

DS #: 4842

APN: 126-12-000-001

PROJECT: Skye Canyon Parcel 2.16

SUBMITTAL: 2nd Submittal

SCANNED BY/DATE:

CHECKED BY/DATE:



CITY OF LAS VEGAS		DATE: Revised
INTER-OFFICE MEMORANDUM		January 23, 2017
TO: Land Development Services Department of Building & Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for: Skye Canyon Parcel 2.16	
Cross Streets:	NWC of Egan Crest Dr. & Eagle Canyon Av.	COPIES TO: Slater Hanifan Group
File Number:	F:\Depot\DSMemos\DS4842B-Rev.doc	Section 12, LLC / Ninety Five Mangt.
Parcel Number:	126-12-000-001	Bart Anderson, P.E., DevCo
Zoning Action:	TMP-65809	CCRFC
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	11/3/2016	11/29/2016	Not Approved	\$400.00	464250: \$400
2 nd Submittal	12/20/2016	1/5/2017	Conditional Approval	\$400.00	469488: \$400
Revised	1/23/2017	1/23/2017	See Comments Below	N/C	N/C
			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:
	must be resubmitted or supplemented including the following:
X	is conditionally approved subject to Clark County Regional Flood Control District concurrence.

All Onsite **Skye Canyon Phase 2 Developments** such as **Parcel 2.xx series** are allowed to proceed with the following conditions:

1. Per the response to previous Comment #1, the developer/engineer has elected to construct the ultimate **Detention Basin 1** for adequate flood protection of the **Phase 2 Developments**.
2. No **Certificate of Occupancy** on the houses will be issued until after the detention basin has been accepted for Substantial Completion by the City.
3. The *Developer* provides a bond for the detention basin now, showing good faith that the *Developer's* intentions are to get started with the final detention basin as soon as permitting allows.

The following are comments pertaining to the subject site specific drainage study and grading plans:

4. **This drainage study is acceptable in concept**; however, *City of Las Vegas* will not formally accept the study until the *Clark County Regional Flood Control District* (CCRFC) has issued a letter of concurrence. The engineer should contact the CCRFC to confirm that they have begun their review.
5. All roadways and flood control facilities as proposed and approved in **Skye Canyon Phase 2 Infrastructures** must be substantially constructed prior to the issuance of building permits for the subject development.

6. All drainage easements must be public drainage easements to be privately maintained and common lots to be labeled on the grading plans and to be dedicated as such in the final map.
7. 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.
8. Private streets must be public drainage easements. Provide a note on the grading plans: "Note: All private streets are P.U.E., Public Sewer Easements and Public Drainage Easements to be privately maintained by HOA".
9. Add a note in all pertinent sheets for the construction of all storm drain drop inlets per a newly adopted USDCCA Drawing No. 421 (*Stormwater Quality Management Stamp and Sign Detail*).

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

END OF REMARKS

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T/R/S: T19S/R59E/12
AREA F-12

CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		January 5, 2017
TO: Land Development Services Department of Building & Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT: Drainage Study for: Skye Canyon Parcel 2.16		COPIES TO: Slater Hanifan Group
Cross Streets:	NWC of Egan Crest Dr. & Eagle Canyon Av.	Section 12, LLC / Ninety Five Mangt.
File Number:	F:\Depot\DSMemos\DS4842B.doc	Bart Anderson, P.E., DevCo
Parcel Number:	126-12-000-001	CCRFCD
Zoning Action:	TMP-65809	
FEMA Flood Zone	YES NO X	
Proposed Storm Drain	YES NO X	

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TOTAL FEES (LDDRS):				\$800.00	----

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All Onsite **Skye Canyon Phase 2 Developments** such as **Parcel 2.xx series** are allowed to proceed with the following conditions:

- Per the response to previous Comment #1, the developer/engineer has elected to construct the ultimate **Detention Basin 1** for adequate flood protection of the **Phase 2 Developments**.
The improvement plans of the subject **Skye Canyon Parcel 2.16** project will not be accepted prior to the acceptance for substantial completion of **Detention Basin 1** by the **City of Las Vegas**.
- No **Certificate of Occupancy** on the houses will be issued until after the detention basin has been accepted for Substantial Completion by the City.
- The *Developer* provides a bond for the detention basin now, showing good faith that the *Developer's* intentions are to get started with the final detention basin as soon as permitting allows.

The following are comments pertaining to the subject site specific drainage study and grading plans:

- This drainage study is acceptable in concept**; however, *City of Las Vegas* will not formally accept the study until the *Clark County Regional Flood Control District* (CCRFCD) has issued a letter of concurrence. The engineer should contact the CCRFCD to confirm that they have begun their review.

5. All roadways and flood control facilities as proposed and approved in ***Skye Canyon Phase 2 Infrastructures*** must be substantially constructed prior to the issuance of building permits for the subject development.
6. The latest update to the ***Skye Canyon Phase 2 Infrastructure*** project must be approved prior to the final acceptance of the subject drainage study.
7. All drainage easements must be public drainage easements to be privately maintained and common lots to be labeled on the grading plans and to be dedicated as such in the final map.
8. 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.
9. Private streets must be public drainage easements. Provide a note on the grading plans: "Note: All private streets are P.U.E., Public Sewer Easements and Public Drainage Easements to be privately maintained by HOA".
10. Add a note in all pertinent sheets for the construction of all storm drain drop inlets per a newly adopted USDCCA Drawing No. 421 (*Stormwater Quality Management Stamp and Sign Detail*).

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

END OF REMARKS

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T/R/S: T19S/R59E/12
AREA F-12

 *** FAX TX REPORT ***

TRANSMISSION OK

JOB NO. 2848
 DESTINATION ADDRESS 7022845399
 PSWD/SUBADDRESS
 DESTINATION ID
 ST. TIME 01/05 17:37
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 RESULT OK

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM		DATE: January 5, 2017
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All Onsite **Skye Canyon Phase 2 Developments** such as **Parcel 2.xx series** are allowed to proceed with the following conditions:

1. Per the response to previous Comment #1, the developer/engineer has elected to construct the ultimate **Detention Basin 1** for adequate flood protection of the **Phase 2 Developments**.

The improvement plans of the subject **Skye Canyon Parcel 2.16** project will not be accepted prior to the acceptance for substantial completion of **Detention Basin 1** by the **City of Las Vegas**.

2. No **Certificate of Occupancy** on the houses will be issued until after the detention basin has been accepted for Substantial Completion by the City.

TRANSMITTAL

To: Albert Sung, P.E.

Date: December 20, 2016

City of Las Vegas

Project No.: OLY1607.002

333 N. Rancho Drive

Las Vegas, NV 89106

From: Cameron Bencini, P.E.

Subject: Addendum #1 to the Technical Drainage Study for Skye Canyon Parcel 2.16

CC: Tim Mulrooney

CC: Stanley Amadi, SHG

CC: Chelsea Peltier, SHG

CC: Steve Jones, SHG

CC: Mark Failla, SHG

CC: _____

Transmitting Via:

- ☐ Mail
☒ Messenger / MDS
☐ Federal Express
☐ Pickup

For:

- ☒ Review & Comment
☐ Per your Request
☐ Information/File

Acknowledgement of Receipt:

- ☐ Not Required
☒ Acknowledgement Required

Received By: _____

Date: _____ Time: _____

Copies	Description
<u>1</u>	<u>Subject Study</u>
<u>1</u>	<u>Grading Plan, Profile and Detail Sheets (Bound in study)</u>
<u>1</u>	<u>Stamped and Signed Standard Form 1 (Bound in study)</u>
<u>1</u>	<u>\$400 Submittal Fee from Ninety Five Management LLC (Chk#1286)</u>
<u>1</u>	<u>CD containing PDF of submittal documents (Bound in study)</u>

Comments:

Enclosed please find the above listed items in support of proposed improvements required for the Addendum to the Technical Drainage Study for *Skye Canyon Parcel 2.16*. The addendum addresses comments contained in the November 29, 2016 comment letter received from City of Las Vegas regarding the aforementioned technical drainage study. The project is located on the northwest corner of Eagle Canyon Avenue and Egan Crest Drive.

Please contact us if there are any questions at 702-284-5300. Thanks.

Signed: _____



Cameron Bencini, P.E.
Flood Control Division

Please, notify us at (702) 284-5300 if there are any problems receiving this transmission.

TECHNICAL DRAINAGE STUDY
Skye Canyon Parcel 2.16
Addendum #1

City of Las Vegas, Nevada

Job No.: OLY1607.001

Date: December 2016

Prepared By:

Slater Hanifan Group, Inc.
5740 S. Arville Street, Suite 216
Las Vegas, Nevada 89118
Phone: 702-284-5300 • Fax: 702-284-5399

Prepared For:

Ninety-Five Management, LLC
11411 Southern Highlands Parkway, Suite 300
Las Vegas, NV 89141
Phone: 702-220-6565 • Fax: 702-220-6566



12/20/2016

Steve Jones, P.E.
NV Professional Engineer No. 19638

Assisted by: Cameron Bencini, P.E.

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL
DRAINAGE STUDY INFORMATION FORM

Name of Development: Skye Canyon – Parcel 2.16 – Addendum #1 Date: December 2016
Location of Development: a) Descriptive (Cross Streets): North/South: Egan Crest Drive
East/West: Eagle Canyon Avenue
b) Section: 12 Township: 19 South Range: 59 East
c) APN: Portions of 126-12-000-001

Name of Owner/Developer: SECTION 12, LLC / Ninety-Five Management, LLC
Telephone No.: 702-220-6565 Fax No.: 702-220-6566 E-mail Address: bwilliamson@olympiacompanies.com
Address: 11411 Southern Highlands Parkway, Suite 300; Las Vegas, NV 89141

Contact Person – Name: Steve Jones, P.E. Telephone No.: 702-284-5300
*E-mail Address: sjones@shg-inc.com Fax No.: 702-284-5399
Firm: Slater Hanifan Group
Address: 5740 S. Arville Street, Suite 216; 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: +/- 16.0 Acres Being Developed/Disturbed: All
2. Is a portion or all of the subject property located in a 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.): Single-Family Residential
5. Approximate upstream land area which drains to the subject site: ±715 Acres
6. Has the site drainage been evaluated in the past? ☒ Yes** ☐ No If yes, please identify documentation: Master Drainage Study for Skye Canyon (SHG, DS4420);
Technical Drainage Study for Skye Canyon – Phase 2 Infrastructure (SHG, DS4739)
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Eagan Crest - Local storm drain
8. Briefly describe your proposed schedule for the subject project: 1 Phase after completion of Phase 2 Infrastructure (DS4739)



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.

***Newly Required Field**

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

Local Entity File No.	Revision	Date

REFERENCE: *SHG Job No. OLY1607.001*

STANDARD FORM 1

Updated 05/01/2008

OLY1603.000

December 20, 2016

Albert Sung, P.E.
Flood Control Section
City of Las Vegas – Department of Public Works
333 N. Rancho Drive – 7th Floor
Las Vegas, Nevada 89106

**Subject: Addendum No. 1 to the Technical Drainage Study for
Skye Canyon Parcel 2.16 (DS4842)**

Dear Mr. Sung:

This letter is submitted in response to comments contained in the November 29, 2016 comment letter received from City of Las Vegas (CLV) regarding the above referenced project. A copy of the CLV conditional approval letter is included in Appendix A for reference. The following comments have been individually addressed:

All Onsite **Skye Canyon Developments** such as **Parcel 2.16** is allowed to proceed with the following conditions:

1. **Comment:** *The engineer provides the City with a letter stating that the partial detention basin has adequate capacity to protect downstream construction. That should be for the 100-year flows based on reducing the peak flows.*

Response: The developer has elected to not rely on a partial detention basin for flood protection of the subject development, and will construct the ultimate Detention Basin 1 improvements for adequate flood protection in accordance with this study and the master Drainage Study. Therefore, no additional letter or analysis is required.

2. **Comment:** *No Certificate of Occupancy on the houses will be issued until after the detention basin has been accepted for Substantial Completion by the City.*

Response: The requirement for substantial completion of the Detention Basin 1 improvements has been acknowledged.

3. **Comment:** *The Developer provides a bond for the detention basin now, showing good faith that the Developer's intentions are to get started with the final detention basin as soon as permitting allows.*

Response: The bond for Detention Basin 1 will be posted prior to permit issuance of the subject development.

4. **Comment:** *That the Developer, Olympia provides the City with a letter stating that it is willing to take all the risk including any damages to the downstream properties / infrastructure / cleanup cost including offsite properties.*

Response: Refer to the Response to Comment No. 1, the ultimate Detention Basin 1 improvements provides required flood protection where risk of damage to downstream and offsite properties is limited with flows significantly reduced from existing condition. Therefore, no additional letter or analysis is required.

The following are comments pertaining to the subject site specific drainage study and grading plans:

5. **Comment:** *Provide a copy of the zoning/planning conditions associated with this site (TMP-65809) with the next submittal to verify compliance with conditions. Flood Control will not issue conditional approval of the drainage study without the associated zoning/planning conditions (issued by the City Council). Any associated conditions of approval that revise the site drainage parameters will require that the drainage study be revised and resubmitted.*

Response: Subsequent to the first submittal, the conditions of zoning/planning associated with this site have been approved by the Planning Commission City Council on November 1, 2016 for the Project site. A copy of the zoning/planning conditions document (TMP-65809) is provided in Appendix C.

6. **Comment:** *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: Acknowledged, CCRFCD concurrence will be sought after conditional approval from City of Las Vegas.

7. **Comment:** *All roadways and flood control facilities as proposed and approved in Skye Canyon Phase 2 Infrastructures must be substantially constructed prior to the final acceptance of the subject improvement plans.*

Response: As conditioned in the Master Drainage Study, the roadways and flood control facilities within the Skye Canyon Phase 2 Infrastructure improvements must be substantially complete prior to issuance of building permits for the subject development.

8. **Comment:** *Exhibit E (Developed Condition Drainage Map): Offsite basin WL4A** appears to discharge into a natural wash to the north. However, this does not match the Interim Condition Drainage Map of the Skye Canyon Phase 2 Infrastructure study and the pertinent mass grading plans which showed that WL4A** perpetuate through the subject basin ON1D to the east instead of discharge to the north.*

Review and revise Exhibit E and the pertinent subject grading plans accordingly in the next submittal.

Response: The mass grading drainage pattern in the comment is acknowledged for the existing condition; however, the proposed drainage pattern of directing the offsite runoff to the north is acceptable because of the following reasons:

- The Skye Canyon Master Drainage Study Update #3 (Master Study) intended that the flow from Basin WL4A be conveyed north to the existing wash. Although the *Skye Canyon Phase 2 Infrastructure* study (Phase 2 Infrastructure Study) shows mass grading that would infer offsite drainage through Parcel 2.16 this was not the intent of the ultimate conditions in the Master Study. In accordance with the Master Study, Facilities 'XW4' (the existing Arroyo north of Parcel 2.16) and 'C3' (Egan Crest Culvert) are designed to convey the same total flow of the Concentration Point WC22 routing. Therefore, since the existing wash was intended to convey runoff from Basin WL4A this design should be considered acceptable.

Please note that erroneous information is provided on Master Study Ultimate Condition Facilities Map. The exhibit shows 308-cfs as the design flowrate of both facilities (XW4 and C3) when actually they are both designed to convey 282-cfs (Concentration Point WC22).

Pertinent reference material from the *Skye Canyon Master Drainage Study Update #3* is provided in Appendix D.

- The redirection of flow from the offsite Basin WL4A won't have any significant impacts to the existing arroyo. Detention Basin 1 significantly reduced flow thru the existing wash from 236-cfs to 71-cfs at the detention basin outlet. The additional 27-cfs from Basin WL4A to the Arroyo will be offset by the reduction of flow provided by the detention basin. Therefore the flow increase will not have any significant impacts to the existing Arroyo. Relevant reference material from the *Skye Canyon Phase 3 Infrastructure* in support of the flow in the existing Arroyo prior to the construction Detention Basin 1 is provided in Appendix D.
- The proposed introduction of flow from Basin WL4A to the existing Arroyo is relatively close to what is shown on the Interim Condition Drainage Map of the Phase 2 Infrastructure Study. The Phase 2 Infrastructure Study shows runoff from Basin WL4A being discharged north via Egan Crest storm drain to the Arroyo. The proposed design surface drains WL4A north to the Arroyo approximately 1000-ft west of the aforementioned storm drain discharge location. Since the discharge location into the Arroyo is relatively close to the design shown in the Phase 2 Infrastructure Study the proposed design should be considered minor and acceptable.
- The Interim Condition Drainage Map of the Phase 2 Infrastructure Study did not design any infrastructure that would be affected by the proposed deviation. No downstream facilities have been designed that would be affected by the deviation from the Phase 2 Infrastructure Study and therefore the proposed design should be considered acceptable.

For the reasons listed above the proposed discharge location of runoff from WL4A remains conveyed north via interim drainage ditch along the western boundary of the project site.

Revised Exhibit E and improvement plans are provided in Appendix B and F, respectively.

9. **Comment:** *Grading Plan I (Sheet G-1): As discussed in Comment #8 above, revise the cul-de-sac of Skye Arroyo Avenue to provide a public drainage easement to accept flow from the offsite basin to the west.*

Response: The proposed design was not revised and therefore a drainage easement is not provided. Runoff from WL4A will continue to be conveyed north along the western boundary of Parcel 2.16 via drainage ditch to the existing Arroyo. Rip-rap is proposed at the outlet of the drainage ditch to minimize the effects of erosion potential caused by ground disturbance. The drainage ditch was revised to conform to the mass grading contours shown within the Phase 2 Infrastructure Study. Note that the channel geometry and flowline elevations remain consistent with the original submittal. Refer to Response to Comment No. 8 for a more detailed discussion on why the proposed design was not revised.

10. **Comment:** *Grading Plan II (Sheet G-2): The plan shows a portion of the storm drain system in Egan Crest Drive has been relocated. Provide an update to Skye Canyon Phase 2 Infrastructure for the proposed revision.*

It appears that Parcel 2.16 will be developed after Parcel 2.15 adjacent to the east of Egan Crest Drive. Show developed condition of Parcel 2.15 on Sheet G-2 and Sheet G-4.

Response: An update to Skye Canyon Phase 2 Infrastructure was submitted to the City of Las Vegas on 12/15/16. Among other things, this update relocated the storm drain along Egan Crest to accommodate the proposed conditions of Parcel 2.16. Pertinent reference material per the latest update (Update #3) is provided in Appendix E.

Among other things, the revisions to the Phase 2 Infrastructure study revised the street flow in Eagle Canyon Avenue. The flow in Eagle Canyon Avenue increased from 44-cfs to 99-cfs which effectively increased flow depth from 0.50-ft to 0.62-ft. The site entrance to the development, located off of Eagle Canyon Avenue, has an elevated hump to keep offsite flows from traversing through Parcel 2.16. However, due to the steep slope of Eagle Canyon Avenue and short entry street throat, the 6-in of additional freeboard above the flow depth is not met on the upstream (west) side of the entrance, while the centerline and downstream (east) side maintains more than 1.0-ft of freeboard. The revised hydraulic section on Eagle Canyon Drive from the Phase 2 Infrastructure Study is provided in Appendix E. The proposed entrance hump should be acceptable because:

- The flow depth in Eagle Canyon Avenue is 0.62-ft. A minimum height in the entry of 0.68-ft (i.e. freeboard of 0.06-ft) has been provided to keep offsite flows away from the site.
- The flow momentum along Eagle Canyon Avenue is significant in street direction due to the steep slope (4.90%) of the street. Thus, flows are not expected to crest sideways over the entrance hump.
- As the entrance extends east, the freeboard depth increases to 1.0-ft and 1.6-ft at the centerline and east flowline (downstream), respectively.
- Analysis of the worst case scenario shows that all proposed finished floor elevations remain protected against the maximum anticipated flow depth. Street flow analysis was performed on the interior street to simulate the impacts of the entire flow from Eagle Canyon Avenue traversing through the Project site. The total flow of 141-cfs (onsite flow(42-cfs) + Eagle Canyon flow(99-cfs)) generates a flow depth of 0.9-ft which was used to evaluate all finished floor elevations. This

analysis shows that the proposed finished floors remain protected. Hydraulic computations and worst case finished floor computations are provided in Appendix E.

Future Skye Canyon Parcel 2.15 is now shown on the grading sheets as bracketed improvements for spatial reference. It is not known which development will be constructed first, and the order of development between Parcel 2.16 and 2.15 does not have any impact on this design. See revised grading provided in Appendix F.

11. **Comment:** *Details & Sections Sheet D-1 and Sheet D-2: 3/D-1, 710-1, 8/D-1, 19/D-1 and 28/D-2: Revise to solid grout a minimum of 3-courses of 8"-CMU (or equivalent) above adjacent highest FG.*

Response: 3-courses of solid grout are now shown on the respective details as commented.

12. **Comment:** *Detail Section 25/D-2: The surface material within the limit of the 20'-wide public drainage easement must be concrete lined.*

Response: Per phone conversation between Stanley Amadi of SHG and Albert Sung of CLV that this easement does not need to be concrete lined.

13. **Comment:** *Detail Section 25/D-2: Wrought iron fence / gate must be constructed per Uniform Standard Drawing 425.S1.*

Response: A modified version of the standard drawing 425.S1 is now shown on sheet D-2. We revised the concrete lined portion of the detail to earthen.

14. **Comment:** *Revise all callout of proposed drop inlets to include only the length of the inlets without adding the number of grates. There were projects constructed in which the contractors followed only the number of grates without double checking the total length whether matching the length callout. Shorter inlets were constructed as a result. Review and revise accordingly.*

Response: Noted. Proposed inlets sizes are now called out by the lengths only. See revised improvement plans provided in Appendix F.

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

Response: Noted. All drainage easements are now public drainage easements to be privately maintained.

16. **Comment:** *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: Sheet G-1 is now showing the drainage quantities.

17. **Comment:** *Private streets must be public drainage easements. Provide a note on the grading plans: "Note: All private streets are P.U.E., Public Sewer Easements and Public Drainage Easements to be privately maintained by HOA".*

Response: The note is now shown on the grading plans.

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

Response: All construction notes for drop inlets also refer to standard drawing no. 421.

If you have any questions or require additional information, please do not hesitate to contact us at 284-5300.

Respectfully Submitted,
SLATER HANIFAN GROUP


Cameron Bencini, P.E.
Engineer Intern II - Flood Control Division

cc: Tim Mulrooney, P.E. - SHG
Stanley Amadi, P.E. - SHG
Jerry Slater, P.E. - SHG

APPENDIX

Appendix A – City of Las Vegas Comment Letter

Appendix B – Revised Drainage Exhibits

Appendix C – Response to Comment No. 5

Appendix D – Response to Comment No. 8

- a) Reference Material from the Skye Canyon Master Drainage Study Update #3 (DS4420)
- b) Reference Material from the Skye Canyon Phase 3 Infrastructure (DS4796)

Appendix E – Response to Comments No. 10

- a) Reference Material from the Skye Canyon Phase 2 Infrastructure Update #3 (DS4739)
- b) Worst Case Scenario Computations and Finished Floor Evaluation

Appendix F – CD of Electronic Files and Improvement Plans

APPENDIX A

City of Las Vegas Comment Letter

CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		November 29, 2016
TO: Land Development Services Department of Building & Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for:	
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		CCRFC

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TOTAL FEES (LDDRS):				\$400.00	----

REMARKS:

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

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

All Onsite **Skye Canyon Phase 2 Developments** such as **Parcel 2.xx series** are allowed to proceed with the following conditions:

1. The engineer provides the City with a letter stating that the partial detention basin has adequate capacity to protect downstream construction. That should be for the 100-year flows based on reducing the peak flows.
2. No **Certificate of Occupancy** on the houses will be issued until after the detention basin has been accepted for Substantial Completion by the City.
3. The *Developer* provides a bond for the detention basin now, showing good faith that the *Developer's* intentions are to get started with the final detention basin as soon as permitting allows.
4. That the *Developer, Olympia* provides the City with a letter stating that it is willing to take all the risk including any damages to the downstream properties / infrastructure / cleanup cost including offsite properties.

The following are comments pertaining to the subject site specific drainage study and grading plans:

5. Provide a copy of the zoning/planning conditions associated with this site (**TMP-65809**) with the next submittal to verify compliance with conditions. *Flood Control* will not issue conditional approval of the drainage study without the associated zoning/planning conditions (issued by the *City Council*). Any associated conditions of approval that revise the site drainage parameters will require that the drainage study be revised and resubmitted.

6. 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.
7. All roadways and flood control facilities as proposed and approved in ***Skye Canyon Phase 2 Infrastructures*** must be substantially constructed prior to the final acceptance of the subject improvement plans.
8. ***Exhibit E (Developed Condition Drainage Map)***: Offsite basin **WL4A**** appears to discharge into a natural wash to the north. However, this does not match the ***Interim Condition Drainage Map*** of the ***Skye Canyon Phase 2 Infrastructure*** study and the pertinent mass grading plans which showed that **WL4A**** perpetuate through the subject basin **ON1D** to the east instead of discharge to the north.

Review and revise ***Exhibit E*** and the pertinent subject grading plans accordingly in the next submittal.

9. ***Grading Plan I (Sheet G-1)***: As discussed in *Comment #8* above, Revise the cul-de-sac of ***Skye Arroyo Avenue*** to provide a public drainage easement to accept flow from the offsite basin to the west.
10. ***Grading Plan II (Sheet G-2)***: The plan shows a portion of the storm drain system in ***Egan Crest Drive*** has been relocated. Provide an update to ***Skye Canyon Phase 2 Infrastructure*** for the proposed revision.

It appears that ***Parcel 2.16*** will be developed after ***Parcel 2.15*** adjacent to the east of ***Egan Crest Drive***. Show developed condition of ***Parcel 2.15*** on ***Sheet G-2*** and ***Sheet G-4***.

11. ***Details & Sections Sheet D-1 and Sheet D-2: 3/D-1, 7/D-1, 8/D-1, 19/D-1 and 28/D-2***: Revise to solid grout a minimum of **3-courses** of 8"-CMU (or equivalent) above adjacent highest FG.
12. ***Detail Section 25/D-2***: The surface material within the limit of the 20'-wide public drainage easement must be concrete lined.
13. ***Detail Section 25/D-2***: Wrought iron fence / gate must be constructed per *Uniform Standard Drawing 425.S1*.
14. Revise all callout of proposed drop inlets to include only the length of the inlets without adding the number of grates. There were projects constructed in which the contractors followed only the number of grates without double checking the total length whether matching the length callout. Shorter inlets were constructed as a result. Review and revise accordingly.
15. All drainage easements must be public drainage easements to be privately maintained and common lots to be labeled on the grading plans and to be dedicated as such in the final map.
16. 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.
17. Private streets must be public drainage easements. Provide a note on the grading plans: "Note: All private streets are P.U.E., Public Sewer Easements and Public Drainage Easements to be privately maintained by HOA".

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

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

END OF REMARKS

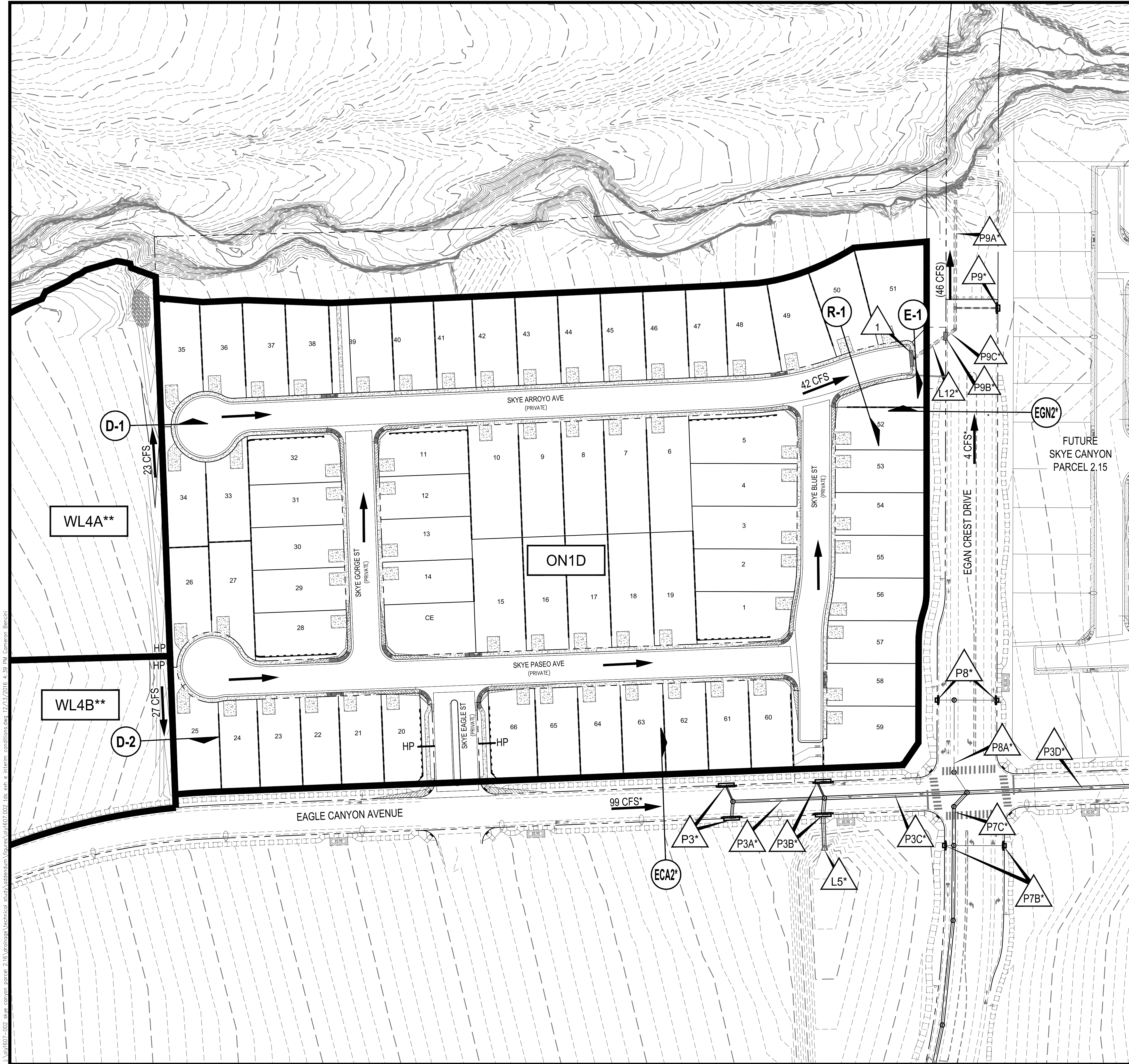
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T/R/S: T19S/R59E/12
AREA F-12

APPENDIX B

Revised Drainage Exhibits

I:\oly1607-002 skye canyon parcel 2.16\workspace\technical study\addendum figures\oly1607 002_004_001.dwg 12/13/2016 4:39 PM Cameron Bencini



Developed Condition Flow Rate Summary			
Basin	Area (ac)	Q ₁₀₀ (cfs)	Q ₁₀ (cfs)
WL4A**	8.0	23	10
WL4B**	8.9	27	12
ON1D	14.2	42	19

100-Year Open Channel Flow Summary Developed Condition					
Cross Section	Slope (%)	Q ₁₀₀ (cfs)	Depth (ft)	Velocity (fps)	DxV
ECA2*	4.90	99	0.62	8.5	5.3
EGN2*	0.50	4	0.35	1.6	0.5
R-1	0.60	42	0.55	3.5	1.9
(Q = ON1D)	4.98		0.42	7.1	3.0
D-1	1.00	23	0.69	3.6	2.5
(Q = WL4A)	2.00		0.58	4.6	2.7
D-2	0.75	27	0.80	3.3	2.6
(Q = WL4B)	1.00		0.74	3.7	2.7

Egan Crest Drive Flood Control Facility Summary				
Facility ID	Facility	Proposed Q ₁₀₀ (cfs)	Previous Design Q ₁₀₀ (cfs)	Comment
1	20-ft Type CM2 DI	42	N/A	Conveyed to Existing Facility L12*
L12	Existing 36" RCP	42	67*	Tie into Existing Facility P9B*
P9C*	Existing 36" RCP	44	69*	Tie to Existing Manhole
P9*	Existing 7.5-ft Type CM2 DI	2	2*	Existing 18" RCP East Lateral
P9B*	Existing 10.0-ft Type CM2 DI	2	2*	Outlets NE to Existing 36-in RCP
P9A*	Existing 36" RCP	46	71*	Outlets to wash

Eagle Canyon Drive Flood Control Facility Summary		
Facility ID	Facility	Comment
P3	(2) Existing 20-ft Type CM2 DIs	18" RCP North, 36" RCP South Lateral
P3A	Existing 36" RCP	18" RCP North, 48" RCP South Lateral
P3B	(2) Existing 20-ft Type CM2 DIs	
P3C	Existing 48" RCP	
P3D	Existing 48" RCP	
P7B	(2) Existing 5-ft Type CM2 DIs	18" RCP laterals (West Inlet Provided as Nuisance)
P7C	Existing 42" RCP	
P8	(2) Existing 5-ft Type CM2 Nuisance DIs	18" RCP laterals
P8A	Existing 18" RCP	
L5	Existing 48" RCP	

NOTES:

- ** REFERENCED PER THE MASTER DRAINAGE STUDY (DS4420N)
* REFERENCED PER PHASE 2 INFRASTRUCTURE (DS4739E)

LEGEND	
	BASIN BOUNDARY
	BASIN ID
	FLOW DIRECTION
	FLOWMASTER SECTION
	FACILITY ID



NO.	DESCRIPTION	DATE	BY	APP.

APPENDIX C

Response to Comment No. 5



**LAS VEGAS
CITY COUNCIL**

CAROLYN G. GOODMAN
MAYOR

STEVEN D. ROSS
MAYOR PRO TEM

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

ELIZABETH N. FRETWELL
CITY MANAGER

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

VOICE 702.229.6301
FAX 702.474.0352
TTY 7-1-1
www.lasvegasnevada.gov



/city of las vegas

November 2, 2016

Mr. Marc Bolduc
Section 12, LLC
11411 Southern Highlands Parkway, Ste. 300
Las Vegas, Nevada 89141

**RE: TMP-65809 [PRJ-65788] - TENTATIVE MAP - REMANDED TO
PLANNING COMMISSION
PLANNING COMMISSION MEETING OF NOVEMBER 1, 2016**

Dear Applicant:

Your request for a Tentative Map FOR A 65-LOT SINGLE FAMILY SUBDIVISION on 17.09 acres at the northwest corner of Eagle Canyon Avenue and Egan Crest Drive (APN 126-12-000-001), T-D (Traditional Development) Zone, [L (Residential Low) Skye Canyon Land Use Designation], Ward 6 (Ross) [PRJ-65788], was considered by the Planning Commission on November 1, 2016.

The Planning Commission voted to **APPROVE** your request, subject to the following:

Planning

1. Approval of the Tentative Map shall be for no more than four (4) years. If a Final Map is not recorded on all or a portion of the area embraced by the Tentative Map within four (4) years of the approval of the Tentative Map, this action is void.
2. Approval of the Skye Canyon II Parent Tentative map (TMP-63803) shall be required, if approved.
3. Street names must be provided in accordance with the City's Street Naming Regulations.
4. All proposed perimeter and interior walls shall comply with the Skye Canyon R-1 (Single Family Residential) wall standards.
5. A fully operational fire protection system, including fire apparatus roads, fire hydrants and water supply, shall be installed and shall be functioning prior to construction of any combustible structures.

6. In conjunction with creation, declaration and recordation of the subject common-interest community, and prior to recordation of the Covenants, Codes and Restrictions ("CC&R"), or conveyance of any unit within the community, the Developer is required to record a Declaration of Private Maintenance Requirements ("DPMR") as a covenant on all associated properties, and on behalf of all current and future property owners. The DPMR is to include a listing of all privately owned and/or maintained infrastructure improvements, along with assignment of maintenance responsibility for each to the common interest community or the respective individual property owners, and is to provide a brief description of the required level of maintenance for privately maintained components. The DPMR must be reviewed and approved by the City of Las Vegas Department of Field Operations prior to recordation, and must include a statement that all properties within the community are subject to assessment for all associated costs should private maintenance obligations not be met, and the City of Las Vegas be required to provide for said maintenance. Also, the CC&R are to include a statement of obligation of compliance with the DPMR. Following recordation, the Developer is to submit copies of the recorded DPMR and CC&R documents to the City of Las Vegas Department of Field Operations.
7. All development is subject to the conditions of City Departments and State Subdivision Statutes.

Public Works

8. The Parent Final Map for Skye Canyon Phase II, FMP-61563, shall record prior to the recordation of the Final Map for this site to provide legal access.
9. Private streets must be granted and labeled on the Final Map for this site as Public Utility Easements (P.U.E.), Public Sewer Easements, and Public Drainage Easements to be privately maintained by the Homeowner's Association.
10. If not already constructed or guaranteed by the master developer, construct half street improvements on Shaumber Road and Eagle Canyon Avenue including appropriate overpaving (where legally able) adjacent to this site concurrent with development. Install all appurtenant underground facilities, if any, adjacent to this site needed for the future traffic signal system concurrent with development of this site. Extend all required underground utilities, such as electrical, telephone, etc., located within public rights-of-way, past the boundaries of this site prior to construction of hard surfacing (asphalt or concrete). Per Condition #17 of the Skye Canyon II Parent Tentative Map (TMP-65803), if not already constructed or guaranteed by the master developer, a minimum two lanes of asphalt pavement on village streets providing the main access to this site and a working sanitary sewer connection shall be provided prior to a final inspection of any dwelling units within this Tentative Map.

11. Per condition of approval #14 of the Skye Canyon II Parent Tentative Map (TMP-65803), grant Pedestrian Access Easements for all sidewalks located outside of the public street right-of-way by adding a note within the Owner's Certificate on each Final Map to read, "A minimum 5-foot wide pedestrian walkway easement is hereby granted overlying all sidewalks located in common areas abutting public streets, where such sidewalks are not located within public street right-of-way, together with the right of ingress thereto and egress therefrom these easements."
12. All landscaping and private improvements installed with this project shall be situated and maintained so as to not create sight visibility obstructions for vehicular traffic at all development access drives and abutting street intersections. Per condition of approval #19 of the Skye Canyon II Parent Tentative Map (TMP-65803), landscaping within calculated Site Visibility Restriction Zones (SVRZs) will be limited in height by the City Traffic Engineer.
13. No structures, and no trees or vegetation taller than three feet, shall be allowed within any Public Sewer Easements. Common Element "D" must be a Public Sewer Easement to be privately maintained by the Homeowner's Association (HOA) with a minimum 12-foot wide paved access path. A 20-foot Public Sewer Easement to be privately maintained must be granted where it is centered on the public sewer line located in Common Element "B".
14. Meet with the Fire Protection Engineering Section of the Department of Fire Services to discuss fire requirements for the proposed subdivision. The design and layout of all onsite private circulation and access drives shall meet the approval of the Department of Fire Services. No parking is allowed on one side of stub streets where the curb to curb width is 32 feet unless allowed by the Fire Code.
15. A working sanitary sewer connection shall be in place prior to final inspection of any units within this development. Full permanent improvements on all major access streets, including all required landscaped areas between the perimeter wall and adjacent public street, shall be constructed and accepted by the City prior to issuance of any building permits beyond 50% of all units within this development. All off-site improvements adjacent to this site, including all required landscaped areas between the perimeter walls and adjacent public streets, shall be constructed and accepted prior to issuance of building permits beyond 75%. The above thresholds notwithstanding, all required improvements shall be constructed in accordance with the approved Development Agreement.
16. A Drainage Plan and Technical Drainage Study must be submitted to and approved by the Department of Public Works prior to the issuance of any building or grading permits, submittal of any construction drawings or the submittal of a Map subdividing this site, whichever may occur first. Provide and improve all drainageways recommended in the approved drainage plan/study. The developer

of this site shall be responsible to construct such neighborhood or local drainage facility improvements as are recommended by the City of Las Vegas Neighborhood Drainage Studies and approved Drainage Plan/Study concurrent with development of this site.

17. The approval of all Public Works related improvements shown on this Tentative Map is in concept only. Specific design and construction details relating to size, type and/or alignment of improvements, including but not limited to street, sewer and drainage improvements, shall be resolved prior to approval of the construction plans by the City. No deviations from adopted City Standards shall be allowed unless specific written approval for such is received from the City Engineer prior to the recordation of a Final Map or the approval of subdivision-related construction plans, whichever may occur first. Approval of this Tentative Map does not constitute approval of any deviations. If such approval cannot be obtained, a revised Tentative Map must be submitted showing elimination of such deviations. We note that curved sewers are not allowed and do not comply with City Standards.
18. Comply with all applicable conditions of approval for the Sky Canyon II Parent Tentative Map (TMP-65803) and any other site related actions.

This action by the Planning Commission on **November 1, 2016** is final unless a written appeal is filed with the City Clerk within seven days of the date of the Planning Commission's decision as allowed by code or there is a review action filed by the City Council within the same time period. For additional information on appeals or review requests submitted please access <http://www.lasvegasnevada.gov/CheckStatus/DevelopmentApp.htm>, or contact the Department of Planning and Development at 702.229.6301 after **November 8, 2016**. No building permits or business licenses related to these items shall be issued prior to the expiration of the required ten day waiting period, or until any filed appeal is resolved pursuant to LVMC Title 19.18.

Sincerely,



Steve Gebeke, AICP
Planning Supervisor
Case Planning Division

SG:nl

TMP-65809 [PRJ-65788] - Page Five
November 2, 2016

cc:

Ms. Chelsea Jensen
Slater Hanifan Group
5740 S. Arville St., Ste. 216
Las Vegas, Nevada 89118

Mr. Marc Bolduc
Ninety Five Management, LLC
11411 Southern Highlands Parkway, Ste. 300
Las Vegas, Nevada 89141

APPENDIX D

Response to Comment No. 8

Reference Material from the Skye Canyon Master
Drainage Study Update #3 (DS4420)

**MASTER DRAINAGE STUDY
UPDATE #3
(RESPONSE TO CCRFCD COMMENTS)**

Skye Canyon

City of Las Vegas, Nevada

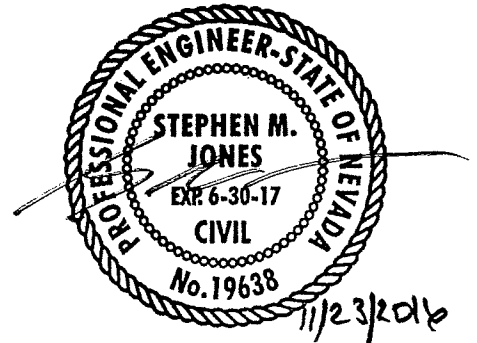
Job No.: OLY1603.000
Date: November 2016

Prepared By:

Slater Hanifan Group, Inc.
5740 S. Arville Street, Suite 216
Las Vegas, Nevada 89118
Phone: 702-284-5300 • Fax: 702-284-5399

Prepared For:

Olympia Companies
11411 Southern Highlands Parkway, Suite 300
Las Vegas, NV 89141
Phone: 702-220-6565 • Fax: 702-220-6566



Steve Jones, P.E.
NV Professional Engineer No. 19638

Assisted by: Cameron Bencini, EI

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* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

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

1

HEC-1 INPUT

PAGE 1

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LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
*DIAGRAM
1 ID SLATER HANIFAN GROUP
2 ID OLYMPIA COMPANIES
3 ID SKYE CANYON
4 ID MASTER DRAINAGE STUDY 2016 - CLV SUPPLEMENT
5 ID ULTIMATE DRAINAGE CONDITION - REVISED TO TULE SPRINGS NORTH ENV. DB
6 ID
7 ID RETURN PERIOD ----- 100-YEAR
8 ID DISTRIBUTION ----- 6-HOUR SDN3
9 ID PROJECT NO. ----- OLY1603.000
10 ID FILENAME ----- Ultimate3-TULEDB.H1
11 ID DATE ----- September 2016
12 ID MODELED BY ----- SMJ/JSR
13 ID
14 ID SIX HOUR DEPTH-AREA REDUCTION FACTORS
15 ID DRAINAGE AREA (MI^2) DARF
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17 ID 0.5-0.99 0.98
18 ID 1.0-1.99 0.97
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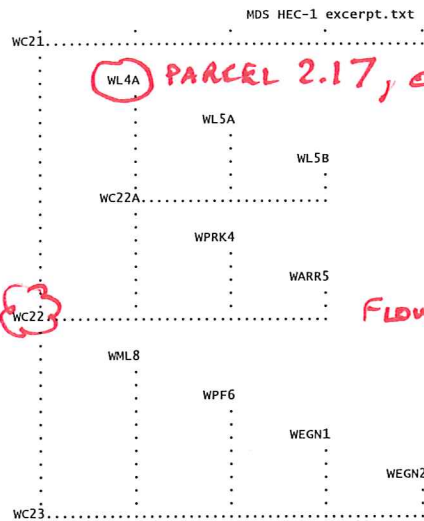
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885 . WOFF5
890 . WOFF6
895 . WPF18
901 . DB1
904 . V
RDB1
912 . WSHP3
918 . WPF2
924 . WC19
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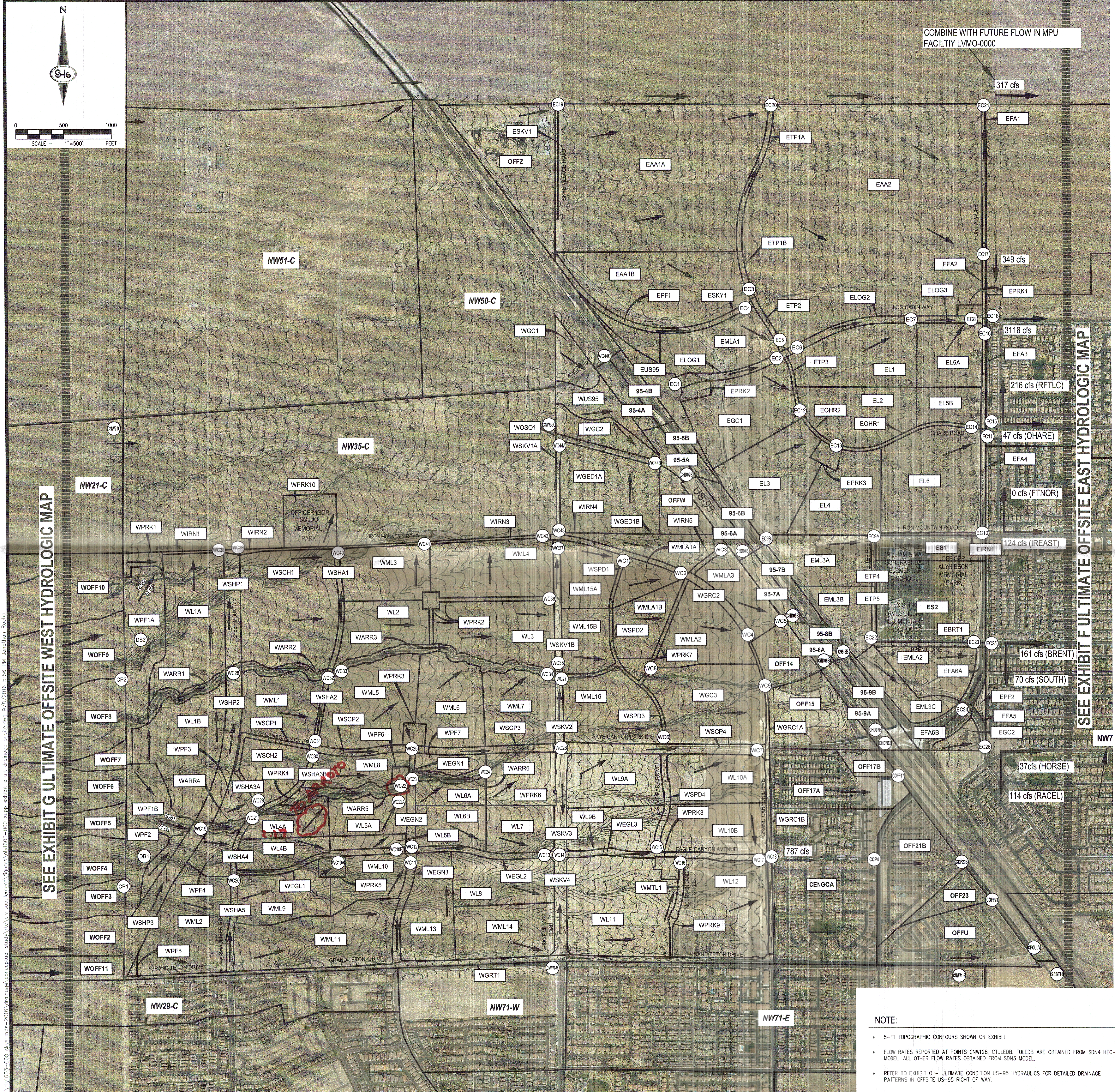
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PARCEL 2.17, OK TO ROUTE NORTH INTO ARROYO



FLOW GETS TO ARROYO INTO CULVERT C3 OPENING



COMBINE WITH FUTURE FLOW IN MPU FACILITY LVMO-0000

SEE EXHIBIT F ULTIMATE OFFSITE EAST HYDROLOGIC MAP

SEE EXHIBIT G ULTIMATE OFFSITE WEST HYDROLOGIC MAP

NOTE:

- 5-FT TOPOGRAPHIC CONTOURS SHOWN ON EXHIBIT
- FLOW RATES REPORTED AT POINTS CNW28, CTULEDB, TULEDB ARE OBTAINED FROM SD4 HEC-1 MODEL. ALL OTHER FLOW RATES OBTAINED FROM SD3 MODEL.
- REFER TO EXHIBIT O - ULTIMATE CONDITION US-95 HYDRAULICS FOR DETAILED DRAINAGE PATTERNS IN OFFSITE US-95 RIGHT OF WAY.

Ultimate Condition Flow Rate Summary Skye Canyon West Basins				
Basin/Concentration Point ID	Area (ac)	Q ₁₀₀ (cfs)	Q ₁₀ (cfs)	Q ₁ (cfs)
WARR1	3.6	9	4	1
WARR2	2.8	7	3	1
WARR3	7.1	17	7	2
WARR4	1.3	3	1	0
WARR5	8.0	18	8	2
WARR6	2.4	6	2	0
WARR7	8.3	24	11	3
WARR8	8.3	23	10	3
WARR9	26.4	85	47	13
WARR10	28.4	77	35	10
WARR11	11.5	33	16	5
WARR12	17.1	46	21	6
WARR13	18.3	49	22	6
WARR14	26.7	77	35	10
WARR15	31.4	84	38	10
WARR16	22.2	64	32	9
WARR17	28.0	79	36	10
WARR18	15.7	45	21	6
WARR19	24.9	69	32	9
WARR20	8.0	23	10	3
WARR21	28.3	77	35	10
WARR22	10.9	30	14	4
WARR23	11.5	34	16	5
WARR24	17.4	48	22	6
WARR25	18.2	49	22	6
WARR26	14.4	39	18	5
WARR27	18.0	52	24	7
WARR28	11.5	33	16	5
WARR29	18.0	48	23	6
WARR30	15.1	44	20	6
WARR31	16.4	48	23	6
WARR32	19.2	58	28	8
WARR33	12.3	40	20	6
WARR34	11.2	34	17	5
WARR35	22.2	64	32	9
WARR36	27.4	78	38	10
WARR37	17.1	45	21	6
WARR38	25.1	77	38	10
WARR39	27.3	82	41	11
WARR40	20.5	64	32	9
WARR41	18.6	59	30	9
WARR42	10.3	24	11	3
WARR43	16.4	55	28	8
WARR44	6.8	20	10	3
WARR45	12.0	37	18	5
WARR46	30.4	88	45	12
WARR47	11.5	35	17	5
WARR48	20.2	59	29	8
WARR49	18.9	63	31	9
WARR50	3.1	10	5	1
WARR51	4.8	17	8	2
WARR52	5.7	19	9	2
WARR53	1.0	4	2	0
WARR54	4.5	14	7	2
WARR55	2.4	6	2	0
WARR56	10.0	19	8	2
WARR57	3.2	7	2	0
WARR58	1.8	4	2	0
WARR59	1.0	3	1	0
WARR60	2.0	5	2	0
WARR61	13.2	28	10	3
WARR62	3.0	6	2	0
WARR63	1.7	4	1	0
WARR64	0.8	1	0	0
WARR65	29.4	89	46	12
WARR66	11.5	37	18	5

Ultimate Condition Flow Rate Summary Skye Canyon East Basins				
Basin/Concentration Point ID	Area (ac)	Q ₁₀₀ (cfs)	Q ₁₀ (cfs)	Q ₁ (cfs)
EAA1A	103.1	231	107	31
EAA1B	40.0	108	48	13
EAA2	177.6	347	160	49
EL1	26.0	51	20	6
EL2	21.7	46	18	5
EL3	26.4	51	20	6
EL4	21.4	46	18	5
EL5A	15.1	32	13	4
EL5B	9.5	18	8	2
EL6	36.3	88	36	10
EL7	17.5	50	25	7
EL8	11.5	34	17	5
EL9	9.1	27	13	4
EL10	18.9	49	23	6
EL11	10.7	33	16	5
EL12	26.4	65	30	9
EL13	3.2	11	5	1
EL14	1.0	1	0	0
EL15	2.0	2	0	0
EL16	4.3	9	3	1
EL17	1.0	2	1	0

Ultimate Condition Flow Rate Summary Skye Canyon East Diversions				
Diversion ID	Q ₁₀₀ (cfs)	Q ₁₀ (cfs)	Diverted From	Diverted To
DB-OFF	134	N/A	LOCDB	CTULEDB
TULEDB	80	N/A	CTULEDB	SILVERSTONE RANCH
RFTLC	216	59	EC15	FORT APACHE ROAD
OHARE	47	47	EC10	OHARE ROAD
FTNOR	0	0	EC10	FORT APACHE ROAD
IREAST	124	59	EC10	IRON MOUNTAIN EAST
BRENT	161	46	EC25	BRENT LANE
SOUTH	70	70	EC25	RACEL STREET
HORSE	37	0	EC26	HORSE DRIVE
RACEL	114	110	EC26	RACEL STREET

Ultimate Condition Flow Rate Summary Skye Canyon West Concentration Points				
Basin/Concentration Point ID	Area (ac)	Q ₁₀₀ (cfs)	Q ₁₀ (cfs)	Q ₁ (cfs)
WC1	0.02	43	21	6
WC2	0.03	73	37	10
WC3	0.05	109	54	15
WC4	0.08	135	67	19
WC5	0.09	170	83	24
WC6	0.04	68	33	10
WC7	0.10	186	89	27
WC8	0.02	37	19	6
WC9	0.17	322	155	45
WC10	0.03	60	30	9
WC11	0.05	99	48	14
WC12	0.07	127	61	18
WC13	0.11	236	109	31
WC14	0.17	352	170	49
WC15	0.24	485	236	69
WC16	0.03	46	21	6
WC17	0.06	106	48	14
WC18	0.37	895	331	97
WC19	0.42	787	372	107
WC20	0.90	94	70	20
WC21	0.05	88	42	12
WC22	0.96	201	121	35
WC23	0.05	87	43	12
WC24	1.01	231	109	31
WC25	1.03	322	155	45
WC26	1.05	359	184	53
WC27	0.01	16	8	2
WC28	1.09	412	217	63
WC29	1.12	487	253	74
WC30	0.06	113	53	15
WC31	0.01	19	10	3
WC32	0.04	68	33	10
WC33	0.07	124	68	20
WC34	0.14	244	113	33
WC35	0.23	404	191	55
WC36	1.34	876	436	125
WC37	0.03	51	23	7
WC38	1.41	1020	492	141
WC39	0.62	111	46	13
WC40	0.63	129	55	15
WC41	0.07	112	50	14
WC42	0.72	293	132	37
WC43	0.77	370	171	49
WC44	2.18	1291	619	181
WC45	2.19	1296	621	182
WC46	4.95	2079	865	245
WC47	0.18	250	97	28

Ultimate Condition Flow Rate Summary Skye Canyon East Concentration Points				
Basin/Concentration Point ID	Area (ac)	Q ₁₀₀ (cfs)	Q ₁₀ (cfs)	Q ₁ (cfs)
EC1	5.16	2355	978	285
EC2	5.18	2364	984	286
EC3	0.08	109	49	14
EC4	0.01	19	9	2
EC5	0.11	177	82	24
EC6	5.27	2621	1034	304
EC7	5.33	2574	1055	310
EC8	5.36	2606	1068	313
EC9	0.03	57	27	8
EC10	0.04	108	52	15
EC11	0.08	140	68	20
EC12	0.14	73	28	8
EC13	0.05	80	37	10
EC14	0.10	134	58	17
EC15	0.17	238	96	28
EC16	0.31	301	125	36
EC17	0.32	276	88	25
EC18	0.28	349	161	47
EC19	5.95	316	1291	375
EC20	0.05	72	29	8
EC21	0.17	239	111	32
EC22	0.22	317	143	41
EC23	0.04	85	43	12
EC24	0.09	158	85	25
EC25	0.03	64	32	9
EC26	0.12	231	116	34
EC27	0.17	151	110	32

Ultimate Condition Flow Rate Summary Skye Canyon Offsite Basins				
Basin/Concentration Point ID	Area (ac)	Q ₁₀₀ (cfs)	Q ₁₀ (cfs)	Q ₁ (cfs)
WEST BASINS				
GENCA	0.08	182	71	21
OFF1	0.03	29	14	4
OFF2	0.05	84	43	12
OFF3	0.30	397	128	37
OFF4	0.43	462	163	47
OFF5	0.30	375	115	33
OFF6	0.40	467	163	47
OFF7	0.01	26	13	4
OFF8	0.03	62	32	9
OFF9	0.03	61	31	9
OFF10	0.01	15	7	2
OFF11	0.04	75	39	11
OFF12	0.04	74	37	10
OFF13	0.01	22	10	3
OFF14	0.01	26	13	4
OFF15	0.03	62	32	9
OFF16	0.03	61	31	9
OFF17B	0.01	15	7	2
OFF18B	0.04	75	39	11
OFF19B	0.04	74	37	10
OFF20	0.01	22	10	3
OFF21	0.05	69	27	8
OFF22	0.01	26	13	4
WOFF1	0.41	403	153	45
WOFF2	0.26	262	119	34
WOFF3	0.03	55	29	8
WOFF4	0.04	48	17	5
WOFF5	0.03	48	18	5
WOFF6	0.05	84	32	9
WOFF7	0.28	236	89	26
WOFF8	0.44	369	123	36
WOFF9	0.01	10	4	1
WOFF10	0.07	198	74	21
WOFF11	0.13	244	85	25
USRB BASINS				
95-4A	0.01	14	7	2
95-4B	0.01	14	7	2
95-5A	0.01	13	6	1
95-5A	0.01	12	6	1
95-6A	0.01	11	5	1
95-6A	0.01	19	9	2
95-7A	0.01	12	5	1
95-7B	0.01	14	7	2
95-7B	0.01	16	8	2
95-8A	0.01	11	6	1
95-8B	0.01	7	4	1
95-9A	0.01	21	10	3
95-9B	0.01	22	10	3
EAST BASINS				
NW1-LG	0.29	327	107	30
NW1-LG	0.49	500	159	45
NW2-LG	0.18	242	119	34
NW3-LG	0.13	200	93	26
NW4-LG	0.34	343	103	30
NW5-LG	0.17	228	87	25
NW6-LG	0.34	299	106	30
NW7-LG	0.17	176	68	19
NW8-LG	0.20	262	132	37
NW9-LG	0.14	110	30	9
NW10-LG	0.14	126	34	9
NW11-LG	0.45	238	54	15
NW12-LG	0.25	268	70	19
NW13-LG	0.13	76	20	7
NW14-LG	0.13	76	20	7
NW15-LG	0.28	178	56	15

FACILITY HYDRAULICS SUMMARY TABLE				
NETWORK	STREET ID	FACILITY ID	FACILITY TYPE	COMMENTS
EX SD	EAGLE CANYON	X1	6" x 8" RCB	800 CFS
EX SD	GRAND CANYON	X1-1	48" RCP	100 CFS
EX SD	EAGLE CANYON	X2	6" x 8" RCB	728 CFS
EX SD	MOUNTAIN LANDING	X2-2	48" RCP	110 CFS
EX SD	EAGLE CANYON	X3	72" RCP	728 CFS
EX SD	SKY VILLAGE	X4-1	42" RCP	140 CFS
EX SD	EAGLE CANYON	X4a	72" RCP	477 CFS
EX SD	EAGLE CANYON	X5	48" RCP	218 CFS
EX SD	EAGLE CANYON	X5-2	42" RCP	60 CFS
EX SD	GRAND CANYON DRIVE	X6	6" x 8" RCB	197 CFS
EX SD	HORSE	X7	42" RCP	92 CFS
EX SD	SKY PARK	X7-1	36" RCP	47 CFS
EX SD	HORSE	X7-2	24" RCP	6 CFS
EX SD	SKY VILLAGE RD	X8	6" x 8" RCB	367 CFS
EX SD	SKY VILLAGE	X8a	60" RCP	334 CFS
EX SD	SKY VILLAGE	X8b	30" RCP	42 CFS
EX SD	GRAND TETON	X9	10" x 8" RCB	690 CFS
EX SD	GRAND TETON	X10	10" x 8" RCB	690 CFS
EX SD	GRAND TETON	X11	6" x 8" RCB	646 CFS
EX SD	GRAND TETON	X12	6" x 8" RCB	594 CFS
EX SD	GRAND TETON	X13	6" x 8" RCB	494 CFS
EX SD	GRAND TETON	X14	6" x 8" RCB	484 CFS
EX SD	GRAND TETON	X15	6" x 8" RCB	488 CFS
EX SD	GRAND TETON	X16	6" x 8" RCB	263 CFS
EX SD	SHAMBER	X17	36" RCP	81 CFS
EX SD	EAGLE CANYON	X18	48" RCP	128 CFS
EX SD	DB1 DISCHARGE	X19	60" RCP	71 CFS
EX SD	DB1 COLLECTOR	X20	CONC TRAP CHNL	471 CFS
EX SD	ARROYO WASH	XW1	NATURAL WASH	120 CFS
EX SD	ARROYO WASH	XW2	NATURAL WASH	404 CFS
EX SD	ARROYO WASH	XW3	NATURAL WASH	84 CFS
EX SD	ARROYO WASH	XW4	NATURAL WASH	308 CFS
EX SD	ARROYO WASH	XW5	NATURAL WASH	388 CFS

→ EQUIVALENT OF WC22 ROUTING

FUTURE MPU "MOKC" CCRFCD FACILITY, REFER TO EXHIBIT L

ARROYO INTENDED TO PERFORM ENTIRE FLOW TO OFFSITE DRAINAGE AS PROPOSED BY OFFSITE DRAINAGE

ARROYO INTENDED TO PERFORM ENTIRE FLOW TO OFFSITE DRAINAGE AS PROPOSED BY OFFSITE DRAINAGE

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ARROYO INTENDED TO PERFORM ENTIRE FLOW TO OFFSITE DRAINAGE AS PROPOSED BY OFFSITE DRAINAGE

DETENTION BASIN HYDRAULICS SUMMARY TABLE					
FACILITY ID	INFLOW	OUTFLOW	100-YR STORAGE	DEBRIS STORAGE	TOTAL STORAGE
DB1	794 CFS	71 CFS	57 AC-FT	6 AC-FT	63 AC-FT
DB2	794 CFS	57 CFS	72 AC-FT	6 AC-FT	78 AC-FT

PMF FLOW					
EXISTING DETENTION BASIN 1	6744 CFS	5898 CFS	5898 CFS	5898 CFS	5898 CFS
PROPOSED DETENTION BASIN 2	5898 CFS	5898 CFS	5898 CFS	5898 CFS	5898 CFS

COMMENTS					
DB1	794 CFS	71 CFS	57 AC-FT	6 AC-FT	63 AC-FT
DB2	794 CFS	57 CFS	72 AC-FT	6 AC-FT	78 AC-FT

COMMENTS					
DB1	794 CFS	71 CFS	57 AC-FT	6 AC-FT	63 AC-FT
DB2	794 CFS	57 CFS	72 AC-FT	6 AC-FT	78 AC-FT

COMMENTS					
DB1	794 CFS	71 CFS	57 AC-FT	6 AC-FT	63 AC-FT
DB2	794 CFS	57 CFS	72 AC-FT	6 AC-FT	78 AC-FT

COMMENTS					
DB1	794 CFS	71 CFS	57 AC-FT	6 AC-FT	63 AC-FT
DB2	794 CFS	57 CFS	72 AC-FT	6 AC-FT	78 AC-FT

COMMENTS					
DB1	794 CFS	71 CFS	57 AC-FT	6 AC-FT	63 AC-FT
DB2	794 CFS	57 CFS	72 AC-FT	6 AC-FT	78 AC-FT

COMMENTS					
DB1	794 CFS	71 CFS	57 AC-FT	6 AC-FT	63 AC-FT
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DB1	794 CFS	71 CFS	57 AC-FT	6 AC-FT	63 AC-FT
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DB2	794 CFS	57 CFS	72 AC-FT	6 AC-FT	78 AC-FT

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DB1	794 CFS	71 CFS	57 AC-FT	6 AC-FT	63 AC-FT
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DB2	794 CFS	57 CFS	72 AC-FT	6 AC-FT	78 AC-FT

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DB2	794 CFS	57 CFS	72 AC-FT	6 AC-FT	78 AC-FT

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DB1	794 CFS	71 CFS	57 AC-FT	6 AC-FT	63 AC-FT
DB2	794 CFS	57 CFS	72 AC-FT	6 AC-FT	78 AC-FT

COMMENTS					
DB1	794 CFS	71 CFS	57 AC-FT	6 AC-FT	63 AC-FT
DB2	794 CFS	57 CFS	72 AC-FT	6 AC-FT	78 AC-FT

COMMENTS					
DB1	794 CFS	71 CFS	57 AC-FT	6 AC-FT	63 AC-FT
DB2	794 CFS	57 CFS	72 AC-FT	6 AC-FT	78 AC-FT

COMMENTS					
DB1	794 CFS	71 CFS	57 AC-FT	6 AC-	

Reference Material from the Skye Canyon
Phase 3 Infrastructure (DS4796)

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM

DATE:

September 22, 2016

TO:

Land Development Services
Department of Building & Safety

FROM:

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

SUBJECT:

Drainage Study for:

Skye Canyon – Phase 3 Infrastructure

COPIES TO:

Slater Hanifan Group

Cross Streets:

NWC of Grand Canyon & Skye Canyon Park

MF Land / Ninety Five Management

File Number:

F:\Depot\DSMemos\DS4796C.doc

Bart Anderson, P.E., DevCo

Parcel Number:

125-07-201-003

Zoning Action:

MOD-62679; SUP-63594; SUP-63597;
SDR-63598; VAR-63963 & GPA-64013

FEMA Flood Zone

YES

NO

X

Proposed Storm Drain

YES

X

NO

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	4/28/2016	5/24/2016 & 6/28/2016	Not Approved	\$400.00	442241: \$400
2 nd Submittal & Supplement	7/21/2016 & 7/25/2016	8/18/2016	Not Approved	\$400.00	452170: \$400
3 rd Submittal	8/31/2016 & 9/16/2016	9/22/2016	See Comments Below	\$400.00	456806: \$400
TOTAL FEES (LDDRS):				\$1,200.00	----

REMARKS: Infrastructure necessary for the 38 acre Commercial Development known as Phase 3.

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

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

1. The **Phase 3 Infrastructure** drainage study addresses the included street improvements of *Grand Canyon Drive, Skye Park Drive, Street "D"*, a local minor detention basin, culvert crossings and storm drain systems within the perimeter streets. A separate technical drainage study will be required for the future onsite commercial developments.
2. The proposed local detention basin near concentration point "CPN" is a minor and temporary facility which will be removed by the developer upon the construction of the ultimate upstream *Regional Flood Control* facilities. This detention basin is to be privately owned and privately maintained by the master developer. The developer shall provide maintenance access to the public storm drain outfall and shall provide a public drainage easement, to be privately maintained. The public drainage easement (privately maintained) must be dedicated and recorded prior to the final approval of the improvement plans.

3. The proposed debris/sediment basins at concentration points "CPN" and "CPS" shall be privately owned and privately maintained by the master developer. These facilities are considered to be temporary in nature and the City understands that the future development and the ultimate *Regional Flood Control* facilities will require that these facilities may be removed by the developer upon the City's approval of a Technical Drainage Study that addresses the impacts of those improvements.
4. The proposed culvert crossings at the concentration points "CPN", "CPS" and "WC9" are oversized interim facilities that are not required in the ultimate condition. All drainage facilities proposed in this **Phase 3 Infrastructure Study** are considered interim facilities and must be maintained by the Master Developer until the upstream ultimate facilities are completed and accepted by the *City of Las Vegas*. *The City of Las Vegas* will not maintain the culverts during all interim conditions. Interim facilities will require an Encroachment Agreement for those facilities within public right-of-way.
5. Future development of the site will require storm drain extensions from "CPN" and "CPS" and the corresponding public drainage easements (privately maintained) traversing the *Skye Canyon Village* site. Dedication shall be provided using the mapping process or by separate legal description and must be approved by *Flood Control* prior to recordation. The easements must be recorded prior to the final approval of the subject improvement plans.
6. The provided Phase 3 Infrastructure plans only show the proposed drainage facilities. The complete improvement plans will require additional review for impacts with other needed infrastructure; i.e. sanitary sewer, water, gas, etc. Any changes to the proposed storm drain system shall require a drainage study update.
7. Since the streets network and the associated storm drain facilities will eventually be accepted by the City, the engineer must coordinate with *City of Las Vegas Streets & Sanitation Department* for their review and approval prior to the final approval of the improvement plans.
8. Structural plans for the storm drain improvements must be submitted for review. Provide a soil report, structural calculations and specifications, wet stamped structural sets and a grading plan to the *City of Las Vegas Building Department* for processing (call *Building Department* to confirm their submittal requirements). The engineer must provide a copy of *Building Department* approval of the structures to *City Flood Control Section* prior to the final acceptance of the improvement plans.
9. The project proposes to build temporary drainage facilities including; detention basins, debris/sediment basins, drainage berms/swales over the *Phase 3* site. Prior to final plan approval the developer must complete a **Maintenance and Liability Agreement** for the interim drainage improvements and post a minimum maintenance bond of \$50,000 or 50-percent of the construction cost for the improvements, whichever is greater. The engineer must submit an estimate of the quantities for construction the facility and an exhibit that adequately shows the location and limits of the drainage facility to *City Flood Control* for approval. Once the drainage study is conditionally approved, the engineer/developer should contact the *City's Land Development Section* (702-229-6371) to begin the agreement process.

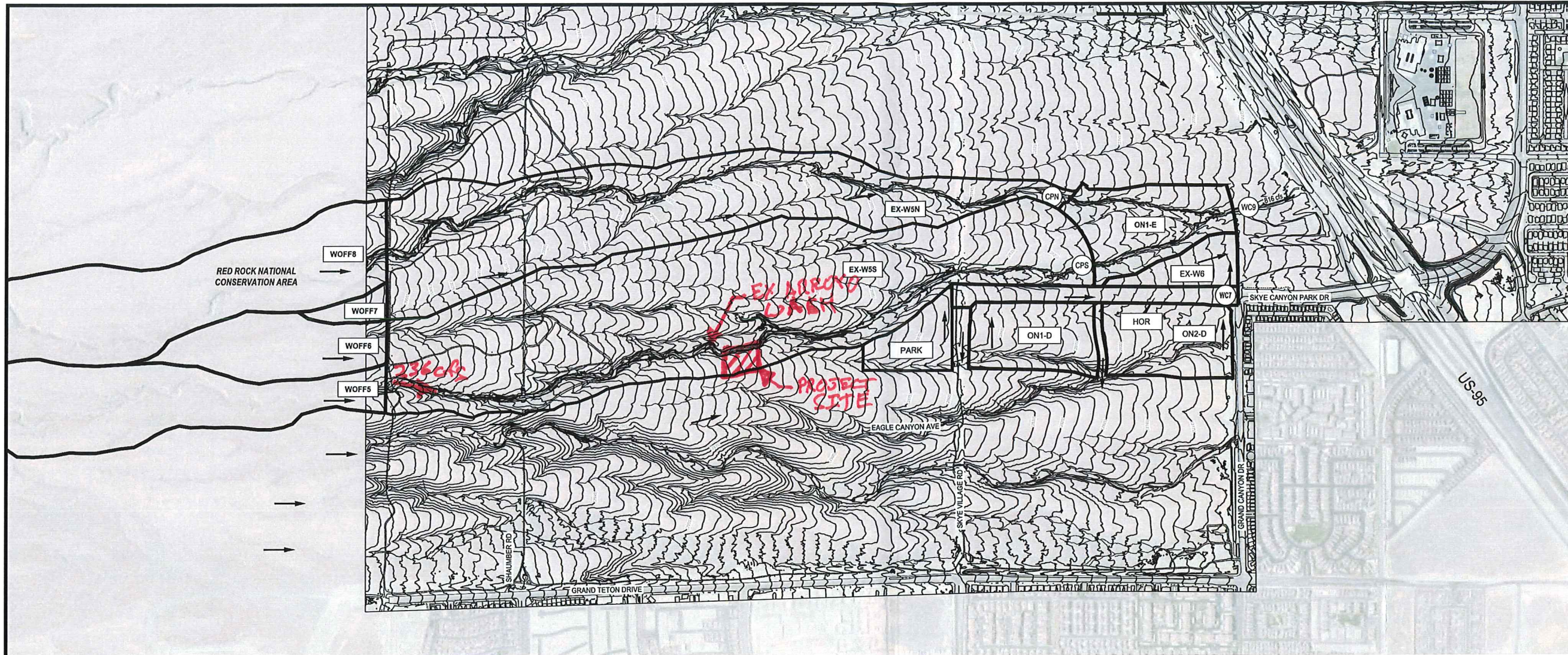
In order for the maintenance bond to be released in the future, a drainage update/letter will be required to justify that the berms/swales are no longer necessary and can be removed.

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/07
AREA G-07

\\slater\95-000\skye canyon phase 3\infrastructure\study\addendum\figure\1602-000 add1.dwg existing conditions.dwg 7/21/2016 12:50 PM Cameron Boudi



NOTE:

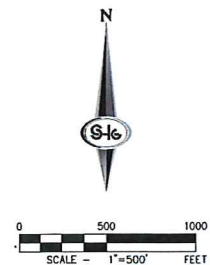
EXISTING, PROPOSED, AND FUTURE CONDITION
ASSUMES PHASE 1 UPSTREAM OF PHASE 3
DEVELOPMENT BOUNDARY IS CONSTRUCTED.

Basin Flow Rate Summary		
Basin/Concentration Point ID	Area (ac)	Q ₁₀₀ (cfs)
WOFF5*	164.4	236
WOFF6*	25.5	59
WOFF7*	4.4	10
WOFF8*	137.0	230
PARK***	12.8	36
EXWSS	151.3	237
EXWSN	91.2	139
EXWS	8.4	20
ON1-E	23.5	53
ON1-D**	17.8	47
ON2-D**	19.3	45
HOR**	10.4	30

*REFERENCED FROM THE SKYE CANYON MASTER DRAINAGE STUDY.
**REFERENCED FROM THE SKYE CANYON PHASE 1 INFRASTRUCTURE STUDY.
***REFERENCED FROM THE SKYE CANYON PARK - PHASE 1 SUBBASINS OFF3, OFF4 & D2 COMPRISE "PARK" SHOWN ON DRAINAGE MAP

← ORIGINAL FLOW
IN EXISTING ARROYO

Concentration Points Summary		
Basin/Concentration Point ID	Area (mi ²)	Q ₁₀₀ (cfs)
CPS (WOFF5* + WOFF6* + EX-WSS + PARK***)	0.55	433
CPN (WOFF7* + WOFF8* + EX-WSN)	0.36	361
WC7 (ON1-D** + ON2-D** + HOR**)	0.07	121
WC9 (CPS + CPN + WC7 + ON1-E)	1.03	816



LEGEND	
	BASIN BOUNDARY
	BASIN ID
	FLOW DIRECTION
	CONCENTRATION POINT

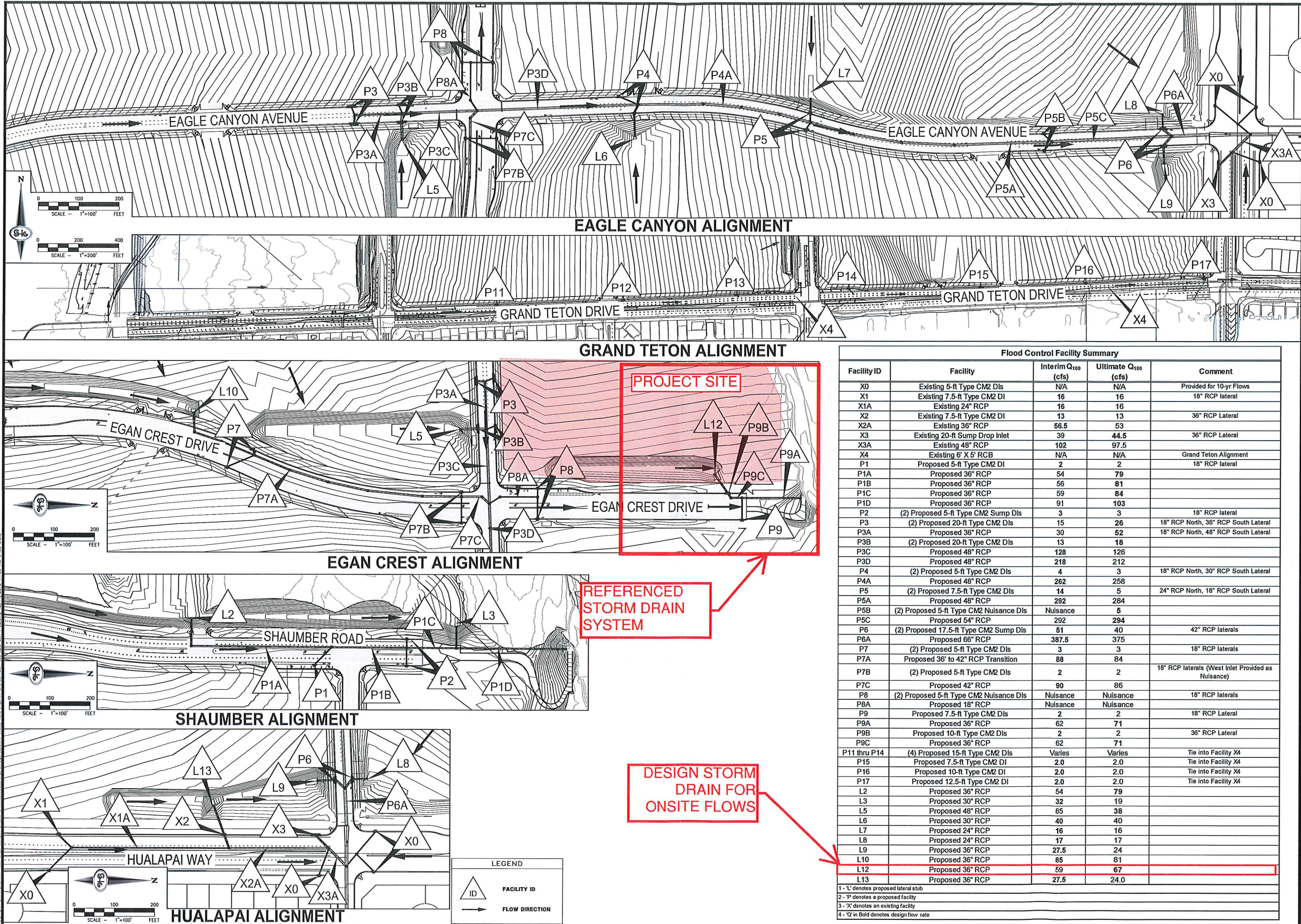
NINETY-FIVE MANAGEMENT, LLC
SKYE CANYON PHASE 3 INFRASTRUCTURE
EXISTING CONDITION DRAINAGE MAP

DATE: JULY 2016
DRAFTER: CWB
DESIGNER: CWB
CHECKED: SMJ
PROJECT NO.
OLY1602.000

APPENDIX E

Response to Comment No. 10

Reference Material from the Skye Canyon Phase 2
Infrastructure Update #3 (DS4739)



EAGLE CANYON ALIGNMENT

GRAND TETON ALIGNMENT

EGAN CREST ALIGNMENT

SHAUMBER ALIGNMENT

HUALAPAI ALIGNMENT

PROJECT SITE

REFERENCED
STORM DRAIN
SYSTEM

DESIGN STORM
DRAIN FOR
ONSITE FLOWS

LEGEND

ID FACILITY ID

FLOW DIRECTION

Flood Control Facility Summary				
Facility ID	Facility	Interim Q ₁₀₀ (cfs)	Ultimate Q ₁₀₀ (cfs)	Comment
X0	Existing 5-ft Type CM2 DIs	N/A	N/A	Provided for 10-yr Flows
X1	Existing 7.5-ft Type CM2 DI	16	16	18" RCP lateral
X1A	Existing 24" RCP	16	16	
X2	Existing 7.5-ft Type CM2 DI	13	13	36" RCP Lateral
X2A	Existing 36" RCP	56.5	53	
X3	Existing 20-ft Sump Drop Inlet	39	44.5	36" RCP Lateral
X3A	Existing 48" RCP	102	97.5	
X4	Existing 6' X 5' RCB	N/A	N/A	Grand Teton Alignment
P1	Proposed 5-ft Type CM2 DI	2	2	18" RCP lateral
P1A	Proposed 36" RCP	54	79	
P1B	Proposed 36" RCP	56	81	
P1C	Proposed 36" RCP	59	84	
P1D	Proposed 36" RCP	91	103	
P2	(2) Proposed 5-ft Type CM2 Sump DIs	3	3	18" RCP lateral
P3	(2) Proposed 20-ft Type CM2 DIs	15	26	18" RCP North, 36" RCP South Lateral
P3A	Proposed 36" RCP	30	52	18" RCP North, 48" RCP South Lateral
P3B	(2) Proposed 20-ft Type CM2 DIs	13	18	
P3C	Proposed 48" RCP	128	126	
P3D	Proposed 48" RCP	218	212	
P4	(2) Proposed 5-ft Type CM2 DIs	4	3	18" RCP North, 30" RCP South Lateral
P4A	Proposed 48" RCP	262	258	
P5	(2) Proposed 7.5-ft Type CM2 DIs	14	5	24" RCP North, 18" RCP South Lateral
P5A	Proposed 48" RCP	292	284	
P5B	(2) Proposed 5-ft Type CM2 Nuisance DIs	Nuisance	5	
P5C	Proposed 54" RCP	292	294	
P6	(2) Proposed 17.5-ft Type CM2 Sump DIs	51	40	42" RCP laterals
P6A	Proposed 66" RCP	387.5	375	
P7	(2) Proposed 5-ft Type CM2 DIs	3	3	18" RCP laterals
P7A	Proposed 36" to 42" RCP Transition	88	84	
P7B	(2) Proposed 5-ft Type CM2 DIs	2	2	18" RCP laterals (West Inlet Provided as Nuisance)
P7C	Proposed 42" RCP	90	86	
P8	(2) Proposed 5-ft Type CM2 Nuisance DIs	Nuisance	Nuisance	18" RCP laterals
P8A	Proposed 18" RCP	Nuisance	Nuisance	
P9	Proposed 7.5-ft Type CM2 DIs	2	2	18" RCP Lateral
P9A	Proposed 36" RCP	62	71	
P9B	Proposed 10-ft Type CM2 DIs	2	2	36" RCP Lateral
P9C	Proposed 36" RCP	62	71	
P11 thru P14	(4) Proposed 15-ft Type CM2 DIs	Varies	Varies	Tie into Facility X4
P15	Proposed 7.5-ft Type CM2 DI	2.0	2.0	Tie into Facility X4
P16	Proposed 10-ft Type CM2 DI	2.0	2.0	Tie into Facility X4
P17	Proposed 12.5-ft Type CM2 DI	2.0	2.0	Tie into Facility X4
L2	Proposed 36" RCP	54	79	
L3	Proposed 30" RCP	32	19	
L5	Proposed 48" RCP	85	38	
L6	Proposed 30" RCP	40	40	
L7	Proposed 24" RCP	16	16	
L8	Proposed 24" RCP	17	17	
L9	Proposed 36" RCP	27.5	24	
L10	Proposed 36" RCP	85	81	
L12	Proposed 36" RCP	59	67	
L13	Proposed 36" RCP	27.5	24.0	

1 - 'L' denotes proposed lateral stub
2 - 'P' denotes a proposed facility
3 - 'X' denotes an existing facility
4 - 'Q' in Bold denotes design flow rate

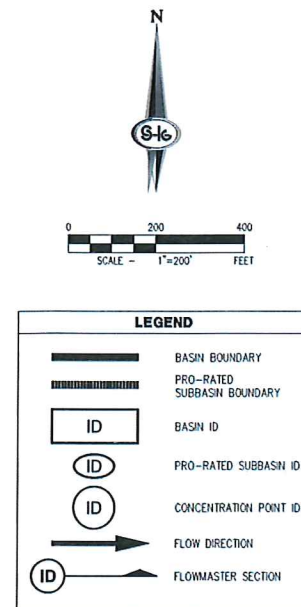
Ultimate Condition					
Cross Section	Slope (%)	Q ₁₀₀ (cfs)	Depth (ft)	Velocity (fps)	Dx/V
ECA1	4.90	99	0.46	8.1	2.8
ECA2	4.90	99	0.62	8.5	5.2
ECA2b	2.00	47	0.58	4.7	2.7
ECA3a	4.94	17	0.38	5.3	2.0
ECA3b	4.94	23	0.42	5.6	2.4
ECA3c	4.94	30	0.45	6.0	2.7
ECA4	0.50	23	0.57	2.4	1.4
EGN1a	2.48	4	0.29	2.9	0.8
*EGN1b	0.50	2.5	0.38	1.6	0.6
EGN2	0.50	4	0.35	1.6	0.5
*SHA	2.75	4	0.33	3.3	1.1
*SHA (West Half)	2.75	4	0.28	2.5	0.7
SHA1	2.75	3	0.26	2.9	0.7
*HJ2	0.57	59	0.92	3.8	3.5
*HJ2B	0.57	43	0.83	3.5	2.9

* Modeled as Half Streets

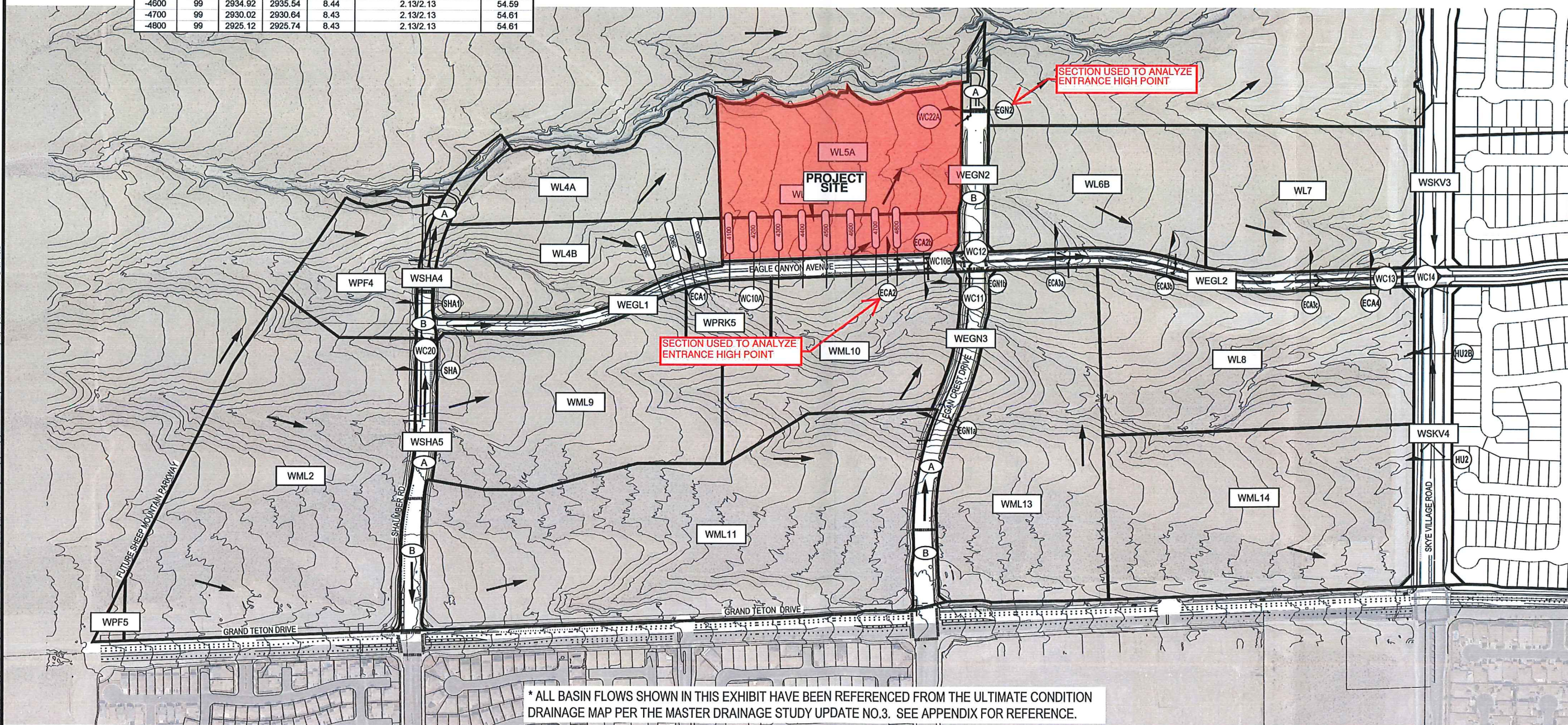
Basin/Concentration Point ID	Area (sq. mi)	Q ₁₀₀ (cfs)	Q ₁₀ (cfs)
WC10A Q = WM1.5 + WVRK5	0.03	60	30
WC10B Q = WC10A + WL4.8 + WEG1.1	0.05	99	48
WC11 Q = WM.10 + WEG5.9	0.07	127	61
WC12 Q = WC10B + WC11	0.11	226	109
WC13 Q = WC12 + WL6.9 + WL7.7 + WM.13 + WEG2.2	0.17	352	170
WC14 Q = WM1.4 + WL.6 + WSKV3 + WSKV4	0.24	485	236
WC20 Q = WVP5 + WM2.2 + WSH4.5	0.05	86	42
WC22A Q = WL4.4 + WL5.4 + WL5.8	0.05	67	43

Ultimate Condition Prorated Flow Summary			
Basin	Q ₁₀₀ (cfs)	Area (acres)	Unit Flow (cfs/acre)
WSHA4	6	1.4	4.2
WSHA5	8	2.4	3.4
WEGN2	6	2.1	3.0
WEGN3	10	3.3	3.0
Subbasin			
WSHA4-A	5	1.1	4.2
WSHA4-B	1	0.3	4.2
TOTAL	6	1.4	
WSHA5-A	4	1.3	3.4
WSHA5-B	4	1.1	3.4
TOTAL	8	2.4	
WEGN2-A	2	0.6	3.0
WEGN2-B	5	1.5	3.0
TOTAL	6	2.1	
WEGN3-A	8	2.5	3.0
WEGN3-B	2	0.8	3.0
TOTAL	10	3.3	

Referenced Ultimate Condition Flow Rate Summary			
Basin/Concentration Point ID	Area (ac)	Q ₁₅₀ (cfs)	Q ₁₅ (cfs)
WL4A	8.0	23	10
WL4B	8.9	27	12
WL5A	10.9	32	15
WL6B	3.8	12	5
WL6B	10.6	30	14
WL7	11.5	34	16
WL8	17.4	49	22
WML10	11.6	38	19
WML11	16.0	48	23
WML13	16.4	49	25
WML14	19.2	59	29
WML2	27.4	78	38
WML9	16.4	55	28
WPF4	5.7	19	9
WPF5	0.4	1	0
WPRK5	2.0	5	2
WEST ROADWAY BASINS			
WEG1	3.4	12	6
WEG2	3.3	12	7
WEGN2	2.1	2	1
WEGN3	3.3	10	6
WSHA4	1.4	6	3
WSHA5	2.4	8	5
WSKV3	4.2	14	7
WSKV4	4.5	15	8



River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Vel Chnl (ft/s)	Overbank Left/Right Velocity (ft/sec)	Top Width (ft)
-3800	99	2974.12	2974.74	8.43	2.13/2.13	54.61
-3900	99	2969.22	2969.84	8.43	2.13/2.13	54.61
-4000	99	2964.32	2964.94	8.43	2.13/2.13	54.61
-4100	99	2959.42	2960.04	8.43	2.13/2.13	54.61
-4200	99	2954.52	2955.14	8.43	2.13/2.13	54.61
-4300	99	2949.62	2950.24	8.43	2.13/2.13	54.61
-4400	99	2944.72	2945.34	8.44	2.13/2.13	54.59
-4500	99	2939.82	2940.44	8.43	2.13/2.13	54.61
-4600	99	2934.92	2935.54	8.44	2.13/2.13	54.59
-4700	99	2930.02	2930.64	8.43	2.13/2.13	54.61
-4800	99	2925.12	2925.74	8.43	2.13/2.13	54.61



* ALL BASIN FLOWS SHOWN IN THIS EXHIBIT HAVE BEEN REFERENCED FROM THE ULTIMATE CONDITION DRAINAGE MAP PER THE MASTER DRAINAGE STUDY UPDATE NO.3. SEE APPENDIX FOR REFERENCE.

Section - ECA2 (Ultimate Condition)

Worksheet for Irregular Channel

Project Description	
Worksheet	Section - ECA2 (Ultimate Condition)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Channel Slope	4.90 %
Discharge	99.00 cfs

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

Results	
Mannings Coefficient	0.016
Water Surface Elevation	0.62 ft
Elevation Range	0.00 to 0.56
Flow Area	11.7 ft ²
Wetted Perimeter	44.30 ft
Top Width	43.00 ft
Actual Depth	0.62 ft
Critical Elevation	0.90 ft
Critical Slope	0.48 %
Velocity	8.46 ft/s
Velocity Head	1.11 ft
Specific Energy	1.73 ft
Froude Number	2.86
Flow Type	Supercritical

HUMP @ UPSTREAM ENTERANCE { FL = 43.50 → Δ = 0.68'
 HP = 44.18
 0.68' > 0.62'
 * NO ANTICIPATED OVERFLOW FROM EAGLE CANYON STREET FLOW

" @ DOWNSTREAM " { FL = 40.85 → Δ = 2.25'
 HP = 43.10

Calculation Messages:
 Water elevation exceeds lowest end station by 0.11904769 ft.

Roughness Segments		
Start Station	End Station	Mannings Coefficient
0+00.00	0+43.00	0.016

Natural Channel Points	
Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.48
0+00.50	0.00
0+02.00	0.13
0+02.00	0.17
0+21.50	0.56
0+41.00	0.17
0+41.00	0.13
0+42.50	0.00
0+42.50	0.48
0+43.00	0.50

Section - ECA2 (Ultimate Condition) Worksheet for Irregular Channel

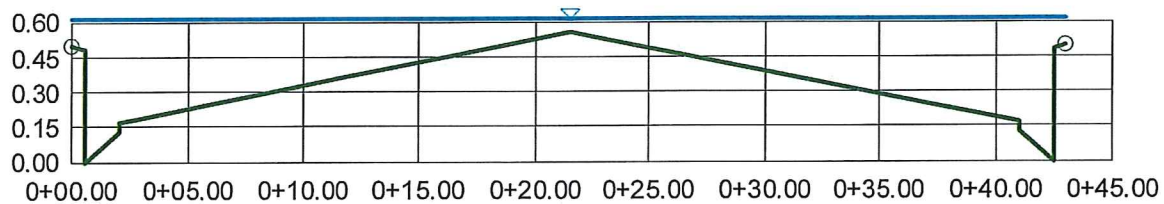
Notes: Q=99 cfs being WL4B + WEGL1 + WPRK5 + WML9

Section - ECA2 (Ultimate Condition)

Cross Section for Irregular Channel

Project Description	
Worksheet	Section - ECA2 (Ultimate Condition)
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data	
Mannings Coefficient	0.016
Channel Slope	4.90 %
Water Surface Elevation	0.62 ft
Elevation Range	0.00 to 0.56
Discharge	99.00 cfs



V:10.0
H:1
NTS

T1 SKYE CANYON INFRASTRUCTURE - PHASE 2 (UPDATE NO.3)
 T2 ULTIMATE CONDITION OF EAGAN CREST (NORTH) - TRUNK STORM DRAIN
 T3 STARTING WSE TAKEN FROM TOP OF PIPE
 SO 1000.00 2905.68 36 2908.68
 R 1139.00 2906.60 36 .013
 JX 1139.00 2906.60 36 18 .013 2.000 2908.10 90.0 00.0 1
 R 1167.00 2907.71 36 .013 55.0 1
 R 1182.00 2908.29 36 .013 00.0 1
 JX 1182.00 2908.29 36 18 .013 2.000 2908.29 90.0 00.0 1
 R 1233.00 2910.33 36 .013
 SH 1233.00 2910.33 36
 CD 18 4 1 .000 1.500 .000 .000 .000 .00
 CD 36 4 1 .000 3.000 .000 .000 .000 .00
 Q 67.0 .0

U-ECRN

PROPOSED $Q_{1.00} = 42 \text{ cfs}$, $42 \text{ cfs} < 67 \text{ cfs}$ THEREFORE
 NO REANALYSIS OF EXISTING STORM DRAIN

FILE: U-ECRN.WSW U-ECRN
 W S P G W - EDIT LISTING - Version 14.06 Date:12-13-2016 Time:10:21:15
 WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING
 CARD SECT CHN NO OF AVE PIER HEIGHT 1 WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING
 CODE NO TYPE PIER/PIP WIDTH DIAMETER BASE ZL ZR INV Y(1) Y(2) Y(3) Y(4) Y(5) Y(6) Y(7) Y(8) Y(9) Y(10)
 CD 18 4 1 1.500
 CD 36 4 1 3.000

W S P G W
 WATER SURFACE PROFILE - TITLE CARD LISTING
 HEADING LINE NO 1 IS - SKYE CANYON INFRASTRUCTURE - PHASE 2 (UPDATE NO.3)
 HEADING LINE NO 2 IS - ULTIMATE CONDITION OF EAGAN CREST (NORTH) - TRUNK STORM DRAIN
 HEADING LINE NO 3 IS - STARTING WSE TAKEN FROM TOP OF PIPE

W S P G W
 WATER SURFACE PROFILE - ELEMENT CARD LISTING
 ELEMENT NO 1 IS A SYSTEM OUTLET
 U/S DATA STATION 1000.000 INVERT 2905.680 SECT 36
 W S ELEV 2908.680
 ELEMENT NO 2 IS A REACH
 U/S DATA STATION 1139.000 INVERT 2906.600 SECT 36
 N .013 RADIUS .000 ANGLE .000 ANG PT .000 MAN H 1
 ELEMENT NO 3 IS A JUNCTION
 U/S DATA STATION 1139.000 INVERT 2906.600 SECT 36 LAT-1 18 LAT-2 0 N .013 Q3 2.000 Q4 .000 INVERT-3 2908.100 INVERT-4 .000 PHI 3 90.000 PHI 4 .000
 RADIUS .000 ANGLE .000

THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
 THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
 ELEMENT NO 4 IS A REACH
 U/S DATA STATION 1167.000 INVERT 2907.710 SECT 36
 N .013 RADIUS .000 ANGLE .000 ANG PT 55.000 MAN H 1
 ELEMENT NO 5 IS A REACH
 U/S DATA STATION 1182.000 INVERT 2908.290 SECT 36
 N .013 RADIUS .000 ANGLE .000 ANG PT .000 MAN H 1
 ELEMENT NO 6 IS A JUNCTION
 U/S DATA STATION 1182.000 INVERT 2908.290 SECT 36 LAT-1 18 LAT-2 0 N .013 Q3 2.000 Q4 .000 INVERT-3 2908.290 INVERT-4 .000 PHI 3 90.000 PHI 4 .000
 RADIUS .000 ANGLE .000

THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
 THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
 ELEMENT NO 7 IS A REACH
 U/S DATA STATION 1233.000 INVERT 2910.330 SECT 36
 N .013 RADIUS .000 ANGLE .000 ANG PT .000 MAN H 1
 ELEMENT NO 8 IS A SYSTEM HEADWORKS
 U/S DATA STATION 1233.000 INVERT 2910.330 SECT 36
 W S ELEV .000

SKYE CANYON INFRASTRUCTURE - PHASE 2 (UPDATE NO.3)
ULTIMATE CONDITION OF EAGAN CREST (NORTH) - TRUNK STORM DRAIN
STARTING WSE TAKEN FROM TOP OF PIPE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	2905.680	3.000	2908.680	71.00	10.04	1.57	2910.25	.00	2.67	.00	3.000	.000	.00	1 .0
132.332	.0066					.0113	1.50	3.00	.00	3.00	.013	.00	.00	PIPE
1132.332	2906.556	3.697	2910.253	71.00	10.04	1.57	2911.82	.00	2.67	.00	3.000	.000	.00	1 .0
HYDRAULIC JUMP														
1132.332	2906.556	1.858	2908.414	71.00	15.45	3.70	2912.12	.00	2.67	2.91	3.000	.000	.00	1 .0
6.668	.0066					.0233	.16	1.86	2.17	3.00	.013	.00	.00	PIPE
1139.000	2906.600	1.834	2908.434	71.00	15.68	3.82	2912.25	.00	2.67	2.92	3.000	.000	.00	1 .0
JUNCT STR	.0000					.0253	.00	1.83	2.22		.013	.00	.00	PIPE
1139.000	2906.600	1.730	2908.330	69.00	16.35	4.15	2912.48	.00	2.64	2.96	3.000	.000	.00	1 .0
9.162	.0396					.0262	.24	1.73	2.41	1.53	.013	.00	.00	PIPE
1148.162	2906.963	1.756	2908.719	69.00	16.05	4.00	2912.72	.00	2.64	2.96	3.000	.000	.00	1 .0
18.838	.0396					.0241	.45	1.76	2.35	1.53	.013	.00	.00	PIPE
1167.000	2907.710	1.827	2909.537	69.00	15.30	3.64	2913.17	.00	2.64	2.93	3.000	.000	.00	1 .0
.450	.0387					.0226	.01	1.83	2.17	1.55	.013	.00	.00	PIPE
1167.450	2907.727	1.829	2909.556	69.00	15.28	3.63	2913.18	.00	2.64	2.93	3.000	.000	.00	1 .0
14.550	.0387					.0213	.31	1.83	2.17	1.55	.013	.00	.00	PIPE
1182.000	2908.290	1.906	2910.196	69.00	14.57	3.30	2913.49	.00	2.64	2.89	3.000	.000	.00	1 .0
JUNCT STR	.0000					.0214	.00	1.91	2.01		.013	.00	.00	PIPE

SKYE CANYON INFRASTRUCTURE - PHASE 2 (UPDATE NO.3)
ULTIMATE CONDITION OF EAGAN CREST (NORTH) - TRUNK STORM DRAIN
STARTING WSE TAKEN FROM TOP OF PIPE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1182.000	2908.290	1.787	2910.077	67.00	15.26	3.62	2913.69	.00	2.62	2.94	3.000	.000	.00	1 .0
5.376	.0400					.0224	.12	1.79	2.20	1.50	.013	.00	.00	PIPE
1187.376	2908.505	1.812	2910.317	67.00	15.01	3.50	2913.81	.00	2.62	2.93	3.000	.000	.00	1 .0
12.546	.0400					.0206	.26	1.81	2.14	1.50	.013	.00	.00	PIPE
1199.922	2909.007	1.887	2910.894	67.00	14.31	3.18	2914.07	.00	2.62	2.90	3.000	.000	.00	1 .0
9.678	.0400					.0183	.18	1.89	1.98	1.50	.013	.00	.00	PIPE
1209.600	2909.394	1.966	2911.360	67.00	13.64	2.89	2914.25	.00	2.62	2.85	3.000	.000	.00	1 .0
7.486	.0400					.0163	.12	1.97	1.83	1.50	.013	.00	.00	PIPE

U-ECRN

1217.086	2909.694	2.051	2911.745	67.00	13.01	2.63	2914.37	.00	2.62	2.79	3.000	.000	.00	1	.0
5.794	.0400					.0145	.08	2.05	1.69	1.50	.013	.00	.00	PIPE	
1222.880	2909.925	2.142	2912.067	67.00	12.40	2.39	2914.46	.00	2.62	2.71	3.000	.000	.00	1	.0
4.329	.0400					.0129	.06	2.14	1.55	1.50	.013	.00	.00	PIPE	
1227.209	2910.098	2.242	2912.341	67.00	11.82	2.17	2914.51	.00	2.62	2.61	3.000	.000	.00	1	.0
3.150	.0400					.0116	.04	2.24	1.41	1.50	.013	.00	.00	PIPE	
1230.359	2910.224	2.350	2912.574	67.00	11.27	1.97	2914.55	.00	2.62	2.47	3.000	.000	.00	1	.0
1.947	.0400					.0105	.02	2.35	1.28	1.50	.013	.00	.00	PIPE	
1232.306	2910.302	2.472	2912.774	67.00	10.75	1.79	2914.57	.00	2.62	2.28	3.000	.000	.00	1	.0
.694	.0400					.0096	.01	2.47	1.15	1.50	.013	.00	.00	PIPE	

FILE: U-ECRN.WSW
 W S P G W - CIVILDESIGN Version 14.06
 Program Package Serial Number: 1704
 WATER SURFACE PROFILE LISTING
 SKYE CANYON INFRASTRUCTURE - PHASE 2 (UPDATE NO.3)
 ULTIMATE CONDITION OF EAGAN CREST (NORTH) - TRUNK STORM DRAIN
 STARTING WSE TAKEN FROM TOP OF PIPE
 Date: 12-13-2016 Time: 10:21:22
 PAGE 3

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd. El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base wt or I.D.	ZL	No Wth Prs/Pip	
L/Elem	Ch slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
1233.000	2910.330	2.615	2912.945	67.00	10.25	1.63	2914.58	.00	2.62	2.01	3.000	.000	.00	1	.0

SKYE CANYON INFRASTRUCTURE - PHASE 2 (UPDATE NO.3)

ULTIMATE CONDITION OF EAGAN CREST (NORTH) - TRUNK STORM DRAIN

STARTING WSE TAKEN FROM TOP OF PIPE

1000.00	.I		C	H		E								R
1004.76	.													
1009.51	.													
1014.27	.													
1019.02	.													
1023.78	.													
1028.53	.													
1033.29	.													
1038.04	.													

U-ECRN

[illegible]

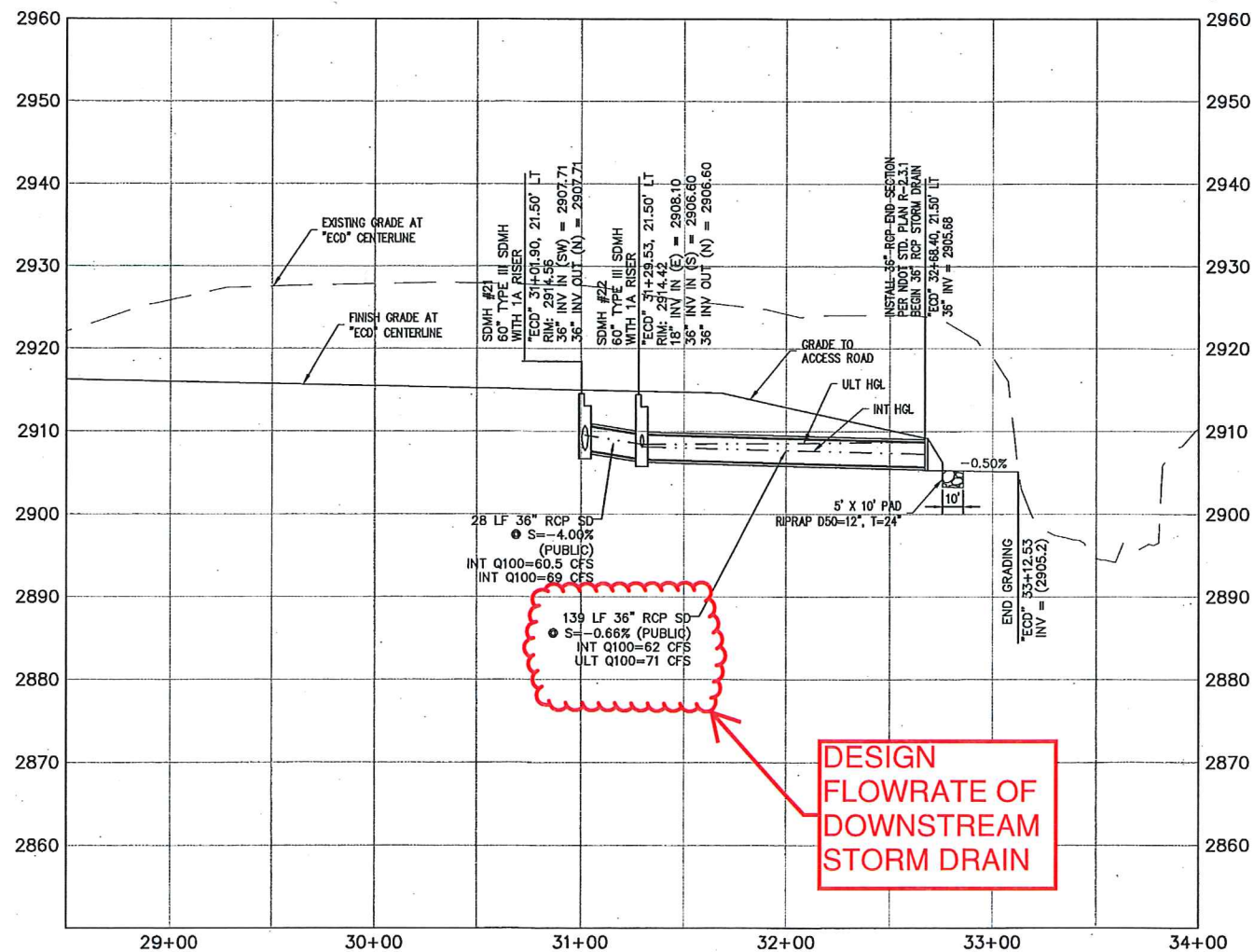
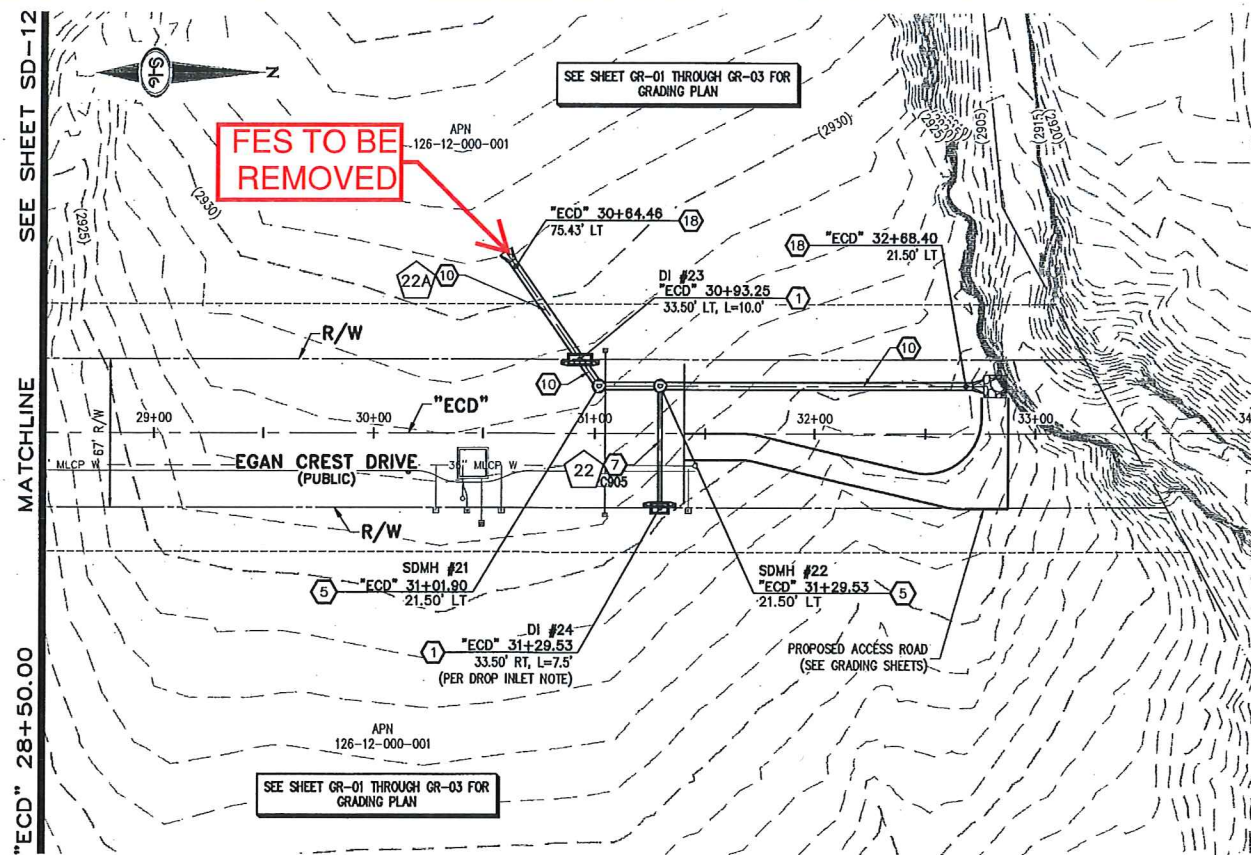
U-ECRN																
1161.67	.									.						
1166.43	.									.						
1171.18	.		I		W		C	H		E	.	R				
1175.94	.		I		W		C	H		E	.	R				
1180.69	.										.					
1185.45	.		I			W		C	H		E	.	JX			
1190.20	.		I			W		C	H		E	.	R			
1194.96	.			I			W		C	H		E	.	R		
1199.71	.											.				
1204.47	.			I			W		C	H		E	.	R		
1209.22	.											.				
1213.98	.			I			W		C	H		E	.	R		
1218.73	.				I			W		C	H		E	.	R	
1223.49	.					I			W		C	H		E	.	R
1228.24	.					I			W		C	H		E	.	R
1233.00	.						I			W	C	H		E	.	R
2905.680	2906.569	2907.459	2908.348	2909.238	2910.127	2911.016	2911.906	2912.795	2913.685	2914.575						

NOTES

1. GLOSSARY

I = INVERT ELEVATION
 C = CRITICAL DEPTH
 W = WATER SURFACE ELEVATION
 S = SUPER-ELEVATION
 H = HEIGHT OF CHANNEL
 E = ENERGY GRADE LINE
 X = CURVES CROSSING OVER
 B = BRIDGE ENTRANCE OR EXIT
 Y = WALL ENTRANCE OR EXIT

2. STATIONS FOR POINTS AT A JUMP MAY NOT BE PLOTTED EXACTLY



STORM DRAIN NOTES

- CONSTRUCT TYPE "CM2" DROP INLET (USDCCA STD. DWG. NO. 412.1)
- REMOVE EXISTING LATERAL STUB AND CONSTRUCT RCB PLUG (SEE DETAIL 5, DRAWING SD-25)
- CONSTRUCT 60" TYPE I MANHOLE (USDCCA STD. DWG. NO. 403.1)
- CONSTRUCT 60" TYPE III MANHOLE (USDCCA STD. DWG. NO. 406.1)
- CONSTRUCT 60" TYPE III MANHOLE WITH TYPE IA RISER (USDCCA STD. DWG. NO. 404.1 AND 406.1)
- CONSTRUCT NDOT TYPE 4 MANHOLE (NDOT STD. PLAN R-4.3.2)
- INSTALL 18" RCP OR WATER QUALITY C905 AS SHOWN ON PROFILES (USDCCA STD. DWG. NO. 503.2)
- INSTALL 24" RCP OR WATER QUALITY C905 AS SHOWN ON PROFILES (USDCCA STD. DWG. NO. 503.2)
- INSTALL 30" RCP (USDCCA STD. DWG. NO. 503.2)
- INSTALL 36" RCP (USDCCA STD. DWG. NO. 503.2)
- INSTALL 42" RCP (USDCCA STD. DWG. NO. 503.2)
- INSTALL 54" RCP (USDCCA STD. DWG. NO. 503.2)
- INSTALL 60" RCP (USDCCA STD. DWG. NO. 503.2)
- INSTALL 66" RCP (USDCCA STD. DWG. NO. 503.2)
- INSTALL 18" RCP END SECTION (NDOT STD. PLAN R-2.3.1)
- INSTALL 24" RCP END SECTION (NDOT STD. PLAN R-2.3.1)
- INSTALL 30" RCP END SECTION (NDOT STD. PLAN R-2.3.1)
- INSTALL 36" RCP END SECTION (NDOT STD. PLAN R-2.3.1)
- INSTALL 42" RCP END SECTION (NDOT STD. PLAN R-2.3.1)
- PIPE PENETRATION (SEE DETAIL 4, DRAWING SD-25)
- CONSTRUCT CONCRETE COLLAR (SEE DETAIL 2, DRAWING SD-25)
- CONSTRUCT BRICK AND MORTAR PLUG (SEE DETAIL 1, DRAWING SD-25)
- INSTALL 48" RCP (USDCCA STD. DWG. NO. 503.2)
- INSTALL 48" RCP END SECTION (NDOT STD. PLAN R-2.3.1)
- INSTALL DRIVEWAY (USDCCA STD. DWG. NO. 224)
- CONSTRUCT TYPE "CM" DROP INLET (USDCCA STD. DWG. NO. 422)

NOTES

- ALL RCP SHALL BE CLASS III UNLESS OTHERWISE SHOWN.
- ALL PIPE LENGTHS ARE MEASURED ALONG PIPE CENTERLINE TO CENTER OF MANHOLE OR INSIDE EDGE OF DI OR RCB/RCA.
- ALL DROP INLETS SHALL INCLUDE STORM WATER MANAGEMENT STAMP AND DETAIL PER USDCCA STD. DWG. NO. 421.
- SEE STRUCTURAL PLANS FOR ADDITIONAL STRUCTURAL DETAILS AND CONNECTIONS.
- ALL PIPES ARE PUBLICLY MAINTAINED.
- ADD SPECIAL INSPECTION REQUIRED FOR PIPE SEGMENTS WITH SACRIFICIAL CONCRETE.

APPROVED FOR CONSTRUCTION

LVWD ENGINEERING SERVICES MANAGER DATE

DROP INLET NOTE

WHERE 10 FEET PARALLEL SEPARATION IS NOT PRACTICABLE, CAST-IN-PLACE MONOLITHIC POUR WITH WATERSTOP BETWEEN SLAB AND WALLS. BASE, WALLS AND TOP TO BE CONSTRUCTED WITH WATERSTOPS, CENTER BUILT OR FLAT STRIP (VINYLEX, GREENSTREAK PLASTIC PRODUCTS OR APPROVED EQUAL).

LEGEND

- 1 STORM DRAIN LATERAL # (SEE SHEETS SD-20 THRU SD-24)

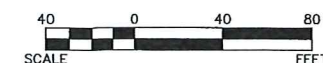
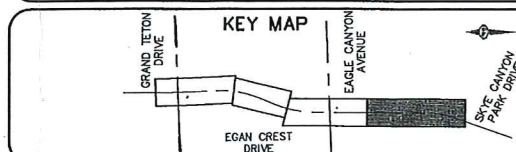
I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY DS-4258A ON FILE AT THE CITY OF LAS VEGAS FOR THE SUBJECT PROJECT.
JERRY SLATER, P.E. 14167 DATE 12-15-16

FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE "X" (OUTSIDE THE 500-YEAR FLOOD PLAIN) ON THE FLOOD INSURANCE RATE MAP (FIRM) PANEL:32003C17506, DATED SEPTEMBER 27, 2002

NOTE:

PROPERTY OWNER IS RESPONSIBLE TO MAINTAIN THE BEST MANAGEMENT PRACTICES, SUCH AS BUT NOT LIMITED TO, THE REMOVAL OF ACCUMULATED SEDIMENT AND DEBRIS AND CARE OF VEGETATION.



SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5359

NINETY-FIVE MANAGEMENT LLC

SKYE CANYON II PHASE 2
EGAN CREST STORM DRAIN PLAN AND PROFILE
"ECD" 28+50.00 TO "ECD" 34+00.00

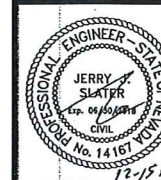
DATE: 8/3/16

DRAFTER: JAS

DESIGNER: DAM

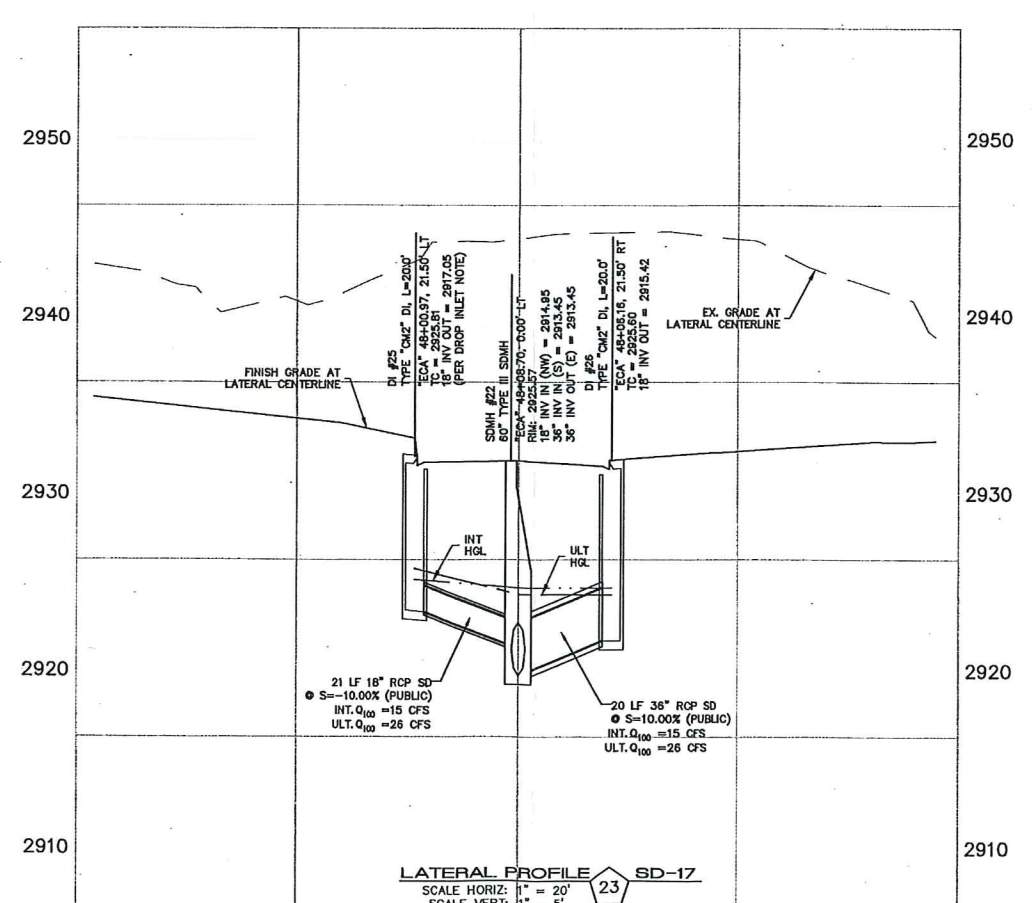
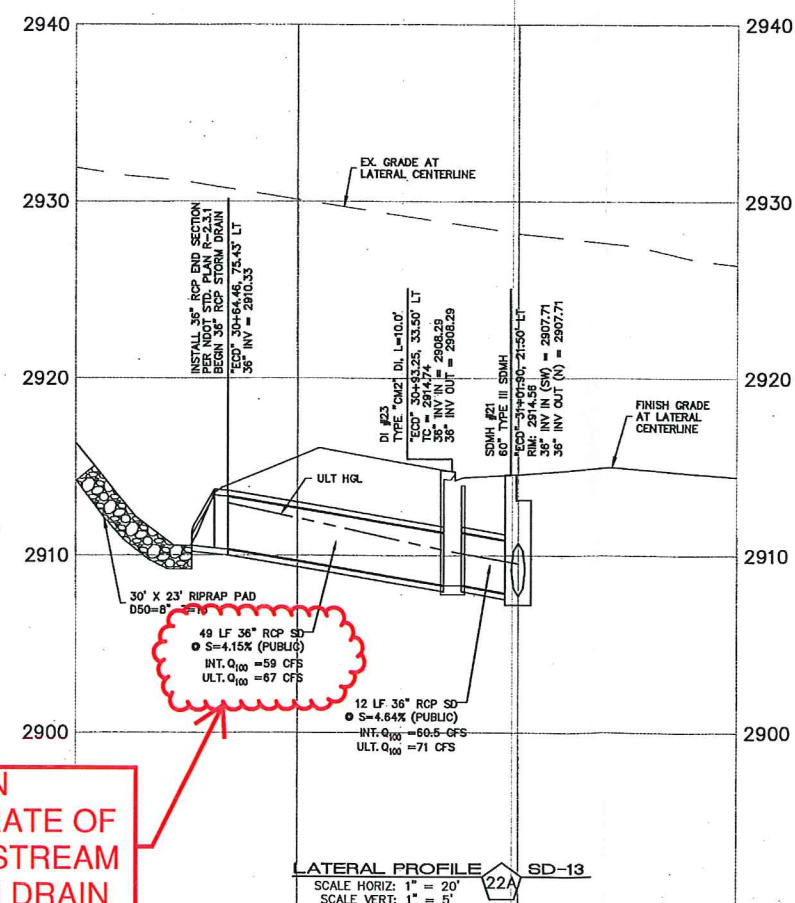
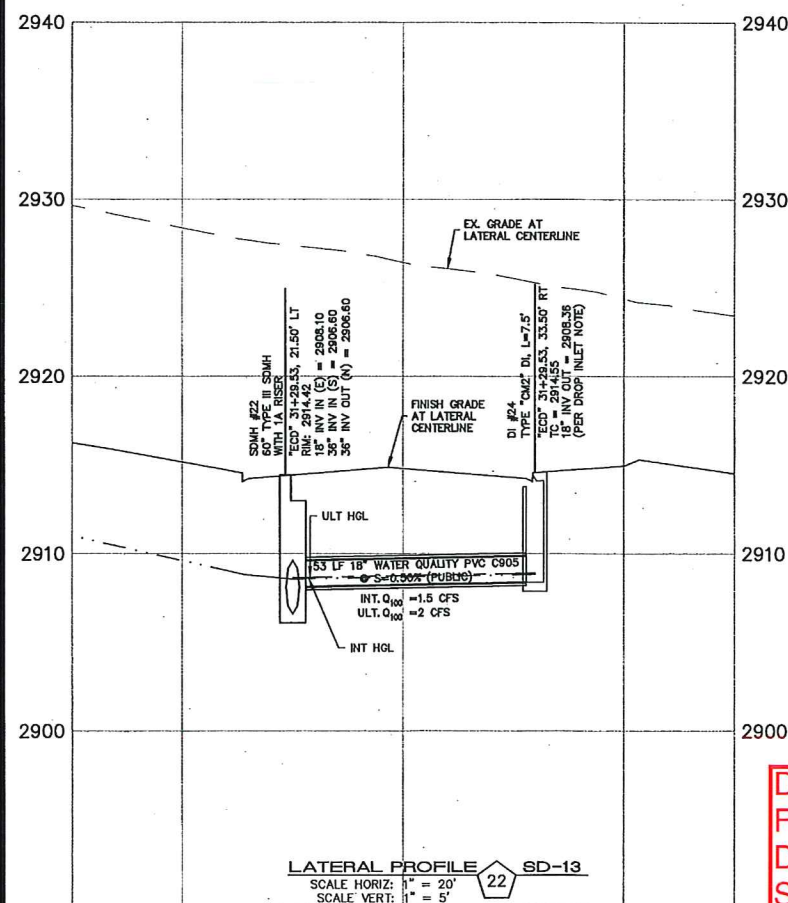
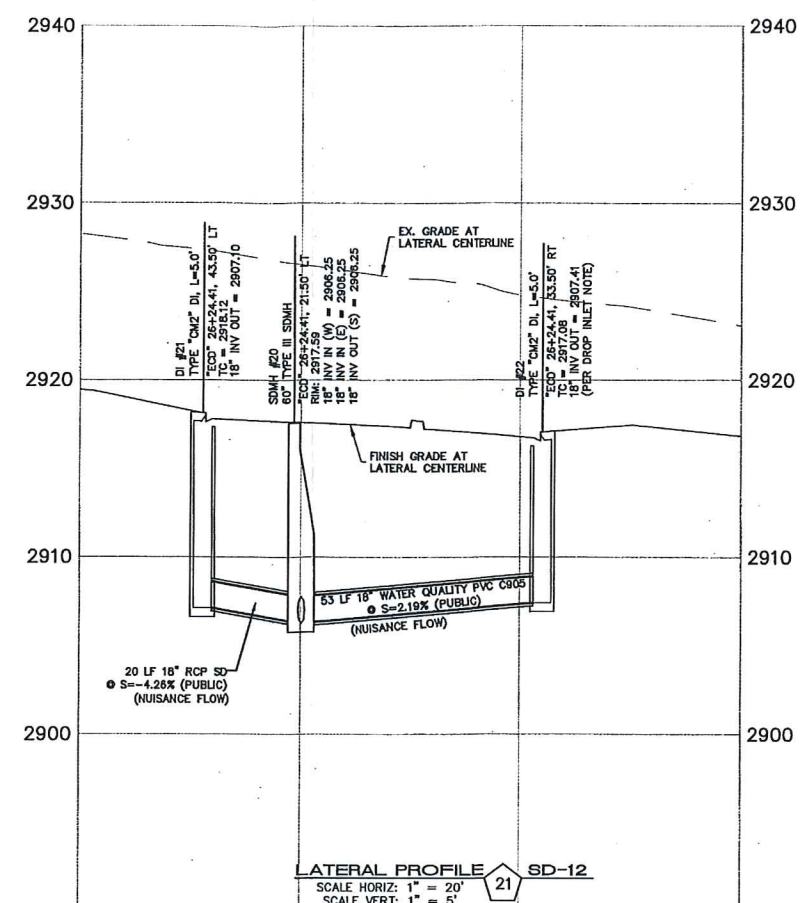
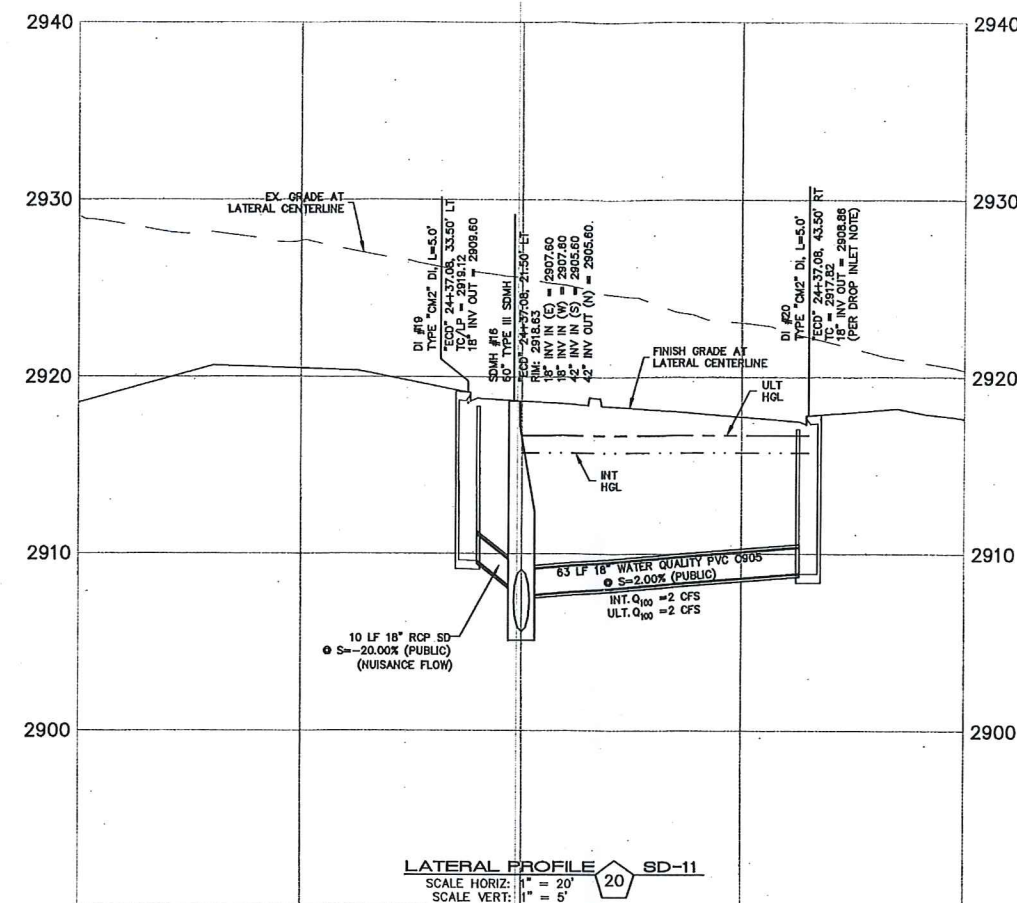
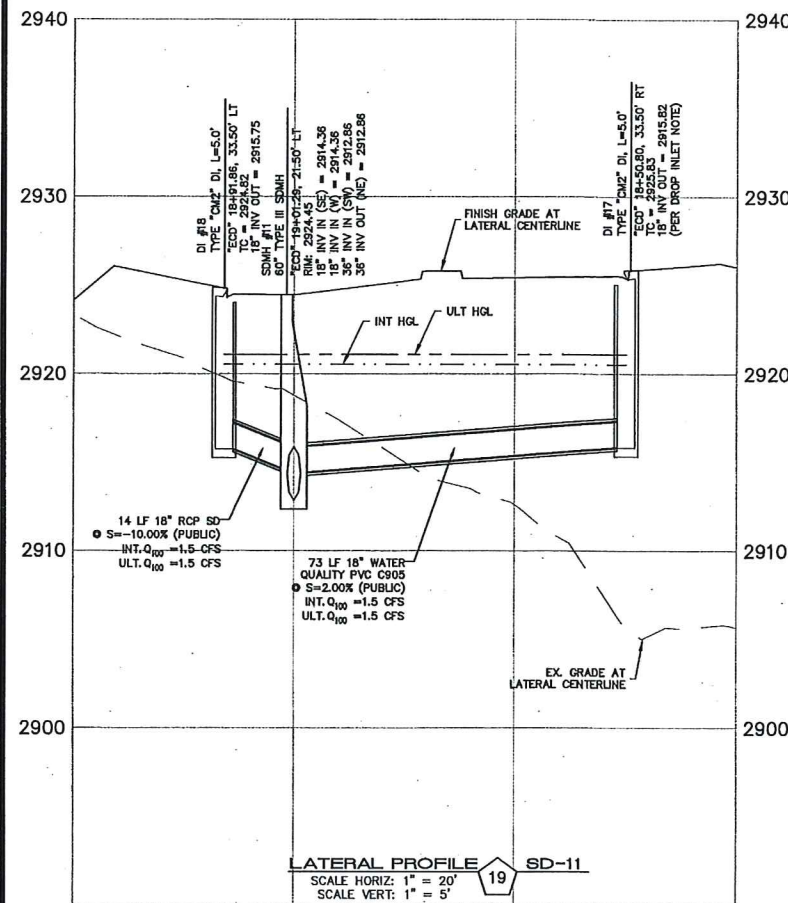
CHECKED: JSR

PROJECT NO.
OLY1501-001



SD-13

SHEET 16 OF 32



DESIGN
FLOWRATE OF
DOWNSTREAM
STORM DRAIN

DROP INLET NOTE

WHERE 10 FEET PARALLEL SEPARATION IS NOT PRACTICABLE:
CAST-IN-PLACE MONOLITHIC POUR WITH WATERSTOP BETWEEN SLAB AND WALLS,
BASE, WALLS AND TOP TO BE CONSTRUCTED WITH WATERSTOPS, CENTER BULB,
OR FLAT STRIP (VINYLEX, GREENSTREAK PLASTIC PRODUCTS OR APPROVED EQUAL)

APPROVED FOR CONSTRUCTION

LWWD WILL HAVE TO BE PRESENT AND VIEW INSTALLATION OF STORM DRAIN THAT WILL BE INSTALLED THAT MAY AFFECT THE WATER MAINS

LVWD ENGINEERING SERVICES MANAGER
PROJECT NO. 124568

DATE _____

NINETY-FIVE MANAGEMENT LLC

SKYE CANYON II PHASE 2

STORM DRAIN LATERAL PROFILES

DATE: 8/3/16

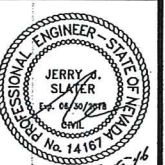
RAFTER: JAS

DESIGNER: DAM

CHECKED: JSR

PROJECT NO.

OLY1501-001



SD-23

SHEET 26 OF 32

Worst Case Scenario Computations and Finished
Floor Evaluations

Project Description

Input Data

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

Roughness Segment Definitions

Options

Bentley Systems, Inc. Bentley FlowMaster V8i (SELECTseries 1) [08.11.01.03]
12/19/2016 11:05:09 AM 27 Siemens Company Drive Suite 200 W Watertown, CT 06795 USA +1-203-755-1666 Page 1 of 2

Section R-1 (Min. Slope) - Worst Case Scenerio

Options

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

Results

Normal Depth	0.90	ft
Elevation Range	0.00 to 0.51	ft
Flow Area	27.58	ft ²
Wetted Perimeter	50.17	ft
Hydraulic Radius	0.55	ft
Top Width	49.00	ft
Normal Depth	0.90	ft
Critical Depth	0.98	ft
Critical Slope	0.00400	ft/ft
Velocity	5.11	ft/s
Velocity Head	0.41	ft
Specific Energy	1.31	ft
Froude Number	1.20	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.90	ft
Critical Depth	0.98	ft
Channel Slope	0.00600	ft/ft
Critical Slope	0.00400	ft/ft

Section R-1 (Min. Slope) - Worst Case Scenerio

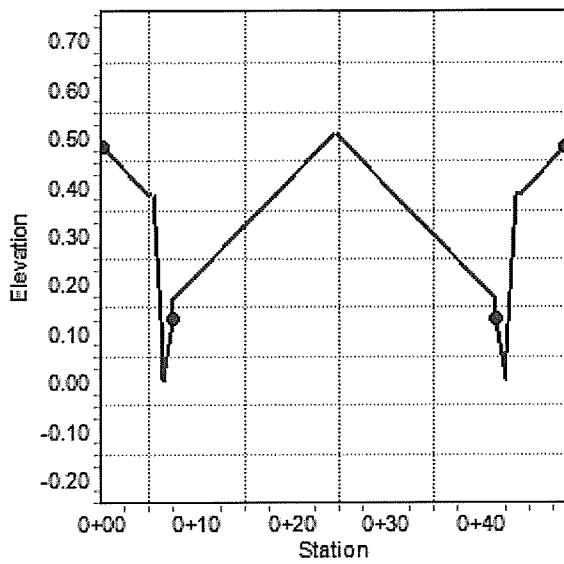
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope	0.00600	ft/ft
Normal Depth	0.90	ft
Discharge	141.00	ft³/s

Cross Section Image



Section E-1 - Emergency Overflow Weir - Worst Case

Project Description

Solve For Headwater Elevation

Input Data

Discharge	141.00	ft³/s
Crest Elevation	0.22	ft
Weir Coefficient	3.00	US
Crest Length	29.00	ft

Results

Headwater Elevation	1.60	ft
Headwater Height Above Crest	1.38	ft
Flow Area	40.01	ft²
Velocity	3.52	ft/s
Wetted Perimeter	31.76	ft
Top Width	29.00	ft

Section E-1 - Emergency Overflow Weir - Worst Case

Project Description

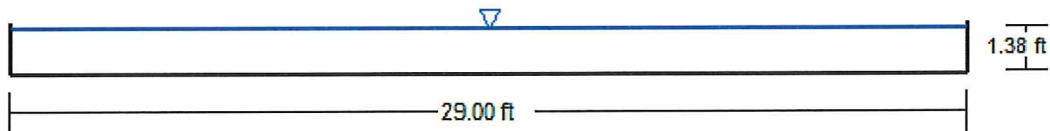
Solve For

Headwater Elevation

Input Data

Discharge	141.00	ft ³ /s
Headwater Elevation	1.60	ft
Crest Elevation	0.22	ft
Weir Coefficient	3.00	US
Crest Length	29.00	ft

Cross Section Image



V: 1
H: 1

SKYE CANYON - PARCEL 2.16
FINISH FLOOR - WORST CASE SCENERIO

INPUT INFORMATION					FINISHED FLOORS			NOTES
Lot Number	Hydraulic Section Utilized	T/C ¹ (ft)	F/L ² (ft)	D ₁₀₀ (ft)	Flowline F.F. _{min} ³ (ft)	F.F. _{Design} (ft)	Emergency Flow Check	See References on Last Sheet
1	R-1	2925.19	2924.81	0.9	2925.71	2927.4	OK	
2	R-1	2924.91	2924.53	0.9	2925.43	2927.0	OK	
3	R-1	2924.56	2924.18	0.9	2925.08	2926.6	OK	
4	R-1	2924.22	2923.84	0.9	2924.74	2926.3	OK	
5	R-1	2923.87	2923.49	0.9	2924.39	2926.0	OK	
6	R-1	2930.39	2930.01	0.9	2930.91	2932.3	OK	
7	R-1	2932.31	2931.93	0.9	2932.83	2934.2	OK	
8	R-1	2934.24	2933.86	0.9	2934.76	2936.1	OK	
9	R-1	2936.16	2935.78	0.9	2936.68	2938.1	OK	
10	R-1	2938.44	2938.06	0.9	2938.96	2940.3	OK	
11	R-1	2944.29	2943.91	0.9	2944.81	2946.2	OK	
12	R-1	2944.85	2944.47	0.9	2945.37	2946.8	OK	
13	R-1	2945.34	2944.96	0.9	2945.86	2947.2	OK	
14	R-1	2945.84	2945.46	0.9	2946.36	2947.7	OK	
15	R-1	2941.03	2940.65	0.9	2941.55	2942.9	OK	
16	R-1	2938.43	2938.05	0.9	2938.95	2940.3	OK	
17	R-1	2936.14	2935.76	0.9	2936.66	2938.0	OK	
18	R-1	2933.76	2933.38	0.9	2934.28	2935.7	OK	
19	R-1	2931.02	2930.64	0.9	2931.54	2932.9	OK	
20	R-1	2946.01	2945.63	0.9	2946.53	2947.9	OK	
21	R-1	2948.21	2947.83	0.9	2948.73	2950.1	OK	
22	R-1	2950.21	2949.83	0.9	2950.73	2952.1	OK	
23	R-1	2952.37	2951.99	0.9	2952.89	2954.3	OK	
24	R-1	2954.11	2953.73	0.9	2954.63	2956.0	OK	
25	R-1	2955.97	2955.59	0.9	2956.49	2957.3	OK	
26	R-1	2955.97	2955.59	0.9	2956.49	2958.8	OK	
27	R-1	2955.43	2955.05	0.9	2955.95	2957.3	OK	
28	R-1	2946.26	2945.88	0.9	2946.78	2948.2	OK	
29	R-1	2945.88	2945.50	0.9	2946.40	2947.8	OK	
30	R-1	2945.38	2945.00	0.9	2945.90	2947.3	OK	
31	R-1	2944.89	2944.51	0.9	2945.41	2946.8	OK	
32	R-1	2944.38	2944.00	0.9	2944.90	2946.8	OK	
33	R-1	2950.69	2950.31	0.9	2951.21	2952.6	OK	
34	R-1	2951.22	2950.84	0.9	2951.74	2954.3	OK	
35	R-1	2951.22	2950.84	0.9	2951.74	2953.3	OK	
36	R-1	2950.11	2949.73	0.9	2950.63	2952.0	OK	
37	R-1	2948.41	2948.03	0.9	2948.93	2950.3	OK	
38	R-1	2946.41	2946.03	0.9	2946.93	2948.3	OK	
39	R-1	2943.57	2943.19	0.9	2944.09	2945.5	OK	
40	R-1	2941.65	2941.27	0.9	2942.17	2943.6	OK	
41	R-1	2939.72	2939.34	0.9	2940.24	2941.6	OK	
42	R-1	2937.97	2937.59	0.9	2938.49	2939.9	OK	
43	R-1	2936.05	2935.67	0.9	2936.57	2938.0	OK	
44	R-1	2934.12	2933.74	0.9	2934.64	2936.0	OK	
45	R-1	2932.20	2931.82	0.9	2932.72	2934.1	OK	
46	R-1	2930.27	2929.89	0.9	2930.79	2932.2	OK	
47	R-1	2928.35	2927.97	0.9	2928.87	2930.3	OK	
48	R-1	2926.60	2926.22	0.9	2927.12	2928.5	OK	
49	R-1	2924.07	2923.69	0.9	2924.59	2926.0	OK	
50	R-1	2921.34	2920.96	0.9	2921.86	2923.2	OK	

SKYE CANYON - PARCEL 2.16 FINISH FLOOR - WORST CASE SCENERIO								
INPUT INFORMATION					FINISHED FLOORS			NOTES
Lot Number	Hydraulic Section Utilized	T/C ¹ (ft)	F/L ² (ft)	D ₁₀₀ (ft)	Flowline F.F. _{min} ³ (ft)	F.F. _{Design} (ft)	Emergency Flow Check	See References on Last Sheet
51	R-1	2919.73	2919.35	0.9	2920.25	2921.6	OK	
52	R-1	2923.45	2923.07	0.9	2923.97	2925.4	OK	
53	R-1	2924.12	2923.74	0.9	2924.64	2926.0	OK	
54	R-1	2924.45	2924.07	0.9	2924.97	2926.5	OK	
55	R-1	2924.77	2924.39	0.9	2925.29	2926.9	OK	
56	R-1	2925.10	2924.72	0.9	2925.62	2927.2	OK	
57	R-1	2925.49	2925.11	0.9	2926.01	2927.5	OK	
58	R-1	2925.84	2925.46	0.9	2926.36	2927.9	OK	
59	R-1	2925.97	2925.59	0.9	2926.49	2928.2	OK	
60	R-1	2926.46	2926.08	0.9	2926.98	2928.4	OK	
61	R-1	2928.28	2927.90	0.9	2928.80	2930.2	OK	
62	R-1	2930.62	2930.24	0.9	2931.14	2932.5	OK	
63	R-1	2933.33	2932.95	0.9	2933.85	2935.2	OK	
64	R-1	2935.79	2935.41	0.9	2936.31	2937.7	OK	
65	R-1	2938.07	2937.69	0.9	2938.59	2940.0	OK	
66	R-1	2940.49	2940.11	0.9	2941.01	2942.4	OK	
Where: 1: Top of Curb at High Side of Lot 2: TC-0.38 (For Roll Curb), TC-0.5 (For L Curb) 3: Minimum Allowable Finished Floor Elevation above emergency flow conditions								

Emergency Overflow Check - Worst Case Scenerio							
Lot Number	High FL ¹	Section	Flow Depth ²	Min FF ³	Design FF	Check	Solid Grout
51	2918.91	E-1 (Weir)	1.60	2920.51	2921.60	OK	No
52	2918.91	E-1 (Weir)	1.60	2920.51	2921.60	OK	No

1: High TC/FL is at the high side of the drainage easement flowline or the highest TC adjacent to the easement if flow is weiring over the curb.

2: Flow depth is either normal depth or weir depth (whichever is higher).

3: Min FF is the High TC/FL plus the Flow Depth.

Perimeter Street Check									
Lot Number	Street	High TC ¹	High FL ²	Section	Flow Depth ³	Min FF ⁴	Design FF	Check	Solid Grout
20	Eagle Canyon	2947.72	2947.22	EAC2	0.62	2948.46	2947.9	CHECK	Yes
21	Eagle Canyon	2950.17	2949.67	EAC2	0.62	2950.91	2950.1	CHECK	Yes
22	Eagle Canyon	2952.62	2952.12	EAC2	0.62	2953.36	2952.1	CHECK	Yes
23	Eagle Canyon	2955.07	2954.57	EAC2	0.62	2955.81	2954.3	CHECK	Yes
24	Eagle Canyon	2957.52	2957.02	EAC2	0.62	2958.26	2956.0	CHECK	Yes
25	Eagle Canyon	2959.97	2959.47	EAC2	0.62	2960.71	2957.3	CHECK	Yes
51	Egan Crest	2914.70	2914.20	EGN2	0.35	2914.90	2921.6	OK	No
52	Egan Crest	2915.45	2914.95	EGN2	0.35	2915.65	2925.4	OK	No
53	Egan Crest	2915.95	2915.45	EGN2	0.35	2916.15	2926.0	OK	No
54	Egan Crest	2916.20	2915.70	EGN2	0.35	2916.40	2926.5	OK	No
55	Egan Crest	2916.39	2915.89	EGN2	0.35	2916.59	2926.9	OK	No
56	Egan Crest	2916.92	2916.42	EGN2	0.35	2917.12	2927.2	OK	No
57	Egan Crest	2918.00	2917.50	EGN2	0.35	2918.20	2927.5	OK	No
58	Egan Crest	2918.25	2917.75	EGN2	0.35	2918.45	2927.9	OK	No
59	Egan Crest	2918.91	2918.41	EGN2	0.35	2919.11	2928.2	OK	No
59	Eagle Canyon	2922.40	2921.90	EAC2	0.62	2923.14	2928.2	OK	No
60	Eagle Canyon	2926.89	2926.39	EAC2	0.62	2927.63	2928.4	OK	No
61	Eagle Canyon	2929.13	2928.63	EAC2	0.62	2929.87	2930.2	OK	No
62	Eagle Canyon	2931.38	2930.88	EAC2	0.62	2932.12	2932.5	OK	No
63	Eagle Canyon	2933.62	2933.12	EAC2	0.62	2934.36	2935.2	OK	No
64	Eagle Canyon	2935.86	2935.36	EAC2	0.62	2936.60	2937.7	OK	No
65	Eagle Canyon	2938.11	2937.61	EAC2	0.62	2938.85	2940.0	OK	No
66	Eagle Canyon	2940.17	2939.67	EAC2	0.62	2940.91	2942.4	OK	No

1: High TC is the elevation at the high side of the adjacent perimeter street

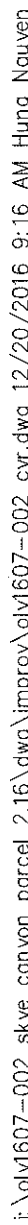
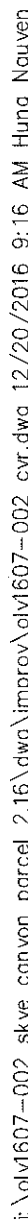
2: 0.50-ft is subtracted from the High TC to obtain the High FL elevation

3: Flow depth is the normal depth in adjacent perimeter street

4: Min FF is the High FL plus twice the depth of flow.

APPENDIX F

CD of Electronic Files and Improvement Plans



FAST

Call before you
UnderGround
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM
OF TRANSPORTATION (F.A.S.T.)

Call before you Dig
 AVOID CUTTING UNDERGROUND
 UTILITY LINES. IT'S COSTLY.
Call

 OR
1-800-227-2600

SOUTHWEST GAS DATE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1750 E, DATED SEPTEMBER 27, 2002. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

GEOTECHNICAL ENGINEER

PREPARED BY: GEOTEK RESIDENTIAL, LLC
ADDRESS: 6835 S. ESCONDIDO ST. SUITE B LAS VEGAS, NEVADA 89119
PHONE: 702-897-1424
PROJECT No. 12208-LVR
DATED: 02/09/2015 UPDATED 03/30/2016

NOTE: ALL LAND SURFACE AREA DISTURBANCES OVER 1 ACRE REQUIRE A STORMWATER DISCHARGE PERMIT ISSUED BY THE NEVADA DIVISION OF ENVIRONMENTAL PROTECTION (NDEP). A PHASED CONSTRUCTION UNIT IN A CONTIGUOUS SUBDIVISION IS CONSIDERED UNDER CONSTRUCTION UNTIL ALL STRIPPED SURFACE AREAS HAVE BEEN COVERED BY PAVING, BUILDING CONSTRUCTION OR PLANTING. A STORMWATER DISCHARGE PERMIT APPLICATION AND ASSOCIATED INFORMATION MAY BE DOWNLOADED FROM THE WEB SITE: <http://www.state.nv.us/bmpc/storm01.htm> PROJECTS THAT DISTURB MORE THEN ONE ACRE OF LAND MUST SUBMIT TO NDEP A "NOTICE OF INTENT" FOR INCLUSION UNDER STORMWATER PERMIT NO. NVR100000 ALONG WITH THE APPROPRIATE FILING FEE.

EARTHWORK SUMMARY (UNADJUSTED)	
CUT	57,464 CY.
FILL	23,880 CY.
NET	33,584 CY. CUT

PREPARED BY: GEOTEK RESIDENTIAL, LLC
ADDRESS: 6835 S. ESCONDIDO ST. SUITE B LAS VEGAS, NEVADA 89119
PHONE: 702-897-1424
PROJECT No. 12208-LVR
DATED: 02/09/2015 UPDATED 03/30/2016

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

 OR
1-800-227-2600

[illegible]

S 12 T 19 R 59	
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PROJECT NO.
OLY1607-002

C-1
SHEET 1 OF 10
H# _____
CLV# _____

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

1. THE OWNER, SITE DEVELOPER, CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL CONTAMINANTS THAT MAY BE PRESENT ON THE CONSTRUCTION SITE. SUCH MATERIALS, IN ANY FORM, SHALL BE REMOVED FROM THE CONSTRUCTION SITE BY THE SAME METHODS OF WAYS 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.
2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN REGIONAL PROGRAMS OR THE STATE OF CALIFORNIA'S WATER QUALITY CONTROL STANDARDS SPECIFIED IN TITLE 24 AND 14 OF THE LAS VEGAS VALLEY CONSTRUCTION SITE BEST MANAGEMENT PRACTICES MANUAL.
3. 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 HAS COMPLETED. SUCH PRACTICES SHALL BE REMOVED OR PERMANENTLY CEASED. SOME EXCEPTIONS MAY APPLY; REFER TO NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVRI000000, SECTION II.A.2.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO WEATHER, AND ALL EROSION AND EXIST LOCATIONS AND ALL BMPs WEEKLY, AND WITHIN 24 HOURS AFTER ANY 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 TO REFLECT ANY CHANGES TO THE OPERATIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVRI000000, SECTION II.A.12.
5. ACCUMULATED SEDIMENT IN BMPs SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, UNLESS THE OWNER IS NOTIFIED BY THE CONTRACTOR THAT THE BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

BEING A PORTION OF SECTION 12, TOWNSHIP 19 SOUTH, RANGE 59 EAST
M.D.M., CLARK COUNTY, NEVADA.

BEING A PORTION OF SECTION 12, TOWNSHIP 19 SOUTH, RANGE 59 EAST
M.D.M., CLARK COUNTY, NEVADA.

PROJECT DATUM:

PROJECT DATUM:

BM 7LV90 7NWS CITY OF LAS VEGAS RIVET AND ROUND PLATE IN
CONCRETE CYLINDER, SOUTHEAST CORNER OF HUALAPAI WAY AND
IRON MOUNTAIN ROAD.

ELEV: 2840.13 FEET (865.67 METERS) (NAVD 1988)

SOUTH 00°34'18" EAST, BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE ¼) OF SECTION 12, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., AS PER FILE 151, PAGE 14 OF SURVEYS, ON FILE IN THE COUNTY RECORDER'S OFFICE.

SOUTH 00°34'18" EAST, BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE ¼) OF SECTION 12, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., AS PER FILE 151, PAGE 14 OF SURVEYS, ON FILE IN THE COUNTY RECORDER'S OFFICE.

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS AND THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS' CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, AS AMENDED. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BE AWARE OF THE CONTENTS OF THE ABOVE SPECIFICATIONS.

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS AND THE UNIFORM STANDARD SPECIFICATIONS FOR CEMENT PORTLAND CONCRETE CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, AS AMENDED. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BE AWARE OF THE CONTENTS OF THE ABOVE SPECIFICATIONS.
2. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM CONSTRUCTION AS PER PLANS. ANY ADDITIONS, DELETIONS, OR CHANGES SHALL FIRST MEET WITH THE APPROVAL OF THE CITY ENGINEER.
3. CHASE "S" OR "G" IN CURBS WHERE SEWER OR GAS LATERALS PASS UNDER THE CURB.
4. POLYVINYL (PVC) SEWER PIPE SHALL MEET ASTM D-3034 SDR 35 SPECIFICATIONS, INSTALLED WITH SAND BEDDING, AND BACKFILL OF TYPE II AGGREGATE BASE.
5. ALL MANHOLES PAVED IN STREETS EIGHTY (80) FOOT R/W AND LARGER SHALL HAVE CONCRETE COLUMNS, STREETS LESS THAN EIGHTY (80) FOOT R/W WILL REQUIRE RETROFIT IF PAVING DOES NOT CONFORM TO CITY STANDARDS AT THE MANHOLE.
6. TEE SADDLES SHALL BE USED TO CONNECT SEWER LATERALS TO EXISTING MAIN LINES UP TO TWELVE INCH (12") DIAMETER. CONNECTIONS TO FIFTEEN INCH (15") OR LARGER MAINS SHALL REQUIRE SPECIAL PROCEDURES. IN LINE "Y" S SHALL BE USED ON LINES TWELVE INCHES (12") OR ABOVE.
7. WATER MAINS SHALL BE PROTECTED IN ACCORDANCE WITH LVWD STANDARDS WHENEVER A SEWER MAIN CROSSES OVER A WATER MAIN OR A SEWER MAIN IS LESS THAN EIGHTEEN INCH (18") UNDER A WATER MAIN.
8. ALL CONTRACTORS INSTALLING SEWER MAINS THAT WILL BE UNDER THE JURISDICTION OF THE CITY OF LAS VEGAS MUST BE STATE OF NEVADA CLASS "A" CONTRACTORS.
9. THE CITY OF LAS VEGAS WILL NOT ACCEPT ANY SEWER MAINS WHICH HAVE A VERTICAL DEFLECTION OF MORE THAN ONE TENTH (0.1) OF A FOOT FROM THE APPROVED CONSTRUCTION PLANS AT ANY LOCATION SEWER MAINS FOUND TO EXCEED THIS TOLERANCE, WILL HAVE TO BE REPAIRED OR REMOVED OR REDUCED TO THE SATISFACTION OF THE CITY ENGINEER PRIOR TO ACCEPTANCE BY THE CITY OF LAS VEGAS.
10. INSTALLATION OF CURVED SEWER REQUIRES THE USE OF C-900 PIPE WHICH ALLOWS FOR PIPE DEFLECTION AT THE JOINTS.

LVWD PROJECT

1. NO WORK SHALL BEGIN UNTIL THE WATER PLANS HAVE BEEN APPROVED FOR CONSTRUCTION BY THE LVVMD. FOLLOWING WATER PLAN APPROVAL, NOTICE SHALL BE GIVEN TO THE LVVMD 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 LVVMD INSPECTION. WHEN REQUESTING INSPECTIONS, PLEASE REFERENCE TO THE PROJECT # IDENTIFIED ABOVE.
2. ALL WORK SHALL CONFORM TO LVVMD 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.
3. 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.
14. A SINGLE PIPE MATERIAL SHALL BE USED THROUGHOUT THE PROJECT UNLESS OTHERWISE APPROVED BY THE LVVMD.
5. ALL SERVICE LATERALS TWO (2) INCHES IN DIAMETER AND SMALLER SHALL BE TYPE K COPPER TUBING WITH LVVMD APPROVED SERVICE SADDLES.
6. ALL WATER METER BOXES SHALL BE LOCATED OUTSIDE OF DRIVEWAY AREAS.
7. ALL VALVES SHALL BE LOCATED OUTSIDE OF DRIVEWAYS, VALVES AND CURB GUTTERS.
8. ALL WATER AND STORM DRAIN OR SANITARY SEWER CROSSINGS SHALL CONFORM TO SECTION 2.22 OF THE 2010 EDITION OF THE UDACS.
9. ALL WATER FACILITIES SHALL BE FILLED, DISINFECTED, PRESSURE TESTED, FLUSHED, FILLED, AND AN ACCEPTABLE WATER SAMPLE OBTAINED, PRIOR TO CONNECTION TO THE LVVMD DISTRIBUTION SYSTEM.
10. THE CONTRACTOR MUST OBTAIN ALL METERS TWO (2) INCHES AND SMALLER FROM LVVMD CENTRAL STORES. TELEPHONE 258-3152 OR 258-3802, TWO (2) WORKING DAYS PRIOR TO METER PICKUP.
11. ANY INTERRUPTION OF SERVICE MUST BE PERFORMED IN ACCORDANCE WITH UDACS SECTION 3.14.01, AND APPROVED BY THE LVVMD INSPECTION DIVISION PRIOR TO SHUTDOWN. PROPER WRITTEN NOTIFICATION MUST BE GIVEN AT LEAST 48 HOURS IN ADVANCE.
12. ALL WATER FACILITY CONSTRUCTION MATERIALS USED MUST BE AS LISTED ON THE LVVMD PRE-APPROVED MATERIALS AND MANUFACTURER'S LISTING FOR NEW FACILITIES. LATEST REVISION, OR SPECIFICALLY APPROVED ON THESE CALLS.
13. TELEPHONE "CALL BEFORE YOU DIG" AT "911" OR 1-800-227-2600.
14. THE INSTALLATION OF LAS VEGAS VALLEY WATER DISTRICT (LVVMD) MUNICIPAL WATER FACILITIES WITHIN ALL STREETS IS ASSUMED TO BE IN COMPLIANCE WITH THE UNIFORM STANDARDS, INCLUDING THE PLACEMENT OF ASPHALT PAVING SURFACE STRUCTURES. ANY REPAIR WORK DONE BY THE LVVMD TO THE MUNICIPAL WATER FACILITIES WILL INCLUDE THE PLACEMENT OF AN APPROXIMATELY 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 LVVMD DURING THE REPAIR OR OPERATION OF ITS FACILITIES, WILL BE REPLACED BY LVVMD WITH AN APPROPRIATELY SIZED PLAIN FINISH CONCRETE PATCH. THE LVVMD WILL NOT RESTORE, AND WILL NOT BE RESPONSIBLE FOR THE RESTORATION, OF ANY DECORATIVE PAVING SURFACE WITH THE STREET. THE LVVMD WILL NOT ATTEMPT TO MATCH COLOR OR FINISH OF ANY ADJACENT MATERIALS.

1. INDICATED GRADES OTHER THAN T.C., F.G. & GUTTER F.L. ARE ROUGH GRADES

1. INDICATED GRADES OTHER THAN T.C., F.G. & GUTTER F.L. ARE ROUGH GRADES.
2. THE ROUGH GRADING PLANS SHALL BE ON THE JOB SITE AT ALL TIMES. THE ROUGH GRADING SHALL BE FINISH IN CONFORMANCE WITH THE LINES AND GRADES SHOWN ON THE PLANS. THE GRADING QUANTITIES ARE BASED ON THE ELEVATION AND DETAILS SHOWN ON THE PLANS. ANY DEVIATIONS FROM THE PLANS WILL RESULT IN QUANTITY CHANGES.
3. CARE SHALL BE EXERCISED IN GRADING CORNER LOTS.
4. ROUGH PAD ELEVATIONS SHALL BE GRADED TO WITHIN 0.1' OF THE PAD ELEVATIONS SHOWN ON THE PLANS. WHEN GRADING IS COMPLETE PER THE PLANS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE LOTS CAN BE INSPECTED. AT THAT TIME THE ENGINEER SHALL ALSO DECIDE IF ANY ADDITIONAL DITCHES OR BERMS ARE REQUIRED. THE CONTRACTOR IS REQUESTED NOT TO REMOVE ANY OF HIS ROUGH GRADING EQUIPMENT UNTIL HE RECEIVES GRADING APPROVAL FROM THE ENGINEER.
5. SOILS REPORT PREPARED BY GEOTEK RESIDENTIAL, LLC, PROJECT NO. 12208-LVR, DATED 02/09/2015. UPDATED 03/30/2016 BY GEOTEK RESIDENTIAL, LLC
6. EARTHWORK QUANTITIES (RAW):
 - CUT = 57,484 CUBIC YARDS.
 - FILL = 23,890 CUBIC YARDS
 - A) THE ABOVE QUANTITIES DO NOT REFLECT LOSSES DUE TO SUBSIDENCE OR SHRINKAGE.
 - B) THE ABOVE QUANTITIES DO REFLECT USING NATIVE MATERIAL IN LIEU OF TYPE I GRAVEL BASE MATERIAL IN STREET SECTIONS.
 - C) THE ABOVE QUANTITIES DO NOT REFLECT ANY EARTHWORK WHICH MAY BE REQUIRED BY THE ENGINEER TO CONSTRUCT ADDITIONAL PROTECTIVE DITCHES OR BERMS NOT SHOWN ON THESE DRAWINGS.

1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LAS VEGAS FIRE AND RESCUE ADOPTED FIRE CODE ORDINANCE # 6325 FOR HYDRANT SPECIFICATIONS AND HYDRANT INSTALLATION SPECIFICATIONS

- ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LAS VEGAS FIRE AND RESCUE ADOPTED FIRE CODE SPECIFICATION # 6325, FOR HYDRANT SPECIFICATIONS, AND HYDRANT INSTALLATION SPECIFICATIONS.
2. ONLY FIRE HYDRANTS THAT ARE ON THE LAS VEGAS VALLEY WATER DISTRICTS – **APPROVED PRODUCTS LIST** ARE ALLOWED TO BE INSTALLED.
3. A PERMIT IS REQUIRED FOR LAS VEGAS FIRE AND RESCUE FOR ALL INSTALLATION OF ON-SITE WATER LINES AND HYDRANTS AND PERMIT CONTRACTORS MATERIAL TEST CERTIFICATE FOR UNDERGROUND PIPING FORM SHALL BE OBTAINED FROM THE FIRE PROTECTION ENGINEER BEFORE COMMENCEMENT OF WORK [FC 505.712]
4. ON AT 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 ORDER FOR PROTECTION OF THE STRUCTURES AND SHALL BE CAPABLE OF DELIVERING THE REQUIRED FIRE FLOW. [FC 3310, 3312]
5. TO IDENTIFY THE FIRE HYDRANT LOCATIONS, THE CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER LINE OF THE STREET ADJACENT TO THE FIRE HYDRANTS. [FC 507.5.7.3]
6. ALL UNDERGROUND INSPECTIONS, PRESSURE AND FLUSH VERIFICATIONS OF ALL FIRE HYDRANTS AND FIRE LINES, SHALL BE CONDUCTED BEFORE COVERING THE LINES. CENTER LOADING IS ACCEPTABLE FOR THE HYDRO TESTS WITH RFD FIRE AGENCY APPROVAL. [FC 507.5.3]
7. ALL ON-SITE UNDERGROUND WATER MAINS AND MATERIALS SHALL BE U.S. LISTED, A.I.W.A. APPROVED AND SHALL BE RFD FIRE AGENCY APPROVED. [FC 507.2.1, NFPA 241]
8. PAINTING OF CURBS, FIRE HYDRANTS, PADS, PROTECTION OF FIRE HYDRANTS FROM PHYSICAL DAMAGE, AND ALL OTHER WORK NECESSARY PER PLANS SHALL BE COMPLETED BEFORE APPROVAL BY LAS VEGAS FIRE AND RESCUE PREVENTION DIVISION. [FC 507]
9. PRIVATE HYDRANTS SHALL BE PAINTED RED. [FC 507.5.1.1]
10. PRIOR TO THE FINAL OCCUPANCY, A FIRE FLOW TEST SHALL BE WITNESSED BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION TO VERIFY AVAILABILITY OF THE REQUIRED FIRE FLOW. [FC 507]
11. FIRE HYDRANT SPACING SHALL BE AS FOLLOWS: [FC C102]
• RESIDENTIAL – 500 FT UNSPRINKLERED; 600 FT SPRINKLERED.
• COMMERCIAL – 500 FT UNSPRINKLERED; 400 FT SPRINKLERED.
12. WHERE NEW WATER MAINS ARE EXTENDED ALONG STREETS OR NEW STREETS ARE INSTALLED, WHERE FIRE HYDRANTS ARE NOT REQUIRED FOR PROTECTION OF THE STRUCTURES, FIRE HYDRANTS SHALL BE INSTALLED AT MAXIMUM OF 1,000 FOOT SPACING, TO PROVIDE FOR TRANSPORTATION HAZARDS, WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS OR HAVE FOUR (4) OR MORE CARRIAGE LANES AND HAVE A TRAFFIC CONTROL OF MORE THAN TWO (2) LANE DIVIDERS ARE REQUIRED ON EACH SIDE OF THE STREET SPACING AT 500 FT ON AN ALTERNATING BASIS. [FC C102.8]
13. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN THE 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 FT OF ANY CURB RETURN, DRIVEWAY, POWER POLE, STREETLIGHT OR ANY OTHER OBSTRUCTION. [FC C102.12]
15. A MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A ONE-TWO FAMILY DWELLING SHALL NOT EXCEED 300 FT, AS MEASURED BY AN APPROVED ROUTE. [FC C102.4]
16. THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A FIRE DEPARTMENT CONNECTION (FDC) SHALL NOT EXCEED 100 FT, AS MEASURED BY AN APPROVED ROUTE. [FC C102.7]
17. THE MAXIMUM DISTANCE FROM A HYDRANT TO THE END OF A DEAD-END STREET SHALL NOT EXCEED 200 FT. [FC C102.6]
18. TWO (2) SOURCES OF SUPPLY ARE REQUIRED. WHEN THERE ARE 4 OR MORE FIRE HYDRANTS/SPRINKLER LEADS ARE INSTALLED, THE SYSTEM, SEVERAL MAINTRUNK VALVES SHALL BE INSTALLED SO THAT MORE THAN TWO (2) FIRE HYDRANTS CAN BE OUT OF SERVICE DUE TO A BREAK IN A WATER MAIN. [FC C104]
19. ALL FIRE APPARATUS ACCESS ROADS SHALL BE PAVED TO PROVIDE ALL-WEATHER DRIVING CAPABILITIES, AND SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF THE FIRE APPARATUS. [FC 503.2]
20. THE GRADIENT FOR THE FIRE APPARATUS ACCESS ROADS SHALL NOT EXCEED 12% ANGLES OF APPROACH AND ANGLES OF DEPARTURE SHALL NOT EXCEED 6% FOR 25 FEET PRIOR TO OR AFTER THE GRADE CHANGE. ADJACENT TO THE STRUCTURES GRADIENT SHALL NOT EXCEED 6%. [FC 503.2.2, 503.2.8]
21. THE TURNING RADIUS OF THE FIRE APPARATUS ACCESS ROADS SHALL BE NO LESS THAN 52 FEET OUTSIDE AN 28 FEET INSIDE TURNING RADIUS. [FC 503.2.4]
22. VERTICAL CLEARANCE OF ALL FIRE APPARATUS ACCESS ROADS SHALL NOT BE LESS THAN 13 FT 6 INS. [FC 503.2.1]
23. FIRE DEPARTMENT ACCESS ROADS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF NOT LESS THAN 40 FT, FLOW LINE TO FLOW LINE WITH PARALLEL PARKING PERMITTED ON BOTH SIDES. NOT LESS THAN 32 FT WIDE, FLOW LINE TO FLOW LINE, WHERE PARKING IS PERMITTED ONLY ON ONE SIDE OF THE FIRE APPARATUS ACCESS ROAD. NOT LESS THAN 24 FT WIDE, FLOW LINE TO FLOW LINE, WHERE NO PARKING IS PERMITTED ON EITHER SIDE. FIRE LINES THROUGH PARKING LOTS SHALL NOT BE LESS THAN 24 FT. [FC 503.2.1.1]
24. A FIRE APPARATUS ACCESS ROAD SHALL BE REQUIRED WHEN ANY PORTION OF AN EXTERIOR WALL OF THE FIRE DEPT. BUILDING LOCATED MORE THAN 150 FT FROM A FIRE DEPARTMENT VEHICLE ACCESS. THE DISTANCE COULD BE INCREASED TO 250 FT IF THE BUILDING IS SPRINKLERED. [FC 503.1.1]
25. APPROVED SECONDARY FIRE APPARATUS ACCESS SHALL BE PROVIDED FOR 60 FT OR MORE DWELLING UNITS, INDUSTRIALS WITH DEAD-ENDS OR WITH A SINGLE POINT OF ACCESS IN EXCESS OF 600 FT. COMMERCIAL AND INDUSTRIAL DEVELOPMENTS WHERE BUILDINGS EXCEED 2 STORIES OR 30 FEET IN HEIGHT, OR EXCEEDING 62,000 SQ. FT. OF AREA SHALL BE PROVIDED. [FC 503.1.2]
26. A DEAD-END FIRE APPARATUS ROADS AND/OR FIRE LANES, PUBLIC OR PRIVATE, IN EXCESS OF 150 FT IN LENGTH SHALL BE PROVIDED WITH AN APPROVED TURN ARROUND HAVING A MINIMUM DIAMETER OF 18 FT. [FC 503.2.5]
27. ALL FIRE APPARATUS ACCESS ROADS SHALL BE MARKED BY PLACING APPROVED SIGNS AT THE START OF THE DESIGNATED FIRE LANE, ONE SIGN AT THE END OF THE FIRE LANE AND WITH SIGNS AT INTERVALS OF 100 FEET THEREAFTER. SIGNS SHALL BE PLACED AT 100 FT INTERVALS ALONG THE 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 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. [FC 503.3]
28. ELECTRICALLY CONTROLLED ACCESS GATES SHALL BE PROVIDED WITH AN APPROVED EMERGENCY VEHICLE DETECTOR/RECEIVER SYSTEM. S40 SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE IFC 503.6 AND APPENDIX M.

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

1. IN THE EVENT THAT ANY UNFORESEEN CONDITIONS NOT COVERED BY THESE NOTES ARE ENCOUNTERED DURING GRADING OPERATIONS, THE OWNER/ENGINEER SHALL BE IMMEDIATELY NOTIFIED FOR DIRECTION.
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM ALL NECESSARY CUTS AND FILLS WITHIN THE LIMITS OF THIS PROJECT AND THE RELATED OFF-SITE WORK, SO AS TO GENERATE THE DESIRED SUBGRADE, FINISH AND DRAINAGE.
3. 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 THE EXCAVATION.
4. THE CONTRACTOR IS WARNED THAT AN EARTHWORK BALANCE WAS NOT NECESSARILY THE INTENT OF THIS PROJECT. ANY ADDITIONAL MATERIAL REQUIRED OR LEFTOVER MATERIAL FOLLOWING EARTHWORK OPERATIONS BECOMES THE RESPONSIBILITY OF THE CONTRACTOR.
5. THE GRADING CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE OWNER TO PROVIDE FOR THE REQUIREMENTS OF THE PROJECT'S WATER QUALITY PROTECTION PLAN (SWPPP) AND ASSOCIATED PERMITS.
6. CONTRACTOR SHALL GRADE TO THE LINES AND ELEVATIONS SHOWN ON THE PLANS WITHIN THE FOLLOWING HORIZONTAL, VERTICAL AND TOLERANCES AND DEGREES OF COMPACTION, IN THE AREAS INDICATED:

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA NEVADA", LATEST ISSUE; THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION, CLARK COUNTY AREA NEVADA", LATEST REVISED EDITION; THE "SUMMERLIN IMPROVEMENT STANDARDS" FOR WORK IN THE SUMMERLIN AREA; AND OTHER APPLICABLE APPROVED STANDARDS ISSUED BY THE CONTROLLING AGENCY; THE UNIFORM BUILDING CODE; AND ALL LOCAL CITY CODES AND ORDINANCES APPLICABLE, EXCEPT AS NOTED ON THIS SHEET AS "DEVIATIONS FROM STANDARDS".

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS" CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA NEVADA, LATEST EDITION, AND THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, CLARK COUNTY AREA NEVADA", LATEST REVISED EDITION; THE "SUMMERLIN IMPROVEMENT STANDARDS" FOR WORK IN THE SUMMERLIN AREA; AND, OTHER APPLICABLE APPROVED STANDARDS ISSUED BY THE CONTROLLING AGENCY. THE UNIFORM BUILDING CODE, AND ALL LOCAL ORDINANCES AND ORDINANCES APPLICABLE, EXCEPT AS NOTED ON THIS SHEET AS "DEVIATIONS FROM STANDARDS".
 2. THE EXISTENCE AND LOCATION OF ANY OVERHEAD OR UNDERGROUND UTILITY LINES, PIPES OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A RESEARCH OF THE AVAILABLE RECORDS. EXISTING UTILITIES AS SHOWN FROM CITY PLANS LIBRARY ARE TO BE USED FOR RECORD AND FIELD LOCATION. THE CONTRACTOR SHALL LOCATE AND LABEL ALL UTILITIES 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 OPERATIONS 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 UTILITIES AND STRUCTURES FROM DAMAGE. ALL UTILITIES 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 PSI MINIMUM 28 DAYS. MIX DESIGNS TO BE APPROVED BY THE CITY, PRIOR TO THE USE ON THE PROJECT.
 6. PERMITS ARE REQUIRED FOR ANY WORK IN THE PUBLIC RIGHT-OF-WAY. THE CONTRACTOR SHALL SECURE ALL PERMITS AND INSPECTIONS REQUIRED FOR THIS CONSTRUCTION.
 7. EXPANSION JOINTS REQUIRED, MAXIMUM EVERY 300' IN EXTRUDED-TYPE CURB.
 8. C/P PAVEMENT TO BE ONE-HALF INCH (1/2") ABOVE UP OF ALL GUTTERS AFTER COMPACTION, EXCEPT AT SIDEWALK RAMPS AND CROSS GUTTERS.
 9. CURB AND GUTTER FOUND TO BE UNACCEPTABLE TO THE CITY OF LAS VEGAS SHALL BE REMOVED AND REPLACED PER STANDARD DRAWING 216.
 10. SIDEWALK RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER SIDEWALK RAMP 216-215. 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 RECORD AS PREPARED BY SCOTT RESIDENTIAL, LLC, RECORD 12208-LVS, 02/09/2015 APPROVED BY THE CITY ENGINEER, ON 03/02/2015.
 13. EXACT LOCATION OF ALL SAWKUT LINES MAY BE ADJUSTED OR DETERMINED IN THE FIELD BY A CITY OF LAS VEGAS ENGINEER IF LOCATION ON PLANS IS NOT CLEARLY SHOWN, OR EXISTING PAVEMENT CONDITION REQUIRES RELOCATIONS.
 14. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT EXISTING PERMANENT SURVEY MONUMENTS. ANY MONUMENTS DISTURBED SHALL BE REPLACED AND ADJUSTED PER AVAILABLE RECORDS IN ACCORDANCE WITH N.E.S. STATUTE NO. 625.380 & 625.381 OF LAS VEGAS CITY CODE, ARTICLE 10.
 15. UTILITY COMPANY METER BOXES, MANHOLE LIDS, VALVE COVERS, ETC., SHALL BE LOCATED OUTSIDE OF THE DRIVE OR ALLEYWAY, FLOWLINES, AND CROSS GUTTERS UNLESS WRITTEN APPROVAL IS GRANTED BY THE UTILITY COMPANY AND THE CITY ENGINEER.
- WALL NOTES:

1. ALL CONSTRUCTION SIGNING, BARRICADING, AND TRAFFIC DELINEATION SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST EDITION.

3. THE STREET LIGHT CONTRACTOR SHALL OBTAIN STREET NAMES AND BLOCK NUMBERING FROM THE PLANNING DEPARTMENT PRIOR TO CONSTRUCTION.
3. BEFORE ANY WORK IS STARTED IN THE RIGHT-OF-WAY, THE CONTRACTOR SHALL INSTALL ALL ADVANCE WARNING SIGNS AT THE CONSTRUCTION ZONE. THE CONTRACTOR SHALL INSTALL TEMPORARY STOP SIGNS AT ALL NEW STREET ENCROACHMENTS INTO EXISTING CITY STREETS WHETHER OR NOT THE EXISTING STOP SIGNS ARE ACCOMPLISHED, AND SHALL MAINTAIN SADS SIGN UNTIL PERMANENT SIGNS ARE INSTALLED.
4. WHEN A DESIGNATED "SAFE ROUTE TO SCHOOL" IS ENCLOSED UPON BY A CONSTRUCTION WORK ZONE AND PUBLIC WORKS START IDENTIFYING A NEED FOR STUDENTS TO BE ASSISTED IN THE CROSSING OF THE STREET, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE THE FOLLOWING QUALIFIED "CROSSING GUARD". THE GUARD SHALL BE PRESENT FOR THE FULL DURATION OF TIME THAT CHILDREN ARE LIKELY TO BE PRESENT.
5. IF THE IMPROVEMENTS NECESSITATE THE OBLITERATION, TEMPORARY DESTRUCTION, TEMPORARY REMOVAL OR RELOCATION OF ANY EXISTING TRAFFIC PAVEMENT MARKING, SUCH PAVEMENT MARKING SHALL BE RESTORED OR REPLACED WITH LINE MATERIALS TO THE SATISFACTION OF THE CITY TRAFFIC ENGINEER.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL PERMANENT SIGN SHOWN ON THE PLANS. ALL NEW TRAFFIC SIGNS SHALL BE FABRICATED WITH DIAMOND GRADE WHITE BACKGROUND AND RED OR WHITE LETTERING. ALL NEW TRAFFIC SIGNS, EXCEPT STREET NAME AND SCHOOL SPEED LIMIT SIGNS, SHALL HAVE 3M SERIES 1160 OR APPROVED EQUIVALENT ANTI-GLARE PROTECTIVE OVERLAY FILM; SCHOOL ZONE SIGNS SHALL HAVE 3M SERIES 1150 ANTI-GLARE PROTECTIVE OVERLAY FILM. ALL SIGNS SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENTLY APPLICABLE MUTCD. ALL OTHER SIGNS SHALL BE STANDARD SIZE UNLESS OTHERWISE SPECIFIED ON THE PLANS. ALL SIGN POSTS SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENTLY APPLICABLE MUTCD.
7. WHEN A PROPOSED STREET LIGHT STANDARD IS LOCATED WITHIN FIVE (5') FEET OF ANY PROPOSED SIGN SHOWN ON THE PLANS TO BE MOUNTED ON A SIGNPOST, THE SIGN SHALL BE MOUNTED ON THE PERMANENT TRAFFIC STANDARD AND THE SIGNPOST SHALL BE ELIMINATED.
8. ALL PERMANENT TRAFFIC STANDARD DEVICES CALLED FOR HEREON SHALL BE IN PLACE AND IN FINAL POSITION PRIOR TO ALLOWING ANY PUBLIC TRAFFIC UPON THE PORTIONS OF THE ROAD/STREET TO BE CONSTRUCTED. THE CONTRACTOR SHALL HAVE A BASIS OF COMPLETION OF PAVING OR OTHER OFF-SITE IMPROVEMENTS CALLED FOR BY THESE PLANS.
9. STREET SIGNS AND STOPS SIGNS SHALL BE INSTALLED PER CITY STANDARD SPECIFICATIONS FOR PLACEMENT OF STREET NAME SIGNS.
10. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY TRAFFIC WORK AREAS AND FLAGGERS TO INSURE THE SAFETY OF THE PUBLIC IN OR AROUND THE WORK AREA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL EXISTING TRAFFIC SIGNALS AND TRAFFIC SIGNALS SET UP, MAINTAIN AND/OR REMOVE ALL TRAFFIC DEVICES IN THE CITY OF LAS VEGAS RIGHT OF WAY.
11. WORK IN PUBLIC STREETS, ONCE BEGUN, SHALL BE EXPEDITED TO COMPLETION SO AS TO PROVIDE MINIMUM INTERFERENCE TO ADJACENT PROPERTY OWNERS AND TO THE TRAVELING PUBLIC.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING CITIZENS AREA TRIP (C.A.T.) IF THE TRAVELING INTERSECTION WILL BE CLOSED FOR MORE THAN 24 HOURS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING CITIZENS AREA TRIP (C.A.T.) IF THE TRAVELING INTERSECTION WILL BE CLOSED FOR MORE THAN 24 HOURS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING CITIZENS AREA TRIP (C.A.T.) IF THE TRAVELING INTERSECTION WILL BE CLOSED FOR MORE THAN 24 HOURS.
13. GUARDS SHALL BE OBTAINED BY CONTACTING THE METROPOLITAN POLICE DEPARTMENT SPECIAL EVENTS UNIT (PHONE 828-3424) WHICH WILL PROVIDE OFFICERS PROPERLY TRAINED IN TRAFFIC CONTROL. FEES FOR THE USE OF THESE OFFICERS SHALL BE SET BY METRO AND WILL BE PAID TO THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR ALL ARRANGEMENTS WITH METRO.
14. ANY WORK WITHIN 300' OF A SIGNALIZED INTERSECTION WILL BE NIGHT WORK, UNLESS OTHERWISE DIRECTED BY TRAFFIC CITY OF LAS VEGAS TRAFFIC ENGINEER.
15. THE CONTRACTOR SHALL CONTACT THE TRAFFIC ENGINEERING DIVISION (TRANSPORTATION SECTION) PRIOR TO ANY WORK BEING DONE PRIOR TO INITIATING PLANS TO REVEAL DESTRUCTION FOR ANY PERMANENT OR TEMPORARY MODIFICATIONS TO THE APPROVED DRAWINGS REGARDING FINAL PAVEMENT TRANSITIONS, MARKINGS AND SIGNING THAT ARE REQUIRED TO MATCH ADJACENT SEGMENTS. THE CONTRACTOR SHALL PROVIDE A DETAILED DRAWING FOR APPROVAL BY THE TRAFFIC ENGINEERING DIVISION DEPICTING ANY ADJUSTMENTS TO THE FINAL PAVEMENT MARKINGS AND SIGNING WITHIN 300' OF A SIGNALIZED INTERSECTION. THE CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL SIGNS SUCH AS ADEQUATE TRANSITIONS AND LANE TERMINATIONS BETWEEN ADJACENT ROADWAY SEGMENTS ARE ADEQUATE.

1. ALL STREET LIGHTING INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE STREET LIGHTING PLAN, THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST REVISION, AND THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST REVISION, AND ANY ADOPTED SPECIAL AREA STANDARDS.

3. ALL STREET LIGHTING INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE STREET LIGHTING PLAN AND THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OF SITE-SPECIFIC IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, LATEST REVISION, AND THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION OF SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, LATEST REVISION, AND ANY ADDED SPECIAL AREA STANDARDS.
4. NO DEVIATION OF STREET LIGHT, PULL BOX, CONDUITS (ETC.) LOCATION SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL OF THE TRAFFIC ENGINEER AND THE CITY ENGINEER.
5. ALL EXISTING STREET LIGHTING SHALL REMAIN OPERATIONAL DURING CONSTRUCTION.
6. ALL STREET LIGHTING CONDUITS SHALL HAVE AT LEAST ONE GREEN #8 THW WIRE INSTALLED AS TRACER WIRE, WHEN "EMPTY CONDUIT IS COMPLETELY INSTALLED FROM PG TO PG, IT SHALL HAVE A MINIMUM OF 2 #4 AND 1 #8 THW WIRE WITH THE ENDS TAPED OR "SAFE OFF" FOR INSPECTION.
7. ANY STRUCTURE SUCH AS BLOCK WALLS, CHAIN LINK FENCES, RETAINING WALLS, ETC., SHALL LEAVE A MINIMUM CLEARANCE IN ACCORDANCE WITH THE USD NO. 320A.
8. AS-BUILT DRAWINGS SHALL BE SUPPLIED TO THE TFO TO PERFORM ANY PRE-FINAL INSPECTION. THE AS-BUILT DRAWINGS NEEDS TO BE STAMPED AS-BUILT AND SIGNED BY THE PREPARER.
9. SERVICE POINT SHALL BE COORDINATED WITH NV ENERGY COMPANY, AND WHEREVER POSSIBLE, IT SHALL BE NEAR THE CENTER OF THE CIRCUIT. SERVICE POINTS SHALL BE SHOWN ON THE CIVIL PLANS.
10. 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.
11. WHEREVER THERE IS AN OVERHEAD UTILITY THAT MAY CONFLICT WITH THE INSTALLATION OF STREIGHT LIGHTS AND/OR POLES, THESE CONFLICTS MUST BE RESOLVED BETWEEN THE DEVELOPER AND THE UTILITY INVOLVED, AT NO EXPENSE TO THE CITY OF LAS VEGAS, BEFORE STREET LIGHTING BASES ARE INSTALLED.
12. THE CONTRACTOR SHALL FURNISH COMPLETE SERVICE TO TRANSFORMERS AND CONTROL SYSTEM IF REQUIRED ON PLANS.
13. 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 SHALL BE RESPONSIBLE FOR THE COSTS OF THE CONSTRUCTION OF SITE-SPECIFIC IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, LATEST REVISION, 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 DEVELOPER/OWNER SHALL BE RESPONSIBLE FOR THE COSTS OF THE CONSTRUCTION OF ALL NEW PUBLIC STREET LIGHTS AND/OR SERVICE/S INSTALLED UNDER THIS PLAN DESIGN WILL BE IN CONNECTION WITH THIS PROJECT COMPLETION. COORDINATE ALL MAINTENANCE AND OPERATIONAL TRAFFIC CONTROL WITH THE CITY OF LAS VEGAS TRAFFIC ENGINEERING DEPARTMENT (TFO) AT (702) 229-6331.

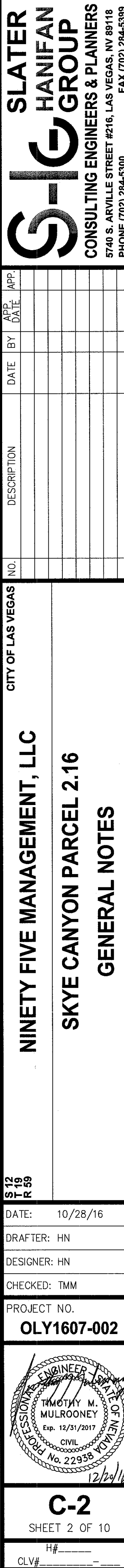
EXISTING UTILITY LOCATIONS SHOWN HEREIN ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. 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

NONE



LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES MANAGER

DATE _____ PROJECT No. _____
LTVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL

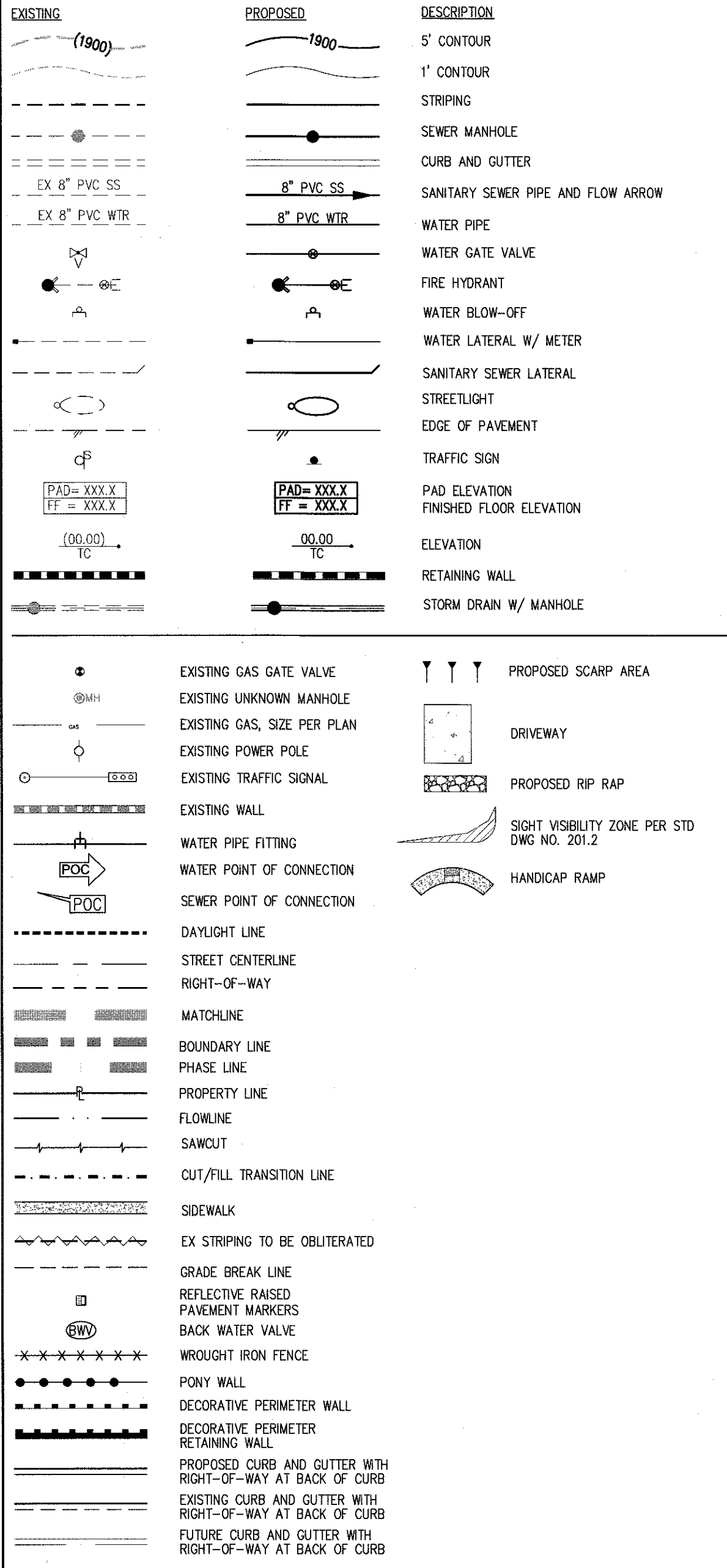


ABBREVIATIONS					
AC	ASPHALTIC CONCRETE OR ACRE	FUT	FUTURE	QTY	QUANTITY
AGG	AGGREGATE BASE	GRD	GRADE OR GROUND	R	RADIUS
APN	ASSESSORS PARCEL NUMBER	GV	GRADE BREAK OR GRADE CHANGE	RCA	REINFORCED CONCRETE ARCH
APPROX OR ~	APPROXIMATE	G8	GATE VALVE	RCB	REINFORCED CONCRETE BOX
AV	AVENUE	HDPE	HIGH DENSITY POLYETHYLENE	RCR	REINFORCED CONCRETE PIPE
AT	AT	HOA	HOME OWNERS ASSOCIATION	RD	ROAD
Ø	BEGIN CURVE OR BACK OF CURB	HORIZ	HORIZONTAL	ROWY ESMT	ROADWAY EASEMENT
BOR	BEGINNING OF CURB RETURN	HP	HIGH POINT	REGD	REQUIRED
BOW	BOW OF HEADWALL	HW	HIGH WATER LEVEL	REVSUM	REVISION
BLDG	BUILDING	HOWL OR HW	HEADWALL	RO	ROUGH GRADE
BLVD	BOULEVARD	HYD	HYDRAULIC OR HYDRANT	RO R OR R	RIGHT
BM	BENCHMARK	ID	INSIDE DIAMETER	R/T, ROW	RIGHT OF WAY
BC	BEGIN VERTICAL CURVE	IN	INCH	S	SLOPE
BWV	BACK WATER VALVE	INT	INTERSECTION	SD	SCHEDULE
CC	CLARK COUNTY	INV	INVERT ELEVATION	SCH	STORM DRAIN
CCAUSD	CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS	IP	IRON PIPE	SDOI	STORM DRAIN DROP INLET
CDPW	CLARK COUNTY PUBLIC WORKS	IRRG	IRREGULAR	SDRM	STORM DRAIN MANHOLE
CCOFCD	CLARK COUNTY REGIONAL FLOOD DISTRICT	LF	LINEAR FEET	SEC	SECTION
CCWRD	CLARK COUNTY WATER RECLAMATION DISTRICT	LP	LOW POINT	SF	SQUARE FEET
CE	COMMON ELEMENT	LT OR L	LEFT	SHT	SHEET
C/L, C/LC	CENTER	LVWD	LAS VEGAS VALLEY WATER DISTRICT	SNWA	SOUTHERN NEVADA WATER AUTHORITY
CLR	CLEAR OR CLEARANCE	LWL	LOW WATER LEVEL	SPECES	SPECIFICATIONS
CLSM	CONTROLLED LOW STRENGTH MATERIAL	MAX	MAXIMUM	ST	STREET
CML/C	CEMENT MORTAR LINED AND COATED	MECH	MECHANICAL	SSMH	SANITARY SEWER MANHOLE
CMI	CONCRETE MASONRY UNIT	MH	MANHOLE	STA	STATION
CONC	CONCRETE	MIN	MINIMUM	STD	STANDARD
CT	COURT	MISC	MISCELLANEOUS	STL	STEEL OR STREET LIGHT
CY OR CU YD	CUBIC YARD	MUN	MUNICIPAL UTILITY EASEMENT	STW	STORMWATER
COWMS	DESIGN AND CONSTRUCTION FOR WASTEWATER COLLECTION SYSTEMS	NDOT	NEVADA DEPARTMENT OF TRANSPORTATION	SWG	SOUTHWEST GAS
DET	DETAIL	NPC	NEVADA POWER COMPANY	SWR OR SS	SANITARY SEWER
DIA, Ø	DIAMETER	NTS	NOT TO SCALE	SQ	SQUARE YARD
DIP	DUCTILE IRON OR DRAIN INLET	NUE	NONEXCLUSIVE UTILITY EASEMENT	TAN	TANGENT
DR	DRIVE	OC	ON CENTER	TC	TOP OF CURB
DWS(S)	DRAINAGE	OD	OUTSIDE DIAMETER OR OVERALL DIMENSION	TD	TRAFFIC CONTROL DEVICE
DRY	DRIVEWAY	OFF	OFFSET	TF	TOP OF FLOOR OR TOP OF FOOTING
EA	EACH	ORIG	ORIGINAL	TF	TOP OF GRADE
END CURB RETURN		PAE	PUBLIC OR PEDESTRIAN ACCESS EASEMENT	THRU	THROUGH
EC	EXISTING GROUND	PB	PULL BOX	THW	TOP OF HEADWALL
EL	ELEVATION	PC	POINT OF CURVE	TI	TOP OF PIPE
ESMT	EASEMENT	PCC	POINT OF COMPOUND CURVE	TW	TOP OF WALL
EDGE OF PAVEMENT		PDE	PUBLIC DRAINAGE EASEMENT	TRW	TOP OF RETAINING WALL
EVC	END VERTICAL CURVE	R OR PL	PROPERTY LINE	TSW	TOP OF SCREEN WALL
EX OR EXIST	EXISTING	POB	POINT OF BEGINNING	TYPR	TYPICAL
FC	FACE OF CURB	POC	POINT OF CURVATURE	UDACS	UNIFORM DESIGN AND CONSTRUCTION STANDARDS
FG	FINISHED FLOOR	POE	POINT OF ENDING	VC	VERTICAL CURVE
FGH	FINISHED GRADE	PRELIM	PRELIMINARY	VERT	VERTICAL
FGH	FINISHED GRADE, HIGH SIDE	PROP	PROPOSED	VG	VALLEY GUTTER
FGH	FINISHED GRADE, LOW SIDE	PRV	PRESSURE REDUCING VALVE	WI	WROUGHT IRON
FGRL	FINISHED GRADE, LOW SIDE	PUE	PUBLIC UTILITY EASEMENT	WL	WATER LINE
FIR	FIRE HYDRANT	PT	POINT OF TANGENT OR POINT	WTRZ	WATER ZONE
FL	FLOWLINE	PVC	POLYVINYL CHLORIDE	WT	WEIGHT
FT	FEET OR FOOT	PVI	POINT OF VERTICAL INTERSECTION	WTR	WATER LINE

IN THE EVENT THAT ANY TEMPORARY CONSTRUCTION ITEM IS REQUIRED WHICH 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 CLARK COUNTY DEPT. OF PUBLIC WORKS. TEMPORARY CONSTRUCTION ITEMS INCLUDE: PAVEMENT TRANSITIONS, PROTECTIVE DITCHES AND BERMS, ROAD SIGNS AND BARRICADES, ETC.

-QUANTITIES SHOWN ARE ESTIMATES ONLY AND ARE INTENDED TO ILLUSTRATE SCOPE OF WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE EXACT QUANTITIES INVOLVED.

EXISTING UTILITY LOCATIONS SHOWN HEREIN ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S 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.
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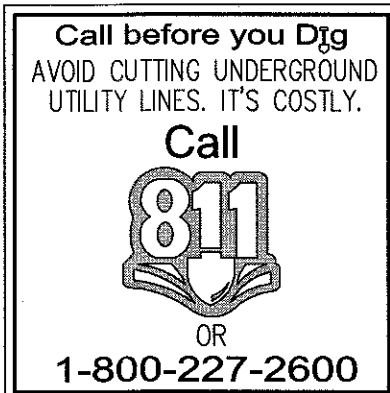


DRAINAGE			
1.	60" TYPE II STORM DRAIN MANHOLE	EA	—
2.	5.0' TYPE "CM2" DROP INLET	EA	—
3.	10' TYPE "CM2" DROP INLET	EA	—
4.	12.5' TYPE "CM2" DROP INLET	EA	—
5.	20.0' TYPE "CM2" DROP INLET	EA	1
6.	18" RCP CLASS IV STORM DRAIN	LF	—
7.	24" RCP CLASS IV STORM DRAIN	LF	—
8.	30" RCP CLASS IV STORM DRAIN	LF	—
9.	36" RCP CLASS IV STORM DRAIN	LF	—
10.	RIPRAP D50=8", THK=16"	SF	—
11.	8" WIDE CONCRETE VALLEY GUTTER W/10" TYPE I AGGREGATE BASE	SF	35.37
12.	SIDEWALK UNDER DRAIN	SF	1
SEWER SYSTEM			
1.	4" PVC SEWER LATERAL (PRIVATE)	LF	1,612
2.	8" PVC SEWER PIPE (PUBLIC)	LF	—
3.	STANDARD 48" SEWER MANHOLE (PUBLIC)	EA	2,653
4.	8" SEWER PIPE CAP	EA	—
5.	BACK WATER VALVE	EA	—
6.	8" C-900 WATER QUALITY SEWER PIPE (PUBLIC)	EA	—
7.	4" C-900 SEWER LATERAL (PRIVATE)	LF	118
WATER SYSTEM			
1.	FIRE HYDRANT ASSEMBLY W/6" GATE VALVE PER UDACS PLATE NO. 40	EA	—
2.	6" PVC WATER PIPE (CLASS 150)	LF	—
3.	8" PVC WATER PIPE (CLASS 150)	LF	—
4.	8" DIP WATER PIPE (CLASS 53)	LF	—
5.	8" GATE VALVE WITH VALVE BOX PER UDACS PLATE NO. 30 & 39	EA	—
6.	8" X 6" TEE PER UDACS PLATE NO. 31	EA	—
7.	8" X 8" TEE PER UDACS PLATE NO. 31	EA	—
8.	8" 5 DEGREE BEND WITH RESTRAINED JOINTS	EA	—
9.	8" 11.25 DEGREE BEND PER UDACS PLATE NO. 31	EA	—
10.	8" 22.5 DEGREE BEND PER UDACS PLATE NO. 31	EA	—
11.	8" 45 DEGREE BEND PER UDACS PLATE NO. 31	EA	—
12.	8" 90 DEGREE BEND PER UDACS PLATE NO. 31	EA	—
13.	CAP AND 2" BLOW-OFF ASSEMBLY W/CAP PER UDACS PLATE NO. 36	EA	—
14.	1" COPPER SERVICE W/ 3/4" METER PER UDACS PLATE NO. 2	EA	—
15.	1" COPPER SERVICE W/ 3/4" METER & 1" RPPA PER UDACS PLATE NO. 4 & 8	EA	—
STREET IMPROVEMENTS			
1.	2" A.C. PAVEMENT W/ 4" TYPE I AGGREGATE BASE	SY	10,406
2.	STANDARD 24" TYPE "L" CURB & GUTTER W/6" TYPE II AGGREGATE BASE	LF	217
3.	STANDARD 8" TYPE "A" ISLAND CURB W/6" TYPE II AGGREGATE BASE	LF	130
4.	STANDARD 30" TYPE "ROLL" CURB & GUTTER W/6" TYPE II AGGREGATE BASE	LF	4,582
5.	STANDARD 18" TYPE "L" ISLAND W/6" TYPE II AGGREGATE BASE	LF	104
6.	5' WIDE CONCRETE SIDEWALK W/6" TYPE II AGGREGATE BASE	SF	25,007
7.	SIDE WALK RAMPS	EA	15
8.	10' CURB TRANSITION FROM "L" TYPE TO ROLL TYPE CURB AND GUTTER	EA	4
9.	8" CROSS GUTTER PER UDACS PLATE NO. 228	SF	2,763
TRAFFIC SIGNALS			
1.	30" STOP SIGN WITH POST (R1-1)	EA	6
2.	STREET NAME SIGN D-3, BROWN W/ WHITE LETTERS	EA	12
3.	BLUE COLORED REFLECTIVE RAISED PAVEMENT MARKER	EA	7
4.	TRAFFIC SIGNS	EA	6
DRY UTILITIES			
1.	100W H.P.S. LUMINAIRE STREET LIGHT W/DECORATIVE POLE	EA	—
2.	1-1/4" PVC STREET LIGHT CONDUIT WITH (2) #4 AND (1) #8 CONDUCTORS	LF	—
3.	NO. 3-1/2 PULL BOX W/METAL COVER	EA	—
4.	200 AMP SERVICE PEDESTAL (STLT)	EA	—

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES MANAGER

DATE _____ PROJECT No. _____

LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL

[illegible]

CITY OF LAS VEGAS

NINETY FIVE MANAGEMENT, LLC

SKYE CANYON PARCEL 2.16

GENERAL NOTES AND QUANTITIES

S 12
T 19
R 59

DATE: 10/28/16

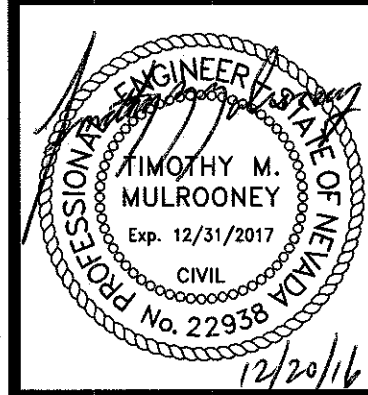
DRAFTER: HN

DESIGNER: HN

CHECKED: TMM

PROJECT NO.

OLY1607-002



C-3
SHEET 3 OF 10

H#_____

CLV#_____

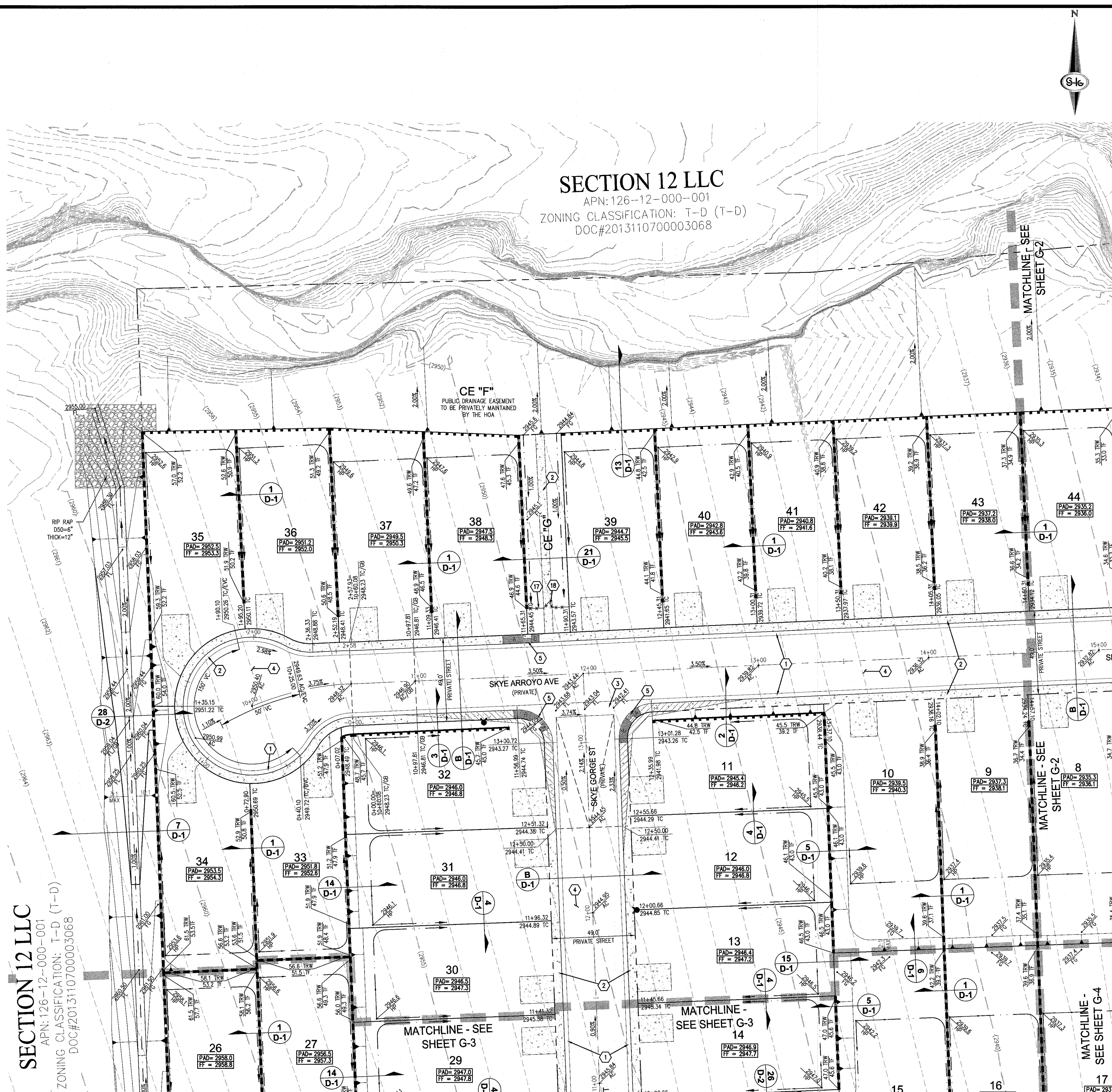
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SECTION 12 LLC

APN: 126-12-000-001
ZONING CLASSIFICATION: T-D (T-D)
DOC#2013110700003068

SECTION 12 LLC

APN: 126-12-000-001
ZONING CLASSIFICATION: T-D (T-D)
DOC#2013110700003068



NOTE

CONSTRUCT 30" ROLL CURB AND GUTTER PER CCAUSD NO. 217.S1 OVER 6" TYPE I AGGREGATE BASE. FLOW LINES LESS THAN 0.60% GRADE SHALL BE WATER TESTED. ANY CURB THAT DOES NOT FLOW SHALL BE REMOVED AND REPLACED AT NO COST TO THE CITY.

DRAINAGE QUANTITIES

PRIVATE	EA
20" TYPE CM2 DROP INLET	1

NOTE

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

SURVEY NOTE

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

ELEVATION NOTE

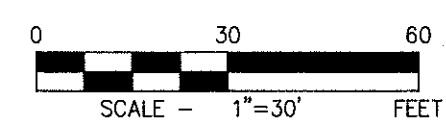
ADD 2800 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 2901.00)

SOILS REPORT

SOILS REPORT BY GEOTEK RESIDENTIAL, LLC
6835 S. ESCONDIDO ST. SUITE B LAS VEGAS, NEVADA 89119
PROJECT NO. 12208-LVR DATED 02/09/2015
UPDATED SOILS REPORT BY GEOTEK RESIDENTIAL, LLC
PROJECT NO. 12208-LVR DATED 03/30/2016

EARTHWORKS

EARTHWORK QUANTITIES (RAW):
CUT= 57,464 CU YDS
FILL= 23,580 CU YDS
EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.



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- FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS THE CONTRACTOR SHALL NOTIFY THE ENGINEER.

GRADING NOTES

- FINAL GRADES ADJACENT TO STRUCTURES SHALL BE IN CONFORMANCE WITH IBC 2012, SECTION 2304.11.2.2.
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- ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
- MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
- SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
- ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
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- CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITY STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. CONTRACTOR TO PROTECT IN PLACE DURING CONSTRUCTION. ENGINEER/OWNER SHALL BE NOTIFIED OF PRIOR DAMAGE TO EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR/REPLENISHING FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENCING.
- NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

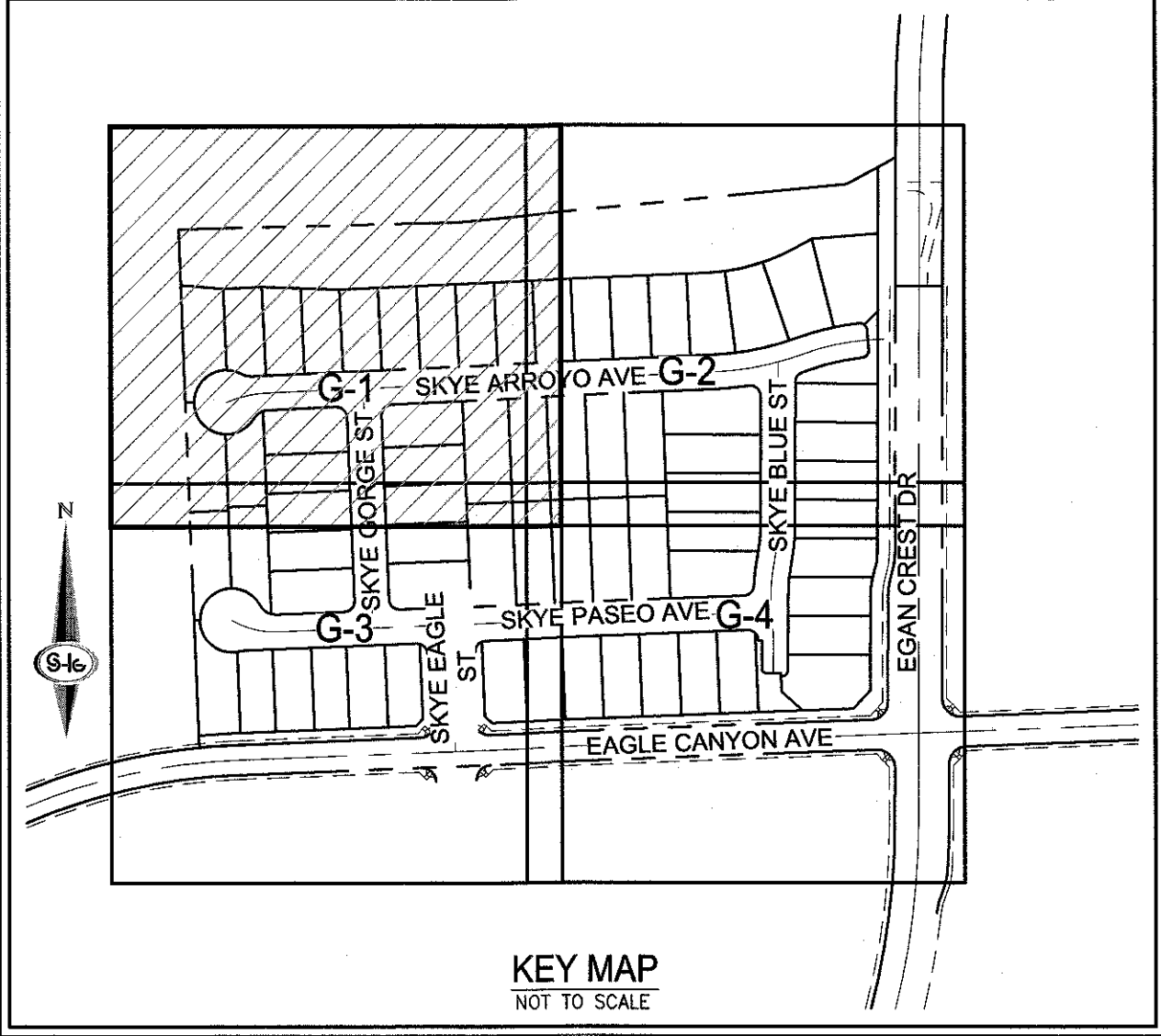
LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

- 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 ACCUMULATED 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 IN THE LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDANCE 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 THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NV100000, SECTION III.A.5.
- AT A MINIMUM, THE CONTRACTOR OR HIS AGENT 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 A 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 TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NV100000, 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.

FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1750 E, DATED SEPTEMBER 27, 2002. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.



GRADING NOTES

- INSTALL 30" ROLL CURB PER CCAUSD NO. 217.S1 OVER 6" TYPE I AGGREGATE BASE.
- INSTALL 5" WIDE CONCRETE SIDEWALK (5" THICK OVER 6" TYPE 2 AGGREGATE BASE) PER CCAUSD #234
- INSTALL 8-FT CROSS GUTTER PER DETAIL 22 ON SHEET D-2
- INSTALL 2" ASPHALT PAVEMENT OVER 4" TYPE II AGGREGATE BASE
- CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOWNS OR EQUIVALENT CCAUSD NO. 235, CASE 4 & 235.1
- CONSTRUCT 10" TRANSITION FROM "L" CURB TO ROLL CURB PER DETAIL 23 ON SHEET D-2
- INSTALL 20 LF TYPE "CM2" DROP INLET PER CCAUSD #412.1 AND #421
- INSTALL "A" TYPE ISLAND CURB PER CCAUSD #219
- INSTALL "L" TYPE CURB AND GUTTER PER CCAUSD #216
- EX 10 LF TYPE "CM2" DROP INLET PER CCAUSD #412.1 AND #421. PLANS PER SKYE CANYON PHASE 2 #63875
- REMOVE EXISTING 36" STORM DRAIN END SECTION PER SKYE CANYON PHASE 2 #63875
- EX 60" TYPE III STORM DRAIN MANHOLE PER CCAUSD #406 R/W=2914.81, INV IN:2907.71, INV OUT:2907.71
- INSTALL CLASS III ROP SD PIPE SIZE PER PLAN - SEE SHEET P-4 AND P-8 FOR PROFILES
- INSTALL "L" TYPE ISLAND CURB PER CCAUSD #219
- INSTALL 8-FT CROSS GUTTER PER STD DWG 228
- INSTALL 24" SIDEWALK DRAIN PER STD DWG 236
- INSTALL WROUGHT IRON FENCE PER DETAIL ON SHEET D-2
- INSTALL WROUGHT IRON GATES PER DETAIL ON SHEET D-2
- INSTALL ACCESS GATES, DESIGN BY OTHERS

LEGAL DESCRIPTION

BEING A PORTION OF SECTION 12, TOWNSHIP 19 SOUTH, RANGE 59 EAST M.D.M., CLARK COUNTY, NEVADA.

BENCHMARK

BM 7190 7NWS CITY OF LAS VEGAS RIVET AND ROUND PLATE IN CONCRETE CYLINDER, SOUTHEAST CORNER OF HUALAPAI WAY AND IRON MOUNTAIN ROAD.
ELEV: 2840.13 FEET
ELEV: (865.67 METERS) (NAVD 1988)

BASIS OF BEARINGS

SOUTH 00°34'18" EAST, BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 12, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., AS PER FILE 151 PAGE 14 OF SURVEYS, ON FILE IN THE COUNTY RECORDER'S OFFICE.

FLOOD CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY ON FILE AT CITY OF LAS VEGAS 4847 FOR THE SUBJECT PROJECT.
TIMOTHY M. MURLOONEY, P.E. 12/20/16 DATE

DATE	BY	APP.

NO.	DESCRIPTION

CITY OF LAS VEGAS

NINETY FIVE MANAGEMENT, LLC
SKYE CANYON PARCEL 2.16
GRADING PLAN I

DATE: 10/28/16
DRAFTER: HN
DESIGNER: HN
CHECKED: TMM

PROJECT NO.
OLY1607-002

Professional Engineer Seal for Timothy M. Murlooney, State of Nevada, License No. 200358, dated 12/31/2017.

G-1
SHEET 4 OF 10
CLV#

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

Call before you Dig
AVOID CUTTING UNDERGROUND
UTILITY LINES. IT'S COSTLY.

Call
811
OR
1-800-222-2600



- 1 INSTALL 3" RCP, ROLL CURB PER CCAUSD NO. 217.51 OVER 6" TYPE 1 AGGREGATE BASE
- 2 INSTALL 5" WIDE CONCRETE SIDEWALK "5" THICK OVER 6" TYPE 2 AGGREGATE BASED PER CCAUSD #234
- 3 INSTALL 8"-FT CROSS GUTTER PER DETAIL D2 ON SHEET D-2
- 4 CONSTRUCT SIDEWALK PAVEMENT OVER 4" TYPE II AGGREGATE BASE
- 5 CONSTRUCT SIDEWALK RAMPUS USING ARMOR TILE TRUNCATED DOWNS OR EQUIVALENT CCAUSD NO. 235, CASE C
- 6 CONSTRUCT 10" TRANSITION FROM "L" CURB TO ROLL CURB PER DETAIL D2 ON SHEET D-2
- 7 INSTALL 20" LF TYPE "CM2" DROP INLET PER CCAUSD #412, #421 AND #421
- 8 INSTALL "A" TYPE ISLAND CURB PER CCAUSD #219
- 9 INSTALL 3" RCP AND GUTTER PER CCAUSD #216
- 10 EX 10 LF TYPE "CM2" DROP INLET PER CCAUSD #412 AND 10 LF PLANS PER SKYE CANYON PHASE D 263875
- 11 REMOVE EXISTING 36" STORM DRAIN END SECTION PER SKYE CANYON PHASE D 263875
- 12 INSTALL 1" TYPE STORM DRAIN MANHOLE PER CCAUSD #408 RCM-2914.91, INV IN 2907.71, INV OUT 2907.71
- 13 INSTALL CLASS III RCP SD PIPE SIZE PER PLAN - SEE SHEET P-4 AND P-8 FOR PROFILES
- 14 INSTALL "L" TYPE ISLAND CURB PER CCAUSD #219
- 15 INSTALL 8"-FT CROSS GUTTER PER STD DWG 228
- 16 INSTALL 24" SIDEWALK DRAIN PER STD DWG 236
- 17 INSTALL WROUGHT IRON FENCE PER DETAIL ON SHEET D-2
- 18 INSTALL WROUGHT IRON GATES PER DETAIL ON SHEET D-2
- 19 INSTALL ACCESS GATES, DESIGN BY OTHERS

BEING A PORTION OF SECTION 12, TOWNSHIP 19 SOUTH,
RANGE 59 EAST M.D.M., CLARK COUNTY, NEVADA.

BM 7LV90 7NWS CITY OF LAS VEGAS RIVET AND
ROUND PLATE IN CONCRETE CYLINDER, SOUTHEAST
CORNER OF HUALAPAI WAY AND IRON MOUNTAIN
ROAD.

ELEV: 2840.13 FEET
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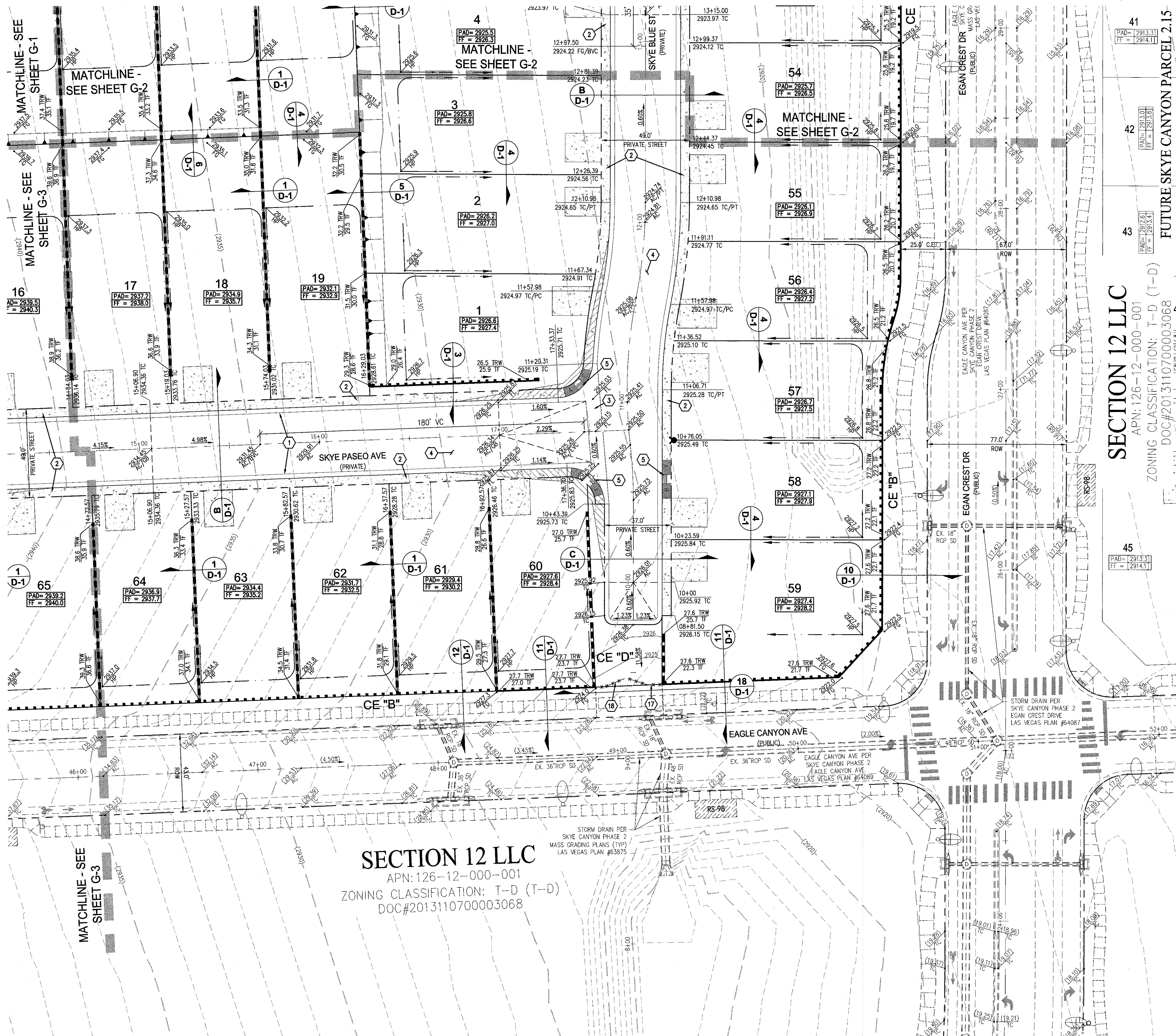
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I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY ON FILE AT CITY OF LAS VEGAS DS 4842 FOR THE SUBJECT PROJECT.

Timothy M. Mulroney 12/20/16
TIMOTHY M. MULRONEY, P.E. 22838 DATE

SKYE CANYON PARCEL 2.16

1/16/1607-002 skye canyon parcel 2.16 (1607-002) grad plan 12/20/2016 11:05 AM huan huan



SECTION 12 LLC

APN: 126-12-000-001
ZONING CLASSIFICATION: T-D (T-D)
DOC#2013110700003068

SURVEY NOTE

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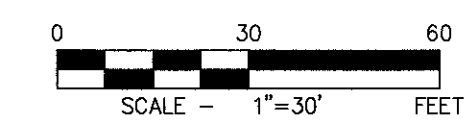
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SOILS REPORT

SOILS REPORT BY GEOTEK RESIDENTIAL, LLC
6835 S. ESCONDIDO ST. SUITE B LAS VEGAS, NEVADA 89119
PROJECT NO. 12208-LVR DATED 02/09/2015
UPDATED SOILS REPORT BY GEOTEK RESIDENTIAL, LLC
PROJECT NO. 12208-LVR DATED 03/30/2016

EARTHWORKS

EARTHWORK QUANTITIES (RAW):
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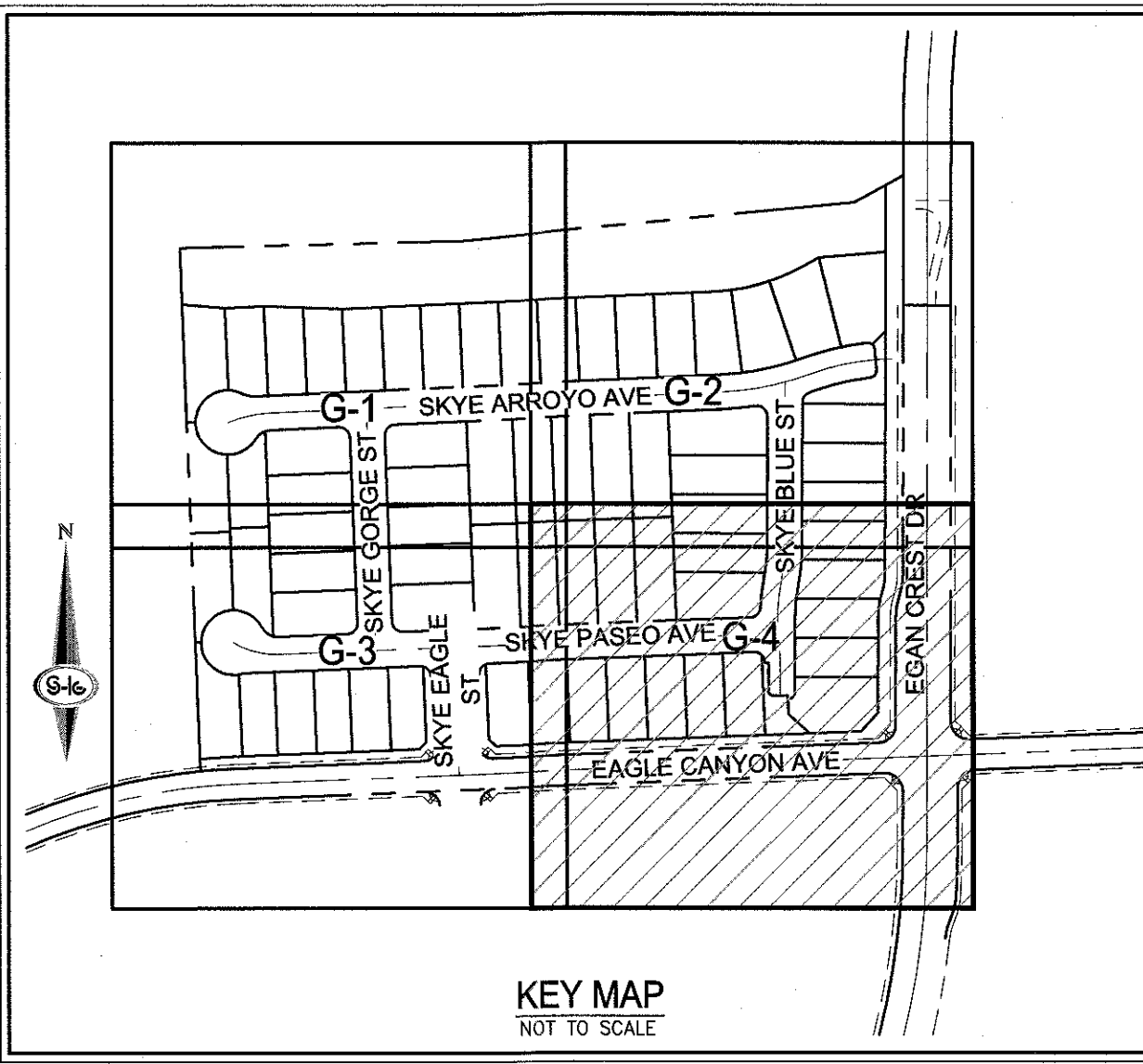
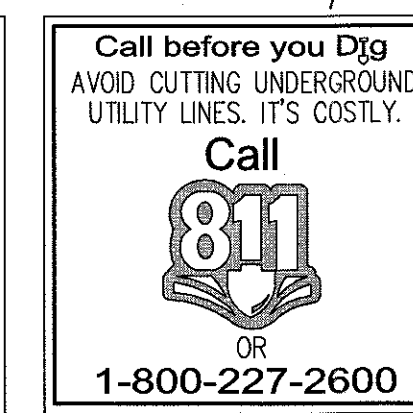
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GRADING NOTES

- INSTALL 30" ROLL CURB PER CCAUSD NO. 217.51 OVER 6" TYPE 1 AGGREGATE BASE
- INSTALL 5' WIDE CONCRETE SIDEWALK (5" THICK OVER 6" TYPE 2 AGGREGATE BASE) PER CCAUSD #234
- INSTALL 8'-FT CROSS GUTTER PER DETAIL 22 ON SHEET D-2
- INSTALL 4" ASPHALT PAVEMENT OVER 4" TYPE II AGGREGATE BASE
- CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOWNS OR EQUIVALENT CCAUSD NO. 235, CASE 2 235.1
- CONSTRUCT 10" TRANSITION FROM 1" CURB TO ROLL CURB PER DETAIL 22 ON SHEET D-2
- INSTALL 20 LF TYPE "CM2" DROP INLET PER CCAUSD #412.1 AND #421
- INSTALL "A" TYPE ISLAND CURB PER CCAUSD #219
- INSTALL 1" TYPE CURB AND GUTTER PER CCAUSD #216
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- EX 60" TYPE III STORM DRAIN MANHOLE PER CCAUSD #406 RIM=2914.81, INV IN=2907.71, INV OUT=2907.71
- INSTALL CLASS III RCP 36" PIPE SIZE PER PLAN - SEE SHEET P-4 AND P-5 FOR PROFILES
- INSTALL 1" TYPE ISLAND CURB PER CCAUSD #219
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- INSTALL 24" SIDEWALK DRAIN PER STD DWG 236
- INSTALL WROUGHT IRON FENCE PER DETAIL ON SHEET D-2
- INSTALL WROUGHT IRON GATES PER DETAIL ON SHEET D-2
- INSTALL ACCESS GATES, DESIGN BY OTHERS

LEGAL DESCRIPTION

BEING A PORTION OF SECTION 12, TOWNSHIP 19 SOUTH, RANGE 59 EAST M.D.M., CLARK COUNTY, NEVADA.

BENCHMARK

BW 17990 7NWS CITY OF LAS VEGAS RIVET AND ROUND PLATE IN CONCRETE CYLINDER, SOUTHEAST CORNER OF HUALAPAI WAY AND IRON MOUNTAIN ROAD.
ELEV: 2840.13 FEET
ELEV: (865.67 METERS) (NAD 1988)

BASIS OF BEARINGS

SOUTH 00°34'18" EAST, BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 12, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., AS PER FILE 151, PAGE 11 OF SURVEYS, ON FILE IN THE COUNTY RECORDER'S OFFICE.

FLOOD CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY ON FILE AT CITY OF LAS VEGAS DS 4842 FOR THE SUBJECT PROJECT.
TIMOTHY M. MULROONEY, P.E. 7/23/16 DATE

DATE	BY	APP.

DESCRIPTION	NO.

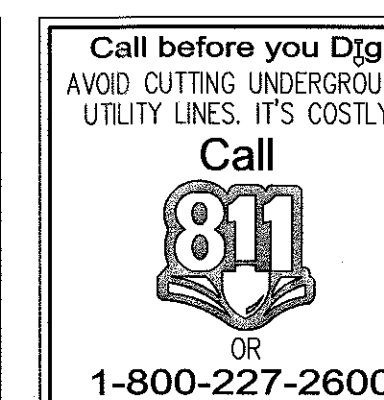
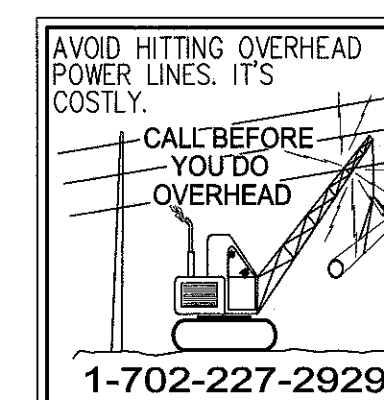
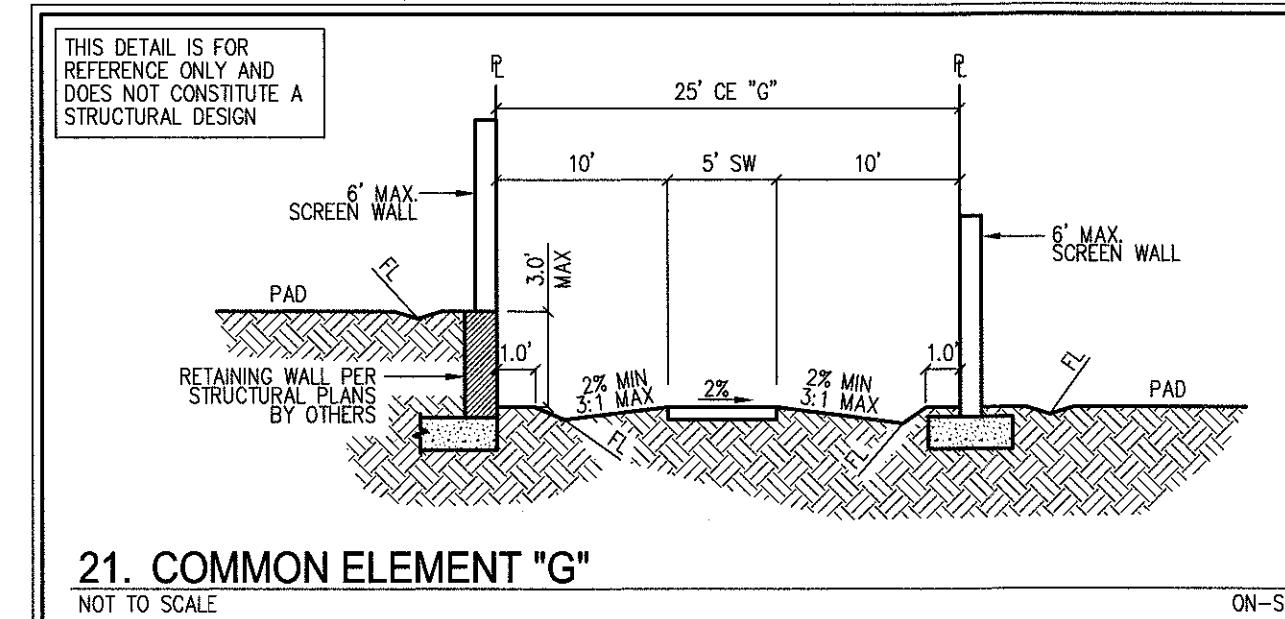
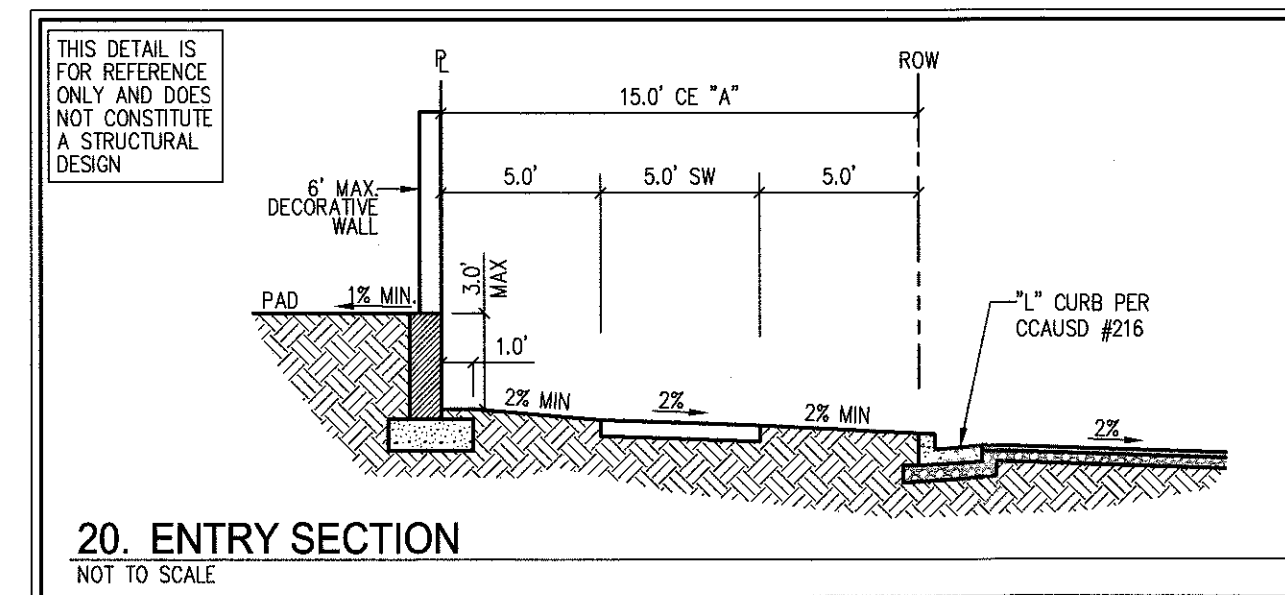
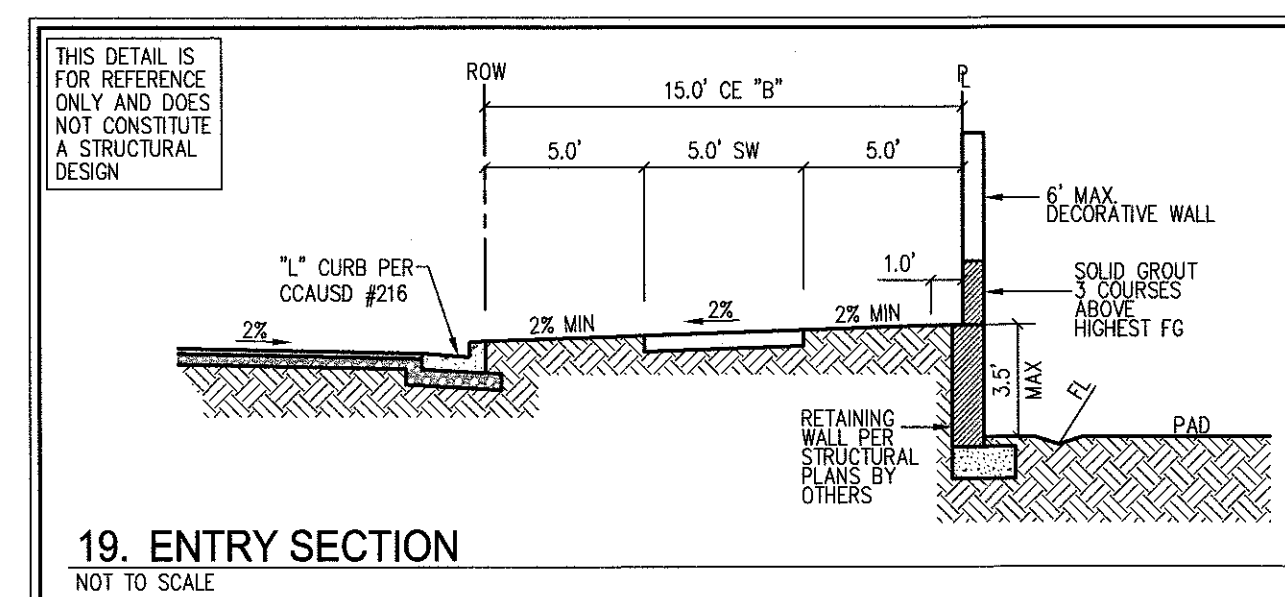
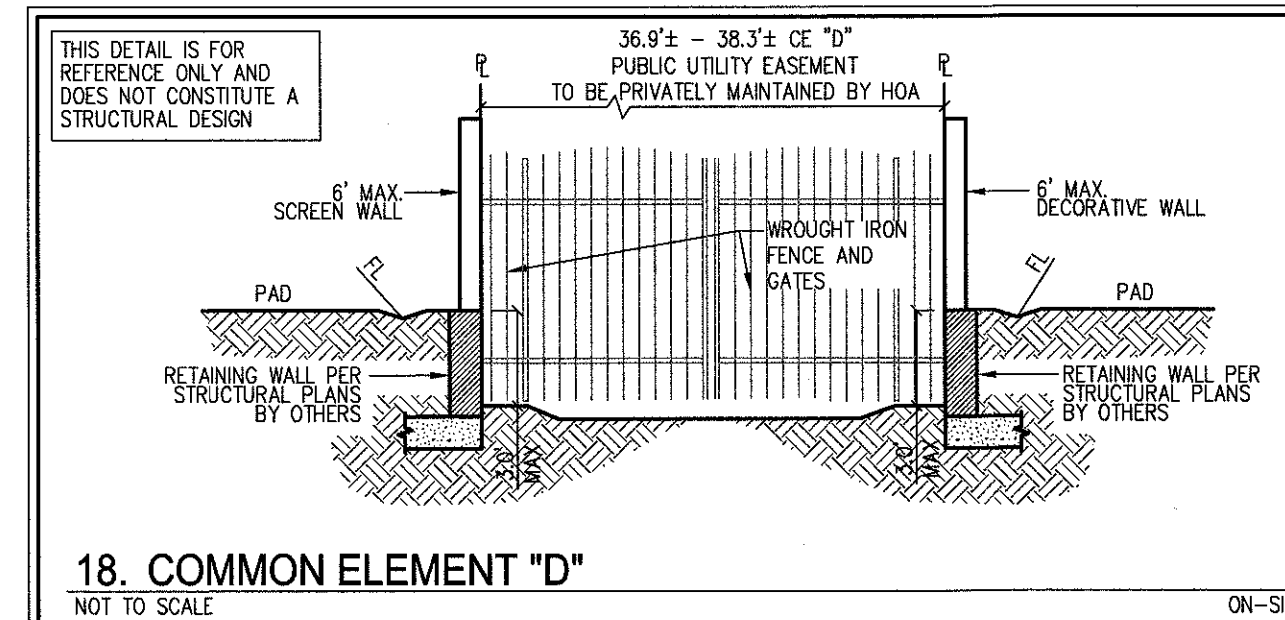
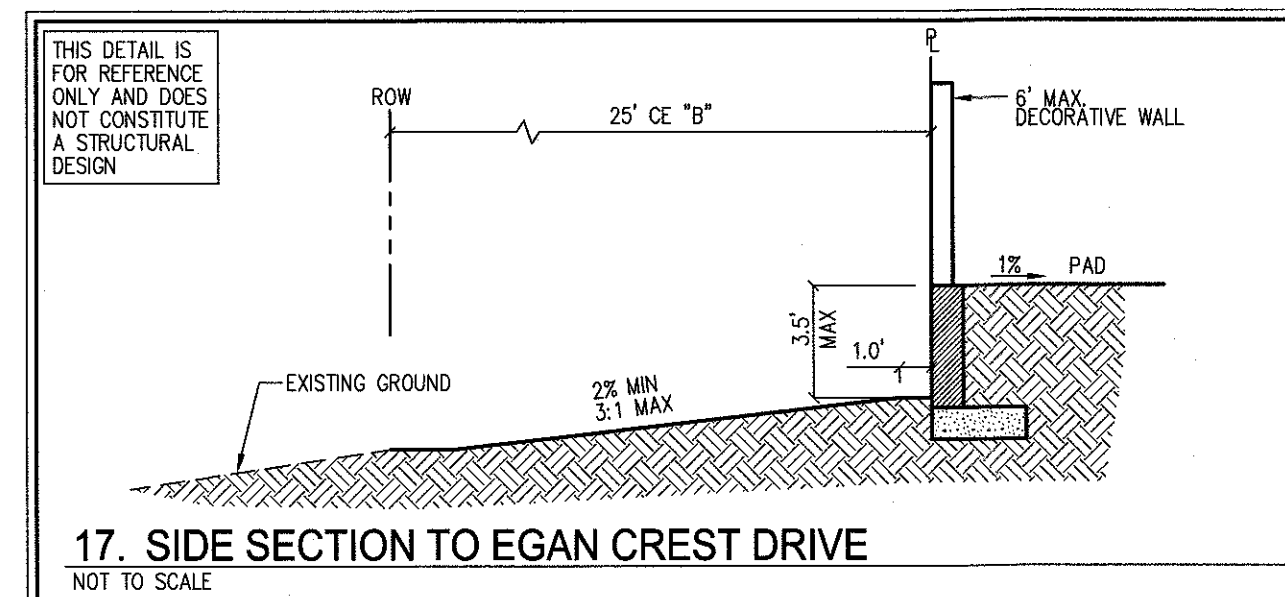
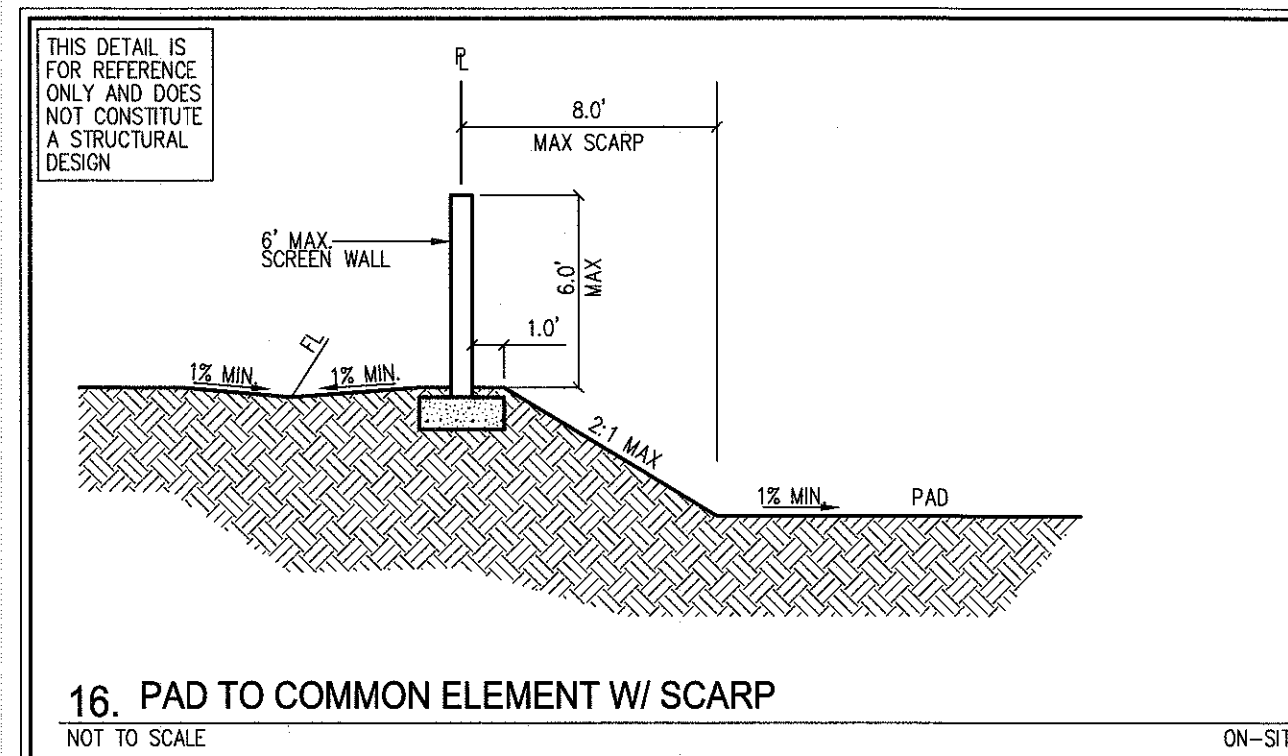
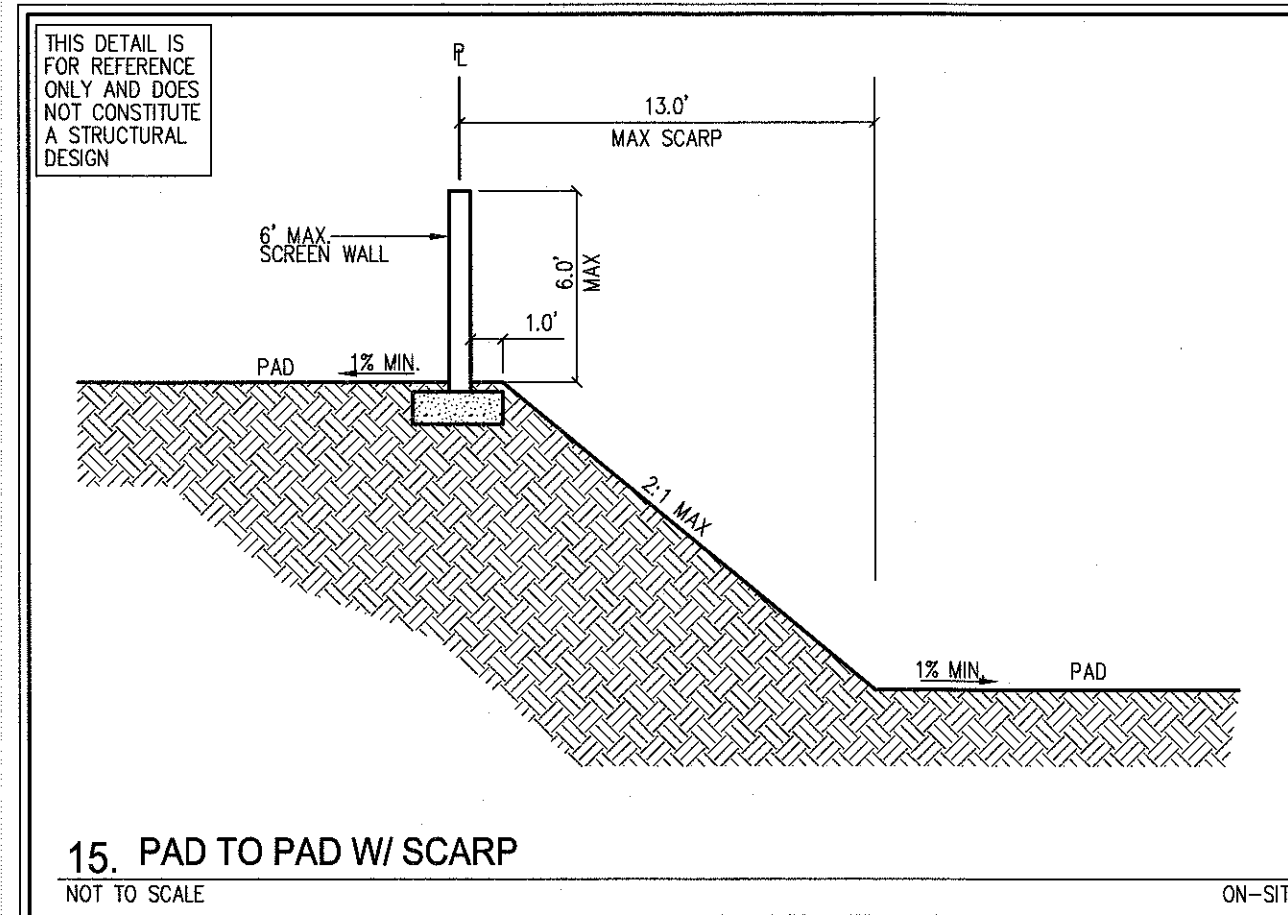
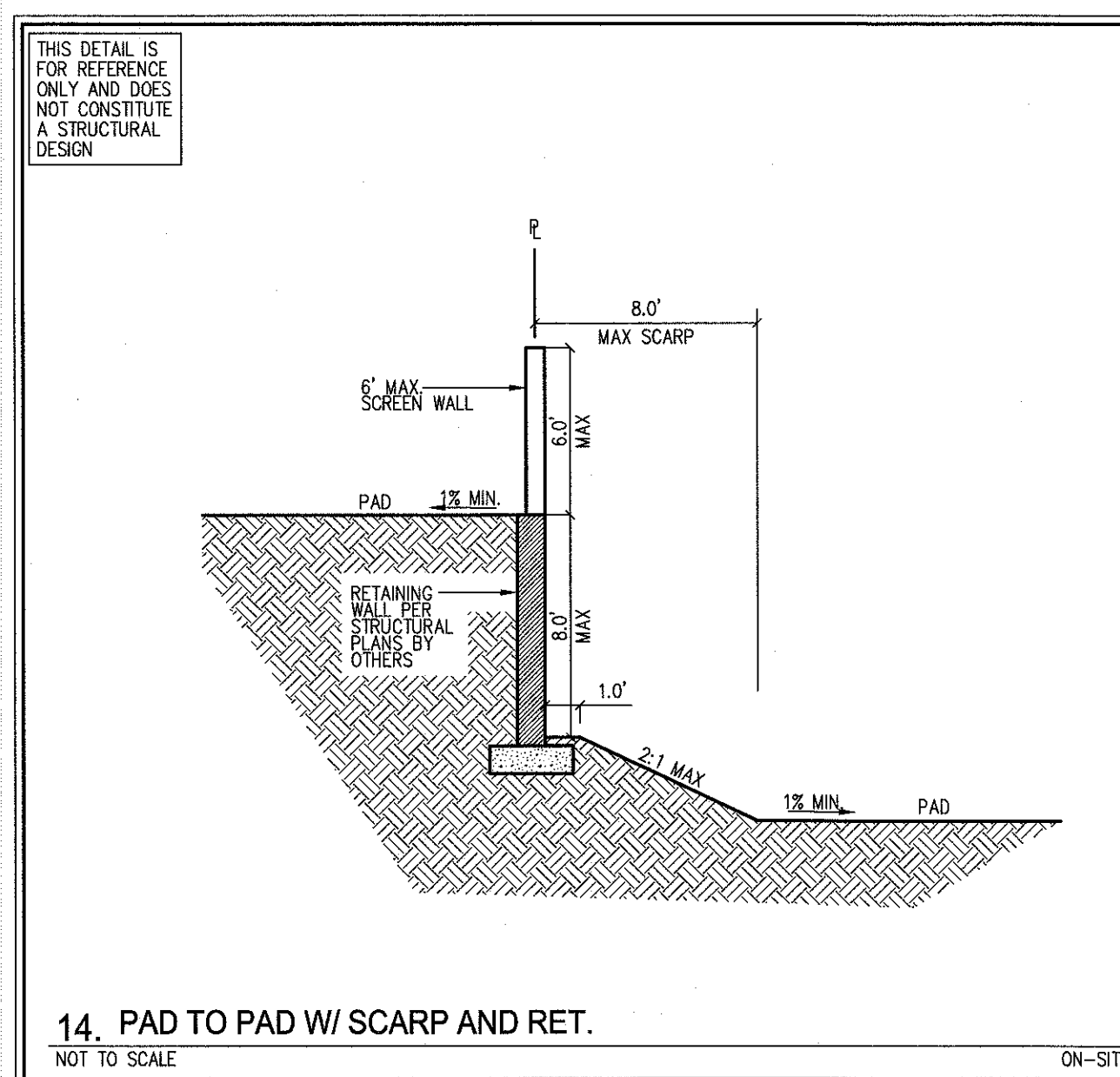
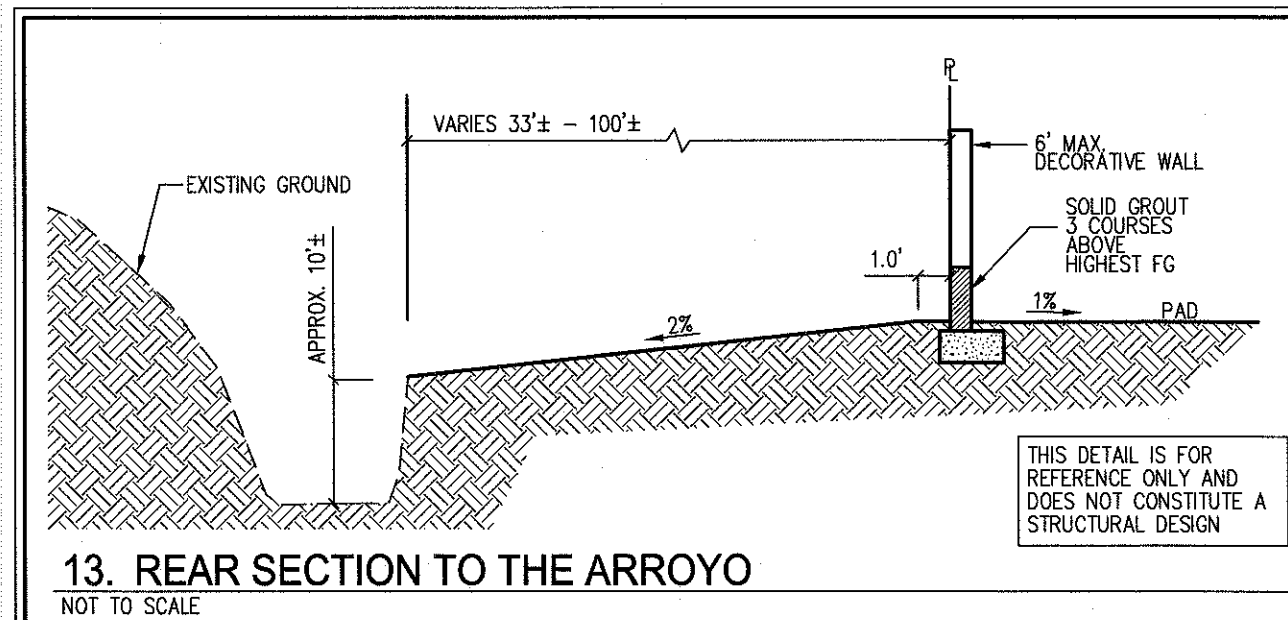
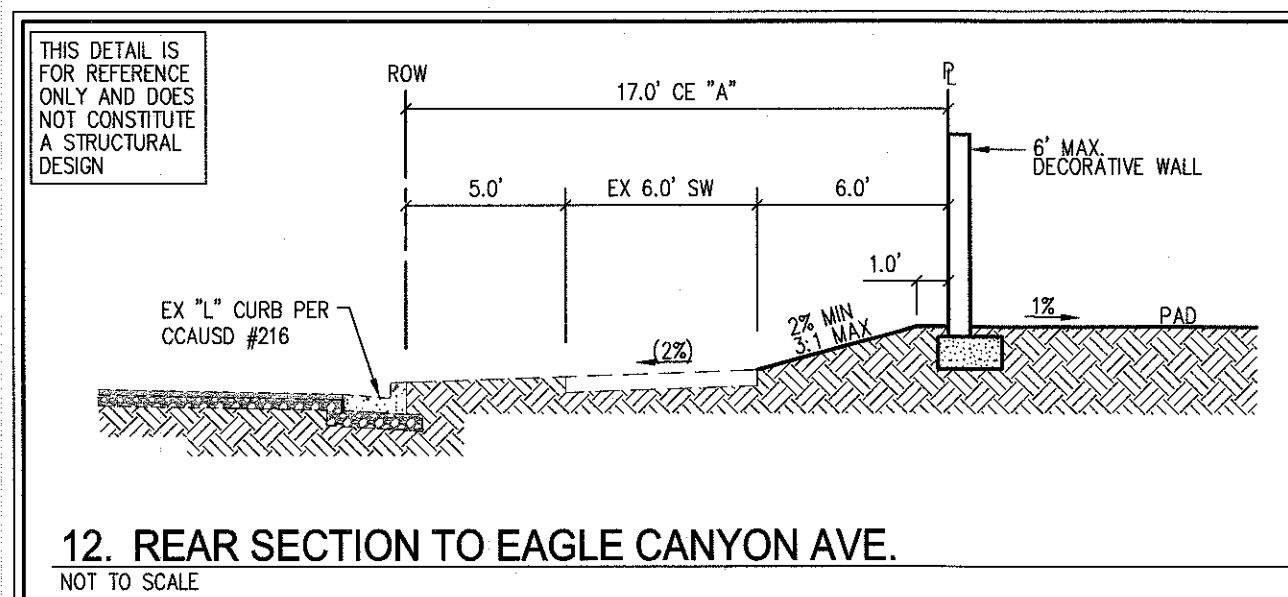
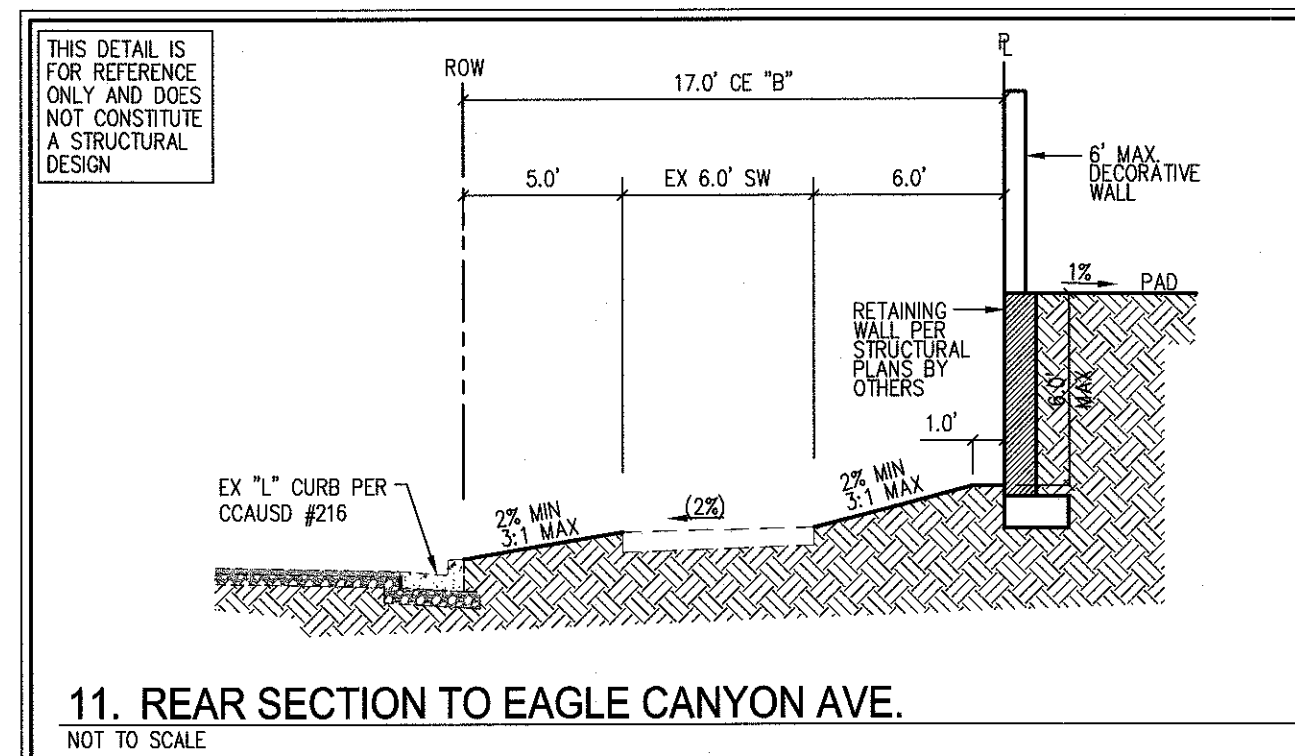
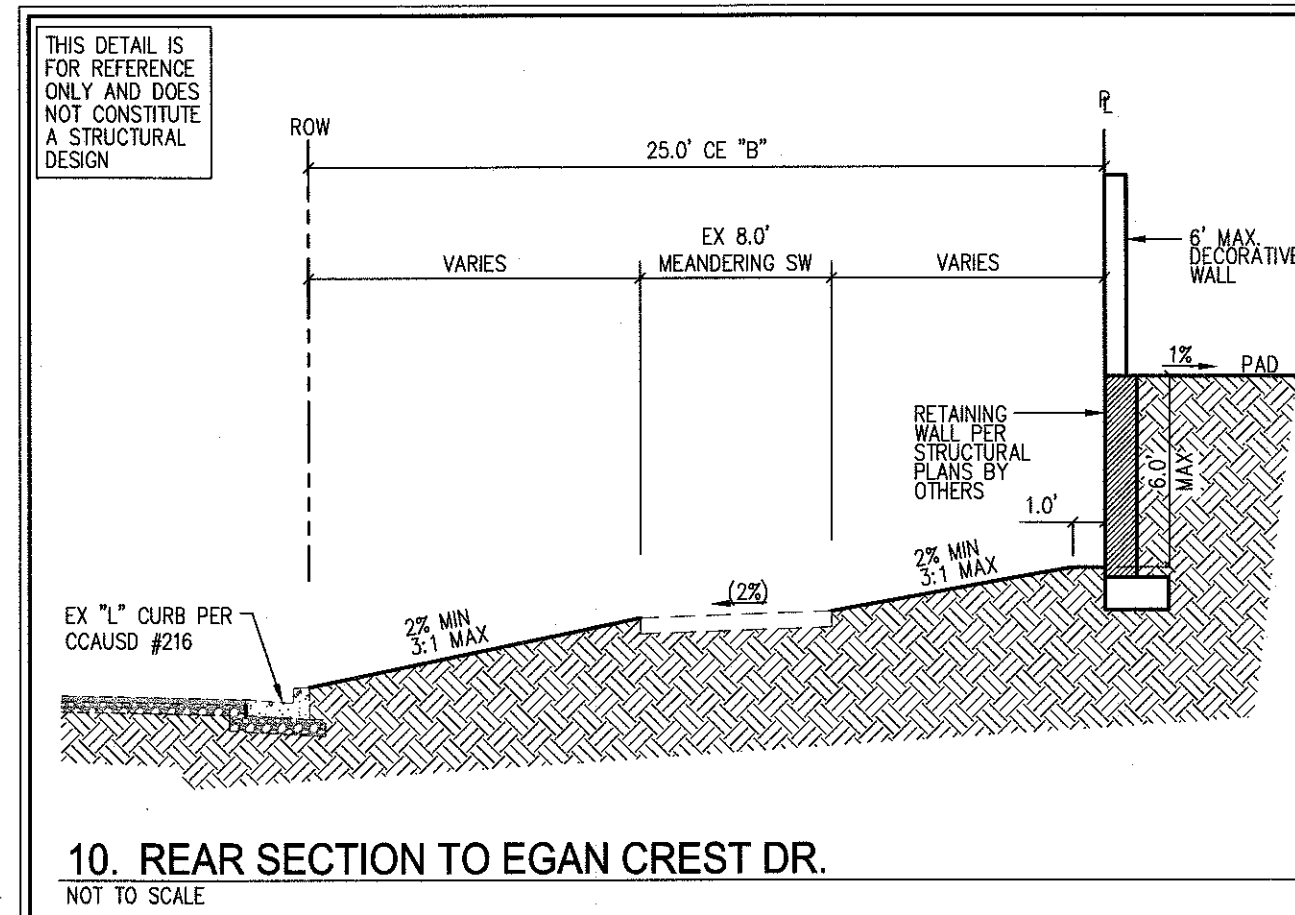
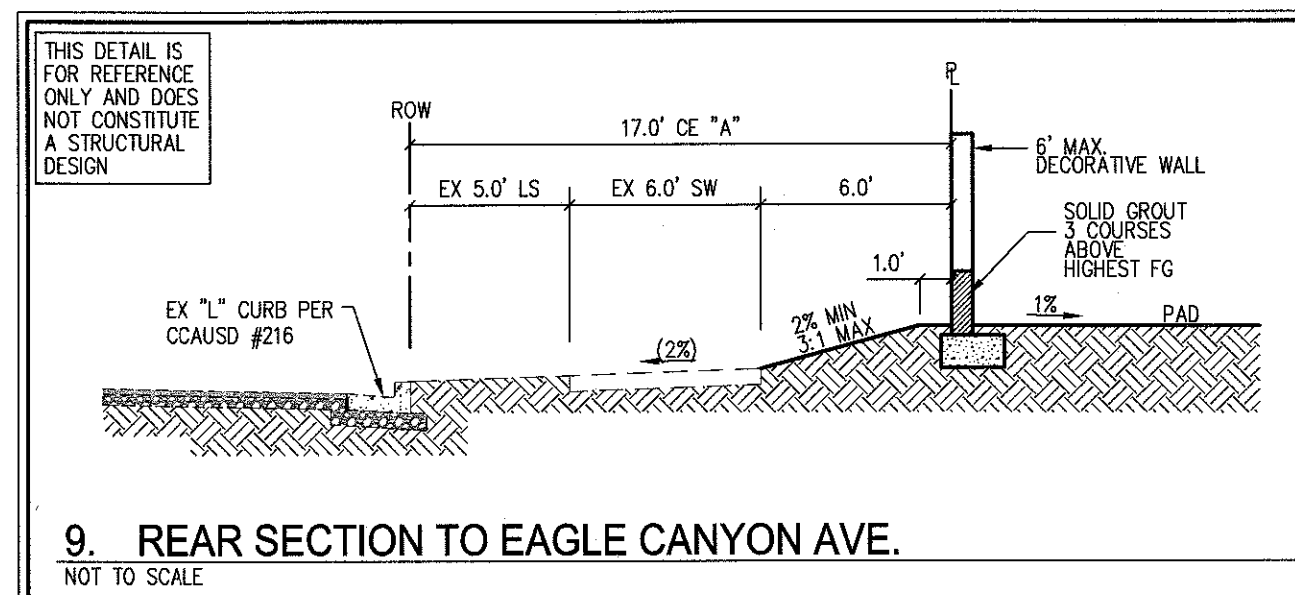
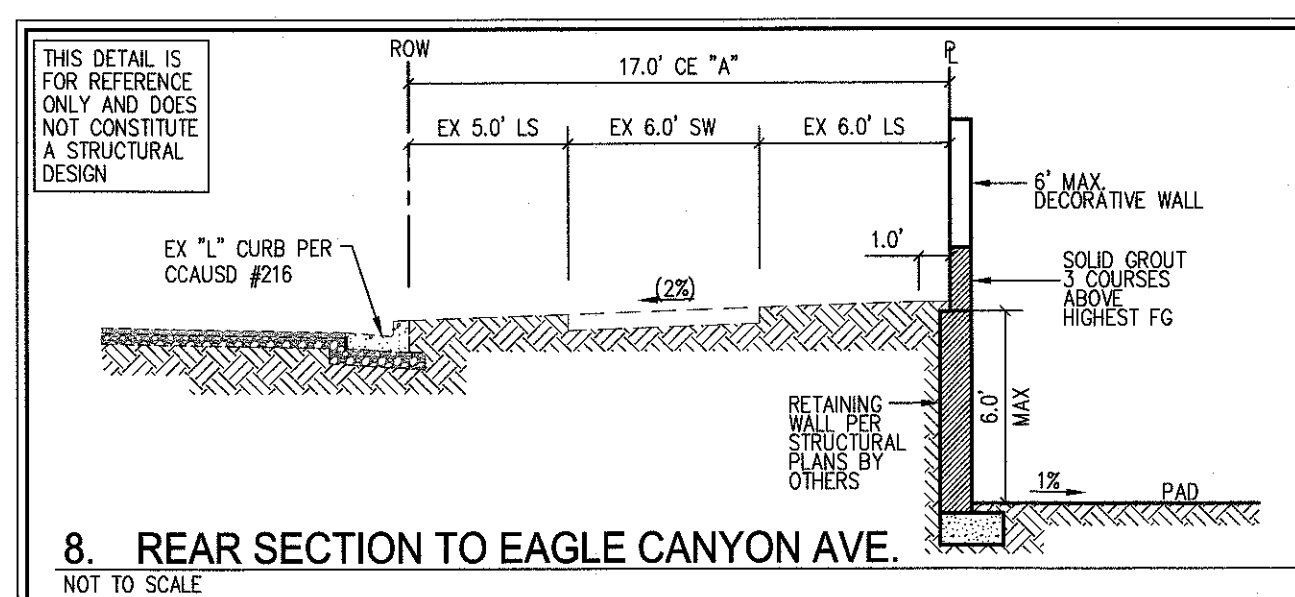
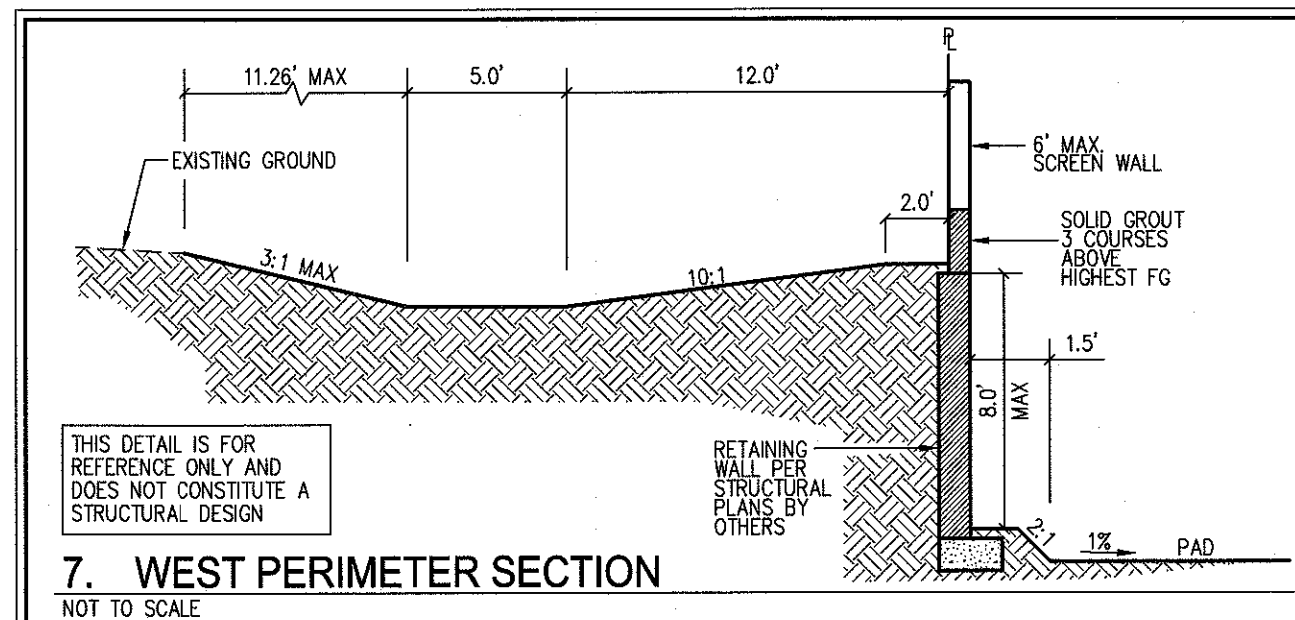
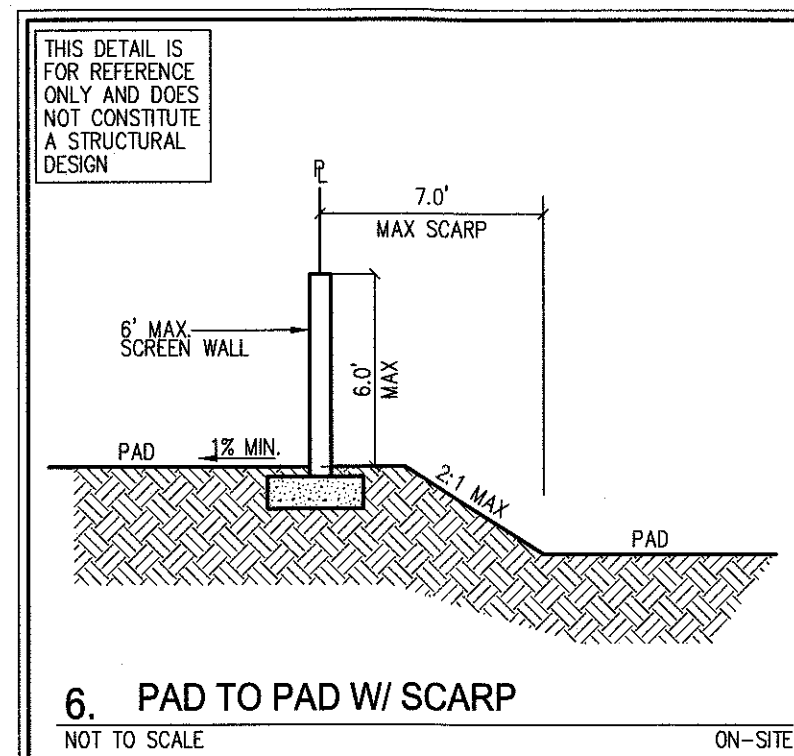
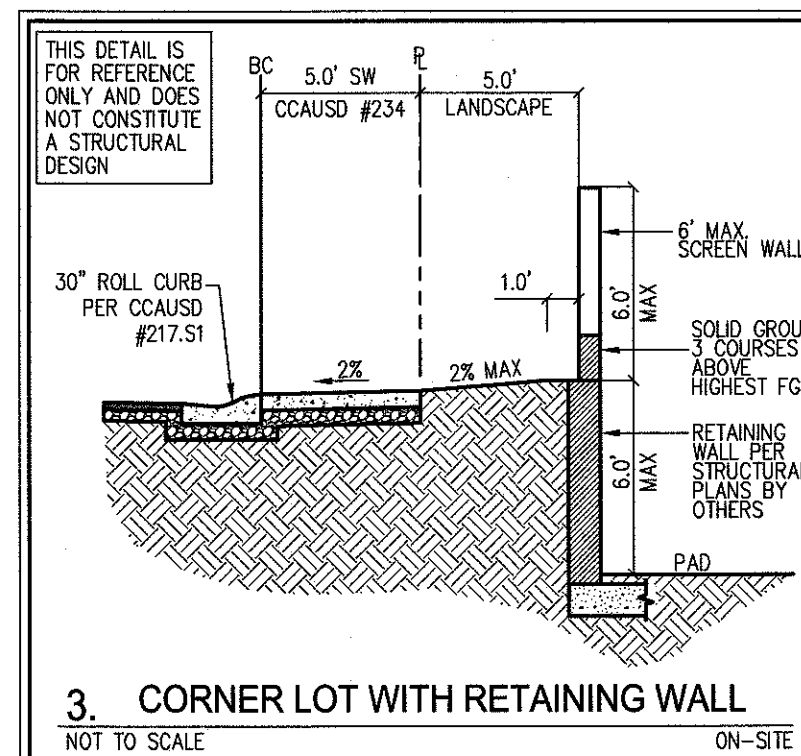
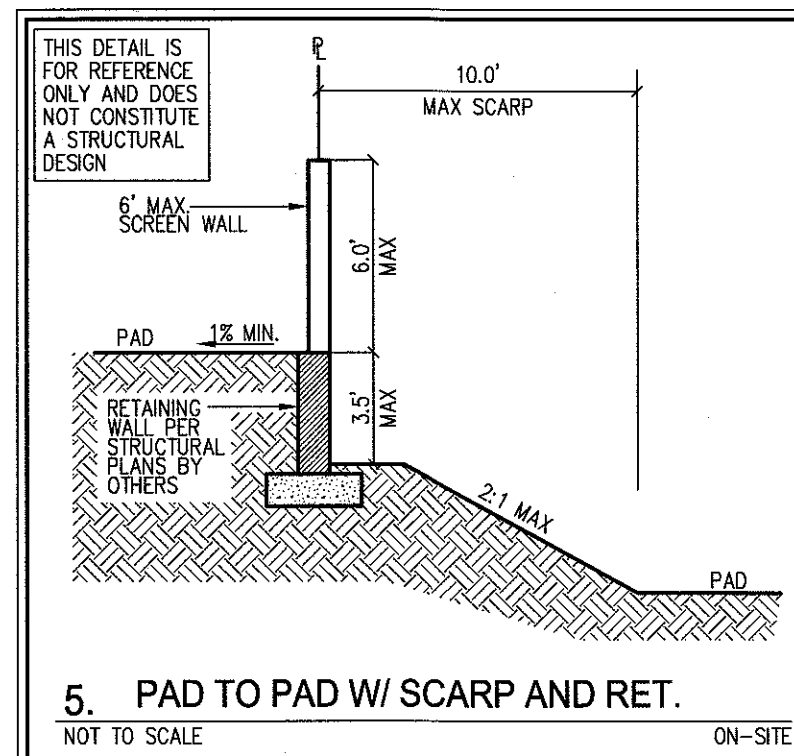
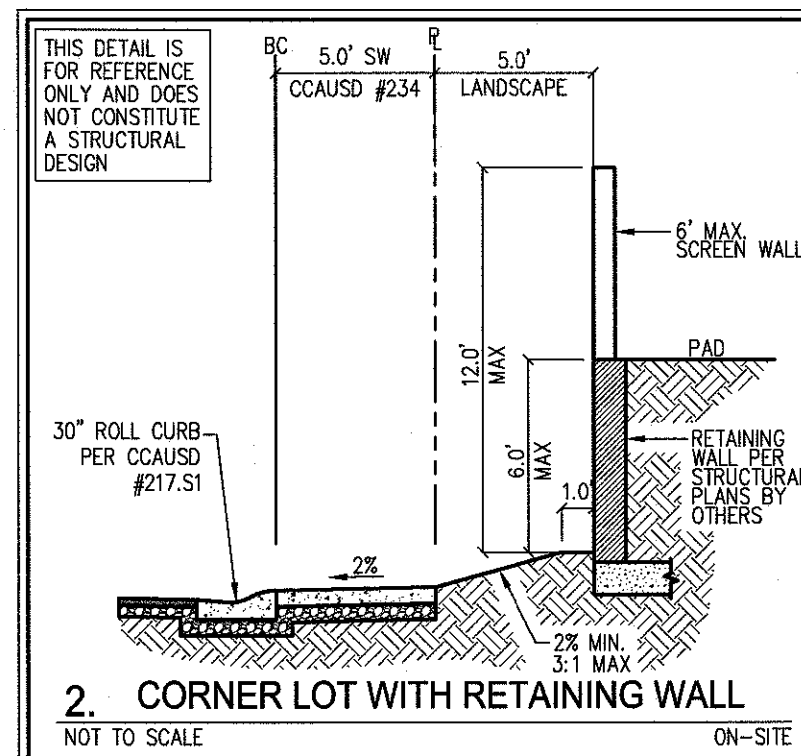
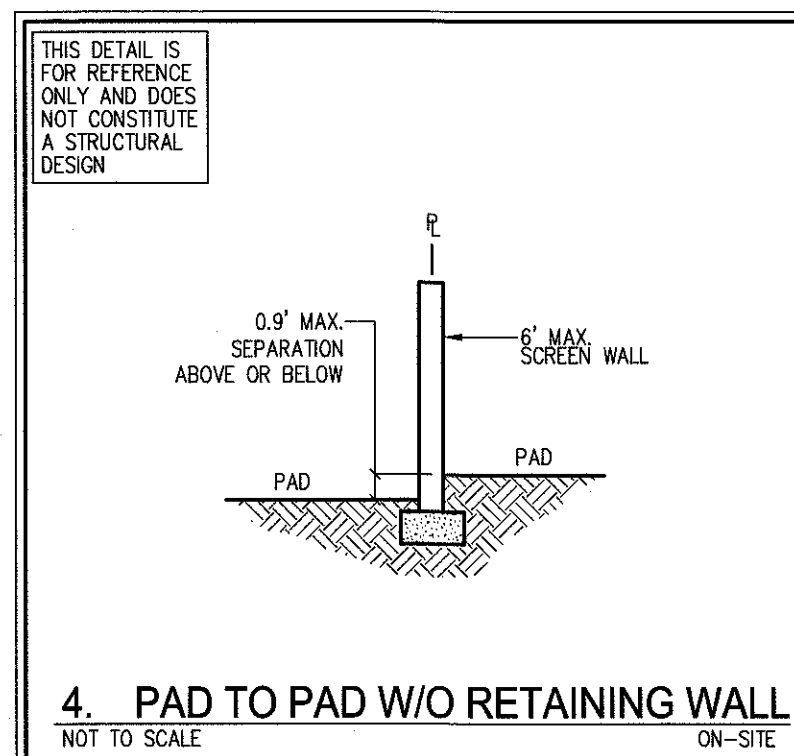
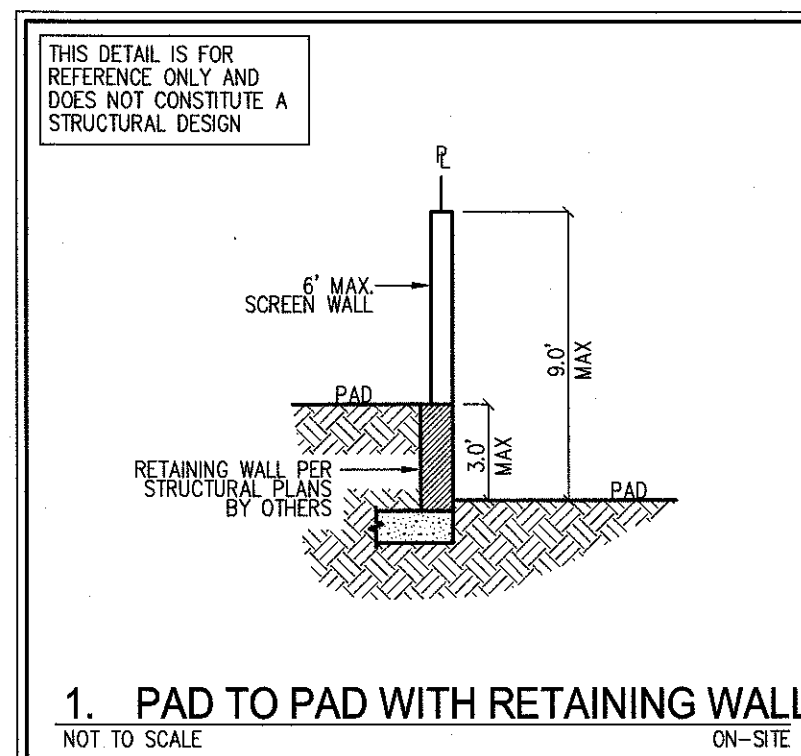
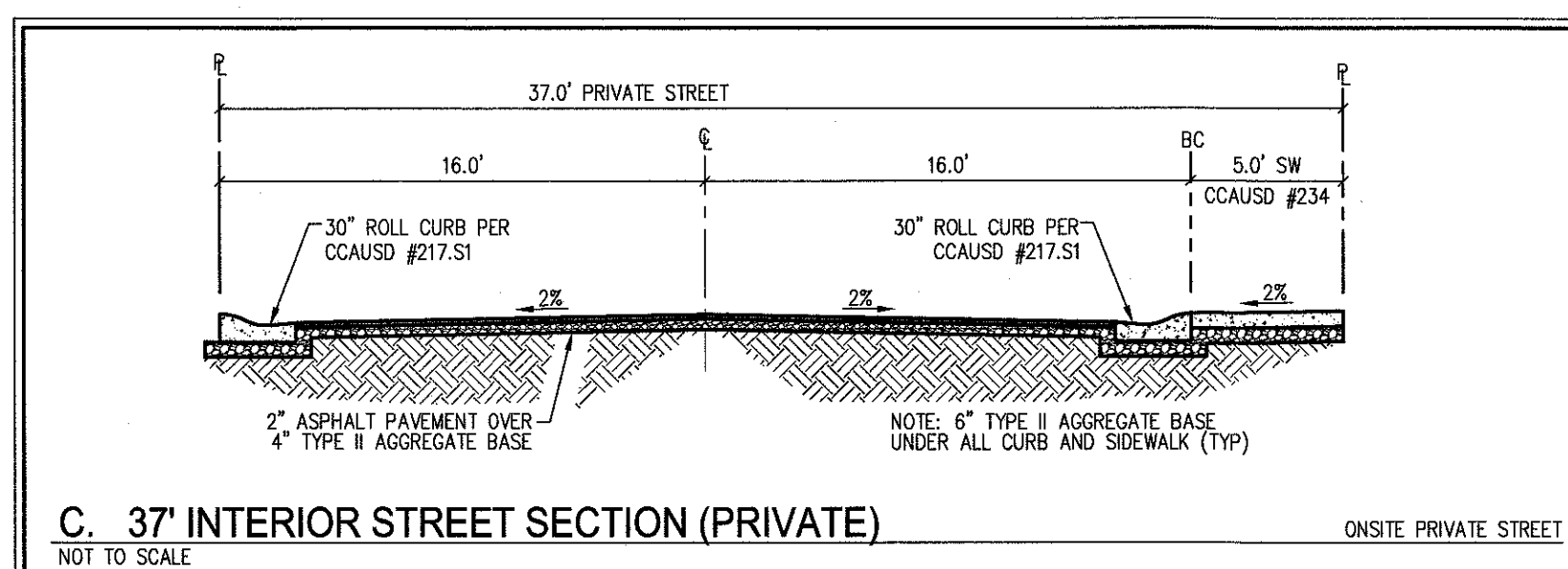
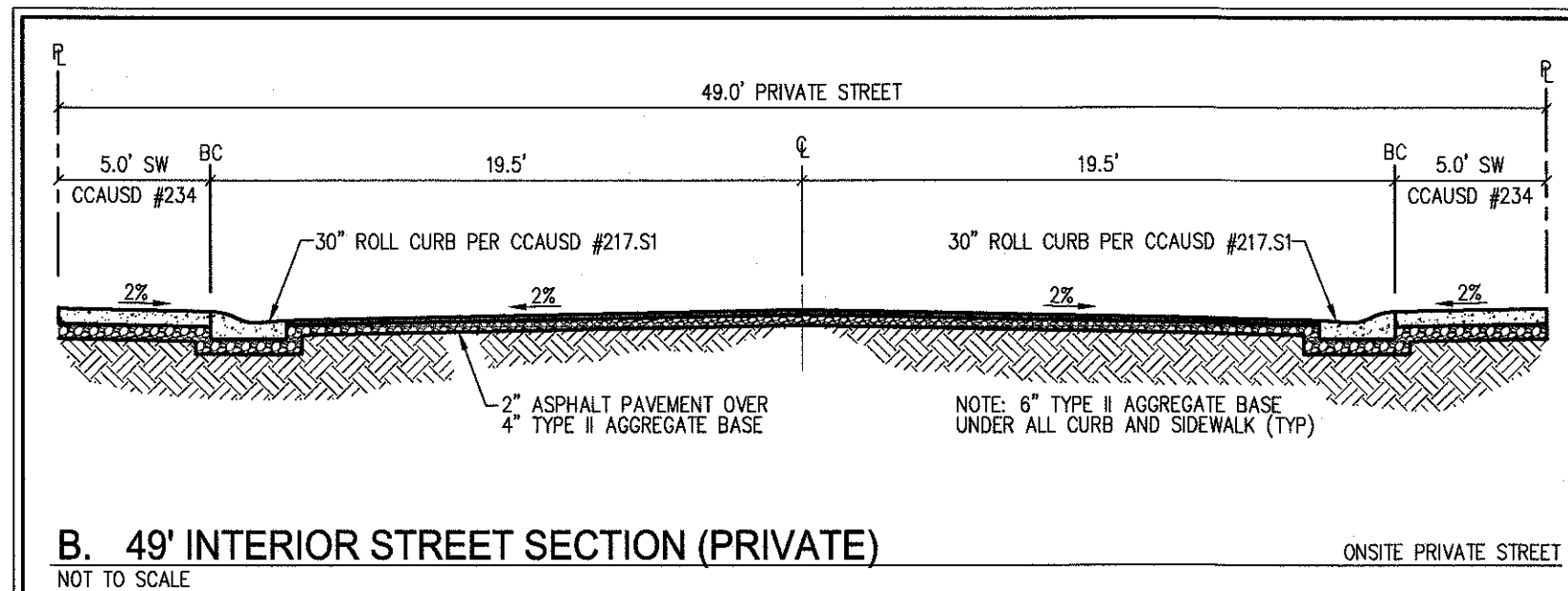
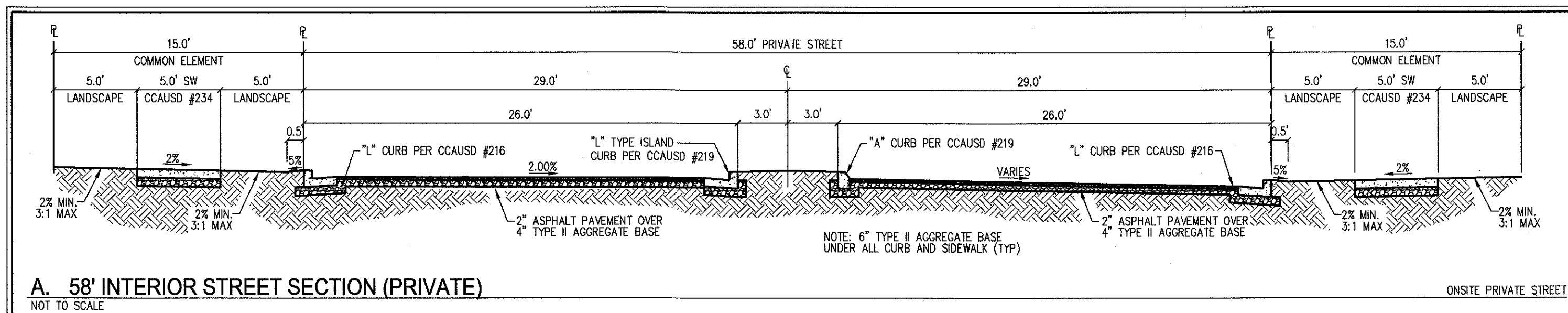
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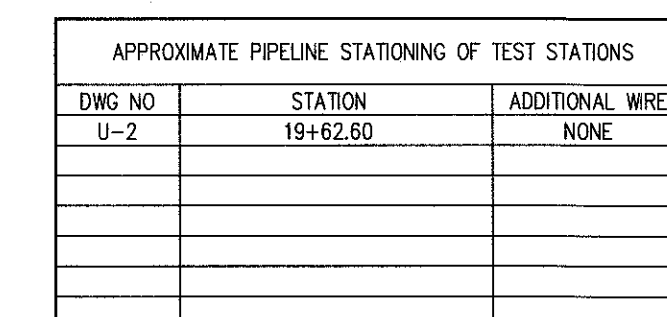
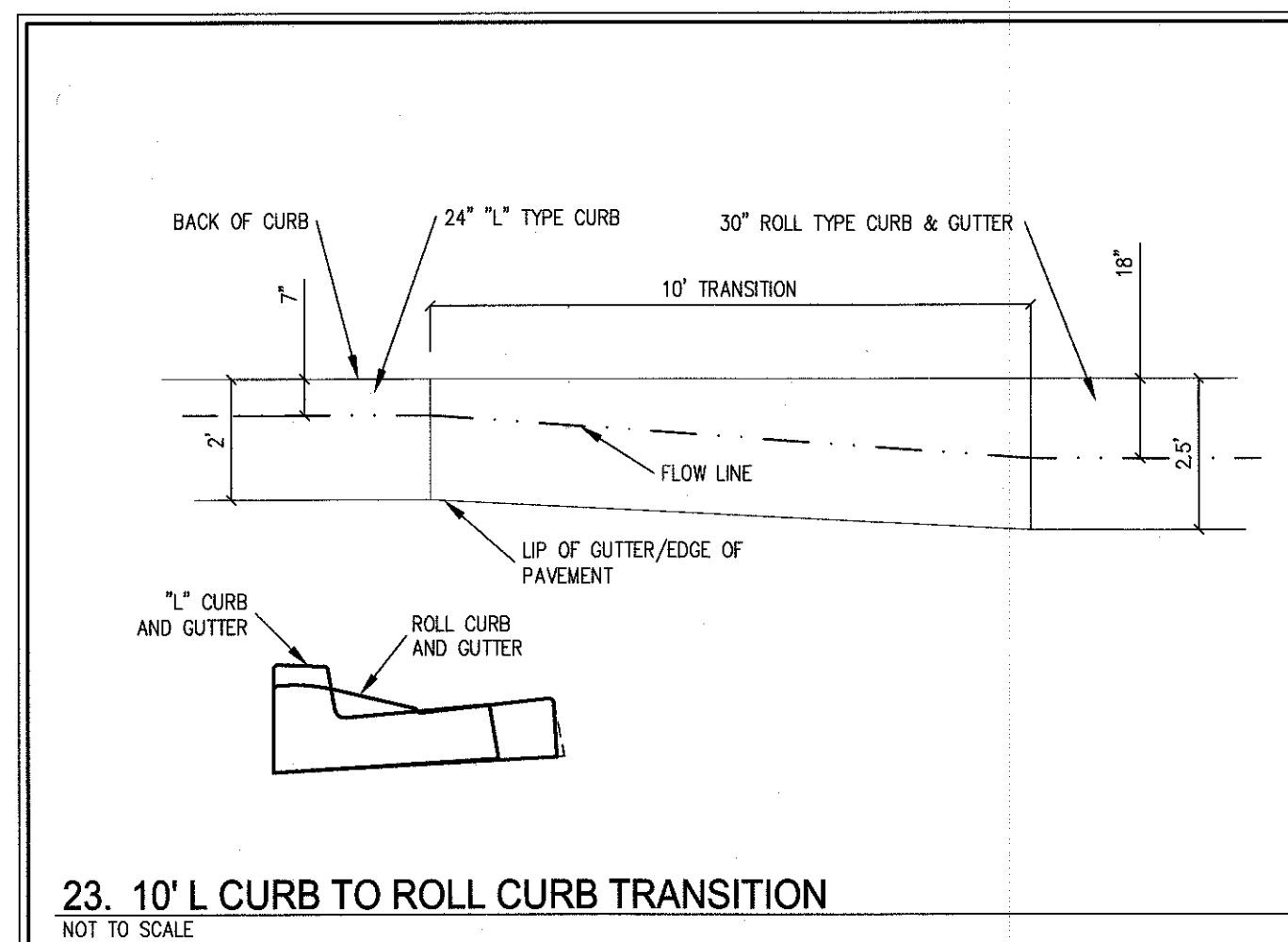
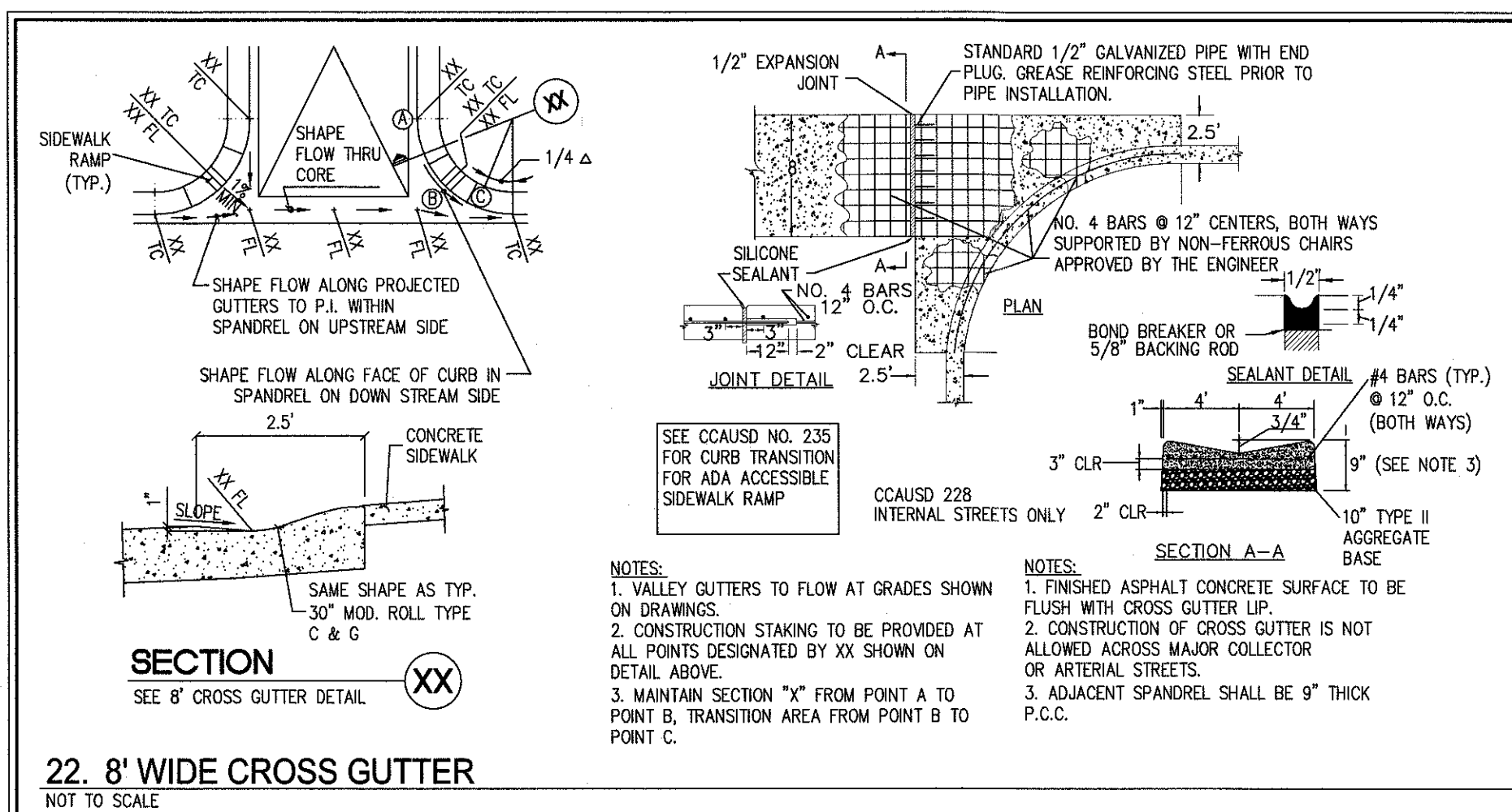
NINETY FIVE MANAGEMENT, LLC SKYE CANYON PARCEL 2.16 GRADING PLAN IV

DATE: 10/28/16
DRAFTER: HN
DESIGNER: HN
CHECKED: TMM
PROJECT NO.
OLY1607-002

TIMOTHY M. MULROONEY
Exp. 12/31/2017
CIVIL
Professional Engineer No. 22938 NV

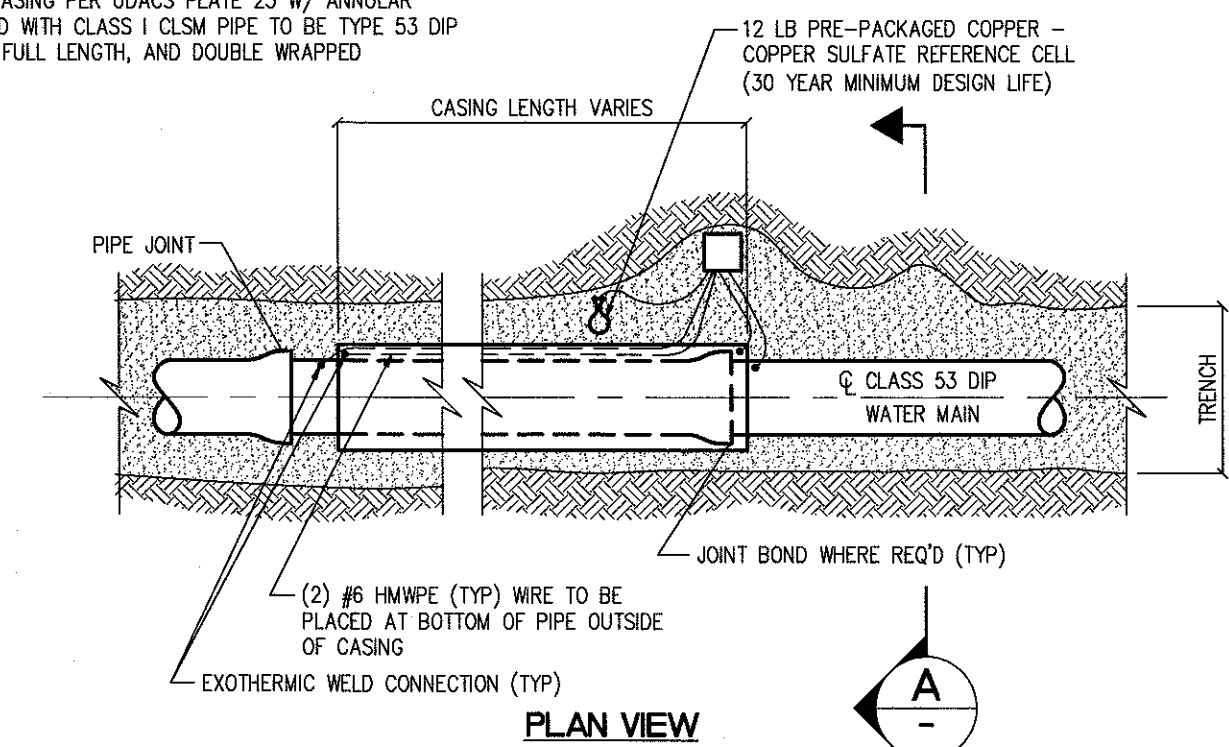
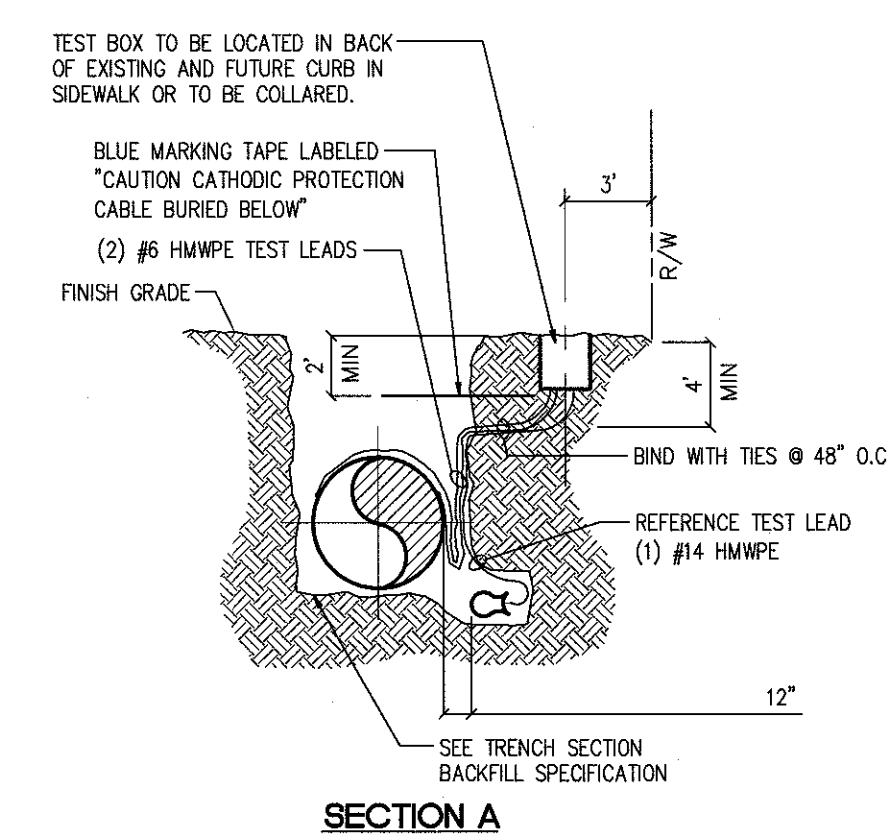
10/28/16





- NOTES:

1. USE ONLY NATIVE SOIL FREE OF ROCKS AND CLODS FOR BACKFILL AROUND CELLS WITH A MINIMUM OF 5 GALS OF WATER SATURATION DURING INSTALLATION. DO NOT USE SAND AS BACKFILL.
2. SUFFPLY ENOUGH WIRE FROM EACH LEAD TO REACH FULL R/W WIDTH PLUS FIVE (5) ADDITIONAL FEET. COIL WIRE IN BOTTOM OF BOX. (200' MAX)
BLACK WIRE - CASING
WHITE WIRE - DIP PIPELINE
3. TEST STATION PIPEMENTS TO BE PERPENDICULAR TO PIPE, AT INTERSECTIONS; TEST STATION WIRES TO BE PLACED PERPENDICULAR TO PIPE FOR PLACEMENT PERPENDICULAR TO PIPE AFTER ROAD EASEMENT RADII. PLACE IN SIDEWALK OR TO BE COLLARED.
4. STANDARD CASING PER UDCS PLATE 23 W/ ANNUAL SPACE FILLED WITH CLASS 40SM PIPE TO BE TYPE 83 DIP RESTRAINED FULL LENGTH, AND DOUBLE WRAPPED



EASEMENT/COMMON ELEMENT DETAIL
29. TYPE "T" TEST STATION WITHOUT ANODES
 NOT TO SCALE

