DS #: 5135

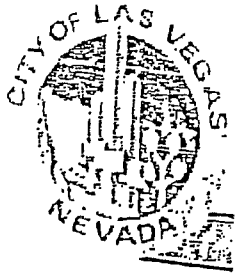
APN: 125-06-501-001

PROJECT: Sunstone - Phase 1 Infrastructure

SUBMITTAL: 2nd

SCANNED BY/DATE:

CHECKED BY/DATE:



CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: September 9, 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 1 Infrastructure				Slater Hanifan Group
Cross Streets:	Fort Apache Road & Moccasin Road			Eastland Co., LLC
File Number:	F:\PW_Flood\DSMEMOS\DS5135B.docx			Bart Anderson, P.E., DevCo
Parcel Number:	125-06-501-001			CCRFCD
Zoning Action:	Eastland Development Agreement			CCPW
FEMA Flood Zone	YES	NO **X**		NDOT
Proposed Storm Drain	YES **X**	NO		NV Energy

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Transaction #
1st Submittal	5/6/2019	6/24/2019	See Comments Below	$400.00	3122585: $400
2nd Submittal	8/8/2019	9/5/2019	See Comments Below	$400.00	3524616: $400
			TOTAL FEES (LDDRS):	**$800.00**	----

REMARKS: SUNSTONE – Phase 1 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 Conditional Approval of this Drainage Study is to allow the engineer/developer to submit the Improvement Plans to Land Development only.**

*****Do not submit the Drainage Study to Clark County Regional Flood Control District (CCRFCD) prior to the Structural Design and Calculations being approved by the City Building & Safety Department.**

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

The SUNSTONE – Phase 1 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 1 Infrastructure Improvements include the following roadways:
   - Sky Point Drive (Edgestone Dr.) – Log Cabin to Hualapai
   - Log Cabin Way (Sunstone Parkway) – US-95 to Skye Canyon Park Dr.
   - North Connector (Sunbridge Point Dr.) – Log Cabin to Moccasin
   - Skye Canyon Park Drive (Sun Park Dr.) – Iron Mountain to Log Cabin
   - O'Hare Road – Log Cabin to Skye Canyon Park Dr.
   - South Park – (Entry Roads 1 & 2) adjacent to the South Park
2. **This drainage study is acceptable in concept;** however, *City of Las Vegas* will not formally accept the study until the *Clark County Regional Flood Control District (CCRFCD)* has issued a letter of concurrence. The engineer should contact the CCRFCD to confirm that they have begun their review.
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. The project proposed to construct facilities and/or increase flows within *Nevada Department of Transportation* (NDOT) right-of-way. Therefore, NDOT concurrence is required prior to final approval of the Phase 1 Infrastructure Drainage Study.
5. Structural plans for the storm drain improvements including special junction structures and deep manholes 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.
6. 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.
7. Final approval of the Master Drainage Study shall be obtained prior to final approval of the subject infrastructure drainage study.
8. 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.
9. 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.

10. The interim channels adjacent to the infrastructure roadways are the Maintenance responsibility of the Master Developer.

11. 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.

12. The project proposes to build temporary drainage facilities including drainage berms/swales over the *Phase 1 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 I 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. **Skye Point Drive Improvement Plans**:

    General: Provide references to Storm Drain Note call outs on all SD Sheets. Review and revise Storm Drain Notes and call outs for all lateral end sections and connections to existing storm drain systems.

    SD-5: Provide pothole information all Lateral Profiles (e.g. Depth = Unknown). Identify and label utilities on Lateral Profile Sheets. Lateral Profile 4: The proposed 24" storm drain has velocities above 25 fps. Clearly identify where the velocity is above 25 fps. Detail mitigation measure for the velocity impact and note such on the profile Sheets.

B. Skye Canyon Park Drive Improvement Plans:

    General: Complete the Flood Zone Block (Cover Sheet) and Flood Certification Block on PP and SD Sheets.

    SD-4 and SD-5: Revise the plans to reflect removal of the existing 36" storm drain within Public Right-of-Way.

C. Log Cabin Way Improvement Plans:

    General: Complete the Flood Zone Block (Cover Sheet) and Flood Certification Block on PP and SD Sheets.

    SD-1: Provide pothole information all Lateral Profiles (e.g. Depth = Unknown).

    SD-2: Provide call out for inlet type within Roundabout and call out reference to mainline connection detail.

    SD-4 and SD-5: Call out Public Drainage Easements where the proposed storm drain crosses the common lot.

SD-9: Identify and label utilities shown on Lateral Profiles 12 and 18. Provide drop inlet information on Lateral Profile 18.

G-1 and G-2: Provide lengths of End Sections #2 and #5.

D. North Collector Road Improvement Plans:

General: Complete the Flood Zone and Flood Certification Blocks on PP and SD Sheets.

Sheet SD-5: Label the invert at the entrance of the 6' x 6' RCB on the profile. Call out storm drain manhole at Junction Structure. Revise Q100 labels to match WSPG model.

Sheet SD-6 through SD-9: The proposed 60" storm drain has velocities above 25 fps. Clearly identify where the velocity is above 25 fps. Detail mitigation measure for the velocity impact and note such on the profile Sheets.

Sheet SD-10: Label utilities shown on Lateral Profiles. Revise HGL shown below the invert of the pipe in Lateral Profile 4.

E. O'Hare Road Improvement Plans:

General: Review and revise Storm Drain Notes and call outs for all lateral end sections and connections to existing storm drain systems.

SD-3 and SD-4: Revise the storm drain size call outs to match between Plan and Profile. Review and revise the Storm Drain Note call outs for the drop inlets and storm drain manholes.

SD-5: The proposed 30" storm drain has velocities above 25 fps. Clearly identify where the velocity is above 25 fps. Detail mitigation measure for the velocity impact and note such on the profile Sheets.

F. Private Entry 1 and 2 Improvement Plans:

General: Complete the Flood Zone and Flood Certification Blocks on PP and SD Sheets.

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
PBJ

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

Sunstone

As an alternative to including interim drainage improvements that are privately maintained as a part of the Phase I Infrastructure. These improvements are normally shown and bonded for construction as well as Bonded under a Separate Maintenance Agreement.

The alternative would be to show minor improvements (Concrete Pad and rip-rap berm at the culvert stubs for interim flows) and the provide a Maintenance Agreement & Bond for 100% of the costs. This would be, in the form of a 50% Cash Bond divided and a 50% Standard Bond for Maintenance. The Cash Bond gives the City the ability to preform work & draw down funds as needed in the interim condition

The Maintenance Bond would include exhibits ~~and cost~~ showing improvements at each culvert and associated costs to complete the improvements.

TECHNICAL DRAINAGE STUDY ADDENDUM
Sunstone
Phase 1 Infrastructure

City of Las Vegas, Nevada

Job No.: EST1905.000
Date: August 2019

Prepared By:

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

Prepared For:

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 1 Infrastucture Addendum Date: 8/5/2019

Location of Development:
a) Descriptive (Cross Streets): North/South: Kyle Canyon Road / Brent Lane
East/West: US 95
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: Efraim.Balizan@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: LLeavitt@shg-inc.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	☐	Subdivison Map	☐	Clearing and grading Only
☐	Parcel Map	☐	Planned Unit Development	☒	Other (Please specify below)
☐	Large Parcel Map	☐	Building Permit	☐	

1. Total Owned Land Area: At Site: approx 600 acres Being Developed/Disturbed: approx 10 acres

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

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

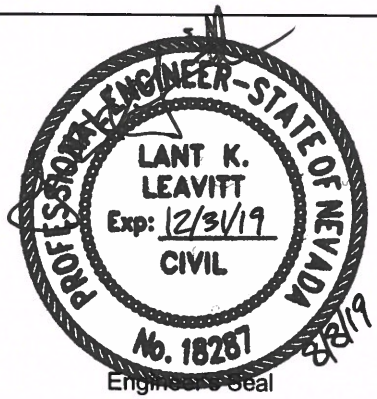
4. Proposed type of development (Residential, Commercial, Etc.): Master planned community infrastructure improvements

5. Approximate upstream land area which drains to the subject site: approximately 7.8 square miles

6. 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



Engineer's Seal

Submit this form as part of the required drainage study to the local entity which has jurisdiction over The subject property. This form may provide sufficient information to serve as the Conceptual Drainage Study.

*Newly Required Field

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

Revision	Date

Local Entity File No.

REFERENCE: STANDARD FORM 1

Updated 05/01/2008

EST1905-000

August 8, 2019

Albert Sung, P.E.– Flood Control Project Engineer
City of Las Vegas Department of Public Works
333 N. Rancho Drive
Las Vegas, Nevada 89106

Subject: Technical Drainage Study Addendum for Sunstone Phase 1 Infrastructure (DS 5135)

Mr. Sung:

This letter certifies that all items provided on the *Technical Drainage Study Addendum for Sunstone Phase 1* submittal CD match the paper version bound into the study.

Respectfully Submitted,
SLATER HANIFAN GROUP

Lant Leavitt, P.E.
Project Manager – Flood Control Division

EST1905.000

8/8/2019

Oh Sang Kwon, P.E.
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 1 Infrastructure (DS5135A)

Mr. Kwon:

This letter is submitted in response to the comments contained in the June 25, 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 1 Infrastructure Improvements include the following roadways:*

    a. *Sky Point Drive (Edgestone Dr.) – Log Cabin to Hualapai*
    b. *Log Cabin Way (Sunstone Parkway) – US-95 to Skye Canyon Park Dr.*
    c. *North Connector (Sunbridge Point Dr.) – Iron Mountain to Log Cabin*
    d. *O'Hare Road – Log Cabin to Skye Canyon Park Dr.*
    e. *South Park (Entry Roads 1 & 2) – adjacent to the South Park*
    f. *Iron Mountain Road – Tee Pee to Skye Canyon Park Dr.*
    g. *Tee Pee Lane – Brent to Iron Mountain.*

    Response: Iron Mountain Road and Tee Pee Lane improvements have been taken out of Phase 1 and will be included in a later phase.

2. **Comment:** *The overall SUNSTONE Master Plan identifies various Village street sections that do not match the typical RTC Standards for Arterial (100') and Major Collector (80') Right-of-Way. Flood Control understands that the following Village Streets in Phase 1 are functional Arterial or Major Collector roadways as identified on the SUNSTONE Master Plan: Skye Point Drive, Log Cabin Way, North Connector, Skye Canyon Park Drive, and O'Hare Road.*

    The study shall show that the 10-year manual criteria has been addressed for Skye Point Drive, Log Cabin Way, North Connector Skye Canyon Park Drive, and O'Hare Road. Revise Section 2.3 of the Report to address the functional Arterial or Major Collector roadways. Review and revise the storm drain system as necessary to meet the manual criteria that incudes dry lane and intersection flow depth. The city requires inlets at a maximum 660' spacing.

Response: The listed roadways all function as arterial or major collector roadways except O'Hare Road, see coordination email included in Appendix E.

3. **Comment:** *Proposed Condition flow includes off-site flows from Basins OFFA, OFFB, OFFC, 95-1, 95-2, 95-3, and OFFZ that impact both Skye Point and the North Collector. These flows will impact the development of Basins EAA1, EAA2, and EAA3. Until development occurs, Flood Control concurs with the added flows from Basins OFFA, OFFB, OFFC 95-1, 95-2, 95-3, and OFFZ. This increases the flows being routed to the Moccasin facility alignment and appears to impact both Skye Point and the North Collector collection systems. The Skye Point plans need to clearly show how the flows are routed toward the Moccasin alignment or how they are incorporated into the Log Cabin facility via Skye Point. The Parent Tentative Map (Sheet TM-11) submitted with the Phase 1 Infrastructure shows that the Skye Point storm drain is extended to collect a portion of the off-site flows. Review the Proposed Condition storm drain routing and revise the plans as necessary.*

   Response: The proposed storm drain in Sky Pointe Drive has been extended to intercept the existing 42-in CMP culvert at approximately roadway Station 14+50. The Sky Pointe facility downstream of this has been upsized and the hydraulic model revised to account for this flow. Refer to Appendix D for revised Sky Pointe Drive hydraulic model.

   Extending the storm drain in Sky Pointe Drive even further to collect additional US 95 culverts was investigated, however it was decided that it is preferable to perpetuate existing flow patterns in this area for Phase 1, and intercept these culvert flows with a proposed facility that drains north to Moccasin Road in a future phase.

4. **Comment:** *Extend the O'Hare storm drain to collect flows from Basins EPI2 and EPG (combined flow 56 cfs). Collect flows prior to the Entry Road 1 intersection. Revise Exhibit E accordingly. Include US-95 facilities that impact O'Hare in the Proposed Condition. Verify that the Lone Mountain facility extension to US-95 (identified as 16-2 and 16-3 in the Master Study, Exhibit J) will collect the flow and ultimately reduce the O'Hare impacts.*

   Response: O'Hare Road storm drain has not been extended due to its classification as a minor collector in the traffic study, see coordination email in Appendix E. US 95 facilities that impact O'Hare Road in the proposed condition are discussed in the responses to roadway specific comments at the end of the numbered comments. Master Drainage Study facilities 16-1, 16-2, and 16-3 will ultimately collect US 95 flows and eliminate impacts to O'Hare Road; however, Iron Mountain Road has been removed from Phase 1, and development of Parcel J is not provided for in Phase 1, so MDS facilities 16-1 through 16-3 will be constructed with a future phase. See responses to roadway specific comments at the end of the numbered comments for additional information.

5. **Comment:** *Revise the Iron Mountain Road Infrastructure plans to include storm drain Facility 16-1 identified in the Master Study, Exhibit J. Extend the Iron Mountain facility to the east side of Skye Canyon Park Drive intersection and provide bubbler inlets and manholes with hinged and grated lids. Consider including Facility 16-1, 16-2, and 16-3 as a part of the Phase 1 Infrastructure. Facility 16-2 and 16-3 extend west of the Tee Pee intersection and collect flows to US-95. The corresponding flows shall be accommodated within the Iron Mountain*

facility extensions within Phase 1. Update the Iron Mountain Road plans accordingly. Include bubbler calculations for the facility.

Response: Iron Mountain Road and Tee Pee Lane infrastructure improvements have been taken out of Phase 1.

6. **Comment:** *Revise the Tee Pee Lane Infrastructure plans to include storm drain Facility 17-2 identified in the Master Study, Exhibit J. Extend the Brent Lane facility 17-2 through the Tee Pee intersection. Revise the report to discuss if Facility 17-1 and 17-2 are to be included or just stubbed within the Tee Pee intersection.*

   Response: Tee Pee Lane has been removed from Phase 1.

7. **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: Noted. Technical drainage studies will be provided with the development of each Designated Builder Parcel.

8. **Comment:** *The provided WSPG analysis currently indicates that the proposed Phase 1 Infrastructure has velocities above the maximum allowable velocity of 25 fps along the Moccasin corridor. Provide proposed mitigation measures to the high velocity flows. Changes to the storm drain system will require updated WSPG calculations to verify velocities are below 25 fps or provide the indicated mitigation needed.*

   Response: Additional storm drain has been provided along the Moccasin Corridor reducing velocities for portions of the storm drain alignment. Note that 1-inch of sacrificial concrete has been recommended for a portion of the proposed storm drain which has velocities in excess of 25 fps. Refer to Appendix F for revised improvement plan sheets.

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

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

   Response: Acknowledged. A copy of the Technical Drainage Study and pertinent Addendum will be submitted to CCRFCD for review concurrence upon receipt of the conditional approval letter from the CLV.

10. **Comment:** *The project proposed to construct facilities and/or increase flows within Nevada Department of Transportation (NDOT) right-of-way. Therefore, NDOT concurrence is required prior to final approval of the Phase 1 Infrastructure Drainage Study.*

Response: Acknowledged. A copy of the Technical Drainage Study and pertinent Addendum will be submitted to NDOT for review concurrence upon receipt of the conditional approval letter from the CLV.

11. **Comment:** *Final approval of the Master Drainage shall be obtained prior to final approval of the subject infrastructure drainage study.*

    Response: Conditional approval of the MDS was received from CLV on January 28, 2019 subject to concurrence approvals by RFCD and NDOT. Concurrence approval was received from RFCD on March, 6, 2019; and from NDOT on February, 20, 2019. Approval letters are included in Appendix E.

12. **Comment:** *The plans identify rip-rap channel improvements along the Moccasin Corridor. The City Council of the City of Las Vegas adopted an amendment to Title 20 of the Municipal Code in which Section 20.10.030 requires all public drainage easements to be concrete lined. Revise the channel calculations, plans, details and construction notes accordingly.*

    Response: Proposed rip-rap improvements along the Moccasin Corridor have been removed and replaced with reinforced concrete pipe (RCP) to convey flow from the North Collector to Fort Apache. The added storm drain has been included in WSPGW storm drain model NCR3 and is included in Appendix D.

13. **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: Acknowledged.

14. **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: Noted. However, developer may need to construct Welcome Home Centers and Models prior to substantial completion of the infrastructure.

15. **Comment:** *Provide complete set of improvement plans for each roadway segment that includes roadway design elevations, sanitary sewer, and utilities. Design elevations are necessary to verify inlet locations with roadway low point. Include utilities in all storm drain profiles and inlet laterals. Complete the Quantity Estimate information on the plan set for each roadway.*

    Response: Complete improvement plan sets have been provided for each roadway segment, including roadway design elevations, sanitary sewer and utilities. Quantity estimate information will be included on Sheet CS-3 of each respective roadway plan set.

16. **Comment:** *Provide the facility design Q and the HGL on all storm drain profiles within each roadway plan set.*

    Response: Acknowledged. Notes for storm drain flows and HGL have been provided on storm drain profiles where applicable. Revised improvement plans are provided in Appendix F.

17. **Comment:** *Provide lateral connection details to the existing RCB on all appropriate plan sets.*

    Response: All existing RCB connections are made on the Log Cabin Way plan set. The Log Cabin Way plan set provides stubs for other infrastructure roadways that connect to Log Cabin Way. The lateral connection detail for the existing RCB is included on Log Cabin Sheet DT-1, Detail E.

18. **Comment:** *The interim channels adjacent to the infrastructure roadways are the Maintenance responsibility of the Master Developer.*

    Response: Acknowledged.

19. **Comment:** *Please note that all proposed interim facilities must be maintained by the Master Developer. Provide maintenance access to all the inlet and outlet structures. Include a typical access road section.*

    Response: The Master Developer will maintain all proposed interim facilities. Due to the relatively short anticipated amount of time that interim facilities will be required, the Master Developer believes the amount of time and expense that goes into designing and constructing maintenance access roads is excessive. The Master Developer proposes to increase the bond amount required for the interim facilities so that funding would be available to provide for access roads in the event the Master Developer is unable to maintain the facilities.

20. **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: Legal descriptions will be provided prior to recordation of the parent final map.

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

    Response: A quantity estimate for drainage improvements within Public Drainage Easements is included on the grading plans.

22. **Comment:** *The project proposed to build temporary drainage facilities including drainage berms/wales over the Phase 1 Infrastructure site. Prior to the final plan approval for each set of improvement plans that will be bonded separately, the developer must complete a* ***Maintenance and Liability Agreement*** *for the interim drainage improvements and post a minimum maintenance bond of $50,000 or 50-percent of the construction cost for the*

improvements, whichever is greater. The engineer must submit an estimate of the quantities for construction the facility and an exhibit that adequately shows the location and limits of the drainage 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: Noted. This process will be initiated after conditional approval of the TDS.

A. Skye Point Drive Improvement Plans:

***General**: Provide nuisance inlets at 660' maximum spacing on both sides of the street. Provide maintenance access ramp to the sump condition pits. Include drainage easement limits for these temporary drainage facilities.*
Adjust topo to reflect US-95 Interchange work.

***Sheet P-1**: The Parent Tentative Map (Sheet TM-11) submitted with the Phase 1 Infrastructure shows that the Skye Point storm drain is extended to collect the 42-inch storm drain. Verify the storm flow routing and extend the storm drain system as needed.*

The City does not allow CMP storm drains. If this facility is extended, remove and replace the 42-inch CMP with RCP. Provide maintenance access ramp to the storm drain culvert.

***Sheet P-2 to P-4**: Extend storm drain per P-1. Revise storm drain size based upon P-1 storm drain extension.*

***Sheet P-5**: Provide 10' wide concrete pad at the inflow structure of the main interception points at Lateral 1 (85 cfs) and Lateral 3 (251 cfs) for maintenance.*

Response: Nuisance inlets have been provided at 660-ft maximum spacing on both sides of the street. Additional bonding will be provided in lieu of maintenance access ramps. Drainage easements limits are shown on plans for temporary drainage facilities. US 95/Kyle Canyon Interchange topo has been added to the plans, see Sheet SD-4.

Sky Pointe Drive storm drain has been extended to collect the 42-in storm drain at north end of roadway improvements. The existing 42-in CMP has been replaced with a 42-in RCP. Additional bonding will be provided in lieu of maintenance access ramp.

Storm drain has been extended per Sheet P-1 comment. Downstream storm drain sizes have been increased as necessary, see improvement plans in Appendix F, and hydraulic model in Appendix D.

Additional bonding for will be provided in lieu of interim concrete maintenance pads.

B. Skye Canyon Park Drive Improvement Plans

***General:** Provide maintenance access ramp to the sump condition pits. Include drainage*

easement limits for these temporary drainage facilities.

***Sheet P-1**: Include the Facility 16-1 from the Iron Mountain Road plans. Show the storm drain bubbling out east of the intersection.*

***Sheet P-3**: Include the 30" water line in profile at the storm drain crossing. Include the water line near Station 27 + 20.*

***Sheet P-4**: Shift SDMH #1 north to Station 37 + 10 and connect existing 36" to the proposed 66" storm drain. Cut and cap the 36" storm drain north of existing manhole near Station 36 + 85. Provide profile for new connection. An alternative connection point could be proposed at the Log Cabin intersection.*

Response: Additional bonding will be provided in lieu of maintenance access ramps. Drainage easements limits are shown on plans for temporary drainage facilities.

Iron Mountain Road improvements have been removed from Phase 1 and are no longer included on improvement plans.

36-in water line crossing is shown in storm drain profile at approximately Station 26+20. Water line crossing at Station 27+20 is also shown.

Existing 36-in storm drain has been connected to proposed storm drain at Station 37+10.

C. Log Cabin Way Improvement Plans

***General**: Provide Maintenance access ramp to the sump condition pits. Include drainage easement limits for these temporary drainage facilities.*
There are two sheets labeled as Sheet P-7. Revise accordingly.

***Sheet P-1**: Revise south lateral at Station 37 + 64.81 to 24" RCP. Note removal of existing 18" lateral stub.*

***Sheet P-2 and P-7**: Provide detailed grading with the roadway plans for the Round-About to verify curb drainage through the intersections. Adjust grading and provide nuisance inlets as required to maintain curb flow. Crossfall drainage through the Round-About should be eliminated. Provide drop inlets upstream of the cross fall transitions to collect flow before it spills across the Round-About intersections.*

***Sheet P-3**: Review that the 24" lateral behind inlet and verify capacity of 45 cfs. WSPG shows as 42" storm drain.*

***Sheet P-5**: Review the intersection grading to verify that the north side grading low point new Station 69 + 07 does not require a nuisance inlet near the BCR. Provide detailed grading.*

Identify the existing storm drain removals necessary for construction

***Sheet D-1:** Include RCP connection details. Provide structural details as required.*

Sheet G-1 and G-2: *Include drainage easement limits for these temporary drainage facilities.*

Response: Additional bonding will be provided in lieu of maintenance access ramps. Drainage easements limits are shown on plans for temporary drainage facilities. Sheet P-7 labels are revised (a complete set of improvement plans is being included with this submittal and storm drain plans are now on the "SD" sheets.)

Lateral at Station 37+64 revised to 24-in RCP. Existing 18-in lateral stub called out to be removed.

See sheets RA-1 through RA-4 for roundabout grading plan and curb profiles. Positive curb flow is maintained. Drainage into the roundabout is diverted to the sides. Drop inlets are provided upstream of the roundabout at Station 41+00.

D. North Collector Road Improvement Plans:

General*: Provide maintenance access ramp to the sump condition pits. Include drainage easement limits for these temporary drainage facilities.*
Provide nuisance inlets at 660' maximum spacing on both sides of the street.

Sheet P-1*: Lateral 2 and Lateral 5 are considered temporary facilities and are to be maintained by the Master Developer. Provide erosion protection for these facilities.*
Provide call-outs and details for exit headwalls.

Sheet P-2*: Provide nuisance inlet on east side near Station 27 + 90.*

Sheet P-3*: Provide nuisance inlet on both sides of street near Station 35 + 10 into SDMH #6.*

Sheet D-1*: Provide complete channel Sections and Details, including base section per Manual requirements.*

Sheet G-1, G-2, and G-3*: The proposed rip-rap channel shall be constructed per Title 20 of the Municipal Code in Section 20.10.050 and shall be maintained by the Master Developer.*

Include drainage easement limits for these temporary drainage facilities. Provide maintenance access per Manual requirements.

Should the intent of these facilities be to have them Publicly Maintained, provide concrete channels and/or storm drain facilities with appropriate access and easements per Manual requirements.

Sheet G-3 and G-4*: The proposed 72" storm drain has velocities above 25 fps. Clearly identify where the velocity is above 25 fps. Detail mitigation measure for the velocity impact and note such on the profile Sheets.*

Response: Additional bonding will be provided in lieu of maintenance access ramps. Drainage easements limits are shown on plans for temporary drainage facilities. Nuisance inlets have been provided at a 660-ft spacing (the nuisance inlets on Sheet SD-2 are measured approximately 660-ft from the roadway high point at approximately Station 21+00.)

The Master Developer will maintain Lateral 2 and 5 (now Lateral 2 and 1) during the interim condition. These facilities will be maintained without riprap and the Master Developer will be responsible for repairing erosion that occurs, as needed. Additional bonding will be provided for these facilities to compensate for the lack of riprap. Exit headwalls are no longer required due to the downstream facility being changed from a proposed riprap channel to a proposed RCP.

Nuisance inlets are provided at approximately Station 27+90.

Nuisance inlets are provided at Station 35+10.

Channel sections are not provided as proposed riprap channel has been revised to a proposed RCP.

Proposed riprap channel has been revised to an RCP. A drainage easement is shown for this facility.

E. O'Hare Road Improvement Plans

***General**: Provide maintenance access ramp to the sump condition pits. Include drainage easement limits for these temporary drainage facilities.*
Provide nuisance inlets at 660' maximum spacing on both sides of the street.
Verify facility flow impacts per Comment #5, above.

***Sheet P-1 and P-2:** Extend the storm drain facilities north of Entry Road 1 intersection.*

***Sheet P-1:** Provide stub for inlet collection on Entry Road 1.*

***Sheet G-1 and G-1:** Include drainage easement limits for these temporary drainage facilities.*

Response: Additional bonding will be provided in lieu of maintenance access ramps. Drainage easements limits are shown on plans for temporary drainage facilities. Nuisance inlets are not provided at 660-ft spacing based on roadway classification per traffic study and coordination with City, see Appendix E. Flowmaster sections of O'Hare Road are included in Appendix C, with flow depth and other relevant hydraulic information summarized on Exhibit E, Cross Section and Facilities Map.

There are two US 95 culvert crossings that impact Parcel J (subbasin EPJ). In the ultimate condition, both of these culverts will be conveyed around Parcel J to the south and down the Iron Mountain Road alignment, consistent with the Master Drainage Study. However, development of Parcel J will not be provided for with Phase 1. It will be included in a future phase, either concurrent with, or after Iron Mountain Road infrastructure improvements. This allows for the more northerly of the two US 95 culvert crossings to be conveyed through Parcel J in the interim condition. The subbasins discharging flow to this crossing are subbasin 95-5A (12 cfs, 100-yr) and 95-5B (11 cfs, 100-yr). These flows will be perpetuated through Parcel J to the interim sump at Entry Road 2. In the interim condition, the addition of these two flow rates to the undeveloped Parcel J flow (31 cfs) is still less than the developed condition Parcel J flow (55 cfs). Also, the maximum inlet control capacity of the culvert (approx 100 cfs) is

much greater than the combined interim flow (54 cfs). Therefore, perpetuating this culvert discharge through Parcel J in the interim condition does not alter flow patterns or exceed facility capacities. Flows patterns downstream of the southern US 95 culvert crossing (near the Iron Mountain Road alignment) will not be altered with these plans, and the existing condition will be perpetuated in this location with Phase 1.

Per the traffic study and coordination with CLV, see Appendix E, O'Hare Road is not classified similar to an 80-ft ROW street, and storm drain facilities have not been extended to provide dry lane or 660-ft nuisance inlet spacing.

Due to O'Hare Road not being classified similar to a 80-ft or greater ROW street, a stub for inlet collection on Entry Road 1 is not needed to meet street flow criteria.

Drainage easements have been provided for temporary drainage facilities.

F. Iron Mountain Road and Tee Pee Lane Improvement Plans:

***General**: Provide maintenance access ramp to the sump condition pits. Include drainage easement limits for these temporary drainage facilities.*

The City does not allow Type B inlets. Provide detail of modifying Manholes to drop inlets.

The City no longer allows HDPE storm drain for Public facilities.

Provide storm drain facilities per Master Study, Exhibit J.

***Sheet P-1 and P-2**: Provide storm drain facility 16-1 within Iron Mountain. Extend facility to the east side of the Skye Canyon Park intersection and provide bubbler inlets and manholes with hinged and grated lids.*

***Sheet P-1**: Provide an RCP stub connection to the existing 30" HDPW storm drain. Include a storm drain manhole at the connection point between the HDPE and RCP.*

***Sheet P-3**: Provide storm drain Facility 17-2 at the Tee Pee intersection with Brent Lane.*

***Sheet P-3**: Tee Pee and Brent is shown as a knuckle intersection. Remove the valley gutter & spandrel and drain the knuckle toward Brent.*

Response: Iron Mountain Road and Tee Pee Lane have been removed from Phase 1. These comments will be addressed in the future phase that includes these roadways.

G. Private Entry Road 1 and Private Entry Road 2 Improvement Plans:

***General**: Provide maintenance access ramp to the sump condition pits. Include drainage easement limits for these temporary drainage facilities.*
The plans are not clear if the Entry Roads are Private or Public. Private streets must be public drainage easements. Provide a note on the roadway & grading plans. "Note: All private streets are P.U.E., Public Sewer Easements, and Public Drainage Easements to be privately maintained by HOA."

***Sheet P-2**: Provide storm drain at intersection with O'Hare Reference O'Hare comments.*

***Sheet P-3**: Include intersection grading at the proposed T-intersection. Identify the need for nuisance inlet along the west side of the T-intersection.*

***Sheet P-3**: Provide storm drain Facility 17-2 at the Tee Pee intersection with Brent Lane.*

***Sheet P-3**: Tee Pee and Brent is shown as a knuckle intersection. Remove the valley gutter & spandrel and drain the knuckle toward Brent.*

Response: Additional bonding will be provided in lieu of maintenance access ramps. Drainage easements limits are shown on plans for temporary drainage facilities. Entry Road 1 and Entry Road 2 have been labeled as requested.

Storm drain not provided at intersection of Entry Road 1 and O-Hare Road, see O'Hare Road comment response.

Intersection grading is included at T-intersection. Positive drainage is maintained down Entry Road 2 and through the valley gutter at O-Hare Road.

Tee Pee Lane has been removed from Phase 1.

We believe the above responses and revisions provided on the plans have adequately satisfied your concerns in the subject review memorandum. The revised plan, profile, and detail sheets adopting the revisions addressed in in this letter have been included in Appendix F. If you have any questions or require additional information, please do not hesitate to contact our office at (702) 284-5300.

Respectfully Submitted,

SLATER HANIFAN GROUP
A WESTWOOD TEAM

Lant Leavitt, P.E.
Project Manager – Flood Control Division

cc: Mark Failla, P.E., CFM – SHG
Thomas Dyson, P.E. – SHG
Josh Johnson, P.E. – SHG

APPENDIX

Appendix A – CLV Comment Letter

Appendix B – Revised Drainage Exhibits

Appendix C – Surface Flow Hydraulic Computations

Appendix D – Storm Drain Analyses

Appendix E – CLV Correspondence & MDS Approval Letters

Appendix F – CD of Electronic Files & Revised Improvement Plans

APPENDIX A

Approval Letter

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: June 25, 2019
TO: **Land Development Services** Department of Public Works				FROM: Oh Sang Kwon, P.E. Flood Control Section Department of Public Works for
SUBJECT:	Drainage Study for:			**COPIES TO:**
SUNSTONE - Phase 1 Infrastructure				Slater Hanifan Group
Cross Streets:	Fort Apache Road & Moccasin Road			Eastland Co., LLC
File Number:	F:\PW_Flood\DSMEMOS\DS5135A.docx			Bart Anderson, P.E., DevCo
Parcel Number:	125-06-501-001			CCRFCD
Zoning Action:	Eastland Development Agreement			CCPW
FEMA Flood Zone	YES	NO X		NDOT
Proposed Storm Drain	YES X	NO		NV Energy

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Transaction #
1st Submittal	5/6/2019	6/24/2019	See Comments Below	$400.00	3122585: $400
			TOTAL FEES (LDDRS):	**$400.00**	----

REMARKS: SUNSTONE – Phase 1 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:
X	must be resubmitted or supplemented including the following:
	is conditionally approved subject to Clark County Regional Flood Control District concurrence.
	is conditionally approved subject to Nevada Department of Transportation concurrence.

The SUNSTONE – Phase 1 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 1 Infrastructure Improvements include the following roadways:
    - Sky Point Drive (Edgestone Dr.) – Log Cabin to Hualapai
    - Log Cabin Way (Sunstone Parkway) – US-95 to Skye Canyon Park Dr.
    - North Connector (Sunbridge Point Dr.) – Log Cabin to Moccasin
    - Skye Canyon Park Drive (Sun Park Dr.) – Iron Mountain to Log Cabin
    - O'Hare Road – Log Cabin to Skye Canyon Park Dr.
    - South Park – (Entry Roads 1 & 2) adjacent to the South Park
    - Iron Mountain Road – Tee Pee to Skye Canyon Park Dr.
    - Tee Pee Lane – Brent to Iron Mountain

2. The overall SUNSTONE Master Plan identifies various Village street sections that do not match the typical RTC Standards for Arterial (100') and Major Collector (80') Right-of-Way. Flood Control understands that following Village Streets in Phase 1 are functional Arterial or Major Collector roadways as identified in the SUNSTONE Master Plan: *Skye Point Drive, Log Cabin Way, North Connector, Skye Canyon Park Drive, and O'Hare Road*.

   The study shall show that the 10-year manual criteria has been addressed for *Skye Point Drive, Log Cabin Way, North Connector, Skye Canyon Park Drive, and O'Hare Road*. Revise Section 2.3 of the Report to address the functional Arterial or Major Collector roadways. Review and revise the storm drain system as necessary to meet the manual criteria that includes dry-lane and intersection flow depth. The City requires inlets at a maximum 660' spacing.

3. Proposed Condition flow includes off-site flows from Basins OFFA, OFFB, OFFC, 95-1, 95-2, 95-3, and OFFZ that impact both Skye Point and the North Collector. These flows will impact the development of Basins EAA1, EAA2, and EAA3. Until development occurs, Flood Control concurs with the added flows from Basins OFFA, OFFB, OFFC, 95-1, 95-2, 95-3, and OFFZ. This increases the flows being routed to the Moccasin facility alignment and appears to impact both Skye Point and the North Collector collection systems. The Skye Point plans need to clearly show how the flows are routed toward the Moccasin alignment or how they are incorporated into the Log Cabin facility via Skye Point. The Parent Tentative Map (Sheet TM-11) submitted with the Phase 1 Infrastructure shows that the Skye Point storm drain is extended to collect a portion of the off-site flows. Review the Proposed Condition storm drain routing and revise the plans as necessary.

4. Extend the O'Hare storm drain to collect flows from Basins EPI2 and EPG (combined flow 56 cfs). Collect flows prior to the Entry Road 1 intersection. Revise Exhibit E accordingly. Include US-95 facilities that impact O'Hare in the Proposed Condition. Verify that the Lone Mountain facility extension to US-95 (identified as 16-2 and 16-3 in the Master Study, Exhibit J) will collect the flow and Ultimately reduce the O'Hare impacts.

5. Revise the Iron Mountain Road Infrastructure plans to include storm drain Facility 16-1 identified in the Master Study, Exhibit J. Extend the Iron Mountain facility to the east side of Skye Canyon Park Drive intersection and provide bubbler inlets and manholes with hinged and grated lids. Consider including Facility 16-1, 16-2, and 16-3 as a part of the Phase 1 Infrastructure. Facility 16-2 and 16-3 extend west of the Tee Pee intersection and collect flows to US-95. The corresponding flows shall be accommodated within the Iron Mountain facility extensions within Phase 1. Update the Iron Mountain Road plans accordingly. Include bubbler calculations for the facility.

6. Revise the Tee Pee Lane Infrastructure plans to include storm drain Facility 17-2 identified in the Master Study, Exhibit J. Extend the Brent Lane facility 17-2 through the Tee Pee intersection. Revise the report to discuss if Facility 17-1 and 17-2 are to be included or just stubbed within the Tee Pee intersection.

7. 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

8. The provided WSPG analysis currently indicates that the proposed Phase 1 Infrastructure has velocities above the maximum allowable velocity of 25 fps along the Moccasin corridor. Provide proposed mitigation measures to the high velocity flows. Changes to the storm drain system will require updated WSPG calculations to verify velocities are below 25 fps or provide the indicated mitigation needed.

9. 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.

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

10. The project proposed to construct facilities and/or increase flows within *Nevada Department of Transportation* (NDOT) right-of-way. Therefore, NDOT concurrence is required prior to final approval of the Phase 1 Infrastructure Drainage Study.

11. Final approval of the Master Drainage Study shall be obtained prior to final approval of the subject infrastructure drainage study.

12. The plans identify rip-rap channel improvements along the Moccasin corridor. The *City Council* of the *City of Las Vegas* adopted an amendment to Title 20 of the Municipal Code in which Section 20.10.030 requires all public drainage easements to be concrete lined. Revise the channel calculations, plans, details and construction notes accordingly.

13. 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.

14. 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.

15. Provide complete set of improvement plans for each roadway segment that includes roadway design elevations, sanitary sewer, and utilities. Design elevations are necessary to verify inlet locations with roadway low points. Include utilities in all storm drain profiles and inlet laterals. Complete the Quantity Estimate information on the plan set for each roadway.

16. Provide the facility design Q and the HGL on all storm drain profiles within each roadway plan set.

17. Provide lateral connection details to the existing RCB on all appropriate plan sets.

18. The interim channels adjacent to the infrastructure roadways are the Maintenance responsibility of the Master Developer.

19. Please note that all proposed interim facilities must be maintained by the Master Developer. Provide maintenance access to all of the inlet and outlet structures. Include a typical access road section.

20. 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.

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

22. The project proposed to build temporary drainage facilities including drainage berms/swales over the *Phase 1 Infrastructure* site. Prior to the final plan approval for each set of improvement plans that will be bonded separately, the developer must complete a ***Maintenance and Liability Agreement*** for the interim drainage improvements and post a minimum maintenance bond of $50,000 or 50-percent of the construction cost for the improvements, whichever is greater. The engineer must submit an estimate of the quantities for construction the facility and an exhibit that adequately shows the location and limits of the drainage 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. **Skye Point Drive Improvement Plans:**

General: Provide nuisance inlets at 660' maximum spacing on both sides of the street.
Provide maintenance access ramp to the sump condition pits. Include drainage easement limits for these temporary drainage facilities.
Adjust topo to reflect US-95 Interchange work.

Sheet P-1: The Parent Tentative Map (Sheet TM-11) submitted with the Phase 1 Infrastructure shows that the Skye Point storm drain is extended to collect the 42-inch storm drain. Verify the storm flow routing and extend the storm drain system as needed.

The City does not allow CMP storm drains. If this facility is extended, remove and replace the 42-inch CMP with RCP. Provide maintenance access ramp to the storm drain culvert.

Sheet P-2 to P-4: Extend storm drain per P-1. Revise storm drain size based upon P-1 storm drain extension.

Sheet P-5: Provide 10' wide concrete pad at the inflow structure of the main interception points at Lateral 1 (85 cfs) and Lateral 3 (251 cfs) for maintenance.

B. **Skye Canyon Park Drive Improvement Plans:**

General: Provide maintenance access ramp to the sump condition pits. Include drainage easement limits for these temporary drainage facilities.

Sheet P-1: Include the Facility 16-1 from the Iron Mountain Road plans. Show the storm drain bubbling out east of the intersection.

Sheet P-3: Include the 30" water line in profile at the storm drain crossing. Include the water line near Station 27+20.

Sheet P-4: Shift SDMH #1 north to Station 37+10 and connect existing 36" to the proposed 66" storm drain. Cut and cap the 36" storm drain north of existing manhole near Station 36+85. Provide profile for new connection. An alternative connection point could be proposed at the Log Cabin intersection.

C. **Log Cabin Way Improvement Plans:**

General: Provide maintenance access ramp to the sump condition pits. Include drainage easement limits for these temporary drainage facilities.
There are two Sheets labeled as Sheet P-7. Revise accordingly.

Sheet P-1: Revise south lateral at Station 37+64.81 to 24" RCP. Note removal of existing 18" lateral stub.

Sheet P-2 and P-7: Provide detailed grading with the roadway plans for the Round-About to verify curb drainage through the intersections. Adjust grading and provide nuisance inlets as required to maintain curb flow. Crossfall drainage through the Round-About should be eliminated. Provide drop inlets upstream of the cross fall transitions to collect flow before it spills across the Round-About intersections.

Sheet P-3: Review that the 24" lateral behind inlet and verify capacity of 45 cfs. WSPG shows as 42" storm drain.

Sheet P-5: Review the intersection grading to verify that the north side grading low point near Station 69+07 does not require a nuisance inlet near the BCR. Provide detailed grading.

Identify the existing storm drain removals necessary for construction.

Sheet D-1: Include RCB connection details. Provide structural details as required.

Sheet G-1 and G-2: Include drainage easement limits for these temporary drainage facilities.

D. **North Collector Road Improvement Plans:**

General: Provide maintenance access ramp to the sump condition pits. Include drainage easement limits for these temporary drainage facilities.
Provide nuisance inlets at 660' maximum spacing on both sides of the street.

Sheet P-1: Lateral 2 and Lateral 5 are considered temporary facilities and are to be maintained by the Master Developer. Provide erosion protection for these facilities.
Provide call-outs and details for exit headwalls.

Sheet P-2: Provide nuisance inlet on east side near Station 27+90.

Sheet P-3: Provide nuisance inlet on both sides of street near Station 35+10 into SDMH #6.

Sheet D-1: Provide complete channel Sections and Details, including base section per Manual requirements.

Sheet G-1, G-2, and G-3: The proposed rip-rap channel shall be constructed per Title 20 of the Municipal Code in Section 20.10.050 and shall be maintained by the Master developer.
Include drainage easement limits for these temporary drainage facilities. Provide maintenance access per Manual requirements.
Should the intent of these facilities be to have them Publically Maintained, provide concrete channels and/or storm drain facilities with appropriate access and easements per Manual requirements.

Sheet G-3 and G-4: The proposed 72" storm drain has velocities above 25 fps. Clearly identify where the velocity is above 25 fps. Detail mitigation measure for the velocity impact and note such on the profile Sheets.

E. **O'Hare Road Improvement Plans:**

General: Provide maintenance access ramp to the sump condition pits. Include drainage easement limits for these temporary drainage facilities.

Provide nuisance inlets at 660' maximum spacing on both sides of the street.
Verify facility flow impacts per Comment #5, above.

Sheet P-1 and P-2: Extend the storm drain facilities north of the Entry Road 1 intersection.

Sheet P-1: Provide stub for inlet collection on Entry Road 1.

Sheet G-1 and G-2: Include drainage easement limits for these temporary drainage facilities.

F. Iron Mountain Road and Tee Pee Lane Improvement Plans:

General: Provide maintenance access ramp to the sump condition pits. Include drainage easement limits for these temporary drainage facilities.
The City does not allow Type B inlets. Provide detail of modifying Manholes to drop inlets.
The City no longer allows HDPE storm drain for Public facilities.
Provide storm drain facilities per Master Study, Exhibit J.

Sheet P-1 and P-2: Provide storm drain facility 16-1 within Iron Mountain. Extend facility to the east side of the Skye Canyon Park intersection and provide bubbler inlets and manholes with hinged and grated lids.

Sheet P-1: Provide an RCP stub connection to the existing 30" HDPE storm drain. Include a storm drain manhole at the connection point between the HDPE and RCP.

Sheet P-3: Provide storm drain Facility 17-2 at the tee Pee intersection with Brent Lane.

Sheet P-3: Tee Pee and Brent is shown as a knuckle intersection. Remove the valley gutter & spandrel and drain the knuckle toward Brent.

G. Private Entry Road 1 and Private Entry Road 2 Improvement Plans:

General: Provide maintenance access ramp to the sump condition pits. Include drainage easement limits for these temporary drainage facilities.
The plans are not clear if the Entry Roads are Private or Public. Private streets must be public drainage easements. Provide a note on the roadway & grading plans. "Note: All private streets are P.U.E., Public Sewer Easements, and Public Drainage Easements to be privately maintained by HOA."

Sheet P-2: Provide storm drain at intersection with O'Hare Reference O'Hare comments..

Sheet P-3: Include intersection grading at the proposed T-Intersection. Identify the need for nuisance inlet along the west side of the T-Intersection.

Sheet P-3: Provide storm drain Facility 17-2 at the tee Pee intersection with Brent Lane.

Sheet P-3: Tee Pee and Brent is shown as a knuckle intersection. Remove the valley gutter & spandrel and drain the knuckle toward Brent.

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
PBJ

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

APPENDIX B

Revised Drainage Exhibits

Proposed Condition 10-Year Street Flow Summary

Section ID	Q_{10} (cfs)	Slope (%)	Depth (ft)	Velocity (fps)	DxV	Dry Lane (ft)
LC1 (Q = ELOG1(a))	5	4.06	0.28	3.83	1.1	20.5
LC2 (Q = Combined Bypass from LC1 Facilities + ELOG1(b)))	4	4.06	0.27	3.67	1.0	21.0
LC3 (Q = Combined Bypass from LC2 Facilities + ELOG1(c) + ELOG2(a))	6	1.75	0.33	2.85	0.9	18.0
LC4 (Q = Combined Bypass from LC3 Facilities + ELOG2(b))	3	4.10	0.25	3.53	0.9	22.0
LC5 (Q = Combined Bypass from LC4 Facilities + ELOG2(c))	4	2.95	0.28	3.22	0.9	20.5
LC6 (Q = Combined Bypass from LC5 Facilities + ELOG2(d))	5	3.83	0.29	3.74	1.1	20.0
LC7a (Q = Bypass from LC6 Facilities + ELOG2(e))	2	3.83	0.27	3.59	1.0	21.0
LC7b (Q = Bypass from LC6 Facilities + ELOG2(f))	3	3.75	0.30	3.84	1.2	19.5
SC1* (Q = EFA4(a))	3	0.46	0.40	1.64	0.7	14.5
SC2* (Q = Bypass from SC1 + Combined Bypass from OH3 + EFA4(b) + EFA3(a))	14.5	0.46	0.61	2.37	1.4	21.5
SC3* (Q = EFA3(b))	1	0.22	0.33	3.89	1.3	35.5
SC4* (Q = EFA3(c))	1	0.65	0.28	1.52	0.4	38.0

Proposed Condition 100-Year Street Flow Summary

Section ID	Q_{100} (cfs)	Slope (%)	Depth (ft)	Velocity (fps)	DxV
LC1 (Q = ELOG1(a))	10	4.06	0.34	4.41	1.5
LC2 (Q = Combined Bypass from LC1 Facilities + ELOG1(b)))	7	4.06	0.31	4.09	1.3
LC3 (Q = Combined Bypass from LC2 Facilities + ELOG1(c) + ELOG2(a))	12	1.75	0.40	3.32	1.3
LC4 (Q = Combined Bypass from LC3 Facilities + ELOG2(b))	9	4.10	0.33	4.34	1.4
LC5 (Q = Combined Bypass from LC4 Facilities + ELOG2(c))	11	2.95	0.36	3.97	1.4
LC6 (Q = Combined Bypass from LC5 Facilities + ELOG2(d))	13	3.83	0.37	4.57	1.7
LC7a (Q = Bypass from LC6 Facilities + ELOG2(e))	5.5	3.83	0.35	4.40	1.5
LC7b (Q = Bypass from LC6 Facilities + ELOG2(f))	7.5	3.75	0.38	4.68	1.8
ER1 (Q = EPC + EOHR1(d))	26	1.5	0.51	3.72	1.9
		3.6	0.45	5.23	2.4
ER2 (Q = EOHR1(e))	2	0.6	0.29	1.48	0.4
		2.7	0.23	2.79	0.6
SP1* (Q = ESKY1(a))	4	1.5	0.37	2.85	1.1
SP2* (Q = Bypass from Facility SP1 + EMLA1 + ESKY1b)	12	2.9	0.45	4.73	2.1
SP3* (Q =Bypass from Facility SP1a + ESKY1(b))	4	2.9	0.34	3.68	1.3
SP4a* (Q = Bypass from Facility SP3a + EMLA1 + ESKY1(c))	14	2.9	0.47	4.90	2.3
SP4b* (Q = Bypass from Facility SP3b + ESKY1(g))	4	2.9	0.34	3.68	1.3
SC1* (Q = EFA4(a))	5	0.46	0.45	1.85	0.8
SC2* (Q = Bypass from SC1 + Combined Bypass from OH3 + EFA4(b) + EFA3(a))	14.5	0.46	0.61	2.37	1.4
SC3* (Q = EFA3(b))	3	0.22	0.44	1.24	0.5
SC4* (Q = EFA3(c))	2	0.65	0.34	1.73	0.6
OH1 (Q = EPC + EPG + EOHR1(a))	70	2.63	0.61	6.19	3.8
OH2 (Q = Combined Bypass from OH1 Facilities + EOHR1(b))	39	4.37	0.49	6.18	3.0
OH3 (Q = Combined Bypass from OH2 Facilities + EOHR1(c))	36	3.76	0.49	5.73	2.8
OH4 (Q = EPC + EPG + EOHR1(a+d))	68	0.95	0.7	4.50	3.2
		2.63	0.61	6.12	3.7
NC2a* (Q = ECR1(b))	3	2.06	0.27	2.64	0.7
NC2b* (Q = ECR1(e))	4	2.06	0.29	2.79	0.8
NC4a* (Q = EOR1(c))	2	1	0.27	1.83	0.5
NC4b* (Q = EOR1(f) + Facility NC2b Bypass)	5	1	0.34	2.19	0.7

*HALF STREET SECTION

Recommended Flood Control Facility Summary

Facility ID	Facility Description	Total/Approaching Flow (cfs) Q_{100}/Q_{10}	Facility Flow (cfs) Q_{100}/Q_{10}	Surface/Bypass Flow (cfs) Q_{100}/Q_{10}	Notes
LC1	5' Type CM2 DI & 18" RCP	5/2.5	3/2	2/1	
LC2	12.5' Type CM2 DI & 18" RCP	3.5/2	3/2	0/0	
LC3	5' Type CM2 DI & 18" RCP	6/3	3/2	3/1	
LC4	5' Type CM2 DI	4.5/1.5	2/2	2/0	
LC5	5' Type CM2 DI	5.5/2	3/1	3/1	
LC6	5' Type CM2 DI & 18" RCP	6.5/2.5	3/2	4/1	
LC7a	10' Type CM2 DI	5.5/2	5/2	1/0	
LC7b	15' Type CM2 DI & 18" RCP	7.5/3	6/3	1/0	
LC8	5' Type CM2 DI & 18" RCP	2/0	2/0	0/0	Sump Inlet
SC1	5' Type CM2 DI & 18" RCP	5/3	3/2	2/1	
SC2	7.5' Type CM2 DI & 18" RCP	14.5/ NA	14.5/ NA	0/0	Sump Inlet
SC3	5' Type CM2 DI & 18" RCP	3/1	2/1	1/0	
SC4	7.5' Type CM2 DI & 18" RCP	2/1	2/1	0/0	

Facility ID	Facility Description	Total/Approaching Flow (cfs) Q_{100}	Facility Flow (cfs) Q_{100}	Surface/Bypass Flow (cfs) Q_{100}	Notes
OH1	15' Type CM2 DI & 18" RCP	35	18	17	
OH2	12.5' Type CM2 DI & 18" RCP	19.5	6	13	
OH3	20' Type CM2 DI & 18" RCP	18	14	4	
NC1a	5' Type CM2 DI & 18" RCP	2.5	2.5	0	Sump Inlet
NC1b	5' Type CM2 DI & 18" RCP	2.5	2.5	0	Sump Inlet
NC2a	7.5' Type CM2 DI	3	3	0	
NC2b	5' Type CM2 DI & 18" RCP	4	3	1	
NC3a	7.5' Type CM2 DI	3	3	0	Sump Inlet
NC3b	5' Type CM2 DI & 18" RCP	6	6	0	Sump Inlet
NC4a	5' Type CM2 DI & 18" RCP	2	2	0	
NC4b	5' Type CM2 DI & 18" RCP	5	3	2	
SP1a	5' Type CM2 DI & 18" RCP	4	2	2	
SP1b	5' Type CM2 DI & 18" RCP	4	2	2	
SP2a	7.5' Type CM2 DI	12	12	0	Sump Inlet
SP2b	5' Type CM2 DI & 18" RCP	6	6	0	Sump Inlet
SP3a	5' Type CM2 DI	4	2	2	
SP3b	5' Type CM2 DI & 18" RCP	4	2	2	
SP4a	5' Type CM2 DI & 18" RCP	14	5	9	
SP4b	5' Type CM2 DI & 18" RCP	4	2	2	

Prorated Flow Summary

Basin ID	Q_{100} (cfs)	Q_{10} (cfs)	Area (acres)	100-yr Unit Flow (cfs/acre)	10-yr Unit Flow (cfs/acre)
ESKY1	23	13	8.2	2.8	1.6
ELOG1	15	8	4.3	3.5	1.9
ELOG2	35	19	12.1	2.9	1.6
EOHR1	29	16	10.1	2.9	1.6
EFA3	7	4	2.5	2.8	1.6
EFA4	8	5	2.8	2.9	1.8
ECR1	22	12	7.8	2.8	1.5
EMR2	26	8	19.2	1.4	0.4

Subbasin ID	Q_{100} (cfs)	Q_{10} (cfs)	Area (acres)	100-yr Unit Flow (cfs/acre)	10-yr Unit Flow (cfs/acre)
ESKY1(a)	4	2	1.4	2.8	1.6
ESKY1(b)	2	1	0.8	2.8	1.6
ESKY1(c)	2	1	0.7	2.8	1.6
ESKY1(d)	3	2	1.1	2.8	1.6
ESKY1(e)	4	3	1.6	2.8	1.6
ESKY1(f)	2	1	0.7	2.8	1.6
ESKY1(g)	2	1	0.7	2.8	1.6
ESKY1(h)	4	2	1.3	2.8	1.6
TOTAL	***23***	***13***	***8.2***		
ELOG1(a)	10	5	2.7	3.5	1.9
ELOG1(b)	3	2	0.9	3.5	1.9
ELOG1(c)	2	1	0.7	3.5	1.9
TOTAL	***15***	***8***	***4.3***		
ELOG2(a)	9	5	3.1	2.9	1.6
ELOG2(b)	3	1	1.0	2.9	1.6
ELOG2(c)	7	4	2.5	2.9	1.6
ELOG2(d)	7	4	2.4	2.9	1.6
ELOG2(e)	2	1	0.8	2.9	1.6
ELOG2(f)	4	2	1.4	2.9	1.6
ELOG2(g)	2	1	0.6	2.9	1.6
ELOG2(h)	1	1	0.4	2.9	1.6
TOTAL	***35***	***19***	***12.1***		
EOHR1(a)	6	3	2.2	2.9	1.6
EOHR1(b)	5	3	1.6	2.9	1.5
EOHR1(c)	10	6	3.6	2.9	1.5
EOHR1(d)	6	3	1.93	2.9	1.5
EOHR1(e)	2	1	0.78	2.9	1.6
TOTAL	***29***	***16***	***10.1***		
EFA3(a)	1	1	0.5	2.8	1.6
EFA3(b)	3	1	0.9	2.8	1.6
EFA3(c)	2	1	0.7	2.8	1.6
EFA3(d)	1	1	0.4	2.8	1.6
TOTAL	***7***	***4***	***2.5***		
EFA4(a)	5	3	1.6	2.9	1.8
EFA4(b)	3	2	1.2	2.9	1.8
TOTAL	***8***	***5***	***2.8***		
ECR1(a)	2	1	0.6	2.8	1.5
ECR1(b)	3	2	1.0	2.8	1.5
ECR1(c)	2	1	0.9	2.8	1.5
ECR1(d)	3	2	1.2	2.8	1.5
ECR1(e)	4	2	1.3	2.8	1.5
ECR1(f)	4	2	1.5	2.8	1.5
ECR1(g)	4	2	1.3	2.8	1.5
TOTAL	***22***	***12***	***7.8***		
EMR2(a)	3	1	2.0	1.4	0.4
EMR2(b)	23	7	17.2	1.4	0.4
TOTAL	***26***	***8***	***19.2***		

LEGEND

- BASIN BOUNDARY
- PRO-RATED SUBBASIN BOUNDARY
- ID — BASIN ID
- ID — PRO-RATED SUBBASIN ID
- FLOW DIRECTION
- ID — FLOWMASTER SECTION
- ID — FACILITY ID
- PROPOSED DRAINAGE FACILITY
- EXISTING DRAINAGE FACILITY

MOCCASIN ROAD
NORTH COLLECTOR ROAD STORM DRAIN MODEL (NCR3.WSW)
NORTH COLLECTOR ROAD STORM DRAIN MODEL (NCR2.WSW)
NORTH COLLECTOR ROAD STORM DRAIN MODEL (NCR1.WSW)
NORTH COLLECTOR ROAD LATERAL STORM DRAIN SYSTEM (NLAT1.WSW)
NORTH COLLECTOR ROAD
SKYE POINTE DRIVE
SKYE POINTE DRIVE LATERAL STORM DRAIN MODEL (SLAT2.WSW)
SKYE POINTE DRIVE STORM DRAIN MODEL (SPD.WSW)
SKYE POINTE DRIVE LATERAL STORM DRAIN MODEL (SLAT1.WSW)
LOG CABIN WAY
LOG CABIN WAY LATERAL STORM DRAIN MODEL (LLAT3.WSW)
LOG CABIN WAY LATERAL STORM DRAIN MODEL (LLAT2.WSW)
LOG CABIN WAY LATERAL STORM DRAIN MODEL (LLAT1.WSW)
LOG CABIN WAY LATERAL STORM DRAIN MODEL (LLAT4.WSW)
LOG CABIN WAY LATERAL STORM DRAIN MODEL (LLAT5.WSW)
MAINLINE MOCCASIN REGIONAL STORM DRAIN
SKYE CANYON PARK STORM DRAIN MODEL (SCP.WSW)
SKYE CANYON PARK DRIVE
SCP STORM DRAIN LATERAL (CLAT.WSW & CLAT-P.WSW)
O'HARE ROAD
OHARE STORM DRAIN MODEL (OHA.WSW)
OHARE LATERAL STORM DRAIN MODEL (OLAT1.WSW)
OHARE LATERAL STORM DRAIN MODEL (OLAT2.WSW)

EMR1, EMR2, EFA1, EFA2, EFA3, EFA4, ESKV1, EAA1, EAA2, EAA3, EAA4, EPA, EPB1, EPB2, ECR1, ENP, EPC, EPD, EPE1, EPE2, EPF1, EPF2, EPG, EPH1, EPI1, EPI2, EPJ, ESP, ECOM3, ECOM4, EMLA1, ELOG1, ELOG2, ESKY1

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NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

EASTLAND COMPANY, LLC

SUNSTONE PHASE 1
CROSS SECTION AND FACILITIES MAP

DATE: AUG 2019
DRAFTER: CAA
DESIGNER: CAA
CHECKED: LKL
PROJECT NO. EST1905-000

EXHIBIT E
SHEET 1 OF 1

I:\est1905-000 sunstone ph1 fds\drainage\technical study\addendum\figures\est1905-000 fds add exhibit e cross sections and facilities map.dwg 8/7/2019 10:08 AM Caitlyn Alcantara

APPENDIX C

Surface Flow Hydraulic Computations

Drop Inlet Computations

Curb Inlet Sizing Computation

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS

Project Name & Number:	**EST1905-000: SUNSTONE PHASE 1**
Date:	**8/4/2019**
By:	**CAA**

	Notes:		
	Facility ID:	SP1a	
	Drainage Condition:	Proposed	
	Source of Flow:	Q100 = ESKY1(a)	
	Inlet Type:	Type CM2 (Continuous Grade)	
	Inlet Length:	5.-ft	
	Number of Grates	1	
	Input:	**Variable:**	**Input:**
	Street Flow (cfs)	Q	4.0
	Longitudinal Slope (ft/ft)	S_o	0.0150
	Manning's Coefficient	n	0.016
	Street Flow Velocity (fps)	V	2.85
	Street Flow Depth (ft)	D	0.37
	Street Cross Slope (ft/ft)	S_x	0.02
	Grate Width (ft)	W	1.5
	Grate Depression (in)	D_g	2.0
	Length of Grate (ft)	L_g	2.5
	Length of Curb Opening (ft)	L_c	5.00
	Clogging Factor - Grate (%)	CF_g	50%
	Clogging Factor - Curb (%)	CF_c	50%
	Effective Grate Length (ft)	L_{ge}	1.3
	Effective Curb Opening Length (ft)	L_{ce}	2.50
	Output (Grate):	**Equation:**	**Output (Grate):**
[1]	R_f - Frontal Flow Factor	$1-0.09*(V-V_x)$ if $V>V_x$; else Frontal Flow Factor=1	1.00
[2]	V_o - Splash Over Velocity (fps)	$V_x=p+q*Lg-r*L_{ge}\text{^}2+sy*L_{ge}\text{^}3$; where	4.61
		p=0.30,q=4.85,r=1.31,sy=0.15 (for Vane Grate)	
[1]	E - Grate Flow Ratio	Frontal Flow/Side Flow	0.35
[2]	Q_w - Frontal Flow (cfs)	$Q_w = Q[1-(1-(W/T))^{2.67}]$	1.39
[1]	Q_s - Side Flow (cfs)	$Q_s = Q-Qw$	2.6
	T - Side Flow Spread (ft)	$(D-D_g)/S_x$	10.17
[1]	R_s - Side Flow Factor	$1/(1+(0.15*V^{1.8})/(S_x*L_{ge}^{2.3}))$	0.03
[1]	Q_{gi} - Intercepted Flow (cfs)	$(R_f*E+R_s*(1-E))*Q$	1.5
	Output (Curb):	**Equation:**	**Output (Curb):**
[1]	S_e - Equivalent Cross Slope (ft/ft)	S_x+S_g*E	0.059
	Q_{sx} - Remaining Flow After Grate Interception (cfs)	$Q-Q_{gi}$	2.526
	S_g - Gutter Cross Slope (ft/ft)	D_g/W	0.111
[1]	L_t - Effective Interception Length (ft)	$0.60*Q_{sx}^{0.42}*S_o^{0.30}*(1/n*S_e)^{0.6}$	16.48
[1]	Q_{ci} - Intercepted Flow (cfs)	$(1-(1-L_{ce}/L_t)^{1.8})*Q_{sx}$	0.6
		or Q_{sx} if L_t is less than L_{ce}	
	Output (Combination):	**Equation:**	**Output (Combination):**
	Total Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	**2**
	Bypass Flow (cfs)	Street Flow - Total Intercepted Flow	**2**

[1] Formula referenced from the CCRFCD Manual

[2] Formula referenced from FHWA Urban Drainage Design Manual (HEC-22)

Curb Inlet Sizing Computation

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS

Project Name & Number:	**EST1905-000: SUNSTONE PHASE 1**
Date:	**8/4/2019**
By:	**CAA**

	Notes:		
	Facility ID:	SP1b	
	Drainage Condition:	Proposed	
	Source of Flow:	Q100 = ESKY1(e)	
	Inlet Type:	Type CM2 (Continuous Grade)	
	Inlet Length:	5.-ft	
	Number of Grates	1	
	Input:	**Variable:**	**Input:**
	Street Flow (cfs)	Q	4.0
	Longitudinal Slope (ft/ft)	S_o	0.0150
	Manning's Coefficient	n	0.016
	Street Flow Velocity (fps)	V	2.85
	Street Flow Depth (ft)	D	0.37
	Street Cross Slope (ft/ft)	S_x	0.02
	Grate Width (ft)	W	1.5
	Grate Depression (in)	D_g	2.0
	Length of Grate (ft)	L_g	2.5
	Length of Curb Opening (ft)	L_c	5.00
	Clogging Factor - Grate (%)	CF_g	50%
	Clogging Factor - Curb (%)	CF_c	50%
	Effective Grate Length (ft)	L_{ge}	1.3
	Effective Curb Opening Length (ft)	L_{ce}	2.50
	Output (Grate):	**Equation:**	**Output (Grate):**
[1]	R_f - Frontal Flow Factor	1-0.09*(V-V_x) if V>V_x; else Frontal Flow Factor=1	1.00
[2]	V_o - Splash Over Velocity (fps)	V_x=p+q*Lg-r*L_{ge}^2+sy*L_{ge}^3 ; where	4.61
		p=0.30,q=4.85,r=1.31,sy=0.15 (for Vane Grate)	
[1]	E - Grate Flow Ratio	Frontal Flow/Side Flow	0.35
[2]	Q_w - Frontal Flow (cfs)	$Q_w = Q[1-(1-(W/T))^{2.67}]$	1.39
[1]	Q_s - Side Flow (cfs)	Q_s = Q-Qw	2.6
	T - Side Flow Spread (ft)	$(D-D_g)/S_x$	10.17
[1]	R_s - Side Flow Factor	$1/(1+(0.15*V^{1.8})/(S_x*L_{ge}^{2.3}))$	0.03
[1]	Q_{gi} - Intercepted Flow (cfs)	$(R_f*E+R_s*(1-E))*Q$	1.5
	Output (Curb):	**Equation:**	**Output (Curb):**
[1]	S_e - Equivalent Cross Slope (ft/ft)	S_x+S_g*E	0.059
	Q_{sx} - Remaining Flow After Grate Interception (cfs)	$Q-Q_{gi}$	2.526
	S_g - Gutter Cross Slope (ft/ft)	D_g/W	0.111
[1]	L_t - Effective Interception Length (ft)	$0.60*Q_{sx}^{0.42}*S_o^{0.30}*(1/n*S_e)^{0.6}$	16.48
[1]	Q_{ci} - Intercepted Flow (cfs)	$(1-(1-L_{ce}/L_t)^{1.8})*Q_{sx}$	0.6
		or Q_{sx} if L_t is less than L_{ce}	
	Output (Combination):	**Equation:**	**Output (Combination):**
	Total Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	**2**
	Bypass Flow (cfs)	Street Flow - Total Intercepted Flow	**2**

[1] Formula referenced from the CCRFCD Manual

[2] Formula referenced from FHWA Urban Drainage Design Manual (HEC-22)

Curb Inlet Sizing Computation

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS

Project Name & Number:	**EST1905-000: SUNSTONE PHASE 1**
Date:	**8/4/2019**
By:	**CAA**

Notes:		
Facility ID:	SP2a	
Drainage Condition	Proposed	
Source of Flow	Q100 = Bypass from Facility SP4a + ESKY1(d)	
Design Flow (cfs)	Q100 = 9 + 3 =12	
Inlet Type:	Type CM2 (Sump)	
Inlet Length:	7.5-ft	
Number of Grates:	2	
Input:	**Variable:**	**Input:**
Depth at Inlet (ft)	D	0.83
Grate Width (ft)	W	1.50
Length of Grate (ft)	L_g	5.00
Length of Curb Opening (ft)	L_c	7.50
Height of Curb Opening (ft)	H	0.50
Weir Coef. - Curb Opening	W_c	2.3
Weir Coef. - Grate	W_g	3.0
Orifice Coef.	O_c	0.67
Grate Coef.	G_c	0.60
Clogging Factor - Grate (%)	CF_g	50
Clogging Factor - Curb (%)	CF_c	50
Output (Grate):	**Equation:**	**Output (Grate):**
Effective Weir Length (ft)	$2*W+L_g$	8.00
Adjusted Effective Weir Length (ft)	$2*(1-CF_g/100)*W+(1-CF_g/100)*L_g$	4.00
Grate Open Area (sf)	$W*L_g$	7.50
Adjusted Grate Open Area (sf)	Grate Open Area * $G_c*(1-CF_g/100)$	2.25
Controlling Flow Type (weir/orifice)	If D<1.792*(Adj. Grate Open Area/Adj. Eff. Length)	weir
	use weir, else orifice	
Intercepted Flow (cfs)	weir: $W_g*(\text{Adj. Eff. Weir Length})*D^{1.5}$	9.1
	orifice: $O_c*(\text{Adj. Grate Open Area})*(64.4*D)^{0.5}$	
Output (Curb):	**Equation:**	**Output (Curb):**
Effective Weir Length (ft)	L+1.8*W	10.20
Adjusted Effective Weir Length (ft)	$L+1.8(1-CF_c/100)*W$	8.91
Curb Open Area (sf)	L*H	3.75
Adjusted Curb Open Area (sf)	Curb Open Area * $(1-CF_c/100)$	1.88
Controlling Flow Type (weir/orifice)	If D<H, weir, else orifice	orifice
Intercepted Flow (cfs)	weir: $W_c*(\text{Adj. Eff. Weir Length})*D^{1.5}$	9.16
	orifice: $O_c*(\text{Adj. Curb Open Area})*(64.4*(D-H/2))^{0.5}$	
Output (Total):	**Equation:**	**Output (Total):**
Capacity Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	**18.2**

Curb Inlet Sizing Computation

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS

Project Name & Number:	**EST1905-000: SUNSTONE PHASE 1**
Date:	**8/4/2019**
By:	**CAA**

Notes:		
Facility ID:	SP2b	
Drainage Condition	Proposed	
Source of Flow	Q100 = Bypass from Facility SP4b + ESKY1(h)	
Design Flow (cfs)	Q100 = 2 + 4 =6	
Inlet Type:	Type CM2 (Sump)	
Inlet Length:	5.-ft	
Number of Grates:	1	
Input:	**Variable:**	**Input:**
Depth at Inlet (ft)	D	0.83
Grate Width (ft)	W	1.50
Length of Grate (ft)	L_g	2.50
Length of Curb Opening (ft)	L_c	5.00
Height of Curb Opening (ft)	H	0.50
Weir Coef. - Curb Opening	W_c	2.3
Weir Coef. - Grate	W_g	3.0
Orifice Coef.	O_c	0.67
Grate Coef.	G_c	0.60
Clogging Factor - Grate (%)	CF_g	50
Clogging Factor - Curb (%)	CF_c	50
Output (Grate):	**Equation:**	**Output (Grate):**
Effective Weir Length (ft)	$2*W+L_g$	5.50
Adjusted Effective Weir Length (ft)	$2*(1-CF_g/100)*W+(1-CF_g/100)*L_g$	2.75
Grate Open Area (sf)	$W*L_g$	3.75
Adjusted Grate Open Area (sf)	Grate Open Area * $G_c*(1-CF_g/100)$	1.13
Controlling Flow Type (weir/orifice)	If D<1.792*(Adj. Grate Open Area/Adj. Eff. Length)	orifice
	use weir, else orifice	
Intercepted Flow (cfs)	weir: $W_g*(\text{Adj. Eff. Weir Length})*D^{1.5}$	5.5
	orifice: $O_c*(\text{Adj. Grate Open Area})*(64.4*D)^{0.5}$	
Output (Curb):	**Equation:**	**Output (Curb):**
Effective Weir Length (ft)	L+1.8*W	7.70
Adjusted Effective Weir Length (ft)	$L+1.8(1-CF_c/100)*W$	6.41
Curb Open Area (sf)	L*H	2.50
Adjusted Curb Open Area (sf)	Curb Open Area * $(1-CF_c/100)$	1.25
Controlling Flow Type (weir/orifice)	If D<H, weir, else orifice	orifice
Intercepted Flow (cfs)	weir: $W_c*(\text{Adj. Eff. Weir Length})*D^{1.5}$	6.11
	orifice: $O_c*(\text{Adj. Curb Open Area})*(64.4*(D-H/2))^{0.5}$	
Output (Total):	**Equation:**	**Output (Total):**
Capacity Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	**11.6**

Curb Inlet Sizing Computation

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS

Project Name & Number:	**EST1905-000: SUNSTONE PHASE 1**
Date:	**8/4/2019**
By:	**CAA**

	Notes:		
	Facility ID:	SP3a	
	Drainage Condition:	Proposed	
	Source of Flow:	Q100 = Bypass from Facility SP1a + ESKY1(b)	
	Inlet Type:	Type CM2 (Continuous Grade)	
	Inlet Length:	5.-ft	
	Number of Grates	1	
	Input:	**Variable:**	**Input:**
	Street Flow (cfs)	Q	4.0
	Longitudinal Slope (ft/ft)	S_o	0.0290
	Manning's Coefficient	n	0.016
	Street Flow Velocity (fps)	V	3.68
	Street Flow Depth (ft)	D	0.34
	Street Cross Slope (ft/ft)	S_x	0.02
	Grate Width (ft)	W	1.5
	Grate Depression (in)	D_g	2.0
	Length of Grate (ft)	L_g	2.5
	Length of Curb Opening (ft)	L_c	5.00
	Clogging Factor - Grate (%)	CF_g	50%
	Clogging Factor - Curb (%)	CF_c	50%
	Effective Grate Length (ft)	L_{ge}	1.3
	Effective Curb Opening Length (ft)	L_{ce}	2.50
	Output (Grate):	**Equation:**	**Output (Grate):**
[1]	R_f - Frontal Flow Factor	1-0.09*(V-V_x) if V>V_x; else Frontal Flow Factor=1	1.00
[2]	V_o - Splash Over Velocity (fps)	V_x=p+q*Lg-r*L_{ge}^2+sy*L_{ge}^3 ; where p=0.30,q=4.85,r=1.31,sy=0.15 (for Vane Grate)	4.61
[1]	E - Grate Flow Ratio	Frontal Flow/Side Flow	0.40
[2]	Q_w - Frontal Flow (cfs)	$Q_w = Q[1-(1-(W/T))^{2.67}]$	1.59
[1]	Q_s - Side Flow (cfs)	Q_s = Q-Qw	2.4
	T - Side Flow Spread (ft)	$(D-D_g)/S_x$	8.67
[1]	R_s - Side Flow Factor	$1/(1+(0.15*V^{1.8})/(S_x*L_{ge}^{2.3}))$	0.02
[1]	Q_{gi} - Intercepted Flow (cfs)	$(R_f*E+R_s*(1-E))*Q$	1.6
	Output (Curb):	**Equation:**	**Output (Curb):**
[1]	S_e - Equivalent Cross Slope (ft/ft)	S_x+S_g*E	0.064
	Q_{sx} - Remaining Flow After Grate Interception (cfs)	$Q-Q_{gi}$	2.358
	S_g - Gutter Cross Slope (ft/ft)	D_g/W	0.111
[1]	L_t - Effective Interception Length (ft)	$0.60*Q_{sx}^{0.42}*S_o^{0.30}*(1/n*S_e)^{0.6}$	18.46
[1]	Q_{ci} - Intercepted Flow (cfs)	$(1-(1-L_{ce}/L_t)^{1.8})*Q_{sx}$ or Q_{sx} if L_t is less than L_{ce}	0.5
	Output (Combination):	**Equation:**	**Output (Combination):**
	Total Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	**2**
	Bypass Flow (cfs)	Street Flow - Total Intercepted Flow	**2**

[1] Formula referenced from the CCRFCD Manual

[2] Formula referenced from FHWA Urban Drainage Design Manual (HEC-22)

Curb Inlet Sizing Computation

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS

Project Name & Number:	**EST1905-000: SUNSTONE PHASE 1**
Date:	**8/4/2019**
By:	**CAA**

Notes:		
Facility ID:	SP3b	
Drainage Condition:	Proposed	
Source of Flow:	Q100 = Bypass from Facility SP1b + ESKY1(f)	
Inlet Type:	Type CM2 (Continuous Grade)	
Inlet Length:	5.-ft	
Number of Grates	1	
Input:	**Variable:**	**Input:**
Street Flow (cfs)	Q	4.0
Longitudinal Slope (ft/ft)	S_o	0.0290
Manning's Coefficient	n	0.016
Street Flow Velocity (fps)	V	3.68
Street Flow Depth (ft)	D	0.34
Street Cross Slope (ft/ft)	S_x	0.02
Grate Width (ft)	W	1.5
Grate Depression (in)	D_g	2.0
Length of Grate (ft)	L_g	2.5
Length of Curb Opening (ft)	L_c	5.00
Clogging Factor - Grate (%)	CF_g	50%
Clogging Factor - Curb (%)	CF_c	50%
Effective Grate Length (ft)	L_{ge}	1.3
Effective Curb Opening Length (ft)	L_{ce}	2.50
Output (Grate):	**Equation:**	**Output (Grate):**
[1] R_f - Frontal Flow Factor	1-0.09*(V-V_x) if V>V_x; else Frontal Flow Factor=1	1.00
[2] V_o - Splash Over Velocity (fps)	V_x=p+q*Lg-r*L_{ge}^2+sy*L_{ge}^3 ; where	4.61
	p=0.30,q=4.85,r=1.31,sy=0.15 (for Vane Grate)	
[1] E - Grate Flow Ratio	Frontal Flow/Side Flow	0.40
[2] Q_w - Frontal Flow (cfs)	$Q_w = Q[1-(1-(W/T))^{2.67}]$	1.59
[1] Q_s - Side Flow (cfs)	Q_s = Q-Qw	2.4
T - Side Flow Spread (ft)	$(D-D_g)/S_x$	8.67
[1] R_s - Side Flow Factor	$1/(1+(0.15*V^{1.8})/(S_x*L_{ge}^{2.3}))$	0.02
[1] Q_{gi} - Intercepted Flow (cfs)	$(R_f*E+R_s*(1-E))*Q$	1.6
Output (Curb):	**Equation:**	**Output (Curb):**
[1] S_e - Equivalent Cross Slope (ft/ft)	S_x+S_g*E	0.064
Q_{sx} - Remaining Flow After Grate Interception (cfs)	$Q-Q_{gi}$	2.358
S_g - Gutter Cross Slope (ft/ft)	D_g/W	0.111
[1] L_t - Effective Interception Length (ft)	$0.60*Q_{sx}^{0.42}*S_o^{0.30}*(1/n*S_e)^{0.6}$	18.46
[1] Q_{ci} - Intercepted Flow (cfs)	$(1-(1-L_{ce}/L_t)^{1.8})*Q_{sx}$	0.5
	or Q_{sx} if L_t is less than L_{ce}	
Output (Combination):	**Equation:**	**Output (Combination):**
Total Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	**2**
Bypass Flow (cfs)	Street Flow - Total Intercepted Flow	**2**

[1] Formula referenced from the CCRFCD Manual

[2] Formula referenced from FHWA Urban Drainage Design Manual (HEC-22)

Curb Inlet Sizing Computation

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS

Project Name & Number:	**EST1905-000: SUNSTONE PHASE 1**
Date:	**8/4/2019**
By:	**CAA**

	Notes:		
	Facility ID:	SP4a	
	Drainage Condition:	Proposed	
	Source of Flow:	Q100 = Bypass from Facility SP3a + EMLA1 + ESKY1(c)	
	Inlet Type:	Type CM2 (Continuous Grade)	
	Inlet Length:	5.-ft	
	Number of Grates	1	
	Input:	**Variable:**	**Input:**
	Street Flow (cfs)	Q	14.0
	Longitudinal Slope (ft/ft)	S_o	0.0290
	Manning's Coefficient	n	0.016
	Street Flow Velocity (fps)	V	4.90
	Street Flow Depth (ft)	D	0.47
	Street Cross Slope (ft/ft)	S_x	0.02
	Grate Width (ft)	W	1.5
	Grate Depression (in)	D_g	2.0
	Length of Grate (ft)	L_g	2.5
	Length of Curb Opening (ft)	L_c	5.00
	Clogging Factor - Grate (%)	CF_g	50%
	Clogging Factor - Curb (%)	CF_c	50%
	Effective Grate Length (ft)	L_{ge}	1.3
	Effective Curb Opening Length (ft)	L_{ce}	2.50
	Output (Grate):	**Equation:**	**Output (Grate):**
[1]	R_f - Frontal Flow Factor	1-0.09*(V-V_x) if V>V_x; else Frontal Flow Factor=1	0.97
[2]	V_o - Splash Over Velocity (fps)	V_x=p+q*Lg-r*L_{ge}^2+sy*L_{ge}^3 ; where	4.61
		p=0.30,q=4.85,r=1.31,sy=0.15 (for Vane Grate)	
[1]	E - Grate Flow Ratio	Frontal Flow/Side Flow	0.24
[2]	Q_w - Frontal Flow (cfs)	$Q_w = Q[1-(1-(W/T))^{2.67}]$	3.40
[1]	Q_s - Side Flow (cfs)	Q_s = Q-Qw	10.6
	T - Side Flow Spread (ft)	$(D-D_g)/S_x$	15.17
[1]	R_s - Side Flow Factor	$1/(1+(0.15*V^{1.8})/(S_x*L_{ge}^{2.3}))$	0.01
[1]	Q_{gi} - Intercepted Flow (cfs)	$(R_f*E+R_s*(1-E))*Q$	3.4
	Output (Curb):	**Equation:**	**Output (Curb):**
[1]	S_e - Equivalent Cross Slope (ft/ft)	S_x+S_g*E	0.047
	Q_{sx} - Remaining Flow After Grate Interception (cfs)	$Q-Q_{gi}$	10.557
	S_g - Gutter Cross Slope (ft/ft)	D_g/W	0.111
[1]	L_t - Effective Interception Length (ft)	$0.60*Q_{sx}^{0.42}*S_o^{0.30}*(1/n*S_e)^{0.6}$	41.80
[1]	Q_{ci} - Intercepted Flow (cfs)	$(1-(1-L_{ce}/L_t)^{1.8})*Q_{sx}$	1.1
		or Q_{sx} if L_t is less than L_{ce}	
	Output (Combination):	**Equation:**	**Output (Combination):**
	Total Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	**5**
	Bypass Flow (cfs)	Street Flow - Total Intercepted Flow	**9**

[1] Formula referenced from the CCRFCD Manual

[2] Formula referenced from FHWA Urban Drainage Design Manual (HEC-22)

Curb Inlet Sizing Computation

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS

Project Name & Number:	**EST1905-000: SUNSTONE PHASE 1**
Date:	**8/4/2019**
By:	**CAA**

	Notes:		
	Facility ID:	SP4b	
	Drainage Condition:	Proposed	
	Source of Flow:	Q100 = Bypass from Facility SP3b + ESKY1(g)	
	Inlet Type:	Type CM2 (Continuous Grade)	
	Inlet Length:	5.-ft	
	Number of Grates	1	
	Input:	**Variable:**	**Input:**
	Street Flow (cfs)	Q	4.0
	Longitudinal Slope (ft/ft)	S_o	0.0290
	Manning's Coefficient	n	0.016
	Street Flow Velocity (fps)	V	3.68
	Street Flow Depth (ft)	D	0.34
	Street Cross Slope (ft/ft)	S_x	0.02
	Grate Width (ft)	W	1.5
	Grate Depression (in)	D_g	2.0
	Length of Grate (ft)	L_g	2.5
	Length of Curb Opening (ft)	L_c	5.00
	Clogging Factor - Grate (%)	CF_g	50%
	Clogging Factor - Curb (%)	CF_c	50%
	Effective Grate Length (ft)	L_{ge}	1.3
	Effective Curb Opening Length (ft)	L_{ce}	2.50
	Output (Grate):	**Equation:**	**Output (Grate):**
[1]	R_f - Frontal Flow Factor	1-0.09*(V-V_x) if V>V_x; else Frontal Flow Factor=1	1.00
[2]	V_o - Splash Over Velocity (fps)	V_x=p+q*Lg-r*L_{ge}^2+sy*L_{ge}^3 ; where	4.61
		p=0.30,q=4.85,r=1.31,sy=0.15 (for Vane Grate)	
[1]	E - Grate Flow Ratio	Frontal Flow/Side Flow	0.40
[2]	Q_w - Frontal Flow (cfs)	$Q_w = Q[1-(1-(W/T))^{2.67}]$	1.59
[1]	Q_s - Side Flow (cfs)	Q_s = Q-Qw	2.4
	T - Side Flow Spread (ft)	$(D-D_g)/S_x$	8.67
[1]	R_s - Side Flow Factor	$1/(1+(0.15*V^{1.8})/(S_x*L_{ge}^{2.3}))$	0.02
[1]	Q_{gi} - Intercepted Flow (cfs)	$(R_f*E+R_s*(1-E))*Q$	1.6
	Output (Curb):	**Equation:**	**Output (Curb):**
[1]	S_e - Equivalent Cross Slope (ft/ft)	S_x+S_g*E	0.064
	Q_{sx} - Remaining Flow After Grate Interception (cfs)	Q-Q_{gi}	2.358
	S_g - Gutter Cross Slope (ft/ft)	D_g/W	0.111
[1]	L_t - Effective Interception Length (ft)	$0.60*Q_{sx}^{0.42}*S_o^{0.30}*(1/n*S_e)^{0.6}$	18.46
[1]	Q_{ci} - Intercepted Flow (cfs)	$(1-(1-L_{ce}/L_t)^{1.8})*Q_{sx}$	0.5
		or Q_{sx} if L_t is less than L_{ce}	
	Output (Combination):	**Equation:**	**Output (Combination):**
	Total Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	**2**
	Bypass Flow (cfs)	Street Flow - Total Intercepted Flow	**2**

[1] Formula referenced from the CCRFCD Manual

[2] Formula referenced from FHWA Urban Drainage Design Manual (HEC-22)

Curb Inlet Sizing Computation

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS

Project Name & Number:	**EST1905-000: SUNSTONE PHASE 1**
Date:	**8/4/2019**
By:	**CAA**

Notes:		
Facility ID:	NC1a	
Drainage Condition	Proposed	
Source of Flow	Q100 = 1/2 of (EMR2(a) + ECR1(a))	
Design Flow (cfs)	Q100 = 1/2 (3 + 2) =2.5	
Inlet Type:	Type CM2 (Sump)	
Inlet Length:	5.-ft	
Number of Grates:	1	
Input:	**Variable:**	**Input:**
Depth at Inlet (ft)	D	0.83
Grate Width (ft)	W	1.50
Length of Grate (ft)	L_g	2.50
Length of Curb Opening (ft)	L_c	5.00
Height of Curb Opening (ft)	H	0.50
Weir Coef. - Curb Opening	W_c	2.3
Weir Coef. - Grate	W_g	3.0
Orifice Coef.	O_c	0.67
Grate Coef.	G_c	0.60
Clogging Factor - Grate (%)	CF_g	50
Clogging Factor - Curb (%)	CF_c	50
Output (Grate):	**Equation:**	**Output (Grate):**
Effective Weir Length (ft)	$2*W+L_g$	5.50
Adjusted Effective Weir Length (ft)	$2*(1-CF_g/100)*W+(1-CF_g/100)*L_g$	2.75
Grate Open Area (sf)	$W*L_g$	3.75
Adjusted Grate Open Area (sf)	Grate Open Area * $G_c*(1-CF_g/100)$	1.13
Controlling Flow Type (weir/orifice)	If D<1.792*(Adj. Grate Open Area/Adj. Eff. Length)	orifice
	use weir, else orifice	
Intercepted Flow (cfs)	weir: $W_g*(\text{Adj. Eff. Weir Length})*D^{1.5}$	5.5
	orifice: $O_c*(\text{Adj. Grate Open Area})*(64.4*D)^{0.5}$	
Output (Curb):	**Equation:**	**Output (Curb):**
Effective Weir Length (ft)	L+1.8*W	7.70
Adjusted Effective Weir Length (ft)	$L+1.8(1-CF_c/100)*W$	6.41
Curb Open Area (sf)	L*H	2.50
Adjusted Curb Open Area (sf)	Curb Open Area * $(1-CF_c/100)$	1.25
Controlling Flow Type (weir/orifice)	If D<H, weir, else orifice	orifice
Intercepted Flow (cfs)	weir: $W_c*(\text{Adj. Eff. Weir Length})*D^{1.5}$	6.11
	orifice: $O_c*(\text{Adj. Curb Open Area})*(64.4*(D-H/2))^{0.5}$	
Output (Total):	**Equation:**	**Output (Total):**
Capacity Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	**11.6**

Curb Inlet Sizing Computation

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS

Project Name & Number:	**EST1905-000: SUNSTONE PHASE 1**
Date:	**8/4/2019**
By:	**CAA**

Notes:		
Facility ID:	NC1b	
Drainage Condition	Proposed	
Source of Flow	Q100 = 1/2 of (EMR2(a) + ECR1(a))	
Design Flow (cfs)	Q100 = 1/2 (3 + 2) =2.5	
Inlet Type:	Type CM2 (Sump)	
Inlet Length:	5.-ft	
Number of Grates:	1	
Input:	**Variable:**	**Input:**
Depth at Inlet (ft)	D	0.83
Grate Width (ft)	W	1.50
Length of Grate (ft)	L_g	2.50
Length of Curb Opening (ft)	L_c	5.00
Height of Curb Opening (ft)	H	0.50
Weir Coef. - Curb Opening	W_c	2.3
Weir Coef. - Grate	W_g	3.0
Orifice Coef.	O_c	0.67
Grate Coef.	G_c	0.60
Clogging Factor - Grate (%)	CF_g	50
Clogging Factor - Curb (%)	CF_c	50
Output (Grate):	**Equation:**	**Output (Grate):**
Effective Weir Length (ft)	$2*W+L_g$	5.50
Adjusted Effective Weir Length (ft)	$2*(1-CF_g/100)*W+(1-CF_g/100)*L_g$	2.75
Grate Open Area (sf)	$W*L_g$	3.75
Adjusted Grate Open Area (sf)	Grate Open Area * $G_c*(1-CF_g/100)$	1.13
Controlling Flow Type (weir/orifice)	If D<1.792*(Adj. Grate Open Area/Adj. Eff. Length)	orifice
	use weir, else orifice	
Intercepted Flow (cfs)	weir: W_g*(Adj. Eff. Weir Length)$*D^{1.5}$	5.5
	orifice: O_c*(Adj. Grate Open Area)$*(64.4*D)^{0.5}$	
Output (Curb):	**Equation:**	**Output (Curb):**
Effective Weir Length (ft)	$L+1.8*W$	7.70
Adjusted Effective Weir Length (ft)	$L+1.8(1-CF_c/100)*W$	6.41
Curb Open Area (sf)	$L*H$	2.50
Adjusted Curb Open Area (sf)	Curb Open Area * $(1-CF_c/100)$	1.25
Controlling Flow Type (weir/orifice)	If D<H, weir, else orifice	orifice
Intercepted Flow (cfs)	weir: W_c*(Adj. Eff. Weir Length)$*D^{1.5}$	6.11
	orifice: O_c*(Adj. Curb Open Area)$*(64.4*(D-H/2))^{0.5}$	
Output (Total):	**Equation:**	**Output (Total):**
Capacity Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	**11.6**

Curb Inlet Sizing Computation

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS

Project Name & Number:	**EST1905-000: SUNSTONE PHASE 1**
Date:	**8/4/2019**
By:	**CAA**

	Notes:		
	Facility ID:	NC2a	
	Drainage Condition:	Proposed	
	Source of Flow:	Q100 = ECR1(b)	
	Inlet Type:	Type CM2 (Continuous Grade)	
	Inlet Length:	7.5-ft	
	Number of Grates	2	
	Input:	**Variable:**	**Input:**
	Street Flow (cfs)	Q	3.0
	Longitudinal Slope (ft/ft)	S_o	0.0206
	Manning's Coefficient	n	0.016
	Street Flow Velocity (fps)	V	2.64
	Street Flow Depth (ft)	D	0.27
	Street Cross Slope (ft/ft)	S_x	0.02
	Grate Width (ft)	W	1.5
	Grate Depression (in)	D_g	2.0
	Length of Grate (ft)	L_g	5.0
	Length of Curb Opening (ft)	L_c	7.50
	Clogging Factor - Grate (%)	CF_g	50%
	Clogging Factor - Curb (%)	CF_c	50%
	Effective Grate Length (ft)	L_{ge}	2.5
	Effective Curb Opening Length (ft)	L_{ce}	3.75
	Output (Grate):	**Equation:**	**Output (Grate):**
[1]	R_f - Frontal Flow Factor	1-0.09*(V-V_x) if V>V_x; else Frontal Flow Factor=1	1.00
[2]	V_o - Splash Over Velocity (fps)	V_x=p+q*Lg-r*L_{ge}^2+sy*L_{ge}^3 ; where	6.58
		p=0.30,q=4.85,r=1.31,sy=0.15 (for Vane Grate)	
[1]	E - Grate Flow Ratio	Frontal Flow/Side Flow	0.60
[2]	Q_w - Frontal Flow (cfs)	$Q_w = Q[1-(1-(W/T))^{2.67}]$	1.80
[1]	Q_s - Side Flow (cfs)	Q_s = Q-Qw	1.2
	T - Side Flow Spread (ft)	$(D-D_g)/S_x$	5.17
[1]	R_s - Side Flow Factor	$1/(1+(0.15*V^{1.8})/(S_x*L_{ge}^{2.3}))$	0.16
[1]	Q_{gi} - Intercepted Flow (cfs)	$(R_f*E+R_s*(1-E))*Q$	2.0
	Output (Curb):	**Equation:**	**Output (Curb):**
[1]	S_e - Equivalent Cross Slope (ft/ft)	S_x+S_q*E	0.087
	Q_{sx} - Remaining Flow After Grate Interception (cfs)	$Q-Q_{gi}$	1.008
	S_g - Gutter Cross Slope (ft/ft)	D_g/W	0.111
[1]	L_t - Effective Interception Length (ft)	$0.60*Q_{sx}^{0.42}*S_o^{0.30}*(1/n*S_e)^{0.6}$	9.74
[1]	Q_{ci} - Intercepted Flow (cfs)	$(1-(1-L_{ce}/L_t)^{1.8})*Q_{sx}$	0.6
		or Q_{sx} if L_t is less than L_{ce}	
	Output (Combination):	**Equation:**	**Output (Combination):**
	Total Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	**3**
	Bypass Flow (cfs)	Street Flow - Total Intercepted Flow	**0**

[1] Formula referenced from the CCRFCD Manual

[2] Formula referenced from FHWA Urban Drainage Design Manual (HEC-22)

Curb Inlet Sizing Computation

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS

Project Name & Number:	**EST1905-000: SUNSTONE PHASE 1**
Date:	**8/4/2019**
By:	**CAA**

	Notes:		
	Facility ID:	NC2b	
	Drainage Condition:	Proposed	
	Source of Flow:	Q100 = ECR1(e)	
	Inlet Type:	Type CM2 (Continuous Grade)	
	Inlet Length:	5.-ft	
	Number of Grates	1	
	Input:	**Variable:**	**Input:**
	Street Flow (cfs)	Q	4.0
	Longitudinal Slope (ft/ft)	S_o	0.0206
	Manning's Coefficient	n	0.016
	Street Flow Velocity (fps)	V	2.79
	Street Flow Depth (ft)	D	0.29
	Street Cross Slope (ft/ft)	S_x	0.02
	Grate Width (ft)	W	1.5
	Grate Depression (in)	D_g	2.0
	Length of Grate (ft)	L_g	2.5
	Length of Curb Opening (ft)	L_c	5.00
	Clogging Factor - Grate (%)	CF_g	50%
	Clogging Factor - Curb (%)	CF_c	50%
	Effective Grate Length (ft)	L_{ge}	1.3
	Effective Curb Opening Length (ft)	L_{ce}	2.50
	Output (Grate):	**Equation:**	**Output (Grate):**
[1]	R_f - Frontal Flow Factor	1-0.09*(V-V_x) if V>V_x; else Frontal Flow Factor=1	1.00
[2]	V_o - Splash Over Velocity (fps)	V_x=p+q*Lg-r*L_{ge}^2+sy*L_{ge}^3 ; where	4.61
		p=0.30,q=4.85,r=1.31,sy=0.15 (for Vane Grate)	
[1]	E - Grate Flow Ratio	Frontal Flow/Side Flow	0.52
[2]	Q_w - Frontal Flow (cfs)	$Q_w = Q[1-(1-(W/T))^{2.67}]$	2.10
[1]	Q_s - Side Flow (cfs)	Q_s = Q-Qw	1.9
	T - Side Flow Spread (ft)	$(D-D_g)/S_x$	6.17
[1]	R_s - Side Flow Factor	$1/(1+(0.15*V^{1.8})/(S_x*L_{ge}^{2.3}))$	0.03
[1]	Q_{gi} - Intercepted Flow (cfs)	$(R_f*E+R_s*(1-E))*Q$	2.2
	Output (Curb):	**Equation:**	**Output (Curb):**
[1]	S_e - Equivalent Cross Slope (ft/ft)	S_x+S_g*E	0.078
	Q_{sx} - Remaining Flow After Grate Interception (cfs)	$Q-Q_{gi}$	1.836
	S_g - Gutter Cross Slope (ft/ft)	D_g/W	0.111
[1]	L_t - Effective Interception Length (ft)	$0.60*Q_{sx}^{0.42}*S_o^{0.30}*(1/n*S_e)^{0.6}$	13.32
[1]	Q_{ci} - Intercepted Flow (cfs)	$(1-(1-L_{ce}/L_t)^{1.8})*Q_{sx}$	0.6
		or Q_{sx} if L_t is less than L_{ce}	
	Output (Combination):	**Equation:**	**Output (Combination):**
	Total Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	**3**
	Bypass Flow (cfs)	Street Flow - Total Intercepted Flow	**1**

[1] Formula referenced from the CCRFCD Manual

[2] Formula referenced from FHWA Urban Drainage Design Manual (HEC-22)

Curb Inlet Sizing Computation

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS

Project Name & Number:	**EST1905-000: SUNSTONE PHASE 1**
Date:	**8/4/2019**
By:	**CAA**

Notes:		
Facility ID:	NC3a	
Drainage Condition	Proposed	
Source of Flow	Q100 = ECR1(d)	
Design Flow (cfs)	Q100 = 3	
Inlet Type:	Type CM2 (Sump)	
Inlet Length:	7.5-ft	
Number of Grates:	2	
Input:	**Variable:**	**Input:**
Depth at Inlet (ft)	D	0.83
Grate Width (ft)	W	1.50
Length of Grate (ft)	L_g	5.00
Length of Curb Opening (ft)	L_c	7.50
Height of Curb Opening (ft)	H	0.50
Weir Coef. - Curb Opening	W_c	2.3
Weir Coef. - Grate	W_g	3.0
Orifice Coef.	O_c	0.67
Grate Coef.	G_c	0.60
Clogging Factor - Grate (%)	CF_g	50
Clogging Factor - Curb (%)	CF_c	50
Output (Grate):	**Equation:**	**Output (Grate):**
Effective Weir Length (ft)	$2*W+L_g$	8.00
Adjusted Effective Weir Length (ft)	$2*(1-CF_g/100)*W+(1-CF_g/100)*L_g$	4.00
Grate Open Area (sf)	$W*L_g$	7.50
Adjusted Grate Open Area (sf)	Grate Open Area * $G_c*(1-CF_g/100)$	2.25
Controlling Flow Type (weir/orifice)	If D<1.792*(Adj. Grate Open Area/Adj. Eff. Length)	weir
	use weir, else orifice	
Intercepted Flow (cfs)	weir: $W_g*(\text{Adj. Eff. Weir Length})*D^{1.5}$	9.1
	orifice: $O_c*(\text{Adj. Grate Open Area})*(64.4*D)^{0.5}$	
Output (Curb):	**Equation:**	**Output (Curb):**
Effective Weir Length (ft)	L+1.8*W	10.20
Adjusted Effective Weir Length (ft)	$L+1.8(1-CF_c/100)*W$	8.91
Curb Open Area (sf)	L*H	3.75
Adjusted Curb Open Area (sf)	Curb Open Area * $(1-CF_c/100)$	1.88
Controlling Flow Type (weir/orifice)	If D<H, weir, else orifice	orifice
Intercepted Flow (cfs)	weir: $W_c*(\text{Adj. Eff. Weir Length})*D^{1.5}$	9.16
	orifice: $O_c*(\text{Adj. Curb Open Area})*(64.4*(D-H/2))^{0.5}$	
Output (Total):	**Equation:**	**Output (Total):**
Capacity Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	**18.2**

Curb Inlet Sizing Computation

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS

Project Name & Number:	**EST1905-000: SUNSTONE PHASE 1**
Date:	**8/4/2019**
By:	**CAA**

Notes:		
Facility ID:	NC3b	
Drainage Condition	Proposed	
Source of Flow	Q100 = ECR1(g) + Facility NC4b Bypass	
Design Flow (cfs)	Q100 = 6	
Inlet Type:	Type CM2 (Sump)	
Inlet Length:	5.-ft	
Number of Grates:	1	
Input:	**Variable:**	**Input:**
Depth at Inlet (ft)	D	0.83
Grate Width (ft)	W	1.50
Length of Grate (ft)	L_g	2.50
Length of Curb Opening (ft)	L_c	5.00
Height of Curb Opening (ft)	H	0.50
Weir Coef. - Curb Opening	W_c	2.3
Weir Coef. - Grate	W_g	3.0
Orifice Coef.	O_c	0.67
Grate Coef.	G_c	0.60
Clogging Factor - Grate (%)	CF_g	50
Clogging Factor - Curb (%)	CF_c	50
Output (Grate):	**Equation:**	**Output (Grate):**
Effective Weir Length (ft)	$2*W+L_g$	5.50
Adjusted Effective Weir Length (ft)	$2*(1-CF_g/100)*W+(1-CF_g/100)*L_g$	2.75
Grate Open Area (sf)	$W*L_g$	3.75
Adjusted Grate Open Area (sf)	Grate Open Area * $G_c*(1-CF_g/100)$	1.13
Controlling Flow Type (weir/orifice)	If D<1.792*(Adj. Grate Open Area/Adj. Eff. Length)	orifice
	use weir, else orifice	
Intercepted Flow (cfs)	weir: $W_g*(\text{Adj. Eff. Weir Length})*D^{1.5}$	5.5
	orifice: $O_c*(\text{Adj. Grate Open Area})*(64.4*D)^{0.5}$	
Output (Curb):	**Equation:**	**Output (Curb):**
Effective Weir Length (ft)	L+1.8*W	7.70
Adjusted Effective Weir Length (ft)	$L+1.8(1-CF_c/100)*W$	6.41
Curb Open Area (sf)	L*H	2.50
Adjusted Curb Open Area (sf)	Curb Open Area * $(1-CF_c/100)$	1.25
Controlling Flow Type (weir/orifice)	If D<H, weir, else orifice	orifice
Intercepted Flow (cfs)	weir: $W_c*(\text{Adj. Eff. Weir Length})*D^{1.5}$	6.11
	orifice: $O_c*(\text{Adj. Curb Open Area})*(64.4*(D-H/2))^{0.5}$	
Output (Total):	**Equation:**	**Output (Total):**
Capacity Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	**11.6**

Curb Inlet Sizing Computation

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS

Project Name & Number:	**EST1905-000: SUNSTONE PHASE 1**
Date:	**8/4/2019**
By:	**CAA**

	Notes:		
	Facility ID:	NC4a	
	Drainage Condition:	Proposed	
	Source of Flow:	Q100 = ECR1(c)	
	Inlet Type:	Type CM2 (Continuous Grade)	
	Inlet Length:	5.-ft	
	Number of Grates	1	
	Input:	**Variable:**	**Input:**
	Street Flow (cfs)	Q	2.0
	Longitudinal Slope (ft/ft)	S_o	0.0100
	Manning's Coefficient	n	0.016
	Street Flow Velocity (fps)	V	1.83
	Street Flow Depth (ft)	D	0.27
	Street Cross Slope (ft/ft)	S_x	0.02
	Grate Width (ft)	W	1.5
	Grate Depression (in)	D_g	2.0
	Length of Grate (ft)	L_g	2.5
	Length of Curb Opening (ft)	L_c	5.00
	Clogging Factor - Grate (%)	CF_g	50%
	Clogging Factor - Curb (%)	CF_c	50%
	Effective Grate Length (ft)	L_{ge}	1.3
	Effective Curb Opening Length (ft)	L_{ce}	2.50
	Output (Grate):	**Equation:**	**Output (Grate):**
[1]	R_f - Frontal Flow Factor	1-0.09*(V-V_x) if V>V_x; else Frontal Flow Factor=1	1.00
[2]	V_o - Splash Over Velocity (fps)	V_x=p+q*Lg-r*L_{ge}^2+sy*L_{ge}^3 ; where	4.61
		p=0.30,q=4.85,r=1.31,sy=0.15 (for Vane Grate)	
[1]	E - Grate Flow Ratio	Frontal Flow/Side Flow	0.60
[2]	Q_w - Frontal Flow (cfs)	$Q_w = Q[1-(1-(W/T))^{2.67}]$	1.20
[1]	Q_s - Side Flow (cfs)	Q_s = Q-Qw	0.8
	T - Side Flow Spread (ft)	$(D-D_g)/S_x$	5.17
[1]	R_s - Side Flow Factor	$1/(1+(0.15*V^{1.8})/(S_x*L_{ge}^{2.3}))$	0.07
[1]	Q_{gi} - Intercepted Flow (cfs)	$(R_f*E+R_s*(1-E))*Q$	1.3
	Output (Curb):	**Equation:**	**Output (Curb):**
[1]	S_e - Equivalent Cross Slope (ft/ft)	S_x+S_g*E	0.087
	Q_{sx} - Remaining Flow After Grate Interception (cfs)	$Q-Q_{gi}$	0.745
	S_g - Gutter Cross Slope (ft/ft)	D_g/W	0.111
[1]	L_t - Effective Interception Length (ft)	$0.60*Q_{sx}^{0.42}*S_o^{0.30}*(1/n*S_e)^{0.6}$	6.91
[1]	Q_{ci} - Intercepted Flow (cfs)	$(1-(1-L_{ce}/L_t)^{1.8})*Q_{sx}$	0.4
		or Q_{sx} if L_t is less than L_{ce}	
	Output (Combination):	**Equation:**	**Output (Combination):**
	Total Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	**2**
	Bypass Flow (cfs)	Street Flow - Total Intercepted Flow	**0**

[1] Formula referenced from the CCRFCD Manual

[2] Formula referenced from FHWA Urban Drainage Design Manual (HEC-22)

Curb Inlet Sizing Computation

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS

Project Name & Number:	**EST1905-000: SUNSTONE PHASE 1**
Date:	**8/4/2019**
By:	**CAA**

	Notes:		
	Facility ID:	NC4b	
	Drainage Condition:	Proposed	
	Source of Flow:	Q100 = ECR1(f) + Facility NC2b Bypass	
	Inlet Type:	Type CM2 (Continuous Grade)	
	Inlet Length:	5.-ft	
	Number of Grates	1	
	Input:	**Variable:**	**Input:**
	Street Flow (cfs)	Q	5.0
	Longitudinal Slope (ft/ft)	S_o	0.0100
	Manning's Coefficient	n	0.016
	Street Flow Velocity (fps)	V	2.19
	Street Flow Depth (ft)	D	0.34
	Street Cross Slope (ft/ft)	S_x	0.02
	Grate Width (ft)	W	1.5
	Grate Depression (in)	D_g	2.0
	Length of Grate (ft)	L_g	2.5
	Length of Curb Opening (ft)	L_c	5.00
	Clogging Factor - Grate (%)	CF_g	50%
	Clogging Factor - Curb (%)	CF_c	50%
	Effective Grate Length (ft)	L_{ge}	1.3
	Effective Curb Opening Length (ft)	L_{ce}	2.50
	Output (Grate):	**Equation:**	**Output (Grate):**
[1]	R_f - Frontal Flow Factor	1-0.09*(V-V_x) if V>V_x; else Frontal Flow Factor=1	1.00
[2]	V_o - Splash Over Velocity (fps)	V_x=p+q*Lg-r*L_{ge}^2+sy*L_{ge}^3 ; where	4.61
		p=0.30,q=4.85,r=1.31,sy=0.15 (for Vane Grate)	
[1]	E - Grate Flow Ratio	Frontal Flow/Side Flow	0.40
[2]	Q_w - Frontal Flow (cfs)	$Q_w = Q[1-(1-(W/T))^{2.67}]$	1.99
[1]	Q_s - Side Flow (cfs)	Q_s = Q-Qw	3.0
	T - Side Flow Spread (ft)	$(D-D_g)/S_x$	8.67
[1]	R_s - Side Flow Factor	$1/(1+(0.15*V^{1.8})/(S_x*L_{ge}^{2.3}))$	0.05
[1]	Q_{gi} - Intercepted Flow (cfs)	$(R_f*E+R_s*(1-E))*Q$	2.1
	Output (Curb):	**Equation:**	**Output (Curb):**
[1]	S_e - Equivalent Cross Slope (ft/ft)	S_x+S_g*E	0.064
	Q_{sx} - Remaining Flow After Grate Interception (cfs)	$Q-Q_{gi}$	2.855
	S_g - Gutter Cross Slope (ft/ft)	D_g/W	0.111
[1]	L_t - Effective Interception Length (ft)	$0.60*Q_{sx}^{0.42}*S_o^{0.30}*(1/n*S_e)^{0.6}$	14.54
[1]	Q_{ci} - Intercepted Flow (cfs)	$(1-(1-L_{ce}/L_t)^{1.8})*Q_{sx}$	0.8
		or Q_{sx} if L_t is less than L_{ce}	
	Output (Combination):	**Equation:**	**Output (Combination):**
	Total Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	3
	Bypass Flow (cfs)	Street Flow - Total Intercepted Flow	2

[1] Formula referenced from the CCRFCD Manual

[2] Formula referenced from FHWA Urban Drainage Design Manual (HEC-22)

Street Hydraulics

Worksheet for SP1: Half Street (100-yr)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.50	%
Discharge	4.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.48
0+00.50	0.00
0+02.00	0.13
0+02.00	0.17
0+07.00	0.27
0+27.00	0.67
0+27.00	1.17
0+33.50	1.30

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+27.00, 0.67)	0.016
(0+27.00, 0.67)	(0+33.50, 1.30)	0.013

Options

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

Results

Normal Depth	0.37	ft
Elevation Range	0.00 to 1.30 ft	

Worksheet for SP1: Half Street (100-yr)

Results

Flow Area		1.40	ft²
Wetted Perimeter		11.68	ft
Hydraulic Radius		0.12	ft
Top Width		11.26	ft
Normal Depth		0.37	ft
Critical Depth		0.40	ft
Critical Slope		0.00707	ft/ft
Velocity		2.85	ft/s
Velocity Head		0.13	ft
Specific Energy		0.49	ft
Froude Number		1.42	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.37	ft
Critical Depth	0.40	ft
Channel Slope	1.50	%
Critical Slope	0.00707	ft/ft

Cross Section for SP1: Half Street (100-yr)

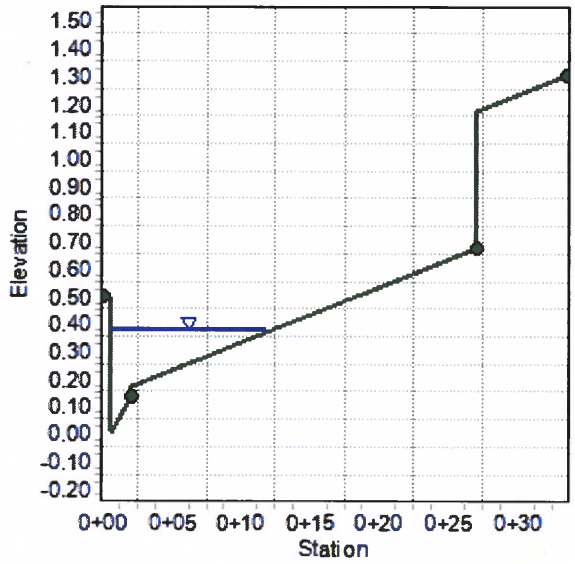
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.50	%
Normal Depth	0.37	ft
Discharge	4.00	ft^3/s

Cross Section Image



Worksheet for SP2: Half Street (100-yr)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.90	%
Discharge	12.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.48
0+00.50	0.00
0+02.00	0.13
0+02.00	0.17
0+07.00	0.27
0+27.00	0.67
0+27.00	1.17
0+33.50	1.30

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+27.00, 0.67)	0.016
(0+27.00, 0.67)	(0+33.50, 1.30)	0.013

Options

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

Results

Normal Depth	0.45	ft
Elevation Range	0.00 to 1.30 ft	

Worksheet for SP2: Half Street (100-yr)

Results

Flow Area		2.54	ft²
Wetted Perimeter		16.00	ft
Hydraulic Radius		0.16	ft
Top Width		15.50	ft
Normal Depth		0.45	ft
Critical Depth		0.56	ft
Critical Slope		0.00621	ft/ft
Velocity		4.73	ft/s
Velocity Head		0.35	ft
Specific Energy		0.80	ft
Froude Number		2.06	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.45	ft
Critical Depth	0.56	ft
Channel Slope	2.90	%
Critical Slope	0.00621	ft/ft

Cross Section for SP2: Half Street (100-yr)

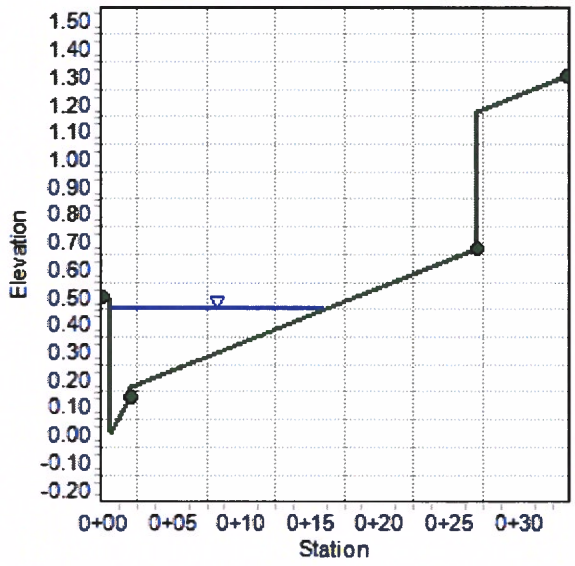
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.90	%
Normal Depth	0.45	ft
Discharge	12.00	ft³/s

Cross Section Image



Worksheet for SP3: Half Street (100-yr)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.90	%
Discharge	4.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.48
0+00.50	0.00
0+02.00	0.13
0+02.00	0.17
0+07.00	0.27
0+27.00	0.67
0+27.00	1.17
0+33.50	1.30

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+27.00, 0.67)	0.016
(0+27.00, 0.67)	(0+33.50, 1.30)	0.013

Options

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

Results

Normal Depth	0.34	ft
Elevation Range	0.00 to 1.30 ft	

Worksheet for SP3: Half Street (100-yr)

Results

Flow Area		1.09	ft²
Wetted Perimeter		10.13	ft
Hydraulic Radius		0.11	ft
Top Width		9.75	ft
Normal Depth		0.34	ft
Critical Depth		0.40	ft
Critical Slope		0.00702	ft/ft
Velocity		3.68	ft/s
Velocity Head		0.21	ft
Specific Energy		0.55	ft
Froude Number		1.95	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.34	ft
Critical Depth	0.40	ft
Channel Slope	2.90	%
Critical Slope	0.00702	ft/ft

Cross Section for SP3: Half Street (100-yr)

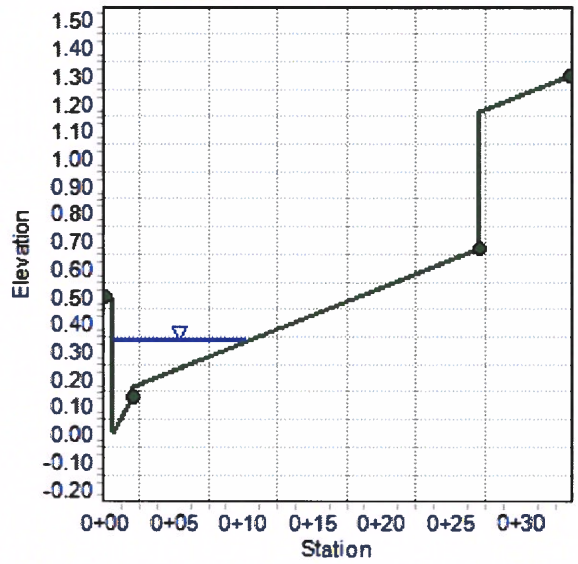
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.90	%
Normal Depth	0.34	ft
Discharge	4.00	ft³/s

Cross Section Image



Worksheet for SP4a: Half Street (100-yr)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.90	%
Discharge	14.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.48
0+00.50	0.00
0+02.00	0.13
0+02.00	0.17
0+07.00	0.27
0+27.00	0.67
0+27.00	1.17
0+33.50	1.30

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+27.00, 0.67)	0.016
(0+27.00, 0.67)	(0+33.50, 1.30)	0.013

Options

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

Results

Normal Depth	0.47	ft
Elevation Range	0.00 to 1.30 ft	

Worksheet for SP4a: Half Street (100-yr)

Results

Flow Area		2.86	ft²
Wetted Perimeter		17.01	ft
Hydraulic Radius		0.17	ft
Top Width		16.49	ft
Normal Depth		0.47	ft
Critical Depth		0.59	ft
Critical Slope		0.00609	ft/ft
Velocity		4.90	ft/s
Velocity Head		0.37	ft
Specific Energy		0.84	ft
Froude Number		2.08	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.47	ft
Critical Depth	0.59	ft
Channel Slope	2.90	%
Critical Slope	0.00609	ft/ft

Cross Section for SP4a: Half Street (100-yr)

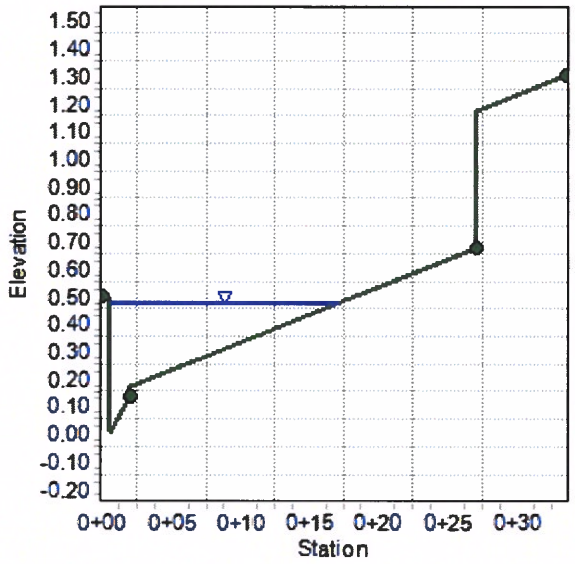
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.90	%
Normal Depth	0.47	ft
Discharge	14.00	ft³/s

Cross Section Image



Worksheet for SP4b: Half Street (100-yr)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.90	%
Discharge	4.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.48
0+00.50	0.00
0+02.00	0.13
0+02.00	0.17
0+07.00	0.27
0+27.00	0.67
0+27.00	1.17
0+33.50	1.30

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+27.00, 0.67)	0.016
(0+27.00, 0.67)	(0+33.50, 1.30)	0.013

Options

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

Results

Normal Depth	0.34	ft
Elevation Range	0.00 to 1.30 ft	

Worksheet for SP4b: Half Street (100-yr)

Results

Flow Area		1.09	ft²
Wetted Perimeter		10.13	ft
Hydraulic Radius		0.11	ft
Top Width		9.75	ft
Normal Depth		0.34	ft
Critical Depth		0.40	ft
Critical Slope		0.00702	ft/ft
Velocity		3.68	ft/s
Velocity Head		0.21	ft
Specific Energy		0.55	ft
Froude Number		1.95	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.34	ft
Critical Depth	0.40	ft
Channel Slope	2.90	%
Critical Slope	0.00702	ft/ft

Cross Section for SP4b: Half Street (100-yr)

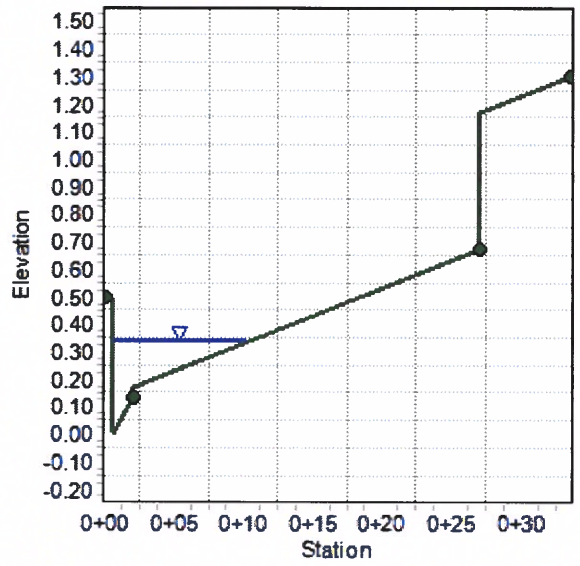
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.90	%
Normal Depth	0.34	ft
Discharge	4.00	ft³/s

Cross Section Image



Worksheet for NC2a: Half Street (100-yr)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.06	%
Discharge	3.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.48
0+00.50	0.00
0+02.00	0.13
0+02.00	0.17
0+07.00	0.27
0+27.00	0.67
0+27.00	1.17
0+33.50	1.30
0+40.00	1.17
0+40.00	0.67
0+60.00	0.27
0+65.00	0.17
0+65.00	0.13
0+66.50	0.00
0+66.50	0.48
0+67.00	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+27.00, 0.67)	0.016
(0+27.00, 0.67)	(0+40.00, 0.67)	0.013
(0+40.00, 0.67)	(0+65.00, 0.13)	0.016

Worksheet for NC2a: Half Street (100-yr)

Input Data

Start Station	Ending Station	Roughness Coefficient
(0+65.00, 0.13)	(0+67.00, 0.50)	0.013

Options

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

Results

Normal Depth		0.27	ft
Elevation Range	0.00 to 1.30 ft		
Flow Area		1.14	ft²
Wetted Perimeter		13.80	ft
Hydraulic Radius		0.08	ft
Top Width		13.16	ft
Normal Depth		0.27	ft
Critical Depth		0.31	ft
Critical Slope		0.00775	ft/ft
Velocity		2.64	ft/s
Velocity Head		0.11	ft
Specific Energy		0.38	ft
Froude Number		1.58	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.27	ft
Critical Depth	0.31	ft

Worksheet for NC2a: Half Street (100-yr)

GVF Output Data

Channel Slope	2.06	%
Critical Slope	0.00775	ft/ft

Cross Section for NC2a: Half Street (100-yr)

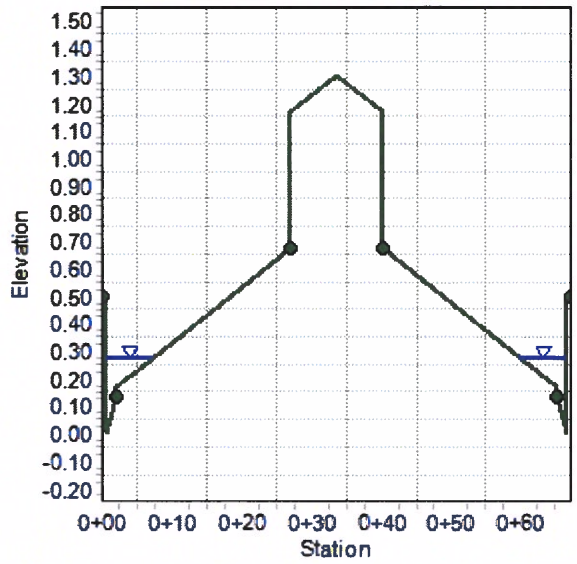
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.06	%
Normal Depth	0.27	ft
Discharge	3.00	ft^3/s

Cross Section Image



Worksheet for NC2b: Half Street (100-yr)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.06	%
Discharge	4.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.48
0+00.50	0.00
0+02.00	0.13
0+02.00	0.17
0+07.00	0.27
0+27.00	0.67
0+27.00	1.17
0+33.50	1.30
0+40.00	1.17
0+40.00	0.67
0+60.00	0.27
0+65.00	0.17
0+65.00	0.13
0+66.50	0.00
0+66.50	0.48
0+67.00	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+27.00, 0.67)	0.016
(0+27.00, 0.67)	(0+40.00, 0.67)	0.013
(0+40.00, 0.67)	(0+65.00, 0.13)	0.016

Worksheet for NC2b: Half Street (100-yr)

Input Data

Start Station	Ending Station	Roughness Coefficient
(0+65.00, 0.13)	(0+67.00, 0.50)	0.013

Options

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

Results

Normal Depth		0.29	ft
Elevation Range	0.00 to 1.30 ft		
Flow Area		1.43	ft²
Wetted Perimeter		15.93	ft
Hydraulic Radius		0.09	ft
Top Width		15.25	ft
Normal Depth		0.29	ft
Critical Depth		0.33	ft
Critical Slope		0.00756	ft/ft
Velocity		2.79	ft/s
Velocity Head		0.12	ft
Specific Energy		0.41	ft
Froude Number		1.61	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.29	ft
Critical Depth	0.33	ft

Worksheet for NC2b: Half Street (100-yr)

GVF Output Data

Channel Slope	2.06	%
Critical Slope	0.00756	ft/ft

Cross Section for NC2b: Half Street (100-yr)

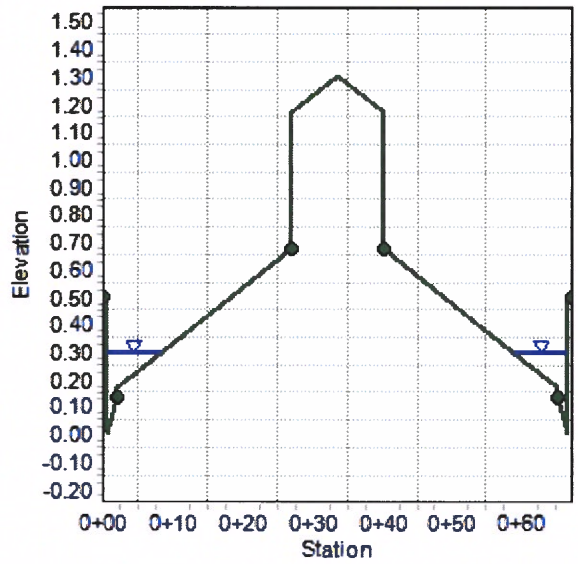
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.06	%
Normal Depth	0.29	ft
Discharge	4.00	ft³/s

Cross Section Image



Worksheet for NC4a: Half Street (100-yr)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.00	%
Discharge	2.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.48
0+00.50	0.00
0+02.00	0.13
0+02.00	0.17
0+07.00	0.27
0+27.00	0.67
0+27.00	1.17
0+33.50	1.30
0+40.00	1.17
0+40.00	0.67
0+60.00	0.27
0+65.00	0.17
0+65.00	0.13
0+66.50	0.00
0+66.50	0.48
0+67.00	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+27.00, 0.67)	0.016
(0+27.00, 0.67)	(0+40.00, 0.67)	0.013
(0+40.00, 0.67)	(0+65.00, 0.13)	0.016

Worksheet for NC4a: Half Street (100-yr)

Input Data

Start Station	Ending Station	Roughness Coefficient
(0+65.00, 0.13)	(0+67.00, 0.50)	0.013

Options

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

Results

Normal Depth		0.27	ft
Elevation Range	0.00 to 1.30 ft		
Flow Area		1.10	ft²
Wetted Perimeter		13.48	ft
Hydraulic Radius		0.08	ft
Top Width		12.85	ft
Normal Depth		0.27	ft
Critical Depth		0.28	ft
Critical Slope		0.00813	ft/ft
Velocity		1.83	ft/s
Velocity Head		0.05	ft
Specific Energy		0.32	ft
Froude Number		1.10	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.27	ft
Critical Depth	0.28	ft

Worksheet for NC4a: Half Street (100-yr)

GVF Output Data

Channel Slope	1.00	%
Critical Slope	0.00813	ft/ft

Cross Section for NC4a: Half Street (100-yr)

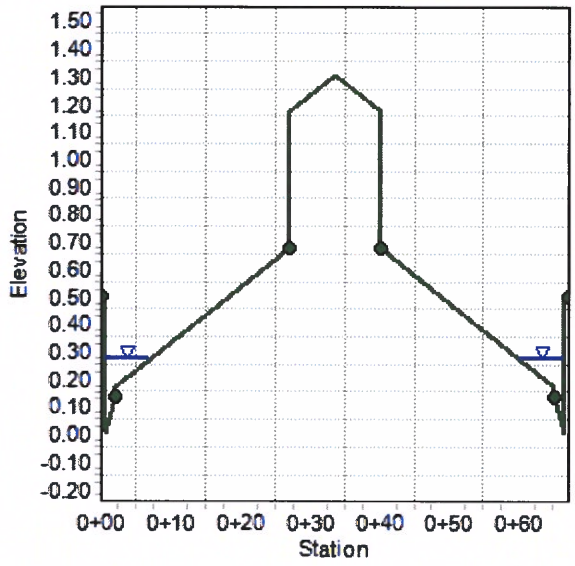
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.00	%
Normal Depth	0.27	ft
Discharge	2.00	ft³/s

Cross Section Image



Worksheet for NC4b: Half Street (100-yr)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.00	%
Discharge	5.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.48
0+00.50	0.00
0+02.00	0.13
0+02.00	0.17
0+07.00	0.27
0+27.00	0.67
0+27.00	1.17
0+33.50	1.30
0+40.00	1.17
0+40.00	0.67
0+60.00	0.27
0+65.00	0.17
0+65.00	0.13
0+66.50	0.00
0+66.50	0.48
0+67.00	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+27.00, 0.67)	0.016
(0+27.00, 0.67)	(0+40.00, 0.67)	0.013
(0+40.00, 0.67)	(0+65.00, 0.13)	0.016

Worksheet for NC4b: Half Street (100-yr)

Input Data

Start Station	Ending Station	Roughness Coefficient
(0+65.00, 0.13)	(0+67.00, 0.50)	0.013

Options

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

Results

Normal Depth		0.34	ft
Elevation Range	0.00 to 1.30 ft		
Flow Area		2.28	ft²
Wetted Perimeter		20.83	ft
Hydraulic Radius		0.11	ft
Top Width		20.05	ft
Normal Depth		0.34	ft
Critical Depth		0.35	ft
Critical Slope		0.00748	ft/ft
Velocity		2.19	ft/s
Velocity Head		0.07	ft
Specific Energy		0.42	ft
Froude Number		1.15	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.34	ft
Critical Depth	0.35	ft

Worksheet for NC4b: Half Street (100-yr)

GVF Output Data

Channel Slope	1.00	%
Critical Slope	0.00748	ft/ft

Cross Section for NC4b: Half Street (100-yr)

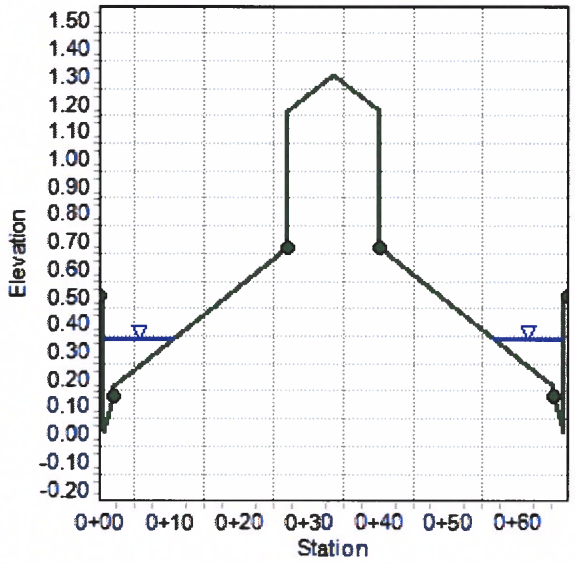
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.00	%
Normal Depth	0.34	ft
Discharge	5.00	ft³/s

Cross Section Image



Worksheet for ER1 (100-yr) MAX%

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	3.60	%
Discharge	26.00	ft^3/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.48
0+00.50	0.00
0+02.00	0.13
0+02.00	0.17
0+07.00	0.27
0+21.50	0.56
0+36.00	0.27
0+41.00	0.17
0+41.00	0.13
0+42.50	0.00
0+42.50	0.48
0+43.00	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+41.00, 0.13)	0.016
(0+41.00, 0.13)	(0+43.00, 0.50)	0.013

Options

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

Worksheet for ER1 (100-yr) MAX%

Results

Normal Depth		0.45	ft
Elevation Range	0.00 to 0.56 ft		
Flow Area		4.97	ft²
Wetted Perimeter		31.65	ft
Hydraulic Radius		0.16	ft
Top Width		30.66	ft
Normal Depth		0.45	ft
Critical Depth		0.57	ft
Critical Slope		0.00610	ft/ft
Velocity		5.23	ft/s
Velocity Head		0.43	ft
Specific Energy		0.87	ft
Froude Number		2.29	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.45	ft
Critical Depth	0.57	ft
Channel Slope	3.60	%
Critical Slope	0.00610	ft/ft

Messages

Notes

Q100 = EPI2+EPG+EOHR1(a)

Cross Section for ER1 (100-yr) MAX%

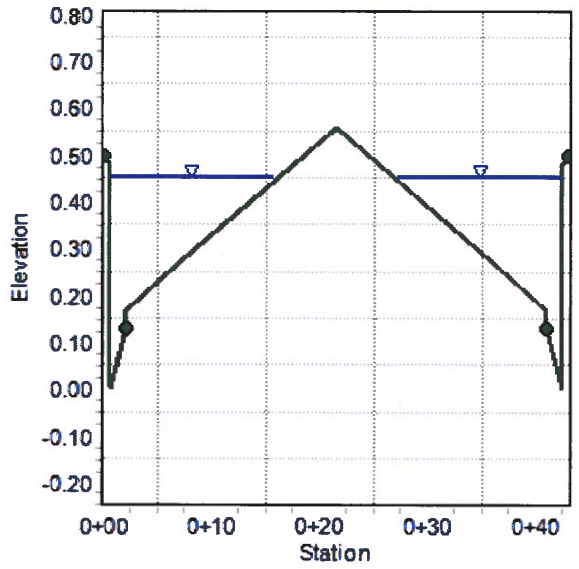
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	3.60	%
Normal Depth	0.45	ft
Discharge	26.00	ft³/s

Cross Section Image



Worksheet for ER1 (100-yr) MIN%

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.50	%
Discharge	26.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.48
0+00.50	0.00
0+02.00	0.13
0+02.00	0.17
0+07.00	0.27
0+21.50	0.56
0+36.00	0.27
0+41.00	0.17
0+41.00	0.13
0+42.50	0.00
0+42.50	0.48
0+43.00	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+41.00, 0.13)	0.016
(0+41.00, 0.13)	(0+43.00, 0.50)	0.013

Options

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

Worksheet for ER1 (100-yr) MIN%

Results

Normal Depth		0.51	ft
Elevation Range	0.00 to 0.56 ft		
Flow Area		6.99	ft²
Wetted Perimeter		38.69	ft
Hydraulic Radius		0.18	ft
Top Width		37.61	ft
Normal Depth		0.51	ft
Critical Depth		0.57	ft
Critical Slope		0.00608	ft/ft
Velocity		3.72	ft/s
Velocity Head		0.22	ft
Specific Energy		0.72	ft
Froude Number		1.52	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.51	ft
Critical Depth	0.57	ft
Channel Slope	1.50	%
Critical Slope	0.00608	ft/ft

Messages

Notes

Q100 = EPI2+EPG+EOHR1(a)

Cross Section for ER1 (100-yr) MIN%

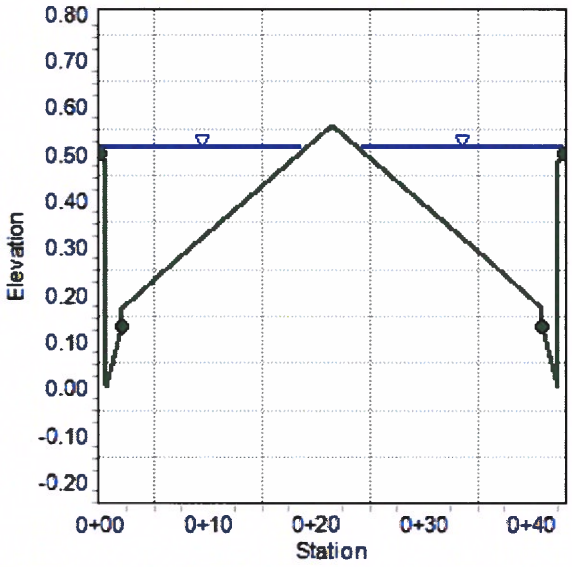
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.50	%
Normal Depth	0.51	ft
Discharge	26.00	ft³/s

Cross Section Image



Worksheet for ER2 (100-yr) MAX%

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.70	%
Discharge	2.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.48
0+00.50	0.00
0+02.00	0.13
0+02.00	0.17
0+07.00	0.27
0+21.50	0.56
0+36.00	0.27
0+41.00	0.17
0+41.00	0.13
0+42.50	0.00
0+42.50	0.48
0+43.00	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+41.00, 0.13)	0.016
(0+41.00, 0.13)	(0+43.00, 0.50)	0.013

Options

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

Worksheet for ER2 (100-yr) MAX%

Results

Normal Depth		0.23	ft
Elevation Range	0.00 to 0.56 ft		
Flow Area		0.72	ft²
Wetted Perimeter		10.00	ft
Hydraulic Radius		0.07	ft
Top Width		9.44	ft
Normal Depth		0.23	ft
Critical Depth		0.28	ft
Critical Slope		0.00788	ft/ft
Velocity		2.79	ft/s
Velocity Head		0.12	ft
Specific Energy		0.36	ft
Froude Number		1.79	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.23	ft
Critical Depth	0.28	ft
Channel Slope	2.70	%
Critical Slope	0.00788	ft/ft

Messages

Notes

Q100 = EPI2+EPG+EOHR1(a)

Cross Section for ER2 (100-yr) MAX%

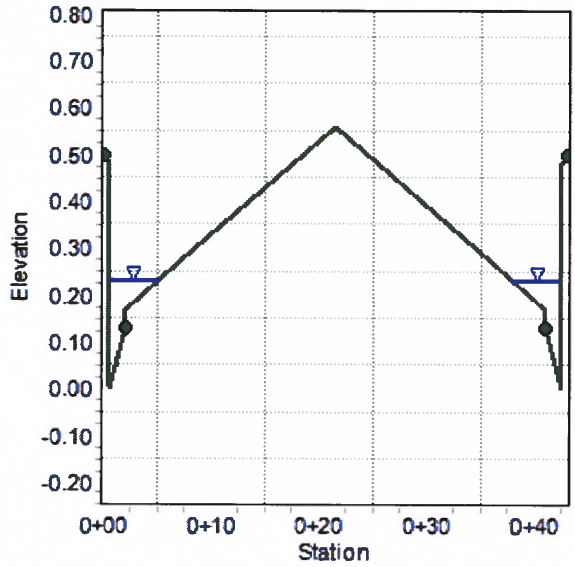
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.70	%
Normal Depth	0.23	ft
Discharge	2.00	ft³/s

Cross Section Image



Worksheet for ER2 (100-yr) MIN%

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.60	%
Discharge	2.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.48
0+00.50	0.00
0+02.00	0.13
0+02.00	0.17
0+07.00	0.27
0+21.50	0.56
0+36.00	0.27
0+41.00	0.17
0+41.00	0.13
0+42.50	0.00
0+42.50	0.48
0+43.00	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+41.00, 0.13)	0.016
(0+41.00, 0.13)	(0+43.00, 0.50)	0.013

Options

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

Worksheet for ER2 (100-yr) MIN%

Results

Normal Depth		0.29	ft
Elevation Range	0.00 to 0.56 ft		
Flow Area		1.35	ft²
Wetted Perimeter		15.36	ft
Hydraulic Radius		0.09	ft
Top Width		14.70	ft
Normal Depth		0.29	ft
Critical Depth		0.28	ft
Critical Slope		0.00822	ft/ft
Velocity		1.48	ft/s
Velocity Head		0.03	ft
Specific Energy		0.32	ft
Froude Number		0.86	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.29	ft
Critical Depth	0.28	ft
Channel Slope	0.60	%
Critical Slope	0.00822	ft/ft

Messages

Notes

Q100 = EPI2+EPG+EOHR1(a)

Cross Section for ER2 (100-yr) MIN%

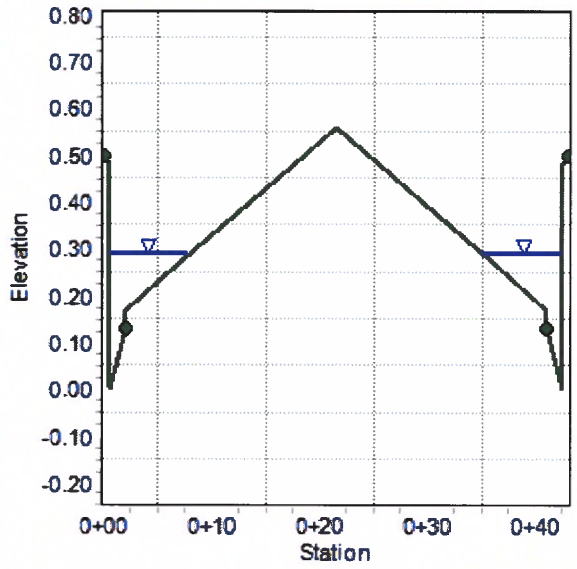
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.60	%
Normal Depth	0.29	ft
Discharge	2.00	ft³/s

Cross Section Image



Worksheet for OH4 (100-yr) MAX%

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.63	%
Discharge	68.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.48
0+00.50	0.00
0+02.00	0.13
0+02.00	0.17
0+07.00	0.27
0+21.50	0.56
0+36.00	0.27
0+41.00	0.17
0+41.00	0.13
0+42.50	0.00
0+42.50	0.48
0+43.00	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+41.00, 0.13)	0.016
(0+41.00, 0.13)	(0+43.00, 0.50)	0.013

Options

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

Worksheet for OH4 (100-yr) MAX%

Results

Normal Depth		0.61	ft
Elevation Range	0.00 to 0.56 ft		
Flow Area		11.11	ft²
Wetted Perimeter		44.27	ft
Hydraulic Radius		0.25	ft
Top Width		43.00	ft
Normal Depth		0.61	ft
Critical Depth		0.77	ft
Critical Slope		0.00500	ft/ft
Velocity		6.12	ft/s
Velocity Head		0.58	ft
Specific Energy		1.19	ft
Froude Number		2.12	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.61	ft
Critical Depth	0.77	ft
Channel Slope	2.63	%
Critical Slope	0.00500	ft/ft

Messages

Notes

Q100 = EPI2+EPG+EOHR1(a)

Cross Section for OH4 (100-yr) MAX%

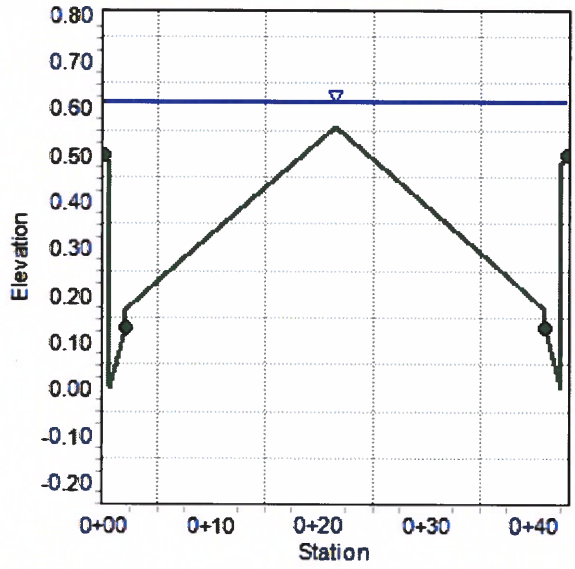
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.63	%
Normal Depth	0.61	ft
Discharge	68.00	ft³/s

Cross Section Image



Worksheet for OH4 (100-yr) MIN%

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.95	%
Discharge	68.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.48
0+00.50	0.00
0+02.00	0.13
0+02.00	0.17
0+07.00	0.27
0+21.50	0.56
0+36.00	0.27
0+41.00	0.17
0+41.00	0.13
0+42.50	0.00
0+42.50	0.48
0+43.00	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+41.00, 0.13)	0.016
(0+41.00, 0.13)	(0+43.00, 0.50)	0.013

Options

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

Worksheet for OH4 (100-yr) MIN%

Results

Normal Depth		0.70	ft
Elevation Range	0.00 to 0.56 ft		
Flow Area		15.10	ft²
Wetted Perimeter		44.46	ft
Hydraulic Radius		0.34	ft
Top Width		43.00	ft
Normal Depth		0.70	ft
Critical Depth		0.77	ft
Critical Slope		0.00499	ft/ft
Velocity		4.50	ft/s
Velocity Head		0.32	ft
Specific Energy		1.01	ft
Froude Number		1.34	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.70	ft
Critical Depth	0.77	ft
Channel Slope	0.95	%
Critical Slope	0.00499	ft/ft

Messages

Notes

Q100 = EPI2+EPG+EOHR1(a)

Cross Section for OH4 (100-yr) MIN%

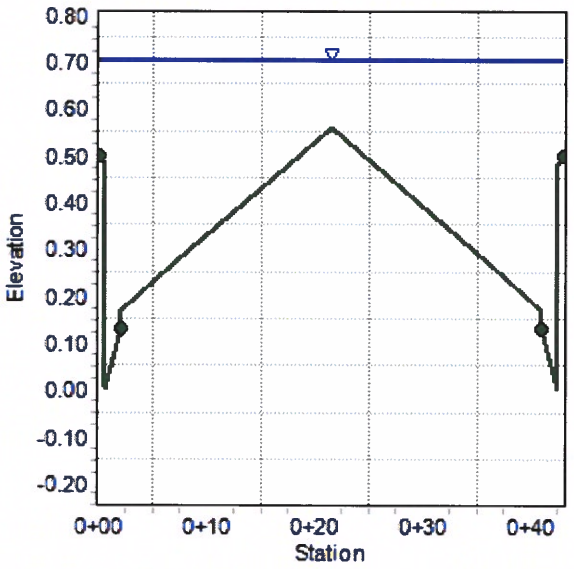
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.95	%
Normal Depth	0.70	ft
Discharge	68.00	ft³/s

Cross Section Image



APPENDIX D

Revised Storm Drain Analyses

Skye Pointe Drive (Edgestone Drive)

Ultimate Condition WSPG Summary

Mainline in Skye Pointe Drive from 42" RCP Culvert to Regional Mainline (SPD.WSW)

WSPG Station	Plan Set Project No. *	Equivalent Roadway Station	Improvement Plan Sheet	Storm Drain Dimension	Invert Elevation (ft)	Q_{100} (cfs)	WSE (ft)	Velocity (ft/s)	FG Elevation	Facility Description	HGL Check[1]
1000.00	LCW: EST1906	N/A	P-8	72" RCP	2743.11	481.00	2751.00	17.01	2765.00	Connection to Existing Regional Facility	OK
1016.00		35+99.98		72" RCP	2743.49	481.00	2751.43	17.01	2765.00		OK
1121.27		34+95.27		66" RCP	2746.52	481.00	2754.16	20.25	2766.92		OK
1169.86		34+93.65	P-4	66" RCP	2746.76	481.00	2755.47	20.25	2766.92		OK
1221.49	SPD: EST1907	39+36.88		66" RCP	2747.02	481.00	2756.95	20.25	2765.34	Junction with Basin ECOM3 and SPD2 Drop Inlet Facilities	OK
1221.49				66" RCP	2747.02	446.00	2758.53	18.77	2765.34		OK
1307.54		38+48.17		66" RCP	2748.92	446.00	2760.57	18.77	2765.55		OK
1428.06		37+23.9		66" RCP	2751.59	446.00	2763.21	18.77	2766.70		OK
1553.37		35+94.9		66" RCP	2754.36	446.00	2765.98	18.77	2769.20		OK
1678.27		34+66.61		66" RCP	2757.12	446.00	2768.71	18.77	2772.77		OK
1813.82		33+29.14	P-3	66" RCP	2760.07	446.00	2771.41	18.77	2776.74	Junction with SPD4 Drop Inlet Facilities	OK
1813.82		29+65.43		66" RCP	2760.07	439.00	2771.73	18.48	2787.28		OK
2177.53				66" RCP	2767.88	439.00	2778.29	18.48	2787.28	Addition of flow from 6' x 3' RCB Culvert From US 95	OK
2177.53		26+43.11	P-2	48" RCP	2769.38	188.00	2782.64	14.96	2797.25		OK
2500.22				48" RCP	2777.13	188.00	2788.40	14.96	2797.25	Junction with Basin ECOM4 and SPD3 Drop Inlet Facilities	OK
2500.22		25+08.67		48" RCP	2777.13	169.00	2789.43	13.45	2801.15		OK
2634.62		21+34.67		48" RCP	2779.89	169.00	2791.52	13.45	2811.18		OK
3007.91		21+05.45	P-5	42" RCP	2791.26	169.00	2796.87	13.45	2811.18	Addition of flow from 42" CMP Culvert From US 95	OK
3007.91				42" RCP	2791.76	84.00	2799.69	8.73	2811.18		OK
3082.58		N/A		42" RCP	2793.28	84.00	2800.27	8.73	2812.30	Junction with SPD1 Drop Inlet Facilities	OK
3082.58		22+40.08		42" RCP	2793.28	80.00	2800.48	8.32	2812.30		OK
3503.81		21+36.35		42" RCP	2806.64	80.00	2808.37	16.93	2818.84		OK
3694.88		20+32.62		42" RCP	2810.46	80.00	2811.81	23.43	2821.76		OK
3738.78		19+28.89	SD-5	42" RCP	2817.72	80.00	2820.51	9.72	2821.76	Addition of flow from 42" CMP Culvert From US 95	OK
3738.78				42" RCP	2817.72	80.00	2820.51	9.72	2821.76		OK

```
T1 EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE
T2 SKY POINTE DRIVE STORM DRAIN SYSTEM (SPD)
T3 FROM PROPOSED INLET TO REGIONAL MAINLINE
SO   1000.0002743.106 72                        2751.000
R    1016.0002743.490 72      .013                                        0.0   1
R    1121.2702746.520 72      .013                                       77.0   1
R    1169.8602746.760 66      .013                                        0.0   1
R    1221.4902747.020 66      .013                                        5.0   1
JX   1221.4902747.020 66 24 18.013   29.0      6.0  2747.0202750.520 55.0 66.0
R    1307.5402748.920 66      .013                                       14.0   1
R    1428.0602751.590 66      .013                                       13.0   1
R    1553.3702754.360 66      .013                                       16.0   1
R    1678.2702757.120 66      .013                                       14.0   1
R    1813.8202760.070 66      .013                                        2.0   1
JX   1813.8202760.070 66 18 18.013    5.0      2.0  2764.0702764.070 45.0 45.0
R    2177.5302767.880 66      .013                                        4.0   1
JX   2177.5302769.380 48 54    .013  251.0           2769.380         46.0
R    2500.2202777.130 48      .013                                        5.0   1
JX   2500.2202777.130 48 18 24.013   17.0      2.0  2780.1302780.130 42.0 45.0
R    2634.6202779.890 48      .013                                        9.0   1
R    3007.9102791.260 48      .013                                        5.0   1
JX   3007.9102791.760 42 42    .013   85.0           2768.880         45.0
R    3082.5802793.280 42      .013                                        0.0   1
JX   3082.5802793.280 42 18 18.013    2.0      2.0  2795.2802795.280 45.0 45.0
R    3503.8102806.640 42      .013                                        3.0   1
R    3694.8802810.460 42      .013                                       42.0   1
R    3738.7802817.720 42      .013                                              1
SH   3738.7802817.720 42
CD  18  4   1   0.000   1.500    0.000 0.000 0.000  0.0000.00  0.00
CD  24  4   1   0.000   2.000    0.000 0.000 0.000  0.0000.00  0.00
CD  30  4   1   0.000   2.500    0.000 0.000 0.000  0.0000.00  0.00
CD  36  4   1   0.000   3.000    0.000 0.000 0.000  0.0000.00  0.00
CD  42  4   1   0.000   3.500    0.000 0.000 0.000  0.0000.00  0.00
CD  48  4   1   0.000   4.000    0.000 0.000 0.000  0.0000.00  0.00
CD  54  4   1   0.000   4.500    0.000 0.000 0.000  0.0000.00  0.00
CD  60  4   1   0.000   5.000    0.000 0.000 0.000  0.0000.00  0.00
CD  66  4   1   0.000   5.500    0.000 0.000 0.000  0.0000.00  0.00
CD  72  4   1   0.000   6.000    0.000 0.000 0.000  0.0000.00  0.00
Q           80.000
```

FILE: SPD.WSW W S P G W - EDIT LISTING - Version 14.10 Date: 8- 1-2019 Time: 7:33:10

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING PAGE 1

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	18	4	1		1.500														
CD	24	4	1		2.000														
CD	30	4	1		2.500														
CD	36	4	1		3.000														
CD	42	4	1		3.500														
CD	48	4	1		4.000														
CD	54	4	1		4.500														
CD	60	4	1		5.000														
CD	66	4	1		5.500														
CD	72	4	1		6.000														

W S P G W PAGE NO 1

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE

HEADING LINE NO 2 IS -

SKY POINTE DRIVE STORM DRAIN SYSTEM (SPD)

HEADING LINE NO 3 IS -

FROM PROPOSED INLET TO REGIONAL MAINLINE

W S P G W PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

	STATION	INVERT	SECT	W S ELEV
U/S DATA	1000.000	2743.106	72	2751.000

ELEMENT NO 2 IS A REACH * * *

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	1016.000	2743.490	72	.013	.000	.000	.000	1

ELEMENT NO 3 IS A REACH * * *

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	1121.270	2746.520	72	.013	.000	.000	77.000	1

WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS

ELEMENT NO 4 IS A REACH * * *

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	1169.860	2746.760	66	.013	.000	.000	.000	1

ELEMENT NO 5 IS A REACH * * *

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	1221.490	2747.020	66	.013	.000	.000	5.000	1

ELEMENT NO 6 IS A JUNCTION * * * * * *

	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
U/S DATA	1221.490	2747.020	66	24	18	.013	29.000	6.000	2747.020	2750.520	55.000	66.000
									RADIUS	ANGLE		
									.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 7 IS A REACH * * *

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	1307.540	2748.920	66	.013	.000	.000	14.000	1

ELEMENT NO 8 IS A REACH * * *

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	1428.060	2751.590	66	.013	.000	.000	13.000	1

ELEMENT NO 9 IS A REACH * * *

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	1553.370	2754.360	66	.013	.000	.000	16.000	1

ELEMENT NO 10 IS A REACH * * *

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	1678.270	2757.120	66	.013	.000	.000	14.000	1

ELEMENT NO 11 IS A REACH * * *

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	1813.820	2760.070	66	.013	.000	.000	2.000	1

W S P G W PAGE NO 3

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 12 IS A JUNCTION * * * * * *

	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
U/S DATA	1813.820	2760.070	66	18	18	.013	5.000	2.000	2764.070	2764.070	45.000	45.000
									RADIUS	ANGLE		
									.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 13 IS A REACH * * *

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	2177.530	2767.880	66	.013	.000	.000	4.000	1

ELEMENT NO 14 IS A JUNCTION * * * * * *

	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
U/S DATA	2177.530	2769.380	48	54	0	.013	251.000	.000	2769.380	.000	46.000	.000
									RADIUS	ANGLE		
									.000	.000		

ELEMENT NO 15 IS A REACH * * *

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	2500.220	2777.130	48	.013	.000	.000	5.000	1

ELEMENT NO 16 IS A JUNCTION * * * * * *

	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
U/S DATA	2500.220	2777.130	48	18	24	.013	17.000	2.000	2780.130	2780.130	42.000	45.000
									RADIUS	ANGLE		
									.000	.000		

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

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THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
 ELEMENT NO  17 IS A REACH            *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                          RADIUS    ANGLE     ANG PT  MAN H
                             2634.620 2779.890   48              .013                           .000     .000     9.000     1
 ELEMENT NO  18 IS A REACH            *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                          RADIUS    ANGLE     ANG PT  MAN H
                             3007.910 2791.260   48              .013                           .000     .000     5.000     1
                                                  W S P G W                                                      PAGE NO   4
                                WATER SURFACE PROFILE - ELEMENT CARD LISTING
 ELEMENT NO  19 IS A JUNCTION         *         *     *     *                 *                  *               *
                  U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3        Q4     INVERT-3 INVERT-4  PHI 3  PHI 4
                             3007.910 2791.760   42    42     0   .013    85.000       .000  2768.880      .000  45.000     .000
                                                                                          RADIUS    ANGLE
                                                                                            .000     .000
 ELEMENT NO  20 IS A REACH            *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                          RADIUS    ANGLE     ANG PT  MAN H
                             3082.580 2793.280   42              .013                           .000     .000      .000     1
 ELEMENT NO  21 IS A JUNCTION         *         *     *     *                 *                  *               *
                  U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3        Q4     INVERT-3 INVERT-4  PHI 3  PHI 4
                             3082.580 2793.280   42    18    18   .013     2.000     2.000  2795.280 2795.280  45.000   45.000
                                                                                          RADIUS    ANGLE
                                                                                            .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  22 IS A REACH            *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                          RADIUS    ANGLE     ANG PT  MAN H
                             3503.810 2806.640   42              .013                           .000     .000     3.000     1
 ELEMENT NO  23 IS A REACH            *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                          RADIUS    ANGLE     ANG PT  MAN H
                             3694.880 2810.460   42              .013                           .000     .000    42.000     1
 ELEMENT NO  24 IS A REACH            *         *     *
                  U/S DATA   STATION    INVERT  SECT              N                          RADIUS    ANGLE     ANG PT  MAN H
                             3738.780 2817.720   42              .013                           .000     .000      .000     0
 ELEMENT NO  25 IS A SYSTEM HEADWORKS                 *                   *
                  U/S DATA   STATION    INVERT  SECT                                  W S ELEV
                             3738.780 2817.720   42                                      .000
```

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WATER SURFACE PROFILE LISTING Date: 8- 1-2019 Time: 7:33:14

EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE
SKY POINTE DRIVE STORM DRAIN SYSTEM (SPD)
FROM PROPOSED INLET TO REGIONAL MAINLINE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	2743.106	7.894	2751.000	481.00	17.01	4.49	2755.49	.00	5.62	.00	6.000	.000	.00	1 .0
16.000	.0240					.0129	.21	7.89	.00	3.82	.013	.00	.00	PIPE
1016.000	2743.490	7.941	2751.431	481.00	17.01	4.49	2755.93	.00	5.62	.00	6.000	.000	.00	1 .0
105.270	.0288					.0129	1.36	7.94	.00	3.59	.013	.00	.00	PIPE
1121.270	2746.520	7.636	2754.156	481.00	20.25	6.36	2760.52	.00	5.35	.00	5.500	.000	.00	1 .0
48.590	.0049					.0205	1.00	7.64	.00	5.50	.013	.00	.00	PIPE
1169.860	2746.760	8.711	2755.471	481.00	20.25	6.36	2761.84	.00	5.35	.00	5.500	.000	.00	1 .0
51.630	.0050					.0205	1.06	8.71	.00	5.50	.013	.00	.00	PIPE
1221.490	2747.020	9.933	2756.953	481.00	20.25	6.36	2763.32	.00	5.35	.00	5.500	.000	.00	1 .0
JUNCT STR	.0000					.0191	.00	9.93	.00		.013	.00	.00	PIPE
1221.490	2747.020	11.507	2758.527	446.00	18.77	5.47	2764.00	.00	5.29	.00	5.500	.000	.00	1 .0
86.050	.0221					.0176	1.52	11.51	.00	4.06	.013	.00	.00	PIPE
1307.540	2748.920	11.651	2760.571	446.00	18.77	5.47	2766.04	.00	5.29	.00	5.500	.000	.00	1 .0
120.520	.0222					.0176	2.13	11.65	.00	4.05	.013	.00	.00	PIPE
1428.060	2751.590	11.615	2763.206	446.00	18.77	5.47	2768.68	.00	5.29	.00	5.500	.000	.00	1 .0
125.310	.0221					.0176	2.21	11.62	.00	4.05	.013	.00	.00	PIPE
1553.370	2754.360	11.618	2765.979	446.00	18.77	5.47	2771.45	.00	5.29	.00	5.500	.000	.00	1 .0
124.900	.0221					.0176	2.20	11.62	.00	4.05	.013	.00	.00	PIPE

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EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE
SKY POINTE DRIVE STORM DRAIN SYSTEM (SPD)
FROM PROPOSED INLET TO REGIONAL MAINLINE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1678.270	2757.120	11.588	2768.708	446.00	18.77	5.47	2774.18	.00	5.29	.00	5.500	.000	.00	1 .0
135.550	.0218					.0176	2.39	11.59	.00	4.08	.013	.00	.00	PIPE
1813.820	2760.070	11.339	2771.409	446.00	18.77	5.47	2776.88	.00	5.29	.00	5.500	.000	.00	1 .0
JUNCT STR	.0000					.0174	.00	11.34	.00		.013	.00	.00	PIPE
1813.820	2760.070	11.664	2771.734	439.00	18.48	5.30	2777.04	.00	5.28	.00	5.500	.000	.00	1 .0
363.710	.0215					.0171	6.22	11.66	.00	4.05	.013	.00	.00	PIPE
2177.530	2767.880	10.405	2778.285	439.00	18.48	5.30	2783.59	.00	5.28	.00	5.500	.000	.00	1 .0
JUNCT STR	.0000					.0171	.00	10.41	.00		.013	.00	.00	PIPE
2177.530	2769.380	13.261	2782.641	188.00	14.96	3.48	2786.12	.00	3.81	.00	4.000	.000	.00	1 .0
322.690	.0240					.0171	5.53	13.26	.00	2.82	.013	.00	.00	PIPE
2500.220	2777.130	11.270	2788.400	188.00	14.96	3.48	2791.88	.00	3.81	.00	4.000	.000	.00	1 .0
JUNCT STR	.0000					.0155	.00	11.27	.00		.013	.00	.00	PIPE
2500.220	2777.130	12.301	2789.431	169.00	13.45	2.81	2792.24	.00	3.72	.00	4.000	.000	.00	1 .0
134.400	.0205					.0138	1.86	12.30	.00	2.76	.013	.00	.00	PIPE

2634.620	2779.890	11.625	2791.515	169.00	13.45	2.81	2794.32	.00	3.72	.00	4.000	.000	.00	1	.0		
373.290	.0305					.0138	5.17	11.63	.00	2.41	.013	.00	.00	PIPE			
3007.910	2791.260	5.609	2796.869	169.00	13.45	2.81	2799.68	.00	3.72	.00	4.000	.000	.00	1	.0		
JUNCT STR	.0000					.0104	.00	5.61	.00		.013	.00	.00	PIPE			

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WATER SURFACE PROFILE LISTING Date: 8- 1-2019 Time: 7:33:14

EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE
SKY POINTE DRIVE STORM DRAIN SYSTEM (SPD)
FROM PROPOSED INLET TO REGIONAL MAINLINE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
3007.910	2791.760	7.932	2799.692	84.00	8.73	1.18	2800.88	.00	2.86	.00	3.500	.000	.00	1 .0
74.670	.0204					.0070	.52	7.93	.00	1.92	.013	.00	.00	PIPE
3082.580	2793.280	6.992	2800.272	84.00	8.73	1.18	2801.46	.00	2.86	.00	3.500	.000	.00	1 .0
JUNCT STR	.0000					.0066	.00	6.99	.00		.013	.00	.00	PIPE
3082.580	2793.280	7.202	2800.482	80.00	8.32	1.07	2801.56	.00	2.79	.00	3.500	.000	.00	1 .0
103.575	.0317					.0063	.65	7.20	.00	1.64	.013	.00	.00	PIPE
3186.155	2796.565	4.592	2801.157	80.00	8.32	1.07	2802.23	.00	2.79	.00	3.500	.000	.00	1 .0
HYDRAULIC JUMP														
3186.155	2796.565	1.639	2798.204	80.00	18.10	5.08	2803.29	.00	2.79	3.49	3.500	.000	.00	1 .0
204.957	.0317					.0309	6.34	1.64	2.83	1.64	.013	.00	.00	PIPE
3391.112	2803.065	1.663	2804.728	80.00	17.75	4.89	2809.62	.00	2.79	3.50	3.500	.000	.00	1 .0
112.698	.0317					.0283	3.19	1.66	2.76	1.64	.013	.00	.00	PIPE
3503.810	2806.640	1.726	2808.366	80.00	16.93	4.45	2812.82	.00	2.79	3.50	3.500	.000	.00	1 .0
38.813	.0200					.0280	1.09	1.73	2.57	1.88	.013	.00	.00	PIPE
3542.623	2807.416	1.674	2809.090	80.00	17.60	4.81	2813.90	.00	2.79	3.50	3.500	.000	.00	1 .0
36.669	.0200					.0315	1.15	1.67	2.72	1.88	.013	.00	.00	PIPE
3579.292	2808.149	1.613	2809.762	80.00	18.46	5.29	2815.06	.00	2.79	3.49	3.500	.000	.00	1 .0
29.856	.0200					.0358	1.07	1.61	2.92	1.88	.013	.00	.00	PIPE

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EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE
SKY POINTE DRIVE STORM DRAIN SYSTEM (SPD)
FROM PROPOSED INLET TO REGIONAL MAINLINE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
3609.149	2808.746	1.555	2810.302	80.00	19.36	5.82	2816.12	.00	2.79	3.48	3.500	.000	.00	1 .0
25.430	.0200					.0407	1.04	1.56	3.13	1.88	.013	.00	.00	PIPE
3634.578	2809.254	1.500	2810.754	80.00	20.31	6.41	2817.16	.00	2.79	3.46	3.500	.000	.00	1 .0
22.285	.0200					.0464	1.03	1.50	3.36	1.88	.013	.00	.00	PIPE
3656.864	2809.700	1.447	2811.147	80.00	21.30	7.05	2818.19	.00	2.79	3.45	3.500	.000	.00	1 .0
19.932	.0200					.0528	1.05	1.45	3.60	1.88	.013	.00	.00	PIPE
3676.796	2810.098	1.396	2811.495	80.00	22.34	7.75	2819.25	.00	2.79	3.43	3.500	.000	.00	1 .0
18.084	.0200					.0602	1.09	1.40	3.85	1.88	.013	.00	.00	PIPE
3694.880	2810.459	1.347	2811.807	80.00	23.43	8.53	2820.33	.00	2.79	3.41	3.500	.000	.00	1 .0
3.394	.1654					.0622	.21	1.35	4.12	1.05	.013	.00	.00	PIPE
3698.274	2811.021	1.370	2812.391	80.00	22.92	8.15	2820.54	.00	2.79	3.42	3.500	.000	.00	1 .0

	6.357	.1654					.0566	.36	1.37	4.00	1.05	.013	.00	.00	PIPE				
	3704.631	2812.072	1.420	2813.492	80.00	21.85	7.41	2820.90	.00	2.79	3.44	3.500	.000	.00	1	.0			
	5.377	.1654					.0497	.27	1.42	3.73	1.05	.013	.00	.00	PIPE				
	3710.008	2812.961	1.472	2814.433	80.00	20.83	6.74	2821.17	.00	2.79	3.46	3.500	.000	.00	1	.0			
	4.588	.1654					.0436	.20	1.47	3.48	1.05	.013	.00	.00	PIPE				
	3714.595	2813.720	1.526	2815.246	80.00	19.86	6.13	2821.37	.00	2.79	3.47	3.500	.000	.00	1	.0			
	3.939	.1654					.0383	.15	1.53	3.25	1.05	.013	.00	.00	PIPE				

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EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE
SKY POINTE DRIVE STORM DRAIN SYSTEM (SPD)
FROM PROPOSED INLET TO REGIONAL MAINLINE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
3718.534	2814.371	1.582	2815.953	80.00	18.94	5.57	2821.52	.00	2.79	3.48	3.500	.000	.00	1 .0
3.396	.1654					.0337	.11	1.58	3.03	1.05	.013	.00	.00	PIPE
3721.931	2814.933	1.641	2816.574	80.00	18.06	5.06	2821.64	.00	2.79	3.49	3.500	.000	.00	1 .0
2.935	.1654					.0296	.09	1.64	2.83	1.05	.013	.00	.00	PIPE
3724.866	2815.418	1.703	2817.122	80.00	17.22	4.60	2821.72	.00	2.79	3.50	3.500	.000	.00	1 .0
2.539	.1654					.0261	.07	1.70	2.63	1.05	.013	.00	.00	PIPE
3727.405	2815.838	1.768	2817.606	80.00	16.42	4.18	2821.79	.00	2.79	3.50	3.500	.000	.00	1 .0
2.194	.1654					.0230	.05	1.77	2.45	1.05	.013	.00	.00	PIPE
3729.599	2816.201	1.836	2818.037	80.00	15.65	3.80	2821.84	.00	2.79	3.50	3.500	.000	.00	1 .0
1.891	.1654					.0203	.04	1.84	2.28	1.05	.013	.00	.00	PIPE
3731.490	2816.514	1.907	2818.421	80.00	14.92	3.46	2821.88	.00	2.79	3.49	3.500	.000	.00	1 .0
1.621	.1654					.0179	.03	1.91	2.12	1.05	.013	.00	.00	PIPE
3733.111	2816.782	1.983	2818.765	80.00	14.23	3.14	2821.91	.00	2.79	3.47	3.500	.000	.00	1 .0
1.380	.1654					.0158	.02	1.98	1.97	1.05	.013	.00	.00	PIPE
3734.490	2817.010	2.062	2819.072	80.00	13.57	2.86	2821.93	.00	2.79	3.44	3.500	.000	.00	1 .0
1.162	.1654					.0140	.02	2.06	1.83	1.05	.013	.00	.00	PIPE
3735.652	2817.202	2.146	2819.348	80.00	12.94	2.60	2821.95	.00	2.79	3.41	3.500	.000	.00	1 .0
.961	.1654					.0124	.01	2.15	1.69	1.05	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date: 8- 1-2019 Time: 7:33:14

EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE
SKY POINTE DRIVE STORM DRAIN SYSTEM (SPD)
FROM PROPOSED INLET TO REGIONAL MAINLINE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
3736.613	2817.361	2.235	2819.596	80.00	12.33	2.36	2821.96	.00	2.79	3.36	3.500	.000	.00	1 .0
.776	.1654					.0110	.01	2.24	1.56	1.05	.013	.00	.00	PIPE
3737.389	2817.490	2.330	2819.820	80.00	11.76	2.15	2821.97	.00	2.79	3.30	3.500	.000	.00	1 .0
.600	.1654					.0098	.01	2.33	1.44	1.05	.013	.00	.00	PIPE
3737.990	2817.589	2.432	2820.021	80.00	11.21	1.95	2821.97	.00	2.79	3.22	3.500	.000	.00	1 .0
.433	.1654					.0087	.00	2.43	1.33	1.05	.013	.00	.00	PIPE
3738.422	2817.661	2.542	2820.202	80.00	10.69	1.77	2821.98	.00	2.79	3.12	3.500	.000	.00	1 .0

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    .265    .1654                                          .0078      .00     2.54    1.22    1.05    .013       .00   .00  PIPE
      |       |       |       |       |                      |        |       |       |       |       |       |      |     |
3738.688  2817.705    2.661  2820.365     80.00   10.19    1.61  2821.98     .00    2.79    2.99    3.500    .000   .00   1    .0
    -|-     -|-      -|-      -|-      -|-     -|-     -|-      -|-     -|-     -|-     -|-     -|-     -|-    -|-    -|-    |-
    .093    .1654                                          .0070      .00     2.66    1.11    1.05    .013       .00   .00  PIPE
      |       |       |       |       |                      |        |       |       |       |       |       |      |     |
3738.780  2817.720    2.794  2820.514     80.00    9.72    1.47  2821.98     .00    2.79    2.81    3.500    .000   .00   1    .0
    -|-     -|-      -|-      -|-      -|-     -|-     -|-      -|-     -|-     -|-     -|-     -|-     -|-    -|-    -|-    |-
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EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE

SKY POINTE DRIVE STORM DRAIN SYSTEM (SPD)

FROM PROPOSED INLET TO REGIONAL MAINLINE

```
1000.00   .I     H  W    E                                                    .   R
1027.12   .I     CH W     E                                                   .   R
1054.23   .                                                                   .
1081.35   .                                                                   .
1108.47   .                                                                   .
1135.58   .   I     H  W      E                                               .   R
1162.70   .                                                                   .
1189.82   .   I     H   W      E                                              .   R
1216.93   .                                                                   .
1244.05   .   I     H    W      E                                             .   JX
1271.17   .   I     H      W     E                                            .   R
1298.28   .                                                                   .
1325.40   .      I     H      W     E                                         .   R
1352.52   .                                                                   .
1379.63   .                                                                   .
1406.75   .                                                                   .
1433.87   .         I     H      W     E                                      .   R
1460.98   .                                                                   .
1488.10   .                                                                   .
1515.22   .                                                                   .
1542.33   .                                                                   .
1569.45   .            I     CH     W     E                                   .   R
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1596.57   .                                                                .
1623.68   .                                                                .
1650.80   .                                                                .
1677.92   .                                                                .
1705.03   .              I     H      W     E                              .   R
1732.15   .                                                                .
1759.27   .                                                                .
1786.38   .                                                                .
1813.50   .                                                                .
1840.62   .                 I     H     W     E                            .   JX
1867.73   .                 I     H      W     E                           .   R
1894.85   .                                                                .
1921.97   .                                                                .
1949.08   .                                                                .
1976.20   .                                                                .
2003.32   .                                                                .
2030.43   .                                                                .
2057.55   .                                                                .
2084.67   .                                                                .
2111.78   .                                                                .
2138.90   .                                                                .
2166.02   .                                                                .
2193.13   .                        I     H     W     E                     .   JX
2220.25   .                          I    H          W   E                 .   R
2247.37   .                                                                .
2274.48   .                                                                .
2301.60   .                                                                .
2328.72   .                                                                .
2355.83   .                                                                .
2382.95   .                                                                .
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2410.06   .                                                                .
2437.18   .                                                                .
2464.30   .                                                                .
2491.41   .                                                                .
2518.53   .                    I   CH        W   E                         .   JX
2545.65   .                    I   CH        W   E                         .   R
2572.76   .                                                                .
2599.88   .                                                                .
2627.00   .                                                                .
2654.11   .                        I    H        W  E                      .   R
2681.23   .                                                                .
2708.35   .                                                                .
2735.46   .                                                                .
2762.58   .                                                                .
2789.70   .                                                                .
2816.81   .                                                                .
2843.93   .                                                                .
2871.05   .                                                                .
2898.16   .                                                                .
2925.28   .                                                                .
2952.40   .                                                                .
2979.51   .                                                                .
3006.63   .                                                                .
3033.75   .                          I   CH W  E                           .   JX
3060.86   .                          I   CH    W E                         .   R
3087.98   .                            I   CH   WE                         .   JX
3115.10   .                            I   CH   W E                       .   R
3142.21   .                                                                .
3169.33   .                                                                .
3196.45   .                                 I   CHWE                       .   R
```

```
  3223.56    .                                                  I W CH   E                    .   R

  3250.68    .                                                                                .

  3277.80    .                                                                                .

  3304.91    .                                                                                .

  3332.03    .                                                                                .

  3359.15    .                                                                                .

  3386.26    .                                                                                .

  3413.38    .                                                        I WCH   E               .   R

  3440.50    .                                                                                .

  3467.61    .                                                                                .

  3494.73    .                                                                                .

  3521.85    .                                                           I W H   E            .   R

  3548.96    .                                                           I W H   E            .   R

  3576.08    .                                                                                .

  3603.20    .                                                           I W H    E           .   R

  3630.31    .                                                           I WCH    E           .   R

  3657.43    .                                                           I W CH    E          .   R

  3684.55    .                                                            I WCH      E        .   R

  3711.66    .                                                            I W CH      E       .   R

  3738.78    .                                                             I WCH       E      .   R

           2743.106  2750.993  2758.880  2766.768  2774.655  2782.542  2790.429  2798.316  2806.204  2814.091  2821.979
```

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
   Y = WALL ENTRANCE OR EXIT
2. STATIONS FOR POINTS AT A JUMP MAY NOT BE PLOTTED EXACTLY

Ultimate Condition WSPG Summary
Lateral Line From Basin ECOM3 to Skye Pointe SPD Model (SLAT1.WSW)

WSPG Station	Plan Set Project No. *	Equivalent Roadway Station	Improvement Plan Sheet	Storm Drain Dimension	Invert Elevation (ft)	Q_{100} (cfs)	WSE (ft)	Velocity (ft/s)	FG Elevation	Facility Description	HGL Check[1]
1000.00	LCD: EST1906	39+36.88	P-5	24" RCP	2750.52	35.00	2751.17	39.41	2765.34	Connection to SPD Mainline Model	OK
1015.09	LCD: EST1906	39+28.93		7.5' x 12' RCB	2752.03	35.00	2752.63	7.82	2764.57	Wall Entrance	OK
1015.09	LCD: EST1906			7.5' x 12' RCB	2752.03	35.00	2752.63	7.82	2764.57	Junction with SP2a Drop Inlet Facitlity	OK
1017.59	LCD: EST1906			7.5' x 12' RCB	2752.28	35.00	2753.16	5.32	2764.57		OK
1017.59	SPD: EST1907			7.5' x 12' RCB	2752.28	17.00	2753.73	1.57	2764.57		OK
1020.09	SPD: EST1907			7.5' x 12' RCB	2752.53	17.00	2753.71	1.93	2764.57		OK
1020.09	SPD: EST1907			7.5' x 12' RCB	2752.53	17.00	2753.71	1.93	2764.57	Wall Exit	OK
1069.08	SPD: EST1907	39+28.93		24" RCP	2757.43	17.00	2758.92	6.79	2765.00	Addition of Flow from Basin ECOM3	OK
1069.08	SPD: EST1907			24" RCP	2757.43	17.00	2758.92	6.79	2765.00		OK

```
T1 EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE
T2 SKYE POINTE DRIVE STORM DRAIN SYSTEM (SLAT1)
T3 FROM PARCEL ECOM3 TO SKYE POINTE MAINLINE SD (SPD)
SO   1000.0002750.520 24                          2758.527
R    1015.0902752.030 24      .013                                      26.0
WE   1015.0902752.030 24      .013
R    1017.5902752.280  3      .013                                       0.0
JX   1017.5902752.280  3  3   .013   12.0           2752.280         90.0
R    1020.0902752.530  3      .013                                       0.0
WX   1020.0902752.530  3      .013
R    1069.0802757.430 24      .013
SH   1069.0802757.430 24
CD   1  3   0   0.000  13.000   20.000 0.000 0.000  0.0000.00  0.00
CD   2  3   0   0.000  12.000   12.500 0.000 0.000  0.0000.00  0.00
CD   3  3   0   0.000  12.000    7.500 0.000 0.000  0.0000.00  0.00
CD   4  3   0   0.000  17.000    5.000 0.000 0.000  0.0000.00  0.00
CD  18  4   1   0.000   1.500    0.000 0.000 0.000  0.0000.00  0.00
CD  24  4   1   0.000   2.000    0.000 0.000 0.000  0.0000.00  0.00
CD  30  4   1   0.000   2.500    0.000 0.000 0.000  0.0000.00  0.00
CD  36  4   1   0.000   3.000    0.000 0.000 0.000  0.0000.00  0.00
CD  42  4   1   0.000   3.500    0.000 0.000 0.000  0.0000.00  0.00
CD  48  4   1   0.000   4.000    0.000 0.000 0.000  0.0000.00  0.00
Q           17.000
```

FILE: SLAT1.WSW W S P G W - EDIT LISTING - Version 14.10 Date: 8- 2-2019 Time:10:27:51

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING PAGE 1

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	1	3	0	.000	13.000	20.000	.000	.000	.00										
CD	2	3	0	.000	12.000	12.500	.000	.000	.00										
CD	3	3	0	.000	12.000	7.500	.000	.000	.00										
CD	4	3	0	.000	17.000	5.000	.000	.000	.00										
CD	18	4	1		1.500														
CD	24	4	1		2.000														
CD	30	4	1		2.500														
CD	36	4	1		3.000														
CD	42	4	1		3.500														
CD	48	4	1		4.000														

W S P G W PAGE NO 1

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE

HEADING LINE NO 2 IS -

SKYE POINTE DRIVE STORM DRAIN SYSTEM (SLAT1)

HEADING LINE NO 3 IS -

FROM PARCEL ECOM3 TO SKYE POINTE MAINLINE SD (SPD)

W S P G W PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1000.000	2750.520	24	2758.527

ELEMENT NO 2 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1015.090	2752.030	24	.013	.000	.000	26.000	0

ELEMENT NO 3 IS A WALL ENTRANCE *

U/S DATA	STATION	INVERT	SECT	FP
	1015.090	2752.030	24	.013

WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS

ELEMENT NO 4 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1017.590	2752.280	3	.013	.000	.000	.000	0

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
	1017.590	2752.280	3	3	0	.013	12.000	.000	2752.280	.000	90.000	.000

RADIUS	ANGLE
.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	N	RADIUS	ANGLE	ANG PT	MAN H
	1020.090	2752.530	3	.013	.000	.000	.000	0

ELEMENT NO 7 IS A WALL EXIT *

U/S DATA	STATION	INVERT	SECT
	1020.090	2752.530	3

WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS

ELEMENT NO 8 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1069.080	2757.430	24	.013	.000	.000	.000	0

ELEMENT NO 9 IS A SYSTEM HEADWORKS * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1069.080	2757.430	24	.000

Program Package Serial Number: 7189

WATER SURFACE PROFILE LISTING Date: 8- 2-2019 Time:10:27:53

EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE
SKYE POINTE DRIVE STORM DRAIN SYSTEM (SLAT1)
FROM PARCEL ECOM3 TO SKYE POINTE MAINLINE SD (SPD)

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	2750.520	.572	2751.092	29.00	39.13	23.77	2774.86	.00	1.85	1.81	2.000	.000	.00	1 .0
.535	.1001					.5207	.28	.57	10.77	.89	.013	.00	.00	PIPE
1000.535	2750.573	.570	2751.143	29.00	39.33	24.02	2775.17	.00	1.85	1.81	2.000	.000	.00	1 .0
5.159	.1001					.5620	2.90	.57	10.85	.89	.013	.00	.00	PIPE
1005.694	2751.090	.550	2751.640	29.00	41.25	26.42	2778.06	.00	1.85	1.79	2.000	.000	.00	1 .0
4.840	.1001					.6423	3.11	.55	11.59	.89	.013	.00	.00	PIPE
1010.534	2751.574	.532	2752.106	29.00	43.27	29.07	2781.17	.00	1.85	1.77	2.000	.000	.00	1 .0
4.556	.1001					.7342	3.34	.53	12.38	.89	.013	.00	.00	PIPE
1015.090	2752.030	.515	2752.545	29.00	7.50	.87	2753.42	.00	.77	7.50	12.000	7.500	.00	0 .0
.336	.1000					.0119	.00	.52	1.84	.27	.013	.00	.00	BOX
1015.426	2752.064	.528	2752.592	29.00	7.32	.83	2753.42	.00	.77	7.50	12.000	7.500	.00	0 .0
.558	.1000					.0107	.01	.53	1.78	.27	.013	.00	.00	BOX
1015.984	2752.120	.554	2752.674	29.00	6.98	.76	2753.43	.00	.77	7.50	12.000	7.500	.00	0 .0
.459	.1000					.0092	.00	.55	1.65	.27	.013	.00	.00	BOX
1016.444	2752.166	.581	2752.747	29.00	6.66	.69	2753.43	.00	.77	7.50	12.000	7.500	.00	0 .0
.371	.1000					.0079	.00	.58	1.54	.27	.013	.00	.00	BOX
1016.815	2752.203	.609	2752.812	29.00	6.35	.63	2753.44	.00	.77	7.50	12.000	7.500	.00	0 .0
.291	.1000					.0068	.00	.61	1.43	.27	.013	.00	.00	BOX

Program Package Serial Number: 7189

WATER SURFACE PROFILE LISTING Date: 8- 2-2019 Time:10:27:53

EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE
SKYE POINTE DRIVE STORM DRAIN SYSTEM (SLAT1)
FROM PARCEL ECOM3 TO SKYE POINTE MAINLINE SD (SPD)

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1017.105	2752.232	.639	2752.871	29.00	6.05	.57	2753.44	.00	.77	7.50	12.000	7.500	.00	0 .0
.217	.1000					.0058	.00	.64	1.33	.27	.013	.00	.00	BOX
1017.323	2752.253	.670	2752.924	29.00	5.77	.52	2753.44	.00	.77	7.50	12.000	7.500	.00	0 .0
.150	.1000					.0050	.00	.67	1.24	.27	.013	.00	.00	BOX
1017.473	2752.268	.703	2752.971	29.00	5.50	.47	2753.44	.00	.77	7.50	12.000	7.500	.00	0 .0
.088	.1000					.0043	.00	.70	1.16	.27	.013	.00	.00	BOX
1017.561	2752.277	.737	2753.014	29.00	5.24	.43	2753.44	.00	.77	7.50	12.000	7.500	.00	0 .0
.029	.1000					.0037	.00	.74	1.08	.27	.013	.00	.00	BOX
1017.590	2752.280	.774	2753.054	29.00	4.99	.39	2753.44	.00	.77	7.50	12.000	7.500	.00	0 .0
JUNCT STR	.0000					.0019	.00	.77	1.00		.013	.00	.00	BOX
1017.590	2752.280	1.242	2753.522	17.00	1.83	.05	2753.57	.00	.54	7.50	12.000	7.500	.00	0 .0
.528	.1000					.0003	.00	1.24	.29	.19	.013	.00	.00	BOX
1018.118	2752.333	1.184	2753.517	17.00	1.91	.06	2753.57	.00	.54	7.50	12.000	7.500	.00	0 .0
.496	.1000					.0003	.00	1.18	.31	.19	.013	.00	.00	BOX

1018.613	2752.382	1.129	2753.511	17.00	2.01	.06	2753.57	.00	.54	7.50	12.000	7.500	.00	0	.0				
.465	.1000					.0004	.00	1.13	.33	.19	.013	.00	.00	BOX					
1019.078	2752.429	1.076	2753.505	17.00	2.11	.07	2753.57	.00	.54	7.50	12.000	7.500	.00	0	.0				
.434	.1000					.0005	.00	1.08	.36	.19	.013	.00	.00	BOX					

Program Package Serial Number: 7189

WATER SURFACE PROFILE LISTING Date: 8- 2-2019 Time:10:27:53

EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE
SKYE POINTE DRIVE STORM DRAIN SYSTEM (SLAT1)
FROM PARCEL ECOM3 TO SKYE POINTE MAINLINE SD (SPD)

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1019.512	2752.472	1.026	2753.498	17.00	2.21	.08	2753.57	.00	.54	7.50	12.000	7.500	.00	0 .0
.404	.1000					.0005	.00	1.03	.38	.19	.013	.00	.00	BOX
1019.916	2752.512	.978	2753.491	17.00	2.32	.08	2753.57	.00	.54	7.50	12.000	7.500	.00	0 .0
.174	.1000					.0006	.00	.98	.41	.19	.013	.00	.00	BOX
1020.090	2752.530	.957	2753.488	17.00	2.37	.09	2753.57	.00	.54	7.50	12.000	7.500	.00	0 .0
WALL EXIT														
1020.090	2752.530	.958	2753.489	17.00	2.37	.09	2753.58	.00	.54	7.50	12.000	7.500	.00	0 .0
1020.090	2752.530	.729	2753.259	17.00	16.42	4.19	2757.45	.00	1.49	1.93	2.000	.000	.00	1 .0
6.039	.1000					.0679	.41	.73	3.95	.66	.013	.00	.00	PIPE
1026.129	2753.134	.742	2753.876	17.00	16.03	3.99	2757.86	.00	1.49	1.93	2.000	.000	.00	1 .0
8.738	.1000					.0616	.54	.74	3.81	.66	.013	.00	.00	PIPE
1034.867	2754.008	.769	2754.777	17.00	15.28	3.63	2758.40	.00	1.49	1.95	2.000	.000	.00	1 .0
6.562	.1000					.0540	.35	.77	3.56	.66	.013	.00	.00	PIPE
1041.428	2754.665	.797	2755.461	17.00	14.57	3.30	2758.76	.00	1.49	1.96	2.000	.000	.00	1 .0
5.144	.1000					.0474	.24	.80	3.33	.66	.013	.00	.00	PIPE
1046.573	2755.179	.826	2756.005	17.00	13.89	3.00	2759.00	.00	1.49	1.97	2.000	.000	.00	1 .0
4.148	.1000					.0416	.17	.83	3.11	.66	.013	.00	.00	PIPE
1050.720	2755.594	.856	2756.450	17.00	13.24	2.72	2759.17	.00	1.49	1.98	2.000	.000	.00	1 .0
3.404	.1000					.0366	.12	.86	2.90	.66	.013	.00	.00	PIPE

Program Package Serial Number: 7189

WATER SURFACE PROFILE LISTING Date: 8- 2-2019 Time:10:27:53

EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE
SKYE POINTE DRIVE STORM DRAIN SYSTEM (SLAT1)
FROM PARCEL ECOM3 TO SKYE POINTE MAINLINE SD (SPD)

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1054.125	2755.935	.887	2756.822	17.00	12.63	2.48	2759.30	.00	1.49	1.99	2.000	.000	.00	1 .0
2.830	.1000					.0321	.09	.89	2.70	.66	.013	.00	.00	PIPE
1056.955	2756.218	.920	2757.138	17.00	12.04	2.25	2759.39	.00	1.49	1.99	2.000	.000	.00	1 .0
2.370	.1000					.0283	.07	.92	2.52	.66	.013	.00	.00	PIPE
1059.324	2756.455	.955	2757.410	17.00	11.48	2.05	2759.46	.00	1.49	2.00	2.000	.000	.00	1 .0
1.995	.1000					.0249	.05	.96	2.35	.66	.013	.00	.00	PIPE
1061.319	2756.654	.991	2757.645	17.00	10.95	1.86	2759.51	.00	1.49	2.00	2.000	.000	.00	1 .0
1.680	.1000					.0219	.04	.99	2.19	.66	.013	.00	.00	PIPE
1062.999	2756.822	1.029	2757.851	17.00	10.44	1.69	2759.54	.00	1.49	2.00	2.000	.000	.00	1 .0

```
   1.411    .1000                                        .0193      .03     1.03    2.04     .66    .013       .00   .00  PIPE
       |        |        |        |        |        |        |        |        |       |        |       |        |       |
1064.411  2756.963    1.069  2758.032    17.00    9.95    1.54  2759.57     .00    1.49    2.00    2.000     .000   .00   1   .0
       -|-      -|-      -|-      -|-      -|-     -|-     -|-      -|-     -|-     -|-     -|-     -|-     -|-    -|-    -|-
   1.179    .1000                                        .0170      .02     1.07    1.90     .66    .013       .00   .00  PIPE
       |        |        |        |        |        |        |        |        |       |        |       |        |       |
1065.590  2757.081    1.111  2758.192    17.00    9.49    1.40  2759.59     .00    1.49    1.99    2.000     .000   .00   1   .0
       -|-      -|-      -|-      -|-      -|-     -|-     -|-      -|-     -|-     -|-     -|-     -|-     -|-    -|-    -|-
    .976    .1000                                        .0150      .01     1.11    1.76     .66    .013       .00   .00  PIPE
       |        |        |        |        |        |        |        |        |       |        |       |        |       |
1066.566  2757.179    1.155  2758.333    17.00    9.05    1.27  2759.60     .00    1.49    1.98    2.000     .000   .00   1   .0
       -|-      -|-      -|-      -|-      -|-     -|-     -|-      -|-     -|-     -|-     -|-     -|-     -|-    -|-    -|-
    .794    .1000                                        .0133      .01     1.15    1.63     .66    .013       .00   .00  PIPE
       |        |        |        |        |        |        |        |        |       |        |       |        |       |
1067.360  2757.258    1.201  2758.459    17.00    8.63    1.16  2759.61     .00    1.49    1.96    2.000     .000   .00   1   .0
       -|-      -|-      -|-      -|-      -|-     -|-     -|-      -|-     -|-     -|-     -|-     -|-     -|-    -|-    -|-
    .630    .1000                                        .0118      .01     1.20    1.52     .66    .013       .00   .00  PIPE
♠ FILE: SLAT1.WSW                          W S P G W - CIVILDESIGN Version 14.08                                      PAGE    5

                        Program Package Serial Number: 7189
                                     WATER SURFACE PROFILE LISTING                  Date: 8- 2-2019  Time:10:27:53

                    EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE
                      SKYE POINTE DRIVE STORM DRAIN SYSTEM (SLAT1)
                        FROM PARCEL ECOM3 TO SKYE POINTE MAINLINE SD (SPD)

 ********************************************************************************************************************** ********
         | Invert  |  Depth |  Water  |    Q    |  Vel     Vel  |  Energy | Super |Critical|Flow Top|Height/|Base Wt|      |No Wth
 Station |  Elev   |  (FT)  |  Elev   |  (CFS)  | (FPS)    Head |  Grd.El.|  Elev | Depth  | Width  |Dia.-FT|or I.D.|  ZL  |Prs/Pip
        -|-      -|-      -|-       -|-       -|-     -|-      -|-     -|-     -|-     -|-     -|-     -|-    -|-
 L/Elem  |Ch Slope |        |         |         |       SF Ave|    HF   |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR  |Type Ch
 ********|*********|********|*********|*********|*******|******|*********|*******|********|********|*******|*******|******|*******
         |         |        |         |         |       |      |         |       |        |        |       |       |      |
1067.990  2757.321    1.251  2758.572    17.00    8.22    1.05  2759.62     .00    1.49    1.94    2.000     .000   .00   1   .0
       -|-      -|-      -|-      -|-      -|-     -|-     -|-      -|-     -|-     -|-     -|-     -|-     -|-    -|-    -|-
    .479    .1000                                        .0104      .00     1.25    1.40     .66    .013       .00   .00  PIPE
       |        |        |        |        |        |        |        |        |       |        |       |        |       |
1068.470  2757.369    1.303  2758.672    17.00    7.84     .95  2759.63     .00    1.49    1.91    2.000     .000   .00   1   .0
       -|-      -|-      -|-      -|-      -|-     -|-     -|-      -|-     -|-     -|-     -|-     -|-     -|-    -|-    -|-
    .338    .1000                                        .0093      .00     1.30    1.30     .66    .013       .00   .00  PIPE
       |        |        |        |        |        |        |        |        |       |        |       |        |       |
1068.808  2757.403    1.359  2758.762    17.00    7.48     .87  2759.63     .00    1.49    1.87    2.000     .000   .00   1   .0
       -|-      -|-      -|-      -|-      -|-     -|-     -|-      -|-     -|-     -|-     -|-     -|-     -|-    -|-    -|-
    .203    .1000                                        .0082      .00     1.36    1.19     .66    .013       .00   .00  PIPE
       |        |        |        |        |        |        |        |        |       |        |       |        |       |
1069.011  2757.423    1.420  2758.843    17.00    7.13     .79  2759.63     .00    1.49    1.82    2.000     .000   .00   1   .0
       -|-      -|-      -|-      -|-      -|-     -|-     -|-      -|-     -|-     -|-     -|-     -|-     -|-    -|-    -|-
    .069    .1000                                        .0074      .00     1.42    1.10     .66    .013       .00   .00  PIPE
       |        |        |        |        |        |        |        |        |       |        |       |        |       |
1069.080  2757.430    1.486  2758.916    17.00    6.79     .72  2759.63     .00    1.49    1.75    2.000     .000   .00   1   .0
       -|-      -|-      -|-      -|-      -|-     -|-     -|-      -|-     -|-     -|-     -|-     -|-     -|-    -|-    -|-
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                    EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE

                      SKYE POINTE DRIVE STORM DRAIN SYSTEM (SLAT1)

                        FROM PARCEL ECOM3 TO SKYE POINTE MAINLINE SD (SPD)


   1000.00    .IW    H                                                                  E                  .    R

   1000.83    .I W   H                                                                   E                 .    R

   1001.66    .                                                                                             .

   1002.50    .                                                                                             .

   1003.33    .                                                                                             .

   1004.16    .                                                                                             .

   1004.99    .                                                                                             .

   1005.83    . I W   CH                                                                                E    .    R

   1006.66    .                                                                                             .
```

```
1007.49    .                                                                .
1008.32    .                                                                .
1009.16    .                                                                .
1009.99    .                                                                .
1010.82    .  I W   H                                                       E.   R
1011.65    .                                                                .
1012.48    .                                                                .
1013.32    .                                                                .
1014.15    .                                                                .
1014.98    .                                                                .
1015.81    .   I WC E                          H                            .   R
1016.65    .    IWC E                          H                            .   R
1017.48    .    I W E                          H                            .   R
1018.31    .    I W E                          H                            .   R
1019.14    .    I WCE                          H                            .   R
1019.97    .    I WCE                          H                            .   R
1020.81    .    I WCE                          H                            .   R
1021.64    .    I WCE                          H                            .   R
1022.47    .    I  WE                          H                            .   R
1023.30    .    I  WE                          H                            .   JX
1024.14    .    I C W                          H                            .   R
1024.97    .    I C W                           H                           .   R
1025.80    .     IC W                           H                           .   R
1026.63    .     IC W                           H                           .   R
1027.47    .     I CW                           H                           .   R
1028.30    .     I CW                           H                           .   R
1029.13    .     IYCWYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYH                   .   WX
1029.96    .     IYCWYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYH                   .   WX
1030.79    .     I W  C H       E                                           .   R
1031.63    .       I W  C H       E                                         .   R
```

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1032.46   .                                                                .
1033.29   .                                                                .
1034.12   .                                                                .
1034.96   .          I W  CH      E                                        .   R
1035.79   .                                                                .
1036.62   .                                                                .
1037.45   .                                                                .
1038.29   .                                                                .
1039.12   .                                                                .
1039.95   .                                                                .
1040.78   .                                                                .
1041.61   .            I  W C H    E                                       .   R
1042.45   .                                                                .
1043.28   .                                                                .
1044.11   .                                                                .
1044.94   .                                                                .
1045.78   .                                                                .
1046.61   .              I W  CH    E                                       .   R
1047.44   .                                                                .
1048.27   .                                                                .
1049.10   .                                                                .
1049.94   .                                                                .
1050.77   .              I  W C H   E                                       .   R
1051.60   .                                                                .
1052.43   .                                                                .
1053.27   .                                                                .
1054.10   .                                                                .
1054.93   .              I  W C H   E                                       .   R
1055.76   .                                                                .
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```
1056.60    .                                                                .

1057.43    .                I  W C H  E                                     .    R

1058.26    .                                                                .

1059.09    .                                                                .

1059.92    .                 I  W CH   E                                    .    R

1060.76    .                                                                .

1061.59    .                  I  WC H  E                                    .    R

1062.42    .                                                                .

1063.25    .                  I  W C H E                                    .    R

1064.09    .                                                                .

1064.92    .                   I  WC H E                                    .    R

1065.75    .                   I   WCH E                                    .    R

1066.58    .                   I   WC HE                                    .    R

1067.42    .                   I   WC HE                                    .    R

1068.25    .                    I   WCHE                                    .    R

1069.08    .                    I   WCHE                                    .    R

          2750.520  2753.585  2756.650  2759.716  2762.781  2765.846  2768.911  2771.976  2775.042  2778.107  2781.173
```

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
   Y = WALL ENTRANCE OR EXIT
2. STATIONS FOR POINTS AT A JUMP MAY NOT BE PLOTTED EXACTLY

Ultimate Condition WSPG Summary
Lateral Line From Basin ECOM4 to Skye Pointe SPD Model (SLAT2.WSW)

WSPG Station	Plan Set Project No. *	Equivalent Roadway Station	Improvement Plan Sheet	Storm Drain Dimension	Invert Elevation (ft)	Q_{100} (cfs)	WSE (ft)	Velocity (ft/s)	FG Elevation	Facility Description	HGL Check[1]
1000.00	SPD: EST1907	26+43.11	SD-5	24" RCP	2779.13	17.00	2788.40	5.41	2797.25	Connection to SPD Mainline Model	OK
1042.37		26+11.44		5' x 17' RCB	2783.37	17.00	2788.71	0.64	2797.60	Junction with SP3a Drop Inlet Facility	OK
1042.37				5' x 17' RCB	2783.37	17.00	2788.71	0.64	2797.60		OK
1044.87				5' x 17' RCB	2783.62	15.00	2788.71	0.59	2797.60		OK
1044.87				5' x 17' RCB	2783.62	15.00	2788.71	0.59	2797.60		OK
1047.37				7.5' x 17' RCB	2783.67	15.00	2788.71	0.60	2797.60		OK
1047.37				7.5' x 17' RCB	2783.67	15.00	2788.71	4.77	2797.60		OK
1097.67		26+11.54		24" RCP	2784.67	15.00	2788.93	4.77	2795.00	Addition of Flow From Basin ECOM4	OK
1097.67				24" RCP	2784.67	15.00	2788.93	4.77	2795.00		OK

```
T1 EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE
T2 SKYE POINTE DRIVE STORM DRAIN SYSTEM (SLAT2)
T3 FROM PARCEL ECOM4 TO SKYE POINTE MAINLINE SD (SPD)
SO   1000.0002779.130 24                          2788.400
R    1042.3702783.370 24      .013                                    45.0
WE   1042.3702783.370 24      .013
R    1044.8702783.620  4      .013                                     0.0
JX   1044.8702783.620  4  4   .013    2.0           2783.620         90.0
R    1047.3702783.670  4      .013                                     0.0
WX   1047.3702783.670  4      .013
R    1097.6702784.670 24      .013
SH   1097.6702784.670 24
CD   1  3   0   0.000  13.000   20.000 0.000 0.000  0.0000.00  0.00
CD   2  3   0   0.000  12.000   12.500 0.000 0.000  0.0000.00  0.00
CD   3  3   0   0.000  12.000    7.500 0.000 0.000  0.0000.00  0.00
CD   4  3   0   0.000  17.000    5.000 0.000 0.000  0.0000.00  0.00
CD  18  4   1   0.000   1.500    0.000 0.000 0.000  0.0000.00  0.00
CD  24  4   1   0.000   2.000    0.000 0.000 0.000  0.0000.00  0.00
CD  30  4   1   0.000   2.500    0.000 0.000 0.000  0.0000.00  0.00
CD  36  4   1   0.000   3.000    0.000 0.000 0.000  0.0000.00  0.00
CD  42  4   1   0.000   3.500    0.000 0.000 0.000  0.0000.00  0.00
CD  48  4   1   0.000   4.000    0.000 0.000 0.000  0.0000.00  0.00
Q            15.000
```

FILE: SLAT2.WSW W S P G W - EDIT LISTING - Version 14.10 Date: 8- 2-2019 Time:10:28:20

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	1	3	0	.000	13.000	20.000	.000	.000	.00										
CD	2	3	0	.000	12.000	12.500	.000	.000	.00										
CD	3	3	0	.000	12.000	7.500	.000	.000	.00										
CD	4	3	0	.000	17.000	5.000	.000	.000	.00										
CD	18	4	1		1.500														
CD	24	4	1		2.000														
CD	30	4	1		2.500														
CD	36	4	1		3.000														
CD	42	4	1		3.500														
CD	48	4	1		4.000														

W S P G W

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE

HEADING LINE NO 2 IS -

SKYE POINTE DRIVE STORM DRAIN SYSTEM (SLAT2)

HEADING LINE NO 3 IS -

FROM PARCEL ECOM4 TO SKYE POINTE MAINLINE SD (SPD)

W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1000.000	2779.130	24	2788.400

ELEMENT NO 2 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1042.370	2783.370	24	.013	.000	.000	45.000	0

ELEMENT NO 3 IS A WALL ENTRANCE *

U/S DATA	STATION	INVERT	SECT	FP
	1042.370	2783.370	24	.013

WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS

ELEMENT NO 4 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1044.870	2783.620	4	.013	.000	.000	.000	0

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
	1044.870	2783.620	4	4	0	.013	2.000	.000	2783.620	.000	90.000	.000

RADIUS	ANGLE
.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	N	RADIUS	ANGLE	ANG PT	MAN H
	1047.370	2783.670	4	.013	.000	.000	.000	0

ELEMENT NO 7 IS A WALL EXIT *

U/S DATA	STATION	INVERT	SECT
	1047.370	2783.670	4

WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS

ELEMENT NO 8 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1097.670	2784.670	24	.013	.000	.000	.000	0

ELEMENT NO 9 IS A SYSTEM HEADWORKS * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1097.670	2784.670	24	.000

EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE
SKYE POINTE DRIVE STORM DRAIN SYSTEM (SLAT2)
FROM PARCEL ECOM4 TO SKYE POINTE MAINLINE SD (SPD)

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT "N" / X-Fall	Base Wt or I.D. / ZR	ZL	No Wth Prs/Pip / Type Ch
1000.000	2779.130	9.270	2788.400	17.00	5.41	.45	2788.85	.00	1.49	.00	2.000	.000	.00	1 .0
42.370	.1001					.0056	.24	9.27	.00	.66	.013	.00	.00	PIPE
WALL ENTRANCE														
1042.370	2783.370	5.337	2788.707	17.00	.64	.01	2788.71	.00	.71	5.00	17.000	5.000	.00	0 .0
2.478	.1000					.0000	.00	5.34	.05	.25	.013	.00	.00	BOX
1044.848	2783.618	5.088	2788.706	17.00	.67	.01	2788.71	.00	.71	5.00	17.000	5.000	.00	0 .0
.022	.1000					.0000	.00	5.09	.05	.25	.013	.00	.00	BOX
JUNCT STR	.0000					.0000	.00	5.09	.05		.013	.00	.00	BOX
1044.870	2783.620	5.089	2788.709	15.00	.59	.01	2788.71	.00	.65	5.00	17.000	5.000	.00	0 .0
2.500	.0199					.0000	.00	5.09	.05	.39	.013	.00	.00	BOX
1047.370	2783.670	5.039	2788.709	15.00	.60	.01	2788.71	.00	.65	5.00	17.000	5.000	.00	0 .0
WALL EXIT														
1047.370	2783.670	5.040	2788.710	15.00	4.77	.35	2789.06	.00	1.40	.00	2.000	.000	.00	1 .0
50.300	.0199					.0044	.22	5.04	.00	.96	.013	.00	.00	PIPE
1097.670	2784.670	4.261	2788.931	15.00	4.77	.35	2789.28	.00	1.40	.00	2.000	.000	.00	1 .0

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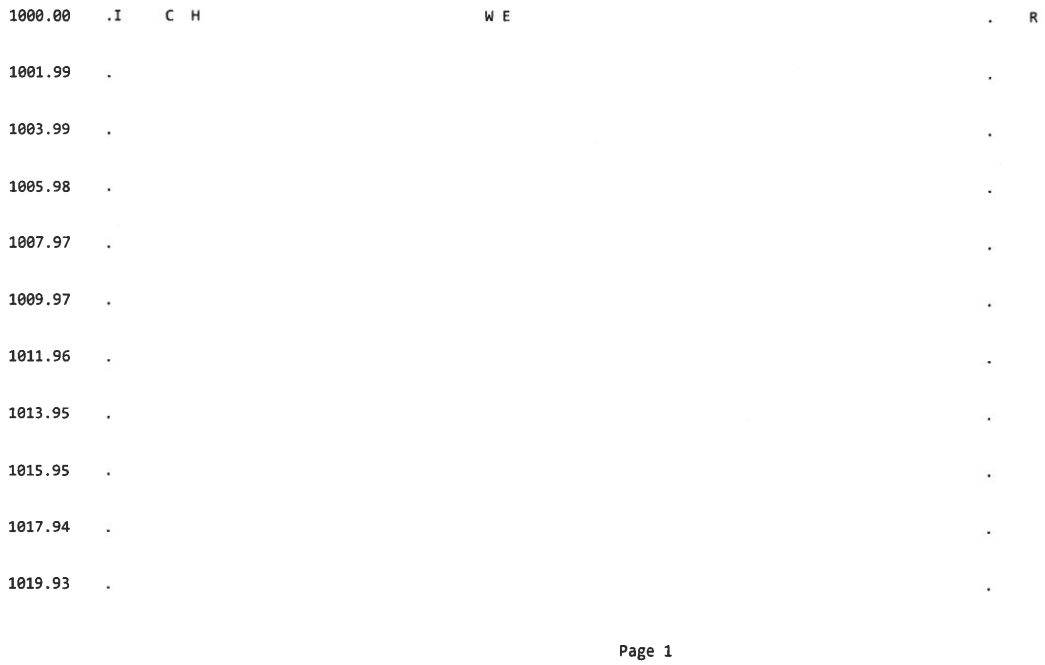
EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE

SKYE POINTE DRIVE STORM DRAIN SYSTEM (SLAT2)

FROM PARCEL ECOM4 TO SKYE POINTE MAINLINE SD (SPD)



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1021.93   .                                                                .
1023.92   .                                                                .
1025.91   .                                                                .
1027.91   .                                                                .
1029.90   .                                                                .
1031.89   .                                                                .
1033.89   .                                                                .
1035.88   .                                                                .
1037.87   .                                                                .
1039.87   .                                                                .
1041.86   .                                                                .
1043.85   .              I  C                W                          H .   R
1045.85   .               I   C              W                          H .   R
1047.84   .               I  C               W                          H .   R
1049.83   .                IYYCYYYYYYYYYYYYYYYYYWYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYH.   WX
1051.82   .                I    C  H          W E                          .   R
1053.82   .                                                                .
1055.81   .                                                                .
1057.80   .                                                                .
1059.80   .                                                                .
1061.79   .                                                                .
1063.78   .                                                                .
1065.78   .                                                                .
1067.77   .                                                                .
1069.76   .                                                                .
1071.76   .                                                                .
1073.75   .                                                                .
1075.74   .                                                                .
1077.74   .                                                                .
1079.73   .                                                                .
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   1081.72    .                                                                                                  .

   1083.72    .                                                                                                  .

   1085.71    .                                                                                                  .

   1087.70    .                                                                                                  .

   1089.70    .                                                                                                  .

   1091.69    .                                                                                                  .

   1093.68    .                                                                                                  .

   1095.68    .                                                                                                  .

   1097.67    .                        I     C  H        W E                                                     .    R

            2779.130  2781.284  2783.438  2785.592  2787.746  2789.900  2792.054  2794.208  2796.362  2798.516  2800.670
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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
   Y = WALL ENTRANCE OR EXIT
2. STATIONS FOR POINTS AT A JUMP MAY NOT BE PLOTTED EXACTLY

Project Name:	SUNSTONE PHASE 1
Project Number:	EST1905-000
Date:	8/6/2019
By:	CAA

a Westwood team

STORM SEWER HYDRAULIC CALCULATIONS: SKYE POINTE DRIVE

CONDUIT DATA						FLOW DATA							LOSS	HGL		COMMENTS	
STATION		SIZE / TYPE	INVERTS		LENGTH	A	R	Φ	Q	V	$H_V = V^2/2g$	S_f	PIPE	PIPE		PRESS. FLOW?	OTHER
FROM	TO		D / S ELEV.	U / S ELEV.		(FT^2)	(FT)		(CFS)	(FPS)	(FT)	(FT/FT)	H_f (FT)	D/S HGL ELEV.	U/S HGL ELEV.		
1000	1036.37	Round 18" RCP	2797.80	2803.25	36.37	1.767146	0.375	0.004925	2	1.131769	0.01989	0.000361034	0.013	2800.48	2800.495	No	SP1a
1001	1037.37	Round 18" RCP	2797.80	2805.07	36.37	1.767146	0.375	0.004925	2	1.131769	0.01989	0.000361034	0.013	2800.48	2800.495	No	SP1b
1000	1055.50	Round 18" RCP	2751.02	2752.68	55.50	1.767146	0.375	0.004925	6	3.395306	0.179008	0.003249306	0.180	2758.53	2758.707	Yes	SP2b
1000	1036.50	Round 18" RCP	2780.13	2780.5	36.50	1.767146	0.375	0.004925	2	1.131769	0.01989	0.000361034	0.013	2789.43	2789.444	Yes	SP3a
1000	1022.52	Round 18" RCP	2764.07	2766.32	22.52	1.767146	0.375	0.004925	5	2.829421	0.124311	0.002256462	0.051	2771.73	2771.785	Yes	SP4a
1000	1050.23	Round 18" RCP	2764.07	2766.58	50.23	1.767146	0.375	0.004925	2	1.131769	0.01989	0.000361034	0.018	2771.73	2771.752	Yes	SP4b

$Sf = \Phi Hv / R^{1.33}$

$\Phi = 2g (n^2) / 2.21$

1 - Where pipes are not under pressure, assume U/S HGL is at top of pipe

Log Cabin Way (Sunstone Parkway)

Project Name:	SUNSTONE PHASE 1
Project Number:	EST1905-000
Date:	8/6/2019
By:	CAA

a Westwood team

STORM SEWER HYDRAULIC CALCULATIONS: LOG CABIN WAY

CONDUIT DATA						FLOW DATA							LOSS	HGL		COMMENTS	
STATION		SIZE / TYPE	INVERTS		LENGTH	A	R	Φ	Q	V	$H_V = V^2/2g$	S_f	PIPE	PIPE		PRESS. FLOW?	OTHER
FROM	TO		D / S ELEV.	U / S ELEV.		(FT^2)	(FT)		(CFS)	(FPS)	(FT)	(FT/FT)	H_f (FT)	D/S HGL ELEV.	U/S HGL ELEV.		
1000	1023.77	Round 18" RCP	2743.60	2750.73	23.77	1.767146	0.375	0.004925	3	1.697653	0.044752	0.000812326	0.019	2747.00	2747.019	No	LC1b
1000	1063.04	Round 18" RCP	2732.83	2738.5	63.04	1.767146	0.375	0.004925	3	1.697653	0.044752	0.000812326	0.051	2739.25	2739.301	No	LC2a
1000	1027.30	Round 18" RCP	2732.83	2739.65	27.3	1.767146	0.375	0.004925	3	1.697653	0.044752	0.000812326	0.022	2739.25	2739.272	No	LC2b
1000	1075.08	Round 18" RCP	2717.57	2726.58	75.08	1.767146	0.375	0.004925	3	1.697653	0.044752	0.000812326	0.061	2721.00	2721.061	No	LC3a
1000	1033.23	Round 18" RCP	2717.57	2724.21	33.23	1.767146	0.375	0.004925	3	1.697653	0.044752	0.000812326	0.027	2721.00	2721.027	No	LC3b
1000	1062.14	Round 18" RCP	2706.42	2714.5	62.14	1.767146	0.375	0.004925	2.5	1.414711	0.031078	0.000564116	0.035	2713.00	2713.035	No	LC4a
1000	1018.14	Round 18" RCP	2689.97	2692.56	18.14	1.767146	0.375	0.004925	3	1.697653	0.044752	0.000812326	0.015	2694.00	2694.015	No	LC5b
1000	1079.26	Round 18" RCP	2670.12	2675.67	79.26	1.767146	0.375	0.004925	3	1.697653	0.044752	0.000812326	0.064	2678.00	2678.064	Yes	LC6a
1000	1026.10	Round 18" RCP	2674.62	2677.23	26.1	1.767146	0.375	0.004925	3	1.697653	0.044752	0.000812326	0.021	2678.00	2678.021	No	LC6b
1000	1032.40	Round 18" RCP	2657.05	2659.96	32.4	1.767146	0.375	0.004925	6.5	3.678248	0.210085	0.003813421	0.124	2660.50	2660.624	No	LC7b
1000	1069.35	Round 18" RCP	2650.00	2651.39	69.35	1.767146	0.375	0.004925	6.3	3.565071	0.197356	0.003582359	0.248	2657.25	2657.498	Yes	LC8

$Sf = \Phi Hv / R^{1.33}$

$\Phi = 2g (n^2) / 2.21$

1 - Where pipes are not under pressure, assume U/S HGL is at top of pipe

North Connector Road (Sunbridge Pointe Drive)

Ultimate Condition WSPG Summary

Mainline in North Collector Road from Basin EAA2 to Regional Mainline (NCR1.WSW)

WSPG Station	Plan Set Project No. *	Equivalent Roadway Station	Improvement Plan Sheet	Storm Drain Dimension	Invert Elevation (ft)	Q_{100} (cfs)	WSE (ft)	Velocity (ft/s)	FG Elevation	Facility Description	HGL Check[1]
1000.00	LCW: EST1908	N/A	P-8	60" RCP	2681.64	150.00	2689.00	7.64	2700.00	Connection to Existing Regional Facility	OK
1008.00		57+03.44		60" RCP	2682.72	150.00	2689.03	7.64	2700.00		OK
1030.76		56+90.2		60" RCP	2682.95	150.00	2689.26	7.64	2700.02		OK
1069.71		56+89.99		60" RCP	2683.34	150.00	2689.43	7.64	2699.63		OK
1122.45	NCR: EST1912	43+32.05	SD-4	60" RCP	2683.87	150.00	2689.66	7.64	2699.63	Junction with NC3 Drop Inlet Facilities and Basin EPC	OK
1122.45		43+32.05		42" RCP	2685.37	93.00	2689.82	9.67	2699.63		OK
1261.08		41+94.58		42" RCP	2687.59	93.00	2689.84	14.21	2700.41		OK
1430.87		40+26.23		42" RCP	2690.31	93.00	2692.72	13.16	2702.11		OK
1600.72		38+57.81		42" RCP	2692.00	93.00	2693.98	16.54	2703.80		OK
1770.57		36+89.39		42" RCP	2696.26	93.00	2698.57	13.81	2705.48		OK
1940.42		35+20.97	SD-3	42" RCP	2698.89	93.00	2701.87	10.65	2707.17	Junction with NC4 Drop Inlet Facilities	OK
1940.42				42" RCP	2698.89	88.00	2702.49	9.15	2707.17		OK
2110.27		33+52.55		42" RCP	2699.73	88.00	2703.89	9.15	2708.85		OK
2280.19		31+84.07		42" RCP	2700.58	88.00	2705.28	9.15	2710.54		OK
2643.50		28+21.33	SD-2	42" RCP	2705.13	88.00	2706.67	21.51	2717.75	Junction with NC2b	OK
2643.50				42" RCP	2705.13	85.00	2706.59	22.40	2717.75		OK
2685.06		27+90.9	SD-10	7.5' x 12' RCB	2706.25	85.00	2707.62	8.30	2716.97	Wall Entrance	OK
2685.06				7.5' x 12' RCB	2706.25	85.00	2707.62	8.30	2716.97	Junction with NC2a Drop Inlet Facility	OK
2687.56				7.5' x 12' RCB	2706.32	85.00	2707.91	7.15	2716.97		OK
2687.56				7.5' x 12' RCB	2706.32	82.00	2708.24	5.71	2716.97		OK
2690.06				42" RCP	2706.37	82.00	2708.18	6.04	2716.97		OK
2690.06				42" RCP	2706.37	82.00	2708.18	6.04	2716.97	Wall Exit	OK
2740.52		27+07.38		42" RCP	2707.38	82.00	2710.21	9.85	2715.00	Stub to Basin EAA2	OK
2740.52				42" RCP	2707.38	82.00	2710.21	9.85	2715.00		OK

```
T1 EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE
T2 SOUTHERN NORTH COLLECTOR ROAD STORM DRAIN SYSTEM (NCR1)
T3 FROM PROPOSED BASIN EAA2 TO REGIONAL MAINLINE
SO   1000.0002681.640 60                          2689.000
R    1008.0002682.720 60      .013
R    1030.7602682.950 60      .013                                          36.0   1
R    1069.7102683.340 60      .013                                           0.0   1
R    1122.4502683.870 60      .013                                          -4.0   1
JX   1122.4502685.370 42 48 18.013   51.0      6.0  2684.8702687.370-40.0 45.0
R    1261.0802687.590 42      .013                                          -7.5   1
R    1430.8702690.310 42      .013                                          -7.5   1
R    1600.7202692.000 42      .013                                          -7.5   1
R    1770.5702696.260 42      .013                                          -7.5   1
R    1940.4202698.890 42      .013                                          -7.5   1
JX   1940.4202698.890 42 18 18.013    2.0      3.0  2700.8902700.890-80.0 57.0
R    2110.2702699.730 42      .013                                          -7.5   1
R    2280.1902700.580 42      .013                                          -7.5   1
R    2643.5002705.130 42      .013                                          -9.0   1
JX   2643.5002705.130 42 18   .013    3.0           2707.130         54.0
R    2685.0602706.252 42      .013                                      -39.0   1
WE   2685.0602706.252 42      .013
R    2687.5602706.320  3      .013                                      -44.0   1
JX   2687.5602706.320  3  3   .013    3.0           2706.320         90.0
R    2690.0602706.370  3      .013                                              1
WX   2690.0602706.370  3      .013
R    2740.5202707.380 42      .013
SH   2740.5202707.380 42
CD   3  3   0   0.000  12.000    7.500 0.000 0.000  0.0000.00  0.00
CD  18  4   1   0.000   1.500    0.000 0.000 0.000  0.0000.00  0.00
CD  24  4   1   0.000   2.000    0.000 0.000 0.000  0.0000.00  0.00
CD  30  4   1   0.000   2.500    0.000 0.000 0.000  0.0000.00  0.00
CD  36  4   1   0.000   3.000    0.000 0.000 0.000  0.0000.00  0.00
CD  42  4   1   0.000   3.500    0.000 0.000 0.000  0.0000.00  0.00
CD  48  4   1   0.000   4.000    0.000 0.000 0.000  0.0000.00  0.00
CD  54  4   1   0.000   4.500    0.000 0.000 0.000  0.0000.00  0.00
CD  60  4   1   0.000   5.000    0.000 0.000 0.000  0.0000.00  0.00
CD  66  4   1   0.000   5.500    0.000 0.000 0.000  0.0000.00  0.00
CD  72  4   1   0.000   6.000    0.000 0.000 0.000  0.0000.00  0.00
Q            82.000
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FILE: NCR1.WSW W S P G W - EDIT LISTING - Version 14.10 Date: 8- 6-2019 Time: 2:51: 9

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	3	3	0	.000	12.000	7.500	.000	.000	.00										
CD	18	4	1		1.500														
CD	24	4	1		2.000														
CD	30	4	1		2.500														
CD	36	4	1		3.000														
CD	42	4	1		3.500														
CD	48	4	1		4.000														
CD	54	4	1		4.500														
CD	60	4	1		5.000														
CD	66	4	1		5.500														
CD	72	4	1		6.000														

W S P G W

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE

HEADING LINE NO 2 IS -

SOUTHERN NORTH COLLECTOR ROAD STORM DRAIN SYSTEM (NCR1)

HEADING LINE NO 3 IS -

FROM PROPOSED BASIN EAA2 TO REGIONAL MAINLINE

W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1000.000	2681.640	60	2689.000

ELEMENT NO 2 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1008.000	2682.720	60	.013	.000	.000	.000	0

ELEMENT NO 3 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1030.760	2682.950	60	.013	.000	.000	36.000	1

ELEMENT NO 4 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1069.710	2683.340	60	.013	.000	.000	.000	1

ELEMENT NO 5 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1122.450	2683.870	60	.013	.000	.000	-4.000	1

ELEMENT NO 6 IS A JUNCTION * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1122.450	2685.370	42	48	18	.013	51.000	6.000	2684.870	2687.370	-40.000	45.000

RADIUS	ANGLE
.000	.000

ELEMENT NO 7 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1261.080	2687.590	42	.013	.000	.000	-7.500	1

ELEMENT NO 8 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1430.870	2690.310	42	.013	.000	.000	-7.500	1

ELEMENT NO 9 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1600.720	2692.000	42	.013	.000	.000	-7.500	1

ELEMENT NO 10 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1770.570	2696.260	42	.013	.000	.000	-7.500	1

ELEMENT NO 11 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1940.420	2698.890	42	.013	.000	.000	-7.500	1

ELEMENT NO 12 IS A JUNCTION * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1940.420	2698.890	42	18	18	.013	2.000	3.000	2700.890	2700.890	-80.000	57.000

RADIUS	ANGLE
.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

W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 13 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	2110.270	2699.730	42	.013	.000	.000	-7.500	1

ELEMENT NO 14 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	2280.190	2700.580	42	.013	.000	.000	-7.500	1

ELEMENT NO 15 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	2643.500	2705.130	42	.013	.000	.000	-9.000	1

ELEMENT NO 16 IS A JUNCTION * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	2643.500	2705.130	42	18	0	.013	3.000	.000	2707.130	.000	54.000	.000

RADIUS	ANGLE
.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 17 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	2685.060	2706.252	42	.013	.000	.000	-39.000	1

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 ELEMENT NO  18 IS A  WALL  ENTRANCE                    *
                   U/S DATA   STATION    INVERT  SECT              FP
                              2685.060 2706.252   42              .013
WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS
 ELEMENT NO  19 IS A REACH              *         *     *
                   U/S DATA   STATION    INVERT  SECT               N                            RADIUS    ANGLE     ANG PT  MAN H
                              2687.560 2706.320    3               .013                             .000     .000   -44.000     1
 ELEMENT NO  20 IS A JUNCTION           *         *     *     *                 *                    *                 *
                   U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3        Q4     INVERT-3 INVERT-4  PHI 3  PHI 4
                              2687.560 2706.320    3     3     0   .013     3.000      .000  2706.320      .000  90.000     .000
                                                                                                RADIUS    ANGLE
                                                                                                 .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  21 IS A REACH              *         *     *
                   U/S DATA   STATION    INVERT  SECT               N                            RADIUS    ANGLE     ANG PT  MAN H
                              2690.060 2706.370    3               .013                             .000     .000      .000     1
                                                      W S P G W                                                                PAGE NO   4
                            WATER SURFACE PROFILE - ELEMENT CARD LISTING
 ELEMENT NO  22 IS A  WALL  EXIT                        *
                   U/S DATA   STATION    INVERT  SECT
                              2690.060 2706.370    3
WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS
 ELEMENT NO  23 IS A REACH              *         *     *
                   U/S DATA   STATION    INVERT  SECT               N                            RADIUS    ANGLE     ANG PT  MAN H
                              2740.520 2707.380   42              .013                             .000     .000      .000     0
 ELEMENT NO  24 IS A SYSTEM HEADWORKS                   *                       *
                   U/S DATA   STATION    INVERT  SECT                                      W S ELEV
                              2740.520 2707.380   42                                          .000
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EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE
SOUTHERN NORTH COLLECTOR ROAD STORM DRAIN SYSTEM (NCR1)
FROM PROPOSED BASIN EAA2 TO REGIONAL MAINLINE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	2681.640	7.360	2689.000	150.00	7.64	.91	2689.91	.00	3.51	.00	5.000	.000	.00	1 .0
8.000	.1350					.0033	.03	7.36	.00	1.34	.013	.00	.00	PIPE
1008.000	2682.720	6.307	2689.027	150.00	7.64	.91	2689.93	.00	3.51	.00	5.000	.000	.00	1 .0
22.760	.0101					.0033	.08	6.31	.00	2.71	.013	.00	.00	PIPE
1030.760	2682.950	6.305	2689.255	150.00	7.64	.91	2690.16	.00	3.51	.00	5.000	.000	.00	1 .0
38.950	.0100					.0033	.13	6.31	.00	2.72	.013	.00	.00	PIPE
1069.710	2683.340	6.090	2689.430	150.00	7.64	.91	2690.34	.00	3.51	.00	5.000	.000	.00	1 .0
52.740	.0100					.0033	.17	6.09	.00	2.72	.013	.00	.00	PIPE
1122.450	2683.870	5.792	2689.662	150.00	7.64	.91	2690.57	.00	3.51	.00	5.000	.000	.00	1 .0
JUNCT STR	.0000					.0059	.00	5.79	.00		.013	.00	.00	PIPE
1122.450	2685.370	4.449	2689.819	93.00	9.67	1.45	2691.27	.00	2.98	.00	3.500	.000	.00	1 .0
97.983	.0160					.0085	.84	4.45	.00	2.22	.013	.00	.00	PIPE
1220.433	2686.939	3.792	2690.731	93.00	9.67	1.45	2692.18	.00	2.98	.00	3.500	.000	.00	1 .0
HYDRAULIC JUMP														
1220.433	2686.939	2.245	2689.184	93.00	14.26	3.16	2692.34	.00	2.98	3.36	3.500	.000	.00	1 .0
40.647	.0160					.0154	.63	2.25	1.80	2.22	.013	.00	.00	PIPE
1261.080	2687.590	2.252	2689.842	93.00	14.21	3.14	2692.98	.00	2.98	3.35	3.500	.000	.00	1 .0
102.714	.0160					.0148	1.52	2.25	1.79	2.22	.013	.00	.00	PIPE

EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE
SOUTHERN NORTH COLLECTOR ROAD STORM DRAIN SYSTEM (NCR1)
FROM PROPOSED BASIN EAA2 TO REGIONAL MAINLINE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1363.794	2689.236	2.310	2691.546	93.00	13.80	2.96	2694.50	.00	2.98	3.32	3.500	.000	.00	1 .0
67.076	.0160					.0135	.91	2.31	1.71	2.22	.013	.00	.00	PIPE
1430.870	2690.310	2.411	2692.721	93.00	13.16	2.69	2695.41	.00	2.98	3.24	3.500	.000	.00	1 .0
39.127	.0099					.0133	.52	2.41	1.57	2.66	.013	.00	.00	PIPE
1469.997	2690.699	2.330	2693.029	93.00	13.67	2.90	2695.93	.00	2.98	3.30	3.500	.000	.00	1 .0
39.920	.0099					.0148	.59	2.33	1.68	2.66	.013	.00	.00	PIPE
1509.917	2691.096	2.235	2693.331	93.00	14.34	3.19	2696.52	.00	2.98	3.36	3.500	.000	.00	1 .0
33.962	.0099					.0167	.57	2.23	1.82	2.66	.013	.00	.00	PIPE
1543.880	2691.434	2.146	2693.580	93.00	15.04	3.51	2697.09	.00	2.98	3.41	3.500	.000	.00	1 .0
29.910	.0099					.0189	.56	2.15	1.97	2.66	.013	.00	.00	PIPE
1573.789	2691.732	2.062	2693.793	93.00	15.77	3.86	2697.66	.00	2.98	3.44	3.500	.000	.00	1 .0
26.931	.0099					.0214	.58	2.06	2.12	2.66	.013	.00	.00	PIPE
1600.720	2692.000	1.982	2693.982	93.00	16.54	4.25	2698.23	.00	2.98	3.47	3.500	.000	.00	1 .0
71.392	.0251					.0216	1.54	1.98	2.29	1.92	.013	.00	.00	PIPE

1672.112	2693.791	2.045	2695.836	93.00	15.93	3.94	2699.77	.00	2.98	3.45	3.500	.000	.00	1	.0				
48.065	.0251					.0194	.93	2.05	2.16	1.92	.013	.00	.00	PIPE					
1720.177	2694.996	2.128	2697.124	93.00	15.19	3.58	2700.71	.00	2.98	3.42	3.500	.000	.00	1	.0				
29.919	.0251					.0171	.51	2.13	2.00	1.92	.013	.00	.00	PIPE					

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1750.096	2695.747	2.216	2697.963	93.00	14.48	3.26	2701.22	.00	2.98	3.37	3.500	.000	.00	1 .0
20.474	.0251					.0152	.31	2.22	1.85	1.92	.013	.00	.00	PIPE
1770.570	2696.260	2.310	2698.570	93.00	13.81	2.96	2701.53	.00	2.98	3.32	3.500	.000	.00	1 .0
51.638	.0155					.0139	.72	2.31	1.71	2.25	.013	.00	.00	PIPE
1822.208	2697.060	2.354	2699.414	93.00	13.51	2.84	2702.25	.00	2.98	3.28	3.500	.000	.00	1 .0
58.151	.0155					.0128	.75	2.35	1.65	2.25	.013	.00	.00	PIPE
1880.359	2697.960	2.458	2700.417	93.00	12.88	2.58	2703.00	.00	2.98	3.20	3.500	.000	.00	1 .0
30.364	.0155					.0115	.35	2.46	1.51	2.25	.013	.00	.00	PIPE
1910.723	2698.430	2.569	2701.000	93.00	12.29	2.34	2703.34	.00	2.98	3.09	3.500	.000	.00	1 .0
17.390	.0155					.0103	.18	2.57	1.38	2.25	.013	.00	.00	PIPE
1928.113	2698.699	2.692	2701.391	93.00	11.71	2.13	2703.52	.00	2.98	2.95	3.500	.000	.00	1 .0
9.290	.0155					.0092	.09	2.69	1.26	2.25	.013	.00	.00	PIPE
1937.404	2698.843	2.827	2701.671	93.00	11.17	1.94	2703.61	.00	2.98	2.76	3.500	.000	.00	1 .0
3.016	.0155					.0084	.03	2.83	1.13	2.25	.013	.00	.00	PIPE
1940.420	2698.890	2.983	2701.873	93.00	10.65	1.76	2703.63	.00	2.98	2.48	3.500	.000	.00	1 .0
JUNCT STR	.0000					.0078	.00	2.98	1.00		.013	.00	.00	PIPE
1940.420	2698.890	3.599	2702.489	88.00	9.15	1.30	2703.79	.00	2.92	.00	3.500	.000	.00	1 .0
169.850	.0049					.0077	1.30	3.60	.00	3.50	.013	.00	.00	PIPE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
2110.270	2699.730	4.155	2703.885	88.00	9.15	1.30	2705.18	.00	2.92	.00	3.500	.000	.00	1 .0
169.920	.0050					.0077	1.30	4.16	.00	3.50	.013	.00	.00	PIPE
2280.190	2700.580	4.702	2705.282	88.00	9.15	1.30	2706.58	.00	2.92	.00	3.500	.000	.00	1 .0
163.260	.0125					.0077	1.25	4.70	.00	2.33	.013	.00	.00	PIPE
2443.450	2702.625	3.959	2706.584	88.00	9.15	1.30	2707.88	.00	2.92	.00	3.500	.000	.00	1 .0
HYDRAULIC JUMP														
2443.450	2702.625	2.049	2704.674	88.00	15.04	3.51	2708.18	.00	2.92	3.45	3.500	.000	.00	1 .0
23.260	.0125					.0189	.44	2.05	2.03	2.33	.013	.00	.00	PIPE
2466.711	2702.916	2.008	2704.924	88.00	15.41	3.69	2708.61	.00	2.92	3.46	3.500	.000	.00	1 .0
35.434	.0125					.0208	.74	2.01	2.11	2.33	.013	.00	.00	PIPE
2502.145	2703.360	1.931	2705.291	88.00	16.16	4.06	2709.35	.00	2.92	3.48	3.500	.000	.00	1 .0

| | | |

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 WALL  EXIT
        |         |         |         |         |         |         |         |         |         |         |         |
 2690.060  2706.370    1.810  2708.180     82.00    6.04     .57  2708.75     .00    1.55     7.50   12.000    7.500   .00   0   .0
        |         |         |         |         |         |         |         |         |         |         |         |
 2690.060  2706.370    2.186  2708.556     82.00   12.98    2.61  2711.17     .00    2.83     3.39    3.500     .000   .00   1   .0
        |         |         |         |         |         |         |         |         |         |         |         |
   15.279    .0200                                .0125      .19     2.19    1.67     1.91     .013      .00   .00  PIPE
        |         |         |         |         |         |         |         |         |         |         |         |
 2705.339  2706.676    2.256  2708.931     82.00   12.51    2.43  2711.36     .00    2.83     3.35    3.500     .000   .00   1   .0
        |         |         |         |         |         |         |         |         |         |         |         |
   14.188    .0200                                .0112      .16     2.26    1.58     1.91     .013      .00   .00  PIPE
        |         |         |         |         |         |         |         |         |         |         |         |
 2719.527  2706.960    2.352  2709.312     82.00   11.93    2.21  2711.52     .00    2.83     3.29    3.500     .000   .00   1   .0
        |         |         |         |         |         |         |         |         |         |         |         |
    9.729    .0200                                .0100      .10     2.35    1.45     1.91     .013      .00   .00  PIPE
        |         |         |         |         |         |         |         |         |         |         |         |
 2729.256  2707.154    2.455  2709.610     82.00   11.37    2.01  2711.62     .00    2.83     3.20    3.500     .000   .00   1   .0
        |         |         |         |         |         |         |         |         |         |         |         |
    6.390    .0200                                .0089      .06     2.46    1.34     1.91     .013      .00   .00  PIPE
        |         |         |         |         |         |         |         |         |         |         |         |
 2735.646  2707.282    2.567  2709.849     82.00   10.84    1.83  2711.67     .00    2.83     3.10    3.500     .000   .00   1   .0
        |         |         |         |         |         |         |         |         |         |         |         |
    3.658    .0200                                .0080      .03     2.57    1.22     1.91     .013      .00   .00  PIPE
 FILE: NCR1.WSW                          W S P G W - CIVILDESIGN Version 14.08                                        PAGE    7
                    Program Package Serial Number: 7189
                                        WATER SURFACE PROFILE LISTING                 Date: 8- 6-2019  Time: 2:51:11
                  EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE
                    SOUTHERN NORTH COLLECTOR ROAD STORM DRAIN SYSTEM (NCR1)
                      FROM PROPOSED BASIN EAA2 TO REGIONAL MAINLINE
 ********************************************************************************************************************** ********
         | Invert  | Depth |  Water  |    Q    |  Vel     Vel  |  Energy | Super |Critical|Flow Top|Height/|Base Wt|       |No Wth
 Station |  Elev   |  (FT) |  Elev   |  (CFS)  | (FPS)    Head |  Grd.El.|  Elev | Depth  | Width |Dia.-FT|or I.D.|  ZL   |Prs/Pip
         |         |       |         |         |                 |         |       |        |       |       |       |       |
 L/Elem  |Ch Slope |       |         |         |         SF Ave|    HF   |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR   |Type Ch
 ********|*********|*******|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*******|********
         |         |       |         |         |       |       |         |       |        |        |       |       |       |
 2739.304  2707.355    2.689  2710.044     82.00   10.34    1.66  2711.70     .00    2.83     2.95    3.500     .000   .00   1   .0
        |         |         |         |         |         |         |         |         |         |         |         |
    1.216    .0200                                .0072      .01     2.69    1.11     1.91     .013      .00   .00  PIPE
        |         |         |         |         |         |         |         |         |         |         |         |
 2740.520  2707.380    2.825  2710.205     82.00    9.85    1.51  2711.71     .00    2.83     2.76    3.500     .000   .00   1   .0
        |         |         |         |         |         |         |         |         |         |         |         |
 
 

                  EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE

                    SOUTHERN NORTH COLLECTOR ROAD STORM DRAIN SYSTEM (NCR1)

                      FROM PROPOSED BASIN EAA2 TO REGIONAL MAINLINE


    1000.00    .I       C   H     W E                                                .    R

    1015.40    . I        C   H   W E                                                .    R

    1030.81    .   I        C   H  W  E                                              .    R

    1046.21    .                                                                     .

    1061.61    .                                                                     .

    1077.01    .    I        C   H  W E                                             .    R

    1092.42    .                                                                     .

    1107.82    .                                                                     .

    1123.22    .      I       C   H W  E                                            .    JX

    1138.63    .          I      CH  W   E                                          .    R

    1154.03    .                                                                     .
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1169.43   .                                                                .
1184.83   .                                                                .
1200.24   .                                                                .
1215.64   .                                                                .
1231.04   .            I      CHW   E                                      .   R
1246.45   .            I    W CH    E                                      .   R
1261.85   .              I    W CH    E                                    .   R
1277.25   .                                                                .
1292.65   .                                                                .
1308.06   .                                                                .
1323.46   .                                                                .
1338.86   .                                                                .
1354.27   .                                                                .
1369.67   .                 I    W C H   E                                 .   R
1385.07   .                                                                .
1400.47   .                                                                .
1415.88   .                                                                .
1431.28   .                    I     WC H  E                               .   R
1446.68   .                                                                .
1462.08   .                                                                .
1477.49   .                    I     WC H  E                               .   R
1492.89   .                                                                .
1508.29   .                                                                .
1523.70   .                     I    W C H   E                             .   R
1539.10   .                                                                .
1554.50   .                     I    W C H    E                            .   R
1569.90   .                                                                .
1585.31   .                      I   W C H    E                            .   R
1600.71   .                                                                .
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1616.11   .                        I   W  CH      E                          .   R
1631.52   .                                                                   .
1646.92   .                                                                   .
1662.32   .                                                                   .
1677.72   .                          I   W  CH     E                          .   R
1693.13   .                                                                   .
1708.53   .                                                                   .
1723.93   .                           I    W CH    E                         .   R
1739.34   .                                                                   .
1754.74   .                            I    W CH    E                        .   R
1770.14   .                                                                   .
1785.54   .                             I     WC H   E                       .   R
1800.95   .                                                                   .
1816.35   .                                                                   .
1831.75   .                              I     W CH   E                       .   R
1847.16   .                                                                   .
1862.56   .                                                                   .
1877.96   .                                                                   .
1893.36   .                                 I     WCH   E                     .   R
1908.77   .                                                                   .
1924.17   .                                  I     WC H  E                    .   R
1939.57   .                                   I     WCH  E                    .   R
1954.98   .                                   I      W H E                    .   R
1970.38   .                                   I       WH E                    .   JX
1985.78   .                                   I      C H  E                   .   R
2001.18   .                                                                   .
2016.59   .                                                                   .
2031.99   .                                                                   .
2047.39   .                                                                   .
2062.80   .                                                                   .
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2078.20   .                                                          .
2093.60   .                                                          .
2109.00   .                                                          .
2124.41   .                        I      CH W   E                  .   R
2139.81   .                                                          .
2155.21   .                                                          .
2170.62   .                                                          .
2186.02   .                                                          .
2201.42   .                                                          .
2216.82   .                                                          .
2232.23   .                                                          .
2247.63   .                                                          .
2263.03   .                                                          .
2278.44   .                                                          .
2293.84   .                         I      C H  W  E                 .   R
2309.24   .                                                          .
2324.64   .                                                          .
2340.05   .                                                          .
2355.45   .                                                          .
2370.85   .                                                          .
2386.25   .                                                          .
2401.66   .                                                          .
2417.06   .                                                          .
2432.46   .                                                          .
2447.87   .                              I      CHW   E              .   R
2463.27   .                              I   W  CH    E              .   R
2478.67   .                              I    W C H    E             .   R
2494.07   .                                                          .
2509.48   .                                I   W  CH     E           .   R
2524.88   .                                                          .
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2540.28   .                                    I   W  CH      E                  .   R
2555.69   .                                                                       .
2571.09   .                                    I   W   CH       E                 .   R
2586.49   .                                    I   W  C H       E                 .   R
2601.89   .                                                                       .
2617.30   .                                    I   W  C H       E                 .   R
2632.70   .                                    I   W   CH          E              .   R
2648.10   .                                    I   W  C H          E              .   JX
2663.51   .                                    I   W   C H           E            .   R
2678.91   .                                        I   W   CH             E       .   R
2694.31   .                                            I  WC E                H .   R
2709.71   .                                            I  WC E                H .   R
2725.12   .                                            I   W E                H .   R
2740.52   .                                            I   W E                H .   R

          2681.640  2685.313  2688.986  2692.659  2696.332  2700.005  2703.678  2707.352  2711.025  2714.698  2718.370
```

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
   Y = WALL ENTRANCE OR EXIT
2. STATIONS FOR POINTS AT A JUMP MAY NOT BE PLOTTED EXACTLY

Ultimate Condition WSPG Summary

Mainline in North Collector Road from Basin EAA1 to Basin EMR2 (NCR2.WSW)

WSPG Station	Plan Set Project No. *	Equivalent Roadway Station	Improvement Plan Sheet	Storm Drain Dimension	Invert Elevation (ft)	Q_{100} (cfs)	WSE (ft)	Velocity (ft/s)	FG Elevation	Facility Description	HGL Check[1]
1000.00	NCR: EST1912	14+01.84	SD-1	48" RCP	2713.30	119.00	2720.40	9.47	2724.00		OK
1046.88		14+37.44		48" RCP	2713.61	119.00	2720.91	9.47	2724.91	Junction with NC1 Drop Inlet Facilities	OK
1046.88		14+37.44		48" RCP	2713.61	114.00	2721.13	9.07	2724.91		OK
1261.27		16+52.1		48" RCP	2714.73	114.00	2722.82	9.07	2726.49		OK
1375.20		16+93.03	SD-5	48" RCP	2715.87	114.00	2723.54	9.07	2726.49		OK
1375.20		16+93.03		48" RCP	2715.87	114.00	2723.54	9.07	2726.49		OK

```
T1 EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE
T2 NORTHERN NORTH COLLECTOR ROAD STORM DRAIN SYSTEM (NCR2)
T3 FROM PROPOSED BASIN EAA1 TO PROPOSED BASIN EMR2 (PROPOSED FLOW)
SO   1000.0002713.300 48                          2720.400
R    1046.8802713.610 48      .013                                    40.0
JX   1046.8802713.610 48 18 18.013    2.5      2.5  2716.1602716.160 33.0 90.0
R    1261.2702714.730 48      .013                                    66.0   1
R    1375.2002715.870 48      .013
SH   1375.2002715.870 48
CD   5  3   0   0.000   9.000   10.000 0.000 0.000  0.0000.00  0.00
CD  18  4   1   0.000   1.500    0.000 0.000 0.000  0.0000.00  0.00
CD  24  4   1   0.000   2.000    0.000 0.000 0.000  0.0000.00  0.00
CD  30  4   1   0.000   2.500    0.000 0.000 0.000  0.0000.00  0.00
CD  36  4   1   0.000   3.000    0.000 0.000 0.000  0.0000.00  0.00
CD  42  4   1   0.000   3.500    0.000 0.000 0.000  0.0000.00  0.00
CD  48  4   1   0.000   4.000    0.000 0.000 0.000  0.0000.00  0.00
CD  54  4   1   0.000   4.500    0.000 0.000 0.000  0.0000.00  0.00
CD  60  4   1   0.000   5.000    0.000 0.000 0.000  0.0000.00  0.00
CD  66  4   1   0.000   5.500    0.000 0.000 0.000  0.0000.00  0.00
CD  72  4   1   0.000   6.000    0.000 0.000 0.000  0.0000.00  0.00
Q           114.000
```

FILE: NCR2.WSW W S P G W - EDIT LISTING - Version 14.10 Date: 8- 6-2019 Time:10:53:50

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING PAGE 1

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	5	3	0	.000	9.000	10.000	.000	.000	.00										
CD	18	4	1		1.500														
CD	24	4	1		2.000														
CD	30	4	1		2.500														
CD	36	4	1		3.000														
CD	42	4	1		3.500														
CD	48	4	1		4.000														
CD	54	4	1		4.500														
CD	60	4	1		5.000														
CD	66	4	1		5.500														
CD	72	4	1		6.000														

W S P G W PAGE NO 1

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE

HEADING LINE NO 2 IS -

NORTHERN NORTH COLLECTOR ROAD STORM DRAIN SYSTEM (NCR2)

HEADING LINE NO 3 IS -

FROM PROPOSED BASIN EAA1 TO PROPOSED BASIN EMR2 (PROPOSED FLOW)

W S P G W PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1000.000	2713.300	48	2720.400

ELEMENT NO 2 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1046.880	2713.610	48	.013	.000	.000	40.000	0

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
	1046.880	2713.610	48	18	18	.013	2.500	2.500	2716.160	2716.160	33.000	90.000

RADIUS	ANGLE
.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 4 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1261.270	2714.730	48	.013	.000	.000	66.000	1

ELEMENT NO 5 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1375.200	2715.870	48	.013	.000	.000	.000	0

ELEMENT NO 6 IS A SYSTEM HEADWORKS * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1375.200	2715.870	48	.000

Program Package Serial Number: 7189

WATER SURFACE PROFILE LISTING Date: 8- 6-2019 Time:10:53:53

EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE
NORTHERN NORTH COLLECTOR ROAD STORM DRAIN SYSTEM (NCR2)
FROM PROPOSED BASIN EAA1 TO PROPOSED BASIN EMR2 (PROPOSED FLOW)

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	2713.300	7.100	2720.400	119.00	9.47	1.39	2721.79	.00	3.29	.00	4.000	.000	.00	1 .0
46.880	.0066					.0069	.32	7.10	.00	3.35	.013	.00	.00	PIPE
1046.880	2713.610	7.295	2720.906	119.00	9.47	1.39	2722.30	.00	3.29	.00	4.000	.000	.00	1 .0
JUNCT STR	.0000					.0066	.00	7.30	.00		.013	.00	.00	PIPE
1046.880	2713.610	7.517	2721.127	114.00	9.07	1.28	2722.41	.00	3.22	.00	4.000	.000	.00	1 .0
214.390	.0052					.0063	1.35	7.52	.00	4.00	.013	.00	.00	PIPE
1261.270	2714.730	8.090	2722.820	114.00	9.07	1.28	2724.10	.00	3.22	.00	4.000	.000	.00	1 .0
113.930	.0100					.0063	.72	8.09	.00	2.69	.013	.00	.00	PIPE
1375.200	2715.870	7.667	2723.537	114.00	9.07	1.28	2724.82	.00	3.22	.00	4.000	.000	.00	1 .0

♠
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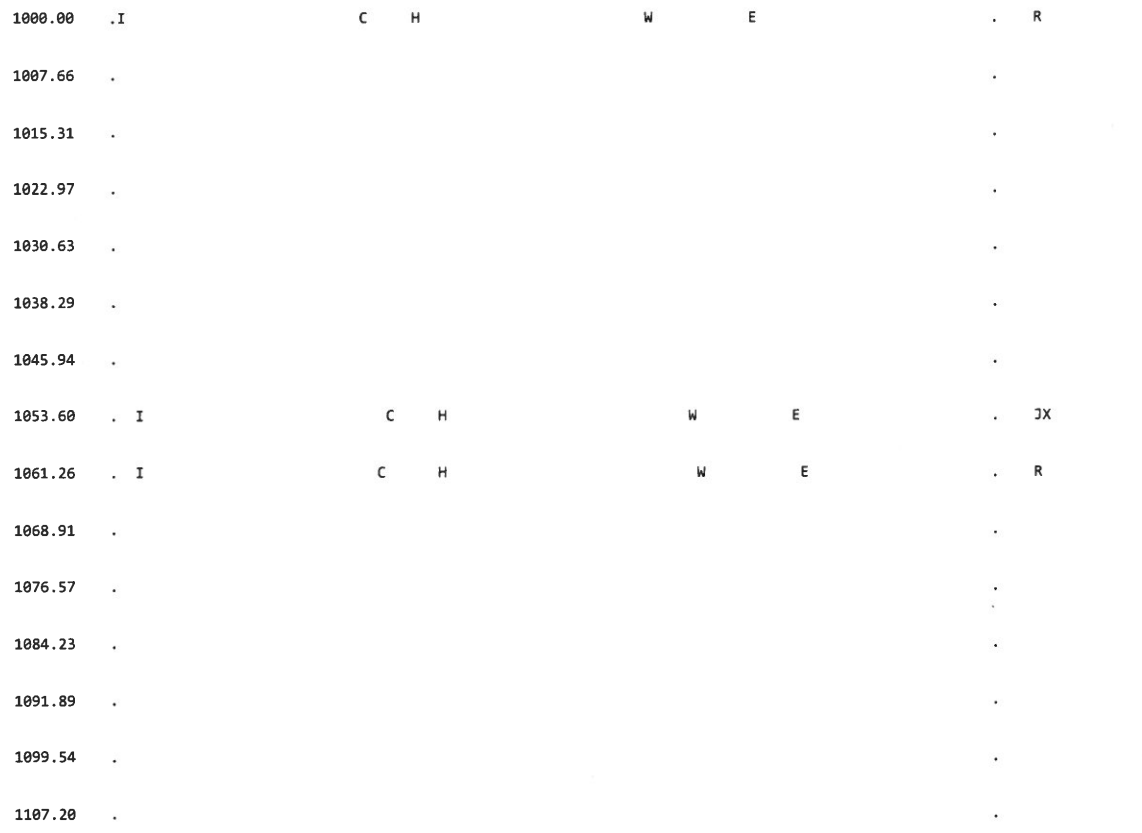
EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE

NORTHERN NORTH COLLECTOR ROAD STORM DRAIN SYSTEM (NCR2)

FROM PROPOSED BASIN EAA1 TO PROPOSED BASIN EMR2 (PROPOSED FLOW)



1114.86 .

1122.51 .

1130.17 .

1137.83 .

1145.49 .

1153.14 .

1160.80 .

1168.46 .

1176.11 .

1183.77 .

1191.43 .

1199.09 .

1206.74 .

1214.40 .

1222.06 .

1229.71 .

1237.37 .

1245.03 .

1252.69 .

1260.34 .

1268.00 . I C H W E . R

1275.66 .

1283.31 .

1290.97 .

1298.63 .

1306.29 .

1313.94 .

1321.60 .

1329.26 .

```
  1336.91    .                                                                .

  1344.57    .                                                                .

  1352.23    .                                                                .

  1359.89    .                                                                .

  1367.54    .                                                                .

  1375.20    .                    I                       C     H                          W          E.    R

           2713.300  2714.451  2715.603  2716.754  2717.906  2719.057  2720.208  2721.360  2722.511  2723.662  2724.815
```

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
   Y = WALL ENTRANCE OR EXIT
2. STATIONS FOR POINTS AT A JUMP MAY NOT BE PLOTTED EXACTLY

Ultimate Condition WSPG Summary
Storm Drain Through Basin EMR2 South of Moccasin Road (NCR3.WSW)

WSPG Station	Plan Set Project No. *	Equivalent Roadway Station	Improvement Plan Sheet	Storm Drain Dimension	Invert Elevation (ft)	Q_{100} (cfs)	WSE (ft)	Velocity (ft/s)	FG Elevation	Facility Description	HGL Check[1]
1000.00	NCR: EST1912	38+85.42	SD-9	60" RCP	2626.96	385.00	2630.06	30.12	2659.28		OK
1024.00		38+16.17		60" RCP	2627.44	385.00	2630.48	30.83	2659.28		OK
1093.25		36+54.72		60" RCP	2631.59	385.00	2634.74	29.54	2660.75		OK
1254.71		32+66.46		60" RCP	2641.28	385.00	2645.16	23.55	2663.17		OK
1254.71		32+66.46		60" RCP	2641.28	365.00	2644.71	25.45	2663.17		OK
1607.19		N/A	SD-8	60" RCP	2651.73	365.00	2655.16	25.44	2669.89		OK
2007.19		30+41.56	SD-7	60" RCP	2663.58	365.00	2667.01	25.44	2680.01		OK
2407.19		28+62.79		60" RCP	2675.43	365.00	2678.86	25.42	2688.17		OK
2807.19		26+84.03	SD-6	60" RCP	2687.29	365.00	2690.76	25.10	2702.00		OK
3207.19		25+05.27		60" RCP	2699.14	365.00	2702.88	23.19	2711.59		OK
3607.19		23+26.51		60" RCP	2709.34	365.00	2714.18	18.77	2725.00		OK
3643.19		21+47.74		6' x 6' RCB	2710.26	365.00	2718.84	10.14	2725.00		OK
3723.44		19+68.98		6' x 6' RCB	2712.30	365.00	2719.28	10.14	2725.00		OK
3723.44		17+90.22	SD-5	6' x 6' RCB	2712.30	246.00	2720.40	6.83	2725.00		OK
3731.19		16+11.45		6' x 6' RCB	2712.51	246.00	2720.42	6.83	2724.00		OK
3864.19		14+32.69		6' x 6' RCB	2713.17	246.00	2720.69	6.83	2724.00		OK
3864.19		12+53.93		6' x 6' RCB	2713.17	246.00	2720.69	6.83	2724.00		OK

```
T1 EST1905: SUNSTONE PHASE 1 INFRASTRUCTURE ADD
T2 MOCCASIN NORTH COLLECTOR ROAD STORM DRAIN SYSTEM (NCR3)
T3 FROM PROPOSED BASIN EAA1 TO PROPOSED BASIN EMR2
SO   1000.0002626.960 60                          2631.960
R    1024.0002627.440 60      .013                                      0.0   1
R    1093.2502631.590 60      .013                                     45.0   1
R    1254.7102641.280 60      .013                                     45.0   1
JX   1254.7102641.280 60 24   .013   20.0           2644.280         90.0
R    1607.1902651.730 60      .013                                      0.0   1
R    2007.1902663.580 60      .013                                            1
R    2407.1902675.430 60      .013                                            1
R    2807.1902687.290 60      .013                                            1
R    3207.1902699.140 60      .013                                            1
R    3607.1902709.340 60      .013
TS   3643.1902710.258  8      .013
R    3723.4302712.300  8      .013                                            1
JX   3723.4302712.300  8 48   .013  119.0           2713.300         50.0
R    3731.1902712.502  8      .013
R    3864.1902713.170  8      .013
SH   3864.1902713.167  8
CD   5  3   0   0.000  11.000   10.000 0.000 0.000  0.0000.00  0.00
CD  18  4   1   0.000   1.500    0.000 0.000 0.000  0.0000.00  0.00
CD  24  4   1   0.000   2.000    0.000 0.000 0.000  0.0000.00  0.00
CD  30  4   1   0.000   2.500    0.000 0.000 0.000  0.0000.00  0.00
CD  36  4   1   0.000   3.000    0.000 0.000 0.000  0.0000.00  0.00
CD  42  4   1   0.000   3.500    0.000 0.000 0.000  0.0000.00  0.00
CD  48  4   1   0.000   4.000    0.000 0.000 0.000  0.0000.00  0.00
CD  54  4   1   0.000   4.500    0.000 0.000 0.000  0.0000.00  0.00
CD  60  4   1   0.000   5.000    0.000 0.000 0.000  0.0000.00  0.00
CD  66  4   1   0.000   5.500    0.000 0.000 0.000  0.0000.00  0.00
CD  72  4   1   0.000   6.000    0.000 0.000 0.000  0.0000.00  0.00
CD   8  3   0   0.000   6.000    6.000 0.000 0.000  0.0000.00  0.00
Q           246.000
```

FILE: NCR3.WSW W S P G W - EDIT LISTING - Version 14.10 Date: 8- 6-2019 Time:10:48:28

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	5	3	0	.000	11.000	10.000	.000	.000	.00										
CD	18	4	1		1.500														
CD	24	4	1		2.000														
CD	30	4	1		2.500														
CD	36	4	1		3.000														
CD	42	4	1		3.500														
CD	48	4	1		4.000														
CD	54	4	1		4.500														
CD	60	4	1		5.000														
CD	66	4	1		5.500														
CD	72	4	1		6.000														
CD	8	3	0	.000	6.000	6.000	.000	.000	.00										

W S P G W

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -
EST1905: SUNSTONE PHASE 1 INFRASTRUCTURE ADD

HEADING LINE NO 2 IS -
MOCCASIN NORTH COLLECTOR ROAD STORM DRAIN SYSTEM (NCR3)

HEADING LINE NO 3 IS -
FROM PROPOSED BASIN EAA1 TO PROPOSED BASIN EMR2

W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

	STATION	INVERT	SECT	W S ELEV
U/S DATA	1000.000	2626.960	60	2631.960

ELEMENT NO 2 IS A REACH * * *

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	1024.000	2627.440	60	.013	.000	.000	.000	1

ELEMENT NO 3 IS A REACH * * *

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	1093.250	2631.590	60	.013	.000	.000	45.000	1

ELEMENT NO 4 IS A REACH * * *

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	1254.710	2641.280	60	.013	.000	.000	45.000	1

ELEMENT NO 5 IS A JUNCTION * * * * * *

	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
U/S DATA	1254.710	2641.280	60	24	0	.013	20.000	.000	2644.280	.000	90.000	.000

	RADIUS	ANGLE
	.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 * * *

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	1607.190	2651.730	60	.013	.000	.000	.000	1

ELEMENT NO 7 IS A REACH * * *

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	2007.190	2663.580	60	.013	.000	.000	.000	1

ELEMENT NO 8 IS A REACH * * *

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	2407.190	2675.430	60	.013	.000	.000	.000	1

ELEMENT NO 9 IS A REACH * * *

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	2807.190	2687.290	60	.013	.000	.000	.000	1

ELEMENT NO 10 IS A REACH * * *

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	3207.190	2699.140	60	.013	.000	.000	.000	1

ELEMENT NO 11 IS A REACH * * *

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	3607.190	2709.340	60	.013	.000	.000	.000	0

W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 12 IS A TRANSITION * * *

	STATION	INVERT	SECT	N	RADIUS	ANGLE
U/S DATA	3643.190	2710.258	8	.013	.000	.000

ELEMENT NO 13 IS A REACH * * *

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	3723.430	2712.300	8	.013	.000	.000	.000	1

ELEMENT NO 14 IS A JUNCTION * * * * * *

	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
U/S DATA	3723.430	2712.300	8	48	0	.013	119.000	.000	2713.300	.000	50.000	.000

	RADIUS	ANGLE
	.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 15 IS A REACH * * *

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	3731.190	2712.502	8	.013	.000	.000	.000	0

ELEMENT NO 16 IS A REACH * * *

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	3864.190	2713.170	8	.013	.000	.000	.000	0

ELEMENT NO 17 IS A SYSTEM HEADWORKS * *

	STATION	INVERT	SECT	W S ELEV
U/S DATA	3864.190	2713.167	8	.000

EST1905: SUNSTONE PHASE 1 INFRASTRUCTURE ADD
MOCCASIN NORTH COLLECTOR ROAD STORM DRAIN SYSTEM (NCR3)
FROM PROPOSED BASIN EAA1 TO PROPOSED BASIN EMR2

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	2626.960	3.099	2630.059	385.00	30.12	14.09	2644.15	.00	4.87	4.85	5.000	.000	.00	1 .0
24.000	.0200					.0452	1.09	3.10	3.27	4.34	.013	.00	.00	PIPE
1024.000	2627.440	3.039	2630.479	385.00	30.83	14.76	2645.23	.00	4.87	4.88	5.000	.000	.00	1 .0
69.250	.0599					.0442	3.06	3.04	3.40	2.80	.013	.00	.00	PIPE
1093.250	2631.590	3.150	2634.740	385.00	29.54	13.55	2648.29	.00	4.87	4.83	5.000	.000	.00	1 .0
42.507	.0600					.0400	1.70	3.15	3.17	2.80	.013	.00	.00	PIPE
1135.757	2634.141	3.250	2637.391	385.00	28.49	12.61	2650.00	.00	4.87	4.77	5.000	.000	.00	1 .0
42.027	.0600					.0361	1.52	3.25	2.98	2.80	.013	.00	.00	PIPE
1177.785	2636.663	3.390	2640.053	385.00	27.17	11.46	2651.51	.00	4.87	4.67	5.000	.000	.00	1 .0
31.962	.0600					.0321	1.03	3.39	2.75	2.80	.013	.00	.00	PIPE
1209.747	2638.582	3.540	2642.121	385.00	25.90	10.42	2652.54	.00	4.87	4.55	5.000	.000	.00	1 .0
25.042	.0600					.0287	.72	3.54	2.52	2.80	.013	.00	.00	PIPE
1234.789	2640.084	3.702	2643.787	385.00	24.70	9.47	2653.26	.00	4.87	4.38	5.000	.000	.00	1 .0
19.921	.0600					.0257	.51	3.70	2.31	2.80	.013	.00	.00	PIPE
1254.710	2641.280	3.880	2645.160	385.00	23.55	8.61	2653.77	.00	4.87	4.17	5.000	.000	.00	1 .0
JUNCT STR	.0000					.0270	.00	3.88	2.10		.013	.00	.00	PIPE
1254.710	2641.280	3.426	2644.706	365.00	25.45	10.06	2654.77	.00	4.84	4.64	5.000	.000	.00	1 .0
352.480	.0296					.0296	10.45	3.43	2.55	3.43	.013	.00	.00	PIPE

EST1905: SUNSTONE PHASE 1 INFRASTRUCTURE ADD
MOCCASIN NORTH COLLECTOR ROAD STORM DRAIN SYSTEM (NCR3)
FROM PROPOSED BASIN EAA1 TO PROPOSED BASIN EMR2

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1607.190	2651.730	3.427	2655.157	365.00	25.44	10.05	2665.21	.00	4.84	4.64	5.000	.000	.00	1 .0
400.000	.0296					.0296	11.85	3.43	2.55	3.43	.013	.00	.00	PIPE
2007.190	2663.580	3.428	2667.008	365.00	25.44	10.05	2677.06	.00	4.84	4.64	5.000	.000	.00	1 .0
400.000	.0296					.0296	11.84	3.43	2.55	3.43	.013	.00	.00	PIPE
2407.190	2675.430	3.430	2678.860	365.00	25.42	10.03	2688.89	.00	4.84	4.64	5.000	.000	.00	1 .0
400.000	.0297					.0291	11.64	3.43	2.55	3.43	.013	.00	.00	PIPE
2807.190	2687.290	3.470	2690.760	365.00	25.10	9.78	2700.54	.00	4.84	4.61	5.000	.000	.00	1 .0
248.933	.0296					.0276	6.88	3.47	2.49	3.43	.013	.00	.00	PIPE
3056.123	2694.665	3.572	2698.237	365.00	24.32	9.18	2707.42	.00	4.84	4.52	5.000	.000	.00	1 .0
151.067	.0296					.0252	3.81	3.57	2.35	3.43	.013	.00	.00	PIPE
3207.190	2699.140	3.738	2702.877	365.00	23.19	8.35	2711.23	.00	4.84	4.34	5.000	.000	.00	1 .0
115.522	.0255					.0233	2.69	3.74	2.15	3.63	.013	.00	.00	PIPE
3322.712	2702.086	3.813	2705.898	365.00	22.72	8.01	2713.91	.00	4.84	4.26	5.000	.000	.00	1 .0
139.418	.0255					.0216	3.02	3.81	2.06	3.63	.013	.00	.00	PIPE

3462.129	2705.641	4.003	2709.644	365.00	21.66	7.29	2716.93	.00	4.84	4.00	5.000	.000	.00	1	.0				
76.071	.0255					.0196	1.49	4.00	1.86	3.63	.013	.00	.00	PIPE					
3538.200	2707.581	4.218	2711.799	365.00	20.65	6.62	2718.42	.00	4.84	3.63	5.000	.000	.00	1	.0				
46.377	.0255					.0180	.84	4.22	1.65	3.63	.013	.00	.00	PIPE					

Program Package Serial Number: 7189

WATER SURFACE PROFILE LISTING Date: 8- 6-2019 Time:10:48:31

EST1905: SUNSTONE PHASE 1 INFRASTRUCTURE ADD
MOCCASIN NORTH COLLECTOR ROAD STORM DRAIN SYSTEM (NCR3)
FROM PROPOSED BASIN EAA1 TO PROPOSED BASIN EMR2

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
3584.577	2708.763	4.474	2713.238	365.00	19.69	6.02	2719.26	.00	4.84	3.07	5.000	.000	.00	1 .0
22.613	.0255					.0173	.39	4.47	1.41	3.63	.013	.00	.00	PIPE
3607.190	2709.340	4.837	2714.177	365.00	18.77	5.47	2719.65	.00	4.84	1.77	5.000	.000	.00	1 .0
TRANS STR	.0255					.0046	.16	4.84	1.00		.013	.00	.00	PIPE
3643.190	2710.258	8.577	2718.835	365.00	10.14	1.60	2720.43	.00	4.86	6.00	6.000	6.000	.00	0 .0
80.240	.0254					.0046	.37	8.58	.73	2.66	.013	.00	.00	BOX
3723.430	2712.300	6.982	2719.282	365.00	10.14	1.60	2720.88	.00	4.86	6.00	6.000	6.000	.00	0 .0
JUNCT STR	.0000					.0021	.00	6.98	.73		.013	.00	.00	BOX
3723.430	2712.300	8.100	2720.400	246.00	6.83	.73	2721.13	.00	3.74	6.00	6.000	6.000	.00	0 .0
7.760	.0260					.0021	.02	8.10	.49	1.98	.013	.00	.00	BOX
3731.190	2712.502	7.914	2720.416	246.00	6.83	.73	2721.14	.00	3.74	6.00	6.000	6.000	.00	0 .0
133.000	.0050					.0021	.28	7.91	.49	3.63	.013	.00	.00	BOX
3864.190	2713.170	7.523	2720.693	246.00	6.83	.73	2721.42	.00	3.74	6.00	6.000	6.000	.00	0 .0

EST1905: SUNSTONE PHASE 1 INFRASTRUCTURE ADD

MOCCASIN NORTH COLLECTOR ROAD STORM DRAIN SYSTEM (NCR3)

FROM PROPOSED BASIN EAA1 TO PROPOSED BASIN EMR2

```
1000.00    .I  W H           E                                                    .   R

1058.45    .I  W H            E                                                   .   R

1116.91    .   I   W H          E                                                 .   R

1175.36    .       I   WH          E                                             .   R

1233.81    .          I  W H        E                                            .   R

1292.26    .            I   WH        E                                         .   R

1350.72    .             I   W H       E                                        .   R

1409.17    .               I   WH       E                                       .   JX

1467.62    .               I  W H        E                                      .   R

1526.08    .                                                                    .
```

```
1584.53   .                                                                .
1642.98   .                  I  W H        E                                .   R
1701.43   .                                                                .
1759.89   .                                                                .
1818.34   .                                                                .
1876.79   .                                                                .
1935.25   .                                                                .
1993.70   .                                                                .
2052.15   .                        I   WCH        E                        .   R
2110.60   .                                                                .
2169.06   .                                                                .
2227.51   .                                                                .
2285.96   .                                                                .
2344.42   .                                                                .
2402.87   .                                                                .
2461.32   .                              I  W H        E                   .   R
2519.77   .                                                                .
2578.23   .                                                                .
2636.68   .                                                                .
2695.13   .                                                                .
2753.59   .                                                                .
2812.04   .                                    I   WCH       E             .   R
2870.49   .                                                                .
2928.94   .                                                                .
2987.40   .                                                                .
3045.85   .                                                                .
3104.30   .                                          I   WH        E       .   R
3162.76   .                                                                .
3221.21   .                                              I   WH       E    .   R
```

```
3279.66    .                                                                                .
3338.11    .                                                                I   WH      E       .   R
3396.57    .                                                                                .
3455.02    .                                                                                .
3513.47    .                                                                    I   WH     E   .   R
3571.93    .                                                                    I   WH     E   .   R
3630.38    .                                                                    I   H      E   .   R
3688.83    .                                                                    I   H      E   .   TX
3747.28    .                                                                    I   CH  WE   .   R
3805.74    .                                                                    I   CHW E     .   JX
3864.19    .                                                                    I   C H WE     .   R

         2626.960  2636.406  2645.852  2655.297  2664.743  2674.189  2683.635  2693.081  2702.526  2711.972  2721.418
```

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
   Y = WALL ENTRANCE OR EXIT
2. STATIONS FOR POINTS AT A JUMP MAY NOT BE PLOTTED EXACTLY

Ultimate Condition WSPG Summary
Lateral Line From Basin EPC to NCR1 Mainline (NLAT1.WSW)

WSPG Station	Plan Set Project No. *	Equivalent Roadway Station	Improvement Plan Sheet	Storm Drain Dimension	Invert Elevation (ft)	Q_{100} (cfs)	WSE (ft)	Velocity (ft/s)	FG Elevation	Facility Description	HGL Check[1]
1000.00	NCR: EST1912	43+32.05	P-5	48" RCP	2684.37	51.00	2689.81	4.06	2699.63	Connection to NCR1 Mainline Model	OK
1067.16		42+76.32		48" RCP	2687.14	51.00	2688.04	23.93	2698.97		OK
1067.16				48" RCP	2687.14	51.00	2688.04	23.92		Wall Entrance	OK
1069.66				7.5' x 12' RCB	2687.24	51.00	2689.56	2.93		Junction with Flow from NC3a Drop Inlet Facilities	OK
1069.66				7.5' x 12' RCB	2687.24	48.00	2689.60	2.72			OK
1072.16				7.5' x 12' RCB	2687.32	48.00	2689.59	2.83			OK
1072.16				7.5' x 12' RCB	2687.32	48.00	2689.59	2.83		Wall Exit	OK
1115.71		42+76.03		48" RCP	2688.79	48.00	2690.87	7.28	2695.00	Addition of flow from Basin EPC	OK
1115.71				48" RCP	2688.79	48.00	2690.87	7.28			OK

```
T1 EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE
T2 SOUTHERN NORTH COLLECTOR DRIVE STORM DRAIN SYSTEM LATERAL (NLAT1)
T3 FROM PARCEL EPC TO NORTH COLLECTOR ROAD MAINLINE SD (NCR)
SO   1000.0002684.370 48                          2689.812
R    1067.1602687.137 48      .013                                      54.0
WE   1067.1602687.137 48      .013
R    1069.6602687.240  3      .013                                       0.0
JX   1069.6602687.240  3  3   .013    3.0           2687.240        90.0
R    1072.1602687.324  3      .013                                       0.0
WX   1072.1602687.324  3      .013
R    1115.7102688.790 48      .013
SH   1115.7102688.790 48
CD   1  3   0   0.000  13.000   20.000 0.000 0.000  0.0000.00  0.00
CD   2  3   0   0.000  12.000   12.500 0.000 0.000  0.0000.00  0.00
CD   3  3   0   0.000  12.000    7.500 0.000 0.000  0.0000.00  0.00
CD   4  3   0   0.000  17.000    5.000 0.000 0.000  0.0000.00  0.00
CD  18  4   1   0.000   1.500    0.000 0.000 0.000  0.0000.00  0.00
CD  24  4   1   0.000   2.000    0.000 0.000 0.000  0.0000.00  0.00
CD  30  4   1   0.000   2.500    0.000 0.000 0.000  0.0000.00  0.00
CD  36  4   1   0.000   3.000    0.000 0.000 0.000  0.0000.00  0.00
CD  42  4   1   0.000   3.500    0.000 0.000 0.000  0.0000.00  0.00
CD  48  4   1   0.000   4.000    0.000 0.000 0.000  0.0000.00  0.00
Q            48.000
```

FILE: NLAT1.WSW W S P G W - EDIT LISTING - Version 14.10 Date: 8- 2-2019 Time:10:50:26

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	1	3	0	.000	13.000	20.000	.000	.000	.00										
CD	2	3	0	.000	12.000	12.500	.000	.000	.00										
CD	3	3	0	.000	12.000	7.500	.000	.000	.00										
CD	4	3	0	.000	17.000	5.000	.000	.000	.00										
CD	18	4	1		1.500														
CD	24	4	1		2.000														
CD	30	4	1		2.500														
CD	36	4	1		3.000														
CD	42	4	1		3.500														
CD	48	4	1		4.000														

W S P G W

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE

HEADING LINE NO 2 IS -

SOUTHERN NORTH COLLECTOR DRIVE STORM DRAIN SYSTEM LATERAL (NLAT1)

HEADING LINE NO 3 IS -

FROM PARCEL EPC TO NORTH COLLECTOR ROAD MAINLINE SD (NCR)

W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1000.000	2684.370	48	2689.812

ELEMENT NO 2 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1067.160	2687.137	48	.013	.000	.000	54.000	0

ELEMENT NO 3 IS A WALL ENTRANCE *

U/S DATA	STATION	INVERT	SECT	FP
	1067.160	2687.137	48	.013

WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS

ELEMENT NO 4 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1069.660	2687.240	3	.013	.000	.000	.000	0

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
	1069.660	2687.240	3	3	0	.013	3.000	.000	2687.240	.000	90.000	.000

RADIUS	ANGLE
.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	N	RADIUS	ANGLE	ANG PT	MAN H
	1072.160	2687.324	3	.013	.000	.000	.000	0

ELEMENT NO 7 IS A WALL EXIT *

U/S DATA	STATION	INVERT	SECT
	1072.160	2687.324	3

WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS

ELEMENT NO 8 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1115.710	2688.790	48	.013	.000	.000	.000	0

ELEMENT NO 9 IS A SYSTEM HEADWORKS * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1115.710	2688.790	48	.000

EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE
SOUTHERN NORTH COLLECTOR DRIVE STORM DRAIN SYSTEM LATERAL (NLAT1)
FROM PARCEL EPC TO NORTH COLLECTOR ROAD MAINLINE SD (NCR)

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	2684.370	5.442	2689.812	51.00	4.06	.26	2690.07	.00	2.14	.00	4.000	.000	.00	1 .0
30.150	.0412					.0013	.04	5.44	.00	1.13	.013	.00	.00	PIPE
1030.150	2685.612	4.274	2689.886	51.00	4.06	.26	2690.14	.00	2.14	.00	4.000	.000	.00	1 .0
HYDRAULIC JUMP														
1030.150	2685.612	.974	2686.587	51.00	21.54	7.20	2693.79	.00	2.14	3.43	4.000	.000	.00	1 .0
5.106	.0412					.0756	.39	.97	4.57	1.13	.013	.00	.00	PIPE
1035.256	2685.823	.967	2686.790	51.00	21.75	7.35	2694.14	.00	2.14	3.43	4.000	.000	.00	1 .0
17.166	.0412					.0821	1.41	.97	4.63	1.13	.013	.00	.00	PIPE
1052.422	2686.530	.935	2687.465	51.00	22.82	8.08	2695.55	.00	2.14	3.39	4.000	.000	.00	1 .0
14.738	.0412					.0940	1.38	.94	4.95	1.13	.013	.00	.00	PIPE
1067.160	2687.137	.904	2688.042	51.00	23.93	8.89	2696.93	.00	2.14	3.35	4.000	.000	.00	1 .0
WALL ENTRANCE														
1067.160	2687.137	.905	2688.042	51.00	23.92	8.88	2696.93	.00	2.14	3.35	4.000	.000	.00	0 .0
HYDRAULIC DROP														
1067.160	2687.137	2.437	2689.574	51.00	2.79	.12	2689.70	.00	1.13	7.50	12.000	7.500	.00	0 .0
2.482	.0412					.0004	.00	2.44	.31	.50	.013	.00	.00	BOX
1069.642	2687.239	2.324	2689.563	51.00	2.93	.13	2689.70	.00	1.13	7.50	12.000	7.500	.00	0 .0
.018	.0412					.0004	.00	2.32	.34	.50	.013	.00	.00	BOX

EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE
SOUTHERN NORTH COLLECTOR DRIVE STORM DRAIN SYSTEM LATERAL (NLAT1)
FROM PARCEL EPC TO NORTH COLLECTOR ROAD MAINLINE SD (NCR)

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1069.660	2687.240	2.323	2689.563	51.00	2.93	.13	2689.70	.00	1.13	7.50	12.000	7.500	.00	0 .0
JUNCT STR	.0000					.0004	.00	2.32	.34		.013	.00	.00	BOX
1069.660	2687.240	2.357	2689.597	48.00	2.72	.11	2689.71	.00	1.08	7.50	12.000	7.500	.00	0 .0
2.500	.0336					.0004	.00	2.36	.31	.52	.013	.00	.00	BOX
1072.160	2687.324	2.264	2689.588	48.00	2.83	.12	2689.71	.00	1.08	7.50	12.000	7.500	.00	0 .0
WALL EXIT														
1072.160	2687.324	2.264	2689.588	48.00	2.83	.12	2689.71	.00	1.08	7.50	12.000	7.500	.00	0 .0
1072.160	2687.324	1.371	2688.695	48.00	12.61	2.47	2691.16	.00	2.08	3.80	4.000	.000	.00	1 .0
5.411	.0337					.0169	.09	1.37	2.22	1.16	.013	.00	.00	PIPE
1077.570	2687.507	1.394	2688.901	48.00	12.31	2.35	2691.25	.00	2.08	3.81	4.000	.000	.00	1 .0
8.987	.0337					.0154	.14	1.39	2.15	1.16	.013	.00	.00	PIPE
1086.558	2687.809	1.444	2689.253	48.00	11.74	2.14	2691.39	.00	2.08	3.84	4.000	.000	.00	1 .0
7.074	.0337					.0135	.10	1.44	2.01	1.16	.013	.00	.00	PIPE
1093.632	2688.047	1.496	2689.543	48.00	11.19	1.95	2691.49	.00	2.08	3.87	4.000	.000	.00	1 .0

5.636	.0337						.0118	.07	1.50	1.87	1.16	.013	.00	.00	PIPE				
1099.268	2688.237	1.550	2689.787	48.00	10.67	1.77	2691.56	.00	2.08	3.90	4.000	.000	.00	1	.0				
4.491	.0337						.0104	.05	1.55	1.75	1.16	.013	.00	.00	PIPE				
1103.759	2688.388	1.606	2689.994	48.00	10.18	1.61	2691.60	.00	2.08	3.92	4.000	.000	.00	1	.0				
3.570	.0337						.0091	.03	1.61	1.64	1.16	.013	.00	.00	PIPE				

Program Package Serial Number: 7189

WATER SURFACE PROFILE LISTING Date: 8-12-2019 Time:10:50:28

EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE

SOUTHERN NORTH COLLECTOR DRIVE STORM DRAIN SYSTEM LATERAL (NLAT1)

FROM PARCEL EPC TO NORTH COLLECTOR ROAD MAINLINE SD (NCR)

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1107.329	2688.508	1.664	2690.172	48.00	9.70	1.46	2691.63	.00	2.08	3.94	4.000	.000	.00	1 .0
2.797	.0337					.0080	.02	1.66	1.53	1.16	.013	.00	.00	PIPE
1110.125	2688.602	1.726	2690.328	48.00	9.25	1.33	2691.66	.00	2.08	3.96	4.000	.000	.00	1 .0
2.140	.0337					.0070	.02	1.73	1.42	1.16	.013	.00	.00	PIPE
1112.265	2688.674	1.789	2690.464	48.00	8.82	1.21	2691.67	.00	2.08	3.98	4.000	.000	.00	1 .0
1.568	.0337					.0062	.01	1.79	1.33	1.16	.013	.00	.00	PIPE
1113.833	2688.727	1.856	2690.583	48.00	8.41	1.10	2691.68	.00	2.08	3.99	4.000	.000	.00	1 .0
1.067	.0337					.0054	.01	1.86	1.24	1.16	.013	.00	.00	PIPE
1114.901	2688.763	1.926	2690.689	48.00	8.02	1.00	2691.69	.00	2.08	4.00	4.000	.000	.00	1 .0
.611	.0337					.0048	.00	1.93	1.15	1.16	.013	.00	.00	PIPE
1115.512	2688.783	1.999	2690.782	48.00	7.65	.91	2691.69	.00	2.08	4.00	4.000	.000	.00	1 .0
.198	.0337					.0042	.00	2.00	1.08	1.16	.013	.00	.00	PIPE
1115.710	2688.790	2.076	2690.866	48.00	7.28	.82	2691.69	.00	2.08	4.00	4.000	.000	.00	1 .0

EST1902: SUNSTONE PHASE 1 INFRASTRUCTURE

SOUTHERN NORTH COLLECTOR DRIVE STORM DRAIN SYSTEM LATERAL (NLAT1)

FROM PARCEL EPC TO NORTH COLLECTOR ROAD MAINLINE SD (NCR)

1000.00 .I C H W E . R

1002.27 . .

1004.54 . .

1006.81 . .

1009.08 . .

1011.34 . .

1013.61 . .

1015.88 . .

1018.15 . .

```
1020.42   .                                                
```

```
1086.22   .                 I       W    C          EH                              .   R

1088.48   .                  I        W   C          EH                             .   R

1090.75   .                   I        W  C        E  H                            .   R

1093.02   .                                                                        .

1095.29   .                    I        W  C       E   H                           .   R

1097.56   .                                                                        .

1099.83   .                     I        W C       E   H                           .   R

1102.10   .                                                                        .

1104.37   .                      I        W C      E    H                          .   R

1106.63   .                                                                        .

1108.90   .                       I        W C     E     H                         .   R

1111.17   .                        I        W C    E      H                        .   R

1113.44   .                        I         W C   E      H                        .   R

1115.71   .                         I         W C  E      H                        .   R

        2684.370  2685.865  2687.361  2688.856  2690.352  2691.847  2693.342  2694.838  2696.333  2697.828  2699.324
```

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
   Y = WALL ENTRANCE OR EXIT
2. STATIONS FOR POINTS AT A JUMP MAY NOT BE PLOTTED EXACTLY

Project Name:	SUNSTONE PHASE 1
Project Number:	EST1905-000
Date:	8/6/2019
By:	CAA

a Westwood team

STORM SEWER HYDRAULIC CALCULATIONS: NORTH COLLECTOR ROAD

CONDUIT DATA						FLOW DATA							LOSS	HGL		COMMENTS	
STATION		SIZE / TYPE	INVERTS		LENGTH	A	R	Φ	Q	V	$H_V = V^2/2g$	S_f	PIPE	PIPE		PRESS. FLOW?	OTHER
FROM	TO		D / S ELEV.	U / S ELEV.		(FT^2)	(FT)		(CFS)	(FPS)	(FT)	(FT/FT)	H_f (FT)	D/S HGL ELEV.	U/S HGL ELEV.		
1000	1023.75	Round 18" RCP	2716.16	2717.26	23.75	1.767146	0.375	0.004925	2.5	1.414711	0.031078	0.000564116	0.013	2721.13	2721.140	Yes	NC1a
1000	1045.57	Round 18" RCP	2716.16	2718.84	45.57	1.767146	0.375	0.004925	2.5	1.414711	0.031078	0.000564116	0.026	2721.13	2721.153	Yes	NC1b
1000	1043.54	Round 18" RCP	2707.13	2707.56	43.54	1.767146	0.375	0.004925	3	1.697653	0.044752	0.000812326	0.035	2706.67	2706.709	No	NC2b
1000	1028.28	Round 18" RCP	2687.37	2690.61	28.28	1.767146	0.375	0.004925	6	3.395306	0.179008	0.003249306	0.092	2689.82	2689.911	No	NC3b
1000	1044.85	Round 18" RCP	2700.89	2701.75	44.85	1.767146	0.375	0.004925	2	1.131769	0.01989	0.000361034	0.016	2702.49	2702.505	No	NC4a
1000	1022.46	Round 18" RCP	2700.89	2701.11	22.46	1.767146	0.375	0.004925	3	1.697653	0.044752	0.000812326	0.018	2702.49	2702.507	No	NC4b

$Sf = \Phi Hv / R^{1.33}$ $\Phi = 2g (n^2) / 2.21$

1 - Where pipes are not under pressure, assume U/S HGL is at top of pipe

APPENDIX E

CLV Correspondence & MDS Approval Letters

Lant Leavitt

From: Lant Leavitt
Sent: Thursday, July 11, 2019 4:26 PM
To: 'Peter Jackson'
Cc: ckaranikolas@lasvegasnevada.gov; Paul Villaluz; Josh Johnson
Subject: Sunstone Phase 1 - OHare Road Classification

Peter,

The traffic study for Sunstone lists O'Hare Road as a Minor Collector, see screenshot below:

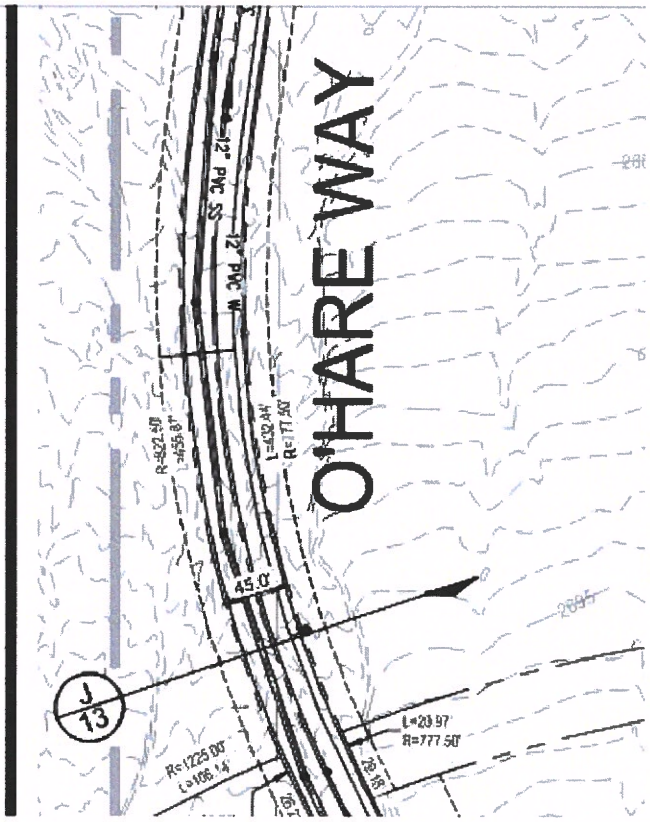
SLATER GROUP

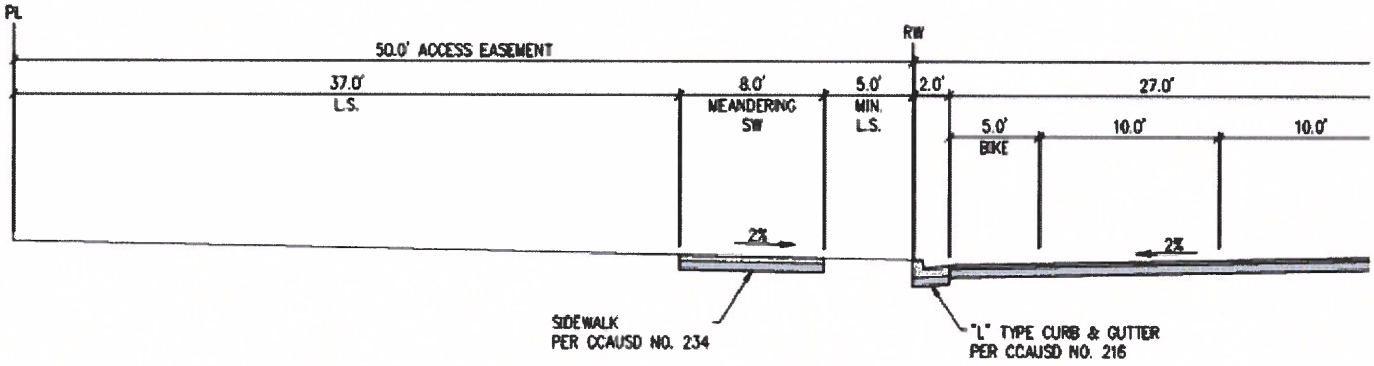
Sunstone Master Traffic Impact Study

Table 2 – Study Area Roadways

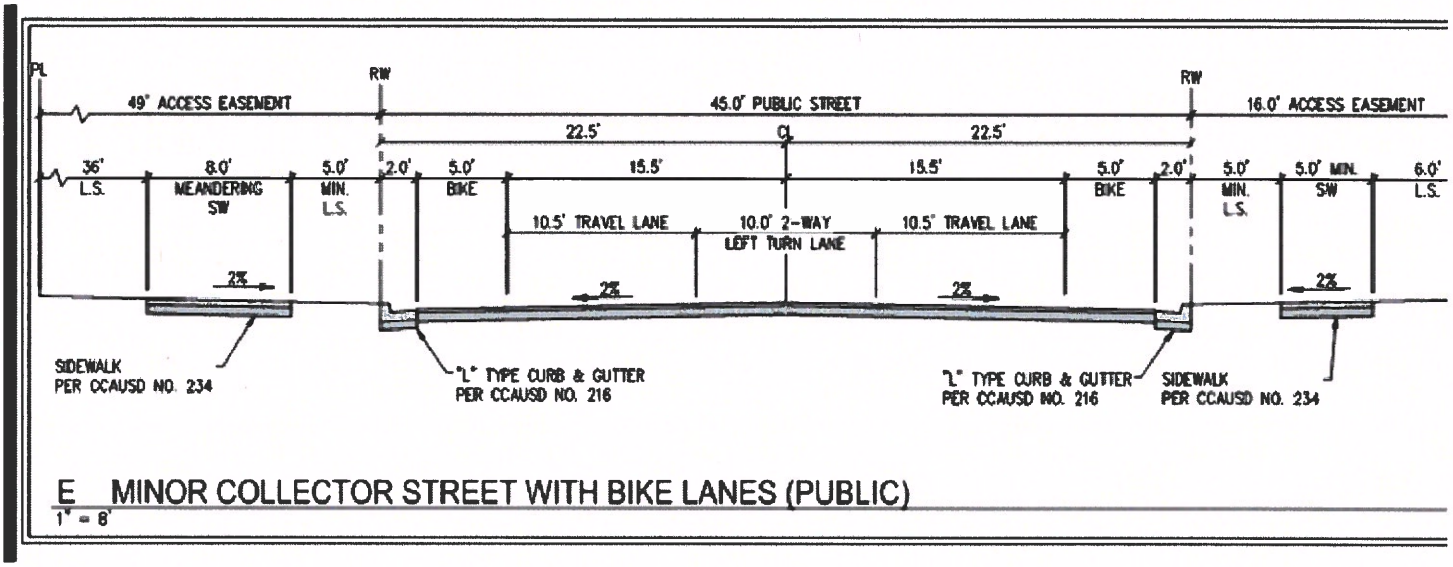
Street Segment	City of Las Vegas Street Designation, ROW (# Thru Lanes)	Fall 2018 Existing Condition	Skye Canyon Street Designation, ROW (# Thru Lanes)
Kyle Canyon Road west of US 95	Primary Arterial 100-feet-ROW (6 Thru Lanes)	One lane of travel in each direction.	N/A
Oso Blanca Road	Major Collector 80-feet-ROW (2 Thru Lanes)	Mix of fully constructed and partially constructed segments with up to 4 lanes of thru travel.	Frontage Road 80-feet-ROW (4 Thru Lanes)
Log Cabin Way East of US 95	N/A	N/A	Arterial Street 91 feet-ROW (4 Thru Lanes with ROW dedication for 6 Thru Lanes)
Skye Canyon Park Drive East of US 95	Parkway Arterial 120-feet-ROW (6 Thru Lanes)	Mix of fully constructed and partially constructed segments with up to 6 lanes of thru travel north of US 95.	Arterial Street Varies between 91 and 96-feet-ROW (6 Thru Lanes)
O'Hare Road	N/A	N/A	Minor Collector Street 43-feet-ROW (2 Thru Lanes)

I think the confusion on the classification may have come from the Parent Tentative Map which shows O'Hare as a 45-ft ROW, but mistakenly references a 67-ft ROW section. It should have referenced Section E which is a 45-ft ROW minor collector (see below.)





J MAJOR COLLECTOR STREET WITH TRAIL ONE SIDE (PUBLIC)
1" = 8'



E MINOR COLLECTOR STREET WITH BIKE LANES (PUBLIC)

1" = 8'

Based on this, we are going to design O'Hare Road as a Minor Collector for drainage purposes. I checked with Paul here in our office and the ADT for O'Hare is 6300, which is well within the capacity of 12,000 vehicles per day for the roadway. If you have any questions or concerns, let me know.

Thanks,

Lant Leavitt
PROJECT MANAGER II
lant.leavitt@westwoodps.com

Direct (702) 284-5360
Main (702) 284-5300

Westwood Multi-Disciplined Surveying & Engineering
5740 S. Arville Street, Suite 216 | Las Vegas, NV 89118

westwoodps.com
(888) 937-5150

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: January 28, 2019
TO: **Land Development Services** Department of Public Works				FROM: Oh Sang Kwon, P.E. Flood Control Section Department of Public Works
SUBJECT:	Drainage Study for:			**COPIES TO:**
Master Drainage Study – SUNSTONE (Formally Update #5 to Skye Canyon Master)				Slater Hanifan Group
Cross Streets:	Fort Apache Road & Moccasin Road			Eastland Co., LLC
File Number:	F:\Depot\DSMemos\DS5081A.doc			Bart Anderson, P.E., DevCo
Parcel Number:	125-06-501-001			CCRFCD
Zoning Action:	Eastland Development Agreement			CCPW
FEMA Flood Zone	YES	NO **X**		NDOT
Proposed Storm Drain	YES **X**	NO		NV Energy

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Transaction #
1st Submittal	12/26/2018	1/28/2019	Conditionally Approved	$400.00	502000: $400
			TOTAL FEES (LDDRS):	**$400.00**	----

REMARKS: **1st Submittal: Master Study for Development split off from Skye Canyon. SUNSTONE is the Development east of US-95 that was previously incorporated into the Skye Canyon Master Study.**

The Skye Canyon East (SUNSTONE) / Skye Canyon Master Plan MPU Facilities are being incorporated into the 2018 CCRFCD Master Plan. A separate MPA is not required at this time. Further changes to the MPU Facilities within SUNSTONE Master Drainage Study shall require an MPA that must be submitted to *City of Las Vegas* and *CCRFCD* for approval and shall be adopted by the *City of Las Vegas City Council* prior to the final approval of the subject Overall Master Study.

This Master Study assumes ultimate condition offsite drainage facilities impacting the SUNSTONE development will be 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:
	must be resubmitted or supplemented including the following:
X	is conditionally approved subject to Clark County Regional Flood Control District concurrence.
	is conditionally approved subject to Clark County Department of Public Works concurrence.
X	is conditionally approved subject to Nevada Department of Transportation concurrence.
	is conditionally approved subject to BLM concurrence/approval.

The Master Drainage Study for SUNSTONE (Update #5 to Skye Canyon Master Drainage Study) provides additional information that addresses the design parameters used as the basis for the Development east of US-95. **This Master 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 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 overall concept presented in the Master Drainage Study for SUNSTONE appears to satisfy the intent of providing regional connectivity of proposed Master Planned facilities without impacting the National Monument. This shall also include the extension of Local Facilities along the northern boundary (Moccasin Alignment) Between Brightstone Trail and Sun Park Drive (Skye Village Road to Fort Apache). Specific Technical Drainage Studies shall be required to address the specific impacts of each proposed Master Planned facility and the interaction with proposed local facilities needed for each phase of development.

2. The Local Facility extension along the Moccasin alignment shall include 100-year local collection between EC19 to EC21 and shall be shown on Exhibit J of this Master Study. The Master Drainage Study for Skye Canyon – Update #4, Supplemental; Identified the 150 cfs increase to the proposed Moccasin Road MPU Facility from Skye Canyon Park Drive to the Upper Las Vegas Wash (due to removal of an upstream diversion across Moccasin Road to the north). This Local Facility extension shall be addressed with the Specific Technical Drainage Studies for development that specifically address the impacts of development and storm discharge along the Moccasin corridor prior to the City removing the requirement of BLM and National Park Service concurrence

3. The implementation of the CCRFCD Master Plan facilities along US-95, south of Kyle Canyon Interchange, has been completed by NDOT. With the ultimate condition infrastructure drainage facilities noted above the development west of US-95 will no longer have flows crossing US-95 as per the CCRFCD Master Plan and also noted within the NDOT concurrence for the Skye Canyon Master Drainage Study dated March 8, 2018. The required Technical Drainage Study necessary for the US-95 Local Facility shall address the removal of the culverts allowing flows to cross to the east side of US-95.

4. The ***Master Land Use Plan*** has been submitted as a part of the (SUNSTONE) Eastland DA, any changes to the flows shown in this Master Drainage Study due to the Master Land Use Plan shall require a complete update to the Master Drainage Study.

5. High velocity flows within the future MPU facilities is a critical concern of the City and Regional Flood. Where velocities exceed 25 fps the City is considering 6,000 psi concrete with 2-inches of sacrificial concrete on the invert. Where velocities exceed 35 fps, additional design mitigation shall be reviewed on a case by case basis. The engineer shall review the velocity impacts and recommend a course of action for City approval with each technical drainage study for the corresponding facilities.

6. CCRFCD concurrence has previously been provided for Skye Canyon Master Drainage Study Update #4. A new concurrence for the SUNSTONE Master Drainage Study shall be provided from CCRFCD after Conditional Approval by the City of Las Vegas.

7. CCPW concurrence was provided covering Skye Canyon Master Drainage Study Update #4. New County concurrence is not required for the SUNSTONE Master Drainage Study.

8. NDOT concurrence was provided covering Skye Canyon Master Drainage Study Update #4. NDOT concurrence for Skye Canyon Master Drainage Study Update #4 supports the proposed MPU facilities and the elimination of the flows crossing US-95 per the Master Plan and shown on Exhibit J. A new concurrence for the SUNSTONE Master Drainage Study shall be provided from NDOT after Conditional Approval by the City of Las Vegas.

9. Please note that the Traffic Study must be approved prior to final approval of the Master Drainage Study. If the street layout does not match the Master Drainage Study, an update to the Master Drainage Study must be submitted to address the changes.

10. Please note that any future technical drainage study submittals that differ from the Master Drainage Study (ie. Changes in pods, infrastructure, flows etc.) will require an update to the Master Drainage Study and this update must be approved by the *City of Las Vegas Flood Control Section* prior to final approval of technical drainage study.

11. Please note that the proposed 100-year flood protection facilities identified on Exhibit J must be constructed by the Master Developer as a part of the master planned infrastructure. Technical drainage studies are required for each phase of the master planned infrastructure improvements. The technical drainage studies for the infrastructure improvements may be submitted with conditional approval of this Master Drainage Study. However, final approval for the Master Drainage Study must be obtained prior to conditional approval of the infrastructure drainage studies.

12. Technical drainage studies are required for each of the Pod's. The technical drainage studies for the Pod's may not be submitted until the conditional approval of the pertinent infrastructure drainage study is obtained. Final approval for the infrastructure drainage study must be obtained prior to conditional approval of the impacted Pod drainage studies.

13. Building permits for the homes within the individual Pod's will not be issued until construction of the street and flood control infrastructure around the Pod is substantially complete or interim protection is provided per the approved technical drainage study.

14. Please note that all proposed interim facilities must be maintained by the master developer.

15. 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.

NOTE: Any future changes to the proposed design (or design assumptions) as outlined in the approved master drainage study and attached preliminary grading plan which affect drainage must be addressed in a Drainage Study Amendment 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
Osk/pbj

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

REGIONAL FLOOD CONTROL DISTRICT

Steven C. Parrish, P.E.
General Manager/Chief Engineer

BOARD OF DIRECTORS

Lawrence L. Brown, III
Chair
Clark County

Mayor Debra March
Vice-Chair
City of Henderson

George Gault
City of Mesquite

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Clark County

Mayor Carolyn Goodman
City of Las Vegas

Isaac Barron
City of North Las Vegas

Mayor Pro Tem
Dr. Lois Tarkanian
City of Las Vegas

Mayor Rodney Woodbury
City of Boulder City

March 6, 2019

Mr. Oh Sang Kwon, P.E.
City of Las Vegas Department of Public Works
333 North Rancho Drive
Las Vegas, NV 89106

DISTRICT CONCURRENCE: SUNSTONE (FORMALLY UPDATE# 5 SKYE CANYON MASTER)
(DS5081A) (RFCD No. 19-11214)

Dear Mr. Kwon:

Clark County Regional Flood Control District (District) reviewed Technical Drainage Study dated December 26, 2018 for above-mentioned project as submitted by SLATER HANIFAN GROUP. In addition, District is in receipt of the Conditional Letter of Acceptance from City of Las Vegas Department of Public Works dated January 28, 2019.

District concurs with acceptance of this Technical Drainage Study by City of Las Vegas Department of Public Works with the following conditions:

> Per District's Uniform Regulations for the Control of Drainage, Section VIII.D.13, the Lead Entity shall provide As-Built plans or record drawings to the District after completion and final inspection of such privately installed flood control facilities that have regional flood control significance.

District's review of this project was limited to issues of Regional Flood Control Significance as defined in *Uniform Regulations for the Control of Drainage*.

Please be aware that as additional information becomes available and/or restudies of Flood Insurance Studies are performed, information submitted by SLATER HANIFAN GROUP may be superseded. Compliance with regulatory elements and design standards specified in *Uniform Regulations for the Control of Drainage* does not imply a guarantee that properties will be free from flooding or flood damage. The District, its officials, or employees assume no liability for information, data, or conclusions presented by consulting engineers. We, therefore, make no warranties, either expressed or implied, in conducting this review.

600 S. Grand Central Parkway, Suite 300 • Las Vegas, Nevada 89106-4511
(702) 685-0000 • FAX: (702) 685-0001
Website: http://www.regionalflood.org

REGIONAL FLOOD CONTROL DISTRICT

STEVEN C. PARRISH, P.E.
General Manager/Chief Engineer

BY:
Ching C. Wang, P.E.
Senior Civil Engineer

CCW:dd

c: Lant K. Leavitt, P.E, Slater Hanifan Group

P:\Letters and Memos\Local Drainage\Land Development & Drainage\2019\L-19-11214as_built doc

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
1263 S. Stewart Street
Carson City, Nevada 89712

BRIAN SANDOVAL
Governor

RUDY MALFABON, P.E., *Director*

February 20, 2019

In Reply, Refer to:

Lant K. Leavitt, P.E.
5740 S. Arville St, Suite 216
Las Vegas, NV 89118

TECHNICAL DRAINAGE STUDY
Sunstone Master Drainage Study, Update #5
Clark County

Dear Mr. Leavitt:

The Nevada Department of Transportation (NDOT) Hydraulics Section has received and reviewed the following document(s) for the above-referenced project.

Document:	**Dated:**
Transmittal Letter from Lant K. Leavitt, P.E., SHG	Feb. 4, 2019
Executive Summary for Master Drainage Study Update #5 for Skye Canyon Development East of US 95 - Sunstone	Feb. 1, 2019
Master Drainage Study Update #5 for Skye Canyon Development (for Development East of US 95) Skye Canyon	Dec. 20, 2018
Drainage Information Form tamped by Lant K. Leavitt, P.E., SHG	Feb. 1, 2019

The drainage design information presented in the reviewed document(s):

X	is acceptable in concept. Final Hydraulic Section approval will be based on review of final design documents submitted with the NDOT Right-Of-Way Occupancy Permit application that must be submitted for this project.
	is acceptable in concept. Final Hydraulic Section approval will be based on review of final design documents submitted with the NDOT Right-Of-Way Occupancy Permit application that must be submitted for this project. The following comments should be addressed with the permit application:
	must be supplemented or modified to satisfy the following comment(s) before preliminary Hydraulic Section approval can be granted:

All submittals regarding this project must be forwarded through (or copied to) the local NDOT District permitting office. All pertinent drainage design documents (including those previously submitted for preliminary review) must be submitted to the local NDOT District permitting office with the Right-Of-Way Occupancy Permit Application. All plans and reports must be signed and stamped by a Nevada registered civil engineer.

No liability is assumed by the Department in performing this review. Verification and acceptance of all background information, design data and conclusions is the responsibility of the consulting engineer.

Please call me at (775) 888-7621 should you have any questions.

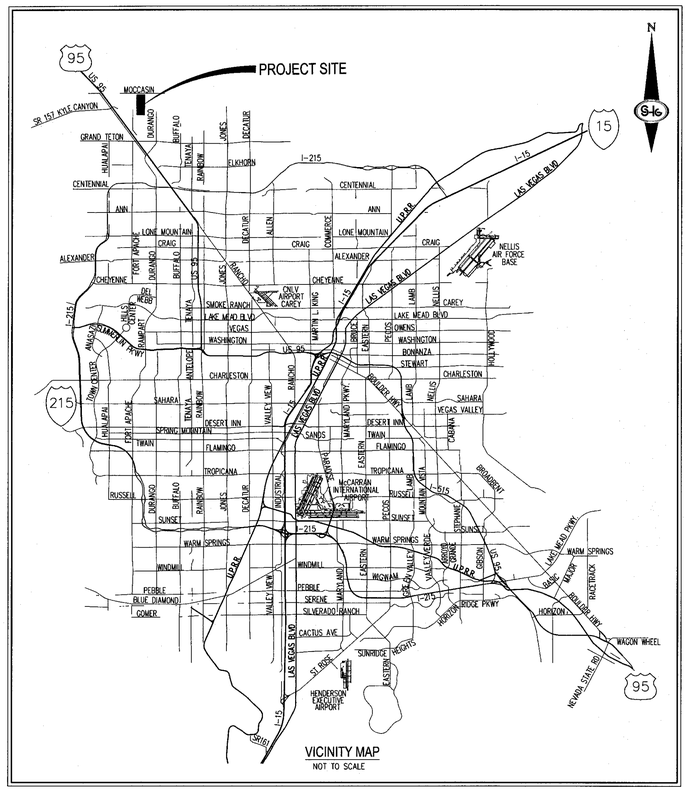
Sincerely,

Brian A. Matthews, P.E.
Professional Engineering Specialist

c: Mary Martini, P.E., District 1 Engineer
Michael Yates, District 1 Assistant Engineer, Permit Coordinator
Charles Molisee, District 1 Permit Coordinator
Charles Pratt, HQ Permit Coordinator
Mario Gomez, District 1 Assistant Engineer

APPENDIX F

CD of Electronic Files & Revised Improvement Plans



VICINITY MAP
NOT TO SCALE

IMPROVEMENT PLANS FOR SUNSTONE PHASE 1 LOG CABIN WAY

CITY OF LAS VEGAS, NEVADA

SHEET INDEX — Sheet List Table

NO.	SHEET	TITLE
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2	CS-2	GENERAL NOTES
3	CS-3	ABBREVIATIONS, LEGEND AND QUANTITIES
6	PP-1	PLAN AND PROFILE 1 – "LCW" 32+00.00 TO "LCW" 41+00.00
7	PP-2	PLAN AND PROFILE 2 – "LCW" 41+00.00 TO "LCW" 46+50.00
8	PP-3	PLAN AND PROFILE 3 – "LCW" 46+50.00 TO "LCW" 55+00.00
9	PP-4	PLAN AND PROFILE 4 – "LCW" 55+00.00 TO "LCW" 63+00.00
10	PP-5	PLAN AND PROFILE 5 – "LCW" 63+00.00 TO "LCW" 71+50.00
11	PP-6	PLAN AND PROFILE 6 – "LCW" 71+00.00 TO "LCW" 76+00.00
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13	RA-1	ROUNDABOUT GRADING PLAN
14	RA-2	ROUNDABOUT PROFILE
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17	SD-1	STORM DRAIN 1 – "LCW" 32+00.00 TO "LCW" 41+00.00
18	SD-2	STORM DRAIN 2 – "LCW" 41+00.00 TO "LCW" 46+50.00
19	SD-3	STORM DRAIN 3 – "LCW" 46+50.00 TO "LCW" 55+00.00
20	SD-4	STORM DRAIN 4 – "LCW" 55+00.00 TO "LCW" 63+00.00
21	SD-5	STORM DRAIN 5 – "LCW" 63+00.00 TO "LCW" 71+50.00
22	SD-6	STORM DRAIN 6 – "LCW" 71+00.00 TO "LCW" 76+00.00
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39	ST-01	SIGNAGE AND STRIPING LCW 32+00.00 TO LCW 41+00.00
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APPROVALS

CITY ENGINEER–ALLEN PAVELKA PE, #9029 DATE

APPROVAL OF THESE PLANS BY THE CITY ENGINEER IS LIMITED TO THOSE IMPROVEMENTS CONSTRUCTED IN THE DEDICATED OF 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 STATUES AND / OR PUBLIC UTILITY COMMISSION RULES AND REGULATIONS.

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ##### FIRST APPROVED DATE: _____
LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 20 GPM

SHEETS: ADD FIELD
LVVWD APPROVAL IS VALID FOR ONE (1) YEAR FROM SIGNATURE DATE. IF CONSTRUCTION IS NOT STARTED, PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL.

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

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

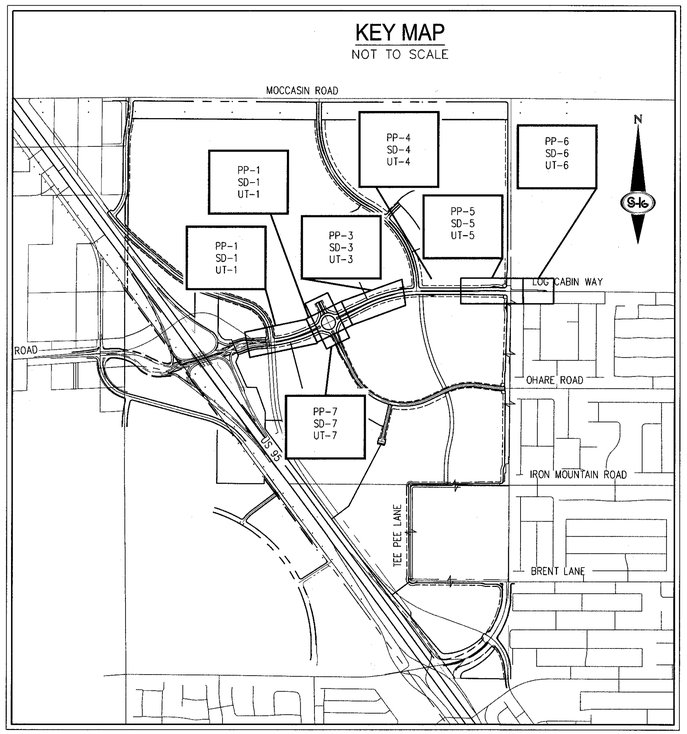
NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1

COVER SHEET



OWNER/DEVELOPER

EASTLAND COMPANY, LLC
9275 RUSSELL RD SUITE 400
LAS VEGAS, NV 89148
PH: 702-821-4808

ENGINEER

SLATER HANIFAN GROUP, INC.
a WESTWOOD TEAM
5740 S. ARVILLE STREET, SUITE 216
LAS VEGAS, NV 89118
PH: (702) 284-5300
CONTACT: JOSH JOHNSON

BENCHMARK

MONUMENT 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 00°01'50" WEST, BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE1/4) 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' (AREA OUTSIDE THE 500 YEAR FLOODPLAIN), PER THE FEMA FIRM PANELS ???????? DATED NOVEMBER 16, 2011

PROJECT PLAN APPROVAL CONTINGENT ON

SUNSTONE PHASE 1 XXXXX XXXXX
SUNSTONE PHASE 1 XXXXX XXXXX
SUNSTONE PHASE 1 XXXXX XXXXX

PLAN APPROVAL

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/BMPC/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 FILLING FEE.

DEVIATIONS FROM STANDARDS

GEOTECHNICAL ENGINEER

PREPARED BY: FIRM
ADDRESS: ADDRESS
PHONE: PHONE #
PROJECT No. PROJECT NUMBER
DATED: DATE

DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1906-000

CS-1
SHEET 1 OF 47

K:\est1906-000 sunstone log cabin\civil\cad\xmicros\xest1906-000_cvr.dwg 8/7/2019 8:31 AM Thomas Dyson

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 NVR100000, 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 NVR100000, 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.

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

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 "C" 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 2.22 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 PRODUCT'S 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.

IS 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 PROCUCT. 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 ?????, PROJECT NO. ####.##, DATED ##/##/####.
6. EARTHWORK QUANTITIES (RAW):
   -CUT = #,### CUBIC YARDS.
   -FILL = #,### 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 ORDINANCE # 6631 FOR HYDRANT SPECIFICATIONS AND HYDRANT INSTALLATION SPECIFICATIONS.
2. ONLY FIRE HYDRANTS THAT ARE ON THE LAS VEGAS VALLEY WATER DISTRICT'S - APPROVED PRODUCTS LIST ARE ALLOWED TO BE INSTALLED.
3. A PERMIT IS REQUIRED 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 HYDRANTS SHALL BE IN GOOD 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 § 106.3
7. ALL ON-SITE UNDERGROUND WATER MAINS AND MATERIALS SHALL BE U.L. LISTED, A.W.W.A APPROVED AND SHALL BE RATED FOR THE APPROPRIATE WORKING PRESSURE. 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 § 507.5.7.1
10. PRIOR TO THE FINAL OCCUPANCY, A FIRE FLOW TEST SHALL BE WITNESSED BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION TO VERIFY AVAILABILITY OF THE REQUIRED FIRE FLOW. IFC § 507
11. FIRE HYDRANT SPACING SHALL BE AS FOLLOWS: IFC § C102
    - RESIDENTIAL - 500 FT UNSPRINKLERED; 600 FT SPRINKLERED.
    - COMMERCIAL - 300 FT UNSPRINKLERED; 400 FT SPRINKLERED.
12. WHERE THE WATER MAINS ARE EXTENDED ALONG STREETS OR NEW STREETS ARE INSTALLED WHERE FIRE HYDRANTS ARE NOT NEEDED FOR PROTECTION OF THE STRUCTURES, FIRE HYDRANTS SHALL BE INSTALLED AT A MAXIMUM OF 1000 FT SPACING, TO PROVIDE FOR TRANSPORTATION HAZARDS. WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS OR HAVE FOUR (4) OR MORE TRAFFIC LANES AND HAVE A TRAFFIC COUNT OF MORE THAN 30,000 PER DAY, HYDRANTS ARE REQUIRED ON EACH SIDE OF THE STREET SPACED AT 500 FT ON AN ALTERNATING BASIS. 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 6% FOR 25 FT PRIOR TO AND 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 LANES 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 LANES, PUBLIC OR PRIVATE, IN EXCESS OF 150 FT IN LENGTH SHALL BE PROVIDED WITH AN APPROVED TURN AROUND HAVING A MINIMUM DIAMETER OF 81 FT. 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 LANES. SIGNS TO BE PLACED ON BOTH SIDES OF AN ACCESS ROADWAY IF NEEDED TO PREVENT PARKING ON EITHER SIDE. SIGNS TO BE INSTALLED NO HIGHER THAN 10 FT OR LESS THAN 6 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 COUNT OF MORE THAN 30,000 VEHICLES PER DAY, ALL 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 CAVING OF THE EXCAVATION.
4. THE CONTRACTOR IS WARNED THAT AN EARTHWORK BALANCE WAS NOT NECESSARILY THE INTENT OF THIS PROJECT. ANY ADDITIONAL MATERIAL REQUIRED OR LEFTOVER MATERIAL FOLLOWING EARTHWORK OPERATIONS BECOMES THE RESPONSIBILITY OF THE CONTRACTOR.
5. THE GRADING CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE OWNER TO PROVIDE FOR THE REQUIREMENTS OF THE PROJECT 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'	SEE SOILS REPORT
B. ENGINEERED FILL	0.5'+	+0.1' TO -0.1'	SEE SOILS REPORT

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

7. ALL CUT AND FILL SLOPES SHALL BE PROTECTED UNTIL EFFECTIVE EROSION CONTROL HAS BEEN ESTABLISHED.
8. THE USE OF POTABLE WATER WITHOUT A SPECIAL PERMIT FOR BUILDING OR CONSTRUCTION PURPOSES INCLUDING CONSOLIDATION OF BACKFILL OR DUST CONTROL IS PROHIBITED. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR CONSTRUCTION WATER.
9. THE CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS AND ALL OTHER PUBLIC RIGHT-OF-WAY IN A CLEAN, SAFE AND USABLE CONDITION. ALL SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE PUBLICLY OWNED PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT. ALL ADJACENT PROPERTY, PRIVATE OR PUBLIC SHALL BE MAINTAINED IN A CLEAN, SAFE AND USABLE CONDITION.
10. IN THE EVENT THAT ANY TEMPORARY CONSTRUCTION ITEM IS REQUIRED THAT IS NOT SHOWN ON THESE DRAWINGS, THE OWNER AGREES TO PROVIDE AND INSTALL SUCH ITEM AT HIS OWN EXPENSE AND AT THE DIRECTION OF THE CITY ENGINEER. TEMPORARY CONSTRUCTION INCLUDES DITCHES, BERMS, ROAD SIGNS 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 ISSUE; THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION, CLARK COUNTY AREA NEVADA", LATEST REVISED EDITION; THE "SUMMERLIN IMPROVEMENT STANDARDS" FOR WORK IN THE SUMMERLIN AREA; AND OTHER APPLICABLE APPROVED STANDARDS ISSUED BY THE CONTROLLING AGENCY; THE UNIFORM BUILDING CODE; AND ALL LOCAL CITY CODES AND ORDINANCES APPLICABLE, EXCEPT AS NOTED ON THIS SHEET AS "DEVIATIONS FROM STANDARDS".
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 INTERFERENCE'S WHICH MAY AFFECT HIS OPERATION DURING CONSTRUCTION AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO SAME. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING NEAR OVERHEAD UTILITIES SO AS TO SAFELY PROTECT ALL PERSONNEL AND EQUIPMENT, AND SHALL BE RESPONSIBLE FOR ALL COST AND LIABILITY IN CONNECTION THEREWITH.
3. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING UTILITY LINES, STRUCTURES AND STREET IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE, FROM DAMAGE, AND ALL SUCH IMPROVEMENTS OR STRUCTURES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED SATISFACTORY TO THE CITY ENGINEER AND OWNING UTILITY COMPANY AT THE EXPENSE OF THE CONTRACTOR.
4. ALL CONSTRUCTION SHALL BE AS SHOWN ON THESE PLANS, ANY REVISIONS SHALL HAVE THE PRIOR WRITTEN APPROVAL OF THE CITY ENGINEER.
5. TYPE V CEMENT SHALL BE USED IN ALL OFF-SITE CONCRETE WORK. CONCRETE TO BE 3000 P.S.I. MINIMUM @ 28 DAYS. MIX DESIGNS TO BE APPROVED BY THE CITY, PRIOR TO THE USE ON THE PROJECT.
6. PERMITS ARE REQUIRED FOR ANY WORK IN THE PUBLIC RIGHT-OF-WAY. THE CONTRACTOR SHALL SECURE ALL PERMITS AND INSPECTIONS REQUIRED FOR THIS CONSTRUCTION.
7. EXPANSION JOINTS REQUIRED, MAXIMUM EVERY 300'IN EXTRUDED-TYPE CURB.
8. AC PAVEMENT TO BE ONE-HALF INCH (½") ABOVE LIP OF ALL GUTTERS AFTER COMPACTION, EXCEPT AT SIDEWALK RAMPS AND CROSS GUTTERS.
9. CURB AND GUTTER FOUND TO BE UNACCEPTABLE TO THE CITY OF LAS VEGAS SHALL BE REMOVED AND REPLACED PER STANDARD DRAWING 216.
10. SIDEWALK RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING 235. EXACT LOCATION OF RAMPS MAY BE ADJUSTED IN THE FIELD BY A CITY INSPECTOR.
11. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITIONS BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND FOR INGRESS AND EGRESS TO NEW CONSTRUCTION. THE EXTENT OF THE TRANSITIONS TO BE AS SHOWN ON PLANS.
12. ALL GRADING WORK SHALL CONFORM TO THE SOILS REPORT AS PREPARED BY ADD GEO, REPORT #ADD FIELD, ADD FIELD APPROVED BY THE CITY ENGINEER, AND AS SHOWN ON THESE PLANS.
13. EXACT LOCATION OF ALL SAWCUT LINES MAY BE ADJUSTED OR DETERMINED IN THE FIELD BY A CITY OF LAS VEGAS ENGINEER IF LOCATION ON PLANS IS NOT CLEARLY SHOWN, OR EXISTING PAVEMENT CONDITION REQUIRES RELOCATIONS.
14. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT EXISTING PERMANENT SURVEY MONUMENTS. ANY MONUMENTS DISTURBED SHALL BE REPLACED AND ADJUSTED PER AVAILABLE RECORDS IN ACCORDANCE WITH N.R.S. STATUTE NO. 625.380 & CITY OF LAS VEGAS TITLE 18, APPENDIX D.
15. UTILITY COMPANY METER BOXES, MANHOLE LIDS, VALVE COVERS, ETC., SHALL BE LOCATED OUT OF DRIVEWAYS, DRIVEWAY APRONS, FLOWLINES, AND CROSS GUTTERS UN

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	FUT	FUTURE	R	RADIUS
APPROX OR ~	APPROXIMATE	GRD	GRADE OR GROUND	RCA	REINFORCED CONCRETE ARCH
AVE	AVENUE	GB	GRADE BREAK OR GRADE CHANGE	RCB	REINFORCED CONCRETE BOX
@	AT	GV	GATE VALVE	RCP	REINFORCED CONCRETE PIPE
BC	BEGIN CURVE OR BACK OF CURB	HDPE	HIGH DENSITY POLYETHYLENE	RD	ROAD
BCR	BEGINNING OF CURB RETURN	HOA	HOME OWNERS ASSOCIATION	ROWY ESMT	ROADWAY EASEMENT
BHW	BOTTOM OF HEADWALL	HORZ	HORIZONTAL	REQD	REQUIRED
BLDG	BUILDING	HP	HIGH POINT	REV	REVISION
BLVD	BOULEVARD	HWL	HIGH WATER LEVEL	RG	ROUGH GRADE
BM	BENCHMARK	HDWL OR HW	HEADWALL	RT OR R	RIGHT
BVC	BEGIN VERTICAL CURVE	HYD	HYDRAULIC OR HYDRANT	RW, ROW	RIGHT OF WAY
BWV	BACK WATER VALVE	ID	INSIDE DIAMETER	S	SLOPE
CC	CLARK COUNTY	IN	INCH	SCH	SCHEDULE
CCAUSD	CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS	INT	INTERSECTION	SD	STORM DRAIN
CCPW	CLARK COUNTY PUBLIC WORKS	INV	INVERT ELEVATION	SDDI	STORM DRAIN DROP INLET
CCRFCD	CLARK COUNTY REGIONAL FLOOD DISTRICT	IP	IRON PIPE	SDMH	STORM DRAIN MANHOLE
CCWRD	CLARK COUNTY WATER RECLAMATION DISTRICT	IRRG	IRRIGATION	SEC	SECTION
CE	COMMON ELEMENT	LF	LINEAR FEET	SF	SQUARE FEET
CL,C/L,C	CENTERLINE	LMC	LANDSCAPE MAINTENANCE CORPORATION	SHT	SHEET
CLR	CLEAR OR CLEARANCE	LP	LOW POINT	SLTC	STREET LIGHT & TRAFFIC CONTROL ESMT
CLSM	CONTROLLED LOW STRENGTH MATERIAL	LT OR L	LEFT	SNWA	SOUTHERN NEVADA WATER AUTHORITY
CLV	CITY OF LAS VEGAS	LVVWD	LAS VEGAS VALLEY WATER DISTRICT	SPECS	SPECIFICATIONS
CML&C	CEMENT MORTAR LINED AND COATED	LWL	LOW WATER LEVEL	ST	STREET
CMU	CONCRETE MASONRY UNIT	MAX	MAXIMUM	SSMH	SANITARY SEWER MANHOLE
CNLV	CITY OF NORTH LAS VEGAS	MECH	MECHANICAL	STA	STATION
COH	CITY OF HENDERSON	MH	MANHOLE	STD	STANDARD
CONC	CONCRETE	MIN	MINIMUM	STL	STEEL
CT	COURT	MISC	MISCELLANEOUS	STLT	STREET LIGHT
CY OR CU YD	CUBIC YARD	MUE	MUNICIPAL UTILITY EASEMENT	SW	SIDEWALK
DCWCS	DESIGN AND CONSTRUCTION FOR WASTEWATER COLLECTION SYSTEMS	NDOT	NEVADA DEPARTMENT OF TRANSPORTATION	SWG	SOUTHWEST GAS
		NTS	NOT TO SCALE	SWR OR SS	SANITARY SEWER
DE	DRAINAGE EASEMENT	NUE	NONEXCLUSIVE UTILITY EASEMENT	SY	SQUARE YARD
DET	DETAIL	NVE	NV ENERGY	TAN	TANGENT
DI	DUCTILE IRON OR DRAIN INLET	OC	ON CENTER	TC	TOP OF CURB
DIA, ø	DIAMETER	OD	OUTSIDE DIAMETER OR OVERALL DIMENSION	TF	TOP OF FLOOR OR TOP OF FOOTING
DIP	DUCTILE IRON PIPE	OFF	OFFSET	TG	TOP OF GRATE
DR	DRIVE	ORIG	ORIGINAL	THRU	THROUGH
DWG(S)	DRAWING	PAE	PUBLIC OR PEDESTRIAN ACCESS EASEMENT	THW	TOP OF HEADWALL
DWY	DRIVEWAY	PB	PULL BOX	TP	TOP OF PIPE
EA	EACH	PC	POINT OF CURVE	TW	TOP OF WALL
ECR	END CURB RETURN	PCC	POINT OF COMPOUND CURVE	TRW	TOP OF RETAINING WALL
EG	EXISTING GROUND	PDE	PUBLIC DRAINAGE EASEMENT	TSW	TOP OF SCREEN WALL
ELEV	ELEVATION	P. OR PL	PROPERTY LINE	TYP	TYPICAL
ESMT	EASEMENT	POB	POINT OF BEGINNING	UDACS	UNIFORM DESIGN AND CONSTRUCTION STANDARDS
EP	EDGE OF PAVEMENT	POC	POINT OF CURVATURE		
ERU	EQUIVALENT RESIDENTIAL UNIT	POE	POINT OF ENDING	UE	UTILITY EASEMENT
EVC	END VERTICAL CURVE	PRC	POINT OF REVERSE CURVATURE	VC	VERTICAL CURVE
EX OR EXIST	EXISTING	PRELIM	PRELIMINARY	VERT	VERTICAL
FC	FACE OF CURB	PROP	PROPOSED	VG	VALLEY GUTTER
FF	FINISHED FLOOR	PRV	PRESSURE REDUCING VALVE	W	WROUGHT IRON
FG	FINISHED GRADE	PUE	PUBLIC UTILITY EASEMENT	WL	WATER LINE
FGH	FINISHED GRADE, HIGH SIDE	PT	POINT OF TANGENT OR POINT	WPZ	WATER PRESSURE ZONE
FGL	FINISHED GRADE, LOW SIDE	PVC	POLYVINYL CHLORIDE	WT	WEIGHT
FH	FIRE HYDRANT			WTR	WATER LINE

ALIGNMENT ABBREVIATIONS

"LCW"	LOG CABIN WAY

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
(1900)	1900	5' CONTOUR
		1' CONTOUR
		STRIPING
		SEWER MANHOLE
		CURB AND GUTTER
EX 8" PVC SS	8" PVC SS	SANITARY SEWER PIPE AND FLOW ARROW
EX 8" PVC WTR	8" PVC WTR	WATER PIPE
		WATER GATE VALVE
		FIRE HYDRANT
		WATER BLOW-OFF
		WATER LATERAL W/ METER
		SANITARY SEWER LATERAL
		STREETLIGHT
		EDGE OF PAVEMENT
		TRAFFIC SIGN
PADE= XXX.X FF = XXX.X	PADE= XXX.X FF = XXX.X	PAD ELEVATION FINISHED FLOOR ELEVATION
(XXX.XX) TC	(XXX.XX) TC	ELEVATION
		RETAINING WALL
		STORM DRAIN W/ MANHOLE

	EXISTING GAS GATE VALVE		PROPOSED SCARP AREA
SMH	EXISTING UNKNOWN MANHOLE		
GAS	EXISTING GAS, SIZE PER PLAN		DRIVEWAY
	EXISTING POWER POLE		
	EXISTING TRAFFIC SIGNAL		PROPOSED RIP RAP
	EXISTING WALL		SIGHT VISIBILITY ZONE PER STD DWG NO. 201.2
	WATER PIPE FITTING		
POC	WATER POINT OF CONNECTION		HANDICAP RAMP
POC	SEWER POINT OF CONNECTION	TEL 5-4"	EXISTING TELEPHONE CABLE
	DAYLIGHT LINE	12" SS	EXISTING SANITARY SEWER LINE
	STREET CENTERLINE	12" W	EXISTING WATER LINE
	RIGHT-OF-WAY	18" SD	EXISTING STORM DRAIN LINE
	MATCHLINE	ELE UG 1-4"	EXISTING UNDERGROUND ELECTRICAL LINE
	BOUNDARY LINE	OHP	EXISTING OVERHEAD POWER LINE
	PHASE LINE	OHP/TEL	EXISTING OVERHEAD POWER AND TELEPHONE LINE
	PROPERTY LINE	4" PE GAS	EXISTING GAS LINE
	FLOWLINE	CATV	EXISTING CABLE TELEVISION LINE
	SAWCUT	SL	EXISTING STREET LIGHT CONDUIT
FILL / CUT	CUT/FILL TRANSITION LINE	MH	EXISTING MANHOLE OR VAULT
	SIDEWALK		EXISTING VALVE (GAS OR WATER)
	EX STRIPING TO BE OBLITERATED	FH	EXISTING FIRE HYDRANT
	GRADE BREAK LINE	PP	EXISTING POWER OR TELEPHONE POLE
	REFLECTIVE RAISED PAVEMENT MARKERS		EXISTING PADMOUNTED SERVICE PEDESTAL
BWV	BACK WATER VALVE		EXISTING NV ENERGY TRANSFORMER
	WROUGHT IRON FENCE		EXISTING SWING GATE
	PONY WALL		EXISTING STREET LIGHT
	DECORATIVE PERIMETER WALL		EXISTING ON-SITE LIGHT
	DECORATIVE PERIMETER RETAINING WALL		EASEMENT LINE
	PROPOSED CURB AND GUTTER WITH RIGHT-OF-WAY AT BACK OF CURB	AEP	AEP
	EXISTING CURB AND GUTTER WITH RIGHT-OF-WAY AT BACK OF CURB	FAST	FAST ITS CONDUIT
	FUTURE CURB AND GUTTER WITH RIGHT-OF-WAY AT BACK OF CURB		

QUANTITIES

			PRIVATE	PUBLIC
DRAINAGE				
1.	60" TYPE III STORM DRAIN MANHOLE	EA	-	-
2.	5.0' TYPE "CM2" DROP INLET	EA	-	-
3.	10.0' TYPE "CM2" DROP INLET	EA	-	-
4.	12.5' TYPE "CM2" DROP INLET	EA	-	-
5.	20.0' TYPE "CM2" DROP INLET	EA	-	-
6.	18" RCP CLASS IV STORM DRAIN	LF	-	-
7.	24" RCP CLASS IV STORM DRAIN	LF	-	-
8.	30" RCP CLASS IV STORM DRAIN	LF	-	-
9.	36" RCP CLASS IV STORM DRAIN	LF	-	-
10.	RIPRAP D50=8", THK=16"	SF	-	-
11.	8' WIDE CONCRETE VALLEY GUTTER W/10" TYPE I AGGREGATE BASE	SF	-	-
12.	SIDEWALK UNDER DRAIN	SF	-	-
13.				
SEWER SYSTEM				
1.	4" PVC SEWER LATERAL (PRIVATE)	LF	-	-
2.	8" PVC SEWER PIPE (PUBLIC)	LF	-	-
3.	STANDARD 48" SEWER MANHOLE (PUBLIC)	EA	-	-
4.	8" SEWER PIPE CAP	EA	-	-
5.	BACK WATER VALVE	EA	-	-
6.	C-900 WATER QUALITY SEWER PIPE (PUBLIC)	EA	-	-
7.				
WATER SYSTEM				
1.	FIRE HYDRANT ASSEMBLY W/6" GATE VALVE PER UDACS PLATE NO. 40	EA	-	-
2.	6" PVC WATER PIPE (CLASS 150)	LF	-	-
3.	8" PVC WATER PIPE (CLASS 150)	LF	-	-
4.	8" DIP WATER PIPE (CLASS 53)	LF	-	-
5.	8" GATE VALVE WITH VALVE BOX PER UDACS PLATE NO. 30 & 39	EA	-	-
6.	8" X 6" TEE PER UDACS PLATE NO. 31	EA	-	-
7.	8" X 8" TEE PER UDACS PLATE NO. 31	EA	-	-
8.	8" 5 DEGREE BEND WITH RESTRAINED JOINTS	EA	-	-
9.	8" 11.25 DEGREE BEND PER UDACS PLATE NO. 31	EA	-	-
10.	8" 22.5 DEGREE BEND PER UDACS PLATE NO. 31	EA	-	-
11.	8" 45 DEGREE BEND PER UDACS PLATE NO. 31	EA	-	-
12.	8" 90 DEGREE BEND PER UDACS PLATE NO. 31	EA	-	-
13.	CAP AND 2" BLOW-OFF ASSEMBLY W/CAP PER UDACS PLATE NO. 36	EA	-	-
14.	1" COPPER SERVICE W/ 3/4" METER PER UDACS PLATE NO. 2	EA	-	-
15.	1" COPPER SERVICE W/ 1" METER PER UDACS PLATE NO. 4	EA	-	-
16.	1" COPPER SERVICE W/ 3/4" METER & 1" RPPA PER UDACS PLATE NO. 4 & 8	EA	-	-
		EA	-	
STREET IMPROVEMENTS				
1.	2" A.C. PAVEMENT W/ 4" TYPE II OVER 6" TYPE I AGGREGATE BASE	SY	-	-
2.	STANDARD 18" TYPE "L" ISLAND CURB & GUTTER W/6" TYPE I AGGREGATE BASE	LF	-	-
3.	STANDARD 8" TYPE "A" ISLAND CURB W/6" TYPE I AGGREGATE BASE	LF	-	-
4.	STANDARD 30" TYPE "ROLL" CURB & GUTTER W/6" TYPE I AGGREGATE BASE	LF	-	-
5.	4' WIDE CONCRETE SIDEWALK W/4" TYPE II AGGREGATE BASE	SF	-	-
6.				-
7.				
TRAFFIC SIGNALS				
1.	30" STOP SIGN WITH POST (R1-1)	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 PULL BOX W/METAL COVER	EA	-	-
4.	150 AMP SERVICE PEDESTAL (IRR)	EA	-	-
5.	200 AMP SERVICE PEDESTAL (STLT)	EA	-	-
6.				

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 20 GPM

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1

ABBREVIATIONS, LEGEND AND QUANTITIES

DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

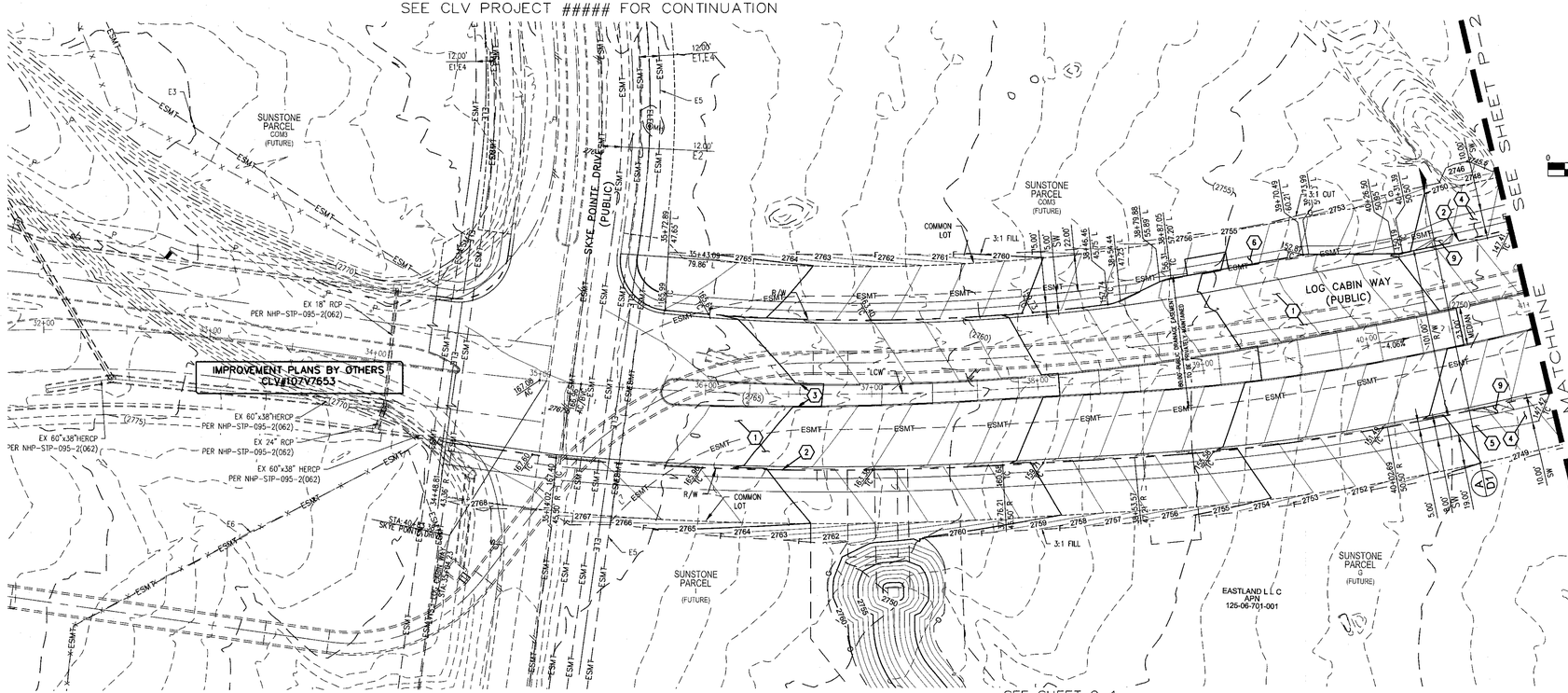
PROJECT NO.
EST1906-000

PROFESSIONAL ENGINEER – STATE OF NEVADA
JOSHUA A. JOHNSON
No. 15789
EXP. 08/31/2021
CIVIL
8/7/19

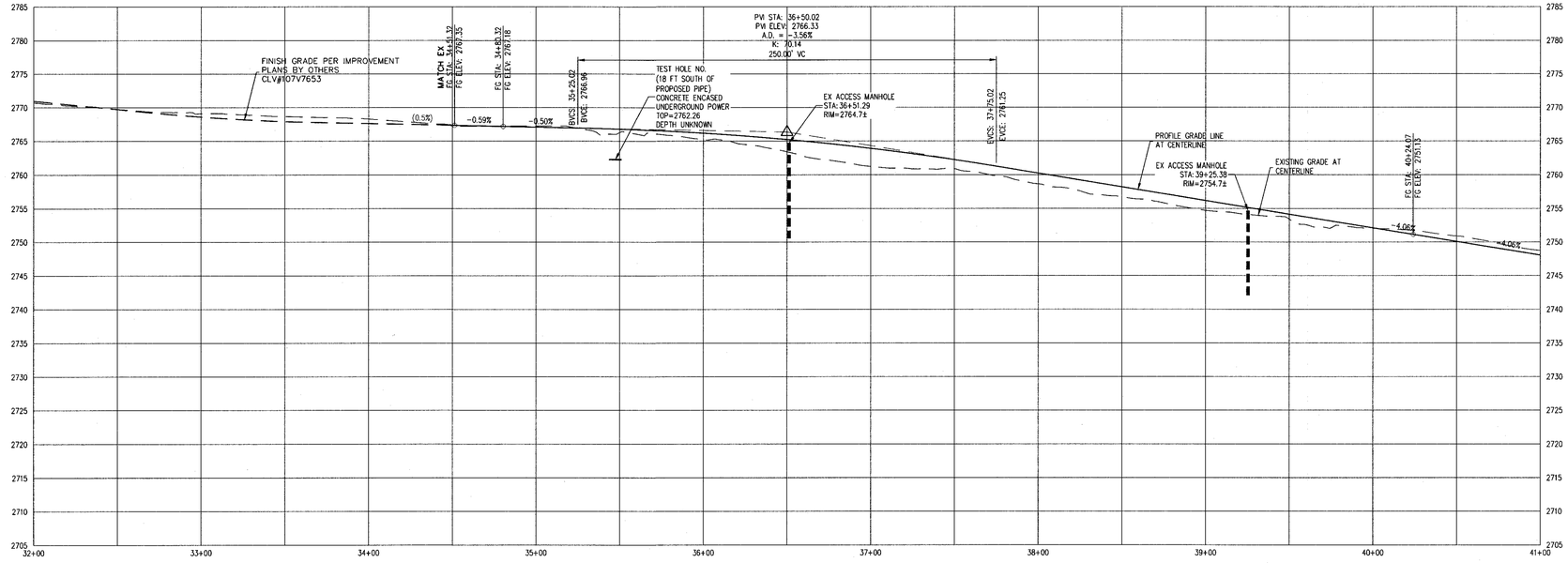
CS-3
SHEET 3 OF 47

I:\est1906-000 sunstone log cabin\dwg\Improv\est1906-000 cvr.dwg 8/7/2019 8:31 AM Thomas Dyson

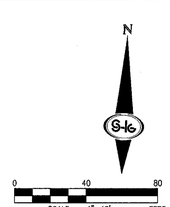
SEE CLV PROJECT ##### FOR CONTINUATION

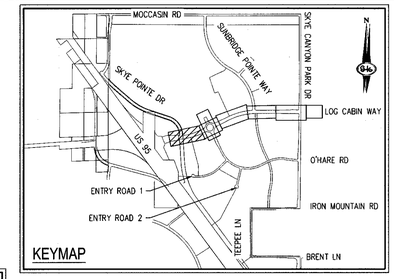


LOG CABIN WAY - PLAN VIEW
PUBLIC



LOG CABIN WAY - PROFILE VIEW
HORIZ: 1" = 40'
VERT: 1" = 10'





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 OBSCURED DURING CONSTRUCTION.

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)

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.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT 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 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/REPLEPING 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 EXIST) 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 IN 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 NVR100000, 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 NVR100000, 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.

CONSTRUCTION NOTES

1. INSTALL 7" ASPHALT PAVEMENT OVER 9" 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 10' WIDE SIDEWALK PER CCAUSD NO. 234
5. CONSTRUCT 8' WIDE SIDEWALK PER CCAUSD NO. 234
6. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD NO. 234
7. CONSTRUCT 8' VALLEY GUTTER PER CCAUSD NO. 228
8. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235 CASE 1, AND 235.1
9. BICYCLE RAMP

EXISTING EASEMENTS

E1 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.

E2 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.

E3 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.

E4 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

E6 NDOT EASENT 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.

E7 RIGHT-OF-WAY GRANTED BY DECISION, DATED JUNE 9, 2004, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER B-75757A TO CITY OF LAS VEGAS FOR ROADWAY, SANITARY SEER AND DRAINAGE PURPOSES UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF THE LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON JUNE 18, 2004 IN BOOK 20040818, AS INSTUMENT NO. 01781 OF OFFICIAL RECORDS.

FLOOD ZONE

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

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 CCFM HTE ###-????? FOR THE SUBJECT PROJECT.

JOSH JOHNSON, P.E. 15789 DATE

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.

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

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811 OR 1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

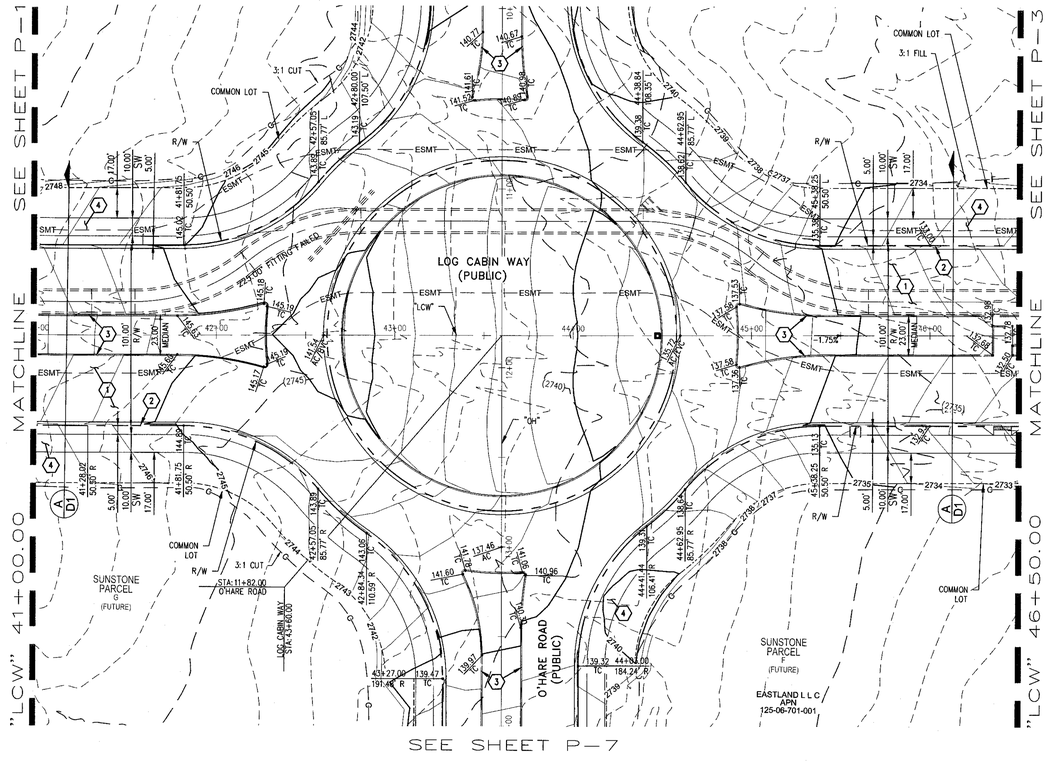
SUNSTONE PHASE 1
LOG CABIN WAY
PLAN AND PROFILE 1 - "LCW" 32+00.00 TO "LCW" 41+00.00

DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1906-000

NATIONAL ENGINEER STATE OF NEVADA JOSHUA JOHNSEN Exp. 06/30/2021 CIVIL No. 15789 8/7/19

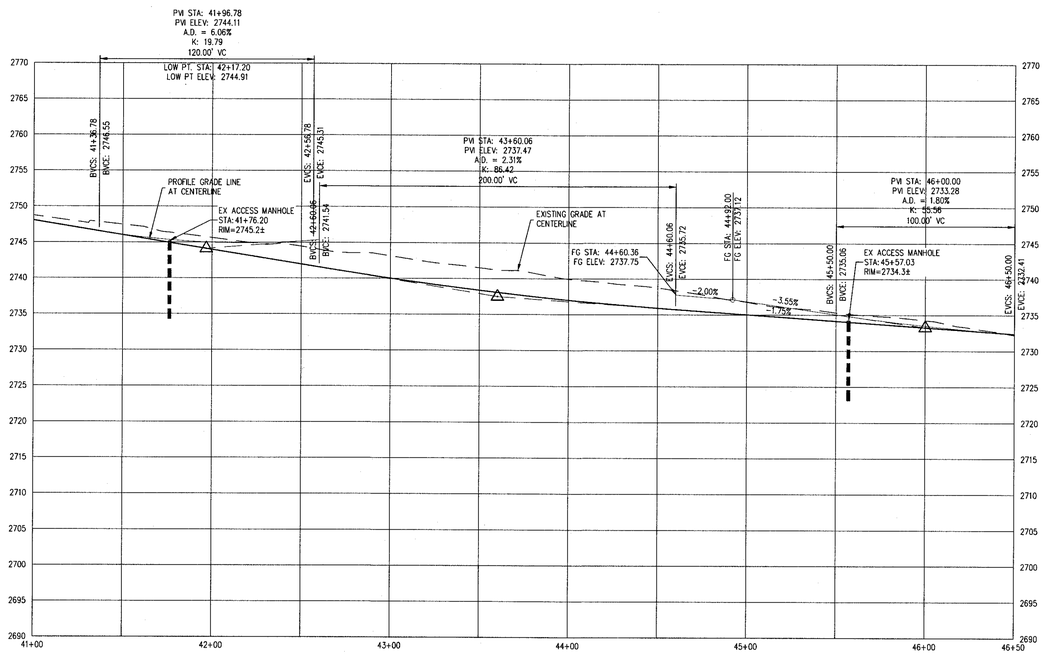
PP-1
SHEET 6 OF 47

J:\est1906-000 sunstone log cabin\dwg\improv\est1906-000 arst.dwg 8/7/2019 8:32 AM Thomas Dyson



LOG CABIN WAY - PLAN VIEW

PUBLIC



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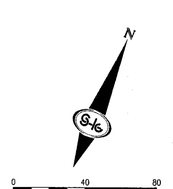

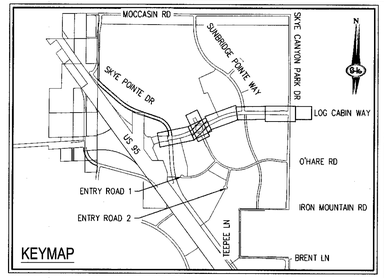

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4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER 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 NVR100000, SECTION III.A.12.
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I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY ??????? ON FILE AT CITY OF LAS VEGAS AND CCFW RTE #??-????? FOR THE SUBJECT PROJECT.

JOSH JOHNSON, P.E. 15789 DATE

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SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP DATE	APP

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
LOG CABIN WAY
PLAN AND PROFILE 2 - "LCW" 41+00.00 TO "LCW" 46+50.00

DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO. EST1906-000

PROFESSIONAL ENGINEER - STATE OF NEVADA - JOSHUA L. JOHNSON - No. 15789 - Exp. 06/30/2020 - CIVIL - 8/7/19

PP-2
SHEET 7 OF 47

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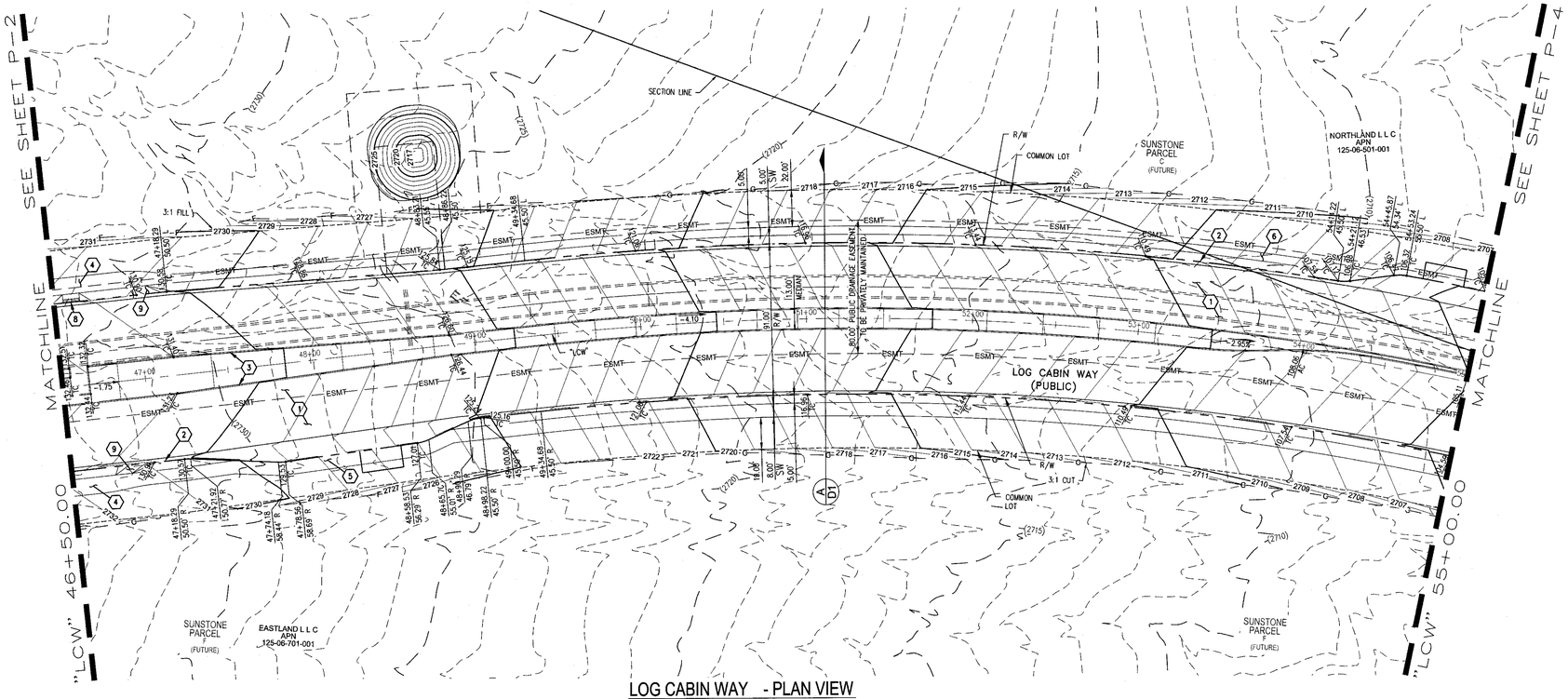

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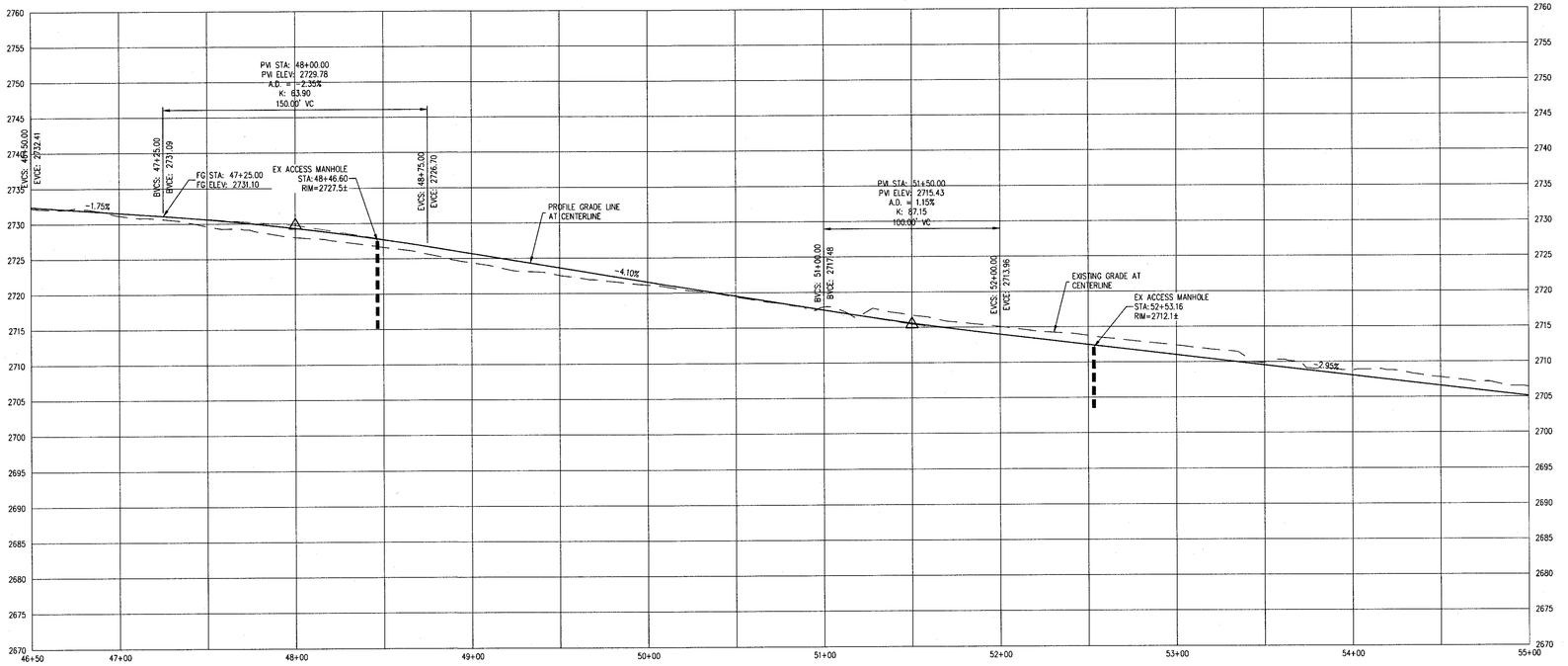

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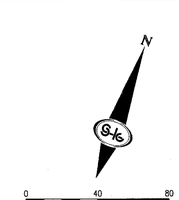

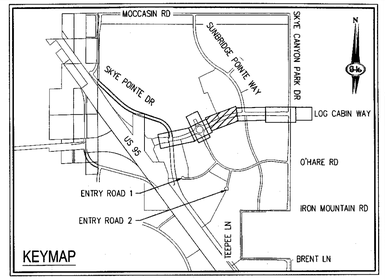

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NO.	DESCRIPTION	DATE	BY	APP DATE	APP

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

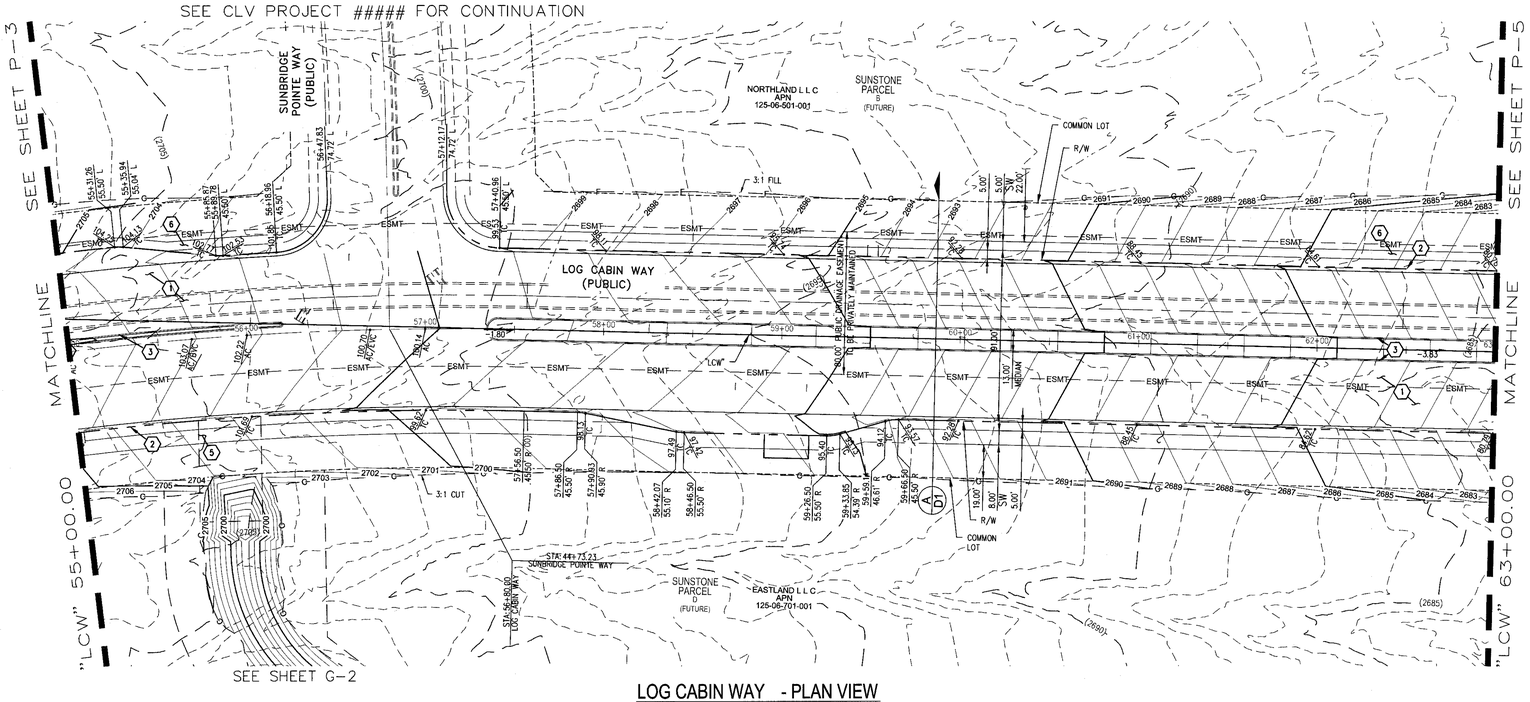
SUNSTONE PHASE 1
LOG CABIN WAY
PLAN AND PROFILE 3 - "LCW" 46+50.00 TO "LCW" 55+00.00

DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1906-000

JOSHUA L. JOHNSON — No. 15789 — PROFESSIONAL ENGINEER — STATE OF NEVADA — 06/30/2021 — CIVIL
6/7/19

PP-3
SHEET 8 OF 47

K:\est1906-000 sunstone log cabin\dwg\improv\est1906-000 prof.dwg 6/7/2019 8:32 AM Thomas Dyson



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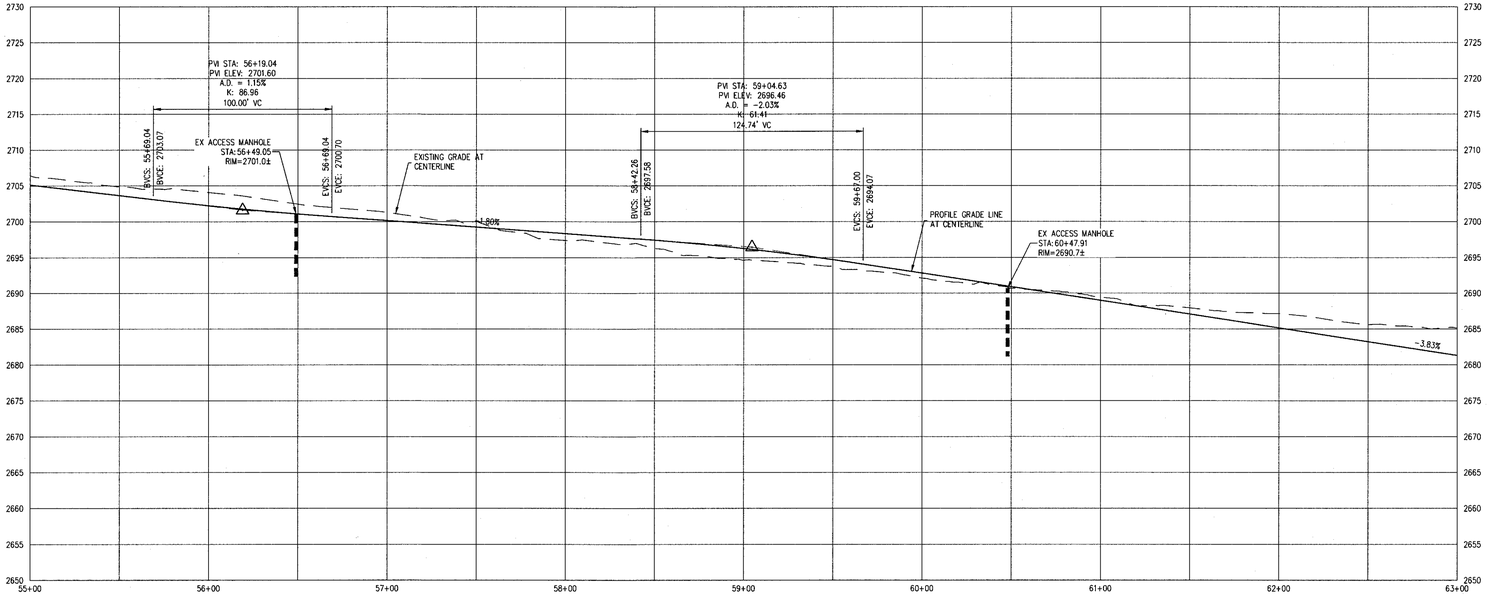

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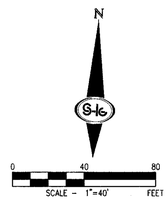

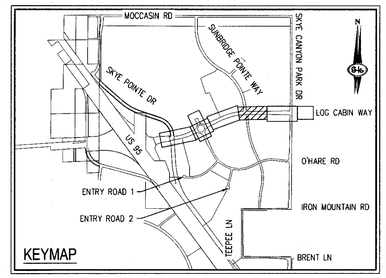

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(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

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CONSTRUCTION NOTES
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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.

E7 RIGHT-OF-WAY GRANTED BY DECISION, DATED JUNE 9, 2004, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER B-757574 TO CITY OF LAS VEGAS FOR ROADWAY, SANITARY SEER AND DRAINAGE PURPOSES UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF THE LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON JUNE 18, 2004 IN BOOK 20040618, AS INSTUMENT NO. 01781 OF OFFICIAL RECORDS.

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JOSH JOHNSON, P.E. 15789 DATE

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

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

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Call 811 OR 1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
LOG CABIN WAY
PLAN AND PROFILE 4 - "LCW" 55+00.00 TO "LCW" 63+00.00

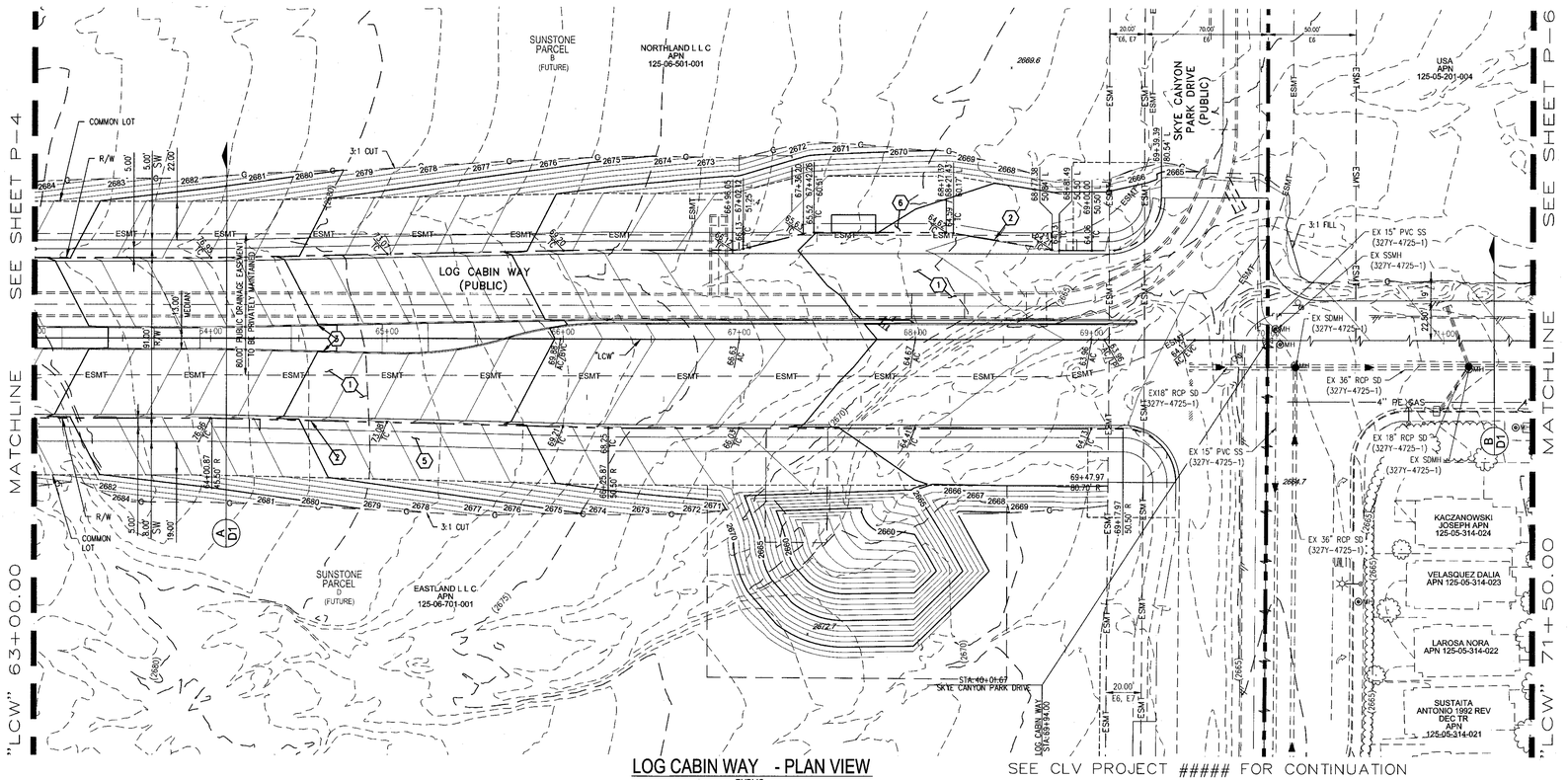
DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1906-000

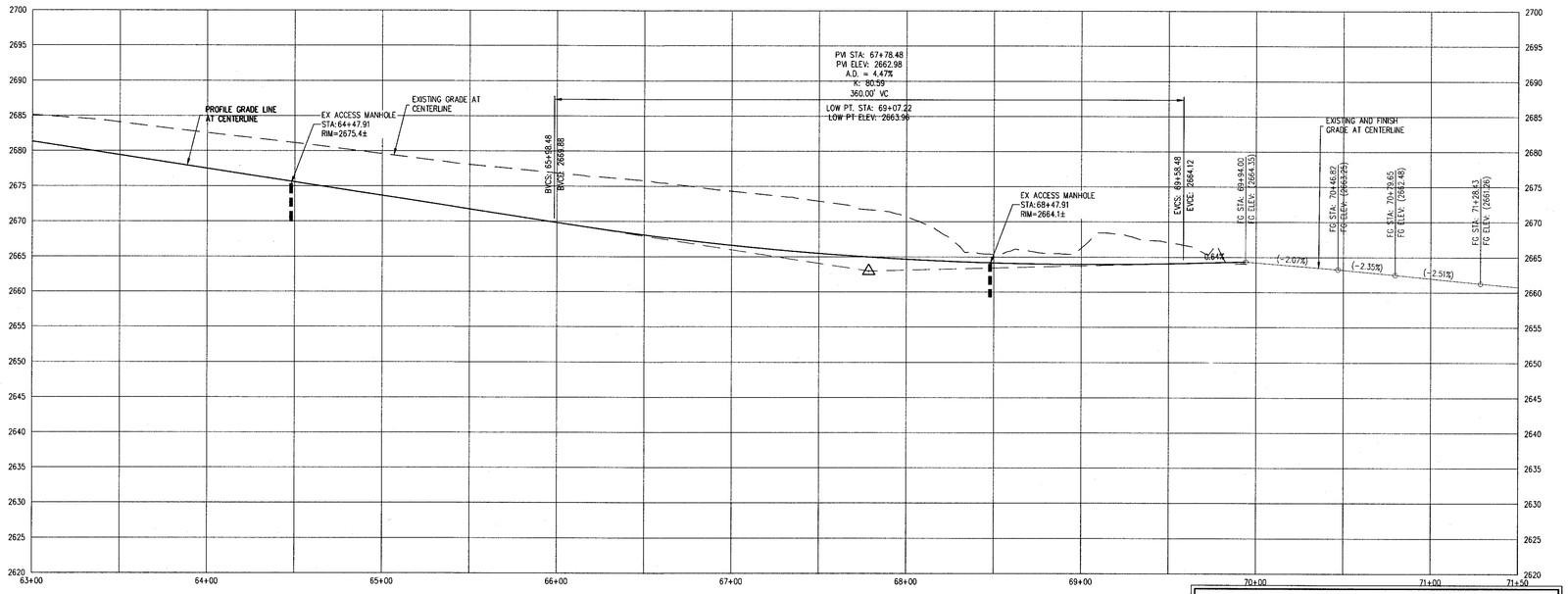
NEVADA PROFESSIONAL ENGINEER - STATE OF NEVADA - JOSHUA L. JOHNSON - No. 15789 - 8/7/19

PP-4
SHEET 9 OF 47

J:\est1906-000 sunstone lcw cabin\dwg\mpw\est1906-000 xsd.dwg 8/7/2019 8:32 AM Thomas Dyson



LOG CABIN WAY - PLAN VIEW
PUBLIC



LOG CABIN WAY - PROFILE VIEW
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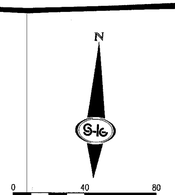

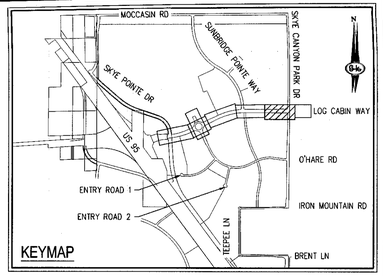

KEYMAP

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SLATER HANIFAN GROUP
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NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
LOG CABIN WAY
PLAN AND PROFILE 5 - "LCW" 63+00.00 TO "LCW" 71+50.00

DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO. EST1906-000

PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSHUA L. JOHNSON
No. 15789
CIVIL
8/7/19

PP-5
SHEET 10 OF 47

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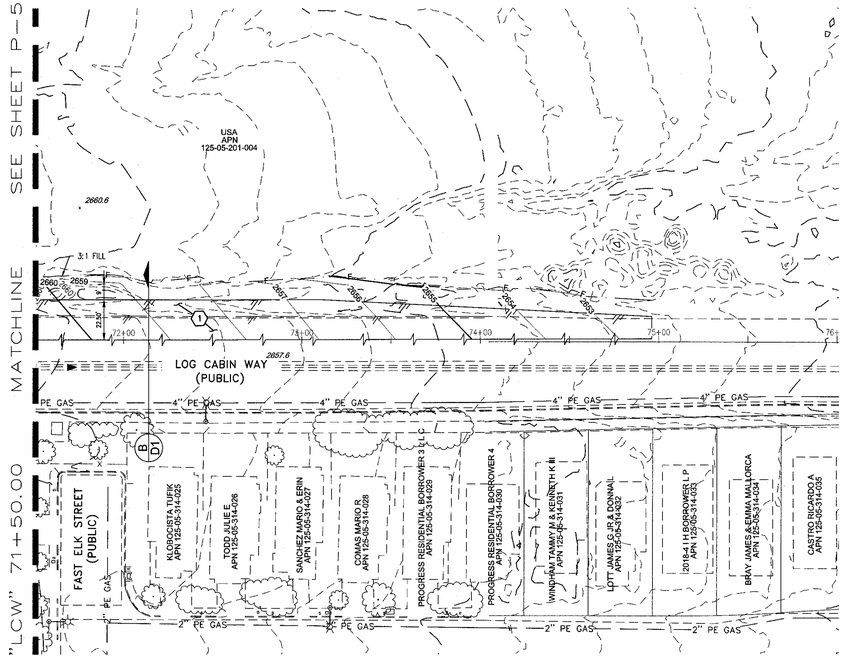
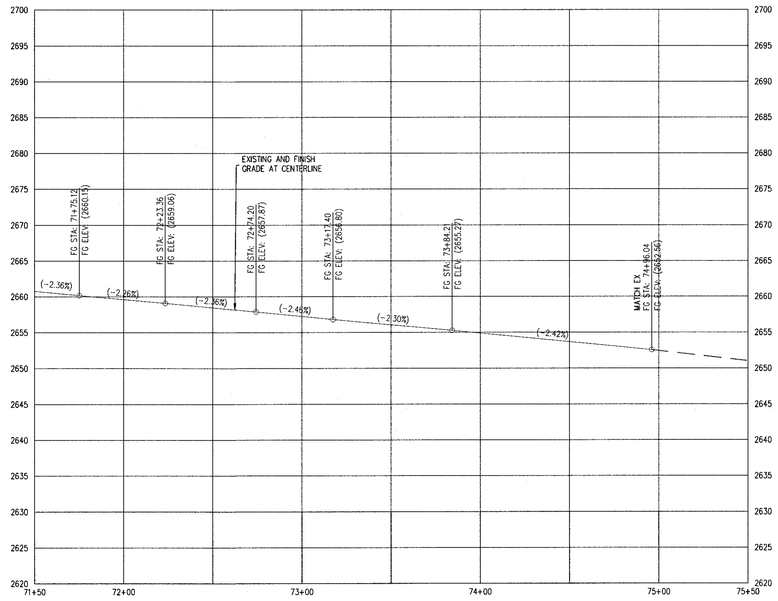


LOG CABIN WAY - PLAN VIEW

PUBLIC



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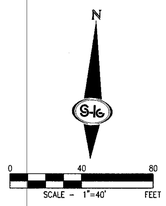

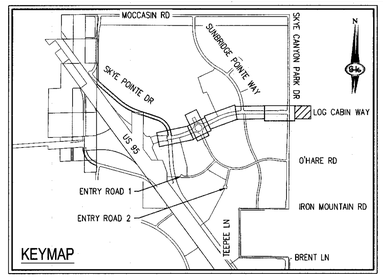

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4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER 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 NVR100000, 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.

CONSTRUCTION NOTES

1. INSTALL 1" ASPHALT PAVEMENT OVER 1" 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 10' WIDE SIDEWALK PER CCAUSD NO. 234
5. CONSTRUCT 8' WIDE SIDEWALK PER CCAUSD NO. 234
6. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD NO. 234
7. CONSTRUCT 8' VALLEY GUTTER PER CCAUSD NO. 228
8. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235 CASE 1, AND 235.1
9. BICYCLE RAMP

EXISTING EASEMENTS

E1 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.

E2 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.

E3 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.

E4 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

E6 NDOT EASENT 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.

E7 RIGHT-OF-WAY GRANTED BY DECISION, DATED JUNE 9, 2004, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER B-75757A TO CITY OF LAS VEGAS FOR ROADWAY, SANITARY SEER AND DRAINAGE PURPOSES UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF THE LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON JUNE 18, 2004 IN BOOK 20040618, AS INSTUMENT NO. 01781 OF OFFICIAL RECORDS.

FLOOD ZONE

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

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

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.

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

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811
OR
1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

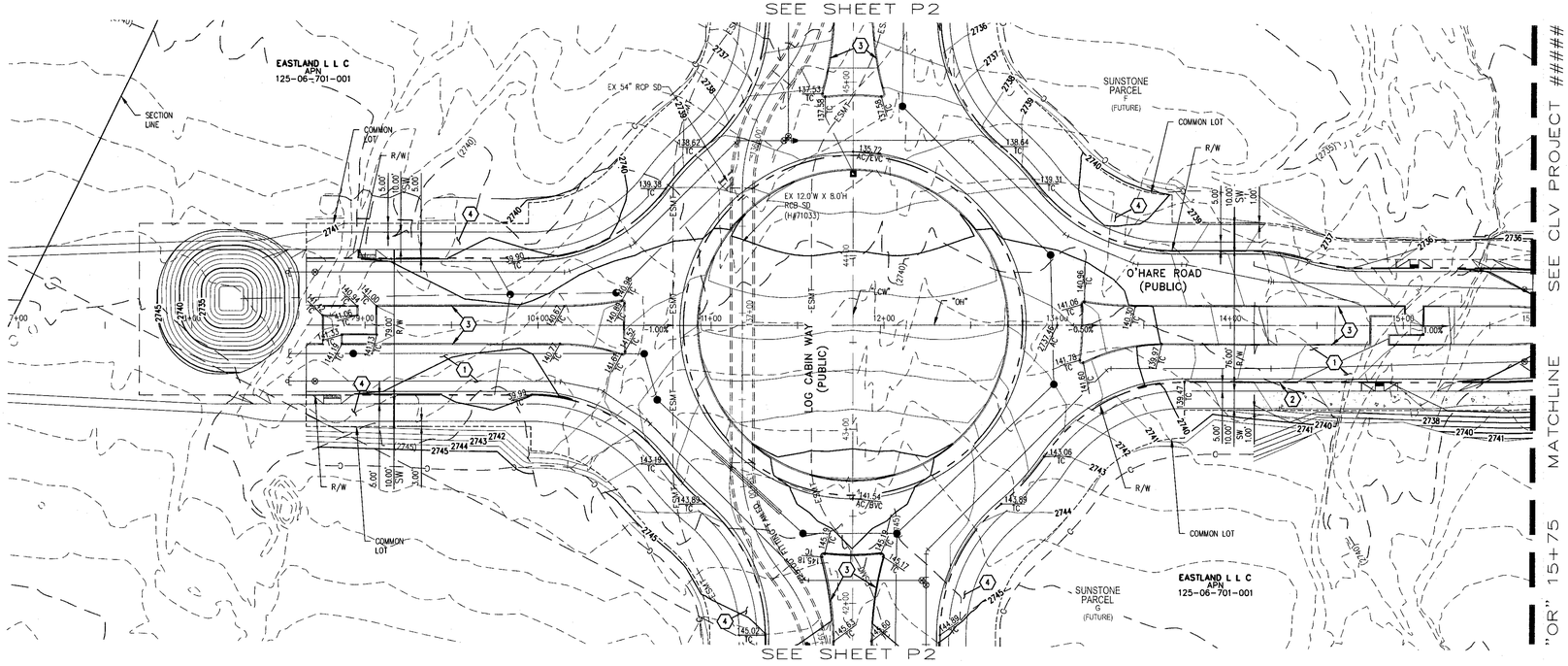
SUNSTONE PHASE 1
LOG CABIN WAY
PLAN AND PROFILE 6 - "LCW" 71+00.00 TO "LCW" 76+00.00

DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1906-000

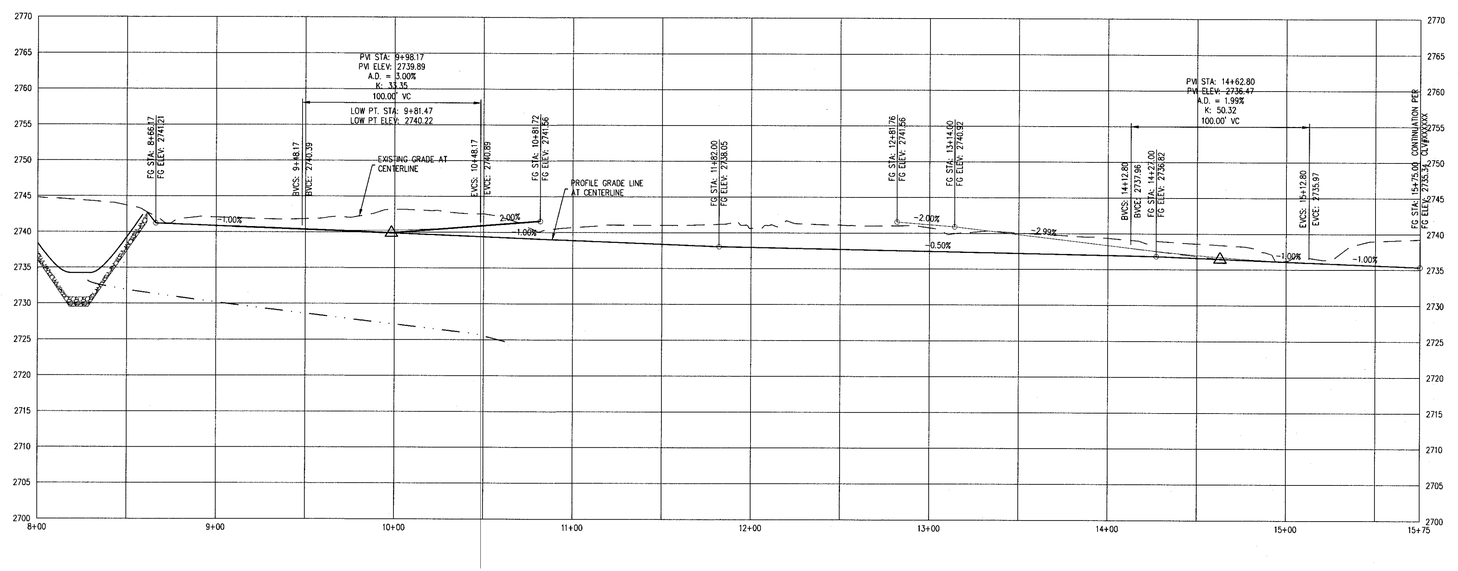
PROFESSIONAL ENGINEER - STATE OF NEVADA - JOSHUA L. JOHNSON - Exp. 06/30/2021 - CIVIL - NO. 15789 - 8/7/19

PP-6
SHEET 11 OF 47

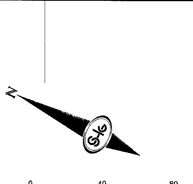
J:\est1906-000 sunstone log cabin\dwg\engrcv\est1906-000 cnst.dwg 8/7/2019 8:32 AM Thomas Dyson

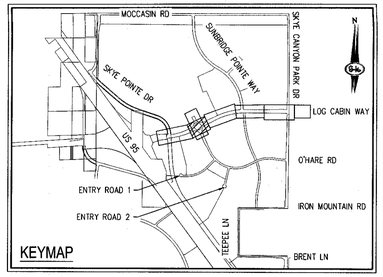


O'HARE ROAD - PLAN VIEW
PUBLIC



O'HARE ROAD - PROFILE VIEW
HORIZ: 1" = 40'
VERT: 1" = 10'





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 OBSCURED DURING CONSTRUCTION.

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)

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.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT 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 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/REPLEPING 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 EXIST) 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 IN THE LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDANCE MANUAL.
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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.

E7 RIGHT-OF-WAY GRANTED BY DECISION, DATED JUNE 9, 2004, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER B-75757A TO CITY OF LAS VEGAS FOR ROADWAY, SANITARY SEER AND DRAINAGE PURPOSES UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF THE LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON JUNE 18, 2004 IN BOOK 20040618, AS INSTUMENT NO. 01781 OF OFFICIAL RECORDS.

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JOSH JOHNSON, P.E. 15789 DATE

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AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.
CALL BEFORE YOU DO OVERHEAD
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FAST
Call before you UnderGround
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FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T)

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811 OR 1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
LOG CABIN WAY
PLAN AND PROFILE 7 - "OR" 7+00.00 TO "OR" 15+00.00

DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1906-000

PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSHUA L. JOHNSON
No. 15789
Exp. 06/30/2021
CIVIL
8/7/19

PP-7
SHEET 12 OF 47

J:\est1906-000 sunstone log cabin\dwg\mperov\est1906-000 cnst-2.dwg 8/7/2019 8:33 AM Thomas Dyson

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
ROUNDABOUT GRADING PLAN

DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1906-000

PROFESSIONAL ENGINEER – STATE OF NEVADA
JOSHUA L. JOHNSON
No. 15789
Exp. 06/30/2021
CIVIL
8/7/19

RA-1
SHEET 13 OF 47

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

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Call before you Dig. AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY. Call 811 OR 1-800-227-2600

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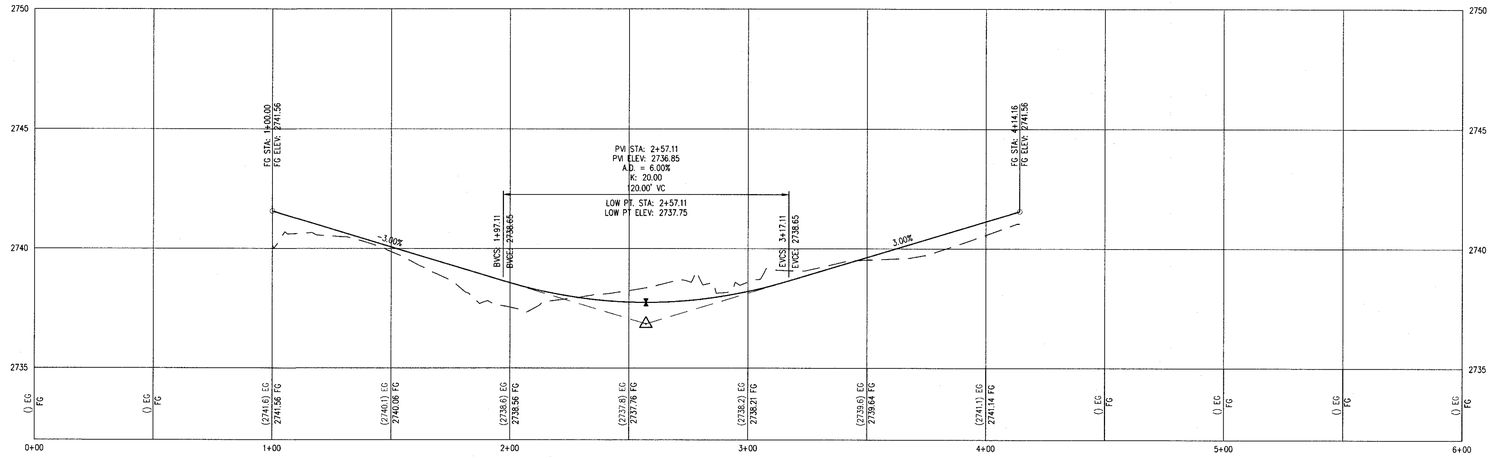
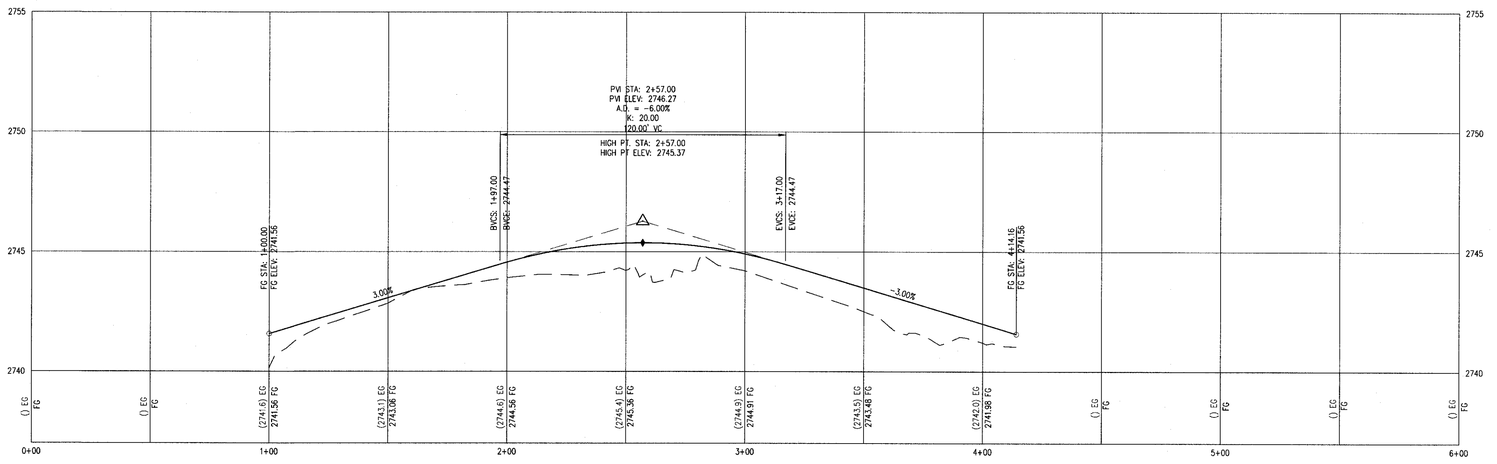


ROUNDABOUT EAST EDGE OF PAVEMENT - PROFILE VIEW

HORIZ: 1" = 30'
VERT: 1" = 3'



ROUNDABOUT WEST EDGE OF PAVEMENT - PROFILE VIEW

HORIZ: 1" = 30'
VERT: 1" = 3'

SLATER HANIFAN GROUP
a Westwood team
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PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1

ROUNDABOUT PROFILE

DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

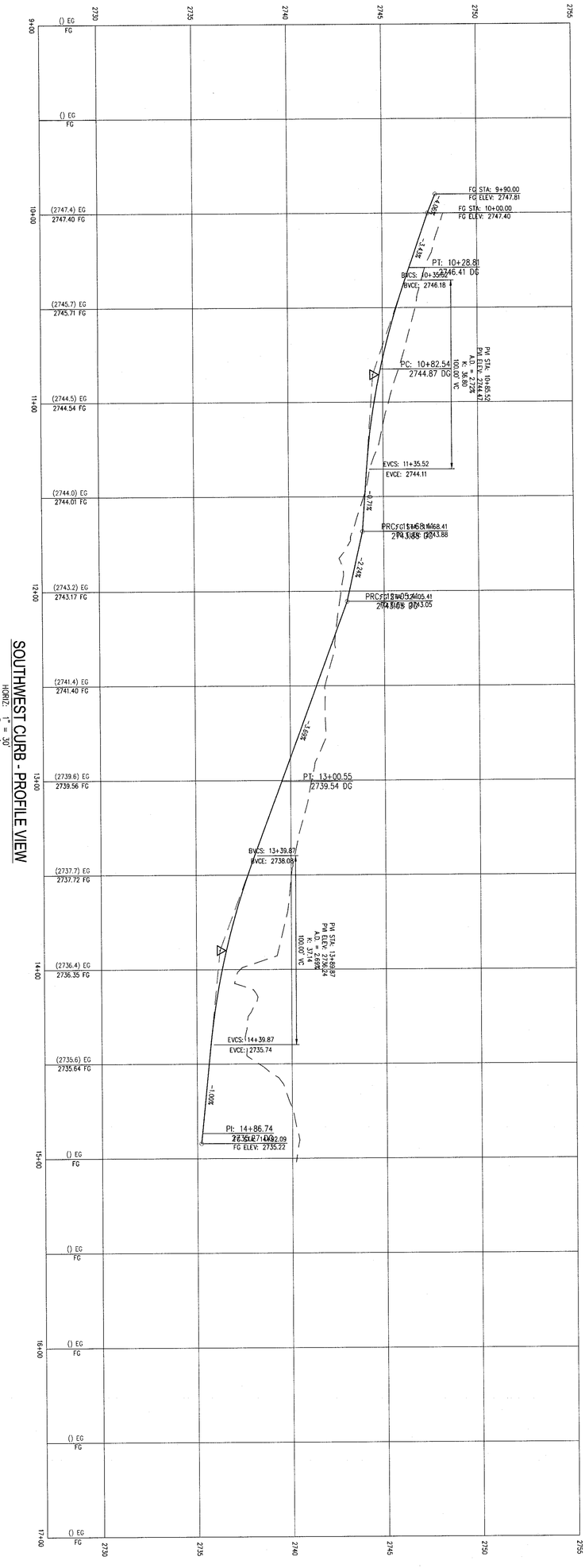
PROJECT NO.
EST1906-000

PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSHUA L. JOHNSON
Exp. 06/30/2021
CIVIL
No. 15789
8/7/19

RA-2
SHEET 14 OF 47

J:\est1906-000 sunstone log cabin\dwg\engrcvs\est1906-000 rnd-abt.dwg 8/7/2019 8:34 AM Thomas Dyson

I:\est1906-000 sunstone lot cabin\dwg\improv\est1906-000 rnd-abt.dwg 8/7/2019 8:34 AM Thomas Dyson



CITY OF LAS VEGAS

NO.	DESCRIPTION	DATE	BY	APP DATE	APP

SC EAST LANDCO, LLC

SUNSTONE PHASE 1

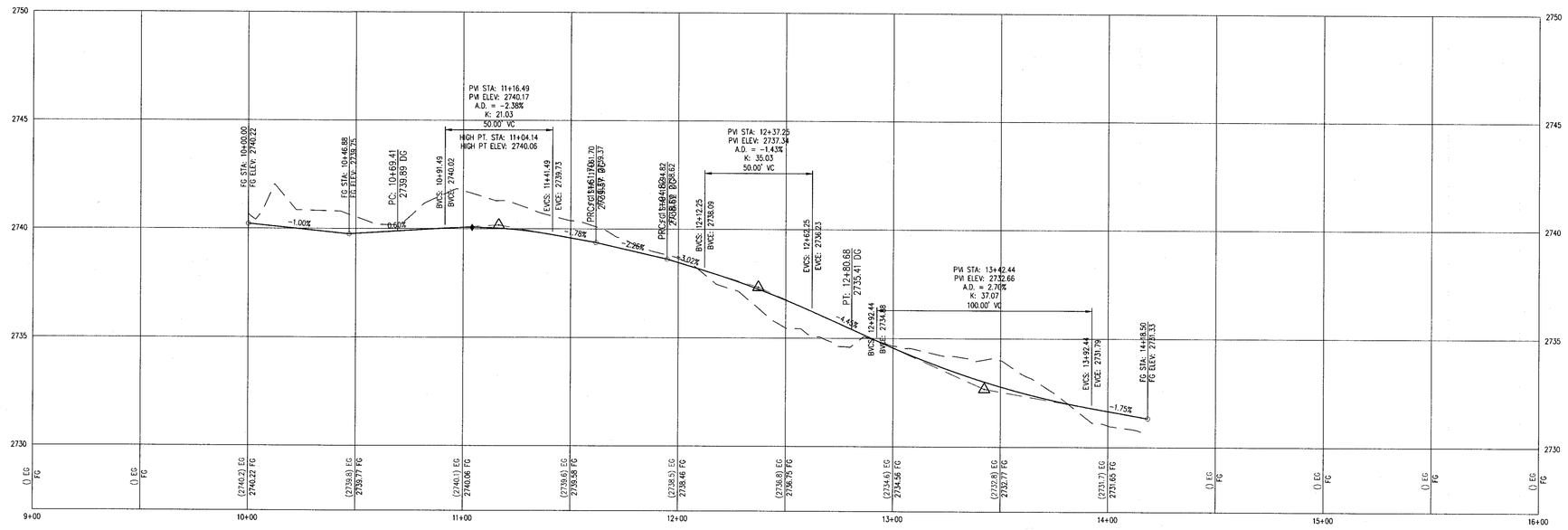
ROUNDABOUT SOUTH CURB PROFILES

RA-3
SHEET 15 OF 47

PROFESSIONAL ENGINEER — STATE OF NEVADA — JOSHUA M. JOHNSON — No. 15789 — 8/7/19

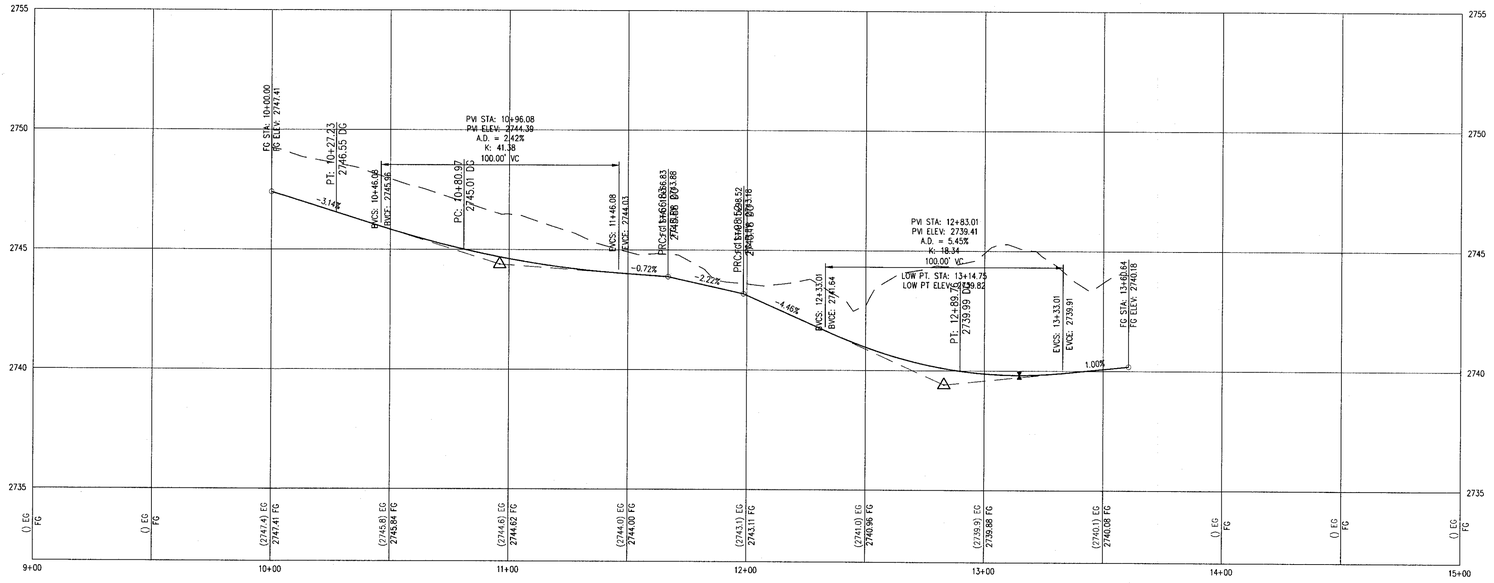
PROJECT NO. EST1906-000
CHECKED: JJ
DESIGNER: BC
DRAFTER: SB/JR
DATE: 08/07/2019

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399



NORTHEAST CURB - PROFILE VIEW

HORIZ: 1" = 30'
VERT: 1" = 3'



SOUTHEAST CURB - PROFILE VIEW

HORIZ: 1" = 30'
VERT: 1" = 3'

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
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NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1

ROUNDABOUT NORTH CURB PROFILES

DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1906-000

PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSHUA L. JOHNSON
No. 15789
Exp. 04/30/2021
CIVIL
8/7/19

RA-4
SHEET 16 OF 47

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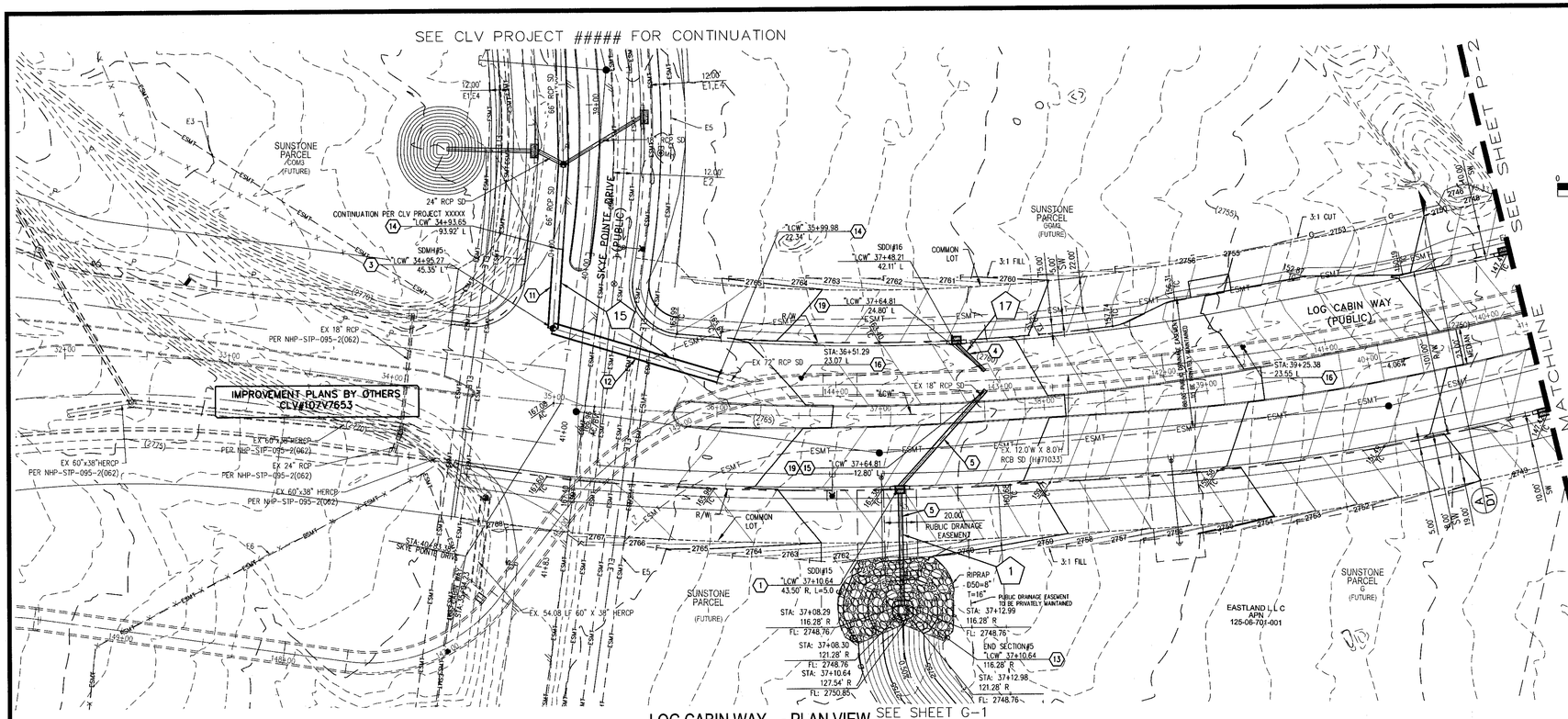
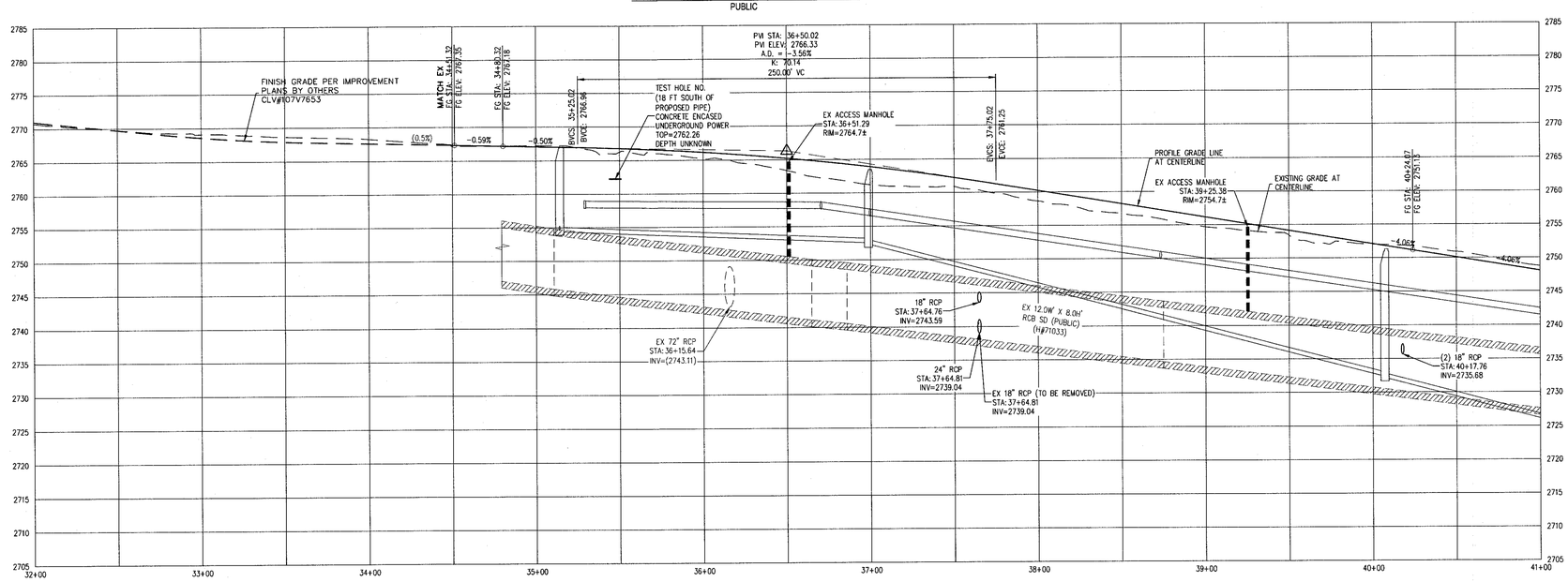


LOG CABIN WAY - PLAN VIEW SEE SHEET G-1

PUBLIC



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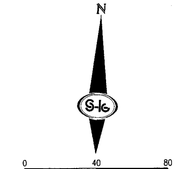

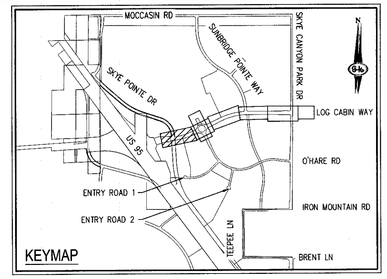

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JOSH JOHNSON, P.E. 15789 — DATE

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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

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

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

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811 OR 1-800-227-2600

S-IC SLATER HANIFAN GROUP a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
LOG CABIN WAY
STORM DRAIN 1 - "LCW" 32+00.00 TO "LCW" 41+00.00

DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1906-000

NATIONAL ENGINEER - STATE OF NEVADA - JOSHUA L. JOHNSON - No. 15789 - Exp. 06/30/2021 - CIVIL - 8/7/19

SD-1
SHEET 17 OF 47

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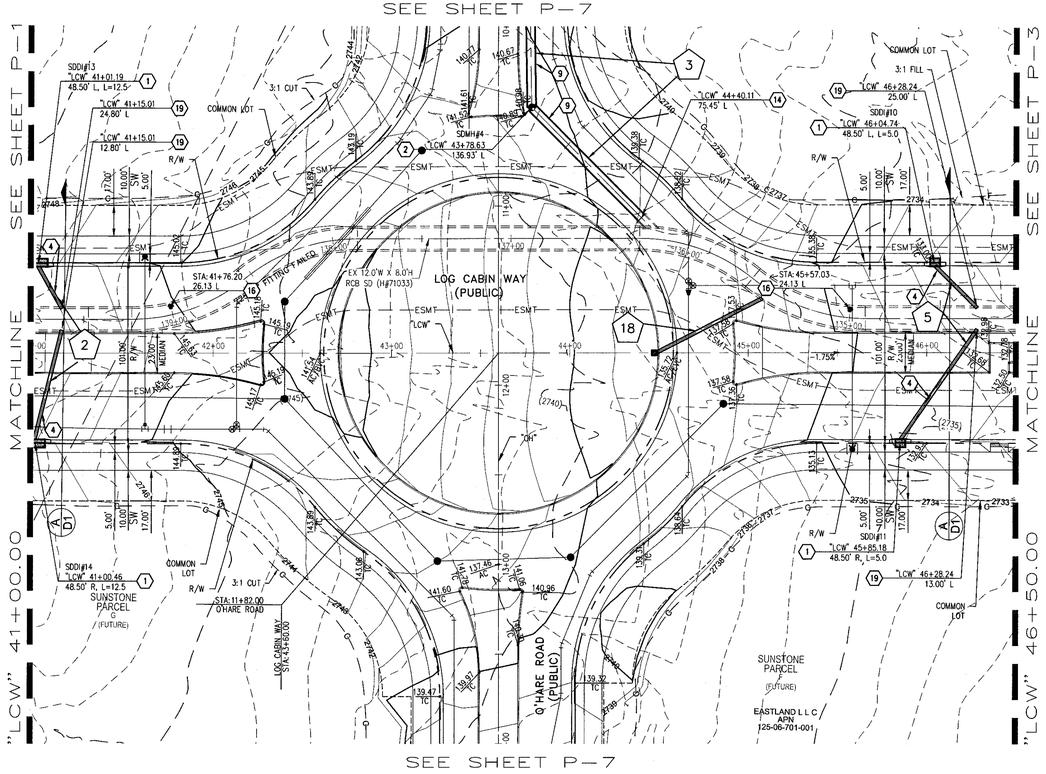
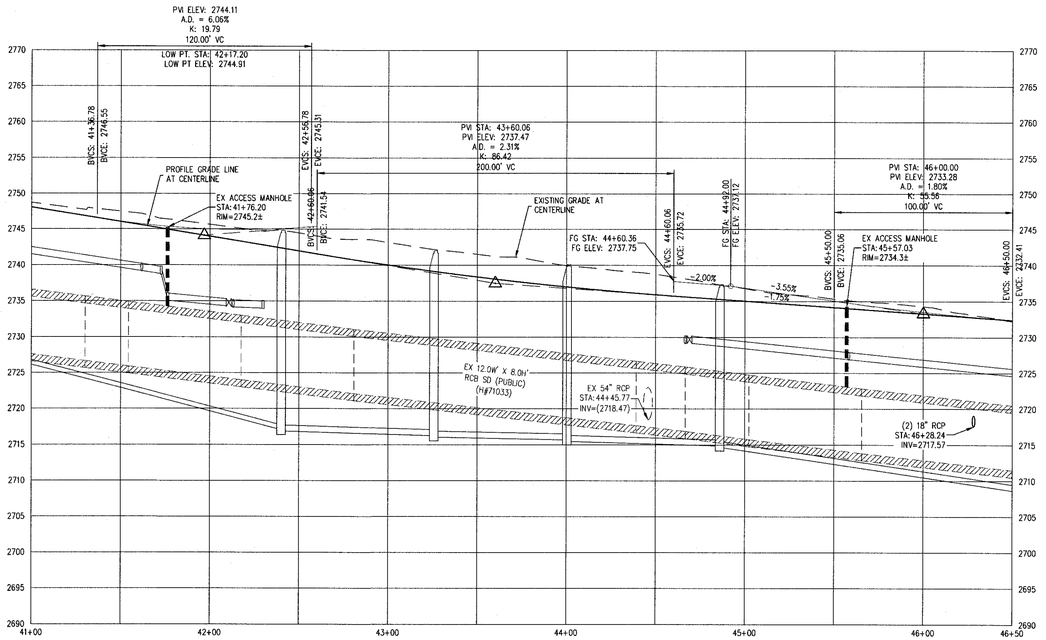


LOG CABIN WAY - PLAN VIEW

PUBLIC



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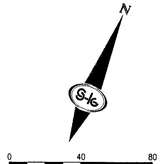

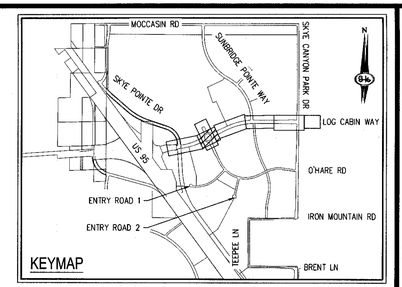

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LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
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SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

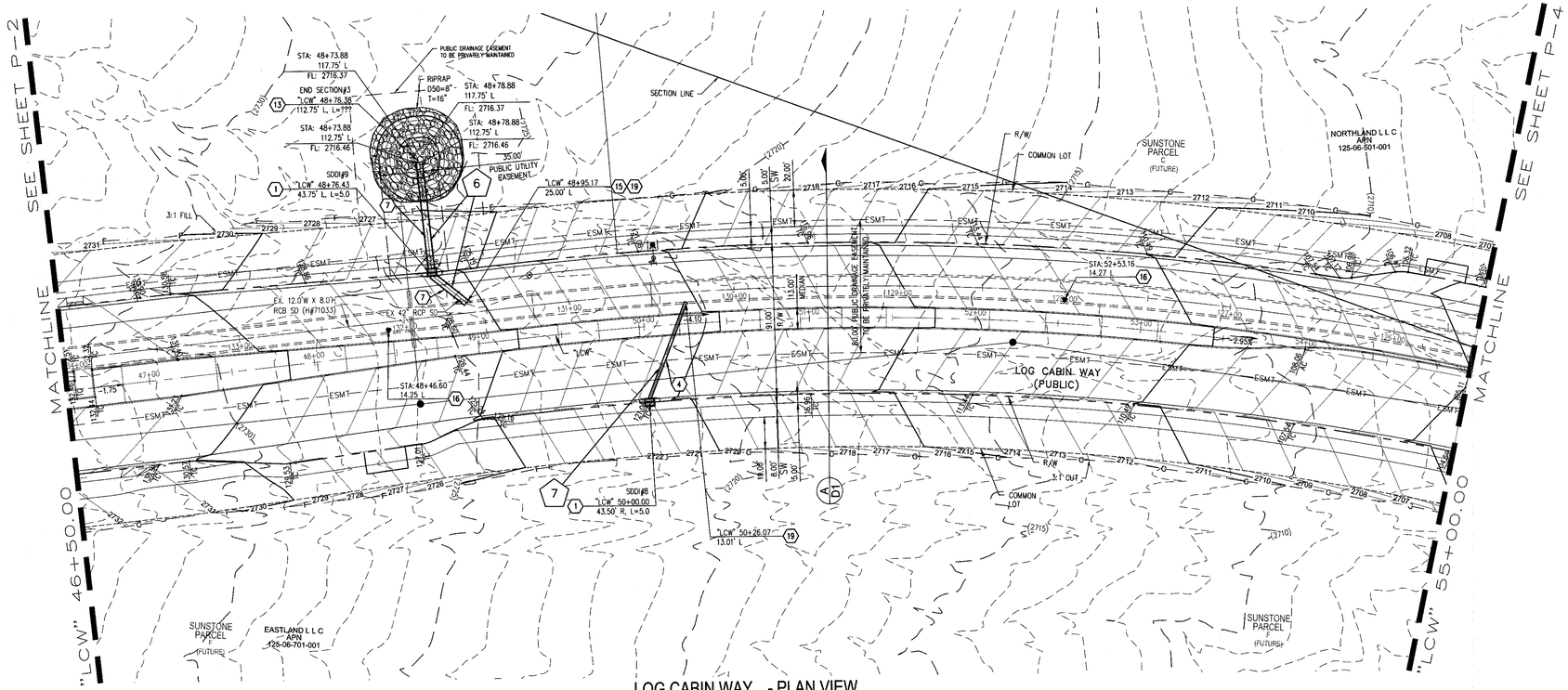
SUNSTONE PHASE 1
LOG CABIN WAY
STORM DRAIN 2 - "LCW" 41+00.00 TO "LCW" 46+50.00

DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1906-000

JOSHUA L. JOHNSON
No. 15789
PROFESSIONAL ENGINEER - STATE OF NEVADA
Exp. 06/30/2021
CIVIL
8/7/19

SD-2
SHEET 18 OF 47

J:\est1906-000 sunstone log cabin\dwg\xrefs\est1906-000 grp dwg 8/7/2019 8:36 JM Thomas Dyson



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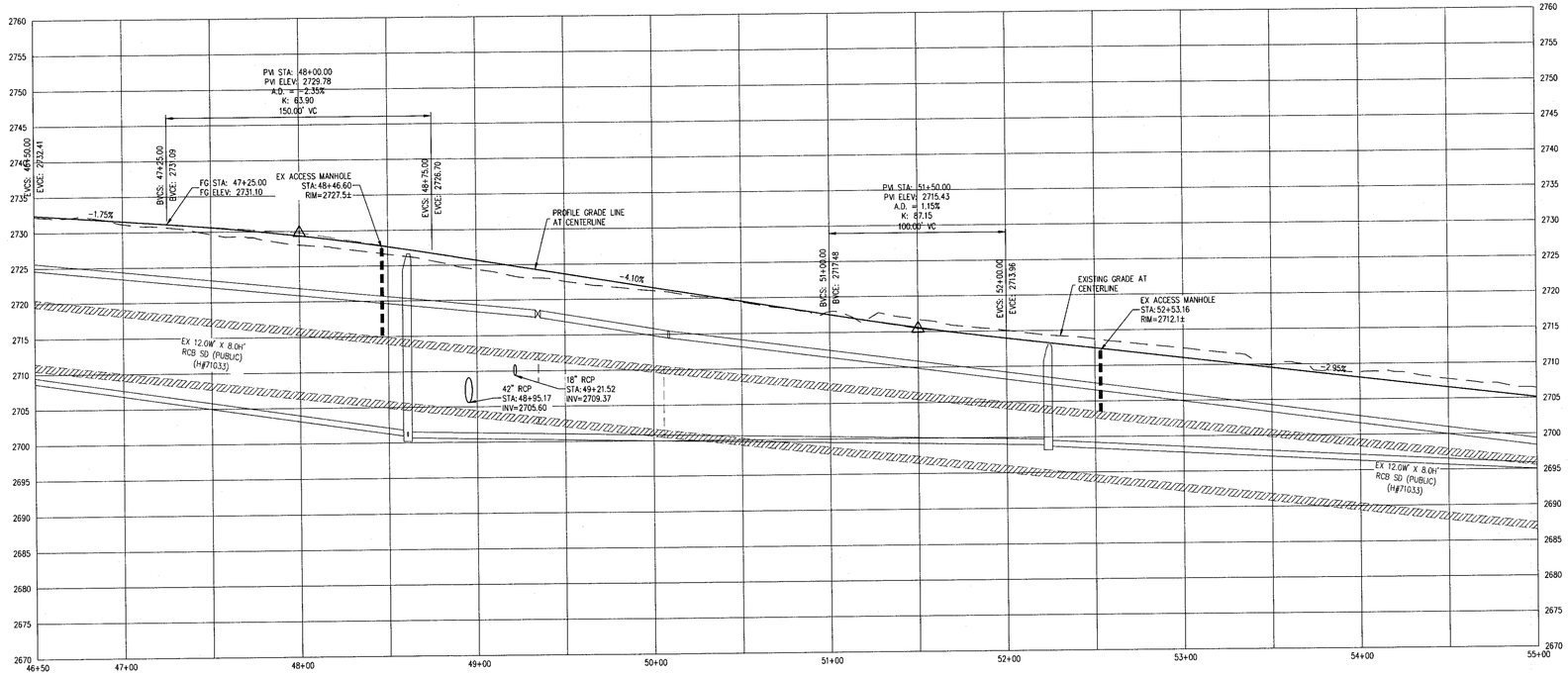

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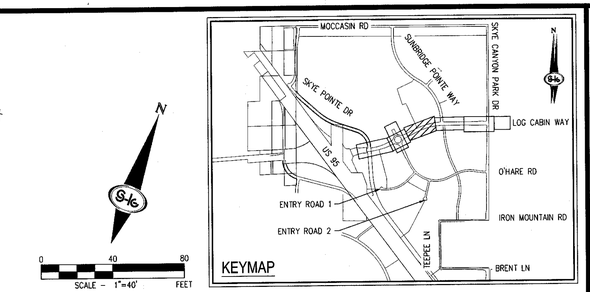

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17. INSTALL 48" C900 STORM DRAIN
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LEGEND

(1) STORM DRAIN LATERAL # (SEE SHEETS SD-6)

NOTES

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3. ALL DROP INLETS SHALL INCLUDE STORM WATER MANAGEMENT STAMP AND DETAIL PER USDCCA STD. DWG. NO. 421.
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DISCLAIMER NOTE

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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

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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

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE:
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SLATER HANIFAN GROUP
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PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
LOG CABIN WAY
STORM DRAIN 3 - "LCW" 46+50.00 TO "LCW" 55+00.00

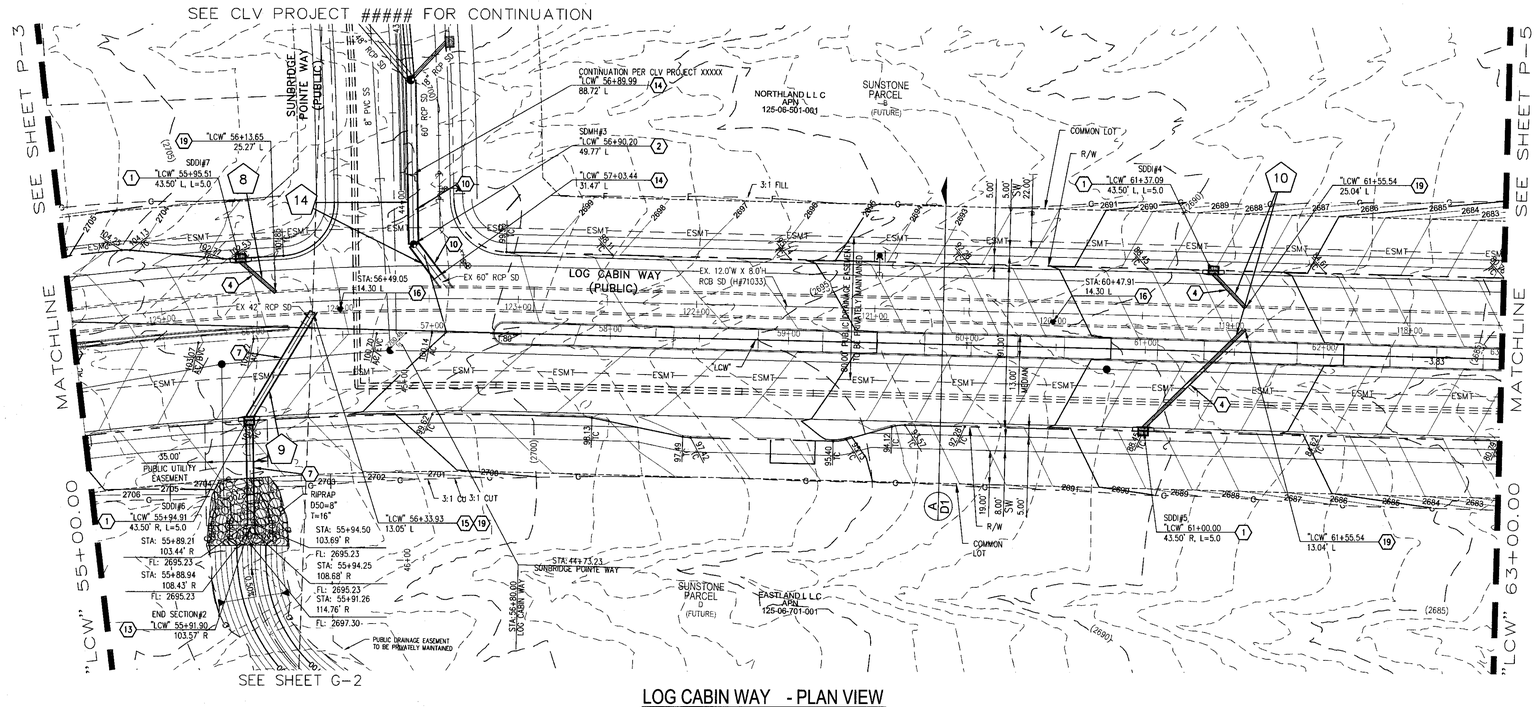
DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1906-000

PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSHUA L. JOHNSON
No. 15789
Exp. 06/30/2021
civil
8/7/19

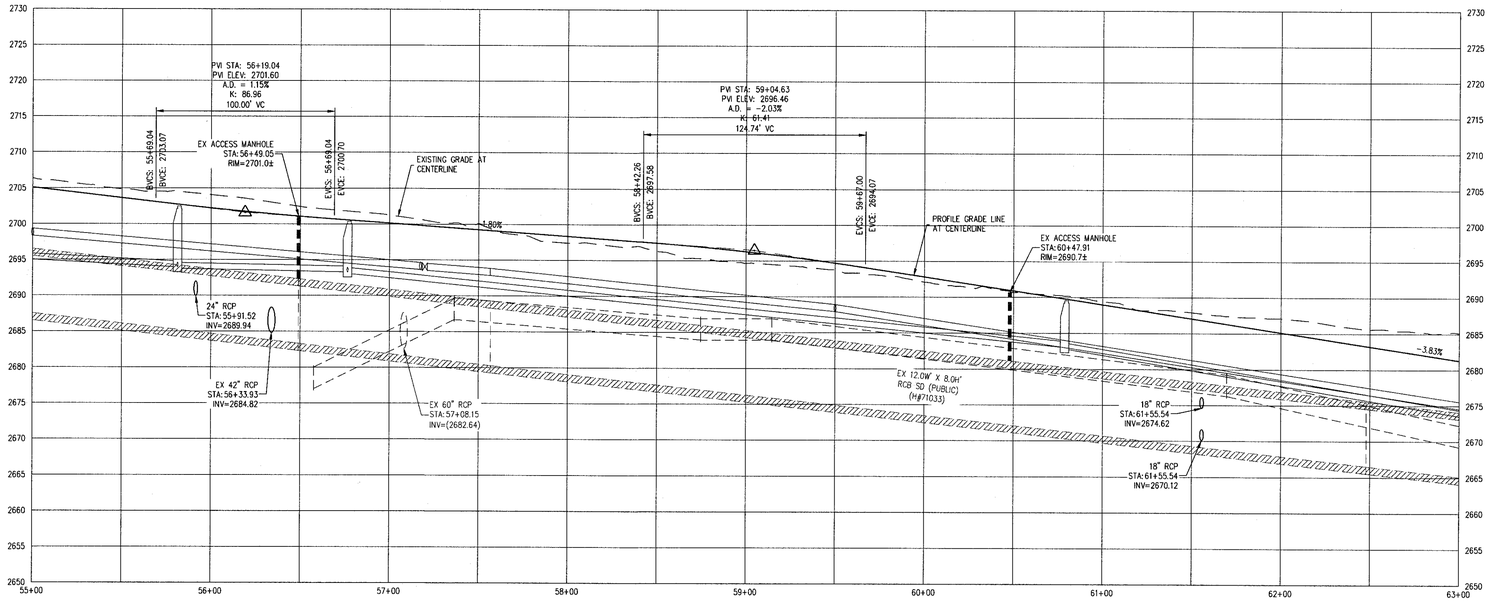
SD-3
SHEET 19 OF 47

J:\est1906-000 sunstone log cabin\Data\Vanpro\est1906-000 sprp.dwg 8/7/2019 8:37 AM Thomas Dyson



LOG CABIN WAY - PLAN VIEW

PUBLIC



LOG CABIN WAY - PROFILE VIEW

HORIZ: 1" = 40'
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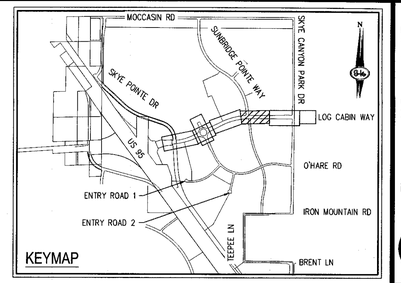

EXISTING EASEMENTS

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STORM DRAIN NOTES

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JOSH JOHNSON, P.E. 15789 DATE

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APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
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NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
LOG CABIN WAY
STORM DRAIN 4 - "LCW" 55+00.00 TO "LCW" 63+00.00

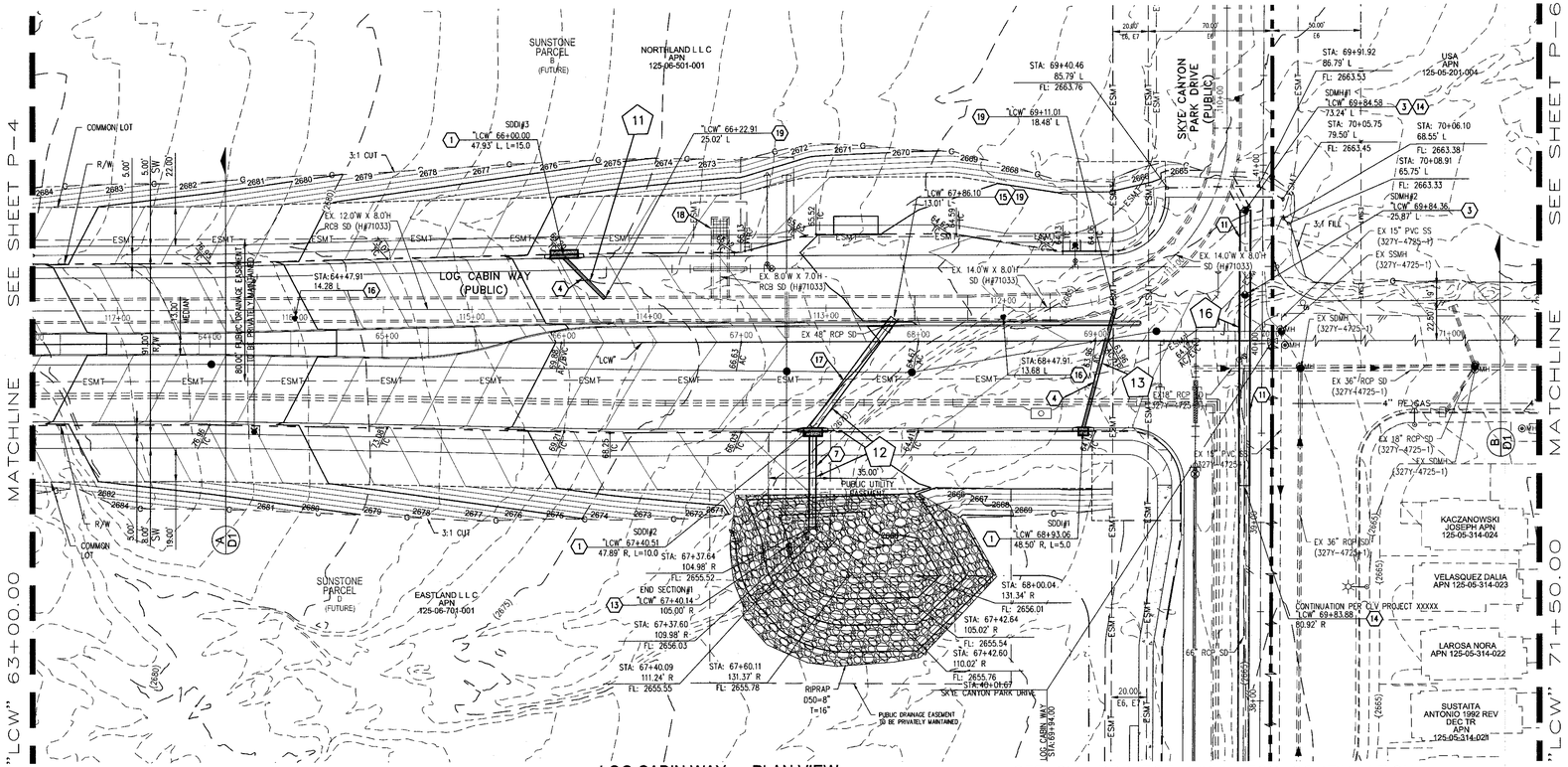
DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1906-000

PROFESSIONAL ENGINEER - STATE OF NEVADA - JOSHUA L. JOHNSON - No. 15789 - Exp. 06/30/2021 - CIVIL - 8/7/19

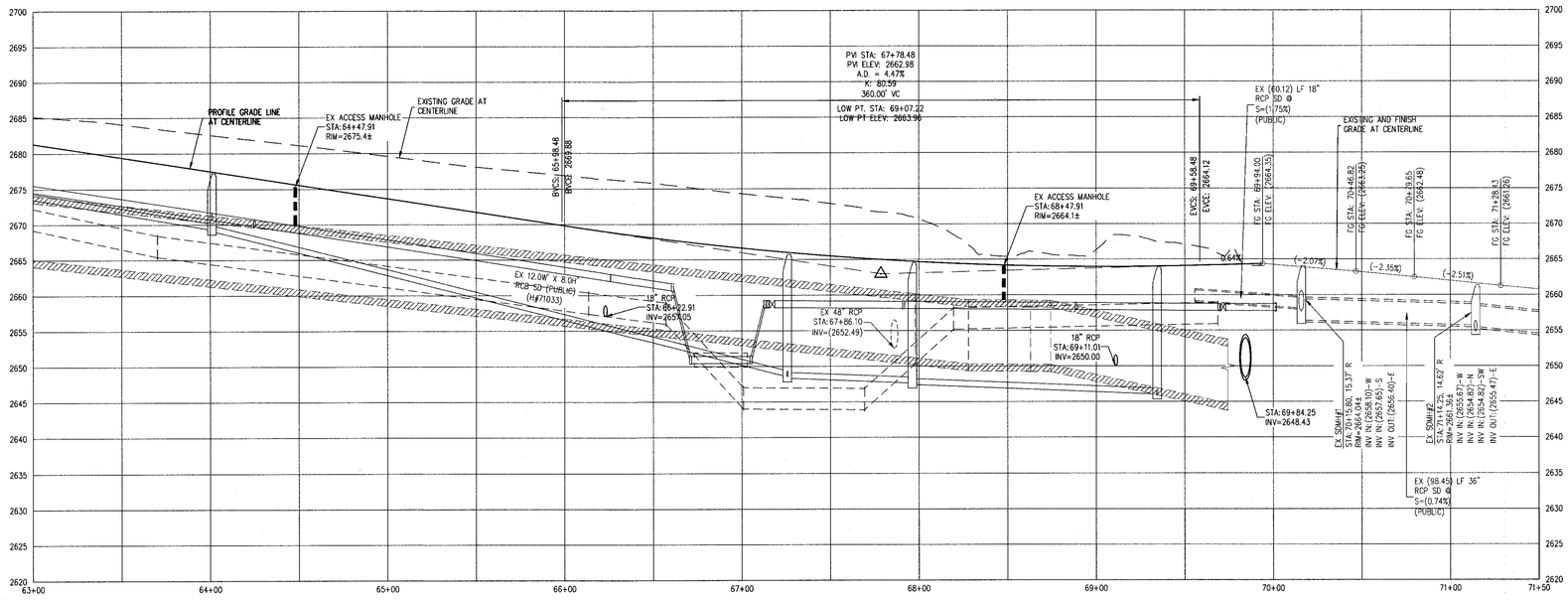
SD-4
SHEET 20 OF 47

i:\est1906-000 sunstone log cabin\dwg\civil\est1906-000 grp.dwg, 8/7/2019 8:17 AM Thomas Dyson



LOG CABIN WAY - PLAN VIEW

PUBLIC



LOG CABIN WAY - PROFILE VIEW

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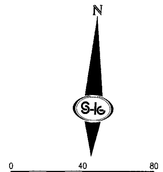

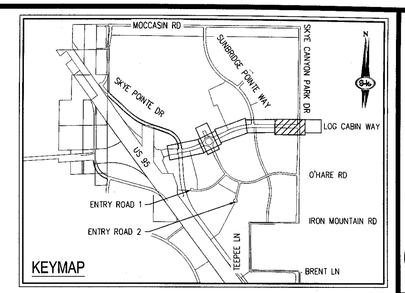

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PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
LOG CABIN WAY
STORM DRAIN 5 - "LCW" 63+00.00 TO "LCW" 71+50.00

DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1906-000

PROFESSIONAL ENGINEER – STATE OF NEVADA – JOSHUA L. JOHNSON – No. 15789 – Exp. 06/30/2021 – CIVIL – 8/7/19

SD-5
SHEET 21 OF 47

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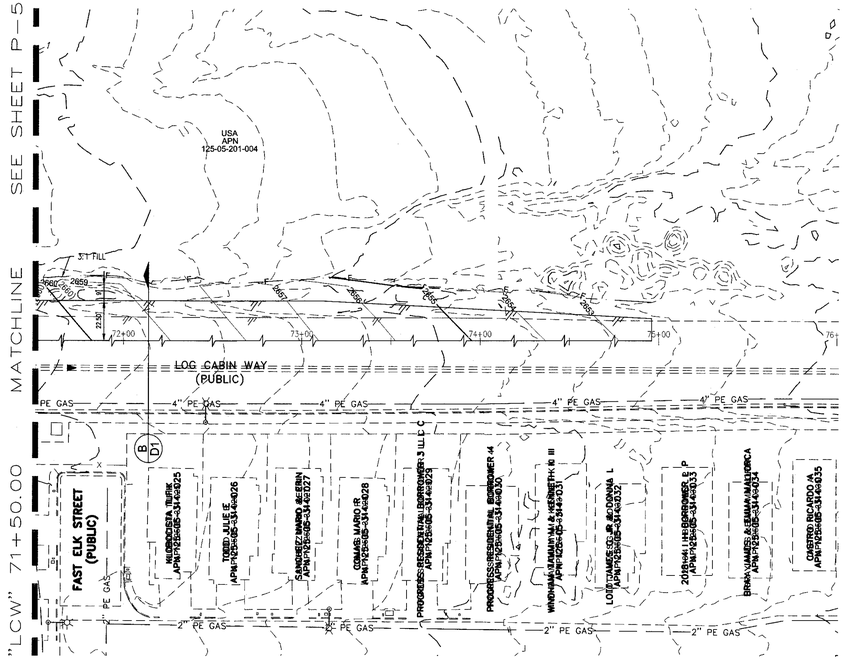
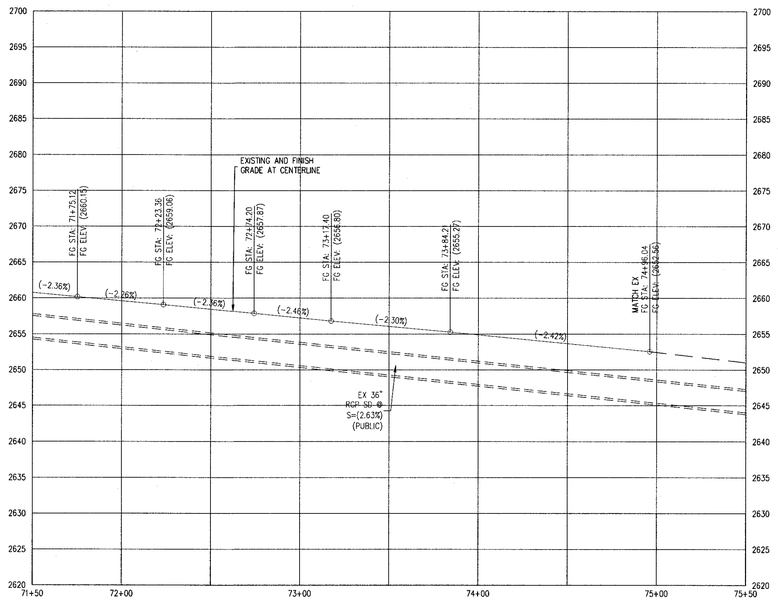
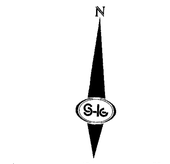
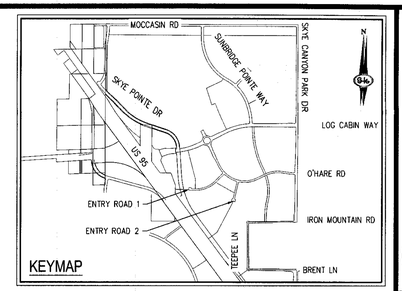


LOG CABIN WAY - PLAN VIEW
PUBLIC



LOG CABIN WAY - PROFILE VIEW
HORIZ: 1" = 40'
VERT: 1" = 10'





EXISTING EASEMENTS

E1 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.

E2 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.

E3 A RIGHT-OF-WAY GRANTED BY DECISION, DATED AUGUST 21, 1970, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER NEVD13376 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.

E4 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

E6 NDOT EASENT 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.

E7 RIGHT-OF-WAY GRANTED BY DECISION, DATED JUNE 9, 2004, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER B-75757A TO CITY OF LAS VEGAS FOR ROADWAY, SANITARY SEER AND DRAINAGE PURPOSES UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF THE LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON JUNE 18, 2004 IN BOOK 20040618, AS INSTUMENT NO. 01781 OF OFFICIAL RECORDS.

STORM DRAIN NOTES

1. CONSTRUCT TYPE "CM2" DROP INLET (USDCCA STD. DWG. NO. 412.1 & 421)
2. CONSTRUCT 60" TYPE III MANHOLE (USDCCA STD. DWG. NO. 406.1)
3. CONSTRUCT NDOT TYPE 4 MANHOLE (NDOT STD. PLAN R-4.3.2)
4. INSTALL 18" RCP (USDCCA STD. DWG. NO. 503.2)
5. INSTALL 24" RCP (USDCCA STD. DWG. NO. 503.2)
6. INSTALL 30" RCP (USDCCA STD. DWG. NO. 503.2)
7. INSTALL 42" RCP (USDCCA STD. DWG. NO. 503.2)
8. INSTALL 48" RCP (USDCCA STD. DWG. NO. 503.2)
9. INSTALL 54" RCP (USDCCA STD. DWG. NO. 503.2)
10. INSTALL 60" RCP (USDCCA STD. DWG. NO. 503.2)
11. INSTALL 66" RCP (USDCCA STD. DWG. NO. 503.2)
12. INSTALL 72" RCP (USDCCA STD. DWG. NO. 503.2)
13. INSTALL RCP END SECTION (NDOT STD. PLAN R-2.3.1)
14. REMOVE PLUG AND CONNECT TO EXISTING STORM DRAIN
15. REMOVE EXISTING STORM DRAIN LATERAL
16. ADJUST STORM DRAIN MANHOLE TO FINISH GRADE (USDCCA STD. DWG. NO. 403.1 OR 404.1)
17. INSTALL 48" C900 STORM DRAIN. ADJUST EXISTING STORM DRAIN ACCESS
18. VAULT TO FINISH GRADE (PER STRUCTURE DETAIL)
19. CONNECT TO EXISTING RCB PER DETAIL E ON SHEET DT-1

LEGEND

(1) STORM DRAIN LATERAL # (SEE SHEETS SD-6)

NOTES

1. ALL RCP SHALL BE CLASS III UNLESS OTHERWISE SHOWN.
2. ALL PIPE LENGTHS ARE MEASURED ALONG PIPE CENTERLINE TO CENTER OF MANHOLE OR INSIDE EDGE OF DI OR RCB/RCA.
3. ALL DROP INLETS SHALL INCLUDE STORM WATER MANAGEMENT STAMP AND DETAIL PER USDCCA STD. DWG. NO. 421.
4. SEE STRUCTURAL PLANS FOR ADDITIONAL STRUCTURAL DETAILS AND CONNECTIONS.
5. ALL PIPES IN PUBLIC ROW ARE PUBLICLY MAINTAINED.
6. ADD SPECIAL INSPECTION REQUIRED FOR PIPE SEGMENTS WITH SACRIFICIAL CONCRETE.
7. SEE UTILITY PLAN AND PROFILE SHEETS FOR UTILITY ADJUSTMENTS AND RELOCATIONS.
8. ALL INTERIM DRAINAGE FACILITIES TO BE PRIVATELY MAINTAINED.
9. PROPERTY OWNER IS RESPONSIBLE TO MAINTAIN THE BEST MANAGEMENT PRACTICES, SUCH AS BUT NOT LIMITED TO, THE REMOVAL OF ACCUMULATED SEDIMENT AND DEBRIS AND CARE OF VEGETATION.
10. 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).

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.

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

FLOOD ZONE

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

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE: _____
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

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 OBSCURED DURING CONSTRUCTION.

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)

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 234-5300 FAX (702) 234-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
LOG CABIN WAY
STORM DRAIN 6 - "LCW" 71+00.00 TO "LCW" 76+00.00

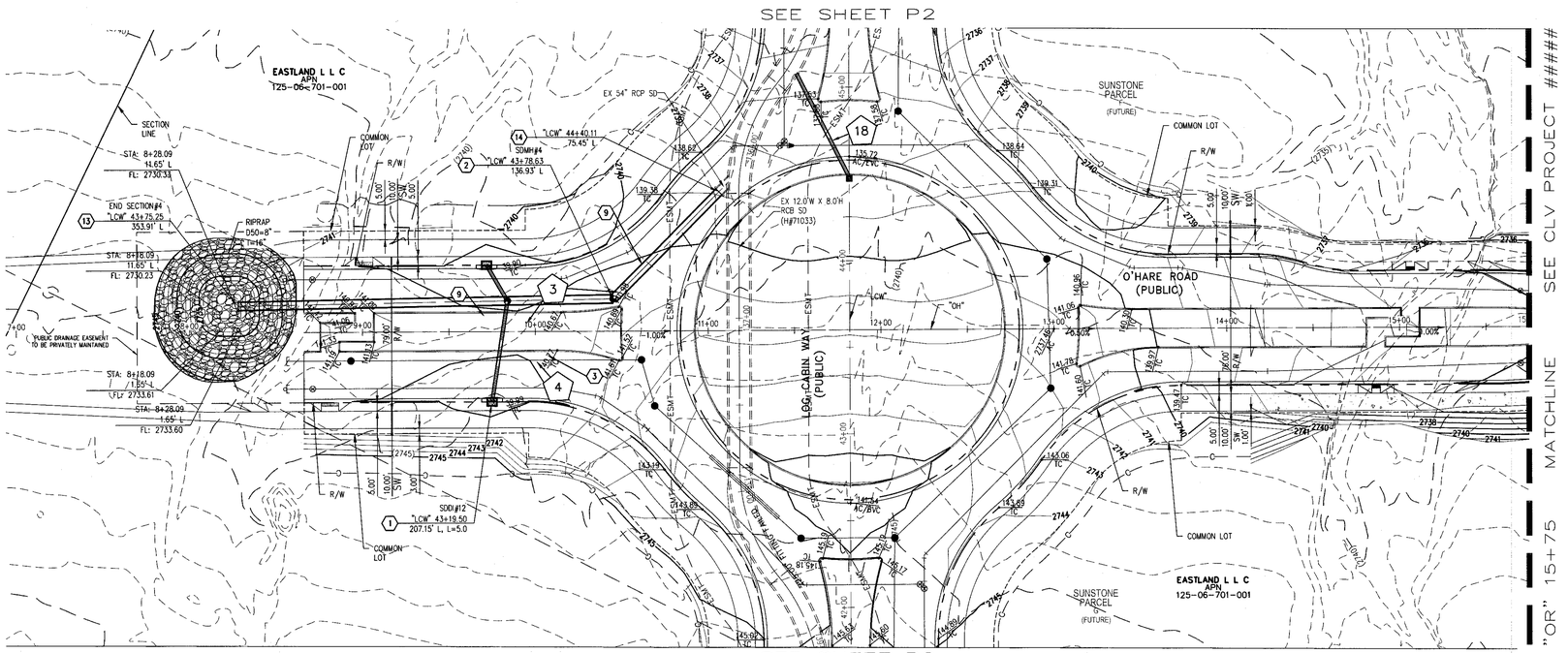
DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1906-000

PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSHUA L. JOHNSON
Exp. 06/30/2021
CIVIL
No. 15789
8/7/19

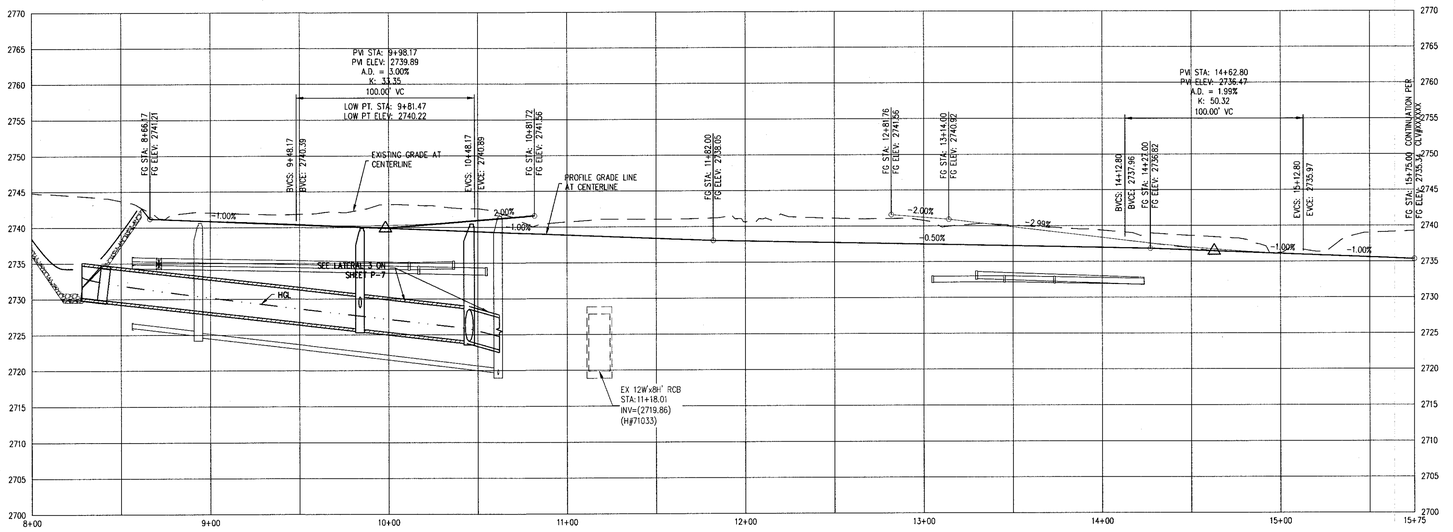
SD-6
SHEET 22 OF 47

j:\est\1906-000 sunstone log cabin\dwg\xmrcv\est1906-000 pno.dwg, 8/7/2019 8:39 AM, Thomas Dyson



O'HARE ROAD - PLAN VIEW

PUBLIC



O'HARE ROAD - PROFILE VIEW

HORIZ: 1" = 40'
VERT: 1" = 10'

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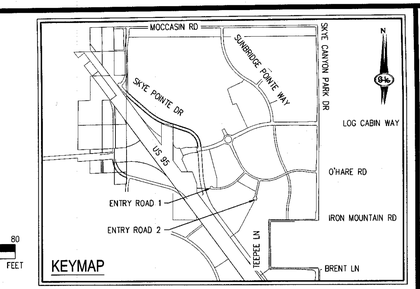

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15. REMOVE EXISTING STORM DRAIN LATERAL

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17. ADJUST EXISTING STORM DRAIN ACCESS VAULT TO FINISH GRADE (PER STRUCTURE DETAIL)
18. CONNECT TO EXISTING RCB PER DETAIL E ON SHEET DT-1

LEGEND

(1) STORM DRAIN LATERAL # (SEE SHEETS SD-6)

NOTES

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JOSH JOHNSON, P.E. 15789 DATE

FLOOD ZONE

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

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ////////// FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

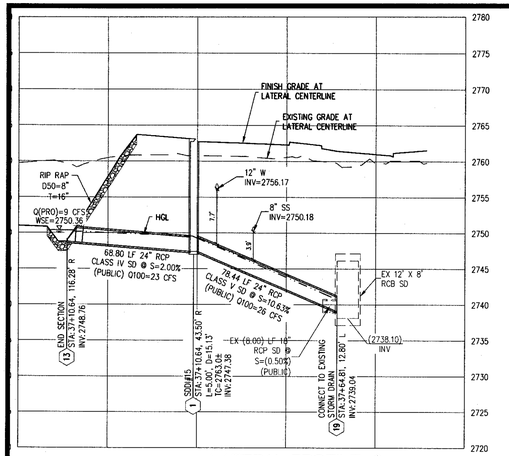
SUNSTONE PHASE 1
LOG CABIN WAY
STORM DRAIN 7 - "OR" 7+00.00 TO "OR" 15+00.00

DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

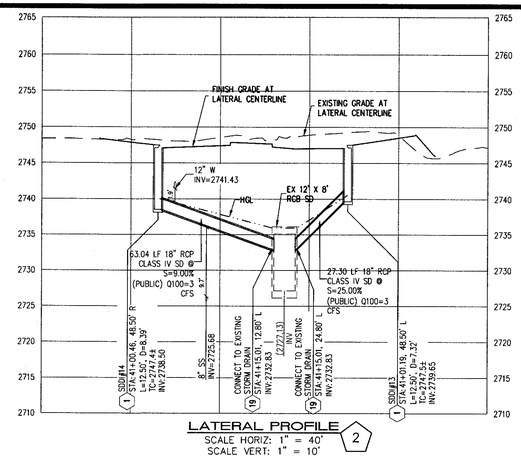
PROJECT NO.
EST1906-000

SD-7
SHEET 23 OF 47

J:\Est1906-000 sunstone log cabin\dwg\improv\est1906-000 prp2.dwg 8/7/2019 8:40 AM Thomas Dyson



LATERAL PROFILE 1
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'



LATERAL PROFILE 2
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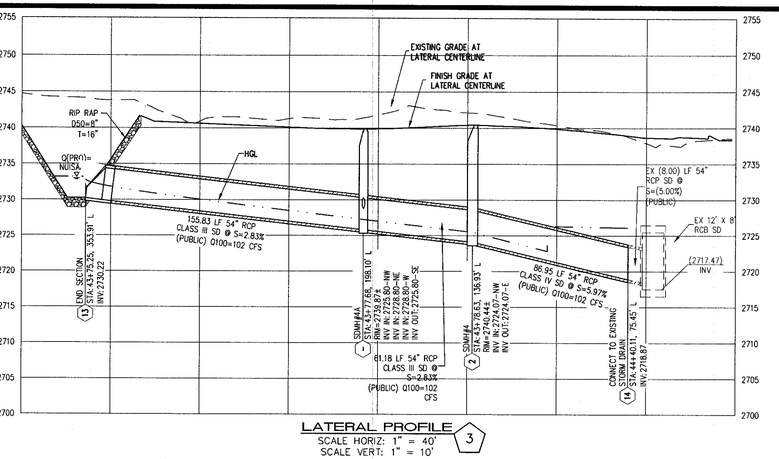
SCALE VERT: 1" = 10'



LATERAL PROFILE 3
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

LATERAL PROFILE 4
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

LATERAL PROFILE 5
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

LATERAL PROFILE 6
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

LATERAL PROFILE 7
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

LATERAL PROFILE 8
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

LATERAL PROFILE 9
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

LATERAL PROFILE 10
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

LATERAL PROFILE 11
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

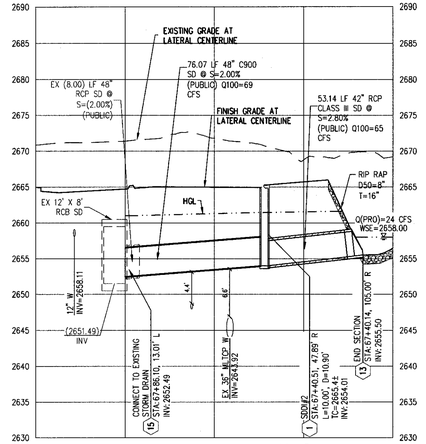
SUNSTONE PHASE 1
LOG CABIN WAY
STORM DRAIN LATERAL DETAILS 1

DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1906-000

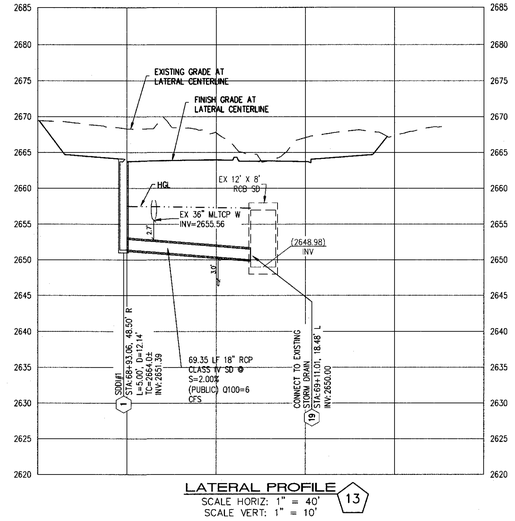
PROFESSIONAL ENGINEER STATE OF NEVADA
JOSHUA L. JOHNSON
Exp. 06/30/2021
CIVIL
PROJECT No. 15789
8/7/19

SD-8
SHEET 24 OF 47

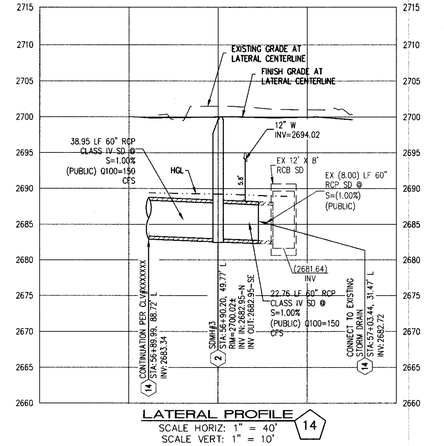
\est1906-000 sunstone log cabin\dwg\Micron\est1906 -000 plot2.dwg, 8/7/2019 8:40 AM, Thomas Dyson



LATERAL PROFILE 12
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'



LATERAL PROFILE 13
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'



LATERAL PROFILE 14
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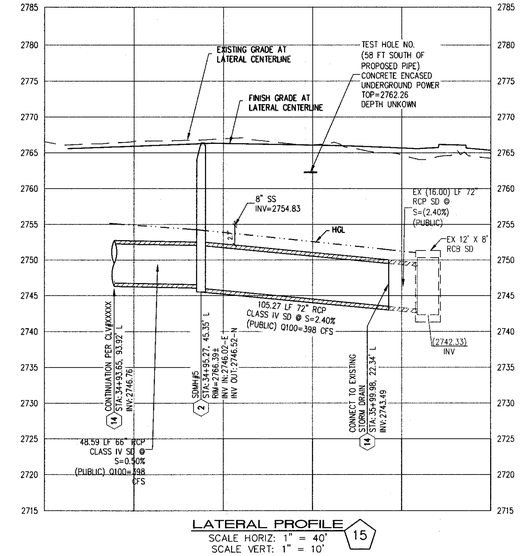
SCALE VERT: 1" = 10'



LATERAL PROFILE 15
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

LATERAL PROFILE 16
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

LATERAL PROFILE 17
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

LATERAL PROFILE 18
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

SLATER HANIFAN GROUP
a Westwood team
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NO.	DESCRIPTION	DATE	BY	APP.
				APP. DATE

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
LOG CABIN WAY
STORM DRAIN LATERAL DETAILS 2

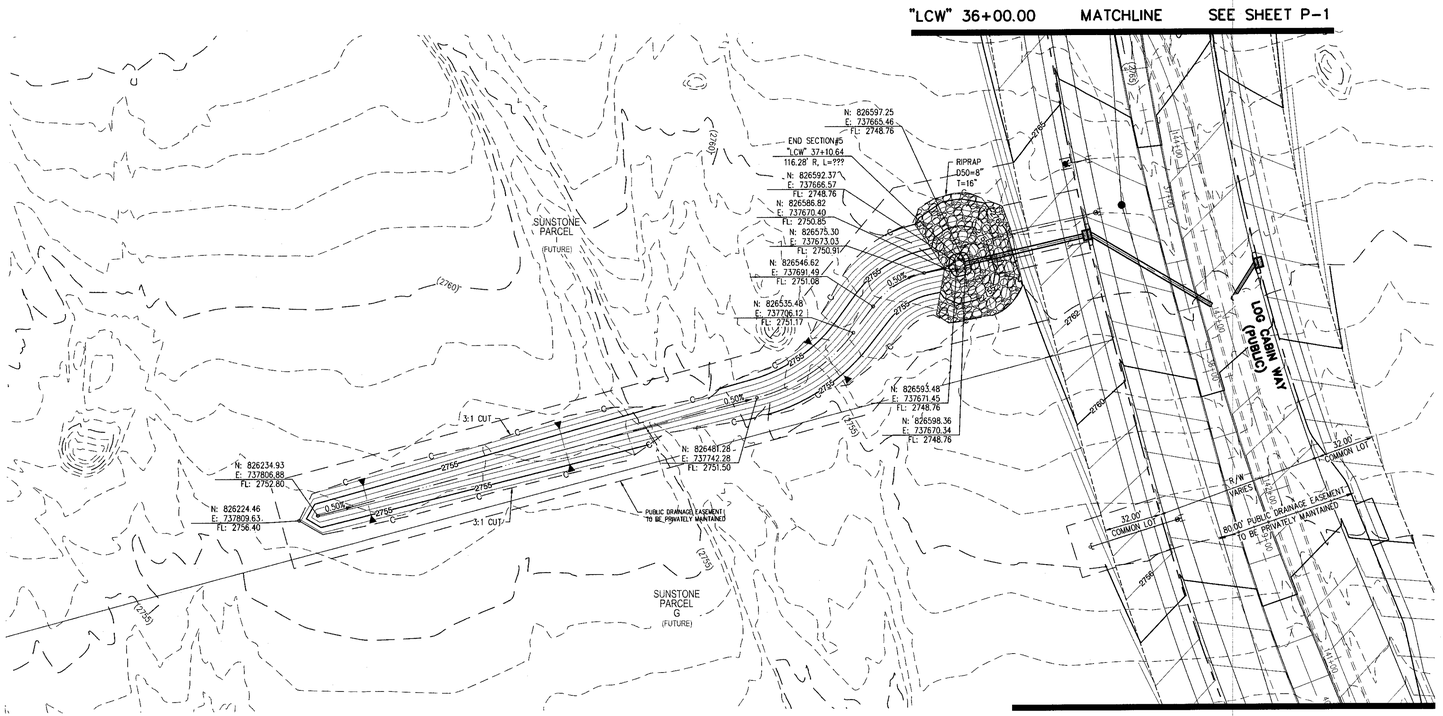
DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1906-000

PROFESSIONAL ENGINEER STATE OF NEVADA
JOSHUA L. JOHNSON
No. 15789
Exp. 06/30/2021
CIVIL
8/7/19

SD-9
SHEET 25 OF 47

J:\est1906-000 sunstone log cabin\civil\dwg\lvmprov\est1906-000 prop2.dwg 8/7/2019 8:40 AM Thomas Dyson



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0 40 80
SCALE - 1"=40' FEET

NOTE:

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

40 0 40 80
SCALE FEET

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

FAST Call before you UnderGround. 1-702-432-5300 FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

Call before you Dig Avoid cutting underground utility lines. It's Scary. Call 811 or 1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
LOG CABIN WAY
GRADING PLAN 1

DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1906-000

PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSHUA L. JOHNSON
No. 15789
Exp. 06/30/2021
CIVIL
8/7/19

G-1
SHEET 26 OF 47

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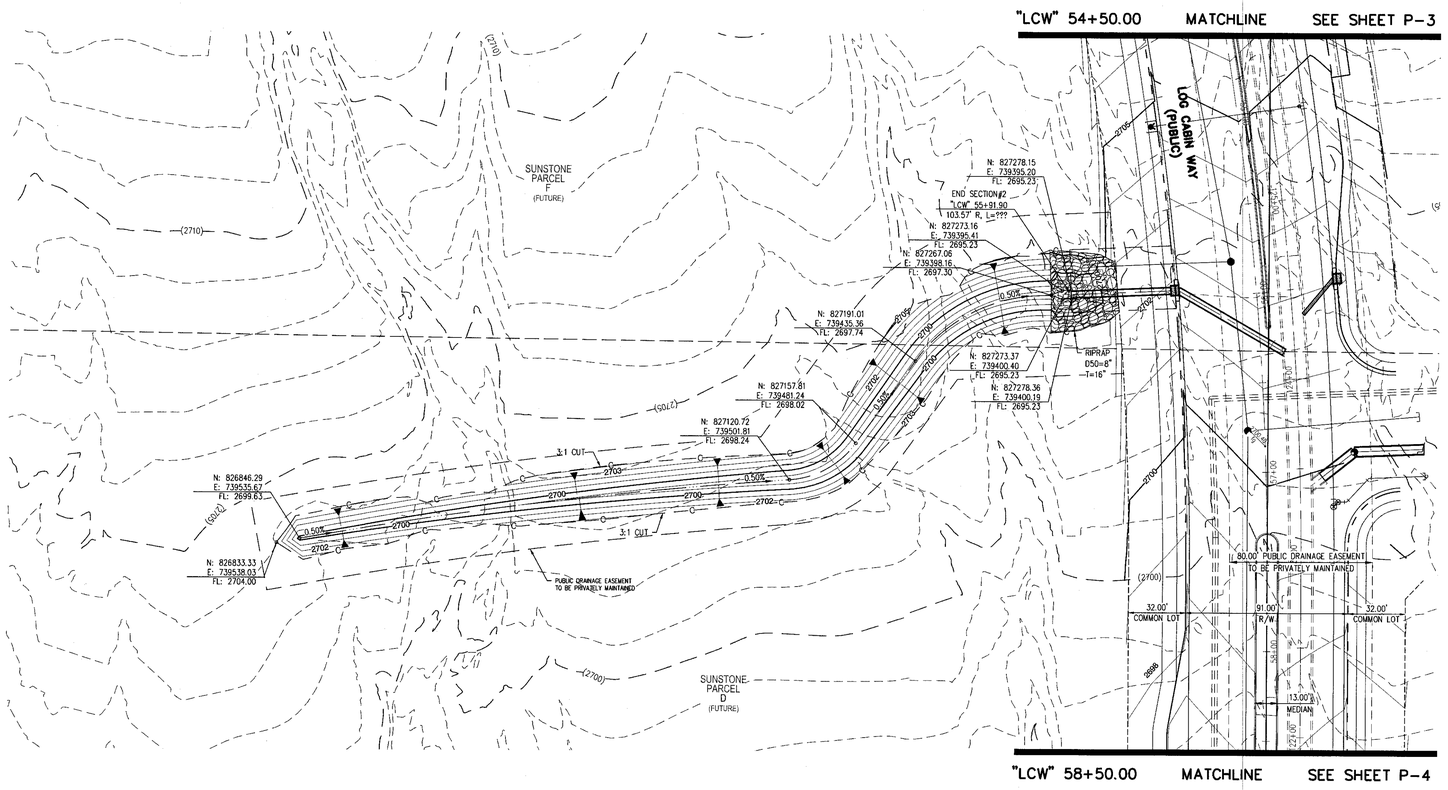

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FAX (702) 284-5395

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
LOG CABIN WAY
GRADING PLAN 2

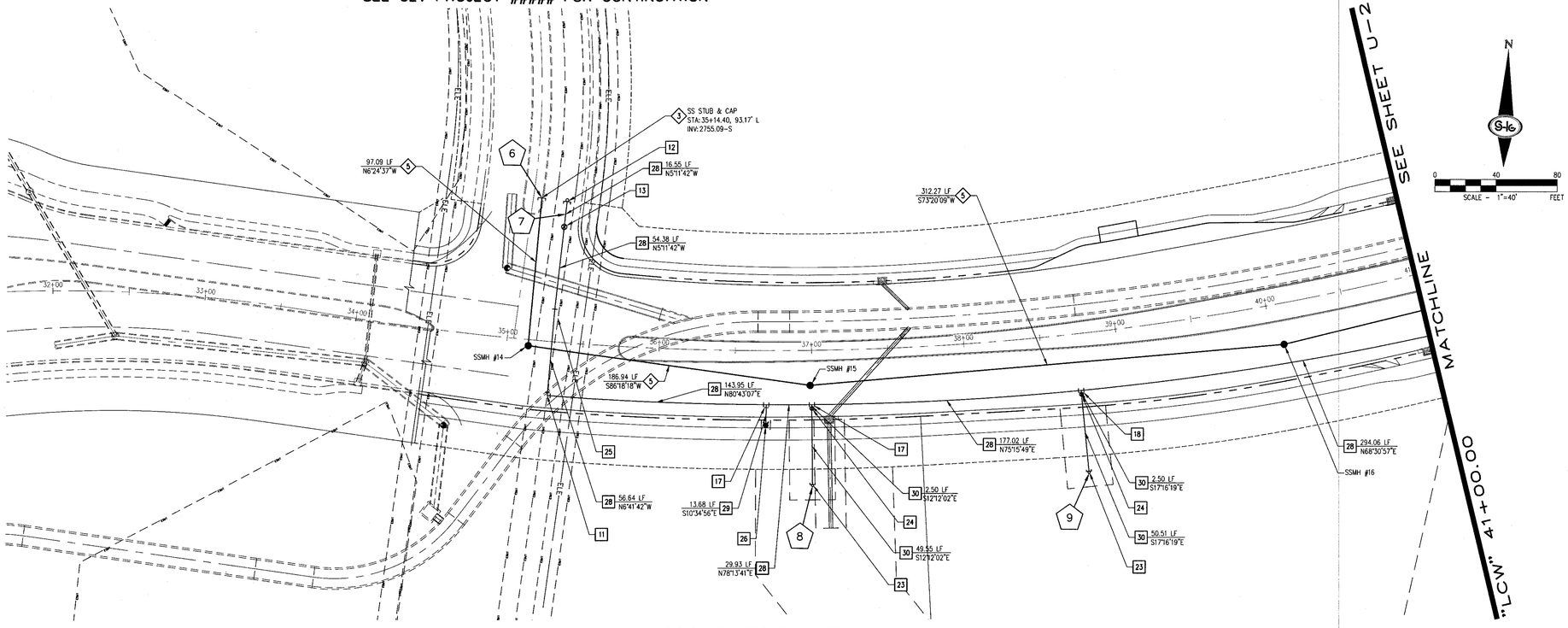
DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1906-000

PROFESSIONAL ENGINEER STATE OF NEVADA JOSHUA L. JOHNSEN No. 15789 Exp. 06/30/2021 CIVIL 8/7/19

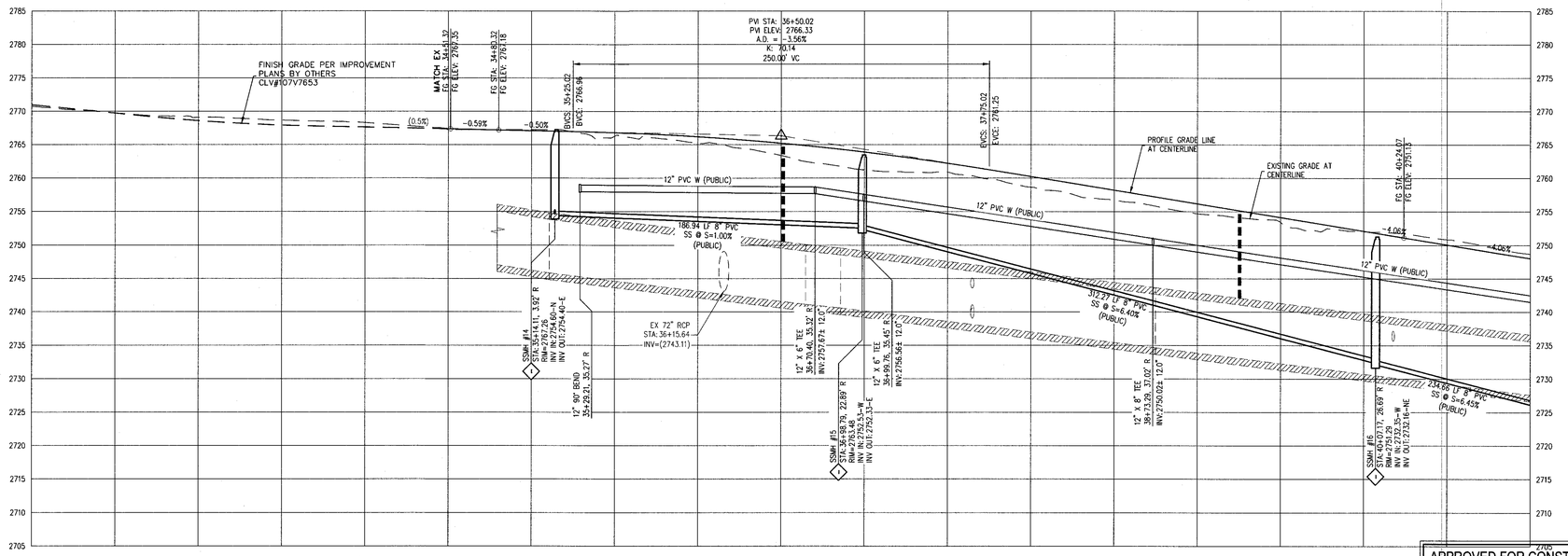
G-2
SHEET 27 OF 47

\est1906-000 sunstone\log cabin\dwg\improv\est1906-000 pnp3.dwg 8/7/2019 8:41 AM Thomas Dyson

SEE CLV PROJECT ##### FOR CONTINUATION

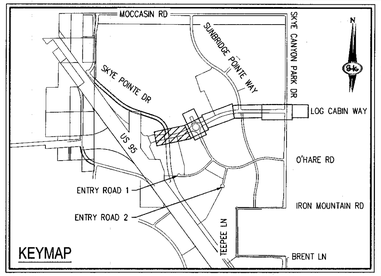


LOG CABIN WAY - PLAN VIEW



LOG CABIN WAY - PROFILE VIEW

HORIZ: 1" = 40'
VERT: 1" = 10'



WATER NOTES

1. INSTALL 10" 11.25° BEND PER UDACS PLATE NO. 31
2. INSTALL 10" 22.5° BEND PER UDACS PLATE NO. 31
3. INSTALL 10" 45° BEND PER UDACS PLATE NO. 31
4. INSTALL 10" CAP WITH BLOWOFF PER DCSWCS SECTION 2.2.5
5. INSTALL 10" GATE VALVE PER UDACS PLATE NO. 30 AND 39
6. INSTALL 12" (DEFLECTION) PER UDACS PLATE NO. 30 AND 39
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15. INSTALL 12" x 10" TEE PER UDACS PLATE NO. 31
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17. INSTALL 12" x 6" TEE PER UDACS PLATE NO. 31
18. INSTALL 12" x 8" TEE PER UDACS PLATE NO. 31
19. INSTALL 12"X10" REDUCER PER UDACS PLATE NO. 31
20. INSTALL 6" 45° VERTICAL BEND PER UDACS PLATE NO. 31
21. INSTALL 6" GATE VALVE PER UDACS PLATE NO. 30 AND 39
22. INSTALL 8" CAP WITH BLOWOFF PER DCSWCS SECTION 2.2.5
23. INSTALL 8" GATE VALVE PER UDACS PLATE NO. 30 AND 39
24. INSTALL DEFLECTION PER UDACS PLATE NO. 30 AND 39
25. INSTALL FIRE HYDRANT PER UDACS PLATE NO. 30 AND 39
26. INSTALL 10" PVC W WATER PIPE
27. INSTALL 12" PVC W WATER PIPE
28. INSTALL 6" PVC W WATER PIPE
29. INSTALL 8" DIP W WATER PIPE

SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

SEWER NOTES

1. INSTALL 48" SSMH PER DCSWCS SD-1A THRU SD-4 AND SD-9
2. INSTALL 10" CAP WITH THRUST BLOCK PER DCSWCS SECTION 2.2.5
3. INSTALL 8" CAP WITH THRUST BLOCK PER DCSWCS SECTION 2.2.5
4. INSTALL 10" PVC SS PER DCSWCS SD-15 AND SD-17
5. INSTALL 8" PVC SS PER DCSWCS SD-15 AND SD-17

SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

WATER NOTES

1. WATER MAIN JOINT DEFLECTION (PVC, 4" – 24")
   PVC PIPE SHALL BE DEFLECTED AT THE JOINT ONLY. THE MAXIMUM ALLOWABLE DEFLECTION SHALL BE ONE (1) DEGREE PER JOINT WITH A MINIMUM RADIUS OF CURVATURE OF 1,150 FEET, PER UDACS 2.07.01 AND 2.07.02.
   FOR CHANGES IN DIRECTION EXCEEDING THE MAXIMUM ALLOWABLE JOINT DEFLECTION, FITTINGS SHALL BE USED.
2. REDUCED PRESSURE PRINCIPLE ASSEMBLY (1) 1"
   APPROVED REDUCED PRESSURE PRINCIPLE ASSEMBLY(S) SHALL BE INSTALLED PER THE UDACS PLATE NO. 8. NO WATER SHALL BE TAKEN FROM A SERVICE REQUIRING BACKFLOW PREVENTION UNTIL THE REDUCED PRESSURE PRINCIPLE ASSEMBLY HAS BEEN SUCCESSFULLY TESTED BY THE LVVWD. ANY BLOCK WALL OR OTHER FENCE MATERIAL SHALL BE DESIGNED AND CONSTRUCTED AROUND THE OUTSIDE OF THE EASEMENT(S) TO ALLOW THE DISTRICT DIRECT ACCESS FROM THE ADJACENT RIGHT-OF-WAY. EASEMENTS SHALL BE CLEARLY MARKED OR STAKED PRIOR TO THE START OF CONSTRUCTION.
3. ALL SEWER/ STORM DRAINS CROSSING WATER LINES MUST CONFORM TO SECTION 2.22 OF THE UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR POTABLE WATER SYSTEMS (UDACS) FOR WATER AND STORM MAIN CROSSINGS AND CLEARANCES.
4. FITTINGS SHALL NOT FALL UNDER CURBS, GUTTERS OR SIDEWALK.
5. INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING PER UDACS PLATE NO. 15.
6. THE LVVWD CANNOT GUARANTEE A WATERTIGHT SHUTDOWN WHERE CONNECTIONS OR REPAIRS TO EXISTING FACILITIES ARE REQUIRED. THE CONTRACTOR SHALL ENSURE ALL LABOR AND EQUIPMENT IS AVAILABLE TO REMOVE FUGITIVE WATER THAT MAY IMPEDE CONSTRUCTION AT ALL TIMES. COORDINATION WITH INSPECTION DIVISION MUST TAKE PLACE PRIOR TO ANY TRIAL SHUTDOWN.
7. CONTRACTOR TO INSTALL TEMPORARY SERVICE TO ENSURE PROPER SHUTDOWN IN THE EVENT NO OTHER APPURTENANCES ARE AVAILABLE.
8. 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 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.

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ##### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

APPROVAL

LAS VEGAS FIRE AND RESCUE DATE

LEGEND

1 STORM DRAIN LATERAL # (SEE SHEET P-5)

DROP INLET NOTE

WHERE 10 FEET PARALLEL SEPARATION IS NOT PRACTICABLE:

CAST-IN-PLACE MONOLITHIC POUR WITH WATERSTOP BETWEEN SLAB AND WALLS. BASE, WALLS AND TOP TO BE CONSTRUCTED WITH WATERSTOPS, CENTER BULB, OR FLAT STRIP (VINYLEX, GREENSTREAK PLASTIC PRODUCTS OR APPROVED EQUAL).

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PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

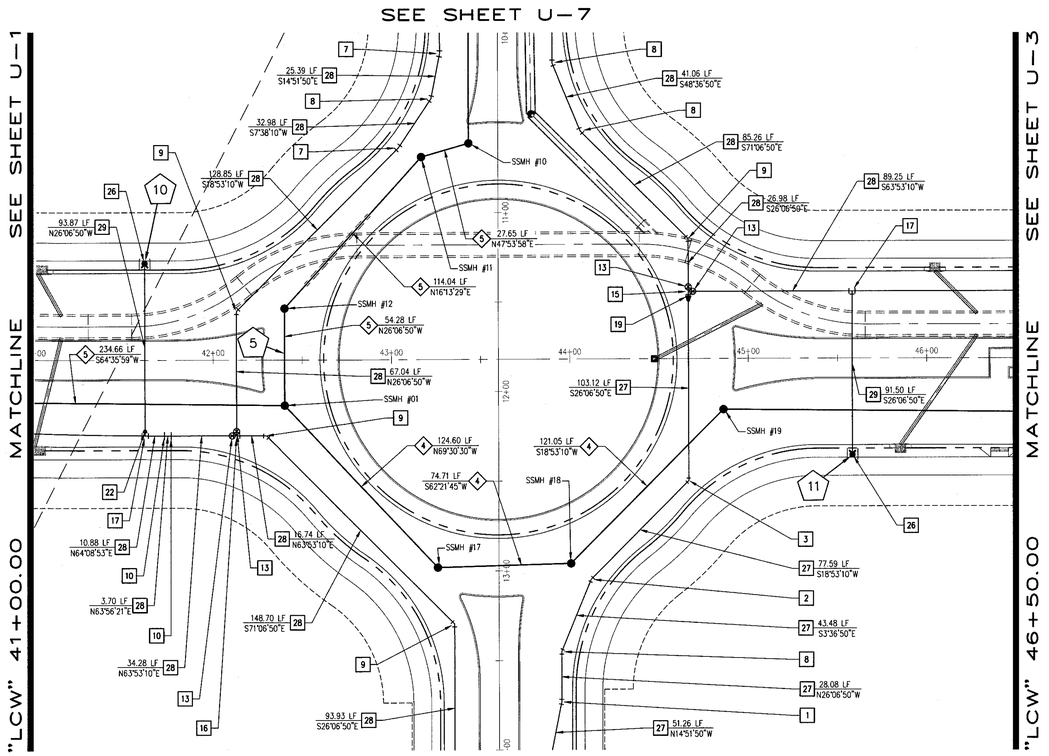
SUNSTONE PHASE 1
LOG CABIN WAY
UTILITY PLAN 1 - "LCW" 32+00.00 TO "LCW" 41+00.00

DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1906-000

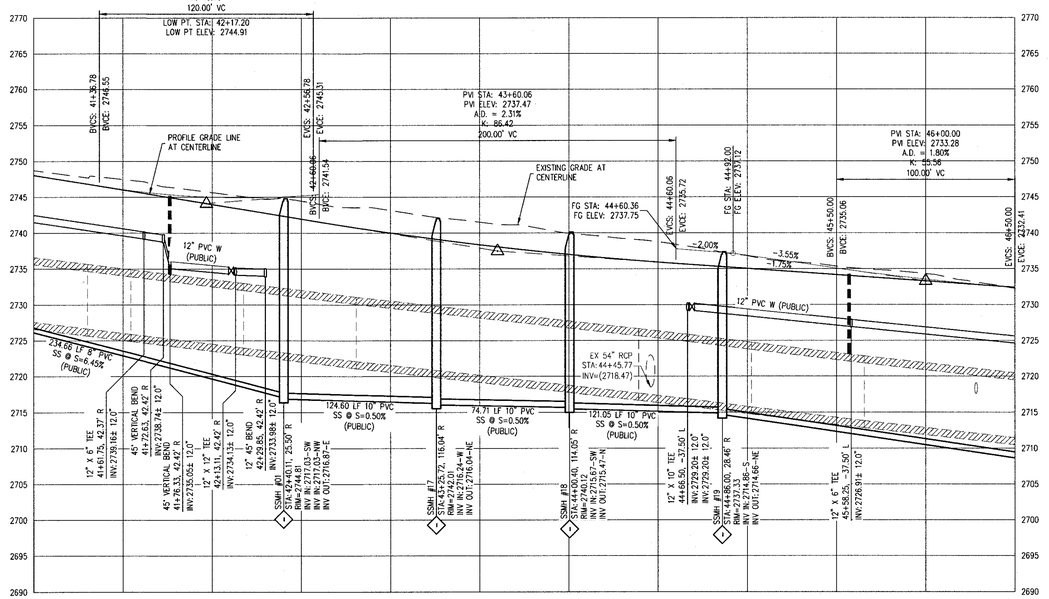
PROFESSIONAL ENGINEER – STATE OF NEVADA
JOSHUA L. JOHNSON
No. 15789
Exp. 09/30/2021
8/7/19

UT-1
SHEET 28 OF 47

\\est1906-000 sunstone log cabin\Civil\Version\est1906_000_utl.dwg, 8/7/2019 8:42 AM, Thomas Dyson



LOG CABIN WAY - PLAN VIEW



LOG CABIN WAY - PROFILE VIEW

HORIZ: 1" = 40'
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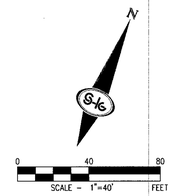

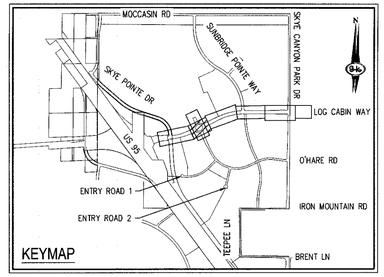

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SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

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APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE: ____
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

APPROVAL

LAS VEGAS FIRE AND RESCUE DATE

LEGEND

1 STORM DRAIN LATERAL # (SEE SHEET P-5)

DROP INLET NOTE

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FAST
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FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T.)

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NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
LOG CABIN WAY
UTILITY PLAN 2 - "LCW" 41+00.00 TO "LCW" 46+50.00

DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1906-000

PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSHUA L. JOHNSON 14879
Exp. 06/30/2021
CIVIL
No. 15789
8/7/19

UT-2
SHEET 29 OF 47

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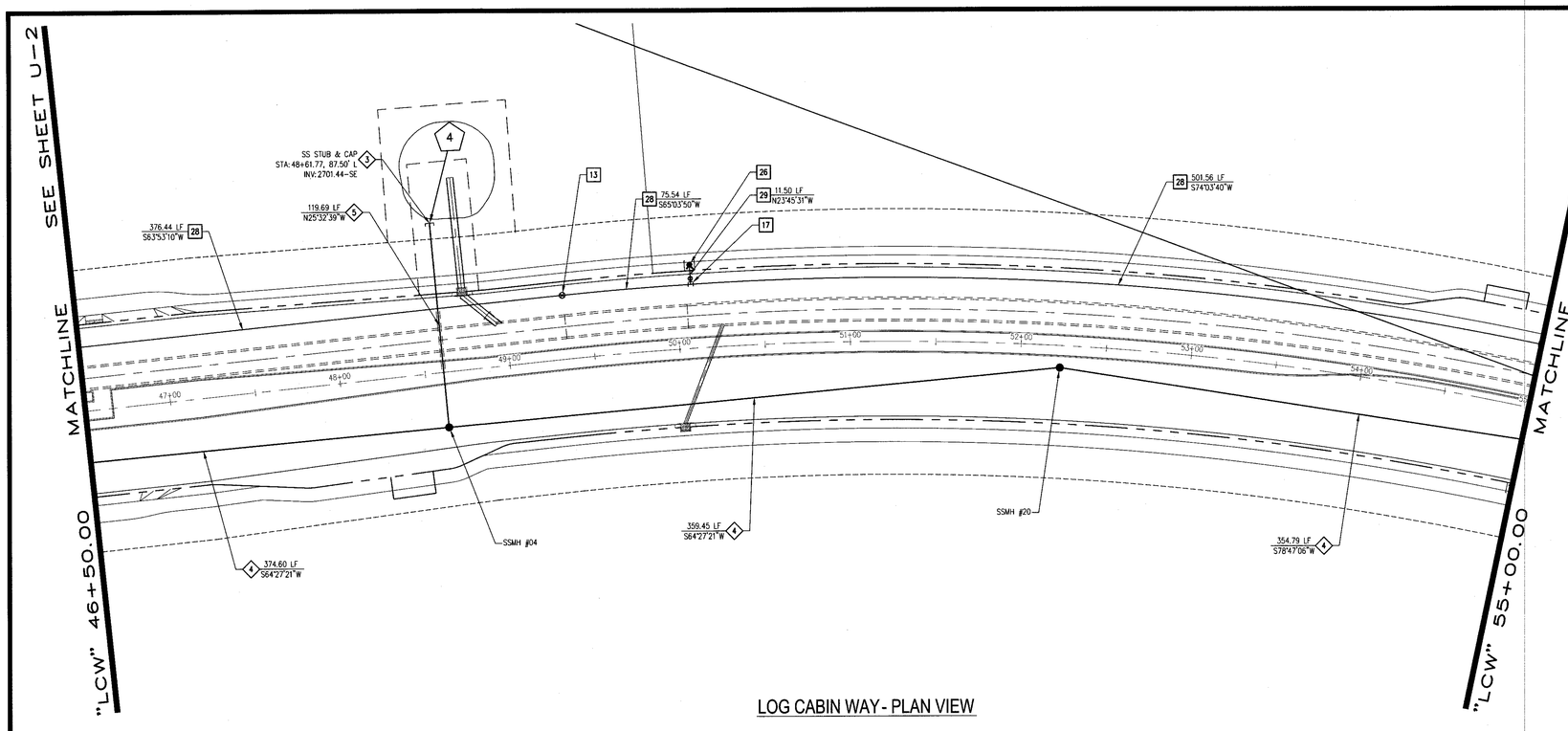
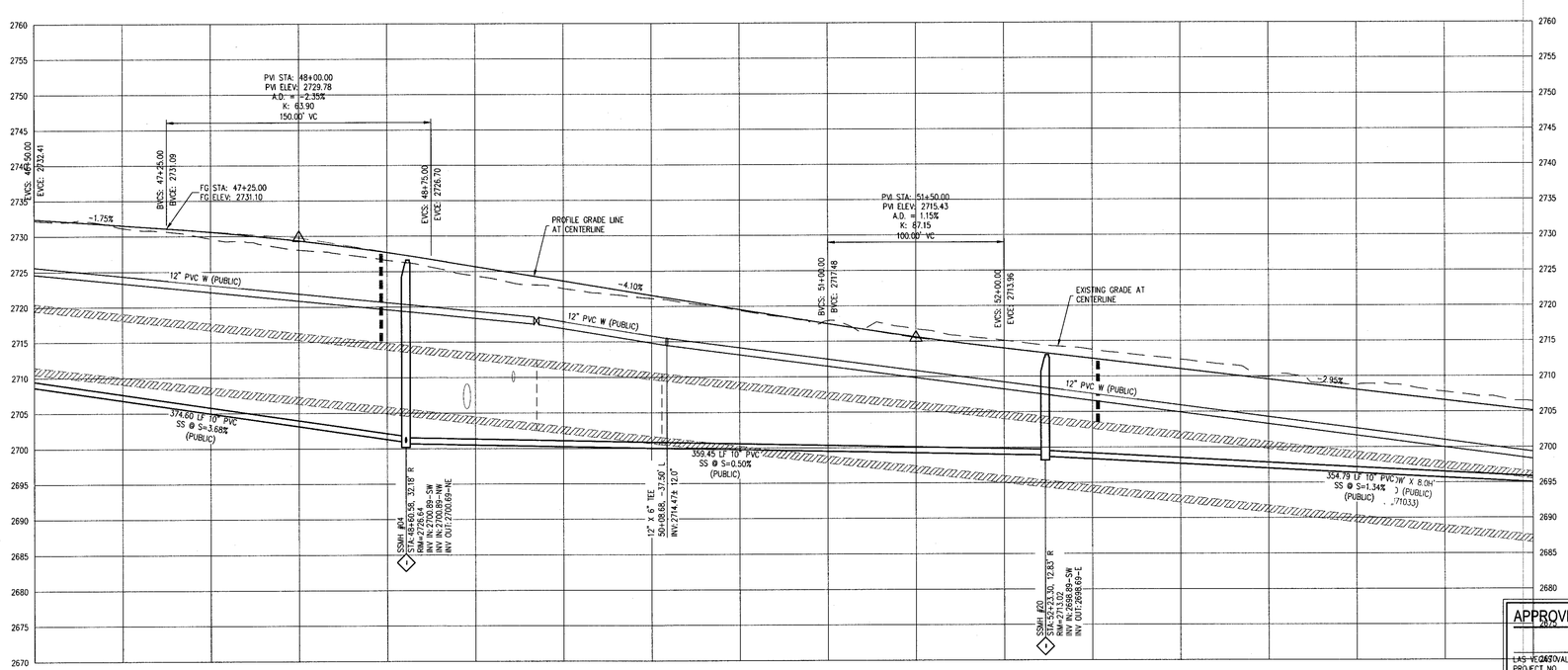


LOG CABIN WAY - PLAN VIEW



LOG CABIN WAY - PROFILE VIEW

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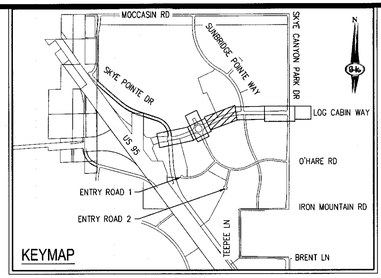

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18. INSTALL 12" x 8" TEE PER UDACS PLATE NO. 31
19. INSTALL 12"X10" REDUCER PER UDACS PLATE NO. 31
20. INSTALL 6" 45° VERTICAL BEND PER UDACS PLATE NO. 31
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25. INSTALL FIRE HYDRANT PER UDACS PLATE NO. 30 AND 39
26. INSTALL 10" PVC W WATER PIPE
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SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

SEWER NOTES

1. INSTALL 48" SSMH PER DCSWCS SD-1A THRU SD-4 AND SD-9
2. INSTALL 10" CAP WITH THRUST BLOCK PER DCSWCS SECTION 2.2.5
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SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

WATER NOTES

1. WATER MAIN JOINT DEFLECTION (PVC, 4" - 24")
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2. REDUCED PRESSURE PRINCIPLE ASSEMBLY (1) 1"
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APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. _____ FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

APPROVAL

LAS VEGAS FIRE AND RESCUE DATE

LEGEND

(1) STORM DRAIN LATERAL # (SEE SHEET P-5)

DROP INLET NOTE

WHERE 10 FEET PARALLEL SEPARATION IS NOT PRACTICABLE:

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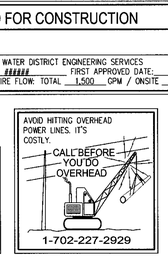
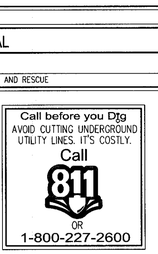




SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
LOG CABIN WAY
UTILITY PLAN 3 - "LCW" 46+50.00 TO "LCW" 55+00.00

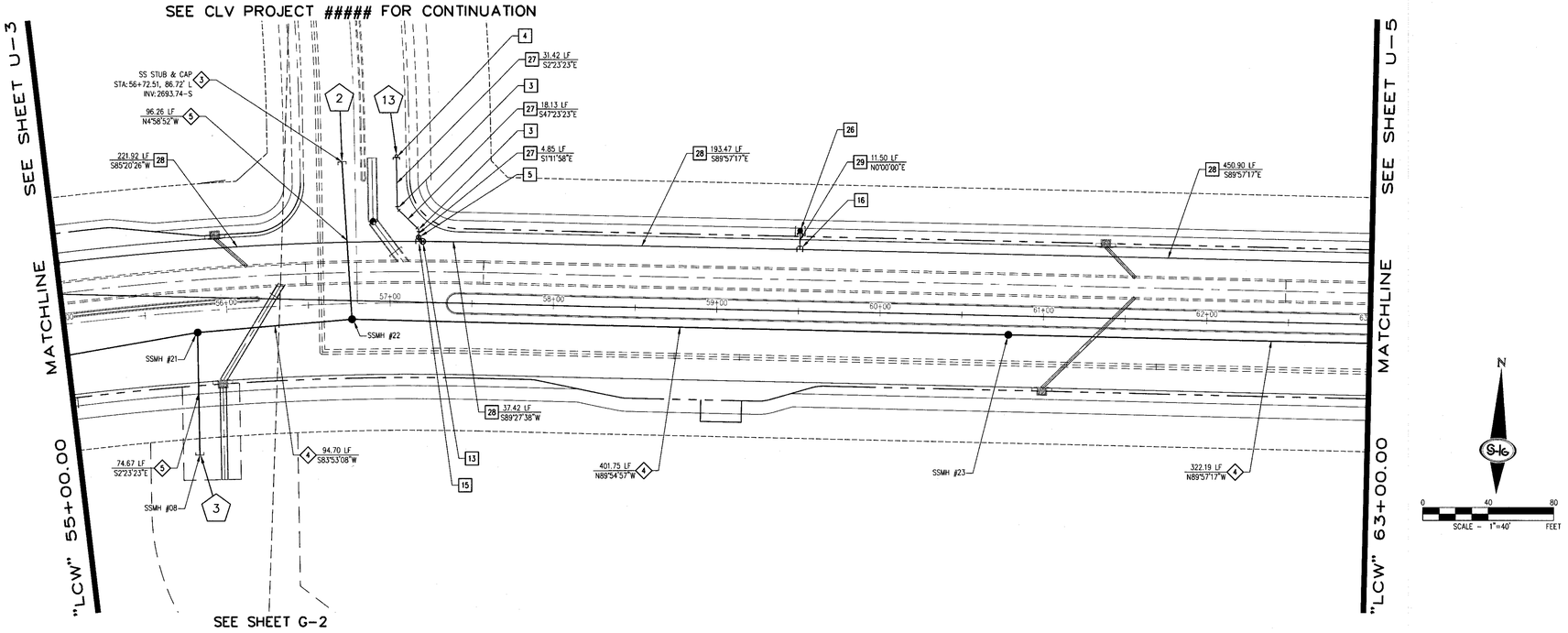
DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1906-000

PROFESSIONAL ENGINEER — STATE OF NEVADA — JOSHUA L. JOHNSON — No. 15789 — Exp. 06/30/2021 — CIVIL

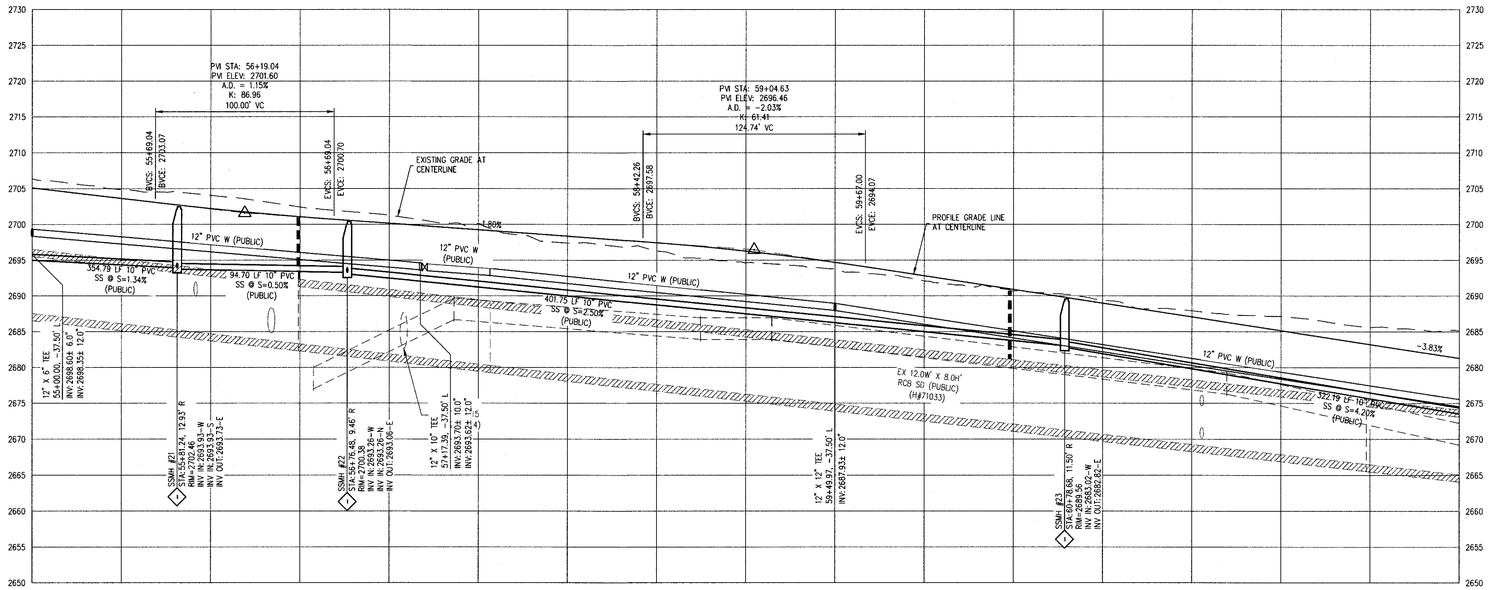
8/7/19

UT-3
SHEET 30 OF 47

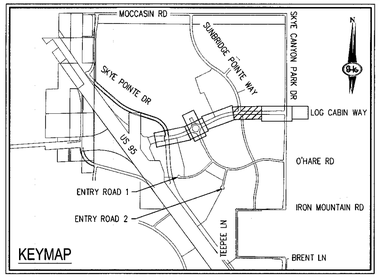
J:\est1906-000 sunstone log cabin\dwg\Version\est1906-000 ut dwg 8/7/2019 8:42 AM Thomas Dyson



LOG CABIN WAY - PLAN VIEW



LOG CABIN WAY - PROFILE VIEW
HORIZ: 1" = 40'
VERT: 1" = 10'



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APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ##### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

APPROVAL

LAS VEGAS FIRE AND RESCUE DATE

LEGEND

1 STORM DRAIN LATERAL # (SEE SHEET P-5)

DROP INLET NOTE

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FAST
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NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
LOG CABIN WAY
UTILITY PLAN 4 - "LCW" 55+00.00 TO "LCW" 63+00.00

DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1906-000

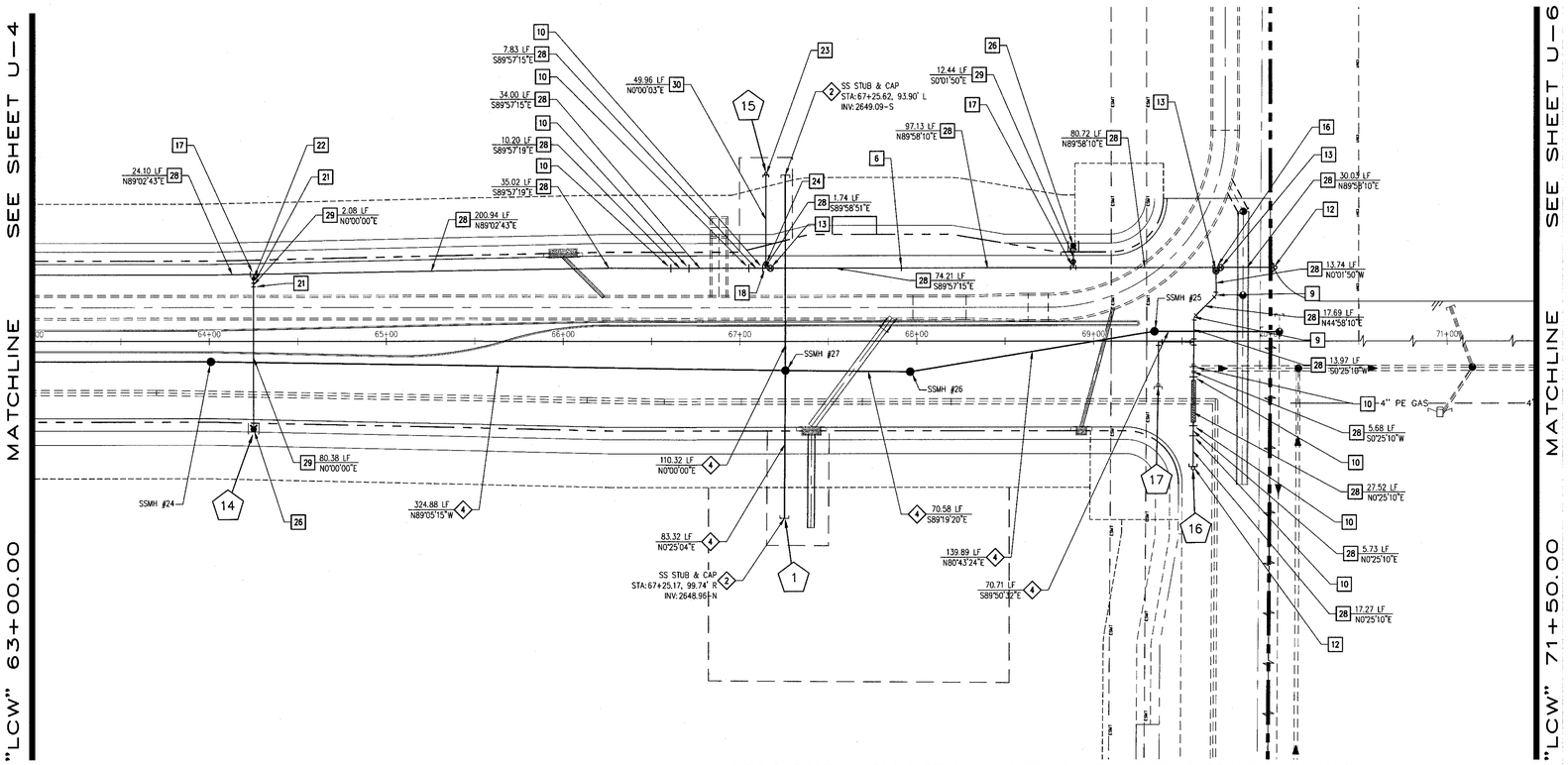
PROFESSIONAL ENGINEER STATE OF NEVADA JOSHUA L. JOHNSON, M.S. Exp. 06/30/2021 CIVIL No. 15789
8/7/19

UT-4
SHEET 31 OF 47

I:\est1906-000 sunstone log cabin\civil\mxd\est1906-000 util.dwg, 8/7/2019 8:42 AM, Thomas Dyson

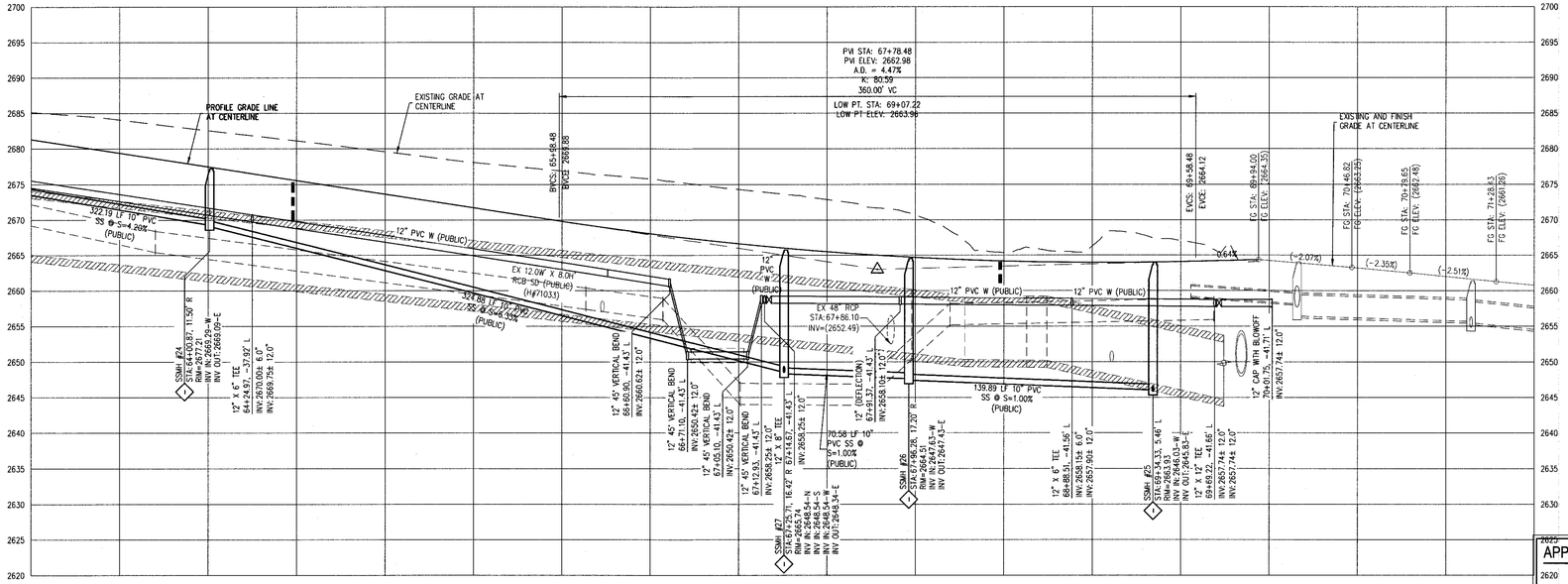
"LCW" 63+00.00 MATCHLINE SEE SHEET U-4

"LCW" 71+50.00 MATCHLINE SEE SHEET U-6



LOG CABIN WAY - PLAN VIEW

SEE CLV PROJECT ##### FOR CONTINUATION



LOG CABIN WAY - PROFILE VIEW

HORIZ: 1" = 40'
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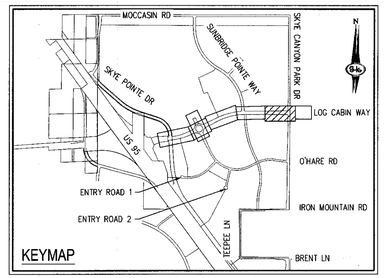

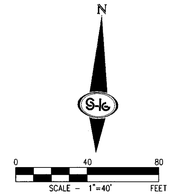

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APPROVED FOR CONSTRUCTION

2620

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ##### FIRST APPROVED DATE: _____
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

APPROVAL

LAS VEGAS FIRE AND RESCUE _____ DATE

LEGEND

(1) STORM DRAIN LATERAL # (SEE SHEET P-5)

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CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
LOG CABIN WAY
UTILITY PLAN 5 - "LCW" 63+00.00 TO "LCW" 71+50.00

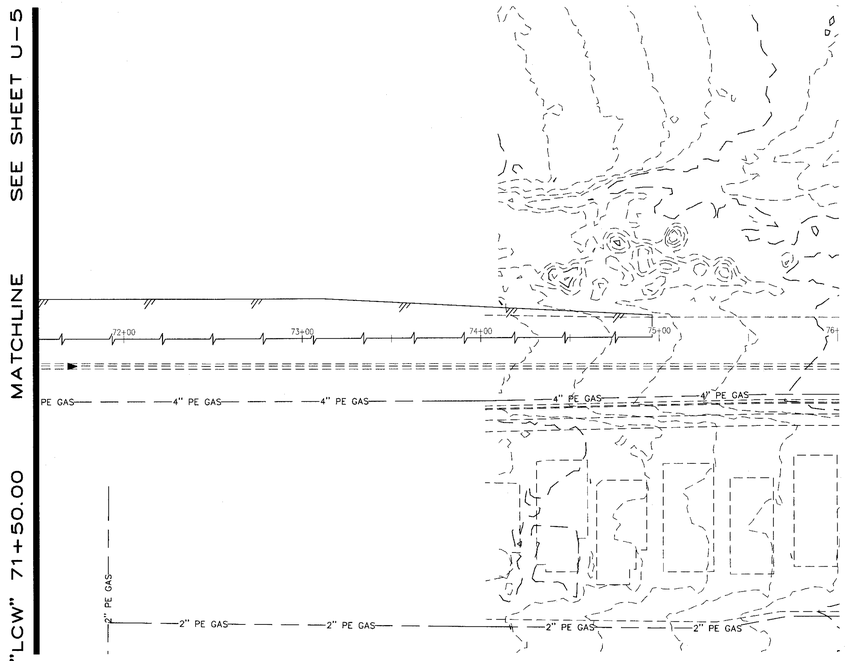
DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1906-000

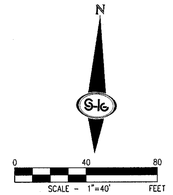
PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSHUA L. JOHNSON
Exp. 06/30/2021
No. 15789
CIVIL
8/7/19

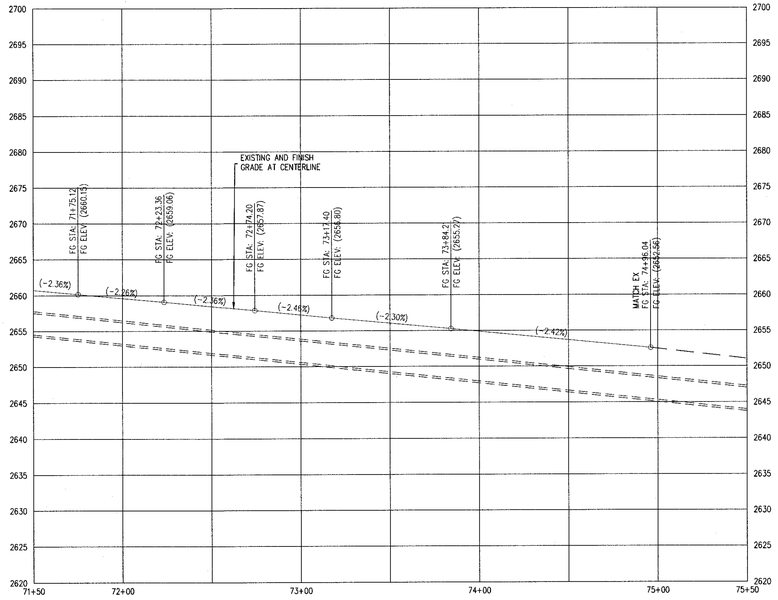
UT-5
SHEET 32 OF 47

I:\est1906-000 sunstone log cabin\clw2\micro\est1906-000_utl.dwg, 8/7/2019 8:41 AM Thomas Dyson



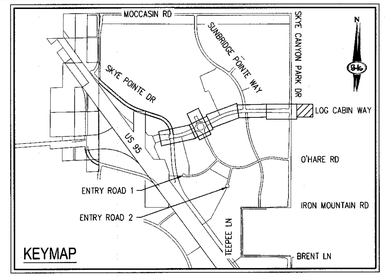
LOG CABIN WAY - PLAN VIEW





LOG CABIN WAY - PROFILE VIEW

HORIZ: 1" = 40'
VERT: 1" = 10'



WATER NOTES

1. INSTALL 10" 11.25° BEND PER UDACS PLATE NO. 31
2. INSTALL 10" 22.5° BEND PER UDACS PLATE NO. 31
3. INSTALL 10" 45° BEND PER UDACS PLATE NO. 31
4. INSTALL 10" CAP WITH BLOWOFF PER DCSWCS SECTION 2.2.5
5. INSTALL 10" GATE VALVE PER UDACS PLATE NO. 30 AND 39
6. INSTALL 12" (DEFLECTION) PER UDACS PLATE NO. 30 AND 39
7. INSTALL 12" 11.25° BEND PER UDACS PLATE NO. 31
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13. INSTALL 12" GATE VALVE PER UDACS PLATE NO. 30 AND 39
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22. INSTALL 8" CAP WITH BLOWOFF PER DCSWCS SECTION 2.2.5
23. INSTALL 8" GATE VALVE PER UDACS PLATE NO. 30 AND 39
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25. INSTALL FIRE HYDRANT PER UDACS PLATE NO. 30 AND 39
26. INSTALL 10" PVC W WATER PIPE
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29. INSTALL 8" DIP W WATER PIPE

SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

SEWER NOTES

1. INSTALL 48" SSMH PER DCSWCS SD-1A THRU SD-4 AND SD-9
2. INSTALL 10" CAP WITH THRUST BLOCK PER DCSWCS SECTION 2.2.5
3. INSTALL 8" CAP WITH THRUST BLOCK PER DCSWCS SECTION 2.2.5
4. INSTALL 10" PVC SS PER DCSWCS SD-15 AND SD-17
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SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

WATER NOTES

1. WATER MAIN JOINT DEFLECTION (PVC, 4" – 24"): PVC PIPE SHALL BE DEFLECTED AT THE JOINT ONLY. THE MAXIMUM ALLOWABLE DEFLECTION SHALL BE ONE (1) DEGREE PER JOINT WITH A MINIMUM RADIUS OF CURVATURE OF 1,150 FEET, PER UDACS 2.07.01 AND 2.07.02. FOR CHANGES IN DIRECTION EXCEEDING THE MAXIMUM ALLOWABLE JOINT DEFLECTION, FITTINGS SHALL BE USED.
2. REDUCED PRESSURE PRINCIPLE ASSEMBLY (1) – 1": APPROVED REDUCED PRESSURE PRINCIPLE ASSEMBLY(S) SHALL BE INSTALLED PER THE UDACS PLATE NO. 8. NO WATER SHALL BE TAKEN FROM A SERVICE REQUIRING BACKFLOW PREVENTION UNTIL THE REDUCED PRESSURE PRINCIPLE ASSEMBLY HAS BEEN SUCCESSFULLY TESTED BY THE LVVWD. ANY BLOCK WALL OR OTHER FENCE MATERIAL SHALL BE DESIGNED AND CONSTRUCTED AROUND THE OUTSIDE OF THE EASEMENT(S) TO ALLOW THE DISTRICT DIRECT ACCESS FROM THE ADJACENT RIGHT-OF-WAY. EASEMENTS SHALL BE CLEARLY MARKED OR STAKED PRIOR TO THE START OF CONSTRUCTION.
3. ALL SEWER/ STORM DRAINS CROSSING WATER LINES MUST CONFORM TO SECTION 2.22 OF THE UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR POTABLE WATER SYSTEMS (UDACS) FOR WATER AND STORM MAIN CROSSINGS AND CLEARANCES.
4. FITTINGS SHALL NOT FALL UNDER CURBS, GUTTERS OR SIDEWALK.
5. INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING PER UDACS PLATE NO. 15.
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7. CONTRACTOR TO INSTALL TEMPORARY SERVICE TO ENSURE PROPER SHUTDOWN IN THE EVENT NO OTHER APPURTENANCES ARE AVAILABLE.
8. 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 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.

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. _____ FIRST APPROVED DATE: _____
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

APPROVAL

LAS VEGAS FIRE AND RESCUE DATE

LEGEND

1 — STORM DRAIN LATERAL # (SEE SHEET P-5)

DROP INLET NOTE

WHERE 10 FEET PARALLEL SEPARATION IS NOT PRACTICABLE:

CAST-IN-PLACE MONOLITHIC POUR WITH WATERSTOP BETWEEN SLAB AND WALLS. BASE, WALLS AND TOP TO BE CONSTRUCTED WITH WATERSTOPS, CENTER BULB, OR FLAT STRIP (VINYLEX, GREENSTREAK PLASTIC PRODUCTS OR APPROVED EQUAL).

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SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
LOG CABIN WAY
UTILITY PLAN 6 - "LCW" 71+00.00 TO "LCW" 76+00.00

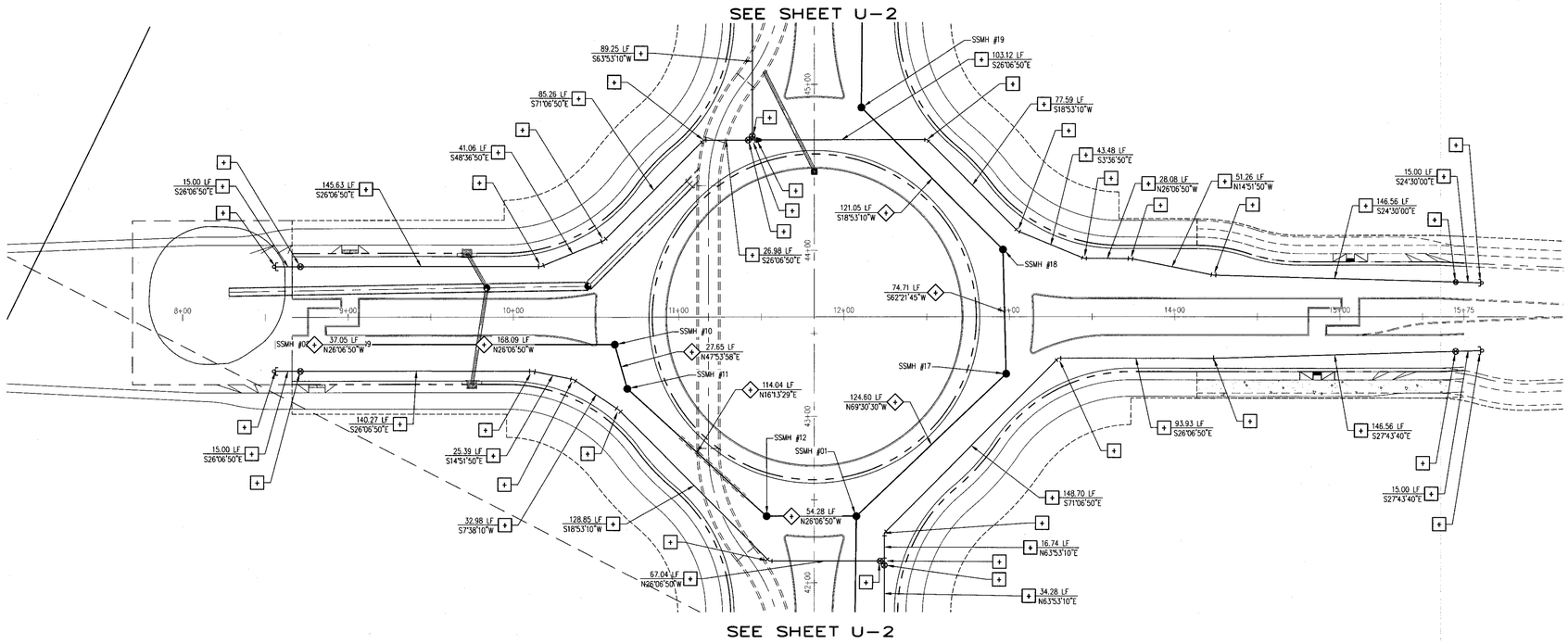
DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1906-000

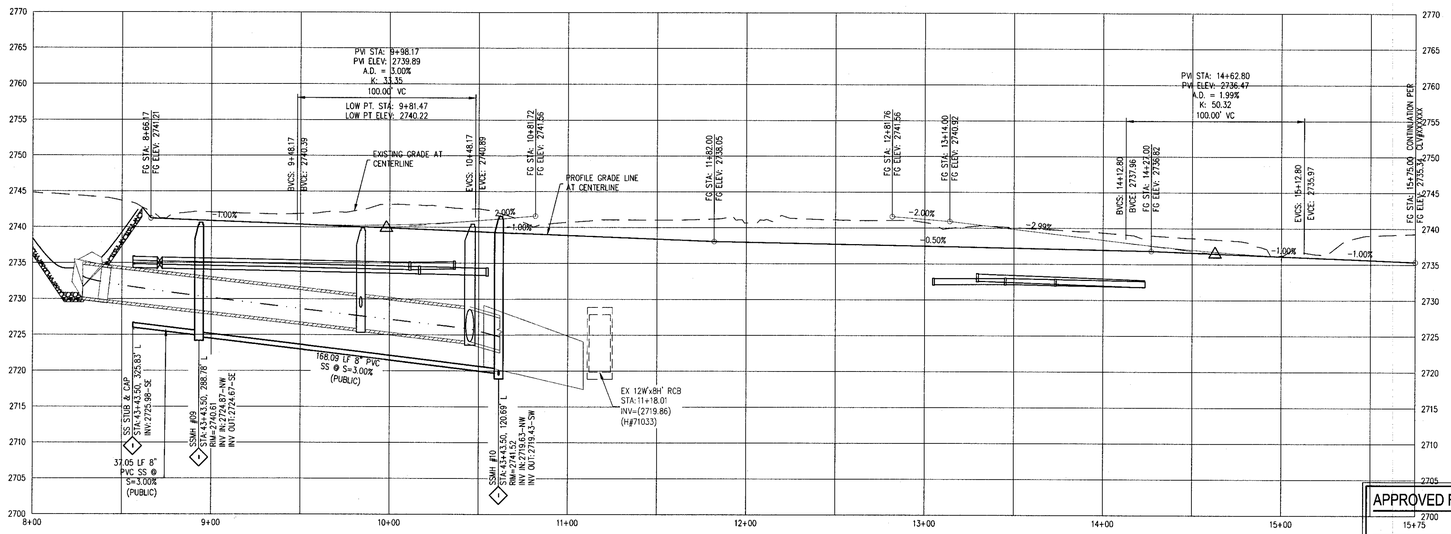
JOSHUA L. JOHNSON — No. 15789 — CIVIL — EXP. 06/30/2021 — STATE OF NEVADA — PROFESSIONAL ENGINEER
8/7/19

UT-6
SHEET 33 OF 47

J:\est1906-000 sunstone log cabin\dwg\Ventura\est1906-000 ut.dwg 8/7/2019 8:43 AM Thomas Bosse



O'HARE ROAD - PLAN VIEW



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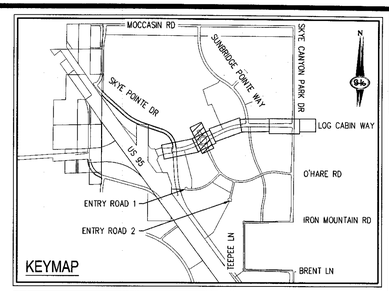

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APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. _____ FIRST APPROVED DATE: _____
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

APPROVAL

LAS VEGAS FIRE AND RESCUE _____ DATE _____

LEGEND

1 — STORM DRAIN LATERAL # (SEE SHEET P-5)

DROP INLET NOTE

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FAST
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NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
LOG CABIN WAY
UTILITY PLAN 7 - "OH" 7+00.00 TO "OR" 15+00.00

DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1906-000

PROFESSIONAL ENGINEER - STATE OF NEVADA - JOSHUA JOHNSON - No. 15789 - Exp. 06/30/2021 - CIVIL - 8/7/19

UT-7
SHEET 34 OF 47

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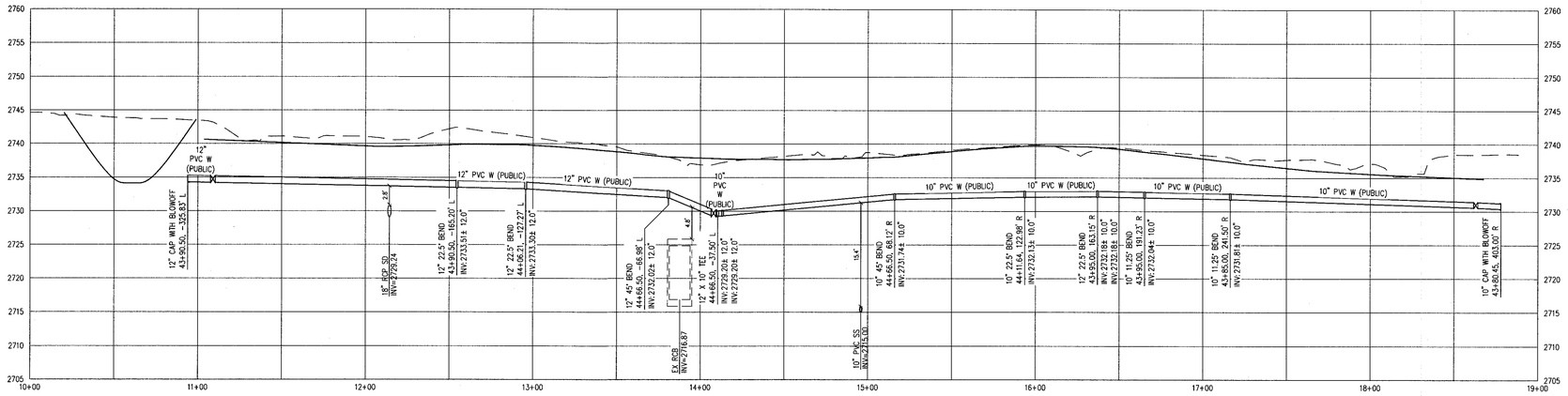

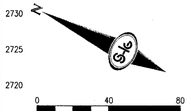

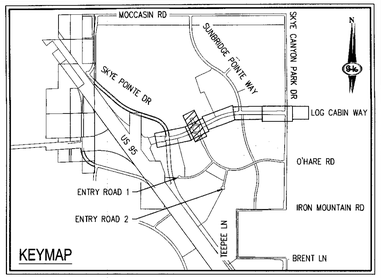

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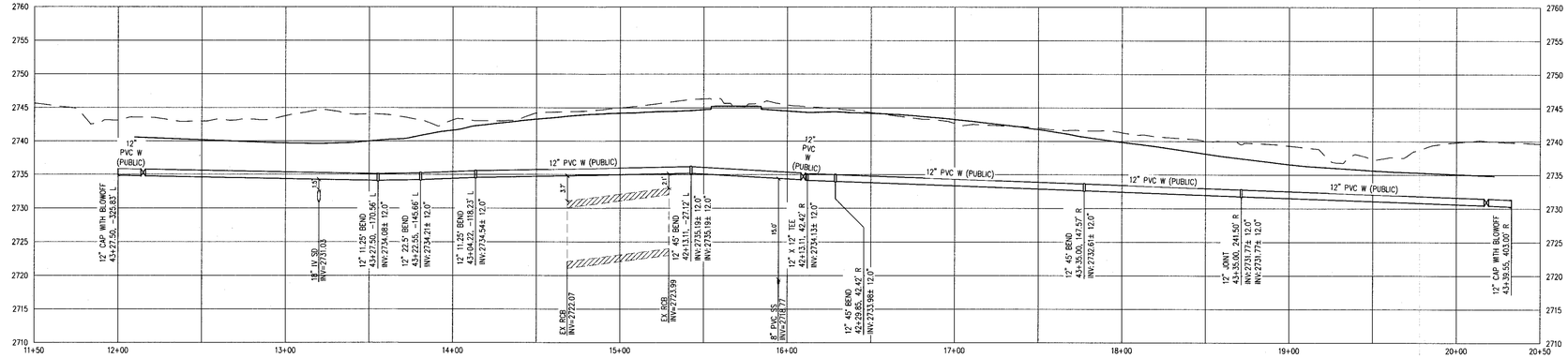

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ##### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

APPROVAL

LAS VEGAS FIRE AND RESCUE DATE

LEGEND

(1) STORM DRAIN LATERAL # (SEE SHEET P-5)

DROP INLET NOTE

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

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

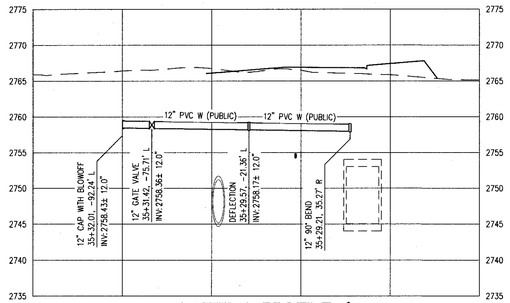
SC EAST LANDCO, LLC
SUNSTONE PHASE 1
UTILITY PLAN 8

DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1906-000

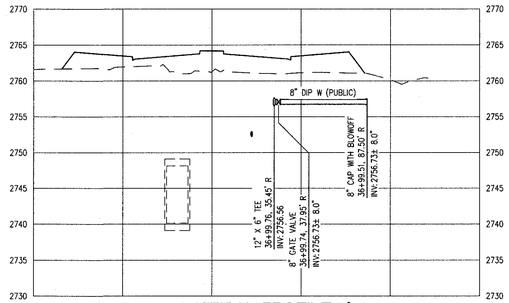
PROFESSIONAL ENGINEER - STATE OF NEVADA - JOSHUA L. JOHNSON - Exp. 06/30/2021 - CIVIL - No. 15789 - 8/7/19

UT-8
SHEET 35 OF 47

J:\est1906-000 sunstone low colin\Dwg\micro\est1906-P09 ut sh.dwg 8/7/2019 8:43 AM Thomas Bryon



LATERAL PROFILE (7)
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'



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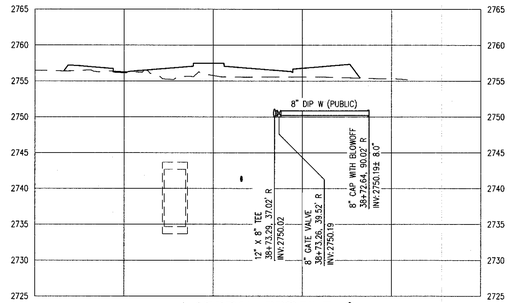

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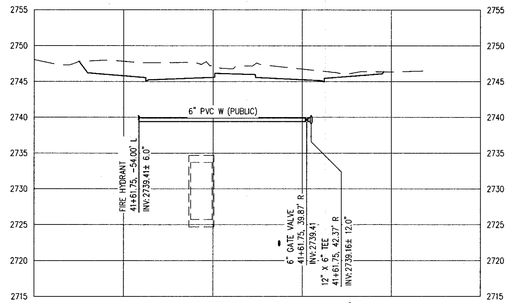

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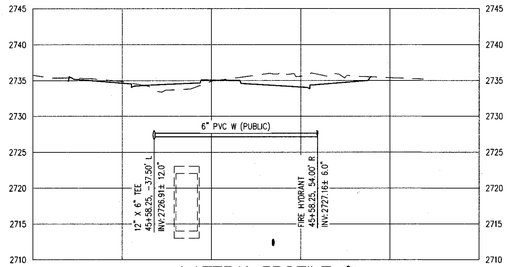

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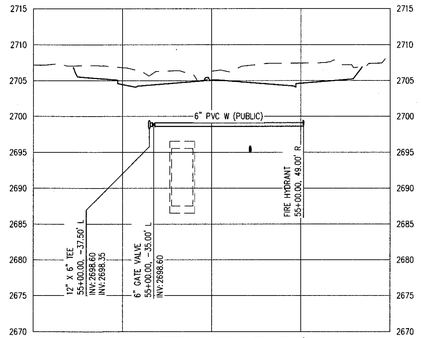
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'



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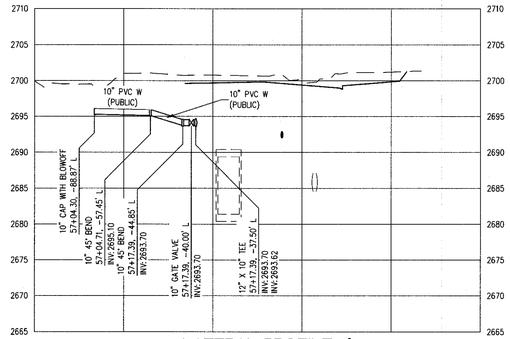
SCALE VERT: 1" = 10'



LATERAL PROFILE (13)
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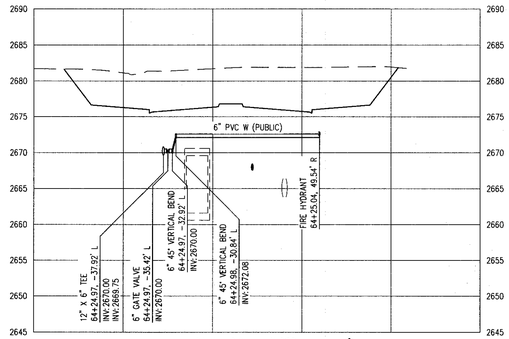
SCALE VERT: 1" = 10'



LATERAL PROFILE (14)
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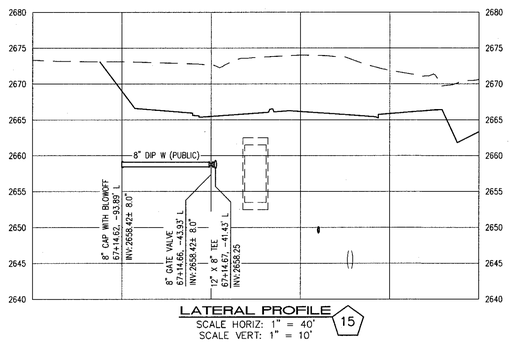

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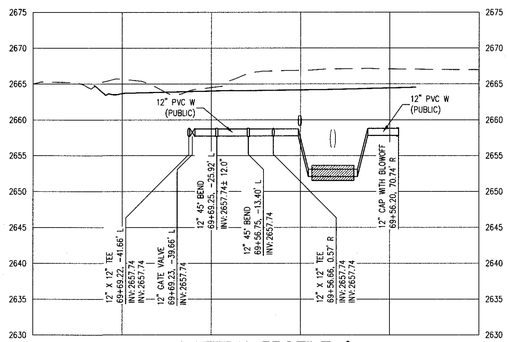

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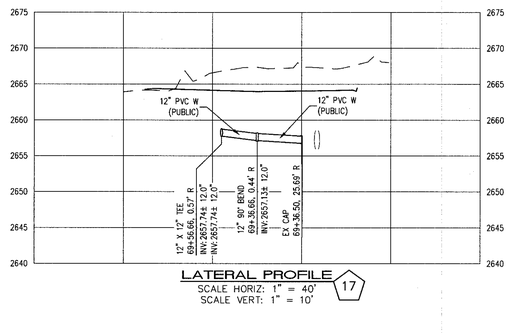
SCALE VERT: 1" = 10'



LATERAL PROFILE (17)
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

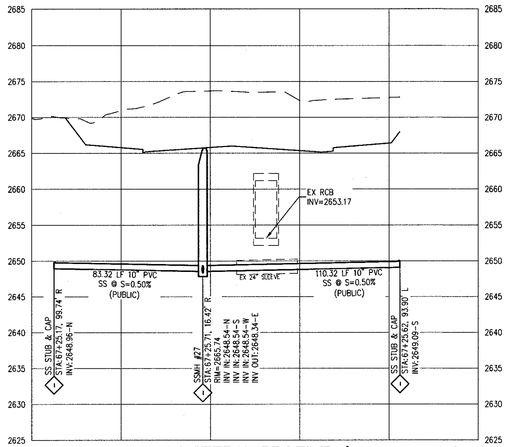
SUNSTONE PHASE 1
LOG CABIN WAY
WATER LATERAL 1

DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1906-000

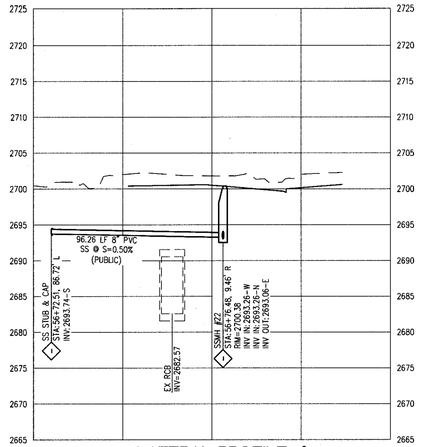
PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSHUA L. JOHNSON
No. 15789
Exp. 06/30/2021
CIVIL
8/1/19

U-9
SHEET 36 OF 47

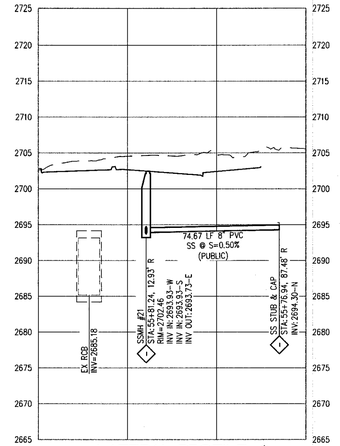
J:\est1906-000 sunstone log cabin\dwg\engnrng\est1906-000 utl lot.dwg, 8/7/2019 8:44 AM, Thomas Dyson



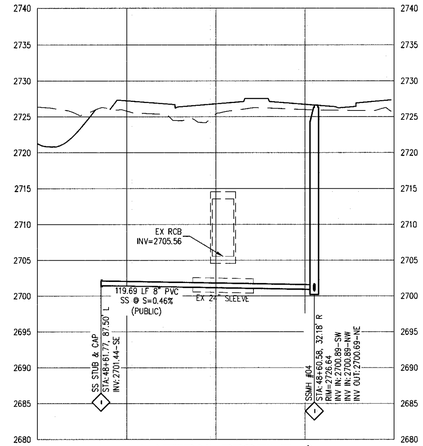
LATERAL PROFILE 1
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'



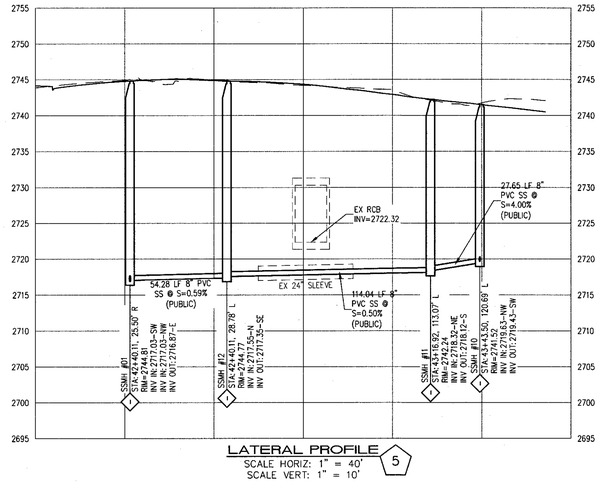
LATERAL PROFILE 2
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'



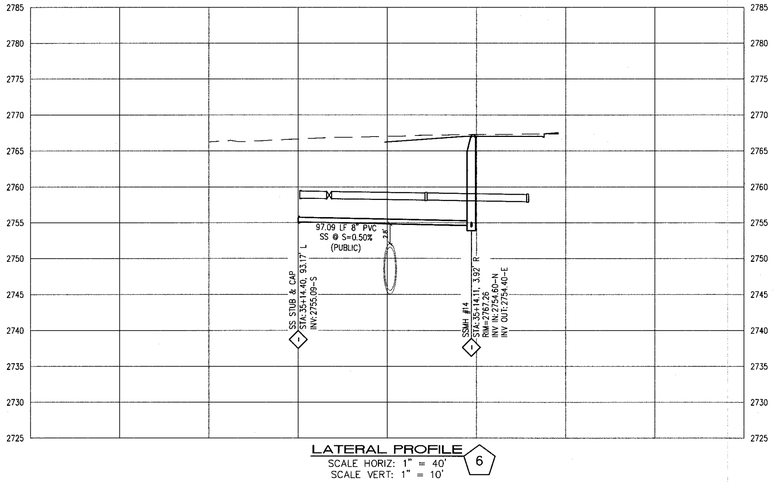
LATERAL PROFILE 3
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'



LATERAL PROFILE 4
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'



LATERAL PROFILE 5
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'



LATERAL PROFILE 6
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300
FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
LOG CABIN WAY
SEWER LATERAL 1

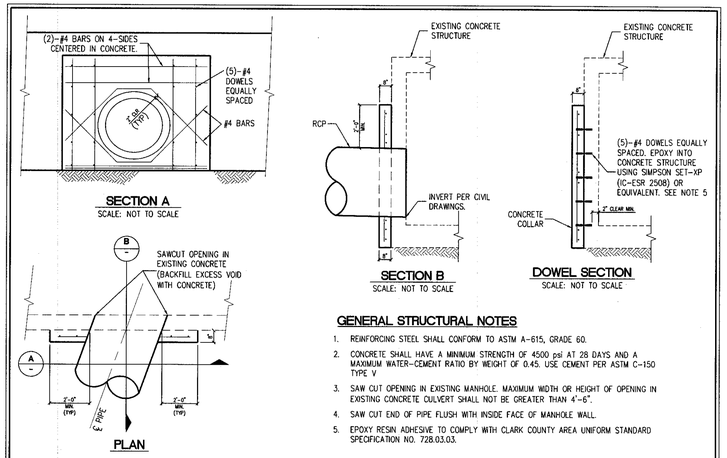
DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1906-000

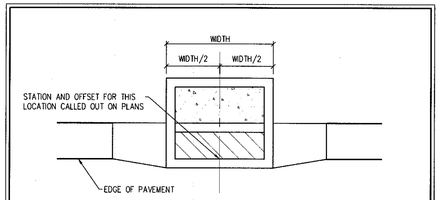
PROFESSIONAL ENGINEER – STATE OF NEVADA
JOSHUA L. JOHNSON
Exp. 06/30/2021
CIVIL
No. 15769
8/7/19

U-10
SHEET 37 OF 47

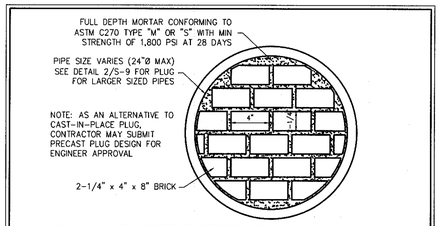
I:\est1906-000 sunstone log cabin\dwg\xmsrox\est1906-000 util lat.dwg, 8/7/2019 8:44 AM Thomas Dyson



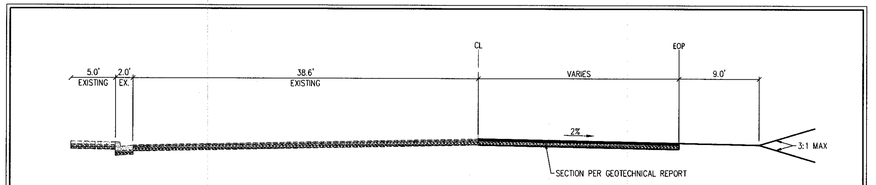
E. COLLAR AND SIDE PENETRATION DETAIL (EX STRUCTURE)
NOT TO SCALE



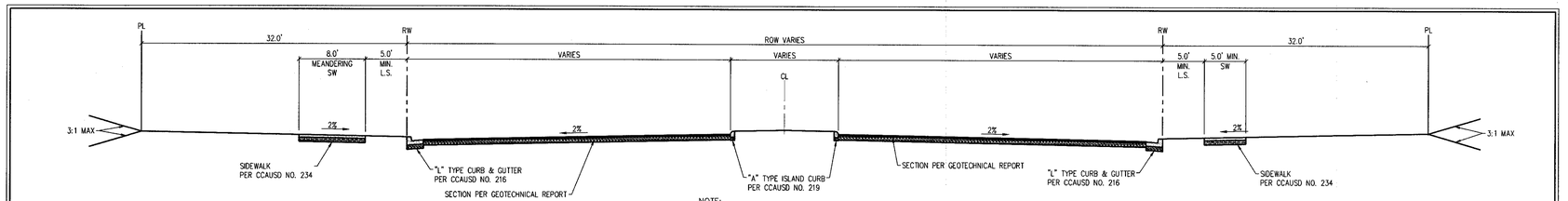
D. DROP INLET STATION AND OFFSET LOCATION DETAIL
NOT TO SCALE



C. BRICK AND MORTAR STORM DRAIN PLUG
NOT TO SCALE



B. LOG CABIN WAY HALF STREET (PUBLIC)
NOT TO SCALE



A. LOG CABIN WAY
NOT TO SCALE

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. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
LOG CABIN WAY
DETAIL SHEET 1

DATE: 08/07/2019
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1906-000

PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSHUA L. JOHNSON
No. 15789
EXP. 06/30/2021
8/7/19

DT-1
SHEET 38 OF 47

J:\est1906-000 sunstone log cabin\cadd\mirrors\est1906-000 det.dwg 8/7/2019 8:44 AM Thomas Dyson

SEE CLV PROJECT ##### FOR CONTINUATION

SEE SKYE POINTE DRIVE PLANS

SUNSTONE PARCEL COM3 (FUTURE)

SKYE POINTE DRIVE (PUBLIC)

IMPROVEMENT PLANS BY OTHERS Ct.v#107v7653

"LCW" 33+04 BEGIN 6-INCH WHITE LINE

"LCW" 33+94 BEGIN TYPE 4 LANE LINE

"LCW3" 35+72 END 6-INCH WHITE LINE

"LCW3" 36+75 END 6-INCH WHITE SKIP LINE
BEGIN 6-INCH WHITE LINE

"LCW3" 37+26 BEGIN 6-INCH WHITE SKIP LINE
END 6-INCH WHITE LINE

"LCW" 39+22 BEGIN 6-INCH WHITE LINE

"LCW" 40+56 BEGIN 6-INCH WHITE LINE
END 6-INCH WHITE SKIP LINE

"LCW" 40+92 BEGIN 6-INCH WHITE SKIP LINE

"LCW" 41+00.00

SEE BOTTOM LEFT

MATCHLINE

"LCW" 40+98 END 6-INCH SKIP WHITE LINE

"LCW" 40+69 END 6-INCH WHITE LINE

"LCW" 39+63 BEGIN 6-INCH WHITE SKIP WHITE LINE

SUNSTONE PARCEL O (FUTURE)

LOG CABIN WAY (PUBLIC)

SEE O'HARE ROAD PLANS

"LCW" 43+29 YIELD LINE

"LCW" 43+95 YIELD LINE

"LCW" 44+54 END 6-INCH WHITE LINE

"LCW" 43+08 YIELD LINE

"LCW" 44+93 YIELD LINE

"LCW" 44+99 YIELD LINE

"LCW" 46+49 BEGIN 6-INCH WHITE LINE

"LCW" 41+28 END TYPE 4 LANE LINE
BEGIN 6-INCH WHITE LINE

"LCW" 42+21 YIELD LINE

"LCW" 42+27 YIELD LINE

"LCW" 42+34 END 6-INCH WHITE LINE

"LCW" 44+12 YIELD LINE

"LCW" 43+90 YIELD LINE

"LCW" 44+86 BEGIN 6-INCH WHITE LINE

"LCW" 44+80 BEGIN 6-INCH WHITE LINE

"LCW" 46+36 END 6-INCH WHITE LINE

"LCW" 46+50.00

"LCW" 46+43 BEGIN 6-INCH WHITE LINE

O'HARE ROAD (PUBLIC)

SUNSTONE PARCEL S (FUTURE)

SUNSTONE PARCEL P (FUTURE)

SEE O'HARE ROAD PLANS

SEE TOP RIGHT

MATCHLINE

"LCW" 41+00.00

SEE SHEET 2

MATCHLINE

"LCW" 46+50.00

STRIPING NOTES

1. INSTALL TYPE 4 LANE LINE (RPM) (USDCCA STD. DWG. NO. 244.1)
2. INSTALL 6-INCH SOLID WHITE LINE (PPM)
3. INSTALL 6-INCH WHITE SKIP LINE (PPM) (USDCCA STD. DWG. NO. 244.9)
4. INSTALL WHITE PAVEMENT BIKE LEGEND (PMF-TYPE 2) (USDCCA STD. DWG. NO. 244.9)
5. INSTALL WHITE PAVEMENT ARROW (PMF-TYPE 2)
6. INSTALL NEW SIGN(S) (GROUND MOUNTED)
7. INSTALL NEW SIGN(S) (POLE MOUNTED)
8. INSTALL STORAGE LANE LINE (RPM) (USDCCA STD. DWG. NO. 246)
9. INSTALL WHITE CROSSWALK LINE (PMF-TYPE 2) (USDCCA STD. DWG. NO. 254)
10. INSTALL 24-INCH WHITE STOP BAR (PMF-TYPE 2) (USDCCA STD. DWG. NO. 254)
11. INSTALL WHITE DIAGONAL AT 40' O.C. (PMF-TYPE 2)
12. INSTALL 24-INCH YELLOW DIAGONAL AT 25' O.C. (PMF-TYPE 2)

NOTES

1. ALL DIMENSIONS ARE TO THE FACE OF MEDIAN CURB OR LIP OF GUTTER UNLESS OTHERWISE NOTED.
2. ALL D3-1 STREET NAME SIGN LEGENDS SHALL BE APPROVED BY AGENCY PRIOR TO ORDERING SIGNS.

LEGEND

NEW PAVEMENT

KEYMAP

SCALE - 1"=40' (0, 40, 80 FEET)

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

FAST Call before you UnderGround. 1-702-432-5300 FEDERAL AID INTERSTATE SYSTEM OF TRANSPORTATION

Call before you Dig Avoid cutting underground utility lines. It's costly. Call 811 or 1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

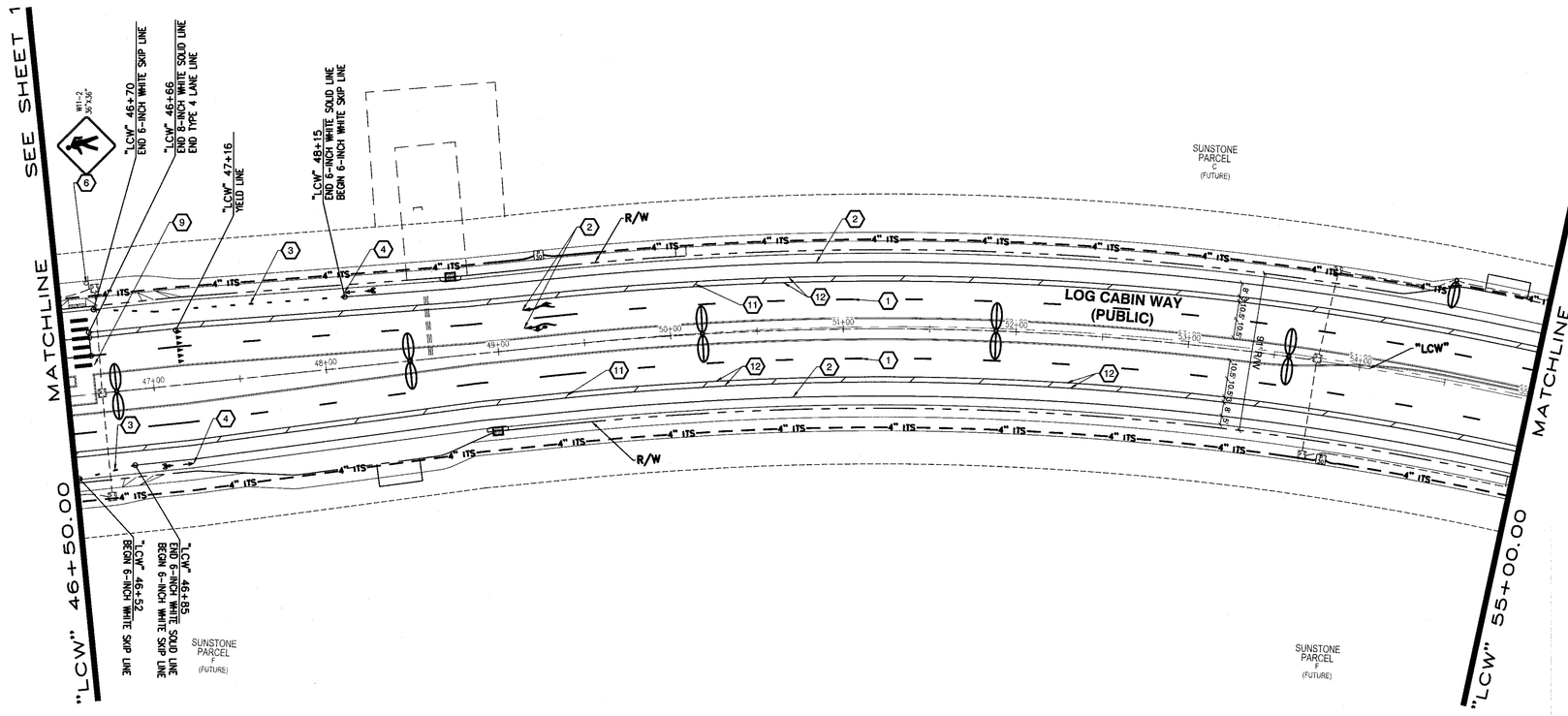
SUNSTONE PHASE 1
LOG CABIN WAY
SIGNAGE AND STRIPING LCW 32+00.00 TO LCW 41+00.00

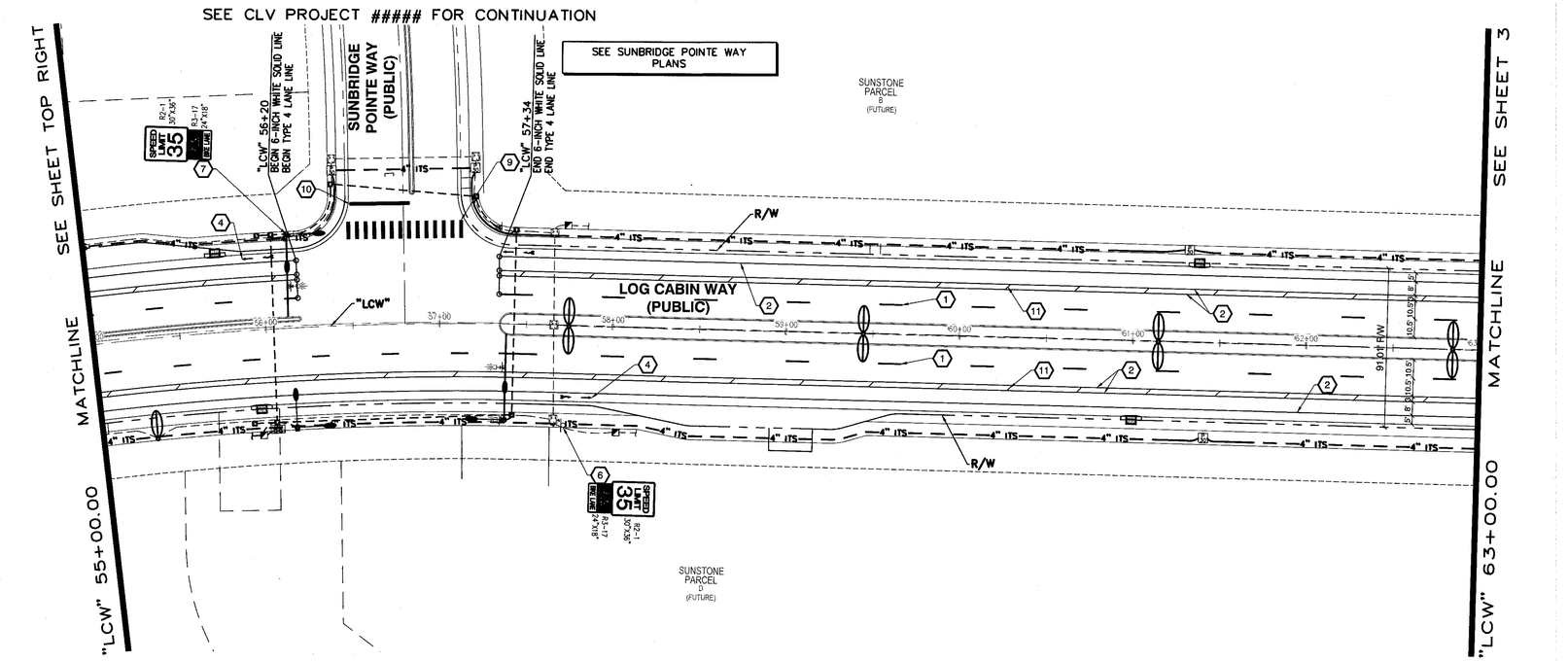
DATE: 08/07/2019
DRAFTER: ST
DESIGNER: ST
CHECKED:
PROJECT NO. EST1906-000

NOT FOR CONSTRUCTION

ST-01
SHEET 39 OF 47

i:\est\1906-000 sunstone log cabin\dev\xmocs\xst1906-000 lgc-st.dwg 8/7/2019 8:46 AM Thomas Dyson





STRIPING NOTES

1. INSTALL TYPE 4 LANE LINE (RPM) (USDCCA STD. DWG. NO. 244.1)
2. INSTALL 6-INCH SOLID WHITE LINE (PPM)
3. INSTALL 6-INCH WHITE SKIP LINE (PPM) (USDCCA STD. DWG. NO. 244.9)
4. INSTALL WHITE PAVEMENT BIKE LEGEND (PMF-TYPE 2) (USDCCA STD. DWG. NO. 244.9)
5. INSTALL WHITE PAVEMENT ARROW (PMF-TYPE 2)
6. INSTALL NEW SIGN(S) (GROUND MOUNTED)
7. INSTALL NEW SIGN(S) (POLE MOUNTED)
8. INSTALL STORAGE LANE LINE (RPM) (USDCCA STD. DWG. NO. 246)
9. INSTALL WHITE CROSSWALK LINE (PMF-TYPE 2) (USDCCA STD. DWG. NO. 254)
10. INSTALL 24-INCH WHITE STOP BAR (PMF-TYPE 2) (USDCCA STD. DWG. NO. 254)
11. INSTALL WHITE DIAGONAL AT 40' O.C. (PMF-TYPE 2)
12. INSTALL 24-INCH YELLOW DIAGONAL AT 25' O.C. (PMF-TYPE 2)

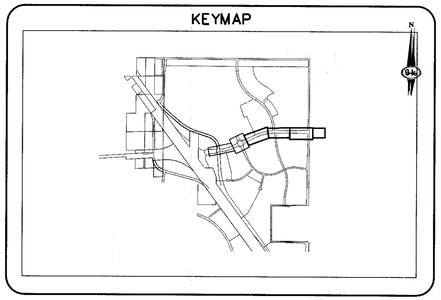
NOTES

1. ALL DIMENSIONS ARE TO THE FACE OF MEDIAN CURB OR LIP OF GUTTER UNLESS OTHERWISE NOTED.
2. ALL D3-1 STREET NAME SIGN LEGENDS SHALL BE APPROVED BY AGENCY PRIOR TO ORDERING SIGNS.

LEGEND

NEW PAVEMENT

KEYMAP



0 40 80
SCALE - 1"=40' FEET

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

FAST
Call before you Underground.
1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

Call before you Dig
Avoid cutting underground utility lines. It's easy.
Call 811
or
1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
LOG CABIN WAY
SIGNAGE AND STRIPING LCW 41+00.00 TO LCW 46+50.00

DATE: 08/07/2019
DRAFTER: ST
DESIGNER: ST
CHECKED:

PROJECT NO.
EST1906-000

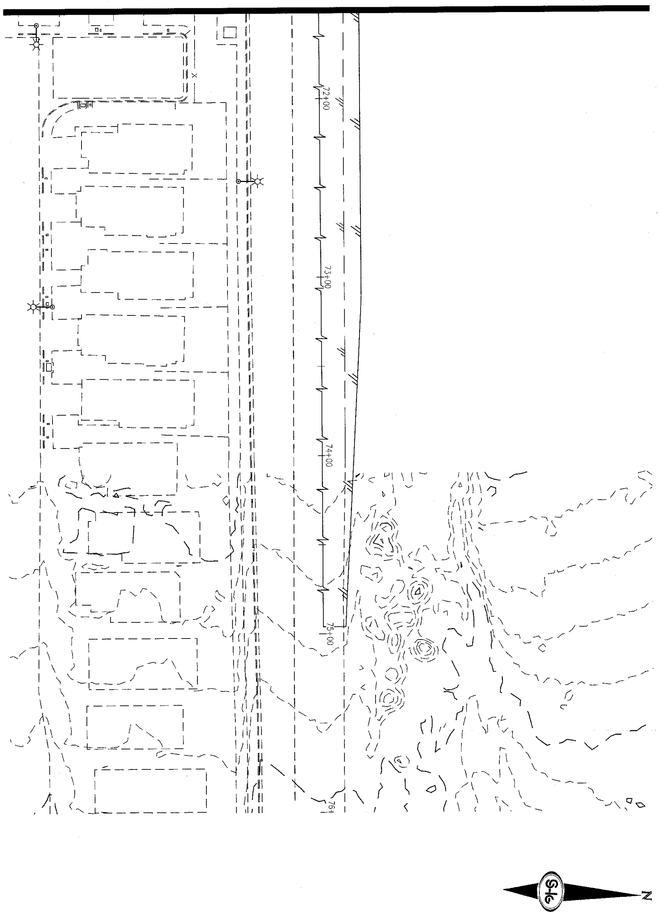
NOT FOR CONSTRUCTION

ST-02
SHEET 40 OF 47

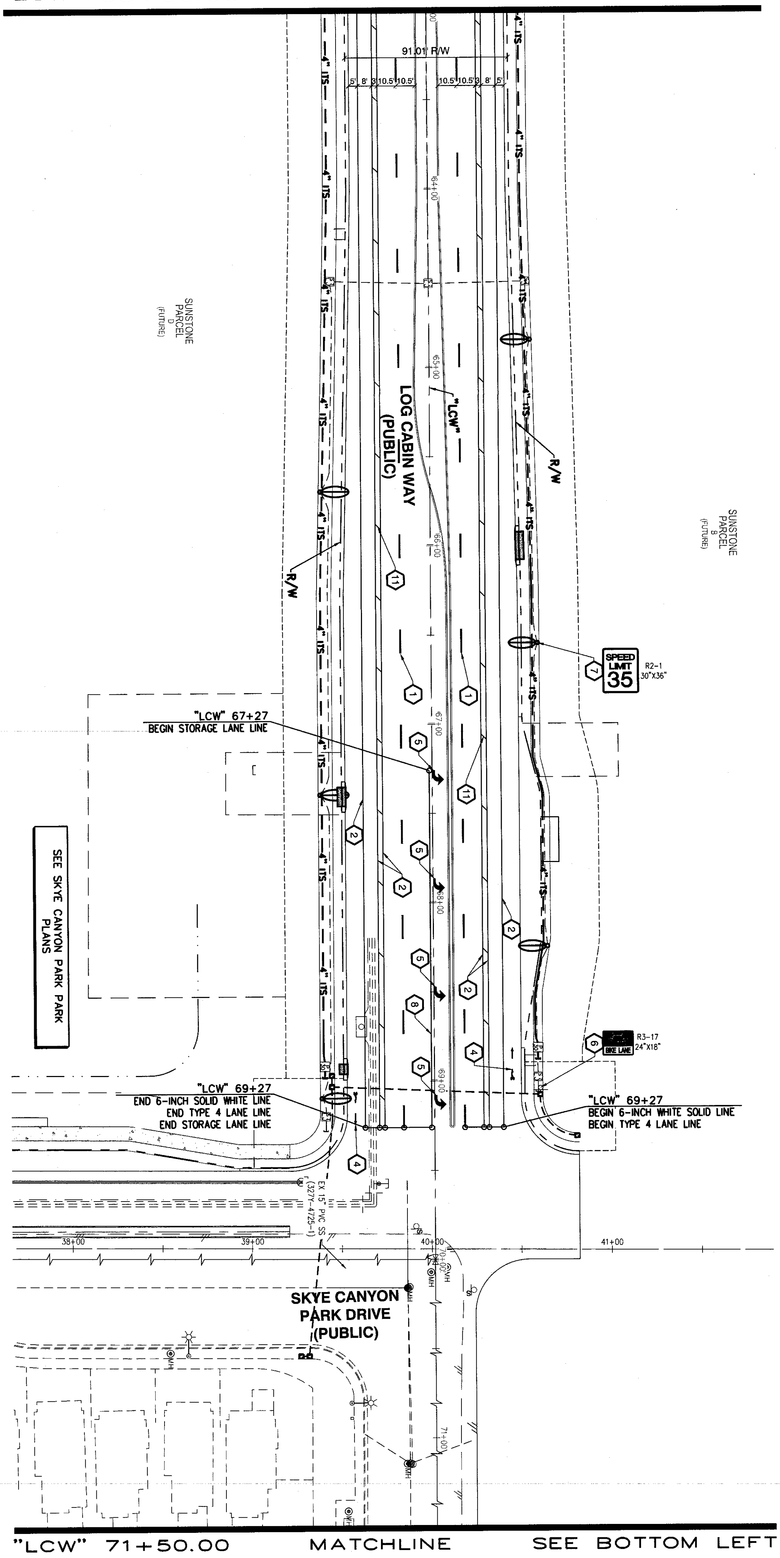
J:\est1906-000 sunstone log cabin\Data\Improv\est1906-000 tsp-st.dwg 8/7/2019 8:46 AM Thomas Dyson

J:\est1906-000 sunstone log cabin\dwg\improv\est1906-000 tsp-st.dwg 8/7/2019 8:46 AM Thomas Dyson

"LCW" 71+50.00 MATCHLINE SEE TOP RIGHT



"LCW" 63+00.00 MATCHLINE SEE SHEET 2



"LCW" 71+50.00 MATCHLINE SEE BOTTOM LEFT

STRIPING NOTES

1. INSTALL TYPE 4 LANE LINE (PPM) (USDCCA STD. DWG. NO. 244.1)
2. INSTALL 6-INCH SOLID WHITE LINE (PPM)
3. INSTALL 6-INCH WHITE SKIP LINE (PPM) (USDCCA STD. DWG. NO. 244.9)
4. INSTALL BIKE LANE LEGEND (PMF-TYPE 2) (USDCCA STD. DWG. NO. 244.9)
5. INSTALL WHITE PAVEMENT ARROW (PMF-TYPE 2)
6. INSTALL NEW SIGN(S) (GROUND MOUNTED)
7. INSTALL NEW SIGN(S) (POLE MOUNTED)
8. INSTALL STORAGE LANE LINE (PPM) (USDCCA STD. DWG. NO. 246)
9. INSTALL WHITE CROSSWALK LINE (PMF-TYPE 2) (USDCCA STD. DWG. NO. 254)
10. INSTALL 24-INCH WHITE STOP BAR (PMF-TYPE 2) (USDCCA STD. DWG. NO. 254)
11. INSTALL WHITE DIAGONAL AT 40' O.C. (PMF-TYPE 2)
12. INSTALL 24-INCH YELLOW DIAGONAL AT 25' O.C. (PMF-TYPE 2)

NOTES

1. ALL DIMENSIONS ARE TO THE FACE OF MEDIAN CURB OR LIP OF GUTTER UNLESS OTHERWISE NOTED.
2. ALL STREET NAME SIGN LEGENDS SHALL BE APPROVED BY AGENCY PRIOR TO ORDERING SIGNS.

LEGEND

NEW PAVEMENT

KEYMAP

SCALE - 1"=40'
0 40 80 FEET

Call before you Dig
Call 811
1-800-227-2600

FAST
Call before you Dig
Underground
1-702-486-3000

CALL BEFORE YOU DIG
1-702-227-2929

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
LOG CABIN WAY
SIGNAGE AND STRIPING LCW 46+50.00 TO LCW 55+00.00

NO.	DESCRIPTION	DATE	BY	APP DATE	APP.

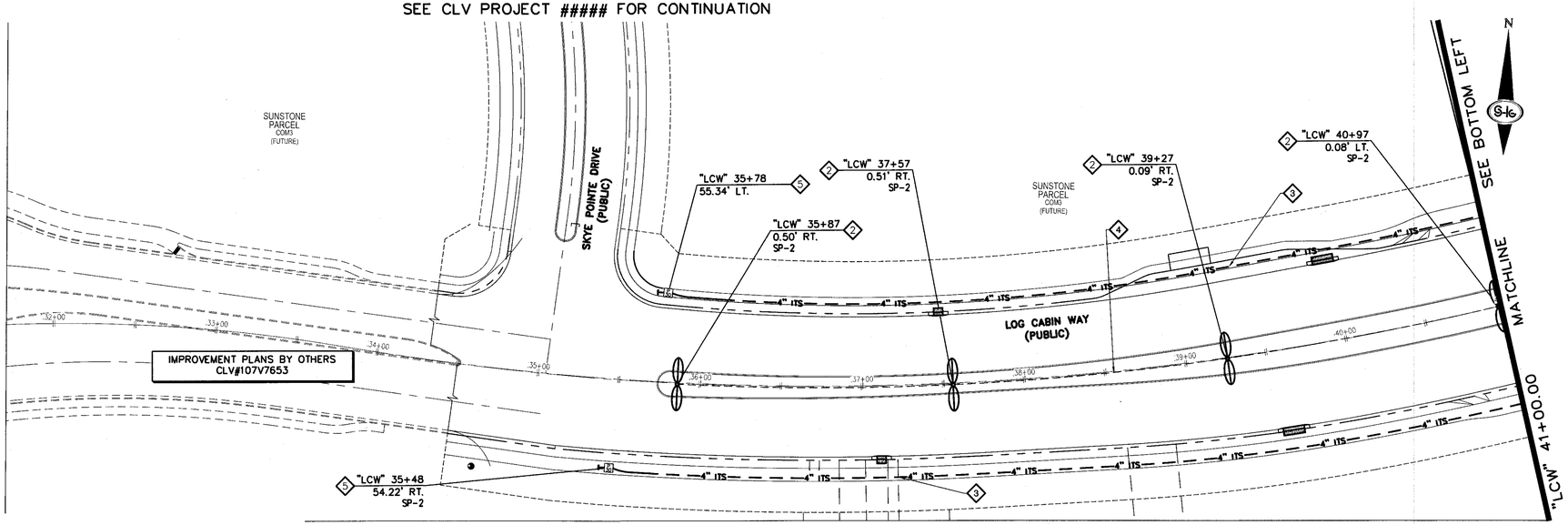
SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NOT FOR CONSTRUCTION

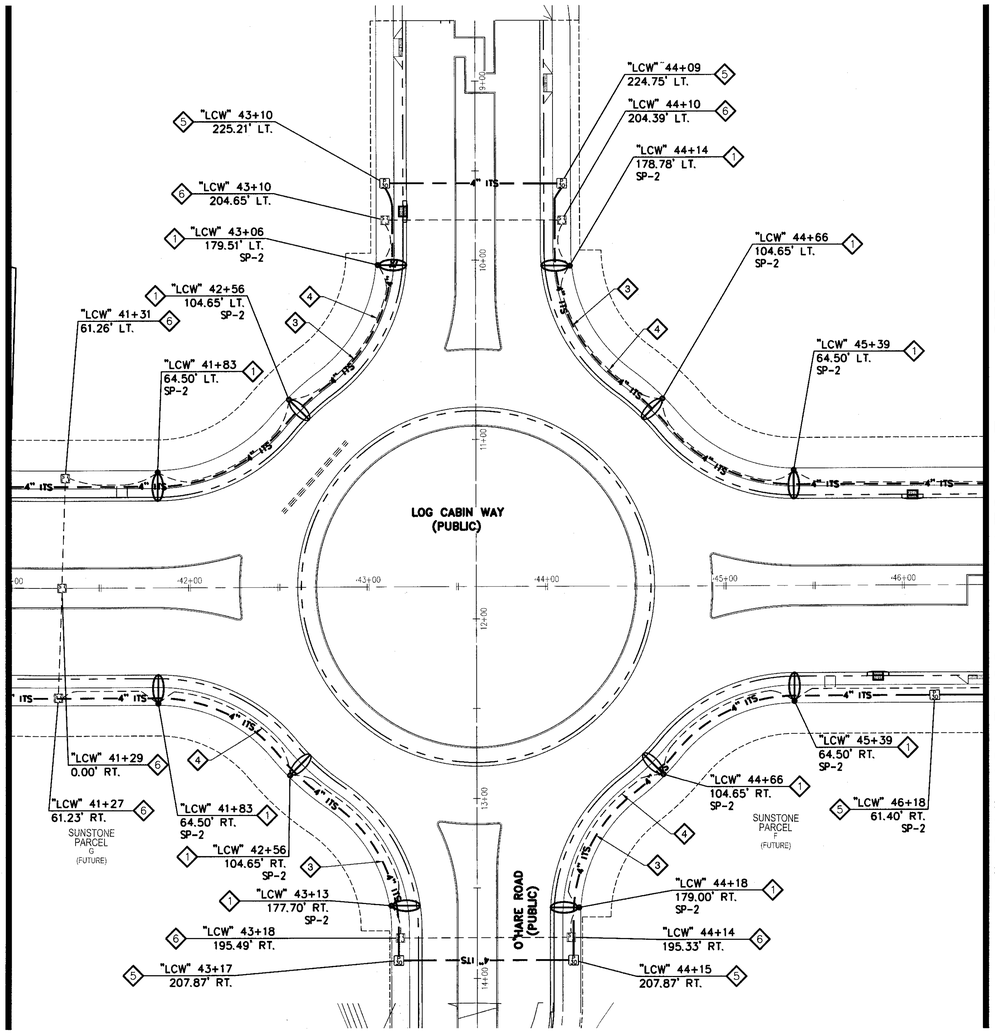
ST-03
SHEET 41 OF 47

PROJECT NO. EST1906-000
CHECKED:
DESIGNER: ST
DRAFTER: ST
DATE: 08/07/2019

SEE CLV PROJECT ##### FOR CONTINUATION



SEE TOP RIGHT



"LCW" 41+00.00 MATCHLINE

"LCW" 46+50.00 MATCHLINE SEE SHEET 2

LIGHTING NOTES

1. INSTALL AMERON CONCRETE POLE WITH 6-FOOT LUMINAIRE ARM WITH TBD(W) TBD(K) LED FIXTURE TBD ON CONCRETE FOUNDATION (SEE STRUCTURAL PLANS FOR FOUNDATION DETAIL AND SHEET LL-TBD FOR INFORMATION)
2. INSTALL AMERON CONCRETE POLE (CAT #2C2-25) WITH DUAL 6-FOOT LUMINAIRE ARM WITH TBD(W) TBD(K) LED FIXTURE ERLXXX ON CONCRETE FOUNDATION (SEE STRUCTURAL PLANS FOR FOUNDATION DETAIL AND SHEET LL-TBD FOR INFORMATION)
3. 1-4" PVC CONDUIT, 1-#8 LOCATOR WIRE
4. 1-2" PVC CONDUIT WITH 2-#4, 1-#8 GROUND
5. INSTALL PJ0 PULL BOX (USDCCA STD. DWG. NO. 329 & 761) WITH CONCRETE COLLAR (USDCCA STD. DWG. NO. 329) WITH CONCRETE COLLAR IN UNIMPROVED AREAS WHERE SHOWN ON PLANS
6. INSTALL NO. 3-1/2 PULL BOX (LIGHTING) (USDCCA STD. DWG. NO. 326 & 329)
7. SPLICE IN PULL BOX CONDUCTORS TO INTERCEPT EXISTING STREETLIGHT CONDUIT.
8. STUB CONDUIT 5-FEET BEYOND PULL BOX AND CAP FOR FUTURE EXTENSION.
9. INSTALL 200 AMP PADMOUNTED SERVICE PEDESTAL (USDCCA STD. DWG. NOS. 331 332.S1 COMPLETE WITH PE CONTROL, CONTACTORS AND BREAKERS (USDCCA STD. DW. NO. 335.S1)

NOTES

1. ALL UNDERGROUND CONDUIT SHALL BE TYPE RNC (RIGID NONMETALLIC CONDUIT), SCHEDULE 40 PVC AND SHALL BE INSTALLED PER USDCCA STD. DWG. NOS. 503 & 505. ABOVE GROUND CONDUIT SHALL BE TYPE RMC (RIGID METALLIC CONDUIT). CONDUIT RISERS SHALL BE TYPE RMC WITH PVC COATING OR TAPE WRAP. ALL EMPTY CONDUIT SHALL INCLUDE A NYLON PULL STRING AND 1-#8 FOR LOCATING PURPOSES.
2. ALL CONDUCTORS SHALL BE STRANDED, 600-VOLT, TYPE THW INSULATED COPPER.
3. CONTRACTOR SHALL FURNISH AND INSTALL ALL ELECTRICAL COMPONENTS AND HARDWARE AS REQUIRED BY THE NATIONAL ELECTRICAL CODE, LATEST EDITION AND SHALL COMPLY WITH THE REQUIREMENTS OF THE INSPECTING AUTHORITY HAVING JURISDICTION.

STREETLIGHT CIRCUIT CAPACITY VERIFICATION FOR CIRCUIT "SP-1"

IS THERE AN EXISTING SERVICE PEDESTAL IN THE FIELD (NOT PROPOSED) ADJACENT TO THIS PROPERTY THAT MIGHT BE ABLE TO BE USED TO POWER THIS PROJECT'S STREETLIGHTS? (CIRCLE)	YES	CONTACT CITY OF LAS VEGAS TRAFFIC OPERATIONS MICHAEL E. PERRY AT 702-229-6331 TO PERFORM CIRCUIT CAPACITY VERIFICATION.
	NO	INSTALL A NEW PEDESTAL.
SERVICE PEDESTAL LOCATION: LOG CABIN WAY, STA. 57.50		

CITY OF LAS VEGAS (COMPLETE IF EXISTING SERVICE)

DATE OF CAPACITY VERIFICATION	--
PERSON WHO DID THE VERIFICATION	--

OFFSITE PLANS ENGINEER

PERSON WHO DID THE CALCULATIONS:	STANLEY TAT
CONSULTING ENGINEERING FIRM:	SLATER HANIFAN GROUP A WESTWOOD TEAM

CAPACITY CALCULATIONS

1	CIRCUIT CAPACITY:	60	AMPS
2	MAXIMUM CONTINUOUS CIRCUIT DRAW (80%)	48	AMPS
3	EXISTING CIRCUIT LOAD (ENTER 0 IF NEW)	0	AMPS
4	AVAILABLE (2 MINUS 3)	48	AMPS
	PROPOSED LUMINAIRE LOAD TO CIRCUIT:		
5	6 NUMBER OF 198 WATT LUMINAIRE AT 240V = 0.825 AMPS/EA	5	AMPS
6	8 NUMBER OF 189 WATT LUMINAIRE AT 240V = 0.788 AMPS/EA	7	AMPS
7	TOTAL PROPOSED ADDITIONAL LOAD (5 + 6)	12	AMPS
	REMAINING AVAILABLE LOAD (4 MINUS 7)	36	AMPS

STREETLIGHT CIRCUIT CAPACITY VERIFICATION FOR CIRCUIT "SP-2"

IS THERE AN EXISTING SERVICE PEDESTAL IN THE FIELD (NOT PROPOSED) ADJACENT TO THIS PROPERTY THAT MIGHT BE ABLE TO BE USED TO POWER THIS PROJECT'S STREETLIGHTS? (CIRCLE)	YES	CONTACT CITY OF LAS VEGAS TRAFFIC OPERATIONS MICHAEL E. PERRY AT 702-229-6331 TO PERFORM CIRCUIT CAPACITY VERIFICATION.
	NO	INSTALL A NEW PEDESTAL.
SERVICE PEDESTAL LOCATION: LOG CABIN WAY, STA. 57.77		

CITY OF LAS VEGAS (COMPLETE IF EXISTING SERVICE)

DATE OF CAPACITY VERIFICATION	--
PERSON WHO DID THE VERIFICATION	--

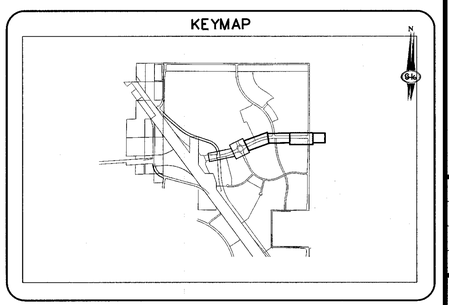
OFFSITE PLANS ENGINEER

PERSON WHO DID THE CALCULATIONS:	STANLEY TAT
CONSULTING ENGINEERING FIRM:	SLATER HANIFAN GROUP A WESTWOOD TEAM

CAPACITY CALCULATIONS

1	CIRCUIT CAPACITY:	60	AMPS
2	MAXIMUM CONTINUOUS CIRCUIT DRAW (80%)	48	AMPS
3	EXISTING CIRCUIT LOAD (ENTER 0 IF NEW)	0	AMPS
4	AVAILABLE (2 MINUS 3)	48	AMPS
	PROPOSED LUMINAIRE LOAD TO CIRCUIT:		
5	14 NUMBER OF 198 WATT LUMINAIRE AT 240V = 0.825 AMPS/EA	12	AMPS
6	18 NUMBER OF 189 WATT LUMINAIRE AT 240V = 0.788 AMPS/EA	14	AMPS
7	TOTAL PROPOSED ADDITIONAL LOAD (5 + 6)	26	AMPS
	REMAINING AVAILABLE LOAD (4 MINUS 7)	22	AMPS

KEYMAP



SCALE - 1"=40' (0, 40, 80 FEET)

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

FAST. Call before you UnderGround. 1-702-432-0300 FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

Call before you Dig. Avoid cutting underground utility lines. It's costly. Call 811 or 1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
LOG CABIN WAY
LIGHTING & ITS LCW 32+00.00 TO LCW 41+00.00

DATE: 08/07/2019
DRAFTER: ST
DESIGNER: ST
CHECKED:
PROJECT NO. EST1906-000

NOT FOR CONSTRUCTION

LL-01
SHEET 42 OF 47

\\est1906-000 sunstone log cabin\civil\mtorres\est1906-000 log cabin.dwg, 8/7/2019 8:47 AM, Thomas Bryson

LIGHTING NOTES

1. INSTALL AMERON CONCRETE POLE WITH 6-FOOT LUMINAIRE ARM WITH TBD(W) TBD(K) LED FIXTURE TBD ON CONCRETE FOUNDATION (SEE STRUCTURAL PLANS FOR FOUNDATION DETAIL AND SHEET LL-TBD FOR INFORMATION)
2. INSTALL AMERON CONCRETE POLE (CAT #2C2-25) WITH DUAL 6-FOOT LUMINAIRE ARM WITH TBD(W) TBD(K) LED FIXTURE ERLXXX ON CONCRETE FOUNDATION (SEE STRUCTURAL PLANS FOR FOUNDATION DETAIL AND SHEET LL-TBD FOR INFORMATION)
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4. 1-2" PVC CONDUIT WITH 2-#4, 1-#8 GROUND
5. INSTALL P30 PULL BOX (USDCCA STD. DWG. NO. 329 & 761) WITH CONCRETE COLLAR (USDCCA STD. DWG. NO. 329) WITH CONCRETE COLLAR IN UNIMPROVED AREAS WHERE SHOWN ON PLANS
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NOTES

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KEYMAP

0 40 80
SCALE - 1"=40' FEET

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

FAST Call before you Underground. 1-702-432-5300 FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

Call before you Dig Avoid cutting underground utility lines. It's costly. Call 811 or 1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300
FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
LOG CABIN WAY
LIGHTING & ITS LCW 41+00.00 TO LCW 46+50.00

DATE: 08/07/2019
DRAFTER: ST
DESIGNER: ST
CHECKED:
PROJECT NO.
EST1906-000

NOT FOR CONSTRUCTION

LL-02
SHEET 43 OF 47

J:\est1906-000 sunstone log cabin\dwg\improv\est1906-000 tsp-l.dwg 8/7/2019 8:48 AM Thomas Dyson

LIGHTING NOTES

1. INSTALL AMERON CONCRETE POLE WITH 6-FOOT LUMINAIRE ARM WITH TBD(W) TBD(K) LED FIXTURE TBD ON CONCRETE FOUNDATION (SEE STRUCTURAL PLANS FOR FOUNDATION DETAIL AND SHEET LL-TBD FOR INFORMATION)
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KEYMAP

SCALE - 1"=40' (0, 40, 80 FEET)

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

FAST Call before you UnderGround. 1-702-432-5300 FREWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

Call before you Dig. Avoid cutting underground utility lines. It's costly. Call 811 or 1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
LOG CABIN WAY
LIGHTING & ITS LCW 46+50.00 TO LCW 55+00.00

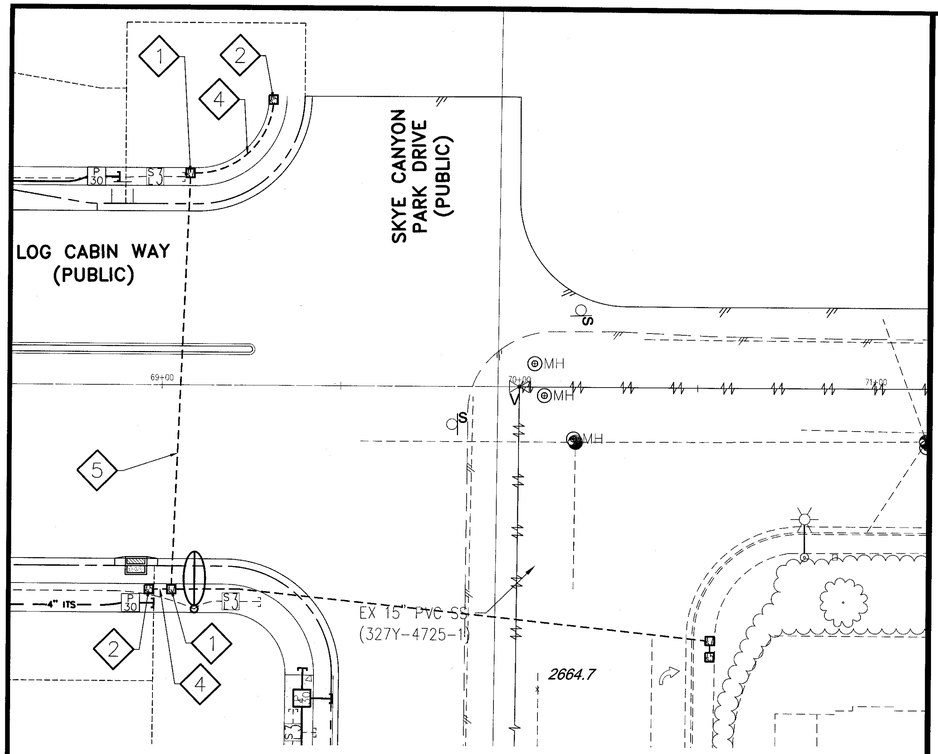
ST

DATE: 08/07/2019
DRAFTER: ST
DESIGNER:
CHECKED:
PROJECT NO.
EST1906-000

NOT FOR CONSTRUCTION

LL-03
SHEET 44 OF 47

J:\est1906-000 sunstone log cabin\dwg\engrcv\est1906-000 ssp--.dwg 8/7/2019 8:48 AM Thomas Dyson



LOG CABIN WAY / SKYE CAYON PARK DRIVE ①

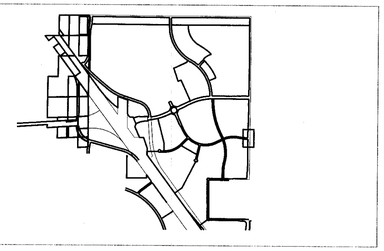
TRAFFIC SIGNAL NOTES

1. INSTALL NO. 7 PULLBOX (USDCCA DWG. NO. 707 AND 711)
2. INSTALL NO. 5 PULLBOX (USDCCA DWG. NO. 706 AND 711)
3. INSTALL (5) 3-INCH, (2) 2-INCH PVC CONDUIT WITH PULL STRING
4. INSTALL 3-INCH PVC CONDUIT WITH PULL STRING
5. INSTALL (2) 3-INCH, (2) 2-INCH PVC CONDUIT WITH PULL STRING

NOTES

1. CONTRACTOR SHALL CONTACT ENGINEER TO LOCATE FINAL TRAFFIC SIGNAL POLE LOCATIONS WITH SIDEWALK RAMPS TO ENSURE THAT ADA REQUIREMENTS ARE MET

KEYMAP



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SCALE 20 0 20 40 FEET

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

FAST Call before you UnderGround. 1-702-632-5300 FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

Call before you Dig Avoid cutting underground utility lines. It's safety. Call 811 1-800-227-2600

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. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
LOG CABIN WAY
TRAFFIC SIGNAL INFRASTRUCTURE

DATE: 08/07/2019
DRAFTER: ST
DESIGNER: ST
CHECKED: PV

PROJECT NO.
EST1906-000

NOT FOR CONSTRUCTION

TS-01
SHEET 45 OF 47

J:\est\1906-000 sunstone log cabin\dwg\tmpro\est1906-000 tsl.dwg 8/7/2019 8:49 AM Thomas Dyer

TRAFFIC SIGNAL NOTES

1. INSTALL NO. 7 PULLBOX (USDCCA DWG. NO. 707 AND 711)
2. INSTALL NO. 5 PULLBOX (USDCCA DWG. NO. 706 AND 711)
3. INSTALL (5) 3-INCH, (2) 2-INCH PVC CONDUIT WITH PULL STRING
4. INSTALL 3-INCH PVC CONDUIT WITH PULL STRING
5. INSTALL (2) 3-INCH, (2) 2-INCH PVC CONDUIT WITH PULL STRING
6. INSTALL NEW SIGN(S) (MAST ARM MOUNTED) SEE NDOT STD. PLAN T-31.6.3 FOR MAST ARM CONFIGURATION FOR SIGNAL HEAD AND ARM SIGN
7. INSTALL TYPE "R" CABINET ON NEW FOUNDATION WITH 24-INCH CONCRETE PAD AROUND 3 SIDES (USDCCA STD. DWG. NO. 725 AND 803)
8. INSTALL NEW SIGN(S) (POLE MOUNTED)
9. INSTALL 3-INCH PVC CONDUIT WITH (2) #10 THW FOR LUMINAIRES AND RRFB SYSTEM CABLES AND CONDUCTORS

NOTES

1. CONTRACTOR SHALL CONTACT ENGINEER TO LOCATE FINAL TRAFFIC SIGNAL POLE LOCATIONS WITH SIDEWALK RAMPS TO ENSURE THAT ADA REQUIREMENTS ARE MET
2. SEE SHEET ST-04 FOR ADVANCE WARNING SIGNS

W11-2 48"x48" (F-YG)
W11-2 36"x36" (F-YG)
RRFB

SUNSTONE PARCEL F (FUTURE)

SUNSTONE PARCEL D (FUTURE)

POLE SCHEDULE

POLE	LOCATION STATION (OFFSET)	POLE TYPE	SIGNAL ARM QUAD.	SIGNAL ARM LENGTH	LUM. ARM QUAD.	LUM. ARM LENGTH	PEDESTRIAN PUSH BUTTON QUAD	PEDESTRIAN PUSH BUTTON SIGN	REMARKS
(A)	TULE SPRINGS 146+87.7 45.9' LT	XX-A	-	-	3 4	15' 15'	-	-	LUMINAIRES SHALL BE LED HOLOPHANE ATB20BLEDE10MVOLTR3 OR APPROVED EQUAL WITH 7 PIN RECEPTACLE AND PHOTOCELL. CRASH CAP SHALL BE FLUSH WITH SIDEWALK. MOUNT 120VAC TAPCO RRFB NEMA 3R CONTROL CABINET WITH FLASH CONTROLLER AND 100-240VAC, 50/60HZ SYSTEM POWER SUPPLY OR APPROVED EQUAL ON POLE PER MANUFACTURER RECOMMENDATION.
(B)	TULE SPRINGS 146+97.4 48.8' RT	XX-A	1	40'	1 4	15' 15'	3	2/TS-03	LUMINAIRES SHALL BE LED HOLOPHANE ATB20BLEDE10MVOLTR3 OR APPROVED EQUAL WITH 7 PIN RECEPTACLE AND PHOTOCELL. CRASH CAP SHALL BE FLUSH WITH SIDEWALK. MOUNT RRFB-XL2 LIGHT BAR OR APPROVED EQUAL ON MAST ARM AND POLE PER MANUFACTURER RECOMMENDATION. MOUNT W11-2 ON MAST AND POLE AS INDICATED ON PLAN.
(C)	TULE SPRINGS 145+96.1 65.7' RT	1-A*	-	-	-	-	3	2/TS-03	CRASH CAP SHALL BE FLUSH WITH SIDEWALK. MOUNT RRFB-XL2 LIGHT BAR OR APPROVED EQUAL ON POLE PER MANUFACTURER RECOMMENDATION AND DETAIL 1, SHEET TS-03. MOUNT W11-2 AND W16-7P ON POLE AS INDICATED ON PLAN.
(D)	TULE SPRINGS 146+02.4 45.9' LT	XX-A	3	45'	2 3	15' 15'	3	2/TS-03	LUMINAIRES SHALL BE LED HOLOPHANE ATB20BLEDE10MVOLTR3 OR APPROVED EQUAL WITH 7 PIN RECEPTACLE AND PHOTOCELL. CRASH CAP SHALL BE FLUSH WITH SIDEWALK. MOUNT RRFB-XL2 LIGHT BAR OR APPROVED EQUAL ON MAST ARM AND POLE PER MANUFACTURER RECOMMENDATION. MOUNT W11-2 ON MAST AND W11-2 AND W16-7P ON POLE AS INDICATED ON PLAN.

ONE NO. 8 GREEN GROUNDING WIRE SHALL BE RUN FROM THE CONTROLLER CABINET TO EACH SIGNAL POLE BASE
PROVIDE AND INSTALL ALL REQUIRED EQUIPMENT, CABLES, CIRCUIT BREAKERS, CONDUCTORS AND BULLDOG PUSH BUTTONS FOR A COMPLETE TAPCO RRFB SYSTEM OR APPROVED EQUAL PER MANUFACTURER RECOMMENDATION
* MODIFIED 1-A POLE PER USDCCA STD. DWG. NO. 806 WITH 15' HEIGHT. INSTALL POLE ON MODIFIED 48" DEEP TYPE "C" FOUNDATION

QUADRANT LOCATOR
ARM OR SIGNAL LOCATION (TOP VIEW)

GRAPHIC SCALE
20 0 20 40
SCALE (IN FEET) FEET
1 inch = 20 ft.

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
LOG CABIN WAY
PEDESTRIAN FLASHER PLAN 1

DATE: 08/07/2019
DRAFTER: ST
DESIGNER: ST
CHECKED: PV
PROJECT NO. EST1906-000

NOT FOR CONSTRUCTION

TS-02
SHEET 46 OF 47

\\est1906_000 sunstone log cabin\Eng\Improv\est1906-000 rrfb.dwg 8/7/2019 8:50 AM Thomas Dyson

1. CONTRACTOR SHALL REFERENCE THE LATEST RTC UNIFORM STANDARD SPECIFICATIONS & DRAWINGS FOR CONSTRUCTION. LOCATIONS OF UNDERGROUND UTILITIES SHOWN ON THE DRAWINGS WERE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY FOR UTILITIES OR STRUCTURES NOT SHOW OR NOT IN THE LOCATION SHOWN ON THE DRAWINGS. THE CONTRACTOR'S RESPONSIBILITY REGARDING UTILITIES SHALL BE AS REQUIRES UNDER SECTION 105.06 OF THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS' CONSTRUCTION OFF -SITE IMPROVEMENTS. CLARK COUNTY AREA, NEVADA, LATEST EDITION. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES AT LEAST 2 WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION

CALL BEFORE YOU DIG 1-800-227-2600
NORTH LAS VEGAS PUBLIC WORKS 1-702- 633-1200
NORTH LAS VEGAS TRAFFIC ENGINEER 1-702- 633-1224
NV ENERGY 1-702- 402-5555

2. ALL CONSTRUCTION SIGNAGE BARRICADING AND TRAFFIC DELINEATION SHALL CONFORM TO NEVADA WORK ZONE TRAFFIC CONTROL HANDBOOK LATEST EDITION AND TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION. ALL BARRICADES SHALL HAVE RETRO-REFLECTIVE SHEETING COMPLIANT WITH UNIFORM STANDARD SPECIFICATION 716.

3. CONTRACTOR SHALL INSTALL 1-60A 1 POLE CIRCUIT BREAKER FOR TRAFFIC SIGNAL AND 4-30A 1-POLE CIRCUIT BREAKERS FOR INTERSECTION LIGHTS IN NEW 200 AMP SERVICE PEDESTAL LOCATED ON THE SAME CORNER AS THE TRAFFIC SIGNAL CABINET IN ACCORDANCE WITH CLARK COUNTY UNIFORM STANDARD DRAWING 730, CLARK COUNTY UNIFORM STANDARD SPECIFICATIONS, SPECIAL PROVISIONS, AND AS INDICATED ON THE PLANS, THE LINE SIDE OF METER IS TO BE WIRED WITH NEVADA ENERGY OWNED SERVICE WIRE (NEUTRAL TO BE IDENTIFIED WITH WHITE). THE LOAD SIDE OF THE METER IS TO BE WIRED WITH THREE (3) #6 AWG THW (1 BLACK, 1 WHITE, AND 1 GREEN) FOR TRAFFIC SIGNAL. THE CONTRACTOR SHALL COORDINATE INSTALLATIONS WITH NV ENERGY, CITY OF NORTH LAS VEGAS TRAFFIC OPERATIONS, AND CITY OF NORTH LAS VEGAS CONSTRUCTION SERVICES.

4. INTERSECTION LIGHTS WILL BE FED DIRECTLY FROM 200 AMP SERVICE TO EACH CORNER WITH NO SPLICES (3- #10 THW, BLACK, WHITE, GREEN). EACH INTERSECTION FIXTURE WILL HAVE (3 - # 10 THW BLACK, WHITE, GREEN) RUNNING FROM THE FIXTURE TO A SPLICE POINT IN THE BOTTOM HAND HOLE WITH THE HOT LEG FUSED INTO A SINGLE, IN-LINE WATERPROOF FUSE HOLDER.

5. CONDUIT ROUTING SHOWN ON THE CIVIL PLANS IS SCHEMATIC FOR THE PURPOSE OF CLARITY AND MAY DIFFER FROM ACTUAL INSTALLATION. CONTRACTOR SHALL CHECK THE CONDUIT AND CABLE RUN SCHEDULE FOR CONDUIT, CABLE, AND WIRE SIZE, AND VERIFY ALL EXISTING CONDUIT RUNS ARE USABLE.

6. CONTRACTOR IS RESPONSIBLE FOR OBTAINING SURVEY OF PROPERTY LINES TO ENSURE THAT NEW TRAFFIC SIGNAL STRUCTURES ARE INSTALLED WITHIN PUBLIC RIGHT-OF-WAY OR EASEMENTS.

7. CONTRACTOR SHALL PROVIDE A NAZTEC MODEL 980 ATC SIGNAL CONTROLLER OR APPROVED EQUAL IN ACCORDANCE WITH CLARK COUNTY UNIFORM STANDARDS SPECIFICATIONS, SPECIAL PROVISIONS AND AS INDICATED ON THE PLANS AND AS DIRECTED BY THE CITY OF NORTH LAS VEGAS CITY TRAFFIC ENGINEER. CONTRACTOR TO PROVIDE LICENSE OF APOGEE ACTUATED SIGNAL CONTROLLER SOFTWARE (LATEST VERSION) TO RTC/FAST. MMU SHALL BE AN EDI MODEL 16ELIP OR APPROVED EQUAL. CONTROLLER SHALL BE INSTALLED IN A NEW CONTRACTOR- FURNISHED TYPE VIII 9" CABINET (16 POSITION LOAD BAY WITH EXHAUST FAN AND THERMOSTAT CONTROL) ON A CONTRACTOR-FURNISHED TYPE "J" FOUNDATION PER CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS NO. 803 AND 725. CABINETS SHALL BE ANODIZED ALUMINUM AND INCLUDE

inside:MODULES, SWITCHES, OPTICOM CARDS, FLASHERS, LOAD SWITCHES, AND 48 CHANNELS OF DETECTION IN TWO SEPARATE, SHELF-MOUNTED RACKS STACKED ON TOP OF EACH OTHER. ALL LOOP AMPLIFIERS WILL BE EDI LW 602 (CARD) OR APPROVED EQUAL. CABINETS SHALL CONFORM TO THE CITY OF NORTH LAS VEGAS' LATEST SPECIFICATION. CONTRACTOR SHALL PREPARE AS-BUILT DRAWINGS UPON COMPLETION OF THE PROJECT DETAILING ANY CHANGES TO THE CONTROLLER OPERATION. A MANUFACTURER'S REPRESENTATIVE SHALL BE PRESENT FOR THE SIGNAL TURN-ON, AND SHALL GIVE 14 DAY ADVANCE NOTICE TO TRAFFIC OPERATIONS

8. THE SIGNAL SHALL BE EQUIPPED WITH EMERGENCY VEHICLE PREEMPTION INCORPORATING FOUR (4) OPTICOM MODEL 722 DIRECTIONAL DETECTORS, ONE (1) 768 CARD AND MODEL 138 CABLE. EMERGENCY VEHICLE PREEMPTION SHALL BE INSTALLED OVER THE FIRST THROUGH LANE IN EACH DIRECTION.

9. THE CONTROLLER, CABINET, AND CABINET COMPONENTS SHALL BE DELIVERED TO NORTH LAS VEGAS TRAFFIC OPERATIONS, 2829 FT SUMTER DRIVE FOR TESTING PRIOR TO INSTALLATION IN THE FIELD. CALL 702-633-1264 OR 702-239-2123 THREE BUSINESS DAYS (72 HOURS) IN ADVANCE. CONTRACTOR SHALL PICK UP CONTROLLER AND CABINET FOLLOWING TESTING.

10. CONTRACTOR SHALL SUPPLY A LAYER 2 FIELD- HARDENED ETHERNET SWITCH FOR EACH TRAFFIC SIGNAL CONTROLLER CABINET TO RTC-FAST PER CLARK COUNTY AREA UNIFORM STANDARD SPECIFICATION (USS) 684.

11. INTERSECTION LUMINAIRES SHALL BE LIGHT EMITTING DIODE (LED) – HOLOPHANE ATB2GBLEDE10MVOLTRJ OR APPROVED EQUAL WITH 7 PIN RECEPTACLE AND PHOTOCELL.

12. INSTALL 5 EACH 6'X6' LOOPS CUT PRESENCE LOOP DETECTORS Ø1, Ø3, Ø5 & Ø7. LOOP DETECTORS SHALL BE CENTERED IN THE LANE OR AS CALLED OUT IN THE PLANS. LOCATE THE FRONT OF THE PRESENCE LOOPS TWO (2) FEET BEYOND THE STOP LINE. ALL NEW LOOP INSTALLATIONS SHALL BE MEGGAR TESTED OR TESTED FOR CONTINUITY PRIOR TO ACTIVATION. LOOP DETECTOR SEALANT USED SHALL BE HOT-MELT, RUBBERIZED ASPHALT PER SECTION 623T.02.04(C) OF THE CLARK COUNTY UNIFORM STANDARD SPECIFICATIONS.

13. INSTALL CCTV CAMERA PER CLARK COUNTY AREA UNIFORM STANDARD DRAWING NO. 766.

14. THE INTERSECTION SHALL BE EQUIPPED WITH ITERIS EDGE II NEXT VIDEO DETECTION SYSTEM WITH ETHERNET AND CARD RACK 175 WATT EDI POWER SUPPLY OR APPROVED EQUAL. THE SYSTEM SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS. CAMERAS WILL BE MOUNTED PER THE MANUFACTURER'S RECOMMENDATION AND PER THE CITY OF NORTH LAS VEGAS' TRAFFIC ENGINEER APPROVAL. "BNC" CONNECTORS ARE THE ONLY ACCEPTABLE TERMINATION OF COAXIAL CABLES.

15. PULL BOXES ARE NO. 7 UNLESS OTHERWISE NOTED. ALL PULL BOXES SHALL BE IN ACCORDANCE WITH CLARK COUNTY UNIFORM STANDARD DRAWINGS 705 AND 707.

16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR GROUNDING THE COMPLETE TRAFFIC SIGNAL ELECTRICAL SYSTEM INCLUDING ALL EXISTING POLES, CABINETS, SERVICE PEDESTALS, PULL BOXES AND ELECTRICAL DEVICES IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE CLARK COUNTY UNIFORM STANDARD DRAWINGS. GROUNDING WIRE SHALL BE BONDED TO EXISTING METAL PULL BOX COVERS USING AN EXOTHERMAL WELDING PROCESS ACCEPTABLE TO THE ENGINEER PER CLARK COUNTY UNIFORM STANDARD DRAWING 709. METAL PULL BOX LIDS ARE NOT ALLOWED FOR NEW INSTALLATIONS.

17. ALL EMPTY CONDUITS SHALL HAVE 200 LB RATED PULL STRING INSTALLED AND # 8 AWG GREEN TRACER WIRE. ONE (1) # 8 THW GREEN CONDUCTOR SHALL BE RUN FROM THE CONTROLLER TO ALL POLES AND PULL BOXES AS A BONDING GROUND.

18. ALL IMSA CABLE SHALL BE STRANDED AND CONFORM TO 19-1 OR 20-1 SPECIFICATIONS. TRAFFIC SIGNAL CABLE SHALL BE IMSA 25 CONDUCTOR #14 AWG CABLE (TYPICAL) UNLESS OTHERWISE NOTED. WIRING FROM THE JUNCTION BOX TO EACH THREE (3) SECTION SIGNAL HEAD SHALL BE IMSA 5 CONDUCTOR #14 AWG. WIRING FROM THE JUNCTION BOX TO EACH FOUR (4) SECTION SIGNAL HEAD SHALL BE IMSA 5 CONDUCTOR #14 AWG AND 7 CONDUCTOR #14 FOR EACH FIVE (5) SECTION HEAD.

19. ALL PEDESTRIAN PUSH BUTTON SIGNS SHALL BE R10-3E (9" X 12"). ALL PUSH BUTTONS SHALL BE THE LATEST "POLARA NAVIGATOR" PEDESTRIAN BUTTON (2 WIRE) WITH 1 CENTRAL CONTROL UNIT FOR INTERSECTION OR APPROVED EQUAL, PRESSURE SENSITIVE/LED AND MEET AMERICANS WITH DISABILITY ACT (ADA) GUIDELINES. THE MAXIMUM HORIZONTAL REACH DISTANCE IS 10".

20. CONTRACTOR SHALL INSTALL ILLUMINATED STREET NAME SIGNS (SNS) PER CLARK COUNTY STANDARD DRAWING 818.1 SHEETS 1 TO 3 & 818.S1 (SHEET 3 OF 5 & SHEET 4 OF 5) ON SIGNAL SHAFT AND BLOCK NUMBER SIGNS ON POLES IN ACCORDANCE WITH CITY OF NORTH LAS VEGAS STANDARDS. BLOCK NUMBER SIGNS SHALL BE ADDED TO SIGN FACE - SEE STREET AND BLOCK SIGN DETAIL FOR LEGENDS AND BLOCK NUMBERS. THE CONTRACTOR SHALL VERIFY BLOCK NUMBERS WITH THE CITY OF NORTH LAS VEGAS PRIOR TO FABRICATION. ILLUMINATED STREET NAME SIGNS SHALL BE WIRED WITH A RED "SWITCH LEG" SPLICED AT PHOTOCELL RECEPTACLE CONTROLLING INTERSECTION FIXTURE AND RAN DOWN SIGNAL SHAFT AND SPLICED IN HANDHOLE MAKING THE SIGN ACCESSIBLE FOR MAINTENANCE.

21. ALL VEHICLE AND PEDESTRIAN SIGNAL DISPLAYS (R-Y-G-W-DW) SHALL BE LIGHT EMITTING DIODE (LED) PER CITY OF NORTH LAS VEGAS STANDARDS AND SPECIFICATIONS. PEDESTRIAN INDICATIONS SHALL HAVE COUNTDOWN TIMING DISPLAYS PER MUTCD.

22. TRAFFIC SIGNAL TURN-ON SHALL NOT OCCUR DURING WEEKENDS, FRIDAYS, OR CITY OBSERVED HOLIDAYS. CONTACT CITY OF NORTH LAS VEGAS TRAFFIC OPERATIONS (702-633-1264 OR 702-239-2123) THREE BUSINESS DAYS (72 HOURS) PRIOR TO TURN ON.

23. TRENCH CONSTRUCTION FOR CONDUIT INSTALLATIONS SHALL BE IN ACCORDANCE WITH CLARK COUNTY STANDARD DRAWING 733. EARTH SAW EXCAVATION IS AN ACCEPTABLE ALTERNATIVE TO CONVENTIONAL TRENCHING METHODS.

24. PRIOR TO COMPLETION OF NEW TRAFFIC SIGNAL INSTALLATION, INTERSECTIONS SHALL BE OPERATED UNDER STOP SIGN CONTROL OR UNDER UNIFORMED OFFICER CONTROL. AT THE TIME THE INTERSECTION IS TURNED ON, THE CONTRACTOR SHALL REMOVE ALL STOP SIGNS AND RETURN TO THE CITY OF NORTH LAS VEGAS TRAFFIC OPERATIONS, 2829 FT SUMTER DRIVE OR OTHER SPECIFIED LOCATION. REMOVE SIGN POST AND ANCHOR AND PATCH HOLE IN WITH CONCRETE.

25. EXISTING CONDUCTORS NOT REQUIRED FOR SIGNAL OR LIGHTING OPERATIONS SHALL BE REMOVED BY THE CONTRACTOR PRIOR TO ACCEPTANCE.

26. EXISTING TRAFFIC SIGNAL AND/OR LIGHTING EQUIPMENT REMOVED AND NOT RELOCATED SHALL BE SALVAGED BY THE CONTRACTOR AND DELIVERED TO NORTH LAS VEGAS TRAFFIC ENGINEERING, 2829 FT SUMTER DRIVE, OR OTHER LOCATION BY APPOINTMENT ONLY. PLEASE CONTACT TRAFFIC OPERATIONS AT 702-633-1264.

27. IF REQUIRED TO REMOVE AND SALVAGE EXISTING STREET LIGHT POLE ASSEMBLY, REMOVE FOUNDATION 18-INCHES BELOW GRADE, INTERCEPT EXISTING CONDUIT AND WIRING INTO A 3 1/2 PULL BOX MARKED "STREET LIGHT" WITH NON-CONDUCTIVE LID WHILE MAINTAINING EXISTING STREET LIGHT CIRCUIT.

28. CONTRACTOR SHALL INSURE THAT THE TRAFFIC SIGNAL POLES ARE PLUMB AFTER THE INSTALLATION OF MAST ARMS AND TRAFFIC SIGNAL HEADS.

29. THE CONTRACTOR SHALL BE RESPONSIBLE TO RESTORE ANY DAMAGE OR MODIFICATION TO LANDSCAPE/IRRIGATION TO PRE- CONSTRUCTION CONDITION (MODIFIED LANDSCAPE SHALL BE PAID FOR AS PART OF TRAFFIC SIGNAL LUMP SUM).

30. 240 VOLT STREET LIGHT CONDUITS AND FIBER OPTIC CONDUITS SHALL BE SEPARATE FROM TRAFFIC SIGNAL AND INTERSECTION LIGHTING CONDUITS. EACH SHALL HAVE SEPARATE PULL BOXES.

31. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL UNDERGROUND AND AERIAL UTILITIES AND CONSTRUCTION LIKELY TO BE AFFECTED BY THE WORK. THE LOCATION OF UNDERGROUND UTILITIES, AS SHOWN ON THE PLANS, IS APPROXIMATE ONLY. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REPAIRED PROMPTLY IN A MANNER SATISFACTORY TO THE UTILITY OWNER AT THE CONTRACTOR'S EXPENSE.

32. INSTALLATION OF ALL TRAFFIC SIGNAL COMPONENTS SHALL BE SUPERVISED BY A CERTIFIED IMSA LEVEL 2 TRAFFIC SIGNAL ELECTRICIAN AND CLARK COUNTY JOURNEYMAN ELECTRICIAN. THE CONTRACTOR PERFORMING THE WORK SHALL HOLD A VALID STATE OF NEVADA C-2 ELECTRICAL CONTRACTOR'S LICENSE.

33. AS-BUILT DRAWINGS MUST BE PROVIDED TO THE CITY OF NORTH LAS VEGAS' TRAFFIC OPERATIONS DIVISION PRIOR TO TRAFFIC SIGNAL TURN ON.

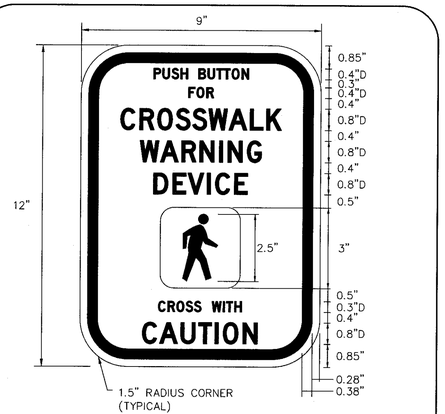
34. ALL NEW AND EMPTY EXISTING (FIBER / ITS) CONDUIT SHALL HAVE A 72 STRAND FIBER CABLE INSTALLED WITH A # 8 GROUND WIRE.

35. NEW AND/ OR RELOCATED SIGNAL HEADS AND TENONS SHALL BE WELDED IN THE FIELD TO ENSURE ACCURATE PLACEMENT.

36. ALL SIGNAGE AND ROAD MARKINGS SHALL BE INSTALLED PRIOR TO TURN-ON OF INTERSECTION.

37. ALL SIGNAGE AND ROAD MARKINGS SHALL BE SELECTED FROM THE CITY OF NORTH LAS VEGAS' (APL) APPROVED PRODUCTS LIST.

38. CONTRACTOR IS RESPONSIBLE FOR THE POST AND PRETEST OF ALL FIBER OPTIC CABLE INSTALLED.

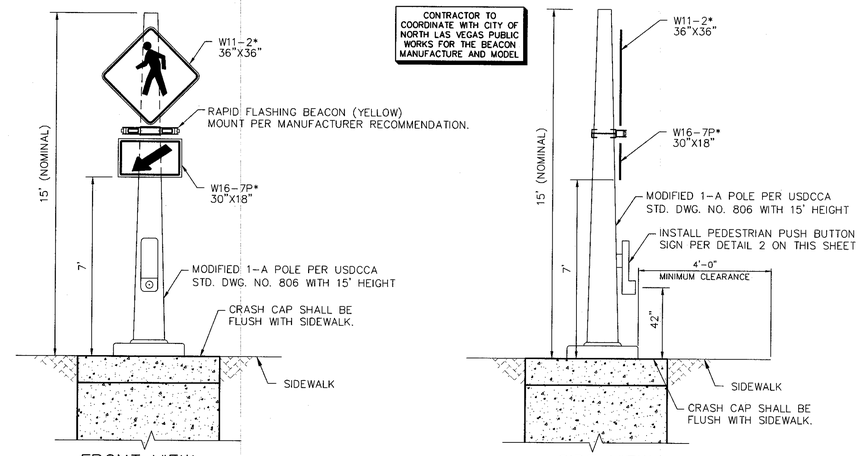


PEDESTRIAN PUSH BUTTON SIGN

NOT TO SCALE

2
TS-03

CONTRACTOR TO COORDINATE WITH CITY OF NORTH LAS VEGAS PUBLIC WORKS FOR THE BEACON MANUFACTURE AND MODEL



PEDESTRIAN CROSSWALK FLASHING BEACON ASSEMBLY

NOT TO SCALE

1
TS-03

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

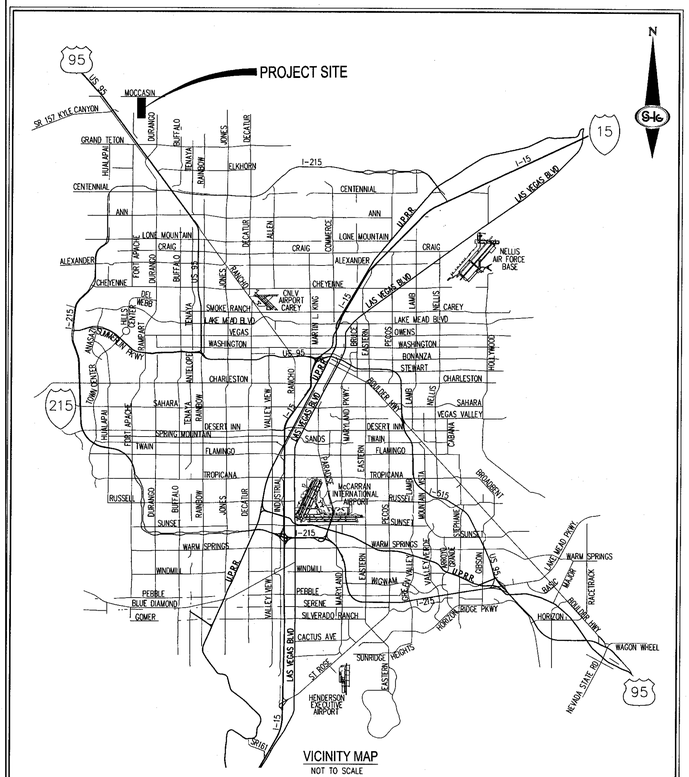
SUNSTONE PHASE 1
LOG CABIN WAY
PEDESTRIAN FLASHER PLAN 2

DATE: 08/07/2019
DRAFTER: ST
DESIGNER: ST
CHECKED: PV
PROJECT NO.
EST1906-000

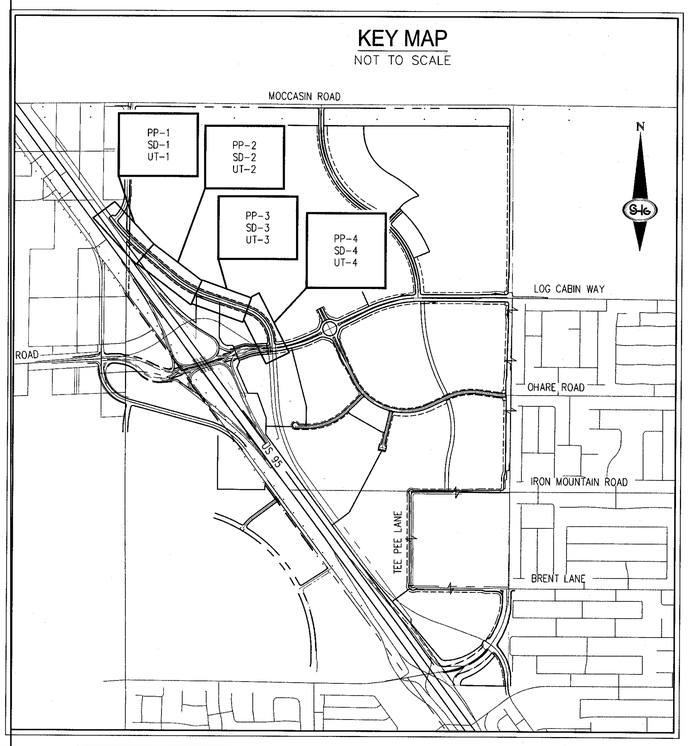
NOT FOR CONSTRUCTION

TS-03
SHEET 47 OF 47

J:\est1906-000 sunstone log cabin\dwg\engrov\est1906-000 rrfb.dwg 8/7/2019 8:50 AM Thomas Duncan



VICINITY MAP
NOT TO SCALE



IMPROVEMENT PLANS FOR SUNSTONE PHASE 1 SKYE POINTE DRIVE

CITY OF LAS VEGAS, NEVADA

SHEET INDEX		
NO.	SHEET	TITLE
1	CS-1	COVER SHEET
2	CS-2	GENERAL NOTES
3	CS-3	ABBREVIATIONS, KEY MAP, LEGEND AND QUANTITIES
4	PP-1	PLAN AND PROFILE I - "SPD" 9+00.00 TO "SPD" 17+50.00
5	PP-2	PLAN AND PROFILE II - "SPD" 17+50.00 TO "SPD" 26+50.00
6	PP-3	PLAN AND PROFILE III - "SPD" 26+50.00 TO "SPD" 34+00.00
7	PP-4	PLAN AND PROFILE IV - "SPD" 34+00.00 TO "SPD" 41+00.00
8	SD-1	STRORM DRAIN I - "SPD" 9+00.00 TO "SPD" 17+50.00
9	SD-2	STORM DRAIN II - "SPD" 17+50.00 TO "SPD" 26+50.00
10	SD-3	STORM DRAIN III - "SPD" 26+50.00 TO "SPD" 34+00.00
11	SD-4	STORM DRAIN IV - "SPD" 34+00.00 TO "SPD" 41+00.00
12	SD-5	STORM DRAIN LATERAL I
13	UT-1	UTILITY PLAN I - "SPD" 9+00.00 TO "SPD" 17+50.00
14	UT-2	UTILITY PLAN II - "SPD" 17+50.00 TO "SPD" 26+50.00
15	UT-3	UTILITY PLAN III - "SPD" 26+50.00 TO "SPD" 34+00.00
16	UT-4	UTILITY PLAN IV - "SPD" 34+00.00 TO "SPD" 41+00.00
17	UT-5	UTILITY PLAN LATERAL I
18	UT-6	UTILITY PLAN LATERAL 2
19	DT-1	DETAIL SHEET 1

APPROVALS

CITY ENGINEER–ALLEN PAVELKA PE, #9029 DATE

APPROVAL OF THESE PLANS BY THE CITY ENGINEER IS LIMITED TO THOSE IMPROVEMENTS CONSTRUCTED IN THE DEDICATED OF 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 STATUES AND / OR PUBLIC UTILITY COMMISSION RULES AND REGULATIONS.

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 20 GPM
SHEETS: ADD FIELD
LVVWD APPROVAL IS VALID FOR ONE (1) YEAR FROM SIGNATURE DATE. IF CONSTRUCTION IS NOT STARTED, PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL.

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
EASTLAND COMPANY, LLC 9275 RUSSELL RD SUITE 400 LAS VEGAS, NV 89148 PH: 702-821-4808	SLATER HANIFAN GROUP, INC. a WESTWOOD TEAM 5740 S. ARVILLE STREET, SUITE 216 LAS VEGAS, NV 89118 PH: (702) 284-5300 CONTACT: JOSH JOHNSON

BENCHMARK

MONUMENT 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 00°01'50" WEST, BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE1/4) 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

PROJECT PLAN APPROVAL CONTINGENT ON

SUNSTONE PHASE 1 XXXXX #XXXXX
SUNSTONE PHASE 1 XXXXX #XXXXX
SUNSTONE PHASE 1 XXXXX #XXXXX

PLAN APPROVAL

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.

DEVIATIONS FROM STANDARDS

NONE

GEOTECHNICAL ENGINEER

PREPARED BY: FIRM
ADDRESS: ADDRESS
PHONE: PHONE #
PROJECT No. PROJECT NUMBER
DATED: DATE

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

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811 OR 1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1

COVER SHEET

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1907-000

PROFESSIONAL ENGINEER – STATE OF NEVADA – JOSHUA L. JOHNSON – No. 15789 – Exp. 06/30/2021 – CIVIL – 8/7/19

CS-1
SHEET 1 OF 19

\est1907-000 sunstone skye pointe drive\dwg\ampro\est1907-000 cvr.dwg 8/7/2019 10:46 AM Thomas Dyson

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 NVR100000, 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 NVR100000, 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.

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 2.22 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 PRODUCT'S 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.

IS: 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 ?????, PROJECT NO. #####. DATED ##/##/####.
6. EARTHWORK QUANTITIES (RAW):
   -CUT = ##,### CUBIC YARDS.
   -FILL = ##,### 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 ORDINANCE # 6631 FOR HYDRANT SPECIFICATIONS AND HYDRANT INSTALLATION SPECIFICATIONS.
2. ONLY FIRE HYDRANTS THAT ARE ON THE LAS VEGAS VALLEY WATER DISTRICT'S - APPROVED PRODUCTS LIST ARE ALLOWED TO BE INSTALLED.
3. A PERMIT IS REQUIRED 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 HYDRANTS SHALL BE IN GOOD 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 § 106.3
7. ALL ON-SITE UNDERGROUND WATER MAINS AND MATERIALS SHALL BE U.L. LISTED, A.W.W.A APPROVED AND SHALL BE RATED FOR THE APPROPRIATE WORKING PRESSURE. 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 § 507.5.7.1
10. PRIOR TO THE FINAL OCCUPANCY, A FIRE FLOW TEST SHALL BE WITNESSED BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION TO VERIFY AVAILABILITY OF THE REQUIRED FIRE FLOW. IFC § 507
11. FIRE HYDRANT SPACING SHALL BE AS FOLLOWS: IFC § C102
    - RESIDENTIAL - 500 FT UNSPRINKLERED; 600 FT SPRINKLERED.
    - COMMERCIAL - 300 FT UNSPRINKLERED; 400 FT SPRINKLERED.
12. WHERE THE WATER MAINS ARE EXTENDED ALONG STREETS OR NEW STREETS ARE INSTALLED WHERE FIRE HYDRANTS ARE NOT NEEDED FOR PROTECTION OF THE STRUCTURES, FIRE HYDRANTS SHALL BE INSTALLED AT A MAXIMUM OF 1000 FT SPACING, TO PROVIDE FOR TRANSPORTATION HAZARDS. WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS OR HAVE FOUR (4) OR MORE TRAFFIC LANES AND HAVE A TRAFFIC COUNT OF MORE THAN 30,000 PER DAY, HYDRANTS ARE REQUIRED ON EACH SIDE OF THE STREET SPACED AT 500 FT ON AN ALTERNATING BASIS. 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% OR 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 LANES 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 LANES, PUBLIC OR PRIVATE, IN EXCESS OF 150 FT IN LENGTH SHALL BE PROVIDED WITH AN APPROVED TURN AROUND HAVING A MINIMUM DIAMETER OF 81 FT. 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 LANES. SIGNS TO BE PLACED ON BOTH SIDES OF AN ACCESS ROADWAY IF NEEDED TO PREVENT PARKING ON EITHER SIDE. SIGNS TO BE INSTALLED NO HIGHER THAN 10 FT OR LESS THAN 6 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 COUNT OF MORE THAN 30,000 VEHICLES PER DAY, ALL 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 CAVING OF THE EXCAVATION.
4. THE CONTRACTOR IS WARNED THAT AN EARTHWORK BALANCE WAS NOT NECESSARILY THE INTENT OF THIS PROJECT. ANY ADDITIONAL MATERIAL REQUIRED OR LEFTOVER MATERIAL FOLLOWING EARTHWORK OPERATIONS BECOMES THE RESPONSIBILITY OF THE CONTRACTOR.
5. THE GRADING CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE OWNER TO PROVIDE FOR THE REQUIREMENTS OF THE PROJECT 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'	SEE SOILS REPORT
B. ENGINEERED FILL	0.5'+	+0.1' TO -0.1'	SEE SOILS REPORT

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

7. ALL CUT AND FILL SLOPES SHALL BE PROTECTED UNTIL EFFECTIVE EROSION CONTROL HAS BEEN ESTABLISHED.
8. THE USE OF POTABLE WATER WITHOUT A SPECIAL PERMIT FOR BUILDING OR CONSTRUCTION PURPOSES INCLUDING CONSOLIDATION OF BACKFILL OR DUST CONTROL IS PROHIBITED. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR CONSTRUCTION WATER.
9. THE CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS AND ALL OTHER PUBLIC RIGHT-OF-WAY IN A CLEAN, SAFE AND USABLE CONDITION. ALL SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE PUBLICLY OWNED PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT. ALL ADJACENT PROPERTY, PRIVATE OR PUBLIC SHALL BE MAINTAINED IN A CLEAN, SAFE AND USABLE CONDITION.
10. IN THE EVENT THAT ANY TEMPORARY CONSTRUCTION ITEM IS REQUIRED THAT IS NOT SHOWN ON THESE DRAWINGS, THE OWNER AGREES TO PROVIDE AND INSTALL SUCH ITEM AT HIS OWN EXPENSE AND AT THE DIRECTION OF THE CITY ENGINEER. TEMPORARY CONSTRUCTION INCLUDES DITCHES, BERMS, ROAD SIGNS 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 ISSUE; THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION, CLARK COUNTY AREA NEVADA", LATEST REVISED EDITION; THE "SUMMERLIN IMPROVEMENT STANDARDS" FOR WORK IN THE SUMMERLIN AREA; AND OTHER APPLICABLE APPROVED STANDARDS ISSUED BY THE CONTROLLING AGENCY; THE UNIFORM BUILDING CODE; AND ALL LOCAL CITY CODES AND ORDINANCES APPLICABLE, EXCEPT AS NOTED ON THIS SHEET AS "DEVIATIONS FROM STANDARDS".
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 PRIOR 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 (½") ABOVE LIP OF ALL GUTTERS AFTER COMPACTION, EXCEPT AT SIDEWALK RAMPS AND CROSS GUTTERS.
9. CURB AND GUTTER FOUND TO BE UNACCEPTABLE TO THE CITY OF LAS VEGAS SHALL BE REMOVED AND REPLACED PER STANDARD DRAWING 216.
10. SIDEWALK RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING 235. EXACT LOCATION OF RAMPS MAY BE ADJUSTED IN THE FIELD BY A CITY INSPECTOR.
11. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITIONS BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND FOR INGRESS AND EGRESS TO NEW CONSTRUCTION. THE EXTENT OF THE TRANSITIONS TO BE AS SHOWN ON PLANS.
12. ALL GRADING WORK SHALL CONFORM TO THE SOILS REPORT AS PREPARED BY ADD GEO, REPORT #ADD FIELD, ADD FIELD APPROVED BY THE CITY ENGINEER, AND AS SHOWN ON THESE PLANS.
13. EXACT LOCATION OF ALL SAWCUT LINES MAY BE ADJUSTED OR DETERMINED IN THE FIELD BY A CITY OF LAS VEGAS ENGINEER IF LOCATION ON PLANS IS NOT CLEARLY SHOWN, OR EXISTING PAVEMENT CONDITION REQUIRES RELOCATIONS.
14. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT EXISTING PERMANENT SURVEY MONUMENTS. ANY MONUMENTS DISTURBED SHALL BE REPLACED AND ADJUSTED PER AVAILABLE RECORDS IN ACCORDANCE WITH N.R.S. STATUTE NO. 625.380 & CITY OF LAS VEGAS TITLE 18, APPENDIX D.
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ABBREVIATIONS

AC	ASPHALTIC CONCRETE OR ACRE
AGG	AGGREGATE BASE
APN	ASSESSORS PARCEL NUMBER
APPROX OR ~	APPROXIMATE
AVE	AVENUE
@	AT
BC	BEGIN CURVE OR BACK OF CURB
BCR	BEGINNING OF CURB RETURN
BHW	BOTTOM OF HEADWALL
BLDG	BUILDING
BLVD	BOULEVARD
BM	BENCHMARK
BVC	BEGIN VERTICAL CURVE
BWV	BACK WATER VALVE
CC	CLARK COUNTY
CCAUSD	CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS
CCPW	CLARK COUNTY PUBLIC WORKS
CCRFCD	CLARK COUNTY REGIONAL FLOOD DISTRICT
CCWRD	CLARK COUNTY WATER RECLAMATION DISTRICT
CE	COMMON ELEMENT
CL,C/L,C	CENTERLINE
CLR	CLEAR OR CLEARANCE
CLSM	CONTROLLED LOW STRENGTH MATERIAL
CLV	CITY OF LAS VEGAS
CML&C	CEMENT MORTAR LINED AND COATED
CMU	CONCRETE MASONRY UNIT
CNLV	CITY OF NORTH LAS VEGAS
COH	CITY OF HENDERSON
CONC	CONCRETE
CT	COURT
CY OR CU YD	CUBIC YARD
DCWCS	DESIGN AND CONSTRUCTION FOR WASTEWATER COLLECTION SYSTEMS
DE	DRAINAGE EASEMENT
DET	DETAIL
DI	DUCTILE IRON OR DRAIN INLET
DIA, ø	DIAMETER
DIP	DUCTILE IRON PIPE
DR	DRIVE
DWG(S)	DRAWING
DWY	DRIVEWAY
EA	EACH
EOR	END CURB RETURN
EG	EXISTING GROUND
ELEV	ELEVATION
ESMT	EASEMENT
EP	EDGE OF PAVEMENT
ERU	EQUIVALENT RESIDENTIAL UNIT
EVC	END VERTICAL CURVE
EX OR EXIST	EXISTING
FC	FACE OF CURB
FF	FINISHED FLOOR
FG	FINISHED GRADE
FGH	FINISHED GRADE, HIGH SIDE
FGL	FINISHED GRADE, LOW SIDE
FH	FIRE HYDRANT
FL	FLOWLINE
FT	FEET OR FOOT
FUT	FUTURE
GRD	GRADE OR GROUND
GB	GRADE BREAK OR GRADE CHANGE
GV	GATE VALVE
HDPE	HIGH DENSITY POLYETHYLENE
HOA	HOME OWNERS ASSOCIATION
HORZ	HORIZONTAL
HP	HIGH POINT
HWL	HIGH WATER LEVEL
HDWL OR HW	HEADWALL
HYD	HYDRAULIC OR HYDRANT
ID	INSIDE DIAMETER
IN	INCH
INT	INTERSECTION
INV	INVERT ELEVATION
IP	IRON PIPE
IRRG	IRRIGATION
LF	LINEAR FEET
LMC	LANDSCAPE MAINTENANCE CORPORATION
LP	LOW POINT
LT OR L	LEFT
LVVWD	LAS VEGAS VALLEY WATER DISTRICT
LWL	LOW WATER LEVEL
MAX	MAXIMUM
MECH	MECHANICAL
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MUE	MUNICIPAL UTILITY EASEMENT
NDOT	NEVADA DEPARTMENT OF TRANSPORTATION
NTS	NOT TO SCALE
NUE	NONEXCLUSIVE UTILITY EASEMENT
NVE	NV ENERGY
OC	ON CENTER
OD	OUTSIDE DIAMETER OR OVERALL DIMENSION
OFF	OFFSET
ORIG	ORIGINAL
PAE	PUBLIC OR PEDESTRIAN ACCESS EASEMENT
PB	PULL BOX
PC	POINT OF CURVE
PCC	POINT OF COMPOUND CURVE
PDE	PUBLIC DRAINAGE EASEMENT
℄ OR PL	PROPERTY LINE
POB	POINT OF BEGINNING
POC	POINT OF CURVATURE
POE	POINT OF ENDING
PRC	POINT OF REVERSE CURVATURE
PRELIM	PRELIMINARY
PROP	PROPOSED
PRV	PRESSURE REDUCING VALVE
PUE	PUBLIC UTILITY EASEMENT
PT	POINT OF TANGENT OR POINT
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
QTY	QUANTITY
R	RADIUS
RCA	REINFORCED CONCRETE ARCH
RCB	REINFORCED CONCRETE BOX
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDWY ESMT	ROADWAY EASEMENT
REQD	REQUIRED
REV	REVISION
RG	ROUGH GRADE
RT OR R	RIGHT
RW, ROW	RIGHT OF WAY
S	SLOPE
SCH	SCHEDULE
SD	STORM DRAIN
SDDI	STORM DRAIN DROP INLET
SDMH	STORM DRAIN MANHOLE
SEC	SECTION
SF	SQUARE FEET
SHT	SHEET
SLTC	STREET LIGHT & TRAFFIC CONTROL ESMT
SNWA	SOUTHERN NEVADA WATER AUTHORITY
SPECS	SPECIFICATIONS
ST	STREET
SSMH	SANITARY SEWER MANHOLE
STA	STATION
STD	STANDARD
STL	STEEL
STLT	STREET LIGHT
SW	SIDEWALK
SWG	SOUTHWEST GAS
SWR OR SS	SANITARY SEWER
SY	SQUARE YARD
TAN	TANGENT
TC	TOP OF CURB
TF	TOP OF FLOOR OR TOP OF FOOTING
TG	TOP OF GRATE
THRU	THROUGH
THW	TOP OF HEADWALL
TP	TOP OF PIPE
TW	TOP OF WALL
TRW	TOP OF RETAINING WALL
TSW	TOP OF SCREEN WALL
TYP	TYPICAL
UDACS	UNIFORM DESIGN AND CONSTRUCTION STANDARDS
UE	UTILITY EASEMENT
VC	VERTICAL CURVE
VERT	VERTICAL
VG	VALLEY GUTTER
WI	WROUGHT IRON
WL	WATER LINE
WPZ	WATER PRESSURE ZONE
WT	WEIGHT
WTR	WATER LINE

ALIGNMENT ABBREVIATIONS

"SPD"	SKYE POINTE DRIVE

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
(1900)	1900	5' CONTOUR
		1' CONTOUR
		STRIPING
		SEWER MANHOLE
		CURB AND GUTTER
EX 8" PVC SS	8" PVC SS	SANITARY SEWER PIPE AND FLOW ARROW
EX 8" PVC WTR	8" PVC WTR	WATER PIPE
		WATER GATE VALVE
		FIRE HYDRANT
		WATER BLOW-OFF
		WATER LATERAL W/ METER
		SANITARY SEWER LATERAL
		STREETLIGHT
		EDGE OF PAVEMENT
		TRAFFIC SIGN
PAD= XXX.X F= XXX.X	PAD= XXX.X F= XXX.X	PAD ELEVATION FINISHED FLOOR ELEVATION
TOP 100.00 TC	TOP 100.00 TC	ELEVATION
		RETAINING WALL
		STORM DRAIN W/ MANHOLE

	EXISTING GAS GATE VALVE
MH	EXISTING UNKNOWN MANHOLE
GAS	EXISTING GAS, SIZE PER PLAN
	EXISTING POWER POLE
	EXISTING TRAFFIC SIGNAL
	EXISTING WALL
	WATER PIPE FITTING
POC	WATER POINT OF CONNECTION
POC	SEWER POINT OF CONNECTION
	DAYLIGHT LINE
	STREET CENTERLINE
	RIGHT-OF-WAY
	MATCHLINE
	BOUNDARY LINE
	PHASE LINE
	PROPERTY LINE
	FLOWLINE
	SAWCUT
FILL / CUT	CUT/FILL TRANSITION LINE
	SIDEWALK
	EX STRIPING TO BE OBLITERATED
	GRADE BREAK LINE
	REFLECTIVE RAISED PAVEMENT MARKERS
BWV	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
TEL 5-4"	EXISTING TELEPHONE CABLE
12" SS	EXISTING SANITARY SEWER LINE
12" W	EXISTING WATER LINE
18" SD	EXISTING STORM DRAIN LINE
ELE UG 1-4"	EXISTING UNDERGROUND ELECTRICAL LINE
OHP	EXISTING OVERHEAD POWER LINE
OHP/TEL	EXISTING OVERHEAD POWER AND TELEPHONE LINE
4" PE GAS	EXISTING GAS LINE
CATV	EXISTING CABLE TELEVISION LINE
SL	EXISTING STREET LIGHT CONDUIT
MH	EXISTING MANHOLE OR VAULT
	EXISTING VALVE (GAS OR WATER)
PH	EXISTING FIRE HYDRANT
PP	EXISTING POWER OR TELEPHONE POLE
	EXISTING PADMOUNTED SERVICE PEDESTAL
	EXISTING NV ENERGY TRANSFORMER
	EXISTING SWING GATE
	EXISTING STREET LIGHT
	EXISTING ON-SITE LIGHT
	EASEMENT LINE
	AEP
FTS	FAST ITS CONDUIT

QUANTITIES

			PRIVATE	PUBLIC
DRAINAGE				
1.	60" TYPE III STORM DRAIN MANHOLE	EA	–	–
2.	5.0' TYPE "CM2" DROP INLET	EA	–	–
3.	10.0' TYPE "CM2" DROP INLET	EA	–	–
4.	12.5' TYPE "CM2" DROP INLET	EA	–	–
5.	20.0' TYPE "CM2" DROP INLET	EA	–	–
6.	18" RCP CLASS IV STORM DRAIN	LF	–	–
7.	24" RCP CLASS IV STORM DRAIN	LF	–	–
8.	30" RCP CLASS IV STORM DRAIN	LF	–	–
9.	36" RCP CLASS IV STORM DRAIN	LF	–	–
10.	RIPRAP D50=8", THK=16"	SF	–	–
11.	8' WIDE CONCRETE VALLEY GUTTER W/10" TYPE I AGGREGATE BASE	SF	–	–
12.	SIDEWALK UNDER DRAIN	SF	–	–
13.				
SEWER SYSTEM				
1.	4" PVC SEWER LATERAL (PRIVATE)	LF	–	–
2.	8" PVC SEWER PIPE (PUBLIC)	LF	–	–
3.	STANDARD 48" SEWER MANHOLE (PUBLIC)	EA	–	–
4.	8" SEWER PIPE CAP	EA	–	–
5.	BACK WATER VALVE	EA	–	–
6.	8" C-900 WATER QUALITY SEWER PIPE (PUBLIC)	EA	–	–
7.				
WATER SYSTEM				
1.	FIRE HYDRANT ASSEMBLY W/6" GATE VALVE PER UDACS PLATE NO. 40	EA	–	–
2.	6" PVC WATER PIPE (CLASS 150)	LF	–	–
3.	8" PVC WATER PIPE (CLASS 150)	LF	–	–
4.	8" DIP WATER PIPE (CLASS 53)	LF	–	–
5.	8" GATE VALVE WITH VALVE BOX PER UDACS PLATE NO. 30 & 39	EA	–	–
6.	8" X 6" TEE PER UDACS PLATE NO. 31	EA	–	–
7.	8" X 8" TEE PER UDACS PLATE NO. 31	EA	–	–
8.	8" 5 DEGREE BEND WITH RESTRAINED JOINTS	EA	–	–
9.	8" 11.25 DEGREE BEND PER UDACS PLATE NO. 31	EA	–	–
10.	8" 22.5 DEGREE BEND PER UDACS PLATE NO. 31	EA	–	–
11.	8" 45 DEGREE BEND PER UDACS PLATE NO. 31	EA	–	–
12.	8" 90 DEGREE BEND PER UDACS PLATE NO. 31	EA	–	–
13.	CAP AND 2" BLOW-OFF ASSEMBLY W/CAP PER UDACS PLATE NO. 36	EA	–	–
14.	1" COPPER SERVICE W/ 3/4" METER PER UDACS PLATE NO. 2	EA	–	–
15.	1" COPPER SERVICE W/ 1" METER PER UDACS PLATE NO. 4	EA	–	–
16.	1" COPPER SERVICE W/ 3/4" METER & 1" RPPA PER UDACS PLATE NO. 4 & 8	EA	–	–
		EA	–	
STREET IMPROVEMENTS				
1.	2" A.C. PAVEMENT W/ 4" TYPE II OVER 6" TYPE I AGGREGATE BASE	SY	–	–
2.	STANDARD 18" TYPE "L" ISLAND CURB & GUTTER W/6" TYPE I AGGREGATE BASE	LF	–	–
3.	STANDARD 8" TYPE "A" ISLAND CURB W/6" TYPE I AGGREGATE BASE	LF	–	–
4.	STANDARD 30" TYPE "ROLL" CURB & GUTTER W/6" TYPE I AGGREGATE BASE	LF	–	–
5.	4' WIDE CONCRETE SIDEWALK W/4" TYPE II AGGREGATE BASE	SF	–	–
6.				–
7.				
TRAFFIC SIGNALS				
1.	30" STOP SIGN WITH POST (R1-1)	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 PULL BOX W/METAL COVER	EA	–	–
4.	150 AMP SERVICE PEDESTAL (IRR)	EA	–	–
5.	200 AMP SERVICE PEDESTAL (STLT)	EA	–	–
6.				

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ##### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 20 GPM

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

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811 OR 1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1

ABBREVIATIONS, KEY MAP, LEGEND AND QUANTITIES

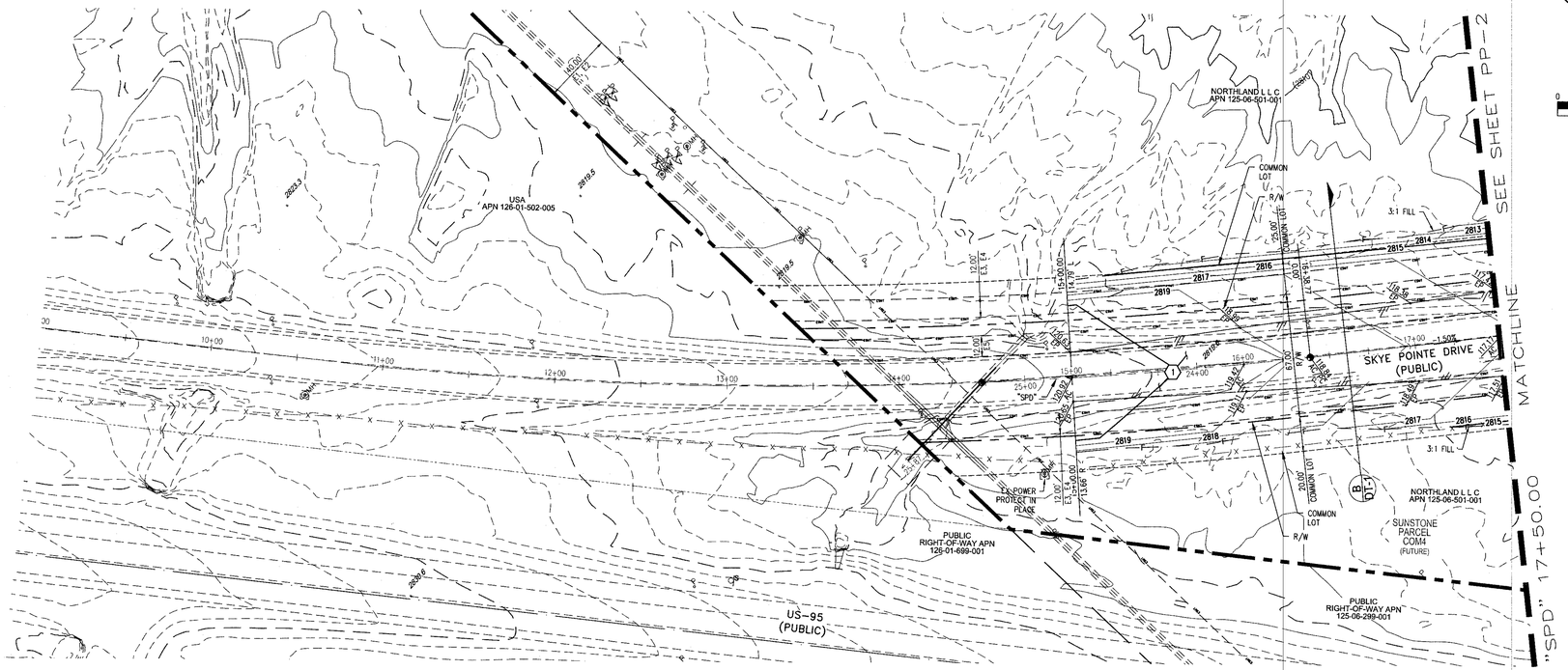
DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

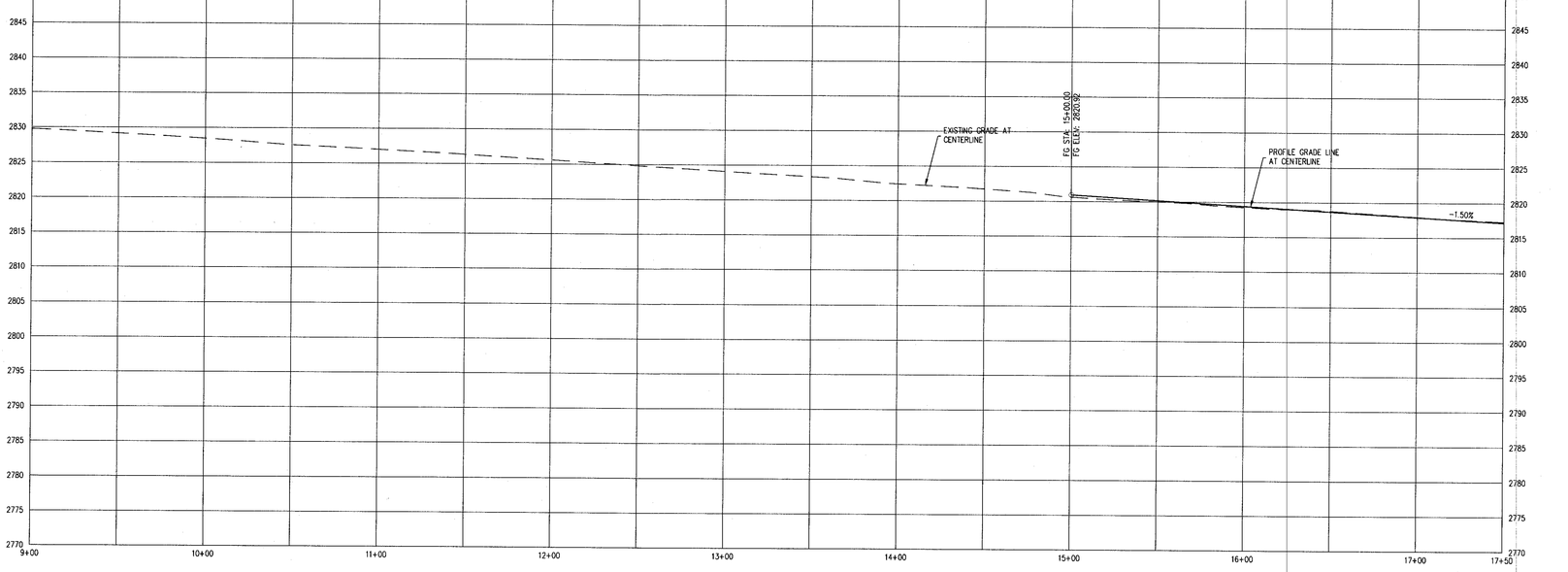
PROJECT NO.
EST1907-000

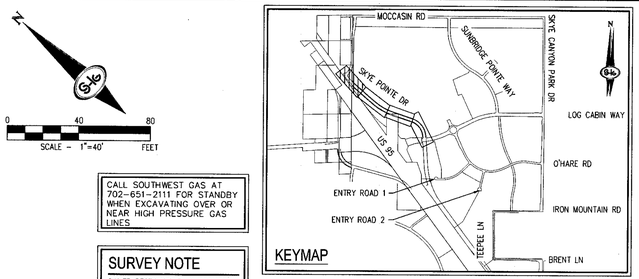
PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSHUA L. JOHNSON
No. 15789
EXP. 06/30/2021
CIVIL
8/7/19

CS-3
SHEET 3 OF 19

I:\est1907-000 sunstone skye pointe dave\dan\jonson\est1907-000 cur dwg 8/7/2019 10:46 AM Thomas Dyson







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 OBSCURED DURING CONSTRUCTION.

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)

NOTES

1. DIMENSIONS ARE TO BACK OF CURB, FACE OF CURB, OR FACE OF MEDIAN UNLESS OTHERWISE SPECIFIED.
2. SEE TY-SHEETS FOR TYPICAL SECTIONS.
3. SEE D-SHEETS FOR STORM DRAIN PLAN AND PROFILES.
4. SEE U-SHEETS FOR WATER AND SEWER PLAN AND PROFILES.
5. SEE GR-SHEETS FOR OFFSITE GRADING.

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.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT 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 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/REPLEPING 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 EXIST) 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 IN 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 NVR100000, 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 NVR100000, 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.

CONSTRUCTION NOTES

1. INSTALL 9" ASPHALT PAVEMENT OVER 9" 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 10' WIDE SIDEWALK PER CCAUSD NO. 234
5. CONSTRUCT 8' WIDE SIDEWALK PER CCAUSD NO. 234
6. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD NO. 234
7. CONSTRUCT 8' VALLEY GUTTER PER CCAUSD NO. 228
8. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235 CASE 1, AND 235.1

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 OVERA 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 NO. 00541 OF OFFICIAL RECORDS

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

E4 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.

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.

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 EASENT 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 WITE #??-????? FOR THE SUBJECT PROJECT.

JOSH JOHNSON, P.E. 15789 — DATE

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.

FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL ---------, DATED NOVEMBER 16, 2011. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
SKYE POINTE DRIVE
PLAN AND PROFILE I - "SPD" 9+00.00 TO "SPD" 17+50.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1907-000

PROFESSIONAL ENGINEER — STATE OF NEVADA — JOSHUA L. JOHNSON — Exp. 08/31/2021 — CIVIL — No. 15789 — 8/7/19

PP-1
SHEET 4 OF 19

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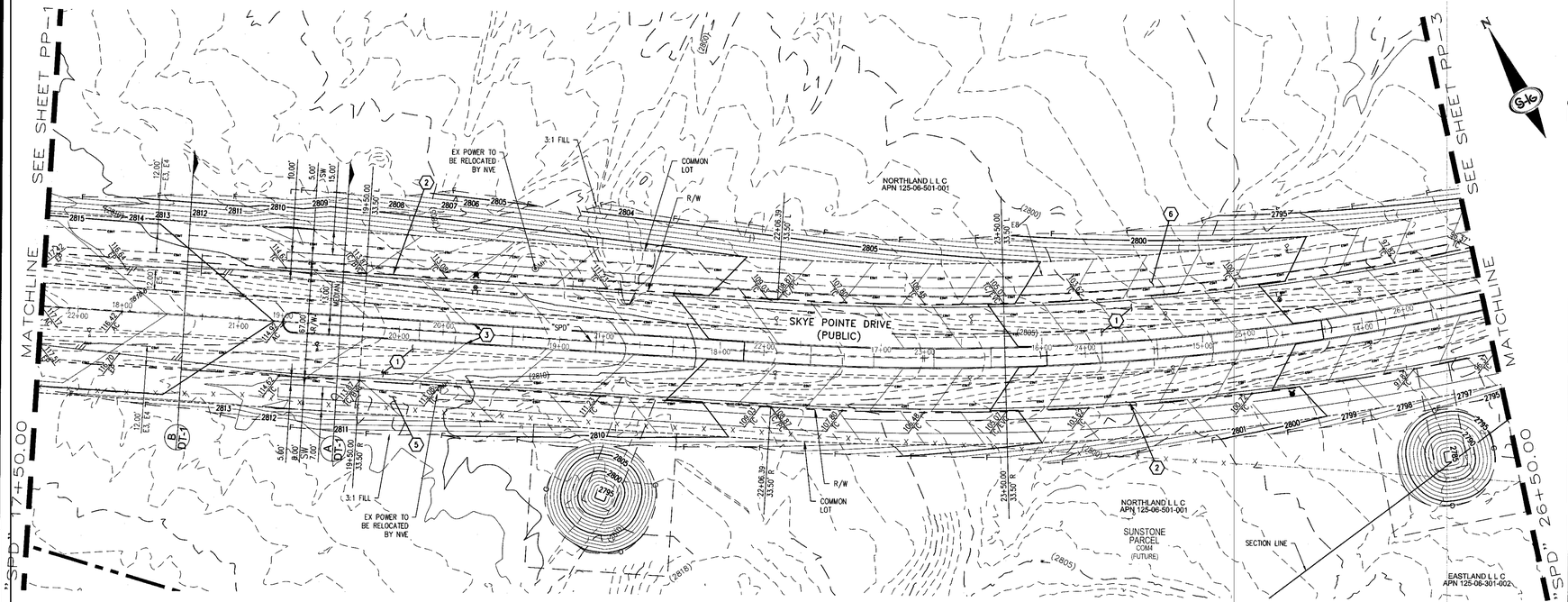

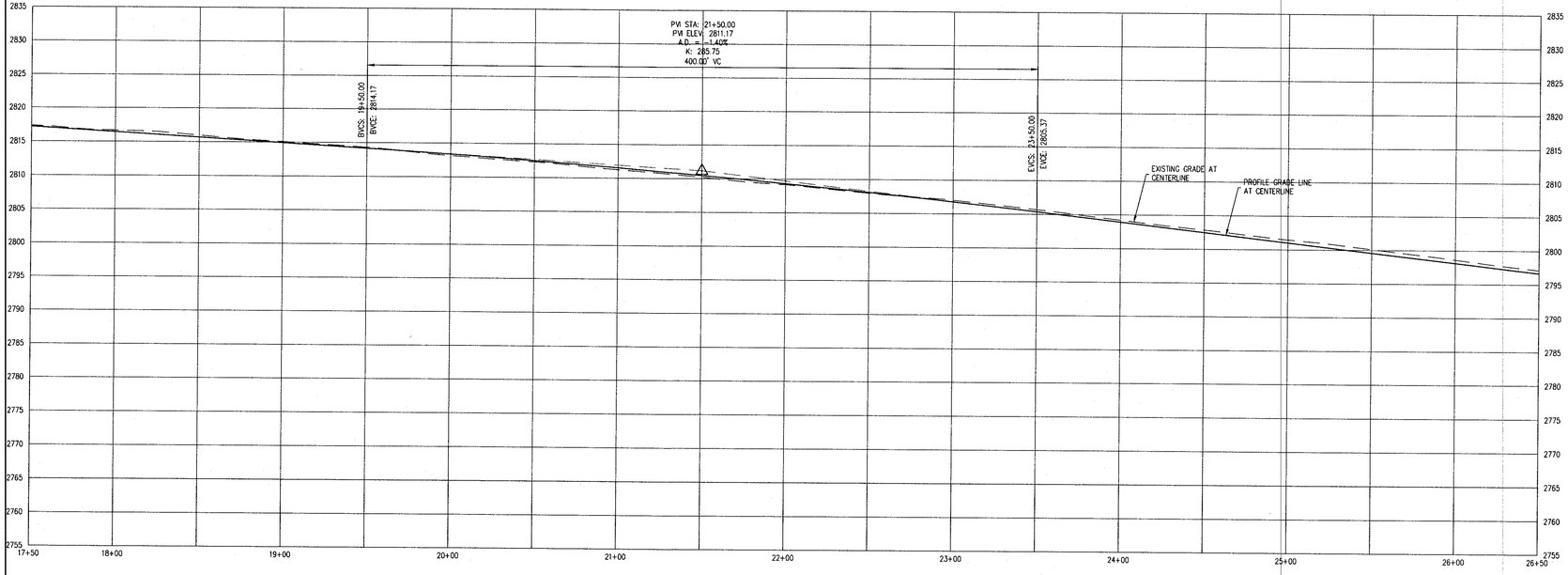

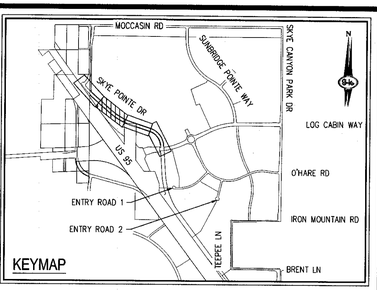

0 40 80
SCALE - 1"=40' FEET

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

SURVEY NOTE

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3. SEE D-SHEETS FOR STORM DRAIN PLAN AND PROFILES.
4. SEE U-SHEETS FOR WATER AND SEWER PLAN AND PROFILES.
5. SEE GR-SHEETS FOR OFFSITE GRADING.

CONSTRUCTION NOTES

1. INSTALL 7" ASPHALT PAVEMENT OVER 2" 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 10' WIDE SIDEWALK PER CCAUSD NO. 234
5. CONSTRUCT 8' WIDE SIDEWALK PER CCAUSD NO. 234
6. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD NO. 234
7. CONSTRUCT 8' VALLEY GUTTER PER CCAUSD NO. 228
8. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235 CASE I, AND 235.1

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.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT 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 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/REPLIEPNG 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 EXIST) WITHIN THE SIGHT VISIBILITY ZONES.

EXISTING EASEMENTS

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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 EASENT PER NEV-043376, N-43063, CC-018234, CC-018138, CC-018191

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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 IN 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 NVR100000, 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 NVR100000, SECTION III.A.12.
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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 COPW WITE #??-????? FOR THE SUBJECT PROJECT.

JOSH JOHNSON, P.E. 15789 DATE

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FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL ---------- DATED NOVEMBER 16, 2011. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
SKYE POINTE DRIVE
PLAN AND PROFILE II - "SPD" 17+50.00 TO "SPD" 26+50.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1907-000

PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSHUA A. JOHNSON
No. 15789
CIVIL
8/7/19

PP-2
SHEET 5 OF 19

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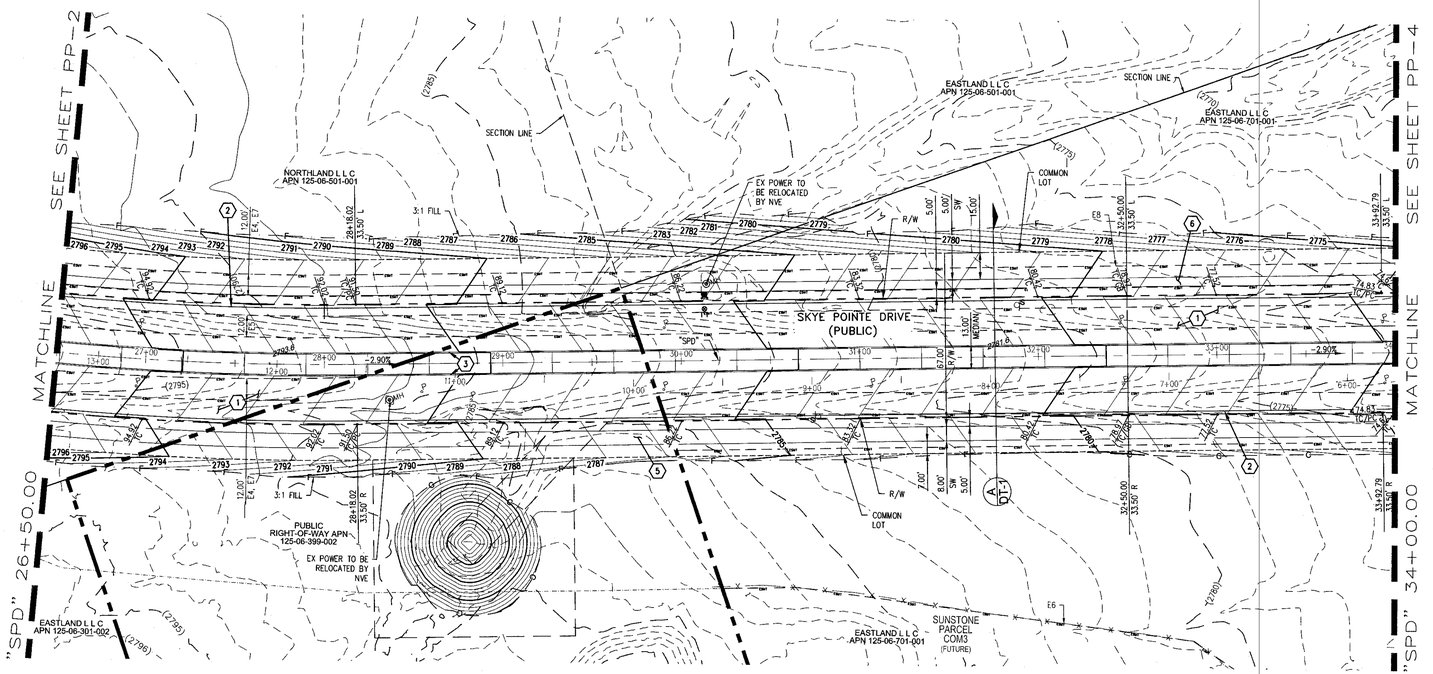

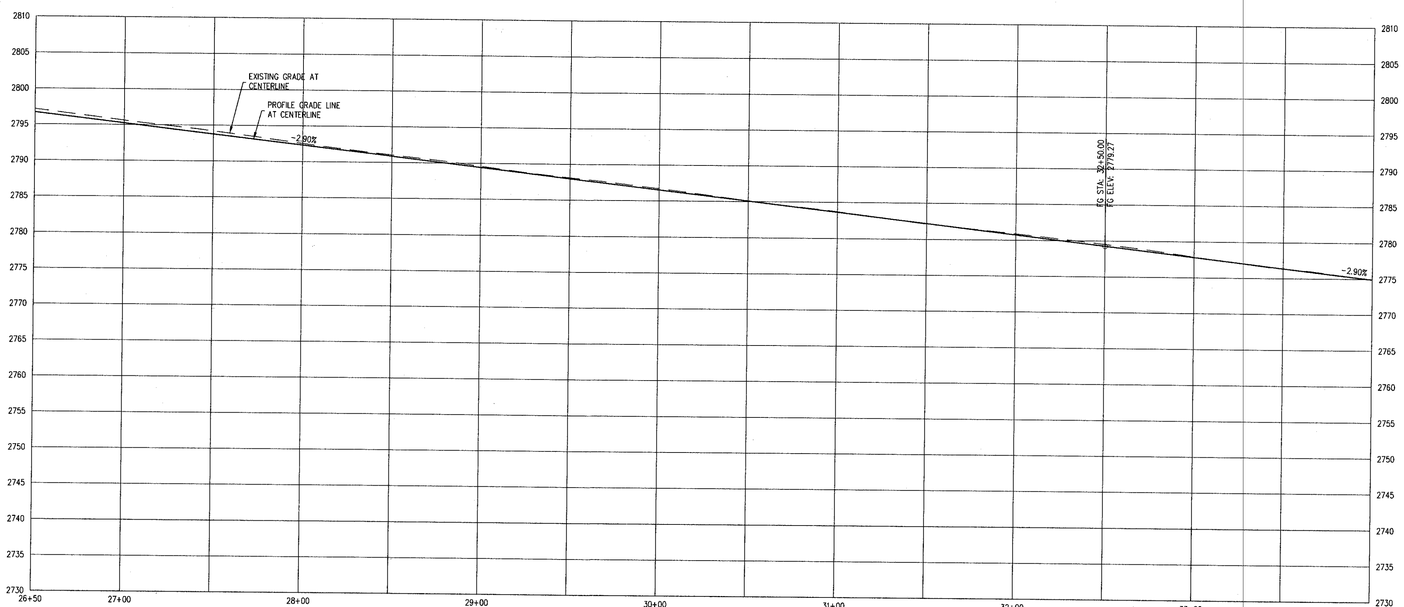

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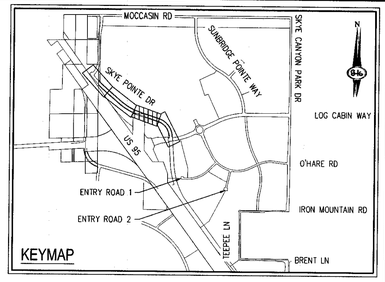

KEYMAP

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JOSH JOHNSON, P.E. 15789 DATE

S-IG SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
SKYE POINTE DRIVE
PLAN AND PROFILE III - "SPD" 26+50.00 TO "SPD" 34+00.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1907-000

PROFESSIONAL ENGINEER STATE OF NEVADA JOSHUA JOHNSON No. 15789 EXP. 06/30/2021 CIVIL
9/7/19

PP-3
SHEET 6 OF 19

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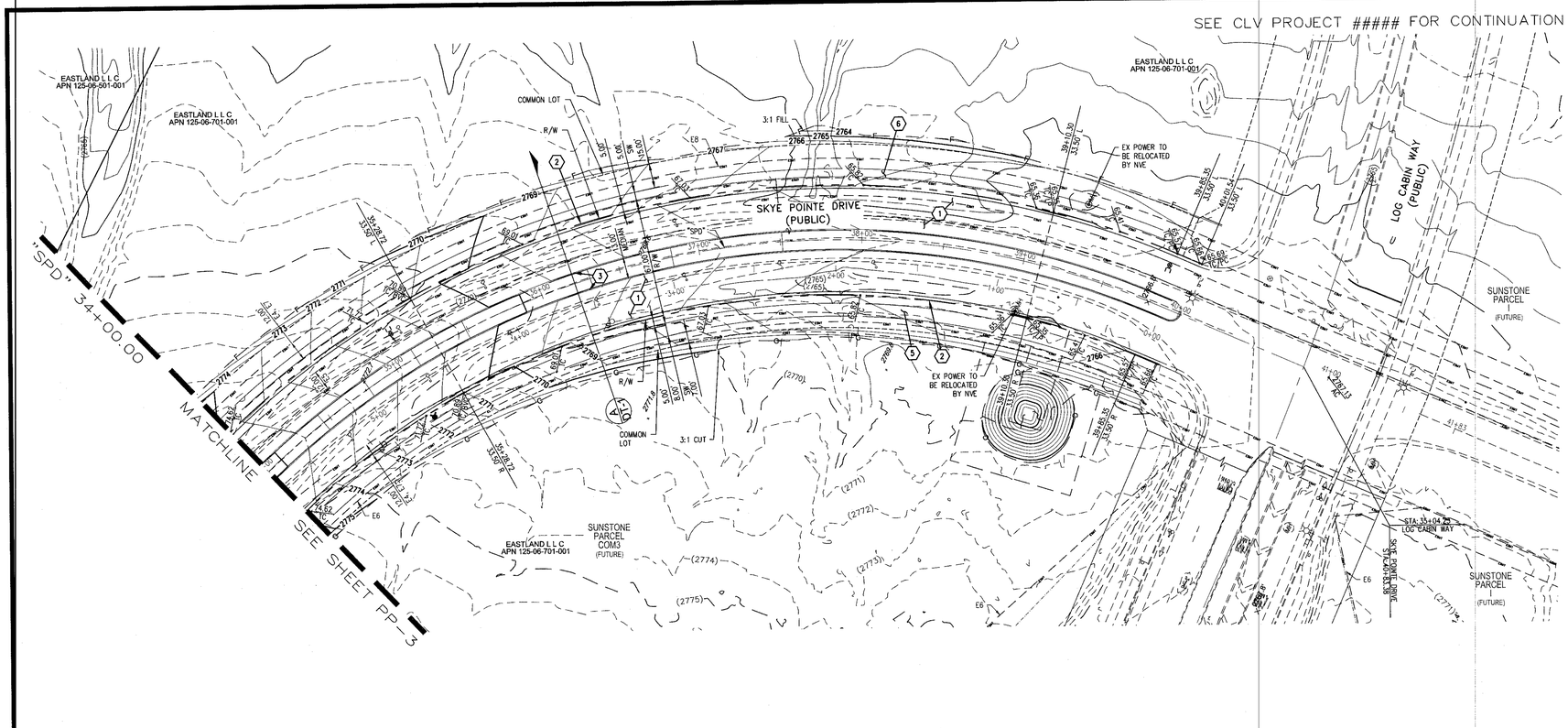

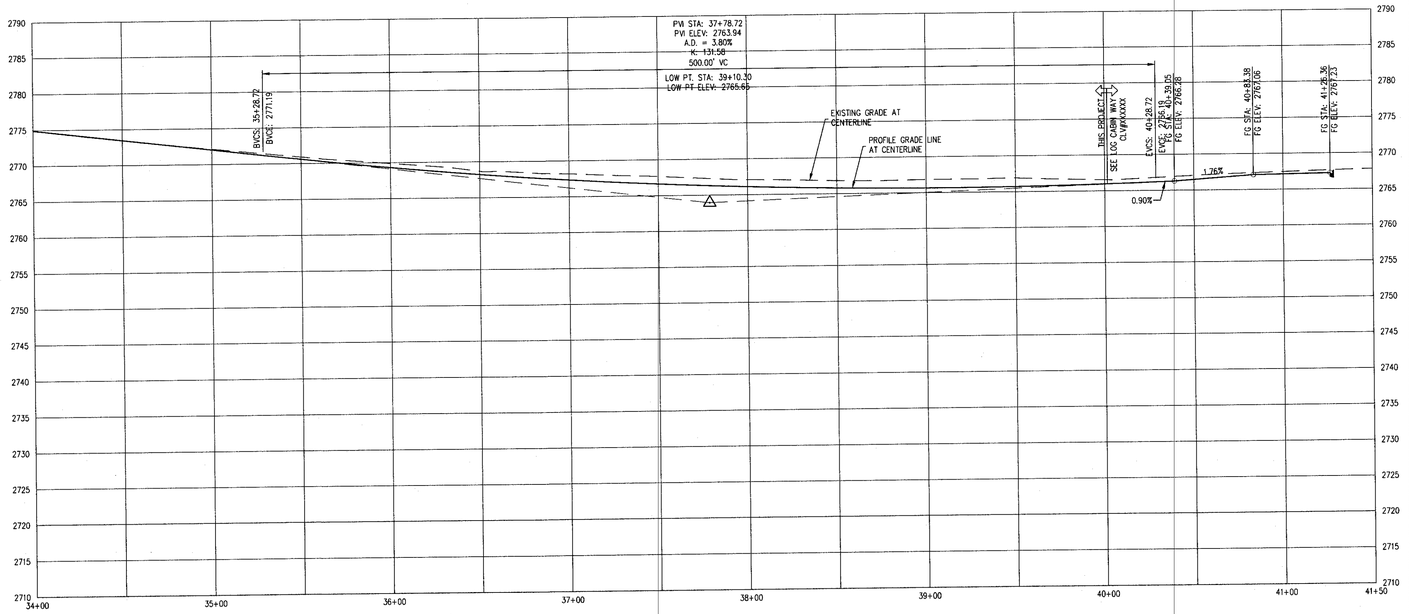

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ELEVATION NOTE

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

NOTES

1. DIMENSIONS ARE TO BACK OF CURB, FACE OF CURB, OR FACE OF MEDIAN UNLESS OTHERWISE SPECIFIED.
2. SEE TY-SHEETS FOR TYPICAL SECTIONS.
3. SEE D-SHEETS FOR STORM DRAIN PLAN AND PROFILES.
4. SEE U-SHEETS FOR WATER AND SEWER PLAN AND PROFILES.
5. SEE GR-SHEETS FOR OFFSITE GRADING.

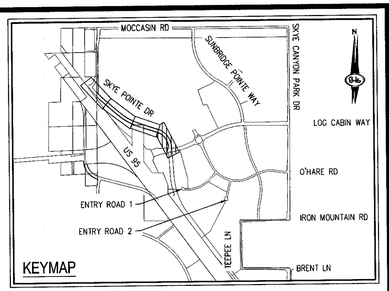
GRADING NOTES

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.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT 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 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/REPLEPING 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 EXIST) 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 IN 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 NVR100000, 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 NVR100000, 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.



CONSTRUCTION NOTES

1. INSTALL 5" ASPHALT PAVEMENT OVER 9" 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 10' WIDE SIDEWALK PER CCAUSD NO. 234
5. CONSTRUCT 8' WIDE SIDEWALK PER CCAUSD NO. 234
6. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD NO. 234
7. CONSTRUCT 8' VALLEY GUTTER PER CCAUSD NO. 228
8. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235 CASE I, AND 235.1

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 OVERA 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.

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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 EASENT 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 CCFW HTE ###-????? FOR THE SUBJECT PROJECT.

JOSH JOHNSON, P.E. 15789 DATE

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

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811 OR 1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300
FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

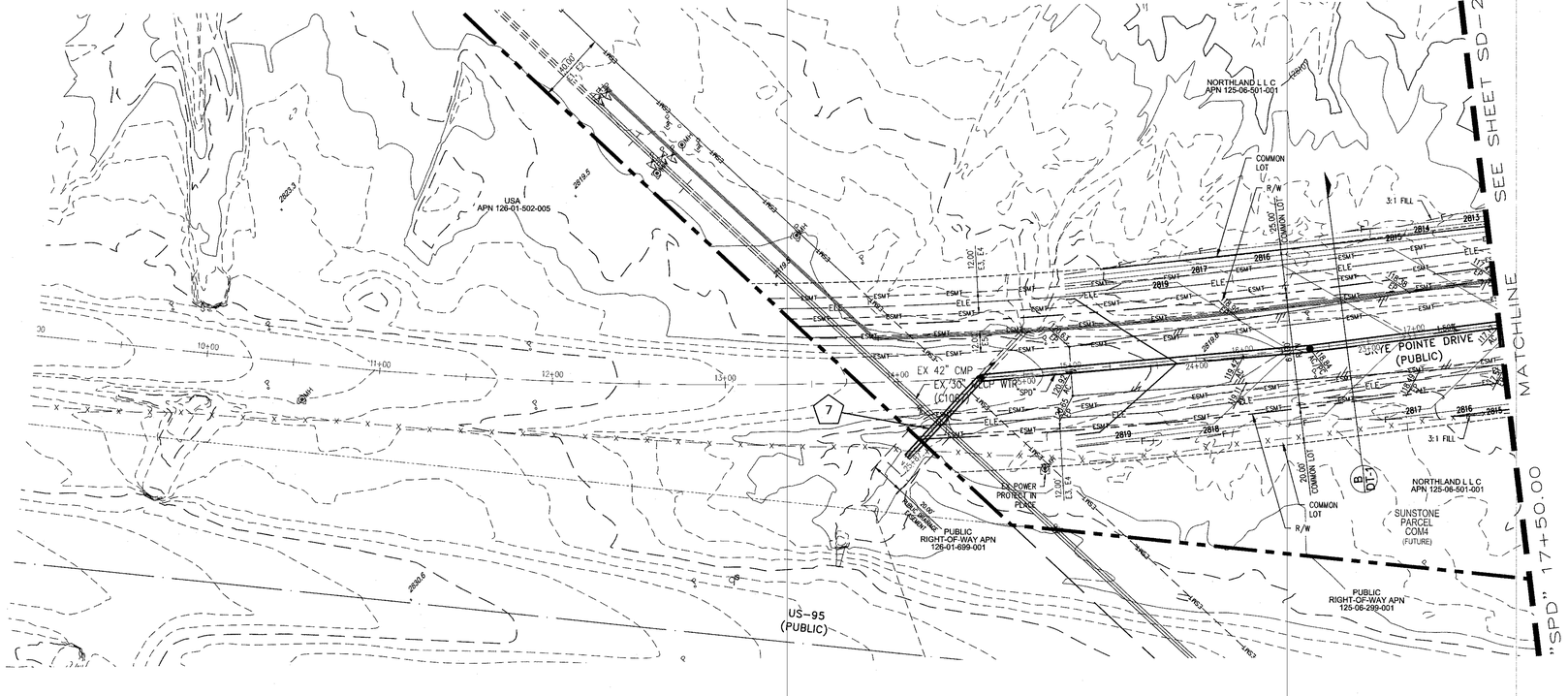
SUNSTONE PHASE 1
SKYE POINTE DRIVE
PLAN AND PROFILE IV - "SPD" 34+00.00 TO "SPD" 41+00.00

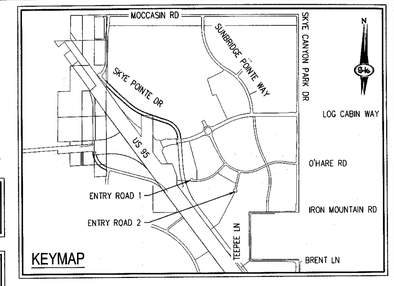
DATE:	08/07/19
DRAFTER:	SB/JR
DESIGNER:	BC
CHECKED:	JJ
PROJECT NO.	EST1907-000

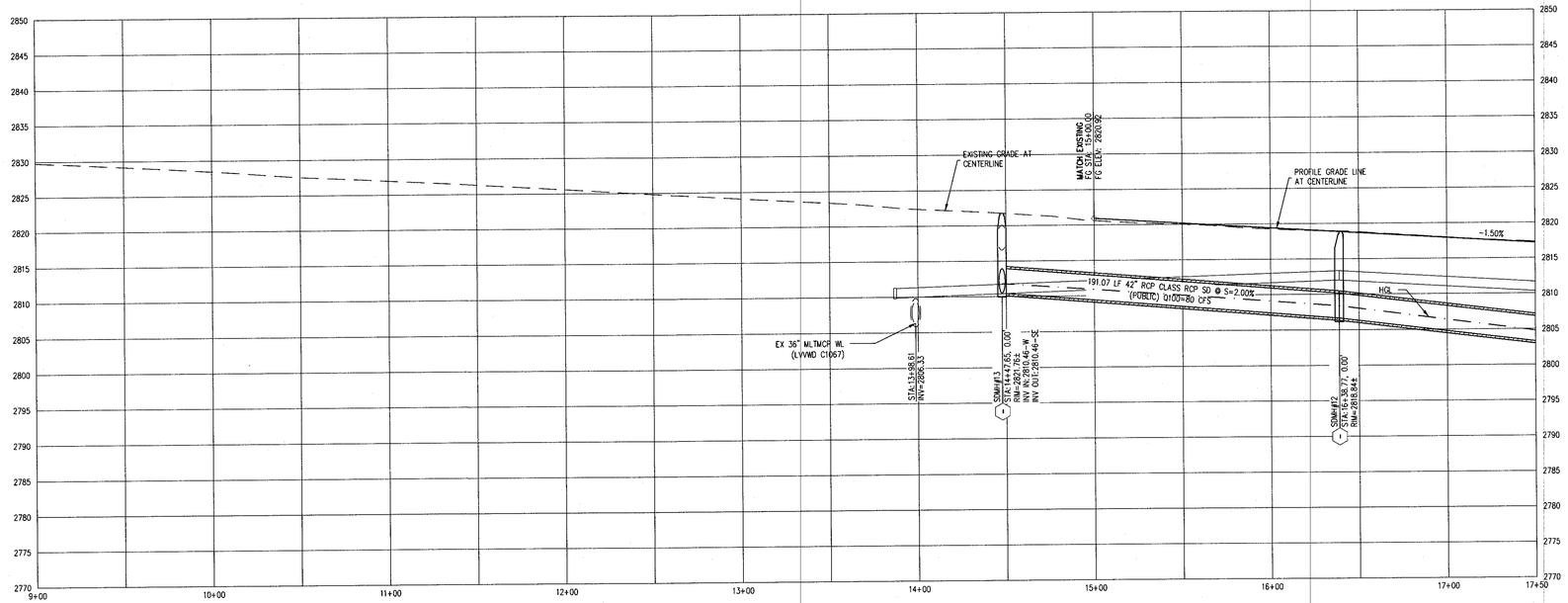
PROFESSIONAL ENGINEER STATE OF NEVADA JOSHUA LEE JOHNSON Exp. 06/30/2021 CIVIL No. 15789 8/7/19

PP-4
SHEET 7 OF 19

A:\Projects\Sunstone Skye Pointe Phase 1\Civil\PP\PP-4.dwg Mon, Dec 9, 2019 10:47 AM Thomas Bryan







NOTES

1. ALL RCP SHALL BE CLASS III UNLESS OTHERWISE SHOWN.
2. ALL PIPE LENGTHS ARE MEASURED ALONG PIPE CENTERLINE TO CENTER OF MANHOLE OR INSIDE EDGE OF DI OR RCB/RCA.
3. ALL DROP INLETS SHALL INCLUDE STORM WATER MANAGEMENT STAMP AND DETAIL PER USDCCA STD. DWG. NO. 421.
4. SEE STRUCTURAL PLANS FOR ADDITIONAL STRUCTURAL DETAILS AND CONNECTIONS.
5. ALL PIPES IN PUBLIC ROW ARE PUBLICLY MAINTAINED.
6. ADD SPECIAL INSPECTION REQUIRED FOR PIPE SEGMENTS WITH SACRIFICIAL CONCRETE.
7. SEE UTILITY PLAN AND PROFILE SHEETS FOR UTILITY ADJUSTMENTS AND RELOCATIONS.
8. ALL INTERIM DRAINAGE FACILITIES TO BE PRIVATELY MAINTAINED.
9. PROPERTY OWNER IS RESPONSIBLE TO MAINTAIN THE BEST MANAGEMENT PRACTICES, SUCH AS BUT NOT LIMITED TO, THE REMOVAL OF ACCUMULATED SEDIMENT AND DEBRIS AND CARE OF VEGETATION.
10. 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).

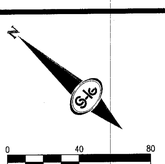
DISCLAIMER NOTE

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.

FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE "X" (OUTSIDE THE 500-YEAR FLOOD PLAIN) ON THE FLOOD INSURANCE RATE MAP (FIRM) PANEL: 32003C1735E, DATED SEPTEMBER 27, 2002



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STORM DRAIN NOTES

1. CONSTRUCT TYPE "CM2" DROP INLET (USDCCA STD. DWG. NO. 412.1 & 421)
2. CONSTRUCT 60" TYPE III MANHOLE (USDCCA STD. DWG. NO. 405.1)
3. CONSTRUCT NDOT TYPE 4 MANHOLE (NDOT STD. PLAN R-4.3.2)
4. INSTALL 18" RCP (USDCCA STD. DWG. NO. 503.2)
5. INSTALL 24" RCP (USDCCA STD. DWG. NO. 503.2)
6. INSTALL 42" RCP (USDCCA STD. DWG. NO. 503.2)
7. INSTALL 48" RCP (USDCCA STD. DWG. NO. 503.2)
8. INSTALL 66" RCP (USDCCA STD. DWG. NO. 503.2)
9. CONSTRUCT 6' X 6' RCB (NDOT STD. PLAN B-20.1.2)
10. CONSTRUCT 7' X 5' RCB (NDOT STD. PLAN B-20.1.2)
11. CONSTRUCT 8' X 7' RCA (SEE DETAIL 1, SHEET S4.10)
12. CONSTRUCT 10' X 9' RCA (SEE DETAIL 2, SHEET S4.10)
13. INSTALL 30" RCP END SECTION (NDOT STD. PLAN R-2.3.1)
14. INSTALL 42" RCP END SECTION (NDOT STD. PLAN R-2.3.1)
15. CONSTRUCT INTERIM PLUG (SEE DETAIL 4, SHEET S3.10)
16. CONSTRUCT INTERIM PLUG (SEE DETAIL 4, SHEET S3.10)
17. CONSTRUCT CULVERT HEADWALL (NDOT STD. PLAN R-2.5.2 & R-2.5.2.1)
18. CONSTRUCT CONCRETE COLLAR (SEE DETAIL 1, DRAWING D-12)
19. CONSTRUCT DROP INLET (SEE DETAIL 10, SHEET S1.10)
20. 12' TYPE II MAINTENANCE ACCESS PATH
21. CONSTRUCT HEADWALL (SEE SHEET S2.10)
22. CONSTRUCT CONCRETE PAD WITH 3' CUTOFF WALL (SEE DETAIL 9, DRAWING D-12)
23. CONSTRUCT 3' CUTOFF WALL (SEE DETAIL 10, DRAWING D-12)
24. INSTALL 18" WATER QUALITY C905 (USDCCA STD. DWG. NO. 503.2)
25. INSTALL 30" WATER QUALITY C905 (USDCCA STD. DWG. NO. 503.2)
26. CONSTRUCT TYPE R PEDESTRIAN RAIL PER NDOT STD. PLAN B-25.1.5

LEGEND

(#) STORM DRAIN LATERAL # (SEE SHEET SD-5)

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ##### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

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 COPW RTE #??-????? FOR THE SUBJECT PROJECT.

JOSH JOHNSON, P.E. 15789 DATE

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
SKYE POINTE DRIVE
STRORM DRAIN I - "SPD" 9+00.00 TO "SPD" 17+50.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1907-000

NEVADA PROFESSIONAL ENGINEER - STATE OF NEVADA - JOSHUA A. JOHNSON - No. 15789 - Exp. 06/30/2020 - CIVIL

3/6/19

SD-1
SHEET 8 OF 19

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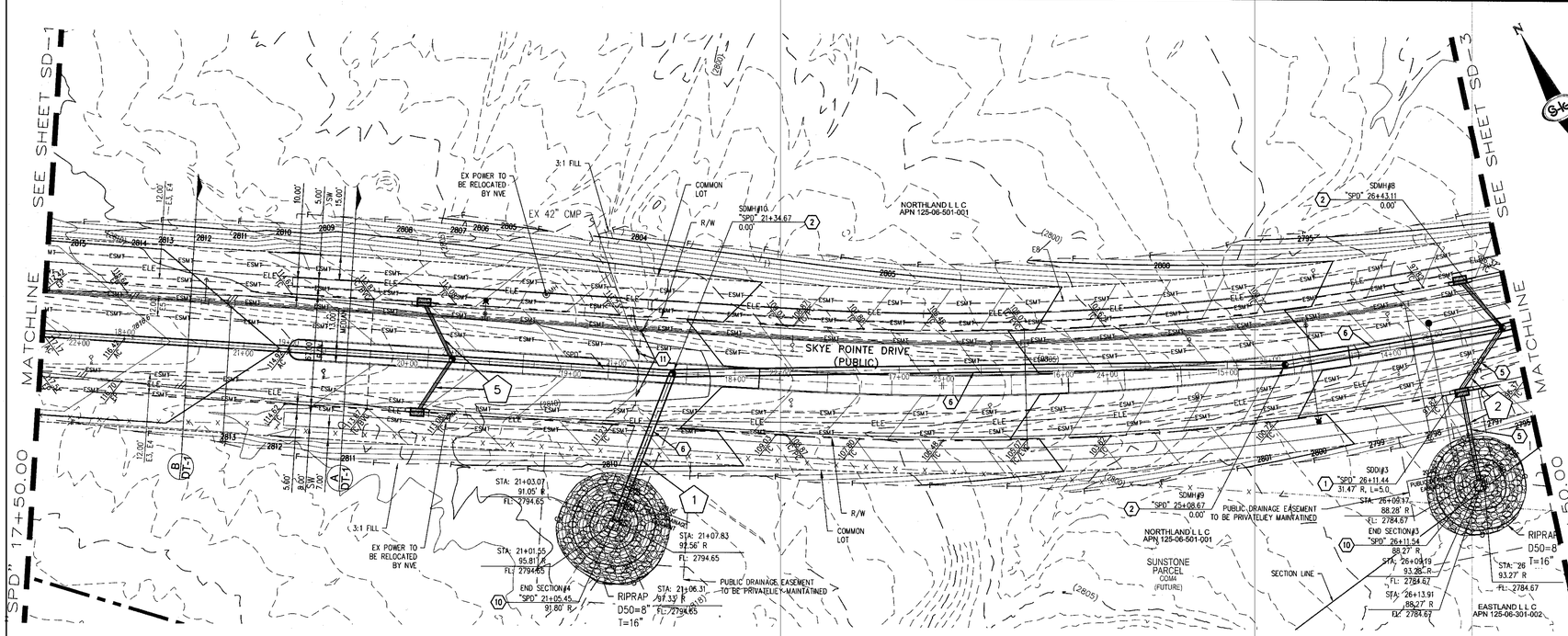

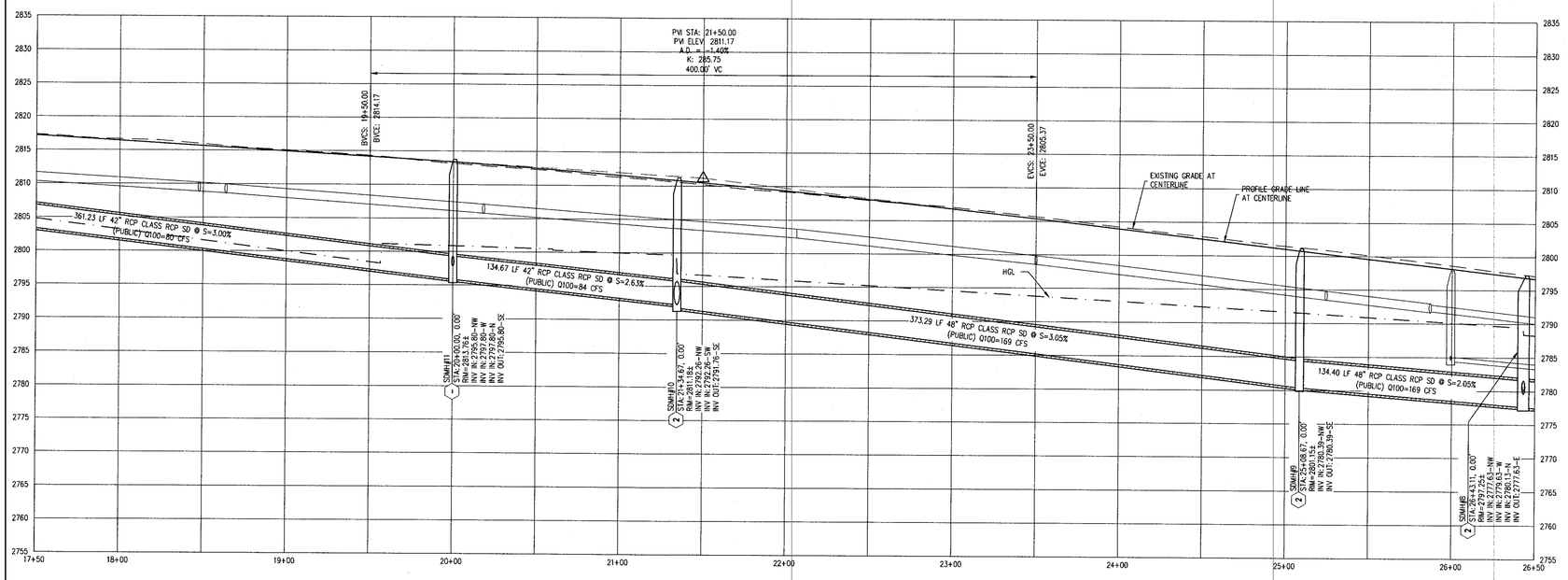

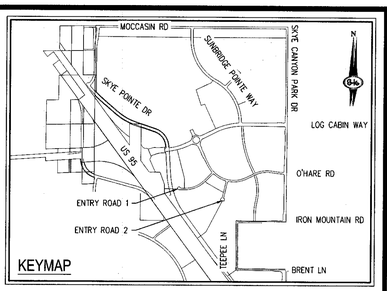

SCALE - 1"=40' (0, 40, 80 FEET)

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

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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 EASENT 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.

STORM DRAIN NOTES

1. CONSTRUCT TYPE "CM2" DROP INLET (USDCCA STD. DWG. NO. 412.1 & 421)
2. CONSTRUCT 60" TYPE III MANHOLE (USDCCA STD. DWG. NO. 406.1)
3. CONSTRUCT NDOT TYPE 4 MANHOLE (NDOT STD. PLAN R-4.3.2)
4. INSTALL 18" RCP (USDCCA STD. DWG. NO. 503.2)
5. INSTALL 24" RCP (USDCCA STD. DWG. NO. 503.2)
6. INSTALL 42" RCP (USDCCA STD. DWG. NO. 503.2)
7. INSTALL 48" RCP (USDCCA STD. DWG. NO. 503.2)
8. INSTALL 66" RCP (USDCCA STD. DWG. NO. 503.2)
9. CONSTRUCT 6' X 6' RCB (NDOT STD. PLAN B-20.1.2)
10. CONSTRUCT 7' X 5' RCB (NDOT STD. PLAN B-20.1.2)
11. CONSTRUCT 8' X 7' RCA (SEE DETAIL 1, SHEET S4.10)
12. CONSTRUCT 10' X 9' RCA (SEE DETAIL 2, SHEET S4.10)
13. INSTALL 30" RCP END SECTION (NDOT STD. PLAN R-2.3.1)
14. INSTALL 42" RCP END SECTION (NDOT STD. PLAN R-2.3.1)
15. CONSTRUCT INTERIM PLUG (SEE DETAIL 4, SHEET S3.10)
16. CONSTRUCT INTERIM PLUG (SEE DETAIL 4, SHEET S3.10)
17. CONSTRUCT CULVERT HEADWALL (NDOT STD. PLAN R-2.5.2 & R-2.5.2.1)
18. CONSTRUCT CONCRETE COLLAR (SEE DETAIL 1, DRAWING D-12)
19. CONSTRUCT DROP INLET (SEE DETAIL 10, SHEET S1.10)
20. 12' TYPE II MAINTENANCE ACCESS PATH
21. CONSTRUCT HEADWALL (SEE SHEET S2.10)
22. CONSTRUCT CONCRETE PAD WITH 3' CUTOFF WALL (SEE DETAIL 9, DRAWING D-12)
23. CONSTRUCT 3' CUTOFF WALL (SEE DETAIL 10, DRAWING D-12)
24. INSTALL 18" WATER QUALITY C905 (USDCCA STD. DWG. NO. 503.2)
25. INSTALL 30" WATER QUALITY C905 (USDCCA STD. DWG. NO. 503.2)
26. CONSTRUCT TYPE R PEDESTRIAN RAIL PER NDOT STD. PLAN B-25.1.5

LEGEND

(#) STORM DRAIN LATERAL # (SEE SHEET SD-5)

NOTES

1. ALL RCP SHALL BE CLASS III UNLESS OTHERWISE SHOWN.
2. ALL PIPE LENGTHS ARE MEASURED ALONG PIPE CENTERLINE TO CENTER OF MANHOLE OR INSIDE EDGE OF DI OR RCB/RCA.
3. ALL DROP INLETS SHALL INCLUDE STORM WATER MANAGEMENT STAMP AND DETAIL PER USDCCA STD. DWG. NO. 421.
4. SEE STRUCTURAL PLANS FOR ADDITIONAL STRUCTURAL DETAILS AND CONNECTIONS.
5. ALL PIPES IN PUBLIC ROW ARE PUBLICLY MAINTAINED.
6. ADD SPECIAL INSPECTION REQUIRED FOR PIPE SEGMENTS WITH SACRIFICIAL CONCRETE.
7. SEE UTILITY PLAN AND PROFILE SHEETS FOR UTILITY ADJUSTMENTS AND RELOCATIONS.
8. ALL INTERIM DRAINAGE FACILITIES TO BE PRIVATELY MAINTAINED.
9. PROPERTY OWNER IS RESPONSIBLE TO MAINTAIN THE BEST MANAGEMENT PRACTICES, SUCH AS BUT NOT LIMITED TO, THE REMOVAL OF ACCUMULATED SEDIMENT AND DEBRIS AND CARE OF VEGETATION.
10. 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 (WIKYLEX, GREENSTREAK PLASTIC PRODUCTS OR APPROVED EQUAL).

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.

FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE "X" (OUTSIDE THE 500-YEAR FLOOD PLAIN) ON THE FLOOD INSURANCE RATE MAP (FIRM) PANEL: 32003C1735E, DATED SEPTEMBER 27, 2002

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE: _____
LVVWD APPROVED FIRE FLOW: TOTAL ___1,500___ GPM / ONSITE ___20___ GPM

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 COPW RTE #??-????? FOR THE SUBJECT PROJECT.

JOSH JOHNSON, P.E. 15789 — DATE

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

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811 OR 1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

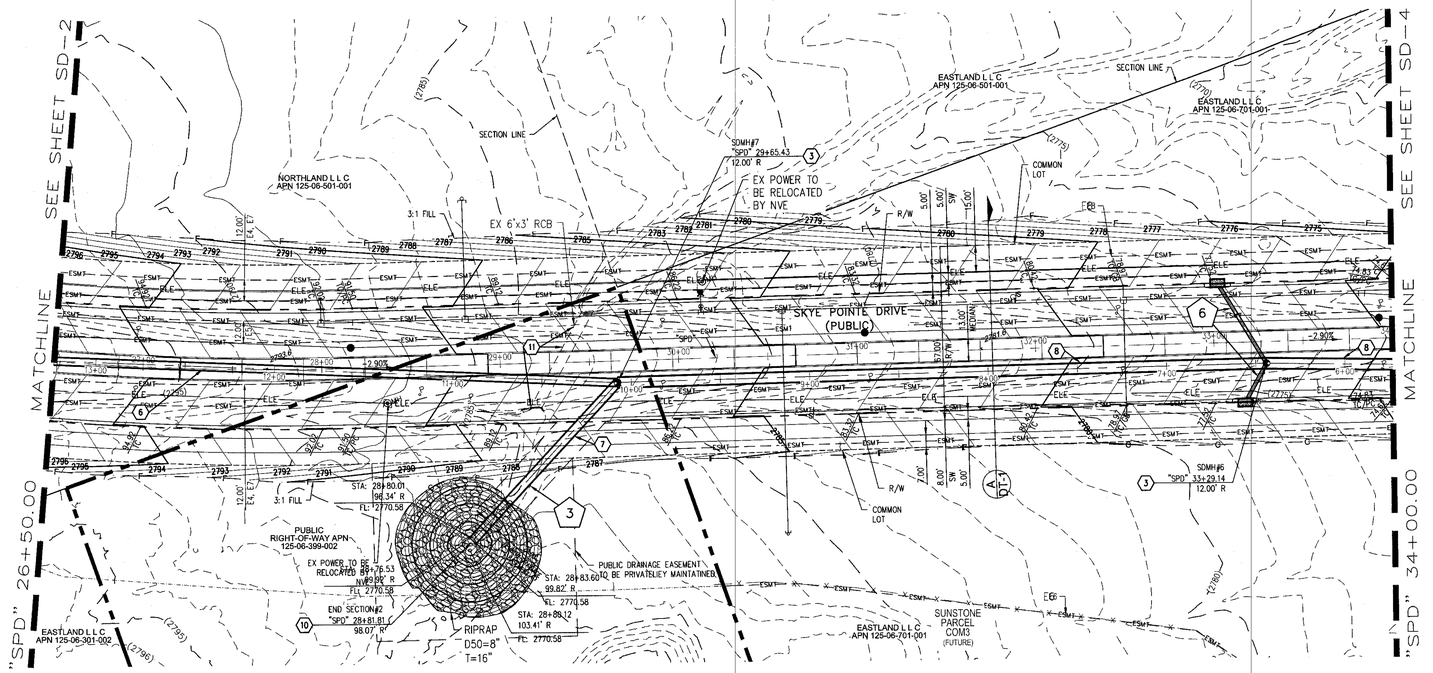
SUNSTONE PHASE 1
SKYE POINTE DRIVE
STORM DRAIN II - "SPD" 17+50.00 TO "SPD" 26+50.00

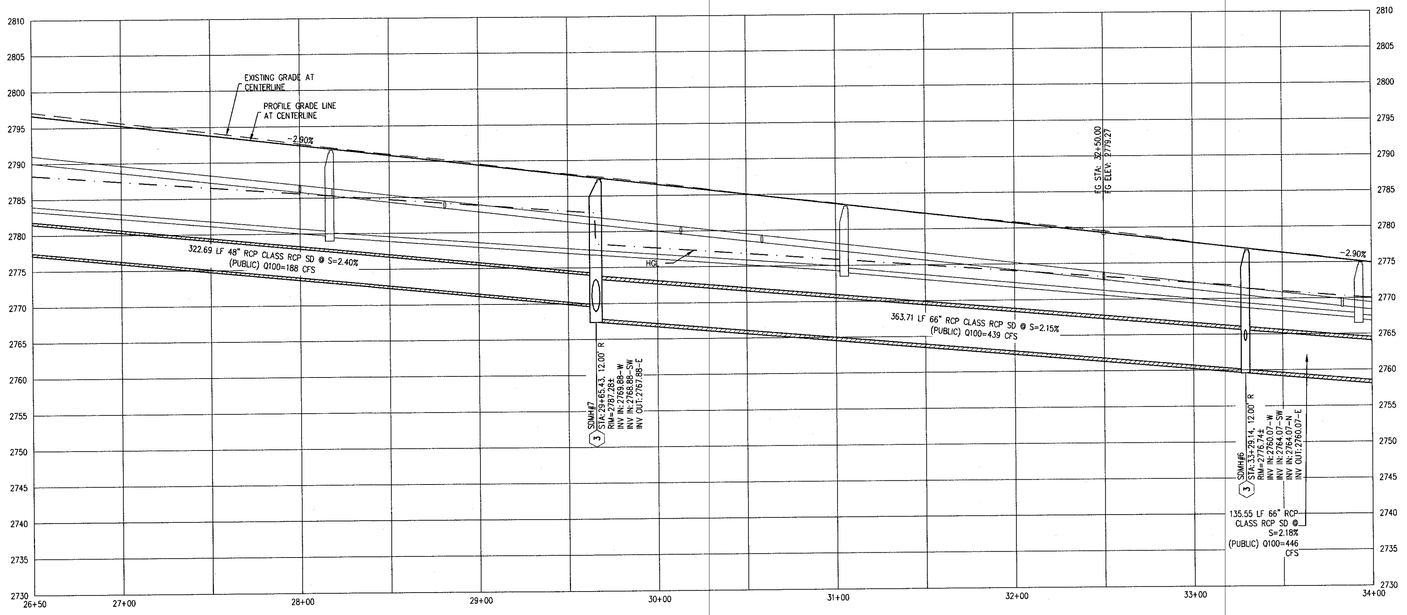
DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1907-000

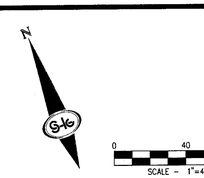
PROFESSIONAL ENGINEER STATE OF NEVADA JOSHUA JOHNSON No. 15789 CIVIL 06/30/2021
8/7/19

SD-2
SHEET 9 OF 19

J:\est1907-000 sunstone skye pointe drive\dwg\improv\est1907-000 dnr.dwg 8/7/2019 10:50 AM Thomas Dyson







KEYMAP

0 40 80
SCALE – 1"=40' 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 OBSCURED DURING CONSTRUCTION.

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)

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 OVERA 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 NO. 00541 OF OFFICIAL RECORDS

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

E4 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.

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.

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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.

STORM DRAIN NOTES

1. CONSTRUCT TYPE "CM2" DROP INLET (USDCCA STD. DWG. NO. 412.1 & 421)
2. CONSTRUCT 60" TYPE III MANHOLE (USDCCA STD. DWG. NO. 406.1)
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4. INSTALL 18" RCP (USDCCA STD. DWG. NO. 503.2)
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26. CONSTRUCT TYPE R PEDESTRIAN RAIL PER NDOT STD. PLAN B-25.1.5

LEGEND

(#) STORM DRAIN LATERAL # (SEE SHEET SD-5)

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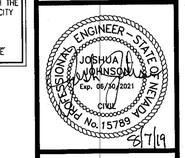
APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ##### FIRST APPROVED DATE: ____
LVVWD APPROVED FIRE FLOW TOTAL 1,500 GPM / ONSITE 20 GPM

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

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

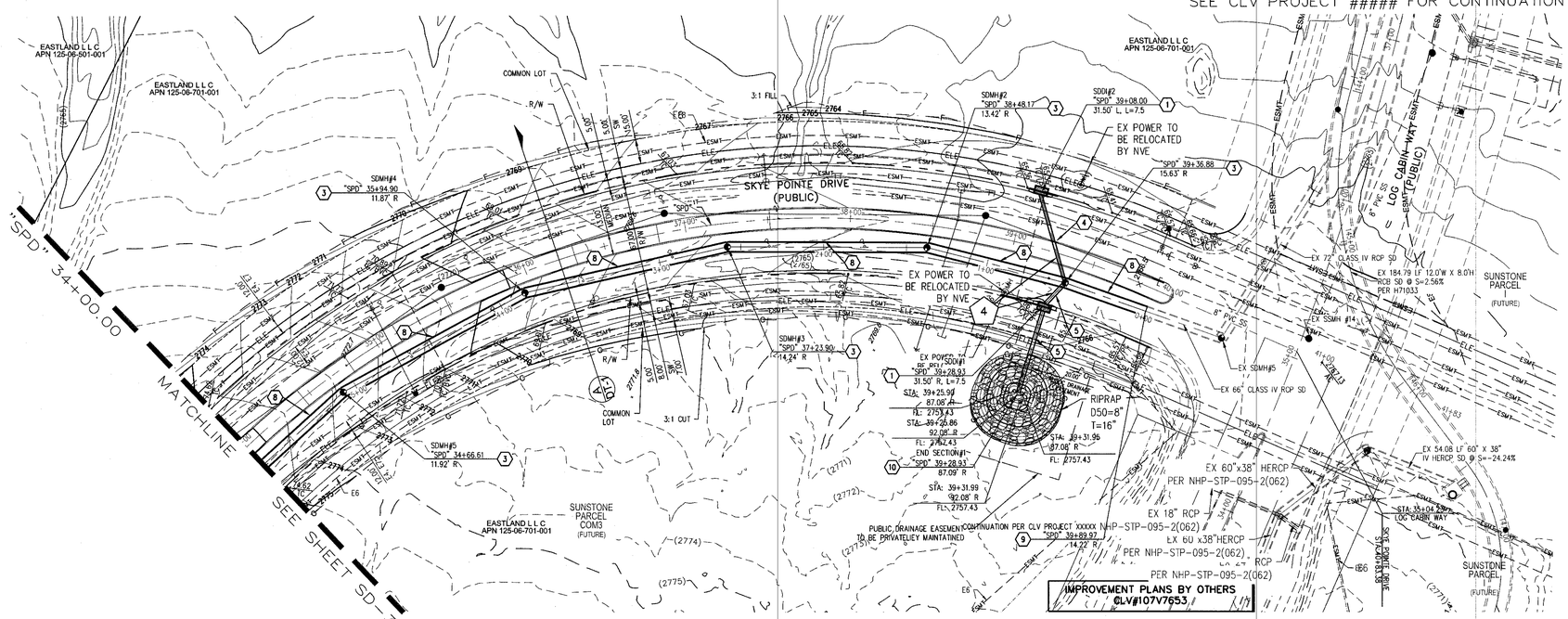
SC EAST LANDCO, LLC

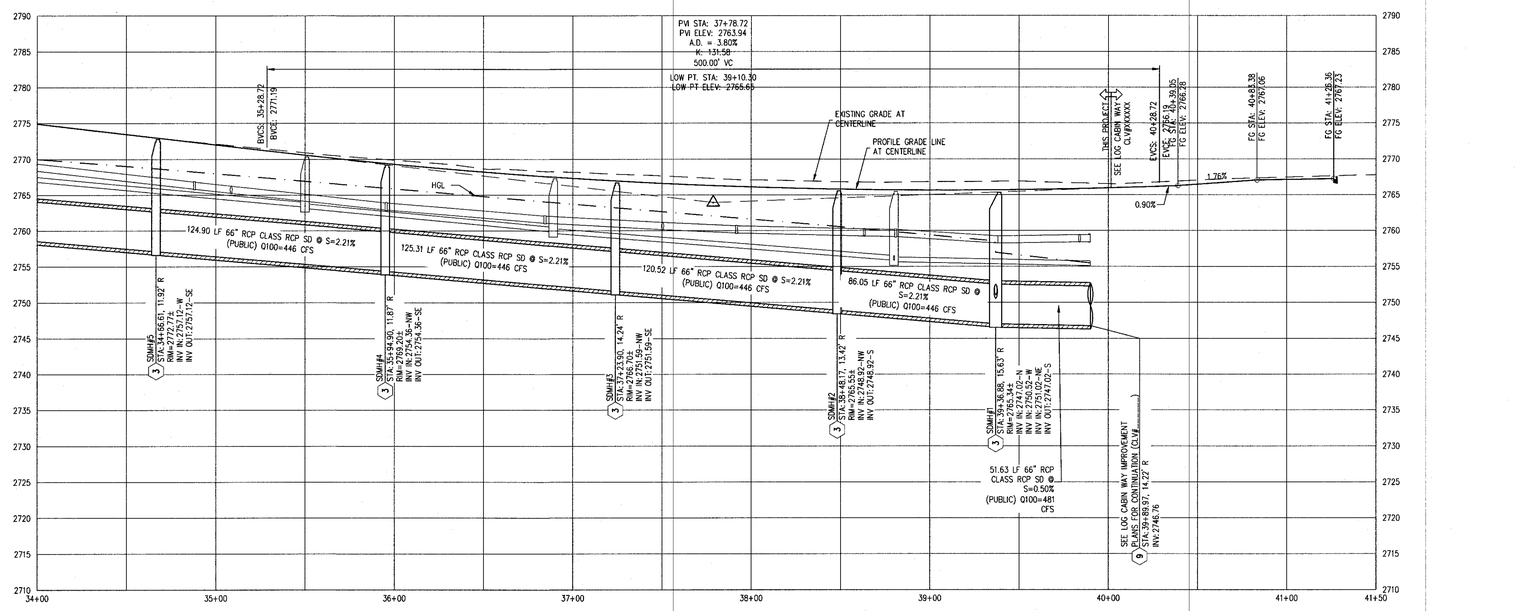
SUNSTONE PHASE 1
SKYE POINTE DRIVE
STORM DRAIN III - "SPD" 26+50.00 TO "SPD" 34+00.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1907-000

SD-3
SHEET 10 OF 19

J:\est\1907-000 sunstone skye points drive\dwg\xmrgrx\est1907-000 dfm.dwg 8/7/2019 10:50 AM Thomas Dolan





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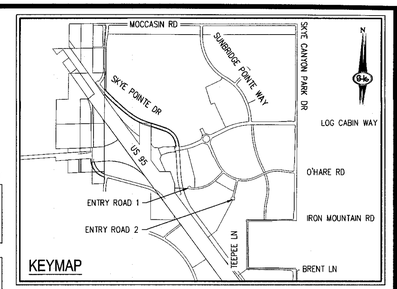
RESERVATIONS, PROVISIONS AND EASEMENTS AS CONTAINED IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED AUGUST 03, 2005, IN BOOK 20050803 OF OFFICIAL RECORDS, AS INSTRUMENT NO. 01359.



STORM DRAIN NOTES

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20. 12' TYPE II MAINTENANCE ACCESS PATH
21. CONSTRUCT HEADWALL (SEE SHEET S2.10)
22. CONSTRUCT CONCRETE PAD WITH 3' CUTOFF WALL (SEE DETAIL 9, DRAWING D-12)
23. CONSTRUCT 3' CUTOFF WALL (SEE DETAIL 10, DRAWING D-12)
24. INSTALL 18" WATER QUALITY C905 (USDCCA STD. DWG. NO. 503.2)
25. INSTALL 30" WATER QUALITY C905 (USDCCA STD. DWG. NO. 503.2)
26. CONSTRUCT TYPE R PEDESTRIAN RAIL PER NDOT STD. PLAN B-25.1.5

LEGEND

(#) STORM DRAIN LATERAL # (SEE SHEET SD-5)

NOTES

1. ALL RCP SHALL BE CLASS III UNLESS OTHERWISE SHOWN.
2. ALL PIPE LENGTHS ARE MEASURED ALONG PIPE CENTERLINE TO CENTER OF MANHOLE OR INSIDE EDGE OF DI OR RCB/RCA.
3. ALL DROP INLETS SHALL INCLUDE STORM WATER MANAGEMENT STAMP AND DETAIL PER USDCCA STD. DWG. NO. 421.
4. SEE STRUCTURAL PLANS FOR ADDITIONAL STRUCTURAL DETAILS AND CONNECTIONS.
5. ALL PIPES IN PUBLIC ROW ARE PUBLICLY MAINTAINED.
6. ADD SPECIAL INSPECTION REQUIRED FOR PIPE SEGMENTS WITH SACRIFICIAL CONCRETE.
7. SEE UTILITY PLAN AND PROFILE SHEETS FOR UTILITY ADJUSTMENTS AND RELOCATIONS.
8. ALL INTERIM DRAINAGE FACILITIES TO BE PRIVATELY MAINTAINED.
9. PROPERTY OWNER IS RESPONSIBLE TO MAINTAIN THE BEST MANAGEMENT PRACTICES, SUCH AS BUT NOT LIMITED TO, THE REMOVAL OF ACCUMULATED SEDIMENT AND DEBRIS AND CARE OF VEGETATION.
10. 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).

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.

FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE "X" (OUTSIDE THE 500-YEAR FLOOD PLAIN) ON THE FLOOD INSURANCE RATE MAP (FIRM) PANEL: 32003C1735E, DATED SEPTEMBER 27, 2002

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

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 COPW RTE #??-????? FOR THE SUBJECT PROJECT.

JOSH JOHNSON, P.E. 15789 DATE

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

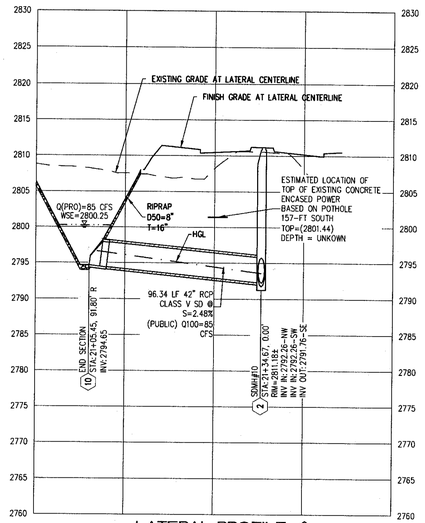
SUNSTONE PHASE 1
SKYE POINTE DRIVE
STORM DRAIN IV - "SPD" 34+00.00 TO "SPD" 41+00.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO. EST1907-000

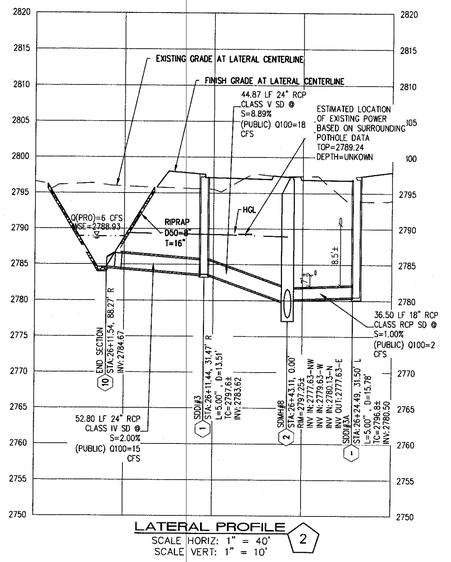
PROFESSIONAL ENGINEER STATE OF NEVADA JOSHUA B. JOHNSON EXP. 09/30/2021 No. 15789 CIVIL

SD-4
SHEET 11 OF 19

X:\est1907-000 sunstone skye pointe drive\dwg\Improv\est1907-000 dr-dwg 8/7/2019 10:51 AM Thomas Bryon



LATERAL PROFILE
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'
1



LATERAL PROFILE
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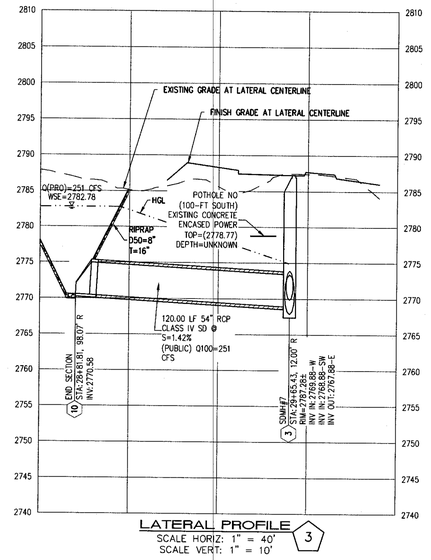
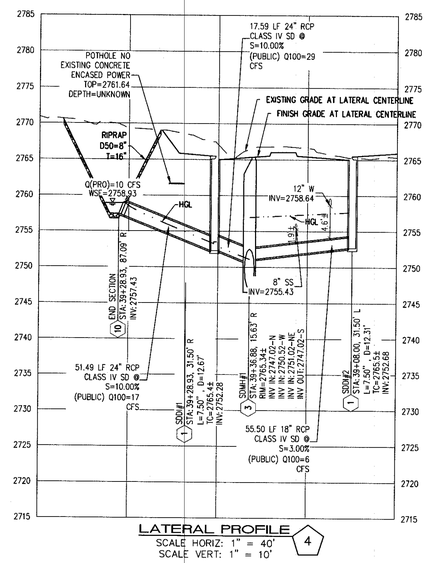
SCALE VERT: 1" = 10'
2



LATERAL PROFILE
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'
3



LATERAL PROFILE
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'
4

LATERAL PROFILE
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'
5

LATERAL PROFILE
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'
6

LATERAL PROFILE
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'
7

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NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
SKYE POINTE DRIVE
STORM DRAIN LATERAL I

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1907-000

PROFESSIONAL ENGINEER STATE OF NEVADA
JOSHUA L. JOHNSON
No. 15789
EXP. 06/30/2021
CIVIL
8/7/19

SD-5
SHEET 12 OF 19

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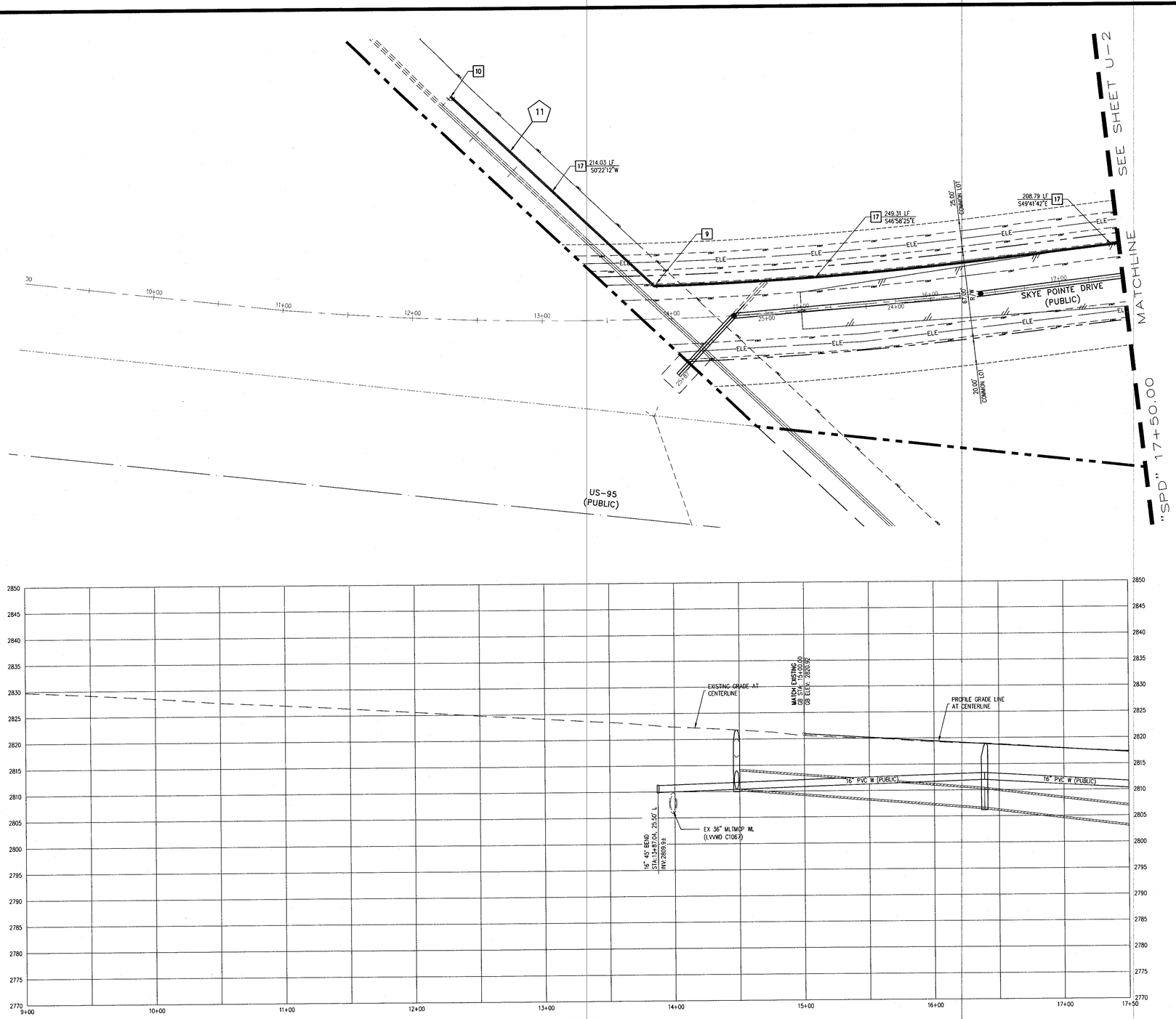

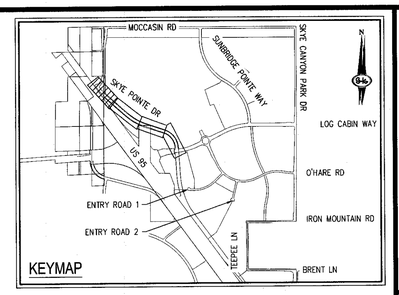

EXISTING EASEMENTS

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

E4 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.

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 NEVO13376 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.

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 EASENT 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.

WATER NOTES

1. INSTALL 1" DEFLECTION
2. INSTALL 12" 11.25° BEND PER UDACS PLATE NO. 31
3. INSTALL 12" 5° BEND PER UDACS PLATE NO. 31
4. INSTALL 12" CAP WITH BLOWOFF PER DCSWCS SECTION 2.2.5
5. INSTALL 12" GATE VALVE PER UDACS PLATE NO. 30 AND 39
6. INSTALL 12" x 12" TEE PER UDACS PLATE NO. 31
7. INSTALL 12" x 6" TEE PER UDACS PLATE NO. 31
8. INSTALL 12" x 8" TEE PER UDACS PLATE NO. 31
9. INSTALL 16" 45° BEND PER UDACS PLATE NO. 31
10. INSTALL 16" CAP WITH BLOWOFF PER DCSWCS SECTION 2.2.5
11. INSTALL 16" x 6" TEE PER UDACS PLATE NO. 31
12. INSTALL 16" x 8" TEE PER UDACS PLATE NO. 31
13. INSTALL 6" CAP WITH BLOWOFF PER DCSWCS SECTION 2.2.5
14. INSTALL 8" 11.25° BEND PER UDACS PLATE NO. 31
15. INSTALL 8" CAP WITH BLOWOFF PER DCSWCS SECTION 2.2.5
16. INSTALL 12" PVC W WATER PIPE
17. INSTALL 16" PVC W WATER PIPE
18. INSTALL 6" PVC W WATER PIPE
19. INSTALL 8" PVC W WATER PIPE
20. INSTALL FIRE HYDRANT ASSEMBLY WITH 6" GATE VALVE PER UDACS PLATE NO. 40
21. REMOVE CAP AND BLOW-OFF PER UDACS PLATE NO. 36 AND CONNECT NEW PIPE PER UDACS SECTION 3.14

SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

SEWER NOTES

1. INSTALL 48" DIAMETER SANITARY SEWER MANHOLE PER DCSWCS SD-1A & SD-1B. 24" LID PER DCSWCS SD-2A
2. SANITARY SEWER STUB AND CAP w/THRUST BLOCKS 1 CUBIC FOOT, PER DCSWCS SECTION 2.2.5.
3. INSTALL 8" PVC SS PER DCSWCS SD-15 AND SD-17

SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

LEGEND

1 WATER/SEWER LATERAL # (SEE SHEETS UT-5, UT-6)

DROP INLET NOTE

WHERE 10 FEET PARALLEL SEPARATION IS NOT PRACTICABLE:

CAST-IN-PLACE MONOLITHIC POUR WITH WATERSTOP BETWEEN SLAB AND WALLS. BASE, WALLS AND TOP TO BE CONSTRUCTED WITH WATERSTOPS, CENTER BULB, OR FLAT STRIP (VINYLEX, GREENSTREAK PLASTIC PRODUCTS OR APPROVED EQUAL).

EASEMENTS WITH TREES, SHRUBS, DECORATIVE ROCKS, BLOCK WALL, OR FENCE

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.

DISCLAIMER NOTE

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.

UTILITY NOTES

1. WATER MAIN JOINT DEFLECTION (PVC, 4" - 24"): PVC PIPE SHALL BE DEFLECTED AT THE JOINT ONLY. THE MAXIMUM ALLOWABLE DEFLECTION SHALL BE ONE (1) DEGREE PER JOINT WITH A MINIMUM RADIUS OF CURVATURE OF 1,150 FEET, PER UDACS 2.07.01 AND 2.07.02. FOR CHANGES IN DIRECTION EXCEEDING THE MAXIMUM ALLOWABLE JOINT DEFLECTION, FITTINGS SHALL BE USED.
2. REDUCED PRESSURE PRINCIPLE ASSEMBLY (1) 1": APPROVED REDUCED PRESSURE PRINCIPLE ASSEMBLY(S) SHALL BE INSTALLED PER THE UDACS PLATE NO. 8. NO WATER SHALL BE TAKEN FROM A SERVICE REQUIRING BACKFLOW PREVENTION UNTIL THE REDUCED PRESSURE PRINCIPLE ASSEMBLY HAS BEEN SUCCESSFULLY TESTED BY THE LVVWD. ANY BLOCK WALL OR OTHER FENCE MATERIAL SHALL BE DESIGNED AND CONSTRUCTED AROUND THE OUTSIDE OF THE EASEMENT(S) TO ALLOW THE DISTRICT DIRECT ACCESS FROM THE ADJACENT RIGHT-OF-WAY. EASEMENTS SHALL BE CLEARLY MARKED OR STAKED PRIOR TO THE START OF CONSTRUCTION.
3. ALL SEWER/ STORM DRAINS CROSSING WATER LINES MUST CONFORM TO SECTION 2.22 OF THE UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR POTABLE WATER SYSTEMS (UDACS) FOR WATER AND STORM MAIN CROSSINGS AND CLEARANCES.
4. FITTINGS SHALL NOT FALL UNDER CURBS, GUTTERS OR SIDEWALK.
5. INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING PER UDACS PLATE NO. 15.
6. THE LVVWD CANNOT GUARANTEE A WATERTIGHT SHUTDOWN WHERE CONNECTIONS OR REPAIRS TO EXISTING FACILITIES ARE REQUIRED. THE CONTRACTOR SHALL ENSURE ALL LABOR AND EQUIPMENT IS AVAILABLE TO REMOVE FUGITIVE WATER THAT MAY IMPEDE CONSTRUCTION AT ALL TIMES. COORDINATION WITH INSPECTION DIVISION MUST TAKE PLACE PRIOR TO ANY TRIAL SHUTDOWN.
7. CONTRACTOR TO INSTALL TEMPORARY SERVICE TO ENSURE PROPER SHUTDOWN IN THE EVENT NO OTHER APPURTENANCES ARE AVAILABLE.
8. 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 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.

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ////////// FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

APPROVAL

LAS VEGAS FIRE AND RESCUE DATE

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

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811 OR 1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
SKYE POINTE DRIVE
UTILITY PLAN I - "SPD" 9+00.00 TO "SPD" 17+50.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1907-000

PROFESSIONAL ENGINEER - STATE OF NEVADA - JOSHUA L. JOHNSON - No. 15789 - EXP. 06/30/2021 - CIVIL

8/7/19

UT-1
SHEET 13 OF 19

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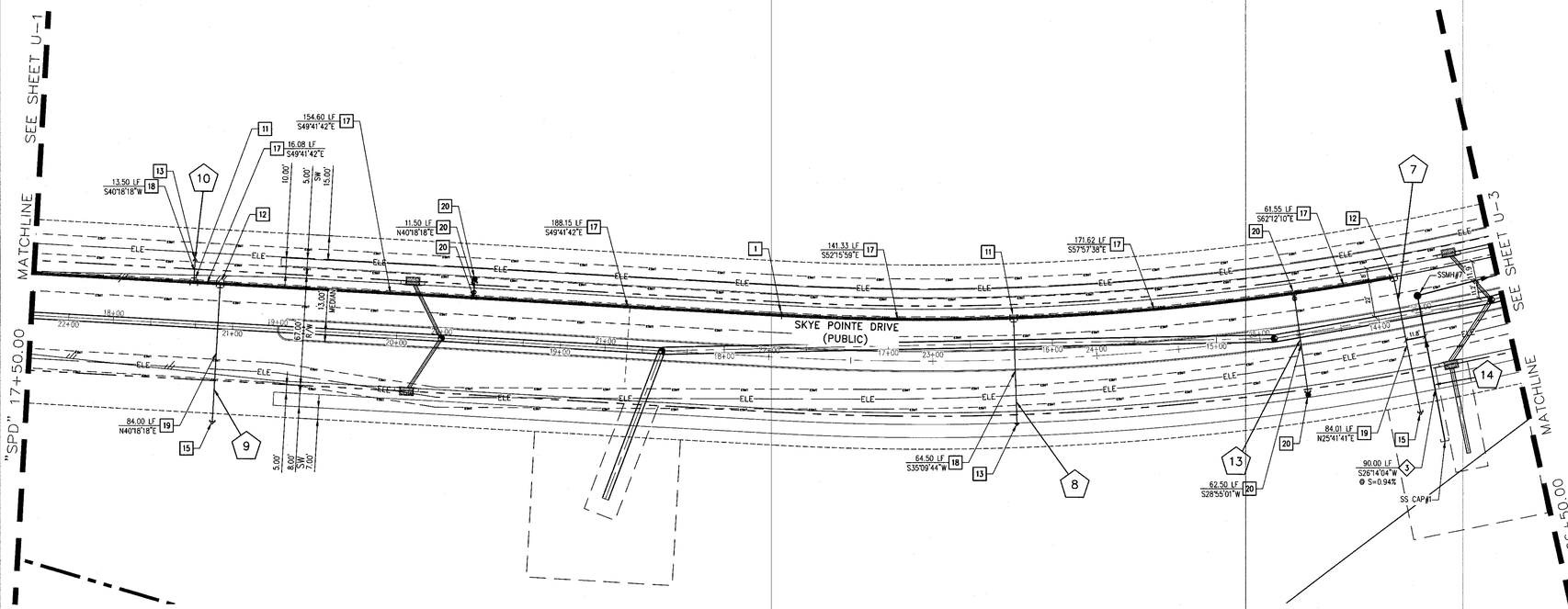

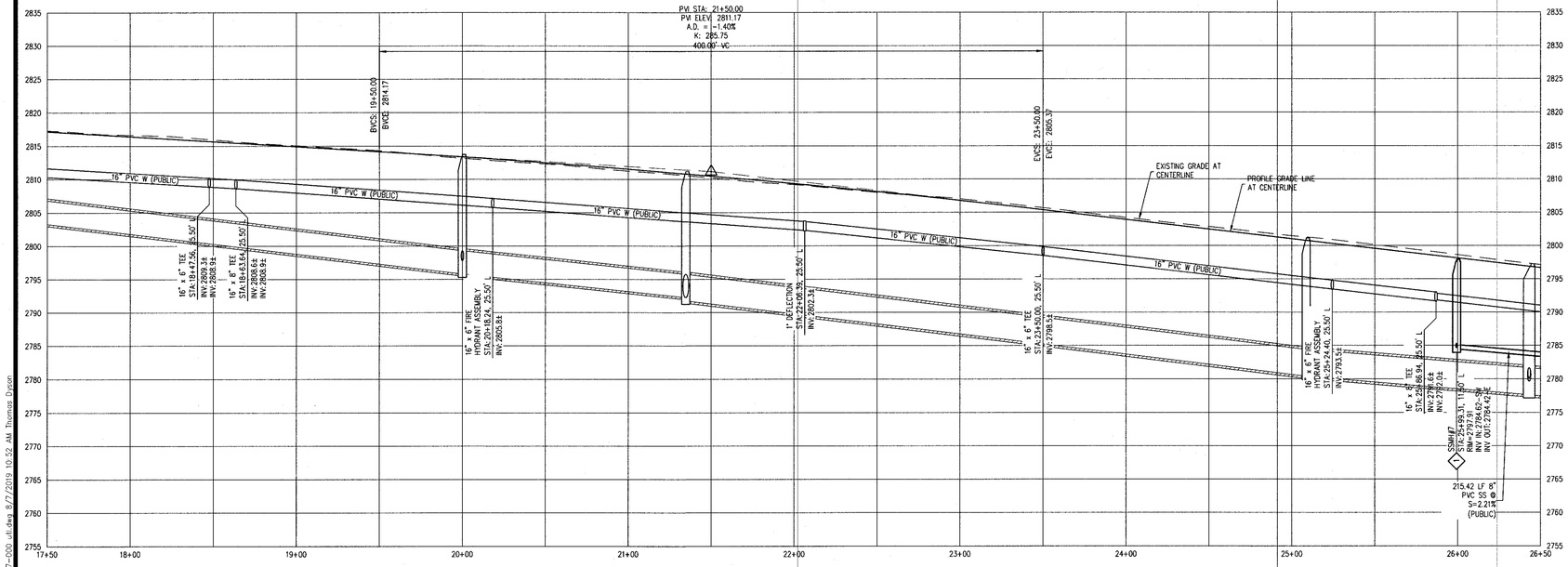

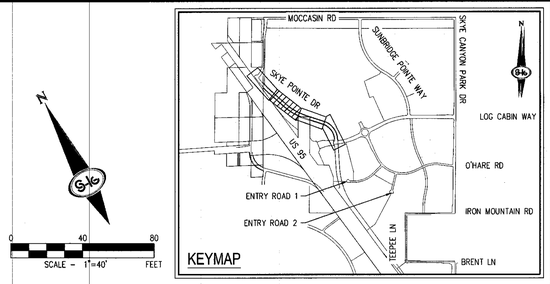

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RESERVATIONS, PROVISIONS AND EASEMENTS AS CONTAINED IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED AUGUST 03, 2005, IN BOOK 20050803 OF OFFICIAL RECORDS, AS INSTRUMENT NO. 01359.

WATER NOTES

1. INSTALL 1° DEFLECTION
2. INSTALL 12" 11.25° BEND PER UDACS PLATE NO. 31
3. INSTALL 12" 5° BEND PER UDACS PLATE NO. 31
4. INSTALL 12" GATE VALVE WITH BLOWOFF PER DCSWCS SECTION 2.2.5
5. INSTALL 12" GATE VALVE PER UDACS PLATE NO. 30 AND 39
6. INSTALL 12" x 12" TEE PER UDACS PLATE NO. 31
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17. INSTALL 16" PVC W WATER PIPE
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19. INSTALL 8" PVC W WATER PIPE
20. INSTALL FIRE HYDRANT ASSEMBLY WITH 6" GATE VALVE PER UDACS PLATE NO. 40
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SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

SEWER NOTES

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LEGEND

1 WATER/SEWER LATERAL # (SEE SHEETS UT-5, UT-6)

DROP INLET NOTE

WHERE 10 FEET PARALLEL SEPARATION IS NOT PRACTICABLE:

CAST-IN-PLACE MONOLITHIC POUR WITH WATERSTOP BETWEEN SLAB AND WALLS. BASE, WALLS AND TOP TO BE CONSTRUCTED WITH WATERSTOPS. CENTER BULB, OR FLAT STRIP (VINYLEX, GREENSTREAK PLASTIC PRODUCTS OR APPROVED EQUAL).

EASEMENTS WITH TREES, SHRUBS, DECORATIVE ROCKS, BLOCK WALL, OR FENCE

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.

DISCLAIMER NOTE

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UTILITY NOTES

1. WATER MAIN JOINT DEFLECTION (PVC, 4" – 24")
   PVC PIPE SHALL BE DEFLECTED AT THE JOINT ONLY. THE MAXIMUM ALLOWABLE DEFLECTION SHALL BE ONE (1) DEGREE PER JOINT WITH A MINIMUM RADIUS OF CURVATURE OF 1,150 FEET, PER UDACS 2.07.01 AND 2.07.02.
   FOR CHANGES IN DIRECTION EXCEEDING THE MAXIMUM ALLOWABLE JOINT DEFLECTION, FITTINGS SHALL BE USED.
2. REDUCED PRESSURE PRINCIPLE ASSEMBLY (1) 1"
   APPROVED REDUCED PRESSURE PRINCIPLE ASSEMBLY(S) SHALL BE INSTALLED PER THE UDACS PLATE NO. 8. NO WATER SHALL BE TAKEN FROM A SERVICE REQUIRING BACKFLOW PREVENTION UNTIL THE REDUCED PRESSURE PRINCIPLE ASSEMBLY HAS BEEN SUCCESSFULLY TESTED BY THE LVVWD. ANY BLOCK WALL OR OTHER FENCE MATERIAL SHALL BE DESIGNED AND CONSTRUCTED AROUND THE OUTSIDE OF THE EASEMENT(S) TO ALLOW THE DISTRICT DIRECT ACCESS FROM THE ADJACENT RIGHT-OF-WAY. EASEMENTS SHALL BE CLEARLY MARKED OR STAKED PRIOR TO THE START OF CONSTRUCTION.
3. ALL SEWER/ STORM DRAINS CROSSING WATER LINES MUST CONFORM TO SECTION 2.22 OF THE UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR POTABLE WATER SYSTEMS (UDACS) FOR WATER AND STORM MAIN CROSSINGS AND CLEARANCES.
4. FITTINGS SHALL NOT FALL UNDER CURBS, GUTTERS OR SIDEWALK.
5. INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING PER UDACS PLATE NO. 15.
6. THE LVVWD CANNOT GUARANTEE A WATERTIGHT SHUTDOWN WHERE CONNECTIONS OR REPAIRS TO EXISTING FACILITIES ARE REQUIRED. THE CONTRACTOR SHALL ENSURE ALL LABOR AND EQUIPMENT IS AVAILABLE TO REMOVE FUGITIVE WATER THAT MAY IMPEDE CONSTRUCTION AT ALL TIMES. COORDINATION WITH INSPECTION DIVISION MUST TAKE PLACE PRIOR TO ANY TRIAL SHUTDOWN.
7. CONTRACTOR TO INSTALL TEMPORARY SERVICE TO ENSURE PROPER SHUTDOWN IN THE EVENT NO OTHER APPURTENANCES ARE AVAILABLE.
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AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.
CALL BEFORE YOU DO OVERHEAD
1-702-227-2929

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811 OR 1-800-227-2600

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

APPROVAL

LAS VEGAS FIRE AND RESCUE DATE

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

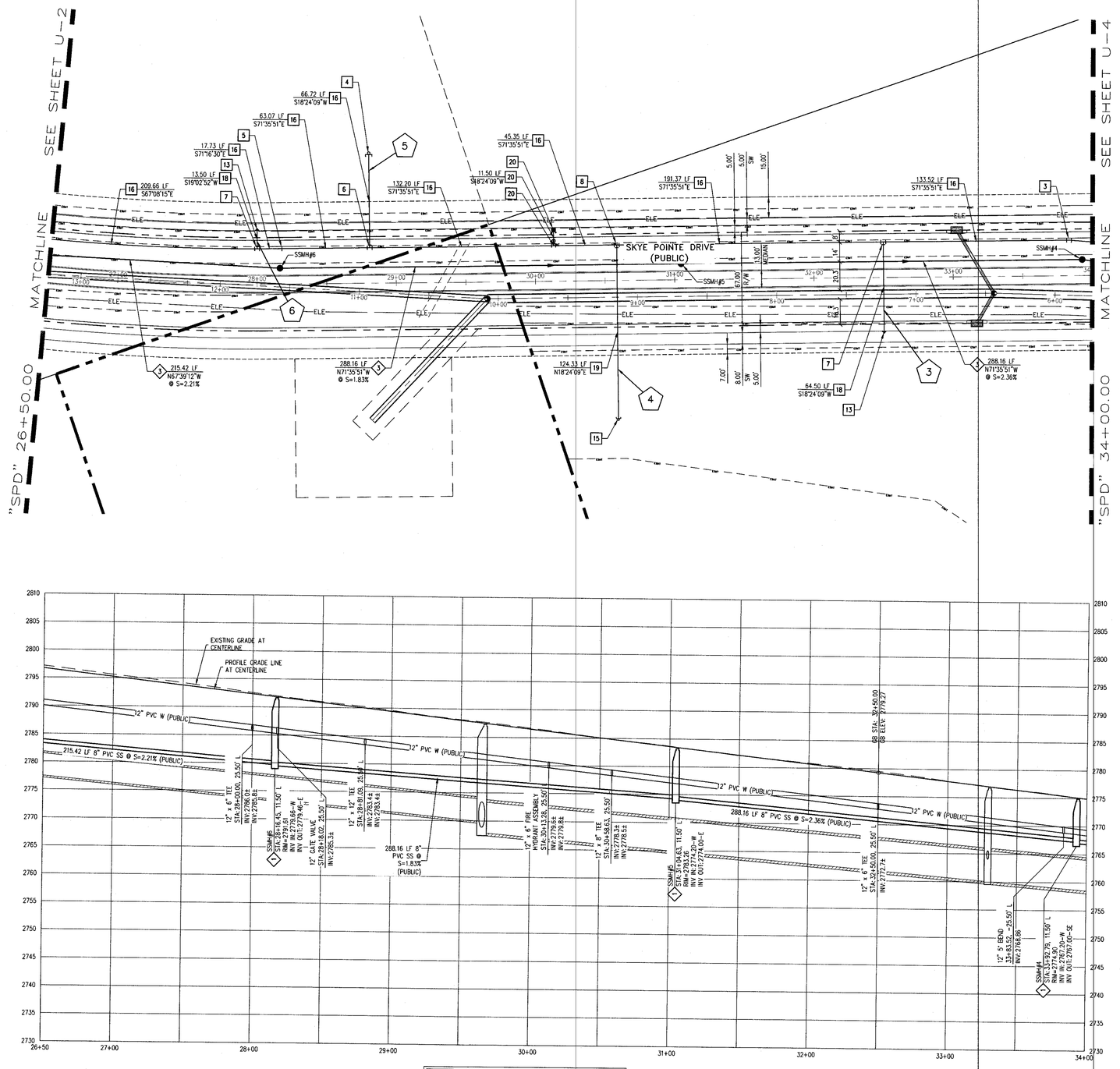
SUNSTONE PHASE 1
SKYE POINTE DRIVE
UTILITY PLAN II - "SPD" 17+50.00 TO "SPD" 26+50.00

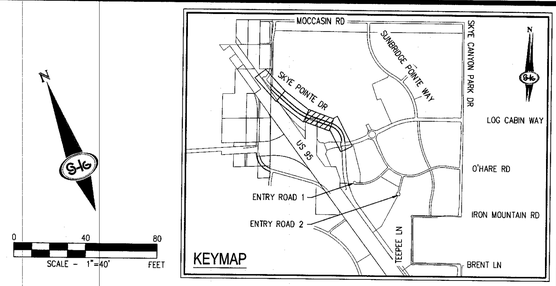
DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1907-000

PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSHUA L. JOHNSON
Exp. 06/30/2021
No. 15789
CIVIL
8/7/19

UT-2
SHEET 14 OF 19

J:\est1907-000 sunstone skye pointe drive\dwg\various\est1907-000 ut.dwg 8/7/2019 10:52 AM Thomas Dyson





EXISTING EASEMENTS

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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 NO. 00541 OF OFFICIAL RECORDS

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

E4 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.

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.

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 EASENT 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.

WATER NOTES

1. INSTALL 1" DEFLECTION
2. INSTALL 12" 11.25° BEND PER UDACS PLATE NO. 31
3. INSTALL 12" 5° BEND PER UDACS PLATE NO. 31
4. INSTALL 12" CAP WITH BLOWOFF PER DCSWCS SECTION 2.2.5
5. INSTALL 12" GATE VALVE PER UDACS PLATE NO. 30 AND 39
6. INSTALL 12" x 12" TEE PER UDACS PLATE NO. 31
7. INSTALL 12" x 6" TEE PER UDACS PLATE NO. 31
8. INSTALL 12" x 8" TEE PER UDACS PLATE NO. 31
9. INSTALL 16" 45° BEND PER UDACS PLATE NO. 31
10. INSTALL 16" CAP WITH BLOWOFF PER DCSWCS SECTION 2.2.5
11. INSTALL 16" x 6" TEE PER UDACS PLATE NO. 31
12. INSTALL 16" x 8" TEE PER UDACS PLATE NO. 31
13. INSTALL 6" CAP WITH BLOWOFF PER DCSWCS SECTION 2.2.5
14. INSTALL 8" 11.25° BEND PER UDACS PLATE NO. 31
15. INSTALL 8" CAP WITH BLOWOFF PER DCSWCS SECTION 2.2.5
16. INSTALL 12" PVC W WATER PIPE
17. INSTALL 16" PVC W WATER PIPE
18. INSTALL 6" PVC W WATER PIPE
19. INSTALL 8" PVC W WATER PIPE
20. INSTALL FIRE HYDRANT ASSEMBLY WITH 6" GATE VALVE PER UDACS PLATE NO. 40
21. REMOVE CAP AND BLOW-OFF PER UDACS PLATE NO. 36 AND CONNECT NEW PIPE PER UDACS SECTION 3.14

SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

SEWER NOTES

1. INSTALL 48" DIAMETER SANITARY SEWER MANHOLE PER DCSWCS SD-1A & SD-1B, 24" LID PER DCSWCS SD-2A
2. SANITARY SEWER STUB AND CAP w/THRUST BLOCKS 1 CUBIC FOOT, PER DCSWCS SECTION 2.2.5.
3. INSTALL 8" PVC SS PER DCSWCS SD-15 AND SD-17

SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

LEGEND

1 WATER/SEWER LATERAL # (SEE SHEETS UT-5, UT-6)

DROP INLET NOTE

WHERE TO 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).

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APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

APPROVAL

LAS VEGAS FIRE AND RESCUE DATE

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
SKYE POINTE DRIVE
UTILITY PLAN III - "SPD" 26+50.00 TO "SPD" 34+00.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO. EST1907-000

PROFESSIONAL ENGINEER - STATE OF NEVADA - JOSHUA M. JOHNSON - No. 15789 - Exp: 06/30/2021 - civil - 8/7/19

UT-3
SHEET 15 OF 19

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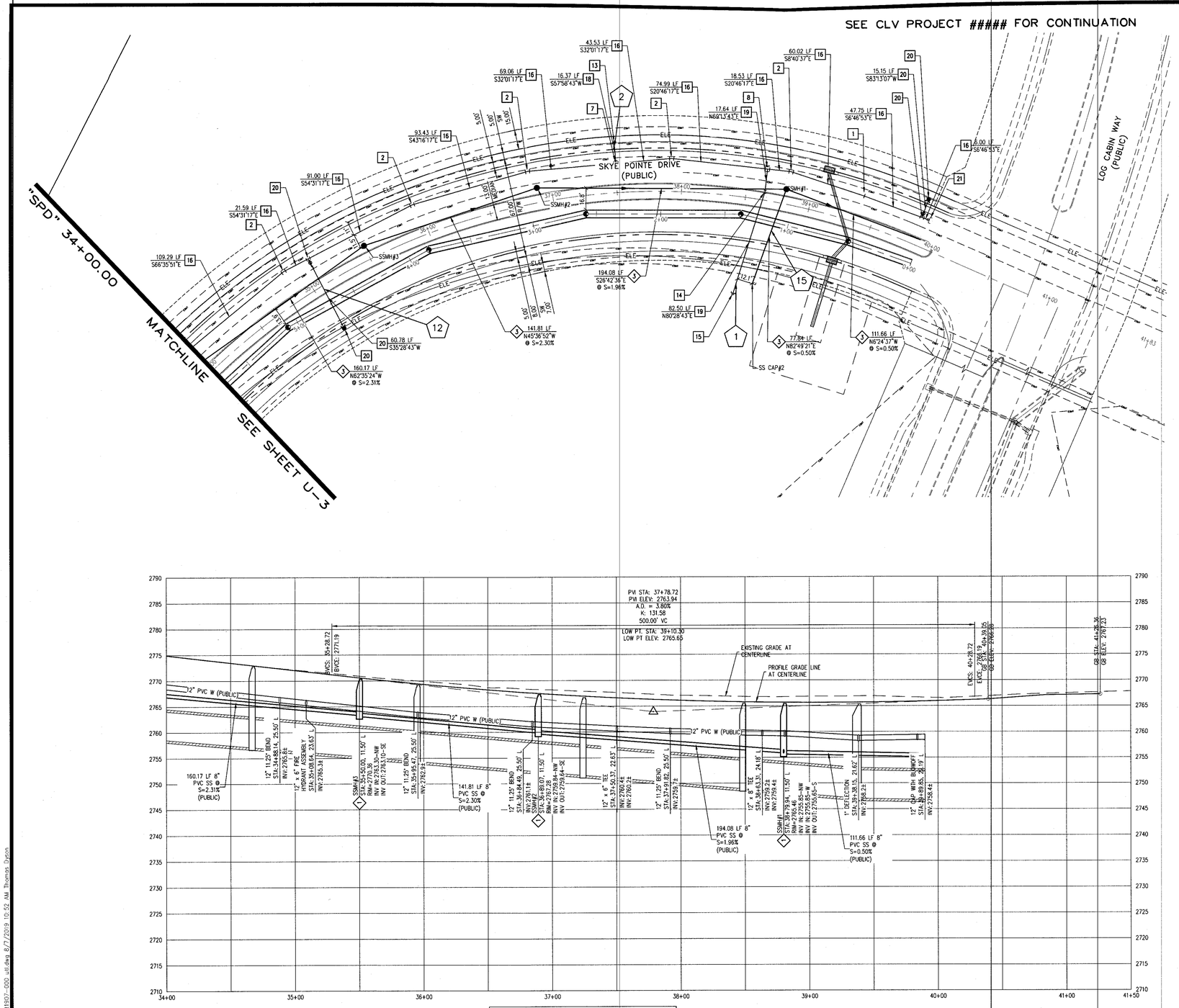

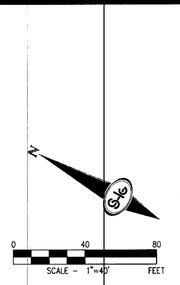

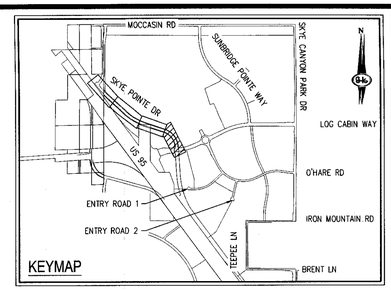

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RESERVATIONS, PROVISIONS AND EASEMENTS AS CONTAINED IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED AUGUST 03, 2005, IN BOOK 20050803 OF OFFICIAL RECORDS, AS INSTRUMENT NO. 01359.

WATER NOTES

1. INSTALL 1° DEFLECTION
2. INSTALL 12" 11.25° BEND PER UDACS PLATE NO. 31
3. INSTALL 12" 5° BEND PER UDACS PLATE NO. 31
4. INSTALL 12" CAP WITH BLOWOFF PER DCSWCS SECTION 2.2.5
5. INSTALL 12" GATE VALVE PER UDACS PLATE NO. 30 AND 39
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SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

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SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

LEGEND

1 WATER/SEWER LATERAL # (SEE SHEETS UT-5, UT-6)

DROP INLET NOTE

WHERE 10 FEET PARALLEL SEPARATION IS NOT PRACTICABLE:

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APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ##### FIRST APPROVED DATE:_____
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

APPROVAL

LAS VEGAS FIRE AND RESCUE DATE

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

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811 OR 1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
SKYE POINTE DRIVE
UTILITY PLAN IV - "SPD" 34+00.00 TO "SPD" 41+00.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1907-000

PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSHUA L. JOHNSON
No. 15789
Exp. 06/30/2021
CIVIL
8/7/19

UT-4
SHEET 16 OF 19

i:\est1907-000 sunstone skye pointe drive\dwg\micro\est1907-000_ut.dwg 8/7/2019 10:52 AM Thomas Dyson

LATERAL PROFILE 8
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

LATERAL PROFILE 7
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

LATERAL PROFILE 6
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

LATERAL PROFILE 5
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

LATERAL PROFILE 4
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

LATERAL PROFILE 3
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

LATERAL PROFILE 2
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

LATERAL PROFILE 1
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

LATERAL PROFILE 14
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

LATERAL PROFILE 15
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
SKYE POINTE DRIVE
UTILITY PLAN LATERAL I

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1907-000

PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSHUA J. JOHNSON
Exp. 06/30/2021
CIVIL
No. 15789
7/7/19

UT-5
SHEET 17 OF 19

J:\est\1907-000 sunstone skye pointe drive\land\lmxrcvs\est1907-000 utl.dwg 8/7/2019 10:53 AM Thomas Drose

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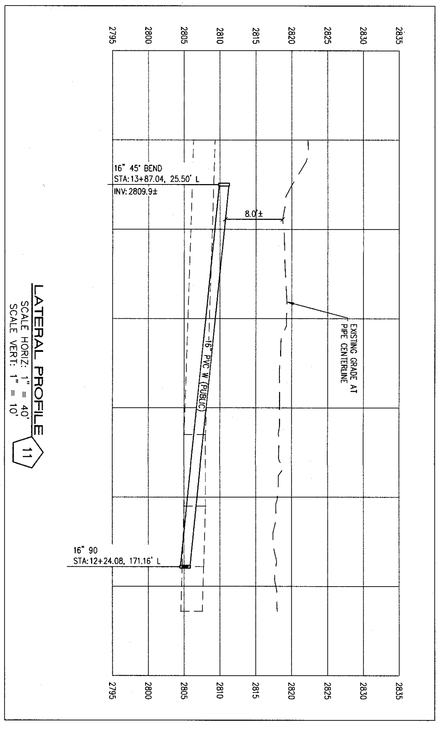
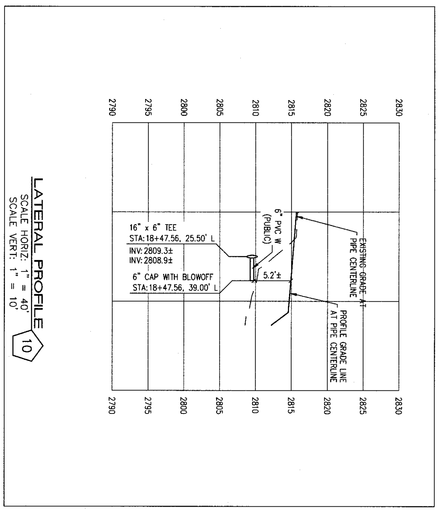
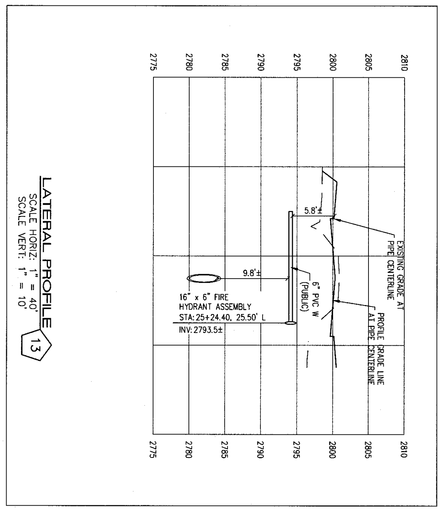


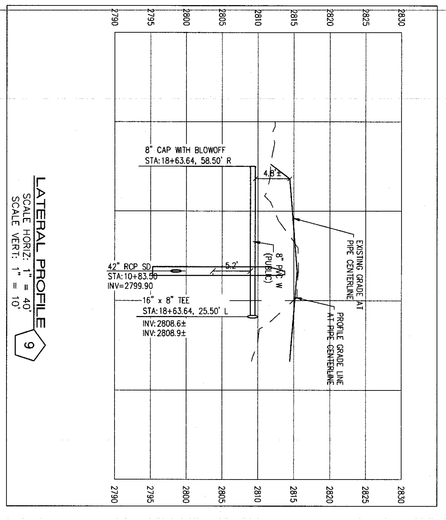
LATERAL PROFILE 11
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'



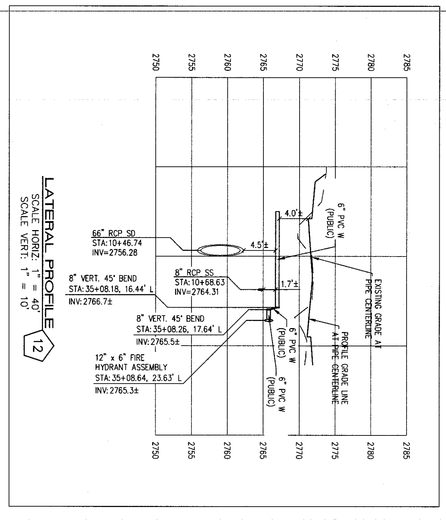
LATERAL PROFILE 10
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'



LATERAL PROFILE 13
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'



LATERAL PROFILE 9
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'



LATERAL PROFILE 12
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

CITY OF LAS VEGAS

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

SC EAST LANDCO, LLC

SUNSTONE PHASE 1

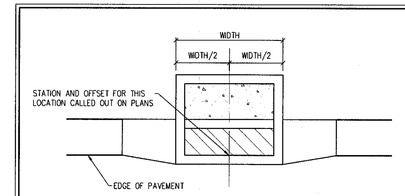
UTILITY PLAN LATERAL 2

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO. EST1907-000

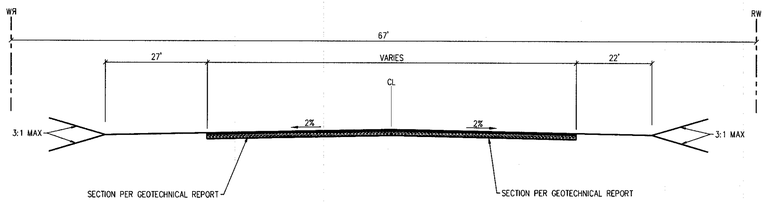
UT-6
SHEET 18 OF 19

STATE OF NEVADA — PROFESSIONAL ENGINEER — No. 13788 — JOSEPH JOHNSON — Expires 12/31/19

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

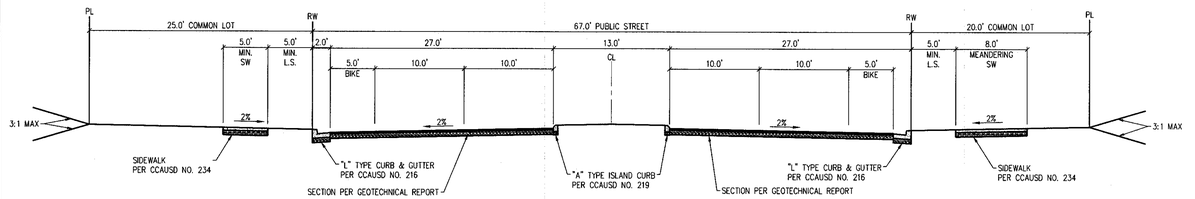


C. DROP INLET STATION AND OFFSET LOCATION DETAIL
NOT TO SCALE



NOTE:
FINAL PAVEMENT SURFACE SHALL BE 1/2" ABOVE LIP OF GUTTER.
PAVEMENT SHALL BE FLUSH WITH LIP OF GUTTER AT SIDEWALK RAMPS.

B. SKYE POINTE DRIVE SECTION (PUBLIC)
NOT TO SCALE



NOTE:
FINAL PAVEMENT SURFACE SHALL BE 1/2" ABOVE LIP OF GUTTER.
PAVEMENT SHALL BE FLUSH WITH LIP OF GUTTER AT SIDEWALK RAMPS.

A. SKYE POINTE DRIVE WITH TRAIL ONE SIDE (PUBLIC)
NOT TO SCALE

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. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
SKYE POINTE DRIVE
DETAIL SHEET 1

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1907-000

PROFESSIONAL ENGINEER – STATE OF NEVADA
JOSHUA J. JOHNSON, P.E.
No. 15789
EXP. 06/30/2021
CIVIL
8/7/19

DT-1
SHEET 19 OF 19

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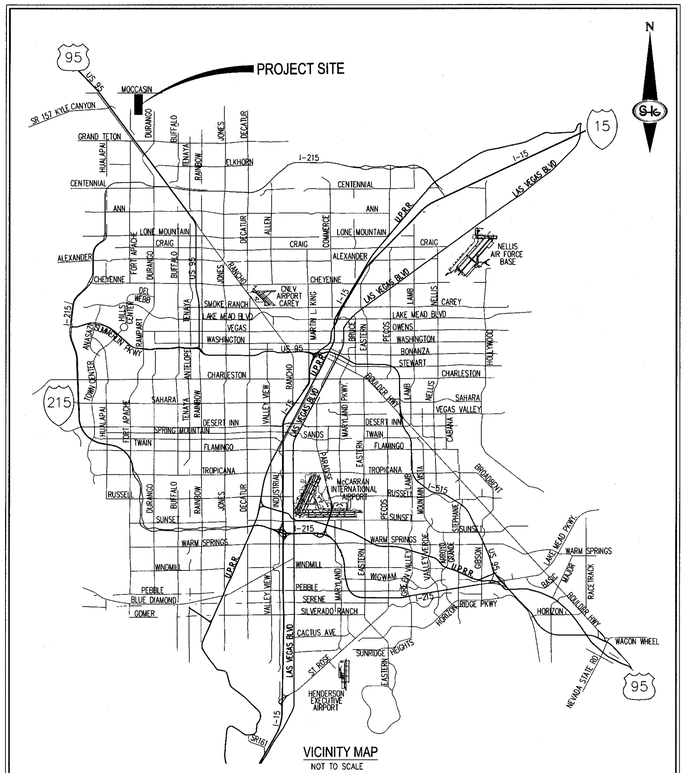
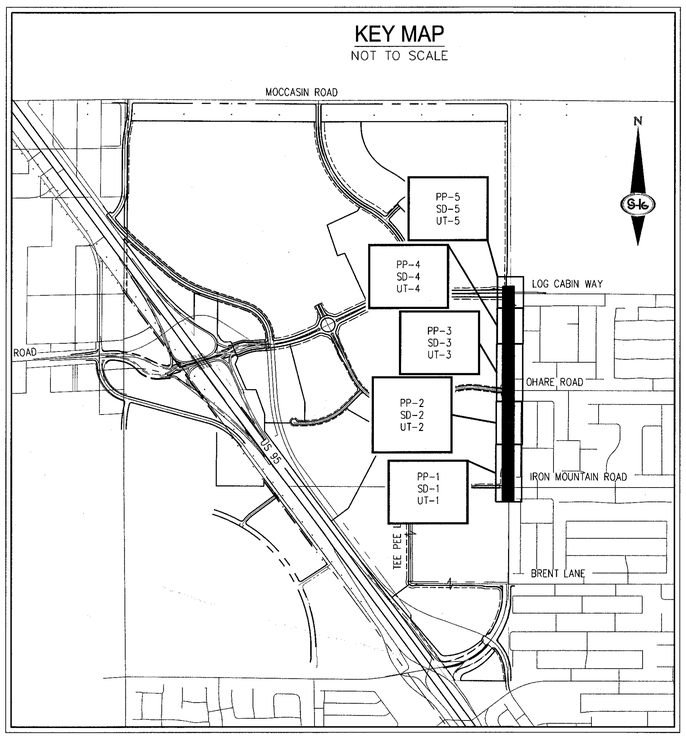
IMPROVEMENT PLANS
FOR
SUNSTONE PHASE 1
N SKYE CANYON PARK DR

CITY OF LAS VEGAS, NEVADA



VICINITY MAP
NOT TO SCALE



SHEET INDEX		
NO.	SHEET	TITLE
1	CS-1	COVER SHEET
2	CS-2	GENERAL NOTES
3	CS-3	ABBREVIATIONS, LEGEND & QUANTITIES
4	PP-1	PLAN & PROFILE I – "SCP" 11+00.00 TO "SCP" 19+00.00
5	PP-2	PLAN & PROFILE II – "SCP" 19+00.00 TO "SCP" 25+00.00
6	PP-3	PLAN & PROFILE III – "SCP" 25+00.00 TO "SCP" 33+00.00
7	PP-4	PLAN & PROFILE IV – "SCP" 33+00.00 TO "SCP" 38+00.00
8	PP-5	PLAN & PROFILE V – "SCP" 38+00.00 TO "SCP" 42+00.00
9	SD-1	STORM DRAIN I – "SCP" 11+00.00 TO "SCP" 19+00.00
10	SD-2	STORM DRAIN II – "SCP" 19+00.00 TO "SCP" 25+00.00
11	SD-3	STORM DRAIN III – "SCP" 25+00.00 TO "SCP" 33+00.00
12	SD-4	STORM DRAIN IV – "SCP" 33+00.00 TO "SCP" 38+00.00
13	SD-5	STORM DRAIN V – "SCP" 38+00.00 TO "SCP" 42+00.00
14	SD-6	STORM DRAIN LATERAL I
15	UT-1	UTILITY PLAN I – "SCP" 11+00.00 TO "SCP" 19+00.00
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17	UT-3	UTILITY PLAN III – "SCP" 25+00.00 TO "SCP" 33+00.00
18	UT-4	UTILITY PLAN IV – "SCP" 33+00.00 TO "SCP" 38+00.00
19	UT-5	UTILITY PLAN V – "SCP" 38+00.00 TO "SCP" 42+00.00
20	UT-6	UTILITY LATERAL I
21	DT-1	DETAIL SHEET I
22	ST-1	SIGNING & STRIPING PLAN I
23	ST-1	SIGNING & STRIPING PLAN II
24	LL-1	LIGHTING & INFRASTRUCTURE PLAN I
25	LL-2	LIGHTING & INFRASTRUCTURE PLAN II
26	TS-1	TRAFFIC SIGNAL INFRASTRUCTURE PLAN I

APPROVALS

CITY ENGINEER–ALLEN PAVELKA PE, #9029 DATE

APPROVAL OF THESE PLANS BY THE CITY ENGINEER IS LIMITED TO THOSE IMPROVEMENTS CONSTRUCTED IN THE DEDICATED OF 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 STATUES AND / OR PUBLIC UTILITY COMMISSION RULES AND REGULATIONS.

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE: _____
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

SHEETS: ADD FIELD
LVVWD APPROVAL IS VALID FOR ONE (1) YEAR FROM SIGNATURE DATE. IF CONSTRUCTION IS NOT STARTED, PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL.

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

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1

COVER SHEET

OWNER/DEVELOPER
EASTLAND COMPANY, LLC
9275 RUSSELL RD SUITE 400
LAS VEGAS, NV 89148
PH: 702-821-4808

ENGINEER
SLATER HANIFAN GROUP, INC.
a WESTWOOD TEAM
5740 S. ARVILLE STREET, SUITE 216
LAS VEGAS, NV 89118
PH: (702) 284-5300
CONTACT: JOSH JOHNSON

BENCHMARK
MONUMENT 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 00°01'50" WEST, BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE1/4) 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" (AREA OUTSIDE THE 500 YEAR FLOODPLAIN), PER THE FEMA FIRM PANELS ???????? DATED NOVEMBER 16, 2011

PROJECT PLAN APPROVAL CONTINGENT ON
SUNSTONE PHASE 1 XXXXX #XXXXX
SUNSTONE PHASE 1 XXXXX #XXXXX
SUNSTONE PHASE 1 XXXXX #XXXXX

PLAN APPROVAL

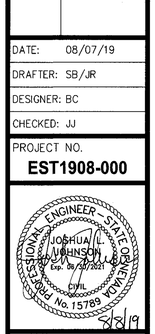
SWPPP NOTE
NOTE: ALL LAND SURFACE AREA DISTURBANCES OVER 1 ACRE REQUIRE A STORMWATER DISCHARGE PERMIT ISSUED BY THE NEVADA DIVISION OF ENVIRONMENTAL PROTECTION (NDEP). A PHASED CONSTRUCTION UNIT IN A CONTIGUOUS SUBDIVISION IS CONSIDERED UNDER CONSTRUCTION UNTIL ALL STRIPPED SURFACE AREAS HAVE BEEN COVERED 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 FILLING FEE.

DEVIATIONS FROM STANDARDS
NONE

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

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1908-000



CS-1
SHEET 1 OF 26

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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 30.40 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 NVR100000, 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 NVR100000, 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.

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 702-658-6107 48 HOURS PRIOR TO CONSTRUCTION.
4. IN THE EVENT OF NATURAL GAS CONFLICT WITH PROPOSED UTILITIES AND STRUCTURES CONTACT 702-365-2099

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 LATEST 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 2.22 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 PRODUCT'S 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.

15. 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 ?????, PROJECT NO. ####.##, DATED ##/##/####.
6. EARTHWORK QUANTITIES (RAW):
   -CUT = ##,### CUBIC YARDS.
   -FILL = ##,### 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 ORDINANCE # 6631 FOR HYDRANT SPECIFICATIONS AND HYDRANT INSTALLATION SPECIFICATIONS.
2. ONLY FIRE HYDRANTS THAT ARE ON THE LAS VEGAS VALLEY WATER DISTRICT'S – APPROVED PRODUCTS LIST ARE ALLOWED TO BE INSTALLED.
3. A PERMIT IS REQUIRED 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 HYDRANTS SHALL BE IN GOOD 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 § 106.3
7. ALL ON-SITE UNDERGROUND WATER MAINS AND MATERIALS SHALL BE U.L. LISTED, A.W.W.A APPROVED AND SHALL BE RATED FOR THE APPROPRIATE WORKING PRESSURE. 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 § 507.5.7.1
10. PRIOR TO THE FINAL OCCUPANCY, A FIRE FLOW TEST SHALL BE WITNESSED BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION TO VERIFY AVAILABILITY OF THE REQUIRED FIRE FLOW. IFC § 507
11. FIRE HYDRANT SPACING SHALL BE AS FOLLOWS: IFC § C102
    - RESIDENTIAL – 500 FT UNSPRINKLERED; 600 FT SPRINKLERED.
    - COMMERCIAL – 300 FT UNSPRINKLERED; 600 FT SPRINKLERED.
12. WHERE THE WATER MAINS ARE EXTENDED ALONG STREETS OR NEW STREETS ARE INSTALLED WHERE FIRE HYDRANTS ARE NOT NEEDED FOR PROTECTION OF THE STRUCTURES, FIRE HYDRANTS SHALL BE INSTALLED AT A MAXIMUM OF 1000 FT SPACING, TO PROVIDE FOR TRANSPORTATION HAZARDS. WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS OR HAVE FOUR (4) OR MORE TRAFFIC LANES AND HAVE A TRAFFIC COUNT OF MORE THAN 30,000 PER DAY, HYDRANTS ARE REQUIRED ON EACH SIDE OF THE STREET SPACED AT 500 FT ON AN ALTERNATING BASIS. 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 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 6% 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 LANES 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 LANES, PUBLIC OR PRIVATE, IN EXCESS OF 150 FT IN LENGTH SHALL BE PROVIDED WITH AN APPROVED TURN AROUND HAVING A MINIMUM DIAMETER OF 81 FT. 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 LANES. SIGNS TO BE PLACED ON BOTH SIDES OF AN ACCESS ROADWAY IF NEEDED TO PREVENT PARKING ON EITHER SIDE. SIGNS TO BE INSTALLED NO HIGHER THAN 10 FT OR LESS THAN 6 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 COUNT OF MORE THAN 30,000 VEHICLES PER DAY, ALL 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 CAVING OF THE EXCAVATION.
4. THE CONTRACTOR IS WARNED THAT AN EARTHWORK BALANCE WAS NOT NECESSARILY THE INTENT OF THIS PROJECT. ANY ADDITIONAL MATERIAL REQUIRED OR LEFTOVER MATERIAL FOLLOWING EARTHWORK OPERATIONS BECOMES THE RESPONSIBILITY OF THE CONTRACTOR.
5. THE GRADING CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE OWNER TO PROVIDE FOR THE REQUIREMENTS OF THE PROJECT 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'	SEE SOILS REPORT
B. ENGINEERED FILL	0.5'+	+0.1' TO -0.1'	SEE SOILS REPORT

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

7. ALL CUT AND FILL SLOPES SHALL BE PROTECTED UNTIL EFFECTIVE EROSION CONTROL HAS BEEN ESTABLISHED.
8. THE USE OF POTABLE WATER WITHOUT A SPECIAL PERMIT FOR BUILDING OR CONSTRUCTION PURPOSES INCLUDING CONSOLIDATION OF BACKFILL OR DUST CONTROL IS PROHIBITED. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR CONSTRUCTION WATER.
9. THE CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS AND ALL OTHER PUBLIC RIGHT-OF-WAY IN A CLEAN, SAFE AND USABLE CONDITION. ALL SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE PUBLICLY OWNED PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT. ALL ADJACENT PROPERTY, PRIVATE OR PUBLIC SHALL BE MAINTAINED IN A CLEAN, SAFE AND USABLE CONDITION.
10. IN THE EVENT THAT ANY TEMPORARY CONSTRUCTION ITEM IS REQUIRED THAT IS NOT SHOWN ON THESE DRAWINGS, THE OWNER AGREES TO PROVIDE AND INSTALL SUCH ITEM AT HIS OWN EXPENSE AND AT THE DIRECTION OF THE CITY ENGINEER. TEMPORARY CONSTRUCTION INCLUDES DITCHES, BERMS, ROAD SIGNS 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 ISSUE; THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION, CLARK COUNTY AREA NEVADA", LATEST REVISED EDITION; THE "SUMMERLIN IMPROVEMENT STANDARDS" FOR WORK IN THE SUMMERLIN AREA; AND OTHER APPLICABLE APPROVED STANDARDS ISSUED BY THE CONTROLLING AGENCY; THE UNIFORM BUILDING CODE; AND ALL LOCAL CITY CODES AND ORDINANCES APPLICABLE, EXCEPT AS NOTED ON THIS SHEET AS "DEVIATIONS FROM STANDARDS".
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 INTERFERENCE'S WHICH MAY AFFECT HIS OPERATION DURING CONSTRUCTION AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO SAME. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING NEAR OVERHEAD UTILITIES SO AS TO SAFELY PROTECT ALL PERSONNEL AND EQUIPMENT, AND SHALL BE RESPONSIBLE FOR ALL COST AND LIABILITY IN CONNECTION THEREWITH.
3. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING UTILITY LINES, STRUCTURES AND STREET IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE, FROM DAMAGE, AND ALL SUCH IMPROVEMENTS OR STRUCTURES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED SATISFACTORY TO THE CITY ENGINEER AND OWNING UTILITY COMPANY AT THE EXPENSE OF THE CONTRACTOR.
4. ALL CONSTRUCTION SHALL BE AS SHOWN ON THESE PLANS, ANY REVISIONS SHALL HAVE THE PRIOR WRITTEN APPROVAL OF THE CITY ENGINEER.
5. TYPE V CEMENT SHALL BE USED IN ALL OFF-SITE CONCRETE WORK. CONCRETE TO BE 3000 P.S.I. MINIMUM @ 28 DAYS. MIX DESIGNS TO BE APPROVED BY THE CITY, PRIOR TO THE USE ON THE PROJECT.
6. PERMITS ARE REQUIRED FOR ANY WORK IN THE PUBLIC RIGHT-OF-WAY. THE CONTRACTOR SHALL SECURE ALL PERMITS AND INSPECTIONS REQUIRED FOR THIS CONSTRUCTION.
7. EXPANSION JOINTS REQUIRED, MAXIMUM EVERY 300'IN EXTRUDED-TYPE CURB.
8. AC PAVEMENT TO BE ONE-HALF INCH (½") ABOVE LIP OF ALL GUTTERS AFTER COMPACTION, EXCEPT AT SIDEWALK RAMPS AND CROSS GUTTERS.
9. CURB AND GUTTER FOUND TO BE UNACCEPTABLE TO THE CITY OF LAS VEGAS SHALL BE REMOVED AND REPLACED PER STANDARD DRAWING 216.
10. SIDEWALK RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING 235. EXACT LOCATION OF RAMPS MAY BE ADJUSTED IN THE FIELD BY A CITY INSPECTOR.
11. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITIONS BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND FOR INGRESS AND EGRESS TO NEW CONSTRUCTION. THE EXTENT OF THE TRANSITIONS TO BE AS SHOWN ON PLANS.
12. ALL GRADING WORK SHALL CONFORM TO THE SOILS REPORT AS PREPARED BY ADD GEO, REPORT #ADD FIELD, ADD FIELD APPROVED BY THE CITY ENGINEER, AND AS SHOWN ON THESE PLANS.
13. EXACT LOCATION OF ALL SAWCUT LINES MAY BE ADJUSTED OR DETERMINED IN THE FIELD BY A CITY OF LAS VEGAS ENGINEER IF LOCATION ON PLANS IS NOT CLEARLY SHOWN, OR EXISTING PAVEMENT CONDITION REQUIRES RELOCATIONS.
14. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT EXISTING PERMANENT SURVEY MONUMENTS. ANY MONUMENTS DISTURBED SHALL BE REPLACED AND ADJUSTED PER AVAILABLE RECORDS IN ACCORDANCE WITH N.R.S. STATUTE NO. 625.380 & CITY OF LAS VEGAS TITLE 18, APPENDIX D.
15. UTILITY COMPANY METER BOXES, MANHOLE LIDS, VALVE COVERS, ETC., SHALL BE LOCATED OUT OF DRIVEWAYS, DRIVEWAY APRONS, FLOWLINES, AND CROSS GUTTERS UNLESS W

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	FUT	FUTURE	R	RADIUS
APPROX OR ~	APPROXIMATE	GRD	GRADE OR GROUND	RCA	REINFORCED CONCRETE ARCH
AVE	AVENUE	GB	GRADE BREAK OR GRADE CHANGE	RCB	REINFORCED CONCRETE BOX
@	AT	GV	GATE VALVE	RCP	REINFORCED CONCRETE PIPE
BC	BEGIN CURVE OR BACK OF CURB	HDPE	HIGH DENSITY POLYETHYLENE	RD	ROAD
BCR	BEGINNING OF CURB RETURN	HOA	HOME OWNERS ASSOCIATION	RDWY ESMT	ROADWAY EASEMENT
BHW	BOTTOM OF HEADWALL	HORZ	HORIZONTAL	REQD	REQUIRED
BLDG	BUILDING	HP	HIGH POINT	REV	REVISION
BLVD	BOULEVARD	HWL	HIGH WATER LEVEL	RG	ROUGH GRADE
BM	BENCHMARK	HDWL OR HW	HEADWALL	RT OR R	RIGHT
BVC	BEGIN VERTICAL CURVE	HYD	HYDRAULIC OR HYDRANT	RW, ROW	RIGHT OF WAY
BWV	BACK WATER VALVE	ID	INSIDE DIAMETER	S	SLOPE
CC	CLARK COUNTY	IN	INCH	SCH	SCHEDULE
CCAUSD	CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS	INT	INTERSECTION	SD	STORM DRAIN
CCPW	CLARK COUNTY PUBLIC WORKS	INV	INVERT ELEVATION	SDDI	STORM DRAIN DROP INLET
CCRFCD	CLARK COUNTY REGIONAL FLOOD DISTRICT	IP	IRON PIPE	SDMH	STORM DRAIN MANHOLE
CCWRD	CLARK COUNTY WATER RECLAMATION DISTRICT	IRRG	IRRIGATION	SEC	SECTION
CE	COMMON ELEMENT	LF	LINEAR FEET	SF	SQUARE FEET
CL,C/L,C	CENTERLINE	LMC	LANDSCAPE MAINTENANCE CORPORATION	SHT	SHEET
CLR	CLEAR OR CLEARANCE	LP	LOW POINT	SLTC	STREET LIGHT & TRAFFIC CONTROL ESMT
CLSM	CONTROLLED LOW STRENGTH MATERIAL	LT OR L	LEFT	SNWA	SOUTHERN NEVADA WATER AUTHORITY
CLV	CITY OF LAS VEGAS	LVVWD	LAS VEGAS VALLEY WATER DISTRICT	SPECS	SPECIFICATIONS
CML&C	CEMENT MORTAR LINED AND COATED	LWL	LOW WATER LEVEL	ST	STREET
CMU	CONCRETE MASONRY UNIT	MAX	MAXIMUM	SSMH	SANITARY SEWER MANHOLE
CNLV	CITY OF NORTH LAS VEGAS	MECH	MECHANICAL	STA	STATION
COH	CITY OF HENDERSON	MH	MANHOLE	STD	STANDARD
CONC	CONCRETE	MIN	MINIMUM	STL	STEEL
CT	COURT	MISC	MISCELLANEOUS	STLT	STREET LIGHT
CY OR CU YD	CUBIC YARD	MUE	MUNICIPAL UTILITY EASEMENT	SW	SIDEWALK
DCWCS	DESIGN AND CONSTRUCTION FOR WASTEWATER COLLECTION SYSTEMS	NDOT	NEVADA DEPARTMENT OF TRANSPORTATION	SWG	SOUTHWEST GAS
		NTS	NOT TO SCALE	SWR OR SS	SANITARY SEWER
DE	DRAINAGE EASEMENT	NUE	NONEXCLUSIVE UTILITY EASEMENT	SY	SQUARE YARD
DET	DETAIL	NVE	NV ENERGY	TAN	TANGENT
DI	DUCTILE IRON OR DRAIN INLET	OC	ON CENTER	TC	TOP OF CURB
DIA, ø	DIAMETER	OD	OUTSIDE DIAMETER OR OVERALL DIMENSION	TF	TOP OF FLOOR OR TOP OF FOOTING
DIP	DUCTILE IRON PIPE	OFF	OFFSET	TG	TOP OF GRATE
DR	DRIVE	ORIG	ORIGINAL	THRU	THROUGH
DWG(S)	DRAWING	PAE	PUBLIC OR PEDESTRIAN ACCESS EASEMENT	THW	TOP OF HEADWALL
DWY	DRIVEWAY	PB	PULL BOX	TP	TOP OF PIPE
EA	EACH	PC	POINT OF CURVE	TW	TOP OF WALL
ECR	END CURB RETURN	PCC	POINT OF COMPOUND CURVE	TRW	TOP OF RETAINING WALL
EG	EXISTING GROUND	PDE	PUBLIC DRAINAGE EASEMENT	TSW	TOP OF SCREEN WALL
ELEV	ELEVATION	℄ OR PL	PROPERTY LINE	TYP	TYPICAL
ESMT	EASEMENT	POB	POINT OF BEGINNING	UDACS	UNIFORM DESIGN AND CONSTRUCTION STANDARDS
EP	EDGE OF PAVEMENT	POC	POINT OF CURVATURE		
ERU	EQUIVALENT RESIDENTIAL UNIT	POE	POINT OF ENDING	UE	UTILITY EASEMENT
EVC	END VERTICAL CURVE	PRC	POINT OF REVERSE CURVATURE	VC	VERTICAL CURVE
EX OR EXIST	EXISTING	PRELIM	PRELIMINARY	VERT	VERTICAL
FC	FACE OF CURB	PROP	PROPOSED	VG	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	WPZ	WATER PRESSURE ZONE
FGL	FINISHED GRADE, LOW SIDE	PVC	POLYVINYL CHLORIDE	WT	WEIGHT
FH	FIRE HYDRANT			WTR	WATER LINE

ALIGNMENT ABBREVIATIONS

"SCP"	SKYE CANYON PARK DRIVE

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 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 OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATIONS. CALL BEFORE YOU DIG: (800) 227-2600

LEGEND

EXISTING	PROPOSED	DESCRIPTION
(1900)	1900	5' CONTOUR
		1' CONTOUR
		STRIPING
		SEWER MANHOLE
		CURB AND GUTTER
EX 8" PVC SS	8" PVC SS	SANITARY SEWER PIPE AND FLOW ARROW
EX 8" PVC WTR	8" PVC WTR	WATER PIPE
		WATER GATE VALVE
		FIRE HYDRANT
		WATER BLOW-OFF
		WATER LATERAL W/ METER
		SANITARY SEWER LATERAL
		STREETLIGHT
		EDGE OF PAVEMENT
		TRAFFIC SIGN
PAD XXX.X FF XXX.X	PAD XXX.X FF XXX.X	PAD ELEVATION FINISHED FLOOR ELEVATION
XX.XX TW	XX.XX TW	ELEVATION
		RETAINING WALL
		STORM DRAIN W/ MANHOLE

	EXISTING GAS GATE VALVE
@MH	EXISTING UNKNOWN MANHOLE
GAS	EXISTING GAS, SIZE PER PLAN
	EXISTING POWER POLE
	EXISTING TRAFFIC SIGNAL
	EXISTING WALL
	WATER PIPE FITTING
POC	WATER POINT OF CONNECTION
POC	SEWER POINT OF CONNECTION
	DAYLIGHT LINE
	STREET CENTERLINE
	RIGHT-OF-WAY
	MATCHLINE
	BOUNDARY LINE
	PHASE LINE
P	PROPERTY LINE
	FLOWLINE
	SAWCUT
FILL / CUT	CUT/FILL TRANSITION LINE
	SIDEWALK
	EX STRIPING TO BE OBLITERATED
	GRADE BREAK LINE
	REFLECTIVE RAISED PAVEMENT MARKERS
BWV	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	HANDICAP RAMP
TEL 6-4"	EXISTING TELEPHONE CABLE
12" SS	EXISTING SANITARY SEWER LINE
12" W	EXISTING WATER LINE
18" SD	EXISTING STORM DRAIN LINE
ELE UG 1-4"	EXISTING UNDERGROUND ELECTRICAL LINE
OHP	EXISTING OVERHEAD POWER LINE
OHP/TEL	EXISTING OVERHEAD POWER AND TELEPHONE LINE
4" PE GAS	EXISTING GAS LINE
CATV	EXISTING CABLE TELEVISION LINE
SL	EXISTING STREET LIGHT CONDUIT
MH	EXISTING MANHOLE OR VAULT
	EXISTING VALVE (GAS OR WATER)
FH	EXISTING FIRE HYDRANT
PP	EXISTING POWER OR TELEPHONE POLE
	EXISTING PADMOUNTED SERVICE PEDESTAL
	EXISTING NV ENERGY TRANSFORMER
	EXISTING SWING GATE
	EXISTING STREET LIGHT
	EXISTING ON-SITE LIGHT
	EASEMENT LINE
	AEP
ITS	FAST ITS CONDUIT

QUANTITIES

			PRIVATE	PUBLIC
DRAINAGE				
1.	12.5' TYPE "CM2" DROP INLET	EA	–	3
2.	7.5' TYPE "CM2" DROP INLET	EA	–	1
3.	60" TYPE III STORM DRAIN MANHOLE	EA	–	3
4.	48" TYPE I STORM DRAIN MANHOLE	EA	–	1
5.	NDOT TYPE 4 STORM DRAIN MANHOLE	EA	–	7
6.	18" RCP STORM DRAIN	LF	–	119
7.	24" RCP STORM DRAIN	LF	–	748
8.	36" RCP STORM DRAIN	LF	–	40
9.	66" RCP STORM DRAIN	LF	–	1,370
10.	24" RCP END SECTION	EA	–	1
11.	RCP STORM DRAIN CAP	EA	–	1
SEWER SYSTEM				
1.	48" SEWER MANHOLE	EA	–	3
2.	18" PVC SEWER PIPE (PUBLIC)	LF	–	1,340
WATER SYSTEM				
1.	CAP AND 2" BLOW-OFF ASSEMBLY W/CAP PER UDACS PLATE NO. 36	EA	–	4
2.	6" DIP WATER PIPE (53)	LF	–	54
3.	8" PVC WATER PIPE (CLASS 150)	LF	–	50
4.	10" PVC WATER PIPE (CLASS 150)	LF	–	58
5.	16" PVC WATER PIPE (CLASS 150)	LF	–	1,888
6.	8" GATE VALVE WITH VALVE BOX PER UDACS PLATE NO. 30 & 39	EA	–	1
7.	10" GATE VALVE WITH VALVE BOX PER UDACS PLATE NO. 30 & 39	EA	–	1
8.	16" 90 DEGREE BEND PER UDACS PLATE NO. 31	EA	–	1
9.	16" GATE VALVE WITH VALVE BOX PER UDACS PLATE NO. 30 & 39	EA	–	3
10.	16" X 8" TEE PER UDACS PLATE NO. 31	EA	–	2
11.	16" X 10" TEE PER UDACS PLATE NO. 31	EA	–	1
12.	16" X 16" TEE PER UDACS PLATE NO. 31	EA	–	1
STREET IMPROVEMENTS				
1.	9" A.C. PAVEMENT OVER 7" TYPE II AGGREGATE BASE	SY	–	15,633
2.	STANDARD 24" TYPE "L" ISLAND CURB & GUTTER W/6" TYPE I AGGREGATE BASE	LF	–	2,472
3.	CONCRETE SIDEWALK W/4" TYPE II AGGREGATE BASE	SF	–	20,181
4.	8' WIDE CONCRETE VALLEY GUTTER W/10" TYPE I AGGREGATE BASE	SF	–	936
5.	BUS TURNOUT	EA	–	1
TRAFFIC SIGNALS				
1.	30" STOP SIGN WITH POST (R1-1)	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	–	–
DRY UTILITIES				
1.	100W H.P.S. LUMINAIRE STREET LIGHT W/DECORATIVE POLE	EA	–	–
2.	1-1/4" PVC STREET LIGHT CONDUIT WITH (2) #4 AND (1) #8 CONDUCTORS	LF	–	–
3.	NO. 3-1/2 PULL BOX W/METAL COVER	EA	–	–
4.	150 AMP SERVICE PEDESTAL (IRR)	EA	–	–
5.	200 AMP SERVICE PEDESTAL (STLT)	EA	–	–

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ##### FIRST APPROVED DATE: _____
LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 20 GPM

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

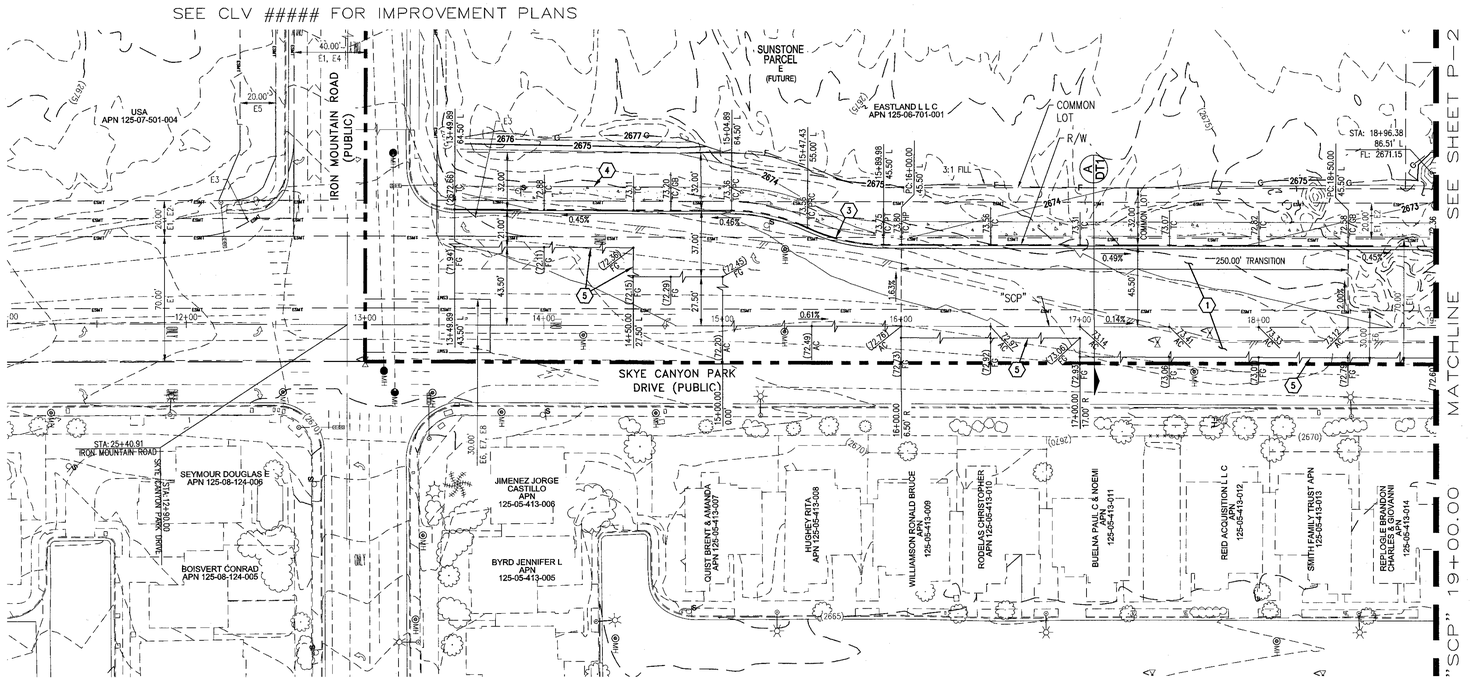
SUNSTONE PHASE 1

ABBREVIATIONS, LEGEND & QUANTITIES

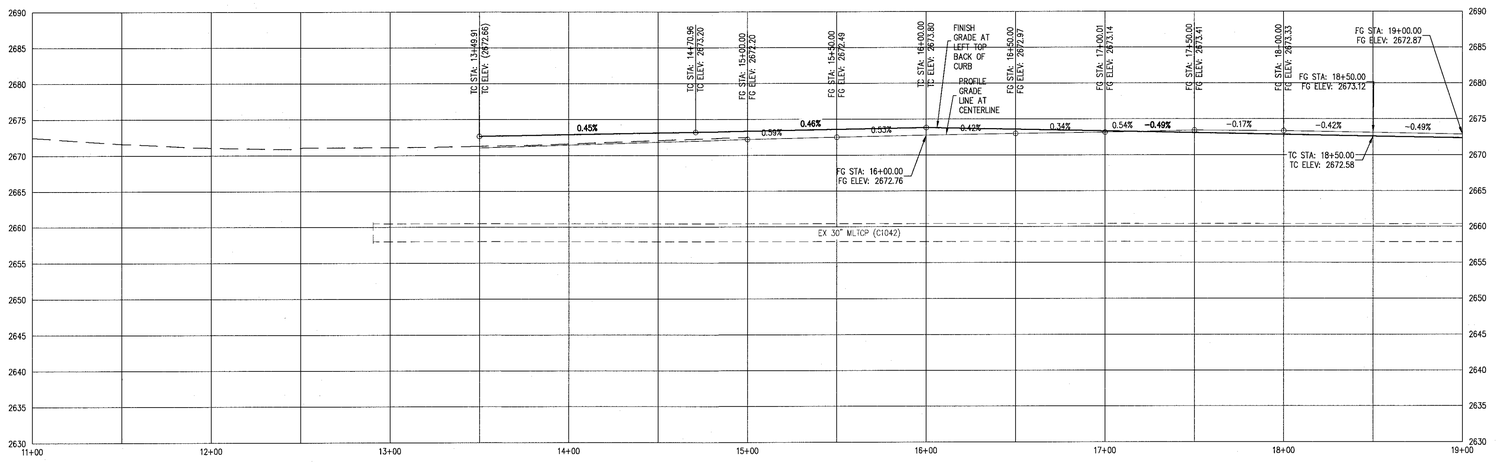
DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1908-000

CS-3
SHEET 3 OF 26

J:\est1908-000 sunstone skye canyon park\Geo\Mmcv\est1908-000 cvr.dwg, 8/7/2019 1:20 PM, Thomas Dyson



SKYE CANYON PARK DRIVE - PLAN VIEW
(PUBLIC)



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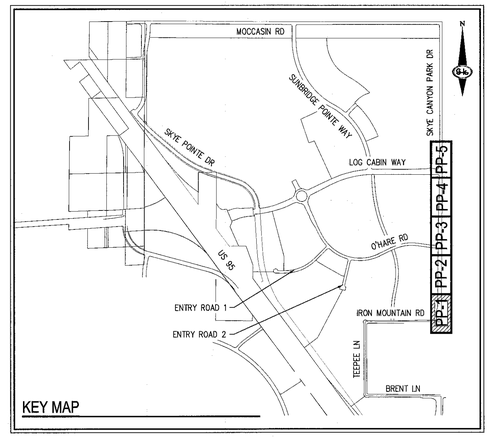
HORIZ: 1" = 40'
VERT: 1" = 10'



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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 EXIST) 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 IN 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 NVR100000, 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 NVR100000, 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.

FLOOD ZONE
THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL --------, DATED NOVEMBER 16, 2011. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

GRADING NOTES
1. INSTALL 9" ASPHALT PAVEMENT OVER 9" TYPE II AGGREGATE BASE
2. CONSTRUCT BUS SHELTER PAD PER CCAUSD NO. 234.2
3. CONSTRUCT L TYPE CURB PER CCAUSD NO. 216
4. CONSTRUCT 8' WIDE SIDEWALK PER CCAUSD NO. 234
5. SAWCUT & MATCH EXISTING PAVEMENT PER CCAUSD NO. 500.1 & 503
6. CONSTRUCT 8' VALLEY GUTTER PER CCAUSD NO. 228
7. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235 CASE I, AND 235.1
8. CONSTRUCT BUS TURN-OUT PER (USDCCA STD. DWG. 234.1)

EASEMENT NOTES
E1 RIGHT-OF-WAY GRANTED BY DECISION, DATED MAY 28, 2003, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-75757 TO CITY OF LAS VEGAS FOR ROADWAY, SANITARY SEWER AND DRAINAGE PURPOSES AND RELATED PURPOSES UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF SAID LAND, AD RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON JUNE 30, 2003 IN BOOK 20030630, AS INSTRUMENT NO. 00811 OF OFFICIAL RECORDS.

E2 RIGHT-OF-WAY GRANTED BY DECISION, DATED JUNE 9, 2004, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER 8-75757A TO CITY OF LAS VEGAS FOR ROADWAY, SANITARY SEER AND DRAINAGE PURPOSES UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF THE LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON JUNE 18, 2004 IN BOOK 20040618, AS INSTUMENT NO. 01781 OF OFFICIAL RECORDS.

E3 RIGHT-OF-WAY GRANTED BY DECISION, DATED MAY 07, 2003, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-76109 TO CITY OF LAS VEGAS FOR RIGHT FOR PERMANENT RIGHT-OF-WAY FOR ROADWAY, SANITARY SEWER AND DRAINAGE PURPOSES AND RELATED PURPOSES ON PUBLIC LANDS UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF THE LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON SEPTEMBER 09, 2003 IN BOOK 20030909, AS INSTRUMENT NO. 02351 OF OFFICIAL RECORDS.

E4 LAS VEGAS VALLEY WATER DISTRICT RIGHT-OF-WAY PER N-76984 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. 013598

E5 CITY OF LAS VEGAS RIGHT-OF-WAY PER N-75757/F

E6 RIGHT-OF-WAY GRANTED BY DECISION, DATED SEPTEMBER 25,2001, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-82751 TO LAS VEGAS VALLEY WATER DISTRICT FOR WATER MAIN 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 OCTOBER 12, 2001 IN BOOK 20010112, AS INSTRUMENT NO. 01161 OF OFFICIAL RECORDS.

E7 RIGHT-OF-WAY GRANTED BY DECISION, DATED DECEMBER 05, 2002, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-82751-01 TO LAS VEGAS VALLEY WATER DISTRICT FOR STORAGE OF PIPELINE MATERIAL, PLACEMENT OF EVACUATION SOILS, CONSTRUCTION EQUIPMENT AND TRAFFIC CONTROL FOR THE CONSTRUCTION OF THE PIPELINE UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER PORTION OF SAID LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON JANUARY 16, 2003 IN BOOK 20030116, AS INSTRUMENT NO. 02001 OF OFFICIAL RECORDS.

E8 RIGHT-OF-WAY GRANTED BY DECISION, DATED DECEMBER 05, 2002, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-82751-A TO LAS VEGAS VALLEY WATER DISTRICT FOR WATER MAIN UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF SAID LANDS, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON JANUARY 16, 2003 IN BOOK 20030116, AS INSTRUMENT NO. 02002 OF OFFICIAL RECORDS.

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

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

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

Call before you Dig AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY. Call 811 OR 1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

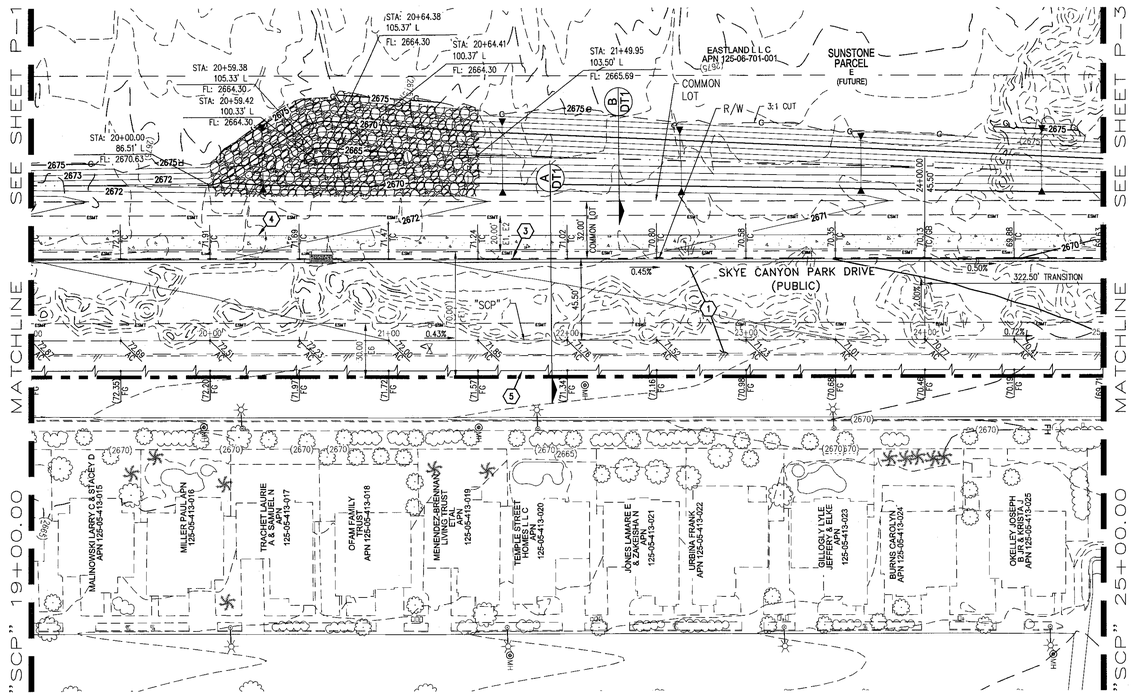
SC EAST LANDCO, LLC

SUNSTONE PHASE 1
SKYE CANYON PARK DRIVE
PLAN & PROFILE I - "SCP" 11+00.00 TO "SCP" 19+00.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO. EST1908-000

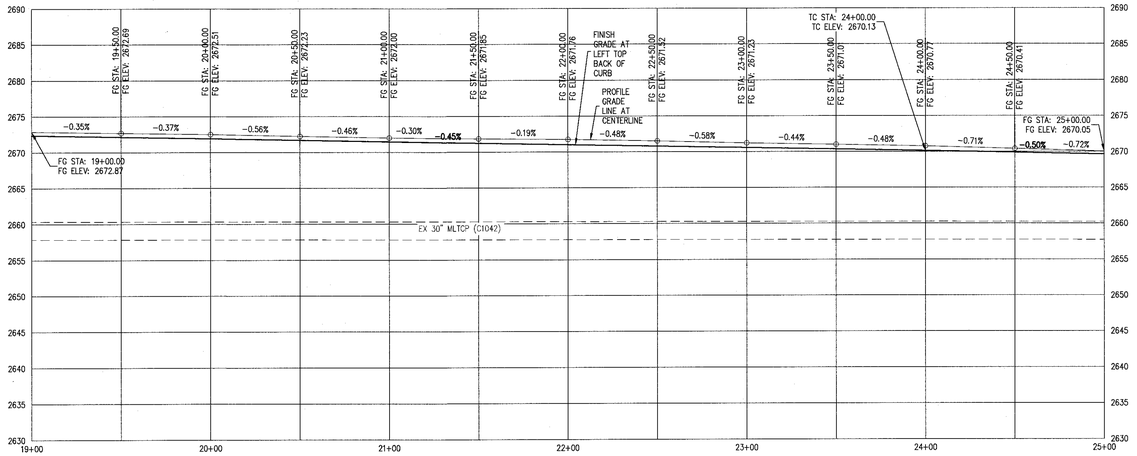
PP-1
SHEET 4 OF 26

I:\est1908-000 sunstone skye canyon park\dwg\improv\est1908-000 pro.dwg 8/7/2019 4:49 PM Scott Booth



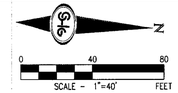
SKYE CANYON PARK DRIVE - PLAN VIEW

(PUBLIC)



SKYE CANYON PARK DRIVE - PROFILE VIEW

HORIZ: 1" = 40'
VERT: 1" = 10'



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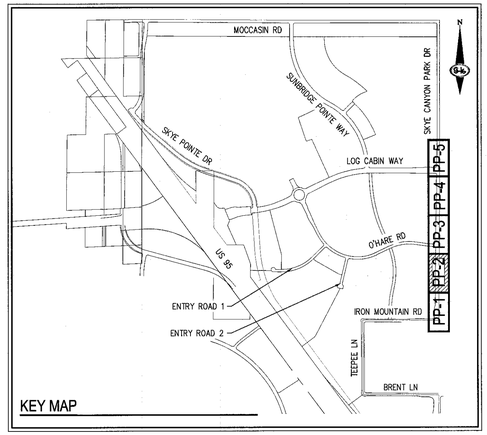
2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN CLARK COUNTY TITLE 24.40 AND IN THE LAS VEGAS VALLEY CONSTRUCTION SITE 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 NVR100000, 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 NVR100000, 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.

FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL ----------, DATED NOVEMBER 16, 2011. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.



GRADING NOTES

1. INSTALL 3" ASPHALT PAVEMENT OVER 9" TYPE II AGGREGATE BASE
2. CONSTRUCT BUS SHELTER PAD PER CCAUSD NO. 234.2
3. CONSTRUCT L TYPE CURB PER CCAUSD NO. 216
4. CONSTRUCT 8' WIDE SIDEWALK PER CCAUSD NO. 234
5. SAWCUT & MATCH EXISTING PAVEMENT PER CCAUSD NO. 500.1 & 503
6. CONSTRUCT 8' VALLEY GUTTER PER CCAUSD NO. 228
7. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235 CASE I, AND 235.1
8. CONSTRUCT BUS TURN-OUT PER (USDCCA STD. DWG. 234.1)

EASEMENT NOTES

E1 RIGHT-OF-WAY GRANTED BY DECISION, DATED MAY 28, 2003, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-75757 TO CITY OF LAS VEGAS FOR ROADWAY, SANITARY SEWER AND DRAINAGE PURPOSES AND RELATED PURPOSES 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 JUNE 30, 2003 IN BOOK 20030630, AS INSTRUMENT NO. 00811 OF OFFICIAL RECORDS.

E2 RIGHT-OF-WAY GRANTED BY DECISION, DATED JUNE 9, 2004, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER B-75757A TO CITY OF LAS VEGAS FOR ROADWAY, SANITARY SEER AND DRAINAGE PURPOSES UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF THE LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON JUNE 18, 2004 IN BOOK 20040618, AS INSTUMENT NO. 01781 OF OFFICIAL RECORDS.

E3 RIGHT-OF-WAY GRANTED BY DECISION, DATED MAY 07, 2003, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-76109 TO CITY OF LAS VEGAS FOR RIGHT FOR PERMANENT RIGHT-OF-WAY FOR ROADWAY, SANITARY SEWER AND DRAINAGE PURPOSES AND RELATED PURPOSES ON PUBLIC LANDS UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF THE LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON SEPTEMBER 09, 2003 IN BOOK 20030909, AS INSTRUMENT NO. 02351 OF OFFICIAL RECORDS.

E4 LAS VEGAS VALLEY WATER DISTRICT RIGHT-OF-WAY PER N-76984 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. 013598

E5 CITY OF LAS VEGAS RIGHT-OF-WAY PER N-75757/F

E6 RIGHT-OF-WAY GRANTED BY DECISION, DATED SEPTEMBER 25,2001, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-62751 TO LAS VEGAS VALLEY WATER DISTRICT FOR WATER MAIN 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 OCTOBER 12, 2001 IN BOOK 20011012, AS INSTRUMENT NO. 01161 OF OFFICIAL RECORDS.

E7 RIGHT-OF-WAY GRANTED BY DECISION, DATED DECEMBER 05, 2002, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-62751-01 TO LAS VEGAS VALLEY WATER DISTRICT FOR STORAGE OF PIPELINE MATERIAL, PLACEMENT OF EVACUATION SOILS, CONSTRUCTION EQUIPMENT AND TRAFFIC CONTROL FOR THE CONSTRUCTION OF THE PIPELINE UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER PORTION OF SAID LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON JANUARY 16, 2003 IN BOOK 20030116, AS INSTRUMENT NO. 02001 OF OFFICIAL RECORDS.

E8 RIGHT-OF-WAY GRANTED BY DECISION, DATED DECEMBER 05, 2002, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-62751-A TO LAS VEGAS VALLEY WATER DISTRICT FOR WATER MAIN UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF SAID LANDS, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON JANUARY 16, 2003 IN BOOK 20030116, AS INSTRUMENT NO. 02002 OF OFFICIAL RECORDS.

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 COPW HTE #??-????? FOR THE SUBJECT PROJECT.

JOSH JOHNSON, P.E. 15789 DATE

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

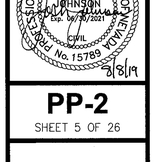
NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
SKYE CANYON PARK DRIVE
PLAN & PROFILE II - "SCP" 19+00.00 TO "SCP" 25+00.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1908-000



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SHEET 5 OF 26

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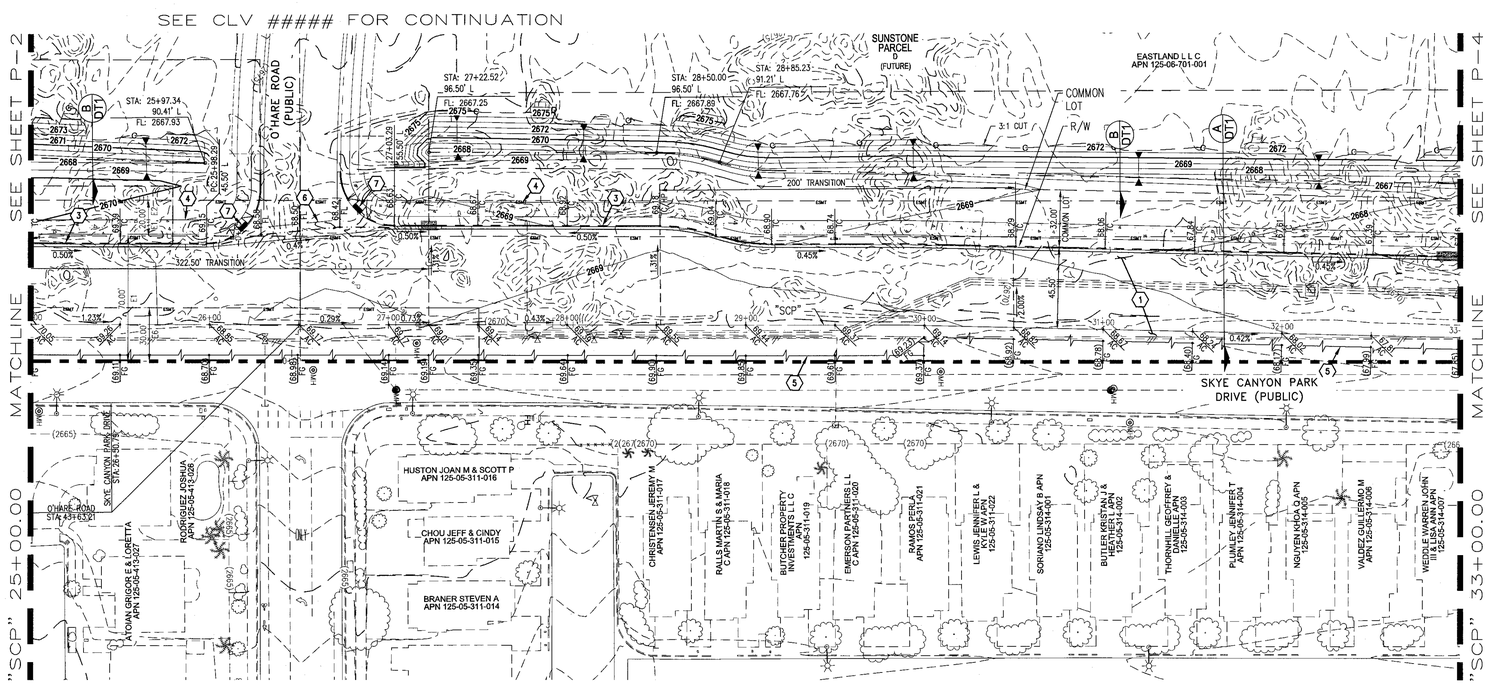
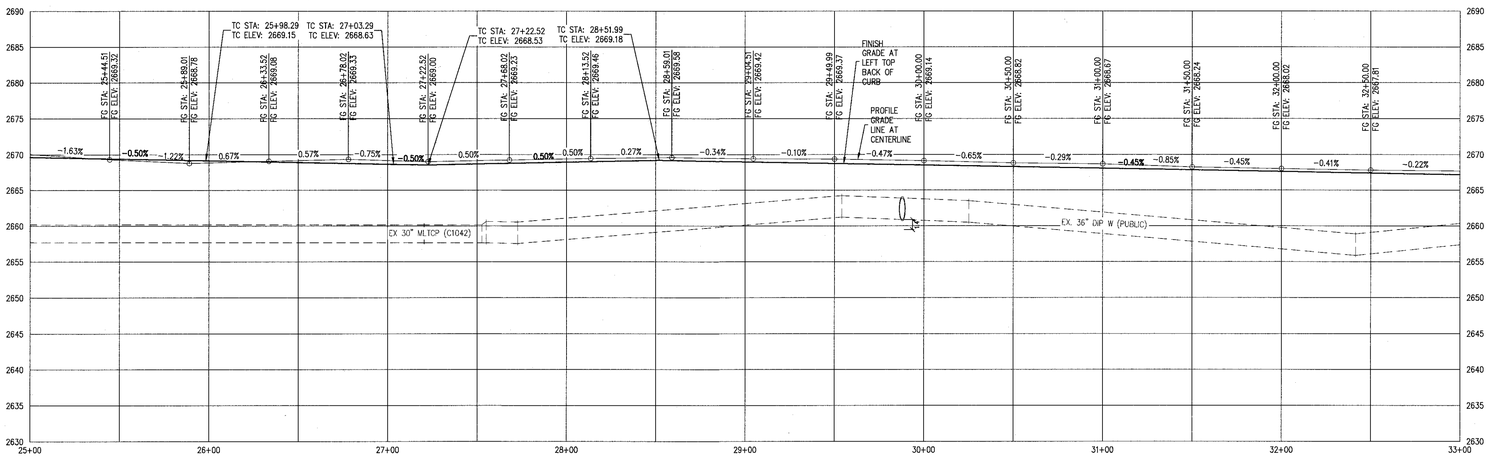


SKYE CANYON PARK DRIVE - PLAN VIEW
(PUBLIC)



SKYE CANYON PARK DRIVE - PROFILE VIEW
HORIZ: 1" = 40'
VERT: 1" = 10'

0 40 80
SCALE - 1"=40' FEET

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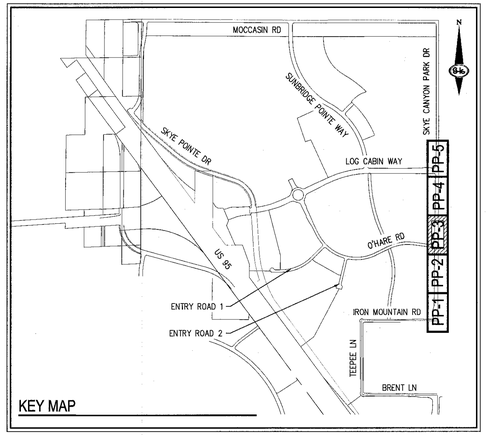

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JOSH JOHNSON, P.E. 15789 DATE

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

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

Call before you Dig AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY. Call 811 OR 1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300
FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
SKYE CANYON PARK DRIVE
PLAN & PROFILE III - "SCP" 25+00.00 TO "SCP" 33+00.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO. EST1908-000

PROFESSIONAL ENGINEER - STATE OF NEVADA - JOSHUA L. JOHNSON - No. 15789 - EXP. 06/30/2021 - CIVIL - 8/8/19

PP-3
SHEET 6 OF 26

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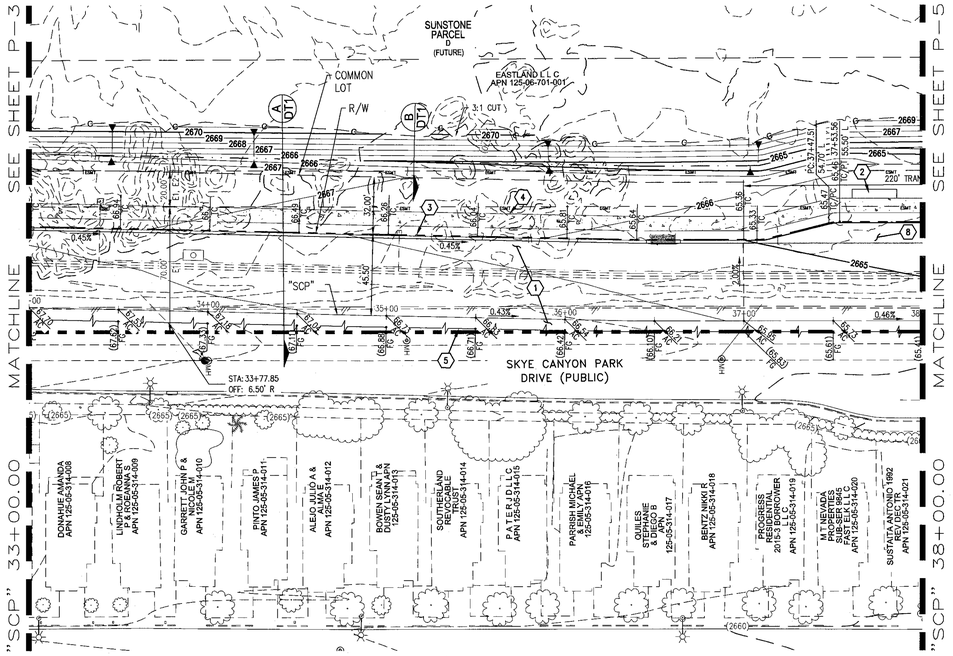
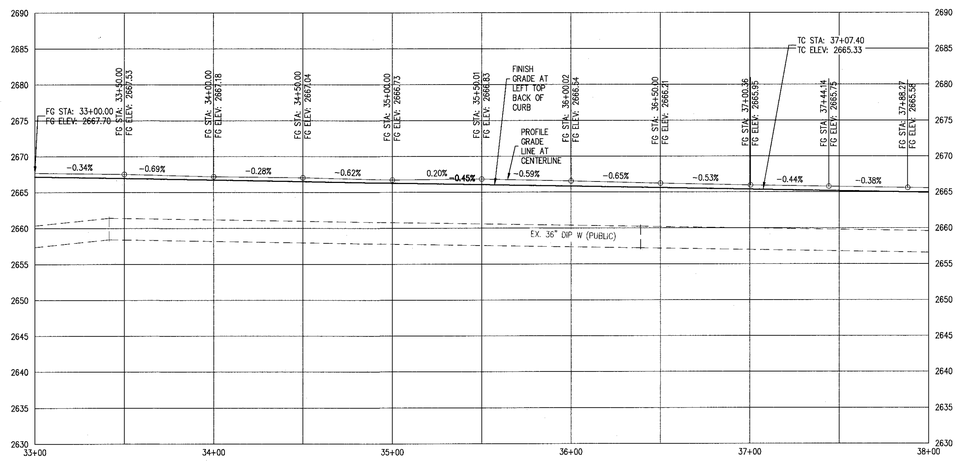


SKYE CANYON PARK DRIVE - PLAN VIEW
(PUBLIC)



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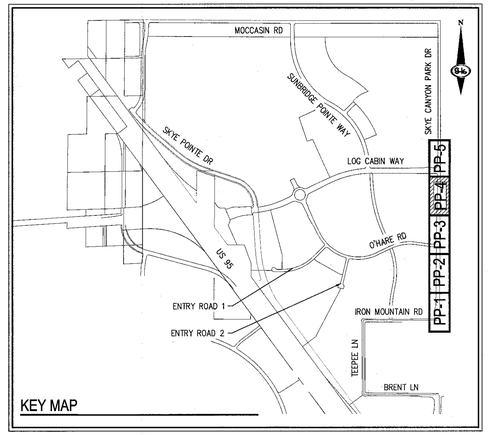
2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN CLARK COUNTY TITLE 24.40 AND IN THE LAS VEGAS VALLEY CONSTRUCTION SITE 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 NVR100000, 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 NVR100000, 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.

FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL ---------, DATED NOVEMBER 16, 2011. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.



KEY MAP

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2. CONSTRUCT BUS SHELTER PAD PER CCAUSD NO. 234.2
3. CONSTRUCT L TYPE CURB PER CCAUSD NO. 216
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FLOOD CERTIFICATION

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JOSH JOHNSON, P.E. 15789 — DATE

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

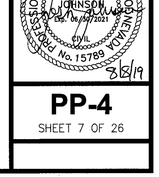
NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
SKYE CANYON PARK DRIVE
PLAN & PROFILE IV - "SCP" 33+00.00 TO "SCP" 38+00.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1908-000



PP-4
SHEET 7 OF 26

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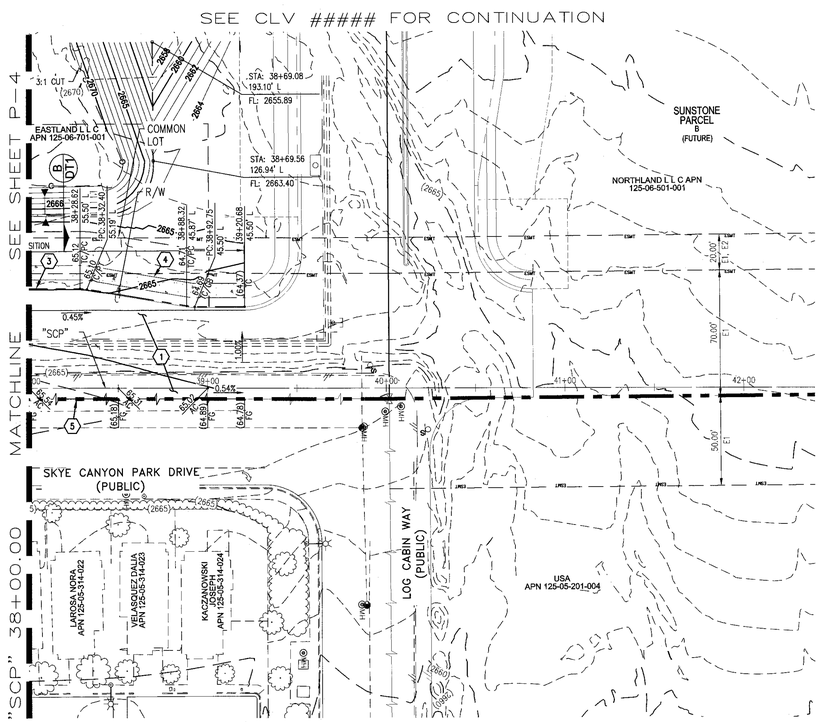
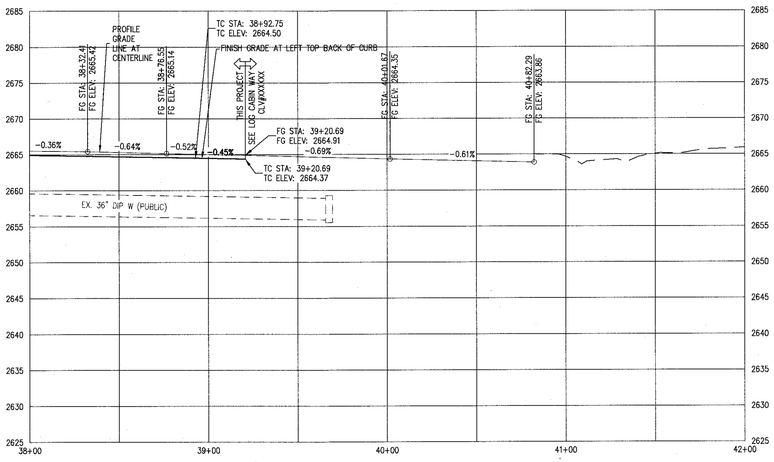


SKYE CANYON PARK DRIVE - PLAN VIEW

(PUBLIC)



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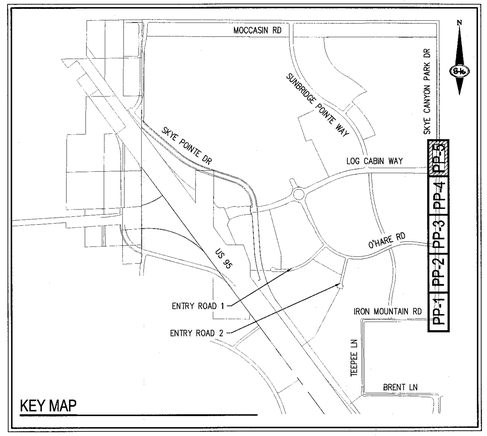

KEY MAP

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

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

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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.
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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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7. 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/REPLIPING 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 EXIST) WITHIN THE SIGHT VISIBILITY ZONES.

LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

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JOSH JOHNSON, P.E. 15789 — DATE

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

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

Call before you Dig AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY. Call 811 OR 1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
SKYE CANYON PARK DRIVE
PLAN & PROFILE V - "SCP" 38+00.00 TO "SCP" 42+00.00

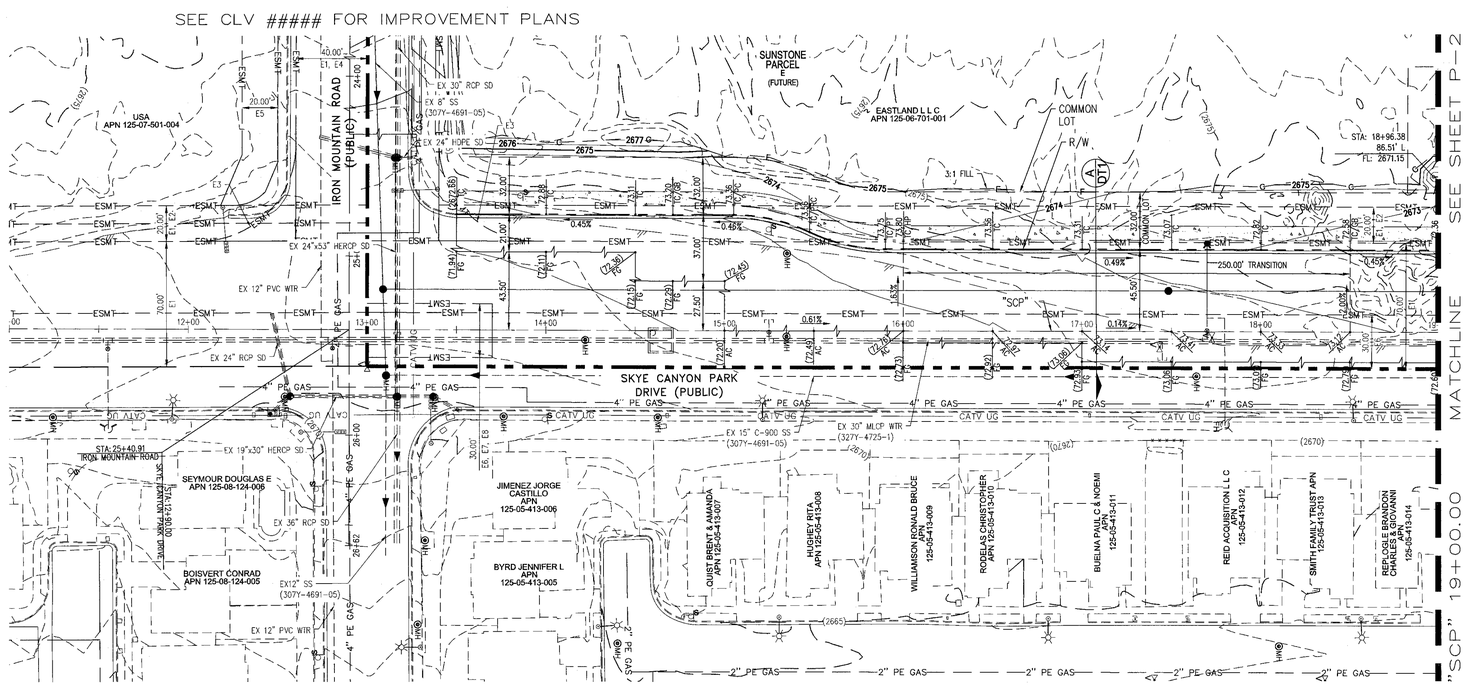
DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1908-000

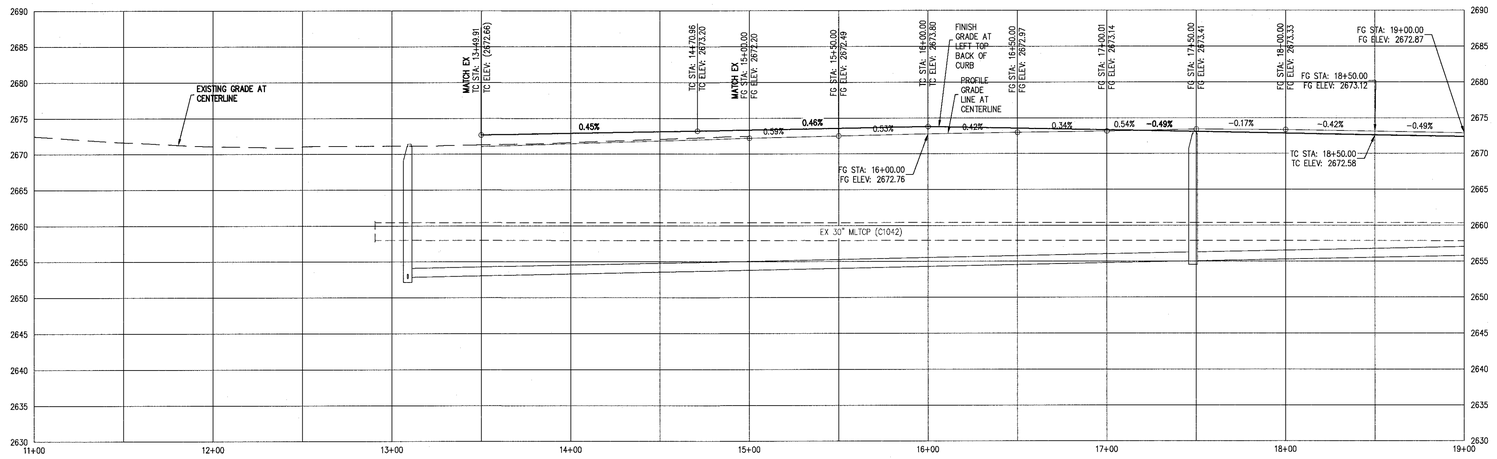
NATIONAL ENGINEER - STATE OF NEVADA - JOSHUA L. JOHNSON - No. 15789 - CIVIL - 6/30/2021
5/8/19

PP-5
SHEET 8 OF 26

J:\est1908-000 sunstone skye canyon park\dwg\engrav\est1908-000 pno.dwn 8/7/2019 5:04 PM Scott Booth



SKYE CANYON PARK DRIVE - PLAN VIEW
(PUBLIC)



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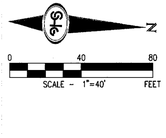

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E8 RIGHT-OF-WAY GRANTED BY DECISION, DATED DECEMBER 05, 2002, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-62751-A TO LAS VEGAS VALLEY WATER DISTRICT FOR WATER MAIN UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF SAID LANDS, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON JANUARY 16, 2003 IN BOOK 20030116, AS INSTRUMENT NO. 02002 OF OFFICIAL RECORDS.

NOTES
1. ALL RCP SHALL BE CLASS III UNLESS OTHERWISE SHOWN.
2. ALL PIPE LENGTHS ARE MEASURED ALONG PIPE CENTERLINE TO CENTER OF MANHOLE OR INSIDE EDGE OF DI OR RCB/RCA.
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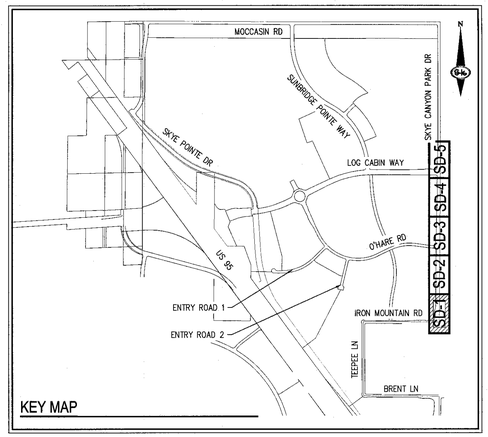
4. SEE STRUCTURAL PLANS FOR ADDITIONAL STRUCTURAL DETAILS AND CONNECTIONS.
5. ALL PIPES IN PUBLIC ROW ARE PUBLICLY MAINTAINED.
6. ADD SPECIAL INSPECTION REQUIRED FOR PIPE SEGMENTS WITH SACRIFICIAL CONCRETE.
7. SEE UTILITY PLAN AND PROFILE SHEETS FOR UTILITY ADJUSTMENTS AND RELOCATIONS.
8. ALL INTERIM DRAINAGE FACILITIES TO BE PRIVATELY MAINTAINED.
9. PROPERTY OWNER IS RESPONSIBLE TO MAINTAIN THE BEST MANAGEMENT PRACTICES, SUCH AS BUT NOT LIMITED TO, THE REMOVAL OF ACCUMULATED SEDIMENT AND DEBRIS AND CARE OF VEGETATION.
10. 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).

FLOOD ZONE
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



STORM DRAIN NOTES
1. CONSTRUCT TYPE "CM2" DROP INLET (USDCCA STD. DWG. NO. 412.1 & 421)
2. CONSTRUCT 60" TYPE III MANHOLE (USDCCA STD. DWG. NO. 406.1)
3. CONSTRUCT NDOT TYPE 4 MANHOLE (NDOT STD. PLAN R-4.3.2)
4. INSTALL 18" RCP (USDCCA STD. DWG. NO. 503.2)
5. INSTALL 24" RCP (USDCCA STD. DWG. NO. 503.2)
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11. INSTALL 36" RCP (USDCCA STD. DWG. NO. 503.2)
12. REMOVE EX MANHOLE AND 10 FT OF EX 36" RCP
13. CAP EX 36" RCP AND ABANDON LINE

LEGEND
1 — STORM DRAIN LATERAL # (SEE SHEETS SD-6)

DISCLAIMER NOTE
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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.

APPROVED FOR CONSTRUCTION
LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO._____ FIRST APPROVED DATE:_____
LVVWD APPROVED FIRE FLOW: TOTAL ___1,500___ GPM / ONSITE ___20___GPM

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

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

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

Call before you Dig AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY. Call 811 OR 1-800-227-2600

S-I-G SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

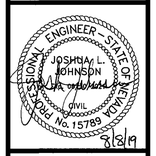
NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

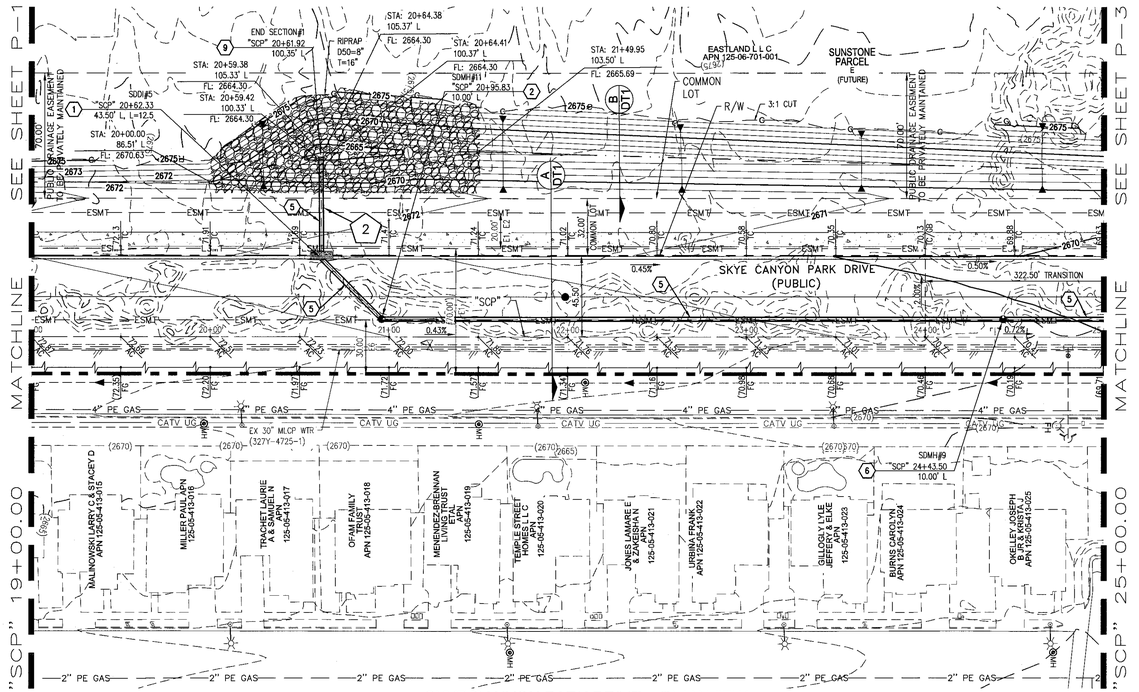
SUNSTONE PHASE 1
SKYE CANYON PARK DRIVE
STORM DRAIN I - "SCP" 11+00.00 TO "SCP" 19+00.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO. EST1908-000

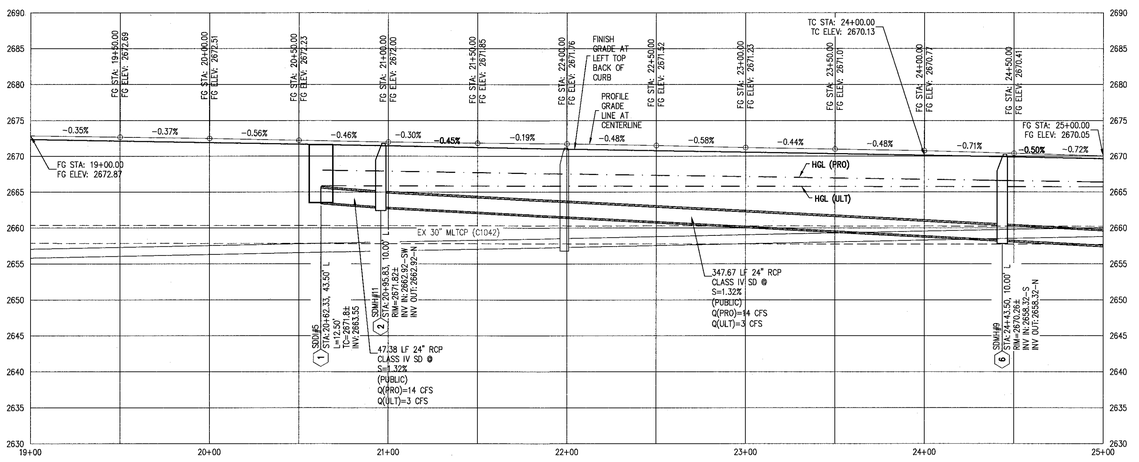


SD-1
SHEET 9 OF 26

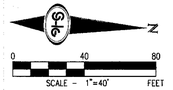
J:\est1908-000 sunstone skye canyon park\dwg\mercer\est1908-000 dm.dwg 8/7/2019 4:51 PM Scott Booth

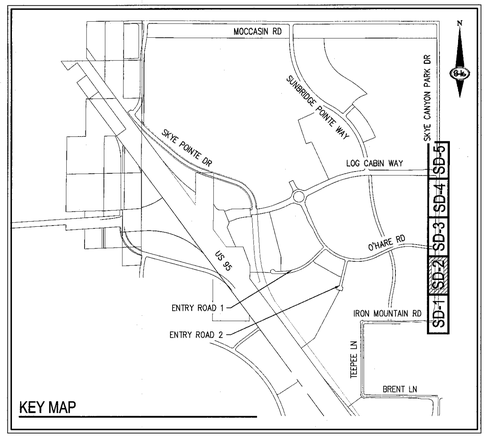


SKYE CANYON PARK DRIVE - PLAN VIEW
(PUBLIC)



SKYE CANYON PARK DRIVE - PROFILE VIEW
HORIZ: 1" = 40'
VERT: 1" = 10'





KEY MAP

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 OBSCURED DURING CONSTRUCTION.

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)

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E1 RIGHT-OF-WAY GRANTED BY DECISION, DATED MAY 28, 2003, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-75757 TO CITY OF LAS VEGAS FOR ROADWAY, SANITARY SEWER AND DRAINAGE PURPOSES AND RELATED PURPOSES 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 JUNE 30, 2003 IN BOOK 20030630, AS INSTRUMENT NO. 00811 OF OFFICIAL RECORDS.

E2 RIGHT-OF-WAY GRANTED BY DECISION, DATED JUNE 9, 2004, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER B-75757A TO CITY OF LAS VEGAS FOR ROADWAY, SANITARY SEER AND DRAINAGE PURPOSES UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF THE LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON JUNE 18, 2004 IN BOOK 20040618, AS INSTUMENT NO. 01781 OF OFFICIAL RECORDS.

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E4 LAS VEGAS VALLEY WATER DISTRICT RIGHT-OF-WAY PER N-76984 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. 013598

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LEGEND
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APPROVED FOR CONSTRUCTION
LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE:
LVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

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 CCFW HITE #??-????? FOR THE SUBJECT PROJECT.

JOSH JOHNSON, P.E. 15789 DATE

FAST
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FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T.)

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

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Call 811
OR
1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
SKYE CANYON PARK DRIVE
STORM DRAIN II - "SCP" 19+00.00 TO "SCP" 25+00.00

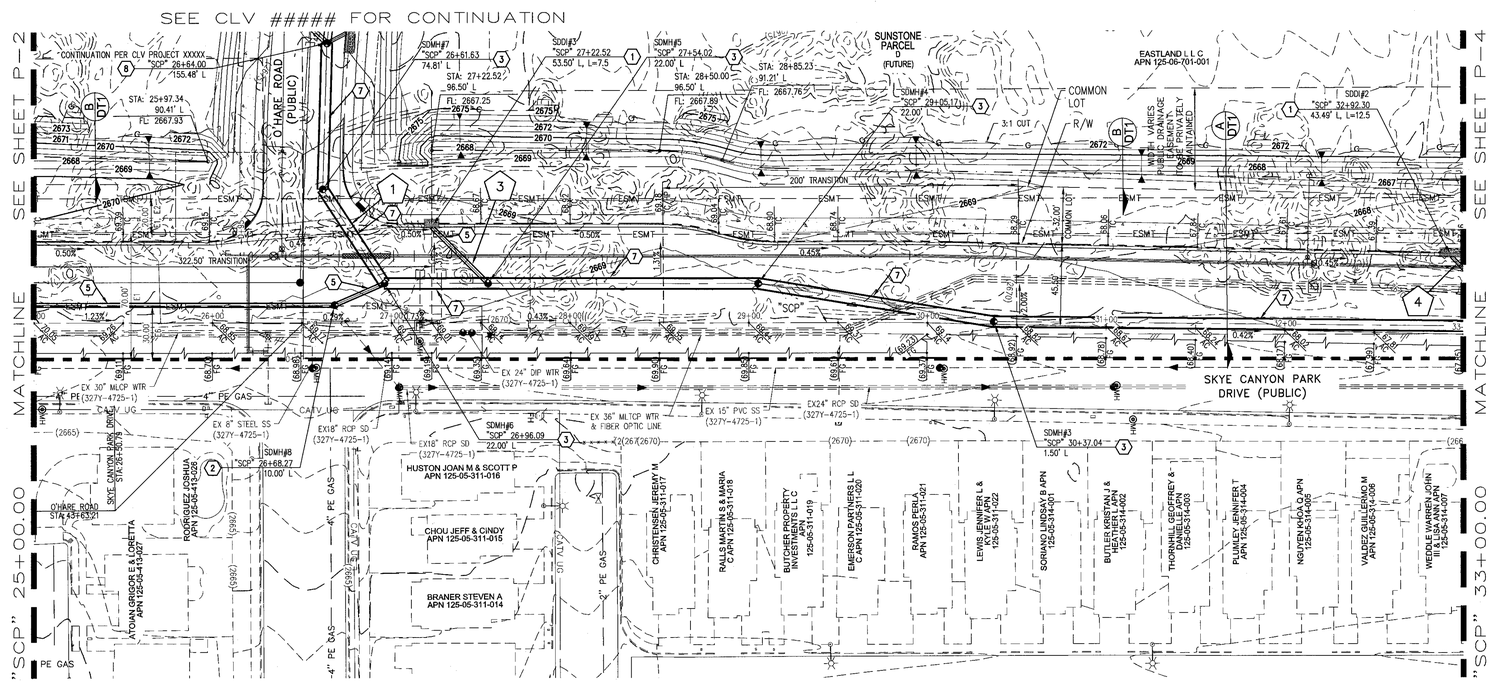
DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1908-000

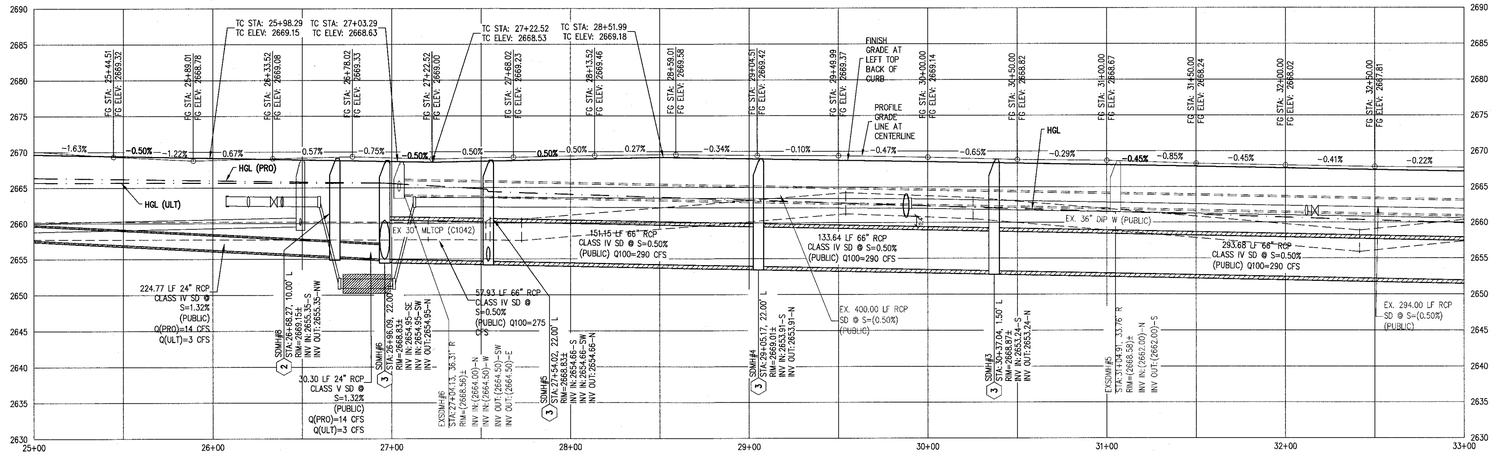
PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSHUA L. JOHNSON
EXP. DATE: 12/31/2021
CIVIL
No. 15789
8/8/19

SD-2
SHEET 10 OF 26

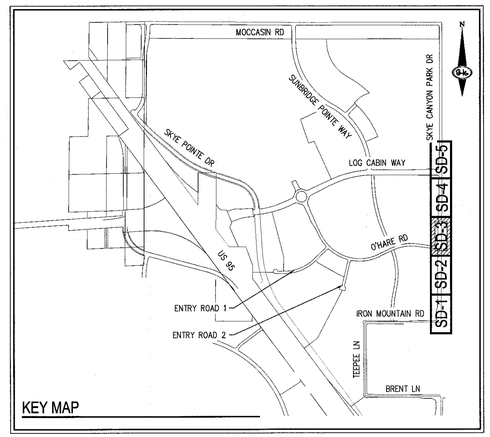
k:\est1908-000 sunstone skye canyon park\dwg\engrsht\est1908-000 drn.dwg 8/7/2019 4:52 PM Scott Booth



SKYE CANYON PARK DRIVE - PLAN VIEW
(PUBLIC)



SKYE CANYON PARK DRIVE - PROFILE VIEW
HORIZ: 1" = 40'
VERT: 1" = 10'



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LEGEND
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APPROVED FOR CONSTRUCTION
LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ##### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW: TOTAL ___1,500___ GPM / ONSITE ___20___ GPM

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

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SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
SKYE CANYON PARK DRIVE
STORM DRAIN III - "SCP" 25+00.00 TO "SCP" 33+00.00

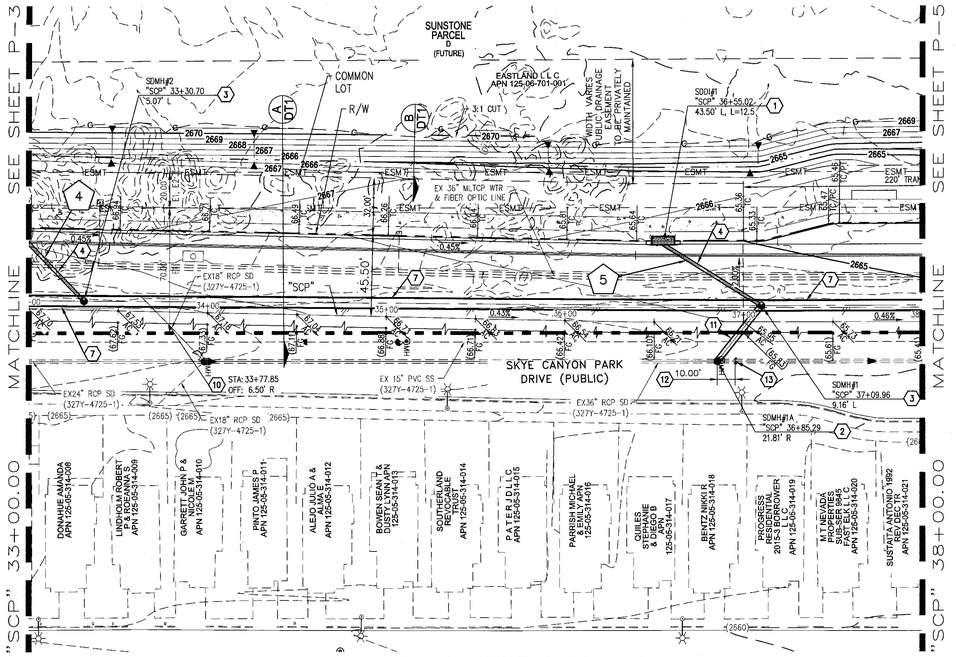
DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1908-000

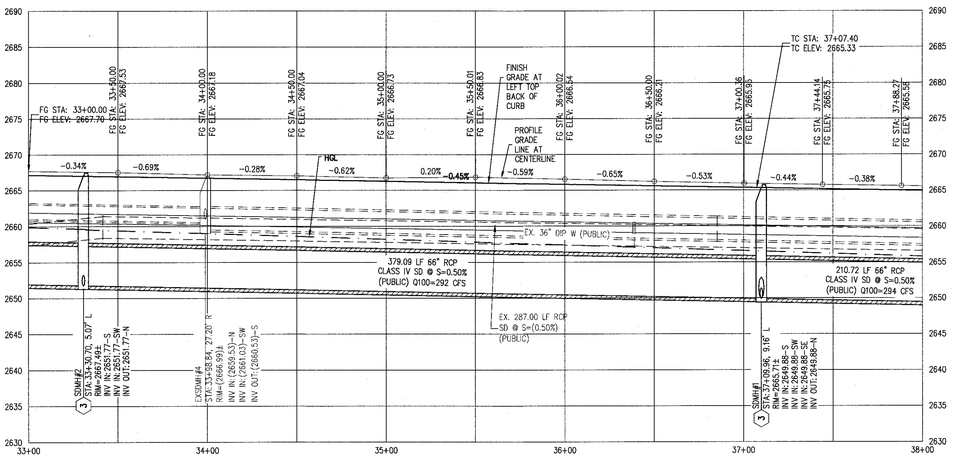
PROFESSIONAL ENGINEER — STATE OF NEVADA — JOSHUA L. JOHNSON — No. 15789 — Exp. 06/30/2021 — CIVIL — 8/8/19

SD-3
SHEET 11 OF 26

J:\est1908-000 sunstone skye canyon park\dwg\improv\est1908-000 drn dwg, 8/7/2019 4:53 PM Scott Booth



SKYE CANYON PARK DRIVE - PLAN VIEW
(PUBLIC)



SKYE CANYON PARK DRIVE - PROFILE VIEW
HORIZ: 1" = 40'
VERT: 1" = 10'

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

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E2 RIGHT-OF-WAY GRANTED BY DECISION, DATED JUNE 9, 2004, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER B-75757A TO CITY OF LAS VEGAS FOR ROADWAY, SANITARY SEER AND DRAINAGE PURPOSES UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF THE LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON JUNE 18, 2004 IN BOOK 20040618, AS INSTUMENT NO. 01781 OF OFFICIAL RECORDS.

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E4 LAS VEGAS VALLEY WATER DISTRICT RIGHT-OF-WAY PER N-76984 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. 013598

E5 CITY OF LAS VEGAS RIGHT-OF-WAY PER N-75757/F

E6 RIGHT-OF-WAY GRANTED BY DECISION, DATED SEPTEMBER 25,2001, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-62751 TO LAS VEGAS VALLEY WATER DISTRICT FOR WATER MAIN 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 OCTOBER 12, 2001 IN BOOK 20010112, AS INSTRUMENT NO. 01161 OF OFFICIAL RECORDS.

E7 RIGHT-OF-WAY GRANTED BY DECISION, DATED DECEMBER 05, 2002, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-62751-01 TO LAS VEGAS VALLEY WATER DISTRICT FOR STORAGE OF PIPELINE MATERIAL, PLACEMENT OF EXCAVATION SOILS, CONSTRUCTION EQUIPMENT AND TRAFFIC CONTROL FOR THE CONSTRUCTION OF THE PIPELINE UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER PORTION OF SAID LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON JANUARY 16, 2003 IN BOOK 20030116, AS INSTRUMENT NO. 02001 OF OFFICIAL RECORDS.

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NOTES
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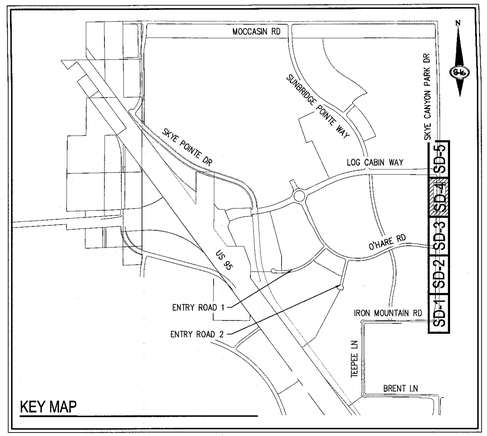

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LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ##### FIRST APPROVED DATE:
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NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
SKYE CANYON PARK DRIVE
STORM DRAIN IV - "SCP" 33+00.00 TO "SCP" 38+00.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1908-000

PROFESSIONAL ENGINEER - STATE OF NEVADA - JOSHUA L. JOHNSON - No. 15789 - CIVIL - 8/8/19

SD-4
SHEET 12 OF 26

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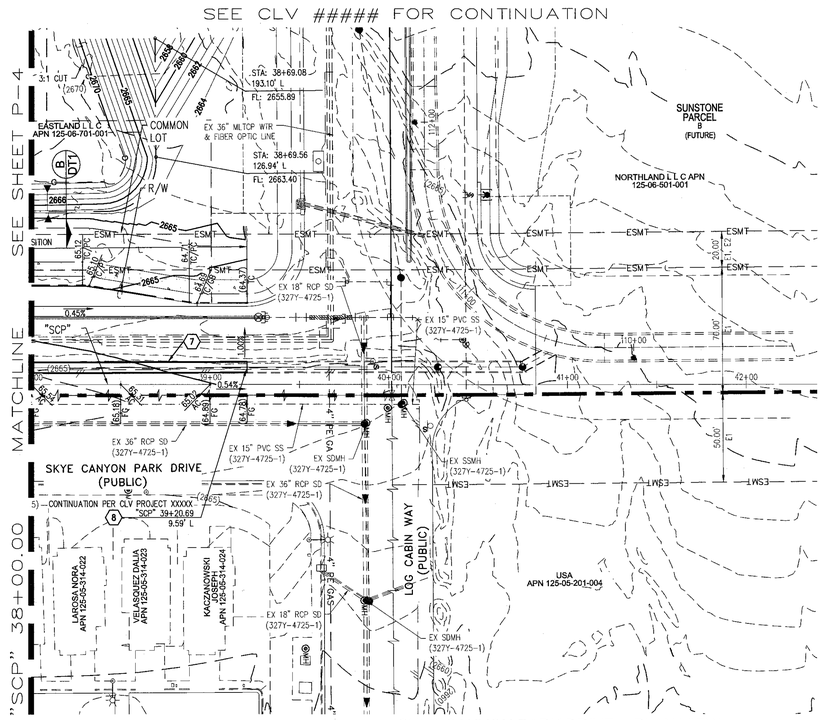
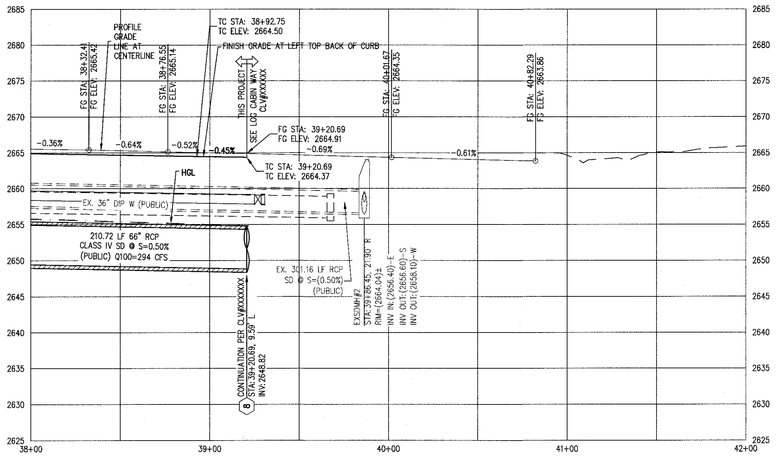
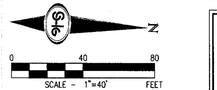


SKYE CANYON PARK DRIVE - PLAN VIEW
(PUBLIC)



SKYE CANYON PARK DRIVE - PROFILE VIEW



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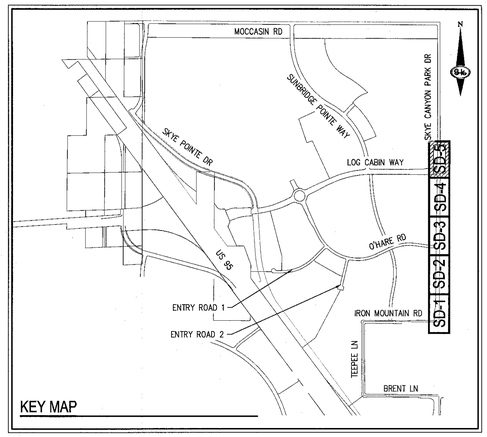

KEY MAP

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APPROVED FOR CONSTRUCTION

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

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
SKYE CANYON PARK DRIVE
STORM DRAIN V - "SCP" 38+00.00 TO "SCP" 42+00.00

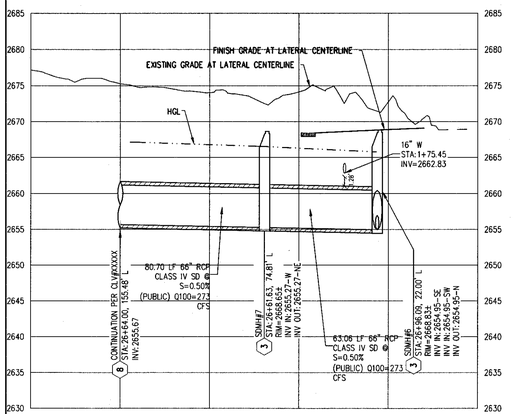
DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

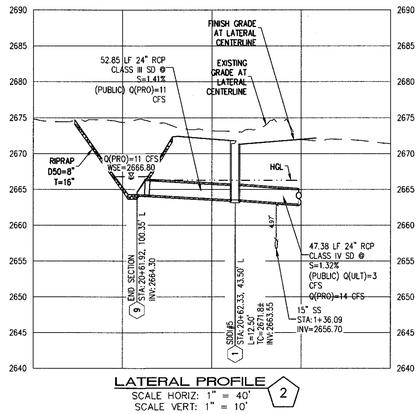
PROJECT NO.
EST1908-000

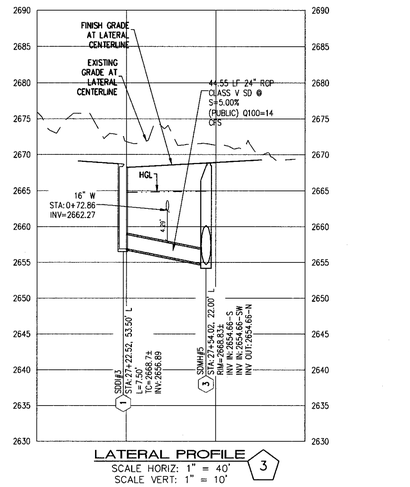
JOSHUA L. JOHNSON — NEVADA — PROFESSIONAL ENGINEER — STATE OF — No. 15789 — Exp. 06/30/2021 — CIVIL — 8/19/19

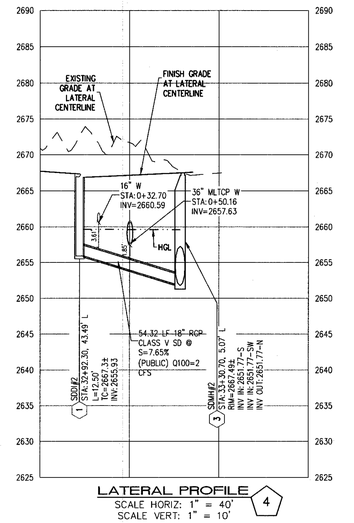
SD-5
SHEET 13 OF 26

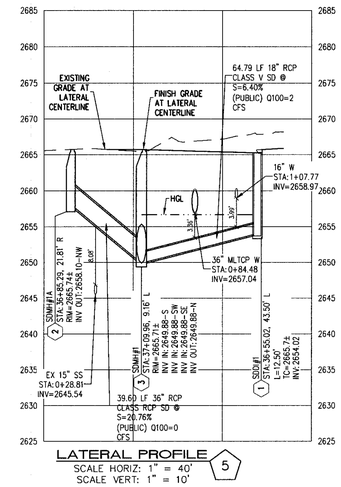
I:\est1908-000 sunstone skye canyon park\dwg\engrov\est1908-000 drn dwg 8/7/2019 4:54 PM Scott Booth











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SUNSTONE PHASE 1

STORM DRAIN LATERAL I

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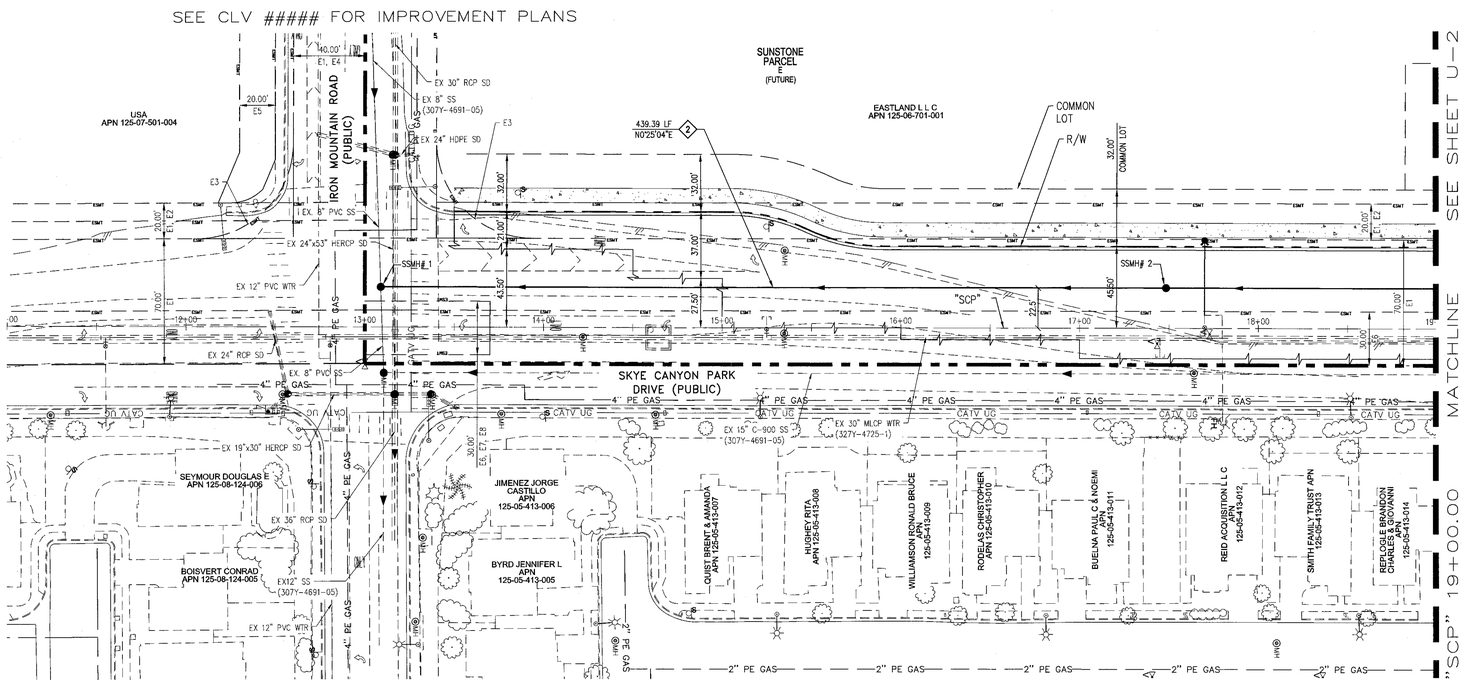
CHECKED: JJ

PROJECT NO.
EST1908-000

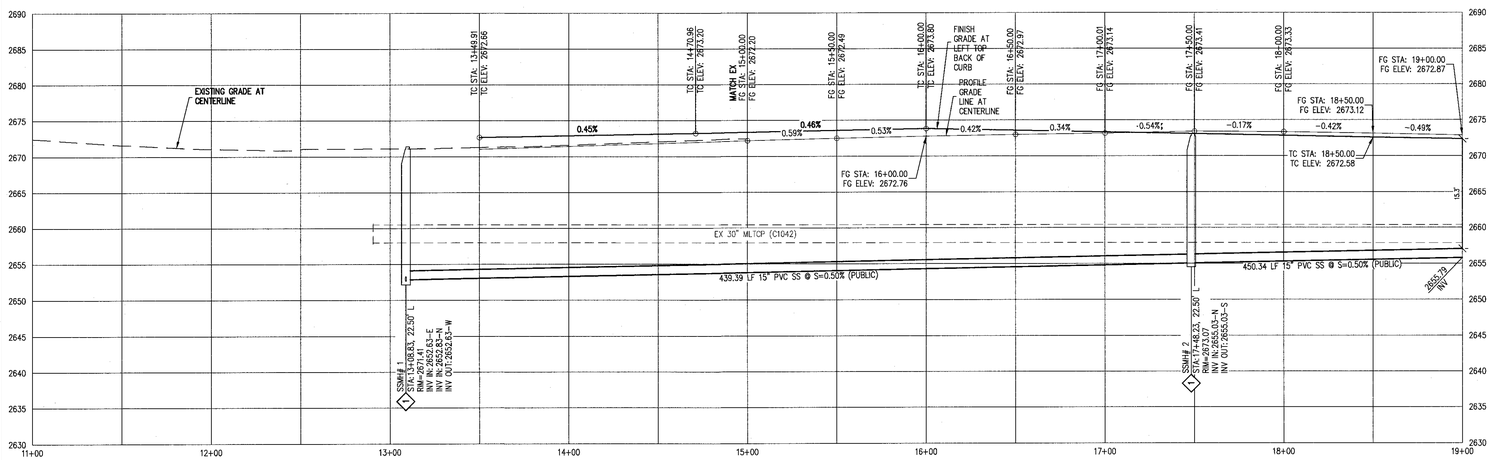
PROFESSIONAL ENGINEER – STATE OF NEVADA
JOSHUA L. JOHNSON
Exp. 09/30/2019
CIVIL
No. 15789
8/8/19

SD-6
SHEET 14 OF 26

J:\est1908-000 sunstone sup comm ppl\dwl\engpo\est1908-000 sn dwl 8/7/2019 1:27 PM Thomas Dyson



SKYE CANYON PARK DRIVE - PLAN VIEW
(PUBLIC)



SKYE CANYON PARK DRIVE - PROFILE VIEW
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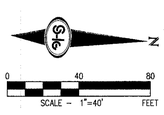

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TREES, SHRUBS OR DECORATIVE ROCKS, AND ANY BLOCK WALL OR OTHER FENCE MATERIAL, SHALL BE DESIGNED AND CONSTRUCTED AROUND THE EASEMENT(S) TO ALLOW DISTRICT DIRECT ACCESS TO THE VAULT(S) BACKFLOW ASSEMBLIES, AND PIPING FROM THE ADJACENT RIGHT-OF-WAY.

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EASEMENT NOTES

E1 RIGHT-OF-WAY GRANTED BY DECISION, DATED MAY 28, 2003, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-75757 TO CITY OF LAS VEGAS FOR ROADWAY, SANITARY SEWER AND DRAINAGE PURPOSES AND RELATED PURPOSES UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF SAID LAND, AD RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON JUNE 30, 2003 IN BOOK 20030630, AS INSTRUMENT NO. 00811 OF OFFICIAL RECORDS.

E2 RIGHT-OF-WAY GRANTED BY DECISION, DATED JUNE 9, 2004, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER B-75757A TO CITY OF LAS VEGAS FOR ROADWAY, SANITARY SEER AND DRAINAGE PURPOSES UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF THE LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON JUNE 18, 2004 IN BOOK 20040618, AS INSTUMENT NO. 01781 OF OFFICIAL RECORDS.

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E4 LAS VEGAS VALLEY WATER DISTRICT RIGHT-OF-WAY PER N-76984 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. 013598

E5 CITY OF LAS VEGAS RIGHT-OF-WAY PER N-75757/F

E6 RIGHT-OF-WAY GRANTED BY DECISION, DATED SEPTEMBER 25,2001, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-62751 TO LAS VEGAS VALLEY WATER DISTRICT FOR WATER MAIN 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 OCTOBER 12, 2001 IN BOOK 20010112, AS INSTRUMENT NO. 01161 OF OFFICIAL RECORDS.

E7 RIGHT-OF-WAY GRANTED BY DECISION, DATED DECEMBER 05, 2002, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-62751-01 TO LAS VEGAS VALLEY WATER DISTRICT FOR STORAGE OF PIPELINE MATERIAL, PLACEMENT OF EVACUATION SOILS, CONSTRUCTION EQUIPMENT AND TRAFFIC CONTROL FOR THE CONSTRUCTION OF THE PIPELINE UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER PORTION OF SAID LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON JANUARY 16, 2003 IN BOOK 20030116, AS INSTRUMENT NO. 02001 OF OFFICIAL RECORDS.

E8 RIGHT-OF-WAY GRANTED BY DECISION, DATED DECEMBER 05, 2002, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-62751-A TO LAS VEGAS VALLEY WATER DISTRICT FOR WATER MAIN UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF SAID LANDS, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON JANUARY 16, 2003 IN BOOK 20030116, AS INSTRUMENT NO. 02002 OF OFFICIAL RECORDS.

UTILITY NOTES

1. WATER MAIN JOINT DEFLECTION (PVC, 4" - 24")
   PVC PIPE SHALL BE DEFLECTED AT THE JOINT ONLY. THE MAXIMUM ALLOWABLE DEFLECTION SHALL BE ONE (1) DEGREE PER JOINT WITH A MINIMUM RADIUS OF CURVATURE OF 1,150 FEET, PER UDACS 2.07.01 AND 2.07.02.
   FOR CHANGES IN DIRECTION EXCEEDING THE MAXIMUM ALLOWABLE JOINT DEFLECTION, FITTINGS SHALL BE USED.
2. REDUCED PRESSURE PRINCIPLE ASSEMBLY (1) 1"
   APPROVED REDUCED PRESSURE PRINCIPLE ASSEMBLY(S) SHALL BE INSTALLED PER THE UDACS PLATE NO. 8. NO WATER SHALL BE TAKEN FROM A SERVICE REQUIRING BACKFLOW PREVENTION UNTIL THE REDUCED PRESSURE PRINCIPLE ASSEMBLY HAS BEEN SUCCESSFULLY TESTED BY THE LVVWD. ANY BLOCK WALL OR OTHER FENCE MATERIAL SHALL BE DESIGNED AND CONSTRUCTED AROUND THE OUTSIDE OF THE EASEMENT(S) TO ALLOW THE DISTRICT DIRECT ACCESS FROM THE ADJACENT RIGHT-OF-WAY. EASEMENTS SHALL BE CLEARLY MARKED OR STAKED PRIOR TO THE START OF CONSTRUCTION.
3. ALL SEWER/ STORM DRAINS CROSSING WATER LINES MUST CONFORM TO SECTION 2.22 OF THE UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR POTABLE WATER SYSTEMS (UDACS) FOR WATER AND STORM MAIN CROSSINGS AND CLEARANCES.
4. FITTINGS SHALL NOT FALL UNDER CURBS, GUTTERS OR SIDEWALK.
5. INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING PER UDACS PLATE NO. 15.
6. THE LVVWD CANNOT GUARANTEE A WATERTIGHT SHUTDOWN WHERE CONNECTIONS OR REPAIRS TO EXISTING FACILITIES ARE REQUIRED. THE CONTRACTOR SHALL ENSURE ALL LABOR AND EQUIPMENT IS AVAILABLE TO REMOVE FUGITIVE WATER THAT MAY IMPEDE CONSTRUCTION AT ALL TIMES. COORDINATION WITH INSPECTION DIVISION MUST TAKE PLACE PRIOR TO ANY TRIAL SHUTDOWN.
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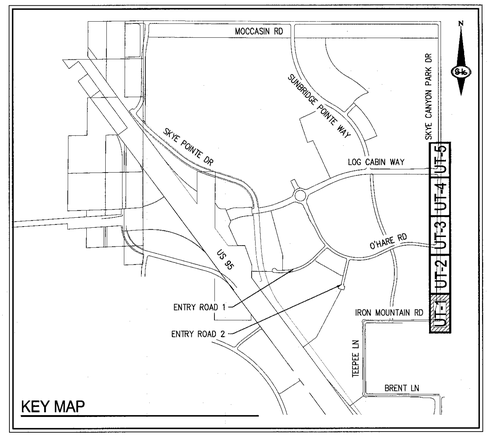

KEY MAP

WATER NOTES

1. INSTALL 1" HORIZONTAL DEFLECTION
2. INSTALL 10" CAP WITH BLOWOFF PER DCSWCS SECTION 2.2.5
3. INSTALL 16" 90° BEND PER UDACS PLATE NO. 31
4. INSTALL 16" CAP WITH BLOWOFF PER DCSWCS SECTION 2.2.5
5. INSTALL 16" x 10" TEE PER UDACS PLATE NO. 31
6. INSTALL 16" x 16" TEE PER UDACS PLATE NO. 31
7. INSTALL 10" PVC WATER PIPE
8. INSTALL 16" PVC WATER PIPE
9. 1° MAXIMUM DEFLECTION, PER UDACS SEC. 2.07
10. RELOCATE EX TEST STATIONS
11. NOT USED
12. INSTALL 8" DIP WATER PIPE
13. INSTALL 16" GATE VALVE WITH VALVE BOX PER UDACS PLATE NO. 30 & 39 (MECHANICALLY RESTRAINED)
14. INSTALL 10" GATE VALVE WITH VALVE BOX PER UDACS PLATE NO. 30 & 39
15. INSTALL 16" x 8" TEE PER UDACS PLATE NO. 31
16. INSTALL 8" DIP WATER PIPE
17. INSTALL 30" STEEL SLEEVE PER UDACS PLATE NO. 22 & 23
18. INSTALL 16" VERTICAL 45° BEND PER UDACS PLATE NO. 31 (MECHANICALLY RESTRAINED)
19. INSTALL 16" DIP WATER PIPE

SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

SEWER NOTES

1. INSTALL 48" SSMH PER DCSWCS SD-1A THRU SD-4 AND SD-9
2. INSTALL 15" PVC SS PER DCSWCS SD-15 AND SD-17
3. SANITARY SEWER STUB AND CAP w/THRUST BLOCKS 1 CUBIC FOOT, PER DCSWCS SECTION 2.2.5.
4. INSTALL 12" PVC SS PER DCSWCS SD-15 AND SD-17

SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

LEGEND

(#) WATER & SEWER LATERAL #
(SEE SHEETS UT-6)

DROP INLET NOTE

WHERE 10 FEET PARALLEL SEPARATION IS NOT PRACTICABLE:

CAST-IN-PLACE MONOLITHIC POUR WITH WATERSTOP BETWEEN SLAB AND WALLS. BASE, WALLS AND TOP TO BE CONSTRUCTED WITH WATERSTOPS, CENTER BULB, OR FLAT STRIP (VINYLEX, GREENSTREAK PLASTIC PRODUCTS OR APPROVED EQUAL).

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ##### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

APPROVAL

LAS VEGAS FIRE AND RESCUE DATE

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

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811
OR
1-800-227-2600

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a Westwood team
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PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

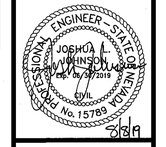
CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
SKYE CANYON PARK DRIVE
UTILITY PLAN I - "SCP" 11+00.00 TO "SCP" 19+00.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1908-000



UT-1
SHEET 15 OF 26

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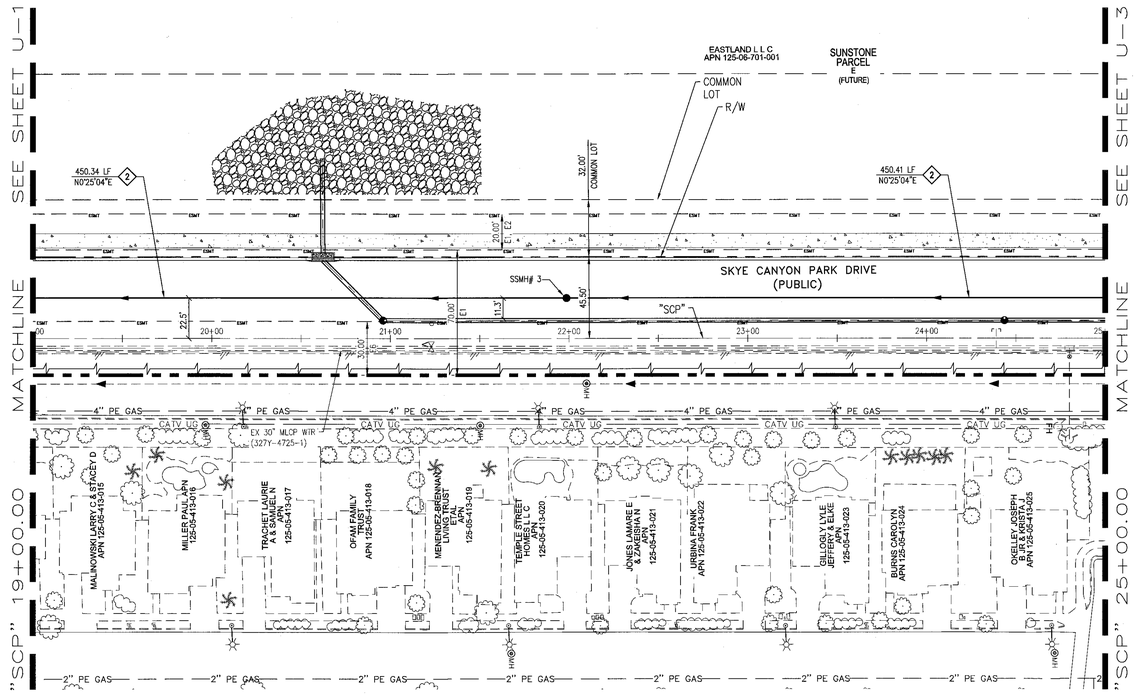
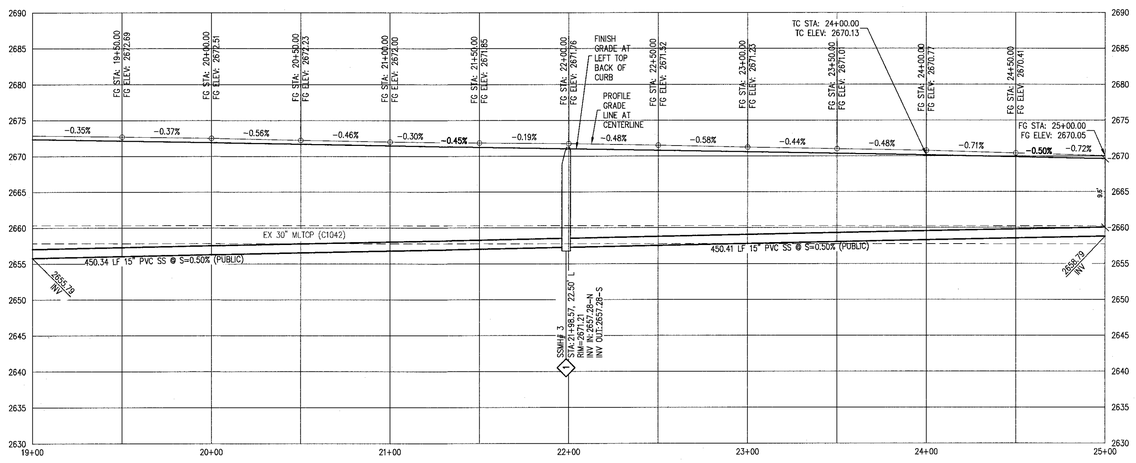


SKYE CANYON PARK DRIVE - PLAN VIEW
(PUBLIC)



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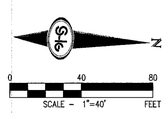
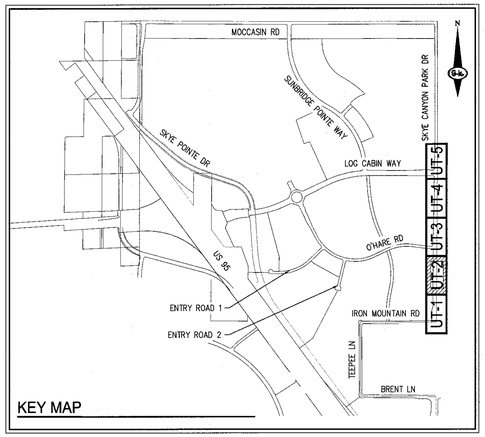
VERT: 1" = 10'





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6. INSTALL 16" x 16" TEE PER UDACS PLATE NO. 31
7. INSTALL 10" PVC WATER PIPE
8. INSTALL 16" PVC WATER PIPE
9. 1° MAXIMUM DEFLECTION, PER UDACS SEC. 2.07
10. RELOCATE EX TEST STATIONS
11. NOT USED
12. INSTALL 6" DIP WATER PIPE
13. INSTALL 16" GATE VALVE WITH VALVE BOX PER UDACS PLATE NO. 30 & 39 (MECHANICALLY RESTRAINED)
14. INSTALL 10" GATE VALVE WITH VALVE BOX PER UDACS PLATE NO. 30 & 39
15. INSTALL 16" x 8" TEE PER UDACS PLATE NO. 31
16. INSTALL 8" DIP WATER PIPE
17. INSTALL 30" STEEL SLEEVE PER UDACS PLATE NO. 22 & 23
18. INSTALL 16" VERTICAL 45° BEND PER UDACS PLATE NO. 31 (MECHANICALLY RESTRAINED)
19. INSTALL 16" DIP WATER PIPE

SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

SEWER NOTES

1. INSTALL 48" SSMH PER DCSWCS SD-1A THRU SD-4 AND SD-9
2. INSTALL 15" PVC SS PER DCSWCS SD-15 AND SD-17
3. SANITARY SEWER STUB AND CAP w/THRUST BLOCKS 1 CUBIC FOOT, PER DCSWCS SECTION 2.2.5.
4. INSTALL 12" PVC SS PER DCSWCS SD-15 AND SD-17

SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

LEGEND

(#) WATER & SEWER LATERAL #
(SEE SHEETS UT-6)

DROP INLET NOTE

WHERE 10 FEET PARALLEL SEPARATION IS NOT PRACTICABLE:

CAST-IN-PLACE MONOLITHIC POUR WITH WATERSTOP BETWEEN SLAB AND WALLS. BASE, WALLS AND TOP TO BE CONSTRUCTED WITH WATERSTOPS, CENTER BULB, OR FLAT STRIP (VINYLEX, GREENSTREAK PLASTIC PRODUCTS OR APPROVED EQUAL).

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

APPROVAL

LAS VEGAS FIRE AND RESCUE DATE

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

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811 OR 1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300
FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

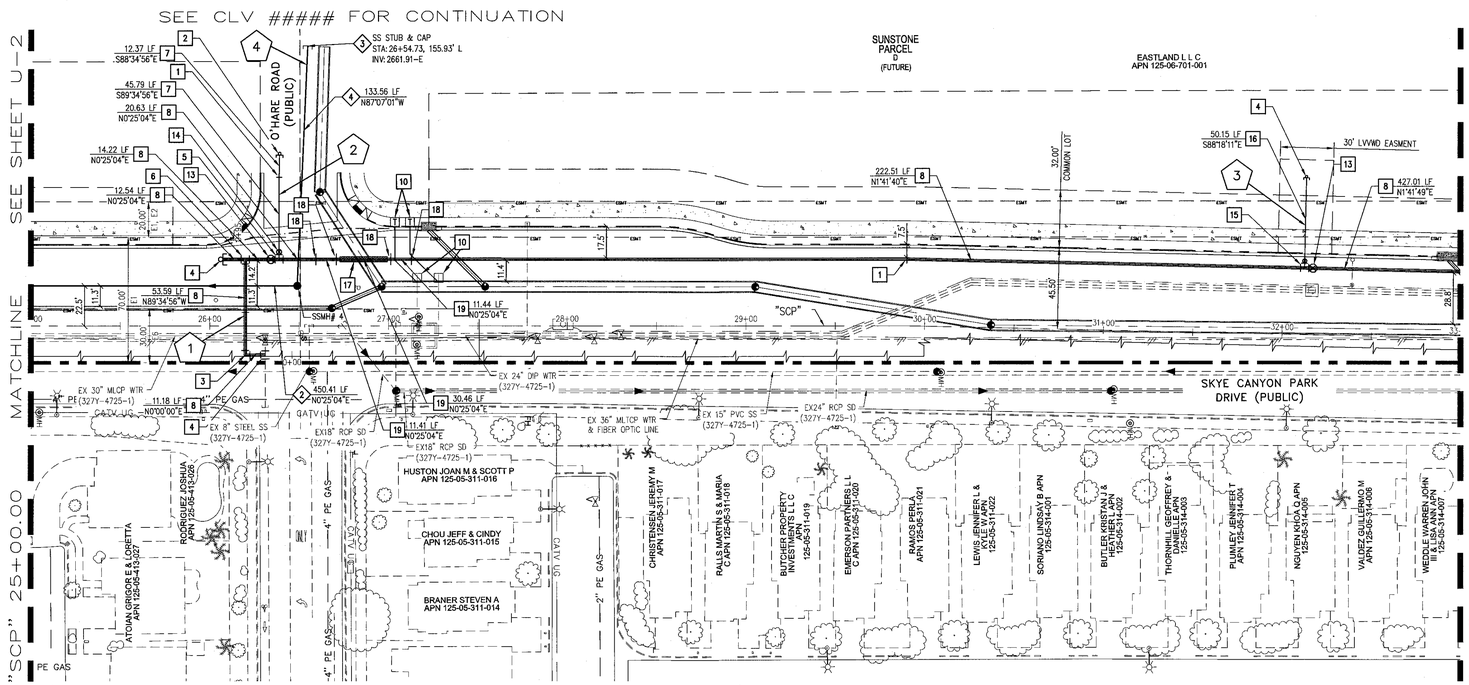
SC EAST LANDCO, LLC

SUNSTONE PHASE 1
SKYE CANYON PARK DRIVE
UTILITY PLAN II - "SCP" 19+00.00 TO "SCP" 25+00.00

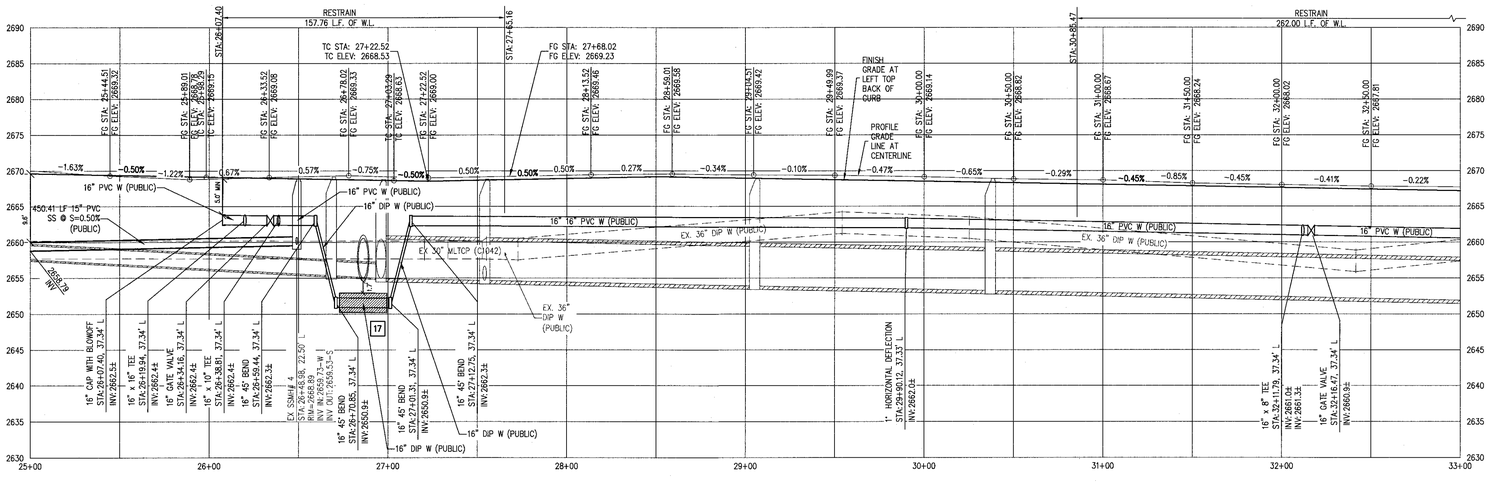
DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1908-000

PROFESSIONAL ENGINEER - STATE OF NEVADA - JOSHUA H. JOHNSON - No. 15789 - 08/07/2019 - CIVIL - 8/8/19

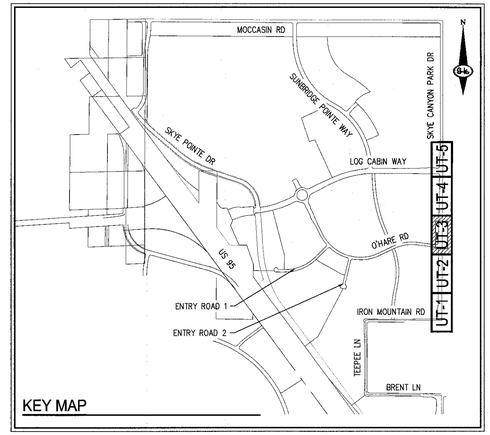
UT-2
SHEET 16 OF 26



SKYE CANYON PARK DRIVE - PLAN VIEW
(PUBLIC)



SKYE CANYON PARK DRIVE - PROFILE VIEW
HORIZ: 1" = 40'
VERT: 1" = 10'



EASEMENTS WITH TREES, SHRUBS, DECORATIVE ROCKS, BLOCK WALL, OR FENCE

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.

DISCLAIMER NOTE

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.

EASEMENT NOTES

E1 RIGHT-OF-WAY GRANTED BY DECISION, DATED MAY 28, 2003, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-75757 TO CITY OF LAS VEGAS FOR ROADWAY, SANITARY SEWER AND DRAINAGE PURPOSES AND RELATED PURPOSES 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 JUNE 30, 2003 IN BOOK 20030630, AS INSTRUMENT NO. 00811 OF OFFICIAL RECORDS.

E2 RIGHT-OF-WAY GRANTED BY DECISION, DATED JUNE 9, 2004, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER B-75757A TO CITY OF LAS VEGAS FOR ROADWAY, SANITARY SEER AND DRAINAGE PURPOSES UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF THE LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON JUNE 18, 2004 IN BOOK 20040618, AS INSTUMENT NO. 01781 OF OFFICIAL RECORDS.

E3 RIGHT-OF-WAY GRANTED BY DECISION, DATED MAY 07, 2003, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-76109 TO CITY OF LAS VEGAS FOR RIGHT FOR PERMANENT RIGHT-OF-WAY FOR ROADWAY, SANITARY SEWER AND DRAINAGE PURPOSES AND RELATED PURPOSES ON PUBLIC LANDS UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF THE LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON SEPTEMBER 09, 2003 IN BOOK 20030909, AS INSTRUMENT NO. 02351 OF OFFICIAL RECORDS.

E4 LAS VEGAS VALLEY WATER DISTRICT RIGHT-OF-WAY PER N-76984 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. 013598

E5 CITY OF LAS VEGAS RIGHT-OF-WAY PER N-75757/F

E6 RIGHT-OF-WAY GRANTED BY DECISION, DATED SEPTEMBER 25,2001, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-62751 TO LAS VEGAS VALLEY WATER DISTRICT FOR WATER MAIN 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 OCTOBER 12, 2001 IN BOOK 20010112, AS INSTRUMENT NO. 01161 OF OFFICIAL RECORDS.

E7 RIGHT-OF-WAY GRANTED BY DECISION, DATED DECEMBER 05, 2002, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-62751-01 TO LAS VEGAS VALLEY WATER DISTRICT FOR STORAGE OF PIPELINE MATERIAL, PLACEMENT OF EVACUATION SOILS, CONSTRUCTION EQUIPMENT AND TRAFFIC CONTROL FOR THE CONSTRUCTION OF THE PIPELINE UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER PORTION OF SAID LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON JANUARY 16, 2003 IN BOOK 20030116, AS INSTRUMENT NO. 02001 OF OFFICIAL RECORDS.

E8 RIGHT-OF-WAY GRANTED BY DECISION, DATED DECEMBER 05, 2002, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-62751-A TO LAS VEGAS VALLEY WATER DISTRICT FOR WATER MAIN UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF SAID LANDS, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON JANUARY 16, 2003 IN BOOK 20030116, AS INSTRUMENT NO. 02002 OF OFFICIAL RECORDS.

UTILITY NOTES

1. WATER MAIN JOINT DEFLECTION (PVC, 4" – 24")
   PVC PIPE SHALL BE DEFLECTED AT THE JOINT ONLY. THE MAXIMUM ALLOWABLE DEFLECTION SHALL BE ONE (1) DEGREE PER JOINT WITH A MINIMUM RADIUS OF CURVATURE OF 1,150 FEET, PER UDACS 2.07.01 AND 2.07.02.
   FOR CHANGES IN DIRECTION EXCEEDING THE MAXIMUM ALLOWABLE JOINT DEFLECTION, FITTINGS SHALL BE USED.
2. REDUCED PRESSURE PRINCIPLE ASSEMBLY (1) 1"
   APPROVED REDUCED PRESSURE PRINCIPLE ASSEMBLY(S) SHALL BE INSTALLED PER THE UDACS PLATE NO. 8. NO WATER SHALL BE TAKEN FROM A SERVICE REQUIRING BACKFLOW PREVENTION UNTIL THE REDUCED PRESSURE PRINCIPLE ASSEMBLY HAS BEEN SUCCESSFULLY TESTED BY THE LVVWD. ANY BLOCK WALL OR OTHER FENCE MATERIAL SHALL BE DESIGNED AND CONSTRUCTED AROUND THE OUTSIDE OF THE EASEMENT(S) TO ALLOW THE DISTRICT DIRECT ACCESS FROM THE ADJACENT RIGHT-OF-WAY. EASEMENTS SHALL BE CLEARLY MARKED OR STAKED PRIOR TO THE START OF CONSTRUCTION.
3. ALL SEWER / STORM DRAINS CROSSING WATER LINES MUST CONFORM TO SECTION 2.22 OF THE UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR POTABLE WATER SYSTEMS (UDACS) FOR WATER AND STORM MAIN CROSSINGS AND CLEARANCES.
4. FITTINGS SHALL NOT FALL UNDER CURBS, GUTTERS OR SIDEWALK.
5. INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING PER UDACS PLATE NO. 15.
6. THE LVVWD CANNOT GUARANTEE A WATERTIGHT SHUTDOWN. WHERE CONNECTIONS OR REPAIRS TO EXISTING FACILITIES ARE REQUIRED. THE CONTRACTOR SHALL ENSURE ALL LABOR AND EQUIPMENT IS AVAILABLE TO REMOVE FUGITIVE WATER THAT MAY IMPEDE CONSTRUCTION AT ALL TIMES. COORDINATION WITH INSPECTION DIVISION MUST TAKE PLACE PRIOR TO ANY TRIAL SHUTDOWN.
7. CONTRACTOR TO INSTALL TEMPORARY SERVICE TO ENSURE PROPER SHUTDOWN IN THE EVENT NO OTHER APPURTENANCES ARE AVAILABLE.
8. 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 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.

WATER NOTES

1. INSTALL 1" HORIZONTAL DEFLECTION
2. INSTALL 10" CAP WITH BLOWOFF PER DCSWCS SECTION 2.2.5
3. INSTALL 16" 90° BEND PER UDACS PLATE NO. 31
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5. INSTALL 16" x 10" TEE PER UDACS PLATE NO. 31
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10. RELOCATE EX TEST STATIONS
11. NOT USED
12. INSTALL 6" DIP WATER PIPE
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17. INSTALL 30" STEEL SLEEVE PER UDACS PLATE NO. 22 & 23
18. INSTALL 16" VERTICAL 45° BEND PER UDACS PLATE NO. 31 (MECHANICALLY RESTRAINED)
19. INSTALL 16" DIP WATER PIPE

SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

SEWER NOTES

1. INSTALL 48" SSMH PER DCSWCS SD-1A THRU SD-4 AND SD-9
2. INSTALL 15" PVC SS PER DCSWCS SD-15 AND SD-17
3. SANITARY SEWER STUB AND CAP w/THRUST BLOCKS 1 CUBIC FOOT, PER DCSWCS SECTION 2.2.5.
4. INSTALL 12" PVC SS PER DCSWCS SD-15 AND SD-17

SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

LEGEND

(#) WATER & SEWER LATERAL #
(SEE SHEETS UT-6)

DROP INLET NOTE

WHERE 10 FEET PARALLEL SEPARATION IS NOT PRACTICABLE:

CAST-IN-PLACE MONOLITHIC POUR WITH WATERSTOP BETWEEN SLAB AND WALLS. BASE, WALLS AND TOP TO BE CONSTRUCTED WITH WATERSTOPS, CENTER BULB, OR FLAT STRIP (VINYLEX, GREENSTREAK PLASTIC PRODUCTS OR APPROVED EQUAL).

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

APPROVAL

LAS VEGAS FIRE AND RESCUE DATE

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

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811
OR
1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300
FAX (702) 284-5399

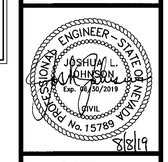
NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
SKYE CANYON PARK DRIVE
UTILITY PLAN III - "SCP" 25+00.00 TO "SCP" 33+00.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1908-000



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SHEET 17 OF 26

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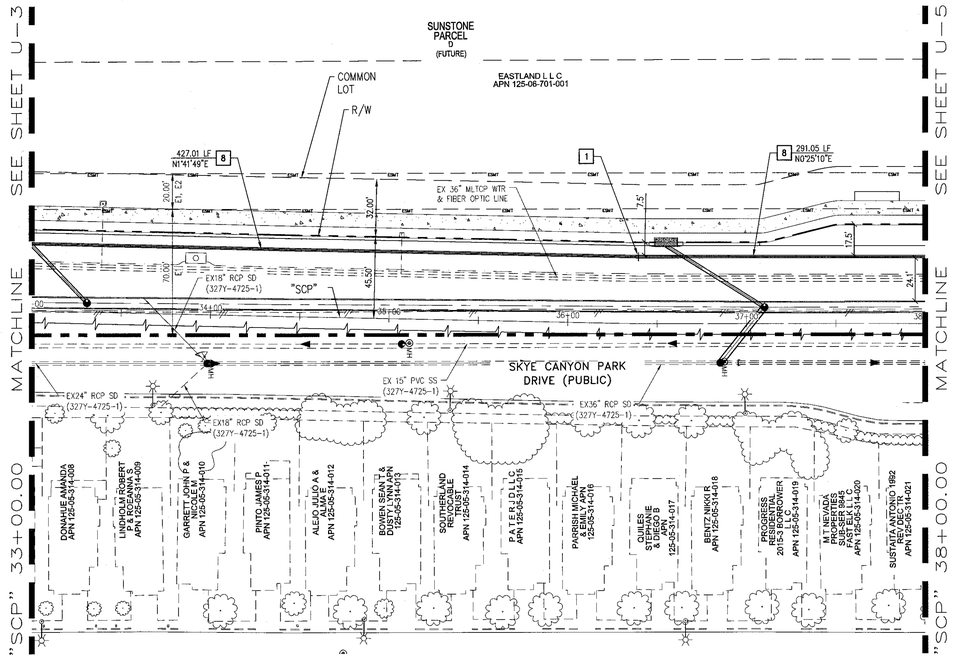
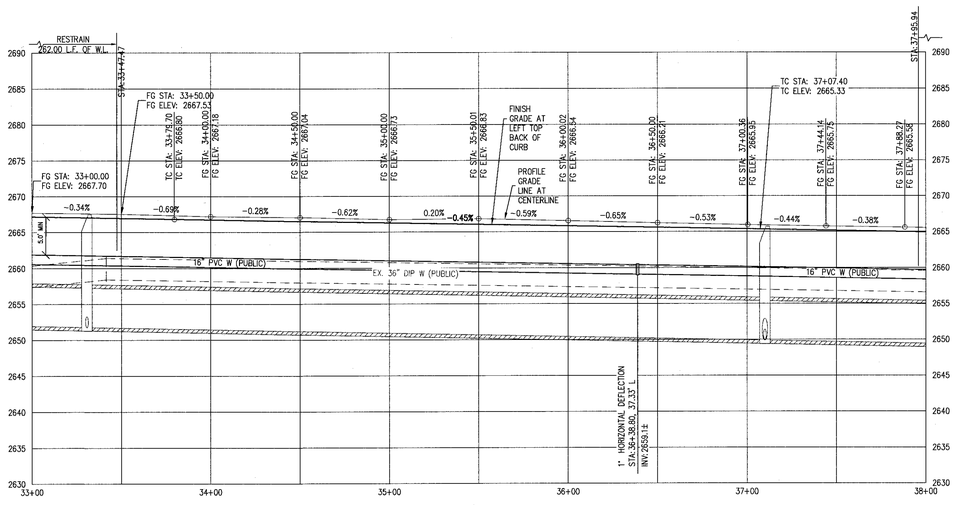
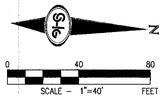


SKYE CANYON PARK DRIVE - PLAN VIEW
(PUBLIC)



SKYE CANYON PARK DRIVE - PROFILE VIEW
HORIZ: 1" = 40'
VERT: 1" = 10'



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E4 LAS VEGAS VALLEY WATER DISTRICT RIGHT-OF-WAY PER N-76984 RESERVATIONS, PROVISIONS AND EASEMENTS AS CONTAINED IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED AUGUST 03, 2005, IN BOOK 20050803 OF OFFICAL RECORDS, AS INSTRUMENT NO. 013598

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E8 RIGHT-OF-WAY GRANTED BY DECISION, DATED DECEMBER 05, 2002, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-62751-A TO LAS VEGAS VALLEY WATER DISTRICT FOR WATER MAIN UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF SAID LANDS, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON JANUARY 16, 2003 IN BOOK 20030116, AS INSTRUMENT NO. 02002 OF OFFICIAL RECORDS.

UTILITY NOTES

1. WATER MAIN JOINT DEFLECTION (PVC, 4" - 24")
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   FOR CHANGES IN DIRECTION EXCEEDING THE MAXIMUM ALLOWABLE JOINT DEFLECTION, FITTINGS SHALL BE USED.
2. REDUCED PRESSURE PRINCIPLE ASSEMBLY (1) 1"
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3. ALL SEWER/ STORM DRAINS CROSSING WATER LINES MUST CONFORM TO SECTION 2.22 OF THE UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR POTABLE WATER SYSTEMS (UDACS) FOR WATER AND STORM MAIN CROSSINGS AND CLEARANCES.
4. FITTINGS SHALL NOT FALL UNDER CURBS, GUTTERS OR SIDEWALK.
5. INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING PER UDACS PLATE NO. 15.
6. THE LVVWD CANNOT GUARANTEE A WATERTIGHT SHUTDOWN WHERE CONNECTIONS OR REPAIRS TO EXISTING FACILITIES ARE REQUIRED. THE CONTRACTOR SHALL ENSURE ALL LABOR AND EQUIPMENT IS AVAILABLE TO REMOVE FUGITIVE WATER THAT MAY IMPEDE CONSTRUCTION AT ALL TIMES. COORDINATION WITH INSPECTION DIVISON MUST TAKE PLACE PRIOR TO ANY TRIAL SHUTDOWN.
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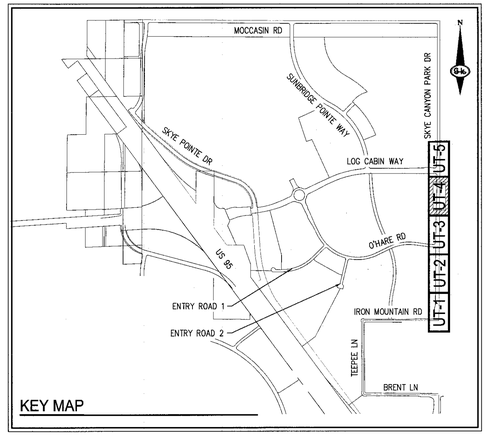

KEY MAP

WATER NOTES

1. INSTALL 1° HORIZONTAL DEFLECTION
2. INSTALL 10" CAP WITH BLOWOFF PER DCSWCS SECTION 2.2.5
3. INSTALL 16" 90° BEND PER UDACS PLATE NO. 31
4. INSTALL 16" CAP WITH BLOWOFF PER DCSWCS SECTION 2.2.5
5. INSTALL 16" x 10" TEE PER UDACS PLATE NO. 31
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7. INSTALL 10" PVC WATER PIPE
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16. INSTALL 8" DIP WATER PIPE
17. INSTALL 30" STEEL SLEEVE PER UDACS PLATE NO. 22 & 23
18. INSTALL 16" VERTICAL 45° BEND PER UDACS PLATE NO. 31 (MECHANICALLY RESTRAINED)
19. INSTALL 16" DIP WATER PIPE

SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

SEWER NOTES

1. INSTALL 48" SSMH PER DCSWCS SD-1A THRU SD-4 AND SD-9
2. INSTALL 15" PVC SS PER DCSWCS SD-15 AND SD-17
3. SANITARY SEWER STUB AND CAP w/THRUST BLOCKS 1 CUBIC FOOT, PER DCSWCS SECTION 2.2.5.
4. INSTALL 12" PVC SS PER DCSWCS SD-15 AND SD-17

SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

LEGEND

(#) WATER & SEWER LATERAL #
(SEE SHEETS UT-6)

DROP INLET NOTE

WHERE 10 FEET PARALLEL SEPARATION IS NOT PRACTICABLE:

CAST-IN-PLACE MONOLITHIC POUR WITH WATERSTOP BETWEEN SLAB AND WALLS. BASE, WALLS AND TOP TO BE CONSTRUCTED WITH WATERSTOPS, CENTER BULB, OR FLAT STRIP (VINYLEX, GREENSTREAK PLASTIC PRODUCTS OR APPROVED EQUAL).

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

APPROVAL

LAS VEGAS FIRE AND RESCUE DATE

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

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811
OR
1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
SKYE CANYON PARK DRIVE
UTILITY PLAN IV - "SCP" 33+00.00 TO "SCP" 38+00.00

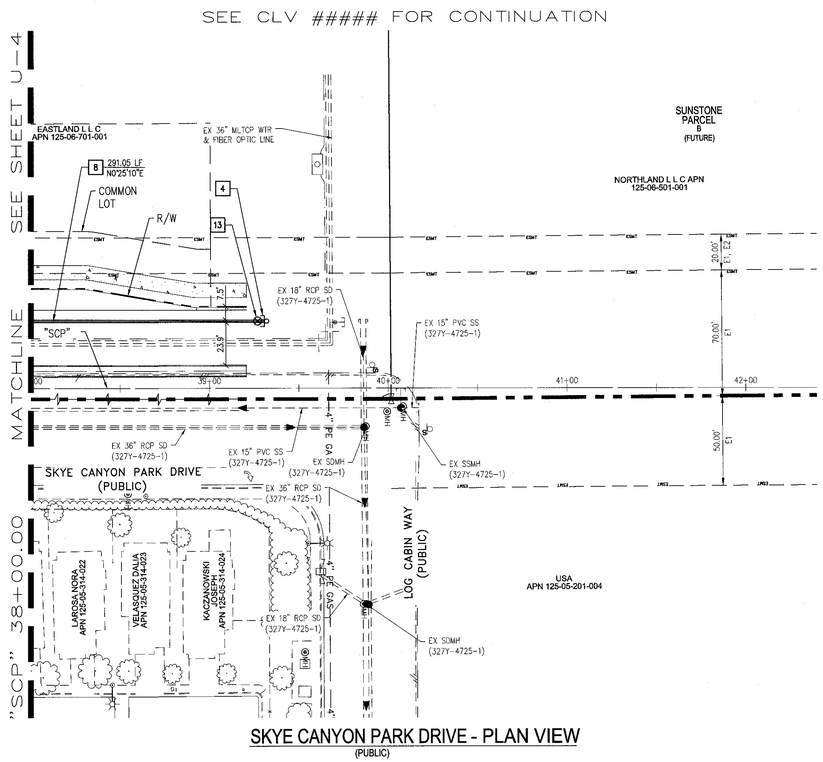
DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1908-000

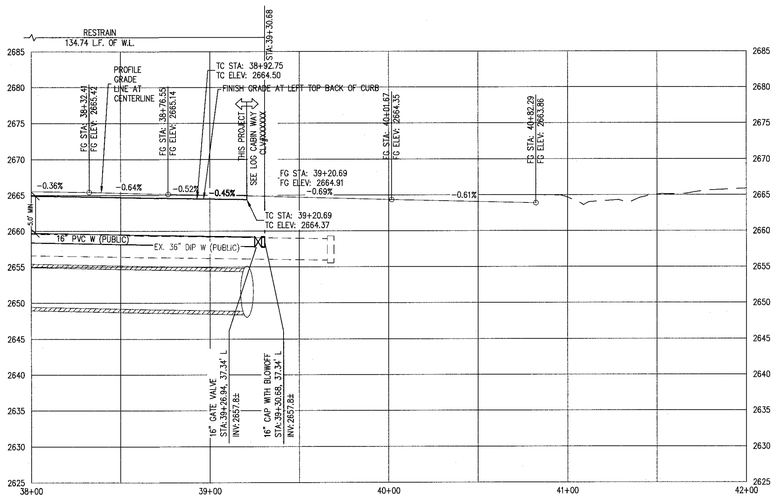
PROFESSIONAL ENGINEER – STATE OF NEVADA
JOSHUA L. JOHNSON
No. 15789
Exp. 06/30/2019
CIVIL
5/8/19

UT-4
SHEET 18 OF 26

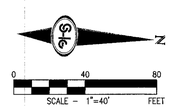
I:\est1908-000_sunstone skye canyon park\dwg\mpnov\est1908-000 utl.dwg 8/7/2019 4:57 PM Scott Booth



SKYE CANYON PARK DRIVE - PLAN VIEW
(PUBLIC)



SKYE CANYON PARK DRIVE- PROFILE VIEW
HORIZ: 1" = 40'
VERT: 1" = 10'



EASEMENTS WITH TREES, SHRUBS, DECORATIVE ROCKS, BLOCK WALL, OR FENCE

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.

DISCLAIMER NOTE

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.

EASEMENT NOTES

E1 RIGHT-OF-WAY GRANTED BY DECISION, DATED MAY 28, 2003, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-75757 TO CITY OF LAS VEGAS FOR ROADWAY, SANITARY SEWER AND DRAINAGE PURPOSES AND RELATED PURPOSES UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF SAID LAND, AD RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON JUNE 30, 2003 IN BOOK 20030630, AS INSTRUMENT NO. 00811 OF OFFICIAL RECORDS.

E2 RIGHT-OF-WAY GRANTED BY DECISION, DATED JUNE 9, 2004, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER B-75757A TO CITY OF LAS VEGAS FOR ROADWAY, SANITARY SEER AND DRAINAGE PURPOSES UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF THE LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON JUNE 18, 2004 IN BOOK 20040618, AS INSTUMENT NO. 01781 OF OFFICIAL RECORDS.

E3 RIGHT-OF-WAY GRANTED BY DECISION, DATED MAY 07, 2003, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-76109 TO CITY OF LAS VEGAS FOR RIGHT FOR PERMANENT RIGHT-OF-WAY FOR ROADWAY, SANITARY SEWER AND DRAINAGE PURPOSES AND RELATED PURPOSES ON PUBLIC LANDS UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF THE LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON SEPTEMBER 09, 2003 IN BOOK 20030909, AS INSTRUMENT NO. 02351 OF OFFICIAL RECORDS.

E4 LAS VEGAS VALLEY WATER DISTRICT RIGHT-OF-WAY PER N-76984 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. 013598

E5 CITY OF LAS VEGAS RIGHT-OF-WAY PER N-75757/F

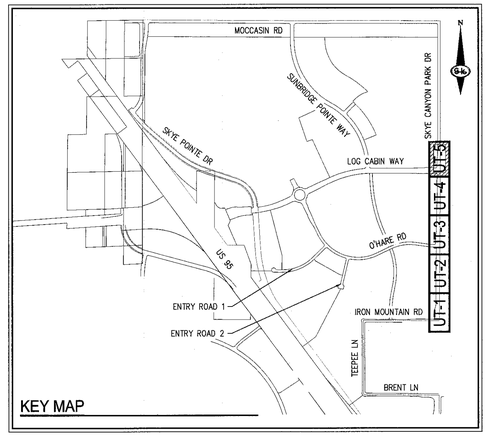
E6 RIGHT-OF-WAY GRANTED BY DECISION, DATED SEPTEMBER 25,2001, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-62751 TO LAS VEGAS VALLEY WATER DISTRICT FOR WATER MAIN UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF SAID LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON OCTOBER 12, 2001 IN BOOK 20010112, AS INSTRUMENT NO. 01161 OF OFFICIAL RECORDS.

E7 RIGHT-OF-WAY GRANTED BY DECISION, DATED DECEMBER 05, 2002, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-62751-01 TO LAS VEGAS VALLEY WATER DISTRICT FOR STORAGE OF PIPELINE MATERIAL, PLACEMENT OF EVACUATION SOILS, CONSTRUCTION EQUIPMENT AND TRAFFIC CONTROL FOR THE CONSTRUCTION OF THE PIPELINE UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER PORTION OF SAID LAND, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON JANUARY 16, 2003 IN BOOK 20030116, AS INSTRUMENT NO. 02001 OF OFFICIAL RECORDS.

E8 RIGHT-OF-WAY GRANTED BY DECISION, DATED DECEMBER 05, 2002, BY THE BUREAU OF LAND MANAGEMENT UNDER SERIAL NUMBER N-62751-A TO LAS VEGAS VALLEY WATER DISTRICT FOR WATER MAIN UNDER RIGHT-OF-WAY GRANT FILED IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT OVER A PORTION OF SAID LANDS, AS RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA ON JANUARY 16, 2003 IN BOOK 20030116, AS INSTRUMENT NO. 02002 OF OFFICIAL RECORDS.

UTILITY NOTES

1. WATER MAIN JOINT DEFLECTION (PVC, 4" - 24")
   PVC PIPE SHALL BE DEFLECTED AT THE JOINT ONLY. THE MAXIMUM ALLOWABLE DEFLECTION SHALL BE ONE (1) DEGREE PER JOINT WITH A MINIMUM RADIUS OF CURVATURE OF 1,150 FEET, PER UDACS 2.07.01 AND 2.07.02.
   FOR CHANGES IN DIRECTION EXCEEDING THE MAXIMUM ALLOWABLE JOINT DEFLECTION, FITTINGS SHALL BE USED.
2. REDUCED PRESSURE PRINCIPLE ASSEMBLY (1) 1"
   APPROVED REDUCED PRESSURE PRINCIPLE ASSEMBLY(S) SHALL BE INSTALLED PER THE UDACS PLATE NO. 8. NO WATER SHALL BE TAKEN FROM A SERVICE REQUIRING BACKFLOW PREVENTION UNTIL THE REDUCED PRESSURE PRINCIPLE ASSEMBLY HAS BEEN SUCCESSFULLY TESTED BY THE LVVWD. ANY BLOCK WALL OR OTHER FENCE MATERIAL SHALL BE DESIGNED AND CONSTRUCTED AROUND THE OUTSIDE OF THE EASEMENT(S) TO ALLOW THE DISTRICT DIRECT ACCESS FROM THE ADJACENT RIGHT-OF-WAY. EASEMENTS SHALL BE CLEARLY MARKED OR STAKED PRIOR TO THE START OF CONSTRUCTION.
3. ALL SEWER/ STORM DRAINS CROSSING WATER LINES MUST CONFORM TO SECTION 2.22 OF THE UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR POTABLE WATER SYSTEMS (UDACS) FOR WATER AND STORM MAIN CROSSINGS AND CLEARANCES.
4. FITTINGS SHALL NOT FALL UNDER CURBS, GUTTERS OR SIDEWALK.
5. INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING PER UDACS PLATE NO. 15.
6. THE LVVWD CANNOT GUARANTEE A WATERTIGHT SHUTDOWN WHERE CONNECTIONS OR REPAIRS TO EXISTING FACILITIES ARE REQUIRED. THE CONTRACTOR SHALL ENSURE ALL LABOR AND EQUIPMENT IS AVAILABLE TO REMOVE FUGITIVE WATER THAT MAY IMPEDE CONSTRUCTION AT ALL TIMES. COORDINATION WITH INSPECTION DIVISION MUST TAKE PLACE PRIOR TO ANY TRIAL SHUTDOWN.
7. CONTRACTOR TO INSTALL TEMPORARY SERVICE TO ENSURE PROPER SHUTDOWN IN THE EVENT NO OTHER APPURTENANCES ARE AVAILABLE.
8. 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 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.



WATER NOTES

1. INSTALL 1" HORIZONTAL DEFLECTION
2. INSTALL 10" CAP WITH BLOWOFF PER DCSWCS SECTION 2.2.5
3. INSTALL 16" 90° BEND PER UDACS PLATE NO. 31
4. INSTALL 16" CAP WITH BLOWOFF PER DCSWCS SECTION 2.2.5
5. INSTALL 16" x 10" TEE PER UDACS PLATE NO. 31
6. INSTALL 16" x 16" TEE PER UDACS PLATE NO. 31
7. INSTALL 10" PVC WATER PIPE
8. INSTALL 16" PVC WATER PIPE
9. 1° MAXIMUM DEFLECTION, PER UDACS SEC. 2.07
10. RELOCATE EX TEST STATIONS
11. NOT USED
12. INSTALL 6" DIP WATER PIPE
13. INSTALL 16" GATE VALVE WITH VALVE BOX PER UDACS PLATE NO. 30 & 39 (MECHANICALLY RESTRAINED)
14. INSTALL 10" GATE VALVE WITH VALVE BOX PER UDACS PLATE NO. 30 & 39
15. INSTALL 16" x 8" TEE PER UDACS PLATE NO. 31
16. INSTALL 8" DIP WATER PIPE
17. INSTALL 30" STEEL SLEEVE PER UDACS PLATE NO. 22 & 23
18. INSTALL 16" VERTICAL 45° BEND PER UDACS PLATE NO. 31 (MECHANICALLY RESTRAINED)
19. INSTALL 16" DIP WATER PIPE

SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

SEWER NOTES

1. INSTALL 48" SSMH PER DCSWCS SD-1A THRU SD-4 AND SD-9
2. INSTALL 15" PVC SS PER DCSWCS SD-15 AND SD-17
3. SANITARY SEWER STUB AND CAP W/THRUST BLOCKS 1 CUBIC FOOT, PER DCSWCS SECTION 2.2.5.
4. INSTALL 12" PVC SS PER DCSWCS SD-15 AND SD-17

SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

LEGEND

(#) WATER & SEWER LATERAL #
(SEE SHEETS UT-6)

DROP INLET NOTE

WHERE 10 FEET PARALLEL SEPARATION IS NOT PRACTICABLE:

CAST-IN-PLACE MONOLITHIC POUR WITH WATERSTOP BETWEEN SLAB AND WALLS. BASE, WALLS AND TOP TO BE CONSTRUCTED WITH WATERSTOPS, CENTER BULB, OR FLAT STRIP (VINYLEX, GREENSTREAK PLASTIC PRODUCTS OR APPROVED EQUAL).

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ##### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

APPROVAL

LAS VEGAS FIRE AND RESCUE DATE

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

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811 OR 1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
SKYE CANYON PARK DRIVE
UTILITY PLAN V - "SCP" 38+00.00 TO "SCP" 42+00.00

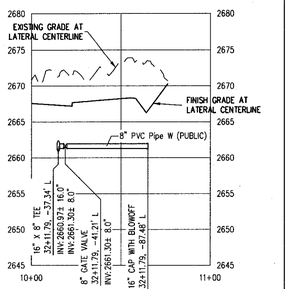
DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1908-000

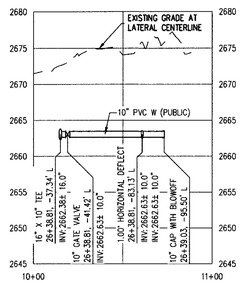
PROFESSIONAL ENGINEER STATE OF NEVADA JOSHUA L. JOHNSON No. 15789 EXP. 06/30/2019 CIVIL 8/7/19

UT-5
SHEET 19 OF 26

J:\est1908-000 sunstone skye canyon park\dwg\vinprov\est1908-000 utl.dwg 8/7/2019 4:57 PM Scott Booth



LATERAL PROFILE 3
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'



LATERAL PROFILE 2
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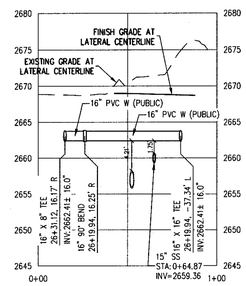
SCALE VERT: 1" = 10'



LATERAL PROFILE 1
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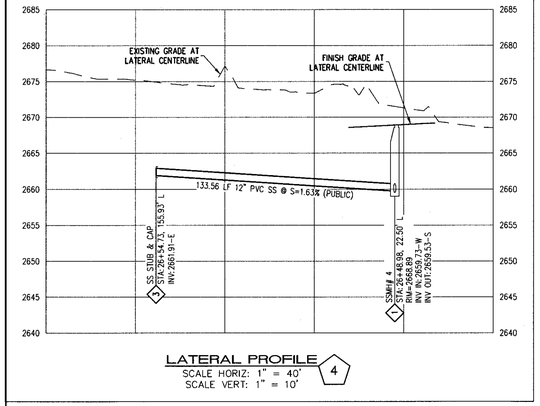
SCALE VERT: 1" = 10'



LATERAL PROFILE 4
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1

UTILITY LATERAL I

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1908-000

PROFESSIONAL ENGINEER – STATE OF NEVADA
JOSHUA L. JOHNSON
No. 15789
Exp. 06/30/2019
8/8/19

UT-6
SHEET 20 OF 26

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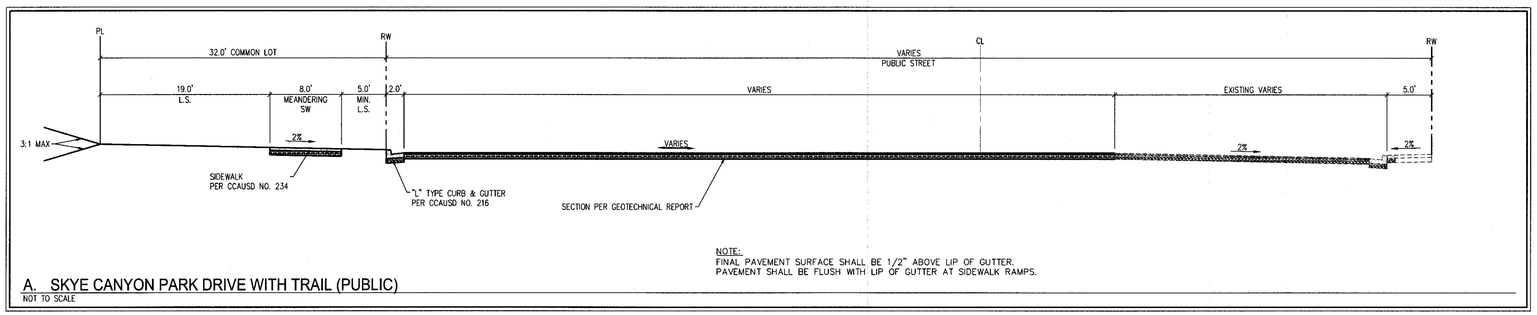
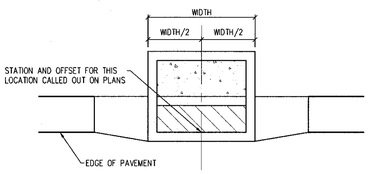


NOTE:
FINAL PAVEMENT SURFACE SHALL BE 1/2" ABOVE LIP OF GUTTER.
PAVEMENT SHALL BE FLUSH WITH LIP OF GUTTER AT SIDEWALK RAMPS.

A. SKYE CANYON PARK DRIVE WITH TRAIL (PUBLIC)
NOT TO SCALE



B. EARTHEN V-DITCH
NOT TO SCALE

C. DROP INLET STATION AND OFFSET LOCATION DETAIL
NOT TO SCALE

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

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

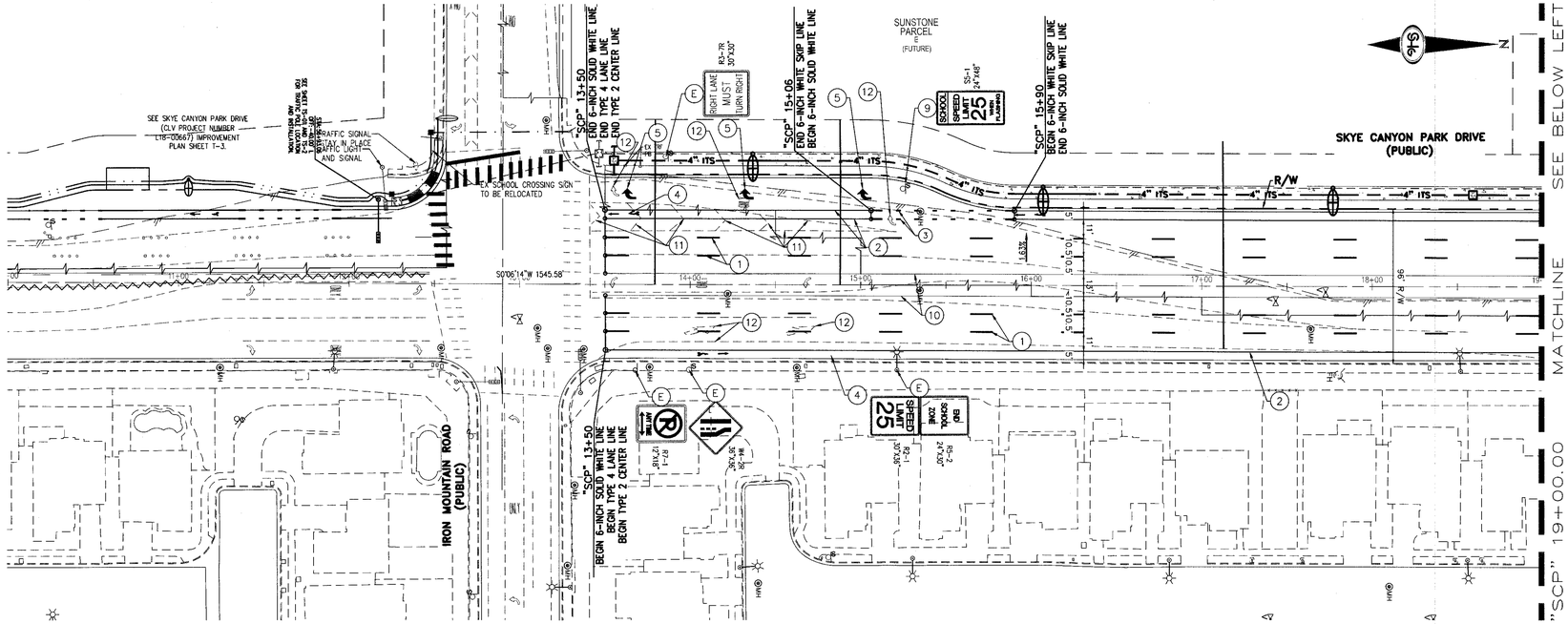
SUNSTONE PHASE 1
SKYE CANYON PARK DRIVE
DETAIL SHEET I

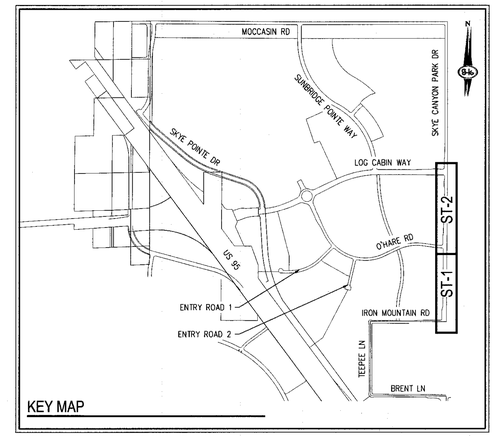
DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1908-000

PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSHUA J. JOHNSON
Exp. 12/31/2019
CIVIL
No. 15789
8/8/19

DT-1
SHEET 21 OF 26

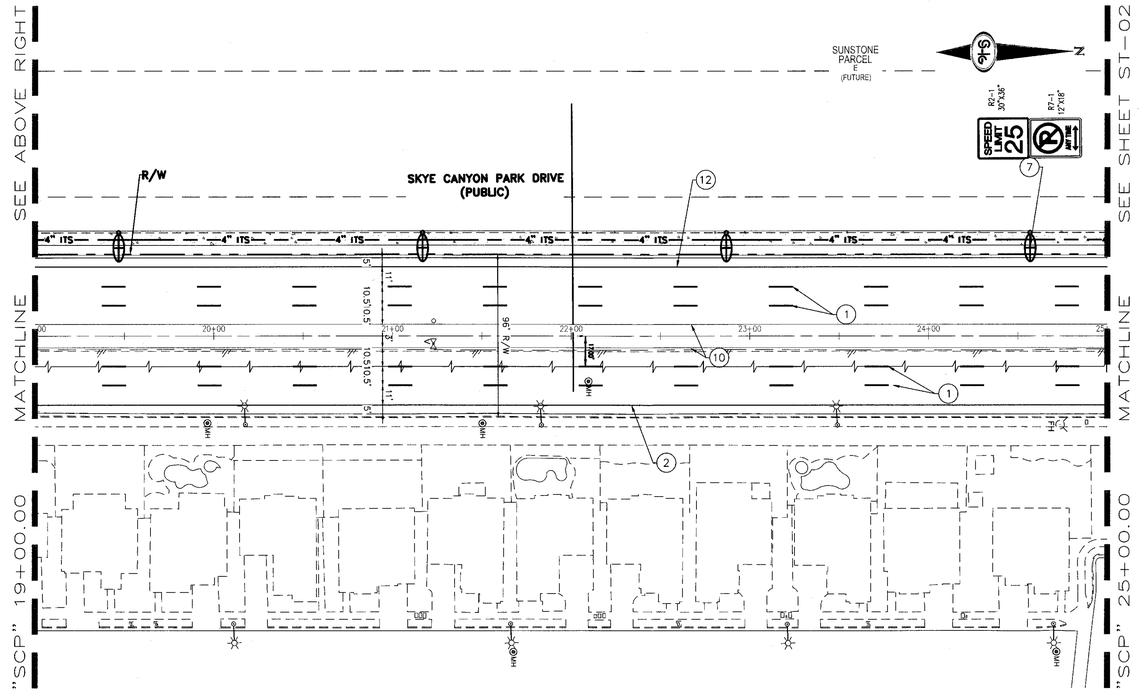
J:\est1908-000 sunstone skye canyon park\dwg\mmrox\est1908-000 det.dwg 8/7/2019 1:29 PM Thomas Dyson





KEY MAP

0 40 80
SCALE - 1"=40' FEET



STRIPING NOTES

1. INSTALL TYPE 4 LANE LINE (RPM) (USDCCA STD. DWG. NO. 244.1)
2. INSTALL 6-INCH SOLID WHITE LINE (PPM)
3. INSTALL 6-INCH WHITE SKIP LINE (PPM) (USDCCA STD. DWG. NO. 244.9)
4. INSTALL WHITE PAVEMENT BIKE LEGEND (PMF-TYPE 2) (USDCCA STD. DWG. NO. 244.9)
5. INSTALL WHITE PAVEMENT ARROW (PMF-TYPE 2)
6. INSTALL NEW SIGN(S) (GROUND MOUNTED)
7. INSTALL NEW SIGN(S) (POLE MOUNTED)
8. REMOVE AND SALVAGE SIGN(S)
9. REMOVE AND RELOCATE SIGN
10. INSTALL TYPE 2 CENTER LINE (USDCCA STD. DWG. NO. 244)
11. REMOVE EXISTING STRIPING
12. REMOVE EXISTING LANE MARKING
E. EXISTING

NOTES

1. ALL DIMENSIONS ARE TO THE FACE OF MEDIAN CURB OR LIP OF GUTTER UNLESS OTHERWISE NOTED.
2. ALL D3-1 STREET NAME SIGN LEGENDS SHALL BE APPROVED BY AGENCY PRIOR TO ORDERING SIGNS.

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

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

Call before you Dig AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY. Call 811 OR 1-800-227-2600

SLATER HANIFAN GROUP a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

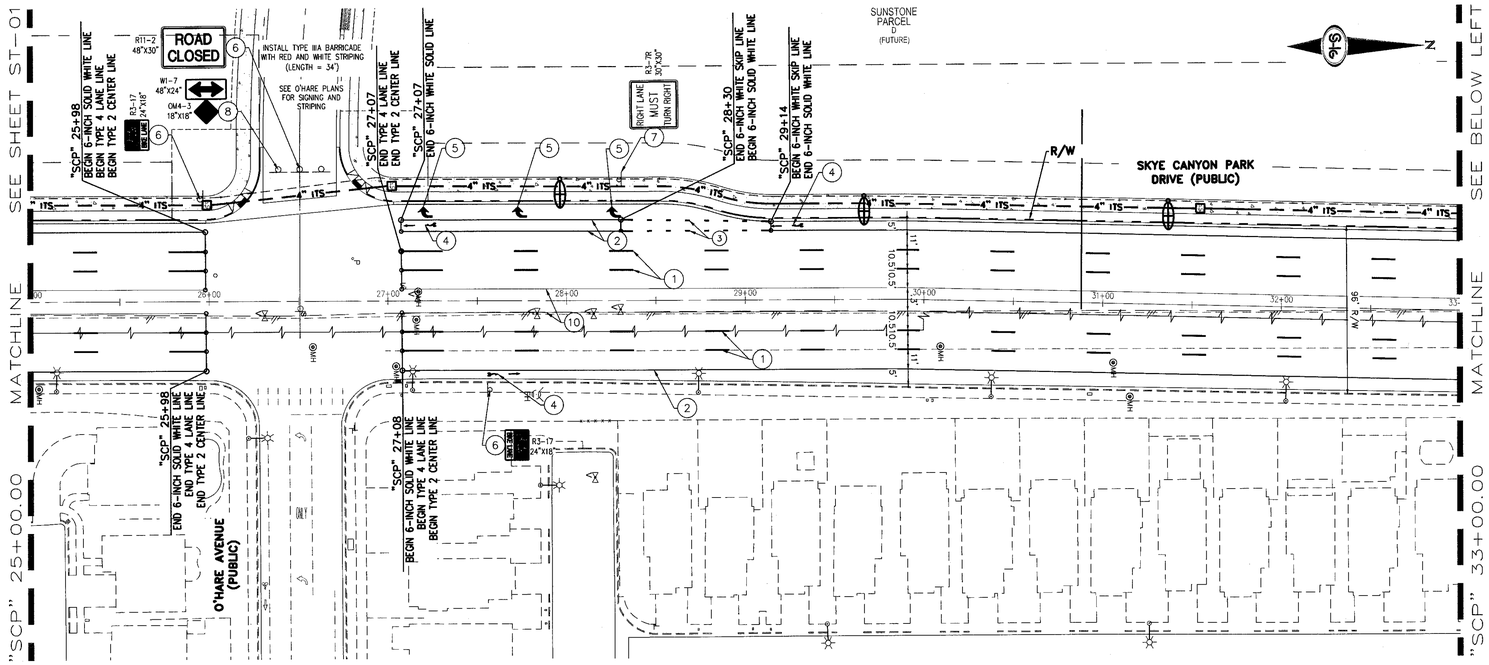
SUNSTONE PHASE 1 SIGNING & STRIPING PLAN I "SCP 11+00.00 TO "SCP" 19+00.00

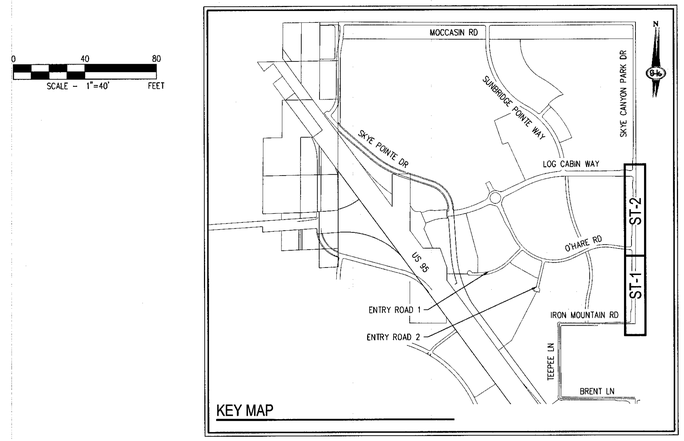
DATE: 08/07/19
DRAFTER: ST
DESIGNER: ST
CHECKED: PV
PROJECT NO. EST1908-000

PAUL V. VILLALUZ Exp. 6/30/2020 CIVIL No. 15821 STATE OF NEVADA PROFESSIONAL ENGINEER
8.8.19

ST-1
SHEET 22 OF 26

\est\1908-000 sunstone skye canyon park\dwg\xrefs\xst\xst1908-000 st sht-striping 8/7/2019 1:31 PM Thomas Dyson





0 40 80
SCALE – 1"=40' FEET

STRIPING NOTES

1. INSTALL TYPE 4 LANE LINE (RPM) (USDCCA STD. DWG. NO. 244.1)
2. INSTALL 6-INCH SOLID WHITE LINE (PPM)
3. INSTALL 6-INCH WHITE SKIP LINE (PPM) (USDCCA STD. DWG. NO. 244.9)
4. INSTALL WHITE PAVEMENT BIKE LEGEND (PMF-TYPE 2) (USDCCA STD. DWG. NO. 244.9)
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6. INSTALL NEW SIGN(S) (GROUND MOUNTED)
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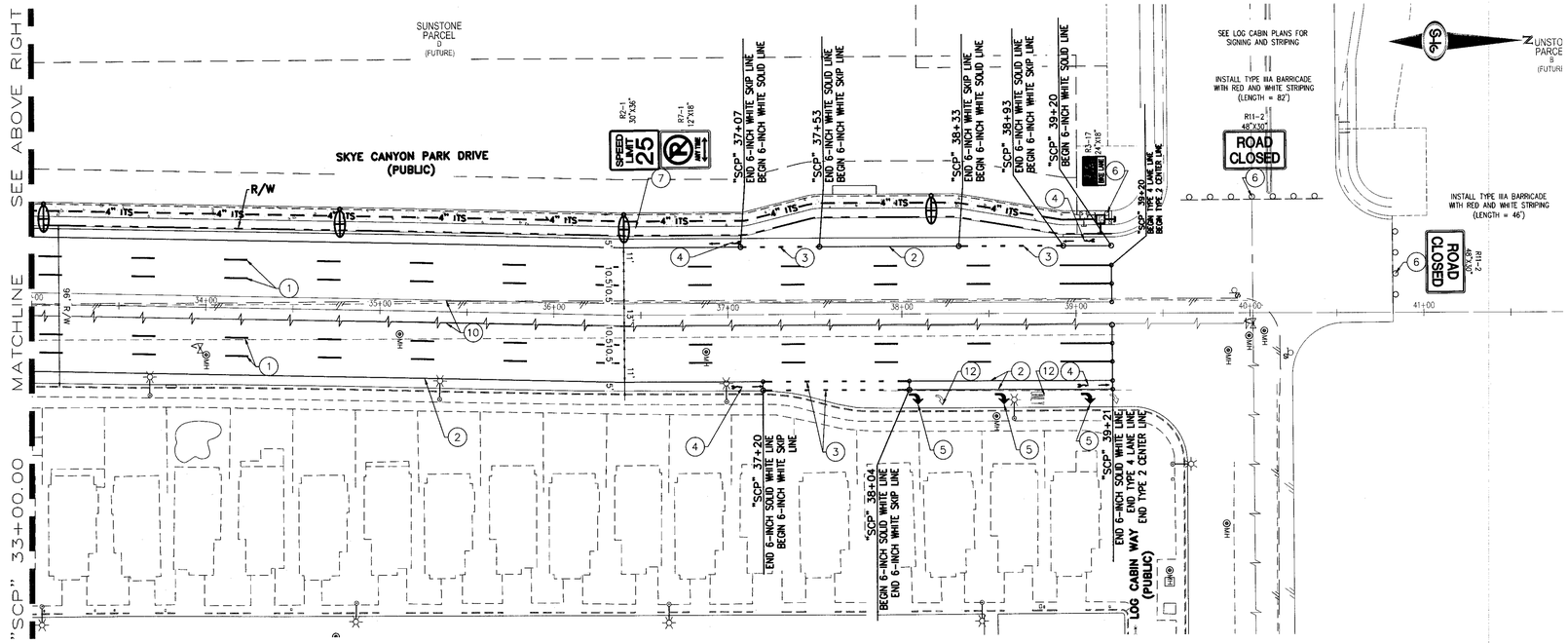
8. REMOVE AND SALVAGE SIGN(S)
9. REMOVE AND RELOCATE SIGN
10. INSTALL TYPE 2 CENTER LINE (USDCCA STD. DWG. NO. 244)
11. REMOVE EXISTING STRIPING
12. REMOVE EXISTING LANE MARKING

(E) EXISTING

NOTES

1. ALL DIMENSIONS ARE TO THE FACE OF MEDIAN CURB OR LIP OF GUTTER UNLESS OTHERWISE NOTED.
2. ALL D3-1 STREET NAME SIGN LEGENDS SHALL BE APPROVED BY AGENCY PRIOR TO ORDERING SIGNS.



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

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811
OR
1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

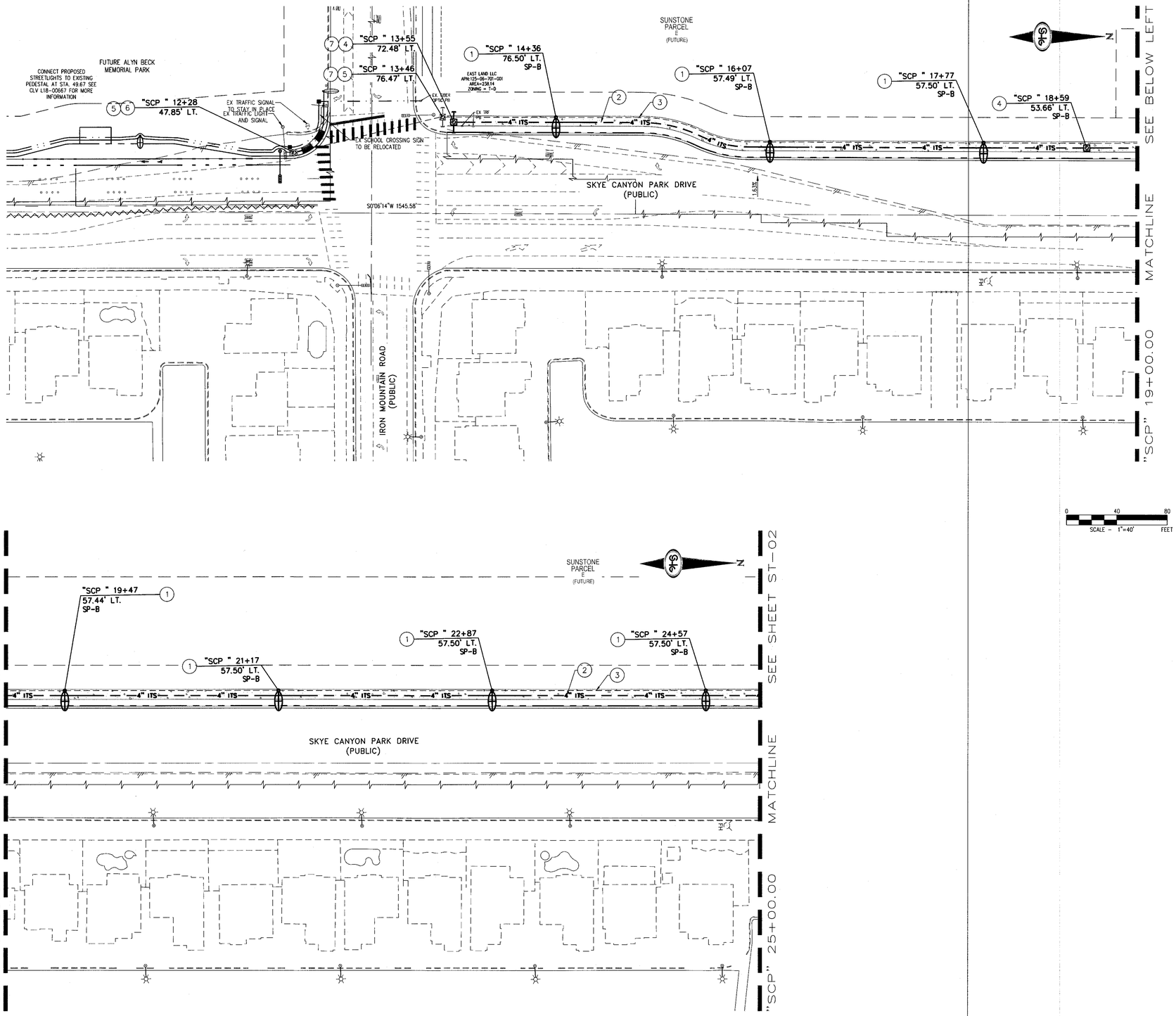
SUNSTONE PHASE 1
SIGNING & STRIPING PLAN II
"SCP" 19+00.00 TO "SCP" 25+00.00

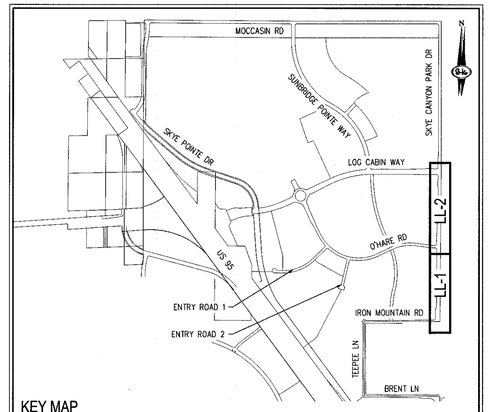
DATE: 08/07/19
DRAFTER: ST
DESIGNER: ST
CHECKED: PV
PROJECT NO. EST1908-000

PROFESSIONAL ENGINEER STATE OF NEVADA
PAUL J. VILLALUZ
Exp. 6/30/2020
CIVIL
No. 15821
8.8.19

ST-1
SHEET 23 OF 26

J:\est\1908-000 sunstone skye canyon ranch\dwg\improv\plot\est1908-000 - st dgn-st dwg 8/7/2019 1:31 PM Thomas Bygon





LIGHTING NOTES

1. INSTALL AMERON CONCRETE POLE WITH 6-FOOT LUMINAIRE ARM WITH 250(W) TBD(K) LED FIXTURE TBD ON CONCRETE FOUNDATION
2. 1-4" PVC CONDUIT, 1-#8 LOCATOR WIRE
3. 1-2" PVC CONDUIT WITH 2-#4, 1-#8 GROUND
4. INSTALL PJ0 PULL BOX (USDCCA STD. DWG. NO. 329 & 761) WITH CONCRETE COLLAR (USDCCA STD. DWG. NO. 329) WITH CONCRETE COLLAR IN UNIMPROVED AREAS WHERE SHOWN ON PLANS
5. INSTALL NO. 3-1/2 PULL BOX (LIGHTING) (USDCCA STD. DWG. NO. 326 & 329)
6. SPLICE IN PULL BOX CONDUCTORS TO INTERCEPT EXISTING STREETLIGHT CONDUIT.
7. STUB CONDUIT 5-FEET BEYOND PULL BOX AND CAP FOR FUTURE EXTENSION.

NOTES

1. ALL UNDERGROUND CONDUIT SHALL BE TYPE RNC (RIGID NONMETALLIC CONDUIT), SCHEDULE 40 PVC AND SHALL BE INSTALLED PER USDCCA STD. DWG. NOS. 503 & 505. ABOVE GROUND CONDUIT SHALL BE TYPE RMC (RIGID METALLIC CONDUIT). CONDUIT RISERS SHALL BE TYPE RMC WITH PVC COATING OR TAPE WRAP. ALL EMPTY CONDUIT SHALL INCLUDE A NYLON PULL STRING AND 1-#8 FOR LOCATING PURPOSES.
2. ALL CONDUCTORS SHALL BE STRANDED, 600-VOLT, TYPE THW INSULATED COPPER.
3. CONTRACTOR SHALL FURNISH AND INSTALL ALL ELECTRICAL COMPONENTS AND HARDWARE AS REQUIRED BY THE NATIONAL ELECTRICAL CODE, LATEST EDITION AND SHALL COMPLY WITH THE REQUIREMENTS OF THE INSPECTING AUTHORITY HAVING JURISDICTION.

STREETLIGHT CIRCUIT CAPACITY VERIFICATION FOR CIRCUIT "SP-B"

IS THERE AN EXISTING SERVICE PEDESTAL IN THE FIELD (NOT PROPOSED) ADJACENT TO THIS PROPERTY THAT MIGHT BE ABLE TO BE USED TO POWER THIS PROJECT'S STREETLIGHTS? (CIRCLE)	YES	CONTACT CITY OF LAS VEGAS TRAFFIC OPERATIONS MICHAEL E. PERRY AT 702-229-6331 TO PERFORM CIRCUIT CAPACITY VERIFICATION.
	NO	INSTALL A NEW PEDESTAL.

SERVICE PEDESTAL LOCATION: SKYE CANYON PARK DR. STA. 49.67

CITY OF LAS VEGAS (COMPLETE IF EXISTING SERVICE)

DATE OF CAPACITY VERIFICATION	-
PERSON WHO DID THE VERIFICATION	-

OFFSITE PLANS ENGINEER

PERSON WHO DID THE CALCULATIONS:	PAUL VILLALUZ
CONSULTING ENGINEERING FIRM:	SLATER HANIFAN GROUP A WESTWOOD TEAM

CAPACITY CALCULATIONS

1		CIRCUIT CAPACITY:	60	AMPS
2		MAXIMUM CONTINUOUS CIRCUIT DRAW (80%)	48	AMPS
3		EXISTING CIRCUIT LOAD (ENTER 0 IF NEW)	6	AMPS
4		AVAILABLE (2 MINUS 3)	42	AMPS
		PROPOSED LUMINAIRE LOAD TO CIRCUIT:		
5	0	NUMBER OF 150 WATT STLTS @ 1.0 AMPS/EA	0	AMPS
6	14	NUMBER OF 250 WATT STLTS @ 1.5 AMPS/EA	21	AMPS
7		TOTAL PROPOSED ADDITIONAL LOAD (5 + 6)	21	AMPS
		REMAINING AVAILABLE LOAD (4 MINUS 7)	21	AMPS

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

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

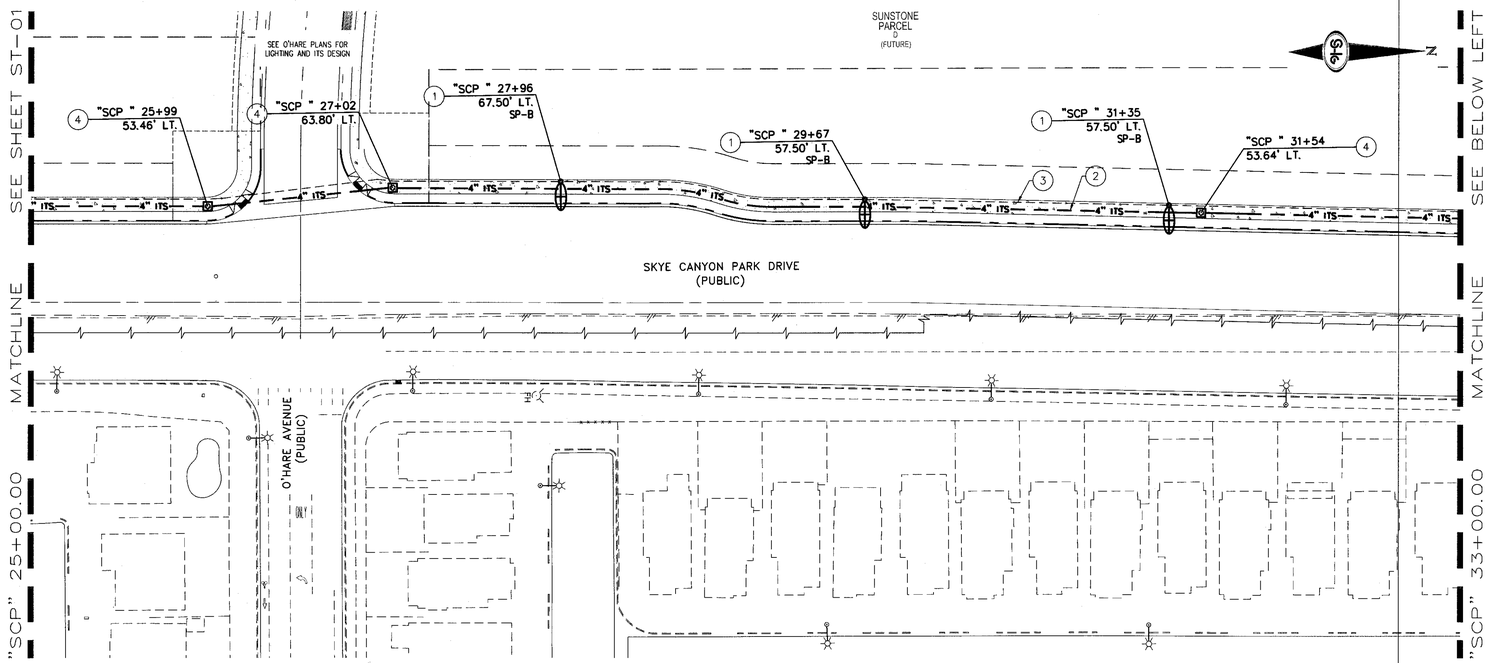
SUNSTONE PHASE 1
LIGHTING & INFRASTRUCTURE PLAN I
"SCP 11+00.00 TO "SCP" 19+00.00

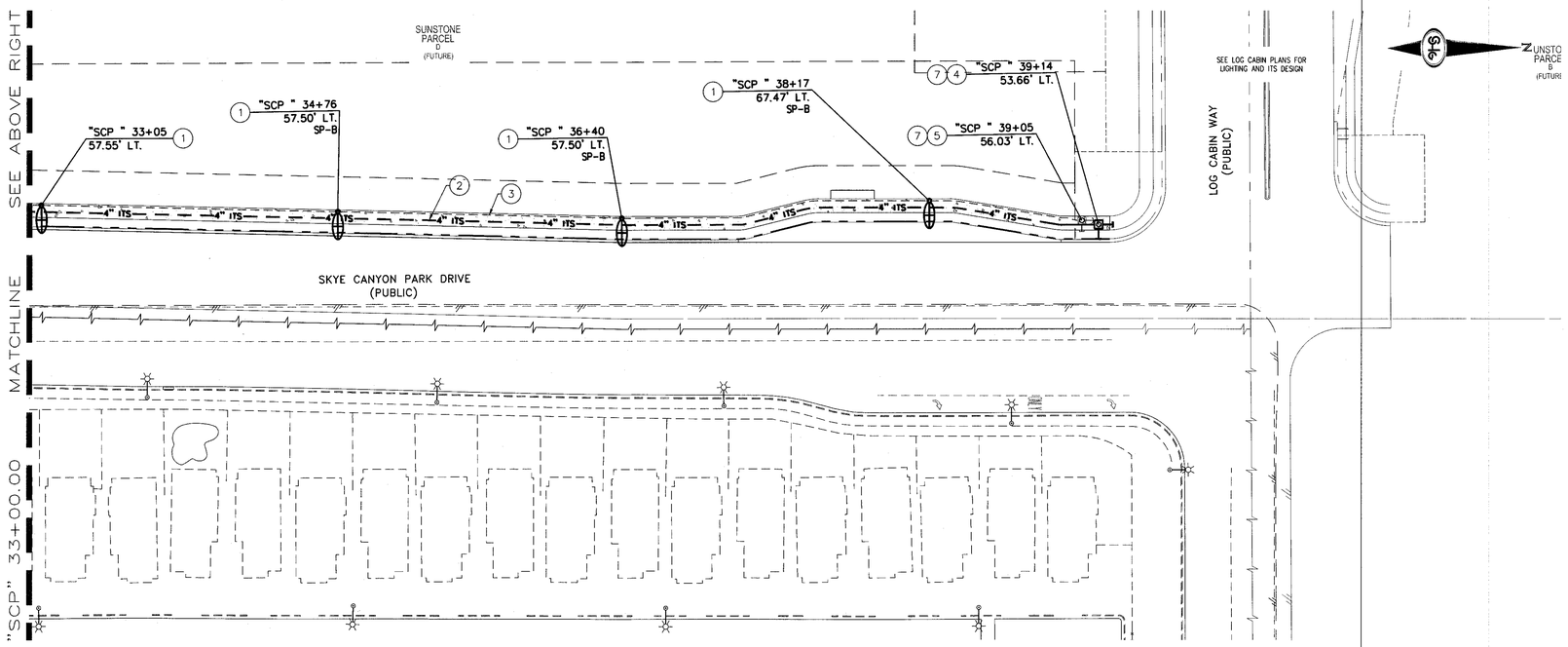
DATE: 08/07/19
DRAFTER: CLAYER
DESIGNER: X-TRAF-STRP-
CHECKED: JJ
PROJECT NO.
EST1908-000

PROFESSIONAL ENGINEER - STATE OF NEVADA
PAUL J. VILLALUZ
Exp. 6/30/2020
CIVIL
No. 15821
8.8.19

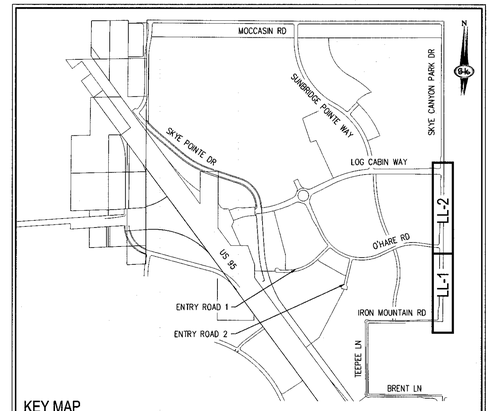
LL-1
SHEET 24 OF 26

J:\est1908-000 sunstone skye canyon park\dwg\xrefs\st01\est1908-000_st to-laden 8/7/2019 1:32 PM Thomas Dyson





0 40 80
SCALE – 1"=40' FEET



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4. INSTALL P30 PULL BOX (USDCCA STD. DWG. NO. 329 & 761) WITH CONCRETE COLLAR (USDCCA STD. DWG. NO. 329) WITH CONCRETE COLLAR IN UNIMPROVED AREAS WHERE SHOWN ON PLANS
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CITY OF LAS VEGAS (COMPLETE IF EXISTING SERVICE)

DATE OF CAPACITY VERIFICATION	-
PERSON WHO DID THE VERIFICATION	-

OFFSITE PLANS ENGINEER

PERSON WHO DID THE CALCULATIONS:	PAUL VILLALUZ
CONSULTING ENGINEERING FIRM:	SLATER HANIFAN GROUP A WESTWOOD TEAM

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

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
LIGHTING & INFRASTRUCTURE PLAN II
"SCP" 19+00.00 TO "SCP" 25+00.00

DATE: 08/07/19
DRAFTER: ST
DESIGNER: ST
CHECKED: PV
PROJECT NO. EST1908-000

PROFESSIONAL ENGINEER STATE OF NEVADA PAUL J. VILLALUZ Exp. 6/30/2020 CIVIL No. 15821
7.8.19

LL-2
SHEET 25 OF 26

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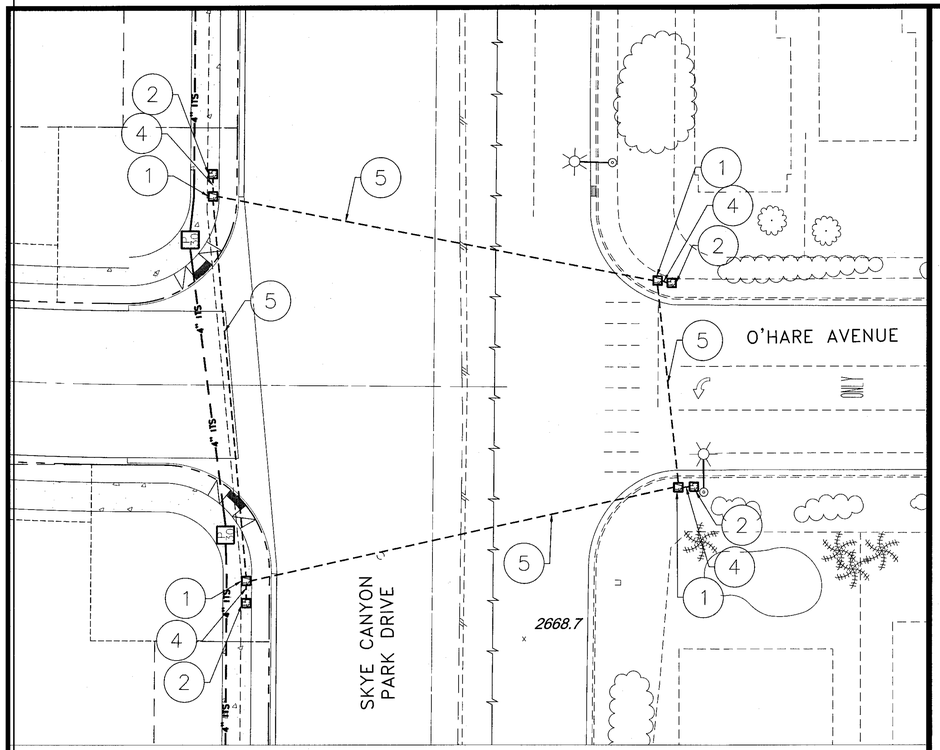
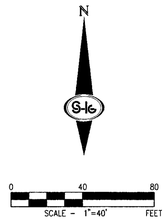
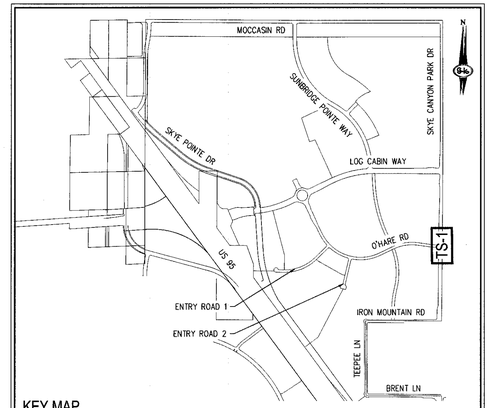


SKYE CANYON PARKWAY DRIVE / O'HARE AVENUE ①





KEY MAP

TRAFFIC SIGNAL NOTES

1. INSTALL NO. 7 PULLBOX (USDCCA DWG. NO. 707 AND 711)
2. INSTALL NO. 5 PULLBOX (USDCCA DWG. NO. 706 AND 711)
3. INSTALL (5) 3-INCH, (2) 2-INCH PVC CONDUIT WITH PULL STRING
4. INSTALL 3-INCH PVC CONDUIT WITH PULL STRING
5. INSTALL (2) 3-INCH, (2) 2-INCH PVC CONDUIT WITH PULL STRING

NOTES

1. CONTRACTOR SHALL CONTACT ENGINEER TO LOCATE FINAL TRAFFIC SIGNAL POLE LOCATIONS WITH SIDEWALK RAMPS TO ENSURE THAT ADA REQUIREMENTS ARE MET

FAST
Call before you UnderGround
1-702-432-5300
FREE % ARTERIAL SYSTEM OF PORTATION (F.A.S.T)

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

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1

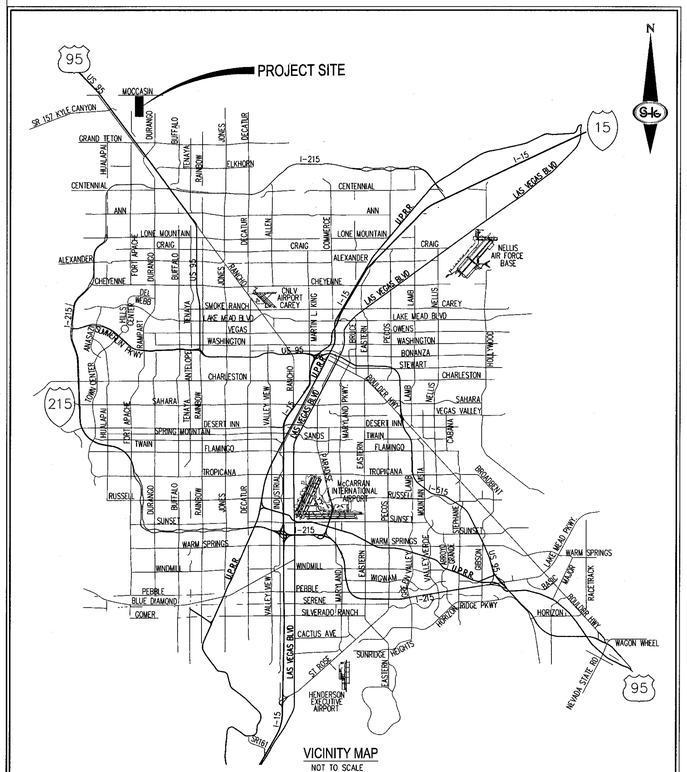
TRAFFIC SIGNAL INFRASTRUCTURE PLAN I

DATE: 08/07/19
DRAFTER: ST
DESIGNER: ST
CHECKED: PV
PROJECT NO.
EST1908-000

PROFESSIONAL ENGINEER - STATE OF NEVADA
PAUL J. VILLALUZ
Exp. 6/30/2020
CIVIL
No. 15821
8.8.19

TS-1
SHEET 26 OF 26

\est1908-000 sunstone style canyon park\dwg\improv\tsct\est1908-000-tst.dwg 8/7/2019 1:33 PM Thomas Dyson



VICINITY MAP
NOT TO SCALE

IMPROVEMENT PLANS FOR SUNSTONE PHASE 1 O'HARE ROAD

CITY OF LAS VEGAS, NEVADA

SHEET INDEX		
NO.	SHEET	TITLE
1	CS-1	COVER SHEET
2	CS-2	GENERAL NOTES
3	CS-3	ABBREVIATIONS, LEGEND, AND QUANTITIES
4	PP-1	PLAN & PROFILE I – "OH" 15+00.00 TO "OH" 23+00.00
5	PP-2	PLAN & PROFILE II – "OH" 23+00.00 TO "OH" 31+50.00
6	PP-3	PLAN & PROFILE III – "OH" 31+50.00 TO "OH" 39+50.00
7	PP-4	PLAN & PROFILE IV – "OH" 39+50.00 TO "OH" 45+00.00
8	PP-5	GRADING PLAN I
9	PP-6	GRADING PLAN II
10	SD-1	STORM DRAIN I – "OH" 15+00.00 TO "OH" 23+00.00
11	SD-2	STORM DRAIN II – "OH" 23+00.00 TO "OH" 31+50.00
12	SD-3	STORM DRAIN III – "OH" 31+50.00 TO "OH" 39+50.00
13	SD-4	STORM DRAIN IV – "OH" 39+50.00 TO "OH" 45+00.00
14	SD-5	STORM DRAIN LATERAL I
15	UT-1	UTILITY PLAN I – "OH" 15+00.00 TO "OH" 23+00.00
16	UT-2	UTILITY PLAN II – "OH" 15+00.00 TO "OH" 23+00.00
17	UT-3	UTILITY PLAN III – "OH" 23+00.00 TO "OH" 31+50.00
18	UT-4	UTILITY PLAN IV – "OH" 31+50.00 TO "OH" 39+50.00
19	UT-5	UTILITY PLAN V – "OH" 39+50.00 TO "OH" 45+00.00
20	UT-6	WATER LATERAL I
21	UT-7	SEWER LATERAL I
22	DT-1	DETAIL SHEET I

APPROVALS

CITY ENGINEER–ALLEN PAVELKA PE, #9029 DATE

APPROVAL OF THESE PLANS BY THE CITY ENGINEER IS LIMITED TO THOSE IMPROVEMENTS CONSTRUCTED IN THE DEDICATED OF 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 STATUES AND / OR PUBLIC UTILITY COMMISSION RULES AND REGULATIONS.

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ##### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

SHEETS: ADD FIELD
LVVWD APPROVAL IS VALID FOR ONE (1) YEAR FROM SIGNATURE DATE. IF CONSTRUCTION IS NOT STARTED, PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL.

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
EASTLAND COMPANY, LLC
9275 RUSSELL RD SUITE 400
LAS VEGAS, NV 89148
PH: 702–821–4808

ENGINEER
SLATER HANIFAN GROUP, INC.
a WESTWOOD TEAM
5740 S. ARVILLE STREET, SUITE 216
LAS VEGAS, NV 89118
PH: (702) 284–5300
CONTACT: JOSH JOHNSON

BENCHMARK

MONUMENT 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 00°01'50" WEST, BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE1/4) 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

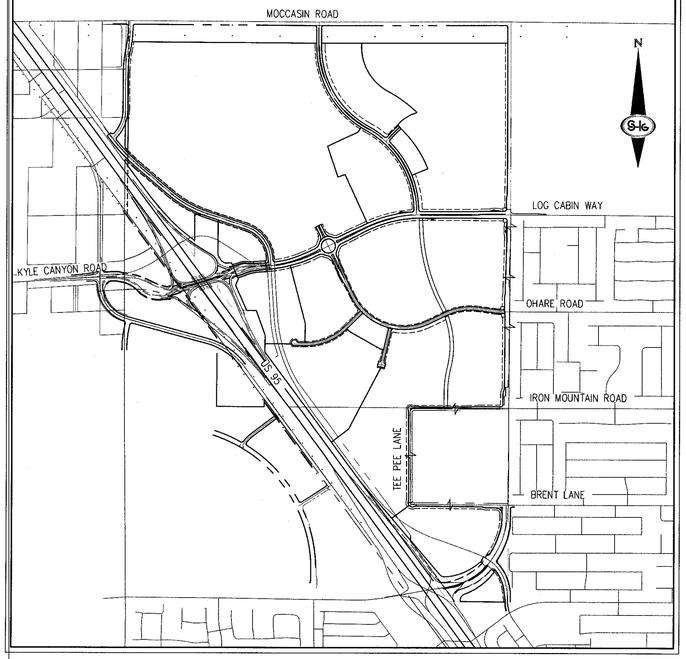
THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE 'X' (AREA OUTSIDE THE 500 YEAR FLOODPLAIN), PER THE FEMA FIRM PANELS ???????? DATED NOVEMBER 16, 2011

PROJECT PLAN APPROVAL CONTINGENT ON

SUNSTONE PHASE 1 XXXXX #XXXXX
SUNSTONE PHASE 1 XXXXX #XXXXX
SUNSTONE PHASE 1 XXXXX #XXXXX

PLAN APPROVAL

KEY MAP
NOT TO SCALE



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 FILLING FEE.

DEVIATIONS FROM STANDARDS

NONE

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

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

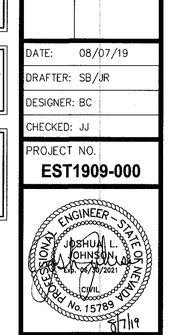
SC EAST LANDCO, LLC

SUNSTONE PHASE 1

COVER SHEET

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1909-000



CS-1
SHEET 1 OF 22

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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 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 NVR100000, 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 NVR100000, 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.

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 2.22 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 PRODUCT'S 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.

15. 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 ?????, PROJECT NO. ####.##, DATED ##/##/####.
6. EARTHWORK QUANTITIES (RAW):
   -CUT = ##,### CUBIC YARDS.
   -FILL = ##,### 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 ORDINANCE # 6631 FOR HYDRANT SPECIFICATIONS AND HYDRANT INSTALLATION SPECIFICATIONS.
2. ONLY FIRE HYDRANTS THAT ARE ON THE LAS VEGAS VALLEY WATER DISTRICT'S – APPROVED PRODUCTS LIST ARE ALLOWED TO BE INSTALLED.
3. A PERMIT IS REQUIRED 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 HYDRANTS SHALL BE IN GOOD 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 § 106.3
7. ALL ON-SITE UNDERGROUND WATER MAINS AND MATERIALS SHALL BE U.L. LISTED, A.W.W.A APPROVED AND SHALL BE RATED FOR THE APPROPRIATE WORKING PRESSURE. 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 § 507.5.7.1
10. PRIOR TO THE FINAL OCCUPANCY, A FIRE FLOW TEST SHALL BE WITNESSED BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION TO VERIFY AVAILABILITY OF THE REQUIRED FIRE FLOW. IFC § 507
11. FIRE HYDRANT SPACING SHALL BE AS FOLLOWS: IFC § C102
    - RESIDENTIAL – 500 FT UNSPRINKLERED; 600 FT SPRINKLERED.
    - COMMERCIAL – 300 FT UNSPRINKLERED; 400 FT SPRINKLERED.
12. WHERE THE WATER MAINS ARE EXTENDED ALONG STREETS OR NEW STREETS ARE INSTALLED WHERE FIRE HYDRANTS ARE NOT NEEDED FOR PROTECTION OF THE STRUCTURES, FIRE HYDRANTS SHALL BE INSTALLED AT A MAXIMUM OF 1000 FT SPACING, TO PROVIDE FOR TRANSPORTATION HAZARDS. WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS OR HAVE FOUR (4) OR MORE TRAFFIC LANES AND HAVE A TRAFFIC COUNT OF MORE THAN 30,000 PER DAY, HYDRANTS ARE REQUIRED ON EACH SIDE OF THE STREET SPACED AT 500 FT ON AN ALTERNATING BASIS. 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 6% 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 LANES 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 LANES, PUBLIC OR PRIVATE, IN EXCESS OF 150 FT IN LENGTH SHALL BE PROVIDED WITH AN APPROVED TURN AROUND HAVING A MINIMUM DIAMETER OF 81 FT. 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 LANES. SIGNS TO BE PLACED ON BOTH SIDES OF AN ACCESS ROADWAY IF NEEDED TO PREVENT PARKING ON EITHER SIDE. SIGNS TO BE INSTALLED NO HIGHER THAN 10 FT OR LESS THAN 6 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 COUNT OF MORE THAN 30,000 VEHICLES PER DAY, ALL 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 CAVING OF THE EXCAVATION.
4. THE CONTRACTOR IS WARNED THAT AN EARTHWORK BALANCE WAS NOT NECESSARILY THE INTENT OF THIS PROJECT. ANY ADDITIONAL MATERIAL REQUIRED OR LEFTOVER MATERIAL FOLLOWING EARTHWORK OPERATIONS BECOMES THE RESPONSIBILITY OF THE CONTRACTOR.
5. THE GRADING CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE OWNER TO PROVIDE FOR THE REQUIREMENTS OF THE PROJECT 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'	SEE SOILS REPORT
B. ENGINEERED FILL	0.5'+	+0.1' TO -0.1'	SEE SOILS REPORT

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

7. ALL CUT AND FILL SLOPES SHALL BE PROTECTED UNTIL EFFECTIVE EROSION CONTROL HAS BEEN ESTABLISHED.
8. THE USE OF POTABLE WATER WITHOUT A SPECIAL PERMIT FOR BUILDING OR CONSTRUCTION PURPOSES INCLUDING CONSOLIDATION OF BACKFILL OR DUST CONTROL IS PROHIBITED. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR CONSTRUCTION WATER.
9. THE CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS AND ALL OTHER PUBLIC RIGHT-OF-WAY IN A CLEAN, SAFE AND USABLE CONDITION. ALL SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE PUBLICLY OWNED PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT. ALL ADJACENT PROPERTY, PRIVATE OR PUBLIC SHALL BE MAINTAINED IN A CLEAN, SAFE AND USABLE CONDITION.
10. IN THE EVENT THAT ANY TEMPORARY CONSTRUCTION ITEM IS REQUIRED THAT IS NOT SHOWN ON THESE DRAWINGS, THE OWNER AGREES TO PROVIDE AND INSTALL SUCH ITEM AT HIS OWN EXPENSE AND AT THE DIRECTION OF THE CITY ENGINEER. TEMPORARY CONSTRUCTION INCLUDES DITCHES, BERMS, ROAD SIGNS 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 ISSUE; THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION, CLARK COUNTY AREA NEVADA", LATEST REVISED EDITION; THE "SUMMERLIN IMPROVEMENT STANDARDS" FOR WORK IN THE SUMMERLIN AREA; AND OTHER APPLICABLE APPROVED STANDARDS ISSUED BY THE CONTROLLING AGENCY; THE UNIFORM BUILDING CODE; AND ALL LOCAL CITY CODES AND ORDINANCES APPLICABLE, EXCEPT AS NOTED ON THIS SHEET AS "DEVIATIONS FROM STANDARDS".
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 ONLY. EXISTING UTILITIES ARE LOCATED ON THE PLANS ONLY FOR THE CONVENIENCE OF THE CONTRACTOR. EXISTING UTILITY SERVICE LATERALS MAY NOT BE SHOWN ON THE PLANS. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, LOCATE ALL UNDERGROUND AND OVERHEAD INTERFERENCES WHICH MAY AFFECT HIS OPERATION DURING CONSTRUCTION AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO SAME. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING NEAR OVERHEAD UTILITIES SO AS TO SAFELY PROTECT ALL PERSONNEL AND EQUIPMENT, AND SHALL BE RESPONSIBLE FOR ALL COST AND LIABILITY IN CONNECTION THEREWITH.
3. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING UTILITY LINES, STRUCTURES AND STREET IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE, FROM DAMAGE, AND ALL SUCH IMPROVEMENTS OR STRUCTURES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED SATISFACTORY TO THE CITY ENGINEER AND OWNING UTILITY COMPANY AT THE EXPENSE OF THE CONTRACTOR.
4. ALL CONSTRUCTION SHALL BE AS SHOWN ON THESE PLANS, ANY REVISIONS SHALL HAVE THE PRIOR WRITTEN APPROVAL OF THE CITY ENGINEER.
5. TYPE V CEMENT SHALL BE USED IN ALL OFF-SITE CONCRETE WORK. CONCRETE TO BE 3000 P.S.I. MINIMUM @ 28 DAYS. MIX DESIGNS TO BE APPROVED BY THE CITY, PRIOR TO THE USE ON THE PROJECT.
6. PERMITS ARE REQUIRED FOR ANY WORK IN THE PUBLIC RIGHT-OF-WAY. THE CONTRACTOR SHALL SECURE ALL PERMITS AND INSPECTIONS REQUIRED FOR THIS CONSTRUCTION.
7. EXPANSION JOINTS REQUIRED, MAXIMUM EVERY 300' IN EXTRUDED-TYPE CURB.
8. AC PAVEMENT TO BE ONE-HALF INCH (½") ABOVE LIP OF ALL GUTTERS AFTER COMPACTION, EXCEPT AT SIDEWALK RAMPS AND CROSS GUTTERS.
9. CURB AND GUTTER FOUND TO BE UNACCEPTABLE TO THE CITY OF LAS VEGAS SHALL BE REMOVED AND REPLACED PER STANDARD DRAWING 216.
10. SIDEWALK RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING 235. EXACT LOCATION OF RAMPS MAY BE ADJUSTED IN THE FIELD BY A CITY INSPECTOR.
11. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITIONS BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND FOR INGRESS AND EGRESS TO NEW CONSTRUCTION. THE EXTENT OF THE TRANSITIONS TO BE AS SHOWN ON PLANS.
12. ALL GRADING WORK SHALL CONFORM TO THE SOILS REPORT AS PREPARED BY ADD GEO, REPORT #ADD FIELD, ADD FIELD APPROVED BY THE CITY ENGINEER, AND AS SHOWN ON THESE PLANS.
13. EXACT LOCATION OF ALL SAWCUT LINES MAY BE ADJUSTED OR DETERMINED IN THE FIELD BY A CITY OF LAS VEGAS ENGINEER IF LOCATION ON PLANS IS NOT CLEARLY SHOWN, OR EXISTING PAVEMENT CONDITION REQUIRES RELOCATIONS.
14. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT EXISTING PERMANENT SURVEY MONUMENTS. ANY MONUMENTS DISTURBED SHALL BE REPLACED AND ADJUSTED PER AVAILABLE RECORDS IN ACCORDANCE WITH N.R.S. STATUTE NO. 625.380 & CITY OF LAS VEGAS TITLE 18, APP

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	FUT	FUTURE	R	RADIUS
APPROX OR ~	APPROXIMATE	GRD	GRADE OR GROUND	RCA	REINFORCED CONCRETE ARCH
AVE	AVENUE	GB	GRADE BREAK OR GRADE CHANGE	RCB	REINFORCED CONCRETE BOX
@	AT	GV	GATE VALVE	RCP	REINFORCED CONCRETE PIPE
BC	BEGIN CURVE OR BACK OF CURB	HDPE	HIGH DENSITY POLYETHYLENE	RD	ROAD
BCR	BEGINNING OF CURB RETURN	HOA	HOME OWNERS ASSOCIATION	RDWY ESMT	ROADWAY EASEMENT
BHW	BOTTOM OF HEADWALL	HORZ	HORIZONTAL	REQD	REQUIRED
BLDG	BUILDING	HP	HIGH POINT	REV	REVISION
BLVD	BOULEVARD	HWL	HIGH WATER LEVEL	RG	ROUGH GRADE
BM	BENCHMARK	HDWL OR HW	HEADWALL	RT OR R	RIGHT
BVC	BEGIN VERTICAL CURVE	HYD	HYDRAULIC OR HYDRANT	R/W, ROW	RIGHT OF WAY
BWV	BACK WATER VALVE	ID	INSIDE DIAMETER	S	SLOPE
CC	CLARK COUNTY	IN	INCH	SCH	SCHEDULE
CCAUSD	CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS	INT	INTERSECTION	SD	STORM DRAIN
CCPW	CLARK COUNTY PUBLIC WORKS	INV	INVERT ELEVATION	SDDI	STORM DRAIN DROP INLET
CCRFCD	CLARK COUNTY REGIONAL FLOOD DISTRICT	IP	IRON PIPE	SDMH	STORM DRAIN MANHOLE
CCWRD	CLARK COUNTY WATER RECLAMATION DISTRICT	IRRG	IRRIGATION	SEC	SECTION
CE	COMMON ELEMENT	LF	LINEAR FEET	SF	SQUARE FEET
CL/C/L/C	CENTERLINE	LMC	LANDSCAPE MAINTENANCE CORPORATION	SHT	SHEET
CLR	CLEAR OR CLEARANCE	LP	LOW POINT	SLTC	STREET LIGHT & TRAFFIC CONTROL ESMT
CLSM	CONTROLLED LOW STRENGTH MATERIAL	LT OR L	LEFT	SNWA	SOUTHERN NEVADA WATER AUTHORITY
CLV	CITY OF LAS VEGAS	LVVWD	LAS VEGAS VALLEY WATER DISTRICT	SPECS	SPECIFICATIONS
CML&C	CEMENT MORTAR LINED AND COATED	LWL	LOW WATER LEVEL	ST	STREET
CMU	CONCRETE MASONRY UNIT	MAX	MAXIMUM	SSMH	SANITARY SEWER MANHOLE
CNLV	CITY OF NORTH LAS VEGAS	MECH	MECHANICAL	STA	STATION
COH	CITY OF HENDERSON	MH	MANHOLE	STD	STANDARD
CONC	CONCRETE	MIN	MINIMUM	STL	STEEL
CT	COURT	MISC	MISCELLANEOUS	STLT	STREET LIGHT
CY OR CU YD	CUBIC YARD	MUE	MUNICIPAL UTILITY EASEMENT	SW	SIDEWALK
DCWCS	DESIGN AND CONSTRUCTION FOR WASTEWATER COLLECTION SYSTEMS	NDOT	NEVADA DEPARTMENT OF TRANSPORTATION	SWG	SOUTHWEST GAS
		NTS	NOT TO SCALE	SWR OR SS	SANITARY SEWER
DE	DRAINAGE EASEMENT	NUE	NONEXCLUSIVE UTILITY EASEMENT	SY	SQUARE YARD
DET	DETAIL	NVE	NV ENERGY	TAN	TANGENT
DI	DUCTILE IRON OR DRAIN INLET	OC	ON CENTER	TC	TOP OF CURB
DIA, ø	DIAMETER	OD	OUTSIDE DIAMETER OR OVERALL DIMENSION	TF	TOP OF FLOOR OR TOP OF FOOTING
DIP	DUCTILE IRON PIPE	OFF	OFFSET	TG	TOP OF GRATE
DR	DRIVE	ORIG	ORIGINAL	THRU	THROUGH
DWG(S)	DRAWING	PAE	PUBLIC OR PEDESTRIAN ACCESS EASEMENT	THW	TOP OF HEADWALL
DWY	DRIVEWAY	PB	PULL BOX	TP	TOP OF PIPE
EA	EACH	PC	POINT OF CURVE	TW	TOP OF WALL
ECR	END CURB RETURN	PCC	POINT OF COMPOUND CURVE	TRW	TOP OF RETAINING WALL
EG	EXISTING GROUND	PDE	PUBLIC DRAINAGE EASEMENT	TSW	TOP OF SCREEN WALL
ELEV	ELEVATION	P, OR PL	PROPERTY LINE	TYP	TYPICAL
ESMT	EASEMENT	POB	POINT OF BEGINNING	UDACS	UNIFORM DESIGN AND CONSTRUCTION STANDARDS
EP	EDGE OF PAVEMENT	POC	POINT OF CURVATURE		
ERU	EQUIVALENT RESIDENTIAL UNIT	POE	POINT OF ENDING	UE	UTILITY EASEMENT
EVC	END VERTICAL CURVE	PRC	POINT OF REVERSE CURVATURE	VC	VERTICAL CURVE
EX OR EXIST	EXISTING	PRELIM	PRELIMINARY	VERT	VERTICAL
FC	FACE OF CURB	PROP	PROPOSED	VG	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	WPZ	WATER PRESSURE ZONE
FGL	FINISHED GRADE, LOW SIDE	PVC	POLYVINYL CHLORIDE	WT	WEIGHT
FH	FIRE HYDRANT			WTR	WATER LINE

ALIGNMENT ABBREVIATIONS

"OH"	O'HARE ROAD

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
(1900)	1900	5' CONTOUR
		1' CONTOUR
		STRIPING
		SEWER MANHOLE
		CURB AND GUTTER
EX 8" PVC SS	8" PVC SS	SANITARY SEWER PIPE AND FLOW ARROW
EX 8" PVC WTR	8" PVC WTR	WATER PIPE
		WATER GATE VALVE
		FIRE HYDRANT
		WATER BLOW-OFF
		WATER LATERAL W/ METER
		SANITARY SEWER LATERAL
		STREETLIGHT
		EDGE OF PAVEMENT
		TRAFFIC SIGN
PAD= XXXX FF = XXXX	PAD= XXXX FF = XXXX	PAD ELEVATION FINISHED FLOOR ELEVATION
EXISTING TW=	PROPOSED TW=	ELEVATION
		RETAINING WALL
		STORM DRAIN W/ MANHOLE

	EXISTING GAS GATE VALVE		PROPOSED SCARP AREA
SMH	EXISTING UNKNOWN MANHOLE		DRIVEWAY
GAS	EXISTING GAS, SIZE PER PLAN		PROPOSED RIP RAP
	EXISTING POWER POLE		SIGHT VISIBILITY ZONE PER STD DWG NO. 201.2
0000	EXISTING TRAFFIC SIGNAL		HANDICAP RAMP
	EXISTING WALL	TEL 5-4"	EXISTING TELEPHONE CABLE
	WATER PIPE FITTING	12" SS	EXISTING SANITARY SEWER LINE
POC	WATER POINT OF CONNECTION	12" W	EXISTING WATER LINE
POC	SEWER POINT OF CONNECTION	18" SD	EXISTING STORM DRAIN LINE
	DAYLIGHT LINE	ELE UG 1-4"	EXISTING UNDERGROUND ELECTRICAL LINE
	STREET CENTERLINE	OHP	EXISTING OVERHEAD POWER LINE
	RIGHT-OF-WAY	OHP/TEL	EXISTING OVERHEAD POWER AND TELEPHONE LINE
	MATCHLINE	4" PE GAS	EXISTING GAS LINE
	BOUNDARY LINE	CATV	EXISTING CABLE TELEVISION LINE
	PHASE LINE	SL	EXISTING STREET LIGHT CONDUIT
	PROPERTY LINE	MH	EXISTING MANHOLE OR VAULT
	FLOWLINE		EXISTING VALVE (GAS OR WATER)
	SAWCUT	FH	EXISTING FIRE HYDRANT
FILL / CUT	CUT/FILL TRANSITION LINE	PP	EXISTING POWER OR TELEPHONE POLE
	SIDEWALK		EXISTING PADMOUNTED SERVICE PEDESTAL
	EX STRIPING TO BE OBLITERATED		EXISTING NV ENERGY TRANSFORMER
	GRADE BREAK LINE		EXISTING SWING GATE
	REFLECTIVE RAISED PAVEMENT MARKERS		EXISTING STREET LIGHT
BWV	BACK WATER VALVE		EXISTING ON-SITE LIGHT
	WROUGHT IRON FENCE		EASEMENT LINE
	PONY WALL		AEP
	DECORATIVE PERIMETER WALL	FAST	FAST ITS CONDUIT
	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		

QUANTITIES

			PRIVATE	PUBLIC
DRAINAGE				
1.	60" TYPE III STORM DRAIN MANHOLE	EA	–	–
2.	5.0' TYPE "CM2" DROP INLET	EA	–	–
3.	10.0' TYPE "CM2" DROP INLET	EA	–	–
4.	12.5' TYPE "CM2" DROP INLET	EA	–	–
5.	20.0' TYPE "CM2" DROP INLET	EA	–	–
6.	18" RCP CLASS IV STORM DRAIN	LF	–	–
7.	24" RCP CLASS IV STORM DRAIN	LF	–	–
8.	30" RCP CLASS IV STORM DRAIN	LF	–	–
9.	36" RCP CLASS IV STORM DRAIN	LF	–	–
10.	RIPRAP D50=8", THK=16"	SF	–	–
11.	8' WIDE CONCRETE VALLEY GUTTER W/10" TYPE I AGGREGATE BASE	SF	–	–
12.	SIDEWALK UNDER DRAIN	SF	–	–
13.				
SEWER SYSTEM				
1.	4" PVC SEWER LATERAL (PRIVATE)	LF	–	–
2.	8" PVC SEWER PIPE (PUBLIC)	LF	–	–
3.	STANDARD 48" SEWER MANHOLE (PUBLIC)	EA	–	–
4.	8" SEWER PIPE CAP	EA	–	–
5.	BACK WATER VALVE	EA	–	–
6.	8" C-900 WATER QUALITY SEWER PIPE (PUBLIC)	EA	–	–
7.				
WATER SYSTEM				
1.	FIRE HYDRANT ASSEMBLY W/6" GATE VALVE PER UDACS PLATE NO. 40	EA	–	–
2.	6" PVC WATER PIPE (CLASS 150)	LF	–	–
3.	8" PVC WATER PIPE (CLASS 150)	LF	–	–
4.	8" DIP WATER PIPE (CLASS 53)	LF	–	–
5.	8" GATE VALVE WITH VALVE BOX PER UDACS PLATE NO. 30 & 39	EA	–	–
6.	8" X 6" TEE PER UDACS PLATE NO. 31	EA	–	–
7.	8" X 8" TEE PER UDACS PLATE NO. 31	EA	–	–
8.	8" 5 DEGREE BEND WITH RESTRAINED JOINTS	EA	–	–
9.	8" 11.25 DEGREE BEND PER UDACS PLATE NO. 31	EA	–	–
10.	8" 22.5 DEGREE BEND PER UDACS PLATE NO. 31	EA	–	–
11.	8" 45 DEGREE BEND PER UDACS PLATE NO. 31	EA	–	–
12.	8" 90 DEGREE BEND PER UDACS PLATE NO. 31	EA	–	–
13.	CAP AND 2" BLOW-OFF ASSEMBLY W/CAP PER UDACS PLATE NO. 36	EA	–	–
14.	1" COPPER SERVICE W/ 3/4" METER PER UDACS PLATE NO. 2	EA	–	–
15.	1" COPPER SERVICE W/ 1" METER PER UDACS PLATE NO. 4	EA	–	–
16.	1" COPPER SERVICE W/ 3/4" METER & 1" RPPA PER UDACS PLATE NO. 4 & 8	EA	–	–
		EA	–	
STREET IMPROVEMENTS				
1.	2" A.C. PAVEMENT W/ 4" TYPE II OVER 6" TYPE I AGGREGATE BASE	SY	–	–
2.	STANDARD 18" TYPE "L" ISLAND CURB & GUTTER W/6" TYPE I AGGREGATE BASE	LF	–	–
3.	STANDARD 8" TYPE "A" ISLAND CURB W/6" TYPE I AGGREGATE BASE	LF	–	–
4.	STANDARD 30" TYPE "ROLL" CURB & GUTTER W/6" TYPE I AGGREGATE BASE	LF	–	–
5.	4' WIDE CONCRETE SIDEWALK W/4" TYPE II AGGREGATE BASE.	SF	–	–
6.				
7.				
TRAFFIC SIGNALS				
1.	30" STOP SIGN WITH POST (R1-1)	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 PULL BOX W/METAL COVER	EA	–	–
4.	150 AMP SERVICE PEDESTAL (IRR)	EA	–	–
5.	200 AMP SERVICE PEDESTAL (STLT)	EA	–	–
6.				

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 20 GPM

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1

ABBREVIATIONS, LEGEND, AND QUANTITIES

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1909-000

PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSHUA L. JOHNSON
No. 15769
Exp. 06/30/2021
CIVIL
8/7/19

CS-3
SHEET 3 OF 22

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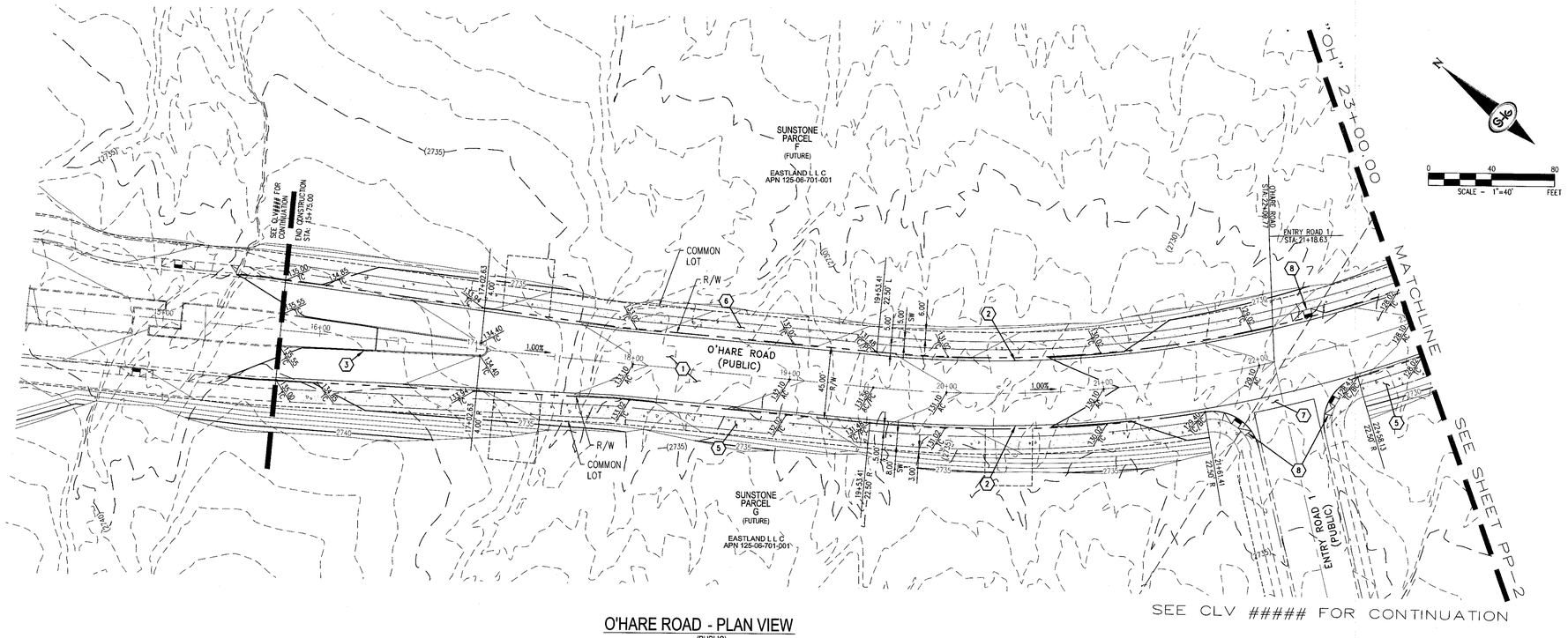
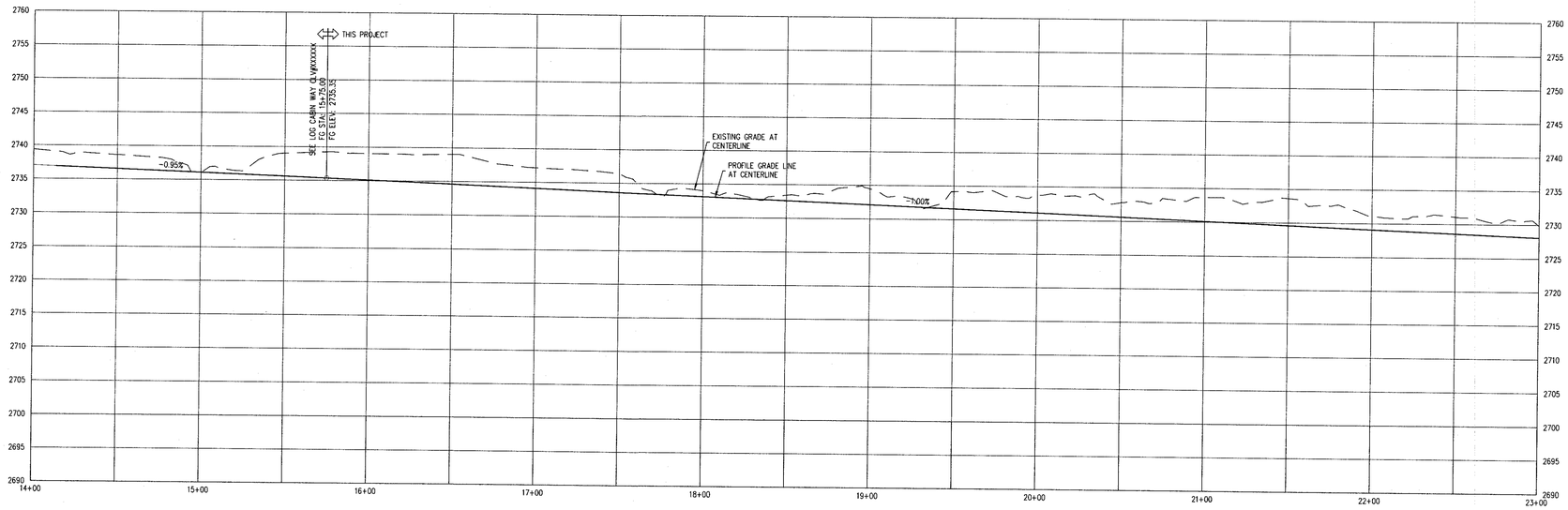
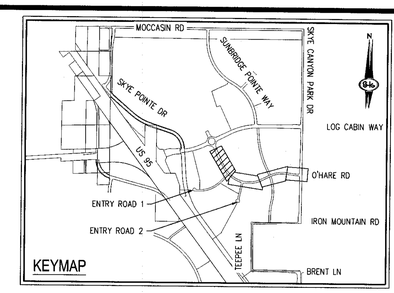


O'HARE ROAD - PLAN VIEW
(PUBLIC)



O'HARE ROAD - PROFILE VIEW
HORIZ: 1" = 40'
VERT: 1" = 10'



CONSTRUCTION NOTES

1. INSTALL ?" ASPHALT PAVEMENT OVER 9" 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 10' WIDE SIDEWALK PER CCAUSD NO. 234
5. CONSTRUCT 8' WIDE SIDEWALK PER CCAUSD NO. 234
6. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD NO. 234
7. CONSTRUCT 8' VALLEY GUTTER PER CCAUSD NO. 228
8. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235 CASE I, AND 235.1
9. BICYCLE RAMP- CHECK FOR VERBAGE

NOTES

1. DIMENSIONS ARE TO BACK OF CURB, FACE OF CURB, OR FACE OF MEDIAN UNLESS OTHERWISE SPECIFIED.
2. SEE TY-SHEETS FOR TYPICAL SECTIONS.
3. SEE D-SHEETS FOR STORM DRAIN PLAN AND PROFILES.
4. SEE U-SHEETS FOR WATER AND SEWER PLAN AND PROFILES.
5. SEE GR-SHEETS FOR OFFSITE GRADING.

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300
FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
O'HARE ROAD
PLAN & PROFILE I - "OH" 15+00.00 TO "OH" 23+00.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1909-000

PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSHUA L. JOHNSON
Date: 08/07/2019
CIVIL
No. 15789

8/7/19

PP-1
SHEET 4 OF 22

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

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811
OR
1-800-227-2600

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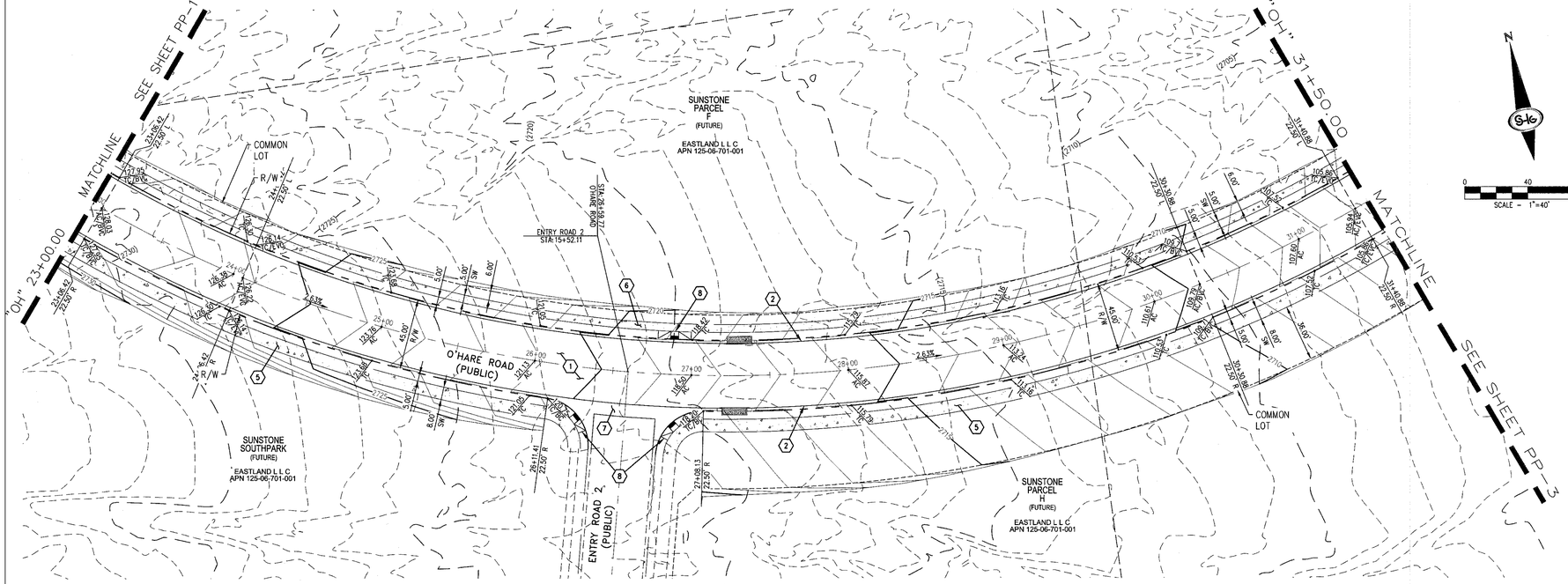

O'HARE ROAD - PLAN VIEW
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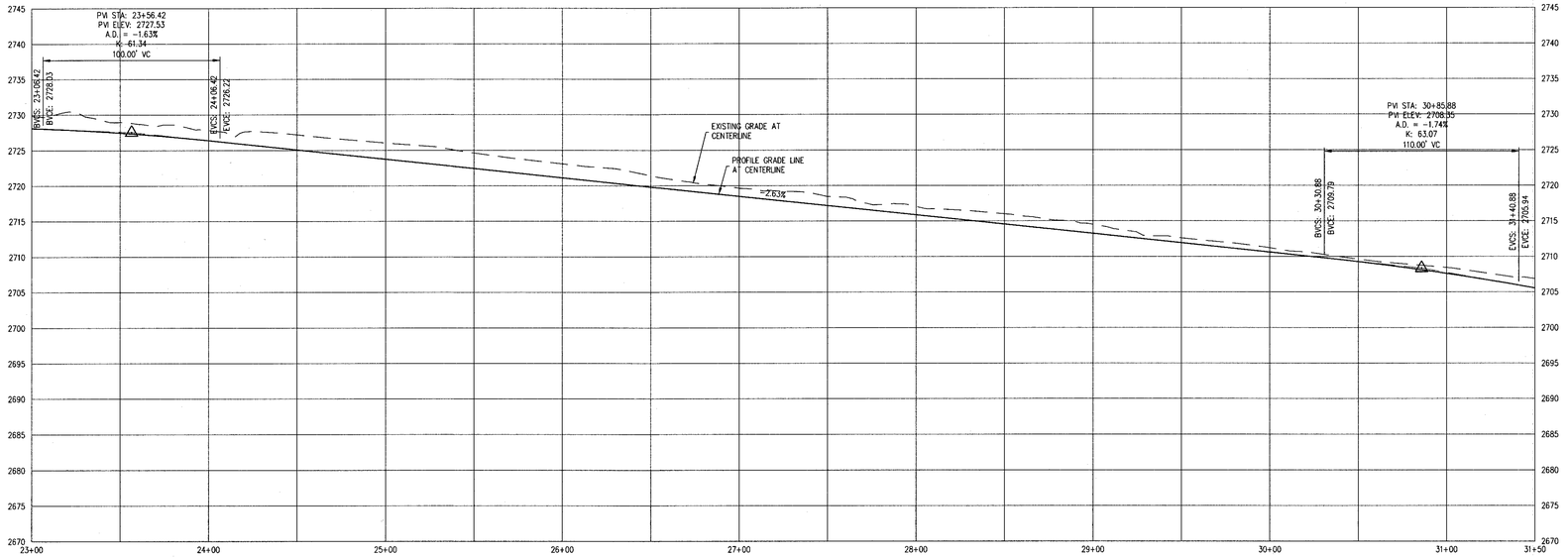

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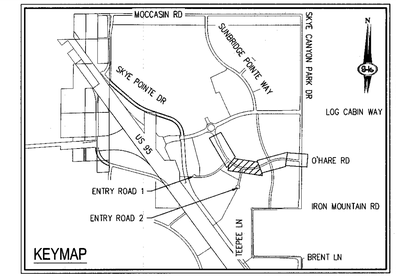

CONSTRUCTION NOTES

1. INSTALL 7" ASPHALT PAVEMENT OVER 7" 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 10' WIDE SIDEWALK PER CCAUSD NO. 234
5. CONSTRUCT 8' WIDE SIDEWALK PER CCAUSD NO. 234
6. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD NO. 234
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8. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235 CASE I, AND 235.1
9. BICYCLE RAMP- CHECK FOR VERBAGE

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FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
O'HARE ROAD
PLAN & PROFILE II - "OH" 23+00.00 TO "OH" 31+50.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1909-000

PROFESSIONAL ENGINEER – STATE OF NEVADA
JOSHUA L. JOHNSON
No. 15789
EXP. 06/30/2021
CIVIL
8/7/19

PP-2
SHEET 5 OF 22

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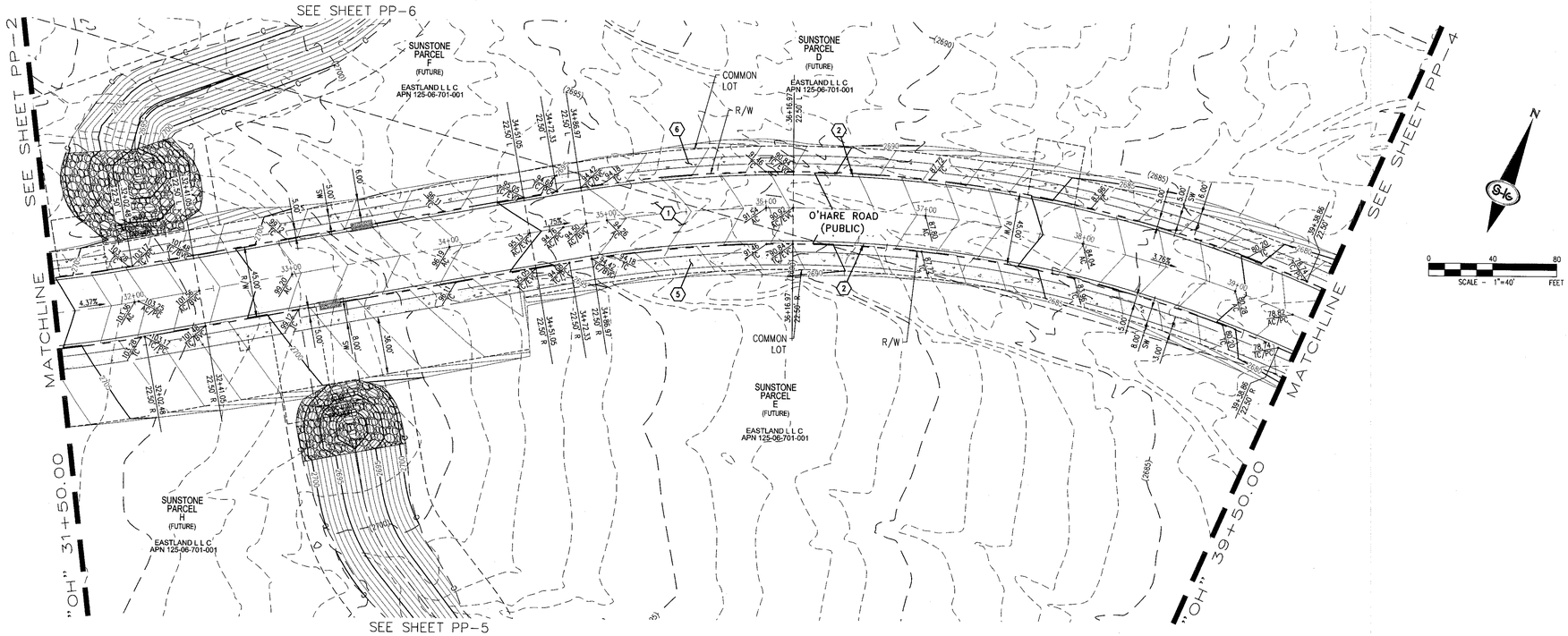
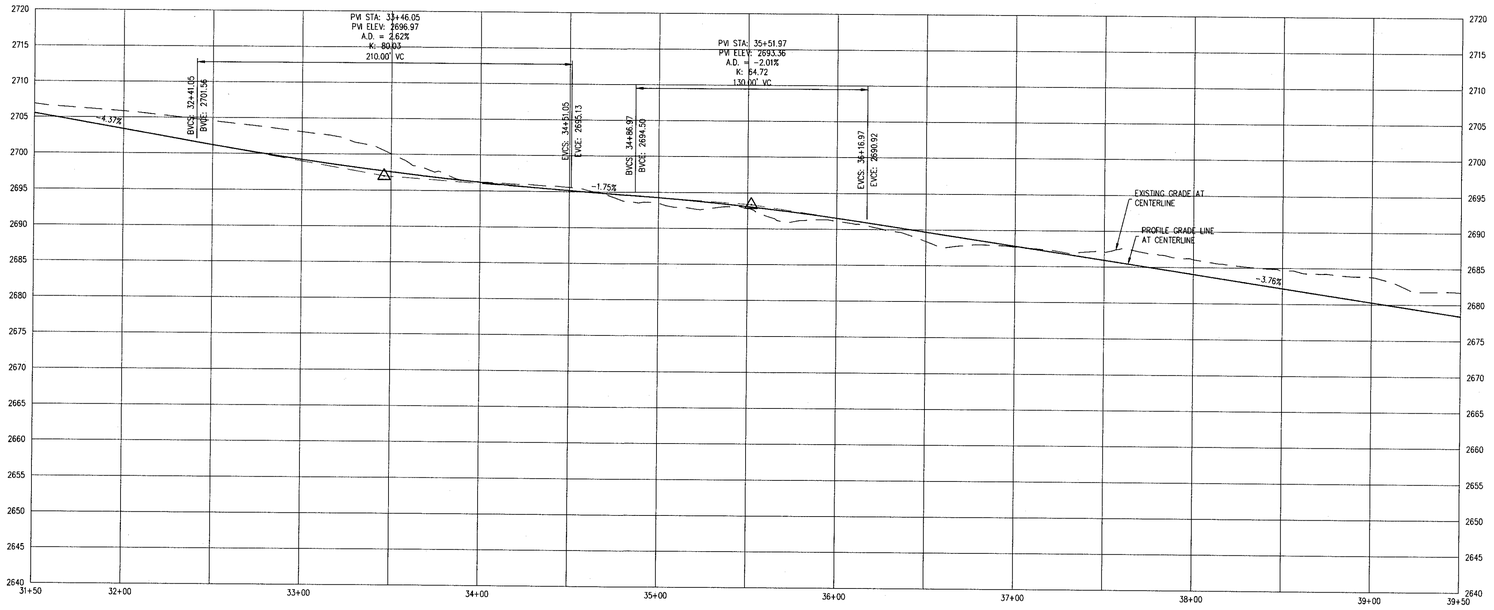


O'HARE ROAD - PLAN VIEW
(PUBLIC)



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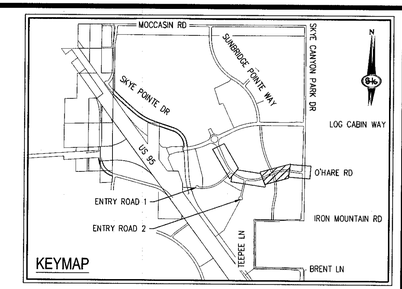

CONSTRUCTION NOTES

1. INSTALL ?" ASPHALT PAVEMENT OVER ?" 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 10' WIDE SIDEWALK PER CCAUSD NO. 234
5. CONSTRUCT 8' WIDE SIDEWALK PER CCAUSD NO. 234
6. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD NO. 234
7. CONSTRUCT 8' VALLEY GUTTER PER CCAUSD NO. 228
8. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235 CASE 1, AND 235.1
9. BICYCLE RAMP- CHECK FOR VERBAGE

NOTES

1. DIMENSIONS ARE TO BACK OF CURB, FACE OF CURB, OR FACE OF MEDIAN UNLESS OTHERWISE SPECIFIED.
2. SEE TY-SHEETS FOR TYPICAL SECTIONS.
3. SEE D-SHEETS FOR STORM DRAIN PLAN AND PROFILES.
4. SEE U-SHEETS FOR WATER AND SEWER PLAN AND PROFILES.
5. SEE GR-SHEETS FOR OFFSITE GRADING.

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

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811
OR
1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
O'HARE ROAD
PLAN & PROFILE III - "OH" 31+50.00 TO "OH" 39+50.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1909-000

PROFESSIONAL ENGINEER STATE OF NEVADA
JOSHUA L. JOHNSON
No. 15789
Exp. 06/30/2021
CIVIL
8/7/19

PP-3
SHEET 6 OF 22

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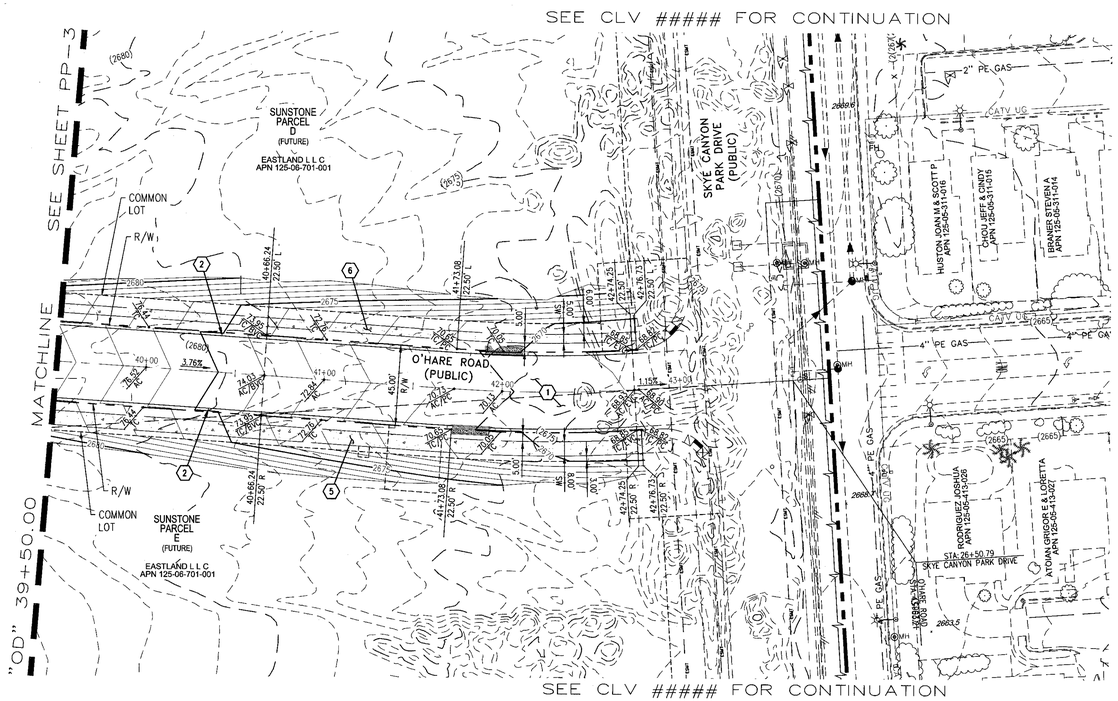
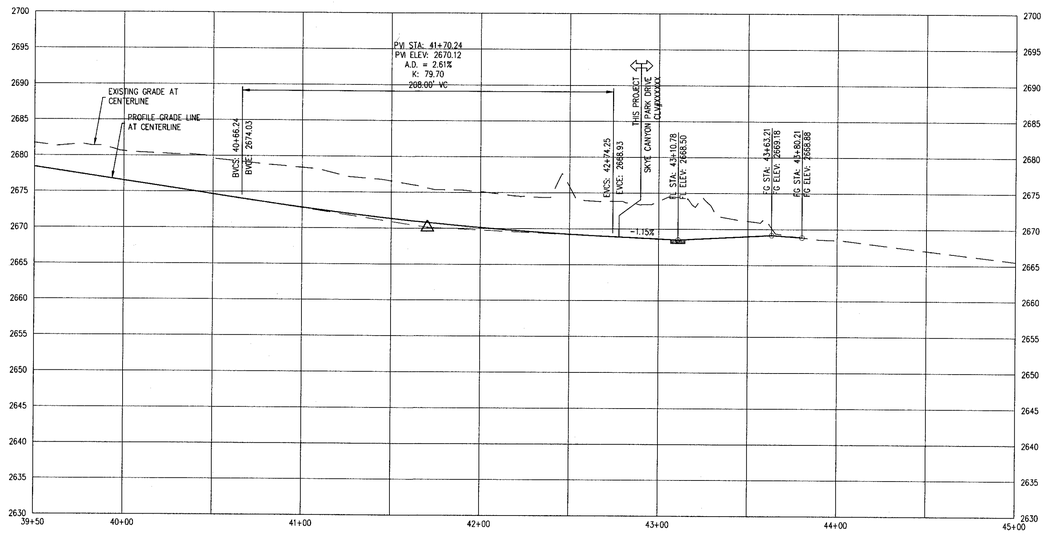
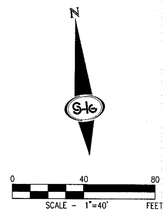
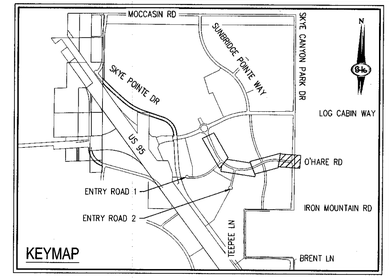


O'HARE ROAD - PLAN VIEW
(PUBLIC)



O'HARE ROAD - PROFILE VIEW
HORIZ: 1" = 40'
VERT: 1" = 10'





CONSTRUCTION NOTES

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2. CONSTRUCT "L" TYPE CURB PER CCAUSD NO. 216
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Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811
OR
1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP DATE	APP

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
O'HARE ROAD
PLAN & PROFILE IV - "OH" 39+50.00 TO "OH" 45+00.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1909-000

PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSHUA L. JOHNSON
No. 15789
EXPIRES: 12/31/2021
CIVIL
8/7/19

PP-4
SHEET 7 OF 22

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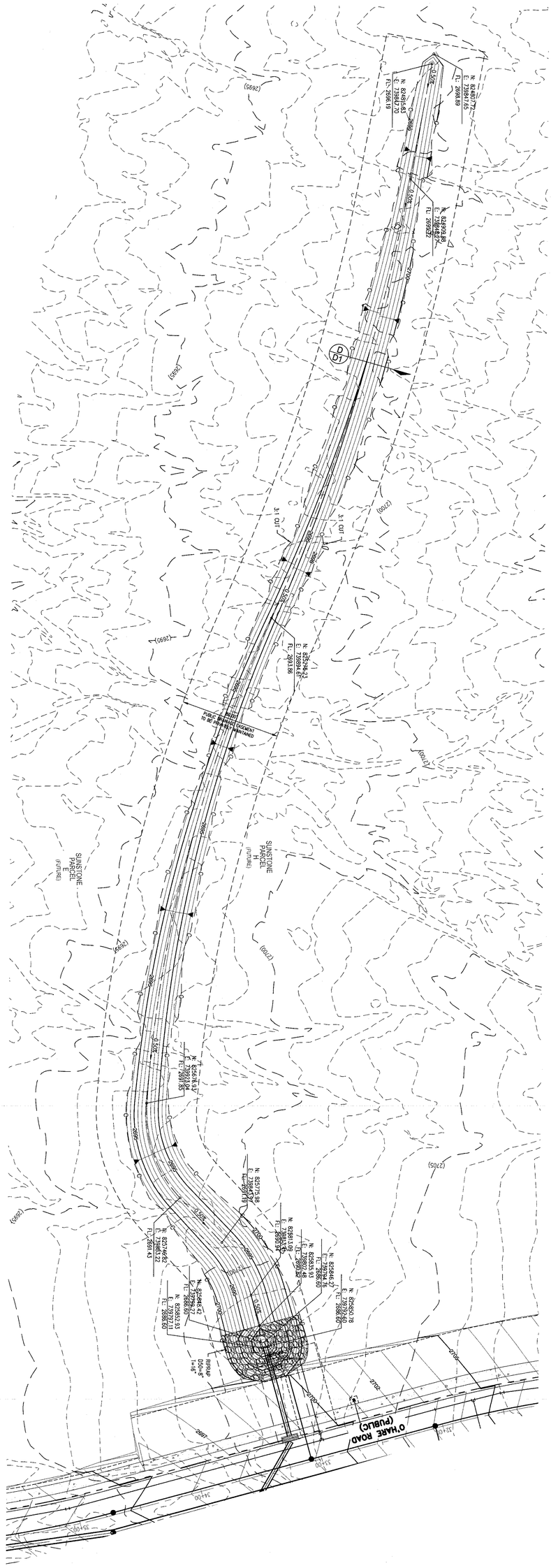

NOTE

PROPERTY OWNER IS RESPONSIBLE TO MAINTAIN THE BEST MANAGEMENT PRACTICES (BMP'S) INCLUDING BUT NOT LIMITED TO THE REMOVAL OF ACCUMULATED SEDIMENT AND DEBRIS AND CARE OF VEGETATION.

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

Call UnderGround 811 Nevada 1-702-432-5300 NEVADA STATE DEPARTMENT OF TRANSPORTATION (NDOT)

Call before you Dig 811 Call 1-800-227-2600 AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.

PROJECT NO.	EST1909-000
CHECKED: JJ	
DESIGNER: BC	
DRAFTER: SB/AR	
DATE: 08/07/19	

PROFESSIONAL ENGINEER — STATE OF NEVADA — JOSEPH JOHNSON — No. 15789 — 8/7/19

PP-5
SHEET 8 OF 22

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
O'HARE ROAD
GRADING PLAN I

CITY OF LAS VEGAS

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

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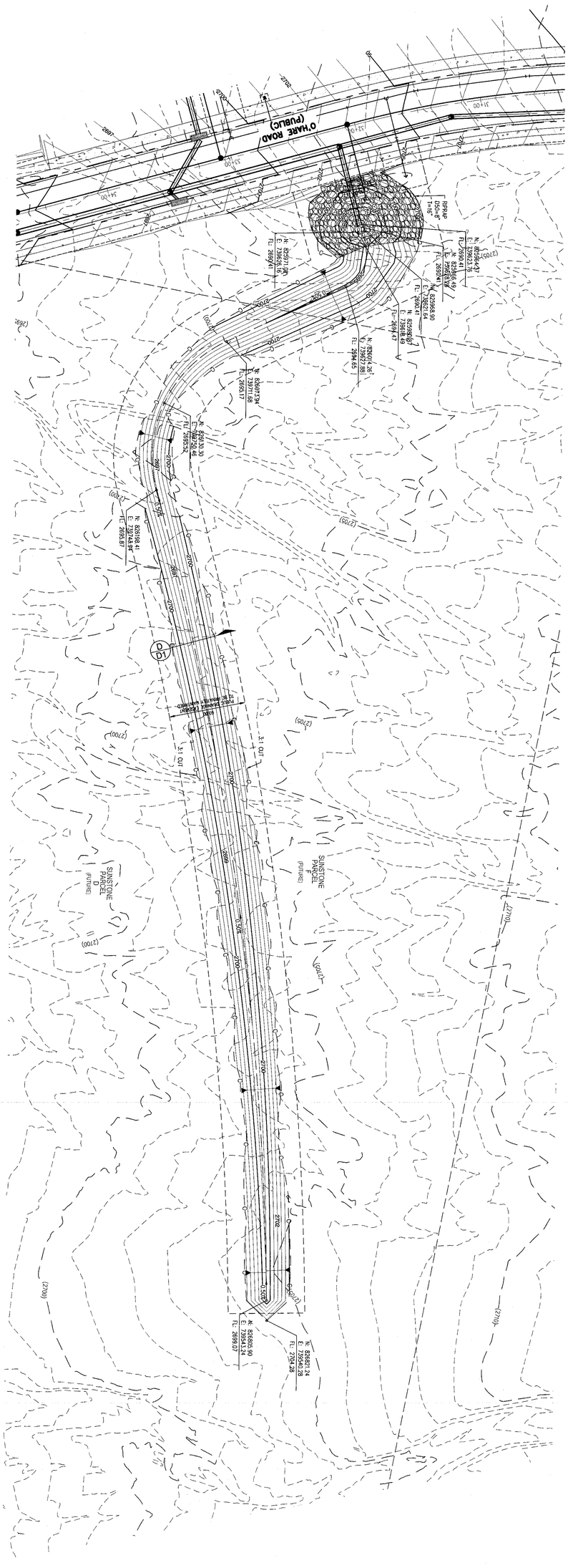


NOTE

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

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

Call
UnderGround
1-702-432-5300
NEVADA ENERGY SYSTEM OF TRANSMISSION (NEST)

Call before you dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call
811
1-800-227-2600

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
O'HARE ROAD
GRADING PLAN II

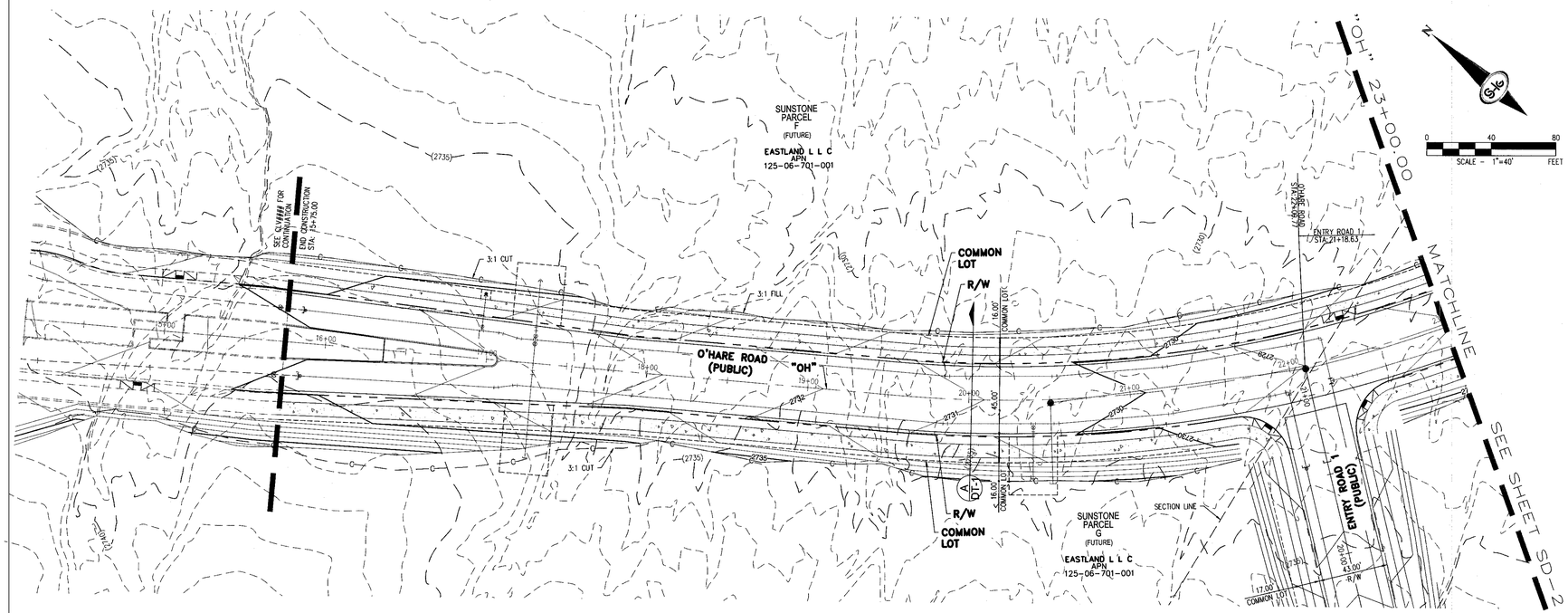
NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

DATE: 08/07/19
DRAFTER: SB/AR
DESIGNER: BC
CHECKED: JJ
PROJECT NO. EST1909-000

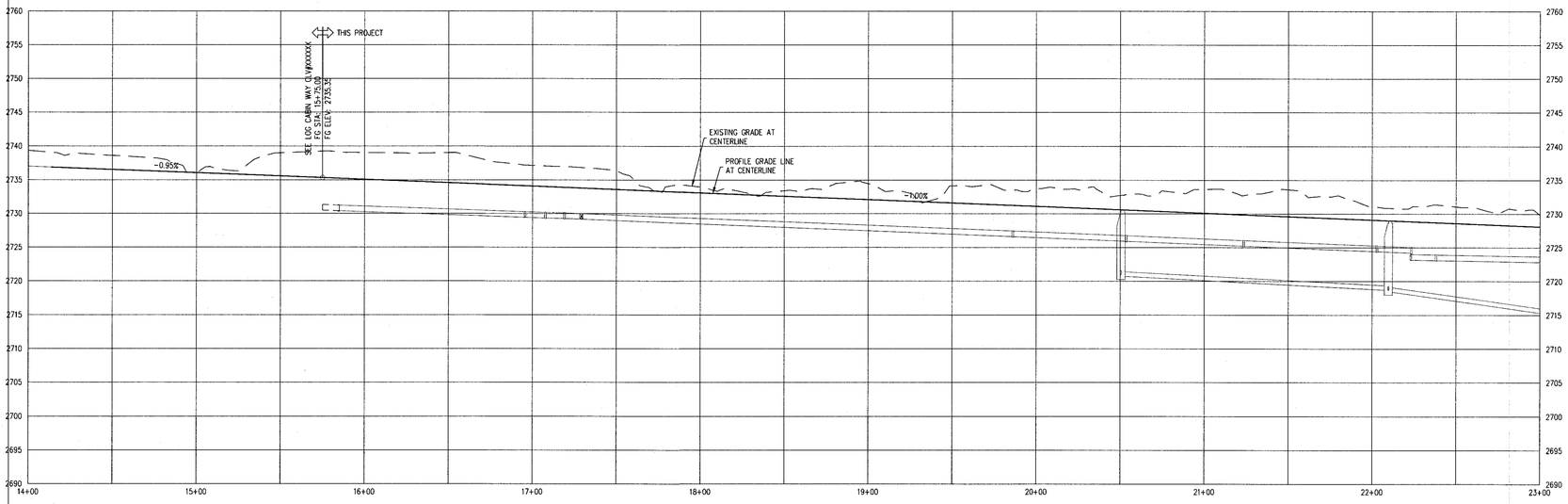
PP-6
SHEET 9 OF 22

PROFESSIONAL ENGINEER
STATE OF NEVADA
No. 15769
JOSHUA J. JOHNSON
Vice President
Civil
Not valid unless signed and dated.
8/7/19

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399



O'HARE ROAD - PLAN VIEW
(PUBLIC)

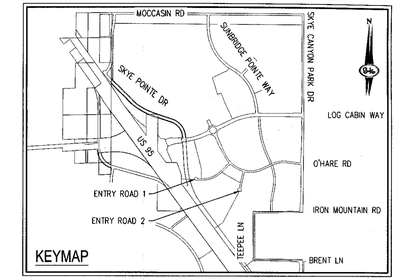


O'HARE ROAD - PROFILE VIEW
HORIZ: 1" = 40'
VERT: 1" = 10'

NOTES

1. ALL RCP SHALL BE CLASS III UNLESS OTHERWISE SHOWN.
2. ALL PIPE LENGTHS ARE MEASURED ALONG PIPE CENTERLINE TO CENTER OF MANHOLE OR INSIDE EDGE OF DI OR RCB/RCA.
3. ALL DROP INLETS SHALL INCLUDE STORM WATER MANAGEMENT STAMP AND DETAIL PER USDCCA STD. DWG. NO. 421.
4. SEE STRUCTURAL PLANS FOR ADDITIONAL STRUCTURAL DETAILS AND CONNECTIONS.
5. ALL PIPES IN PUBLIC ROW ARE PUBLICLY MAINTAINED.
6. ADD SPECIAL INSPECTION REQUIRED FOR PIPE SEGMENTS WITH SACRIFICIAL CONCRETE.
7. SEE UTILITY PLAN AND PROFILE SHEETS FOR UTILITY ADJUSTMENTS AND RELOCATIONS.
8. ALL INTERIM DRAINAGE FACILITIES TO BE PRIVATELY MAINTAINED.
9. PROPERTY OWNER IS RESPONSIBLE TO MAINTAIN THE BEST MANAGEMENT PRACTICES, SUCH AS BUT NOT LIMITED TO, THE REMOVAL OF ACCUMULATED SEDIMENT AND DEBRIS AND CARE OF VEGETATION.
10. 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).



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 OVERA 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 NO. 00541 OF OFFICIAL RECORDS

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

E4 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.

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 NEVO13376 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.

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 EASENT 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.

SURVEY NOTE

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

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

STORM DRAIN NOTES

1. CONSTRUCT TYPE "CM2" DROP INLET (USDCCA STD. DWG. NO. 412.1 & 421)
2. CONSTRUCT 60" TYPE III MANHOLE (USDCCA STD. DWG. NO. 406.1)
3. CONSTRUCT NDOT TYPE 4 MANHOLE (NDOT STD. PLAN R-4.3.2)
4. INSTALL 18" RCP (USDCCA STD. DWG. NO. 503.2)
5. INSTALL 24" RCP (USDCCA STD. DWG. NO. 503.2)
6. INSTALL 42" RCP (USDCCA STD. DWG. NO. 503.2)
7. INSTALL 48" RCP (USDCCA STD. DWG. NO. 503.2)
8. INSTALL 66" RCP (USDCCA STD. DWG. NO. 503.2)
9. CONSTRUCT 6' X 6' RCB (NDOT STD. PLAN B-20.1.2)
10. CONSTRUCT 7' X 5' RCB (NDOT STD. PLAN B-20.1.2)

LEGEND

(#) STORM DRAIN LATERAL # (SEE SHEET SD-5)

FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE 'X' (OUTSIDE THE 500-YEAR FLOOD PLAIN) ON THE FLOOD INSURANCE RATE MAP (FIRM) PANEL: 32003C1735E, 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.

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ##### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW TOTAL 1,500 GPM / ONSITE 20 GPM

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

NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
O'HARE ROAD
STORM DRAIN I - "OH" 15+00.00 TO "OH" 23+00.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1909-000

PROFESSIONAL ENGINEER - STATE OF NEVADA - JOSHUA JOHNSON - Exp. 06/30/2021 - No. 15789 - CIVIL
8/7/19

SD-1
SHEET 10 OF 22

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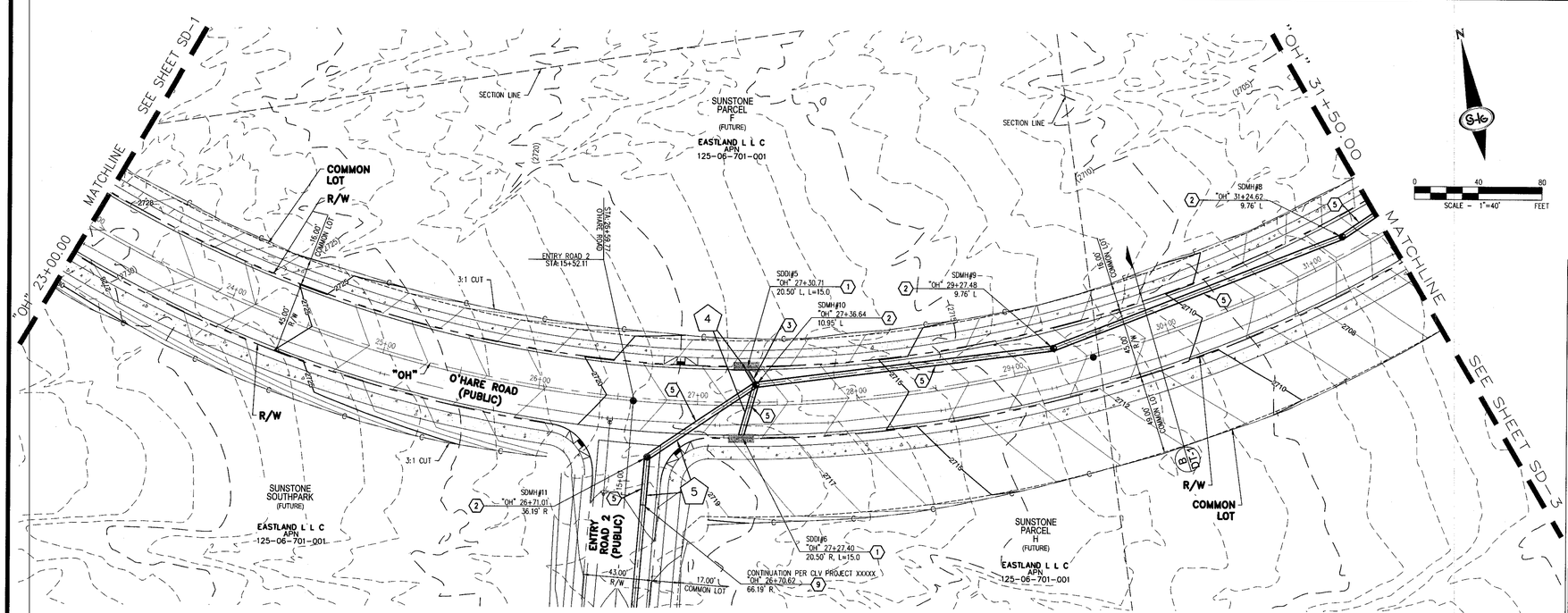
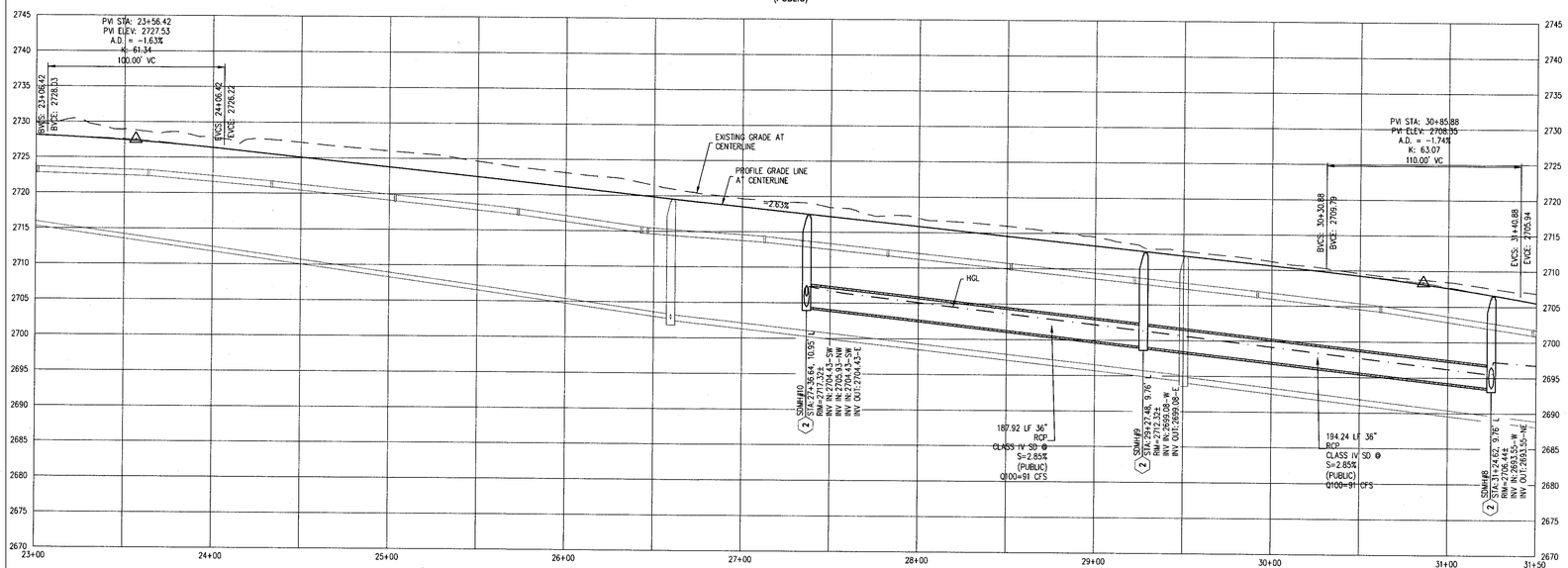
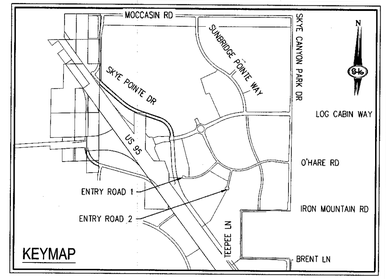


O'HARE ROAD - PLAN VIEW
(PUBLIC)



O'HARE ROAD - PROFILE VIEW
HORIZ: 1" = 40'
VERT: 1" = 10'

0 40 80
SCALE - 1"=40' FEET



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E4 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.

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E8 NDOT EASENT 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.

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

STORM DRAIN NOTES
1. CONSTRUCT TYPE "CM2" DROP INLET (USDCCA STD. DWG. NO. 412.1 & 421)
2. CONSTRUCT 60" TYPE III MANHOLE (USDCCA STD. DWG. NO. 406.1)
3. CONSTRUCT NDOT TYPE 4 MANHOLE (NDOT STD. PLAN R-4.3.2)
4. INSTALL 18" RCP (USDCCA STD. DWG. NO. 503.2)
5. INSTALL 24" RCP (USDCCA STD. DWG. NO. 503.2)
6. INSTALL 42" RCP (USDCCA STD. DWG. NO. 503.2)
7. INSTALL 48" RCP (USDCCA STD. DWG. NO. 503.2)
8. INSTALL 66" RCP (USDCCA STD. DWG. NO. 503.2)
9. CONSTRUCT 6' X 6' RCB (NDOT STD. PLAN B-20.1.2)
10. CONSTRUCT 7' X 5' RCB (NDOT STD. PLAN B-20.1.2)

LEGEND
(#) STORM DRAIN LATERAL # (SEE SHEET SD-5)

FLOOD ZONE
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ELEVATION NOTE
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7. SEE UTILITY PLAN AND PROFILE SHEETS FOR UTILITY ADJUSTMENTS AND RELOCATIONS.
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APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

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

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PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

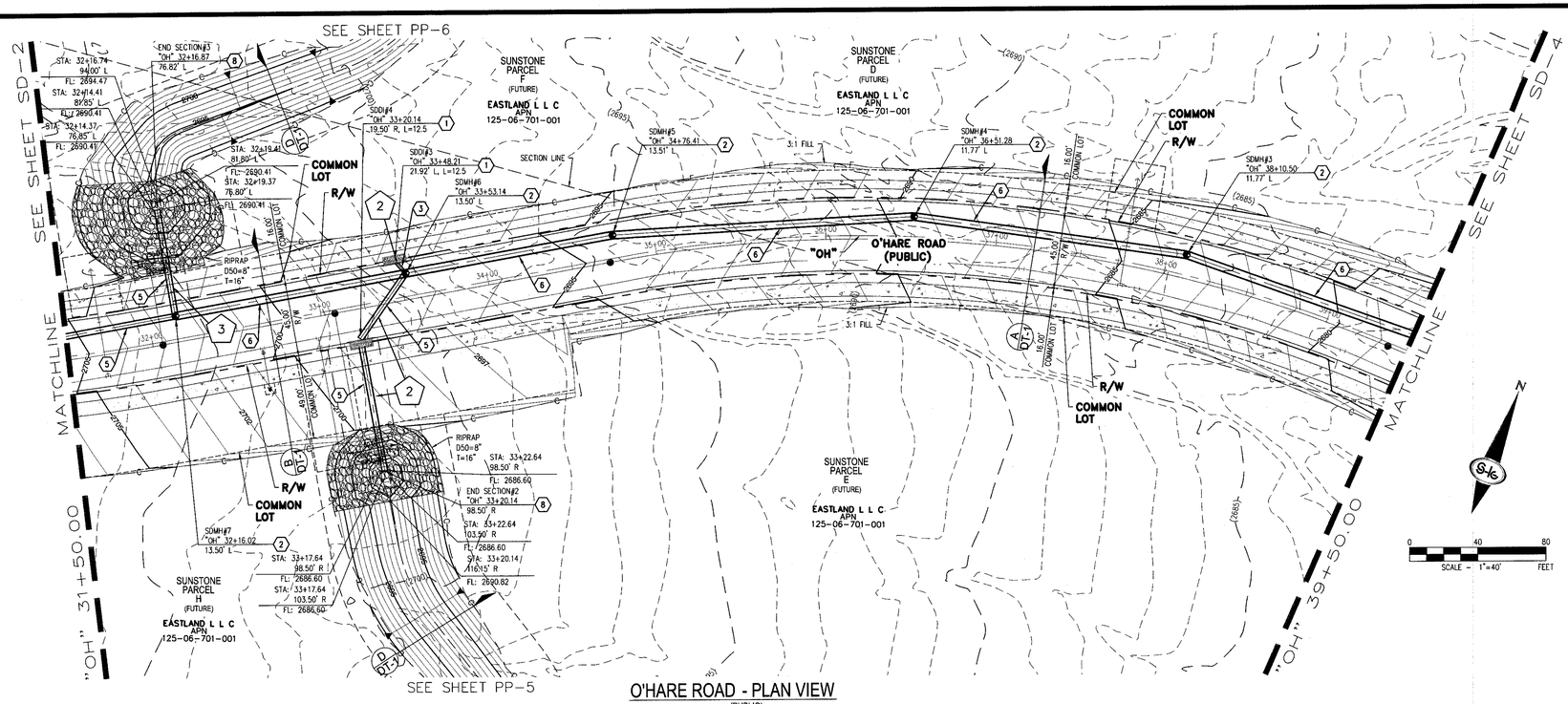
SUNSTONE PHASE 1
O'HARE ROAD
STORM DRAIN II - "OH" 23+00.00 TO "OH" 31+50.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1909-000

PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSHUA L. JOHNSON
No. 15789
Exp. 06/30/2021
CIVIL
8/7/19

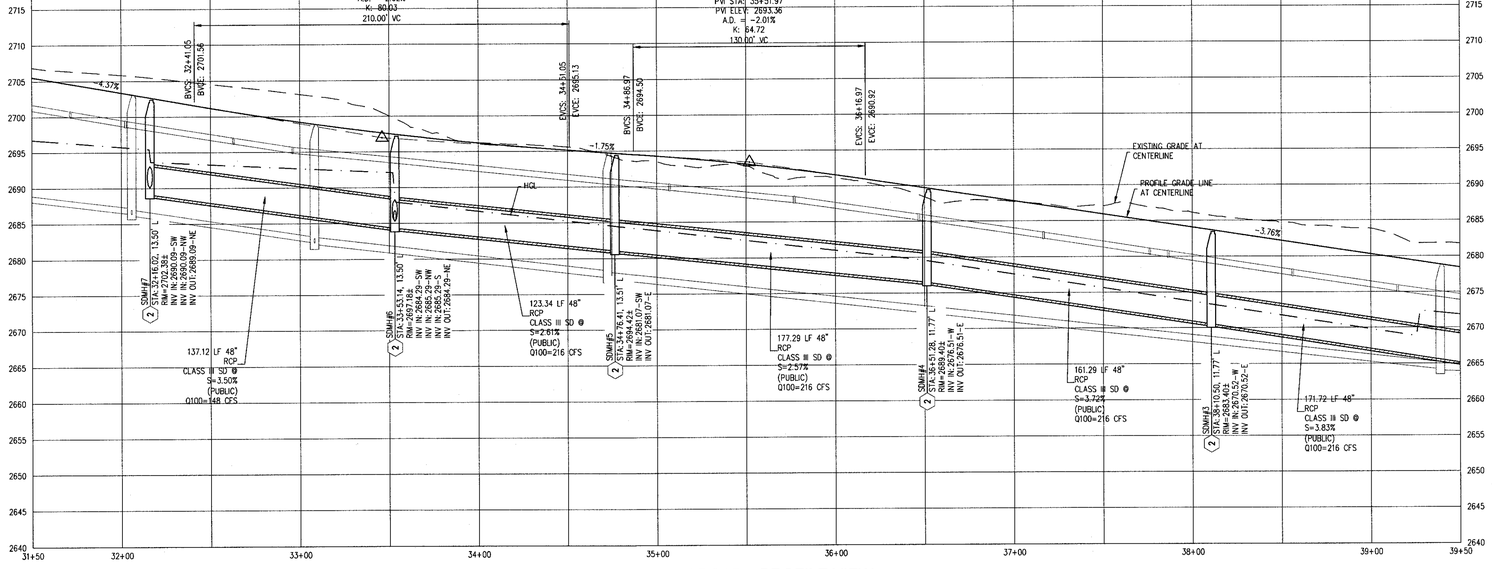
SD-2
SHEET 11 OF 22

J:\est1909-000 sunstone ohara\dwg\improv\est1909-000_sd.dwg, 8/7/2019 1:52 PM, Thomas Dyson



O'HARE ROAD - PLAN VIEW

(PUBLIC)



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HORIZ: 1" = 40'
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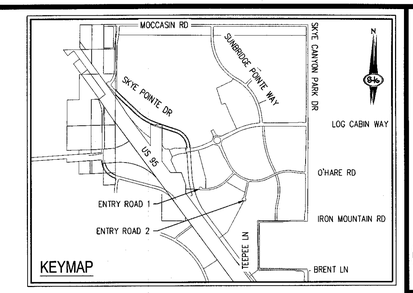

EXISTING EASEMENTS

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 OVERA 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.

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

E4 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.

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.

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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.

SURVEY NOTE

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

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

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LEGEND

(#) STORM DRAIN LATERAL # (SEE SHEET SD-5)

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APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

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NO.	DESCRIPTION	DATE	BY	APP. DATE

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
O'HARE ROAD
STORM DRAIN III - "OH" 31+50.00 TO "OH" 39+50.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1909-000

PROFESSIONAL ENGINEER STATE OF NEVADA JOSHUA L. JOHNSON No. 15789 Exp. 06/30/2021 CIVIL 8/7/19

SD-3
SHEET 12 OF 22

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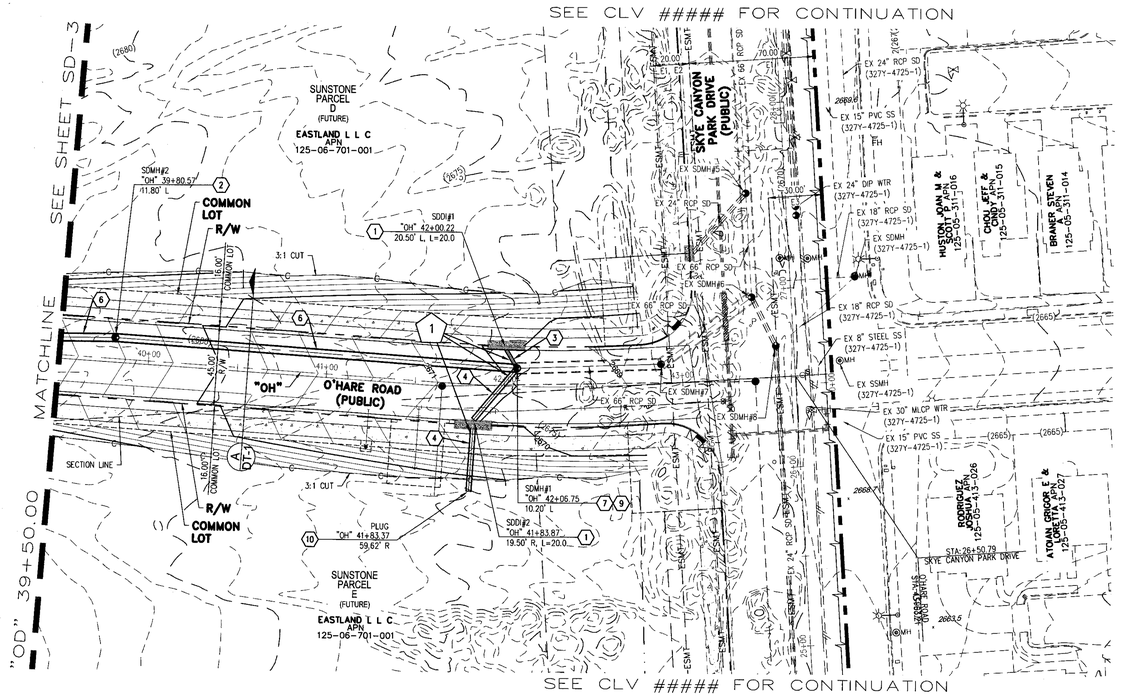

O'HARE ROAD - PLAN VIEW
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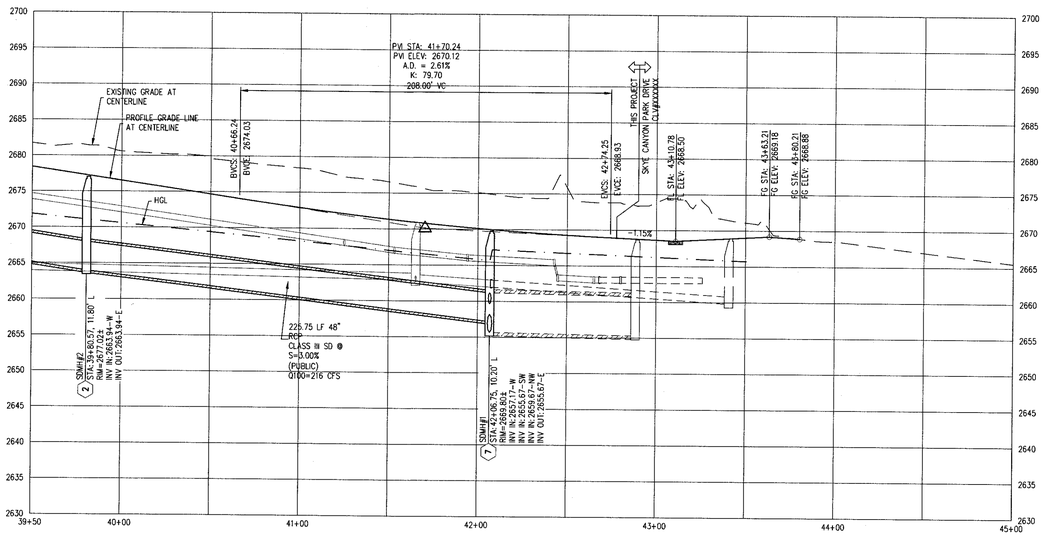

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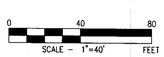

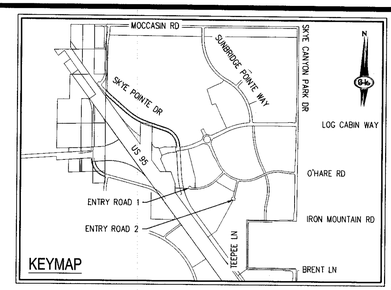

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LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE:
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JOSH JOHNSON, P.E. 15789 DATE

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
O'HARE ROAD
STORM DRAIN IV - "OH" 39+50.00 TO "OH" 45+00.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1909-000

NEVADA PROFESSIONAL ENGINEER STATE OF NEVADA JOSHUA L. JOHNSON No. 15789 CIVIL Exp. 06/30/2021
8/7/19

SD-4
SHEET 13 OF 22

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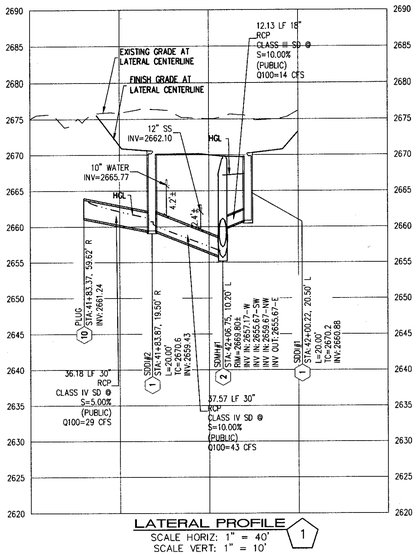

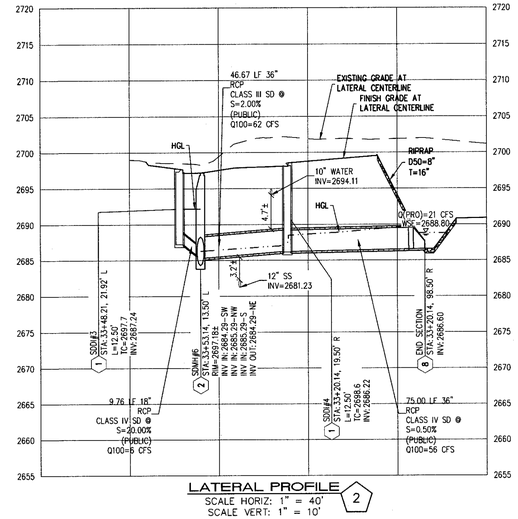

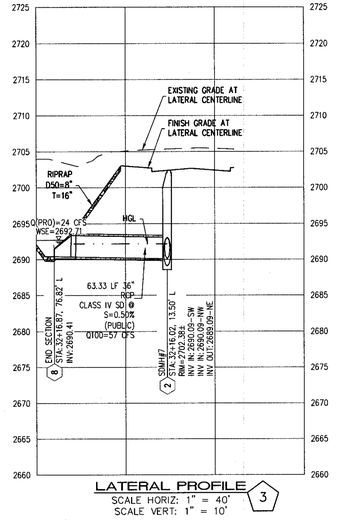

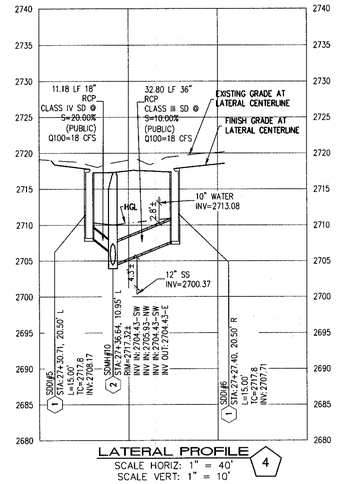

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 264-5300 FAX (702) 264-5399

NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1

STORM DRAIN LATERAL I

DATE: 08/07/19

DRAFTER: SB/JR

DESIGNER: BC

CHECKED: JJ

PROJECT NO.
EST1909-000

PROFESSIONAL ENGINEER STATE OF NEVADA
JOSHUA L. JOHNSON
Exp. 06/30/2021
No. 15789
CIVIL
8/7/19

SD-5
SHEET 14 OF 22

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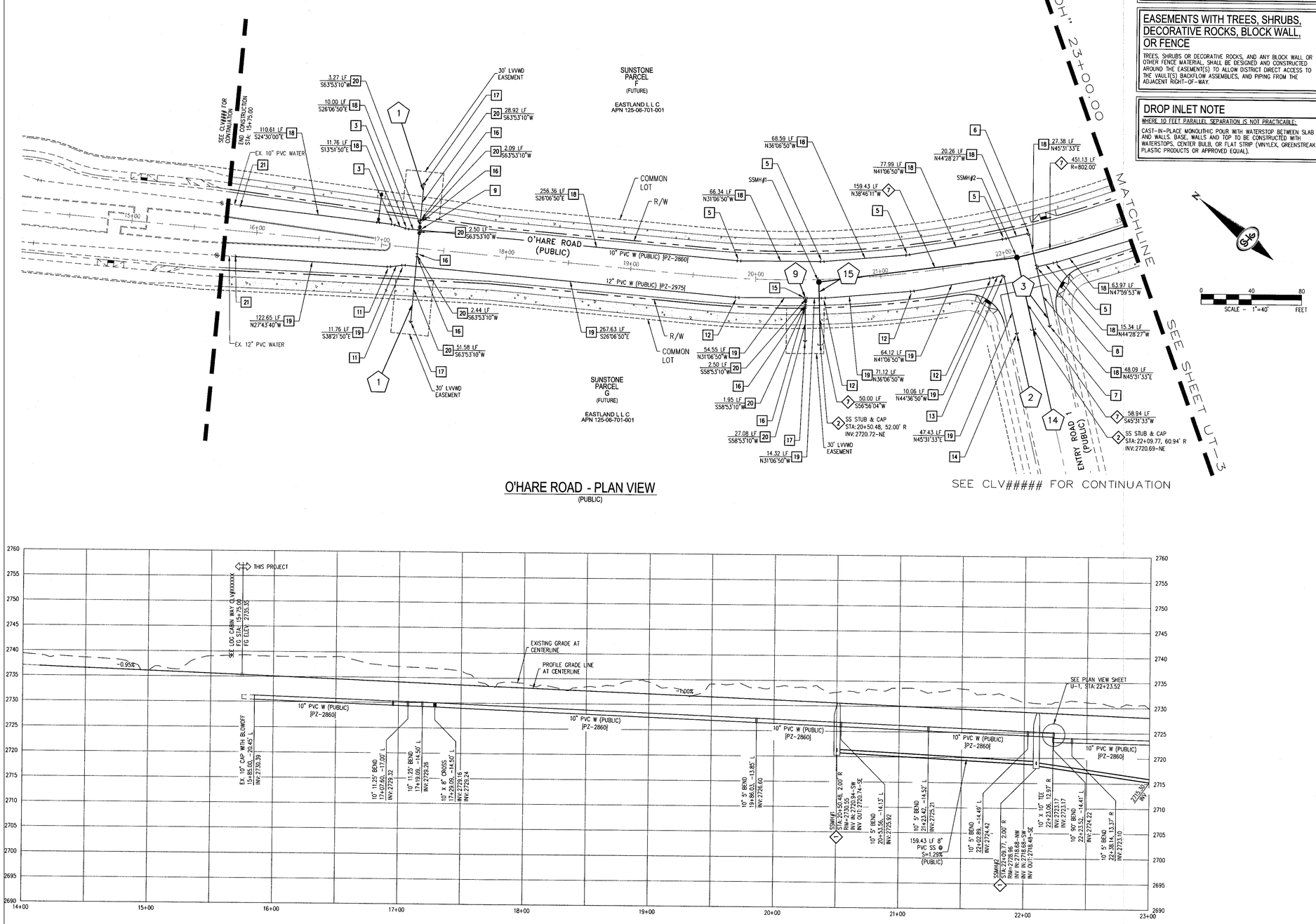

O'HARE ROAD - PLAN VIEW
(PUBLIC)

O'HARE ROAD - PROFILE VIEW
HORIZ: 1" = 40'
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SEE CLV##### FOR CONTINUATION

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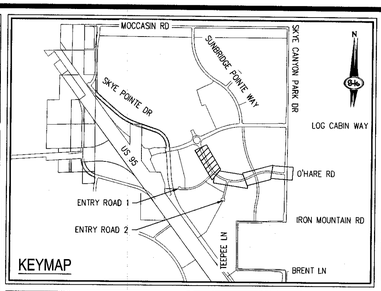

KEYMAP

WATER NOTES

1. INSTALL 10" 1° BEND PER UDACS PLATE NO. 31
2. INSTALL 10" 1° VERTICAL BEND PER UDACS PLATE NO. 31
3. INSTALL 10" 11.25° BEND PER UDACS PLATE NO. 31
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SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

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APPROVED FOR CONSTRUCTION

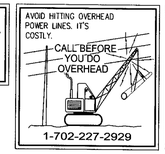
LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. _____ FIRST APPROVED DATE: _____
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

APPROVAL

LAS VEGAS FIRE AND RESCUE _____ DATE _____

LEGEND

(#) WATER & SEWER LATERAL # (SEE SHEETS UT-6 & UT-7)



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PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

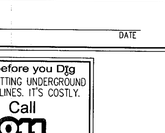
CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
O'HARE ROAD
UTILITY PLAN I - "OH" 15+00.00 TO "OH" 23+00.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1909-000



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SHEET 15 OF 22

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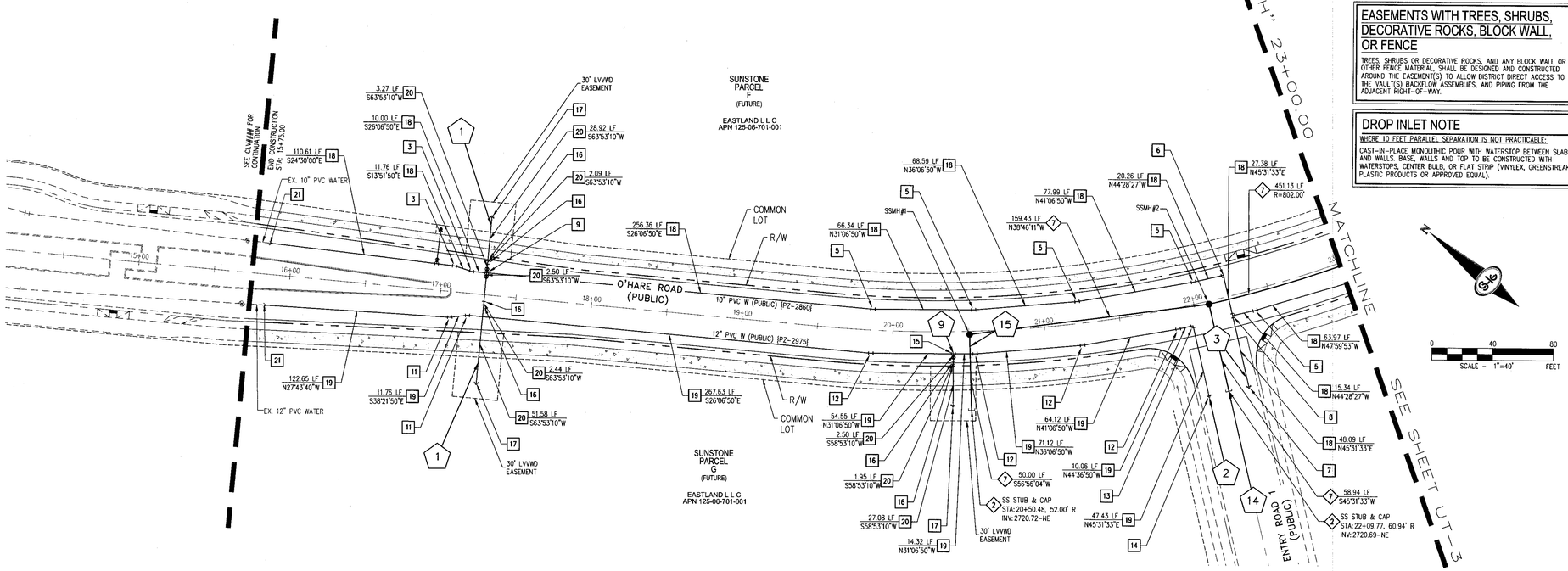
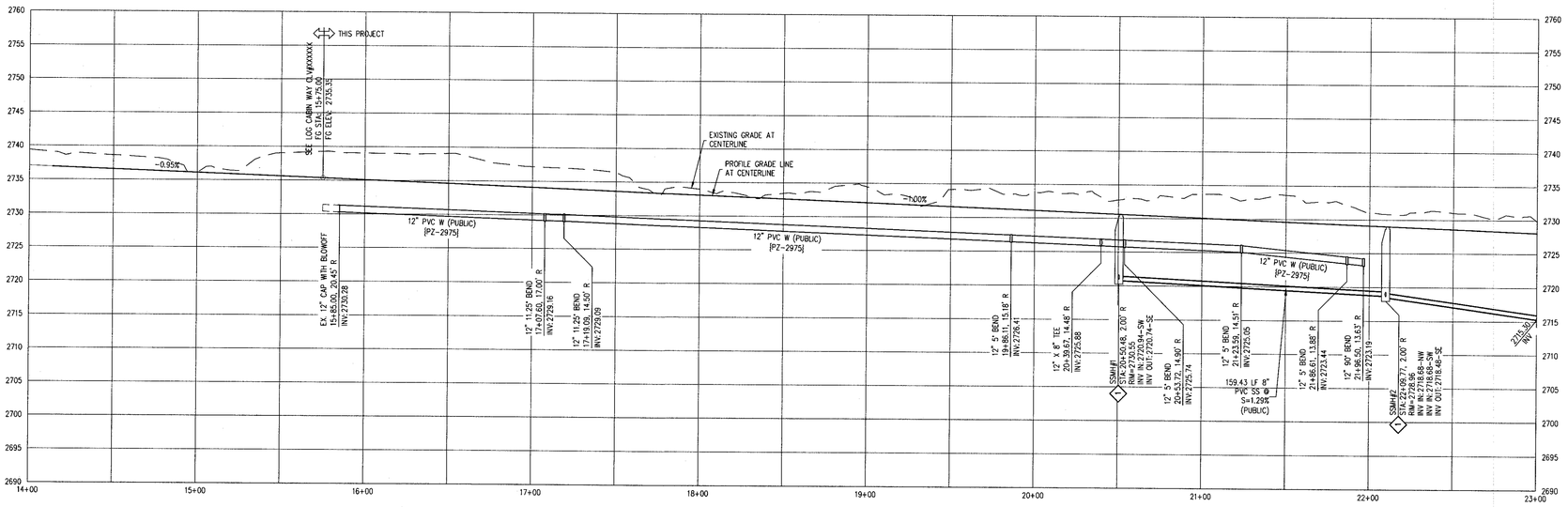


O'HARE ROAD - PLAN VIEW
(PUBLIC)



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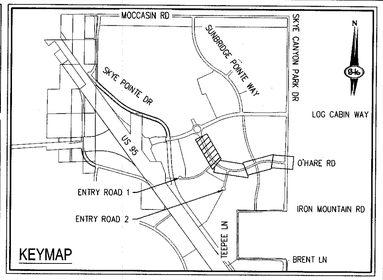

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PROJECT NO. ###### FIRST APPROVED DATE: ____
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APPROVAL

LAS VEGAS FIRE AND RESCUE DATE

LEGEND

(#) WATER & SEWER LATERAL # (SEE SHEETS UT-6 & UT-7)

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

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
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CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
O'HARE ROAD
UTILITY PLAN II - "OH" 15+00.00 TO "OH" 23+00.00

DATE: 08/07/19
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PROFESSIONAL ENGINEER – STATE OF NEVADA
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UT-2
SHEET 16 OF 22

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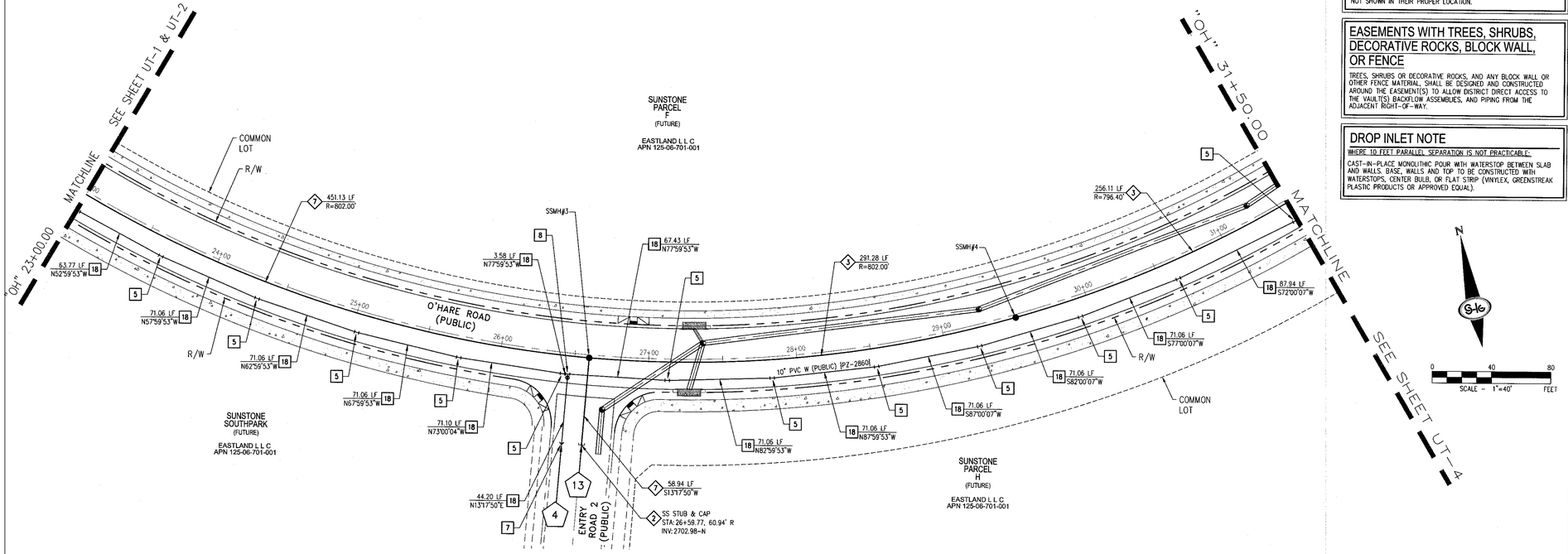

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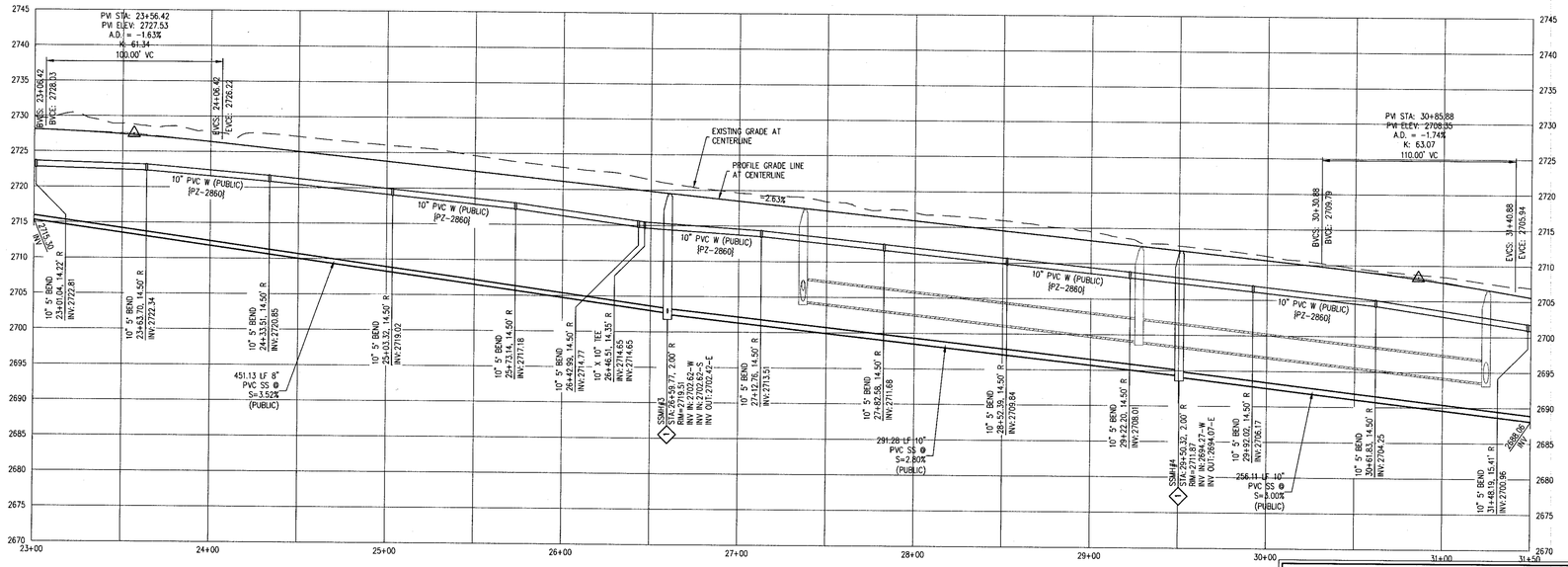

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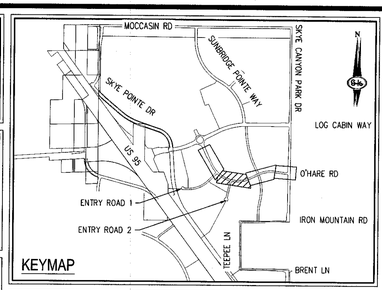

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2. REDUCED PRESSURE PRINCIPLE ASSEMBLY (1) 1" APPROVED REDUCED PRESSURE PRINCIPLE ASSEMBLY(S) SHALL BE INSTALLED PER THE UDACS PLATE NO. 8. NO WATER SHALL BE TAKEN FROM A SERVICE REQUIRING BACKFLOW PREVENTION UNTIL THE REDUCED PRESSURE PRINCIPLE ASSEMBLY HAS BEEN SUCCESSFULLY TESTED BY THE LVVWD. ANY BLOCK WALL OR OTHER FENCE MATERIAL SHALL BE DESIGNED AND CONSTRUCTED AROUND THE OUTSIDE OF THE EASEMENT(S) TO ALLOW THE DISTRICT DIRECT ACCESS FROM THE ADJACENT RIGHT-OF-WAY. EASEMENTS SHALL BE CLEARLY MARKED OR STAKED PRIOR TO THE START OF CONSTRUCTION.
3. ALL SEWER/ STORM DRAINS CROSSING WATER LINES MUST CONFORM TO SECTION 2.22 OF THE UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR POTABLE WATER SYSTEMS (UDACS) FOR WATER AND STORM MAIN CROSSINGS AND CLEARANCES.
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APPROVED FOR CONSTRUCTION
LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

APPROVAL
LAS VEGAS FIRE AND RESCUE DATE

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

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

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SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
O'HARE ROAD
UTILITY PLAN III - "OH" 23+00.00 TO "OH" 31+50.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1909-000

PROFESSIONAL ENGINEER — STATE OF NEVADA — JOSHUA L. JOHNSON — No. 15789 — CIVIL — 08/07/19 — RENEWAL DATE: 08/07/2021

UT-3
SHEET 17 OF 22

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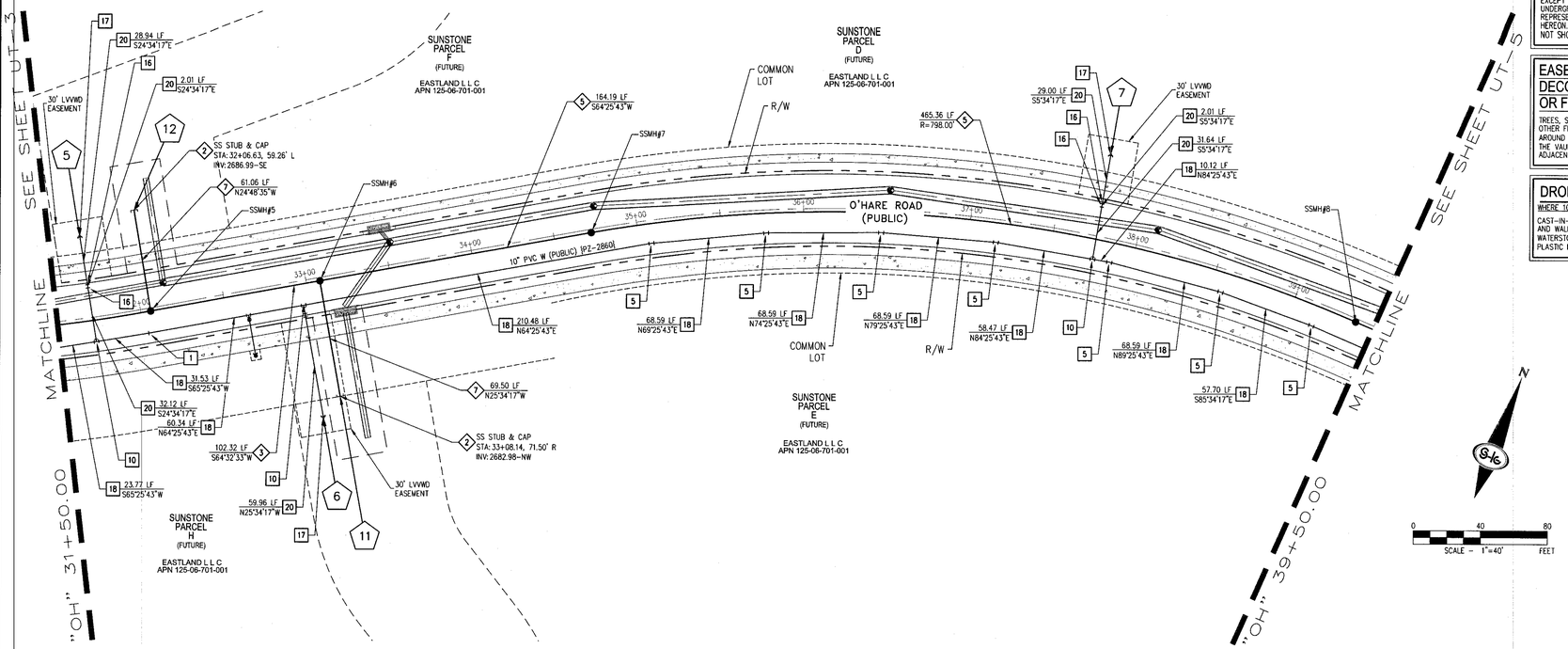
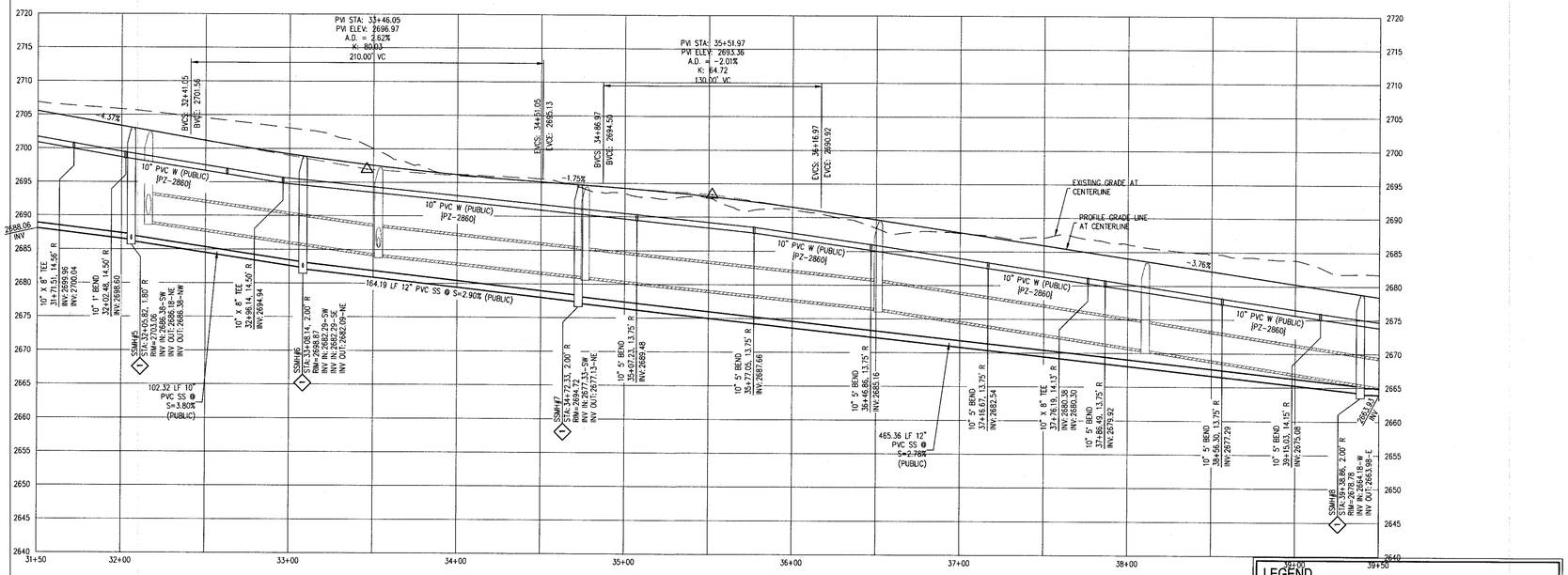


O'HARE ROAD - PLAN VIEW
(PUBLIC)



O'HARE ROAD - PROFILE VIEW
HORIZ: 1" = 40'
VERT: 1" = 10'

DISCLAIMER NOTE

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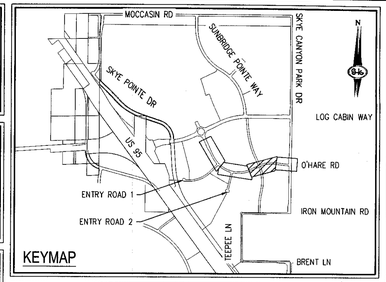
EASEMENTS WITH TREES, SHRUBS, DECORATIVE ROCKS, BLOCK WALL, OR FENCE

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.

DROP INLET NOTE

WHERE 10 FEET PARALLEL SEPARATION IS NOT PRACTICABLE:

CAST-IN-PLACE MONOLITHIC POUR WITH WATERSTOP BETWEEN SLAB AND WALLS. BASE, WALLS AND TOP TO BE CONSTRUCTED WITH WATERSTOPS, CENTER BULB, OR FLAT STRIP (VINYLEX, GREENSTREAK PLASTIC PRODUCTS OR APPROVED EQUAL).



WATER NOTES

1	INSTALL 10" 1° BEND PER UDACS PLATE NO. 31
2	INSTALL 10" 1° VERTICAL BEND PER UDACS PLATE NO. 31
3	INSTALL 10" 11.25° BEND PER UDACS PLATE NO. 31
4	INSTALL 10" 45° VERTICAL BEND PER UDACS PLATE NO. 31
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6	INSTALL 10" 90° BEND PER UDACS PLATE NO. 31
7	INSTALL 10" CAP WITH BLOWOFF PER DCSWCS SECTION 2.2.5
8	INSTALL 10" X 10" TEE PER UDACS PLATE NO. 31
9	INSTALL 10" X 8" CROSS PER UDACS PLATE NO. 31
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20	INSTALL 8" PVC WATER PIPE
21	REMOVE CAP AND BLOWOFF PER UDACS PLATE NO. 36 AND CONNECT NEW PIPE PER UDACS SECTION 3.14

SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

SEWER NOTES

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2	INSTALL 8" CAP WITH THRUST BLOCK PER DCSWCS SECTION 2.2.5
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APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. _____ FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

APPROVAL

LAS VEGAS FIRE AND RESCUE DATE

LEGEND

(#) WATER & SEWER LATERAL # (SEE SHEETS UT-6 & UT-7)

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NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
O'HARE ROAD
UTILITY PLAN IV - "OH" 31+50.00 TO "OH" 39+50.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1909-000

PROFESSIONAL ENGINEER - STATE OF NEVADA - JOSHUA J. LAMMERSMAN - No. 15789 - EXP. 06/30/2021 - CIVIL - 7/7/19

UT-4
SHEET 18 OF 22

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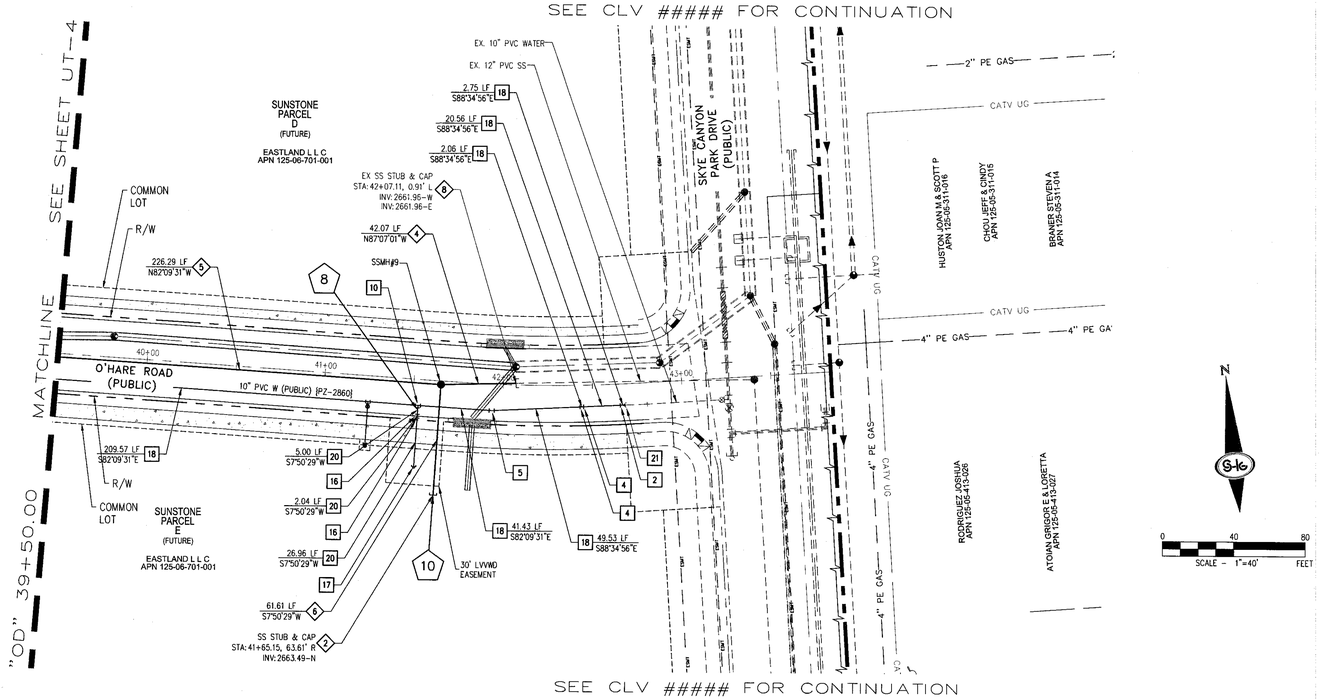
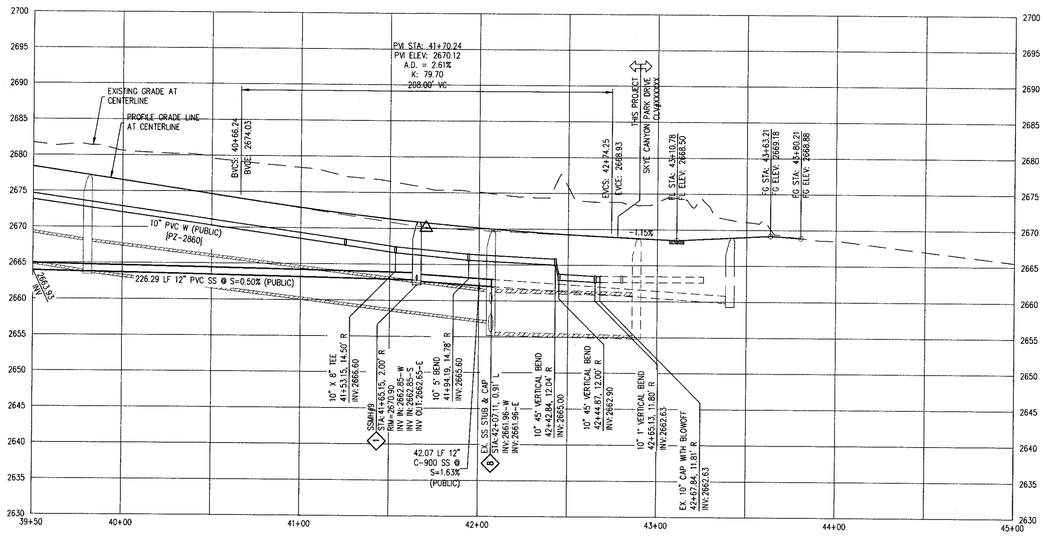


O'HARE ROAD - PLAN VIEW
(PUBLIC)



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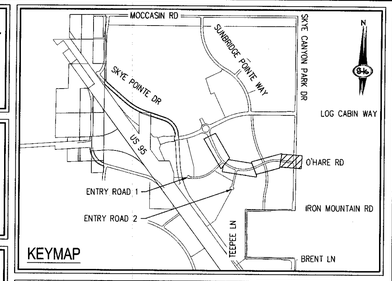

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APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE: ____
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

APPROVAL

LAS VEGAS FIRE AND RESCUE DATE

LEGEND

(#) WATER & SEWER LATERAL # (SEE SHEETS UT-6 & UT-7)

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NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
O'HARE ROAD
UTILITY PLAN V - "OH" 39+50.00 TO "OH" 45+00.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1909-000

PROFESSIONAL ENGINEER - STATE OF NEVADA - JOSHUA JOHNSON - Exp. 06/30/2021 - CIVIL - No. 15789 - 8/7/19

UT-5
SHEET 19 OF 22

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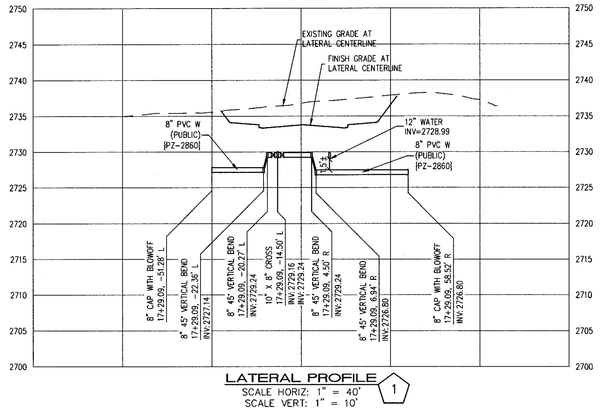
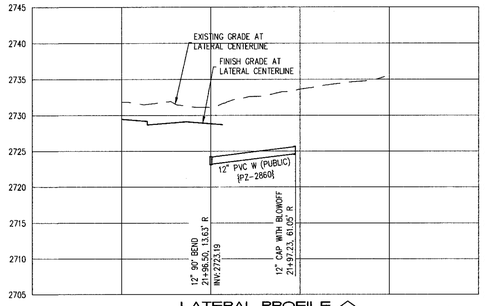
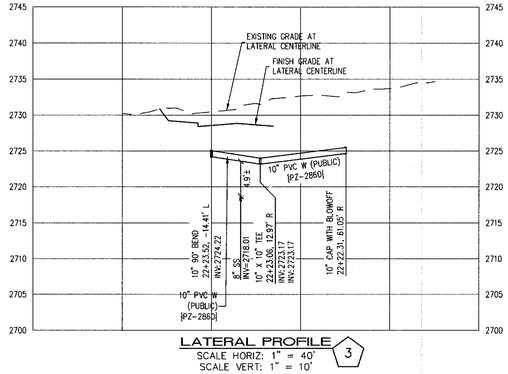


LATERAL PROFILE
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'
1



LATERAL PROFILE
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'
2



LATERAL PROFILE
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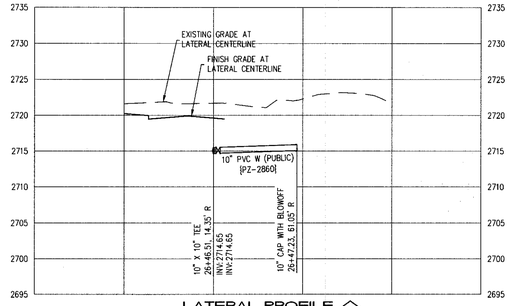
3



LATERAL PROFILE
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'
4

LATERAL PROFILE
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'
5

LATERAL PROFILE
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'
6

LATERAL PROFILE
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'
7

LATERAL PROFILE
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'
8

LATERAL PROFILE
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'
9

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NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
O'HARE ROAD
WATER LATERAL I

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1909-000

UT-6
SHEET 20 OF 22

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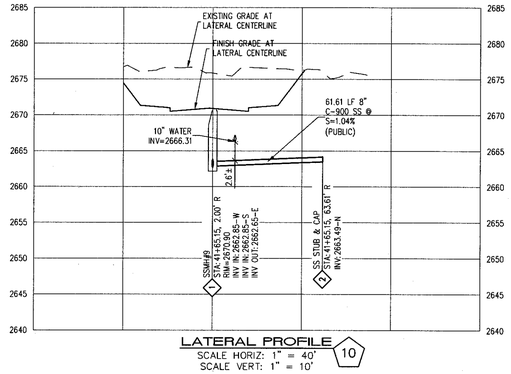
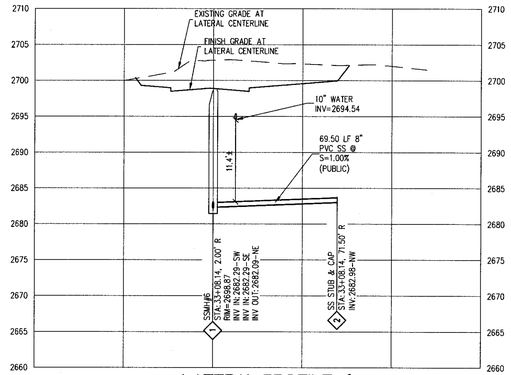
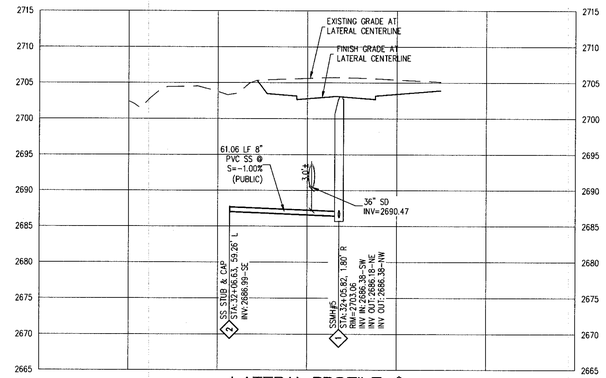


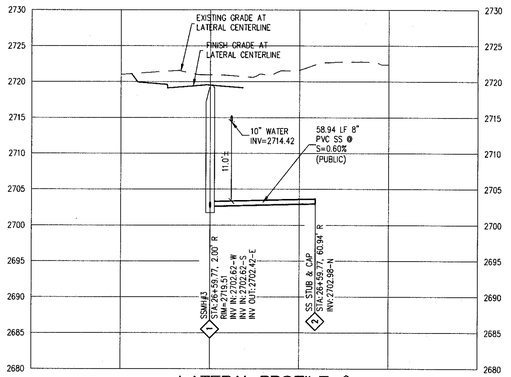
LATERAL PROFILE 10
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'



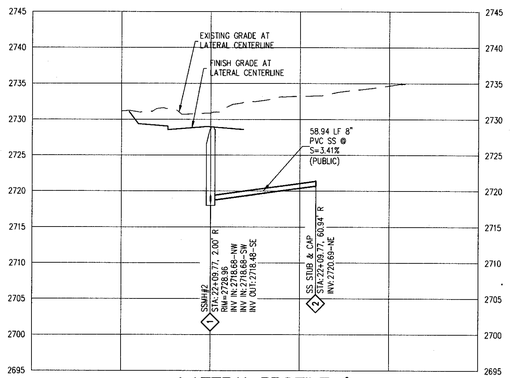
LATERAL PROFILE 11
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'



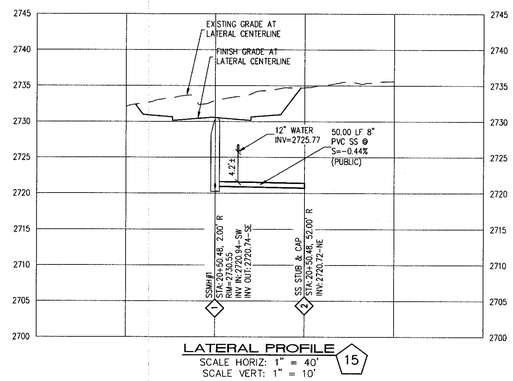
LATERAL PROFILE 12
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'



LATERAL PROFILE 13
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'



LATERAL PROFILE 14
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'



LATERAL PROFILE 15
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300
FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
O'HARE ROAD
SEWER LATERAL 1

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1909-000

PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSHUA L. JOHNSON
No. 15789
CIVIL
8/7/19

UT-7
SHEET 21 OF 22

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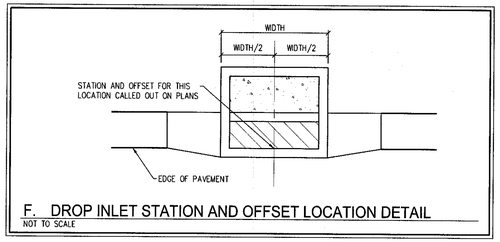
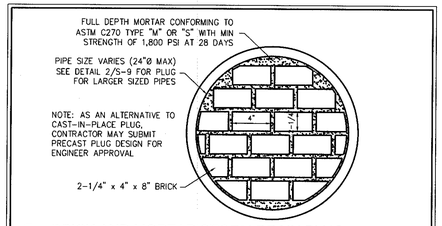
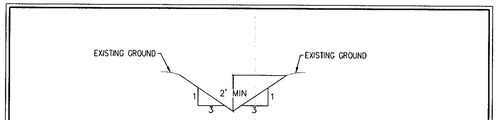


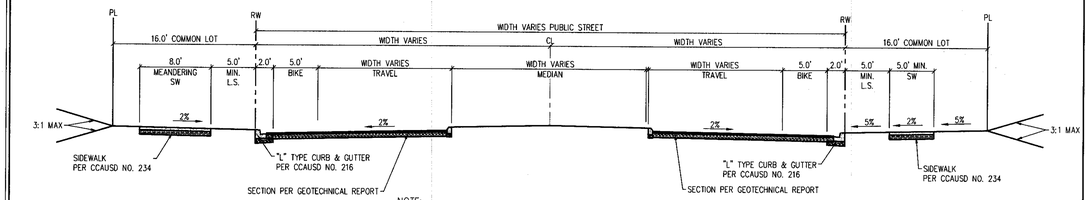
F. DROP INLET STATION AND OFFSET LOCATION DETAIL
NOT TO SCALE



E. BRICK AND MORTAR STORM DRAIN PLUG
NOT TO SCALE

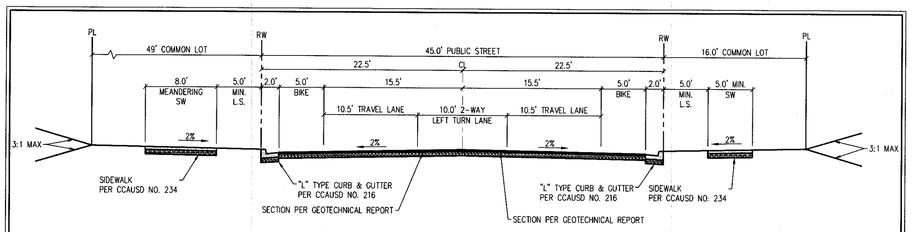


D. V-DITCH
NOT TO SCALE



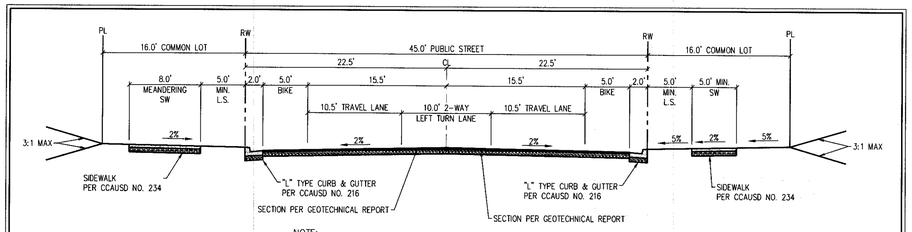
NOTE:
FINAL PAVEMENT SURFACE SHALL BE 1/2" ABOVE LIP OF GUTTER.
PAVEMENT SHALL BE FLUSH WITH LIP OF GUTTER AT SIDEWALK RAMPS.

C. O'HARE ROAD WITH BIKE LANES (PUBLIC)
NOT TO SCALE



NOTE:
FINAL PAVEMENT SURFACE SHALL BE 1/2" ABOVE LIP OF GUTTER.
PAVEMENT SHALL BE FLUSH WITH LIP OF GUTTER AT SIDEWALK RAMPS.

B. O'HARE ROAD WITH BIKE LANES (PUBLIC)
NOT TO SCALE



NOTE:
FINAL PAVEMENT SURFACE SHALL BE 1/2" ABOVE LIP OF GUTTER.
PAVEMENT SHALL BE FLUSH WITH LIP OF GUTTER AT SIDEWALK RAMPS.

A. O'HARE ROAD WITH BIKE LANES (PUBLIC)
NOT TO SCALE

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. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
O'HARE ROAD
DETAIL SHEET I

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1909-000

8/7/19

DT-1
SHEET 22 OF 22

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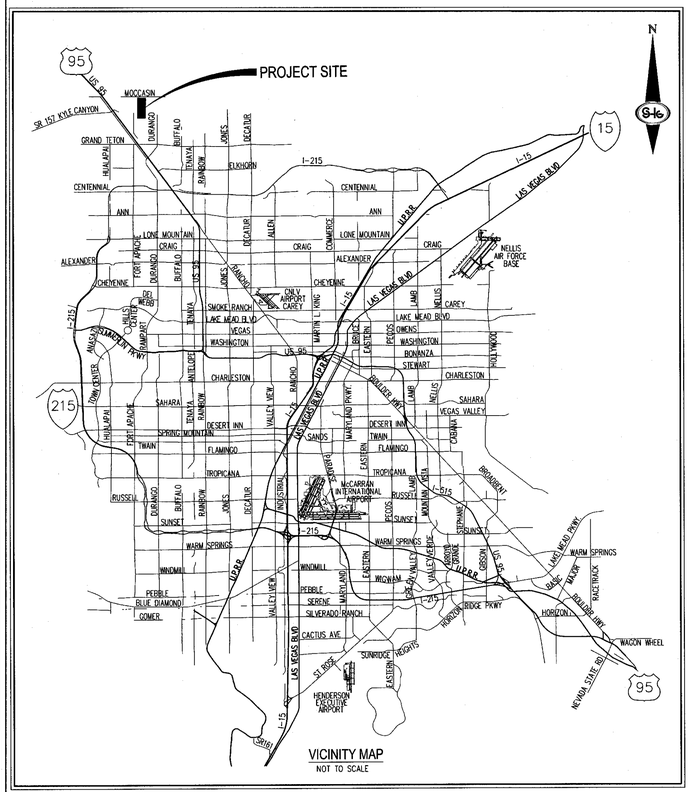
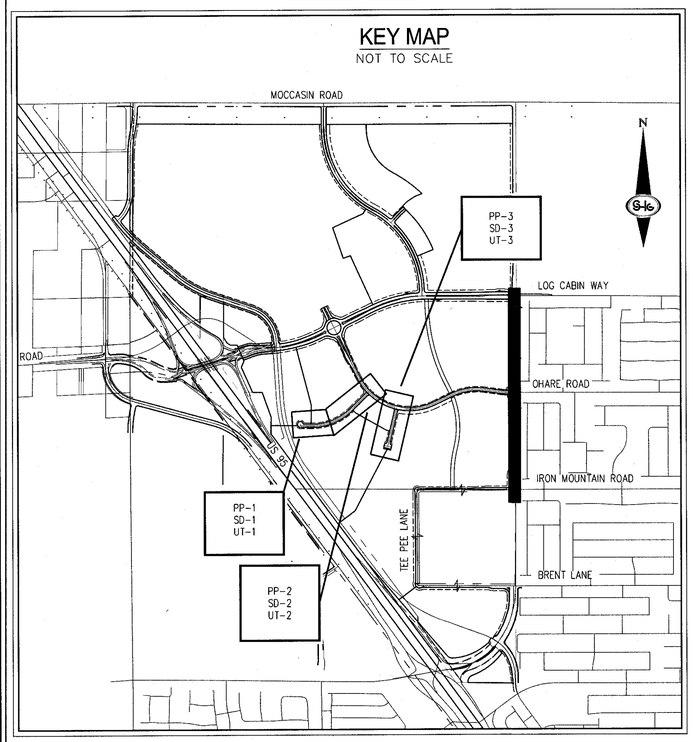
IMPROVEMENT PLANS
FOR
SUNSTONE PHASE 1
ENTRY ROADS 1 & 2

CITY OF LAS VEGAS, NEVADA





SHEET INDEX		
NO.	SHEET	TITLE
1	CS-1	COVER SHEET
2	CS-2	GENERAL NOTES
3	CS-3	ABBREVIATIONS, KEY MAP, LEGEND AND QUANTITIES
4	PP-1	PLAN & PROFILE I – "ER1" 9+00.00 TO "ER1" 14+00.00
5	PP-2	PLAN AND PROFILE II – "ER1" 14+00.00 TO "ER1" 22+00.00
6	PP-3	PLAN AND PROFILE III– "ER2" 9+00.00 TO "ER2" 16+50.00
7	SD-1	STORM DRAIN I – "ER1" 9+00.00 TO "ER1" 14+00.00
8	SD-2	STORM DRAIN II – "ER1" 14+00.00 TO "ER1" 22+00.00
9	SD-3	STORM DRAIN III – "ER2" 9+00.00 TO "ER2" 16+50.00
10	SD-4	STORM DRAIN LATERAL I
11	UT-1	UTILITY PLAN I "ER1" 9+00.00 TO "ER1" 14+00.00
12	UT-2	UTILITY PLAN II "ER1" 14+00.00 TO "ER1" 22+00.00
13	UT-3	UTILITY PLAN III "ER1" 14+00.00 TO "ER1" 22+00.00
14	UT-4	UTILITY PLAN IV "ER2" 9+00.00 TO "ER2" 16+50.00
15	UT-5	WATER & SEWER LATERAL I
16	G-1	GRADING PLAN
17	D-1	DETAIL SHEET 1

APPROVALS

CITY ENGINEER–ALLEN PAVELKA PE, #9029 DATE

APPROVAL OF THESE PLANS BY THE CITY ENGINEER IS LIMITED TO THOSE IMPROVEMENTS CONSTRUCTED IN THE DEDICATED OF 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 STATUES AND / OR PUBLIC UTILITY COMMISSION RULES AND REGULATIONS.

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE: _____
LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW _____ 20 _____ GPM

SHEETS: ADD FIELD

LVVWD APPROVAL IS VALID FOR ONE (1) YEAR FROM SIGNATURE DATE. IF CONSTRUCTION IS NOT STARTED, PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL.

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
EASTLAND COMPANY, LLC 9275 RUSSELL RD SUITE 400 LAS VEGAS, NV 89148 PH: 702-821-4808	SLATER HANIFAN GROUP, INC. a WESTWOOD TEAM 5740 S. ARVILLE STREET, SUITE 216 LAS VEGAS, NV 89118 PH: (702) 284-5300 CONTACT: JOSH JOHNSON

BENCHMARK

MONUMENT 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 00°01'50" WEST, BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE1/4) 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' (AREA OUTSIDE THE 500 YEAR FLOODPLAIN), PER THE FEMA FIRM PANELS ???????? DATED NOVEMBER 16, 2011

PROJECT PLAN APPROVAL CONTINGENT ON

SUNSTONE PHASE 1 XXXXX #XXXXX
SUNSTONE PHASE 1 XXXXX #XXXXX
SUNSTONE PHASE 1 XXXXX #XXXXX

PLAN APPROVAL

PROJECT INFORMATION

ACREAGE (GROSS):	= ??? AC
ACREAGE (NET):	= ??? AC
ACREAGE (NET-NET):	= ??? AC
DENSITY (LOTS/NET ACRE):	= ??? DU/NET AC
ZONING:	= ???
TOTAL NO. OF RESIDENTIAL LOTS	= ???
TOTAL NO. OF COMMON ELEMENTS *	= ???
MINIMUM LOT SIZE	= ??? SF±
MAXIMUM LOT SIZE	= ??? SF±
PROVIDED OPEN SPACE	= ????? SF±

EARTHWORK SUMMARY (UNADJUSTED)

CUT	----- CY.
FILL	----- CY.
NET	----- CY.

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

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

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811 OR 1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
COVER SHEET

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1910-000

PROFESSIONAL ENGINEER – STATE OF NEVADA
JOSHUA L. JOHNSON
No. 15789
CIVIL
EXP. 06/30/2021
8/7/19

CS-1
SHEET 1 OF 17

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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 BY 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 NVR1000000, 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 NVR1000000, 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.

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 "C" 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 2.22 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 PRODUCT'S 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.

IS 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 DEVATIONS 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 ?????, PROJECT NO. #####, DATED ##/##/####.
6. EARTHWORK QUANTITIES (RAW):
   -CUT = #,### CUBIC YARDS.
   -FILL = #,### 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 ORDINANCE # 6631 FOR HYDRANT SPECIFICATIONS AND HYDRANT INSTALLATION SPECIFICATIONS.
2. ONLY FIRE HYDRANTS THAT ARE ON THE LAS VEGAS VALLEY WATER DISTRICT'S – APPROVED PRODUCTS LIST ARE ALLOWED TO BE INSTALLED.
3. A PERMIT IS REQUIRED 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 HYDRANTS SHALL BE IN GOOD 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 § 106.3
7. ALL ON-SITE UNDERGROUND WATER MAINS AND MATERIALS SHALL BE U.L. LISTED, A.W.W.A APPROVED AND SHALL BE RATED FOR THE APPROPRIATE WORKING PRESSURE. 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, MAIN.
9. PRIVATE HYDRANTS SHALL BE PAINTED RED. IFC § 507.5.7.1
10. PRIOR TO THE FINAL OCCUPANCY, A FIRE FLOW TEST SHALL BE WITNESSED BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION TO VERIFY AVAILABILITY OF THE REQUIRED FIRE FLOW. IFC § 507
11. FIRE HYDRANT SPACING SHALL BE AS FOLLOWS: IFC § C102
    - RESIDENTIAL – 500 FT UNSPRINKLERED; 600 FT SPRINKLERED.
    - COMMERCIAL – 300 FT UNSPRINKLERED; 400 FT SPRINKLERED.
12. WHERE THE WATER MAINS ARE EXTENDED ALONG STREETS OR NEW STREETS ARE INSTALLED WHERE FIRE HYDRANTS ARE NOT NEEDED FOR PROTECTION OF THE STRUCTURES, FIRE HYDRANTS SHALL BE INSTALLED AT A MAXIMUM OF 1000 FT SPACING, TO PROVIDE FOR TRANSPORTATION HAZARDS. WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS OR HAVE FOUR (4) OR MORE TRAFFIC LANES AND HAVE A TRAFFIC COUNT OF MORE THAN 30,000 PER DAY, HYDRANTS ARE REQUIRED ON EACH SIDE OF THE STREET SPACED AT 500 FT ON AN ALTERNATING BASIS. 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 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 6% 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 LANES 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 LANES, PUBLIC OR PRIVATE, IN EXCESS OF 150 FT IN LENGTH SHALL BE PROVIDED WITH AN APPROVED TURN AROUND HAVING A MINIMUM DIAMETER OF 81 FT. 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 LANES. SIGNS TO BE PLACED ON BOTH SIDES OF AN ACCESS ROADWAY IF NEEDED TO PREVENT PARKING ON EITHER SIDE. SIGNS TO BE INSTALLED NO HIGHER THAN 10 FT OR LESS THAN 6 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 COUNT OF MORE THAN 30,000 VEHICLES PER DAY, ALL 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 CAVING OF THE EXCAVATION.
4. THE CONTRACTOR IS WARNED THAT AN EARTHWORK BALANCE WAS NOT NECESSARILY THE INTENT OF THIS PROJECT. ANY ADDITIONAL MATERIAL REQUIRED OR LEFTOVER MATERIAL FOLLOWING EARTHWORK OPERATIONS BECOMES THE RESPONSIBILITY OF THE CONTRACTOR.
5. THE GRADING CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE OWNER TO PROVIDE FOR THE REQUIREMENTS OF THE PROJECT 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'	SEE SOILS REPORT
B. ENGINEERED FILL	0.5'+	+0.1' TO -0.1'	SEE SOILS REPORT

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

7. ALL CUT AND FILL SLOPES SHALL BE PROTECTED UNTIL EFFECTIVE EROSION CONTROL HAS BEEN ESTABLISHED.
8. THE USE OF POTABLE WATER WITHOUT A SPECIAL PERMIT FOR BUILDING OR CONSTRUCTION PURPOSES INCLUDING CONSOLIDATION OF BACKFILL OR DUST CONTROL IS PROHIBITED. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR CONSTRUCTION WATER.
9. THE CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS AND ALL OTHER PUBLIC RIGHT-OF-WAY IN A CLEAN, SAFE AND USABLE CONDITION. ALL SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE PUBLICLY OWNED PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT. ALL ADJACENT PROPERTY, PRIVATE OR PUBLIC SHALL BE MAINTAINED IN A CLEAN, SAFE AND USABLE CONDITION.
10. IN THE EVENT THAT ANY TEMPORARY CONSTRUCTION ITEM IS REQUIRED THAT IS NOT SHOWN ON THESE DRAWINGS, THE OWNER AGREES TO PROVIDE AND INSTALL SUCH ITEM AT HIS OWN EXPENSE AND AT THE DIRECTION OF THE CITY ENGINEER. TEMPORARY CONSTRUCTION INCLUDES DITCHES, BERMS, ROAD SIGNS 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 ISUE; THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA" (USD), LATEST REVISION; THE "SUMMERLIN IMPROVEMENT STANDARDS" FOR WORK IN THE SUMMERLIN AREA; AND OTHER APPLICABLE APPROVED STANDARDS ISSUED BY THE CONTROLLING AGENCY; THE UNIFORM BUILDING CODE; AND ALL LOCAL CITY CODES AND ORDINANCES APPLICABLE, EXCEPT AS NOTED ON THIS SHEET AS "DEVIATIONS FROM STANDARDS".
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 PRIOR WRITTEN APPROVAL OF THE CITY ENGINEER.
5. TYPE V CEMENT SHALL BE USED IN ALL OFF-SITE CONCRETE WORK. CONCRETE TO BE 3000 P.S.I. MINIMUM @ 28 DAYS. MIX DESIGNS TO BE APPROVED BY THE CITY, PRIOR TO THE USE ON THE PROJECT.
6. PERMITS ARE REQUIRED FOR ANY WORK IN THE PUBLIC RIGHT-OF-WAY. THE CONTRACTOR SHALL SECURE ALL PERMITS AND INSPECTIONS REQUIRED FOR THIS CONSTRUCTION.
7. EXPANSION JOINTS REQUIRED, MAXIMUM EVERY 300' IN EXTRUDED-TYPE CURB.
8. AC PAVEMENT TO BE ONE-HALF INCH (½") ABOVE LIP OF ALL GUTTERS AFTER COMPACTION, EXCEPT AT SIDEWALK RAMPS AND CROSS GUTTERS.
9. CURB AND GUTTER FOUND TO BE UNACCEPTABLE TO THE CITY OF LAS VEGAS SHALL BE REMOVED AND REPLACED PER STANDARD DRAWING 216.
10. SIDEWALK RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING 235. EXACT LOCATION OF RAMPS MAY BE ADJUSTED IN THE FIELD BY A CITY INSPECTOR.
11. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITIONS BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND FOR INGRESS AND EGRESS TO NEW CONSTRUCTION. THE EXTENT OF THE TRANSITIONS TO BE AS SHOWN ON PLANS.
12. ALL GRADING WORK SHALL CONFORM TO THE SOILS REPORT AS PREPARED BY ADD GEO, REPORT #ADD FIELD, ADD FIELD APPROVED BY THE CITY ENGINEER, AND AS SHOWN ON THESE PLANS.
13. EXACT LOCATION OF ALL SAWCUT LINES MAY BE ADJUSTED OR DETERMINED IN THE FIELD BY A CITY OF LAS VEGAS INSPECTOR IF LOCATION ON PLANS IS NOT CLEARLY SHOWN, OR EXISTING PAVEMENT CONDITION REQUIRES RELOCATIONS.
14. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT EXISTING PERMANENT SURVEY MONUMENTS. ANY MONUMENTS DISTURBED SHALL BE REPLACED AND ADJUSTED PER AVAILABLE RECORDS IN ACCORDANCE WITH N.R.S. STATUTE NO. 625.380 & CITY OF LAS VEGAS TITLE 18, APPENDI

ABBREVIATIONS

AC	ASPHALTIC CONCRETE OR ACRE
AGG	AGGREGATE BASE
APN	ASSESSORS PARCEL NUMBER
APPROX OR ~	APPROXIMATE
AVE	AVENUE
@	AT
BC	BEGIN CURVE OR BACK OF CURB
BCR	BEGINNING OF CURB RETURN
BHW	BOTTOM OF HEADWALL
BLDG	BUILDING
BLVD	BOULEVARD
BM	BENCHMARK
BVC	BEGIN VERTICAL CURVE
BWV	BACK WATER VALVE
CC	CLARK COUNTY
CCAUSD	CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS
CCPW	CLARK COUNTY PUBLIC WORKS
CCRFCD	CLARK COUNTY REGIONAL FLOOD DISTRICT
CCWRD	CLARK COUNTY WATER RECLAMATION DISTRICT
CE	COMMON ELEMENT
CL,C/L,C	CENTERLINE
CLR	CLEAR OR CLEARANCE
CLSM	CONTROLLED LOW STRENGTH MATERIAL
CLV	CITY OF LAS VEGAS
CML&C	CEMENT MORTAR LINED AND COATED
CMU	CONCRETE MASONRY UNIT
CNLV	CITY OF NORTH LAS VEGAS
COH	CITY OF HENDERSON
CONC	CONCRETE
CT	COURT
CY OR CU YD	CUBIC YARD
DCWCS	DESIGN AND CONSTRUCTION FOR WASTEWATER COLLECTION SYSTEMS
DE	DRAINAGE EASEMENT
DET	DETAIL
DI	DUCTILE IRON OR DRAIN INLET
DIA, ø	DIAMETER
DIP	DUCTILE IRON PIPE
DR	DRIVE
DWG(S)	DRAWING
DWY	DRIVEWAY
EA	EACH
ECR	END CURB RETURN
EG	EXISTING GROUND
ELEV	ELEVATION
ESMT	EASEMENT
EP	EDGE OF PAVEMENT
ERU	EQUIVALENT RESIDENTIAL UNIT
EVC	END VERTICAL CURVE
EX OR EXIST	EXISTING
FC	FACE OF CURB
FF	FINISHED FLOOR
FG	FINISHED GRADE
FGH	FINISHED GRADE, HIGH SIDE
FGL	FINISHED GRADE, LOW SIDE
FH	FIRE HYDRANT
FL	FLOWLINE
FT	FEET OR FOOT
FUT	FUTURE
GRD	GRADE OR GROUND
GB	GRADE BREAK OR GRADE CHANGE
GV	GATE VALVE
HDPE	HIGH DENSITY POLYETHYLENE
HOA	HOME OWNERS ASSOCIATION
HORZ	HORIZONTAL
HP	HIGH POINT
HWL	HIGH WATER LEVEL
HDWL OR HW	HEADWALL
HYD	HYDRAULIC OR HYDRANT
ID	INSIDE DIAMETER
IN	INCH
INT	INTERSECTION
INV	INVERT ELEVATION
IP	IRON PIPE
IRRG	IRRIGATION
LF	LINEAR FEET
LMC	LANDSCAPE MAINTENANCE CORPORATION
LP	LOW POINT
LT OR L	LEFT
LVVWD	LAS VEGAS VALLEY WATER DISTRICT
LWL	LOW WATER LEVEL
MAX	MAXIMUM
MECH	MECHANICAL
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MUE	MUNICIPAL UTILITY EASEMENT
NDOT	NEVADA DEPARTMENT OF TRANSPORTATION
NTS	NOT TO SCALE
NUE	NONEXCLUSIVE UTILITY EASEMENT
NVE	NV ENERGY
OC	ON CENTER
OD	OUTSIDE DIAMETER OR OVERALL DIMENSION
OFF	OFFSET
ORIG	ORIGINAL
PAE	PUBLIC OR PEDESTRIAN ACCESS EASEMENT
PB	PULL BOX
PC	POINT OF CURVE
PCC	POINT OF COMPOUND CURVE
PDE	PUBLIC DRAINAGE EASEMENT
P OR PL	PROPERTY LINE
POB	POINT OF BEGINNING
POC	POINT OF CURVATURE
POE	POINT OF ENDING
PRC	POINT OF REVERSE CURVATURE
PRELIM	PRELIMINARY
PROP	PROPOSED
PRV	PRESSURE REDUCING VALVE
PUE	PUBLIC UTILITY EASEMENT
PT	POINT OF TANGENT OR POINT
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
QTY	QUANTITY
R	RADIUS
RCA	REINFORCED CONCRETE ARCH
RCB	REINFORCED CONCRETE BOX
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDWY ESMT	ROADWAY EASEMENT
REQD	REQUIRED
REV	REVISION
RG	ROUGH GRADE
RT OR R	RIGHT
RW, ROW	RIGHT OF WAY
S	SLOPE
SCH	SCHEDULE
SD	STORM DRAIN
SDDI	STORM DRAIN DROP INLET
SDMH	STORM DRAIN MANHOLE
SEC	SECTION
SF	SQUARE FEET
SHT	SHEET
SLTC	STREET LIGHT & TRAFFIC CONTROL ESMT
SNWA	SOUTHERN NEVADA WATER AUTHORITY
SPECS	SPECIFICATIONS
ST	STREET
SSMH	SANITARY SEWER MANHOLE
STA	STATION
STD	STANDARD
STL	STEEL
STLT	STREET LIGHT
SW	SIDEWALK
SWG	SOUTHWEST GAS
SWR OR SS	SANITARY SEWER
SY	SQUARE YARD
TAN	TANGENT
TC	TOP OF CURB
TF	TOP OF FLOOR OR TOP OF FOOTING
TG	TOP OF GRATE
THRU	THROUGH
THW	TOP OF HEADWALL
TP	TOP OF PIPE
TW	TOP OF WALL
TRW	TOP OF RETAINING WALL
TSW	TOP OF SCREEN WALL
TYP	TYPICAL
UDACS	UNIFORM DESIGN AND CONSTRUCTION STANDARDS
UE	UTILITY EASEMENT
VC	VERTICAL CURVE
VERT	VERTICAL
VG	VALLEY GUTTER
WI	WROUGHT IRON
WL	WATER LINE
WPZ	WATER PRESSURE ZONE
WT	WEIGHT
WTR	WATER LINE

ALIGNMENT ABBREVIATIONS

"SCP"

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
(1900)	1900	5' CONTOUR
		1' CONTOUR
		STRIPING
		SEWER MANHOLE
		CURB AND GUTTER
EX 8" PVC SS	8" PVC SS	SANITARY SEWER PIPE AND FLOW ARROW
EX 8" PVC WTR	8" PVC WTR	WATER PIPE
		WATER GATE VALVE
		FIRE HYDRANT
		WATER BLOW-OFF
		WATER LATERAL W/ METER
		SANITARY SEWER LATERAL
		STREETLIGHT
		EDGE OF PAVEMENT
		TRAFFIC SIGN
PAD= XXX.X F= XXX.X	PAD= XXX.X F= XXX.X	PAD ELEVATION FINISHED FLOOR ELEVATION
		ELEVATION
		RETAINING WALL
		STORM DRAIN W/ MANHOLE

	EXISTING GAS GATE VALVE
MH	EXISTING UNKNOWN MANHOLE
GAS	EXISTING GAS, SIZE PER PLAN
	EXISTING POWER POLE
	EXISTING TRAFFIC SIGNAL
	EXISTING WALL
	WATER PIPE FITTING
POC	WATER POINT OF CONNECTION
POC	SEWER POINT OF CONNECTION
	DAYLIGHT LINE
	STREET CENTERLINE
	RIGHT-OF-WAY
	MATCHLINE
	BOUNDARY LINE
	PHASE LINE
P	PROPERTY LINE
	FLOWLINE
	SAWCUT
FILL / CUT	CUT/FILL TRANSITION LINE
	SIDEWALK
	EX STRIPING TO BE OBLITERATED
	GRADE BREAK LINE
	REFLECTIVE RAISED PAVEMENT MARKERS
BWV	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
TEL 5-4"	EXISTING TELEPHONE CABLE
12" SS	EXISTING SANITARY SEWER LINE
12" W	EXISTING WATER LINE
18" SD	EXISTING STORM DRAIN LINE
ELE UG 1-4"	EXISTING UNDERGROUND ELECTRICAL LINE
OHP	EXISTING OVERHEAD POWER LINE
OHP/TEL	EXISTING OVERHEAD POWER AND TELEPHONE LINE
4" PE GAS	EXISTING GAS LINE
CATV	EXISTING CABLE TELEVISION LINE
SL	EXISTING STREET LIGHT CONDUIT
MH	EXISTING MANHOLE OR VAULT
	EXISTING VALVE (GAS OR WATER)
FH	EXISTING FIRE HYDRANT
PP	EXISTING POWER OR TELEPHONE POLE
	EXISTING PADMOUNTED SERVICE PEDESTAL
	EXISTING NV ENERGY TRANSFORMER
	EXISTING SWING GATE
	EXISTING STREET LIGHT
	EXISTING ON-SITE LIGHT
	EASEMENT LINE
AEP	AEP
FITS	FAST ITS CONDUIT

QUANTITIES

			PRIVATE	PUBLIC
DRAINAGE				
1.	60" TYPE III STORM DRAIN MANHOLE	EA	–	–
2.	5.0' TYPE "CM2" DROP INLET	EA	–	–
3.	10.0' TYPE "CM2" DROP INLET	EA	–	–
4.	12.5' TYPE "CM2" DROP INLET	EA	–	–
5.	20.0' TYPE "CM2" DROP INLET	EA	–	–
6.	18" RCP CLASS IV STORM DRAIN	LF	–	–
7.	24" RCP CLASS IV STORM DRAIN	LF	–	–
8.	30" RCP CLASS IV STORM DRAIN	LF	–	–
9.	36" RCP CLASS IV STORM DRAIN	LF	–	–
10.	RIPRAP D50=8", THK=16"	SF	–	–
11.	8' WIDE CONCRETE VALLEY GUTTER W/10" TYPE I AGGREGATE BASE	SF	–	–
12.	SIDEWALK UNDER DRAIN	SF	–	–
13.				
SEWER SYSTEM				
1.	4" PVC SEWER LATERAL (PRIVATE)	LF	–	–
2.	8" PVC SEWER PIPE (PUBLIC)	LF	–	–
3.	STANDARD 48" SEWER MANHOLE (PUBLIC)	EA	–	–
4.	8" SEWER PIPE CAP	EA	–	–
5.	BACK WATER VALVE	EA	–	–
6.	8" C-900 WATER QUALITY SEWER PIPE (PUBLIC)	EA	–	–
7.				
WATER SYSTEM				
1.	FIRE HYDRANT ASSEMBLY W/6" GATE VALVE PER UDACS PLATE NO. 40	EA	–	–
2.	6" PVC WATER PIPE (CLASS 150)	LF	–	–
3.	8" PVC WATER PIPE (CLASS 150)	LF	–	–
4.	8" DIP WATER PIPE (CLASS 53)	LF	–	–
5.	8" GATE VALVE WITH VALVE BOX PER UDACS PLATE NO. 30 & 39	EA	–	–
6.	8" X 6" TEE PER UDACS PLATE NO. 31	EA	–	–
7.	8" X 8" TEE PER UDACS PLATE NO. 31	EA	–	–
8.	8" 5 DEGREE BEND WITH RESTRAINED JOINTS	EA	–	–
9.	8" 11.25 DEGREE BEND PER UDACS PLATE NO. 31	EA	–	–
10.	8" 22.5 DEGREE BEND PER UDACS PLATE NO. 31	EA	–	–
11.	8" 45 DEGREE BEND PER UDACS PLATE NO. 31	EA	–	–
12.	8" 90 DEGREE BEND PER UDACS PLATE NO. 31	EA	–	–
13.	CAP AND 2" BLOW-OFF ASSEMBLY W/CAP PER UDACS PLATE NO. 36	EA	–	–
14.	1" COPPER SERVICE W/ 3/4" METER PER UDACS PLATE NO. 2	EA	–	–
15.	1" COPPER SERVICE W/ 1" METER PER UDACS PLATE NO. 4	EA	–	–
16.	1" COPPER SERVICE W/ 3/4" METER & 1" RPPA PER UDACS PLATE NO. 4 & 8	EA	–	–
		EA	–	
STREET IMPROVEMENTS				
1.	2" A.C. PAVEMENT W/ 4" TYPE II OVER 6" TYPE I AGGREGATE BASE	SY	–	–
2.	STANDARD 18" TYPE "L" ISLAND CURB & GUTTER W/6" TYPE I AGGREGATE BASE	LF	–	–
3.	STANDARD 8" TYPE "A" ISLAND CURB W/6" TYPE I AGGREGATE BASE	LF	–	–
4.	STANDARD 30" TYPE "ROLL" CURB & GUTTER W/6" TYPE I AGGREGATE BASE	LF	–	–
5.	4' WIDE CONCRETE SIDEWALK W/4" TYPE II AGGREGATE BASE	SF	–	–
6.				
7.				
TRAFFIC SIGNALS				
1.	30" STOP SIGN WITH POST (R1-1)	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 PULL BOX W/METAL COVER	EA	–	–
4.	150 AMP SERVICE PEDESTAL (IRR)	EA	–	–
5.	200 AMP SERVICE PEDESTAL (STLT)	EA	–	–
6.				

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ##### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 20 GPM

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1

ABBREVIATIONS, KEY MAP, LEGEND AND QUANTITIES

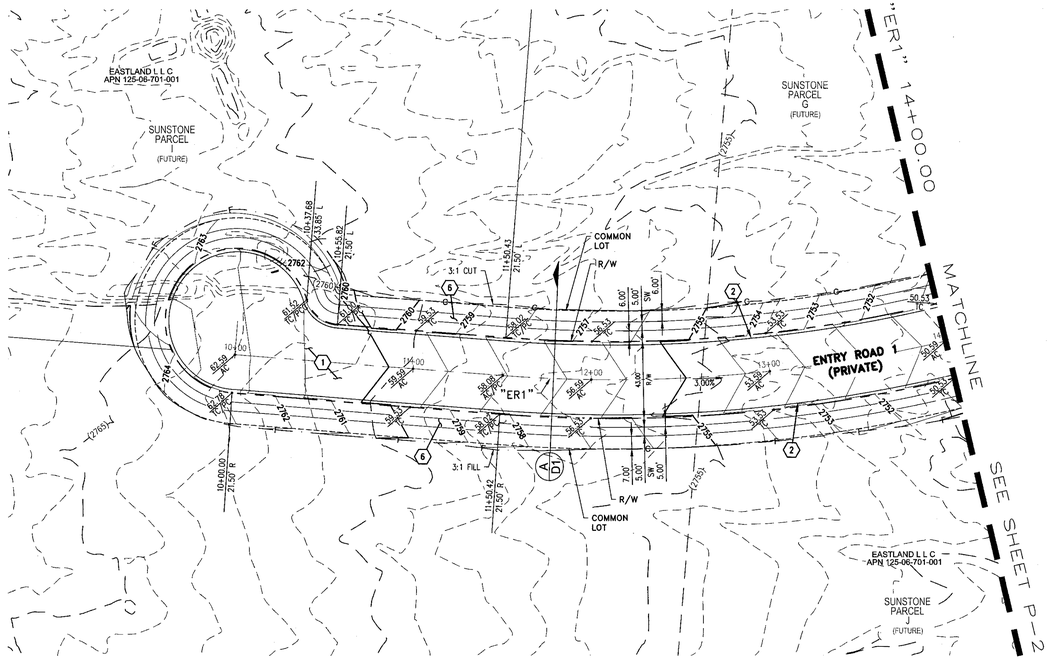
DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1910-000

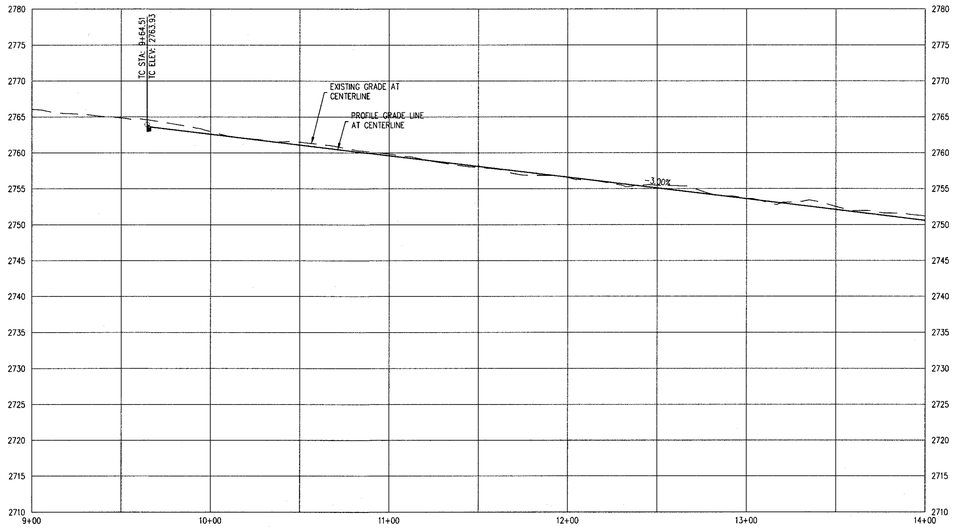
PROFESSIONAL ENGINEER – STATE OF NEVADA
JOSHUA L. JOHNSON
No. 15789
CIVIL
Exp. 06/30/2020
8/7/19

CS-3
SHEET 3 OF 17

I:\est\1910-000 sunstone entry roads\dwg\engrpack\est1910-000 cvr.dwg 8/7/2019 11:49 AM Thomas Dyson



ENTRY ROAD 1 - PLAN VIEW
(PRIVATE)



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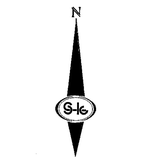
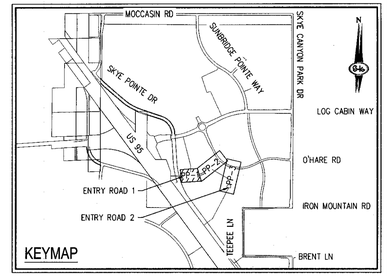
VERT: 1" = 10'



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



SURVEY NOTE
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ELEVATION NOTE
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CONSTRUCTION NOTES
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2. CONSTRUCT "L" TYPE CURB PER CCAUSD NO. 216
3. CONSTRUCT "A" TYPE ISLAND CURB PER CCAUSD NO. 219
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5. CONSTRUCT 8' WIDE SIDEWALK PER CCAUSD NO. 234
6. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD NO. 234
7. CONSTRUCT 8' VALLEY GUTTER PER CCAUSD NO. 228
8. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235 CASE I, AND 235.1

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NOTE
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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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THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL --------, DATED NOVEMBER 16, 2011. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

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

JOSH JOHNSON, P.E. 15789 DATE

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

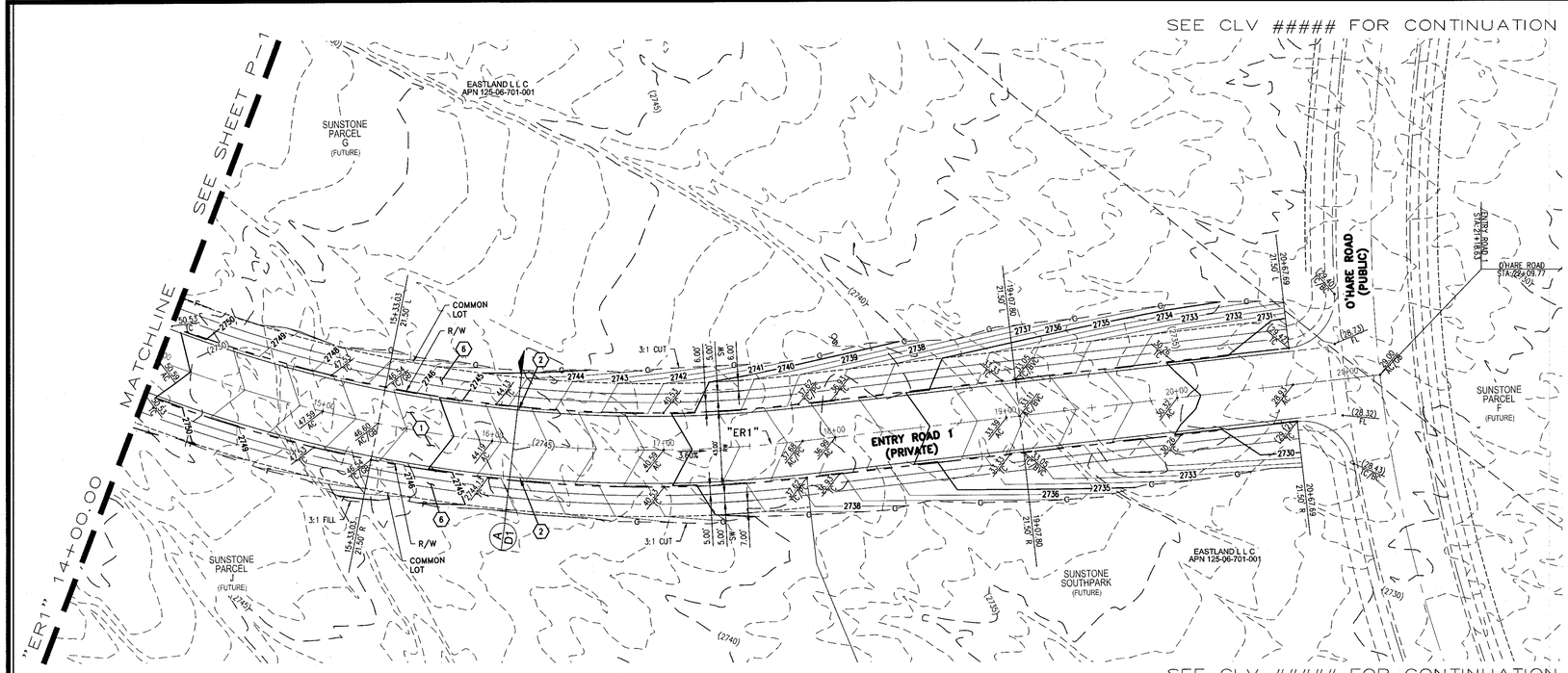
SUNSTONE PHASE 1
PRIVATE ENTRY 1 AND 2
PLAN & PROFILE I - "ER1" 9+00.00 TO "ER1" 14+00.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1910-000

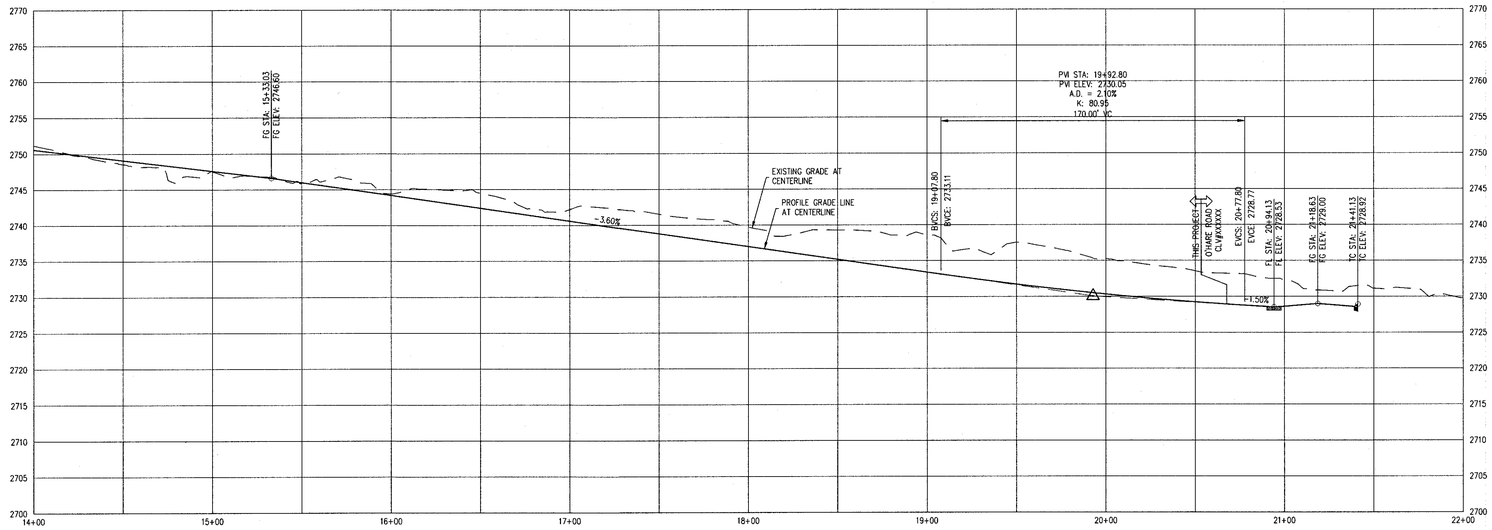
PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSHUA L. JOHNSON
No. 15789
CIVIL
5/8/19

PP-1
SHEET 4 OF 17

\est1910-000 sunstone entry roads\dwg\improv\est1910-000 pnp.dwg, 8/7/2019 5:06 PM, Thomas Elyson



ENTRY ROAD 1 - PLAN VIEW
(PRIVATE)



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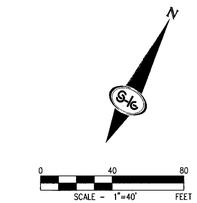

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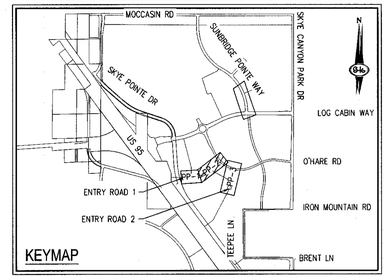

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JOSH JOHNSON, P.E. 15789 — DATE

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a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
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NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

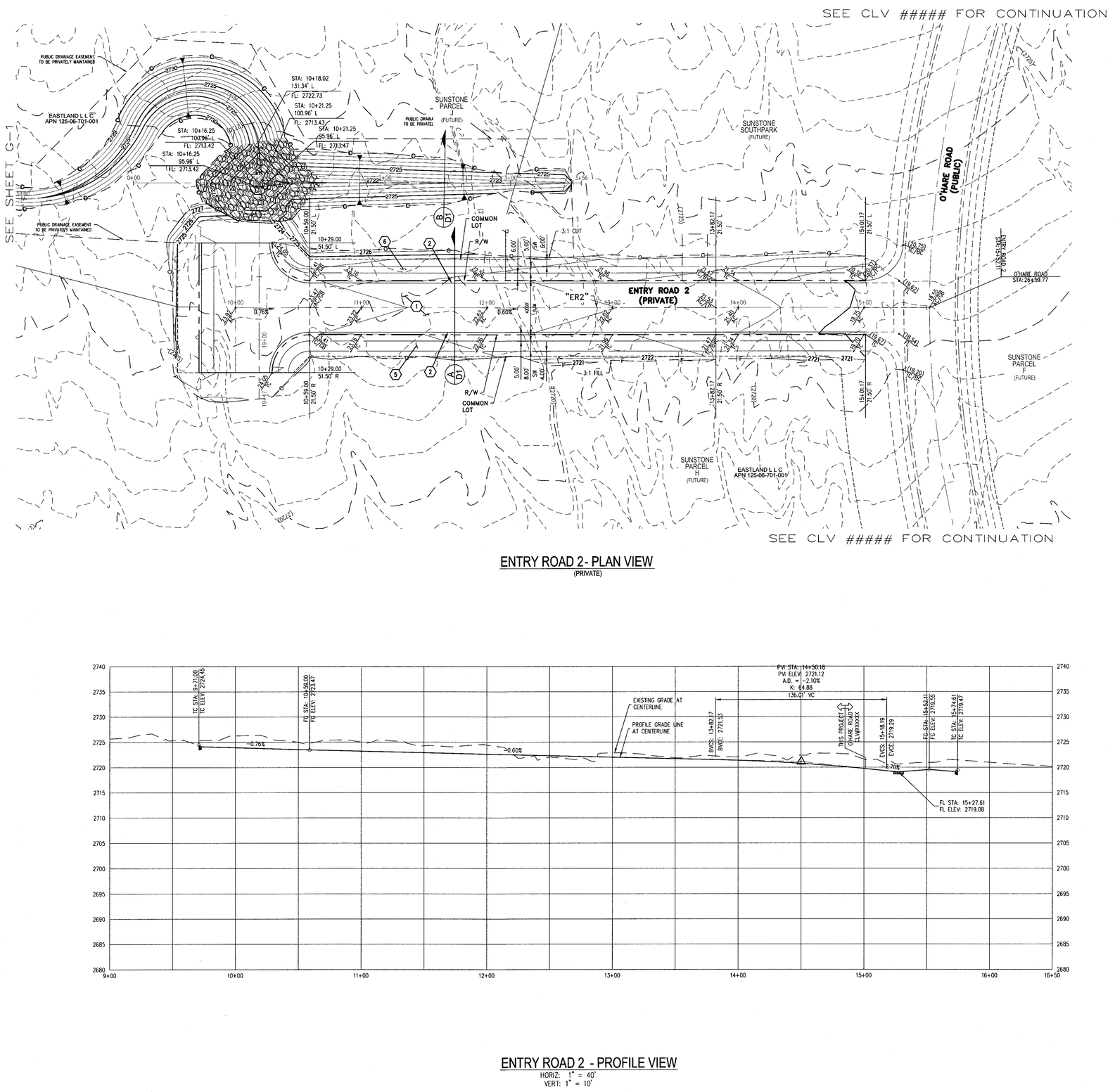
SUNSTONE PHASE 1
PRIVATE ENTRY 1 AND 2
PLAN AND PROFILE II - "ER1" 14+00.00 TO "ER1" 22+00.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1910-000

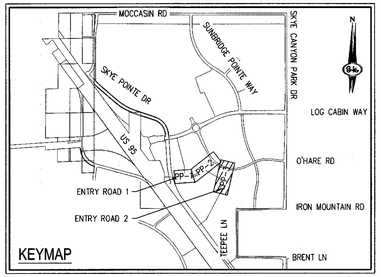
PP-2
SHEET 5 OF 17

\est1910-000 sunstone entry roads\dwg\improv\est1910-000 pnp.dwg 8/7/2019 5:06 PM Thomas Dyson



ENTRY ROAD 2- PLAN VIEW
(PRIVATE)

ENTRY ROAD 2 - PROFILE VIEW
HORIZ: 1" = 40'
VERT: 1" = 10'



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

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ELEVATION NOTE
ADD 2700 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 2701.00)

CONSTRUCTION NOTES
1. INSTALL 7" ASPHALT PAVEMENT OVER 9" 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 10' WIDE SIDEWALK PER CCAUSD NO. 234
5. CONSTRUCT 8' WIDE SIDEWALK PER CCAUSD NO. 234
6. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD NO. 234
7. CONSTRUCT 8' VALLEY GUTTER PER CCAUSD NO. 228
8. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235 CASE I, AND 235.1

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NOTE
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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.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT 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 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/REPLEIVING 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 EXIST) 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 IN 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 NVR100000, 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 NVR100000, 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.

FLOOD ZONE
THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL --------, DATED NOVEMBER 16, 2011. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

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 COPW HTE ###-????? FOR THE SUBJECT PROJECT.

JOSH JOHNSON, P.E. 15789 DATE

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

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811 OR 1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
PRIVATE ENTRY 1 AND 2
PLAN AND PROFILE III- "ER2" 9+00.00 TO "ER2" 16+50.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1910-000

NEVADA PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSHUA L. JOHNSON
No. 15789
EXP. 12/31/2021
CIVIL
3/8/19

PP-3
SHEET 6 OF 17

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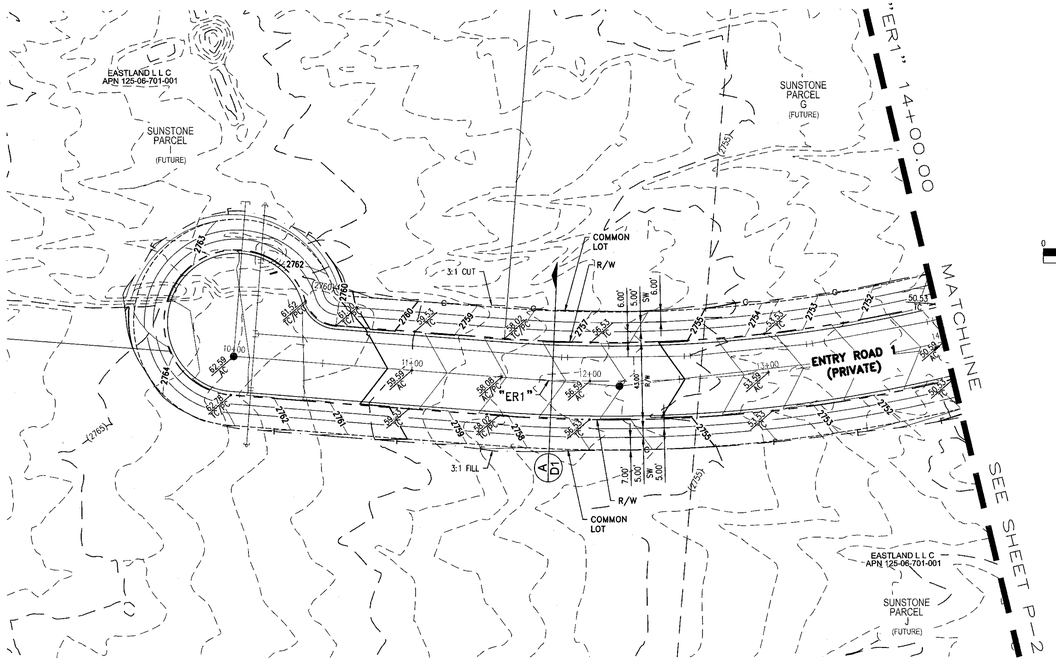

ENTRY ROAD 1- PLAN VIEW
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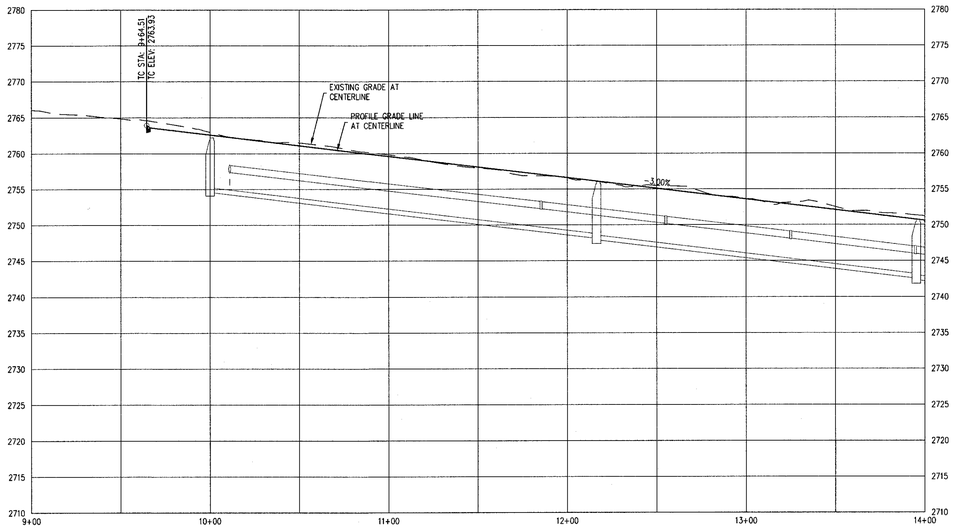

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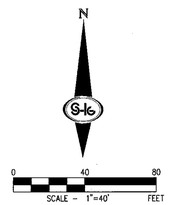

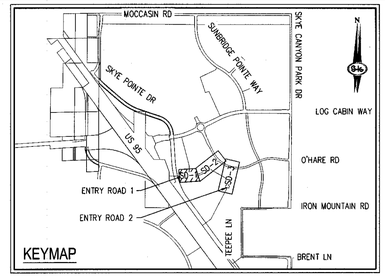

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STORM DRAIN NOTES

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2. CONSTRUCT 48" TYPE II MANHOLE (USDCCA STD. DWG. NO. 405)
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8. CONNECT TO STORM DRAIN
9. INSTALL BRICK AND MORTAR PLUG PER DETAIL ON SHEET D-1

LEGEND

(1) STORM DRAIN LATERAL # (SEE SHEETS P-6)

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APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ##### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

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 COPW HTE ##-????? FOR THE SUBJECT PROJECT.

JOSH JOHNSON, P.E. 15789 DATE

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

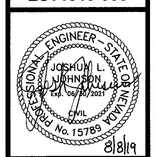
CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
PRIVATE ENTRY 1 AND 2
STORM DRAIN I - "ER1" 9+00.00 TO "ER1" 14+00.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1910-000



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SHEET 7 OF 17

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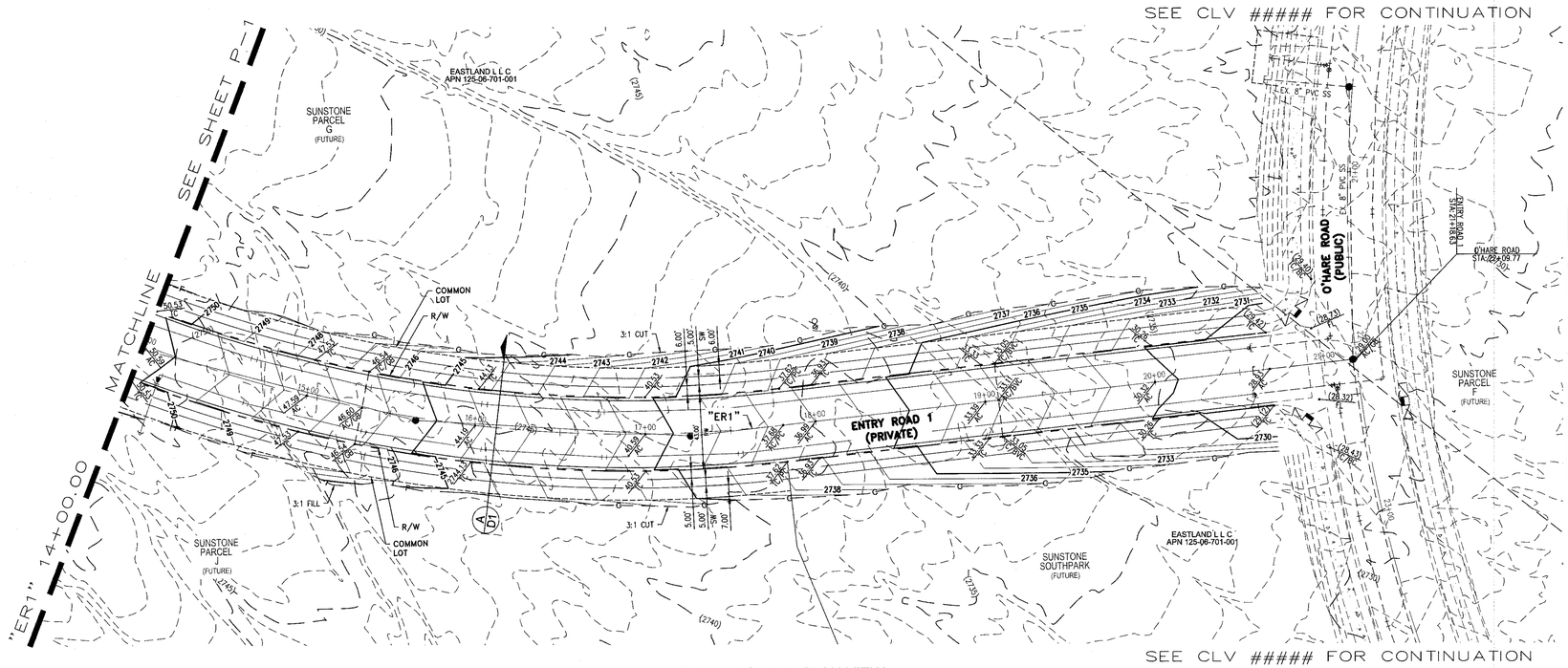

ENTRY ROAD 1 - PLAN VIEW
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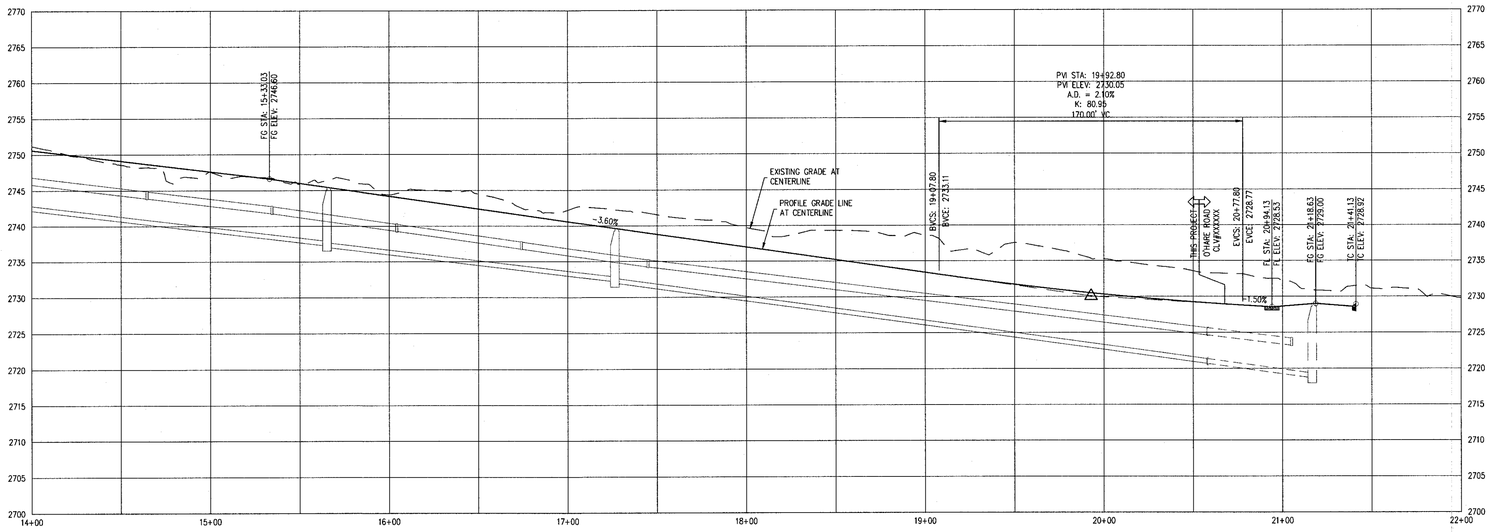

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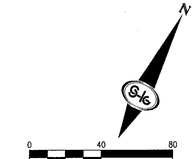

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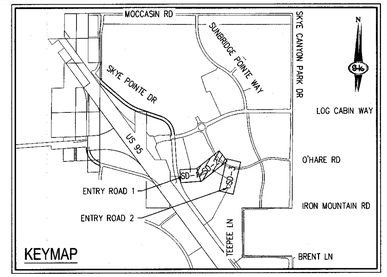

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APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE: ____
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JOSH JOHNSON, P.E. 15789 DATE

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

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

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PRIVATE ENTRY 1 AND 2
STORM DRAIN II - "ER1" 14+00.00 TO "ER1" 22+00.00

DATE: 08/07/19
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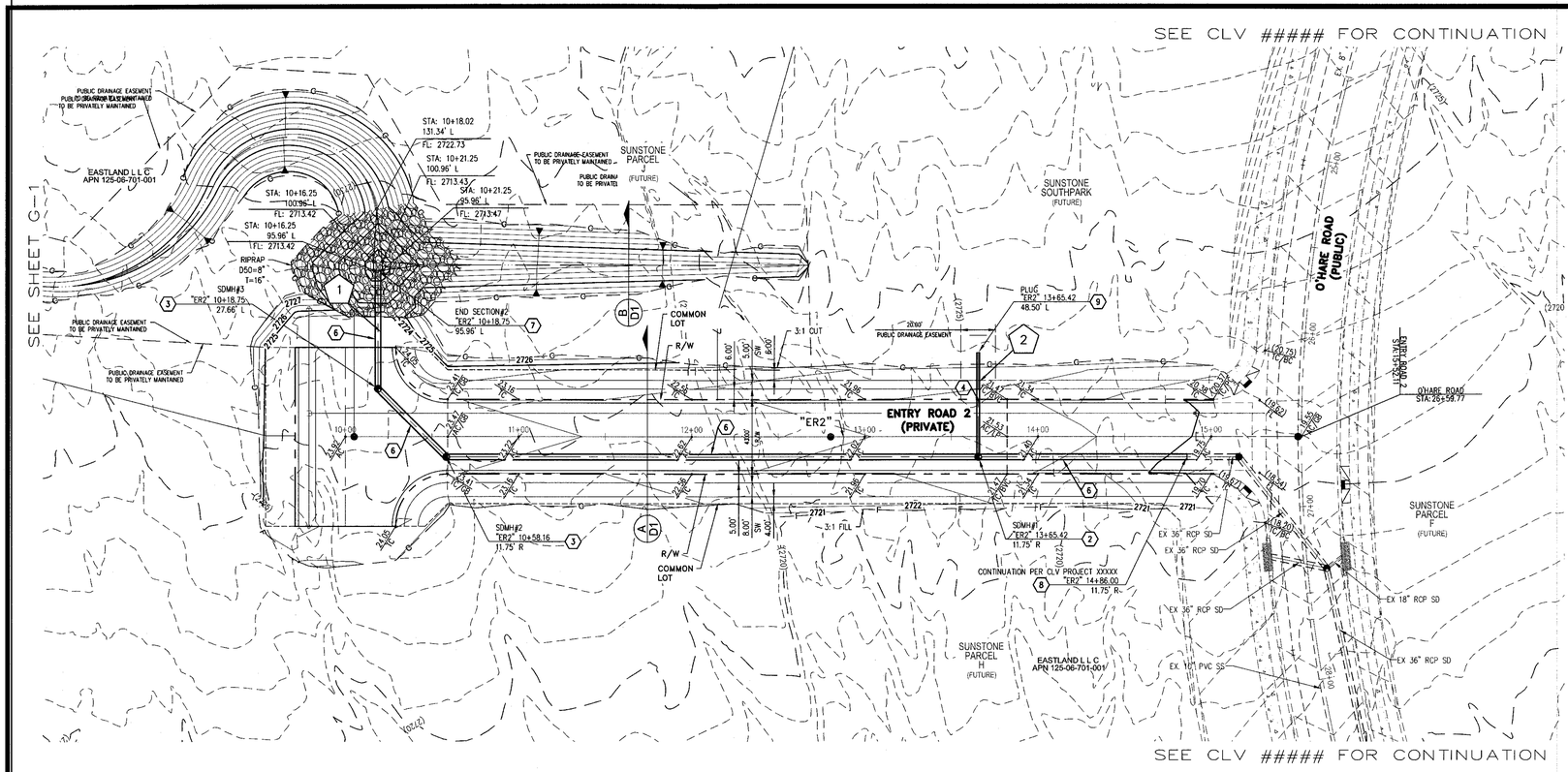
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1910-000

PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSHUA JOHNSON
No. 15789
CIVIL
8/8/19

SD-2
SHEET 8 OF 17

J:\est1910-000 sunstone entry roads\dwg\improv\est1910-000 drn.dwg 8/7/2019 5:07 PM thomas tyson



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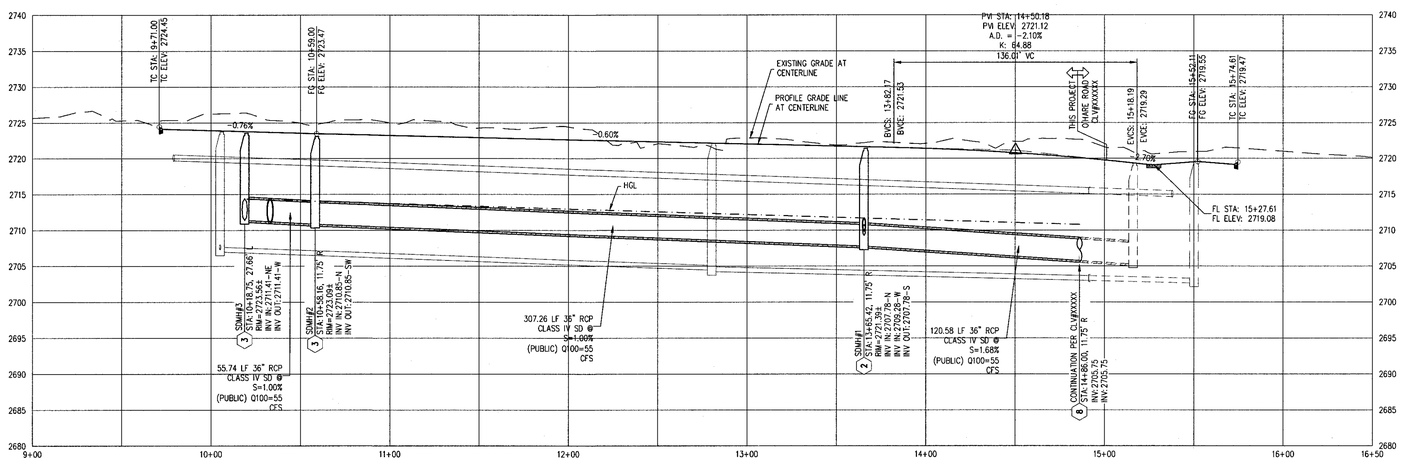

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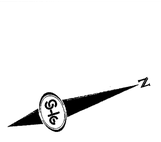

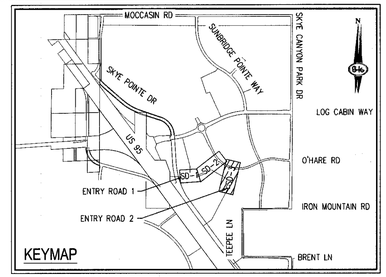

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OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DISTURBED, DESTROYED, OR OBSCURED DURING CONSTRUCTION.

ELEVATION NOTE
ADD 2700 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 2701.00)

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

STORM DRAIN NOTES
1. CONSTRUCT TYPE "CM2" DROP INLET (USDCCA STD. DWG. NO. 412.1 & 421)
2. CONSTRUCT 48" TYPE II MANHOLE (USDCCA STD. DWG. NO. 405)
3. CONSTRUCT 60" TYPE III MANHOLE (USDCCA STD. DWG. NO. 406.1)
4. INSTALL 18" RCP (USDCCA STD. DWG. NO. 503.2)
5. INSTALL 30" RCP (USDCCA STD. DWG. NO. 503.2)
6. INSTALL 36" RCP (USDCCA STD. DWG. NO. 503.2)
7. INSTALL RCP END SECTION (NDOT STD. PLAN R-2.3.1)
8. CONNECT TO STORM DRAIN
9. INSTALL BRICK AND MORTAR PLUG PER DETAIL ON SHEET D-1

LEGEND
(1) STORM DRAIN LATERAL # (SEE SHEETS P-6)

DISCLAIMER NOTE
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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.

NOTES
1. ALL RCP SHALL BE CLASS III UNLESS OTHERWISE SHOWN.
2. ALL PIPE LENGTHS ARE MEASURED ALONG PIPE CENTERLINE TO CENTER OF MANHOLE OR INSIDE EDGE OF DI OR RCB/RCA.
3. ALL DROP INLETS SHALL INCLUDE STORM WATER MANAGEMENT STAMP AND DETAIL PER USDCCA STD. DWG. NO. 421.
4. SEE STRUCTURAL PLANS FOR ADDITIONAL STRUCTURAL DETAILS AND CONNECTIONS.
5. ALL PIPES IN PUBLIC ROW ARE PUBLICLY MAINTAINED.
6. ADD SPECIAL INSPECTION REQUIRED FOR PIPE SEGMENTS WITH SACRIFICIAL CONCRETE.
7. SEE UTILITY PLAN AND PROFILE SHEETS FOR UTILITY ADJUSTMENTS AND RELOCATIONS.
8. ALL INTERIM DRAINAGE FACILITIES TO BE PRIVATELY MAINTAINED.
9. PROPERTY OWNER IS RESPONSIBLE TO MAINTAIN THE BEST MANAGEMENT PRACTICES, SUCH AS BUT NOT LIMITED TO, THE REMOVAL OF ACCUMULATED SEDIMENT AND DEBRIS AND CARE OF VEGETATION.
10. 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).

FLOOD ZONE
THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL --------, DATED NOVEMBER 16, 2011. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

APPROVED FOR CONSTRUCTION
LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

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 HTF #??-????? FOR THE SUBJECT PROJECT.

JOSH JOHNSON, P.E. 15789 DATE

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

FAST
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SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
PRIVATE ENTRY 1 AND 2
STORM DRAIN III - "ER2" 9+00.00 TO "ER2" 16+50.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1910-000

PROFESSIONAL ENGINEER - STATE OF NEVADA - JOSHUA L. JOHNSON - No. 15789 - CIVIL - Exp. 06/30/2021
8/8/19

SD-3
SHEET 9 OF 17

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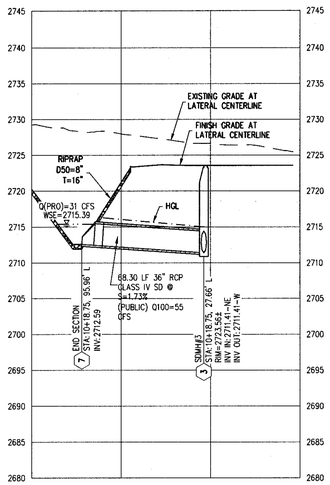
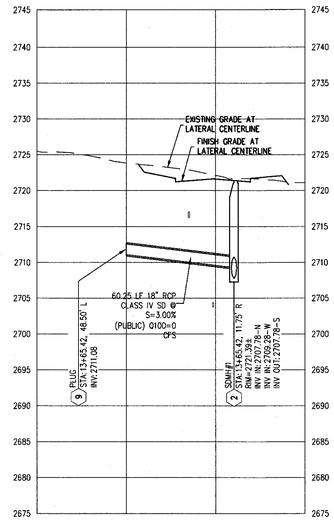


LATERAL PROFILE 1
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'



LATERAL PROFILE 2
SCALE HORIZ: 1" = 40'
SCALE VERT: 1" = 10'

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CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
PRIVATE ENTRY 1 AND 2
STORM DRAIN LATERAL I

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1910-000

PROFESSIONAL ENGINEER STATE OF NEVADA
JOSHUA L. JOHNSON
Expires: 06/30/2021
No. 15789
CIVIL
8/8/19

SD-4
SHEET 10 OF 17

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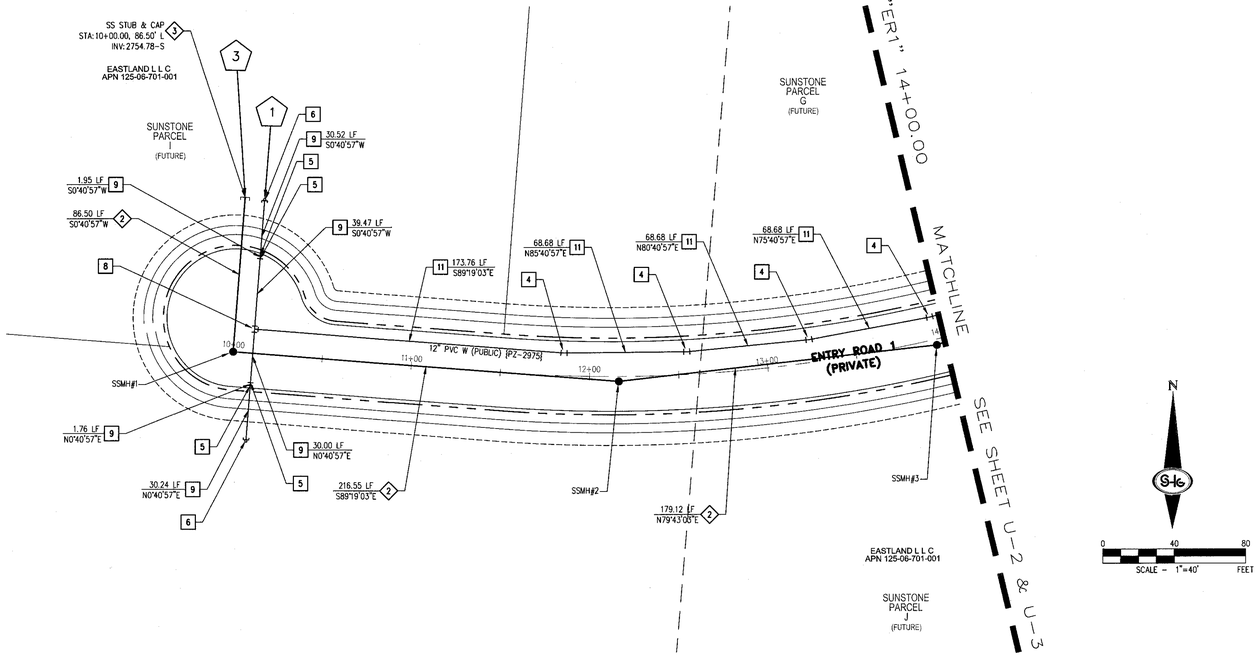
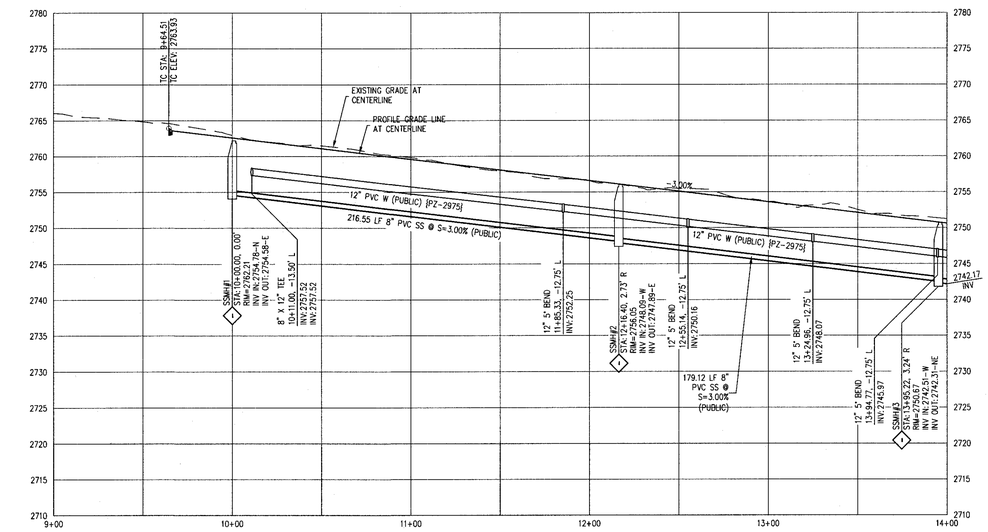


ENTRY ROAD 1- PLAN VIEW
(PRIVATE)



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EASEMENTS WITH TREES, SHRUBS, DECORATIVE ROCKS, BLOCK WALL, OR FENCE
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.

DROP INLET NOTE
WHERE 10 FEET PARALLEL SEPARATION IS NOT PRACTICABLE:

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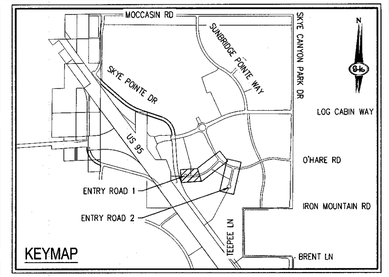

WATER NOTES
1. REMOVE CAP AND BLOW-OFF PER UDACS PLATE NO. 36 AND CONNECT NEW PIPE PER UDACS SECTION 3.14
2. INSTALL 10"x8" TEE WITH RESTRAINED JOINTS
3. INSTALL 12"x8" REDUCER W/ RESTRAINED JOINTS PER UDACS PLATE NO.30
4. INSTALL GATE VALVE AND VALVE BOX (SIZE PER PLAN) PER UDACS PLATE NO. 39
5. INSTALL 12" X 12" TEE WITH RESTRAINED JOINTS
6. INSTALL 45° DEGREE BEND (SIZE PER PLAN). (RESTRAIN FITTINGS ON MAIN 12" AND GREATER; AS SHOWN ON PLANS)
7. INSTALL 22.5° DEGREE BEND (SIZE PER PLAN). (RESTRAIN FITTINGS ON MAIN 12" AND GREATER; AS SHOWN ON PLANS)
8. INSTALL 11.25° DEGREE BEND (SIZE PER PLAN). (RESTRAIN FITTINGS ON MAIN 12" AND GREATER; AS SHOWN ON PLANS)
9. 1° MAXIMUM DEFLECTION, PER UDACS SEC. 2.07
10. INSTALL FIRE HYDRANT ASSEMBLY WITH 6" GATE VALVE PER UDACS PLATE NO. 40
11. INSTALL CAP AND 2" BLOW-OFF VALVE PER UDACS PLATE NO. 36.
12. INSTALL 1" COPPER SERVICE W/ 3/4" IRRIGATION METER AND 1" RPPA PER UDACS PLATE NO. 3 & 8, BRASS BETWEEN METER AND RPPA
13. INSTALL IRRIGATION SLEEVES (2) 4" SCHEDULE 40 PVC AND (1) 6" SCHEDULE 40 PVC (SEE LANDSCAPE PLANS FOR IRRIGATION SLEEVE LOCATIONS)

SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

SEWER NOTES
1. INSTALL 48" DIAMETER SANITARY SEWER MANHOLE PER DCSWCS SD-1A & SD-1B, 24" LID PER DCSWCS SD-2A
2. SANITARY SEWER STUB AND CAP w/THRUST BLOCKS 1 CUBIC FOOT, PER DCSWCS SECTION 2.2.5.
3. INSTALL STEEL SLEEVE, SIZE PER PLAN

SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

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1. WATER MAIN JOINT DEFLECTION (PVC, 4" - 24"):
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2. REDUCED PRESSURE PRINCIPLE ASSEMBLY (1) 1":
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4. FITTINGS SHALL NOT FALL UNDER CURBS, GUTTERS OR SIDEWALK.
5. INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING PER UDACS PLATE NO. 15.
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LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. _____ FIRST APPROVED DATE: _____
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

APPROVAL
LAS VEGAS FIRE AND RESCUE _____ DATE _____

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NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
PRIVATE ENTRY 1 AND 2
UTILITY PLAN I "ER1" 9+00.00 TO "ER1" 14+00.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1910-000

PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSHUA L. JOHNSON
No. 15789
Exp. 06/30/2021
CIVIL
8/8/19

UT-1
SHEET 11 OF 17

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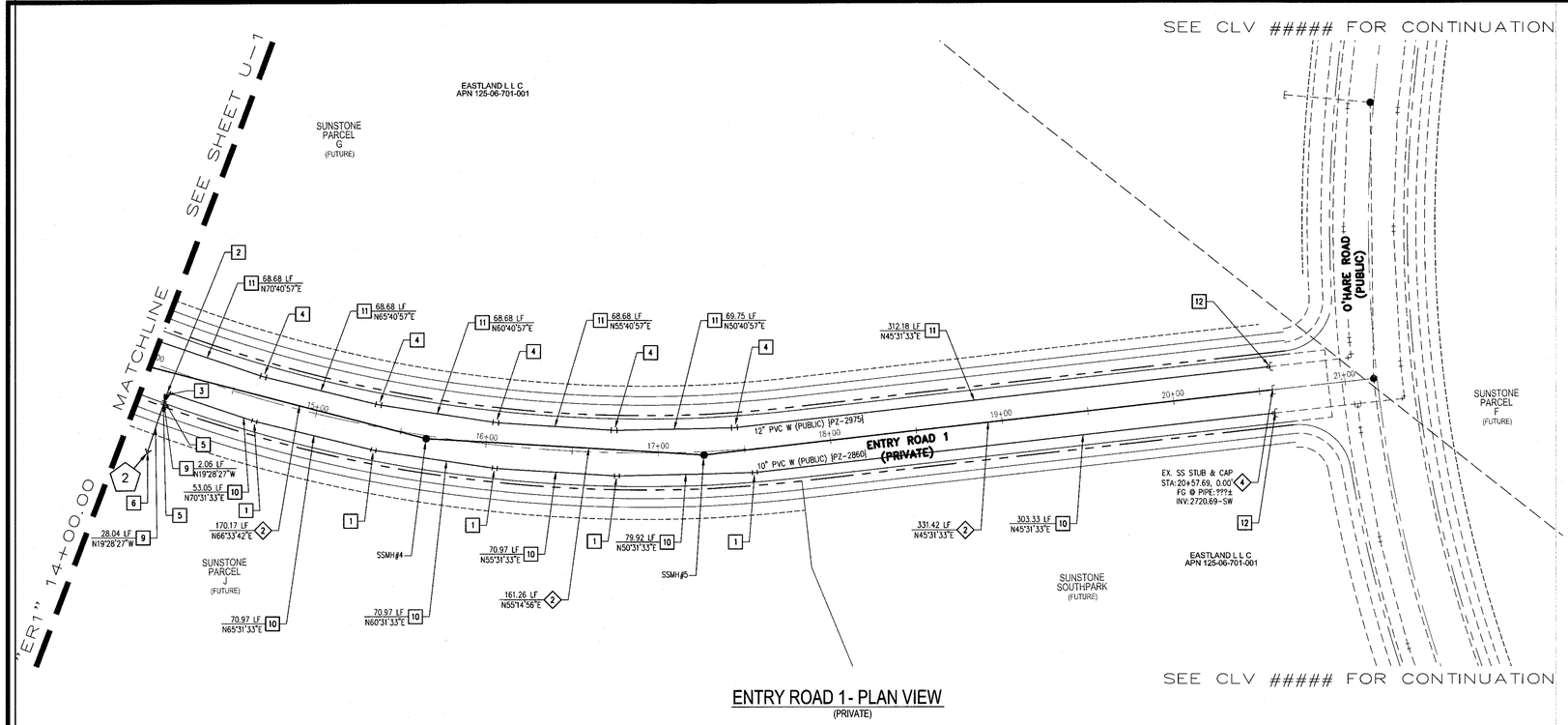
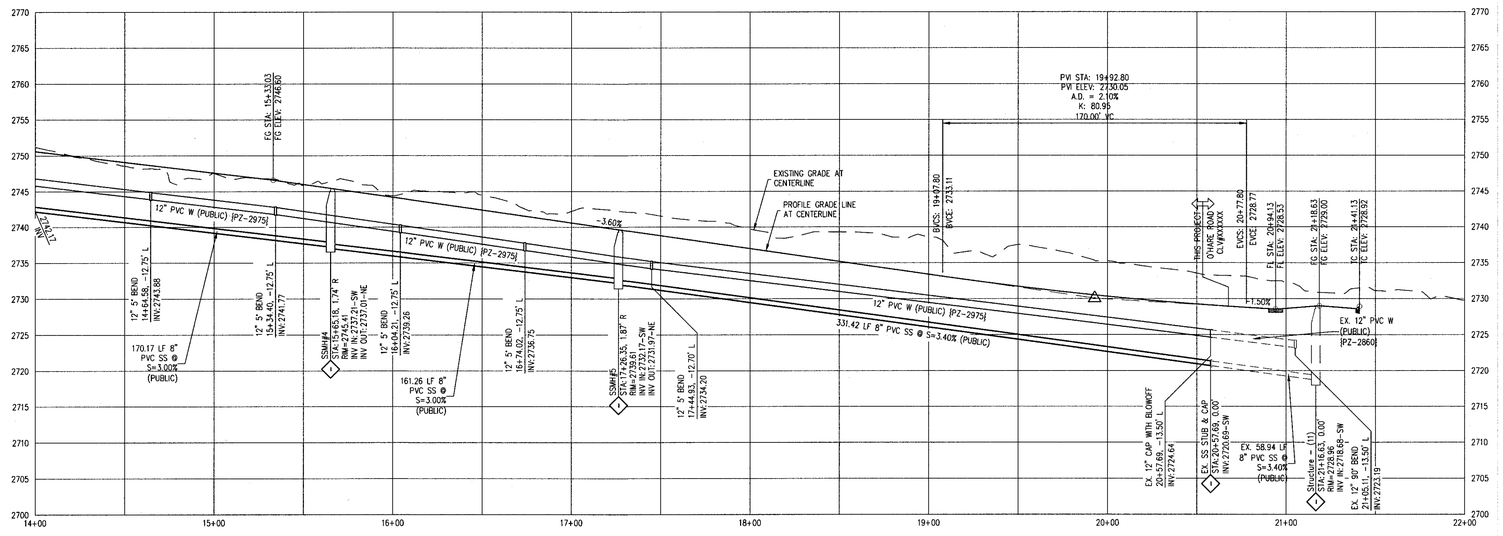


ENTRY ROAD 1- PLAN VIEW
(PRIVATE)



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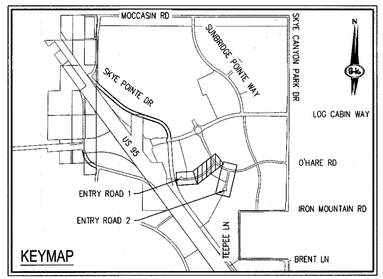
N

0 40 80
SCALE - 1"=40' FEET



KEYMAP

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PROJECT NO. ##### FIRST APPROVED DATE: _____
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APPROVAL

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PROFESSIONAL ENGINEER - STATE OF NEVADA
JOSHUA JOHNSON
No. 15789
Expires: 06/30/2021
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UT-2
SHEET 12 OF 17

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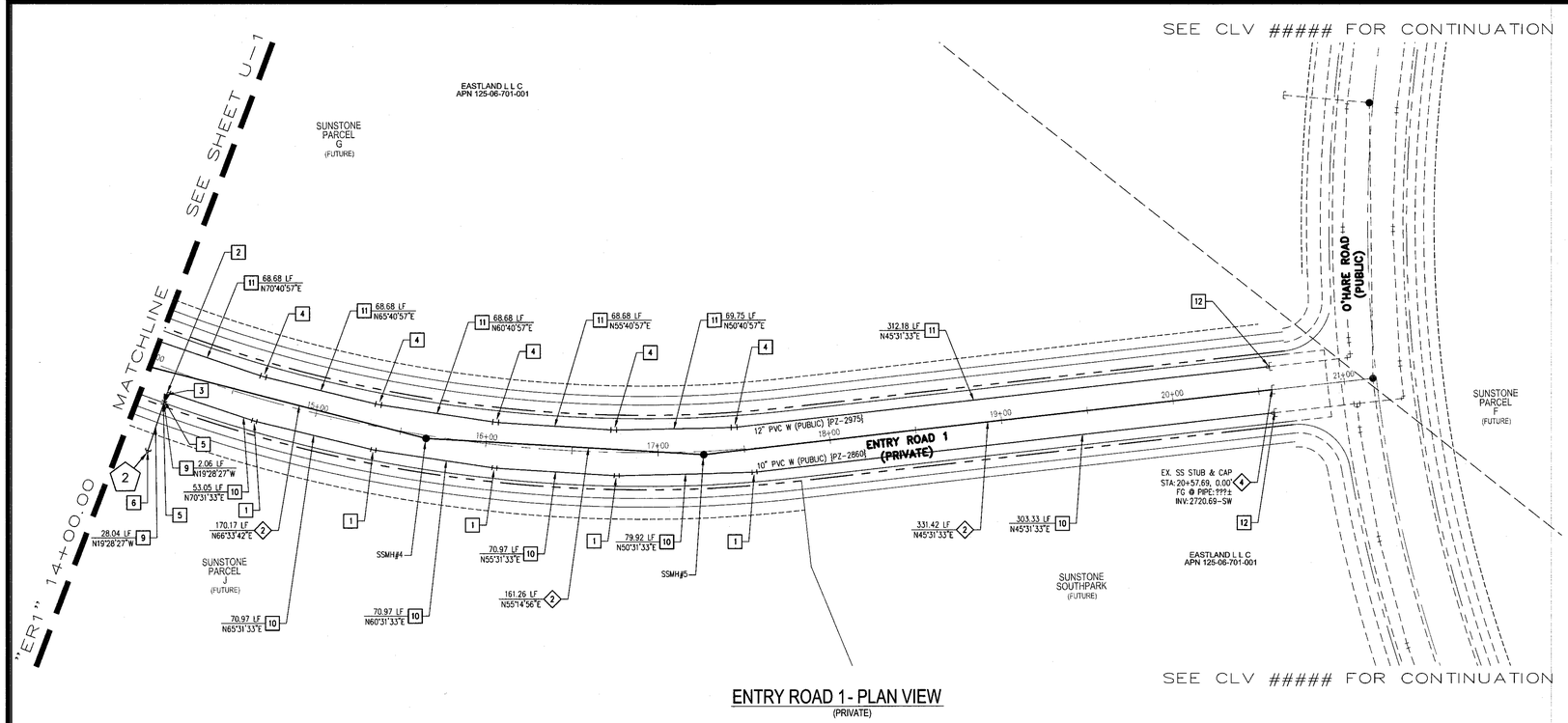
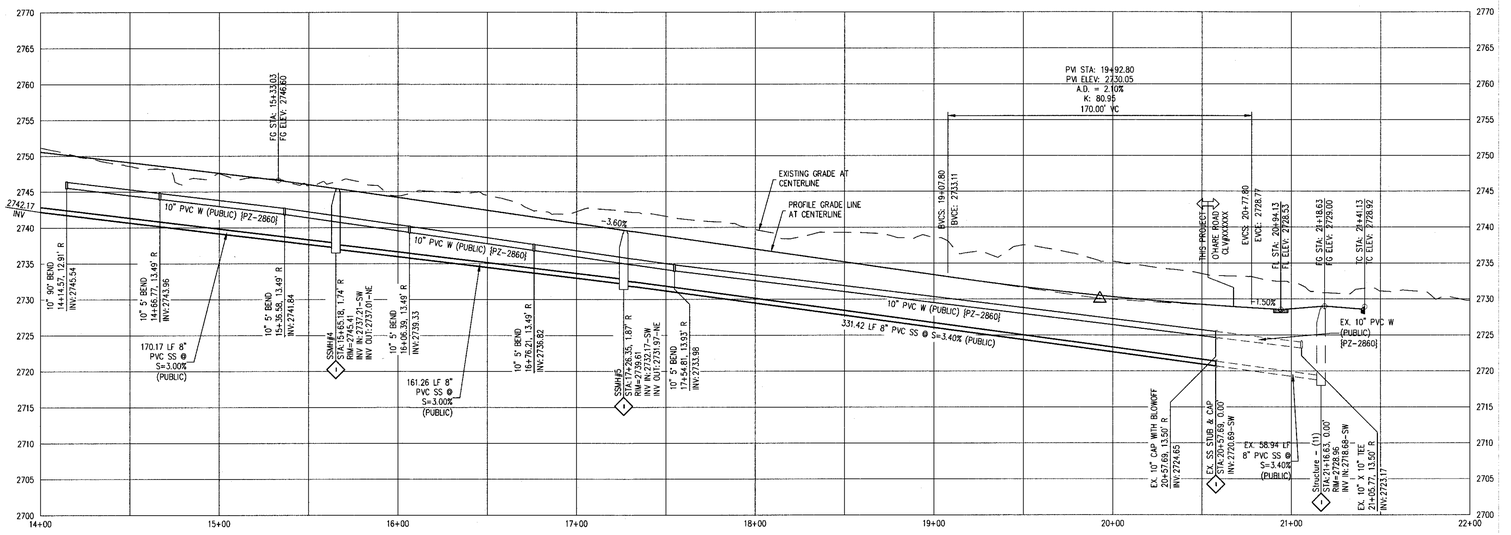


ENTRY ROAD 1 - PLAN VIEW
(PRIVATE)



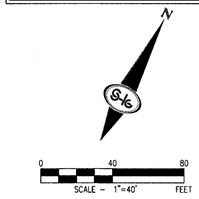
ENTRY ROAD 1 - PROFILE VIEW
HORIZ: 1" = 40'
VERT: 1" = 10'

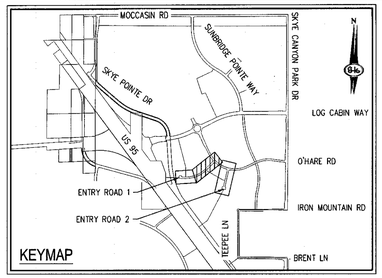
DISCLAIMER NOTE
EXISTING UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXCEPT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

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

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

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





WATER NOTES
1. REMOVE CAP AND BLOW-OFF PER UDACS PLATE NO. 36 AND CONNECT NEW PIPE PER UDACS SECTION 3.14
2. INSTALL 10"X8" TEE WITH RESTRAINED JOINTS
3. INSTALL 12"X8" REDUCER W/ RESTRAINED JOINTS PER UDACS PLATE NO.30
4. INSTALL GATE VALVE AND VALVE BOX (SIZE PER PLAN) PER UDACS PLATE NO. 39
5. INSTALL 12" X 12" TEE WITH RESTRAINED JOINTS
6. INSTALL 45° DEGREE BEND (SIZE PER PLAN). (RESTRAIN FITTINGS ON MAIN 12" AND GREATER; AS SHOWN ON PLANS)
7. INSTALL 22.5° DEGREE BEND (SIZE PER PLAN). (RESTRAIN FITTINGS ON MAIN 12" AND GREATER; AS SHOWN ON PLANS)
8. INSTALL 11.25° DEGREE BEND (SIZE PER PLAN). (RESTRAIN FITTINGS ON MAIN 12" AND GREATER; AS SHOWN ON PLANS)
9. 1° MAXIMUM DEFLECTION, PER UDACS SEC. 2.07
10. INSTALL FIRE HYDRANT ASSEMBLY WITH 6" GATE VALVE PER UDACS PLATE NO. 40
11. INSTALL CAP AND 2" BLOW-OFF VALVE PER UDACS PLATE NO. 36.
12. INSTALL 1" COPPER SERVICE W/ 3/4" IRRIGATION METER AND 1" RPPA PER UDACS PLATE NO. 3 & 18, BRASS BETWEEN METER AND RPPA
13. INSTALL IRRIGATION SLEEVES (2) 4" SCHEDULE 40 PVC AND (1) 6" SCHEDULE 40 PVC (SEE LANDSCAPE PLANS FOR IRRIGATION SLEEVE LOCATIONS)

SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

SEWER NOTES
1. INSTALL 48" DIAMETER SANITARY SEWER MANHOLE PER DCSWCS SD-1A & SD-1B, 24" LID PER DCSWCS SD-2A
2. SANITARY SEWER STUB AND CAP W/THRUST BLOCKS 1 CUBIC FOOT, PER DCSWCS SECTION 2.2.5.
3. INSTALL STEEL SLEEVE, SIZE PER PLAN

SEE SHEET C-3 FOR QUANTITIES, LEGEND & ABBREVIATIONS

WATER NOTES
1. WATER MAIN JOINT DEFLECTION (PVC 4" – 24")
   PVC PIPE SHALL BE DEFLECTED AT THE JOINT ONLY. THE MAXIMUM ALLOWABLE DEFLECTION SHALL BE ONE (1) DEGREE PER JOINT WITH A MINIMUM RADIUS OF CURVATURE OF 1,150 FEET, PER UDACS 2.07.01 AND 2.07.02.
   FOR CHANGES IN DIRECTION EXCEEDING THE MAXIMUM ALLOWABLE JOINT DEFLECTION, FITTINGS SHALL BE USED.
2. REDUCED PRESSURE PRINCIPLE ASSEMBLY (1) 1"
   APPROVED REDUCED PRESSURE PRINCIPLE ASSEMBLY(S) SHALL BE INSTALLED PER THE UDACS PLATE NO. 8. NO WATER SHALL BE TAKEN FROM A SERVICE REQUIRING BACKFLOW PREVENTION UNTIL THE REDUCED PRESSURE PRINCIPLE ASSEMBLY HAS BEEN SUCCESSFULLY TESTED BY THE LVVWD. ANY BLOCK WALL OR OTHER FENCE MATERIAL SHALL BE DESIGNED AND CONSTRUCTED AROUND THE OUTSIDE OF THE EASEMENT(S) TO ALLOW THE DISTRICT DIRECT ACCESS FROM THE ADJACENT RIGHT-OF-WAY. EASEMENTS SHALL BE CLEARLY MARKED OR STAKED PRIOR TO THE START OF CONSTRUCTION.
3. ALL SEWER/ STORM DRAINS CROSSING WATER LINES MUST CONFORM TO SECTION 2.22 OF THE UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR POTABLE WATER SYSTEMS (UDACS) FOR WATER AND STORM MAIN CROSSINGS AND CLEARANCES.
4. FITTINGS SHALL NOT FALL UNDER CURBS, GUTTERS OR SIDEWALK.
5. INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING PER UDACS PLATE NO. 15.
6. THE LVVWD CANNOT GUARANTEE A WATERTIGHT SHUTDOWN WHERE CONNECTIONS OR REPAIRS TO EXISTING FACILITIES ARE REQUIRED. THE CONTRACTOR SHALL ENSURE ALL LABOR AND EQUIPMENT IS AVAILABLE TO REMOVE FUGITIVE WATER THAT MAY IMPEDE CONSTRUCTION AT ALL TIMES. COORDINATION WITH INSPECTION DIVISION MUST TAKE PLACE PRIOR TO ANY TRIAL SHUTDOWN.
7. CONTRACTOR TO INSTALL TEMPORARY SERVICE TO ENSURE PROPER SHUTDOWN IN THE EVENT NO OTHER APPURTENANCES ARE AVAILABLE.
8. 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 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.

APPROVED FOR CONSTRUCTION
LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

APPROVAL
LAS VEGAS FIRE AND RESCUE DATE

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
PRIVATE ENTRY 1 AND 2
UTILITY PLAN III "ER1" 14+00.00 TO "ER1" 22+00.00

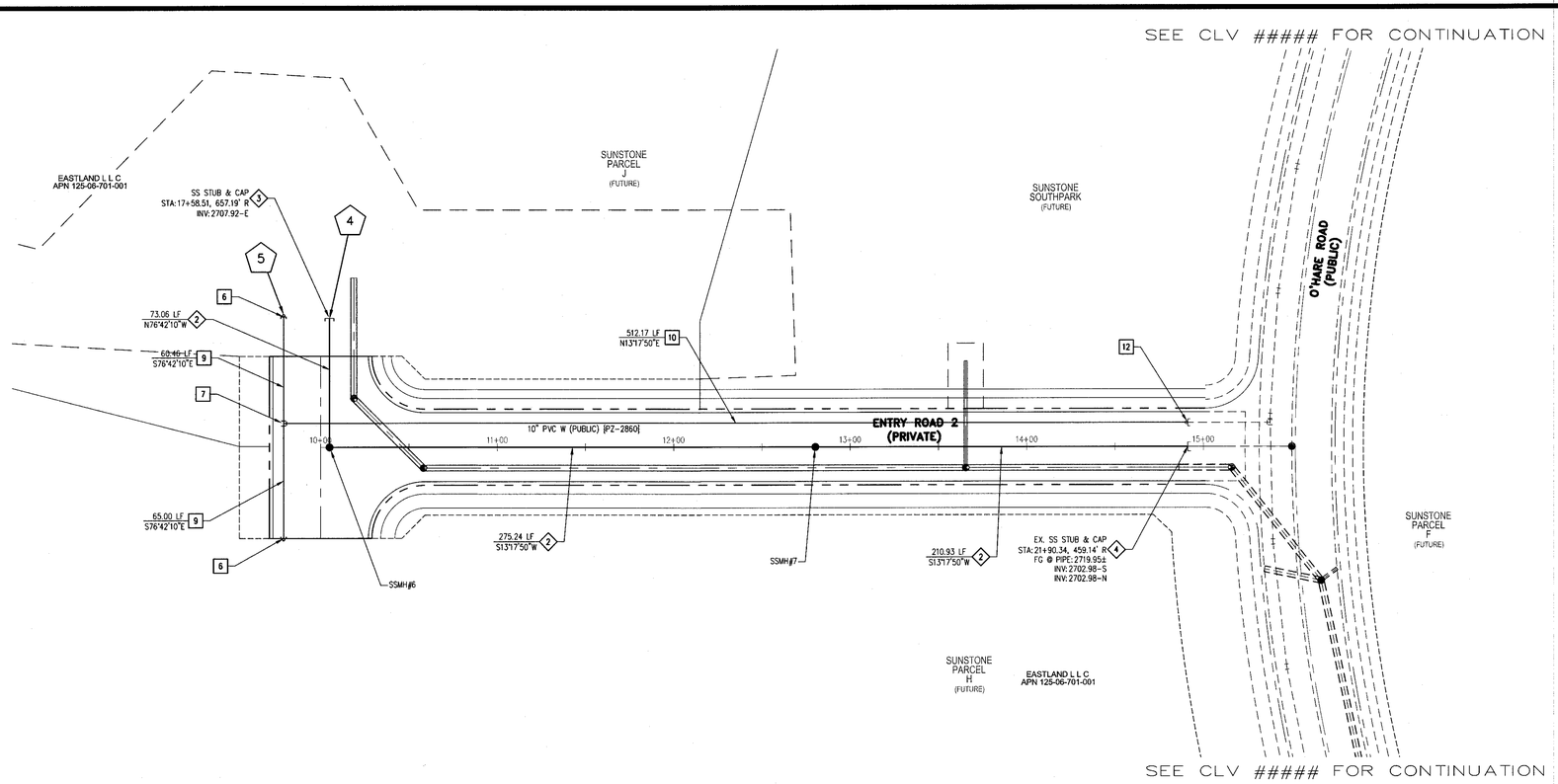
DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1910-000

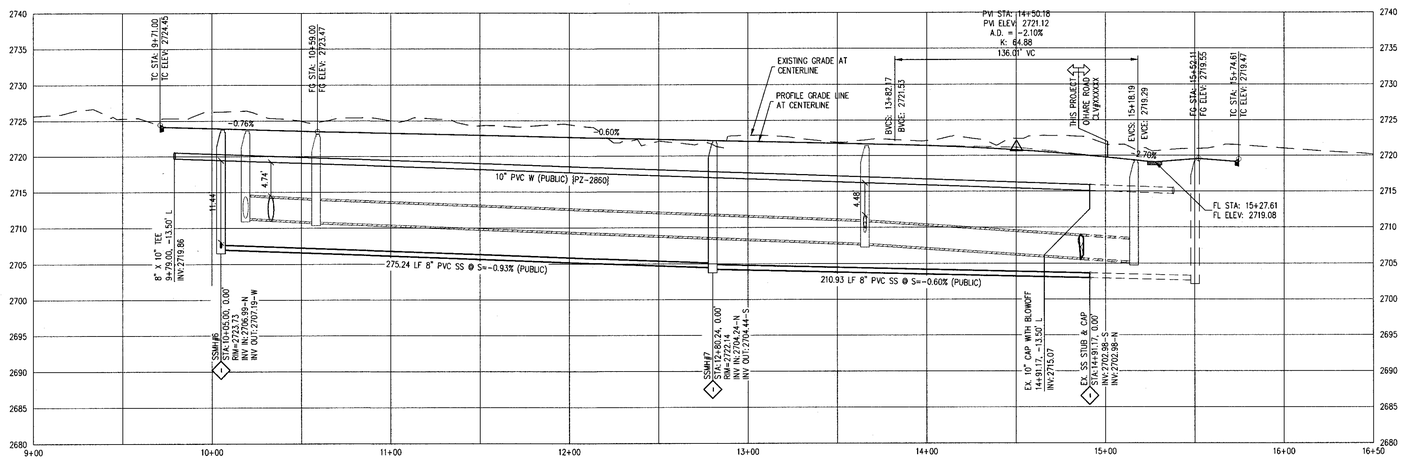
PROFESSIONAL ENGINEER – STATE OF NEVADA
JOSHUA L. JOHNSON
No. 15789
Exp. 09/30/2021
CIVIL
08/19

UT-3
SHEET 13 OF 17

E:\est1910-000 sunstone entry roads\dwg\improv\est1910-000 ut1.dwg 8/7/2019 5:08 PM Thomas Dyson



ENTRY ROAD 2- PLAN VIEW
(PRIVATE)



ENTRY ROAD 2 - PROFILE VIEW
HORIZ: 1" = 40'
VERT: 1" = 10'

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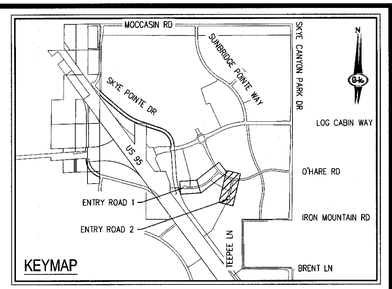
SCALE - 1"=40' (0, 40, 80 FEET)



KEYMAP

WATER NOTES

1. REMOVE CAP AND BLOW-OFF PER UDACS PLATE NO. 36 AND CONNECT NEW PIPE PER UDACS SECTION 3.14
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APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ##### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 1,500 GPM / ONSITE 20 GPM

APPROVAL

LAS VEGAS FIRE AND RESCUE DATE

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

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811 OR 1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

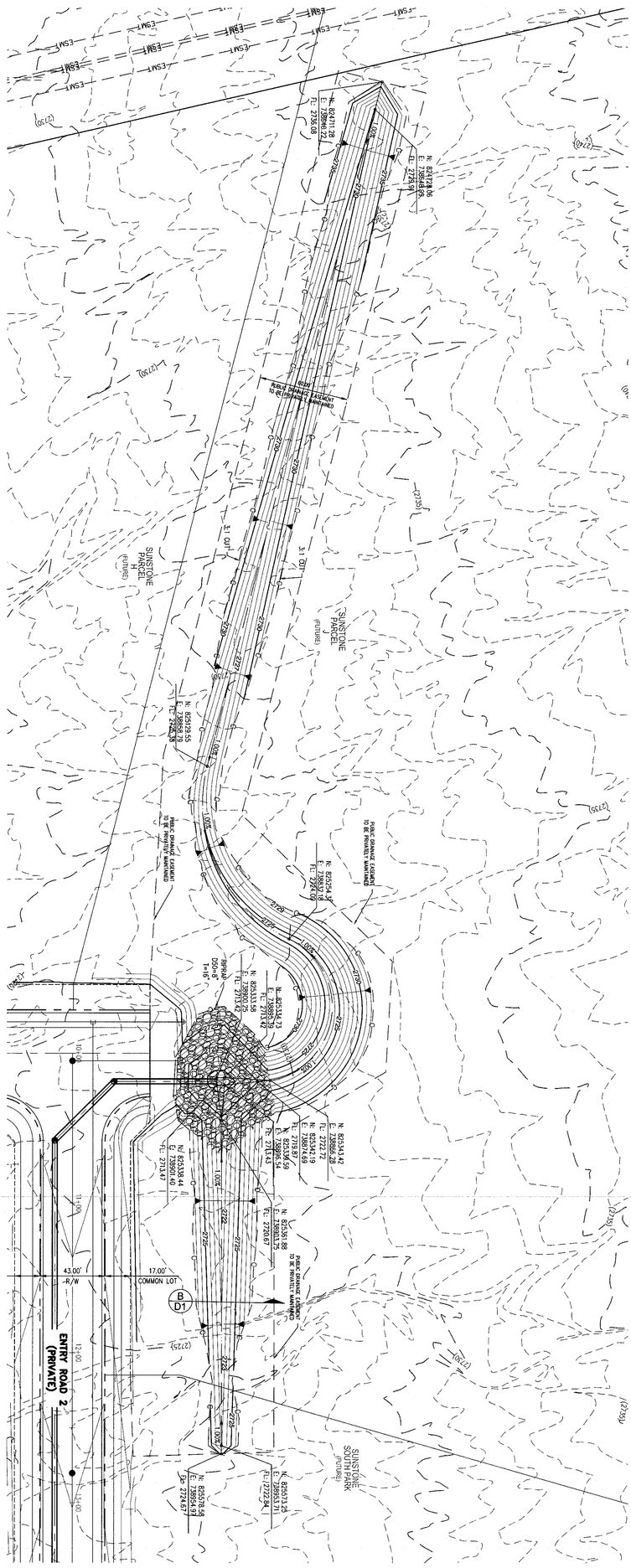
SUNSTONE PHASE 1
PRIVATE ENTRY 1 AND 2
UTILITY PLAN IV "ER2" 9+00.00 TO "ER2" 16+50.00

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ
PROJECT NO.
EST1910-000

UT-4
SHEET 14 OF 17

J:\est\1910-000 sunstone entry roads\dwg\xrecon\est1910-000 ut.dwg, 8/7/2019 5:08 PM Thomas Dyson

J:\est1910-000 sunstone entry roads\dwg\vmorov\est1910-000 prp2.dwg 8/7/2019 5:09 PM Thomas Dyson



G-1	SHEET 16 OF 17				
PROJECT NO.	EST1910-000	DATE:	08/07/19		
CHECKED:	JJ	DRAFTER:	SSJ/JR		
DESIGNER:	BC				

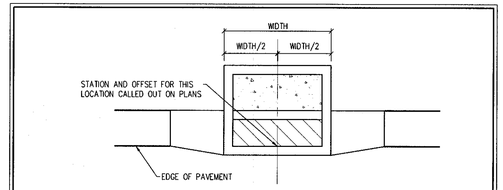
CITY OF LAS VEGAS

SC EAST LANDCO, LLC

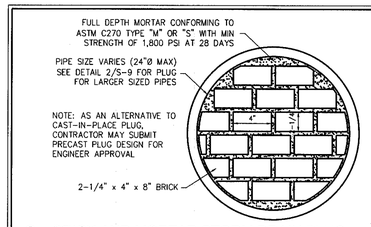
SUNSTONE PHASE 1
PRIVATE ENTRY 1 AND 2
GRADING PLAN

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

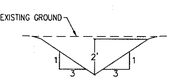
SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399



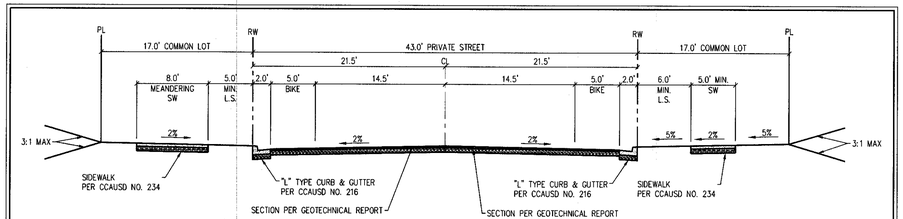
D. DROP INLET STATION AND OFFSET LOCATION DETAIL
NOT TO SCALE



C. BRICK AND MORTAR STORM DRAIN PLUG
NOT TO SCALE



B. EARTHEN V-DITCH
NOT TO SCALE



NOTE:
FINAL PAVEMENT SURFACE SHALL BE 1/2" ABOVE LIP OF GUTTER. PAVEMENT SHALL BE FLUSH WITH LIP OF GUTTER AT SIDEWALK RAMPS.

A. MINOR COLLECTOR STREET WITH BIKE LANES (PRIVATE)
NOT TO SCALE

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. DATE	APP.

CITY OF LAS VEGAS

SC EAST LANDCO, LLC

SUNSTONE PHASE 1
PRIVATE ENTRY 1 AND 2
DETAIL SHEET 1

DATE: 08/07/19
DRAFTER: SB/JR
DESIGNER: BC
CHECKED: JJ

PROJECT NO.
EST1910-000

PROFESSIONAL ENGINEER – STATE OF NEVADA
JOSHUA L. JOHNSON
No. 15789
EXP. 06/30/2021
CIVIL
8/7/19

D-1
SHEET 17 OF 17

J:\est1910-000 sunstone entry roads\dwg\improv\est1910-000 det.dwg 8/7/2019 11:53 AM Thomas Dyson