

DS #: 45 44

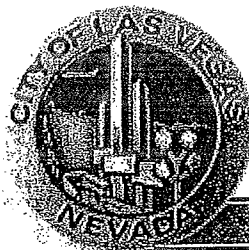
APN: 140-32-701-003

PROJECT: Walmart store #1559-07 Expansion

SUBMITTAL: 1st

SCANNED BY/DATE:

CHECKED BY/DATE:



CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		January 23, 2012
TO: Land Development Services Department of Public Works		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for:	
	Walmart Store #1559-07 Expansion	
Cross Streets:	SWC of Stewart Avenue & Nellis Boulevard	COPIES TO:
File Number:	F:\Depot\DSMemos\DS4544A.doc	Kimley Horn and Associates
Parcel Number:	140-32-701-003	WRI Charleston Commons, LLC
Zoning Action:	SDR-43021	Bart Anderson, P.E., DevCo
FEMA Flood Zone	YES	CCRFCD
	NO	CCPW
Proposed Storm Drain	YES	
	NO	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	1/10/2012	1/23/2012	See Comments Below	\$100.00	270846: \$100
			TOTAL FEES (LDDRS):		----

REMARKS:

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

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

1. Provide a note on all grading plan sheets: **"STORM DRAIN NOTE: ALL ONSITE STORM DRAINS AND THE ASSOCIATED FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY THE PROPERTY OWNER"**.
2. *City of Las Vegas* recommends a minimum onsite storm drain to be 12" in diameter. Revise *Construction Note #8* to revise the call out from 10" to 12".
3. Clarify if some existing storm drains and drop inlets are to be protect in place by note.

In an effort to increase administrative efficiency, the City of Las Vegas Public Works Department requires all soil reports, drainage studies and traffic impact analysis submittals to be accompanied by an electronic copy of the submittal. Electronic documents must be submitted with one original hard copy of the study. Electronic documents should be on a universal computer-readable digital output replicating your submittal to be used for archival or display purposes. This may be more than one file if necessary. An Indexed Portable Document Format (PDF) or Print Ready CAD file formats with a minimum of 300dpi are the desired formats, but provided it is a high quality digitized replication of the submittal, other formats may be acceptable. If figures are in color, they must be scanned in color and saved as a separate file. The new submittal requirement is effective on **July 1, 2011**. If there are any questions regarding these new requirements, please contact Albert Sung in the Flood Section at (702) 229-2001 or Rick Schroder in Traffic Engineering at (702) 229-6327.

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 Amendment and accepted by the *City of Las Vegas Flood Control Section*. Additionally, conditional acceptance of a drainage study is valid for a period of one (1) year. If the proposed construction has not been completed in that time period, the *City of Las Vegas* reserves the right to require additional conditions and/or submission and acceptance of a complete drainage study update prior to further construction of a project.

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

END OF REMARKS

ays

T/R/S: T20S/R62E/32
AREA N-32

Rec'd: 1/10/12

Update to the Walmart Study

DS 4544

N-32

\$100-

Walmart Store #1559-07 Expansion

201 North Nellis Blvd
Las Vegas, Nevada
89110

SDR-43021

Prepared for:

Wal-Mart Stores, Inc.

2001 SE 10th Street
Bentonville, AR 72716-0550

Prepared by:

Kimley-Horn and Associates, Inc.

7878 N 16th Street, Suite 300
Phoenix, AZ 85020

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January 2012

KHA Project #091.502.117



Kimley-Horn
and Associates, Inc.



Kimley-Horn
and Associates, Inc.

Update to Walmart Study

Walmart Store #1559-07 Expansion

201 North Nellis Blvd
Las Vegas, Nevada
89110

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January 2012
KHA Project #091.502.117

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL
DRAINAGE STUDY INFORMATION FORM

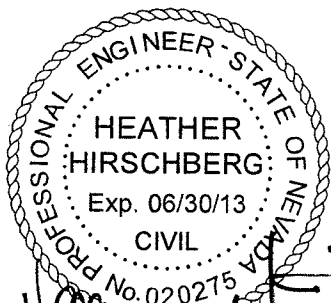
Name of Development: WALMART #1559-07, CHARLESTON COMMONS Date: 1.9.12
Location of Development: a) Descriptive (Cross Streets) North/South: NELLIS
East/West: STEWART
b) Section: 32 Township: 20 Range: 62
c) APN: 140-32-701-003

Name of Owner: WRI CHARLESTON COMMONS, LLC / WALMART STORE, INC (LEASE)
Telephone No.: 713.866.6968 Fax No.: 866.6050 E-Mail Address: mstout@weingarten.com
Address: 2600 Citadel Plaza Dr., Suite 125 Houston, TX 77008

Contact Person-Name: Heather Hirschberg Telephone No.: 602.906.1181
* E-Mail Address: heather.hirschberg@kimley-horn.com No.: 602.944.7423
Firm: Kimley-Horn and Associates
Address: 7278 N 16th Street, 300 Phoenix AZ 85020
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	<u>bldg expansion/parking lot upgrade</u>	

1. Total Owned Land Area: At Site: 10.5 Being Developed/Disturbed: 10.5
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: 0
6. Has the site drainage been evaluated in the past? ☒ YES ☐ NO If yes, please identify documentation: Drainage Study & Report Walmart Facility, West of Nellis blvd Stewart/Charleston
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: two existing entry points into Las Vegas Wash and two existing entry points into Nellis boulevard.
8. Briefly describe your proposed schedule for the subject project: construction anticipated for May 2012.



Engineer's Seal

1.9.12

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

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LIST OF APPENDICES

- Appendix A Figures
- Appendix B Drainage Maps and Grading Plans
- Appendix C Resources



I. General Location and Development Description

A. Location of Property

This study is the Technical Drainage Study for the expansion of the Walmart Store #1559-07. The site is located within the Charleston Commons development; more specifically the site is located at 201 N Nellis Boulevard in Las Vegas, Nevada. Error! Reference source not found. provides the location map. The project is located within Section 32, Township 20 South, Range 62 East, M.D.M., Clark County and is within Assessor's Parcel Number 14032701003. An existing Regional Flood Control Facility, the Las Vegas Wash, is located directly west of the site. Existing commercial development neighbors the site to the south, north, and east.

B. Description of Property / Project

This project is approximately 10.5 acres in size. The property is currently zoned Limited Commercial (C-1), and is currently occupied by an approximate 118,000 SF Walmart store. The existing Walmart Division I store will be expanded by approximately 14,000 S.F. and converted into a Supercenter, totaling approximately 132,000 SF. The store expansion will also include an additional two-bay truck dock, located on the east side of the store. The majority of the expanded area will replace the existing garden center, which will be fully demolished prior to expansion. Additional expansion will be added to the northeast corner of the building to accommodate the new truck dock as a receiving area. As part of the store expansion, the front drive aisle and the adjacent parking area will be reconfigured to accommodate the new building footprint with an expanded entry vestibule. Landscape islands and existing utilities in the front drive aisle will be relocated. In addition, parking lot landscape islands will be added throughout the parking lot to bring the site layout up to current City of Las Vegas code. The existing parking lot pavement is anticipated to receive a 1.5" mill and overlay (as needed), with full depth replacement limited to the reconfigured front drive aisle. Full depth heavy duty asphalt and concrete is anticipated for the pavement near the new truck dock. The existing parking lot will be restriped. The acquisition of additional property is not anticipated for this project.

The site slopes north to south at approximately 1.0%. There exists a ridgeline that serves as a high point located approximately 200 ft. west of Nellis Blvd right of way.

II. Drainage Basin Description

A. Off-site Drainage Description

Site visits and topographic maps from the area confirm that there are no off-site drainage areas contributing to the project site, since all flows from the north will be intercepted by Stewart Avenue and all potential flows from the east are cut off by Nellis Boulevard.

B. On-site Drainage Description

Historic On-site Drainage Patterns and Discharge Points

In the existing condition the on-site basins were fully developed and covered with buildings, asphalt concrete or pavement. On-site existing conditions drainage patterns are generally from north to south. In the parking lot area south of the building, there exists a ridgeline highpoint located approximately 200 ft. west of Nellis Blvd right of way: flow from the area west of the ridgeline will traverse south west into a wall opening and drainage flume, which discharges into the Regional Facility (Las Vegas Wash), and flow east of the ridgeline will traverse southeast into Nellis Boulevard, entering at the southern site driveway. Behind the store, north of the building, a highpoint is located at approximately the midpoint of the building. Runoff sheet flows west of the highpoint to an existing valley gutter, which discharges into the Regional Facility (Las Vegas Wash), or east of the highpoint to Nellis Boulevard, entering at the northern driveway. All proposed on-site stormwater runoff will continue to discharge into the Regional Facility and Nellis Boulevard, per historical conditions.

Historic Drainage Patterns of Upstream Runoff

There is no storm runoff from the upstream end of the site that enters the site.

C. Master Planning Information

Currently Adopted Master Plans

This project site is within the 2008 Las Vegas Valley Flood Control Master Plan Update (2008 MPU).



D. Existing Master Plan Flood Control Facilities

The Las Vegas Wash exists adjacent to the site to the west. This facility, named LVMD 1071 replaced LVMD 1070, when the wash changed from an earthen channel to a concrete channel. LVMD 1071 consists of a 90' wide concrete channel, 9' deep, and having side slopes of 1.5:1 and is designed to carry a flow of 14,438 cfs. Please see **Appendix A** for *2008 MPU – Flood Control Facilities*.

E. Proposed Master Plan Flood Control Facilities

There are no proposed Master Plan Flood Control Facilities on the site.

F. Floodplain Information

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) indicates the site is in "Zone X" as shown on the Flood Insurance Rate Map No. 32003C2556E, effective date September 1, 2005. Zone X is defined by FEMA as "Areas determined to be outside the 0.2% annual chance floodplain." No floodplain is present on the site. Refer to **Appendix A**.

G. Previous Drainage Studies

The project site was previously studied under *Drainage Study and Report for Walmart Facility West of Nellis Blvd between Charleston Blvd and Stewart Ave* dated January 20, 1989 prepared by Dunaway Associates West, Inc.

Refer to **Appendix C**.



III. Proposed Drainage Facilities

A. General Description

In proposed conditions, drainage patterns are generally unchanged from the existing conditions. A proposed storm drain will drain the proposed additional truck dock via gravity flow, connecting to the existing onsite catch basin along Nellis Boulevard, which connects to the existing system within the right-of-way. **Appendix B** provides the Proposed Grading and Drainage Plan.

The northwest portion of the site consists of impervious parking lot and building rooftop. Runoff generated is conveyed west within an existing valley gutter located in the northwest corner of the project site, behind the building. Maintaining the historic drainage patterns, the runoff ultimately outlets into the Regional Facility.

The southwest portion of the site consists of impervious parking lot. Runoff generated sheet flows to an existing wall opening located at the southwest corner of the site. Maintaining the historic drainage patterns, the runoff ultimately outlets into the Regional Facility.

The northeast portion of the site consists of impervious parking lot. Runoff generated sheet flows northeast to the existing northern site driveway along Nellis Boulevard. Maintaining the historic drainage patterns, the runoff ultimately outlets into Nellis Boulevard.

The southeast portion of the site consists of impervious parking lot. Runoff generated in sheet flows southeast to the existing southern site driveway along Nellis Boulevard. Maintaining the historic drainage patterns, the runoff ultimately outlets into Nellis Boulevard.

In comparison with the existing conditions, no additional flow will be generated from the proposed conditions.

B. Compliance with Regulations and Adopted Plans

Master Planned Flood Control Facilities

The Las Vegas Wash exists adjacent to the site to the west. This facility, named LVMD 1071 replaced LVMD 1070, when the wash changed from an earthen channel to a concrete cannel. LVMD 1071 consists of a 90' wide concrete channel, 9' deep, and having side slopes of 1.5:1 and is designed to carry a flow of 14,438 cfs. Please see **Appendix A** for *2008 MPU – Flood Control Facilities*.



FEMA Floodplain Regulations

The Walmart Store #1559-07 is located outside the 100-year floodplain.

C. Facility Design Calculations

Street Flow Calculations

The characteristics of the adjacent streets will remain the same in both the existing and proposed conditions. On-site flows exit the site to the adjacent street in two locations in the same intensity as the existing condition.



IV. Conclusions

Compliance with Drainage Laws

The Walmart Store #1559-07 Expansion is in compliance with regional and local laws and ordinances.

Compliance with FEMA requirements

The Walmart Store #1559-07 Expansion is located outside the 100-year floodplain.

Impact of proposed development on off-site property and facilities

The proposed development results in the same runoff from the site. The historic drainage patterns have been maintained with this design.



V. References

1. Clark County Regional Flood Control District. *Hydrologic Criteria and Drainage Manual*. Updated August 1999.
2. Clark County Regional Flood Control District. 2008 Las Vegas Valley Flood Control Master Plan Update, 2008.
3. Dunaway Associates West, Inc. Drainage Study and Report for Wal-Mart Facility West of Nellis Blvd between Charleston Blvd and Stewart Ave. January 20, 1989.



Kimley-Horn
and Associates, Inc.

Walmart Store #1559-07 Expansion
Technical Drainage Amendment

Appendix A Figures

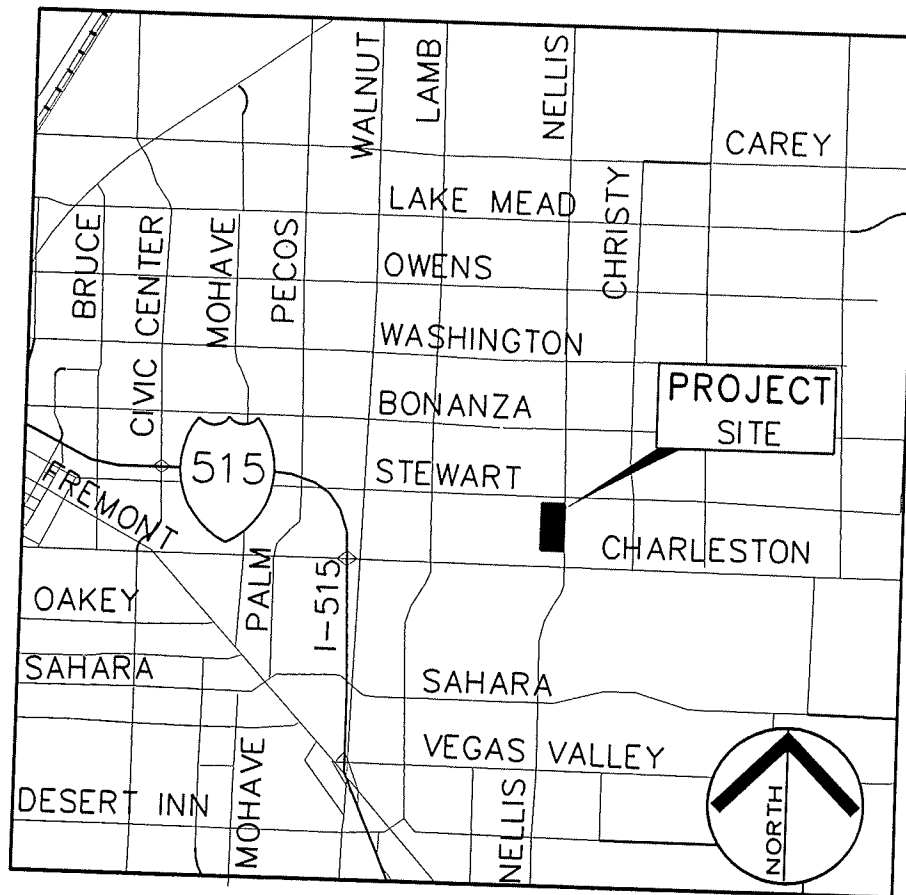
Location Map

Assessor's Parcel Maps

Effective FIRM

2008 MPU – Flood Control Facilities, Figures H-32, F-33

2008 MPU – Flood Control Facility Inventory, Figure F-33



VICINITY MAP
NTS

SITE ADDRESS: 201 N NELLIS BLVD, LAS VEGAS NEVADA



Kimley-Horn
and Associates, Inc.





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Walmart Store #1559-07 Expansion
Technical Drainage Amendment

Appendix B
Drainage Maps and Grading Plans



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Walmart Store #1559-07 Expansion
Technical Drainage Amendment

Appendix C Resources

*Drainage Study and Report for Wal-Mart Facility West of Nellis Blvd
Between Charleston Blvd and Stewart Ave dated January 20, 1989*

Prepared by Dunaway Associates West, Inc.

DRAINAGE STUDY AND REPORT

WAL-MART FACILITY

WEST OF NELLIS BLVD.

BETWEEN

CHARLESTON BLVD. & STEWART AVE.

JANUARY 20 1989

RECEIVED

FEB - 9 1990

CONSTRUCTION



DUNAWAY ASSOCIATES WEST, INC.

ENGINEERS

PLANNERS

LANDSCAPE ARCHITECTS

PHOENIX AZ

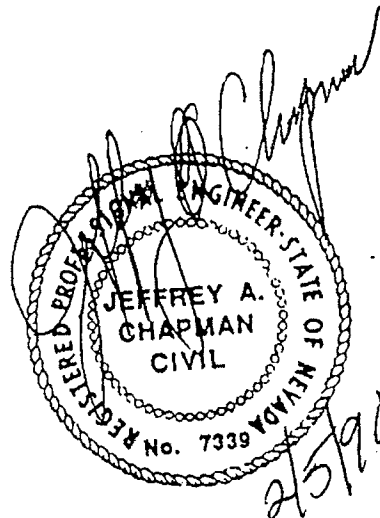
FORTWORTH TEXAS

ONTARIO CA

4500 S. Lakeshore Drive, Suite 215 • Tempe, Arizona 85282 • (602) 345-0323

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- A. INTRODUCTION
- B. EXISTING DRAINAGE PATTERNS
- C. PROPOSED REGIONAL FLOOD CONTROL IMPACT
- D. PROPOSED DRAINAGE SYSTEM
 - a. CRITERIA
 - b. RUNOFF
 - c. STREET DRAINAGE
 - d. FLOOD CHANNEL
- E. CONCLUSIONS
- F. APPENDIX
 - 1. HEC 1 CALCULATIONS
 - 2. CHANNEL CALCULATIONS
 - 3. MAPS



A. INTRODUCTION:

THE SHOPPING CENTER IS LOCATED ON THE WEST SIDE OF NELLIS, BETWEEN STEWART AND CHARLESTON AND CONSISTS OF APPROXIMATELY 33 ACRES. THE TOTAL PROJECT SITE HAS PHYSICAL DIMENSIONS OF 2700 FEET IN THE NORTH-SOUTH DIRECTION AND 600 FEET IN THE EAST-WEST DIRECTION. AS SHOWN ON THE VICINTIY MAP THE PROJECT IS LOCATED WITHIN A PORTION OF THE SE 1/4 OF SECTION 32, T20S, R62E, M.D.M. CITY OF LAS VEGAS, CLARK COUNTY, NEVADA.

THE GENERAL TOPOGRAPHY OF THE PROJECT SITE SLOPES UNIFORMLY FROM THE NORTHEAST CORNER OF THE PROPERTY, ELEVATION 1750 USGS TO THE SOUTHEAST CORNER, ELEVATION 1738 USGS. THE SITE IS PRESENTLY BARREN OF GRASSES AND IS COVERED, IN THE CENTRAL PORTION BY A SIGNIFICANT QUANTITY OF 6 TO 8 FOOT TALL DESERT BRUSH.

THE PRINCIPAL FEATURES CONTROLLING THE FLOOD HYDROGRAPH FOR THE SITE ARE THE LAS VEGAS WASH, ON THE WESTERN BOUNDARY, AND NELLIS BOULEVARD ON THE EAST.

B. EXISTING DRAINAGE PATTERNS:

THE LAS VEGAS WASH FLOWS ALONG THE WESTERN BOUNDARY OF THE PROJECT SITE AS INDICATED ON THE CITY OF LAS VEGAS FEDERAL EMERGENCY MANAGEMENT AGENCY MAPS (FEMA), AS REVISED OCTOBER 18, 1983. ON THE ATTACHED DRAWING THE MAJORITY OF THE PROJECT IS IDENTIFIED TO LIE WITHIN ZONE C (MINIMAL FLOODING) WITH SOME SMALL AREAS, NEAR THE INTERSECTION OF NELLIS AND CHARLESTON LYING IN ZONES B AND A.

SINCE THE WESTERN BOUNDARY OF THE PROJECT SITE LIES IMMEDIATELY ADJACENT TO THE LAS VEGAS WASH, THE 100 YEAR FLOOD ELEVATION WAS ESTIMATED AND FOUND TO LIE BELOW THE EXISTING EAST BANK ELEVATIONS FOR THE EXISTING STREAM CONDITIONS.

THE RESULTS OF THE "FLOOD INSURANCE STUDY" FOR CLARK COUNTY, NEVADA, DATED AUGUST 1986 INDICATES THAT THE LAS VEGAS WASH CAN EXPECT TO ENCOUNTER A 100 YEAR, 3 HOUR STORM EVENT, PEAK RATE FLOW IN THE MAGNITUDE OF 5140 CFS UPSTREAM OF THE CONFLUENCE WITH FLAMINGO WASH. THIS 5140 CFS "FLOOD INSURANCE STUDY" VALUE WAS USED FOR ANALYSIS IN THIS STUDY.

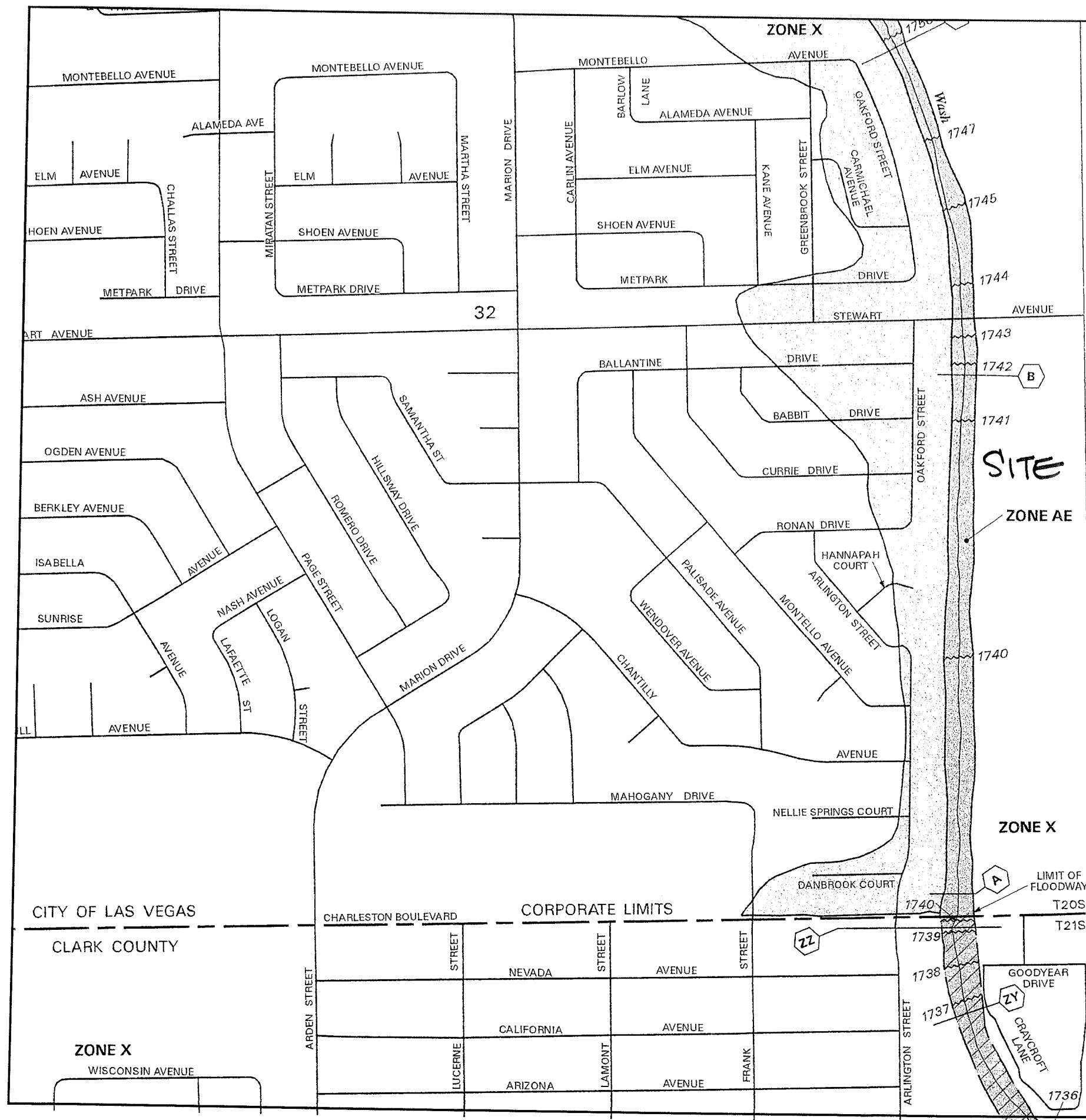
C. PROPOSED REGIONAL FLOOD CONTROL IMPACT

CONSTRUCTION OF THE PROPOSED PHASE 2 FLOOD CONTROL FACILITIES, BY THE CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT, NEAR THE PROJECT SITE, INCLUDES IMPROVING THE EXISTING LAS VEGAS WASH TO AN 85 FOOT WIDE BY 10 FOOT DEEP CONCRETE LINED CHANNEL AND THE INSTALLATION OF A 84 INCH DIAMETER REINFORCED CONCRETE PIPE STORM DRAIN ON NELLIS BOULEVARD, ADJACENT TO THE PROJECT SITE. IMPROVEMENTS TO LAS VEGAS WASH ARE NOT EXPECTED TO SIGNIFICANTLY IMPROVE DRAINAGE IN LAS VEGAS WASH. FEMA'S FLOW VALUE IS ROUGHLY EQUIVALENT TO THE MASTER PLANS PROJECTED VALUE WITH ALL PROPOSED FACILITIES COMPLETE. THE STORM DRAIN ON NELLIS BOULEVARD IS ANTICIPATED TO HANDLE ALL RUNOFF IN THE VICINITY OF THE PROJECT.

D. PROPOSED DRAINAGE SYSTEM:

SITE VISITS AND TOPOGRAPHIC MAPS OF THE SURROUNDING AREA CONFIRM THAT THERE ARE NO OFF-SITE DRAINAGE AREAS CONTRIBUTING TO THE PROJECT SITE, SINCE ALL FLOWS FROM THE NORTH WILL BE INTERCEPTED BY STEWART AVENUE AND ALL POTENTIAL FLOWS FROM THE EAST ARE CUT OFF BY NELLIS BOULEVARD.

THE METHODOLOGY DEVELOPED BY THE U.S. CORPS OF ENGINEERS (HEC-1 FLOOD HYDROGRAPH PACKAGE) WAS SELECTED TO COMPUTE PEAK STORM WATER FLOWS FOR THIS PROJECT.



MAP SCALE 1" = 500'



PANEL 2187 E

FIRM FLOOD INSURANCE RATE MAP CLARK COUNTY, NEVADA AND INCORPORATED AREAS

PANEL 2187 OF 4090

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
LAS VEGAS, CITY OF	325276	2187	E
CLARK COUNTY, UNINCORPORATED AREAS	320006	2187	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.



MAP NUMBER
32003C2187 E

MAP REVISED:
SEPTEMBER 27, 2002

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



2008
LAS VEGAS VALLEY
FLOOD CONTROL
MASTER PLAN UPDATE
FIGURE H-32
HYDROLOGIC SUMMARY

LEGEND

- Ultimate Development Boundary
- Watershed Boundary
- Subbasin Boundary
- Drought Ordinance Boundary
- Flow Arrows

Flood Control Facilities

- Existing Facilities
- Category A Proposed Facilities
- Category B Proposed Facilities
- Category A Remove & Replace/
Parallel Facilities
- Category B Remove & Replace/
Parallel Facilities

Type Hydrologic Soil Groups

- A Low Runoff Potential
- B Moderately Low Runoff Potential
- C Moderately High Runoff Potential
- D High Runoff Potential/Rock Outcrops

Typical Land Use

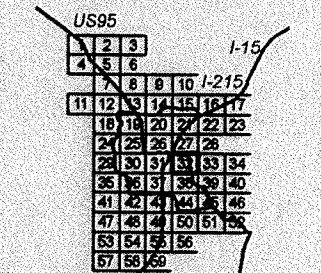
- 1 Undeveloped Land, Open Desert
- 2 Parks, Golf Courses
- 3 Rural
- 4 / 14* Low Density Residential
- 5 / 15* Medium Density Residential
- 6 / 16* High Density Residential
- 7 / 17* Public Facility, Residential
- 8 / 18* Very High Density Residential
- 9 / 19* Commercial, Retail, Casino, High Rise Condominiums
- 10 / 20* Light Industrial
- 11 / 21* Heavy Industrial
- 12 / 22* Schools
- 13 Lakes

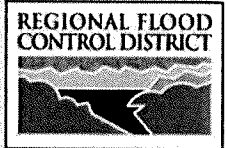
* Drought Ordinance Applied

0 500 1,000 2,000 3,000
Feet

Scale: 1 inch = 2,000 feet

Refer to Figure G-2 for Aerial Source(s)



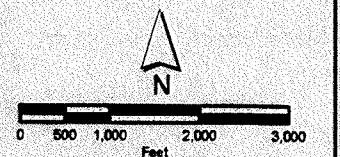


2008
LAS VEGAS VALLEY
FLOOD CONTROL
MASTER PLAN UPDATE

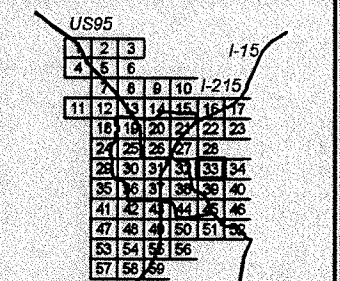
**FIGURE F-33
FLOOD CONTROL FACILITIES**

LEGEND

- Ultimate Development Boundary
- Existing Facilities
- Category A Proposed Facilities
- Category B Proposed Facilities
- Local Existing Facilities
- Local Proposed Facilities
- Detention Basin
- Culvert or Bridge Crossing
- 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 |
| Crossing | Crossing |

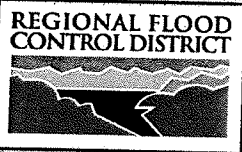


Scale: 1 inch = 2,000 feet
Refer to Figure G-2 for Aerial Source(s)



ID / River Mile	Status	Facility Description	Length (ft.)	Flow (cfs)	HEC-1 Node	HEC-1 Model	Tributary Area (sq.mil.)	Channel Slope (%)**
CACH 0000	E	CEDAR AVENUE CHANNEL Conc Chnl 10W 8'D 1.5:1 SS	1681	1544	CCA10-C	SW3	1.81	0.20
FLWA 0000	E	FLAMINGO WASH Grass Chnl 107'W 5'D 2:1 SS (Replace w/ FLWA0001)	4570	10952	CFW36*	FLAM5B	36.14	0.40
0001	P1	Conc Chnl 100'W 7.5'D 1:1 SS (Replaces FLWA0000)	4570	10952	CFW36*	FLAM5B	36.14	0.40
0078	E	3 Span Bridge 108.26'W 5.5'D @ Nellis	120	10952	CFW36	FLAM5B	36.14	0.70
0079	E	Earth Chnl 50'W 12'D 1:1 SS (Replace w/ FLWA0080)	5080	10952	CFW36	FLAM5B	36.14	1.20
0080	P1	Conc Chnl 50'W 8.5'D 1:1 SS (Replaces FLWA0079)	5080	10952	CFW36	FLAM5B	36.14	1.20
LVCA 0000	P1	LAS VEGAS WASH - CHARLESTON 12' X 9' RCB	4600	1104	CCH77-C	SW3	1.34	0.30
LVCH 0000	P1	RANGE WASH - CHRISTY LATERAL 12' X 9' RCB	5940	1093	2C326B3	RW3	2.09	0.33
0114	P1	10' X 7' RCB	2600	849	C324-5	RW3	1.62	0.58
LVCO 0000	E	COLORADO AVENUE SYSTEM 18' X 8' RCB	610	1015	CNEL06	SW3	1.39	0.24
0012	E	14' X 8' RCB	2560	1015	CNEL06	SW3	1.30	0.24
LVMD 0675	E	LAS VEGAS WASH - MIDDLE Earth/Riprap/Gabion Chnl 160'W 14'D 3:1 SS	3830	21656	CFLWA*	LVWSC2	104.90	0.20
0750	E	Earth/Riprap/Soil Cement 170'W 13'D 3:1 SS	1470	21656	CFLWA*	LVWSC2	104.90	0.21
0751	P0	Riprap Levee (West) 5'	1470	21656	CFLWA*	LVWSC2	104.90	0.14
0777	E	Earth Chnl 170'W 13'D 3:1 SS (Replace w/ LVMD0778)	2565	21656	CFLWA*	LVWSC2	104.90	0.21
0778	P2	Riprap/Soil Cem Chnl 170'W 13'D 3:1 SS (Replaces LVMD0777)	2565	21656	CFLWA*	LVWSC2	104.90	0.21
0779	E	Riprap Levee (West) 5'	2565	21656	CFLWA*	LVWSC2	104.90	0.14
0780	P0	Riprap Levee (East) 5'	2565	21656	CFLWA*	LVWSC2	104.90	0.14
0819	E	Conc Chnl 120'W 13.3'D 3:1 SS	390	21656	CFLWA*	LVWSC2	104.90	0.14
0826	E	10' 12' X 10' RCBC @ Vegas Valley	90	21656	CFLWA*	LVWSC2	104.90	0.10
0827	E	Conc Chnl 120'W 10'D 3:1 SS	1290	21656	CFLWA*	LVWSC2	104.90	0.40
0872	E	Bank Slab, Chnl 100'W 10'D 3:1 SS (Replace w/ LVMD0873)	550	21656	CFLWA	LVWSC2	104.90	0.40
0873	P1	Conc Chnl 120'W 10'D 3:1 SS (Replaces LVMD0872)	550	21656	CFLWA	LVWSC2	104.90	0.40
0882	E	Bank Slab, Chnl 80'W 10'D 2:1 SS (Replace w/ LVMD0883)	1120	21656	CFLWA	LVWSC2	104.90	0.40
0883	P1	Conc Chnl 120'W 10'D 2:1 SS (Replaces LVMD0882)	1120	21656	CFLWA	LVWSC2	104.90	0.40
0908	E	Reinforced Grass Chnl 120'W 12.5'D 2:1 SS	490	21656	CFLWA	LVWSC2	104.90	0.40
0910	E	Bridge 60'W 12'D (Replace w/ LVMD0911)	20	21656	CFLWA	LVWSC2	104.90	0.40
0911	P1	Bridge 120'W 12'D with Conc Bottom (Replaces LVMD0910)	20	21656	CFLWA	LVWSC2	104.90	0.40
0912	E	Reinforced Grass Chnl 120'W 12.5'D 2:1 SS	460	21656	CFLWA	LVWSC2	104.90	0.40
0915	E	Earth Chnl 40'W 6-10'D 1:1 SS (Replace w/ LVMD0916)	1180	15460	CFW37	CLVWASH5	123.76	0.50
0916	P1	Conc Chnl 120'W 8'D 0:1 SS (Replaces LVMD0915)	1180	15460	CFW37	CLVWASH5	123.76	0.50
0922	E	Bridge 50'W 5'D @ Desert Rose CC (Replace w/ LVMD0923)	20	15460	CFW37	CLVWASH5	123.76	0.50
0923	P1	Bridge 250'W 6'D with Conc Bottom (Replaces LVMD0922)	20	15460	CFW37	CLVWASH5	123.76	0.50
0924	E	Grass Chnl 400'W 4-6'D 1:1 SS (Replace w/ LVMD0925)	1085	15460	CFW37	CLVWASH5	123.76	0.50
0925	P1	Conc Chnl 120'W 8'D 0:1 SS (Replaces LVMD0924)	1085	15460	CFW37	CLVWASH5	123.76	0.50
0947	E	3 Span Bridge 130'W 5'D @ Sahara (Replace w/ LVMD0948)	100	15438	CLVCH	CLVWASH5	120.37	0.50
0948	P1	Bridge 250'W 6'D with Conc Bottom (Replaces LVMD0947)	100	15438	CLVCH	CLVWASH5	120.37	0.50
0949	E	Grass Chnl 400'W 4-6'D 1:1 SS (Replace w/ LVMD0950)	2300	15438	CLVCH	CLVWASH5	120.37	0.50
0950	P1	Conc Chnl 75'W 10'D 1:1 SS (Replaces LVMD0949)	2300	15438	CLVCH	CLVWASH5	120.37	0.50
0973	E	Grass Chnl 400'W 4-6'D 1:1 SS (Replace w/ LVMD0974)	1800	15156	CNLWY	CLVWASH5	118.28	0.30
0974	P1	Conc Chnl 75'W 11'D 1:1 SS (Replaces LVMD0973)	1800	15156	CNLWY	CLVWASH5	118.28	0.30
1030	E	Free Span Bridge 50'W 10'-12'D (Replace w/ LVMD1031)	100	15156	CNLWY	CLVWASH5	118.28	0.30
1031	P1	Bridge 75'W 11'D with Conc Bottom (Replaces LVMD1030)	100	15156	CNLWY	CLVWASH5	118.28	0.30
1032	E	Earth Chnl 75'W 10'-12'D 1:1 SS (Replace w/ LVMD1033)	715	15156	CNLWY	CLVWASH5	118.28	0.30
1033	P1	Conc Chnl 75'W 11'D 1:1 SS (Replaces LVMD1032)	739	15156	CNLWY	CLVWASH5	118.28	0.30
1045	E	5 Span Bridge 75'W 10'D 1:1 SS (Replace w/ LVMD1046)	120	15156	CNLWY	CLVWASH5	118.28	0.52
1046	P1	Bridge 75'W 9.5'D 1:1 SS @ Nellis (Replaces LVMD1045)	120	15156	CNLWY	CLVWASH5	118.28	0.52
1047	E	Earth Chnl 80'W 8'D 2:1 SS (Replace w/ LVMD1048)	340	15083	CCNEL06	CLVWASH5	117.81	0.50
1048	P1	Conc Chnl 120'W 8'D 0:1 SS (Replaces LVMD1047)	340	15083	CCNEL06	CLVWASH5	117.81	0.50
1053	E	Earth Chnl 80'W 8'D 2:1 SS (Replace w/ LVMD1054)	860	14811	CNEL04-2	CLVWASH5	116.51	0.50
1054	P1	Conc Chnl 120'W 8'D 0:1 SS (Replaces LVMD1053)	860	14811	CNEL04-2	CLVWASH5	116.51	0.50
1068	E	5 Span Bridge 90'W 8'D 2:1 SS (Replace w/ LVMD1069)	120	14438	CCST03-C	CLVWASH5	114.87	0.50
1069	P1	5 Span Bridge 110'W 8'D 2:1 SS (Replaces LVMD1068)	120	14438	CCST03-C	CLVWASH5	114.87	0.50
1070	E	Earth Chnl 90'W 10'-12'D 1.5:1 SS (Replace w/ LVMD1071)	2587	14438	CCST03-C	CLVWASH5	114.87	0.43
1071	P1	Conc Chnl 90'W 9'D 1.5:1 SS (Replaces LVMD1070)	2587	14438	CCST03-C	CLVWASH5	114.87	0.43
LVMD 1119	E	LAS VEGAS WASH - MIDDLE 5 Span Bridge 90'W 12'D 2:1 SS @ Stewart	120	14354	CCCA10-C	CLVWASH5	114.40	0.20
1120	E	Earth Chnl 90'W 12'D 1:1 SS (Replace w/ LVMD1121)	1400	14354	CCCA10-C	CLVWASH5	114.40	0.20
1121	P1	Conc Chnl 90'W 10.5'D 1:1 SS (Replaces LVMD1120)	1400	14354	CCCA10-C	CLVWASH5	114.40	0.20
1148	E	Earth Chnl 70'W 18'-20'D 1.5:1 SS (Replace w/ LVMD1149)	1675	13944	CCBN15-C	CLVWASH5	112.59	0.41
1149	P1	Conc Chnl 70'W 10'D 1.5:1 SS (Replaces LVMD1148)	1675	13944	CCBN15-C	CLVWASH5	112.59	0.41
LVNE 0000	P1	LAS VEGAS WASH - NELLIS 2' 13' X 10' RCB	4675	2303	CNEL02-C	WEST3	3.39	0.20
NLF1 0028	P0	NELLIS FLAMINGO STORM DRAIN Add 1' 7' X 6' RCB	1530	338*	CM3*	FLAM3A	1.27	0.39
0029	E	76' & 48' RCP	1530	391*	CM3*	FLAM3A	1.27	0.39
0059	E	60' RCP	1370	143*	CM3*	FLAM3A	1.27	0.30
0060	P0	Add 1' 12' X 6' RCB	1370	586*	CM3*	FLAM3A	1.27	0.34
0084	E	48' RCP	2490	79*	CM2*	FLAM3A	0.88	0.30
0085	P0	Add 1' 11' X 6' RCB	2490	505*	CM2*	FLAM3A	0.88	0.30
0131	E	42' RCP	650	350	M1	FLAM3A	0.51	0.23
0144	E	36' RCP	620	350	M1	FLAM3A	0.51	0.20
NLWY 0000	E	NELLIS - WYOMING CHANNEL Conc Chnl 6'W 4'D 1.3:1 SS	260	338	FW35	FLAM3A	0.47	1.71
0004	E	15' X 6' RCAC	80	338	FW35	FLAM3A	0.47	1.30
0006	E	Conc Chnl 6'W 4'D 1.3:1 SS	400	338	FW35	FLAM3A	0.47	0.38
0014	E	12' X 4' RCBC @ Winterwood	70	338	FW35	FLAM3A	0.47	0.40
0015	E	Conc Chnl 8'W 4'D 1.3:1 SS	720	338	FW35	FLAM3A	0.47	0.38
0028	E	12' X 4' RCBC @ Wyoming	90	338	FW35	FLAM3A	0.47	0.80
0030	E	Conc Chnl 8'W 4'D 1.3:1 SS	250	338	FW35	FLAM3A	0.47	0.38
RWSL 0000	E	RANGE WASH - SLOAN Conc Chnl 60'W 6.5'D 2:1 SS	2010	4753	C52A	SLOAN4	10.71	0.46
0038	E	3 Span Bridge 60'W 7'D 2:1 SS @ Sahara	90	4539	C140R	SLOAN4	9.94	0.32
0040	E	Conc Chnl 60'W 5.75'D 2:1 SS	870	4539	C140R	SLOAN4	9.94	0.53
0056	E	Confluence Structure	190	4445	2C120R	SLOAN4	9.63	0.38
0063	E	Conc Chnl 60'W 5'-8.5'D 2:1 SS	4237	4307	C326A*	SLOAN3	7.56	0.38
0134	E	3 Span Bridge 60'W 7'D 1:1 SS @ Charleston Blvd	100	4307	C326A	SLOAN3	7.56	0.79
0135	E	Conc Chnl 60'W 5'D 2:1 SS	2800	4307	C326A	SLOAN3	7.56	0.39
0188	E	8' 10' X 3.5' RCBC @ Stewart	100	3710	C324-1	SLOAN3	6.14	0.32
0189	E	Conc Chnl 60'W 6'D 2:1 SS	2590	3710	C324-1	SLOAN3	6.14	0.32
0238	E	5' 10' X 5' RCBC @ Bonanza	100	3221	C324-2	SLOAN3	5.36	0.58
0239	E	Conc Chnl 60'W 6'D 2:1 SS	2690	3221	C324-2	SLOAN3	5.36	0.19
SLBN 0000	E	BONANZA ROAD CONVEYANCE 72' RCP	5400	615	C50B1	RW3	0.56	1.85
SLCH 0000	E	CHARLESTON BLVD CONVEYANCE 2'-54" RCP	2700	392	3OR	RW3	0.56	0.74
SLOR 0000	E	ORCHARD AREA CONVEYANCE / DETENTION Conc Chnl 25'W 5.5'D 2:1 SS	1100	794	C120R	RW3	3.00	0.68
0021	E	4' 10' X 5' RCBC @ Orchard Valley Drive	100	630	2C150R	RW3	2.67	0.70
0022	E	Conc Chnl 25'W 5.5'D 2:1 SS	1750	630	2C150R	RW3	2.67	0.68
0053	E	66' RCP	1800	630	2C150R	RW3	2.67	1.56
0087	E	84' RCP	780	384	C50RB	RW3	2.18	1.80
0102	E	14' X 4' RCBC @ Hollywood Blvd	90	184	ORCHOT	RW3	1.80	2.22
0104	P1	54' RCP	1115	184	ORCHOT	RW3	1.80	2.24
0125	E	14.5' X 5' RCAP	670	184	ORCHOT	RW3	1.80	1.50
0144	P3	14,992 cfs PMF Spillway		14992	ORCHIN	RW3	1.80	
0145	P3	60' RCP Outlet	500	184	ORCHOT	RW3	1.80	2.69
0146	P3	142 ac-ft Orchard Detention Basin		2201	ORCHIN	RW3	1.80	
0147	P3	Soil Cement Levee (South) 5'	1120	1136	C70R	RW3	1.05	2.52
0148	P3	Soil Cement Levee (North) 7'	6820	1080	C50R	RW3	0.75	4.42
SLST 0000	E	STEWART AVENUE CONVEYANCE 2' 4' X 3' RCB (Replace w/ SLST0001)	2320	580	C20R1	RW3	0.92	0.72
0001	P1	8' X 6' RCB (Replaces SLST0000)	2320	580	C20R1	RW3	0.92	0.72
0045	E	5' X 3' RCB (Replace w/ SLST0046)	2627	580	C20R1	RW3	0.92	1.63
0046	P1	7' X 5' RCB (Replaces SLST0045)	2627	580	C20R1	RW3	0.92	1.63
0095	E	4' X 3' RCB (Replace w/ SLST0096)	650	408	20R-2	RW3	0.41	2.92
SLST 0096	P1	STEWART AVENUE CONVEYANCE 7' X 4' RCB (Replaces SLST0095)	650	408	20R-2	RW3	0.41	2.92
0104	P1	6' X 6' RCB	1700	408	20R-2	RW3	0.41	1.00

* The HEC-1 node shown identifies the controlling concentration point for the associated facility and is located upstream of this facility due to decreasing peak flow with increasing tributary area caused by storm distribution transitions, depth area reduction factors, or attenuation of flow from routing.
** As-built or design slopes were used when available. All other slopes are based on existing topography. The user should verify the facility slope listed prior to performing any facility specific analysis.
* For parallel facilities, the existing facility flow equals its normal depth capacity, and the proposed parallel facility flow equals the remaining flow (i.e., HEC-1 Node flow - existing facility normal depth capacity + proposed parallel facility flow).



2008 LAS VEGAS VALLEY
FLOOD CONTROL
MASTER PLAN UPDATE
FACILITY INVENTORY
FIGURE F-33

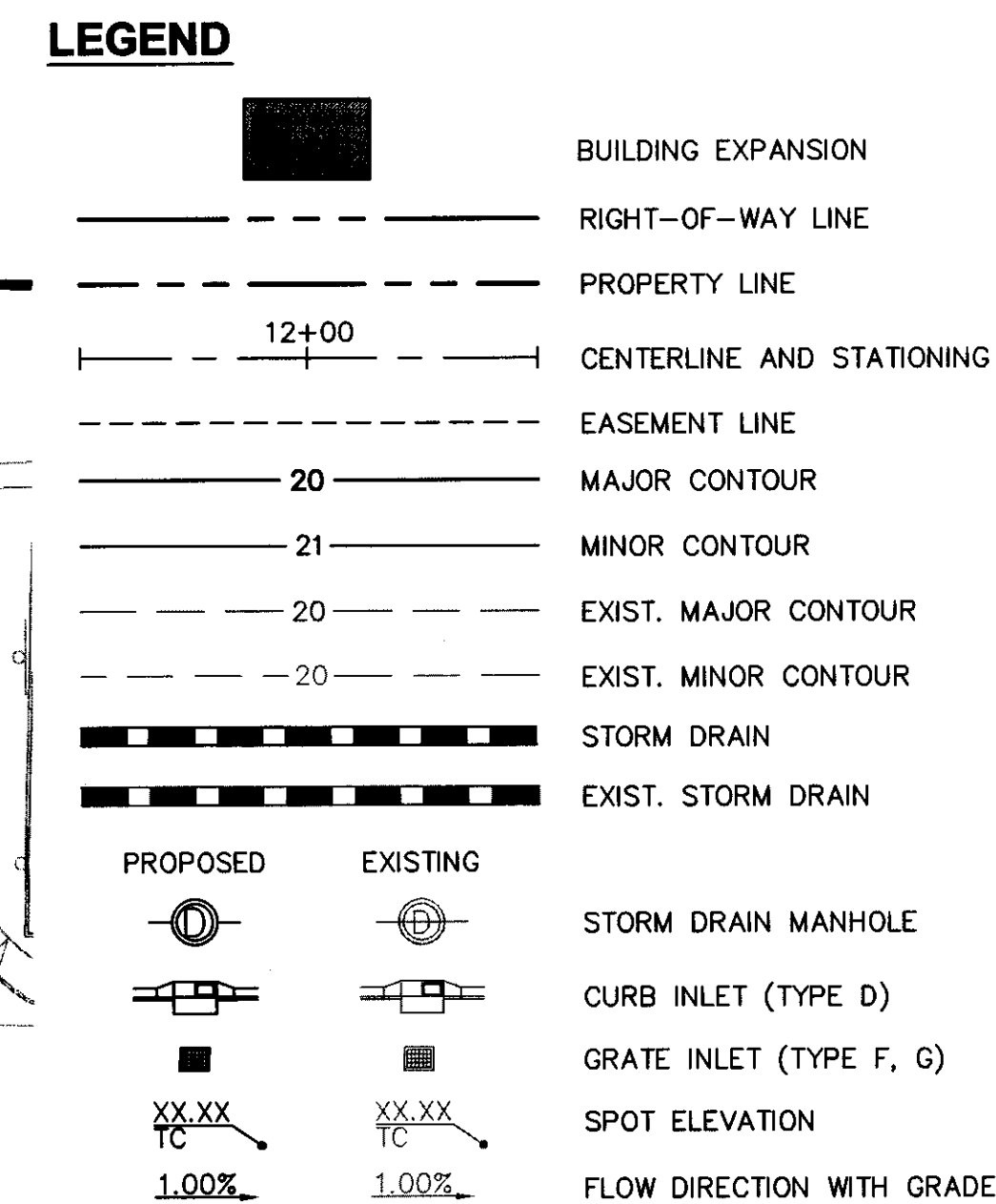
LEGEND	ID (Facility Identifier)	AABB
	Parent Stream Name	
	Stream Name	
	River Mile	0000
	Distance Above Confluence with Parent Stream (Miles)	
	Miles in Hundredths	

Existing Facility..... E	Bottom Width..... W
Proposed or Modified Facility..... P	Depth..... D
Contingency Level	Side Slope, H:V..... SS
Category B..... P0	
Master Plan..... P1	
Preliminary Design..... P2	
Design..... P3	

Construction Features	
Cast in Place Concrete Pipe..... CIPCP	Reinforced Concrete Arch Culvert..... RCAC
Corrugated Metal Arch Pipe Culvert..... CMAP	Reinforced Concrete Box..... RCB
Corrugated Metal Pipe Culvert..... CMPC	Reinforced Concrete Box Culvert..... RCBC
High Density Polyethylene..... HDPE	Reinforced Concrete Pipe..... RCP
Horizontal Elliptical Reinforced Concrete Pipe..... HERCP	Reinforced Concrete Pipe Culvert..... RCP
Reinforced Concrete Arch Pipe..... RCAP	Storm Sewer Pipe..... SSP



PHX_Civil_9150217f_CADD\Improvement Plans\9150217f.dwg, Layout:09150217fGD-02 Jan 09, 2012 - 3:10pm henry.veldaz



1. MATCH EXISTING GRADE
2. MATCH PAVEMENT GRADE TO EXISTING VALLEY GUTTER
3. PROTECT IN PLACE EXISTING WALL OPENING
4. PROTECT IN PLACE EXISTING VALLEY GUTTER
5. 1.5' CURB OPENING
6. CURB TRANSITION FROM 6" TO 0". REFER TO ARCHITECTURAL PLANS FOR DETAILS
7. MAX SLOPE 2% IN ALL DIRECTIONS IN ADA ACCESSIBLE AREAS
8. 13" RCP STORM DRAIN. LENGTH AND SLOPE PER PLAN
9. STUB AND CAP STORM DRAIN. REFER TO ARCHITECTURAL PLANS FOR CONTINUATION
10. CONNECT STORM DRAIN TO EXISTING DROP INLET
11. MAINTAIN EXISTING PAVEMENT DRAINAGE PATTERN. SEE PAVING PLAN FOR PAVEMENT SECTION DETAILS

THE BASIS OF BEARING PER HORIZON SURVEYS IS SOUTH 01°11'08" WEST, BEING THE BEARING OF THE EAST LINE OF THE SOUTHEAST QUARTER (SE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 32, TOWNSHIP 20 SOUTH, RANGE 62 EAST, M.D.M., AS SHOWN IN FILE 36, PAGE 26 OF PARCEL MAPS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

THE BENCHMARKS PER HORIZON SURVEYS ARE:

1. CLARK COUNTY VERTICAL CONTROL #60 - STATION 6C02 33SW6

RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB,
NORTHEAST CORNER OF NELLIS BOULEVARD AND BELLPORT DRIVE.
AP, NEAR THE PC OF NELLIS BOULEVARD.

ELEVATION = 1744.90 (FEET)
531.848 (METERS)

NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88)

2. CLARK COUNTY VERTICAL CONTROL #60 - STATION 6C02 33W4

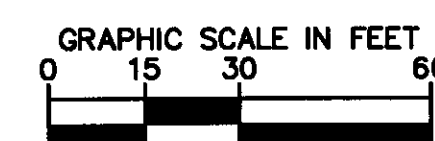
2" BRASS CAP REFERENCE MONUMENT ON TOP OF CURB, NORTHEAST
CORNER OF NELLIS BOULEVARD AND STEWART AVENUE. NEAR THE P
OF NELLIS BOULEVARD.

ELEVATION = 1744.90 (FEET)
531.848 (METERS)

NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88)

ELEVATION = 1750.92 (FEET)
533.682 (METERS)

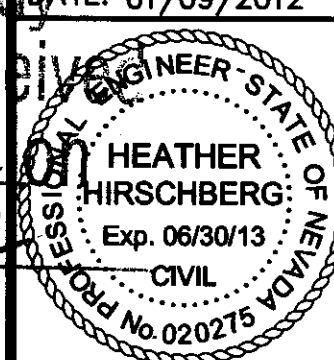
NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88)



PIN NUMBER	6 DIGIT NUMBER	4 DIGIT NUMBER

UnderGround
1-702-455-7511
CLARK COUNTY TRAFFIC OPERATIONS AND
1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

This grading plan is part of drainage study which was rec on 1/12 and App'd 2/12. Page 2 of 2



C1.2

LAS VEGAS (NE) – NELLIS AND STEWART

GRADING AND DRAINAGE PLAN

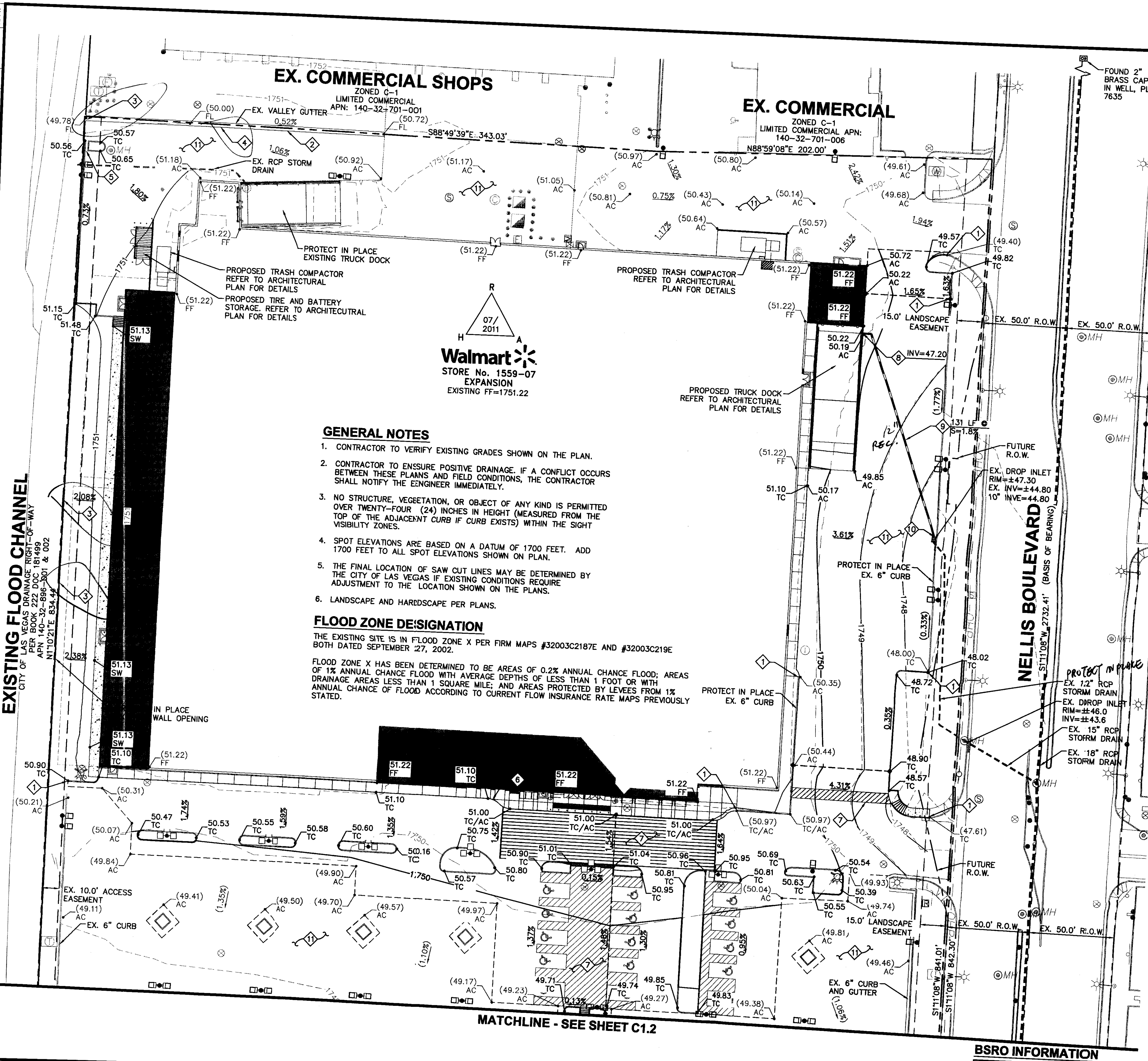
LAS VEGAS, NEVADA

Walmart*
PROTOTYPE
STORE No. 1559-07

**Kimley-Horn
and Associates, Inc.** © 2012

7878 North 16th Street, Suite 300
Phoenix, Arizona 85020 (602) 944-5500

BY DATE APPR
REV DESCRIPTION
K:\PHX\Civil\91502117\CD\Improvement Plans\9150211702.dwg, Layout:9150211702-01 Jan 09, 2012 - 3:09pm henry.valdez
XREFS: x91502117B x502217F xGrading Notes 9150211702.dwg
OF AND IMPROPER RELIANCE ON THE INFORMATION CONTAINED HEREIN, AS AN INSTRUMENT OF SERVICE, SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.



LEGEND

[Symbol]	BUILDING EXPANSION
[Symbol]	RIGHT-OF-WAY LINE
[Symbol]	PROPERTY LINE
[Symbol]	CENTERLINE AND STATIONING
[Symbol]	EASEMENT LINE
[Symbol]	MAJOR CONTOUR
[Symbol]	MINOR CONTOUR
[Symbol]	EXIST. MAJOR CONTOUR
[Symbol]	EXIST. MINOR CONTOUR
[Symbol]	STORM DRAIN
[Symbol]	EXIST. STORM DRAIN
[Symbol]	STORM DRAIN MANHOLE
[Symbol]	CURB INLET (TYPE D)
[Symbol]	GRATE INLET (TYPE F, G)
[Symbol]	SPOT ELEVATION
[Symbol]	FLOW DIRECTION WITH GRADE

CONSTRUCTION NOTES

1. MATCH EXISTING GRADE
2. MATCH PAVEMENT GRADE TO EXISTING VALLEY GUTTER
3. PROTECT IN PLACE EXISTING WALL OPENING
4. PROTECT IN PLACE EXISTING VALLEY GUTTER
5. 1.5' CURB OPENING
6. CURB TRANSITION FROM 6" TO 0". REFER TO ARCHITECTURAL PLANS FOR DETAILS
7. MAX SLOPE 2% IN ALL DIRECTIONS IN ADA ACCESSIBLE AREAS
8. 1/4" RCP STORM DRAIN. LENGTH AND SLOPE PER PLAN
9. STUB AND CAP STORM DRAIN. REFER TO ARCHITECTURAL PLANS FOR CONTINUATION
10. CONNECT STORM DRAIN TO EXISTING DROP INLET
11. MAINTAIN EXISTING PAVEMENT DRAINAGE PATTERN. SEE PAVING PLAN FOR PAVEMENT SECTION DETAILS

BASIS OF BEARING

THE BASIS OF BEARING PER HORIZON SURVEYS IS SOUTH 01°11'08" WEST, BEING THE BEARING OF THE EAST LINE OF THE SOUTHEAST QUARTER (SE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 32, TOWNSHIP 20 SOUTH, RANGE 62 EAST, M.D.M., AS SHOWN IN FILE 36, PAGE 26 OF PARCEL MAPS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

THE BENCHMARKS PER HORIZON SURVEYS ARE:

1. CLARK COUNTY VERTICAL CONTROL #60 - STATION 6C02 33SW66
RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, NORTHEAST CORNER OF NELLIS BOULEVARD AND BELLPORT DRIVE, NEAR THE PC OF NELLIS BOULEVARD.
ELEVATION = 1744.90 (FEET)
531.848 (METERS)
2. CLARK COUNTY VERTICAL CONTROL #60 - STATION 6C02 33W4
2" BRASS CAP REFERENCE MONUMENT ON TOP OF CURB, NORTHEAST CORNER OF NELLIS BOULEVARD AND STEWART AVENUE, NEAR THE PC OF NELLIS BOULEVARD.
ELEVATION = 1750.92 (FEET)
533.682 (METERS)

BSRO INFORMATION

PIN NUMBER	6 DIGIT NUMBER	4 DIGIT NUMBER

Walmart
STORE No. 1559-07
EXPANSION
EXISTING FF=1751.22

Kimley-Horn and Associates, Inc.
7878 North 16th Street, Suite 300
Phoenix, Arizona 85020 (602) 944-5500

GRADING AND DRAINAGE PLAN
LAS VEGAS, NEVADA

PROJECT No.
091502117

SCALE (H): AS SHOWN
SCALE (V): AS SHOWN

DRAWN BY: HH
DESIGN BY: HDH
CHECK BY: HDH
DATE: 01/09/2012

ENGINEER
HEATHER HIRSCHBERG
Exp. 06/30/13
CIVIL
Exp. 06/30/13
09150211702.dwg

C1.1
1 OF 2 SHEETS