

DS #: 4569

APN: 125-15-101-003

Orchards at Grand Teton & Teton - units 2 & 3

PROJECT: (update to DS 4558 & DS 4274)

SUBMITTAL: 2nd

SCANNED BY/DATE:

CHECKED BY/DATE:





CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		October 18, 2012
TO: Land Development Services Department of Public Works		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT: Drainage Study for: Orchards at Grand Teton & Tenaya – Units 2 & 3 (Update to DS4558 & DS4274)		COPIES TO: Taney Engineering
Cross Streets:	SWC of Grand Teton Blvd. & Tenaya Way	D.R. Horton
File Number:	F:\Depot\DSMemos\DS4569B.doc	Bart Anderson, P.E., DevCo
Parcel Number:	125-15-101-003	CCRFC
Zoning Action:	TMP-45536	CCPW
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	8/23/2012	9/10/2012	Not Approved	\$400.00	293888: \$400
2 nd Submittal	10/4/2012	10/18/2012	See Comments Below	\$400.00	297822: \$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. The site is adjacent to or crosses an existing or proposed *Clark County Regional Flood Control District* (CCRFC) master planned facility. Therefore, CCRFC concurrence is required prior to final approval of the drainage study.
2. The site is also adjacent to the jurisdiction of Clark County. The engineer must coordinate with *Clark County Department of Public Works* (CCPW) and incorporate any concerns for boundary conditions along the north and east boundaries. CCPW concurrence is required prior to final acceptance of the study.
3. The engineer must provide a table on the grading plans that shows a quantity estimate of all drainage improvements within Public Drainage Easements. All drainage improvements within Public Drainage Easements must be bonded and inspected.
4. All drainage easements must be public drainage easements and common lots to be privately maintained by the Homeowners Association to be labeled on the grading plans and to be dedicated as such in the final map.

The following comments pertain to Unit 2:

1. This comment is repeated for information only: *No construction permit will be issued for Unit 2 prior to substantial completion of Unit 1 and the full half-street improvement of Whispering Sands Drive.*
2. Second comment: *Section H/GD1 on the grading plan is located across two lots in Unit 1 and Unit 2. However, the detail in Sheet GD1 shows a space between two walls, how so? Please address in the next submittal.*

The grading plan must identify the common space as shown in the detail. Review and revise accordingly.

The following comments pertain to Unit 3:

1. The proposed onsite channel along *Grand Teton Boulevard* has a trapezoidal section which in comparison would have a lesser conveyance than a rectangular section if the top widths are the same. It appears that a rectangular channel would have a better effect to lower the water surface elevations in the street than the trapezoidal counterpart during a 100-year major event.

Run a HEC-RAS model with rectangular section channel and provide two tables for comparison of the water surface elevations.

2. The engineer/developer must obtain approval from the *City Planning Department* for acceptable landscaping such as tree wells or bushes to be installed in the 20'-Multi Use Trail Corridor prior to the final approval of the *Units 2 & 3* drainage study.
3. The minimum required width of the drainage easement containing the channel is 20'. Revise all pertinent plans and details accordingly.
4. **Sheet G2:** Provide or extend a head wall at the end of the proposed channel to direct the outfall into *Grand Teton Boulevard*. Show hydraulic calculation to verify a freeboard of at least 12" is provided at the head wall.
5. Provide a guard rail along the north side of the channel for safety measure. Revise the grading plan and all pertinent details accordingly.
6. Revise all proposed 4'-Type C drop inlets to Mod. Type CM with L = 5'.
7. A Construction Note #16 is shown in the channel on the grading plan but to no avail in the Construction Notes column. Review and revise accordingly.
8. **Sheet PP4:** The plan and profile of *Tenaya Way* is still shown as proposed (ie, solid lines). Review and revise accordingly.

← depends on section

NOTE: Please be advised that all land surface area disturbances over 1 acre or any area adjacent to a water way must submit to the *Nevada Division of Environmental Protection* a "Notice of Intent" to discharge that certifies a stormwater pollution prevention plan has been developed and is maintained on site; for inclusion in the Stormwater General Permit No. NVR100000. A phased construction unit in a contiguous subdivision is considered under construction until all stripped or disturbed surface areas have been covered by paving, building construction or planting. For more information, including forms and applications see <http://ndep.nv.gov/bwpc/storm01.htm> or call (775) 687-9429.

END OF REMARKS
ays

T/R/S: T19S/R60E/15
AREA G-15

*** FAX TX REPORT ***

TRANSMISSION OK

JOB NO. 0019
 DESTINATION ADDRESS 3625233
 PSWD/SUBADDRESS
 DESTINATION ID
 ST. TIME 10/18 16:56
 USAGE T 01' 52
 PGS. 2
 RESULT OK

CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		October 18, 2012
TO: Land Development Services Department of Public Works		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for:	COPIES TO:
	Orchards at Grand Teton & Tenaya – Units 2 & 3 (Update to DS4558 & DS4274)	Taney Engineering
Cross Streets:	SWC of Grand Teton Blvd. & Tenaya Way	D.R. Horton
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FEMA Flood Zone	YES NO X	
Proposed Storm Drain	YES NO X	

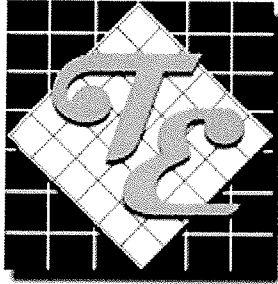
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1. The site is adjacent to or crosses an existing or proposed *Clark County Regional Flood Control District* (CCRFCD) master planned facility. Therefore, CCRFCD concurrence is required prior to final approval of the drainage study.
2. The site is also adjacent to the jurisdiction of Clark County. The engineer must coordinate with *Clark County Department of Public Works* (CCPW) and incorporate any concerns for boundary conditions along the north and east boundaries. CCPW concurrence is required prior to final acceptance of the study.



TANEY ENGINEERING

Rec'd: 10/4/12

DS 4569

G-15

\$400

**ADDENDUM #1 TO THE
UPDATE #2 TO THE
TECHNICAL DRAINAGE STUDY
FOR
THE ORCHARDS AT GRAND TETON & TENAYA
Units 2 and 3**

**CITY OF LAS VEGAS
NEVADA**

October 2012

Prepared by:

Taney Engineering
6030 S. Jones, Suite #100
Las Vegas, Nevada 89118
Telephone: (702) 362-8844
Fax: (702) 362-5233

Prepared for:

D.R. Horton
330 Carousel Parkway
Henderson, NV 89014
Telephone: (702) 635-3600

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL
DRAINAGE STUDY INFORMATION FORM

Name of Development: The Orchards at Grand Teton & Tenaya Units 2 and 3 Date: Oct 3, 2012

Location of Development: a) Descriptive (Cross Streets) North/South: Tenaya
East/West: Grand Teton

b) Section: 15 Township: 19S Range: 60E

c) APN : 125-15-101-003

Name of Owner: D.R. Horton

Telephone No.: (702) 635-3600 Fax No.: (702) 909-4601 E-Mail Address: _____

Address: 330 Carousel Parkway Henderson, NV 89014

Contact Person-Name: David W. Trushaw, P.E. Telephone No.: (702) 362-8844

* E-Mail Address: dt@taneycorp.com Fax No.: (702) 362-5233

Firm: Taney Engineering

Address: 6030 S. Jones Blvd., Suite 100, Las Vegas, NV 89118

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: 36.4+/- acres Being Developed/Disturbed: 26+/- 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

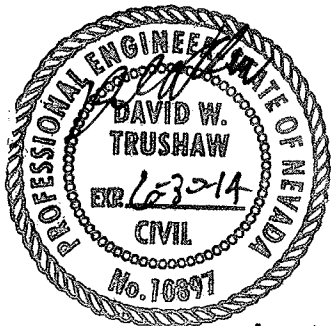
4. Proposed type of development (Residential, Commercial, Etc.): Residential

5. Approximate upstream land area which drains to the subject site: >1 square mile

6. Has the site drainage been evaluated in the past? ☒ YES ☐ NO If yes, please identify documentation: Technical Drainage Study for Spinnaker Homes at The Orchard, DS4274 and TDS Update for Orchards, DS4558

7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Tenaya and Whispering Sands

8. Briefly describe your proposed schedule for the subject project: A.S.A.P



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

**ADDENDUM #1 TO THE
UPDATE TO THE
TECHNICAL DRAINAGE STUDY
FOR
The Orchards at Grand Teton
& Tenaya Units 2 and 3
Residential Development**

October 2012

Prepared by:

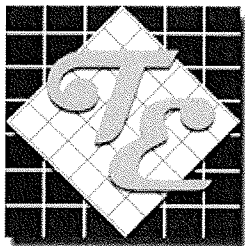


Taney Engineering
6030 S. Jones, Suite #100
Las Vegas, NV 89118

Prepared for:

D R HORTON
330 Carousel Pkwy.
Henderson, Nevada 89014
Phone: (702) 632-3600 Fax: (800) 909-4601

APN: 125-15-101-003



TANEY ENGINEERING

6030 SOUTH JONES BLVD, SUITE 100

LAS VEGAS, NV 89118

TELEPHONE: 702-362-8844

Fax: 702-362-5233

October 3, 2012

Job No. DRH-12-033

Mr. Albert Sung, P.E.
City of Las Vegas Flood Control
333 N. Rancho Drive
Las Vegas, Nevada 89106

Subject: Addendum #1 to the Technical Drainage Study Update for the Orchards at Grand Teton & Tenaya – Units 2 & 3 (DS4569)

Dear Mr. Sung:

Taney Engineering is pleased to provide one (1) hard copy and one (1) digital copy of Addendum #1 to the Technical Drainage Study Update for *the Orchards at Grand Teton & Tenaya – Units 2 & 3*. This addendum includes a response to each comment from the City of Las Vegas Public Works review memorandum dated on September 10, 2012. The comments been reproduced and addressed as follows:

A meeting was held with City of Las Vegas Public Works staff on September 19, 2012 to discuss coordination of the Grand Teton Storm Drain project (Las Vegas Wash Middle Branch) and the project site. It is our understanding the Grand Teton Storm Drain project has received it funding and is on schedule to start construction in the first quarter of 2013. The Grand Teton Storm Drain has been added to the improvements plans and the 18" RCP nuisance storm drain in Grand Teton has been removed. Substantial completion of the Grand Teton Storm Drain project is expected to occur before occupancy permits for Unit 3 are obtained.

In the interim condition it is assumed the Grand Teton Storm Drain will be completed. The *Grand Teton Storm Drain Final Design Report*, prepared by VTN dated January 2012 was reviewed and acceptable reference material is found in Appendix D. After completion of the Grand Teton Storm Drain 933cfs remains in Grand Teton Blvd, adjacent to the project site, in the 100-year storm. The 100-year flow rate was determined using the following equation:

CP7 from the <i>Grand Teton SD Final Design Report</i>	1,989 cfs
- Design flow in RCB adjacent to site, SD10	<u>1,056 cfs</u>
Remaining surface flow in Grand Teton	933 cfs

Due to this reduced flow and discussions with City of Las Vegas staff the channel south of the trail easement on Grand Teton Blvd has been revised to a maximum depth of 2-feet. Please refer to section B sheet GD1, Unit 3 for a revised cross section. The sidewalk underdrain at the

downstream end of the channel has been removed at the request of City of Las Vegas staff and a 3'x3' Jensen Precast grate drop inlet is proposed to capture low flow. Significant storm event flows will overtop the channel and continue east in Grand Teton Blvd. An updated HEC-RAS analysis has been provided and demonstrates that the water surface elevation is lower than the TCE existing condition analysis referenced in the initial submittal. The lateral weir shows that less than 1cfs overtops the high point in Tenaya Way using the reduced flow. The 100-year WSE is contained within the right-of-way adjacent to the existing residence on Grand Teton Blvd adjacent to the project. It is noted that VxD criteria is not met along Grand Teton Blvd in the interim condition. However the project is not directing additional runoff to Grand Teton Blvd and in the ultimate condition all criteria will be met. Therefore the proposed design is considered acceptable and has been discussed with City of Las Vegas staff.

In the ultimate condition it is assumed all upstream CCRFCD MPU facilities are constructed and the flows west of US-95 are intercepted by future MPU facilities along the west side of US-95 as discussed in the *Grand Teton Storm Drain Final Design Report*. This reduces the tributary area impacting Grand Teton Blvd and the Grand Teton Storm Drain allowing CCRFCD street criteria to be met.

Comment 1: The site is adjacent to or crosses an existing or proposed *Clark County Regional Flood Control District (CCRFCD)* master planned facility. Therefore, CCRFCD concurrence is required prior to final approval of the drainage study.

Response 1: Noted. The study will be submitted to CCRFCD for concurrence after conditional approval from CLV and CCPW.

Comment 2: The site is also adjacent to the jurisdiction of Clark County. The engineer must coordinate with *Clark County Department of Public Works (CCPW)* and incorporate any concerns for boundary conditions along the north and east boundaries. CCPW concurrence is required prior to final acceptance of the study

Response 2: Noted. The study will be submitted to CCPW for concurrence after conditional approval is received from the CLV.

Comment 3: The engineer must provide a table on the grading plans that shows a quantity estimate of all drainage improvements within Public Drainage Easements. All drainage improvements within Public Drainage Easements must be bonded and inspected.

Response 3: Noted. The requested table has been shown on the grading plan, sheet C2 of each unit.

Comment 4: All drainage easements must be public drainage easements and common lots to be privately maintained by the Homeowners Association to be labeled on the grading plans and to be dedicated as such in the final map.

Response 4: Noted. All drainage easements and common lots have been identified as “to be privately maintained by the Homeowners Association” and will be dedicated as such in the final map.

Comments pertaining to Unit 2:

Comment 1: No construction permit will be issued for Unit 2 prior to substantial completion of Unit 1 and the full half-street improvements of *Whispering Sands Drive*.

Response 1: Noted. Vertical construction of Unit 2 will not be allowed until substantial completion of Unit 1 construction. It is assumed the reviewer is allowing Unit 2 rough grading and infrastructure improvements to be completed during Unit 1 construction in accordance with the projects phasing agreement.

Comment 2: The proposed drainage easement at the end of *Fresh Harvest Avenue* must be labeled as “37’ Public Drainage Easement to be Privately Maintained by the HOA” on the grading plans and dedicated as such in the final map.

Response 2: Noted. The easement has been labeled as requested on the grading plans and will be dedicated on the final map as requested.

Comment 3: Section H/GD1 on the grading plan is located across two lots in Unit 1 and Unit 2. However, the detail sheet in Sheet GD1 shows a space between two walls, how so? Please address in the next submittal.

Response 3: Section H/GD1 occurs across a 30’ common lot to be privately maintained by the HOA.

Comment 4: Specify the material, ie, concrete or asphalt, in Detail K/GD1.

Response 4: The material has been clarified on the plans to be concrete.

Comments pertaining to Unit 3:

Comment 1: The Grand Teton Storm Drain project (Las Vegas Wash Middle Branch) is currently under design. The engineer must coordinate with Rosa Cortez, P.E., *Engineering Project Manager at City of Las Vegas Public Works Department* at 229-6264 for any future stub connection requirements or other related issues prior to the final approval of the drainage study. A meeting is recommended between the engineer and City officials to reach a mutually acceptable design for both the interim and the ultimate conditions of development.

Response 1: A meeting was held with Rosa Cortez and City of Las Vegas Public Works staff on September 19, 2012 to coordinate future stub locations. Three (3) 4' Type C drop inlets have been proposed along the south side of Grand Teton Blvd to capture nuisance runoff. It is acknowledged that the Grant Teton Storm Drain project has received it funding and is on schedule to start construction in the first quarter of 2013. The Grand Teton Storm Drain has been added to the improvements plans and is assumed to be substantially complete before occupancy permits will be issued for Unit 3, as previously mentioned.

Comment 2: The engineer/developer must obtain approval from the *City Planning Department* for acceptable landscaping such as tree wells or bushes to be installed in the 20'-Multi Use Trail Corridor prior to the final approval of Units 2 & 3 drainage study.

Response 2: We are currently in coordination with City of Las Vegas Planning Department. We have contacted Linda Maynard who is going to discuss our design with her boss Steve Gebeke.

Comment 3: Sheet G1: Provide a cross section in *Grand Teton Boulevard* at the proposed 40'-depressed curb location.

Response 3: Cross section T on sheet GD1 provides a cross section at the 40'-depressed curb location.

Comment 4: *Grand Teton Boulevard* has a center island in the frontage of the subject development. However, *Cross Section B* in Sheet GD1 does not show the island. Review and revise accordingly.

Response 4: The center island has been added to cross section B/GD1.

Comment 5: Obtain a construction permit from *Clark County Public Works* for the proposed 12"-bleeder line in *Grand Teton Boulevard* in the County jurisdiction.

Response 5: The 12-inch bleeder line has been removed from the plans. The Grand Teton Storm Drain project will be under construction, and is assumed to be substantially completed before Unit 3 occupancy permits are issued.

Comment 6: Sheet PP3: Per Unit 2 improvement plans, *Tenaya Way* was constructed with Unit 2. Unit 3 plans shall show *Tenaya Way* as existing.

Response 6: Unit 3 plans have been revised to show Tenaya Way as existing.

A copy of the City of Las Vegas comments has been provided directly following this letter. If you need any additional information, please do not hesitate to call our office.

Sincerely,

TANEY ENGINEERING

A handwritten signature in black ink, appearing to read 'Rob Hansen', written in a cursive style.

Rob Hansen, P.E.

APPENDICES

APPENDIX A	Comment Letter
APPENDIX B	Revised HEC-RAS
APPENDIX C	Reference Material
APPENDIX D	Improvement Plans

APPENDIX A

Comment Letter

CITY OF LAS VEGAS		DATE:
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AREA G-15

APPENDIX B

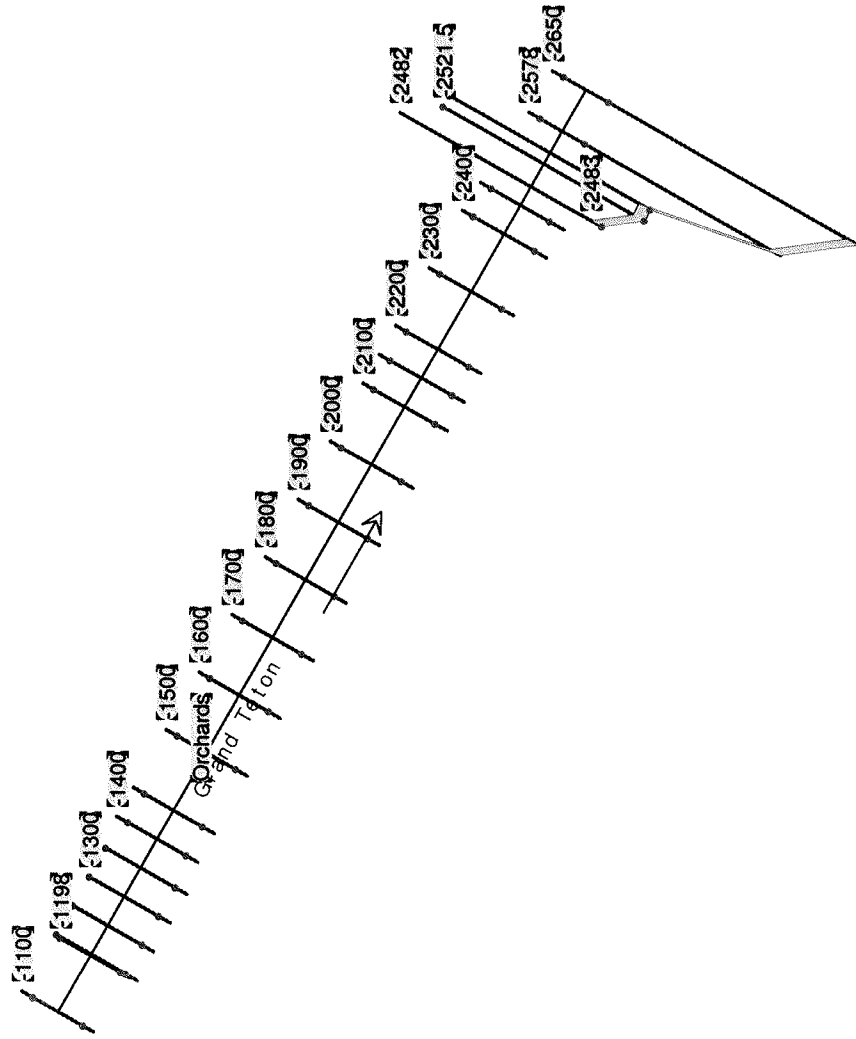
Revised HEC-RAS

HEC-RAS SUMMARY

River Sta	Q Total	Max Depth	Street Depth*	Street Velocity*	Street VxD*	W.S. Elev	TCE Existing Condition		WSE Change
	(cfs)	(ft)	(ft)	(ft/s)		(ft)	Station	WSE	(ft)
-1100	933	1.57	--	8.1	--	98.88	15	99.91	-1.03
-1198	933	2.03	--	7.21	--	97.99	14	100.02	-2.03
-1200	933	3.01	1.63	5.48	8.9324	97.56	14	100.02	-2.46
-1250	933	2.94	1.56	5.42	8.4552	97.25	13	99.58	-2.33
-1300	933	2.68	1.45	6.64	9.628	96.75	13	99.58	-2.83
-1350	933	3.26	1.88	4.41	8.2908	97.09	12	98.01	-0.92
-1400	933	3.08	1.7	5.4	9.18	96.67	12	98.01	-1.34
-1450	933	3.01	1.63	5.99	9.7637	96.27	12	98.01	-1.74
-1500	933	3.28	1.89	4.46	8.4294	96.38	11	97.01	-0.63
-1600	933	2.83	1.45	6.8	9.86	95.05	11	97.01	-1.96
-1700	933	2.84	1.46	6.95	10.147	94.16	10	95.37	-1.21
-1800	933	2.84	1.46	7.02	10.2492	93.27	9	95.34	-2.07
-1900	933	2.84	1.46	6.94	10.1324	92.38	8	94.13	-1.75
-2000	933	2.98	1.6	6.09	9.744	92.03	7	93.09	-1.06
-2100	933	2.93	1.55	5.93	9.1915	91.49	7	93.09	-1.6
-2150	933	2.95	1.57	5.63	8.8391	91.28	6	91.87	-0.59
-2200	933	2.93	1.55	5.62	8.711	91.04	6	91.87	-0.83
-2300	933	3	1.62	5.24	8.4888	90.67	5	91.39	-0.72
-2400	933	2.2	1.43	7.63	10.9109	89.17	4	89.74	-0.57
-2450	933	1.57	1.57	8.26	12.9682	88.65	3	88.58	-0.01
-2482	933	1	0.71	9.06	6.4326	87.99	btwn 2-3**	88.41	-0.42
-2483	Lat Struct		0		0				
-2521.5	932.21	1.39	--	5.77	--	87.93	btwn 2-3**	88.20	-0.27
-2540.5	932.21	1.13	--	7.13	--	87.43	btwn 2-3**	88.10	-0.67
-2578	932.2	1.79	--	5.48	--	87.72	2	87.9	-0.18
-2650	932.01	1.72	--	6.23	--	87.37	1	87.88	-0.51

*Street depth and velocity correspond to the channel depth and channel velocity output of HEC-RAS. The proposed concrete channel was modeled in the right overbank.

**WSE was interpolated between sections 2 and 3 of TCE analysis

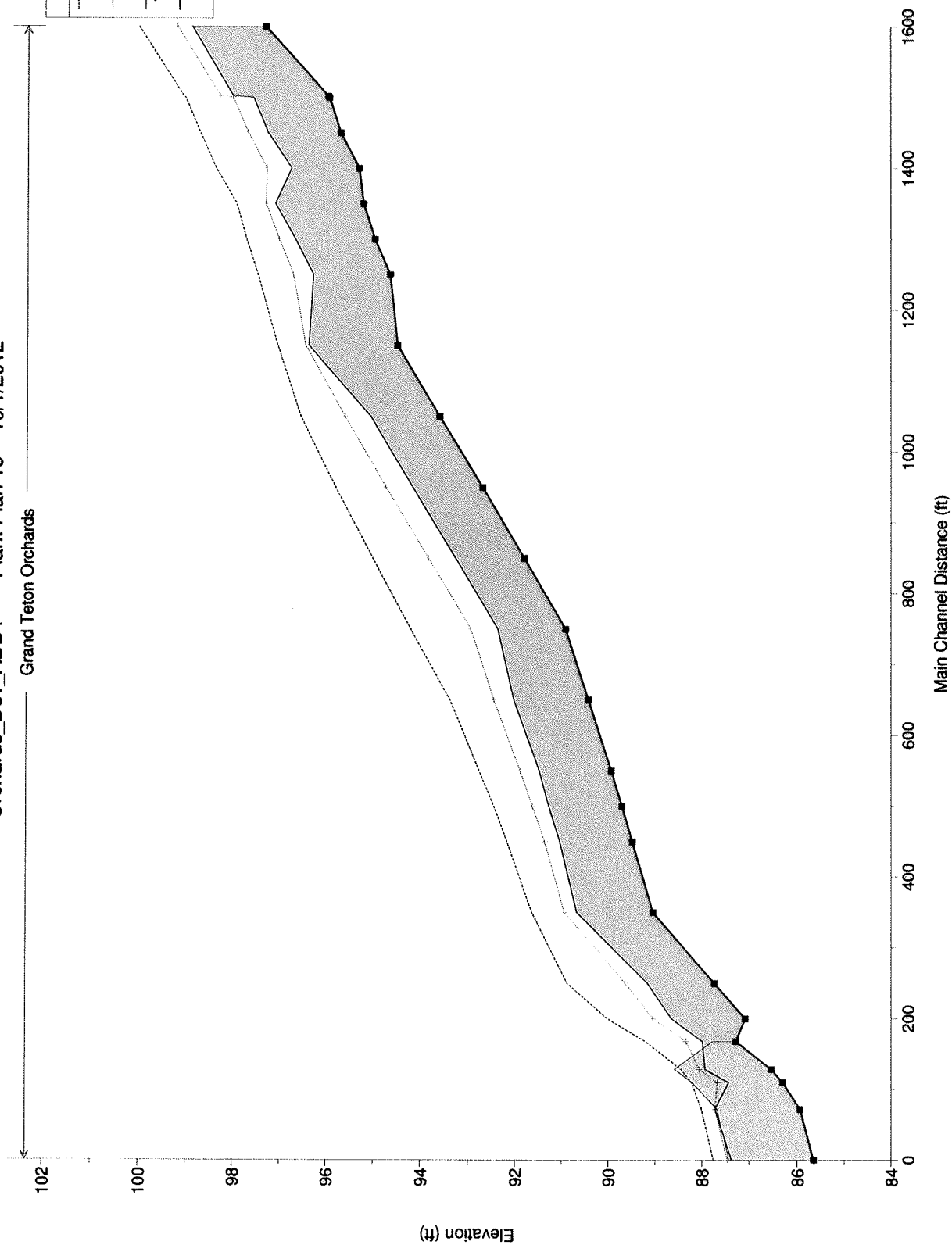


one of the XS's are Geo-Referenced (Geo-Ref user entered XS) Geo-Ref interpolated XS Non Geo-Ref user entered XS Non Geo-Ref interpolated XS

Orchards_Dev_ADD1 Plan: Plan 19 10/1/2012

Grand Teton Orchards

Legend
EG PF 1
Crit PF 1
WS PF 1
Ground



Orchards_Dev_ADD1.rep

HEC-RAS Version 4.1.0 Jan 2010
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```

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

```

PROJECT DATA

Project Title: Orchards_Dev_ADD1
Project File : Orchards_Dev_ADD1.prj
Run Date and Time: 10/1/2012 4:55:26 PM

Project in English units

PLAN DATA

Plan Title: Plan 19
Plan File : s:\Active\D R Horton\DRH-12-033 - The Orchards Grand Teton & Tenaya\Hydrology\Update
#2\Add1\HEC-RAS\Orchards_Dev_ADD1.p19

Geometry Title: Orchards_Int_Add1
Geometry File : s:\Active\D R Horton\DRH-12-033 - The Orchards Grand Teton & Tenaya\Hydrology\Update #2\Add1\HEC-RAS\Orchards_Dev_ADD1.g02

Flow Title : Box In Place Flow
Flow File : s:\Active\D R Horton\DRH-12-033 - The Orchards Grand Teton & Tenaya\Hydrology\Update #2\Add1\HEC-RAS\Orchards_Dev_ADD1.f03

Plan Summary Information:

Number of:	Cross Sections = 25	Multiple Openings = 0
	Culverts = 0	Inline Structures = 0
	Bridges = 0	Lateral Structures = 1

Computational Information

Water surface calculation tolerance = 0.01
Critical depth calculation tolerance = 0.01
Maximum number of iterations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options

Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Mixed Flow

FLOW DATA

Flow Title: Box In Place Flow
Flow File : s:\Active\D R Horton\DRH-12-033 - The Orchards Grand Teton & Tenaya\Hydrology\Update
#2\Add1\HEC-RAS\Orchards_Dev_ADD1.f03

Flow Data (cfs)

River	Reach	RS	PF 1
Grand Teton	Orchards	-1100	933

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
-------	-------	---------	----------	------------

Grand Teton Orchards

PF 1

Orchards_Dev_ADD1.rep

Normal S = 0.0144

Normal S = 0.005

GEOMETRY DATA

Geometry Title: Orchards_Int_Add1

Geometry File : s:\Active\D R Horton\DRH-12-033 - The Orchards Grand Teton & Tenaya\Hydrology\Update
#2\Add1\HEC-RAS\Orchards_Dev_ADD1.g02

CROSS SECTION

RIVER: Grand Teton

REACH: Orchards

RS: -1100

INPUT

Description: Sta 11+00

Station Elevation Data

num=

12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	98.07	19	97.69	33	97.96	33	98.46	47	98.73
47	98.23	50	98.29	103	97.48	104.5	97.31	104.5	97.81
105	97.81	122.5	97.95						

Manning's n Values

num=

3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	19	.02	105	.016

Bank Sta: Left 19 Right 105

Lengths: Left Channel 98 Right 98

Coeff Contr. .1

Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	100.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.14	Wt. n-Val.	0.025	0.020	0.016
W.S. Elev (ft)	98.88	Reach Len. (ft)	98.00	98.00	98.00
Crit W.S. (ft)	99.19	Flow Area (sq ft)	18.94	75.82	17.44
E.G. Slope (ft/ft)	0.014408	Area (sq ft)	18.94	75.82	17.44
Q Total (cfs)	933.00	Flow (cfs)	131.08	614.51	187.41
Top width (ft)	122.50	Top width (ft)	19.00	86.00	17.50
Vel Total (ft/s)	8.32	Avg. Vel. (ft/s)	6.92	8.10	10.75
Max Chl Dpth (ft)	1.57	Hydr. Depth (ft)	1.00	0.88	1.00
Conv. Total (cfs)	7772.9	Conv. (cfs)	1092.0	5119.5	1561.3
Length Wtd. (ft)	98.00	Wetted Per. (ft)	19.81	87.52	18.43
Min Ch El (ft)	97.31	Shear (lb/sq ft)	0.86	0.78	0.85
Alpha	1.06	Stream Power (lb/ft s)	122.50	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	0.61	2.82	1.53
C & E Loss (ft)		Cum SA (acres)	0.56	3.63	1.43

CROSS SECTION

RIVER: Grand Teton

REACH: Orchards

RS: -1198

INPUT

Description: Sta 11+98

Station Elevation Data

num=

8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	97.44	50	97.39	103	96.13	104.5	95.96
105	96.46	120	96.76	120	100.76	104.5	96.46

Manning's n Values

num=

3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	0	.016	105	.013

Bank Sta: Left 0 Right 105

Lengths: Left Channel 2 Right 2

Coeff Contr. .1

Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	99.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.07	Wt. n-Val.		0.016	0.013
W.S. Elev (ft)	97.99	Reach Len. (ft)	2.00	2.00	2.00
Crit W.S. (ft)	98.27	Flow Area (sq ft)		97.71	20.71
E.G. Slope (ft/ft)	0.006726	Area (sq ft)		97.71	20.71
Q Total (cfs)	933.00	Flow (cfs)		704.59	228.41

Orchards_Dev_ADD1.rep			
Top Width (ft)	120.00	Top Width (ft)	105.00 15.00
Vel Total (ft/s)	7.88	Avg. Vel. (ft/s)	7.21 11.03
Max Chl Dpth (ft)	2.03	Hydr. Depth (ft)	0.93 1.38
Conv. Total (cfs)	11376.5	Conv. (cfs)	8591.4 2785.1
Length Wtd. (ft)	2.00	Wetted Per. (ft)	106.08 16.23
Min Ch El (ft)	95.96	Shear (lb/sq ft)	0.39 0.54
Alpha	1.11	Stream Power (lb/ft s)	120.00 0.00 0.00
Frctn Loss (ft)	0.93	Cum Volume (acre-ft)	0.58 2.62 1.49
C & E Loss (ft)	0.02	Cum SA (acres)	0.54 3.41 1.39

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Grand Teton
REACH: Orchards RS: -1200

INPUT

Description: Sta 12+00

Station Elevation Data		num=	20						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	97.45	19	96.78	50	97.4	103	96.1	104.5	95.93
104.5	96.43	105	96.43	110	96.53	120	96.73	125	96.63
128	95.63	128.5	95.63	128.5	94.63	132.5	94.55	136.5	94.63
136.5	95.63	137	95.63	139	96.63	140	96.63	140	99.58

Manning's n Values

num=		4						
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	
0	.03	19	.016	125	.013	140	.013	

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	0	120		50	50	50	.1	.3	

CROSS SECTION OUTPUT Profile #PF 1

		Left OB	Channel	Right OB
E.G. Elev (ft)	99.02			
Vel Head (ft)	1.46			
W.S. Elev (ft)	97.56	50.00	0.017	0.013
Crit W.S. (ft)	97.99		50.00	50.00
E.G. Slope (ft/ft)	0.005939		83.44	38.15
Q Total (cfs)	933.00		83.44	38.15
Top Width (ft)	140.00		457.33	475.67
Vel Total (ft/s)	7.67		120.00	20.00
Max Chl Dpth (ft)	3.01		5.48	12.47
Conv. Total (cfs)	12106.5		0.70	1.91
Length Wtd. (ft)	50.00		5934.2	6172.3
Min Ch El (ft)	95.93		120.66	23.33
Alpha	1.60		0.26	0.61
Frctn Loss (ft)	0.01	140.00	0.00	0.00
C & E Loss (ft)	0.04	0.58	2.62	1.48
		0.54	3.41	1.39

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Grand Teton
REACH: Orchards RS: -1250

INPUT

Description: Sta 12+50

Station Elevation Data		num=	21						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	96.43	11	96.21	19	96.51	50	97.13	103	95.86
104.5	95.69	104.5	96.19	105	96.19	110	96.29	120	96.49
124.99	96.39	128	95.39	128.5	95.39	128.5	94.39	132.5	94.31
136.5	94.39	136.5	95.39	137	95.39	139	96.39	140	96.39
140	99.26								

Manning's n Values

num=		4						
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	
0	.03	19	.016	120	.013	140	.013	

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 0 120 50 50 50 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	98.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.45	Wt. n-Val.		0.018	0.013
W.S. Elev (ft)	97.25	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	97.67	Flow Area (sq ft)		86.72	36.71
E.G. Slope (ft/ft)	0.006609	Area (sq ft)		86.72	36.71
Q Total (cfs)	933.00	Flow (cfs)		470.45	462.55
Top width (ft)	140.00	Top width (ft)		120.00	20.00
Vel Total (ft/s)	7.56	Avg. vel. (ft/s)		5.42	12.60
Max chl Dpth (ft)	2.94	Hydr. Depth (ft)		0.72	1.84
Conv. Total (cfs)	11476.3	Conv. (cfs)		5786.7	5689.6
Length Wtd. (ft)	50.00	Wetted Per. (ft)		121.36	23.26
Min Ch El (ft)	95.69	Shear (lb/sq ft)		0.29	0.65
Alpha	1.64	Stream Power (lb/ft s)	140.00	0.00	0.00
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	0.58	2.52	1.44
C & E Loss (ft)	0.00	Cum SA (acres)	0.54	3.27	1.37

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Grand Teton
 REACH: Orchards RS: -1300

INPUT

Description: Sta 13+00

Station Elevation Data		num=	23						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	95.68	11	95.84	19	96.26	33	96.53	33	97.03
50	97.37	67	97.04	67	96.54	103	95.62	104.5	95.45
105	95.45	110	95.4	120	95.3	128	95.15	128.5	95.15
128.5	94.15	132.5	94.07	136.5	94.15	136.5	95.15	137	95.15
139	96.15	140	96.15	140	98.95				

Manning's n Values		num=	4				
Sta	n Val	Sta	n Val	Sta	n Val		
0	.03	19	.016	104.5	.013	140	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 0 120 50 50 50 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	98.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.61	Wt. n-Val.		0.016	0.013
W.S. Elev (ft)	96.75	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	97.27	Flow Area (sq ft)		68.51	37.68
E.G. Slope (ft/ft)	0.006311	Area (sq ft)		68.51	37.68
Q Total (cfs)	933.00	Flow (cfs)		455.22	477.78
Top width (ft)	106.00	Top width (ft)		86.00	20.00
Vel Total (ft/s)	8.79	Avg. vel. (ft/s)		6.64	12.68
Max chl Dpth (ft)	2.68	Hydr. Depth (ft)		0.80	1.88
Conv. Total (cfs)	11744.3	Conv. (cfs)		5730.1	6014.1
Length Wtd. (ft)	50.00	Wetted Per. (ft)		87.53	22.84
Min Ch El (ft)	95.30	Shear (lb/sq ft)		0.31	0.65
Alpha	1.35	Stream Power (lb/ft s)	140.00	0.00	0.00
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	0.58	2.43	1.40
C & E Loss (ft)	0.02	Cum SA (acres)	0.54	3.15	1.35

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Grand Teton
 REACH: Orchards RS: -1350

INPUT

Description: Sta 13+50

Station Elevation Data		num=	25						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

Orchards_Dev_ADD1.rep									
0	95.27	11	95.47	19	95.99	33	96.26	33	96.76
50	97.1	67	96.77	67	96.27	103	95.38	104.5	95.21
104.5	95.71	105	95.71	110	95.81	120	96.01	125	95.91
128	94.91	128.5	94.91	128.5	93.91	132.5	93.83	136.5	93.91
136.5	94.91	137	94.91	139	95.91	140	95.91	140	98.68

Manning's n Values		num= 4	
Sta	n Val	Sta	n Val
0	.03	19	.016
		120	.013
		140	.013

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	0	120		50	50		.1	.3

CROSS SECTION OUTPUT Profile #PF 1

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	97.91				
Vel Head (ft)	0.82	Wt. n-Val.		0.019	0.013
W.S. Elev (ft)	97.09	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	97.29	Flow Area (sq ft)		116.56	43.26
E.G. Slope (ft/ft)	0.003192	Area (sq ft)		116.56	43.26
Q Total (cfs)	933.00	Flow (cfs)		514.46	418.54
Top Width (ft)	139.43	Top width (ft)		119.43	20.00
Vel Total (ft/s)	5.84	Avg. vel. (ft/s)		4.41	9.68
Max Chl Dpth (ft)	3.26	Hydr. Depth (ft)		0.98	2.16
Conv. Total (cfs)	16514.5	Conv. (cfs)		9106.1	7408.4
Length Wtd. (ft)	50.00	Wetted Per. (ft)		122.80	23.59
Min Ch El (ft)	95.21	Shear (lb/sq ft)		0.19	0.37
Alpha	1.55	Stream Power (lb/ft s)	140.00	0.00	0.00
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)		0.58	1.35
C & E Loss (ft)	0.24	Cum SA (acres)		0.54	1.32

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Grand Teton
REACH: Orchards RS: -1400

INPUT

Description: Sta 14+00

Station Elevation Data		num= 24	
Sta	Elev	Sta	Elev
0	94.79	11	95.09
50	96.83	67	96.5
104.5	95.47	105	95.47
128	94.67	128.5	94.67
137	94.67	139	95.67

Manning's n Values		num= 4	
Sta	n Val	Sta	n Val
0	.03	19	.016
		120	.013
		140	.013

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	19	120		50	50		.1	.3

CROSS SECTION OUTPUT Profile #PF 1

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	97.71				
Vel Head (ft)	1.04	Wt. n-Val.	0.030	0.016	0.013
W.S. Elev (ft)	96.67	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	97.01	Flow Area (sq ft)	29.08	71.44	40.02
E.G. Slope (ft/ft)	0.004307	Area (sq ft)	29.08	71.44	40.02
Q Total (cfs)	933.00	Flow (cfs)	117.78	385.85	429.37
Top Width (ft)	123.12	Top width (ft)	19.00	84.12	20.00
Vel Total (ft/s)	6.64	Avg. vel. (ft/s)	4.05	5.40	10.73
Max Chl Dpth (ft)	3.08	Hydr. Depth (ft)	1.53	0.85	2.00
Conv. Total (cfs)	14215.9	Conv. (cfs)	1794.6	5879.1	6542.2
Length Wtd. (ft)	50.00	Wetted Per. (ft)	20.91	85.65	23.40
Min Ch El (ft)	94.97	Shear (lb/sq ft)	0.37	0.22	0.46
Alpha	1.52	Stream Power (lb/ft s)	140.00	0.00	0.00
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)		0.57	1.30
C & E Loss (ft)	0.02	Cum SA (acres)		0.53	1.30

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Grand Teton
REACH: Orchards

RS: -1450

INPUT

Description: Sta 14+50

Station Elevation Data		num=	25						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	94.52	11	94.72	19	95.46	33	95.72	33	96.22
50	96.56	67	96.22	67	95.72	103	94.81	104.5	94.64
104.5	95.14	105	95.14	110	95.24	120	95.44	125	95.34
128	94.34	128.5	94.34	128.5	93.34	132.5	93.26	136.5	93.34
136.5	94.34	137	94.34	139	95.34	140	95.34	140	97.5

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	19	.016	120	.013
				140	.013

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	19	120		100	100	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	97.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.19	Wt. n-Val.	0.030	0.016	0.013
W.S. Elev (ft)	96.27	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)	96.71	Flow Area (sq ft)	27.68	63.75	38.27
E.G. Slope (ft/ft)	0.005071	Area (sq ft)	27.68	63.75	38.27
Q Total (cfs)	933.00	Flow (cfs)	118.16	381.72	433.12
Top Width (ft)	111.48	Top Width (ft)	19.00	72.48	20.00
Vel Total (ft/s)	7.19	Avg. Vel. (ft/s)	4.27	5.99	11.32
Max Chl Dpth (ft)	3.01	Hydr. Depth (ft)	1.46	0.88	1.91
Conv. Total (cfs)	13101.8	Conv. (cfs)	1659.3	5360.4	6082.1
Length wtd. (ft)	100.00	Wetted Per. (ft)	20.79	74.01	23.34
Min Ch El (ft)	94.64	Shear (lb/sq ft)	0.42	0.27	0.52
Alpha	1.48	Stream Power (lb/ft s)	140.00	0.00	0.00
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	0.54	2.14	1.26
C & E Loss (ft)	0.01	Cum SA (acres)	0.51	2.83	1.28

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Grand Teton
REACH: Orchards

RS: -1500

INPUT

Description: Sta 15+00

Station Elevation Data		num=	25						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	93.92	11	94.34	19	95.19	33	95.46	33	95.96
50	96.3	67	95.96	67	95.46	103	94.66	104.5	94.49
104.5	94.99	105	94.99	110	95.09	120	95.29	125	95.19
128	94.19	128.5	94.19	128.5	93.19	132.5	93.1	136.5	93.19
136.5	94.19	137	94.19	139	95.19	140	95.19	140	97.19

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	19	.016	120	.013
				140	.013

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	19	120		100	100	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	97.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.66	Wt. n-Val.	0.030	0.016	0.013
W.S. Elev (ft)	96.38	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)	96.44	Flow Area (sq ft)	37.58	92.31	43.31
E.G. Slope (ft/ft)	0.002652	Area (sq ft)	37.58	92.31	43.31
Q Total (cfs)	933.00	Flow (cfs)	139.05	411.62	382.33

Orchards_Dev_ADD1.rep			
Top Width (ft)	140.00	Top Width (ft)	19.00
Vel Total (ft/s)	5.39	Avg. Vel. (ft/s)	3.70
Max Chl Dpth (ft)	3.28	Hydr. Depth (ft)	1.98
Conv. Total (cfs)	18117.5	Conv. (cfs)	2700.1
Length Wtd. (ft)	100.00	Wetted Per. (ft)	21.51
Min Ch El (ft)	94.49	Shear (lb/sq ft)	0.29
Alpha	1.47	Stream Power (lb/ft s)	140.00
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	0.46
C & E Loss (ft)	0.18	Cum SA (acres)	0.46

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Grand Teton
REACH: Orchards RS: -1600

INPUT

Description: Sta 16+00

Station Elevation Data		num=	25						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	93.68	11	93.59	19	94.27	33	94.55	33	95.05
50	95.38	67	95.05	67	94.55	103	93.77	104.5	93.6
104.5	94.1	105	94.1	110	94.2	120	94.4	125	94.3
128	93.3	128.5	93.3	128.5	92.3	132.5	92.22	136.5	92.3
136.5	93.3	137	93.3	139	94.3	140	94.3	140	96.69

Manning's n Values		num=	4						
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.03	19	.016	120	.013	140	.013		

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	19	120		100	100	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

		Left OB	Channel	Right OB
E.G. Elev (ft)	96.55	Element	0.030	0.016
Vel Head (ft)	1.49	Wt. n-Val.	100.00	100.00
W.S. Elev (ft)	95.05	Reach Len. (ft)	24.61	55.84
Crit W.S. (ft)	95.60	Flow Area (sq ft)	24.61	55.84
E.G. Slope (ft/ft)	0.007104	Area (sq ft)	116.45	379.54
Q Total (cfs)	933.00	Flow (cfs)	19.00	67.48
Top Width (ft)	106.48	Top Width (ft)	4.73	6.80
Vel Total (ft/s)	8.10	Avg. Vel. (ft/s)	1.30	0.83
Max Chl Dpth (ft)	2.83	Hydr. Depth (ft)	1381.6	4502.9
Conv. Total (cfs)	11069.4	Conv. (cfs)	20.40	69.01
Length Wtd. (ft)	100.00	Wetted Per. (ft)	0.54	0.36
Min Ch El (ft)	93.60	Shear (lb/sq ft)	140.00	0.00
Alpha	1.46	Stream Power (lb/ft s)	0.39	1.79
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	0.42	2.44
C & E Loss (ft)	0.08	Cum SA (acres)		1.19

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Grand Teton
REACH: Orchards RS: -1700

INPUT

Description: Sta 17+00

Station Elevation Data		num=	25						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	93.46	11	92.84	19	93.36	33	93.63	33	94.13

Orchards_Dev_ADD1.rep

50	94.47	67	94.13	67	93.63	103	92.87	104.5	92.7
104.5	93.2	105	93.2	110	93.3	120	93.5	125	93.4
128	92.4	128.5	92.4	128.5	91.4	132.5	91.32	136.5	91.4
136.5	92.4	137	92.4	139	93.4	140	93.4	140	96.19

Manning's n Values		num=		4	
Sta	n Val	Sta	n Val	Sta	n Val
0	.03	19	.016	120	.013
				140	.013

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	19	120		100	100	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	95.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.63	Wt. n-Val.	0.030	0.016	0.013
W.S. Elev (ft)	94.16	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)	94.73	Flow Area (sq ft)	19.59	56.79	34.77
E.G. Slope (ft/ft)	0.007606	Area (sq ft)	19.59	56.79	34.77
Q Total (cfs)	933.00	Flow (cfs)	84.18	394.50	454.33
Top width (ft)	108.98	Top width (ft)	19.00	69.98	20.00
Vel Total (ft/s)	8.39	Avg. Vel. (ft/s)	4.30	6.95	13.07
Max chl Dpth (ft)	2.84	Hydr. Depth (ft)	1.03	0.81	1.74
Conv. Total (cfs)	10698.1	Conv. (cfs)	965.2	4523.5	5209.5
Length Wtd. (ft)	100.00	Wetted Per. (ft)	19.73	71.50	23.16
Min ch El (ft)	92.70	Shear (lb/sq ft)	0.47	0.38	0.71
Alpha	1.49	Stream Power (lb/ft s)	140.00	0.00	0.00
Frctn Loss (ft)	0.73	Cum Volume (acre-ft)	0.34	1.66	1.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.38	2.28	1.14

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Grand Teton
REACH: Orchards

RS: -1800

INPUT

Description: Sta 18+00

Station Elevation Data		num=		25	
Sta	Elev	Sta	Elev	Sta	Elev
0	93.04	11	92.09	19	92.44
50	93.55	67	93.22	67	92.72
104.5	92.31	105	92.31	110	92.41
128	91.51	128.5	91.51	128.5	90.51
136.5	91.51	137	91.51	139	92.51
				140	92.51

Manning's n Values		num=		4	
Sta	n Val	Sta	n Val	Sta	n Val
0	.03	19	.016	120	.013
				140	.013

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	19	120		100	100	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	95.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.73	Wt. n-Val.	0.030	0.016	0.013
W.S. Elev (ft)	93.27	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)	93.84	Flow Area (sq ft)	15.85	57.82	34.83
E.G. Slope (ft/ft)	0.007941	Area (sq ft)	15.85	57.82	34.83
Q Total (cfs)	933.00	Flow (cfs)	61.40	405.97	465.63
Top width (ft)	111.46	Top width (ft)	19.00	72.46	20.00
Vel Total (ft/s)	8.60	Avg. Vel. (ft/s)	3.87	7.02	13.37
Max chl Dpth (ft)	2.84	Hydr. Depth (ft)	0.83	0.80	1.74
Conv. Total (cfs)	10470.2	Conv. (cfs)	689.1	4555.8	5225.3
Length Wtd. (ft)	100.00	Wetted Per. (ft)	19.28	73.99	23.16
Min ch El (ft)	91.81	Shear (lb/sq ft)	0.41	0.39	0.75
Alpha	1.51	Stream Power (lb/ft s)	140.00	0.00	0.00
Frctn Loss (ft)	0.78	Cum Volume (acre-ft)	0.30	1.53	0.92
C & E Loss (ft)	0.01	Cum SA (acres)	0.33	2.11	1.09

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Grand Teton

REACH: Orchards

RS: -1900

INPUT

Description: Sta 19+00

Station Elevation Data

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	92.67	11	91.34	19	91.53	33	91.8	33	92.3
50	92.64	67	92.3	67	91.8	103	91.09	104.5	90.92
104.5	91.42	105	91.42	110	91.52	120	91.72	125	91.62
128	90.62	128	89.62	132.5	89.54	137	89.62	137	90.62
139	91.62	140	91.62	140	95.19				

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	19	.016	120	.013
				140	.013

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	19	120		100	100		.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	94.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.83	Wt. n-Val.	0.030	0.016	0.013
W.S. Elev (ft)	92.38	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)	92.94	Flow Area (sq ft)	11.96	58.35	35.72
E.G. Slope (ft/ft)	0.007946	Area (sq ft)	11.96	58.35	35.72
Q Total (cfs)	933.00	Flow (cfs)	42.38	404.72	485.90
Top Width (ft)	111.12	Top Width (ft)	16.56	74.55	20.00
Vel Total (ft/s)	8.80	Avg. Vel. (ft/s)	3.54	6.94	13.60
Max Chl Dpth (ft)	2.84	Hydr. Depth (ft)	0.72	0.78	1.79
Conv. Total (cfs)	10466.5	Conv. (cfs)	475.4	4540.2	5450.8
Length wtd. (ft)	100.00	Wetted Per. (ft)	16.63	76.07	23.16
Min Ch El (ft)	90.92	Shear (lb/sq ft)	0.36	0.38	0.77
Alpha	1.52	Stream Power (lb/ft s)	140.00	0.00	0.00
Frctn Loss (ft)	0.79	Cum Volume (acre-ft)	0.27	1.40	0.84
C & E Loss (ft)	0.01	Cum SA (acres)	0.29	1.95	1.05

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: Grand Teton

REACH: Orchards

RS: -2000

INPUT

Description: Sta 20+00

Station Elevation Data

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	92.28	11	90.59	19	91.09	33	91.36	33	91.86
50	92.2	67	91.86	67	91.36	105	90.6	106.5	90.43
106.5	90.93	107	90.93	112	91.03	122	91.23	127	91.13
130	90.13	130.5	90.13	130.5	89.13	134.5	89.05	138.5	89.13
138.5	90.13	139	90.13	141	91.13	142	91.13	142	94.69

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	19	.016	122	.013
				142	.013

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	19	122		100	100		.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	93.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.35	Wt. n-Val.	0.030	0.016	0.013
W.S. Elev (ft)	92.03	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)	92.46	Flow Area (sq ft)	16.26	69.64	37.56
E.G. Slope (ft/ft)	0.005825	Area (sq ft)	16.26	69.64	37.56
Q Total (cfs)	933.00	Flow (cfs)	58.53	424.02	450.45
Top Width (ft)	123.32	Top Width (ft)	17.37	85.95	20.00
Vel Total (ft/s)	7.56	Avg. Vel. (ft/s)	3.60	6.09	11.99
Max Chl Dpth (ft)	2.98	Hydr. Depth (ft)	0.94	0.81	1.88
Conv. Total (cfs)	12224.9	Conv. (cfs)	767.0	5555.8	5902.1

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Length Wtd. (ft)	100.00		Wetted Per. (ft)	17.49	87.47	23.30
Min Ch El (ft)	90.43		Shear (lb/sq ft)	0.34	0.29	0.59
Alpha	1.53		Stream Power (lb/ft s)	142.00	0.00	0.00
Frctn Loss (ft)	0.68		Cum Volume (acre-ft)	0.23	1.25	0.75
C & E Loss (ft)	0.14		Cum SA (acres)	0.25	1.76	1.00

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: Grand Teton
REACH: Orchards RS: -2100

INPUT

Description: Sta 21+00

Station Elevation Data			num=	25						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
0	91.55	11	89.84	19	90.66	33	90.93	33	91.43	
46.5	91.69	46.5	91.19	50	91.26	107	90.11	108.5	89.94	
108.5	90.44	109	90.44	114	90.54	124	90.74	129	90.64	
132	89.64	132.5	89.64	132.5	88.64	136.5	88.56	140.5	88.64	
140.5	89.64	141	89.64	143	90.64	144	90.64	144	94.19	

Manning's n Values			num=	4				
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	
0	.03	19	.016	124	.013	144	.013	

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	19	124		50	50	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	92.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.28	Wt. n-Val.	0.030	0.016	0.013
W.S. Elev (ft)	91.49	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	91.90	Flow Area (sq ft)	18.60	72.47	36.49
E.G. Slope (ft/ft)	0.005908	Area (sq ft)	18.60	72.47	36.49
Q Total (cfs)	933.00	Flow (cfs)	70.41	429.66	432.93
Top Width (ft)	132.99	Top Width (ft)	18.59	94.40	20.00
Vel Total (ft/s)	7.31	Avg. Vel. (ft/s)	3.79	5.93	11.87
Max chl Dpth (ft)	2.93	Hydr. Depth (ft)	1.00	0.77	1.82
Conv. Total (cfs)	12138.9	Conv. (cfs)	916.1	5590.2	5632.6
Length Wtd. (ft)	50.00	Wetted Per. (ft)	18.76	95.72	23.25
Min Ch El (ft)	89.94	Shear (lb/sq ft)	0.37	0.28	0.58
Alpha	1.54	Stream Power (lb/ft s)	144.00	0.00	0.00
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)	0.19	1.09	0.67
C & E Loss (ft)	0.02	Cum SA (acres)	0.21	1.55	0.96

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: Grand Teton
REACH: Orchards RS: -2150

INPUT

Description: Sta 21+50

Station Elevation Data			num=	25						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
0	91.5	11	89.47	19	90.44	33	90.7	33	91.2	
41	91.36	41	90.86	50	91.04	108	89.88	109.5	89.71	
109.5	90.21	110	90.21	115	90.31	125	90.51	130	90.41	
133	89.41	133.5	89.41	133.5	88.41	137.5	88.33	141.5	88.41	
141.5	89.41	142	89.41	144	90.41	145	90.41	145	93.94	

Manning's n Values			num=	4				
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	
0	.03	19	.016	125	.013	145	.013	

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	19	125		50	50	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	92.46	Element	Left OB	Channel	Right OB
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Vel Head (ft)	1.18	Wt. n-Val.	0.030	0.016	0.013
W.S. Elev (ft)	91.28	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	91.63	Flow Area (sq ft)	19.45	77.06	36.94
E.G. Slope (ft/ft)	0.005445	Area (sq ft)	19.45	77.06	36.94
Q Total (cfs)	933.00	Flow (cfs)	74.81	434.14	424.05
Top width (ft)	139.74	Top width (ft)	17.80	101.94	20.00
Vel Total (ft/s)	6.99	Avg. Vel. (ft/s)	3.85	5.63	11.48
Max Chl Dpth (ft)	2.95	Hydr. Depth (ft)	1.09	0.76	1.85
Conv. Total (cfs)	12644.5	Conv. (cfs)	1013.8	5883.7	5747.0
Length wtd. (ft)	50.00	Wetted Per. (ft)	18.03	103.38	23.27
Min Ch El (ft)	89.71	Shear (lb/sq ft)	0.37	0.25	0.54
Alpha	1.55	Stream Power (lb/ft s)	145.00	0.00	0.00
Frctn Loss (ft)	0.28	Cum Volume (acre-ft)	0.17	1.00	0.62
C & E Loss (ft)	0.03	Cum SA (acres)	0.19	1.44	0.93

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: Grand Teton
REACH: Orchards RS: -2200

INPUT

Description: Sta 22+00

Station Elevation Data		num=	25						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	91.28	11	89.09	19	90	33	90.5	33	91
41	91.14	41	90.64	50	90.82	108	89.66	109.5	89.49
109.5	89.99	110	89.99	115	90.09	125	90.29	130	90.19
133	89.19	133.5	89.19	133.5	88.19	137.5	88.11	141.5	88.19
141.5	89.19	142	89.19	144	90.19	145	90.19	145	93.69

Manning's n Values	num=	4		
Sta n Val	Sta n Val	Sta n Val	Sta n Val	
0 .03	19 .016	125 .013	145 .013	

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
19	125	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	92.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.13	Wt. n-Val.	0.030	0.016	0.013
W.S. Elev (ft)	91.04	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)	91.37	Flow Area (sq ft)	21.54	76.71	36.61
E.G. Slope (ft/ft)	0.005345	Area (sq ft)	21.54	76.71	36.61
Q Total (cfs)	933.00	Flow (cfs)	87.79	431.21	414.01
Top width (ft)	138.20	Top width (ft)	17.80	100.40	20.00
Vel Total (ft/s)	6.92	Avg. Vel. (ft/s)	4.07	5.62	11.31
Max Chl Dpth (ft)	2.93	Hydr. Depth (ft)	1.21	0.76	1.83
Conv. Total (cfs)	12761.9	Conv. (cfs)	1200.8	5898.2	5662.9
Length wtd. (ft)	100.00	Wetted Per. (ft)	18.05	101.83	23.25
Min Ch El (ft)	89.49	Shear (lb/sq ft)	0.40	0.25	0.53
Alpha	1.52	Stream Power (lb/ft s)	145.00	0.00	0.00
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)	0.15	0.91	0.58
C & E Loss (ft)	0.01	Cum SA (acres)	0.17	1.33	0.91

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: Grand Teton
REACH: Orchards RS: -2300

INPUT

Description: Sta 23+00

Station Elevation Data		num=	25						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	90.93	11	88.34	19	89.77	33	90.05	33	90.55
41	90.7	41	90.2	50	90.38	108	89.22	109.5	89.05
109.5	89.55	110	89.55	115	89.65	125	89.85	130	89.75
133	88.75	133.5	88.75	133.5	87.75	137.5	87.67	141.5	87.75
141.5	88.75	142	88.75	144	89.75	145	89.75	145	93.19

Manning's n Values	num=	4
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Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.03	19	.016	125	.013	145	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 19 125 100 100 100 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	91.64				
Vel Head (ft)	0.97	Wt. n-Val.	0.030	0.016	0.013
W.S. Elev (ft)	90.67	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)	90.95	Flow Area (sq ft)	24.53	82.77	38.06
E.G. Slope (ft/ft)	0.004430	Area (sq ft)	24.53	82.77	38.06
Q Total (cfs)	933.00	Flow (cfs)	98.25	433.49	401.26
Top width (ft)	142.55	Top width (ft)	17.91	104.63	20.00
Vel Total (ft/s)	6.42	Avg. Vel. (ft/s)	4.01	5.24	10.54
Max Chl Dpth (ft)	3.00	Hydr. Depth (ft)	1.37	0.79	1.90
Conv. Total (cfs)	14017.9	Conv. (cfs)	1476.1	6513.0	6028.8
Length Wtd. (ft)	100.00	Wetted Per. (ft)	18.31	106.14	23.33
Min Ch El (ft)	89.05	Shear (lb/sq ft)	0.37	0.22	0.45
Alpha	1.51	Stream Power (lb/ft s)	145.00	0.00	0.00
Frctn Loss (ft)	0.49	Cum Volume (acre-ft)	0.10	0.73	0.50
C & E Loss (ft)	0.05	Cum SA (acres)	0.13	1.09	0.86

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: Grand Teton
 REACH: Orchards RS: -2400

INPUT

Description: Sta 24+00

Station Elevation Data		num=	25								
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	89.15	11	87.59	19	88.48	33	88.76	33	89.26		
41	89.4	41	88.9	50	89.08	108	87.91	109.5	87.74		
109.5	88.24	110	88.24	115	88.34	125	88.54	130	88.44		
133	88.05	133.5	88.05	133.5	87.05	137.5	86.97	141.5	87.05		
141.5	88.05	142	88.05	144	89.05	145	89.05	145	92.69		

Manning's n values

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.03	19	.016	125	.013	145	.013

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	19	125		50	50	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	90.88				
Vel Head (ft)	1.71	Wt. n-Val.	0.030	0.016	0.013
W.S. Elev (ft)	89.17	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	89.64	Flow Area (sq ft)	17.79	62.19	25.84
E.G. Slope (ft/ft)	0.012575	Area (sq ft)	17.79	62.19	25.84
Q Total (cfs)	933.00	Flow (cfs)	94.00	474.45	364.55
Top width (ft)	137.00	Top width (ft)	19.00	98.00	20.00
Vel Total (ft/s)	8.82	Avg. Vel. (ft/s)	5.28	7.63	14.11
Max Chl Dpth (ft)	2.20	Hydr. Depth (ft)	0.94	0.63	1.29
Conv. Total (cfs)	8320.2	Conv. (cfs)	838.3	4231.0	3251.0
Length Wtd. (ft)	50.00	Wetted Per. (ft)	19.17	99.20	22.38
Min Ch El (ft)	87.74	Shear (lb/sq ft)	0.73	0.49	0.91
Alpha	1.42	Stream Power (lb/ft s)	145.00	0.00	0.00
Frctn Loss (ft)	0.70	Cum Volume (acre-ft)	0.05	0.56	0.42
C & E Loss (ft)	0.07	Cum SA (acres)	0.09	0.86	0.82

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION

Orchards_Dev_ADD1.rep

RIVER: Grand Teton
 REACH: Orchards

RS: -2450

INPUT

Description: Sta 24+50
 Station Elevation Data

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	89.12	11	87.22	19	87.83	33	88.09	33	88.59
41	88.75	41	88.25	50	88.43	108	87.25	109.5	87.08
109.5	87.58	110	87.58	120	87.78	145	88.05	145	92.68

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	19	.02	120	.013

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	19	120		32	32	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	90.01	wt. n-Val.	0.025	0.020	0.013
Vel Head (ft)	1.37	Reach Len. (ft)	32.00	32.00	32.00
W.S. Elev (ft)	88.65	Flow Area (sq ft)	14.88	71.75	18.31
Crit W.S. (ft)	89.05	Area (sq ft)	14.88	71.75	18.31
E.G. Slope (ft/ft)	0.018534	Flow (cfs)	112.79	592.27	227.94
Q Total (cfs)	933.00	Top Width (ft)	16.26	95.88	25.00
Top Width (ft)	137.14	Avg. Vel. (ft/s)	7.58	8.26	12.45
Vel Total (ft/s)	8.89	Hydr. Depth (ft)	0.91	0.75	0.73
Max chl Dpth (ft)	1.57	Conv. (cfs)	828.5	4350.5	1674.3
Conv. Total (cfs)	6853.3	wetted Per. (ft)	16.41	97.30	25.60
Length Wtd. (ft)	32.00	Shear (lb/sq ft)	1.05	0.85	0.83
Min Ch El (ft)	87.08	Stream Power (lb/ft s)	145.00	0.00	0.00
Alpha	1.11	Cum Volume (acre-ft)	0.03	0.49	0.40
Frctn Loss (ft)	0.76	Cum SA (acres)	0.07	0.75	0.79
C & E Loss (ft)	0.10				

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: Grand Teton
 REACH: Orchards

RS: -2482

INPUT

Description: Sta 24+82
 Station Elevation Data

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	88.22	88.1	87.86	95.1	86.99	102.6	87.38	134.6	88.01
224.9	87.28	254.8	87.4	314.9	87.64	347.3	87.77		

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	102.6	.016	347.3	.013

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	102.6	347.3		39.5	39.5	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	89.21	wt. n-Val.	0.025	0.016	
Vel Head (ft)	1.22	Reach Len. (ft)	39.50	39.50	39.50
W.S. Elev (ft)	87.99	Flow Area (sq ft)	12.00	97.25	
Crit W.S. (ft)	88.34	Area (sq ft)	12.00	97.25	
E.G. Slope (ft/ft)	0.031952	Flow (cfs)	52.02	880.98	
Q Total (cfs)	933.00	Top Width (ft)	46.01	240.99	
Top Width (ft)	287.00	Avg. Vel. (ft/s)	4.33	9.06	
Vel Total (ft/s)	8.54	Hydr. Depth (ft)	0.26	0.40	
Max chl Dpth (ft)	1.00	Conv. (cfs)	291.0	4928.5	
Conv. Total (cfs)	5219.5	wetted Per. (ft)	46.07	241.22	
Length Wtd. (ft)	39.50	Shear (lb/sq ft)	0.52	0.80	
Min Ch El (ft)	87.28	Stream Power (lb/ft s)	347.30	0.00	0.00
Alpha	1.08	Cum Volume (acre-ft)	0.02	0.42	0.39
Frctn Loss (ft)	0.76	Cum SA (acres)	0.04	0.62	0.78
C & E Loss (ft)	0.04				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

LATERAL STRUCTURE

RIVER: Grand Teton

REACH: Orchards

RS: -2483

INPUT

Description:

Lateral structure position = Right overbank

Distance from Upstream XS =

Deck/Roadway width = 20

Weir Coefficient = 2

Weir Flow Reference = Water Surface

Weir Embankment Coordinates		num = 5	
Sta	Elev	Sta	Elev
2482	87.77	2521.5	88.59
2540.5	88.21	2578	87.68
2650	87.43		

Weir crest shape

= Broad Crested

LATERAL STRUCTURE OUTPUT Profile #PF 1 Lat Struct

E.G. US. (ft)	89.21	Weir Sta US (ft)	2482.00
W.S. US. (ft)	87.99	Weir Sta DS (ft)	2650.00
E.G. DS (ft)	87.75	Min El Weir Flow (ft)	87.43
W.S. DS (ft)	87.37	Wr Top Wdth (ft)	41.14
Q US (cfs)	933.00	Weir Max Depth (ft)	0.22
Q Leaving Total (cfs)	1.01	Weir Avg Depth (ft)	0.04
Q DS (cfs)	932.01	Weir Flow Area (sq ft)	1.71
Perc Q Leaving	0.11	Weir Coef (ft ^{1/2})	2.000
Q Weir (cfs)	1.01	Weir Submerg	0.00
Q Gates (cfs)		Q Gate Group (cfs)	
Q Culv (cfs)	0.00	Gate Open Ht (ft)	
Q Lat RC (cfs)		Gate #Open	
		Gate Area (sq ft)	
		Gate Submerg	
Q Breach (cfs)		Gate Invert (ft)	
Breach Avg Velocity (ft/s)		Gate Weir Coef	
Breach Flow Area (sq ft)			

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: Grand Teton

REACH: Orchards

RS: -2521.5

INPUT

Description: Sta 25+21.5

Station Elevation Data		num= 8	
Sta	Elev	Sta	Elev
0	87.92	48.9	87.21
196.8	87.24	275	87.94
		347.5	88.59

Manning's n Values

num= 3	
Sta	n Val
0	.025
0	.016
347.5	.016

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
0	347.5	19	19	19	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	88.44	Wt. n-Val.		0.016	
Vel Head (ft)	0.52	Reach Len. (ft)	19.00	19.00	19.00
W.S. Elev (ft)	87.93	Flow Area (sq ft)		161.65	
Crit W.S. (ft)	88.05	Area (sq ft)		161.65	
E.G. Slope (ft/ft)	0.007778	Flow (cfs)		932.21	
Q Total (cfs)	932.21	Top Width (ft)		273.61	
Top Width (ft)	273.61	Avg. Vel. (ft/s)		5.77	
Vel Total (ft/s)	5.77	Hydr. Depth (ft)		0.59	
Max Chl Dpth (ft)	1.39	Conv. (cfs)		10569.9	
Conv. Total (cfs)	10569.9	Wetted Per. (ft)		273.64	
Length Wtd. (ft)	19.00	Shear (lb/sq ft)		0.29	
Min Ch El (ft)	86.54				

Alpha	1.00	Orchards_Dev_ADD1.rep			
Frctn Loss (ft)	0.55	Stream Power (lb/ft s)	347.50	0.00	0.00
C & E Loss (ft)	0.21	Cum Volume (acre-ft)	0.01	0.31	0.39
		Cum SA (acres)	0.02	0.39	0.78

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Grand Teton
REACH: Orchards RS: -2540.5

INPUT

Description: Sta 25+40.5

Station Elevation Data		num=	7						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	87.28	76	86.3	132.9	87.28	173.7	86.92	195.5	86.8
273.7	87.56	346.1	88.21						

Manning's n Values		num=	3
Sta	n Val	Sta	n Val
0	.016	0	.016
		346.1	.016

Bank Sta: Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
0	346.1		37.5	37.5	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	88.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.79	Wt. n-Val.		0.016	
W.S. Elev (ft)	87.43	Reach Len. (ft)	37.50	37.50	37.50
Crit W.S. (ft)	87.67	Flow Area (sq ft)		130.82	
E.G. Slope (ft/ft)	0.014734	Area (sq ft)		130.82	
Q Total (cfs)	932.21	Flow (cfs)		932.21	
Top Width (ft)	260.11	Top width (ft)		260.11	
Vel Total (ft/s)	7.13	Avg. Vel. (ft/s)		7.13	
Max Chl Dpth (ft)	1.13	Hydr. Depth (ft)		0.50	
Conv. Total (cfs)	7679.9	Conv. (cfs)		7679.9	
Length wtd. (ft)	37.50	Wetted Per. (ft)		260.27	
Min Ch El (ft)	86.30	Shear (lb/sq ft)		0.46	
Alpha	1.00	Stream Power (lb/ft s)	346.10	0.00	0.00
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.01	0.24	0.39
C & E Loss (ft)	0.03	Cum SA (acres)	0.02	0.27	0.78

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: Grand Teton
REACH: Orchards RS: -2578

INPUT

Description: Sta 25+78

Station Elevation Data		num=	54						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	89.22	20	86.53	25	86.43	25.5	86.43	25.5	85.93
27	86.1	80	86.8	90.5	86.75	90.5	87.24	97	87.16
97	86.5	101.06	86.29	102.08	86.22	102.31	86.21	102.45	86.2
102.56	86.19	102.63	86.18	102.89	86.19	108.07	86.32	110.13	86.35
114.78	86.45	121.85	86.74	125.7	86.9	126.13	86.94	126.52	86.98
128.79	87.35	130.24	87.58	131.9	87.4	136.3	87.61	136.48	87.61
146.78	87.38	146.84	87.37	146.87	87.37	157.22	87.24	158.78	87.27
170.26	87.37	172.14	87.34	173.36	87.32	184.22	87.16	189.26	87.13
195.45	87.08	200.1	87.12	208.09	87.08	215.9	87.03	233.61	86.92
254.06	87.02	271.82	87.08	311.52	87.27	323.92	87.32	371.13	87.11
373.14	87.11	382.97	87.15	415.95	87.4	437.59	87.68		

Manning's n Values		num=	3
Sta	n Val	Sta	n Val
0	.025	20	.016
		97	.025

Orchards_Dev_ADD1.rep

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 20 97 72 72 72 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	88.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.	0.025	0.016	0.025
W.S. Elev (ft)	87.72	Reach Len. (ft)	72.00	72.00	72.00
Crit W.S. (ft)	87.72	Flow Area (sq ft)	5.27	90.06	194.77
E.G. Slope (ft/ft)	0.002874	Area (sq ft)	5.27	90.06	194.77
Q Total (cfs)	932.20	Flow (cfs)	11.81	493.47	426.92
Top width (ft)	426.44	Top width (ft)	8.85	77.00	340.59
Vel Total (ft/s)	3.21	Avg. vel. (ft/s)	2.24	5.48	2.19
Max Chl Dpth (ft)	1.79	Hydr. Depth (ft)	0.60	1.17	0.57
Conv. Total (cfs)	17388.6	Conv. (cfs)	220.3	9204.9	7963.4
Length wtd. (ft)	72.00	Wetted Per. (ft)	8.93	78.01	341.39
Min Ch El (ft)	85.93	Shear (lb/sq ft)	0.11	0.21	0.10
Alpha	1.76	Stream Power (lb/ft s)	437.59	0.00	0.00
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	0.01	0.15	0.31
C & E Loss (ft)	0.01	Cum SA (acres)	0.02	0.13	0.64

warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth

for the water surface and continued on with the calculations.

warning: The cross-section end points had to be extended vertically for the computed water surface.

warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated

water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Grand Teton
 REACH: Orchards

RS: -2650

INPUT

Description: Sta 26+50

Station Elevation Data

num= 70

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	88	20	86.25	25	86.15	25.5	86.15	25.5	85.65
27	85.82	80	86.44	90.5	86.39	90.5	86.88	97	86.8
97	86.14	100	85.96	104.03	86	112.49	86.17	115.08	86.27
127.11	86.57	128.75	86.86	130.01	87.11	130.1	87.11	132.97	86.99
134.54	86.98	139.04	87.01	146.44	87.05	148.47	86.92	149.29	86.84
151.75	86.79	156.42	86.95	162.54	86.88	167.53	86.82	179.54	87.14
184.87	87.24	192.64	87.09	203.87	86.64	210.97	86.86	225.21	87.3
241.2	86.93	243.25	86.87	263.36	87.21	274.47	87.06	280.53	86.86
304.23	87.38	304.71	87.4	304.97	87.41	308.44	87.32	322.15	86.96
323.2	86.99	339.22	87.32	346	87.2	353.75	86.76	355.55	86.65
371.89	87.12	378.37	87.25	391.25	86.91	394.24	86.78	418.26	87.29
437.62	86.83	437.83	86.83	438.65	86.83	455.98	87.08	472.57	86.85
476.18	86.83	478.13	86.8	494.96	87.02	497.56	87.09	511.75	86.7
513.77	86.66	514.1	86.67	517.72	86.83	530.52	87.39	532.05	87.43

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	20	.016	97	.025

Bank Sta: Left Right Coeff Contr. Expan.
 20 97 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	87.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.	0.025	0.016	0.025
W.S. Elev (ft)	87.37	Reach Len. (ft)			
Crit W.S. (ft)	87.47	Flow Area (sq ft)	7.19	88.22	177.65
E.G. Slope (ft/ft)	0.003820	Area (sq ft)	7.19	88.22	177.65
Q Total (cfs)	932.01	Flow (cfs)	17.91	549.61	364.50
Top width (ft)	520.30	Top width (ft)	12.82	77.00	430.48
Vel Total (ft/s)	3.41	Avg. vel. (ft/s)	2.49	6.23	2.05
Max Chl Dpth (ft)	1.72	Hydr. Depth (ft)	0.56	1.15	0.41
Conv. Total (cfs)	15080.4	Conv. (cfs)	289.7	8893.0	5897.8
Length wtd. (ft)		Wetted Per. (ft)	12.87	78.00	431.34
Min Ch El (ft)	85.65	Shear (lb/sq ft)	0.13	0.27	0.10

Alpha	2.12	Orchards_Dev_ADD1.rep		
Frctn Loss (ft)	0.24	Stream Power (lb/ft s)	532.05	0.00
C & E Loss (ft)	0.01	Cum Volume (acre-ft)		0.00
		Cum SA (acres)		

Warning: Divided flow computed for this cross-section.

SUMMARY OF MANNING'S N VALUES

River: Grand Teton

Reach	River Sta.	n1	n2	n3	n4
Orchards	-1100	.025	.02	.016	
Orchards	-1198	.025	.016	.013	
Orchards	-1200	.03	.016	.013	.013
Orchards	-1250	.03	.016	.013	.013
Orchards	-1300	.03	.016	.013	.013
Orchards	-1350	.03	.016	.013	.013
Orchards	-1400	.03	.016	.013	.013
Orchards	-1450	.03	.016	.013	.013
Orchards	-1500	.03	.016	.013	.013
Orchards	-1600	.03	.016	.013	.013
Orchards	-1700	.03	.016	.013	.013
Orchards	-1800	.03	.016	.013	.013
Orchards	-1900	.03	.016	.013	.013
Orchards	-2000	.03	.016	.013	.013
Orchards	-2100	.03	.016	.013	.013
Orchards	-2150	.03	.016	.013	.013
Orchards	-2200	.03	.016	.013	.013
Orchards	-2300	.03	.016	.013	.013
Orchards	-2400	.03	.016	.013	.013
Orchards	-2450	.025	.02	.013	
Orchards	-2482	.025	.016	.013	
Orchards	-2483	Lat Struct			
Orchards	-2521.5	.025	.016	.016	
Orchards	-2540.5	.016	.016	.016	
Orchards	-2578	.025	.016	.025	
Orchards	-2650	.025	.016	.025	

SUMMARY OF REACH LENGTHS

River: Grand Teton

Reach	River Sta.	Left	Channel	Right
Orchards	-1100	98	98	98
Orchards	-1198	2	2	2
Orchards	-1200	50	50	50
Orchards	-1250	50	50	50
Orchards	-1300	50	50	50
Orchards	-1350	50	50	50
Orchards	-1400	50	50	50
Orchards	-1450	100	100	100
Orchards	-1500	100	100	100
Orchards	-1600	100	100	100
Orchards	-1700	100	100	100
Orchards	-1800	100	100	100
Orchards	-1900	100	100	100
Orchards	-2000	100	100	100
Orchards	-2100	50	50	50
Orchards	-2150	50	50	50
Orchards	-2200	100	100	100
Orchards	-2300	100	100	100
Orchards	-2400	50	50	50
Orchards	-2450	32	32	32
Orchards	-2482	39.5	39.5	39.5
Orchards	-2483	Lat Struct		
Orchards	-2521.5	19	19	19
Orchards	-2540.5	37.5	37.5	37.5
Orchards	-2578	72	72	72
Orchards	-2650			

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Grand Teton

Reach	River Sta.	Contr.	Expan.
Orchards	-1100	.1	.3
Orchards	-1198	.1	.3
Orchards	-1200	.1	.3
Orchards	-1250	.1	.3
Orchards	-1300	.1	.3
Orchards	-1350	.1	.3
Orchards	-1400	.1	.3
Orchards	-1450	.1	.3
Orchards	-1500	.1	.3
Orchards	-1600	.1	.3
Orchards	-1700	.1	.3
Orchards	-1800	.1	.3
Orchards	-1900	.1	.3
Orchards	-2000	.1	.3
Orchards	-2100	.1	.3
Orchards	-2150	.1	.3
Orchards	-2200	.1	.3
Orchards	-2300	.1	.3
Orchards	-2400	.1	.3
Orchards	-2450	.1	.3
Orchards	-2482	.1	.3
Orchards	-2483	Lat Struct	
Orchards	-2521.5	.1	.3
Orchards	-2540.5	.1	.3
Orchards	-2578	.1	.3
Orchards	-2650	.1	.3

Profile Output Table - Standard Table 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G.
Slope	Flow Area	Top Width	Froude #	Chl				
(ft/ft)	(sq ft)	(ft)	(cfs)	(ft)	(ft)	(ft)	(ft)	
Orchards	-1100	PF 1	933.00	97.31	98.88	99.19	100.01	
0.014408	8.10	112.20	122.50	1.52				
Orchards	-1198	PF 1	933.00	95.96	97.99	98.27	99.06	
0.006726	7.21	118.43	120.00	1.32				
Orchards	-1200	PF 1	933.00	95.93	97.56	97.99	99.02	
0.005939	5.48	121.60	140.00	1.16				
Orchards	-1250	PF 1	933.00	95.69	97.25	97.67	98.70	
0.006609	5.42	123.44	140.00	1.12				
Orchards	-1300	PF 1	933.00	95.30	96.75	97.27	98.36	
0.006311	6.64	106.19	106.00	1.31				
Orchards	-1350	PF 1	933.00	95.21	97.09	97.29	97.91	
0.003192	4.41	159.82	139.43	0.79				
Orchards	-1400	PF 1	933.00	94.97	96.67	97.01	97.71	
0.004307	5.40	140.54	123.12	1.03				
Orchards	-1450	PF 1	933.00	94.64	96.27	96.71	97.46	
0.005071	5.99	129.70	111.48	1.13				
Orchards	-1500	PF 1	933.00	94.49	96.38	96.44	97.04	
0.002652	4.46	173.20	140.00	0.82				
Orchards	-1600	PF 1	933.00	93.60	95.05	95.60	96.55	
0.007104	6.80	115.12	106.48	1.32				
Orchards	-1700	PF 1	933.00	92.70	94.16	94.73	95.79	
0.007606	6.95	111.14	108.98	1.36				
Orchards	-1800	PF 1	933.00	91.81	93.27	93.84	95.01	
0.007941	7.02	108.50	111.46	1.39				
Orchards	-1900	PF 1	933.00	90.92	92.38	92.94	94.20	
0.007946	6.94	106.03	111.12	1.38				
Orchards	-2000	PF 1	933.00	90.43	92.03	92.46	93.38	
0.005825	6.09	123.46	123.32	1.19				
Orchards	-2100	PF 1	933.00	89.94	91.49	91.90	92.77	
0.005908	5.93	127.55	132.99	1.19				
Orchards	-2150	PF 1	933.00	89.71	91.28	91.63	92.46	
0.005445	5.63	133.46	139.74	1.14				
Orchards	-2200	PF 1	933.00	89.49	91.04	91.37	92.17	
0.005345	5.62	134.86	138.20	1.13				

Orchards_Dev_ADD1.rep								
Orchards	-2300	PF 1		933.00	89.05	90.67	90.95	91.64
0.004430	5.24	145.36	142.55	1.04				
Orchards	-2400	PF 1		933.00	87.74	89.17	89.64	90.88
0.012575	7.63	105.83	137.00	1.69				
Orchards	-2450	PF 1		933.00	87.08	88.65	89.05	90.01
0.018534	8.26	104.94	137.14	1.68				
Orchards	-2482	PF 1		933.00	87.28	87.99	88.34	89.21
0.031952	9.06	109.25	287.00	2.51				
Orchards	-2483		Lat Struct					
Orchards	-2521.5	PF 1		932.21	86.54	87.93	88.05	88.44
0.007778	5.77	161.65	273.61	1.32				
Orchards	-2540.5	PF 1		932.21	86.30	87.43	87.67	88.22
0.014734	7.13	130.82	260.11	1.77				
Orchards	-2578	PF 1		932.20	85.93	87.72	87.72	88.00
0.002874	5.48	290.10	426.44	0.89				
Orchards	-2650	PF 1		932.01	85.65	87.37	87.47	87.75
0.003820	6.23	273.05	520.30	1.03				

Profile Output Table - Depth and Velocities2

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	Vel Chnl	Flow
Area	Froude #	Chl Hydr Depth C	Hydr Depth C	Hydr Depth L	Hydr Depth R	Max Chl	Dpth	Vel Left
Vel Right	Min Ch El							
(ft)	(ft/s)	(ft)	(cfs)	(ft)	(ft)	(ft)	(ft/s)	(sq
			(ft)				(ft)	(ft/s)
Orchards	-1100	PF 1	933.00	97.31	98.88	99.19	8.10	
112.20	1.52	0.88	0.88	1.00	1.00	1.57		
6.92	10.75	97.31						
Orchards	-1198	PF 1	933.00	95.96	97.99	98.27	7.21	
118.43	1.32	0.93	0.93		1.38	2.03		
11.03	95.96							
Orchards	-1200	PF 1	933.00	95.93	97.56	97.99	5.48	
121.60	1.16	0.70	0.70		1.91	3.01		
12.47	95.93							
Orchards	-1250	PF 1	933.00	95.69	97.25	97.67	5.42	
123.44	1.12	0.72	0.72		1.84	2.94		
12.60	95.69							
Orchards	-1300	PF 1	933.00	95.30	96.75	97.27	6.64	
106.19	1.31	0.80	0.80		1.88	2.68		
12.68	95.30							
Orchards	-1350	PF 1	933.00	95.21	97.09	97.29	4.41	
159.82	0.79	0.98	0.98		2.16	3.26		
9.68	95.21							
Orchards	-1400	PF 1	933.00	94.97	96.67	97.01	5.40	
140.54	1.03	0.85	0.85	1.53	2.00	3.08		
4.05	10.73	94.97						
Orchards	-1450	PF 1	933.00	94.64	96.27	96.71	5.99	
129.70	1.13	0.88	0.88	1.46	1.91	3.01		
4.27	11.32	94.64						
Orchards	-1500	PF 1	933.00	94.49	96.38	96.44	4.46	
173.20	0.82	0.91	0.91	1.98	2.17	3.28		
3.70	8.83	94.49						
Orchards	-1600	PF 1	933.00	93.60	95.05	95.60	6.80	
115.12	1.32	0.83	0.83	1.30	1.73	2.83		
4.73	12.61	93.60						
Orchards	-1700	PF 1	933.00	92.70	94.16	94.73	6.95	
111.14	1.36	0.81	0.81	1.03	1.74	2.84		
4.30	13.07	92.70						
Orchards	-1800	PF 1	933.00	91.81	93.27	93.84	7.02	
108.50	1.39	0.80	0.80	0.83	1.74	2.84		
3.87	13.37	91.81						
Orchards	-1900	PF 1	933.00	90.92	92.38	92.94	6.94	
106.03	1.38	0.78	0.78	0.72	1.79	2.84		
3.54	13.60	90.92						
Orchards	-2000	PF 1	933.00	90.43	92.03	92.46	6.09	
123.46	1.19	0.81	0.81	0.94	1.88	2.98		
3.60	11.99	90.43						
Orchards	-2100	PF 1	933.00	89.94	91.49	91.90	5.93	
127.55	1.19	0.77	0.77	1.00	1.82	2.93		
3.79	11.87	89.94						

			Orchards_Dev_ADD1.rep					
Orchards	-2150	PF 1	933.00	89.71	91.28	91.63	5.63	
133.46	1.14	0.76	0.76	1.09	1.85	2.95		
3.85	11.48	89.71						
Orchards	-2200	PF 1	933.00	89.49	91.04	91.37	5.62	
134.86	1.13	0.76	0.76	1.21	1.83	2.93		
4.07	11.31	89.49						
Orchards	-2300	PF 1	933.00	89.05	90.67	90.95	5.24	
145.36	1.04	0.79	0.79	1.37	1.90	3.00		
4.01	10.54	89.05						
Orchards	-2400	PF 1	933.00	87.74	89.17	89.64	7.63	
105.83	1.69	0.63	0.63	0.94	1.29	2.20		
5.28	14.11	87.74						
Orchards	-2450	PF 1	933.00	87.08	88.65	89.05	8.26	
104.94	1.68	0.75	0.75	0.91	0.73	1.57		
7.58	12.45	87.08						
Orchards	-2482	PF 1	933.00	87.28	87.99	88.34	9.06	
109.25	2.51	0.40	0.40	0.26		1.00		
4.33		87.28						
Orchards	-2483							
Lat Struct								
Orchards	-2521.5	PF 1	932.21	86.54	87.93	88.05	5.77	
161.65	1.32	0.59	0.59			1.39		
	86.54							
Orchards	-2540.5	PF 1	932.21	86.30	87.43	87.67	7.13	
130.82	1.77	0.50	0.50			1.13		
	86.30							
Orchards	-2578	PF 1	932.20	85.93	87.72	87.72	5.48	
290.10	0.89	1.17	1.17	0.60	0.57	1.79		
2.24	2.19	85.93						
Orchards	-2650	PF 1	932.01	85.65	87.37	87.47	6.23	
273.05	1.03	1.15	1.15	0.56	0.41	1.72		
2.49	2.05	85.65						

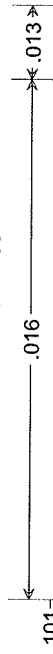
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Sta 11+00



Orchards_Dev_ADD1 Plan: Plan 19 10/1/2012

Sta 11+98



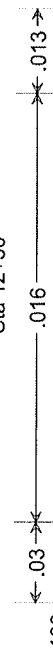
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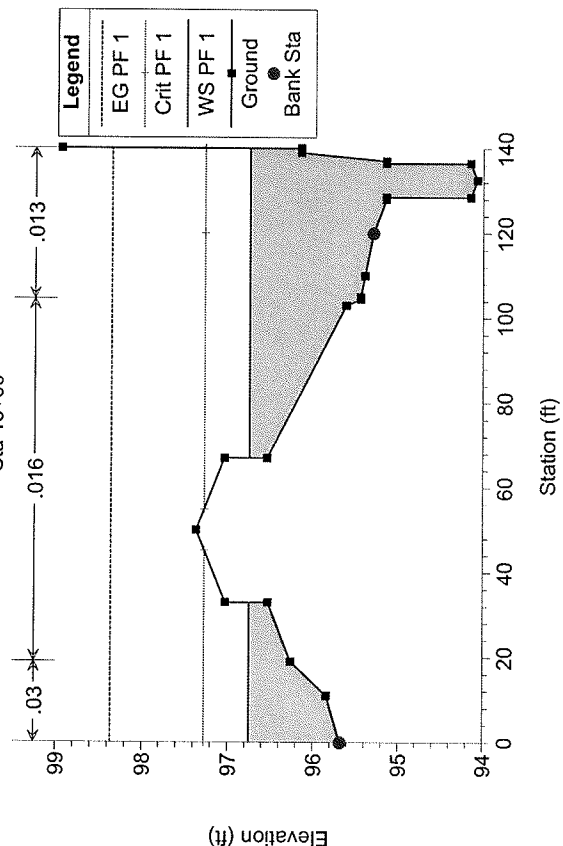


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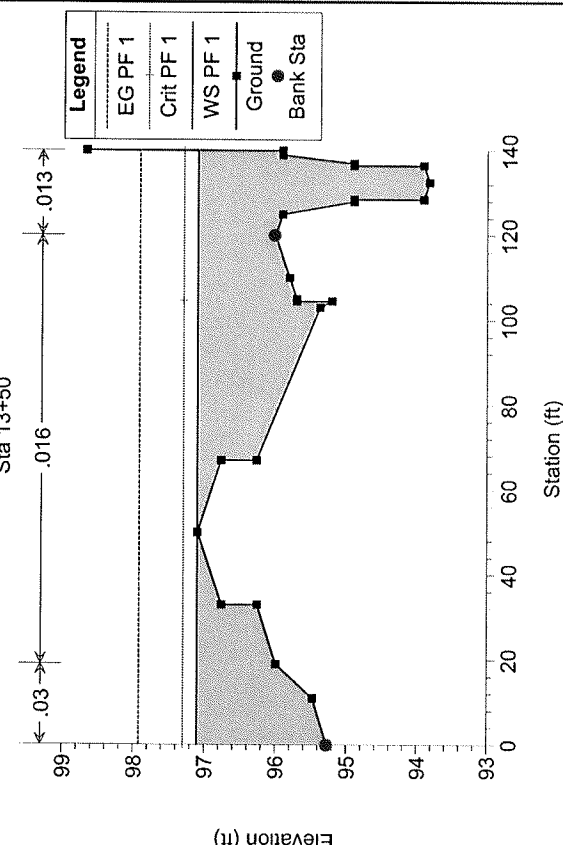
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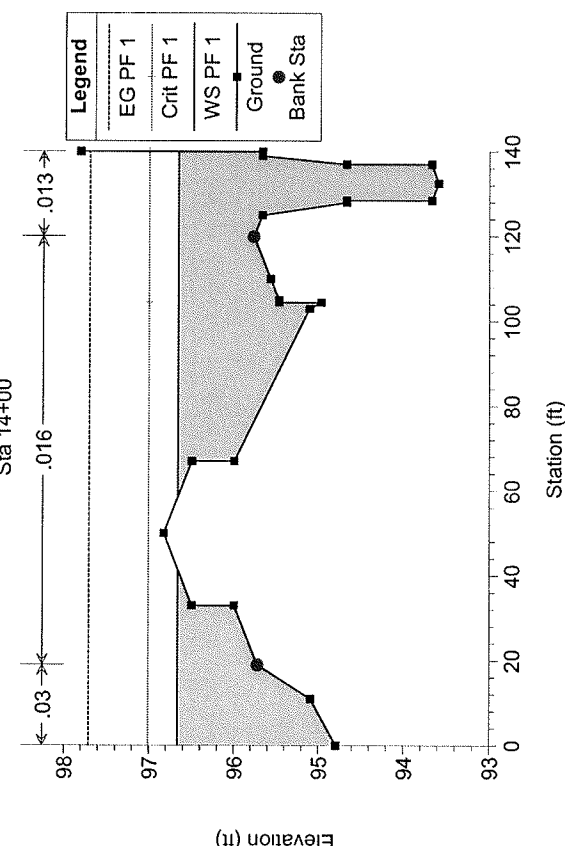
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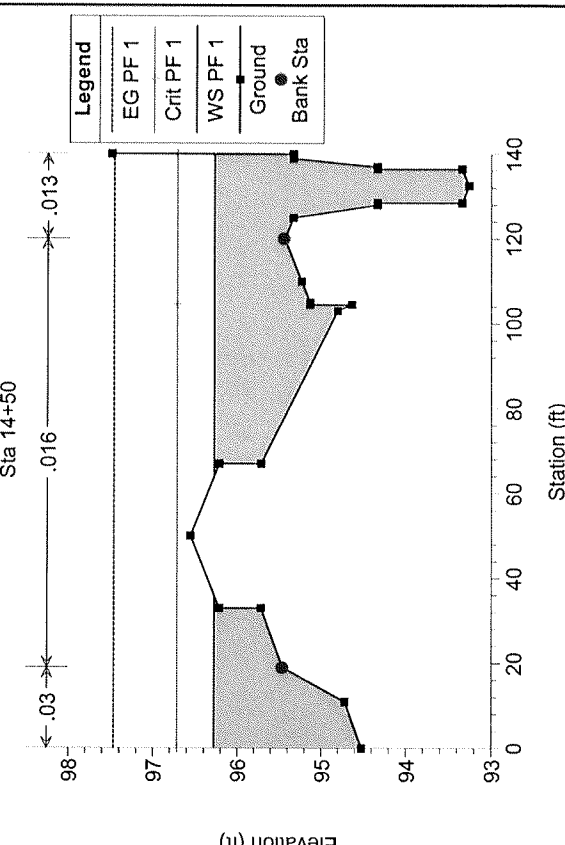
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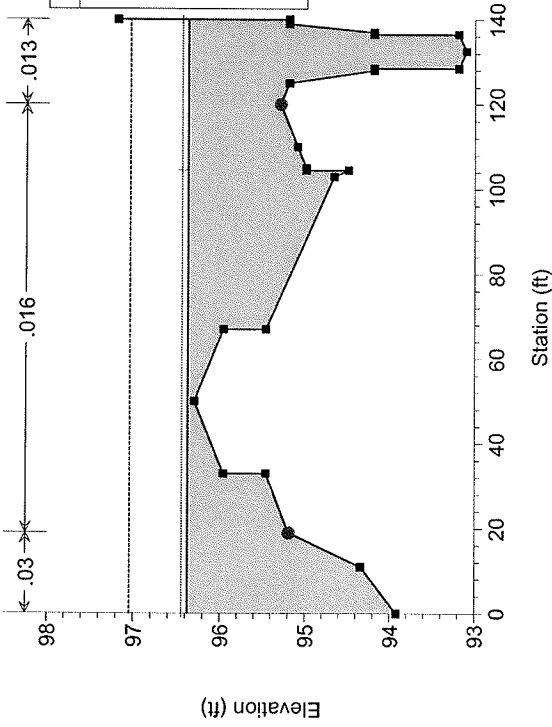
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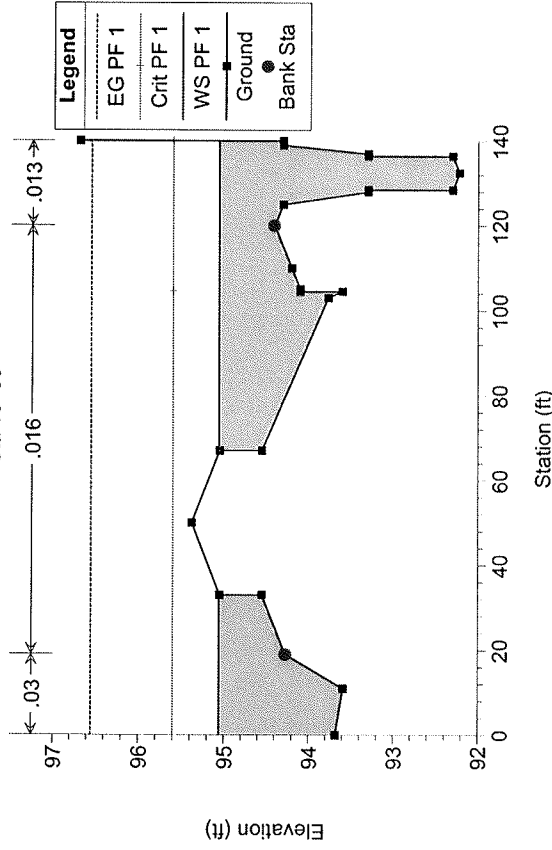
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Sta 14+50



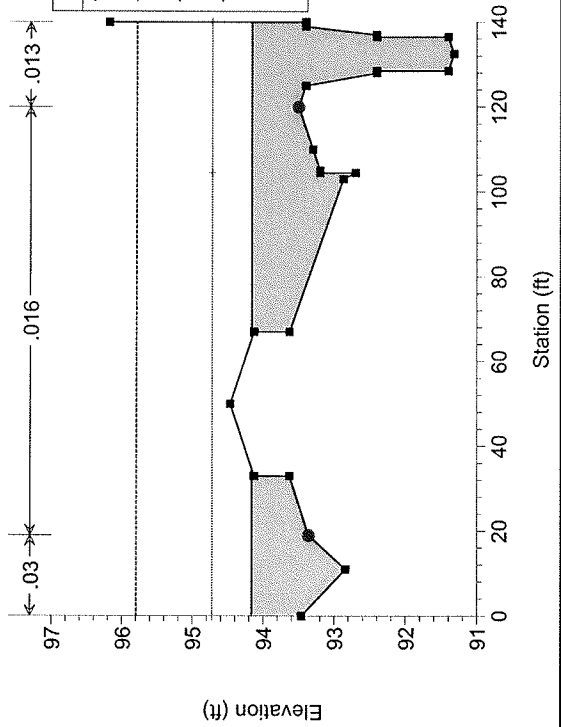
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Sta 15+00



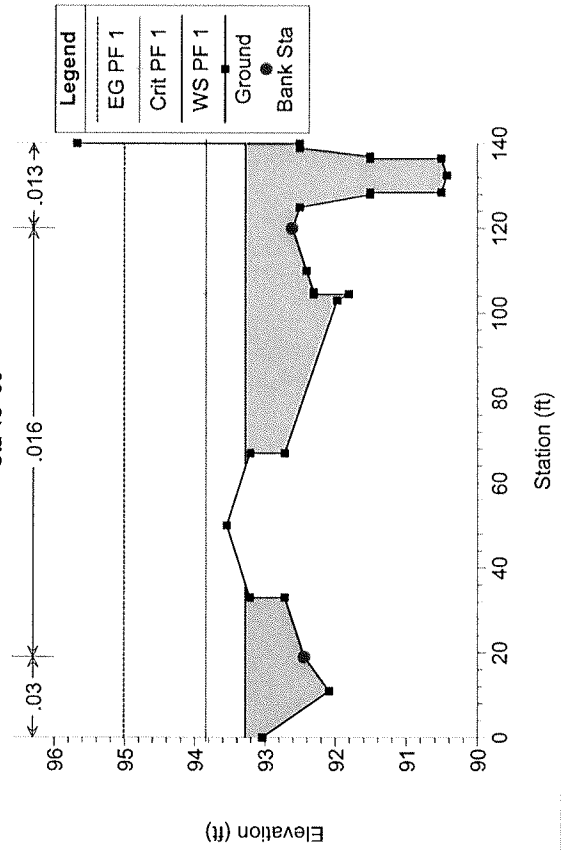
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Sta 16+00



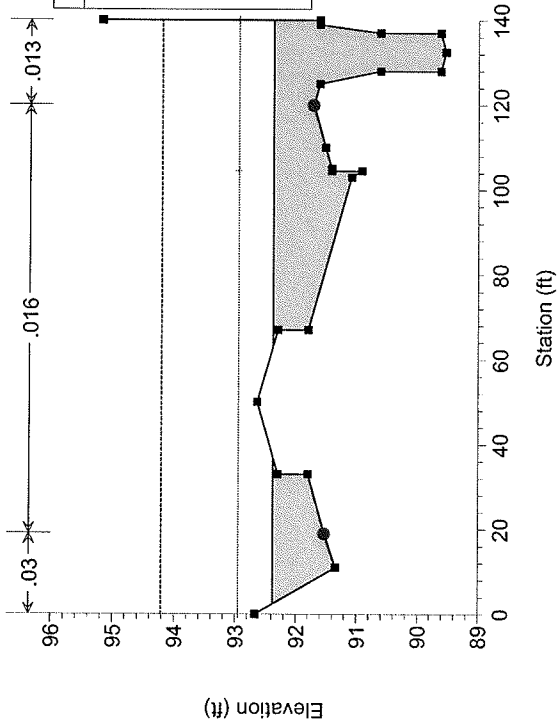
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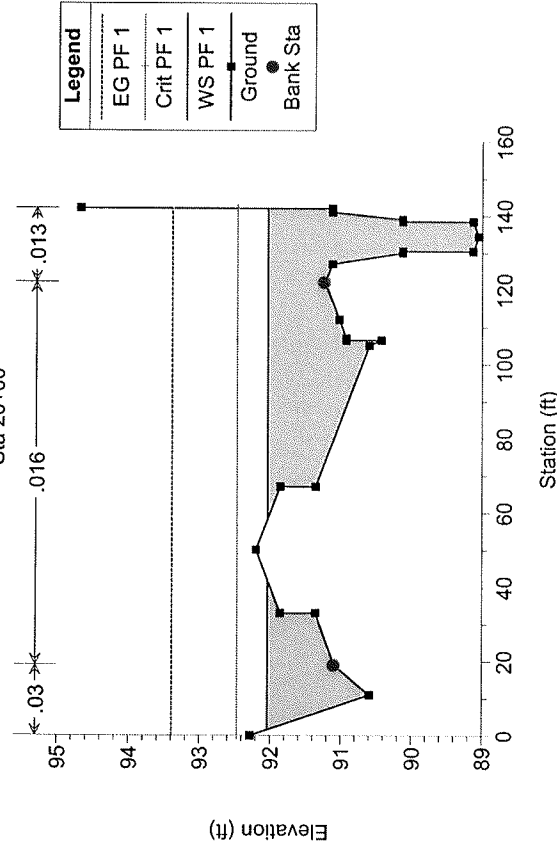
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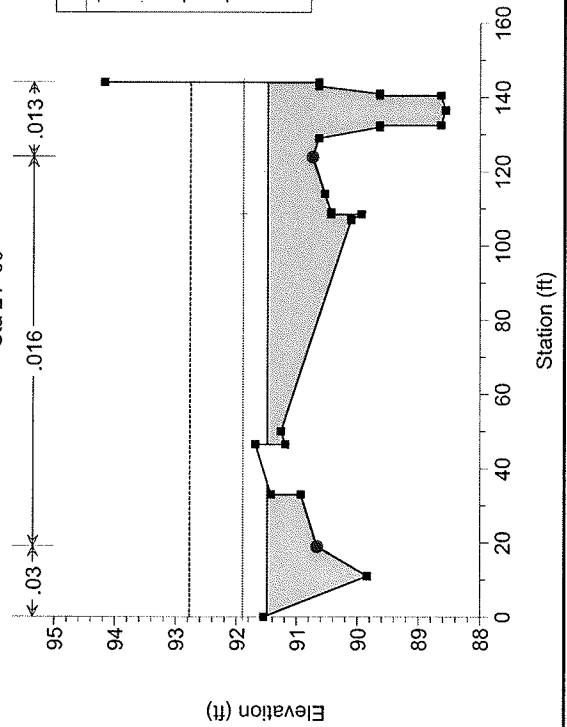
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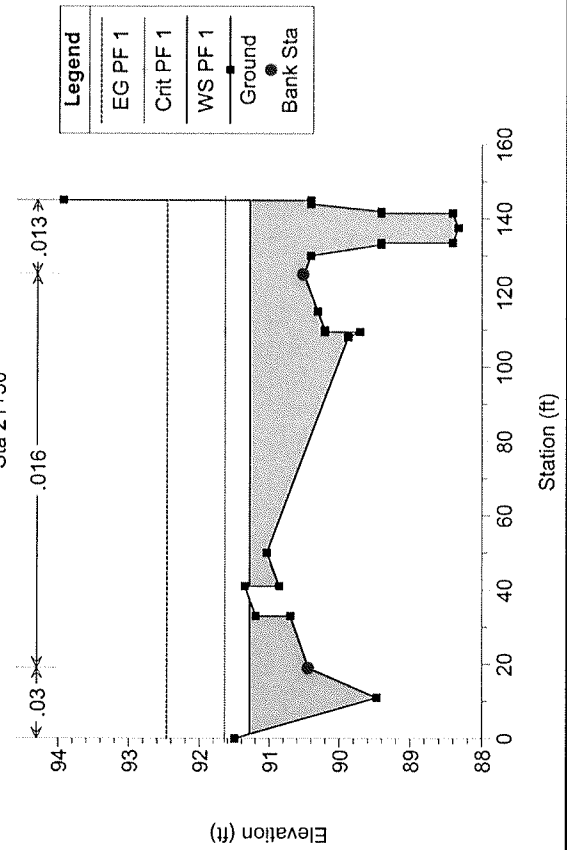
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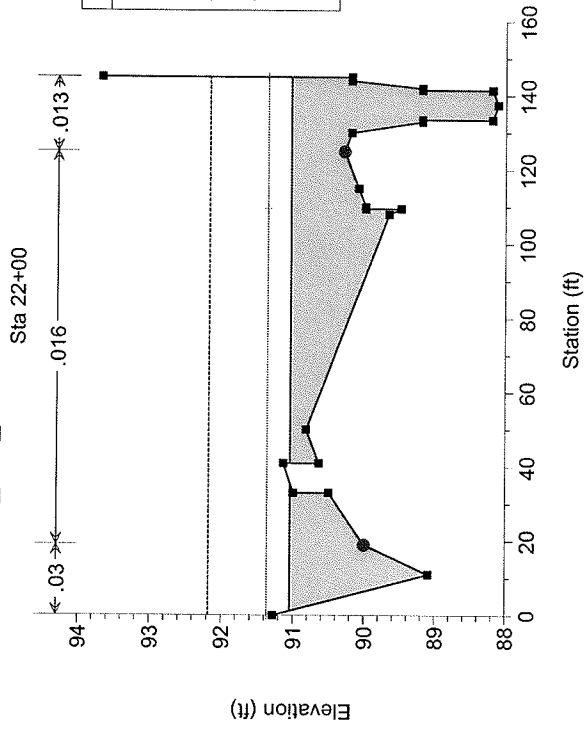
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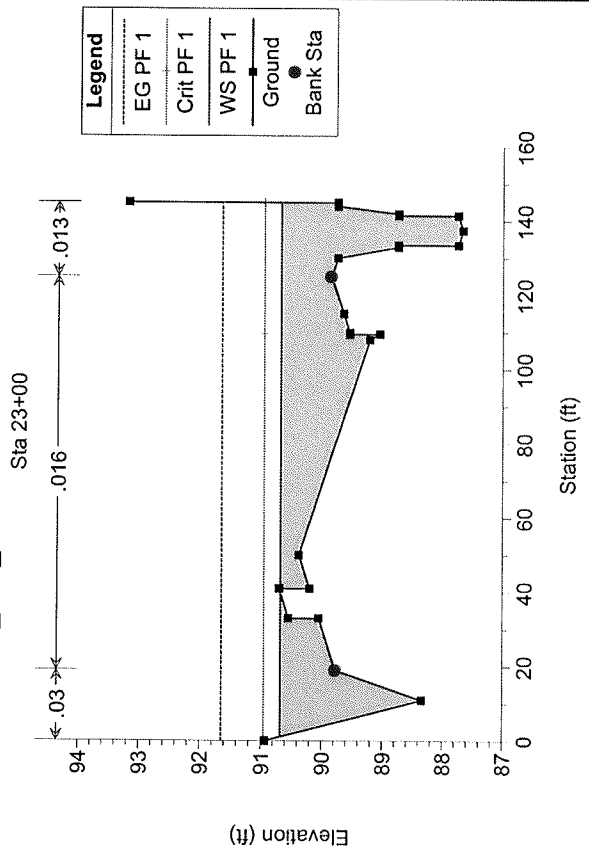
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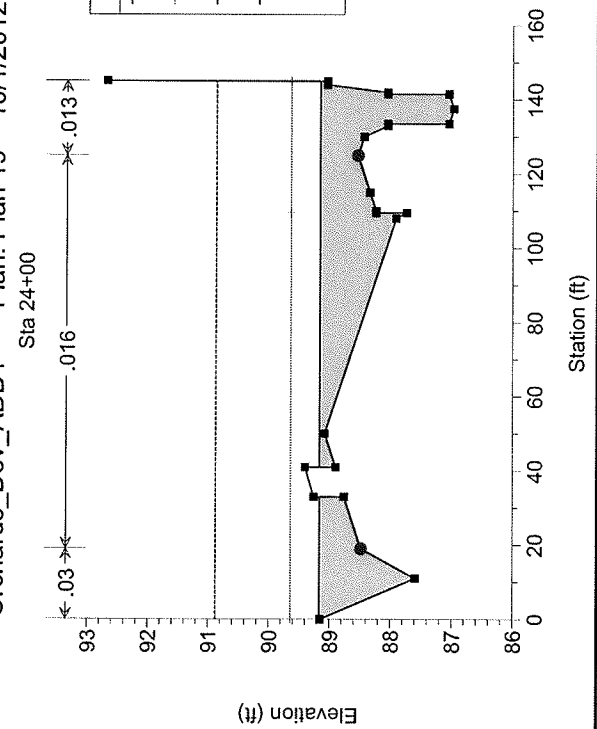
Orchards_Dev_ADD1 Plan: Plan 19 10/1/2012



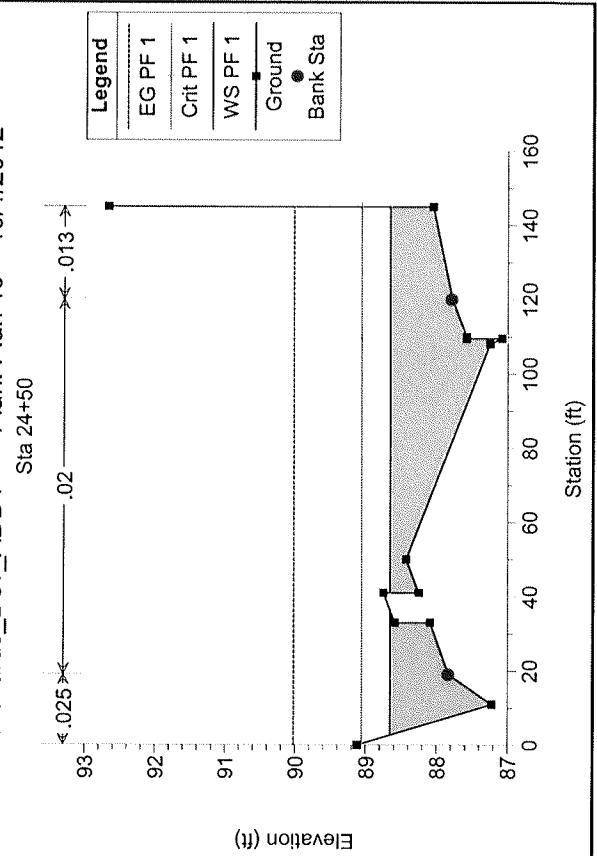
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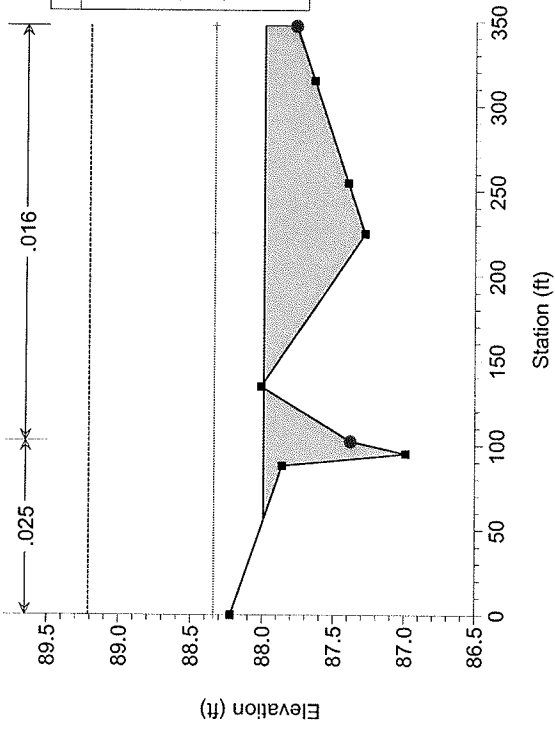
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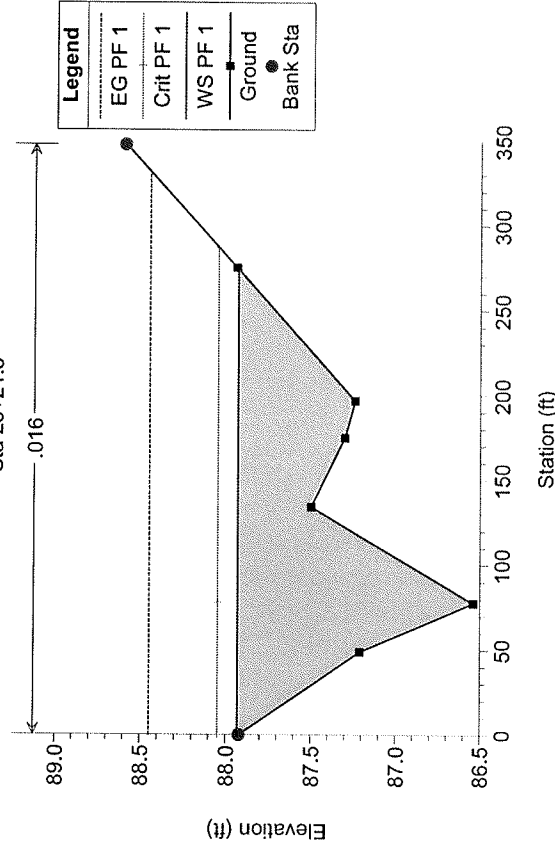
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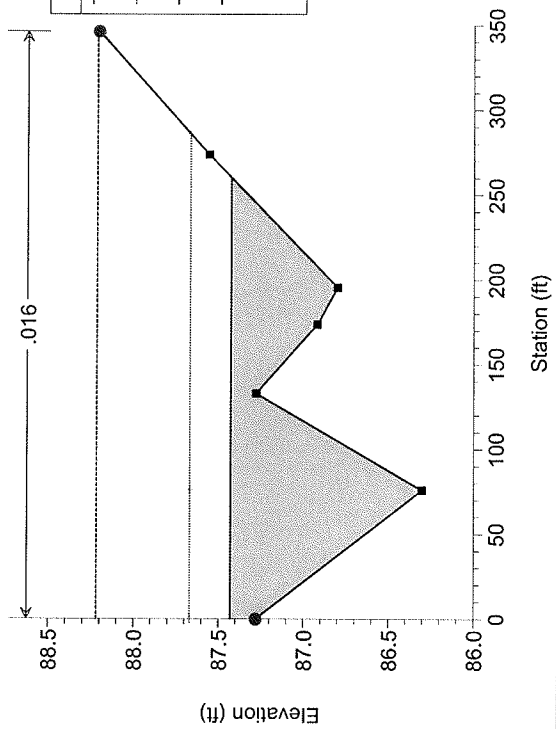
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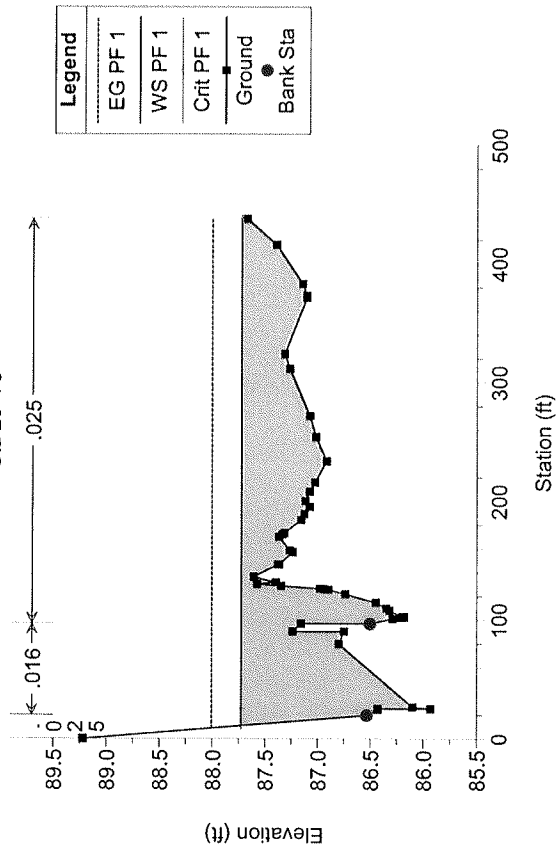
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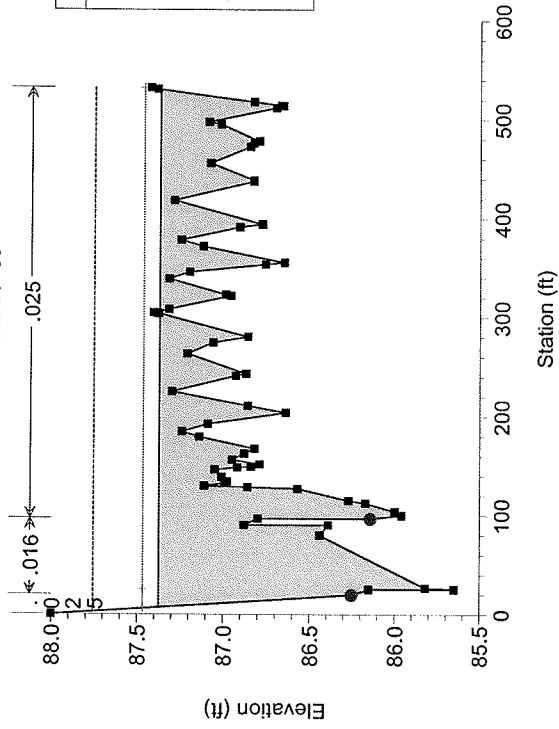
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Sta 25+40.5



Orchards_Dev_ADD1 Plan: Plan 19 10/1/2012
Sta 25+78



Orchards_Dev_ADD1 Plan: Plan 19 10/1/2012
Sta 26+50



APPENDIX C

Reference Material

January 2012

LAS VEGAS WASH MIDDLE BRANCH Grand Teton Storm Drain Final Design Report

*Durango Drive to Rainbow Boulevard
Hansen – 23161*

Prepared for

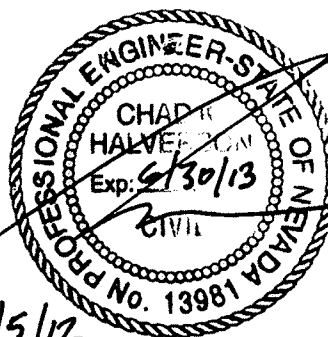


CITY OF LAS VEGAS

Prepared by



W.O. #7361



1/5/12

TABLE 4.4.2 - INTERIM CONDITION FLOW SUMMARY		
BASIN NAME	AREA (ACRES)	Q100 (CFS)
ILVMD1	116.73	219
ILVMD2	191.47	327
ILVMD3	69.69	149
ILVMD4	102.82	185
ILVMD5	19.81	48
ILVMD6	122.34	183
ILVMD7	83.66	181
ILVMD8	106.86	87

TABLE 4.4.3 - INTERIM CONDITION CONCENTRATION POINT SUMMARY		
CONCENTRATION POINT	TRIBUTARY BASINS/CONCENTRATION POINTS	TOTAL Q100 (CFS)
CP1	Culvert HD11+ILVMD1	1,206
CP2	Culvert NB01+Culvert NB02+Culvert NB03+Culvert NB04+Culvert NB05+ILVMD2	327
CP3	CP1+CP2	1,474
CP4	CP3+ILVMD3+ILVMD4	1,658
CP5	CP4+ILVMD5	1,675
CP6	CP5+ILVMD6+ILVMD7	1,924
CP7	CP6+ILVMD8+ILVMD9	1,989

The interim condition hydrologic analysis was performed to determine the impact to the proposed Grand Teton Storm Drain and to determine whether the flow from Ackerman Channel can be intercepted into the Grand Teton Storm Drain. A preliminary WSPG analysis was performed on the Grand Teton Storm Drain based on future facility size with interim condition flow. The result of the WSPG analysis shows that intercepting flow from the interim Ackerman Channel was not feasible. The design flow of the proposed Grand Teton Storm Drain at the outlet of the Ackerman Channel is about 541 cfs while the interim flow is approximately 1,474 cfs. The interim flow will continue to spill as surface flow within Grand Teton Drive once the capacity of the proposed system is exceeded.

4.5 ULTIMATE CONDITION HYDROLOGY

The design flow for the proposed Grand Teton Storm Drain was based on the ultimate condition hydrology. The ultimate condition hydrology assumes that all upstream MPU facilities have been constructed. The tributary area impacting Grand Teton Storm Drain west of US-95 is intercepted by the future MPU facilities along the west side of US-95 and routed to the CC-215/U.S.95 Interchange. The area east of the US-95 is the only tributary watershed to the Grand Teton Storm

APPENDIX D

Improvement Plans

Albert Sung

From: Rob Hansen [robh@taneycorp.com]
Sent: Tuesday, October 30, 2012 4:36 PM
To: Oh-Sang Kwon; Albert Sung; Steve Gebeke; Linda Hartman-Maynard
Cc: Michael Cunningham; Robert Cunningham
Subject: The Orchards at Grand Teton & Tenaya

Hello,

Thanks you all for meeting with me today regarding the Orchards at Grand Teton & Tenaya project. Below is a summary of our discussions. Please let me know if your understanding is different than what is presented below.

20' Multi-use Trail

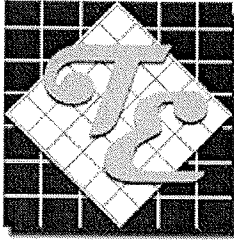
Regarding the 20' multi-use trail easement 20 trees will be located in tree boxes along Grand Teton as required by the approved SDR-27226. Rip rap will be used around the trees and will be sized to withstand the 100-year storm velocities or tree well grates will be used. If tree well grates are used they will be sized appropriately to allow for tree growth. Decorative concrete will also be placed within the 5 feet on both sides of the 10' trail to protect from erosive velocities. A fence will be provided on the south side of the 20' multi-use trail to provide a separation between the trail and drainage channel. The fence will be similar to the "horse rail" fencing in the area.

Drainage easement

The drainage easement width will be expanded to 20' creating an overlap of 5' with the 20' multi-use trail easement as shown in the approved tentative map. The 40' of depressed curb at the upstream end of the site will be replaced with a 20' dustpan driveway per CCAUSD No. 224. The drainage easement will contain a trapezoidal cross section similar to the Addendum 1 submittal. A rectangular cross section was analyzed and only reduced the water surface elevation an average of 0.15' (0.37' max); demonstrating only a minor difference from the trapezoidal section. Instead of a headwall as requested by comment 4 unit 3 of the drainage study rip rap will be proposed at the end of the channel to prevent erosion during a large storm event. The addition of the existing homes on the north side of Grand Teton will be protected from the 100-year design storm event.

Best regards,

Rob Hansen, PE
Taney Engineering
6030 S. Jones Blvd, Ste 100
Las Vegas, NV 89118
(702) 362-8844



TANEY ENGINEERING

6030 SOUTH JONES BLVD. #100

LAS VEGAS, NV 89118

TELEPHONE: 702-362-8844

FAX: 702-362-5233

Transmittal

To:	Albert Sung	From:	Jody M. Mudano
Company:	City of Las Vegas Land Development 333 North Rancho Las Vegas, NV 89106	Date:	October 4, 2012
Project:	The Orchards at Grand Teton and Tenaya 1 & 2	Job No.:	DRH 12-033
Re:	Drainage Study		
	Addendum #1		

Items Attached

1. (1) Drainage Study Addendum #1
2. (1) CD of the Drainage Study Addendum #1
3. (1) Check #361658, \$400.00

COMMENTS:

For your review.

Received:

Date:

Orchards @ GT & Tenaga

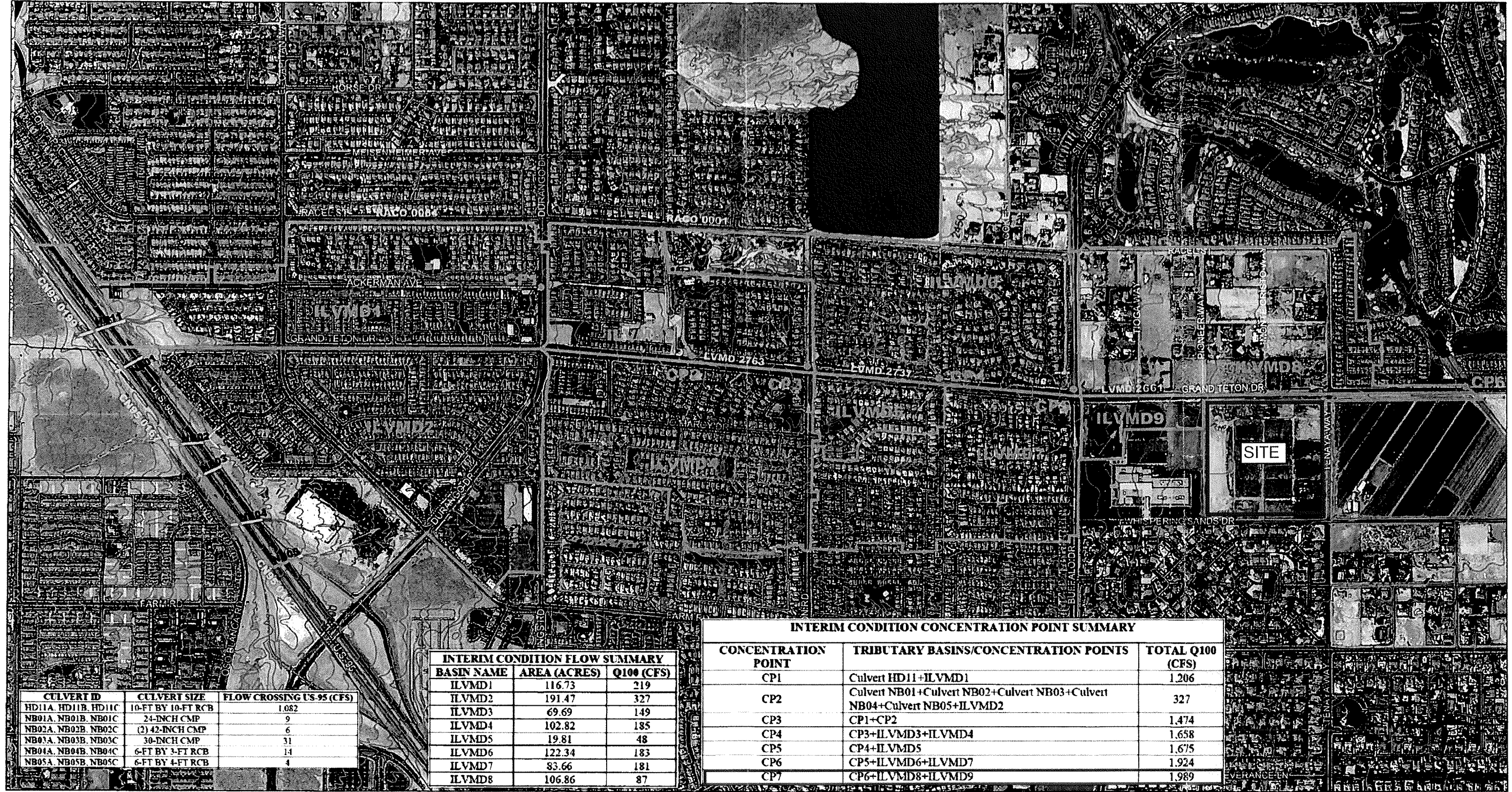
Unit 2

Unit 2 requires interim protection like Unit 1. Show the Unit #1 Berm on the Unit 2 Plans. Unit 2 needs a Berm placed at the north boundary to keep flow from entering Summer Solstice Street. The berm flow line is higher than the Street Stub, therefore flow enters Unit 2 instead of being routed east to Tenaga.

Unit 3

~~The provide HEC-RAS analysis shows that the interim flow depth in Grand Teton is above the proposed First Floor Elevations (FFE's). Manual requirements require FFE's to be twice the depth of flow up to 18-inches. Raise Pad & FFE's along Grand Teton to comply with manual requirements.~~

~~Flood Control still requires that the adjacent boundary wall along Grand Teton be solid grouted 18" above the W.S.E.~~



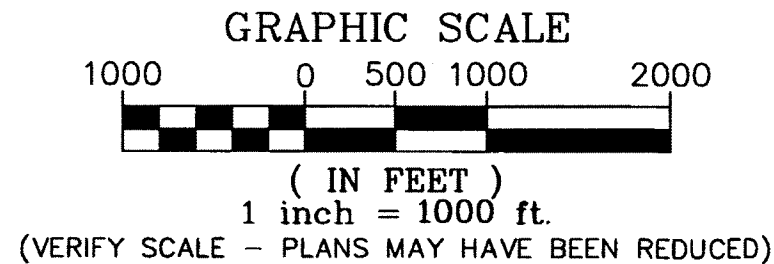
CULVERT ID	CULVERT SIZE	FLOW CROSSING US-95 (CFS)
HD11A, HD11B, HD11C	10-FT BY 10-FT RCB	1,082
NB01A, NB01B, NB01C	24-INCH CMP	9
NB02A, NB02B, NB02C	(2) 42-INCH CMP	6
NB03A, NB03B, NB03C	30-INCH CMP	31
NB04A, NB04B, NB04C	6-FT BY 3-FT RCB	14
NB05A, NB05B, NB05C	6-FT BY 4-FT RCB	4

INTERIM CONDITION FLOW SUMMARY		
BASIN NAME	AREA (ACRES)	Q100 (CFS)
ILVMD1	116.73	219
ILVMD2	191.47	327
ILVMD3	69.69	149
ILVMD4	102.82	185
ILVMD5	19.81	48
ILVMD6	122.34	183
ILVMD7	83.66	181
ILVMD8	106.86	87

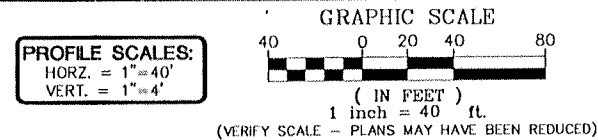
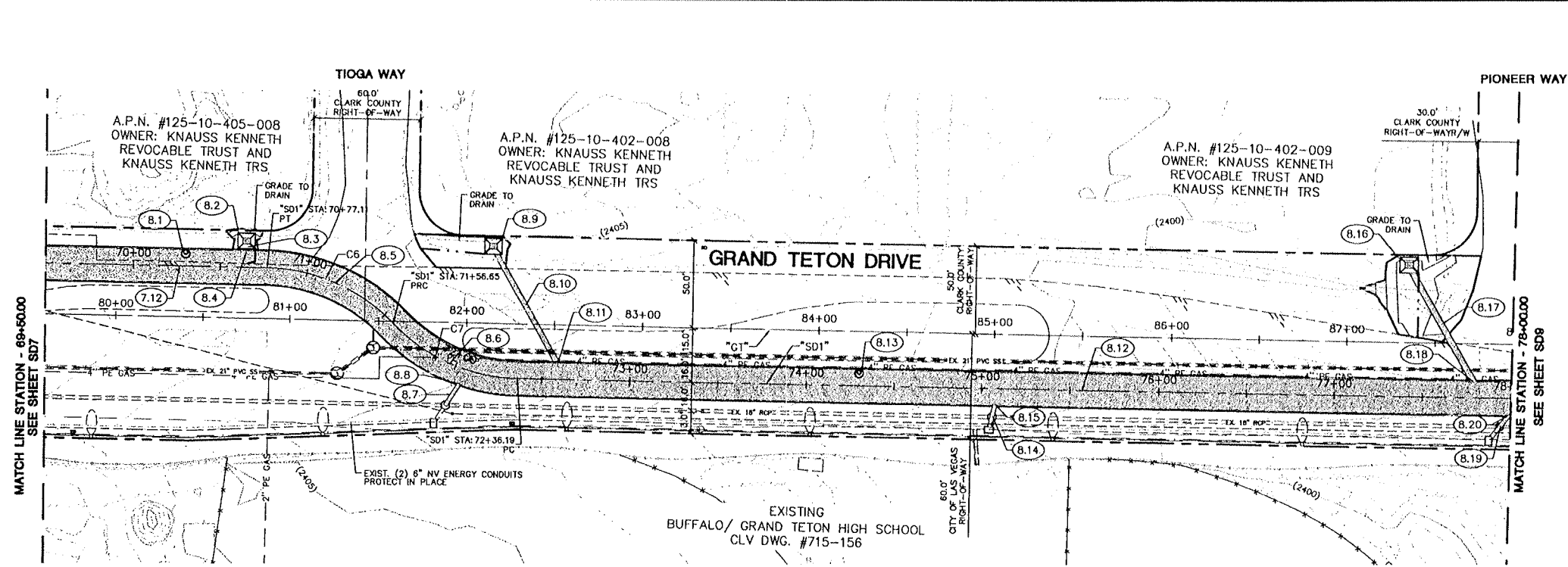
INTERIM CONDITION CONCENTRATION POINT SUMMARY		
CONCENTRATION POINT	TRIBUTARY BASINS/CONCENTRATION POINTS	TOTAL Q100 (CFS)
CP1	Culvert HD11+ILVMD1	1,206
CP2	Culvert NB01+Culvert NB02+Culvert NB03+Culvert NB04+Culvert NB05+ILVMD2	327
CP3	CP1+CP2	1,474
CP4	CP3+ILVMD3+ILVMD4	1,658
CP5	CP4+ILVMD5	1,675
CP6	CP5+ILVMD6+ILVMD7	1,924
CP7	CP6+ILVMD8+ILVMD9	1,989

LEGEND

- SUBBASIN BOUNDARY
- COMBINATION POINT
- US-95 CULVERT
- MPU FACILITY



LAS VEGAS WASH MIDDLE BRANCH
GRAND TETON STORM DRAIN
INTERIM CONDITION BASIN MAP

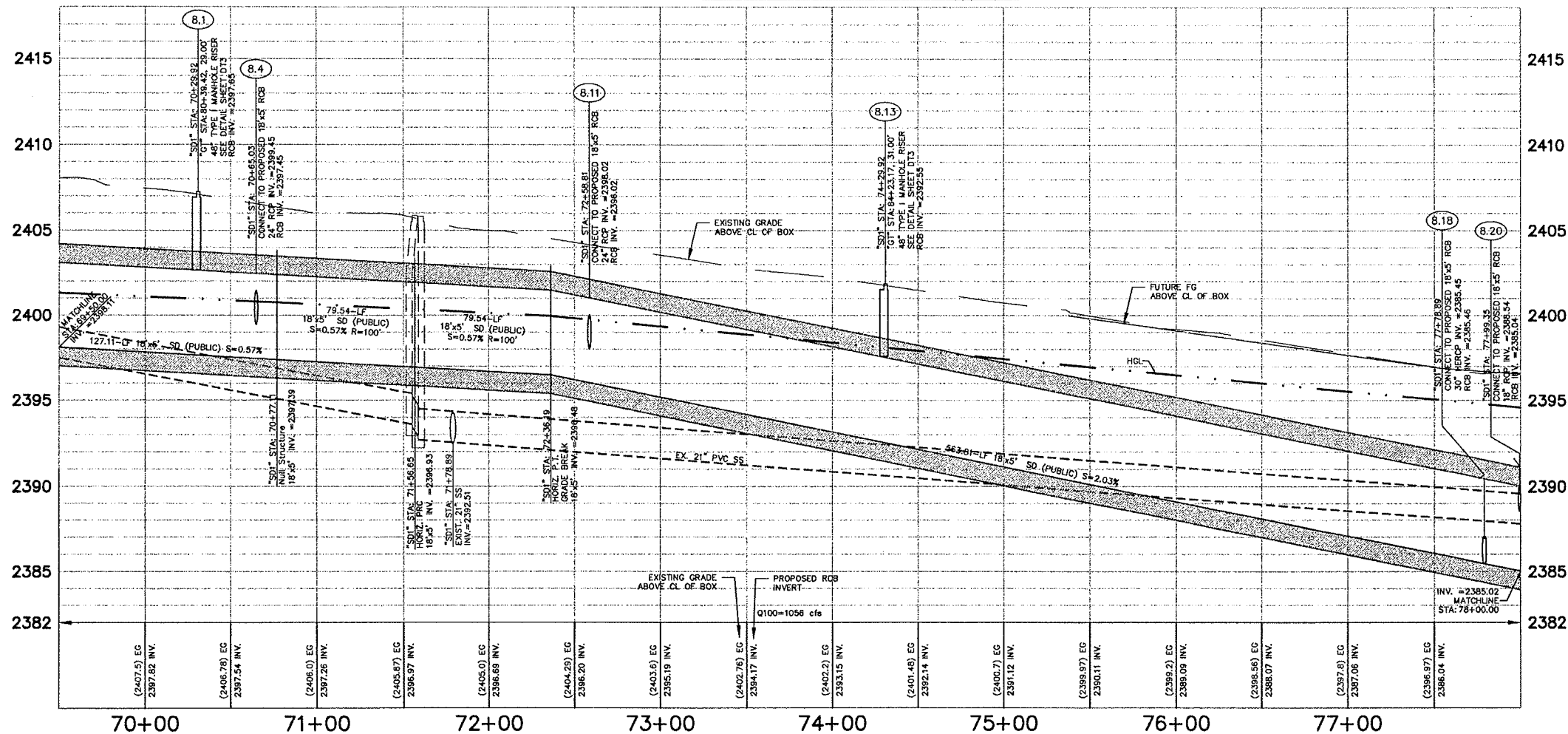


PROFILE SCALES:
HORZ. = 1"=40'
VERT. = 1"=4'

STORM DRAIN CONSTRUCTION NOTES

- 7.12 SEE SHEET SD7
- 8.1 "SD1" 70+29.92, 7.00 L CONST. 48" TYPE I MANHOLE RISER SEE DETAIL SHEET DT3
- 8.2 "SD1" 70+65.03, 15.00' L INSTALL NDOT TYPE "2B" DROP INLET PER STD. DWG. R-4.2.2 W/ CONCRETE APRON SEE SHEET DT3
- 8.3 INSTALL 5.00-LF 24" RCP SEE LATERAL PROFILE 18 SHEET SD21
- 8.4 "SD1" STA: 70+65.03 CONNECT TO PROPOSED 18"x5' RCB
- 8.5 INSTALL 79.54-LF ~ 18"x5'
- 8.6 INSTALL 79.54-LF ~ 18"x5'
- 8.7 INSTALL 14.42-LF 18" RCP SEE LATERAL PROFILE 19 SHEET SD22
- 8.8 "SD1" STA: 72+05.28 CONNECT TO PROPOSED 18"x5' RCB
- 8.9 "SD1" 71+82.43, 70.89' L INSTALL NDOT TYPE "2B" DROP INLET PER STD. DWG. R-4.2.2 W/ CONCRETE APRON SEE SHEET DT3
- 8.10 INSTALL 75.05-LF 24" RCP SEE LATERAL PROFILE 20 SHEET SD22
- 8.11 "SD1" STA: 72+58.81 CONNECT TO PROPOSED 18"x5' RCB
- 8.12 INSTALL 568.40-LF ~ 18"x5'
- 8.13 "SD1" 74+29.92, 7.00 L CONST. 48" TYPE I MANHOLE RISER SEE DETAIL SHEET DT3
- 8.14 INSTALL 12.80-LF 18" RCP EXIST. 4" TYPE "CM" S.D.D.I. PER CLV DWG NO. 715-156 SEE LATERAL PROFILE 21 SHEET SD22
- 8.15 "SD1" STA: 75+07.60 CONNECT TO PROPOSED 18"x5' RCB
- 8.16 "SD1" 77+41.36, 75.00' L INSTALL NDOT TYPE "2B" DROP INLET PER STD. DWG. R-4.2.2 W/ CONCRETE APRON SEE SHEET DT3
- 8.17 INSTALL 75.06-LF 19"x30" HERCP
- 8.18 "SD1" STA: 77+78.89 CONNECT TO PROPOSED 18"x5' RCB
- 8.19 INSTALL 16.08-LF 18" RCP EXIST. 4" TYPE "CM" S.D.D.I. PER CLV DWG NO. 715-156 SEE LATERAL PROFILE 22 SHEET SD23
- 8.20 "SD1" STA: 77+99.35 CONNECT TO PROPOSED 18"x5' RCB

CURVE TABLE				
CURVE #	RADIUS	LENGTH	CHORD LENGTH	DELTA
C6	100.00'	79.54'	77.46'	045°34'24"
C7	100.00'	79.54'	77.46'	045°34'24"



LEGEND

PROP. STORM DRAIN FACILITY

ALL EXISTING FACILITIES SHALL BE PROTECTED IN PLACE UNLESS OTHERWISE NOTED

ALL RCP SHALL BE CLASS III UNLESS OTHERWISE NOTED

90% Submittal
"Not for Construction"
JANUARY 2012

Call before you Dig
NEVADA POWER ENVIRONMENT AND SAFETY SERVICES DEPARTMENT
1-702-227-2929

Call 811
Avoid cutting underground utility lines. It's costly.

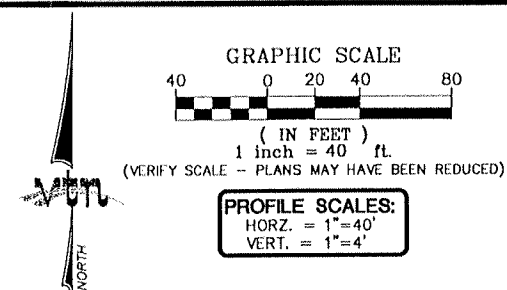
PUBLIC WORKS DEPARTMENT
400 E. STEWART AVE.
LAS VEGAS, NV 89101
702-225-5272

STORM DRAIN
PLAN AND PROFILE
STA: 69+50 TO 78+00
LAS VEGAS WASH MIDDLE BRANCH
GRAND TETON STORM DRAIN
DURANGO DR. TO RAINBOW BLVD.

DRAWN BY: 7/25/2011
DESIGNED BY: 7/25/2011
CHECKED BY: 7/25/2011
PROJECT NO: 7251
SCALE: HORIZ. 40
VERT. 4

PROFESSIONAL ENGINEER - STATE OF NEVADA
CHAD X. HALVORSON
EXPI. 04/30/19
No. 13981

SHEET
SD8
24 OF X SHEETS
DRAWING NO.
28737



9.1 INSTALL 2796.34-LF ~ 18"x5"

9.2 "SD1" 78+29.92, 7.00 L
CONST. 48" TYPE I MANHOLE RISER
SEE DETAIL SHEET D73

9.3 "SD1" 78+88.19, 75.00' L
INSTALL NDOT TYPE "2B" DROP INLET
PER STD. DWG. R-4.2.2 W/
CONCRETE APRON SEE SHEET D73

9.4 INSTALL 65.00-LF 19"x30" HERCP

9.5 "SD1" STA: 78+88.19
CONNECT TO PROPOSED 18'x5' RCB

9.6 "SD1" 82+29.92, 7.00 L
CONST. 48" TYPE I MANHOLE RISER
SEE DETAIL SHEET D73

9.7 "SD1" 84+07.89, 73.99' L
INSTALL NDOT TYPE "2B" DROP INLET
PER STD. DWG. R-4.2.2 W/
CONCRETE APRON SEE SHEET D73

9.8 INSTALL 64.99-LF 19"x30" HERCP

9.9 "SD1" STA: 84+07.89
CONNECT TO PROPOSED 18'x5' RCB

9.10 "SD1" STA: 85+35.24
FUTURE DROP INLET BY OTHERS

9.11 INSTALL 64.99-LF 24" RCP
SEE LATERAL PROFILE 26
SHEET SD24

9.12 "SD1" STA: 85+38.45
CONNECT TO PROPOSED 18'x5' RCB

9.13 "SD1" 86+29.92, 7.00 L
CONST. 48" TYPE I MANHOLE RISER
SEE DETAIL SHEET D73

☐ PROP. STORM DRAIN FACILITY

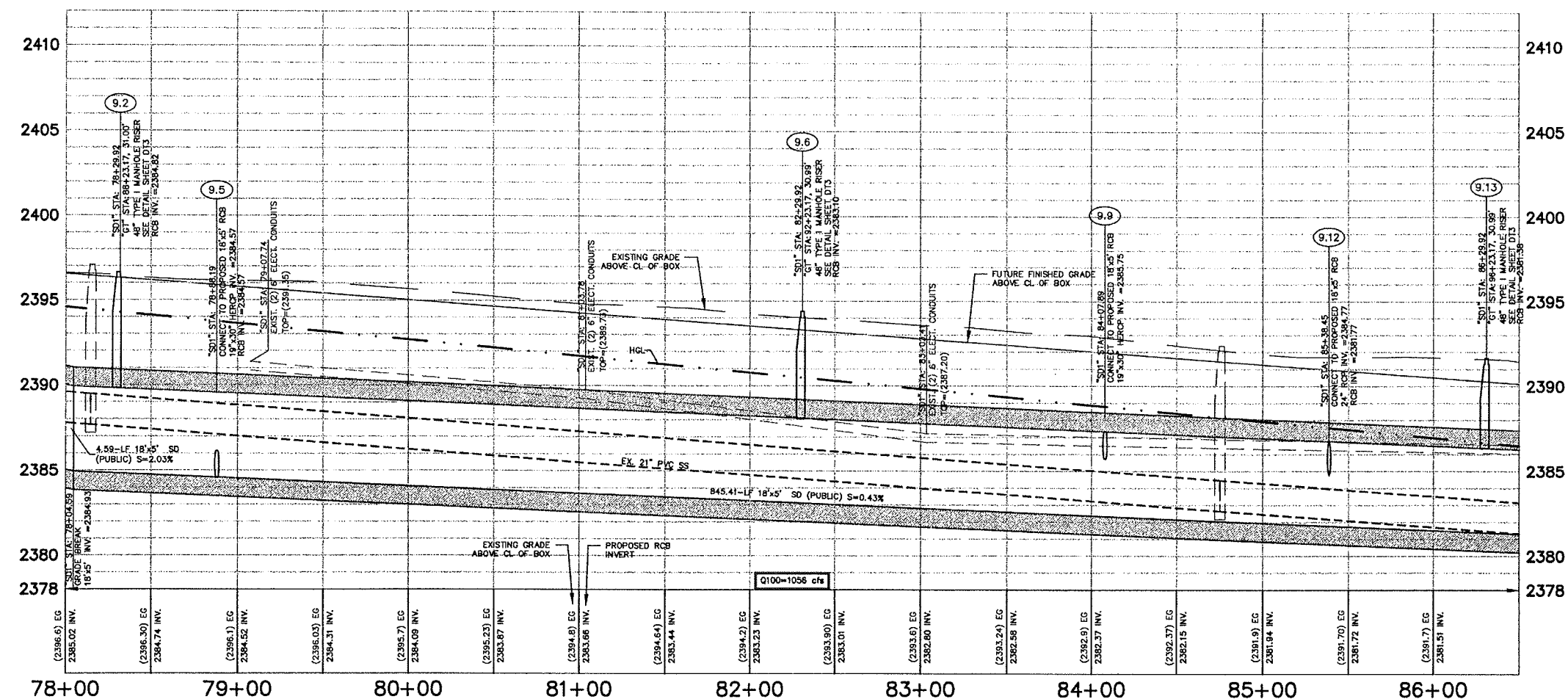
ALL RCP SHALL BE CLASS III UNLESS OTHERWISE NOTED

ALL EXISTING FACILITIES SHALL BE
PROTECTED IN PLACE UNLESS
OTHERWISE NOTED

90% Submittal
"Not for Construction"
JANUARY 2012

Call before you Dig
 Avoid cutting underground lines, it's costly.

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 SAFETY SERVICES DEPARTMENT



PUBLIC WORKS DEPARTMENT



7727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH. (702) 873-7550
FAX (702) 362-2557
WEB SITE WWW.VTRNV.COM



STORM DRAIN
PLAN AND PROFILE
STA: 78+00 TO 86+50

LAS VEGAS WASH MIDDLE BRANCH
GRAND TETON STORM DRAIN
DURANGO DR. TO RAINBOW BLVD.

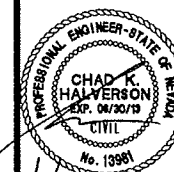
DRAWN BY:

DAB _____ 7/26/2011

DESIGNED BY: _____

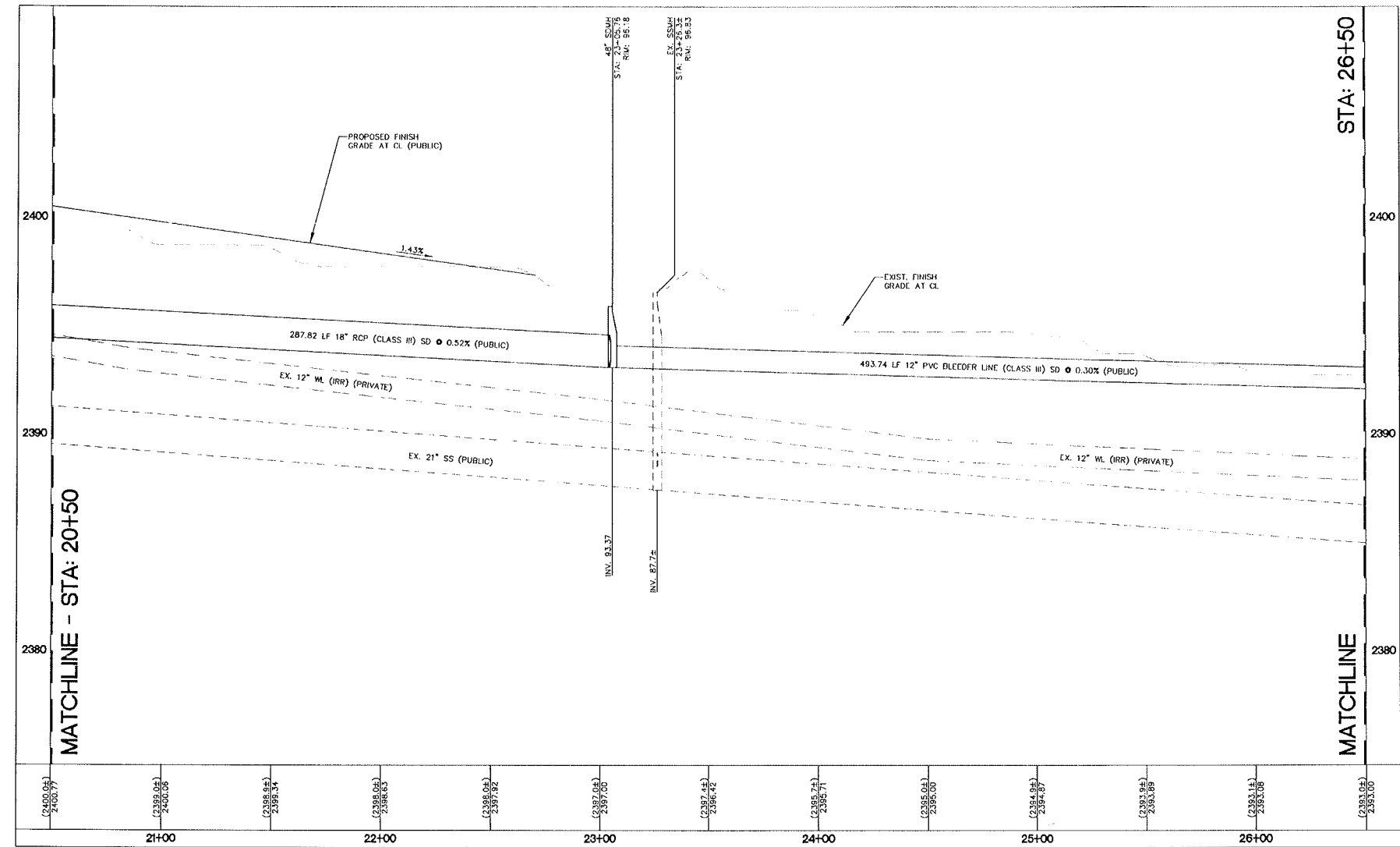
7/26/2011

CHECKED BY: CKH 7/26/2011



SHEET
SD9
25 OF X SHEETS
DRAWING NO.
28737

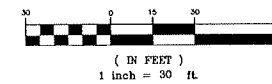
7361



PROFILE VIEW
SCALE: H-1"=30' V-1"=3'

LEGEND	CL OR SURVEY LINE	EASEMENT LINE	HEAVY AC PMWT.	MANHOLES & DESCRIPTIONS (1) = SANITARY SEWER (2) = STORM DRAIN (3) = ELECTRICAL (4) = TELEPHONE	CAP	DESCRIPTION:	BO VALVE	CLEAN OUT	FDC	FIRE HYDRANT	GATE VALVE	REDUCER	100" HPS STREET TIGHT	150" HPS STREET TIGHT	200" HPS STREET TIGHT	250" HPS STREET TIGHT	400" HPS STREET TIGHT	5' CONTOUR LINE	1' CONTOUR LINE	EDGE OF PMWT.	"A" TYPE CURBS	"L" TYPE CURBS	WALLS	FENCES	SPOT ELEVATIONS (12.34) 12.34 BC	SIGNS
	PROPERTY LINE	SAWCUT LINE	LIGHT AC PMWT.			EXISTING:												(2210)								
	ROW LINE	SCARP LINE	CONC. PMWT.			PROPOSED:												(2210)	2211							

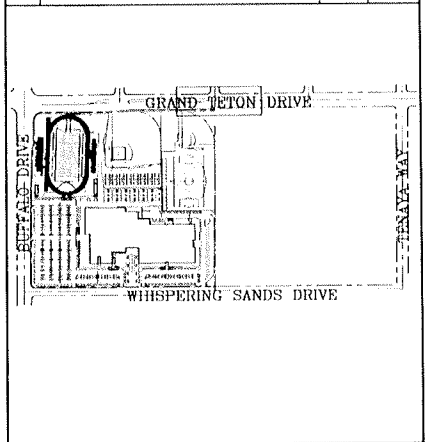
16	PLANTING AREA REFER TO LANDSCAPE PLANS.
17	CONSTRUCT STREET PER SECTIONS ON SHEET C5.13.
18	CONSTRUCT BUS TURNOUT PER C.C.A.U.S.D. #234.1.
19	CONSTRUCT 6" CONC. PAVEMENT PER DETAIL "11" ON SHEET C9.01.
20	CONSTRUCT SIDEWALK RAMP PER DETAIL "8" ON SHEET C9.00.
21	CONSTRUCT SIDEWALK RAMP CASE II PER C.C.A.U.S.D. #235.
22	INSTALL PRECAST BUMPER BLOCK PER C.C.A.U.S.D. #238.
23	CONSTRUCT OUTLET STRUCTURE PER DETAIL "15" AND "16" ON SHEET C9.01.
24	INSTALL DROP INLETS AND SD THRU RETAINING WALL PER DETAIL "14" ON SHEET C9.01.
25	CONSTRUCT TENNIS COURT AC PAVEMENT PER DETAIL "4" ON SHEET C9.00.



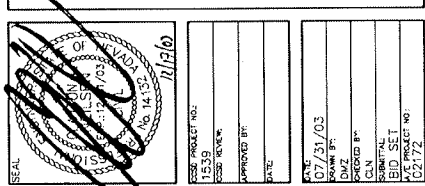
ELEVATION = 736.434 METERS, 2416.12 FEET (NAVD 88)



REVISIONS			
REV	DESCRIPTION	DATE	BY
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2	2.00		
3	3.00		
4	4.00		
5	5.00		
6	6.00		
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96	96.00		
97	97.00		
98	98.00		
99	99.00		
100	100.00		



DO NOT SCALE DRAWINGS



Nevada By Design
ENGINEERING CONSULTANTS
3515 East Harmon Avenue
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Phone: (702) 938-1525
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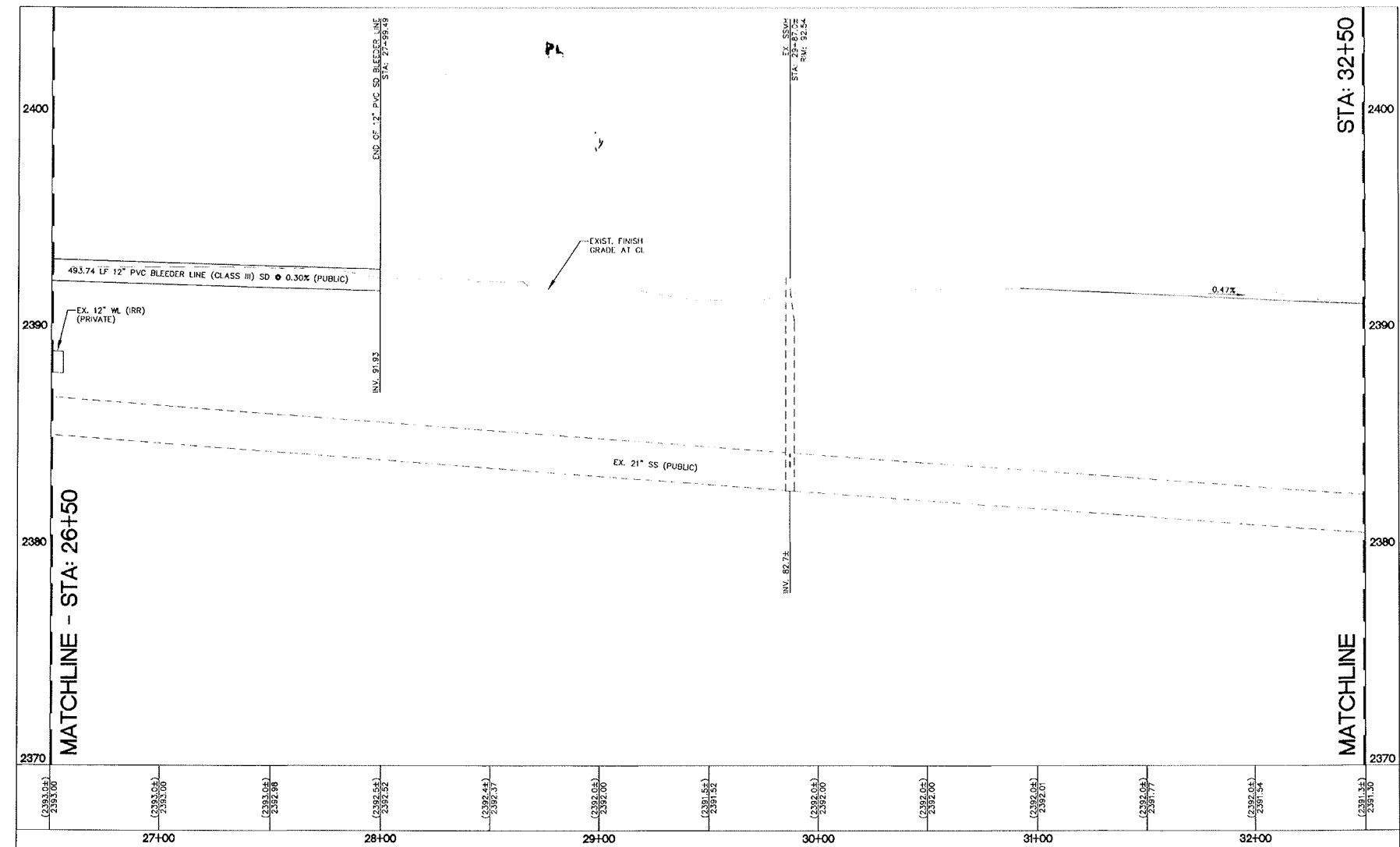
CLARK COUNTY SCHOOL DISTRICT

BUFFALO / GRAND TETON HIGH SCHOOL
LAS VEGAS **NEVADA**

GRAND TETON PLAN AND PROFILE: STA 20+50 - 26+50

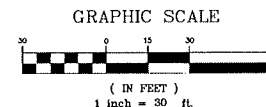


SHEET NO.
C5.02
SHEET 33 of 63
DRAWING NUMBER
715-156



PROFILE VIEW
SCALE: H-1"=30' V-1"=3'

1. CONSTRUCT "1" TYPE CURB PER C.A.U.S.D. #216.
2. CONSTRUCT "A" TYPE CURB PER C.A.U.S.D. #219.
3. CONSTRUCT COMMERCIAL/INDUSTRIAL DRIVEWAY PER C.A.U.S.D. #225 WITH GEOMETRICS OF #227A. CONSTRUCT 8" CROSS GUTTER PER C.A.U.S.D. #228.
4. CONSTRUCT CONCRETE SIDEWALK PER C.A.U.S.D. #234.
5. CONSTRUCT SIDEWALK RAMP CASE I PER C.A.U.S.D. #235.
6. CONSTRUCT 2" UNDER SIDEWALK DRAIN PER C.A.U.S.D. #236.
7. CONSTRUCT SIDEWALK RAMP PER DETAIL "1" ON SHEET C9.00.
8. CONSTRUCT 3" VALLEY GUTTER PER DETAIL "2" ON SHEET C9.00.
9. CONSTRUCT CONCRETE FLUME PER DETAIL "3" ON SHEET C9.00.
10. CONSTRUCT BUS PARKING AC PAVEMENT PER SECTION "3" ON SHEET C9.00.
11. CONSTRUCT PARKING, DRIVEWAY & PLAYGROUND AC PAVEMENT PER SECTION "6" ON SHEET C9.00.
12. CONSTRUCT SIDEWALK RAMP PER DETAIL "7" ON SHEET C9.00.
13. CONSTRUCT SPEED BUMP PER DETAIL "10" ON SHEET C9.01.
14. CONSTRUCT RETAINING WALL/LOOD WALL PER PROFILES AND SECTIONS ON SHEETS C10.00 - C10.02 (REFER TO SHEETS C2.01 - C2.09 FOR LAYOUT).
15. CONSTRUCT SIDEWALK PER C.A.U.S.D. #234 (SEE ARCHITECTURAL PLANS FOR FINISHES AND JOINT LAYOUT).
16. PLANTING AREA REFER TO LANDSCAPE PLANS.
17. CONSTRUCT STREET PER SECTIONS ON SHEET C5.13.
18. CONSTRUCT BUS TURNOUT PER C.A.U.S.D. #234.1.
19. CONSTRUCT 6" CONC. PAVEMENT PER DETAIL "11" ON SHEET C9.01.
20. CONSTRUCT SIDEWALK RAMP PER DETAIL "8" ON SHEET C9.00.
21. CONSTRUCT SIDEWALK RAMP CASE II PER C.A.U.S.D. #235.
22. INSTALL PRECAST BUMPER BLOCK PER C.A.U.S.D. #238.
23. CONSTRUCT OUTLET STRUCTURE PER DETAIL "15" AND "16" ON SHEET C9.01.
24. INSTALL DROP INLETS AND 50 THRU RETAINING WALL PER DETAIL "14" ON SHEET C9.01.
25. CONSTRUCT TENNIS COURT AC PAVEMENT PER SECTION "4" ON SHEET C9.00.



NORTH 00°19'37" EAST BEING THE WEST LINE OF THE NORTHWEST QUARTER OF THE NORTHWEST QUARTER OF SECTION 15, TOWNSHIP 19 SOUTH, RANGE 60 EAST, W.O.M., CLARK COUNTY, NEVADA AS SHOWN PER CERTIFICATE OF LAND DIVISION MAP, FILE 1, PAGE 55.

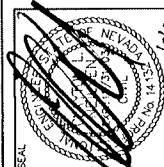
CITY OF LAS VEGAS BENCHMARK #BLV90 15NWS RIVET AND PLATE IN CONCRETE PAD (LYVWD) @ SE CORNER OF BUFFALO & GRAND TETON.

ELEVATION = 736.434 METERS, 2416.12 FEET (NAVD 88)



The floor plan shows a large rectangular building with a complex internal layout. The building is oriented with Buffalo Drive to the left and Grand Teton Drive to the top. The plan features a large central hall, several smaller rooms, and a prominent circular structure on the left side. The plan is labeled with various rooms and areas, including 'Buffalo Drive', 'Grand Teton Drive', 'Whispering Sands Drive', and 'Buffalo Drive'.

DO NOT SCALE DRAWINGS



ISSUED PROJECT NO.	
1539	
ISSUED REVISION	
APPROVED BY:	
DATE:	

NAME:	
07/31/03	
DRAWN BY:	
DWZ	
CHECKED BY:	
CLN	
SUBMITTAL:	
BID SET	
PROJECT NO.	



CLARK COUNTY SCHOOL DISTRICT



BUFFALO / GRAND TETON HIGH SCHOOL
LAS VEGAS **NEVADA**

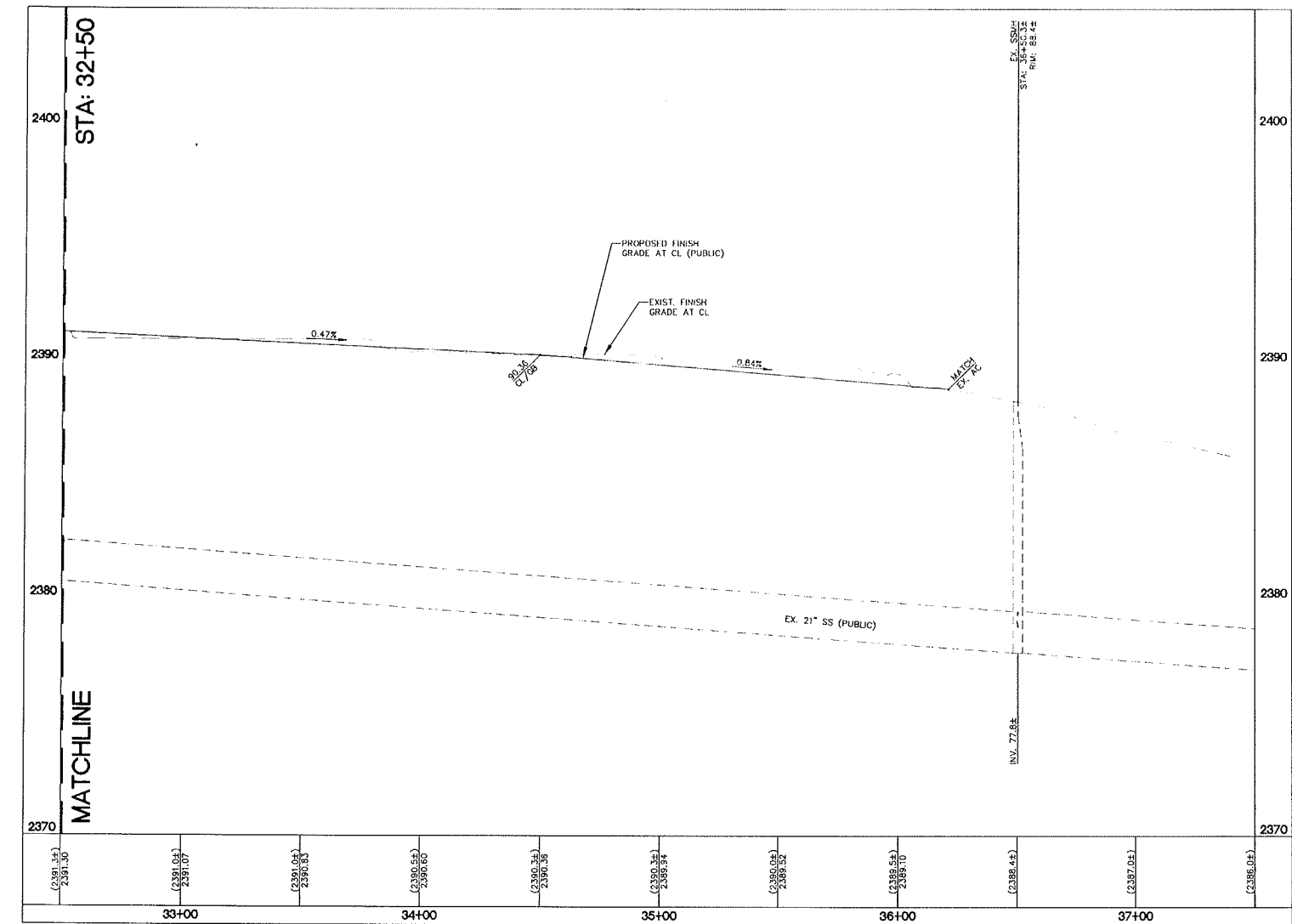
GRAND TETON PLAN AND PROFILE: STA 26+50 - 32+50

SHEET NO.

C5.03

SHEET 34 of 63
DRAWING NUMBER
715-156

CL OR SURVEY LINE	EASEMENT LINE	HEAVY AC PWT.	MANHOLES & DESCRIPTIONS ① SANITARY SEWER ② STORM DRAIN ③ ELECTRICAL ④ FURNACE	CAP	DESCRIPTION:	6" VALVE	CLEAN OUT	FDC	FIRE HYDRANT	GATE VALVE	REDUCER	100" HPS STREETLIGHT	150" HPS STREETLIGHT	200" HPS STREETLIGHT	250" HPS STREETLIGHT	400" HPS STREETLIGHT	5' CONTOUR LINE	1' CONTOUR LINE	EDGE OF PWT.	"A" TYPE CURBS	"L" TYPE CURBS	WALLS	FENCES	SPOT ELEVATIONS	SIGNS
PROPERTY LINE	SAWTOOTH LINE	LIGHT AC PWT.		L	EXISTING:	⊙	⊙	⊙	⊙	⊙	▷						-(2210)							(12.35)	
ROW LINE	SCARP LINE	CONC. PWT.			PROPOSED:	⊙	⊙	⊙	⊙	⊙	▷						-2210	-2211						(12.34)	



PROFILE VIEW
SCALE: H-1"=30' V-1"=3'

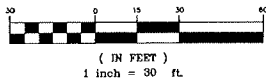
64243

LEGEND	CL. OR SURVEY LINE	EASEMENT LINE	HEAVY AC. P.W.T.	MANHOLES & DESCRIPTIONS	CAP	DESCRIPTION:	80 VALVE	CLEAN OUT	FDC	FIRE HYDRANT	GATE VALVE	REDUCER	100% HPS STREET LIGHT	150% HPS STREET LIGHT	200% HPS STREET LIGHT	250% HPS STREET LIGHT	400% HPS STREET LIGHT	5' CONTOUR LINE	1' CONTOUR LINE	EDGE OF P.W.T.	"A" TYPE CURBS	"L" TYPE CURBS	WALLS	FENCES	SPOT ELEVATIONS	SIGNS	
	PROPERTY LINE	SAWCUT LINE	LIGHT AC. P.W.T.	① - SANITARY SEWER ② - STORM DRAIN ③ - ELECTRICAL ④ - TELEPHONE		EXISTING: PROPOSED:	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	(2210) -2210-	-2210-	16 15 14	16 15 14	16 15 14	16 15 14	16 15 14	16 15 14	(12.34) 12.34 BC	16 15 14
	ROW LINE	SCARP LINE	CONC. P.W.T.				1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	(2210) -2210-	-2210-	16 15 14	16 15 14	16 15 14	16 15 14	16 15 14	16 15 14	(12.34) 12.34 BC	16 15 14

12	CONSTRUCT SIDEWALK RAMP PER DETAIL "7" ON SHEET C9.00.
13	CONSTRUCT RETAINING WALL PER DETAIL "10" ON SHEET C9.01.
14	CONSTRUCT SPEED BUMP PER C.C.A.U.S.D. #234 (SEE ARCHITECTURAL PLANS FOR FINISHES AND JOINT LAYOUT).
15	CONSTRUCT SIDEWALK PER C.C.A.U.S.D. #234 (SEE ARCHITECTURAL PLANS FOR FINISHES AND JOINT LAYOUT).
16	PLANTING AREA REFER TO LANDSCAPE PLANS.
17	CONSTRUCT STREET PER SECTIONS ON SHEET C5.13.
18	CONSTRUCT BUS TURNOUT PER C.C.A.U.S.D. #234.1.
19	CONSTRUCT 6" CONC. PAVEMENT PER DETAIL "11" ON SHEET C9.01.
20	CONSTRUCT SIDEWALK RAMP PER DETAIL "B" ON SHEET C9.00.
21	CONSTRUCT SIDEWALK RAMP CASE II PER C.C.A.U.S.D. #235.
22	INSTALL PRECAST DUMPER BLOCK PER C.C.A.U.S.D. #238.
23	CONSTRUCT OUTLET STRUCTURE PER DETAIL "15" AND "16" ON SHEET C9.01.
24	INSTALL DROP INLETS AND SD THRU RETAINING WALL PER DETAIL "14" ON SHEET C9.01.
25	CONSTRUCT TENNIS COURT AC PAVEMENT PER SECTION "4" ON SHEET C9.00.



GRAPHIC SCALE



BASIS OF BEARINGS:

NORTH 00°19'37" EAST BEING THE WEST LINE OF THE NORTHWEST QUARTER OF THE NORTHWEST QUARTER OF SECTION 15, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CLARK COUNTY, NEVADA AS SHOWN PER CERTIFICATE OF LAND DIVISION MAP, FILE 1 PAGE 55.

BENCHMARK:

CITY OF LAS VEGAS BENCHMARK #8LV90 15NWS RIVET AND PLATE IN CONCRETE PAD (LVVWD) @ SE CORNER OF BUFFALO & GRAND TETON.

ELEVATION = 736.434 METERS, 2416.12 FEET (NAVD 88)

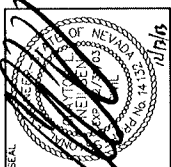


Avoid overhead power line contact. It's costly.

CALL BEFORE YOU DIG  Call before you UnderGround 1-702-455-7511 CLARK COUNTY TRAFFIC OPERATIONS 2001 1-702-229-6611 CLARK COUNTY TRAFFIC OPERATIONS 2001	Call before you OVERHEAD  1-702-593-6111	Call before you Dig  1-800-227-2600
---	--	---

[illegible]

DO NOT SCALE DRAWINGS



Nevada By Design
ENGINEERING CONSULTANTS
3515 East Harmon Avenue
Las Vegas, NV 89121
Phone: (702) 938-1525
Fax: (702) 938-1532
www.NVBDesign.com



CLARK COUNTY SCHOOL DISTRICT



BUFFALO / GRAND TETON HIGH SCHOOL
AS VEGAS **NEVADA**

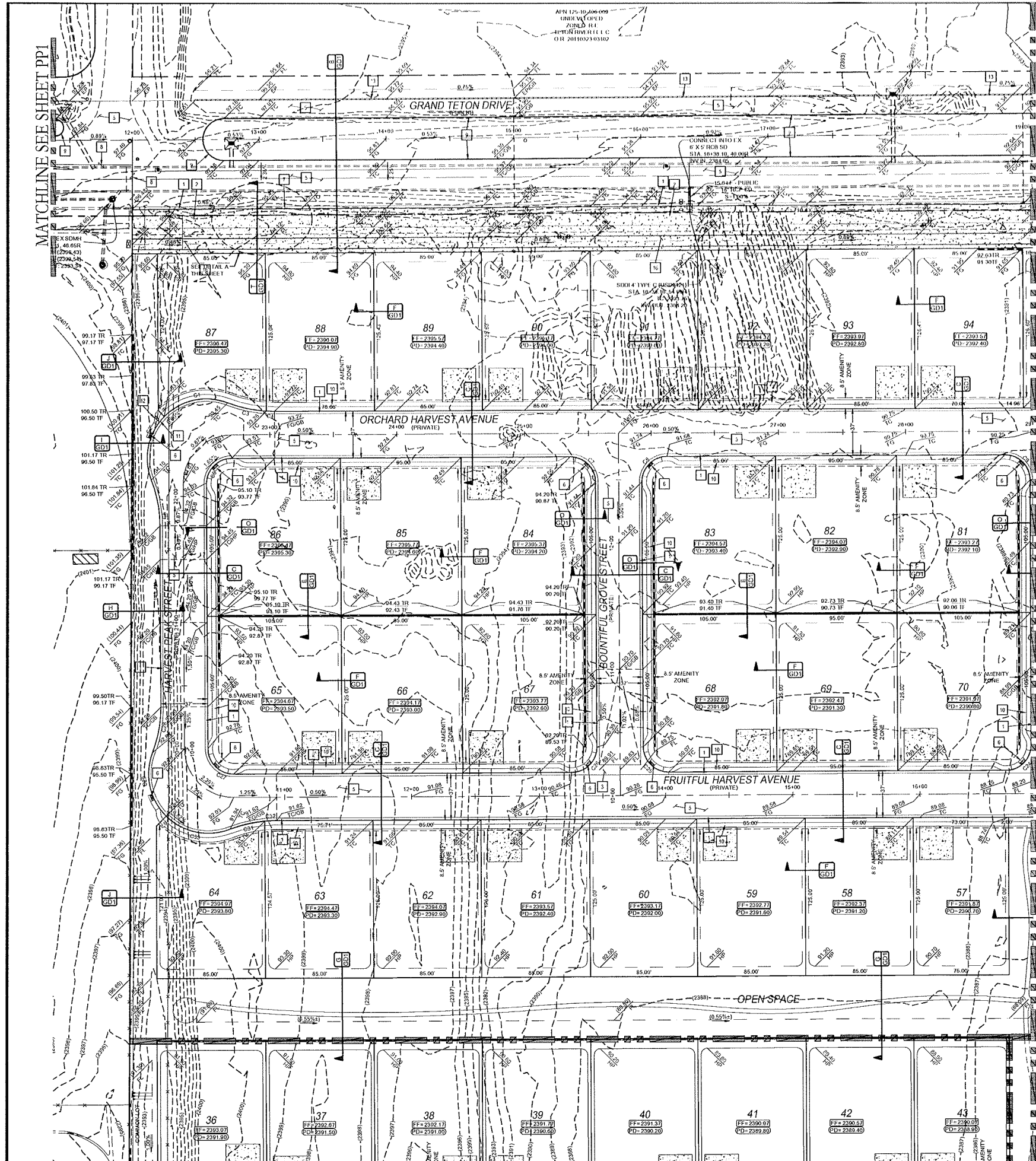
GRAND TETON PLAN AND PROFILE: STA 32+50 - END

SHEET NO.

C5.04

SHEET 35 of 6
DRAWING NUMBER
715-156

```
\\lak\02172\dwg\02172-0504-pp.dwg 12/15/03 14:05
REF = X02172-BU, X-FSC-TBA, X02172-UT, X02172-TP, X02172-TP-EX1, X02172-PP, X02172-PP-TX1-P8
```



DETAIL A

SCALE: 1"=20'

LINE AND CURVE DATA

Curve Data				Line Data	
Curve #	Length	Radius	Delta	Line #	Direction
C1	64.35	47.00	068.250	1.0	0.00
C2	64.35	47.00	068.250	1.0	10.68
C3	30.70	100.00	017.023	1.10	12.60
C4	6.34	100.00	003.032	1.11	7.50
C5	37.10	100.00	021.256	1.12	7.50
C6	31.42	20.00	090.000	1.13	11.10
C7	31.42	20.00	090.000	1.14	12.17
C8	31.42	20.00	090.000		
C9	31.42	20.00	090.000		
C10	31.42	20.00	090.000		
C11	31.42	20.00	090.000		
C12	31.42	20.00	090.000		
C13	7.85	5.00	090.000		
C14	7.85	5.00	090.000		
C15	37.85	24.17	089.721		
C16	47.41	30.00	090.540		
C17	7.85	5.00	090.000		
C18	7.85	5.00	090.000		
C19	31.42	20.00	090.000		
C20	31.42	20.00	090.000		
C21	31.42	20.00	090.000		
C22	31.42	20.00	090.000		
C23	31.42	20.00	090.000		
C24	31.42	20.00	090.000		
C25	31.42	20.00	090.000		
C26	31.42	20.00	090.000		
C27	31.42	20.00	090.000		
C28	37.10	100.00	021.256		
C29	54.35	47.00	068.250		
C30	54.35	47.00	068.250		
C31	27.79	100.00	015.024		
C32	9.31	100.00	005.331		

GRADING NOTES

NO TABLE ELEVATION. ELEVATION OF SPOT ELEVATION OF TEE POLE DATA.

CONSTRUCTION NOTES

- 24" L-TYPE CURB & GUTTER (USD #216)
- 10" SIDEWALK (USD #234)
- 6" CROSS GUTTER (USD #228)
- 5" SIDEWALK (USD #234)
- AC PAVEMENT OVER TYPE II (PER GEOTECHNICAL REPORT)
- SIDEWALK RAMP USING ARMOR TIE TRUNCATED DOMES OR EQUIVALENT (USD #234)
- DEPRESSED CURB
- SAWCUT & MATCH EXISTING AC PAVEMENT
- A-TYPE CURB (USD #219)
- 3.5" DECOMPOSED GRANITE SIDEWALK
- CURB OPENING (SEE DETAIL MGD1)
- SIDEWALK UNDERDRAIN (USD #236)
- CUTOFF WALL (SEE DETAIL MGD1)
- 6" CONCRETE OVER TYPE II

KEY MAP

PRIVATE STREET EASEMENTS

A 10' EASEMENT FOR THE INSTALLATION OF A 10" WATER MAIN UNDER THE SIDEWALK AND A 10' EASEMENT FOR THE INSTALLATION OF A 10" SEWER MAIN UNDER THE SIDEWALK.

FLOOD ZONE

2002 FLOOD ZONE MAP. THE AREA IS NOT IN A FLOOD ZONE.

EARTHWORK

2002 FLOOD ZONE MAP. THE AREA IS NOT IN A FLOOD ZONE.

GEOTECHNICAL

AMERICAN SOILS ENGINEERING, LLC
6000 S EASTERN AVE. STE. 6-B
LAS VEGAS, NEVADA 89119
REPORT NO. 1588-GE0
DATE 08/04/12

SCALE

1"=40'

LEGAL DESCRIPTION

LOT 10, BLOCK 10, SUBDIVISION 10, GRAND TETON DRIVE, CLARK COUNTY, NEVADA.

BASIS OF BEARINGS

NORTH 12° 12' 00" EAST BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST 1/4 OF SECTION 16, TOWNSHIP 19 NORTH, RANGE 30 EAST, N.M.M. CLARK COUNTY, NV AS SHOWN ON FILE 113 OF SURVEYS AT PAGE 92, OFFICIAL RECORDS OF CLARK COUNTY, NEVADA.

BENCHMARK

CLARK COUNTY VERTICAL CONTROL POINT "BLV60 1088SW", BEING A CITY OF LAS VEGAS RIVER AND ROUND PLATE IN A CONCRETE CYLINDER, NORTHWEST CORNER OF GRAND TETON DRIVE AND PIONEER WAY NEAR PT OF PIONEER WAY
ELEVATION: 2297.47 (FEET)
730.750 (METERS)

GRADING CERTIFICATION

THE GRADING AND EARTHWORK SHOWN ON THIS PLAN IS BASED ON THE DATA FURNISHED BY THE CLIENT AND THE DESIGNER'S FIELD SURVEY.

APPROVAL BLOCK

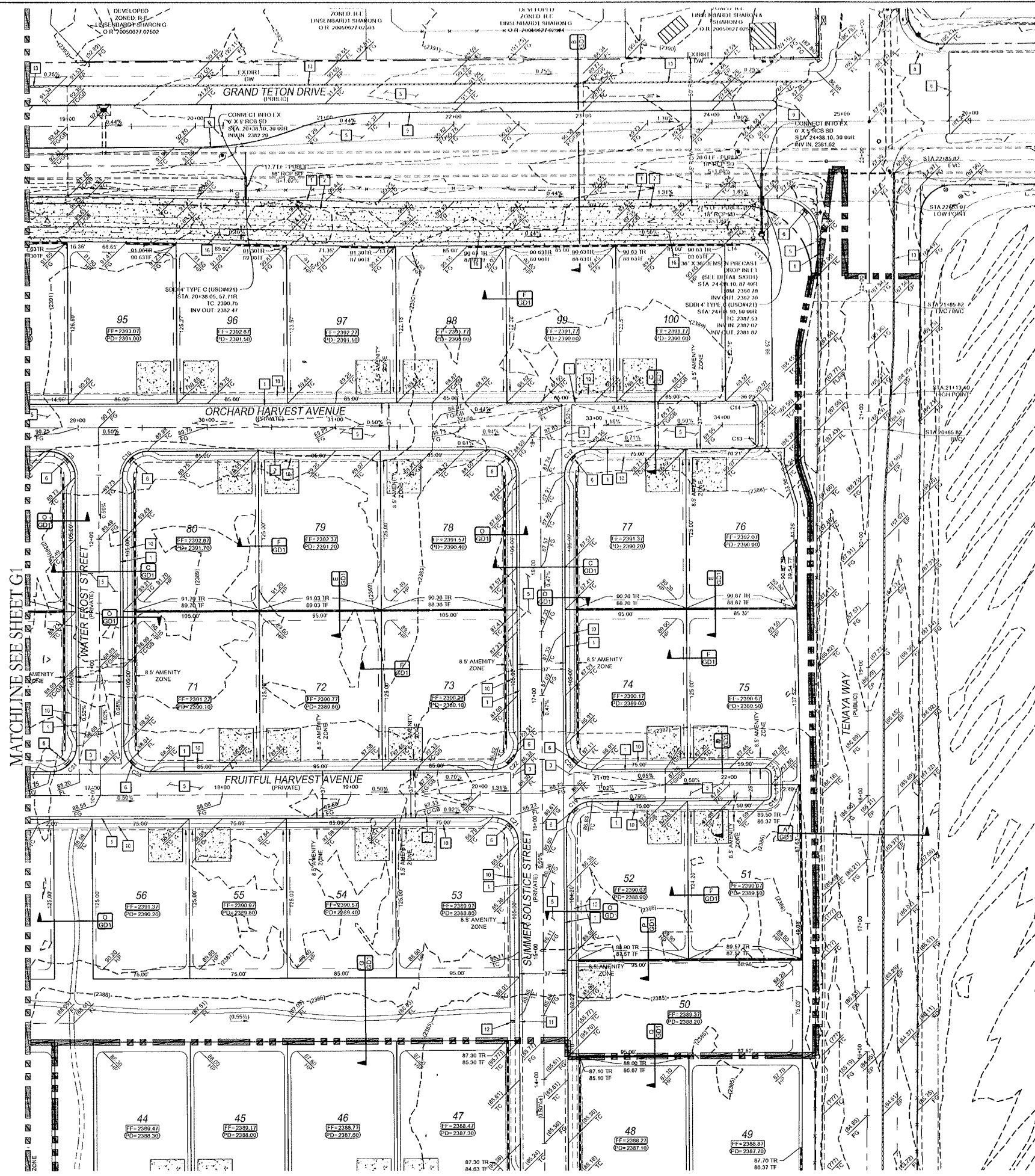
ON THE PART OF THE ENGINEER:

ON THE PART OF THE CLIENT:

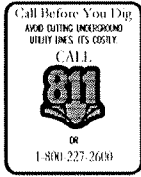
DESIGNER'S SEAL

ROBERT D. CUNNINGHAM
Exp. 12/31/12
CIVIL
No. 15735
ENGINEER'S SEAL

DATE: 11/1/2012
SCALE: 1"=40'
JOB NO: DRH-12-033
DESIGNED BY: SF
CHECKED BY: RDC
SHEET NAME: G1
SHEET: 03 OF 19



MATCHLINE SEE SHEET PP3



LINE AND CURVE DATA

Curve Table				Line Table		
Curve #	Length	Radius	Delta	Line #	Length	Direction
C1	54.35	47.00	000.256	1.8	0.80	545° 12' 34.00"E
C2	54.35	47.00	000.256	1.9	10.00	544° 47' 28.00"W
C3	30.76	100.00	017.023	1.10	12.60	500° 12' 34.00"E
C4	6.34	100.00	003.032	1.11	7.50	500° 12' 34.00"E
C5	37.10	100.00	021.256	1.12	7.50	500° 12' 34.00"E
C6	31.42	70.00	000.000	1.13	11.10	100° 12' 08.00"E
C7	31.42	70.00	000.000	1.14	12.17	589° 39' 35.00"W
C8	31.42	70.00	000.000			
C9	31.42	70.00	000.000			
C10	31.42	70.00	000.000			
C11	31.42	70.00	000.000			
C12	31.42	70.00	000.000			
C13	7.85	5.00	000.000			
C14	7.85	5.00	000.000			
C15	37.85	74.17	009.721			
C16	47.41	30.00	000.540			
C17	7.85	5.00	000.000			
C18	7.85	5.00	000.000			
C19	31.42	70.00	000.000			
C20	31.42	70.00	000.000			
C21	31.42	70.00	000.000			
C22	31.42	70.00	000.000			
C23	31.42	70.00	000.000			
C24	31.42	70.00	000.000			
C25	31.42	70.00	000.000			
C26	31.42	70.00	000.000			
C27	31.42	70.00	000.000			
C28	37.10	100.00	021.256			
C29	54.35	47.00	000.256			
C30	54.35	47.00	000.256			
C31	27.79	100.00	015.924			
C32	9.31	100.00	005.331			

GRADING NOTES

ADD 2300 FEET TO ALL GRADE TAGS TO GET ACTUAL ELEVATION.

THE ELEVATION DIFFERENCE BETWEEN THE PAD AND FINISH FLOOR IS DETERMINED FROM THE MINIMUM THICKNESS REQUIRED PER THE GEOTECHNICAL REPORT. FINISH FLOORS MAY INCREASE DEPENDING ON THE TYPE OF SOIL AND FOUNDATION PLAN USED. NOTE THAT THE STRUCTURAL PLANS & GEO TECHNICAL REPORT SHALL SUPERSEDE THE CIVIL IMPROVEMENT PLANS.

ALL PRIVATE STREETS AND DRAINAGE EASEMENTS ARE TO BE PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION (H.O.A.).

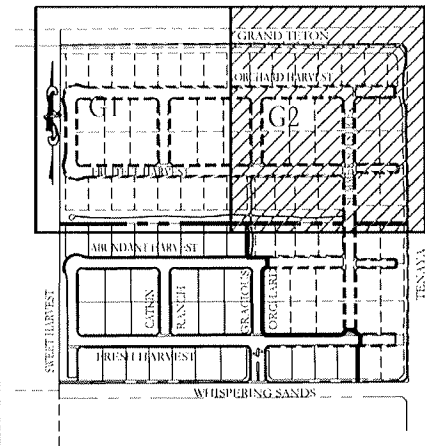
ALL WORK TO BE PERFORMED OUTSIDE OF THE PROJECT BOUNDARY AND ON PRIVATE PROPERTY SHALL NOT BE PERFORMED UNTIL WRITTEN PERMISSION AND EASEMENTS HAVE BEEN OBTAINED FROM THE OFF-SITE OWNER AND GIVEN TO CLARK COUNTY.

CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

CONSTRUCTION NOTES

1. 24" L-TYPE CURB & GUTTER (USD #216)
2. 10" SIDEWALK (USD #234)
3. 6" CROSS GUTTER (USD #228)
4. 6" SIDEWALK (USD #234)
5. AC PAVEMENT OVER TYPE II (PER GEOTECHNICAL REPORT)
6. SIDEWALK RAMP USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT (USD #230)
7. DEPRESSED CURB
8. SAWCUT & MATCH EXISTING AC PAVEMENT
9. A-TYPE CURB (USD #219)
10. 3" DECOMPOSED GRANITE SIDEWALK
11. 3" CURB OPENING (SEE DETAIL M501)
12. SIDEWALK UNDERDRAIN (USD #230)
13. 2" CUTOFF WALL (SEE DETAIL K601)
14. 6" CONCRETE OVER 6" TYPE II

KEY MAP



PRIVATE STREET EASEMENTS

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE H.O.A.

FLOOD ZONE

THE PROJECT SITE IS LOCATED IN FLOODZONE "X" WHICH IS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN PER FIRM MAP 50063C1454 REVISED SEPTEMBER 27, 2007.

EARTHWORK

TOTAL FOR OVERALL DEVELOPMENT: 39,147 CY CUT
20,943 CY FILL

THIS OPINION OF THE CUT AND FILL QUANTITIES IS PROVIDED AS REQUIRED BY CLARK COUNTY BUILDING CODE REQUIREMENTS. THIS INFORMATION SHOULD NOT BE USED FOR BIDDING PURPOSES. ALL CONTRACTORS ARE RESPONSIBLE FOR THEIR OWN QUANTITIES. THESE TOTALS ARE RAW AND DO NOT ACCOUNT FOR SHRINKAGE AND SUBSIDENCE.

GEOTECHNICAL

AMERICAN SOILS ENGINEERING, LLC

6000 S EASTERN AVE., STE. 6-B

LAS VEGAS, NEVADA 89119

REPORT NO. 1588-GE0

DATE: 08/04/12

SCALE



LEGAL DESCRIPTION

BEING LOT TWO (2) OF THAT CERTAIN CERTIFICATE OF LAND DIVISION ON FILE IN FILE 001, PAGE 0055, RECORDED OCTOBER 11, 2001 IN BOOK 20011011 AS DOCUMENT NO. 0282, OFFICIAL RECORDS OF THE COUNTY RECORDED, CLARK COUNTY, NEVADA.

BASIS OF BEARINGS

NORTH 0°12'00" EAST BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 15, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M. CLARK COUNTY, NV AS SHOWN ON FILE 113 OF SURVEYS AT PAGE 92, OFICIAL RECORDS OF CLARK COUNTY, NEVADA.

BENCHMARK

CLARK COUNTY VERTICAL CONTROL POINT "BLV90 185SW", BEING A CITY OF LAS VEGAS RIVET AND ROUND PLATE IN A CONCRETE CYLINDER, NORTHWEST CORNER OF GRAND TETON DRIVE AND PIONEER WAY NEAR PT OF PIONEER WAY.

ELEVATION: 2397.47 (FEET)
750.750 (METERS)

CLARK COUNTY VERTICAL CONTROL V.2003 BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

GRADING CERTIFICATION

I CERTIFY THIS GRADING PLAN COMPLIES WITH THE APPROVED DRAINAGE STUDY, DS XX-XXXX, ON FILE WITH CITY OF LAS VEGAS FOR THIS PROJECT.

ROBERT D. CUNNINGHAM, P.E.

DATE

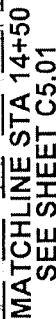
APPROVAL BLOCK

ACCEPTANCE OF PLANS FOR FILING

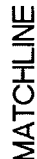
BY: DEVELOPMENT AND FLOOD CONTROL

DATE

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STA: 14+50



64239

[illegible]

$$\frac{12.34}{BC} \quad \frac{BC}{BC}$$

12.34	BC
-------	----

TATE
708 Valle Verde Court
www.tatesynderkinnasy.com

NORTH PIONEER WAY

MATCHLINE STATION - "SDT" 75+00.00
SEE MATCHLINE #8

A.P.N. #125-10-408-009
OWNER: TETON RIVER LLC.

A.P.N. #125-10-406-009
OWNER: TETON RIVER LLC.

A.P.N. #125-10-407-003
OWNER: LINSENBARDT, SHARON G.

A.P.N. # 125-15-101-003
OWNER: SPINNAKER HOMES IX LLC.

GRAND TETON DRIVE

"GT"

MATCHLINE STATION - "SDT" 86+50.00
SEE MATCHLINE #9

GRAPHIC SCALE



(IN FEET)
1 inch = 40 ft.
(VERIFY SCALE - PLANS MAY HAVE BEEN REDUCED)



REMOVAL NOTES:

- 1 REMOVE EXISTING STORM DRAIN DROP INLET
- 2 REMOVE EXISTING STORM DRAIN MANHOLE
- 3 REMOVE EXISTING STORM DRAIN PIPE
- 4 REMOVE AND REPLACE EXISTING STORM DRAIN MANHOLE
- 5 BRICK AND MORTAR EXISTING STORM DRAIN
SEE DETAIL SHEET DT3
- 6 ABANDON EXISTING STORM DRAIN IN PLACE
AND FILL WITH CONCRETE SLURRY
- 7 EXISTING STORM DRAIN FACILITY TO REMAIN.
PROTECT IN PLACE
- 8 ABANDON EXISTING STORM DRAIN BLEEDER AND
FILL WITH CONCRETE SLURRY
- 9 REMOVE CONCRETE MEDIAN CURB
- 10 REMOVE CONCRETE CURB AND GUTTER
- 11 REMOVE CONCRETE SIDEWALK
- 12 REMOVE EXISTING CONCRETE FLUME
- 13 REMOVE CONCRETE BLOCK PONY WALL
- 14 REMOVE AND SALVAGE MEDIAN LANDSCAPING TREATMENT
- 15 REMOVE CONCRETE CROSS GUTTER (SPANDREL TO REMAIN)
- 16 REMOVE EXISTING 8" SS STUB AND PLUG AT MANHOLE
- 17 REMOVE EXISTING STAMPED CONCRETE EQUESTRIAN
PATH AT NEAREST JOINT LINE.
- 18 REMOVE CONCRETE CURB AND GUTTER
(IF DAMAGED BY CONSTRUCTION)
- 19 REMOVE AND SALVAGE MEDIAN LANDSCAPING TREATMENT
(IF DAMAGED BY CONSTRUCTION)

POINT	STATION	OFFSET
P220	"GT" 101+44.23	17.99
P221	"GT" 101+50.11	17.99
P222	NOT	USED
P223	"GT" 101+43.86	-53.00
P224	NOT	USED
P225	"GT" 101+46.89	-60.80
P226	NOT	USED
P227	NOT	USED
P228	"GT" 101+05.20	-101.01
P229	"GT" 101+40.66	-101.18
P230	"GT" 101+40.59	-114.96
P231	"GT" 101+46.59	-114.99
P232	"GT" 102+70.89	-53.03
P233	"GT" 102+70.90	10.27
P234	"GT" 103+30.54	10.32
P235	"GT" 103+42.54	10.33
P236	"GT" 103+35.55	17.05
P237	"GT" 103+46.55	17.04
P238	"GT" 103+04.73	-53.09
P239	"GT" 103+42.54	-53.15

MATCHLINE STATION - "SDT" 86+50.00
SEE MATCHLINE #9

A.P.N. #125-10-407-005
OWNER: LINSENBARDT, SHARON G.

A.P.N. #125-10-407-005
OWNER: LINSENBARDT, SHARON G.

A.P.N. #125-10-407-006
OWNER: LINSENBARDT, SHARON
AND SHARON G. G.

A.P.N. # 125-15-101-003
OWNER: SPINNAKER HOMES IX LLC.

GRAND TETON DRIVE

"GT"

MATCHLINE STATION - "SDT" 86+50.00
SEE MATCHLINE #10

NORTH TENAYA WAY

NORTH TENAYA WAY

ALL EXISTING FACILITIES SHALL BE
PROTECTED IN PLACE UNLESS
OTHERWISE NOTED

CLARK COUNTY PUBLIC WORKS
CONST. MGMT. DEVELOPMENT
APPROVED FOR PERMITTING

NIGHT WORK - YES ☐ NO ☐

ENCROACHMENT PERMIT # 1225364

BY _____ DATE _____

Final
Submittal
"Not for Construction"
October 2012

Call
before you
Overhead

1-702-227-2929
HV ENERGY ENVIRONMENT AND
SAFETY SERVICES DEPARTMENT



28735

PUBLIC WORKS DEPARTMENT



GRAND TETON REMOVAL SHEETS

LAS VEGAS WASH MIDDLE BRANCH
GRAND TETON STORM DRAIN
DURANGO DR. TO RAINBOW BLVD.

DRAWN BY: 5/26/2012

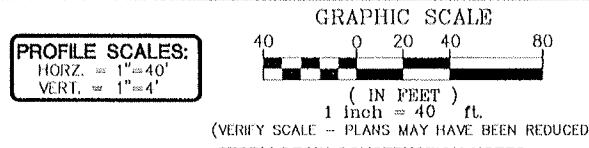
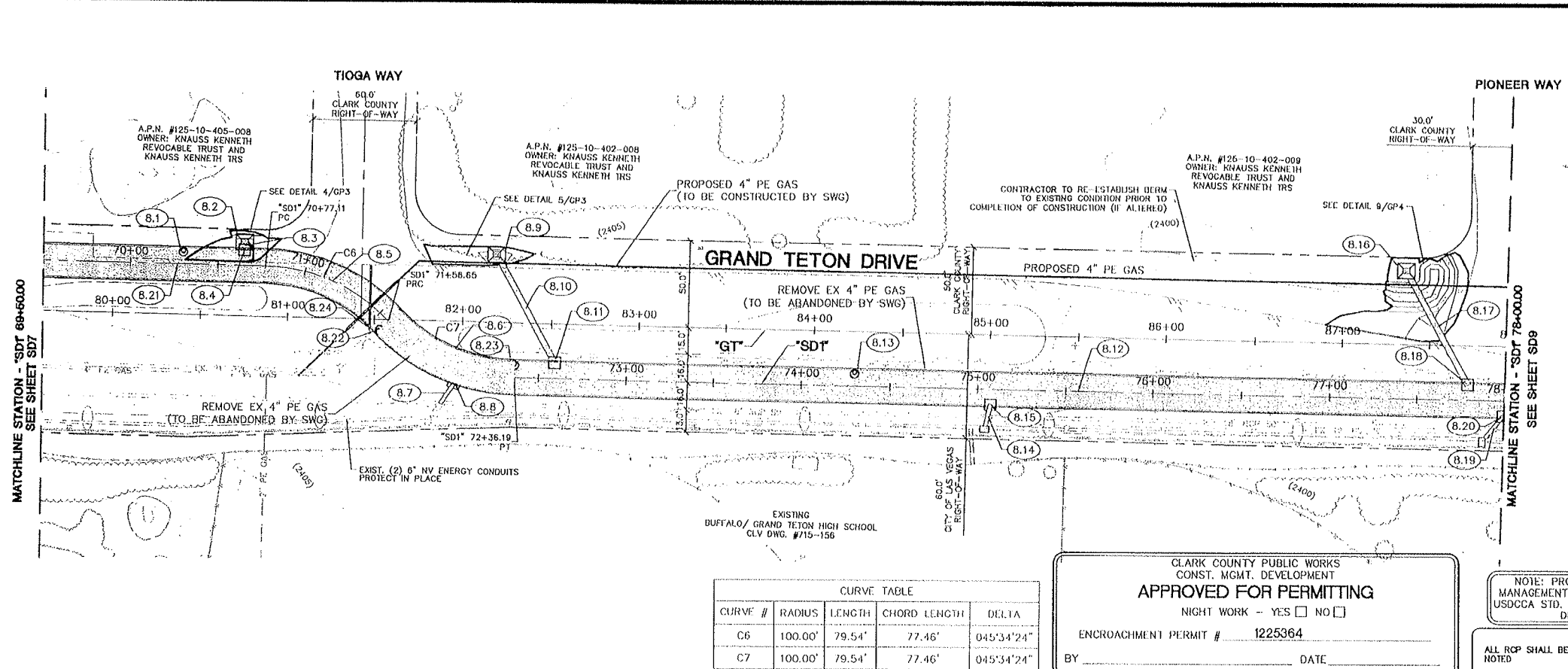
DESIGNED BY: 6/26/2012

CHECKED BY: 6/26/2012

PROJECT NO: SCALE HORIZ. 40
VERT. 4



SHEET
R5
10 OF 74 SHEETS
DRAWING NO.



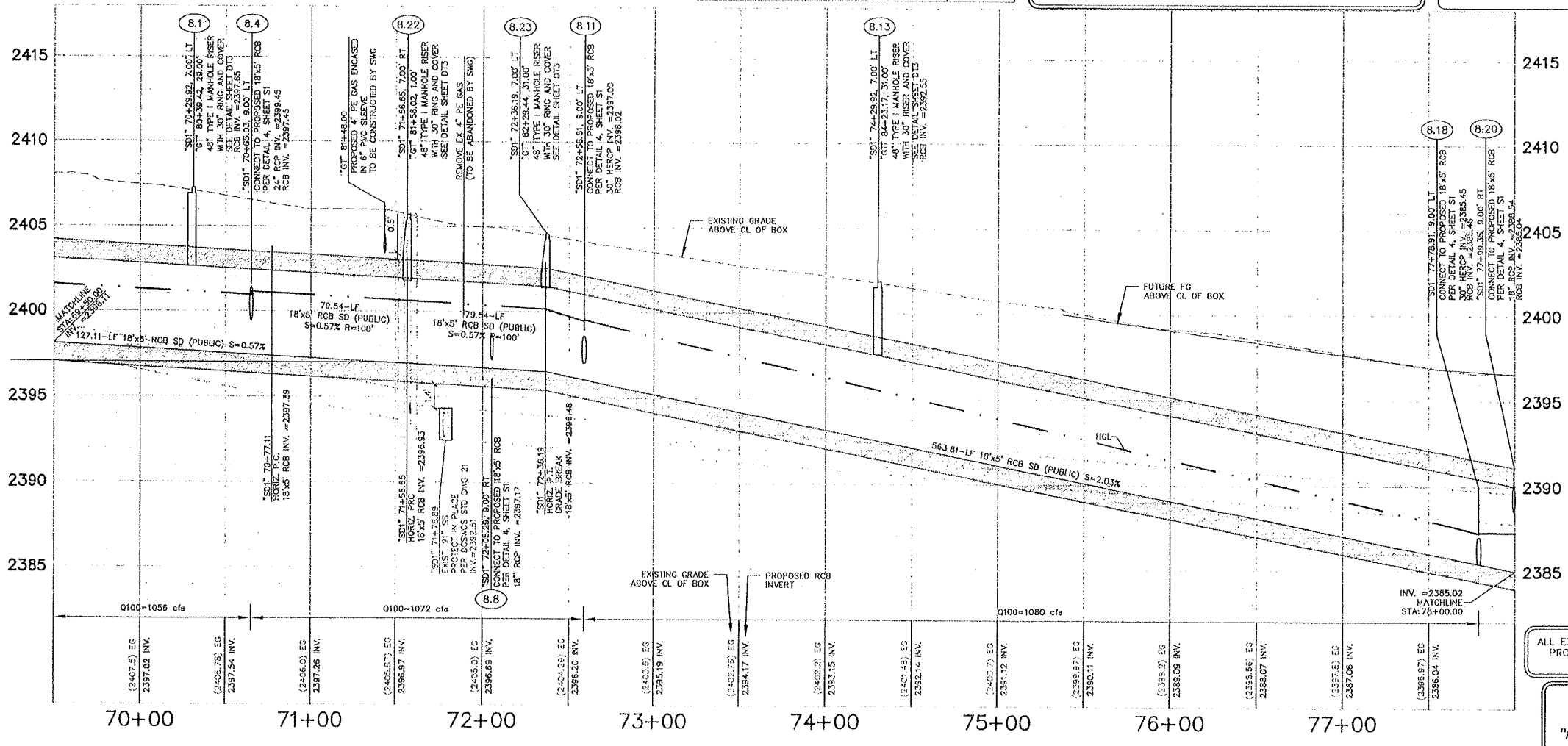
STORM DRAIN CONSTRUCTION NOTES

- 8.1 "SD1" 70+29.92, 7.00 LT CONST. 48" TYPE I MANHOLE RISER WITH 30" RING AND COVER SEE DETAIL SHEET DT3
- 8.2 "SD1" 70+65.03, 13.58' LT CONSTRUCT NDOT TYPE "2B" DROP INLET PER STD. DWG. R-4.2.2 W/ CONCRETE APRON SEE SHEET DP2 & GP3
- 8.3 INSTALL 4.58-LF 24" RCP SEE LATERAL PROFILE 18 SHEET SD21
- 8.4 "SD1" 70+65.03, 9.00' LT CONNECT TO PROPOSED 18"x5' RCB PER DETAIL 4, SHEET S1
- 8.5 INSTALL 79.54-LF ~ 18"x5' RCB
- 8.6 INSTALL 79.54-LF ~ 18"x5' RCB
- 8.7 INSTALL 14.42-LF 18" RCP SEE LATERAL PROFILE 19 SHEET SD22
- 8.8 "SD1" 72+05.29, 9.00' RT CONNECT TO PROPOSED 18"x5' RCB PER DETAIL 4, SHEET S1
- 8.9 "SD1" 71+99.78, 67.89' LT CONSTRUCT NDOT TYPE "2B" DROP INLET PER STD. DWG. R-4.2.2 W/ CONCRETE APRON SEE SHEET DT3 & GP3
- 8.10 INSTALL 69.86-LF 19"x30" HERCP SEE LATERAL PROFILE 20 SHEET SD22
- 8.11 "SD1" 72+58.81, 9.00' LT CONNECT TO PROPOSED 18"x5' RCB PER DETAIL 4, SHEET S1
- 8.12 INSTALL 563.81-LF ~ 18"x5' RCB
- 8.13 "SD1" 74+29.92, 7.00 LT CONST. 48" TYPE I MANHOLE RISER WITH 30" RISER AND COVER SEE DETAIL SHEET DT3
- 8.14 INSTALL 12.80-LF 18" RCP EXIST. 4" TYPE "CM" S.D.D.I. PER CLV DWG NO. 715-156 SEE LATERAL PROFILE 21 SHEET SD22
- 8.15 "SD1" 75+07.60, 9.00' RT CONNECT TO PROPOSED 18"x5' RCB PER DETAIL 4, SHEET S1
- 8.16 "SD1" 77+42.53, 72.97' LT CONSTRUCT NDOT TYPE "2B" DROP INLET PER STD. DWG. R-4.2.2 W/ CONCRETE APRON SEE SHEET DT3 & GP4
- 8.17 INSTALL 73.59-LF 19"x30" HERCP SEE LATERAL PROFILE 23 SHEET SD23
- 8.18 "SD1" 77+78.91, 9.00' LT CONNECT TO PROPOSED 18"x5' RCB PER DETAIL 4, SHEET S1
- 8.19 INSTALL 16.08-LF 18" RCP CONNECT TO EXIST. 4" TYPE "CM" S.D.D.I. PER CLV DWG NO. 715-156 SEE LATERAL PROFILE 22 SHEET SD23
- 8.20 "SD1" 77+99.35, 9.00' RT CONNECT TO PROPOSED 18"x5' RCB PER DETAIL 4, SHEET S1
- 8.21 INSTALL 127.11-LF ~ 18"x5' RCB
- 8.22 "SD1" 71+56.65, 7.00 RT CONST. 48" TYPE I MANHOLE RISER WITH 30" RING AND COVER SEE DETAIL SHEET DT3
- 8.23 "SD1" 72+36.19, 7.00 LT CONST. 48" TYPE I MANHOLE RISER WITH 30" RING AND COVER SEE DETAIL SHEET DT3
- 8.24 REMOVE EXISTING 8" SS CAP INSTALL 35.41-LF 8" PVC AND CAP SEE PROFILE ON SHEET U1

CURVE TABLE				
CURVE #	RADIUS	LENGTH	CHORD LENGTH	DELTA
C6	100.00'	79.54'	77.46'	045°34'24"
C7	100.00'	79.54'	77.46'	045°34'24"

CLARK COUNTY PUBLIC WORKS
CONST. MGMT. DEVELOPMENT
APPROVED FOR PERMITTING
NIGHT WORK - YES ☐ NO ☐
ENCROACHMENT PERMIT # 1225364
BY _____ DATE _____

NOTE: PROVIDE STORM WATER
MANAGEMENT STAMP AND SIGN PER
USDOCA STD. DWG 421 ON PROPOSED
DROP INLETS
ALL RCP SHALL BE CLASS III UNLESS OTHERWISE
NOTED



LEGEND
PROP. STORM DRAIN FACILITY

ALL EXISTING FACILITIES SHALL BE
PROTECTED IN PLACE UNLESS
OTHERWISE NOTED
Final Submittal
"Not for Construction"
October 2012

Call before you Dig
1-702-227-2929
NV ENERGY ENVIRONMENT AND
SAFETY SERVICES DEPARTMENT

PUBLIC WORKS DEPARTMENT
400 E STEWART AVE
LAS VEGAS, NV 89101
702-229-6272
WWW.VTNV.COM

**STORM DRAIN
PLAN AND PROFILE**
"SD1" 69+50 TO "SD1" 78+00

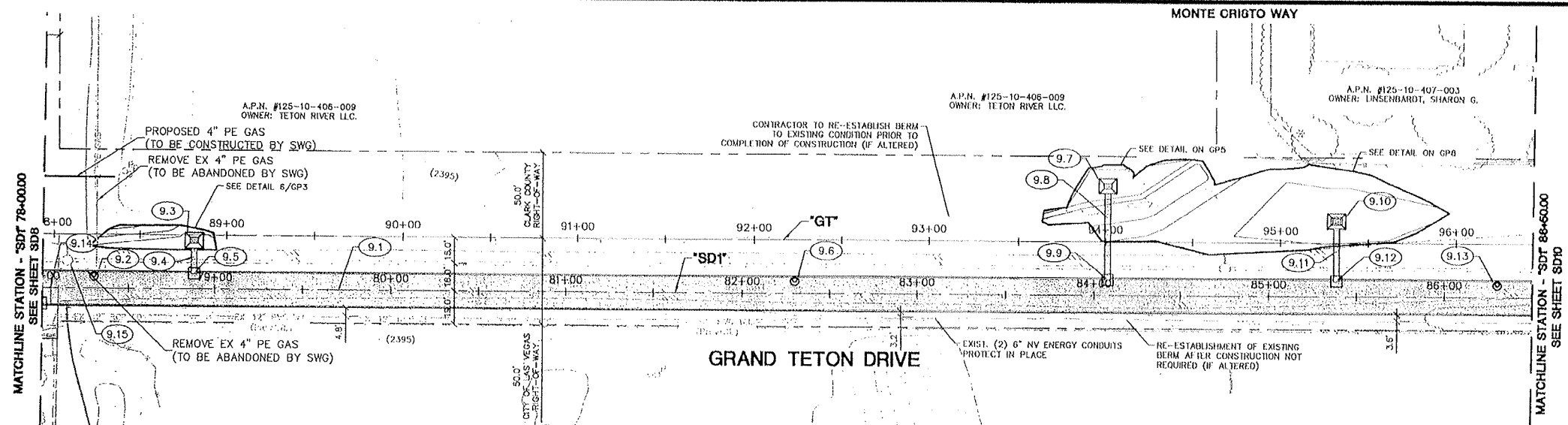
**LAS VEGAS WASH MIDDLE BRANCH
GRAND TETON STORM DRAIN
DURANGO DR. TO RAINBOW BLVD.**

DRAWN BY: DAB 6/25/2012
DESIGNED BY: VLN 6/25/2012
CHECKED BY: CKN 6/25/2012
PROJECT NO: SCALE: HORIZ 40' VERT. 4'
7581

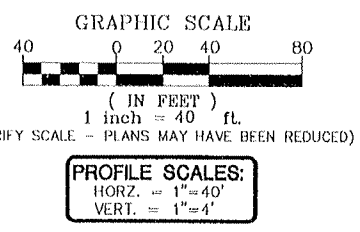
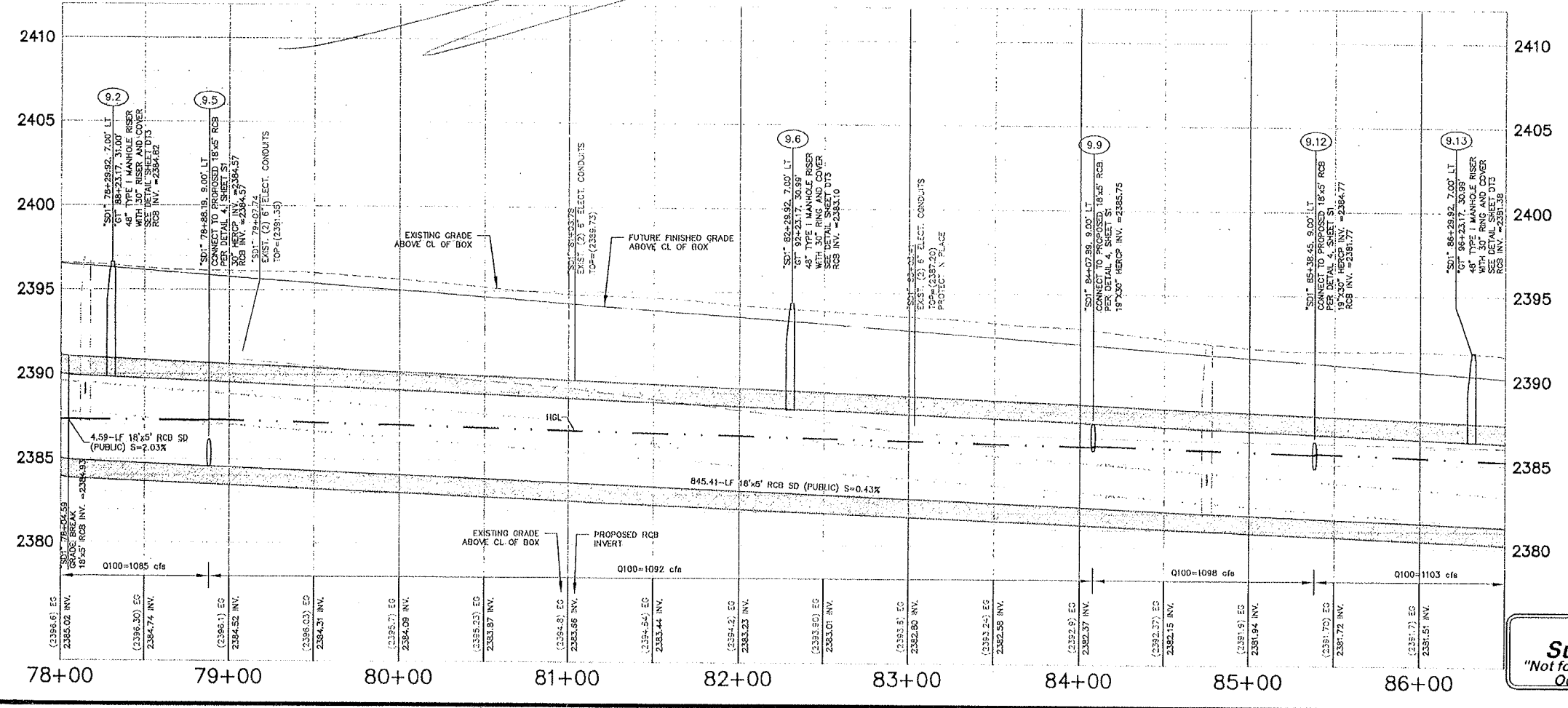
CHAD K. HALVERSON
REGISTERED PROFESSIONAL ENGINEER - STATE OF NEVADA
No. 10981
10/5/12

SHEET
SD8
33 OF 74 SHEETS
DRAWING NO.

REV. DATE BY
REVISION



As discussed @ walk-thru
Add inlet @ End of School pick-up w/ Inlet
Drainage from School



- STORM DRAIN CONSTRUCTION NOTES**
- 9.1 INSTALL 845.41-LF ~ 18"x5' RCB
 - 9.2 "SD1" 78+29.92, 7.00 LT CONST. 48" TYPE I MANHOLE RISER WITH 30" RISER AND COVER SEE DETAIL SHEET DT3
 - 9.3 "SD1" 78+88.20, 28.03' LT CONSTRUCT NDOT TYPE "2B" DROP INLET PER STD. DWG. R-4.2.2 W/ CONCRETE APRON SEE SHEET DT3 & GP3
 - 9.4 INSTALL 19.03-LF 19"x30" HERCP SEE LATERAL PROFILE 24 SHEET SD23
 - 9.5 "SD1" 78+88.19, 9.00' LT CONNECT TO PROPOSED 18"x5' RCB PER DETAIL 4, SHEET S1
 - 9.6 "SD1" 82+29.92, 7.00 LT CONST. 48" TYPE I MANHOLE RISER WITH 30" RING AND COVER SEE DETAIL SHEET DT3
 - 9.7 "SD1" 84+07.92, 63.63' LT CONSTRUCT NDOT TYPE "2B" DROP INLET PER STD. DWG. R-4.2.2 W/ CONCRETE APRON SEE SHEET DT3 & GP5
 - 9.8 INSTALL 54.63-LF 19"x30" HERCP SEE LATERAL PROFILE 25 SHEET SD24
 - 9.9 "SD1" 84+07.89, 9.00' LT CONNECT TO PROPOSED 18"x5' RCB PER DETAIL 4, SHEET S1
 - 9.10 "SD1" 85+38.45, 43.83' LT NDOT TYPE "2B" DROP INLET PER STD. DWG. R-4.2.2 W/ CONCRETE APRON SEE SHEET DT3 & GP6
 - 9.11 INSTALL 34.83-LF 19"x30" HERCP
 - 9.12 "SD1" 85+38.45, 9.00' LT CONNECT TO PROPOSED 18"x5' RCB PER DETAIL 4, SHEET S1
 - 9.13 "SD1" 86+29.92, 7.00 LT CONST. 48" TYPE I MANHOLE RISER WITH 30" RING AND COVER SEE DETAIL SHEET DT3
 - 9.14 INSTALL 4.59-LF ~ 18"x5' RCB

see sheet SD24, pwr file 26

LEGEND

□ PROP. STORM DRAIN FACILITY

NOTE: PROVIDE STORM WATER MANAGEMENT STAMP AND SIGN PER USDOCCA STD. DWG 421 ON PROPOSED DROP INLETS

ALL RCB SHALL BE CLASS III UNLESS OTHERWISE NOTED

ALL EXISTING FACILITIES SHALL BE PROTECTED IN PLACE UNLESS OTHERWISE NOTED

CLARK COUNTY PUBLIC WORKS
 CONST. MGMT. DEVELOPMENT
APPROVED FOR PERMITTING
 NIGHT WORK - YES ☐ NO ☐
 ENCROACHMENT PERMIT # 1225364
 BY _____ DATE _____

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 1-702-227-2929
 NV ENERGY ENVIRONMENT AND SAFETY SERVICES DEPARTMENT

Final Submittal
 "Not for Construction"
 October 2012

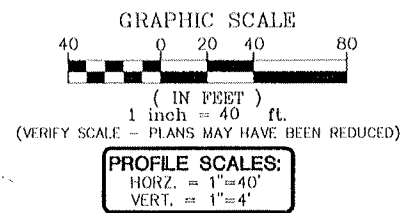
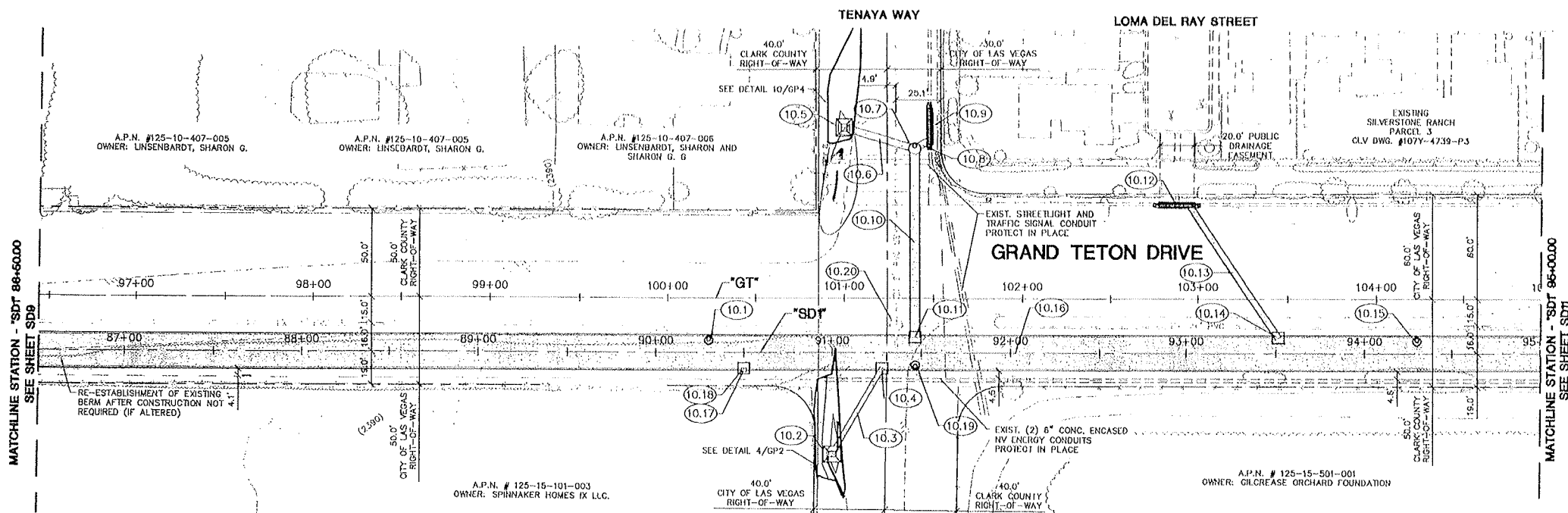
PUBLIC WORKS DEPARTMENT
 400 E. STEWART AVE.
 LAS VEGAS, NV 89101
 702-229-6272

STORM DRAIN PLAN AND PROFILE
 "SD1" 78+00 TO "SD1" 86+50
 LAS VEGAS WASH MIDDLE BRANCH
 GRAND TETON STORM DRAIN
 DURANGO DR. TO RAINBOW BLVD.

DRAWN BY: 6/26/2012
 DESIGNED BY: 6/26/2012
 CHECKED BY: 6/26/2012
 PROJECT NO: SCALE: HORIZ. 40 VERT. 4

PROFESSIONAL ENGINEER - STATE OF NEVADA
 CHAD K. HALVORSON
 No. 13861
 SHEET SD9
 34 OF 74 SHEETS
 DRAWING NO.

H# 28735

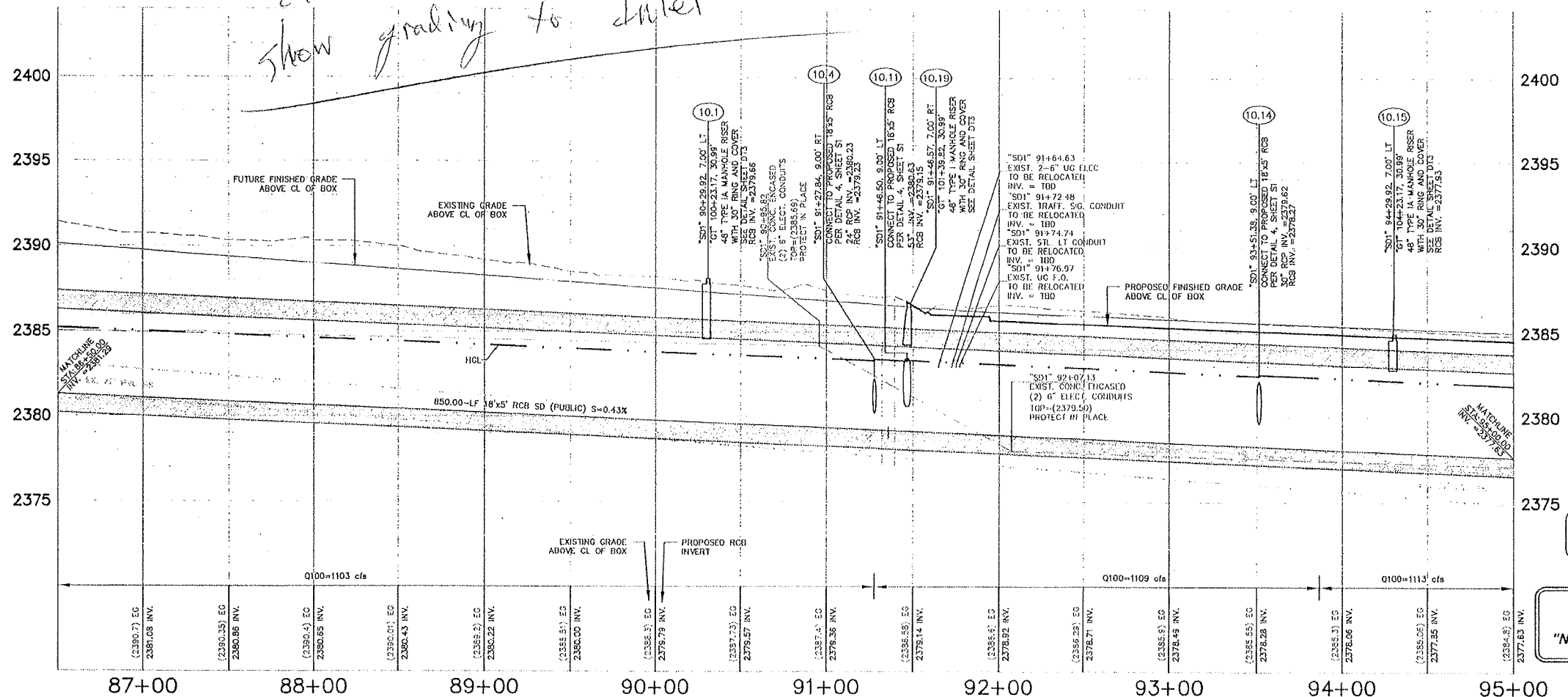


- STORM DRAIN CONSTRUCTION NOTES**
- (10.1) "SD1" 90+29.92, 7.00 LT CONST. 48" TYPE IA MANHOLE RISER WITH 30" RING AND COVER SEE DETAIL SHEET DT3
 - (10.2) "SD1" 91+00.12, 57.99' RT CONSTRUCT NDOT TYPE "2B" DROP INLET PER STD. DWG. R-4.2.2 W/ CONCRETE APRON SEE SHEET DT3 & GP2
 - (10.3) INSTALL 56.29-LF 24" RCP SEE LATERAL PROFILE 29 SHEET SD25
 - (10.4) "SD1" 91+27.84, 9.00' RT CONNECT TO PROPOSED 18"x5' RCB PER DETAIL 4, SHEET S1
 - (10.5) "SD1" 91+06.33, 128.73' LT CONSTRUCT NDOT TYPE "2B" DROP INLET PER STD. DWG. R-4.2.2 W/ CONCRETE APRON SEE SHEET DT3 & GP4
 - (10.6) INSTALL 41.41-LF 24"x38" HERCP SEE LATERAL PROFILE 27 SHEET SD24
 - (10.7) "SD1" 91+45.95, 116.69 LT CONST. 60" TYPE III SDMH PER USDOCA DWG. NO. 406.1
 - (10.8) INSTALL 9.15-LF 24"x38" HERCP SEE LATERAL PROFILE 27 SHEET SD24
 - (10.9) "SD1" 91+55.23, 129.59' LT CONSTRUCT 20" TYPE "DW2" DROP INLET PER USDOCA STD. DWG. 412.1
 - (10.10) INSTALL 107.69-LF 34"x53" SEE LATERAL PROFILE 28 SHEET SD24
 - (10.11) "SD1" 91+46.50, 9.00' LT CONNECT TO PROPOSED 18"x5' RCB PER DETAIL 4, SHEET S1
 - (10.12) "SD1" 92+94.56, 85.49' LT CONSTRUCT 20" TYPE "DW2" DROP INLET WITH REAR SIDEWALK UNDERDRAIN SEE DETAIL ON SHEET DT5
 - (10.13) INSTALL 89.10-LF 30" RCP SEE LATERAL PROFILE 30 SHEET SD25
 - (10.14) "SD1" 93+51.38, 9.00' LT CONNECT TO PROPOSED 18"x5' RCB PER DETAIL 4, SHEET S1
 - (10.15) "SD1" 94+29.92, 7.00 LT CONST. 48" TYPE IA MANHOLE RISER WITH 30" RING AND COVER SEE DETAIL SHEET DT3
 - (10.16) INSTALL 850.00-LF ~ 18"x5' RCB
 - (10.17) INSTALL 2.00-LF 24" RCP STUB OUT @ 0.50% WITH BRICK AND MORTAR PLUG PER DETAIL ON DT3
 - (10.18) "SD1" 90+50.00, 9.00' RT CONNECT TO PROPOSED 18"x5' RCB PER DETAIL 4, SHEET S1
 - (10.19) "SD1" 91+46.57, 7.00 RT CONST. 48" TYPE I MANHOLE RISER WITH 30" RING AND COVER SEE DETAIL SHEET DT3
 - (10.20) REHABILITATE EXISTING SANITARY SEWER MANHOLE PER DETAIL ON SHEET DT5.

CLARK COUNTY PUBLIC WORKS
CONST. MGMT. DEVELOPMENT
APPROVED FOR PERMITTING
NIGHT WORK - YES ☐ NO ☐
ENCROACHMENT PERMIT # 1225364
BY _____ DATE _____

LEGEND
 PROP. STORM DRAIN FACILITY

*UG is @ low point
Extend grading south to
show grading to Inlet*



ALL EXISTING FACILITIES SHALL BE PROTECTED IN PLACE UNLESS OTHERWISE NOTED

NOTE: PROVIDE STORM WATER MANAGEMENT STAMP AND SIGN PER USDOCA STD. DWG 421 ON PROPOSED DROP INLETS

ALL RCP SHALL BE CLASS III UNLESS OTHERWISE NOTED

Final Submittal
"Not for Construction"
October 2012

Call before you Overhead
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NV ENERGY ENVIRONMENT AND SAFETY SERVICES DEPARTMENT

Call before you Dig
Avoid cutting underground utility lines or cables.
Call 811

PUBLIC WORKS DEPARTMENT
2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
LAS VEGAS, NV 89101
702-228-8900
FAX 702-382-2507
WWW.VTNV.COM

STORM DRAIN PLAN AND PROFILE
"SD1" 86+50 TO "SD1" 95+00
LAS VEGAS WASH MIDDLE BRANCH
GRAND TETON STORM DRAIN
DURANGO DR. TO RAINBOW BLVD.

DRAWN BY: DAB 6/26/2012
DESIGNED BY: VTN 6/25/2012
CHECKED BY: SKL 6/25/2012
PROJECT NO: 7351
SCALE: HORIZ. 40' VERT. 4'

PROFESSIONAL ENGINEER - STATE OF NEVADA
CHAD K. HALVERSON
EXP. 06/30/13
No. 13061
10/2/12

SHEET **SD10**
35 OF 74 SHEETS
DRAWING NO.

REV. DATE BY
1 10/2/12 VTN

LEGAL DESCRIPTION

BEING LOT TWO (2) OF THAT CERTAIN CERTIFICATE OF LAND DIVISION ON FILE IN FILE 001, PAGE 0055, RECORDED OCTOBER 11, 2001 IN BOOK 20011011 AS DOCUMENT NO 02282, OFFICIAL RECORDS OF THE COUNTY RECORDED, CLARK COUNTY, NEVADA

BENCHMARK

CLARK COUNTY VERTICAL CONTROL POINT "BLV90 10SSW6", BEING A CITY OF LAS VEGAS RIVET AND ROUND PLATE IN A CONCRETE CYLINDER, NORTHWEST CORNER OF GRAND TETON DRIVE AND PIONEER WAY NEAR PT OF PIONEER WAY

ELEVATION: 2397.47 (FEET)
730.750 (METERS)

CLARK COUNTY VERTICAL CONTROL V.2003 BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

BASIS OF BEARINGS

NORTH 00°12'00" EAST BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE ¼) OF THE NORTHWEST QUARTER (NW ¼) OF SECTION 15, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M. CLARK COUNTY, NV AS SHOWN ON FILE 113 OF SURVEYS AT PAGE 92, OFFICIAL RECORDS OF CLARK COUNTY, NEVADA.

UTILITY DISCLAIMER NOTE

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

CALL BEFORE YOU DIG: 1-800-227-2600
CALL BEFORE YOU OVERHEAD: 1-702-227-2929

DEVELOPER/OWNERENGINEER

D R HORTON
330 CAROUSEL PKWY
HENDERSON, NV 89014
(702) 635-3600 PHONE
(800) 909-4601 FAX

TANEY ENGINEERING COMPANY
6030 S. JONES BLVD STE #100
LAS VEGAS, NV 89118
(702) 362-8844 PHONE
(702) 362-5233 FAX

SITE MAP

VICINITY MAP

FOR

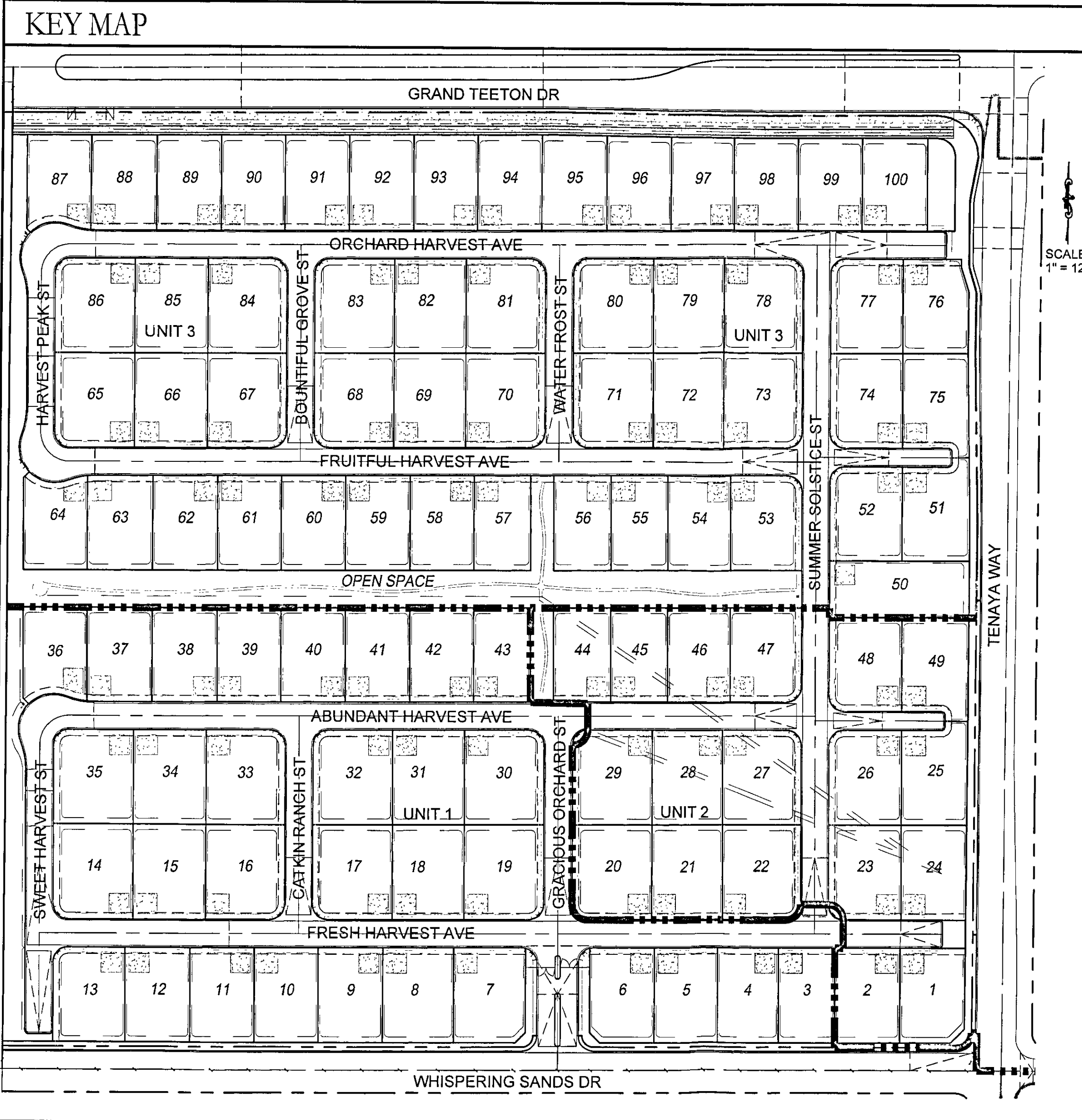
THE ORCHARDS - UNIT 3

@ GRAND TETON & TENAYA

A RESIDENTIAL SUBDIVISION

CITY OF LAS VEGAS, NEVADA

APN: 125-15-101-003



INDEX OF SHEETS

01	C1	- COVER SHEET
02	C2	- GENERAL NOTES AND QUANTITIES
03	G1	- GRADING PLAN - WEST
04	G2	- GRADING PLAN - EAST
05	GD1	- GRADING DETAILS AND CROSS SECTIONS
06	PP1	- GRAND TETON STA 8+00 TO 17+50 PLAN AND PROFILE
07	PP2	- GRAND TETON STA 17+50 TO 28+50 PLAN AND PROFILE
08	PP3	- 18" STORM DRAIN LATERALS PLAN AND PROFILE
09	PP4	- TENAYA WAY STA 15+00 TO 24+00 PLAN AND PROFILE
10	PP5	- ORCHARD HARVEST STA 22+00 TO 30+50 PLAN AND PROFILE
11	PP6	- ORCHARD HARVEST STA 30+50 TO 35+00 & FRUITFUL HARVEST STA 10+00 TO 14+50 PLAN AND PROFILE
12	PP7	- FRUITFUL HARVEST STA 14+50 TO 22+50 PLAN AND PROFILE
13	PP8	- SUMMER SOLISTICE STA 14+00 TO 20+00 & WATER FROST STA 10+00 TO 18+00 PLAN AND PROFILE
14	PP9	- BOUNTIFUL GROVE STA 10+00 TO 13+00 & HARVEST PEAK STA 20+00 TO 22+00 PLAN AND PROFILE

ABBREVIATIONS

AC	ASPHALTIC CONCRETE
BC	BACK OF CURB
BCR	BACK OF CURB RADIUS
BFE	BASE FLOOD ELEVATION
BFP	BACK FLOW PREVENTER
BLM	BUREAU OF LAND MANAGEMENT
BM	BENCHMARK
BRPM	BLUE RAISED PAVEMENT MARKER
BVC	BEGIN VERTICAL CURVE
BW	BOTTOM OF EXISTING WALL
CATV	CABLE TELEVISION
CC	CLARK COUNTY
CL	CENTERLINE
CLSM	CONTROLLED LOW STRENGTH MATERIAL
CLV	CITY OF LAS VEGAS
CMP	CORRUGATED METAL PIPE
CNV	CITY OF NORTH LAS VEGAS
CO	CLEAN OUT, SEWER
COH	CITY OF HENDERSON
CY	CUBIC YARD
DCSWCS	DESIGN AND CONSTRUCTION STANDARDS OF WASTE WATER COLLECTION SYSTEMS
DI	DESIGN GRADE
DIP	DROP INLET
DIP	DUCTILE IRON PIPE
EC	END OF CURVE
EG	EXISTING GRADE
ELEC	ELECTRICAL
EP	EDGE OF PAVEMENT
EV	END VERTICAL CURVE
EX	EXISTING
FF	FINISH FLOOR ELEVATION
FG	FINISH GRADE
FH	FIRE HYDRANT
FL	FLOW LINE
FT	FEET
GB	GRADE BREAK
GFF	GARAGE FINISH FLOOR
HP	HIGH POINT
INV	INVERT
LF	LINEAR FEET
LT	LEFT
LWVWD	LAS VEGAS VALLEY WATER DISTRICT
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
NO	NUMBER
NTS	NOT TO SCALE
OC	ON CENTER
PB	PULL BOX
PC	POINT OF CURVE
PCC	POINT OF COMPOUND CURVE
PE	POLYETHYLENE
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
PLT	PLATE
POC	POINT OF CONNECTION
PP	POWER POLE
PR	POINT OF REVERSE CURVE
PROJ	PROJECT
PRV	PRESSURE REDUCING VALVE
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
R	RADIUS
RCB	REINFORCED CONCRETE BOX
RCP	REINFORCED CONCRETE PIPE
ROW	RIGHT-OF-WAY
RT	RIGHT
SD	STORM DRAIN
SHT	SHEET
STLT	STREETLIGHT
SNWA	SOUTHERN NEVADA WATER AUTHORITY
SS	SANITARY SEWER
STA	STATION
STD	STANDARD
SVZ	SIGHT VISIBILITY ZONE
SW	SIDEWALK
SY	SQUARE YARD
TC	TOP OF CURB
TELE	TELEPHONE
TR	TOP OF FOOTING
TW	TOP OF RETAINING
TYP	TYPICAL
UDACS	UNIFORM DESIGN AND CONSTRUCTION STANDARDS
USD	UNIFORM STANDARD DRAWING
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VG	VALLEY GUTTER
W	WATER
ZC	ZERO LIP CURB

SCARP (SLOPE VARIES)		
CONTOUR (1' INTERVAL)		
CONTOUR (5' INTERVAL)		
DIRECTION OF FLOW		
RETAINING WALL		
CMU WALL		
CENTERLINE		
RIGHT-OF-WAY		
CUT LINE-ASPHALT		
CURB AND GUTTER		
POWER POLE		
SIDEWALK RAMP		
CURB DROP INLET		
STORM DRAIN W/MANHOLE		
SIDEWALK		
PROPERTY LINE		
CUT-FILL LINE		
EDGE OF PAVEMENT		
SIGHT VISIBILITY ZONE		
CAP & 2" BLOW OFF VALVE		
WATERLINE FITTINGS		
GATE VALVE		
FIRE HYDRANT		
SEWER LINE W/MANHOLE		
SEWER LATERAL		
WATER LINE		
WATER LATERAL W/METER		
PRESSURE REDUCING VALVE		
BACKWATER VALVE		
200A SERVICE PEDESTAL		
STREET LIGHT CONDUIT		
F.A.S.T. CONDUIT		
TRAFFIC SIGN		
STOP SIGN W/STREET NAME SIGN		
END OF ROAD SIGN		
100W HPS LUMINAIRE W/11 GA. POLE		
250W HPS LUMINAIRE W/11 GA. POLE		
400W HPS LUMINAIRE W/11 GA. POLE		
COURSES OF RETAINING WALL		

APPROVAL SIGNATURES

APPROVED FOR CONSTRUCTION

CITY OF LAS VEGAS FIRE MARSHAL

DATE

DAVID BOWERS, P.E., P.T.O.E. (P.E.#16736)
ACTING CITY ENGINEER - CITY OF LAS VEGAS

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 CONSTRUCTION OF ANY IMPROVEMENTS THAT DEVIATE FROM ADOPTED STANDARDS AND/OR SPECIFICATIONS EXCEPT THOSE SPECIFICALLY LISTED UNDER DEVIATIONS FROM STANDARDS. 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.

DOUG RANKIN, AICP PLANNING MANAGER

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

DATE

LWVWD ENGINEERING SERVICES MANAGER (PROJ# XX000)

SHEETS

DATE

This grading plan is a part of drainage study #4569, which was received on 6/4/12 and signed on 6/8/12. Page 1 of 14

SOUTHWEST GAS

DATE

CENTURYLINK

"THE AFFIXED CENTURYLINK 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

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

DATE

DR HORTON

330 CAROUSEL PKWY

HENDERSON, NV 89014

(702) 635-3600 FAX: (800) 909-4601

TANEY ENGINEERING

COVER SHEET

THE ORCHARDS - UNIT 3

@ GRAND TETON & TENAYA

A RESIDENTIAL SUBDIVISION

DATE: 10/3/12

SCALE: 1" = 120'

JOB NO: DRH-12

DESIGNED BY: F

CHECKED BY: F

SHEET NAME: C

SHEET: 01 OF 20

CLV

CLV TRAFFIC NOTES

CLV STREETLIGHT NOTES

CLV SEWER NOTES

STORMWATER RUNOFF MANAGEMENT NOTES

GRADING QUANTITIES

STORM DRAIN

WATER

SEWER

STREET LIGHT / TRAFFIC

DRAINAGE IMPROVEMENTS

PUBLIC WORKS NOTES

LAS VEGAS VALLEY WATER DISTRICT NOTES

UTILITY DISCLAIMER NOTE

LEGAL DESCRIPTION

BENCHMARK

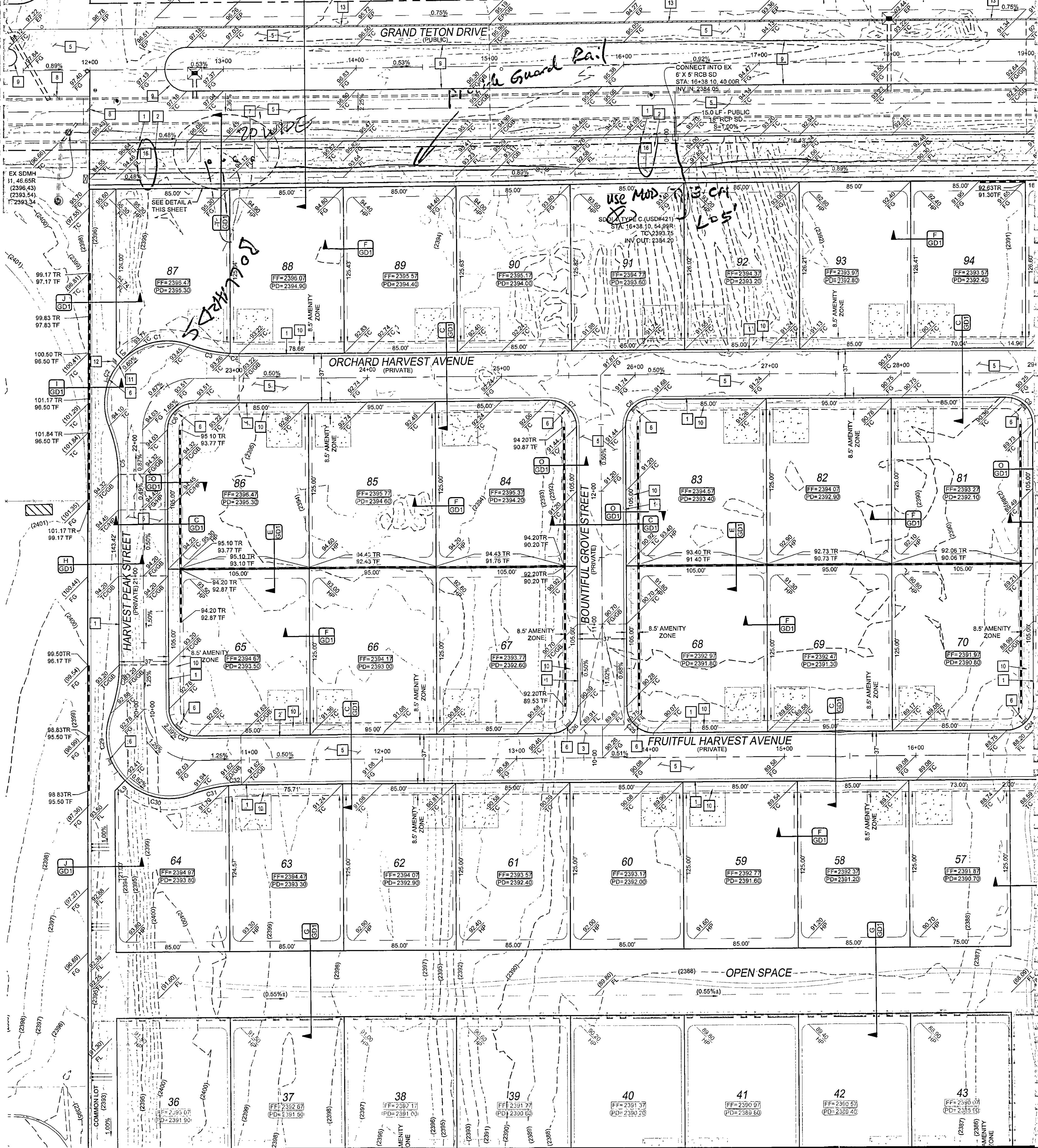
BASIS OF BEARINGS

DEVIATIONS FROM STANDARDS

CLV

MATCHLINE SEE SHEET

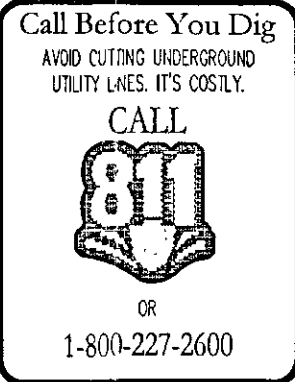
MATCHLINE SEE SHEET G2



LINE AND CURVE DATA

Curve Table			
Curve #	Length	Radius	Delta
C1	54.35	47.00	066.256
C2	54.35	47.00	066.256
C3	30.76	100.00	017.623
C4	6.34	100.00	003.632
C5	37.10	100.00	021.256
C6	31.42	20.00	090.000
C7	31.42	20.00	090.000
C8	31.42	20.00	090.000
C9	31.42	20.00	090.000
C10	31.42	20.00	090.000
C11	31.42	20.00	090.000
C12	31.42	20.00	090.000
C13	7.85	5.00	090.000
C14	7.85	5.00	090.000
C15	37.85	24.17	089.721
C16	47.41	30.00	090.540
C17	7.85	5.00	090.000
C18	7.85	5.00	090.000
C19	31.42	20.00	090.000
C20	31.42	20.00	090.000
C21	31.42	20.00	090.000
C22	31.42	20.00	090.000
C23	31.42	20.00	090.000
C24	31.42	20.00	090.000
C25	31.42	20.00	090.000
C26	31.42	20.00	090.000
C27	31.42	20.00	090.000
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C30	54.35	47.00	066.256
C31	27.79	100.00	016.924
C32	9.31	100.00	005.331

Line Table		
Line #	Length	Direction
L8	6.80	S45° 12' 34.00"E
L9	10.98	S44° 47' 26.00"W
L10	12.80	S00° 12' 34.00"E
L11	7.50	S00° 12' 34.00"E
L12	7.50	S00° 12' 34.00"E
L13	11.19	N00° 12' 00.00"E
L14	12.17	S89° 39' 35.00"W



GRADING NOTES

ADD 2300 FEET TO ALL GRADE TAGS TO GET ACTUAL ELEVATION.

THE ELEVATION DIFFERENCE BETWEEN THE PAD AND FINISH FLOOR IS DETERMINED FROM THE MINIMUM THICKNESS REQUIRED PER THE GEOTECHNICAL REPORT. FINISH FLOORS MAY INCREASE DEPENDING ON THE TYPE OF SOIL AND FOUNDATION PLAN USED. NOTE THAT THE STRUCTURAL PLANS & GEOTECHNICAL REPORT SHALL SUPERSEDE THE CIVIL IMPROVEMENT PLANS.

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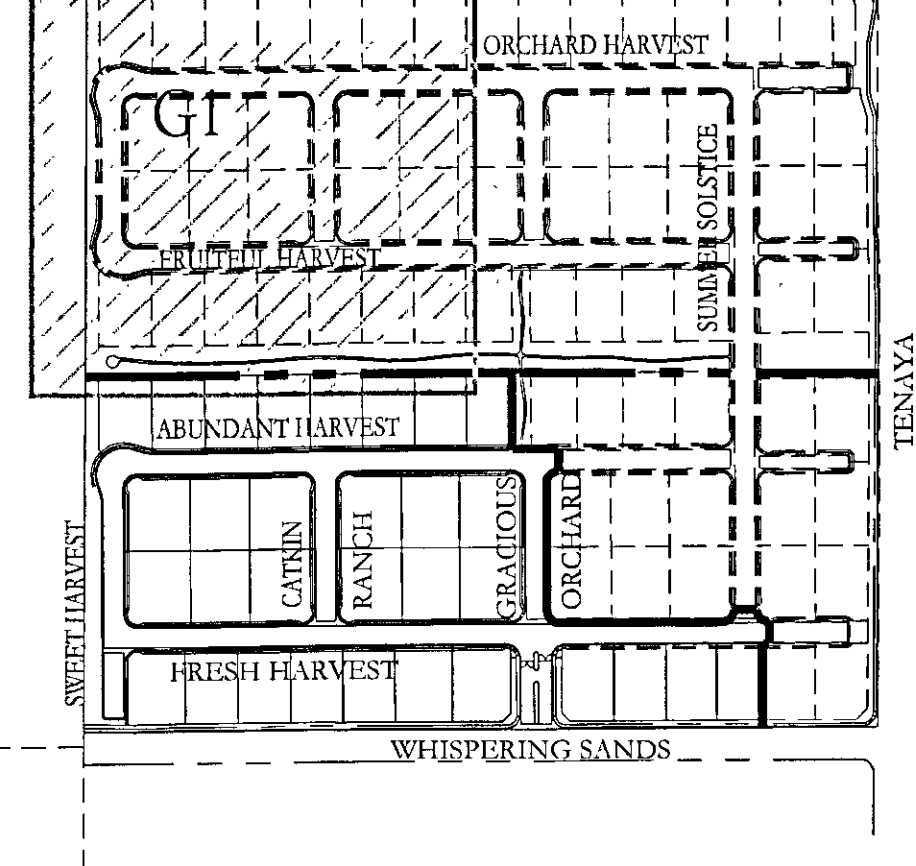
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CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

CONSTRUCTION NOTES

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- SAWCUT & MATCH EXISTING AC PAVEMENT
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- SIDEWALK UNDERDRAIN (USD#236)
- 2.0" CUTOFF WALL (SEE DETAIL K/GD1)
- 6" CONCRETE OVER 6" TYPE II

16 ?



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FLOOD ZONE

THE PROJECT SITE IS LOCATED IN FLOODZONE "X" WHICH IS AN AREA DETERMINED TO BE OUTSIDE THE 0.20% ANNUAL CHANCE FLOODPLAIN PER FIRM MAP 32003C1745E REVISED SEPTEMBER 27, 2002.

EARTHWORK

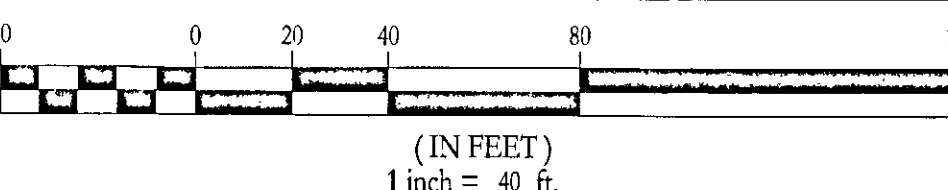
TOTAL FOR OVERALL DEVELOPMENT: 39,147 CY CUT
26,943 CY FILL

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GEOTECHNICAL

AMERICAN SOILS ENGINEERING, LLC
6000 S. EASTERN AVE., STE. 6-B
LAS VEGAS, NEVADA 89119
REPORT NO: 1588-GE0
DATE 06/04/12

SCALE



LEGAL DESCRIPTION

BEING LOT TWO (2) OF THAT CERTAIN CERTIFICATE OF LAND DIVISION ON FILE IN FILE 001, PAGE 0055, RECORDED OCTOBER 11, 2001 IN BOOK 20011011 AS DOCUMENT NO 02282, OFFICIAL RECORDS OF THE COUNTY RECORDED, CLARK COUNTY, NEVADA.

BASIS OF BEARINGS

NORTH 00°12'00" EAST BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 15, TOWNSHIP 19 SOUTH, RANGE 90 EAST, 14 D.M. CLARK COUNTY, NV AS SHOWN ON FILE 113 OF SURVEYS AT PAGE 92, OFFICIAL RECORDS OF CLARK COUNTY, NEVADA.

BENCHMARK

CLARK COUNTY VERTICAL CONTROL POINT "BLV90 10SSWS" BEING A CITY OF LAS VEGAS RIVET AND ROUND PLATE IN A CONCRETE CYLINDER, NORTHWEST CORNER OF GRAND TETON DRIVE AND PIONEER WAY NEAR PT OF PIONEER WAY

ELEVATION: 2397.47 (FEET)
730.750 (METERS)

CLARK COUNTY VERTICAL CONTROL V.2003 BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

GRADING CERTIFICATION

I CERTIFY THIS GRADING PLAN COMPLIES WITH THE APPROVED DRAINAGE STUDY, DS XX-XXXX, ON FILE WITH CITY OF LAS VEGAS FOR THIS PROJECT.

ROBERT D. CUNNINGHAM, P.E. DATE

APPROVAL BLOCK

ACCEPTANCE OF PLANS FOR FLOOD

BY: DEVELOPMENT AND FLOOD CONTROL

DR HORTON
330 CAROUSEL PKWY
HENDERSON, NV 89014
(702) 635-3600 FAX: (800) 909-4601

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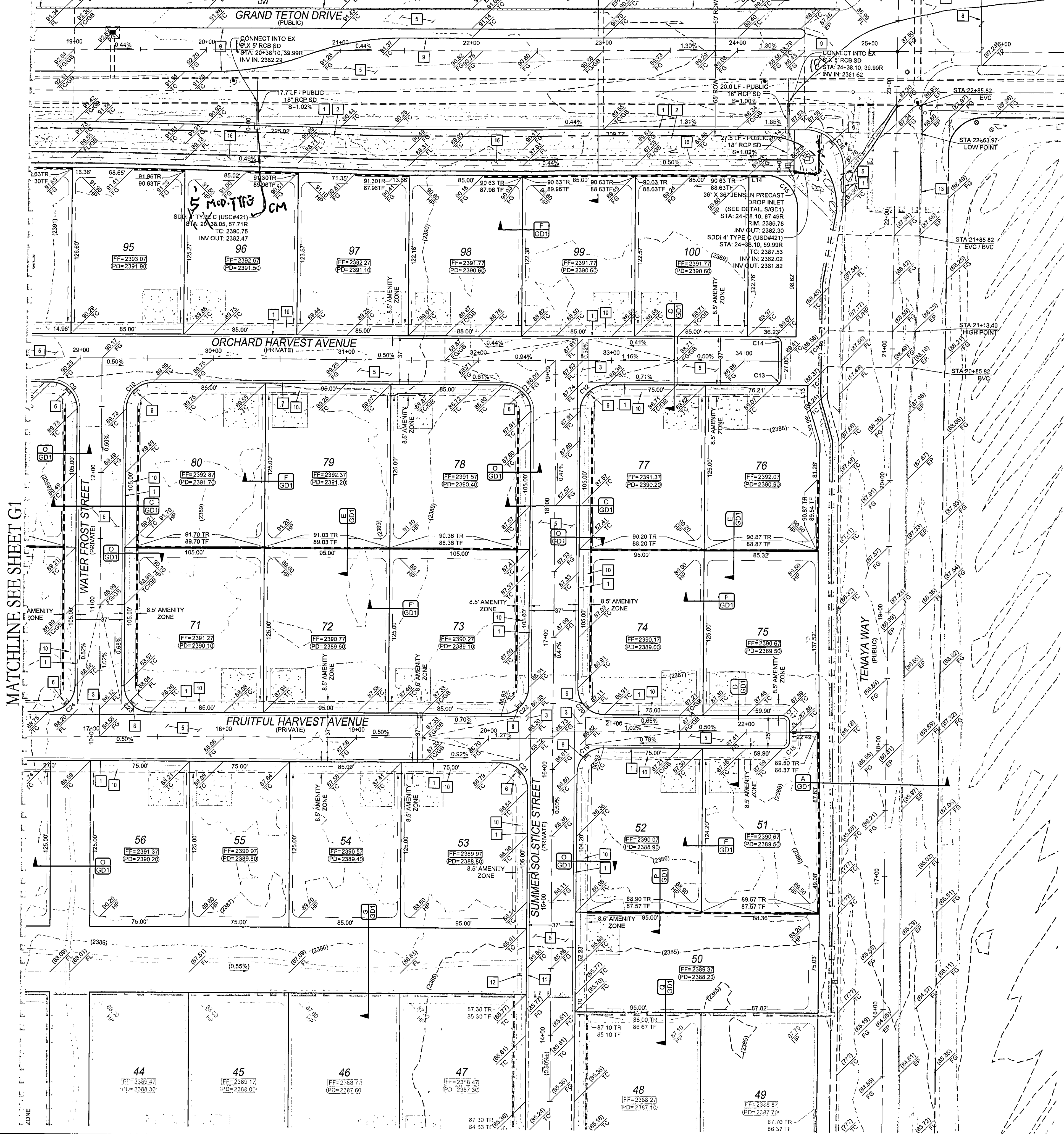
THE ORCHARDS - UNIT 3
@ GRAND TETON & TENAYA
A RESIDENTIAL SUBDIVISION

GRADING PLAN - WEST

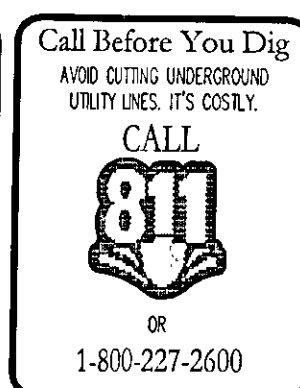
ROBERT D. CUNNINGHAM
No. 15726
Exp. 12-31-12
CIVIL
ENGINEER'S SEAL

DATE: 10/3/12
SCALE: 1"=10'
JOB NO: DRH-12-
DESIGNED BY:
CHECKED BY: R
SHEET NAME: G
DATE: 10/3/12
OF 20

MATCHLINE SEE SHEET G-1



MATCHLINE SEE SHEET G-2



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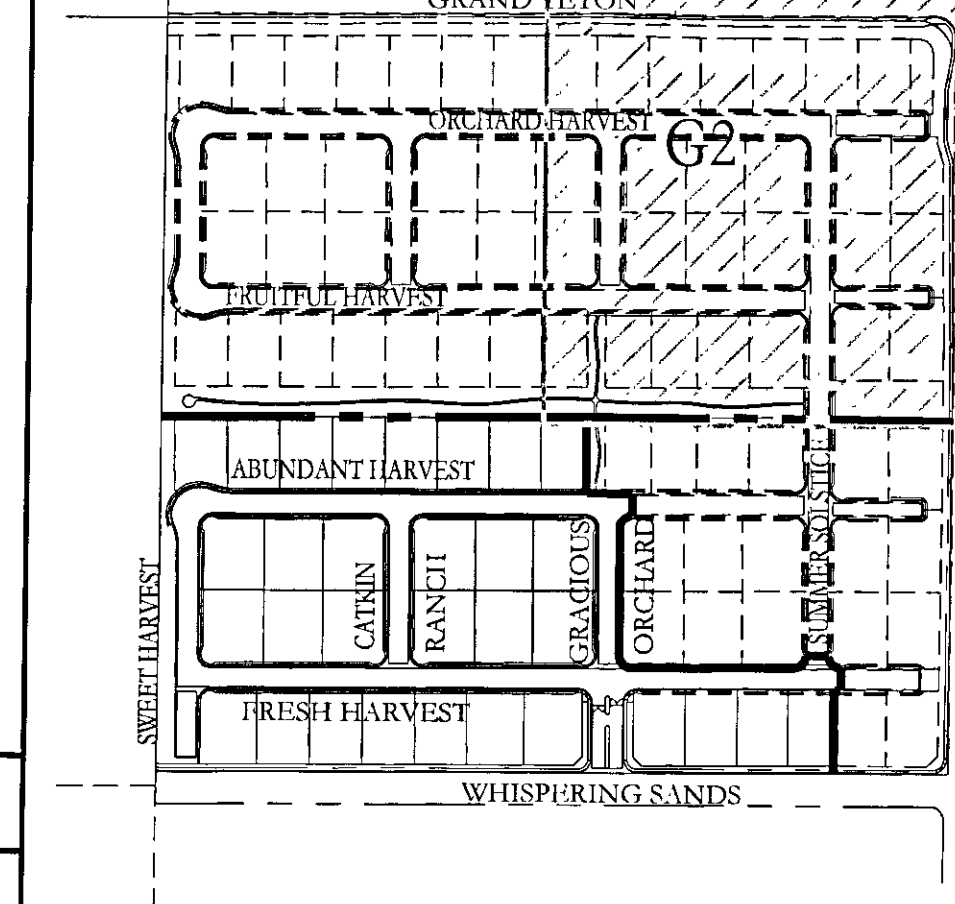
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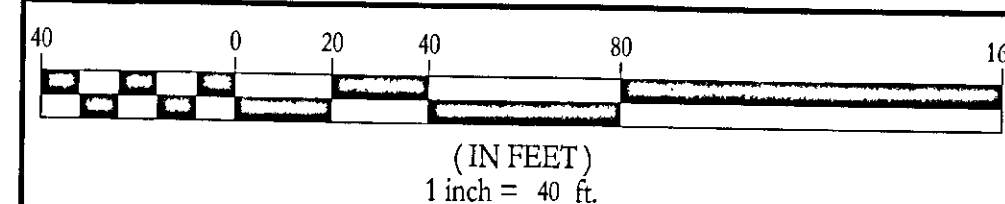
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DATE

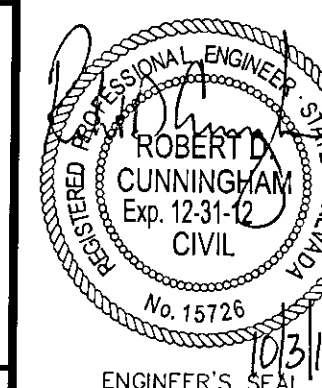
APPROVAL BLOCK

ACCEPTANCE OF PLANS FOR FILING

BY:

DEVELOPMENT AND FLOOD CONTROL

DATE



DATE: 10/3/12

SCALE: 1" = 40'

JOB NO: DRH-12-

DESIGNED BY:

CHECKED BY:

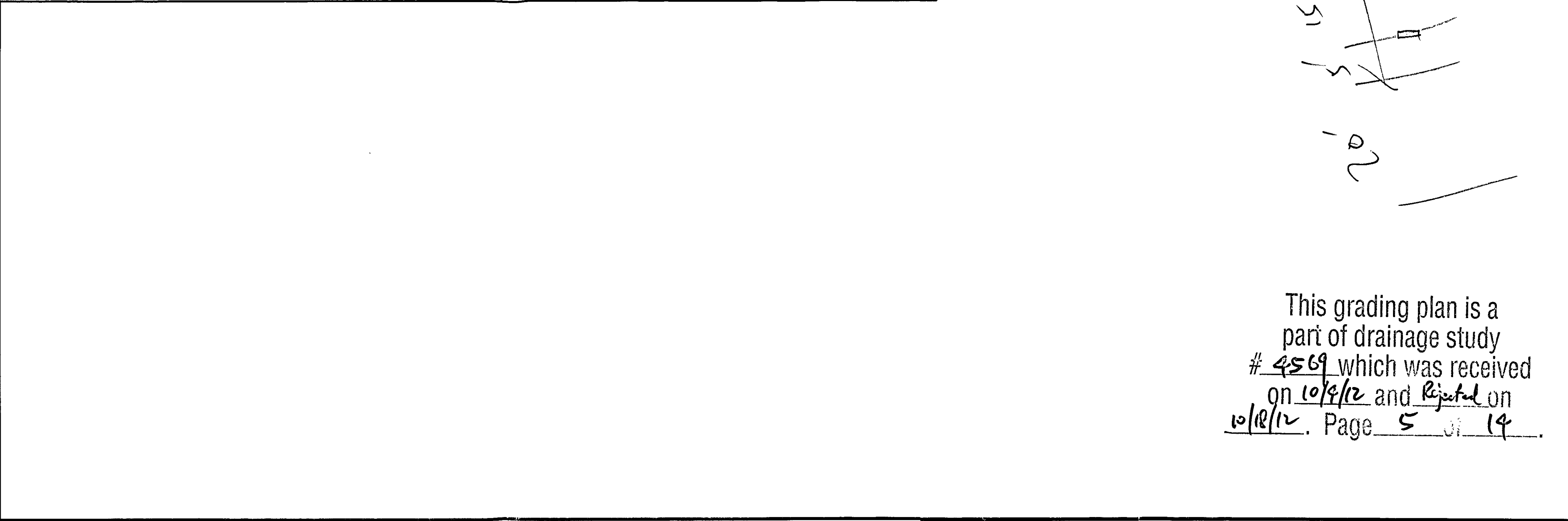
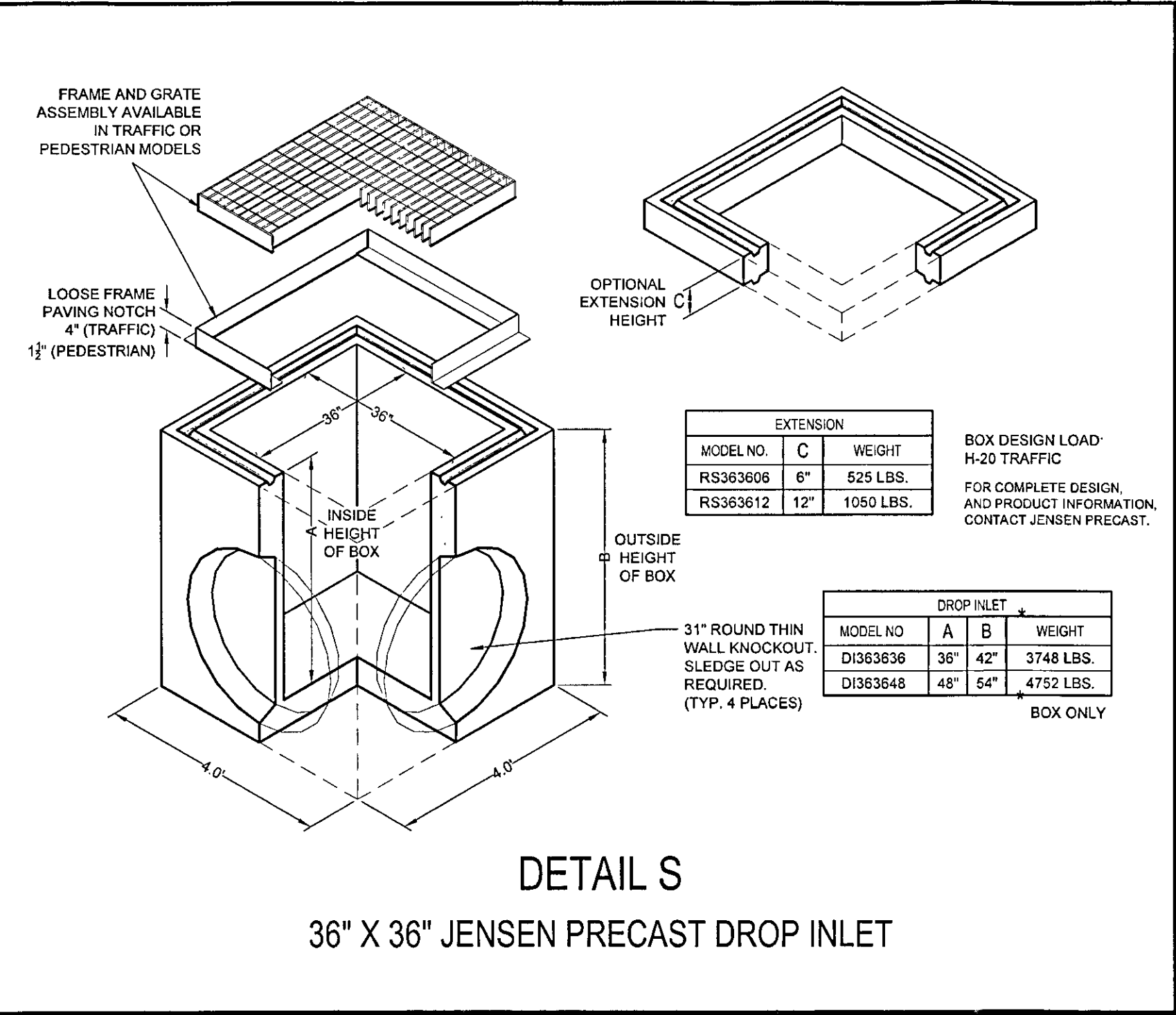
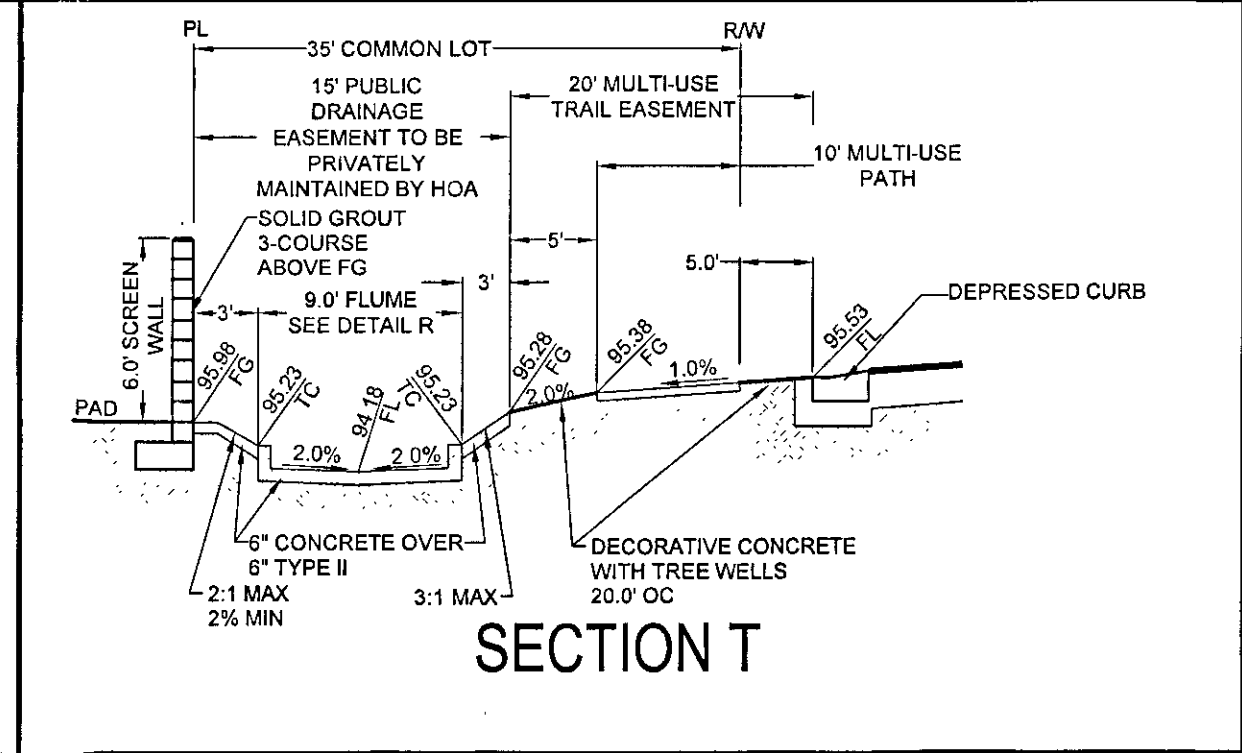
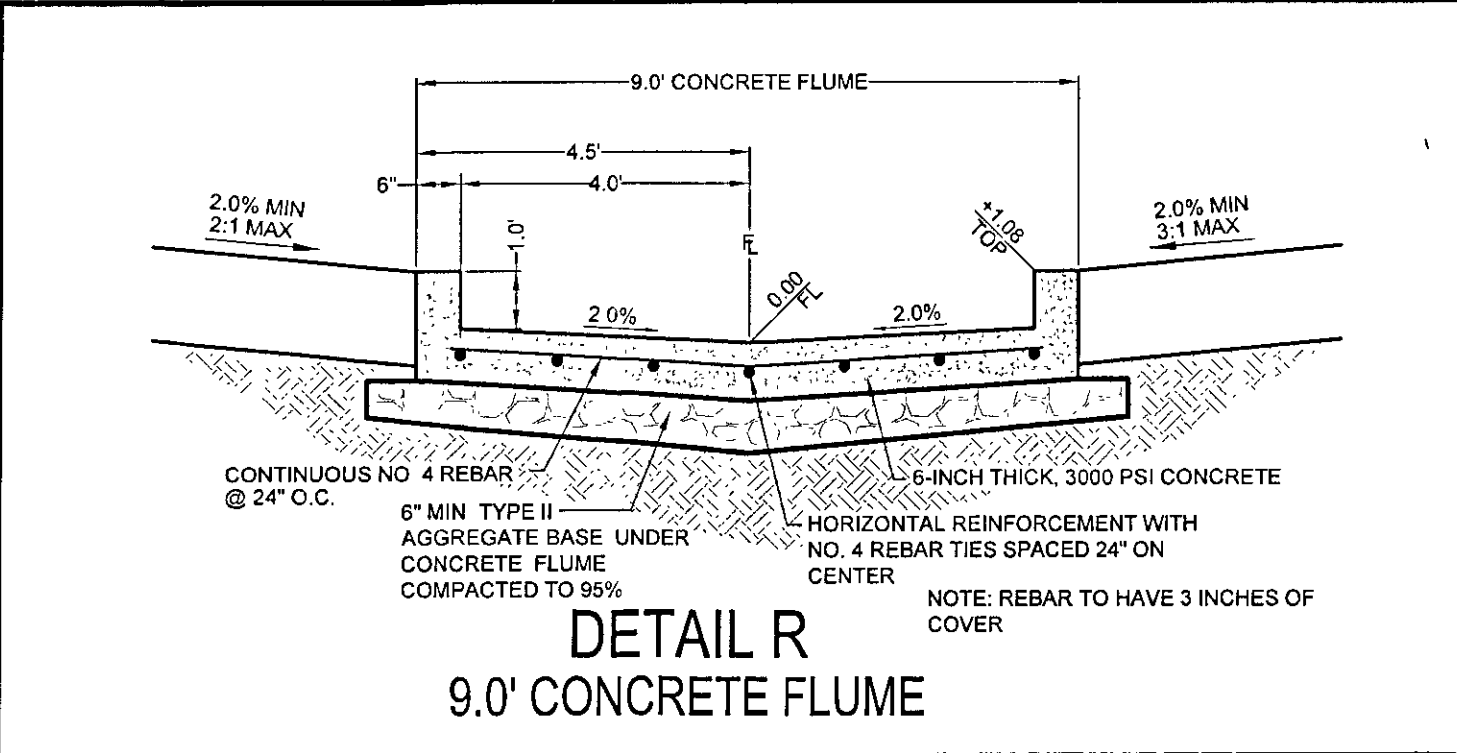
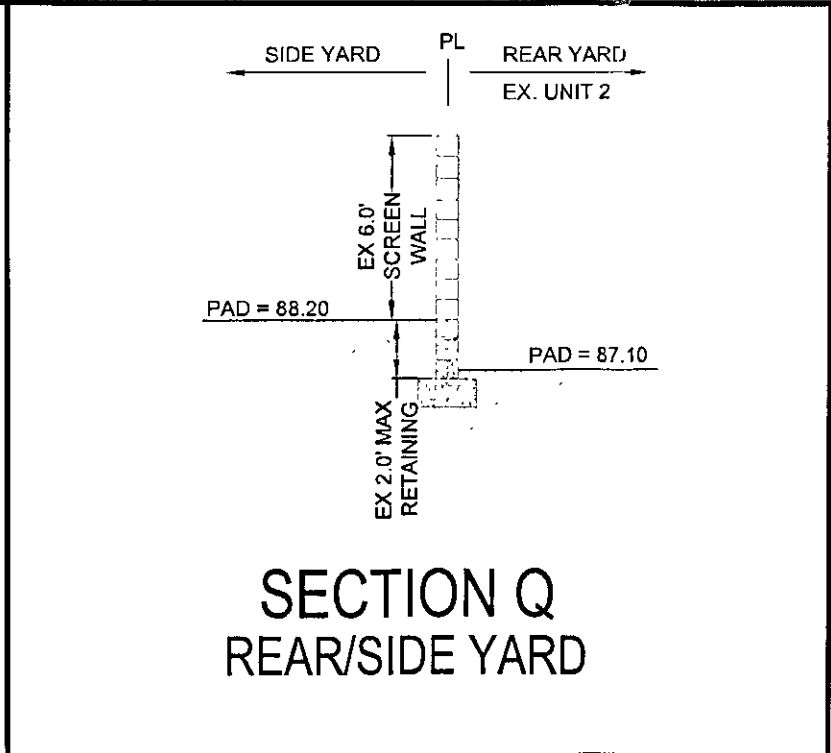
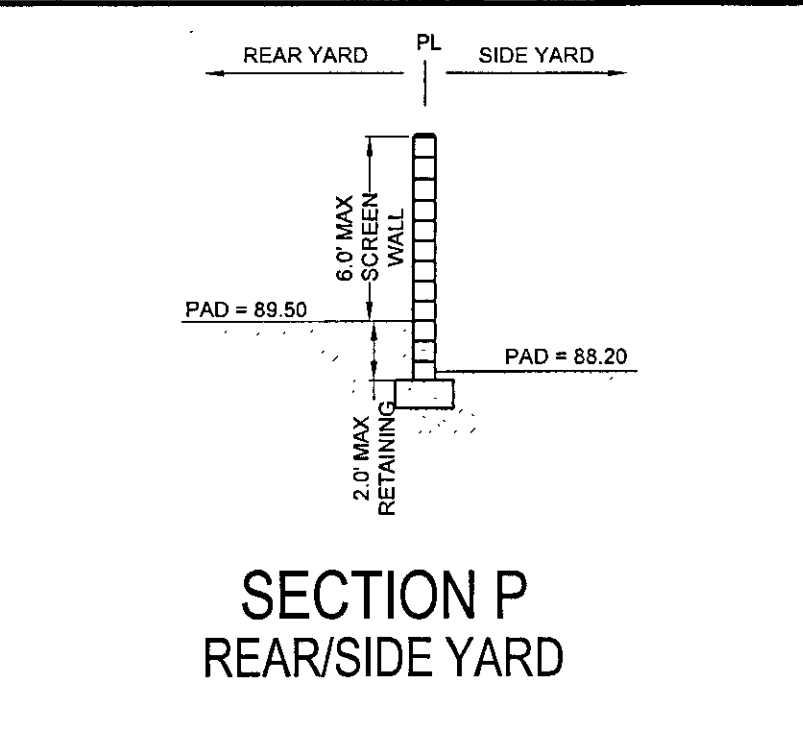
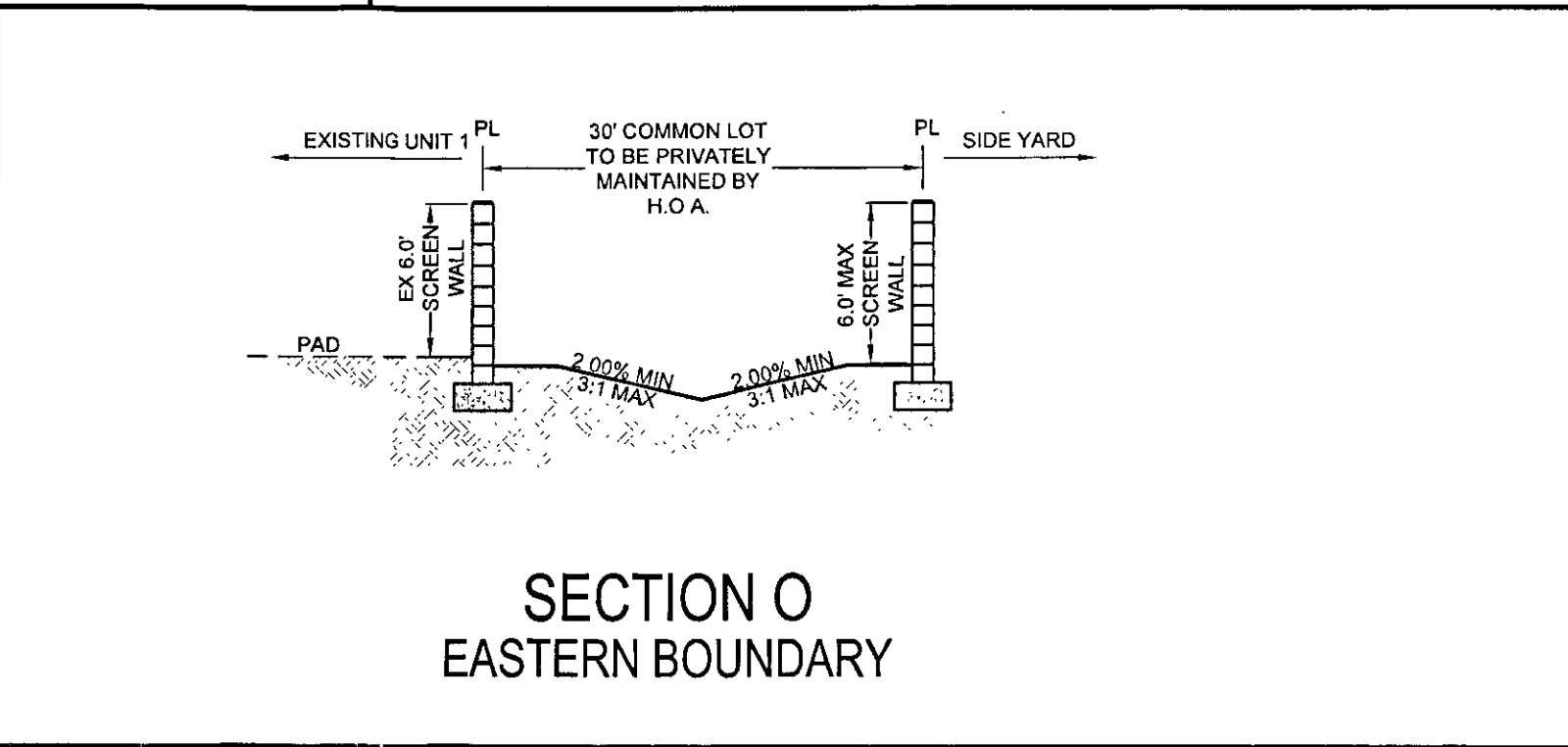
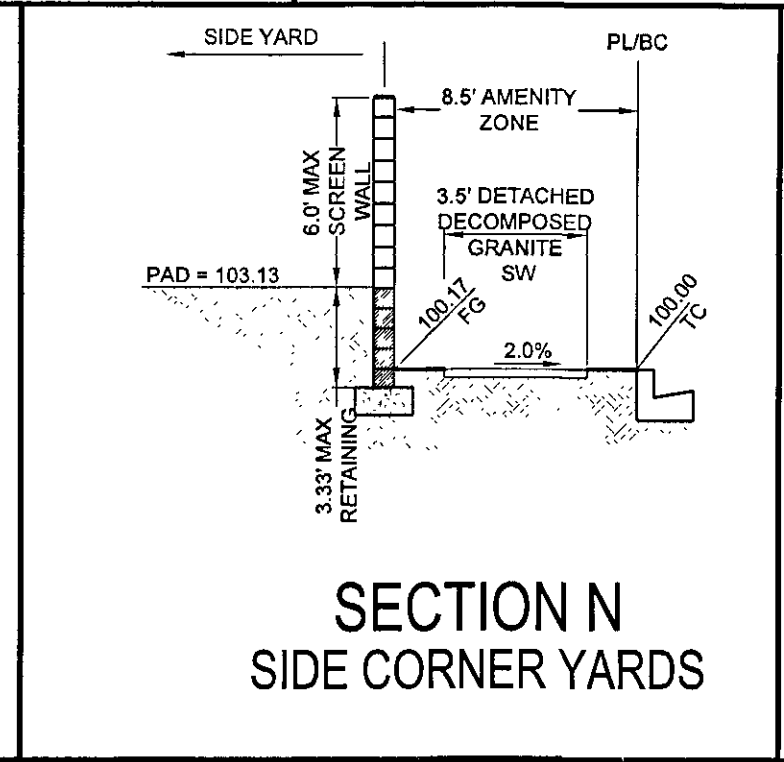
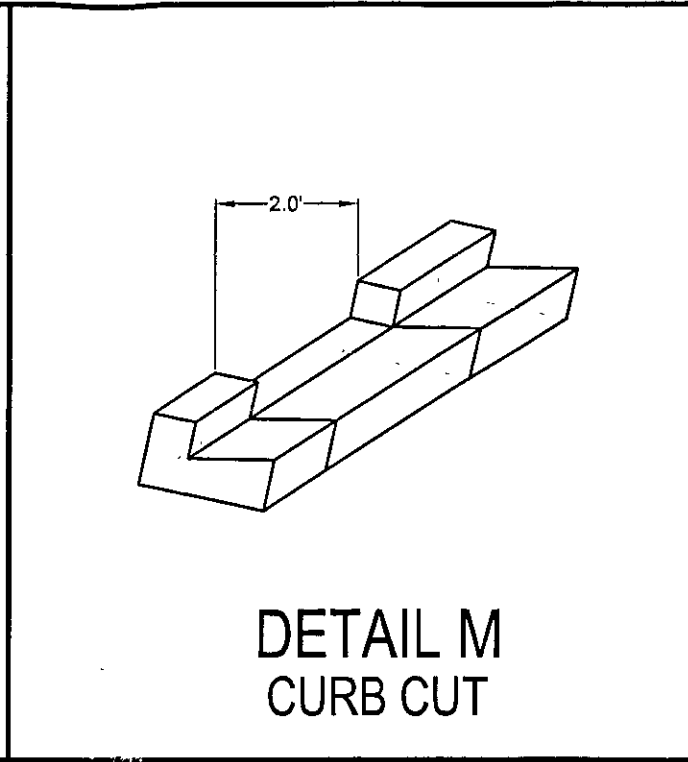
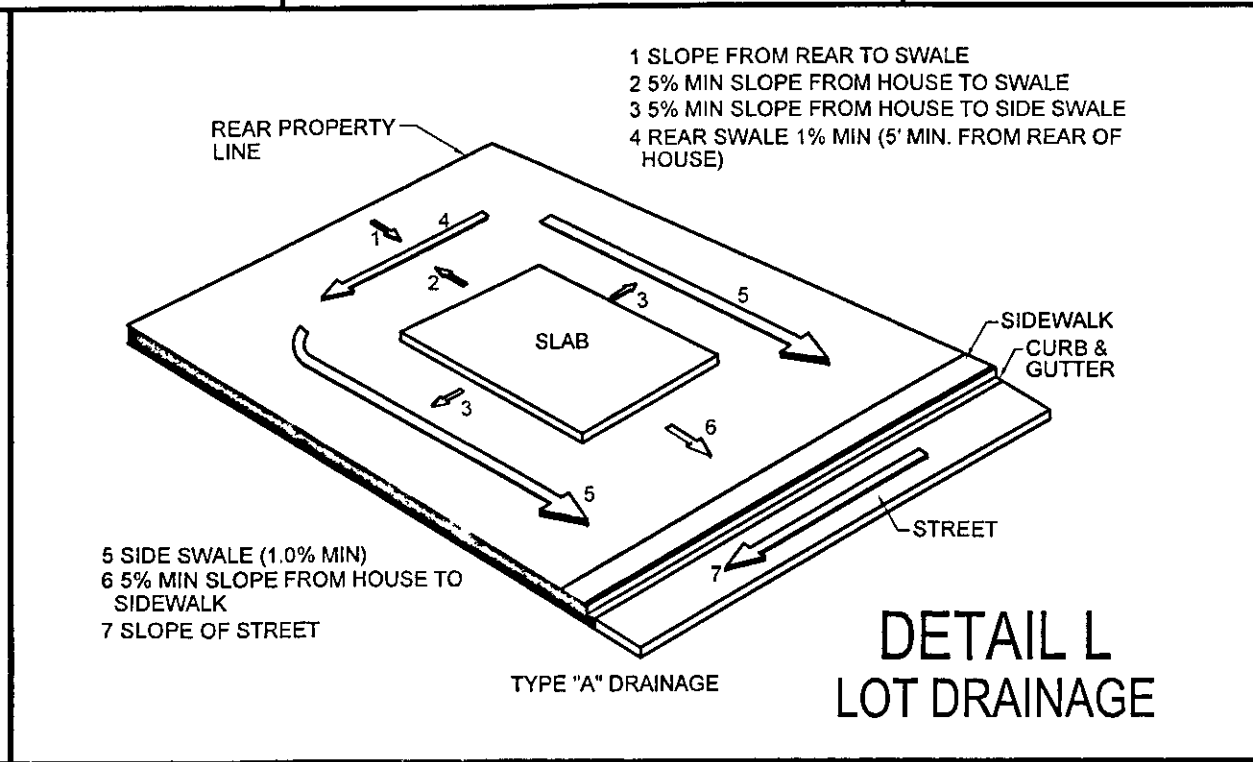
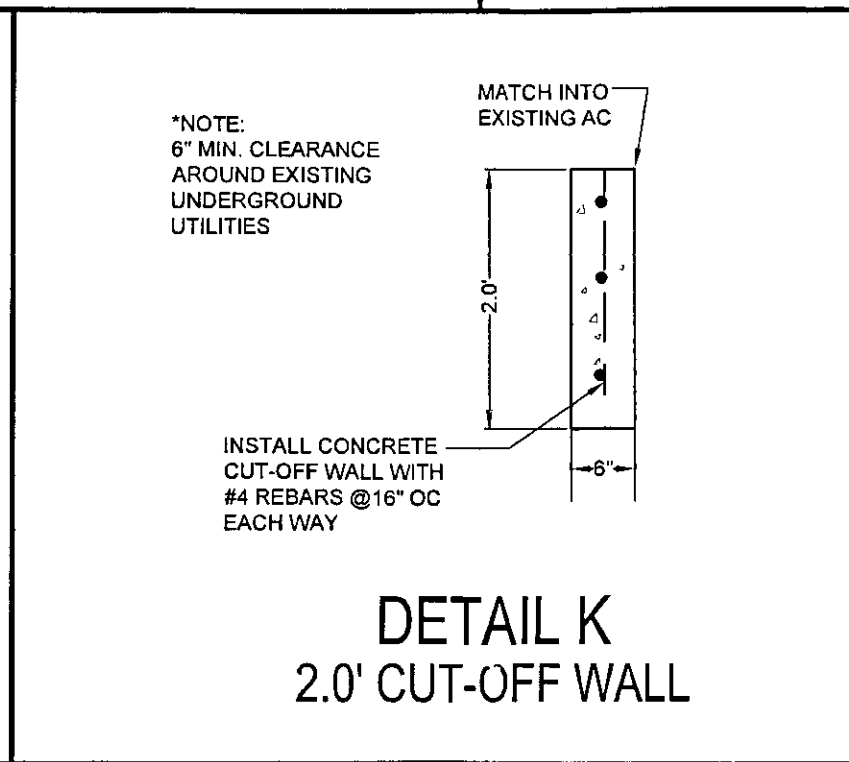
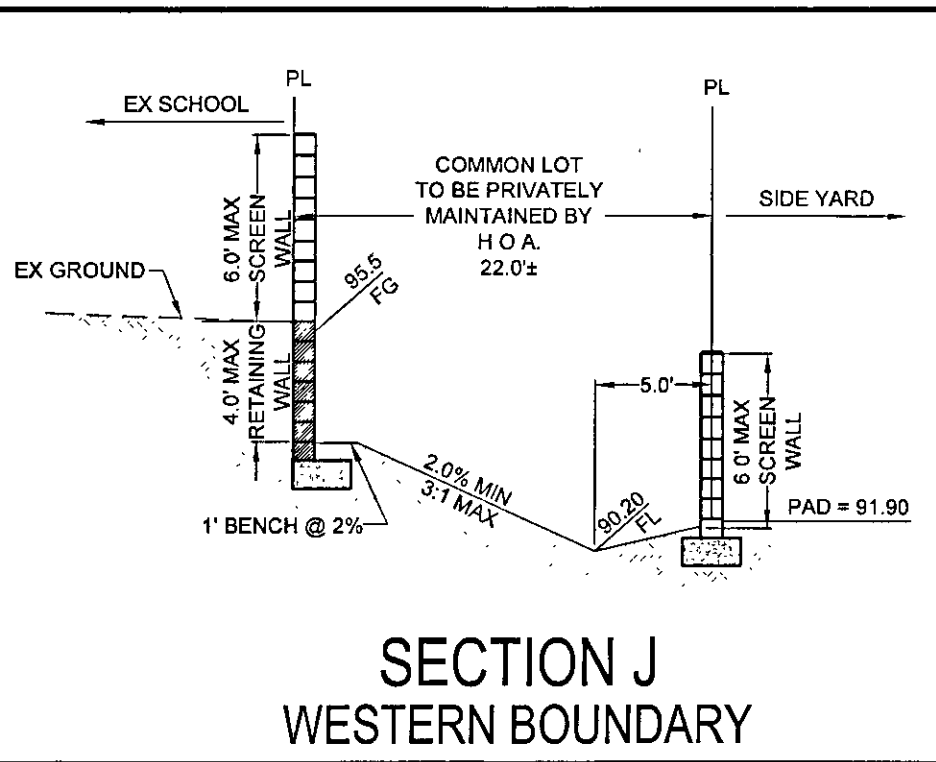
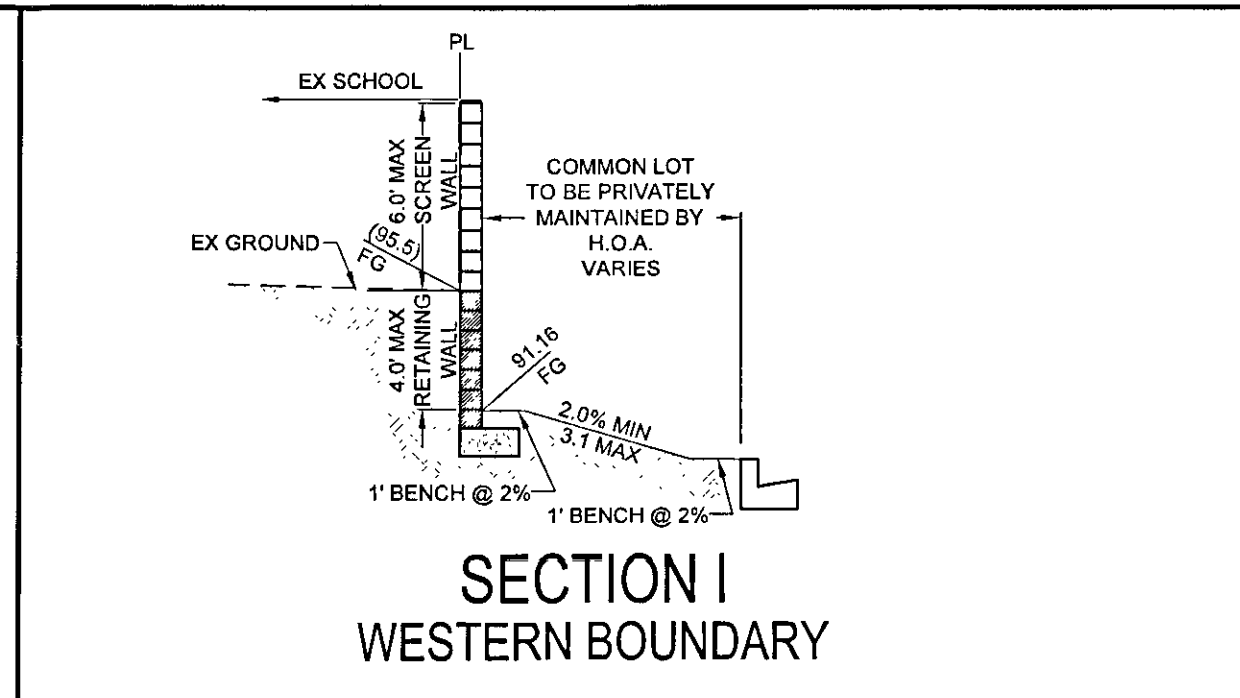
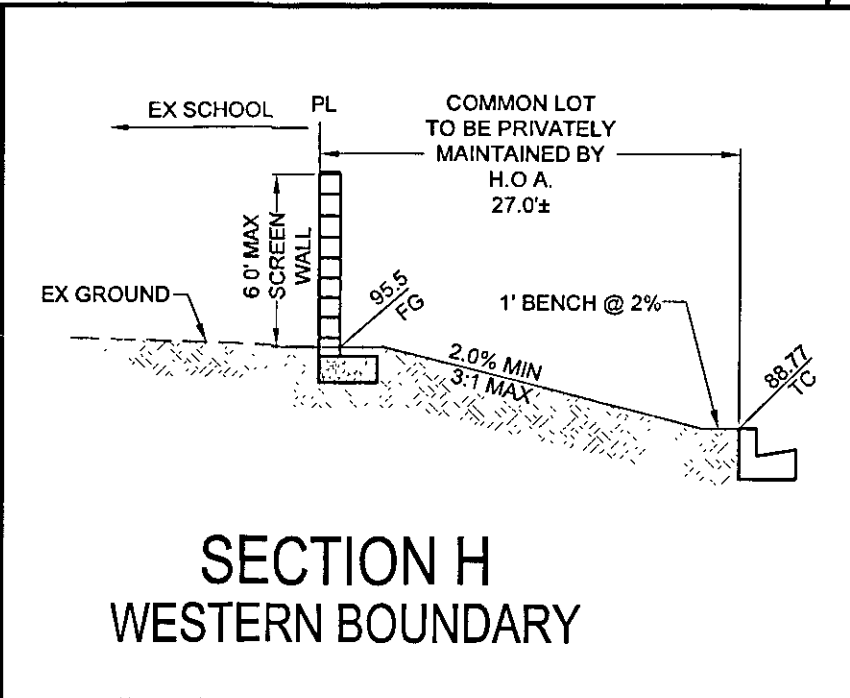
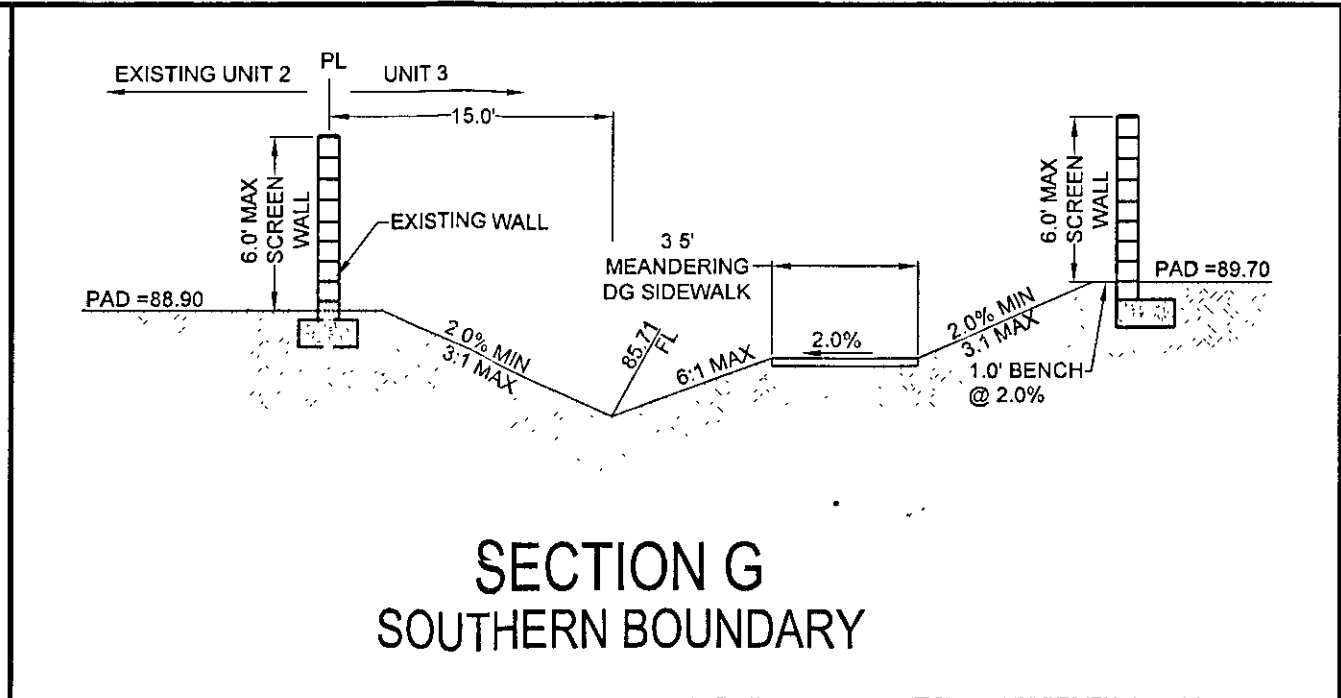
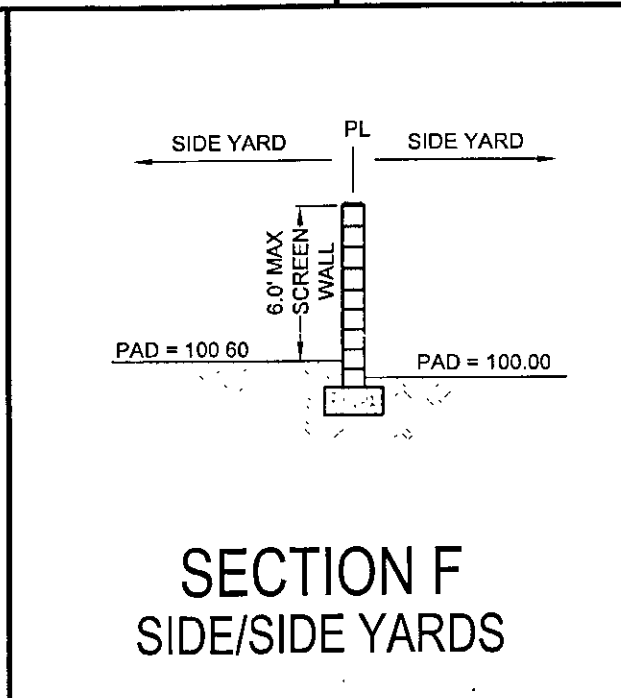
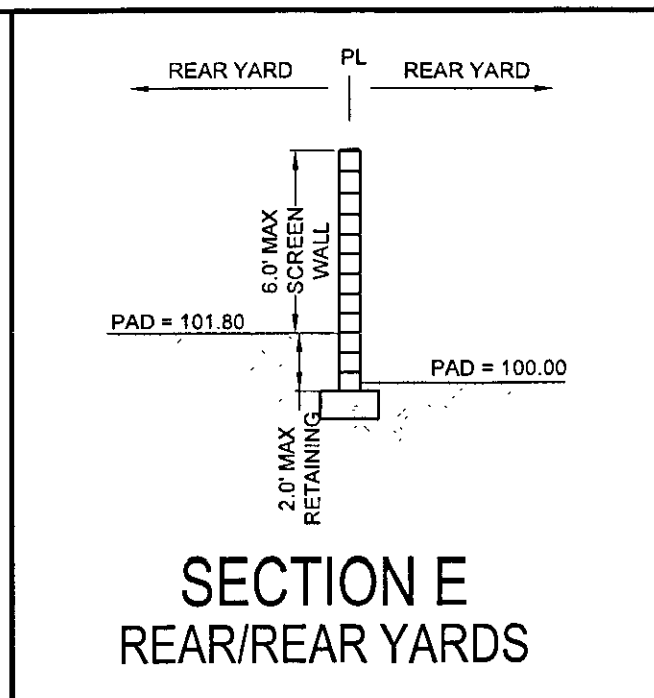
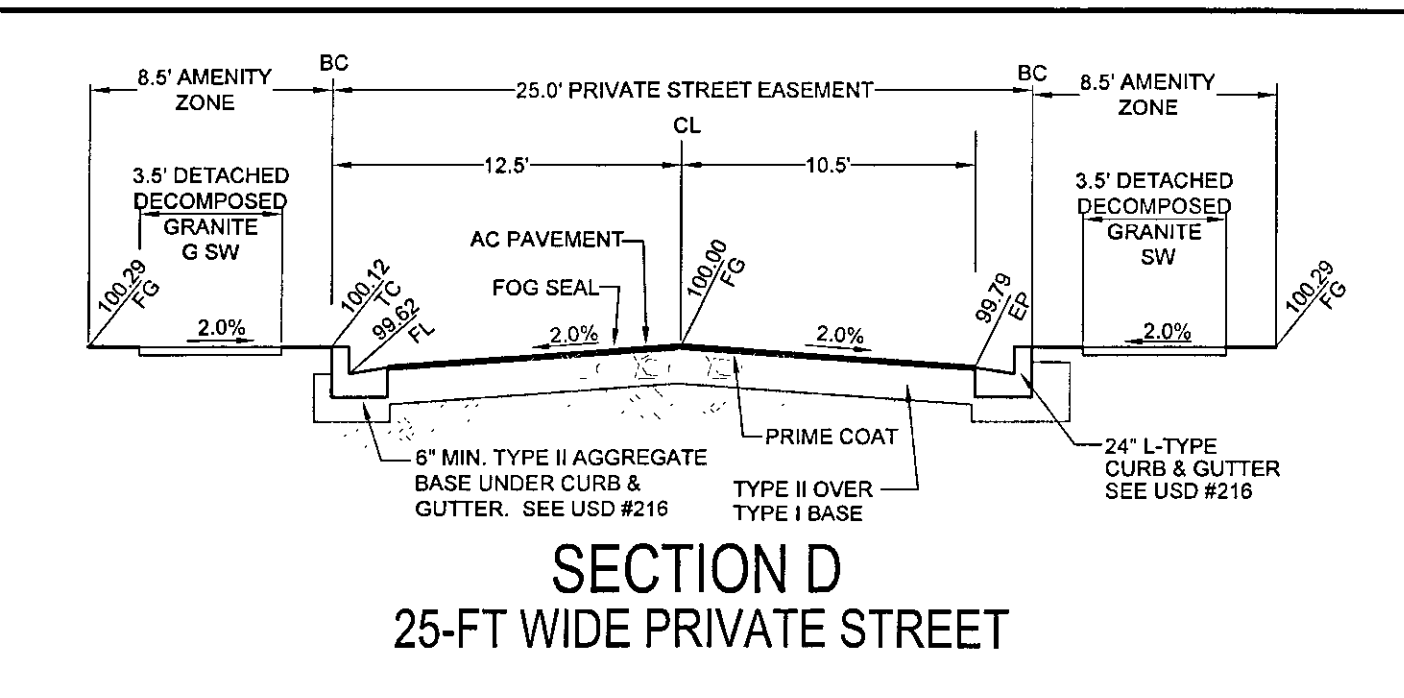
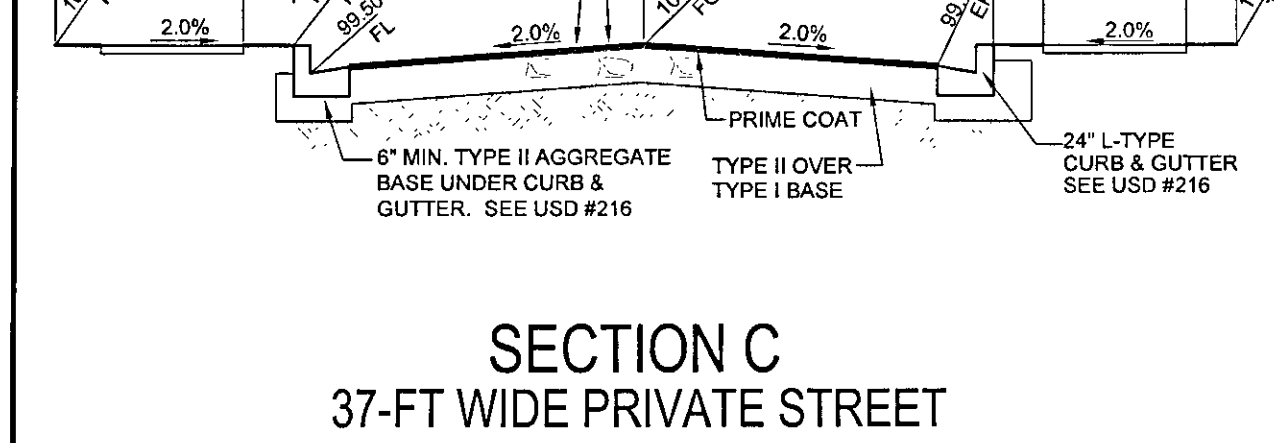
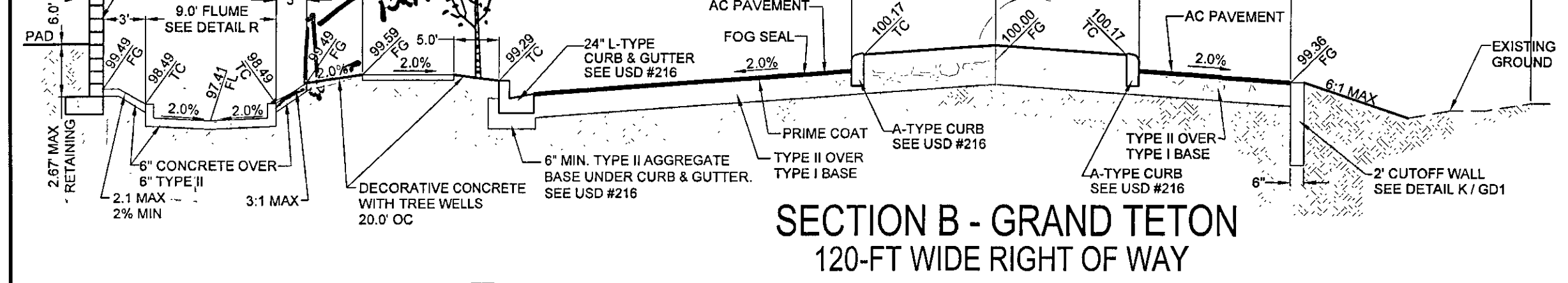
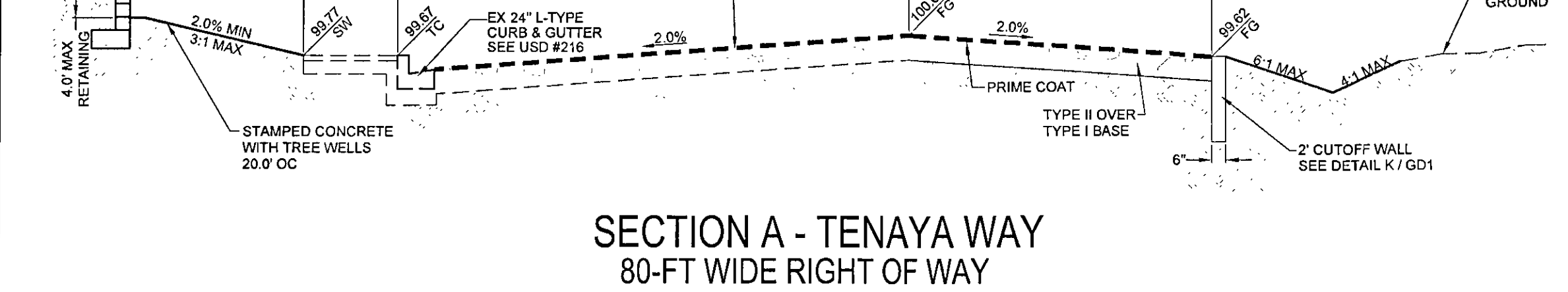
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10/18/12 Page 4 of 14

10/18/12 Page 4 of 14

10/18/12 Page 4 of 14

10/18/12 Page 4 of 14



DR HORTON

330 CAROUSEL PKWY

HENDERSON, NY 8014

(703) 635-3600 FAX: (800) 900-4601

THE ORCHARDS - UNIT 3

@ GRAND TETON & TENAYA

A RESIDENTIAL SUBDIVISION

PROFESSIONAL ENGINEER

ROBERT D. CUNNINGHAM

Exp. 1231-12

CIVIL

10.15726

ENGINEER'S SEAL

DATE: 10/3/12

SCALE: 1" = 10'

JOB NO: DRH-1231-12

DESIGNED BY: [Signature]

CHECKED BY: [Signature]

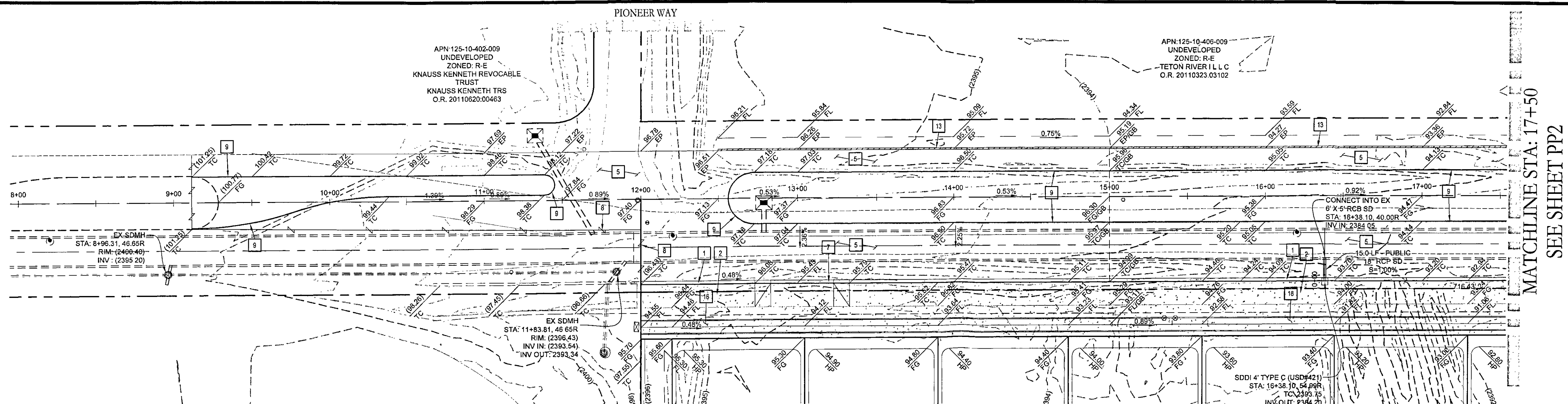
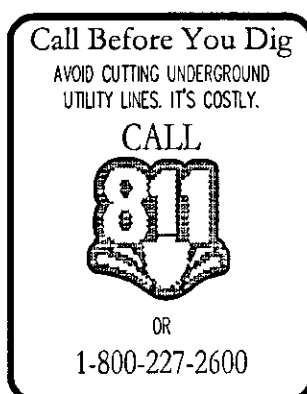
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SHEET: 05 OF 20

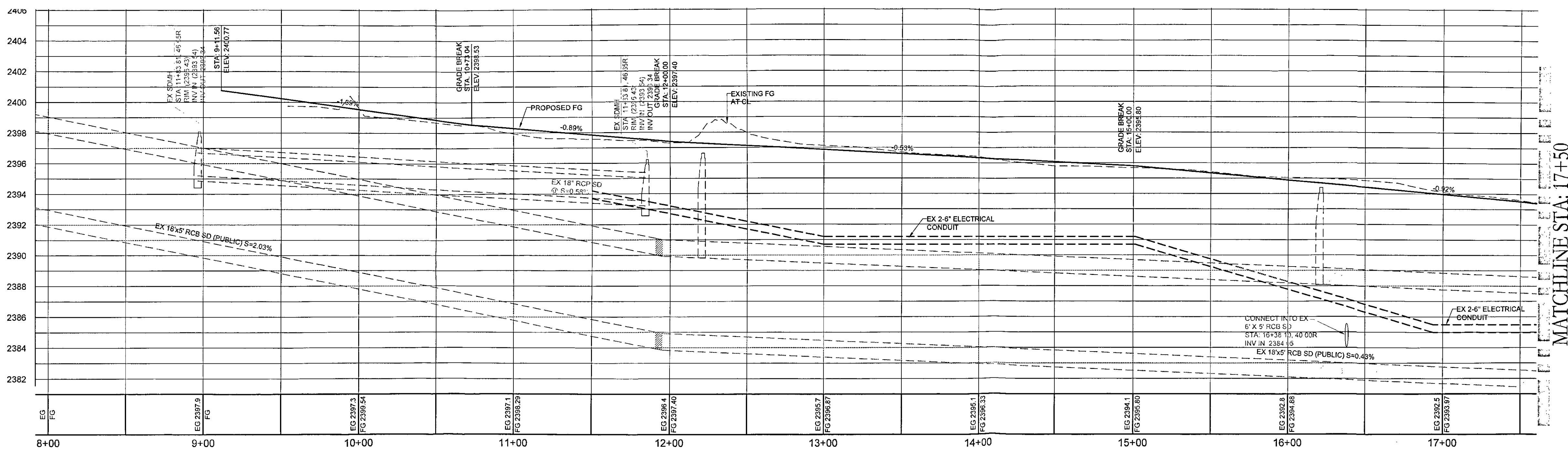
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This grading plan is a part of drainage study # 4569 which was received on 10/4/12 and Rejected on 10/18/12. Page 5 of 14.

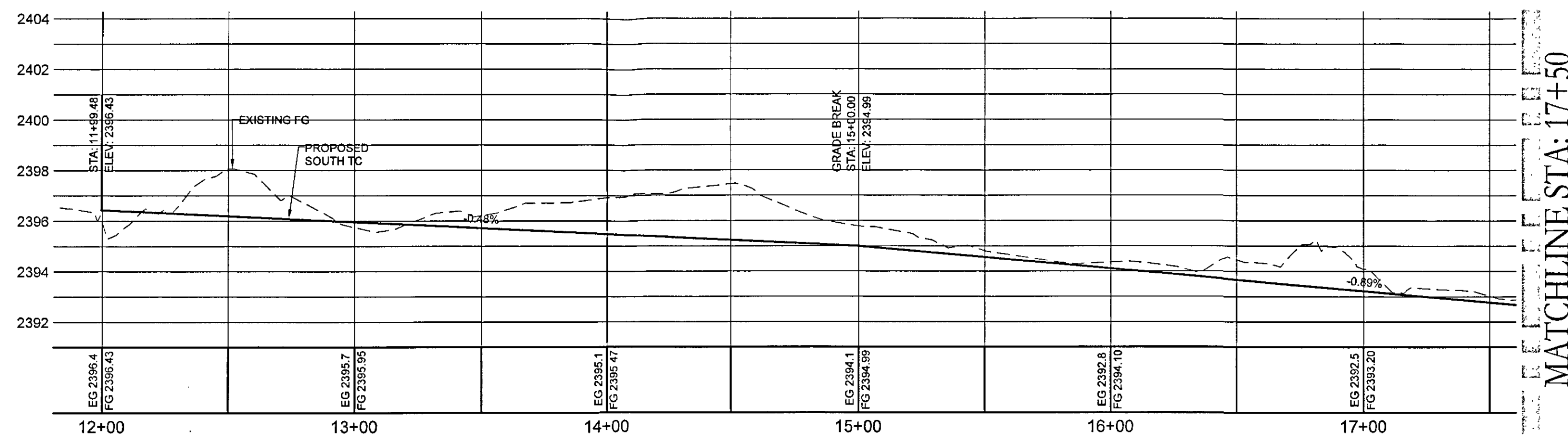
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GRAND TETON - PLAN
STA: 8+00 TO 17+50

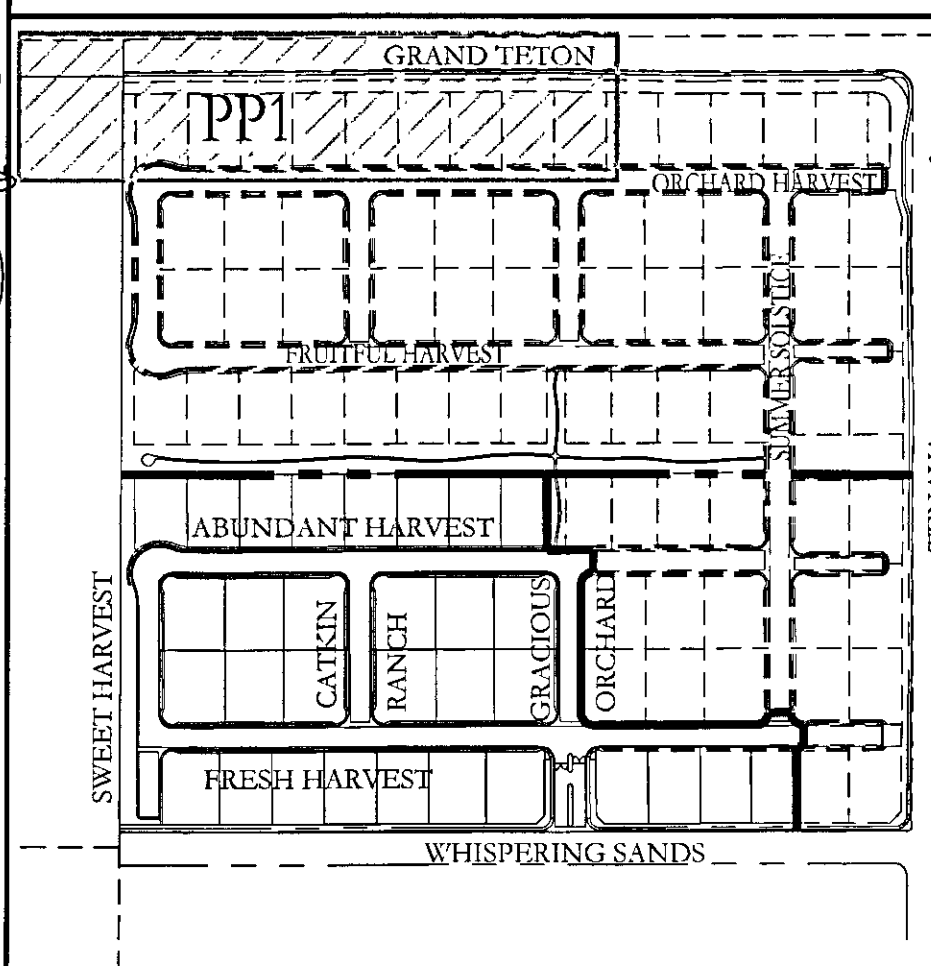


GRAND TETON CENTERLINE - PROFILE
STA: 8+00 TO 17+50
SCALE: 1"=40' HORIZ., 1"=4' VERT.



GRAND TETON SOUTH TOP OF CURB - PROFILE
STA: 12+00 TO 17+50
SCALE: 1"=40' HORIZ., 1"=4' VERT.

KEY MAP



GRADING NOTES

ADD 2300 FEET TO ALL GRADE TAGS TO GET ACTUAL ELEVATION.

THE ELEVATION DIFFERENCE BETWEEN THE PAD AND FINISH FLOOR IS DETERMINED FROM THE MINIMUM THICKNESS REQUIRED PER THE GEOTECHNICAL REPORT. FINISH FLOORS MAY INCREASE DEPENDING ON THE TYPE OF SOIL AND FOUNDATION PLAN USED. NOTE THAT THE STRUCTURAL PLANS & GEOTECHNICAL REPORT SHALL SUPERSEDE THE CIVIL IMPROVEMENT PLANS.

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CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

GEOTECHNICAL

AMERICAN SOILS ENGINEERING, LLC
6000 S EASTERN AVE, STE 6-B
LAS VEGAS, NEVADA 89119

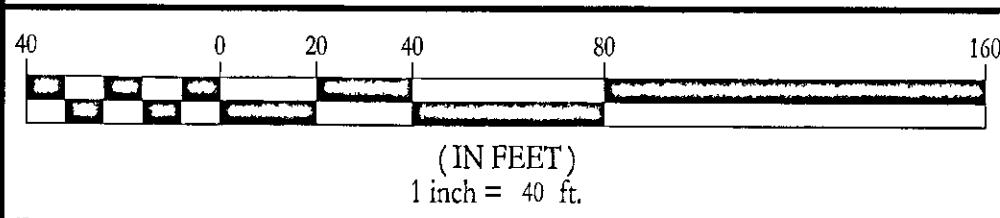
REPORT NO. 1588-GE0
DATE 06/04/12

UTILITY DISCLAIMER NOTE

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CALL BEFORE YOU DIG: 1-800-227-2600
CALL BEFORE YOU OVERHEAD: 1-702-227-2929

SCALE



LEGAL DESCRIPTION

BEING LOT TWO (2) OF THAT CERTAIN CERTIFICATE OF LAND DIVISION ON FILE IN FILE 001, PAGE 0055, RECORDED OCTOBER 11, 2001 IN BOOK 2001/011 AS DOCUMENT NO. 02282, OFFICIAL RECORDS OF THE COUNTY RECORDED, CLARK COUNTY, NEVADA

BASIS OF BEARINGS

NORTH 00°12'00" EAST BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 15, TOWNSHIP 19 SOUTH, RANGE 90 EAST, 10 D.M. CLARK COUNTY, NV AS SHOWN ON FILE 113 OF SURVEYS AT PAGE 92, OFFICIAL RECORDS OF CLARK COUNTY, NEVADA.

BENCHMARK

CLARK COUNTY VERTICAL CONTROL POINT "BLV90 105SW", BEING A CITY OF LAS VEGAS RIVET AND ROUND PLATE IN A CONCRETE CYLINDER, NORTHWEST CORNER OF GRAND TETON DRIVE AND PIONEER WAY NEAR PT OF PIONEER WAY

ELEVATION: 2397.47 (FEET)
730.750 (METERS)

CLARK COUNTY VERTICAL CONTROL V.2003 BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

CONSTRUCTION NOTES

- 24" L-TYPE CURB & GUTTER (USD #216)
- 10" SIDEWALK (USD #224)
- 8" GROSS GUTTER (USD #228)
- 5" SIDEWALK (USD #234)
- AC PAVEMENT OVER TYPE II (PER GEOTECHNICAL REPORT)
- SIDEWALK RAMP USING ARMOR TILE TRUSSED DOMES OR EQUIVALENT (USD #235)
- DEPRESSED CURB
- SAWCUT & MATCH EXISTING AC PAVEMENT
- A-TYPE CURB (USD #219)
- 3.5' DECOMPOSED GRANITE SIDEWALK
- 2.0' CURB OPENING (SEE DETAIL V.2003)
- SIDEWALK UNDERDRAIN (USD #236)
- 2.0' CUTOFF WALL (SEE DETAIL V.2003)
- 6" CONCRETE OVER 6" TYPE II

NO.	DESCRIPTION	REVISIONS	DATE
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2	1"=40'		
3	DRH-12-033		
4	DESIGNED BY: SF		
5	CHECKED BY: RDC		
6	10/3/2012		
7	10/3/2012		
8	10/3/2012		
9	10/3/2012		
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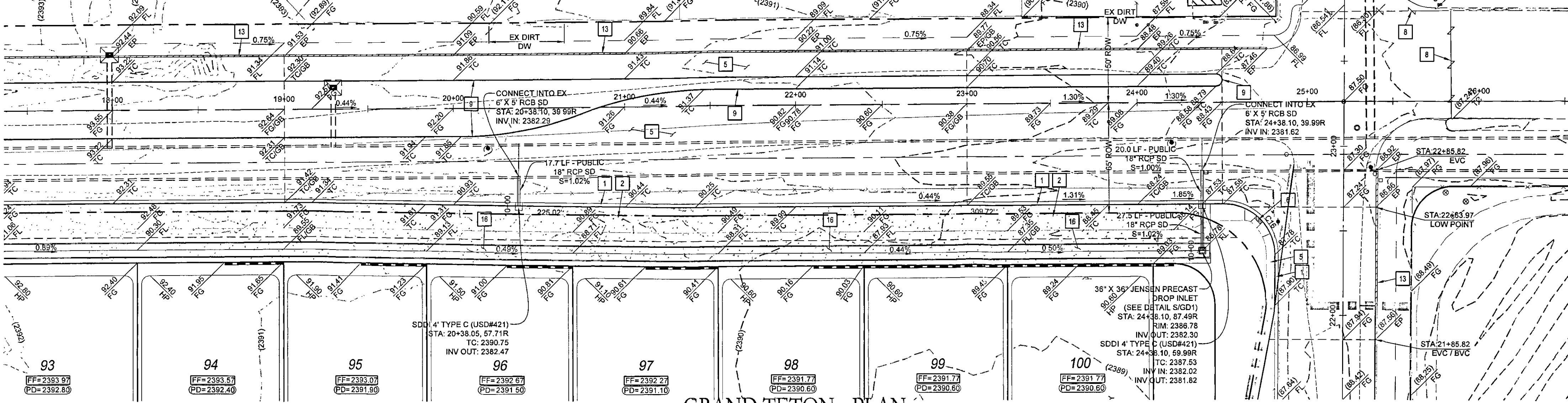
MATCHLINE STA: 17+50
SEE SHEET PP1

MATCHLINE STA: 17+50
SEE SHEET PP1

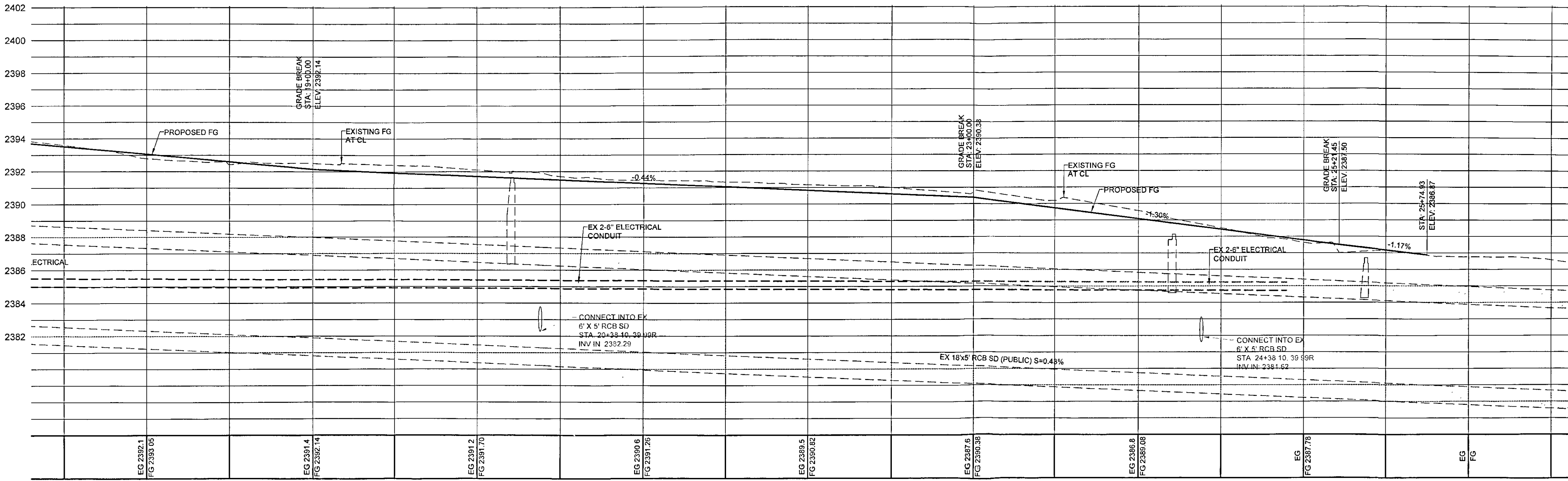
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SEE SHEET PP1

MATCHLINE STA: 17+50
SEE SHEET PP1

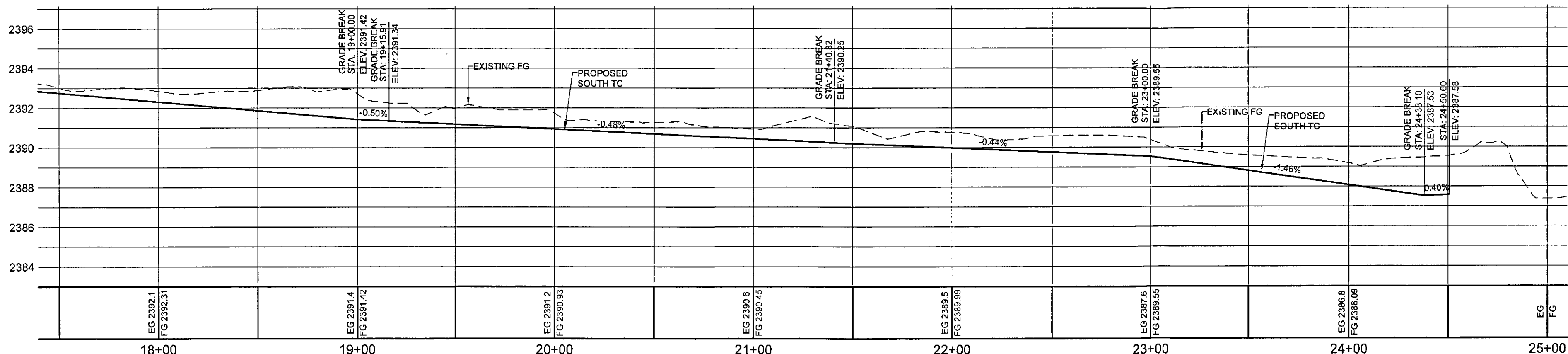
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SEE SHEET PP1



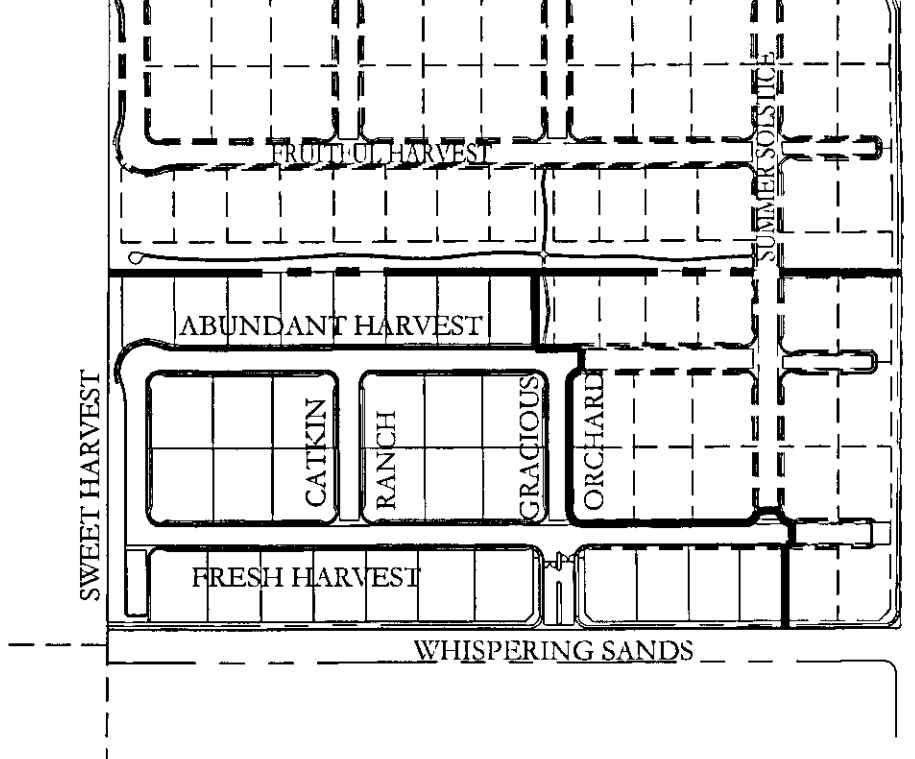
GRAND TETON - PLAN
STA: 17+50 TO 26+50



GRAND TETON CENTERLINE - PROFILE
STA: 17+50 TO 26+50
SCALE: 1"=40' HORIZ., 1"=4' VERT.



GRAND TETON SOUTH TOP OF CURB - PROFILE
STA: 17+50 TO 25+00
SCALE: 1"=40' HORIZ., 1"=4' VERT.



GRADING NOTES

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GEOTECHNICAL

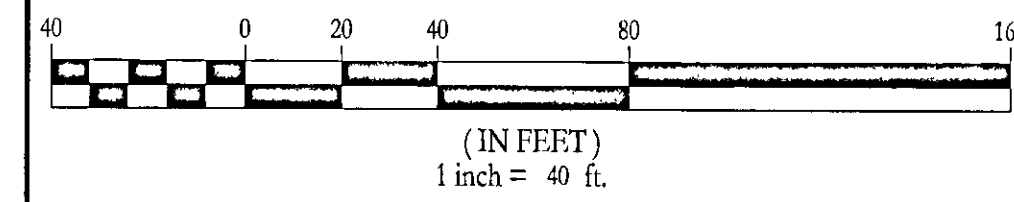
AMERICAN SOILS ENGINEERING, LLC
8000 S EASTERN AVE. STE 6-B
LAS VEGAS, NEVADA 89119

REPORT NO. 1588-GE0
DATE 05/04/12

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SCALE



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BASIS OF BEARINGS

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BENCHMARK

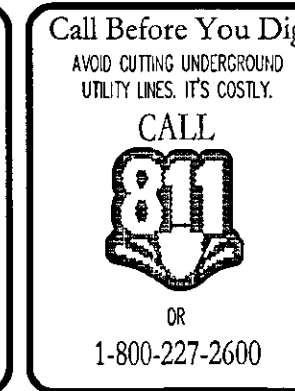
CLARK COUNTY VERTICAL CONTROL POINT "BLV90 10SSW6", BEING A CITY OF LAS VEGAS RIVET AND ROUND PLATE IN A CONCRETE CYLINDER, NORTHWEST CORNER OF GRAND TETON DRIVE AND PIONEER WAY NEAR PT OF PIONEER WAY

ELEVATION: 2397.47 (FEET)
730.750 (METERS)

CLARK COUNTY VERTICAL CONTROL V.2003 BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

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- A-TYPE CURB (USD #219)
- 3" S DECOMPOSED GRANITE SIDEWALK
- 2.0' CURB OPENING (SEE DETAIL M/GD1)
- SIDEWALK UNDERDRAIN (USD#236)
- 2.0' CUTOFF WALL (SEE DETAIL K/GD1)
- 6" CONCRETE OVER 6" TYPE II



This grading plan is a part of drainage study # 4569 which was received on 10/8/12 and 10/16/12. Page 7 of 19

DR HORTON
330 CAROUSEL PKWY
HENDERSON, NV 89014
(702) 635-3400 FAX: (800) 900-4401

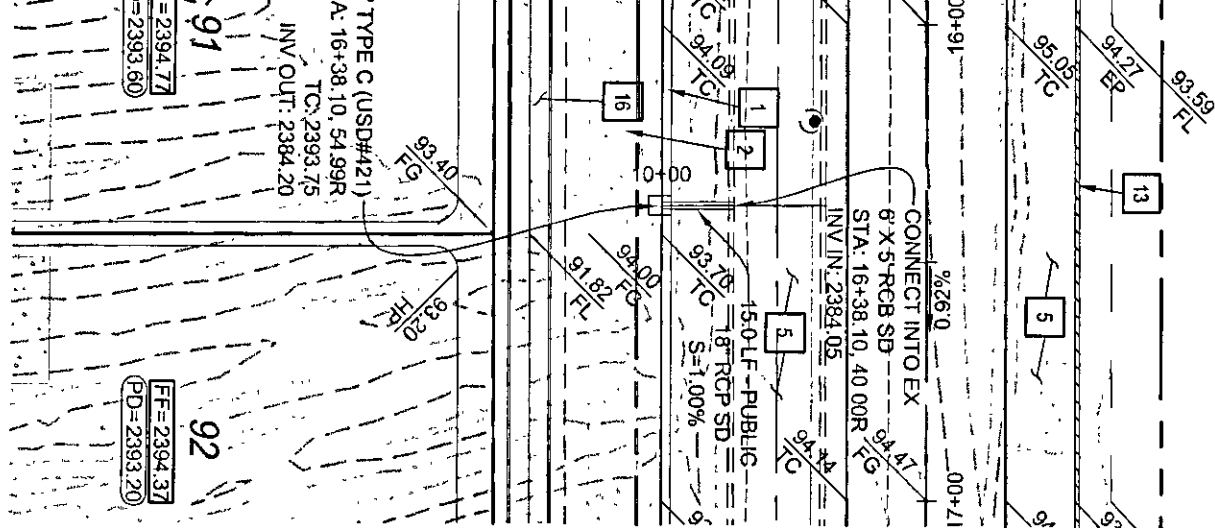
THE ORCHARDS - UNIT 3
@ GRAND TETON & TENAYA
A RESIDENTIAL SUBDIVISION

GRAND TETON STA: 17+50 TO 26+50

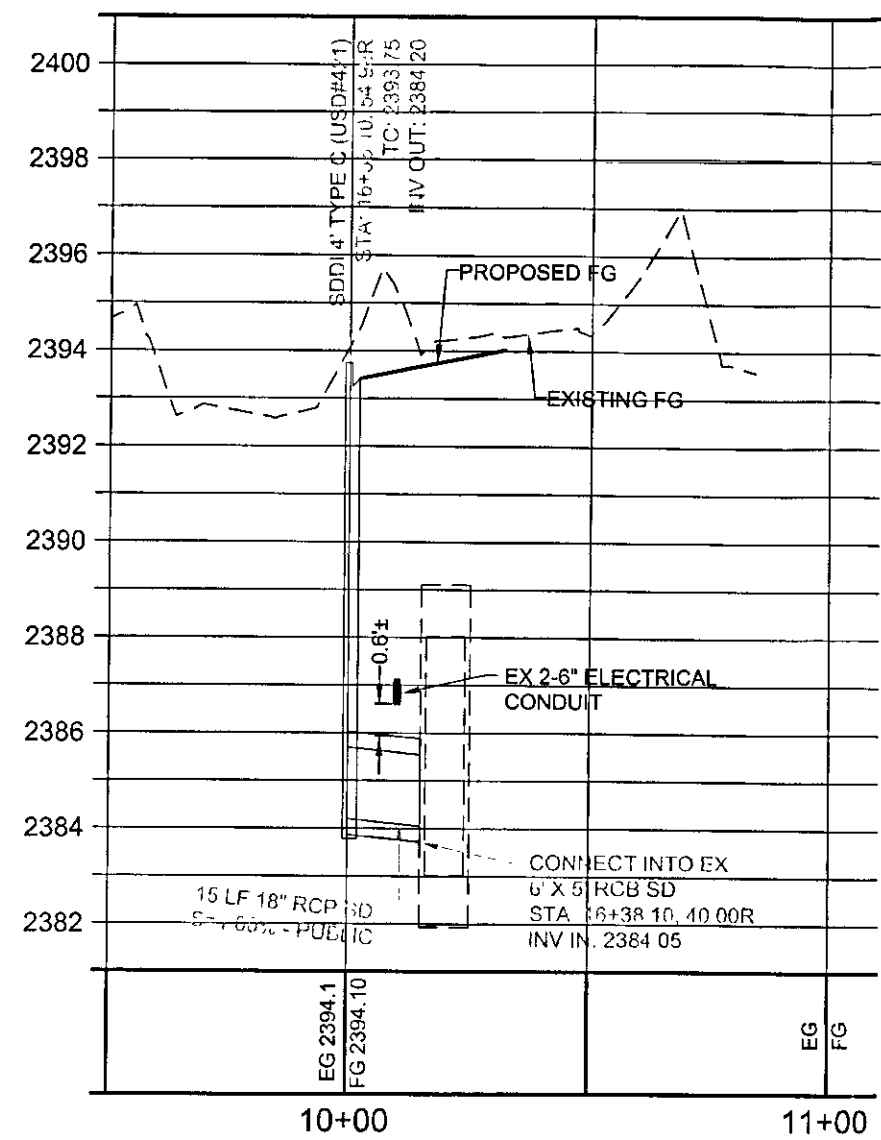
TANEY ENGINEERING
6030 S. JONES BLVD. STE# 100
(702) 635-3400 FAX: (800) 900-4401

ROBERT D. CUNNINGHAM
Exp. 12-31-12
CIVIL
No. 15726
ENGINEER'S SEAL

DATE: 10/3/12
SCALE: 1"=40'
JOB NO: DRH-12-12
DESIGNED BY: [Signature]
CHECKED BY: [Signature]
APPROVED BY: [Signature]

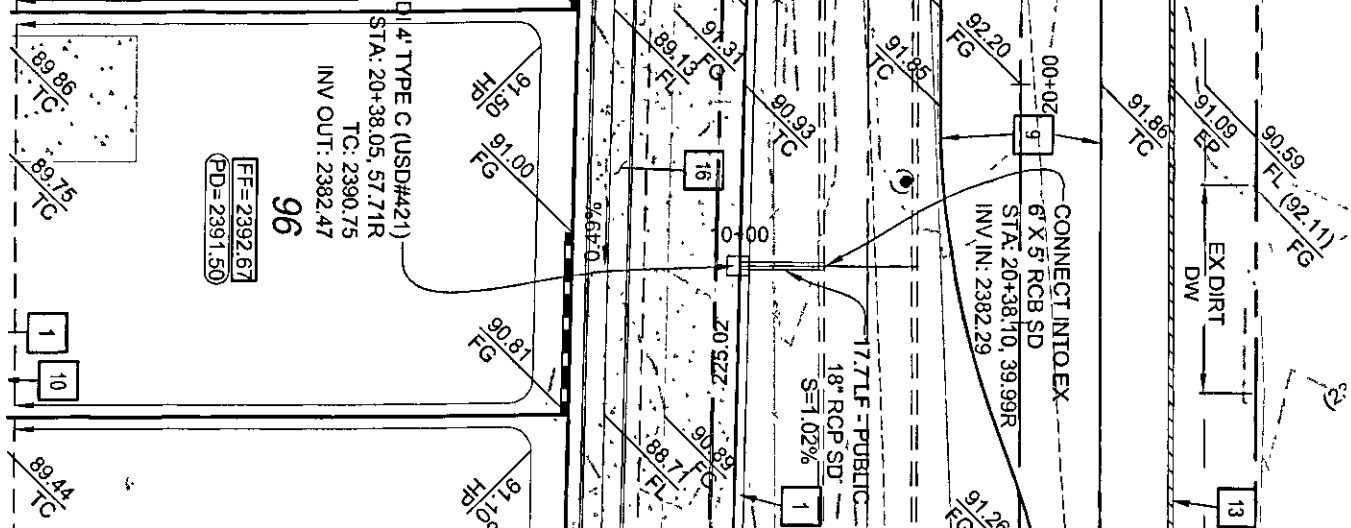


18" RCP SD LATERAL 1 - PLAN

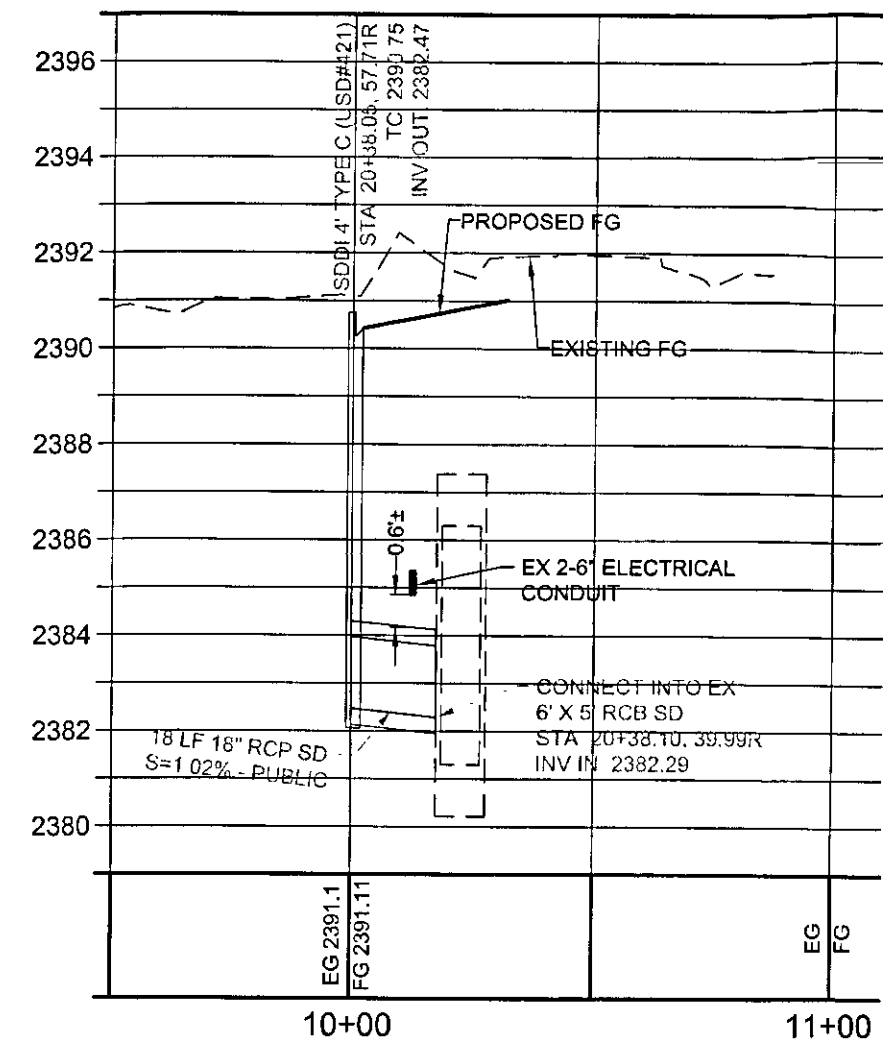


18" RCP SD LATERAL 1 - PROFILE

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

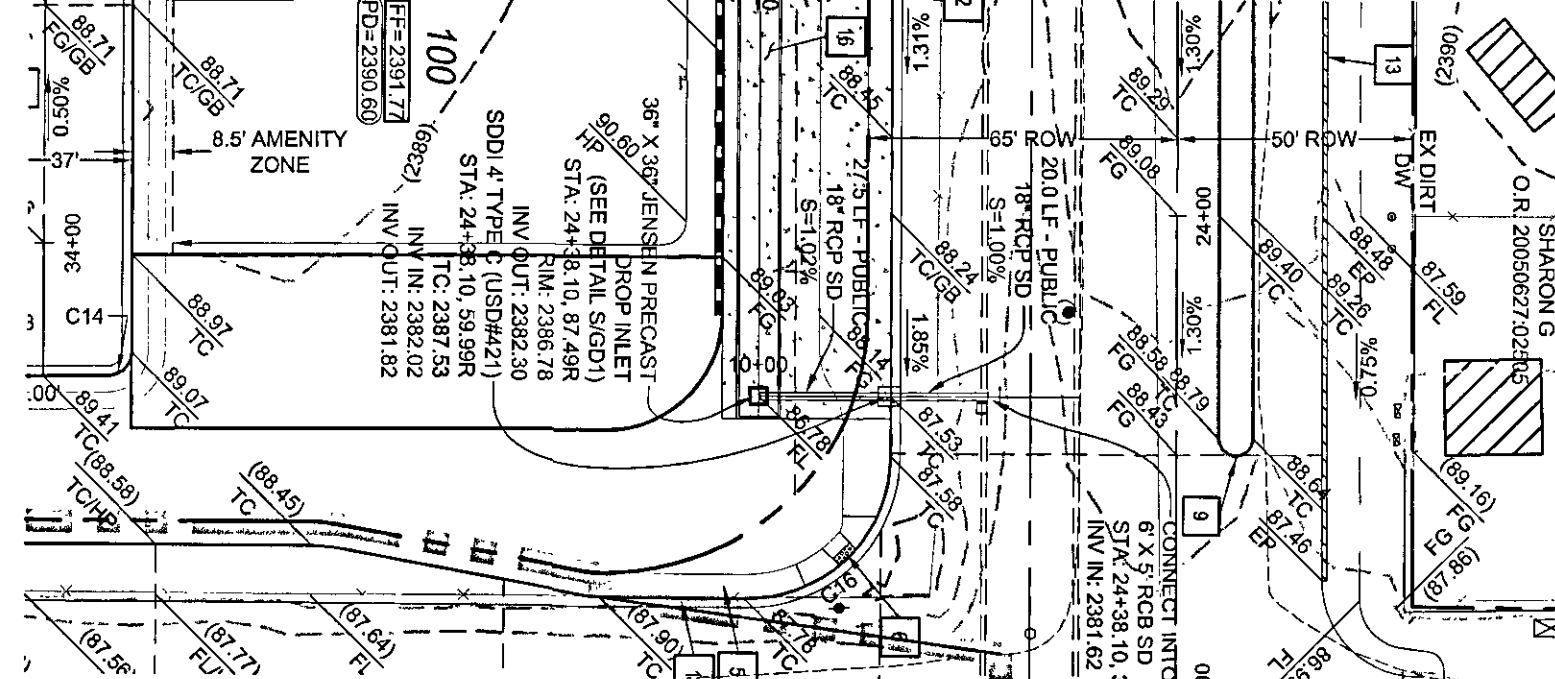


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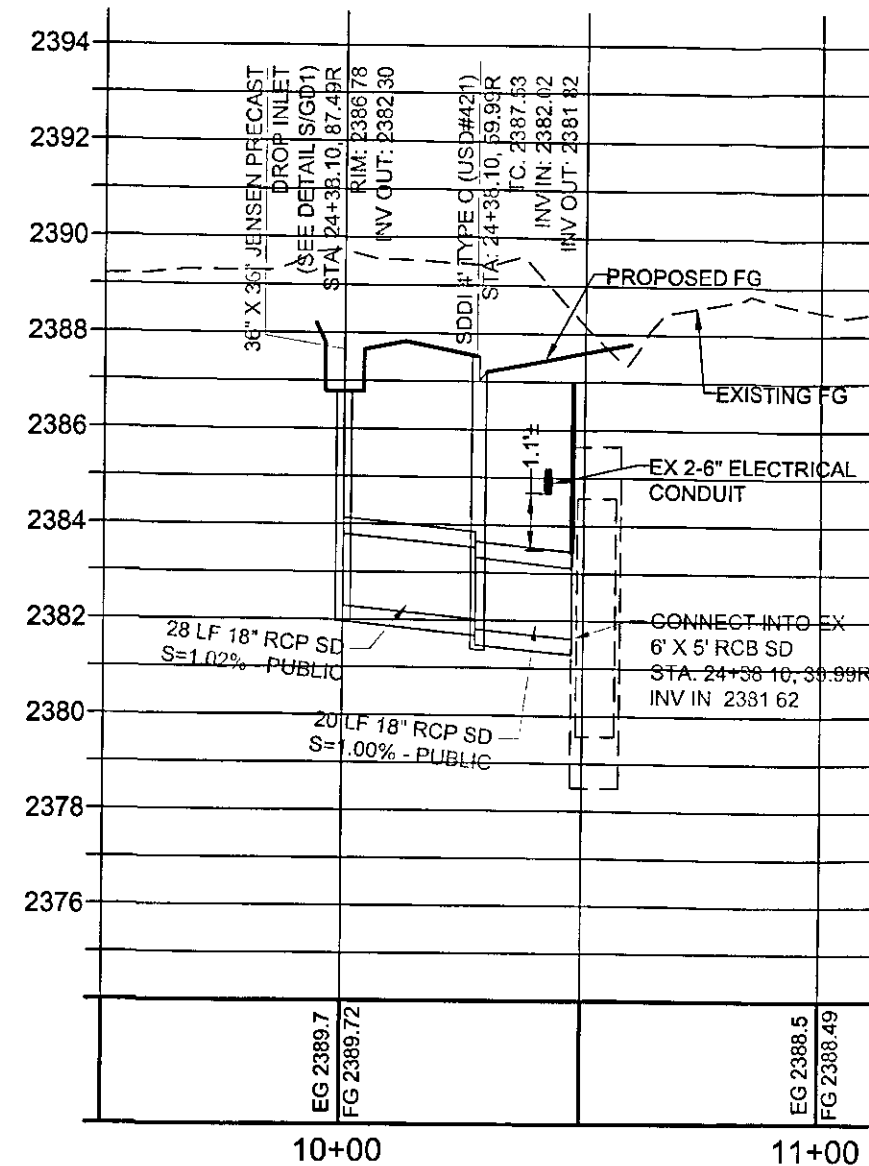


18" RCP SD LATERAL 2 - PROFILE

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



18" RCP SD LATERAL 3 - PLAN



18" RCP SD LATERAL 3 - PROFILE

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

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GEOTECHNICAL

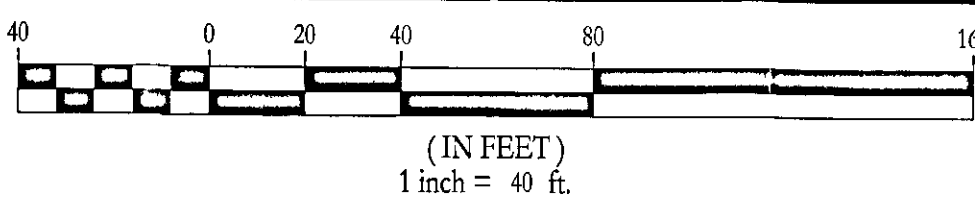
AMERICAN SOILS ENGINEERING, LLC
6000 S EASTERN AVE. STE 6-B
LAS VEGAS, NEVADA 89119

REPORT NO: 1588-GE0
DATE 06/04/12

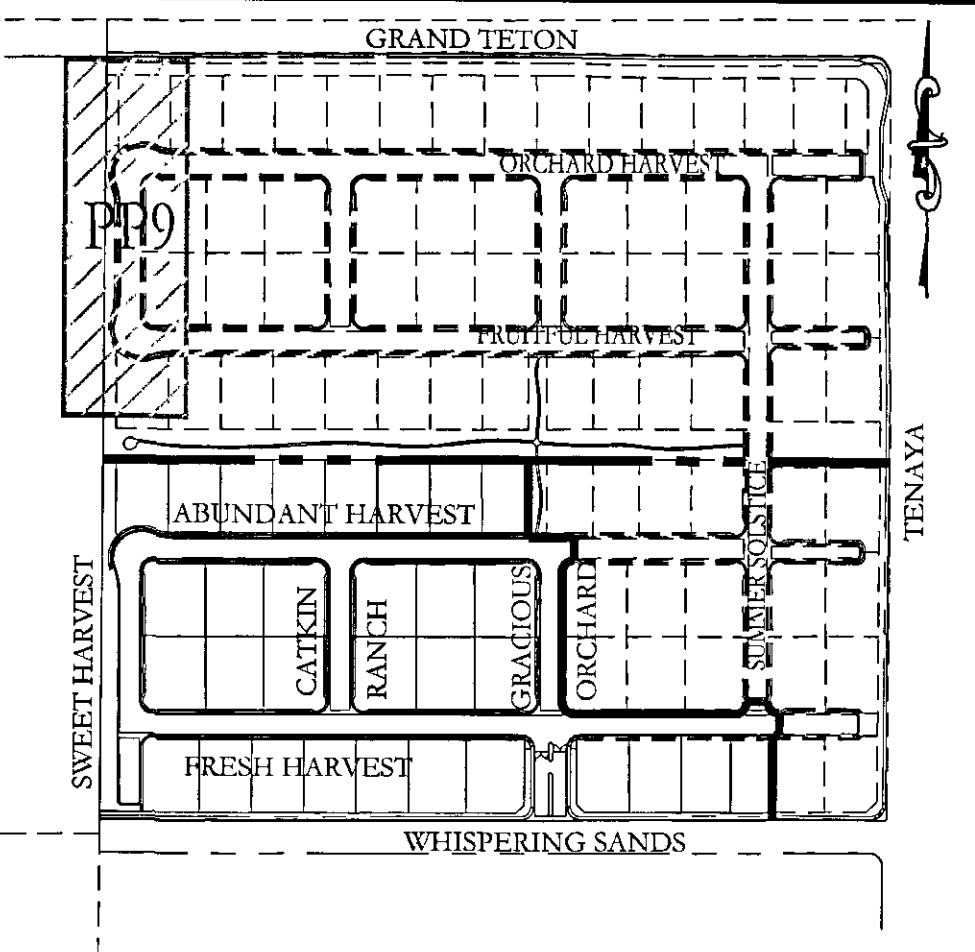
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CALL BEFORE YOU DIG: 1-800-227-2600
CALL BEFORE YOU OVERHEAD: 1-702-227-2929

SCALE



KEY MAP



LEGAL DESCRIPTION

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BENCHMARK

CLARK COUNTY VERTICAL CONTROL POINT "BLV90 10SSW6", BEING A CITY OF LAS VEGAS RIVET AND ROUND PLATE IN A CONCRETE CYLINDER, NORTHWEST CORNER OF GRAND TETON DRIVE AND PIONEER WAY NEAR PT OF PIONEER WAY

ELEVATION: 2397.47 (FEET)
730.750 (METERS)

CLARK COUNTY VERTICAL CONTROL V.2003 BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

CONSTRUCTION NOTES

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- SAWCUT & MATCH EXISTING AC PAVEMENT
- A-TYPE CURB (USD #219)
- 3' DECOMPOSED GRANITE SIDEWALK
- 2' CURB OPENING (SEE DETAIL W301)
- SIDEWALK UNDERDRAIN (USD#236)
- 2' CUTOFF WALL (SEE DETAIL KIGD1)
- 6" CONCRETE OVER 6" TYPE II

This grading plan is a part of drainage study project #4569 which was received on 10/9/12 and 10/18/12. Page 6 of 14

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.

CALL BEFORE YOU DO OVERHEAD

1-702-227-2929

Call Before You Dig

AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.

CALL

811

OR

1-800-227-2600

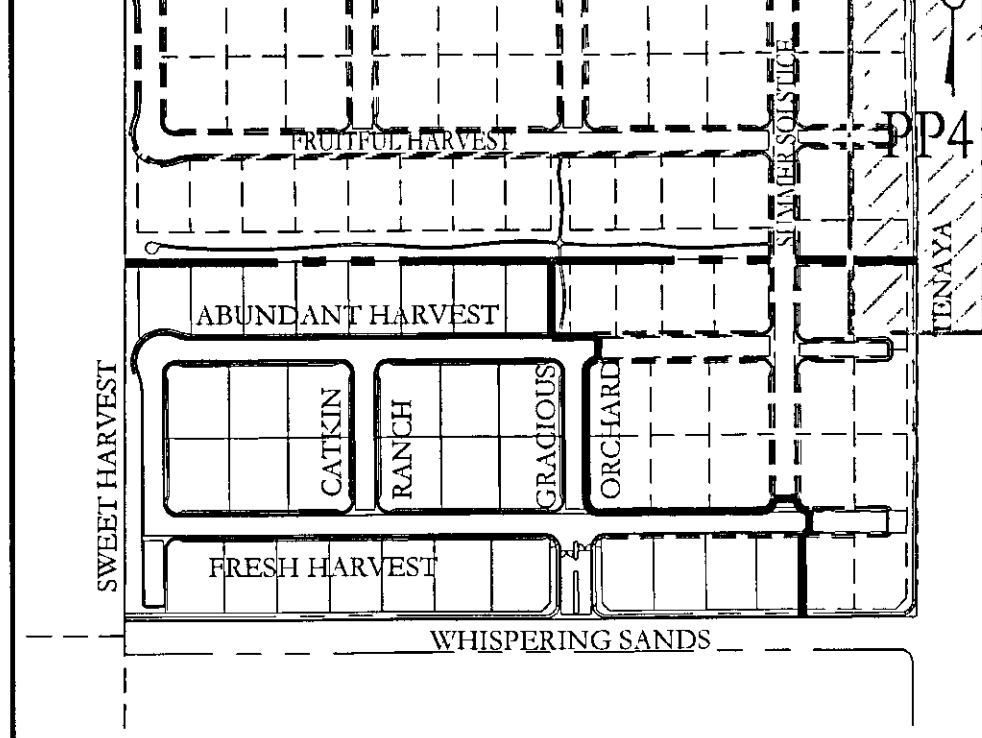
DR HORTON
337 CROSSLAND PKWY
HENDERSON, NV 89014
(702) 635-5560 FAX: (800) 990-4601

Taney Engineering

THE ORCHARDS - UNIT 3
@ GRAND TETON & TENAYA
A RESIDENTIAL SUBDIVISION

REGISTERED PROFESSIONAL ENGINEER
ROBERT D. CUNNINGHAM
Exp. 12-31-12
CIVIL
No. 15726
ENGINEER'S SEAL

DATE: 10/3/12
SCALE: 1"
JOB NO: DRH-12
DESIGNED BY:
CHECKED BY: P
SHEET NAME: drainage study project #4569
SHEET NO: 6
DATE: 10/18/12
Page 6 of 14



ADD 2300 FEET TO ALL GRADE TAGS TO GET ACTUAL ELEVATION.

GEOTECHNICAL

UTILITY DISCLAIMER NOTE

SCALE



BEING LOT TWO (2) OF THAT CERTAIN CERTIFICATE OF LAND DIVISION ON FILE IN FILE 001, PAGE 0055, RECORDED OCTOBER 11, 2001 IN BOOK 20011011 AS DOCUMENT NO 02282, OFFICIAL RECORDS OF THE COUNTY RECORDED, CLARK COUNTY, NEVADA

NORTH 00°12'00" EAST BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE $\frac{1}{4}$) OF THE NORTHWEST QUARTER (NW $\frac{1}{4}$) OF SECTION 15, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M. CLARK COUNTY, NV AS SHOWN ON FILE 113 OF SURVEYS AT PAGE 92, OFFICIAL RECORDS OF CLARK COUNTY, NEVADA.

CLARK COUNTY VERTICAL CONTROL POINT "BLV90 10SSW6", BEING A CITY OF LAS VEGAS RIVET AND ROUND PLATE IN A CONCRETE CYLINDER, NORTHWEST CORNER OF GRAND TETON DRIVE AND PIONEER WAY NEAR PT OF PIONEER WAY

ELEVATION: 2397.47 (FEET)
730 750 (METERS)

CLARK COUNTY VERTICAL CONTROL V.2003 BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

- 1----- 24" L-TYPE CURB & GUTTER (USD #215)
- 2----- 10" SIDEWALK (USD #234)
- 3----- 8" CROSS GUTTER (USD #228)
- 4----- 5.0' SIDEWALK (USD #234)
- 5----- C/A PAVEMENT OVER TYPE II (PER GEOTECHNICAL REPORT)
- 6----- SIDEWALK RAMP USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT (USD #235)
- 7----- DEPRESSED CURB
- 8----- SAWCUT & MATCH EXISTING C/A PAVEMENT
- 9----- A-TYPE CURB (USD #219)
- 10----- 3.5' DECOMPOSED GRANITE SIDEWALK
- 11----- 2" CURB CURBING (SEE DETAIL M/GD1)
- 12----- SIDEWALK UNDERDRAIN (USD #236)
- 13----- 2" CUTOFF WALF (SEE DETAIL K/GD1)
- 14----- 6" CONCRETE OVER 6" TYPE II

DR. HORTON
330 CAROUSEL PKWY
HENDERSON, NV 89014
(702) 635-3600 FAX: (800) 909-4601

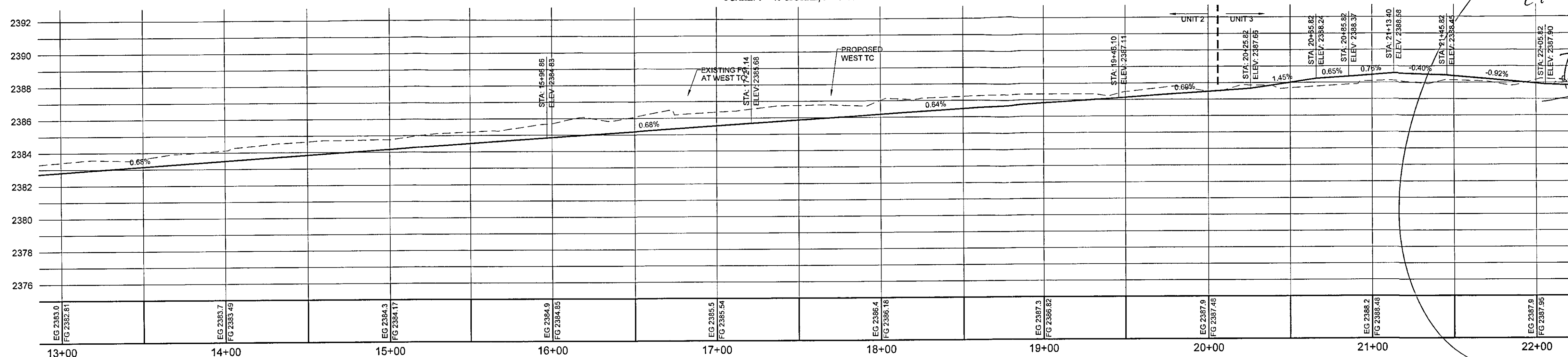
THE ORCHARDS - UNIT 3
@ GRAND TETON & TENAYA
A RESIDENTIAL SUBDIVISION

TENAYA WAY STA:15+00 TO 24+00



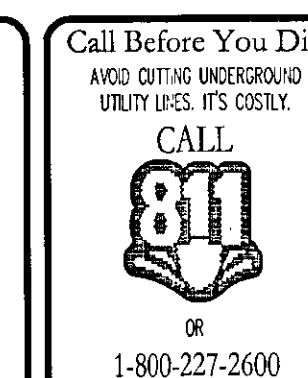
STA: 15+00 TO 24+00

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

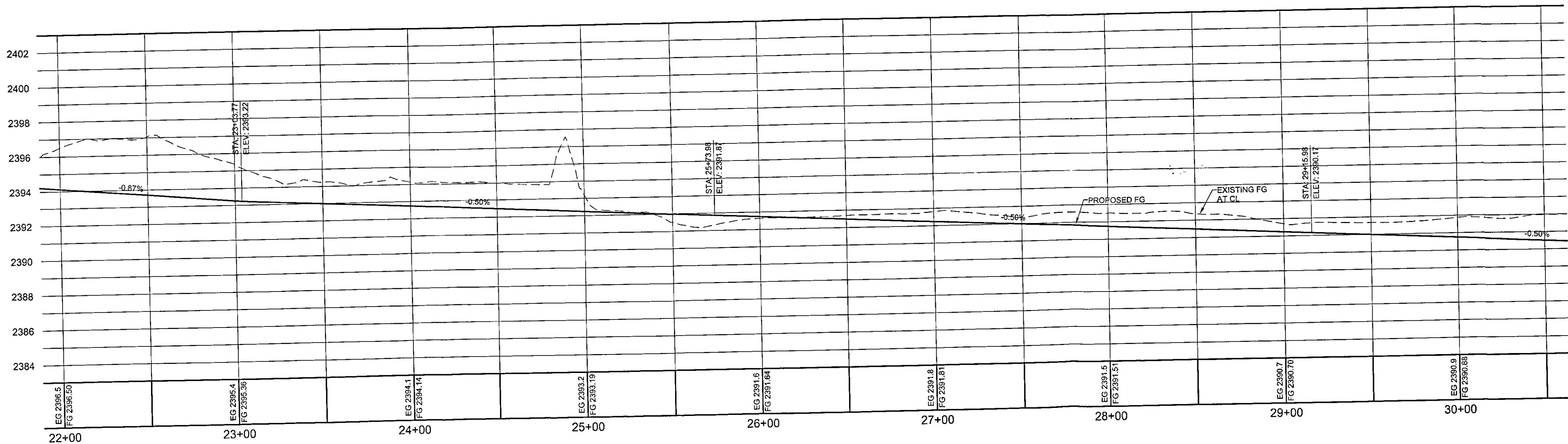
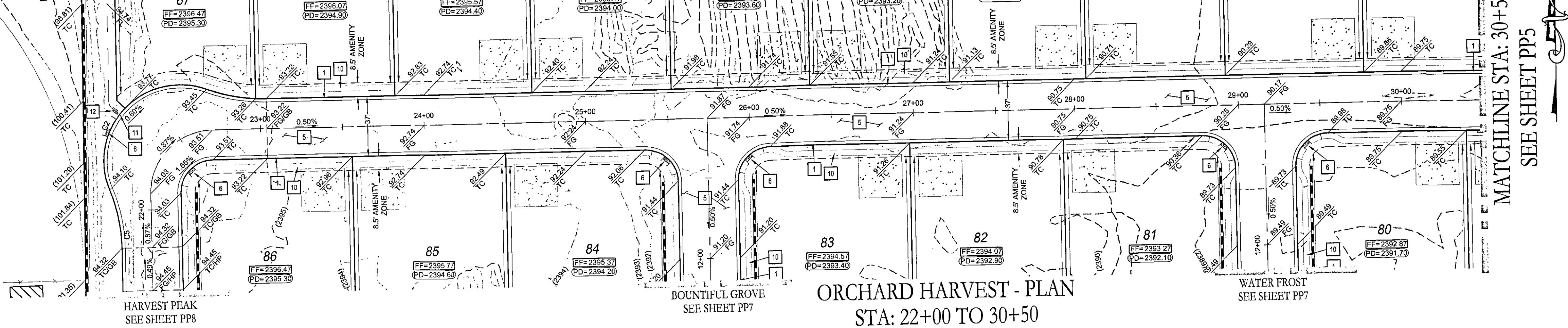
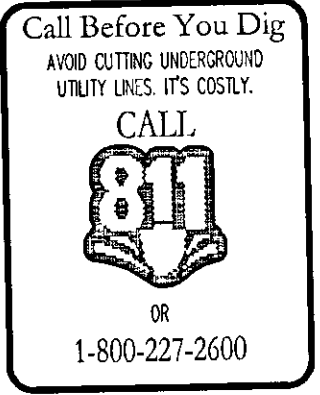


STA: 15+00 TO 26+00

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



This grading plan is a
 part of drainage study
 \$69 which was received
 on 10/8/12 and Rjo-hl on
 ~ Page 9 of 14



ORCHARD HARVEST - PROFILE
STA: 22+00 TO 30+50
SCALE: 1"=40' HORIZ., 1"=4' VERT.



GRADING NOTES

ADD 2300 FEET TO ALL GRADE TAGS TO GET ACTUAL ELEVATION.

THE ELEVATION DIFFERENCE BETWEEN THE PAD AND FINISH FLOOR IS DETERMINED FROM THE MINIMUM THICKNESS REQUIRED PER THE GEOTECHNICAL REPORT. FINISH FLOORS MAY INCREASE DEPENDING ON THE TYPE OF SOIL AND FOUNDATION PLAN USED. NOTE THAT THE STRUCTURAL PLANS & GEOTECHNICAL REPORT SHALL SUPERSEDE THE CIVIL IMPROVEMENT PLANS.

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CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

GEOTECHNICAL

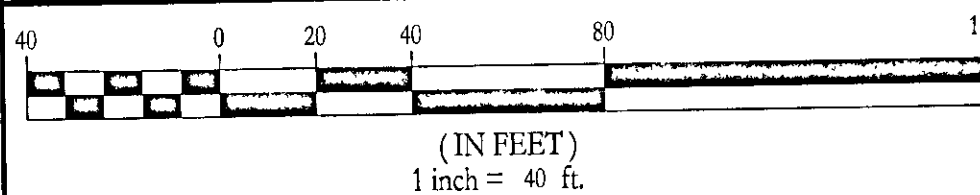
AMERICAN SOILS ENGINEERING, LLC
6000 S EASTERN AVE, STE 6-B
LAS VEGAS, NEVADA 89119

REPORT NO: 1588-GE0
DATE 06/04/12

UTILITY DISCLAIMER NOTE

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CALL BEFORE YOU OVERHEAD: 1-702-227-2929

SCALE



LEGAL DESCRIPTION

BEING LOT TWO (2) OF THAT CERTAIN CERTIFICATE OF LAND DIVISION ON FILE IN FILE 001, PAGE 0055, RECORDED OCTOBER 11, 2001 IN BOOK 20011011 AS DOCUMENT NO 02282, OFFICIAL RECORDS OF THE COUNTY RECORDED, CLARK COUNTY, NEVADA

BASIS OF BEARINGS

NORTH 00°12'00" EAST BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 15, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M. CLARK COUNTY, NV AS SHOWN ON FILE 113 OF SURVEYS AT PAGE 92, OFFICIAL RECORDS OF CLARK COUNTY, NEVADA.

BENCHMARK

CLARK COUNTY VERTICAL CONTROL POINT "BLV90 10SSW6", BEING A CITY OF LAS VEGAS RIVET AND ROUND PLATE IN A CONCRETE CYLINDER, NORTHWEST CORNER OF GRAND TETON DRIVE AND PIONEER WAY NEAR PT OF PIONEER WAY

ELEVATION: 2397.47 (FEET)
730.750 (METERS)

CLARK COUNTY VERTICAL CONTROL V.2003 BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

CONSTRUCTION NOTES

1. 24" L-TYPE CURB & GUTTER (USD #216)
2. 10" SIDEWALK (USD #234)
3. 8" CROSS GUTTER (USD #228)
4. 5" SIDEWALK (USD #234)
5. AC PAVEMENT OVER TYPE II (PER GEOTECHNICAL REPORT)
6. SIDEWALK RAMP USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT (USD #235)
7. DEPRESSED CURB
8. SAWCUT & MATCH EXISTING AC PAVEMENT
9. A-TYPE CURB (USD #219)
10. 3.5" DECOMPOSED GRANITE SIDEWALK
11. 2" CURB OPENING (SEE DETAIL M/GD1)
12. SIDEWALK UNDERDRAIN (USD#236)
13. 2" CUTOFF WALL (SEE DETAIL K/GD1)
14. 6" CONCRETE OVER 6" TYPE II

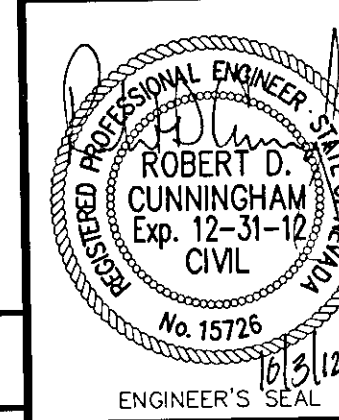
This grading plan is a part of drainage study PE 4569 which was received on 10/19/12 and 10/18/12. Page 10 of 14

DR HORTON
30 CAROUSEL PKWY
HENDERSON NV 89014
(702) 655-5000 FAX: (800) 909-4601

TANER ENGINEERING
6000 S EASTERN AVE STE 100
LAS VEGAS NV 89118
(702) 362-8844 FAX: (702) 362-5733

THE ORCHARDS - UNIT 3
@ GRAND TETON & TENAYA
A RESIDENTIAL SUBDIVISION

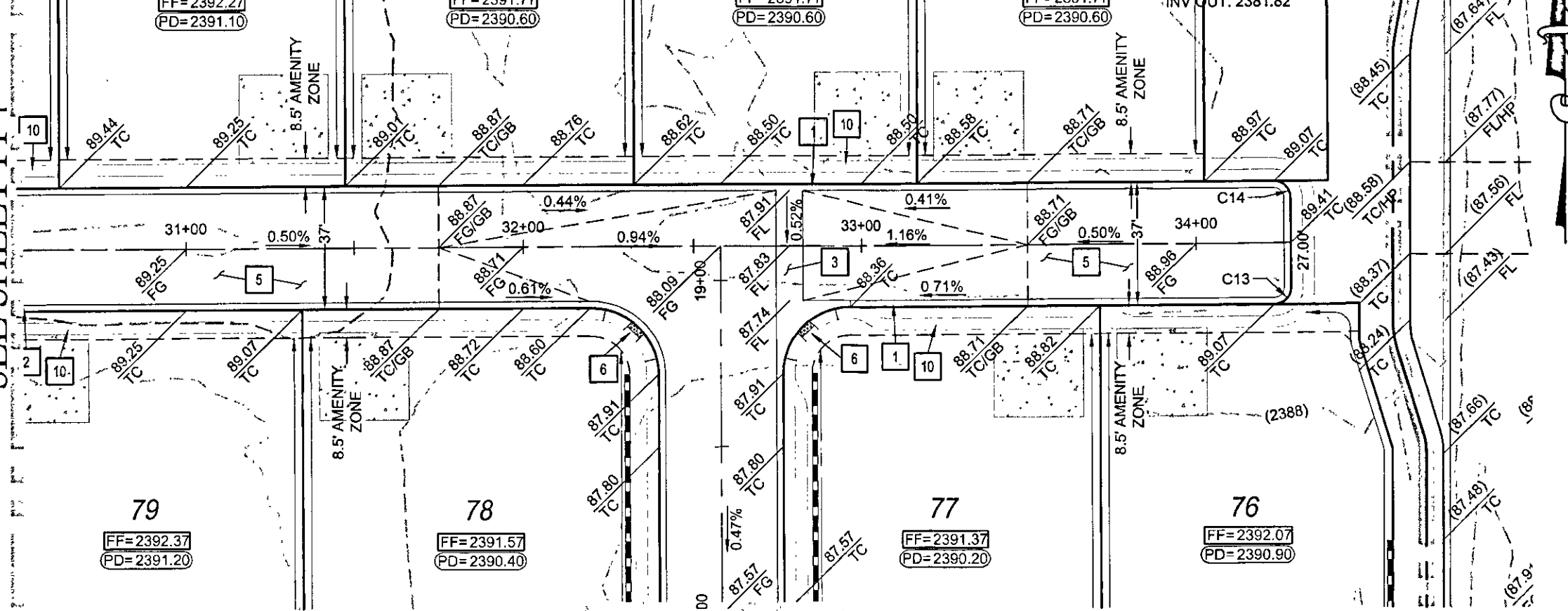
ORCHARD HARVEST STA: 22+00 TO 30+50
BY AN AND DR PROJECT



DATE: 10/3/12
SCALE: 1"=40'
JOB NO: DRH-12-001
DESIGNED BY: R
CHECKED BY: R
This grading plan is a part of drainage study PE 4569 which was received on 10/19/12 and 10/18/12. Page 10 of 14

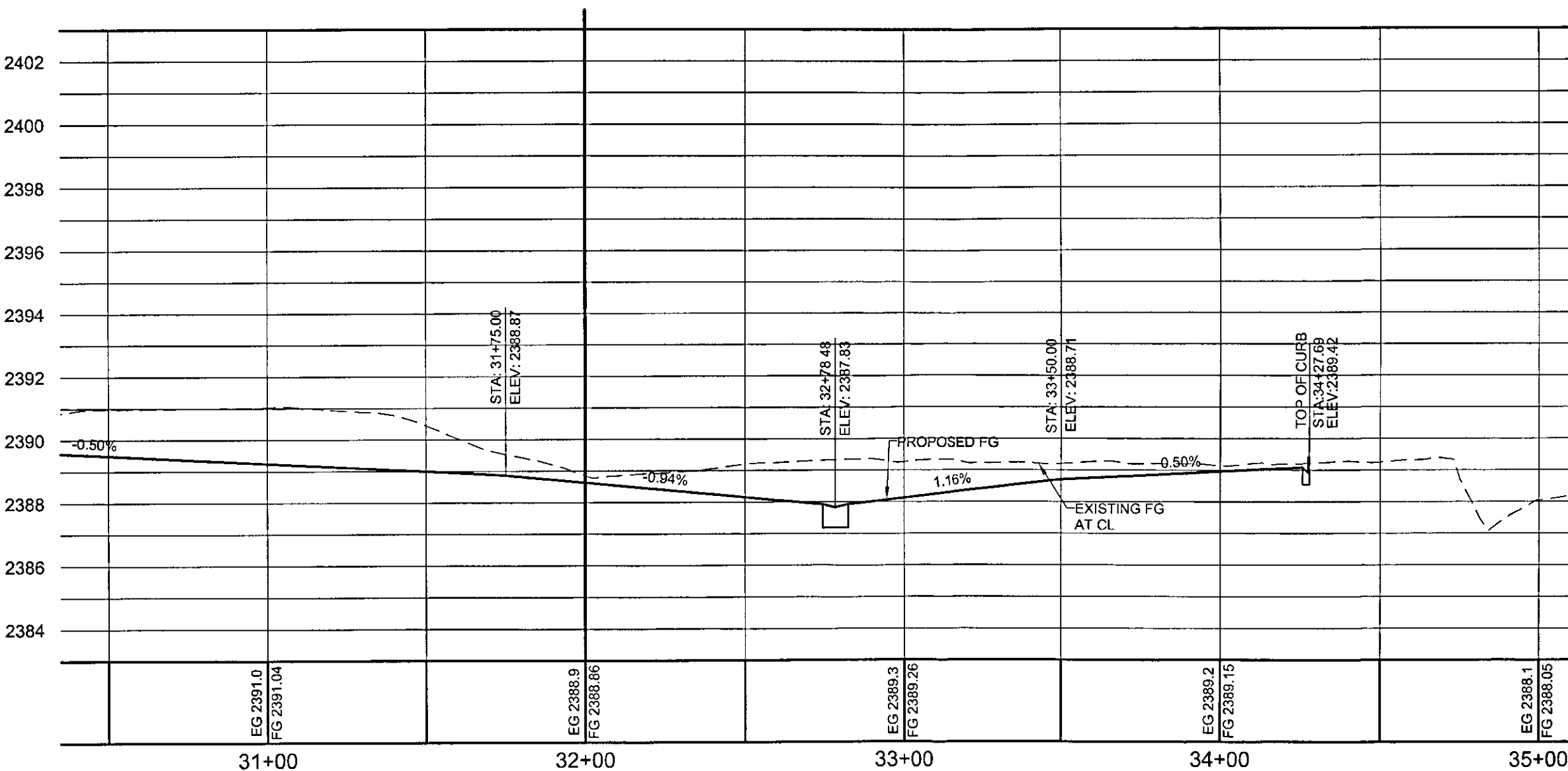
MATCHLINE STA: 30+50

SEE SHEET PP4

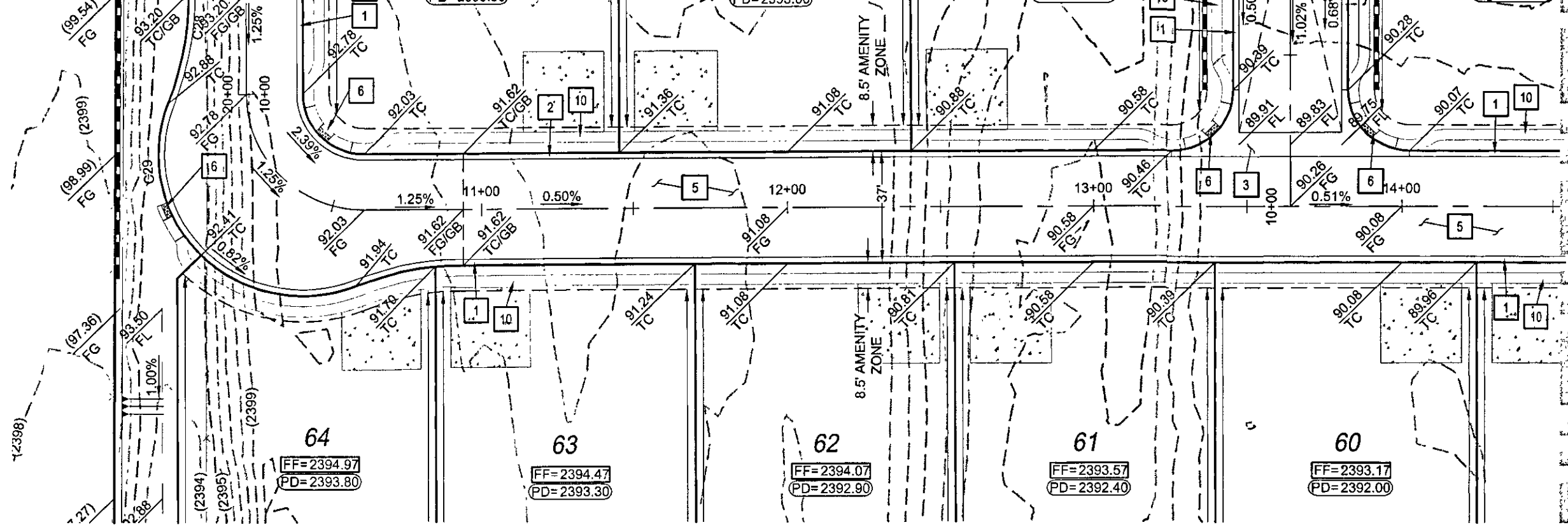
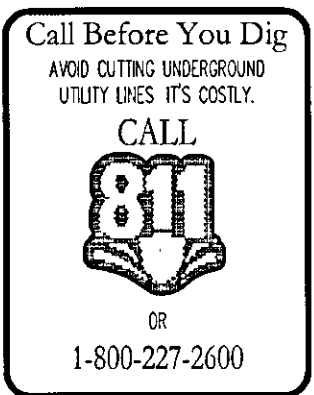


SUMMER SOLSTICE
SEE SHEET PP6

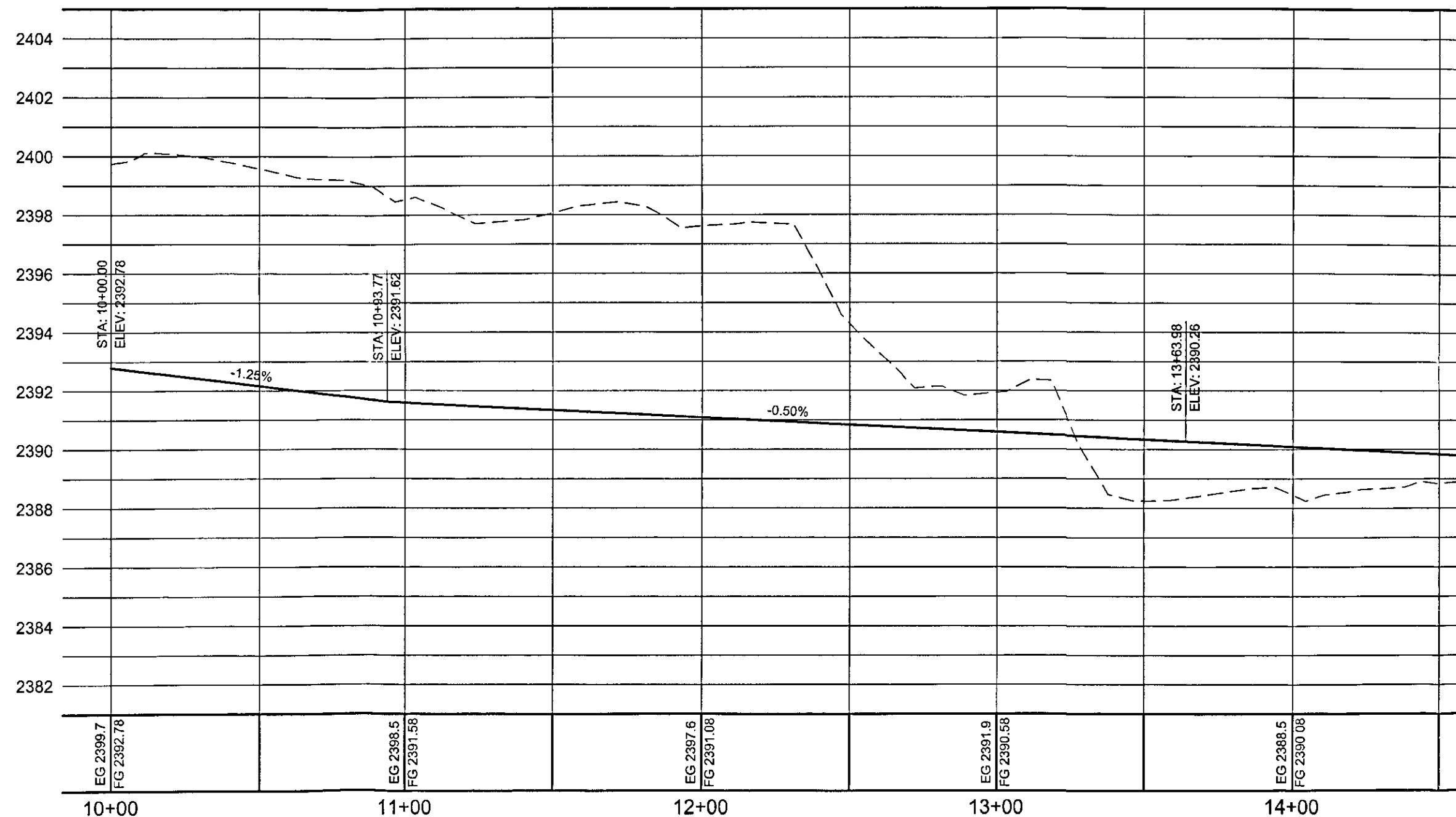
ORCHARD HARVEST - PLAN
STA: 30+50 TO 35+00



ORCHARD HARVEST - PROFILE
STA: 30+50 TO 35+00
SCALE: 1"=40' HORIZ, 1"=4' VERT.

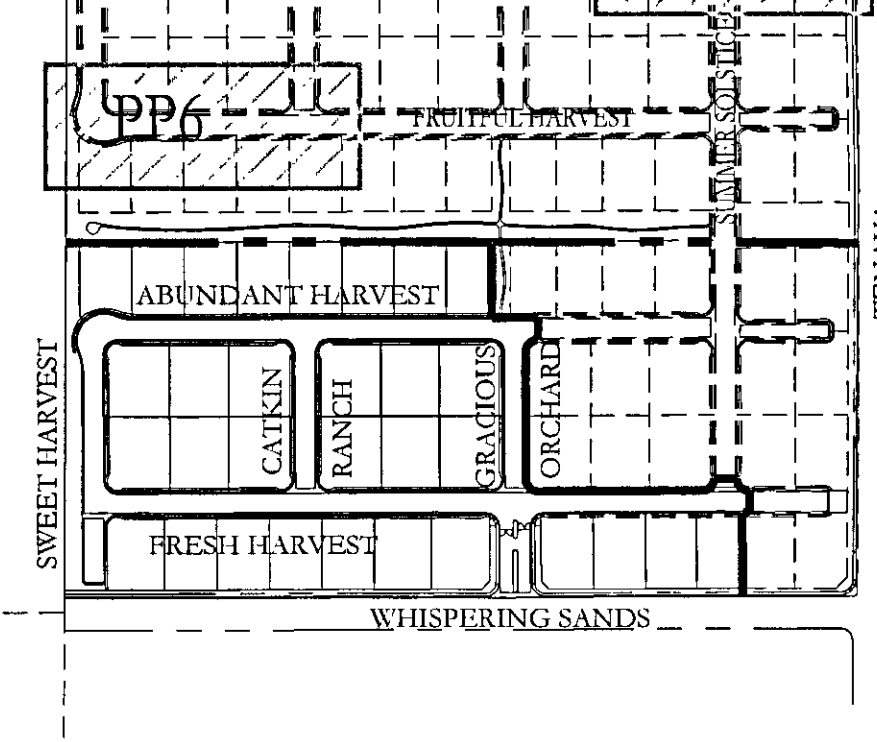


FRUITFUL HARVEST - PLAN
STA: 10+00 TO 14+50



FRUITFUL HARVEST - PROFILE
STA: 10+00 TO 14+50
SCALE: 1"=40' HORIZ, 1"=4' VERT.

MATCHLINE STA: 14+50
SEE SHEET PP6



GRADING NOTES

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GEOTECHNICAL

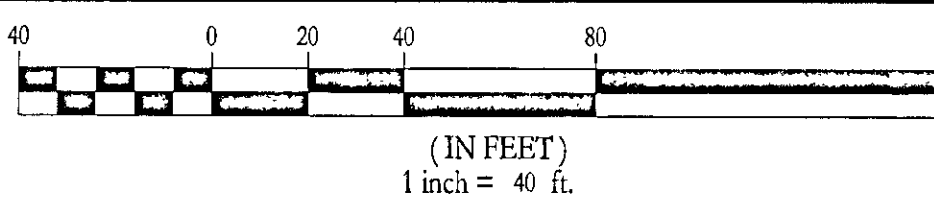
AMERICAN SOILS ENGINEERING, LLC
6000 S EASTERN AVE, STE 6-B
LAS VEGAS, NEVADA 89119

REPORT NO: 1588-GE0
DATE 05/04/12

UTILITY DISCLAIMER NOTE

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SCALE



LEGAL DESCRIPTION

BEING LOT TWO (2) OF THAT CERTAIN CERTIFICATE OF LAND DIVISION ON FILE IN FILE 001, PAGE 0056, RECORDED OCTOBER 11, 2001 IN BOOK 20011011 AS DOCUMENT NO 02282, OFFICIAL RECORDS OF THE COUNTY RECORDED, CLARK COUNTY, NEVADA

BASIS OF BEARINGS

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BENCHMARK

CLARK COUNTY VERTICAL CONTROL POINT "BLVS0 10SSWS" BEING A CITY OF LAS VEGAS RIVET AND ROUND PLATE IN A CONCRETE CYLINDER, NORTHWEST CORNER OF GRAND TETON DRIVE AND PIONEER WAY NEAR PT OF PIONEER WAY

ELEVATION: 2397.47 (FEET)
730.750 (METERS)

CLARK COUNTY VERTICAL CONTROL V.2003 BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

CONSTRUCTION NOTES

1. 24" L-TYPE CURB & GUTTER (USD #216)
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11. 2.0' CURB OPENING (SEE DETAIL MGD1)
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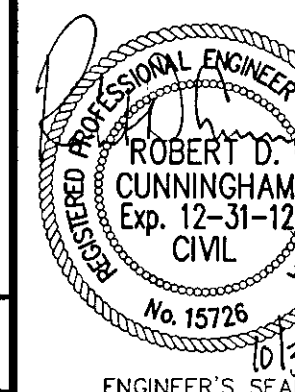
This grading plan is a part of drainage study #4569 which was received on 10/19/12 and filed on 10/18/12 Page 1 of 17

DR HORTON
300 CAROLSET PARK
HENDERSON NV 89014
(702) 635-3600 FAX: (800) 999-4601

TANEY ENGINEERING
6093 S JONES BLVD STE# 100
LAS VEGAS NV 89119
(702) 635-3600

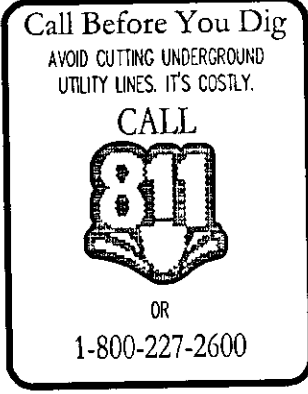
THE ORCHARDS - UNIT 3
@ GRAND TETON & TENAYA
A RESIDENTIAL SUBDIVISION

ORCHARD HARVEST STA:30+50 TO 35+00
& FRUITFUL HARVEST STA:10+00 TO 14+50

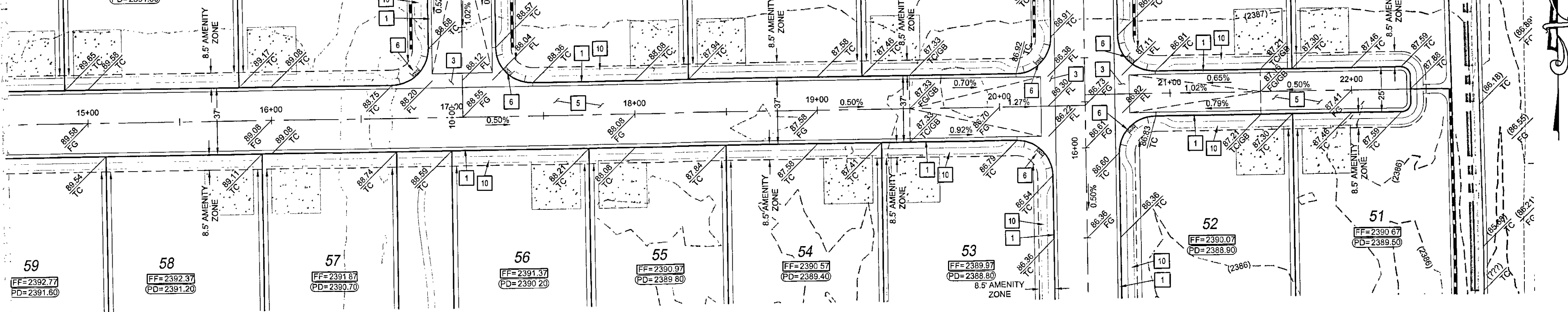


DATE: 10/3/2012
SCALE: 1"=40'
JOB NO: DRH-12-001
DESIGNED BY: RDR
CHECKED BY: RDR

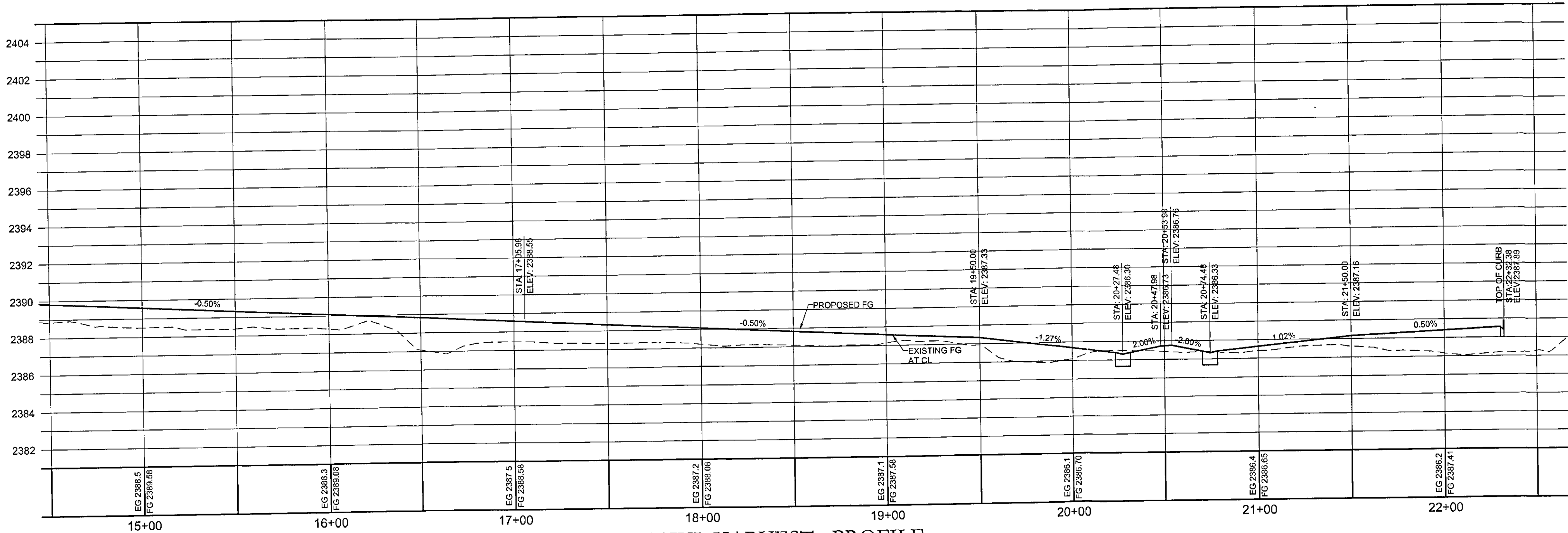
FILE NAME: 06 PP1.DWG



MATCHLINE STA: 14+50
SEE SHEET PP5



FRUITFUL HARVEST - PLAN
STA: 14+50 TO 22+50



FRUITFUL HARVEST - PROFILE
STA: 14+50 TO 22+50
SCALE: 1"=40' HORIZ., 1"=4' VERT.



GRADING NOTES

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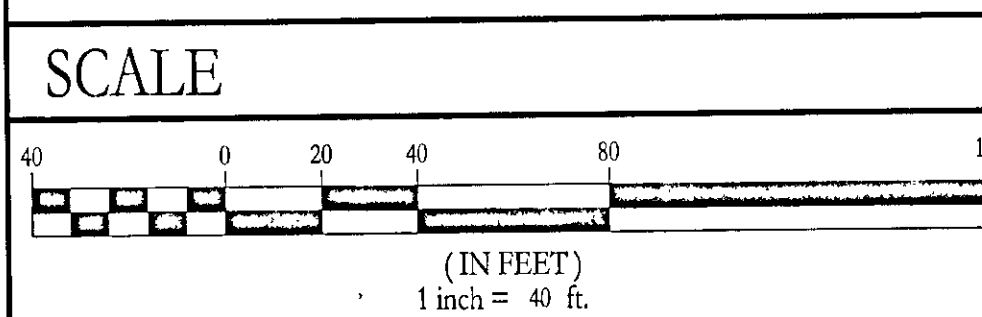
GEOTECHNICAL

AMERICAN SOILS ENGINEERING, LLC
6000 S EASTERN AVE, STE 6-B
LAS VEGAS, NEVADA 89119

REPORT NO: 1588-GE0
DATE 06/04/12

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BENCHMARK

CLARK COUNTY VERTICAL CONTROL POINT "BLV30 10SSW6" BEING A CITY OF LAS VEGAS RIVET AND ROUND PLATE IN A CONCRETE CYLINDER, NORTHWEST CORNER OF GRAND TETON DRIVE AND PIONEER WAY NEAR PT OF PIONEER WAY

ELEVATION: 2397.47 (FEET)
730.750 (METERS)

CLARK COUNTY VERTICAL CONTROL V.2003 BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

- CONSTRUCTION NOTES**
- 24" L-TYPE CURB & GUTTER (USD #216)
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 - 6" CONCRETE OVER 6" TYPE II

DR HORTON
330 CAROUSEL PKWY
HENDERSON, NV 89014
(702) 635-5600 FAX: (800) 909-4001

Taney Engineering
6030 S. JONES BLVD STE# 100
LAS VEGAS, NV 89118
(702) 635-5600 FAX: (800) 909-4001

THE ORCHARDS - UNIT 3
@ GRAND TETON & TENAYA
A RESIDENTIAL SUBDIVISION

FRUITFUL HARVEST STA: 14+50 TO 22+50

DATE: 10/3/12
SCALE: 1"=40'
JOB NO: DRH-12-001
DESIGNED BY: [Signature]
CHECKED BY: [Signature]

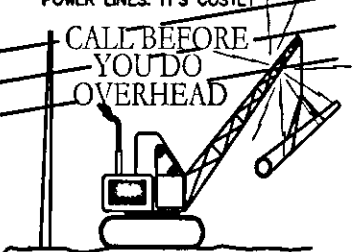
ROBERT D. CUNNINGHAM
Exp. 12-31-12
CIVIL
No. 15726
ENGINEER'S SEAL

This grading plan is a part of drainage study # 4569 which was approved on 10/9/12 and Rejected on 10/18/12. Page 12 of 17.

FILE NAME: 06_PFD.DWG

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.

CALL BEFORE YOU DIG
OVERHEAD



1-702-227-2929

Call Before You Dig

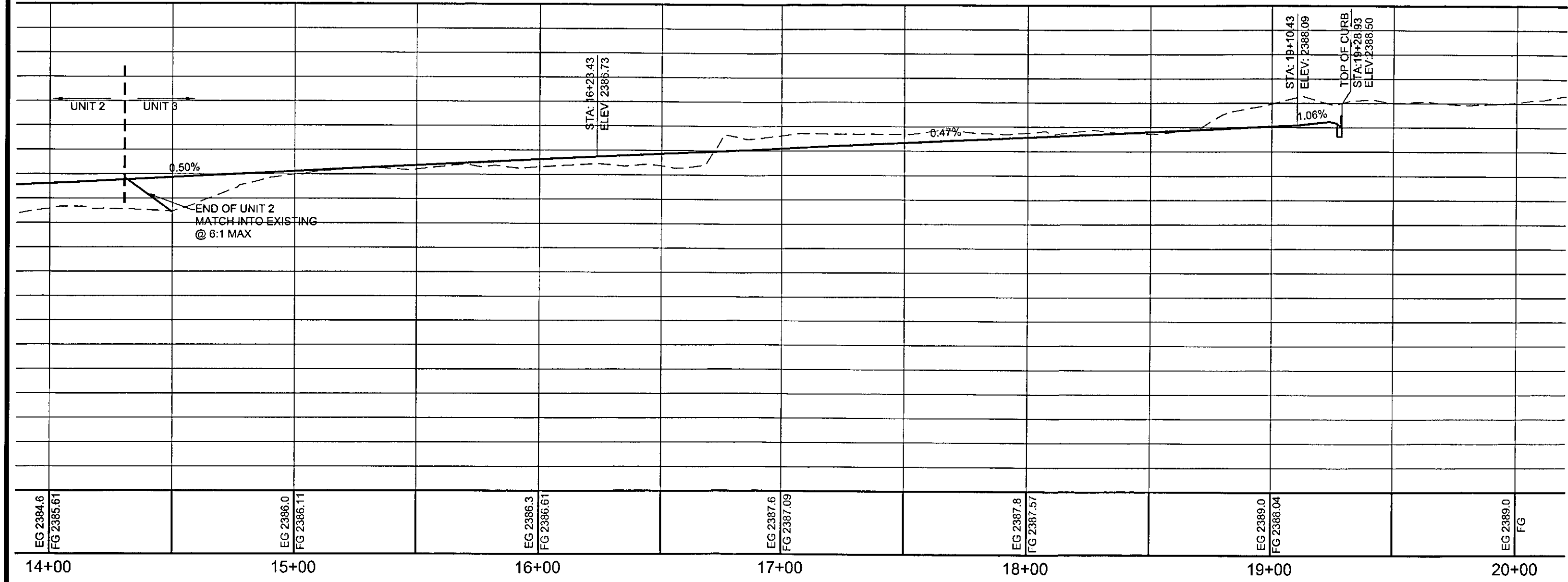
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.

CALL

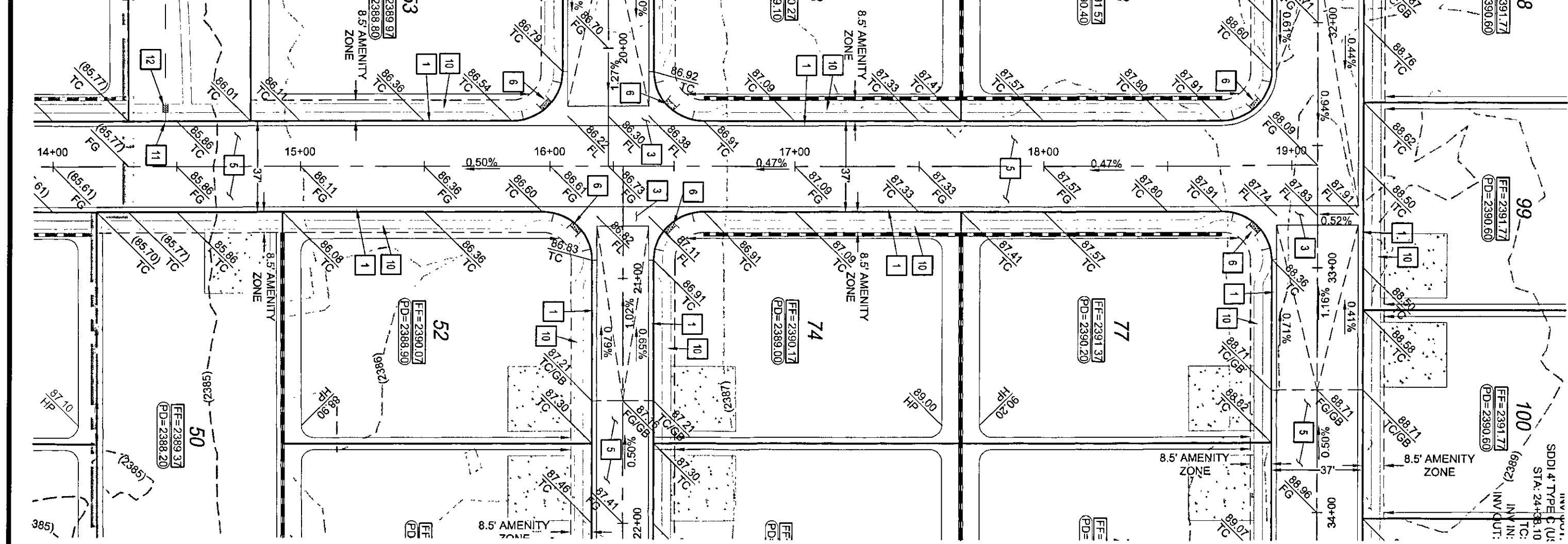


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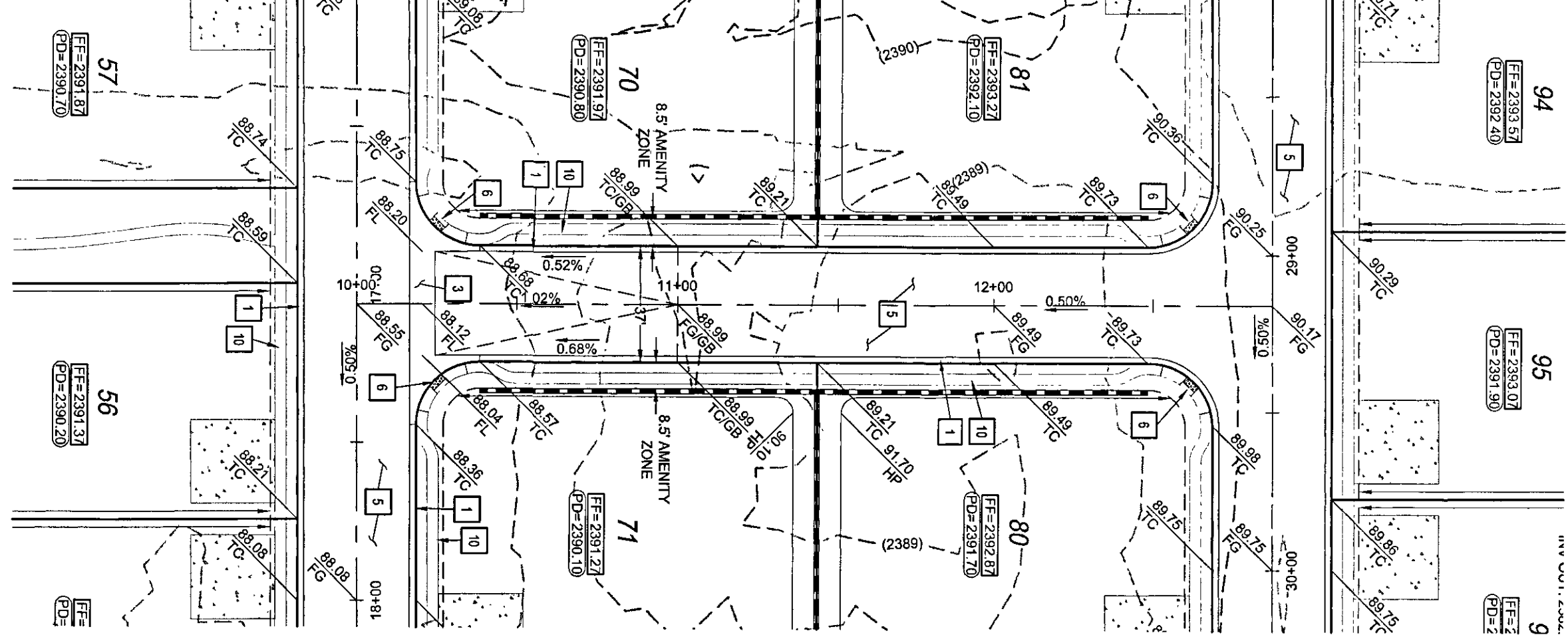
1-800-227-2600



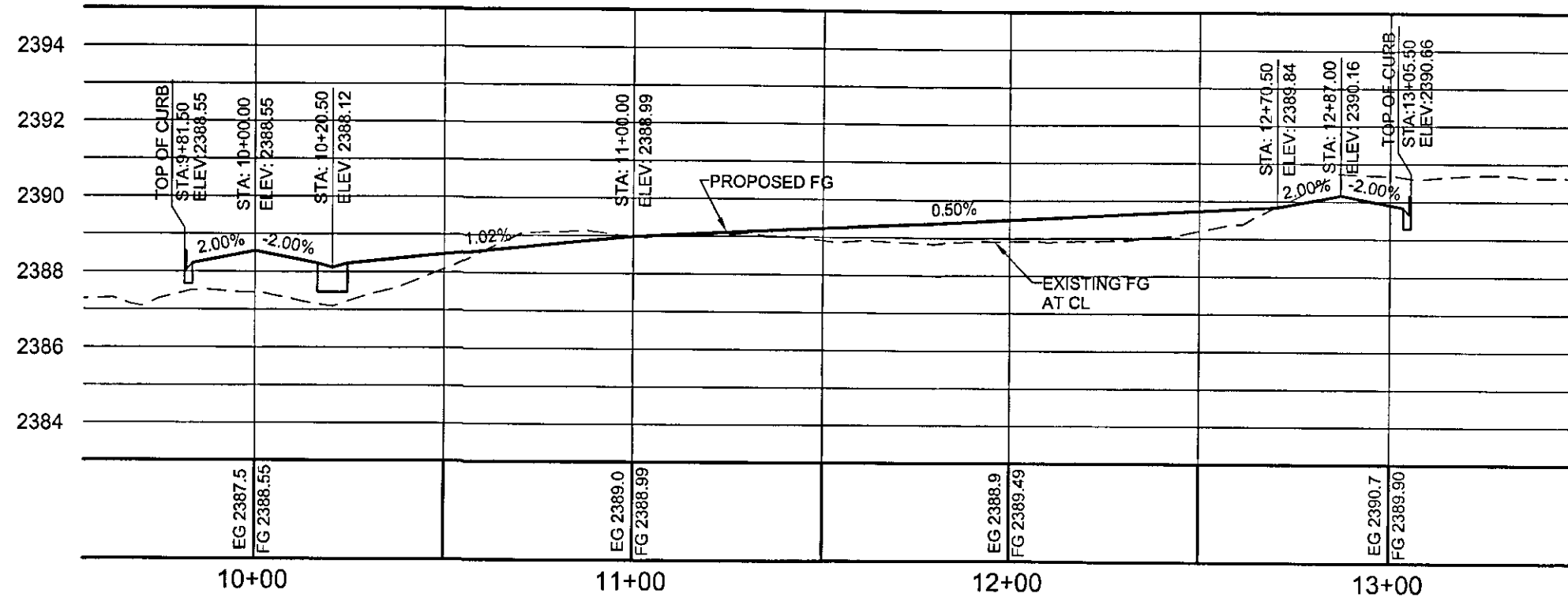
SUMMER SOLSTICE - PROFILE
STA: 14+00 TO 20+00
SCALE: 1"=40' HORIZ., 1"=4' VERT.



SUMMER SOLSTICE- PLAN
STA: 14+00 TO 20+00



WATER FROST- PLAN
STA: 10+00 TO 13+00



WATER FROST - PROFILE
STA: 10+00 TO 13+00
SCALE: 1"=40' HORIZ., 1"=4' VERT.

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GEOTECHNICAL

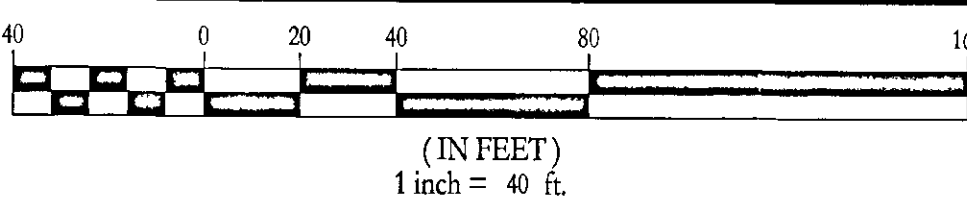
AMERICAN SOILS ENGINEERING, LLC
6000 S EASTERN AVE, STE 6-B
LAS VEGAS, NEVADA 89119

REPORT NO. 1588-Geo
DATE 06/04/12

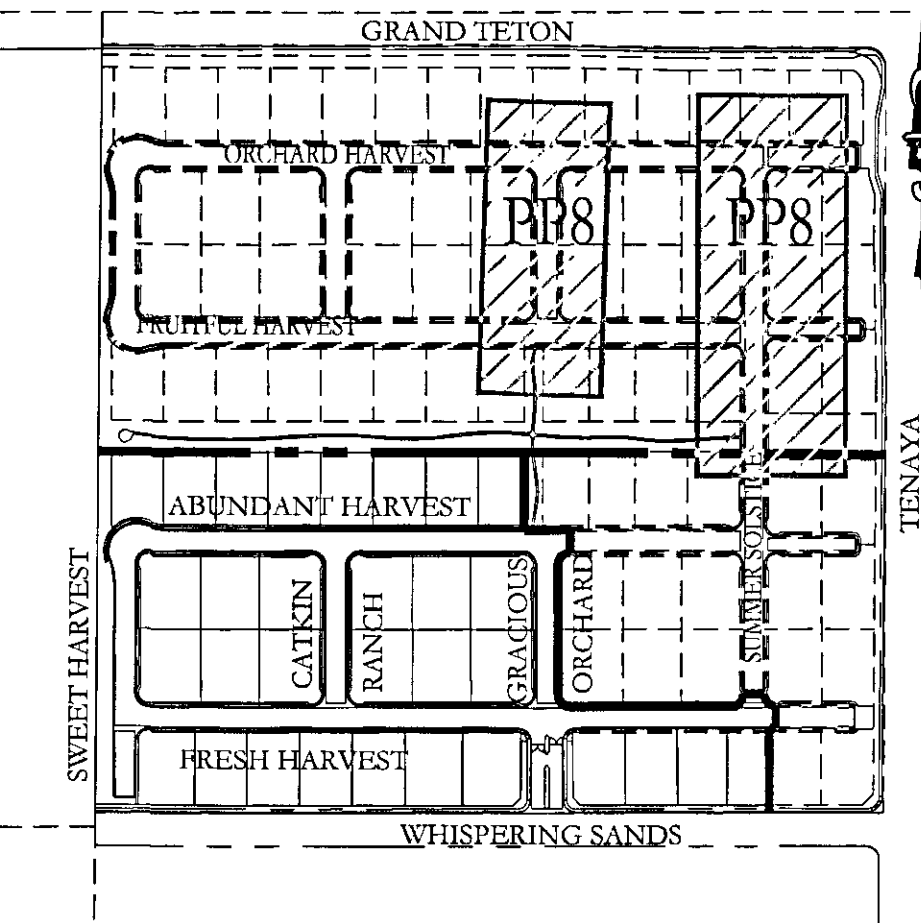
UTILITY DISCLAIMER NOTE

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SCALE



KEY MAP



LEGAL DESCRIPTION

BEING LOT TWO (2) OF THAT CERTAIN CERTIFICATE OF LAND DIVISION ON FILE IN FILE 001, PAGE 0055, RECORDED OCTOBER 11, 2001 IN BOOK 20011011 AS DOCUMENT NO 02282, OFFICIAL RECORDS OF THE COUNTY RECORDED, CLARK COUNTY, NEVADA

BASIS OF BEARINGS

NORTH 00°12'00" EAST BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 15, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M. CLARK COUNTY, NV AS SHOWN ON FILE 113 OF SURVEYS AT PAGE 52, OFFICIAL RECORDS OF CLARK COUNTY, NEVADA.

BENCHMARK

CLARK COUNTY VERTICAL CONTROL POINT "BLV90 10SSWS" BEING A CITY OF LAS VEGAS RIVET AND ROUND PLATE IN A CONCRETE CYLINDER, NORTHWEST CORNER OF GRAND TETON DRIVE AND PIONEER WAY NEAR PT OF PIONEER WAY

ELEVATION: 2397.47 (FEET)
730.750 (METERS)

CLARK COUNTY VERTICAL CONTROL V.2003 BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

CONSTRUCTION NOTES

- 24" L-TYPE CURB & GUTTER (USD #216)
- 10.0' SIDEWALK (USD #234)
- 8.0' CROSS GUTTER (USD #228)
- 5.0' SIDEWALK (USD #234)
- AC PAVEMENT OVER TYPE II (PER GEOTECHNICAL REPORT)
- SIDEWALK RAMP USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT (USD #235)
- DEPRESSED CURB
- SAWCUT & MATCH EXISTING AC PAVEMENT
- A-TYPE CURB (USD #219)
- 3.5' DECOMPOSED GRANITE SIDEWALK
- 2.0' CURB OPENING (SEE DETAIL MGD)
- SIDEWALK UNDERDRAIN (USD#236)
- 2.0' CUTOFF WALL (SEE DETAIL MGD)
- 6" CONCRETE OVER 6" TYPE

This grading part is a part of drainage study #4569 which was done on 10/18/12 and kept on 10/18/12. Page 12 of 17

DR HORTON
330 CAROUSEL PKWY
HENDERSON, NV 89014
(702) 635-3000 FAX: (800) 900-4001

TANEY ENGINEERING
6630 S. JONIS BLVD. STE # 100
(702) 635-3000 FAX: (800) 900-4001

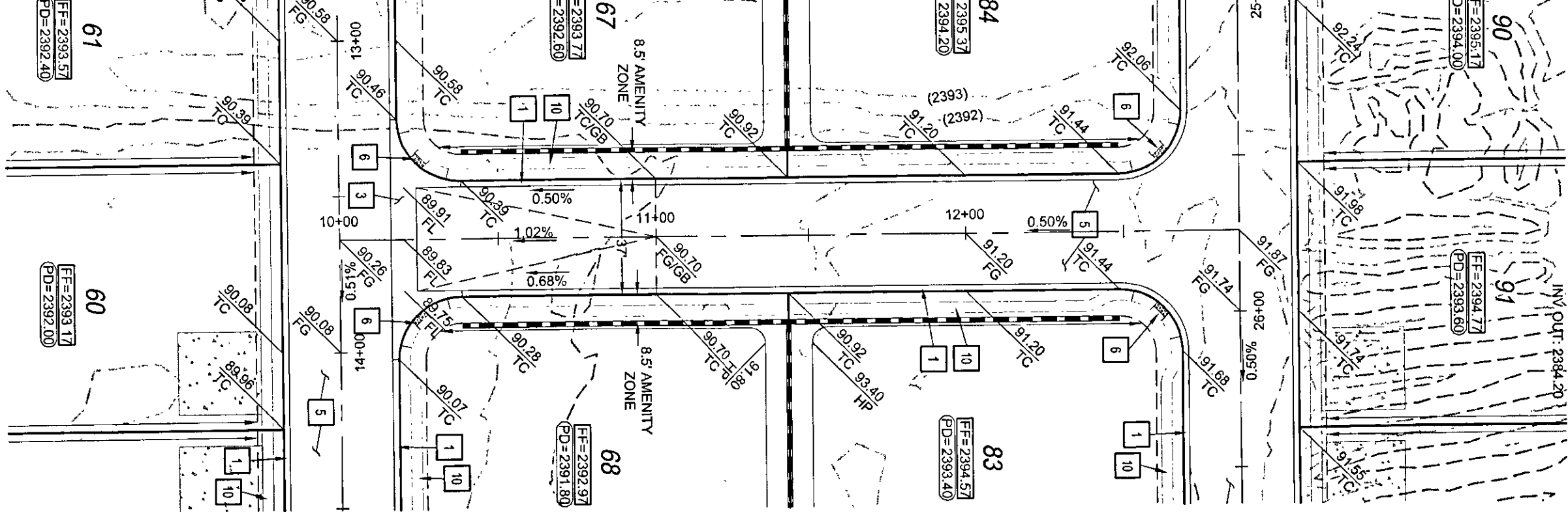
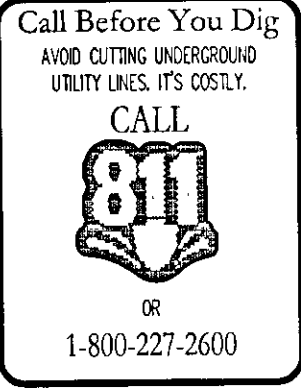
THE ORCHARDS - UNIT 3
@ GRAND TETON & TENAYA
A RESIDENTIAL SUBDIVISION

SUMMER SOLSTICE STA: 14+00 TO 20+00
& WATER FROST STA: 10+00 TO 18+00

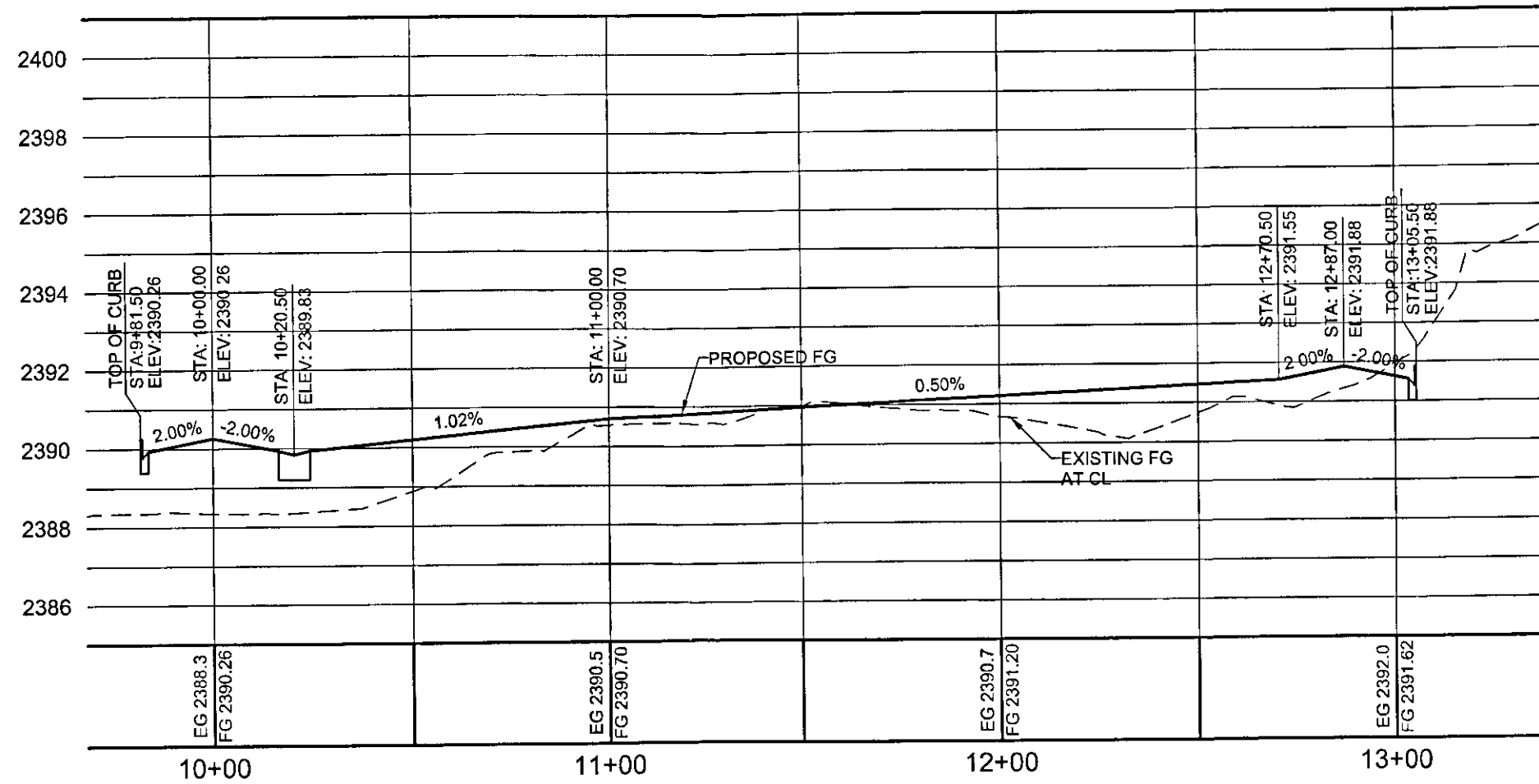
REGISTERED PROFESSIONAL ENGINEER
ROBERT D. CUNNINGHAM
Exp. 12-31-12
CIVIL
No. 15726
ENGINEER'S SEAL

DATE: 10/3/12
SCALE: 1"=40'
JOB NO: DRH-12-001
DESIGNED BY: [Signature]
CHECKED BY: [Signature]

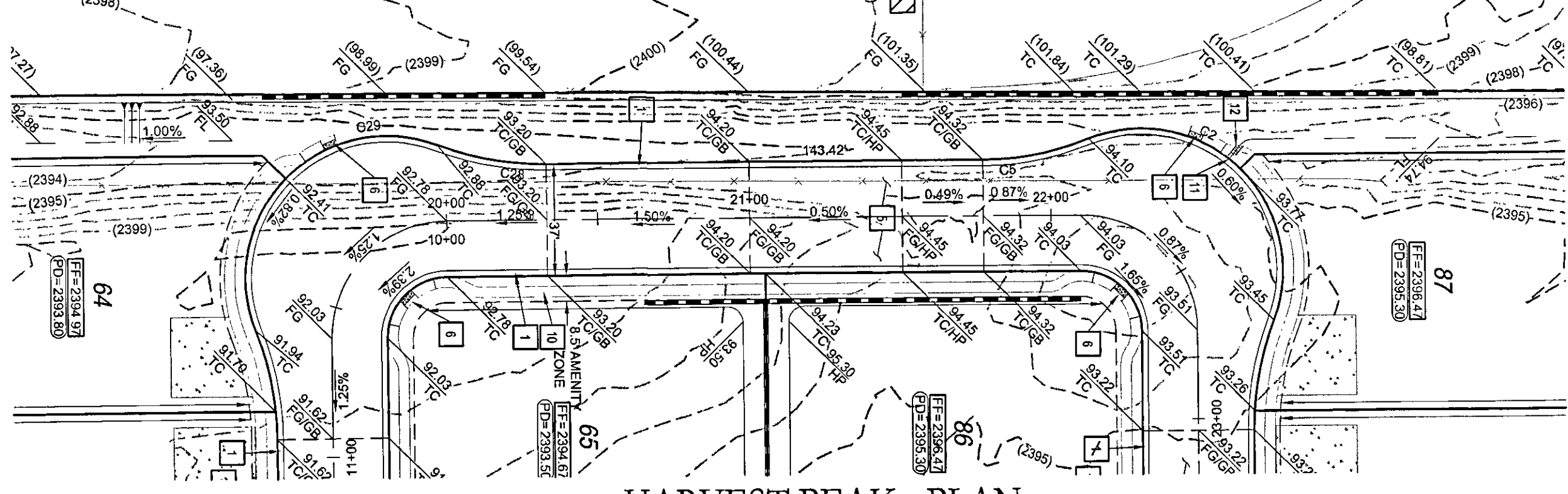
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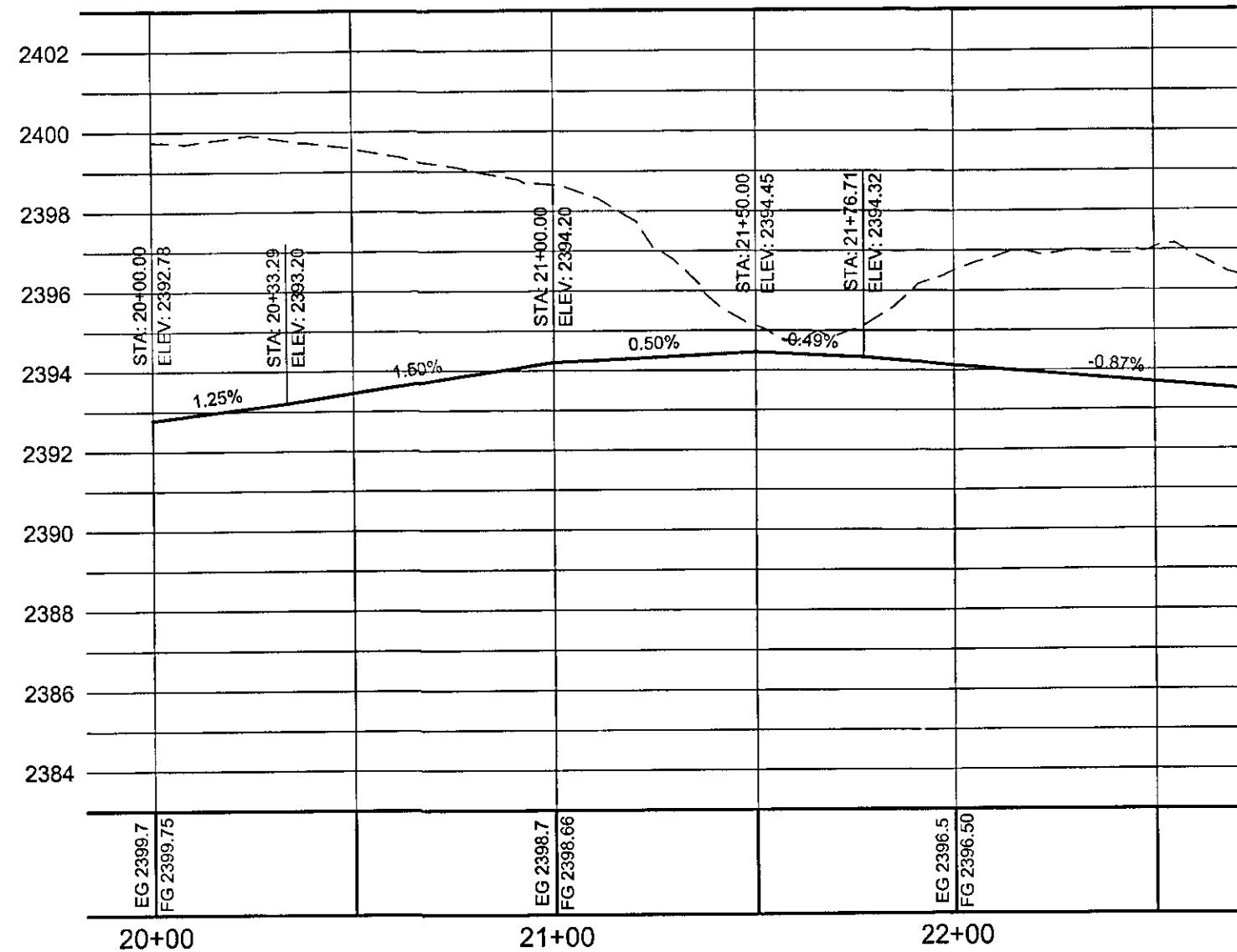
BOUNTIFUL GROVE - PLAN
STA: 10+00 TO 13+00



BOUNTIFUL GROVE - PROFILE
STA: 10+00 TO 13+00
SCALE: 1"=40' HORIZ, 1"=4' VERT.



HARVEST PEAK - PLAN
STA: 20+00 TO 22+00



HARVEST PEAK - PROFILE
STA: 20+00 TO 22+00
SCALE: 1"=40' HORIZ, 1"=4' VERT.

GRADING NOTES

ADD 2300 FEET TO ALL GRADE TAGS TO GET ACTUAL ELEVATION.

THE ELEVATION DIFFERENCE BETWEEN THE PAD AND FINISH FLOOR IS DETERMINED FROM THE MINIMUM THICKNESS REQUIRED PER THE GEOTECHNICAL REPORT. FINISH FLOORS MAY INCREASE DEPENDING ON THE TYPE OF SOIL AND FOUNDATION PLAN USED. NOTE THAT THE STRUCTURAL PLANS & GEOTECHNICAL REPORT SHALL SUPERSEDE THE CIVIL IMPROVEMENT PLANS.

ALL PRIVATE STREETS AND DRAINAGE EASEMENTS ARE TO BE PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION (H.O.A.).

ALL WORK TO BE PERFORMED OUTSIDE OF THE PROJECT BOUNDARY AND ON PRIVATE PROPERTY SHALL NOT BE PERFORMED UNTIL WRITTEN PERMISSION AND EASEMENTS HAVE BEEN OBTAINED FROM THE OFFSITE OWNER AND GIVEN TO CITY OF LAS VEGAS.

CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

GEOTECHNICAL

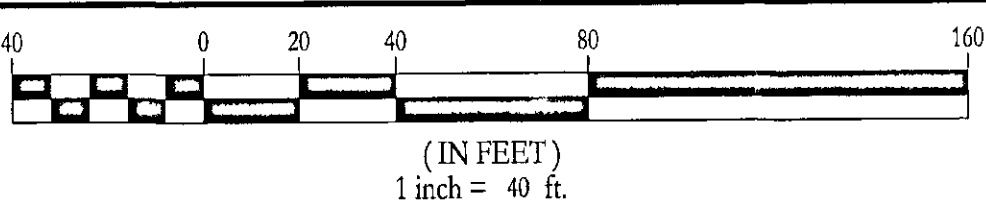
AMERICAN SOILS ENGINEERING, LLC
6000 S EASTERN AVE. STE 6-B
LAS VEGAS, NEVADA 89119

REPORT NO. 1588-GEO
DATE 06/04/12

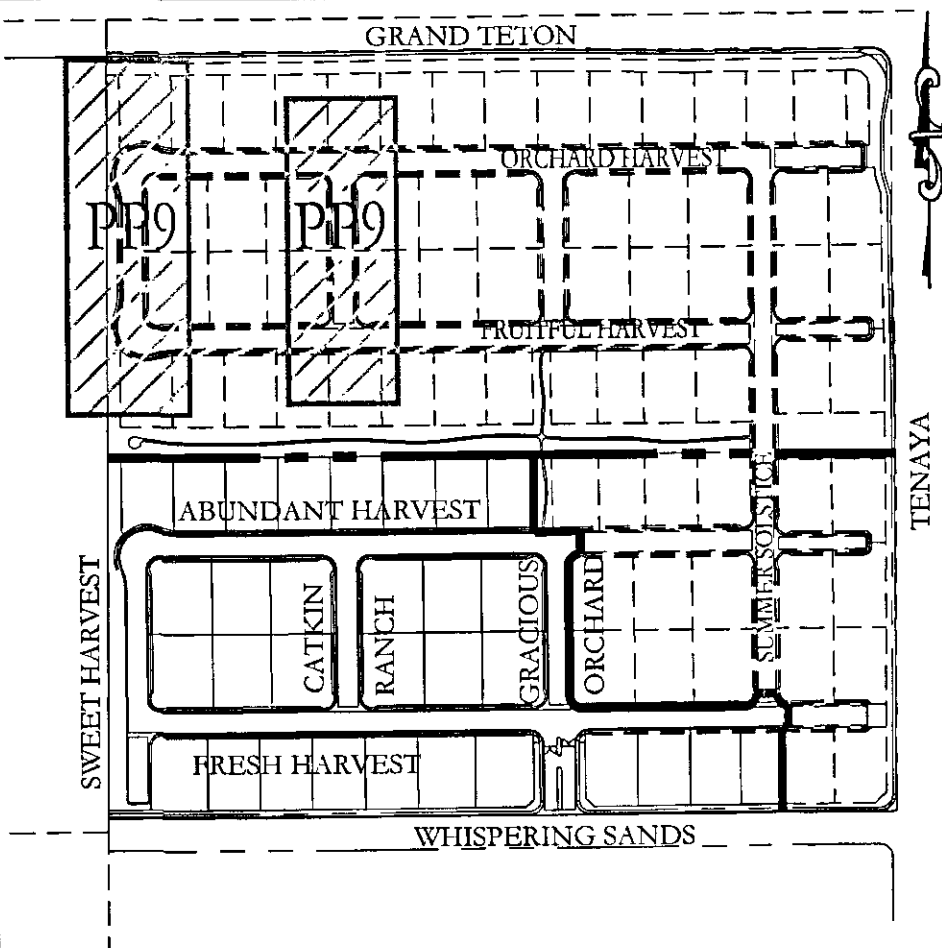
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SCALE



KEY MAP



LEGAL DESCRIPTION

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BENCHMARK

CLARK COUNTY VERTICAL CONTROL POINT "BLV90 10SSW6", BEING A CITY OF LAS VEGAS RIVET AND ROUND PLATE IN A CONCRETE CYLINDER, NORTHWEST CORNER OF GRAND TETON DRIVE AND PIONEER WAY NEAR PT OF PIONEER WAY

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730.750 (METERS)

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8. SAWCUT & MATCH EXISTING AC PAVEMENT
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11. 2.0' CURB OPENING (SEE DETAIL MGD1)
12. SIDEWALK UNDERDRAIN (USD #238)
13. 2.0' CUTOFF WALL (SEE DETAIL KGD1)
14. 6" CONCRETE OVER 6" TYPE III

This grading plan is a
portion of drainage s
4569 which was r
on 10/9/12 and R
10/10/12. Page 19 of 17

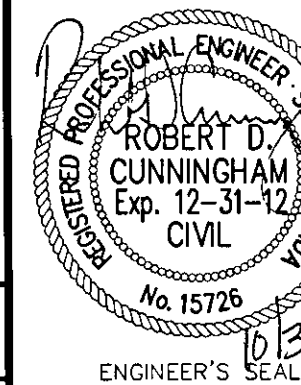
DR HORTON
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TANEY ENGINEERING
6030 S. JONES BLVD STE 100
LAS VEGAS, NV 89118
(702) 635-3400 FAX: (800) 900-4001

THE ORCHARDS - UNIT 3
@ GRAND TETON & TENAYA
A RESIDENTIAL SUBDIVISION

BOUNTIFUL GROVE STA:10+00 TO 13+00
& HARVEST PEAK STA:20+00 TO 22+00



DATE: 10/3/12
SCALE: 1"=40'
JOB NO: DRH-12-
DESIGNED BY:
CHECKED BY: R
SHEET NAME: PP
SHEET: 14 OF 20
CLV

LEGAL DESCRIPTION

BEING LOT TWO (2) OF THAT CERTAIN CERTIFICATE OF LAND DIVISION ON FILE IN FILE 001, PAGE 0065, RECORDED OCTOBER 11, 2001 IN BOOK 20011011 AS DOCUMENT NO 02282, OFFICIAL RECORDS OF THE COUNTY RECORDED, CLARK COUNTY, NEVADA

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UTILITY DISCLAIMER NOTE

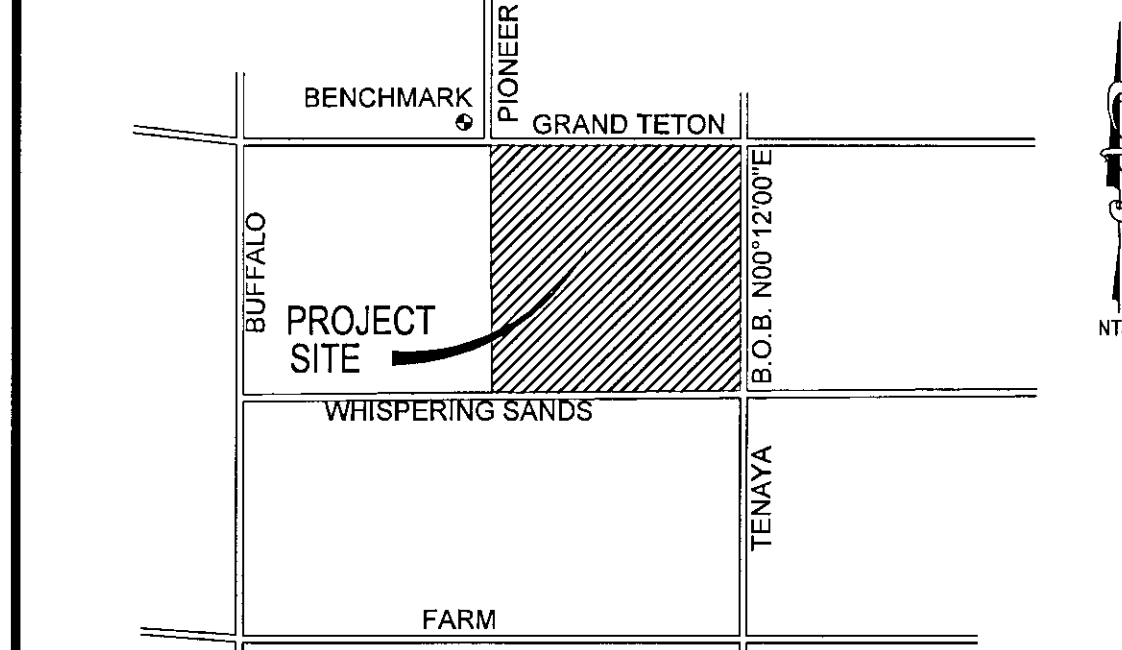
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CALL BEFORE YOU OVERHEAD: 1-702-227-2929

DEVELOPER/OWNER ENGINEER

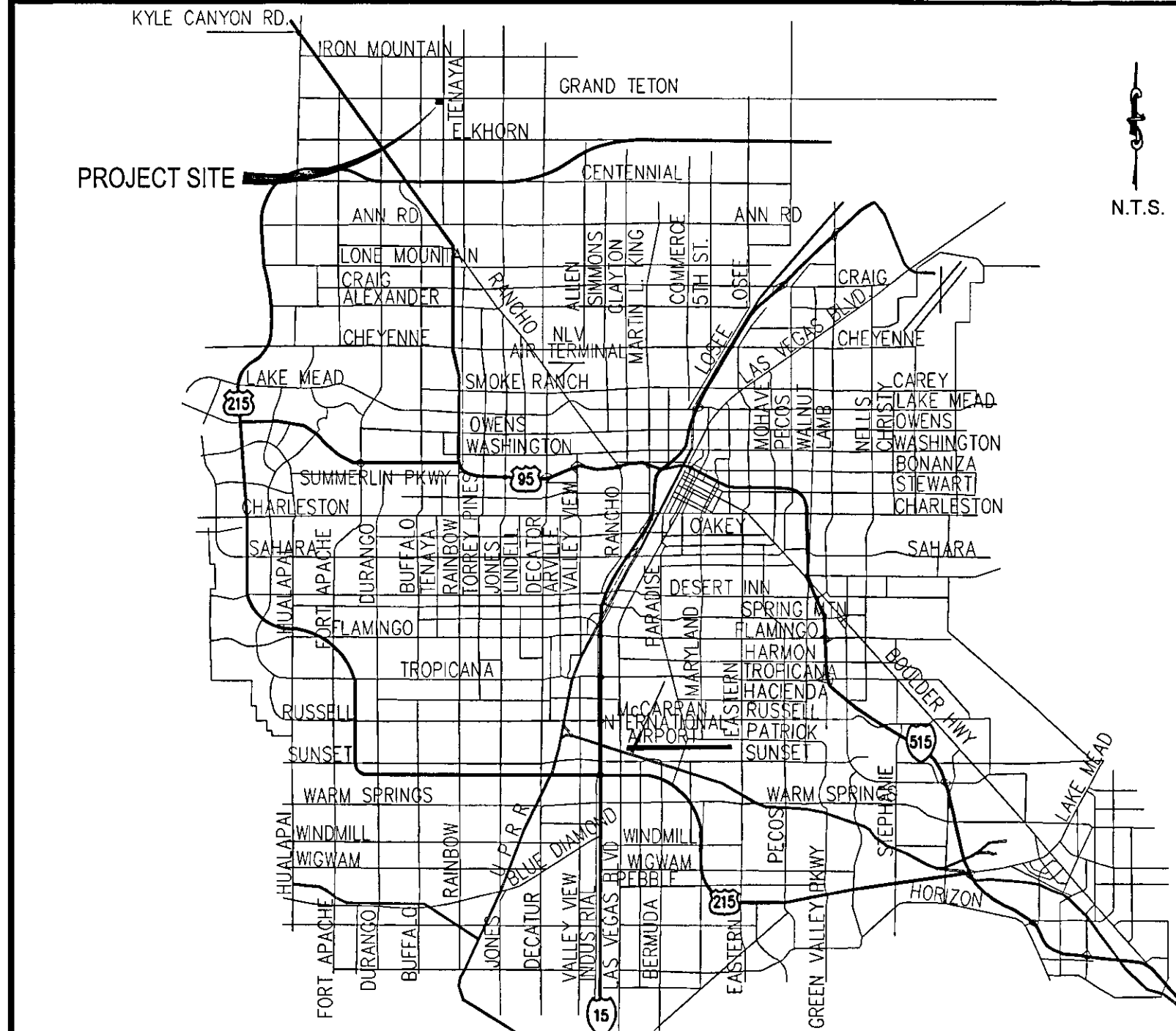
D R HORTON
330 CAROUSEL PKWY
HENDERSON, NV 89014
(702) 635-3600 PHONE
(602) 909-4001 FAX

TANEY ENGINEERING COMPANY
6030 S. JONES BLVD STE #100
LAS VEGAS, NV 89118
(702) 362-8844 PHONE
(702) 362-5233 FAX

SITE MAP



VICINITY MAP

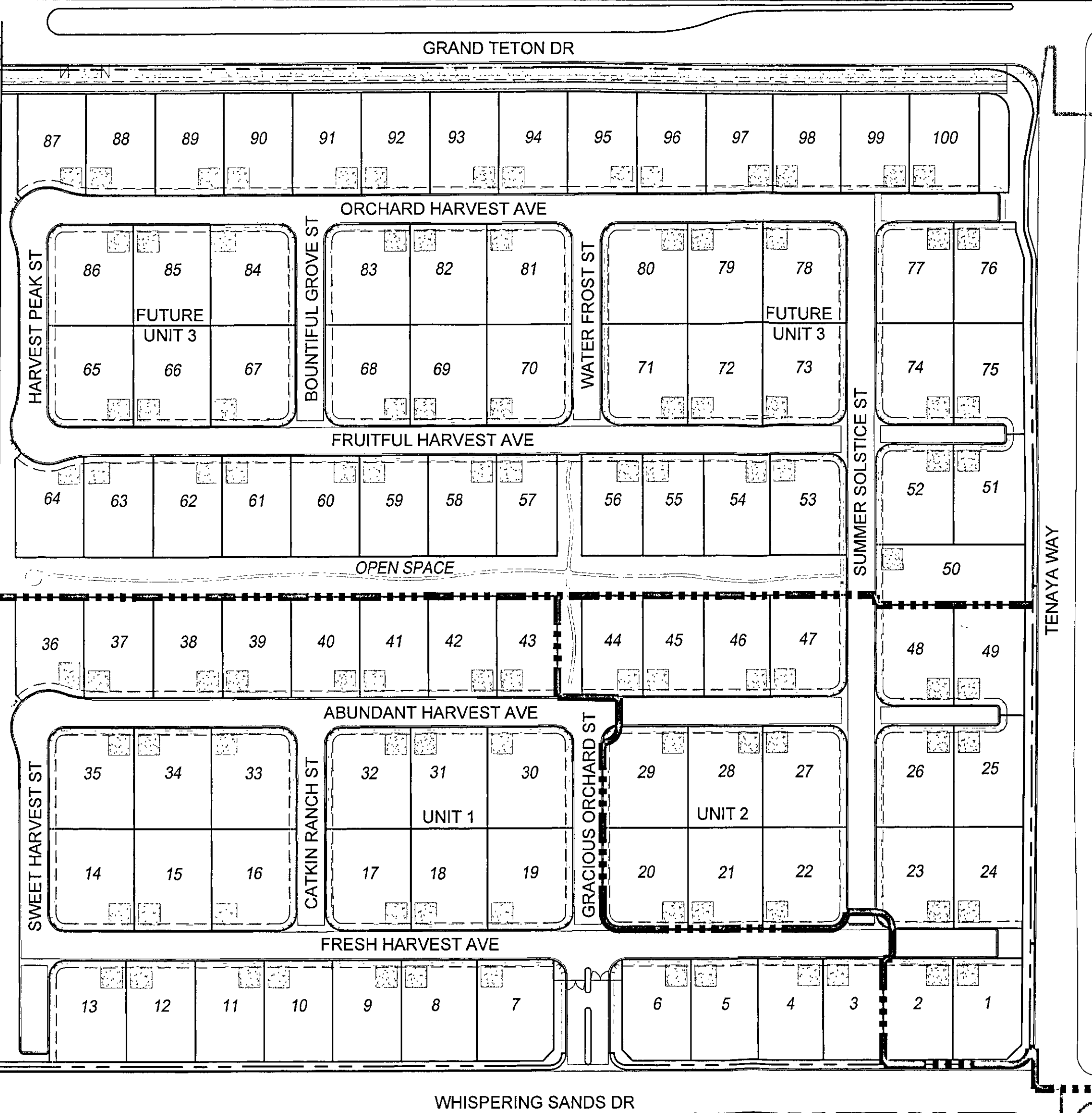


FOR
THE ORCHARDS - UNIT 2
@ GRAND TETON & TENAYA
A RESIDENTIAL SUBDIVISION

CITY OF LAS VEGAS, NEVADA

APN: 125-15-101-003

KEY MAP



INDEX OF SHEETS

01	C1	- COVER SHEET
02	C2	- GENERAL NOTES AND QUANTITIES
03	G1	- GRADING PLAN
04	GD1	- GRADING DETAILS AND CROSS SECTIONS
05	PD1	- TENAYA WAY STA:10+00 TO 17+50 PLAN AND PROFILE
06	PD2	- TENAYA WAY STA:17+50 TO 24+00 PLAN AND PROFILE
07	PD3	- SUMMER SOLSTICE STA:10+00 TO 15+00 & FRESH HARVEST STA:19+50 TO 22+00 PLAN AND PROFILE
08	PP4	- ABUNDANT HARVEST STA:20+00 TO 26+00 PLAN AND PROFILE
09	MUT	- MASTER UTILITY PLAN
10	UT1	- UTILITY PLAN - SOUTH
11	UT2	- UTILITY PLAN - NORTH
12	TR1	- TRAFFIC PLAN - SOUTH
13	TR2	- TRAFFIC PLAN - NORTH

ABBREVIATIONS

AC	ASPHALTIC CONCRETE
BC	BACK OF CURB
BCR	BACK OF CURB RADIUS
BFE	BASE FLOOD ELEVATION
BFP	BACK FLOW PREVENTOR
BLM	BUREAU OF LAND MANAGEMENT
BM	BENCHMARK
BOB	BASIS OF BEARING
BRPM	BLUE RAISED PAVEMENT MARKER
BVC	BEGIN VERTICAL CURVE
CE	CORNER OF EXISTING WALL
CATV	CABLE TELEVISION
CC	CLARK COUNTY
CL	CENTERLINE
CLSM	CONTROLLED LOW STRENGTH MATERIAL
CLV	CITY OF LAS VEGAS
CMP	CORRUGATED METAL PIPE
CNV	CITY OF NORTH LAS VEGAS
CO	CLEAN OUT, SEWER
COH	CITY OF HENDERSON
CY	CUBIC YARD
DCSWCS	DESIGN AND CONSTRUCTION STANDARDS OF WASTE WATER COLLECTION SYSTEMS
DG	DESIGN GRADE
DI	DROP INLET
DIP	DUCTILE IRON PIPE
EC	END OF CURVE
EG	EXISTING GRADE
ELEC	ELECTRICAL
EP	EDGE OF PAVEMENT
EVC	END VERTICAL CURVE
EX	EXISTING
FF	FINISH FLOOR ELEVATION
FG	FINISH GRADE
FH	FIRE HYDRANT
FL	FLOW LINE
FT	FEET
GB	GRADE BREAK
GFF	GARAGE FINISH FLOOR
HP	HIGH POINT
INV	INVERT
LF	LINEAR FEET
LT	LEFT
LWVWD	LAS VEGAS VALLEY WATER DISTRICT
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
NO	NUMBER
NTS	NOT TO SCALE
OC	ON CENTER
PC	PULL BOX
POC	POINT OF CURVE
PCC	POINT OF COMPOUND CURVE
PE	POLYETHYLENE
PL	POINT OF INTERSECTION
PLT	PROPERTY LINE
POC	POINT OF CONNECTION
PP	POWER POLE
PRC	POINT OF REVERSE CURVE
PROJ	PROJECT
PRV	PRESSURE REDUCING VALVE
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
R	RADIUS
RCB	REINFORCED CONCRETE BOX
RCPP	REINFORCED CONCRETE PIPE
ROW	RIGHT-OF-WAY
RT	RIGHT
SD	STORM DRAIN
SHT	SHEET
STLT	STREETLIGHT
SNWA	SOUTHERN NEVADA WATER AUTHORITY
SS	SANITARY SEWER
STA	STATION
STD	STANDARD
SVZ	SIGHT VISIBILITY ZONE
SW	SIDEWALK
SY	SQUARE YARD
TC	TOP OF CURB
TELE	TELEPHONE
TF	TOP OF FOOTING
TR	TOP OF RETAINING
TW	TOP OF WALL
TYP	TYPICAL
UDACS	UNIFORM DESIGN AND CONSTRUCTION STANDARDS
USD	UNIFORM STANDARD DRAWING
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VG	VALLEY GUTTER
W	WATER
ZC	ZERO LIP CURB

CONTOUR (5' INTERVAL)		
DIRECTION OF FLOW		
RETAINING WALL		
CMU WALL		
CENTERLINE		
RIGHT-OF-WAY		
CUT LINE-ASPHALT		
CURB AND GUTTER		
POWER POLE		
SIDEWALK RAMP		
CURB DROP INLET		
STORM DRAIN W/MANHOLE		
SIDEWALK		
PROPERTY LINE		
CUT-FILL LINE		
EDGE OF PAVEMENT		
SIGHT VISIBILITY ZONE		
CAP & 2" BLOW OFF VALVE		
WATERLINE FITTINGS		
GATE VALVE		
FIRE HYDRANT		
SEWER LINE W/MANHOLE		
SEWER LATERAL		
WATER LINE		
WATER LATERAL W/METER		
PRESSURE REDUCING VALVE		
BACKWATER VALVE		
200A SERVICE PEDESTAL		
STREET LIGHT CONDUIT		
F.A.S.T. CONDUIT		
TRAFFIC SIGN		
STOP SIGN W/STREET NAME SIGN		
END OF ROAD SIGN		
100W HPS LUMINAIRE W/11 GA. POLE		
250W HPS LUMINAIRE W/11 GA. POLE		
400W HPS LUMINAIRE W/11 GA. POLE		
COURSES OF RETAINING WALL		

APPROVAL SIGNATURES

APPROVED FOR CONSTRUCTION

CITY OF LAS VEGAS FIRE MARSHAL _____ DATE _____

DAVID BOWERS, P.E., P.T.O.E. (P.E.#15738) _____ DATE _____
ACTING CITY ENGINEER -- CITY OF LAS VEGAS
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 CONSTRUCTION OF ANY IMPROVEMENTS THAT DEVIATE FROM ADOPTED STANDARDS AND/OR SPECIFICATIONS EXCEPT THOSE SPECIFICALLY LISTED UNDER DEVIATIONS FROM STANDARDS. THE ENGINEER SHALL RESOLVE ANY DEVIATION OTHER THAN THOSE LISTED IN DEVIATIONS FROM STANDARD IN FAVOR OF THE UNIFORM STANDARD SPECIFICATIONS AND SPECIFICATIONS, CLARK COUNTY AREA, NEVADA.

DOUG RANKIN, AICP PLANNING MANAGER _____ DATE _____
THIS PLAN MEETS THE APPLICABLE STANDARDS OF THE PLANNING AND DEVELOPMENT DEPARTMENT.

LWVWD ENGINEERING SERVICES MANAGER (PROJ.# XXXXXX) _____ DATE _____
SHEETS: **This grading plan is a part of drainage study #4569 which was received on 10/18/12 and posted on 10/18/12. Page 1 of 8.**

SOUTHWEST GAS _____ DATE _____
CENTURYLINK _____ DATE _____
"THE AFFIXED CENTURYLINK 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 WILL PROVIDE SERVICE TO ALL ELECTRICAL NEEDS ASSOCIATED WITH THIS PROJECT. NV ENERGY 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.

THE ORCHARDS - UNIT 2
@ GRAND TETON AND TENAYA
A RESIDENTIAL SUBDIVISION

COVER SHEET

DATE: 10/30/12
SCALE: N
JOB NO: DRH-12-001
DESIGNED BY: R
CHECKED BY:
SHEET NAME: C
SHEET: 01 OF 11
CLV

PLANS ARE OBTAINED BY A RESEARCH OF THE AVAILABLE RECORDS. EXISTING UTILITIES AS SHOWN FROM CLV PLANS LIBRARY ARE APPROXIMATE AND FOR RECORD PURPOSES. EXISTING UTILITIES ARE LOCATED ON PLANS ONLY FOR THE CONVENIENCE OF THE CONTRACTOR. EXISTING UTILITY SERVICE LATERALS MAY NOT BE SHOWN ON THE PLANS. THE CONTRACTOR SHALL AT HIS OWN EXPENSE LOCATE ALL UNDERGROUND AND OVERHEAD INTERFERENCES WHICH MAY AFFECT HIS OPERATION DURING CONSTRUCTION AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO SAME. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING NEAR OVERHEAD UTILITIES SO AS TO SAFELY PROTECT ALL PERSONNEL AND EQUIPMENT, AND SHALL BE RESPONSIBLE FOR ALL COST AND LIABILITY IN CONNECTION THEREWITH.

3. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING UTILITY LINES, STRUCTURES AND STREET IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE, FROM DAMAGE, AND ALL SUCH IMPROVEMENTS OR STRUCTURES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED SATISFACTORY TO THE CITY ENGINEER AND OWNING UTILITY COMPANY AT THE EXPENSE OF THE CONTRACTOR.

4. ALL CONSTRUCTION SHALL BE AS SHOWN ON THESE PLANS, ANY REVISIONS SHALL HAVE THE PRIOR WRITTEN APPROVAL OF THE CITY ENGINEER.

5. TYPE V CEMENT SHALL BE USED IN ALL OFF-SITE CONCRETE WORK. CONCRETE TO BE 3000 P.S.I. MINIMUM @ 28 DAYS. MIX DESIGNS TO BE APPROVED BY THE CITY, PRIOR TO THE USE ON THE PROJECT.

6. PERMITS ARE REQUIRED FOR ANY WORK IN THE PUBLIC RIGHT-OF-WAY. THE CONTRACTOR SHALL SECURE ALL PERMITS AND INSURANCES REQUIRED FOR THIS CONSTRUCTION.

7. EXPANSION JOINTS REQUIRED, MAXIMUM EVERY 300' IN EXTRUDED-TYPE CURB. 8. AC PAVEMENT TO BE ONE-HALF INCH (1/2") ABOVE LIP OF ALL GUTTERS AFTER COMPACTION, EXCEPT AT SIDEWALK RAMPS AND CROSS GUTTERS

9. CURB AND GUTTER FOUND TO BE UNACCEPTABLE TO THE CITY OF LAS VEGAS SHALL BE REMOVED AND REPLACED PER STANDARD DRAWING 216.

10. SIDEWALK RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING 235. EXACT LOCATION OF RAMPS MAY BE ADJUSTED IN THE FIELD BY A CITY INSPECTOR.

11. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITIONS BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND FOR INGRESS AND EGRESS TO NEW CONSTRUCTION. THE EXTENT OF THE TRANSITIONS TO BE AS SHOWN ON PLANS.

12. ALL GRADING WORK SHALL CONFORM TO THE SOILS REPORT AS PREPARED BY AMERICAN SOILS ENGINEERING, LLC REPORT NO. 1588-GEO DATE 06/04/12 APPROVED BY THE CITY ENGINEER, AND AS SHOWN ON THESE PLANS.

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

14. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT EXISTING PERMANENT SURVEY MONUMENTS. ANY MONUMENTS DISTURBED SHALL BE REPLACED AND ADJUSTED PER AVAILABLE RECORDS IN ACCORDANCE WITH N.R.S. STATUTE NO. 625.380 & CITY OF LAS VEGAS TITLE 18, APPENDIX D.

15. UTILITY COMPANY METER BOXES, MANHOLE LIDS, VALVE COVERS, ETC., SHALL BE LOCATED OUT OF DRIVEWAYS, DRIVEWAY 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 OFFSITE INSPECTION AND TESTING SECTION PRIOR TO PROJECT ACCEPTANCE. THE MAP(S) SHALL INCLUDE THE HORIZONTAL AND VERTICAL (INVERT) LOCATION OF PUBLIC SEWER MANHOLES, STORM DRAIN MANHOLES, STORM DRAIN LATERALS AT THE CONNECTION TO THE STORM DRAIN MAIN AND AT THE CONNECTION TO A DROP INLET, AND THE CONNECTION OF SEWER SERVICE LATERALS TO THE SEWER MAIN AND WHERE THE SEWER SERVICE LATERALS EXITS THE PUBLIC RIGHT-OF-WAY. THE LOCATION SHALL BE DESCRIBED BY STATE PLANE COORDINATES WHICH SHALL BE BASED ON THE "NEVADA COORDINATE SYSTEM OF 1983, EAST ZONE" AS DEFINED BY THE NEVADA REVISED STATUTES CHAPTER 327, AND TIED TO THE CITY OF LAS VEGAS VERTICAL CONTROL BENCHMARK NETWORK. COORDINATES MUST BE CERTIFIED BY A NEVADA PROFESSIONAL LAND SURVEYOR TO HAVE POSITIONAL CERTAINITIES OF +/- 0.1 METER (+/- 0.3 FEET). 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. SANITARY SEWER SERVICE LATERALS REQUIRE THE INSTALLATION OF A MARKER BALL AT THE CONNECTION OF THE SEWER SERVICE LATERAL TO THE SEWER MAIN AND WHERE THE SEWER SERVICE LATERAL EXITS THE PUBLIC RIGHT-OF-WAY. STORM DRAIN LATERALS REQUIRE THE INSTALLATION OF A MARKER BALL AT THE CONNECTION OF THE STORM DRAIN LATERAL TO THE STORM DRAIN MAIN AND WHERE THE STORM DRAIN LATERAL EXITS THE PUBLIC RIGHT-OF-WAY OR WHERE THE STORM DRAIN LATERAL CONNECTS TO A DROP INLET. THE MARKER BALL SHALL BE 3M 4" MARKER BALL 1404-XR OR APPROVED EQUAL.

23. 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 ADITION.

24. A SEPARATE BORING PERMIT IS REQUIRED FOR ALL BORING ACTIVITIES.

CLV TRAFFIC NOTES

- ALL CONSTRUCTION SIGNING, BARRICADING, AND TRAFFIC DELINEATION SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST EDITION.
- THE STREET SIGN CONTRACTOR SHALL OBTAIN STREET NAMES AND BLOCK NUMBERING FROM THE PLANNING DEPARTMENT PRIOR TO CONSTRUCTION.
- 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 SAID SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED.
- 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.
- IF THE IMPROVEMENTS NECESSITATE THE OBLITERATION, TEMPORARY OBSTRUCTION, 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.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL PERMANENT SIGNS SHOWN ON THE PLANS. ALL NEW TRAFFIC SIGNS SHALL BE FABRICATED WITH DIAMOND GRADE VIB CLASS 8 REFLECTIVE SHEETING OR APPROVED EQUAL. ALL NEW TRAFFIC SIGNS, EXCEPT STREET NAME AND SCHOOL SPEED LIMIT SIGNS, SHALL HAVE 3M SERIES 1150 ANTI-GRAFFITI PROTECTIVE OVERLAY FILM. SCHOOL ZONE SIGNS SHALL HAVE 3M SERIES 1150 ANTI-GRAFFITI PROTECTIVE OVERLAY FILM. STREET NAME SIGNS SHALL CONFORM IN THEIR ENTIRETY TO 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.
- 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.
- 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 HERE UNDER, REGARDLESS OF THE STATUS OF COMPLETION OF PAVING OR OTHER OFF-SITE IMPROVEMENTS CALLED FOR BY THESE PLANS.
- STREET SIGNS AND STOP SIGNS SHALL BE INSTALLED PER CITY STANDARD SPECIFICATIONS FOR PLACEMENT OF STREET NAME SIGNS.
- THE CONTRACTOR SHALL PROVIDE ALL NECESSARY TRAFFIC CONTROL DEVICES AND FLAGGERS TO INSURE THE SAFETY OF THE PUBLIC IN OR AROUND THE WORK AREA. THE CONTRACTOR SHALL HAVE A CERTIFIED ATSSA TRAFFIC CONTROL TECHNICIAN OR IMAA WORK ZONE SAFETY SPECIALIST SET UP, MAINTAIN AND/OR REMOVE ALL TRAFFIC CONTROL DEVICES IN THE CITY OF LAS VEGAS RIGHT OF WAY.
- WORK IN PUBLIC STREETS, ONCE BEGUN, SHALL BE EXPEDITED TO COMPLETION SO AS TO PROVIDE MINIMUM INCONVENIENCE TO ADJACENT PROPERTY OWNERS AND TO THE TRAVELING PUBLIC.
- 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.
- GUARDS SHALL BE OBTAINED BY CONTACTING THE METROPOLITAN POLICE DEPARTMENT SPECIAL EVENTS UNIT (PHONE # 828-3442) WHO WILL PROVIDE OFFICERS PROPERLY TRAINED IN TRAFFIC CONTROL. FEES FOR THE USE OF THESE OFFICERS SHALL BE SET BY METRO AND WILL BE PAID BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR ALL ARRANGEMENTS WITH METRO.
- ANY WORK WITHIN 300' OF A SIGNALIZED INTERSECTION WILL BE NIGHT WORK, UNLESS OTHERWISE DIRECTED BY THE CITY OF LAS VEGAS TRAFFIC ENGINEER.
- THE CONTRACTOR SHALL CONTACT THE TRAFFIC ENGINEERING DIVISION (TRANSPORTATION SECTION) THROUGH THE PROJECTS OFFSITE INSPECTOR PRIOR TO INITIATING PAVING TO RECEIVE DIRECTION FOR ANY PERMANENT OR TEMPORARY MODIFICATIONS TO THE APPROVED DRAWINGS REGARDING FINAL PAVEMENT TRANSITIONS. MARKINGS AND SIGNING THAT ARE REQUIRED TO MATCH ADJACENT ROADWAY SEGMENTS, THE CONTRACTOR SHALL PROVIDE A DRAWING FOR APPROVAL BY THE TRAFFIC ENGINEERING DIVISION DEPICTING ANY ADJUSTMENTS TO THE FINAL PAVEMENT MARKINGS AND SIGNAGE, WHICH MAY INCLUDE OMITTING, ADDING OR MODIFYING PAVEMENT MARKINGS AND TRAFFIC CONTROL SIGNS SUCH THAT ADEQUATE TRANSITIONS AND LANE TERMINATIONS BETWEEN ADJACENT ROADWAY SEGMENTS ARE CONSTRUCTED.

- TROY VALVE - PATRIOT MODEL PT100N, NEVADA HYDRANT
- U.S. PIPE - METROFLOWM-03

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.

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 14.12.

TO IDENTIFY THE FIRE HYDRANT LOCATIONS, THE CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER LINE OF THE STREET ADJACENT TO THE FIRE HYDRANTS. SNFC #6124 SECTION 507.5.7.3

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. 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

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

PRIVATE HYDRANTS SHALL BE PAINTED RED. SNFC 507.5.7.1

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

FIRE HYDRANT SPACING SHALL BE AS FOLLOWS: SNFC C102
• RESIDENTIAL - 500 FT UNSPRINKLERED; 600 FT SPRINKLERED.
• COMMERCIAL - 300 FT UNSPRINKLERED; 400 FT SPRINKLERED.

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

NO FIRE HYDRANTS SHALL BE LOCATED WITHIN THE RADIUS OF A CUL-DE-SAC OR WITHIN 20 FT OF THE PERIMETER OF THE RADIUS OF THE CUL-DE-SAC. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN 6 FT OF ANY CURB RETURN, DRIVEWAY, POWER POLE, STREETLIGHT OR ANY OTHER OBSTRUCTION. SNFC C102.12

A MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A ONE-TWO FAMILY DWELLING SHALL NOT EXCEED 300 FT, AS MEASURED BY AN APPROVED ROUTE. SNFC 102.4 THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A FIRE DEPARTMENT CONNECTION (FDC) SHALL NOT EXCEED 100 FT, AS MEASURED BY AN APPROVED ROUTE. SNFC C102.7

THE MAXIMUM DISTANCE FROM A HYDRANT TO THE END OF A DEAD-END STREET SHALL NOT EXCEED 200 FT. SNFC 102.6

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

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

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

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

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

FIRE DEPARTMENT ACCESS ROADS IN 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 6 RESIDENTS, AND WHEN ON STREET PARKING IS DISALLOWED. SNFC 503.2.1 / 503.2.11

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

A FIRE APPARATUS ACCESS ROAD SHALL BE REQUIRED WHEN ANY PORTION OF AN EXTERIOR WALL OF THE FIRST STORY IS LOCATED MORE THAN 150 FT FROM A FIRE DEPARTMENT VEHICLE ACCESS. THIS DISTANCE COULD BE INCREASED TO 250 FT IF THE BUILDING IS SPRINKLERED. IFC 503.1.1 / SNFC 503.11

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 503.1.2

ALL DEAD-END FIRE APPARATUS ROADS AND/OR FIRE LINES, 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

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 LANE. SIGNS TO BE PLACED ON BOTH SIDES OF AN ACCESS ROADWAY IF NEEDED TO PREVENT PARKING ON EITHER SIDE. SIGNS TO BE INSTALLED NO HIGHER THAN 10 FT OR LESS THAN 6 FT FROM THE ROADWAY LEVEL. THE CURB ALONG OR ON THE PAVEMENT OR CEMENT (IF NO CURB IS PROVIDED) SHALL BE PAINTED WITH A RED WEATHER RESISTANT PAINT IN ADDITION TO THE SIGNS. 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

CLV STREETLIGHT NOTES

- 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, AND ANY ADOPTED SPECIAL AREA STANDARDS.
- NO DEVIATION OF STREET LIGHT, PULL BOX, CONDUITS (ETC.) LOCATIONS SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL OF TRAFFIC ENGINEERING AND THE CITY ENGINEER
- ALL EXISTING STREET LIGHTING SHALL REMAIN OPERATIONAL DURING CONSTRUCTION.
- ALL STREET LIGHTING CONDUITS STUB SHALL HAVE AT LEAST ONE GREEN #8 THW WIRE INSTALLED, AS TRACER WIRE. WHEN "EMPTY" CONDUIT IS COMPLETELY INSTALLED FROM PB TO PB, IT SHALL HAVE MINIMUM OF 2 #4 AND 1 #8 THW WIRE WITH THE ENDS TAPED OR "SAFE OFF" PRIOR TO FINAL INSPECTION.
- ANY STRUCTURE SUCH AS BLOCK WALLS, CHAIN LINK FENCES, RETAINING WALLS, ETC., SHALL LEAVE A MINIMUM CLEARANCE IN ACCORDANCE WITH THE USD NO. 322A.
- AS-BUILT DRAWINGS SHALL BE SUPPLIED TO THE TEF0 PRIOR TO ANY PRE-FINAL INSPECTION. THE AS-BUILT DRAWING NEEDS TO BE STAMPED AS-BUILT AND SIGNED BY THE PREPARER.
- SERVICE POINT SHALL BE COORDINATED WITH NV ENERGY COMPANY, AND WHEREVER POSSIBLE, BE LOCATED NEAR THE CENTER OF THE CIRCUIT. SERVICE POINTS SHALL BE SHOWN ON THE CIVIL PLANS.
- 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.
- 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, AT NO EXPENSE TO THE CITY OF LAS VEGAS, BEFORE STREETLIGHT BASES ARE INSTALLED.
- THE CONTRACTOR SHALL FURNISH COMPLETE SERVICE TO TRANSFORMERS AND CONTROL SYSTEMS IF REQUIRED ON PLANS.
- THE DEVELOPER/OWNER WILL BE REQUIRED TO SUPPLY POWER TO ALL NEW PUBLIC STREET LIGHTS INSTALLED UNDER THIS DESIGN PRIOR TO BOND RELEASE OR PROJECT COMPLETION. THE DEVELOPER/OWNER WILL BE RESPONSIBLE FOR ALL ITEMS ASSOCIATED WITH THE INSTALLATION, CONSTRUCTION, ENERGIZING, MAINTENANCE AND OPERATIONAL COST OF SAID STREET LIGHTS PRIOR TO PROJECT COMPLETION. REFER TO THE PLAN FOR ANY NEW SERVICE REQUIREMENTS. THE TRANSFER OF OWNERSHIP FROM THE DEVELOPER/OWNER TO THE CITY OF LAS VEGAS FOR ALL NEW PUBLIC STREET LIGHTS AND/OR SERVICE(S) INSTALLED UNDER THIS PLAN DESIGN WILL BE IN CONJUNCTION WITH THIS PROJECT COMPLETION. COORDINATE ALL MAINTENANCE AND OPERATIONAL TRANSFERS WITH THE CITY OF LAS VEGAS TRAFFIC ENGINEERING DEPARTMENT (TEFO) AT (702) 229-6331.

STORMWATER RUNOFF MANAGEMENT NOTES

- THE OWNER, SITE DEVELOPER, CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATE IN, THE PUBLIC RIGHTS OF WAY OF CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
- ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN CLARK COUNTY TITLE 24.40 AND THE LAS VEGAS VALLEY CONSTRUCTION SITE BEST MANAGEMENT PRACTICES MANUAL.
- TEMPORARY OR PERMANENT STABILIZATION PRACTICES WILL BE INSTALLED ON DISTURBED AREAS AS SOON AS PRACTICABLE AND NO LATER THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. SOME EXCEPTIONS MAY APPLY; REFER TO NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.5.
- AT A MINIMUM, THE CONTRACTOR SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER AND ACTUAL RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
- ACCUMULATED SEDIMENT IN BMPs SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

3. THE CONTRACTOR SHALL TAKE FULL 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 EXCAVATION.

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

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

6. THE 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 INDICATED.

	HORIZONTAL	VERTICAL	COMPACTION
A. PAVEMENT AREA SUBGRADE	0.1"	+0.0' TO -0.1'	SEE SOILS REPORT
B. ENGINEERED FILL	0.5"	+0.1' TO -0.1'	SEE SOILS REPORT

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

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

8. 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.

9. 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 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.

10. 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, BARRICADES, ETC.

GRADING QUANTITIES

TOTAL FOR OVERALL DEVELOPMENT: 1,291 CY CUT
18,121 CY FILL

THIS OPINION OF THE CUT AND FILL QUANTITIES IS PROVIDED AS REQUIRED BY CLARK COUNTY BUILDING CODE REQUIREMENTS. THIS INFORMATION SHOULD NOT BE USED FOR BIDDING PURPOSES. ALL CONTRACTORS ARE RESPONSIBLE FOR THEIR OWN QUANTITIES. THESE TOTALS ARE RAW AND DO NOT ACCOUNT FOR SHRINKAGE AND SUBSIDENCE.

CLV SEWER NOTES

- ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF DESIGN & 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 CONTRACTORS TO BE AWARE OF THE CONTENTS OF THE ABOVE SPECIFICATIONS.
- IT SHALL BE THE CONTRACTORS' RESPONSIBILITY TO PERFORM CONSTRUCTION AS PER PLANS. ANY ADDITIONS, DELETIONS, OR CHANGES SHALL FIRST MEET WITH THE APPROVAL OF THE CITY ENGINEERS.
- CHISEL "S" OR "G" IN CURBS WHERE SEWER OR GAS LATERALS PASS UNDER THE CURB.
- POLYVINYL (PVC) SEWER PIPE SHALL MEET ASTM D-3034 SDR 35 SPECIFICATIONS, INSTALLED WITH SAND BEDDING AND BACKFILL OF TYPE II AGGREGATE BASE.
- ALL MANHOLES IN PAVED STREETS EIGHTY FEET (80') ROW AND LARGER SHALL HAVE CONCRETE COLLARS. STREETS LESS THAN EIGHTY FEET (80') WILL REQUIRE RETROFITTING IF PAVING DOES NOT CONFORM TO CITY STANDARDS AT THE MANHOLE.
- TEE SADDLES SHALL BE USED TO CONNECT SEWER LATERALS TO EXISTING MAIN LINES UP TO TWELVE INCHES (12") IN DIAMETER. CONNECTIONS TO FIFTEEN INCH (15") OR LARGER MAINS SHALL REQUIRE SPECIAL PROCEDURES. INLINE "Y"s SHALL BE USED ON LINES TWELVE INCHES (12") IN DIAMETER AND ABOVE.
- WATER MAINS SHALL BE PROTECTED IN ACCORDANCE WITH LVVWD STANDARDS WHENEVER A SEWER MAIN CROSSES OVER A MAIN LINE OR THE SEWER IS LESS THAN EIGHTEEN INCHES (18") UNDER A WATER MAIN.
- ALL CONTRACTORS INSTALLING SEWER MAINS THAT WILL BE UNDER JURISDICTION OF THE CITY OF LAS VEGAS MUST BE STATE OF NEVADA CLASS "A" CONTRACTORS.
- THE CITY OF LAS VEGAS WILL NOT ACCEPT ANY SEWER MAINS WHICH HAVE A VERTICAL DEFLECTION OF MORE THAN ONE TENTH OF A FOOT (0.1') FROM THE APPROVED CONSTRUCTION PLANS AT ANY LOCATION. SEWER MAINS FOUND TO EXCEED THIS TOLERANCE WILL HAVE TO BE REPAIRED OR REMOVED AND REPLACED TO THE SATISFACTION OF THE CITY ENGINEER PRIOR TO ACCEPTANCE BY THE CITY OF LAS VEGAS.
- INSTALLATION OF CURVED SEWER REQUIRES THE USE OF PVC C900 WHICH ALLOWS FOR PIPE DEFLECTION AT THE JOINTS.

LAS VEGAS VALLEY WATER DISTRICT NOTES

LVVWD PROJECT #XXXXXX

- 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.
- ALL WORK SHALL CONFORM TO LVVWD STANDARD PLATES, DRAWINGS, AND SPECIFICATIONS, AND TO THE 2010 EDITION OF THE UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR POTABLE WATER SYSTEMS (UDACS). THE LATEST EDITION OF UDACS SHALL SUPERSEDE ANY CONFLICTS CONTAINED IN THE APPROVED DRAWINGS AND/OR SPECIFICATIONS.
- ALL WORK, EXCEPT AS MODIFIED BY THESE PLANS OR BY NOTE 2 ABOVE, SHALL BE DONE IN ACCORDANCE WITH THE MOST RECENT DRAFT OR EDITION OF THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFFSITE IMPROVEMENT, CLARK COUNTY AREA.
- A SINGLE PIPE MATERIAL SHALL BE USED THROUGHOUT THE PROJECT UNLESS OTHERWISE APPROVED BY THE LVVWD.
- ALL SERVICE LATERALS TWO (2) INCHES IN DIAMETER AND SMALLER SHALL BE TYPE K COPPER TUBING WITH LVVWD APPROVED SERVICE SADDLES.
- ALL WATER METER BOXES SHALL BE LOCATED OUTSIDE OF DRIVEWAY AREAS.
- ALL VALVES SHALL BE LOCATED OUTSIDE OF DRIVEWAYS, VALLEY AND CURB GUTTERS.
- ALL WATER AND STORM DRAIN OR SANITARY SEWER CROSSINGS SHALL CONFORM TO SECTION 2.22 OF THE 2010 EDITION OF THE UDACS.
- ALL WATER FACILITIES SHALL BE FILLED, DISINFECTED, PRESSURE TESTED, FLUSHED, FILLED, AND AN ACCEPTABLE WATER SAMPLE OBTAINED, PRIOR TO CONNECTION TO THE LVVWD DISTRIBUTION SYSTEM.
- THE CONTRACTOR MUST OBTAIN ALL METERS TWO (2) INCHES AND SMALLER FROM LVVWD CENTRAL STORES. TELEPHONE 258-3152 OR 258-3802, TWO (2) WORKING DAYS PRIOR TO METER PICKUP.
- 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.
- ALL WATER FACILITY CONSTRUCTION MATERIALS USED MUST BE AS LISTED ON THE LVVWD PRE-APPROVED MATERIALS AND MANUFACTURER'S LISTING FOR NEW FACILITIES, LATEST REVISION, OR SPECIFICALLY APPROVED ON THESE PLANS.
- TELEPHONE "CALL BEFORE YOU DIG" AT "811" OR 1-800-227-2600.
- THE INSTALLATION OF LAS VEGAS VALLEY WATER DISTRICT (LVVWD) MUNICIPAL WATER FACILITIES WITHIN ALL STREETS IS ASSUMED TO BE IN COMPLIANCE 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.

ANY DECORATIVE PAVING SURFACE WITHIN THE STREET IS THE RESPONSIBILITY OF THE OWNER'S ASSOCIATION, OR THE INDIVIDUAL PROPERTY OWNERS IF NO OWNER'S ASSOCIATION IS IN EXISTENCE, OR THE AGENCY HAVING JURISDICTION. DECORATIVE SURFACE MATERIALS PLACED WITHIN THE TEN FOOT EASEMENT ABUTTING A PUBLIC OR PRIVATE STREET, IF DISTURBED BY THE LVVWD DURING THE REPAIR OR OPERATION OF ITS FACILITIES, WILL BE REPLACED BY LVVWD WITH AN APPROPRIATELY SIZED PLAIN FINISH CONCRETE PATCH. THE LVVWD WILL NOT RESTORE, AND WILL NOT BE RESPONSIBLE FOR THE RESTORATION OF, ANY DECORATIVE PAVING SURFACE WITHIN THE STREET. THE LVVWD WILL NOT ATTEMPT TO MATCH COLOR OR FINISH OF ANY ADJACENT MATERIALS.

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES MANAGER
(PROJ# XXXXXX)

DATE

DEVIATIONS FROM STANDARDS

1. NONE

SIDEWALK RAMPS		6 EA
DG SIDEWALK		9,142 SF
4" THICK CONCRETE SIDEWALK	2,736 SF	
3.0" AC PAVEMENT		3,159 SY
4.0" AC PAVEMENT	3,283 SY	
TYPE II AGGREGATE BASE	1,456 CY	833 CY

WATER

SEWER

STREET LIGHT / TRAFFIC

DRAINAGE IMPROVEMENTS

6" REINFORCED CONCRETE	1,091 SF
A-TYPE CURB	70 LF

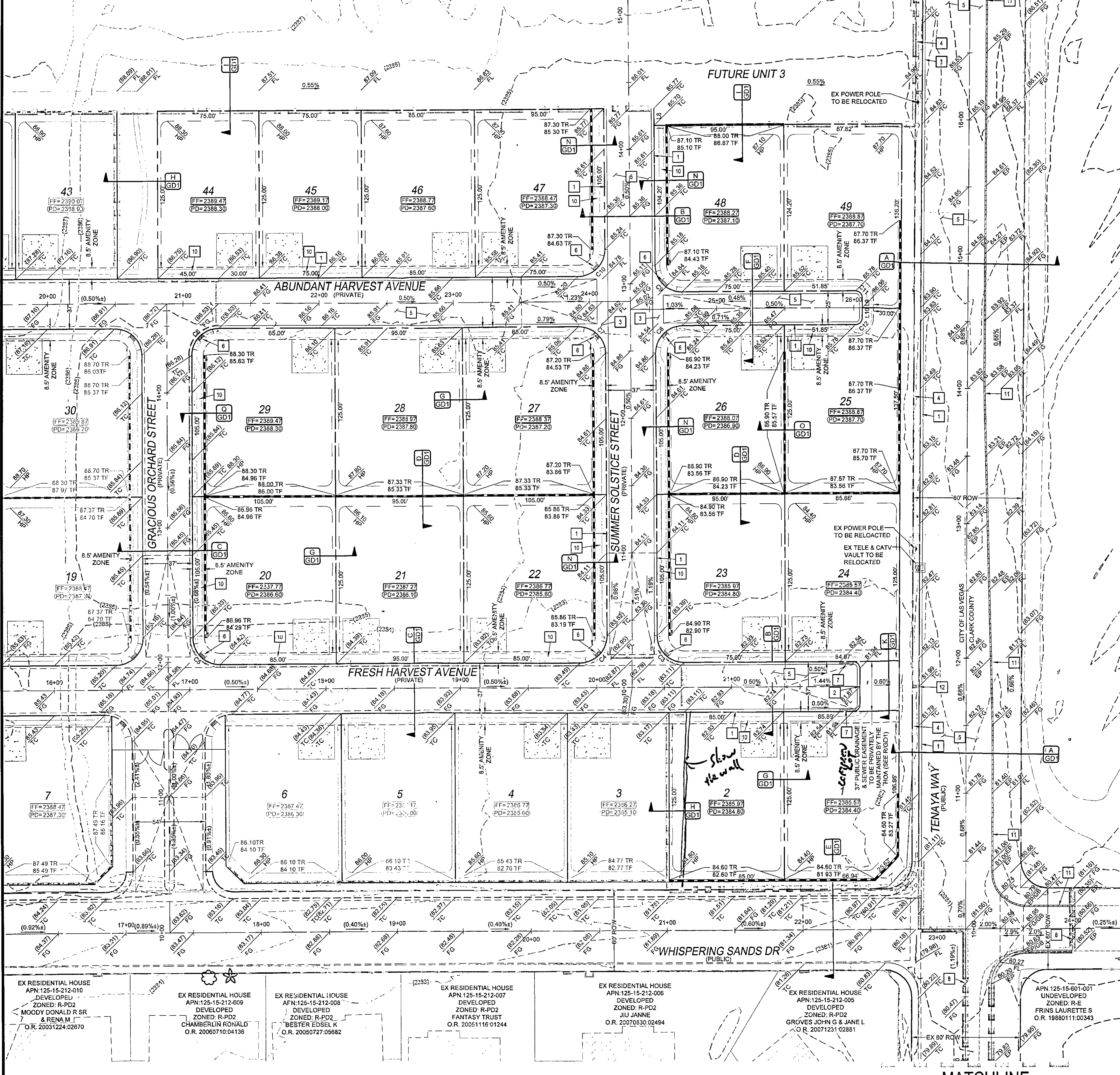
CLARK COUNTY PUBLIC WORKS NOTES

- INSPECTIONS ARE REQUIRED. CALL 24 HOURS IN ADVANCE. 455-4610. YOUR PERMIT, APPROVED PLANS, AND BARRICADE PLANS FOR THIS WORK MUST BE ON THE JOB SITE AT ALL TIMES.
- EXACT LOCATION OF ALL SAW-CUT LINES SHALL BE DETERMINED IN THE FIELD BY A CLARK COUNTY INSPECTOR.
- CURB AND GUTTER WITH A GRADE LESS THAN 4/10 OF ONE PERCENT SHALL BE CONSTRUCTED BY FORMING. EACH JOINT SHALL BE CHECKED FOR GRADE PRIOR TO CONSTRUCTION AND WATER TESTED AS SOON AS POSSIBLE AFTER CONSTRUCTION.
- FINAL ASPHALTIC CONCRETE (AC) PAVEMENT SURFACES SHALL BE ONE-HALF (1/2") INCH ABOVE THE LIP OF THE GUTTER (INCLUDING OPEN GRADE).
- ALL OFFSITE IMPROVEMENT CONSTRUCTION SHALL CONFORM TO THE UNIFORM STANDARD SPECIFICATIONS AND STANDARD DRAWINGS CLARK COUNTY AREA NEVADA AND CLARK COUNTY SUPPLEMENT TO UNIFORM STANDARD DRAWINGS AND SPECIFICATIONS, LATEST REVISION.
- PRIVATE STREETS, CURB AND GUTTER AND VALLEY GUTTERS REFLECTED ON THESE PLANS ARE TO BE INSPECTED BY A CLARK COUNTY INSPECTOR.
- WHEEL CHAIR RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING 235. EXACT LOCATIONS OF RAMPS SHALL BE DETERMINED IN THE FIELD BY A CLARK COUNTY PUBLIC WORKS INSPECTOR.
- PROPER SIGNS, BARRIERS, BARRICADES, AND LIGHTS SHALL BE PLACED AND MAINTAINED IN ACCORDANCE WITH THE LATEST "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS", TRAFFIC, SCHOOL, OR STREET SIGNS OF ANY KIND ARE NOT TO BE MOVED FOR ANY REASON WITHOUT FIRST COORDINATING WITH THE DEPARTMENT OF PUBLIC WORKS INSPECTOR @ 455-4610.
- THIS PLAN DOES NOT AUTHORIZE CLOSURE OF ANY ROAD OR STREET.
- NO OPEN TRENCH SHALL BE ALLOWED ACROSS ANY STREET OR WITHIN TEN (10) FEET OF ANY TRAVELWAY, EXCEPT WHEN WORK IS IN ACTUAL PROGRESS. AREAS COVERED BY ACCEPTABLE STEEL PLATE ARE NOT TO BE CONSTRUED AS A TRENCH. NO OPEN TRENCH IS PERMITTED IN EXCESS OF 500 FEET OR LENGTH NECESSARY TO ACCOMMODATE PIPE INSTALLATION IN A SINGLE DAY, WHICH EVER IS GREATER. ALL TRENCH CROSSINGS AND BACKFILL SHALL MEET THE STANDARD SPECIFICATION UNLESS OTHERWISE STATED.
- A TEMPORARY PATCH IS TO BE IN PLACE AT THE END OF EACH WORK DAY WHERE THE BACKFILL IN THE TRENCH HAS BEEN COMPLETED AND PRIOR TO OPENING THE WORK AREA BACK TO TRAFFIC AND IS TO BE MAINTAINED BY THE PERMITEE. A PERMANENT PATCH IS TO BE IN PLACE WITHIN THIRTY (30) DAYS AFTER THE INSTALLATION OF THE TEMPORARY PATCH.
- COMPACTION TESTS ARE REQUIRED.



UTILITY DISCLAIMER NOTE

EXISTING UTILITY LOCATIONS SHOWN HEREIN ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EX



MATCHLINE
SEE SHEET PP1

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.
CALL BEFORE YOU DO OVERHEAD
1-702-227-2929

Call Before You Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
CALL 811
OR
1-800-227-2600

LINE AND CURVE DATA

Curve Table			
Curve #	Length	Radius	Delta
C3	31.42	20.00	090.000
C4	31.42	20.00	090.000
C5	31.42	20.00	090.000
C6	31.42	20.00	090.000
C7	31.42	20.00	090.000
C8	31.42	20.00	090.000
C10	31.42	20.00	090.000
C12	7.85	5.00	090.000

Line Table		
Line #	Length	Direction
L8	12.80	S00° 12' 34.00"E
L9	7.50	S00° 12' 34.00"E
L10	7.50	S00° 12' 34.00"E

GRADING NOTES

ADD 2300 FEET TO ALL GRADE TAGS TO GET ACTUAL ELEVATION

THE ELEVATION DIFFERENCE BETWEEN THE PAD AND FINISH FLOOR IS DETERMINED FROM THE MINIMUM THICKNESS REQUIRED PER THE GEOTECHNICAL REPORT. FINISH FLOORS MAY INCREASE DEPENDING ON THE TYPE OF SOIL AND FOUNDATION PLAN USED. NOTE THAT THE STRUCTURAL PLANS & GEOTECHNICAL REPORT SHALL SUPERSEDE THE CIVIL IMPROVEMENT PLANS.

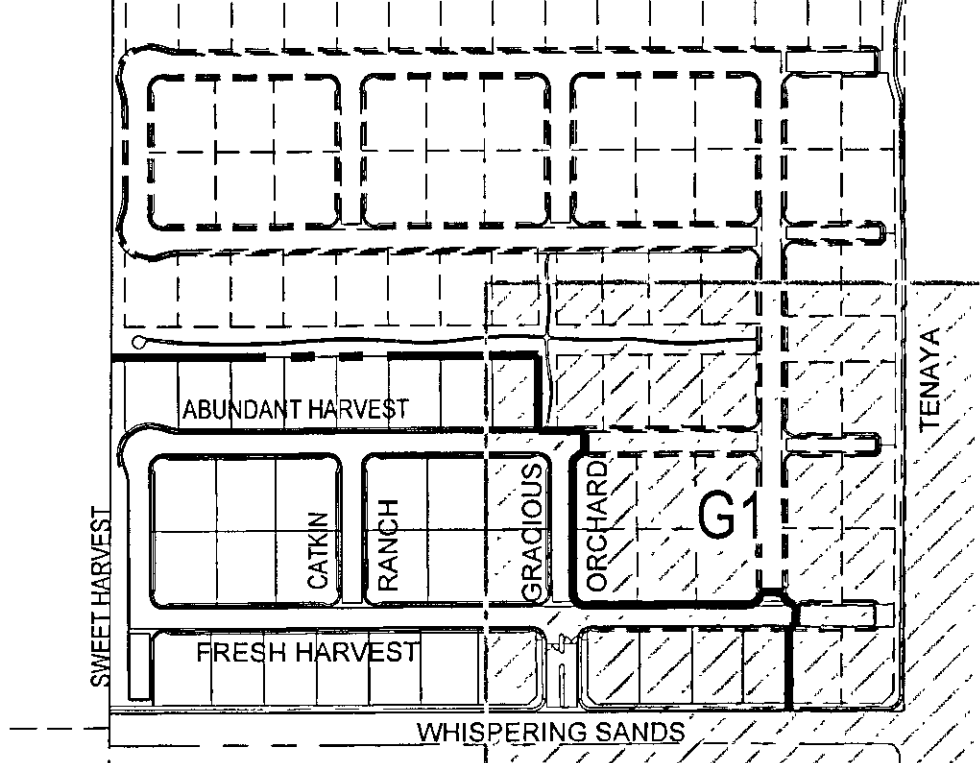
ALL PRIVATE STREETS AND DRAINAGE EASEMENTS ARE TO BE PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION (H.O.A.).

ALL WORK TO BE PERFORMED OUTSIDE OF THE PROJECT BOUNDARY AND ON PRIVATE PROPERTY SHALL NOT BE PERFORMED UNTIL WRITTEN PERMISSION AND EASEMENTS HAVE BEEN OBTAINED FROM THE OFFSITE OWNER AND GIVEN TO CLARK COUNTY.

CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

CONSTRUCTION NOTES

- 24" L-TYPE CURB & GUTTER (USD #216)
- 24" DEPRESSED CURB
- 8.0" CROSS GUTTER (USD #228)
- 5.0" SIDEWALK (USD #234)
- AC PAVEMENT OVER TYPE II (PER GEOTECHNICAL REPORT)
- SIDEWALK RAMP USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT (USD #235)
- 10' TRANSITION FROM L-TYPE CURB TO DEPRESSED CURB (SEE DETAIL M/GD1)
- SAWCUT & MATCH EXISTING AC PAVEMENT
- A-TYPE CURB (USD #219)
- 3.5" DECOMPOSED GRANITE SIDEWALK
- 2.0' CUTOFF WALL (SEE DETAIL P/GD1)
- SIDEWALK UNDERDRAIN (USD#236)



PRIVATE STREET EASEMENTS

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE H.O.A.

FLOOD ZONE

THE PROJECT SITE IS LOCATED IN FLOODZONE "X" WHICH IS AN AREA DETERMINED TO BE OUTSIDE THE 0.20% ANNUAL CHANCE FLOODPLAIN PER FIRM MAP 32003G1745E REVISED SEPTEMBER 27, 2002.

EARTHWORK

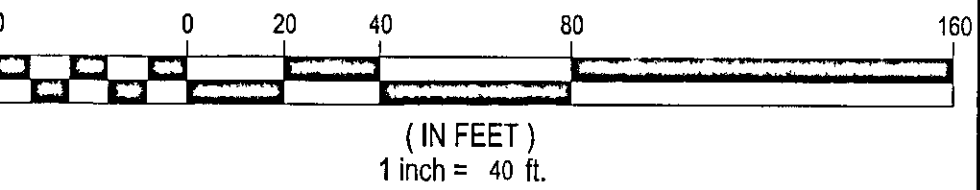
TOTAL FOR OVERALL DEVELOPMENT: 1,291 CY CUT
18,121 CY FILL

THIS OPINION OF THE CUT AND FILL QUANTITIES IS PROVIDED AS REQUIRED BY CLARK COUNTY BUILDING CODE REQUIREMENTS. THIS INFORMATION SHOULD NOT BE USED FOR BIDDING PURPOSES. ALL CONTRACTORS ARE RESPONSIBLE FOR THEIR OWN QUANTITIES. THESE TOTALS ARE RAW AND DO NOT ACCOUNT FOR SHRINKAGE AND SUBSIDENCE.

GEOTECHNICAL

AMERICAN SOILS ENGINEERING, LLC
6000 S EASTERN AVE., STE 6-B
LAS VEGAS, NEVADA 89119
REPORT NO: 1588-GE0
DATE 06/04/12

SCALE



LEGAL DESCRIPTION

BEING LOT TWO (2) OF THAT CERTAIN CERTIFICATE OF LAND DIVISION ON FILE IN FILE 001, PAGE 0055, RECORDED OCTOBER 11, 2001 IN BOOK 20011011 AS DOCUMENT NO 02282, OFFICIAL RECORDS OF THE COUNTY RECORDED, CLARK COUNTY, NEVADA

BASIS OF BEARINGS

NORTH 00°12'00" EAST BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 15, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M. CLARK COUNTY, NV AS SHOWN ON FILE 113 OF SURVEYS AT PAGE 92, OFFICIAL RECORDS OF CLARK COUNTY, NEVADA.

BENCHMARK

CLARK COUNTY VERTICAL CONTROL POINT "BLV90 10SSW6", BEING A CITY OF LAS VEGAS RIVET AND ROUND PLATE IN A CONCRETE CYLINDER, NORTHWEST CORNER OF GRAND TETON DRIVE AND PIONEER WAY NEAR PT OF PIONEER WAY

ELEVATION: 2397.47 (FEET)
730.750 (METERS)

CLARK COUNTY VERTICAL CONTROL V.2003 BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

GRADING CERTIFICATION

I CERTIFY THIS GRADING PLAN COMPLIES WITH THE APPROVED DRAINAGE STUDY, DS XX-XXXX, ON FILE WITH CITY OF LAS VEGAS FOR THIS PROJECT.

ROBERT D. CUNNINGHAM, P.E. DATE: 10/3/12

SCALE: 1"=

JOB NO: DRH-12-0

DESIGNED BY: R

CHECKED BY:

SHEET NAME: G

SHEET: 03 OF 11

BY: 10/18/12 Page 3 of 8 DATE: 10/18/12

DEVELOPMENT AND FLOOD CONTROL

DR HORTON
330 CAROUSEL PKWY
HENDERSON, NV 89014
(702) 635-3600 FAX: (800) 993-4801

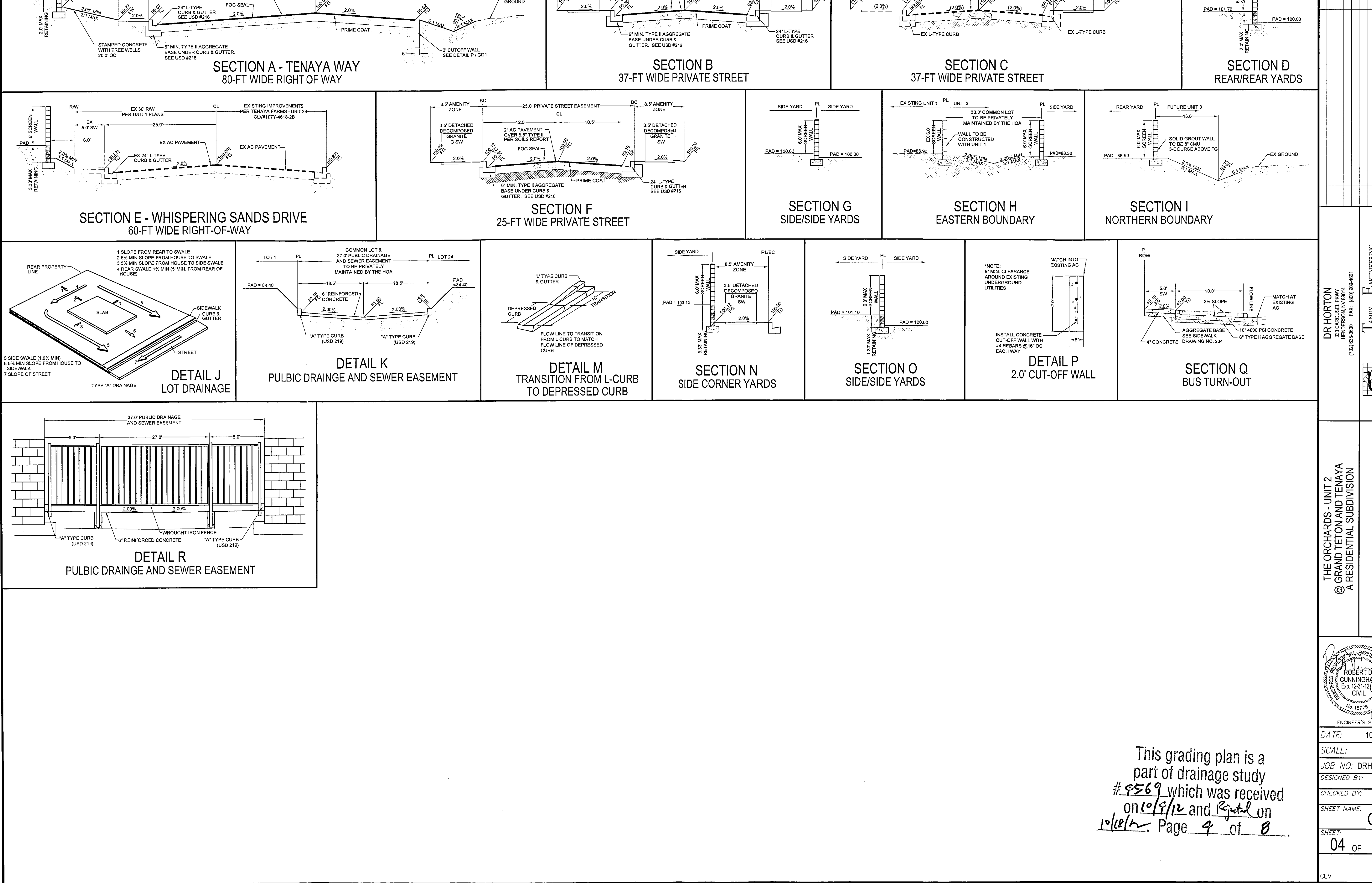
TANEY ENGINEERING
6030 S. JONES BLVD STE# 100
CLV

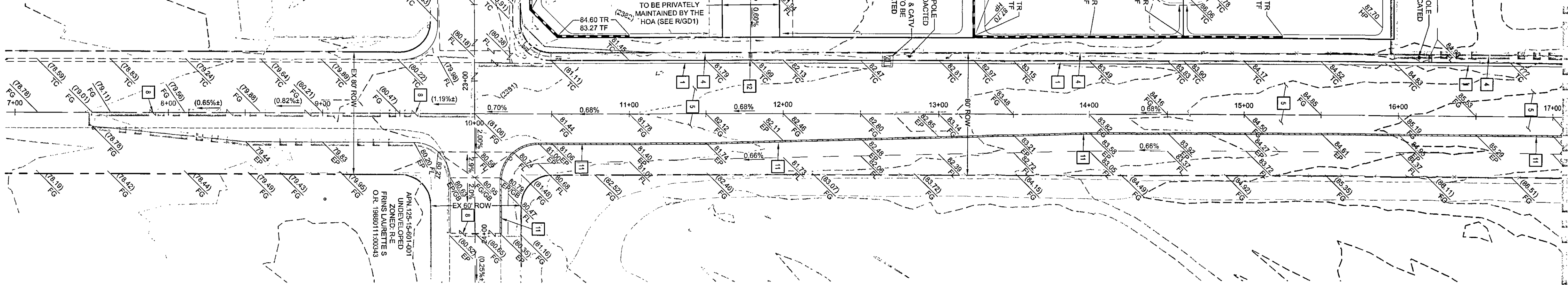
THE ORCHARDS - UNIT 2
@ GRAND TETON AND TENAYA
A RESIDENTIAL SUBDIVISION

GRADING PLAN

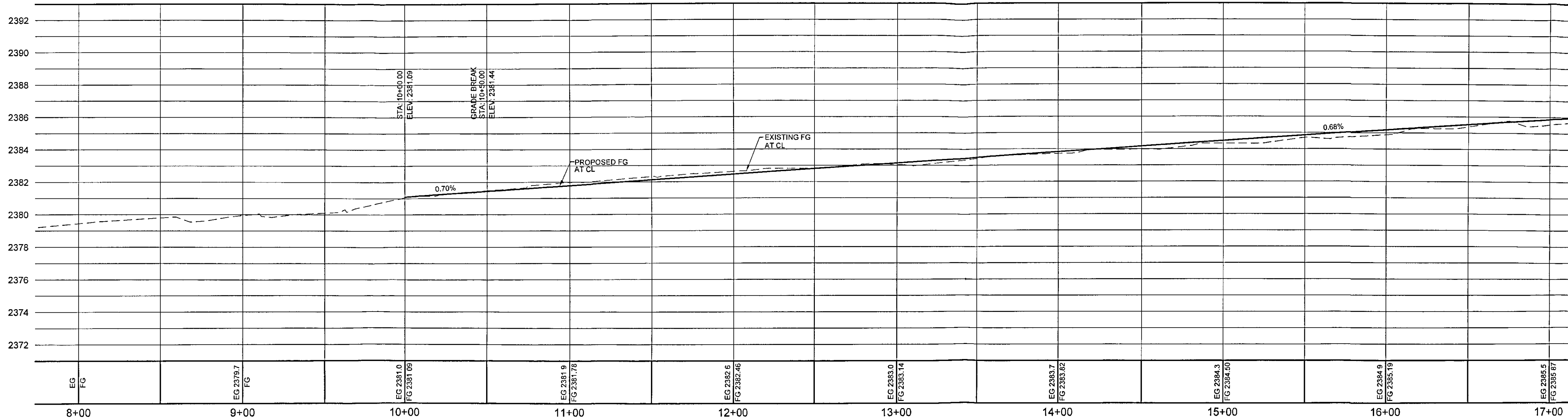
APPROVAL: BLOCK Drainage study
which was received
on 10/18/12 and sealed on
10/18/12 Page 3 of 8

CLV

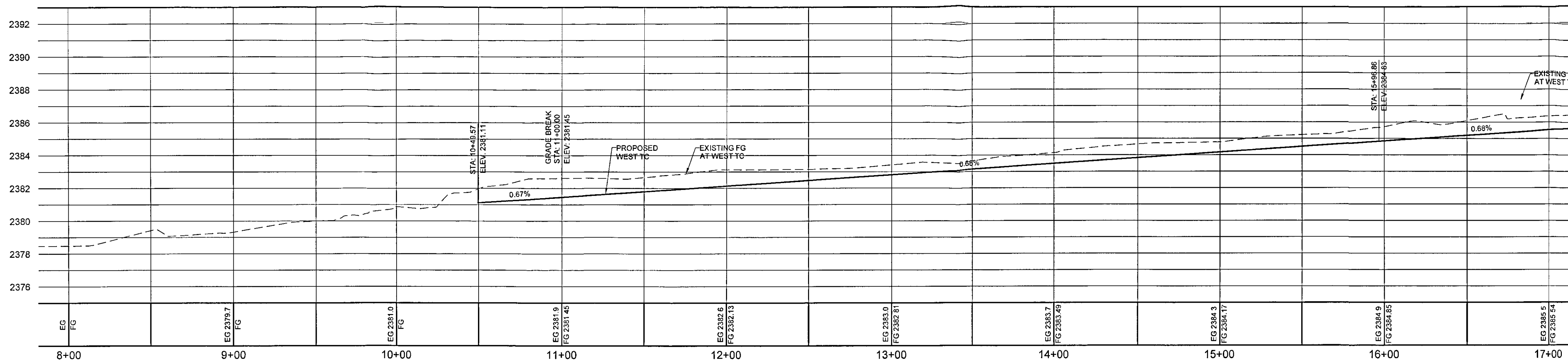




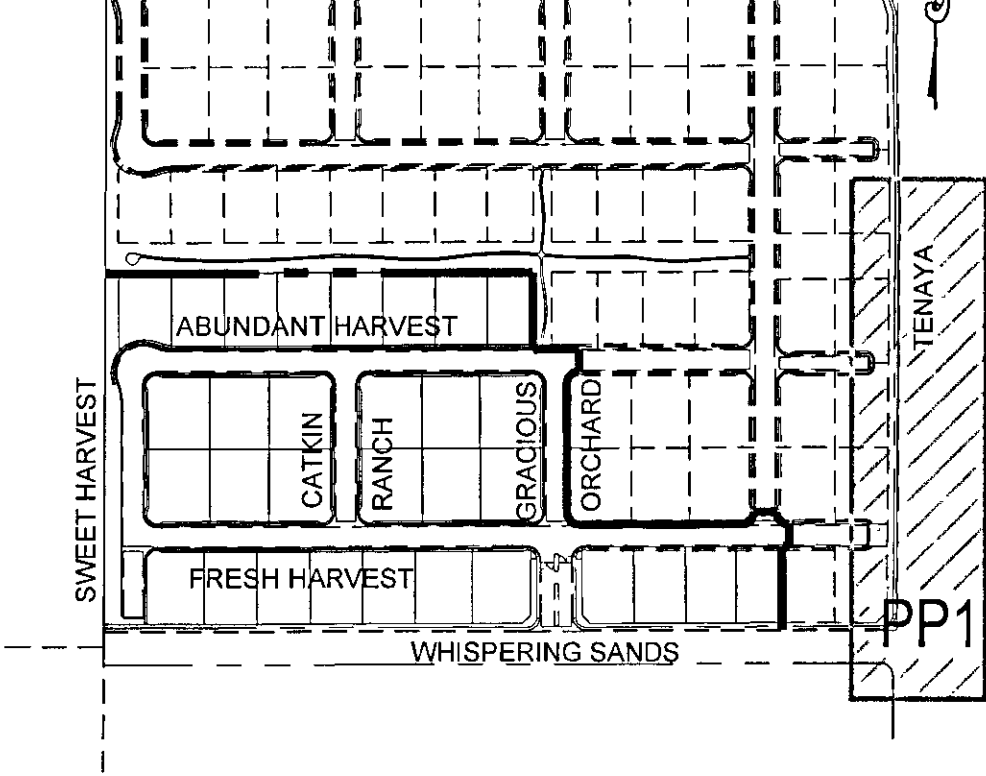
TENAYA - PLAN
STA: 7+00 TO 17+00



TENAYA CENTERLINE - PROFILE
STA: 7+00 TO 17+00
SCALE: 1"=40' HORIZ., 1"=4' VERT.



TENAYE WEST TOP OF CURB - PROFILE
STA: 7+00 TO 17+00
SCALE: 1"=40' HORIZ., 1"=4' VERT.



GRADING NOTES

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CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

GEOTECHNICAL

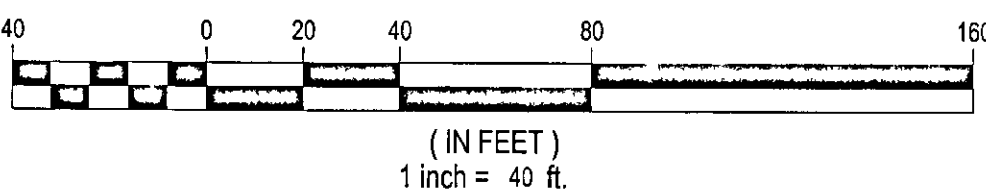
AMERICAN SOILS ENGINEERING, LLC
6000 S EASTERN AVE, STE 6-B
LAS VEGAS, NEVADA 89119

REPORT NO: 1688-GE0
DATE 06/04/12

UTILITY DISCLAIMER NOTE

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SCALE



LEGAL DESCRIPTION

BEING LOT TWO (2) OF THAT CERTAIN CERTIFICATE OF LAND DIVISION ON FILE IN FILE 001, PAGE 0055, RECORDED OCTOBER 11, 2001 IN BOOK 20011011 AS DOCUMENT NO 02282, OFFICIAL RECORDS OF THE COUNTY RECORDED, CLARK COUNTY, NEVADA.

BASIS OF BEARINGS

NORTH 00°12'00" EAST BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 15, TOWNSHIP 19 SOUTH, RANGE 60 EAST, 10 D.M. CLARK COUNTY, NV AS SHOWN ON FILE 113 OF SURVEYS AT PAGE 52, OFFICIAL RECORDS OF CLARK COUNTY, NEVADA.

BENCHMARK

CLARK COUNTY VERTICAL CONTROL POINT "BLV90 10SSWB", BEING A CITY OF LAS VEGAS RIVET AND ROUND PLATE IN A CONCRETE CYLINDER, NORTHWEST CORNER OF GRAND TETON DRIVE AND PIONEER WAY NEAR PT OF PIONEER WAY

ELEVATION: 2397.47 (FEET)
730.750 (METERS)

CLARK COUNTY VERTICAL CONTROL V.2003 BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

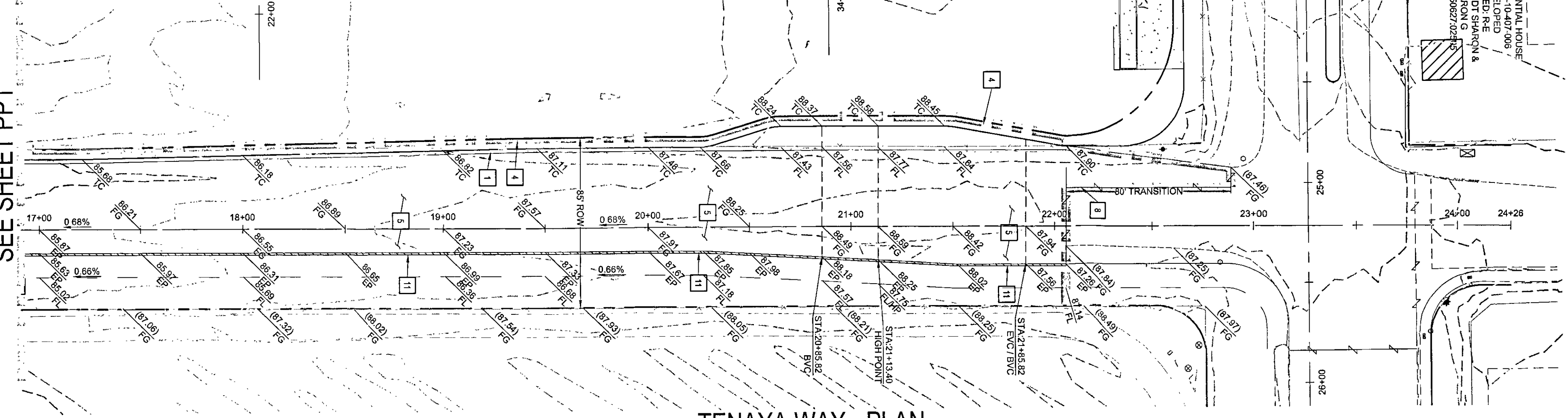
CONSTRUCTION NOTES

- 24" L-TYPE CURB & GUTTER (USD #216)
- 24" DEPRESSIONED CURB
- 8.0" CROSS GUTTER (USD #228)
- 5' SIDEWALK (USD #234)
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- SIDEWALK RAMP USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT (USD #235)
- 10' TRANSITION FROM L-TYPE CURB TO DEPRESSIONED CURB (SEE DETAIL MGD)
- SAWCUT & MATCH EXISTING AC PAVEMENT
- A-TYPE CURB (USD #219)
- 3.5' DECOMPOSED GRANITE SIDEWALK
- 2.0' CUTOFF WALL (SEE DETAIL P/GD)
- SIDEWALK UNDERDRAIN (USD #236)

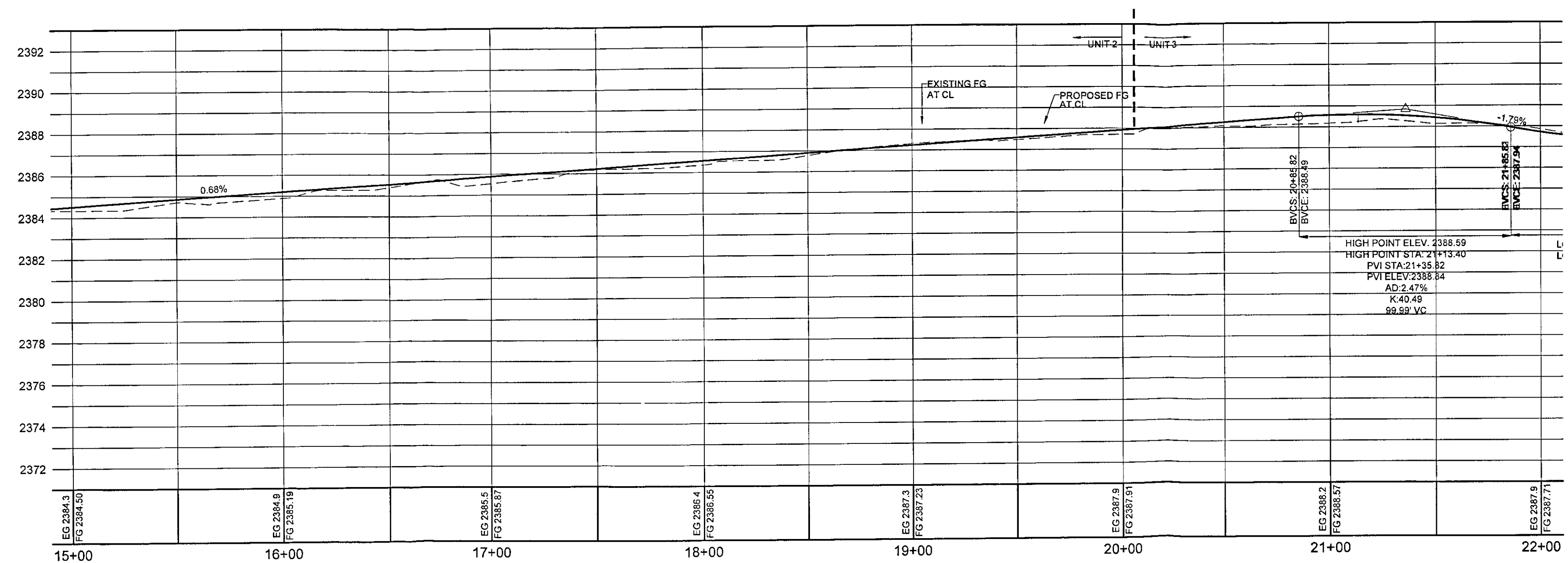
This grading plan is a part of drainage study # 4569 which was received on 10/8/12 and is to be on 10/8/12. Page 5 of 23.

DR HORTON 330 CAROUSEL PKWY HENDERSON, NV 89014 (702) 635-9600 FAX: (800) 909-4601	THE ORCHARDS - UNIT 2 @ GRAND TETON AND TENAYA A RESIDENTIAL SUBDIVISION	TENAYA STA: 10+00 TO 17+00
DR HORTON 330 CAROUSEL PKWY HENDERSON, NV 89014 (702) 635-9600 FAX: (800) 909-4601	THE ORCHARDS - UNIT 2 @ GRAND TETON AND TENAYA A RESIDENTIAL SUBDIVISION	TENAYA STA: 10+00 TO 17+00
DR HORTON 330 CAROUSEL PKWY HENDERSON, NV 89014 (702) 635-9600 FAX: (800) 909-4601	THE ORCHARDS - UNIT 2 @ GRAND TETON AND TENAYA A RESIDENTIAL SUBDIVISION	TENAYA STA: 10+00 TO 17+00

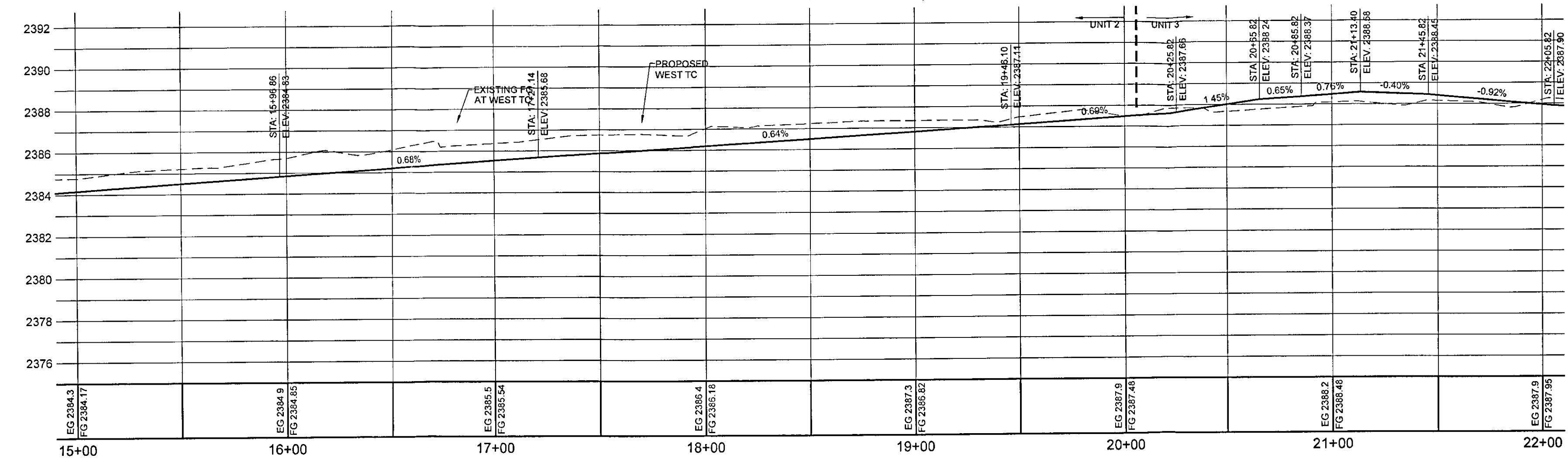
MATCHLINE STA:17+00
SEE SHEET PP1



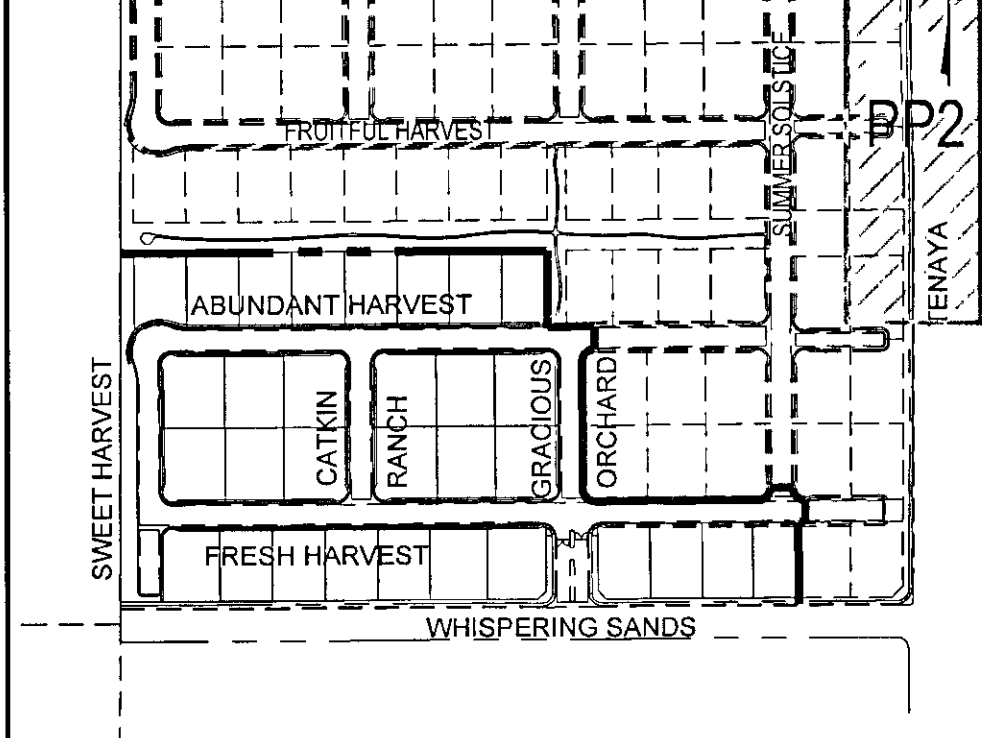
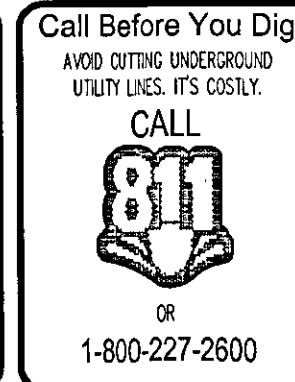
TENAYA WAY - PLAN
STA: 17+00 TO 24+00



TENAYA WAY CENTERLINE - PROFILE
STA: 17+00 TO 24+00
SCALE: 1"=40' HORIZ., 1"=4' VERT.



TENAYA WAY WEST TOP OF CURB - PROFILE
STA: 17+00 TO 26+00
SCALE: 1"=40' HORIZ., 1"=4' VERT.



GRADING NOTES

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CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

GEOTECHNICAL

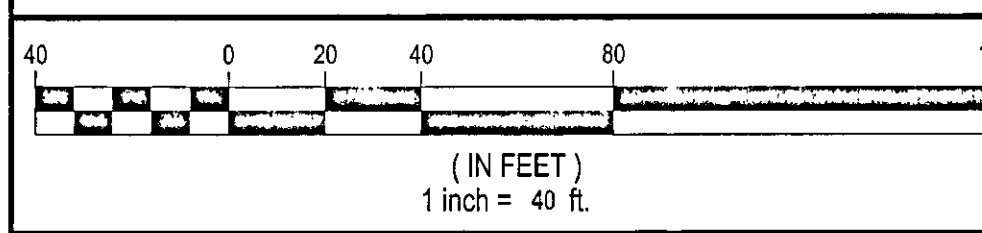
AMERICAN SOILS ENGINEERING, LLC
6000 S EASTERN AVE, STE 6-B
LAS VEGAS, NEVADA 89119

REPORT NO: 1588-GE0
DATE 06/04/12

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SCALE



LEGAL DESCRIPTION

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BASIS OF BEARINGS

NORTH 00°12'00" EAST BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 15, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M D M. CLARK COUNTY, NV AS SHOWN ON FILE 113 OF SURVEYS AT PAGE 92, OFFICIAL RECORDS OF CLARK COUNTY, NEVADA.

BENCHMARK

CLARK COUNTY VERTICAL CONTROL POINT "BLV80 105SW6", BEING A CITY OF LAS VEGAS RIVET AND ROUND PLATE IN A CONCRETE CYLINDER, NORTHWEST CORNER OF GRAND TETON DRIVE AND PIONEER WAY NEAR PT. OF PIONEER WAY

ELEVATION: 2387.47 (FEET)
730.750 (METERS)

CLARK COUNTY VERTICAL CONTROL V.2003 BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

CONSTRUCTION NOTES

1. 24" L-TYPE CURB & GUTTER (USD #219)
2. 24" DEPRESSED CURB
3. 8.0" CROSS GUTTER (USD #228)
4. 5.0" SIDEWALK (USD #234)
5. AC PAVEMENT OVER TYPE II (PER GEOTECHNICAL REPORT)
6. SIDEWALK RAMP USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT (USD #235)
7. 10' TRANSITION FROM L-TYPE CURB TO DEPRESSED CURB (SEE DETAIL WGD)
8. SAWCUT & MATCH EXISTING AC PAVEMENT
9. A-TYPE CURB (USD #219)
10. 3.5' DECOMPOSED GRANITE SIDEWALK
11. 2.0' CUTOFF WALL (SEE DETAIL PCDT)
12. SIDEWALK UNDERDRAIN (USD #233)

This grading plan is a part of drainage study #4569 which was received on 10/4/12 and rejected on 10/8/12. Page 6 of 8

DR HORTON
320 CAROUSEL PKWY
HENDERSON NV 89014
(702) 555-3800 FAX: (800) 909-4861

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THE ORCHARDS - UNIT 2
@ GRAND TETON AND TENAYA
A RESIDENTIAL SUBDIVISION

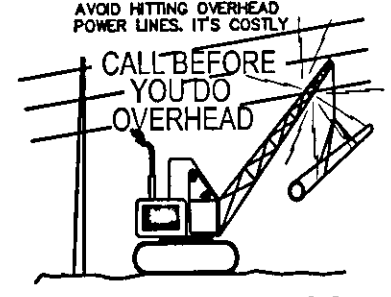
TENAYA WAY STA: 17+00 TO 24+00

ENGINEER'S SEAL
ROBERT D. CUNNINGHAM
No. 15726
Exp. 12-31-12
CIVIL

DATE: 10/3/12
SCALE: 1"=40'
JOB NO: DRH-12-06
DESIGNED BY: R
CHECKED BY: R
SHEET NAME: PP1
SHEET NO: 11

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.

CALL BEFORE YOU DO OVERHEAD



1-702-227-2929

Call Before You Dig

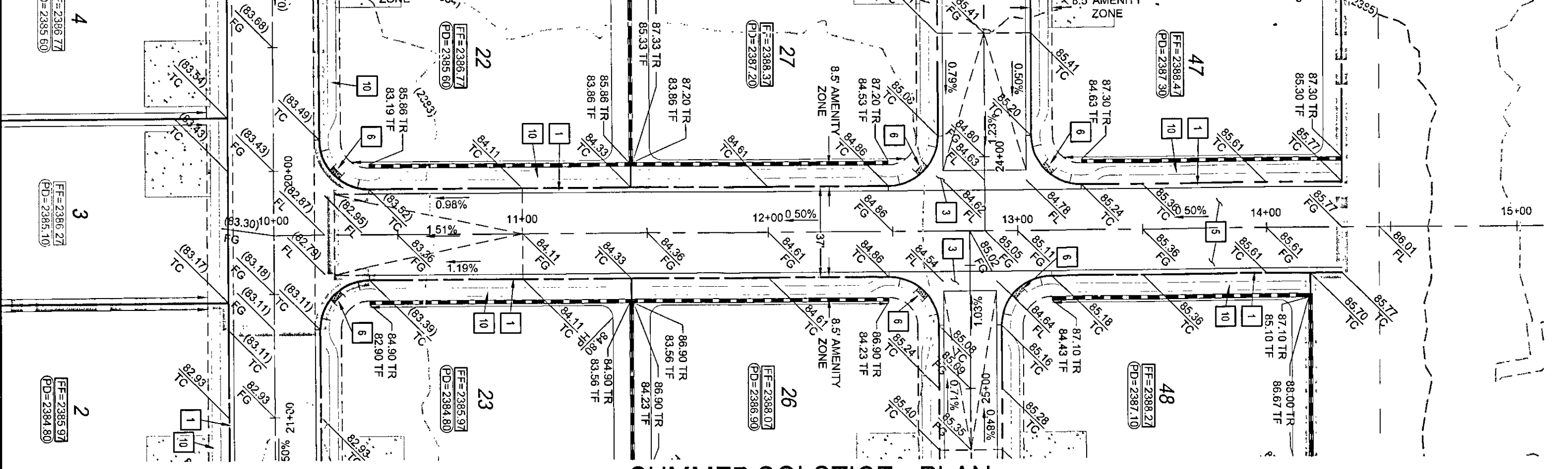
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.

CALL

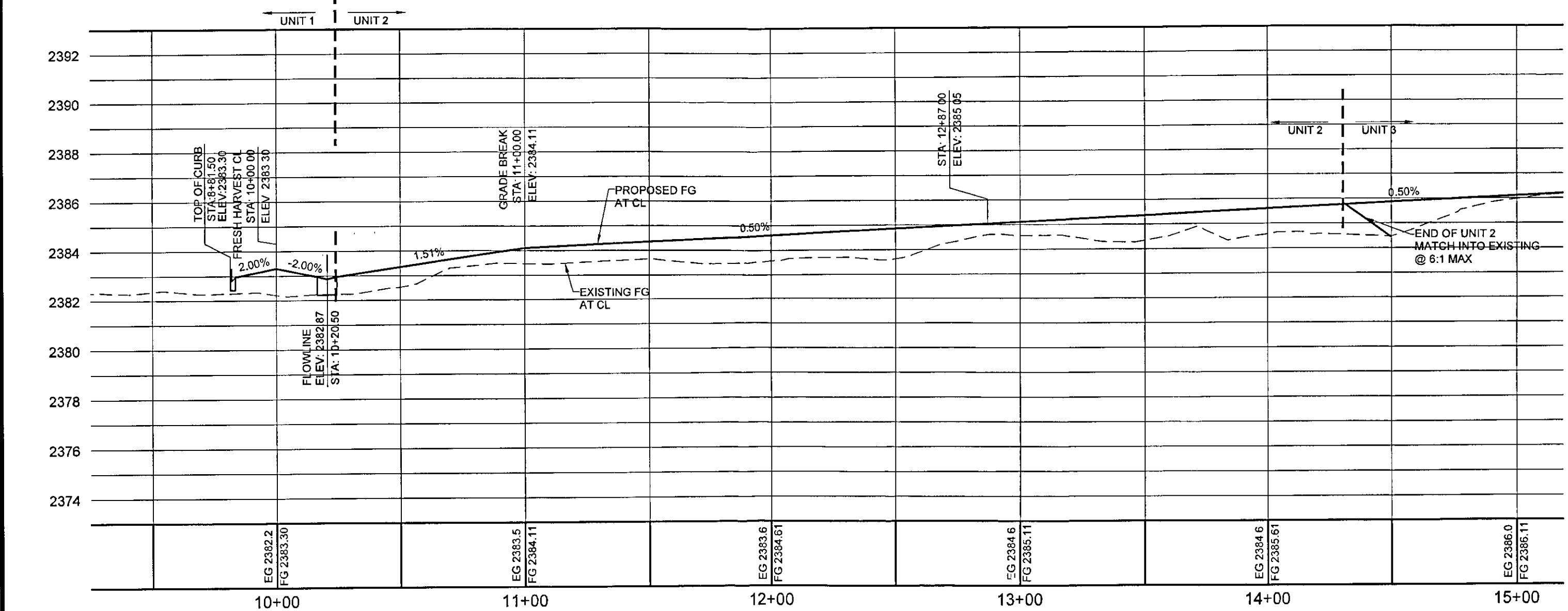


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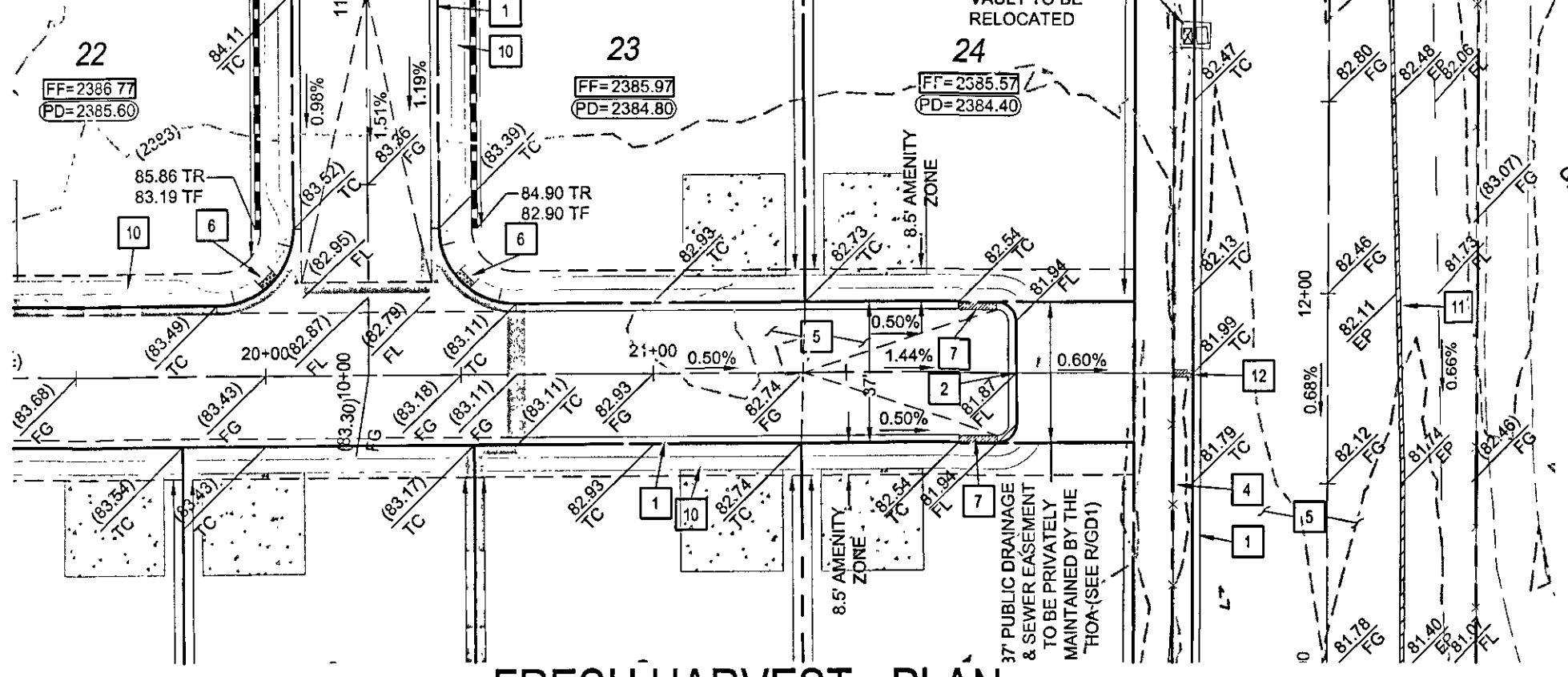
1-800-227-2600



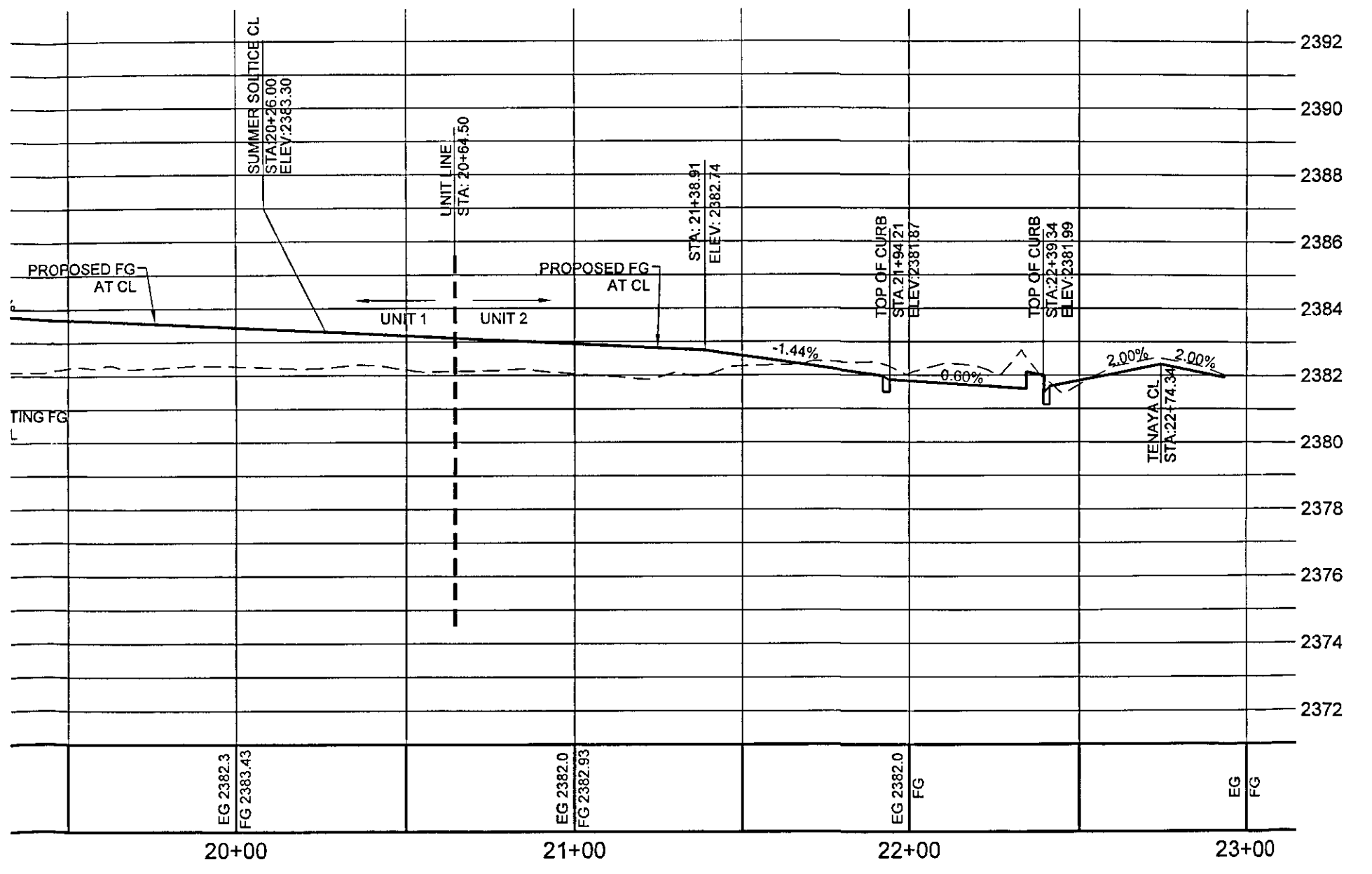
SUMMER SOLSTICE - PLAN
STA: 10+00 TO 15+00



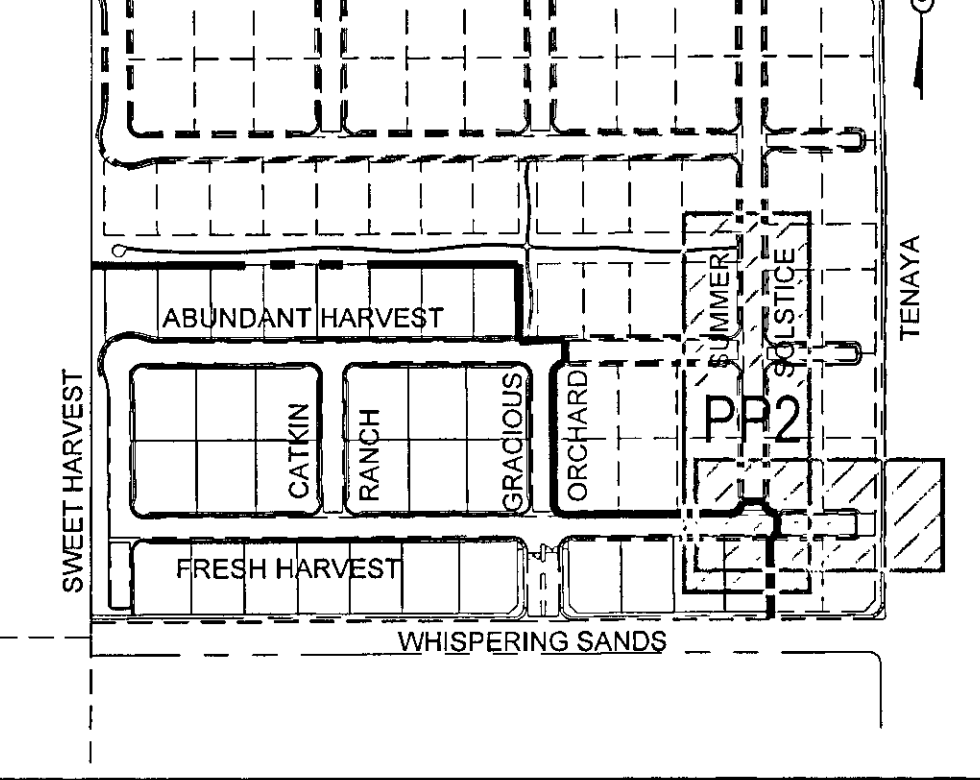
SUMMER SOLSTICE - PROFILE
STA: 10+00 TO 15+00
SCALE: 1"=40' HORIZ., 1"=4' VERT.



FRESH HARVEST - PLAN
STA: 19+50 TO 22+00



FRESH HARVEST - PROFILE
STA: 19+50 TO 22+00
SCALE: 1"=40' HORIZ., 1"=4' VERT.



GRADING NOTES

ADD 2300 FEET TO ALL GRADE TAGS TO GET ACTUAL ELEVATION.

THE ELEVATION DIFFERENCE BETWEEN THE PAD AND FINISH FLOOR IS DETERMINED FROM THE MINIMUM THICKNESS REQUIRED PER THE GEOTECHNICAL REPORT. FINISH FLOORS MAY INCREASE DEPENDING ON THE TYPE OF SOIL AND FOUNDATION PLAN USED. NOTE THAT THE STRUCTURAL PLANS & GEOTECHNICAL REPORT SHALL SUPERSEDE THE CIVIL IMPROVEMENT PLANS.

ALL PRIVATE STREETS AND DRAINAGE EASEMENTS ARE TO BE PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION (H.O.A.).

ALL WORK TO BE PERFORMED OUTSIDE OF THE PROJECT BOUNDARY AND ON PRIVATE PROPERTY SHALL NOT BE PERFORMED UNTIL WRITTEN PERMISSION AND EASEMENTS HAVE BEEN OBTAINED FROM THE OFFSITE OWNER AND GIVEN TO CITY OF LAS VEGAS.

CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

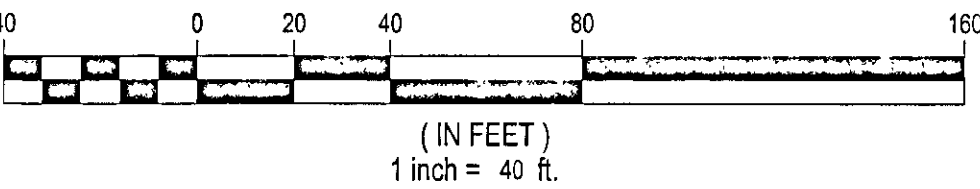
GEOTECHNICAL

AMERICAN SOILS ENGINEERING, LLC
6000 S EASTERN AVE., STE 6-3
LAS VEGAS, NEVADA 89119
REPORT NO. 1588-GE0
DATE 06/04/12

UTILITY DISCLAIMER NOTE

EXISTING UTILITY LOCATIONS SHOWN HEREIN ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATIONS. CALL BEFORE YOU DIG: 1-800-227-2600 CALL BEFORE YOU OVERHEAD: 1-702-227-2929

SCALE



LEGAL DESCRIPTION

BEING LOT TWO (2) OF THAT CERTAIN CERTIFICATE OF LAND DIVISION ON FILE IN FILE 001, PAGE 0055, RECORDED OCTOBER 11, 2001 IN BOOK 20011011 AS DOCUMENT NO 02282, OFFICIAL RECORDS OF THE COUNTY RECORDED, CLARK COUNTY, NEVADA

BASIS OF BEARINGS

NORTH 00°12'00" EAST BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 15, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M. CLARK COUNTY, NV AS SHOWN ON FILE 113 OF SURVEYS AT PAGE 92, OFFICIAL RECORDS OF CLARK COUNTY, NEVADA.

BENCHMARK

CLARK COUNTY VERTICAL CONTROL POINT "BLV90 10SSW6", BEING A CITY OF LAS VEGAS RIVET AND ROUND PLATE IN A CONCRETE CYLINDER, NORTHWEST CORNER OF GRAND TETON DRIVE AND PIONEER WAY NEAR PT OF PIONEER WAY

ELEVATION: 2397.47 (FEET)
730.750 (METERS)

CLARK COUNTY VERTICAL CONTROL V.2003 BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

CONSTRUCTION NOTES

- 24" L-TYPE CURB & GUTTER (USD #216)
- 24" DEPRESSED CURB
- 8.0' CROSS GUTTER (USD #228)
- 5.0' SIDEWALK (USD #234)
- AC PAVEMENT OVER TYPE II (PER GEOTECHNICAL REPORT)
- SIDEWALK RAMP USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT (USD #235)
- 10' TRANSITION FROM L-TYPE CURB TO DEPRESSED CURB (SEE DETAIL M/G)
- SAWCUT & MATCH EXISTING AC PAVEMENT
- A-TYPE CURB (USD #219)
- 3.5' DECOMPOSED GRANITE OR GRANITE EQUIVALENT (USD #231)
- 2.0' CUTOFF WALL (SEE DETAIL P/G 01)
- SIDEWALK UNDERDRAIN (USD #233)

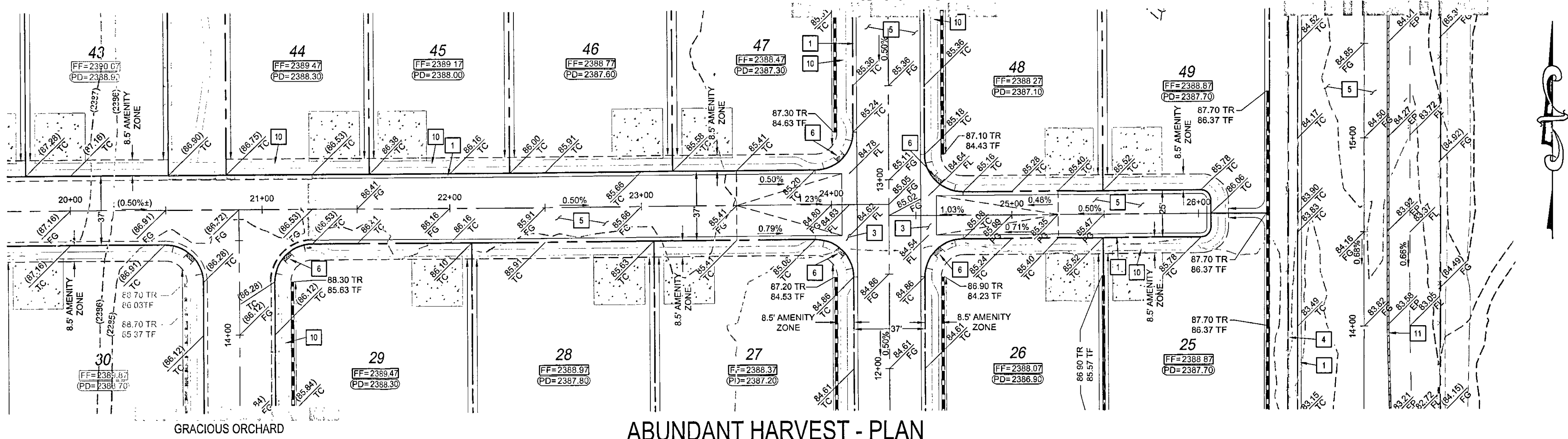
This grading plan is a part of drainage study #4569, which was received on 10/8/12 and Rejected on 10/18/12. Page 7 of 8

DR HORTON
6000 S EASTERN AVE., STE 6-3
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(702) 635-3600 FAX: (602) 899-4601

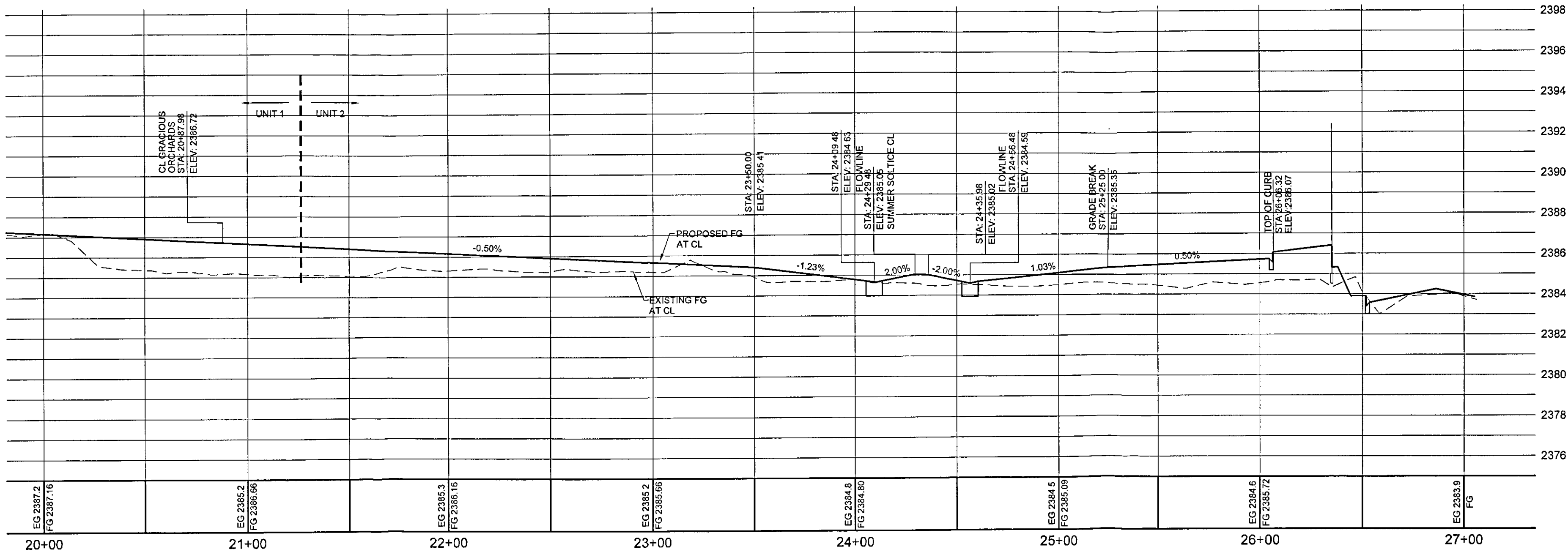
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ABUNDANT HARVEST - PLAN
STA: 20+00 TO 26+50



ABUNDANT HARVEST- PROFILE
STA: 20+00 TO 26+50
SCALE: 1"=40' HORIZ., 1"=4' VERT.

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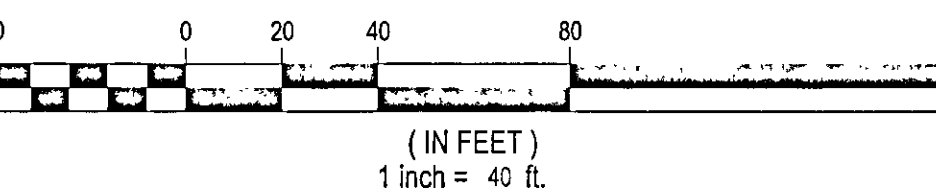
GEOTECHNICAL

AMERICAN SOILS ENGINEERING, LLC
6000 S EASTERN AVE. STE 6-B
LAS VEGAS, NEVADA 89119
REPORT NO: 1588-GE0
DATE 06/04/12

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11. 2.0' CUTOFF WALL (SEE DETAIL PG001)
12. SIDEWALK UNDERDRAIN (USD #236)

This grading plan is a part of a drainage study #4569 which was received on 10/9/12 and rejected on 11/16/12. Page 3 of 3

CLV

NO.	DESCRIPTION
1	DR HORTON 330 CAROUSEL PKWY HENDERSON, NV 89014 (702) 635-3600 FAX: (800) 909-4801
2	THE ORCHARDS - UNIT 2 @ GRAND TETON AND TENAYA A RESIDENTIAL SUBDIVISION
3	ABUNDANT HARVEST STA:20+00 TO 26+50
4	DR HORTON 330 CAROUSEL PKWY HENDERSON, NV 89014 (702) 635-3600 FAX: (800) 909-4801
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ABUNDANT HARVEST STA:20+00 TO 26+50

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CALL BEFORE YOU DO OVERHEAD

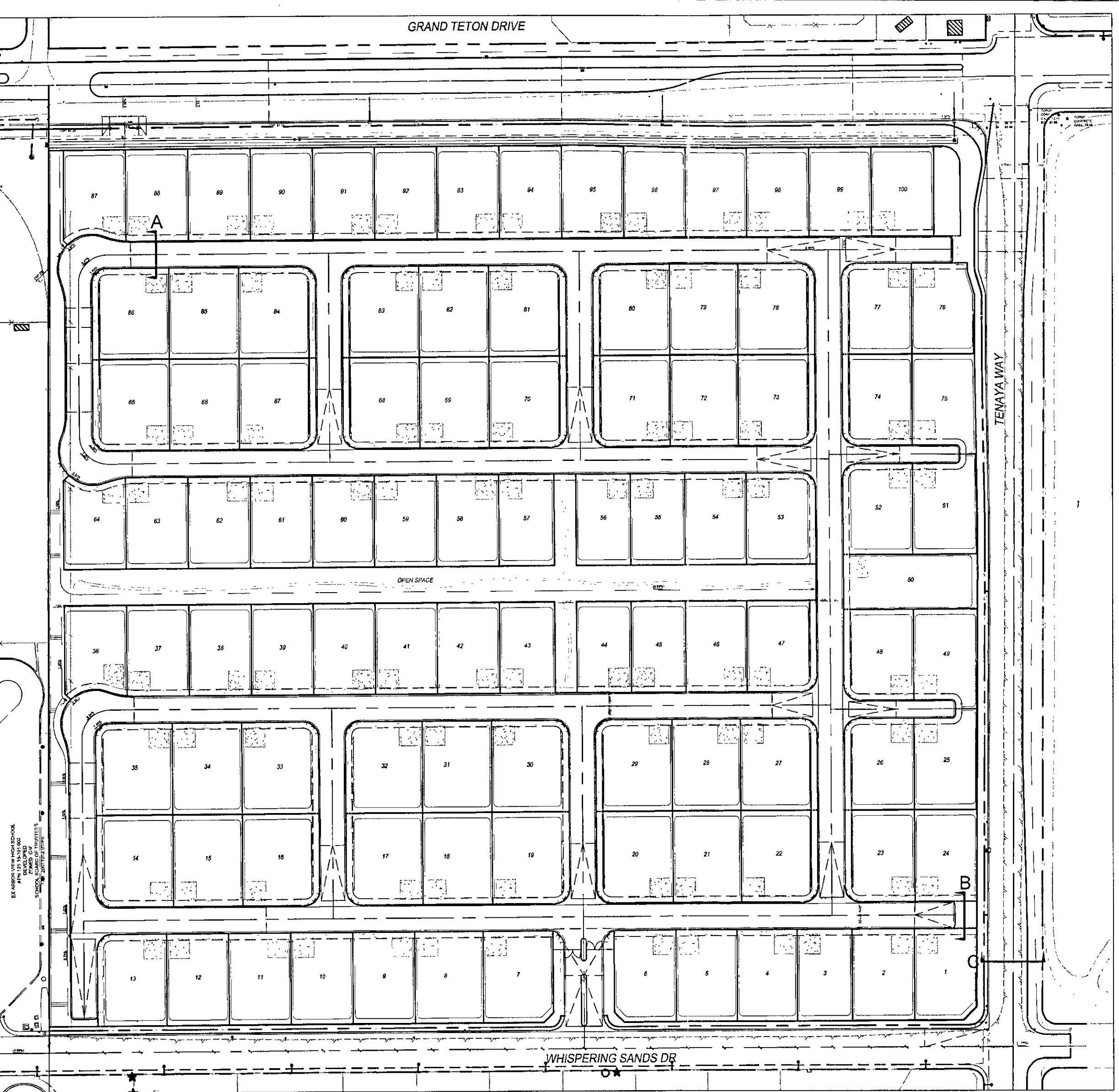
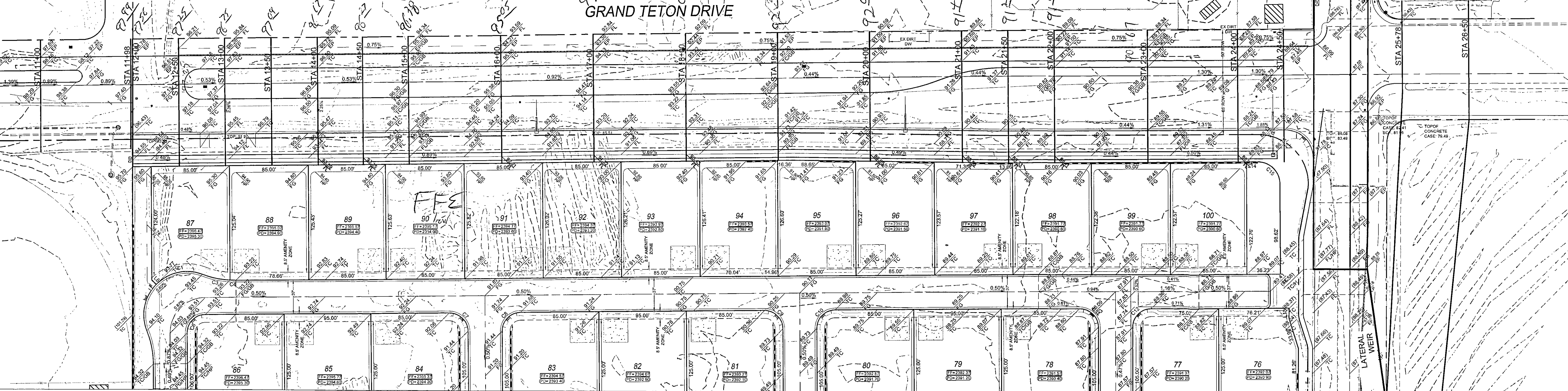
1-702-227-2929

Call Before You Dig

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CALL

1-800-227-2600



COMPARE MODEL RESULTS
ON RECTANGULAR SECTION CHANNEL

Cross Section	Description	Q (cfs)	Depth (ft)	Velocity (ft/s)	DxV
A - Typ 37' Street @ 0.41%	DEON1	30	0.56	2.71	1.52
B - 37' Drainage Easement	DEON1	30	0.38	4.14	1.57
C - Tenaya Interim - 100-yr	DEON1+DEV TEN+9cfs	43	0.69	2.79	1.93
C - Tenaya Interim - 10-yr	DEON1+DEV TEN	8	0.42	1.86	0.78
C - Tenaya Ultimate - 100yr	DEON1+DEV TEN+9cfs	34	0.61	2.78	1.70
C - Tenaya Ultimate - 10yr	DEON1+DEV TEN	8	0.41	2.09	0.86

All flows have been referenced from DS4274 by TCE

River Sta	Q Total (cfs)	Max	Street	Street	Street	W.S. Elev (ft)	TCE Existing		WSE Change (ft)
		Depth (ft)	Depth* (ft)	Velocity* (ft/s)	VxD*		Condition Station	WSE	
-1100	933	1.57	--	8.1	--	98.88	15	99.91	-1.03
-1198	933	2.03	--	7.21	--	97.99	14	100.02	-2.03
-1200	933	3.01	1.63	5.48	8.9324	97.56	14	100.02	-2.46
-1250	933	2.94	1.56	5.42	8.4552	97.25	13	99.58	-2.33
-1300	933	2.68	1.45	6.64	9.628	96.75	13	99.58	-2.83
-1350	933	3.26	1.88	4.41	8.2908	97.09	12	98.01	-0.92
-1400	933	3.08	1.7	5.4	9.18	96.67	12	98.01	-1.34
-1450	933	3.01	1.63	5.99	9.7637	96.27	12	98.01	-1.74
-1500	933	3.28	1.89	4.46	8.4294	96.38	11	97.01	-0.63
-1600	933	2.83	1.45	6.8	9.86	95.05	11	97.01	-1.96
-1700	933	2.84	1.46	6.95	10.147	94.16	10	95.37	-1.21
-1800	933	2.84	1.46	7.02	10.2492	93.27	9	95.34	-2.07
-1900	933	2.84	1.46	6.94	10.1324	92.38	8	94.13	-1.75
-2000	933	2.98	1.6	6.09	9.744	92.03	7	93.09	-1.06
-2100	933	2.93	1.55	5.93	9.1915	91.49	7	93.09	-1.6
-2150	933	2.95	1.57	5.63	8.8391	91.28	6	91.87	-0.59
-2200	933	2.93	1.55	5.62	8.711	91.04	6	91.87	-0.83
-2300	933	3	1.62	5.24	8.4888	90.67	5	91.39	-0.72
-2400	933	2.2	1.43	7.63	10.9109	89.17	4	89.74	-0.57
-2450	933	1.57	1.57	8.26	12.9682	88.65	3	88.58	-0.01
-2482	933	1	0.71	9.06	6.4326	87.99	btwn 2-3**	88.41	-0.42
-2483	Lat Struct		0		0				
-2521.5	932.21	1.39	--	5.77	--	87.93	btwn 2-3**	88.20	-0.27
-2540.5	932.21	1.13	--	7.13	--	87.43	btwn 2-3**	88.10	-0.67
-2578	932.2	1.79	--	5.48	--	87.72	2	87.9	-0.18
-2650	932.01	1.72	--	6.23	--	87.37	1	87.88	-0.51

*Street depth and velocity correspond to the channel depth and channel velocity output of HEC-RAS.
The proposed concrete channel was modeled in the right overbank.
**WSE was interpolated between sections 2 and 3 of TCE analysis

This grading plan is a
part of drainage study
#4569 which was received
on 10/9/12 and Reported on
10/18/12. Page 1 of 1

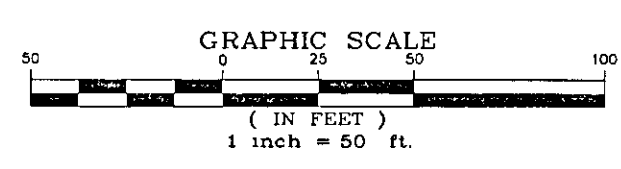
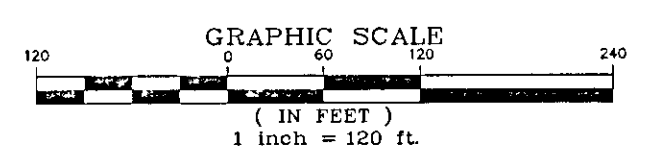
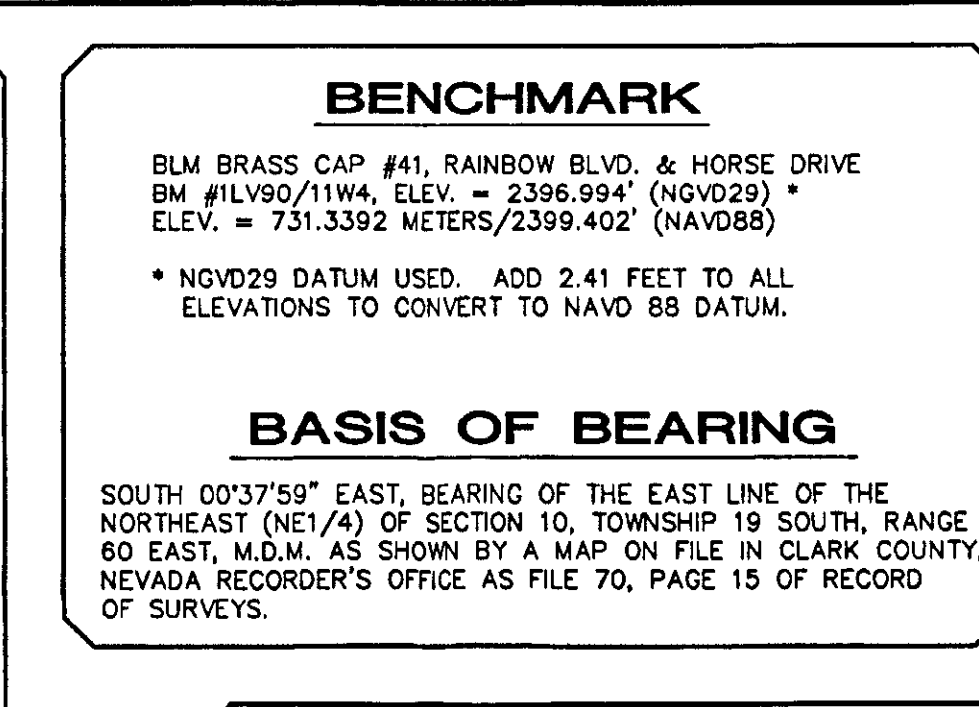
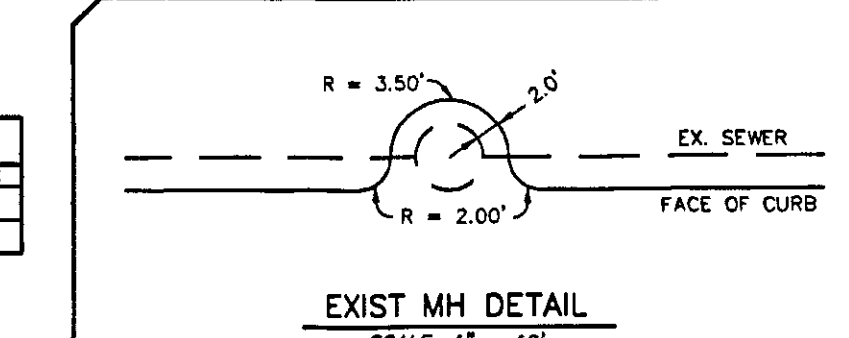


FIGURE 4
THE ORCHARDS
INTERIM CONDITION HEC-RAS ANALYSIS

TANEY ENGINEERING
6030 S. JONES BLVD. SUITE 100
LAS VEGAS, NV 89118
(702) 362-8844 FAX: (702) 362-5233



FACE OF CURB CURVE DATA				
Curve	Radius	Delta	Length	Tangent
①	250.00'	18°54'54"	82.53'	41.65'
②	3.50'	180°00'00"	11.00'	—



CLV FIRE DEPARTMENT NOTES

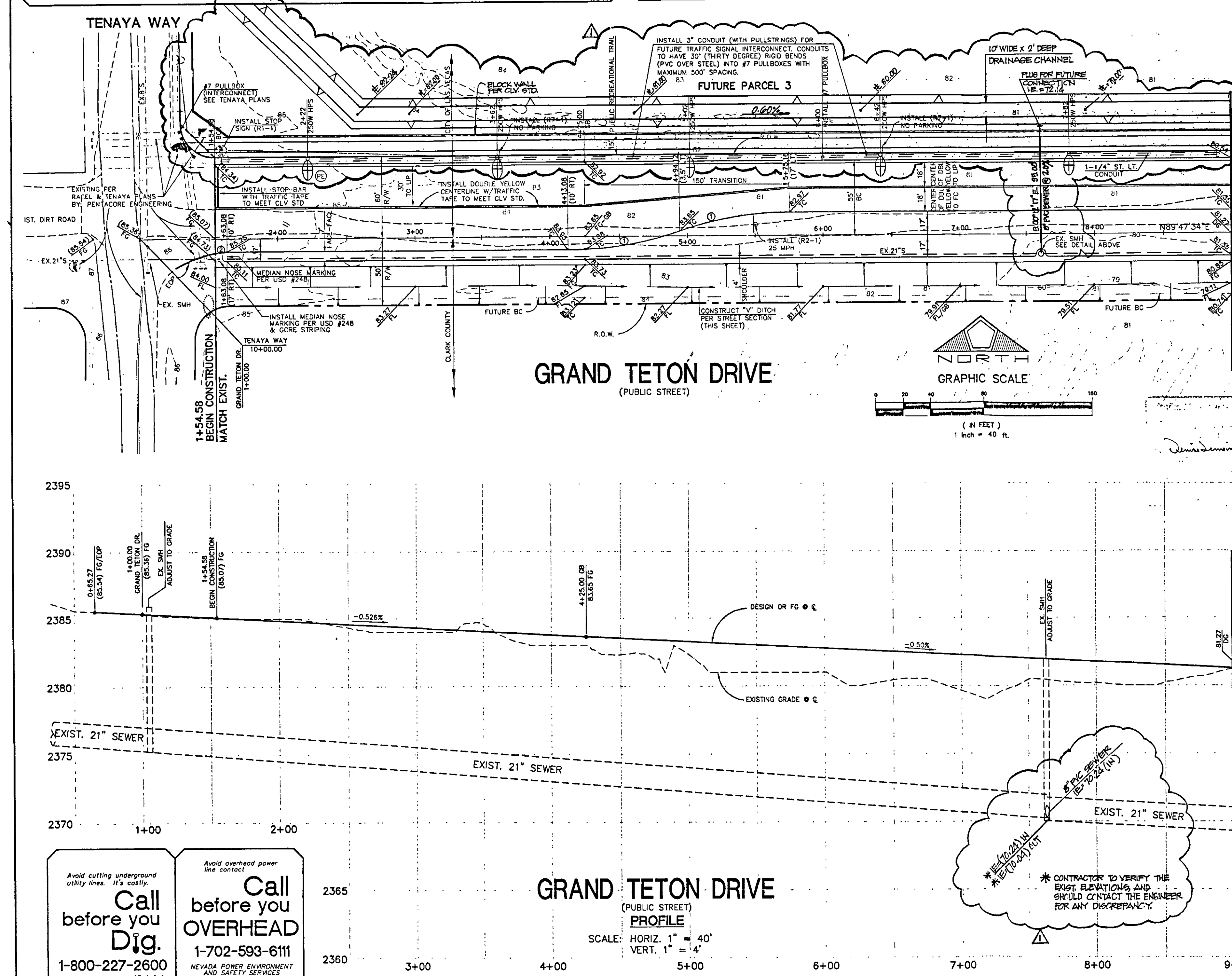
1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE CITY OF LAS VEGAS FIRE DEPARTMENTS ORDINANCE #5115, "HYDRANT SPECIFICATIONS", AND "HYDRANT INSTALLATION SPECIFICATION".
2. AUTHORIZED FIRE HYDRANTS FOR THIS PROJECT ARE:
A. KENNEDY - GUARDIAN MODELS K81A AND K81D
B. MUELLER - SUPER CENTURIAN 250 MODEL A-423
C. LOWE - MEDALLION MODEL F-2546LV
3. 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.
4. TO IDENTIFY THE FIRE HYDRANT LOCATIONS, CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER LINE OF STREET ADJACENT TO THE FIRE HYDRANTS AS REQUIRED BY ORDINANCE #5115.
5. ALL UNDERGROUND INSPECTIONS, PRESSURE AND FLUSH VERIFICATIONS OF ALL FIRE HYDRANTS AND FIRE LINES SHALL BE CONDUCTED BEFORE COVERING THE LINES. CALL THE CITY OF LAS VEGAS INSPECTION HOT-LINE AT 229-2071 TO REQUEST AN INSPECTION BY THE CITY OF LAS VEGAS FIRE DEPARTMENT.
6. PAINTING OF THE CURBS AND FIRE HYDRANTS AND ALL OTHER WORK NECESSARY AS REQUIRED BY ORDINANCE #5115, FOR THE PROTECTION OF FIRE HYDRANTS FROM PHYSICAL DAMAGE, SHALL BE COMPLETED BEFORE APPROVAL BY THE CITY OF LAS VEGAS FIRE DEPARTMENT.
7. A PERMIT IS REQUIRED FROM THE CITY OF LAS VEGAS FIRE DEPARTMENT FOR THE ON-SITE WATER LINES AND FIRE HYDRANTS. THE PERMIT AND CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FOR UNDERGROUND PIPING FORM SHALL BE OBTAINED FROM THE FIRE PROTECTIONS ENGINEER BEFORE COMMENCEMENT OF WORK.
8. PRIVATE FIRE HYDRANTS SHALL BE PAINTED RED.
9. PRIOR TO THE FINAL OCCUPANCY, A FLOW TEST MUST BE WITNESSED BY THE CITY OF LAS VEGAS FIRE DEPARTMENT TO VERIFY AVAILABILITY OF THE REQUIRED FIRE FLOW.
10. 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.
11. FIRE HYDRANTS SPACING SHALL BE:
RESIDENTIAL - 500 FEET UNSPRINKLERED, 1,000 FEET SPRINKLERED.
COMMERCIAL - 300 FEET UNSPRINKLERED, 600 FEET SPRINKLERED.
12. WHERE NEW WATER MAINS ARE EXTENDED ALONG STREETS WHERE FIRE HYDRANTS ARE NOT NEEDED FOR PROTECTION OF THE STRUCTURES, FIRE HYDRANTS SHALL BE INSTALLED AT MAXIMUM 1,000 FOOT SPACING, TO PROVIDE FOR TRANSPORTATION HAZARDS.
13. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN THE REQUIRED RADIUS OF A CUL-DE-SAC OR WITHIN 20 FEET OF THE PERIMETER OF THE RADIUS OF THE CUL-DE-SAC.
14. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN 6 FEET OF ANY CURB RETURN, DRIVEWAY, POWER POLE, STREET LIGHT OR ANY OTHER OBSTRUCTION.
15. THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO THE END OF A DEAD-END STREET SHALL NOT EXCEED 200 FEET.
16. THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A FIRE DEPARTMENT CONNECTION (FDC) SHALL NOT EXCEED 100 FEET, AS MEASURED BY AN APPROVED ROUTE.
17. TWO SOURCES OF SUPPLY ARE REQUIRED WHENEVER THERE ARE 4 OR MORE FIRE HYDRANTS/SPRINKLER LEAD-INS ARE INSTALLED ON A SINGLE SYSTEM.
18. SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 2 FIRE HYDRANTS CAN BE OUT OF SERVICE DUE TO A BREAK IN A WATER MAIN.
19. ALL FIRE APPARATUS ACCESS ROADS SHALL HAVE AN UNOBSTRUCTED WIDTH OF NOT LESS THAN 20 FEET (FLOW LINE TO THE FLOW LINE), PROVIDED NO PARKING IS ALLOWED ON EITHER SIDE, 28 FEET (FLOW LINE TO THE FLOW LINE), IF PARALLEL PARKING IS ALLOWED ON ONE SIDE ONLY, AND 36 FEET (FLOW LINE TO THE FLOW LINE), IF PARALLEL PARKING IS ALLOWED ON BOTH SIDES. VERTICAL CLEARANCE SHALL BE NOT LESS THAN 13 FEET 6 INCHES.
20. 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.
21. THE GRADIENT FOR A FIRE APPARATUS ACCESS ROADS SHALL NOT EXCEED 12% ANGLES OF APPROACH AND ANGLES OF DEPARTURE SHALL NOT EXCEED 6% FOR 25 FEET PRIOR TO OR AFTER THE GRADE CHANGE.
22. THE TURNING RADIUS OF A FIRE APPARATUS ACCESS ROADS SHALL BE NO LESS THAN 45 FEET OUTSIDE AND 22 FEET INSIDE TURNING RADIUS.
23. A FIRE APPARATUS ACCESS ROAD SHALL BE REQUIRED WHEN ANY PORTION OF AN EXTERIOR WALL OF THE FIRST STORY IS LOCATED MORE THAN 150 FEET FROM A FIRE DEPARTMENT VEHICLE ACCESS (SEE EXCEPTIONS IN UPC 97, SECTION 902.2).
24. ALL DEAD-END FIRE APPARATUS ACCESS ROADS AND OR FIRE LANES, PUBLIC OR PRIVATE, IN EXCESS OF 150 FEET IN LENGTH SHALL BE PROVIDED WITH AN APPROVED TURN AROUND AREA HAVING A MINIMUM DIAMETER OF 81 FEET (BACK OF THE CURB TO THE BACK OF THE CURB).
25. ALL FIRE APPARATUS ACCESS ROADS SHALL BE MARKED BY PLACING APPROVED SIGNS AT THE START OF THE DESIGNATED FIRE LANE AND ALONG THE LENGTH OF THE FIRE LANE AND WITH SIGNS AT INTERVALS 100 FEET ALONG ALL 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 FEET OR LESS THAN 6 FEET FROM ROADWAY LEVEL. THE CURBS ALONG OR ON THE PAVEMENT OR CEMENT IF CURB IS NOT CONTROLLED SHALL BE PAINTED WITH A RED WEATHER RESISTANT PAINT IN ADDITION TO THE SIGNS.
26. 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.

MATCH LINE 9+00.00

SEE SHEET 4

MATCH LINE 9+00.00

SEE SHEET 4



Avoid cutting underground utility lines. It's costly.

Call before you Dig.

1-800-227-2600

line contact

Call before you OVERHEAD

1-702-593-6111

NEVADA POWER ENVIRONMENT AND SAFETY SERVICES

GRAND TETON DRIVE
(PUBLIC STREET)
PROFILE
SCALE: HORIZ. 1" = 40'
VERT. 1" = 4'

MOUNTAIN SPA RESIDENTIAL DEVELOPMENT, LLC.
2810 WEST CHARLESTON BLVD., F-58
LAS VEGAS, NV 89146
(702)670-1234

 **PENTACORE**
CIVIL ENGINEERING • LAND SURVEYING • PLANNING
CONSTRUCTION MANAGEMENT • EROSION CONTROL
2763 WEST CHARLESTON BOULEVARD
LAS VEGAS, NV 89146
(702) 670-1234

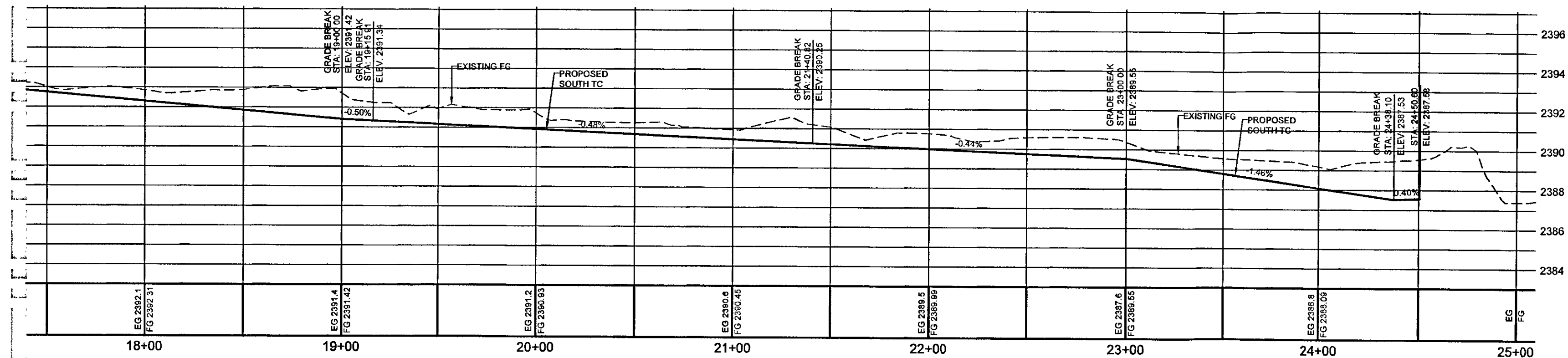
STREET PLAN PROFILE GRAND TETON DRIVE STA. 1+54.58 TO STA. 9+00.00)	MOUNTAIN SPA OFFSITE IMPROVEMENTS
---	--------------------------------------

DATE :	02/16/00
PM :	S.F.A.
DRAWN BY :	
DESIGNED BY :	
CHECKED BY :	
ADA CHECKED :	
JOB NO. :	0158.0200

SHEET 3 OF 10
C.L.V. DWG.#

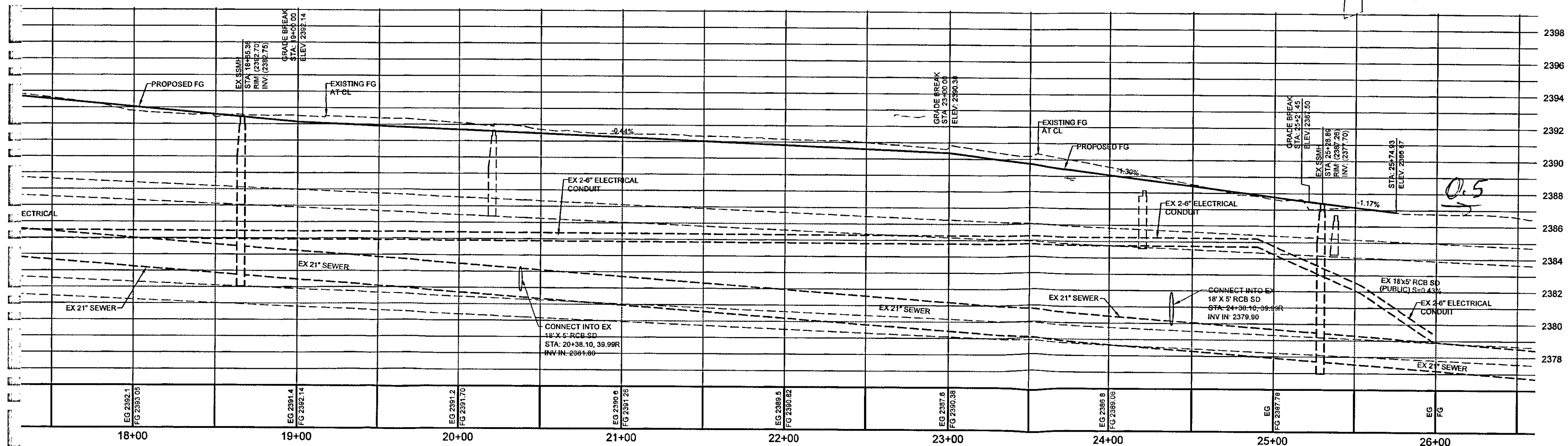
g/mk 8/21/96
CITY FIRE MARSHAL DATE

MATCHLINE STA: 17+50
SEE SHEET PP1



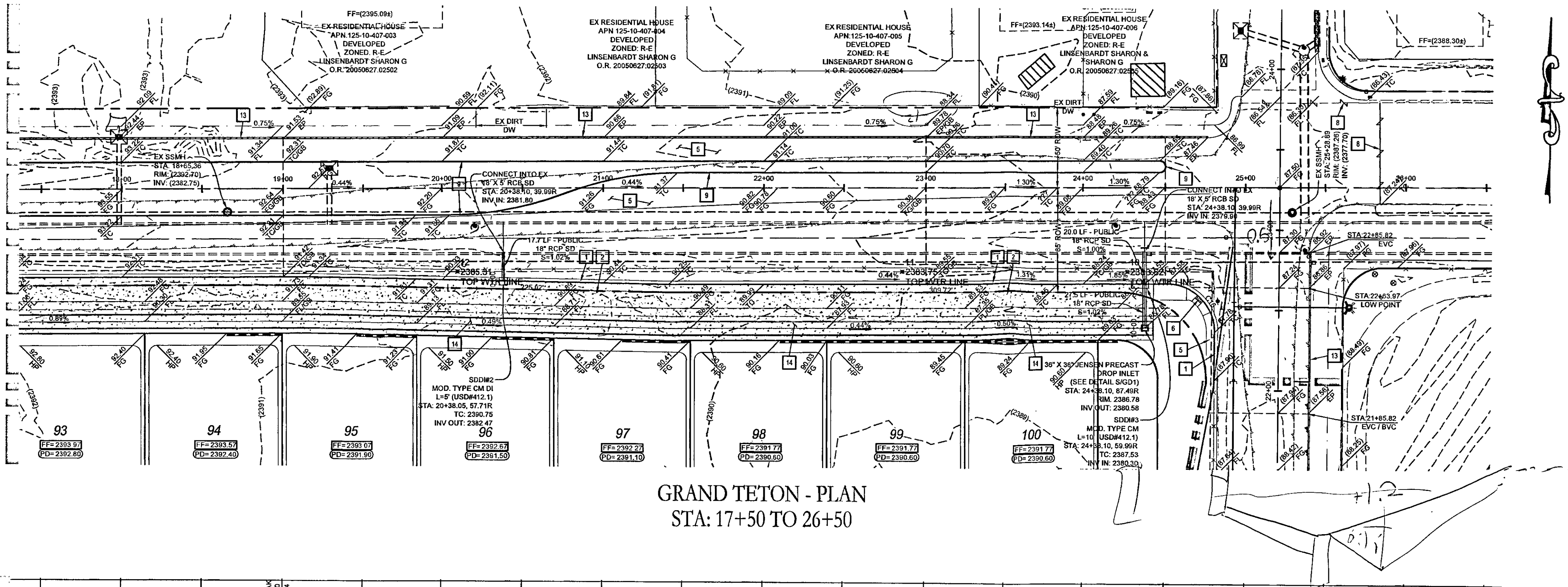
GRAND TETON SOUTH TOP OF CURB - PROFILE
STA: 17+50 TO 25+00
SCALE: 1"=40' HORIZ, 1"=4' VERT.

MATCHLINE STA: 17+50
SEE SHEET PP1



GRAND TETON CENTERLINE - PROFILE
STA: 17+50 TO 26+50
SCALE: 1"=40' HORIZ, 1"=4' VERT.

MATCHLINE STA: 17+50
SEE SHEET PP1



GRAND TETON - PLAN
STA: 17+50 TO 26+50

KEY MAP

GRADING NOTES

ADD 2300 FEET TO ALL GRADE TAGS TO GET ACTUAL ELEVATION.

THE ELEVATION DIFFERENCE BETWEEN THE PAD AND FINISH FLOOR IS DETERMINED FROM THE MINIMUM THICKNESS REQUIRED PER THE GEOTECHNICAL REPORT. FINISH FLOORS MAY INCREASE DEPENDING ON THE TYPE OF SOIL AND FOUNDATION PLAN USED. NOTE THAT THE STRUCTURAL PLANS & GEOTECHNICAL REPORT SHALL SUPERSEDE THE CIVIL IMPROVEMENT PLANS.

ALL PRIVATE STREETS AND DRAINAGE EASEMENTS ARE TO BE PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION (H.O.A.).

ALL WORK TO BE PERFORMED OUTSIDE OF THE PROJECT BOUNDARY AND ON PRIVATE PROPERTY SHALL NOT BE PERFORMED UNTIL WRITTEN PERMISSION AND EASEMENTS HAVE BEEN OBTAINED FROM THE OFFSITE OWNER AND GIVEN TO CITY OF LAS VEGAS.

CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

GEOTECHNICAL

AMERICAN SOILS ENGINEERING, LLC
390 CAROUSEL PKWY
LAS VEGAS, NEVADA 89119
REPORT NO: 1568-GE0
DATE 06/04/12

UTILITY DISCLAIMER NOTE

EXISTING UTILITY LOCATIONS SHOWN HEREIN ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATIONS. CALL BEFORE YOU DIG: 1-800-227-2600. CALL BEFORE YOU OVERHEAD: 1-702-227-2929

SCALE

40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

LEGAL DESCRIPTION

BEING LOT TWO (2) OF THAT CERTAIN CERTIFICATE OF LAND DIVISION ON FILE IN FILE 001, PAGE 0055, RECORDED OCTOBER 11, 2001 IN BOOK 20011011 AS DOCUMENT NO 02282, OFFICIAL RECORDS OF THE COUNTY RECORDED, CLARK COUNTY, NEVADA

BASIS OF BEARINGS

NORTH 00°12'00" EAST BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 15, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M. CLARK COUNTY, NV AS SHOWN ON FILE 113 OF SURVEYS AT PAGE 92, OFFICIAL RECORDS OF CLARK COUNTY, NEVADA.

BENCHMARK

CLARK COUNTY VERTICAL CONTROL POINT "BLV90 10SSW6", BEING A CITY OF LAS VEGAS RIVET AND ROUND PLATE IN A CONCRETE CYLINDER, NORTHWEST CORNER OF GRAND TETON DRIVE AND PIONEER WAY NEAR PT OF PIONEER WAY
ELEVATION: 2397.47 (FEET)
730.750 (METERS)
CLARK COUNTY VERTICAL CONTROL V.2003 BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

CONSTRUCTION NOTES

- 24" L-TYPE CURB & GUTTER (USD #216)
- 18" SIDEWALK (USD #234)
- 8" GROSS GUTTER (USD #228)
- 5" SIDEWALK (USD #234)
- AC PAVEMENT OVER TYPE II (PER GEOTECHNICAL REPORT)
- SIDEWALK RAMP USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT (USD #235)
- COMMERCIAL DRIVEWAY (USD#234)
- A-TYPE CURB (USD #219)
- 3.5" DECOMPOSED GRANITE SIDEWALK
- 2" CURB OPENING (SEE DETAIL MGD1)
- SIDEWALK UNDERDRAIN (USD#236)
- 2" CUTOFF WALL (SEE DETAIL MGD1)
- 6" CONCRETE OVER 6" TYPE II
- 4" DECORATIVE CONCRETE

REVISIONS

NO.	DESCRIPTION	DATE

DR HORTON
390 CAROUSEL PKWY
HENDERSON, NV 89014
(702) 995-5000 FAX: (800) 995-4601

THE ORCHARDS - UNIT 3
@ GRAND TETON & TENAYA
A RESIDENTIAL SUBDIVISION

GRAND TETON STA: 17+50 TO 26+50
PLAN AND PROFILE

ENGINEER'S SEAL

DATE: 11/6/2012

SCALE: 1"=40'

JOB NO: DRH-12-033

DESIGNED BY: SF

CHECKED BY: RDC

SHEET NAME: PP2

SHEET: 07 OF 19

CLV