

DS #:

5171

APN: 137-14-401-006 & 137-23-101-002

PROJECT: Summiton West V22 - Kestrel Creek Avenue (Street 1)

SUBMITTAL:

Supplement

SCANNED BY/DATE:

CHECKED BY/DATE:



CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		December 2, 2019
TO: Land Development Services Department of Building & Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	COPIES TO:	
Drainage Study for:	Atkins	
Summerlin West V22 – Kestrel Creek Avenue (Street I) (from Desert Foothills Drive to Kettle Ridge Drive <Street J>)		
Cross Streets:	Desert Foothill Drive & Kestrel Creek Ave.	Howard Hughes Company, LLC
File Number:	F:\Depot\DSMemos\DS5171C.doc	Bart Anderson, P.E., DevCo
Parcel Number:	137-14-401-006 & 137-23-101-002	
Zoning Action:	N/A	
FEMA Flood Zone	YES	NO X
Proposed Storm Drain	YES X	NO

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	8/5/2019	9/4/2019	Not Approved	\$400.00	3518203: \$400
2 nd Submittal	10/16/2019	11/6/2019	Not Approved	\$400.00	3612957: \$400
Supplement	11/14/2019	12/2/2019	See Comments Below	N/C	N/C
			TOTAL FEES (LDDRS):	\$800.00	----

REMARKS:

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

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

1. The subject street improvement of *Kestrel Creek Avenue* is premised on the existence of *Kettle Ridge Drive* on the west for flood cut-off protection. The subject drainage study will not be approved prior to the final approval of the technical drainage study of "*Summerlin West V22 - Kettle Ridge Drive (Street J) and Scurry Bend Drive (Street N) Street Improvements (Lake Mead Blvd. to Fleet Wing Ave.)*".
2. The project proposes to build temporary drainage facilities, ie, berms/swales along the north and south sides of *Kestrel Creek Avenue* for interim flood protection. Prior to final plan approval the developer must complete a maintenance and liability agreement for the interim drainage improvements (berms or channels) 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 constructing the facility and an exhibit that adequately shows the location and limits of the drainage facility to *City of Las Vegas Flood Control* for approval. Once the drainage study is conditionally approved, the engineer should contact the *City's Land Development Section* (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 offsite berms / channels are no longer necessary and can be removed.

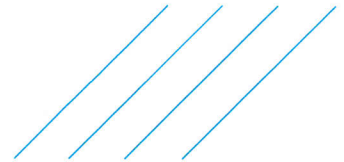
NOTE: Any future changes to the proposed design (or design assumptions) as outlined in the approved drainage study and attached preliminary grading plan which affect drainage must be addressed in a Drainage Study Update and accepted by the *City of Las Vegas Flood Control Section*. Additionally, conditional 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

ays

T/R/S: T20S/R59E/14
AREA K-14



TRANSMITTAL

Date: November 14, 2019

Job No.: 100066450

To:

Albert Sung
City of Las Vegas Public Works
333 N. Rancho Dr, 7th floor
Las Vegas, NV 89106

Regarding:

Kestrel Creek Avenue (Street I): Desert Foothills
Drive to Kettle Ridge Drive (Street J)
Technical Drainage Study

Supplement #1 to Addendum #1

Transmitted:

- ☐ Via Overnight
- ☒ Via Delivery
- ☐ Via Mail

For:

- ☒ Approval
- ☐ Review/Comment
- ☐ Your Use

- ☐ Information
- ☐ Return after Use
- ☒ Per your request

The Following:

- Storm drain lateral profile sheet
- CD

Comments:

If you have any questions, please contact me at (702) 551-0330 or Molly.Anderson@atkinsglobal.com.

Thank You.

From:


Molly Anderson, PE
Senior Engineer

(For Deliveries Only)

Received By: _____

_____ Date

Anderson, Molly

From: Albert Sung <YSung@LasVegasNevada.GOV>
Sent: Tuesday, November 12, 2019 11:12 AM
To: Anderson, Molly
Subject: RE: Drainage study for Summerlin West V22 - Kestrel Creek Avenue (Street I) (from Desert Foothills Drive to Kettle Ridge Drive <Street J>)

Molly,

On Sheet 21/31, since you did not label the depth of the inlets clearly, I went on visually measuring the depths from the profile and found that the inlets are more than 10' deep from the flow line to the bottom. So label the depth of each inlet clearly and revise the profile to visually convincing.

Please send me a supplement showing the table in your previous email with a revised lateral profile sheet. No charge.

Thanks.

Albert Y. Sung

Project Engineer
Public Works Dept. / Flood Control
(702) 229-6541
333 N. Rancho Dr. 7th Floor
Las Vegas, NV 89106



lasvegasnevada.gov



Your opinion is important! Click [here](#) to take a short survey.

From: Anderson, Molly <Molly.Anderson@atkinsglobal.com>
Sent: Monday, November 11, 2019 12:40 PM
To: Jewlia Springer <JSPRINGER@LasVegasNevada.GOV>; Bart Anderson <banderson@LasVegasNevada.GOV>; Chris Anderson (chris.anderson@howardhughes.com) <chris.anderson@howardhughes.com>; Albert Sung <YSung@LasVegasNevada.GOV>
Cc: Anderson, Carl E <Carl.Anderson@atkinsglobal.com>; Barcos, Nicolas <Nicolas.Barcos@atkinsglobal.com>
Subject: RE: Drainage study for Summerlin West V22 - Kestrel Creek Avenue (Street I) (from Desert Foothills Drive to Kettle Ridge Drive <Street J>)

EXTERNAL EMAIL: This email originated from outside the organization, do not click links or open attachments unless you recognize the sender and know the content is safe.

Albert,

The attached comment letter reads as follows for comment #1:

Drop inlets deeper than 10' require special structural design and structural calculations. 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 the Building Department approval of the structures to Flood Control prior to final acceptance of the drainage study.

The response that all drop inlets had been modified to less than 10' in depth was found not true. Per Sheet 21/31 (Storm Drain Lateral Profiles), proposed drop inlets SDDI #1, SDDI #2, and SDDI #4 are schematically shown to be deeper than 10'. This must be resolved prior to the final approval of the study.

However, it seems that the calculation of depths of these structures may have been calculated from the top of curb, not the flow line. The depths are as follows:

Drop Inlet	Top of Curb	Flow Line	Invert	Depth
SDDI #1	3440.17	3439.67	3329.75	9.92'
SDDI #3	3383.94	3383.44	3373.94	9.50'
SDDI #5	3383.94	3383.44	3373.94	9.50'

Please see screenshot below of standard drawing 412.1 showing confirmation of depth calculation methodology. Curb height is circled in red showing that it is not included in the calculation of "D".

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Consider the environment. Please don't print this e-mail unless you really need to.

Summerlin West Village 22

Kestrel Creek Avenue (Street I): Desert Foothills Drive to Kettle Ridge Drive (Street J)

October 16, 2019

Addendum #1

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL
DRAINAGE STUDY INFORMATION FORM

Name of Development: Addendum #1: Kestrel Creek Avenue: Desert Foothills Drive to Kettle Ridge Drive (Street J) Date: October 16, 2019

Location of Development: a) Descriptive (Cross Streets) North/South: Kettle Ridge Drive

East/West: Desert Foothills Drive

b) Section: 23 and 14 Township: 20S Range: 59E

c) APN: 137-14-401-006

Name of Owner: Howard Hughes Company, LLC

Telephone No.: (702) 791-4000 Fax No.: (702) 791-4450 E-Mail Address: chris.anderson@howardhughes.com

Address: 10801 West Charleston Blvd, Ste 300, Las Vegas, NV 89135

Contact Person-Name: Molly Anderson, PE Telephone No.: (702) 551-0330

* E-Mail Address: molly.anderson@atkinsglobal.com Fax No.: (702) 263-7200

Firm: Atkins

Address: 2270 Corporate Circle, Ste 200, Henderson, NV 89074

Type of Land Development/Land Disturbance Process:

☐	Rezoning	☐	Subdivision Map	☐	Clearing and Grading Only
☐	Parcel Map	☐	Planned Unit Development	☐	Other (Please specify below)
☐	Large Parcel Map	☐	Building Permit	☒	Roadway Improvements

1. Total Owned Land Area: At Site: +/- 446 acres Being Developed/Disturbed: 11.7 acres

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

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

4. Proposed type of development (Residential, Commercial, Etc.): Public - Roadway Improvements

5. Approximate upstream land area which drains to the subject site: 0 acres

6. Has the site drainage been evaluated in the past? ☒ YES ☐ NO If yes, please identify documentation: Master Conceptual Drainage Study for Summerlin West Village 22

7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Existing CC-215 Western Beltway Channel

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

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

***New Required Field**

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

Revision

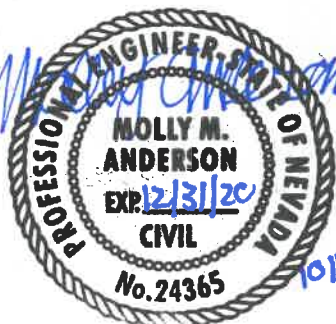
Date

DS #5171

Local Entity File No.

STANDARD FORM 1

REFERENCE:



Engineer's Seal

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

Project Name: Kestrel Creek Avenue: Desert Foothills Drive to Kettle Ridge Drive

Map ID:

Firm Name: **Atkins**

Engineer: **Molly Anderson, PE**

Address: 2270 Corporate Circle, Ste 200

City: **Henderson**

State:

NV

Zip: **89074**

Phone Number: **(702) 551-0330**

Fax Number: **(702) 263-7200**

Property Owner: **Howard Hughes Company, LLC**

Address: 10801 West Charleston Blvd, Ste 300

City: **Las Vegas**

State: **NV**

Zip: **89135**

Reviewed By:

Date Received:

Date Accepted for Review:

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

This document is intended as an aid in preparing Technical Drainage Studies. Each study submitted is reviewed for compliance with local and regional criteria. This form is not intended to be all inclusive and does not limit the extent of the information, calculations or exhibits which may be necessary to properly evaluate the intended land use.

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

I. GENERAL REQUIREMENT

Yes

No

 x

Design Manual **Standard Form 1** with the engineer's seal and signature.

 X

Design Manual **Standard Form 4**.

 X

2 copies of the 24" x 36" Drainage Plan.

 N/A

A notarized letter from the adjacent property owner(s) allowing off-site grading or discharge.

II. MAPS AND EXHIBITS

Yes

No

 X

A copy of a current Flood Insurance Rate Map (FIRM) with the site delineated.

 X

A copy of the current CCRFCD Master Plan Update Figure, (F-x), for Flood Control Facilities and Environmental areas with the site delineated.

REFERENCE:

STANDARD FORM 2

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

II. MAPS AND EXHIBITS (Continued)

Yes No

 X

_____ Off-site drainage basin maps for existing, interim and future conditions showing the existing topography, basin boundaries, concentration points, and flows in cfs.

 X

_____ On-site drainage basin maps for existing and proposed conditions showing the existing topography, basin boundaries, concentration points, and on-site and off-site flows in cfs.

 X

_____ Vicinity Map with local and major cross streets identified and a north arrow.

III. DRAINAGE PLAN

Yes No

 X

_____ Sheet size: 24" x 36" sealed by a registered engineer in the State of Nevada.

 X

_____ Minimum scale: 1" = 60'.

 X

_____ Project name.

 X

_____ Vicinity Map with local and major cross streets.

 X

_____ Revision box.

 X

_____ North arrow and bar scale.

 X

_____ Engineer's/consultant's address and phone number.

 X

_____ Elevation datum and benchmark.

 X

_____ Legend for symbols and abbreviations.

 X

_____ Cut/fill scarps, where applicable.

 X

_____ Street names, grades, widths.

 X

_____ Proposed future and existing spot grades for top of curbs and street crowns at lot lines, grade breaks, and along curb returns on both sides of the street.

 X

_____ Existing contours encompassing the site and 100 feet beyond with spot elevations for important locations, where appropriate.

 X

_____ Minimum finish floor elevations with top-of-curb elevations at upstream end of lot.

 X

_____ Proposed typical street sections.

REFERENCE:

STANDARD FORM 2

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

III. DRAINAGE PLAN (Continued)

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

REFERENCE:

STANDARD FORM 2

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

III. DRAINAGE PLAN (Continued)

Yes No

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

IV. HYDROLOGIC ANALYSIS

Yes No

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

REFERENCE:

STANDARD FORM 2

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

V. HYDRAULIC ANALYSIS

Yes No

<u> </u>	<u>N/A</u>	Flow split calculations and supporting documentation or reference for the method of flow split calculations used.
<u>X</u>	<u> </u>	Normal depth street flow calculations and cross section diagrams for all interior and perimeter streets. Provide "d x v" products for the Q_{100} and Q_{10} flows representing the worst case for interior and all perimeter streets. $Q_{100} d \times v \leq 8$. $Q_{10} d \times v \leq 6$ and 12 foot dry lane for rights-of-way ≥ 80 feet. Calculations must be labeled by street name as indicated on the Grading Plan.
<u>X</u>	<u> </u>	A summary table of interior and exterior street capacity calculations showing the street name, Q_{100} flow, slope, depth of flow, velocity and depth times velocity product and streets needing to meet 12 foot dry lane criteria.
<u> </u>	<u>N/A</u>	Appropriate hydraulic calculations for block wall openings assuming a 50 percent vertical clogging factor. (Assume the lower half of the opening is plugged.)
<u> </u>	<u>N/A</u>	Appropriate hydraulic calculations at drainage easement entrance and discharge locations to set finish floor elevations. Hydraulic calculations must include submerged weir, superelevation and tee intersection losses, where appropriate.
<u> </u>	<u>N/A</u>	Provide necessary freeboard requirements to set the finished floor elevations of all proposed buildings, 2 x depth of flow or depth of flow plus 18 inches of freeboard, whichever is less. The minimum requirement is 6 inches above adjacent upstream top of curb. Buildings adjacent to drainage easements must always be provided with 18 inches of freeboard above the Q_{100} weir height or flow depth, whichever is greater.
<u> </u>	<u>N/A</u>	A complete water surface profile analysis (HEC-2, HEC-RAS, etc.) for channel flows and FEMA Zone A flood zones. • Field survey data. • Input and output information. • Plotted cross-sections based on survey with proper encroachments. • A map showing the location of the cross-sections. • Analysis of both sub and super-critical flow segments. • A summary table and a discussion of the results in the text of the report.
<u>X</u>	<u> </u>	Provide a 50 percent clogging factor in the capacity calculation for drop inlets.
<u>X</u>	<u> </u>	Hydraulic calculations for culverts and storm drains. D-Load calculations must be provided for storm drain pipes in public rights-of-way, including headwater pool inundation.
<u>X</u>	<u> </u>	The mitigation of nuisance water, both during construction and in the fully developed condition, must be addressed.
<u> </u>	<u>N/A</u>	Provide BMP type, size and supporting calculations for parking lots and LIDs (if required).

REFERENCE:

STANDARD FORM 2



CITY OF LAS VEGAS

MINIMUM DRAINAGE STUDY CRITERIA STANDARD FORM 2 CHECKLIST SUPPLEMENT

(Revised 5/18/11)

The following checklist is intended as a supplemental guide for the engineer preparing a Technical Drainage Study submittal to the City of Las Vegas. This supplement focuses on requirements specific to the City of Las Vegas. The requirements presented are in addition to the Clark County Regional Flood Control District (CCRFCDD) Manual Standard Form 2. The listed items are the minimum information required prior to the City performing a review. The engineer will remain responsible to ensure the Technical Drainage Study is prepared within the guidelines as set forth in the CCRFCDD Hydrologic Criteria and Drainage Design Manual (Design Manual).

An appointment must be made to preview this checklist in conjunction with CCRFCDD Standard Form 2 prior to the City accepting a new drainage study for review. The engineer must contact the Flood Control Section at (702) 229-6541 to schedule a submittal appointment.

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

I. GENERAL REQUIREMENT		
Yes	No	
	N/A	A notarized letter from the adjacent property owner(s) allowing off-site grading. (A copy of the letter must be received prior to final acceptance of the drainage study.)
X		Copies of all conditions of approval for development related to this property. (e.g. zoning, use permit, tentative map, etc.) Verify compliance with conditions.
X		An electronic copy of the complete submittal is required to be submitted with one original hard copy of the study. Electronic documents should be on a universal computer-readable digital output device replicating your submittal. An Indexed Portable Document Format (PDF) or Print Ready CAD file formats with a minimum of 300dpi are the desired formats. If figures are in color, they must be scanned in color and saved as a separate file. MMA by initial here, the engineer on record acknowledges that the electronic copy is an identical replicate of the original hard copy submitted to the City of Las Vegas.

II. GRADING PLAN INFORMATION		
Yes	No	
X		(1) 24" X 36" copy of the Grading Plan, (including all Detail Sheets) sealed by the engineer.
X		Proposed future and existing spot grades for top of curbs and street crowns at lot lines, grade breaks, and along curb returns on both sides of the street. Note: Proposed top of curb elevations must be provided for both sides of roadways even if only half street construction is required.
X		Label existing topography at a minimum 5 foot elevation interval including adjacent developments, finished floor elevations of existing buildings and top of existing curbs extending 100 feet around the perimeter of the site. (*Measured from the centerline of the adjacent roadway.)

CITY OF LAS VEGAS MINIMUM DRAINAGE STUDY CRITERIA CHECKLIST

II. GRADING PLAN INFORMATION		
Yes	No	
X		Proposed on-site and off-site storm drains and other flood control facilities with plan and profile sheets for public storm drains showing the class of pipe, (Class III, IV, V, etc.), design hydraulic grade line, (HGL) and 100 year storm flow. A public drainage easement must be provided over on-site storm drains conveying off-site flows. An overflow path must be provided over all storm drains.
X		All existing and "to be constructed" walls with cross-sections showing wall type, (e.g. block wall, retaining wall, flood wall, etc.), with limits clearly defined, adjacent ground elevations. Wall heights must meet current ordinances and in no case exceed 14 feet above the adjacent property.
X		Street slopes for both interior and perimeter streets. Note: The minimum slope for a roadway is 0.4 percent, a minimum 18-inch storm drain must be provided where minimum slopes cannot be met.
	N/A	Back of lot elevations and lot drainage pattern for all lots including common lots.
	N/A	Sites with a grade difference two feet above or below existing ground are required to have approval from City of Las Vegas Current Planning. Current Planning approval is required prior to final approval of the drainage study.
X		On-site facilities must perpetuate flows through or around the site without significantly impacting adjacent property owners. (The project must pass flows through the site every 600 feet where the project is blocking flow paths.)
X		This project uses a solid grouted stem wall (or approved alternate) at the back of sidewalk to provide erosion protection for landscaped areas where the depth of flow in the roadway exceeds the back of walk elevation. A corresponding cross-section detail is included.
X		Commercial and Common Lot Landscape areas are not allowed to drain over the sidewalk. The grading plans show flow lines with grades and sidewalk under drains for all landscape areas draining to the public ROW.

III. Local Entity Criteria - City of Las Vegas – Manual Section 1600		
Yes	No	
	N/A	Concrete valley gutters are required in parking lots with slopes less than 1 percent. Slopes through cul-de-sac must be at a 1 percent minimum where flow is drained through the cul-de-sac.
X		Ten-foot wide public drainage easements to be privately maintained are allowed for flow less than 20 cfs. The depth of flow entering the easement must be checked using the submerged weir calculation.
X		The limits of the flood zones and the base flood elevations (BFE) must be shown on all grading plans for all developments within a Special Flood Hazard Zone A, AO, AE, etc.
	N/A	Minimum finish floor elevation is 6 inches above highest adjacent top of curb. Finish floor calculations must include allowances for super elevations on curves and velocity head for tee intersections.
	N/A	Finished floor elevations for buildings adjacent to public drainage easements must be a minimum of 18 inches above the Q100 weir of submerged weir elevation, whichever is greater.

CITY OF LAS VEGAS MINIMUM DRAINAGE STUDY CRITERIA CHECKLIST

III. Local Entity Criteria - City of Las Vegas – Manual Section 1600		
Yes	No	
	N/A	Lots with “B and C Type Drainage” that drain from one lot to another through a drainage easement shall be required to install an underground nuisance drainage system or a 2-foot valley gutter. 16” x 24” minimum block wall openings are required for both options.
	N/A	Bubblers are required across 80 foot and greater ROW streets. When flows exceed 10 cfs, bubblers larger than 18 inches will be required up to a maximum of 36”. Inlets must be sized to match the pipe size provided.

- Contact the Flood Control Section regarding the drainage study review fee. These fees are payable at the time of submittal.
- The Drainage Study must be conditionally approved prior to submitting improvement plans to the Civil and Planning Development of the Department of Building and Safety for review.

This document is intended as an **aid** in preparing Technical Drainage Studies for the City of Las Vegas. Each study submitted is reviewed for compliance with local and regional criteria. This form is not intended to be all-inclusive and does not limit the extent of the information, calculations or exhibits which may be necessary to properly evaluate the intended land use.

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Appendix D. CD-ROM	

Engineer's Certification

Atkins certifies that the information contained herein has been prepared in accordance with generally accepted engineering principles and practices, and to the best of our knowledge, is true and correct.

This letter certifies that all items in the **Addendum #1 to the Technical Drainage Study for Desert Foothills Drive: Fleet Wing Avenue (Street G) to Lake Mead Boulevard** electronic submittal matches the paper version bound into the study.



Molly M. Anderson, PE (NV #24365)
Senior Engineer

Comment Response Letter

Your reference: DS #5171

Albert Sung
City of Las Vegas Public Works
333 N. Rancho Dr, 7th Floor
Las Vegas, NV 89106

October 16, 2019

**RE: ADDENDUM #1 TECHNICAL DRAINAGE STUDY FOR SUMMERLIN WEST VILLAGE 22
KESTREL CREEK AVENUE: DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE
(STREET J)**

Dear Albert,

This letter and the attached documents have been prepared as an Addendum #1 to the *Technical Drainage Study (TDS) for Summerlin West Village 22 Kestrel Creek Avenue: Desert Foothills Drive to Kettle Ridge Drive (Street J)*.

Comment #1: The subject street improvement of *Kestrel Creek Avenue* is premised on the existence of *Kettle Ridge Drive* on the west for flood cut-off protection. The subject drainage study will not be approved prior to the final approval of the technical drainage study of “*Summerlin West V22 – Kettle Ridge Drive (Street J) and Scurry Bend Drive (Street N) Street Improvements (Lake Mead Blvd. to Fleet Wing Ave.)*”.

Comment response: Understood. This report uses the “Summerlin West V22 – Lake Mead Boulevard (Desert Foothills Drive to Kettle Ridge Drive)” and “Summerlin West V22 – Kettle Ridge Drive (Lake Mead Boulevard to Fleet Wing Avenue)” report hydrology and hydraulics as the existing condition to cut off flow upstream of the proposed project.

Comment #2: The project proposes to build temporary drainage facilities, i.e., berms/swales along the north and south side of *Kestrel Creek Avenue* for interim flood protection. Prior to final plan approval the developer must complete a maintenance and liability agreement for the interim drainage improvements (berms or channels) 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 constructing the facility and an exhibit that adequately shows the location and limits of the drainage facility to *City of Las Vegas Flood Control* for approval. Once the drainage study is conditionally approved, the engineer should contact the *City’s Land Development Section (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 offsite berms / channels are no longer necessary and can be removed.

Comment response: A drainage update will be submitted prior to offsite berms and channel removal.

Comment #3: Sheet 9/27: A comment was issued for the *Kettle Ridge Drive Improvements Drainage Study* to relocate the regional storm drain towards the street center as much as possible. However, the subject improvement plan still shows that the regional facility under the curb & gutter of *Kettle Ridge*. Review and revise accordingly.

Comment response: The storm drain within the Kettle Ridge Drive Improvements Drainage Study has relocated the regional storm drain towards the center of the street as much as possible and has been revised accordingly in this study.

Comment #4: On all pertinent *Roadway Grading Plans* and *Plan & Profile* sheets, specify the minimum clearance distance between the lip of the curb and gutter of the street and the edge of the proposed storm drain.

Comment response: The minimum clearances have been noted on the plan and profile sheets.

Comment #5: Sheet 17/27 and Sheet 18/27: It is assumed that the sequence of construction is that the storm drain system at the intersection of *Desert Foothills Drive* and *Kestrel Creek Avenue* to be installed prior to the subject improvements. Therefore, the storm drains downstream of SDMH #1 should be existing in regard to the subject project. Revise the line type of the storm drains "BY OTHERS" to broken line to reflect "Existing" status in the next submittal.

Comment response: The line type has been revised to reflect existing status.

Comment #6: Drop inlets deeper than 10' require special structural design and structural calculations. Provide a soils report, structural calculations and specifications, two wet stamped structural sets, and 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.

Comment response: The drop inlets proposed by this report have been modified and are all under 10' deep from flow line to invert out per CCAUSD Dwg. No. 412.1.



Molly M. Anderson, PE (NV #24365)
Senior Engineer

Appendices



Appendix A. Comment Letter

CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		September 4, 2019
TO: Land Development Services Department of Building & Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for:	
	Summerlin West V22 – Kestrel Creek Avenue (Street I) (from Desert Foothills Drive to Kettle Ridge Drive <Street J>)	
Cross Streets:	Desert Foothill Drive & Kestrel Creek Ave.	COPIES TO: Atkins
File Number:	F:\Depot\DSMemos\DS5171A.doc	Howard Hughes Company, LLC
Parcel Number:	137-14-401-006 & 137-23-101-002	Bart Anderson, P.E., DevCo
Zoning Action:	N/A	
FEMA Flood Zone	YES	NO X
Proposed Storm Drain	YES X	NO

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	8/5/2019	9/4/2019	See Comments Below	\$400.00	3518203: \$400
TOTAL FEES (LDDRS):				\$400.00	----

REMARKS:

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

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

1. The subject street improvement of *Kestrel Creek Avenue* is premised on the existence of *Kettle Ridge Drive* on the west for flood cut-off protection. The subject drainage study will not be approved prior to the final approval of the technical drainage study of "*Summerlin West V22 - Kettle Ridge Drive (Street J) and Scurry Bend Drive (Street N) Street Improvements (Lake Mead Blvd. to Fleet Wing Ave.)*".
2. The project proposes to build temporary drainage facilities, ie, berms/swales along the north and south sides of *Kestrel Creek Avenue* for interim flood protection. Prior to final plan approval the developer must complete a maintenance and liability agreement for the interim drainage improvements (berms or channels) 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 constructing the facility and an exhibit that adequately shows the location and limits of the drainage facility to *City of Las Vegas Flood Control* for approval. Once the drainage study is conditionally approved, the engineer should contact the *City's Land Development Section* (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 offsite berms / channels are no longer necessary and can be removed.

3. **Sheet 9/27:** A comment was issued for the *Kettle Ridge Drive Improvements Drainage Study* to relocate the regional storm drain towards the street center as much as possible. However, the subject improvement plan still shows that the regional facility under the curb & gutter of *Kettle Ridge*. Review and revise accordingly.
4. On all pertinent *Roadway Grading Plans* and *Plan & Profile* sheets, specify the minimum clearance distance between the lip of the curb and gutter of the street and the edge of the proposed storm drain.
5. **Sheet 17/27 and Sheet 18/27:** It is assumed that the sequence of construction is that the storm drain system at the intersection of *Desert Foothills Drive* and *Kestrel Creek Avenue* to be installed prior to the subject improvements. Therefore the storm drains downstream of SDMH #1 should be existing in regard to the subject project. Revise the line type of the storm drains "BY OTHERS" to broken line to reflect "Existing" status in the next submittal.
6. Drop inlets deeper than 10' require special structural design and structural calculations. 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.

In an effort to increase administrative efficiency, for all original and re-submittal packages including updates and the addenda, the City of Las Vegas Public Works Department requires both a hardcopy and a digital copy (PDF) on CD for the drainage study.

A letter sealed and signed by a Nevada registered civil engineer must be included in every submittal certifying documents on the electronic CD matches 100% of the hardcopy submittal. The new submittal requirement is effective on May 1, 2019. If there are any questions regarding these new requirements, please contact Albert Sung in the City Flood Control Section at (702) 229-6541.



Sample Letter to
certify CD.pdf

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

END OF REMARKS
ays

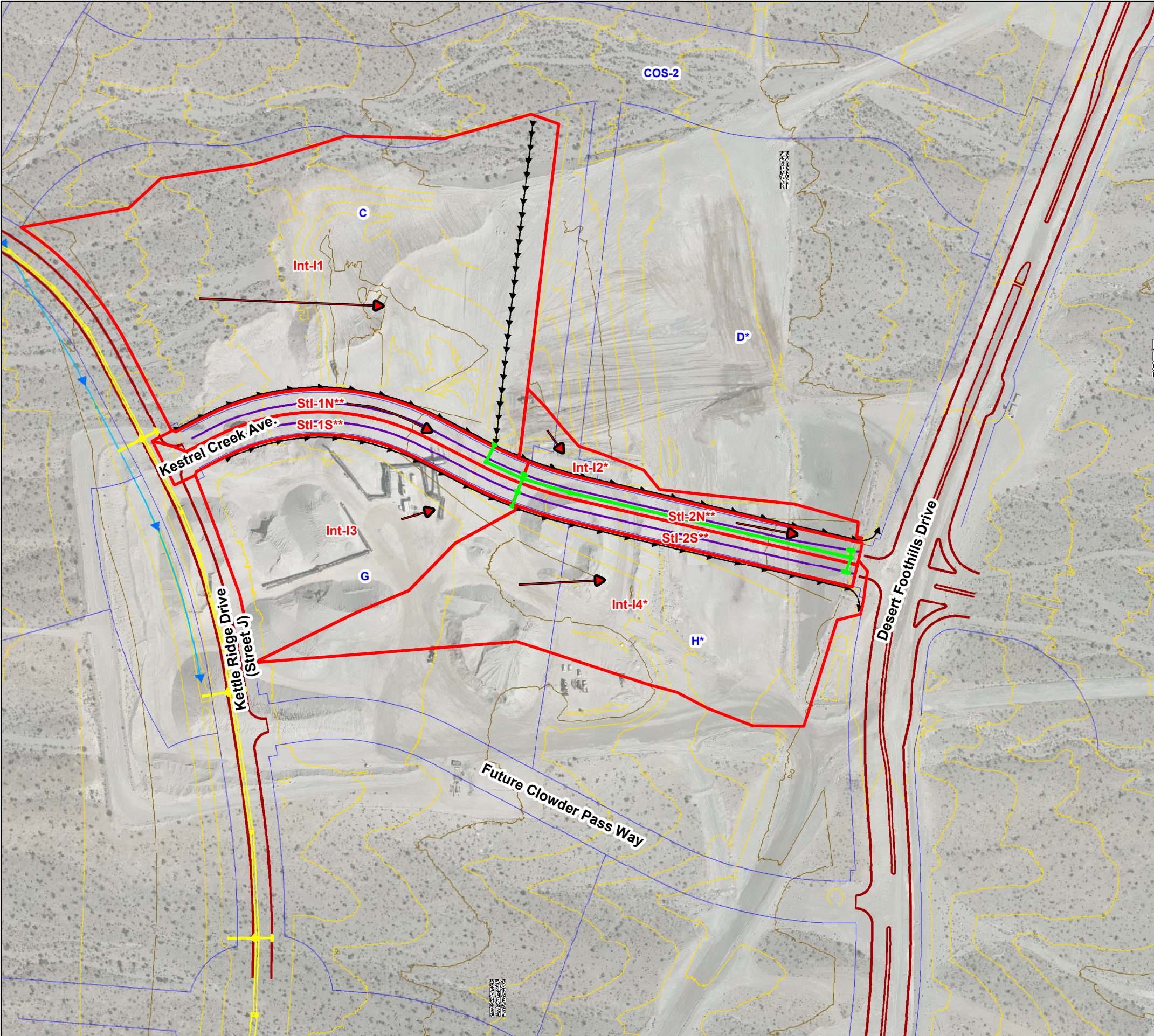
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AREA K-14

Appendix B. Revised Figures

B.1. Revised Hydrology Workmap

B.2. Revised Hydraulics Workmap

B.1. Revised Hydrology Workmap



Interim Conditions				
Basin Id	Tributary Area (sq mi)	Tributary Area (acres)	100-Year Discharge (cfs)	10-Year Discharge (cfs)
Int-I1	0.01517	9.71	29	13
Int-I2*	0.00112	0.72	2	1
Int-I3	0.00553	3.54	11	5
Int-I4*	0.00831	5.32	16	7
St-1	0.00232	1.48	6	3
St2	0.00209	1.34	5	3
St-1N**	0.00114	0.73	3	1.5
St-1S**	0.00117	0.75	3	1.5
St-2N**	0.00104	0.66	2.5	1.5
St-2S**	0.00105	0.67	2.5	1.5
* Drains only to roadside interim swale. Flow does not enter Street I.				
** North/South Street 1/2 sections split from above HEC-1 Nodes				

Ultimate Conditions				
Basin Id	Tributary Area (sq mi)	Tributary Area (acres)	100-Year Discharge (cfs)	10-Year Discharge (cfs)
C	0.01825	11.68	50	-
D*	0.01761	11.27	47	-
G	0.01106	7.08	30	-
H*	0.01195	7.65	33	-
STI	0.00384	2.46	11	-
* D & H Drain to Desert Foothills Drive in Ultimate Conditions				

TECHNICAL DRAINAGE STUDY FOR SUMMERLIN WEST VILLAGE 22
KESTREL CREEK AVENUE
STREET I (DESERT FOOTHILLS DRIVE TO STREET J)
FIGURE 3: HYDROLOGY WORKMAP

Proposed Storm Drain

Interim Flow Paths

Street I Interim Subbasins

Ultimate Condition Parcels

Street I Interim Swales

Existing Storm Drain

Street I Proposed Roadway

Existing Roadway Improvements

Street J Flowline

10-ft Contours

50-ft Contours

N

1 inch = 200 feet

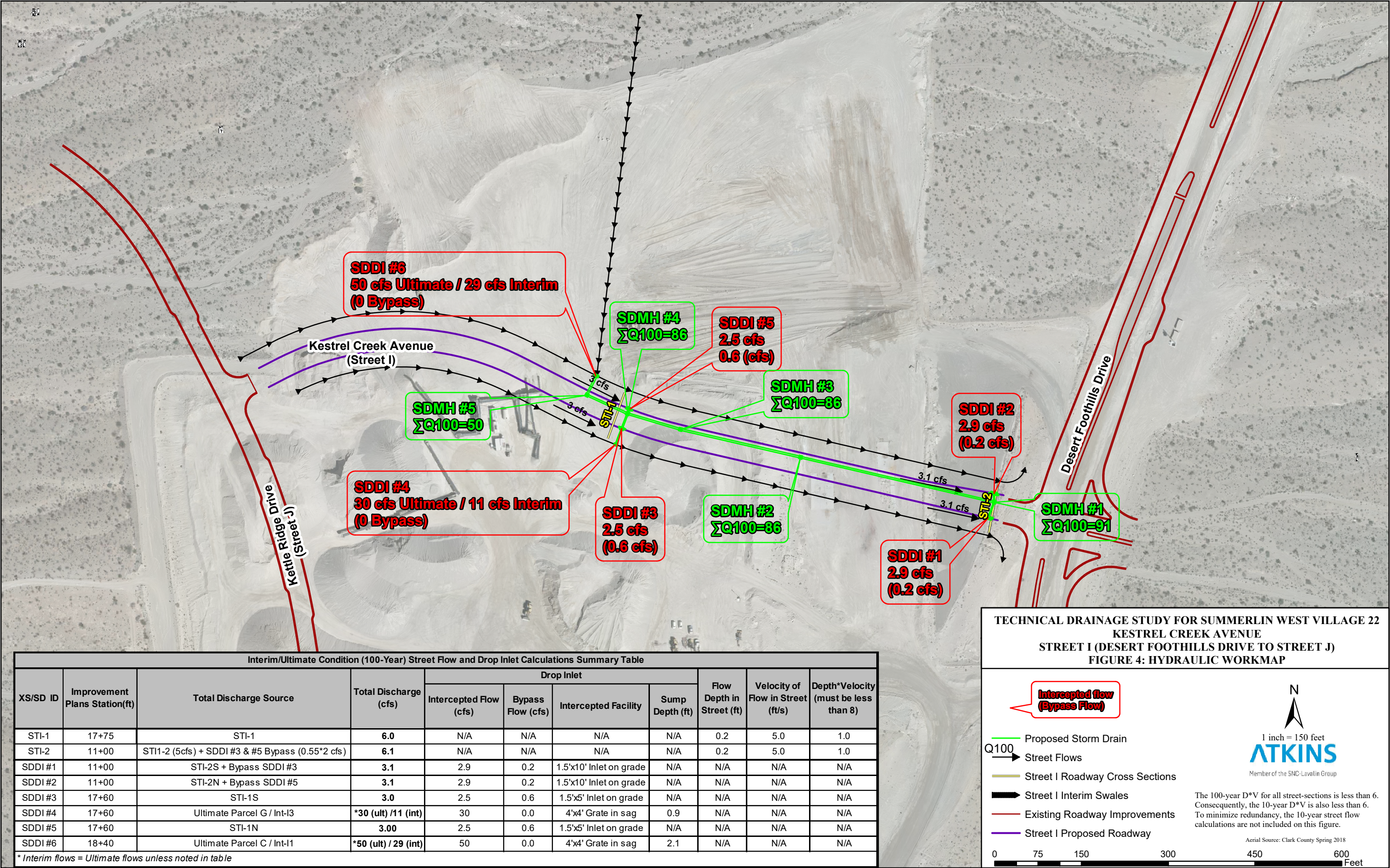
ATKINS

Member of the SNC-Lavalin Group

Aerial Source: Clark County Spring 2018

0100200400600800Feet

B.2. Revised Hydraulics Workmap



Appendix C. Revised Ultimate Condition WSPG-W Model

Storm Drain System Modeling

The proposed storm drain systems were modeled using Water Surface Pressure Gradient for Windows (WSPG-W). A print-out of the WSPG-W models are provided in Appendix C. Because the ultimate condition flows are higher than or equal to the interim condition flows in all areas, only the ultimate conditions were analyzed in the WSPG-W models. The Q_{100} and HGLs are shown on the improvement plans in Appendix D. Table 6 summarizes the WSPG-W model at the mainline manholes.

Table 6 – WSPG-W Mainline Summary Table

SDMH#	WSPG-W Station	100-yr Ultimate Condition		
		Q_{100}	ΣQ_{100}	HGL (Ft)
Upstream	785.97	50.0	50.0	3381.33
SDMH #5	746.59	0.0	50.0	3378.00
SDMH #4	669.17	36.0	86.0	3378.68
SDMH #3	573.64	0.0	86.0	3367.73
SDMH #2	360.38	0.0	86.0	3352.90
SDMH #1	16.68	5.0	91.0	3330.9
Downstream	13.68	-	-	3329.45

The downstream end of the proposed storm drain is 36" RCP. The maximum velocity modeled is 24.67 ft/s and is observed just upstream of SDMH#1, the system outlet of the Kestrel Creek Avenue WSPG-W model. Hydraulic jumps are modeled in the Kestrel Creek Avenue storm drain on the mainline approximately 45 feet upstream of SDMH#4, and on the lateral structure between SDMH#1 and SDDI #2, immediately upstream of SDMH#1 on the North side. All HGLs modeled including the hydraulic jumps, are greater than 1-foot below existing and proposed surfaces.

STREET-I-ULT.OUT

FILE: STREET-I-ULT.WSW

W S P G W - CIVILDESIGN Version 14.08

PAGE 1

Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date:10- 9-2019 Time: 2: 5:47

SUMMERLIN WEST VILLAGE 22

KESTREL CREEK AVENUE (STREET I) DFD TO KETTLE RIDGE DR (STREET J)

ATKINS / ULTIMATE CONDITIONS

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*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
      | 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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
13.680 | 3327.800 | 1.648 | 3329.448 | 91.00 | 22.88 | 8.13 | 3337.57 | .00 | 2.85 | 2.99 | 3.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
1.350 | .0371 | | | | | | .0546 | .07 | 1.65 | 3.49 | 1.86 | .013 | .00 | .00 | PIPE
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
15.030 | 3327.850 | 1.646 | 3329.496 | 91.00 | 22.91 | 8.15 | 3337.65 | .00 | 2.85 | 2.99 | 3.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
JUNCT STR | .0302 | | | | | | .0613 | .10 | 1.65 | 3.50 | .013 | .00 | .00 | PIPE
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
16.680 | 3327.900 | 1.491 | 3329.391 | 86.00 | 24.52 | 9.34 | 3338.73 | .00 | 2.82 | 3.00 | 3.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
3.000 | .0334 | | | | | | .0684 | .21 | 1.49 | 4.00 | 1.86 | .013 | .00 | .00 | PIPE
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
19.680 | 3328.000 | 1.484 | 3329.484 | 86.00 | 24.67 | 9.45 | 3338.94 | .00 | 2.82 | 3.00 | 3.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
143.908 | .0690 | | | | | | .0690 | 9.93 | 1.48 | 4.03 | 1.48 | .013 | .00 | .00 | PIPE
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
163.588 | 3337.929 | 1.484 | 3339.413 | 86.00 | 24.67 | 9.45 | 3348.86 | .00 | 2.82 | 3.00 | 3.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
193.792 | .0690 | | | | | | .0672 | 13.02 | 1.48 | 4.03 | 1.48 | .013 | .00 | .00 | PIPE
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
357.380 | 3351.300 | 1.508 | 3352.808 | 86.00 | 24.18 | 9.08 | 3361.88 | .00 | 2.82 | 3.00 | 3.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
3.000 | .0333 | | | | | | .0659 | .20 | 1.51 | 3.91 | 1.86 | .013 | .00 | .00 | PIPE
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
360.380 | 3351.400 | 1.501 | 3352.901 | 86.00 | 24.32 | 9.18 | 3362.08 | .00 | 2.82 | 3.00 | 3.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
3.000 | .0334 | | | | | | .0669 | .20 | 1.50 | 3.95 | 1.86 | .013 | .00 | .00 | PIPE
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
363.380 | 3351.500 | 1.494 | 3352.994 | 86.00 | 24.46 | 9.29 | 3362.28 | .00 | 2.82 | 3.00 | 3.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
124.139 | .0698 | | | | | | .0635 | 7.88 | 1.49 | 3.98 | 1.48 | .013 | .00 | .00 | PIPE
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
487.519 | 3360.161 | 1.550 | 3361.710 | 86.00 | 23.35 | 8.47 | 3370.18 | .00 | 2.82 | 3.00 | 3.000 | .000 | .00 | 1 | .0
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -
51.789 | .0698 | | | | | | .0561 | 2.90 | 1.55 | 3.71 | 1.48 | .013 | .00 | .00 | PIPE
      | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date:10- 9-2019 Time: 2: 5:47

SUMMERLIN WEST VILLAGE 22

KESTREL CREEK AVENUE (STREET I) DFD TO KETTLE RIDGE DR (STREET J)

ATKINS / ULTIMATE CONDITIONS

*****															*****
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/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	
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	
539.308	3363.774	1.610	3365.384	86.00	22.26	7.70	3373.08	.00	2.82	2.99	3.000	.000	.00	1 .0	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
31.332	.0698					.0495	1.55	1.61	3.45	1.48	.013	.00	.00	PIPE	
570.640	3365.960	1.673	3367.633	86.00	21.23	7.00	3374.63	.00	2.82	2.98	3.000	.000	.00	1 .0	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3.000	.0334					.0466	.14	1.67	3.21	1.86	.013	.00	.00	PIPE	
573.640	3366.060	1.668	3367.729	86.00	21.30	7.04	3374.77	.00	2.82	2.98	3.000	.000	.00	1 .0	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3.000	.0333					.0470	.14	1.67	3.22	1.86	.013	.00	.00	PIPE	
576.640	3366.161	1.664	3367.825	86.00	21.36	7.09	3374.91	.00	2.82	2.98	3.000	.000	.00	1 .0	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
6.665	.0723					.0463	.31	1.66	3.24	1.46	.013	.00	.00	PIPE	
583.305	3366.642	1.683	3368.325	86.00	21.07	6.90	3375.22	.00	2.82	2.98	3.000	.000	.00	1 .0	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
19.035	.0723					.0429	.82	1.68	3.17	1.46	.013	.00	.00	PIPE	
602.340	3368.018	1.750	3369.768	86.00	20.09	6.27	3376.04	.00	2.82	2.96	3.000	.000	.00	1 .0	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
14.518	.0723					.0379	.55	1.75	2.94	1.46	.013	.00	.00	PIPE	
616.858	3369.067	1.821	3370.887	86.00	19.16	5.70	3376.59	.00	2.82	2.93	3.000	.000	.00	1 .0	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
11.441	.0723					.0335	.38	1.82	2.73	1.46	.013	.00	.00	PIPE	
628.299	3369.894	1.896	3371.789	86.00	18.27	5.18	3376.97	.00	2.82	2.89	3.000	.000	.00	1 .0	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
9.197	.0723					.0298	.27	1.90	2.52	1.46	.013	.00	.00	PIPE	
637.496	3370.558	1.976	3372.534	86.00	17.42	4.71	3377.24	.00	2.82	2.85	3.000	.000	.00	1 .0	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
7.478	.0723					.0264	.20	1.98	2.33	1.46	.013	.00	.00	PIPE	

STREET-I-ULT.OUT

FILE: STREET-I-ULT.WSW

W S P G W - CIVILDESIGN Version 14.08

PAGE 3

Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date:10- 9-2019 Time: 2: 5:47

SUMMERLIN WEST VILLAGE 22

KESTREL CREEK AVENUE (STREET I) DFD TO KETTLE RIDGE DR (STREET J)

ATKINS / ULTIMATE CONDITIONS

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*****
| 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 |
*****
644.973 | 3371.098 | 2.062 | 3373.160 | 86.00 | 16.61 | 4.28 | 3377.44 | .00 | 2.82 | 2.78 | 3.000 | .000 | .00 | 1 .0
| | | | | | | | | | | | | | | |
6.101 | .0723 | | | | | .0236 | .14 | 2.06 | 2.14 | 1.46 | .013 | .00 | .00 | PIPE
651.074 | 3371.539 | 2.154 | 3373.693 | 86.00 | 15.83 | 3.89 | 3377.59 | .00 | 2.82 | 2.70 | 3.000 | .000 | .00 | 1 .0
| | | | | | | | | | | | | | | |
4.958 | .0723 | | | | | .0211 | .10 | 2.15 | 1.97 | 1.46 | .013 | .00 | .00 | PIPE
656.032 | 3371.897 | 2.254 | 3374.151 | 86.00 | 15.10 | 3.54 | 3377.69 | .00 | 2.82 | 2.59 | 3.000 | .000 | .00 | 1 .0
| | | | | | | | | | | | | | | |
3.968 | .0723 | | | | | .0189 | .08 | 2.25 | 1.80 | 1.46 | .013 | .00 | .00 | PIPE
659.999 | 3372.184 | 2.364 | 3374.548 | 86.00 | 14.39 | 3.22 | 3377.77 | .00 | 2.82 | 2.45 | 3.000 | .000 | .00 | 1 .0
| | | | | | | | | | | | | | | |
3.062 | .0723 | | | | | .0171 | .05 | 2.36 | 1.63 | 1.46 | .013 | .00 | .00 | PIPE
663.061 | 3372.405 | 2.488 | 3374.893 | 86.00 | 13.72 | 2.92 | 3377.82 | .00 | 2.82 | 2.26 | 3.000 | .000 | .00 | 1 .0
| | | | | | | | | | | | | | | |
2.148 | .0723 | | | | | .0157 | .03 | 2.49 | 1.45 | 1.46 | .013 | .00 | .00 | PIPE
665.209 | 3372.561 | 2.632 | 3375.192 | 86.00 | 13.09 | 2.66 | 3377.85 | .00 | 2.82 | 1.97 | 3.000 | .000 | .00 | 1 .0
| | | | | | | | | | | | | | | |
.961 | .0723 | | | | | .0147 | .01 | 2.63 | 1.26 | 1.46 | .013 | .00 | .00 | PIPE
666.170 | 3372.630 | 2.819 | 3375.449 | 86.00 | 12.47 | 2.42 | 3377.87 | .00 | 2.82 | 1.43 | 3.000 | .000 | .00 | 1 .0
| | | | | | | | | | | | | | | |
JUNCT STR | .0334 | | | | | .0100 | .03 | 2.82 | 1.00 | | | .013 | .00 | .00 | PIPE
669.170 | 3372.730 | 5.948 | 3378.678 | 50.00 | 10.19 | 1.61 | 3380.29 | .00 | 2.30 | .00 | 2.500 | .000 | .00 | 1 .0
| | | | | | | | | | | | | | | |
3.000 | .0334 | | | | | .0149 | .04 | 5.95 | .00 | 1.49 | .013 | .00 | .00 | PIPE
672.170 | 3372.830 | 6.015 | 3378.845 | 50.00 | 10.19 | 1.61 | 3380.46 | .00 | 2.30 | .00 | 2.500 | .000 | .00 | 1 .0
| | | | | | | | | | | | | | | |
38.765 | .0735 | | | | | .0149 | .58 | 6.02 | .00 | 1.18 | .013 | .00 | .00 | PIPE

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date:10- 9-2019 Time: 2: 5:47

SUMMERLIN WEST VILLAGE 22

KESTREL CREEK AVENUE (STREET I) DFD TO KETTLE RIDGE DR (STREET J)

ATKINS / ULTIMATE CONDITIONS

*****															*****
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/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	
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	
710.935	3375.680	3.790	3379.470	50.00	10.19	1.61	3381.08	.00	2.30	.00	2.500	.000	.00	1 .0	
HYDRAULIC JUMP															
710.935	3375.680	1.440	3377.120	50.00	17.08	4.53	3381.65	.00	2.30	2.47	2.500	.000	.00	1 .0	
3.622	.0735					.0365	.13	1.44	2.77	1.18	.013	.00	.00	PIPE	
714.557	3375.946	1.462	3377.407	50.00	16.77	4.37	3381.78	.00	2.30	2.46	2.500	.000	.00	1 .0	
8.461	.0735					.0336	.28	1.46	2.69	1.18	.013	.00	.00	PIPE	
723.018	3376.568	1.521	3378.089	50.00	15.99	3.97	3382.06	.00	2.30	2.44	2.500	.000	.00	1 .0	
6.813	.0735					.0298	.20	1.52	2.49	1.18	.013	.00	.00	PIPE	
729.830	3377.069	1.584	3378.653	50.00	15.25	3.61	3382.26	.00	2.30	2.41	2.500	.000	.00	1 .0	
5.543	.0735					.0264	.15	1.58	2.30	1.18	.013	.00	.00	PIPE	
735.373	3377.476	1.651	3379.127	50.00	14.54	3.28	3382.41	.00	2.30	2.37	2.500	.000	.00	1 .0	
4.528	.0735					.0235	.11	1.65	2.13	1.18	.013	.00	.00	PIPE	
739.901	3377.809	1.723	3379.531	50.00	13.86	2.98	3382.51	.00	2.30	2.31	2.500	.000	.00	1 .0	
3.689	.0735					.0209	.08	1.72	1.96	1.18	.013	.00	.00	PIPE	
743.590	3378.080	1.800	3379.880	50.00	13.22	2.71	3382.59	.00	2.30	2.25	2.500	.000	.00	1 .0	
1.000	.0400					.0196	.02	1.80	1.79	1.41	.013	.00	.00	PIPE	
744.590	3378.120	1.809	3379.929	50.00	13.14	2.68	3382.61	.00	2.30	2.24	2.500	.000	.00	1 .0	
1.000	.0298					.0194	.02	1.81	1.78	1.55	.013	.00	.00	PIPE	

STREET-I-ULT.OUT

FILE: STREET-I-ULT.WSW

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WATER SURFACE PROFILE LISTING

Date:10- 9-2019 Time: 2: 5:47

SUMMERLIN WEST VILLAGE 22

KESTREL CREEK AVENUE (STREET I) DFD TO KETTLE RIDGE DR (STREET J)

ATKINS / ULTIMATE CONDITIONS

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*****
Station | Invert | Depth | Water | Q | Vel | Vel | Energy | Super | Critical | Flow Top | Height/ | Base Wt | | No Wth
         | Elev   | (FT)  | Elev   | (CFS) | (FPS) | Head | Grd.El. | Elev | Depth | Width | Dia.-FT | or I.D. | ZL | Prs/Pip
         |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
L/Elem | Ch Slope | | | | | | | | | | | | | | |
***** |*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|
745.590 | 3378.150 | 1.814 | 3379.964 | 50.00 | 13.11 | 2.67 | 3382.63 | .00 | 2.30 | 2.23 | 2.500 | .000 | .00 | 1 .0
         |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
         | 1.000 | .0300 | | | | | | | | | | | | | | |
         |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
746.590 | 3378.180 | 1.819 | 3379.999 | 50.00 | 13.07 | 2.65 | 3382.65 | .00 | 2.30 | 2.23 | 2.500 | .000 | .00 | 1 .0
         |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
         | 1.000 | .0300 | | | | | | | | | | | | | | |
         |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
747.590 | 3378.210 | 1.824 | 3380.034 | 50.00 | 13.03 | 2.64 | 3382.67 | .00 | 2.30 | 2.22 | 2.500 | .000 | .00 | 1 .0
         |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
         | 1.000 | .0400 | | | | | | | | | | | | | | |
         |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
748.590 | 3378.250 | 1.834 | 3380.084 | 50.00 | 12.96 | 2.61 | 3382.69 | .00 | 2.30 | 2.21 | 2.500 | .000 | .00 | 1 .0
         |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
         | 1.000 | .0300 | | | | | | | | | | | | | | |
         |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
749.590 | 3378.280 | 1.840 | 3380.120 | 50.00 | 12.91 | 2.59 | 3382.71 | .00 | 2.30 | 2.20 | 2.500 | .000 | .00 | 1 .0
         |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
         | 3.076 | .0276 | | | | | | | | | | | | | | |
         |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
752.666 | 3378.365 | 1.854 | 3380.219 | 50.00 | 12.81 | 2.55 | 3382.77 | .00 | 2.30 | 2.19 | 2.500 | .000 | .00 | 1 .0
         |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
         | 13.949 | .0276 | | | | | | | | | | | | | | |
         |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
766.615 | 3378.750 | 1.943 | 3380.694 | 50.00 | 12.21 | 2.32 | 3383.01 | .00 | 2.30 | 2.08 | 2.500 | .000 | .00 | 1 .0
         |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
         | 9.323 | .0276 | | | | | | | | | | | | | | |
         |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
775.939 | 3379.008 | 2.043 | 3381.051 | 50.00 | 11.64 | 2.11 | 3383.16 | .00 | 2.30 | 1.93 | 2.500 | .000 | .00 | 1 .0
         |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
         | 5.778 | .0276 | | | | | | | | | | | | | | |
         |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
781.717 | 3379.168 | 2.157 | 3381.325 | 50.00 | 11.10 | 1.91 | 3383.24 | .00 | 2.30 | 1.72 | 2.500 | .000 | .00 | 1 .0
         |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
         | 2.253 | .0276 | | | | | | | | | | | | | | |
         |-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

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STREET-I-ULT.OUT

FILE: STREET-I-ULT.WSW

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WATER SURFACE PROFILE LISTING

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SUMMERLIN WEST VILLAGE 22

KESTREL CREEK AVENUE (STREET I) DFD TO KETTLE RIDGE DR (STREET J)

ATKINS / ULTIMATE CONDITIONS

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*****
| 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 |

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T1 SUMMERLIN WEST VILLAGE 22 0
T2 KESTREL CREEK AVENUE (STREET I) DFD TO KETTLE RIDGE DR (STREET J)
T3 ATKINS / ULTIMATE CONDITIONS
SO 13.68 3327.800 1 3330.60
REM ##### SDMH#1 Tailwater from DFD 10-9-2019 Ultimate Condition
R 15.03 3327.850 1 .013 .000 .000 0
JX 16.68 3327.900 1 2 2.013 2.5 2.5 3328.0 3328.0 80.0-75.0 .000
R 19.68 3328.000 1 .013 .000 .000 0
REM ##### SDMH#2 DS
R 357.38 3351.300 1 .013 .000 .000 0
R 360.38 3351.400 1 .013 .000 .000 1
R 363.38 3351.500 1 .013 .000 .000 0
REM ##### SDMH#2 US
REM ##### SDMH#3 DS
R 570.64 3365.960 1 .013 .000 .000 0
R 573.64 3366.060 1 .013 .000 .000 1
R 576.64 3366.160 1 .013 .000 2.00 0
REM ##### SDMH#3 US
REM ##### SDMH#4 DS JX SDDI 3,4,5
R 666.17 3372.630 1 .013 .000 .000 0
JX 669.17 3372.730 1 3 2.013 33.0 3.0 3372.83 3372.83 90.0-90.0 .000
R 672.17 3372.830 3 .013 .000 8.00 1
REM ##### SDMH#4 US JX SDDI 3,4,5
REM ##### SDMH#5 DS
R 743.59 3378.080 3 .013 .000 15.000 0
R 744.59 3378.120 3 .013 .000 15.000 0
R 745.59 3378.150 3 .013 .000 15.000 0
R 746.59 3378.180 3 .013 .000 00.000 1
R 747.59 3378.210 3 .013 .000 15.000 0
R 748.59 3378.250 3 .013 .000 15.000 0
R 749.59 3378.280 3 .013 .000 15.000 0
REM ##### SDMH#5 US
REM ##### SDMH#5 DS SDDI #6
R 783.97 3379.230 3 .013 .000 .000 0
SH 785.97 3379.230 3
CD 1 4 1 .000 3.000 .000 .000 .000 .00
CD 2 4 1 .000 2.000 .000 .000 .000 .00
CD 3 4 1 .000 2.500 .000 .000 .000 .00
Q 50.000 .0

SI_Lateral-MH1N_ULT.OUT

FILE: SI_Lateral-MH1N_ULT.WSW

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date:10- 9-2019 Time: 3: 9:32

SUMMERLIN WEST VILLAGE 22

KESTREL CREEK AVENUE (STREET I) / LATERAL AT MH 1 NORTH, SDDI #2

ATKINS / ULTIMATE CONDITIONS

*****																	*****	
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Width	Top Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip				
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch				
*****																	*****	
16.680	3327.900	3.000	3330.900	2.50	.80	.01	3330.91	.00	.55	.00	2.000	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
3.000	.0334					.0001	.00	3.00	.00	.33	.013	.00	.00	PIPE				
19.680	3328.000	2.901	3330.901	2.50	.80	.01	3330.91	.00	.55	.00	2.000	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
3.669	.2456					.0001	.00	2.90	.00	.21	.013	.00	.00	PIPE				
23.349	3328.901	2.000	3330.901	2.50	.80	.01	3330.91	.00	.55	.00	2.000	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
.747	.2456					.0001	.00	2.00	.00	.21	.013	.00	.00	PIPE				
24.096	3329.085	1.815	3330.899	2.50	.83	.01	3330.91	.00	.55	1.16	2.000	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
.434	.2456					.0001	.00	1.81	.09	.21	.013	.00	.00	PIPE				
24.531	3329.191	1.707	3330.898	2.50	.88	.01	3330.91	.00	.55	1.41	2.000	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
.357	.2456					.0001	.00	1.71	.11	.21	.013	.00	.00	PIPE				
24.888	3329.279	1.618	3330.897	2.50	.92	.01	3330.91	.00	.55	1.57	2.000	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
.312	.2456					.0001	.00	1.62	.12	.21	.013	.00	.00	PIPE				
25.199	3329.355	1.540	3330.896	2.50	.96	.01	3330.91	.00	.55	1.68	2.000	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
.279	.2456					.0001	.00	1.54	.14	.21	.013	.00	.00	PIPE				
25.478	3329.424	1.470	3330.894	2.50	1.01	.02	3330.91	.00	.55	1.77	2.000	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
.255	.2456					.0002	.00	1.47	.15	.21	.013	.00	.00	PIPE				
25.733	3329.487	1.406	3330.893	2.50	1.06	.02	3330.91	.00	.55	1.83	2.000	.000	.00	1	.0			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
.235	.2456					.0002	.00	1.41	.16	.21	.013	.00	.00	PIPE				

SI_Lateral-MH1N_ULT.OUT

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WATER SURFACE PROFILE LISTING

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SUMMERLIN WEST VILLAGE 22

KESTREL CREEK AVENUE (STREET I) / LATERAL AT MH 1 NORTH, SDDI #2

ATKINS / ULTIMATE CONDITIONS

*****																	*****	
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/ 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				
*****																	*****	
25.968	3329.544	1.347	3330.891	2.50	1.11	.02	3330.91	.00	.55	1.88	2.000	.000	.00	1	.0			
	.218	.2456				.0002	.00	1.35	.18	.21	.013	.00	.00	PIPE				
26.185	3329.598	1.292	3330.889	2.50	1.17	.02	3330.91	.00	.55	1.91	2.000	.000	.00	1	.0			
	.203	.2456				.0002	.00	1.29	.19	.21	.013	.00	.00	PIPE				
26.388	3329.647	1.240	3330.887	2.50	1.22	.02	3330.91	.00	.55	1.94	2.000	.000	.00	1	.0			
	.189	.2456				.0003	.00	1.24	.21	.21	.013	.00	.00	PIPE				
26.577	3329.694	1.191	3330.885	2.50	1.28	.03	3330.91	.00	.55	1.96	2.000	.000	.00	1	.0			
	.177	.2456				.0003	.00	1.19	.23	.21	.013	.00	.00	PIPE				
26.754	3329.738	1.145	3330.883	2.50	1.34	.03	3330.91	.00	.55	1.98	2.000	.000	.00	1	.0			
	.166	.2456				.0003	.00	1.15	.24	.21	.013	.00	.00	PIPE				
26.921	3329.778	1.101	3330.880	2.50	1.41	.03	3330.91	.00	.55	1.99	2.000	.000	.00	1	.0			
	.156	.2456				.0004	.00	1.10	.26	.21	.013	.00	.00	PIPE				
27.077	3329.817	1.060	3330.877	2.50	1.48	.03	3330.91	.00	.55	2.00	2.000	.000	.00	1	.0			
	.147	.2456				.0004	.00	1.06	.28	.21	.013	.00	.00	PIPE				
27.224	3329.853	1.021	3330.873	2.50	1.55	.04	3330.91	.00	.55	2.00	2.000	.000	.00	1	.0			
	.138	.2456				.0005	.00	1.02	.30	.21	.013	.00	.00	PIPE				
27.361	3329.887	.983	3330.870	2.50	1.63	.04	3330.91	.00	.55	2.00	2.000	.000	.00	1	.0			
	.034	.2456				.0006	.00	.98	.33	.21	.013	.00	.00	PIPE				

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WATER SURFACE PROFILE LISTING

Date:10- 9-2019 Time: 3: 9:32

SUMMERLIN WEST VILLAGE 22

KESTREL CREEK AVENUE (STREET I) / LATERAL AT MH 1 NORTH, SDDI #2

ATKINS / ULTIMATE CONDITIONS

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

27.395	3329.895	.947	3330.842	2.50	1.71	.05	3330.89	.00	.55	2.00	2.000	.000	.00	1	.0
HYDRAULIC JUMP															
27.395	3329.895	.273	3330.168	2.50	9.71	1.46	3331.63	.00	.55	1.37	2.000	.000	.00	1	.0
.105	.2456					.0716	.01	.27	3.95	.21	.013	.00	.00	PIPE	
27.500	3329.921	.282	3330.203	2.50	9.25	1.33	3331.53	.00	.55	1.39	2.000	.000	.00	1	.0
.609	.2456					.0625	.04	.28	3.70	.21	.013	.00	.00	PIPE	
28.109	3330.071	.291	3330.362	2.50	8.82	1.21	3331.57	.00	.55	1.41	2.000	.000	.00	1	.0
.524	.2456					.0545	.03	.29	3.47	.21	.013	.00	.00	PIPE	
28.633	3330.199	.301	3330.500	2.50	8.41	1.10	3331.60	.00	.55	1.43	2.000	.000	.00	1	.0
.454	.2456					.0476	.02	.30	3.25	.21	.013	.00	.00	PIPE	
29.087	3330.311	.311	3330.622	2.50	8.02	1.00	3331.62	.00	.55	1.45	2.000	.000	.00	1	.0
.394	.2456					.0416	.02	.31	3.05	.21	.013	.00	.00	PIPE	
29.481	3330.407	.322	3330.729	2.50	7.65	.91	3331.64	.00	.55	1.47	2.000	.000	.00	1	.0
.343	.2456					.0363	.01	.32	2.86	.21	.013	.00	.00	PIPE	
29.824	3330.491	.332	3330.824	2.50	7.29	.83	3331.65	.00	.55	1.49	2.000	.000	.00	1	.0
.299	.2456					.0317	.01	.33	2.68	.21	.013	.00	.00	PIPE	
30.122	3330.565	.344	3330.908	2.50	6.95	.75	3331.66	.00	.55	1.51	2.000	.000	.00	1	.0
.260	.2456					.0277	.01	.34	2.51	.21	.013	.00	.00	PIPE	

SI_Lateral-MH1N_ULT.OUT

FILE: SI_Lateral-MH1N_ULT.WSW

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WATER SURFACE PROFILE LISTING

Date:10- 9-2019 Time: 3: 9:32

SUMMERLIN WEST VILLAGE 22

KESTREL CREEK AVENUE (STREET I) / LATERAL AT MH 1 NORTH, SDDI #2

ATKINS / ULTIMATE CONDITIONS

*****																	*****	
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/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				
*****																	*****	
30.383	3330.629	.355	3330.984	2.50	6.63	.68	3331.67	.00	.55	1.53	2.000	.000	.00	1	.0			
	.226	.2456				.0242	.01	.36	2.35	.21	.013	.00	.00	PIPE				
30.609	3330.684	.367	3331.051	2.50	6.32	.62	3331.67	.00	.55	1.55	2.000	.000	.00	1	.0			
	.196	.2456				.0211	.00	.37	2.20	.21	.013	.00	.00	PIPE				
30.805	3330.732	.380	3331.112	2.50	6.03	.56	3331.68	.00	.55	1.57	2.000	.000	.00	1	.0			
	.169	.2456				.0185	.00	.38	2.06	.21	.013	.00	.00	PIPE				
30.974	3330.774	.392	3331.166	2.50	5.75	.51	3331.68	.00	.55	1.59	2.000	.000	.00	1	.0			
	.145	.2456				.0161	.00	.39	1.93	.21	.013	.00	.00	PIPE				
31.119	3330.809	.406	3331.215	2.50	5.48	.47	3331.68	.00	.55	1.61	2.000	.000	.00	1	.0			
	.123	.2456				.0141	.00	.41	1.81	.21	.013	.00	.00	PIPE				
31.242	3330.840	.419	3331.259	2.50	5.22	.42	3331.68	.00	.55	1.63	2.000	.000	.00	1	.0			
	.104	.2456				.0123	.00	.42	1.70	.21	.013	.00	.00	PIPE				
31.347	3330.865	.434	3331.299	2.50	4.98	.39	3331.68	.00	.55	1.65	2.000	.000	.00	1	.0			
	.086	.2456				.0108	.00	.43	1.59	.21	.013	.00	.00	PIPE				
31.433	3330.886	.448	3331.335	2.50	4.75	.35	3331.69	.00	.55	1.67	2.000	.000	.00	1	.0			
	.070	.2456				.0094	.00	.45	1.49	.21	.013	.00	.00	PIPE				
31.503	3330.904	.464	3331.367	2.50	4.53	.32	3331.69	.00	.55	1.69	2.000	.000	.00	1	.0			
	.055	.2456				.0082	.00	.46	1.40	.21	.013	.00	.00	PIPE				

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WATER SURFACE PROFILE LISTING

Date:10- 9-2019 Time: 3: 9:32

SUMMERLIN WEST VILLAGE 22

KESTREL CREEK AVENUE (STREET I) / LATERAL AT MH 1 NORTH, SDDI #2

ATKINS / ULTIMATE CONDITIONS

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 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			

31.558	3330.917	.480	3331.396	2.50	4.32	.29	3331.69	.00	.55	1.71	2.000	.000	.00	1	.0		
	.042	.2456				.0072	.00	.48	1.31	.21	.013	.00	.00	PIPE			
31.599	3330.927	.496	3331.423	2.50	4.12	.26	3331.69	.00	.55	1.73	2.000	.000	.00	1	.0		
	.028	.2456				.0063	.00	.50	1.22	.21	.013	.00	.00	PIPE			
31.628	3330.934	.513	3331.448	2.50	3.92	.24	3331.69	.00	.55	1.75	2.000	.000	.00	1	.0		
	.017	.2456				.0055	.00	.51	1.15	.21	.013	.00	.00	PIPE			
31.644	3330.938	.531	3331.469	2.50	3.74	.22	3331.69	.00	.55	1.77	2.000	.000	.00	1	.0		

T1 SUMMERLIN WEST VILLAGE 22 0
T2 KESTREL CREEK AVENUE (STREET I) / LATERAL AT MH 1 NORTH, SDDI #2
T3 ATKINS / ULTIMATE CONDITIONS
SO 16.68 3327.900 1 3330.90
R 19.68 3328.000 2 .013 .000 0.000 1
R 31.65 3330.940 2 .013 .000 0.000 0
SH 34.65 3330.940 2
CD 1 4 1 .000 3.000 .000 .000 .000 .00
CD 2 4 1 .000 2.000 .000 .000 .000 .00
CD 3 4 1 .000 1.500 .000 .000 .000 .00
Q 2.500 .0

SI_Lateral-MH1S_ULT.OUT

FILE: SI_Lateral-MH1S_ULT.WSW

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WATER SURFACE PROFILE LISTING

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SUMMERLIN WEST VILLAGE 22

KESTREL CREEK AVENUE (STREET I) / LATERAL AT MH 1 SOUTH, SDDI #1

ATKINS / ULTIMATE CONDITIONS

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/ 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
16.680	3327.900	3.000	3330.900	2.50	.80	.01	3330.91	.00	.55	.00	2.000	.000	.00	1 .0
3.000	.0334					.0001	.00	3.00	.00	.33	.013	.00	.00	PIPE
19.680	3328.000	2.901	3330.901	2.50	.80	.01	3330.91	.00	.55	.00	2.000	.000	.00	1 .0
13.671	.0660					.0001	.00	2.90	.00	.28	.013	.00	.00	PIPE
33.351	3328.902	2.000	3330.902	2.50	.80	.01	3330.91	.00	.55	.00	2.000	.000	.00	1 .0
2.783	.0660					.0001	.00	2.00	.00	.28	.013	.00	.00	PIPE
36.134	3329.086	1.815	3330.901	2.50	.83	.01	3330.91	.00	.55	1.16	2.000	.000	.00	1 .0
1.618	.0660					.0001	.00	1.81	.09	.28	.013	.00	.00	PIPE
37.751	3329.193	1.707	3330.900	2.50	.88	.01	3330.91	.00	.55	1.41	2.000	.000	.00	1 .0
1.330	.0660					.0001	.00	1.71	.11	.28	.013	.00	.00	PIPE
39.081	3329.281	1.618	3330.899	2.50	.92	.01	3330.91	.00	.55	1.57	2.000	.000	.00	1 .0
1.161	.0660					.0001	.00	1.62	.12	.28	.013	.00	.00	PIPE
40.242	3329.357	1.540	3330.898	2.50	.96	.01	3330.91	.00	.55	1.68	2.000	.000	.00	1 .0
1.041	.0660					.0001	.00	1.54	.14	.28	.013	.00	.00	PIPE
41.283	3329.426	1.470	3330.896	2.50	1.01	.02	3330.91	.00	.55	1.77	2.000	.000	.00	1 .0
.949	.0660					.0002	.00	1.47	.15	.28	.013	.00	.00	PIPE
42.232	3329.489	1.406	3330.895	2.50	1.06	.02	3330.91	.00	.55	1.83	2.000	.000	.00	1 .0
.874	.0660					.0002	.00	1.41	.16	.28	.013	.00	.00	PIPE

SI_Lateral-MH1S_ULT.OUT

FILE: SI_Lateral-MH1S_ULT.WSW

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WATER SURFACE PROFILE LISTING

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SUMMERLIN WEST VILLAGE 22

KESTREL CREEK AVENUE (STREET I) / LATERAL AT MH 1 SOUTH, SDDI #1

ATKINS / ULTIMATE CONDITIONS

*****																	*****	
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				
*****																	*****	
43.107	3329.546	1.347	3330.893	2.50	1.11	.02	3330.91	.00	.55	1.88	2.000	.000	.00	1	.0			
	.811	.0660				.0002	.00	1.35	.18	.28	.013	.00	.00	PIPE				
43.918	3329.600	1.292	3330.891	2.50	1.17	.02	3330.91	.00	.55	1.91	2.000	.000	.00	1	.0			
	.755	.0660				.0002	.00	1.29	.19	.28	.013	.00	.00	PIPE				
44.673	3329.650	1.240	3330.889	2.50	1.22	.02	3330.91	.00	.55	1.94	2.000	.000	.00	1	.0			
	.707	.0660				.0003	.00	1.24	.21	.28	.013	.00	.00	PIPE				
45.380	3329.696	1.191	3330.887	2.50	1.28	.03	3330.91	.00	.55	1.96	2.000	.000	.00	1	.0			
	.661	.0660				.0003	.00	1.19	.23	.28	.013	.00	.00	PIPE				
46.041	3329.740	1.145	3330.885	2.50	1.34	.03	3330.91	.00	.55	1.98	2.000	.000	.00	1	.0			
	.149	.0660				.0003	.00	1.15	.24	.28	.013	.00	.00	PIPE				
46.190	3329.750	1.135	3330.885	2.50	1.36	.03	3330.91	.00	.55	1.98	2.000	.000	.00	1	.0			
	3.000	.0660				.0286	.76	1.13	.25	.28	.013	.00	.00	PIPE				
49.190	3329.750	1.135	3330.885	2.50	1.36	.03	3330.91	.00	.55	1.98	2.000	.000	.00	1	.0			

T1 SUMMERLIN WEST VILLAGE 22 0
T2 KESTREL CREEK AVENUE (STREET I) / LATERAL AT MH 1 SOUTH, SDDI #1
T3 ATKINS / ULTIMATE CONDITIONS
SO 16.68 3327.900 1 3330.90
R 19.68 3328.000 2 .013 .000 0.000 1
R 46.19 3329.750 2 .013 .000 0.000 0
SH 49.19 3329.750 2
CD 1 4 1 .000 3.000 .000 .000 .000 .00
CD 2 4 1 .000 2.000 .000 .000 .000 .00
CD 3 4 1 .000 1.500 .000 .000 .000 .00
Q 2.500 .0

SI_Lateral-MH4N_ULT.OUT

FILE: SI_Lateral-MH4N_ULT.WSW

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Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING

Date:10- 9-2019 Time: 3:44:57

SUMMERLIN WEST VILLAGE 22

KESTREL CREEK AVENUE (STREET I) / LATERAL AT MH 4 NORTH, SDDI #5

ATKINS / ULTIMATE CONDITIONS

```

*****
| 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
*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****|*****
| | | | | | | | | | | | | | | |
669.170 3372.730 5.970 3378.700 3.00 .95 .01 3378.71 .00 .60 .00 .00 2.000 .000 .00 1 .0
-|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|-
3.000 .0334 .0002 .00 5.97 .00 .36 .013 .00 .00 PIPE
| | | | | | | | | | | | | | | |
672.170 3372.830 5.871 3378.701 3.00 .95 .01 3378.72 .00 .60 .00 .00 2.000 .000 .00 1 .0
-|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|-
6.050 .1834 .0002 .00 5.87 .00 .24 .013 .00 .00 PIPE
| | | | | | | | | | | | | | | |
678.220 3373.940 4.762 3378.702 3.00 .95 .01 3378.72 .00 .60 .00 .00 2.000 .000 .00 1 .0
-|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|- -|-
3.000 .1834 .0308 .19 4.76 .00 .24 .013 .00 .0

```


T1 SUMMERLIN WEST VILLAGE 220
T2 KESTREL CREEK AVENUE (STREET I) / LATERAL AT MH 4 NORTH, SDDI #5
T3 ATKINS / ULTIMATE CONDITIONS
SO ...669.17 3372.73 ...13378.700
R ...672.17 3372.83 ...2013000 ...0.000 1
R ...678.22 3373.94 ...2013000 ...0.000 0
SH ...681.22 3373.94 ...2
CD ...1 4 ...1000 ...3.000000 ...000 ...000 ...00
CD ...2 4 ...1000 ...2.000000 ...000 ...000 ...
.00
Q3.000 ...0

SI_Lateral-MH4S_ULT.OUT

FILE: SI_Lateral-MH4S_ULT.WSW

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WATER SURFACE PROFILE LISTING

Date:10- 9-2019 Time: 3:44:40

SUMMERLIN WEST VILLAGE 22

KESTREL CREEK AVENUE (STREET I) / LATERAL AT MH 4 SOUTH, SDDI #4

ATKINS / ULTIMATE CONDITIONS

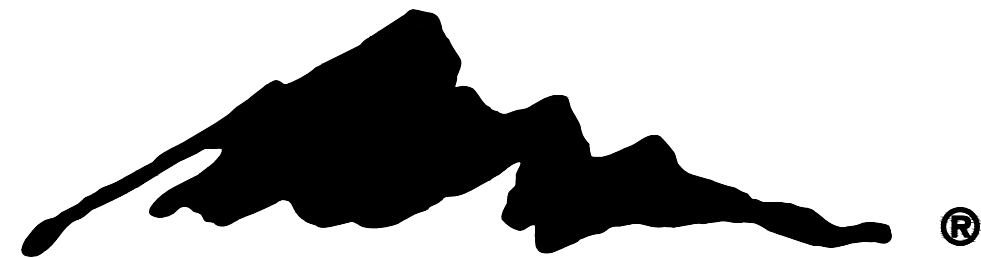
*****																	*****	
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt/ I.D.	ZL	No Wth Prs/Pip				
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch				
*****																	*****	
669.170	3372.730	5.970	3378.700	33.00	6.72	.70	3379.40	.00	1.95	.00	2.500	.000	.00	1	.0			
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -				
3.000	.0334					.0065	.02	5.97	.00	1.16	.013	.00	.00	PIPE				
672.170	3372.830	5.924	3378.754	33.00	6.72	.70	3379.46	.00	1.95	.00	2.500	.000	.00	1	.0			
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -				
21.950	.0506					.0065	.14	5.92	.00	1.03	.013	.00	.00	PIPE				
694.120	3373.940	4.957	3378.896	33.00	6.72	.70	3379.60	.00	1.95	.00	2.500	.000	.00	1	.0			
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -				
JUNCT STR	.0334					.0059	.02	4.96	.00		.013	.00	.00	PIPE				
697.120	3374.040	5.106	3379.146	30.00	6.11	.58	3379.73	.00	1.87	.00	2.500	.000	.00	1	.0			
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -				
3.000	.0333					.0053	.02	5.11	.00	1.10	.013	.00	.00	PIPE				
700.120	3374.140	5.051	3379.191	30.00	6.11	.58	3379.77	.00	1.87	.00	2.500	.000	.00	1	.0			
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -				
27.000	.0433					.0053	.14	5.05	.00	1.02	.013	.00	.00	PIPE				
727.120	3375.310	4.026	3379.336	30.00	6.11	.58	3379.92	.00	1.87	.00	2.500	.000	.00	1	.0			
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -				
3.510	.0433					.0131	.35	4.03	.00	1.02	.013	.00	.00	PIPE				
730.630	3375.310	4.026	3379.336	30.00	6.11	.58	3379.92	.00	1.87	.00	2.500	.000	.00	1	.0			
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -				

T1 SUMMERLIN WEST VILLAGE 220
T2 KESTREL CREEK AVENUE (STREET I) / LATERAL AT MH 4 SOUTH, SDDI #4
T3 ATKINS / ULTIMATE CONDITIONS
SO ...669.17 3372.73 ...13378.700
R ...672.17 3372.83 ...30130.000 ...0.000 1
REM ##### SDDI #3
R ...694.12 3373.94 ...30130.000 ...0.000 0
JX ...697.12 3374.04 ...3 3 ...013 ...3.0003374.1400.00.000
R ...700.12 3374.14 ...30130.000 ...0.000 1
REM ##### SDDI #3
R ...727.12 3375.31 ...30130.000 ...0.000 0
SH ...730.63 3375.31 ...3
CD ...1 4 ...10.000 ...3.0000.000 ...0.000 ...0.000 ...0.00
CD ...2 4 ...10.000 ...2.0000.000 ...0.000 ...0.000 ...0.00
CD ...3 4 ...10.000 ...2.5000.000 ...0.000 ...0.000 ...
.00
Q30.000 ...0

Appendix D. CD-ROM

SHEET INDEX		
1	COVER SHEET	
2	LEGEND AND ABBREVIATIONS	
3	GENERAL NOTES	
4	HORIZONTAL CONTROL PLAN	
5	MASTER DRAINAGE PLAN	
6	MASTER DRAINAGE PLAN	
7	MASTER WATER PLAN	
8	MASTER SEWER PLAN	
9	ROADWAY GRADING PLAN	STA 22+00 TO END
10	ROADWAY PLAN AND PROFILE	STA 22+00 TO END
11	ROADWAY GRADING PLAN	STA 19+00 TO STA 22+00
12	ROADWAY PLAN AND PROFILE	STA 19+00 TO STA 22+00
13	ROADWAY GRADING PLAN	STA 16+00 TO STA 19+00
14	ROADWAY PLAN AND PROFILE	STA 16+00 TO STA 19+00
15	ROADWAY GRADING PLAN	STA 13+00 TO STA 16+00
16	ROADWAY PLAN AND PROFILE	STA 13+00 TO STA 16+00
17	ROADWAY GRADING PLAN	BEGIN TO STA 13+00
18	ROADWAY PLAN AND PROFILE	BEGIN TO STA 13+00
19	BERM GRADING PLAN	
20	BERM GRADING PLAN	
21	STORM DRAIN LATERAL PROFILES	
22	WATER LATERAL PROFILES	
23	SANITARY SEWER LATERAL PROFILES	
24	STREETLIGHT PLAN	
25	SIGNAGE AND STRIPING PLAN	
26	TYPICAL SECTIONS	
27	STORM DETAILS	
28	PARCEL GRADING DETAILS – PARCEL C	
29	PARCEL GRADING DETAILS – PARCEL D	
30	WATER DETAILS	
31	STREETLIGHT DETAILS	

SUMMERLIN VILLAGE 22
IMPROVEMENT PLANS FOR:
KESTREL CREEK AVENUE (STREET I)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)
FUTURE SID PROJECT



SUMMERLIN®

UTILITY NOTE

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 LOCATION.

CALL BEFORE YOU DIG: 1-800-642-2444

THIS PROPERTY MAY HAVE STATIC WATER PRESSURE IN EXCESS OF 80 PSI. THE UNIFORM PLUMBING CODE REQUIRES THAT INDIVIDUAL, ON-SITE (PRIVATE) PRESSURE REDUCING VALVES BE INSTALLED WHENEVER THE PRESSURE EXCEEDS 80 PSI. PRV'S ARE THE DEVELOPER'S RESPONSIBILITY AND WILL NOTE BE INSPECTED OR INCLUDED IN THE ACCEPTANCE OF THE LAS VEGAS VALLEY WATER DISTRICT FACILITIES.

NOTICE OF INTENT 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](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 APPROPRIATE FILLING FEE.

NPDES PERMIT NOTE

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

DISCLAIMER NOTE

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.

FEMA FLOOD ZONE INFORMATION

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C2150E, DATED 9/27/2002. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

PROPOSED RIGHT-OF-WAY ACREAGE
1.15 AC.

PROPOSED DISTURBED AREA ACREAGE
7.58 AC.

GEOTECHNICAL ENGINEER
PREPARED BY: NOVA GEOTECHNICAL & INSPECTION SERVICES
4480 W. HACIENDA AVENUE, SUITE 104, LAS VEGAS, NV 89118
PHONE: 702-873-3478
PROJECT NO.: G-18-176
DATED: DECEMBER 3, 2018

OWNER /DEVELOPER

OWNER

CONTACT: KEVIN ORROCK
HOWARD HUGHES COMPANY LLC, A DELAWARE LIMITED LIABILITY COMPANY
10845 GRIFFITH PEAK DRIVE, SUITE 160
LAS VEGAS, NEVADA 89135

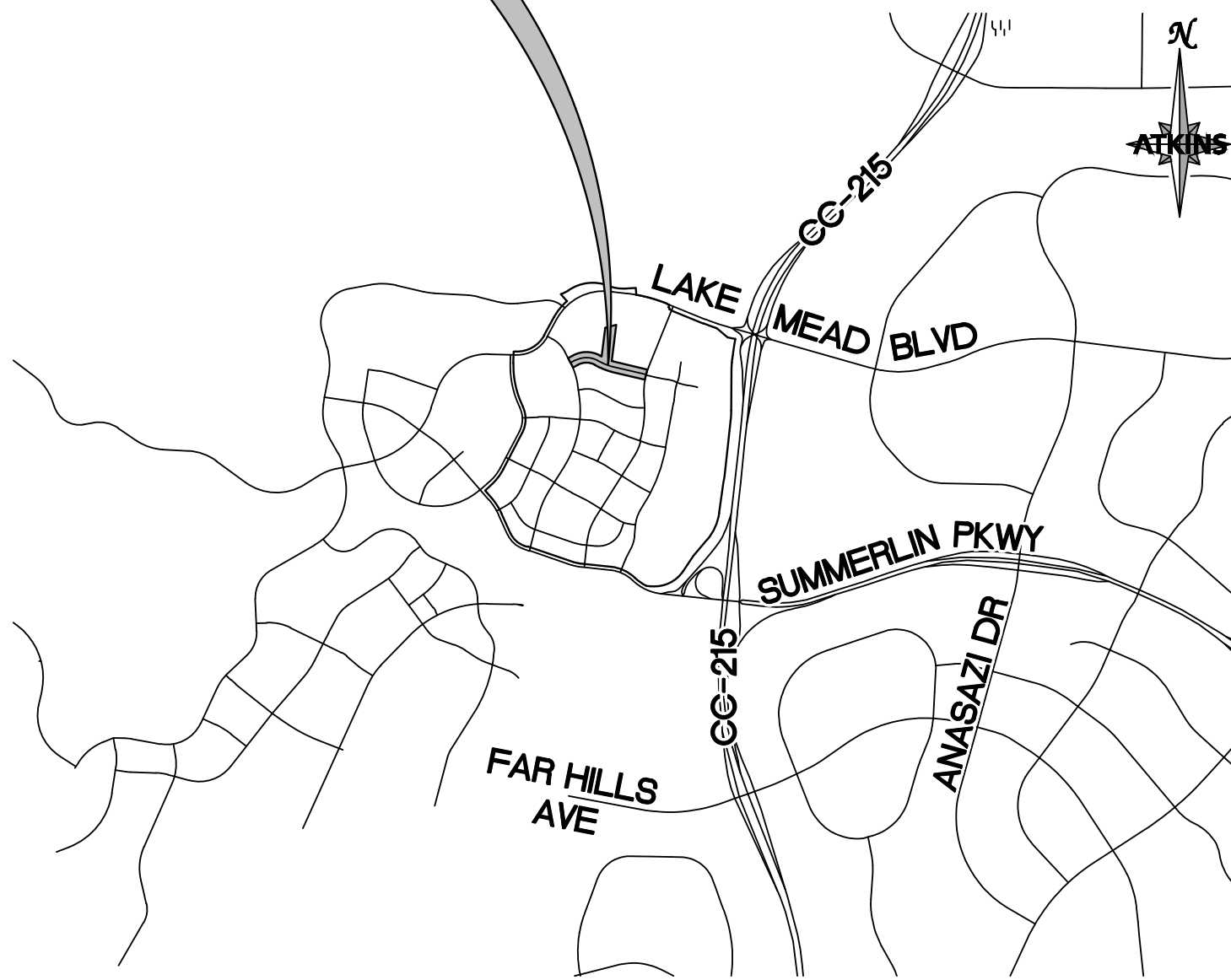
ENGINEER / CONSULTANT

CIVIL

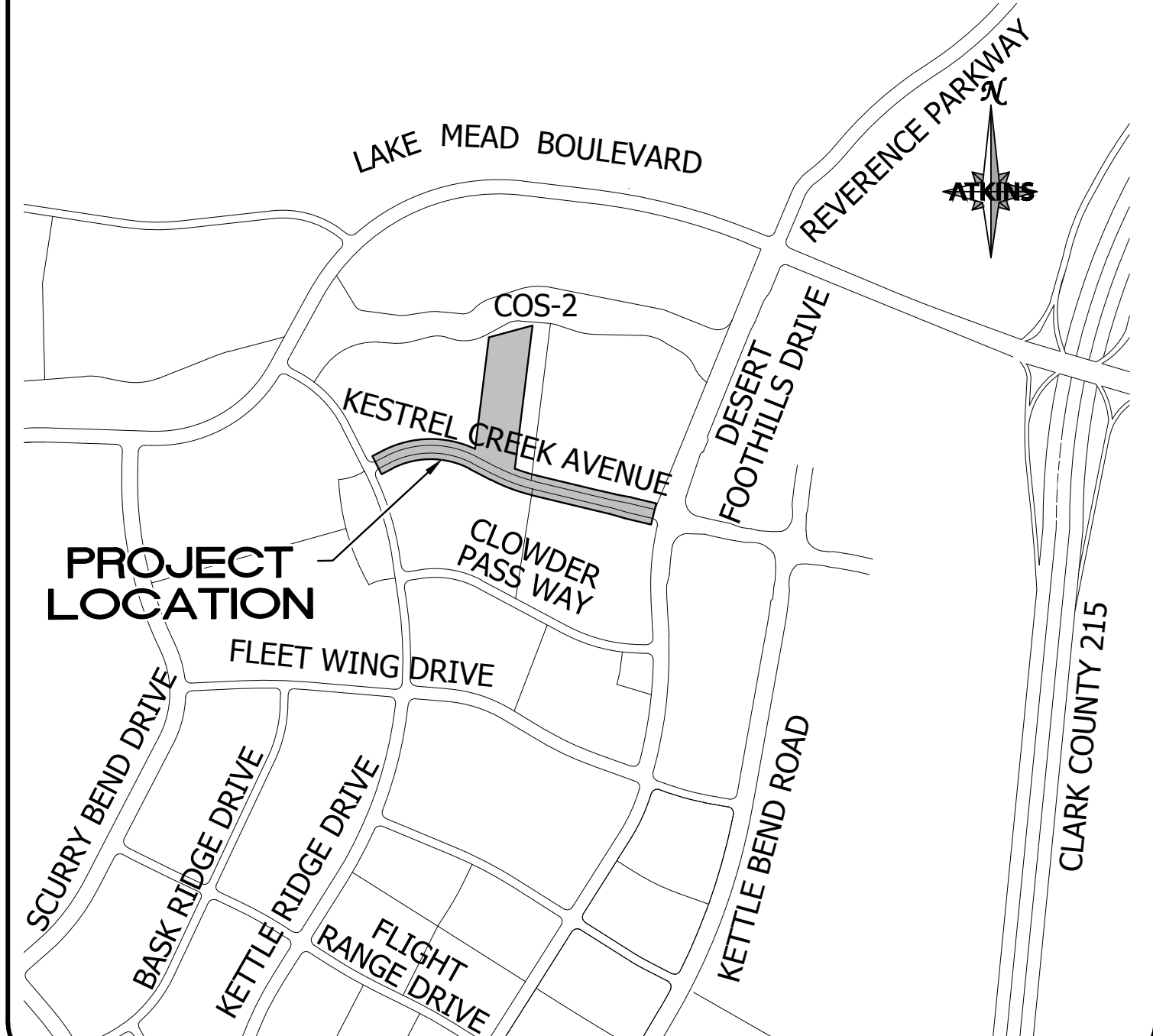
CONTACT: DAVID WILSON P.E.
ATKINS
2270 CORPORATE CIRCLE SUITE 200
HENDERSON, NEVADA 89074
(702) 263-7275

LOCATION MAP

PROJECT SITE
APN 137-14-401-006



VICINITY MAP



APPROVALS

HOWARD HUGHES COMPANY LLC, A DELAWARE LIMITED LIABILITY COMPANY

KEVIN T. ORROCK, VICE PRESIDENT

DATE

ALLEN PAVELKA, P.E. #9029
CITY ENGINEER

DATE

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

CITY OF LAS VEGAS PLANNING DEPARTMENT

DATE

NOTE:
THIS PLAN CONFORMS TO THE APPLICABLE STANDARDS OF THE PLANNING DEPARTMENT.

LAS VEGAS FIRE AND RESCUE

DATE

CENTRAL TELEPHONE COMPANY d/b/a CENTURYLINK

DATE

THE AFFIXED CENTRAL TELEPHONE COMPANY d/b/a CENTURYLINK APPROVAL DOES NOT ASSUME OR GUARANTEE LIABILITY FOR KNOWN OR UNKNOWN CONFLICTS WITH EXISTING OR PROPOSED IMPROVEMENTS. RESOLUTION OF ANY CONFLICTS WILL BE ACCOMPLISHED PURSUANT TO LOCAL ORDINANCES, NEVADA REVISED STATUTES, AND/OR PUBLIC UTILITY COMMISSION RULES AND REGULATIONS.

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. 136924 FIRST APPROVED DATE:

SHEETS:

NV ENERGY

DATE

NV ENERGY HAS ACKNOWLEDGED 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 UTILITY COMMISSION'S RULES AND REGULATIONS.

SOUTHWEST GAS CORPORATION

DATE

COX COMMUNICATIONS OF LAS VEGAS, INC

DATE

BASIS OF BEARING

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

LINEAR UNIT: US SURVEY FOOT (FT/US)

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

SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)

ZONE: LAS VEGAS HIGH ELEVATION ZONE

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

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

NORTHING AT GRID OF ORIGIN: 400,000.00 M (1,312,333.3333 FT/US)

EASTING AT CENTRAL MERIDIAN: 300,000 M (984,250.0000 FT/US)

SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

NOTES:

1. ALL DISTANCES AND BEARINGS SHOWN HEREON ARE PROJECTED (GRID) VALUES BASED ON THE PRECEDING PROJECTION DEFINITION. THE PROJECTION WAS DEFINED SUCH THAT PROJECTED (GRID) DISTANCES ARE EQUIVALENT TO "GROUND" DISTANCES IN THE PROJECTED AREA

2. GRID BEARINGS SHOWN HEREON (OR IMPLIED BY GRID COORDINATES) DO NOT EQUAL GEODETIC BEARINGS DUE TO MERIDIAN CONVERGENCE.

BENCHMARK

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

CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)

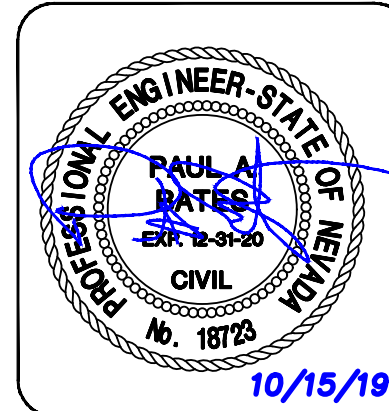
NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET)

FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.

T21S,R59E,S03

LEGAL DESCRIPTION

BEING A PORTION OF LOT 2 AS SHOWN ON THE MAP THEREOF IN BOOK 123 OF PLATS, PAGE 08, OFFICIAL RECORDS, CITY OF LAS VEGAS CLARK COUNTY, NEVADA



DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMACLAY
CHECKED BY: P. BATES
HORIZ.: NONE
VERT.: NONE
JOB NO. 100060654
DATE: OCTOBER, 2019
DRAWING NO. 1 / 31
CLV 00-00000

SUMMERLIN VILLAGE 22
KESTREL CREEK AVENUE (STREET I)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

COVER SHEET

REVISIONS

ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1702.263.7275
Fax: +1702.263.7200

SUMMERLIN®

ⒺAT #NUMBER ABABANDONED ACASPHALTIC CONCRETE ACPASBESTOS CEMENT PIPE AGGAGGREGATE AIPABANDON IN PLACE ALTALTERNATE APANGLE POINT APPROXAPPROXIMATE ASTMAMERICAN SOCIETY FOR TESTING AND MATERIALS INTERNATIONAL AV/ARAIR VACUUM AIR RELIEF VALVE BCBACK OF CURB BCRBACK OF CURB RETURN BLKBLOCK BLVDBOULEVARD BMBENCHMARK BOBLOW OFF BPBOTTOM OF PIPE BSWBACK OF SIDEWALK BVCBEGIN VERTICAL CURVE BVCEBEGINNING OF VERTICAL CURVE ELEVATION BVCSBEGINNING OF VERTICAL CURVE STATION BWBOTTOM WIDTH C&GCURB AND GUTTER C-CCENTER TO CENTER CATVCABLE TELEVISION CCAUSDCLARK COUNTY AREA UNIFORM STANDARD DRAWING CCRFCDCCLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT CCWRDCLARK COUNTY WATER RECLAMATION DISTRICT CFCUBIC FOOT CIPCAST IRON PIPE OR CAST IN PLACE CLCENTERLINE CLRCLEAR CLVCITY OF LAS VEGAS CMCONSTRUCTION MANAGER CMPCORRUGATED METAL PIPE CMUCONCRETE MASONRY UNIT CNDTCONDUIT CNLVCITY OF NORTH LAS VEGAS COCLEANOUT COHCITY OF HENDERSON COLCOLUMN CON'TCONTINUATION CONCCONCRETE CONSTCONSTRUCT OR CONSTRUCTION CORCORNER COSCOMMUNITY OPEN SPACE CPPCORRUGATED PLASTIC PIPE CSPCORRUGATED STEEL PIPE CUCUBIC CULVCULVERT CYCUBIC YARD DDEPTH DCSWCSDESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS DET, DTLDETAIL DEPTDEPARTMENT DGDESIGN GRADE DIDROP INLET DIA DIAMETER DIAGDIAAGONAL DIPDUCTILE IRON PIPE DOCDOCUMENT DWDRIVEWAY DWGDRAWING E EAST EAEACH EBEASTBOUND ECEND OF CURVE ECREND CURB RETURN EFEACH FACE EGEXISTING GROUND ELEC ELECTRICAL ELEV ELEVATION EMBK EMBANKMENT EOPEDGE OF PAVEMENT EPEDGE OF PAVEMENT ALIGNMENT END EQEQUAL ESMTEASEMENT EVCEND VERTICAL CURVE EVCSEND VERTICAL CURVE STATION EW EACH WAY EX, EXSTEXISTING EXP, JTEXPANSION JOINT FAFIRE ALARM FCFACE OF CURB	FFFINISHED FLOOR ELEVATION FHFIRE HYDRANT FLFLOW LINE FOFIBER OPTIC FTFOOT OR FEET G GAS LINE GALVGALVANIZED GBGRADE BREAK GLGRATE LENGTH GMGAS METER GUTGUTTER GVGATE VALVE HHEIGHT HDPEHIGH DENSITY POLYETHYLENE PIPE HDWLHEADWALL HEHORIZONTAL ELLIPTICAL HGLHYDRAULIC GRADE LINE HOAHOMEOWNER'S ASSOCIATION HORHORIZONTAL HPHIGH POINT IDINSIDE DIAMETER ININCH(ES) INTINTERSECTION INVINVERT IQACINTERAGENCY QUALITY ASSURANCE COMMITTEE IRRIRRIGATION ISLISLAND JB JUNCTION BOX JCTJUNCTION JTJOINT KVERTICAL CURVE K VALUE LLENGTH LBPOUND(S) LF LINEAR FEET LIN LINEAR LIN #CITY OF LAS VEGAS LOCLENGTH OF CURVE LOL LAYOUT LINE LPLOW POINT LSLANDSCAPE LTLEFT LVCLENGTH OF VERTICAL CURVE LVVWDLAS VEGAS VALLEY WATER DISTRICT MASMASONRY MAXMAXIMUM MHMANHOLE MINMINIMUM MONMONOLITHIC, MONUMENT MTLMATERIAL MEMATCH EXISTING MUEMUNICIPAL UTILITY EASEMENT N NORTH NAPNOT A PART NDOTNEVADA DEPARTMENT OF TRANSPORTATION NFNEAR FACE NGNUMBER OF GRATES, NATURAL GRADE NICNOT IN CONTRACT No. NUMBER NTSNOT TO SCALE NVENV ENERGY OC ON CENTER ODOUTSIDE DIAMETER OGOPEN GRADE OHOVERHEAD OHPOVERHEAD POWER OSOFFSET PPOWER PBPULL BOX PBSPLANTMIX BITUMINOUS SURFACE PCPOINT OF CURVATURE PCCPORTLAND CEMENT CONCRETE OR POINT OF COMPOUND CURVATURE PEPOLYETHYLENE PGPROPOSED GRADE PGLPROFILE GRADE LINE PHPOT HOLE PIPOINT OF INTERSECTION PIPPROTECT IN PLACE PLPROPERTY LINE PLCSPLACES PMFPAVEMENT MARKING FILM POCPOINT OF CONNECTION PPPOWER POLE PRCPOINT OF REVERSE CURVATURE PROPPROPOSED PSIPOUNDS PER SQUARE INCH PTPOINT, POINT OF TANGENCY PUEPUBLIC UTILITY EASEMENT	PVCPOLYVINYL CHLORIDE PVIPPOINT OF VERTICAL INTERSECTION PVMTPAVEMENT QTYQUANTITY (R)RADIAL R/W,ROWRIGHT OF WAY R RADIUS RCREINFORCED CONCRETE RCBREINFORCED CONCRETE BOX RCCROLLER COMPACTED CONCRETE RCPREINFORCED CONCRETE PIPE RDRoad REINFREINFORCED OR REINFORCEMENT RELOCRELOCATE REVREVISION RGROUGH GRADE RRADIUS POINT RPMRAISED PAVEMENT MARKER RRRAILROAD RTRIGHT SCHEDSCHEDULE SDSTORM DRAIN SDMHSTORM DRAIN MANHOLE SFSQUARE FOOT/SQUARE FEET SHLD SHOULDER SHTSHEET SHPSSTEEL HIGH PRESSURE PIPE SMFOSINGLE MODE FIBER OPTIC SNWASOUTHERN NEVADA WATER AUTHORITY SQSQUARE SSSANITARY SEWER OR SIDE SLOPE SSDSUMMERLIN STANDARD DRAWING SSTSTAINLESS STEEL STSTREET STASTATION STDSTANDARD STLSTEEL STLTSTREETLIGHT SDHWSTORM DRAIN HEADWALL STRUCTSTRUCTURAL OR STRUCTURE SUM #COWRD MANHOLE NUMBER SURVSURVEY SVZSIGHT VISIBILITY ZONE SWSIDEWALK SY SQUARE YARD TTELEPHONE LINE TANTANGENT TBTOP OF BOX TBATO BE ADJUSTED TBCTOP OF BACK OF CURB TBRTO BE REMOVED TC TOP OF CURB TCDTraffic Control Device TDS TECHNICAL DRAINAGE STUDY TELEPHONE TEMPTEMPORARY TF TOP OF FOOTING THKTHICK THRTHRUST THWTOP OF HEADWALL TOFTOP OF FACE TOP TOP OF BANK TW/TOWTOP OF WALL TP TOP OF PIPE TRANS TRANSITION TS TRAFFIC SIGNAL TSITraffic Signal Interconnect TW TOP OF WALL TYP TYPICAL UDACSUNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR WATER DISTRIBUTION SYSTEMS UGUNDERGROUND UGPUNDERGROUND POWER UIEUPPER INVERT ELEVATION UNO UNLESS NOTED OTHERWISE UPRRUNION PACIFIC RAILROAD USDUNIFORM STANDARD DRAWING UTACSULTRA THIN ASPHALT CONCRETE SURFACE USTCODEUTILITY, STREETLIGHT, TRAFFIC CONTROL DEVICE EASEMENT V VOLT VARVARIABLE VCVERTICAL CURVE VCPVITRIFIED CLAY PIPE VERT VERTICAL VGVALLEY GUTTER W WEST, WATER	W/ WITH WB WEST BOUND WL WATER LINE WM WATER METER W/O WITHOUT WPJWEAKENED PLANE JOINT WV WATER VALVE WW WING WALL YDYARD(S)	EXISTING PROPOSED DAYLIGHT LINE FLOWLINE CENTERLINE PARCEL LINE RIGHT OF WAY PAVEMENT STRIPING OVERHEAD POWER UNDERGROUND POWER SANITARY SEWER WATER STORM DRAIN GAS CABLE T.V. TELEPHONE STREETLIGHT CONDUIT STOP BAR CONCRETE ENCASEMENT FENCE BLOCK WALL RETAINING WALL SAWCUT PAVEMENT CONTOUR SPOT ELEVATION CURB AND GUTTER EDGE OF PAVEMENT EASEMENT MATCHLINE SIGN DOUBLE POST SIGN STORM DRAIN MANHOLE STORM DRAIN STRUCTURE DROP INLET BEEHIVE INLET SEWER MANHOLE FIRE HYDRANT CAP AND BLOWOFF GATE VALVE REDUCER STREETLIGHT PULLBOX SIGNAL POLE ELEVATION WATER PRESSURE ZONE BOUNDARY WATER PRESSURE ZONE HARDSCAPE	NOTE 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.
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ROADWAY ALIGNMENT DESIGNATIONS

"KCA" = KESTREL CREEK AVENUE
"DFD" = DESERT FOOTHILLS DRIVE
"KRD" = KETTLE RIDGE DRIVE
"CPW" = CLOWDER PASS WAY
"KBR" = KETTLE BEND ROAD

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT

PROJECT NO. 136892 FIRST APPROVED DATE: _____

BASIS OF BEARING

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

BENCHMARK

CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S,R59E,S03

FAST

Call before you Dig
UnderGround
1-702-432-5300

Call before you Dig
Call 811
1-800-642-2444

PAULA BATES
ENGINEER-STATE OF NEVADA
No. 1872

10/15/19

DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMACLAY
CHECKED BY: P. BATES
HORIZ.: NONE
VERT.: NONE

JOB NO. 100060654
DATE: OCTOBER, 2019
DRAWING NO. 2 / 31
CLV 00-00000

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

REVISIONS

ATKINS

2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1702.263.775
Fax: +1702.263.700

SUMMERLIN

DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

SUMMERLIN VILLAGE 22

KESTREL CREEK AVENUE (STREET I)

DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

LEGEND AND ABBREVIATIONS

DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMACLAY
CHECKED BY: P. BATES
HORIZ.: NONE
VERT.: NONE

JOB NO. 100060654
DATE: OCTOBER, 2019
DRAWING NO. 2 / 31
CLV 00-00000

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 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 CURBS. 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 THE (NOVA, G-18-176, 12/03/18) 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 STATUTE NO. 625.380 & CITY OF LAS VEGAS TITLE 18, APPENDIX D. 15. UTILITY COMPANY METER BOXES, MANHOLE LIDS, VALVE COVERS, ETC., SHALL BE LOCATED OUT OF DRIVEWAYS, DRIVEWAY APRONS, FLOWLINES, AND CROSS GUTTERS UNLESS WRITTEN APPROVAL IS GRANTED BY THE UTILITY COMPANY AND THE CITY ENGINEER. WALL NOTES: 16. ALL WALLS, NEW OR EXISTING, ARE ONLY SHOWN ON CIVIL PLANS FOR THE PURPOSE OF REVIEWING GRADING RELATIONSHIPS; FLOOD CONTROL AND SIGHT DISTANCE AT INTERSECTIONS. NEW WALLS REQUIRE A SEPARATE PERMIT AND INSPECTION BY THE BUILDING DEPARTMENT. 17. ASPHALT MIX DESIGN MUST BE SUBMITTED AND APPROVED BY THE CITY ENGINEER PRIOR TO THE PLACEMENT OF ASPHALT WITHIN CITY RIGHT OF WAY. 18. CONTRACTOR SHALL ADJUST ALL NEW AND EXISTING INLETS, VALVE BOXES, MANHOLE RIMS, AND SEWER CLEAN OUTS, ETC., TO FINISH GRADE AS APPLICABLE WHETHER OR NOT THEY ARE SHOWN ON THE PLANS. 19. MATERIALS, HANDLING AND PLACEMENT OF PORTLAND CEMENT CONCRETE SHALL BE IN ACCORDANCE WITH APPLICABLE SECTIONS OF THE CITY OF LAS VEGAS SPECIFICATIONS (AS APPLICABLE) AND THE PLANS AND DETAILS SHOWN HEREON. 20. WHEN INSTALLING UNDERGROUND FACILITIES THAT REQUIRE UNDERGROUND LOCATING DEVICES SUCH AS MARKER BALLS, LOCATING RIBBON, ETC., THE CONTRACTOR SHALL PROVIDE WRITTEN DOCUMENTATION TO OFFSITE INSPECTION AND TESTING CERTIFYING THAT ALL DEVICES HAVE BEEN PLACED AND VERIFIED TO BE IN GOOD WORKING CONDITION PRIOR TO THE CONSTRUCTION OF ANY ROAD BASE. 21. SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S) SHALL BE PROVIDED TO THE CITY AND APPROVED PRIOR TO ACCEPTANCE OF FACILITY VIDEO INSPECTION. THE MAP(S) SHALL INCLUDE THE HORIZONTAL AND VERTICAL (INVERT) LOCATION OF PUBLIC SEWER MANHOLES, STORM DRAIN MANHOLES AND TRANSITION STRUCTURES, STORM DRAIN LATERALS AT THE CONNECTION TO THE STORM DRAIN MAIN AND AT THE CONNECTION TO A DROP INLET, THE CONNECTION OF SEWER SERVICE LATERALS TO THE SEWER MAIN AND WHERE THE SEWER SERVICE LATERALS EXIT THE PUBLIC RIGHT-OF-WAY. SEWER AND STORM DRAIN MAIN ALIGNMENT, INCLUDING DEFLECTION POINTS, THE LOCATION SHALL BE DESCRIBED AS SHOWN ON THE PLANS. THE LOCATION SHALL BE BASED ON THE OFFICIAL HORIZONTAL AND VERTICAL CONTROL NETWORKS OF THE CITY OF LAS VEGAS. FINAL LOCATION MAPS MUST BE SEALED AND CERTIFIED BY A NEVADA PROFESSIONAL LAND SURVEYOR TO HAVE POSITIONAL CERTANTIES OF ± 0.09 METERS (± 0.3 FEET) HORIZONTALLY AND ± 0.04 METERS (± 0.1 FEET) VERTICALLY. THE SANITARY SEWER AND STORM DRAIN COORDINATE DELIMITED FILE FOR THE SANITARY SEWER AND STORM DRAIN COORDINATES SHALL ALSO ACCOMPANY THE SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S). 22. CCTV VIDEO INSPECTION IS REQUIRED FOR ALL SEWER AND STORM DRAINS. THE CCTV VIDEO INSPECTIONS NEED TO BE PERFORMED PER THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS LATEST EDITION. 23. A SEPARATE BORING PERMIT IS REQUIRED FOR ALL BORING ACTIVITIES. REVISED 06/04/2018 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. REVISED 04/15/10 CONSTRUCTION CONCURRENCY NOTE THE FOLLOWING SEPARATE VILLAGE 22 ROADWAY IMPROVEMENT PLANS ARE ASSUMED TO BE CONSTRUCTED CONCURRENTLY AND ARE SHOWN AS FUTURE (BY OTHERS): 1. KETTLE RIDGE DRIVE (FLEET WING DRIVE TO LAKE MEAD BLVD) 2. DESERT FOOTHILLS DRIVE (FLEET WING DRIVE TO LAKE MEAD BLVD) 3. LAKE MEAD BOULEVARD (DESERT FOOTHILLS DRIVE TO SCURRY BEND DRIVE) 4. CLOWDER PASS WAY (DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE) DEVIATIONS FROM STANDARDS NONE. CITY OF LAS VEGAS FIRE DEPARTMENT NOTES 1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LAS VEGAS FIRE AND RESCUE ADOPTED FIRE CODE ORDINANCE #6325 FOR HYDRANT SPECIFICATIONS AND HYDRANT INSTALLATION SPECIFICATIONS. 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 FOR 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 § 105.7.12 4. ALL NEW 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 END OF THE STREET ADJACENT TO THE FIRE HYDRANTS. IFC § 501.7.3.1 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 AND MORE THAN (4) OR MORE TOPOGRAPHIC LINES 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 § C102.12 15. A MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A ONE-TWO FAMILY DWELLING SHALL NOT EXCEED 300 FT, AS MEASURED BY AN APPROVED ROUTE. IFC § 102.4 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 FLOW LINE TO BE INSTALLED ON A SINGLE SYSTEM. SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 2 FIRE HYDRANTS CAN BE OUT OF SERVICE DUE TO A BREAK IN A WATER MAIN. 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 10% 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 40 FT, FLOW LINE TO FLOW LINE WITH PARALLEL PARKING PERMITTED ON BOTH SIDES, NOT LESS THAN 32 FT WIDE, FLOW LINE TO FLOW LINE, WHERE PARKING IS PERMITTED ONLY ON ONE SIDE OF THE FIRE APPARATUS ACCESS ROAD, NOT LESS THAN 24FT WIDE, FLOW LINE TO FLOW LINE, WHERE NO PARKING IS PERMITTED ON EITHER SIDE. FIRE LINES THROUGH PARKING LOTS SHALL BE NOT LESS THAN 24 FT. IFC § 503.2.1.1 24. A FIRE APPARATUS ACCESS ROAD SHALL BE APPROPRIATE WHEN ANY PORTION OF AN EXTERIOR WALL OF THE FIRST STORY IS LOCATED MORE THAN 150 FT FROM A FIRE DEPARTMENT VEHICLE ACCESS. THIS DISTANCE COULD BE INCREASED TO 250 FT IF THE BUILDING IS SPRINKLERED. IFC § 503.1.1 25. APPROVED SECONDARY FIRE APPARATUS ACCESS SHALL BE PROVIDED FOR 100 OR MORE DWELLING UNITS, ROAD(S) WITH DEAD-ENDS OR WITH A SINGLE POINT OF ACCESS IN EXCESS OF 800 FT, COMMERCIAL AND INDUSTRIAL DEVELOPMENTS WHERE THE BUILDINGS EXCEED 2 STORIES OR 30 FEET IN HEIGHT, OR EXCEEDING 62,000 SQUARE FEET IN AREA. IFC § 503.1.2 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. IFC § 503.2.5 27. ALL FIRE APPARATUS ACCESS ROADS SHALL BE MARKED BY PLACING APPROVED SIGNS AT THE START OF THE DESIGNATED FIRE LANE, ONE SIGN AT THE START 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. THE PAVEMENT MARKING SHALL BE WHITE. SIGNS (IF NOT PRE-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. SAID SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE IFC § 503.6 AND IFC APPENDIX M. REVISED MARCH 1, 2016 CITY OF LAS VEGAS TRAFFIC NOTES 1. ALL CONSTRUCTION SIGNING, BARRICADING, AND TRAFFIC DELINEATION SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST EDITION. 2. THE STREET SIGN CONTRACTOR SHALL OBTAIN SCURRY BEND DRIVEWAYS AND BLOCK NUMBERING FROM THE PLANNING DEPARTMENT PRIOR TO CONSTRUCTION. 3. BEFORE ANY WORK IS STARTED IN THE RIGHT-OF-WAY, THE CONTRACTOR SHALL INSTALL ALL ADVANCE WARNING SIGNS FOR THE CONSTRUCTION. THE CONTRACTOR SHALL INSTALL REMOVED STOP SIGNS AT ALL NEW SIGNS LOCATED WITHIN EXISTING CITY STREETS WHERE WARRANTED IMMEDIATELY AFTER FIRST GRADING WORK IS ACCOMPLISHED, AND SHALL MAINTAIN SAID SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED. 4. WHEN A DESIGNATED "SUGGESTED ROUTE TO SCHOOL" IS ENCLOSED UPON BY A CONSTRUCTION WORK ZONE AND PUBLIC WORKS STAFF IDENTIFIES A NEED FOR STUDENTS TO BE ASSISTED IN THE SAFE CROSSING THROUGH THAT WORK ZONE, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE A QUALIFIED "CROSSING GUARD". THE GUARD SHALL BE PRESENT FOR THE FULL DURATION OF TIME THAT CHILDREN ARE LIKELY TO BE PRESENT. 5. IF THE IMPROVEMENTS NECESSITATE THE OBTURATION, TEMPORARY OBSTRUCTION, TEMPORARY REMOVAL OR RELOCATION OF EXISTING OR NEW PAVEMENT, SUCH PAVEMENT MARKING SHALL BE RESTORED OR REPLACED WITH LIKE MATERIALS TO THE SATISFACTION OF THE CITY TRAFFIC ENGINEER. 6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL PERMANENT SIGNS SHOWN ON THE PLANS. ALL NEW TRAFFIC SIGNS SHALL UTILIZE TYPE XI RETROREFLECTIVE SHEETING IN ACCORDANCE WITH CCAUS 627 AND 716 AND SHALL HAVE AN ANTI-GRAFFITI PROTECTIVE OVERLAY FILM THAT IS A MATCHING COMPONENT TO, AND OF THE SAME MANUFACTURER AS THE RETROREFLECTIVE SHEETING TO WHICH IT IS APPLIED. SCURRY BEND DRIVEWAY SIGNS SHALL CONFORM IN THEIR ENTIRETY TO CURRENT CITY STANDARDS. ALL OTHER SIGNS SHALL BE STANDARD SIZE UNLESS OTHERWISE SPECIFIED ON THE PLANS. ALL SIGN POSTS SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENT CITY STANDARDS. 7. WHEN A PROPOSED STREET LIGHT STANDARD IS LOCATED WITHIN FIVE (5') FEET OF ANY PROPOSED SIGN SHOWN ON THE PLANS TO BE MOUNTED ON A SIGNPOST, THE SIGN SHALL BE MOUNTED ON THE STREET LIGHT STANDARD AND THE SIGNPOST SHALL BE ELIMINATED. 8. ALL PERMANENT TRAFFIC CONTROL DEVICES CALLED FOR HEREON SHALL BE IN PLACE AND IN FINAL POSITION PRIOR TO ALLOWING ANY PUBLIC TRAFFIC TO ENTER THE PORTIONS OF THE ROADWAY BEING IMPROVED HERE UNDER, REGARDLESS OF THE STATUS OF COMPLETION OF PAVING OR OTHER OFF-SITE IMPROVEMENTS CALLED FOR BY THESE PLANS. 9. STREET SIGNS AND STOP SIGNS SHALL BE INSTALLED PER CITY STANDARD SPECIFICATIONS FOR PLACEMENT OF SCURRY BEND DRIVEWAY SIGNS. 10. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY TRAFFIC CONTROL DEVICES AND FLAGGERS TO INSURE THE SAFETY OF THE PUBLIC IN OR AROUND THE WORK. THE CONTRACTOR SHALL HAVE A CERTIFIED ATSSA TRAFFIC CONTROL TECHNICIAN OR IMSA WORK ZONE SAFETY SPECIALIST SET UP, MAINTAIN AND/OR REMOVE ALL TRAFFIC CONTROL DEVICES IN THE CITY OF LAS VEGAS RIGHT OF WAY. 11. WORK IN PUBLIC STREETS, ONCE BEGUN, SHALL BE EXPEDITED TO COMPLETION SO AS TO PROVIDE MINIMUM INCONVENIENCE TO ADJACENT PROPERTY OWNERS AND TO THE TRAVELING PUBLIC. 12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING REGIONAL TRANSPORTATION COMMISSION OF SOUTHERN NEVADA (RTC) IF THE CONSTRUCTION INTERRUPTS OR RELOCATES A BUS STOP OR HAS AN ADVERSE EFFECT ON BUS SERVICE ON THAT STREET TO ARRANGE FOR TEMPORARY RELOCATION OF STOP. 13. GUARDS SHALL BE OBTAINED BY CONTACTING THE METROPOLITAN POLICE DEPARTMENT SPECIAL EVENTS UNIT (PHONE # 828-3442) WHO WILL PROVIDE OFFICERS PROPERLY TRAINED IN TRAFFIC CONTROL. FEES FOR THE USE OF THESE OFFICERS SHALL BE SET BY METRO AND WILL BE PAID BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR ALL ARRANGEMENTS WITH METRO. 14. ANY WORK WITHIN 300' OF A SIGNALIZED INTERSECTION WILL BE NIGHT WORK, UNLESS DIRECTED BY THE CITY OF LAS VEGAS TRAFFIC ENGINEER. 15. THE CONTRACTOR SHALL CONTACT THE TRAFFIC ENGINEERING DIVISION (TRANSPORTATION SECTION) THROUGH THE PROJECT'S OFFSITE INSPECTOR PRIOR TO INITIATING PAVING TO RECEIVE DIRECTION FOR ANY PERMANENT OR TEMPORARY MODIFICATIONS TO THE APPROVED DRAWINGS REGARDING FINAL PAVING TRANSITIONS, MARKINGS AND SIGNING THAT ARE REQUIRED TO MATCH ADJACENT ROADWAY SEGMENTS. THE CONTRACTOR SHALL PROVIDE A DRAWING FOR APPROVAL BY THE TRAFFIC ENGINEERING DIVISION DEPICTING ANY ADJUSTMENTS TO THE FINAL PAVEMENT MARKINGS AND SIGNING, WHICH MAY INCLUDE OMITTING, ADDING OR MODIFYING PAVEMENT MARKINGS AND TRAFFIC CONTROL SIGNS SUCH THAT ADEQUATE TRANSITIONS AND LANE TERMINATIONS BETWEEN ADJACENT ROADWAY SEGMENTS ARE CONSTRUCTED. REVISED JUNE 4, 2018 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. REVISED 04/15/10 CITY OF LAS VEGAS STREET LIGHT NOTES 1. ALL STREET LIGHTING INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE STREET LIGHTING PLANS, THE "UNIFORM STANDARD SPECIFICATION FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST REVISION (USS), AND THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA" (USD), LATEST REVISION. 2. DESIGN PROFESSIONAL AND CONTRACTOR SHALL VERIFY CITY'S LATEST LED FIXTURE SPECIFICATIONS AND APPROVED FIXTURES PER CLV WEBSITE, UNDER BUILDING AND SAFETY FORMS, PRIOR TO ORDERING MATERIALS. 3. NO DEVIATION OF STREET LIGHT, PULL BOX, CONDUITS, ETC., LOCATIONS SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL OF THE TRAFFIC AND CITY ENGINEER. ANY DEVIATION FROM THE PLAN LOCATION WILL REQUIRE COMPLIANCE WITH SECTION 623 OF THE USS. 4. ALL EXISTING STREET LIGHTING SHALL REMAIN OPERATIONAL DURING CONSTRUCTION IN ACCORDANCE WITH SECTION 623 G.03.01 OF THE USS. 5. ALL EMPTY CONDUIT SHALL HAVE AT LEAST ONE GREEN NO. #8 AWG WIRE INSTALLED AS TRACER WIRE IN ACCORDANCE WITH SECTION 623 G.02.01 OF THE USS PRIOR TO BACKFILLING AND FINAL INSPECTION. 6. ANY STRUCTURE SUCH AS BLOCK WALLS, CHAIN LINK FENCES, RETAINING WALLS, SHALL LEAVE A MINIMUM CLEARANCE IN COMPLIANCE WITH USD NO. 320A WHEN POLE IS INSTALLED BEHIND SIDEWALK, AND SHALL AT NO TIME COMPLETELY ENCLOSE THE STREET LIGHTING POLE. 7. AS-BUILT DRAWINGS SHALL BE SUPPLIED TO THE TRAFFIC ENGINEERING DIVISION PRIOR TO ANY PRE-FINAL INSPECTION. THE AS-BUILT DRAWING NEEDS TO BE STAMPED AS-BUILT AND SIGNED BY THE PREPARER. 8. SERVICE POINTS SHALL BE COORDINATED WITH NV ENERGY, AND WHEREVER POSSIBLE, BE LOCATED NEAR THE CENTER OF THE CIRCUIT. SERVICEPOINTS SHALL BE SHOWN ON THE PLANS. 9. WHEREVER THERE IS AN OVERHEAD UTILITY THAT MAY CONFLICT WITH THE INSTALLATION OF STREETLIGHTING CIRCUITS AND/OR POLES, THESE CONFLICTS MUST BE RESOLVED BETWEEN THE DEVELOPER AND THE UTILITIES INVOLVED BEFORE STREETLIGHT BASES ARE INSTALLED, AT NO EXPENSE TO THE CITY OF LAS VEGAS. 10. THE CONTRACTOR SHALL FURNISH COMPLETE CONDUIT, WIRE, ETC. FROM SERVICE TO TRANSFORMERS AND CONTROL SYSTEMS IF REQUIRED ON THE PLANS. REVISED 6/4/2018 (LD VERSION) LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES 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 FROM THE ROADWAY. THE PAVEMENT MARKING SHALL BE WHITE. SIGNS (IF NOT PRE-PROVIDED) SHALL BE PAINTED WITH A RED WEATHER RESISTANT PAINT IN ADDITION TO THE SIGNS. IFC § 503.3 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 NVRI00000, SECTION III.A.5. 4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER ANY 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 NVRI000000, SECTION III.A.12. 5. ACCUMULATED SEDIMENT IN BMP'S 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.
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SOUTHWEST NEVADA - SOUTHWEST GAS CORPORATION

GENERAL NOTES

1. IN THE EVENT OF NATURAL GAS EMERGENCIES CALL 911 AND 1-877-860-6020

2. THERE SHALL BE A MINIMUM HORIZONTAL AND VERTICAL CLEARANCE OF 12-INCHES BETWEEN NATURAL GAS FACILITIES AND ANY UNDERGROUND FACILITIES AND/OR STRUCTURES, INCLUDING BUT NOT LIMITED TO WATER, SEWER, STORM DRAIN, COMUNICATIONS, AND ELECTRIC

3. FOR VALVE ADJUSTMENT CONTACT 702-668-6107 48 HOURS PRIOR TO CONSTRUCTION

4. IN THE EVENT OF A NATURAL GAS CONFLICT WITH PROPOSED UTILITIES AND/OR STRUCTURES CONTACT 702-365-2099

ALL CIVIL IMPROVEMENT PLANS MUST INCLUDE SOUTHWEST GAS CORPORATION HIGH PRESSURE NOTES ON THE NOTES SHEET AND ALL SHEETS DEPICTING HIGH PRESSURE NATURAL GAS MAINS AS INDICATED BELOW:

CAUTION: HIGH PRESSURE GAS!
CALL SOUTHWEST GAS AT 702-400-7780 FOR STANDBY WHEN EXCAVATING OVER OR
NEAR HIGH PRESSURE GAS LINES 48 HOURS PRIOR TO CONSTRUCTION

SOUTHWEST GAS CORPORATION

GRADING NOTES

1. INDICATED GRADES OTHER THAN TC, FG & GUTTER FL 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 PLAN WILL RESULT IN QUANTITY CHANGES.

3. SOILS REPORT PREPARED BY: NOVA GEOTECHNICAL & INSPECTION SERVICES 4480 W. HACIENDA AVENUE, SUITE 104, LAS VEGAS, NV 89118, PHONE: 702-873-3478, PROJECT NO. : G-18-176, DATED: DATED: DECEMBER 3, 2018.

4. EARTHWORK QUANTITIES (RAW):

- CUT = 105,700 CUBIC YARDS

- FILL = 148,910 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 UEU OF TYPE 1 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.

GENERAL NOTES

1. THE CONTRACTOR SHALL NOTIFY ALL AFFECTED PUBLIC ENTITIES, THE PROJECT ENGINEER AND CLARK COUNTY AT LEAST 48 HOURS PRIOR TO THE COMMENCEMENT OF WORK.

2. ALL CONSTRUCTION SHALL BE AS SHOWN ON THESE CONTRACT DRAWINGS. ANY REVISIONS SHALL HAVE THE PRIOR WRITTEN APPROVAL OF THE PROJECT ENGINEER.

3. 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 ISSUE; AND OTHER APPLICABLE APPROVED STANDARDS ISSUED BY THE CONTROLLING AGENCY; THE UNIFORM BUILDING CODE; AND ALL LOCAL CITY CODES AND ORDINANCES APPLICABLE.

4. LOCATIONS OF UNDERGROUND UTILITIES SHOWN ON THE DRAWINGS WERE OBTAINED FROM INFORMATION RECEIVED FROM THE APPLICABLE UTILITY COMPANIES. NEITHER THE OWNER NOR ENGINEER ASSUMES ANY RESPONSIBILITY FOR UTILITIES OR STRUCTURES NOT SHOWN, OR NOT IN THE LOCATION SHOWN ON THE DRAWINGS. CONTRACTOR TO VERIFY EXACT LOCATION OF UTILITIES PRIOR TO START OF CONSTRUCTION. THE CONTRACTOR'S RESPONSIBILITY REGARDING UTILITIES SHALL BE AS REQUIRED UNDER SECTION 107.17 OF THE "UNIFORM STANDARD SPECIFICATIONS FOR CLARK COUNTY AREA, NEVADA" AND AS PROVIDED IN THE SPECIFICATIONS.

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

6. THE CONTRACTOR SHALL NOT REMOVE TREES, SHRUBS, LAWN, WALLS, FENCES, SIGNS, STRUCTURES, LIGHTS, OR ANY OTHER EXISTING IMPROVEMENTS OUTSIDE OF STREET RIGHT-OF-WAY, EXCEPT WHERE REQUIRED TO DO SO BY THE CONTRACT DRAWINGS OR THE PROJECT ENGINEER. REPLACEMENT, RELOCATION OR RECONSTRUCTION OF ALL EXISTING IMPROVEMENTS INCLUDING SPRINKLER SYSTEMS, LAWNS, FENCES, WALLS, SIGNS, STEPS, SIDEWALKS, DRIVEWAYS, LAWN LIGHTS, AND ALL OTHER ITEMS APPLICABLE TO THIS CONTRACT SHALL BE REQUIRED BY THE PROJECT ENGINEER.

7. THE CONTRACTOR SHALL BACKFILL AND FINE GRADE ALL CUT OR FILL SLOPES TO MATCH EXISTING CONDITIONS TO THE SATISFACTION OF THE PROJECT ENGINEER, WHERE EXISTING LAWNS ARE DAMAGED BY THE CONTRACTOR'S OPERATIONS THE CONTRACTOR WILL SOD THE AFFECTED AREA TO A CONDITION EQUAL TO OR BETTER THAN THAT WHICH EXISTED PRIOR TO CONSTRUCTION.

8. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITIONS BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND FOR INGRESS AND EGRESS TO NEW CONSTRUCTION. THE EXTENT OF TRANSITIONS TO BE AS SHOWN PER CONTRACT DRAWINGS.

9. 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. 625.550.

10. THE ACTUAL LOCATIONS OF SAW CUT LINES, LIMITS OF COLD MILLING, LIMITS OF DRIVEWAY TRANSITIONS, AND LANDSCAPE REPAIR SHALL BE DETERMINED IN THE FIELD BY THE RESIDENT PROJECT REPRESENTATIVE.

11. THE ACTUAL LIMITS OF EXISTING OPEN GRADE REMOVAL AND UDACS APPLICATION SHALL BE DETERMINED IN THE FIELD BY THE RESIDENT PROJECT REPRESENTATIVE.

12. ALL STANDARD DRAWINGS REFERENCED IN THIS SET ARE BASED ON THE CURRENT "UNIFORM STANDARD DRAWINGS REVISION SET II-1997 RELEASE".

13. UNLESS OTHERWISE SHOWN ON THE CONTRACT DRAWINGS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OR RELOCATION OF ALL WATER SERVICES AND METERS WHICH INTERFERE WITH IMPROVEMENTS SHOWN ON THE CONTRACT DRAWINGS.

14. THE CONTRACTOR SHALL MAINTAIN AN ONGOING REMOVAL PROCESS OF ALL SPILLAGE OF EXCAVATION MATERIAL ON ALL PAVED STREETS.

15. CURB AND GUTTER OF A GRADE OF LESS THAN 4/10 OF ONE PERCENT SHALL BE CONSTRUCTED BY FORMING. EACH JOINT SHALL BE CHECKED FOR GRADE PRIOR TO CONSTRUCTION AND WATER TESTED AS SOON AS POSSIBLE AFTER CONSTRUCTION.

16. THE CONTRACTOR SHALL VERIFY IN THE FIELD ALL DIMENSIONS, EXISTING CONDITIONS AND POINTS OF CONNECTION WITH ADJOINING PROPERTY (PUBLIC AND PRIVATE). ANY DISCREPANCIES SHALL BE CALLED TO THE ATTENTION OF THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH THE WORK.

17. REMOVAL OR RELOCATION OF POWER POLES, TELEPHONE POLES, JOINTLY-OWNED POLES, AND APPURTENANCES WHICH INTERFERE WITH IMPROVEMENTS REQUIRED TO BE CONSTRUCTED UNDER THIS CONTRACT, SHALL BE THE RESPONSIBILITY OF THE RESPECTIVE UTILITY COMPANY. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH THE UTILITY COMPANIES FAR ENOUGH IN ADVANCE SO AS TO NOT IMPACT THE SCHEDULE.

18. COX COMMUNICATIONS SHALL BE RESPONSIBLE FOR THE VERTICAL OR HORIZONTAL ADJUSTMENT OF ALL CATV FACILITIES WHICH INTERFERE WITH IMPROVEMENTS SHOWN ON THE CONTRACT DRAWINGS, UNLESS NOTED OTHERWISE.

19. NV ENERGY SHALL BE RESPONSIBLE FOR THE RELOCATION OF UNDERGROUND OR OVERHEAD POWER LINES THAT INTERFERE WITH THE REQUIRED IMPROVEMENTS AS SHOWN ON THE CONTRACT DRAWINGS.

20. EMBARQ SHALL BE RESPONSIBLE FOR THE VERTICAL OR HORIZONTAL ADJUSTMENT OF ALL TELEPHONE FACILITIES WHICH INTERFERE WITH IMPROVEMENTS SHOWN ON CONTRACT DRAWINGS, UNLESS NOTED OTHERWISE.

LAS VEGAS VALLEY WATER DISTRICT (LVVWD) NOTES

LVVWD PROJECT #136892
(REVISED 06/01/2017)

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 SUPERCEDE 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.

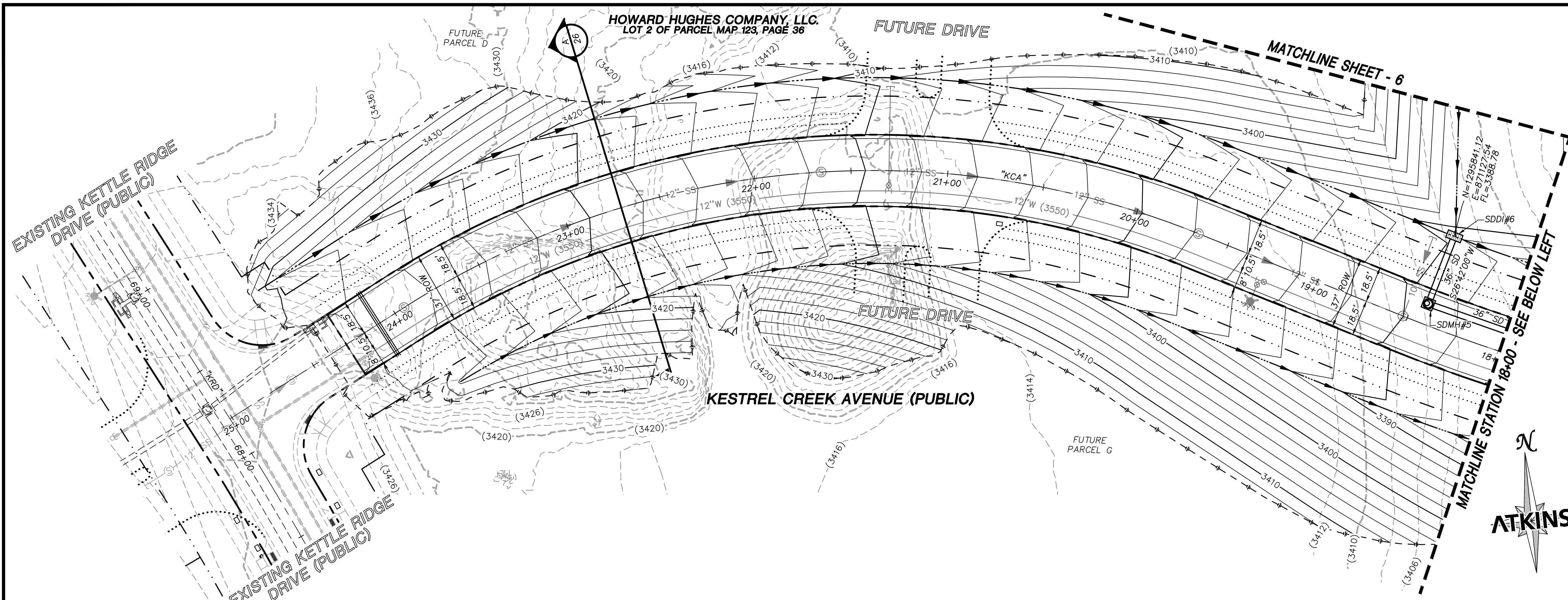
11. ANY INTERRUPTION OF SERVICE MUST BE PERFORMED IN ACCORDANCE WITH UDACS SECTION 3.14.01 AND APPROVED BY THE LVVWD INSPECTION DIVISION PRIOR TO SHUTDOWN. PROPER WRITTEN NOTIFICATION MUST BE GIVEN TO ALL AFFECTED CUSTOMERS.

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 LAS VEGAS VALLEY WATER DISTRICT (LVVWD) MUNICIPAL WATER FACILITIES WITHIN ALL STREETS IS ASSUMED TO BE IN CONFORMANCE WITH THE UNIFORM STANDARD SPECIFICATIONS FOR POTABLE WATER SYSTEMS (UDACS) 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.

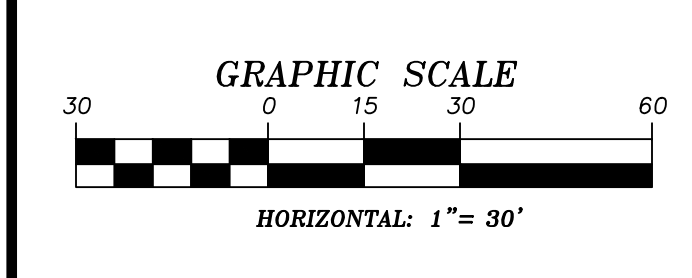
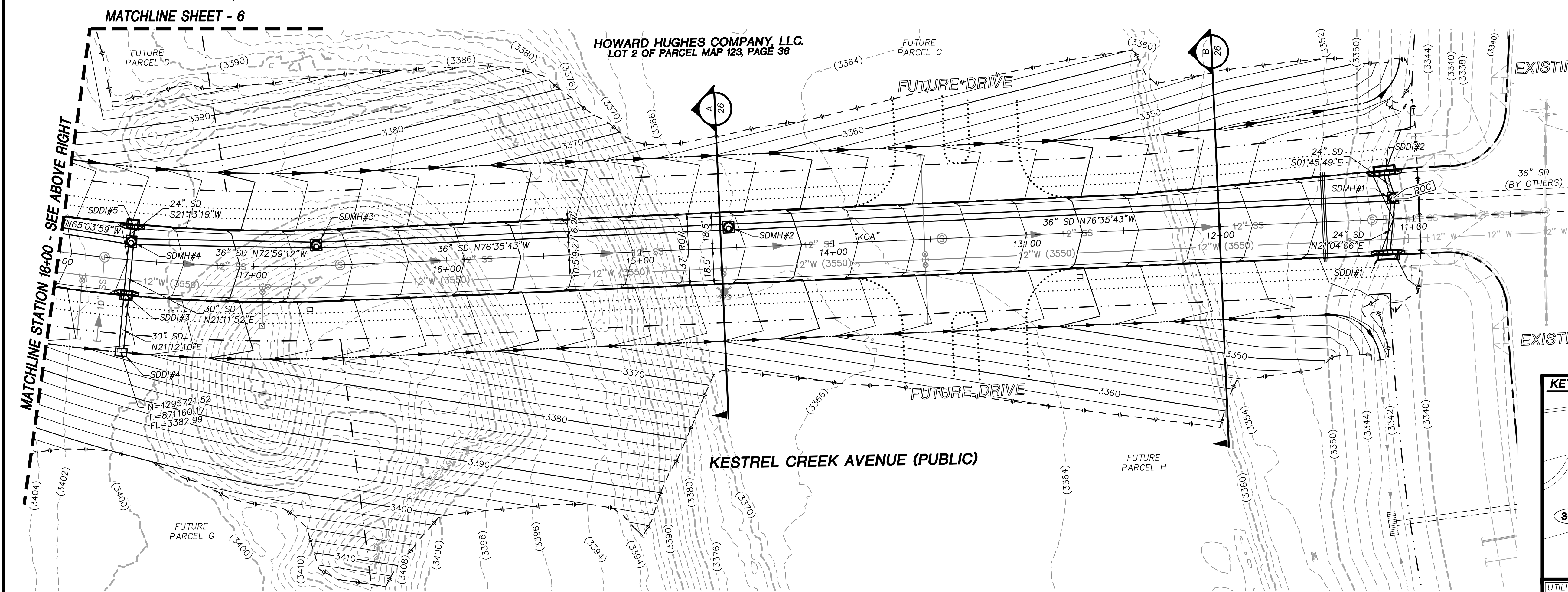
ANY DECORATIVE PAVING SURFACE WITHIN THE STREET IS THE RESPONSIBILITY OF THE OWNER'S ASSOCIATION, OR THE INDIVIDUAL PROPERTY OWNERS IF NO OWNER'S



SUMMARY OF QUANTITIES		
DESCRIPTION	QUANTITY	UNIT
DRAINAGE		
4' X 6' NDOT TYPE 2 DROP INLET	1	EA
4' X 8' NDOT TYPE 2 DROP INLET	1	EA
5' TYPE CM2 SDDI	2	EA
10' TYPE CM2 SDDI	2	EA
TYPE III SDMH	5	EA
24" RCP CLASS III	54	LF
30" RCP CLASS III	58	LF
36" RCP CLASS III	115	LF
36" RCP CLASS IV	653	LF

MASTER PLAN NOTE
THIS SHEET IS FOR INFORMATIONAL PURPOSES ONLY. IT IS AN OVERALL REPRESENTATION OF THE UTILITY FOR REVIEW AND COORDINATION WITH OTHER PROJECT DETAILS WITHIN THIS PLAN SET.

- STORM DRAIN NOTES**
- SEE ROADWAY PLAN AND PROFILE SHEETS FOR CONSTRUCTION DETAILS.
 - ALL STORM DRAIN MATERIAL TO BE CLASS III REINFORCED CONCRETE PIPE, UNLESS OTHERWISE NOTED IN PROFILES.
 - CONTRACTOR TO PROVIDE 6" MINIMUM OF CLEARANCE BETWEEN OUTSIDE OF PIPE TO INSIDE WALL OF STORM DRAIN STRUCTURES.



SOILS REPORT
BY NOVA
PROJECT NO. G-18-176
DATED 12/03/18
EARTHWORK QUANTITIES (RAW):
CUT= 105,700 CU YDS
FILL= 146,900 CU YDS

GRADING PLAN CERTIFICATION
PAUL BATES PE#18723 DATE _____
CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.
DS#5171

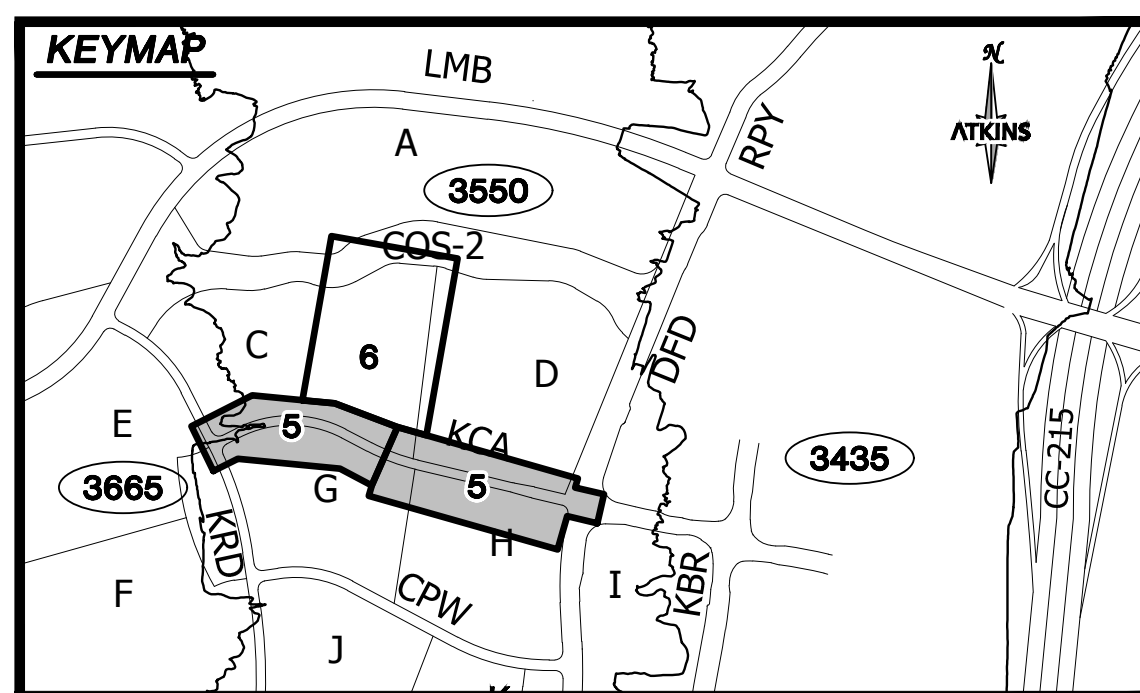
BASIS OF BEARING
GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NORS), LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

BENCHMARK
CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
NAVOD88 ELEVATION: 989.574 METERS (3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S,R59E,S03

Call before you Dig
underground
1-702-432-5300

Call before you Dig
underground
1-800-642-2444

Call before you Dig
underground
1-702-227-2929



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

10/15/19

2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1702.263.7275
Fax: +1702.263.7200

SUMMERLIN VILLAGE 22
KESTREL CREEK AVENUE (STREET J)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

MASTER DRAINAGE PLAN

DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMACLAY
CHECKED BY: P. BATES
DATE: OCTOBER, 2019
DRAWING NO. 5 / 31
JOB NO. 100060654
CLV 00-00000

PROJECT: Summerlin Village 22\100060654 - V22N Street J (Desert Foothills to Street J)\Sheets\60654-06-STRM-SD1.dwg LAYOUT: MASTER DRAINAGE PLAN Oct 15, 2019 - 6:53PM

THIS SHEET IS FOR INFORMATIONAL PURPOSES ONLY.
IT IS AN OVERALL REPRESENTATION OF THE UTILITY
FOR REVIEW AND COORDINATION WITH OTHER
PROJECT DETAILS WITHIN THIS PLAN SET.

1. SEE ROADWAY PLAN AND PROFILE SHEETS FOR CONSTRUCTION DETAILS.
2. ALL STORM DRAIN MATERIAL TO BE CLASS III REINFORCED CONCRETE PIPE, UNLESS OTHERWISE NOTED IN PROFILES.
3. CONTRACTOR TO PROVIDE 6" MINIMUM OF CLEARANCE BETWEEN OUTSIDE OF PIPE TO INSIDE WALL OF STORM DRAIN STRUCTURES.

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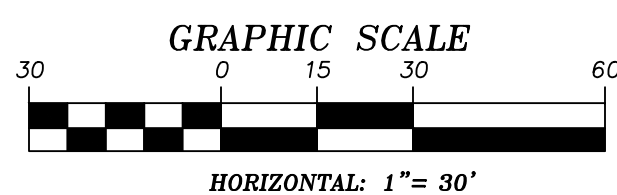
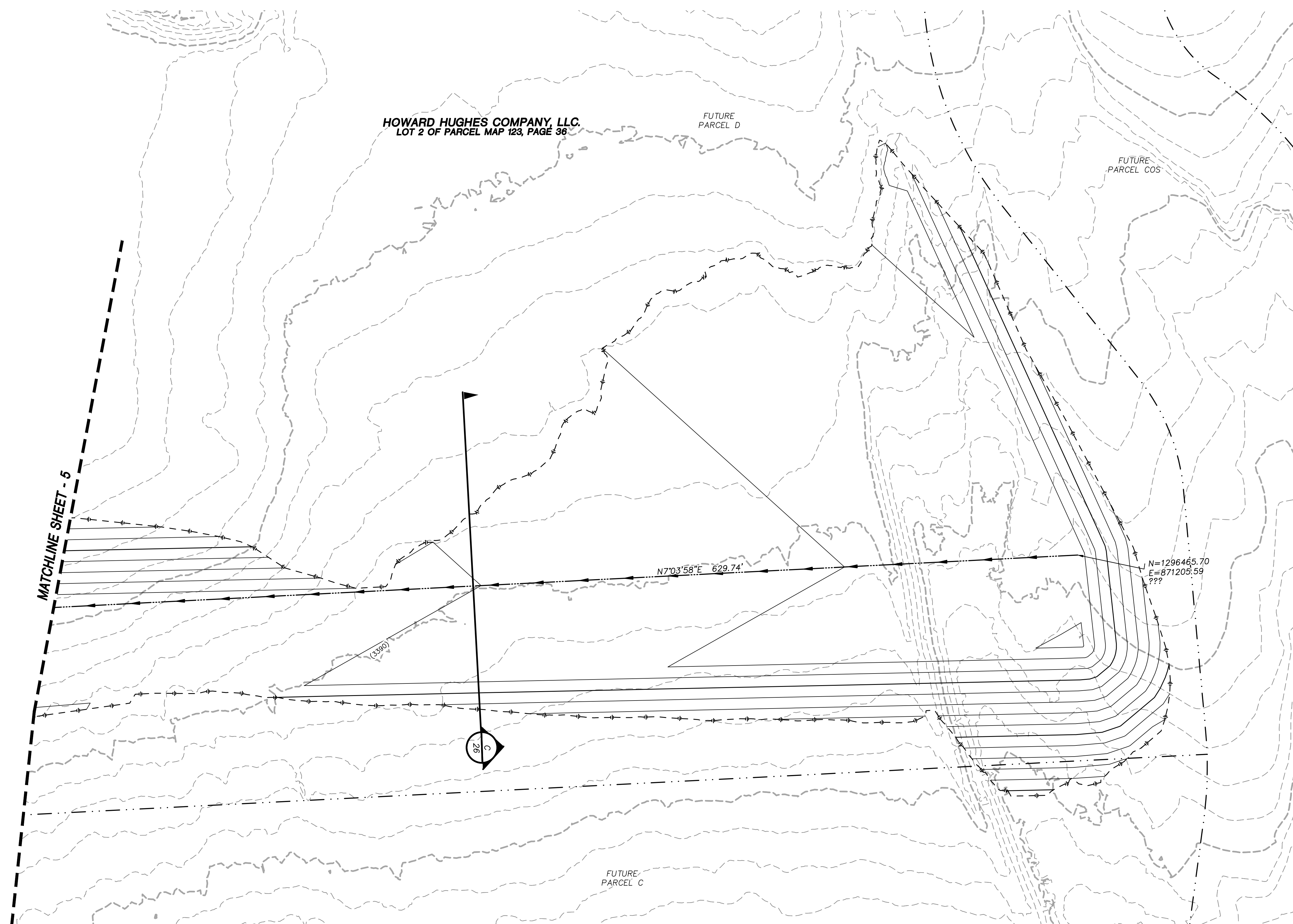
2000 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1.702.263.7275
Fax: +1.702.263.7200

5:33 PM

MASTER DRAINAGE PLAN

JOB NO. 100060654	DESIGNED BY:	N. BARCOS
	DRAWN BY:	L. MANACLAY
	CHECKED BY:	P. BATES
	HORIZ.: 1"=30' VERT.: NONE	
DATE:	OCTOBER, 2019	
DRAWING NO.		
	6 /31	

\\Projects\SummWest\ Village 22



BY NOVA
PROJECT NO. G-18-176
DATED 12/03/18
EARTHWORK QUANTITIES (RAW):
CUT= 105,700 CU YDS
FILL= 146,900 CU YDS

PAUL BATES	PE#18723	DATE
CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.		
		DS#5171

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

CITY OF LAS VEGAS BENCHMARK: D368
(REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS
(3,246.63 FEET)
FIND USC&GS DISC SET IN ROCK RIDGE 150
SOUTH OF CHARLESTON BLVD. & WEST OF
DETENTION BASIN.
T21S,R59E,S03



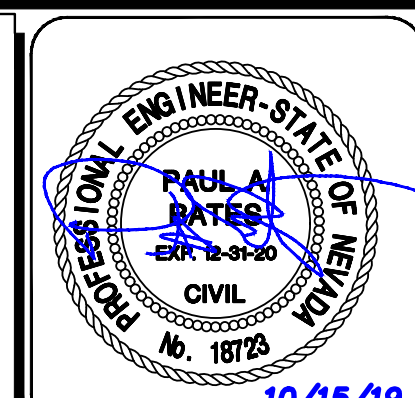
Call before you Dig
AVOID CUTTING UNDERGROUND
UTILITY LINES. IT'S COSTLY.

Call
811

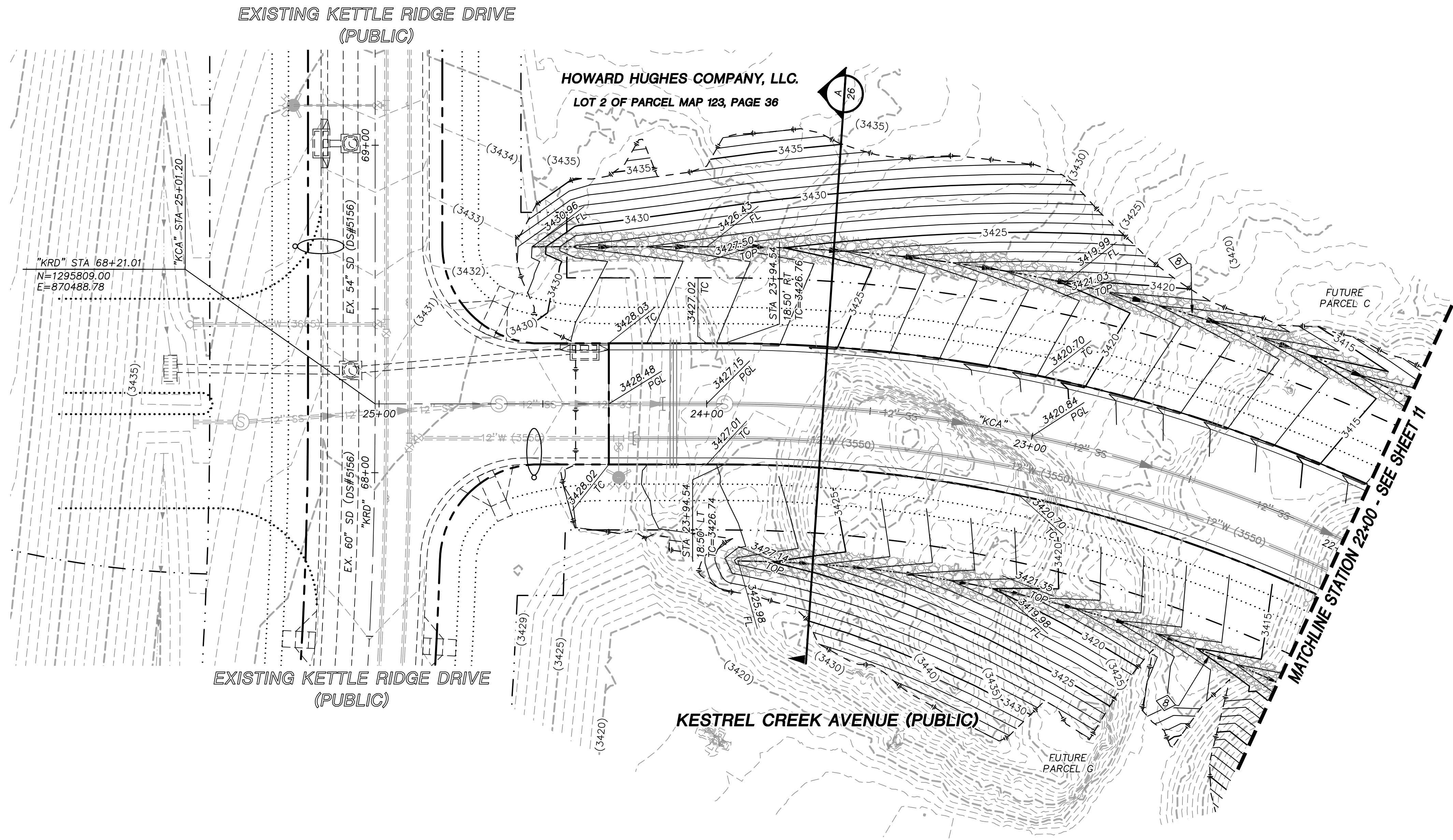
OR
1-800-642-2444



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 LOCATION.

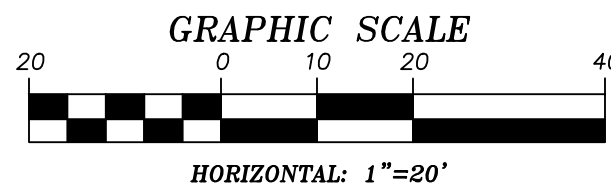


JOB NO. 100060654	DESIGNED BY: N. BARCOS	
	DRAWN BY: L. MAMACLAY	
	CHECKED BY: P. BATES	
	HORIZ.: 1"=30' VERT.: NONE	
DATE: OCTOBER, 2019	DRAWING NO.	
6 /31		



STORM DRAIN CONSTRUCTION NOTES

1. INSTALL STORM DRAIN SEE ROADWAY PLAN AND PROFILE SHEETS FOR ADDITIONAL STORM DRAIN NOTES AND INFORMATION.
2. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421
3. INSTALL NDOT TYPE II DROP INLET PER NDOT R-4.2.1 (SEE SHEET 26)
4. INSTALL TYPE I SD MANHOLE PER CCAUSD #403
5. INSTALL TYPE II SD MANHOLE PER CCAUSD #405.2
6. INSTALL TYPE III SD MANHOLE PER CCAUSD #406
7. REMOVE CAP AND CONNECT TO EXISTING STORM DRAIN STUB
8. INSTALL RIP-RAP (D50=8", THICKNESS=24")



APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT
PROJECT NO. 136924 FIRST APPROVED DATE: _____

GRADING PLAN CERTIFICATION

PAUL BATES PE#18723 DATE _____

CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.

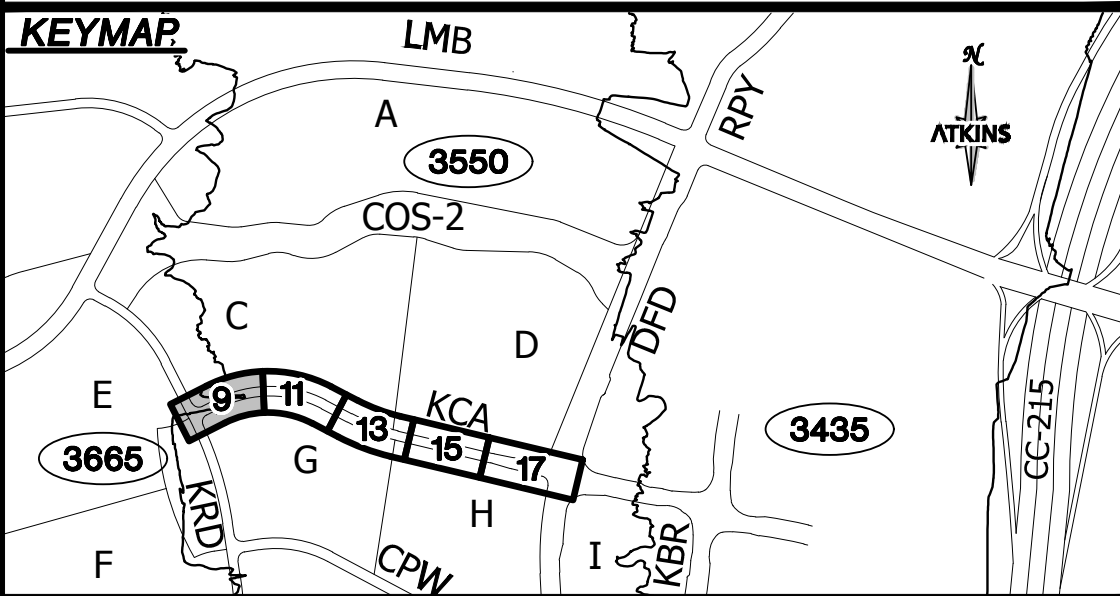
DS#5171

BASIS OF BEARING

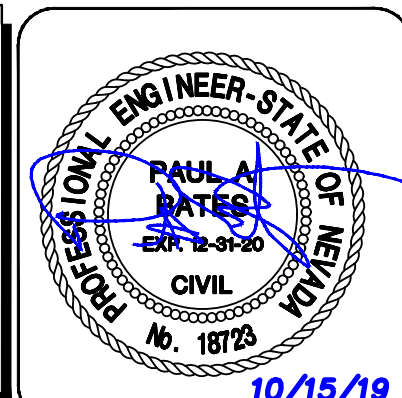
GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NORS), LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
TZ15.R59E.S03



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DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMACLAY
CHECKED BY: P. BATES
HORIZ.: 1"=20'
VERT.: NONE

DOB NO. 100060654
DATE: OCTOBER, 2019
DRAWING NO. 9 / 31
CLV 00-00000

SUMMERLIN VILLAGE 22
KESTREL CREEK AVENUE (STREET J)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

ROADWAY GRADING PLAN
STA 22+00 TO END

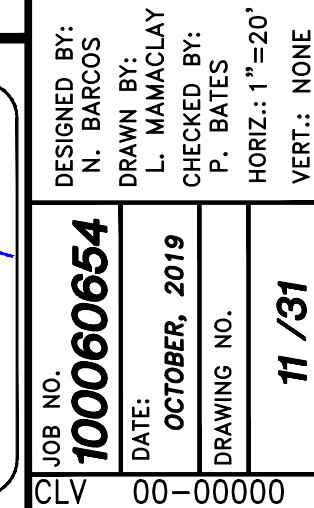


ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1702.263.7755
Fax: +1702.263.7200

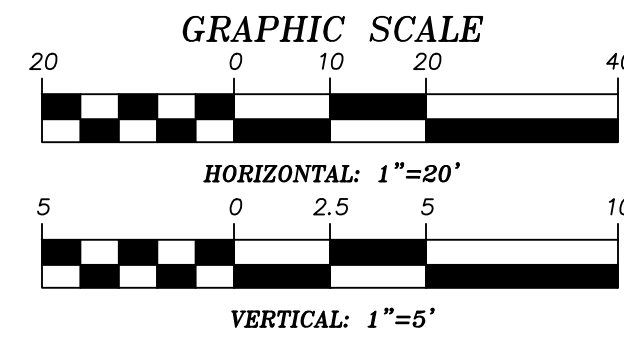
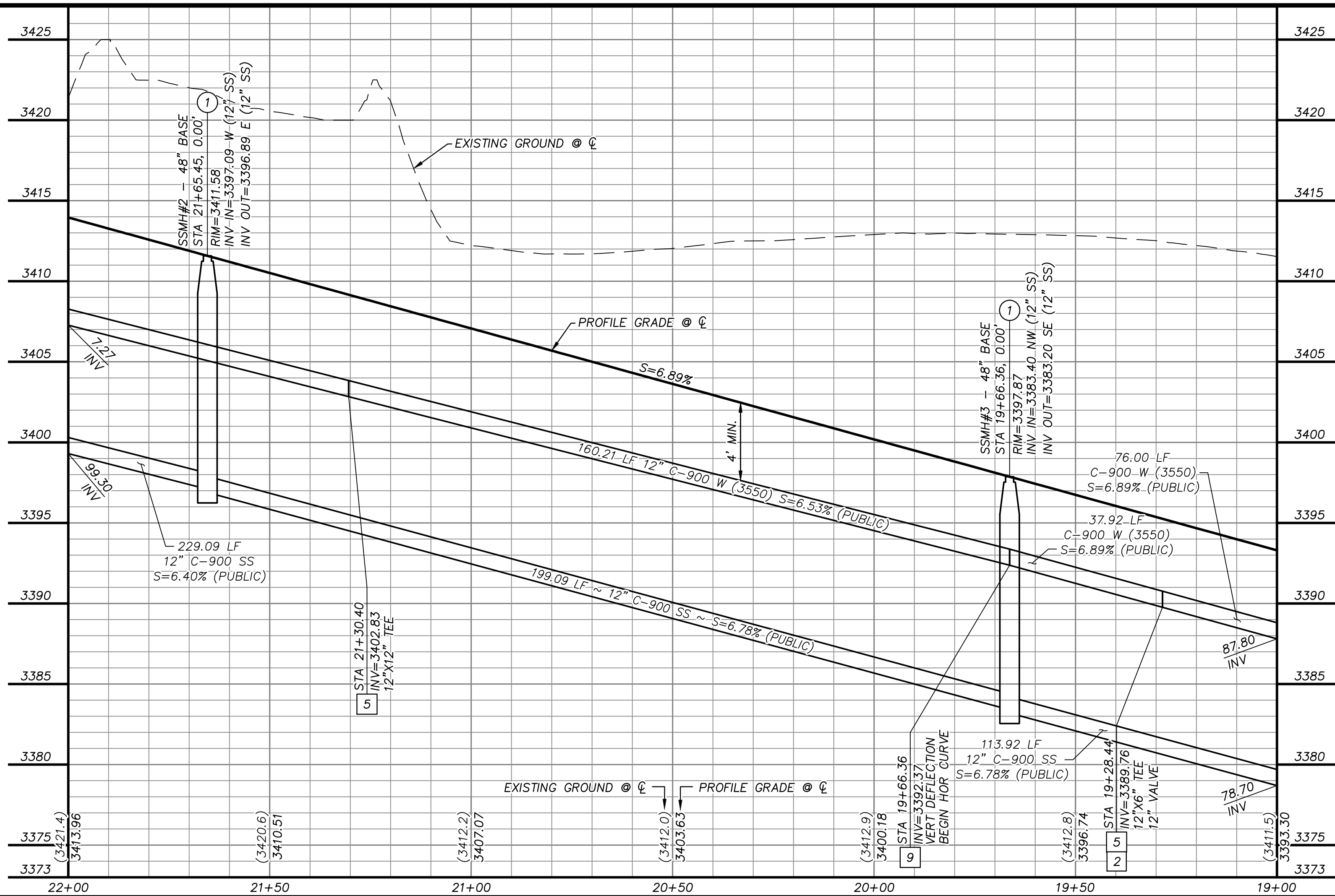
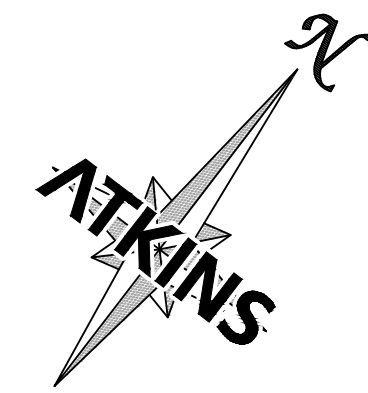
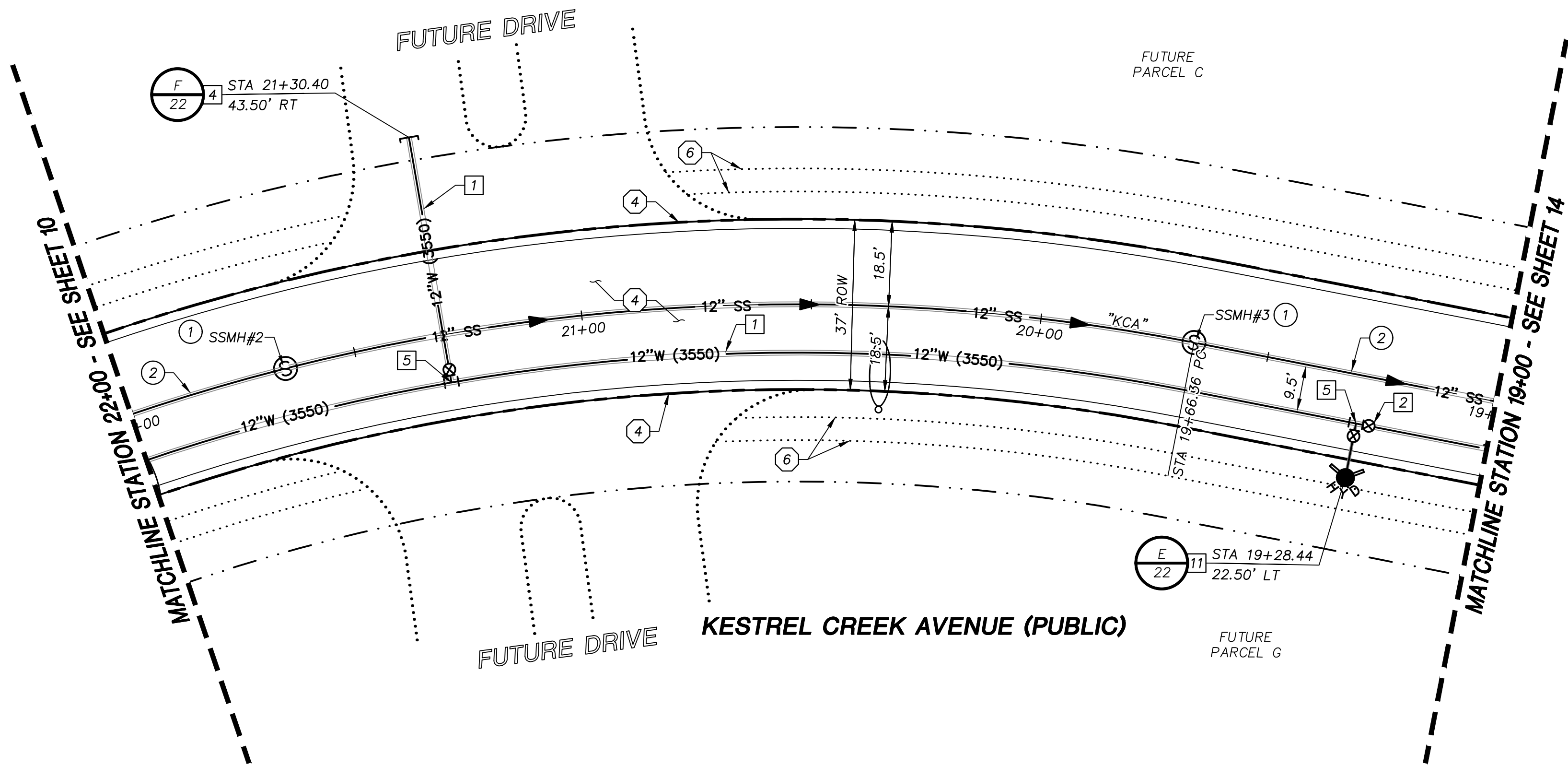
REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

Projects\Summit West\ Village 22\10008060654 - V22N Street (Desert Foothills to Street J)\ Sheets\60854-09-PLAN-P1.dwg ROADWAY PLAN AND PROFILE 1 Oct 15 2019 - 6:53PM



K:\Projects\SummWest\ Village 22\10060654 - V22N Street I (Desert Foothills to Street J)\ Sheets\60654-08-GRAD-G1.dwg LAYOUT: 12 Oct 15, 2019 - 6:53PM



APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT

PROJECT NO. 136924 FIRST APPROVED DATE: _____

BASIS OF BEARING

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

BENCHMARK

CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S.R59E.S03

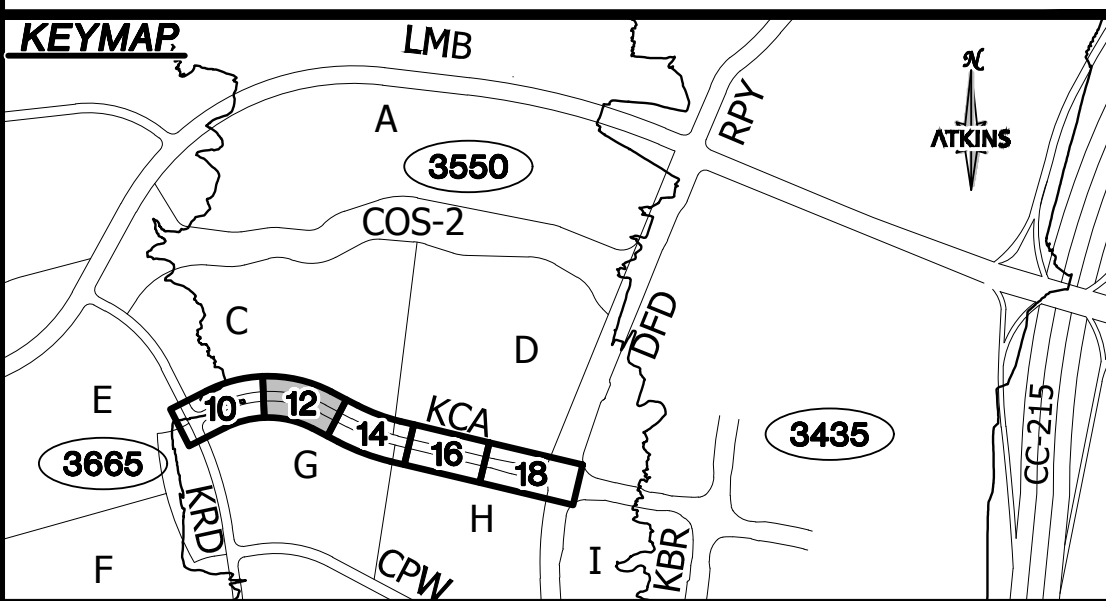
Call before you Dig
1-702-432-5300

Call before you Dig
1-800-642-2444

CALL BEFORE YOU DIG
1-702-227-2929

- STORM DRAIN CONSTRUCTION NOTES**
1. INSTALL STORM DRAIN SEE ROADWAY PLAN AND PROFILE SHEETS FOR ADDITIONAL STORM DRAIN NOTES AND INFORMATION.
 2. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421
 3. INSTALL NDOT TYPE II DROP INLET PER NDOT R-4.2.1 (SEE SHEET 26)
 4. INSTALL TYPE I SD MANHOLE PER CCAUSD #403
 5. INSTALL TYPE II SD MANHOLE PER CCAUSD #405.2
 6. INSTALL TYPE III SD MANHOLE PER CCAUSD #406
 7. REMOVE CAP AND CONNECT TO EXISTING STORM DRAIN STUB
 8. INSTALL RIP-RAP (D50=8", THICKNESS=24")
- SEWER CONSTRUCTION NOTES**
1. INSTALL SEWER MANHOLE PER DCSWCS SD-1, AND SD-4
 2. INSTALL SEWER MAIN PER DCSWCS SD-17
 3. STUB AND CAP SEWER PIPE. PLACE MARKER BALL AND 4"x4" POST, DOUGLAS FIR, OVER END OF PIPE AND INSTALL THRUST BLOCK (1 CUBIC FT. MINIMUM).
 4. REMOVE CAP AND CONNECT TO EXISTING SEWER STUB
 5. ADJUST EXISTING MANHOLE TO GRADE PER DCSWCS SD-5.
 6. PROTECT SEWER AT UTILITY CROSSING PER DCSWCS SD-19
- WATERLINE CONSTRUCTION NOTES**
1. INSTALL WATER MAIN PER UDACS PLATES #17 AND PLATE #19
 2. INSTALL GATE VALVE PER UDACS PLATES #30 AND #39
 3. INSTALL CROSS PER UDACS PLATE #31
 4. INSTALL CAP AND 2" MANUAL BLOWOFF ASSEMBLY PER UDACS PLATE #36
 5. INSTALL TEE W/ VALVE AND LATERAL PER UDACS PLATES #17, #19, #30, #31 AND #39
 7. INSTALL 11.25' HORIZONTAL BEND PER UDACS PLATE #31
 8. INSTALL COMBINATION AIR VALVE ASSEMBLY WITH ALL APPURTENANCES PER UDACS PLATE #38
 9. INSTALL DEFLECTION AT PIPE JOINTS (MAXIMUM 1')
 10. REMOVE CAP AND 2" BLOWOFF AND CONNECT TO EXISTING WATERLINE STUB
 11. INSTALL FIRE HYDRANT WITH APPURTENANCES (CONCRETE PAD, LATERAL, VALVE, AND TEE) PER UDACS PLATES #30, #31, #39, AND #40

- ROADWAY CONSTRUCTION NOTES**
1. SAWCUT AND MATCH EXISTING
 2. NOT USED
 3. NOT USED
 4. CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD #216
 5. NOT USED
 6. FUTURE SIDEWALK BY OTHERS
 7. CONSTRUCT CONCRETE SIDEWALK PER CCAUSD #234
 8. CONSTRUCT CURB RAMP, TYPE A, PER NDOT STANDARD PLAN R-5.2.1 (A=B=6.5').
 9. CONSTRUCT 0" FLUSH CURB
 10. TRANSITION CURB FROM FULL HEIGHT (6") TO FLUSH (0")
 11. NOT USED
 12. CONSTRUCT PLANTMIX BITUMINOUS SURFACE OVER TYPE II AGGREGATE BASE PER SOILS REPORT. SEE SHEET 26 FOR TYPICAL PAVEMENT SECTION.
 13. INSTALL SCHEDULE 40 PVC IRRIGATION SLEEVES (2-4", 1-6") PER DETAIL C ON SHEET 21



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DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMACLAY
CHECKED BY: P. BATES
DATE: OCTOBER, 2019
HORIZ.: 1"=20'
VERT.: 1"=5'

CLV 00-00000

2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1702.263.7275
Fax: +1702.263.7200

SUMMERLIN VILLAGE 22
KESTREL CREEK AVENUE (STREET J)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

ROADWAY PLAN AND PROFILE
STA 19+00 TO STA 22+00

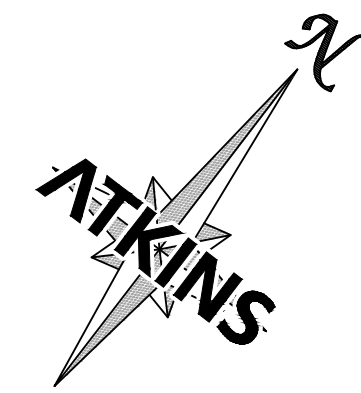
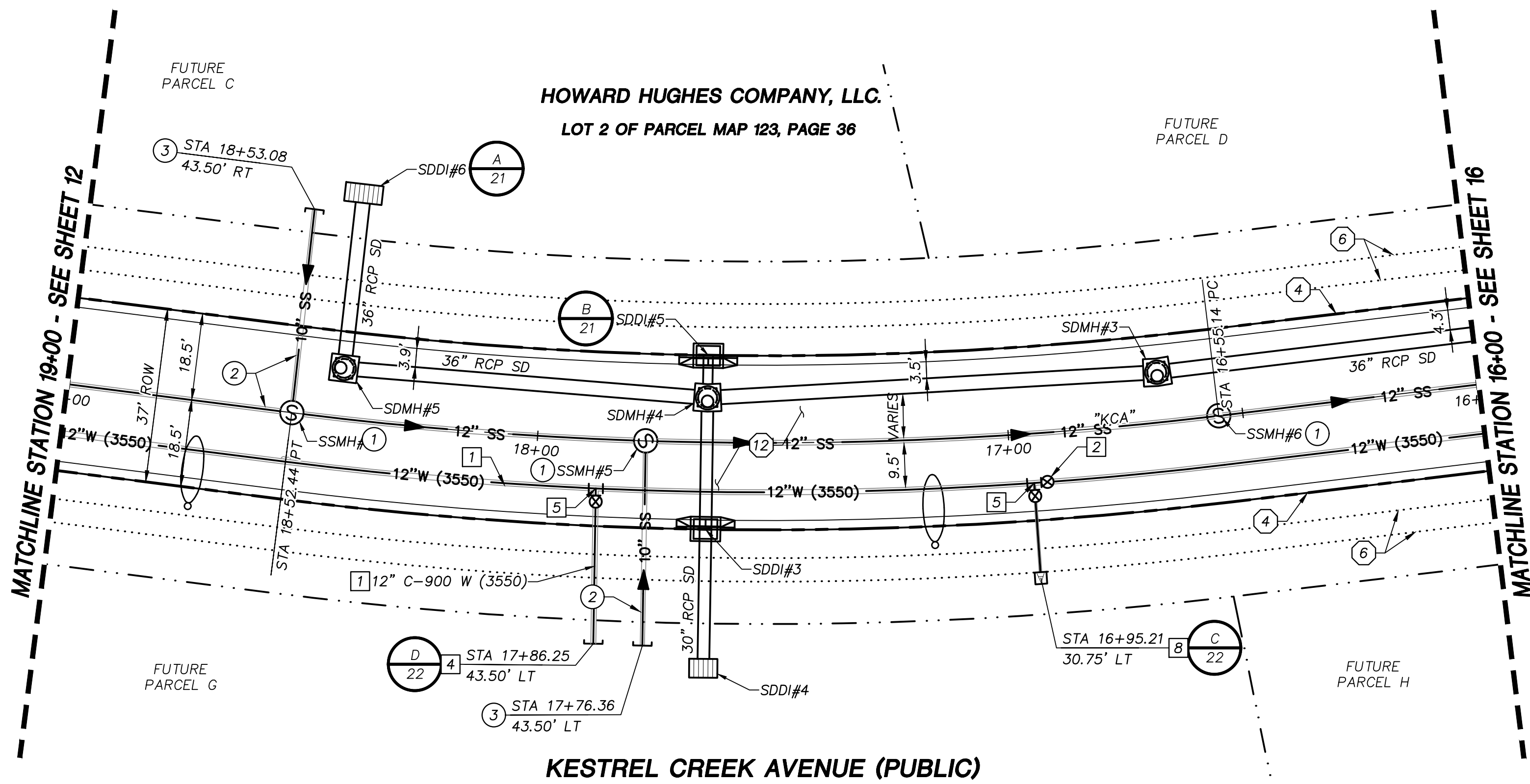
DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMACLAY
CHECKED BY: P. BATES
DATE: OCTOBER, 2019
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VERT.: 1"=5'

CLV 00-00000

X:\Projects\Summerlin Village 22\100060654 - V22N Street 1 (Desert Foothills to Street J)\Sheets\60654-09-PLAN-P1.dwg LAYOUT: ROADWAY PLAN AND PROFILE 2 Oct 15, 2019 - 6:53PM



JOB NO. 100060654	DESIGNED BY: N. BARCOS
DATE: OCTOBER, 2019	DRAWN BY: L. MAMACLAY
DRAWING NO.	CHECKED BY: P. BATES
13 /31	HORIZ.: "1"=20' VERT.: NONE



STORM DRAIN CONSTRUCTION NOTES

1. INSTALL STORM DRAIN SEE ROADWAY PLAN AND PROFILE SHEETS FOR ADDITIONAL STORM DRAIN NOTES AND INFORMATION.
2. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421
3. INSTALL NDOT TYPE II DROP INLET PER NDOT R-4.2.1 (SEE SHEET 26)
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5. INSTALL TYPE II SD MANHOLE PER CCAUSD #405.2
6. INSTALL TYPE III SD MANHOLE PER CCAUSD #406
7. REMOVE CAP AND CONNECT TO EXISTING STORM DRAIN STUB
8. INSTALL RIP-RAP (D50=8", THICKNESS=24")

SEWER CONSTRUCTION NOTES

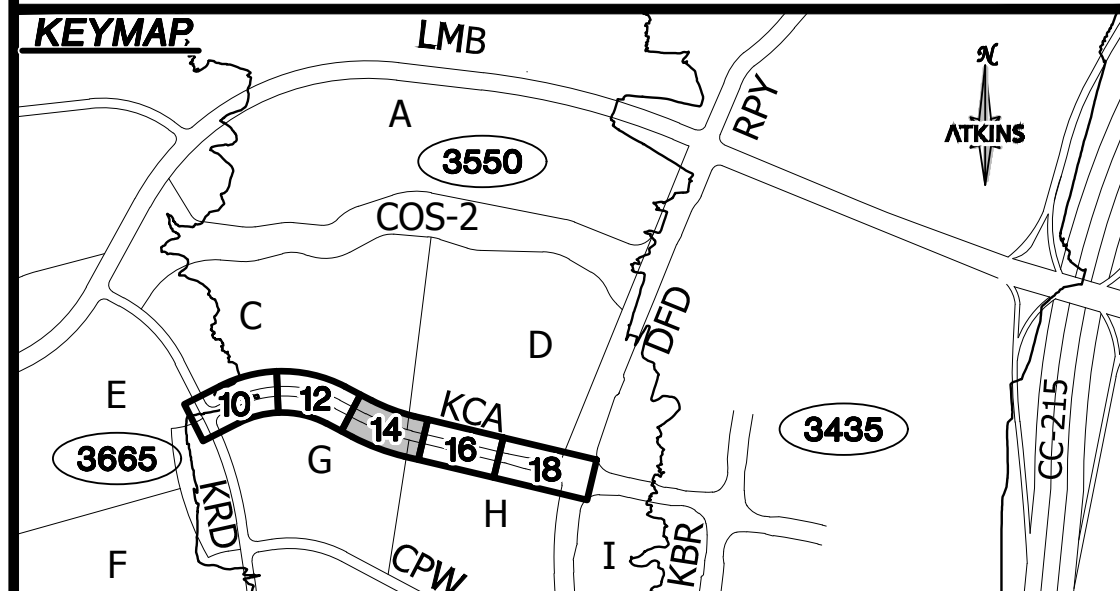
1. INSTALL SEWER MANHOLE PER DCSWCS SD-1, AND SD-4
2. INSTALL SEWER MAIN PER DCSWCS SD-17
3. STUB AND CAP SEWER PIPE. PLACE MARKER BALL AND "4"x" POST, DOUGLAS FIR, OVER END OF PIPE AND INSTALL THRUST BLOCK (1 CUBIC FT. MINIMUM).
4. REMOVE CAP AND CONNECT TO EXISTING SEWER STUB
5. ADJUST EXISTING MANHOLE TO GRADE PER DCSWCS SD-5.
6. PROTECT SEWER AT UTILITY CROSSING PER DCSWCS SD-19

WATERLINE CONSTRUCTION NOTES

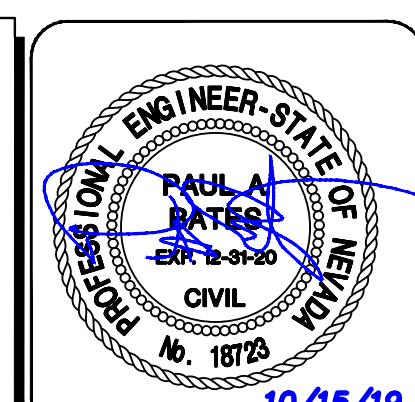
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ROADWAY CONSTRUCTION NOTES

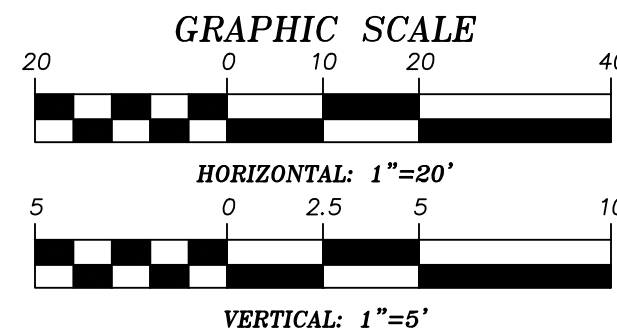
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DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMACLAY
CHECKED BY: P. BATES
DATE: OCTOBER, 2019
DRAWING NO. 14 / 31
JOB NO. 100060654
CLV 00-00000



APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT
PROJECT NO. 136924 FIRST APPROVED DATE: _____

BASIS OF BEARING

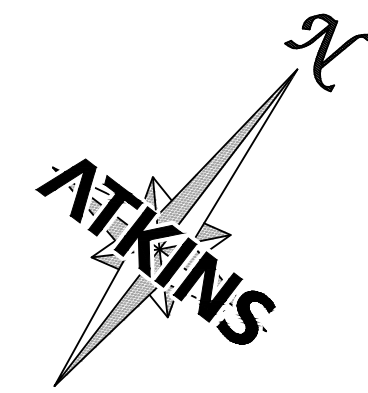
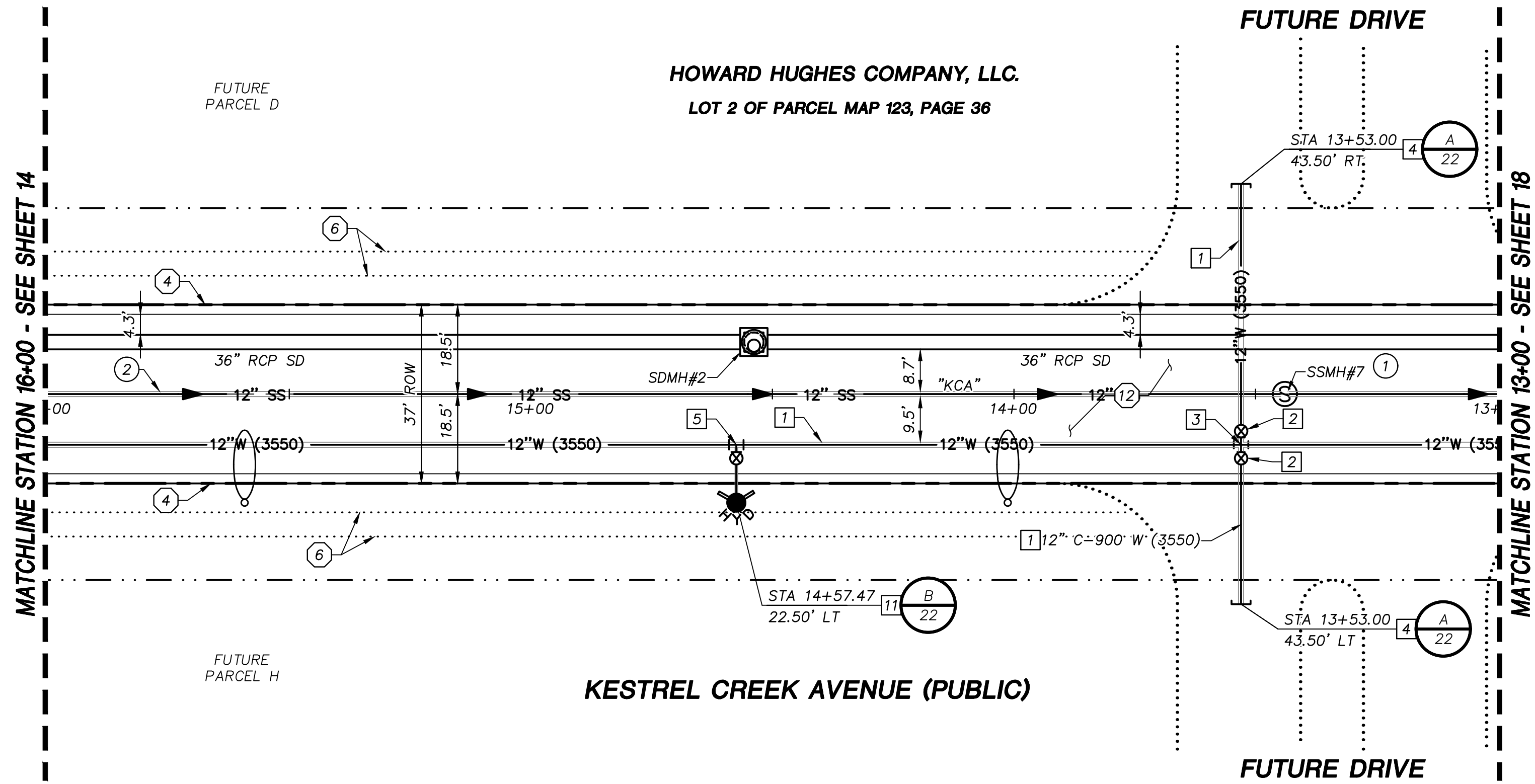
GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NORS). LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S,R59E,S03



[illegible]



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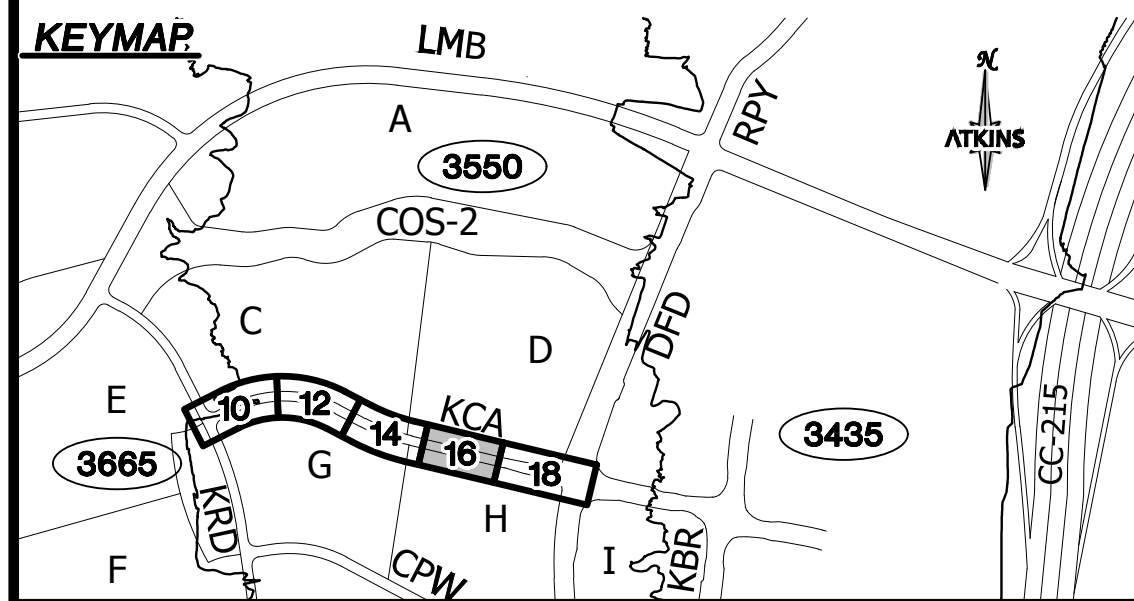
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WATERLINE CONSTRUCTION NOTES

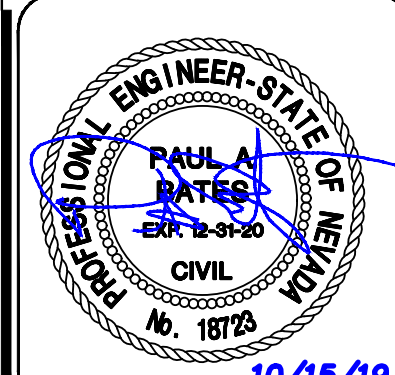
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REVISIONS		DESCRIPTION	BY	DATE	APPROVAL

ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1702.263.7755
Fax: +1702.263.7200

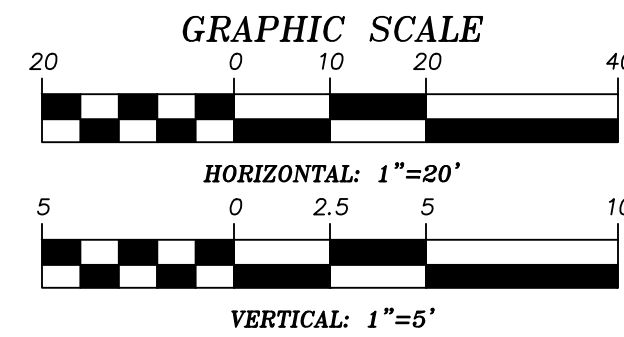
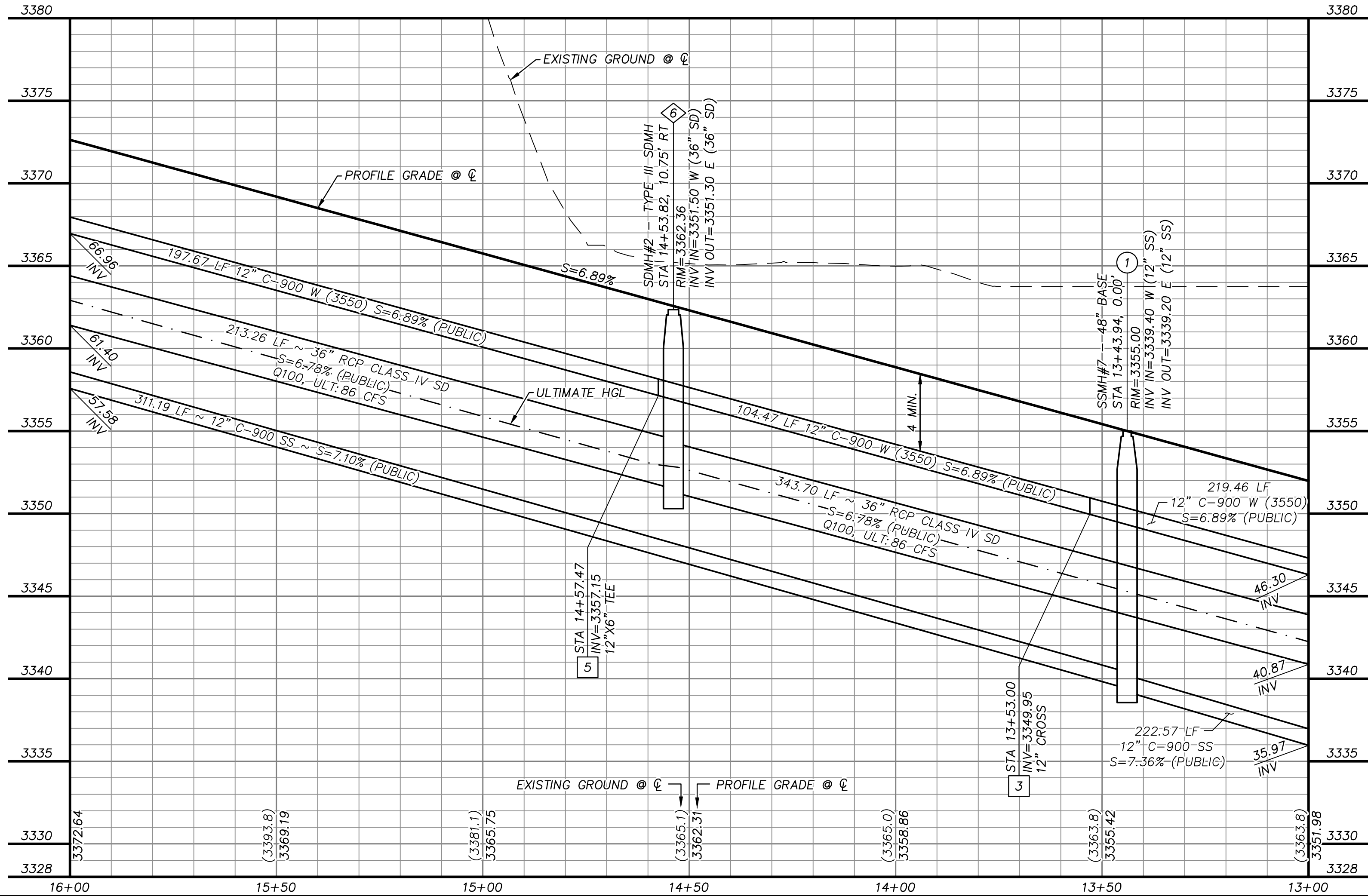
SUMMERLIN

SUMMERLIN VILLAGE 22
KESTREL CREEK AVENUE (STREET J)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)
ROADWAY PLAN AND PROFILE
STA 13+00 TO STA 16+00

DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMACLAY
CHECKED BY: P. BATES
DATE: OCTOBER, 2019
HORIZ.: 1"=20'
VERT.: 1"=5'

100060654
CLV 00-00000

16 / 31



APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT

PROJECT NO. 136924 FIRST APPROVED DATE: _____

BASIS OF BEARING

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

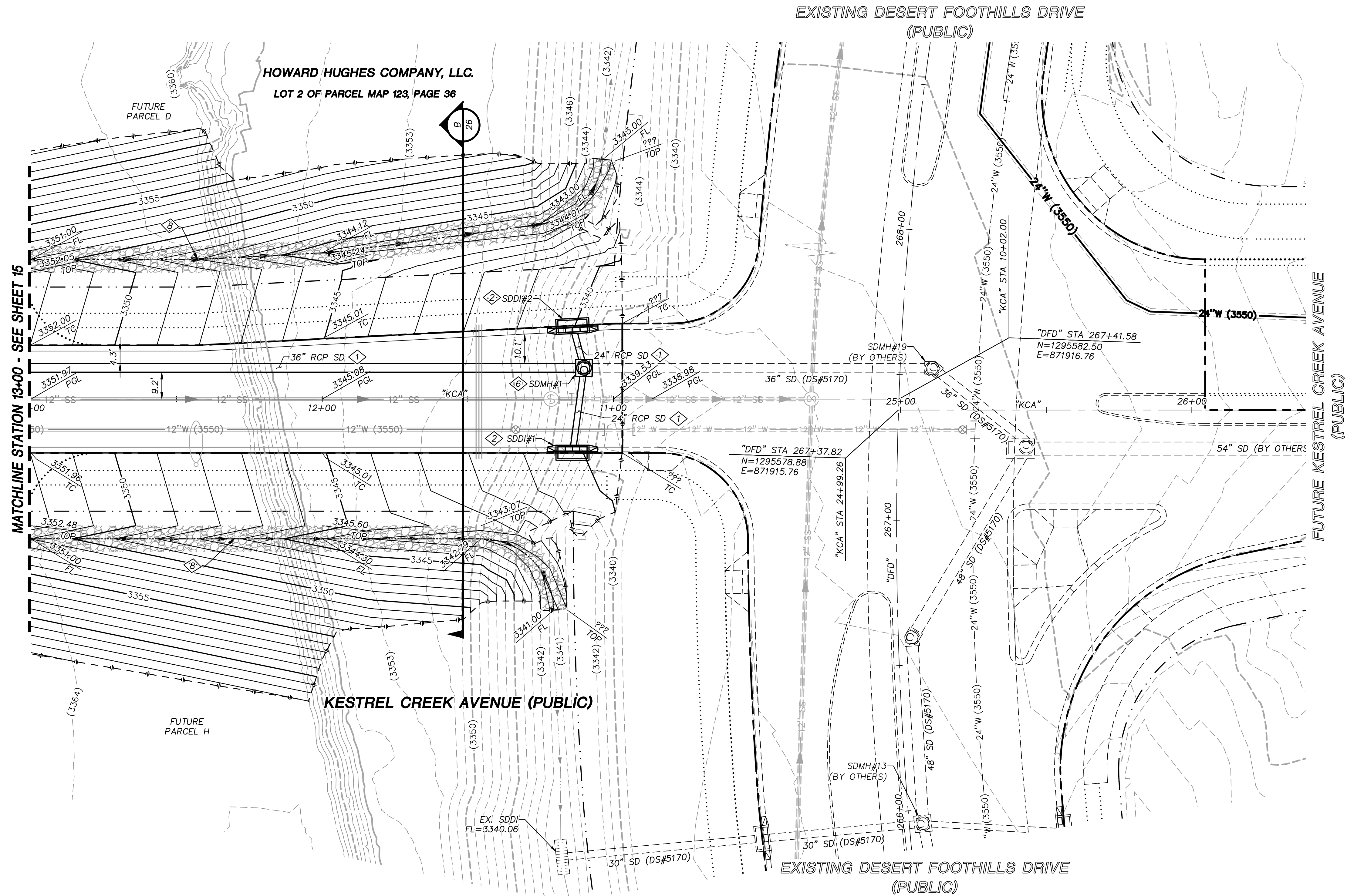
BENCHMARK

CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S,R59E,S03

FAST
Call before you Dig
1-702-432-5300
UnderGround

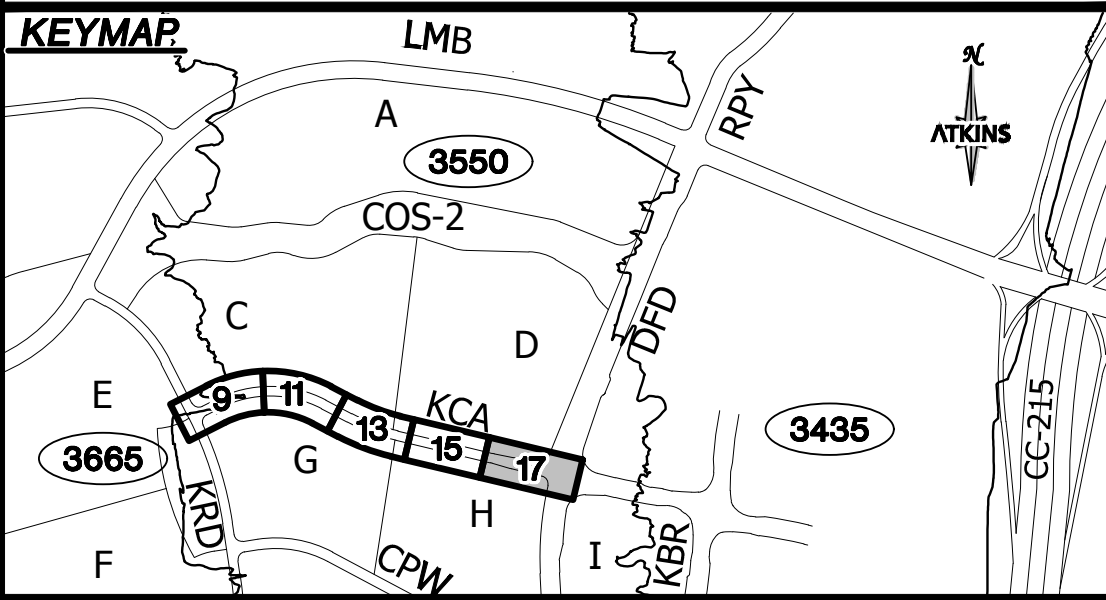
Call before you Dig
Call 811
1-800-642-2444

AVOID HITTING OVERHEAD POWER LINES. PLEASE CALL 1-800-642-2444
CALL BEFORE YOU DIG OVERHEAD
1-702-227-2929

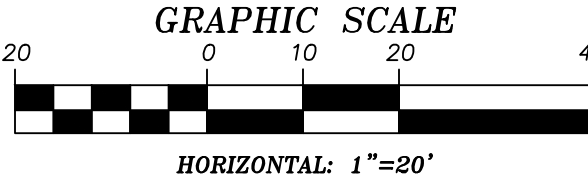
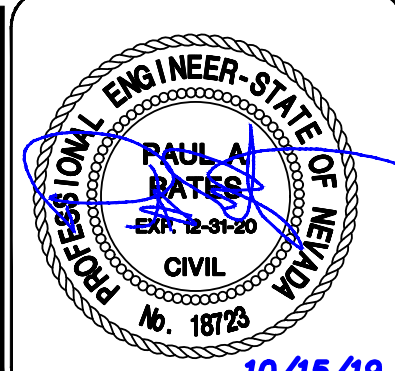


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APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT

PROJECT NO. 136924 FIRST APPROVED DATE: _____

GRADING PLAN CERTIFICATION

PAUL BATES PE#18723 DATE _____

CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.

DS#5171

BASIS OF BEARING

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

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T21S,R59E,S03

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ATKINS
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SUMMERLIN

SUMMERLIN VILLAGE 22
KESTREL CREEK AVENUE (STREET J)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

ROADWAY GRADING PLAN
BEGIN TO STA 13+00

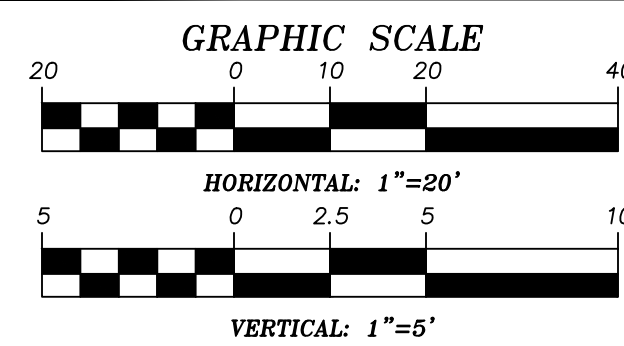
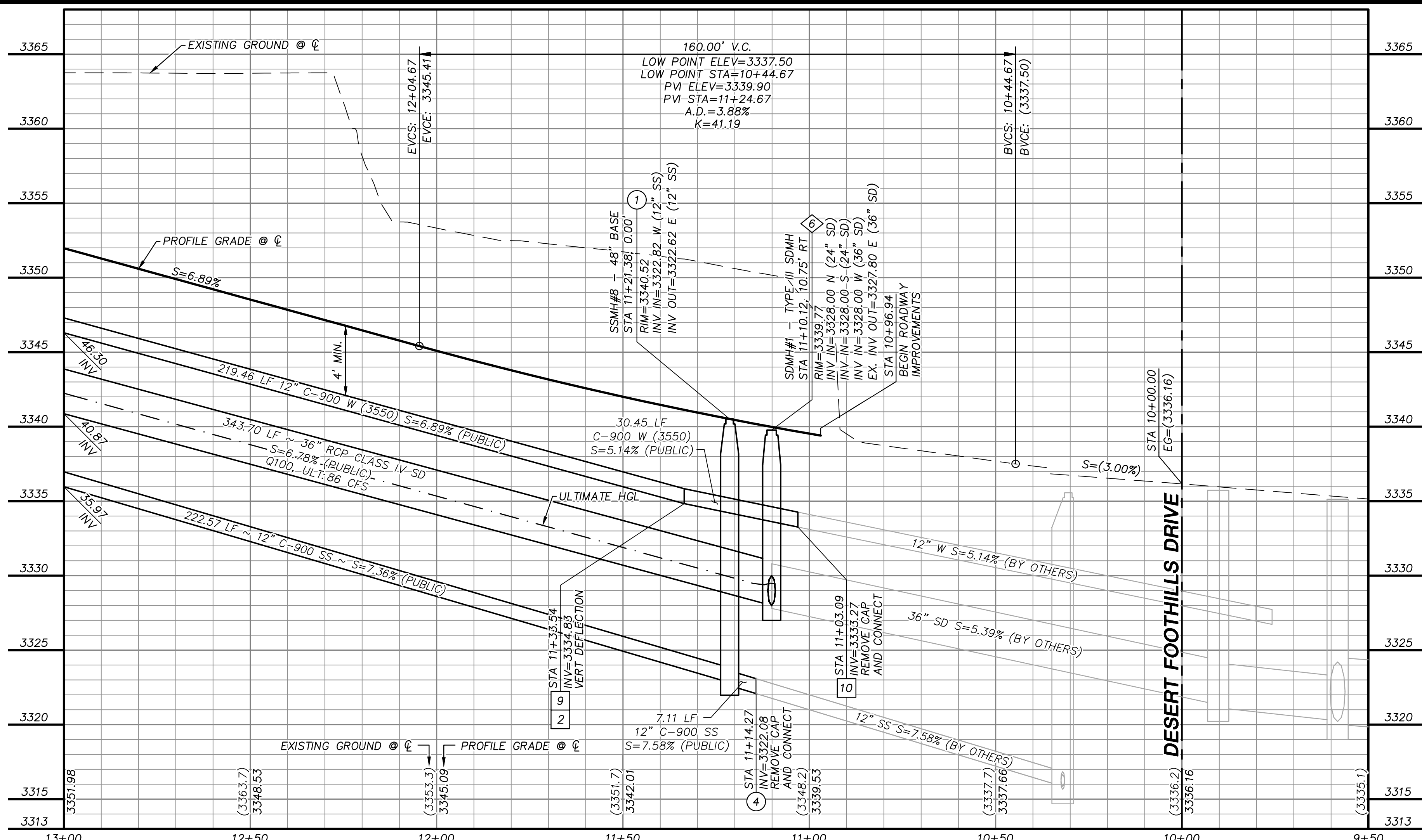
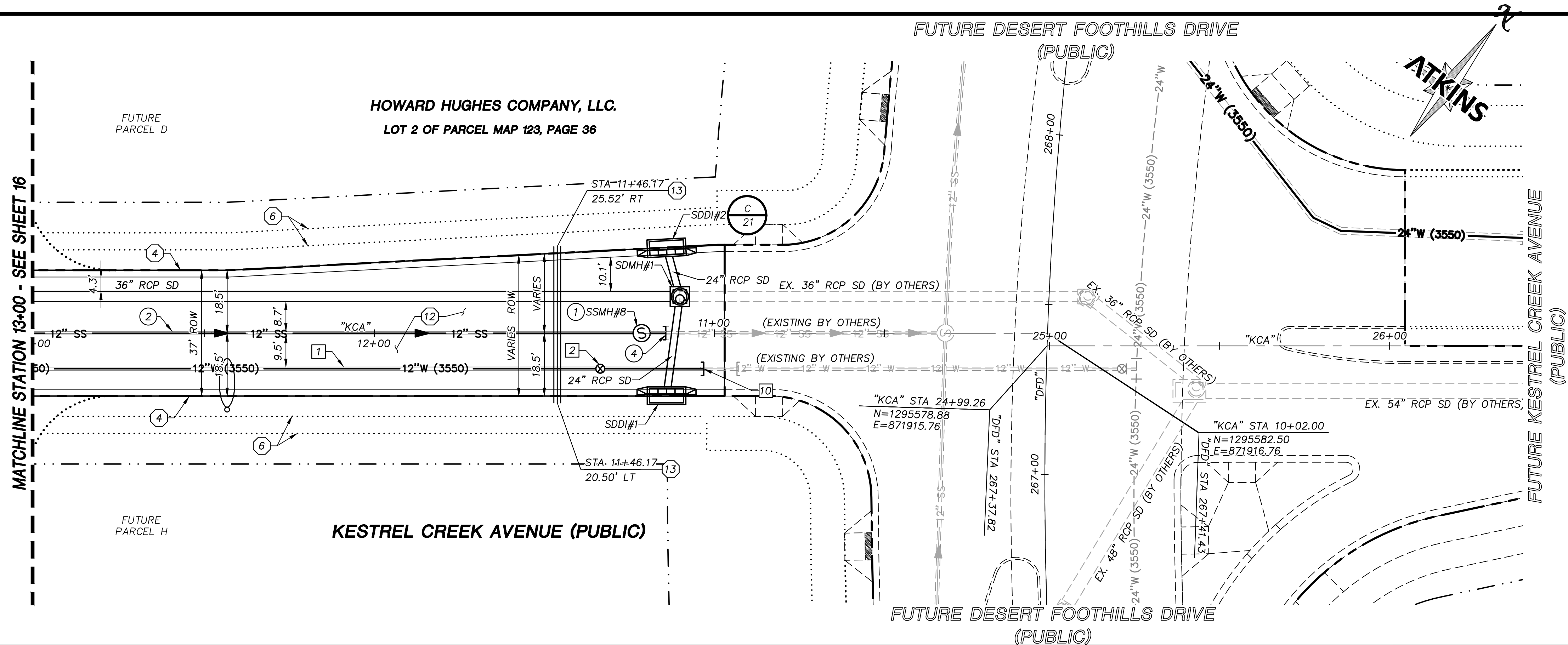
DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMACLAY
CHECKED BY: P. BATES
HORIZ.: 1"=20'
VERT.: NONE

DOB NO. 100060654
DATE: OCTOBER, 2019
DRAWING NO. 17 / 31
CLV 00-00000

REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

X: Projects\SummWest\ Village 22\100060654 - V22N Street J (Desert Foothills to Street J) - Sheets\60654-08-GRAD-G1.dwg LAYOUT: 18 Oct 15, 2019 - 6:54PM



APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT

PROJECT NO. 136924 FIRST APPROVED DATE: _____

BASIS OF BEARING

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

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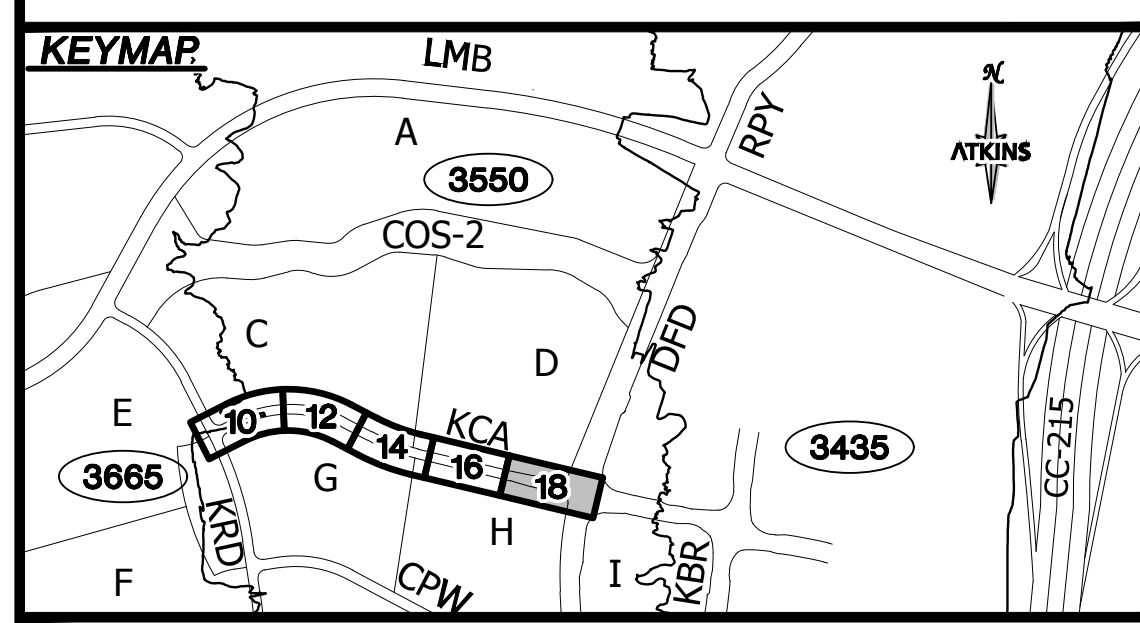
FAST Call before you Dig
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DRAWN BY: L. MAMACLAY
CHECKED BY: P. BATES
DATE: OCTOBER, 2019
HORIZ. 1"=20'
VERT. 1"=5'

10/15/19

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Telephone: +1702.263.7275
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SUMMERLIN

SUMMERLIN VILLAGE 22
KESTREL CREEK AVENUE (STREET J)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

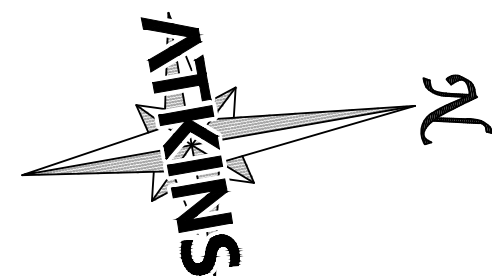
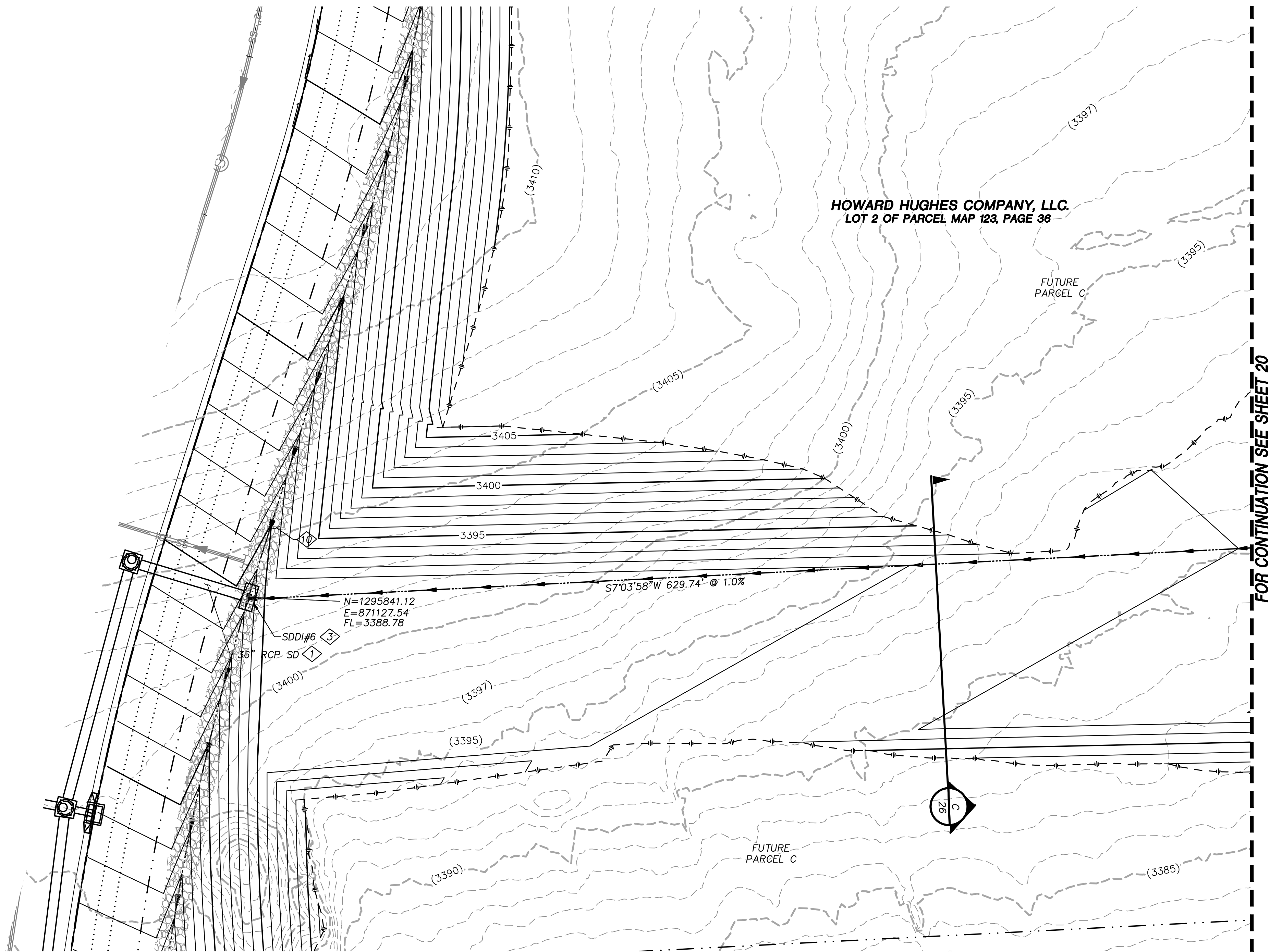
ROADWAY PLAN AND PROFILE
BEGIN TO STA 13+00

DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMACLAY
CHECKED BY: P. BATES
DATE: OCTOBER, 2019
HORIZ. 1"=20'
VERT. 1"=5'

10/15/19

18 / 31

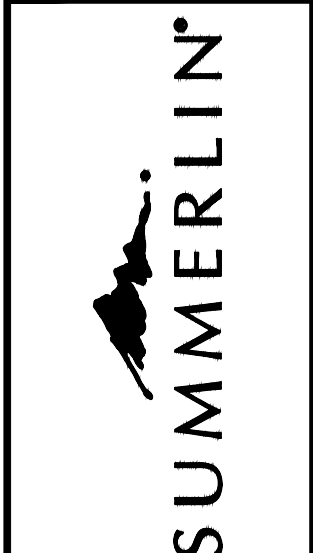
100060654
CLV 00-00000



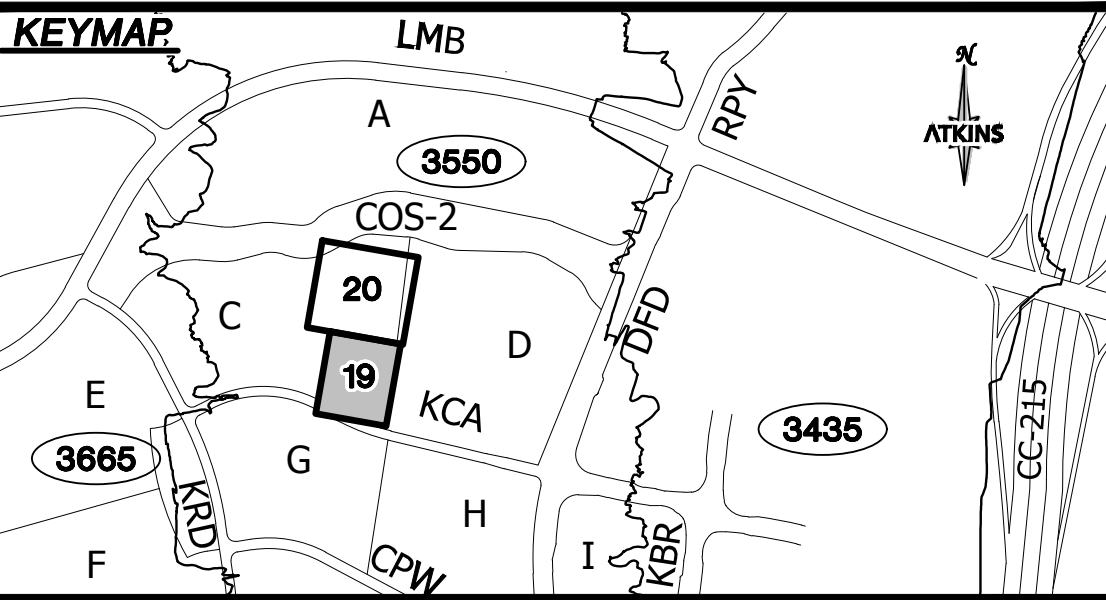
- STORM DRAIN CONSTRUCTION NOTES**
1. INSTALL STORM DRAIN SEE ROADWAY PLAN AND PROFILE SHEETS FOR ADDITIONAL STORM DRAIN NOTES AND INFORMATION.
 2. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421
 3. INSTALL NDOT TYPE II DROP INLET PER NDOT R-4.2.1 (SEE SHEET 26)
 4. INSTALL TYPE I SD MANHOLE PER CCAUSD #403
 5. INSTALL TYPE II SD MANHOLE PER CCAUSD #405.2
 6. INSTALL TYPE III SD MANHOLE PER CCAUSD #406
 7. REMOVE CAP AND CONNECT TO EXISTING STORM DRAIN STUB
 8. INSTALL RIP-RAP (D50=8", THICKNESS=24")

REV.	DESCRIPTION	REVISIONS		
		BY	DATE	APPROVAL

ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1702.263.7275
Fax: +1702.263.7200

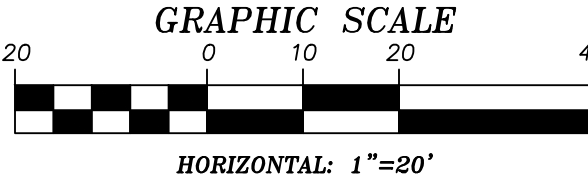


SUMMERLIN VILLAGE 22
KESTREL CREEK AVENUE (STREET I)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)
BERM GRADING PLAN



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

DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMACLAY
CHECKED BY: P. BATES
DATE: OCTOBER, 2019
CLV: 00-00000
10/15/19



APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT
PROJECT NO. 136924 FIRST APPROVED DATE: _____

GRADING PLAN CERTIFICATION

PAUL BATES PE#18723 DATE _____

CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.

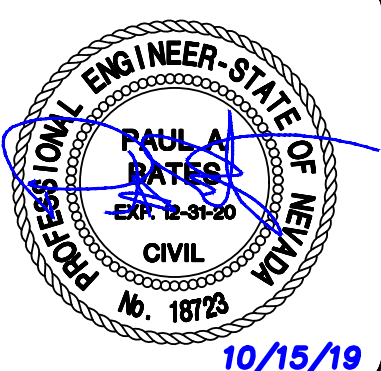
DS#5171

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

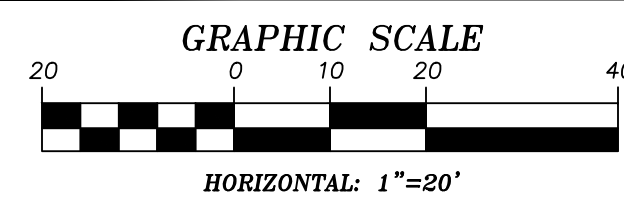
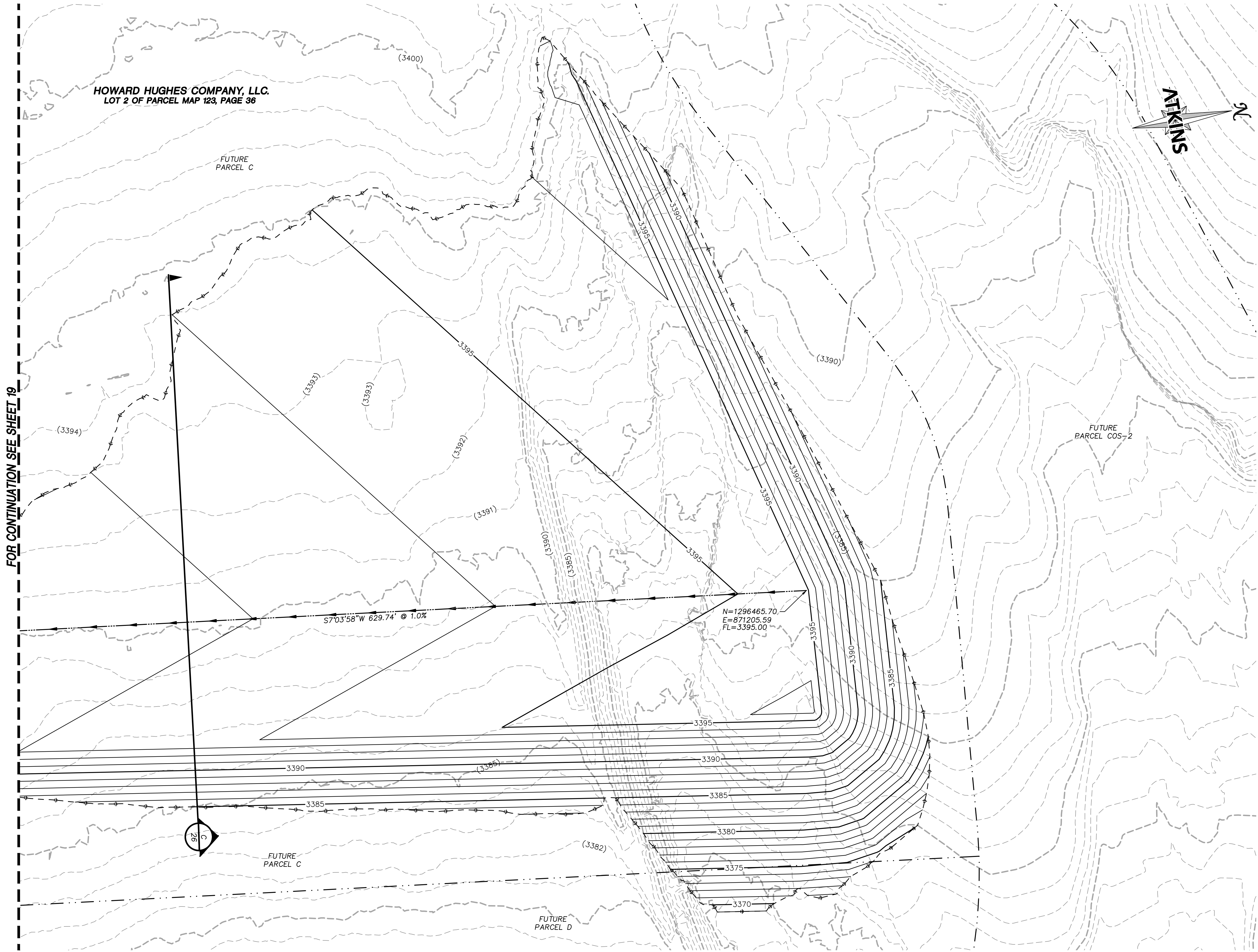
BENCHMARK
CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
TZ15.R59E.S03

Call before you Dig
Call 811
1-702-432-5300
1-800-642-2444

CALL BEFORE YOU DIG
1-702-227-2929



FOR CONTINUATION SEE SHEET 19



APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT

PROJECT NO. 136924 FIRST APPROVED DATE: _____

GRADING PLAN CERTIFICATION

PAUL BATES PE#18723 DATE _____

CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.

DS#5171

BASIS OF BEARING

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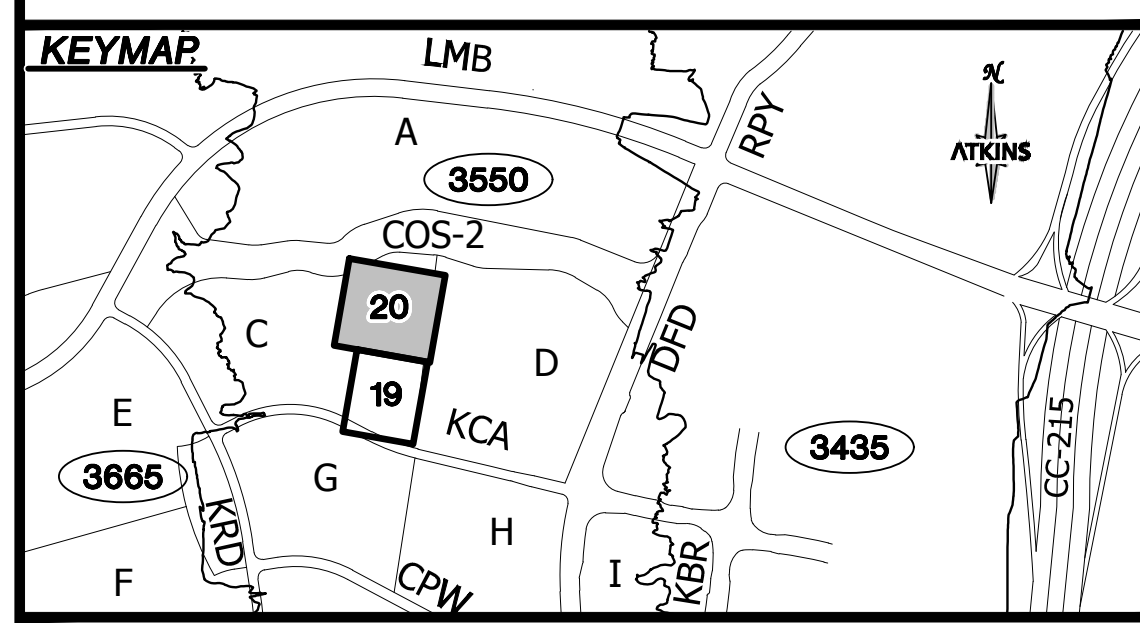
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DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMACLAY
CHECKED BY: P. BATES
HORIZ.: 1"=20'
VERT.: NONE

JOB NO. 100060654
DATE: OCTOBER, 2019
DRAWING NO. 20/31
CLV 00-00000

- STORM DRAIN CONSTRUCTION NOTES**
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 7. REMOVE CAP AND CONNECT TO EXISTING STORM DRAIN STUB
 8. INSTALL RIP-RAP (D50=8", THICKNESS=24")

ATKINS

2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1702.263.7755
Fax: +1702.263.7200

SUMMERLIN

SUMMERLIN VILLAGE 22

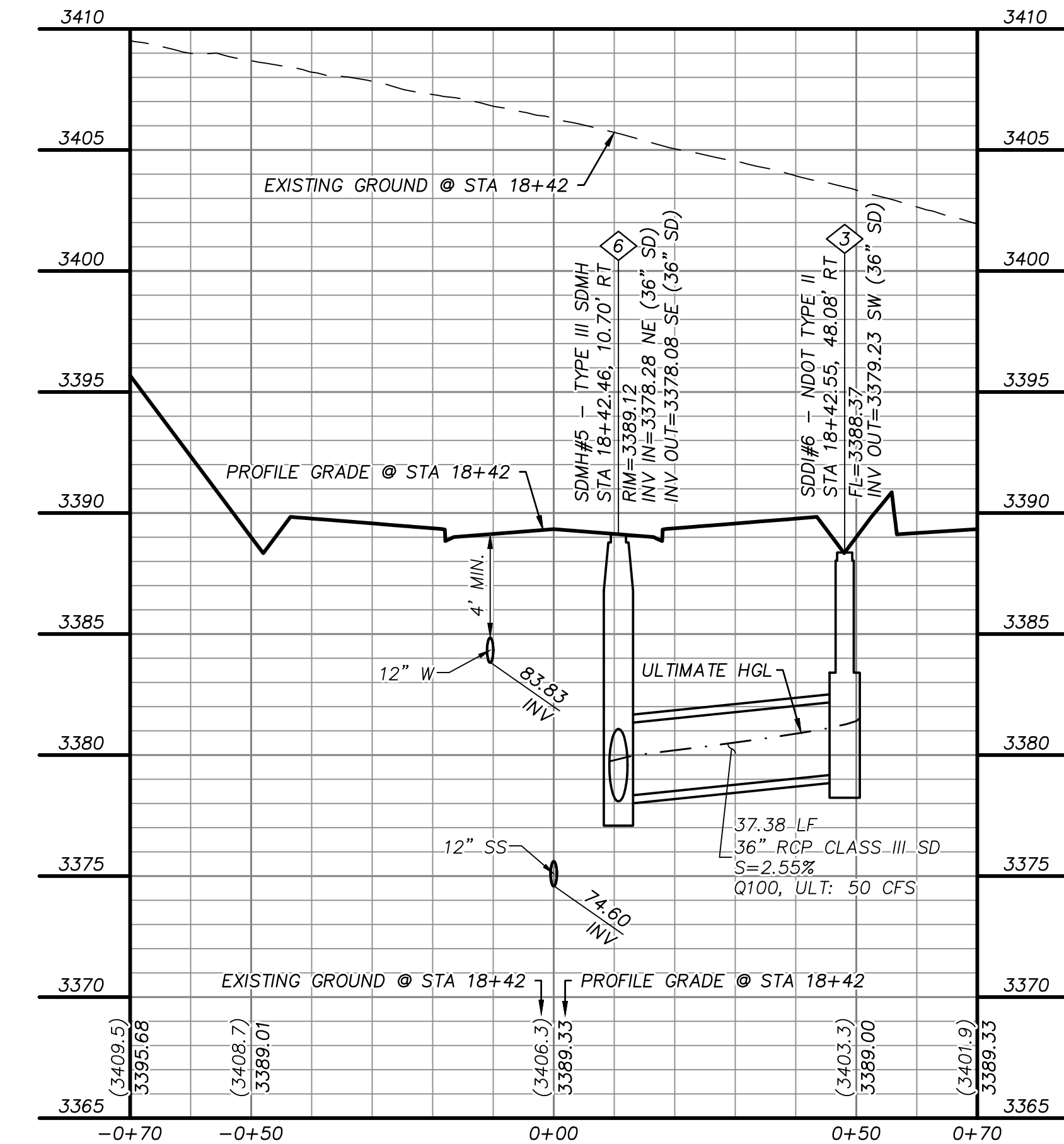
KESTREL CREEK AVENUE (STREET I)

DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

BERM GRADING PLAN

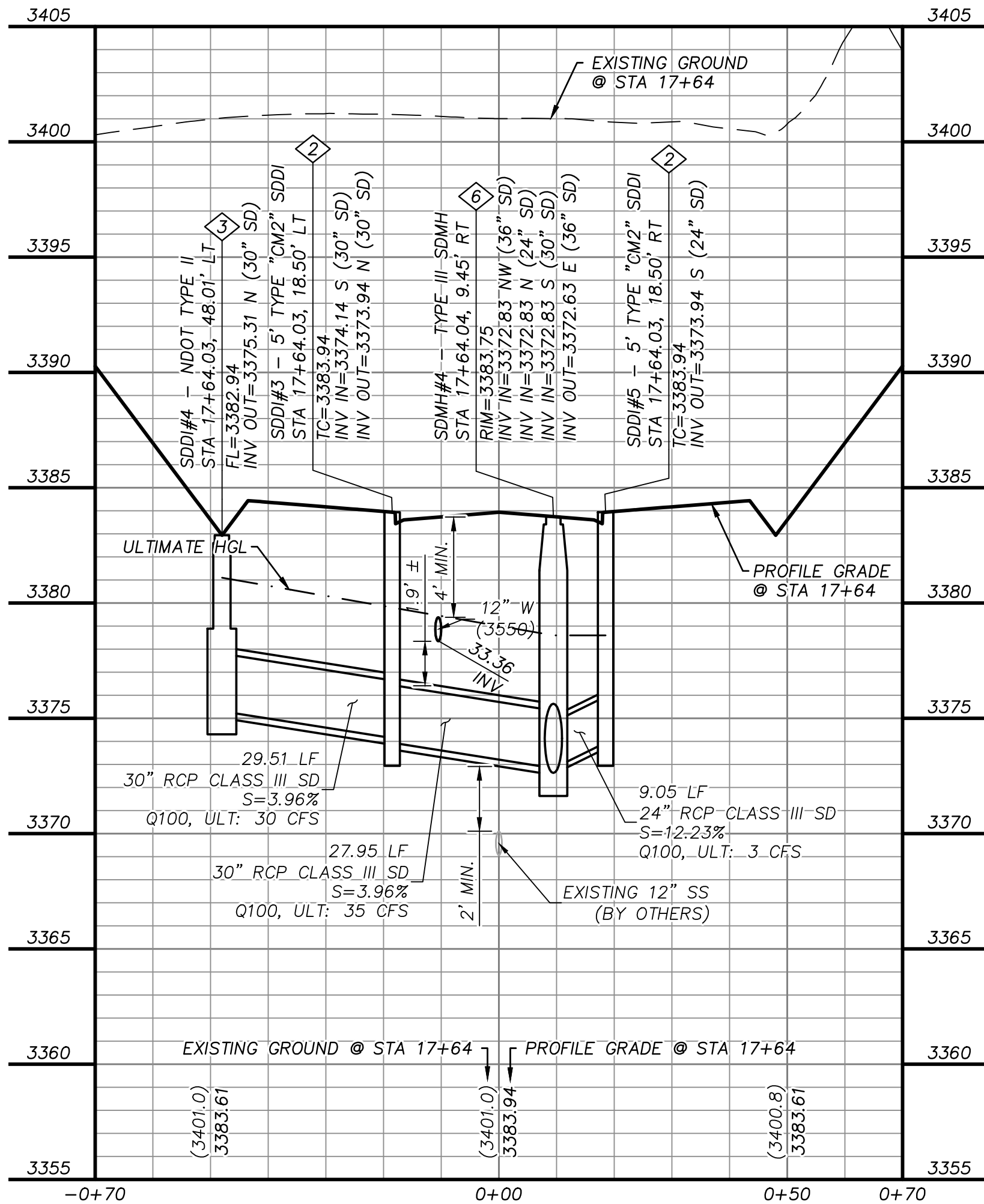
REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL



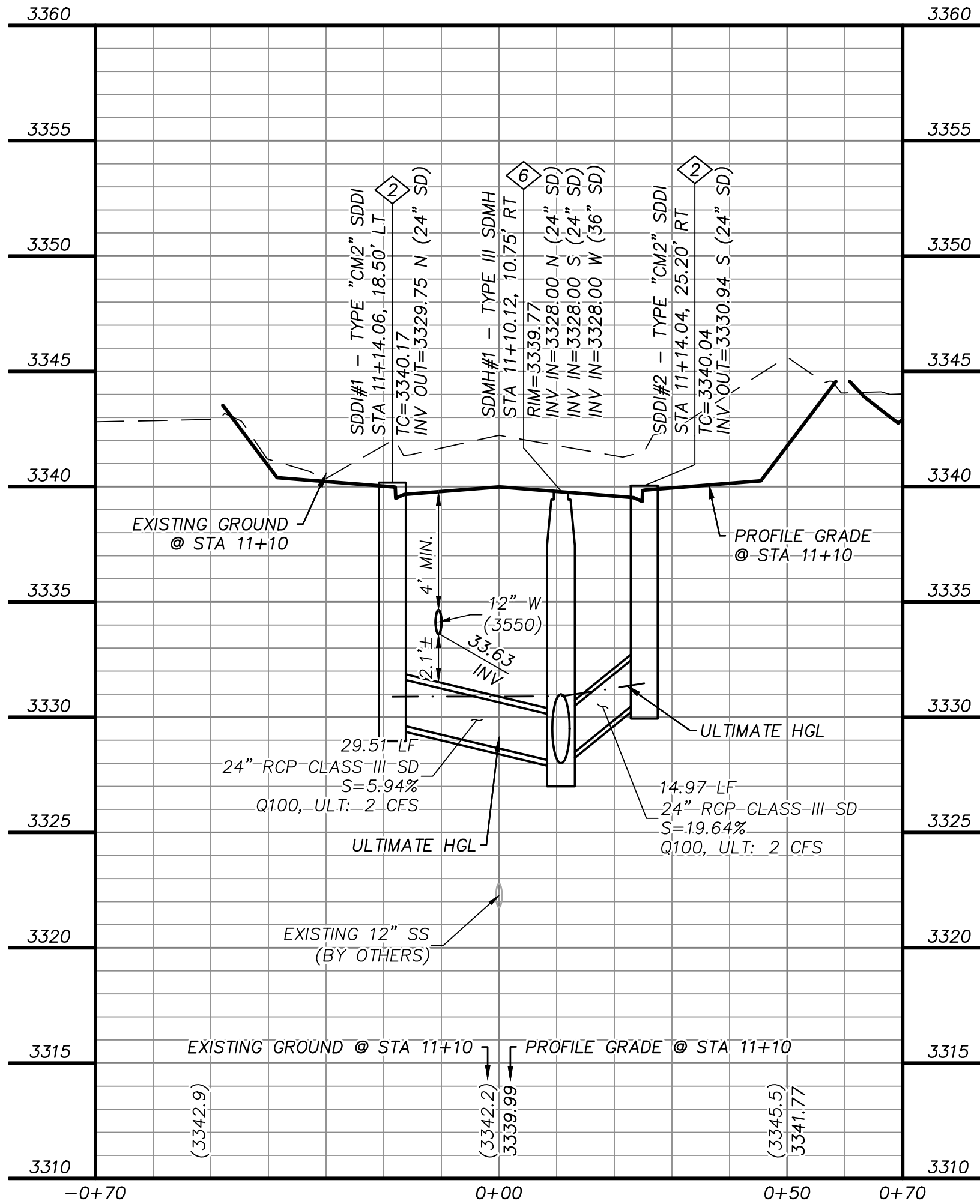
STORM DRAIN LATERAL PROFILE

"KCA" STA. 18+42 SEE SHEET 14



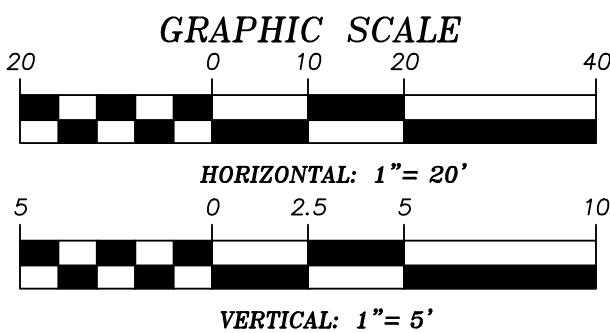
STORM DRAIN LATERAL PROFILE

"KCA" STA. 17+64 SEE SHEET 14



STORM DRAIN LATERAL PROFILE

"KCA" STA. 10+95 SEE SHEET 18



BASIS OF BEARING

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

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CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S,R59E,S03



STORM DRAIN CONSTRUCTION NOTES

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- 8 INSTALL RIP-RAP (D50=8", THICKNESS=24")

SEWER CONSTRUCTION NOTES

- 1 INSTALL SEWER MANHOLE PER DCSWCS SD-1, AND SD-4
- 2 INSTALL SEWER MAIN PER DCSWCS SD-17
- 3 STUB AND CAP SEWER PIPE. PLACE MARKER BALL AND 4"x4" POST, DOUGLAS FIR, OVER END OF PIPE AND INSTALL THRUST BLOCK (1 CUBIC FT. MINIMUM).
- 4 REMOVE CAP AND CONNECT TO EXISTING SEWER STUB
- 5 ADJUST EXISTING MANHOLE TO GRADE PER DCSWCS SD-5.
- 6 PROTECT SEWER AT UTILITY CROSSING PER DCSWCS SD-19

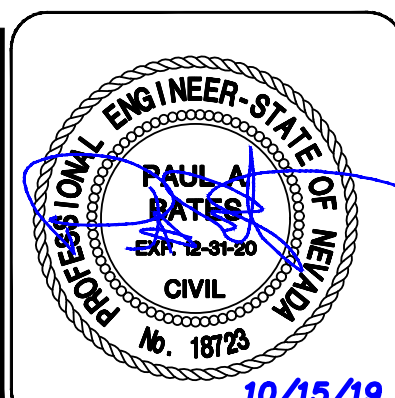
WATERLINE CONSTRUCTION NOTES

- 1 INSTALL WATER MAIN PER UDACS PLATES #17 AND PLATE #19
- 2 INSTALL GATE VALVE PER UDACS PLATES #30 AND #39
- 3 INSTALL CROSS PER UDACS PLATE #31
- 4 INSTALL CAP AND 2" MANUAL BLOWOFF ASSEMBLY PER UDACS PLATE #36
- 5 INSTALL TEE W/ VALVE AND LATERAL PER UDACS PLATES #17, #19, #30, #31 AND #39
- 7 INSTALL 11.25' HORIZONTAL BEND PER UDACS PLATE #31
- 8 INSTALL COMBINATION AIR VALVE ASSEMBLY WITH ALL APPURTENANCES PER UDACS PLATE #38
- 9 INSTALL DEFLECTION AT PIPE JOINTS (MAXIMUM 1')
- 10 REMOVE CAP AND 2" BLOWOFF AND CONNECT TO EXISTING WATERLINE STUB
- 11 INSTALL FIRE HYDRANT WITH APPURTENANCES (CONCRETE PAD, LATERAL, VALVE, AND TEE) PER UDACS PLATES #30, #31, #39, AND #40

ROADWAY CONSTRUCTION NOTES

- 1 SAWCUT AND MATCH EXISTING
- 2 NOT USED
- 3 NOT USED
- 4 CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD #216
- 5 NOT USED
- 6 FUTURE SIDEWALK BY OTHERS
- 7 CONSTRUCT CONCRETE SIDEWALK PER CCAUSD #234
- 8 CONSTRUCT CURB RAMP, TYPE A, PER NDOT STANDARD PLAN R-5.2.1 (A=B=6.5').
- 9 CONSTRUCT 0" FLUSH CURB
- 10 TRANSITION CURB FROM FULL HEIGHT (6") TO FLUSH (0")
- 11 NOT USED
- 12 CONSTRUCT PLANTMIX BITUMINOUS SURFACE OVER TYPE II AGGREGATE BASE PER SOILS REPORT. SEE SHEET 26 FOR TYPICAL PAVEMENT SECTION.
- 13 INSTALL SCHEDULE 40 PVC IRRIGATION SLEEVES (2-4", 1-6") PER DETAIL C ON SHEET 21

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DESIGNED BY: N. BARCOS	DATE: OCTOBER, 2019	DRAWING NO. 21 / 31
DRAWN BY: L. MAMACLAY	CHECKED BY: P. BATES	CLV 00-00000
PROJECT: Sumnerlin Village 22	DATE: 10/15/19	

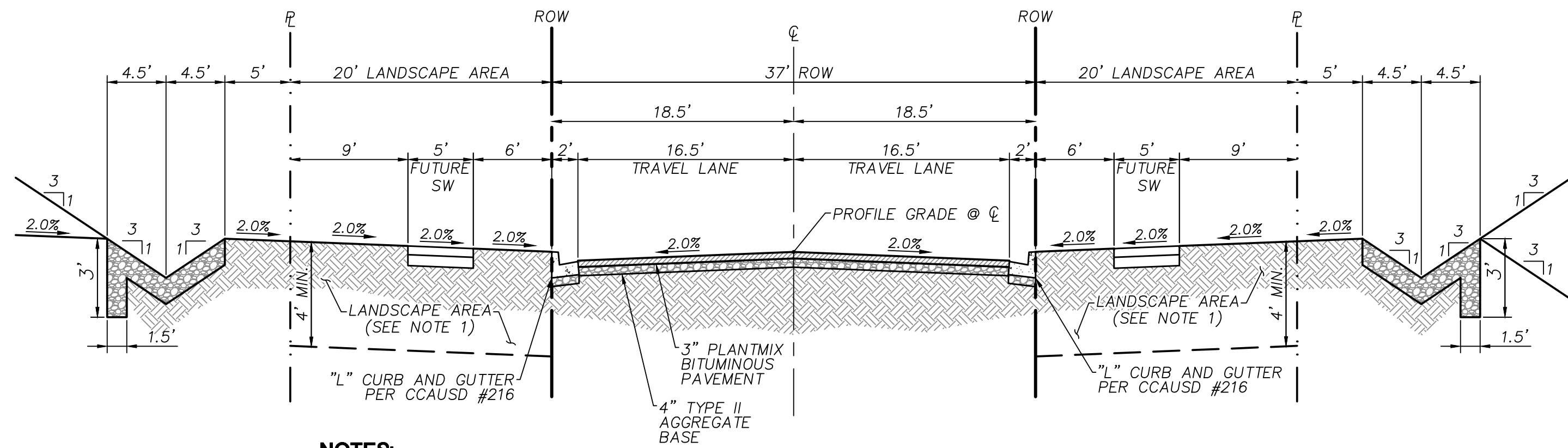
ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1702.263.7755
Fax: +1702.263.7200

SUMMERLIN

SUMMERLIN VILLAGE 22
KESTREL CREEK AVENUE (STREET J)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)
STORM DRAIN LATERAL PROFILES

REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

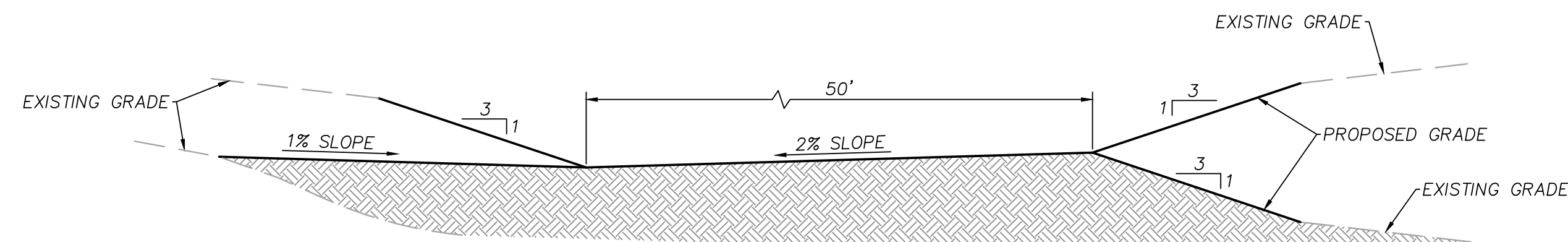
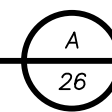


NOTES:

1. EXCAVATE BOTH SIDES TO DEPTH INDICATED PRIOR TO STREET IMPROVEMENTS. SIFT/SCREEN OUT ROCK AND DEBRIS GREATER THAN 6" FROM EXCAVATED MATERIAL, THEN BACKFILL TO 85% COMPACTION. FILL AS NECESSARY TO 2" BELOW THE FINISHED GRADE.

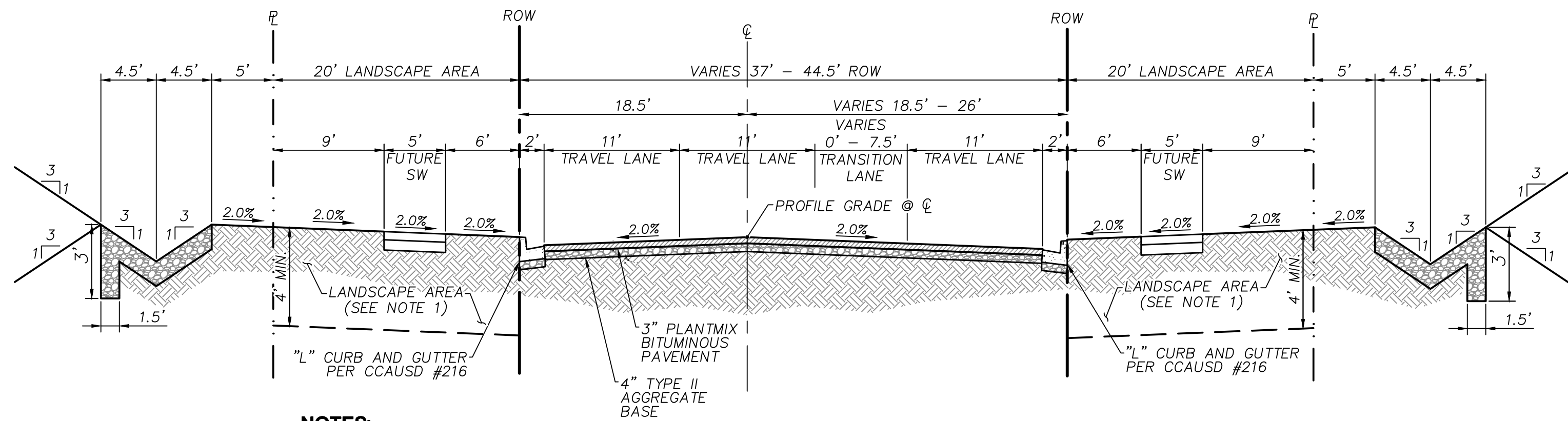
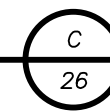
KESTREL CREEK DRIVE- TYPICAL SECTION

N.T.S.



KESTREL CREEK DRIVE - BERM TYPICAL SECTION

N.T.S.

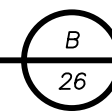


NOTES:

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KESTREL CREEK DRIVE- LEFT TURN LANE SECTION

N.T.S.



REVISIONS

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SUMMERLIN

SUMMERLIN VILLAGE 22

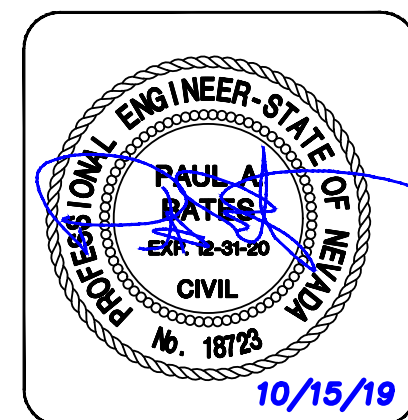
KESTREL CREEK AVENUE (STREET I)

DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

TYPICAL SECTIONS

DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMACLAY
CHECKED BY: P. BATES
HORIZ.: NONE
VERT.: NONE

JOB NO. 100060654
DATE: OCTOBER, 2019
DRAWING NO. 26/31
CLV 00-00000



X: [Project] Summerlin Village 22\100060654 - V22N Street I (Desert Foothills to Street J)\Sheets\60654-12-DET-D1.dwg LAYOUT: TYPICAL SECTIONS Oct 15, 2019 - 6:54PM

5/4-11

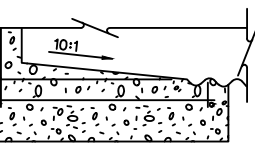
BILL OF MATERIALS (RCP HDPE CMP)

PIPE SIZE (INCH)	SINGLE (ONE GRATE)				DOUBLE (TWO GRATES)				TRIPLE (THREE GRATES)			
	* CONCRETE (CY) * REINF. (LB.)		* CONCRETE (CY) * REINF. (LB.)		* CONCRETE (CY) * REINF. (LB.)		* CONCRETE (CY) * REINF. (LB.)		* CONCRETE (CY) * REINF. (LB.)		* CONCRETE (CY) * REINF. (LB.)	
	BASE QUAN. (CY/FT)	ADD. RATE (LB/FT)	BASE QUAN. (CY/FT)	ADD. RATE (LB/FT)	STR. QUAN. (CY/FT)	ADD. RATE (LB/FT)	BASE QUAN. (CY/FT)	ADD. RATE (LB/FT)	STR. QUAN. (CY/FT)	ADD. RATE (LB/FT)	BASE QUAN. (CY/FT)	ADD. RATE (LB/FT)
10	0.21	0.19	10	301	1.06	0.26	50	13	397	141	0.33	70
18	0.89	0.20	40	10	306	1.31	0.28	56	13	574	1.72	0.35
24	1.08	0.22	56	12	349	1.56	0.30	60	15	655	2.04	0.37
30	1.28	0.24	72	13	390	1.83	0.31	66	16	729	2.36	0.39
36	1.50	0.26	87	13	524	2.11	0.33	92	18	980	2.72	0.41
42	1.71	0.28	90	15	575	2.39	0.35	100	19	1073	3.07	0.43
48	1.94	0.30	95	15	707	2.68	0.37	127	18	1329	3.42	0.44

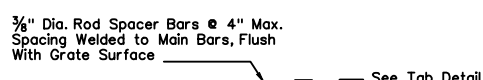
*The Concrete And Reinforcing Quantities Are Based On The H Min. Shown. Increase The Concrete And Reinforcing Base Quantity By The Corresponding Add Rate (Per Foot Of Increased H) If The H Specified Is Larger Than H Min.

TABLE OF DIMENSIONS (RCP HDPE CMP)

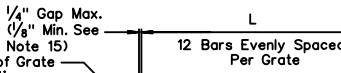
PIPE SIZE (INCH)	A Min. (FT)	H Min. (FT)	MAN. BARS (INCH)	FRAME ANGLES (INCH)	FRAME BARS (INCH)	SINGLE GRATE (INCH)	DOUBLE GRATE (INCH)	TRIPLE GRATE (INCH)
10	2'	2.50	3/4" X 3/4"	4" X 3" X 3/4"	4" X 3/4"	2"	4"	6"
18	2' 2"	3.00	4/4" X 3/4"	5" X 3" X 3/4"	5" X 3/4"	2"	4"	6"
24	3'	3.50	4/4" X 3/4"	5" X 3" X 3/4"	5" X 3/4"	2"	4"	6"
30	3' 2"	4.00	4/4" X 3/4"	5" X 3" X 3/4"	5" X 3/4"	2"	4"	6"
36	4'	4.50	5/4" X 3/4"	6" X 3/4" X 3/4"	6" X 3/4"	2"	4"	6"
42	4' 6"	5.00	5/4" X 3/4"	6" X 3/4" X 3/4"	6" X 3/4"	2"	4"	6"
48	5'	5.50	5/4" X 3/4"	6" X 3/4" X 3/4"	6" X 3/4"	2"	4"	6"



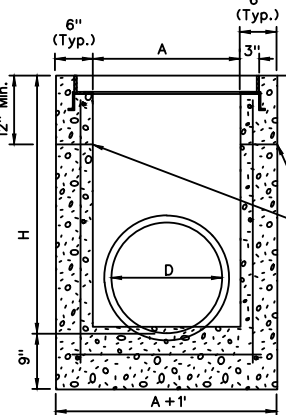
SECTION B-B



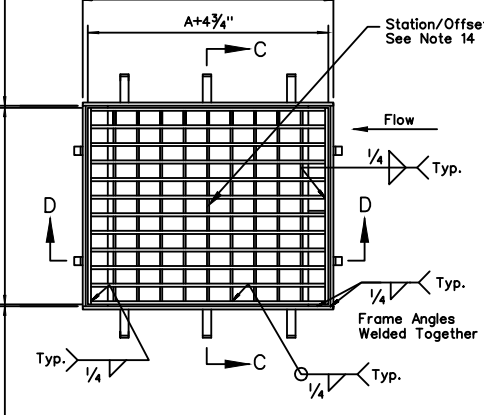
SECTION D-D



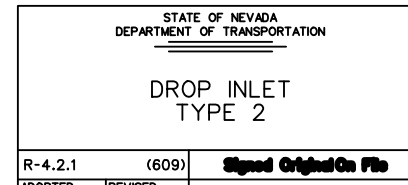
SECTION C-C



SECTION A-A



GRATE AND FRAME



DROP INLET
TYPE 2

NOTES:

- All concrete shall be class A or AA.
- Reinforcing steel shall be No. 4 bars with maximum spacing of 18 inch centers, welded splices at all intersections, and embedded 2 inches clear of all concrete surfaces.
- Exposed edges of concrete shall be chamfered 1 inch.
- Dimensions may be varied to fit local conditions if ordered by the engineer.
- Commercial prefabricated gratings approved by the bridge division may be used in lieu of the field-welded grating shown.
- Extreme low cover situations to be reviewed by hydraulic engineer.
- Slope catch basin flaps 30" from all directions toward outlet pipe, if basin is used as a junction, slope flow flaps to outlet pipe and provide a 1:20 slope to flow flaps.
- See sheet R-2.3.1 for details of connecting HDPE pipe.
- A single Type 2 drop inlet shall be constructed unless a double or triple is specified.
- Single grate configuration shown for clarity. Outside dimensions of each grate shall measure 2 feet by 4'4 3/4".
- Flow meter continuous flow construction joint. Joint must be a minimum of 3 inches from horizontal bars.
- Weld one tab on E of grate and remaining two tabs 6 inches from edge of frame. Six tabs per inlet, three tabs on each side.
- Weld tabs 6 inches from edge of frame. Four tabs per grate, two on each side.
- For multiple grate installations, the station/offset is to the center of the concrete drop inlet structure.
- Grate is to fit in the frame and be easily removed. If the gap between the grate and frame is greater than 1/4" on each side of the grate, the grate and frame shall be removed and reconstructed to the tolerances specified or, with approval of the engineer, a fiber strip up to 1/2" in thickness may be welded flush to the top of the frame to reduce the gap to a maximum of 1/4".
- Additional pipe penetrations may be placed in any wall. Pipe penetrations are to be to the center of the structure, and unless specified otherwise.

REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

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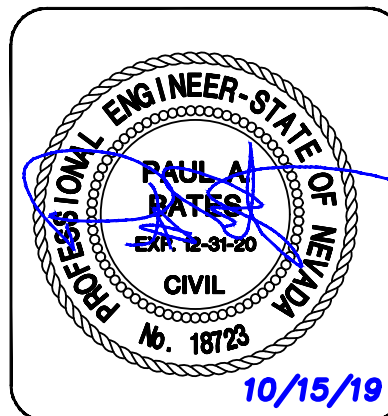
SUMMERLIN

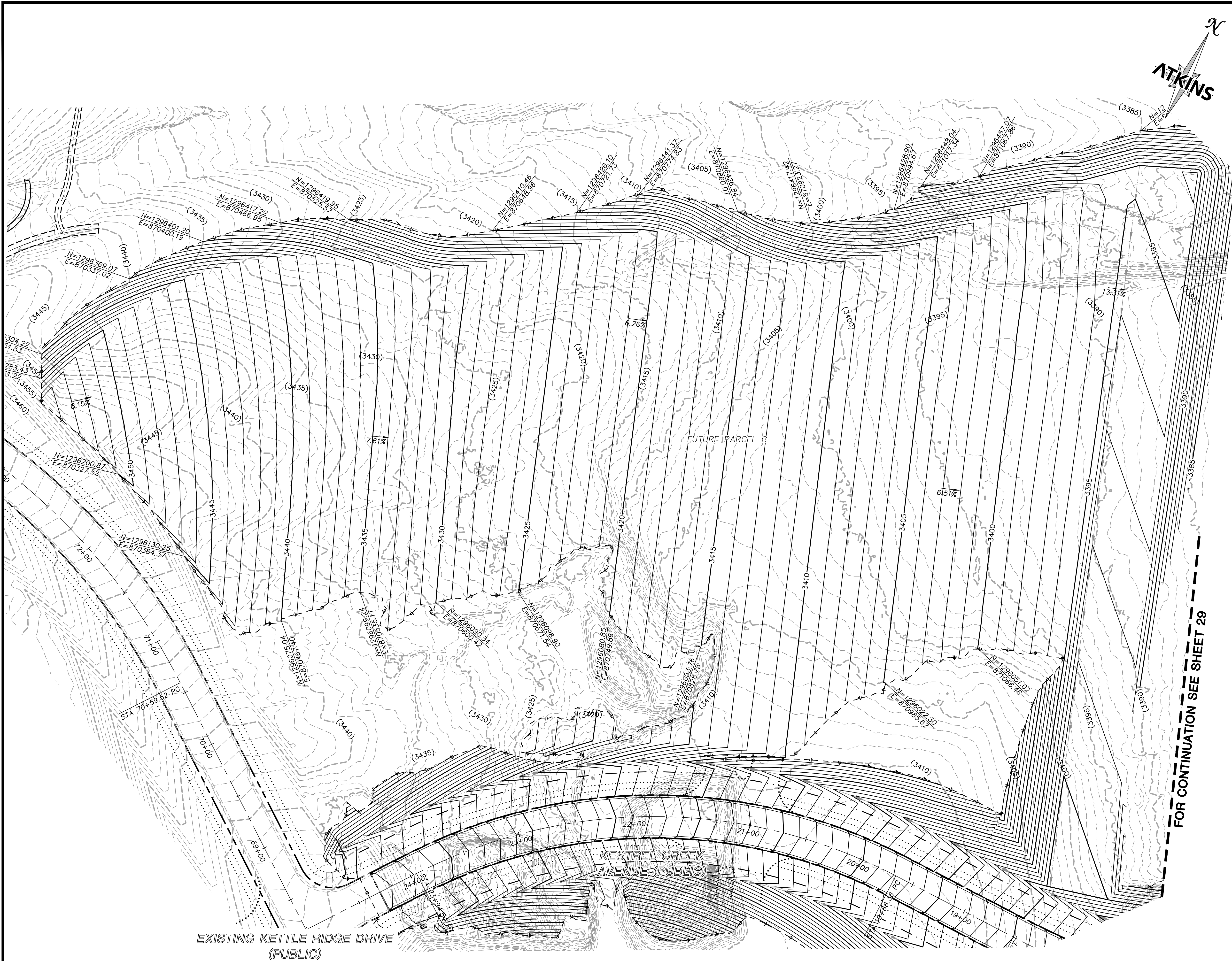
SUMMERLIN VILLAGE 22
KESTREL CREEK AVENUE (STREET 1)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

STORM DETAILS

DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMACLAY
CHECKED BY: P. BATES
HORIZ.: NONE
VERT.: NONE

JOB NO. 100060654
DATE: OCTOBER, 2019
DRAWING NO. 27/31





FOR CONTINUATION SEE SHEET 29

STORM DRAIN CONSTRUCTION NOTES

1. INSTALL STORM DRAIN SEE ROADWAY PLAN AND PROFILE SHEETS FOR ADDITIONAL STORM DRAIN NOTES AND INFORMATION.
2. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421
3. INSTALL NDOT TYPE II DROP INLET PER NDOT R-4.2.1 (SEE SHEET 26)
4. INSTALL TYPE I SD MANHOLE PER CCAUSD #403
5. INSTALL TYPE II SD MANHOLE PER CCAUSD #405.2
6. INSTALL TYPE III SD MANHOLE PER CCAUSD #406
7. REMOVE CAP AND CONNECT TO EXISTING STORM DRAIN STUB
8. INSTALL RIP-RAP (D50=8", THICKNESS=24")

SEWER CONSTRUCTION NOTES

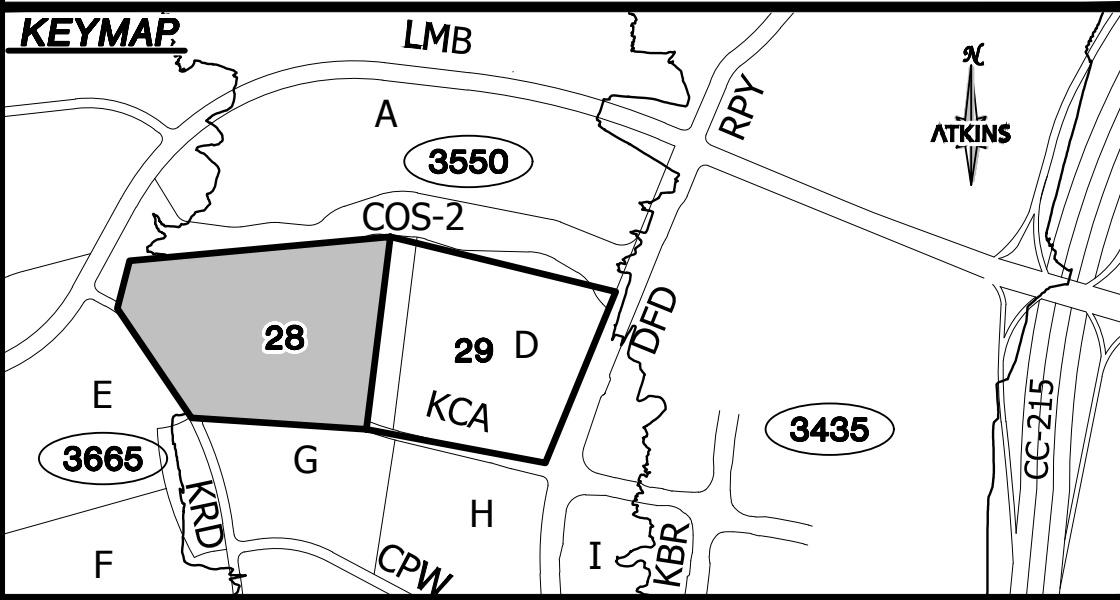
1. INSTALL SEWER MANHOLE PER DCSWCS SD-1, AND SD-4
2. INSTALL SEWER MAIN PER DCSWCS SD-17
3. STUB AND CAP SEWER PIPE. PLACE MARKER BALL AND 4"x4" POST, DOUGLAS FIR, OVER END OF PIPE AND INSTALL THRUST BLOCK (1 CUBIC FT. MINIMUM).
4. REMOVE CAP AND CONNECT TO EXISTING SEWER STUB
5. ADJUST EXISTING MANHOLE TO GRADE PER DCSWCS SD-5.
6. PROTECT SEWER AT UTILITY CROSSING PER DCSWCS SD-19

WATERLINE CONSTRUCTION NOTES

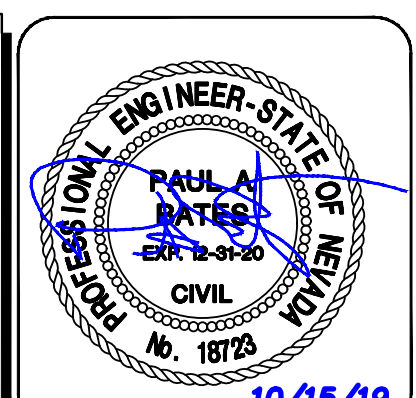
1. INSTALL WATER MAIN PER UDACS PLATES #17 AND PLATE #19
2. INSTALL GATE VALVE PER UDACS PLATES #30 AND #39
3. INSTALL CROSS PER UDACS PLATE #31
4. INSTALL CAP AND 2" MANUAL BLOWOFF ASSEMBLY PER UDACS PLATE #36
5. INSTALL TEE W/ VALVE AND LATERAL PER UDACS PLATES #17, #19, #30, #31 AND #39
7. INSTALL 11.25" HORIZONTAL BEND PER UDACS PLATE #31
8. INSTALL COMBINATION AIR VALVE ASSEMBLY WITH ALL APPURTENANCES PER UDACS PLATE #38
9. INSTALL DEFLECTION AT PIPE JOINTS (MAXIMUM 1')
10. REMOVE CAP AND 2" BLOWOFF AND CONNECT TO EXISTING WATERLINE STUB
11. INSTALL FIRE HYDRANT WITH APPURTENANCES (CONCRETE PAD, LATERAL, VALVE, AND TEE) PER UDACS PLATES #30, #31, #39, AND #40

ROADWAY CONSTRUCTION NOTES

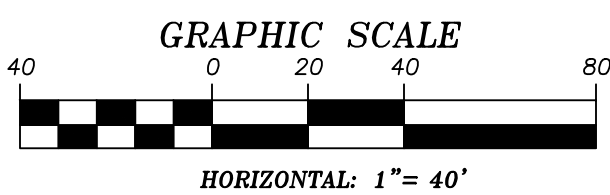
1. SAWCUT AND MATCH EXISTING
2. NOT USED
3. NOT USED
4. CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD #216
5. NOT USED
6. FUTURE SIDEWALK BY OTHERS
7. CONSTRUCT CONCRETE SIDEWALK PER CCAUSD #234
8. CONSTRUCT CURB RAMP, TYPE A, PER NDOT STANDARD PLAN R-5.2.1 (A=B=6.5').
9. CONSTRUCT 0" FLUSH CURB
10. TRANSITION CURB FROM FULL HEIGHT (6") TO FLUSH (0")
11. NOT USED
12. CONSTRUCT PLANTMIX BITUMINOUS SURFACE OVER TYPE II AGGREGATE BASE PER SOILS REPORT. SEE SHEET 26 FOR TYPICAL PAVEMENT SECTION.
13. INSTALL SCHEDULE 40 PVC IRRIGATION SLEEVES (2-4", 1-6") PER DETAIL C ON SHEET 21



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



DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMACLAY
CHECKED BY: P. BATES
DATE: OCTOBER, 2019
DRAWING NO.: 28/31
JOB NO.: 100060654
CLV: 00-00000



GRADING PLAN CERTIFICATION

PAUL BATES PE#18723 DATE
CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.
DS#5171

BASIS OF BEARING

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

BENCHMARK

CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S,R59E,S03

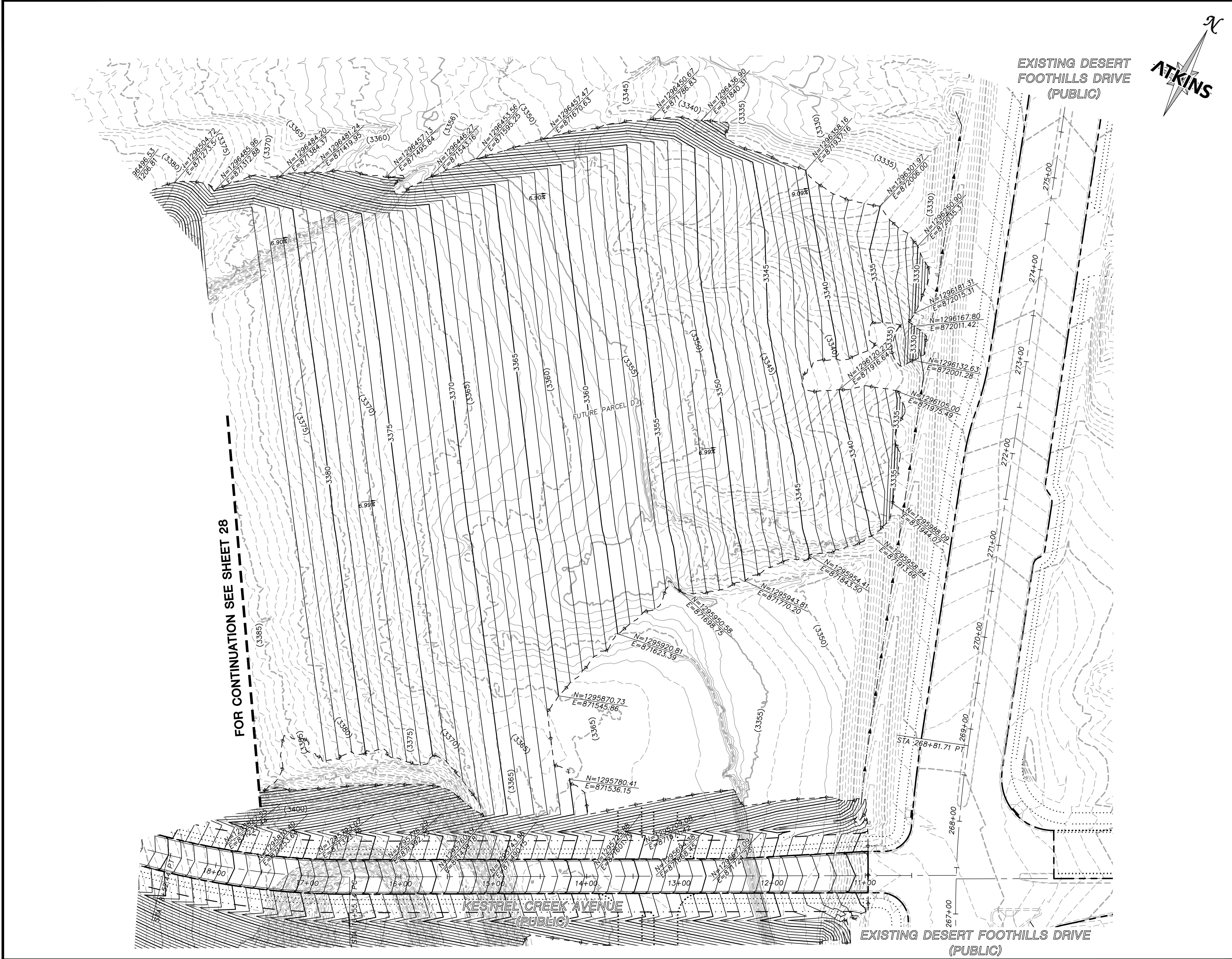


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SUMMERLIN

SUMMERLIN VILLAGE 22
KESTREL CREEK AVENUE (STREET I)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)
ROADWAY GRADING PLAN

DESIGNED BY: N. BARCOS
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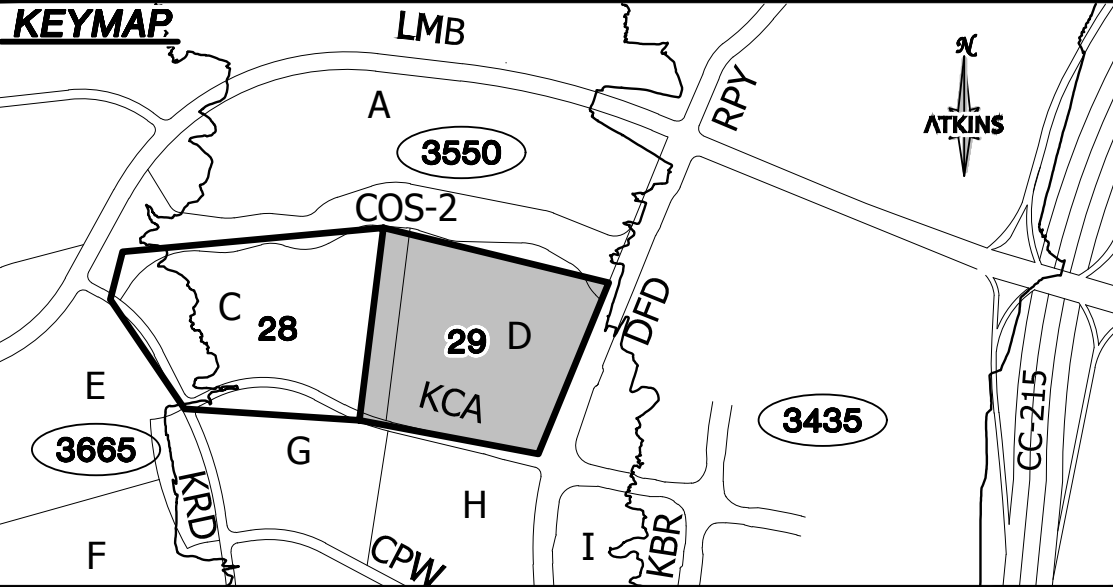
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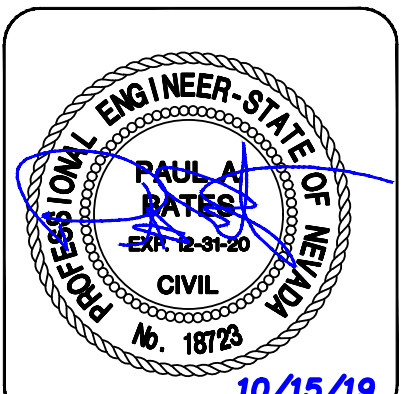
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CLV		00-00000							
SUMMERLIN VILLAGE 22 KESTREL CREEK AVENUE (STREET I) DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)									
PARCEL GRADING DETAILS - PARCEL D									
									
ATKINS 2270 Corporate Circle Suite 200 Henderson, Nevada 89074 Telephone: +1/702.263.7275 Fax: +1/702.263.7200									
REVISIONS									
REV.		DESCRIPTION		BY		DATE		APPROVAL	



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