

DS #:

5031

APN:

125-07-210-002

PROJECT:

Skylar Canyon Village Additions Pad L & M

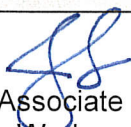
SUBMITTAL:

1st

SCANNED BY/DATE:

CHECKED BY/DATE:



CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		October 25, 2018
TO: Land Development Services Department of Building & Safety		FROM: Jennifer Shinn, P.E.  Flood Control Engr. Associate Department of Public Works
SUBJECT:	Drainage Study for:	
	Skye Canyon Village Additions Pad L & M	
Cross Streets:	Skye Park Drive & Skye Canyon Park Drive	Remington Skye
File Number:	F:\Depot\DSMemos\DS5031A.doc	Bart Anderson, P.E., DevCo
Parcel Number:	125-07-210-002	
Zoning Action:	SDR-74322	
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	8/23/2018 & 10/25/2018	9/6/2018 & 10/25/2018	See Comments Below	\$400.00	498211: \$400
			TOTAL FEES (LDDRS):	\$400.00	----

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.

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

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

END OF REMARKS
JKS

T/R/S: T19S/R60E/S07
AREA G-07



**LAS VEGAS
CITY COUNCIL**

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SERVICES CENTER**

DEPARTMENT OF PLANNING

333 N. RANCHO DRIVE
3RD FLOOR
LAS VEGAS, NV 89106

702.229.6301 | VOICE
702.474.7463 | FAX
711 | TTY



cityoflasvegas
lasvegasnevada.gov

October 10, 2018

Mr. Tom Fehrman
Remington Skye, LLC
5920 South Rainbow Boulevard, Suite #11
Las Vegas, Nevada 89118

**RE: SDR-74322 [PRJ-73888] - SITE DEVELOPMENT PLAN REVIEW
RELATED TO SUP-74321
PLANNING COMMISSION MEETING OF OCTOBER 9, 2018**

Dear Mr. Fehrman:

The Planning Commission at a regular meeting held on October 9, 2018 voted to **APPROVE** a request for a Site Development Plan Review FOR EIGHT PROPOSED RETAIL PAD SITES WITHIN AN EXISTING SHOPPING CENTER on 17.00 acres at the northeast corner of Skye Park Drive and West Skye Canyon Park Drive (APNs Multiple), T-D (Traditional Development) Zone [GC (General Commercial) Skye Canyon Special Land Use Designation], Ward 6 (Fiore) [PRJ-73888].

This approval is subject to the following conditions:

Planning

1. Approval of and conformance to the Conditions of Approval for Special Use Permit (SUP-74321) shall be required, if approved.
2. Conformance to the approved conditions for Site Development Plan Review (SDR-63598) shall be required.
3. Master Sign Plan (MSP-72987) shall be amended to depict the proposed signage for all pad sites not included with the original master sign plan approval.
4. A Site Development Plan Review shall be required for all remaining pad sites that are not a part of this application (Pads A, D, G, H, and "Future Development").
5. This approval shall be void two years from the date of final approval, unless exercised pursuant to the provisions of LVMC Title 19.16. An Extension of Time may be filed for consideration by the City of Las Vegas.

Recvd
10/25/18
DS5031
N/C

Mr. Tom Fehrman
Remington Skye, LLC
SDR-74322 [PRJ-73888] – Page Two
October 10, 2018

6. All development shall be in conformance with the site plan, landscape plan, and building elevations, date stamped 08/27/18, except as amended by conditions herein.
7. Streetscape, perimeter landscaping, and parking lot landscaping shall conform to the approved landscape plans associated with the original Site Development Plan Review (SDR-63598).
8. All necessary building permits shall be obtained and final inspections shall be completed in compliance with Title 19 and all codes as required by the Department of Building and Safety.
9. These Conditions of Approval shall be affixed to the cover sheet of any plan set submitted for building permit.
10. A technical landscape plan, signed and sealed by a Registered Architect, Landscape Architect, Residential Designer or Civil Engineer, must be submitted prior to or at the same time application is made for a building permit. A permanent underground sprinkler system is required, and shall be permanently maintained in a satisfactory manner; the landscape plan shall include irrigation specifications. Installed landscaping shall not impede visibility of any traffic control device.
11. Prior to the submittal of a building permit application, the applicant shall meet with Department of Planning staff to develop a comprehensive address plan for the subject site. A copy of the approved address plan shall be submitted with any future building permit applications related to the site.
12. All City Code requirements and design standards of all City Departments must be satisfied, except as modified herein.

Public Works

13. An Update to the previously approved Drainage Plan and Technical Drainage Study must be submitted to and approved by the Department of Public Works prior to the issuance of any grading or building permits, submittal of construction drawings or the submittal of a Final Map for this site, whichever may occur first. Provide and improve all drainageways as recommended in the approved drainage plan/study.

Mr. Tom Fehrman
Remington Skye, LLC
SDR-74322 [PRJ-73888] – Page Three
October 10, 2018

14. Site development to comply with all applicable conditions of approval for SDR-63598, and all other applicable site-related actions.

This action by the Planning Commission on **October 9, 2018** is final unless a written appeal is filed with the City Clerk within ten days of the date of the Planning Commission's decision as allowed by code or there is a review action filed by the City Council within the same time period. For additional information on appeals or review requests submitted please access <http://www.lasvegasnevada.gov/CheckStatus/DevelopmentApp.htm>, or contact the Department of Planning and Development at 702.229.6301 after **October 22, 2018**. No building permits or business licenses related to these items shall be issued prior to the expiration of the required ten day waiting period, or until any filed appeal is resolved pursuant to LVMC Title 19.18.

Sincerely,



Peter Lowenstein, AICP
Deputy Director
Department of Planning

PL:nl:clb

cc: Ms. Lucy Stewart
LAS Consulting
1930 Village Center Circle, Bldg. 3-577
Las Vegas, Nevada 89134

**TECHNICAL DRAINAGE STUDY
FOR
SKYE CANYON VILLAGE ADDITIONS PAD L & M**

796-001

AUGUST 2018

Prepared For:

**Remington Skye
5920 S. Rainbow Blvd, Suite 11
Las Vegas, Nevada 89118
Phone: (702) 222-1420**

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Skye Canyon Village Additions Pad L & M Date: August 23 2018

Location of Development: a) Descriptive (Cross Streets) North/South: Skye Park Drive

East/West: W Skye Canyon Park Drive

b) Section: 7 Township: 19 S Range: 60 E

c) APN : 125-07-210-002

Name of Owner: Remington Skye

Telephone No.: (702) 222 - 1420 Fax No.: (702) 222 - 1699 E-Mail Address: N/A

Address: 5920 S Rainbow Blvd Ste 11, Las Vegas, Nevada 89118

Contact Person-Name: Said Mohammed Telephone No.: (702) 804-2000

* E-Mail Address: smohammed@gcwengineering.com Fax No.: (702) 804-2299

Firm: GCW, Inc.

Address: 1555 South Rainbow Blvd, Las Vegas, Nevada 89146

Type of Land Development/Land Disturbance Process:

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

1. Total Owned Land Area: At Site: +/- 7.06 Ac Being Developed/Disturbed: 1.2 Ac

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.): Commercial

5. Approximate upstream land area which drains to the subject site: N/A

6. Has the site drainage been evaluated in the past? ☒ YES ☐ NO If yes, please identify documentation: Technical Drainage Study for Skye Canyon Village (DS # 4812B)

7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: East into ephemeral wash crossing Grand Canyon Drive (approx. 700 feet north of Skye Canyon Park Drive intersection)

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



Engineer's Seal

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

***New Required Field**

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

	Revision	Date
Local Entity File No. _____		

REFERENCE:

STANDARD FORM 1

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL		
DRAINAGE SUBMITTAL CHECKLIST		
Project Name: Skye Canyon Village Additions Pad L & M	Map ID:	
Firm Name: GCW, Inc.	Engineer: Said Mohammed	
Address: 1555 S. Rainbow Blvd		
City: Las Vegas	State: Nevada	Zip: 89146
Phone Number: (702) 804-2131	Fax Number: (702) 804-2299	
Property Owner: Remington Skye		
Address: 5920 S Rainbow Blvd Ste 11		
City: Las Vegas	State: Nevada	Zip: 89118
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 (CCRFCDD) 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 <u>X</u> _____ Design Manual Standard Form 1 with the engineer's seal and signature. _____ <u>N/A</u> Design Manual Standard Form 4. _____ <u>N/A</u> 2 copies of the 24" x 36" Drainage Plan. _____ <u>N/A</u> A notarized letter from the adjacent property owner(s) allowing off-site grading or discharge. II. MAPS AND EXHIBITS Yes No <u>X</u> _____ A copy of a current Flood Insurance Rate Map (FIRM) with the site delineated. <u>X</u> _____ A copy of the current CCRFCDD 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

- ☐ N/A Off-site drainage basin maps for existing, interim and future conditions showing the existing topography, basin boundaries, concentration points, and flows in cfs.
- ☒ ☐ 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.
- ☒ ☐ Vicinity Map with local and major cross streets identified and a north arrow.

III. DRAINAGE PLAN

Yes No

- ☒ ☐ Sheet size: 24" x 36" sealed by a registered engineer in the State of Nevada.
- ☒ ☐ Minimum scale: 1" = 60'.
- ☒ ☐ Project name.
- ☒ ☐ Vicinity Map with local and major cross streets.
- ☒ ☐ Revision box.
- ☒ ☐ North arrow and bar scale.
- ☒ ☐ Engineer's/consultant's address and phone number.
- ☒ ☐ Elevation datum and benchmark.
- ☒ ☐ Legend for symbols and abbreviations.
- ☒ ☐ Cut/fill scarps, where applicable.
- ☒ ☐ Street names, grades, widths.
- ☒ ☐ 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.
- ☒ ☐ Existing contours encompassing the site and 100 feet beyond with spot elevations for important locations, where appropriate.
- ☒ ☐ Minimum finish floor elevations with top-of-curb elevations at upstream end of lot.
- ☒ ☐ 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>N/A</u> _____ | Concentration points and drainage flow direction with Q100 and V100 and D100 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>X</u> _____ | _____ | Location and detail of flood walls illustrating depth of flow, proposed grouting height, etc. |
| <u>X</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>N/A</u> _____ | Alignment of all existing, proposed, or future Regional Facilities adjacent to the site. |
| _____ | <u>N/A</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

 NA 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 Q100 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, Q10 and Q100 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>NA</u>	Flow split calculations and supporting documentation or reference for the method of flow split calculations used.
<u>X</u>	☐	Normal depth street flow calculations and cross section diagrams for all interior and perimeter streets. Provide "d x v" products for the Q100 and Q10 flows representing the worst case for interior and all perimeter streets. Q100 d x v < 8. Q10 d x v < 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>N/A</u>	A summary table of interior and exterior street capacity calculations showing the street name, Q100 flow, slope, depth of flow, velocity and depth times velocity product and streets needing to meet 12 foot dry lane criteria.
☐	<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>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>X</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 Q100 weir height or flow depth, whichever is greater.
☐	<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>	☐	Provide a 50 percent clogging factor in the capacity calculation for drop inlets.
☐	<u>N/A</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>	☐	The mitigation of nuisance water, both during construction and in the fully developed condition, must be addressed.
<u>X</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. _____ 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.
	N/A	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.)
	N/A	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.
	N/A	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.
	N/A	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.
	N/A	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.

**TECHNICAL DRAINAGE STUDY
FOR
SKYE CANYON VILLAGE ADDITIONS PAD L & M
796-001**

AUGUST 2018

Prepared For:

**Remington Skye
5920 S. Rainbow Blvd, Suite 11
Las Vegas, Nevada 89118
Phone: (702) 222-1420**

Prepared By:

**GCW, Inc.
1555 S. Rainbow Blvd.
Las Vegas, NV 89146
(702) 804-2000**

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I. INTRODUCTION

Remington Skye is proposing to construct two commercial buildings within Skye Canyon Village. The project is identified as Skye Canyon Village Additions Pad L & M (hereafter referred to as the project), and is located north of Skye Canyon Park Drive, between Skye Park Drive and Grand Canyon Drive. The project's total area is approximately 1.2 acres.

The purpose of this study is to accompany the improvement plans, in order to provide detailed hydrologic and hydraulic analyses for the site in accordance with the CCRFCD Manual (Reference 1, hereafter referred to as HCDDM) and local drainage criteria. The following tasks were performed in the preparation of this study:

- Determine the FEMA floodplain designation for the project site.
- Identify CCRFCD regional facility alignments adjacent or affected by the project.
- Review pertinent approved drainage studies in the area for evaluation of drainage impacts affecting the project.
- Determine existing, proposed and ultimate condition drainage tributaries onsite and offsite.
- Perform hydraulic design of storm drain improvements required to meet local criteria.
- Prove proposed finished floors are adequately flood protected.
- Show no adverse post-development impacts to the adjacent and downstream properties and facilities.

II. LOCATION AND DESCRIPTION OF IMPROVEMENTS

The proposed site is located within Section 7, Township 19, and Range 60 in APN 125-07-210-002 within the jurisdictional limits of the City of Las Vegas (LV). Please refer to Figure 1 in Appendix D for the location of the project site.

The project consists of 2 commercial buildings and the accompanying parking lot. The commercial development is located north of Skye Canyon Park Drive, east of Skye Park Drive, west of a newly built Smith's Supermarket, and south of undeveloped land.

III. FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD HAZARD ANALYSIS

Based on the FEMA Flood Insurance Rate Map (FIRM) Community Panel 32003C1735E, dated June 27, 2018, the project site lies entirely within a Zone X or outside the 0.2% annual chance flood. Therefore, this project is not located in a FEMA designated Special Flood Hazard Area (SFHA). Figure 2 in Appendix D shows the site on the FEMA FIRM.

IV. CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT (CCRFCD)

Figures 3 and 4, included in Appendix D, are a reproduction of Figure H-13 and F-13 of the CCRFCD 2013 Las Vegas Valley Master Plan Update (Reference 2, hereafter referred to as the 2013 MPU). As shown on the figure, the site is not adjacent to CCRFCD facility alignments. Additionally, the project is not considered regionally significant.

V. REFERENCED STUDIES

In preparation of this study, the following approved drainage studies and improvement plans were referenced to complete hydrologic and hydraulic analyses. These studies have been reviewed and accepted as suitable for reference material. A brief synopsis of the pertinence of each of the referenced items is as follows:

- The project entitled *Skye Canyon Village* (Reference 3) incorporates the project site and all offsite drainage. The hydrology from this study was used with two of the sub basins pro-rated for the project. Skye Canyon Village is used to reference some onsite and offsite storm drain as well including catch basins downstream with capacity for any flows leaving the project site.
- The project entitled *Skye Canyon Phase 3 Infrastructure* (Reference 4) is referenced for the hydraulics performed in Skye Park Drive. The study is referenced for the Skye Park Drive street section adjacent to Pad L, drop inlet calculations for the drop inlets west of the project site, and overflow calculations associated with those drop inlets.

VI. HYDROLOGY

The methodology presented in this study is in compliance with the HCDDM.

Model Description: The watersheds were modeled in the Skye Canyon Village study. This is included as reference material in Appendix B.

Drainage Areas and Flow Patterns: The onsite sub basins and flow patterns have been determined by pro-rating Skye Canyon Village Study's sub basins SB06 and SB07. The need to pro-rate these sub basins comes from the changes in onsite grading and pitch of the building's roofs. This can be seen in Figure 5A in Appendix C. Offsite sub basins are based entirely on the Skye Canyon Village Study without alteration which can be seen in Appendix B.

Precipitation: Precipitation data for the project site was calculated in the Skye Canyon Village study and is included in Appendix B.

Soils: A custom soil survey obtained from the NRCS web soil survey has been obtained for the project which is included in Appendix B. The following table summarizes the soil type identified in the drainage watershed. In the Skye Canyon Village study, it was assumed that the project site was entirely soil type D which produces more conservative flow rates. Since the Skye Canyon Village study is more conservative, its soil assumptions were used for the hydrology in this project.

Table 1: NRCS Soils Summary				
Soil Type	% HSG 'A'	% HSG 'B'	% HSG 'C'	% HSG 'D'
155	5	5	0	90

Curve Numbers: Land uses for the project site in the existing, proposed, and ultimate conditions were performed in the Skye Canyon Village study. Reference material related to the land use can be seen in Appendix B. The curve numbers used for this project also come from the Skye Canyon Village study.

VII. EXISTING DRAINAGE CONDITION

The existing condition is defined as the project undeveloped and the offsite watershed in its current state. There are currently three (3) discharge locations at the downstream boundary of the project: 1) at the north end of the project site 2) at roughly the midpoint of the project site 3) near the south end of the project site.

In the existing condition the Smiths Supermarket is built and includes several catch basins within its parking lot. Flow from the project site enters several of these catch basins in the existing condition, however, the amount of flow captured at each catch basin is considered as nuisance flow except for the catch basins in the low points south of the Smith's supermarket, SL9J1 and SL10J1. A capacity analysis was performed for these catch basins that can be seen in Appendix A. The assumption that onsite flows will travel to the catch basins south of the Smith's supermarket in the existing condition come from examining the existing 1-ft topography contained within Figures 5 and 5A in Appendix C as well as the Skye Canyon Village's figures F1-F4 in Appendix B. No other existing condition analysis have been performed for this project since the work was already performed in the Skye Canyon Village study.

VIII. PROPOSED DRAINAGE CONDITION

The proposed condition is defined as the project developed and the offsite watershed in its current state. Refer to Figures 5 and 5A in Appendix C for an illustration of the proposed condition drainage patterns. Please note that the proposed condition and ultimate condition for the project hydrology are considered the same since onsite and offsite drainage impacts are the same in both conditions.

During the proposed condition the project has 4 discharge locations which, along with some other alterations to the existing condition, are summarized below:

1) Two Entries to Parking Lot

In the existing condition, there is one discharge point at roughly the center of the project site. In the proposed condition, this will be split into two to allow two entrances/exits to and from the parking lot on the project site.

2) Nuisance Drop Inlet at Outlet of Valley Gutter

The Skye Canyon Village study proposed a catch basin around the corner of the northern entryway. To better intercept flows leaving the project site, this drop inlet will be replaced by a 5' type CM2 drop inlet near the outlet of the valley gutter on the north end of the parking lot. This proposed type CM2 drop inlet is designed to intercept nuisance flows leaving the project site. Flow that bypasses this drop inlet will be intercepted by the same catch basins as in the existing condition, SL9J1 and SL10J1.

3) Nuisance Drop Inlet Added to other end of Center Island

In the existing condition there is a drop inlet on the outside of the proposed center island near the entryway. To better intercept the flows approaching the center island from the project parking lot, an additional nuisance 5' CM2 drop inlet is being added to the other side of the center island. Flow that bypasses this drop inlet will be intercepted by the same catch basins as in the existing condition, SL9J1 and SL10J1.

4) Pro-Rated Sub Basins

In the Skye Vista Village study there are two onsite sub basins. These have been pro-rated into 4 sub basins to more accurately match proposed onsite grading. These are sub basins SB06A, SB06B, SB07A, and SB07B. The total flow value for the project site matches Skye Vista Village, however, the discharge points have changed. These pro-rated basins along with their flow values can be seen in Figures 5 and 5A. An additional offsite pro-rated sub basin, SB02A, was also added to calculate depth of flow in the roadway south of Pad L to verify the flow is contained within the roadway. Cross sections shown on Figures 5 and 5A are included in Appendix A.

IX. ULTIMATE DRAINAGE CONDITION

The ultimate condition is defined as the project developed and the offsite watershed also developed at a state consistent with current zoning and obeying drainage patterns consistent with the proposed condition. Refer to Figures 5 and 5A in Appendix C for an illustration of the ultimate condition drainage patterns. As was noted in the proposed drainage condition, no changes will occur between the proposed and ultimate conditions. Since drainage impacts will not change from the proposed condition to the ultimate condition, no ultimate condition analyses have been performed in this study.

X. STREET HYDRAULICS

Refer to Figure 5A for illustration of the location of each street section hydraulic calculation performed for the project. Review of the calculations shows that street flow criteria is met at all locations, or storm drain and drop inlets are provided to collect the required street flow to meet criteria. Street Section B and Street Section 1 were taken to determine water surface elevation (WSE) as it approaches the drop inlet at the outlet of the valley gutter as well as to prove that the finished floor elevation of Pad M meets criteria. Street Section 2 was taken in the entrance drive to the south of the new Pad L to determine if the flows are contained within the roadway. Swale section A was taken north of Pad M to determine if finished floor criteria is met. Please note that street flow data for Skye Park Drive, located west of Pads L and M, is included in Appendix B. No other street sections were taken as all other locations are considered as adequate because they match the Skye Canyon Village study.

XI. STORM DRAIN DESIGN

Three storm drain systems have been proposed onsite to collect nuisance flows. All other storm drain is existing. Below is a brief summary of each of the proposed storm drains.

1) 12-inch PVC Switched and extended to new junction box and drop inlet

The PVC pipe that was proposed in the Skye Canyon Village study connecting to the catch basin around the corner, which will no longer be constructed, will connect to this project's proposed 5' type CM2 drop inlet at the outlet of the valley gutter. The length of additional PVC pipe is roughly 19-feet.

2) 12-inch PVC extended from drop inlet to proposed drop inlet

The PVC pipe connected to the drop inlet on the outside of the center island will be extended to connect to the new 5' CM2 drop inlet on inside of the center island. The

length of additional PVC is roughly 4-feet.

3) (2) 6-inch PVC on South end of Pad L

The PVC pipes connected to the small swale graded around Pad L will collect the flows from the south side of the roof. This is proposed to protect Pad L. This flow will be directed to the Smiths parking lot where it will follow the existing condition flow path. The length of additional PVC is roughly 117-feet for each pipe. There are two pipes so that in the event one of the pipes is 100% clogged, the other pipe will be able to transport the flow to the proposed curb opening.

4) 5' CM2 drop inlet with sump and snout

An existing inlet box, SM2J1, with a sump and snout will be capped and will be inaccessible for cleaning afterwards. To replace the snout in the capped inlet box, a snout will be added to the 5' CM2 drop inlet at the outlet of the valley gutter. This ensures that the number of BMP locations remains the same as in the approved Skye Canyon Village study.

XII. FLOOD PROTECTION

All finished floor elevations proposed by this project meet CCRFCD criteria of being above twice the depth of flow in the adjacent swales. This can be seen in the included Flowmaster calculations in Appendix B.

A retaining wall is to be placed south of Pad L to protect the building from flows and the retaining wall west of Pad L has a height of 1.75' above the TC elevation. The existing retaining wall information can be seen in Appendix C.

XIII. CONCLUSIONS AND RECOMMENDATIONS

1. Methodology used in this report is in compliance with the Clark County Regional Flood Control District (CCRFCD) criteria.
2. The proposed project lies within a Zone X. The project is not currently located in a FEMA-designated Special Flood Hazard Area.
3. The project is not adjacent to a CCRFCD regional facility alignment.
4. The development of the site does not adversely impact downstream property or facilities.
5. All proposed and existing storm drain meets CCRFCD criteria.
6. All proposed finished floor elevations meet local drainage criteria and are considered adequately flood protected.
7. The number of BMP locations remains the same as in the approved Skye Canyon Village study
8. The proposed building finished floor elevation is set lower than the street TC elevation, however, the proposed finished floor elevations are protected from flows by an existing block wall to the west which has a height 1.75' above the TC elevation.

XIV. REFERENCES

1. Clark County Regional Flood Control District. *Hydrologic Criteria and Drainage Design Manual*. August 1999.
2. *CCRFCD 2013 Las Vegas Valley Master Plan Update*. 2013.
3. *Skye Canyon Village*, Anderson Wahlen & Associates, 2016. DS #4812
4. *Skye Canyon Phase 3 Infrastructure*, Slater Hanifan Group, Inc., 2017.

**TECHNICAL DRAINAGE STUDY FOR
SKYE CANYON VILLAGE ADDITIONS PAD L & M
APPENDIX LAYOUT**

Appendix A. Hydraulic Calculations and Information

1. Normal Depth Calculations
2. Drop Inlet Calculations

Appendix B. Referenced Material

1. Skye Canyon Village
 - a) City of Las Vegas Approval Letter
 - b) Precipitation Data
 - c) Curve Number Data
 - d) Standard Form 4
 - e) Overall Drainage Map
 - f) Drainage Basin & Storm Drain Network Exhibit
 - g) Sump and Snout Information
 - h) Approved Plans
2. Skye Canyon Phase 3 Infrastructure
 - a) City of Las Vegas Approval Letter
 - b) Drainage Facilities and Hydraulic Summary Map
 - c) SP1 Flowmaster Section
 - d) SPD1a & SPD1b Drop Inlet Calculations
 - e) Drop Inlet Overflow Calculations
3. Soils Report

Appendix C. Drainage Figures and Plans

1. Figure 1 – Vicinity Map
2. Figure 2 – FIRM Map
3. Figure 3 – H Map
4. Figure 4 – F Map
5. Figure 6 – Proposed Conditions Drainage Map
6. Figure 6A –Onsite Proposed Conditions Drainage Map

APPENDIX A

Hydraulic Calculations



Drop Inlet Sizing Calculation

Project Name: Skye Canyon
 By: Joseph Roberts
 Date: 06/28/2018

Grate Inlet Sizing		
3'x3' Catch Basin with sump and snout SL9J1 and SL10J1		
Known:		
Q=	Flow (cfs)	6.35
Hw=	Available Headwater Depth (ft)	0.5
Cf=	Clogging factor (%)	50
Weir Conditions:		
$P=Q/(Hw^{3/2}*Cw)$		
Cw=	Weir Coefficient	3.0
P=	Perimeter of grate (ft)	5.99
Pc=	Perimeter (w/clogging) (ft)	11.97
Ar=	Area Rectangular grate (ft2)	8.96
Ac=	Area of Circular Grate (ft2)	11.41
Orifice Conditions:		
$Ag=Q/(Co*(Hw*2g)^{1/2})$		
Co=	Orifice Coefficient	0.66
Ag=	Grate Area (ft2)	1.7
Gf=	Grate Opening Factor	0.55
Ac=	Area Req (w/clogging) (ft2)	6.2
Worst Case Scenario Occurs Under Weir Conditions		
Calculated Square	L=	2.99 ft
Grate Size	W=	2.99 ft
Worst Case Scenario Occurs Under Weir Conditions		
Calculated Circular	D=	45.7 in
Size		

Cross Section for Section 1

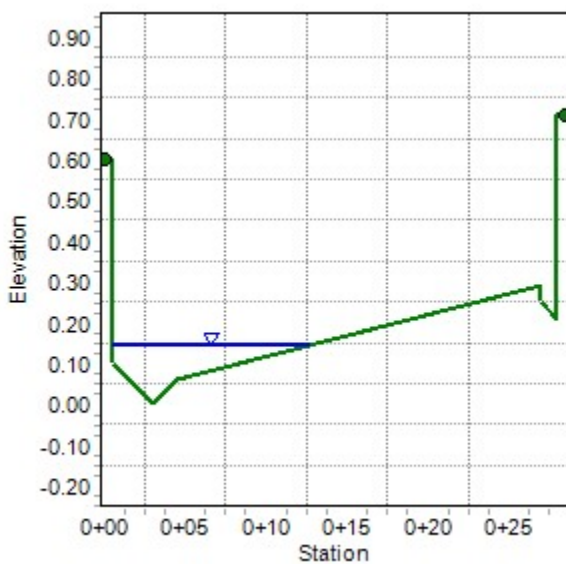
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	3.30	%
Normal Depth	0.14	ft
Discharge	2.00	ft ³ /s

Cross Section Image



Worksheet for Section 1

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	3.30	%
Discharge	2.00	ft ³ /s
Section Definitions		

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

0+00.0	0.600
0+00.5	0.600
0+00.5	0.100
0+01.5	0.060
0+03.0	0.000
0+04.5	0.060
0+27.0	0.290
0+27.0	0.250
0+28.0	0.210
0+28.0	0.710
0+28.5	0.710

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.0, 0.600)	(0+28.5, 0.710)	0.016

Options

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

Results

Normal Depth	0.14	ft
Elevation Range	0.00 to 0.71 ft	

Worksheet for Section 1

Results

Flow Area	0.76	ft ²
Wetted Perimeter	12.36	ft
Hydraulic Radius	0.06	ft
Top Width	12.31	ft
Normal Depth	0.14	ft
Critical Depth	0.18	ft
Critical Slope	0.00873	ft/ft
Velocity	2.62	ft/s
Velocity Head	0.11	ft
Specific Energy	0.25	ft
Froude Number	1.86	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.14	ft
Critical Depth	0.18	ft
Channel Slope	3.30	%
Critical Slope	0.00873	ft/ft

Cross Section for Section 2

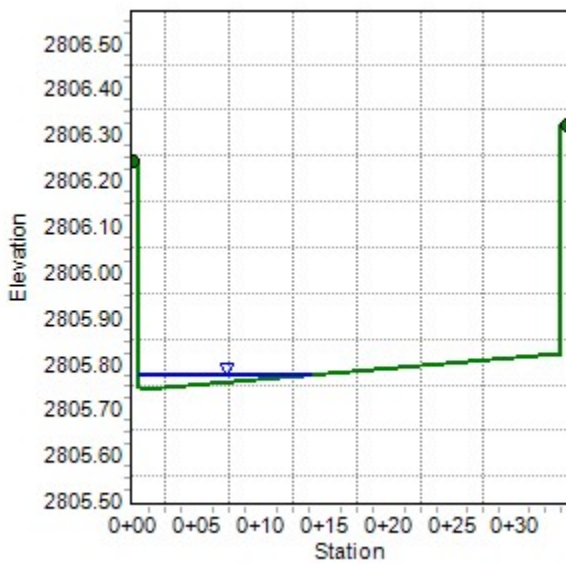
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	8.73	%
Normal Depth	0.03	ft
Discharge	0.40	ft ³ /s

Cross Section Image



Worksheet for Section 2

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	8.73	%
Discharge	0.40	ft ³ /s
Section Definitions		

Station (ft)	Elevation (ft)
0+00.0	2806.240
0+00.5	2806.240
0+00.5	2805.740
0+33.5	2805.820
0+33.5	2806.320
0+34.0	2806.320

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.0, 2806.240)	(0+34.0, 2806.320)	0.016

Options

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

Results

Normal Depth	0.03	ft
Elevation Range	2805.74 to 2806.32 ft	
Flow Area	0.23	ft²
Wetted Perimeter	13.67	ft
Hydraulic Radius	0.02	ft
Top Width	13.63	ft
Normal Depth	0.03	ft

Worksheet for Section 2

Results

Critical Depth	0.05	ft
Critical Slope	0.01308	ft/ft
Velocity	1.78	ft/s
Velocity Head	0.05	ft
Specific Energy	0.08	ft
Froude Number	2.43	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.03	ft
Critical Depth	0.05	ft
Channel Slope	8.73	%
Critical Slope	0.01308	ft/ft

Cross Section for Section A

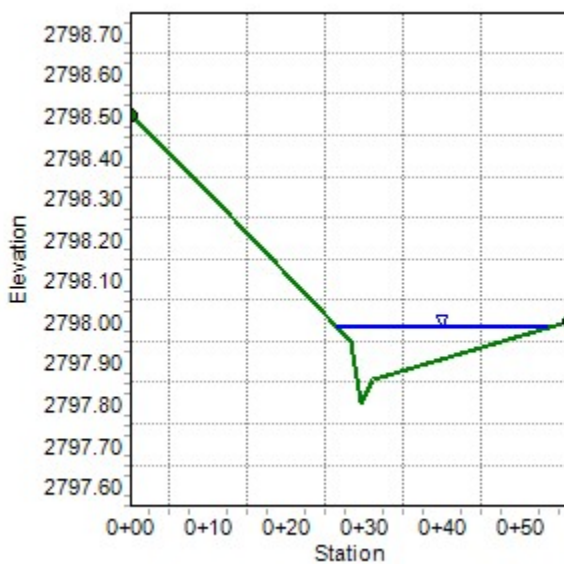
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.50	%
Normal Depth	0.19	ft
Discharge	2.00	ft ³ /s

Cross Section Image



Worksheet for Section A

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.50	%
Discharge	2.00	ft ³ /s
Section Definitions		

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

0+00.0	2798.500
0+10.0	2798.310
0+28.0	2797.950
0+29.5	2797.800
0+31.0	2797.860
0+56.0	2798.000

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.0, 2798.500)	(0+56.0, 2798.000)	0.016

Options

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

Results

Normal Depth	0.19	ft
Elevation Range	2797.80 to 2798.50 ft	
Flow Area	1.84	ft²
Wetted Perimeter	27.24	ft
Hydraulic Radius	0.07	ft
Top Width	27.24	ft
Normal Depth	0.19	ft

Worksheet for Section A

Results

Critical Depth	0.17	ft
Critical Slope	0.00950	ft/ft
Velocity	1.09	ft/s
Velocity Head	0.02	ft
Specific Energy	0.20	ft
Froude Number	0.74	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.19	ft
Critical Depth	0.17	ft
Channel Slope	0.50	%
Critical Slope	0.00950	ft/ft

Cross Section for Section B

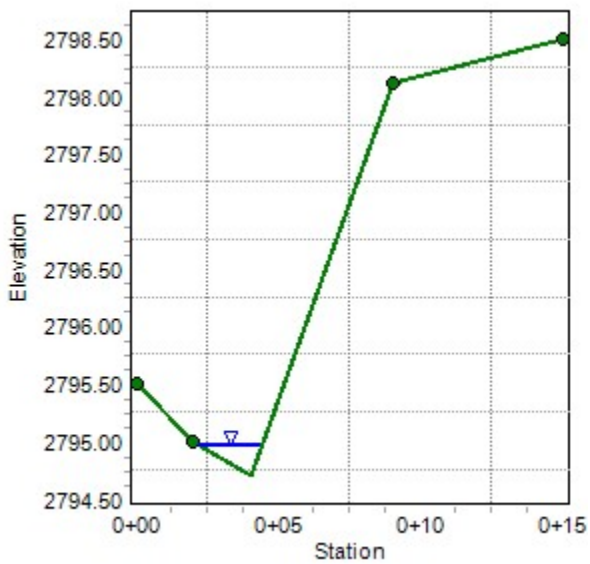
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	6.80	%
Normal Depth	0.27	ft
Discharge	1.20	ft ³ /s

Cross Section Image



Worksheet for Section B

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	6.80	%
Discharge	1.20	ft ³ /s
Section Definitions		

Station (ft)	Elevation (ft)
0+00.0	2795.500
0+02.0	2795.000
0+04.0	2794.700
0+09.0	2798.120
0+15.0	2798.500

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.0, 2795.500)	(0+02.0, 2795.000)	0.025
(0+02.0, 2795.000)	(0+09.0, 2798.120)	0.025
(0+09.0, 2798.120)	(0+15.0, 2798.500)	0.016

Options

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

Results

Normal Depth	0.27	ft
Elevation Range	2794.70 to 2798.50 ft	
Flow Area	0.30	ft²
Wetted Perimeter	2.32	ft
Hydraulic Radius	0.13	ft
Top Width	2.21	ft

Worksheet for Section B

Results

Normal Depth	0.27	ft
Critical Depth	0.35	ft
Critical Slope	0.01714	ft/ft
Velocity	3.98	ft/s
Velocity Head	0.25	ft
Specific Energy	0.52	ft
Froude Number	1.90	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.27	ft
Critical Depth	0.35	ft
Channel Slope	6.80	%
Critical Slope	0.01714	ft/ft

APPENDIX B

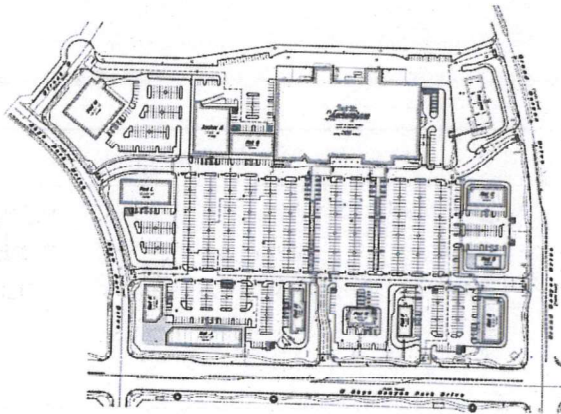
Referenced Material



ANDERSON WAHLEN & ASSOCIATES

Skye Canyon Village

Technical Drainage Study – Addendum 1



W Skye Canyon Park Drive & Grand
Canyon Drive
City of Las Vegas, Nevada



Prepared For:

MF Land, LLC
c/o Olympia Companies
11411 Southern Highlands Parkway, Suite 300
Las Vegas, NV 89141
Phone: 702-220-6565
Fax: 702-220-6566

Prepared by:

Anderson, Wahlen & Associates, Inc.
2010 North Redwood Road
Salt Lake City, Utah 84116
Phone: (801) 521-8529
Fax: (801) 521-9551

Date: October 2016

CITY OF LAS VEGAS			DATE:
INTER-OFFICE MEMORANDUM			November 4, 2016
TO: Land Development Services Department of Building & Safety			FROM: Albert Sung, P.E. <i>AS</i> Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for:		COPIES TO:
	Skye Canyon Village		Anderson, Wahlen & Associates
Cross Streets:	NWC of Grand Canyon & Skye Canyon Park		MF Land, LLC
File Number:	F:\Depot\DSMemos\DS4812B.doc		Bart Anderson, P.E., DevCo
Parcel Number:	125-07-201-003		
Zoning Action:	MOD-62679; SUP-63594; SUP-63597; SDR-63598; VAR-63963 & GPA-64013		
FEMA Flood Zone	YES	NO X	
Proposed Storm Drain	YES X	NO	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	7/06/2016	8/19/2016	Not Approved	\$400.00	450103: \$400
2 nd Submittal	10/24/2016	11/04/2016	See Comments Below	\$400.00	462830: \$400
			TOTAL FEES (LDDRS):	\$800.00	----

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. Please note the Skye Canyon - Phase 3 Infrastructure must be approved prior to final approval of the Skye Canyon Village.
2. Please note that public drainage easements must be recorded by separate document prior to the final acceptance of the improvement plans unless they are to be recorded by parcel or final map.
3. Please note that all drainage improvements within Public Drainage Easements must be bonded and inspected.
4. Show and label existing offsite storm drain pipes proposed by others in the grading plan and plan & profile sheets.
5. Show HGL in the 72-inch RCP. It appears that the AutoCAD layer is turned off.

NOTE: Please be advised that all land surface area disturbances over 1 acre or any area adjacent to a water way must submit to the *Nevada Division of Environmental Protection* a "Notice of Intent" to discharge that certifies a stormwater pollution prevention plan has been developed and is maintained on site; for inclusion in the Stormwater General Permit No. NVR100000. A phased construction unit in a contiguous subdivision is considered under construction until all stripped or disturbed surface areas have been covered by paving, building construction or planting. For

more information, including forms and applications see <http://ndep.nv.gov/bwpc/storm01.htm> or call (775) 687-9429.

END OF REMARKS
OSK

T/R/S: T19S/R60E/07
AREA G-07

Data:	Project is located in:	Township:	19 S.	Range:	60 E.	Section:	7	Reference
								APN Map
								Figure 513*
								Figure 503*
								Figure 506*
								Table 501*
								Table 501*
								Table 502*

1.3 inches

2.05 inches

Precipitation Adjustment Ratios:

10-Year: 1.24
100-Year: 1.43

Six Hour Depth Area Reduction Factors (DARF):

Area (gross acres): 10.0 = 0.0156 square miles
DARF = 1.00

Calculations:

$P_{10} = 1.61$ 10-Year Precipitation (in)
 $P_{100} = 2.93$ 100-Year Precipitation (in)

$P_{10}/P_{100} = 0.55$ HEC-1 Multiple Ratio Value

Equations:

$P = (\text{Rainfall}) * (\text{Precipitation Adjustment Ratio}) * (\text{Depth Area Reduction Factor})$

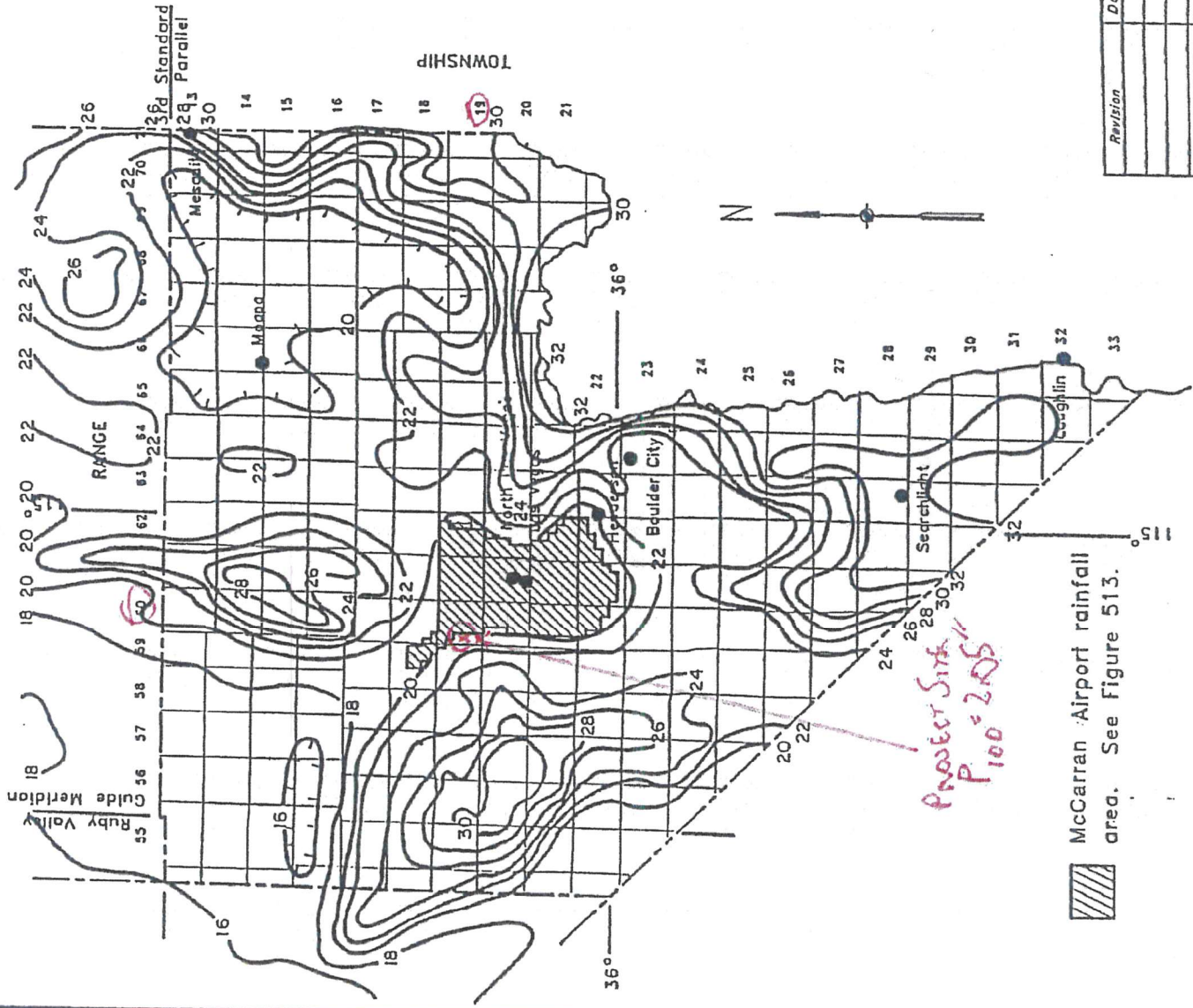
Comments:

Skye Canyon West Basins, East of Skye Village and South of Iron Mountain
Skye Canyon East Basins, South of Iron Mountain

* Equations taken from the Clark County Regional Flood Control District - Hydrologic Criteria and Drainage Design Manual

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

RAINFALL DEPTH-DURATION-FREQUENCY 100-YEAR, 6-HOUR (DEPTHS IN TENTHS OF INCHES)



Revision	Date

PRECIPITATION ADJUSTMENT RATIOS

<u>Recurrence Interval</u>	<u>Ratio to NOAA Atlas 2</u>
2-year	1.00
5-year	1.16
10-year	1.24
25-year	1.33
50-year	1.39
100-year	1.43

- NOTE: 1. Multiply the values obtained from the NOAA Atlas 2 by the above ratios to obtain the adjusted precipitation values.
2. NOAA Atlas 2 values for use with TR-55 shall not be adjusted by the above ratios.
3. Tables 505 and 506 require no adjustments.

Revision	Date

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

SIX HOUR DEPTH-AREA REDUCTION FACTORS

<u>Drainage Area (Square Miles)</u>	<u>Six-Hour Depth--Area Reduction Factor</u>
0.0	1.00
0.5	0.98
1.0	0.97
2.0	0.93
4.0	0.91
6.0	0.90
8.0	0.88
10.0	0.86
20.0	0.79
30.0	0.74
50.0	0.68
100.0	0.60
150.0	0.55
200.0	0.51
300.0	0.46
400.0	0.42
500.0	0.39

NOTES: 1. A graphical representation of these factors is presented in Figure 514.

2. Consult with the local entity and/or the CCRFCD for guidance in using the Depth-Area Reduction Factors for drainage areas greater than 200 square miles.

<i>Revision</i>	<i>Date</i>

**WRC
ENGINEERING**

REFERENCE:
USACE, Los Angeles District, 1988

TABLE 502

SIX-HOUR STORM DISTRIBUTIONS

Storm Time (In Minutes)	Percent of Total Storm Depth		Storm Time (In Minutes)	Percent of Total Storm Depth	
	SDN3	SDN4		SDN3	SDN4
0	0.0	0.0	185	32.2	37.6
5	2.0	2.0	190	35.2	41.5
10	5.7	5.8	195	40.9	46.2
15	7.0	7.5	200	49.9	53.0
20	8.7	9.9	205	59.0	61.0
25	10.8	12.6	210	71.0	71.0
30	12.4	13.7	215	74.4	73.2
35	13.0	14.5	220	78.1	75.6
40	13.0	14.9	225	81.2	78.2
45	13.0	15.1	230	81.9	79.9
50	13.0	15.5	235	83.5	81.3
55	13.0	15.6	240	85.1	82.3
60	13.0	15.9	245	85.6	83.0
65	13.3	16.2	250	86.0	83.5
70	14.0	16.9	255	86.8	84.4
75	14.2	17.2	260	87.6	85.1
80	14.8	17.9	265	88.8	86.4
85	15.8	18.9	270	91.0	88.5
90	17.2	20.1	275	92.6	90.8
95	18.1	21.1	280	93.7	92.4
100	19.0	22.0	285	95.0	94.4
105	19.7	22.8	290	97.0	96.8
110	19.9	23.2	295	97.6	97.3
115	20.0	24.0	300	98.2	97.8
120	20.1	24.6	305	98.5	98.2
125	20.4	25.2	310	98.7	98.4
130	21.4	26.0	315	98.9	98.6
135	22.9	26.9	320	99.0	98.8
140	24.1	27.6	325	99.3	99.1
145	24.9	28.3	330	99.3	99.2
150	25.1	28.6	335	99.4	99.3
155	25.6	29.2	340	99.5	99.4
160	27.0	30.2	345	99.8	99.7
165	27.8	31.2	350	99.8	99.8
170	28.1	32.1	355	99.9	99.9
175	28.3	33.2	360	100.0	100.0
180	29.5	35.2			

- Notes: 1. For drainage areas less than 8 square miles in size, use SDN 3.
 2. For drainage areas greater than or equal to 8 square miles and less than 12 square miles in size, use SDN 4.
 3. For drainage areas greater than or equal to 12 square miles, use SDN 5.
 4. A graphical representation of these values is presented on Figure 515.

Revision	Date

REFERENCE:

TABLE 503

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

RUNOFF CURVE NUMBERS (URBAN AREAS¹)

Cover description	Average percent impervious area ²	Curve numbers for hydrologic soil group—			
		A	B	C	D
<i>Fully developed urban areas (vegetation established)</i>					
Open space (lawns, parks, golf courses, cemeteries, etc.) ³ :					
Poor condition (grass cover < 50%)	68	79	86	89	
Fair condition (grass cover 50% to 75%)	49	69	79	84	
Good condition (grass cover > 75%)	39	61	74	80	
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way).	98	98	98	98	
Streets and roads:					
Paved: curbs and storm sewers (excluding right-of-way)	98	98	98	98	
Paved: open ditches (including right-of-way)	83	89	92	93	
Gravel (including right-of-way)	76	85	89	91	
Dirt (including right-of-way)	72	82	87	89	
Western desert urban areas:					
Natural desert landscaping (pervious areas only) ⁴ ...	63	77	85	88	
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders).	96	96	96	96	
Urban districts:					
Commercial and business	85	92	94	95	
Industrial	72	88	91	93	
Residential districts by average lot size:					
See Table 602A					
<i>Developing urban areas</i>					
Newly graded areas (pervious areas only, no vegetation) ⁵	77	86	91	94	

1 Average runoff condition, and $I_a = 0.25$.

2 The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system. Impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using Figure 603.

3 CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

4 Composite CN's for natural desert landscaping should be computed using Figure 603 based on the impervious area percentage (CN #98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

5 Composite CN's to use for the design of temporary measures during grading and construction should be computed using Figure 603 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Revision	Date

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REFERENCE:
SCS TR-55, USDA, June 1986.

TABLE 602
1 of 4



ANDERSON WAHLEN & ASSOCIATES
2010 North Rockwood Road, Salt Lake City, Utah 84118
801-591-6529 • info@anwa.com

Standard Form 4 Lag Time Calcs

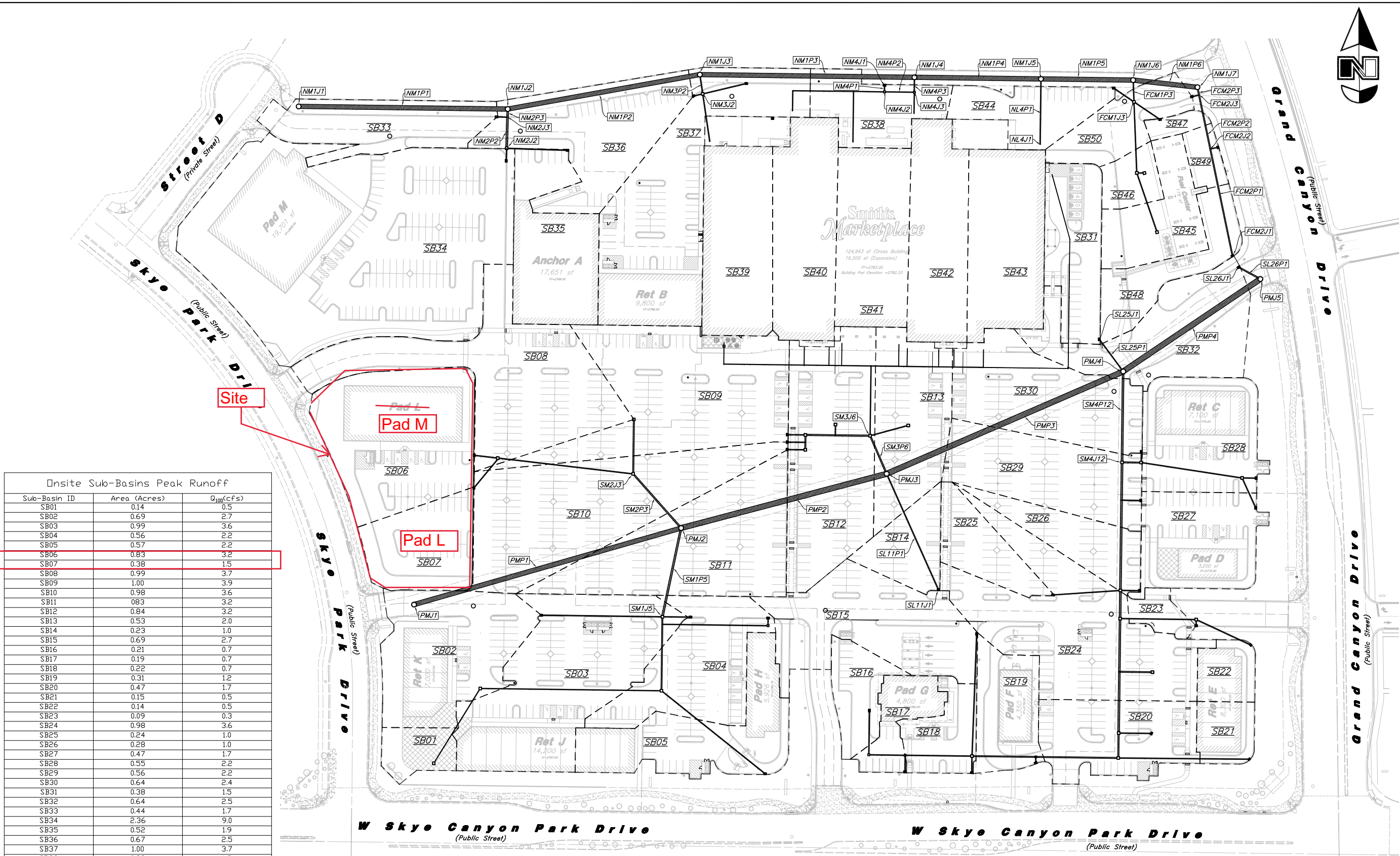
Company: Anderson Wahlen & Associates
By: JTC
Date: 09/26/2016

Project Name: Skye Canyon Village
Description: Onsite Sub-Basins Lag Time Calcs
File Name: Standard Form 4 Lag Time Calcs

Sub-Basin Data					Initial/Overland Time (t _i)				Travel Time (t _t)				t _c Check (Urbanized Basins)		Final t _c		
Desig:	CN	K	Area (ac)	Area (mi ²)	Length (ft)	Slope (%)	t _i (min)	Overland Flow Only?	Length (ft)	Slope (%)	Velocity (fps)	t _t (min)	Total Length (ft)	t _c =(L/180)+10 (min)	min	Lag Time (hr)	Remarks
SKYE CANYON VILLAGE																	
SB01	95	0.864	0.141	0.00022	85	1.2	3.69	YES	N/A	N/A	N/A	N/A	85	10.47	3.69	0.050	
SB02	95	0.864	0.688	0.00108	259	3.4	4.57	YES	N/A	N/A	N/A	N/A	259	11.44	4.57	0.050	
SB03	95	0.864	0.991	0.00155	300	2.6	5.37	NO	32	3.9	3.989	0.13	332	11.84	5.50	0.055	
SB04	95	0.864	0.558	0.00087	277	4.1	4.44	YES	N/A	N/A	N/A	N/A	277	11.54	4.44	0.050	
SB05	95	0.864	0.565	0.00088	263	4.1	4.32	YES	N/A	N/A	N/A	N/A	263	11.46	4.32	0.050	
SB06	95	0.864	0.830	0.00130	130	4.9	2.87	NO	53	2.0	2.857	0.31	183	11.02	3.18	0.050	
SB07	95	0.864	0.376	0.00059	120	4.7	2.79	NO	57	2.0	2.857	0.33	177	10.98	3.12	0.050	
SB08	95	0.864	0.988	0.00154	300	7.5	3.78	NO	162	2.7	3.319	0.81	462	12.57	4.60	0.050	
SB09	95	0.864	0.999	0.00156	300	3.1	5.07	NO	113	2.7	3.319	0.57	413	12.29	5.63	0.056	
SB10	95	0.864	0.983	0.00154	300	3.6	4.82	NO	162	2.9	3.440	0.78	462	12.57	5.61	0.056	
SB11	95	0.864	0.828	0.00129	300	3.3	4.96	NO	112	2.9	3.440	0.54	412	12.29	5.50	0.055	
SB12	95	0.864	0.841	0.00131	228	1.6	5.49	YES	N/A	N/A	N/A	N/A	228	11.27	5.49	0.055	
SB13	95	0.864	0.525	0.00082	156	1.7	4.45	YES	N/A	N/A	N/A	N/A	156	10.87	4.45	0.050	
SB14	95	0.864	0.230	0.00036	144	2.9	3.59	YES	N/A	N/A	N/A	N/A	144	10.80	3.59	0.050	
SB15	95	0.864	0.692	0.00108	300	2.7	5.30	NO	90	2.4	3.129	0.48	390	12.17	5.78	0.058	
SB16	95	0.864	0.211	0.00033	111	2.8	3.19	YES	N/A	N/A	N/A	N/A	111	10.62	3.19	0.050	
SB17	95	0.864	0.187	0.00029	134	2.3	3.74	YES	N/A	N/A	N/A	N/A	134	10.74	3.74	0.050	
SB18	95	0.864	0.220	0.00034	123	3.3	3.18	YES	N/A	N/A	N/A	N/A	123	10.68	3.18	0.050	
SB19	95	0.864	0.313	0.00049	193	3.7	3.83	YES	N/A	N/A	N/A	N/A	193	11.07	3.83	0.050	
SB20	95	0.864	0.473	0.00074	151	1.8	4.30	YES	N/A	N/A	N/A	N/A	151	10.84	4.30	0.050	
SB21	95	0.864	0.146	0.00023	84	1.0	3.89	NO	20	0.8	1.807	0.18	104	10.58	4.08	0.050	
SB22	95	0.864	0.141	0.00022	84	1.0	3.89	NO	20	1.1	2.119	0.16	104	10.58	4.05	0.050	
SB23	95	0.864	0.087	0.00014	93	4.0	2.59	YES	N/A	N/A	N/A	N/A	93	10.52	2.59	0.050	
SB24	95	0.864	0.984	0.00154	300	2.8	5.24	NO	66	3.8	3.938	0.28	366	12.03	5.52	0.055	
SB25	95	0.864	0.238	0.00037	214	2.7	4.48	YES	N/A	N/A	N/A	N/A	214	11.19	4.48	0.050	
SB26	95	0.864	0.279	0.00044	289	2.7	5.20	YES	N/A	N/A	N/A	N/A	289	11.61	5.20	0.052	
SB27	95	0.864	0.473	0.00074	191	1.6	5.03	YES	N/A	N/A	N/A	N/A	191	11.06	5.03	0.050	
SB28	95	0.864	0.552	0.00086	189	1.5	5.11	YES	N/A	N/A	N/A	N/A	189	11.05	5.11	0.051	
SB29	95	0.864	0.563	0.00088	255	2.1	5.31	YES	N/A	N/A	N/A	N/A	255	11.42	5.31	0.053	
SB30	95	0.864	0.642	0.00100	288	2.6	5.26	YES	N/A	N/A	N/A	N/A	288	11.60	5.26	0.053	
SB31	95	0.864	0.384	0.00060	251	1.8	5.54	YES	N/A	N/A	N/A	N/A	251	11.39	5.54	0.055	
SB32	95	0.864	0.637	0.00100	300	4.8	4.38	NO	80	9.4	6.193	0.22	380	12.11	4.60	0.050	
SB33	95	0.864	0.443	0.00069	150	7.4	2.69	NO	184	7.4	5.495	0.56	334	11.86	3.25	0.050	
SB34	95	0.864	2.361	0.00369	300	4.0	4.66	NO	158	4.0	4.040	0.65	458	12.54	5.31	0.053	
SB35	95	0.864	0.516	0.00081	165	1.0	5.46	NO	76	3.4	3.725	0.34	241	11.34	5.80	0.058	
SB36	95	0.864	0.670	0.00105	299	3.8	4.73	YES	N/A	N/A	N/A	N/A	299	11.66	4.73	0.050	
SB37	95	0.864	0.999	0.00156	300	1.3	6.75	NO	73	1.5	2.474	0.49	373	12.07	7.24	0.072	
SB38	95	0.864	0.319	0.00050	108	1.6	3.78	YES	N/A	N/A	N/A	N/A	108	10.60	3.78	0.050	
SB39	95	0.864	0.550	0.00086	258	1.0	6.82	YES	N/A	N/A	N/A	N/A	258	11.43	6.82	0.068	
SB40	95	0.864	0.571	0.00089	295	1.0	7.30	YES	N/A	N/A	N/A	N/A	295	11.64	7.30	0.073	
SB41	95	0.864	0.542	0.00085	298	1.0	7.33	YES	N/A	N/A	N/A	N/A	298	11.66	7.33	0.073	
SB42	95	0.864	0.526	0.00082	299	1.0	7.35	YES	N/A	N/A	N/A	N/A	299	11.66	7.35	0.073	
SB43	95	0.864	0.582	0.00091	242	1.0	6.61	YES	N/A	N/A	N/A	N/A	242	11.34	6.61	0.066	
SB44	95	0.864	0.281	0.00044	156	4.2	3.30	YES	N/A	N/A	N/A	N/A	156	10.87	3.30	0.050	
SB45	95	0.864	0.337	0.00053	137	1.5	4.35	YES	N/A	N/A	N/A	N/A	137	10.76	4.35	0.050	
SB46	95	0.864	0.124	0.00019	59	2.9	2.30	YES	N/A	N/A	N/A	N/A	59	10.33	2.30	0.050	
SB47	95	0.864	0.064	0.00010	67	2.0	2.77	YES	N/A	N/A	N/A	N/A	67	10.37	2.77	0.050	

Ref. Subbasin and Areas

Onsite Sub-Basins Peak Runoff		
Sub-Basin ID	Area (Acres)	Q ₁₀₀ (cfs)
SB01	0.14	0.5
SB02	0.69	2.7
SB03	0.99	3.6
SB04	0.56	2.2
SB05	0.57	2.2
SB06	0.83	3.2
SB07	0.38	1.5
SB08	0.99	3.7
SB09	1.00	3.9
SB10	0.98	3.6
SB11	0.83	3.2
SB12	0.84	3.2
SB13	0.53	2.0
SB14	0.23	1.0
SB15	0.69	2.7
SB16	0.21	0.7
SB17	0.19	0.7
SB18	0.22	0.7
SB19	0.31	1.2
SB20	0.47	1.7
SB21	0.15	0.5
SB22	0.14	0.5
SB23	0.09	0.3
SB24	0.98	3.6
SB25	0.24	1.0
SB26	0.28	1.0
SB27	0.47	1.7
SB28	0.55	2.2
SB29	0.56	2.2
SB30	0.64	2.4
SB31	0.38	1.5
SB32	0.64	2.5
SB33	0.44	1.7
SB34	2.36	9.0
SB35	0.52	1.9
SB36	0.67	2.5
SB37	1.00	3.7
SB38	0.32	1.2
SB39	0.55	2.1
SB40	0.57	2.1
SB41	0.54	1.8
SB42	0.53	1.8
SB43	0.58	2.1
SB44	0.28	1.0
SB45	0.34	1.2
SB46	0.12	0.5
SB47	0.06	0.3
SB48	0.30	1.2
SB49	0.08	0.3
SB50	0.27	1.0

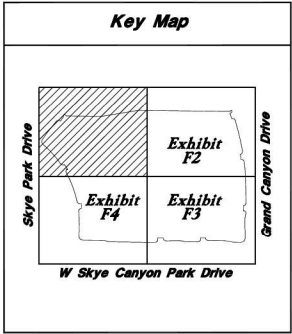


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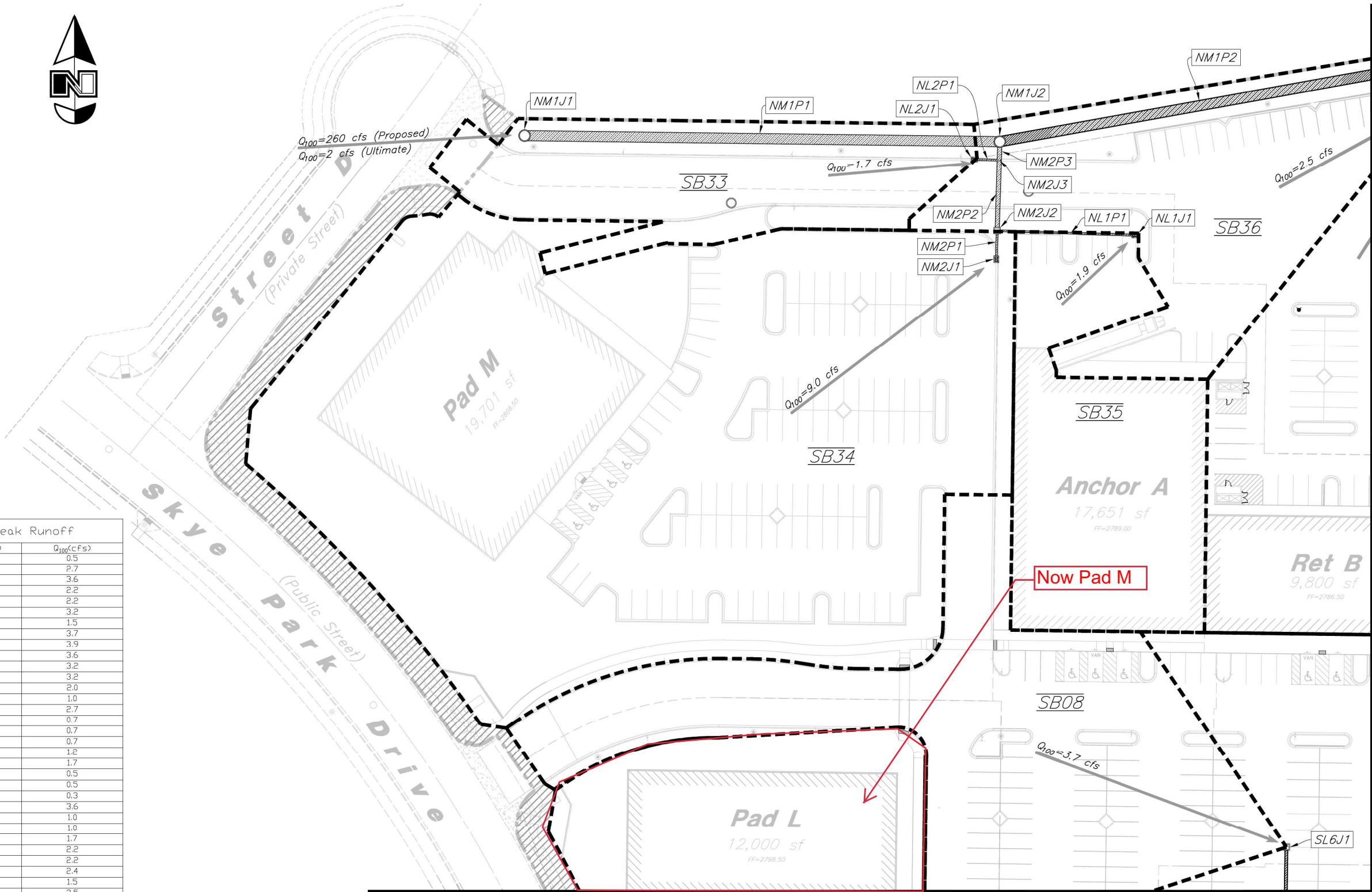
#367
Las Vegas, Nevada

Anderson Wahlen & Associates 2010 North Redwood Road, Salt Lake City, Utah 84116 801-521-8529 - awhengineering.net	Overall Drainage Network Map Skye Canyon Village West Skye Canyon Park Drive & Grand Canyon Drive Las Vegas, Nevada	24 Oct, 2016 SHEET NO. F5
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Onsite Sub-Basins Peak Runoff		
Sub-Basin ID	Area (Acres)	Q ₁₀₀ (cfs)
SB01	0.14	0.5
SB02	0.69	2.7
SB03	0.99	3.6
SB04	0.56	2.2
SB05	0.57	2.2
SB06	0.83	3.2
SB07	0.38	1.5
SB08	0.99	3.7
SB09	1.00	3.9
SB10	0.98	3.6
SB11	0.83	3.2
SB12	0.84	3.2
SB13	0.53	2.0
SB14	0.23	1.0
SB15	0.69	2.7
SB16	0.21	0.7
SB17	0.19	0.7
SB18	0.22	0.7
SB19	0.31	1.2
SB20	0.47	1.7
SB21	0.15	0.5
SB22	0.14	0.5
SB23	0.09	0.3
SB24	0.98	3.6
SB25	0.24	1.0
SB26	0.28	1.0
SB27	0.47	1.7
SB28	0.55	2.2
SB29	0.56	2.2
SB30	0.64	2.4
SB31	0.38	1.5
SB32	0.64	2.5
SB33	0.44	1.7
SB34	2.36	9.0
SB35	0.52	1.9
SB36	0.67	2.5
SB37	1.00	3.7
SB38	0.32	1.2
SB39	0.55	2.1
SB40	0.57	2.1
SB41	0.54	1.8
SB42	0.53	1.8
SB43	0.58	2.1
SB44	0.28	1.0
SB45	0.34	1.2
SB46	0.12	0.5
SB47	0.06	0.3
SB48	0.30	1.2
SB49	0.08	0.3
SB50	0.27	1.0



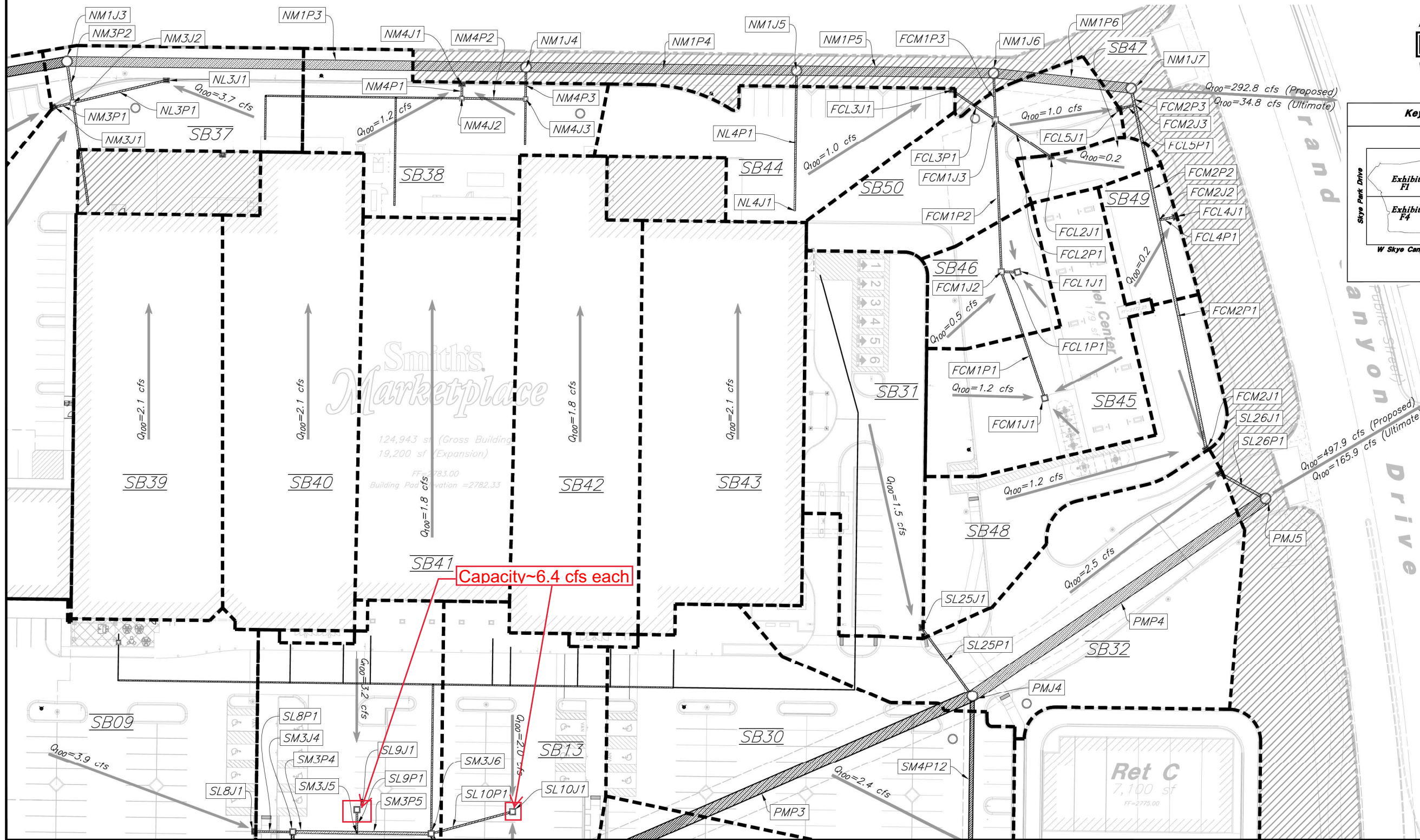
Smith's
FOOD & DRUG STORES
1550 South Redwood Road
Salt Lake City, Utah 84104
Telephone (801) 974-1400

#367
Las Vegas, Nevada

DESIGNED BY: KR	DATE: _____	DESCRIPTION: _____		
DRAFTED BY: JC	REV: _____	_____		
CLIENT NAME: Smith's Food & Drug	_____	_____		
Drainage Basins Exhibit	_____	_____		
 ANDERSON WAHLEN & ASSOCIATES 2010 North Redwood Road, Salt Lake City, Utah 84116 801-521-8529 - AWEngineering.net	Onsite Drainage Basin & Storm Drain Network Exhibit			
Skye Canyon Village West Skye Canyon Park Drive & Grand Canyon Drive Las Vegas, Nevada				
24 Oct, 2016				
SHEET NO. F1				

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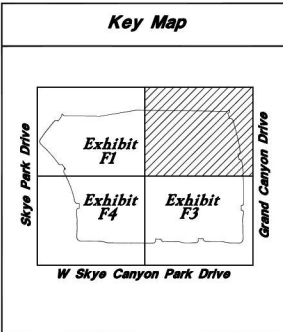
Match Line See Sheet F1



Match Line See Sheet F3

Note:
- See Sheet F1 for "On-Site
Sub-Basins Peak Runoff" Table

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Las Vegas, Nevada



Onsite Drainage Basin & Storm Drain Network Exhibit

Skye Canyon Village
West Skye Canyon Park Drive & Grand Canyon Drive
Las Vegas, Nevada

ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
801-521-8529 - AWEengineering.net

Designed by: KR
Drafted by: JC
Client Name:
Smith's Food & Drug
Drainage Basins Exhibit

REV	DATE	DESCRIPTION

24 Oct, 2016
SHEET NO.
F2

Match Line See Sheet F4



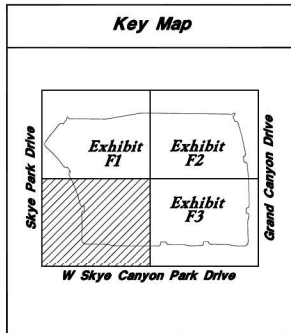
Skye Canyon Village
West Skye Canyon Park Drive & Grand Canyon Drive
Las Vegas, Nevada

ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
801 521-8529 — AWEngineering.net

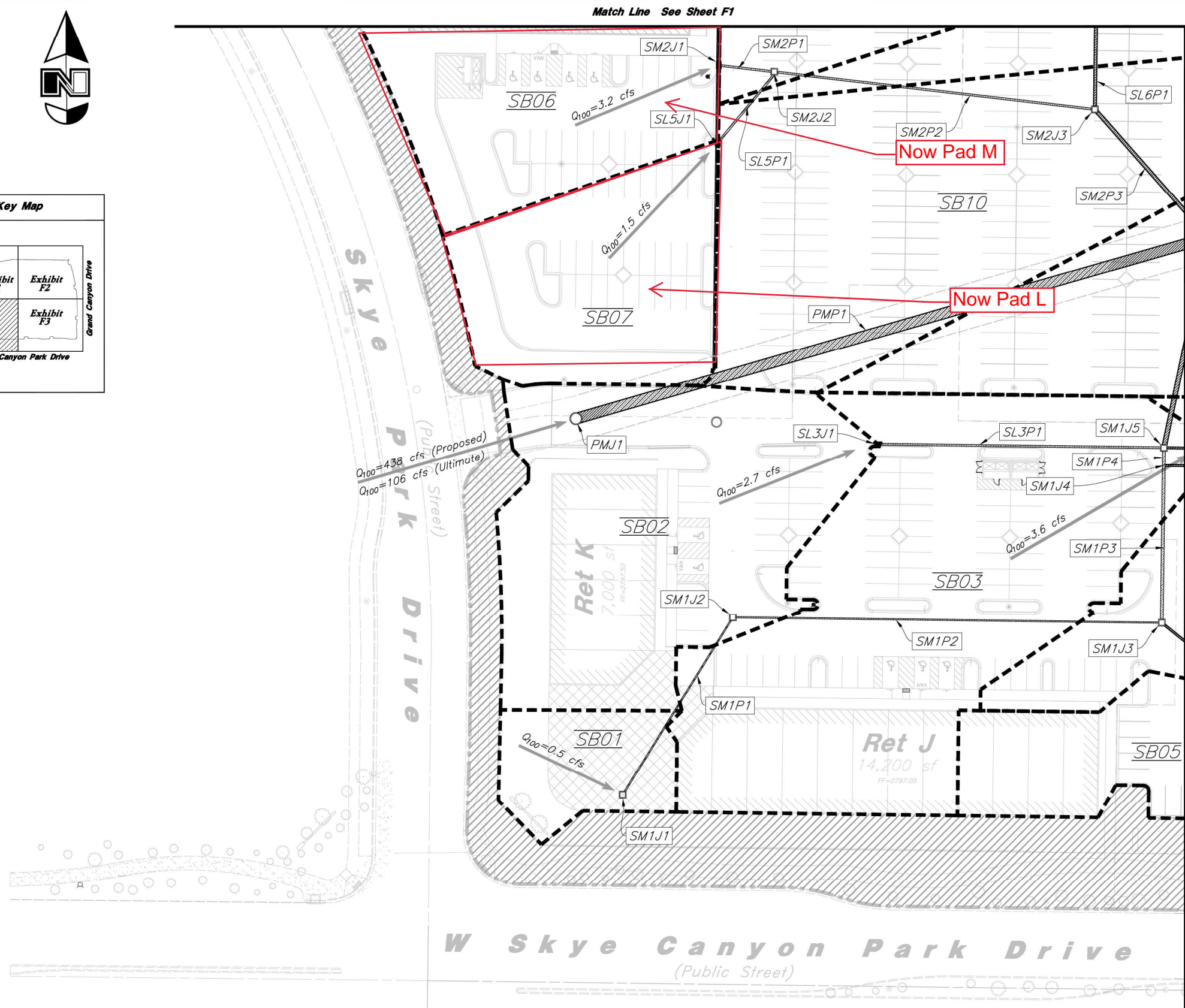
Designed by: KR
Drafted by: JC
Client Name: Smith's Food & Drug
Drainage Basins Exhibit

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Onsite Sub-Basins Peak Runoff		
Sub-Basin ID	Area (Acres)	Q ₁₀₀ (cfs)
SB01	0.14	0.5
SB02	0.69	2.7
SB03	0.99	3.6
SB04	0.56	2.2
SB05	0.57	2.2
SB06	0.83	3.2
SB07	0.38	1.5
SB08	0.99	3.7
SB09	1.00	3.9
SB10	0.98	3.6
SB11	0.83	3.2
SB12	0.84	3.2
SB13	0.53	2.0
SB14	0.23	1.0
SB15	0.69	2.7
SB16	0.21	0.7
SB17	0.19	0.7
SB18	0.22	0.7
SB19	0.31	1.2
SB20	0.47	1.7
SB21	0.15	0.5
SB22	0.14	0.5
SB23	0.09	0.3
SB24	0.98	3.6
SB25	0.24	1.0
SB26	0.28	1.0
SB27	0.47	1.7
SB28	0.55	2.2
SB29	0.36	2.2
SB30	0.64	2.4
SB31	0.38	1.5
SB32	0.64	2.5
SB33	0.44	1.7
SB34	2.36	9.0
SB35	0.52	1.9
SB36	0.67	2.5
SB37	1.00	3.7
SB38	0.32	1.2
SB39	0.55	2.1
SB40	0.57	2.1
SB41	0.54	1.8
SB42	0.53	1.8
SB43	0.58	2.1
SB44	0.28	1.0
SB45	0.34	1.2
SB46	0.12	0.5
SB47	0.06	0.3
SB48	0.30	1.2
SB49	0.08	0.3
SB50	0.27	1.0



Smith's
FOOD & DRUG STORES
1550 South Redwood Road
Salt Lake City, Utah 84104
Telephone (801) 974-1400

#367
Las Vegas, Nevada

DESIGNED BY: KR	DATE:	DESCRIPTION:
DRAFTED BY: JC	REV:	
CLIENT NAME: Smith's Food & Drug		
Drainage Basins Exhibit		
 ANDERSON WAHLEN & ASSOCIATES 2010 North Redwood Road, Salt Lake City, Utah 84116 801-521-8529 - AWAengineering.net		
Onsite Drainage Basin & Storm Drain Network Exhibit		
Skye Canyon Village West Skye Canyon Park Drive & Grand Canyon Drive Las Vegas, Nevada		
24 Oct, 2016		
SHEET NO. F4		

Basin & Snout Flow Capacity Table

Reference Appendix E
inlet capacity + catch
basin capacity calculations

 Inlet Capacity Table Company: Anderson Wahlen & Associates By: James Copeland Date: October 24, 2016 Project Name: Skye Canyon Village Description: Inlet Capacity Table File Name: 2016-10-24 Inlet Capacity Table						
Name of Inlet	Reference Exhibit	Type of Inlet	Drainage Area (ac)	2-Yr, 6-Hr Flow to Inlet (cfs)	100-Yr, 6-Hr Flow to Inlet (cfs)	Capacity of Inlet (cfs)
NM2J1	F1	3"x2' Inlet Box	2.36	1.12	9.0	4.97
NL1J1	F1	3"x2' Inlet Box	0.52	0.25	1.9	4.97
NL2J1	F1	3"x2' Inlet Box	0.44	0.21	1.7	4.97
SL6J1	F1	3"x3' Catch Basin	0.99	0.47	3.7	4.97
NM3J1	F2	3"x2' Inlet Box	0.67	0.32	2.5	4.97
NL3J1	F2	3"x2' Inlet Box	1.00	0.47	3.7	4.97
NM4J1	F2	3"x2' Inlet Box	0.32	0.15	1.2	4.97
FCL3J1	F2	3"x2' Inlet Box	0.28	0.13	1.0	4.97
FCL5J1	F2	3"x2' Inlet Box	0.27	0.13	1.0	4.97
FCL4J1	F2	3"x2' Inlet Box	0.08	0.04	0.2	4.97
FCL2J1	F2	3"x2' Inlet Box	0.06	0.03	0.2	4.97
FCL1J1	F2	3"x3' Catch Basin	0.12	0.06	0.5	4.77
FCM1J1	F2	3"x3' Catch Basin	0.34	0.16	1.2	4.77
FCM2J1	F2	3"x2' Inlet Box	0.30	0.14	1.2	4.97
SL25J1	F2	3"x2' Inlet Box	0.38	0.18	1.5	4.97
SL26J1	F2	3"x2' Inlet Box	0.64	0.30	2.5	4.97
SL8J1	F2	3"x2' Inlet Box	1.00	0.47	3.9	4.97
SL9J1	F2	3"x3' Catch Basin	0.84	0.40	3.2	4.77
SL10J1	F2	3"x3' Catch Basin	0.53	0.25	2.0	4.77
SL7J1	F3	3"x2' Inlet Box	0.98	0.46	3.6	4.97
SM3J1	F3	3"x2' Inlet Box	0.83	0.39	3.2	4.97
SL24J1	F3	3"x2' Inlet Box	0.64	0.30	2.4	4.97
SM6J1	F3	3"x2' Inlet Box	0.55	0.26	2.2	4.97
SL22J1	F3	3"x2' Inlet Box	0.56	0.27	2.2	4.97
SL23J1	F3	3"x2' Inlet Box	0.47	0.22	1.7	4.97
SL21J1	F3	3"x2' Inlet Box	0.28	0.13	1.0	4.97
SL20J1	F3	3"x2' Inlet Box	0.24	0.11	1.0	4.97
SL19J1	F3	3"x2' Inlet Box	0.09	0.04	0.2	4.97
SM5J1	F3	3"x2' Inlet Box	0.14	0.07	0.5	4.97
SL18J1	F3	3"x3' Catch Basin	0.98	0.46	3.6	4.77
SL17J1	F3	3"x2' Inlet Box	0.47	0.22	1.7	4.97
SL16J1	F3	3"x2' Inlet Box	0.15	0.07	0.5	4.97
SL15J1	F3	3"x2' Inlet Box	0.31	0.15	1.2	4.97
SL14J1	F3	3"x2' Inlet Box	0.22	0.10	0.7	4.97
SL13J1	F3	3"x2' Inlet Box	0.69	0.33	2.6	4.97
SL12J1	F3	3"x2' Inlet Box	0.19	0.09	0.7	4.97
SL11J1	F3	3"x2' Inlet Box	0.23	0.11	1.0	4.97
SM4J1	F3	3"x2' Inlet Box	0.21	0.10	0.7	4.97
SL1J1	F3	3"x2' Inlet Box	0.57	0.27	2.2	4.97
SL2J1	F3	3"x2' Inlet Box	0.56	0.27	2.2	4.97
SL4J1	F3	3"x2' Inlet Box	0.99	0.47	3.6	4.97
SM1J1	F4	3"x3' Catch Basin	0.14	0.07	0.5	4.77
SL3J1	F4	3"x2' Inlet Box	0.69	0.33	2.7	4.97
SL5J1	F4	3"x2' Inlet Box	0.38	0.18	1.5	4.97
SM2J1	F4	3"x2' Inlet Box	0.83	0.39	3.2	4.97

See next page
for BMP design
discharge calculation



ANDERSON WAHLEN & ASSOCIATES

Project Name SKYE CANYON VILLAGE

Date 10/24/2016

BMP DESIGN DISCHARGE CALCULATION

D_2 SITE / D_2 McCARRAN AREA = 1.0

PERCENT IMPERVIOUS AREA = 85

MAXIMUM SUB-BASIN AREA = 1.00 ACRES

Reference Section
1502.3 for equations
used to calculate
BMP design peak
discharge

$$D_{85} = 1.0 \times 0.32 = 0.32''$$

$$Q_p/A (90\%) = 1.5042(0.32) + 0.0066 = 0.4879$$

$$Q_p/A = 0.4879 \cdot (0.0059(85) + 0.4688) = 0.473$$

$$Q_p = 0.473 \times 1.0 \text{ acres} \approx \underline{\underline{0.47 \text{ cfs}}}$$

0.47 is the maximum 2-year, 6-hour discharge any onsite oil/water separator (snout) would be required to treat, given a 1.0-acre maximum drainage area.

Snout Supporting Information

Best Management Products, Inc.

SNOUT Oil-Water-Debris Separator

K-factor Worksheet. Outlet pipe partially full. $H = K V_o^2 / (2g)$

where H=Head loss in manhole with SNOUT (ft). K=K factor from table.

V_o =Outlet pipe velocity (fps). $g=32.174 \text{ ft/s}^2$

MAX RECOMMENDED FLOWS- Call 800-504-8008 for more guidance

BMP SNOUT Model	Max. Pipe I.D. (in.)*	INPUTS		RESULTS	
		Max Flow (cfs)	Design Velocity (fps)	Head Loss w/ SNOUT (ft.)	K factor
12F	10	0.55	5	0.43	1.10
12R	10	0.6	5	0.43	1.11
18F	15	2.9	5	0.51	1.31
18R	15	3.4	5	0.51	1.32
24F	18	7	6	0.93	1.67
24R	18	8.25	6	0.93	1.66
30F	24	11	8	0.94	0.95
30R	24	13	8	0.90	0.90
36FTB	30	19	9	1.36	1.08
42RTB60	30	26	10	1.43	0.92
48F	36	36	10	1.54	0.99
52RTB72	42	42	10	1.62	1.04
72FTBB	60	90	10	1.90	1.22
72RTB96	66	95	10	2.35	1.51
96FTB	60	110	10	0.90	0.58
96FTBB	72	120	10	1.07	0.69

**SNOUT must fit over pipe O.D. to ensure proper installation. Pipes with heavy wall thickness (e.g. RCP) may require a larger SNOUT size to fit over the pipe even though pipe I.D. could be accommodated by a smaller SNOUT*

USER NOTE: To increase flow capacity or to minimize losses, choose a larger SNOUT model as needed.

BMP, Inc.	
Phone:	(800) 504-8008
Fax:	(410) 687-6757
Website:	www.bmpinc.com
Email:	tjm@bmpinc.com

The SNOUT®

+ Bio-Skirt®

+ TrashScreen™

+ SAFL Baffle™

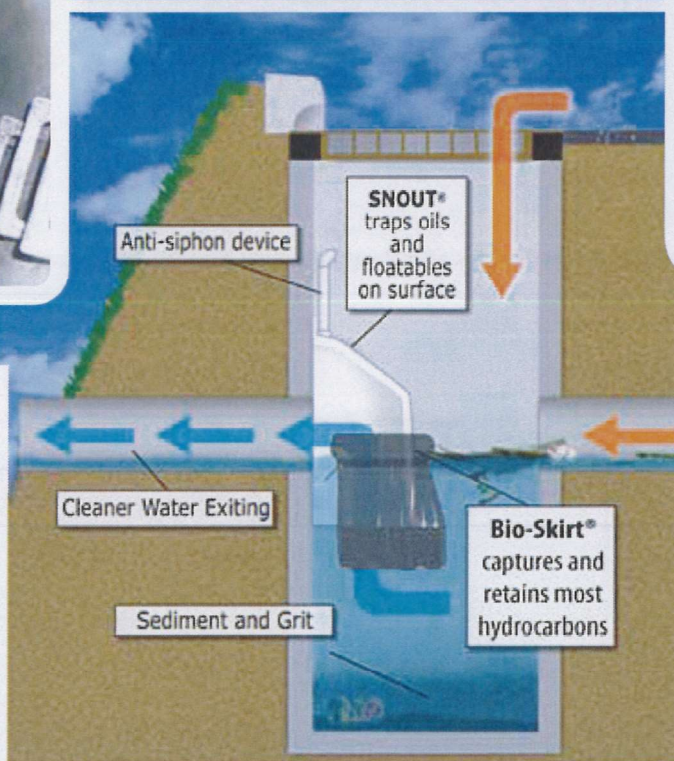
Stormwater Solutions

*for Water Quality Improvement
and Low Impact Design*



+ SAFL Baffle™ for T.S.S.

+ TrashScreen for
Full Trash Capture



- Engineer Trusted
- Contractor Friendly
- Easy to Install & Maintain
- All Sizes in Stock
- Fits all inlet shapes
- Sizes for up to 72" ID pipes
- Pollution Removal Capability for any sumped structure!

+ Bio-Skirt®
for Oil and Grease



BMP makes stormwater quality affordable!

Make the most of your stormwater dollars with the SNOUT® system. More than 65,000 SNOUTs have been installed in North America since 1999. We have stormwater quality experts on staff to help you design with the SNOUT, Bio-Skirt, Stainless Steel TrashScreen and SAFL Baffle.

Whether it is for highway or municipal drainage, government facilities, harbor use, educational or healthcare institutions, LID, or commercial and industrial development-- we have the experience. **Now get verified T.S.S. reductions with the SAFL Baffle.** Visit bmpinc.com or call 800-504-8008.

US Patents 6126817, 7951294, 7857966, 8512556

Canada Patent 2285146, 2688012, 2690156 Others Pending

The SAFL Baffle is a patented and trademarked product of Upstream Technologies, Inc.



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BMP

Best Management Products, Inc.
53 Mt. Archer Rd. Lyme, CT 06371
800-504-8008 or 888-434-0277
fax 877-434-3197
www.bmpinc.com

13 November 2007

Mr. T.J. Mullen
Best Management Products, Inc.
53 Mount Archer Road
Lyme, Connecticut 06371

Dear Mr. Mullen:

As part of the 2002 – 2003 watershed project for Lake Peekskill, SNOUT stormwater retrofits were installed in the Town of Putnam Valley. These retrofits were chosen since large, structural Best Management Practices (BMPs) would be difficult to install these residential areas. On 9 May 2003, the Putnam Valley Department of Public Works installed two SNOUT devices into two previously identified catch basins. The SNOUTs were monitored four times during 2003; 18 September, 25 September, 12 December, and 29 December. Stormwater samples were collected entering and exiting the SNOUT retrofitted catch basins and were analyzed for total phosphorus (TP) and total suspended solids (TSS). In order to estimate the pollutant loads entering and exiting the devices, rainfall data (Northeast Regional Climate Center: <http://climod.nrcc.cornell.edu/>), measured pollutant concentrations, and the immediate drainage area were used. Specifically, the following equation was used to estimate the pollutant load entering and exiting the SNOUT devices:

$$L = R * A * C$$

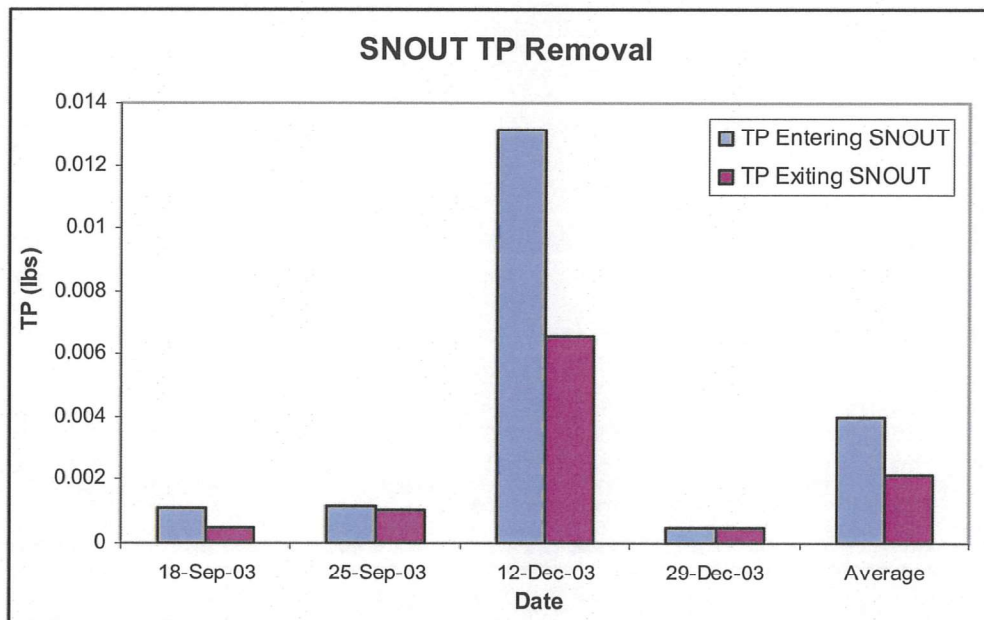
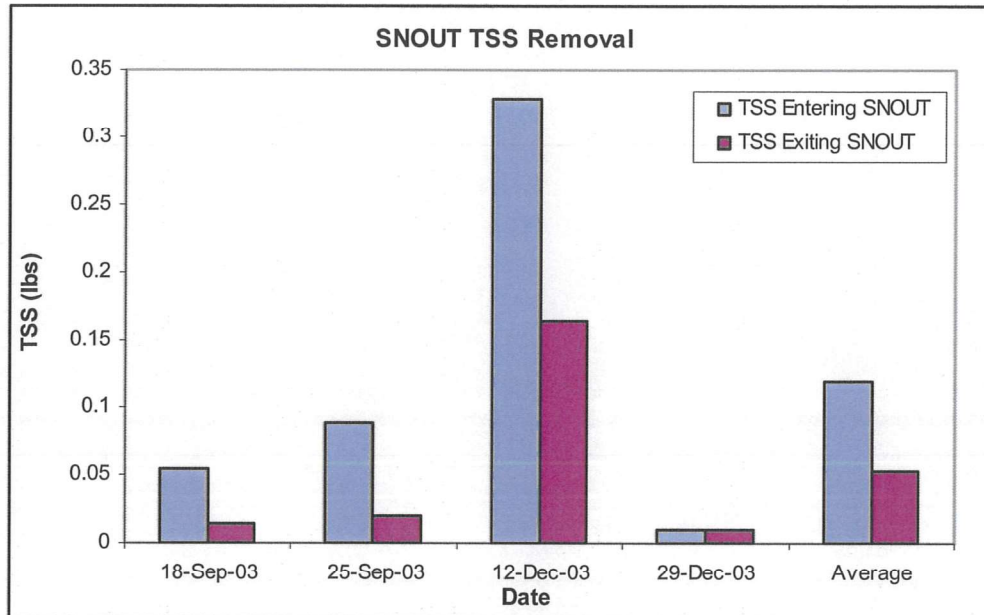
Where L = Pollutant load (lbs)
R = Rainfall during sampling event (meters)
A = Drainage area (m²)
C = pollutant concentration (mg/ L)

It should be noted that rainfall data during the 29 December 2003 sampling event was not available through the Cornell Climod database; thus, Princeton Hydro estimated the amount of rainfall to be 0.1 inches. In addition, the area of land draining into the SNOUT devices were estimated to be 880 m², using ArcGIS and the limited existing topographic data. The SNOUT devices removed both TSS and TP from stormwater entering the SNOUT devices from the surrounding drainage area. On average the SNOUTs reduced TSS by 56% and TP by 46%. Please refer to the figures at the end of this document for additional removal data. Please note that these are rough estimates since the exact drainage area and amount of rainfall were approximated.

Based on these data, the SNOUT-modified catch basins demonstrated the potential to remove the TSS and TP pollutant loads originating from surface runoff. If you have any questions or comments, please contact us at (610) 524 – 4220.

Sincerely,

Mary Lambert
GIS Specialist/ Scientist



DWG No. HANSEN No. 66211

CITY OF LAS VEGAS GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA," LATEST EDITION; THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION, CLARK COUNTY AREA, NEVADA," LATEST REVISION; THE "SUMMERLIN IMPROVEMENT STANDARDS" FOR WORK IN THE SUMMERLIN AREA AND OTHER APPLICABLE APPROVED STANDARDS ISSUED BY THE CONTROLLING AGENCY; THE "UNIFORM BUILDING CODE" AND ALL LOCAL CITY CODES AND ORDINANCES APPLICABLE. EXCEPT AS NOTED ON THIS SHEET AS "DEVIATIONS FROM STANDARDS".
2. THE EXISTENCE AND LOCATION OF ANY OVERHEAD OR UNDERGROUND UTILITY LINES, RPES, OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A RESEARCH OF THE AVAILABLE RECORDS. EXISTING UTILITIES AS SHOWN FROM CLV PLANS LIBRARY ARE APPROXIMATE AND FOR RECORD PURPOSES. EXISTING UTILITIES ARE LOCATED ON PLANS ONLY FOR THE CONVENIENCE OF THE CONTRACTOR. EXISTING UTILITY SERVICE LATERALS MAY NOT BE SHOWN ON THE PLANS. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, LOCATE ALL UNDERGROUND AND OVERHEAD INTERFERENCE 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 OR 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 DESIGN TO BE APPROVED BY THE CITY, PRIOR TO THE USE ON THE PROJECT.
6. PERMITS ARE REQUIRED FOR ANY WORK IN THE PUBLIC RIGHT-OF-WAY. THE CONTRACTOR SHALL SECURE ALL PERMITS AND INSPECTIONS REQUIRED FOR THIS CONSTRUCTION.
7. EXPANSION JOINTS REQUIRED, MAXIMUM EVERY 300' IN EXTRUDED-TYPE CURB.
8. AC PAVEMENT TO BE ONE-HALF INCH (1/2") ABOVE UP OF ALL GUTTERS AFTER COMPACTION. EXCEPT AT SIDEWALK RAMPS AND CROSS GUTTERS.
9. CURB AND GUTTER FOUND TO BE UNACCEPTABLE TO THE CITY OF LAS VEGAS SHALL BE REMOVED AND REPLACED PER STANDARD DRAWING 216.
10. SIDEWALK RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER 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 WRIGIT ENGINEERS GEOTECHNICAL REPORT FOR SKYE CANYON VILLAGE NORTHWEST CORNER OF SKYE CANYON PARK DRIVE AND GRAND CANYON DRIVE, LAS VEGAS, NEVADA, MAY 20, 2016. PROJECT NUMBER 180165. APPROVED BY THE CITY ENGINEER, AND AS SHOWN ON THESE PLANS.
13. EXACT LOCATION OF ALL SAWCUT LINES MAY BE ADJUSTED OR DETERMINED IN THE FIELD BY A CITY OF LAS VEGAS ENGINEER IF LOCATION ON PLANS IS NOT CLEARLY SHOWN. OR EXISTING PAVEMENT CONDITION REQUIRES RELOCATIONS.
14. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT EXISTING PERMANENT SURVEY MONUMENTS. ANY MONUMENTS DISTURBED SHALL BE REPLACED AND ADJUSTED PER AVAILABLE RECORDS IN ACCORDANCE WITH N.M.S. STATUTE NO. 65-2380 & CITY OF LAS VEGAS TITLE 18, APPENDIX D.
15. UTILITY COMPANY WATER 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 REVEIVING GRADING RELATIONS; 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 RIGHTS OF WAY.
18. CONTRACTOR SHALL ADJUST ALL NEW AND EXISTING INLETS, VALVE BOXES, MANHOLE RIMS, AND SEWER CLEANOUTS, ETC., TO FINISH GRADE AS APPLICABLE WHETHER OR NOT THEY ARE SHOWN ON THE PLANS.
19. MATERIALS, HANDLING AND PLACEMENT OF PORTLAND CEMENT CONCRETE SHALL BE IN ACCORDANCE WITH APPLICABLE SECTIONS OF NDOT OR THE CLARK COUNTY AREA SPECIFICATIONS (AS APPLICABLE) AND THE PLANS AND DETAILS SHOWN HEREON.
20. WHEN INSTALLING UNDERGROUND FACILITIES THAT REQUIRE UNDERGROUND LOCATING DEVICES SUCH AS MARKER BAILS, LOCATING FIBER, ETC. THE CONTRACTOR SHALL PROVIDE WRITTEN DOCUMENTATION TO OPERATE INSURING 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 FACILITIES SHOWN ON THESE PLANS SHALL BE USED TO MEET THE REQUIREMENTS OF NRS 455 AND SHALL SHOW AT A MINIMUM THE HORIZONTAL AND VERTICAL (INVERT) LOCATION OF PUBLIC SEWER MANHOLES, STORM DRAIN MANHOLES, STORM DRAIN LATERALS AT THE CONNECTION TO THE STORM DRAIN MAIN AND AT THE CONNECTION TO A DROP INLET, AND THE CONNECTION OF SEWER SERVICE LATERALS TO THE SEWER MAIN AND WHERE THE SEWER SERVICE LATERALS EXIT THE PUBLIC RIGHT-OF-WAY. ANY DEVIATIONS FROM THE INFORMATION SHOWN SHALL BE NOTED AND SUBMITTED AS A REVISION TO THE PLANS AND APPROVED PRIOR TO ACCEPTANCE OF FACILITY VIDEO INSPECTION.
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 FEBRUARY 02, 2015

UTILITY NOTES

NY ENERGY, CENTRAL TELEPHONE CO, DBA CENTURY LINK TELEPHONE, AND SOUTHWEST GAS SHOWN FOR INFORMATIONAL PURPOSES ONLY. REFERENCE NY ENERGY, CENTRAL TELEPHONE CO, DBA CENTURY LINK TELEPHONE, AND SOUTHWEST GAS DRAWINGS FOR CONSTRUCTION DETAILS. CONTRACTOR TO COORDINATE WITH UTILITIES FOR REMOVAL AND INSTALLATION OF FACILITIES.

ALL EXISTING UTILITY LOCATIONS SHOW HEREON ARE APPROXIMATE ONLY. IT SHALL BE 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 UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION, THE DEPTH BELOW GRADE OF THE VARIOUS UTILITIES DETECTED ON THE PLANS VARIES THROUGHOUT THE PROJECT AREA. THE CONTRACTOR SHALL EXERCISE EXTREME CARE WHERE EXCAVATING AND GRADING THE SUB-GRADE IN THE VICINITY OF UTILITIES TO AVOID DAMAGE TO THE LATTER.

ALL EXISTING UTILITIES SHALL BE PROTECTED IN PLACE UNLESS OTHERWISE NOTED.

DEVIATION FROM STANDARDS

NONE

CITY OF LAS VEGAS FIRE DEPARTMENT NOTES

1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE CITY OF LAS VEGAS FIRE DEPARTMENT'S ORDINANCE # 5667, "HYDRANT SPECIFICATIONS", AND "HYDRANT INSTALLATION SPECIFICATION".
2. AUTHORIZED FIRE HYDRANTS FOR THIS PROJECT ARE:
- A. KENNEDY - GUARDIAN MODELS K81A AND K81D
B. MUELLER - SUPER CENTURION 250, MODEL A-423
C. CLOW - MEDALLION MODEL F-2546/LVD
D. TROY VALVE - PATRIOT MODEL P78100M, NEVADA HYDRANT
E. US PIPE - METROFLOW M403
3. ON ANY RESIDENTIAL OR COMMERCIAL INSTALLATIONS, FIRE HYDRANTS SHALL BE INSTALLED AND FIRE APPARATUS ACCESS ROADS SHALL BE MAINTAINED BEFORE COMMENCEMENT OF ANY COMBUSTIBLE CONSTRUCTION. ALL FIRE HYDRANTS SHALL BE IN GOOD WORKING ORDER AND SHALL BE CAPABLE OF DELIVERING THE REQUIRED FIRE FLOW.
4. TO IDENTIFY THE FIRE HYDRANT LOCATIONS, CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER LINE OF THE STREET ADJACENT TO THE FIRE HYDRANTS AS REQUIRED BY ORDINANCE #5667.
5. ALL UNDERGROUND INSPECTIONS, PRESSURE AND FLUSH VERIFICATIONS OF ALL FIRE HYDRANTS AND FIRE LINES, SHALL BE CONDUCTED BEFORE COVERING THE LINES, CALL THE CITY OF LAS VEGAS INSPECTION HOT LINE AT 229-2071 TO REQUEST AN INSPECTION BY THE CITY OF LAS VEGAS FIRE DEPARTMENT.
6. PAINTING OF THE CURBS AND FIRE HYDRANTS AND ALL OTHER WORK NECESSARY AS REQUIRED BY ORDINANCE #5667, FOR THE PROTECTION OF FIRE HYDRANTS FROM PHYSICAL DAMAGE, SHALL BE COMPLETED BEFORE APPROVAL BY THE CITY OF LAS VEGAS FIRE DEPARTMENT.
7. A PERMIT IS REQUIRED FROM THE CITY OF LAS VEGAS FIRE DEPARTMENT FOR THE ON-SITE WATER LINES AND FIRE HYDRANTS, THE PERMIT AND CONTRACTORS MATERIAL AND TEST CERTIFICATE FOR UNDERGROUND PINGING FORM SHALL BE OBTAINED FROM THE FIRE PROTECTION ENGINEER BEFORE COMMENCEMENT OF WORK.
8. PRIVATE HYDRANTS SHALL BE PAINTED RED.
9. PRIOR TO THE FINAL OCCUPANCY, A FLOW TEST MUST BE WITNESSED BY THE CITY OF LAS VEGAS FIRE DEPARTMENT TO VERIFY AVAILABILITY OF THE REQUIRED FIRE FLOW.
10. ALL ON-SITE UNDERGROUND WATER MAINS AND MATERIALS SHALL BE U.L. LISTED, A.W.W.A. APPROVED AND SHALL BE RATED FOR THE APPROPRIATE WORKING PRESSURE.
11. FIRE HYDRANTS SPACING SHALL BE:
- RESIDENTIAL - 500 FT UNSPRINKLERED; 600 FT SPRINKLERED.
COMMERCIAL - 300 FT UNSPRINKLERED; 400 FT SPRINKLERED.
12. WHERE NEW 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 1,000 FEET FROM THE STREET. FOR TRANSPORTATION HAZARDS, WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS OR HAVE FOUR OR MORE TRAFFIC LANES AND HAVE A TRAFFIC COUNT OF MORE THAN 30,000 PER DAY, HYDRANTS ARE REQUIRED ON EACH SIDE OF THE STREET SPACED AT 500 FT ON AN ALTERNATING BASIS.
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.
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.
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.
17. THE MAXIMUM DISTANCE FROM A HYDRANT TO THE END OF A DEAD-END STREET SHALL NOT EXCEED 200 FT.
20. TWO SOURCES OF SUPPLY ARE REQUIRED WHENEVER THERE IS 4 OR MORE FIRE HYDRANTS. EACH LEAD-IN ARE INSTALLED ON A SINGLE SYSTEM, SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 2 FIRE HYDRANTS CAN BE OUT OF SERVICE DUE TO A BREAK IN A WATER MAIN.
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.
20. THE GRADIENT FOR THE FIRE APPARATUS ACCESS ROADS SHALL NOT EXCEED 12% ANGLES OF APPROACH AND ANGLES OF DEPARTURE SHALL NOT EXCEED 8% FOR 25 FT PRIOR TO OR AFTER THE GRADE CHANGE. ADJACENT TO THE STRUCTURES GRADIENT SHALL NOT EXCEED 6%.
21. THE TURNING RADIUS OF THE FIRE APPARATUS ACCESS ROADS SHALL BE NO LESS THAN 52 FEET OUTSIDE AND 28 FEET INSIDE TURNING RADIUS.
22. VERTICAL CLEARANCE OF ALL FIRE APPARATUS ACCESS ROADS SHALL BE NOT LESS THAN 13 FEET 6 INCHES.
23. FIRE DEPARTMENT ACCESS ROADS IN ALL RESIDENTIAL DEVELOPMENTS (EXCEPT APARTMENT BUILDINGS) SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF NOT LESS THAN 36 FEET FLOW LINE TO FLOW LINE (THIS WIDTH MAY BE REDUCED TO 24 FEET IF ALL BUILDINGS FRONTING THE STREET ARE SPRINKLERED FOR MAIN RESIDENTIAL STREETS, WITH PARKING PERMITTED ON BOTH SIDES OF THE STREET, PRIVATE DRIVE ABLES, DRIVEWAYS, ETC. SHALL BE ALLOWED TO BE REDUCED TO A MINIMUM WIDTH OF 24 FEET WIDE FLOW LINE TO THE FLOW LINE WHEN SERVING NO MORE THAN 6 RESIDENTS, AND WHEN ON STREET PARKING IS DISALLOWED.
24. ALL FIRE APPARATUS ACCESS ROADS IN COMMERCIAL DEVELOPMENTS AND APARTMENT COMPLEXES SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF NOT LESS THAN 24 FEET FLOW LINE TO THE FLOW LINE). PROVIDED NO PARKING IS ALLOWED ON EITHER SIDE; 30 FEET FLOW LINE TO THE FLOW LINE). IF PARALLEL PARKING IS ALLOWED ON ONE SIDE ONLY, AND 40 FEET FLOW LINE TO THE FLOW LINE). IF PARALLEL PARKING IS ALLOWED ON BOTH SIDES, THESE WIDTHS MAY BE REDUCED BY 4 FEET IF ALL BUILDINGS ARE SPRINKLERED.
25. A FIRE DEPARTMENT ACCESS ROAD SHALL EXTEND TO WITHIN 50 FEET OF A SINGLE EXTERIOR DOOR PROVIDING ACCESS TO THE INTERIOR OF THE BUILDING.
26. A FIRE APPARATUS ACCESS ROAD SHALL BE REQUIRED WHEN ANY PORTION OF AN EXTERIOR WALL OF THE FIRST STORY IS LOCATED MORE THAN 150 FT FROM A FIRE DEPARTMENT VEHICLE ACCESS. THIS DISTANCE COULD BE INCREASED TO 250 FT IF THE BUILDING IS SPRINKLERED.
27. APPROVED SECONDARY FIRE APPARATUS ACCESS SHALL BE PROVIDED FOR 100 OR MORE DWELLING UNITS, ROAD(S) WITH DEAD-ENDS OR WITH A SINGLE POINT OF ACCESS IN EXCESS OF 600 FT, AND FOR ALL COMMERCIAL, INDUSTRIAL, AND MULTI-FAMILY RESIDENTIAL DEVELOPMENTS.
28. ALL DEAD-END FIRE APPARATUS ACCESS ROADS AND/OR FIRE LINES, PUBLIC OR PRIVATE, IN EXCESS OF 150 FEET IN LENGTH SHALL BE PROVIDED WITH AN APPROVED TURN AROUND HAVING A MINIMUM DIAMETER OF 81 FEET.
29. ALL FIRE APPARATUS ACCESS ROADS SHALL BE MARKED BY PLACING APPROVED SIGNS AT THE START OF THE DESIGNATED FIRE LANE, ONE SIGN AT THE END OF THE FIRE LANE AND WITH SIGNS AT INTERVALS OF 150 FEET ALONG THE DESIGNATED FIRE LANES. SIGNS TO BE PLACED ON BOTH SIDES OF AN ACCESS ROADWAY IF NEEDED TO PREVENT PARKING ON EITHER SIDE. SIGNS TO BE INSTALLED NO HIGHER THAN 10 FT OR LESS THAN 6 FT FROM THE ROADWAY LEVEL. THE CURB ALONG OR ON THE PAVEMENT OR CEMENT IF A CURB IS NOT PROVIDED SHALL BE PAINTED WITH A RED WEATHER RESISTANT PAINT IN ADDITION TO THE SIGNS.
30. ELECTRICALLY CONTROLLED ACCESS GATES SHALL BE PROVIDED WITH AN APPROVED EMERGENCY VEHICLE DETECTOR/RECEIVER SYSTEM. SAID SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF LAS VEGAS GUIDELINES FOR AUTOMATIC EMERGENCY VEHICLE ACCESS GATES.

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 CONTRACTORS 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 SR 35 SPECIFICATIONS. INSTALLED WITH SAND BEDDING AND BACKFILL OF TYPE I AGGREGATE BASE.
5. ALL MANHOLES PAVED IN STREETS EIGHTY (80) FOOT RW AND LARGER SHALL HAVE CONCRETE COLLARS, STREETS LESS THAN EIGHTY (80) FOOT RW WILL REQUIRE RETROFIT IF PAVING DOES NOT CONFORM TO CITY STANDARDS AT THE MANHOLE.
6. TEE SADDLES SHALL BE USED TO CONNECT SEWER LATERALS TO EXISTING MAIN LINES UP TO TWELVE INCH (12) DIAMETER. CONNECTIONS TO FIFTEEN INCH (15) OR LARGER MAINS SHALL REQUIRE SPECIAL PROCEDURES. IN LINE "Y" S SHALL BE USED ON LINES TWELVE INCHES (12) OR ABOVE.
7. WATER MAINS SHALL BE PROTECTED IN ACCORDANCE WITH LVWD STANDARDS WHENEVER A SEWER MAIN CROSSES OVER A WATER MAIN OR 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 APRIL 15, 2010

LVVWD STANDARD NOTES

- LVVWD PROJECT # XXXXX
1. NO WORK SHALL BEGIN UNTIL THE WATER PLANS HAVE BEEN APPROVED FOR CONSTRUCTION BY THE LVVWD. FOLLOWING WATER PLAN APPROVAL, NOTICE SHALL BE GIVEN TO THE LVVWD COMMUNICATION SUPPORT CENTER (258-7171) TWO (2) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION. FOR FUTURE INSPECTIONS, NOTICE MUST BE GIVEN BY 2:00 P.M. THE BUSINESS DAY PRIOR TO THE REQUESTED LVVWD INSPECTION. WHEN REQUESTING INSPECTIONS, PLEASE REFER TO THE PROJECT IDENTIFIED ABOVE.
2. ALL WORK SHALL CONFORM TO LVVWD STANDARD PLATES, DRAWINGS, AND SPECIFICATIONS, AND TO THE 2010 EDITION OF THE UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR POTABLE WATER SYSTEMS (UDACS). THE LATEST EDITION OF UDACS SHALL SUPERSEDE ANY CONFLICTS CONTAINED IN THE APPROVED DRAWINGS AND/OR SPECIFICATIONS.
3. ALL WORK, EXCEPT AS MODIFIED BY THESE PLANS OR BY NOTE 2 ABOVE, SHALL BE DONE IN ACCORDANCE WITH THE MOST RECENT DRAFT OR EDITION OF THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFFSITE IMPROVEMENT, CLARK COUNTY AREA.
4. A SINGLE PIPE MATERIAL SHALL BE USED THROUGHOUT THE PROJECT UNLESS OTHERWISE APPROVED BY THE LVVWD.
5. ALL SERVICE LATERALS TWO (2) INCHES IN DIAMETER AND SMALLER SHALL BE TYPE K COPPER TUBING WITH LVVWD APPROVED SERVICE SADDLES.
6. ALL WATER METER BOXES SHALL BE LOCATED OUTSIDE OF DRIVEWAY AREAS.
7. ALL VALVES SHALL BE LOCATED OUTSIDE OF DRIVEWAYS, VALLEY AND CURB GUTTERS.
8. ALL WATER AND STORM DRAIN OR SANITARY SEWER CROSSEINGS SHALL CONFORM TO SECTION 2.22 OF THE 2010 EDITION OF THE UDACS.
9. ALL WATER FACILITIES SHALL BE FILLED, DISINFECTED, PRESSURE TESTED, FLUSHED, FILLED AND AN ACCEPTABLE WATER SAMPLE OBTAINED, PRIOR TO CONNECTION TO THE LVVWD DISTRIBUTION SYSTEM.
10. THE CONTRACTOR MUST OBTAIN ALL METERS TWO (2) INCHES AND SMALLER FROM LVVWD CENTRAL STORES, TELEPHONE 258-3152 OR 258-3882. 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 SHUTDOW. PRIOR WRITTEN NOTIFICATION MUST BE GIVEN TO ALL AFFECTED CUSTOMERS.
12. ALL WATER FACILITY CONSTRUCTION MATERIALS USED MUST BE AS LISTED ON THE LVVWD PRE-APPROVED MATERIALS AND MANUFACTURERS LISTING FOR NEW FACILITIES. LATEST REVISION, OR SPECIFICALLY APPROVED ON THESE PLANS.
13. TELEPHONE CALL BEFORE YOU DIG AT 811 OR 1-800-227-8800
14. THE INSTALLATION OF LAS VEGAS VALLEY WATER DISTRICT (LVVWD) MUNICIPAL WATER FACILITIES WITHIN ALL STREETS IS ASSUMED TO BE IN COMPLIANCE WITH THE UNIFORM STANDARDS, INCLUDING THE PLACEMENT OF ASPHALT PAVING STREET SURFACES. ANY REPAIR WORK DONE BY THE LVVWD TO THE MUNICIPAL UTILITIES 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 OWNERS ASSOCIATION, OR THE INDIVIDUAL PROPERTY OWNERS IF NO OWNERS ASSOCIATION IS IN EXISTENCE, OR THE AGENCY HAVING JURISDICTION. DECORATIVE SURFACE MATERIALS PLACED WITHIN THE TEN FOOT EASEMENT ADJUTING A PUBLIC OR PRIVATE STREET IF DISTURBED BY THE LVVWD DURING THE REPAIR OR OPERATION OF ITS FACILITIES, WILL BE REPLACED BY LVVWD WITH AN APPROPRIATELY SIZED PLAIN FINISH CONCRETE PATCH. THE LVVWD WILL NOT RESTORE, AND WILL NOT BE RESPONSIBLE FOR THE RESTORATION OF, ANY DECORATIVE PAVING SURFACE WITHIN THE STREET, THE LVVWD WILL NOT ATTEMPT TO MATCH COLOR OR FINISH OF ANY ADJACENT MATERIALS.
- APPROVED FOR CONSTRUCTION
- LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES MANAGER
- DATE: PROJECT# 124997
- RTC NOTES
1. THE CONTRACTOR SHALL NOT BE ALLOWED TO CLOSE MORE THAN ONE CONSECUTIVE BUS STOP ON THE SAME SIDE OF THE STREET. TEMPORARY CLOSURES SHALL BE PWD (PERSONS WITH DISABILITY) ACCESSIBLE BEFORE ANY BUS STOP CAN BE CLOSED. THE CONTRACTOR SHALL NOTIFY CARL SCARBROUGH AT (702) 676-1808 OR ERIC TRASDAHL AT (702) 676-1833, AT LEAST SEVEN WORKING DAYS IN ADVANCE.
2. THE CONTRACTOR SHALL SUBMIT A BUS STOP CLOSURES SCHEDULE WITH THE TRAFFIC CONTROL PLAN. THE BUS STOP CLOSURE SCHEDULE SHALL IDENTIFY SPECIFIC DURATION AND TIMES OF THE DAY FOR ALL PROPOSED BUS STOP CLOSURES. BUS STOP CLOSURES ARE NOT TO EXCEED TWO CONSECUTIVE STOPS AT ONE TIME, OR MORE THAN 1,000 FEET AT A TIME, PERSONS WITH DISABILITIES SHALL HAVE ACCESS TO BUS STOPS. THE CONTRACTOR SHALL PROVIDE A 100 FOOT LONG BY 10 FEET WIDE GRAVELED TURN OUT AT TEMPORARY BUS STOPS.

REVISED FEBRUARY 14, 2013

CITY OF LAS VEGAS STREETLIGHT NOTES

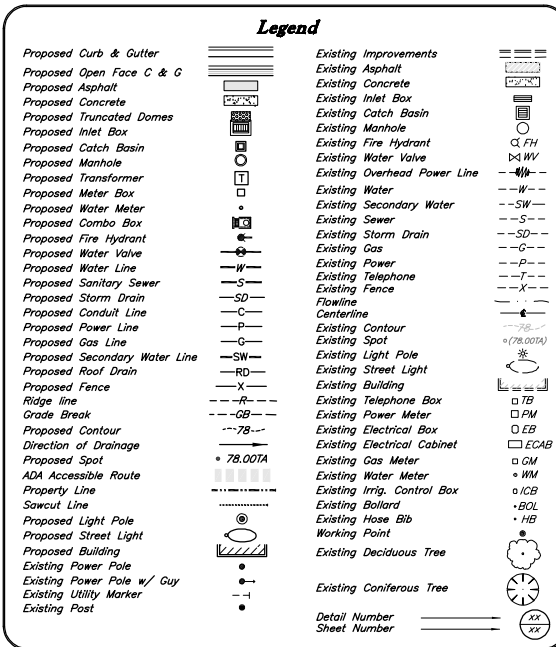
1. ALL STREET LIGHTING INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE STREET LIGHTING PLANS, THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA," LATEST REVISION, AND THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA," LATEST REVISION, AND ANY ADOPTED SPECIAL AREA STANDARDS.
2. NO DEVIATION OF STREET LIGHT, PULL BOX, CONDUITS (ETC.) LOCATIONS SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL OF TRAFFIC ENGINEERING AND THE CITY ENGINEER.
3. ALL EXISTING STREET LIGHTING SHALL REMAIN OPERATIONAL DURING CONSTRUCTION.
4. ALL STREET LIGHTING CONDUITS STUB SHALL HAVE AT LEAST ONE GREEN #8 THW WIRE INSTALLED, AS TRACER WIRE. WHEN "EMPTY" CONDUIT IS COMPLETELY INSTALLED FROM PB TO PB, IT SHALL HAVE MINIMUM OF 2 #4 AND 1 #8 THW WIRE WITH THE ENDS TAPED OR "SAFE OFF" PRIOR TO FINAL INSPECTION.
5. ANY STRUCTURE SUCH AS BLOCK WALLS, CHAIN LINK FENCES, RETAINING WALLS, ETC., SHALL LEAVE A MINIMUM CLEARANCE IN ACCORDANCE WITH THE USD NO. 302A.
6. AS-BUILT DRAWINGS SHALL BE SUPPLIED TO THE TEF0 PRIOR TO ANY PRE-FINAL INSPECTION. THE AS-BUILT DRAWING NEEDS TO BE STAMPED AS-BUILT AND SIGNED BY THE PREPARER.
7. SERVICE POINT SHALL BE COORDINATED WITH NY ENERGY COMPANY, AND WHEREVER POSSIBLE, BE LOCATED NEAR THE CENTER OF THE CIRCUIT. SERVICE POINTS SHALL BE SHOWN ON THE CIVIL PLANS.
8. IT SHALL BE ASSUMED THAT IN THE ABSENCE OF AN EXISTING WORKABLE CIRCUIT TO ATTACH TO, ALL INSTALLATIONS SHALL REQUIRE A NEW SERVICE FOR OPERATION OF THE CIRCUIT.
9. WHEREVER THERE IS AN OVERHEAD UTILITY THAT MAY CONFLICT WITH THE INSTALLATION OF STREET LIGHTING CIRCUITS AND/OR POLES, THESE CONFLICTS MUST BE RESOLVED BETWEEN THE DEVELOPER AND THE UTILITIES INVOLVED, AT NO EXPENSE TO THE CITY OF LAS VEGAS, BEFORE STREETLIGHT BASES ARE INSTALLED.
10. THE CONTRACTOR SHALL FURNISH COMPLETE SERVICE TO TRANSFORMERS AND CONTROL SYSTEMS IF REQUIRED ON PLANS.
11. THE DEVELOPER/OWNER WILL BE REQUIRED TO SUPPLY POWER TO ALL NEW PUBLIC STREET LIGHTS INSTALLED UNDER THIS DESIGN PRIOR TO BOND RELEASE OR PROJECT COMPLETION. THE DEVELOPER/OWNER WILL BE RESPONSIBLE FOR ALL ITEMS ASSOCIATED WITH THE INSTALLATION, CONSTRUCTION, ERECTION, MAINTENANCE AND OPERATIONAL COST OF SAID STREET LIGHTS PRIOR TO PROJECT COMPLETION. REFER TO THE PLAN FOR ANY NEW SERVICE REQUIREMENTS. THE TRANSFER OF OWNERSHIP FROM THE DEVELOPER/OWNER TO THE CITY OF LAS VEGAS FOR ALL NEW PUBLIC STREET LIGHTS AND/OR SERVICES INSTALLED UNDER THIS PLAN DESIGN WILL BE IN CONJUNCTION WITH THIS PROJECT COMPLETION, COORDINATE ALL MAINTENANCE AND OPERATIONAL TRANSFERS WITH THE CITY OF LAS VEGAS TRAFFIC ENGINEERING DEPARTMENT (TEF0) AT (702) 229-6331.

REVISED 04/15/10

CITY OF LAS VEGAS TRAFFIC NOTES

1. ALL CONSTRUCTION SIGNING, BARRICADING, AND TRAFFIC DELINEATION SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST EDITION.
2. THE STREET SIGN CONTRACTOR SHALL OBTAIN STREET NAMES AND BLOCK NUMBERING FROM THE PLANNING DEPARTMENT PRIOR TO CONSTRUCTION.
3. BEFORE ANY WORK IS STARTED IN THE RIGHT-OF-WAY, THE CONTRACTOR SHALL INSTALL ALL ADVANCE WARNING SIGNS FOR THE CONSTRUCTION ZONE. THE CONTRACTOR SHALL INSTALL TEMPORARY STOP SIGNS AT ALL NEW STREET ENCRoACHMENTS INTO EXISTING CITY STREETS WHERE WARRANTED IMMEDIATELY AFTER FIRST GRADING WORK IS ACCOMPLISHED, AND SHALL MAINTAIN SAID SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED.
4. WHEN A DESIGNATED "SAFE ROUTE TO SCHOOL" IS ENCRoACHED UPON BY A CONSTRUCTION WORK ZONE AND PUBLIC WORKS STAFF IDENTIFIES A NEED FOR STUDENTS TO BE 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 OBLITERATION, TEMPORARY OBSTRUCTION, TEMPORARY REMOVAL OR RELOCATION OF ANY EXISTING TRAFFIC PAVEMENT MARKING, SUCH PAVEMENT MARKING SHALL BE RESTORED OR REPLACED WITH LINE MATERIALS TO THE SATISFACTION OF THE CITY TRAFFIC ENGINEER.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL PERMANENT SIGNS SHOWN ON THE PLANS. ALL NEW TRAFFIC SIGNS SHALL BE FABRICATED WITH DIAMOND GRADE MP CLASS 6 REFLECTIVE SHEETINGS OR APPROVED EQUAL. ALL NEW TRAFFIC SIGNS, EXCEPT STREETNAME AND SCHOOL SPEED LIMIT SIGNS, SHALL HAVE 3M SERIES 1160 OR APPROVED EQUIVALENT ANTI-GRAFFITI PROTECTIVE OVERLAY FILM. SCHOOL ZONE SIGNS SHALL HAVE 3M SERIES 1150 ANTI-GRAFFITI PROTECTIVE OVERLAY FILM. STREET NAME SIGNS SHALL CONFORM IN THEIR ENTIRETY TO CURRENT CITY STANDARDS. ALL OTHER SIGNS SHALL BE STANDARD SIZE UNLESS OTHERWISE SPECIFIED ON THE PLANS. ALL SIGN POSTS SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENT CITY STANDARDS.
7. WHEN A PROPOSED STREET LIGHT STANDARD IS LOCATED WITHIN FIVE (5) FEET OF ANY PROPOSED SIGN SHOWN ON THE PLANS TO BE MOUNTED ON A SIGNPOST, THE SIGN SHALL BE MOUNTED ON THE STREET LIGHT STANDARD AND THE SIGNPOST SHALL BE ELIMINATED.
8. ALL PERMANENT TRAFFIC CONTROL DEVICES CALLED FOR HEREON SHALL BE IN PLACE AND IN FINAL POSITION PRIOR TO ALLOWING ANY PUBLIC TRAFFIC ONTO THE PORTIONS OF THE ROAD(S) BEING IMPROVED HERE UNDER, REGARDLESS OF THE STATUS OF COMPLETION OF PAVING OR OTHER OFF-SITE IMPROVEMENTS CALLED FOR BY THESE PLANS.
9. STREET SIGNS AND STOP SIGNS SHALL BE INSTALLED PER CITY STANDARD SPECIFICATIONS FOR PLACEMENT OF STREET NAME SIGNS. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY TRAFFIC CONTROL DEVICES AND FLAGGERS TO INSURE THE SAFETY OF THE PUBLIC IN OR AROUND THE WORK AREA. THE CONTRACTOR SHALL HAVE A CERTIFIED
- ATSSA TRAFFIC CONTROL TECHNICIAN OR MISA WORK ZONE SAFETY SPECIALIST SET UP, MAINTAIN AND/OR REMOVE ALL TRAFFIC CONTROL DEVICES IN THE CITY OF LAS VEGAS RIGHT OF WAY.
11. WORK IN PUBLIC STREETS, ONCE BEGUN, SHALL BE EXPEDITED TO COMPLETION SO AS TO PROVIDE MINIMUM INCONVENIENCE TO ADJACENT PROPERTY OWNERS AND TO THE TRAVELING PUBLIC.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING CITIZENS AREA TRANSIT (CAT), 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 OTHERWISE DIRECTED BY THE CITY OF LAS VEGAS TRAFFIC ENGINEER.
15. THE CONTRACTOR SHALL CONTACT THE TRAFFIC ENGINEERING DIVISION (TRANSPORTATION SECTION) THROUGH THE PROJECTS OFFSITE INSPECTOR PRIOR TO INITIATING PAVING TO RECEIVE DIRECTION FOR ANY PERMANENT OR TEMPORARY MODIFICATIONS TO THE APPROVED DRAWINGS REGARDING FINAL PAVEMENT TRANSITIONS, MARKINGS AND SIGNING THAT ARE REQUIRED TO MATCH ADJACENT ROADWAY SEGMENTS. THE CONTRACTOR SHALL PROVIDE A DRAWING FOR APPROVAL BY THE TRAFFIC ENGINEERING DIVISION DEPICTING ANY ADJUSTMENTS TO THE FINAL PAVEMENT MARKINGS AND SIGNAGE, WHICH MAY INCLUDE OMITTING, ADDING OR MODIFYING PAVEMENT MARKINGS AND TRAFFIC CONTROL SIGNS SUCH THAT ADEQUATE TRANSITIONS AND LANE TERMINATIONS BETWEEN ADJACENT ROADWAY SEGMENTS ARE CONSTRUCTED.

REVISED 04/15/10



Abbreviations

BOL	Ballard	PP	Power Pole
BRW	Finish Grade - Bottom of Retaining Wall	PVC	Polyvinyl Chloride
CATV	Cable Television Box	RCP	Reinforced Concrete Pipe
CB	Catch Basin	RD	Road Drain
CMP	Corrugated Metal Pipe	SB	Signal Box
COB	Cleanout Box	SD	Storm Drain
COTG	Cleanout to Grade	SDMH	Storm Drain Manhole
EA	Edge of Asphalt	SMH	Sanitary Sewer Manhole
EB	Electrical Box	SP	Signal Pole
ECAB	Electrical Cabinet	SS	Sanitary Sewer
EMH	Electrical Manhole	SVZ	Sight Visibility Zone
FM	Fire Hydrant	SW	Secondary Water
FL	Flowline	TA	Top of Asphalt
G	Ground	TB	Telephone Box
GB	Grade Break	TBC	Top Back of Curb
GM	Gas Meter	TG	Top of Grade
HB	Hose Bib	TMH	Telephone Manhole
I	Irrigation Line	TP	Top of Concrete
ICB	Irrigation Control Box	TRW	Finish Grade - Top of Retaining Wall
Lip	Lip of Gutter	TW	Top of Walk
LP	Light Pole	WL	Waterline
MH	Manhole	WP	Working Point
Mon	Monument	WV	Water Valve
PM	Power Meter		

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 ON THESE PROJECTS. 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:
- | | | | |
|---------------------------|-----------------|---------------|-----------------------------|
| A. PAVEMENT AREA SUBGRADE | HORIZONTAL 0.1" | VERTICAL 0.1" | COMPACTION SEE SOILS REPORT |
| B. ENGINEERED FILL | 0.2" | 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 SPLLS 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 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 APRIL 15, 2010

Benchmark

Monument ID: USDA (1934) 19

U.S. Department of Agriculture Brass Disc at Southwest Corner of U.S. 95 and Kyle Canyon Road

Elevation: 2817.61 Feet. 858.810 Meters

NAD 83 DATUM

Per the City of Las Vegas Benchmark Book - 2008 Adjustment (Update 05/24/2010)

Basis of Bearings

North 89°16'30" West, Being the Bearing of the South Line of the Southeast Quarter (SE1/4) of the Northwest Quarter (NW1/4) of Section 7, Township 19 South, Range 60 East, M.D.M., City of Las Vegas, Clark County, Nevada, as Shown by Map Thereof in Book 147, Page 71 of Plats in the Clark County Recorder's Office, Nevada.

Call before you dig.

8"11"

or

1-800-227-2600

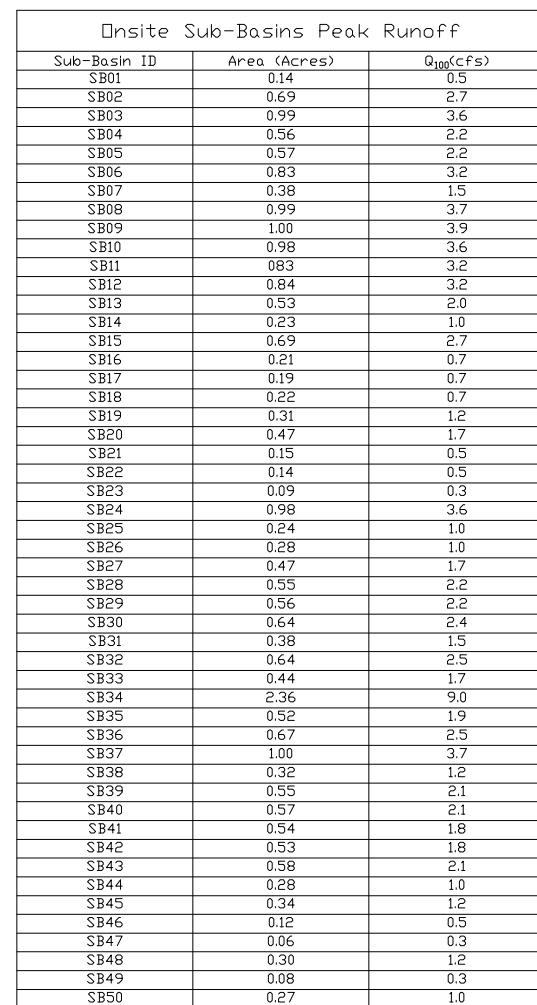
UNDERGROUND SERVICE ALERT (USA)

Call before you dig.

Call before you dig.

1-702-227-2929

NEVADA POWER ENVIRONMENT AND SAFETY DEPARTMENT

[illegible]

Designed by: KR
Drafted by: JC
Client Name: Smith's Food & Drug
Drainage Basins Exhibit - OV

ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
801 521-8529 — AWEngineering.net

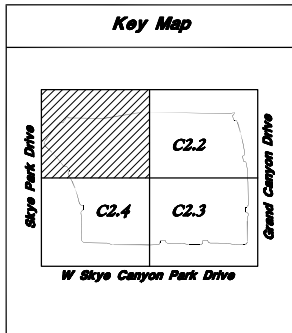
Overall Drainage Network Map

Skye Canyon Village
West Skye Canyon Park Drive & Grand Canyon Drive
Las Vegas, Nevada

24 Oct, 2016

SHEET NO.

F5



Scale: 1" = 30'

Public Quantities Estimate		
Description	Unit	Total Quantity
NDOT Type 4 Mix	EA	12
60" RCP	LF	1128
Specialty Protected 60" RCP (w/ Sacrificial Concrete)	LF	461
72" RCP	LF	347
Specialty Protected 72" RCP (w/ Sacrificial Concrete)	LF	509

Curb and Gutter Construction Notes:

- Open face gutter shall be constructed where drainage is directed away from curb.
- Open face gutter locations are indicated by shading and notes on the grading plan.
- It is the responsibility of the surveyor to adjust top of asphalt grades to top of curb grades at the time of construction staking.
- Refer to the typical details for a standard and open face curb and gutter for dimensions.
- Transitions from open face to standard curb and gutter are to be smooth. Hand form these areas if necessary.

General Grading Notes:

- All grading shall be in accordance with the project geotechnical study.
- Cut slopes shall be no steeper than 3 horizontal to 1 vertical.
- Fill slopes shall be no steeper than 3 horizontal to 1 vertical.
- Fills shall be compacted per the recommendations of the geotechnical report prepared for the project and shall be certified by a Geotechnical Engineer.
- Areas to receive fill shall be properly prepared and approved by a Geotechnical Engineer prior to placing fill.
- Fills shall be benched into competent material as per specifications and geotechnical report.
- All trench backfill shall be tested and certified by a Geotechnical Engineer.
- A Geotechnical Engineer shall perform periodic inspections and submit a complete report and map upon completion of the rough grading.
- The final compaction report and certification from a Geotechnical Engineer shall contain the type of field testing performed. Each test shall be identified with the method of obtaining the in-place density, whether sand cone or drive ring and shall be so noted for each test. Sufficient maximum density determinations shall be performed to verify the accuracy of the maximum density curves used by the field technician.

Site Construction Notes

1. Const. 18" Curb & Gutter (Typ.)
2. Const. Standard Asphalt Paving
3. Const. Conc. Sidewalk (Typ.)
4. Const. Thickened Edge Sidewalk (Typ.)
5. Const. CMU Retaining Wall
6. Const. Standard Conc. Paving
7. Const. 6" x 6" Diamond Planter (Typ.)
8. Const. Heavy Duty Asphalt Paving
9. Const. Heavy Duty Conc. Paving
10. Const. Brick Paved Driveway
11. Const. CMU Screen Wall
12. Const. Curb Wall Flush w/ Paving in Front of 8" Curb Wall Planter
13. Const. 6" Curb Wall
14. Const. CMU Flood/Retaining Wall
15. Const. 3' Waterway
16. Public Drainage Easement to be Privately Maintained
17. Special Construction Note: Specified RCP Storm Drain Lines to Have Additional Sacrificial Concrete (See Detail)
18. As part of the construction documents, owner has provided contractor with a topographic survey performed by manual or aerial means. Such survey was prepared for project design purposes and is provided to the contractor as a courtesy. It is expressly understood that such survey may not accurately reflect existing topographic conditions.
19. If Contractor observes evidence of hazardous materials or contaminated soils he shall immediately contact the project engineer to provide notification and obtain direction before proceeding with disturbance of soil materials or contaminated soil.
20. Contractor will be responsible to phase the construction development so that storm water improvements and storm water facilities including detention or retention improvement facilities are constructed and functional prior to an offsite storm water release and take necessary construction precautions so that no offsite flooding will occur.
21. Importing fill material from an off-site location without prior written approval from the Kroger Project Manager is strictly prohibited. Identification of off-site borrow locations and material must be coordinated and documented with the SWPPP. A Kroger approved testing firm must verify the suitability of all off-site material. This includes an analysis to ensure that no environmental contamination is present. If any material is brought on site without prior written approval of the Kroger Project Manager, the contractor will bear all costs associated with removing the material, testing for contamination, monitoring the clean-up operation, disposal in an approved landfill, and certifying that the Kroger site is environmentally clean.
22. The Kroger approved testing agency and project surveyor must certify the building pad using the "Pad Certification Form", included in the project specification, prior to the commencement of building foundations.
23. Compacted building pad(s) must extend a minimum of ten (10) feet beyond the building footprint, including canopies and other structural appendages, until the perimeter foundations and walls are constructed and backfilled. The extended portion of the building pad subgrade must then be removed/graded to meet the final grade and material requirements around the buildings' perimeter.
24. Property owner is responsible to maintain best management practices such as, but not limited to, the removal of accumulated sediment and debris, proper care of vegetation, and removing sediments from the drop inlets.

Site Construction Notes

1. Const. 18" Curb & Gutter (Typ.)
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14. Const. CMU Flood/Retaining Wall
15. Const. 3' Waterway
16. Public Drainage Easement to be Privately Maintained
17. Special Construction Note: Specified RCP Storm Drain Lines to Have Additional Sacrificial Concrete (See Detail)

Horizontal Control for Public Storm Drain		
Storm Drain Structure	Northing	Easting
#1	822363.33	736804.92
#2	822466.37	737164.61
#3	822346.86	737139.35
#4	822539.30	737100.05
#5	822539.39	737441.28
#6	822383.16	737511.13
#7	822590.63	737419.10
#8	822677.27	737759.85
#9	822554.83	737758.30
#10	822720.50	737727.68
#11	822801.82	737944.57
#12	822817.68	737915.28

Benchmark

Monument ID: USDA (1934) 19
U.S. Department of Agriculture Brass Disc at Southwest Corner of U.S. 95 and Kyle Canyon Road
Elevation=2817.61 Feet. 858.810 Meters
NAVD 88 DATUM
Per the City of Las Vegas Benchmark Book - 2008 Adjustment (Update 05/24/2010)

Basis of Bearings

North 89°16'30" West, Being the Bearing of the South Line of the Southeast Quarter (SE1/4) of the Northwest Quarter (NW1/4) of Section 7, Township 19 South, Range 60 East, M.D.M., City of Las Vegas, Clark County, Nevada, as Shown by Map Thereof in Book 147, Page 71 of Plots in the Clark County Recorder's Office, Nevada.

Legend

- | | |
|-------------------------------|-----------------------|
| Proposed Curb & Gutter | Existing Improvements |
| Proposed Asphalt | Existing Asphalt |
| Proposed Concrete | Existing Concrete |
| Proposed Truncated Domes | Centerlines |
| Proposed Inlet Box | Existing Contour |
| Proposed Catch Basin | Existing Light Pole |
| Proposed Manhole | Existing Street Light |
| Proposed Fire Hydrant | Property Line |
| Proposed Water Valve | Sawcut Line |
| Proposed Water Line | Proposed Light Pole |
| Proposed Sanitary Sewer | Existing Spot |
| Proposed Storm Drain | Proposed Street Light |
| Proposed Conduit Line | Proposed Building |
| Proposed Power Line | Detail Number |
| Proposed Gas Line | Sheet Number |
| Proposed Secondary Water Line | Proposed Contour |
| Proposed Roof Drain | Direction of Drainage |
| Ridge line | Proposed Spot |

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

Call before you Dig
"811"
or
1-800-227-2600
UNDERGROUND SERVICE ALERT (USA)

Drainage Compliance Note:
I certify that the grading plan is in conformance with the approved drainage study on file with the City of Las Vegas for this project.

David Anderson #020872 Date

Accessible Note:
Contractor must maintain a running slope on Accessible routes no steeper than 5.0% (1:20). The cross slope for Accessible routes must be no steeper than 2.0% (1:50). All Accessible routes must have a minimum clear width of 36". If Grades on plans do not meet this requirement notify Consultant immediately.
The Client, Contractor and Subcontractor should immediately notify the Consultant of any conditions of the project that they believe do not comply with the current state of the ICC/ANSI A117.1-Latest Edition and/or FHAA.

Smith's
FOOD & DRUG STORES

1550 South Redwood Road
Salt Lake City, Utah 84104
Telephone (801) 974-1400

#367
Las Vegas, Nevada

Grading & Drainage Plan

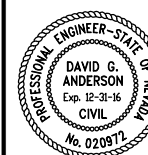
Skye Canyon Village

West Skye Canyon Park Drive & Grand Canyon Drive
Las Vegas, Nevada

ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
801.521.8523 - awhengineering.net

Designed by: KR
Drafted by: JC
Client Name:
Smith's Food & Drug
SMC367GR

Match Line See Sheet C22

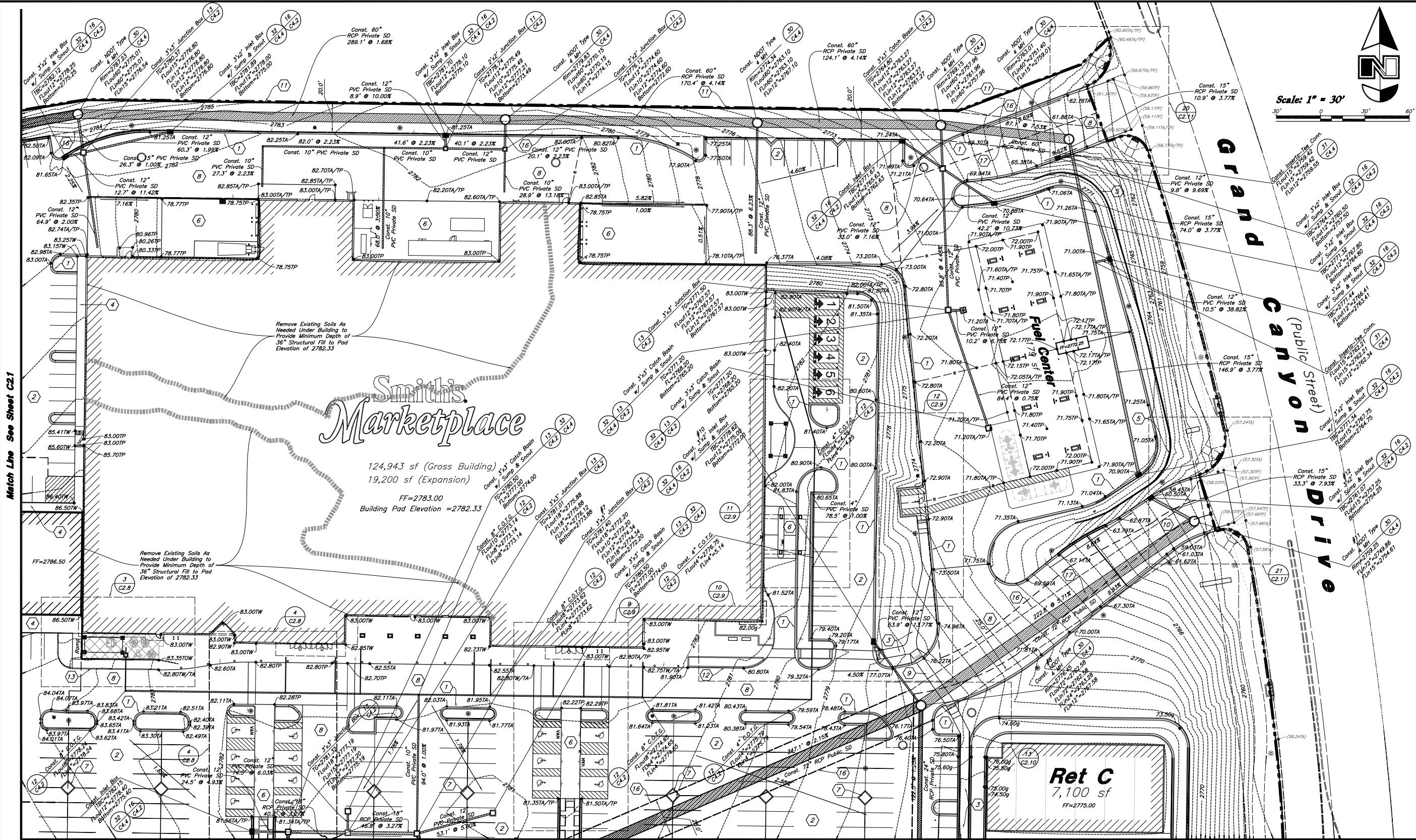


24 Oct, 2016

SHEET NO. 09 OF 36

C2.1

DWG No. HANSEN No. 66211



Match Line See Sheet C21

Scale: 1" = 30'

Smith's
Marketplace

124,943 sf (Gross Building)
19,200 sf (Expansion)
FF=2783.00
Building Pad Elevation =2782.33

Ret C
7,100 sf
FF=2775.00

Grand Canyon Drive
(Public Street)

Public Quantities Estimate		
Description	Unit	Total Quantity
NDOT Type 4 MH	EA	12
60" RCP	LF	1128
Specialty Protected 60" RCP (w/ Sacrificial Concrete)	LF	461
72" RCP	LF	347
Specialty Protected 72" RCP (w/ Sacrificial Concrete)	LF	509

Site Construction Notes

1. Const. 18" Curb & Gutter (Typ.)
2. Const. Standard Asphalt Paving
3. Const. Conc. Sidewalk (Typ.)
4. Const. Thickened Edge Sidewalk (Typ.)
5. Const. CMU Retaining Wall
6. Const. Standard Conc. Paving
7. Const. 6" x 6" Diamond Planter (Typ.)
8. Const. Heavy Duty Asphalt Paving

9. Const. Heavy Duty Conc. Paving
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13. Const. 6" Curb Wall
14. Const. CMU Flood/Retaining Wall
15. Const. 3" Waterway
16. Public Drainage Easement to be Privately Maintained
17. Special Construction Note: Specified RCP Storm Drain Lines to Have Additional Sacrificial Concrete (See Detail)

Call before you Dig.
"811"
or
1-800-227-2600

Call before you OVERHEAD
1-702-227-2929

Basis of Bearings

North 89°16'30" West, Being the Bearing of the South Line of the Southeast Quarter (SE1/4) of the Northwest Quarter (NW1/4) of Section 7, Township 19 South, Range 60 East, M.D.M., City of Las Vegas, Clark County, Nevada, as Shown by Map Thereof in Book 147, Page 71 of Plats in the Clark County Recorder's Office, Nevada.

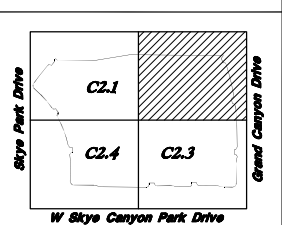
Match Line See Sheet C23

Benchmark

Monument ID: USDA (1934) 19
U.S. Department of Agriculture Brass Disc at Southwest Corner of U.S. 95 and Kyle Canyon Road
Elevation=2817.61 Feet. 858.810 Meters
NAVD 88 DATUM

Per the City of Las Vegas Benchmark Book - 2008 Adjustment (Update 05/24/2010)

Key Map



Drainage Compliance Note:
I certify that the grading plan is in conformance with the approved drainage study on file with the City of Las Vegas for this project.

David Anderson #020972 Date

Note:

- See Sheet C2.1 for:
- Horizontal Control for Public Storm Drain Table
- General Grading Notes
- Curb and Gutter Construction Notes

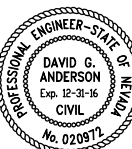
Smith's
FOOD & DRUG STORES

1550 South Redwood Road
Salt Lake City, Utah 84104
Telephone (801) 974-1400

#367
Las Vegas, Nevada

Grading & Drainage Plan

Skye Canyon Village
West Skye Canyon Park Drive & Grand Canyon Drive
Las Vegas, Nevada



24 Oct, 2016

SHEET NO. 10 OF 36

C2.2

DWG NO. HANSEN No. 66211

ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Suite 100, Las Vegas, NV 89116
801.521.8523 - AWAengineering.net

Designed by: KR
Drafted by: JC
Client Name:
Smith's Food & Drug
SMC367GR

Curb and Gutter Construction Notes:

- Open face gutter shall be constructed where drainage is directed away from curb.
- Open face gutter locations are indicated by shading and notes on the grading plan.
- It is the responsibility of the surveyor to adjust top of asphalt grades to top of curb grades at the time of construction staking.
- Refer to the typical details for a standard and open face curb and gutter for dimensions.
- Transitions from open face to standard curb and gutter are to be smooth. Hand form these areas if necessary.

General Grading Notes:

- All grading shall be in accordance with the project geotechnical study.
 - Cut slopes shall be no steeper than 3 horizontal to 1 vertical.
 - Fill slopes shall be no steeper than 3 horizontal to 1 vertical.
 - Fills shall be compacted per the recommendations of the geotechnical report prepared for the project and shall be certified by a Geotechnical Engineer.
 - Areas to receive fill shall be properly prepared and approved by a Geotechnical Engineer prior to placing fill.
 - Fills shall be banded into competent material as per specifications and geotechnical report.
 - All trench backfill shall be tested and certified by a Geotechnical Engineer.
 - A Geotechnical Engineer shall perform periodic inspections and submit a complete report and map upon completion of the rough grading.
 - The final compaction report and certification from a Geotechnical Engineer shall contain the type of field testing performed. Each test shall be identified with the method of obtaining the in-place density, whether sand cone or drive ring and shall be so noted for each test. Sufficient maximum density determinations shall be performed to verify the accuracy of the maximum density curves used by the field technician.
 - Dust shall be controlled by watering.
 - The location and protection of all utilities is the responsibility of the permittee.
 - Approved protective measures and temporary drainage provisions must be used to protect adjoining properties during the grading process.
 - All public roadways must be cleared daily of all dirt, mud and debris deposited on them as a result of the grading operation. Cleaning is to be done to the satisfaction of the City Engineer.
 - The site shall be cleared and grubbed of all vegetation and deleterious matter prior to grading.
 - The contractor shall provide shoring in accordance with OSHA requirements for trench walls.
 - Aggregate base shall be compacted per the geotechnical report prepared for the project.
 - The recommendations in the following Geotechnical Engineering Report by Wright Engineers are included in the requirements of grading and site preparation. The Report is titled "Geotechnical Report Skye Canyon Village, Northwest Corner of Skye Canyon Park Drive and Grand Canyon Drive, Las Vegas, Nevada."
- Project No.: 160165
Dated: May 20, 2016
- As part of the construction documents, owner has provided contractor with a topographic survey performed by manual or aerial means. Such survey was prepared for project design purposes and is provided to the contractor as a courtesy. It is expressly understood that such survey may not accurately reflect existing topographic conditions.
 - If Contractor observes evidence of hazardous materials or contaminated soils he shall immediately contact the project engineer to provide notification and obtain direction before proceeding with disturbance of solid materials or contaminated soil.
 - Contractor will be responsible to phase the construction development so that storm water improvements and storm water facilities including detention or retention improvement facilities are constructed and functional prior to an offsite storm water release and take necessary construction precautions so that no offsite flooding will occur.
 - Importing fill material from an off-site location without prior written approval from the Kroger Project Manager is strictly prohibited. Identification of off-site borrow locations and material must be coordinated and documented with the SHRP. A Kroger approved testing firm must verify the suitability of all off-site material. This includes an analysis to ensure that no environmental contamination is present. If any material is brought on site without prior written approval of the Kroger Project Manager, the contractor will bear all costs associated with removing the material, testing for contamination, monitoring the clean-up operation, disposal in an approved landfill, and certifying that the Kroger site is environmentally clean.
- If requested the Kroger Project Manager or Kroger's consultants must be granted unfettered access to any and all borrow sites.
- The Kroger approved testing agency and project surveyor must certify the building pad using the "Pad Certification Form", included in the project specification, prior to the commencement of building foundations.
- Compacted building pad(s) must extend a minimum of ten (10) feet beyond the building footprint, including canopies and other structural appendages, until the perimeter foundations and walls are constructed and backfilled. The extended portion of the building pad subgrade must then be removed/regraded to meet the final grade and material requirements around the buildings' perimeter.
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- Const. 3' Waterway
- Public Drainage Easement to be Privately Maintained
- Special Construction Note: Specified RCP Storm Drain Lines to Have Additional Sacrificial Concrete (See Detail)

Public Quantities Estimate		
Description	Unit	Total Quantity
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60" RCP	LF	1128
Specialty Protected 60" RCP (w/ Sacrificial Concrete)	LF	461
72" RCP	LF	347
Specialty Protected 72" RCP (w/ Sacrificial Concrete)	LF	509

Horizontal Control for Public Storm Drain		
Storm Drain Structure	Northing	Eastng
#1	822363.33	736804.92
#2	822466.37	737164.61
#3	822346.86	737139.35
#4	822539.30	737100.05
#5	822539.39	737441.28
#6	822383.16	737511.13
#7	822590.63	737419.10
#8	822677.27	737759.85
#9	822554.83	737758.30
#10	822720.50	737727.68
#11	822801.82	737944.57
#12	822817.68	737915.28

Benchmark

Monument ID: USDA (1934) 19
U.S. Department of Agriculture Brass Disc at Southwest Corner of U.S. 95 and Kyle Canyon Road
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NAVD 88 DATUM
Per the City of Las Vegas Benchmark Book - 2008 Adjustment (Update 05/24/2010)

Basis of Bearings

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Drainage Compliance Note:
I certify that the grading plan is in conformance with the approved drainage study on file with the City of Las Vegas for this project.

David Anderson #020972

Date

Call before you dig.
"811"
or
1-800-227-2600
UNDERGROUND SERVICE ALERT (USA)

Call before you OVERHEAD
1-702-227-2929
NEVADA POWER ENVIRONMENT AND DEPARTMENT

Smith's
FOOD & DRUG STORES

1550 South Redwood Road
Salt Lake City, Utah 84104
Telephone (801) 974-1400

#367
Las Vegas, Nevada



24 Oct, 2016

SHEET NO. 12 OF 36

C2.4

DWG NO. HANSEN No. 66211

Grading & Drainage Plan

Skye Canyon Village

West Skye Canyon Park Drive & Grand Canyon Drive
Las Vegas, Nevada

ANDERSON WAHLEN & ASSOCIATES

2010 North Redwood Road, Salt Lake City, Utah 84116
801.521.8523 - AWEngineering.net

Designed by: KR
Drafted by: JC
Client Name:
Smith's Food & Drug

SMC367GR

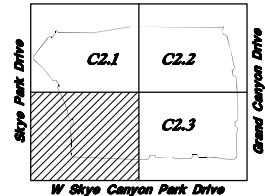
Match Line See Sheet C23

Match Line See Sheet C21

Scale: 1" = 30'



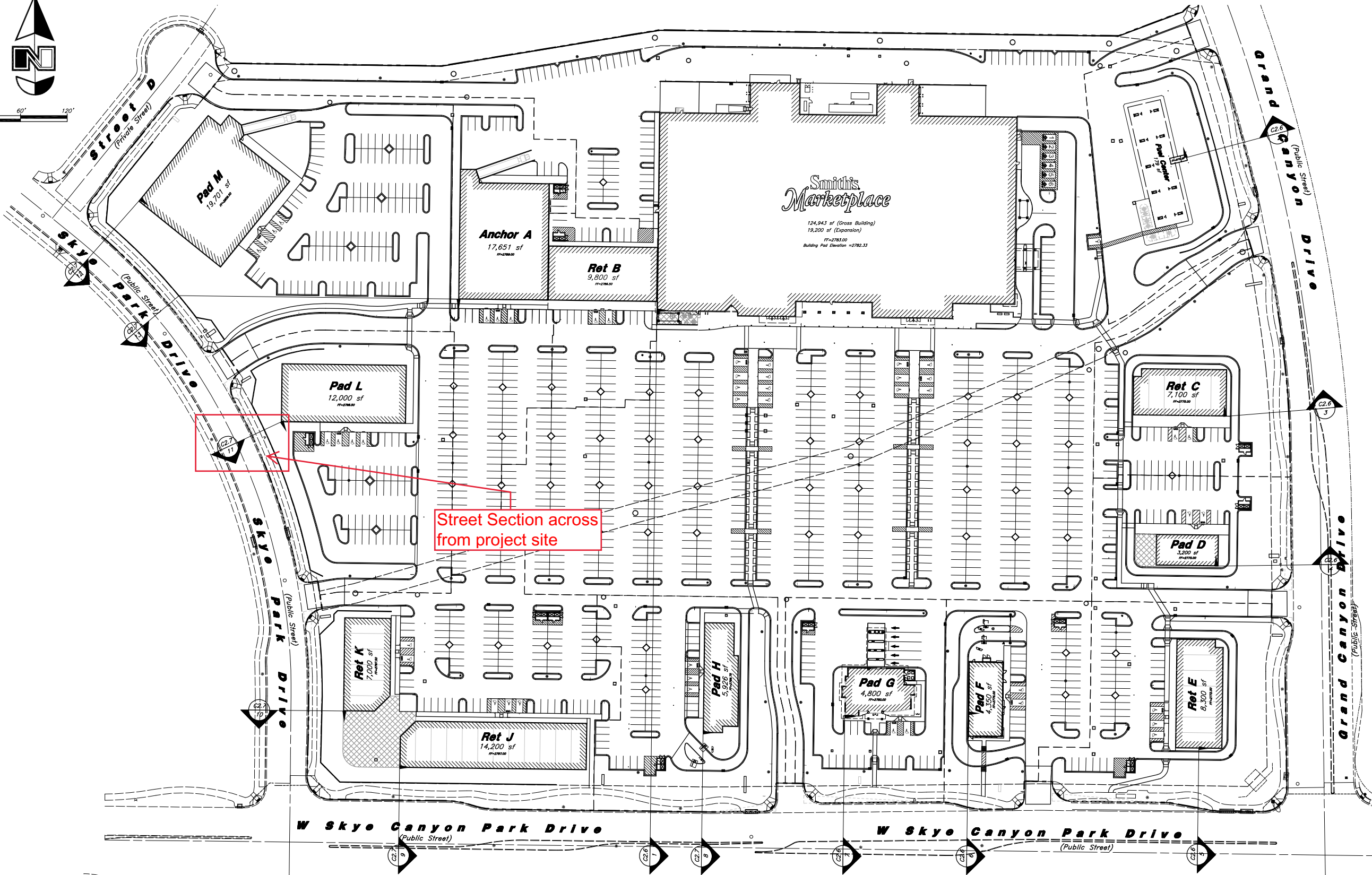
Key Map



Accessible Note:
Contractor must maintain a running slope on Accessible routes no steeper than 5.0% (1:20). The cross slope for Accessible routes must be no steeper than 2.0% (1:50). All Accessible routes must have a minimum clear width of 36". If grades on plans do not meet this requirement, notify Consultant immediately.
The Client, Contractor and Subcontractor should immediately notify the Consultant of any conditions of the project that they believe do not comply with the current state of the ICC/ANSI A117.1-Latest Edition and/or FHAA.



Scale: 1" = 60'



Street Section across from project site

Benchmark

Monument ID: USDA (1934) 19
U.S. Department of Agriculture Brass Disc at Southwest Corner of U.S. 95 and Kyle Canyon Road
Elevation=2817.61 Feet, 858.810 Meters
NAVD 88 DATUM
Per the City of Las Vegas Benchmark Book - 2008 Adjustment (Update 05/24/2010)

Basis of Bearings

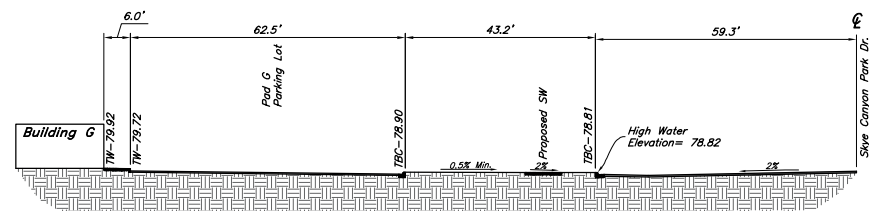
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Call before you Dig.
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OR
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UNDERGROUND SERVICE ALERT (USA)

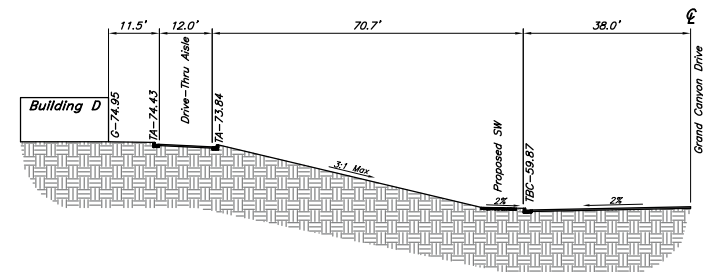
Call before you OVERHEAD
1-702-227-2929
NEVADA POWER, ENVIRONMENT AND SAFETY SERVICES DEPARTMENT

Smith's
FOOD & DRUG STORES
1550 South Redwood Road
Salt Lake City, Utah 84104
Telephone (801) 974-1400
#367
Las Vegas, Nevada

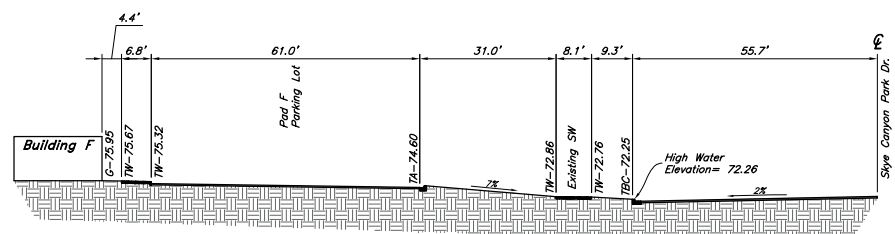
DESIGNED BY: KR	
DRAFTED BY: JC	
CLIENT NAME: Smith's Food & Drug	
SMC367GR	
ANNA ANDERSON WAHLEN & ASSOCIATES 2010 North Redwood Road, Salt Lake City, Utah 84116 801.521-8523 - AWAengineering.net	
Overall Cross-Section Map Skye Canyon Village West Skye Canyon Park Drive & Grand Canyon Drive Las Vegas, Nevada	
24 Oct, 2016 SHEET NO. 13 OF 36 C2.5 DWG No. HANSEN No. 66211	



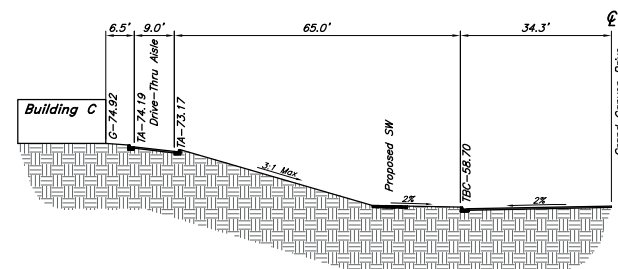
7 **Pad G**
Not to Scale



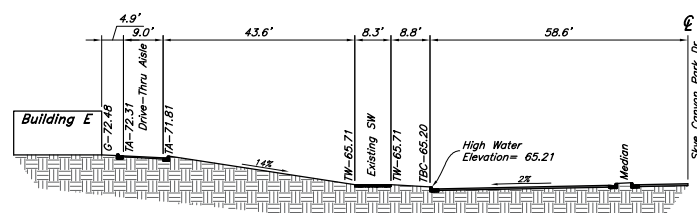
4 **Pad D**
Not to Scale



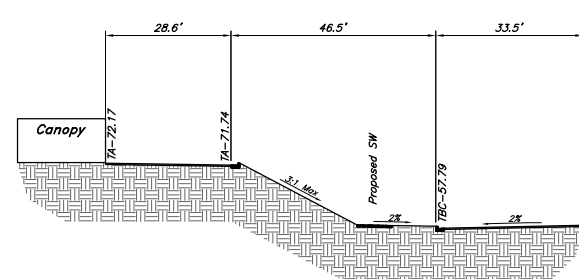
6 **Pad F**
Not to Scale



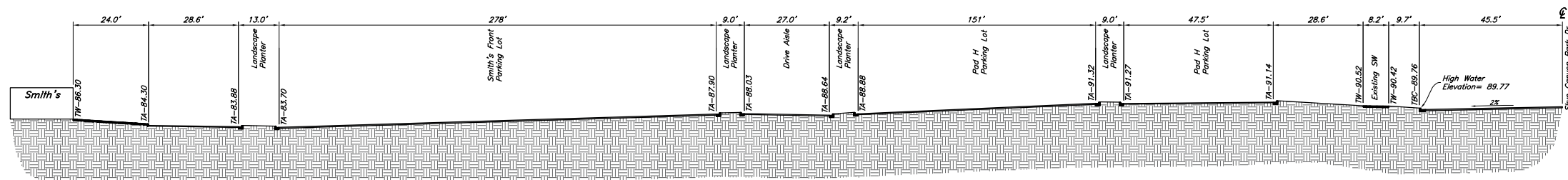
3 **Pad C**
Not to Scale



5 **Pad E**
Not to Scale



2 **Fuel Center**
Not to Scale



1 **Smith's**
Not to Scale

Smith's
FOOD & DRUG STORES
1550 South Redwood Road
Salt Lake City, Utah 84104
Telephone (801) 974-1400

#367
Las Vegas, Nevada

Designed by: KR
Drafted by: JC
Client Name: Smith's Food & Drug
SMC367GR - Cross Sections



Building Sections

Skye Canyon Village
*West Skye Canyon Park Drive & Grand Canyon Drive
Las Vegas, Nevada*

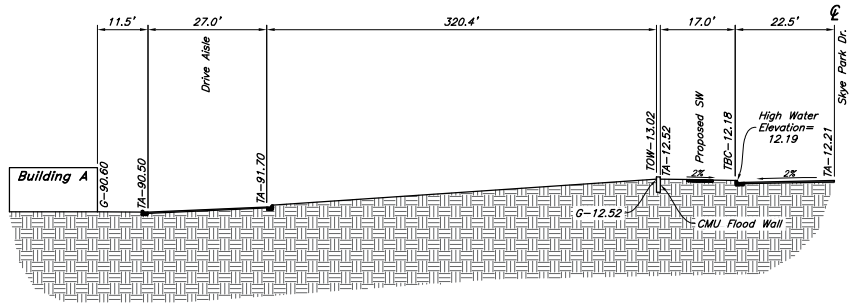


24 Oct. 2016

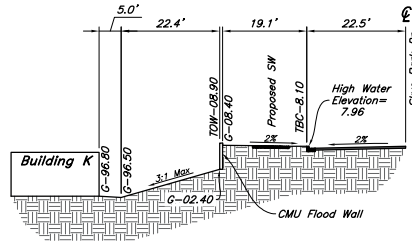
SHEET NO. 14 OF 36

C2.6

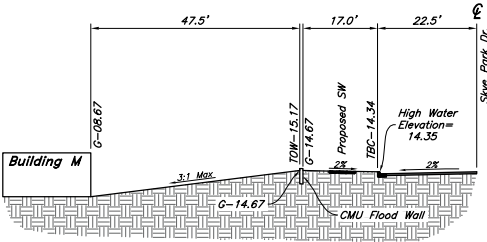
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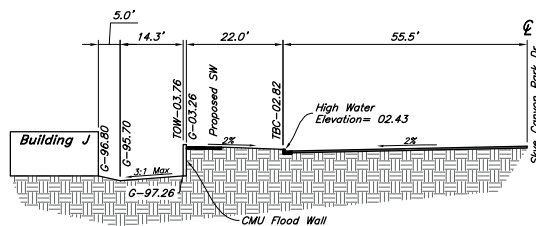
13 **Pads A & B**
Not to Scale



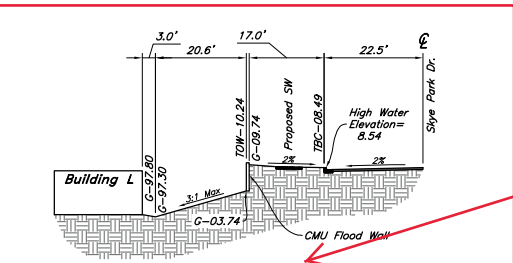
10 **Pad K**
Not to Scale



12 **Pad M**
Not to Scale

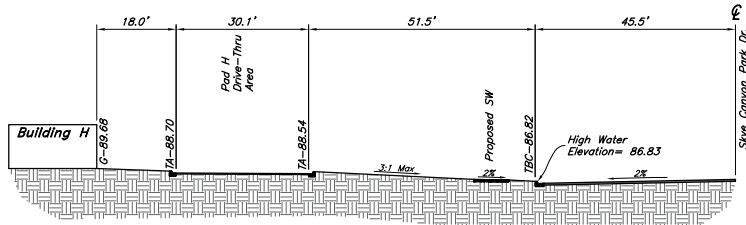


9 **Pad J**
Not to Scale



11 **Pad L**
Not to Scale

Skye Park Drive
near Pad M



8 **Pad H**
Not to Scale

Smith's
FOOD & DRUG STORES
1550 South Redwood Road
Salt Lake City, Utah 84104
Telephone (801) 974-1400

#367
Las Vegas, Nevada

Designed by: KR
Drafted by: JC
Client Name:
Smith's Food & Drug

SMC367GR - Cross Sections

ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
801.521.8529 - awhengineering.net

Building Sections
Skye Canyon Village
West Skye Canyon Park Drive & Grand Canyon Drive
Las Vegas, Nevada

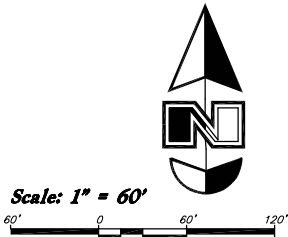
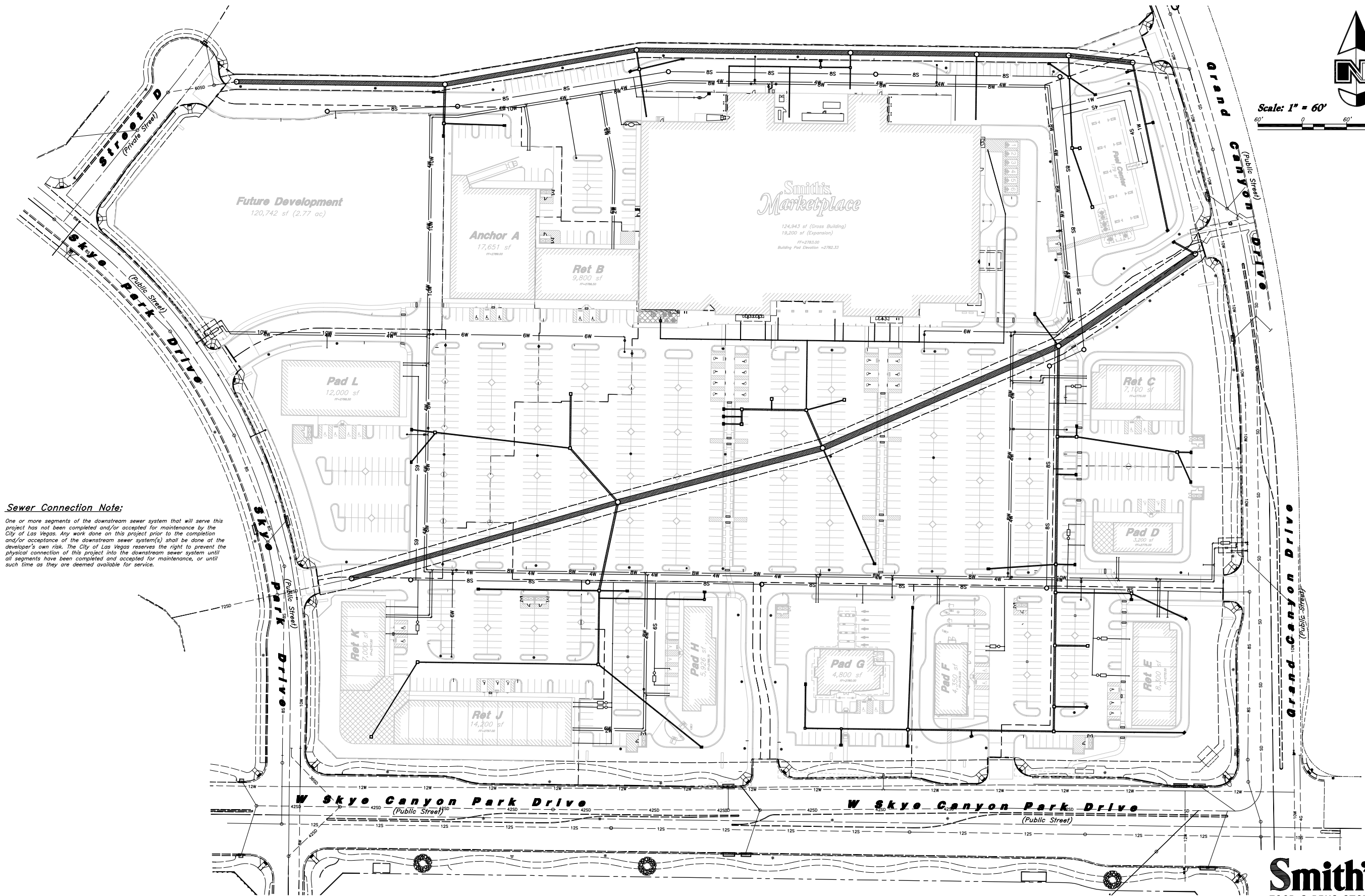
PROFESSIONAL ENGINEER-STATE OF UTAH
DAVID G. ANDERSON
Exp. 12-31-16
CIVIL
No. 020972

24 Oct, 2016

SHEET NO. 15 OF 36

C2.7

DWG No. HANSEN No.66211



Sewer Connection Note:

One or more segments of the downstream sewer system that will serve this project has not been completed and/or accepted for maintenance by the City of Las Vegas. Any work done on this project prior to the completion and/or acceptance of the downstream sewer system(s) shall be done at the developer's own risk. The City of Las Vegas reserves the right to prevent the physical connection of this project into the downstream sewer system until all segments have been completed and accepted for maintenance, or until such time as they are deemed available for service.

Approved for Construction
Las Vegas Valley Water District Engineering Services Manager
Date: Project No.: 124997
LWWD Approved Fire Flow: GPM at 20 PSI Residual

Benchmark
Monument ID: USDA (1934) 19
U.S. Department of Agriculture Brass Disc at Southwest
Corner of U.S. 95 and Kyle Canyon Road
Elevation=2817.61 Feet. 858.810 Meters
NAVD 88 DATUM
Per the City of Las Vegas Benchmark Book -
2008 Adjustment (Update 05/24/2010)

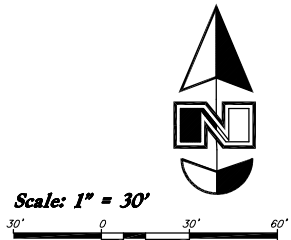
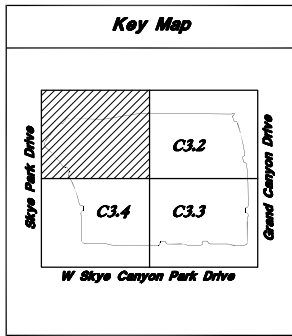
Basis of Bearings
North 89°16'30" West, Being the Bearing of the South
Line of the Southeast Quarter (SE1/4) of the
Northwest Quarter (NW1/4) of Section 7, Township 19
South, Range 60 East, M.D.M., City of Las Vegas, Clark
County, Nevada, as Shown by Map Thereof in Book 147,
Page 71 of Plots in the Clark County Recorder's Office,
Nevada.

Avoid overhead power
line contact
**Call
before you
OVERHEAD**
1-702-227-2929
NEVADA POWER EQUIPMENT
AND SAFETY SERVICES
DEPARTMENT

Avoid cutting underground
utility lines - it's costly.
**Call before you
Dig.
"811"**
OR
1-800-227-2600
UNDERGROUND SERVICE
ALERT (USA)

Smith's
FOOD & DRUG STORES
1550 South Redwood Road
Salt Lake City, Utah 84104
Telephone (801) 974-1400
#367
Las Vegas, Nevada

DESIGNED BY: KR	
DRAFTED BY: JC	
CLIENT NAME: Smith's Food & Drug	
SMC367UT	
ANDERSON WAHLEN & ASSOCIATES 2010 North Redwood Road, Salt Lake City, Utah 84116 801.521.8523 - awhengineering.net	
Overall Utility Plan Skye Canyon Village West Skye Canyon Park Drive & Grand Canyon Drive Las Vegas, Nevada	
24 Oct, 2016	
SHEET NO. 21 OF 36	
C3.0	
DWG No. HANSEN No. 66211	



Waterline Construction Notes

- 1 Const. 90° Bend
- 2 Const. 45° Bend
- 3 Const. 2" Water Meter (Public)
- 4 Const. 10" RPDA (Public)
- 5 Const. 8"x8"x6" Tee
- 6 Const. Fire Hydrant Assembly & 6" Gate Valve
- 7 Const. 8" PVC Waterline (C-900 Cl 150) (Private)
- 8 Const. 6" Water Lateral for Fire Hydrant & Assembly
- 9 Const. 6" Gate Valve
- 10 Const. 6" Fire Sprinkler Line (PVC C-900 CL 150)
- 11 Const. 4" Waterline
- 12 Const. Wt. Reducer (See Plan for Pipe Sizes)
- 13 Const. 10" PVC Waterline (C-900 CL 150) (Public)
- 14 Const. 2" Service Saddle w/ Corp Stop
- 15 Const. 8"x8"x8" Tee
- 16 Conn. to Existing 10" PVC Waterline (Verify Location)
- 17 Const. 11.25° Bend
- 18 Const. 10"x10"x6" Tee
- 19 Const. 10"x10"x10" Tee
- 20 Const. 10" PVC Waterline (C-900 Cl 150) (Private)
- 21 Const. 4"x4"x2" Tee
- 22 Plug, Block & Mark Location
- 23 Const. 2" Irrigation Service (Coordinate w/ Landscaper)
- 24 Const. 2" RPPA (Public)
- 25 Const. 2" Corp Stop @ End of Pipe w/ 12"x18" Box
- 26 Not Used
- 27 Const. 12" Gate Valve
- 28 Const. 8" PVC Fire Service Line w/ Fire Riser
- 29 Const. 3" Culinary Water Connection
- 30 Const. 10"x10"x10"x10" Cross
- 31 Not Used
- 32 Const. 8" Gate Valve
- 33 Const. 4"x4"x4" Tee
- 34 Const. 10" Gate Valve
- 35 Const. 2" PVC Waterline (C-900 Cl 150) (Private)

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

Call before you
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1-800-227-2600
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Sewer Connection Note:

One or more segments of the downstream sewer system that will serve this project has not been completed and/or accepted for maintenance by the City of Las Vegas. Any work done on this project prior to the completion and/or acceptance of the downstream sewer system(s) shall be done at the developer's own risk. The City of Las Vegas reserves the right to prevent the physical connection of this project into the downstream sewer system until all segments have been completed and accepted for maintenance, or until such time as they are deemed available for service.

Reduced Pressure Principle Assembly (2) 2"

Approved Reduced Pressure Principle Assembly shall be installed per the UDACS Plate #11A. No water shall be taken from a service requiring back-flow prevention until the Reduced Pressure Principle Assembly has been successfully tested by the LVWD.

Any block wall or other fences material shall be designed and constructed around the outside of the easement(s) so as to allow the District direct access from the adjacent right-of-way.

Easements shall be clearly marked or staked prior to the start of construction.

Fire Flow Calculations

Fire Flow requirement is 4,000 gallons per minute @ 20 PSI residual pressure.

	Smith's	Pad A	Pad B	Pad C	Pad D	Pad E	Pad F	Pad G	Pad H	Pad J	Pad K	Pad L
Required Fire Flow (GPM)	4,000	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Square Footage	124,943 SF	17,651 SF	9,800 SF	7,100 SF	3,200 SF	8,300 SF	4,350 SF	4,800 SF	5,926 SF	14,200 SF	7,000 SF	12,000 SF
Height	22-35	22-35	22-35	22-35	22-35	22-35	22-35	22-35	22-35	22-35	22-35	22-35
Type of Construction	V-B	V-B	V-B	V-B	V-B	V-B	V-B	V-B	V-B	V-B	V-B	V-B
Sprinkler System	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Occupancy	M	M	M	M	M	M	M	M	M	M	M	M

Reviewed By: _____ Date: _____

Reduced Pressure Detector Assembly (2) 10"

Approved Reduced Pressure Principle Assembly shall be installed per the UDACS Plate #11C.

Any block wall or other fences material shall be designed and constructed around the outside of the easement(s) so as to allow the District direct access from the adjacent right-of-way.

Easements shall be clearly marked or staked prior to the start of construction.

Utility Piping Materials:

All piping material shall be per local agency standards or the specifications below at minimum. All utility piping shall be installed per manufacturers recommendations. Refer to project specifications for more detailed information regarding materials, installation, etc.

Culinary Service Laterals

1. Per Uniform Design and Construction Standards for potable water systems.

Water Main Lines and Fire Lines

1. Per Uniform Design and Construction Standards for potable water systems.

Sanitary Sewer Lines

1. All sewer piping to be Polyvinyl Chloride (PVC) sewer pipe, ASTM D3034, Type PSM, SDR 35

Storm Drain Lines

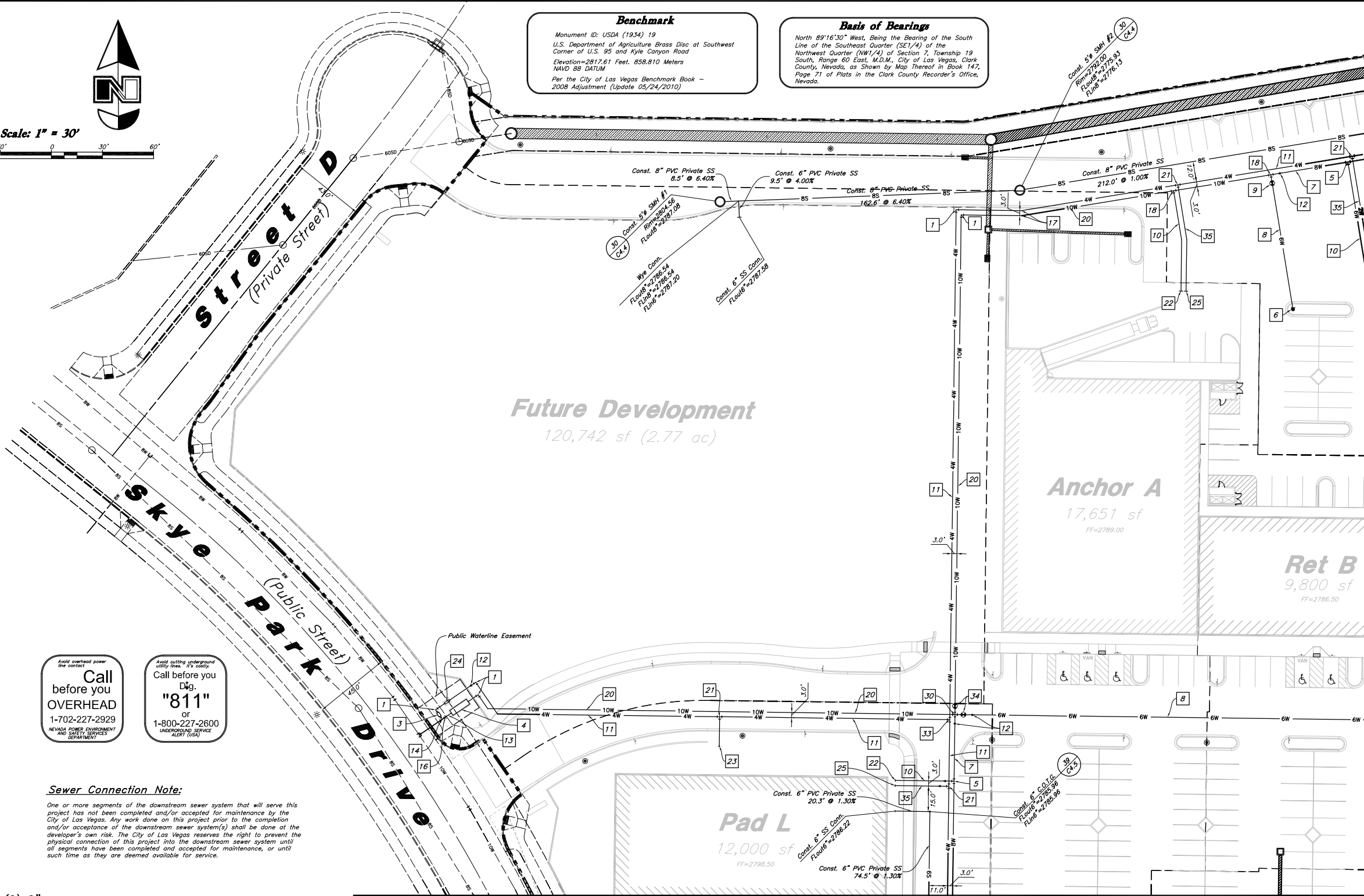
1. 12" pipes or smaller - Polyvinyl Chloride (PVC) sewer pipe, ASTM D3034, Type PSM, SDR 35
2. 15" pipes or larger - Reinforced Concrete Pipe, ASTM C76, Class III, Type V Cement

Benchmark

Monument ID: USDA (1934) 19
U.S. Department of Agriculture Brass Disc at Southwest Corner of U.S. 95 and Kyle Canyon Road
Elevation=2817.61 Feet. 858.810 Meters
NAVD 88 DATUM
Per the City of Las Vegas Benchmark Book - 2008 Adjustment (Update 05/24/2010)

Basis of Bearings

North 89°16'30" West, Being the Bearing of the South Line of the Southeast Quarter (SE1/4) of the Northwest Quarter (NW1/4) of Section 7, Township 19 South, Range 60 East, M.D.M., City of Las Vegas, Clark County, Nevada, as Shown by Map Thereof in Book 147, Page 71 of Plats in the Clark County Recorder's Office, Nevada.



Match Line See Sheet C3.4

Approved for Construction

Las Vegas Valley Water District Engineering Services Manager
Date: _____ Project No.: 124997
LVWD Approved Fire Flow _____ GPM at 20 PSI Residual

General Utility Notes:

- All sewer and water facilities shall be constructed per local jurisdiction standards and specifications. Contractor is responsible to obtain standards and specifications.
- Coordinate all utility connections to building with plumbing plans and building contractor.
- Verify depth and location of all existing utilities prior to constructing any new utility lines. Notify Civil Engineer of any discrepancies or conflicts prior to any connections being made.
- All catch basin and inlet box grates are to be bicycle proof.
- Refer to the site electrical plan for details and locations of electrical lines, transformers and light poles.
- Water meters are to be installed per city standards and specifications. It will be the contractors responsibility to install all items required.
- Water lines, valves, fire hydrants, fittings etc. are to be constructed as shown. Contractor is responsible, at no cost to the owner, to construct any vertical adjustments necessary to clear sewer, storm drain, or other utilities as necessary including valve boxes and hydrant spools to proper grade.
- Contractor shall install a 12" concrete collar around all manholes, valves, catch basins, cleanouts & any other structures located within asphalt.

Smith's
FOOD & DRUG STORES

1550 South Redwood Road
Salt Lake City, Utah 84104
Telephone (801) 974-1400

#367
Las Vegas, Nevada

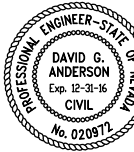
Designed by: KR
Drafted by: JC
Client Name:
Smith's Food & Drug

SMC367UT

ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
801.521.8523 - awhengineering.net

Utility Plan

Skye Canyon Village
West Skye Canyon Park Drive & Grand Canyon Drive
Las Vegas, Nevada



24 Oct, 2016

SHEET NO. 22 OF 36

C3.1

DWG No. HANSEN No. 66211

Reduced Pressure Principle Assembly (2) 2"

Approved Reduced Pressure Principle Assembly shall be installed per the UDACS Plate #11A. No water shall be taken from a service requiring back-flow prevention until the Reduced Pressure Principle Assembly has been successfully tested by the LVWD.

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Easements shall be clearly marked or staked prior to the start of construction.

Reduced Pressure Detector Assembly (2) 10"

Approved Reduced Pressure Principle Assembly shall be installed per the UDACS Plate #11C.

Any block wall or other fences material shall be designed and constructed around the outside of the easement(s) so as to allow the District direct access from the adjacent right-of-way.

Easements shall be clearly marked or staked prior to the start of construction.

Waterline Construction Notes

- 1 Const. 90° Bend
- 2 Const. 45° Bend
- 3 Const. 2" Water Meter (Public)
- 4 Const. 10" RPDA (Public)
- 5 Const. 8"x8"x6" Tee
- 6 Const. Fire Hydrant Assembly & 6" Gate Valve
- 7 Const. 8" PVC Waterline (C-900 Cl 150) (Private)
- 8 Const. 6" Water Lateral for Fire Hydrant & Assembly

- 9 Const. 6" Gate Valve
- 10 Const. 6" Fire Sprinkler Line (PVC C-900 CL 150)
- 11 Const. 4" Waterline
- 12 Const. WL Reducer (See Plan for Pipe Sizes)
- 13 Const. 10" PVC Waterline (C-900 CL 150) (Public)
- 14 Const. 2" Service Saddle w/ Corp Stop
- 15 Const. 8"x8"x8" Tee
- 16 Conn. to Existing 10" PVC Waterline (Verify Location)

- 17 Const. 11.25° Bend
- 18 Const. 10"x10"x6" Tee
- 19 Const. 10"x10"x10" Tee
- 20 Const. 10" PVC Waterline (C-900 Cl 150) (Private)
- 21 Const. 4"x4"x2" Tee
- 22 Plug, Block & Mark Location
- 23 Const. 2" Irrigation Service (Coordinate w/ Landscaper)
- 24 Const. 2" RPPA (Public)

- 25 Const. 2" Corp Stop @ End of Pipe w/ 12"x18" Box
- 26 Not Used
- 27 Const. 12" Gate Valve
- 28 Const. 8" PVC Fire Service Line w/ Fire Riser
- 29 Const. 3" Culinary Water Connection
- 30 Const. 10"x10"x10"x10" Cross
- 31 Not Used
- 32 Const. 8" Gate Valve
- 33 Const. 4"x4"x4" Tee
- 34 Const. 10" Gate Valve
- 35 Const. 2" PVC Waterline (C-900 Cl 150) (Private)

Basis of Bearings

North 89°16'30" West, Being the Bearing of the South Line of the Southeast Quarter (SE1/4) of the Northwest Quarter (NW1/4) of Section 7, Township 19 South, Range 60 East, M.D.M., City of Las Vegas, Clark County, Nevada, as Shown by Map Thereof in Book 147, Page 71 of Plats in the Clark County Recorder's Office, Nevada.

Benchmark

Monument ID: USDA (1934) 19
U.S. Department of Agriculture Brass Disc at Southwest Corner of U.S. 95 and Kyle Canyon Road
Elevation=2817.61 Feet. 858.810 Meters
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Per the City of Las Vegas Benchmark Book - 2008 Adjustment (Update 05/24/2010)

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Notes:

- See Sheet C3.1 for General Utility Notes
- See Sheet C3.1 for Utility Piping Materials

Fire Flow Calculations

Fire Flow requirement is 4,000 gallons per minute @ 20 PSI residual pressure.

Required Fire Flow (GPM)	Smith's	Pad A	Pad B	Pad C	Pad D	Pad E	Pad F	Pad G	Pad H	Pad J	Pad K	Pad L
Square Footage	124,943 SF	17,651 SF	9,800 SF	7,100 SF	3,200 SF	8,300 SF	4,350 SF	4,800 SF	5,926 SF	14,200 SF	7,000 SF	12,000 SF
Height	22-35	22-35	22-35	22-35	22-35	22-35	22-35	22-35	22-35	22-35	22-35	22-35
Type of Construction	V-B	V-B	V-B	V-B	V-B	V-B	V-B	V-B	V-B	V-B	V-B	V-B
Sprinkler System	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Occupancy	M	M	M	M	M	M	M	M	M	M	M	M

Reviewed By:

Date:

124,943 sf (Gross Building)
19,200 sf (Expansion)

FF=2783.00
Building Pad Elevation =2782.33

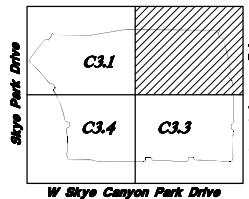
Avoid overhead power line contact!
Call before you OVERHEAD
1-702-227-2929
NEVADA POWER ENVIRONMENT AND SAFETY SERVICES DEPARTMENT

Avoid cutting underground utility lines. It's costly!
Call before you Dig. "811"
or
1-800-227-2600
UNDERGROUND SERVICE ALERT (USA)

Scale: 1" = 30'



Key Map



Designed by: KR
Drafted by: JC
Client Name:
Smith's Food & Drug

SMC367UT

ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
801.521.9523 - awhengineering.net

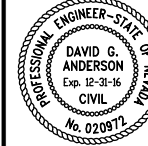
Utility Plan

Skye Canyon Village
West Skye Canyon Park Drive & Grand Canyon Drive
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Smith's
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1550 South Redwood Road
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#367
Las Vegas, Nevada



24 Oct, 2016

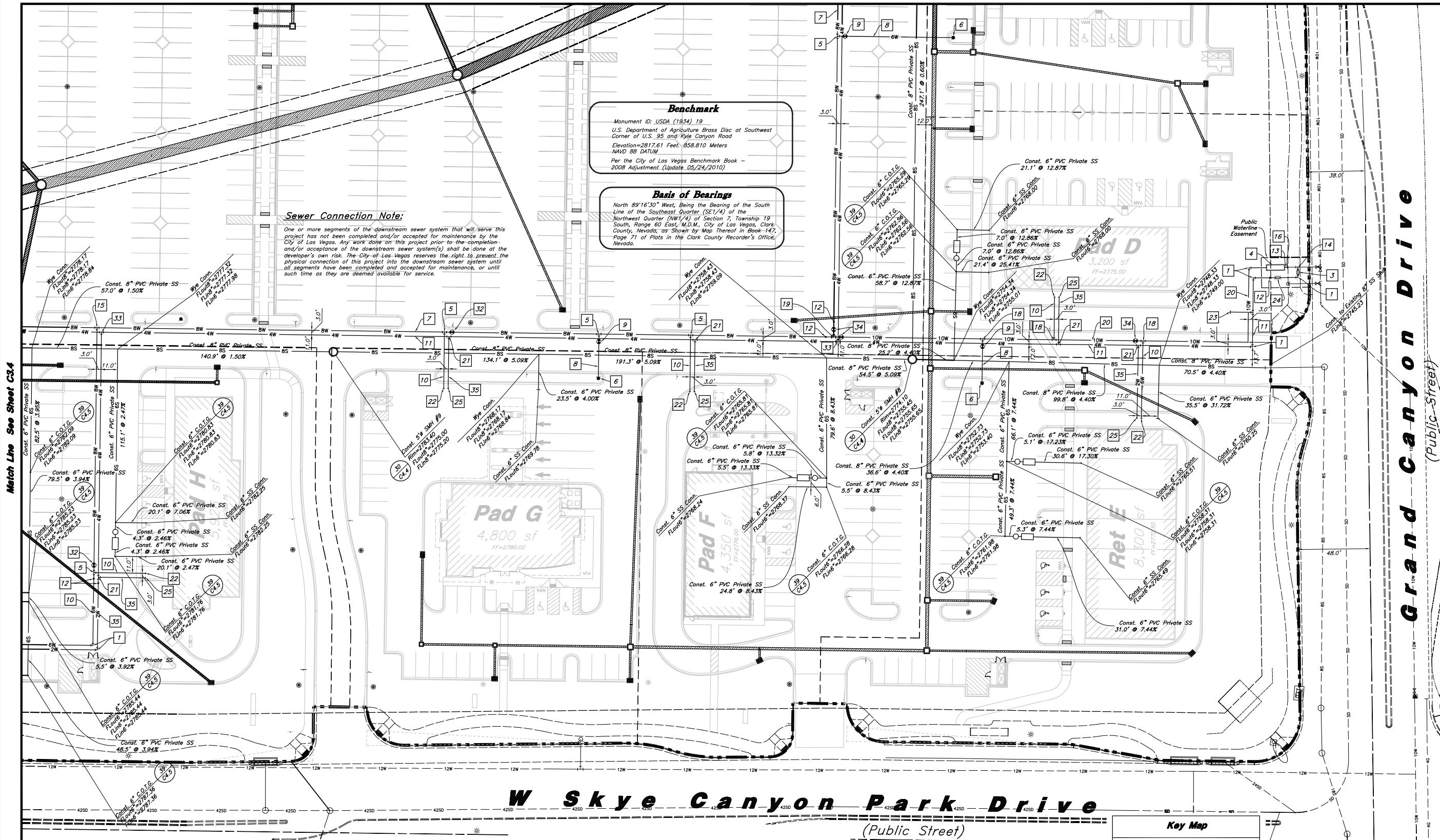
SHEET NO. 23 OF 36

C3.2

DWG No. HANSEN No. 66211

Match Line See Sheet C3.1

Match Line See Sheet C3.3



Waterline Construction Notes

- | | | | |
|---|--|--|---|
| 1 Const. 90° Bend | 9 Const. 6" Gate Valve | 18 Const. 10"x10"x6" Tee | 27 Const. 12" Gate Valve |
| 2 Const. 45° Bend | 10 Const. 6" Fire Sprinkler Line (PVC C-900 CL 150) | 19 Const. 10"x10"x10" Tee | 28 Const. 8" PVC Fire Service Line w/ Fire Riser |
| 3 Const. 2" Water Meter (Public) | 11 Const. 4" Waterline | 20 Const. 10" PVC Waterline (C-900 CL 150) (Private) | 29 Const. 3" Culinary Water Connection |
| 4 Const. 10" RPDA (Public) | 12 Const. WL Reducer (See Plan for Pipe Sizes) | 21 Const. 4"x4"x2" Tee | 30 Const. 10"x10"x10" Cross |
| 5 Const. 8"x8"x6" Tee | 13 Const. 10" PVC Waterline (C-900 CL 150) (Public) | 22 Plug, Block & Mark Location | 31 Not Used |
| 6 Const. Fire Hydrant Assembly & 6" Gate Valve | 14 Const. 2" Service Saddle w/ Corp Stop | 23 Const. 2" Irrigation Service (Coordinate w/ Landscaper) | 32 Const. 6" Gate Valve |
| 7 Const. 8" PVC Waterline (C-900 CL 150) (Private) | 15 Const. 8"x8"x8" Tee | 24 Const. 2" RPDA (Public) | 33 Const. 4"x4"x4" Tee |
| 8 Const. 6" Water Lateral for Fire Hydrant & Assembly | 16 Conn. to Existing 10" PVC Waterline (Verify Location) | 25 Const. 2" Corp Stop @ End of Pipe w/ 12"x18" Box | 34 Const. 10" Gate Valve |
| | 17 Const. 11.25" Bend | 26 Not Used | 35 Const. 2" PVC Waterline (C-900 CL 150) (Private) |

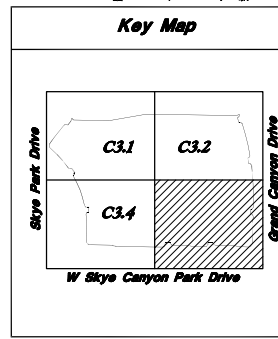
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NEVADA POWER ENVIRONMENT
AND SAFETY SERVICES
DEPARTMENT

Call before you
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UNDERGROUND SERVICE
ALERT (USA)

Notes:
• See Sheet C3.1 for General Utility Notes
• See Sheet C3.1 for Utility Piping Materials
• See Sheet C3.1 for RPDA and RPDA notes
• See Sheet C3.1 for Fire Flow Calculations



Scale: 1" = 30'



Smith's
FOOD & DRUG STORES
1550 South Redwood Road
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Telephone (801) 974-1400

#367
Las Vegas, Nevada

Professional Engineer - State of Nevada
DAVID G. ANDERSON
Exp. 12-31-16
CIVIL
No. 020972

24 Oct, 2016
SHEET NO. 24 OF 36
C3.3
DWG No. HANSEN No. 66211

Utility Plan
Skye Canyon Village
West Skye Canyon Park Drive & Grand Canyon Drive
Las Vegas, Nevada

ANDERSON WAHLEN & ASSOCIATES
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801-521-8523 - awhengineering.net

Designed by: KR
Drafted by: JC
Client Name:
Smith's Food & Drug
SMC367UT

REV	DATE	DESCRIPTION

Sewer Connection Note:

One or more segments of the downstream sewer system that will serve this project has not been completed and/or accepted for maintenance by the City of Las Vegas. Any work done on this project prior to the completion and/or acceptance of the downstream sewer system(s) shall be done at the developer's own risk. The City of Las Vegas reserves the right to prevent the physical connection of this project into the downstream sewer system until all segments have been completed and accepted for maintenance, or until such time as they are deemed available for service.

Reduced Pressure Principle Assembly (2) 2"

Approved Reduced Pressure Principle Assembly shall be installed per the UDACS Plate #11A. No water shall be taken from a service requiring back-flow prevention until the Reduced Pressure Principle Assembly has been successfully tested by the LVWD.

Any block wall or other fences material shall be designed and constructed around the outside of the easement(s) so as to allow the District direct access from the adjacent right-of-way.

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Reduced Pressure Detector Assembly (2) 10"

Approved Reduced Pressure Principle Assembly shall be installed per the UDACS Plate #11C.

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Fire Flow Calculations

Fire Flow requirement is 4,000 gallons per minute @ 20 PSI residual pressure.

	Smith's	Pad A	Pad B	Pad C	Pad D	Pad E	Pad F	Pad G	Pad H	Pad J	Pad K	Pad L
Required Fire Flow (GPM)	4,000	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Square Footage	124,943 SF	17,651 SF	9,800 SF	7,100 SF	3,200 SF	8,300 SF	4,350 SF	4,800 SF	5,926 SF	14,200 SF	7,000 SF	12,000 SF
Height	22-35	22-35	22-35	22-35	22-35	22-35	22-35	22-35	22-35	22-35	22-35	22-35
Type of Construction	V-B	V-B	V-B	V-B	V-B	V-B	V-B	V-B	V-B	V-B	V-B	V-B
Sprinkler System	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Occupancy	M	M	M	M	M	M	M	M	M	M	M	M

Reviewed By: _____ Date: _____

General Utility Notes:

- All sewer and water facilities shall be constructed per local jurisdiction standards and specifications. Contractor is responsible to obtain standards and specifications.
- Coordinate all utility connections to building with plumbing plans and building contractor.
- Verify depth and location of all existing utilities prior to constructing any new utility lines. Notify Civil Engineer of any discrepancies or conflicts prior to any connections being made.
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- Refer to the site electrical plan for details and locations of electrical lines, transformers and light poles.
- Water meters are to be installed per city standards and specifications. It will be the contractors responsibility to install all items required.
- Water lines, valves, fire hydrants, fittings etc. are to be constructed as shown. Contractor is responsible, at no cost to the owner, to construct any vertical adjustments necessary to clear sewer, storm drain, or other utilities as necessary including valve boxes and hydrant spools to proper grade.
- Contractor shall install a 12" concrete collar around all manholes, valves, catch basins, cleanouts & any other structures located within asphalt.

Utility Piping Materials:

All piping material shall be per local agency standards or the specifications below at minimum. All utility piping shall be installed per manufacturers recommendations. Refer to project specifications for more detailed information regarding materials, installation, etc.

Culinary Service Laterals

- Per Uniform Design and Construction Standards for potable water systems.

Water Main Lines and Fire Lines

- Per Uniform Design and Construction Standards for potable water systems.

Sanitary Sewer Lines

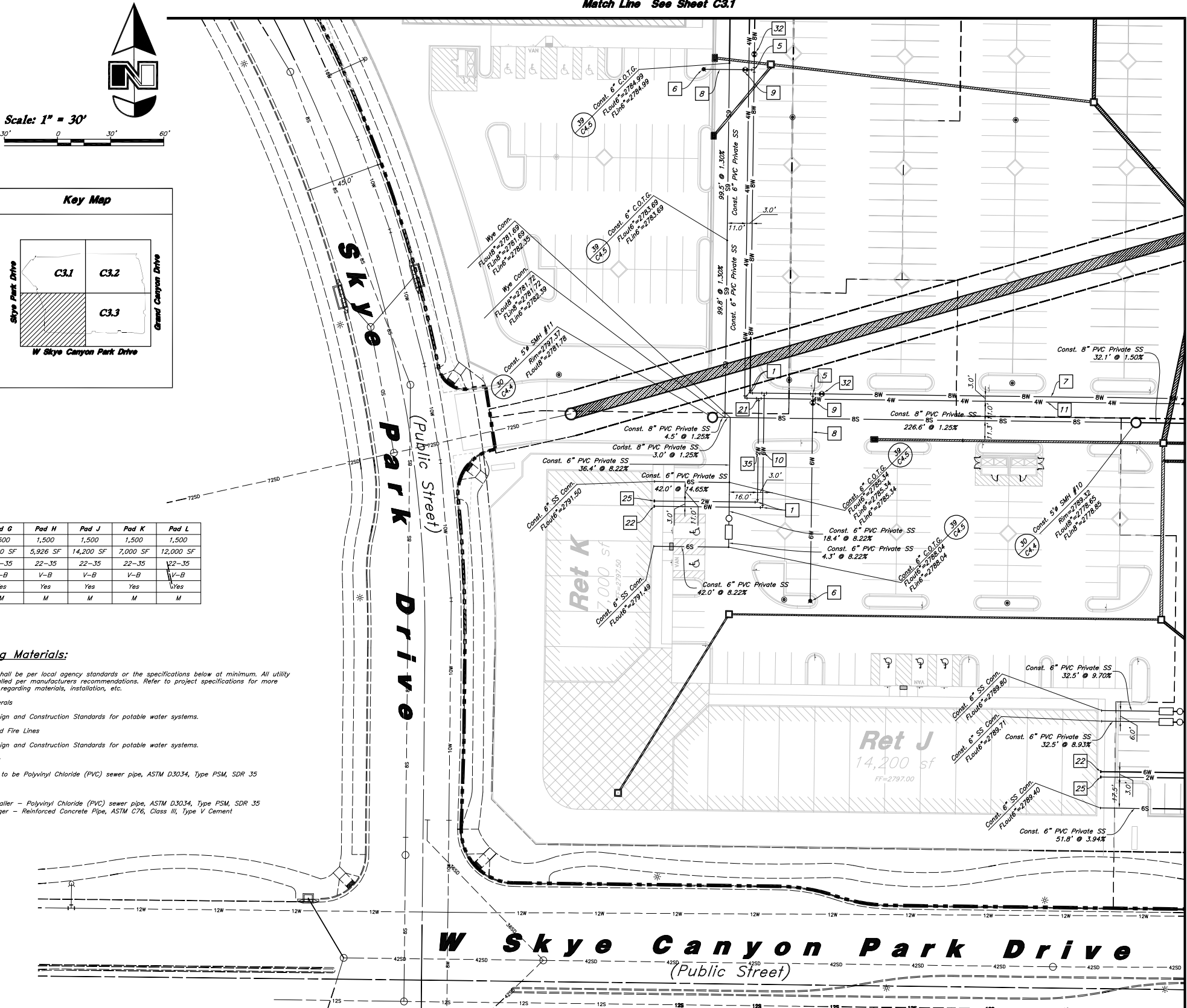
- All sewer piping to be Polyvinyl Chloride (PVC) sewer pipe, ASTM D3034, Type PSM, SDR 35

Storm Drain Lines

- 12" pipes or smaller - Polyvinyl Chloride (PVC) sewer pipe, ASTM D3034, Type PSM, SDR 35
- 15" pipes or larger - Reinforced Concrete Pipe, ASTM C76, Class III, Type V Cement

Waterline Construction Notes

1	Const. 90° Bend	18	Const. 10"x10"x6" Tee
2	Const. 45° Bend	19	Const. 10"x10"x10" Tee
3	Const. 2" Water Meter (Public)	20	Const. 10" PVC Waterline (C-900 Cl 150) (Private)
4	Const. 10" RPDA (Public)	21	Const. 4"x4"x2" Tee
5	Const. 8"x8"x6" Tee	22	Plug, Block & Mark Location
6	Const. Fire Hydrant Assembly & 6" Gate Valve	23	Const. 2" Irrigation Service (Coordinate w/ Landscaper)
7	Const. 8" PVC Waterline (C-900 Cl 150) (Private)	24	Const. 2" RPPA (Public)
8	Const. 6" Water Lateral for Fire Hydrant & Assembly	25	Const. 2" Corp Stop @ End of Pipe w/ 12"x18" Box
9	Const. 6" Gate Valve	26	Not Used
10	Const. 6" Fire Sprinkler Line (PVC C-900 Cl 150)	27	Const. 12" Gate Valve
11	Const. 4" Waterline	28	Const. 8" PVC Fire Service Line w/ Fire Riser
12	Const. WL Reducer (See Plan for Pipe Sizes)	29	Const. 3" Culinary Water Connection
13	Const. 10" PVC Waterline (C-900 Cl 150) (Public)	30	Const. 10"x10"x10"x10" Cross
14	Const. 2" Service Saddle w/ Corp Stop	31	Not Used
15	Const. 8"x8"x8" Tee	32	Const. 8" Gate Valve
16	Conn. to Existing 10" PVC Waterline (Verify Location)	33	Const. 4"x4"x4" Tee
17	Const. 11.25° Bend	34	Const. 10" Gate Valve
		35	Const. 2" PVC Waterline (C-900 Cl 150) (Private)



Benchmark

Monument ID: USDA (1934) 19
U.S. Department of Agriculture Brass Disc at Southwest Corner of U.S. 95 and Kyle Canyon Road
Elevation=2817.61 Feet. 858.810 Meters
NAVD 88 DATUM
Per the City of Las Vegas Benchmark Book - 2008 Adjustment (Update 05/24/2010)

Basis of Bearings

North 89°16'30" West, Being the Bearing of the South Line of the Southeast Quarter (SE1/4) of the Northwest Quarter (NW1/4) of Section 7, Township 19 South, Range 60 East, M.D.M., City of Las Vegas, Clark County, Nevada, as Shown by Map Thereof in Book 147, Page 71 of Plats in the Clark County Recorder's Office, Nevada.

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OVERHEAD
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NEVADA POWER ENVIRONMENT AND SAFETY SERVICES DEPARTMENT

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Smith's
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Telephone (801) 974-1400

#367
Las Vegas, Nevada



24 Oct, 2016

SHEET NO. 25 OF 36

C3.4

DWG No. HANSEN No. 66211

Utility Plan

Skye Canyon Village
West Skye Canyon Park Drive & Grand Canyon Drive
Las Vegas, Nevada

ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
801.521.8523 - awhengineering.net

Designed by: KR
Drafted by: JC
Client Name: Smith's Food & Drug

SMC367UT



Monument ID: USDA (1934) 19
U.S. Department of Agriculture Brass Disc at Southwest
Corner of U.S. 95 and Kyle Canyon Road
Elevation=2817.61 Feet. 858.810 Meters
NAVD 88 DATUM
Per the City of Las Vegas Benchmark Book -
2008 Adjustment (Update 05/24/2010)

North 89°16'30" West, Being the Bearing of the South Line of the Southeast Quarter (SE1/4) of the Northwest Quarter (NW1/4) of Section 7, Township 19 South, Range 60 East, M.D.M., City of Las Vegas, Clark County, Nevada, as Shown by Map Thereof in Book 147, Page 71 of Plats in the Clark County Recorder's Office, Nevada.

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ALERT (USA)

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**Hydraulic
Grade Line** — — — — —

1 Special Construction Note: Specified RCP Storm Drain Lines to Have Additional Sacrificial Concrete (See Detail)



Plan View Scale 1:30
Profile Scale
1:30 Horiz. & 1:5 Vert.



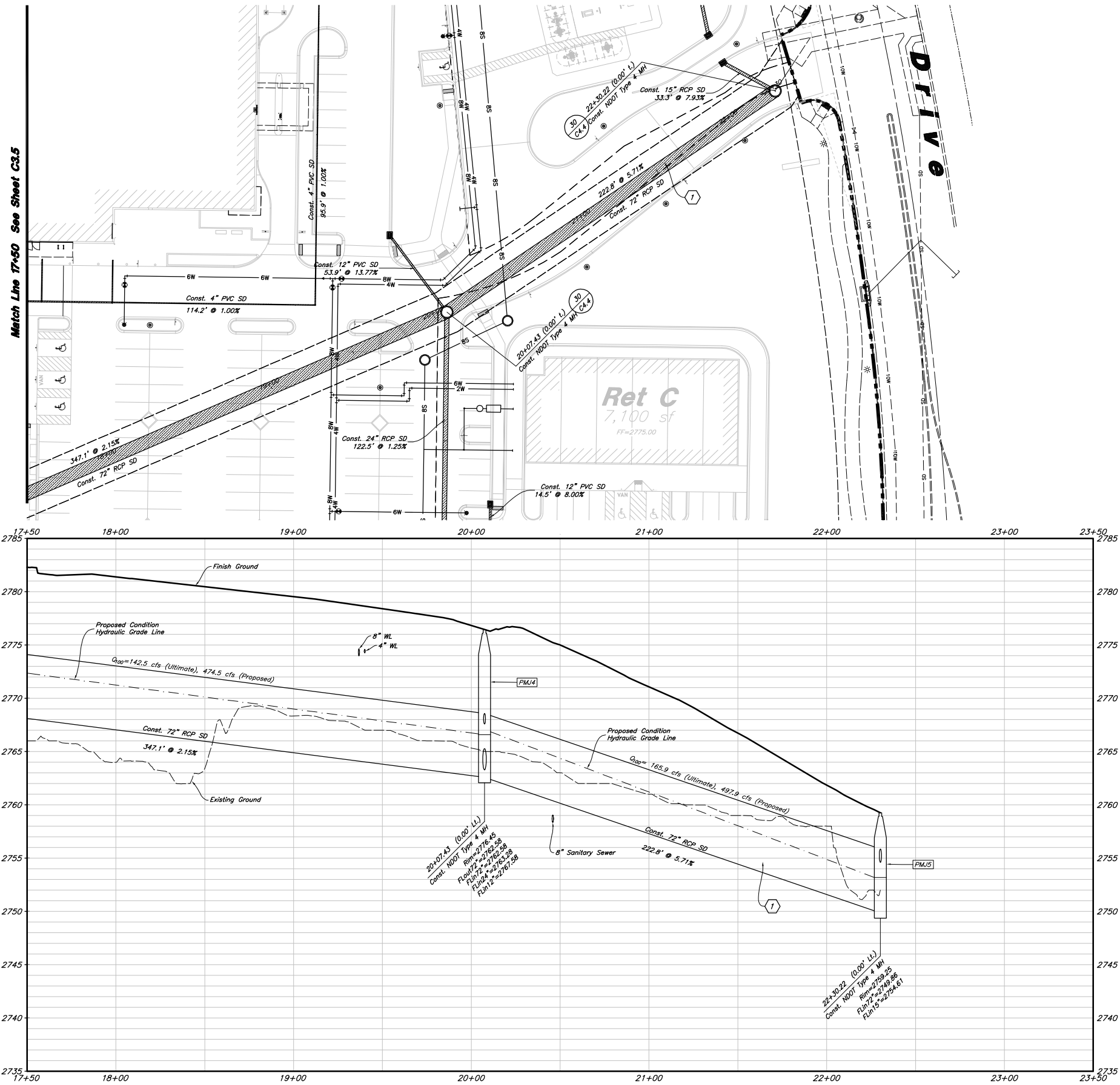
1550 South Redwood Road
Salt Lake City, Utah 84104
Telephone (801) 974-1400



SHEET NO. 26 0

C3,5

DWG No. HANSEN No. 662



Benchmark
Monument ID: USDA (1934) 19
U.S. Department of Agriculture Brass Disc at Southwest Corner of U.S. 95 and Kyle Canyon Road
Elevation=2817.61 Feet. 858.810 Meters
NAVD 88 DATUM
Per the City of Las Vegas Benchmark Book - 2008 Adjustment (Update 05/24/2010)

Basis of Bearings
North 89°16'30" West, Being the Bearing of the South Line of the Southeast Quarter (SE1/4) of the Northwest Quarter (NW1/4) of Section 7, Township 19 South, Range 80 East, M.D.M., City of Las Vegas, Clark County, Nevada, as Shown by Map Thereof in Book 1427, Page 71 of Plats in the Clark County Recorder's Office, Nevada.

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NEVADA POWER ENVIRONMENT AND SAFETY SERVICES DEPARTMENT

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Legend

Hydraulic Grade Line

Note:
1 Special Construction Note: Specified RCP Storm Drain Lines to Have Additional Sacrificial Concrete (See Detail) 40 C4.5

Smith's
FOOD & DRUG STORES

1550 South Redwood Road
Salt Lake City, Utah 84104
Telephone (801) 974-1400

#367
Las Vegas, Nevada

Designed by: KR
Drafted by: JC
Client Name:
Smith's Food & Drug
SMC367UT

ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
801.521-8523 - awhengineering.net

Storm Drain Plan & Profile (PM)

Skye Canyon Village
West Skye Canyon Park Drive & Grand Canyon Drive
Las Vegas, Nevada

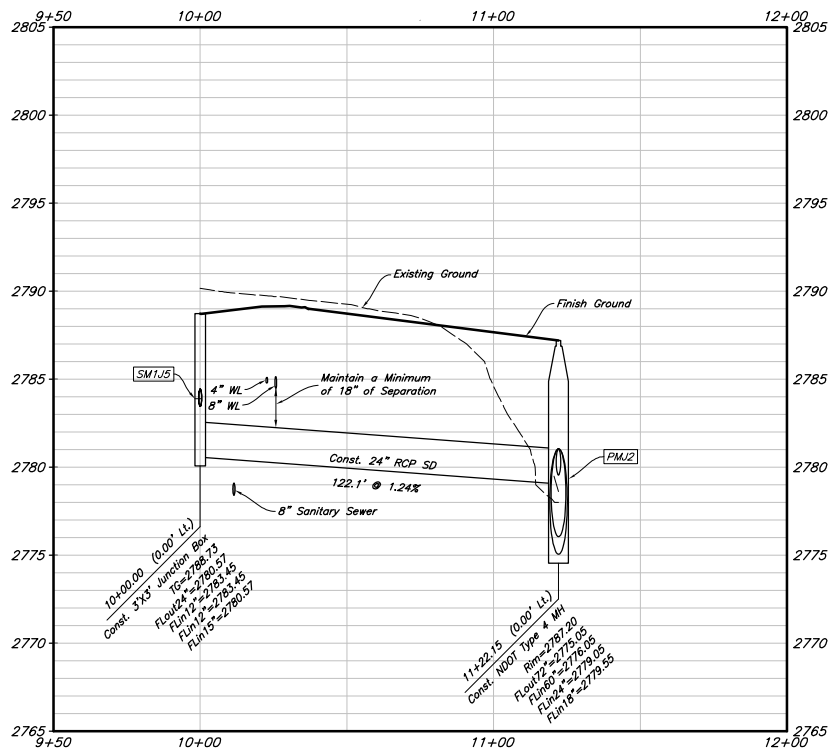
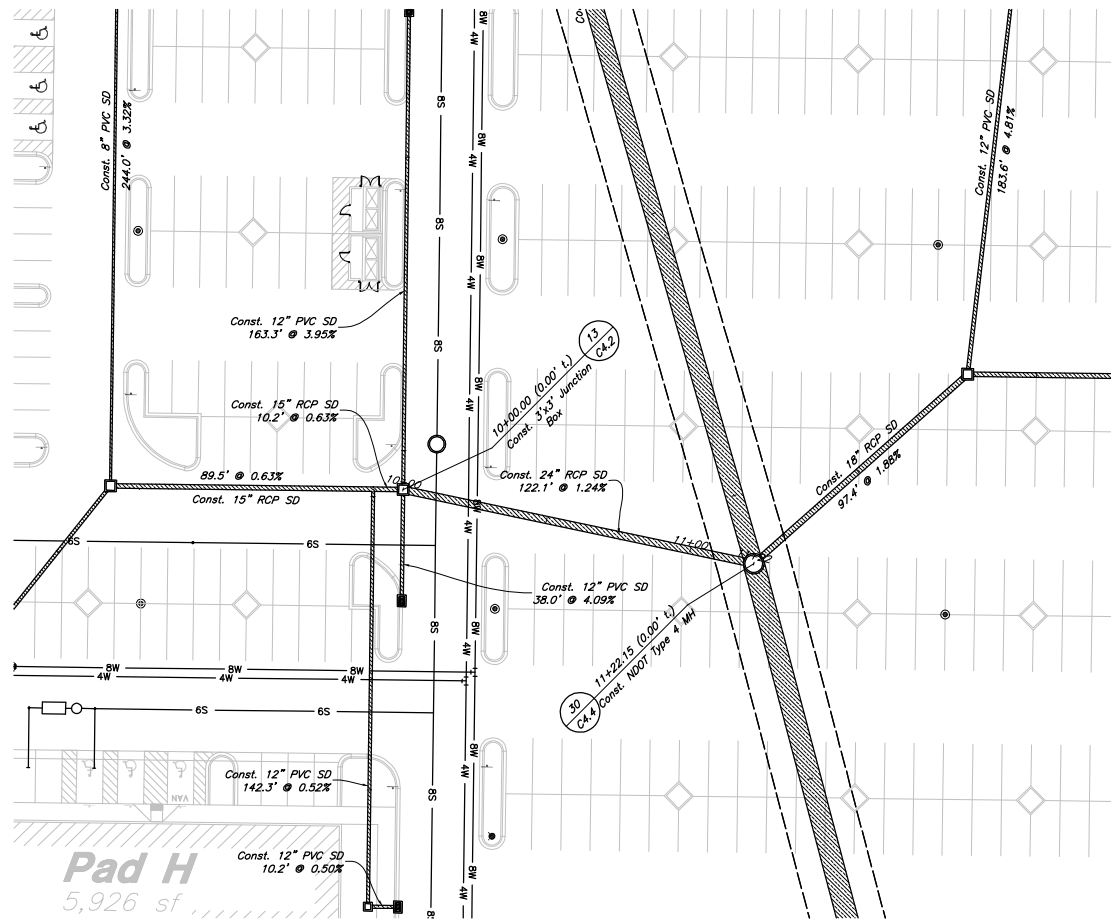
PROFESSIONAL ENGINEER-STATE OF UTAH
DAVID G. ANDERSON
Exp. 12-31-16
CIVIL
No. 020972

24 Oct, 2016

SHEET NO. 27 OF 36

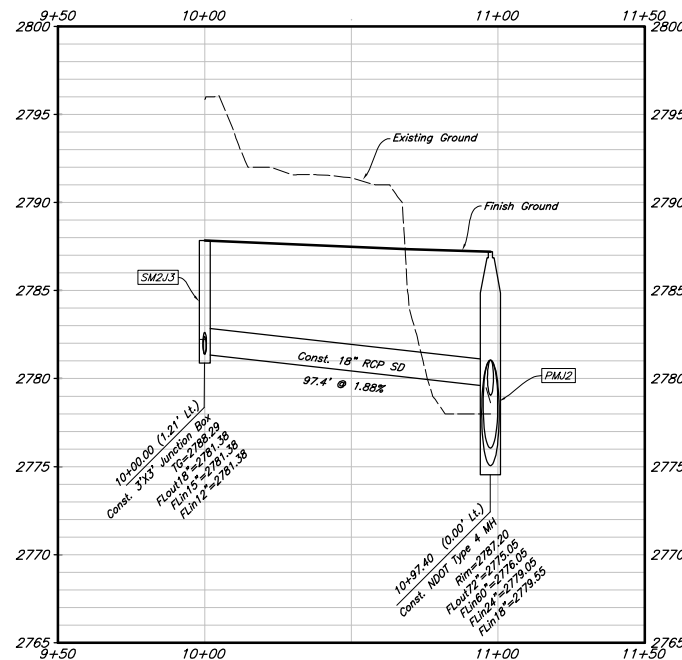
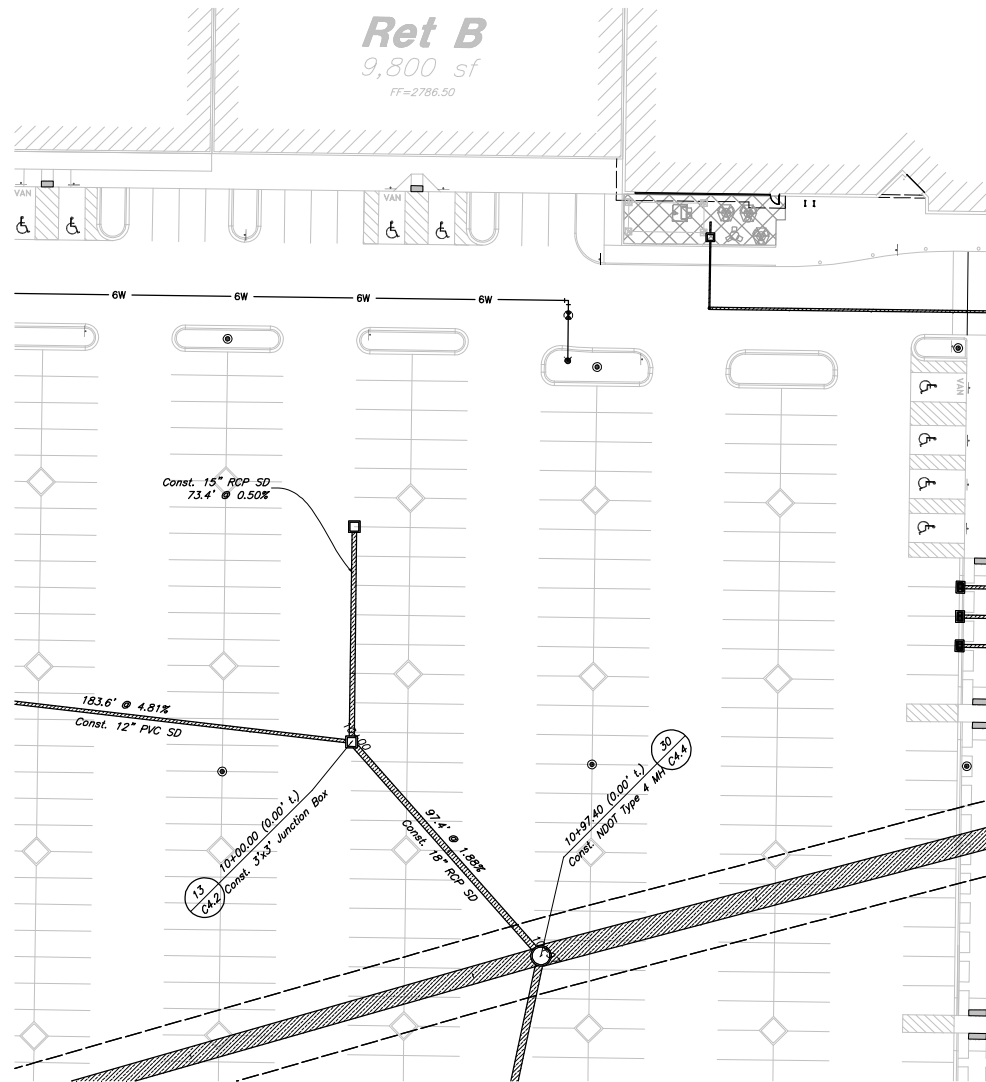
C3.6

DWG No.
HANSEN No. 66211



South Main 1

Plan View Scale 1:30
Profile Scale
1:30 Horiz. & 1:5 Vert.



South Main 2

Plan View Scale 1:30
Profile Scale
1:30 Horiz. & 1:5 Vert.

Benchmark
Monument ID: USDA (1934) 19
U.S. Department of Agriculture Brass Disc at Southwest
Corner of U.S. 95 and Kyle Canyon Road
Elevation=2817.61 Feet, 858.810 Meters
NAVD 88 DATUM
Per the City of Las Vegas Benchmark Book -
2008 Adjustment (Update 05/24/2010)

Basis of Bearings
North 89°16'30" West, Being the Bearing of the South
Line of the Southeast Quarter (SE1/4) of the
Northwest Quarter (NW1/4) of Section 7, Township 19
South, Range 60 East, M.D.M., City of Las Vegas, Clark
County, Nevada, as Shown by Map Thereof in Book 1427,
Page 71 of Plats in the Clark County Recorder's Office,
Nevada.

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Legend

Hydraulic
Grade Line

Smith's
FOOD & DRUG STORES

1550 South Redwood Road
Salt Lake City, Utah 84104
Telephone (801) 974-1400

#367
Las Vegas, Nevada

Designed by: KR
Drafted by: JC
Client Name:
Smith's Food & Drug
SMC367UT

ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
801.521.8523 - awhengineering.net

Storm Drain Plan & Profile (SM1 & SM2)

Skye Canyon Village
West Skye Canyon Park Drive & Grand Canyon Drive
Las Vegas, Nevada

PROFESSIONAL ENGINEER - STATE OF NEVADA
DAVID G. ANDERSON
Exp. 12-31-16
CIVIL
No. 020972

24 Oct, 2016

SHEET NO. 28 OF 36

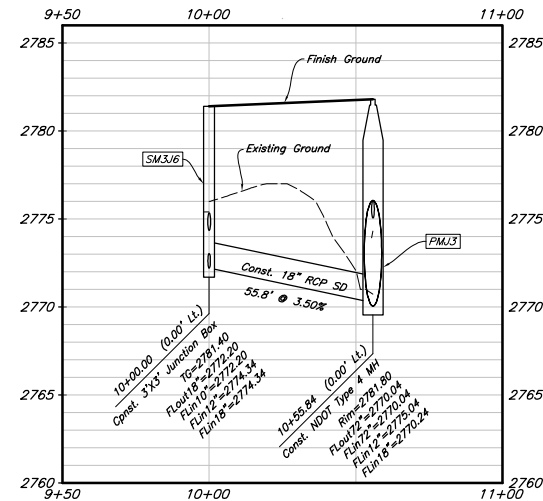
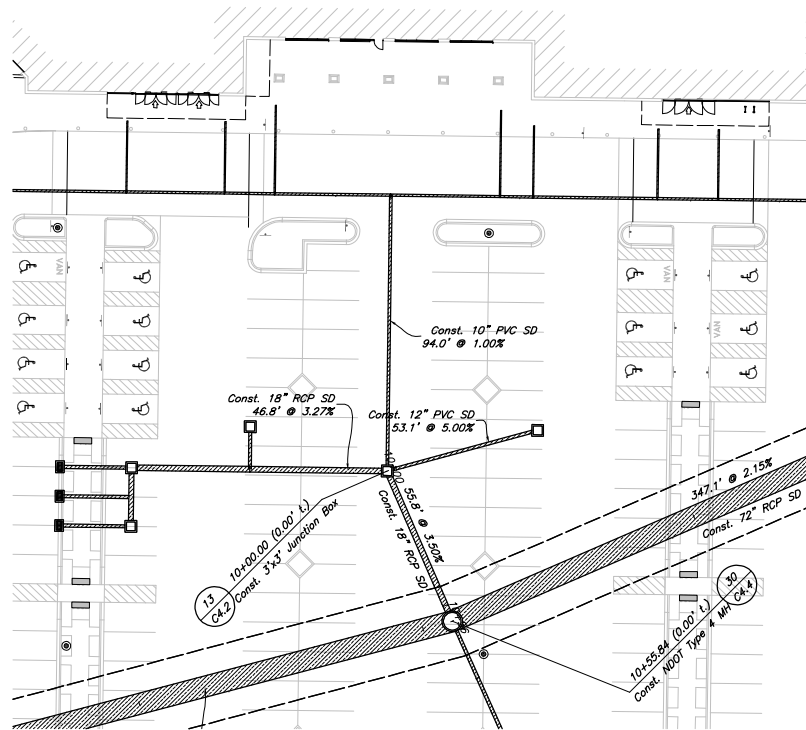
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DWG No.
HANSEN No. 66211

Smith's Marketplace

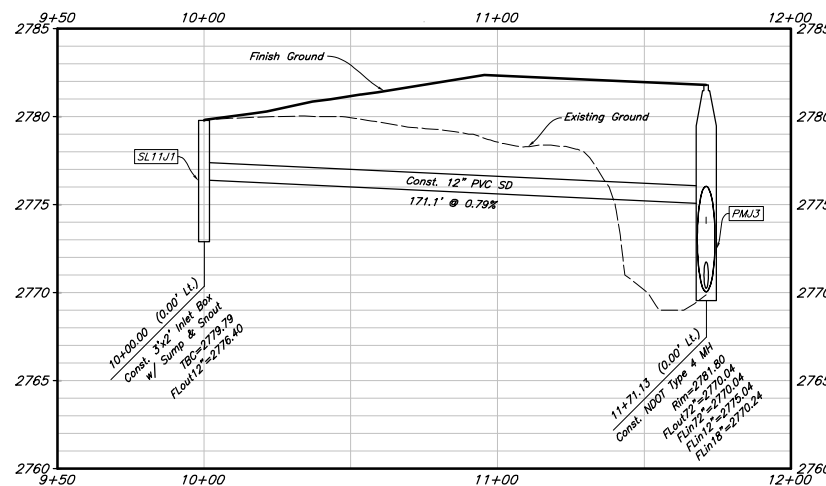
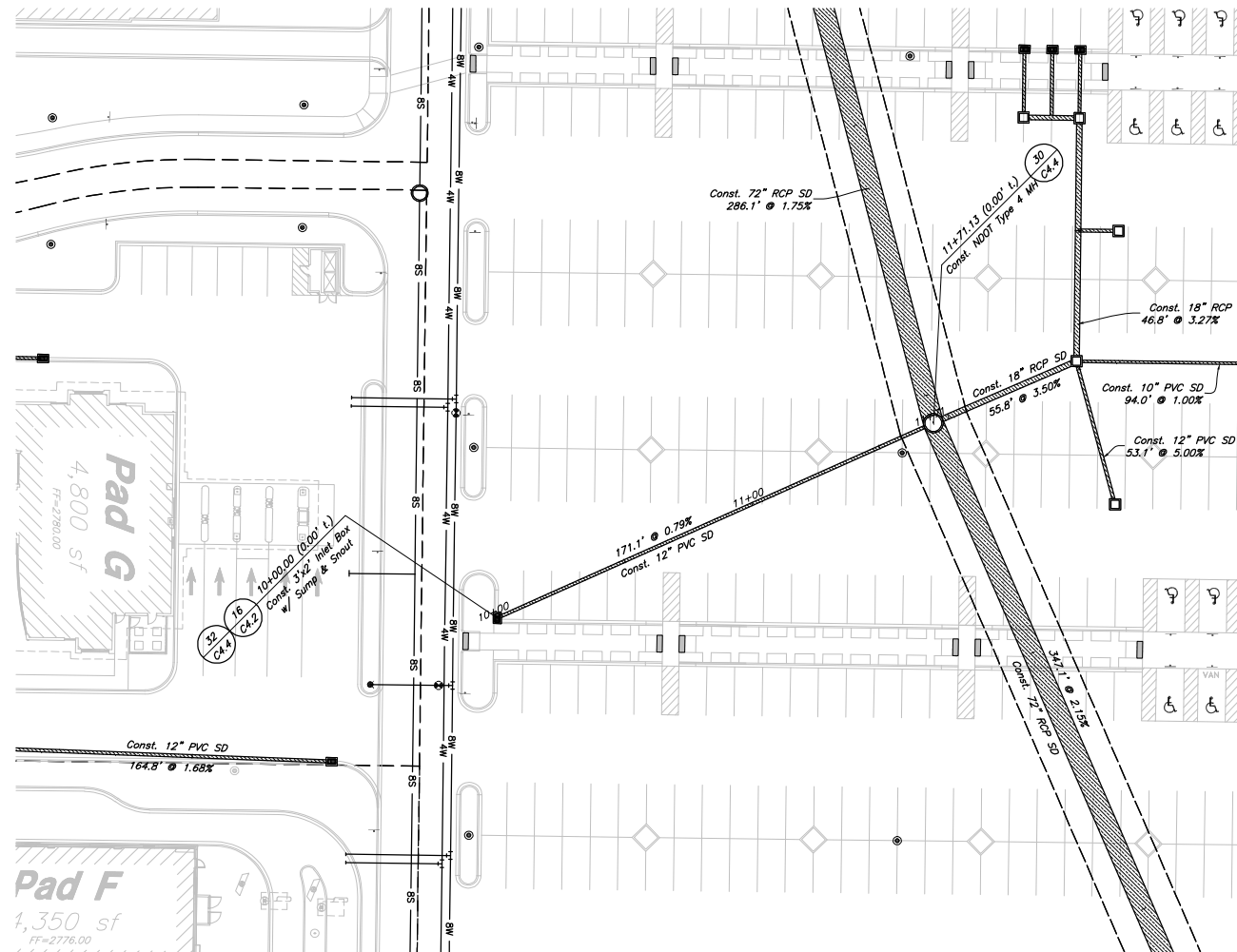
124,943 sf (Gross Building)
19,200 sf (Expansion)

FF=2783.00
Building Pad Elevation =2782.33



South Main 3

Plan View Scale 1:30
Profile Scale
1:30 Horiz. & 1:5 Vert.



South Lateral 11

Plan View Scale 1:30
Profile Scale
1:30 Horiz. & 1:5 Vert.



Benchmark

Monument ID: USDA (1934) 19
U.S. Department of Agriculture Brass Disc at Southwest
Corner of U.S. 95 and Kyle Canyon Road
Elevation=2817.61 Feet. 858.810 Meters
NAVD 88 DATUM
Per the City of Las Vegas Benchmark Book --
2008 Adjustment (Update 05/24/2010)

Basis of Bearings

North 89°16'30\"/>

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ALERT (USA)

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exact or complete.

Legend

Hydraulic
Grade Line

Designed by: KR
Drafted by: JC
Client Name:
Smith's Food & Drug

SMC367UT

ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
801.521.8523 - awhengineering.net

Storm Drain Plan & Profile (SMO & SL11)

Skye Canyon Village
West Skye Canyon Park Drive & Grand Canyon Drive
Las Vegas, Nevada

Smith's
FOOD & DRUG STORES

1550 South Redwood Road
Salt Lake City, Utah 84104
Telephone (801) 974-1400

#367
Las Vegas, Nevada

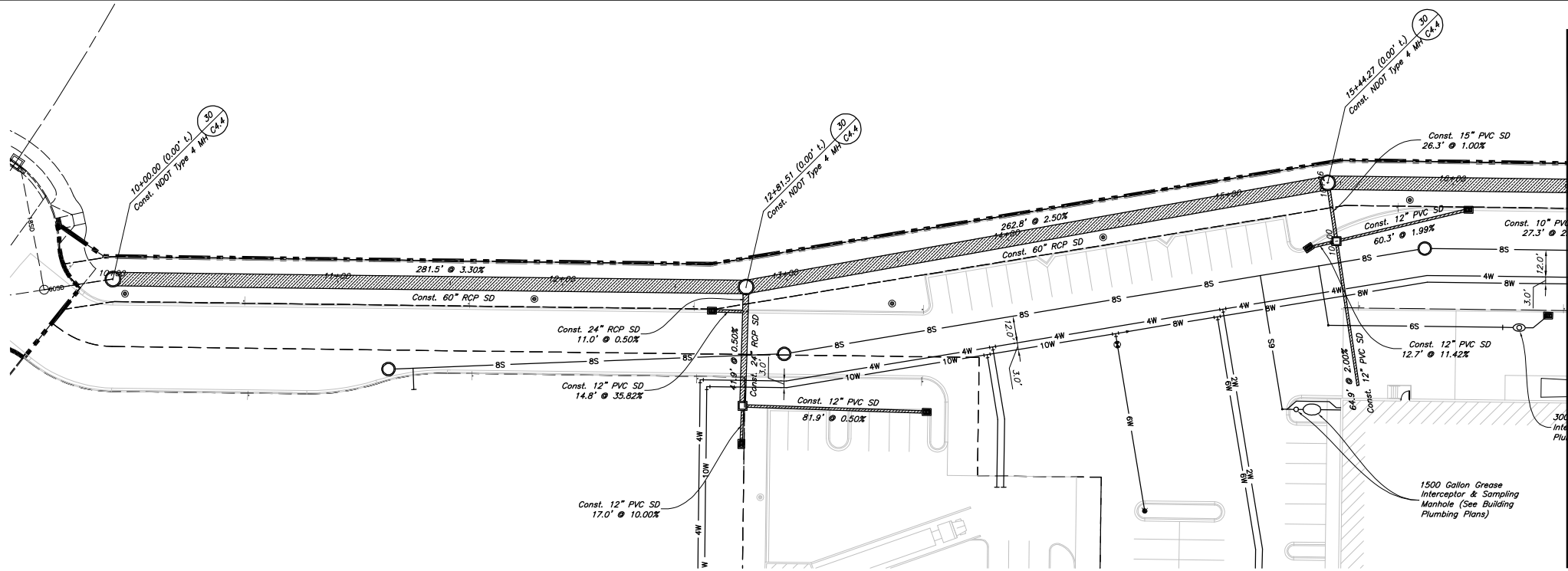


24 Oct, 2016

SHEET NO. 29 OF 36

C3.8

DWG No.
HANSEN No. 66211



Scale: 1" = 30'

Scale: 1" = 30' Horiz.
1" = 5' Vert.

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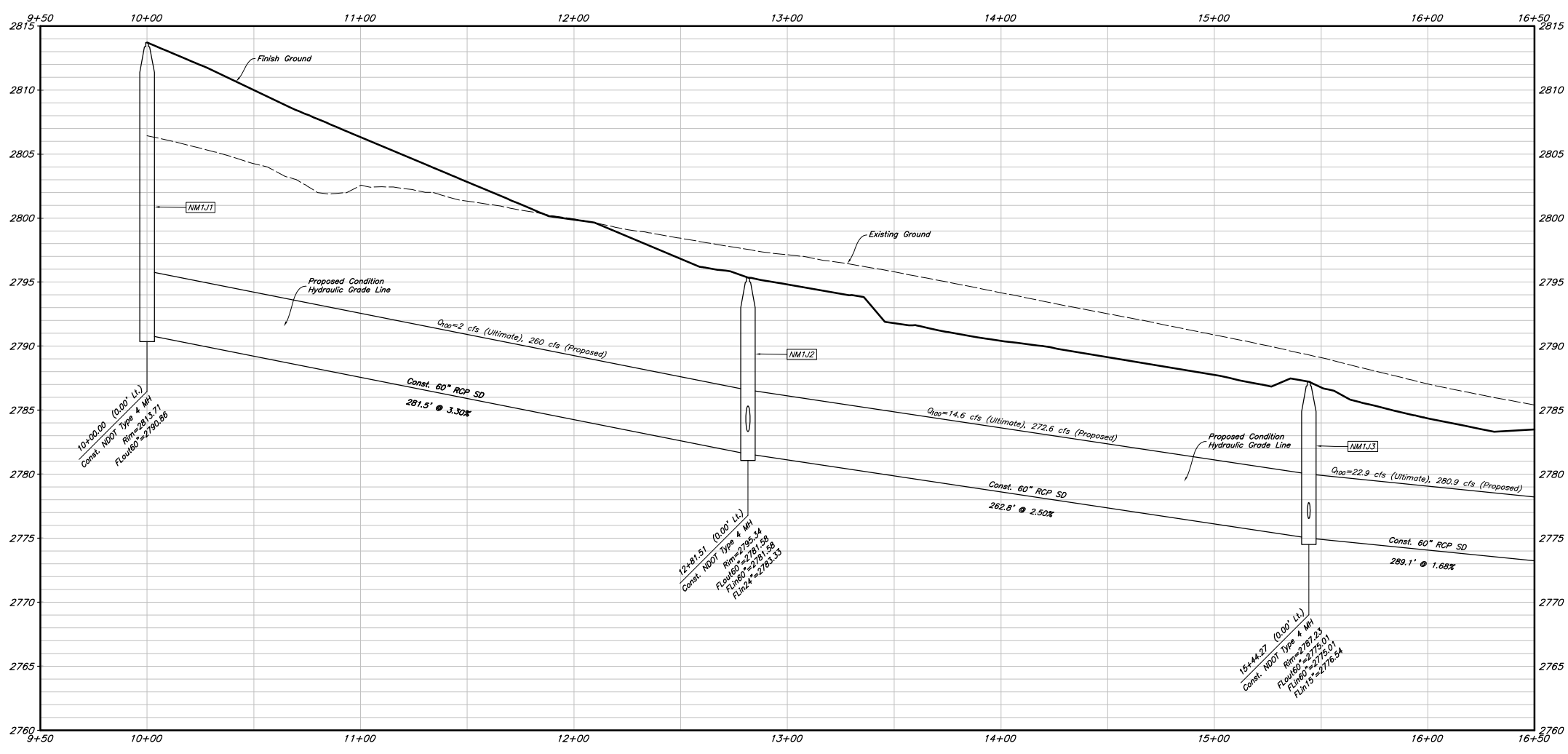
Benchmark
Monument ID: USDA (1934) 19
U.S. Department of Agriculture Brass Disc at Southwest Corner of U.S. 95 and Kyle Canyon Road
Elevation=2817.61 Feet, 858.810 Meters
NAVD 88 DATUM
Per the City of Las Vegas Benchmark Book - 2008 Adjustment (Update 05/24/2010)

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UNDERGROUND SERVICE ALERT (USA)

Legend
Hydraulic Grade Line



REV	DATE	DESCRIPTION

Designed by: KR
Drafted by: JC
Client Name: Smith's Food & Drug
SMC367UT

ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
801.521.8523 - awhengineering.net

Storm Drain Plan & Profile (NM1)
Skye Canyon Village
West Skye Canyon Park Drive & Grand Canyon Drive
Las Vegas, Nevada

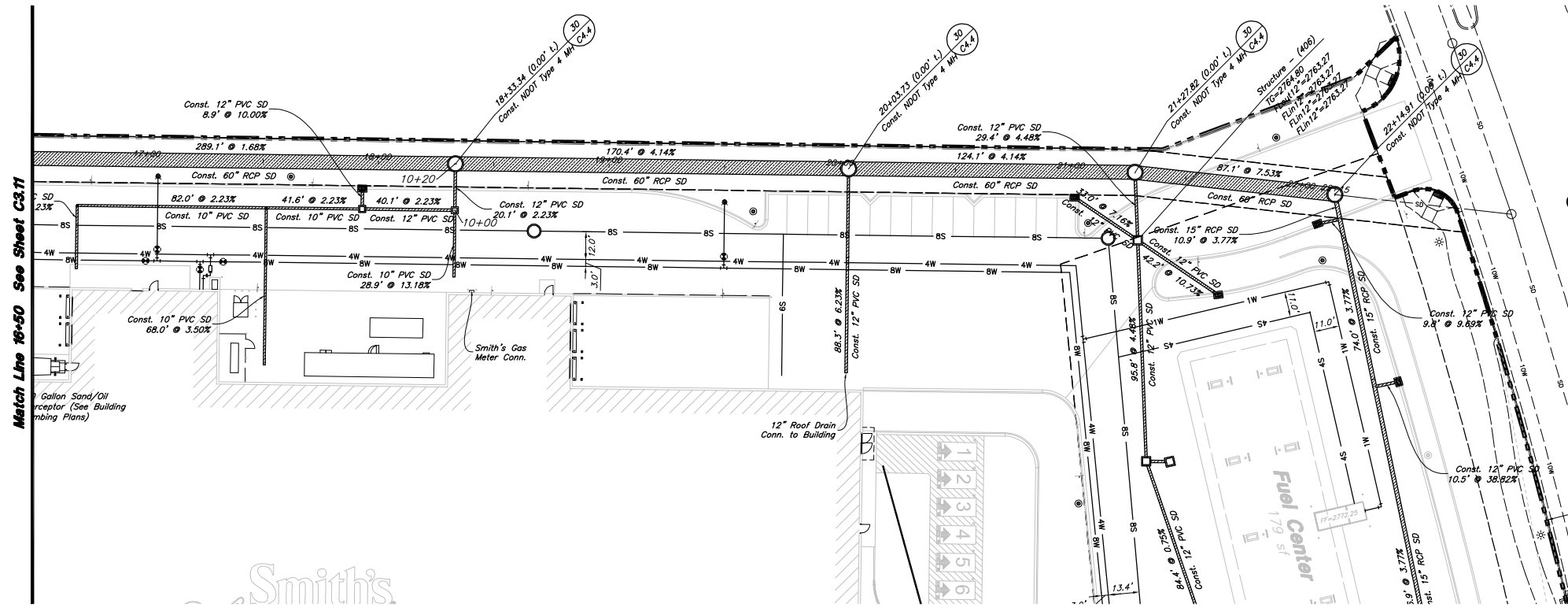
Smith's
FOOD & DRUG STORES
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#367
Las Vegas, Nevada



24 Oct, 2016
SHEET NO. **C3.11**
DWG No. DWG No. HANSEN No. 66211

W:\smc\367 Skye Canyon Village\367 UT.dwg, 10/24/16 10:42:55 AM, E:\J..._C



Scale: 1" = 30'

Scale: 1" = 30' Horiz.
1" = 5' Vert.

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Benchmark

Monument ID: USDA (1934) 19
U.S. Department of Agriculture Brass Disc at Southwest Corner of U.S. 95 and Kyle Canyon Road
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NAVD 88 DATUM
Per the City of Las Vegas Benchmark Book - 2008 Adjustment (Update 05/24/2010)

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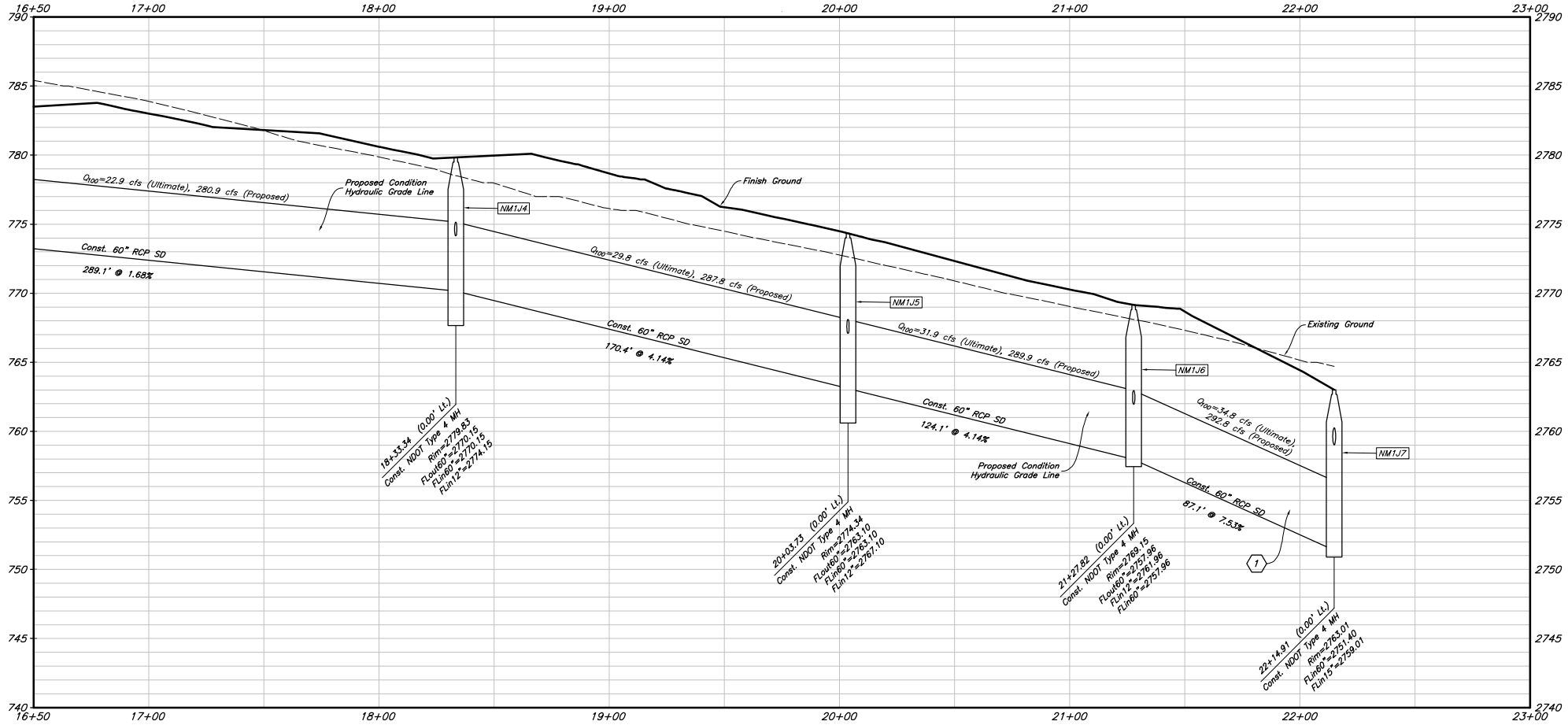
Call before you Dig.
"811" or 1-800-227-2600
UNDERGROUND SERVICE ALERT (USA)

Legend

Hydraulic Grade Line

Note:

Special Construction Note: Specified RCP Storm Drain Lines to Have Additional Sacrificial Concrete (See Detail)



Anderson Whalen & Associates
2010 North Redwood Road, Salt Lake City, Utah 84116
801.521.8523 - AWhEngineering.net

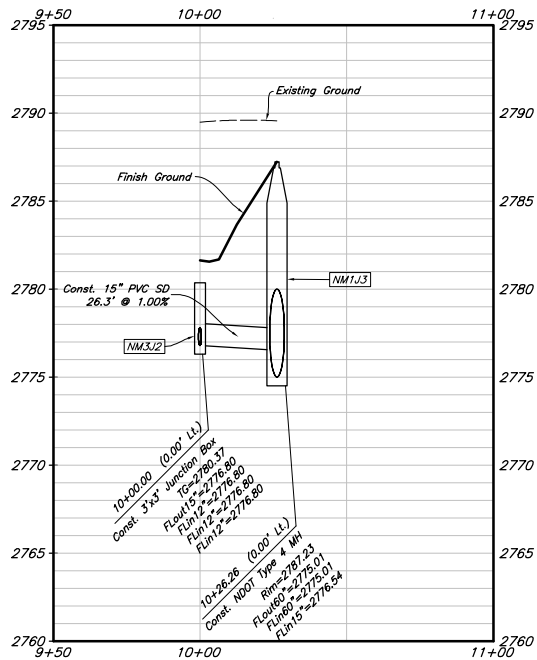
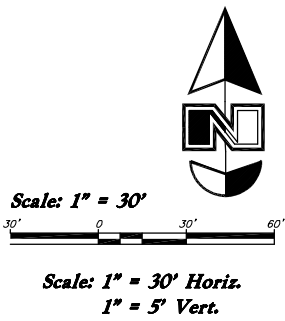
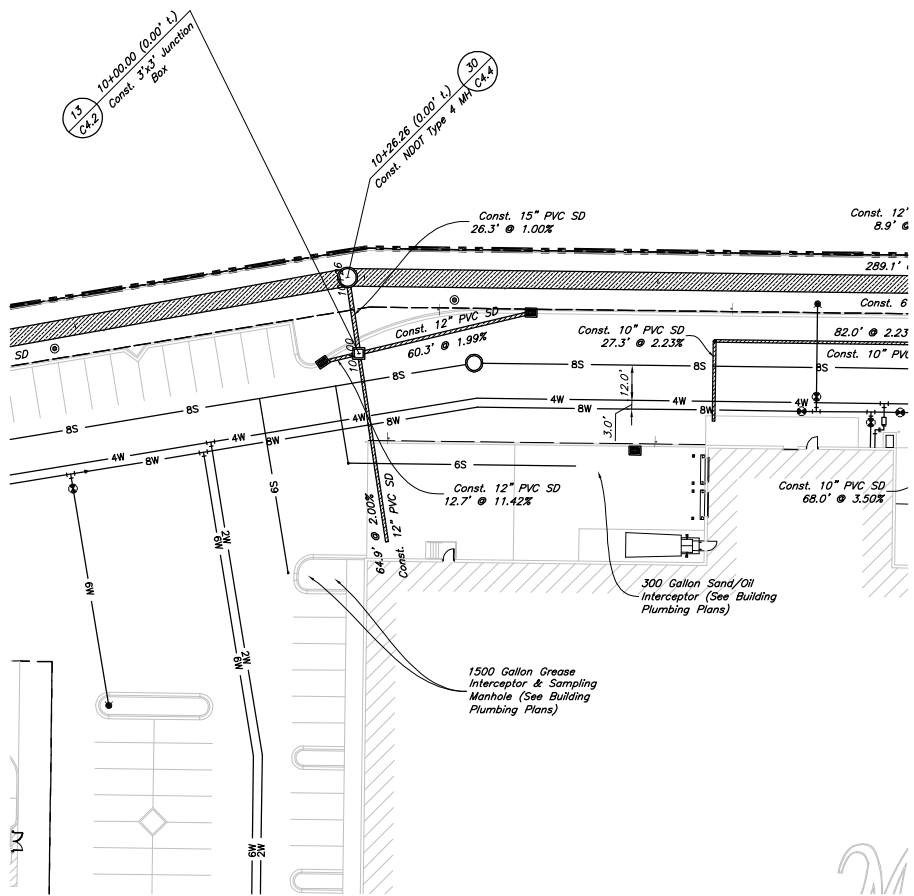
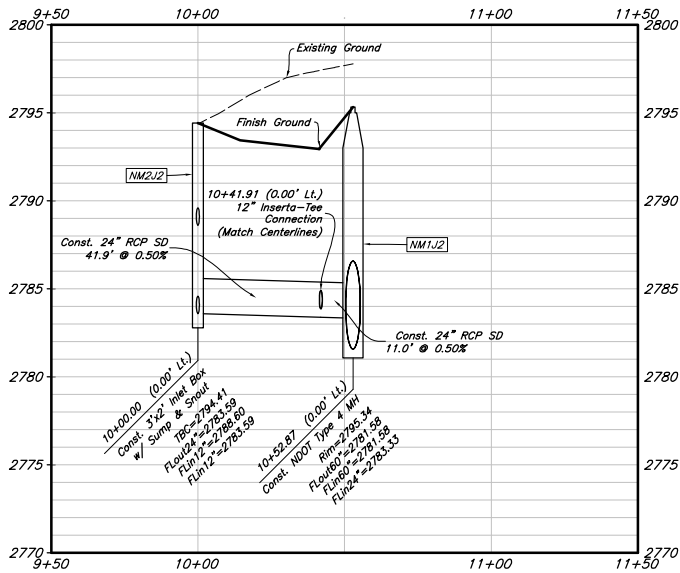
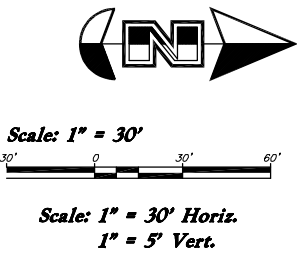
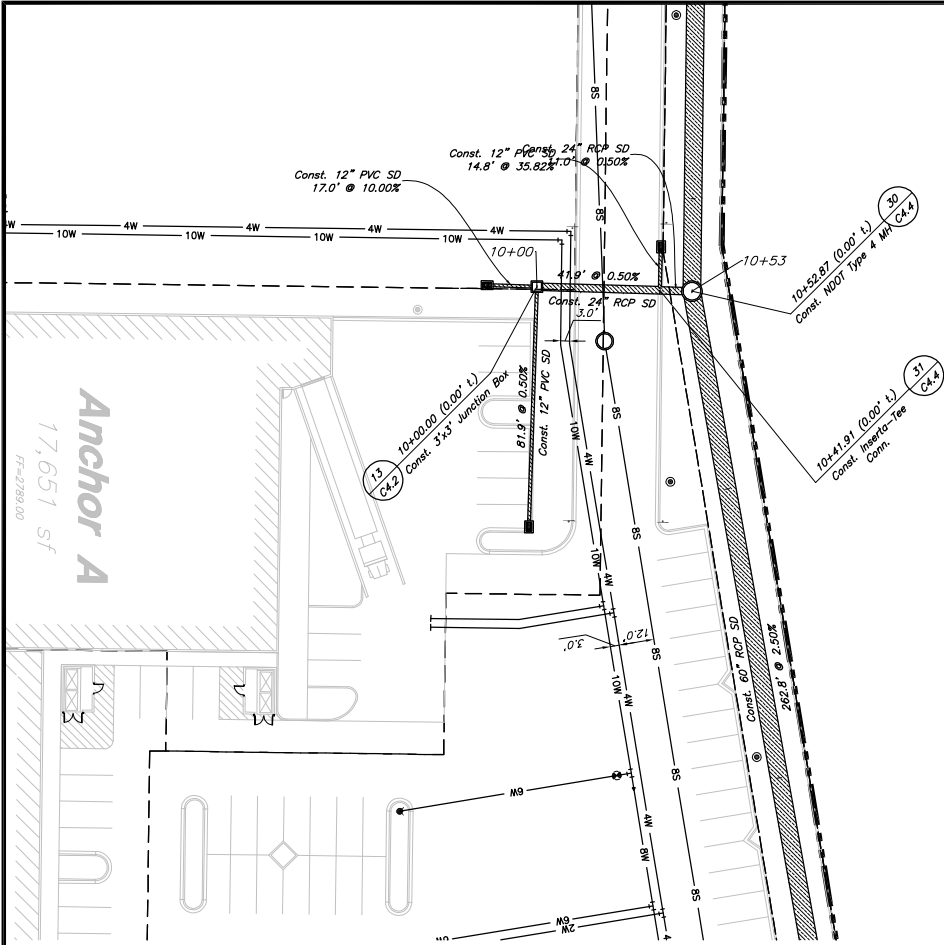
Storm Drain Plan & Profile (NM1)
Skye Canyon Village
West Skye Canyon Park Drive & Grand Canyon Drive
Las Vegas, Nevada

Professional Engineer - State of NV
DAVID G. ANDERSON
Exp. 12-31-16
CIVIL
No. 020972

24 Oct, 2016
SHEET NO.
C3.12
DWG No. DWG No.
HANSEN No. 66211

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Salt Lake City, Utah 84104
Telephone (801) 974-1400

#367
Las Vegas, Nevada



Benchmark

Monument ID: USDA (1934) 19
U.S. Department of Agriculture Brass Disc at Southwest
Corner of U.S. 95 and Kyle Canyon Road
Elevation=2817.61 Feet, 858.810 Meters
NAVD 88 DATUM
Per the City of Las Vegas Benchmark Book -
2008 Adjustment (Update 05/24/2010)

Basis of Bearings

North 69°16'30\"/>

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NEVADA POWER ENVIRONMENT
AND SAFETY SERVICES
DEPARTMENT

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1-800-227-2600
UNDERGROUND SERVICE
ALERT (USA)

CAUTION :

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Legend

Hydraulic
Grade Line

Smith's
FOOD & DRUG STORES

1550 South Redwood Road
Salt Lake City, Utah 84104
Telephone (801) 974-1400

#367
Las Vegas, Nevada



24 Oct, 2016

SHEET NO.
C3.13
DWG No. DWG No.
HANSEN No. 66211

Storm Drain Plan & Profile (NM2 and NM3)

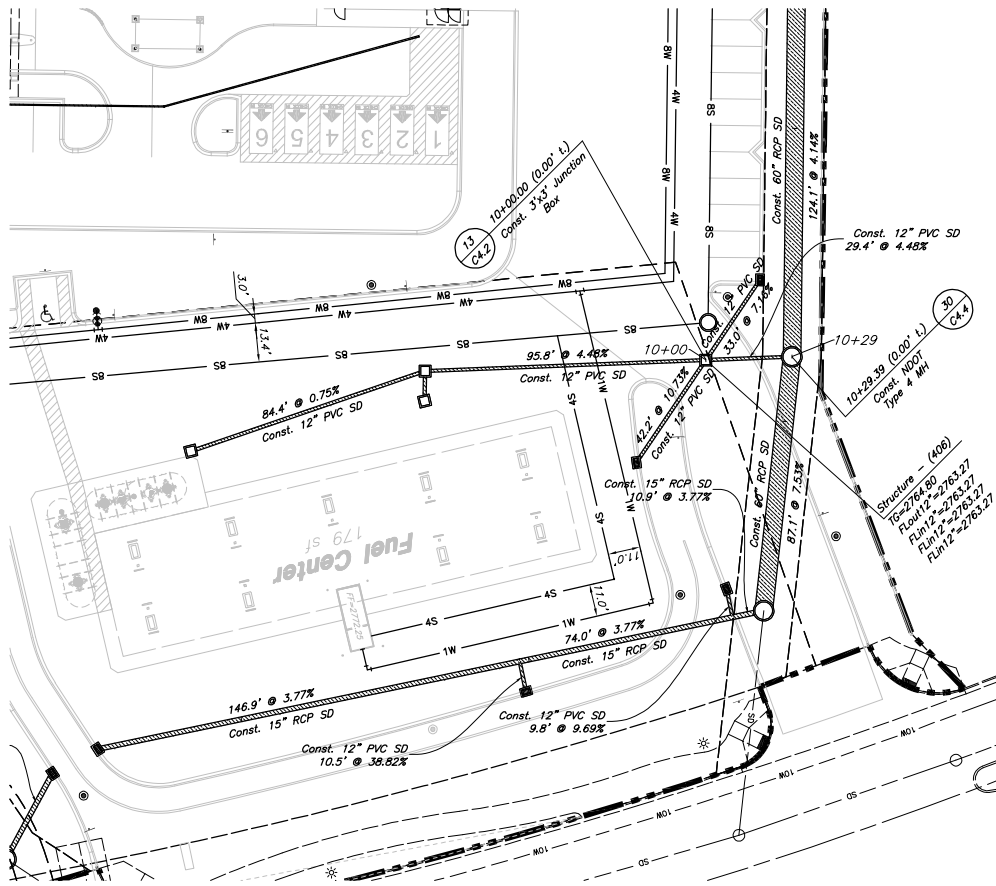
Skye Canyon Village

West Skye Canyon Park Drive & Grand Canyon Drive
Las Vegas, Nevada

ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
801.521-8523 - awhengineering.net

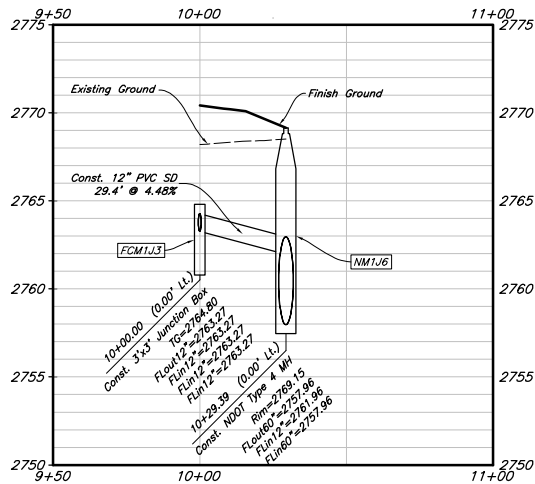
Designed by: KR
Drafted by: JC
Client Name:
Smith's Food & Drug

SMC367UT



Scale: 1" = 30'

Scale: 1" = 30' Horiz.
1" = 5' Vert.



Benchmark

Monument ID: USDA (1934) 19
U.S. Department of Agriculture Brass Disc at Southwest
Corner of U.S. 95 and Kyle Canyon Road
Elevation=2817.61 Feet, 858.810 Meters
NAVD 88 DATUM
Per the City of Las Vegas Benchmark Book -
2008 Adjustment (Update 05/24/2010)

Basis of Bearings

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South, Range 60 East, M.D.M., City of Las Vegas, Clark
County, Nevada, as Shown by Map Thereof in Book 147,
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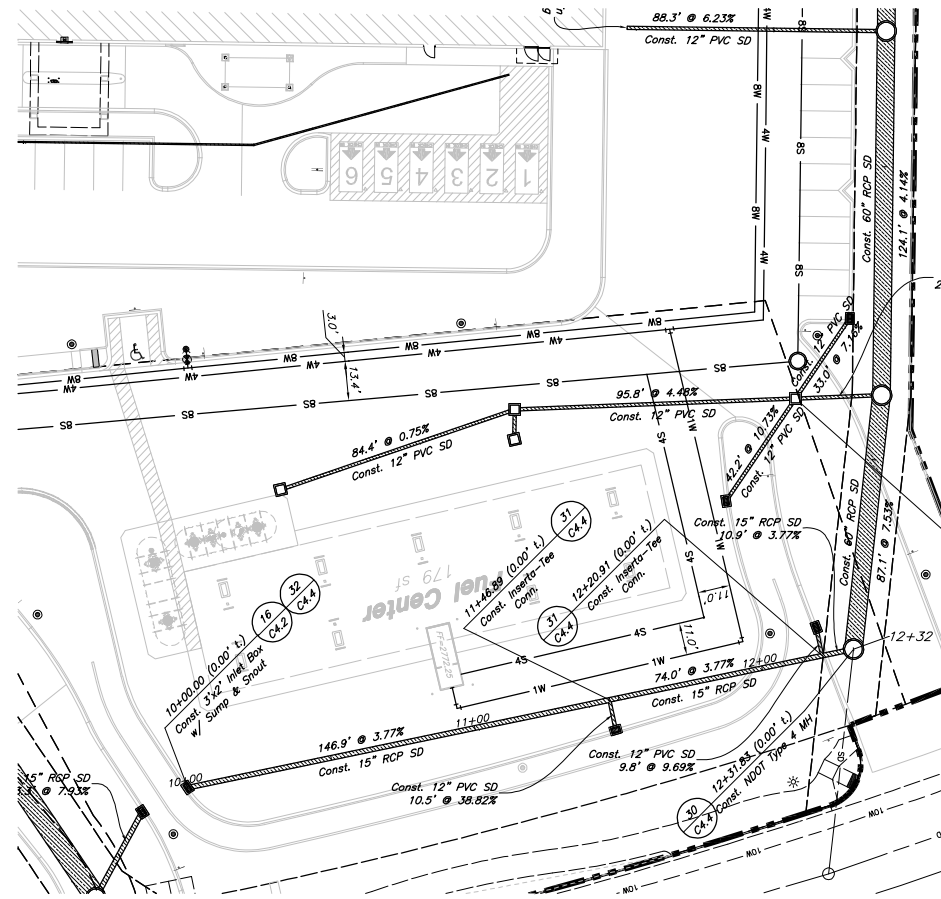
Call before you
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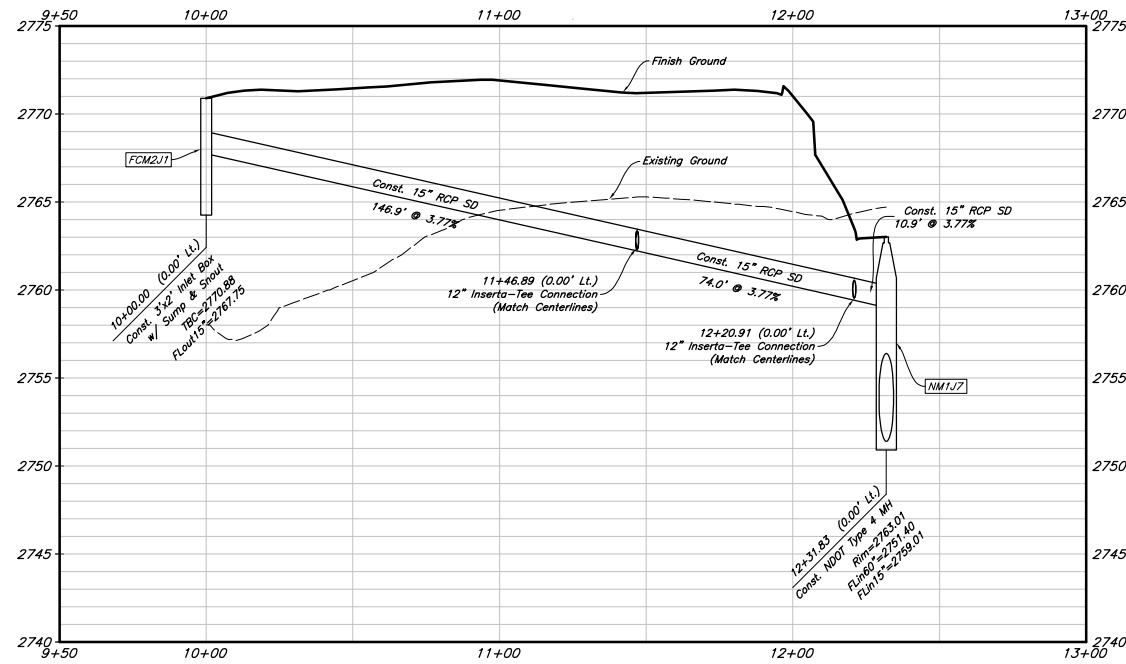
Legend

Hydraulic
Grade Line



Scale: 1" = 30'

Scale: 1" = 30' Horiz.
1" = 5' Vert.



Smith's
FOOD & DRUG STORES

1550 South Redwood Road
Salt Lake City, Utah 84104
Telephone (801) 974-1400

#367
Las Vegas, Nevada

Designed by: KR
Drafted by: JC
Client Name:
Smith's Food & Drug

SMC367UT

ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
801.521.8523 - awhengineering.net

Storm Drain Plan & Profile (FCM1 and FCM2)

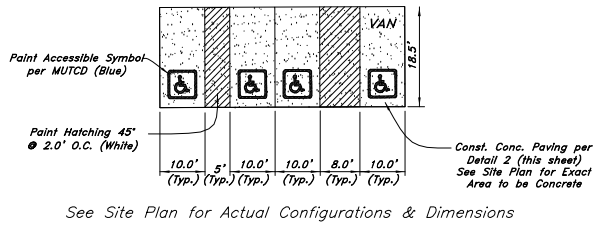
Skye Canyon Village

West Skye Canyon Park Drive & Grand Canyon Drive
Las Vegas, Nevada

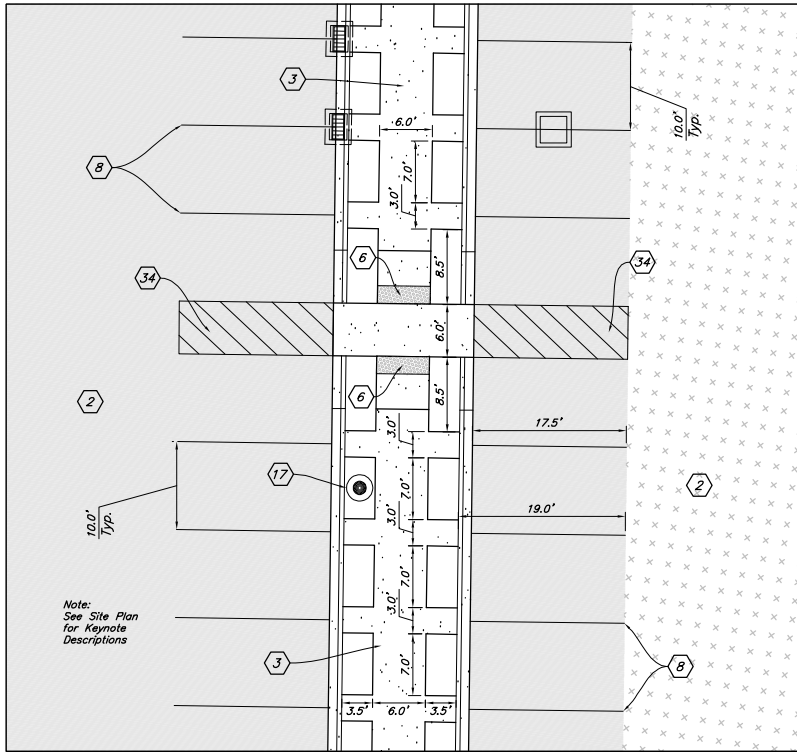
PROFESSIONAL ENGINEER-STATE OF
DAVID G. ANDERSON
Exp. 12-31-16
CIVIL
No. 020972

24 Oct, 2016

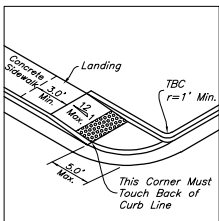
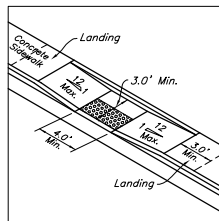
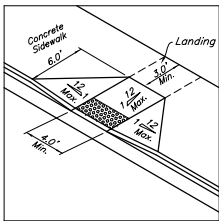
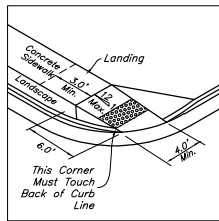
SHEET No.
C3.15
DWG No. DWG No.
HANSEN No. 66211



10 **Typical Accessible Striping Detail**
Not to Scale



9 **Typical Main Aisle Sidewalk & Landscape Planters Detail**
Scale: 1"=10'



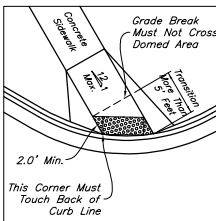
Notes:

1. Provide truncated domes per ICC/ANSI A117.1 (Latest Edition) Requirements (Minimum of 2" deep by the width of ramp). Truncated domes shall be Armor-Tile or ADA Solutions or equivalent cast in place detectable warning tiles. Color shall be approved by owner.

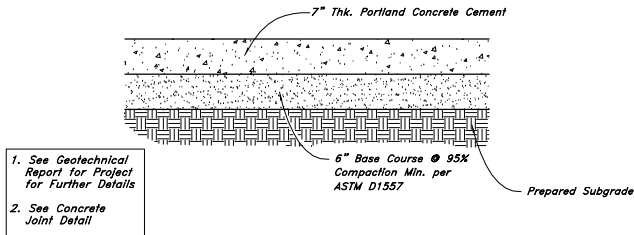
2. All landings must have 1:50 cross slope & running slope. Landing must be as wide as the ramp.

3. Cross slope on ramp must be 1:50 or less.

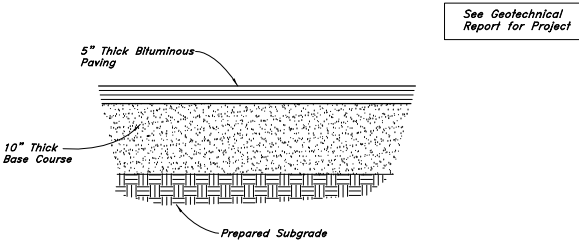
4. Counter slopes of adjoining gutters & paving adjacent to the curb ramp shall not be steeper than 1:20.



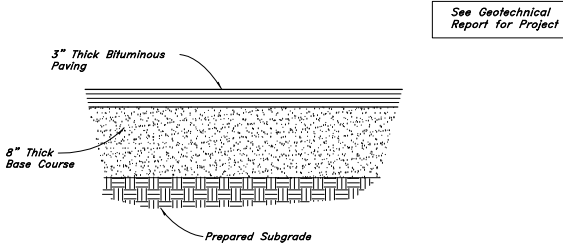
8 **Onsite Curb Ramp Detail**
Not to Scale



7 **Heavy Duty Concrete Paving Section**
Not to Scale



6 **Heavy Duty Asphalt Section**
Not to Scale



5 **Standard Asphalt Section**
Not to Scale

Contraction Joints

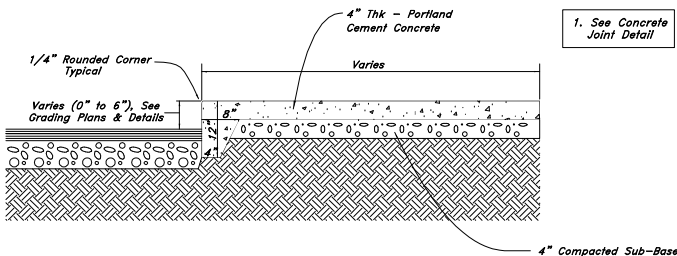
A. Spacing = 10' o.c.

Expansion Joints

A. Make expansion joints full depth, see joint detail

B. Place expansion joint at all cold joints

C. Expansion joints are required at the start or end of curb radius



4 **Thickened Edge Walk**
Not to Scale

Contraction Joints

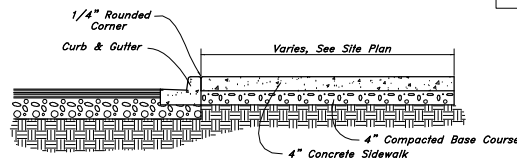
A. Spacing = 10' o.c.

Expansion Joints

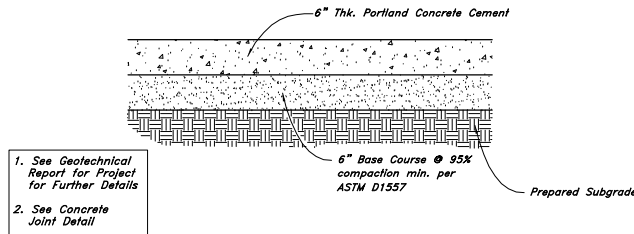
A. Make expansion joints full depth, see joint detail

B. Place expansion joint at all cold joints

C. Expansion joints are required at the start or end of curb radius

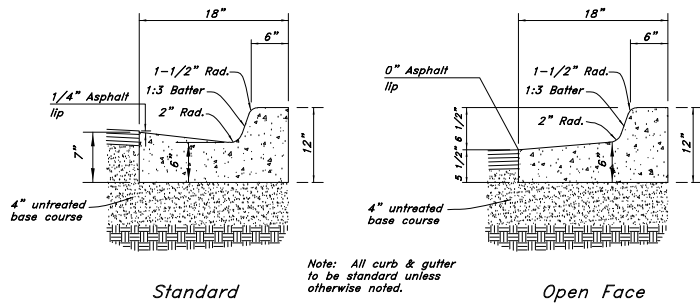


3 **Typical Sidewalk Detail**
Not to Scale



2 **Standard Concrete Paving Section**
Not to Scale

- Contraction Joints
- Expansion Joints
- 2'-6" Long tie bar on 2'-6" centers shall be provided when curb is adjacent to P.C.C. pavement
- Provide (2) #6 x 2'-6" long tie bars to connect existing and new curb and gutter
- Remove forms as early as possible. Brush top and face of curbs to remove all imperfections. Typical of all form work.
- All radii shall be true arcs
- Medium to light broom finish on all exterior concrete



1 **18" Curb And Gutter**
Not to Scale

Smith's
FOOD & DRUG STORES
1550 South Redwood Road
Salt Lake City, Utah 84104
Telephone (801) 974-1400

#367
Las Vegas, Nevada

Designed by: KR
Drafted by: JC
Client Name:
Smith's Food & Drug
SMC3670T

ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
801.521.8523 - awhengineering.net

Detail Sheet
Skye Canyon Village
West Skye Canyon Park Drive & Grand Canyon Drive
Las Vegas, Nevada

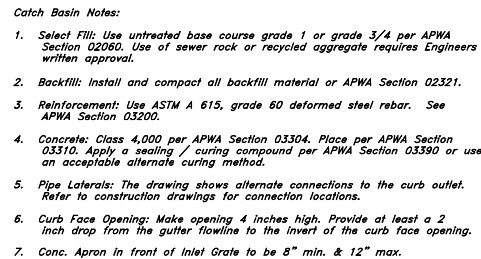
PROFESSIONAL ENGINEER - STATE OF NEVADA
DAVID G. ANDERSON
Exp. 12-31-16
CIVIL
No. 020972

24 Oct, 2016

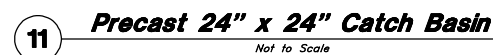
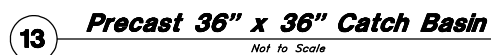
SHEET NO. 32 OF 36

C4.1

DWG No.
HANSEN No. 66211



- 14** **Concrete Joint Detail**
Not to Scale



#367
Las Vegas, Nevada

[illegible]

Designed by: KR
Drafted by: JC
Client Name: Smith's Food & Drug
SMC367DT

ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
801.521-8529 - AWEngineering.net

Detail Sheet

Skye Canyon Village
*West Skye Canyon Park Drive & Grand Canyon Drive
Las Vegas, Nevada*

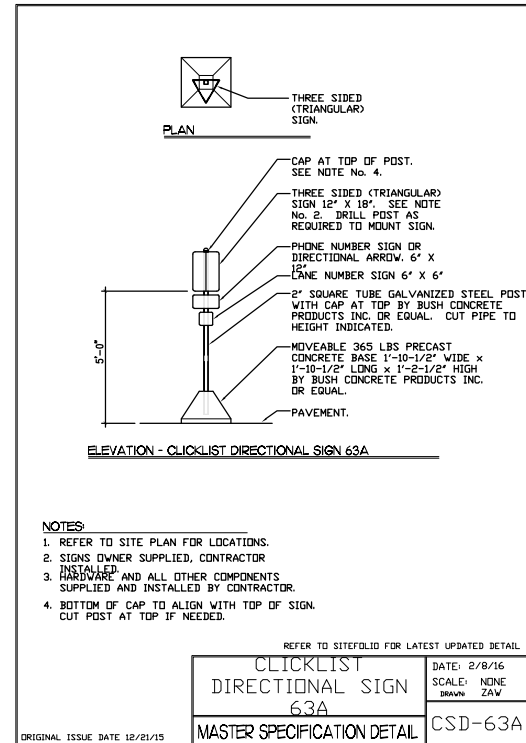


24 Oct, 2016

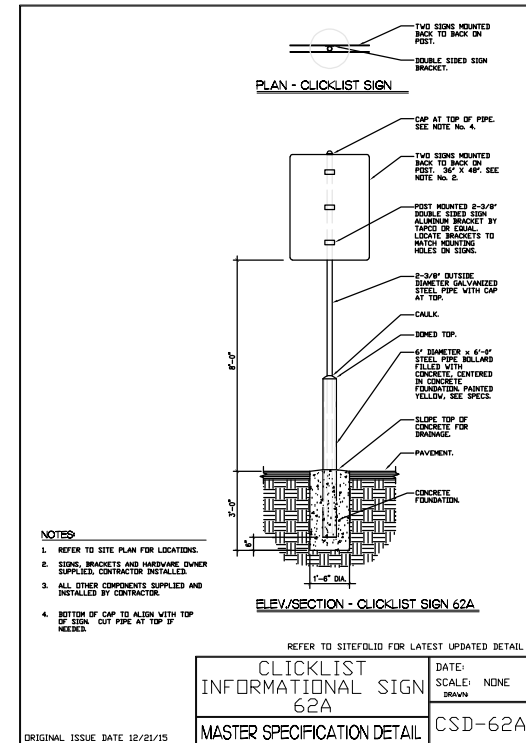
SHEET NO. 33 OF 36

C4.2

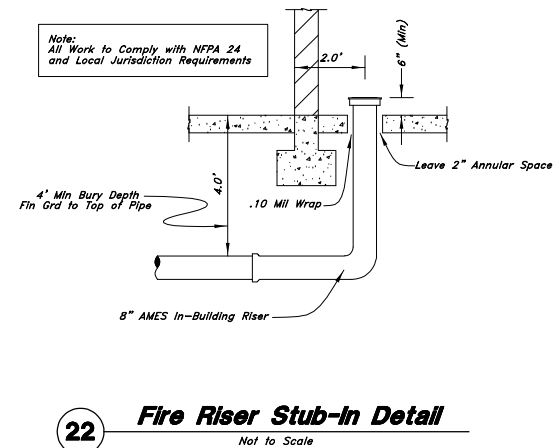
DWG No.
HANSEN No. 66211



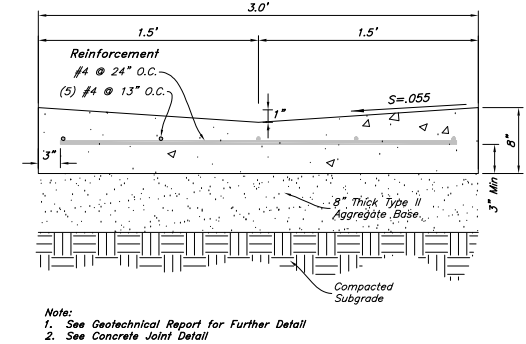
26 *Clicklist Directional Sign*
Not to Scale



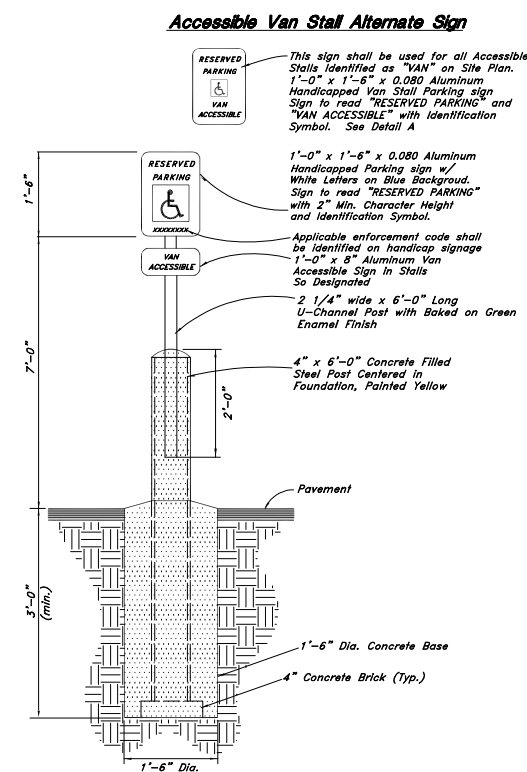
24 *Clicklist Informational Sign*
Not to Scale



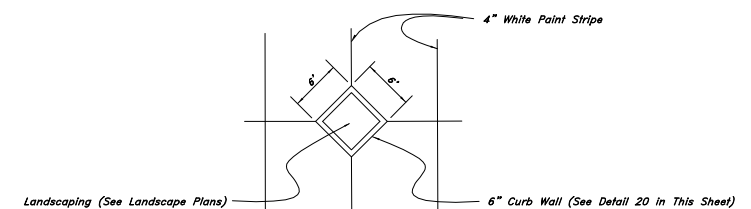
22 ***Fire Riser Stub-In Detail***
Not to Scale



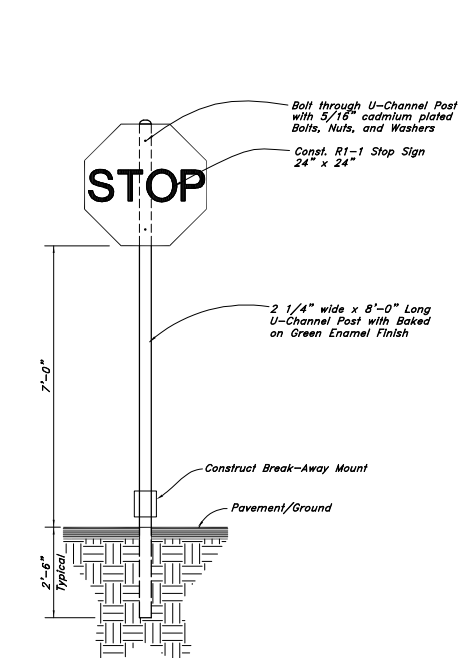
19 **3' Waterway Detail**
Not to Scale



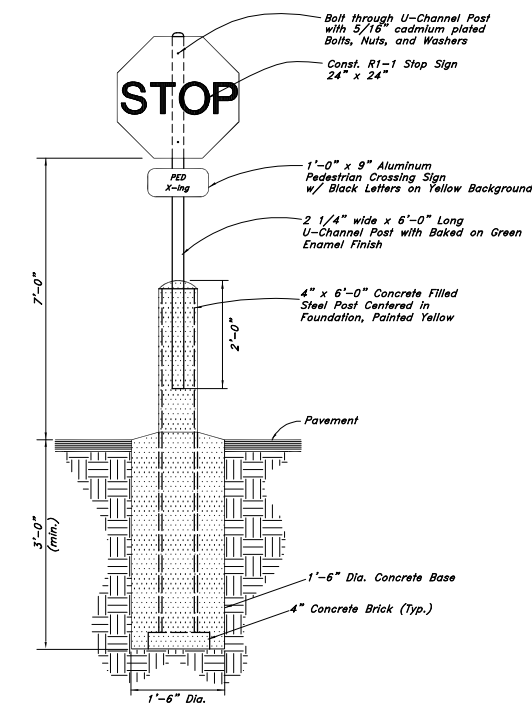
21 Accessible Parking Sign w/Bollard
Not to Scale



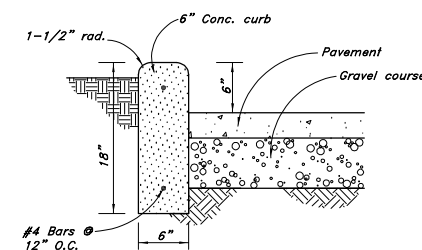
18 *Typical Diamond Planter*
Not to Scale



25 *Light Duty Stop Sign*
Not to Scale



23 ***Pedestrian Crossing Sign w/ Bollard***
Not to Scale



20 *Curb Wall Detail*
Not to Scale

Smith's
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1550 South Redwood Road
Salt Lake City, Utah 84104
Telephone (801) 974-1400

#367
Las Vegas, Nevada

Not to Scale

Not to Scale

Not to Scale

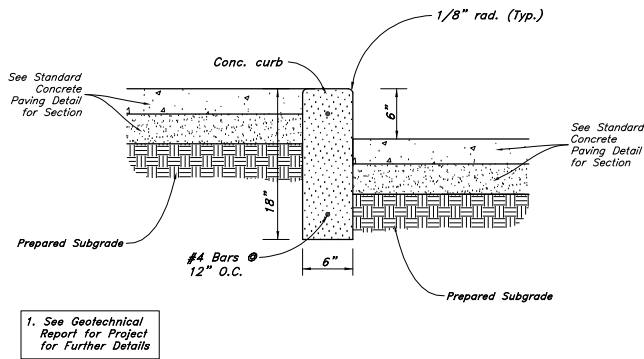
Not to Scale

Las Vegas, Nevada

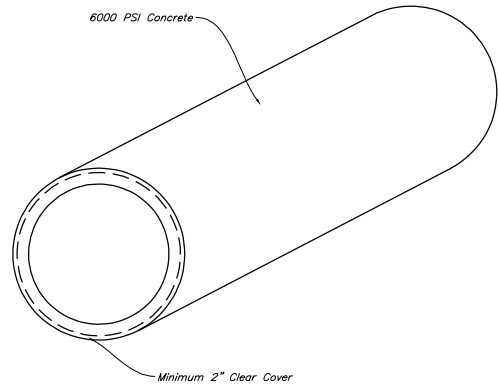
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Not to Scale

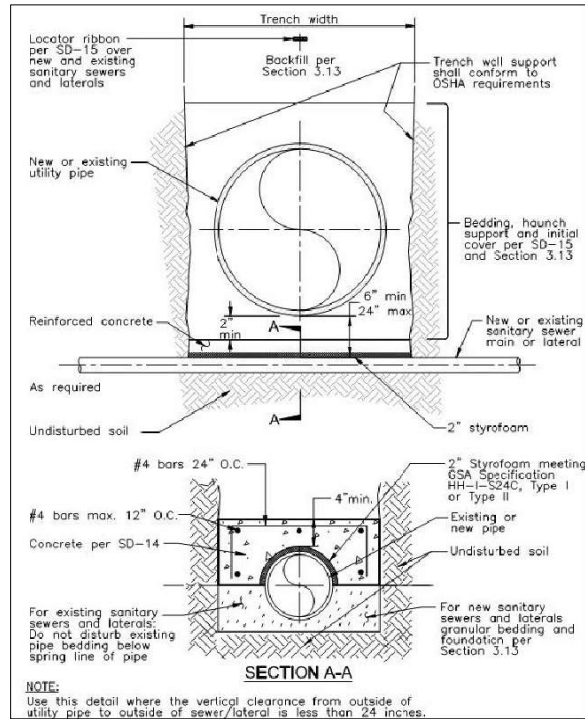
DWG No.
HANSEN No. 66211



41 Pharmacy Curb Wall
Not to Scale



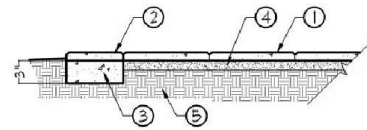
40 Specially Constructed RCP
Not to Scale



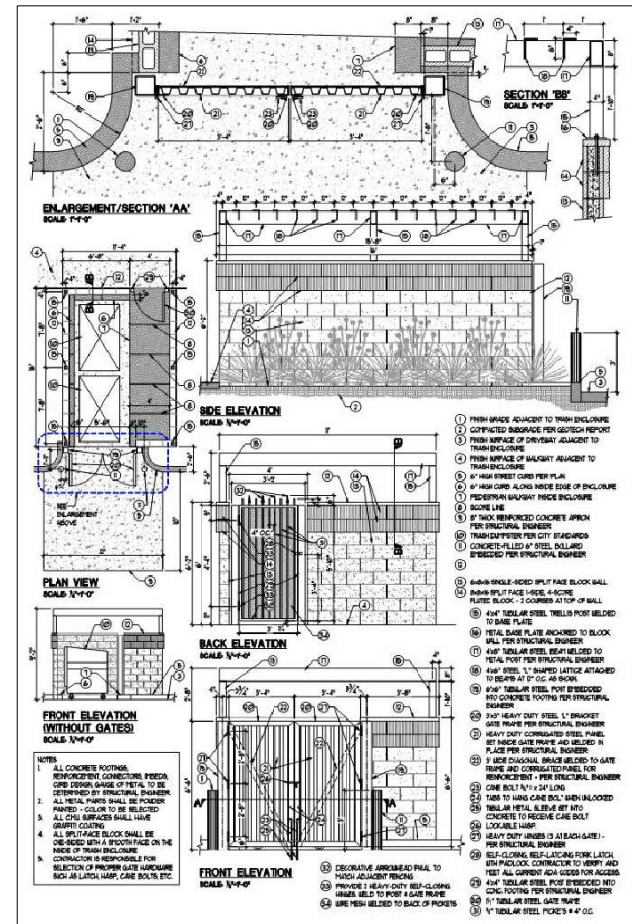
37 Protection of Sanitary Sewer Under a Utility
Not to Scale

- NOTES:
1. REFER TO CONSTRUCTION LEGEND FOR INFORMATION RELATIVE TO COLOR, TYPE, FINISH, AND MORTAR JOINT SIZE.
 2. UNLESS OTHERWISE NOTED, NEW FINISH SURFACE SHALL BE FLUSH WITH ADJACENT EXISTING SURFACES.
 3. FINISH GRADE: 1" BELOW FINISH SURFACE ADJACENT TO TURF AND 2" BELOW ADJACENT TO NON-TURF AREAS.
 4. FOR ADDITIONAL INFORMATION REFER TO CONSTRUCTION AND GRADING NOTES.
 5. PROJECT GEOTECHNICAL REPORT OR RECOMMENDATIONS BY A STRUCTURAL ENGINEER SHALL TAKE PRECEDENCE FOR ALL SOIL CONDITIONS, MATERIALS, REINFORCEMENT, DIMENSIONS, AND SUBBASE.
 6. INSTALL PER MANUFACTURER'S SPECIFICATIONS.

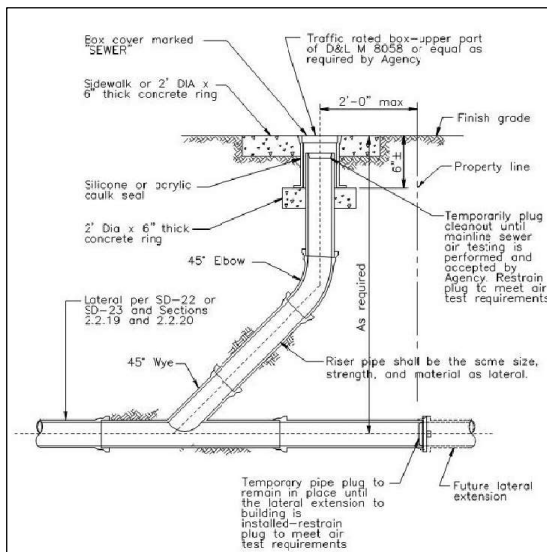
1. CONCRETE PAVEMENT FIELD - TUMBLE 'SIERRA BLEND', IN ASHLAR PATTERN. PAVERS TO BE LAID UPSIDE DOWN AND SEALED WITH 'SEAL-N-LOCK' NATURAL LUSTER. AVAILABLE FROM PAVESTONE. CONTACT ROBERT MALABO (702) 271-6293.
2. CONCRETE PAVEMENT BAND - DOUBLE 6"x6" ROW TUMBLE 'CHARCOAL' PAVERS TO BE LAID UPSIDE DOWN AND SEALED WITH 'SEAL-N-LOCK' NATURAL LUSTER. AVAILABLE FROM PAVESTONE. CONTACT ROBERT MALABO (702) 271-6293.
3. CONCRETE MORTAR BASE.
4. SAND SUBBASE.
5. UNDISTURBED NATIVE GRADE OR COMPACTED SOIL PER GEOTECHNICAL REPORT BELOW SAND BASE & PAVERS.



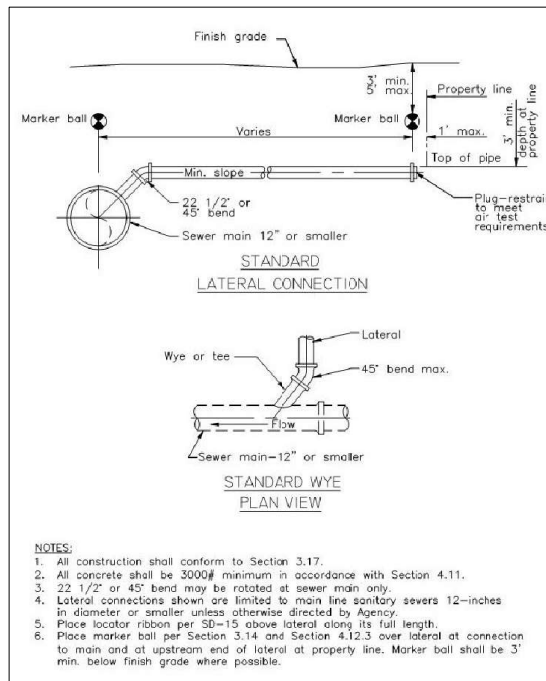
35 Paver Section
Not to Scale



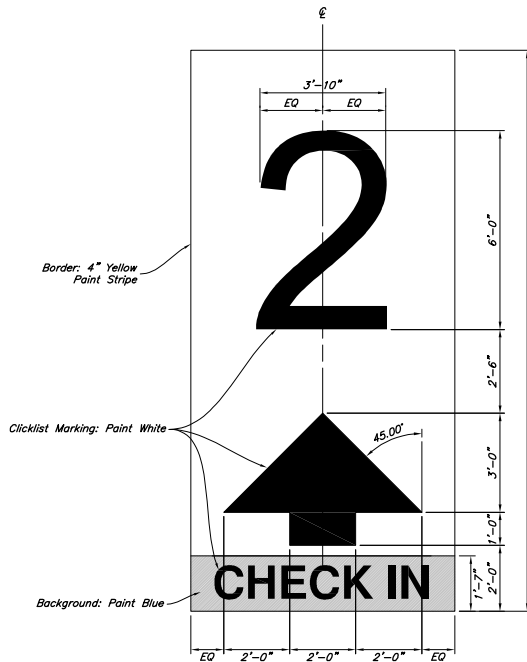
34 Trash Enclosure
Not to Scale



39 Lateral Cleanout
Not to Scale



38 Lateral Connection to Sewer Main 12" Diameter and Smaller
Not to Scale



36 Clicklist Check In Graphic
Not to Scale

33 Not Used
Not to Scale

Smith's
FOOD & DRUG STORES
1550 South Redwood Road
Salt Lake City, Utah 84104
Telephone (801) 974-1400

#367
Las Vegas, Nevada

Detail Sheet

Skye Canyon Village
West Skye Canyon Park Drive & Grand Canyon Drive
Las Vegas, Nevada

PROFESSIONAL ENGINEER - STATE OF UTAH
DAVID G. ANDERSON
Exp. 12-31-16
CIVIL
No. 020972

24 Oct, 2016

SHEET No. 36 OF 36

C4.5
DWG No. HANSEN No. 66211

ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
801.521.8523 - alwengineering.net

Designed by: KR
Drafted by: JC
Client Name: Smith's Food & Drug
SMC3670T

**TECHNICAL DRAINAGE STUDY
ADDENDUM No. 2**

**Skye Canyon
Phase 3 Infrastructure**
City of Las Vegas, Nevada

Job No.: OLY1602.000
Date: August 2016

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

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



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

Assisted by: Cameron Bencini, E.I.

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM		DATE: November 8, 2017
TO: Land Development Services Department of Building & Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT: Drainage Study for: Skye Canyon – Phase 3 Infrastructure – Update #1		COPIES TO: Slater Hanifan Group
Cross Streets:	NWC of Grand Canyon & Skye Canyon Park	MF Land / Ninety Five Management
File Number:	F:\Depot\DSMemos\DS4796D.doc	Bart Anderson, P.E., DevCo
Parcel Number:	125-07-201-003	
Zoning Action:	MOD-62679; SUP-63594; SUP-63597; SDR-63598; VAR-63963 & GPA-64013	
FEMA Flood Zone	YES NO X	
Proposed Storm Drain	YES X NO	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	4/28/2016	5/24/2016 & 6/28/2016	Not Approved	\$400.00	442241: \$400
2 nd Submittal & Supplement	7/21/2016 & 7/25/2016	8/18/2016	Not Approved	\$400.00	452170: \$400
3 rd Submittal	8/31/2016 & 9/16/2016	9/22/2016	Conditional Approval	\$400.00	456806: \$400
4 th Submittal	10/24/2017	11/8/2017	See Comments Below	\$100.00	490777: \$100
TOTAL FEES (LDDRS):				\$1,300.00	----

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

4th Submittal: Update #1 for RCB Connection Revision

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

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

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

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

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

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

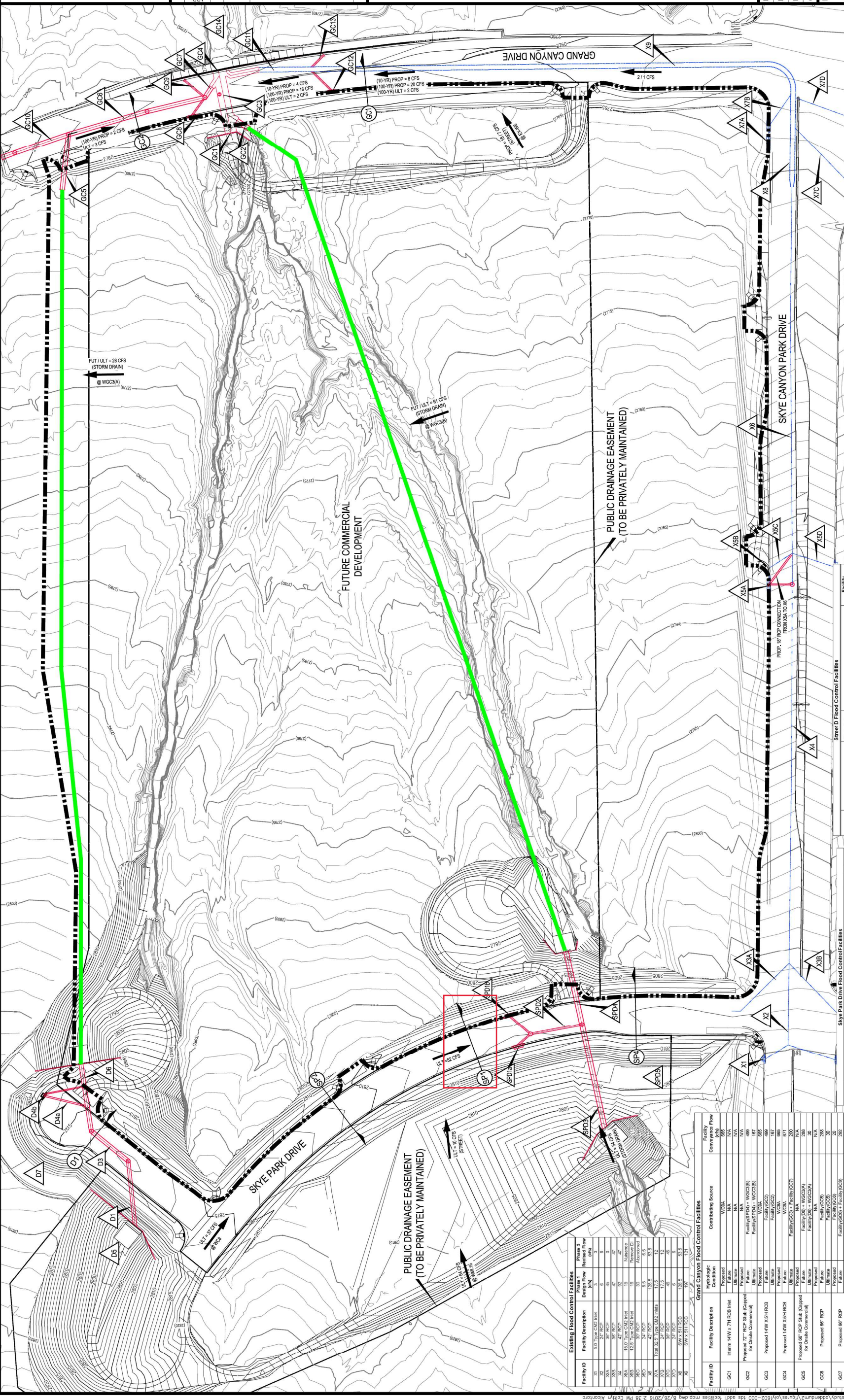
END OF REMARKS

ays

T/R/S: T19S/R60E/07
AREA G-07

NINETY-FIVE MANAGEMENT, LLC
SKYE CANYON PHASE 3 INFRASTRUCTURE
DRAINAGE FACILITIES & HYDRAULIC SUMMARY MAP

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



LEGEND

- FUTURE COMMERCIAL SITE BOUNDARY
- EXISTING DRAINAGE FACILITY
- PROPOSED DRAINAGE FACILITY
- ESTIMATED FUTURE DRAINAGE FACILITY
- FLOW DIRECTION
- FLOWMASTER SECTION
- FACILITY ID

0 60 120
SCALE = 1"=60' FEET

Hydraulic Analyses Flow Summary					
Cross Section	Section Type	Q (cfs)	Slope (%)	Depth (ft)	Velocity (ft/s)
D1	Full Street	2	3.50	0.23	3.0
D2	Full Street	52	1.90	0.59	4.9
D3	Full Street	37	1.90	0.54	4.4
D4	Full Street	2.5	0.60	0.36	1.8
D5	Half Street	4	0.50	0.41	2.1
D6	Half Street	16	0.50	0.62	2.7
D7	Half Street	2	2.36	0.26	3.0
D8	Half Street	4	2.36	0.34	3.4
D9	Half Street	2	2.36	0.34	3.4
D10	Half Street	2	2.36	0.34	3.4
D11	Half Street	2	2.36	0.34	3.4
D12	Half Street	2	2.36	0.34	3.4
D13	Half Street	2	2.36	0.34	3.4
D14	Half Street	2	2.36	0.34	3.4
D15	Half Street	2	2.36	0.34	3.4
D16	Half Street	2	2.36	0.34	3.4
D17	Half Street	2	2.36	0.34	3.4
D18	Half Street	2	2.36	0.34	3.4
D19	Half Street	2	2.36	0.34	3.4
D20	Half Street	2	2.36	0.34	3.4
D21	Half Street	2	2.36	0.34	3.4
D22	Half Street	2	2.36	0.34	3.4
D23	Half Street	2	2.36	0.34	3.4
D24	Half Street	2	2.36	0.34	3.4
D25	Half Street	2	2.36	0.34	3.4
D26	Half Street	2	2.36	0.34	3.4
D27	Half Street	2	2.36	0.34	3.4
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D30	Half Street	2	2.36	0.34	3.4
D31	Half Street	2	2.36	0.34	3.4
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D41	Half Street	2	2.36	0.34	3.4
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D50	Half Street	2	2.36	0.34	3.4
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D52	Half Street	2	2.36	0.34	3.4
D53	Half Street	2	2.36	0.34	3.4
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D55	Half Street	2	2.36	0.34	3.4
D56	Half Street	2	2.36	0.34	3.4
D57	Half Street	2	2.36	0.34	3.4
D58	Half Street	2	2.36	0.34	3.4
D59	Half Street	2	2.36	0.34	3.4
D60	Half Street	2	2.36	0.34	3.4
D61	Half Street	2	2.36	0.34	3.4
D62	Half Street	2	2.36	0.34	3.4
D63	Half Street	2	2.36	0.34	3.4
D64	Half Street	2	2.36	0.34	3.4
D65	Half Street	2	2.36	0.34	3.4
D66	Half Street	2	2.36	0.34	3.4
D67	Half Street	2	2.36	0.34	3.4
D68	Half Street	2	2.36	0.34	3.4
D69	Half Street	2	2.36	0.34	3.4
D70	Half Street	2	2.36	0.34	3.4
D71	Half Street	2	2.36	0.34	3.4
D72	Half Street	2	2.36	0.34	3.4
D73	Half Street	2	2.36	0.34	3.4
D74	Half Street	2	2.36	0.34	3.4
D75	Half Street	2	2.36	0.34	3.4
D76	Half Street	2	2.36	0.34	3.4
D77	Half Street	2	2.36	0.34	3.4
D78	Half Street	2	2.36	0.34	3.4
D79	Half Street	2	2.36	0.34	3.4
D80	Half Street	2	2.36	0.34	3.4
D81	Half Street	2	2.36	0.34	3.4
D82	Half Street	2	2.36	0.34	3.4
D83	Half Street	2	2.36	0.34	3.4
D84	Half Street	2	2.36	0.34	3.4
D85	Half Street	2	2.36	0.34	3.4
D86	Half Street	2	2.36	0.34	3.4
D87	Half Street	2	2.36	0.34	3.4
D88	Half Street	2	2.36	0.34	3.4
D89	Half Street	2	2.36	0.34	3.4
D90	Half Street	2	2.36	0.34	3.4
D91	Half Street	2	2.36	0.34	3.4
D92	Half Street	2	2.36	0.34	3.4
D93	Half Street	2	2.36	0.34	3.4
D94	Half Street	2	2.36	0.34	3.4
D95	Half Street	2	2.36	0.34	3.4
D96	Half Street	2	2.36	0.34	3.4
D97	Half Street	2	2.36	0.34	3.4
D98	Half Street	2	2.36	0.34	3.4
D99	Half Street	2	2.36	0.34	3.4
D100	Half Street	2	2.36	0.34	3.4

Skye Park Drive Flood Control Facilities			
Facility ID	Facility Description	Hydrologic Condition	Contributing Source
SPD1	Proposed 54" RCP	Proposed	DBH
SPD2	Proposed 54" RCP	Proposed	DBH
SPD3	Proposed 54" RCP	Proposed	DBH
SPD4	Proposed 54" RCP	Proposed	DBH
SPD5	Proposed 54" RCP	Proposed	DBH
SPD6	Proposed 54" RCP	Proposed	DBH
SPD7	Proposed 54" RCP	Proposed	DBH
SPD8	Proposed 54" RCP	Proposed	DBH
SPD9	Proposed 54" RCP	Proposed	DBH
SPD10	Proposed 54" RCP	Proposed	DBH
SPD11	Proposed 54" RCP	Proposed	DBH
SPD12	Proposed 54" RCP	Proposed	DBH
SPD13	Proposed 54" RCP	Proposed	DBH
SPD14	Proposed 54" RCP	Proposed	DBH
SPD15	Proposed 54" RCP	Proposed	DBH
SPD16	Proposed 54" RCP	Proposed	DBH
SPD17	Proposed 54" RCP	Proposed	DBH
SPD18	Proposed 54" RCP	Proposed	DBH
SPD19	Proposed 54" RCP	Proposed	DBH
SPD20	Proposed 54" RCP	Proposed	DBH
SPD21	Proposed 54" RCP	Proposed	DBH
SPD22	Proposed 54" RCP	Proposed	DBH
SPD23	Proposed 54" RCP	Proposed	DBH
SPD24	Proposed 54" RCP	Proposed	DBH
SPD25	Proposed 54" RCP	Proposed	DBH
SPD26	Proposed 54" RCP	Proposed	DBH
SPD27	Proposed 54" RCP	Proposed	DBH
SPD28	Proposed 54" RCP	Proposed	DBH
SPD29	Proposed 54" RCP	Proposed	DBH
SPD30	Proposed 54" RCP	Proposed	DBH
SPD31	Proposed 54" RCP	Proposed	DBH
SPD32	Proposed 54" RCP	Proposed	DBH
SPD33	Proposed 54" RCP	Proposed	DBH
SPD34	Proposed 54" RCP	Proposed	DBH
SPD35	Proposed 54" RCP	Proposed	DBH
SPD36	Proposed 54" RCP	Proposed	DBH
SPD37	Proposed 54" RCP	Proposed	DBH
SPD38	Proposed 54" RCP	Proposed	DBH
SPD39	Proposed 54" RCP	Proposed	DBH
SPD40	Proposed 54" RCP	Proposed	DBH
SPD41	Proposed 54" RCP	Proposed	DBH
SPD42	Proposed 54" RCP	Proposed	DBH
SPD43	Proposed 54" RCP	Proposed	DBH
SPD44	Proposed 54" RCP	Proposed	DBH
SPD45	Proposed 54" RCP	Proposed	DBH
SPD46	Proposed 54" RCP	Proposed	DBH
SPD47	Proposed 54" RCP	Proposed	DBH
SPD48	Proposed 54" RCP	Proposed	DBH
SPD49	Proposed 54" RCP	Proposed	DBH
SPD50	Proposed 54" RCP	Proposed	DBH
SPD51	Proposed 54" RCP	Proposed	DBH
SPD52	Proposed 54" RCP	Proposed	DBH
SPD53	Proposed 54" RCP	Proposed	DBH
SPD54	Proposed 54" RCP	Proposed	DBH
SPD55	Proposed 54" RCP	Proposed	DBH
SPD56	Proposed 54" RCP	Proposed	DBH
SPD57	Proposed 54" RCP	Proposed	DBH
SPD58	Proposed 54" RCP	Proposed	DBH
SPD59	Proposed 54" RCP	Proposed	DBH
SPD60	Proposed 54" RCP	Proposed	DBH
SPD61	Proposed 54" RCP	Proposed	DBH
SPD62	Proposed 54" RCP	Proposed	DBH
SPD63	Proposed 54" RCP	Proposed	DBH
SPD64	Proposed 54" RCP	Proposed	DBH
SPD65	Proposed 54" RCP	Proposed	DBH
SPD66	Proposed 54" RCP	Proposed	DBH
SPD67	Proposed 54" RCP	Proposed	DBH
SPD68	Proposed 54" RCP	Proposed	DBH
SPD69	Proposed 54" RCP	Proposed	DBH
SPD70	Proposed 54" RCP	Proposed	DBH
SPD71	Proposed 54" RCP	Proposed	DBH
SPD72	Proposed 54" RCP	Proposed	DBH
SPD73	Proposed 54" RCP	Proposed	DBH
SPD74	Proposed 54" RCP	Proposed	DBH
SPD75	Proposed 54" RCP	Proposed	DBH
SPD76	Proposed 54" RCP	Proposed	DBH
SPD77	Proposed 54" RCP	Proposed	DBH
SPD78	Proposed 54" RCP	Proposed	DBH
SPD79	Proposed 54" RCP	Proposed	DBH
SPD80	Proposed 54" RCP	Proposed	DBH
SPD81	Proposed 54" RCP	Proposed	DBH
SPD82	Proposed 54" RCP	Proposed	DBH
SPD83	Proposed 54" RCP	Proposed	DBH
SPD84	Proposed 54" RCP	Proposed	DBH
SPD85	Proposed 54" RCP	Proposed	DBH
SPD86	Proposed 54" RCP	Proposed	DBH
SPD87	Proposed 54" RCP	Proposed	DBH
SPD88	Proposed 54" RCP	Proposed	DBH
SPD89	Proposed 54" RCP	Proposed	DBH
SPD90	Proposed 54" RCP	Proposed	DBH
SPD91	Proposed 54" RCP	Proposed	DBH
SPD92	Proposed 54" RCP	Proposed	DBH
SPD93	Proposed 54" RCP	Proposed	DBH
SPD94	Proposed 54" RCP	Proposed	DBH
SPD95	Proposed 54" RCP	Proposed	DBH
SPD96	Proposed 54" RCP	Proposed	DBH
SPD97	Proposed 54" RCP	Proposed	DBH
SPD98	Proposed 54" RCP	Proposed	DBH
SPD99	Proposed 54" RCP	Proposed	DBH
SPD100	Proposed 54" RCP	Proposed	DBH

Condition	Location	Notes
Proposed	SF01a	0.5 WSPD3
		0.5 WSPD3
Ultimate	SF01a	0.5 WSPD3
		0.5 WSPD3
Proposed	SF01b	0.5 WSPD3
		0.5 WSPD3
Ultimate	SF01b	0.5 WSPD3
		0.5 WSPD3
Proposed	SF02	0.5 WSPD3
		0.5 WSPD3
Ultimate	SF02	0.5 WSPD3
		0.5 WSPD3
Proposed	SF03	0.5 WSPD3
		0.5 WSPD3
Ultimate	SF03	0.5 WSPD3
		0.5 WSPD3
Proposed	SF04	0.5 WSPD3
		0.5 WSPD3
Ultimate	SF04	0.5 WSPD3
		0.5 WSPD3
Proposed	SF05	0.5 WSPD3
		0.5 WSPD3
Ultimate	SF05	0.5 WSPD3
		0.5 WSPD3
Proposed	SF06	0.5 WSPD3
		0.5 WSPD3
Ultimate	SF06	0.5 WSPD3
		0.5 WSPD3
Proposed	SF07	0.5 WSPD3
		0.5 WSPD3
Ultimate	SF07	0.5 WSPD3
		0.5 WSPD3
Proposed	SF08	0.5 WSPD3
		0.5 WSPD3
Ultimate	SF08	0.5 WSPD3
		0.5 WSPD3
Proposed	SF09	0.5 WSPD3
		0.5 WSPD3
Ultimate	SF09	0.5 WSPD3
		0.5 WSPD3
Proposed	SF10	0.5 WSPD3
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Ultimate	SF10	0.5 WSPD3
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Proposed	SF11	0.5 WSPD3
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Ultimate	SF11	0.5 WSPD3
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Proposed	SF12	0.5 WSPD3
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Ultimate	SF12	0.5 WSPD3
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Proposed	SF13	0.5 WSPD3
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Ultimate	SF13	0.5 WSPD3
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Proposed	SF14	0.5 WSPD3
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Ultimate	SF14	0.5 WSPD3
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Proposed	SF15	0.5 WSPD3
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Ultimate	SF15	0.5 WSPD3
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Proposed	SF16	0.5 WSPD3
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Ultimate	SF16	0.5 WSPD3
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Proposed	SF17	0.5 WSPD3
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Ultimate	SF17	0.5 WSPD3
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Proposed	SF18	0.5 WSPD3
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Ultimate	SF18	0.5 WSPD3
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Proposed	SF19	0.5 WSPD3
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Ultimate	SF19	0.5 WSPD3
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Proposed	SF20	0.5 WSPD3
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Ultimate	SF20	0.5 WSPD3
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Proposed	SF21	0.5 WSPD3
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Ultimate	SF21	0.5 WSPD3
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Proposed	SF22	0.5 WSPD3
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Ultimate	SF22	0.5 WSPD3
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Proposed	SF23	0.5 WSPD3
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Ultimate	SF23	0.5 WSPD3
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Proposed	SF24	0.5 WSPD3
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Ultimate	SF24	0.5 WSPD3
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Proposed	SF25	0.5 WSPD3
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Ultimate	SF25	0.5 WSPD3
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Proposed	SF26	0.5 WSPD3
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Ultimate	SF26	0.5 WSPD3
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Proposed	SF27	0.5 WSPD3
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Ultimate	SF27	0.5 WSPD3
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Proposed	SF28	0.5 WSPD3
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Ultimate	SF28	0.5 WSPD3
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Proposed	SF29	0.5 WSPD3
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Ultimate	SF29	0.5 WSPD3
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Proposed	SF30	0.5 WSPD3
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Ultimate	SF30	0.5 WSPD3
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Proposed	SF31	0.5 WSPD3
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Ultimate	SF31	0.5 WSPD3
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Proposed	SF32	0.5 WSPD3
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Ultimate	SF32	0.5 WSPD3
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Proposed	SF33	0.5 WSPD3
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Ultimate	SF33	0.5 WSPD3
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Proposed	SF34	0.5 WSPD3
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Ultimate	SF34	0.5 WSPD3
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Proposed	SF35	0.5 WSPD3
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Ultimate	SF35	0.5 WSPD3
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Proposed	SF36	0.5 WSPD3
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Ultimate	SF36	0.5 WSPD3
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Proposed	SF37	0.5 WSPD3
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Ultimate	SF37	0.5 WSPD3
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Proposed	SF38	0.5 WSPD3
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Proposed	SF39	0.5 WSPD3
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Proposed	SF40	0.5 WSPD3
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Ultimate	SF40	0.5 WSPD3
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Proposed	SF41	0.5 WSPD3
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Ultimate	SF41	0.5 WSPD3
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Proposed	SF42	0.5 WSPD3
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Ultimate	SF42	0.5 WSPD3
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Proposed	SF43	0.5 WSPD3
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Ultimate	SF43	0.5 WSPD3
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Proposed	SF44	0.5 WSPD3
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Proposed	SF45	0.5 WSPD3
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Proposed	SF46	0.5 WSPD3
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Proposed	SF99	0.5 WSPD3
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Proposed	SF100	0.5 WSPD3
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Ultimate	SF100	0.5 WSPD3
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Proposed	SF101	0.5 WSPD3
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Proposed	SF102	0.5 WSPD3
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Ultimate	SF102	0.5 WSPD3
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Proposed	SF103	0.5 WSPD3
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Ultimate	SF103	0.5 WSPD3
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Proposed	SF104	0.5 WSPD3
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Ultimate	SF104	0.5 WSPD3
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Proposed	SF105	0.5 WSPD3
		0.5 WSPD3
Ultimate	SF105	0.5 WSPD3
		0.5 WSPD3
Proposed	SF106	0.5 WSPD3
		0.5 WSPD3
Ultimate	SF106	0.5 WSPD3
		0.5 WSPD3
Proposed	SF107	0.5 WSPD3
		0.5 WSPD3
Ultimate	SF107	0.5 WSPD3
		0.5 WSPD3
Proposed	SF108	0.5 WSPD3
		0.5 WSPD3
Ultimate	SF108	0.5 WSPD3
		0.5 WSPD3
Proposed	SF109	0.5 WSPD3
		0.5 WSPD3
Ultimate	SF109	0.5 WSPD3
		0.5 WSPD3
Proposed	SF110	0.5 WSPD3
		0.5 WSPD3
Ultimate	SF110	0.5 WSPD3
		0.5 WSPD3
Proposed	SF111	0.5 WSPD3
		0.5 WSPD3
Ultimate	SF111	0.5 WSPD3
		0.5 WSPD3
Proposed	SF112	0.5 WSPD3
		0.5 WSPD3
Ultimate	SF112	0.5 WSPD3
		0.5 WSPD3
Proposed	SF113	0.5 WSPD3
		0.5 WSPD3
Ultimate	SF113	0.5 WSPD3
		0.5 WSPD3
Proposed	SF114	0.5 WSPD3
		0.5 WSPD3
Ultimate	SF114	0.5 WSPD3
		0.5 WSPD3
Proposed	SF115	0.5 WSPD3
		0.5 WSPD3
Ultimate	SF115	0.5 WSPD3
		0.5 WSPD3
Proposed	SF116	0.

Section SP1 - Flow in Sky Park Drive

Worksheet for Irregular Channel

Project Description	
Worksheet	Section SP1 - Flow in Sky Park Drive
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Channel Slope	1.90 %
Discharge	52.00 cfs

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

Results	
Mannings Coefficient	0.016
Water Surface Elevation	0.59 ft
Elevation Range	0.00 to 0.56
Flow Area	10.5 ft ²
Wetted Perimeter	44.08 ft
Top Width	43.00 ft
Actual Depth	0.59 ft
Critical Elevation	0.70 ft
Critical Slope	0.55 %
Velocity	4.93 ft/s
Velocity Head	0.38 ft
Specific Energy	0.97 ft
Froude Number	1.76
Flow Type	Supercritical

Calculation Messages:

Water elevation exceeds lowest end station by 0.88120047e-1 ft.

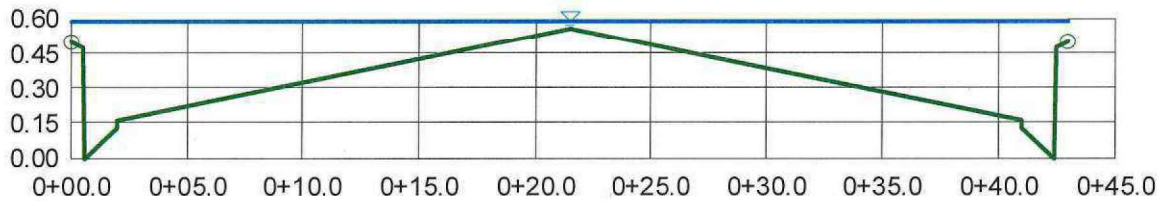
Roughness Segments		
Start Station	End Station	Mannings Coefficient
0+00.0	0+43.0	0.016

Natural Channel Points	
Station (ft)	Elevation (ft)
0+00.0	0.50
0+00.5	0.48
0+00.6	0.00
0+02.0	0.13
0+02.0	0.17
0+21.5	0.56
0+41.0	0.17
0+41.0	0.13
0+42.4	0.00
0+42.5	0.48
0+43.0	0.50

Section SP1 - Flow in Sky Park Drive Cross Section for Irregular Channel

Project Description	
Worksheet	Section SP1 - Flow in Sky Park Drive
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data	
Mannings Coefficient	0.016
Channel Slope	1.90 %
Water Surface Elevation	0.59 ft
Elevation Range	0.00 to 0.56
Discharge	52.00 cfs



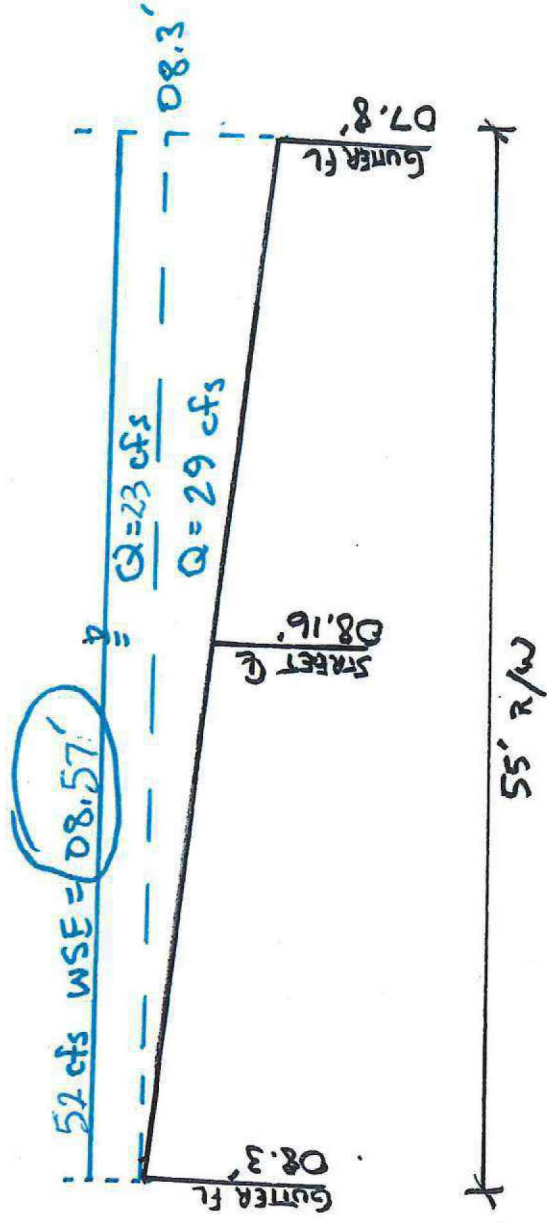
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NTS

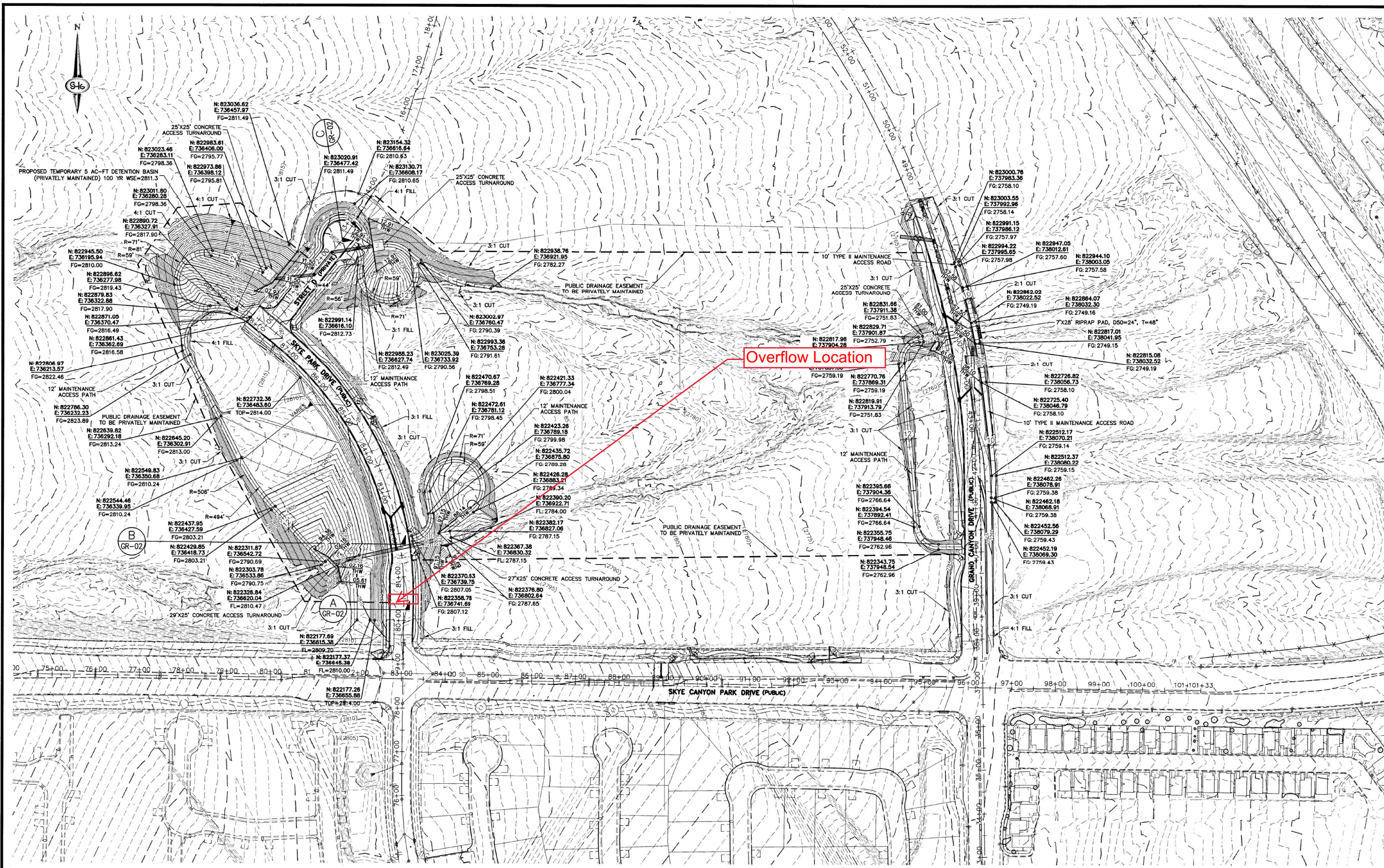
Project Name:	SKYE CANYON PHASE 3	 SLATER HANIFAN GROUP CONSULTING ENGINEERS & PLANNERS
By:	AJH	
Date:	7/21/2016	
Notes:		
Facility ID:	SPD1a & SPD1b	
Drainage Condition	Ultimate	
Design Flow (cfs)	52 / 2 = Approximately 26cfs to Each SDDI	
Inlet Type:	Type CM2 (Sump)	
Inlet Length:	12.5-ft	
Number of Grates:	4	
Input:	Variable:	Input:
Depth at Inlet (ft)	D	0.83
Grate Width (ft)	W	1.50
Length of Grate (ft)	L_g	10.00
Length of Curb Opening (ft)	L_c	12.50
Height of Curb Opening (ft)	H	0.50
Weir Coef. - Curb Opening	W_c	2.3
Weir Coef. - Grate	W_g	3.0
Orifice Coef.	O_c	0.67
Grate Coef.	G_c	0.60
Clogging Factor - Grate (%)	CF_g	50
Clogging Factor - Curb (%)	CF_c	50
Output (Grate):	Equation:	Output (Grate):
Effective Weir Length (ft)	$2*W+L_g$	13.00
Adjusted Effective Weir Length (ft)	$2*(1-CF_g/100)*W+(1-CF_g/100)*L_g$	6.50
Grate Open Area (sf)	$W*L_g$	15.00
Adjusted Grate Open Area (sf)	Grate Open Area * $G_c*(1-CF_g/100)$	4.50
Controlling Flow Type (weir/orifice)	If $D < 1.792*(Adj. \text{ Grate Open Area}/Adj. \text{ Eff. Length})$ use weir, else orifice	weir
Intercepted Flow (cfs)	weir: $W_g*(Adj. \text{ Eff. Weir Length})*D^{1.5}$ orifice: $O_c*(Adj. \text{ Grate Open Area})*(64.4*D)^{0.5}$	14.7
Output (Curb):	Equation:	Output (Curb):
Effective Weir Length (ft)	$L+1.8*W$	15.20
Adjusted Effective Weir Length (ft)	$L+1.8*(1-CF_c/100)*W$	13.91
Curb Open Area (sf)	$L*H$	6.25
Adjusted Curb Open Area (sf)	Curb Open Area * $(1-CF_c/100)$	3.13
Controlling Flow Type (weir/orifice)	If $D < H$, weir, else orifice	orifice
Intercepted Flow (cfs)	weir: $W_c*(Adj. \text{ Eff. Weir Length})*D^{1.5}$ orifice: $O_c*(Adj. \text{ Curb Open Area})*(64.4*(D-H/2))^{0.5}$	15.27
Output (Total):	Equation:	Output (Total):
Capacity Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	30.0
*Actually collects 26 cfs per inlet		

Skye Park Drive - Sag DIs Emergency Overflow

Q @ LP Dis = 52 cfs (Exhibit I)

HP @ Sta. 80+50 APPROX $\Rightarrow$ WEIR CREST FOR EMERGENCY OVERFLOW
 WEIR EQUATION: $Q = (3) L H^{3/2}$ (RECT.); $Q = 1/2 (3) L H^{3/2}$ (TRIANG.)





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

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

DATE	BY	APP
11/17/16	JAS	
	DAM	
	JSR	

DESCRIPTION

NO.

NINETY-FIVE MANAGEMENT LLC
SKYE CANYON II PHASE 3
GRADING PLAN

DATE: 11/17/16
DRAFTER: JAS
DESIGNER: DAM
CHECKED: JSR
PROJECT NO.
OLY1602-000

GR-01
SHEET 17 OF 57
DWG NO. 107Y5044

HANSEN NO. 66209

Custom Soil Resource Report Soil Map



Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
155	Cave gravelly fine sandy loam, 4 to 15 percent slopes	1.1	100.0%
Totals for Area of Interest		1.1	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

APPENDIX C

Drainage Figures

KYLE CANYON RD

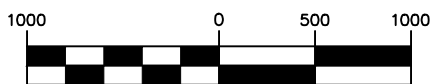
PROJECT
SITE

SKYE
PARK DR

W SKYE CANYON PARK DR

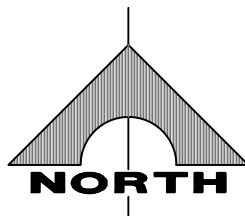
95

GRAPHIC SCALE



(IN FEET)

1 inch = 1000 ft.



REMINGTON SKYE
SKYE CANYON VILLAGE
ADDITIONS PAD L & M

FIGURE 1

VICINITY MAP

GCV
ENGINEERS SURVEYORS

1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

National Flood Hazard Layer FIRMette



FEMA

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth
		Regulatory Floodway Zone AE, AO, AH, VE, AR
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		Area of Minimal Flood Hazard Zone X
		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped

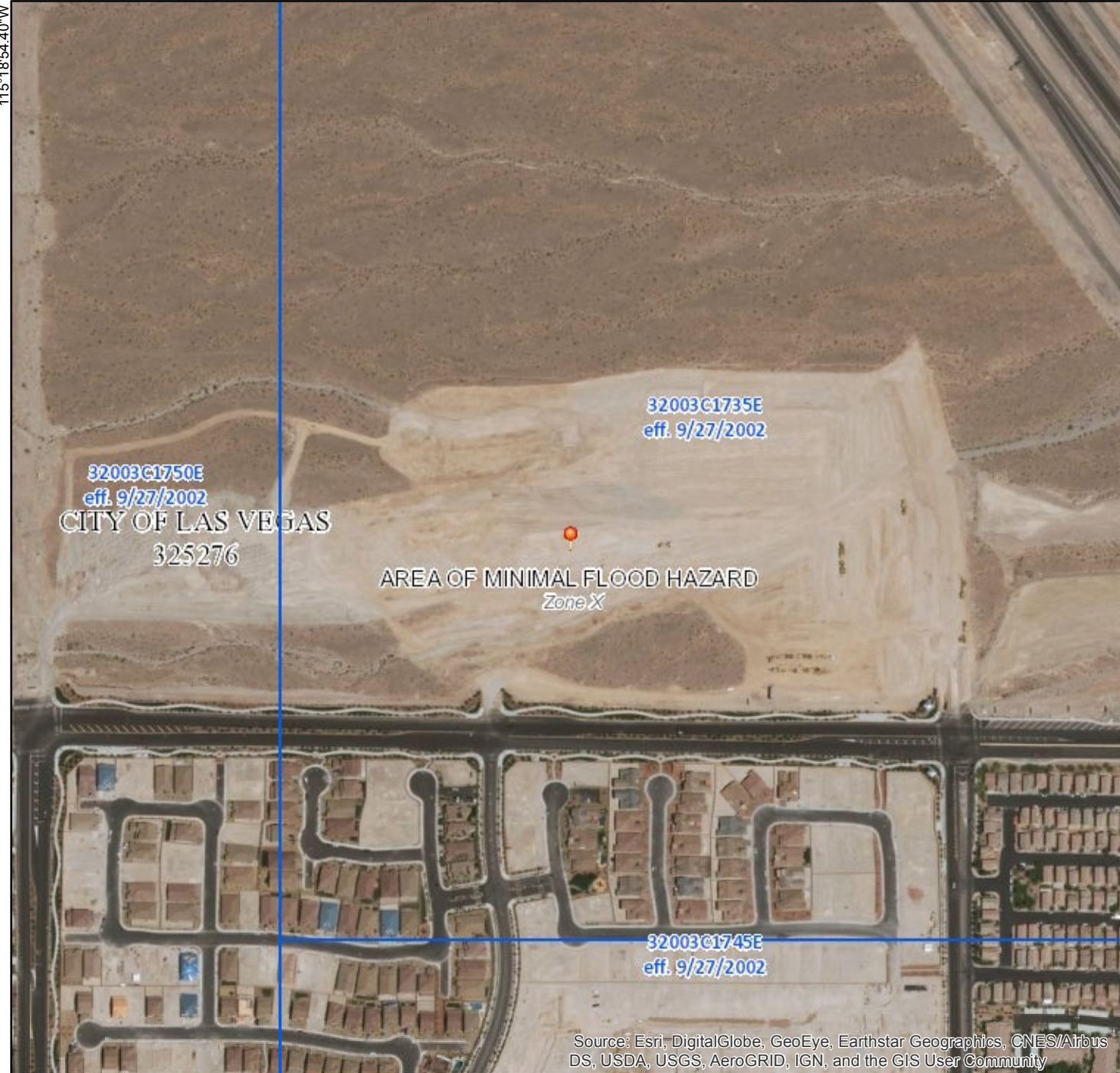


This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The base map shown complies with FEMA's base map accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **6/27/2018 at 5:57:22 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: base map imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

36°19'11.36"N



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

0 250 500 1,000 1,500 2,000 Feet 1:6,241.13 36°18'41.20"N 115°18'15.44"W

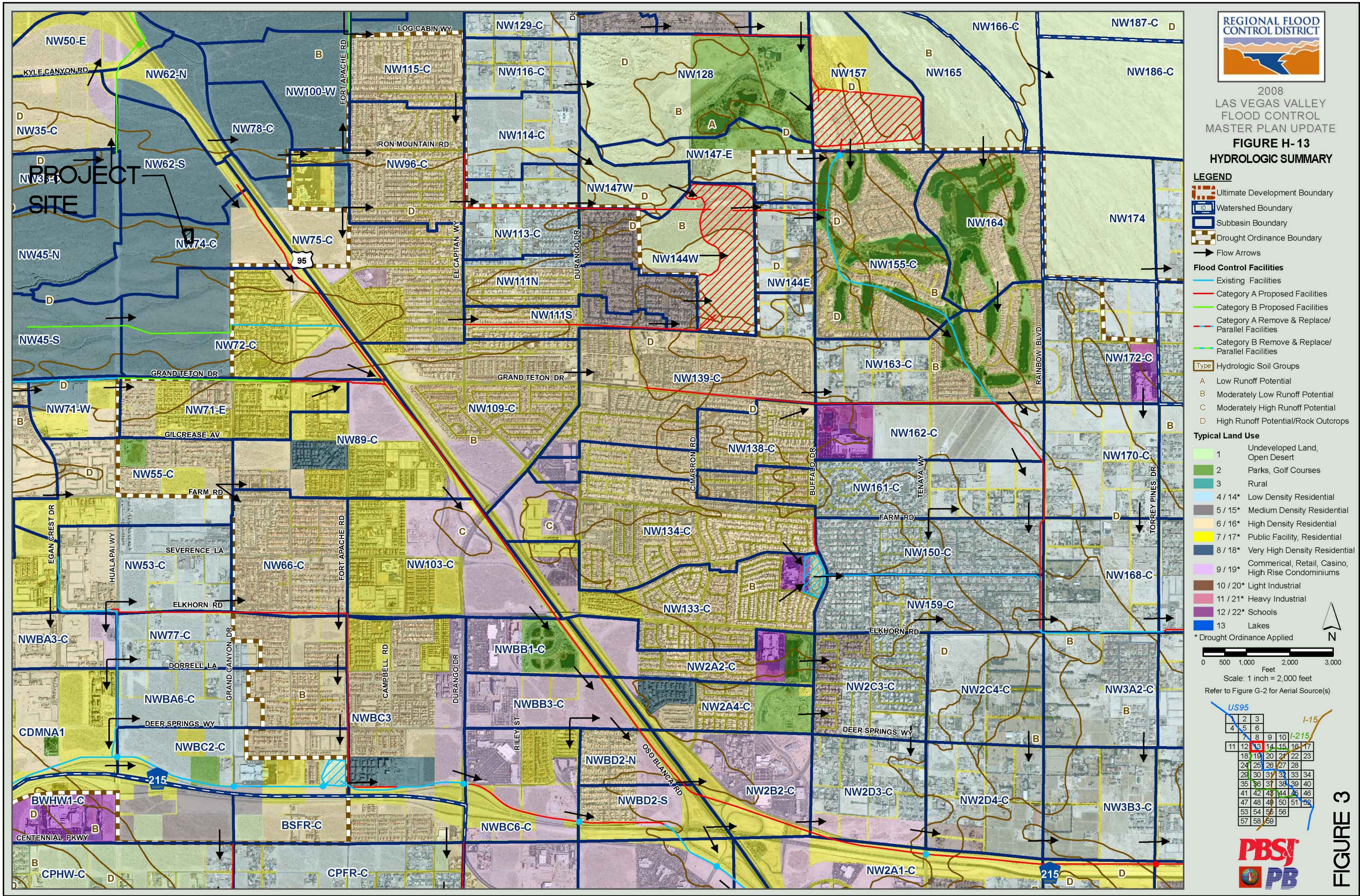


FIGURE 3



2013
LAS VEGAS VALLEY
FLOOD CONTROL
MASTER PLAN UPDATE

**FIGURE F-13
FLOOD CONTROL FACILITIES**

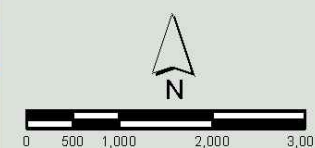
LEGEND

- Ultimate Development Boundary
- Existing Facilities
- Category A Proposed Facilities
- Category B Proposed Facilities
- Local Existing Facilities
- Local Proposed Facilities
- Detention Basin

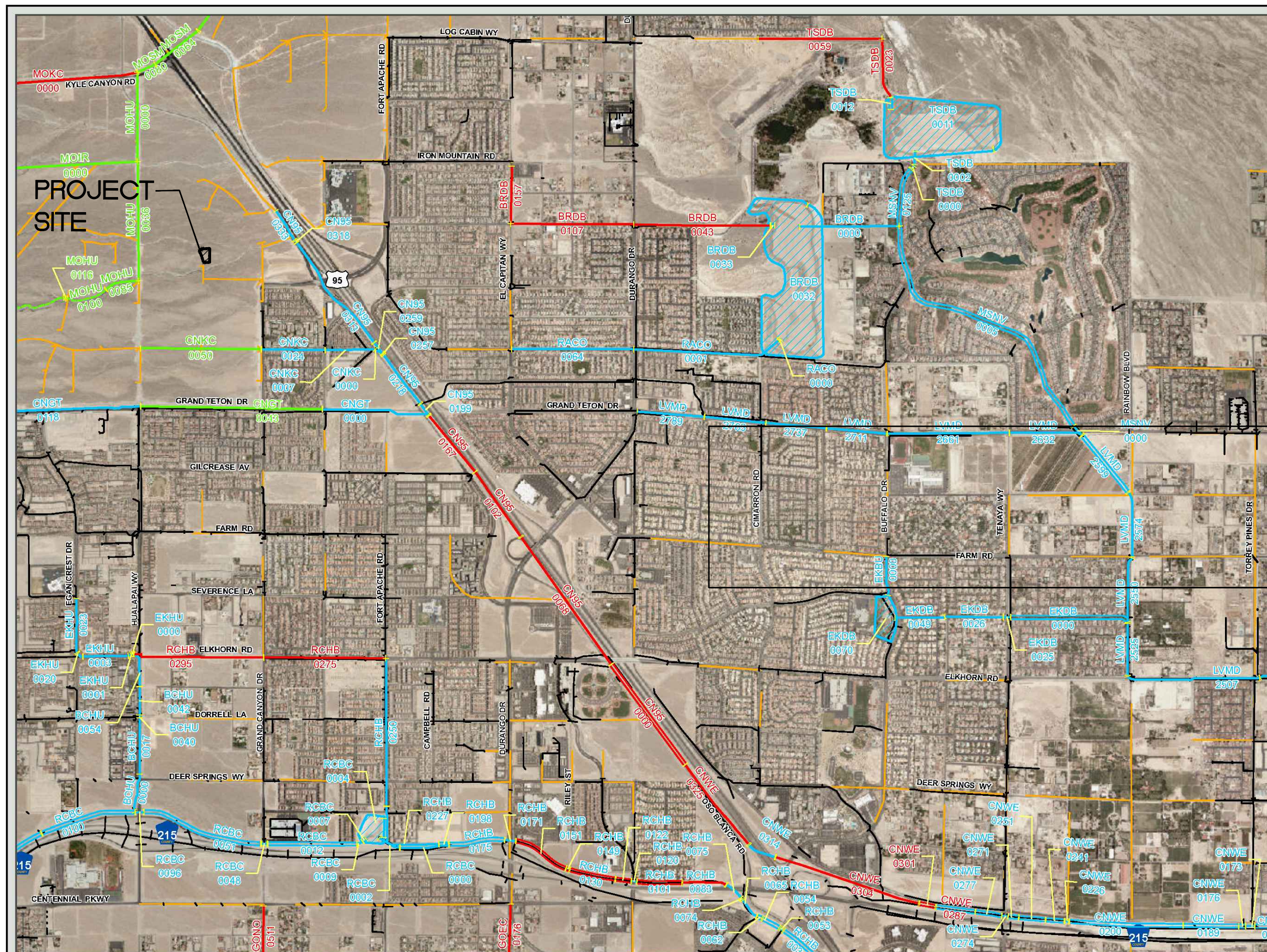
- Stormdrain
- Lined Channel
- Unlined Channel
- Levee/Dike
- Natural Wash/Floodway
- ID-Mile Separator

- Remove & Replace/Parallel Facilities**
- | Category A | Category B |
|------------|------------|
| Channel | Channel |
| Stormdrain | Stormdrain |

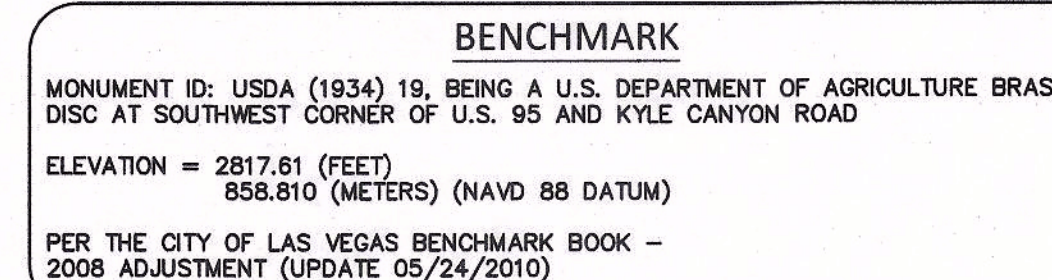
FIGURE 4



Scale: 1 inch = 2,000 feet
Refer to Figure G-2 for Aerial Source(s)



A PORTION OF
APN 125-07-210-002
9700 WEST SKYE CANYON PARK DRIVE
LAS VEGAS, NEVADA 89124

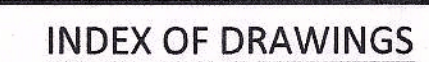


NORTH 89°16'30" WEST, BEING THE BEARING OF THE SOUTH LINE OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 7, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREOF IN BOOK 147, PAGE 71 OF PLATS IN THE CLARK COUNTY RECORDER'S OFFICE, CLARK COUNTY, NEVADA.

COX COMMUNICATIONS LAS VEGAS, INC.	DATE
CENTRAL TELEPHONE CO., DBA CENTURYLINK	DATE
THE AFFIXED CENTURYLINK APPROVAL DOES FOR KNOWN OR UNKNOWN CONFLICTS WITH ORDINANCES, NEVADA REVISED STATUTES, RULES, AND REGULATIONS.	NOT ASSUME OR GUARANTEE LIABILITY EXISTING OR PROPOSED IMPROVEMENTS ACCOMPLISHED PURSUANT TO LOCAL AND/OR PUBLIC UTILITY COMMISSIONS.

NV ENERGY	DATE
NEVADA POWER COMPANY ACKNOWLEDGES THAT WE HAVE RECEIVED YOUR PLAN AND WILL PROVIDE SERVICE TO ALL ELECTRICAL NEEDS ASSOCIATED WITH THIS PROJECT. NEVADA POWER COMPANY RESERVES THE RIGHT TO ADDRESS ANY EXISTING OR FUTURE CONFLICTS ONCE THE FINAL DESIGN IS COMPLETED, THE NEW SERVICE AND THE RESOLUTION OF ANY CONFLICTS WILL BE ACCOMPLISHED PURSUANT TO THE NEVADA PUBLIC UTILITY COMMISSION'S RULES AND REGULATIONS.	

NV ENERGY - TRANSMISSION ENGINEERING	DATE
SOUTHWEST GAS CORP.	DATE



NO.	DWG.	DESCRIPTION
1	C1.01	COVER SHEET
2	C1.02	PROJECT DATA SHEET
3	C1.03	GENERAL NOTES
4	C2.01	HORIZONTAL CONTROL & FIRE ACCESS PLAN
5	C3.01	GRADING PLAN
6	C4.01	UTILITY PLAN
7	C5.01	DETAILS AND SECTIONS 1
8	C5.02	DETAILS AND SECTIONS 2

REMINGTON SKYE LLC
5920 S. RAINBOW BLVD., SUITE 11
LAS VEGAS, NEVADA 89118
CONTACT:
OFFICE PHONE NO.
OFFICE FAX NO.

I CERTIFY THAT THE GRADING PLANS ARE IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.

KIRBY P. ADAMS P.E. 15522 DATE

APPROVAL OF THESE PLANS IS LIMITED TO THOSE IMPROVEMENTS CONSTRUCTED IN THE DEDICATED RIGHTS-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 IDENTIFIED UNDER "DEVIATIONS FROM STANDARDS". THE ENGINEER SHALL RESOLVE ANY DEVIATION OTHER THAN THOSE LISTED IN "DEVIATIONS FROM STANDARDS" IN FAVOR OF THE UNIFORM STANDARD DRAWINGS AND SPECIFICATIONS CLARK COUNTY AREA NEVADA.

ALLEN PAVELKA, P.E. # 9029
CITY ENGINEER

LAS VEGAS FIRE & RESCUE DATE

CHRIS KNIGHT
DIRECTOR, BUILDING AND SAFETY

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

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. _____ FIRST APPROVAL DATE: _____
LVVWD APPROVED FIRE FLOW: TOTAL _____ GPM / ON-SITE _____ GPM
SHEETS: XX, XX, XX

H # _____ CLV # _____



PROJECT NO.	796-001
DESIGN:	JM
DRAWN:	JM
CHECK:	KA
PLOT DATE:	08-21-18
PLOT TIME:	10:48:43

GCW
ENGINEERS SURVEYORS

1555 S. RAINBOW BLVD.,
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gwenengineering.com

Project: Y001796-001 UMO Production Prod L&M\01civ.dwg
Austin Montiero

REMINGTON SKYE LLC

SKYE CANYON VILLAGE - PAD L & M

COVER SHEET

DRAWING
C1.01
1 OF 8 SHTS



796-001

DESIGN:	JM
DRAWN:	JM
CHECK:	KA
PLOT DATE: 08-23-18	
PLOT TIME: 13:29:14	

GCW
ENGINEERS\ SURVEYORS

1300 S. NARANJO BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gowingengineering.com

Projects 700\796-001\DWG\production\Prod_L&M\796-001.ccs.01D7.dwg
Austin Monteiro

REMMINGTON SKYE LLC

SKYE CANYON VILLAGE - PAD L & M

DETAILS AND SECTIONS 1

DRAWING
C5.01
7 OF 8 SHTS

