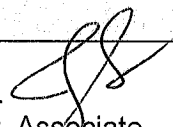


CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		March 23, 2020
TO: Land Development Services Department of Public Works		FROM: Jennifer Shinn, P.E.  Flood Control, Engr. Associate Department of Public Works
SUBJECT:	Drainage Study for:	COPIES TO:
SUNSTONE - Phase 1A Infrastructure		Slater Hanifan Group
Cross Streets:	Iron Mountain Road & Tee Pee Lane	Eastland Co., LLC
File Number:	F:\PW_Flood\DSMEMOS\DS5199B.docx	Bart Anderson, P.E., DevCo
Parcel Number:	125-06-501-001, 125-06-701-001, 125-07-501-005	
Zoning Action:	Eastland Development Agreement	
FEMA Flood Zone	YES NO X	
Proposed Storm Drain	YES X NO	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Transaction #
1 st Submittal	10/3/2019	11/27/2019	See Comments Below	\$400.00	3596425: \$400
2 nd Submittal	2/17/2020	3/18/2020		\$400.00	3744731: \$400
TOTAL FEES (LDDRS):				\$800.00	----

REMARKS: SUNSTONE – Phase 1A Infrastructure Improvements as well as the Master Study (DS5081) are predicated upon the completion of the ultimate condition offsite drainage facilities impacting the SUNSTONE development being in place prior to issuance of certificates of occupancy. Permits for development within Designated Builder Parcels shall not be issued if the associated Master Plan facilities are not under construction.

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

X	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.
	is conditionally approved subject to Nevada Department of Transportation concurrence.

The SUNSTONE – Phase 1A Infrastructure includes storm drain facilities that are sized based upon the design parameter of US-95 being a flow cut-off. **This Study assumes ultimate condition offsite drainage facilities impacting the SUNSTONE development will be in place prior to issuance of certificates of occupancy.** The ultimate condition infrastructure drainage facilities that are assumed to be in place include:

- The Moccasin Master Plan Regional Facility – Upper Las Vegas Wash to west of US-95. This includes the Interim Collection Facility west of US-95.
- Skye Canyon Detention Basin #2.
- Skye Canyon Phase 3A regional Facility – Skye Canyon Park Dr. to Iron Mountain Rd.
- The US-95 Local Facility – Brent Lane to Kyle Canyon Interchange. This connects into the existing MPU Facility along US-95.

The construction of these Ultimate Facilities will make the west side of US 95 a 100-yr cutoff through the reach south of the Moccasin Master Plan Regional Facility crossing, thereby meeting the full intent of the CCRFCD Master Plan.

Changes and timing of the corresponding infrastructure improvements that protect the SUNSTONE Development shall require Updating the Master Drainage Study Phasing.

1. The SUNSTONE - Phase 1A Infrastructure Improvements include the following roadways:
 - Iron Mountain Road – Skye Canyon Park Drive to Tee Pee Lane
 - Tee Pee Lane – Iron Mountain Road to Brent Lane
2. The Storm Drain System design includes lateral stubs at most Designated Builder Parcels that will convey the 100-year Ultimate flows from each parcel. Technical Drainage Studies are required for each of the Designated Builder Parcels and shall provide on-site collection for the 100-year facilities
3. Structural plans for the storm drain improvements including special junction structures and modified manholes and drop inlets must be submitted for review. Provide a soils report, structural calculations and specifications, two wet stamped structural sets, and a grading plan to the Building Department for processing. The engineer must provide a copy of Building Department approval of the structures to *Flood Control* prior to final acceptance of the drainage study.
4. Technical drainage studies are required for each of the Designated Builder Parcels. The technical drainage studies for the Designated Builder Parcels shall not be submitted until the conditional approval of the pertinent infrastructure drainage study is obtained. Final approval for the infrastructure drainage study shall be obtained prior to conditional approval of the impacted Builder Parcels drainage studies.
5. Building permits for the homes within the individual Designated Builder Parcels shall not be issued until construction of the street and flood control infrastructure around the Designated Builder Parcels is substantially complete or interim protection is provided per the approved technical drainage study.
6. The interim drainage channels and sumps adjacent to the infrastructure roadways are the Maintenance responsibility of the Master Developer.
7. Complete Construction Note 6 and provide Sheet S-1. Reference CCAUSD 421 for all drop inlets.
8. Revise the Quantities Table reflect 60" Type II Manholes as called out on the plans.
9. Add Limits of Construction stationing.
10. The project proposes to build temporary drainage facilities including drainage berms/swales over the *Phase 1A Infrastructure* site. Interim drainage facilities are normally shown on the Improvement Plans, bonded for construction, and bonded under a separate Maintenance Agreement. As an alternative to including interim drainage improvements that are privately maintained as a part of the *Phase 1A Infrastructure*, and prior to the final plan approval for each set of improvement plans that will be bonded separately, the Improvement Plans shall show concrete pads and rip-rap berms at the culvert stubs for interim flows, and the developer must complete a **Maintenance and Liability Agreement** and bond for 100% of the costs. The Maintenance Bond shall include exhibits showing the interim drainage improvements at each culvert and the associated costs to complete the improvements. This shall be in the form of a 50% cash bond and a 50% standard bond for Maintenance. The cash bond gives the City the ability to perform work and draw down funds as needed in the interim condition. The engineer must submit an estimate of the quantities for the construction of the facilities and an exhibit that adequately shows the location and limits of the drainage facilities 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.

A. Iron Mountain Road Improvement Plans:

PP-1: Reflect the interim grading for the sump at the upstream end of the storm drain system in Iron Mountain Road.

PP-3: Review and revise the invert in and out elevations at SDMH #3 on the profiles. Invert in should be at a higher elevation than the invert out in order to provide positive drainage of the manhole.

PP-3: Label the Q10 values on the profile.

PP-3: Review and revise the grading contours at the northwest corner of Iron Mountain and Skye Canyon Park to reflect the grades tying into the existing elevations.

B. Brent Lane Improvement Plans:

PP-7: It appears the limit of construction needs to be extended to Existing SDMH #2.

PP-7: Verify the existing SDMH #2 can accommodate the proposed 36" RCP connection.

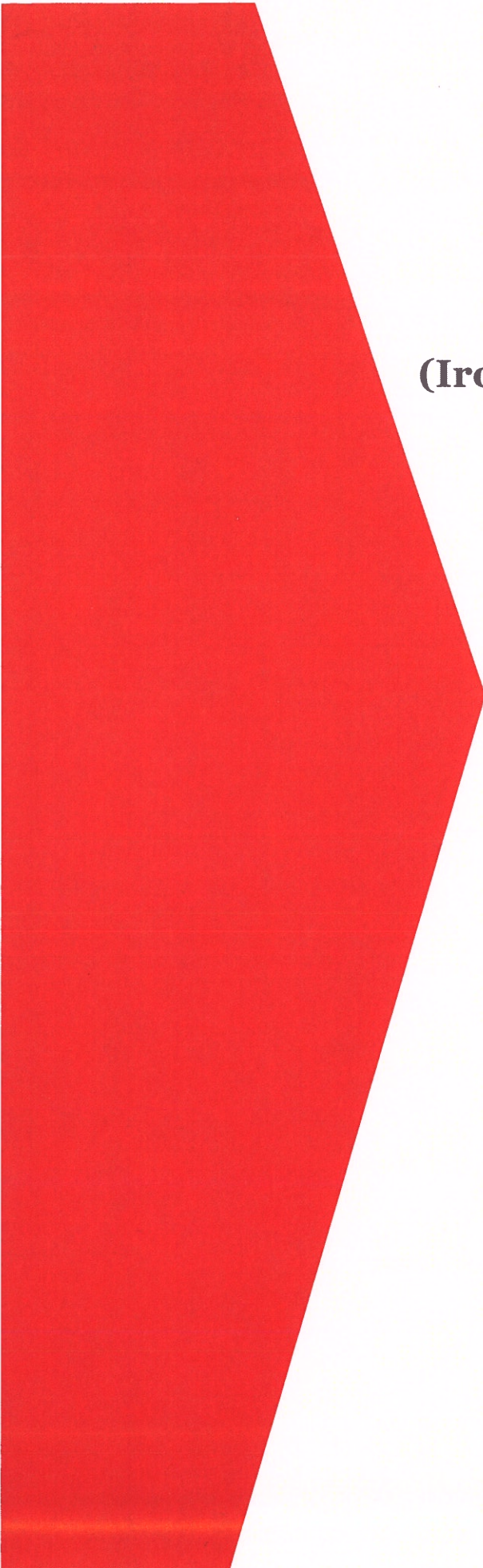
PP-7: Label the waterline shown in the Profile view for the Knuckle Back of Curb.

NOTE: Any future changes to the proposed design (or design assumptions) as outlined in the approved drainage study and attached preliminary grading plan which affect drainage must be addressed in a Drainage Study Update and accepted by the *City of Las Vegas Flood Control Section*. Additionally, conditional acceptance of a drainage study is valid for a period of one (1) year. If the proposed construction has not been completed in that time period, the *City of Las Vegas* reserves the right to require additional conditions and/or submission and acceptance of a complete drainage study update prior to further construction of a project.

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

END OF REMARKS
JKS/PBJ

T/R/S: T19S/R60E/6 & 7
AREA G-6 & 7



Westwood

TECHNICAL DRAINAGE STUDY ADDENDUM #1
Sunstone Phase 1A Infrastructure
(Iron Mountain Road & Tee Pee Lane)

City of Las Vegas, Nevada

February 2020

Prepared For:

Eastland Company, LLC

9275 Russell Road, Suite 400

Las Vegas, NV 89148

Phone: 702-736-9100 • Fax: 702-736-9200

TECHNICAL DRAINAGE STUDY ADDENDUM
**Sunstone Phase 1A Infrastructure
(Iron Mountain Rd and Tee Pee Ln)**

City of Las Vegas, Nevada

Job No.: EST1911.000

Date: February 2020

Prepared By:

Westwood Professional Services, Inc.
5740 S. Arville Street, Ste 216
Las Vegas, Nevada 89118
Phone: 702-281-5300 • Fax: 702-284-5399

Prepared For:

Eastland Company, LLC
9275 Russell Road, Suite 400
Las Vegas, NV 89148
Phone: 702-736-9100 • Fax: 702-736-9200



Lant Leavitt, P.E.
NV Professional Engineer No. 18287

Assisted by Caitlyn Alcantara, E.I.

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL
DRAINAGE STUDY INFORMATION FORM

Name of Development: Sunstone Phase 1a Infrastructure - Iron Mountain Road and Tee Pee Lane Date: 2/13/2020
 Location of Development: a) Descriptive (Cross Streets): North/South: Tee Pee Lane
East/West: Iron Mountain Road
 b) Section: 6 & 7 Township: 19 S. Range: 60 E.
 c) APN: 125-06-501-001, 125-06-701-001 & 125-07-501-005

Name of Owner: Eastland Company, LLC
 Telephone No.: (702) 736-9100 Fax No.: (702) 736-9200 E-mail Address: Efrain.Balisan@Lennar.com
 Address: 9275 W. Russell Road, Suite 400 Las Vegas, NV 89148

Contact Person – Name: Lant Leavitt Telephone No.: (702) 284-5300
 *E-mail Address: Lant.Leavitt@westwoodps.com Fax No.: (702) 284-5399
 Firm: Slater Hanifan Group
 Address: 5740 S. Arville #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	

- Total Owned Land Area: At Site: approx 600 acres Being Developed/Disturbed: approx 10 acres
- Is a portion or all of the subject property located in a FEMA Flood Hazard Area? ☐ Yes** ☒ No
- Is the property bordered or crossed by an existing or proposed Clark County Regional Flood Control District Master Planned Facility? ☒ Yes** ☐ No
- Proposed type of development (Residential, Commercial, Etc.): Master planned community infrastructure improvements
- Approximate upstream land area which drains to the subject site: approximately 7.8 square miles
- Has the site drainage been evaluated in the past? ☒ Yes** ☐ No If yes, please identify documentation: Skye Canyon Master Drainage Study Update #5 (Sunstone MDS), CLV# DS5081

7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Moccasin Regional Storm Drain Facility,
Iron Mountain Road, Brent Lane

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



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:

STANDARD FORM 1

Updated 05/01/2008

EST1911.000

February 13, 2020

Jennifer Shinn, P.E.
Flood Control, Engr. Associate
City of Las Vegas Department of Public Works
333 N. Rancho Drive
Las Vegas, Nevada 89106

**Subject: Addendum to the Technical Drainage Study for SUNSTONE – Phase 1A Infrastructure
(CLV DS5199)**

Dear Ms. Shinn,

This letter is submitted in response to the comments contained in the December 11, 2019 review memorandum, regarding the above referenced project. A copy of the City of Las Vegas (CLV) comment letter has been provided in Appendix A.

The comments in the review memorandum have been individually addressed as follows:

1. **Comment:** The SUNSTONE - Phase 1A Infrastructure Improvements include the following roadways:
 - Iron Mountain Road – Skye Canyon Park Drive to Tee Pee Lane
 - Tee Pee Lane – Iron Mountain Road to Brent Lane

Response: Comment acknowledged.

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

Please note that effective March 15, 2019, the CCRFCDD adopted new requirements for drainage study concurrence submittal. Follow the link below for specific guidance.

<http://gustfront.ccrfcd.org/LandDev/LandDev.aspx>

When it's applicable, structural calculations of facilities must be approved by the City prior to submittal to the Clark County Regional Flood Control District for their review and concurrence.

Response: The infrastructure roadways associated with this study (Iron Mountain - Tee Pee to Skye Canyon Park Drive and Tee Pee – Iron Mountain to Brent Lane) are not crossing or adjacent to any CCRFCDD master planned facilities, as currently shown on the 2018 CCRFCDD MPU facilities map. Other portions of the Sunstone site do cross, or are adjacent to, CCRFCDD facilities. CCRFCDD concurrence will be obtained for the studies addressing those portions of the site.

3. **Comment:** The Storm Drain System design includes lateral stubs at most Designated Builder Parcels that will convey the 100-year Ultimate flows from each parcel. Technical Drainage Studies are required for each of the Designated Builder Parcels and shall provide on-site collection for the 100-year facilities.

Response: Comment noted.

4. **Comment:** Structural plans for the storm drain improvements including special junction structures and modified manholes and drop inlets must be submitted for review. Provide a soils report, structural calculations and specifications, two wet stamped structural sets, and a grading plan to the Building Department for processing. The engineer must provide a copy of Building Department approval of the structures to Flood Control prior to final acceptance of the drainage study.

Response: Structural approval will be obtained after conditional approval of TDS and provided to CLV Flood Control.

5. **Comment:** The engineer must provide a table on the Grading Plans that show a quantity estimate of all drainage improvements within Public Drainage Easements and Public Right-of-Way. All drainage improvements within Public Drainage Easements and Right-of-Way must be bonded and inspected.

Response: Quantity estimate table provided on grading plans.

6. **Comment:** Due to the more detailed hydraulic analysis prepared with this study, it was determined that storm drain facilities previously proposed in the Master Drainage Study are no longer needed. Provide an update to the Master Drainage Study. Final approval of the Master Drainage Study shall be obtained prior to final approval of the subject infrastructure drainage study.

Response: An update to the Master Drainage Study will be provided after conditional approval of TDS.

7. **Comment:** Technical drainage studies are required for each of the Designated Builder Parcels. The technical drainage studies for the Designated Builder Parcels shall not be submitted until the conditional approval of the pertinent infrastructure drainage study is obtained. Final approval for the infrastructure drainage study shall be obtained prior to conditional approval of the impacted Builder Parcels drainage studies.

Response: Comment noted.

8. **Comment:** Building permits for the homes within the individual Designated Builder Parcels shall not be issued until construction of the street and flood control infrastructure around the Designated Builder Parcels is substantially complete or interim protection is provided per the approved technical drainage study.

Response: Comment noted.

9. **Comment:** The interim drainage channels and sumps adjacent to the infrastructure roadways are the Maintenance responsibility of the Master Developer.

Response: Comment acknowledged.

10. **Comment:** Label the existing storm drain facilities with the CLV Drawing Numbers.

Response: Existing storm drain facilities have been labeled with CLV drawing numbers.

11. **Comment:** The HGL at 3 locations does not meet criteria and is less than 18" from FG: Iron Mountain at Ex SDMH #2 and at SDDI #1, and downstream of Ex SDMH #2 in Brent Lane. Address with the next submittal.

Response: The lateral at Ex SDMH #2 is now proposed to be removed and relocated approximately 80-ft to the east. The existing storm drain at the new location is steeper and the depth is greater. This allows for the HGL to meet the 18-in requirement.

The HGL at SDDI #1 is also lowered to meet criteria. Previously this drop inlet was modeled with wall entrance and wall exit losses due to the larger width of the drop inlet compared to the incoming and outgoing storm drain pipes. After consulting with a structural engineer this drop inlet is proposed to be structurally designed to maintain a circular section through the bottom of the drop inlet with the same radius as the upstream/downstream storm drain. This will mitigate the amount of entrance/exit losses, and allow the drop inlet to function more like a through manhole. Based on this change, the WSPG model has been revised and the revised HGL meets the 18-in requirement.

The existing downstream storm drain in Brent Lane was previously modeled with an over-conservative downstream starting HGL assumption. The downstream system has been modeled in more detail based on design plans from Skye Canyon Detention Basin 1, see Appendix C. Although Skye Canyon Detention Basin 1 is roughly 2 miles to the west, storm drain was installed in Brent Lane with that project to minimize impacts to the local neighborhood due to long term discharge from the basin. Based on more detailed hydraulic analysis of this existing storm drain, the HGL now meets the 18-in requirement.

12. **Comment:** The Q10 flow shown on the SD profile for Brent Lane does not match the WSPG model and summary. Revise accordingly.

Response: The Q10 flow has been revised on the plans to match the hydraulic model.

13. **Comment:** There is a lateral that enters flows at Ex SDMH #2 in Brent Lane that is not reflected in the Brent Lane WSPG model. Revise the model to include the lateral flow to demonstrate the impact it has on the upstream system.

Response: The lateral at Ex SDMH #2 in Brent Lane conveys discharge from the adjacent sediment basin. The controlling hydraulic model for this system is the ultimate condition. In the ultimate condition this sediment basin is no longer needed and will be filled in, therefore no additional flow is added into the lateral at Ex SDMH #2.

14. **Comment:** It appears that a portion the existing storm drain in Iron Mountain Road is now on private property. Revise the plans to revise the property line such that the storm drain is fully within public right-of-way with the appropriate clear distance from the right-of-way limit to the storm drain pipe.

Or provide a "Public Drainage Easement to be Privately Maintained" and show the easement on the grading plan. The limits of the public drainage easement shall provide the appropriate clear distance from the easement limit to the storm drain pipe. Public drainage easements must be recorded by separate document prior to the final acceptance of the improvement plans unless they are to be recorded by parcel or final map.

Response: Public drainage easements are added to the plans for storm drain proposed outside public right-of-way.

15. **Comment:** Label Document Number or Book and Page Number for all existing easements including BLM grants on the plans.

Response: Existing easement/BLM grant information has been added to plans for Brent Lane area. Proposed storm drain improvements in Iron Mountain are not impacted by any existing easements/grants.

16. **Comment:** Provide Public Drainage Easements for storm drain stubs extending through the common lots including the interim drainage sump. Label the easement dimensions on the plans.

Response: Public drainage easements are provided for storm drain stubs extending outside public right-of-way. Easement dimensions are labeled on the plans.

17. **Comment:** Provide a legal description of the proposed drainage facilities located outside of dedicated public right-of-way prior to recordation of the parent final map.

Response: This will be provided prior to recordation of the parent final map.

18. **Comment:** The project proposes to build temporary drainage facilities including drainage berms/swales over the Phase 1A Infrastructure site. Interim drainage facilities are normally shown on the Improvement Plans, bonded for construction, and bonded under a separate Maintenance Agreement. As an alternative to including interim drainage improvements that are privately maintained as a part of the Phase 1A Infrastructure, and prior to the final plan approval for each set of improvement plans that will be bonded separately, the Improvement Plans shall show concrete pads and rip-rap berms at the culvert stubs for interim flows, and the developer must complete a Maintenance and Liability Agreement and bond for 100% of the costs. The Maintenance Bond shall include exhibits showing the interim drainage improvements at each culvert and the associated costs to complete the improvements. This shall be in the form of a 50% cash bond and a 50% standard bond for Maintenance. The cash bond gives the City the ability to perform work and draw down funds as needed in the interim condition. The engineer must submit an estimate of the quantities for the construction of the facilities and an exhibit that adequately shows the location and limits of the drainage facilities 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.

Response: Acknowledged.

A. Iron Mountain Road Improvement Plans:

General: Identify and label all utility crossings on Profile Sheets.
Provide Construction Note callouts on the Plans.

PP-1: Iron Mountain and Tee Pee is shown as a knuckle intersection with a median island. Remove the valley gutter and spandrel and drain the knuckle toward Iron Mountain.

Response: Utility crossings are identified and labeled on profile sheets. Construction note callouts are provided on the plans. Valley gutter and spandrel at Iron Mountain/Tee Pee has been removed from plans and the knuckle drained toward Iron Mountain.

B. Tee Pee Lane Improvement Plans:

General: Provide match lines on the Plan and Profile Sheets.
Provide Construction Note callouts on the Plans.

PP-4: Tee Pee and Brent is shown as a knuckle intersection. Remove the valley gutter and spandrel and drain the knuckle toward Brent Lane.

Response: Match lines are provided on the plan and profile sheets. Construction note callouts are provided on the plans. The valley gutter and spandrel at Tee Pee/Brent has been removed and the knuckle drained toward Brent Lane.

The above responses and revisions provided on the plans are provided to address the subject memorandum review comments. The revised plan, profile, and detail sheets adopting the revisions addressed in this letter are attached. If you have any questions or require additional information, please do not hesitate to contact our office at (702) 284-5300.

Respectfully Submitted,
WESTWOOD PROFESSIONAL SERVICES

A handwritten signature in black ink, appearing to read 'Lant Leavitt', with a stylized, cursive script.

Lant Leavitt, P.E.

cc: Mark Failla, P.E., CFM

APPENDIX

Appendix A – City of Las Vegas Comment Letter

Appendix B – WSPGW Hydraulic Models:

- Iron Mountain Road
- Brent Lane

Appendix C – Reference Material:

- Skye Canyon Detention Basin 1 (downstream facilities)

Appendix D – CD of Electronic Files (PDF)

APPENDIX A

City of Las Vegas Comment Letter

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM			DATE: December 11, 2019
TO: Land Development Services Department of Public Works			FROM: Jennifer Shinn, P.E. Flood Control, Engr. Associate Department of Public Works
SUBJECT:	Drainage Study for:		COPIES TO:
SUNSTONE - Phase 1A Infrastructure			Slater Hanifan Group
Cross Streets:	Iron Mountain Road & Tee Pee Lane		Eastland Co., LLC
File Number:	F:\PW_Flood\DSMEMOS\DS5199A.docx		Bart Anderson, P.E., DevCo
Parcel Number:	125-06-501-001, 125-06-701-001, 125-07-501-005		CCRCD
Zoning Action:	Eastland Development Agreement		CCPW
FEMA Flood Zone	YES	NO X	NV Energy
Proposed Storm Drain	YES X	NO	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Transaction #
1 st Submittal	10/3/2019	11/27/2019	See Comments Below	\$400.00	3596425: \$400
TOTAL FEES (LDDRS):				\$400.00	----

REMARKS: SUNSTONE – Phase 1A Infrastructure Improvements as well as the Master Study (DS5081) are predicated upon the completion of the ultimate condition offsite drainage facilities impacting the SUNSTONE development being in place prior to issuance of certificates of occupancy. Permits for development within Designated Builder Parcels shall not be issued if the associated Master Plan facilities are not under construction.

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

	is approved subject to conformance to all City standards and the following conditions:
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	is conditionally approved subject to Nevada Department of Transportation concurrence.

The SUNSTONE – Phase 1A Infrastructure includes storm drain facilities that are sized based upon the design parameter of US-95 being a flow cut-off. **This Study assumes ultimate condition offsite drainage facilities impacting the SUNSTONE development will be in place prior to issuance of certificates of occupancy.** The ultimate condition infrastructure drainage facilities that are assumed to be in place include:

- The Moccasin Master Plan Regional Facility – Upper Las Vegas Wash to west of US-95. This includes the Interim Collection Facility west of US-95.
- Skye Canyon Detention Basin #2.
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The construction of these Ultimate Facilities will make the west side of US 95 a 100-yr cutoff through the reach south of the Moccasin Master Plan Regional Facility crossing, thereby meeting the full intent of the CCRFCD Master Plan.

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2. 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.

Please note that effective March 15, 2019, the CCRFCD adopted new requirements for drainage study concurrence submittal. Follow the link below for specific guidance.

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When it's applicable, structural calculations of facilities must be approved by the City prior to submittal to the Clark County Regional Flood Control District for their review and concurrence.

3. The Storm Drain System design includes lateral stubs at most Designated Builder Parcels that will convey the 100-year Ultimate flows from each parcel. Technical Drainage Studies are required for each of the Designated Builder Parcels and shall provide on-site collection for the 100-year facilities
4. Structural plans for the storm drain improvements including special junction structures and modified manholes and drop inlets must be submitted for review. Provide a soils report, structural calculations and specifications, two wet stamped structural sets, and a grading plan to the Building Department for processing. The engineer must provide a copy of Building Department approval of the structures to *Flood Control* prior to final acceptance of the drainage study.
5. The engineer must provide a table on the Grading Plans that show a quantity estimate of all drainage improvements within Public Drainage Easements and Public Right-of-Way. All drainage improvements within Public Drainage Easements and Right-of-Way must be bonded and inspected.
6. Due to the more detailed hydraulic analysis prepared with this study, it was determined that storm drain facilities previously proposed in the Master Drainage Study are no longer needed. Provide an update to the Master Drainage Study. Final approval of the Master Drainage Study shall be obtained prior to final approval of the subject infrastructure drainage study.
7. Technical drainage studies are required for each of the Designated Builder Parcels. The technical drainage studies for the Designated Builder Parcels shall not be submitted until the conditional approval of the pertinent infrastructure drainage study is obtained. Final approval for the infrastructure drainage study shall be obtained prior to conditional approval of the impacted Builder Parcels drainage studies.
8. Building permits for the homes within the individual Designated Builder Parcels shall not be issued until construction of the street and flood control infrastructure around the Designated Builder Parcels is substantially complete or interim protection is provided per the approved technical drainage study.
9. The interim drainage channels and sumps adjacent to the infrastructure roadways are the Maintenance responsibility of the Master Developer.
10. Label the existing storm drain facilities with the CLV Drawing Numbers.

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13. There is a lateral that enters flows at Ex SDMH #2 in Brent Lane that is not reflected in the Brent Lane WSPG model. Revise the model to include the lateral flow to demonstrate the impact it has on the upstream system.
14. It appears that a portion the existing storm drain in Iron Mountain Road is now on private property. Revise the plans to revise the property line such that the storm drain is fully within public right-of-way with the appropriate clear distance from the right-of-way limit to the storm drain pipe. Or provide a "Public Drainage Easement to be Privately Maintained" and show the easement on the grading plan. The limits of the public drainage easement shall provide the appropriate clear distance from the easement limit to the storm drain pipe. Public drainage easements must be recorded by separate document prior to the final acceptance of the improvement plans unless they are to be recorded by parcel or final map.
15. Label Document Number or Book and Page Number for all existing easements including BLM grants on the plans.
16. Provide Public Drainage Easements for storm drain stubs extending through the common lots including the interim drainage sump. Label the easement dimensions on the plans.
17. Provide a legal description of the proposed drainage facilities located outside of dedicated public right-of-way prior to recordation of the parent final map.
18. The project proposes to build temporary drainage facilities including drainage berms/swales over the *Phase 1A Infrastructure* site. Interim drainage facilities are normally shown on the Improvement Plans, bonded for construction, and bonded under a separate Maintenance Agreement. As an alternative to including interim drainage improvements that are privately maintained as a part of the *Phase 1A Infrastructure*, and prior to the final plan approval for each set of improvement plans that will be bonded separately, the Improvement Plans shall show concrete pads and rip-rap berms at the culvert stubs for interim flows, and the developer must complete a ***Maintenance and Liability Agreement*** and bond for 100% of the costs. The Maintenance Bond shall include exhibits showing the interim drainage improvements at each culvert and the associated costs to complete the improvements. This shall be in the form of a 50% cash bond and a 50% standard bond for Maintenance. The cash bond gives the City the ability to perform work and draw down funds as needed in the interim condition. The engineer must submit an estimate of the quantities for the construction of the facilities and an exhibit that adequately shows the location and limits of the drainage facilities 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.

A. Iron Mountain Road Improvement Plans:

General: Identify and label all utility crossings on Profile Sheets.
Provide Construction Note callouts on the Plans.

PP-1: Iron Mountain and Tee Pee is shown as a knuckle intersection with a median island. Remove the valley gutter and spandrel and drain the knuckle toward Iron Mountain.

B. Tee Pee Lane Improvement Plans:

General: Provide match lines on the Plan and Profile Sheets.
Provide Construction Note callouts on the Plans.

PP-4: Tee Pee and Brent is shown as a knuckle intersection. Remove the valley gutter and spandrel and drain the knuckle toward Brent Lane.

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
JKS/PBJ

T/R/S: T19S/R60E/6 & 7
AREA G-6 & 7

APPENDIX B

WSPGW Hydraulic Models:

- **Iron Mountain Road**
- **Brent Lane**

Ultimate Condition WSPG Summary Mainline in Iron Mountain Road

WSPG Station	Storm Drain Dimension	Invert Elevation (ft)	Q ₁₀₀ (cfs)	WSE (ft)	Velocity (ft/s)	FG Elevation	Facility Description	HGL Check ¹
578.03	42" RCP	2664.99	50.80	2667.82	6.09		Connection to Existing	
711.58	42" RCP	2665.56	50.80	2666.87	15.51	2672.10		OK
711.58	30" RCP	2665.72	50.60	2667.40	14.42	2672.10		OK
911.25	30" RCP	2670.73	50.60	2673.04	10.69	2675.37	Junction with Parcel EPE2	OK
911.25	30" RCP	2670.73	40.60	2674.36	8.27	2675.37		OK
991.09	30" RCP	2674.07	40.60	2675.44	14.79	2677.60		OK
991.09	30" RCP	2674.35	40.50	2675.77	14.08	2677.60		OK
1256.39	4' x 8' RCB	2681.04	40.50	2682.18	8.90	2685.40		OK
1258.89	4' x 8' RCB	2681.14	40.50	2682.36	8.30	2685.40		OK
1258.89	4' x 8' RCB	2681.14	40.30	2682.33	8.44	2685.40	Facility IR3a	OK
1261.39	30" RCP	2681.24	40.30	2682.58	15.04	2685.40		OK
1561.59	30" RCP	2690.42	40.30	2691.55	8.95	2695.80		OK
1564.09	4' x 8' RCB	2690.52	40.30	2691.72	8.37	2695.80	Facility IR2	OK
1564.09	4' x 8' RCB	2690.52	40.20	2691.71	8.44	2695.80		OK
1566.59	4' x 8' RCB	2690.62	40.20	2691.96	15.05	2695.80		OK
1866.89	4' x 8' RCB	2699.79	40.20	2700.93	8.79	2704.90		OK
1869.39	4' x 8' RCB	2699.89	40.20	2701.13	8.14	2704.90		OK
1869.39	30" RCP	2699.89	40.00	2701.10	8.29	2704.90	Facility IR1a	OK
1871.89	30" RCP	2699.99	40.00	2701.41	13.91	2704.90		OK
2063.79	30" RCP	2704.97	40.00	2706.97	9.53	2710.75		OK
2174.74	30" RCP	2706.08	40.00	2708.21	8.98	2713.00		OK
2174.74	30" RCP	2706.08	40.00	2708.21	8.98	2713.00		OK

T1 EST1911 SUNSTONE PHASE 1A									
T2 IRON MOUNTAIN STORM DRAIN SYSTEM (SDIR)									
T3 STARTING HGL PER TOP OF PIPE (10-YEAR SD SYSTEM)									
SO	578.0302664.986	34					2667.819		
R	711.5802665.560	34	.013					0.0	
JX	711.5802665.720	30	24 .013	0.1	0.1	2666.3802665.720	75.0	89.0	
R	911.2502670.730	30	.013					0.0	
JX	911.2502670.730	30	24 .013	10.0		2671.230	90.0		
R	991.0902674.070	30							
JX	991.0902674.350	30	18 .013	0.1		2674.150	90.0	0.0	
R	1256.3902681.040	30	.013						
R	1258.8902681.140	1	.013						
JX	1258.8902681.140	1	1 18.013	0.1	0.1	2681.1402681.720	90.0	75.0	
R	1261.3902681.240	1	.013						
R	1561.5902690.420	30	.013					0.0	
R	1564.0902690.520	1	.013						
JX	1564.0902690.520	1	1 .013	0.1		2690.520	90.0		
R	1566.5902690.620	1	.013						
R	1866.8902699.790	30	.013					0.0	
R	1869.3902699.890	1	.013						
JX	1869.3902699.890	1	1 18.013	0.1	0.1	2699.8902700.900	90.0	75.0	
R	1871.8902699.990	1	.013						
R	2063.7902704.970	30	.013					0.0	1
R	2174.7402706.080	30	.013					0.0	
SH	2174.7402706.080	30							
CD	18	4	1 0.000	1.500	0.000	0.000	0.000	0.00	
CD	24	4	1 0.000	2.000	0.000	0.000	0.000	0.00	
CD	30	4	1 0.000	2.500	0.000	0.000	0.000	0.00	
CD	34	4	1 0.000	3.500	0.000	0.000	0.000	0.00	
CD	1	3	0 0.000	8.000	4.000	0.000	0.000	0.00	
Q			40.000						

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

PAGE 1

CARD	SECT	CHN	NO OF	AVE	PIER	HEIGHT	1	BASE	ZL	ZR	INV	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CODE	NO	TYPE	PIER/PIP	WIDTH	DIAMETER	WIDTH															
CD	18	4	1		1.500																
CD	24	4	1		2.000																
CD	30	4	1		2.500																
CD	34	4	1		3.500																
CD	1	3	0	.000	8.000	4.000	.000	.000	.000	.000	.00										

W S P G W

PAGE NO 1

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

EST1911 SUNSTONE PHASE 1A

HEADING LINE NO 2 IS -

IRON MOUNTAIN STORM DRAIN SYSTEM (SDIR)

HEADING LINE NO 3 IS -

STARTING HGL PER TOP OF PIPE (10-YEAR SD SYSTEM)

W S P G W

PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

W S ELEV

2667.819

ELEMENT NO	1 IS A SYSTEM OUTLET	U/S DATA	STATION	INVERT	SECT																
			578.030	2664.986	34																
ELEMENT NO	2 IS A REACH	U/S DATA	STATION	INVERT	SECT																
			711.580	2665.560	34																
ELEMENT NO	3 IS A JUNCTION	U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4							
			711.580	2665.720	30	24	24	.013	.100	.100	.100	2666.380	2665.720	75.000	89.000						

ELEMENT NO	4 IS A REACH	U/S DATA	STATION	INVERT	SECT																
			911.250	2670.730	30																
ELEMENT NO	5 IS A JUNCTION	U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4							
			911.250	2670.730	30	24	0	.013	10.000	.000	2671.230	.000	90.000	.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	6 IS A REACH	U/S DATA	STATION	INVERT	SECT																
			991.090	2674.070	30																
ELEMENT NO	7 IS A JUNCTION	U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4							
			991.090	2674.350	30	18	0	.013	.100	.000	2674.150	.000	90.000	.000							

ELEMENT NO	8 IS A REACH	U/S DATA	STATION	INVERT	SECT																

1256.390 2681.040 30 SDIR.EDT .000 .000 .000 0 PAGE NO 3
.013 W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING
WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS
ELEMENT NO 9 IS A REACH

U/S DATA	STATION	INVERT	SECT	N	ANGLE	RADIUS	ANG PT	MAN H
	1258.890	2681.140	1	.013	.000	.000	.000	0
ELEMENT NO 10 IS A JUNCTION						*	*	
U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	Q3	Q4	INVERT-3
	1258.890	2681.140	1	1	18	.013	.100	2681.140 2681.720 90.000 75.000
								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 11 IS A REACH

U/S DATA	STATION	INVERT	SECT	N	ANGLE	RADIUS	ANG PT	MAN H
	1261.390	2681.240	1	.013	.000	.000	.000	0

WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS
ELEMENT NO 12 IS A REACH

U/S DATA	STATION	INVERT	SECT	N	ANGLE	RADIUS	ANG PT	MAN H
	1561.590	2690.420	30	.013	.000	.000	.000	0

WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS
ELEMENT NO 13 IS A REACH

U/S DATA	STATION	INVERT	SECT	N	ANGLE	RADIUS	ANG PT	MAN H
	1564.090	2690.520	1	.013	.000	.000	.000	0

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	Q3	Q4	INVERT-3
	1564.090	2690.520	1	1	0	.013	.100	2690.520 2690.900 90.000 .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 15 IS A REACH

U/S DATA	STATION	INVERT	SECT	N	ANGLE	RADIUS	ANG PT	MAN H
	1566.590	2690.620	1	.013	.000	.000	.000	0

WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS
ELEMENT NO 16 IS A REACH

U/S DATA	STATION	INVERT	SECT	N	ANGLE	RADIUS	ANG PT	MAN H
	1866.890	2699.790	30	.013	.000	.000	.000	0

WATER SURFACE PROFILE - ELEMENT CARD LISTING
WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS
ELEMENT NO 17 IS A REACH

U/S DATA	STATION	INVERT	SECT	N	ANGLE	RADIUS	ANG PT	MAN H
	1869.390	2699.890	1	.013	.000	.000	.000	0

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	Q3	Q4	INVERT-3
	1869.390	2699.890	1	1	18	.013	.100	2699.890 2700.900 90.000 75.000
								ANGLE
								.000

THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING

SDIR.EDT

THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
ELEMENT NO 19 IS A REACH
U/S DATA STATION INVERT SECT * * *
1871.890 2699.990 1 .013
WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS
ELEMENT NO 20 IS A REACH
U/S DATA STATION INVERT SECT * * *
2063.790 2704.970 30 *
ELEMENT NO 21 IS A REACH
U/S DATA STATION INVERT SECT * * *
2174.740 2706.080 30 *
ELEMENT NO 22 IS A SYSTEM HEADWORKS
U/S DATA STATION INVERT SECT * * *
2174.740 2706.080 30

RADIUS .000
ANGLE .000
ANG PT .000
MAN H 0

RADIUS .000
ANGLE .000
ANG PT .000
MAN H 1

RADIUS .000
ANGLE .000
ANG PT .000
MAN H 0

W S ELEV
.000

WATER SURFACE PROFILE LISTING

Date: 1-31-2020 Time: 5:50:25

EST1911 SUNSTONE PHASE 1A

IRON MOUNTAIN STORM DRAIN SYSTEM (SDIR)

STARTING HGL PER TOP OF PIPE (10-YEAR SD SYSTEM)

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Width	Top Dia.	Height or I.D.	Base Wt	ZL	No Wth Prs/Pip
L/Elem	Ch Slope														
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
578.030	2664.986	2.833	2667.819	50.80	6.09	.58	2668.39	.00	2.23	2.75	3.500	.000	.00	1	.0
13.919	.0043														
591.949	2665.046	2.798	2667.844	50.80	6.16	.59	2668.43	.00	2.23	2.80	3.500	.000	.00	1	.0
HYDRAULIC JUMP															
591.949	2665.046	1.752	2666.798	50.80	10.54	1.73	2668.52	.00	2.23	3.50	3.500	.000	.00	1	.0
2.645	.0043														
594.594	2665.057	1.745	2666.802	50.80	10.60	1.74	2668.55	.00	2.23	3.50	3.500	.000	.00	1	.0
16.533	.0043														
611.127	2665.128	1.682	2666.810	50.80	11.11	1.92	2668.73	.00	2.23	3.50	3.500	.000	.00	1	.0
15.978	.0043														
627.105	2665.197	1.621	2666.817	50.80	11.66	2.11	2668.93	.00	2.23	3.49	3.500	.000	.00	1	.0
15.425	.0043														
642.530	2665.263	1.553	2666.826	50.80	12.22	2.32	2669.15	.00	2.23	3.48	3.500	.000	.00	1	.0
14.870	.0043														
657.400	2665.327	1.507	2666.834	50.80	12.82	2.55	2669.39	.00	2.23	3.47	3.500	.000	.00	1	.0
14.328	.0043														
671.728	2665.389	1.454	2666.842	50.80	13.45	2.81	2669.65	.00	2.23	3.45	3.500	.000	.00	1	.0
13.795	.0043														

SDIR.OUT

EST1911 SUNSTONE PHASE 1A

IRON MOUNTAIN STORM DRAIN SYSTEM (SDIR)

STARTING HGL PER TOP OF PIPE (10-YEAR SD SYSTEM)

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Width	Top Dia.-FT	Height/for I.D.	Base Wt	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
685.523	2665.448	1.402	2666.850	50.80	14.10	3.09	2669.94	.00	2.23	3.43	3.500	.000	.00	1	.0
13.279	.0043					.0239	.32	1.40	2.43	2.30	.013	.00	.00	PIPE	
698.802	2665.505	1.353	2666.859	50.80	14.79	3.40	2670.26	.00	2.23	3.41	3.500	.000	.00	1	.0
12.778	.0043					.0272	.35	1.35	2.60	2.30	.013	.00	.00	PIPE	
711.580	2665.560	1.306	2666.866	50.80	15.51	3.74	2670.60	.00	2.23	3.39	3.500	.000	.00	1	.0
JUNCT STR	.0000					.0266	.00	1.31	2.78		.013	.00	.00	PIPE	
711.580	2665.720	1.681	2667.400	50.60	14.42	3.23	2670.63	.00	2.31	2.35	2.500	.000	.00	1	.0
50.815	.0251					.0238	1.21	1.68	2.08	1.66	.013	.00	.00	PIPE	
762.395	2666.995	1.701	2668.695	50.60	14.23	3.14	2671.84	.00	2.31	2.33	2.500	.000	.00	1	.0
71.923	.0251					.0222	1.59	1.70	2.03	1.66	.013	.00	.00	PIPE	
834.318	2668.800	1.776	2670.575	50.60	13.57	2.86	2673.43	.00	2.31	2.27	2.500	.000	.00	1	.0
33.656	.0251					.0198	.67	1.78	1.86	1.66	.013	.00	.00	PIPE	
867.974	2669.644	1.858	2671.502	50.60	12.94	2.60	2674.10	.00	2.31	2.18	2.500	.000	.00	1	.0
20.024	.0251					.0178	.36	1.86	1.70	1.66	.013	.00	.00	PIPE	
887.998	2670.146	1.947	2672.094	50.60	12.33	2.36	2674.46	.00	2.31	2.07	2.500	.000	.00	1	.0
12.668	.0251					.0160	.20	1.95	1.55	1.66	.013	.00	.00	PIPE	
900.666	2670.464	2.047	2672.511	50.60	11.76	2.15	2674.66	.00	2.31	1.93	2.500	.000	.00	1	.0
7.629	.0251					.0146	.11	2.05	1.39	1.66	.013	.00	.00	PIPE	

FILE: SDIR.MSW

Program Package Serial Number: 7189

W S P G W - CIVILDESIGN Version 14.08

WATER SURFACE PROFILE LISTING

EST1911 SUNSTONE PHASE 1A

IRON MOUNTAIN STORM DRAIN SYSTEM (SDIR)

STARTING HGL PER TOP OF PIPE (10-YEAR SD SYSTEM)

Date: 1-31-2020 Time: 5:50:25

SDIR.OUT

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Width	Top 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
908.295	2670.656	2.163	2672.818	50.60	11.21	1.95	2674.77	.00	2.31	1.71	2.500	.000	.00	1 .0
2.955	.0251					.0136	.04	2.16	1.22	1.66	.013	.00	.00	PIPE
911.250	2670.730	2.307	2673.037	50.60	10.69	1.77	2674.81	.00	2.31	1.33	2.500	.000	.00	1 .0
JUNCT STR	.0000					.0115	.00	2.31	1.00		.013	.00	.00	PIPE
911.250	2670.730	3.628	2674.358	40.60	8.27	1.06	2675.42	.00	2.14	.00	2.500	.000	.00	1 .0
6.031	.0418					.0114	.07	3.63	.00	1.28	.014	.00	.00	PIPE
917.281	2670.982	3.444	2674.426	40.60	8.27	1.06	2675.49	.00	2.14	.00	2.500	.000	.00	1 .0
HYDRAULIC JUMP														
917.281	2670.982	1.302	2672.284	40.60	15.71	3.83	2676.12	.00	2.14	2.50	2.500	.000	.00	1 .0
24.091	.0418					.0390	.94	1.30	2.72	1.28	.014	.00	.00	PIPE
941.372	2671.990	1.315	2673.305	40.60	15.51	3.73	2677.04	.00	2.14	2.50	2.500	.000	.00	1 .0
49.718	.0418					.0360	1.79	1.32	2.67	1.28	.014	.00	.00	PIPE
991.090	2674.070	1.367	2675.437	40.60	14.79	3.40	2678.83	.00	2.14	2.49	2.500	.000	.00	1 .0
JUNCT STR	.0000					.0274	.00	1.37	2.48		.013	.00	.00	PIPE
991.090	2674.350	1.420	2675.769	40.50	14.08	3.08	2678.85	.00	2.14	2.48	2.500	.000	.00	1 .0
114.706	.0252					.0271	3.11	1.42	2.30	1.43	.013	.00	.00	PIPE
1105.796	2677.242	1.372	2678.614	40.50	14.68	3.35	2681.96	.00	2.14	2.49	2.500	.000	.00	1 .0
53.185	.0252					.0305	1.62	1.37	2.46	1.43	.013	.00	.00	PIPE

W S P G W - CIVILDESIGN Version 14.08

Program Package Serial Number: 7189

WATER SURFACE PROFILE LISTING

Date: 1-31-2020 Time: 5:50:25

EST1911 SUNSTONE PHASE 1A

IRON MOUNTAIN STORM DRAIN SYSTEM (SDIR)

STARTING HGL PER TOP OF PIPE (10-YEAR SD SYSTEM)

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Width	Top Dia.-FT	Base Wt	ZL	No Wth Prs/Pip
---------	-------------	------------	------------	---------	-----------	----------	----------------	------------	----------------	------------	-------------	---------	----	----------------

SDIR.OUT

L/Elem	Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Width	Top Dia.	Height/FT	Base I.D.	Wt ZL	No With Prs/Pip	Type Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1158.981	2678.583	1.320	2679.904	40.50	15.40	3.68	2683.59	.00	2.14	2.50	2.500	.000	.00	1	.0	
33.875	.0252	-	-	-	-	.0346	1.17	1.32	2.64	1.43	.013	.00	.00	PIPE		
1192.856	2679.438	1.271	2680.709	40.50	16.15	4.05	2684.76	.00	2.14	2.50	2.500	.000	.00	1	.0	
25.407	.0252	-	-	-	-	.0393	1.00	1.27	2.84	1.43	.013	.00	.00	PIPE		
1218.263	2680.078	1.225	2681.303	40.50	16.94	4.45	2685.76	.00	2.14	2.50	2.500	.000	.00	1	.0	
20.617	.0252	-	-	-	-	.0447	.92	1.22	3.05	1.43	.013	.00	.00	PIPE		
1238.880	2680.598	1.180	2681.779	40.50	17.76	4.90	2686.68	.00	2.14	2.50	2.500	.000	.00	1	.0	
17.510	.0252	-	-	-	-	.0508	.89	1.18	3.28	1.43	.013	.00	.00	PIPE		
1256.390	2681.040	1.138	2682.178	40.50	8.90	1.23	2683.41	.00	1.47	4.00	8.000	4.000	.00	0	.0	
.923	.0399	-	-	-	-	.0090	.01	1.14	1.47	.69	.013	.00	.00	BOX		
1257.313	2681.077	1.164	2682.240	40.50	8.70	1.18	2683.42	.00	1.47	4.00	8.000	4.000	.00	0	.0	
1.577	.0399	-	-	-	-	.0082	.01	1.16	1.42	.69	.013	.00	.00	BOX		
1258.890	2681.140	1.220	2682.360	40.50	8.30	1.07	2683.43	.00	1.47	4.00	8.000	4.000	.00	0	.0	
JUNCT STR	.0000	-	-	-	-	.0078	.00	1.22	1.32	.013	.00	.00	.00	BOX		
1258.890	2681.140	1.194	2682.333	40.30	8.44	1.11	2683.44	.00	1.47	4.00	8.000	4.000	.00	0	.0	
.626	.0400	-	-	-	-	.0078	.00	1.19	1.36	.69	.013	.00	.00	BOX		
1259.516	2681.165	1.219	2682.384	40.30	8.27	1.06	2683.45	.00	1.47	4.00	8.000	4.000	.00	0	.0	
1.124	.0400	-	-	-	-	.0071	.01	1.22	1.32	.69	.013	.00	.00	BOX		

▲ FILE: SDIR.WSW

W S P G W - CIVILDESIGN Version 14.08

Program Package Serial Number: 7189

WATER SURFACE PROFILE LISTING

EST1911 SUNSTONE PHASE 1A

IRON MOUNTAIN STORM DRAIN SYSTEM (SDIR)

STARTING HGL PER TOP OF PIPE (10-YEAR SD SYSTEM)

Date: 1-31-2020 Time: 5:50:25

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Width	Top Dia.	Height/FT	Base I.D.	Wt ZL	No With Prs/Pip	Type Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
L/Elem	Ch Slope	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****

SDIR.OUT													
1260.641	2681.210	1.278	2682.488	40.30	7.88	.97	2683.45	.00	1.47	4.00	8.000	4.000	.00 0 .0
.750	.0400	- -	- -	- -	- -	.0062	.00	1.28	1.23	.69	.013	.00	.00 BOX
1261.390	2681.240	1.340	2682.580	40.30	15.04	3.51	2686.09	.00	2.14	2.49	2.500	.000	.00 1 .0
2.449	.0306	- -	- -	- -	- -	.0306	.07	1.34	2.56	1.34	.013	.00	.00 PIPE
1263.839	2681.315	1.340	2682.655	40.30	15.04	3.51	2686.17	.00	2.14	2.49	2.500	.000	.00 1 .0
147.009	.0306	- -	- -	- -	- -	.0319	4.70	1.34	2.56	1.34	.013	.00	.00 PIPE
1410.849	2685.810	1.306	2687.116	40.30	15.53	3.75	2690.86	.00	2.14	2.50	2.500	.000	.00 1 .0
65.468	.0306	- -	- -	- -	- -	.0356	2.33	1.31	2.69	1.34	.013	.00	.00 PIPE
1476.317	2687.812	1.258	2689.070	40.30	16.29	4.12	2693.19	.00	2.14	2.50	2.500	.000	.00 1 .0
37.353	.0306	- -	- -	- -	- -	.0404	1.51	1.26	2.89	1.34	.013	.00	.00 PIPE
1513.669	2688.955	1.212	2690.166	40.30	17.09	4.53	2694.70	.00	2.14	2.50	2.500	.000	.00 1 .0
26.762	.0306	- -	- -	- -	- -	.0459	1.23	1.21	3.10	1.34	.013	.00	.00 PIPE
1540.431	2689.773	1.168	2690.941	40.30	17.92	4.99	2695.93	.00	2.14	2.49	2.500	.000	.00 1 .0
21.159	.0306	- -	- -	- -	- -	.0522	1.10	1.17	3.33	1.34	.013	.00	.00 PIPE
1561.590	2690.420	1.126	2691.546	40.30	8.95	1.24	2692.79	.00	1.47	4.00	8.000	4.000	.00 0 .0
.832	.0400	- -	- -	- -	- -	.0092	.01	1.13	1.49	.69	.013	.00	.00 BOX
1562.422	2690.453	1.148	2691.601	40.30	8.78	1.20	2692.80	.00	1.47	4.00	8.000	4.000	.00 0 .0
1.668	.0400	- -	- -	- -	- -	.0084	.01	1.15	1.44	.69	.013	.00	.00 BOX

FILE: SDIR.MSW

Program Package Serial Number: 7189
W S P G W - CIVILDESIGN Version 14.08

WATER SURFACE PROFILE LISTING

Date: 1-31-2020 Time: 5:50:25

EST1911 SUNSTONE PHASE 1A

IRON MOUNTAIN STORM DRAIN SYSTEM (SDIR)

STARTING HGL PER TOP OF PIPE (10-YEAR SD SYSTEM)

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Width	Top Height Dia.-FT	Base Wt I.D.	No Wth Prs/Pip ZL
L/Elem	Ch Slope	*****	*****	*****	*****	SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR Type Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1564.090	2690.520	1.204	2691.724	40.30	8.37	1.09	2692.81	.00	1.47	4.00	8.000	4.000	.00 0 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -

[illegible]

Date: 1-31-2020 Time: 5:50:25

WATER SURFACE PROFILE LISTING

EST1911 SUNSTONE PHASE 1A

IRON MOUNTAIN STORM DRAIN SYSTEM (SDIR)

STARTING HGL PER TOP OF PIPE (10-YEAR SD SYSTEM)

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Width	Top Dia.	Height/FT or I.D.	Base Wt	No Pts/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1866.890	2699.790	1.144	2700.934	40.20	8.79	1.20	2702.13	.00	1.46	4.00	8.000	4.000	.00	0 .0
1.086	.0399					.0087	.01	1.14	1.45	.69	.013	.00	.00	BOX
1867.976	2699.833	1.177	2701.010	40.20	8.54	1.13	2702.14	.00	1.46	4.00	8.000	4.000	.00	0 .0

SDIR.OUT													
1.414	.0399	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
1869.390	2699.890	1.235	2701.125	40.20	8.14	1.03	2702.15	.00	1.46	4.00	8.000	4.000	.00
JUNCT STR	.0000	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	.0
1869.390	2699.890	1.206	2701.096	40.00	8.29	1.07	2702.16	.00	1.46	4.00	8.000	4.000	.00
.534	.0400	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	.0
1869.924	2699.911	1.230	2701.141	40.00	8.13	1.03	2702.17	.00	1.46	4.00	8.000	4.000	.00
1.003	.0400	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	.0
1870.927	2699.952	1.290	2701.241	40.00	7.75	.93	2702.17	.00	1.46	4.00	8.000	4.000	.00
.643	.0400	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	.0
1871.570	2699.977	1.353	2701.330	40.00	7.39	.85	2702.18	.00	1.46	4.00	8.000	4.000	.00
.320	.0400	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	.0
1871.890	2699.990	1.419	2701.409	40.00	13.91	3.01	2704.41	.00	2.13	2.48	2.500	.000	.00
91.245	.0260	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	.0
1963.135	2702.358	1.473	2703.831	40.00	13.30	2.75	2706.58	.00	2.13	2.46	2.500	.000	.00
38.435	.0260	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	.0
FILE: SDIR.MSW													

W S P G W - CIVILDESIGN Version 14.08

Program Package Serial Number: 7189

WATER SURFACE PROFILE LISTING

Date: 1-31-2020 Time: 5:50:25

EST1911 SUNSTONE PHASE 1A

IRON MOUNTAIN STORM DRAIN SYSTEM (SDIR)

STARTING HGL PER TOP OF PIPE (10-YEAR SD SYSTEM)

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Width	Top Width	Height Dia.-FT	Base Wt I.D.	No Wth Prs/Pip ZL
L/Elem	Ch Slope	*****	*****	*****	*****	SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
2001.570	2703.355	1.533	2704.888	40.00	12.68	2.50	2707.38	.00	2.13	2.44	2.44	2.500	.000	.00
22.248	.0260	- -	- -	- -	- -	.0186	.41	1.53	1.96	1.40	.013	.00	.00	PIPE
2023.818	2703.933	1.596	2705.529	40.00	12.09	2.27	2707.80	.00	2.13	2.40	2.500	.000	.000	.00
14.682	.0260	- -	- -	- -	- -	.0165	.24	1.60	1.82	1.40	.013	.00	.00	PIPE

SDIR.OUT															
2038.499	2704.314	1.664	2705.978	40.00	11.53	2.06	2708.04	.00	2.13	2.36	2.500	.000	.00	1	.0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	-	-
10.197	.0260					.0147	.15	1.66	1.67	1.40	.013	.00	.00	PIPE	
2048.696	2704.578	1.737	2706.315	40.00	10.99	1.88	2708.19	.00	2.13	2.30	2.500	.000	.00	1	.0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	-	-
7.173	.0260					.0131	.09	1.74	1.54	1.40	.013	.00	.00	PIPE	
2055.870	2704.764	1.815	2706.580	40.00	10.48	1.70	2708.28	.00	2.13	2.23	2.500	.000	.00	1	.0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	-	-
4.898	.0260					.0117	.06	1.82	1.41	1.40	.013	.00	.00	PIPE	
2060.768	2704.892	1.900	2706.792	40.00	9.99	1.55	2708.34	.00	2.13	2.13	2.500	.000	.00	1	.0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	-	-
3.022	.0260					.0105	.03	1.90	1.29	1.40	.013	.00	.00	PIPE	
2063.790	2704.970	1.995	2706.965	40.00	9.53	1.41	2708.37	.00	2.13	2.01	2.500	.000	.00	1	.0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	-	-
21.211	.0100					.0100	.21	1.99	1.16	1.99	.013	.00	.00	PIPE	
2085.001	2705.182	1.995	2707.177	40.00	9.53	1.41	2708.59	.00	2.13	2.01	2.500	.000	.00	1	.0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	-	-
66.053	.0100					.0099	.65	1.99	1.16	1.99	.013	.00	.00	PIPE	
2151.054	2705.843	2.017	2707.860	40.00	9.42	1.38	2709.24	.00	2.13	1.97	2.500	.000	.00	1	.0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	-	-
23.686	.0100					.0094	.22	2.02	1.13	1.99	.013	.00	.00	PIPE	
W S P G W - CIVILDESIGN Version 14.08															

W S P G W - CIVILDESIGN Version 14.08

Program Package Serial Number: 7189

WATER SURFACE PROFILE LISTING

Date: 1-31-2020 Time: 5:50:25

EST1911 SUNSTONE PHASE 1A

IRON MOUNTAIN STORM DRAIN SYSTEM (SDIR)

STARTING HGL PER TOP OF PIPE (10-YEAR SD SYSTEM)

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Width	Top Height/Dia.	Base Wt I.D.	No Wth Prs/Pip ZL	*****
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch

2174.740	2706.080	2.129	2708.208	40.00	8.98	1.25	2709.46	.00	2.13	1.78	2.500	.000	.00	1 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	-

EST1911 SUNSTONE PHASE 1A

IRON MOUNTAIN STORM DRAIN SYSTEM (SDIR)

SDIR.OUT

STARTING HGL PER TOP OF PIPE (10-YEAR SD SYSTEM)

578.03	.I	CWH	.	R
589.04	.		.	
600.05	.I	CWEH	.	R
611.07	.I	WC EH	.	R
622.08	.I	WC H	.	R
633.09	.I	WC H	.	R
644.10	.I	WC H	.	R
655.11	.I	WC HE	.	R
666.12	.I	WC HE	.	R
677.14	.I	WC H E	.	R
688.15	.I	W C H E	.	R
699.16	.I	W C H E	.	R
710.17	.		.	
721.18	.I	W C H E	.	JX
732.20	.I	WCH E	.	R

SDIR.OUT

930.41	.	I	H	E	.	JX
941.42	.	I	CH	WE	.	R
952.43	.	I	CH	WE	.	R
963.44	.	I	W	CH	E	R
974.45	.	I	W	CH	E	R
985.47	.				.	
996.48	.		I	W	CH	E
1007.49	.		I	W	CH	E
1018.50	.				.	
1029.51	.				.	
1040.53	.				.	
1051.54	.				.	
1062.55	.				.	
1073.56	.				.	
1084.57	.				.	
1095.58	.				.	
1106.60	.		I	W	CH	E
					.	R

SDIR.OUT

[illegible]

1304.81	.	I W E	SDIR.OUT H	.	R
1315.82	.	I W E	H	.	R
1326.83	.	I W CH E		.	R
1337.84	.	I W CH E		.	R
1348.86	.			.	
1359.87	.			.	
1370.88	.			.	
1381.89	.			.	
1392.90	.			.	
1403.91	.			.	
1414.93	.	I W CH E		.	R
1425.94	.			.	
1436.95	.			.	
1447.96	.			.	
1458.97	.			.	
1469.99	.			.	
1481.00	.	I W H E		.	R

SDIR.OUT

1492.01	.				.
1503.02	.				.
1514.03	.	I	W	CH	E
1525.04	.				R
1536.06	.				.
1547.07	.	I	W	CH	E
1558.08	.				R
1569.09	.	I	W	CH	E
1580.10	.				R
1591.11	.	I	W	CH	E
1602.13	.				R
1613.14	.				R
1624.15	.				R
1635.16	.	I	W	CH	E
1646.17	.				.
1657.19	.				.
1668.20	.	I	W	CH	E

SDIR.OUT

1679.21	.				.
1690.22	.				.
1701.23	.				.
1712.24	.				.
1723.26	.				.
1734.27	.				.
1745.28	.				.
1756.29	.				.
1767.30	.	I	W	H	E
1778.32	.				R
1789.33	.				.
1800.34	.				.
1811.35	.				.
1822.36	.	I	W	CH	E
1833.37	.				R
1844.39	.	I	W	CH	E
1855.40	.				R

SDIR.OUT

1866.41	.				.
1877.42	.	I WC E	H	.	R
1888.43	.	I WC E	H	.	R
1899.45	.	I W E	H	.	JX
1910.46	.	I W E	H	.	R
1921.47	.	I W E	H	.	R
1932.48	.	I W E	H	.	R
1943.49	.	I W E	H	.	R
1954.50	.	I W CH E		.	R
1965.52	.	I WCH E		.	R
1976.53	.			.	
1987.54	.			.	
1998.55	.			.	
2009.56	.	I W H E		.	R
2020.57	.			.	
2031.59	.	I WCH E		.	R
2042.60	.	I WCH E		.	R

SDIR.OUT

2053.61	.	I	WCH	E	.	R
2064.62	.	I	WCH	E	.	R
2075.63	.	I	WCH	E	.	R
2086.65	.	I	WH	E	.	R
2097.66	.	I	WH	E	.	R
2108.67	.					
2119.68	.					
2130.69	.					
2141.70	.					
2152.72	.	I	WH	E	.	R
2163.73	.					
2174.74	.	I	WH	E	.	R

2664.986 2669.434 2673.881 2678.329 2682.776 2687.224 2691.671 2696.119 2700.566 2705.014 2709.461

N O T E S

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

SDIR.OUT

Y = WALL ENTRANCE OR EXIT

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

Ultimate Condition WSPG Summary Mainline in Brent Lane								
WSPG Station	Storm Drain Dimension	Invert Elevation (ft)	Q ₁₀₀ (cfs)	WSE (ft)	Velocity (ft/s)	FG Elevation	Facility Description	HGL Check ¹
931.23	36" RCP	2690.68	91.10	2693.68	12.89	2699.98	Connection to Existing	OK
1160.11	36" RCP	2692.97	91.10	2698.08	12.89	2706.30	Abandon sediment trap lateral	OK
1160.11	36" RCP	2692.97	91.10	2698.08	12.89	2706.30		OK
1320.28	36" RCP	2694.57	91.00	2701.20	12.87	2711.37		OK
1389.97	36" RCP	2695.97	91.00	2702.63	12.87	2710.00		OK
1389.97	36" RCP	2695.97	91.00	2702.63	12.87	2710.00	Facility IR3a	OK

T1 EST1911 SUNSTONE PHASE 1: IRON MT AND TEE PEE		T2 BRENT LANE STORM DRAIN SYSTEM (SDBL)		T3 ULTIMATE CONDITION, STARTING HGL PER TOP OF PIPE		
S0	931.2302690	.681	36		2693.681	
R	1160.1102692	.970	36	.013		0.0 1
JX	1160.1102692	.970	36	.013	0.1	45.0
R	1320.2802694	.570	36	.013		0.0 1
R	1389.9702695	.970	36	.013		0.0 1
SH	1389.9702695	.970	36			
CD	36	4	1	0.000	3.000	0.000 0.000 0.000 0.00
Q					91.000	

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING
CARD SECT CHN NO OF AVE PIER HEIGHT 1 BASE ZL ZR INV Y(1) Y(2) Y(3) Y(4) Y(5) Y(6) Y(7) Y(8) Y(9) Y(10)
CODE NO TYPE PIER/PIP WIDTH DIAMETER WIDTH DROP

CD 36 4 1 3.000
W S P G W
WATER SURFACE PROFILE - TITLE CARD LISTING
PAGE NO 1

HEADING LINE NO 1 IS -
HEADING LINE NO 2 IS -
HEADING LINE NO 3 IS -
EST1911 SUNSTONE PHASE 1: IRON MT AND TEE PEE
BRENT LANE STORM DRAIN SYSTEM (SDBL)

ULTIMATE CONDITION, STARTING HGL PER TOP OF PIPE

PAGE NO 2

W S P G W									
WATER SURFACE PROFILE - ELEMENT CARD LISTING									
ELEMENT NO	1	IS A SYSTEM OUTLET	*	*	*	W S ELEV			
	931.230	2690.681	36			2693.681			
ELEMENT NO	2	IS A REACH	U/S DATA	STATION	INVERT	SECT	RADIUS	ANGLE	ANG PT
	1160.110	2692.970	36				.000	.000	1
ELEMENT NO	3	IS A JUNCTION	U/S DATA	STATION	INVERT	SECT	RADIUS	ANGLE	ANG PT
	1160.110	2692.970	36				.000	.000	1

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	INVERT	SECT	RADIUS	ANGLE	ANG PT	MAN H
	1320.280	2694.570	36				.000	.000	.000	1
ELEMENT NO	5	IS A REACH	U/S DATA	STATION	INVERT	SECT	RADIUS	ANGLE	ANG PT	MAN H
	1389.970	2695.970	36				.000	.000	.000	1
ELEMENT NO	6	IS A SYSTEM HEADWORKS	U/S DATA	STATION	INVERT	SECT	RADIUS	ANGLE	ANG PT	MAN H
	1389.970	2695.970	36				.000	.000	.000	1

Program Package Serial Number: 7189

Date: 2- 3-2020 Time:12:24:35

WATER SURFACE PROFILE LISTING

EST1911 SUNSTONE PHASE 1: IRON MT AND TEE PEE

BRENT LANE STORM DRAIN SYSTEM (SDBL)

ULTIMATE CONDITION, STARTING HGL PER TOP OF PIPE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Head	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Width	Top Dia.	Height or I.D.	Base Wt	ZL	No Wth Prs/Pip
L/Elem	Ch Slope						SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
931.230	2690.681	3.000	2693.681	91.10	12.89	2.58	2696.26	.00	2.85	.00	.00	3.000	.000	.00	1	.0
228.880	.0100					.0187	4.27	3.00	.00	.00	3.00	.013	.00	.00	PIPE	
1160.110	2692.970	5.110	2698.080	91.10	12.89	2.58	2700.66	.00	2.85	.00	.00	3.000	.000	.00	1	.0
JUNCT STR	.0000					.0186	.00	5.11	.00	.00	.00	.013	.00	.00	PIPE	
1160.110	2692.970	5.121	2698.091	91.00	12.87	2.57	2700.66	.00	2.85	.00	.00	3.000	.000	.00	1	.0
160.170	.0100					.0186	2.98	5.12	.00	.00	3.00	.013	.00	.00	PIPE	
1320.280	2694.570	6.631	2701.201	91.00	12.87	2.57	2703.77	.00	2.85	.00	.00	3.000	.000	.00	1	.0
69.690	.0201					.0186	1.30	6.63	.00	.00	2.36	.013	.00	.00	PIPE	
1389.970	2695.970	6.657	2702.627	91.00	12.87	2.57	2705.20	.00	2.85	.00	.00	3.000	.000	.00	1	.0

EST1911 SUNSTONE PHASE 1: IRON MT AND TEE PEE

BRENT LANE STORM DRAIN SYSTEM (SDBL)

ULTIMATE CONDITION, STARTING HGL PER TOP OF PIPE

931.23	.I	CH	E	.	R
940.59	.			.	

SDBL.OUT

949.95	.	.
959.32	.	.
968.68	.	.
978.04	.	.
987.40	.	.
996.76	.	.
1006.13	.	.
1015.49	.	.
1024.85	.	.
1034.21	.	.
1043.57	.	.
1052.94	.	.
1062.30	.	.
1071.66	.	.
1081.02	.	.
1090.38	.	.
1099.75	.	.

SDBL.OUT

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

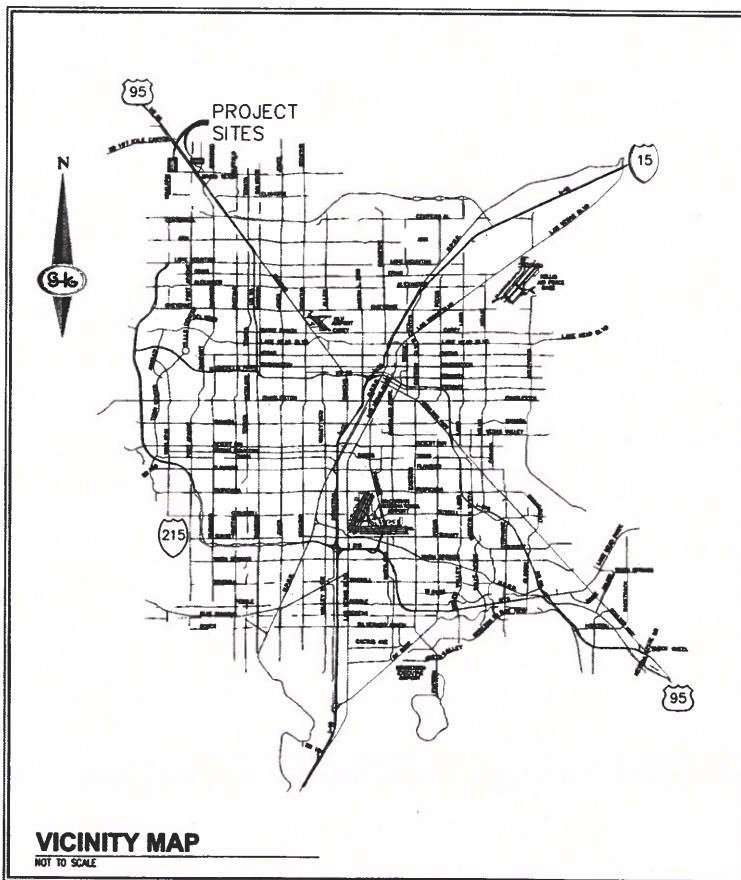
2. STATIONS FOR POINTS AT A JUMP MAY NOT BE PLOTTED EXACTLY

APPENDIX C

Reference Material:

- Skye Canyon Detention Basin 1
(downstream facilities)

**APNS: 126-12-000-001,
126-11-000-001, 125-07-602-005,
& 125-07-602-001**

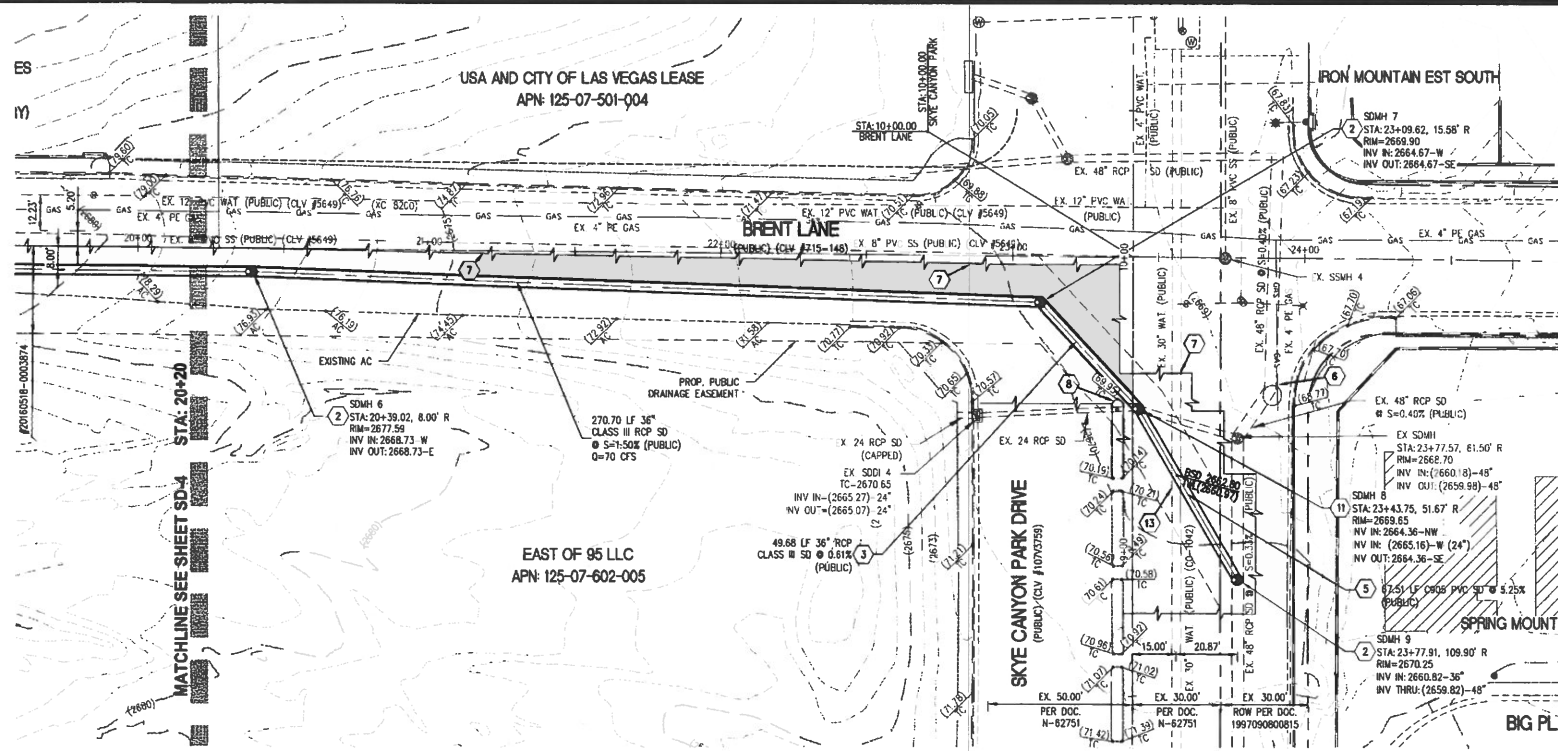


**S-I-E SLATER
HANIFAN
GROUP**
CONSULTING ENGINEERS & PLANNERS
5740 S. ARVILLE STREET #210, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5306

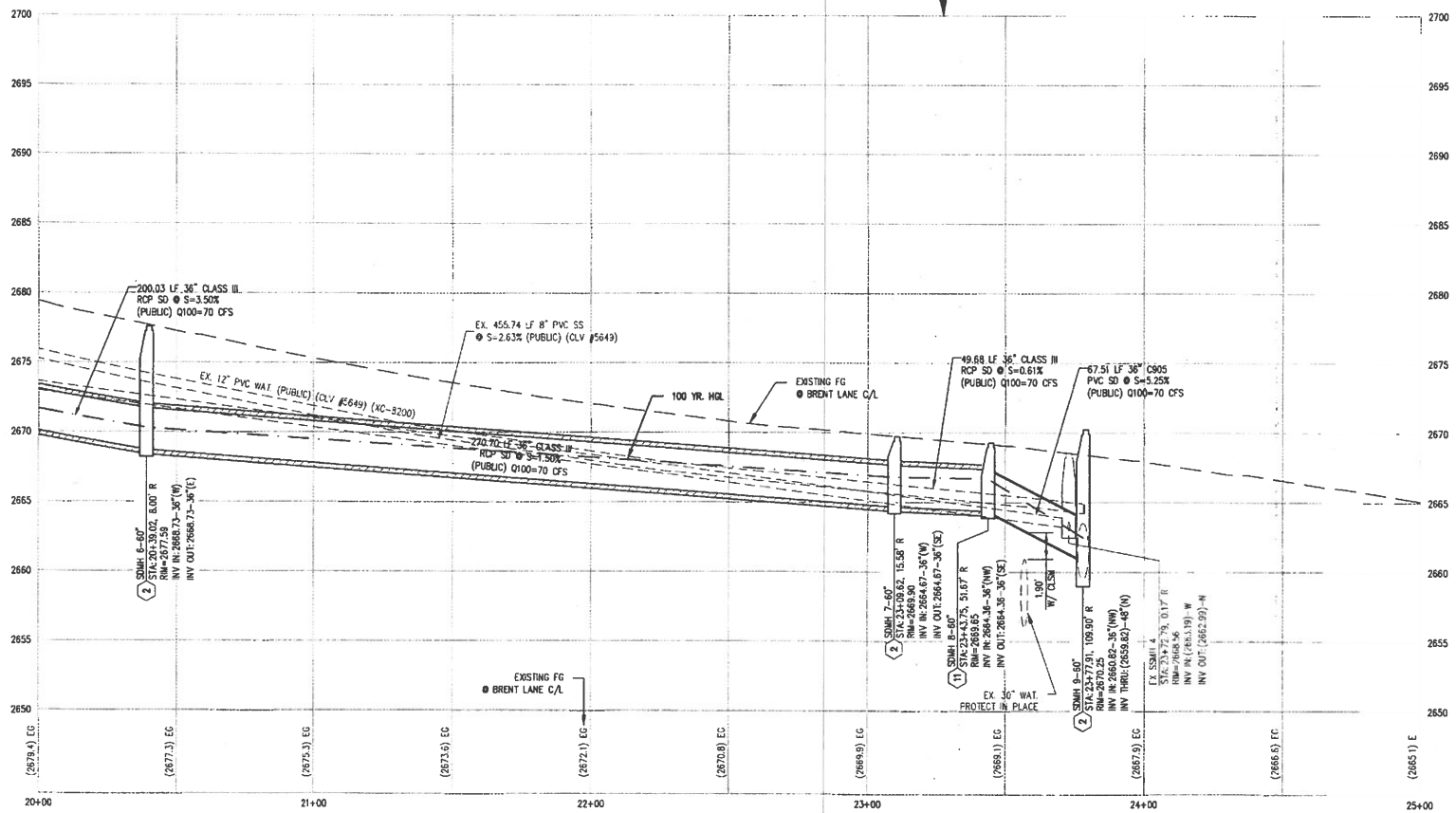
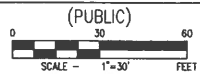
1-702-432-5300
LAS VEGAS AREA
COMPUTERIZED TRAFFIC SYSTEM

AND
CLARK COUNTY TRAFFIC OPERATIONS
1-702-455-7544

C-1
SHEET 1 OF 53

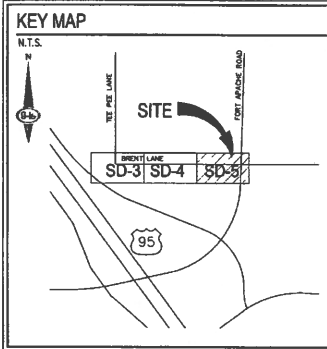
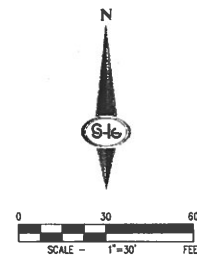


"BRENT LANE STORM DRAIN" - PLAN VIEW



"BRENT LANE STORM DRAIN" - PROFILE VIEW

HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=5'



CONSTRUCTION NOTES

- INSTALL 12" TYPE 2B DROP INLET, SIZE PER PLAN SEE SHEET SD-6 FOR DETAILS, W/ STORMWATER STAMP, PER CCAUSD NO. 421
- INSTALL 60" TYPE III MANHOLE, PER CCAUSD NO. 406
- INSTALL CLASS II RCP STORM DRAIN, SIZE PER PLAN (PUBLIC)
- NOT USED
- REMOVE EXISTING 24" RCP STORM DRAIN & INSTALL 36" C905 PVC STORM DRAIN (PUBLIC)
- PROTECT EXISTING UTILITIES IN PLACE
- SAWCUT EXISTING PAVEMENT, PER CCAUSD NO. 500.4
- REMOVE & REPLACE EXISTING A TYPE CURB, PER CCAUSD NO. 219
- TYPE II MAINTENANCE ROAD, SEE DETAIL 1, SHEET SD-3
- NOT CONCRETE APRON, SEE DETAIL SHEET D-1
- REMOVE EXISTING STORM DRAIN MANHOLE & INSTALL 60" TYPE III MANHOLE, PER CCAUSD NO. 406
- INSTALL 60" TYPE III MANHOLE, PER CCAUSD NO. 406
- PROTECT EXISTING 30" WATER IN PLACE

GENERAL NOTES

- FINAL GRADES ADJACENT TO STRUCTURES SHALL BE IN CONFORMANCE WITH IBC 2012, SECTION 5304.11.2.2
- THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER
- 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
- 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/REPLACING FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENCING
- NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND ARE PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES
- THIS GRADING PERMIT DOES NOT INCLUDE THE CONSTRUCTION OF RETAINING WALLS AND OTHER STRUCTURES. SEPARATE PERMITS AND APPLICATIONS ARE REQUIRED FOR THESE (APPENDIX SECTION J03.1 AS AMENDED)
- ALL WORK PERFORMED UNDER THIS GRADING PERMIT REQUIRES SPECIAL INSPECTION PER SECTION 1704 (APPENDIX SECTION J05.2)
- OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DISTURBED, DESTROYED, OR OBSCURED DURING CONSTRUCTION

FLOOD CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY DS-1488, ON FILE AT CITY OF LAS VEGAS FOR THE SUBJECT PROJECT.
STEPHEN M. JONES, P.E. 019638 1/13/2017 DATE

BENCHMARK

USDA BRASS CAP ON AN IRON PIPE, 140' SOUTHWEST OF TELEPHONE POLE #269941, SOUTHWEST CORNER OF THE U.S. 95/KYLE CANYON TURNOFF.
ELEVATION = 2677.62 FEET, 856.813 METERS
N.A. V.D. 88 DATUM
PER THE CLARK COUNTY VERTICAL CONTROL LAST REVISED 2003

BASIS OF BEARING

SOUTH 00°08'59" WEST, BEING THE BEARING OF THE EAST LINE OF THE SOUTHEAST QUARTER (SE1/4) OF SECTION 12, TOWNSHIP 19 SOUTH, RANGE 56 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREOF IN BOOK 147, PAGE 71 OF PLATS IN THE CLARK COUNTY RECORDER'S OFFICE, NEVADA.

FEMA FLOOD ZONE DESIGNATION

THIS SITE LIES WITHIN ZONE "X" DETERMINED TO BE OUTSIDE OF THE 500 YEAR FLOODPLAIN (0.2% ANNUAL CHANCE FLOOD) AS DEPICTED ON FIRM MAP PANEL NUMBER 32003C1733E, DATED SEPTEMBER 27, 2002.

APPROVED FOR CONSTRUCTION
1ST APPROVED ON 7/13/16
LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES MANAGER
PROJECT NO. 124490
DATE 01/09/17

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

Call before you dig
before you do UnderGround
CLARK COUNTY TRAFFIC OPERATIONS
1-702-455-7511
LAS VEGAS AREA
COMPUTERIZED TRAFFIC SYSTEM

Call before you Dig
Avoid cutting underground utility lines. It's costly.
811
1-800-227-2600
CLARK COUNTY TRAFFIC OPERATIONS
1-702-455-7544

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP.

CITY OF LAS VEGAS

NINETY-FIVE MANAGEMENT LLC
SKYE CANYON DETENTION BASIN 1
BRENT LANE STORM DRAIN PLAN & PROFILE III

DATE: 10/25/16
DRAFTER: CS
DESIGNER: BM
CHECKED: SMJ
PROJECT NO.
OLY1401.004

SD-5
SHEET 52 OF 53

APPENDIX D

CD of Electronic Files (PDF)

EST1911.000

February 13, 2020

Jennifer Shinn, P.E.
City of Las Vegas
333 Rancho Drive (7th Floor)
Las Vegas, NV 89101

Subject: Technical Drainage Study Update for Sunstone Phase 1A Infrastructure

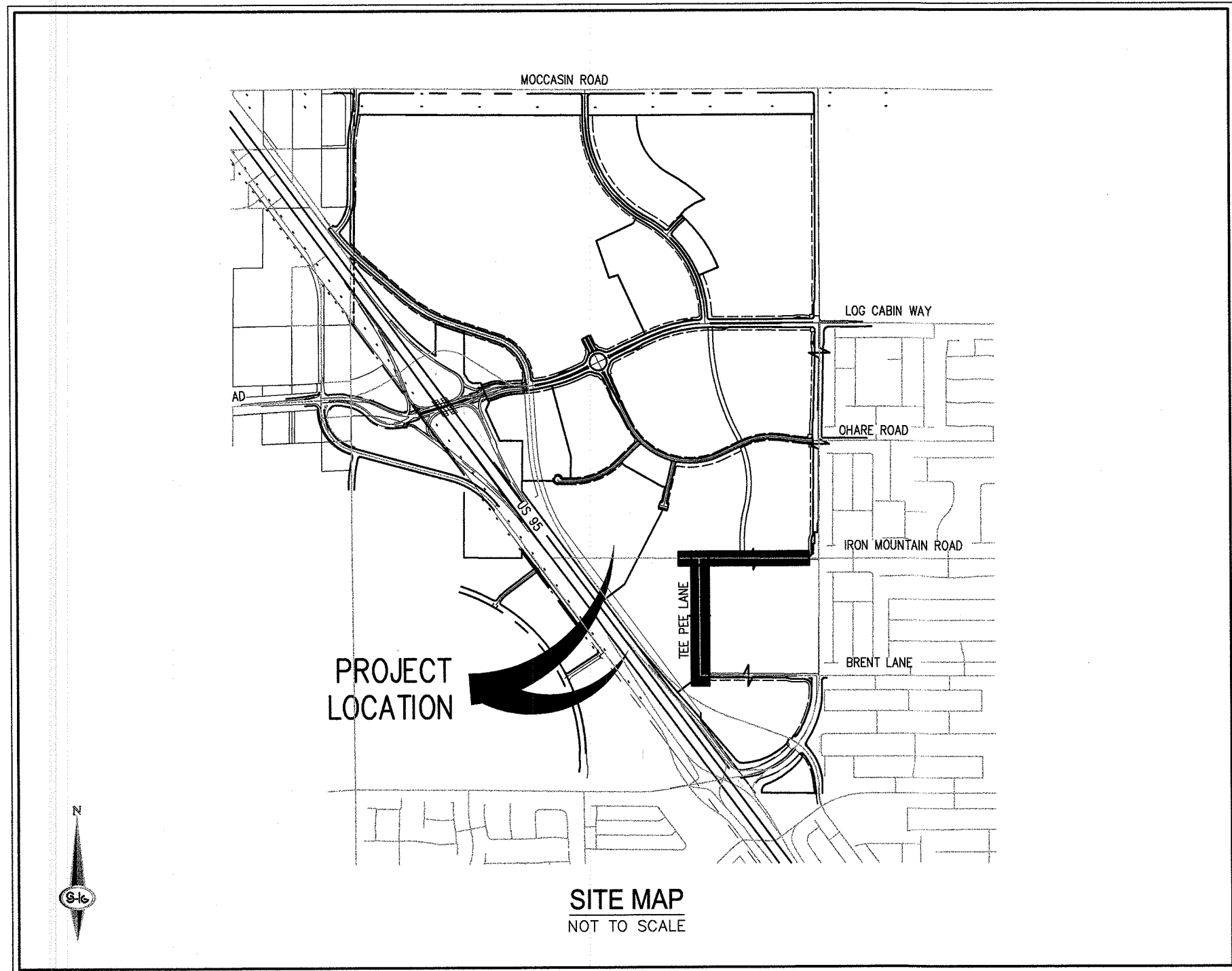
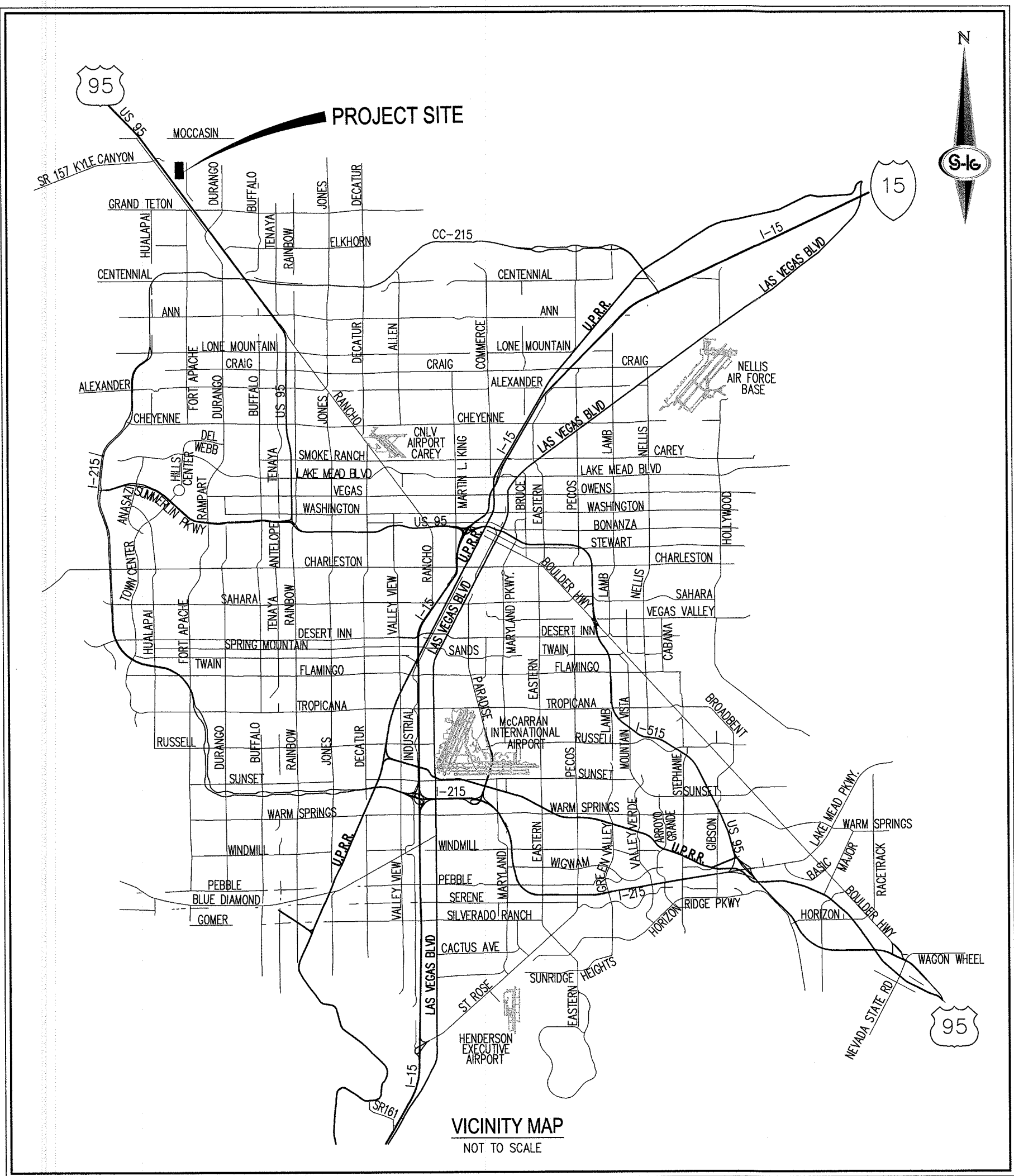
Ms. Shinn:

This letter certifies that all items provided on electronic submittal CD matches 100% of the *Technical Drainage Study Update for Sunstone Phase 1A Infrastructure* bound paper version.

Respectfully Submitted,
WESTWOOD PROFESSIONAL SERVICES



Lant Leavitt, P.E.
Project Manager – Water Resources Department



IMPROVEMENT PLANS FOR SUNSTONE PHASE 1 IRON MOUNTAIN ROAD AND TEE PEE LANE CITY OF LAS VEGAS, NEVADA

APN: 125-06-701-001, 125-07-501-005, 125-07-602-001,
125-07-602-005, 125-07-501-003, 125-07-501-004



SHEET INDEX		
NO.	SHEET	TITLE
1	1	COVER SHEET
2	2	GENERAL NOTES
3	3	ABBREVIATIONS, LEGEND, AND QUANTITIES
4	4	PLAN & PROFILE I - "IMR" 10+00.00 TO "IMR" 15+50.00
5	5	PLAN & PROFILE II - "IMR" 15+50.00 TO "IMR" 22+00.00
6	6	PLAN & PROFILE III - "IMR" 22+00.00 TO "IMR" 28+50.00
7	7	PLAN & PROFILE IV - "TPL" 9+00.00 TO "TPL" 13+50.00
8	8	PLAN & PROFILE V - "TPL" 13+50.00 TO "TPL" 20+00.00
9	9	PLAN & PROFILE VI - "TPL" 20+00.00 TO "IMR" 28+50.00
10	10	PLAN & PROFILE VII - "BL" 9+00.00 TO "BL" 13+50.00
11	11	UTILITY PLAN I - "TPL" 9+00.00 TO "TPL" 13+50.00
12	12	UTILITY PLAN II - "TPL" 13+50.00 TO "IMR" 20+00.00
13	13	UTILITY PLAN III - "TPL" 20+00.00 TO "TPL" 24+00.00
14	14	UTILITY PLAN IV - "TPL" 24+00.00 TO "TPL" 28+50.00
15	15	UTILITY LATERAL I
16	16	WATER EASEMENT I
17	17	DETAIL SHEET I

APPROVALS	
ACTING CITY ENGINEER—ROSA CORTEZ PE, #17505	DATE
APPROVAL OF THESE PLANS BY THE CITY ENGINEER IS LIMITED TO THOSE IMPROVEMENTS CONSTRUCTED IN THE DEDICATED RIGHT-OF-WAY, AND/OR DEDICATED EASEMENTS. THIS APPROVAL DOES NOT AUTHORIZE CONSTRUCTION OF ANY IMPROVEMENTS THAT DEVIATE FROM ADOPTED STANDARDS AND/OR SPECIFICATIONS EXCEPT THOSE SPECIALLY LISTED UNDER DEVIATIONS FORM STANDARDS. THE ENGINEER SHALL RESOLVE ANY DEVIATION OTHER THAN THOSE LISTED IN DEVIATIONS FROM STANDARDS IN FAVOR OF THE UNIFORM STANDARD DRAWINGS AND SPECIFICATIONS, CLARK COUNTY AREA, NEVADA.	
LAS VEGAS FIRE AND RESCUE	DATE
CITY OF LAS VEGAS — PLANNING DEPARTMENT	DATE
THIS PLAN MEETS THE APPLICABLE STANDARDS OF THE PLANNING DEPARTMENT.	
CENTRAL TELEPHONE CO. DBA CENTURYLINK	DATE
THE AFFIXED CENTURYLINK APPROVAL DOES NOT ASSUME OR GUARANTEE LIABILITY FOR KNOWN OR UNKNOWN CONFLICTS WITH EXISTING OR PROPOSED IMPROVEMENTS. RESOLUTION OF ANY CONFLICT WILL BE ACCOMPLISHED PURSUANT TO LOCAL ORDINANCES, NEVADA REVISED STATUTES AND / OR PUBLIC UTILITY COMMISSION RULES AND REGULATIONS.	
APPROVED FOR CONSTRUCTION	
LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES PROJECT NO. ##### FIRST APPROVED DATE: _____ LVWVD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 20 GPM SHEETS: ADD FIELD	
NV ENERGY	DATE
NV ENERGY ACKNOWLEDGES THAT WE HAVE RECEIVED YOUR PLANS AND WILL PROVIDE SERVICE TO ALL ELECTRICAL NEEDS ASSOCIATED WITH THIS PROJECT. NV ENERGY RESERVES THE RIGHT TO ADDRESS ANY EXISTING OR FUTURE CONFLICTS ONCE THE FINAL DESIGN IS COMPLETED. THE NEW SERVICE AND THE RESOLUTION OF ANY CONFLICTS WILL BE ACCOMPLISHED PURSUANT TO THE NEVADA PUBLIC UTILITY COMMISSION'S RULES AND REGULATIONS.	
SOUTHWEST GAS CORPORATION	DATE
COX COMMUNICATIONS LAS VEGAS, INC.	DATE

OWNER	DEVELOPER	ENGINEER
NORTHLAND LLC, EASTLAND LLC, EAST OF 95 LLC, c/o NINETY FIVE MANAGEMENT, LLC 11411 SOUTHERN HIGHLANDS, SUITE 300 LAS VEGAS, NV 89141 PH: 702-220-6565	SC EAST LANDCO, LLC 9275 RUSSELL ROAD, SUITE 400 WESTWOOD TEAM LAS VEGAS, NV 89148 PH: 702-821-4808	SLATER HANIFAN GROUP, INC. 5740 S. ARVILLE STREET, SUITE 216 LAS VEGAS, NV 89118 PH: 702-284-5300 CONTACT: JOSH JOHNSON

BENCHMARK
BENCHMARK ID: USDA (1934) 19
U.S. DEPARTMENT OF AGRICULTURE BRASS DISC AT SOUTHWEST CORNER OF U.S. 95 AND KYLE CANYON ROAD
ELEVATION = 2817.61 FEET, 858.810 METERS
NAVD 88 DATUM
PER THE CITY OF LAS VEGAS BENCHMARK BOOK — 2008 ADJUSTMENT (UPDATED 05/24/2010)

BASIS OF BEARINGS
NORTH 0°01'50" WEST, BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 6, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREOF IN FILE 151, PAGE 14 OF SURVEYS IN THE CLARK COUNTY RECORDER'S OFFICE, NEVADA.

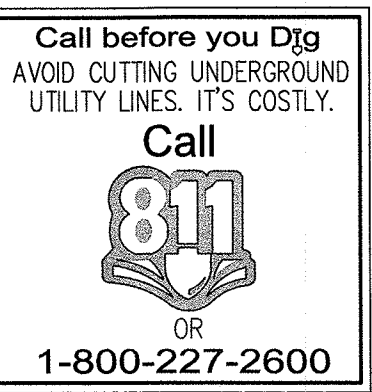
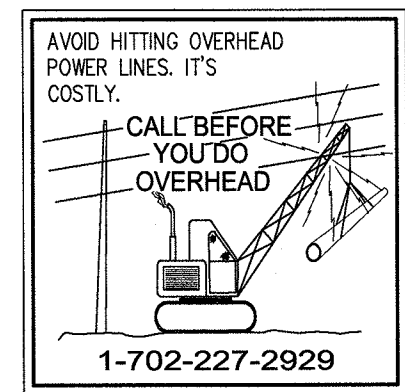
FEMA FLOOD ZONE INFORMATION
THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE "X" (OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) ON THE FLOOD INSURANCE RATE MAP (FIRM) PANELS: 32003C1735E AND 32003C1750E BOTH DATED SEPTEMBER 27, 2002

M.O.U. ITEMS
TMP-76718, JULY 23, 2019
NONE

DEVIATIONS FROM STANDARDS
NONE

SWPPP NOTE
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/BWPC/STORM01.HTM PROJECTS THAT DISTURB MORE THAN 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.

GEOTECHNICAL ENGINEER
PREPARED BY: FIRM ADDRESS: ADDRESS PHONE: PHONE # PROJECT NO. PROJECT NUMBER DATED: DATE



SLATER HANIFAN GROUP

a Westwood team

5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
IRON MOUNTAIN ROAD AND TEE PEE LANE
COVER SHEET

DATE: 09/26/19

DRAFTER: SB/JR

DESIGNER: BC

CHECKED: JJ

PROJECT NO. EST1911-000 IPS

ENGINEER

JOSHUA L. JOHNSON

Exp. 06/30/2021

Professional Seal No. 15789

CS-1

SHEET 1 OF 17

STORMWATER RUNOFF MANAGEMENT

(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 POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATE IN, THE PUBLIC RIGHTS 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 EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN TITLE 24.40 AND 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 IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. SOME EXCEPTIONS MAY APPLY, REFER TO NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVRI00000, SECTION III.A.5.
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 PRECIPITATION, VEHICLE ENTRANCE AND EXIT 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. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVRI00000, SECTION III.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, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

LEGAL DESCRIPTION

?

BENCHMARK

PROJECT DATUM:

BASIS OF BEARINGS

THE BASIS OF BEARING IS

SOUTHERN NEVADA - SOUTHWEST GAS CORPORATION GENERAL NOTES

1. IN THE EVENT OF NATURAL GAS EMERGENCIES CALL 911 AND 1-877-860-6020
2. MINIMUM HORIZONTAL AND VERTICAL CLEARANCES BETWEEN NATURAL GAS FACILITIES AND ANY UNDERGROUND UTILITIES AND/OR STRUCTURES, INCLUDING BUT NOT LIMITED TO WATER, SEWER, STORM DRAIN, COMMUNICATIONS, AND ELECTRICAL, SHALL BE AT LEAST 12-INCHES OR GREATER AS DICTATED BY LOCAL CODES AND STANDARDS.
A) ANY DEVIATION FROM SPECIFIED MINIMUM CLEARANCES MUST BE APPROVED BY ALL AFFECTED UTILITIES AND/OR MUNICIPALITIES
3. FOR VALVE ADJUSTMENT CONTACT 702-668-6107 48 HOURS PRIOR TO CONSTRUCTION.
4. IN THE EVENT OF NATURAL GAS CONFLICT WITH PROPOSED UTILITIES AND STRUCTURES CONTACT 702-365-2099

CAUTION: HIGH PRESSURE GAS

CALL SOUTHWEST GAS AT 702-400-1789 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES 48 HOURS PRIOR TO CONSTRUCTION

SOUTHWEST GAS APPROVAL

SOUTHWEST GAS CORPORATION

DATE

2.2 CITY OF LAS VEGAS SEWER NOTES

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

LAS VEGAS VALLEY WATER DISTRICT (LVVWD) STANDARD NOTES

LVVWD PROJECT #_ADD FIELD_ (REVISED 08/01/2017)

1. NO WORK SHALL BEGIN UNTIL THE WATER PLANS HAVE BEEN APPROVED FOR CONSTRUCTION BY THE LVVWD. FOLLOWING WATER PLAN APPROVAL, NOTICE SHALL BE GIVEN TO THE LVVWD COMMUNICATION SUPPORT CENTER (258-7171) TWO (2) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION. FOR FUTURE INSPECTIONS, NOTICE MUST BE GIVEN BY 2:00 P.M. THE BUSINESS DAY PRIOR TO THE REQUESTED LVVWD INSPECTION. WHEN REQUESTING INSPECTIONS, PLEASE REFER TO THE PROJECT # IDENTIFIED ABOVE.
2. ALL WORK SHALL CONFORM TO LVVWD STANDARD 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.
4. A SINGLE PIPE MATERIAL SHALL BE USED THROUGHOUT THE PROJECT UNLESS OTHERWISE APPROVED BY THE LVVWD.
5. ALL SERVICE LATERALS TWO (2) INCHES IN DIAMETER AND SMALLER SHALL BE TYPE K COPPER TUBING WITH LVVWD APPROVED SERVICE SADDLES.
6. ALL WATER METER BOXES SHALL BE LOCATED OUTSIDE OF DRIVEWAY AREAS.
7. ALL VALVES SHALL BE LOCATED OUTSIDE OF DRIVEWAYS, VALLEY AND CURB GUTTERS.
8. ALL WATER AND STORM DRAIN OR SANITARY SEWER CROSSINGS SHALL CONFORM TO SECTION 2.2.2 OF THE 2010 EDITION OF THE UDACS.
9. ALL WATER FACILITIES AND APPURTENANCES SHALL BE DISINFECTED, PRESSURE TESTED, AND HAVE AN ACCEPTABLE PASSING HEALTH WATER SAMPLE OBTAINED, PRIOR TO OPERATION AND USE.
10. THE CONTRACTOR MUST OBTAIN ALL METERS TWO (2) INCHES AND SMALLER FROM LVVWD CENTRAL STORES. TELEPHONE 258-3152 OR 258-3802, TWO (2) WORKING DAYS PRIOR TO METER PICKUP.
11. ANY INTERRUPTION OF SERVICE MUST BE PERFORMED IN ACCORDANCE WITH UDACS SECTION 3.14.01, AND APPROVED BY THE LVVWD INSPECTION DIVISION PRIOR TO SHUTDOWN. PROPER WRITTEN NOTIFICATION MUST BE GIVEN TO ALL AFFECTED CUSTOMERS.
12. ALL WATER FACILITY CONSTRUCTION MATERIALS USED MUST BE AS LISTED ON THE LVVWD APPROVED PRODUCTS LIST FOR NEW FACILITIES, LATEST REVISION, OR SPECIFICALLY APPROVED ON THESE PLANS BY SUBMITTING SHOP DRAWINGS.
13. TELEPHONE "CALL BEFORE YOU DIG" AT "811" OR 1-800-227-2600.
14. THE INSTALLATION OF LVVWD MUNICIPAL WATER FACILITIES WITHIN ALL STREETS IS ASSUMED TO BE IN COMPLIANCE WITH THE UNIFORM STANDARDS, INCLUDING THE PLACEMENT OF ASPHALT PAVING STREET SURFACES. ANY REPAIR WORK DONE BY THE LVVWD TO THE MUNICIPAL WATER FACILITIES WILL INCLUDE THE PLACEMENT OF AN APPROPRIATELY SIZED ASPHALT REPAIR PATCH ON THE STREET SURFACE.

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

NO LEAD COMPLIANCE NOTE
TO COMPLY WITH THE FEDERAL SAFE DRINKING WATER ACT, ALL WATER WORKS BRASS PRODUCTS PROPOSED TO BE RELOCATED, OR INSTALLED AS NEW MUST BE INSTALLED WITH THE LEAD FREE APPROVED PRODUCT. THE OLD LEADED PRODUCT MAY NOT BE REUSED.

GRADING NOTES

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 FINISHED 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 SOUTHWEST GEOTECHNICAL, PROJECT NO. 182187, DATED 04/25/2018.
6. EARTHWORK QUANTITIES (RAW):
-CUT = 5,116 CUBIC YARDS
-FILL = 4,395 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 FOR 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.

CITY OF LAS VEGAS FIRE AND RESCUE GENERAL NOTES

1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LAS VEGAS FIRE AND RESCUE ADOPTED FIRE CODE, CLARK COUNTY AREA NEVADA, LATEST EDITION, AND THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, CLARK COUNTY AREA NEVADA", LATEST REVISED EDITION.
2. ONLY FIRE HYDRANTS THAT ARE ON THE LAS VEGAS VALLEY WATER DISTRICT'S -- APPROVED PRODUCTS LIST ARE ALLOWED TO BE INSTALLED.
3. A PERMIT IS REQUIRED FROM LAS VEGAS FIRE AND RESCUE FOR THE INSTALLATION OF ON-SITE WATER LINES AND FIRE HYDRANTS. THE PERMIT AND CONTRACTORS MATERIAL TEST CERTIFICATE FOR UNDERGROUND PIPING FORM SHALL BE OBTAINED FROM THE FIRE PROTECTION ENGINEER BEFORE COMMENCEMENT OF WORK. IFC § 105.6.15
4. ON ANY RESIDENTIAL OR COMMERCIAL INSTALLATIONS, FIRE HYDRANTS SHALL BE INSTALLED AND FIRE APPARATUS ACCESS ROADS SHALL BE MAINTAINED BEFORE COMMENCEMENT OF ANY COMBUSTIBLE CONSTRUCTION. ALL FIRE HOODWAYS SHALL BE 2000 WORKING ORDER AND SHALL BE CAPABLE OF DELIVERING THE REQUIRED FIRE FLOW. IFC § 3310, § 3312
5. TO IDENTIFY THE FIRE HYDRANT LOCATIONS, THE CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER LINE OF THE STREET ADJACENT TO THE FIRE HYDRANTS. IFC § 507.5.7.3
6. ALL UNDERGROUND INSPECTIONS, PRESSURE AND FLUSH VERIFICATIONS OF ALL FIRE HYDRANTS AND FIRE LINES, SHALL BE CONDUCTED BEFORE COVERING THE LINES. CENTER LOADING IS ACCEPTABLE FOR THE HYDRO TESTS WITH PRIOR FIRE PREVENTION APPROVAL. IFC § 108.3
7. ALL ON-SITE UNDERGROUND WATER MAINS AND MATERIALS SHALL BE U.L. LISTED, A.W.I.A APPROVED AND SHALL BE RATED FOR THE APPROPRIATE WORKING PRESSURE. IFC § 507.2.1, NFPA 24.
8. PAINTING OF CURBS, FIRE HYDRANTS, PADS, PROTECTION OF FIRE HYDRANTS FROM PHYSICAL DAMAGE, AND ALL OTHER WORK NECESSARY PER PLANS SHALL BE COMPLETED BEFORE APPROVAL BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION. IFC § 507
9. PRIVATE HYDRANTS SHALL BE PAINTED RED. IFC § 507.5.1
10. PRIOR TO THE FINAL OCCUPANCY, A FIRE FLOW TEST SHALL BE WITNESSED BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION TO VERIFY AVAILABILITY OF THE REQUIRED FIRE FLOW. IFC § 507
11. FIRE HYDRANT SPACING SHALL BE AS FOLLOWS: IFC § C102
 - RESIDENTIAL -- 500 FT UNSPRINKLERED; 800 FT SPRINKLERED.
 - COMMERCIAL -- 300 FT UNSPRINKLERED; 400 FT SPRINKLERED.
12. WHERE THE WATER MAINS ARE EXTENDED ALONG STREETS OR NEW STREETS ARE INSTALLED WHERE FIRE HYDRANTS ARE NOT NEEDED FOR PROTECTION OF THE STRUCTURES, FIRE HYDRANTS SHALL BE INSTALLED AT A MAXIMUM OF 1000 FT SPACING, TO PROVIDE FOR TRANSPORTATION HAZARDS. WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS OR HAVE FOUR (4) OR MORE TRAFFIC LANES AND HAVE A TRAFFIC COUNTRY OF MORE THAN SEVENTY FIVE (75) FEET, HYDRANTS ARE REQUIRED ON EACH SIDE OF THE STREET SPACED AT 500 FT ON AN ALTERNATING BASIS. IFC § C102.8
13. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN THE RADIUS OF A CUL-DE-SAC OR WITHIN 20 FT OF THE PERIMETER OF THE RADIUS OF THE CUL-DE-SAC.
14. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN 6 FT OF ANY CURB RETURN, DRIVEWAY, POWER POLE, STREETLIGHT OR ANY OTHER OBSTRUCTION. IFC § C102.10
15. A MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A ONE-TWO FAMILY DWELLING SHALL NOT EXCEED 300 FT, AS MEASURED BY AN APPROVED ROUTE. IFC § C102.4
16. THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A FIRE DEPARTMENT CONNECTION (FDC) SHALL NOT EXCEED 100 FT, AS MEASURED BY AN APPROVED ROUTE. IFC § C102.7
17. THE MAXIMUM DISTANCE FROM A HYDRANT TO THE END OF A DEAD-END STREET SHALL NOT EXCEED 200 FT. IFC § C102.6
18. TWO (2) SOURCES OF SUPPLY ARE REQUIRED WHENEVER THERE IS 4 OR MORE FIRE HYDRANTS/SPRINKLER LEAD-INS ARE INSTALLED ON A SINGLE SYSTEM. FOR SYSTEMS REQUIRED TO HAVE TWO (2) SOURCES OF WATER SUPPLY, SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 2 FIRE HYDRANTS AND/OR FIRE SPRINKLER LEAD-INS CAN BE OUT OF SERVICE DUE TO A SERVICE INTERRUPTION. FOR SYSTEMS PERMITTED TO HAVE ONE SOURCE OF WATER SUPPLY, SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 3 FIRE HYDRANTS AND/OR FIRE SPRINKLER LEAD-INS CAN BE OUT OF SERVICE DUE TO A SERVICE INTERRUPTION. IFC § C104
19. ALL FIRE APPARATUS ACCESS ROADS SHALL BE PAVED TO PROVIDE ALL-WEATHER DRIVING CAPABILITIES, AND SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF THE FIRE APPARATUS. IFC § 503.2.3
20. THE GRADIENT FOR THE FIRE APPARATUS ACCESS ROADS SHALL NOT EXCEED 12% ANGLES OF APPROACH AND ANGLES OF DEPARTURE SHALL NOT EXCEED 8% FOR 25 FT PRIOR TO OR AFTER THE GRADE CHANGE. ADJACENT TO THE STRUCTURES GRADIENT SHALL NOT EXCEED 6%. IFC § 503.2.7, § 503.2.8
21. THE TURNING RADIUS OF THE FIRE APPARATUS ACCESS ROADS SHALL BE NO LESS THAN 52 FT OUTSIDE AND 28 FT INSIDE TURNING RADIUS. IFC § 503.2.4
22. VERTICAL CLEARANCE OF ALL FIRE APPARATUS ACCESS ROADS SHALL NOT BE LESS THAN 13FT 6 INS. IFC § 503.2.1
23. FIRE DEPARTMENT ACCESS ROADS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF NOT LESS THAN 33 FT WITH PARKING ON BOTH SIDES MEASURED TO FACE OF CURB, NOT LESS THAN 28 FT WIDE WITH PARKING RESTRICTED TO ONE SIDE MEASURED TO FACE OF CURB, NOT LESS THAN 24 FT WIDE WITH NO PARKING ON EITHER SIDE MEASURED TO FACE OF CURB. FIRE LINES THROUGH PARKING LOTS SHALL BE NOT LESS THAN 24 FT. IFC § 503.2.1.1
24. A FIRE APPARATUS ACCESS ROAD SHALL BE REQUIRED WHEN ANY PORTION OF AN EXTERIOR WALL OF THE FIRST STORY IS LOCATED MORE THAN 150 FT FROM A FIRE DEPARTMENT VEHICLE ACCESS. IFC § 503.1.1
25. APPROVED SECONDARY FIRE APPARATUS ACCESS SHALL BE PROVIDED FOR 200 OR MORE DWELLING UNITS, ROAD(S) WITH DEAD-ENDS OR A SINGLE POINT OF ACCESS IN EXCESS OF 600 FT. CLV REGULATION AND MOU
26. ALL DEAD-END FIRE APPARATUS ROADS AND/OR FIRE LINES, PUBLIC OR PRIVATE, IN EXCESS OF 150 FT IN LENGTH SHALL BE PROVIDED WITH AN APPROVED TURN AROUND HAVING A MINIMUM DIAMETER OF 81 FT. CLV REGULATION
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 FT ALONG THE DESIGNATED FIRE LANE. SIGNS TO BE PLACED ON BOTH SIDES OF AN ACCESS ROADWAY IF NEEDED TO PREVENT PARKING ON EITHER SIDE. SIGNS TO BE INSTALLED NO MORE THAN 10 FT OR LESS THAN 6 FT FROM THE ROADWAY LEVEL. THE CURB ALONG OR ON THE PAVEMENT OR CEMENT (IF NO CURB IS PROVIDED) SHALL BE PAINTED WITH A RED WEATHER RESISTANT PAINT IN ADDITION TO THE SIGNS. IFC § 503.3
28. ELECTRICALLY CONTROLLED ACCESS GATES SHALL BE PROVIDED WITH AN APPROVED EMERGENCY VEHICLE DETECTOR/RECEIVER SYSTEM. IFC § 503.6
29. WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS, OR HAVING FOUR OR MORE TRAVEL LANES AND A TRAFFIC COUNTRY OF MORE THAN 30.00 FEET, UTILITIES HYDRANTS BEING UTILIZED TO DELIVER FIRE FLOW TO THE PROPOSED LOCATION SHALL BE LOCATED ON THE SAME SIDE OF THE STREET AS THE PROPOSED DEVELOPMENT. CLV REGULATION

2.5 CITY OF LAS VEGAS GRADING NOTES

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 GRADES AND SLOPES SHOWN.
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 COLLAPSE 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 STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND ASSOCIATED PERMIT.
6. CONTRACTOR SHALL GRADE TO THE LINES AND ELEVATIONS SHOWN ON THE PLANS WITHIN THE FOLLOWING HORIZONTAL AND VERTICAL TOLERANCES AND DEGREES OF COMPACTION, IN THE AREAS INDICATED:

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

SEE SOILS REPORT
SEE SOILS REPORT
COMPACTION TESTING WILL BE PERFORMED BY THE OWNER OR HIS REPRESENTATIVE.
7. ALL CUT AND FILL SLOPES SHALL BE PROTECTED UNTIL EFFECTIVE EROSION CONTROL HAS BEEN ESTABLISHED.
8. THE USE OF POTABLE WATER WITHOUT A SPECIAL PERMIT FOR BUILDING OR CONSTRUCTION PURPOSES INCLUDING CONSOLIDATION OF BACKFILL OR DUST CONTROL IS PROHIBITED. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR CONSTRUCTION.
9. THE CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS AND ALL OTHER PUBLIC RIGHT-OF-WAY IN A CLEAN, SAFE AND USABLE CONDITION. ALL SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE PUBLICLY OWNED PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT. ALL ADJACENT PROPERTY, PRIVATE OR PUBLIC SHALL BE MAINTAINED IN A CLEAN, SAFE AND USABLE CONDITION.
10. IN THE EVENT THAT ANY TEMPORARY CONSTRUCTION ITEM IS REQUIRED THAT IS NOT SHOWN ON THESE DRAWINGS, THE OWNER AGREES TO PROVIDE AND INSTALL SUCH ITEM AT HIS OWN EXPENSE AND AT THE DIRECTION OF THE CITY ENGINEER. TEMPORARY CONSTRUCTION INCLUDES DITCHES, BERMS, ROAD SIGNS AND BARRICADES, ETC.

UTILITY LOCATION NOTE TO CONTRACTOR

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; SOUTHWEST GAS CORPORATION: 702-400-1789 (STANDBY CONTACT NUMBER)

2.1 CITY OF LAS VEGAS GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA NEVADA", LATEST EDITION, AND THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, CLARK COUNTY AREA NEVADA", LATEST REVISED EDITION; THE "SUMMERLIN APPROVED STANDARDS" FOR WORK IN THE SUMMERLIN AREA, AND OTHER APPLICABLE IMPROVEMENT STANDARDS ISSUED BY THE CONTROLLING AGENCY; THE UNIFORM BUILDING CODE, AND ALL LOCAL CITY CODES AND ORDINANCES APPLICABLE, EXCEPT AS NOTED ON THIS SHEET AS "DEVIATIONS FROM STANDARDS".
2. THE EXISTENCE AND LOCATION OF ANY OVERHEAD OR UNDERGROUND UTILITY LINES, PIPES, OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A RESEARCH OF THE AVAILABLE RECORDS. EXISTING UTILITIES AS SHOWN FROM CLV PLANS LIBRARY ARE APPROXIMATE AND FOR RECORD PURPOSES. EXISTING UTILITIES ARE LOCATED ON PLANS ONLY FOR THE CONVENIENCE OF THE CONTRACTOR. EXISTING UTILITY SERVICE LATERALS MAY NOT BE SHOWN ON THE PLANS. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, LOCATE ALL UNDERGROUND AND OVERHEAD INTERFERENCES WHICH MAY AFFECT HIS OPERATION DURING CONSTRUCTION AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO SAME. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING NEAR OVERHEAD UTILITIES SO AS TO SAFELY PROTECT ALL PERSONNEL AND EQUIPMENT, AND SHALL BE RESPONSIBLE FOR ALL COST AND LIABILITY IN CONNECTION THEREWITH.
3. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING UTILITY LINES, STRUCTURES AND STREET IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE, FROM DAMAGE, AND ALL SUCH IMPROVEMENTS OR STRUCTURES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED SATISFACTORY TO THE CITY ENGINEER AND OWNING UTILITY COMPANY AT THE EXPENSE OF THE CONTRACTOR.
4. ALL CONSTRUCTION SHALL BE AS SHOWN ON THESE PLANS, ANY REVISIONS SHALL HAVE THE PERMIT WRITTEN APPROVAL OF THE CITY ENGINEER.
5. TYPE V CEMENT SHALL BE USED IN ALL OFF-SITE CONCRETE WORK. CONCRETE TO BE 3000 P.S.I. MINIMUM @ 28 DAYS. MIX DESIGNS TO BE APPROVED BY THE CITY, PRIOR TO THE USE ON THE PROJECT.
6. PERMITS ARE REQUIRED FOR ANY WORK IN THE PUBLIC RIGHT-OF-WAY. THE CONTRACTOR SHALL SECURE ALL PERMITS AND INSPECTIONS REQUIRED FOR THIS CONSTRUCTION.
7. EXPANSION JOINTS REQUIRED, MAXIMUM EVERY 300' IN EXTRUDED-TYPE CURB.
8. AC PAVEMENT TO BE ONE-HALF INCH (1/2") ABOVE LIP OF ALL GUTTERS AFTER COMPACTION, EXCEPT AT SIDEWALK RAMPS AND CROSS GUTTERS.
9. CURB AND GUTTER FOUNDED TO BE UNACCEPTABLE TO THE CITY OF LAS VEGAS SHALL BE REMOVED AND REPLACED PER STANDARD DRAWING 216.
10. SIDEWALK RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING 235. EXACT LOCATION OF RAMPS MAY BE ADJUSTED IN THE FIELD BY A CITY INSPECTOR.
11. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITIONS BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND FOR INGRESS AND EGRESS TO NEW CONSTRUCTION. THE EXTENT OF THE TRANSITIONS TO BE AS SHOWN ON PLANS.
12. ALL GRADING WORK SHALL CONFORM TO THE SOILS REPORT AS PREPARED BY _ADD FIELD_ REPORT (ADD FIELD). _ADD FIELD_ APPROVED BY THE CITY ENGINEER, AND AS SHOWN ON THESE PLANS.
13. EXACT LOCATION OF ALL SAWHUT 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 & CITY OF LAS VEGAS TITLE 18, APPENDIX D.
15. UTILITY COMPANY METER BOXES, MANHOLE LIDS, VALVE COVERS, ETC., SHALL BE LOCATED OUT OF DRIVEWAYS, DRIVEWAY APRONS, FLOWLINES, AND CROSS GUTTERS UNLESS WRITTEN APPROVAL IS GRANTED BY THE UTILITY COMPANY AND THE CITY ENGINEER.
16. ALL WALLS, NEW OR EXISTING, ARE ONLY SHOWN ON CIVIL PLANS FOR THE PURPOSE OF REVIEWING GRADING RELATIONSHIPS; FLOOD CONTROL AND SIGHT DISTANCE AT INTERSECTIONS, NEW WALLS REQUIRE A SEPARATE PERMIT AND INSPECTION BY THE BUILDING DEPARTMENT.
17. ASPHALT MIX DESIGN MUST BE SUBMITTED AND APPROVED BY THE CITY ENGINEER PRIOR TO THE PLACEMENT OF ASPHALT WITHIN CITY RIGHT-OF-WAY.
18. CONTRACTOR SHALL ADJUST ALL NEW AND EXISTING INLETS, VALVE BOXES, MANHOLE RIMS, AND SEWER CLEAN OUTS ETC. FINISH GRAS AS APPLICABLE WHETHER OR NOT THEY ARE SHOWN ON THE PLANS.
19. MATERIALS, HANDLING AND PLACEMENT OF PORTLAND CEMENT CONCRETE SHALL BE IN ACCORDANCE WITH APPLICABLE SECTIONS OF NDOT OR THE CLARK COUNTY AREA SPECIFICATIONS (AS APPLICABLE) AND THE PLANS AND DETAILS SHOWN HEREON.
20. WHEN INSTALLING UNDERGROUND FACILITIES THAT REQUIRE UNDERGROUND LOCATING DEVICES SUCH AS MARKER BALLS, LOCATING RIBBON, ETC., THE CONTRACTOR SHALL PROVIDE WRITTEN DOCUMENTATION TO OFFSITE INSPECTION AND TESTING CERTIFYING THAT ALL DEVICES HAVE BEEN PLACED AND VERIFIED TO BE IN GOOD WORKING CONDITION PRIOR TO THE CONSTRUCTION OF ANY ROAD BASE.
21. SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S) SHALL BE PROVIDED TO THE CITY AND APPROVED PRIOR TO ACCEPTANCE OF FACILITY VIDEO INSPECTION. THE MAP(S) SHALL INCLUDE THE HORIZONTAL AND VERTICAL (INVERT) LOCATION OF THE PUBLIC SEWER MANHOLES, STORM DRAIN MANHOLES AND TRANSITION STRUCTURES, STORM DRAIN LATERALS AT THE CONNECTION TO THE STORM DRAIN MAIN AND THE CONNECTION TO A DROP INLET, THE CONNECTION OF SEWER SERVICE LATERALS TO THE SEWER MAIN AND WHERE THE SEWER SERVICE LATERALS EXIT THE PUBLIC RIGHT-OF-WAY, SEWER AND STORM DRAIN MAIN ALIGNMENT, INCLUDING DEFLECTION POINTS. THE LOCATION SHALL BE DESCRIBED BY COORDINATES WHICH SHALL BE BASED ON THE OFFICIAL HORIZONTAL AND VERTICAL CONTROL NETWORKS OF THE CITY OF LAS VEGAS. FINAL LOCATION MAP(S) MUST BE SEALED AND CERTIFIED BY A NEVADA PROFESSIONAL LAND SURVEYOR TO HAVE POSITIONAL CERTANTIES OF ± 0.09 METERS (± 0.3 FEET) HORIZONTALLY AND VERTICALLY. A SEPARATION ELECTRONIC COMMA DELIMITED FILE FOR THE SANITARY SEWER AND STORM DRAIN COORDINATES SHALL ALSO ACCOMPANY THE SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S).
22. CCTV VIDEO INSPECTION IS REQUIRED FOR ALL SEWER AND STORM DRAINS. THE CCTV VIDEO INSPECTIONS NEED TO BE PERFORMED PER THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS LATEST ADDITION.
23. A SEPARATE BORING PERMIT IS REQUIRED FOR ALL BORING ACTIVITIES.

2.3 CITY OF LAS VEGAS TRAFFIC NOTES

1. ALL CONSTRUCTION SIGNING, BARRICADING, AND TRAFFIC DELINEATION SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST EDITION.
2. THE STREET SIGN CONTRACTOR SHALL OBTAIN STREET NAMES AND BLOCK NUMBERING FROM THE PLANNING DEPARTMENT PRIOR TO CONSTRUCTION.
3. BEFORE ANY WORK IS STARTED IN THE RIGHT-OF-WAY, THE CONTRACTOR SHALL INSTALL ALL ADVANCE WARNING SIGNS FOR THE CONSTRUCTION ZONE. THE CONTRACTOR SHALL INSTALL TEMPORARY STOP SIGNS AT ALL NEW STREET ENCROACHMENTS INTO EXISTING CITY STREETS WHERE WARRANTED IMMEDIATELY AFTER FIRST GRADING WORK IS ACCOMPLISHED, AND SHALL MAINTAIN SAIL SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED.
4. WHEN A DESIGNATED "SAFE ROUTE TO SCHOOL" IS ENCROACHED UPON BY A CONSTRUCTION WORK ZONE AND PUBLIC WORKS STAFF IDENTIFIES A NEED FOR STUDENTS TO BE ASSESSED IN THE SAFE CROSSING THROUGHOUT THAT WORK ZONE, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE A QUALIFIED "CROSSING GUARD". THE GUARD SHALL BE PRESENT FOR THE FULL DURATION OF TIME THAT CHILDREN ARE LIKELY TO BE PRESENT.
5. IF THE IMPROVEMENTS NECESSITATE THE OBLITERATION, TEMPORARY OBSTRUCTION, TEMPORARY REMOVAL OR RELOCATION OF ANY EXISTING TRAFFIC PAVEMENT MARKING, SUCH PAVEMENT MARKING SHALL BE RESTORED OR REPLACED WITH LIKE MATERIALS TO THE SATISFACTION OF THE CITY TRAFFIC ENGINEER.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL PERMANENT SIGNS SHOWN ON THE PLANS. ALL NEW TRAFFIC SIGNS SHALL BE FABRICATED WITH DIAMOND GRADE VIP CLASS B REFLECTIVE SHEETING OR APPROVED EQUAL. ALL NEW TRAFFIC SIGNS, EXCEPT STREET NAME AND SCHOOL SPEED LIMIT SIGNS, SHALL HAVE 3M SERIES 1160 OR APPROVED EQUIVALENT ANTI-GRAFFITI PROTECTIVE OVERLAY FILM. SCHOOL ZONE SIGNS SHALL HAVE 3M SERIES 1150 ANTI-GRAFFITI PROTECTIVE OVERLAY FILM. STREET NAME SIGNS SHALL CONFORM IN THEIR ENTIRETY TO CURRENT CITY STANDARDS. ALL OTHER SIGNS SHALL BE STANDARD SIZE UNLESS OTHERWISE SPECIFIED ON THE PLANS. ALL SIGN POSTS SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENT CITY STANDARDS.
7. WHEN A PROPOSED STREET LIGHT STANDARD IS LOCATED WITHIN FIVE (5') FEET OF ANY PROPOSED SIGN SHOWN ON THE PLANS TO BE MOUNTED ON A SIGNPOST, THE SIGN SHALL BE MOUNTED ON THE STREET LIGHT STANDARD AND THE SIGNPOST SHALL BE ELIMINATED.
8. ALL PERMANENT TRAFFIC CONTROL DEVICES CALLED FOR HEREON SHALL BE IN PLACE AND IN FINAL POSITION PRIOR TO ALLOWING ANY PUBLIC TRAFFIC ONTO THE PORTIONS OF THE ROAD(S) BEING IMPROVED HERE UNDER, REGARDLESS OF THE STATUS 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 CONTROL DEVICES AND FLAGGERS TO INSURE THE SAFETY OF THE PUBLIC IN OR AROUND THE WORK AREA. THE CONTRACTOR SHALL HAVE A CERTIFIED ATSSA TRAFFIC CONTROL TECHNICIAN OR MSA WORK ZONE SAFETY SPECIALIST SET UP, MAINTAIN AND/OR REMOVE ALL TRAFFIC CONTROL 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 INCONVENIENCE TO ADJACENT PROPERTY OWNERS AND TO THE TRAVELING PUBLIC.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING CITIZENS AREA TRANSIT (C.A.T.) IF THE CONSTRUCTION INTERRUPTS OR RELOCATES A BUS STOP OR HAS AN ADVERSE EFFECT ON BUS SERVICE ON THAT STREET TO ARRANGE FOR TEMPORARY LOCATION OF STOP.
13. GUARDS SHALL BE OBTAINED BY CONTACTING THE METROPOLITAN POLICE DEPARTMENT SPECIAL EVENTS UNIT (PHONE 702-5442) WHO WILL PROVIDE OFFICERS PROPERLY TRAINED IN TRAFFIC CONTROL. FEES FOR THE USE OF THESE OFFICERS SHALL BE SET BY METRO AND WILL BE PAID BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR ALL ARRANGEMENTS WITH METRO.
14. ANY WORK WITHIN 300' OF A SIGNALIZED INTERSECTION WILL BE NIGHT WORK, UNLESS OTHERWISE DIRECTED BY THE CITY OF LAS VEGAS TRAFFIC ENGINEER.
15. THE CONTRACTOR SHALL CONTACT THE TRAFFIC ENGINEERING DIVISION (TRANSPORTATION SECTION) THROUGH THE PROJECT'S OFFSITE INSPECTOR PRIOR TO INITIATING PAVING TO RECEIVE DIRECTION FOR ANY PAVING OR TEMPORARY MODIFICATIONS TO THE APPROVED DRAWINGS REGARDING FINAL PAVEMENT TRANSITIONS, MARKINGS AND SIGNING THAT ARE REQUIRED TO MATCH ADJACENT ROADWAY SEGMENTS. THE CONTRACTOR SHALL PROVIDE A DRAWING FOR APPROVAL BY THE TRAFFIC ENGINEERING DIVISION DETECTING ANY ADJUSTMENTS TO THE FINAL PAVEMENT MARKINGS AND SIGNAGE, WHICH MAY INCLUDE OMITTING, ADDING OR MODIFYING PAVEMENT MARKINGS AND TRAFFIC CONTROL SIGNS SUCH THAT ADEQUATE TRANSITIONS AND LANE TERMINATIONS BETWEEN ADJACENT ROADWAY SEGMENTS ARE CONSTRUCTED.

2.4 CITY OF LAS VEGAS STREETLIGHT NOTES

1. ALL STREET LIGHTING INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE STREET LIGHTING PLANS, THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST REVISION (USS), AND THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA" (USD), LATEST REVISION.
2. DESIGN PROFESSIONAL AND CONTRACTOR SHALL VERIFY CITY'S LATEST LED FIXTURE SPECIFICATIONS AND APPROVED FIXTURES PER CLV WEBSITE, UNDER BUILDING AND SAFETY FORMS, PRIOR TO ORDERING MATERIALS.
3. NO DEVIATION OF STREET LIGHT, PULL BOX, CONDUITS ETC., LOCATIONS SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL OF TRAFFIC AND CITY ENGINEER. ANY DEVIATION FROM THE PLAN LOCATION WILL REQUIRE COMPLIANCE WITH SECTION 623 OF THE USS.
4. ALL EXISTING STREET LIGHTING SHALL REMAIN OPERATIONAL DURING CONSTRUCTION IN ACCORDANCE WITH SECTION 623 G.03.01 OF THE USS.
5. ALL EMPTY CONDUIT SHALL HAVE AT LEAST ONE GREEN NO. 18 AWG WIRE INSTALLED AS TRACER WIRE IN ACCORDANCE WITH SECTION 623 G.02.01 OF THE USS PRIOR TO BACKFILLING AND FINAL INSPECTION.
6. ANY STRUCTURE SUCH AS BLOCK WALLS, CHAIN LINK FENCES, RETAINING WALLS, ETC., SHALL LEAVE A MINIMUM CLEARANCE IN ACCORDANCE WITH THE USS NO. 2024, WHEN POLE IS INSTALLED BEHIND SIDEWALK, AND SHALL AT NO TIME COMPLETELY ENCLOSE THE STREET LIGHTING POLE.
7. AS-BUILT DRAWINGS SHALL BE SUPPLIED TO THE TRAFFIC ENGINEERING DIVISION. PRIOR TO ANY PRE-FINAL INSPECTION, THE AS-BUILT DRAWING NEEDS TO BE STAMPED AS-BUILT AND SIGNED BY THE PREPARER.
8. SERVICE POINT SHALL BE COORDINATED WITH NV ENERGY, AND WHEREVER POSSIBLE, BE LOCATED NEAR THE CENTER OF THE CIRCUIT. SERVICE POINTS SHALL BE SHOWN ON THE PLANS.
9. WHEREVER THERE IS AN OVERHEAD UTILITY THAT MAY CONFLICT WITH THE INSTALLATION OF STREET LIGHTING CIRCUITS AND/OR POLES, THESE CONFLICTS MUST BE RESOLVED BETWEEN THE DEVELOPER AND THE UTILITIES INVOLVED BEFORE STREETLIGHT BASKETS ARE INSTALLED. AT NO EXPENSE TO THE CITY OF LAS VEGAS.
10. THE CONTRACTOR SHALL FURNISH COMPLETE CONDUIT, WIRE, ETC. FROM SERVICE TO TRANSFORMERS AND CONTROL SYSTEMS IF REQUIRED ON THE PLANS.

DEVIATIONS FROM STANDARDS

NONE

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. _ADD FIELD_ FIRST APPROVED DATE: _____



SLATER
HANIFAN
GROUP
a Westwood team



5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118

PHONE (702) 284-5300

FAX (702) 284-5399

CITY OF LAS VEGAS

DESCRIPTION

NO.

ABBREVIATIONS

AC	ASPHALTIC CONCRETE OR ACRE	FL	FLOWLINE	PVI	POINT OF VERTICAL INTERSECTION
AGG	AGGREGATE BASE	FT	FEET OR FOOT	QTY	QUANTITY
APN	ASSESSORS PARCEL NUMBER	FRT	FUTURE	R	RADIUS
APPROX OR ~	APPROXIMATE	GRD	GRADE OR GROUND	RCA	REINFORCED CONCRETE ARCH
Ø	AT	GB	GRADE BREAK OR GRADE CHANGE	RCB	REINFORCED CONCRETE BOX
BC	BEGIN CURVE OR BACK OF CURB	GV	GATE VALVE	ROD	REINFORCED CONCRETE PIPE
BCR	BEGINNING OF CURB RETURN	HDE	HIGH DENSITY POLYETHYLENE	ROAD	ROAD
BHW	BOTTOM OF HEADWALL	HOMA	HOME OWNERS ASSOCIATION	ROADWAY ESMT	ROADWAY EASEMENT
BLDG	BUILDING	HORIZ	HORIZONTAL	REQD	REQUIRED
BOULEVARD		HP	HIGH POINT	REV	REVISION
BENCHMARK		HWL	HIGH WATER LEVEL	RG	ROUGH GRADE
BVC	BEGIN VERTICAL CURVE	HOWL OR HW	HYDRAULIC OR HYDRANT	RT OR R	RIGHT OF WAY
BWW	BACK WATER VALVE	ID	INSIDE DIAMETER	S	SLOPE
CC	CLARK COUNTY	IN	INCH	SCH	SCHEDULE
CCAPU	CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS	INT	INTERSECTION	SD	STORM DRAIN
CCPUD	CLARK COUNTY PUBLIC WORKS	INV	INVERT ELEVATION	SDOI	STORM DRAIN DROP INLET
CCRCFD	CLARK COUNTY REGIONAL FLOOD DISTRICT	IRP	IRON PIPE	SDMH	STORM DRAIN MANHOLE
CL	CLARK COUNTY WATER RECLAMATION DISTRICT	IRRIG	IRRIGATION	SEC	SECTION
CE	CEMENT ELEMENT	IS	INCHES FEET	SFE	SQUARE FEET
CL/C/L/C	CENTERLINE	LMC	LANDSCAPE MAINTENANCE CORPORATION	SHT	SHEET
CLR	CLEAR OR CLEARANCE	LP	LOW POINT	SHT	STREET LIGHT & TRAFFIC CONTROL ESMT
CLSM	CONTROLLED LOW STRENGTH MATERIAL	LT OR L	LEFT	SNMA	SOUTH/N NEVADA WATER AUTHORITY SPECIFICATIONS
CLV	CLAY LUGS	LWLD	LOW WATER LEVEL	ST	STREET
CM/LC	CEMENT MORTAR LINED AND COATED	LWL	LOW WATER LEVEL	SSM	SANITARY SEWER MANHOLE
CMU	CONCRETE MASONRY UNIT	MAX	MAXIMUM	STA	STATION
CONV	CITY OF NORTH LAS VEGAS	MECH	MECHANICAL	STD	STANDARD
CITY	CITY OF HENDERSON	MH	MANHOLE	STL	STEEL
CONC	CONCRETE	MIN	MINIMUM	STL	STEEL
CT	COURT	MISC	MISCELLANEOUS	STLT	STREET LIGHT
CU OR CU YD	CUBIC YARD	MUN	MUNICIPAL UTILITY EASEMENT	SWG	SIDEWALK
DOWNS	DESIGN AND CONSTRUCTION FOR WASTEWATER COLLECTION SYSTEMS	NOOT	NEVADA DEPARTMENT OF TRANSPORTATION	SWR	SOUTHWEST GAS
DE	DESIGN	NTS	NOT TO SCALE	SWY	SANITARY SEWER
DET	DETENTION	NUE	NONEXCLUSIVITY UTILITY EASEMENT	SY	SQUARE YARD
DI	DIAMETER	NV ENVE	NV ENVIRONMENT	TANG	TANGENT
DIA. #	DIAMETER	OC	ON CENTER	TC	TOP OF CURB
DIP	DUCTILE IRON PIPE	OD	OUTSIDE DIAMETER OR OVERALL DIMENSION	TF	TOP OF FLOOR OR TOP OF FOOTING
DR	DRIVE	OFF	OFFSET	TO	TOP OF GRATE
DWG(S)	DRAWING	ORG	ORIGINAL	THRU	THROUGH
DWY	DRIVEWAY	PAC	PUBLIC OR PEDESTRIAN ACCESS EASEMENT	THW	TOP OF HEADWALL
EA	EACH	PB	PULL BOX	TP	TOP OF PIPE
EAR	END CURB RETURN	PC	POINT OF CURVE	TP	TOP OF WALL
EG	EXISTING GROUND	PCC	POINT OF COMPOUND CURVE	TRW	TOP OF RETAINING WALL
ELEV	ELEVATION	PDE	PUBLIC DRAINAGE EASEMENT	TSP	TOP OF SCREEN WALL
ESMT	EASEMENT	R	PROPERTY LINE	TY	TYPICAL
ERU	EDGE OF PAVEMENT	POB	POINT OF BEGINNING	UDACS	UNIFORM DESIGN AND CONSTRUCTION STANDARDS
EQU	EQUIVALENT RESIDENTIAL UNIT	POC	POINT OF CURVATURE	UE	UTILITY EASEMENT
EVC	END VERTICAL CURVE	POE	POINT OF ENDING	UC	UTILITY CURVE
EX OR EXIST	EXISTING	PRELIM	PRELIMINARY	VERT	VERTICAL
FACE	FACE OF CURB	PROP	PROPOSED	VGT	VALLEY GUTTER
FF	FINISHED FLOOR	PRV	PRESSURE REDUCING VALVE	WI	WROUGHT IRON
FG	FINISHED GRADE	PUE	PUBLIC UTILITY EASEMENT	WL	WATER LINE
FGH	FINISHED GRADE, HIGH SIDE	PT	POINT OF TANGENT OR POINT	WFZ	WATER PRESSURE ZONE
FTL	FINISHED GRADE, LOW SIDE	PVC	POLYVINYL CHLORIDE	WG	WEIGHT
FH	FIRE HYDRANT			WTR	WATER LINE

ALIGNMENT ABBREVIATIONS	
"IMR"	IRON MOUNTAIN ROAD
"TPL"	TEE PEE LANE
"BL"	BRENT LANE

SPECIAL NOTE

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 CITY OF LAS VEGAS DEPT. OF PUBLIC WORKS. TEMPORARY CONSTRUCTION ITEMS INCLUDE: PAVEMENT TRANSITIONS, PROTECTIVE DITCHES AND BERMS, ROAD SIGNS AND BARRICADES, ETC.

NOTICE TO CONTRACTOR

—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: (800) 227-2600

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		5' CONTOUR
		1' CONTOUR
		STRIPING
		SEWER MANHOLE
		CURB AND GUTTER
		SANITARY SEWER PIPE AND FLOW ARROW
		WATER PIPE
		WATER GATE VALVE
		FIRE HYDRANT
		WATER BLOW-OFF
		WATER LATERAL W/ METER
		SANITARY SEWER LATERAL
		STREETLIGHT
		EDGE OF PAVEMENT
		TRAFFIC SIGN
		PAD ELEVATION
		FINISHED FLOOR ELEVATION
		ELEVATION
		RETAINING WALL
		STORM DRAIN W/ MANHOLE
		EXISTING GAS GATE VALVE
		EXISTING UNKNOWN MANHOLE
		EXISTING GAS, SIZE PER PLAN
		EXISTING POWER POLE
		EXISTING TRAFFIC SIGNAL
		EXISTING WALL
		WATER PIPE FITTING
		WATER POINT OF CONNECTION
		EXISTING WATER POINT OF CONNECTION
		DAYLIGHT LINE
		STREET CENTERLINE
		RIGHT-OF-WAY
		MATCHLINE
		BOUNDARY LINE
		PHASE LINE
		PROPERTY LINE
		FLOWLINE
		SAWCUT
		CUT/FILL TRANSITION LINE
		SIDEWALK
		EX STRIPING TO BE OBLITERATED
		GRADE BREAK LINE
		REFLECTIVE RAISED PAVEMENT MARKERS
		BACK WATER VALVE
		WROUGHT IRON FENCE
		PONY WALL
		DECORATIVE PERIMETER WALL
		DECORATIVE PERIMETER RETAINING WALL
		PROPOSED CURB AND GUTTER WITH RIGHT-OF-WAY AT BACK OF CURB
		EXISTING CURB AND GUTTER WITH RIGHT-OF-WAY AT BACK OF CURB
		FUTURE CURB AND GUTTER WITH RIGHT-OF-WAY AT BACK OF CURB
		PROPOSED SCARP AREA
		DRIVEWAY
		PROPOSED RIP RAP
		SIGHT VISIBILITY ZONE PER STD DWG NO. 201.2
		HANDICAP RAMP

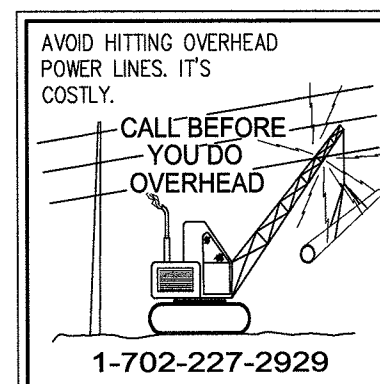
QUANTITIES		PRIVATE	PUBLIC
DRAINAGE			
1.	48" TYPE III STORM DRAIN MANHOLE	EA	3
2.	24" RCP CLASS IV STORM DRAIN	LF	39
3.	30" RCP CLASS IV STORM DRAIN	LF	111
4.	36" RCP CLASS IV STORM DRAIN	LF	230
5.	36" RCP CAP	EA	1
6.	RIPRAP D50=8", T=16"	SF	1907
7.			
8.			
9.			
10.			
11.			
12.			
13.			
SEWER SYSTEM			
1.	8" PVC SEWER PIPE (PUBLIC)	LF	143
2.	STANDARD 48" SEWER MANHOLE (PUBLIC)	EA	1
3.	8" SEWER PIPE CAP	EA	2
4.			
5.			
6.			
7.			
WATER SYSTEM			
1.	FIRE HYDRANT ASSEMBLY W/6" GATE VALVE PER UDACS PLATE NO. 40	EA	2
2.	6" PVC WATER PIPE (CLASS 150)	LF	23
3.	12" PVC WATER PIPE (CLASS 150)	LF	1347
4.	8" DIP WATER PIPE (CLASS 53)	LF	175
5.	8" GATE VALVE WITH VALVE BOX PER UDACS PLATE NO. 30 & 39	EA	3
6.	8" X 12" TEE PER UDACS PLATE NO. 31	EA	2
7.	12" X 12" TEE PER UDACS PLATE NO. 31	EA	1
8.	12" GATE VALVE WITH VALVE BOX PER UDACS PLATE NO. 30 & 39	EA	1
9.	8" 45 DEGREE BEND PER UDACS PLATE NO. 31	EA	6
10.	12" 45 DEGREE BEND PER UDACS PLATE NO. 31	EA	2
11.	12" X 8" REDUCER PER UDACS PLATE NO. 30	EA	1
12.	18" STEEL CASING	LF	20
13.	CAP AND 2" BLOW-OFF ASSEMBLY W/CAP PER UDACS PLATE NO. 36	EA	3
14.			
15.			
16.			
STREET IMPROVEMENTS			
1.	2" A.C. PAVEMENT W/ 4" TYPE II OVER 6" TYPE I AGGREGATE BASE	SY	8,424
2.	STANDARD 18" TYPE "L" ISLAND CURB & GUTTER W/6" TYPE I AGGREGATE BASE	LF	2,770
3.	STANDARD 8" TYPE "A" ISLAND CURB W/6" TYPE I AGGREGATE BASE	LF	397
4.	8' WIDE CONCRETE SIDEWALK W/4" TYPE II AGGREGATE BASE	SF	22,379
5.			
6.			
7.			
TRAFFIC SIGNALS			
1.	30" STOP SIGN WITH POST (Rt-1)	EA	-
2.	9" STREET NAME SIGN (D-3, BROWN W/ WHITE LETTERS)(6 POLES x 2 PER POLE=12)	EA	-
3.	BLUE COLORED REFLECTIVE RAISED PAVEMENT MARKER	EA	-
4.	CROSSWALK MARKINGS	LF	-
5.			
6.			
7.			
8.			
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 FULL BOX W/METAL COVER	EA	-
4.	150 AMP SERVICE PEDESTAL (RR)	EA	-
5.	200 AMP SERVICE PEDESTAL (STLT)	EA	-
6.			

OFF-SITE QUANTITIES		PRIVATE	PUBLIC
DRAINAGE			
1.	EARTHWORK QUANTITY (NET CUT)	CY	-
2.	RIP-RAP (D ₉₀ =8")	CY	-
			2,489
			31

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. ADD FIELD FIRST APPROVED DATE: _____



5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

[illegible]

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

**SUNSTONE PHASE 1
IRON MOUNTAIN ROAD AND TEE PEE LANE
ABBREVIATIONS, LEGEND, AND QUANTITIES**

DATE: 09/26/19

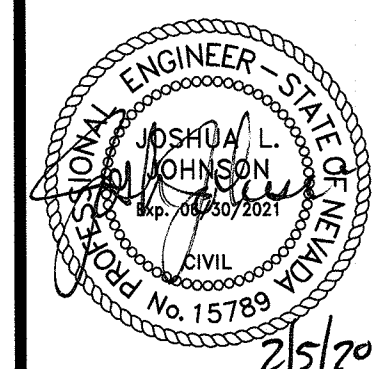
DRAFTER: SB/JR

DESIGNER: BC

CHECKED: JJ

PROJECT NO.

EST1911-000 IPS



CS-3

SHEET 3 OF 17

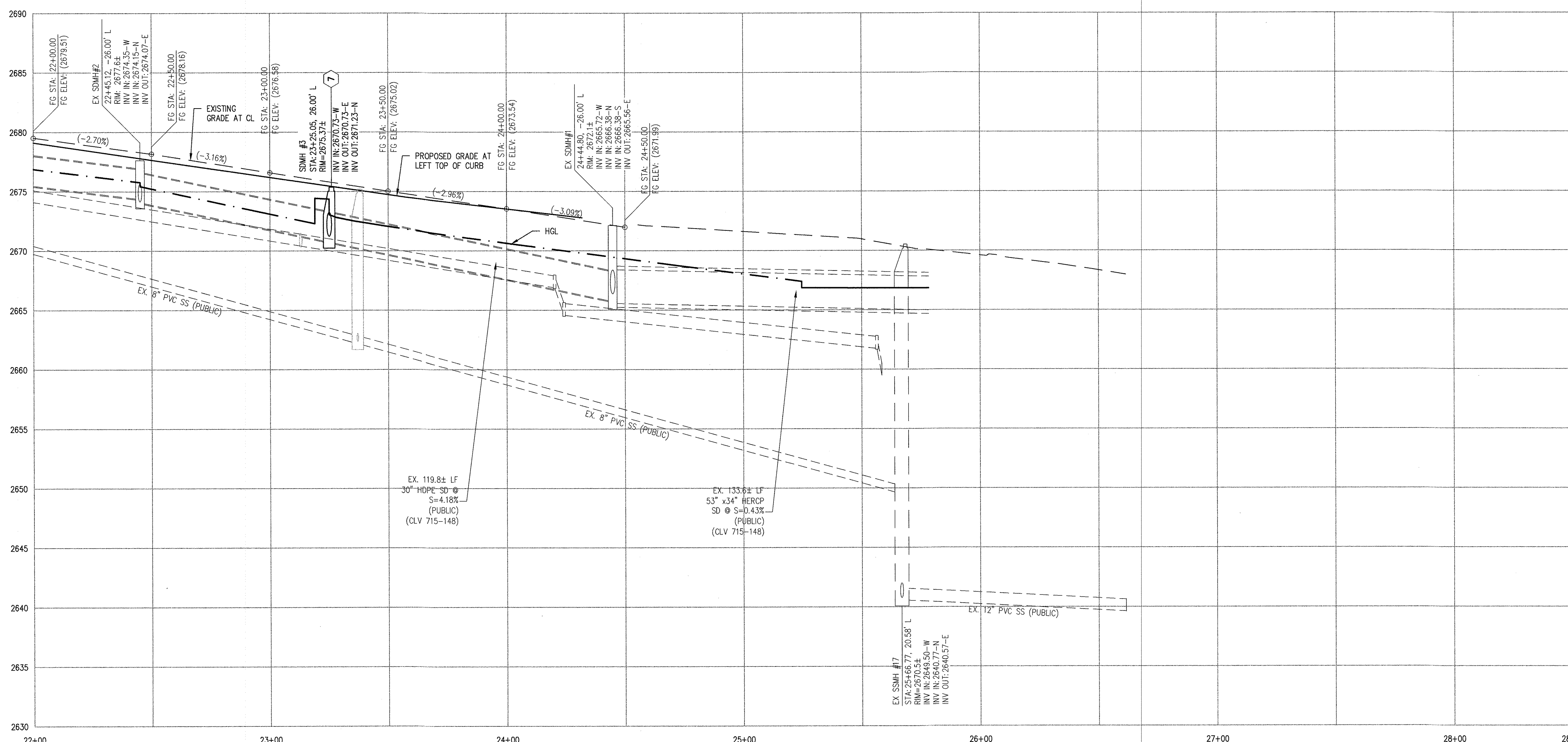
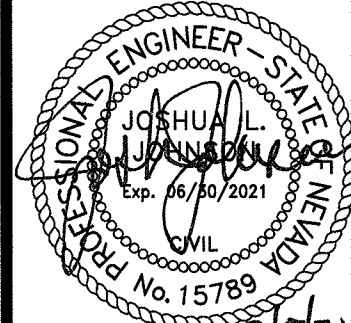
E
8+50.00

ANDCO, LLC
E PHASE 1
D AND TEE PEE LAN
"IMR" 22
22+00.00 TO

SC EAST LA
SUNSTONE
IRON MOUNTAIN ROAD
PLAN & PROFILE III - "IMR"

DATE:	09/26/19
DRAFTER:	CLAYER
DESIGNER:	0
CHECKED:	JJ

PROJECT NO.
EST1911-000 IPS



HORIZ: 1" = 30'
VERT: 1" = 6'

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1735E AND 32003C1750E, BOTH DATED SEPTEMBER 27, 2002.



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

Call
811
OR
1-800-227-2600

ADD 2600 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 1801.00)

- 1) EXISTING UTILITY LOCATIONS SHOWN HEREON 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 BY THESE EXISTING UTILITIES AS SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.
- 2) FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS THE CONTRACTOR SHALL VERIFY CROSS SLOPES GIVEN ON EXISTING PAVEMENT. SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LINE OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF THE EXISTING OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS THE CONTRACTOR SHALL NOTIFY THE ENGINEER.

1. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
2. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
3. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
4. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
5. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE SUBMITTAL PERIOD AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
7. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITY STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. CONTRACTOR TO BE RESPONSIBLE FOR PLACING CONSTRUCTION EROSION/OWNER SHALL BE NOTIFIED OF PRIOR DAMAGE TO EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR/REPLACING FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENCING.
8. 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 ZONE.

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

3. THE OWNER, SITE DEVELOPER, CONTRACTOR, AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT, DEBRIS, AND OTHER MATERIALS THAT MAY BE RELEASED TO POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATED IN, THE PUBLIC RIGHTS OF WAY OF CLARK COUNTY AND THE NEVADA STORMWATER ACTIVITY CONSTRUCTION ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
4. 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 SITE HAS AN EROSION CONTROL PLAN THAT DOES NOT MEET THE STANDARDS SPECIFIED IN CLARK COUNTY TITLE 24.40 AND IN THE LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDANCE MANUAL.
5. TEMPORARY OR PERMANENT STABILIZATION PRACTICES WILL BE INSTALLED ON DISTURBED AREAS AS SOON AS PRACTICABLE AFTER THE END OF THE CONSTRUCTION ACTIVITY. 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 NVRI000000, SECTION III.A.2.
6. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AS USED FOR STORAGE OF MATERIALS, AND SHALL TAKE THE FOLLOWING ACTIONS: TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER A RAIN EVENT IN ANY AREA OR WHERE THERE IS A CHANCE OF A RAIN EVENT. 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 WHEN SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.
7. 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 SHALL BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

- 1 INSTALL 3" ASPHALT PAVEMENT OVER 4" TYPE II AGGREGATE BASE
- 2 CONSTRUCT "L" TYPE CURB PER CCAUSD NO. 216
- 3 CONSTRUCT "A" TYPE ISLAND CURB PER CCAUSD NO. 219
- 4 CONSTRUCT 8' WIDE SIDEWALK PER CCAUSD NO. 234
- 5 SAWCUT AND MATCH EXISTING PAVEMENT PER CCAUSD NO. 500.1 AND 503
- 6 CONSTRUCT MODIFIED TYPE "CM2" DROP INLET PER STRUCTURAL DETAIL X ON SHEET 5-1
- 7 CONSTRUCT 60" TYPE II MANHOLE PER USDCCA STD. DWG. NO. 405.2

E1 RIGHT-OF-WAY GRANTED BY DECISION, DATED JANUARY 16, 2003 BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-75502 TO LAS VEGAS VALLEY WATER DISTRICT FOR UNDERGROUND WATER PIPELINE UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF SAND LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON FEBRUARY 10, 2003 IN BOOK 20303210, AS INSTRUMENT NO. 00538 OF OFFICIAL RECORDS.

E2 RIGHT-OF-WAY GRANTED BY DECISION, DATED JANUARY 16, 2003 BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-75502 TO LAS VEGAS VALLEY WATER DISTRICT FOR TEMPORARY WORK AREAS FOR A 42" UNDERGROUND WATER PIPELINE UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF SAND LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON FEBRUARY 10, 2003 IN BOOK 20303210, AS INSTRUMENT NO. 00541 OF OFFICIAL RECORDS.

E3 EASEMENT FOR PUBLIC UTILITIES AND INCIDENTAL PURPOSES IN THE DOCUMENT RECORDED JUNE 8, 2015 IN BOOK 20150608 AS INSTRUMENT NO. 00948 OF OFFICIAL RECORDS.

E4 COVENANTS, CONDITIONS, EASEMENTS AND RESTRICTIONS, IN A FINAL ORDER OF CONDEMNATION RECORDED OCTOBER 1, 2015 IN BOOK 20150102 AS INSTRUMENT NO. 03295 OF OFFICIAL RECORDS.

E5 RIGHT-OF-WAY GRANTED BY DECISION, DATED APRIL 9, 2003, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-75702 TO NEVADA POWER COMPANY SEVERE UNDERGROUND ELECTRICAL DISTRIBUTION LINE UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF SAND LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON FEBRUARY 17, 2003 IN BOOK 20303471, AS INSTRUMENT NO. 02745 OF OFFICIAL RECORDS.

E6 A RIGHT-OF-WAY GRANTED BY DECISION, DATED AUGUST 21, 1970, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER NEV-33776 ET (N-12) TO STATE OF NEVADA, DEPARTMENT OF WATER RESOURCES (U.S. 95) INCLUDING ACCESS RIGHTS UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF SAND LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON DECEMBER 22, 1972 IN BOOK 288, AS INSTRUMENT NO. 247599 OF OFFICIAL RECORDS.

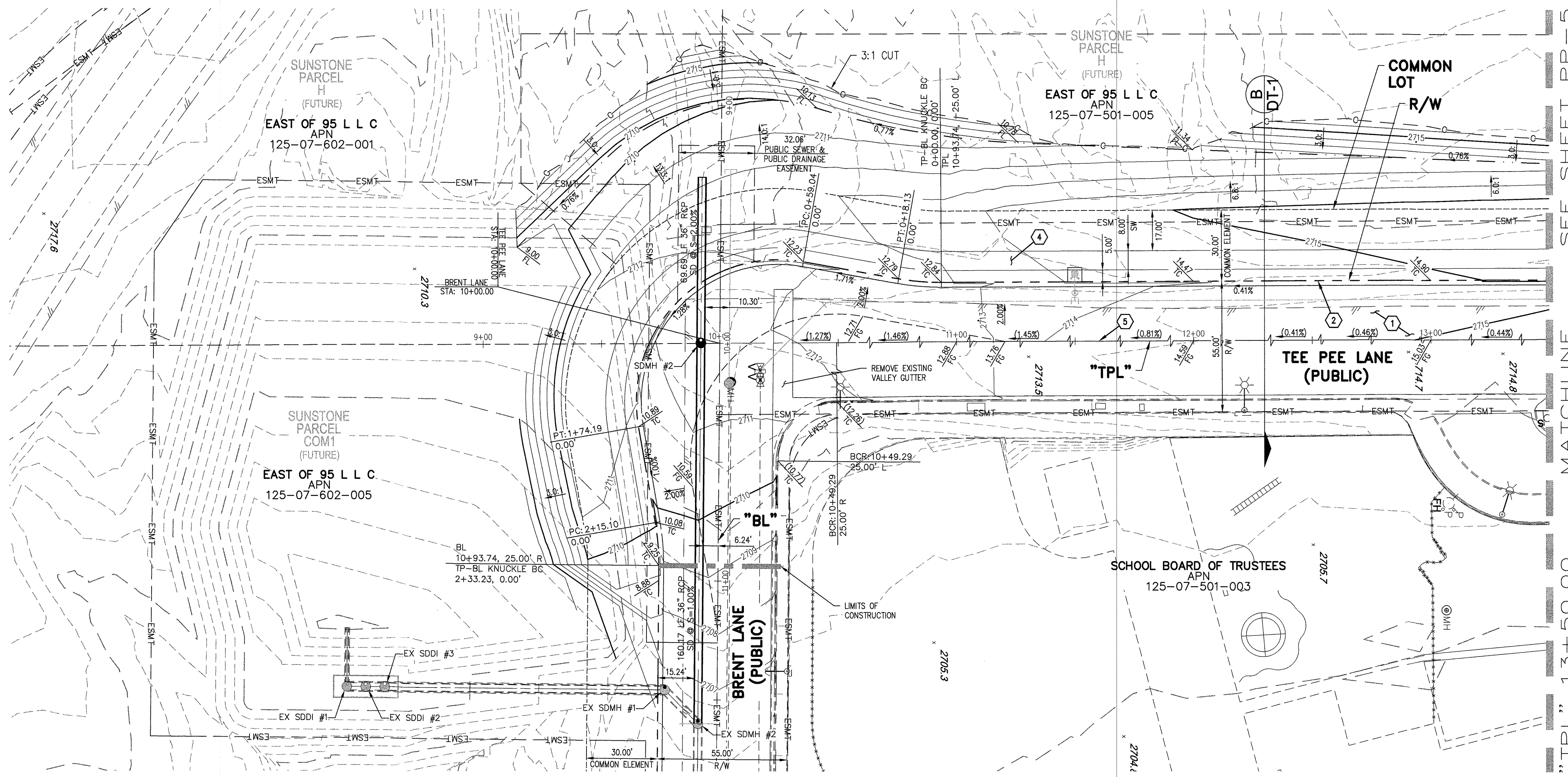
E7 AN EASEMENT FOR PUBLIC UTILITIES AND INCIDENTAL PURPOSES IN THE DOCUMENT RECORDED JUNE 8, 2015 IN BOOK 20150608 AS INSTRUMENT NO. 00947 OF OFFICIAL RECORDS.

E8 NDOT EASEMENT PER NEV-043376, 4-3063, CC-018234, CC-018138, CC-018191

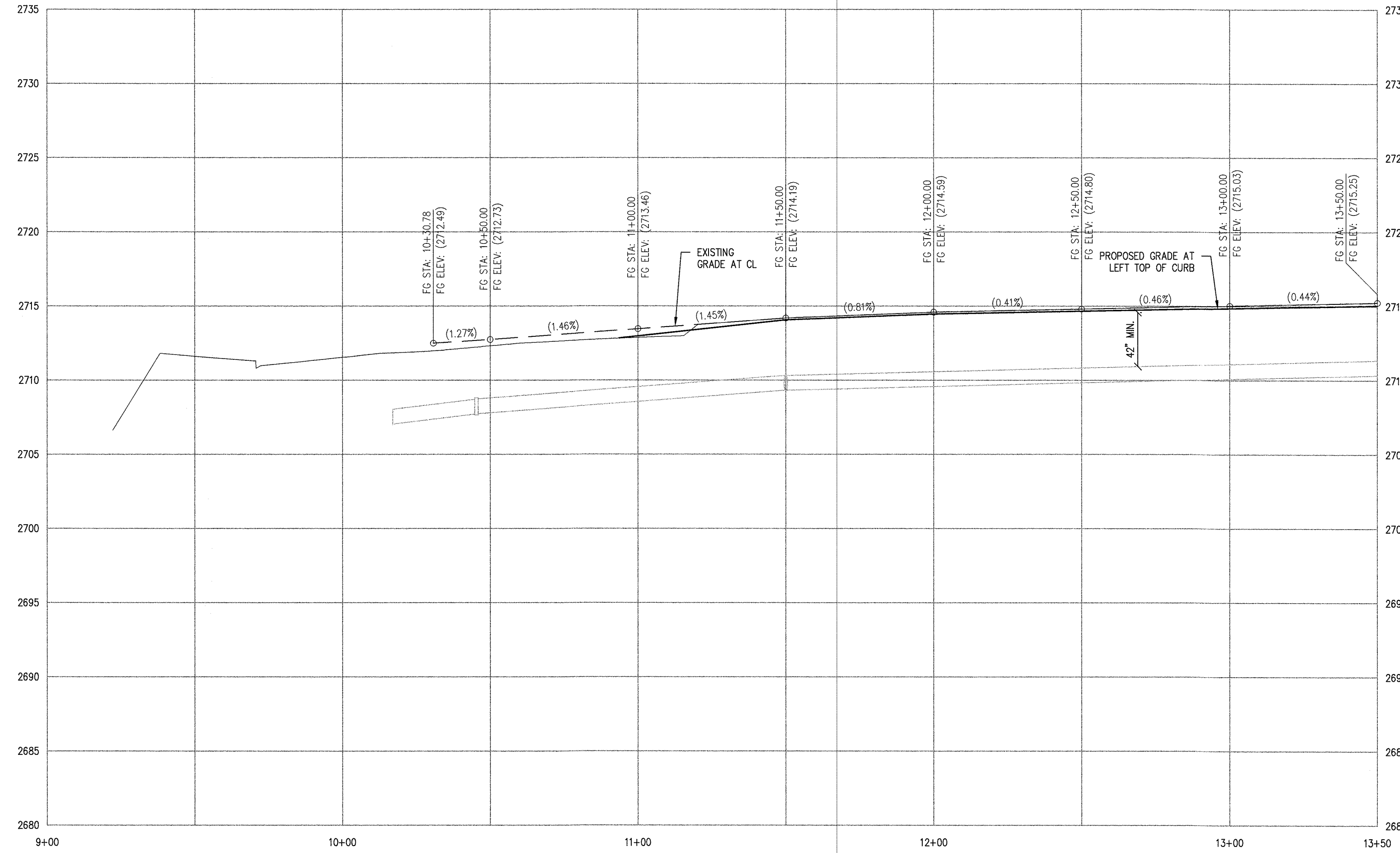
RESERVATIONS, PROVISIONS AND EASEMENTS AS CONTAINED IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED AUGUST 03, 2005, IN BOOK 20050603 OF OFFICIAL RECORDS, AS INSTRUMENT NO. 01111

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY ??????? ON FILE AT CITY OF LAS VEGAS AND CCPW HTE #??-????? FOR THE SUBJECT

JOSH JOHNSON, P.E. 15789 DATE

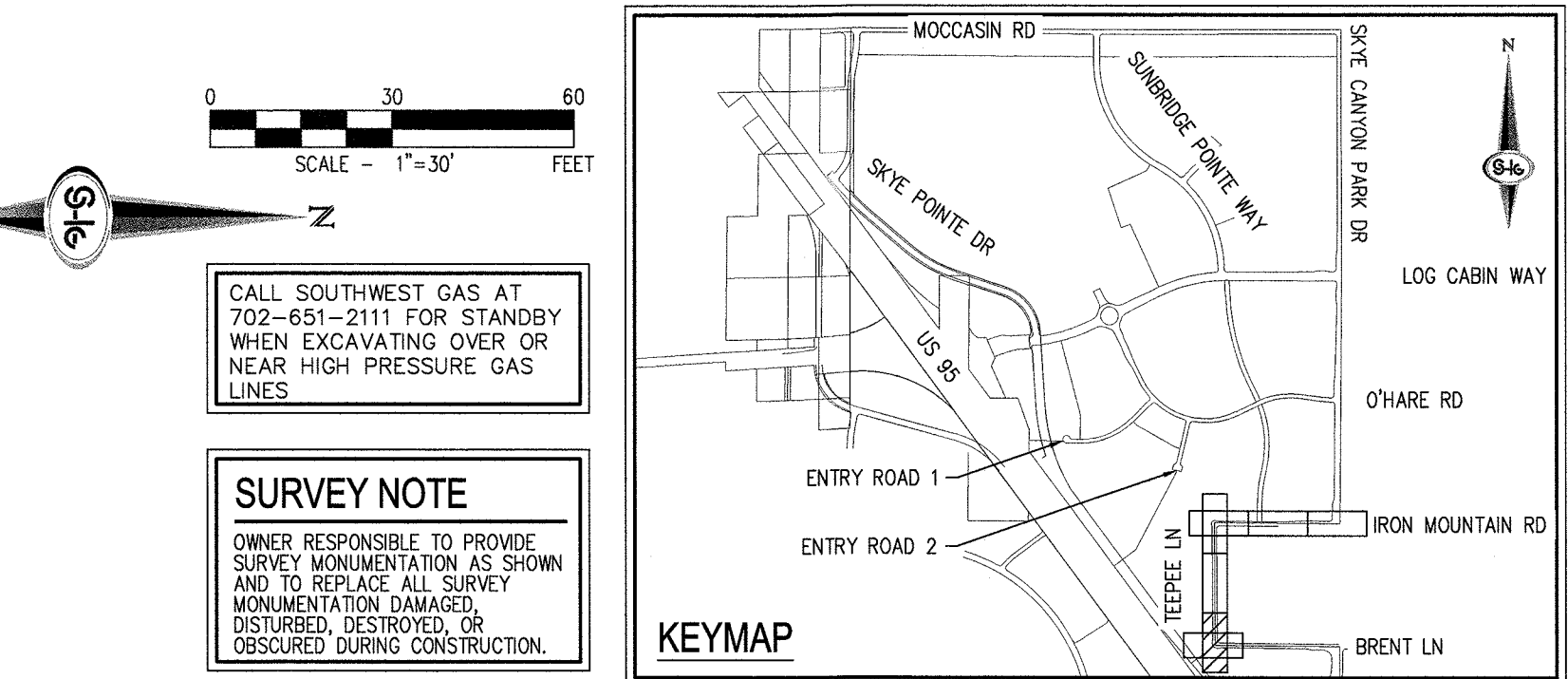


TEE PEE LANE - PLAN VIEW
(PUBLIC)



TEE PEE LANE - PROFILE VIEW
HORIZ: 1" = 30'
VERT: 1" = 6'

FLOOD ZONE
THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1735E AND 32003C1750E, BOTH DATED SEPTEMBER 27, 2002.



ELEVATION NOTE
ADD 2600 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 1801.00)

DISCLAIMER NOTE
1) EXISTING UTILITY LOCATIONS SHOWN HEREON 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 IN THEIR PROPER LOCATION.
2) 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
1. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
2. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
3. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
4. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
5. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
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8. 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.))
1. 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.
2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN CLARK COUNTY TITLE 24.40 AND THE LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDANCE 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 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 NVRI00000, SECTION III.A.5.
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 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 NVRI00000, SECTION III.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, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN EXCEEDED BY 50 PERCENT OR MORE.

CONSTRUCTION NOTES
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3) CONSTRUCT "A" TYPE ISLAND CURB PER CCAUSD NO. 219.
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6) CONSTRUCT MODIFIED TYPE "CM2" DROP INLET PER STRUCTURAL DETAIL X ON SHEET S-1.
7) CONSTRUCT 60" TYPE II MANHOLE PER USDOCA STD. DWG. NO. 405.2

EXISTING EASEMENTS
E1 RIGHT-OF-WAY GRANTED BY DECISION, DATED JANUARY 16, 2003 BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-75502 TO LAS VEGAS VALLEY WATER DISTRICT FOR WATER PIPELINE UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF SAID LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON FEBRUARY 10, 2003 IN BOOK 20030210, AS INSTRUMENT N. 00538 OF OFFICIAL RECORDS.
E2 RIGHT-OF-WAY GRANTED BY DECISION, DATED JANUARY 16, 2003 BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-75502-01 TO LAS VEGAS VALLEY WATER DISTRICT FOR TEMPORARY WORK AREAS FOR A 42" UNDERGROUND WATER PIPELINE UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF SAID LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON FEBRUARY 10, 2003 IN BOOK 20030210, AS INSTRUMENT N. 00541 OF OFFICIAL RECORDS.
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E4 COVENANTS, CONDITIONS, EASEMENTS AND RESTRICTIONS IN A FINAL ORDER OF CONDEMNATION RECORDED OCTOBER 2, 2015, IN BOOK 20151002 AS INSTRUMENT NO. 03298 OF OFFICIAL RECORDS.
E5 RIGHT-OF-WAY GRANTED BY DECISION, DATED APRIL 04, 2003, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-75702 TO NEVADA POWER COMPANY FOR UNDERGROUND ELECTRICAL DISTRIBUTION LINE UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF SAID LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON APRIL 17, 2003 IN BOOK 20030417, AS INSTRUMENT NO. 02746 OF OFFICIAL RECORDS.
E6 A RIGHT-OF-WAY GRANTED BY DECISION, DATED AUGUST 21, 1970, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER NEV013376 ET (N-121) TO STATE OF NEVADA, DEPARTMENT OF HIGHWAYS FOR HIGHWAY (U.S. 95) INCLUDING ACCESS RIGHTS UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF SAID LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON DECEMBER 22, 1972 IN BOOK 288, AS INSTRUMENT NO. 247599 OF OFFICIAL RECORDS.
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E8 NDOT EASEMENT PER NEV-043376, N-43063, CC-018234, CC-018138, CC-018191.
RESERVATIONS, PROVISIONS AND EASEMENTS AS CONTAINED IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED AUGUST 03, 2005, IN BOOK 20050803 OF OFFICIAL RECORDS, AS INSTRUMENT NO. 01359.

FLOOD CERTIFICATION
I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY ??????? ON FILE AT CITY OF LAS VEGAS AND CCPW HTE #???-????? FOR THE SUBJECT PROJECT.
JOSH JOHNSON, P.E. 15789 DATE



SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5309

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1

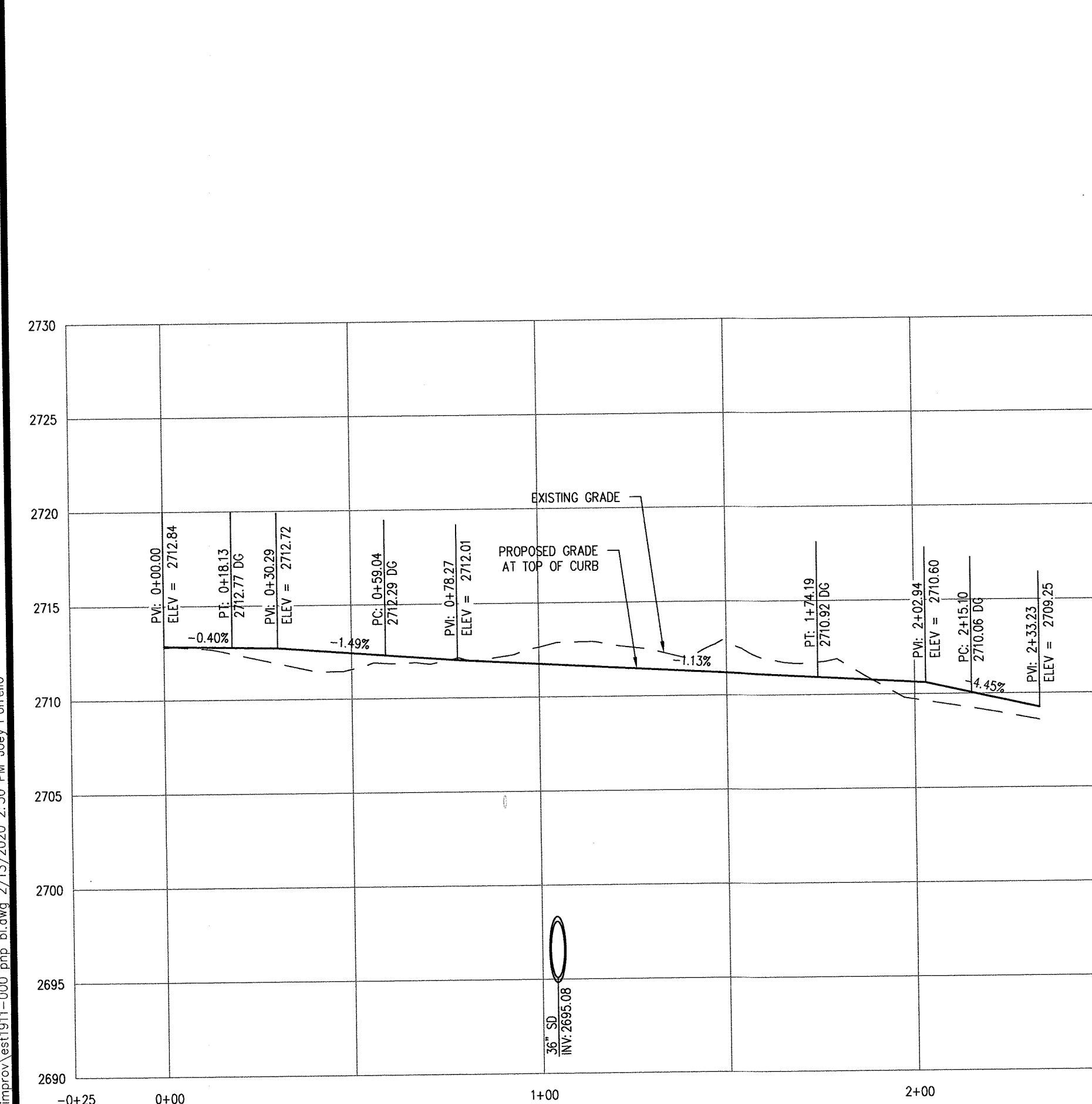
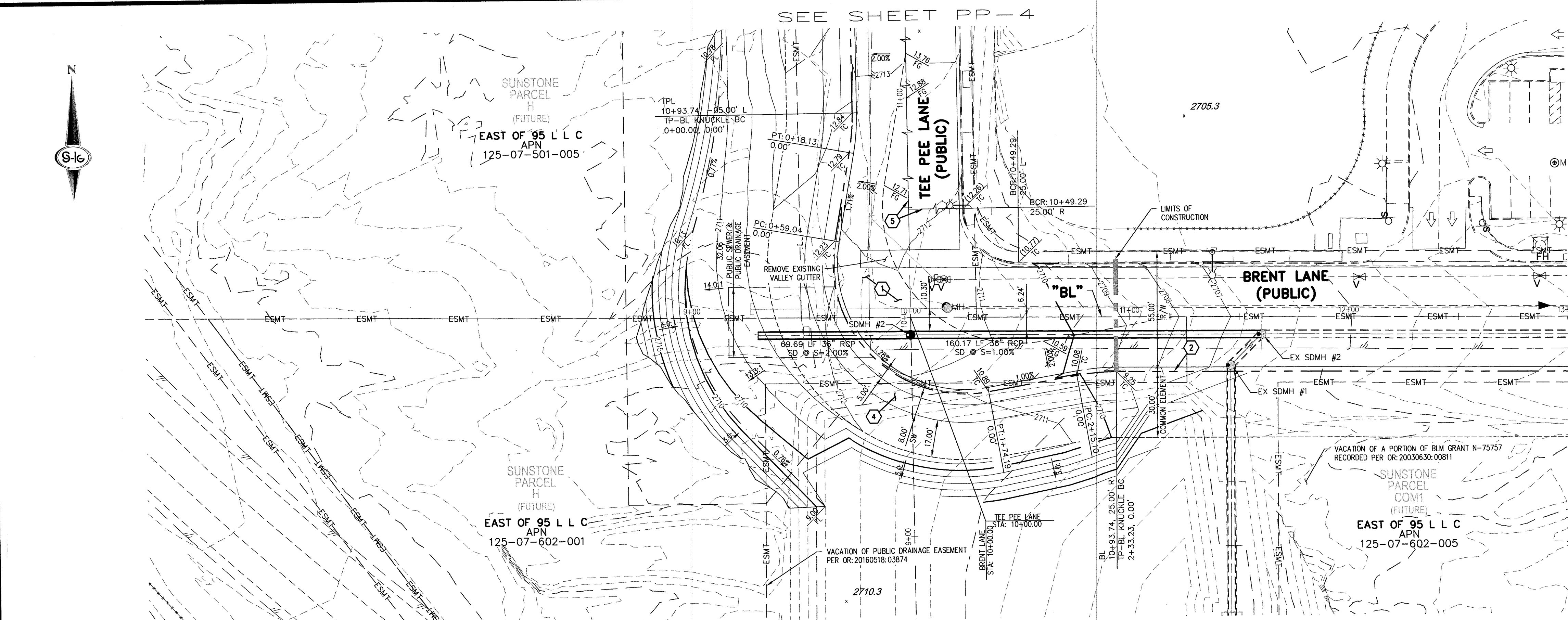
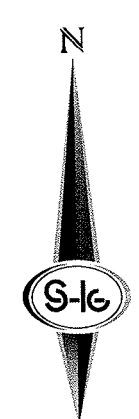
IRON MOUNTAIN ROAD AND TEE PEE LANE

PLAN & PROFILE IV - "TPL" 9+00.00 TO "TPL" 13+50.00

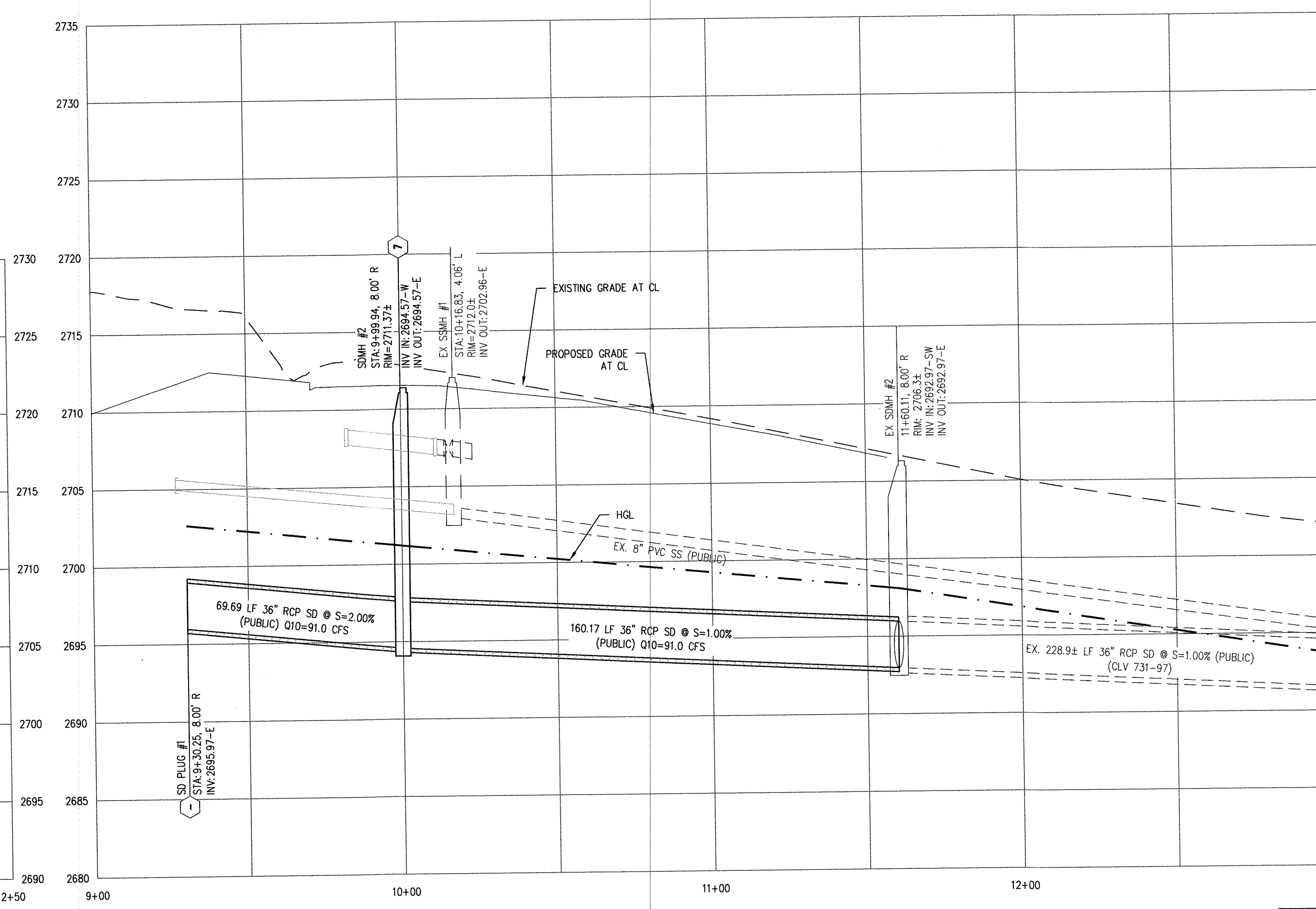
DATE: 09/26/19
DRAFTER: CLAYER
DESIGNER: 0
CHECKED: JJ
PROJECT NO.
EST1911-000 IPS

PP-4
SHEET 7 OF 17

\\est1911-000\sunstone\lin\and to\dwg\improvements\1911-000\pnt\bl\dwg 2/13/2020 2:30 PM Joey Porrello



KNUCKLE BACK OF CURB - PROFILE VIEW
HORIZ: 1" = 30'
VERT: 1" = 6'



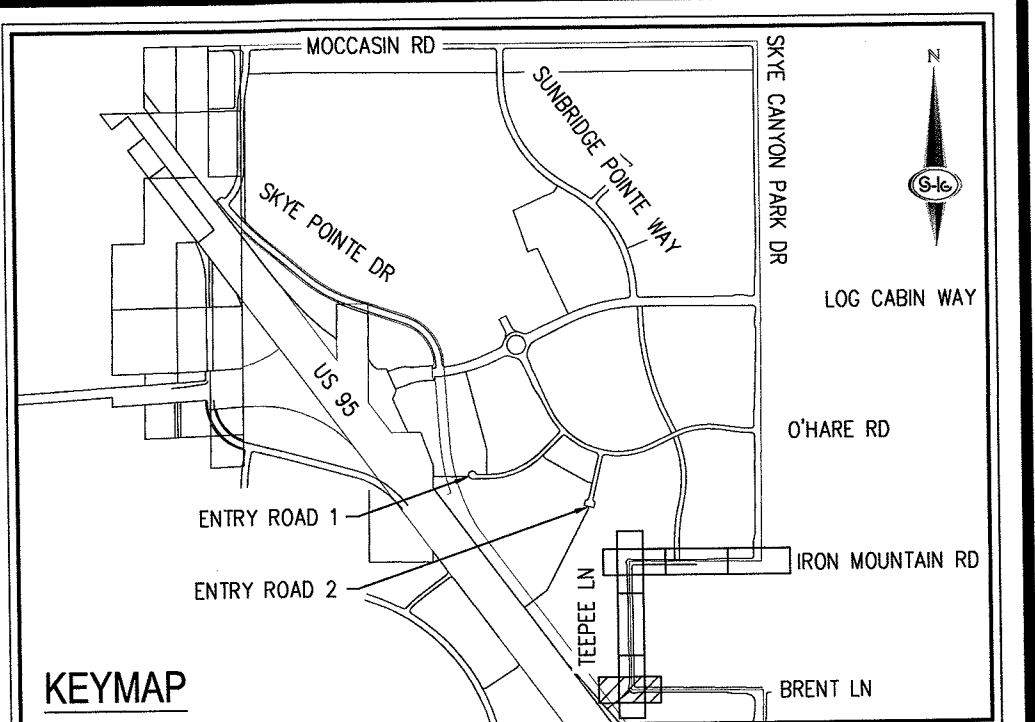
BRENT LANE - PROFILE VIEW
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FLOOD ZONE
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SCALE
1" = 30'
FEET

CALL SOUTHWEST GAS AT 702-651-2111 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES.

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



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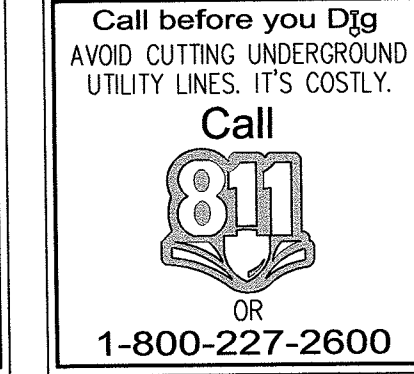
LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES
(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

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 - CONSTRUCT "A" TYPE ISLAND CURB PER CCAUSD NO. 219.
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 - SAWCUT AND MATCH EXISTING PAVEMENT PER CCAUSD NO. 5001 AND 503.
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- RIGHT-OF-WAY GRANTED BY DECISION, DATED JANUARY 16, 2003 BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-75502 TO LAS VEGAS VALLEY WATER DISTRICT FOR WATER PIPELINE UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF SAID LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON FEBRUARY 10, 2003 IN BOOK 20030210, AS INSTRUMENT N. 00538 OF OFFICIAL RECORDS.
 - RIGHT-OF-WAY GRANTED BY DECISION, DATED JANUARY 16, 2003 BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-75502-01 TO LAS VEGAS VALLEY WATER DISTRICT FOR TEMPORARY WORK AREAS FOR A 42" UNDERGROUND WATER PIPELINE UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF SAID LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON FEBRUARY 10, 2003 IN BOOK 20030210, AS INSTRUMENT N. 00541 OF OFFICIAL RECORDS.
 - EASEMENT FOR PUBLIC UTILITIES AND INCIDENTAL PURPOSES IN THE DOCUMENT RECORDED JUNE 8, 2015 IN BOOK 20150608 AS INSTRUMENT NO. 00948 OF OFFICIAL RECORDS.
 - COVENANTS, CONDITIONS, EASEMENTS AND RESTRICTIONS/X IN A FINAL ORDER OF CONDEMNATION RECORDED OCTOBER 2, 2015, IN BOOK 20151002 AS INSTRUMENT NO. 03298 OF OFFICIAL RECORDS.
 - RIGHT-OF-WAY GRANTED BY DECISION, DATED APRIL 04, 2003, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-75702 TO NEVADA POWER COMPANY FOR UNDERGROUND ELECTRICAL DISTRIBUTION LINE UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF SAID LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON APRIL 17, 2003 IN BOOK 20030417, AS INSTRUMENT NO. 02746 OF OFFICIAL RECORDS.
 - A RIGHT-OF-WAY GRANTED BY DECISION, DATED AUGUST 21, 1970, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER NEV013376 ET (N-121) TO STATE OF NEVADA, DEPARTMENT OF HIGHWAYS FOR HIGHWAY (U.S. 95) INCLUDING ACCESS RIGHTS UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF SAID LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON DECEMBER 22, 1972 IN BOOK 288, AS INSTRUMENT NO. 247599 OF OFFICIAL RECORDS.
 - AN EASEMENT FOR PUBLIC UTILITIES AND INCIDENTAL PURPOSES IN THE DOCUMENT RECORDED JUNE 8, 2015 IN BOOK 20150608 AS INSTRUMENT NO. 00947 OF OFFICIAL RECORDS.
 - NDOT EASEMENT PER NEV-043376, N-43063, CC-018234, CC-018138, CC-018191.
- RESERVATIONS, PROVISIONS AND EASEMENTS ARE CONTAINED IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED AUGUST 03, 2005, IN BOOK 20050803 OF OFFICIAL RECORDS, AS INSTRUMENT NO. 01359.

FLOOD CERTIFICATION
I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY ??????? ON FILE AT CITY OF LAS VEGAS AND CCPW HITE #?-????? FOR THE SUBJECT PROJECT.
JOSEPH JOHNSON, P.E. 15789 DATE



SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5309

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
IRON MOUNTAIN ROAD AND TEE PEE LANE
PLAN & PROFILE VII - "BL" 9+00.00 TO "BL" 13+00.00

DATE: 09/26/19
DRAFTER: CLAYER
DESIGNER: O
CHECKED: JJ
PROJECT NO. EST1911-000 IPS

PP-7
SHEET 10 OF 17

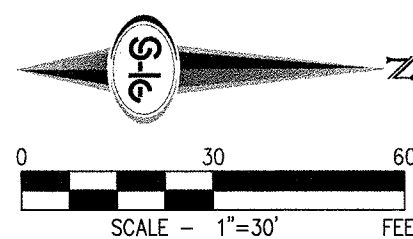


		UT-2 SHEET 12 OF 17	
EST1911-000 IPS		PROJECT: NO.	
CHECKED: JJ		DESIGNER: 0	
DRAFTER: CLAYER		DATE: 09/26/19	
CITY OF LAS VEGAS		NO.	
SC EAST LANDCO, LLC		DESCRIPTION	
SUNSTONE PHASE 1 IRON MOUNTAIN ROAD AND TEE PEE LANE UTILITY PLAN II - "TPL" 9+00.00 TO "TPL" 13+50.00		DATE	
		BY	
		APP. DATE	
		APP.	

EXISTING UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXCEPT 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 IN THEIR PROPER LOCATION.

TREES, SHRUBS OR DECORATIVE ROCKS, AND ANY BLOCK WALL OR OTHER FENCE MATERIAL, SHALL BE DESIGNED AND CONSTRUCTED AROUND THE EASEMENT(S) TO ALLOW DISTRICT DIRECT ACCESS TO THE VAULT(S) BACKFLOW ASSEMBLIES, AND PIPING FROM THE ADJACENT RIGHT-OF-WAY.

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).



1	INSTALL 12" 45° BEND PER UDACS PLATE NO. 31
2	INSTALL 12" GATE VALVE PER UDACS PLATE NO. 30 AND 39
3	INSTALL 12" X 12" TEE PER UDACS PLATE NO. 31
4	INSTALL 12" X 8" REDUCER PER UDACS PLATE NO. 31
5	INSTALL 12" X 8" TEE PER UDACS PLATE NO. 31
6	INSTALL 8" 45° BEND PER UDACS PLATE NO. 31
7	INSTALL 8" CAP WITH BLOWOFF PER DCSWG SECTION 2.2.5
8	INSTALL 8" GATE VALVE PER UDACS PLATE NO. 30 AND 39
9	INSTALL FIRE HYDRANT ASSEMBLY PER UDACS PLATE NO. 40 WITH 8" GATE VALVE (SIZE TEE PER PLAN)
10	INSTALL 18" STEEL CASING PER UDACS PLATE NO. 22 AND 23

SEWER NOTES	
1	INSTALL 48" SSMH WITH SINGLE 24" LID PER DCSWCS SD-1, SD-3, SD-4, & SD-9
2	INSTALL 8" CAP WITH THRUST BLOCK PER DCSWCS SECTION 2.3.5

1	INSTALL 48" SSMH WITH SINGLE 24" LID PER DCSWCS SD-1, SD-3, SD-4, & SD-9
2	INSTALL 8" CAP WITH THRUST BLOCK PER DCSWCS SECTION 2.3.5

1. WATER MAIN JOINT DEFLECTION (PVC 4" - 24")
PVC PIPE SHALL BE DEFLECTED AT THE JOINT UNITS. THE MAXIMUM ALLOWABLE DEFLECTION SHALL BE ONE (1) DEGREE PER JOINT WITH A MINIMUM RADII OF CURVATURE OF 1,150 FEET. SEE SECTION 207.02 FOR FURTHER INFORMATION. DEFLECTION SHALL BE MEASURED FOR CHANGES IN DIRECTION EXCEEDING THE MAXIMUM ALLOWABLE JOINT DEFLECTION, FITTINGS SHALL BE USED.

2. REQUIRED PRESSURE PIPE ASSEMBLY (1" - 1")
APPROVED REDUCED PRESSURE PRINCIPLE ASSEMBLY(S) SHALL BE INSTALLED PER THE UDCS PLATE NO. 8. NO WATER SHALL BE TAKEN FROM A SERVICE REQUIRING BACKFLOW PREVENTION UNTIL THE SERVICE LINE HAS BEEN INSTALLED PER THE UDCS PLATE NO. 8. TESTED BY THE LVWD. ANY BLOCK WALL OR OTHER FENCE MATERIAL SHALL BE DESIGNED AND CONSTRUCTED AROUND THE OUTSIDE OF THE EASEMENT(S) TO ALLOW THE DISTRICT TO CONDUCT DESIGN AND CONSTRUCTION OF THE SERVICE LINE. EASEMENTS SHALL BE CLEARLY MARKED OR STAKED PRIOR TO THE START OF CONSTRUCTION.

3. ALL SEWER / STORM DRAIN CROSSING WATER LINES MUST CONFORM TO SECTION 2.2.2 OF THE UDCS PLATE NO. 8 DESIGN. ALL CROSSINGS SHALL BE FOR POTABLE WATER LINES (UDCS) FOR WATER AND STORM MAIN CROSSINGS AND CLEARANCES.

4. FITTINGS SHALL NOT FALL UNDER CURBS, GUTTERS OR SIDEWALK.

5. ALL FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE UDCS PLATE NO. 8 MOUNTAIN ELBOW FITTING PER UDCS PLATE NO. 15.

6. THE LVWD CANNOT GUARANTEE WATERTIGHT SHUTDOWN ELBOW CONNECTIONS OR RESPECTING ALL NECESSARY FACILITIES ARE REQUIRED. THE CONTRACTOR SHALL ENSURE ALL LABOR AND EQUIPMENT IS AVAILABLE TO REMOVE FUGITIVE WATER THAT MAY IMPEDE THE CONTRACTOR'S COORDINATION WITH INSPECTION DIVISION MUST TAKE PLACE PRIOR TO ANY TRAIL SHUTDOWN.

7. CONTRACTOR TO INSTALL TEMPORARY SERVICE TO ENSURE PROPER SHUTDOWN IN THE TRAIL.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL UTILITIES. THE DISCLAIMER, EXISTING UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL 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 IN THEIR PROFILES.

SOUTHWEST GAS CORPORATION

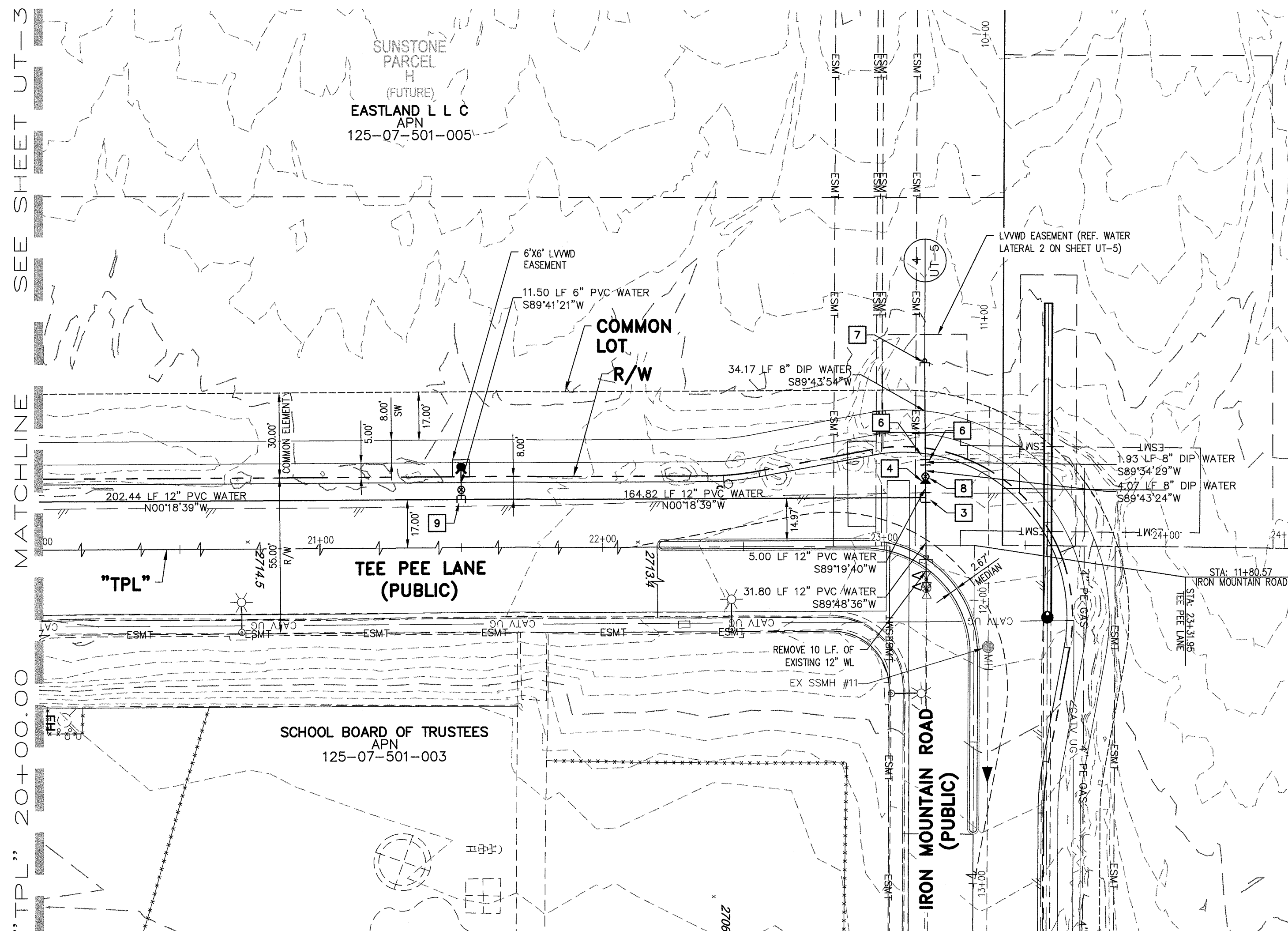
LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. 000000 FIRST APPROVED DATE 01/15/2010
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / 0.150 MGD

LAS VEGAS FIRE AND RESCUE

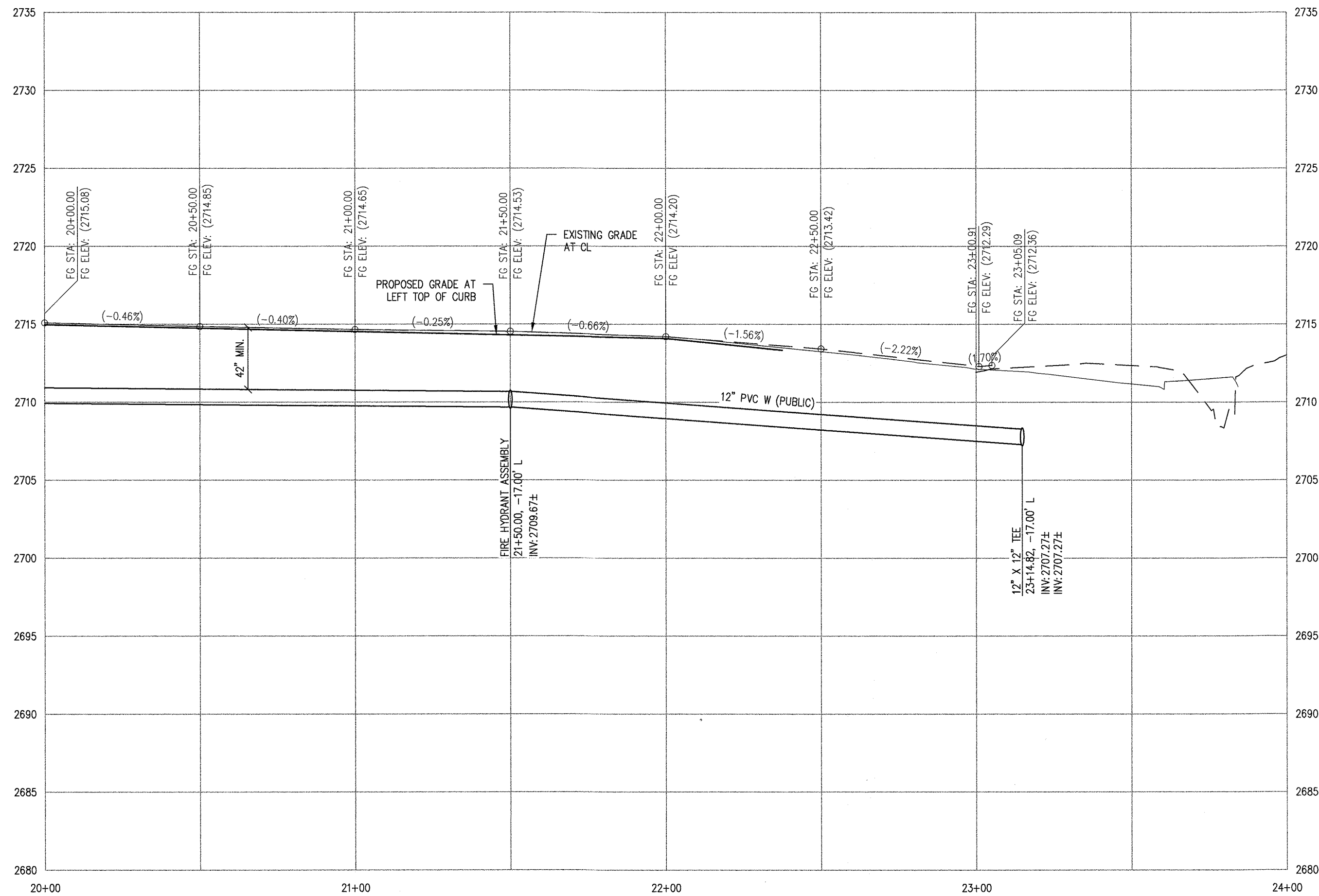


Call before you Dig
AVOID CUTTING UNDERGROUND
UTILITY LINES. IT'S COSTLY.

Call
811
OR
1-800-227-2600

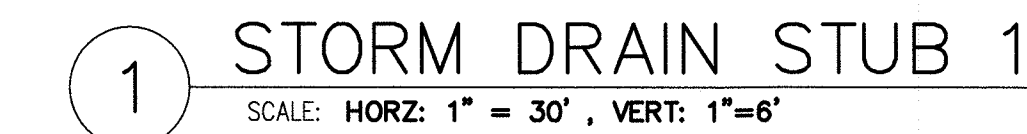
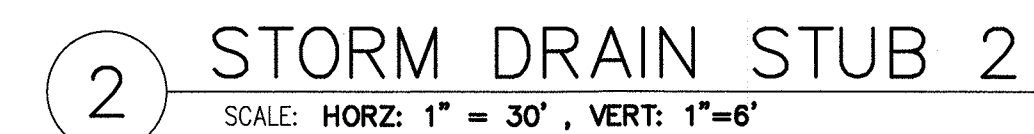
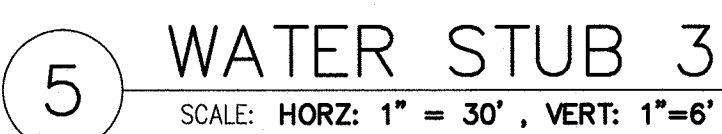


TEE PEE LANE- PLAN VIEW
(PUBLIC)

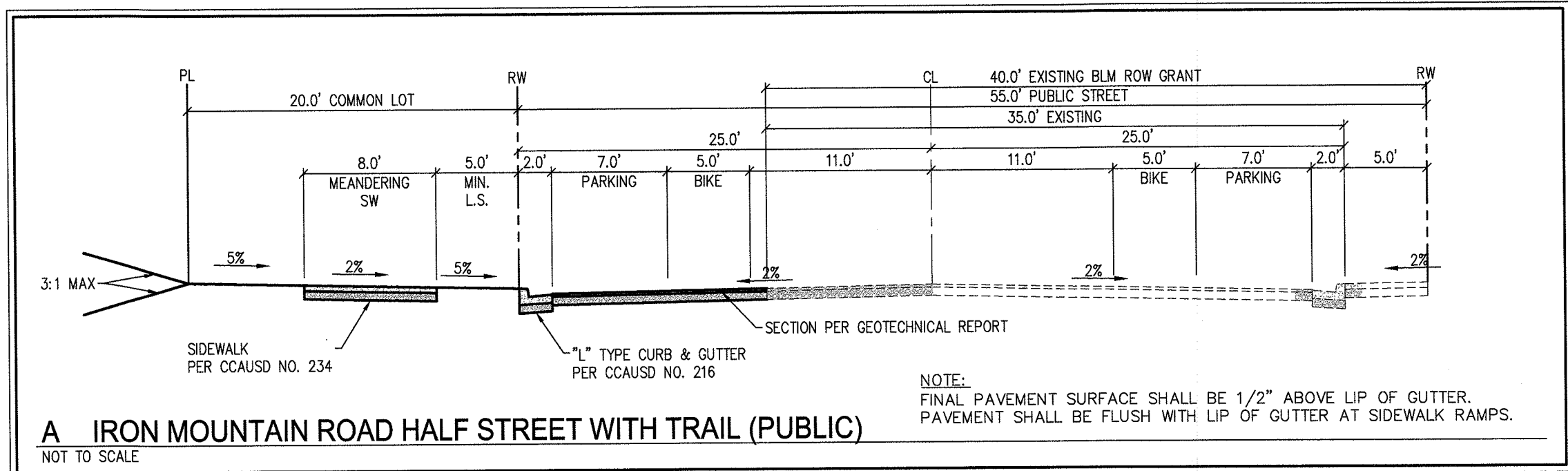
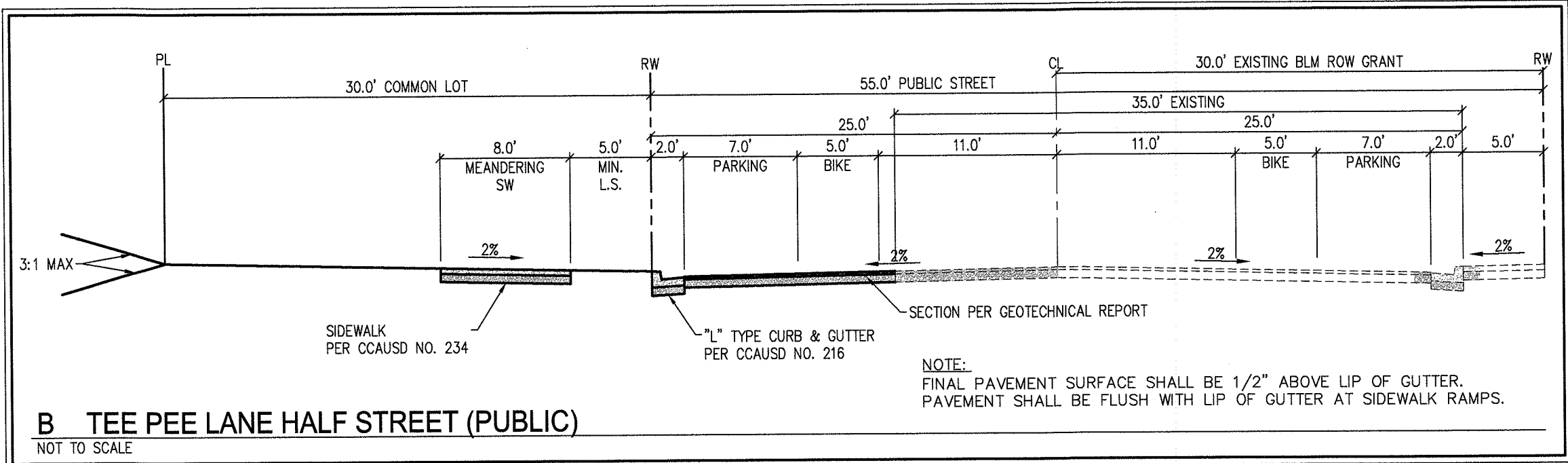


HORIZ: $1'' = 30'$
VERT: $1'' = 6'$

\\est1911-000\\sunstone\\im and fn\\dwa\\improv\\est1911-000 ufl tp.dwg 2/5/2020 2:30 PM Joev Porrello



J:\est1911-000\sunstone\in and ip\dwg\improvement\est1911-000.dwg 2/15/2020 2:32 PM Jody Corallo



NO.	DESCRIPTION	DATE	BY	APP.

DATE: 09/26/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JU
PROJECT NO.
EST1911-000 IPS

