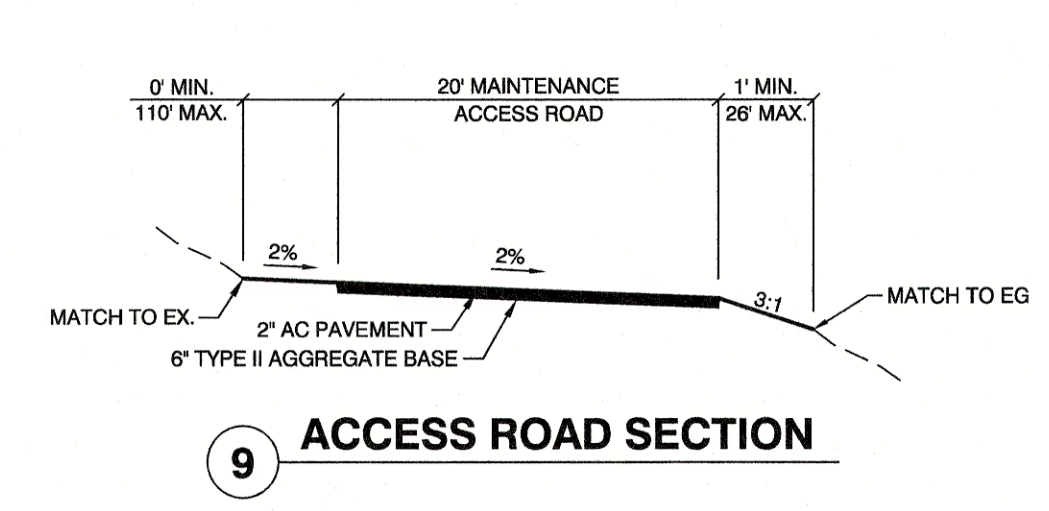
6 VIA INSPIRADA



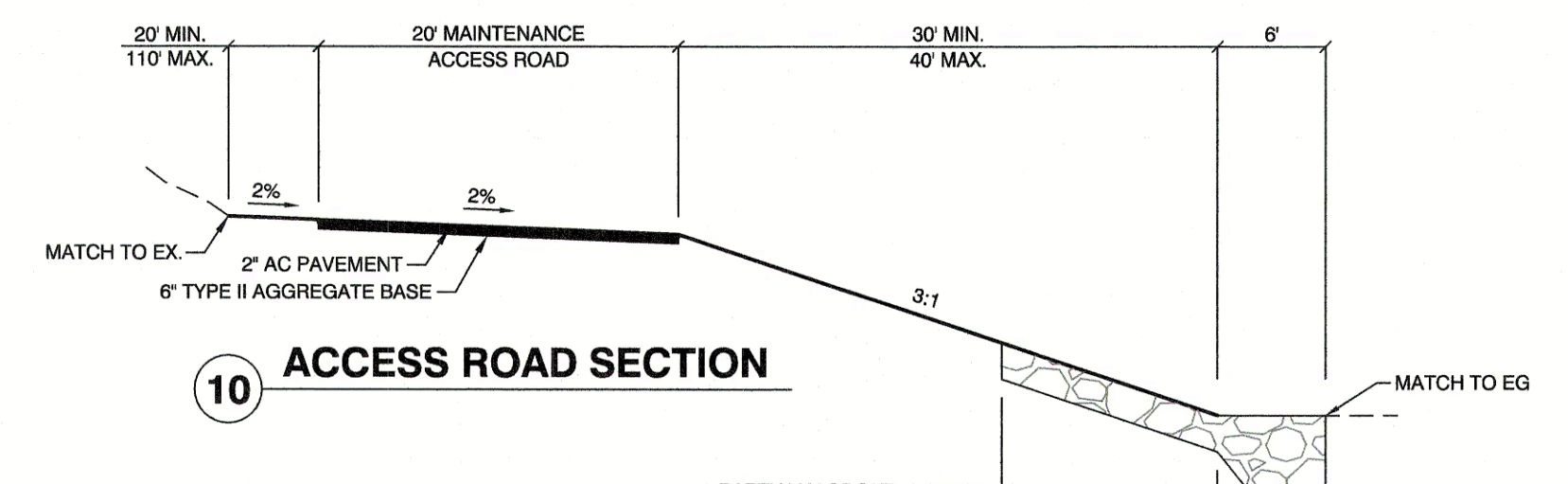
7 ACCESS ROAD SECTION



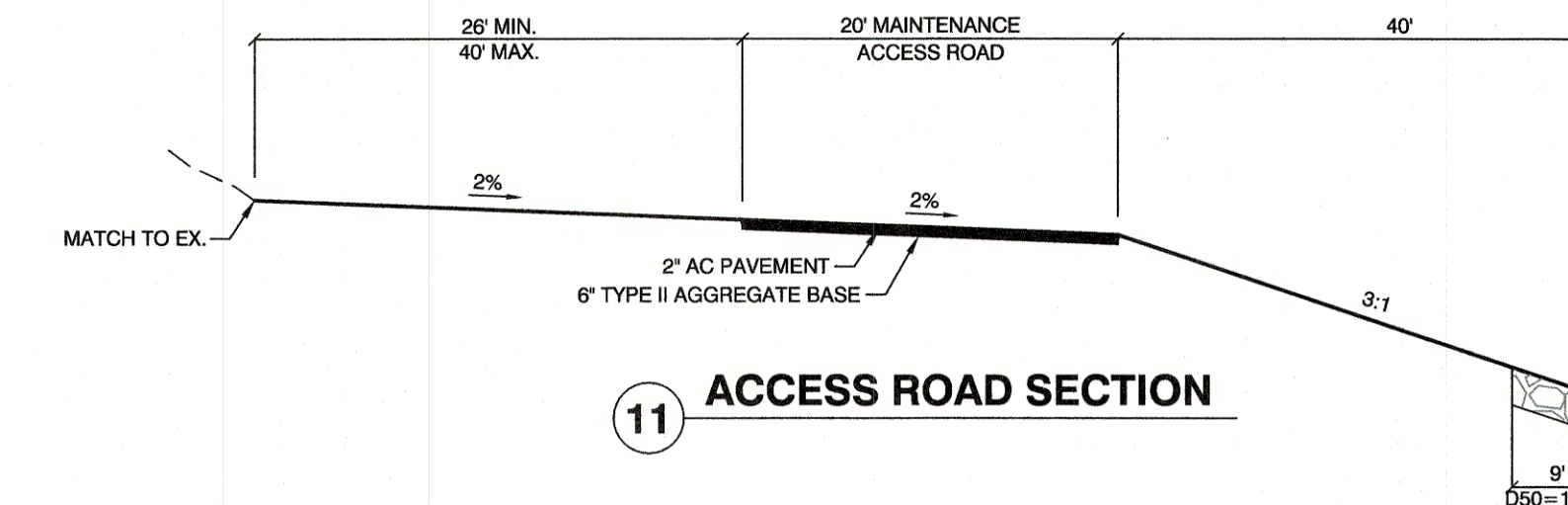
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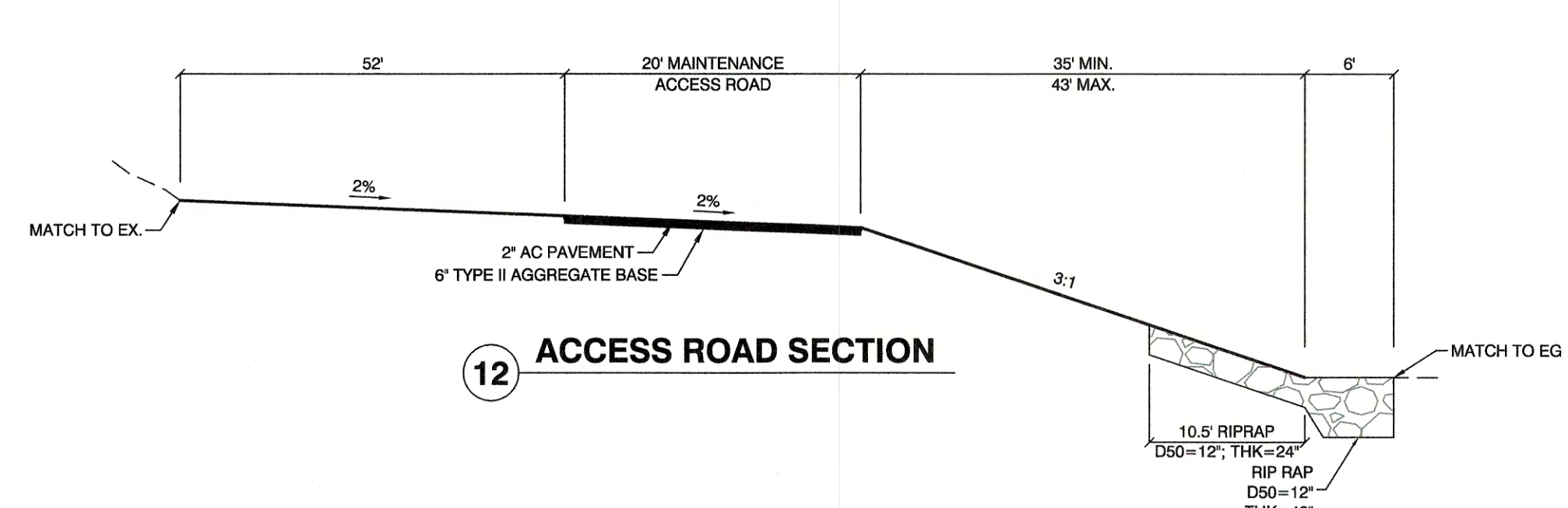
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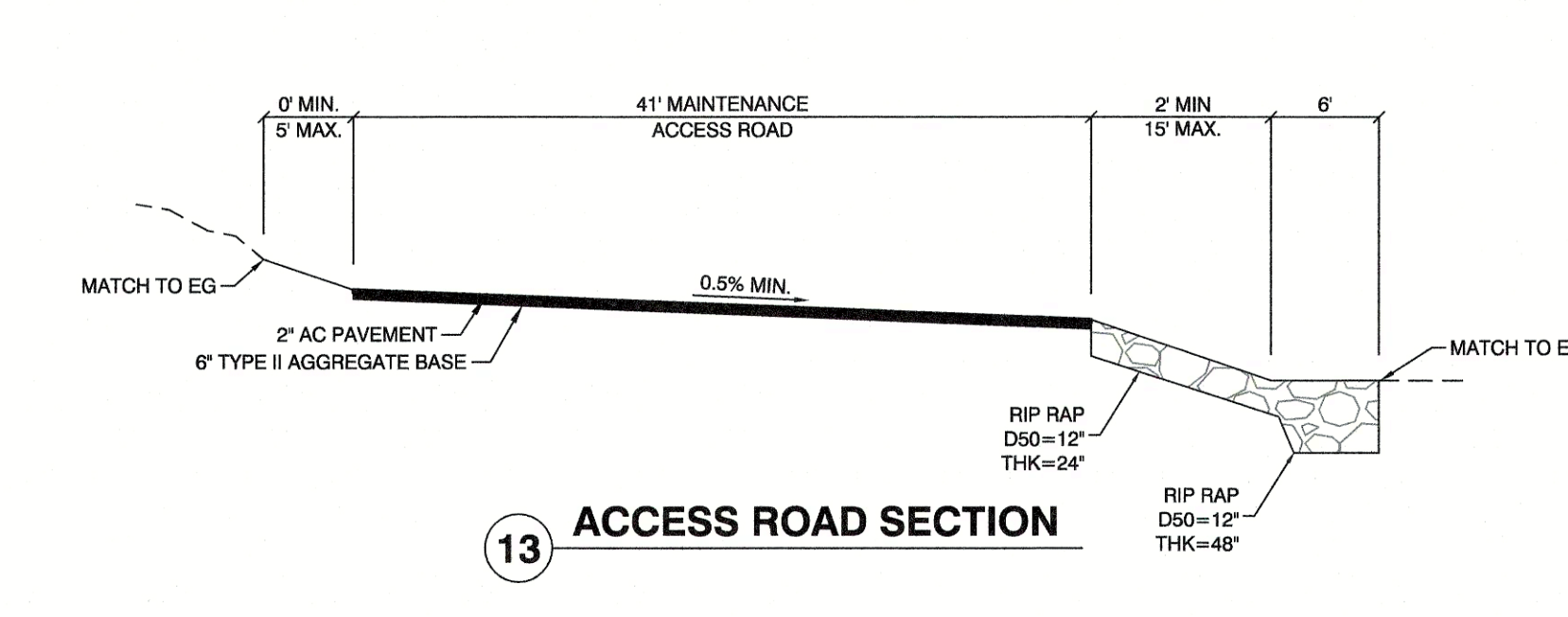
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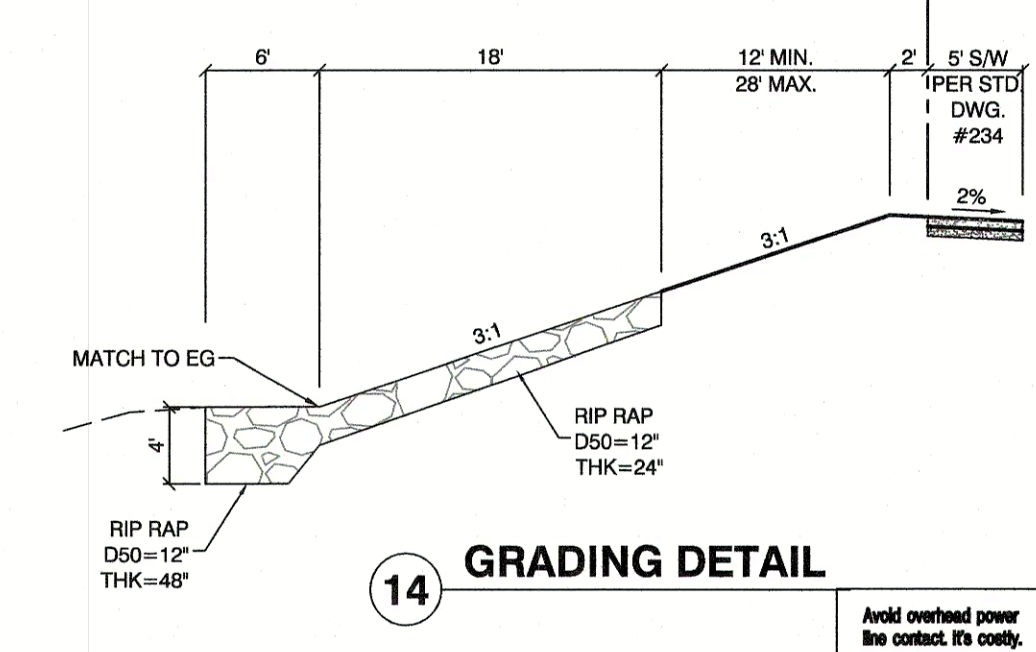
11 ACCESS ROAD SECTION



12 ACCESS ROAD SECTION



13 ACCESS ROAD SECTION



14 GRADING DETAIL

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1-702-228-6811
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CITY ENGINEER, CITY OF HENDERSON DATE

CITY OF HENDERSON

INSPIRADA BUILDERS, LLC
5785 W. BODINE AVE., SUITE 180
LAS VEGAS, NV 89115
(702) 268-6600

INSPIRADA BUILDERS, LLC
2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH: (702) 973-7558 FAX: (702) 362-2297 WEB: WWW.VTNN.COM
CONSULTING ENGINEERS & PLANNERS

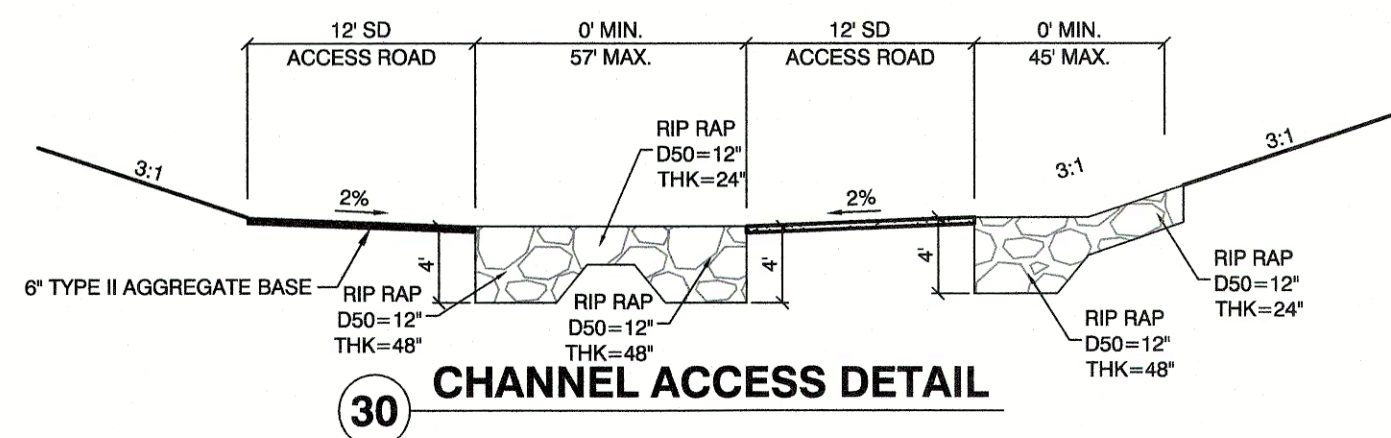
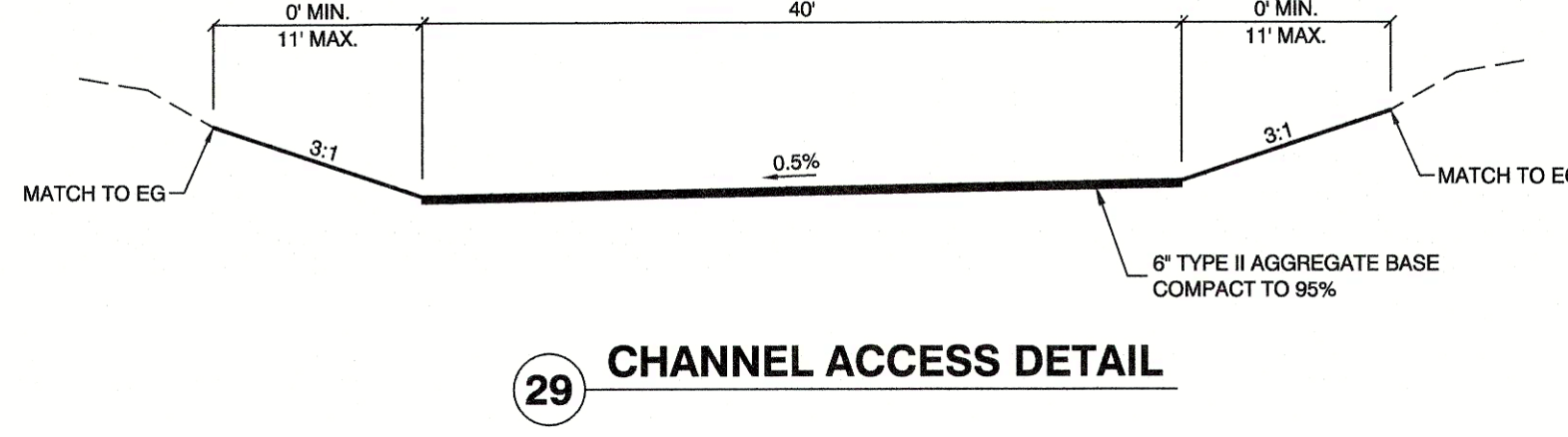
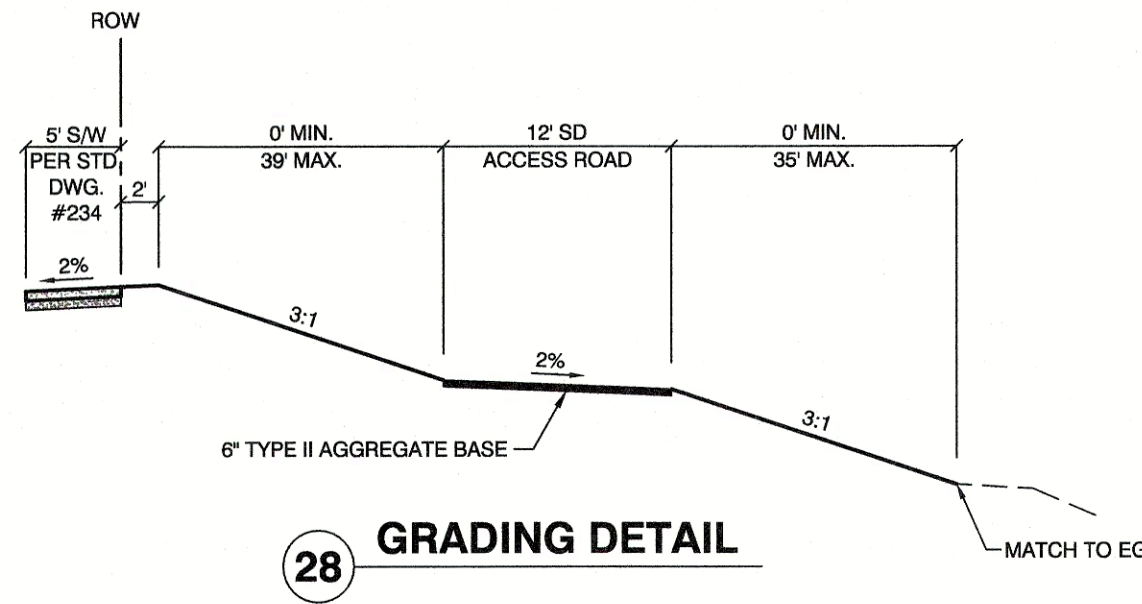
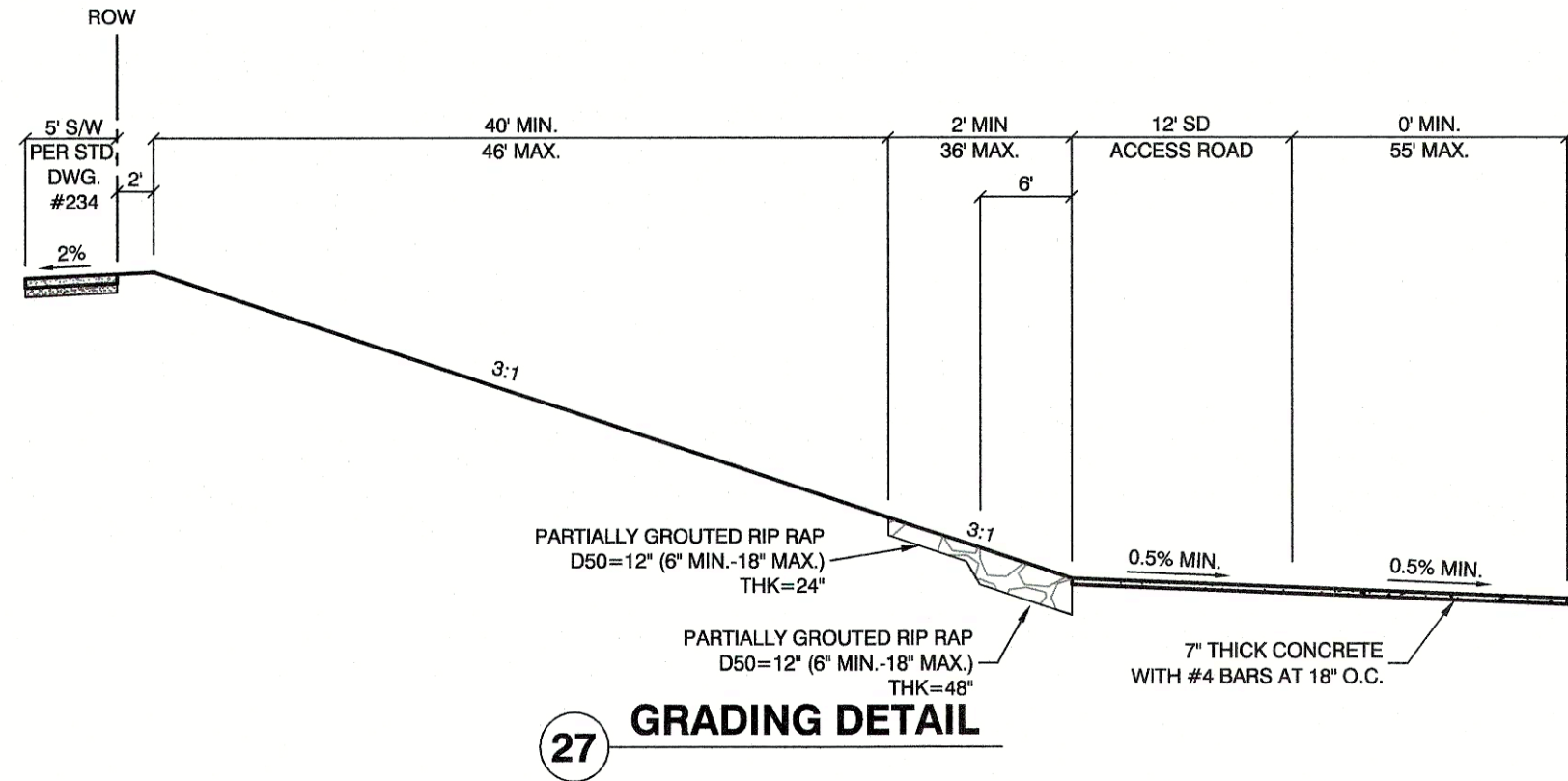
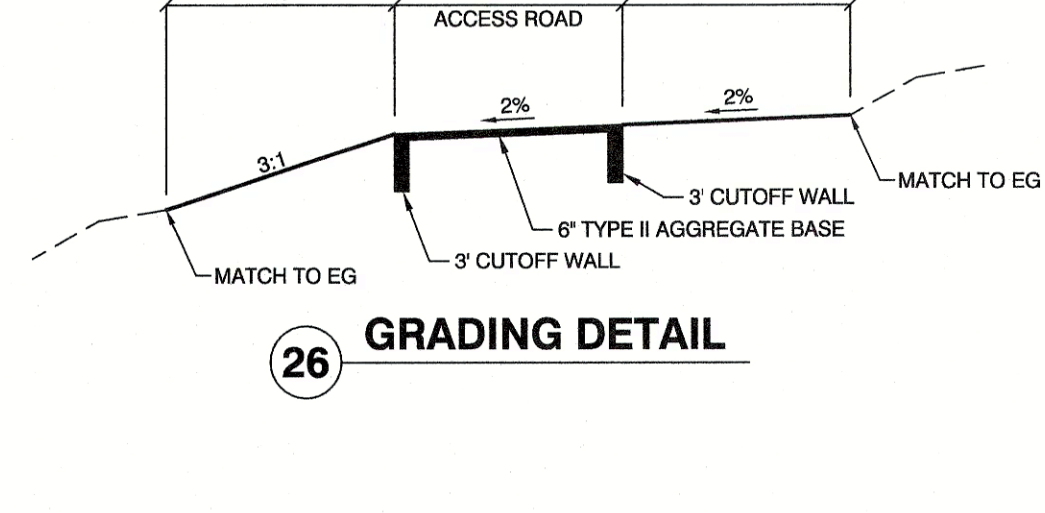
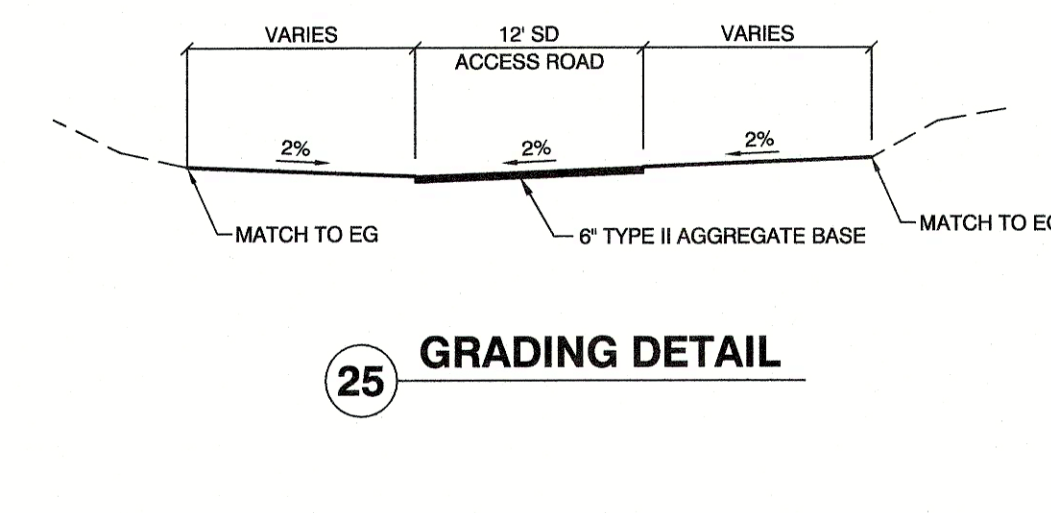
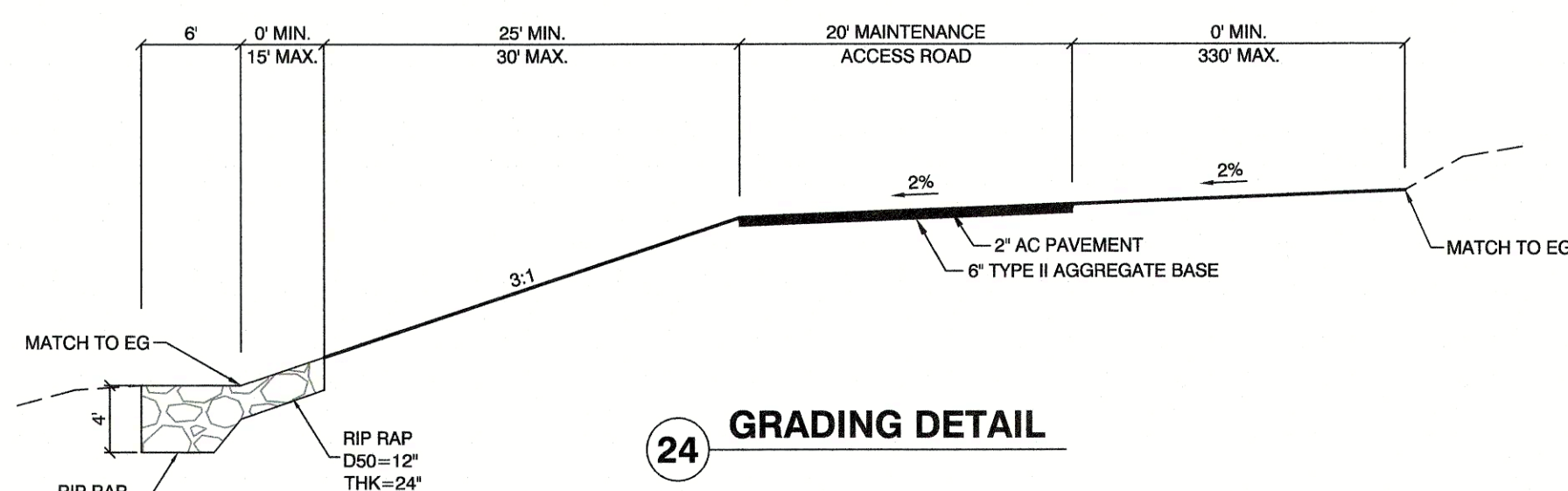
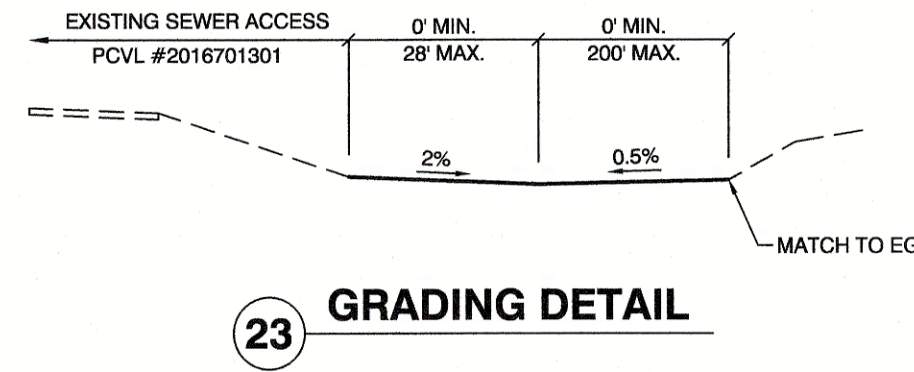
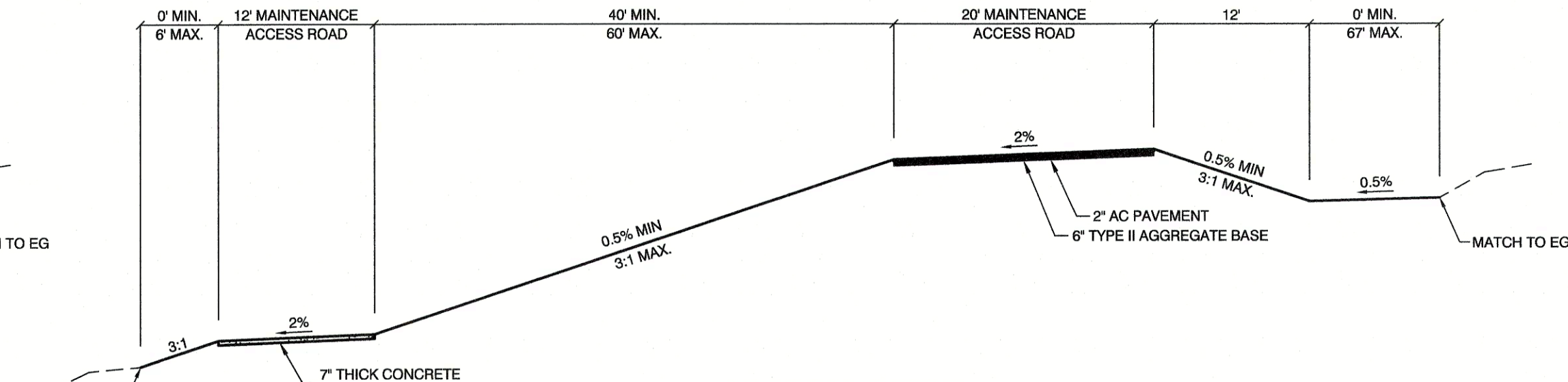
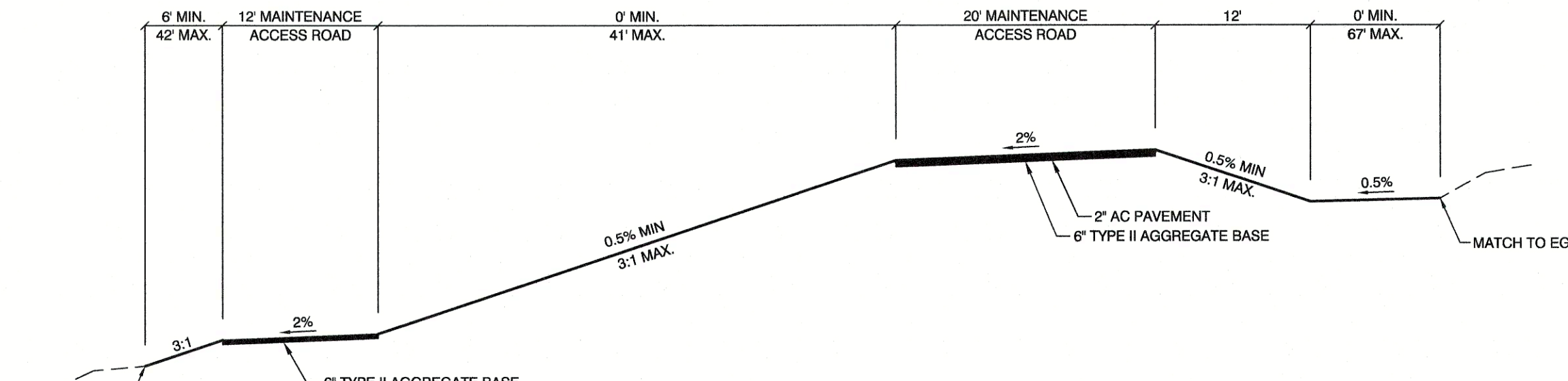
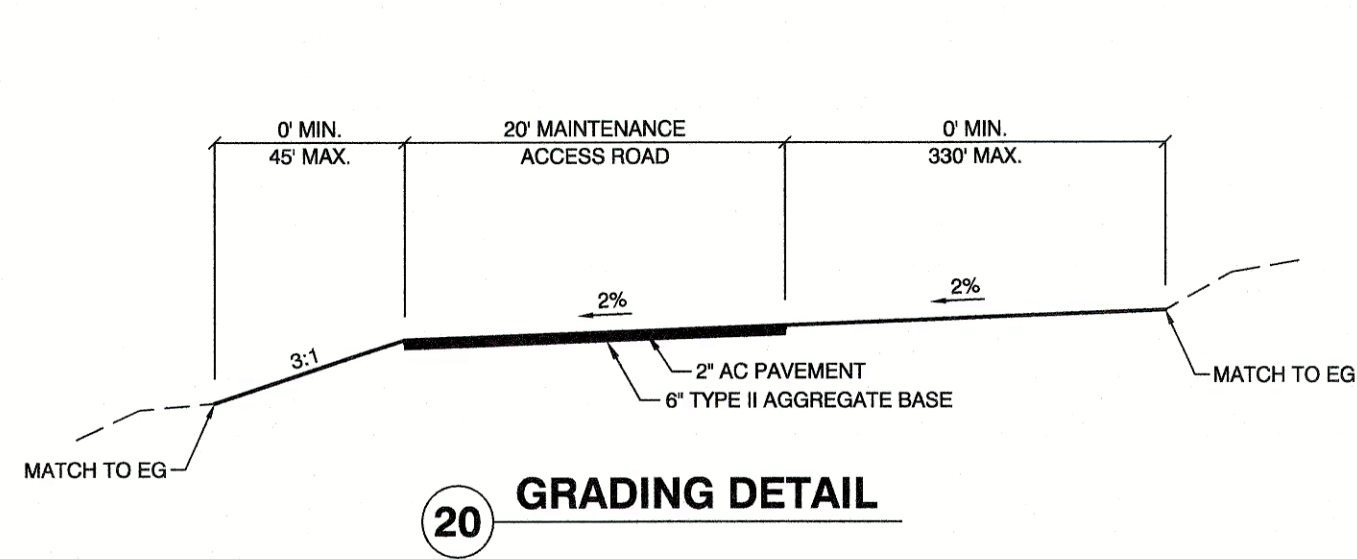
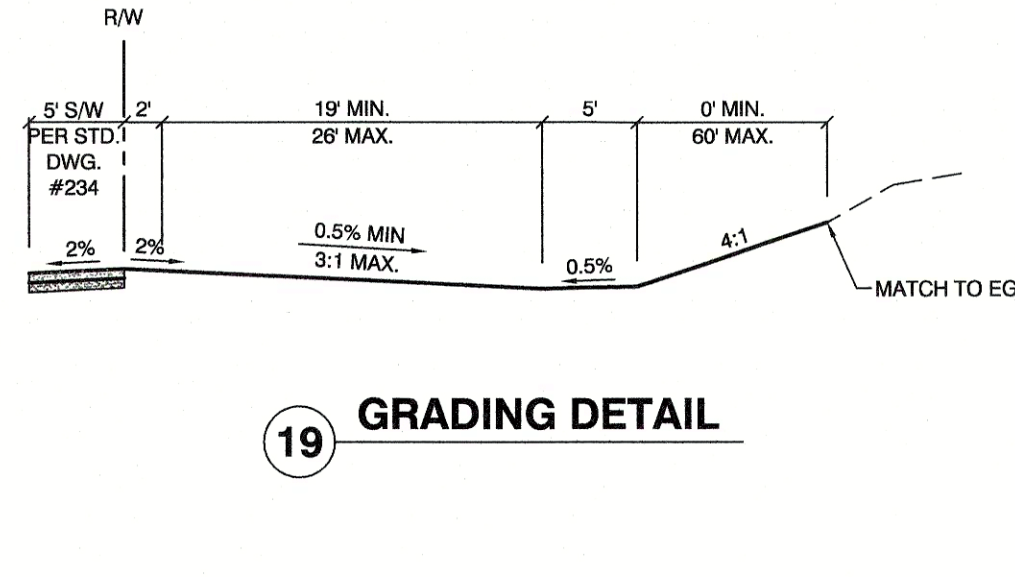
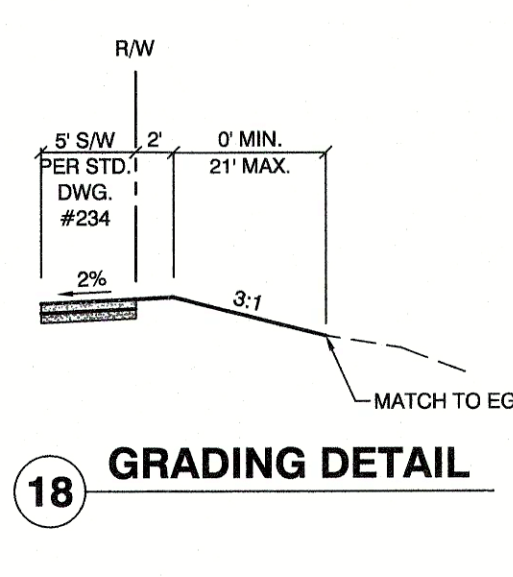
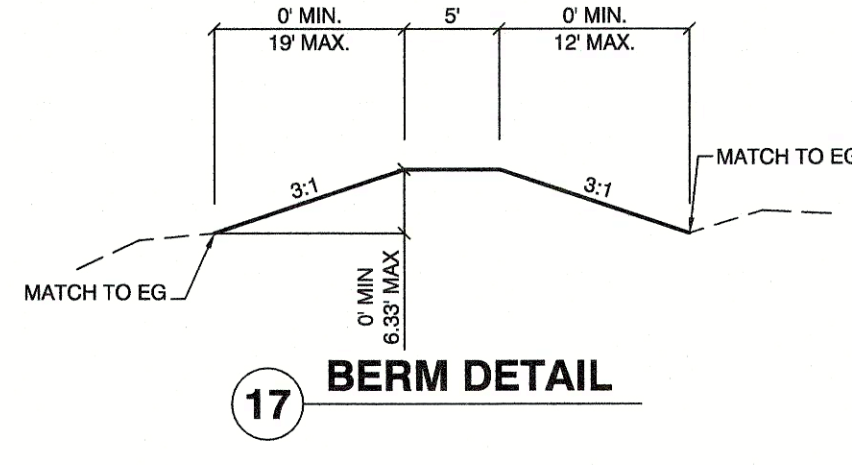
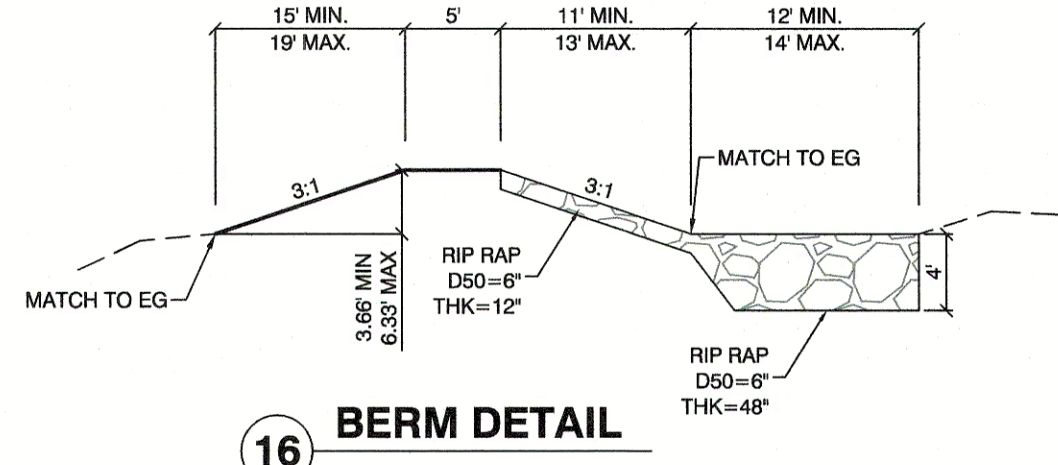
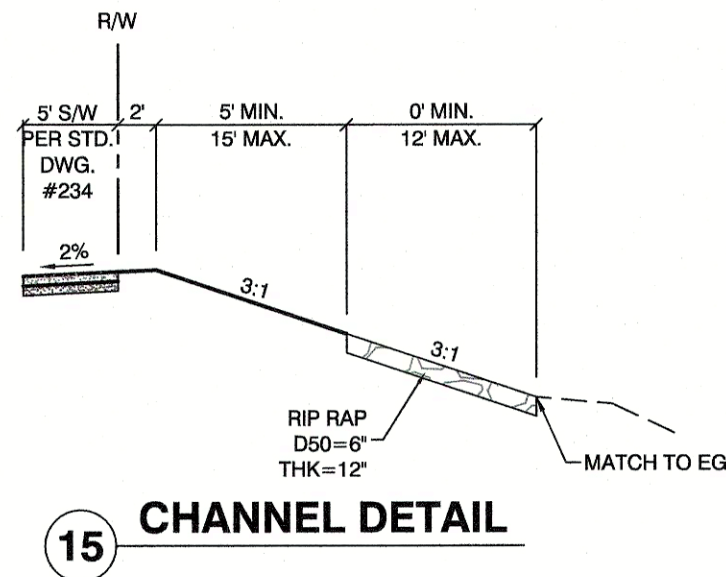
DETAIL SHEET 1

INSPIRADA
VILLAGE 7 INFRASTRUCTURE
VIA VENETIA AND VIA INSPIRADA

DRAWN BY: CMW
DESIGNED BY: CMW
CHECKED BY: KFN
PROJECT NO: 7452
SCALE: N/A
SHEET: D1
23 OF 28 SHEETS
DRAWING NO: 201770----

APPROVED: KENNETH F. NICHOLSON
CIVIL
No. 10539
12.14.17

DATE: 12/11/17



Call before you Dig
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CITY OF HENDERSON UTILITY SERVICES LINE LOCATION
AND
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FAULT, OVERHEAD AND AIRTEL SYSTEM OF TRANSPORTATION

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Call before you Dig
1-800-227-2800

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CITY ENGINEER, CITY OF HENDERSON DATE

INSPIRADA BUILDERS, LLC 1315 S. MAIN ST., SUITE 100 LAS VEGAS, NV 89101 (702) 266-6400		CITY OF HENDERSON 2727 SOUTH RAINBOW BOULEVARD LAS VEGAS, NEVADA 89146-5148 PH: (702) 875-7550 FAX: (702) 362-2897 WEB: WWW.VTNV.COM CONSULTING ENGINEERS PLANNERS LAND SURVEYORS	
DETAIL SHEET 1		INSPIRADA VILLAGE 7 INFRASTRUCTURE VIA VENETIA AND VIA INSPIRADA	
DRAWN BY: KJ	DESIGNED BY: R.M.S.	CHECKED BY: KFN	PROJECT NO: 7420
December 17	December 17	December 17	HORIZ: N/A VERT: N/A
SHEET D2 24 OF 28 SHEETS		DRAWING NO. 201770---	



SHEET 1 OF 2

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

RCB CULVERTS
TYPE I HEADWALLS

B-20.1.4 (502)		Signed Original On File
ADOPTED 11/20	REVISED 10/15	CHIEF BRIDGE ENGR.

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Dig

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Avoid overhead power line contact. It costs.

Call
before you
Overhead

1-702-227-2929

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Call
before you
Underground

1-702-227-2783

CITY OF HENDERSON LIGHT RAILWAY LINE LOCATION

AND

1-702-229-8611

FAIR, FREEDOM AND FUTURE: SYSTEMS OF TRANSPORTATION

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CITY ENGINEER, CITY OF HENDERSON

DATE _____

[illegible]

INSPIRADA BUILDERS, LLC
575795 W. BADURA AVE., SUITE 180
LAS VEGAS, NV 89118
(702)266-8400

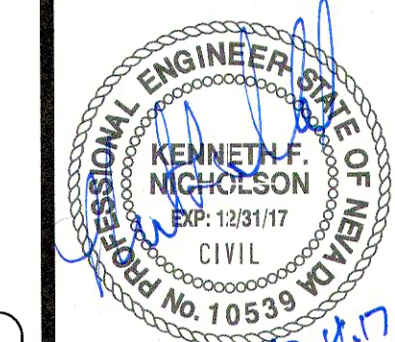
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DETAIL SHEET 3

INSPIRADA
VILLAGE 7 INFRASTRUCTURE
VIA VENETIA AND VIA INSPIRADA

DRAWN BY: _____		DATE: _____	
CWMW _____		_____	
DESIGNED BY: _____		DATE: _____	
CWMW _____		_____	
CHECKED BY: _____		DATE: _____	
KFN _____		_____	
PROJECT NO: _____		SCALE: N/A	HORIZ. N/A
7420		VERT. _____	_____



SHEET
D3
25 OF 28 SHEETS
DRAWING NO.
201770---

H:\7420\Village-7\Sheet Set\7420-V7-DT.dwg

TYPE I HEADWALL DIMENSIONS AND REINFORCING STEEL

0 Degree Skew					15 Degree Skew				30 Degree Skew				45 Degree Skew			
H (Ft.)	AA (Ft. In.)	BB (Ft. In.)	CC (Ft. In.)	DD (Ft. In.)	AA (Ft. In.)	BB (Ft. In.)	CC (Ft. In.)	DD (Ft. In.)	AA (Ft. In.)	BB (Ft. In.)	CC (Ft. In.)	DD (Ft. In.)	AA (Ft. In.)	BB (Ft. In.)	CC (Ft. In.)	DD (Ft. In.)*
3	6 3	6 3	3 2	3 2	5 9	7 3	3 0	3 7	5 3	9 0	2 10	4 3	5 3	12 6	2 10	5 4
4	7 9	7 9	3 8	3 8	7 0	9 0	3 5	4 2	6 6	11 3	3 4	4 11	6 3	15 3	3 3	6 4
5	9 3	9 3	4 3	4 3	8 3	10 9	3 11	4 10	7 9	13 6	3 9	5 9	7 9	18 3	3 8	7 5
6	10 9	10 9	4 10	4 10	9 9	12 9	4 5	5 6	9 3	15 9	4 3	6 7	9 0	21 6	4 2	8 7
7	12 3	12 3	5 4	5 4	11 0	14 3	4 11	6 1	10 6	18 0	4 8	7 4	10 3	24 6	4 7	9 7
8	13 9	13 9	5 10	5 10	12 3	16 0	5 4	6 8	11 6	20 0	5 1	8 1	11 3	27 3	5 0	10 7
9	15 0	15 0	6 4	6 4	13 6	17 9	5 10	7 3	12 9	22 0	5 6	8 9	12 6	30 0	5 5	11 7
10	16 6	16 6	6 10	6 10	14 9	19 3	6 3	7 10	14 0	24 0	5 11	9 6	13 9	33 0	5 10	12 7
11	18 0	18 0	7 4	7 4	16 0	21 0	6 8	8 5	15 3	26 3	6 4	10 3	14 9	35 9	6 3	13 7
12	19 3	19 3	7 10	7 10	17 6	22 9	7 2	9 0	16 3	28 3	6 9	11 0	16 0	38 6	6 8	14 7
13	20 9	20 9	8 4	8 4	18 9	24 3	7 7	9 7	17 6	30 3	7 2	11 9	17 3	41 3	7 1	15 7
14	22 3	22 3	8 10	8 10	20 0	26 0	8 1	10 2	18 9	32 6	7 8	12 5	18 6	44 3	7 6	16 7

*DD varies, DD = H + T₁ + 1'6"
(T₁ = Minimum 9")

							0 Degree Skew		15 Degree Skew		30 Degree Skew				45 Degree Skew					
							Wall A & B		Wall B		Wall A		Wall B		Wall A		Wall B		Wall A	
H (Ft.)	C (In.)	D (In.)	J (Size)	J (Spacing)	K (Size)	K (Spacing)	E (Ft. In.)	F (Ft. In.)	E (Ft. In.)	F (Ft. In.)	E (Ft. In.)	F (Ft. In.)	E (Ft. In.)	F (Ft. In.)	E (Ft. In.)	F (Ft. In.)	E (Ft. In.)	F (Ft. In.)	E (Ft. In.)	F (Ft. In.)
3	8	10	5	12	5	12	1 0	3 3	1 0	3 3	1 0	3 3	1 0	3 3	1 0	3 6	1 0	3 3	1 0	3 6
4	8	10	5	12	5	12	1 0	3 6	1 0	3 6	1 0	3 6	1 0	3 6	1 0	3 9	1 0	3 6	1 3	4 0
5	8	12	5	12	5	12	1 3	3 9	1 3	3 9	1 3	3 9	1 3	3 9	1 3	4 3	1 3	3 9	1 6	4 9
6	8	12	5	6	5	6	1 3	4 0	1 3	4 0	1 3	4 0	1 3	4 0	1 6	4 9	1 3	4 0	1 9	5 3
7	10	14	5	6	5	6	1 6	4 6	1 6	4 6	1 6	4 6	1 6	4 6	1 9	5 3	1 6	4 6	2 3	6 0
8	10	14	5	6	5	6	1 9	5 0	1 9	5 0	1 9	5 0	1 9	5 0	2 3	6 0	1 9	5 0	2 6	6 6
9	10	16	6	6	5	6	2 0	5 6	2 0	5 6	2 0	5 6	2 0	5 6	2 6	6 6	2 0	5 6	2 9	7 0
10	10	16	6	6	6	6	2 3	6 0	2 3	6 0	2 3	6 0	2 3	6 0	2 9	7 0	2 3	6 0	3 3	7 9
11	12	18	6	6	6	6	2 6	6 6	2 6	6 6	2 6	6 6	2 6	6 6	3 0	7 6	2 6	6 6	3 6	8 3
12	12	18	7	6	6	6	2 9	7 0	2 9	7 0	3 0	7 3	2 9	7 0	3 3	7 9	2 9	7 0	4 0	9 0
13	12	20	7	6	7	6	3 0	7 6	3 0	7 6	3 3	7 9	3 0	7 6	3 6	8 3	3 0	7 6	4 3	9 6
14	12	20	7	6	7	6	3 3	8 0	3 3	8 0	3 6	8 3	3 3	8 0	4 0	9 0	3 3	8 0	4 6	10 3

SHEET 2 OF 2

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

RCB CULVERTS
TYPE I HEADWALLS

B-20.1.4.1 (502)

Signed Original On File

ADOPTED 11/70

REVISED 10/15

CHIEF BRIDGE ENGR.

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1-702-229-6611

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CITY ENGINEER, CITY OF HENDERSON

DATE

INSPIRADA BUILDERS, LLC
5795 W. BARDIA AVE., SUITE 180
LAS VEGAS, NV 89118
(702)266-9400

CITY OF HENDERSON

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH. (702) 872-7550 FAX (702) 382-2597 WEB WWW.VTNV.COM
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DETAIL SHEET 4

INSPIRADA
VILLAGE 7 INFRASTRUCTURE
VIA VENETIA AND VIA INSPIRADA

DRAWN BY:
CWW

DESIGNED BY:
CWW

CHECKED BY:
KFN

PROJECT NO:
7420

December 17

December 17

December 17

SCALE: N/A

HORIZ. VERT.

PROFESSIONAL ENGINEER
KENNETH A. NICHOLSON
EXP. 12/31/17
CIVIL
No. 10539

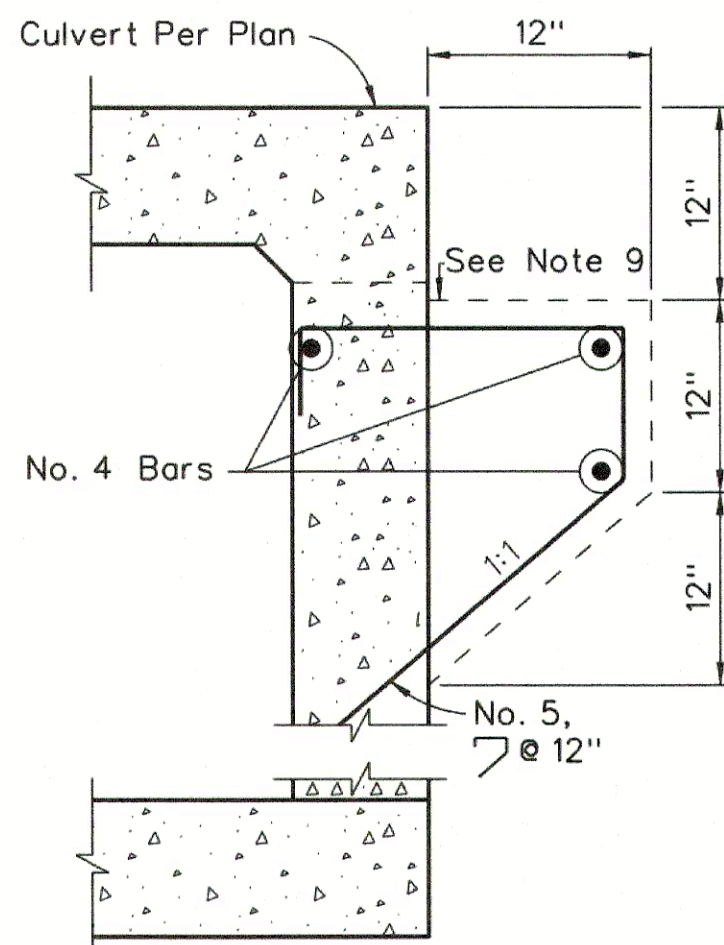
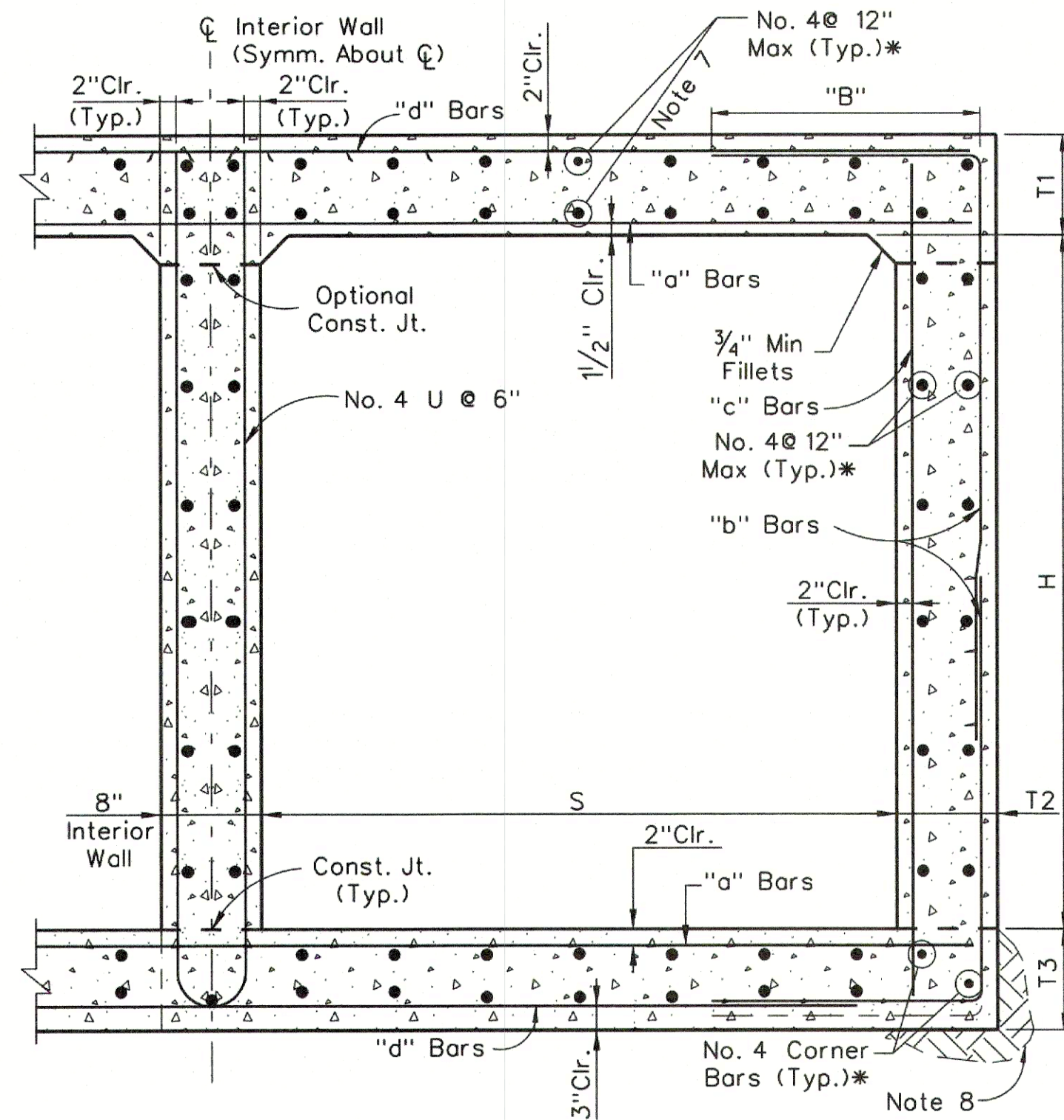
201770-00

SHEET
D4
26 OF 28 SHEETS

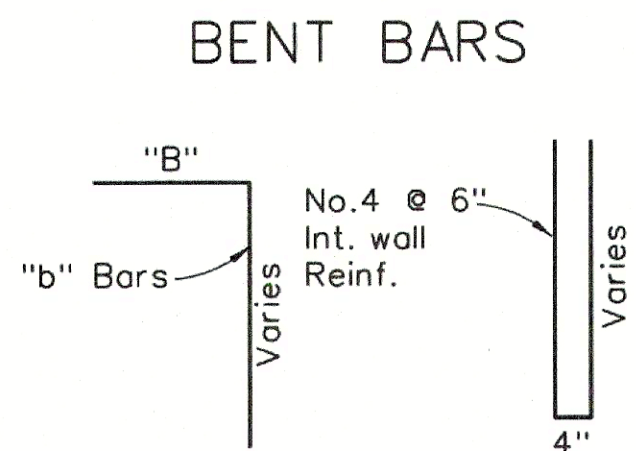
DRAWING NO.
201770-00

11-17-2020 \Images\7Sheet Set\420 V-01.dwg

B-4



PAVING NOTCH DETAIL



NOTES:

- DESIGN SPECIFICATIONS: "AASHTO LRFD Bridge Design Specifications 2012"
- CONSTRUCTION SPECIFICATIONS: "State of Nevada Department of Transportation Standard Specifications for Road and Bridge Construction 2014"
- LIVE LOADS:
HL-93 Design Truck (32.0 KIP Axle)
HL-93 Design Tandem (Two 25.0 KIP Axles Spaced 4 Feet Apart)
(Live Load Impact Factor for Top Slab is 33% up to 2 Feet of Cover)

LATERAL LIVE LOAD PRESSURE:
Equivalent to 2 Feet of Earth Surcharge Applied Horizontally = 240 PSF

DEAD LOADS:
Soil Unit Weight = 120 PCF
Min Lateral Earth Pressure = 30 PCF
Max Lateral Earth Pressure = 60 PCF
- CONCRETE: Class DA Modified (Major)
F'C=4,500 PSI @ 28 Days.
(Class D in Clark County)

- REINFORCING STEEL: All reinforcing steel to be ASTM A615 grade 60 or A706. Dimension relating to bar spacing are center to center
- DESIGNATION: Box culverts are shown on plans as span times height times length (10' x 8' x 196' RCB).
- Where traffic loads will be placed directly on the top surface of the culvert, (and/or up to 2 feet of fill), increase top slab thickness by 1/2 inch and cover for top reinforcement from 2 inches to 2 1/2 inches. Provide epoxy coated reinforcement in top slab (except in Clark County). Decrease spacing of top slab bottom longitudinal bars (#4 @ 12) to 6 inch spacing. Use EA Modified Major concrete (Class E in Clark County) in lieu of Class DA. Adjust quantities accordingly.
- Provide 2 foot wide Type 1 or Type 2 drain backfill wrapped in Class 1 or Class 2 non-woven geotextile along full height of each culvert exterior wall face.
- Provide paving notch when top slab is exposed and when pavement is concrete. Adjust quantities accordingly.
- For additional notes, see sheet B-20.1.1

SHEET 1 OF 2

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

RCB CULVERTS
DOUBLE

B-20.1.3	(502)	Signed Original On File
ADOPTED 11/70	REVISED 10/15	CHIEF BRIDGE ENGR.

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CITY OF HENDERSON UTILITY SERVICES LINE LOCATION

AND

1-702-229-6811

TRAFFIC SIGNAL AND STREET LIGHT SYSTEM CONDUITS

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CITY ENGINEER, CITY OF HENDERSON DATE

INSPIRADA BUILDERS, LLC 5795 W. BROADWAY, SUITE 180 LAS VEGAS, NV 89116 (702) 266-9405		CITY OF HENDERSON	
DETAIL SHEET 4		INSPIRADA VILLAGE 7 INFRASTRUCTURE VIA VENETIA AND VIA INSPIRADA	
DRAWN BY: KEL	DESIGNED BY: ZAKS	CHECKED BY: KEN	PROJECT NO: 7460
December 17	December 17	December 17	SCALE: N/A
HORIZ.		VERT.	
SHEET D5 27 OF 28 SHEETS		DRAWING NO. 201770---	

PROFESSIONAL ENGINEER STATE OF NEVADA

KENNETH F. NICHOLSON

EXP: 12/31/17

CIVIL

No. 10539

1-74201 Village-7-Sheet Set/426-V7-DT.dwg

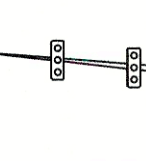
3-5

[illegible]

SPAN, "S"			FT.	12																14															
HEIGHT, "H"			FT.	6		7		8		9		10		11		12		7		8		9		10		11		12		13		14			
MAXIMUM EARTH COVER			FT.	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20		
CONC.	ROOF	T1	IN.	12½	17½	12½	17½	12½	17½	12½	17½	12½	17½	12½	17½	12½	17½	13	19	13	19	13	19	13	19	13	19	13	19	13	19	13	19		
	WALLS	T2	IN.	9	14	9	14	9	14	9	14	9	14	9	14	10	14	10	16	10	16	10	16	10	16	10	16	10	16	10	16	11	16		
	INVERT	T3	IN.	13	19	13	19	13	19	13	19	13	19	13	19	13	19	15	21	15	21	15	21	15	21	15	21	15	21	15	21	15	21		
REINFORCEMENT	"a"	BAR SIZE		5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6		
		SPACING	IN.	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6		
		LENGTH	ft-in	25-10	26-8	25-10	26-8	25-10	26-8	25-10	26-8	25-10	26-8	25-10	26-8	26-0	26-8	30-0	31-0	30-0	31-0	30-0	31-0	30-0	31-0	30-0	31-0	30-0	31-0	30-0	31-0	30-2	31-0		
	"b"	BAR SIZE		5	6	5	6	5	6	5	6	5	6	6	6	6	6	5	6	5	6	6	6	6	6	6	6	6	6	6	6	6	6		
		SPACING	IN.	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6		
		LENGTH	ft-in	7-8	9-2	8-2	9-8	8-8	10-2	9-2	10-8	9-8	11-2	10-9	11-8	11-4	12-2	8-4	9-11	8-10	10-5	9-11	10-11	10-11	10-5	11-5	10-11	11-11	11-5	12-5	11-11	12-11	12-6	13-5	
	"c"	B	ft-in	2-9	3-7	2-9	3-7	2-9	3-7	2-9	3-7	2-9	3-7	3-2	3-7	3-3	3-7	2-10	3-9	2-10	3-9	3-3	3-9	3-3	3-9	3-3	3-9	3-3	3-9	3-3	3-9	3-4	3-9		
		BAR SIZE		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	5	6	5	6	5	6	5	6	5	6	4	6	4	6	
		SPACING	IN.	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	6	12	6	12	
	"d"	LENGTH	ft-in	7-9	8-8	8-9	9-8	9-9	10-8	10-9	11-8	11-9	12-8	12-9	13-8	13-9	14-8	8-11	9-11	9-11	10-11	10-11	11-11	11-11	12-11	12-11	13-11	14-11	14-11	15-11	15-11	16-11			
		BAR SIZE		8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	9	8	9	8	9	8	9	8	9	8	9	8	9	8	9	
		SPACING	IN.	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6		
REINFORCEMENT	LENGTH	ft-in	25-10	26-8	25-10	26-8	25-10	26-8	25-10	26-8	25-10	26-8	25-10	26-8	26-0	26-8	30-0	31-0	30-0	31-0	30-0	31-0	30-0	31-0	30-0	31-0	30-0	31-0	30-0	31-0	30-2	31-0			
	#4 @ 6"	LENGTH	ft-in	15-7	17-5	17-7	19-5	19-7	21-5	21-5	27-3	23-5	23-7	25-5	27-7	27-5	27-7	29-5	18-0	20-0	20-0	22-0	22-0	24-0	24-0	26-0	26-0	28-0	28-0	30-0	30-0	32-0	32-0	34-0	
	#4 @ 12"	NUMBER*		144	144	150	150	156	156	162	162	168	168	174	174	180	180	166	166	172	172	178	178	184	184	190	190	196	196	202	202	208	208		
QUANT.	CONCRETE		CF/LF	68.6	100	170.8	103.1	72.9	106.1	75.1	109.1	77.3	112.1	79.4	115.1	84.0	118.1	87.1	127.8	89.4	131.1	91.8	134.4	94.1	137.8	96.4	141.1	98.8	144.1	101.1	147.8	106.2	151.1		
	REINFORCEMENT		LB/LF	587	651	601	667	615	683		629	698	643	714	702	730	721	745	724	895	736	910	791	926	806	942	821	958	836	973	859	989	878	1005	

* QUANTITY INCLUDES #4 CORNER BARS

SHEET 2 OF 2 STATE OF NEVADA DEPARTMENT OF TRANSPORTATION RCB CULVERTS DOUBLE	
B-20.1.3.1 (502)	Signed Original On File
ADOPTED 11/70	REVISED 3/01
11/70	CHIEF BRIDGE ENGR.

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---	---

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CITY ENGINEER, CITY OF HENDERSON **DATE**

[illegible]