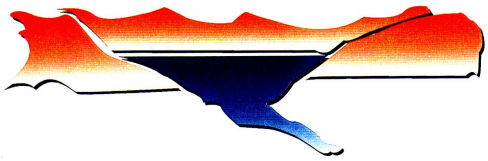
Request for
Conditional Letter of Map Revision
Lower Flamingo Detention Basin

Clark County, Nevada

Prepared for:

CLARK COUNTY
REGIONAL FLOOD CONTROL DISTRICT
500 S. Grand Central Parkway
Las Vegas, NV 89155



Prepared by:
THE Louis Berger Group, INC.
500 Amigo Court, Suite 100
Las Vegas, Nevada 89119
(702) 736-6632



June 2009

TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 PREVIOUS STUDIES AND LOMRs 7
2.1 Flamingo Wash Flood Insurance Study Restudy 7
2.1.1 Effective Hydrologic Analysis 7
2.1.2 Effective Hydraulic Analysis 7
2.2 Letters of Map Revision 9

3.0 PROPOSED HYDROLOGIC MODEL 11
3.1 100-year, 6-hour Storm Event 11
3.2 100-year, 24-hour Storm Event 14
3.3 Comparison of the HEC-1 Results for Various Storm Scenarios 15

4.0 FACILITY DESIGN AND HYDRAULIC ANALYSIS 17
4.1 Lower Flamingo Detention Basin 17
4.2 Flamingo Wash Storm Drain 21
4.3 Comparison of the Effective and Proposed BFEs 23

5.0 CONCLUSION 24

6.0 REFERENCES 25

LIST OF FIGURES

Figure 1	Vicinity Map	3
Figure 2a	FIRM Panel No. 2552	4
Figure 2b	FIRM Revised to reflect LOMR Case No.02-09-896P	5
Figure 3	Annotated FIRM Panel No. 2552	6
Figure 4	Effective FIS Work Map	8
Figure 5	Drainage Basin Map	13
Figure 6	Work Map	insert
Figure 7	LFDB Inflow and Outflow Hydrographs	19
Figure 8	LFDB Stage-Discharge Curve	21

LIST OF TABLES

Table 1	Comparison of HEC-1 Results for Various Storm Scenarios	15
Table 2	LFDB Hydrologic and Design Characteristics	18

APPENDICES

APPENDIX A Forms

- Overview & Concurrence Form – (MT-2 Form 1)
- Riverine Hydrology & Hydraulics Form – (MT-2 Form 2)
- Riverine Hydraulic Structures Form – (MT-2 Form 3)
- Statement of Explanations

APPENDIX B Hydrologic Calculations

B.1 Curve Numbers and Standard Form 4

B.2 Proposed HEC-1 Model – 100-Year, 6-Hour

APPENDIX C Hydraulic Calculations

C.1 NGVD29 to NAVD88 Conversion Calculations

C.2 Critical Depth Calculation at Spillway (Section 425)

C.3 Normal Depth Calculations – Flamingo Wash Storm Drain

C.4 LFDB Stage-Discharge Calculations

APPENDIX D Improvement Plans – Relevant Sheets

D.1 Improvement Plans for Lower Flamingo Detention Basin and Tropicana/Decatur Park– (Preliminary 100% complete)

D.2 Triple 12 foot x 10 foot Reinforced Concrete Box for Flamingo Wash Flood Control Project Phase 1

D.3 Improvement Plans for Patina Plaza at Decatur/Tropicana

D.4 Improvement Drawings for “The Home Depot” at Tropicana Avenue and Decatur Boulevard

D.5 Improvement plans for Garden Pine Motels

APPENDIX E Data CD

Flamingo Wash FIS Restudy - Effective Hydrologic and Hydraulic Data

- Work Map
- Flamingo Wash FIS Restudy - Effective HEC-1
- Flamingo Wash FIS Restudy - Effective HEC-2
- HEC-2 Cross-Section Data

Proposed Hydrologic Model –

M11_6h – 100-year, 6-hour, 8.84 square mile event

Improvement Plans – Full Sets

- Improvement Plans for Lower Flamingo Detention Basin and Tropicana/Decatur Park– (Preliminary 100% Complete)
- Triple 12 foot x 10 foot RCB for Flamingo Wash Flood Control Project Phase 1
- Patina Plaza at Decatur/Tropicana
- "The Home Depot" at Tropicana Avenue and Decatur Boulevard
- Garden Pine Motel

Flamingo Wash Cameron Street to Arville Street LOMR

1.0 INTRODUCTION

This report was prepared by The Louis Berger Group, Inc. (Berger) on behalf of the Clark County Regional Flood Control District (CCRFCD) and provides documentation in support of a Conditional Letter of Map Revision (CLOMR) for the Lower Flamingo Detention Basin (LFDB) and the Flamingo Wash storm drain between Decatur Boulevard and Cameron Street in Unincorporated Clark County, Nevada. Figure 1 shows the project site which is located in Section 24 of Township 21 South, Range 60 East, M.D.M., in Las Vegas, Nevada.

The Clark County Department of Public Works (CCPW) is proposing to construct the LFDB at the northwest corner of Tropicana Avenue and Decatur Boulevard. The detention basin is an integral part of the CCRFCD Las Vegas Valley Flood Control Facilities Master Plan Update (MPU, 2008), and its design and construction are funded by the CCRFCD. At this time, the engineering design, prepared by HDR Engineering, for CCPW is nearly complete.

In addition, a major storm drain has been constructed between Decatur Boulevard and Cameron Street. Within this reach, the Flamingo Wash flood flow is conveyed and contained entirely in the underground storm drain which is not reflected by the effective FIRM. The storm drain, constructed by private developers in association with the Patina Plaza, The Home Depot, and the Garden Pine Motel, is a CCRFCD MPU facility and maintained by CCPW.

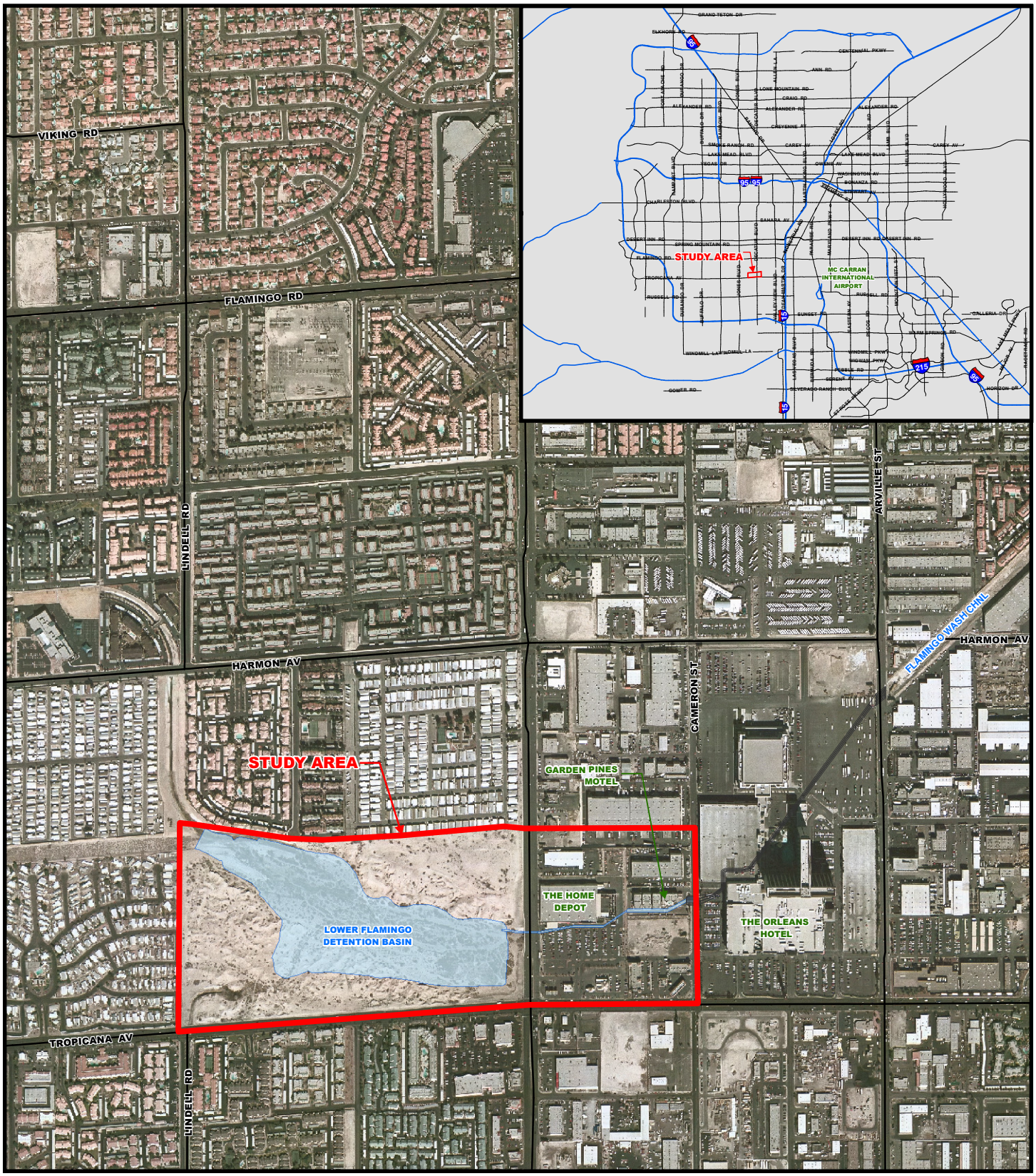
Figure 2a is a copy of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel 2552 for Clark County, Nevada and Incorporated Areas (FEMA, 2002a). This reach of the Flamingo Wash is designated by the FEMA as a Special Flood Hazard Area (SFHA) Zone A which is defined as an area subject to flooding by the 1% annual chance flood with no base flood elevation determined. Figure 3 is an annotated FIRM showing the proposed SFHA Zone A based on the completion of the LFDB project.

The purpose of this report is to request that FEMA review and evaluate the supporting documentation for the proposed LFDB and the existing Flamingo Wash storm drain and determine whether a revision to the map for the LFDB and the existing Flamingo Wash storm drain is justified. This report offers the following documentation for consideration of a map revision as described under Section 65.6 (c) of Title 44 Code of Federal Regulations:

- A general description of the LFDB and Flamingo Wash storm drain;
- Construction plans for the proposed LFDB and Flamingo Wash storm drain;
- Certification that the existing Flamingo Wash storm drain was constructed in substantial conformance with the improvement plans;
- New hydrologic analysis accounting for the affects of the LFDB as well as two facilities in the upstream watershed previously presented to FEMA under Case Nos. 06-09-BD12P and 07-09-0267P for which final determinations resulted in issuance of LOMRs;
- New hydraulic analysis for using the new flood discharge values resulting from the hydrologic analysis; and,
- Revised delineations of the flood plain boundaries including a hydraulic work map and annotated FIRM.

To facilitate the review, the following standard FEMA forms have been completed and are included in Appendix A:

- MT-2 Form 1 – Overview & Concurrence Form
- MT-2 Form 2 – Riverine Hydrology and Hydraulics Form
- MT-2 Form 3 – Riverine Structures Form
- Statement of Explanations



REGIONAL FLOOD CONTROL DISTRICT

N

(NTS)

FIGURE 1. VICINITY MAP

THE LOUIS BERGER GROUP, INC.
Las Vegas, Nevada

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevation** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevation (BFEs) shown on this map apply only landward of 0.0° North American Vertical Datum (NAVD). Users of this FIRM should be aware that coastal flood elevations may also be provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this community. Elevations shown in the Summary of Stillwater Elevations table should be used for construction, and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures in this jurisdiction.

The **projection** used in the preparation of this map is Universal Tranverse Mercator (UTM) zone 11. The **horizontal datum** is NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum.** For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242,** or visit their website at www.ngs.noaa.gov.

Base map information shown on this FIRM was provided in digital format by Clark County Regional Flood Control District. This information was converted using Orthophotography, dated 1999 or newer, and GBF/DIME data. Segments were digitized off of the orthophotography based on center of pavement.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

An accompanying Flood Insurance Study report, Letters of Map Revision or Letters of Map Amendment revising portions of this panel, and digital versions of this PANEL may be available. Contact the **FEMA Map Service Center** at the following phone numbers and Internet address for infomation on all related products available from FEMA:

Phone: 800-358-9616
FAX: 800-358-9620
www.fema.gov/msc

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA-MAP** (1-877-336-2627) or visit the FEMA website at www.fema.gov.

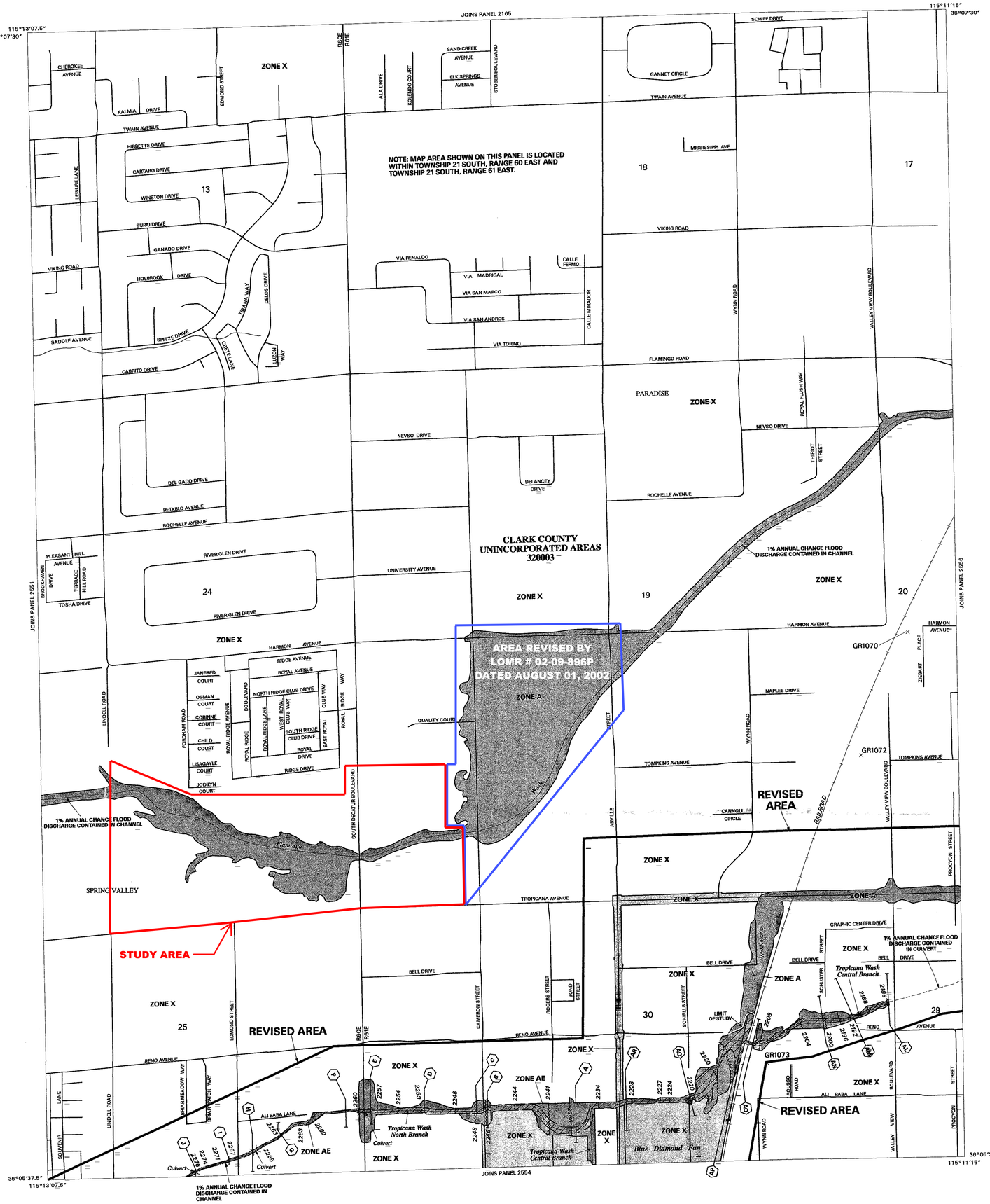
This map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report may reflect stream channel distances that differ from what is shown on this map.

This Digital Flood Insurance Rate Map (DFIRM) was produced through a unique partnership between Clark County and the Federal Emergency Management Agency (FEMA). Clark County has developed a long-term approach of floodplain management to decrease the costs associated with flooding. This is demonstrated by the Clark County commitment to share and maintain floodplain layers within their Geographic Information System Management Office (GISMO).

This DFIRM reflects several innovative features. These include:
+ Southern Nevada GIS – Cooperation among local governmental agencies throughout Clark County. The foundation of cooperation is the GIS Interlocal Agreements formed between fourteen regional participants. In part, the agreements specify that the Clark County GIS Management Office (GISMO) will be responsible for maintaining a GIS data warehouse and associated Southern Nevada GIS Metadata.

+ The GISMO's responsibilities go beyond maintaining the GIS data warehouse. GISMO also maintains the Street Centerline Database used by 911 dispatch services. This centerline database serves as the base map for this DFIRM.

DIGITAL DATA AVAILABILITY: http://www.co.clark.nv.us/ceit/gismo/gismo.htm



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood.

ZONE A No base flood elevations determined.

ZONE AE Base flood elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR Area of special flood hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood event.

ZONE A99 Area to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no base flood elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no base flood elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- Floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

- A — A — Cross Section Line
- 23 — 23 — Transect Line
- 97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 4276000M — 1000-meter Universal Transverse Mercator grid values, zone 11
- 600000 FT — 5000-foot grid ticks
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel).
- M1.5 — River Mile

MAP REPOSITORY
Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
AUGUST 16, 1995

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
September 27, 2002: to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to delete special flood hazard areas, to change zone designations, to add roads and road names, to incorporate previously issued letters of map revision, to incorporate previously issued letters of map amendment, and to change floodway.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at (800) 638-6620.

MAP SCALE 1" = 500'
250 0 500 1000 FEET
150 0 150 300 METERS

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 2552E

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

PANEL 2552 OF 4090
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CLARK COUNTY, UNINCORPORATED AREAS	320003	2552	E

REVISED TO REFLECT LOMR DATED SEP 27 2002

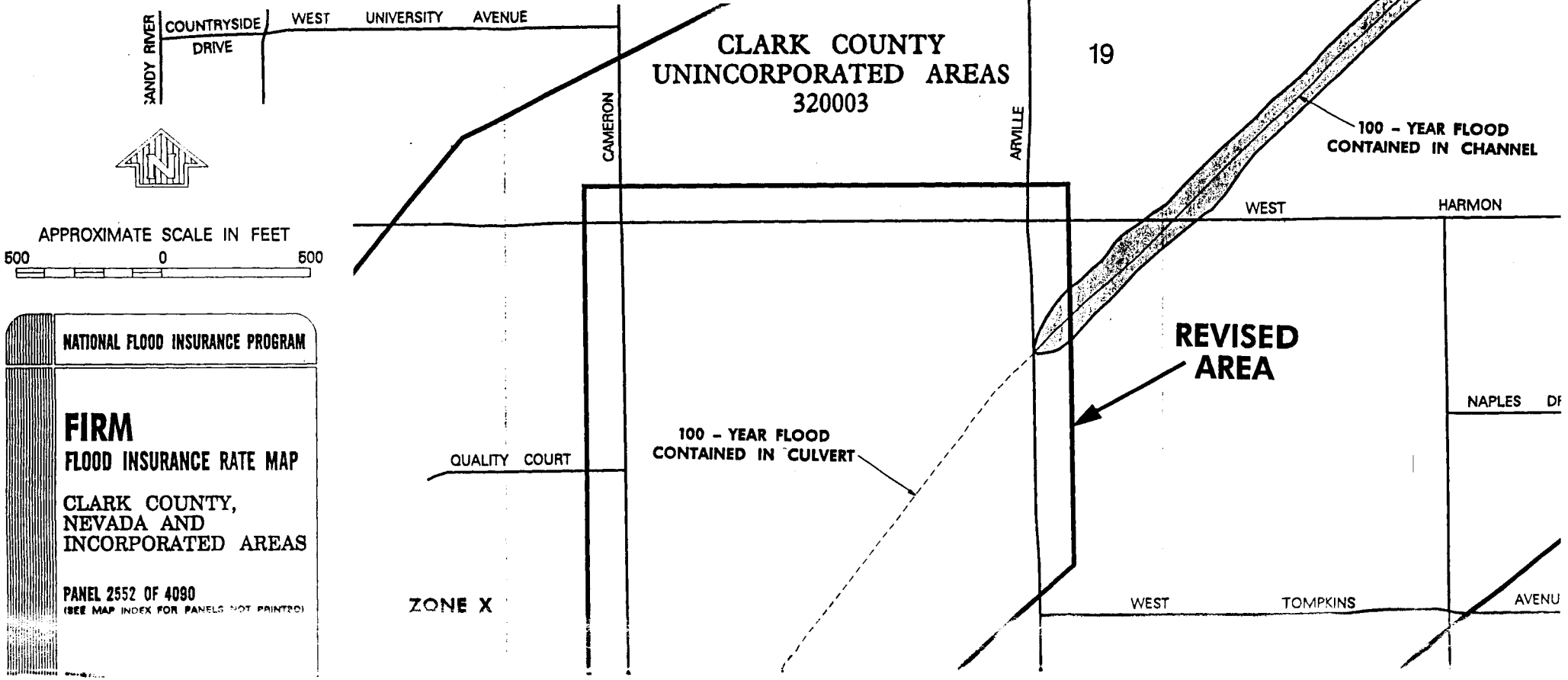
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

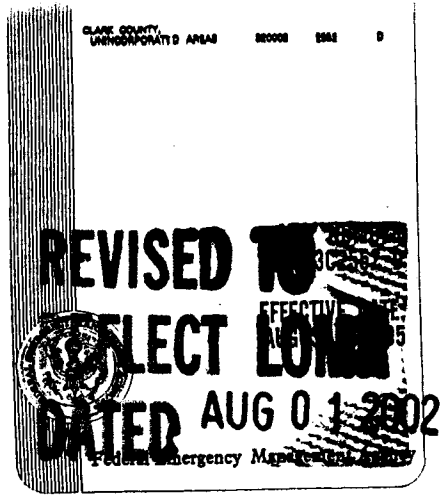
MAP NUMBER
32003C2552E

MAP REVISED:
SEPTEMBER 27, 2002

Federal Emergency Management Agency

FIGURE 2a


CLARK COUNTY
UNINCORPORATED AREAS
320003
SANDY RIVER
COUNTRYSIDE DRIVE
WEST UNIVERSITY AVENUE
CAMERON
ARVILLE
100 - YEAR FLOOD CONTAINED IN CHANNEL
WEST HARMON
REVISED AREA
NAPLES DR
QUALITY COURT
100 - YEAR FLOOD CONTAINED IN CULVERT
ZONE X
WEST TOMPKINS AVENU
APPROXIMATE SCALE IN FEET
500 0 500
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
CLARK COUNTY, NEVADA AND INCORPORATED AREAS
PANEL 2552 OF 4090
(SEE MAP INDEX FOR PANELS NOT PRINTED)


REVISED TO
EFFECTIVE
DATED AUG 0 1 2002
Federal Emergency Management Agency

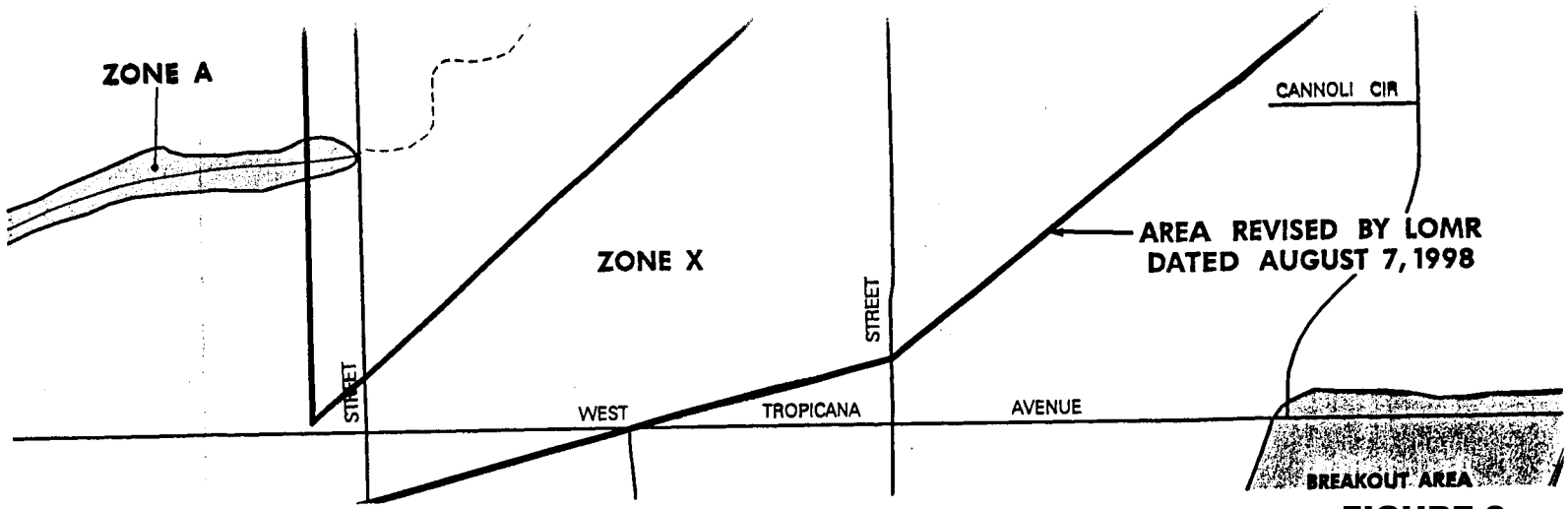

ZONE A
ZONE X
STREET
STREET
WEST TROPICANA AVENUE
CANNOLI CIR
AREA REVISED BY LOMR DATED AUGUST 7, 1998
BREAKOUT AREA

FIGURE 2a

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevation** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevation (BFEs) shown on this map apply only landward of 0.0' North American Vertical Datum (NAVD). Users of this FIRM should be aware that coastal flood elevations may also be provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this community. Elevations shown in the Summary of Stillwater Elevations table should be used for construction, and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures in this jurisdiction.

The **projection** used in the preparation of this map is Universal Transverse Mercator (UTM) zone 11. The **horizontal datum** is NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum.** For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242,** or visit their website at www.ngs.noaa.gov.

Base map information shown on this FIRM was provided in digital format by Clark County Regional Flood Control District. This information was converted using Orthophotography, dated 1999 or newer, and GBF/DIME data. Segments were digitized off of the orthophotography based on center of pavement.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

An accompanying Flood Insurance Study report, Letters of Map Revision or Letters of Map Amendment revising portions of this panel, and digital versions of this PANEL may be available. Contact the **FEMA Map Service Center** at the following phone numbers and Internet address for information on all related products available from FEMA:

Phone: 800-358-9616
FAX: 800-358-9620
www.fema.gov/msc

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA-MAP** (1-877-336-2627) or visit the FEMA website at www.fema.gov.

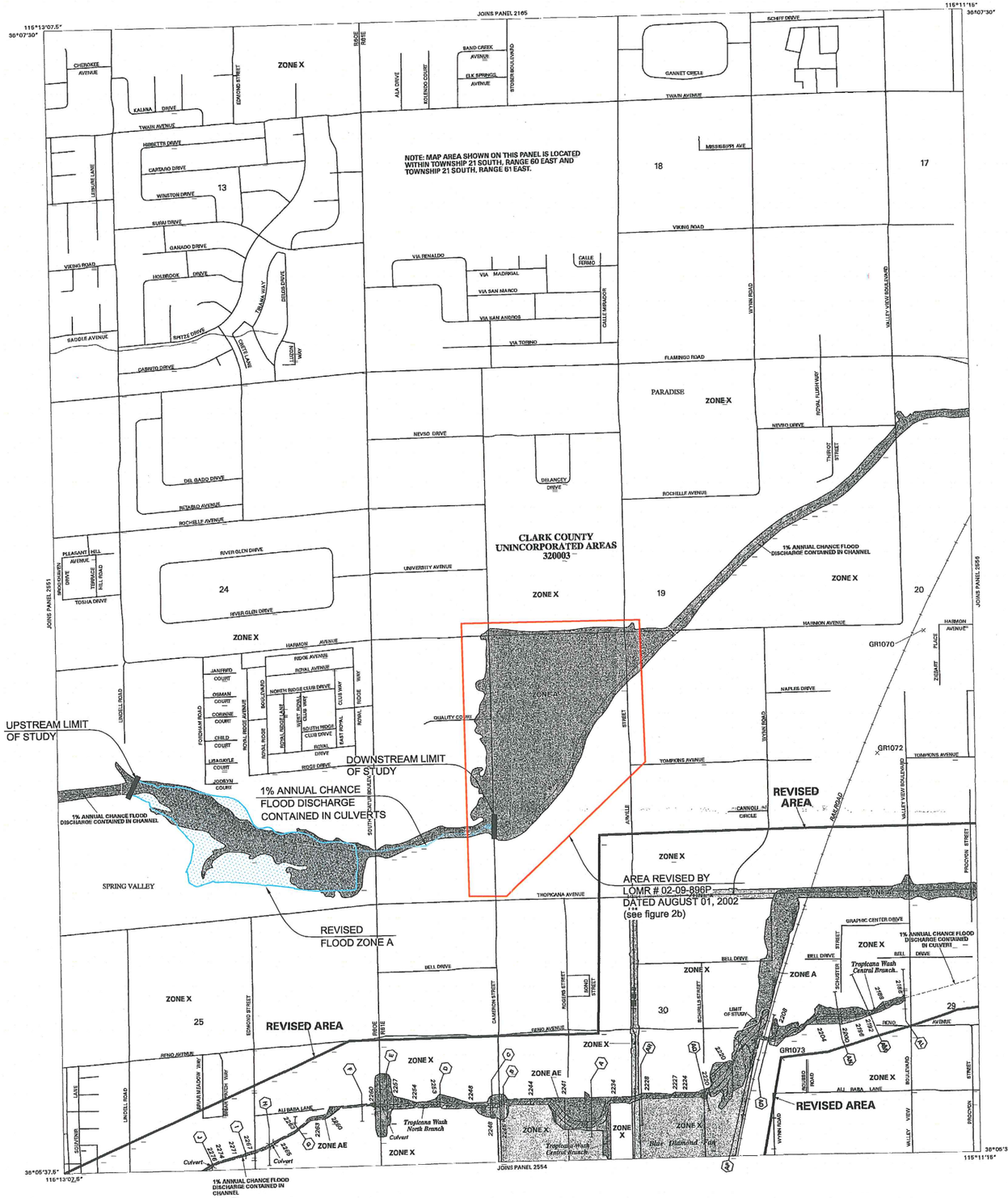
This map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report may reflect stream channel distances that differ from what is shown on this map.

This Digital Flood Insurance Rate Map (DFIRM) was produced through a unique partnership between Clark County and the Federal Emergency Management Agency (FEMA). Clark County has developed a long-term approach of floodplain management to decrease the costs associated with flooding. This is demonstrated by the Clark County commitment to share and maintain floodplain layers within their Geographic Information System Management Office (GISMO).

This DFIRM reflects several innovative features. These include:
+ Southern Nevada GIS– Cooperation among local governmental agencies throughout Clark County. The foundation of cooperation is the GIS Interlocal Agreements formed between fourteen regional participants. In part, the agreements specify that the Clark County GIS Management Office (GISMO) will be responsible for maintaining a GIS data warehouse and associated Southern Nevada GIS Metadata.

+ The GISMO's responsibilities go beyond maintaining the GIS data warehouse. GISMO also maintains the Street Centerline Database used by 911 dispatch services. This centerline database serves as the base map for this DFIRM.

DIGITAL DATA AVAILABILITY: http://www.co.clark.nv.us/celt/gismo/gismo.htm



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood.

ZONE A No base flood elevations determined.

ZONE AE Base flood elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR Area of special flood hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood event.

ZONE A99 Area to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no base flood elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no base flood elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- Floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

- A — A — Cross Section Line
- 23 — 23 — Transect Line
- 97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 4276000 mN — 1000-meter Universal Transverse Mercator grid values, zone 11
- 600000 FT — 5000-foot grid ticks
- DX5510 × — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORY
Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
AUGUST 16, 1995

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
September 27, 2002: to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to delete special flood hazard areas, to change zone designations, to add roads and road names, to incorporate previously issued letters of map revision, to incorporate previously issued letters of map amendment, and to change floodway.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at (800) 638-6620.

MAP SCALE 1" = 500'
250 0 500 1000 FEET
150 0 150 300 METERS

PANEL 2552E

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

PANEL 2552 OF 4090
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CLARK COUNTY, UNINCORPORATED AREAS	320003	2552	E

REVISED TO REFLECT LOMR DATED SEP 27 2002

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 32003C2552E

MAP REVISED: SEPTEMBER 27, 2002

Federal Emergency Management Agency

FIGURE 3.
ANNOTATED FIRM

2.0 PREVIOUS STUDIES AND LOMRs

2.1 Flamingo Wash Flood Insurance Study Restudy

The floodplain boundaries on Figure 2a were delineated in the Flood Insurance Study Restudy for the Flamingo Wash in Clark County, Nevada, prepared by G.C. Wallace Inc. for the CCRFCD (FIS, 1997). The information provided in the FIS represents the "Effective" 100-year flood hydrologic and hydraulic analyses for the Flamingo Wash.

2.1.1 Effective Hydrologic Analysis

According to the FIS, the Effective 100-year flow rate for the Flamingo Wash in the study reach is 3,900 cfs which is generated from an area of 37.9 square miles upstream of Rainbow Boulevard. Note that, although Decatur Boulevard is more than two miles downstream of Rainbow Boulevard, the hydrologic model produced a higher flow at Rainbow Boulevard due to the combined effects of the Depth Area Reduction Factor (DARF) and rainfall intensity used in the model. Therefore, the higher flow rate was carried through to the downstream sections of the wash, including the reach of Flamingo Wash at Decatur Boulevard. Electronic files including the Effective HEC-1 model and relevant excerpts from the FIS are included in the Data CD in Appendix E.

2.1.2 Effective Hydraulic Analysis

A HEC-2 model was prepared in the FIS (1997) to determine base flood elevations and areas of inundation for the Flamingo Wash. Figure 4 is a copy of the work map from the FIS for the study area. A copy of the Effective HEC-2 output and work map are also included in the Data CD in Appendix E.

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION ABOVE SEA LEVEL	DESCRIPTION OF LOCATION
1001	2351.29	Chiseled "X" on the top of the northeast corner of concrete headwall at the southeast corner of Flamingo Wash and Boulder Highway.
1002	2301.58	Chiseled "X" on the top of the southeast corner of concrete headwall at the southeast corner of Flamingo Wash and Boulder Highway.
1003	2252.90	Chiseled "X" on the top of the northeast corner of concrete headwall at the northeast corner of Flamingo Wash and Boulder Highway.
1004	2175.69	Chiseled "X" on the top of the northeast corner of concrete headwall at the northeast corner of Flamingo Wash and Boulder Highway.
1005	2152.90	Chiseled "X" on the top of the northeast corner of concrete headwall at the northeast corner of Flamingo Wash and Boulder Highway.
1006	2151.58	Chiseled "X" on the top of the northeast corner of concrete headwall at the northeast corner of Flamingo Wash and Boulder Highway.
1007	2141.47	Chiseled "X" on the top of the northeast corner of concrete headwall at the northeast corner of Flamingo Wash and Boulder Highway.

NOTES

MAP BASED ON 1"=400' TOPOGRAPHIC MAPPING PREPARED BY NEVADA AERIAL MAPPING FROM PHOTOGRAPHS TAKEN IN JANUARY 02, 1997.

VERTICAL CONTROL IS BASED ON THE NGVD 1929 HORIZONTAL CONTROL IS BASED ON NAD 1983, UTILIZING CLARK COUNTY MONUMENTS.

PANEL AFFECTS FIRMS 32003C2551 D, 32003C2552 D, & 32003C2556 D DATED AUGUST 16, 1999.

FLOODING SOURCE: FLAMINGO WASH

CONTOUR INTERVAL 4 FEET

FILE: FL1-CSE.DWG

CLARK COUNTY, NEVADA

NORTH

GRAPHIC SCALE

400 0 200 400 800 1600

(IN FEET)

1 inch = 400 ft.

LEGEND

- REVISED APPROXIMATE 100-YEAR FLOODPLAIN BOUNDARY
- EXISTING APPROXIMATE 100-YEAR FLOODPLAIN BOUNDARY
- (80) CROSS-SECTION
- ELEVATION REFERENCE MARK

100-YEAR FLOOD CONTAINED IN CULVERT WHICH EXTENDS TO THE IMPERIAL PALACE HOTEL AND CASINO

NOTE: CROSS SECTIONS 10 & 20 ARE LOCATED 1,100 FEET EAST OF CROSS SECTION 30 IN THE CULVERT

JOINS PANEL FL0

FLAMINGO WASH CRWM

1002 2301.58 CCBM 7C10 24W4

1004 2175.69 CCBM 7C11 19E6

1005 2152.90 CCBM 7C11 20E6

1006 2151.58 CCBM 7C11 19SW5

24

19

PANEL INDEX

FL1 FL2 FL3 FL4

REV	DATE	DESCRIPTION

11902
PG NO. DATE

RECOMMENDED
JERRY E. PRUITT

G.C. WALLACE, INC.
Engineering/Architecture
1555 SOUTH RANCHO DRIVE, LAS VEGAS, NEVADA 89102

FLAMINGO WASH
FIS RE-STUDY
JONES BLVD. TO INDUSTRIAL RD.
CROSS SECTION EXHIBIT

SHEET
FL1
OF 4 SHEETS

PLOTTED: November 11, 1997 - FL1-CSE.DWG

Note that the topography on the work map was based on the NGVD29 Datum. To convert elevations from NGVD 29 to the NAVD88 datum which was used in this report, add +2.26 feet to the NGVD 29 elevations (see Appendix C.1 of this report for conversion calculations).

2.2 Letters of Map Revision

Subsequent to the preparation of the FIS (1997), three a Letters of Map Revision were issued by FEMA which are briefly discussed below. Copies of the LOMRs are provided in the Data CD in Appendix E

1) **Case No. 02-09-896P** – Issued on August 1, 2002, this LOMR reflects storm drain improvements constructed by The Orleans Hotel and Casino (see Figure 2b). The Orleans Hotel and Casino property is located at the downstream end of the Flamingo Wash study reach of this report at Cameron Street. The backup data used as the basis of The Orleans Hotel and Casino LOMR was not available for review by the preparers of this CLOMR. Although, the design flow rate was 3,900 cfs which is consistent with the Effective FIS. A copy of the LOMR is provided in the Data CD in Appendix E.

2) **Case No. 06-09-BD12P** – This LOMR was issued on December 11, 2006 to credit the maps for the construction of the Flamingo-Tropicana Diversion Channel. The Flamingo-Tropicana Diversion Channel diverts out flow from the Upper Flamingo Detention Basin, as well as surface flow generated south of the channel, away from the Flamingo Wash and into the Tropicana Wash. The channel forms the southern boundary of the drainage area for the Lower Flamingo Detention Basin (see Figure 5).

3) **Case No. 07-09-0267P** – This LOMR, issued on July 19, 2007, accounts for the Lakes Detention Basin and collection system which capture runoff draining into the Flamingo Wash that is generated west of Durango Drive (see Figure 5). The maximum peak flow into the Lower Flamingo Detention Basin is controlled by a storm centered over the area downstream of the Lakes Detention Basin as discussed in Section 3.0 of this report.

3.0 PROPOSED HYDROLOGIC MODEL

Since the time that the FIS was prepared, several changes have occurred in the Flamingo Wash watershed that required re-evaluation of the Flamingo Wash flow rate at the LFDB site. Most notably, two new facilities have been constructed in the watershed - the Flamingo - Tropicana Diversion Channel (LOMR Case No. 06-09-BD12P) and the Lakes Detention Basin (LOMR Case No. 07-09-0267P). The Flamingo - Tropicana Diversion Channel reduced the total watershed area draining to the LFDB site from 50.3 square miles to 12.43 square miles. The Lakes Detention Basin is located within the 12.43 square mile area that drains into the LFDB site.

The LFDB design hydrology model (HDR, 2008) incorporated the two new facilities and the effects of the LFDB and is therefore proposed as the basis of this CLOMR request. Two 100-year storm durations were evaluated for this CLOMR to determine which would produce the highest discharge and storage value for the LFDB: 1) a 6-hour event; and, 2) a 24-hour event. In addition to the two durations, various storm centering scenarios were investigated using different DARF and rainfall distributions based on the size of the storm. The model results for the various hydrologic scenarios are presented in the following sections.

3.1 100-year, 6-hour Storm Event

A 100-year, 6-hour storm event hydrologic model was prepared by HDR (2008) for the design of the LFDB and this model is proposed as the basis of this CLOMR request. The model was developed from hydrology provided in the CCRFCD Las Vegas Valley Flood Control MPU that was prepared in 2002 (MPU, 2002). The model was prepared using the procedures presented in the CCRFCD Hydrologic Criteria and Drainage Design Manual (CCRFCD, 1999). Copies of the Hydrology maps from the 2002 MPU

are provided in Appendix B.1 along with a curve number table and lag time calculation table.

The watershed boundaries for the 'Proposed' hydrologic model are shown on Figure 5. Flow enters the basin at two locations identified on Figure 5 and in the HEC-1 models as COM3 and COM4. COM3 is the main branch of the Flamingo Wash that enters along the west rim of the detention basin and COM4 is a tributary to the Flamingo Wash that enters the basin from south of Tropicana Avenue. The total flow into the LFDB, identified as point COM, is the combined flow from points COM3 and COM4.

HDR developed four HEC-1 models representing four 100-year, 6-hour storm centering scenarios in order to determine which produced the highest flow rate at the LFDB:

1) The first model (identified as M11_6h) included an 8.84 square mile tributary area downstream of the Lakes and Desert Inn Detention Basins. Storm distribution number 4 (SDN4 - tributary area 8 to 12 square miles) was used as recommended in the CCRFCD Hydrologic Criteria and Drainage Design Manual (CCRFCD, 1999). The total 100-year, 6-hour peak flow at point COM was 3,101 cfs and the peak stage in the LFDB was 2252.41 feet.

2) A second model (M12_6h) was developed for a storm using SDN3 (tributary area less than 8 square miles) by removing subbasins LF8 and LF9 from the model to produce a tributary area less than 8 square miles (7.91 square miles). The resulting 100-year, 6-hour peak flow at point COM was 3,013 cfs and a peak stage in the LFDB of 2251.41 feet.

3) The third model (M21_6h) included the entire area tributary to the LFDB including the areas upstream of the Lakes and Desert Inn Detention Basins for a total of 12.43 square miles. SDN5 (tributary area greater than 12 square miles) was used resulting in a 100-year, 6-hour peak at point COM of 2,584 cfs and a peak stage of 2252.10 feet in the LFDB.

Summary of Peak Flows		
Subbasin / Concentration Point	Area (acre)	Q 100-Year (cfs)
LF8	321	362
LF9	276	191
LF10	141	27
LF11	324	140
LF12	164	44
LF13	332	209
LF14	166	92
LF15	172	171
LF16	332	158
LF17	171	61
LF18	315	152
LF19	195	141
LF20	323	167
LF20A	118	141
LF21	339	294
LF22	292	232
LF26	163	123
LF27	193	185
LF28	328	195
LF29	184	117
LF30	345	151
LF31	227	126
LF32	147	165
LF33	155	91
COM1	-	1729
COM2	-	922
COM3	-	2536
COM4	-	511
COM	-	3101
LWFLDB	-	911

N

W E

S

0 500 1,000 2,000

Feet

Legend

- BASINS
- FLOW DIRECTION
- MPU CATEGORY A PROPOSED FACILITIES
- MPU CATEGORY B PROPOSED FACILITIES
- MPU EXISTING FACILITIES

FIGURE 5.
DRAINAGE BASIN MAP
(From HDR, 2008)

4) Since the drainage area in the third model was near the lower threshold of 12 square miles for SDN5, a fourth model (M22_6h) using SDN4 was run having the boundaries as the third (12.43 square miles). The result was a 100-year, 6-hour peak flow of 3,009 cfs at point COM and a peak stage of 2252.40 feet in the LFDB.

3.2 100-year, 24-hour Storm Event

Although the design storm for Clark County, Nevada is a 100-year, 6-hour event, the LFDB storage capacity was also evaluated for a 100-year, 24-hour storm event as a check. The CCRFCD Hydrologic Criteria and Drainage Design Manual recommends a 100-year, 24-hour rainfall depth for Clark County of 2.96 inches. Since the Storm Distributions (SDN1 through SDN3) and DARF values presented in the CCRFCD Manual were developed for a 6-hour storm and are not applicable for the 24-hour storm, the Soil Conservation Service (SCS) Type II storm distribution rainfall and DARF values from Hydro-40 (1984) were used.

Two HEC-1 models were prepared to simulate the 100-year, 24-hour storm event:

1) The first model (M11_24h) included only the 8.84 square miles below the Lakes and Desert Inn Detention Basins that drains directly to the LFDB. The resulting 100-year, 24-hour peak flow at point COM was 3,611 cfs and the peak stage was 2251.94 feet in the LFDB.

2) The second model (M21_24h) included the entire tributary watershed of 12.43 square miles, including the areas upstream of the Lakes and Desert Inn Detention Basins, and the 8.84 square miles downstream of them. The resulting 100-year, 24-hour peak flow at point COM was 3,557 cfs and the peak stage was 2252.04 feet in the LFDB.

3.3 Comparison of the HEC-1 Results for Various Storm Scenarios

Table 1 presents the results from the Effective FIS and models discussed above for comparison. Of the six models, Model M11_24h, the 24-hour, 12.43 square mile storm event, produced the highest peak flow of 3,611 cfs, and model M11_6h, the 100-year, 6-hour, 8.84 square mile storm event, produced the highest peak stage of 2252.41 feet. For all storms evaluated, the outflow from the LFDB was approximately 900 cfs.

Table 1. Comparison of HEC-1 Results for Various Storm Scenarios

Rainfall Event	Source	Model Name	Watershed Area (sqmi)	Rainfall Dist.	Peak Inflow (cfs)	Peak Stage (feet)	Peak Outflow (cfs)	Remark
100-year, 6-hour	FIS (1997)	F-FL[1]	50.3[3]	SDN5	3,874	N/A	N/A	Flow for Flamingo Wash at Rainbow Blvd - watershed area 37.9 sqmi
	HDR (2008)	M11_6h[2]	8.84	SDN4	3,101	2252.41	911	Area downstream of Lakes and Desert Inn DBs
		M12_6h	7.91	SDN3	3,013	2251.41	880	Area downstream of Lakes and Desert Inn DBs except for sub-basins LF8 and LF9
		M21_6h	12.43	SDN5	2,584	2252.10	902	Entire area including Lakes and Desert Inn DB watersheds
		M22_6h	12.43	SDN4	3009	2252.40	911	
100-Year, 24-Hour	LFDB CLOMR	M11_24h	8.84	SCS Type II	3,611	2251.94	897	Area downstream of Lakes and Desert Inn DBs, Rainfall Depth = 2.96", DARF = 0.95
	LFDB CLOMR	M21_24h	12.43	SCS Type II	3,557	2252.04	900	Entire area including Lakes and Desert Inn DB watersheds DBs, Rainfall Depth = 2.96", DARF = 0.93

[1] Effective Model

[2] Proposed Model

[3] Watershed area upstream of LFDB

Although the peak flow for model M11_24h was more than model M11_6h, the results from model M11_6h were adopted for the purpose of this CLOMR because: 1) the higher flow would be contained in the Flamingo Wash channel; 2) the 6-hour event produced the higher storage volume and peak stage for the detention basin; and, 3) the 6-hour event is the adopted standard for flood control facility design in Clark County.

A summary of the peak flows from model M11_6h for each subbasin and combination points of interest is provided on Figure 5.

4.0 FACILITY DESIGN AND HYDRAULIC ANALYSIS

This CLOMR request is based on the future construction of the LFDB and the existing Flamingo Wash storm drain between Decatur Boulevard and Cameron Street. Analysis in support of the LFDB and existing Flamingo Wash storm drain are discussed in the following sections. Figure 6 is a work map showing the proposed facilities, and the new flood plain delineation in relation to the effective flood plain boundaries.

4.1 Lower Flamingo Detention Basin

The proposed LFDB is a multiple use flood control-recreation facility designed for use a detention basin with play areas integrated into the layout. The LFDB will significantly reduce flow depths and velocities on the Flamingo Wash by detaining the 100-year flood flow of 3,101 cfs and releasing it at a rate of 911 cfs. A table summarizing the LFDB hydrologic and design characteristics is provided on Figure 6. Figure 7 is a graph showing the inflow and outflow hydrographs for the detention basin.

THE LOUIS BERGER GROUP, INC.

REGIONAL FLOOD CONTROL DISTRICT

Legend

- Effective Flood Zone A
- Proposed Flood Zone A
- FIRM Panel Boundary
- Assessor's Parcels Border
- 2265 — 1 ft Detention Basin Contours (Major)
- 1 ft Detention Basin Contours (Minor)
- Existing 5 ft Contours
- Detention Basin Structures
- 420 / 2260.18 ft / 3900 cfs — Cross Section Number; Effective 100 - Year BFE* (FIS 1997); Effective Flow (cfs)
- 425 / 2260.89 ft / 2536 cfs — Weir Cross Section Number; Proposed 100 - Year BFE; Proposed Flow (cfs)
- Proposed Flow Direction and Value (cfs)
- Existing Facilities

N

0 200 400 Feet

BENCHMARK

CLARK COUNTY BENCHMARK # 7C1024E4, BEING A RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, NORTHWEST CORNER OF DECATUR BOULEVARD AND HARMON AVENUE NEAR THE PC OF DECATUR BOULEVARD

EL=688.189 METERS (2257.83 FEET)
NAVD 1988, CLARK COUNTY VERTICAL CONTROL v. 2003

* Adjusted by +2.26 ft to convert from NGVD29 to NAVD88

FIGURE 6. WORK MAP

PANEL # 32003C2551E
PANEL # 32003C2552E
BROOKHAVEN
TERRACE HILL
TOSHA
UNDELL
ALEXIS
INDIAN RIVER
COUNTRYSIDE
SANDY RIVER
HARMON
JANFRED
OSMAN
CORINNE
CHILD
LISAGAYLE
JODILYN
FORDHAM
ROYAL RIDGE
RIDGE
ROYAL
NORTH RIDGE CLUB
WEST ROYAL CLUB
EAST ROYAL CLUB
SOUTH RIDGE CLUB
DECATUR BLVD
CAMERON
FLAMINGO WASH
DOWNSTREAM LIMIT OF STUDY
SPILLWAY (L = 170)
PROPOSED 12' X 8' RCB
EXISTING 2: 24' X 9' RCB
EXISTING 7: 12' X 5' RCBC
EXISTING 3: 10' X 8' RCB
EXISTING 7: 10' X 5' RCBC
100-YEAR FLOOD CONTAINED IN CULVERT
GARDEN PINES MOTEL
THE HOME DEPOT
THE ORLEANS HOTEL
EXISTING 3: 12' X 10.5' CONCRETE ARCH CULVERT
EXISTING 3: 12' X 10' RCBC
100 YEAR FLOOD STAGE 2252.41
PROPOSED LOWER FLAMINGO DETENTION BASIN
7.5' X 6' ORIFICE PLATE
ZONE A
AREA REVISED BY LOMR # 02-09-896P DATED AUGUST 01, 2002 (see Figure 2b)
TOMPKINS
TROPICANA
BELL
BOND
ARVILLE
ROGERS
EDMOND
LINDELL
450 2272.11 ft 3900 cfs
440 2267.96 ft 3900 cfs
430 2263.98 ft 3900 cfs
425 2260.89 ft 2536 cfs
420 2260.18 ft 3900 cfs
2536 cfs
3101 cfs
911 cfs
511 cfs

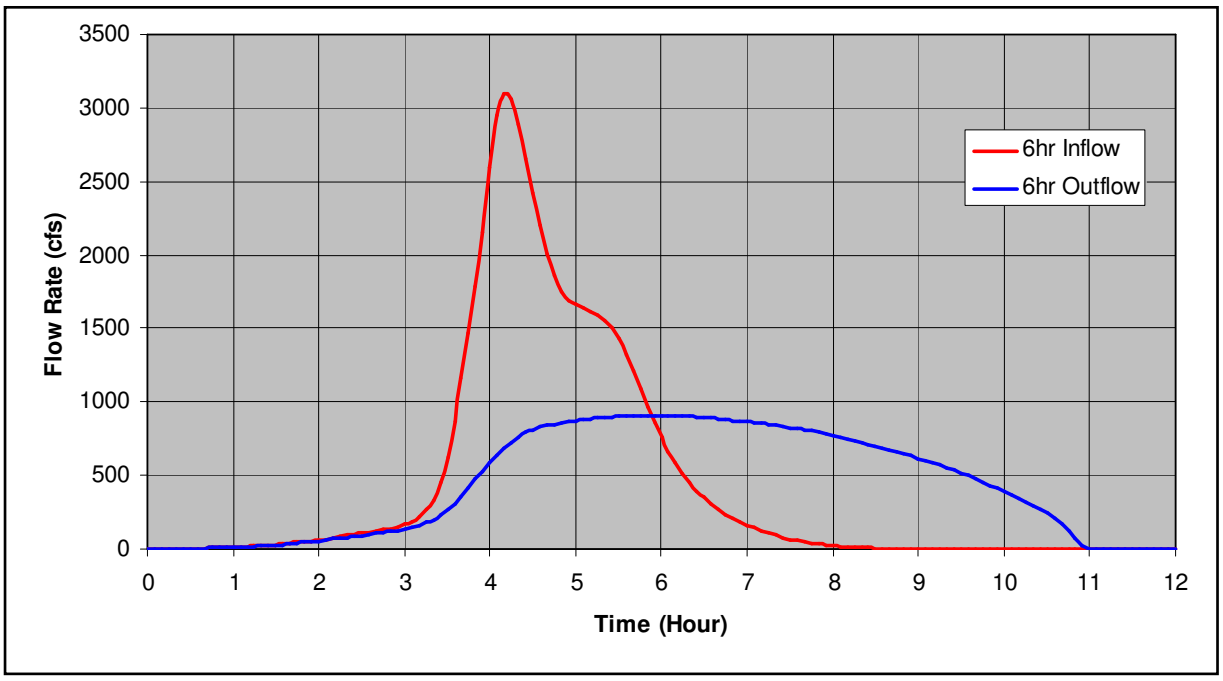
Notes:

1. Hydraulic Calculations - see Appendix C
2. Improvement Plans - see Appendix D1
3. Improvement Plans - see Appendix D2
4. Improvement Plans - see Appendix D3
5. Improvement Plans - see Appendix D4
6. Improvement Plans - see Appendix D5

Table 2. LFDB Hydrologic and Design Characteristics (HDR, 2008)

No.	Item	Information
1	Contributing Drainage Area	8.84 Square Miles
2	Type of Detention Basin	Below Grade
3	Emergency Spillway	Armored Embankment
4	Footprint Area of Basin	25.5 Acres
5	Area Disturbed by Construction	53 Acres
6	100-Year Peak Inflow	3,101 cfs
7	100-Year Peak Outflow	911 cfs
8	100-Year Peak Storage	222 Acre-Feet
9	100-Year Peak Flow Depth	18.41 Feet
10	100-Year Peak Stage Elevation	2252.41 Feet
15	Spillway Elevation	2252.41 Feet
16	Detention Basin Embankment Elevation	2254.40 Feet
18	Detention Basin Depth	20 Feet
19	Trash Rack	28'-5" x 16'-6"
20	Low-Level Outlet	7.5' x 6' Orifice At Entrance of 12' x 8' RCB
22	Invert Elevation of Outlet	2233.99 Feet
23	Drain Time To 50% Capacity	2 Hours
24	Drain Time To 90% Capacity	4 Hours

Figure 7: LFDB Inflow and outflow hydrographs



The LFDB has two main components: 1) the inflow spillway; and, 2) the storage pond and outlet system. These components and their effect on the BFE in the Flamingo Wash are discussed below.

1) LFDB Inflow Channel and Spillway –

The inflow spillway for the LFDB consists of a broad crested stepped spillway having a crest width of 170 feet and total drop of 18 feet. The spillway was designed to control and dissipate energy from the main branch of the Flamingo Wash flow of 2,536 cfs (COM3 on Figure 5) where it is conveyed over the western rim of the basin. Upstream of the inflow spillway, minor grading will be conducted to tie the structure into the existing channel.

The flow within the Flamingo Wash channel in the location of the inflow spillway is supercritical; therefore, the flow over the crest of the spillway will be also supercritical. The BFE at the spillway was set based on the critical depth over

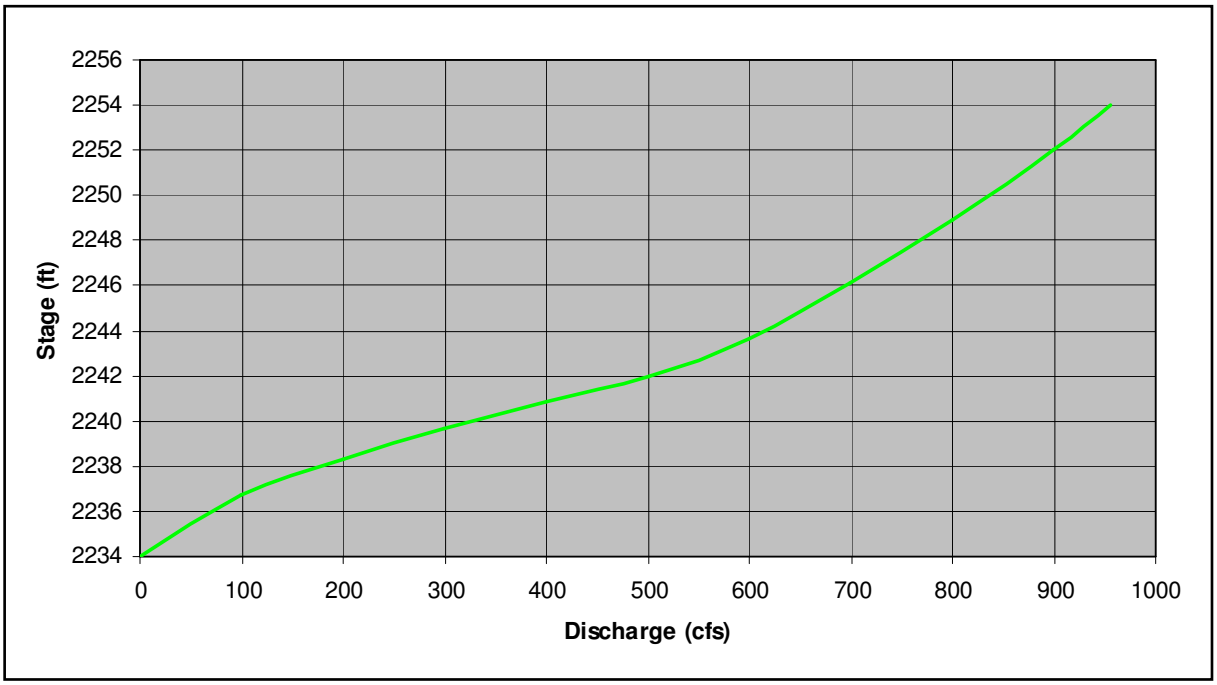
the inflow spillway crest (see Appendix C.2). The spillway crest elevation is 2259.0 feet and the critical depth at the crest is 1.89 feet which produces a BFE at the inflow spillway of 2260.89 feet (Section 425 on Figure 6).

2) LFDB Storage Pond and Outlet System

The base flood elevation (peak stage) in the LFDB is governed by a 7.5 foot x 6 foot orifice plate that is connected to 12 foot x 8 foot RCB. The 100-year peak outflow from the basin is 911 cfs which corresponds to a peak stage of 2252.41 feet. The peak stage is 1.73 feet lower than the spillway crest elevation of 2252.41 feet.

The stage-discharge calculations were determined using a combination of the weir equation (discharge coefficient = 3.0) as well as the orifice equation (discharge coefficient = 0.65). Trash Rack losses were also incorporated into the stage discharge calculations. Figure 8 is a graph showing the stage-discharge curve for the 7.5 foot x 6 foot orifice. Calculations for the determining the stage-discharge curve are provided on the Data CD in Appendix E. Downstream of the orifice plate the flow will be conveyed within the proposed 12 foot x 8 foot RCB at a depth of 5.9 feet (see Appendix C.4).

Figure 8 – LFDB Stage-Discharge Curve



4.2 Flamingo Wash Storm Drain

The existing Flamingo Wash Storm Drain between Decatur Boulevard and Cameron Street was constructed by four different projects (see Figure 6):

1) **Flamingo Wash Flood Control Project Phase 1 –**
   This project, designed and constructed by CCPW, consisted of triple 12 foot x 10 foot Reinforced Concrete Boxes (RCBs) under Decatur Boulevard. The culverts have been in place for more than 30 years. The improvement plans for the culverts are contained in Appendix D.2.

   The 911 cfs outflow from the LFDB will be conveyed in the northernmost cell of the triple 12 foot x 10 foot RCB under Decatur Boulevard. The remaining two cells will be blocked as part of the LFDB project. The 911 cfs will be conveyed at a depth of 5.4 feet in the 12 foot x 10 foot RCB (see Appendix C.3).

2) **Patina Plaza at Decatur/Tropicana –**

This project, designed by Summit Engineering and Con-Arch for a private developer, consisted of approximately 620 feet of triple 12 foot x 10.5 foot Reinforced Concrete Arches (RCAs) connecting to the downstream side of Decatur Boulevard RCBs. The improvement plans for Patina Plaza RCAs are provided in Appendix D.3. This storm drain was built in the early 2000's; however, the Patina Plaza surface improvements were never constructed. Subsequently, The Home Depot was constructed on this property.

3) **The Home Depot at Tropicana Avenue and Decatur Boulevard –**

This project, designed by Summit Engineering and Con-Arch for a private developer, removed 250 feet of the triple 12 foot x 10.5 foot RCAs originally constructed by the Patina Plaza project, and extended the 12 foot x 10.5 foot RCAs along a new alignment for a distance of 435 feet. This facility was constructed in the early 2000's and connects to the double 24 foot x 9 foot RCAs at the Garden Pine Motel at the downstream end. The improvement plans for The Home Depot RCA storm drain are provided in Appendix D.4.

The 911 cfs outflow from the LFDB will be conveyed in the northernmost cell of the triple 12 foot x 10.5 foot RCAs at a depth of 4.1 feet (see Appendix C.3). The southern RCAs will remain empty.

4) **Garden Pine Motel**

This project, designed by C.S.A. Engineering, Watson Engineering, and Con-Arch for a private developer, consisted of 422 feet of double 24 foot x 9 foot RCAs. At the downstream end is a 62 foot long transition into the existing seven 10 foot x 5 foot RCBs at Cameron Street. Improvement plans for the facility, which was constructed in the late 1990's, are provided in Appendix D.5.

The 911 cfs outflow from the LFDB will be conveyed in the northernmost cell of the 24 foot x 9 foot RCAs through the Garden Pine Motel property. Hydraulic calculations indicate that the depth of flow in the 24 foot x 9 foot RCA will be 2.9 feet (see Appendix C.3).

4.3 Comparison of the Effective and Proposed BFEs

Cross-sections 420 through 450 and their respective BFEs labeled in red on Figure 6 were obtained from the Effective FIS. Effective BFEs were converted from NGVD29 to NAVD88 by adding 2.26 feet (see conversion calculations in Appendix C.1). Cross-section 425 at the spillway crest was added for the purpose of comparing the proposed BFE in this CLOMR to the Effective BFE. While an exact tie-in to the Effective BFEs in the Flamingo Wash upstream the LFDB spillway cannot be made, due to a 1,364 cfs difference in the Effective (3,900 cfs) and Proposed (2536 cfs at COM3) flow rates, comparison of the Effective and Proposed BFEs (2560.89) shows that the proposed LFDB will not result in a rise of the BFE within the main branch of the Flamingo Wash. Within the detention basin, the 100-year flood stage of 2252.4 would be the BFE.

Downstream of Cameron Street, the outflow from the basin of 911 cfs is significantly less than the Effective flow of 3,900 cfs. This flow will be fully contained by existing Flamingo Wash storm drain system between Decatur Boulevard and Cameron Street.

5.0 CONCLUSION

This report presents design plans and technical data in support of a CLOMR for the proposed LFDB and existing Flamingo Wash storm drain from Decatur Boulevard to Cameron Street. These data include a new hydrologic model for the Flamingo Wash watershed incorporating the Flamingo Wash Diversion Channel and Lakes Detention Basin, new hydraulic calculations for the LFDB and downstream conveyance facilities, work maps showing the revised floodplain boundaries. The supporting documentation presented herein demonstrates that, if constructed as designed, the 100-year flood will be significantly reduced by the LFDB, and the outflow from the basin will be fully contained within existing storm drain system. Upon completion of the LFDB, this CLOMR request will be followed by a request for LOMR based on as-built plans for the LFDB.

6.0 REFERENCES

1. CCRFCD, 1999. Hydrologic Criteria and Drainage Design Manual, prepared by WRC Engineering and updated by Montgomery Watson for the Clark County Regional Flood Control District, August 1999, available at http://www.ccrfcd.org.

2. COE, 1998. Flood Hydrograph Package (HEC-1) Computer Program and Users Manual, Version 4.1, prepared by U.S. Army Corps of Engineers Hydrologic Engineering Center, 1998.

3. FEMA, 2002a. Flood Insurance Rate Map, Clark County, Nevada and Incorporated Areas, Panel 2552 of 4090, prepared by the Federal Emergency Management Agency, September 2002, available at http://www.ccrfcd.org.

4. FEMA, 2002b. Letter of Map Revision, Case Number 02-09-896P, issued by the Federal Emergency Management Agency, August 2002, available at http://www.ccrfcd.org.

5. FIS, 1997. Flamingo Wash Flood Insurance Study Restudy, prepared by G. C. Wallace, Inc., for Clark County Regional Flood Control District, October 1997, available at http://www.ccrfcd.org.

6. Haestad, 1996. Flowmaster, Version 5.15. Computer Program to calculate normal depths based on Mannings Equations by Haestad Methods, 1996.

7. HDR, 2009. Hydrologic and Hydraulic Report (90% Design) Lower Flamingo Detention Basin, Tropicana/Decatur Park Site, prepared for the Clark County Department of Public Works by HDR, May 2008.

8. Hydro-40, 1984. NOAA Technical Memorandum NWS HYDRO-40, Depth-Area Ratios in the Semi-arid Southwest United States, August 1984.

9. MPU, 2008. Las Vegas Valley Flood Control Master Plan Update – Volumes I and II, prepared by PBS&J, G.C. Wallace, and The Louis Berger Group for the Clark County Regional Flood Control District, 2002.

10. MPU, 2008. Las Vegas Valley Flood Control Master Plan Update – Volumes I and II, prepared by PBS&J, Parsons Brinckerhoff, and The Louis Berger Group for the Clark County Regional Flood Control District, August 2008, available at http://www.ccrfcd.org.

APPENDIX A - Forms

- Overview and Concurrence Form - (MT-2 Form 1)
- Riverine Hydrology & Hydraulics Form – (MT-2 Form 2)
- Hydraulic Structures Form – (MT-2 Form 3)
- Statement of Explanations

U.S. DEPARTMENT OF HOMELAND SECURITY - FEDERAL EMERGENCY MANAGEMENT AGENCY

OVERVIEW & CONCURRENCE FORM

O.M.B No. 1660-0016
Expires: 12/31/2010

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1 hour per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, U.S. Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

A. REQUESTED RESPONSE FROM DHS-FEMA

This request is for a (check one):

☒ CLOMR: A letter from DHS-FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision, or proposed hydrology changes (See 44 CFR Ch. 1, Parts 60, 65 & 72).

☐ LOMR: A letter from DHS-FEMA officially revising the current NFIP map to show the changes to floodplains, regulatory floodway or flood elevations. (See 44 CFR Ch. 1, Parts 60, 65 & 72)

B. OVERVIEW

1. The NFIP map panel(s) affected for all impacted communities is (are):

Community No.	Community Name	State	Map No.	Panel No.	Effective Date
Ex: 480301 480287	City of Katy Harris County	TX TX	480301 48201C	0005D 0220G	02/08/83 09/28/90
320003	Clark County Unincorporated Areas	NV	32003C	2552E	09/27/02

2. a. Flooding Source: Flamingo Wash

   b. Types of Flooding: ☒ Riverine ☐ Coastal ☐ Shallow Flooding (e.g., Zones AO and AH)

   ☐ Alluvial fan ☐ Lakes ☐ Other (Attach Description)

3. Project Name/Identifier: Lower Flamingo Detention Basin

4. FEMA zone designations affected: A (choices: A, AH, AO, A1-A30, A99, AE, AR, V, V1-V30, VE, B, C, D, X)

5. Basis for Request and Type of Revision:

   a. The basis for this revision request is (check all that apply)

   ☒ Physical Change ☐ Improved Methodology/Data ☐ Regulatory Floodway Revision ☐ Base Map Changes

   ☐ Coastal Analysis ☐ Hydraulic Analysis ☒ Hydrologic Analysis ☐ Corrections

   ☐ Weir-Dam Changes ☐ Levee Certification ☐ Alluvial Fan Analysis ☐ Natural Changes

   ☐ New Topographic Data ☐ Other (Attach Description)

   Note: A photograph and narrative description of the area of concern is not required, but is very helpful during review.

   b. The area of revision encompasses the following structures (check all that apply)

   Structures: ☐ Channelization ☐ Levee/Floodwall ☒ Bridge/Culvert

   ☒ Dam ☐ Fill ☐ Other (Attach Description)

C. REVIEW FEE

Has the review fee for the appropriate request category been included? ☐ Yes Fee amount: $_____

☒ No, Attach Explanation

Please see the DHS-FEMA Web site at http://www.fema.gov/plan/prevent/fhm/frm_fees.shtm **for Fee Amounts and Exemptions.**

D. SIGNATURE

All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Name: Syndi J. Flippin-Dudley, Ph.D.,P.E.	Company: The Louis Berger Group, Inc.	
Mailing Address: 500 E. Amigo Court Suite 100 Las Vegas, NV 89119	Daytime Telephone No.: (702) 733-6632	Fax No.: (702) 736-0704
	E-Mail Address: sdudley@louisberger.com	
Signature of Requester (required): Syndi Flippin-Dudley	Date: 6/30/09	

As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this Letter of Map Revision (LOMR) or conditional LOMR request. Based upon the community's review, we find the completed or proposed project meets or is designed to meet all of the community floodplain management requirements, including the requirement that no fill be placed in the regulatory floodway, and that all necessary Federal, State, and local permits have been, or in the case of a conditional LOMR, will be obtained. In addition, we have determined that the land and any existing or proposed structures to be removed from the SFHA are or will be reasonably safe from flooding as defined in 44CFR 65.2(c), and that we have available upon request by FEMA, all analyses and documentation used to make this determination. LOWER FLAMINGO DETENTION BASIN

Community Official's Name and Title: W. Layne Weber, PE, Principal Engineer, Clark County Development Services	Community Name: Clark County, Nevada	
Mailing Address: 00 S. Grand Central Parkway P.O. Box 551719, Las Vegas, NV 89155-179	Daytime Telephone No.: (702) 455-4856	Fax No.: (702) 380-7250
	E-Mail Address: wlweber@co.clark.nv.us	
Community Official's Signature (required): W Layne Weber	Date: 7 July 09	

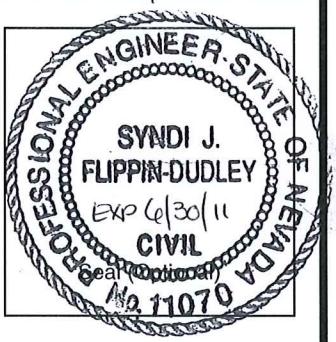
CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR

This certification is to be signed and sealed by a licensed land surveyor, registered professional engineer, or architect authorized by law to certify elevation information data, hydrologic and hydraulic analysis, and any other supporting information as per NFIP regulations paragraph 65.2(b) and as described in the MT-2 Forms Instructions. All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Certifier's Name: Syndi J. Flippin-Dudley, Ph.D.,P.E.	License No.: 11070	Expiration Date: 06/30/09
Company Name: The Louis Berger Group, Inc.	Telephone No.: (702) 733-6632	Fax No.: (702) 736-0704
Signature: Syndi J. Flippin-Dudley		Date: 6/30/09

Ensure the forms that are appropriate to your revision request are included in your submittal.

Form Name and (Number)	Required if ...
☒ Riverine Hydrology and Hydraulics Form (Form 2)	New or revised discharges or water-surface elevations
☒ Riverine Structures Form (Form 3)	Channel is modified, addition/revision of bridge/culverts, addition/revision of levee/floodwall, addition/revision of dam
☐ Coastal Analysis Form (Form 4)	New or revised coastal elevations
☐ Coastal Structures Form (Form 5)	Addition/revision of coastal structure
☐ Alluvial Fan Flooding Form (Form 6)	Flood control measures on alluvial fans



U.S. DEPARTMENT OF HOMELAND SECURITY - FEDERAL EMERGENCY MANAGEMENT AGENCY

RIVERINE HYDROLOGY & HYDRAULICS FORM

O.M.B No. 1660-0016
Expires: 12/31/2010

PAPERWORK REDUCTION ACT

Public reporting burden for this form is estimated to average 3.25 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, U.S. Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

Flooding Source: Flamingo Wash
Note: Fill out one form for each flooding source studied

A. HYDROLOGY

1. Reason for New Hydrologic Analysis (check all that apply)

☐ Not revised (skip to section B) ☐ No existing analysis ☐ Improved data
☐ Alternative methodology ☐ Proposed Conditions (CLOMR) ☒ Changed physical condition of watershed

2. Comparison of Representative 1%-Annual-Chance Discharges

Location	Drainage Area (Sq. Mi.)	Effective/FIS (cfs)	Revised (cfs)
Las Vegas	8.84	3900	3101

3. Methodology for New Hydrologic Analysis (check all that apply)

☐ Statistical Analysis of Gage Records ☒ Precipitation/Runoff Model HEC-1
☐ Regional Regression Equations ☐ Other (please attach description)

Please enclose all relevant models in digital format, maps, computations (including computation of parameters) and documentation to support the new analysis.

4. Review/Approval of Analysis

If your community requires a regional, state, or federal agency to review the hydrologic analysis, please attach evidence of approval/review.

5. Impacts of Sediment Transport on Hydrology

Was sediment transport considered? ☐ Yes ☒ No If yes, then fill out Section F (Sediment Transport) of Form 3. If No, then attach your explanation for why sediment transport was not considered.

B. HYDRAULICS

1. Reach to be Revised

	Description	Cross Section	Water-Surface Elevations (ft.) Effective	Proposed/Revised
Downstream Limit	Cameron Street	N/A	N/A	N/A
Upstream Limit	Detention Basin Inflow Spillway	425	N/A	2260.89

2. Hydraulic Method/Model Used

Critical Depth at Inflow Spillway Crest and Stage - Discharge Relationship for the Detention Basin Outlet

B. HYDRAULICS (CONTINUED)

3. Pre-Submittal Review of Hydraulic Models

DHS-FEMA has developed two review programs, CHECK-2 and CHECK-RAS, to aid in the review of HEC-2 and HEC-RAS hydraulic models, respectively. These review programs may help verify that the hydraulic estimates and assumptions in the model data are in accordance with NFIP requirements, and that the data are comparable with the assumptions and limitations of HEC-2/HEC-RAS. CHECK-2 and CHECK-RAS identify areas of potential error or concern. **These tools do not replace engineering judgment.** CHECK-2 and CHECK-RAS can be downloaded from http://www.fema.gov/plan/prevent/fhm/frm_soft.shtm. We recommend that you review your HEC-2 and HEC-RAS models with CHECK-2 and CHECK-RAS. Review of your submittal and resolution of valid modeling discrepancies may result in reduced review time.

4. Models Submitted

Models Submitted	Natural Run		Floodway Run		Datum
Duplicate Effective Model*	File Name:	Plan Name:	File Name:	Plan Name:	_____
Corrected Effective Model*	File Name:	Plan Name:	File Name:	Plan Name:	_____
Existing or Pre-Project Conditions Model	File Name:	Plan Name:	File Name:	Plan Name:	_____
Revised or Post-Project Conditions Model	File Name:	Plan Name:	File Name:	Plan Name:	_____
Other - (attach description)	File Name:	Plan Name:	File Name:	Plan Name:	_____

* For details, refer to the corresponding section of the instructions.

☐ Digital Models Submitted? (Required)

C. MAPPING REQUIREMENTS

A **certified topographic map** must be submitted showing the following information (where applicable): the boundaries of the effective, existing, and proposed conditions 1%-annual-chance floodplain (for approximate Zone A revisions) or the boundaries of the 1%- and 0.2%-annual-chance floodplains and regulatory floodway (for detailed Zone AE, AO, and AH revisions); location and alignment of all cross sections with stationing control indicated; stream, road, and other alignments (e.g., dams, levees, etc.); current community easements and boundaries; boundaries of the requester's property; certification of a registered professional engineer registered in the subject State; location and description of reference marks; and the referenced vertical datum (NGVD, NAVD, etc.).

☒ Digital Mapping (GIS/CADD) Data Submitted

Note that the boundaries of the existing or proposed conditions floodplains and regulatory floodway to be shown on the revised FIRM and/or FBFM must tie-in with the effective floodplain and regulatory floodway boundaries. Please attach **a copy of the effective FIRM and/or FBFM,** annotated to show the boundaries of the revised 1%- and 0.2%-annual-chance floodplains and regulatory floodway that tie-in with the boundaries of the effective 1%- and 0.2%-annual-chance floodplain and regulatory floodway at the upstream and downstream limits of the area of revision.

☒ Annotated FIRM and/or FBFM (Required)

D. COMMON REGULATORY REQUIREMENTS*

1. For LOMR/CLOMR requests, do Base Flood Elevations (BFEs) increase? ☒ Yes ☐ No

   a. For CLOMR requests, if either of the following is true, please submit **evidence of compliance with Section 65.12 of the NFIP regulations**:
   - The proposed project encroaches upon a regulatory floodway and would result in increases above 0.00 foot.
   - The proposed project encroaches upon a SFHA with or without BFEs established and would result in increases above 1.00 foot.

   b. For LOMR requests, does this request require property owner notification and acceptance of BFE increases? ☐ Yes ☒ No
   If Yes, please attach **proof of property owner notification and acceptance (if available)**. Elements of and examples of property owner notification can be found in the MT-2 Form 2 Instructions.

2. Does the request involve the placement or proposed placement of fill? ☐ Yes ☒ No

   If Yes, the community must be able to certify that the area to be removed from the special flood hazard area, to include any structures or proposed structures, meets all of the standards of the local floodplain ordinances, and is reasonably safe from flooding in accordance with the NFIP regulations set forth at 44 CFR 60.3(a)(3), 65.5(a)(4), and 65.6(a)(14). Please see the MT-2 instructions for more information.

3. For LOMR requests, is the regulatory floodway being revised? ☐ Yes ☒ No

   If Yes, attach **evidence of regulatory floodway revision notification**. As per Paragraph 65.7(b)(1) of the NFIP Regulations, notification is required for requests involving revisions to the regulatory floodway. (Not required for revisions to approximate 1%-annual-chance floodplains [studied Zone A designation] unless a regulatory floodway is being added. Elements and examples of regulatory floodway revision notification can be found in the MT-2 Form 2 Instructions.)

4. For LOMR/CLOMR requests, does this request have the potential to impact an endangered species? ☐ Yes ☒ No

   If Yes, please submit documentation to the community to show that you have complied with Sections 9 and 10 of the Endangered Species Act (ESA). Section 9 of the ESA prohibits anyone from "taking" or harming an endangered species. If an action might harm an endangered species, a permit is required from U.S. Fish and Wildlife Service or National Marine Fisheries Service under Section 10 of the ESA.

   For actions authorized, funded, or being carried out by Federal or State agencies, please submit documentation from the agency showing its compliance with Section 7(a)(2) of the ESA.

* Not inclusive of all applicable regulatory requirements. For details, see 44 CFR parts 60 and 65.

U.S. DEPARTMENT OF HOMELAND SECURITY - FEDERAL EMERGENCY MANAGEMENT AGENCY

RIVERINE STRUCTURES FORM

O.M.B No. 1660-0016
Expires: 12/31/2010

PAPERWORK REDUCTION ACT

Public reporting burden for this form is estimated to average 7 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, U.S. Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

Flooding Source: Flamingo Wash
Note: Fill out one form for each flooding source studied

A. GENERAL

Complete the appropriate section(s) for each Structure listed below:

Channelization.....complete Section B
Bridge/Culvert.....complete Section C
Dam/Basin.....complete Section D
Levee/Floodwall.....complete Section E
Sediment Transport.....complete Section F (if required)

Description Of Structure

1. Name of Structure: Lower Flamingo Detention Basin

Type (check one): ☐ Channelization ☐ Bridge/Culvert ☐ Levee/Floodwall ☒ Dam/Basin

Location of Structure: Flamingo Wash between Lindell Road and Cameron Street

Downstream Limit/Cross Section: N/A

Upstream Limit/Cross Section: A

2. Name of Structure: Flamingo Wash Storm Drain

Type (check one): ☐ Channelization ☒ Bridge/Culvert ☐ Levee/Floodwall ☐ Dam/Basin

Location of Structure:

Downstream Limit/Cross Section:

Upstream Limit/Cross Section:

3. Name of Structure:

Type (check one) ☐ Channelization ☐ Bridge/Culvert ☐ Levee/Floodwall ☐ Dam/Basin

Location of Structure:

Downstream Limit/Cross Section:

Upstream Limit/Cross Section:

NOTE: For more structures, attach additional pages as needed.

B. CHANNELIZATION

Flooding Source:

Name of Structure:

1. Accessory Structures

The channelization includes (check one):

- ☐ Levees [Attach Section E (Levee/Floodwall)]
- ☐ Superelevated sections
- ☐ Debris basin/detention basin [Attach Section D (Dam/Basin)]
- ☐ Other (Describe):
- ☐ Drop structures
- ☐ Transitions in cross sectional geometry
- ☐ Energy dissipator

2. Drawing Checklist

Attach the plans of the channelization certified by a registered professional engineer, as described in the instructions.

3. Hydraulic Considerations

The channel was designed to carry 911 (cfs) and/or the 100-year flood.

The design elevation in the channel is based on (check one):

☐ Subcritical flow ☐ Critical flow ☐ Supercritical flow ☐ Energy grade line

If there is the potential for a hydraulic jump at the following locations, check all that apply and attach an explanation of how the hydraulic jump is controlled without affecting the stability of the channel.

☐ Inlet to channel ☐ Outlet of channel ☐ At Drop Structures ☐ At Transitions
☐ Other locations (specify):

4. Sediment Transport Considerations

Was sediment transport considered? ☐ Yes ☐ No If Yes, then fill out Section F (Sediment Transport).
If No, then attach your explanation for why sediment transport was not considered.

C. BRIDGE/CULVERT

Flooding Source: Flamingo Wash

Name of Structure: Flamingo Wash Storm Drain

1. This revision reflects (check one):

- ☒ Bridge/culvert not modeled in the FIS
- ☐ Modified bridge/culvert previously modeled in the FIS
- ☐ Revised analysis of bridge/culvert previously modeled in the FIS

2. Hydraulic model used to analyze the structure (e.g., HEC-2 with special bridge routine, WSPRO, HY8): Manning's Equation
If different than hydraulic analysis for the flooding source, justify why the hydraulic analysis used for the flooding source could not analyze the structures. Attach justification.

3. Attach plans of the structures certified by a registered professional engineer. The plan detail and information should include the following (check the information that has been provided):

- ☒ Dimensions (height, width, span, radius, length)
- ☒ Shape (culverts only)
- ☒ Material
- ☐ Beveling or Rounding
- ☒ Wing Wall Angle
- ☐ Skew Angle
- ☐ Distances Between Cross Sections
- ☐ Erosion Protection
- ☒ Low Chord Elevations – Upstream and Downstream
- ☒ Top of Road Elevations – Upstream and Downstream
- ☒ Structure Invert Elevations – Upstream and Downstream
- ☐ Stream Invert Elevations – Upstream and Downstream
- ☐ Cross-Section Locations

4. Sediment Transport Considerations

Was sediment transport considered? ☐ Yes ☒ No If yes, then fill out Section F (Sediment Transport).
If No, then attach your explanation for why sediment transport was not considered.

D. DAM/BASIN

Flooding Source: Flamingo Wash

Name of Structure: Lower Flamingo Detention Basin

1. This request is for (check one): ☐ Existing dam ☒ New dam ☐ Modification of existing dam

2. The dam was designed by (check one): ☐ Federal agency ☐ State agency ☒ Local government agency ☐ Private organization

   Name of the agency or organization: Designed by HDR for Clark County Public Works

3. The Dam was permitted as (check one):

   a. ☐ Federal Dam ☐ State Dam

      Provide the permit or identification number (ID) for the dam and the appropriate permitting agency or organization

      Permit or ID number Permitting Agency or Organization

   b. ☒ Local Government Dam ☐ Private Dam

      Provided related drawings, specification and supporting design information.

4. Does the project involve revised hydrology? ☒ Yes ☐ No

   If Yes, complete the Riverine Hydrology & Hydraulics Form (Form 2).

   Was the dam/basin designed using critical duration storm?

   ☒ Yes, provide supporting documentation with your completed Form 2.

   ☐ No, provide a written explanation and justification for not using the critical duration storm.

5. Does the submittal include debris/sediment yield analysis? ☐ Yes ☒ No

   If yes, then fill out Section F (Sediment Transport).
   If No, then attach your explanation for why debris/sediment analysis was not considered.

6. Does the Base Flood Elevation behind the dam or downstream of the dam change?

   ☐ Yes ☒ No If Yes, complete the Riverine Hydrology & Hydraulics Form (Form 2) and complete the table below.

   Stillwater Elevation Behind the Dam

FREQUENCY (% annual chance)	FIS	REVISED
10-year (10%)		
50-year (2%)		
100-year (1%)		
500-year (0.2%)		
Normal Pool Elevation		

7. Please attach a copy of the formal Operation and Maintenance Plan

E. LEVEE/FLOODWALL

1. System Elements

a. This Levee/Floodwall analysis is based on (check one):

☐ upgrading of an existing levee/floodwall system
☐ a newly constructed levee/floodwall system
☐ reanalysis of an existing levee/floodwall system

b. Levee elements and locations are (check one):

☐ earthen embankment, dike, berm, etc.	Station	to
☐ structural floodwall	Station	to
☐ Other (describe):	Station	to

c. Structural Type (check one):

☐ monolithic cast-in place reinforced concrete
☐ reinforced concrete masonry block
☐ sheet piling
☐ Other (describe):

d. Has this levee/floodwall system been certified by a Federal agency to provide protection from the base flood?

☐ Yes ☐ No

If Yes, by which agency?

e. Attach certified drawings containing the following information (indicate drawing sheet numbers):

1. Plan of the levee embankment and floodwall structures. Sheet Numbers:
2. A profile of the levee/floodwall system showing the Base Flood Elevation (BFE), levee and/or wall crest and foundation, and closure locations for the total levee system. Sheet Numbers:
3. A profile of the BFE, closure opening outlet and inlet invert elevations, type and size of opening, and kind of closure. Sheet Numbers:
4. A layout detail for the embankment protection measures. Sheet Numbers:
5. Location, layout, and size and shape of the levee embankment features, foundation treatment, floodwall structure, closure structures, and pump stations. Sheet Numbers:

2. Freeboard

a. The minimum freeboard provided above the BFE is:

Riverine

3.0 feet or more at the downstream end and throughout	☐ Yes	☐ No
3.5 feet or more at the upstream end	☐ Yes	☐ No
4.0 feet within 100 feet upstream of all structures and/or constrictions	☐ Yes	☐ No

Coastal

1.0 foot above the height of the one percent wave associated with the 1%-annual-chance stillwater surge elevation or maximum wave runup (whichever is greater).	☐ Yes	☐ No
2.0 feet above the 1%-annual-chance stillwater surge elevation	☐ Yes	☐ No

E. LEVEE/FLOODWALL (CONTINUED)

2. Freeboard (continued)

Please note, occasionally exceptions are made to the minimum freeboard requirement. If an exception is requested, attach documentation addressing Paragraph 65.10(b)(1)(ii) of the NFIP Regulations.

If No is answered to any of the above, please attach an explanation.

b. Is there an indication from historical records that ice-jamming can affect the BFE? ☐ Yes ☐ No

If Yes, provide ice-jam analysis profile and evidence that the minimum freeboard discussed above still exists.

3. Closures

a. Openings through the levee system (check one): ☐ exists ☐ does not exist

If opening exists, list all closures:

Channel Station	Left or Right Bank	Opening Type	Highest Elevation for Opening Invert	Type of Closure Device

(Extend table on an added sheet as needed and reference)

Note: Geotechnical and geologic data

In addition to the required detailed analysis reports, data obtained during field and laboratory investigations and used in the design analysis for the following system features should be submitted in a tabulated summary form. (Reference U.S. Army Corps of Engineers [USACE] EM-1110-2-1906 Form 2086.)

4. Embankment Protection

a. The maximum levee slope landside is:

b. The maximum levee slope floodside is:

c. The range of velocities along the levee during the base flood is: (min.) to (max.)

d. Embankment material is protected by (describe what kind):

e. Riprap Design Parameters (check one): ☐ Velocity ☐ Tractive stress
Attach references

Reach	Sideslope	Flow Depth	Velocity	Curve or Straight	Stone Riprap			Depth of Toedown
					D_{100}	D_{50}	Thickness	
Sta to								
Sta to								
Sta to								
Sta to								
Sta to								
Sta to								

(Extend table on an added sheet as needed and reference each entry)

E. LEVEE/FLOODWALL (CONTINUED)

4. Embankment Protection (continued)

f. Is a bedding/filter analysis and design attached? ☐ Yes ☐ No

g. Describe the analysis used for other kinds of protection used (include copies of the design analysis):

Attach engineering analysis to support construction plans.

5. Embankment And Foundation Stability

a. Identify locations and describe the basis for selection of critical location for analysis:

☐ Overall height: Sta. ; height ft.

☐ Limiting foundation soil strength:

Sta. , depth to

strength ϕ = degrees, c = psf

slope: SS = (h) to (v)

(Repeat as needed on an added sheet for additional locations)

b. Specify the embankment stability analysis methodology used (e.g., circular arc, sliding block, infinite slope, etc.):

c. Summary of stability analysis results:

Case	Loading Conditions	Critical Safety Factor	Criteria (Min.)
I	End of construction		1.3
II	Sudden drawdown		1.0
III	Critical flood stage		1.4
IV	Steady seepage at flood stage		1.4
VI	Earthquake (Case I)		1.0

(Reference: USACE EM-1110-2-1913 Table 6-1)

d. Was a seepage analysis for the embankment performed? ☐ Yes ☐ No

If Yes, describe methodology used:

e. Was a seepage analysis for the foundation performed? ☐ Yes ☐ No

f. Were uplift pressures at the embankment landside toe checked? ☐ Yes ☐ No

g. Were seepage exit gradients checked for piping potential? ☐ Yes ☐ No

h. The duration of the base flood hydrograph against the embankment is hours.

Attach engineering analysis to support construction plans.

E. LEVEE/FLOODWALL (CONTINUED)

6. Floodwall And Foundation Stability

a. Describe analysis submittal based on Code (check one):

☐ UBC (1988) or ☐ Other (specify):

b. Stability analysis submitted provides for:

☐ Overturning ☐ Sliding If not, explain:

c. Loading included in the analyses were:

☐ Lateral earth @ P_A = psf; P_p = psf

☐ Surcharge-Slope @ , ☐ surface psf

☐ Wind @ P_w = psf

☐ Seepage (Uplift); ☐ Earthquake @ P_{eq} = %g

☐ 1%-annual-chance significant wave height: ft.

☐ 1%-annual-chance significant wave period: sec.

d. Summary of Stability Analysis Results: Factors of Safety.

Itemize for each range in site layout dimension and loading condition limitation for each respective reach.

Loading Condition	Criteria (Min)		Sta	To	Sta	To
	Overturn	Sliding	Overturn	Sliding	Overturn	Sliding
Dead & Wind	1.5	1.5				
Dead & Soil	1.5	1.5				
Dead, Soil, Flood, & Impact	1.5	1.5				
Dead, Soil, & Seismic	1.3	1.3				

(Ref: FEMA 114 Sept 1986; USACE EM 1110-2-2502)

(Note: Extend table on an added sheet as needed and reference)

e. Foundation bearing strength for each soil type:

Bearing Pressure	Sustained Load (psf)	Short Term Load (psf)
Computed design maximum		
Maximum allowable		

f. Foundation scour protection ☐ is, ☐ is not provided. If provided, attach explanation and supporting documentation:

Attach engineering analysis to support construction plans.

E. LEVEE/FLOODWALL (CONTINUED)

7. Settlement

a. Has anticipated potential settlement been determined and incorporated into the specified construction elevations to maintain the established freeboard margin? ☐ Yes ☐ No

b. The computed range of settlement is ft. to ft.

c. Settlement of the levee crest is determined to be primarily from :

☐ Foundation consolidation
☐ Embankment compression
☐ Other (Describe):

d. Differential settlement of floodwalls ☐ has ☐ has not been accommodated in the structural design and construction.

Attach engineering analysis to support construction plans.

8. Interior Drainage

a. Specify size of each interior watershed:

Draining to pressure conduit: acres
Draining to ponding area: acres

b. Relationships Established

Ponding elevation vs. storage	☐ Yes	☐ No
Ponding elevation vs. gravity flow	☐ Yes	☐ No
Differential head vs. gravity flow	☐ Yes	☐ No

c. The river flow duration curve is enclosed: ☐ Yes ☐ No

d. Specify the discharge capacity of the head pressure conduit: cfs

e. Which flooding conditions were analyzed?

• Gravity flow (Interior Watershed)	☐ Yes	☐ No
• Common storm (River Watershed)	☐ Yes	☐ No
• Historical ponding probability	☐ Yes	☐ No
• Coastal wave overtopping	☐ Yes	☐ No

If No for any of the above, attach explanation.

f. Interior drainage has been analyzed based on joint probability of interior and exterior flooding and the capacities of pumping and outlet facilities to provide the established level of flood protection. ☐ Yes ☐ No

If No, attach explanation.

g. The rate of seepage through the levee system for the base flood is cfs

h. The length of levee system used to drive this seepage rate in item g: ft.

E. LEVEE/FLOODWALL (CONTINUED)

8. Interior Drainage (continued)

i. Will pumping plants be used for interior drainage? ☐ Yes ☐ No

If Yes, include the number of pumping plants:
For each pumping plant, list:

	Plant #1	Plant #2
The number of pumps		
The ponding storage capacity		
The maximum pumping rate		
The maximum pumping head		
The pumping starting elevation		
The pumping stopping elevation		
Is the discharge facility protected?		
Is there a flood warning plan?		
How much time is available between warning and flooding?		

Will the operation be automatic? ☐ Yes ☐ No

If the pumps are electric, are there backup power sources? ☐ Yes ☐ No

(Reference: USACE EM-1110-2-3101, 3102, 3103, 3104, and 3105)

Include a copy of supporting documentation of data and analysis. Provide a map showing the flooded area and maximum ponding elevations for all interior watersheds that result in flooding.

9. Other Design Criteria

a. The following items have been addressed as stated:

Liquefaction ☐ is ☐ is not a problem
Hydrocompaction ☐ is ☐ is not a problem
Heave differential movement due to soils of high shrink/swell ☐ is ☐ is not a problem

b. For each of these problems, state the basic facts and corrective action taken:

Attach supporting documentation

c. If the levee/floodwall is new or enlarged, will the structure adversely impact flood levels and/or flow velocities floodside of the structure?
☐ Yes ☐ No

Attach supporting documentation

d. Sediment Transport Considerations:

Was sediment transport considered? ☐ Yes ☐ No If Yes, then fill out Section F (Sediment Transport).
If No, then attach your explanation for why sediment transport was not considered.

E. LEVEE/FLOODWALL (CONTINUED)

10. Operational Plan And Criteria

    a. Are the planned/installed works in full compliance with Part 65.10 of the NFIP Regulations? ☐ Yes ☐ No

    b. Does the operation plan incorporate all the provisions for closure devices as required in Paragraph 65.10(c)(1) of the NFIP regulations? ☐ Yes ☐ No

    c. Does the operation plan incorporate all the provisions for interior drainage as required in Paragraph 65.10(c)(2) of the NFIP regulations? ☐ Yes ☐ No

    If the answer is No to any of the above, please attach supporting documentation.

11. Maintenance Plan

    a. Are the planned/installed works in full compliance with Part 65.10 of the NFIP Regulations? ☐ Yes ☐ No
    If No, please attach supporting documentation.

12. Operations and Maintenance Plan

    Please attach a copy of the formal Operations and Maintenance Plan for the levee/floodwall.

F. SEDIMENT TRANSPORT

Flooding Source:

Name of Structure:

If there is any indication from historical records that sediment transport (including scour and deposition) can affect the Base Flood Elevation (BFE); and/or based on the stream morphology, vegetative cover, development of the watershed and bank conditions, there is a potential for debris and sediment transport (including scour and deposition) to affect the BFEs, then provide the following information along with the supporting documentation:

Sediment load associated with the base flood discharge: Volume acre-feet

Debris load associated with the base flood discharge: Volume acre-feet

Sediment transport rate (percent concentration by volume)

Method used to estimate sediment transport:

Most sediment transport formulas are intended for a range of hydraulic conditions and sediment sizes; attach a detailed explanation for using the selected method.

Method used to estimate scour and/or deposition:

Method used to revise hydraulic or hydrologic analysis (model) to account for sediment transport:
Please note that bulked flows are used to evaluate the performance of a structure during the base flood; however, FEMA does not map BFEs based on bulked flows.

If a sediment analysis has not been performed, an explanation as to why sediment transport (including scour and deposition) will not affect the BFEs or structures must be provided.

STATEMENT OF EXPLANATION

1. **MT-2 Form 1, Page 2 of 2**
   Item C. Review Fee:

   The Clark County Regional Flood Control District's accounting process does not allow a check to be issued without an invoice. Please refer to the attached cover letter.

2. **MT-2 Form 3, Page 2 of 10**
   Item B.4 Channelization – Sediment Transport Considerations

   The watershed upstream of the detention basin and storm drain is entirely urbanized; therefore, the sediment supply is considered negligible.

APPENDIX B - Hydrologic Calculations

B.1 Curve Numbers and Standard Form 4

B.2 Proposed HEC-1 Model - 100 Year, 6 - Hour Storm

B.1 Curve Numbers and Standard Form 4

CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT

2002 LAS VEGAS VALLEY FLOOD CONTROL MASTER PLAN UPDATE

LEGEND

- Ultimate Development Boundary
- Watershed Boundary
- ID — Subarea Boundary
- Flow Arrows

Flood Control Facilities

- Existing Facilities
- Proposed Facilities

Type — Hydrologic Soil Groups

- A — Low Runoff Potential
- B — Moderately Low Runoff Potential
- C — Moderately High Runoff Potential
- D — High Runoff Potential

Typical Land Use

1. Undeveloped Land, Open Desert
2. Parks, Golf Courses
3. Rural
4. Low Density Residential
5. Medium Density Residential
6. High Density Residential
7. Public Facility, Multi Family
8. Commercial, Office, Retail, Casino
9. Light Industrial
10. Heavy Industrial
11. Schools
12. Lakes

N W E S

0 1,000 2,000 3,000 4,000 5,000 Feet

SCALE: 1 inch = 3000 feet

US95 I-15 I-215

HYDROLOGIC SUBAREAS, LAND USE & SOILS

FIGURE H-16

PBS&J

G.C. WALLACE, INC.

Curve Numbers

Subbasin ID	CN	Comments
LF8	90.2	From CCRFCD 2002 Las Vegas Valley Master Plan Update
LF9	80.6	See attached calculations
LF10	65.5	From CCRFCD 2002 Las Vegas Valley Master Plan Update
LF11	74.9	See attached calculations
LF12	68.9	From CCRFCD 2002 Las Vegas Valley Master Plan Update
LF13	80.9	From CCRFCD 2002 Las Vegas Valley Master Plan Update
LF14	77.8	From CCRFCD 2002 Las Vegas Valley Master Plan Update
LF15	87.7	From CCRFCD 2002 Las Vegas Valley Master Plan Update
LF16	76.8	From CCRFCD 2002 Las Vegas Valley Master Plan Update
LF17	71.0	From CCRFCD 2002 Las Vegas Valley Master Plan Update
LF18	77.0	From CCRFCD 2002 Las Vegas Valley Master Plan Update
LF19	82.4	From CCRFCD 2002 Las Vegas Valley Master Plan Update
LF20	78.2	From CCRFCD 2002 Las Vegas Valley Master Plan Update
LF20A	88.0	From CCRFCD 2002 Las Vegas Valley Master Plan Update
LF21	91.7	From CCRFCD 2002 Las Vegas Valley Master Plan Update
LF22	90.8	From CCRFCD 2002 Las Vegas Valley Master Plan Update
LF23	87.7	From CCRFCD 2002 Las Vegas Valley Master Plan Update
LF24	76.8	From CCRFCD 2002 Las Vegas Valley Master Plan Update
LF25	88.3	From CCRFCD 2002 Las Vegas Valley Master Plan Update
LF26	81.0	From CCRFCD 2002 Las Vegas Valley Master Plan Update
LF27	85.7	From CCRFCD 2002 Las Vegas Valley Master Plan Update
LF28	79.9	From CCRFCD 2002 Las Vegas Valley Master Plan Update
LF29	81.4	From CCRFCD 2002 Las Vegas Valley Master Plan Update
LF30	76.4	From CCRFCD 2002 Las Vegas Valley Master Plan Update
LF31	79.4	From CCRFCD 2002 Las Vegas Valley Master Plan Update
LF32	90.4	From CCRFCD 2002 Las Vegas Valley Master Plan Update
LF33	82.8	From CCRFCD 2002 Las Vegas Valley Master Plan Update

File	W:/Flamingo Detention Basin/Drainage/Curve Numbers.xls	Job No.	No.

Computation

Project	Lower Flamingo Detention Basin	Computed	HT	Date	9/1/2005
Subject	Curve Numbers	Checked		Date	
Task	Ultimate Conditions	Sheet	1	of	1

Soil Type 260 (High Density Residential)

HSG	Percentage	CN	
A	95%	80	76
B	0%	87	0
C	0%	90	0
D	5%	92	4.6
Composite CN			**80.6**

Soil Type 260 (Park, Poor Condition)

HSG	Percentage	CN	
A	95%	68	64.6
B	0%	79	0
C	0%	86	0
D	5%	89	4.45
Composite CN			**69.1**

Subbasin Compositive Curve Numbers (CN)

Subbasin	Soil Type	Area (acre)	Land Use	CN	A*CN	Composite CN
LF9	360	150.2	Residential	80.6	12106.1	
	TOTAL	150.2			12106.1	80.6
LF11	360	162.0	Residential	80.6	13057.2	
		162.0	Park	69.1	11194.2	
	TOTAL	324.0			24251.4	74.9

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

TIME OF CONCENTRATION

HDR, Inc.
File: FORM4.XLS

Lower Flamingo Detention Basin
Ultimate Conditions

BY: HT
DATE: 5/2/05

SUB-BASIN DATA						INITIAL / OVERLAND TIME (Ti)			TRAVEL TIME (Tt)					Tc	Tc Check	Tlag	REMARKS
DESIG: (1)	DEV./EX. (D or E)	CN	K (2)	AREA Ac (3)	AREA Mi^2	INITIAL LENGTH Feet (4)	SLOPE % (5)	Ti Min (6)	TRAVEL LENGTH Feet (7)	SLOPE % (8)	V1 VELOCITY FPS (9a)	V2 VELOCITY FPS (9b)	Tt Min (10)	Min (13)	Min (14)	Tlag= 0.6Tc/60 Hours	RAINFALL Q100/Q10 Inches
LF8	D	90.2	0.8008	321	0.502	100	1.0	5.4	7446	1.9	2.8	4.2	30.8	36.2	51.9	**0.362**	2.77/1.58
LF9	D	80.6	0.6739	276	0.431	100	1.0	7.7	6568	1.9	2.8	4.2	27.2	34.8	47.0	**0.348**	2.77/1.58
LF10	D	65.5	0.4743	141	0.221	100	1.0	11.3	5498	2.0	2.9	4.4	22.0	33.2	41.1	**0.332**	2.77/1.58
LF11	D	74.9	0.5987	324	0.506	100	1.0	9.0	7625	1.8	2.7	4.1	32.4	41.4	52.9	**0.414**	2.77/1.58
LF12	D	68.9	0.5201	164	0.257	100	1.0	10.4	6267	1.8	2.7	4.1	26.4	36.8	45.4	**0.368**	2.77/1.58
LF13	D	80.9	0.6773	332	0.519	100	1.0	7.6	7652	1.4	2.4	3.7	36.0	43.6	53.1	**0.436**	2.77/1.58
LF14	D	77.8	0.6364	166	0.259	100	1.0	8.3	6473	1.5	2.5	3.8	29.7	38.0	46.5	**0.380**	2.77/1.58
LF15	D	87.7	0.7681	172	0.268	100	1.0	6.0	6421	1.4	2.4	3.6	30.6	36.6	46.2	**0.366**	2.77/1.58
LF16	D	76.8	0.6240	332	0.519	100	1.0	8.6	7684	1.4	2.4	3.6	36.3	44.8	53.2	**0.448**	2.77/1.58
LF17	D	71.0	0.5477	171	0.267	100	1.0	9.9	3981	1.3	2.3	3.4	20.5	30.4	32.7	**0.304**	2.77/1.58
LF18	D	77.0	0.6266	315	0.492	100	1.0	8.5	6984	1.2	2.2	3.3	36.3	44.8	49.4	**0.448**	2.77/1.58
LF19	D	82.4	0.6975	195	0.305	100	1.0	7.2	5402	0.9	1.9	2.9	32.8	40.1	40.6	**0.401**	2.77/1.58
LF20	D	78.2	0.6417	323	0.504	100	1.0	8.2	6335	0.8	1.8	2.8	39.5	47.7	45.8	**0.458**	2.77/1.58
LF20A	D	88.0	0.7716	118	0.184	100	1.0	5.9	3609	1.1	2.2	3.3	19.6	25.6	30.6	**0.256**	2.77/1.58
LF21	D	91.7	0.8210	339	0.529	100	1.0	5.0	10153	0.8	1.8	2.8	62.2	67.2	67.0	**0.670**	2.77/1.58
LF22	D	90.8	0.8082	265	0.414	100	1.0	5.3	10224	1.0	2.1	3.1	56.2	61.4	67.4	**0.614**	2.77/1.58
LF23	D	87.7	0.7683	241	0.377	100	1.0	6.0	6220	1.7	2.6	4.0	27.1	33.1	45.1	**0.331**	2.77/1.58
LF24	D	76.8	0.6242	244	0.381	100	1.0	8.6	5658	1.9	2.8	4.2	23.6	32.2	42.0	**0.322**	2.77/1.58
LF25	D	88.3	0.7753	136	0.212	100	1.0	5.8	5262	0.8	1.8	2.7	34.6	40.4	39.8	**0.398**	2.77/1.58
LF26	D	81.0	0.6792	163	0.254	100	1.0	7.6	5025	1.6	2.5	3.8	23.0	30.6	38.5	**0.306**	2.77/1.58
LF27	D	85.7	0.7418	193	0.302	100	1.0	6.4	5092	1.3	2.3	3.4	26.0	32.4	38.8	**0.324**	2.77/1.58
LF28	D	79.9	0.6653	328	0.513	100	1.0	7.8	7609	1.4	2.4	3.6	36.2	44.0	52.8	**0.440**	2.77/1.58
LF29	D	81.4	0.6844	184	0.288	100	1.0	7.5	6305	0.7	1.7	2.6	41.8	49.3	45.6	**0.456**	2.77/1.58
LF30	D	76.4	0.6186	345	0.539	100	1.0	8.7	8045	1.2	2.2	3.3	41.6	50.2	55.3	**0.502**	2.77/1.58

Tc = Ti + Tt Tlag = 0.6 Tc
Ti = 1.8 (1.1 - K) L^1/2 / S^1/3
K = 0.0132 (CN) - 0.39
Tc Check = L/180+10

For the travel time (Tt) calculations,
V1 applies to the first 500 feet of travel distance;
V2 applies to the remaining travel distance.

Existing V1 = 14.8*(S/100)^1/2 Developed V1 = 20.2*(S/100)^1/2
Existing V2 = 29.4*(S/100)^1/2 Developed V2 = 30.6*(S/100)^1/2

REFERENCE :

STANDARD FORM 4

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

TIME OF CONCENTRATION

HDR, Inc.
File: FORM4.XLS

Lower Flamingo Detention Basin
Ultimate Conditions

BY: HT
DATE: 5/6/08

SUB-BASIN DATA						INITIAL / OVERLAND TIME (Ti)			TRAVEL TIME (Tt)					Tc	Tc Check	Tlag	REMARKS
DESIG: (1)	DEV./EX. (D or E)	CN	K (2)	AREA Ac (3)	AREA Mi^2	INITIAL LENGTH Feet (4)	SLOPE % (5)	Ti Min (6)	TRAVEL LENGTH Feet (7)	SLOPE % (8)	V1 VELOCITY FPS (9a)	V2 VELOCITY FPS (9b)	Tt Min (10)	Min (13)	Min (14)	Tlag= 0.6Tc/60 Hours	RAINFALL Q100/Q10 Inches
LF31	D	79.4	0.6579	227	0.355	100	1.0	8.0	6558	0.9	1.9	2.9	39.5	47.5	47.0	0.470	2.77/1.58
LF32	D	90.4	0.8037	147	0.230	100	1.0	5.3	4943	0.8	1.8	2.7	31.8	37.2	38.0	0.372	2.77/1.58
LF33	D	82.8	0.7034	117	0.183	100	1.0	7.1	4510	0.8	1.8	2.7	29.2	36.3	35.6	0.356	2.77/1.58

Tc = Ti + Tt Tlag = 0.6 Tc
Ti = 1.8 (1.1 - K) L^1/2 / S^1/3
K = 0.0132 (CN) - 0.39
Tc Check = L/180+10

For the travel time (Tt) calculations,
V1 applies to the first 500 feet of travel distance;
V2 applies to the remaining travel distance.

Existing V1 = 14.8*(S/100)^1/2 Developed V1 = 20.2*(S/100)^1/2
Existing V2 = 29.4*(S/100)^1/2 Developed V2 = 30.6*(S/100)^1/2

REFERENCE :

STANDARD FORM 4

B.2 Proposed HEC-1 Model - 100 Year, 6 - Hour Storm

```
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *             JUN   1998               *
 *          VERSION 4.1                 *
 *                                      *
 *  RUN DATE   02FEB09  TIME  15:52:37  *
 *                                      *
 ****************************************
```


```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*         609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```


```
X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X               X
XXXXXXX  XXXX     X         XXXXX   X
X     X  X        X               X
X     X  X        X     X         X
X     X  XXXXXXX   XXXXX          XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM


```
          LINE           ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

                         *DIAGRAM
 *** FREE ***
             1           ID   ********************************************************************************
             2           ID   * ...................................................................... *
             3           ID   * :                                                                    : *
             4           ID   * :                    LOWER FLAMINGO DETENTION BASIN                  : *
             5           ID   * :                         (ULTIMATE CONDITIONS)                      : *
             6           ID   * :                                                                    : *
             7           ID   * :....................................................................: *
             8           ID   * :                RETURN PERIOD_ _ _ _ _ _100 YEAR                    : *
             9           ID   * :                DISTRIBUTION_ _ _ _ _ _ 6-HOUR, SDN4                : *
            10           ID   * :                PROJECT NO_ _ _ _ _ _ _ CB1004                      : *
            11           ID   * :                FILENAME_ _ _ _ _ _ _ _ M11_6h.DAT                  : *
            12           ID   * :                DATE_ _ _ _ _ _ _ _ _ _ 1/27/2008                   : *
            13           ID   * :                BY_ _ _ _ _ _ _ _ _ _ _ LBG                         : *
            14           ID   * :....................................................................: *
            15           ID   *                                                                      *
            16           ID   ********************************************************************************
            17           ID
            18           ID    THIS MODEL IS BASED ON THE INPUT FILE NAMED "MODEL11" FROM "HYDROLOGIC AND
            19           ID    HYDRAULIC REPORT (90% DESIGN) - LOWER FLAMINGO DETENTION BASIN
            20           ID    TROPICANA/DECATUR PARK SITE PREPARED BY HDR FOR CCRFCD ON MAY 2008.
            21           ID
            22           ID    ============================================================================
            23           ID   ID  MODEL 11:  DIRECT TRIBUTARY AREA ONLY, TRIBUTARY AREA 8.84 MI^2, SDN 4 ST
            24           ID
            25           IT       5       0       0     300
            26           IO       5
            27           IN       5
                         * Tributary Area: 8.84 mi^2
                         * DARF (Depth-Area Reduction Factor): 0.87
                         *
            28           JR    PREC    0.87
                         *

            29           KK    LF10
            30           BA   0.221
            31           PB    2.77
            32           PC       0    0.02   0.058   0.075   0.099   0.126   0.137   0.145   0.149   0.151
            33           PC   0.155   0.156   0.159   0.162   0.169   0.172   0.179   0.189   0.201   0.211
            34           PC    0.22   0.228   0.232    0.24   0.246   0.252    0.26   0.269   0.276   0.283
            35           PC   0.286   0.292   0.302   0.312   0.321   0.332   0.352   0.376   0.416   0.462
            36           PC    0.53    0.61    0.71    0.73   0.756   0.782   0.799   0.813   0.823    0.83
            37           PC   0.835   0.844   0.851   0.864   0.885   0.908   0.924   0.944   0.968   0.973
            38           PC   0.978   0.982   0.984   0.986   0.988   0.991   0.992   0.993   0.994   0.997
            39           PC   0.998   0.999       1
            40           LS       0    65.5
            41           UD   0.332
                         *
```



```
          LINE           ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


            42           KK     LF8
            43           BA   0.502
            44           PB    2.77
            45           LS       0    90.2
            46           UD   0.362
                         *

            47           KK    RLF8
            48           KM   ROUTE LF8 THROUGH LF9 TO CLF9
            49           KM   FACILITY = FLAMINGO WASH - BUFFALO
            50           KM   FACILITY # = FLBF 0278, 0258, 0252
            51           KM   LINING = RCP
            52           RD    2650   0.007   0.013       0    CIRC     7.5
                         *
```

```
  53          KK     LF9
  54          BA   0.431
  55          PB    2.77
  56          LS       0    80.6
  57          UD   0.348
              *

  58          KK    CLF9
  59          KM   COMBINE LF8 AND LF9
  60          HC       2
              *

  61          KK   RCLF9
  62          KM   ROUTE CLF9 THROUGH LF10 TO CLF10
  63          KM   FACILITY = FLAMINGO WASH - BUFFALO
  64          KM   FACILITY # = FLBF 0228
  65          KM   LINING = RCP
  66          RD    1350   0.012   0.013       0    CIRC       8
              *

  67          KK   CLF10
  68          KM   COMBINE CLF9 AND CLF10W
  69          HC       2
              *

  70          KK  RCLF10
  71          KM   ROUTE CLF10 THROUGH LF11 TO CLF11
  72          KM   FACILITY = FLAMINGO WASH - BUFFALO
  73          KM   FACILITY # = FLBF 0152
  74          KM   LINING = RCB
  75          RD    2650   0.003   0.015       0    TRAP      10       0
              *

  76          KK    LF11
  77          BA   0.506
  78          PB    2.77
  79          LS       0    74.9
  80          UD   0.414
              *
1                                      HEC-1 INPUT                                          PAGE  3

 LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  81          KK   CLF11
  82          KM   COMBINE CLF10 AND LF11
  83          HC       2
              *

  84          KK  RCLF11
  85          KM   ROUTE CLF11 TO CLF12
  86          KM   FACILITY = FLAMINGO WASH - BUFFALO
  87          KM   FACILITY # = FLBF 0152, 0142
  88          KM   LINING = RCB
  89          RD    1350   0.007   0.015       0    TRAP      12       0
              *

  90          KK    LF12
  91          BA   0.257
  92          PB    2.77
  93          LS       0    69.0
  94          UD   0.368
              *

  95          KK   CLF12
  96          KM   COMBINE CLF11 AND LF12
  97          HC       2
              *

  98          KK  RCLF12
  99          KM   ROUTE CLF12 TO CLF13
 100          KM   FACILITY = FLAMINGO WASH - BUFFALO
 101          KM   FACILITY # = FLBF 0125
 102          KM   LINING = RCB
 103          RD    2750   0.003   0.015       0    TRAP      18       0
              *

 104          KK    LF13
 105          BA   0.519
 106          PB    2.77
 107          LS       0    80.9
 108          UD   0.436
              *

 109          KK   CLF13
 110          KM   COMBINE CLF12 AND LF13
 111          HC       2
              *

 112          KK  RCLF13
 113          KM   ROUTE CLF13 TO CLF14
 114          KM   FACILITY = FLAMINGO WASH - BUFFALO
 115          KM   FACILITY # = FLBF 0107, 0047
 116          KM   LINING = RCB/CONCRETE
 117          RD    1400   0.003   0.015       0    TRAP      20       0
              *
1                                      HEC-1 INPUT                                          PAGE  4

 LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 118          KK    LF14
 119          BA   0.259
 120          PB    2.77
 121          LS       0    77.8
```

```
 122          UD    0.38
              *

 123          KK   CLF14
 124          KM   COMBINE CLF13 AND LF14
 125          HC       2
              *

 126          KK  RCLF14
 127          KM   ROUTE CLF14 TO CLF15
 128          KM   FACILITY = FLAMINGO WASH - BUFFALO
 129          KM   FACILITY # = FLBF 0047
 130          KM   LINING = CONCRETE
 131          RD    1400   0.003   0.015       0    TRAP      10       2
              *

 132          KK    LF15
 133          BA   0.268
 134          PB    2.77
 135          LS       0    87.7
 136          UD   0.366
              *

 137          KK   CLF15
 138          KM   COMBINE CLF14 AND LF15
 139          HC       2
              *

 140          KK  RCLF15
 141          KM   ROUTE CLF15 TO CLF16
 142          KM   FACILITY = FLAMINGO WASH - BUFFALO
 143          KM   FACILITY # = FLBF 0045, 0035, 0000
 144          KM   LINING = GABION
 145          RD    2500    0.01   0.035       0    TRAP      35       3
              *

 146          KK    LF16
 147          BA   0.519
 148          PB    2.77
 149          LS       0    76.8
 150          UD   0.448
              *

 151          KK   CLF16
 152          KM   COMBINE CLF15 AND LF16
 153          HC       2
              *
1                                      HEC-1 INPUT                                          PAGE  5

 LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 154          KK  RCLF16
 155          KM   ROUTE CLF16 THROUGH LF17 TO CLF17
 156          KM   FACILITY = FLAMINGO WASH
 157          KM   FACILITY # = FLWA 1335, FLWA 1267
 158          KM   LINING = GABION
 159          RD    2900   0.009   0.035       0    TRAP      40       1
              *

 160          KK    LF17
 161          BA   0.267
 162          PB    2.77
 163          LS       0    71.0
 164          UD   0.304
              *

 165          KK   CLF17
 166          KM   COMBINE CLF16 AND LF17
 167          HC       2
              *

 168          KK  RCLF17
 169          KM   ROUTE CLF17 THROUGH LF19 TO CLF19
 170          KM   FACILITY = FLAMINGO WASH
 171          KM   FACILITY # = FLWA 1267, FLWA 1237
 172          KM   LINING = GABION
 173          RD    4400   0.009   0.035       0    TRAP      40       1
              *

 174          KK    LF19
 175          BA   0.305
 176          PB    2.77
 177          LS       0    82.4
 178          UD   0.401
              *

 179          KK  CLF19S
 180          KM   COMBINE CLF17 AND LF19
 181          HC       2
              *

 182          KK    LF18
 183          BA   0.492
 184          PB    2.77
 185          LS       0    77.0
 186          UD   0.449
              *

 187          KK   RLF18
 188          KM   ROUTE LF18 TO CLF19
 189          KM   TROPICANA AVENUE
 190          RD    1300   0.009   0.016       0    TRAP       0      50
              *
1                                      HEC-1 INPUT                                          PAGE  6
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 191          KK   CLF19
 192          KM   COMBINE CLF19S AND LF18
 193          HC       2
              *

 194          KK  RCLF19
 195          KM   ROUTE CLF19 THROUGH LF20 TO CLF20
 196          KM   FACILITY = FLAMINGO WASH
 197          KM   FACILITY # = FLWA 1203
 198          KM   LINING = CONCRETEL
 199          RD    1780   0.012   0.015       0    TRAP      40       2
              *

 200          KK  RCLF19
 201          KM   ROUTE CLF19 THROUGH LF20 TO CLF20
 202          KM   FACILITY = FLAMINGO WASH
 203          KM   FACILITY # = FLWA 1152
 204          KM   LINING = GABION
 205          RD    2770   0.012   0.035       0    TRAP      50       2
              *

 206          KK    LF20
 207          BA   0.504
 208          PB    2.77
 209          LS       0    78.2
 210          UD   0.458
              *

 211          KK   CLF20
 212          KM   COMBINE CLF19 AND LF20
 213          HC       2
              *

 214          KK  RCLF20
 215          KM   ROUTE CLF20 THROUGH LF20A TO CLF20A (TO LOWER FLAMINGO DETENTION BASIN)
 216          KM   FACILITY = FLAMINGO WASH
 217          KM   FACILITY # = FLWA 1149, 1111
 218          KM   LINING = RIP RAP CHANNEL
 219          RD    2550    0.01    0.04       0    TRAP      40       2
              *

 220          KK   LF20A
 221          BA   0.184
 222          PB    2.77
 223          LS       0    88.0
 224          UD   0.255
              *

 225          KK    COM1
 226          KM   COMBINE CLF20 AND LF20A
 227          HC       2
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 228          KK    LF26
 229          BA   0.254
 230          PB    2.77
 231          LS       0    81.0
 232          UD   0.306
              *

 233          KK   RLF26
 234          KM   ROUTE LF26 TO CLF27
 235          KM   TWAIN AVENUE
 236          RD    2650   0.019   0.016       0    TRAP       0      50
              *

 237          KK    LF27
 238          BA   0.302
 239          PB    2.77
 240          LS       0    85.7
 241          UD   0.324
              *

 242          KK   CLF27
 243          KM   COMBINE LF26 AND LF27
 244          HC       2
              *

 245          KK  RCLF27
 246          KM   ROUTE CLF27 TO CLF28
 247          KM   FACILITY = FLAMINGO WASH - LATERAL DRAIN (FLAMINGO/RAINBOW)
 248          KM   FACILITY # = FLLA 0227, FLLA 0203
 249          KM   LINING = RCP
 250          RD    2700   0.003   0.013       0    CIRC       8
              *

 251          KK    LF28
 252          BA   0.513
 253          PB    2.77
 254          LS       0    80.0
 255          UD    0.44
              *

 256          KK   CLF28
 257          KM   COMBINE CLF27, AND LF28
 258          HC       2
              *

 259          KK  RCLF28
```

```
 260          KM   ROUTE CLF28 TO CLF29
 261          KM   FACILITY = FLAMINGO WASH - LATERAL DRAIN (FLAMINGO/RAINBOW)
 262          KM   FACILITY # = FLLA 0104
 263          KM   LINING = RCP
 264          RD    5400    0.01   0.013       0    CIRC     9.5
              *
1                                      HEC-1 INPUT                                                    PAGE  8

        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 265          KK    LF29
 266          BA   0.288
 267          PB    2.77
 268          LS       0    81.4
 269          UD   0.456
              *

 270          KK   CLF29
 271          KM   COMBINE CLF28 AND LF29
 272          HC       2
              *

 273          KK  RCLF29
 274          KM   ROUTE CLF29 TO CLF31
 275          KM   FACILITY = FLAMINGO WASH - LATERAL DRAIN (FLAMINGO/RAINBOW)
 276          KM   FACILITY # = FLLA 0076
 277          KM   LINING = RCP
 278          RD    1450    0.01   0.013       0    CIRC     9.5
              *

 279          KK    LF30
 280          BA   0.539
 281          PB    2.77
 282          LS       0    76.4
 283          UD   0.502
              *

 284          KK   RLF30
 285          KM   ROUTE LF30 THROUGH LF31 TO CLF31
 286          KM   VARIOUS STREETS, SPRING VALLEY NEIGHBORHOOD
 287          RD    7000   0.009   0.016       0    TRAP       0      50
              *

 288          KK    LF31
 289          BA   0.355
 290          PB    2.77
 291          LS       0    79.4
 292          UD    0.47
              *

 293          KK   CLF31
 294          KM   COMBINE CLF29, LF30 AND LF31
 295          HC       3
              *

 296          KK  RCLF31
 297          KM   ROUTE CLF31 TO CLF32
 298          KM   FACILITY = FLAMINGO WASH - LATERAL DRAIN (FLAMINGO/RAINBOW)
 299          KM   FACILITY # = FLLA 0000
 300          KM   LINING = CONCRETE
 301          RD    3600   0.007   0.015       0    TRAP      20       0
              *
1                                      HEC-1 INPUT                                                    PAGE  9

        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 302          KK    LF32
 303          BA   0.230
 304          PB    2.77
 305          LS       0    90.4
 306          UD   0.372
              *

 307          KK    COM2
 308          KM   COMBINE CLF31 AND LF32
 309          HC       2
              *

 310          KK   RCOM2
 311          KM   ROUTE COM2 TO LF33 (LOWER FLAMINGO DETENTION BASIN)
 312          KM   FACILITY = FLAMINGO WASH - LATERAL DRAIN (FLAMINGO/RAINBOW)
 313          KM   FACILITY # = FLLA 0000
 314          KM   LINING = CONCRETE
 315          RD     650    0.01   0.015       0    TRAP      20       0
              *

 316          KK    COM3
 317          KM   COMBINE COM1 AND RCOM2
 318          HC       2
              *

 319          KK    LF21
 320          BA   0.529
 321          PB    2.77
 322          LS       0    91.7
 323          UD    0.67
              *

 324          KK   RLF21
 325          KM   ROUTE LF21 THROUGH LF22 TO CLF22
 326          KM   TROPICANA AVENUE
 327          RD    5150   0.011   0.016       0    TRAP       0      50
              *
```

```
 328           KK    LF22
 329           BA   0.414
 330           PB    2.77
 331           LS       0    90.8
 332           UD   0.614
               *

 333           KK    COM4
 334           KM   COMBINE CLF21 AND LF22
 335           HC       2
               *
1                                          HEC-1 INPUT                                                PAGE 10

          LINE           ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

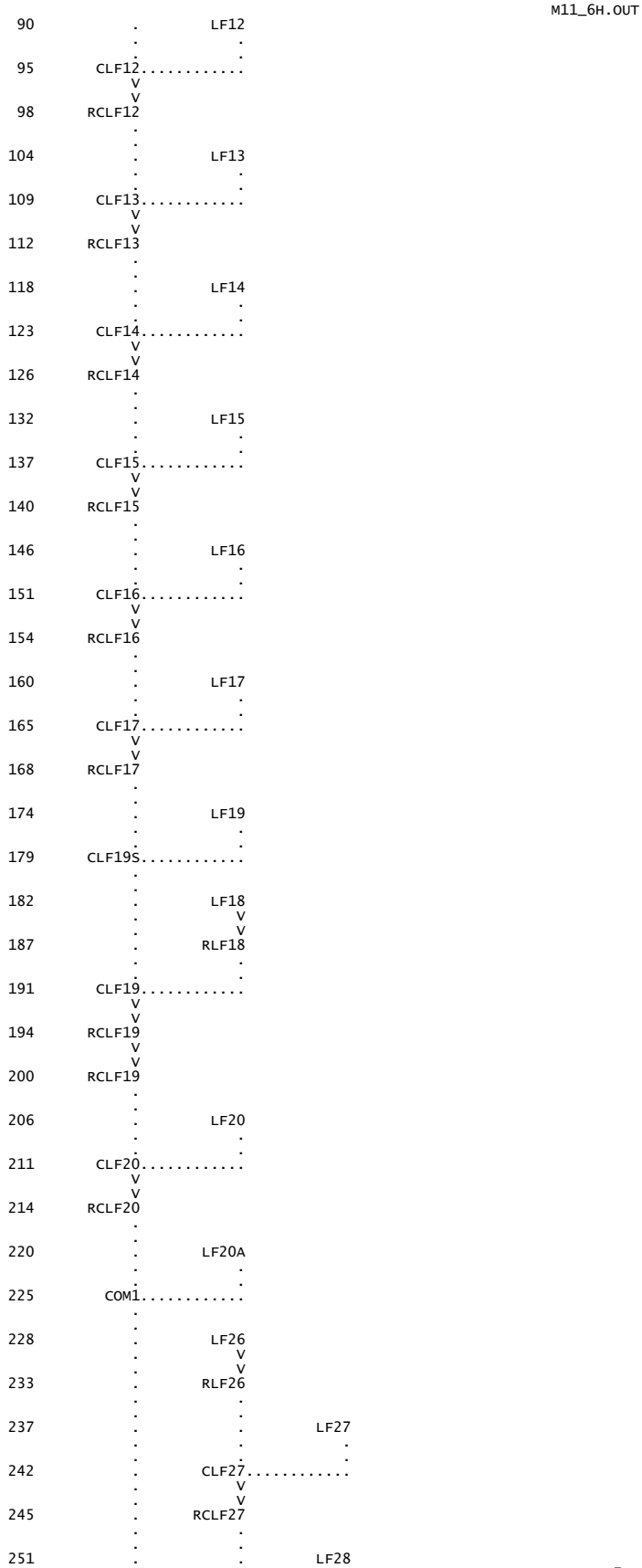

 336           KK    LF33
 337           BA   0.183
 338           PB    2.77
 339           LS       0    82.8
 340           UD   0.356
               *

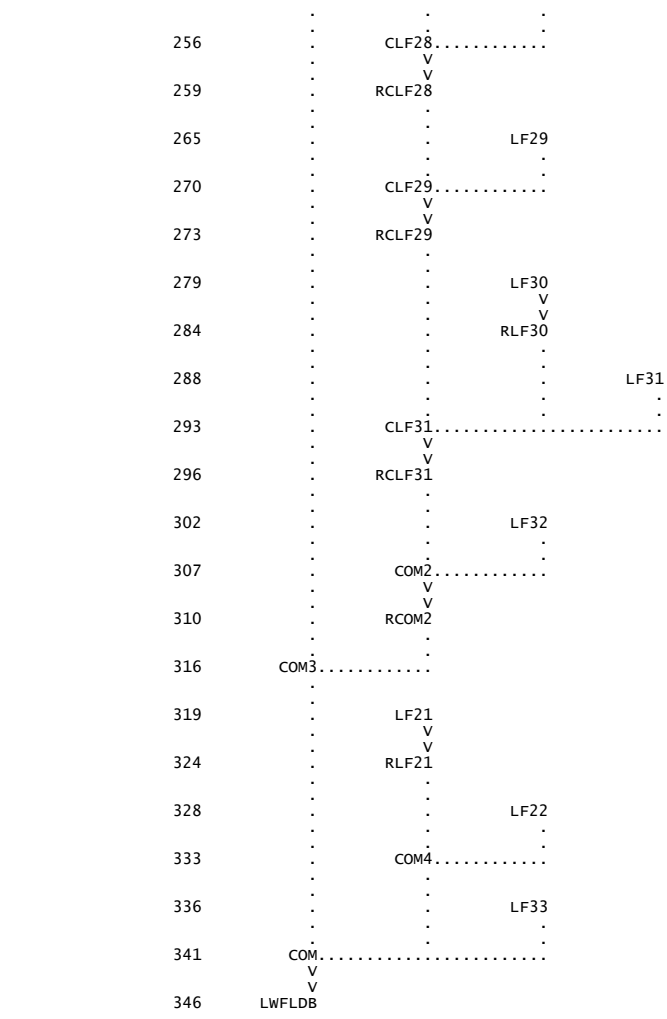
 341           KK     COM
 342           KM   COMBINE COM3, COM4, AND LF33
 343           KM   TOTAL INFLOW TO LOWER FLAMINGO DETENTION BASIN
 344           KO       1
 345           HC       3
               *
               * KK LWFLDB
               * KM TAKEN FROM 1996 MPU MODEL:  ULFLAM5.DAT
               * KM LOWER FLAMINGO DETENTION BASIN
               * KM MAX. STORAGE IN MAIN PARK AREA
               * KM FACILITY ID-MILE = FLWA 1050
               * KM STORAGE VOLUME = 156 ACRE-FEET
               * KM OUTLET = 2-72" OUTLET; MAX POOL = 2254
               * KM 100-YR DISCHARGE = 908 CFS
               * KM SPILLWAY LENGTH = 400 FT
               * KM SPILLWAY CREST ELEVATION = 2252.41 FT
               * KM PMF DISCHARGE = UNKNOWN (ASSUMED 1U*1U0YR = 29,000 CFS)
               * KM TOP OF DAM ELEVATION = UNKNOWN
               * KM SV CARDS ADJUSTED BY A FACTOR OF:    1.0
               * RS 1 STOR -1
               * SV 0 0 62 247 705 1341
               * SE 2230 2235 2240 2245 2253 2263
               * SL 2233 57 0.61 0.5
               * SS 2254 400 3 1.5
               *

 346           KK  LWFLDB
 347           KM   THE ABOVE MPU DETENTION BASIN ROUTING IS NO LONGER APPLICABLE
 348           KM   ROUTING INPUT CARDS SE/SV REVISED WITH NEW STAGE-STORAGE RELATIONSHIP
 349           KM   ROUTING INPUT CARDS SE/SQ REVISED WITH NEW STAGE-DISCHARGE RELATIONSHIP
 350           KO       1
 351           RS       1    STOR      -1
 352           SV     0.0    0.38    1.12    2.53    5.49   11.30   20.73   32.71   45.59   58.94
 353           SV   72.69   86.82  101.33  116.26  133.83  156.26  182.41  210.03  238.12  266.69
 354           SE    2234    2236    2237    2238    2239    2240    2241    2242    2243    2244
 355           SE    2245    2246    2247    2248    2249    2250    2251    2252    2253    2254
 356           SQ       0     100     200     300     400     500     600     700     800     900
 357           SQ     956
 358           SE    2234 2236.69 2238.28 2239.65 2240.87 2242.00 2243.68 2246.09 2248.89 2252.04
 359           SE 2253.98
               *
               *
 360           ZZ
1
               SCHEMATIC DIAGRAM OF STREAM NETWORK
  INPUT
   LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

    NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

     29        LF10
               .
               .
     42        .         LF8
               .          V
               .          V
     47        .        RLF8
               .          .
               .          .
     53        .          .         LF9
               .          .          .
               .          .          .
     58        .        CLF9.........
               .          V
               .          V
     61        .       RCLF9
               .          .
               .          .
     67       CLF10.......
               V
               V
     70       RCLF10
               .
               .
     76        .        LF11
               .          .
               .          .
     81       CLF11.......
               V
               V
     84       RCLF11
               .
               .
```


90 LF12
95 CLF12
98 RCLF12
104 LF13
109 CLF13
112 RCLF13
118 LF14
123 CLF14
126 RCLF14
132 LF15
137 CLF15
140 RCLF15
146 LF16
151 CLF16
154 RCLF16
160 LF17
165 CLF17
168 RCLF17
174 LF19
179 CLF19S
182 LF18
187 RLF18
191 CLF19
194 RCLF19
200 RCLF19
206 LF20
211 CLF20
214 RCLF20
220 LF20A
225 COM1
228 LF26
233 RLF26
237 LF27
242 CLF27
245 RCLF27
251 LF28



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             JUN   1998                *
*            VERSION 4.1                *
*                                       *
*  RUN DATE   02FEB09  TIME  15:52:37   *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
*****************************************
```

```
*************************************************************************
* .....................................................................  *
* :                                                                   :  *
* :                    LOWER FLAMINGO DETENTION BASIN                 :  *
* :                         (ULTIMATE CONDITIONS)                     :  *
* :                                                                   :  *
* :...................................................................:  *
* :                RETURN PERIOD_ _ _ _ _ _100 YEAR                   :  *
* :                DISTRIBUTION_ _ _ _ _ _ 6-HOUR, SDN4               :  *
* :                PROJECT NO_ _ _ _ _ _ _ CB1004                     :  *
* :                FILENAME_ _ _ _ _ _ _ _ M11_6h.DAT                 :  *
* :                DATE_ _ _ _ _ _ _ _ _ _ 1/27/2008                  :  *
* :                BY_ _ _ _ _ _ _ _ _ _ _ LBG                        :  *
* :...................................................................:  *
*                                                                       *
*************************************************************************

 THIS MODEL IS BASED ON THE INPUT FILE NAMED "MODEL11" FROM "HYDROLOGIC AND
 HYDRAULIC REPORT (90% DESIGN) - LOWER FLAMINGO DETENTION BASIN
 TROPICANA/DECATUR PARK SITE PREPARED BY HDR FOR CCRFCD ON MAY 2008.

 =====================================================================
ID  MODEL 11:  DIRECT TRIBUTARY AREA ONLY, TRIBUTARY AREA 8.84 MI^2, SDN 4 ST

  26 IO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
```

```
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE

  IT          HYDROGRAPH TIME DATA
                    NMIN            5  MINUTES IN COMPUTATION INTERVAL
                    IDATE       1   0  STARTING DATE
                    ITIME         0000  STARTING TIME
                      NQ           300  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE       2   0  ENDING DATE
                   NDTIME         0055  ENDING TIME
                   ICENT           19  CENTURY MARK

                COMPUTATION INTERVAL     .08 HOURS
                    TOTAL TIME BASE   24.92 HOURS

       ENGLISH UNITS
            DRAINAGE AREA         SQUARE MILES
            PRECIPITATION DEPTH   INCHES
            LENGTH, ELEVATION     FEET
            FLOW                  CUBIC FEET PER SECOND
            STORAGE VOLUME        ACRE-FEET
            SURFACE AREA          ACRES
            TEMPERATURE           DEGREES FAHRENHEIT

  JP          MULTI-PLAN OPTION
                    NPLAN           1  NUMBER OF PLANS

  JR          MULTI-RATIO OPTION
                RATIOS OF PRECIPITATION
                .87


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
341 KK    *       COM  *
          *            *
          **************

344 KO          OUTPUT CONTROL VARIABLES
                    IPRNT           1  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE

345 HC          HYDROGRAPH COMBINATION
                    ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE
                                                    ***
```

****

HYDROGRAPH AT STATION COM
SUM OF 3 HYDROGRAPHS
PLAN 1, RATIO = .87

****

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0615	76	513.	1		1230	151	0.	1		1845	226	0.
1		0005	2	0.	1		0620	77	451.	1		1235	152	0.	1		1850	227	0.
1		0010	3	0.	1		0625	78	397.	1		1240	153	0.	1		1855	228	0.
1		0015	4	0.	1		0630	79	350.	1		1245	154	0.	1		1900	229	0.
1		0020	5	0.	1		0635	80	308.	1		1250	155	0.	1		1905	230	0.
1		0025	6	0.	1		0640	81	271.	1		1255	156	0.	1		1910	231	0.
1		0030	7	1.	1		0645	82	238.	1		1300	157	0.	1		1915	232	0.
1		0035	8	3.	1		0650	83	209.	1		1305	158	0.	1		1920	233	0.
1		0040	9	6.	1		0655	84	184.	1		1310	159	0.	1		1925	234	0.
1		0045	10	8.	1		0700	85	162.	1		1315	160	0.	1		1930	235	0.
1		0050	11	11.	1		0705	86	143.	1		1320	161	0.	1		1935	236	0.
1		0055	12	12.	1		0710	87	124.	1		1325	162	0.	1		1940	237	0.
1		0100	13	14.	1		0715	88	108.	1		1330	163	0.	1		1945	238	0.
1		0105	14	15.	1		0720	89	92.	1		1335	164	0.	1		1950	239	0.
1		0110	15	17.	1		0725	90	79.	1		1340	165	0.	1		1955	240	0.
1		0115	16	20.	1		0730	91	66.	1		1345	166	0.	1		2000	241	0.
1		0120	17	22.	1		0735	92	56.	1		1350	167	0.	1		2005	242	0.
1		0125	18	25.	1		0740	93	46.	1		1355	168	0.	1		2010	243	0.
1		0130	19	29.	1		0745	94	38.	1		1400	169	0.	1		2015	244	0.
1		0135	20	33.	1		0750	95	31.	1		1405	170	0.	1		2020	245	0.
1		0140	21	38.	1		0755	96	25.	1		1410	171	0.	1		2025	246	0.
1		0145	22	44.	1		0800	97	21.	1		1415	172	0.	1		2030	247	0.
1		0150	23	49.	1		0805	98	17.	1		1420	173	0.	1		2035	248	0.
1		0155	24	54.	1		0810	99	14.	1		1425	174	0.	1		2040	249	0.
1		0200	25	59.	1		0815	100	11.	1		1430	175	0.	1		2045	250	0.
1		0205	26	66.	1		0820	101	9.	1		1435	176	0.	1		2050	251	0.
1		0210	27	74.	1		0825	102	7.	1		1440	177	0.	1		2055	252	0.
1		0215	28	83.	1		0830	103	6.	1		1445	178	0.	1		2100	253	0.
1		0220	29	92.	1		0835	104	5.	1		1450	179	0.	1		2105	254	0.
1		0225	30	101.	1		0840	105	4.	1		1455	180	0.	1		2110	255	0.
1		0230	31	109.	1		0845	106	3.	1		1500	181	0.	1		2115	256	0.
1		0235	32	115.	1		0850	107	2.	1		1505	182	0.	1		2120	257	0.
1		0240	33	122.	1		0855	108	2.	1		1510	183	0.	1		2125	258	0.
1		0245	34	130.	1		0900	109	2.	1		1515	184	0.	1		2130	259	0.
1		0250	35	140.	1		0905	110	1.	1		1520	185	0.	1		2135	260	0.
1		0255	36	152.	1		0910	111	1.	1		1525	186	0.	1		2140	261	0.
1		0300	37	167.	1		0915	112	1.	1		1530	187	0.	1		2145	262	0.
1		0305	38	188.	1		0920	113	1.	1		1535	188	0.	1		2150	263	0.
1		0310	39	219.	1		0925	114	1.	1		1540	189	0.	1		2155	264	0.
1		0315	40	265.	1		0930	115	0.	1		1545	190	0.	1		2200	265	0.
1		0320	41	336.	1		0935	116	0.	1		1550	191	0.	1		2205	266	0.
1		0325	42	450.	1		0940	117	0.	1		1555	192	0.	1		2210	267	0.
1		0330	43	624.	1		0945	118	0.	1		1600	193	0.	1		2215	268	0.
1		0335	44	864.	1		0950	119	0.	1		1605	194	0.	1		2220	269	0.

1	0340	45	1159.	*	1	0955	120	0.	*	1	1610	195	0.	*	1	2225	270	0.
1	0345	46	1470.	*	1	1000	121	0.	*	1	1615	196	0.	*	1	2230	271	0.
1	0350	47	1786.	*	1	1005	122	0.	*	1	1620	197	0.	*	1	2235	272	0.
1	0355	48	2154.	*	1	1010	123	0.	*	1	1625	198	0.	*	1	2240	273	0.
1	0400	49	2600.	*	1	1015	124	0.	*	1	1630	199	0.	*	1	2245	274	0.
1	0405	50	2953.	*	1	1020	125	0.	*	1	1635	200	0.	*	1	2250	275	0.
1	0410	51	3101.	*	1	1025	126	0.	*	1	1640	201	0.	*	1	2255	276	0.
1	0415	52	3065.	*	1	1030	127	0.	*	1	1645	202	0.	*	1	2300	277	0.
1	0420	53	2894.	*	1	1035	128	0.	*	1	1650	203	0.	*	1	2305	278	0.
1	0425	54	2661.	*	1	1040	129	0.	*	1	1655	204	0.	*	1	2310	279	0.
1	0430	55	2420.	*	1	1045	130	0.	*	1	1700	205	0.	*	1	2315	280	0.
1	0435	56	2198.	*	1	1050	131	0.	*	1	1705	206	0.	*	1	2320	281	0.
1	0440	57	2006.	*	1	1055	132	0.	*	1	1710	207	0.	*	1	2325	282	0.
1	0445	58	1855.	*	1	1100	133	0.	*	1	1715	208	0.	*	1	2330	283	0.
1	0450	59	1753.	*	1	1105	134	0.	*	1	1720	209	0.	*	1	2335	284	0.
1	0455	60	1692.	*	1	1110	135	0.	*	1	1725	210	0.	*	1	2340	285	0.
1	0500	61	1659.	*	1	1115	136	0.	*	1	1730	211	0.	*	1	2345	286	0.
1	0505	62	1637.	*	1	1120	137	0.	*	1	1735	212	0.	*	1	2350	287	0.
1	0510	63	1619.	*	1	1125	138	0.	*	1	1740	213	0.	*	1	2355	288	0.
1	0515	64	1594.	*	1	1130	139	0.	*	1	1745	214	0.	*	2	0000	289	0.
1	0520	65	1556.	*	1	1135	140	0.	*	1	1750	215	0.	*	2	0005	290	0.
1	0525	66	1501.	*	1	1140	141	0.	*	1	1755	216	0.	*	2	0010	291	0.
1	0530	67	1426.	*	1	1145	142	0.	*	1	1800	217	0.	*	2	0015	292	0.
1	0535	68	1326.	*	1	1150	143	0.	*	1	1805	218	0.	*	2	0020	293	0.
1	0540	69	1210.	*	1	1155	144	0.	*	1	1810	219	0.	*	2	0025	294	0.
1	0545	70	1089.	*	1	1200	145	0.	*	1	1815	220	0.	*	2	0030	295	0.
1	0550	71	970.	*	1	1205	146	0.	*	1	1820	221	0.	*	2	0035	296	0.
1	0555	72	858.	*	1	1210	147	0.	*	1	1825	222	0.	*	2	0040	297	0.
1	0600	73	757.	*	1	1215	148	0.	*	1	1830	223	0.	*	2	0045	298	0.
1	0605	74	665.	*	1	1220	149	0.	*	1	1835	224	0.	*	2	0050	299	0.
1	0610	75	585.	*	1	1225	150	0.	*	1	1840	225	0.	*	2	0055	300	0.
				*					*					*					

****

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
(CFS)	(HR)					
		(CFS)				
3101.	4.17		868.	219.	211.	211.
		(INCHES)	.913	.920	.920	.920
		(AC-FT)	431.	434.	434.	434.

CUMULATIVE AREA = 8.84 SQ MI

*** ***

```
346 KK      **************
            *            *
            *    LWFLDB  *
            *            *
            **************

350 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          1  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

                HYDROGRAPH ROUTING DATA

351 RS          STORAGE ROUTING
                      NSTPS          1  NUMBER OF SUBREACHES
                       ITYP       STOR  TYPE OF INITIAL CONDITION
                     RSVRIC      -1.00  INITIAL CONDITION
                          X        .00 WORKING R AND D COEFFICIENT

352 SV            STORAGE          .0        .4       1.1       2.5       5.5      11.3      20.7      32.7      45.6      58.9
                                  72.7      86.8     101.3     116.3     133.8     156.3     182.4     210.0     238.1     266.7

354 SE          ELEVATION     2234.00   2236.00   2237.00   2238.00   2239.00   2240.00   2241.00   2242.00   2243.00   2244.00
                              2245.00   2246.00   2247.00   2248.00   2249.00   2250.00   2251.00   2252.00   2253.00   2254.00

356 SQ          DISCHARGE          0.      100.      200.      300.      400.      500.      600.      700.      800.      900.
                                  956.

358 SE          ELEVATION     2234.00   2236.69   2238.28   2239.65   2240.87   2242.00   2243.68   2246.09   2248.89   2252.04
                              2253.98

                                                      ***

                                        COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .38       .89      1.12      2.53      3.36      5.49      9.27     11.30     19.51
          OUTFLOW        .00     74.35    100.00    119.50    182.39    200.00    252.56    300.00    328.69    400.00
        ELEVATION    2234.00   2236.00   2236.69   2237.00   2238.00   2238.28   2239.00   2239.65   2240.00   2240.87

          STORAGE      20.73     32.71     45.59     54.67     58.94     72.69     86.82     88.13    101.33    116.26
          OUTFLOW     411.50    500.00    559.53    600.00    613.28    654.77    696.26    700.00    732.50    768.22
        ELEVATION    2241.00   2242.00   2243.00   2243.68   2244.00   2245.00   2246.00   2246.09   2247.00   2248.00

          STORAGE     131.90    133.83    156.26    182.41    210.03    211.15    238.12    266.12    266.69
          OUTFLOW     800.00    803.50    835.24    866.98    898.73    900.00    927.71    956.00    956.58
        ELEVATION    2248.89   2249.00   2250.00   2251.00   2252.00   2252.04   2253.00   2253.98   2254.00
```

****

HYDROGRAPH AT STATION LWFLDB
PLAN 1, RATIO = .87

****

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE

1	0000	1	0.	.0	2234.0	*	1	0820	101	722.	97.2	2246.7	*	1	1640	201	0.	.0	2234.0
1	0005	2	0.	.0	2234.0	*	1	0825	102	710.	92.3	2246.4	*	1	1645	202	0.	.0	2234.0
1	0010	3	0.	.0	2234.0	*	1	0830	103	698.	87.5	2246.0	*	1	1650	203	0.	.0	2234.0
1	0015	4	0.	.0	2234.0	*	1	0835	104	684.	82.8	2245.7	*	1	1655	204	0.	.0	2234.0
1	0020	5	0.	.0	2234.0	*	1	0840	105	671.	78.1	2245.4	*	1	1700	205	0.	.0	2234.0
1	0025	6	0.	.0	2234.0	*	1	0845	106	657.	73.6	2245.1	*	1	1705	206	0.	.0	2234.0
1	0030	7	1.	.0	2234.0	*	1	0850	107	644.	69.1	2244.7	*	1	1710	207	0.	.0	2234.0
1	0035	8	2.	.0	2234.1	*	1	0855	108	631.	64.7	2244.4	*	1	1715	208	0.	.0	2234.0
1	0040	9	4.	.0	2234.1	*	1	0900	109	618.	60.4	2244.1	*	1	1720	209	0.	.0	2234.0
1	0045	10	7.	.0	2234.2	*	1	0905	110	605.	56.2	2243.8	*	1	1725	210	0.	.0	2234.0
1	0050	11	9.	.0	2234.2	*	1	0910	111	589.	52.1	2243.5	*	1	1730	211	0.	.0	2234.0
1	0055	12	11.	.1	2234.3	*	1	0915	112	571.	48.2	2243.2	*	1	1735	212	0.	.0	2234.0
1	0100	13	12.	.1	2234.3	*	1	0920	113	553.	44.3	2242.9	*	1	1740	213	0.	.0	2234.0
1	0105	14	14.	.1	2234.4	*	1	0925	114	536.	40.5	2242.6	*	1	1745	214	0.	.0	2234.0
1	0110	15	16.	.1	2234.4	*	1	0930	115	519.	36.9	2242.3	*	1	1750	215	0.	.0	2234.0
1	0115	16	18.	.1	2234.5	*	1	0935	116	503.	33.4	2242.1	*	1	1755	216	0.	.0	2234.0
1	0120	17	20.	.1	2234.5	*	1	0940	117	480.	30.0	2241.8	*	1	1800	217	0.	.0	2234.0
1	0125	18	23.	.1	2234.6	*	1	0945	118	456.	26.8	2241.5	*	1	1805	218	0.	.0	2234.0
1	0130	19	26.	.1	2234.7	*	1	0950	119	434.	23.7	2241.2	*	1	1810	219	0.	.0	2234.0
1	0135	20	30.	.2	2234.8	*	1	0955	120	412.	20.8	2241.0	*	1	1815	220	0.	.0	2234.0
1	0140	21	34.	.2	2234.9	*	1	1000	121	387.	18.1	2240.7	*	1	1820	221	0.	.0	2234.0
1	0145	22	40.	.2	2235.1	*	1	1005	122	365.	15.5	2240.4	*	1	1825	222	0.	.0	2234.0
1	0150	23	45.	.2	2235.2	*	1	1010	123	344.	13.0	2240.2	*	1	1830	223	0.	.0	2234.0
1	0155	24	50.	.3	2235.3	*	1	1015	124	321.	10.7	2239.9	*	1	1835	224	0.	.0	2234.0
1	0200	25	55.	.3	2235.5	*	1	1020	125	292.	8.6	2239.5	*	1	1840	225	0.	.0	2234.0
1	0205	26	61.	.3	2235.7	*	1	1025	126	268.	6.7	2239.2	*	1	1845	226	0.	.0	2234.0
1	0210	27	68.	.4	2235.8	*	1	1030	127	239.	5.0	2238.8	*	1	1850	227	0.	.0	2234.0
1	0215	28	75.	.4	2236.0	*	1	1035	128	202.	3.4	2238.3	*	1	1855	228	0.	.0	2234.0
1	0220	29	79.	.5	2236.1	*	1	1040	129	166.	2.2	2237.7	*	1	1900	229	0.	.0	2234.0
1	0225	30	84.	.6	2236.3	*	1	1045	130	122.	1.2	2237.0	*	1	1905	230	0.	.0	2234.0
1	0230	31	90.	.7	2236.4	*	1	1050	131	79.	.5	2236.1	*	1	1910	231	0.	.0	2234.0
1	0235	32	97.	.8	2236.6	*	1	1055	132	24.	.1	2234.7	*	1	1915	232	0.	.0	2234.0
1	0240	33	105.	.9	2236.8	*	1	1100	133	5.	.0	2234.1	*	1	1920	233	0.	.0	2234.0
1	0245	34	114.	1.1	2236.9	*	1	1105	134	1.	.0	2234.0	*	1	1925	234	0.	.0	2234.0
1	0250	35	122.	1.2	2237.0	*	1	1110	135	0.	.0	2234.0	*	1	1930	235	0.	.0	2234.0
1	0255	36	128.	1.3	2237.1	*	1	1115	136	0.	.0	2234.0	*	1	1935	236	0.	.0	2234.0
1	0300	37	137.	1.5	2237.3	*	1	1120	137	0.	.0	2234.0	*	1	1940	237	0.	.0	2234.0
1	0305	38	147.	1.7	2237.4	*	1	1125	138	0.	.0	2234.0	*	1	1945	238	0.	.0	2234.0
1	0310	39	162.	2.1	2237.7	*	1	1130	139	0.	.0	2234.0	*	1	1950	239	0.	.0	2234.0
1	0315	40	183.	2.6	2238.0	*	1	1135	140	0.	.0	2234.0	*	1	1955	240	0.	.0	2234.0
1	0320	41	199.	3.3	2238.3	*	1	1140	141	0.	.0	2234.0	*	1	2000	241	0.	.0	2234.0
1	0325	42	229.	4.5	2238.7	*	1	1145	142	0.	.0	2234.0	*	1	2005	242	0.	.0	2234.0
1	0330	43	266.	6.5	2239.2	*	1	1150	143	0.	.0	2234.0	*	1	2010	243	0.	.0	2234.0
1	0335	44	306.	9.7	2239.7	*	1	1155	144	0.	.0	2234.0	*	1	2015	244	0.	.0	2234.0
1	0340	45	355.	14.4	2240.3	*	1	1200	145	0.	.0	2234.0	*	1	2020	245	0.	.0	2234.0
1	0345	46	412.	20.8	2241.0	*	1	1205	146	0.	.0	2234.0	*	1	2025	246	0.	.0	2234.0
1	0350	47	472.	29.0	2241.7	*	1	1210	147	0.	.0	2234.0	*	1	2030	247	0.	.0	2234.0
1	0355	48	529.	39.1	2242.5	*	1	1215	148	0.	.0	2234.0	*	1	2035	248	0.	.0	2234.0
1	0400	49	586.	51.6	2243.5	*	1	1220	149	0.	.0	2234.0	*	1	2040	249	0.	.0	2234.0
1	0405	50	636.	66.5	2244.6	*	1	1225	150	0.	.0	2234.0	*	1	2045	250	0.	.0	2234.0
1	0410	51	684.	82.8	2245.7	*	1	1230	151	0.	.0	2234.0	*	1	2050	251	0.	.0	2234.0
1	0415	52	727.	99.2	2246.9	*	1	1235	152	0.	.0	2234.0	*	1	2055	252	0.	.0	2234.0
1	0420	53	764.	114.6	2247.9	*	1	1240	153	0.	.0	2234.0	*	1	2100	253	0.	.0	2234.0
1	0425	54	793.	128.3	2248.7	*	1	1245	154	0.	.0	2234.0	*	1	2105	254	0.	.0	2234.0
1	0430	55	813.	140.3	2249.3	*	1	1250	155	0.	.0	2234.0	*	1	2110	255	0.	.0	2234.0
1	0435	56	827.	150.6	2249.7	*	1	1255	156	0.	.0	2234.0	*	1	2115	256	0.	.0	2234.0
1	0440	57	839.	159.3	2250.1	*	1	1300	157	0.	.0	2234.0	*	1	2120	257	0.	.0	2234.0
1	0445	58	848.	166.8	2250.4	*	1	1305	158	0.	.0	2234.0	*	1	2125	258	0.	.0	2234.0
1	0450	59	856.	173.3	2250.7	*	1	1310	159	0.	.0	2234.0	*	1	2130	259	0.	.0	2234.0
1	0455	60	863.	179.3	2250.9	*	1	1315	160	0.	.0	2234.0	*	1	2135	260	0.	.0	2234.0
1	0500	61	870.	184.9	2251.1	*	1	1320	161	0.	.0	2234.0	*	1	2140	261	0.	.0	2234.0
1	0505	62	876.	190.2	2251.3	*	1	1325	162	0.	.0	2234.0	*	1	2145	262	0.	.0	2234.0
1	0510	63	882.	195.3	2251.5	*	1	1330	163	0.	.0	2234.0	*	1	2150	263	0.	.0	2234.0
1	0515	64	888.	200.3	2251.6	*	1	1335	164	0.	.0	2234.0	*	1	2155	264	0.	.0	2234.0
1	0520	65	893.	205.0	2251.8	*	1	1340	165	0.	.0	2234.0	*	1	2200	265	0.	.0	2234.0
1	0525	66	898.	209.4	2252.0	*	1	1345	166	0.	.0	2234.0	*	1	2205	266	0.	.0	2234.0
1	0530	67	902.	213.3	2252.1	*	1	1350	167	0.	.0	2234.0	*	1	2210	267	0.	.0	2234.0
1	0535	68	906.	216.5	2252.2	*	1	1355	168	0.	.0	2234.0	*	1	2215	268	0.	.0	2234.0
1	0540	69	908.	219.0	2252.3	*	1	1400	169	0.	.0	2234.0	*	1	2220	269	0.	.0	2234.0
1	0545	70	910.	220.7	2252.4	*	1	1405	170	0.	.0	2234.0	*	1	2225	270	0.	.0	2234.0
1	0550	71	911.	221.5	2252.4	*	1	1410	171	0.	.0	2234.0	*	1	2230	271	0.	.0	2234.0
1	0555	72	911.	221.5	2252.4	*	1	1415	172	0.	.0	2234.0	*	1	2235	272	0.	.0	2234.0
1	0600	73	910.	220.8	2252.4	*	1	1420	173	0.	.0	2234.0	*	1	2240	273	0.	.0	2234.0
1	0605	74	909.	219.5	2252.3	*	1	1425	174	0.	.0	2234.0	*	1	2245	274	0.	.0	2234.0
1	0610	75	907.	217.5	2252.3	*	1	1430	175	0.	.0	2234.0	*	1	2250	275	0.	.0	2234.0
1	0615	76	904.	215.1	2252.2	*	1	1435	176	0.	.0	2234.0	*	1	2255	276	0.	.0	2234.0
1	0620	77	901.	212.2	2252.1	*	1	1440	177	0.	.0	2234.0	*	1	2300	277	0.	.0	2234.0
1	0625	78	897.	208.9	2252.0	*	1	1445	178	0.	.0	2234.0	*	1	2305	278	0.	.0	2234.0
1	0630	79	893.	205.3	2251.8	*	1	1450	179	0.	.0	2234.0	*	1	2310	279	0.	.0	2234.0
1	0635	80	889.	201.4	2251.7	*	1	1455	180	0.	.0	2234.0	*	1	2315	280	0.	.0	2234.0
1	0640	81	884.	197.3	2251.5	*	1	1500	181	0.	.0	2234.0	*	1	2320	281	0.	.0	2234.0
1	0645	82	879.	193.0	2251.4	*	1	1505	182	0.	.0	2234.0	*	1	2325	282	0.	.0	2234.0
1	0650	83	874.	188.5	2251.2	*	1	1510	183	0.	.0	2234.0	*	1	2330	283	0.	.0	2234.0
1	0655	84	869.	183.9	2251.1	*	1	1515	184	0.	.0	2234.0	*	1	2335	284	0.	.0	2234.0
1	0700	85	863.	179.1	2250.9	*	1	1520	185	0.	.0	2234.0	*	1	2340	285	0.	.0	2234.0
1	0705	86	857.	174.2	2250.7	*	1	1525	186	0.	.0	2234.0	*	1	2345	286	0.	.0	2234.0
1	0710	87	851.	169.3	2250.5	*	1	1530	187	0.	.0	2234.0	*	1	2350	287	0.	.0	2234.0
1	0715	88	845.	164.2	2250.3	*	1	1535	188	0.	.0	2234.0	*	1	2355	288	0.	.0	2234.0
1	0720	89	839.	159.1	2250.1	*	1	1540	189	0.	.0	2234.0	*	2	0000	289	0.	.0	2234.0
1	0725	90	832.	153.9	2249.9	*	1	1545	190	0.	.0	2234.0	*	2	0005	290	0.	.0	2234.0
1	0730	91	825.	148.7	2249.7	*	1	1550	191	0.	.0	2234.0	*	2	0010	291	0.	.0	2234.0
1	0735	92	817.	143.5	2249.4	*	1	1555	192	0.	.0	2234.0	*	2	0015	292	0.	.0	2234.0
1	0740	93	810.	138.2	2249.2	*	1	1600	193	0.	.0	2234.0	*	2	0020	293	0.	.0	2234.0
1	0745	94	802.	133.0	2249.0	*	1	1605	194	0.	.0	2234.0	*	2	0025	294	0.	.0	2234.0
1	0750	95	792.	127.7	2248.7	*	1	1610	195	0.	.0	2234.0	*	2	0030	295	0.	.0	2234.0
1	0755	96	781.	122.5	2248.4	*	1	1615	196	0.	.0	2234.0	*	2	0035	296	0.	.0	2234.0
1	0800	97	770.	117.3	2248.1	*	1	1620	197	0.	.0	2234.0	*	2	0040	297	0.	.0	2234.0
1	0805	98	759.	112.2	2247.7	*	1	1625	198	0.	.0	2234.0	*	2	0045	298	0.	.0	2234.0
1	0810	99	746.	107.1	2247.4	*	1	1630	199	0.	.0	2234.0	*	2	0050	299	0.	.0	2234.0
1	0815	100	734.	102.1	2247.1	*	1	1635	200	0.	.0	2234.0	*	2	0055	300	0.	.0	2234.0
						*							*						

****

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)				

		(CFS)				
+ 911.	5.92		770.	219.	211.	211.
		(INCHES)	.810	.920	.920	.920
		(AC-FT)	382.	434.	434.	434.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (AC-FT)	(HR)				
222.	5.92	137.	35.	34.	34.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (FEET)	(HR)				
2252.41	5.92	2248.42	2238.14	2237.99	2237.99

CUMULATIVE AREA = 8.84 SQ MI

1

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

					RATIOS APPLIED TO PRECIPITATION
OPERATION	STATION	AREA	PLAN		RATIO 1
					.87
HYDROGRAPH AT					
+	LF10	.22	1	FLOW	27.
				TIME	3.83
HYDROGRAPH AT					
+	LF8	.50	1	FLOW	362.
				TIME	3.75
ROUTED TO					
+	RLF8	.50	1	FLOW	358.
				TIME	3.83
HYDROGRAPH AT					
+	LF9	.43	1	FLOW	191.
				TIME	3.75
2 COMBINED AT					
+	CLF9	.93	1	FLOW	547.
				TIME	3.83
ROUTED TO					
+	RCLF9	.93	1	FLOW	546.
				TIME	3.83
2 COMBINED AT					
+	CLF10	1.15	1	FLOW	572.
				TIME	3.83
ROUTED TO					
+	RCLF10	1.15	1	FLOW	566.
				TIME	3.83
HYDROGRAPH AT					
+	LF11	.51	1	FLOW	140.
				TIME	3.92
2 COMBINED AT					
+	CLF11	1.66	1	FLOW	704.
				TIME	3.83
ROUTED TO					
+	RCLF11	1.66	1	FLOW	696.
				TIME	3.83
HYDROGRAPH AT					
+	LF12	.26	1	FLOW	44.
				TIME	3.92
2 COMBINED AT					
+	CLF12	1.92	1	FLOW	741.
				TIME	3.83
ROUTED TO					
+	RCLF12	1.92	1	FLOW	740.
				TIME	3.92
HYDROGRAPH AT					
+	LF13	.52	1	FLOW	209.
				TIME	3.92
2 COMBINED AT					
+	CLF13	2.44	1	FLOW	949.
				TIME	3.92
ROUTED TO					
+	RCLF13	2.44	1	FLOW	941.
				TIME	3.92
HYDROGRAPH AT					
+	LF14	.26	1	FLOW	92.
				TIME	3.83
2 COMBINED AT					
+	CLF14	2.69	1	FLOW	1030.
				TIME	3.92
ROUTED TO					
+	RCLF14	2.69	1	FLOW	1017.

				TIME	3.92
HYDROGRAPH AT					
+	LF15	.27	1	FLOW	171.
				TIME	3.75
2 COMBINED AT					
+	CLF15	2.96	1	FLOW	1173.
				TIME	3.92
ROUTED TO					
+	RCLF15	2.96	1	FLOW	1161.
				TIME	4.00
HYDROGRAPH AT					
+	LF16	.52	1	FLOW	158.
				TIME	3.92
2 COMBINED AT					
+	CLF16	3.48	1	FLOW	1316.
				TIME	4.00
ROUTED TO					
+	RCLF16	3.48	1	FLOW	1292.
				TIME	4.08
HYDROGRAPH AT					
+	LF17	.27	1	FLOW	61.
				TIME	3.75
2 COMBINED AT					
+	CLF17	3.75	1	FLOW	1334.
				TIME	4.08
ROUTED TO					
+	RCLF17	3.75	1	FLOW	1338.
				TIME	4.17
HYDROGRAPH AT					
+	LF19	.31	1	FLOW	141.
				TIME	3.83
2 COMBINED AT					
+	CLF19S	4.05	1	FLOW	1441.
				TIME	4.08
HYDROGRAPH AT					
+	LF18	.49	1	FLOW	152.
				TIME	3.92
ROUTED TO					
+	RLF18	.49	1	FLOW	150.
				TIME	4.00
2 COMBINED AT					
+	CLF19	4.55	1	FLOW	1586.
				TIME	4.08
ROUTED TO					
+	RCLF19	4.55	1	FLOW	1569.
				TIME	4.17
ROUTED TO					
+	RCLF19	4.55	1	FLOW	1557.
				TIME	4.17
HYDROGRAPH AT					
+	LF20	.50	1	FLOW	167.
				TIME	3.92
2 COMBINED AT					
+	CLF20	5.05	1	FLOW	1695.
				TIME	4.17
ROUTED TO					
+	RCLF20	5.05	1	FLOW	1690.
				TIME	4.25
HYDROGRAPH AT					
+	LF20A	.18	1	FLOW	141.
				TIME	3.67
2 COMBINED AT					
+	COM1	5.23	1	FLOW	1729.
				TIME	4.25
HYDROGRAPH AT					
+	LF26	.25	1	FLOW	123.
				TIME	3.75
ROUTED TO					
+	RLF26	.25	1	FLOW	124.
				TIME	3.83
HYDROGRAPH AT					
+	LF27	.30	1	FLOW	185.
				TIME	3.75
2 COMBINED AT					
+	CLF27	.56	1	FLOW	302.
				TIME	3.75
ROUTED TO					
+	RCLF27	.56	1	FLOW	300.
				TIME	3.83

HYDROGRAPH AT					
+	LF28	.51	1	FLOW	195.
				TIME	3.92
2 COMBINED AT					
+	CLF28	1.07	1	FLOW	492.
				TIME	3.83
ROUTED TO					
+	RCLF28	1.07	1	FLOW	490.
				TIME	3.92
HYDROGRAPH AT					
+	LF29	.29	1	FLOW	117.
				TIME	3.92
2 COMBINED AT					
+	CLF29	1.36	1	FLOW	607.
				TIME	3.92
ROUTED TO					
+	RCLF29	1.36	1	FLOW	601.
				TIME	3.92
HYDROGRAPH AT					
+	LF30	.54	1	FLOW	151.
				TIME	4.00
ROUTED TO					
+	RLF30	.54	1	FLOW	151.
				TIME	4.25
HYDROGRAPH AT					
+	LF31	.35	1	FLOW	126.
				TIME	3.92
3 COMBINED AT					
+	CLF31	2.25	1	FLOW	803.
				TIME	4.00
ROUTED TO					
+	RCLF31	2.25	1	FLOW	794.
				TIME	4.08
HYDROGRAPH AT					
+	LF32	.23	1	FLOW	165.
				TIME	3.75
2 COMBINED AT					
+	COM2	2.48	1	FLOW	922.
				TIME	4.00
ROUTED TO					
+	RCOM2	2.48	1	FLOW	919.
				TIME	4.00
2 COMBINED AT					
+	COM3	7.72	1	FLOW	2536.
				TIME	4.17
HYDROGRAPH AT					
+	LF21	.53	1	FLOW	294.
				TIME	4.08
ROUTED TO					
+	RLF21	.53	1	FLOW	294.
				TIME	4.25
HYDROGRAPH AT					
+	LF22	.41	1	FLOW	232.
				TIME	4.00
2 COMBINED AT					
+	COM4	.94	1	FLOW	511.
				TIME	4.17
HYDROGRAPH AT					
+	LF33	.18	1	FLOW	91.
				TIME	3.75
3 COMBINED AT					
+	COM	8.84	1	FLOW	3101.
				TIME	4.17
ROUTED TO					
+	LWFLDB	8.84	1	FLOW	911.
				TIME	5.92

*** NORMAL END OF HEC-1 ***

APPENDIX C - Hydraulic Calculations

C.1 NGVD29 to NAVD88 Conversion Calculations

C.2 Critical Depth Calculation at Spillway (Section 425)

C.3 Normal Depth Calculations – Flamingo Wash Storm Drain

C.4 LFDB Stage- Discharge Calculations

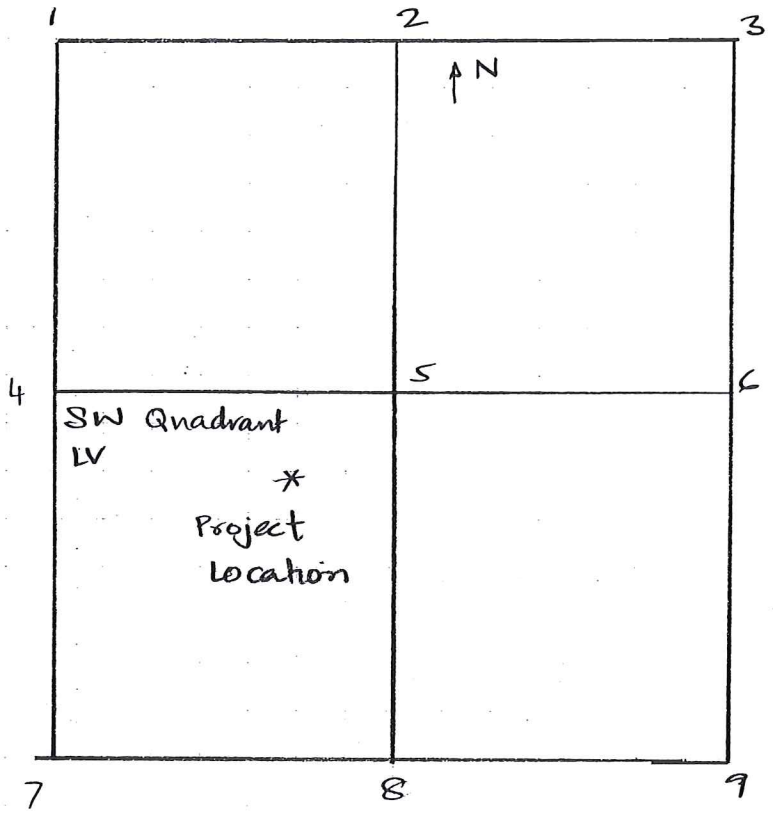
C.1 NGVD29 to NAVD88 Conversion Calculations

The Louis Berger Group, Inc.

BY VS DATE 02/02/09 SHEET NO. ____ OF ____

CHKD. BY ____ DATE ____ PROJECT ____

SUBJECT Lower Flamingo Detention Basin Datum Conversion



QUADRANT NAME	CORNER (#)	LATITUDE	LONGITUDE	NGVD 29 → NAVD 88 Conversion
LAS VEGAS SW	NW (4)	36° 07' 30"	115° 15' 00"	+2.142 ft
	NE (5)	36° 07' 30"	115° 07' 30"	+2.142 ft
	SW (7)	36° 00' 00"	115° 15' 00"	+2.415 ft
	SE (8)	36° 00' 00"	115° 07' 30"	+2.326 ft

Average Conversion Factor = $(2.142 + 2.142 + 2.415 + 2.326)/4$

$= +2.256 \approx +2.26$ ft

Max^m Offset $= 2.256 - 2.415 = -0.159 \approx -0.16$ ft

$0.16 < 0.25$ ∴ Multiple conversion is NOT Required

ue ions concerning the VERTCON process may be mailed to NGS

atitude: 36 07 30.000

ongitude: 115 07 30.000

GVD 29 height: 100.00 ft

atum shift(NAVD 88 minus NGVD 29): 2.142 feet

onverted to NAVD 88 height: 102.142 feet

ue ions concerning the VERTCON process may be mailed to NGS

atitude: 36 00 00.000

ongitude: 115 07 30.000

GVD 29 height: 100.00 ft

atum shift(NAVD 88 minus NGVD 29): 2.326 feet

onverted to NAVD 88 height: 102.326 feet

ue ions concerning the VERTCON process may be mailed to NGS

atitude: 36 00 00.000

ongitude: 115 15 00.000

GVD 29 height: 100.00 ft

atum shift(NAVD 88 minus NGVD 29): 2.415 feet

onverted to NAVD 88 height: 102.415 feet

uestions concerning the VERTCON process may be mailed to NGS

atitude: 36 07 30.000

ongitude: 115 15 00.000

GVD 29 height: 100.00 ft

atum shift(NAVD 88 minus NGVD 29): 2.142 feet

onverted to NAVD 88 height: 102.142 feet

C.2 Critical Depth Calculation at Spillway (Section 425)

Inflow Spillway Critical Depth Calcs
Worksheet for Trapezoidal Channel

Project Description	
Project File	p:\ccrfcd\cb1004 lfdb clomr\engineering\hydraulics\x-sectio.fm2
Worksheet	Inflow Spillway Critical Depth Calcs
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.001400	ft/ft
Left Side Slope	2.000000	H : V
Right Side Slope	2.000000	H : V
Bottom Width	170.00	ft
Discharge	2,536.00	cfs

Results		
Depth	2.11	ft
Flow Area	367.61	ft²
Wetted Perimeter	179.44	ft
Top Width	178.44	ft
Critical Depth	1.89	ft
Critical Slope	0.002019	ft/ft
Velocity	6.90	ft/s
Velocity Head	0.74	ft
Specific Energy	2.85	ft
Froude Number	0.85	
Flow is subcritical.		

C.3 Normal Depth Calculations – Flamingo Wash Storm Drain

12' x 8' RCB Outlet from LFDB
Worksheet for Rectangular Channel

Project Description	
Project File	p:\ccrfcd\cb1004 lfdb clomr\engineering\hydraulics\x-sectio.fm2
Worksheet	12' x 8' RCB Outlet from LFDB
Flow Element	Rectangular Channel
Method	Manning's Formula
Solve For	Channel Depth

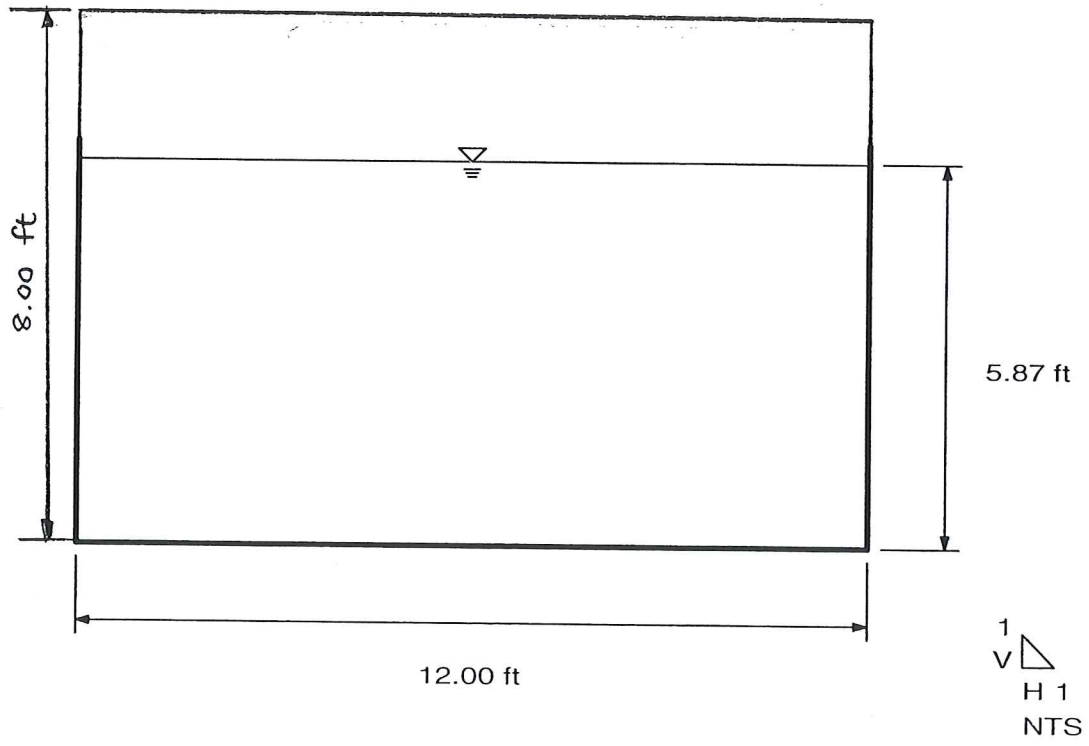
Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.003000	ft/ft
Bottom Width	12.00	ft
Discharge	911.00	cfs

Results		
Depth	5.87	ft
Flow Area	70.46	ft^2
Wetted Perimeter	23.74	ft
Top Width	12.00	ft
Critical Depth	5.64	ft
Critical Slope	0.003347	ft/ft
Velocity	12.93	ft/s
Velocity Head	2.60	ft
Specific Energy	8.47	ft
Froude Number	0.94	
Flow is subcritical.		

12' x 8' RCB Outlet from LFDB
Cross Section for Rectangular Channel

Project Description	
Project File	p:\ccrfcd\cb1004 lfdb clomr\engineering\hydraulics\x-sectio.fm2
Worksheet	12' x 8' RCB Outlet from LFDB
Flow Element	Rectangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.013	
Channel Slope	0.003000	ft/ft
Depth	5.87	ft
Bottom Width	12.00	ft
Discharge	911.00	cfs



12' x 10' RCB under Decatur Blvd
Worksheet for Rectangular Channel

Project Description	
Project File	p:\ccrfcd\cb1004 lfdb clomr\engineering\hydraulics\x-sectio.fm2
Worksheet	12' x 10' RCB under Decatur Blvd
Flow Element	Rectangular Channel
Method	Manning's Formula
Solve For	Channel Depth

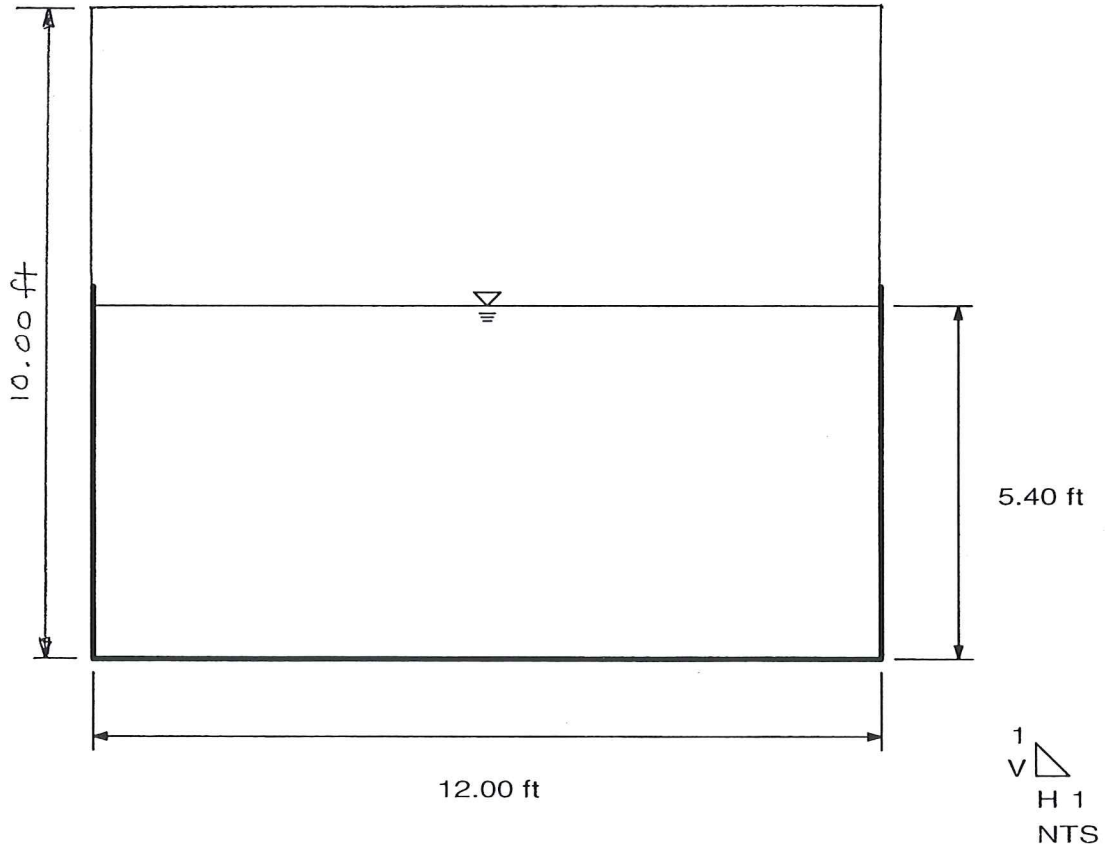
Input Data		
Mannings Coefficient	0.015	
Channel Slope	0.005000	ft/ft
Bottom Width	12.00	ft
Discharge	911.00	cfs

Results		
Depth	5.40	ft
Flow Area	64.81	ft^2
Wetted Perimeter	22.80	ft
Top Width	12.00	ft
Critical Depth	5.64	ft
Critical Slope	0.004456	ft/ft
Velocity	14.06	ft/s
Velocity Head	3.07	ft
Specific Energy	8.47	ft
Froude Number	1.07	
Flow is supercritical.		

12' x 10' RCB under Decatur Blvd
Cross Section for Rectangular Channel

Project Description	
Project File	p:\ccrfcd\cb1004 lfdb clomr\engineering\hydraulics\x-sectio.fm2
Worksheet	12' x 10' RCB under Decatur Blvd
Flow Element	Rectangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.015	
Channel Slope	0.005000	ft/ft
Depth	5.40	ft
Bottom Width	12.00	ft
Discharge	911.00	cfs



12' x 10.5' Arch Culvert
Worksheet for Rectangular Channel

Project Description	
Project File	p:\ccrfcd\cb1004 lfdb clomr\engineering\hydraulics\x-sectio.fm2
Worksheet	12' x 10.5' Arch Culvert
Flow Element	Rectangular Channel
Method	Manning's Formula
Solve For	Channel Depth

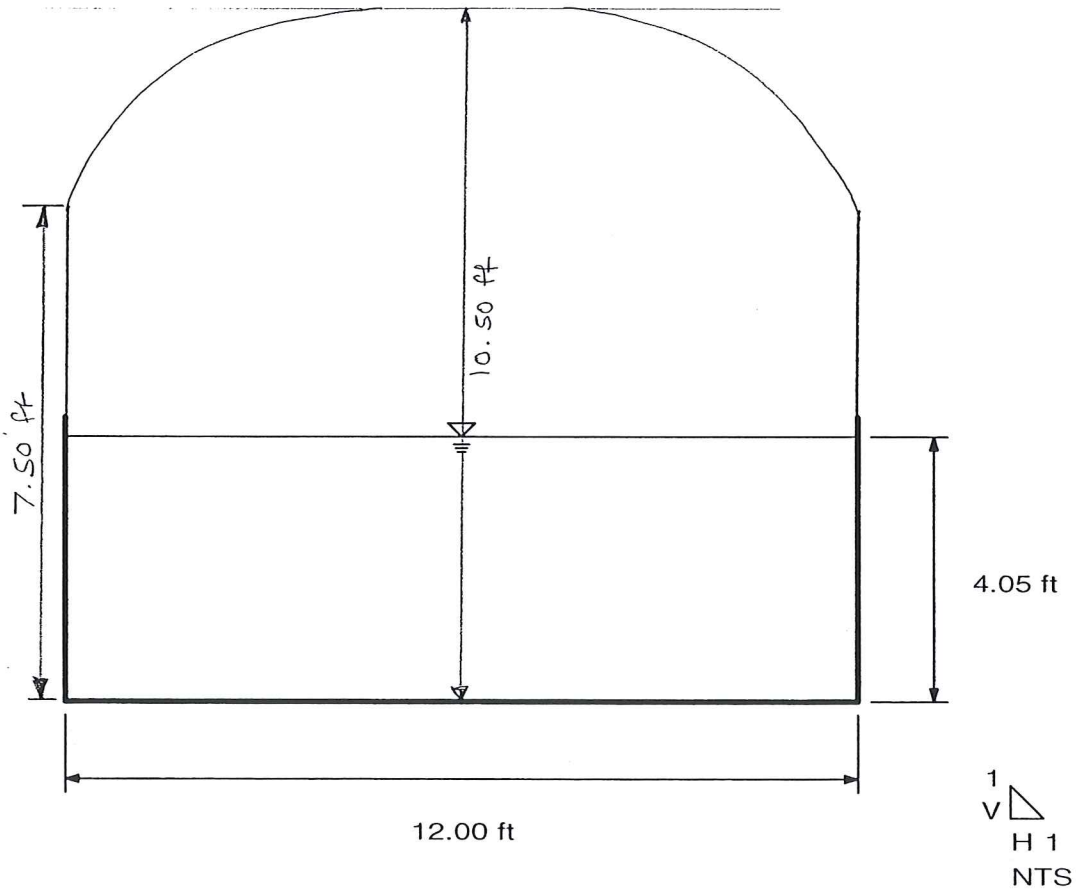
Input Data		
Mannings Coefficient	0.015	
Channel Slope	0.011000	ft/ft
Bottom Width	12.00	ft
Discharge	911.00	cfs

Results		
Depth	4.05	ft
Flow Area	48.65	ft^2
Wetted Perimeter	20.11	ft
Top Width	12.00	ft
Critical Depth	5.64	ft
Critical Slope	0.004456	ft/ft
Velocity	18.72	ft/s
Velocity Head	5.45	ft
Specific Energy	9.50	ft
Froude Number	1.64	
Flow is supercritical.		

12' x 10.5' Arch Culvert
Cross Section for Rectangular Channel

Project Description	
Project File	p:\ccrfcd\cb1004 lfdb clomr\engineering\hydraulics\x-sectio.fm2
Worksheet	12' x 10.5' Arch Culvert
Flow Element	Rectangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.015	
Channel Slope	0.011000	ft/ft
Depth	4.05	ft
Bottom Width	12.00	ft
Discharge	911.00	cfs



24' x 9' RCB
Worksheet for Rectangular Channel

Project Description	
Project File	p:\ccrfcd\cb1004 lfdb clomr\engineering\hydraulics\x-sectio.fm2
Worksheet	24' x 9' RCB
Flow Element	Rectangular Channel
Method	Manning's Formula
Solve For	Channel Depth

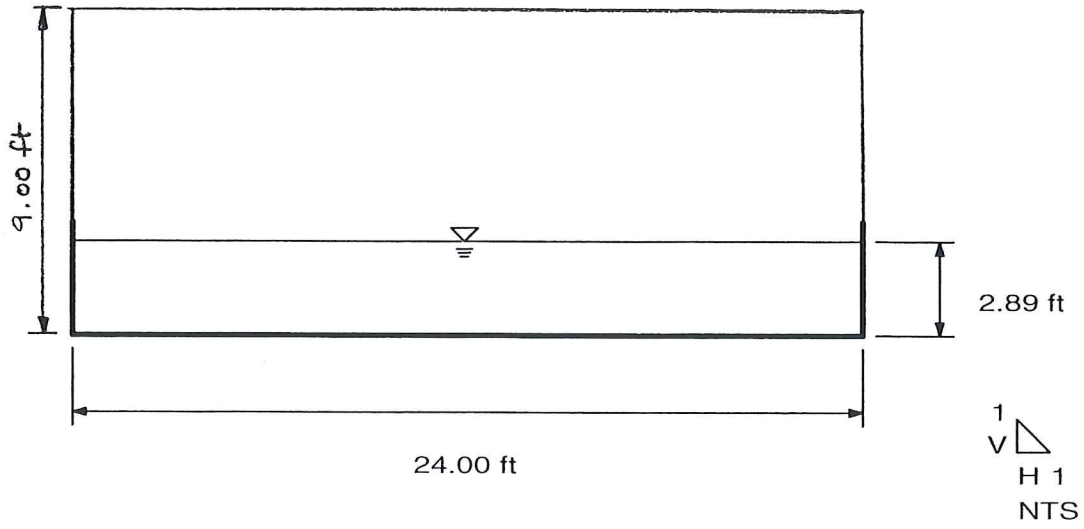
Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.004260	ft/ft
Bottom Width	24.00	ft
Discharge	911.00	cfs

Results		
Depth	2.89	ft
Flow Area	69.45	ft^2
Wetted Perimeter	29.79	ft
Top Width	24.00	ft
Critical Depth	3.55	ft
Critical Slope	0.002281	ft/ft
Velocity	13.12	ft/s
Velocity Head	2.67	ft
Specific Energy	5.57	ft
Froude Number	1.36	
Flow is supercritical.		

24' x 9' RCB
Cross Section for Rectangular Channel

Project Description	
Project File	p:\ccrfcd\cb1004 lfdb clomr\engineering\hydraulics\x-sectio.fm2
Worksheet	24' x 9' RCB
Flow Element	Rectangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.013	
Channel Slope	0.004260	ft/ft
Depth	2.89	ft
Bottom Width	24.00	ft
Discharge	911.00	cfs



C.4 LFDB Stage-Discharge Calculations

FROM

HDR (2008)

5.6.1 Proposed Outlet Box and Orifice

As stated above, the proposed outlet of the detention basin consists of a 12′ x 8′ RCB. A 7.5′ x 6′ plate orifice is proposed at the entrance of the RCB to provide a controlled release of flood flows up to the 100-year conditions. In addition, this type of design allows the future adjustments of the outflow rate simply by changing the orifice plate opening size if conditions in the upstream watershed change. Flow through an orifice can be calculated with the following equation

$$Q = CA\sqrt{2gh}$$

Where Q = Discharge in cfs

A = Area of Orifice Opening in ft^2

G = Gravitational Constant (32.2 ft/sec^2)

h = Head, in ft, above Centerline of Orifice Opening

C = Orifice Coefficient (0.65)

Per CCRFCD, the orifice coefficient to be used in all calculations is 0.65. It should be noted that the above equation applies for orifices with free discharge. For submerged orifices, the above equation still applies but h in the equation should be the difference in elevation of the upstream water and tailwater surfaces.

At low flow level, flow through the orifice is open flow. The broad-crested weir equation should be used in the calculations.

$$Q = CLH^{3/2}$$

Where Q = Discharge in cfs

C = Weir Coefficient (3.0)

L = Horizontal Length of Weir in ft

H = Head, in ft, above Weir Crest

Per CCRFCD, the weir coefficient to be used for broad-crested weirs is 3.0.

Calculations are included in Appendix D. The results show that weir flows dominate when discharge is 500 cfs and less. Flows will be orifice flow when discharge is greater than 600 cfs and greater. The discharge rating table for the 7.5'x6' orifice is included in Appendix D.

5.6.2 Trash Rack

To block large size debris from entering the outlet box, a trash rack is proposed at the entrance of the box. The proposed trash rack consists of one single 28'-6" by 16'-0" rack. The trash rack is designed with openings that are 1.94 feet by 1.42 feet. The total net flow area through the trash rack is approximately 393.24 ft^2. With fifty-percent clogging, the maximum discharge of 909 cfs would be passed through the trash rack at a velocity of 4.58 ft/s. This is less than the 5 ft/s maximum specified in the *Design of Small Dams* (Reference 5). Per Design of Small Dams, a velocity of up to approximately 5 ft/s may be tolerated for racks that are accessible for cleaning.

Head loss through the trash rack can be calculated with the USBR method as described in the Design of Small Dams. An average approximation of the trash rack loss, h_t, can be obtained from the equation

$$h_t = K_t \frac{v_n^2}{2g}$$

In which

$$K_t = 1.45 - 0.45\frac{a_n}{a_g} - \left(\frac{a_n}{a_g}\right)^2$$

Where h_t = Trash Rack Loss in ft

v_n = Velocity through the Net Trash Rack Area (ft/s)

K_t = Trash rack Loss Coefficient (Empirical)

a_n = Net Area through the Rack Bars (ft^2)

g_n = Gross Area of the Racks and Supports (ft^2)

Calculations of trash rack loss are included in Appendix D.

5.6.3 Rating Table of the Outlet Structure

The rating table of the outlet structure is obtained by adding the trash rack loss to the headwater elevation in the rating table of the orifice. The rating table and rating curve are included in Appendix D. The rating table is applied to the HEC-1 Models for detention basin routing (see SQ and SE cards in the HEC-1 Models).

Flows through the outlet structure were also modeled with the WSPG computer software. Outputs are included in Appendix D. Discharge ranges from 100 cfs to 1,000 cfs. The results show open channel flow for all discharges in the proposed 12′ x 8′ RCB after the plate orifice. The orifice is in no case submerged.

5.7 Spillway

The proposed outlet of the detention basin will provide a controlled release of flood flows up to the 100-year conditions. The Clark County Regional Flood Control District recommended that the embankment be designed to a height of the 100-year pool elevation plus freeboard and not to a height above the PMF pool elevation. The embankment must then be armored on the upstream, top, and downstream sides to protect the entire embankment from PMF flows. In essence, the entire embankment will act as a spillway using an embankment design that minimizes the potential for its erosion. The embankment will act as a broad crested weir. The top of the dam will be used as an access for the park to provide connectivity between the two parking areas. When a larger than 100-year storm event occurs, storm water will first spill over the lower dam section along Decatur Boulevard. With the further increase of stage in the detention basin, flows will begin overtopping the embankment around the corner of Decatur and Tropicana and along Tropicana.

The embankment along Decatur Boulevard and Tropicana Avenue will function as the emergency spillway when flow exceeds the 100-year designed peak flow. When the overtopping is small, the embankment can be considered as a broad-crested weir. When

Outlet Orifice

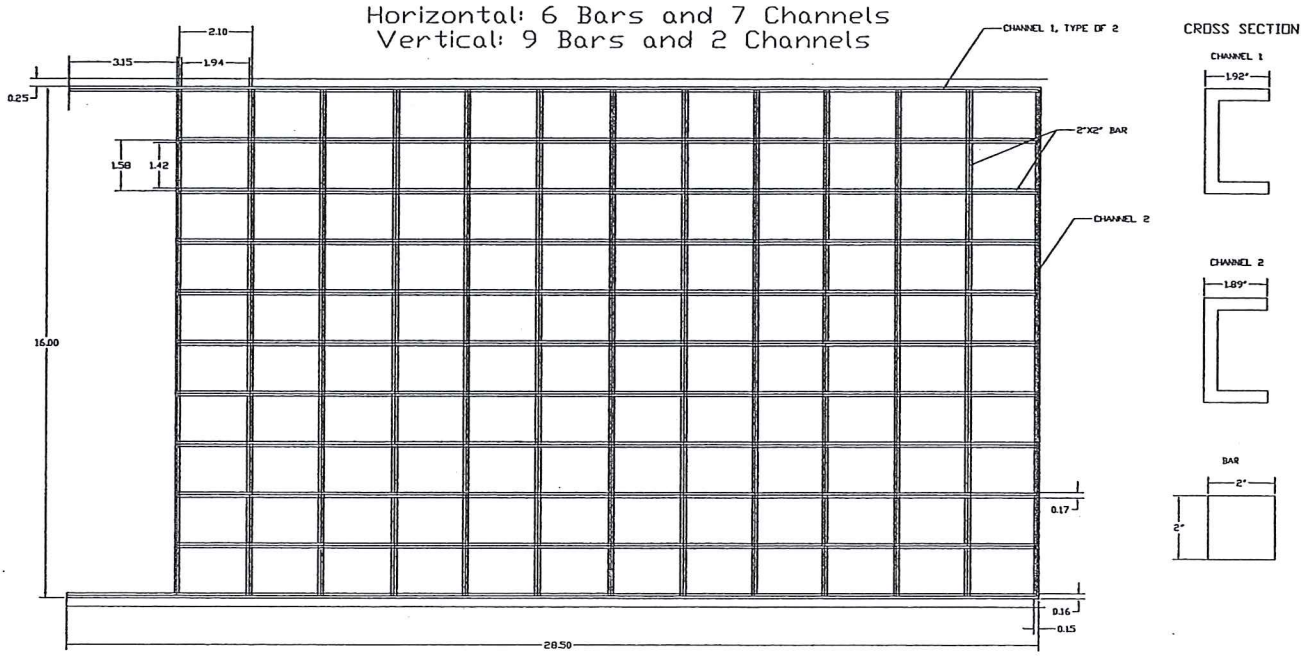
(7.5' x 6' Orifice)

Area	45 ft^2
Entrance Invert Elevation	2233.99 ft
Elevation of Orifice Center	2236.99 ft

Discharge	**Orifice** $Q = CA\sqrt{2gH}$ (C = 0.65)		**Weir** $Q = CLH^{3/2}$ (C = 3.0)		**Stage**
(cfs)	Head (ft)	Stage (ft)	Head (ft)	Stage (ft)	(ft)
956	16.59	**2253.58**	12.18	2246.17	**2253.58**
900	14.70	**2251.69**	11.70	2245.69	**2251.69**
800	11.62	**2248.61**	10.81	2244.80	**2248.61**
700	8.89	**2245.88**	9.89	2243.88	**2245.88**
600	6.53	**2243.52**	8.93	2242.92	**2243.52**
500	4.54	2241.53	7.90	**2241.89**	**2241.89**
400	2.90	2239.89	6.81	**2240.80**	**2240.80**
300	1.63	2238.62	5.62	**2239.61**	**2239.61**
200	0.73	2237.72	4.29	**2238.28**	**2238.28**
100	0.18	2237.17	2.70	**2236.69**	**2237.17**
0	0.00	2236.99	0.00	**2233.99**	**2236.99**

Trash Rack

PROJECT: Lower Flamingo Detention Basin
CLIENT: Clark County Public Works
SUBJECT: Trashrack Outlook Calculations



FIND HEAD AT OUTLET STRUCTURE:

Spillway Elevation =	2254.00 ft	
Low Level Outlet Size =	8' x 7' RCB	
Distance to Center of Outlet Boxes =	3.00 ft	
Box Invert Elevation =	2234.00 ft	
Discharge Q =	**900.00** cfs	
Computed Headwater Elevation =	**2252.11** ft	(see orifice Calculations)
Calculated Head H =	18.11 ft	

FIND HEAD LOSS, TRASHRACK:

Trashrack Loss:

$H_t = K_t(V_n^2/2g)$ REFERENCE DESIGN OF SMALL DAMS, P.457

and, $K_t = 1.45\text{-}0.45\ (A_n/A_g)\text{-}(A_n/A_g)^2$

where, K_t = TRASHRACK LOSS COEFFICIENT (EMPIRICAL)

A_n = NET AREA THROUGH THE RACK BARS

A_g = GROSS AREA OF THE RACKS AND SUPPORTS

V_n = VELOCITY THROUGH THE NET TRASHRACK AREA

L = TOTAL LENTH OF TRASHRACK

W = TOTAL WIDTH OF TRASHRACK

FIND GROSS AREA (A_g):

L = 28.5 ft
W = 16.5 ft

GROSS AREA $A_g = L * W$ $A_g =$ 470.25 ft^2
$A_n = A_g$ - BAR AREA

FIND BAR AREA:

VERTICAL

CHANNEL NO. OF CHANNEL= 2
WIDTH OF CHANNEL =1.92" = 0.160 ft
LENGTH OF CHANNEL = 28.50 ft
AREA FOR 1.92" CHANNEL = [(2*(1.92"/12)]*28.5
AREA FOR 1.92" CHANNEL = 9.12 ft^2

BAR NO. OF BAR= 9
WIDTH OF BAR =2" = 0.167 ft
LENGTH OF BAR = 25.38 ft
AREA FOR 2" BARS= [(2"/12)*10]*25.38'
AREA FOR 2" BARS = 38.07 ft^2

HORIZONTAL

CHANNEL NO. OF CHANNEL= 7
WIDTH OF CHANNEL=1.89" = 0.158 ft
CHANNEL LENGTH=16.5-0.5-[(9*(2"/12)+2*(1.92"/12)]
CHANNEL LENGTH = 14.18 ft
CHANNEL AREA = 7*(1.89"/12)*L
AREA FOR 1 3/4" CHANNEL = 15.63 ft^2

BAR NO. OF BAR= 6
WIDTH OF BAR =2" = 0.167 ft
LENGTH OF BAR =16.5-0.5-[(9*(2"/12)+2*(1.92"/12)]
BAR AREA=6*(2"/12)*L
BAR AREA = 14.18 ft^2

TOTAL BAR AREA 77.01 ft^2

FIND NET AREA (A_n):

$A_{n'} = A_g$ - BAR AREA $A_{n'} =$ 393.24 ft^2
USE 50% CLOGGING FACTOR
A_n =50%*An' $A_n =$ 196.62 ft^2

CENTERLINE SPACE

HORIZONTAL L=(28.5'-3.1'-0.167')/12 2.1035 ft ~2.1 ft
VERTICAL W=(16.5'-0.5'-0.160')/10 1.584 ft ~1.58 ft

ACTUAL SIDE SPACE= 28.5'-1.94'*12-6*0.167'-7*0.158' 3.1175 ft

FIND TRASHRACK LOSS COEFFICIENT:

$K_t = 1.45-0.45(A_n/A_g)-(A_n/A_g)^2 =$ 1.09

$Q =$ 900.00 cfs

$V_n = Q/A_n =$ 4.58 fps

thus, $H_t = K_t(V_n^2/2g) =$ 0.35 ft

Head $Ho = H + H_t =$ 18.46 ft

Headwater Elevation = 2252.46 ft

Trash Rack Loss

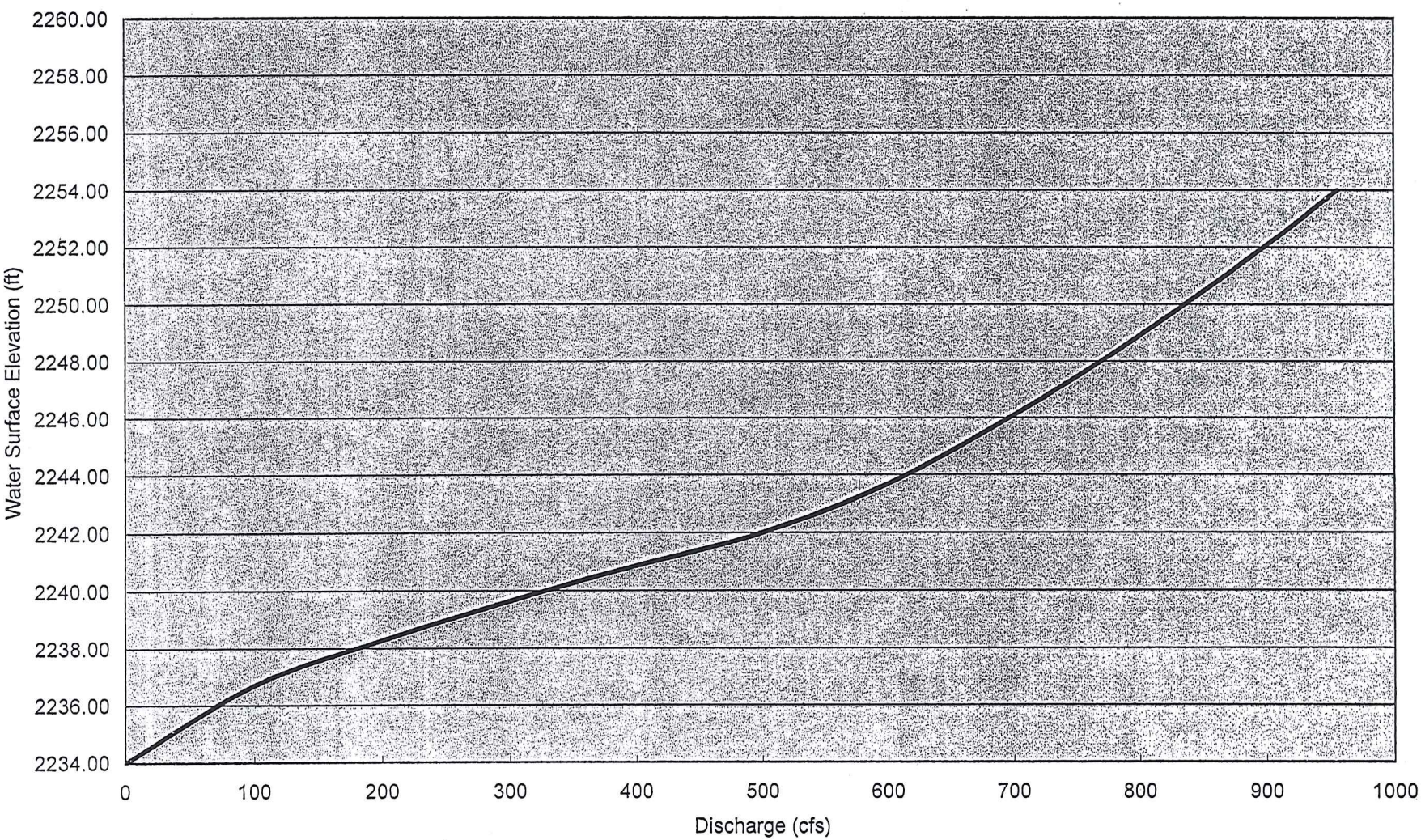
Q (cfs)	A_n (ft^2)	V_n (fps)	K_t	H_t (ft)
956	196.62	4.86	1.09	0.40
900	196.62	4.58	1.09	0.35
800	196.62	4.07	1.09	0.28
700	196.62	3.56	1.09	0.21
600	196.62	3.05	1.09	0.16
500	196.62	2.54	1.09	0.11
400	196.62	2.03	1.09	0.07
300	196.62	1.53	1.09	0.04

Outlet Structure Rating Table

Low Flow Outlet Structure Rating Table
(7.5'x6' Orifice)

Discharge (cfs)	Head Water in Detention Basin without Trash Rack Loss		Trash Rack Loss (ft)	Head Water in Detention Basin with Tash Rack Loss	
	Elevation (ft)	Depth (ft)		Elevation (ft)	Depth (ft)
956	2253.58	19.59	0.40	**2253.98**	19.99
900	2251.69	17.70	0.35	**2252.04**	18.05
800	2248.61	14.62	0.28	**2248.89**	14.90
700	2245.88	11.89	0.21	**2246.09**	12.10
600	2243.52	9.53	0.16	**2243.68**	9.69
500	2241.89	7.90	0.11	**2242.00**	8.01
400	2240.80	6.81	0.07	**2240.87**	6.88
300	2239.61	5.62	0.04	**2239.65**	5.66
200	2238.28	4.29	0.00	**2238.28**	4.29
100	2236.69	2.70	0.00	**2236.69**	2.70
0	2233.99	0.00	0.00	**2233.99**	0.00

LOW FLOW OUTLET RATING CURVE
(7.5'x6' Orifice)



APPENDIX D
Improvement Plans – Relevant Sheets

D.1 Improvement Plans for Lower Flamingo Detention Basin and Tropicana/Decatur Park– (Preliminary 100% complete)

D.2 Triple 12 foot x 10 foot Reinforced Concrete Box for Flamingo Wash Flood Control Project Phase 1

D.3 Improvement Plans for Patina Plaza at Decatur/Tropicana

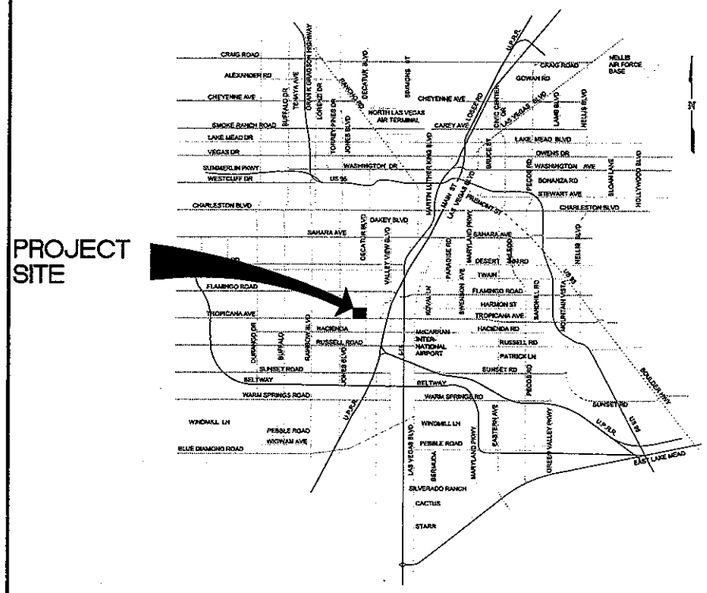
D.4 Improvement Drawings for "The Home Depot" at Tropicana Avenue and Decatur Boulevard

D.5 Improvement plans for Garden Pines Motel

D.1. Improvement Plans for Lower Flamingo Detention Basin and Tropicana/Decatur Park– (Preliminary 100% complete)

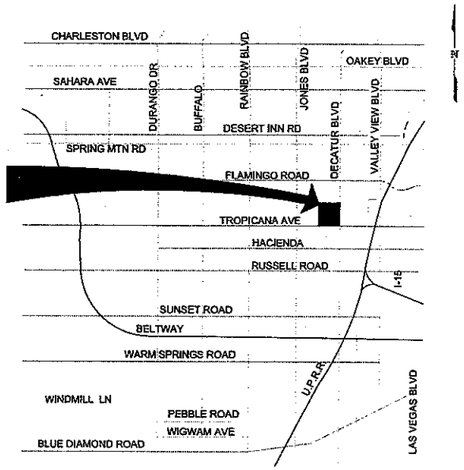
VOLUME 1 OF 2

DEPARTMENT OF PUBLIC WORKS



Vicinity Map

NOT TO SCALE



Project Location

NOT TO SCALE

CLARK COUNTY 1909 NV 2009

A CENTURY OF SERVICE

PRE-FINAL SUBMITTAL FEBRUARY 4, 2009

2009

IMPROVEMENT PLANS FOR

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

PROJECT NO. TR6CC43

FUNDED BY
THE SOUTHERN NEVADA PUBLIC LAND MANAGEMENT ACT,
REGIONAL FLOOD CONTROL DISTRICT, AND
CLARK COUNTY, NV

County Commissioners

Rory Reid, Chairman
Chip Maxfield, Vice Chairman
Susan Brager
Tom Collins
Chris Giunchigliani
Lawrence Weekly
Bruce L Woodbury

County Manager

Virginia Valentine

Regional Flood Control District

Approved:

Gale Wm. Fraser, II
General Manager & Chief Engineer

Director of Public Works

Approved:

Denis Cederburg

Director of Parks and Recreation

Approved:

Leonard Cash

HDR Engineering, Inc.
770 E Warm Springs #360
Las Vegas, NV 89119
702-938-6000

AGENCY	PLANS REVIEWED BY	DATE
EMBARQ COMMUNICATIONS		
LAS VEGAS VALLEY WATER DISTRICT		
SOUTHWEST GAS CORPORATION		
NV ENERGY COMPANY [TRANSMISSION]		
NV ENERGY COMPANY [DISTRIBUTION]		
CLARK COUNTY WATER RECLAMATION DISTRICT		
COX COMMUNICATIONS, LAS VEGAS, INC		
SOUTHERN NEVADA WATER AUTHORITY		
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION		

DEPARTMENT OF PUBLIC WORKS	BY	DATE
DESIGN ENGINEERING DIVISION		
CONSTRUCTION MANAGEMENT DIVISION		
MAINTENANCE MANAGEMENT DIVISION		
TRAFFIC MANAGEMENT DIVISION		
COUNTY SURVEYOR'S OFFICE		

REVISIONS NUMBER	DESCRIPTION	DATE

PRE-FINAL SUBMITTAL
NOT FOR CONSTRUCTION
NOVEMBER 4, 2008

DESIGN ENGINEERING DIVISION

COVER SHEET

L-XXXX

BID No.: XXXX-XX

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

CCWRD 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 PUBLIC WORKS CONSTRUCTION OFF SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, AS AMENDED, AND CLARK COUNTY SUPPLEMENT TO UNIFORM STANDARD DRAWINGS AND SPECIFICATIONS. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BE AWARE OF THE CONTENTS OF THE ABOVE DRAWINGS AND SPECIFICATION BOOKS.
2. THESE STANDARDS SHALL APPLY TO ALL CONSTRUCTION.
3. SEWER MAINS ONLY TO BE LAID IN SEWER TRENCHES.
4. ALL LATERALS TO BE LAID AT NOT LESS THAN MINIMUM SLOPE AS SHOWN IN THESE STANDARDS.
5. 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 CONTROLLING AGENCY.
6. SOIL TESTING SHALL BE IN ACCORDANCE WITH SECTION 3.11 OF THESE STANDARDS.
7. ALL EXFILTRATION, AIR TESTING, AND TELEVISING OF LINES SHALL BE IN ACCORDANCE WITH THESE STANDARDS.
8. CUT SHEETS MUST BE SUBMITTED TO THE AGENCY BEFORE CONSTRUCTION WILL BE PERMITTED TO START.
9. ALL CONTRACTORS INSTALLING SEWER MAINS THAT WILL BE UNDER THE JURISDICTION OF THE CONTROLLING AGENCY MUST BE CLASS "A" CONTRACTORS.

APPROVAL:

Clark County Water Reclamation District — Date

CCWRD PROJECT CONTROL NUMBER IS 5895

SIGNATURE ON THESE PLANS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR OR AN APPROVAL OF ANY VIOLATION OF CLARK COUNTY WATER RECLAMATION DISTRICT RULES, REGULATIONS OR DESIGN AND CONSTRUCTION STANDARDS. THE APPROVAL OF THESE DRAWINGS DOES NOT GUARANTEE CAPACITY IN THE DISTRICT'S COLLECTION OR TREATMENT SYSTEM.

APPROVAL OF THESE PLANS SHALL NOT BE CONSTRUED TO BE A PERMIT OR AN APPROVAL OF ANY VIOLATION OF ANY OF THE PROVISIONS OF THE STATE OR COUNTY LAWS.

SEWER QUANTITIES

630.000	2" PE SANITARY SEWER	342	LF
630.010	4" PVC SANITARY SEWER	2184	LF
630.020	SANITARY SEWER CLEANOUT	12	EA

EMBARQ

THE AFFIXED EMBARQ APPROVAL DOES NOT ASSUME OR GUARANTEE LIABILITY FOR KNOWN OR UNKNOWN CONFLICTS WITH EXISTING OR PROPOSED IMPROVEMENTS. RESOLUTION OF ANY CONFLICT WILL BE ACCOMPLISHED PERSUANT TO LOCAL ORDINANCES, NEVADA REVISED STATUTES AND/OR PUBLIC UTILITY COMMISSION RULES AND REGULATIONS.

APPROVAL:

Embarq — Date

GENERAL NOTES

1 ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION OFFSITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA" AND "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFFSITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", AND APPENDICES, CURRENT EDITION.

2 TRAFFIC SIGNAL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS' CONSTRUCTION OFFSITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA VOLUME II" CURRENT EDITION.

3 ALL UTILITIES SHOWN ARE BELIEVED TO BE ACCURATELY LOCATED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL UTILITIES LIKELY TO BE AFFECTED. THE CONTRACTOR SHALL DETERMINE THE LOCATION AND DEPTH OF SUSPECTED UTILITY INTERFERENCES, AND SHALL FURNISH INFORMATION ON THE SAME TO THE ENGINEER, NOT LESS THAN TEN (10) DAYS PRIOR TO THE ANTICIPATED IMPACT OF THESE SUSPECTED INTERFERENCES ON HIS WORK. IF CONFLICTS EXIST, THE CONTRACTOR WILL IMMEDIATELY CONTACT THE ENGINEER AND PROVIDE THE ENGINEER WITH ALL THE NECESSARY DATA SUCH AS ELEVATIONS, HORIZONTAL LOCATIONS, ETC., AND PROVIDE THE ENGINEER WITH SKETCHES INDICATING THE PROPOSED IMPROVEMENT AND THE UTILITY CONFLICT. THE ENGINEER WILL EXAMINE AND REVIEW ALL THE DATA AND SKETCHES PROVIDED, AND WILL PROVIDE THE CONTRACTOR WITH AN ALTERNATIVE DESIGN WITHIN FIVE (5) DAYS AFTER RECEIPT OF DATA AND SKETCHES.

4 CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO BEGINNING CONSTRUCTION.

5 SIGNATURES SHOWN ON THE COVER OF THESE PLANS, BY THE LOCAL UTILITY COMPANIES DOES NOT ASSUME OR GUARANTEE THEIR LIABILITY FOR KNOWN OR UNKNOWN CONFLICTS WITH EXISTING OR PROPOSED IMPROVEMENTS. RESOLUTION OF ANY CONFLICTS WILL BE ACCOMPLISHED PURSUANT TO LOCAL ORDINANCES, NEVADA REVISED STATUTES AND/OR PUBLIC UTILITY COMMISSION RULES AND REGULATIONS.

6 THE CONTRACTOR SHALL COORDINATE WITH THE NV ENERGY COMPANY, EMBARQ CORPORATION, LOCAL CABLE COMPANY AND THE SOUTHWEST GAS CORPORATION FOR THE RELOCATION OF UNDERGROUND OR OVERHEAD UTILITIES THAT INTERFERE WITH THE REQUIRED IMPROVEMENTS AS SHOWN ON THE PLANS.

7 THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE VERTICAL ADJUSTMENT OF ALL LAS VEGAS VALLEY WATER DISTRICT FACILITIES AND CLARK COUNTY WATER RECLAMATION DISTRICT MANHOLES AS INDICATED ON THE PLANS OR IN THE SPECIAL PROVISIONS UNLESS OTHERWISE INDICATED.

8 THE CONTRACTOR SHALL NOT REMOVE TREES, SHRUBS, LAWNS, WALLS, FENCES, SIGNS, STRUCTURES, LIGHTS OR ANY OTHER IMPROVEMENTS OUTSIDE THE RIGHT-OF-WAY EXCEPT WHERE REQUIRED TO DO SO BY THE CONTRACT DRAWINGS OR AS DIRECTED BY THE ENGINEER.

9 EXACT LOCATIONS OF ALL SAWCUT LINES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER. THOSE SAWCUTS THAT ARE LONGITUDINAL TO THE ROADWAY MAY BE WHEEL CUT WITH EQUIPMENT AS APPROVED BY THE ENGINEER. ALL OTHER SAWCUTS SHALL BE MADE BY A ROTARY SAW.

10 IF THE IMPROVEMENTS NECESSITATE THE OBLITERATION, TEMPORARY OBSTRUCTION, TEMPORARY REMOVAL, OR RELOCATION OF ANY EXISTING TRAFFIC PAVEMENT MARKING REQUIRED TO REMAIN, SUCH PAVEMENT MARKING SHALL BE RESTORED OR REPLACED WITH LIKE MATERIALS TO THE SATISFACTION OF THE COUNTY TRAFFIC MANAGER.

11 FAST INTERCONNECT CABLE POLICY IS IN EFFECT. INTERCONNECT CABLE MUST BE MAINTAINED AT ALL TIMES. CONTRACTOR SHALL PROVIDE TEMPORARY OVERHEAD INTERCONNECT CABLE WHILE PERMANENT CABLE IS BEING RELOCATED. TEMPORARY AERIAL INSTALLATION MUST BE ACCEPTABLE TO THE COUNTY TRAFFIC MANAGER AND TO FAST. ANY DAMAGE TO THIS CABLE IS DEEMED AN EMERGENCY BY FAST, CITY OF LAS VEGAS, CLARK COUNTY AND NDOT AND MUST BE REPAIRED IMMEDIATELY TO FAST' ACCEPTANCE. $25,000 PER DAY DAMAGES WILL BE ASSESSED AFTER TWENTY-FOUR (24) HOURS HAS ELAPSED FROM THE TIME OF BREAK OR DAMAGE.

12 ALL STORM DRAIN MANHOLE ACCESS COVERS SHALL HAVE A MINIMUM DIAMETER OF THIRTY (30") INCHES.

ABBREVIATIONS

ACP	ASBESTOS CEMENT PIPE
AGG	AGGREGATE
BC	BACK OF CURB
BLDG	BUILDING
CC	CLARK COUNTY
C&G	CURB AND GUTTER
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
COMM DWY	COMMERCIAL DRIVEWAY
CONC	CONCRETE
CONST	CONSTRUCTION OR CONSTRUCT
"D"	DECATUR BOULEVARD ALIGNMENT
DCSWCS	DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS
DI	DROP INLET
DIA	DIAMETER
DIAG	DIAGONAL
DWG	DRAWING
DWY	DRIVEWAY
EF	EACH FACE
EG	EXISTING GROUND
EL	ELEVATION
EP	EDGE OF PAVEMENT
EQ	EQUAL
EW	EACH WAY
EXIST	EXISTING
FG	FINISHED GRADE
FL	FLOW LINE
GB	GRADE BREAK
H	HEIGHT
HPS	HIGH PRESSURE SODIUM
HSS	HOLLOW STRUCTURAL SECTIONS
INV	INVERT
JT	JOINT
LF	LINEAR FEET
LT	LEFT
MAT'L	MATERIAL
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
"N"	NORTH CHANNEL ALIGNMENT
No	NUMBER
NPC	NEVADA POWER COMPANY
NPS	NOMINAL PIPE SIZE
NTS	NOT TO SCALE
OC	ON CENTER
PVMT	PAVEMENT
PBS	PLANTMIX BITUMINOUS SURFACE
PC	POINT OF CURVATURE
PF	POLE FOUNDATION
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
PT	POINT OF TANGENCY
PVI	POINT OF VERTICAL INTERSECTION
R	RADIUS
RCB	REINFORCED CONCRETE BOX
RCC	ROLLER COMPACTED CONCRETE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RP	RADIUS POINT
RT	RIGHT
R/W	RIGHT OF WAY
"S"	SOUTH CHANNEL ALIGNMENT
"T"	TROPICANA AVENUE ALIGNMENT
SD	STORM DRAIN
SF	SQUARE FEET
SPA	SPACED
SQ	SQUARE
SS	SANITARY SEWER
STD	STANDARD
STL	STEEL
SW	SIDEWALK
TC	TOP OF CURB
TRANS	TRANSITION
(TYP)	TYPICAL
USDCCA	UNIFORM STANDARD DRAWINGS, CLARK COUNTY AREA
UTACS	ULTRA THIN ASPHALT CONCRETE SURFACE
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VG	VALLEY GUTTER/ CONC CROSS GUTTER
VPI	VERTICAL POINT OF INTERSECTION
VPC	VERTICAL POINT OF CURVE
VPT	VERTICAL POINT OF TANGENCY

LEGEND

- REMOVAL ITEM, CONSTRUCTION ITEM, TRAFFIC ITEM
- EXISTING/PROPOSED CONDUIT RUN NUMBER
- CENTERLINE W/STATION
- RIGHT-OF-WAY LINE
- PROPERTY LINE
- EXISTING/PROPOSED STREETLIGHT
- EXISTING/PROPOSED/FUTURE DROP INLET
- EXISTING/PROPOSED CURB & GUTTER
- EXISTING/PROPOSED UNDERGROUND UTILITY SHOWN AT WIDTH WHEN > 18"
- EXISTING/PROPOSED/ADJUST MANHOLE
- EXISTING/PROPOSED/ADJUST PULLBOX
- EXISTING/PROPOSED/ADJUST WATER OR GAS VALVE
- EXISTING/PROPOSED EDGE OF PAVEMENT
- EXISTING/PROPOSED DRIVEWAY
- EXISTING BLOCKWALL/FENCE
- EXISTING/PROPOSED ELEVATION
- CURVE DATA NOTATION
- EXISTING TELEPHONE AND/OR POWER POLE
- EXISTING/PROPOSED FIRE HYDRANT
- EXISTING/PROPOSED SERVICE PEDESTAL
- PAVEMENT TRANSITION
- EXISTING MAILBOX
- BENCHMARK
- POTHOLE NUMBER
- EXISTING/ADJUST WATER METER
- SAWCUT LINE
- EXISTING/PROPOSED 1-1/4" PVC STREETLIGHT CONDUIT
- EXISTING/PROPOSED CONTROLLER CABINET
- EXISTING/PROPOSED SIDEWALK RAMP

BASIS OF BEARING

S 89° 42' 06" E, BEING THE LINE BETWEEN GIS MONUMENTS 939 AND 838 AS SHOWN ON THE "RECORD OF SURVEY FOR CLARK COUNTY, LAS VEGAS VALLEY GEODETIC CONTROL NETWORK, CLARK COUNTY, NEVADA" ON FILE WITH THE CLARK COUNTY RECORDER IN FILE 88, PAGE 53 OF SURVEYS.

BENCHMARKS

CLARK COUNTY BENCHMARK #7C1024E4, BEING A RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, NORTHWEST CORNER OF DECATUR BOULEVARD AND HARMON AVENUE NEAR THE PC OF DECATUR BOULEVARD.

EL=688.189 METERS (2257.83 FEET)
NAVD 1988, CLARK COUNTY VERTICAL CONTROL v. 2003

NV ENERGY REVIEW

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

APPROVAL:

NV ENERGY — Date

LVVWD STANDARD NOTES

LVVWD PROJECT # 109592

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 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'S STANDARD PLATES, DRAWINGS, AND SPECIFICATIONS AND TO THE 2003 EDITION OF THE UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR POTABLE WATER SYSTEMS (UDACS).
3. ALL WORK, EXCEPT AS MODIFIED BY THESE PLANS OR BY NOTE 2, SHALL BE DONE IN ACCORDANCE WITH THE MOST RECENT DRAFT OR EDITION OF THE UNIFORM STANDARD SPECIFICATIONS FOR THE PUBLIC WORKS CONSTRUCTION OFFSITE IMPROVEMENT, CLARK COUNTY AREA.
4. A SINGLE PIPE MATERIAL SHALL BE USED THROUGHOUT THE PROJECT UNLESS OTHERWISE APPROVED BY THE LVVWD.
5. ALL SERVICE LATERALS TWO (2) INCHES IN DIAMETER AND SMALLER SHALL BE TYPE K COPPER TUBING WITH LVVWD APPROVED SERVICE SADDLES.
6. ALL WATER METER BOXES SHALL BE LOCATED OUTSIDE OF DRIVEWAY AREAS.
7. ALL VALVES SHALL BE LOCATED OUTSIDE OF DRIVEWAYS, VALLEY AND CURB GUTTERS.
8. ALL WATER AND STORM DRAIN OR SANITARY SEWER CROSSINGS SHALL CONFORM TO SECTION 2.19 OF THE 2003 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 TWO (2) WORKING DAYS PRIOR TO METER PICKUP.
11. ANY INTERRUPTION OF SERVICE MUST BE PERFORMED IN ACCORDANCE WITH UDACS SECTION 3.13.01, AND APPROVED BY THE LVVWD INSPECTION DIVISION PRIOR TO SHUTDOWN. PROPER WRITTEN NOTIFICATION MUST BE GIVEN TO ALL AFFECTED CUSTOMERS.
12. ALL WATER FACILITY CONSTRUCTION MATERIALS USED MUST BE LISTED ON THE LVVWD PRE-APPROVED MATERIAL AND MANUFACTURER'S LISTING FOR NEW FACILITIES, LATEST REVISION, OR SPECIFICALLY APPROVED ON THESE PLANS.
13. TELEPHONE "CALL BEFORE YOU DIG" AT 1-800-227-2600.

APPROVAL:

Las Vegas Valley Water District — Date
LVVWD Project #109592

SEE SHEETS: UT-2 TO UT-6

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

FAST — Call before you UnderGround 1-702-432-5300 — FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

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

REV No	DATE	DESCRIPTION	APPROVED

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

BENCHMARK, GENERAL AND CONSTRUCTION NOTES, BASIS OF BEARING, LEGEND AND ABBREVIATIONS

CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

PRE-FINAL SUBMITTAL
NOT FOR CONSTRUCTION
FEBRUARY 4, 2009

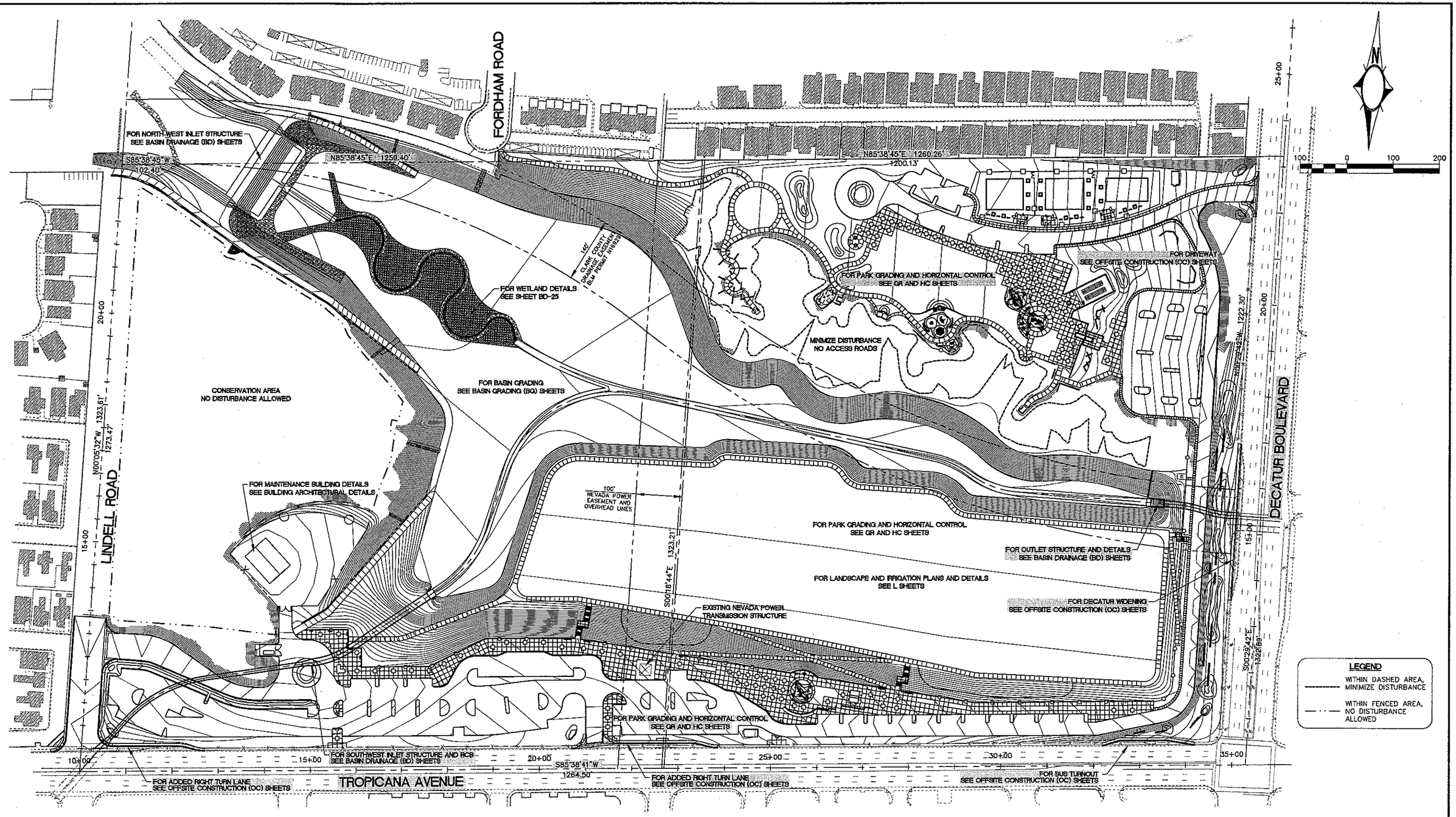
DESIGNED BY: AEA
DRAWN BY: KDG
CHECKED BY: LJT
DATE: FEBRUARY 4, 2009

HDR Engineering, Inc.
7180 POLLOCK DRIVE
SUITE 200
LAS VEGAS, NV 89119
Phone: 702-938-6000
Fax: 702-938-6060

SCALE
HORIZ:
VERT:
FIELD BOOK NONE

SHEET No
G-03
X
L-

C:\Documents and Settings\rabdo\Desktop\Tropicana Decatur Park\Pre-Final Submittal\Plans\Civil Drawings\1-G-SHEETS\CADD\01g-003.dwg 02/03/09 8:01am rabdo



C:\Documents and Settings\aabdo\Desktop\Tropicana Decatur Park\Pre-Final Submittal\Plans\Civil Drawings\1-G-SHEETS\CADD\01g-005.dwg 02/03/09 8:02am aabdo

REV No	DATE	DESCRIPTION	APPROVED

CLARK COUNTY NEVADA

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

OVERALL SITE PLAN

CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

PRE-FINAL SUBMITTAL
NOT FOR CONSTRUCTION
FEBRUARY 4, 2009

DESIGNED BY:	AEA
DRAWN BY:	AEA
CHECKED BY:	LJT
DATE:	FEBRUARY 4, 2009

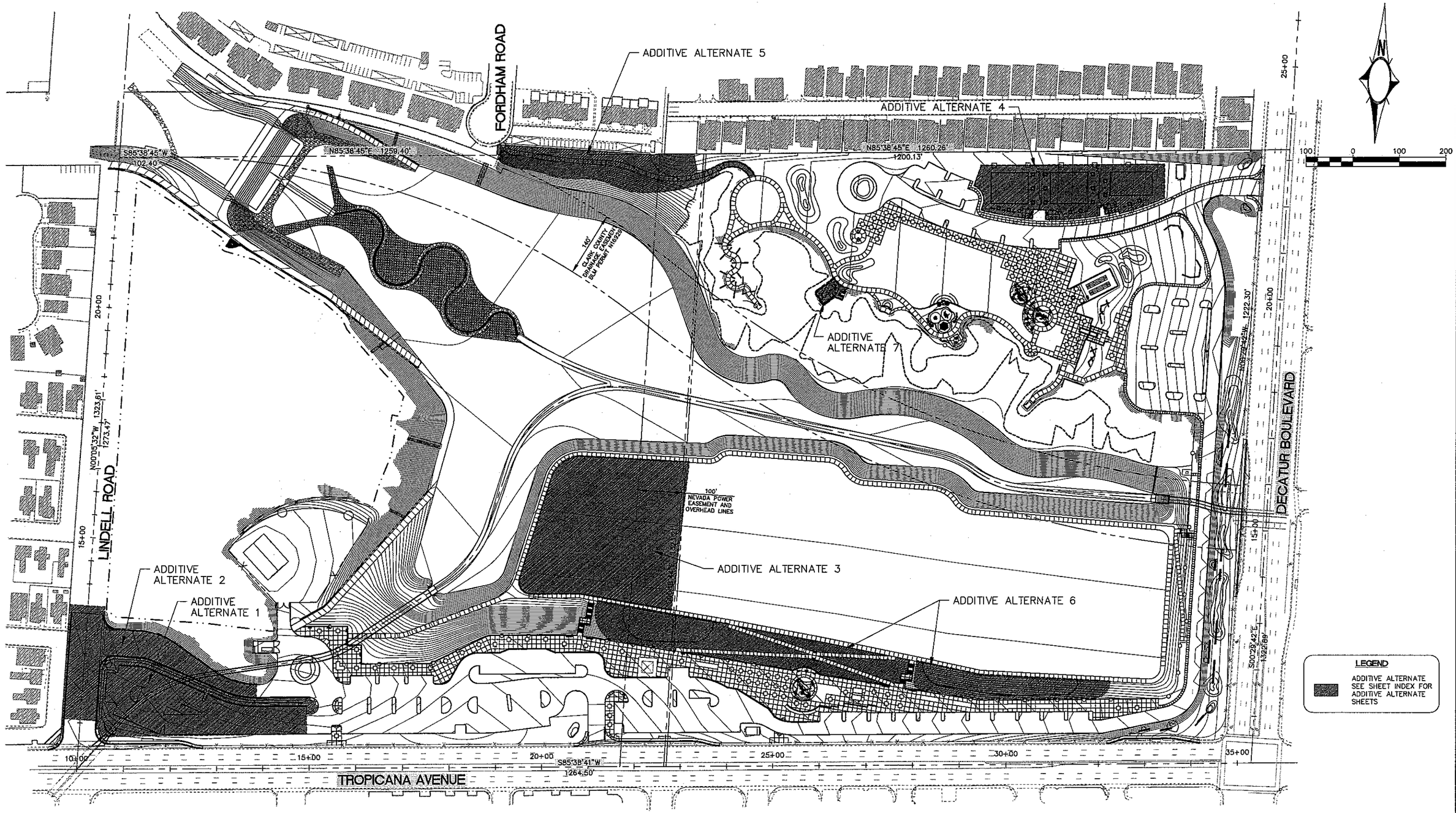
HDR Engineering, Inc.
7180 POLLOCK DRIVE
SUITE 200
LAS VEGAS, NV 89119
Phone: 702-838-6000
Fax: 702-838-6060

SCALE	
HORIZ: 1" = 100'	
VERT:	
FIELD BOOK NONE	

SHEET No **G-05**

X

L-



C:\Documents and Settings\aabdo\Desktop\Tropicana Decatur Park\Pre-Final Submittal\Plans\Civil Drawings\1-G-SHEETS\CADD\01g-005A.dwg 02/03/09 8:02am aabdo

REV No	DATE	DESCRIPTION	APPROVED

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

ADDITIVE ALTERNATE SUMMARY

CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

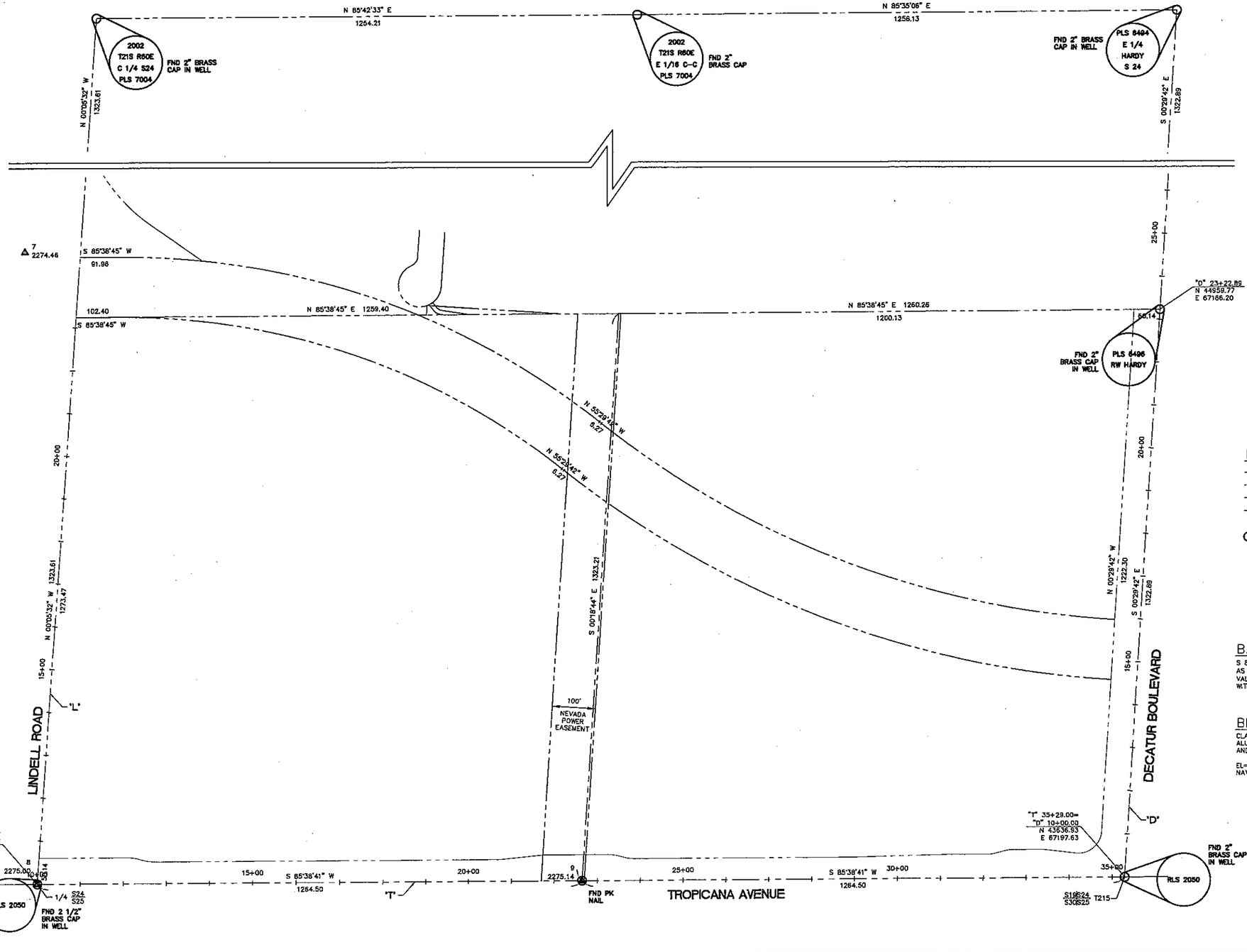
PRE-FINAL SUBMITTAL
NOT FOR CONSTRUCTION
FEBRUARY 4, 2009

DESIGNED BY: AEA
DRAWN BY: AEA
CHECKED BY: LJT
DATE: FEBRUARY 4, 2009

HDR Engineering, Inc.
7180 POLLOCK DRIVE
SUITE 200
LAS VEGAS, NV 89119
Phone: 702-938-6000
Fax: 702-938-6060

SCALE
HORIZ: 1" = 100'
VERT:
FIELD BOOK NONE

SHEET No
G-05A
X
L-



LEGEND

- RIGHT-OF-WAY
- SECTION LINE
- QUARTER SECTION LINE
- SIXTEENTH SECTION LINE
- ○ MONUMENT FOUND AS NOTED

THE S 1/2, OF THE SE 1/4 OF SEC. 24
T. 21 S., R. 60 E., M.D.M.
CLARK COUNTY, NEVADA

BASIS OF BEARINGS

S 89° 42' 06" E, BEING THE LINE BETWEEN GIS MONUMENTS 939 AND 836 AS SHOWN ON THE "RECORD OF SURVEY FOR CLARK COUNTY, LAS VEGAS VALLEY GEODETIC CONTROL NETWORK, CLARK COUNTY, NEVADA" ON FILE WITH THE CLARK COUNTY RECORDER IN FILE 88, PAGE 53 OF SURVEYS.

BENCHMARK

CLARK COUNTY BENCHMARK #7C1024E4, BEING A RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, NORTHWEST CORNER OF DECATUR BLVD. AND HARMON AVE. NEAR THE PC OF DECATUR BLVD.

EL=688.189 METERS (2257.83 FEET)
NAVD 1988, CLARK COUNTY VERTICAL CONTROL v. 2003

Call before you Dig
Avoid cutting underground utility lines. It's easy.
Call 811

Avoid overhead power line contact. It's easy.
Call before you
OVERHEAD
1-702-227-2929

C:\Documents and Settings\cabdo\Desktop\Tropicana Decatur Park\Pre-Final Submittal\Plans\Civil Drawings\1-G-SHEETS\CADD\01g-006.dwg 02/03/09 8:02am cabdo

REV No	DATE	DESCRIPTION	APPROVED

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

DETENTION BASIN
SURVEY CONTROL

CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

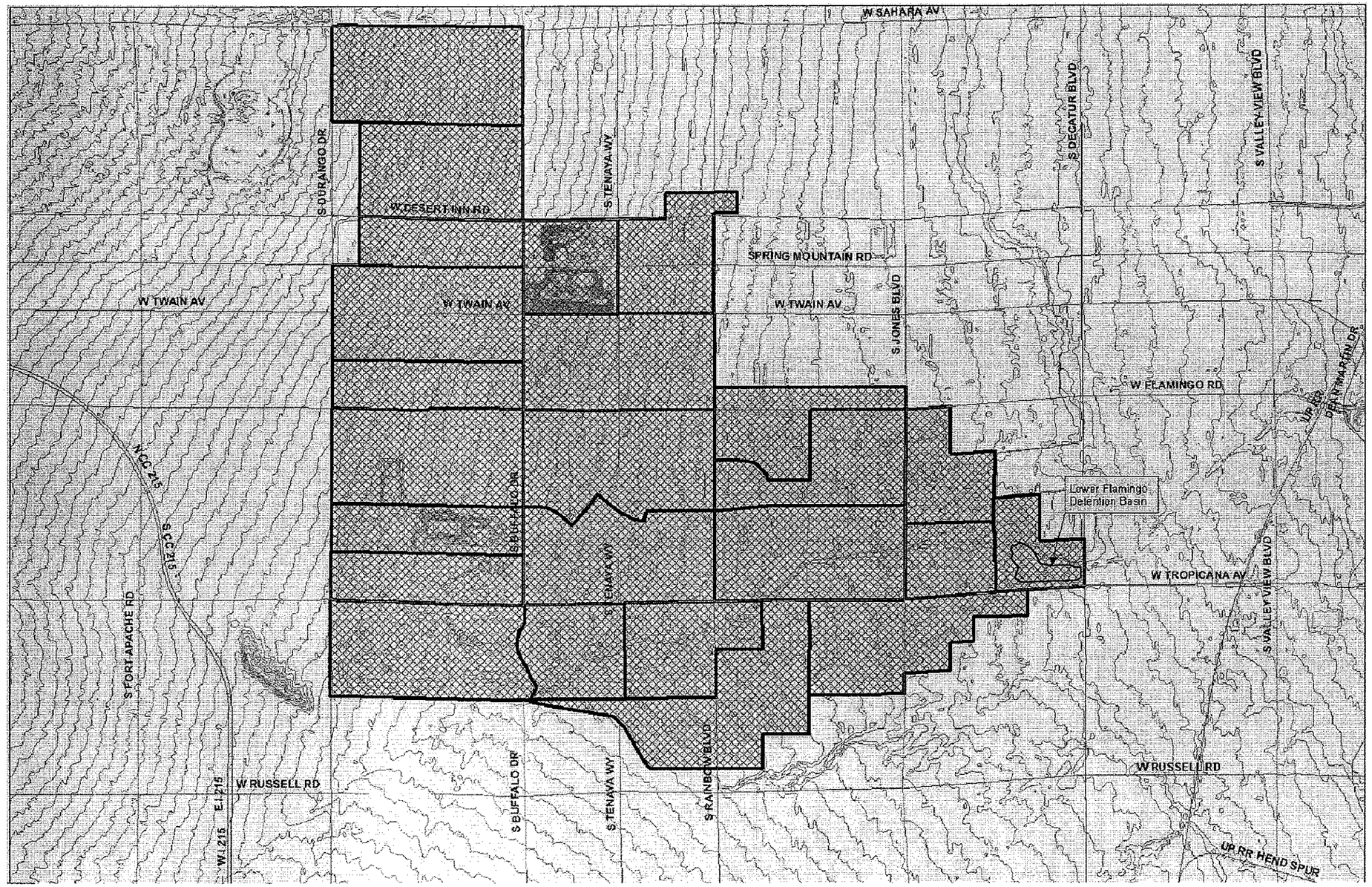
PRE-FINAL SUBMITTAL
NOT FOR CONSTRUCTION
FEBRUARY 4, 2009

DESIGNED BY: MKK
DRAWN BY: MKK
CHECKED BY: LJT
DATE: FEBRUARY 4, 2009

HDR Engineering, Inc.
7180 POLLOCK DRIVE
SUITE 200
LAS VEGAS, NV 89119
Phone: 702-938-6000
Fax: 702-938-6060

SCALE
HORIZ: 1"=125'
VERT:
FIELD BOOK NONE

SHEET No
G-06
X
L-



TRIBUTARY AREA PER 2002 MPU

NOTE: WATERSHED AREA APPROXIMATELY 8.84 SQUARE MILES

C:\Documents and Settings\aabdo\Desktop\Tropicana Decatur Park\Pre-Final Submittal\Plans\Civil Drawings\1-G-SHEETS\CADD\01g-007.dwg 02/03/09 8:02am aabdo

REV No	DATE	DESCRIPTION	APPROVED

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

WATERSHED BOUNDARY MAP

CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

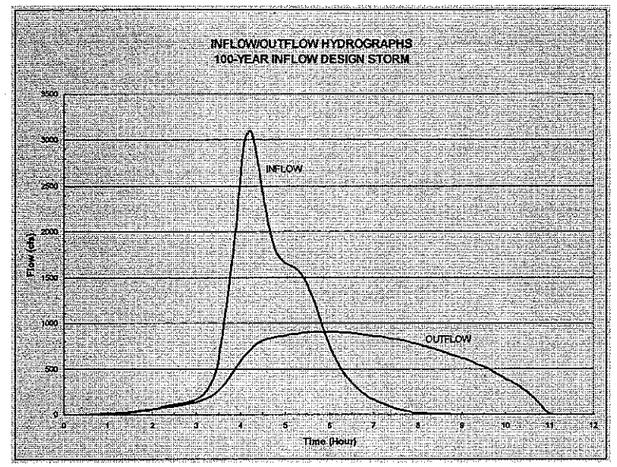
PRE-FINAL SUBMITTAL
NOT FOR CONSTRUCTION
FEBRUARY 4, 2009

DESIGNED BY: MKK
DRAWN BY: MKK
CHECKED BY: LJT
DATE: FEBRUARY 4, 2009

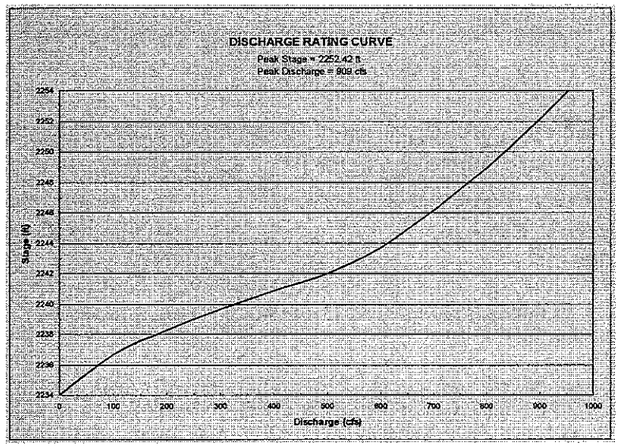
HDR Engineering, Inc.
7180 POLLOCK DRIVE
SUITE 200
LAS VEGAS, NV 89119
Phone: 702-938-6000
Fax: 702-938-6060

SCALE
HORIZ:
VERT:
FIELD BOOK NONE

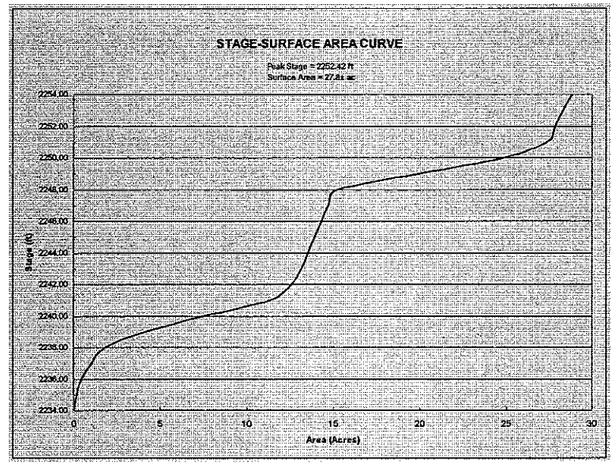
SHEET No
G-07
X
L-



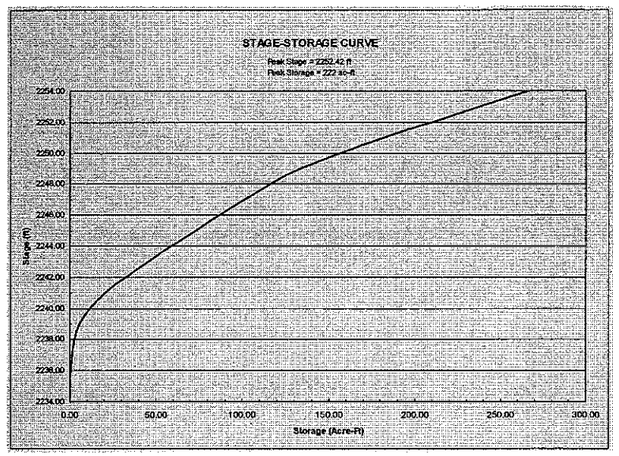
INFLOW–OUTFLOW HYDROGRAPHS
100–YEAR STORM EVENT



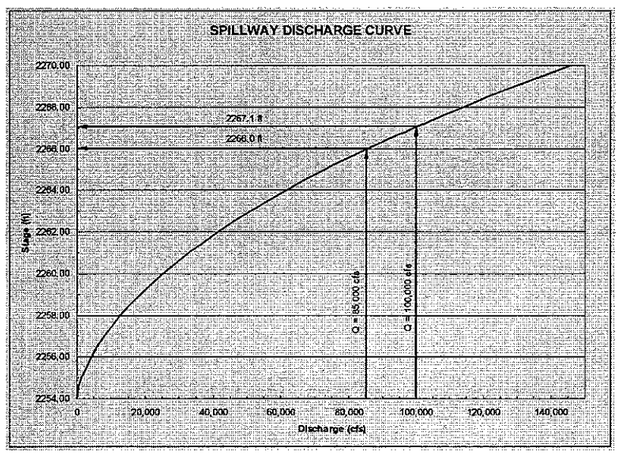
DISCHARGE RATING CURVE
100–YEAR STORM EVENT



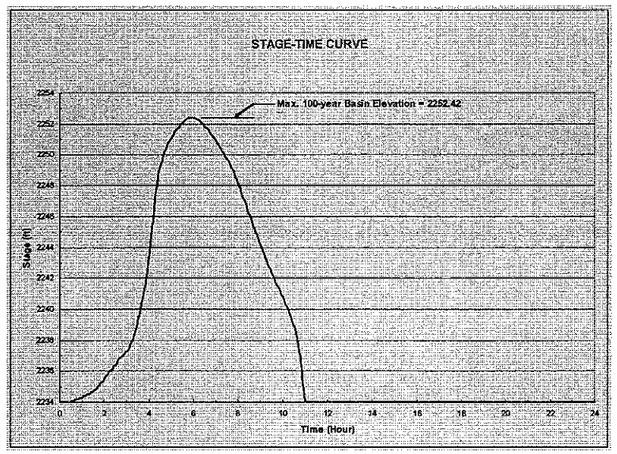
STAGE–SURFACE AREA CURVE



STAGE–STORAGE CURVE



SPILLWAY DISCHARGE CURVE
100–YEAR STORM EVENT



STAGE–TIME CURVE

DATA TABLE

CONTRIBUTING DRAINAGE AREA	8.84 SQ. MILES
TYPE OF DETENTION BASIN	REGIONAL DETENTION FACILITY
EMERGENCY SPILLWAY	ARMORED EMBANKMENT
FOOTPRINT AREA OF BASIN	25.5 ACRES
AREA DISTURBED BY CONSTRUCTION	53 ACRES
100–YEAR PEAK INFLOW	3,101 CFS
100–YEAR PEAK OUTFLOW	909 CFS
100–YEAR PEAK STORAGE	222 ACRE–FEET (SEDIMENT NOT INCLUDED)
100–YEAR PEAK FLOW DEPTH	18.42 FEET
100–YEAR PEAK STAGE ELEVATION	2,252.42 FEET
PMF CONTRIBUTING DRAINAGE AREA	97.5 SQ. MILES
PMF FLOW FOR AMC III	85,000 ~ 100,000 CFS
PMF FLOW DEPTH	32 ~ 33.1 FEET
PMF FLOW DEPTH ABOVE SPILLWAY	12 ~ 13.1 FEET
SPILLWAY ELEVATION	2254.00 FEET
DETENTION BASIN EMBANKMENT ELEVATION	2254.00 FEET
DETENTION BASIN INVERT ELEVATION	2234.00 FEET
DETENTION BASIN DEPTH	20 FEET
LOW–LEVEL OUTLET BOX	12' X 8' RCB
LOW–LEVEL OUTLET PLATE ORIFICE	7.5' X 6'
TRASH RACK	28'–5" X 16'–0"
OUTLET BOX MAXIMUM RELEASE RATE	909 CFS
INVERT ELEVATION OF OUTLET	2234.00 FEET
DRAIN TIME TO 50% CAPACITY	8.5 HOURS
DRAIN TIME TO 90% CAPACITY	12 HOURS
STORAGE AT EMBANKMENT CREST	267 ACRE–FEET

REV No	DATE	DESCRIPTION	APPROVED

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

HYDROLOGIC INFORMATION AND CAPACITY CURVES

CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

PRE-FINAL SUBMITTAL
NOT FOR CONSTRUCTION
FEBRUARY 4, 2009

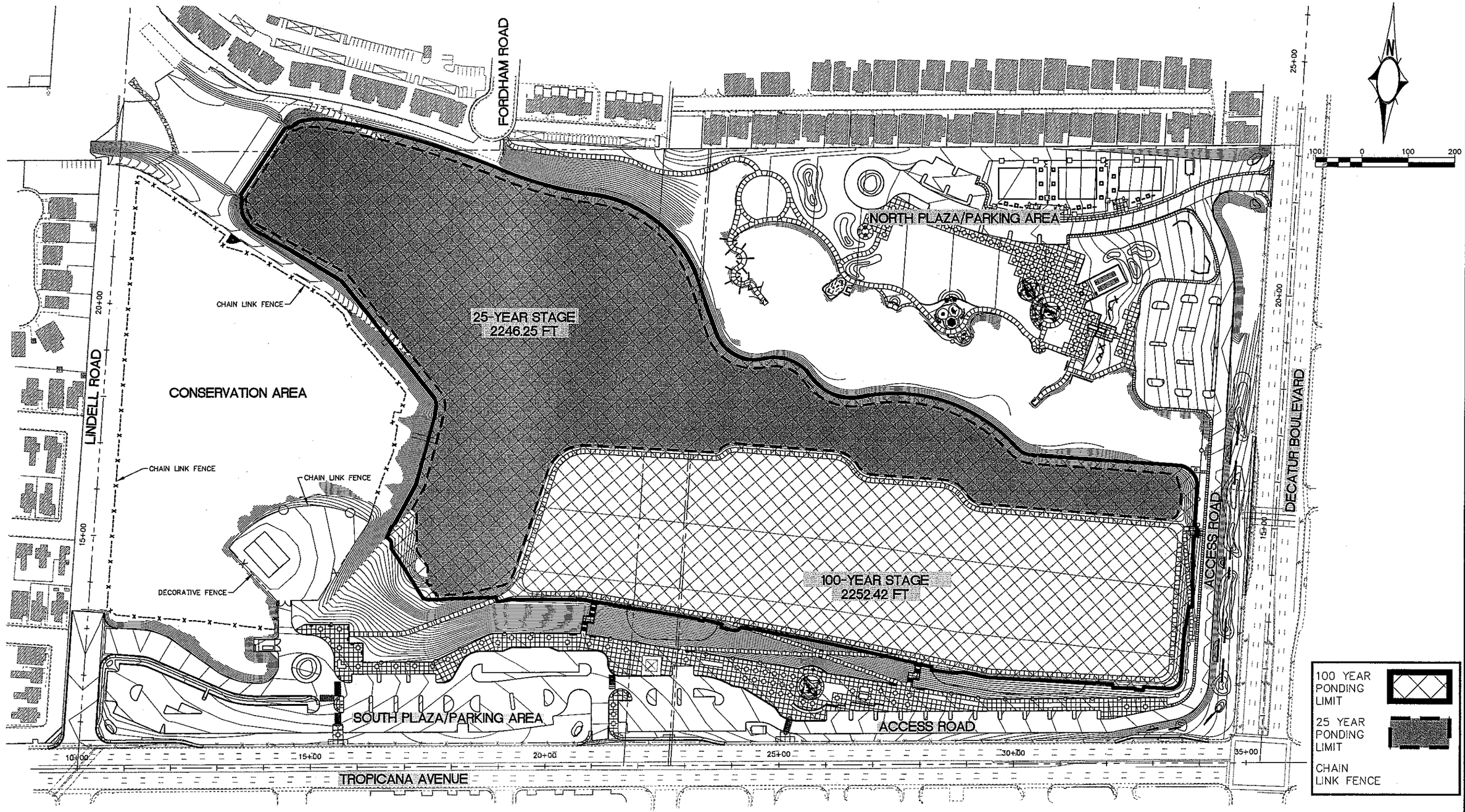
DESIGNED BY: MKK
DRAWN BY: MKK
CHECKED BY: LJT
DATE: FEBRUARY 4, 2009

HDR Engineering, Inc.
7180 POLLOCK DRIVE
SUITE 200
LAS VEGAS, NV 89119
Phone: 702-938-6000
Fax: 702-938-6060

SCALE
HORIZ:
VERT:
FIELD BOOK NONE

SHEET No
G-08
X
L-

C:\Documents and Settings\aabdo\Desktop\Tropicana Decatur Park\Pre-Final Submittal\Plans\Civil Drawings\1-G-SHEETS\CADD\Dig-008.dwg 02/03/09 8:03am aabdo



C:\Documents and Settings\aabdo\Desktop\Tropicana Decatur Park\Pre-Final Submittal\Plans\Civil Drawings\1-G-SHEETS\CADD\01g-009.dwg 02/03/09 8:03am aabdo

REV No	DATE	DESCRIPTION	APPROVED

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

PONDING LIMITS AND CONSERVATION AREA

CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

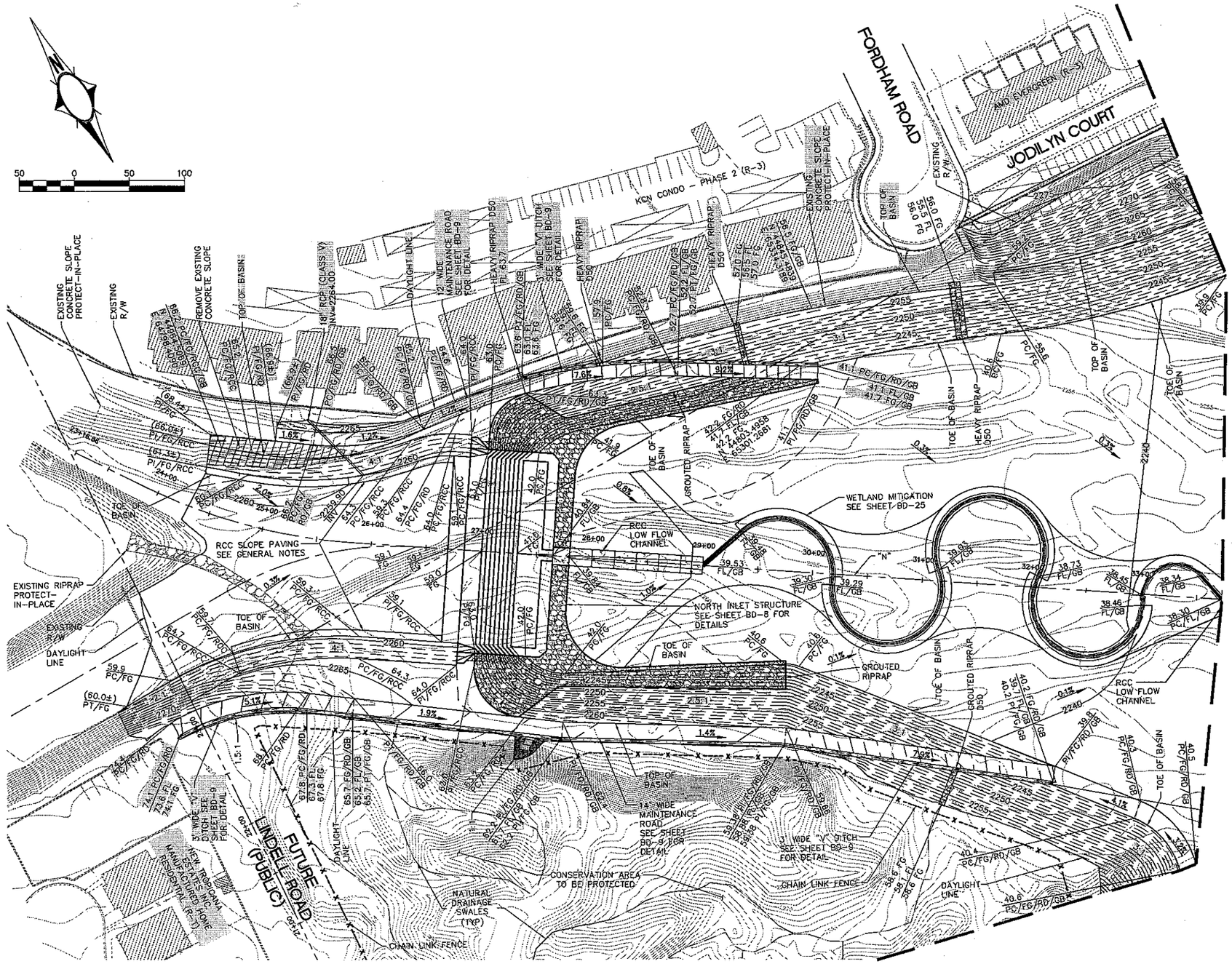
PRE-FINAL SUBMITTAL
NOT FOR CONSTRUCTION
FEBRUARY 4, 2009

DESIGNED BY: AEA
DRAWN BY: AEA
CHECKED BY: LJT
DATE: FEBRUARY 4, 2009

HDR Engineering, Inc.
7180 POLLOCK DRIVE
SUITE 200
LAS VEGAS, NV 89119
Phone: 702-836-5000
Fax: 702-836-5060

SCALE
HORIZ: 1" = 100
VERT:
FIELD BOOK NONE

SHEET No
G-09
X
L-



MATCHLINE "N" 33+72.82
SEE SHEET BG-2 FOR CONTINUATION

BENCHMARK

CLARK COUNTY BENCHMARK #7C1024E4, BEING A RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, NORTHWEST CORNER OF DECATUR BOULEVARD AND HARMON AVENUE NEAR THE PC OF DECATUR BOULEVARD.

EL=688.189 METERS (2257.83 FEET)
NAVD 1988, CLARK COUNTY VERTICAL CONTROL v. 2003

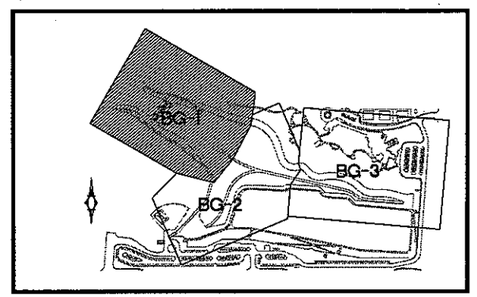
GENERAL NOTES

1. SEE PARK GRADING PLAN SHEETS (GR) AND PARK HORIZONTAL CONTROL PLAN SHEETS (HC) FOR PARK CONSTRUCTION.
2. SEE OFFSITE CONSTRUCTION PLAN SHEETS (OC) FOR OFFSITE CONSTRUCTION PLAN.
3. SEE BASIN DRAINAGE SHEETS (BD) FOR ALL DRAINAGE DETAILS.
4. RCC SLOPE PAVING SECTIONS TO BE INCLUDED IN FINAL SUBMITTAL.
5. RIPRAP SECTIONS TO BE INCLUDED IN FINAL SUBMITTAL.

LEGEND

GROUTED RIPRAP

EXISTING CONCRETE SLOPE REMOVAL



Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811

Avoid overhead power line contact. It's costly.
Call before you OVERHEAD
1-702-227-2929

REV No	DATE	DESCRIPTION	APPROVED

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

BASIN GRADING PLAN
SHEET 1 OF 3

CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

PRE-FINAL SUBMITTAL
NOT FOR CONSTRUCTION
FEBRUARY 4, 2009

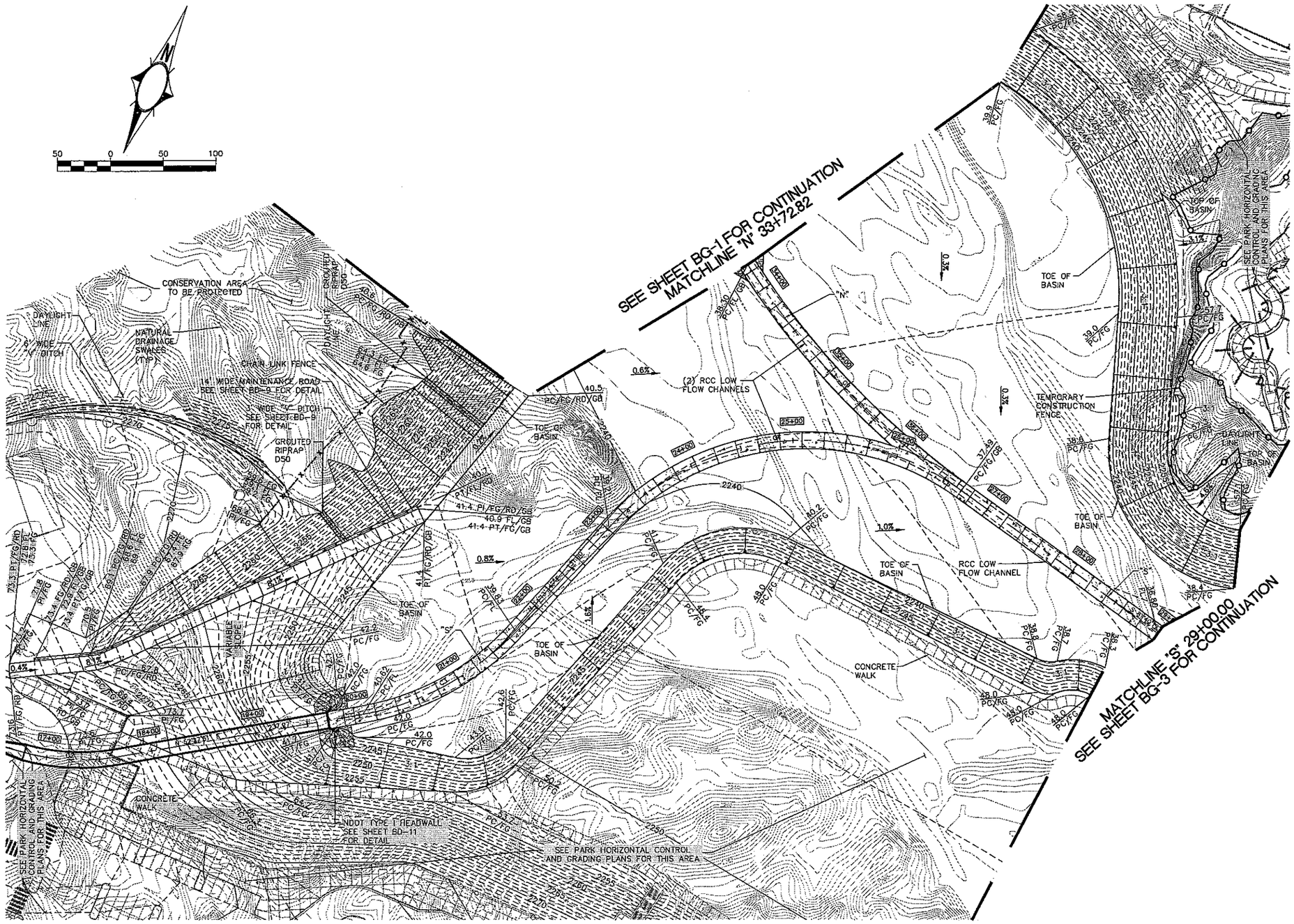
DESIGNED BY: AEA
DRAWN BY: AEA
CHECKED BY: LJT
DATE: FEBRUARY 4, 2009

HDR Engineering, Inc.
7180 POLLOCK DRIVE
SUITE 200
LAS VEGAS, NV 89119
Phone: 702-938-6000
Fax: 702-938-6060

SCALE
HORIZ: 1" = 50'
VERT: NONE
FIELD BOOK NONE

SHEET No
BG-1
X
L-

C:\Documents and Settings\aabdo\Desktop\Tropicana Decatur Park\Pre-Final Submittal\Plans\Civil Drawings\3-BG-SHEETS\CADD\03c-001.dwg 02/03/09 8:11am aabdo



BENCHMARK

CLARK COUNTY BENCHMARK #7C1024E4, BEING A RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, NORTHWEST CORNER OF DECATUR BOULEVARD AND HARMON AVENUE NEAR THE PC OF DECATUR BOULEVARD.

EL=688.189 METERS (2257.83 FEET)
NAVD 1988, CLARK COUNTY VERTICAL CONTROL v. 2003

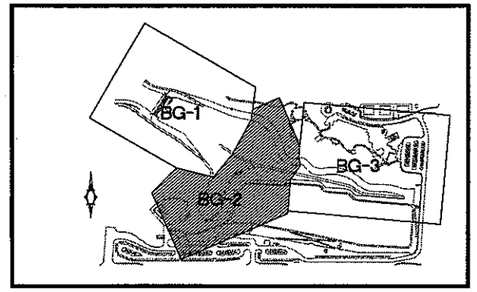
GENERAL NOTES

1. SEE PARK GRADING PLAN SHEETS (GR) AND PARK HORIZONTAL CONTROL PLAN SHEETS (HC) FOR PARK CONSTRUCTION.
2. SEE OFFSITE CONSTRUCTION PLAN SHEETS (OC) FOR OFFSITE CONSTRUCTION PLAN.
3. SEE BASIN DRAINAGE SHEETS (BD) FOR ALL DRAINAGE DETAILS.
4. RCC SLOPE PAVING SECTIONS TO BE INCLUDED IN FINAL SUBMITTAL.
5. RIPRAP SECTIONS TO BE INCLUDED IN FINAL SUBMITTAL.

LEGEND

GROUTED RIPRAP

EXISTING CONCRETE SLOPE REMOVAL



Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811

Avoid overhead power line contact. It's costly.
Call before you OVERHEAD
1-702-227-2929

REV No	DATE	DESCRIPTION	APPROVED

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

BASIN GRADING PLAN
SHEET 2 OF 3

CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

PRE-FINAL SUBMITTAL
NOT FOR CONSTRUCTION
FEBRUARY 4, 2009

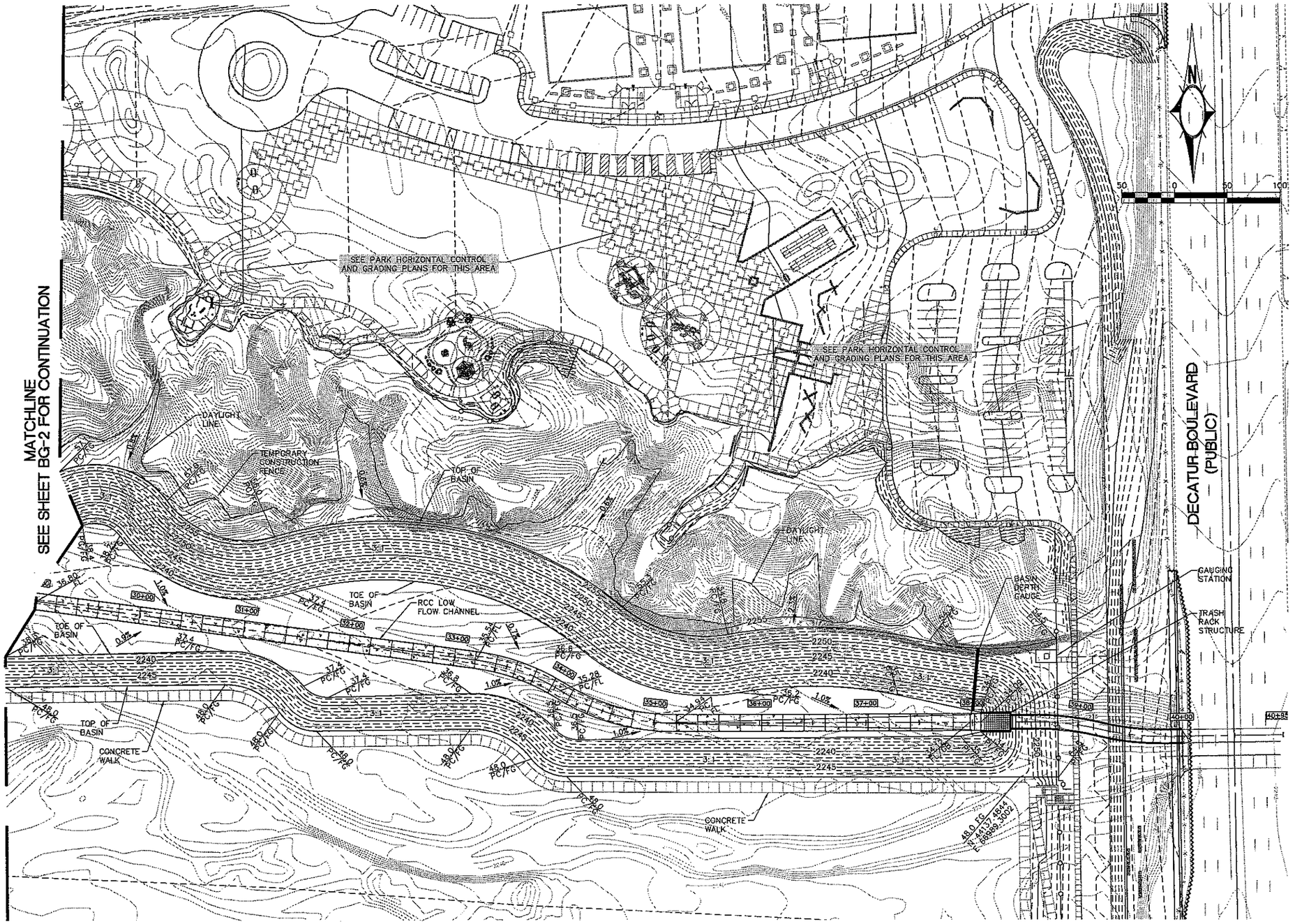
DESIGNED BY: AEA
DRAWN BY: AEA
CHECKED BY: LJT
DATE: FEBRUARY 4, 2009

HDR Engineering, Inc.
7180 POLLOCK DRIVE
SUITE 200
LAS VEGAS, NV 89119
Phone: 702-938-6000
Fax: 702-938-6060

SCALE
HORIZ: 1" = 50'
VERT: NONE
FIELD BOOK NONE

SHEET No
BG-2
X
L-

C:\Documents and Settings\aabda\Desktop\Tropicana Decatur Park\Pre-Final Submittal\Plans\Civil Drawings\3-BG-SHEETS\CADD\03b-002.dwg 02/03/09 8:11am aabda



BENCHMARK

CLARK COUNTY BENCHMARK #7C1024E4, BEING A RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, NORTHWEST CORNER OF DECATUR BOULEVARD AND HARMON AVENUE NEAR THE PC OF DECATUR BOULEVARD.

EL=688.189 METERS (2257.83 FEET)
NAVD 1988, CLARK COUNTY VERTICAL CONTROL v. 2003

GENERAL NOTES

1. SEE PARK GRADING PLAN SHEETS (GR) AND PARK HORIZONTAL CONTROL PLAN SHEETS (HC) FOR PARK CONSTRUCTION.
2. SEE OFFSITE CONSTRUCTION PLAN SHEETS (OC) FOR OFFSITE CONSTRUCTION PLAN.
3. SEE BASIN DRAINAGE SHEETS (BD) FOR ALL DRAINAGE DETAILS.
4. RCC SLOPE PAVING SECTIONS TO BE INCLUDED IN FINAL SUBMITTAL.
5. RIPRAP SECTIONS TO BE INCLUDED IN FINAL SUBMITTAL.

LEGEND

GROUTED RIPRAP

EXISTING CONCRETE SLOPE REMOVAL

Call before you Dig
Avoid cutting underground utility lines. It's easy.
Call 811

Avoid overhead power line contact. It's easy.
Call before you OVERHEAD
1-702-227-2929

REV No	DATE	DESCRIPTION	APPROVED

CLARK COUNTY NEVADA

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

BASIN GRADING PLAN
SHEET 3 OF 3

CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

PRE-FINAL SUBMITTAL
NOT FOR CONSTRUCTION
FEBRUARY 4, 2009

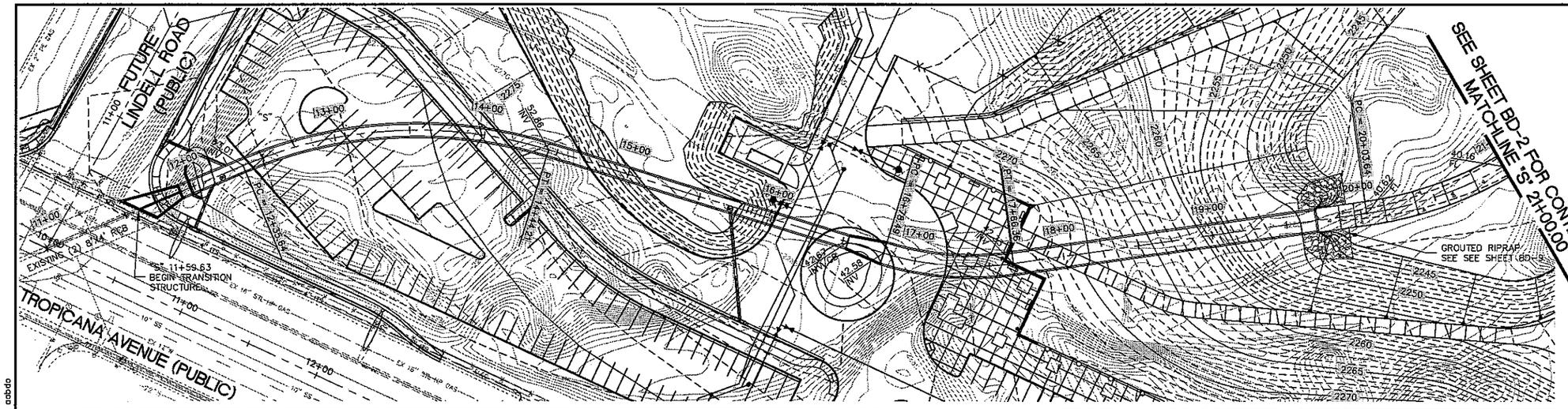
DESIGNED BY: AEA
DRAWN BY: AEA
CHECKED BY: LJT
DATE: FEBRUARY 4, 2009

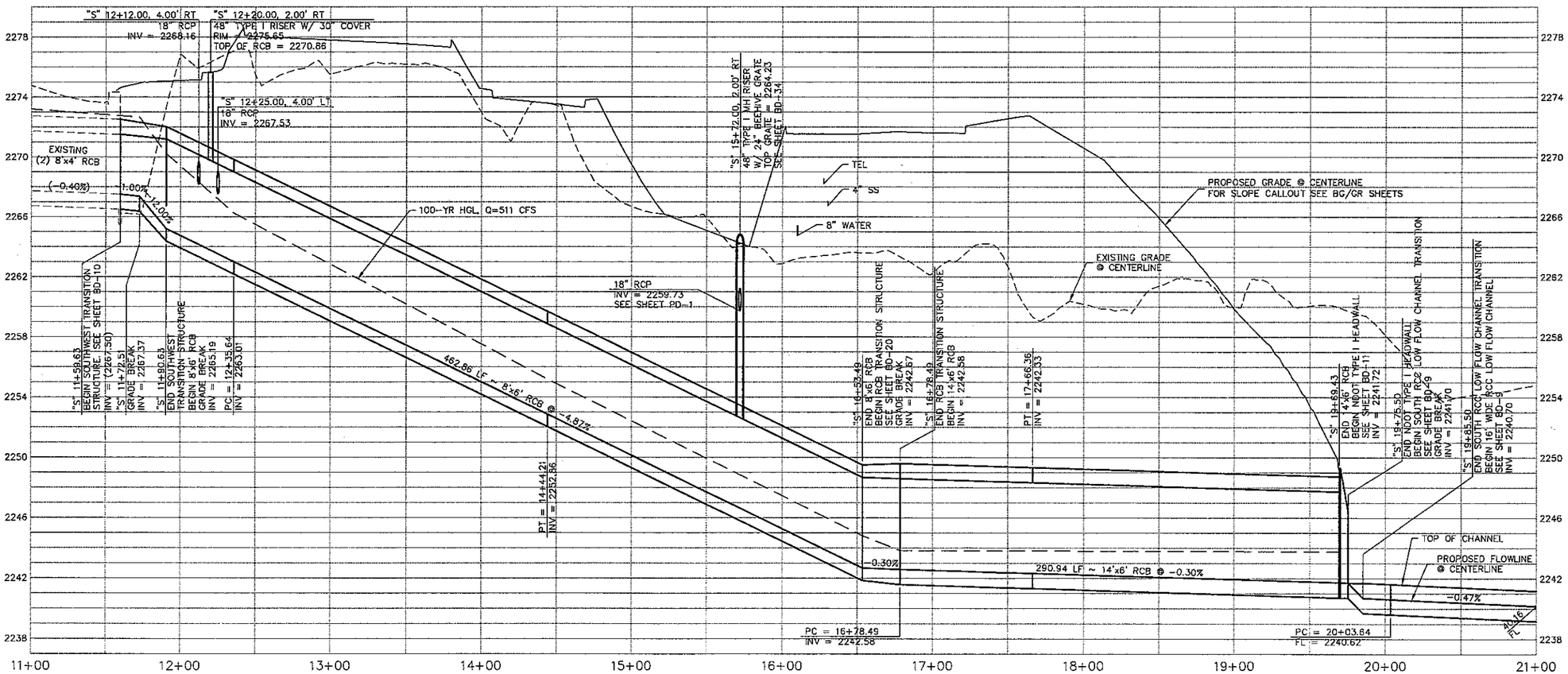
HDR Engineering, Inc.
7180 POLLOCK DRIVE
SUITE 200
LAS VEGAS, NV 89119
Phone: 702-938-6000
Fax: 702-938-6060

SCALE 1" = 50'
HORIZ: 1" = 50'
VERT: NONE
FIELD BOOK NONE

SHEET No
BG-3
X
L-

C:\Documents and Settings\aabdo\Desktop\Tropicana Decatur Park\Pre-Final Submittal\Plans\Civil Drawings\3-BG-SHEETS\CADD\036-003.dwg 02/03/09 8:12am aabdo





GENERAL NOTES

1. SEE BASIN HORIZONTAL CONTROL PLAN SHEETS (BH) FOR HORIZONTAL CONTROL DATA OF DETENTION BASIN DRAINAGE FEATURES.
2. SEE OFFSITE CONSTRUCTION SHEETS (OC) FOR OFFSITE CONSTRUCTION PLAN.
3. SEE PARK GRADING PLAN SHEETS (GR) FOR ONSITE PARK GRADING PLAN AND CONSTRUCTION.
4. SEE SHEET BD-9 FOR GROUTED RIPRAP DETAIL AND LIMITS.

CAUTION
HIGH PRESSURE GAS!
CALL SOUTHWEST GAS AT 365-2296 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES.

Call before you Dig — avoid cutting underground utility lines. It's costly. Call 811

Avoid overhead power line contact. It's costly. Call before you OVERHEAD 1-702-227-2929

C:\Documents and Settings\abdo\Desktop\Tropicana Decatur Park\Pre-Final Submittal\Plans\Civil Drawings\4-BD-SHEETS\CADD\04c-001.dwg 02/03/09 8:35am abdo

REV No	DATE	DESCRIPTION	APPROVED

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

DRAINAGE SHEETS - PLAN AND PROFILE
SOUTHWEST BRANCH - "S" STA 11+00.00 TO 21+00.00
CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

PRE-FINAL SUBMITTAL
NOT FOR CONSTRUCTION
FEBRUARY 4, 2009

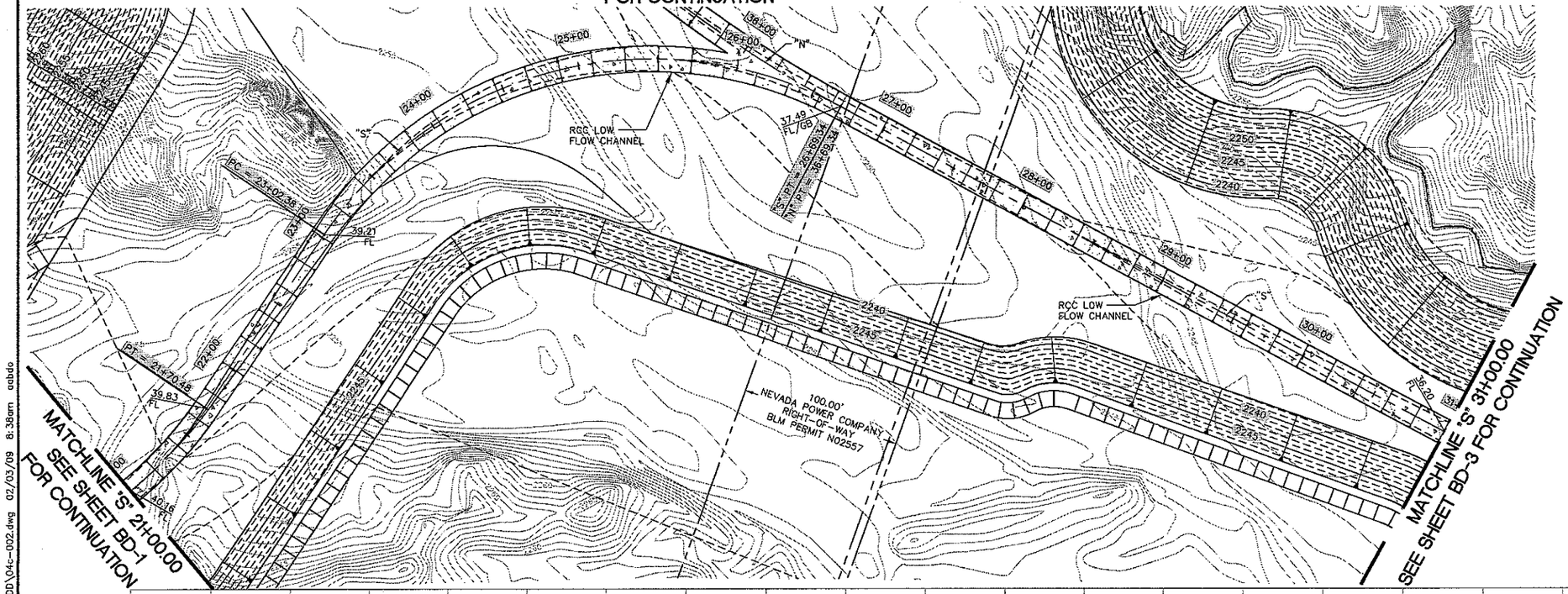
DESIGNED BY: MKK
DRAWN BY: MKK
CHECKED BY: LJT
DATE: FEBRUARY 4, 2009

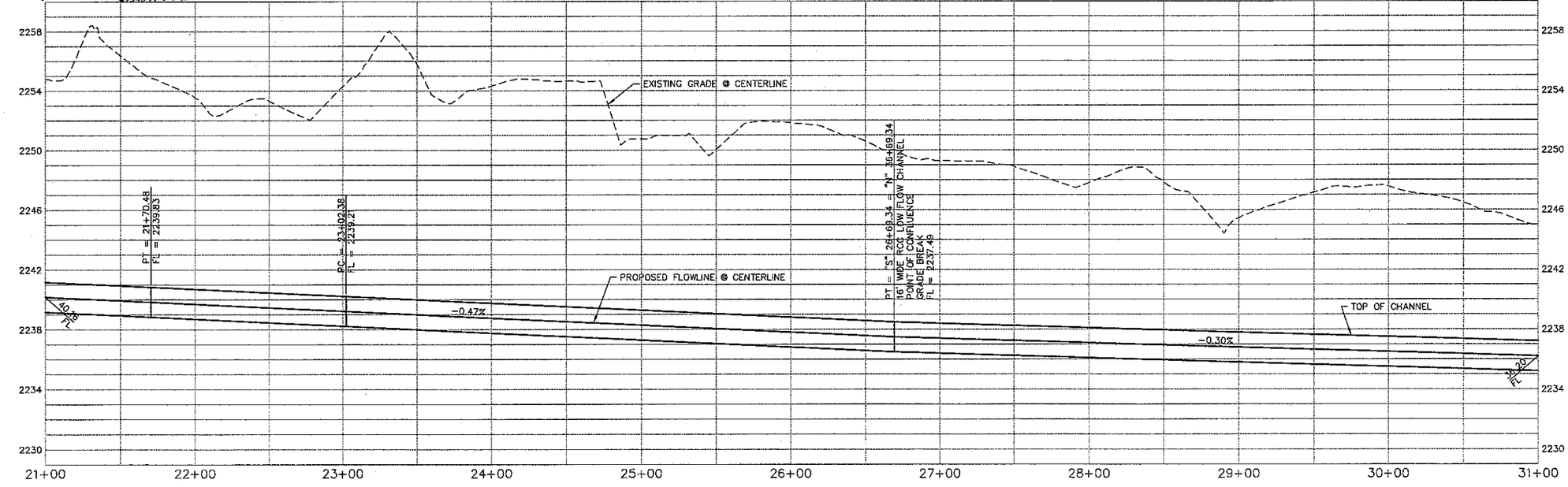
HDR Engineering, Inc.
7180 POLLOCK DRIVE
SUITE 200
LAS VEGAS, NV 89119
Phone: 702-938-6000
Fax: 702-938-6060

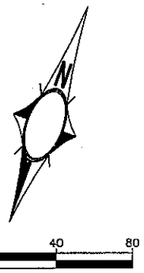
SCALE
HORIZ: 1" = 40'
VERT: 1" = 4'
FIELD BOOK NONE

SHEET No
BD-1
X
L-

SEE SHEET BD-5
FOR CONTINUATION







GENERAL NOTES

1. SEE BASIN HORIZONTAL CONTROL PLAN SHEETS (BH) FOR HORIZONTAL CONTROL DATA OF DETENTION BASIN DRAINAGE FEATURES.
2. SEE OFFSITE CONSTRUCTION SHEETS (OC) FOR OFFSITE CONSTRUCTION PLAN.
3. SEE PARK GRADING PLAN SHEETS (GR) FOR ONSITE PARK GRADING PLAN AND CONSTRUCTION.

Call before you Dig
avoid cutting underground utility lines. It's easy.
Call 811

Avoid overhead power line contact. It's easy.
Call before you
OVERHEAD
1-702-227-2929

REV No	DATE	DESCRIPTION	APPROVED

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

DRAINAGE SHEETS - PLAN AND PROFILE
SOUTHWEST BRANCH - "S" STA 21+00.00 TO 31+00.00
CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

PRE-FINAL SUBMITTAL
NOT FOR CONSTRUCTION
FEBRUARY 4, 2009

DESIGNED BY:	MKK
DRAWN BY:	MKK
CHECKED BY:	LJT
DATE:	FEBRUARY 4, 2009

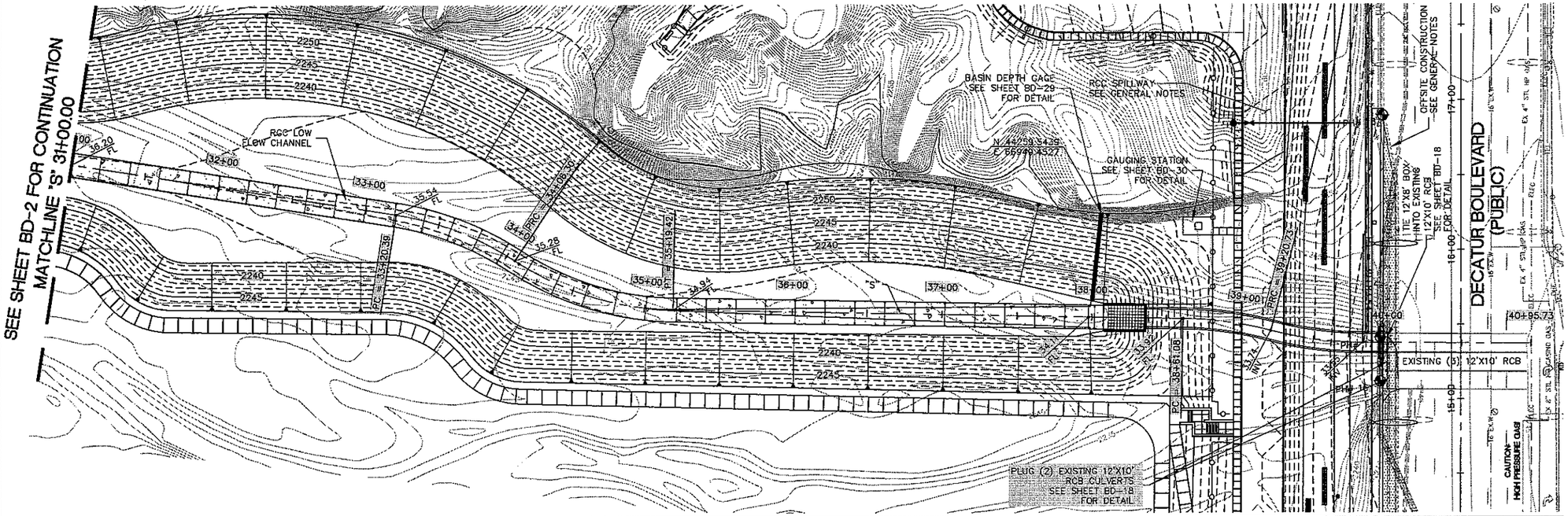
HDR Engineering, Inc.
7180 POLLOCK DRIVE
SUITE 200
LAS VEGAS, NV 89119
Phone: 702-938-6000
Fax: 702-938-6060

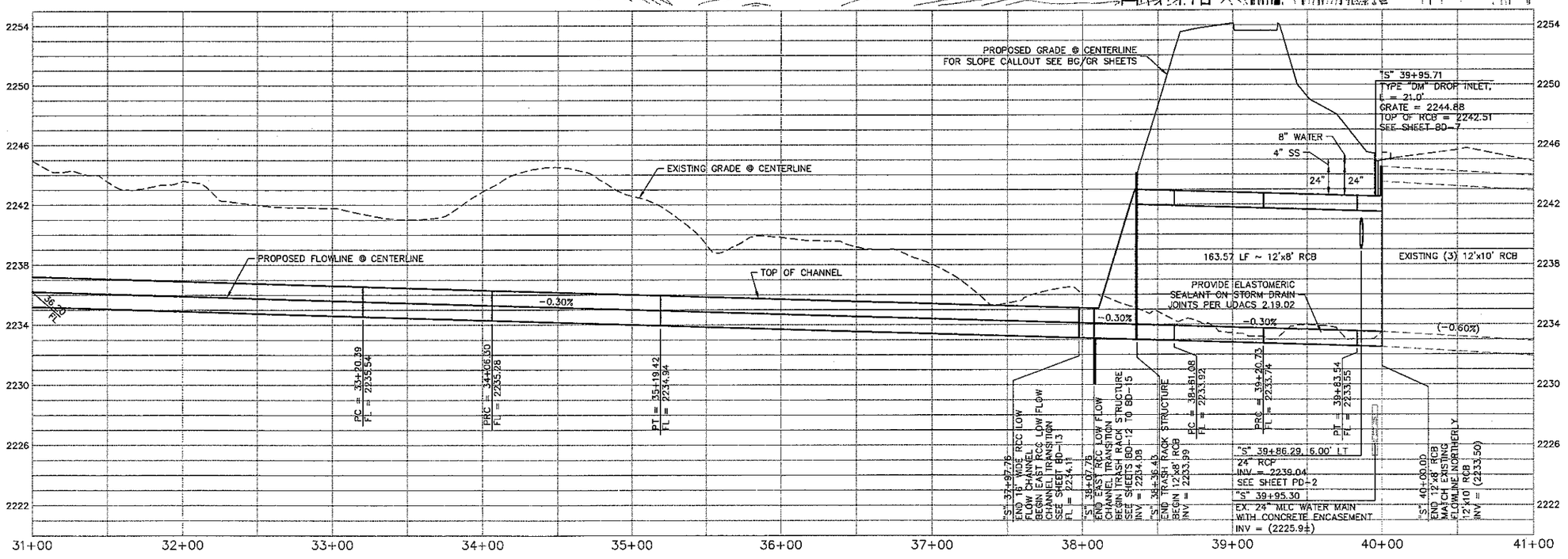
SCALE
HORIZ: 1" = 40'
VERT: NONE
FIELD BOOK NONE

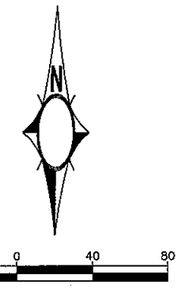
SHEET No
BD-2

X
L-

C:\Documents and Settings\aabdo\Desktop\Tropicana Decatur Park\Pre-Final Submittal\Plans\Civil Drawings\4-BD-SHEETS\CADD\04c-002.dwg 02/03/09 8:38am aabdo







GENERAL NOTES

1. SEE BASIN HORIZONTAL CONTROL PLAN SHEETS (BH) FOR HORIZONTAL CONTROL DATA OF DETENTION BASIN DRAINAGE FEATURES.
2. SEE OFFSITE CONSTRUCTION SHEETS (OC) FOR OFFSITE CONSTRUCTION PLAN
3. SEE PARK GRADING PLAN SHEETS (GR) FOR ONSITE PARK GRADING PLAN AND CONSTRUCTION.
4. SEE SHEETS BD-26 THRU BD-28 FOR ROLLER COMPACTED CONCRETE (RCC) SPILLWAY.

CAUTION
HIGH PRESSURE GAS!
CALL SOUTHWEST GAS AT 365-2296 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES.

Call before you Dig
Avoid costly, unnecessary injury from a cut service.
Call 811

Avoid overhead power line contact. It's costly.
Call before you OVERHEAD
1-702-227-2929

REV No	DATE	DESCRIPTION	APPROVED

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

DRAINAGE SHEETS - PLAN AND PROFILE
SOUTHWEST BRANCH - "S" STA 31+00.00 TO 41+00.00
CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

PRE-FINAL SUBMITTAL
NOT FOR CONSTRUCTION
FEBRUARY 4, 2009

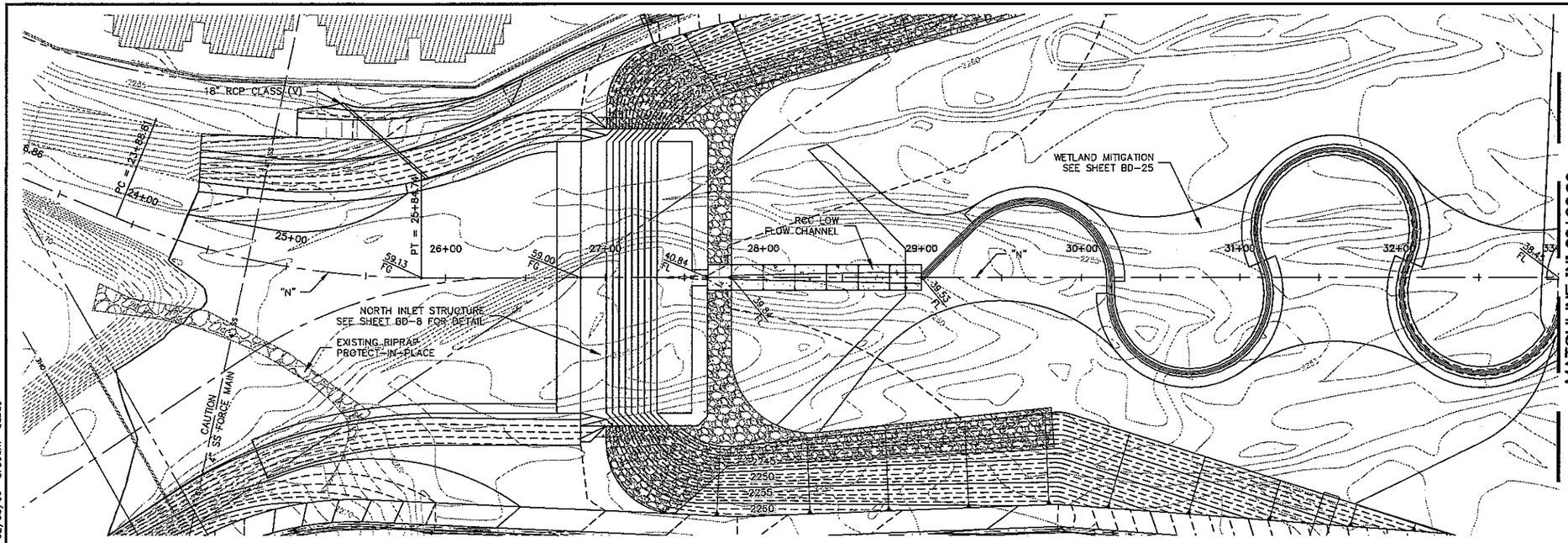
DESIGNED BY: MKK
DRAWN BY: MKK
CHECKED BY: LJT
DATE: FEBRUARY 4, 2009

HDR Engineering, Inc.
7180 POLLOCK DRIVE
SUITE 200
LAS VEGAS, NV 89119
Phone: 702-938-6000
Fax: 702-938-6060

SCALE
HORIZ: 1" = 40'
VERT: 1" = 4'
FIELD BOOK NONE

SHEET No
BD-3
X
L-

C:\Documents and Settings\cabdo\Desktop\Tropicana Decatur Park\Pre-Final Submittal\Plans\Civil Drawings\4-BD-SHEETS\CADD\04-003.dwg 02/03/09 8:38am cabdo

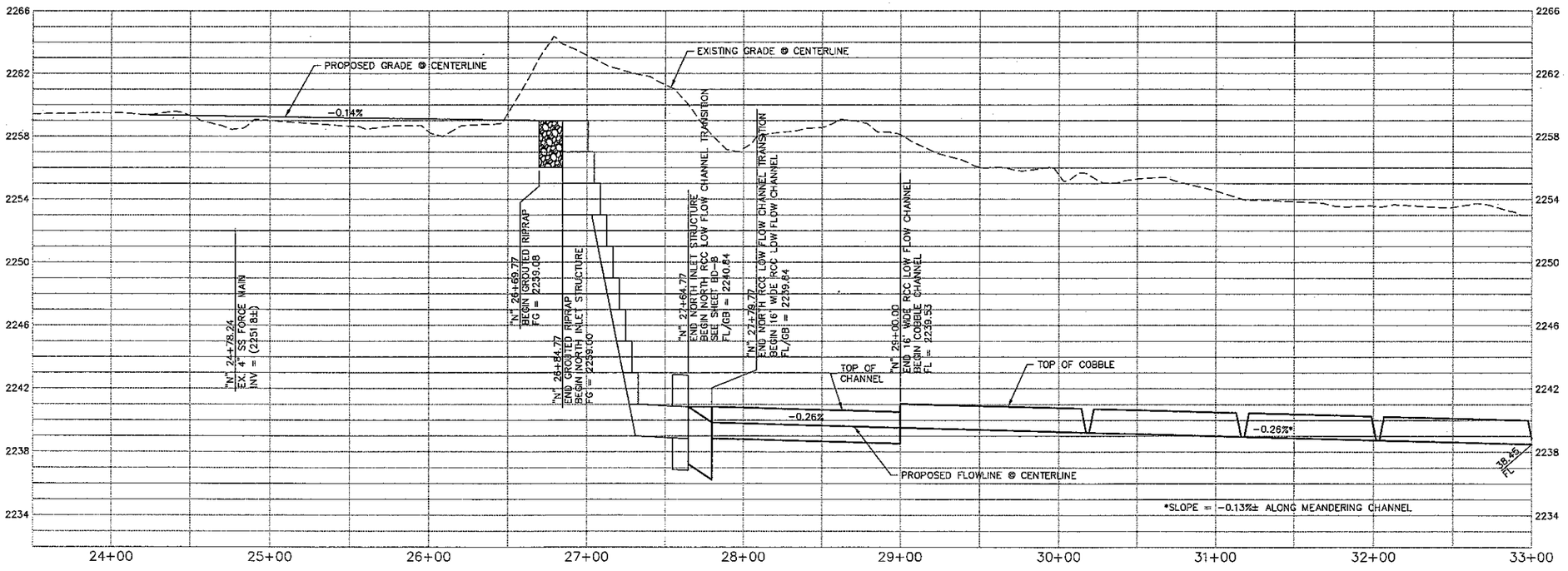


MATCHLINE "N" 33+00.00
SEE SHEET BD-5 FOR CONTINUATION

40 0 40 80

GENERAL NOTE

1. SEE BASIN HORIZONTAL CONTROL PLAN SHEETS (BH) FOR HORIZONTAL CONTROL DATA OF DETENTION BASIN DRAINAGE FEATURES.



Call before you Dig
Avoid cutting underground utility lines. It's easy.
Call 811

Avoid overhead power line contact. It's easy.
Call before you OVERHEAD
1-702-227-2929

REV No	DATE	DESCRIPTION	APPROVED

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

DRAINAGE SHEETS - PLAN AND PROFILE
NORTHWEST BRANCH - "N" STA 23+50.00 TO 33+00.00
CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

PRE-FINAL SUBMITTAL
NOT FOR CONSTRUCTION
FEBRUARY 4, 2009

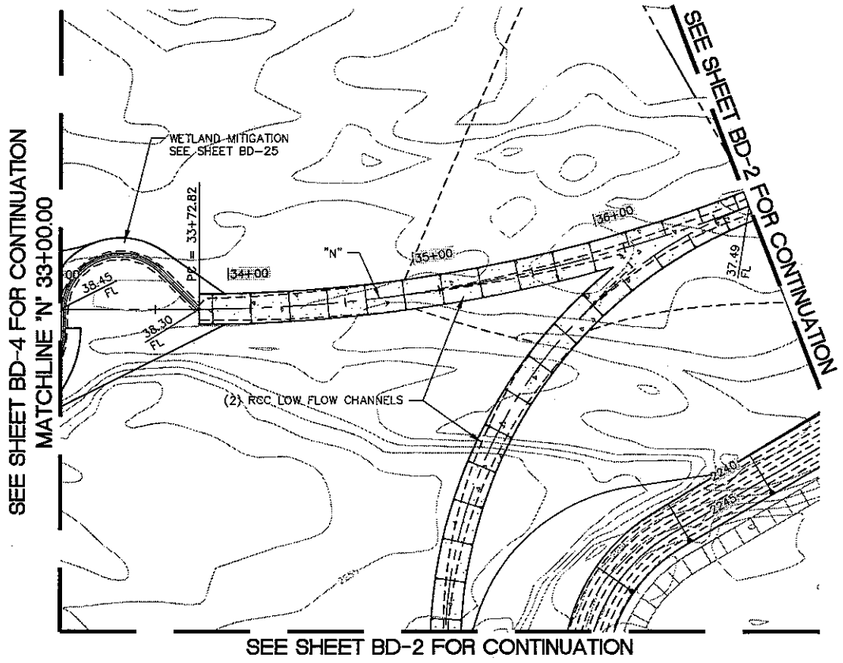
DESIGNED BY: MKK
DRAWN BY: MKK
CHECKED BY: LJT
DATE: FEBRUARY 4, 2009

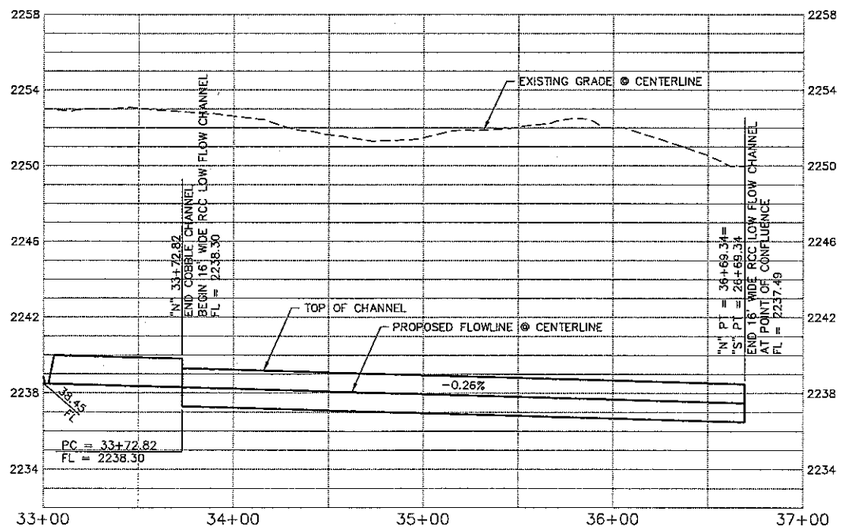
HDR Engineering, Inc.
7180 POLLOCK DRIVE
SUITE 200
LAS VEGAS, NV 89119
Phone: 702-938-6000
Fax: 702-938-6060

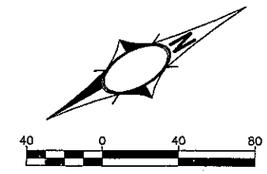
SCALE
HORIZ: 1" = 40'
VERT: 1" = 4'
FIELD BOOK NONE

SHEET No
BD-4
X
L-

C:\Documents and Settings\cabdo\Desktop\Tropicana Decatur Park\Pre-Final Submittal\Plans\Civil Drawings\4-BD-SHEETS\CADD\04c-004.dwg 02/03/09 8:39am cabdo







GENERAL NOTE

1. SEE BASIN HORIZONTAL CONTROL PLAN SHEETS (BH) FOR HORIZONTAL CONTROL DATA OF DETENTION BASIN DRAINAGE FEATURES.

Call before you Dig
Avoid cutting underground utility lines. It's easy.
Call 811

Avoid overhead power line contact. It's easy.
Call before you
OVERHEAD
1-702-227-2929

REV No	DATE	DESCRIPTION	APPROVED

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

DRAINAGE SHEETS - PLAN AND PROFILE
NORTHWEST BRANCH - "N" STA 33+00.00 TO 36+69.34
CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

PRE-FINAL SUBMITTAL
NOT FOR CONSTRUCTION
FEBRUARY 4, 2009

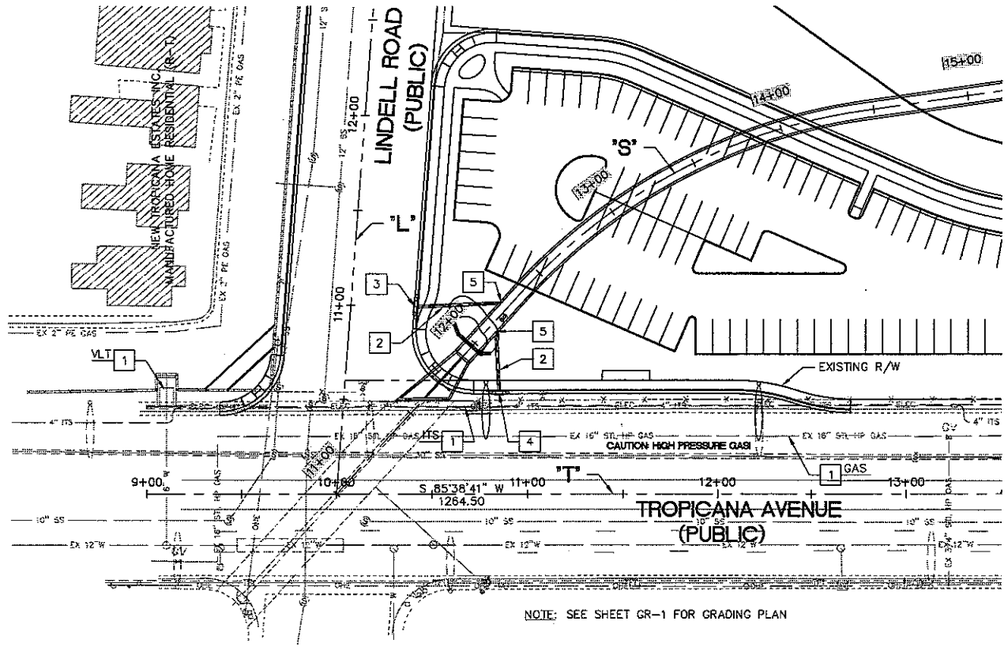
DESIGNED BY: MKK
DRAWN BY: MKK
CHECKED BY: LJT
DATE: FEBRUARY 4, 2009

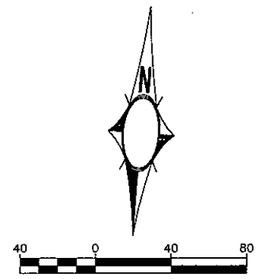
HDR Engineering, Inc.
7180 POLLOCK DRIVE
SUITE 200
LAS VEGAS, NV 89119
Phone: 702-938-6000
Fax: 702-938-6099

SCALE
HORIZ: 1" = 40'
VERT: 1" = 4'
FIELD BOOK NONE

SHEET No
BD-5
X
L-

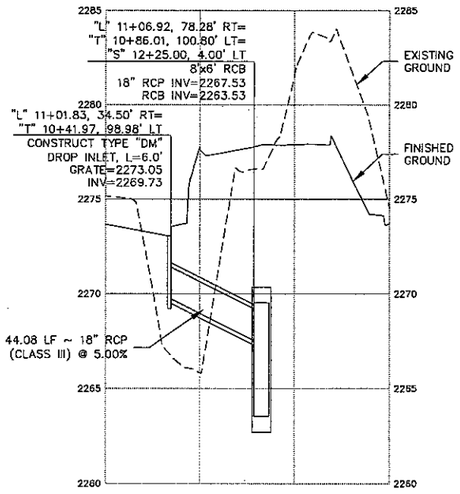
C:\Documents and Settings\aabdo\Desktop\Tropicana Decatur Park\Pre-Final Submittal\Plans\Civil Drawings\4-BD-SHEETS\CADD\04c-005.dwg 02/03/09 8:39am aabdo



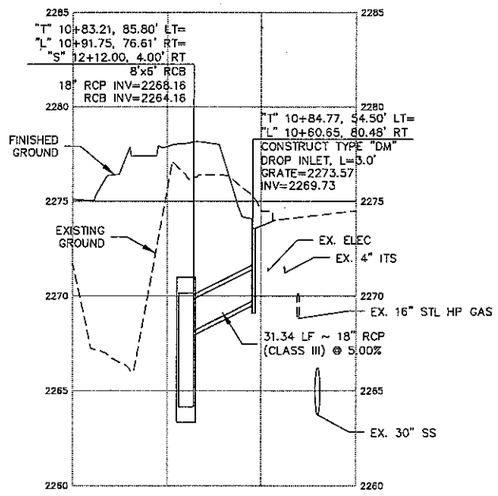


CONSTRUCTION NOTES

1. PROTECT-IN-PLACE
2. INSTALL 18" RCP (CLASS III)
3. CONSTRUCT TYPE "DM" DROP INLET, L=6.0' PER USDCCA DWG NO. 412A
4. CONSTRUCT TYPE "DM" DROP INLET, L=3.0' PER USDCCA DWG NO. 412A
5. CONSTRUCT RCB WALL PIPE INLET PER DETAIL G, SHEET BD-19



PROFILE – LINDELL SD LATERAL (1)
H: 1"=40', V: 1"=4'



PROFILE – TROPICANA SD LATERAL (2)
H: 1"=40', V: 1"=4'

LVVWD PROJECT #109592

LAS VEGAS VALLEY WATER DISTRICT DATE

SEE SHEET G-03 FOR LVVWD STANDARD NOTES

CAUTION
HIGH PRESSURE GAS!
CALL SOUTHWEST GAS AT 365-2296
FOR STANDBY WHEN EXCAVATING OVER
OR NEAR HIGH PRESSURE GAS LINES

Call before you Dig
Avoid buried underground utility lines. It's easy.
Call 811

Avoid overhead power line contact. It's easy.
Call before you
OVERHEAD
1-702-227-2929

REV No	DATE	DESCRIPTION	APPROVED

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

OFFSITE DRAINAGE SHEETS - PLAN AND PROFILE
DROP INLETS

CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

PRE-FINAL SUBMITTAL
NOT FOR CONSTRUCTION
FEBRUARY 4, 2009

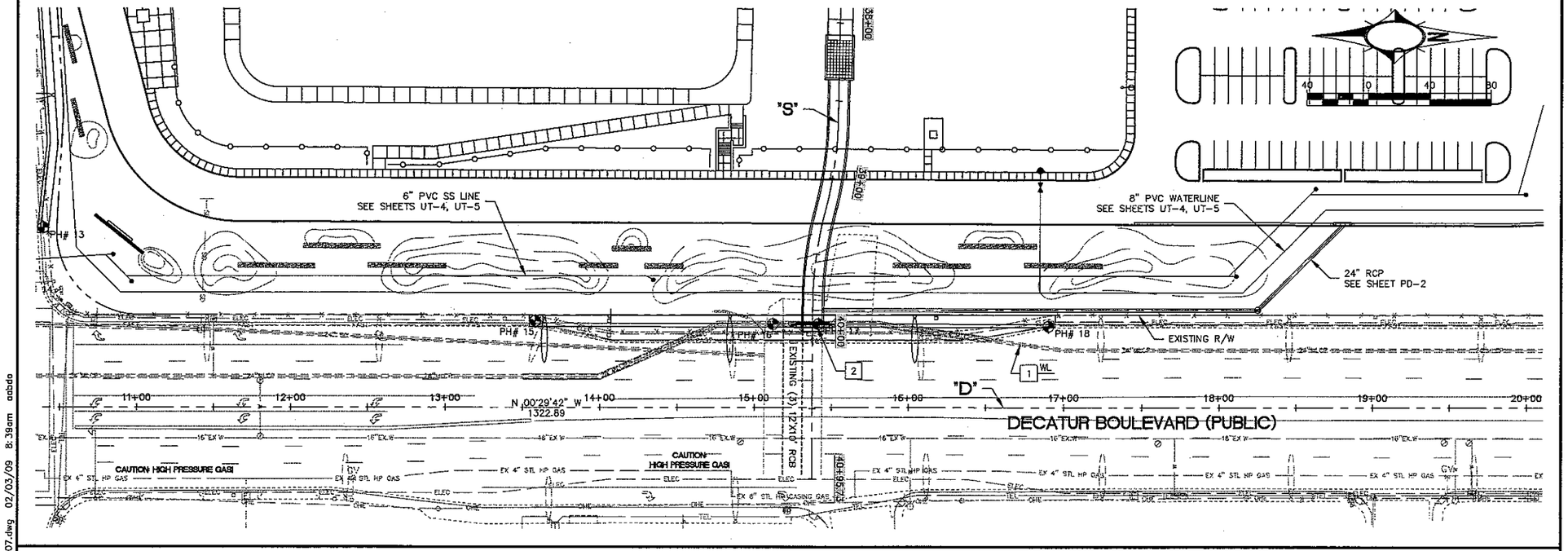
DESIGNED BY:
DRAWN BY:
CHECKED BY:
DATE: FEBRUARY 4, 2009

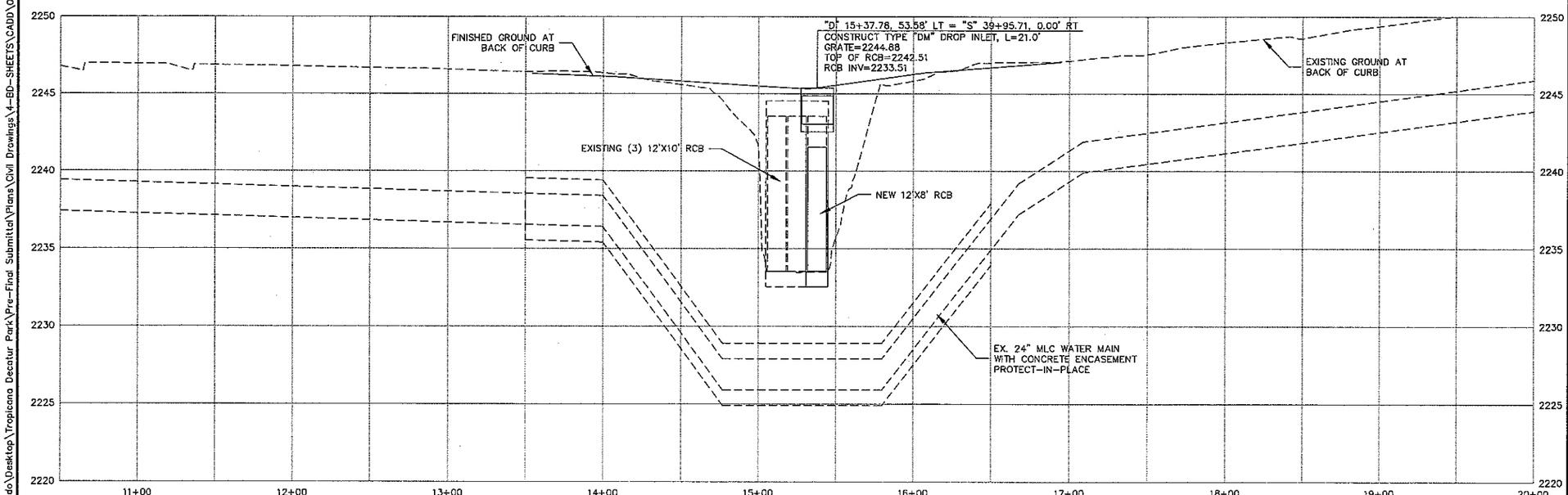
HDR Engineering, Inc.
7180 POLLOCK DRIVE
SUITE 200
LAS VEGAS, NV 89119
Phone: 702-938-6000
Fax: 702-938-6060

SCALE
HORIZ: 1" = 40'
VERT: 1" = 4'
FIELD BOOK NONE

SHEET No
BD-6
X
L-

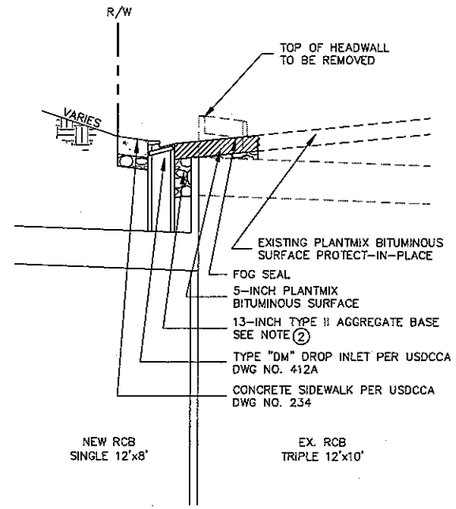
C:\Documents and Settings\cobdo\Desktop\Tropicana Decatur Park\Pre-Final Submittal\Plans\Civil Drawings\4-BD-SHEETS\CADD\04c-006.dwg 02/03/09 8:39am cobdo





CONSTRUCTION NOTES

1. PROTECT-IN-PLACE
2. CONSTRUCT TYPE "DM" DROP INLET, L=21.0' PER USDCCA DWG NO. 412A



SECTION – DECATUR BOULEVARD (A)
"D" 15+30.76 TO "D" 15+44.76

LVVWD PROJECT #109592

LAS VEGAS VALLEY WATER DISTRICT DATE

SEE SHEET G-03 FOR LVVWD STANDARD NOTES

CAUTION
HIGH PRESSURE GAS!
CALL SOUTHWEST GAS AT 365-2296
FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

Call before you Dig — Avoid cutting underground utility lines. It's costly. Call 811

Avoid overhead power line contact. It's costly. Call before you OVERHEAD 1-702-227-2929

REV No	DATE	DESCRIPTION	APPROVED

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

OFFSITE DRAINAGE SHEETS - PLAN AND PROFILE
DROP INLETS

CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

PRE-FINAL SUBMITTAL
NOT FOR CONSTRUCTION
FEBRUARY 4, 2009

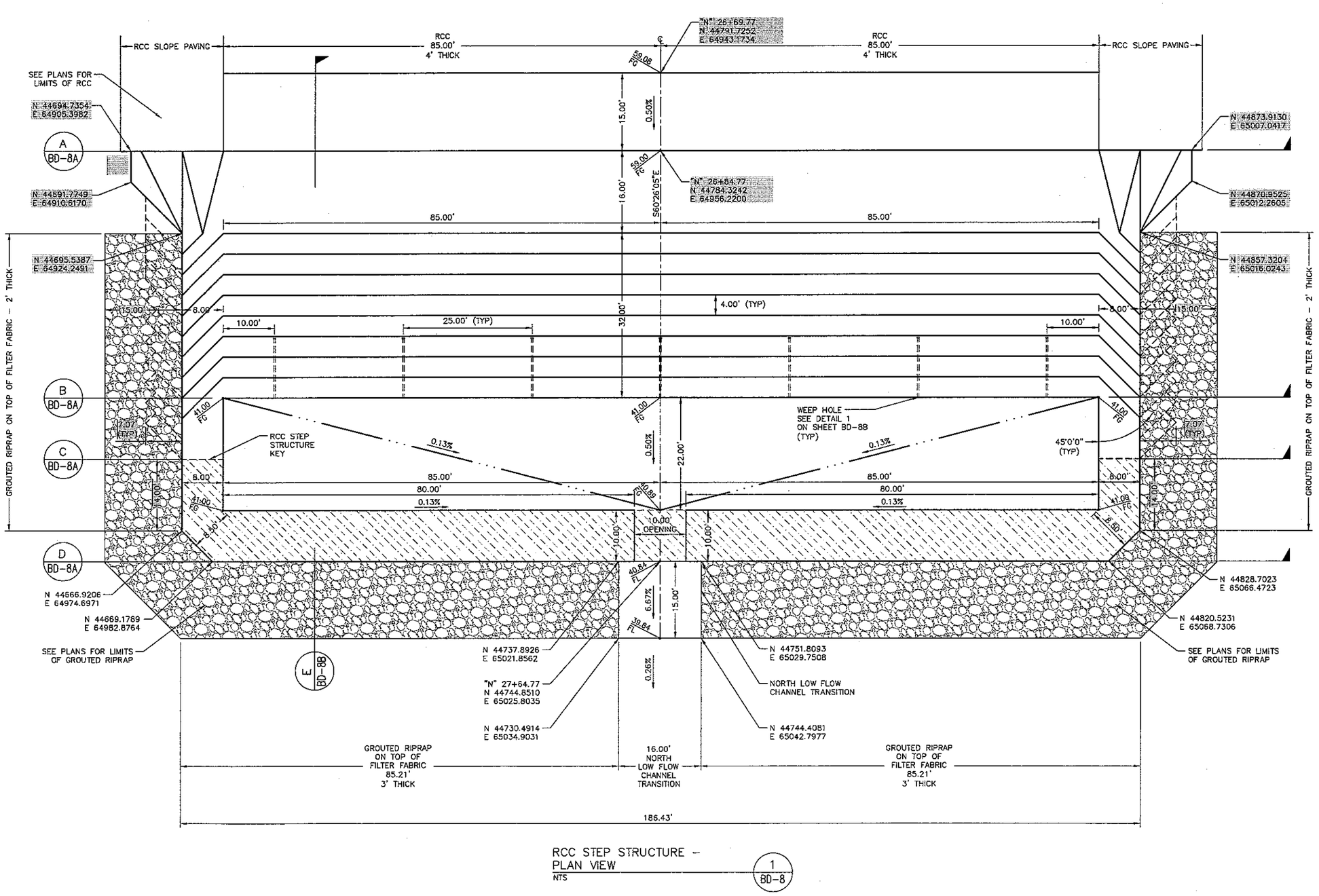
DESIGNED BY: MKK
DRAWN BY: MKK
CHECKED BY: LJT
DATE: FEBRUARY 4, 2009

HDR Engineering, Inc.
7180 POLLOCK DRIVE
SUITE 200
LAS VEGAS, NV 89119
Phone: 702-938-6000
Fax: 702-938-6060

SCALE
HORIZ: 1" = 40'
VERT: 1" = 4'
FIELD BOOK NONE

SHEET No
BD-7
X
L-

C:\Documents and Settings\abdo\Desktop\Tropicana Decatur Park\Pre-Final Submittal\Plans\Civil Drawings\4-BD-SHEETS\CADD\04c-007.dwg 02/03/09 8:39am abdo



RCC STEP STRUCTURE - PLAN VIEW
NTS

1 / BD-8

LEGEND

- RCC STEP STRUCTURE KEY
- GROUTED RIPRAP

C:\Documents and Settings\aabdo\Desktop\Tropicana Decatur Park\Pre-Final Submittal\Plans\Civil Drawings\4-BD-SHEETS\CADD\04c-008.dwg 02/03/09 8:39am aabdo

REV No	DATE	DESCRIPTION	APPROVED

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

DRAINAGE DETAILS
NORTH INLET STRUCTURE

CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

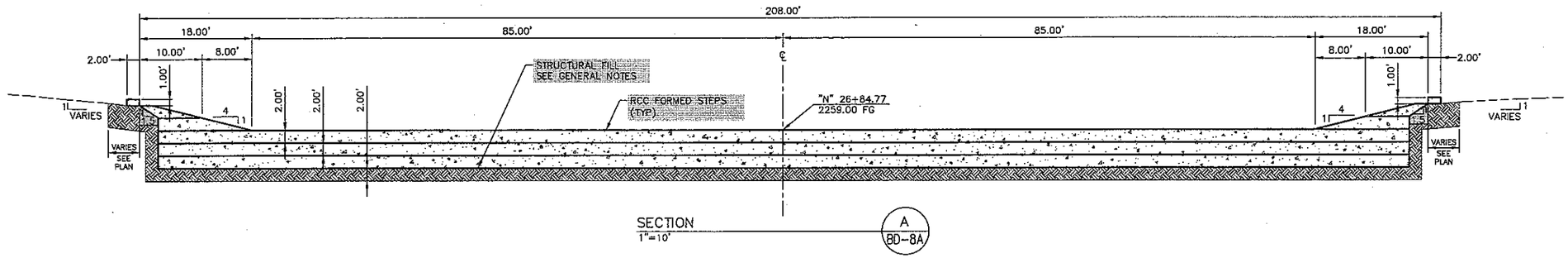
PRE-FINAL SUBMITTAL
NOT FOR CONSTRUCTION
FEBRUARY 4, 2009

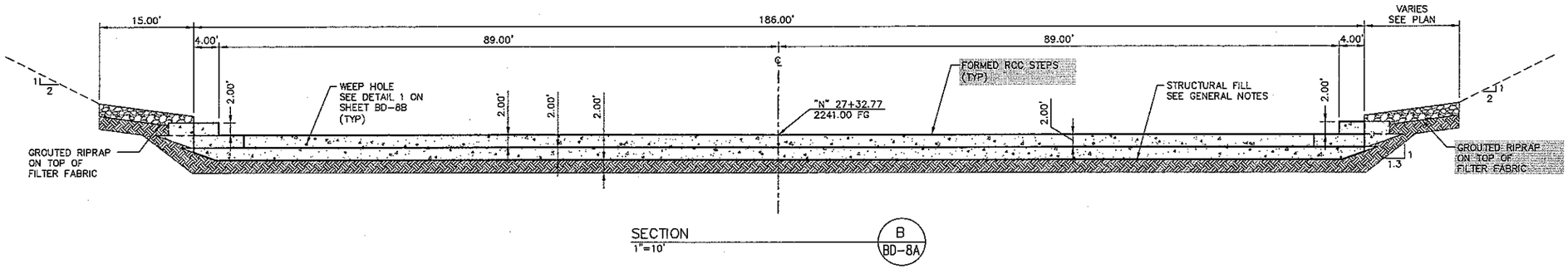
DESIGNED BY: PEO
DRAWN BY: PEO
CHECKED BY: LJT
DATE: FEBRUARY 4, 2009

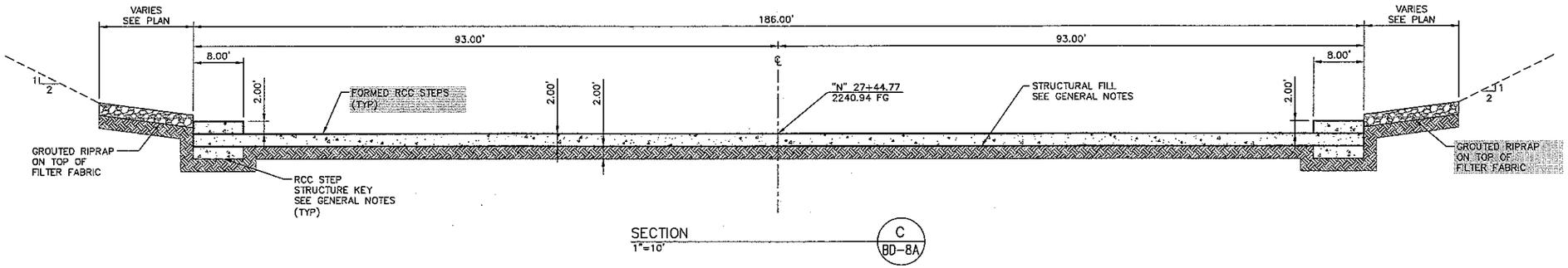
HDR Engineering, Inc.
7180 POLLOCK DRIVE
SUITE 200
LAS VEGAS, NV 89119
Phone: 702-836-8000
Fax: 702-836-8060

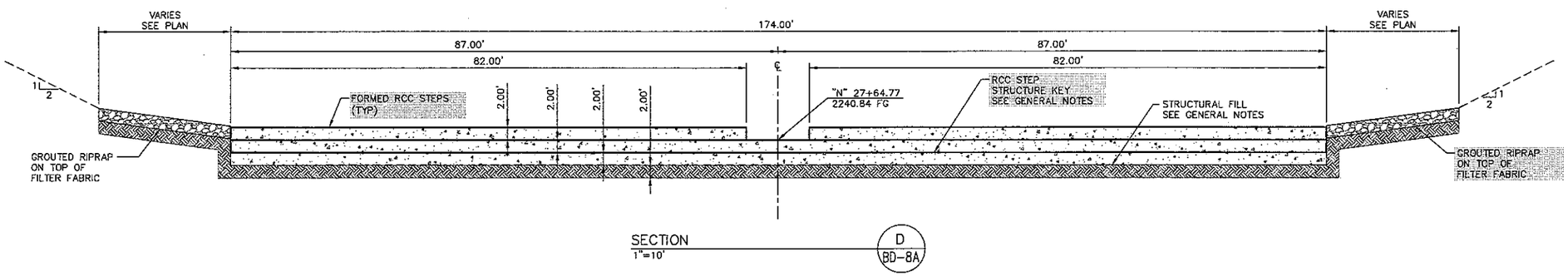
SCALE
HORIZ: 1" = 10'
VERT:
FIELD BOOK NONE

SHEET No
BD-8
X
L-









GENERAL NOTES

1. STRUCTURAL FILL SHALL BE COMPACTED TO 90% PER SPECIAL PROVISIONS SECTION 203 AND CONVERSE GEOTECHNICAL REPORT.
2. RCC STEP STRUCTURE KEY LIMITS ARE SHOWN ON SHEET BD-8.

LEGEND

- STRUCTURAL FILL SEE GENERAL NOTES
- ROLLER COMPACTED CONCRETE
- GROUTED RIPRAP

REV No	DATE	DESCRIPTION	APPROVED

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

DRAINAGE DETAILS
NORTH INLET STRUCTURE

CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

PRE-FINAL SUBMITTAL
NOT FOR CONSTRUCTION
FEBRUARY 4, 2009

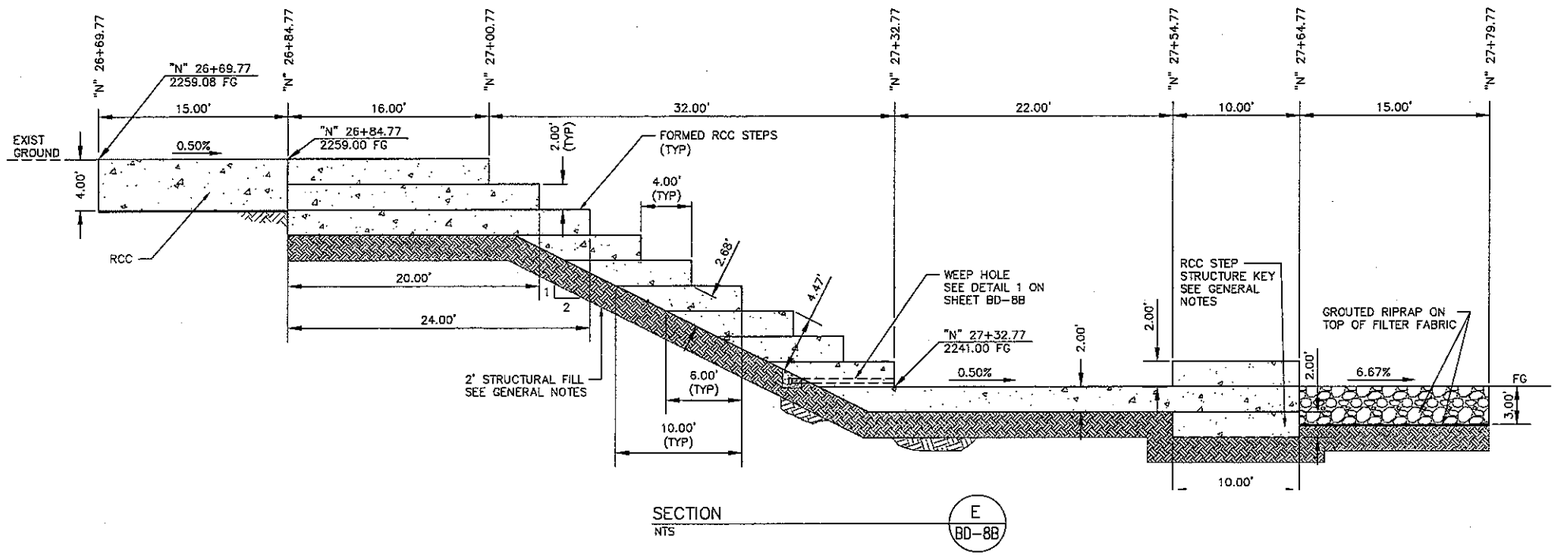
DESIGNED BY: AEA
DRAWN BY: AEA
CHECKED BY: LJT
DATE: FEBRUARY 4, 2009

HDR Engineering, Inc.
7180 POLLOCK DRIVE
SUITE 200
LAS VEGAS, NV 89119
Phone: 702-938-6000
Fax: 702-938-6060

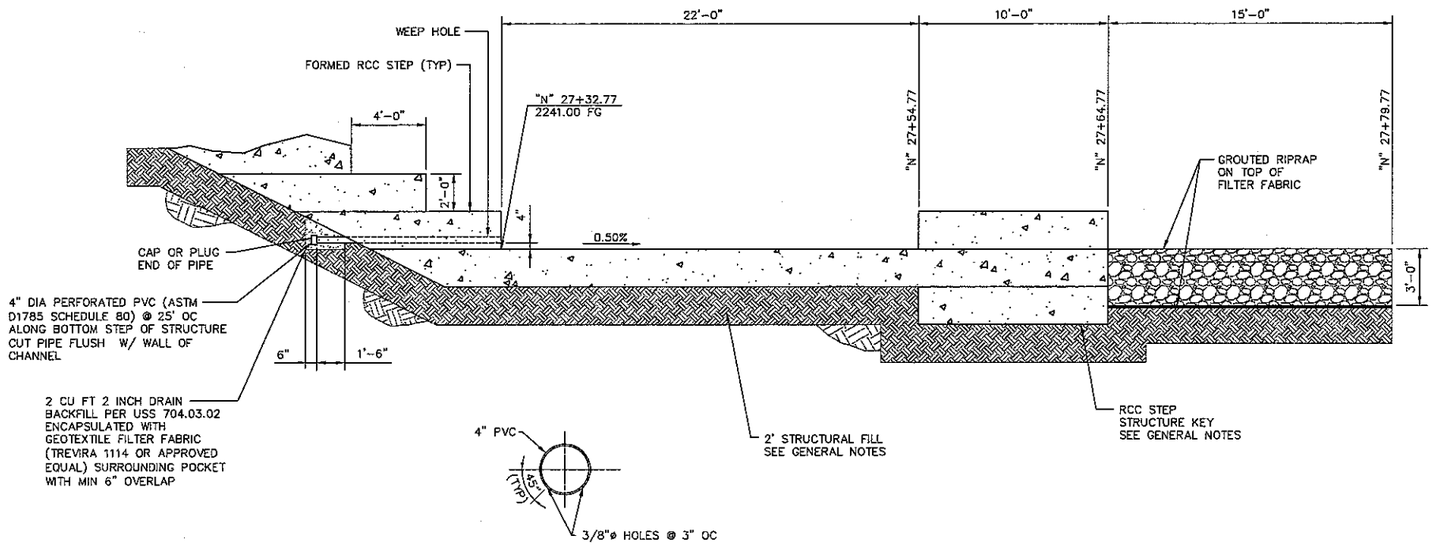
SCALE
HORIZ: 1" = 10'
VERT:
FIELD BOOK NONE

SHEET No
BD-8A
X
L-

C:\Documents and Settings\aabdo\Desktop\Tropicana Decatur Park\Pre-Final Submittal\Plans\Civil Drawings\4-BD-SHEETS\CADD\04c-008A.dwg 02/03/09 8:39am aabdo



SECTION E
NTS BD-8B



HOLE LOCATIONS PVC PIPE

WEEP HOLE DETAIL
NTS 1 BD-8B

GENERAL NOTES

1. STRUCTURAL FILL SHALL BE COMPACTED TO 90% PER SPECIAL PROVISIONS SECTION 203 AND CONVERSE GEOTECHNICAL REPORT.
2. RCC STEP STRUCTURE KEY LIMITS ARE SHOWN ON SHEET BD-8.

LEGEND

- STRUCTURAL FILL SEE GENERAL NOTES
- ROLLER COMPACTED CONCRETE (RCC)
- GROUTED RIPRAP

C:\Documents and Settings\vabda\Desktop\Tropicana Decatur Park\Pre-Final Submittal\Plans\Civil Drawings\4-BD-SHEETS\CADD\04c-008B.dwg 02/03/09 8:40am abdo

REV No	DATE	DESCRIPTION	APPROVED

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

DRAINAGE DETAILS
NORTH INLET STRUCTURE
CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

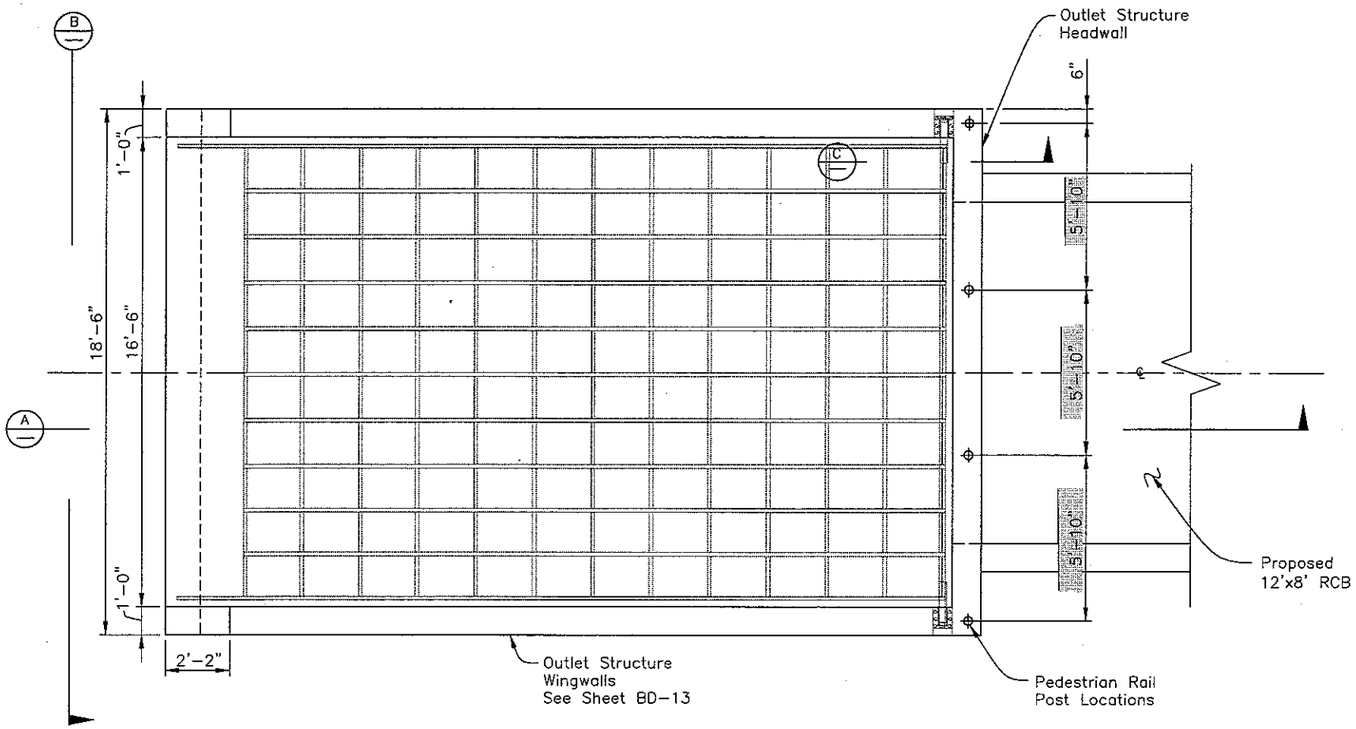
PRE-FINAL SUBMITTAL
NOT FOR CONSTRUCTION
FEBRUARY 4, 2009

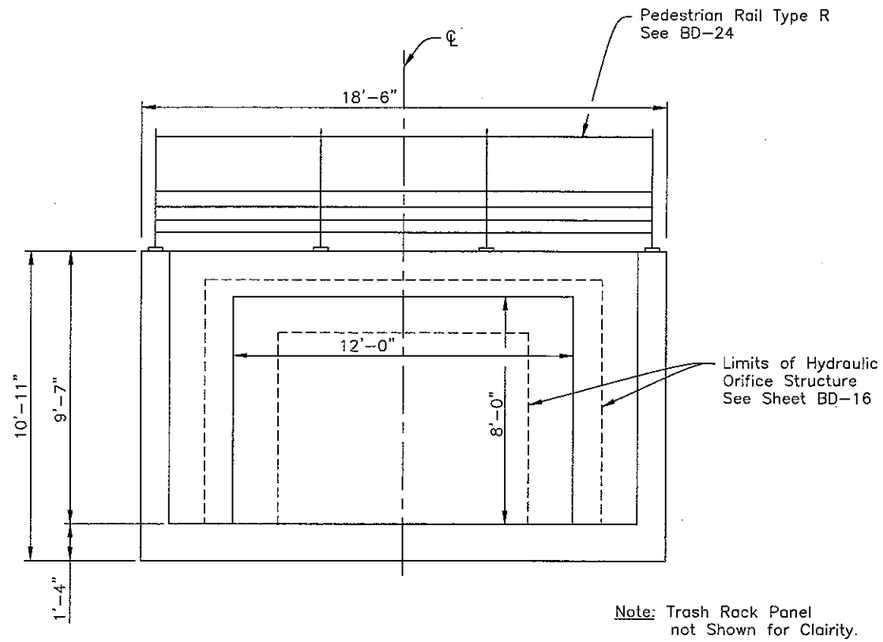
DESIGNED BY: PEO
DRAWN BY: PEO
CHECKED BY: LJT
DATE: FEBRUARY 4, 2009

HDR Engineering, Inc.
7180 POLLOCK DRIVE
SUITE 200
LAS VEGAS, NV 89119
Phone: 702-938-6000
Fax: 702-938-6060

SCALE
HORIZ: 1" = 10'
VERT:
FIELD BOOK NONE

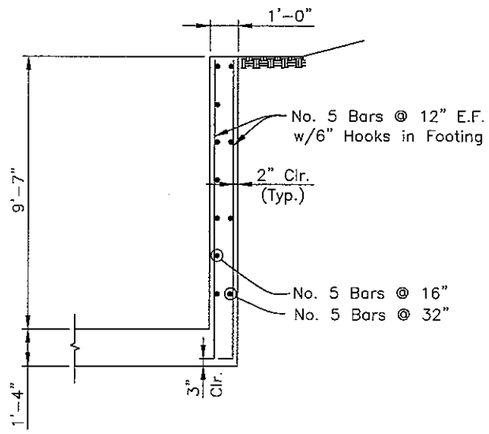
SHEET No
BD-8B
X
L-



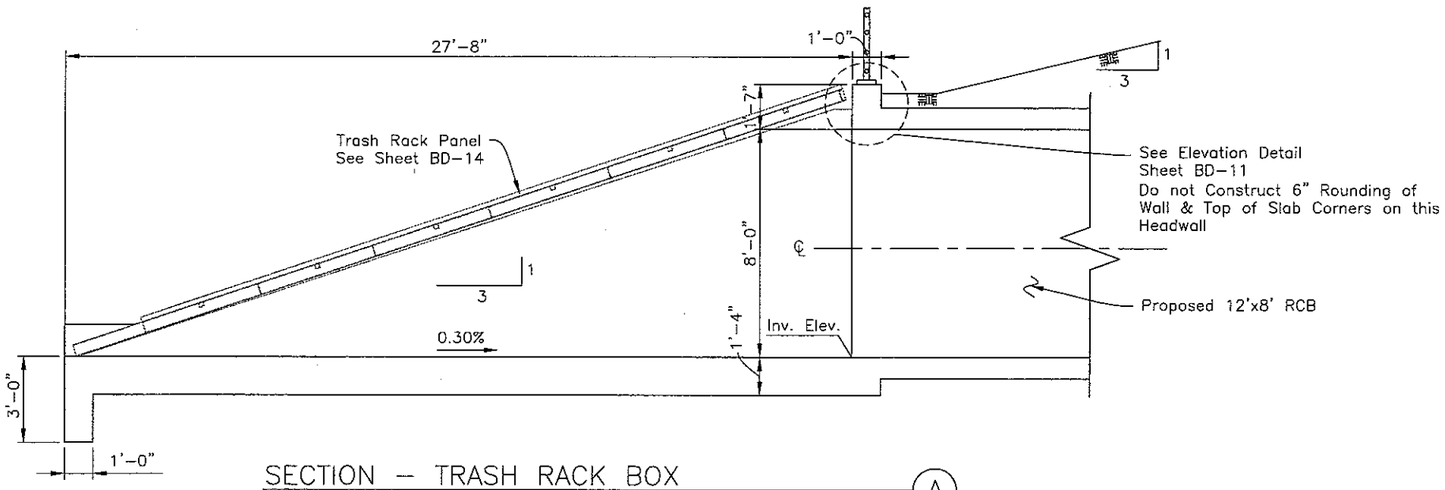


Note: Trash Rack Panel not Shown for Clairity.

HEADWALL ELEVATION (B)



PLAN – TRASH RACK BOX



SECTION – TRASH RACK BOX (A)

SECTION (C)

REV No	DATE	DESCRIPTION	APPROVED

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

DRAINAGE DETAILS
TRASH RACK STRUCTURE
CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

PRE-FINAL SUBMITTAL
NOT FOR CONSTRUCTION
FEBRUARY 4, 2009

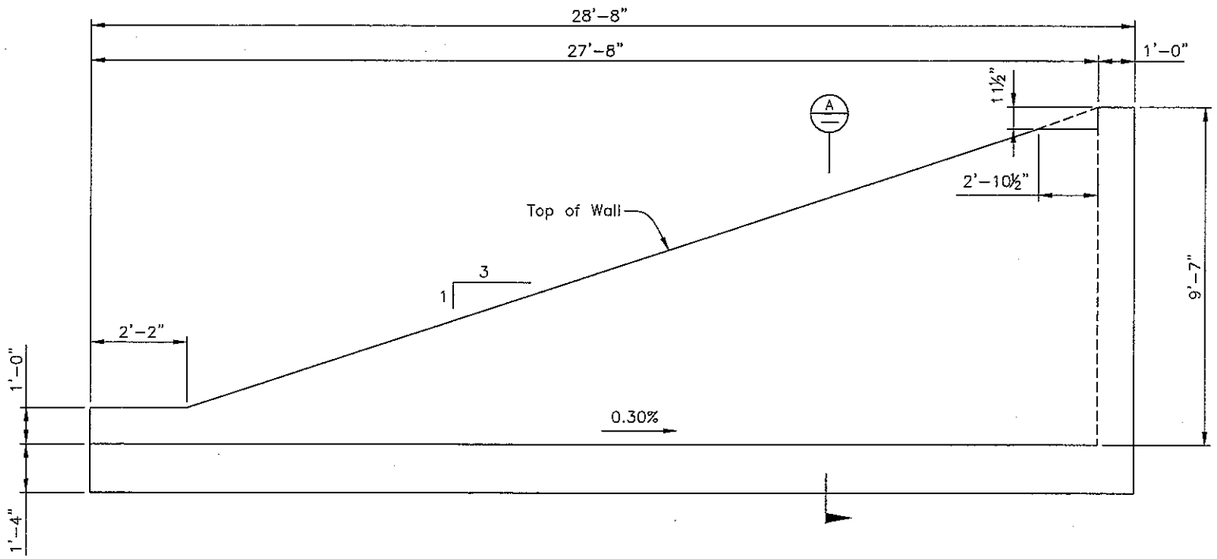
DESIGNED BY:	AJH
DRAWN BY:	CLG
CHECKED BY:	GAA
DATE:	FEBRUARY 4, 2009

HDR Engineering, Inc.
7180 POLLOCK DRIVE
SUITE 200
LAS VEGAS, NV 89119
Phone: 702-938-6000
Fax: 702-938-6060

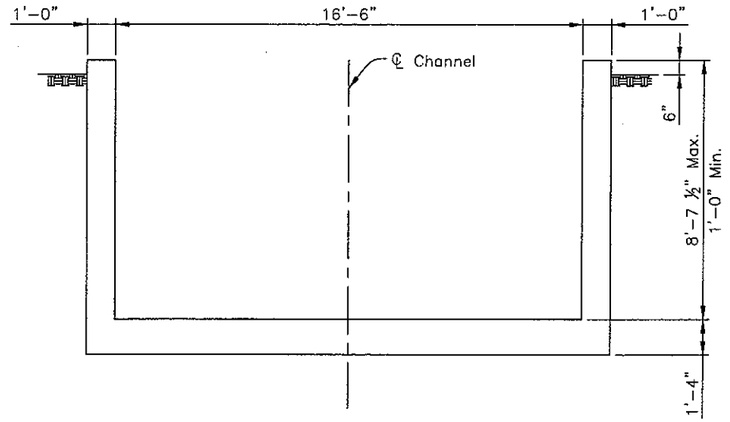
SCALE
HORIZ:
VERT:
FIELD BOOK NONE

SHEET No
BD-12
X
L-

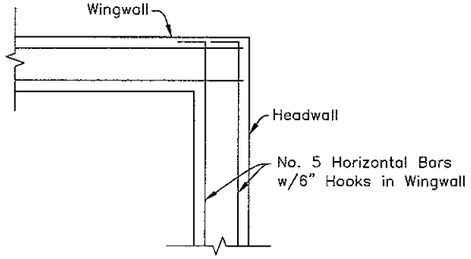
C:\Documents and Settings\nabdo\Desktop\Tropicana Decatur Park\Pre-Final Submittal\Plans\Civil Drawings\4-BD-SHEETS\CADD\04c-012.dwg 02/03/09 8:40am aabdo



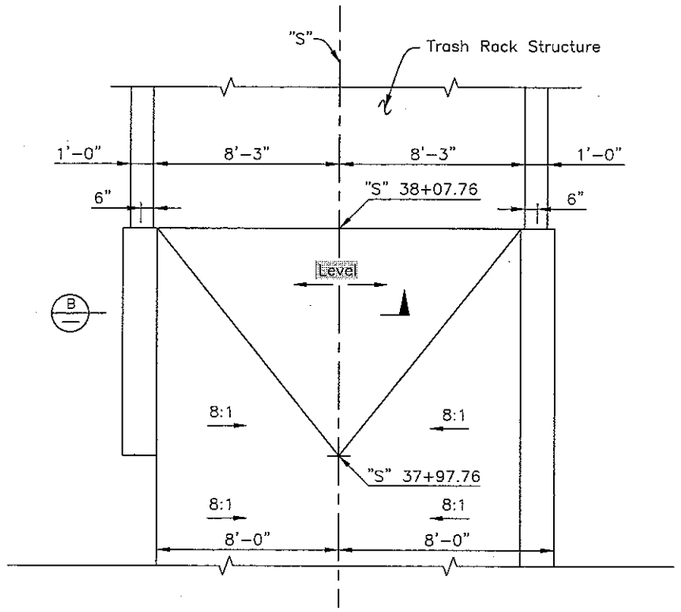
WINGWALL ELEVATION



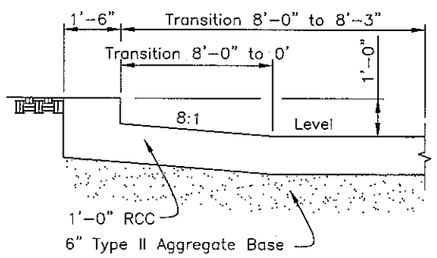
ELEVATION



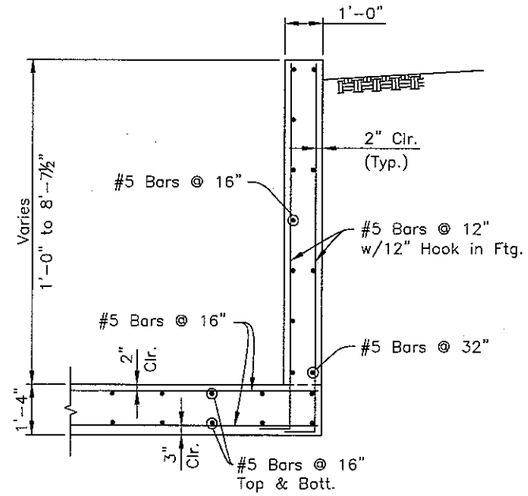
CORNER DETAIL



LOW FLOW CHANNEL TRANSITION
TO TRASH RACK STRUCTURE



SECTION B



SECTION A

REV No	DATE	DESCRIPTION	APPROVED

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

DRAINAGE DETAILS
TRASH RACK STRUCTURE
CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

PRE-FINAL SUBMITTAL
NOT FOR CONSTRUCTION
FEBRUARY 4, 2009

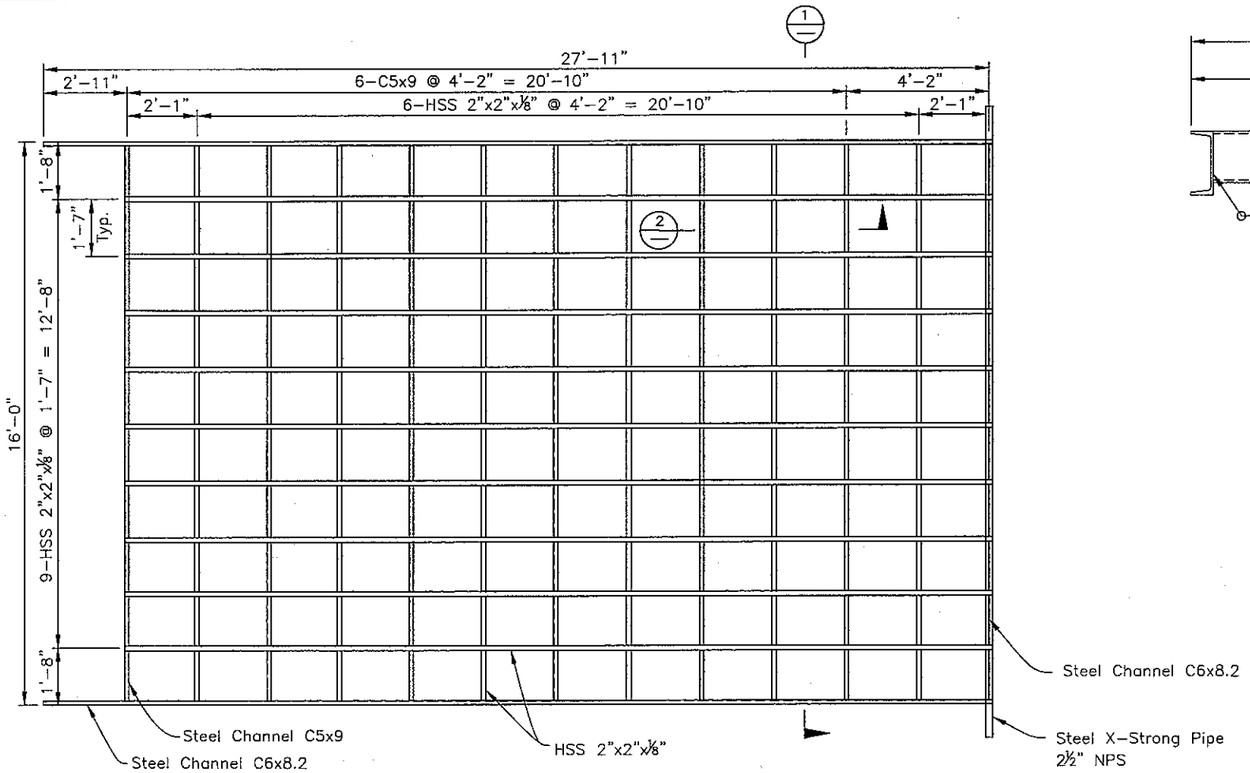
DESIGNED BY: AJH
DRAWN BY: CLG
CHECKED BY: GAA
DATE: FEBRUARY 4, 2009

HDR Engineering, Inc.
7180 POLLOCK DRIVE
SUITE 200
LAS VEGAS, NV 89119
Phone: 702-938-6000
Fax: 702-938-6060

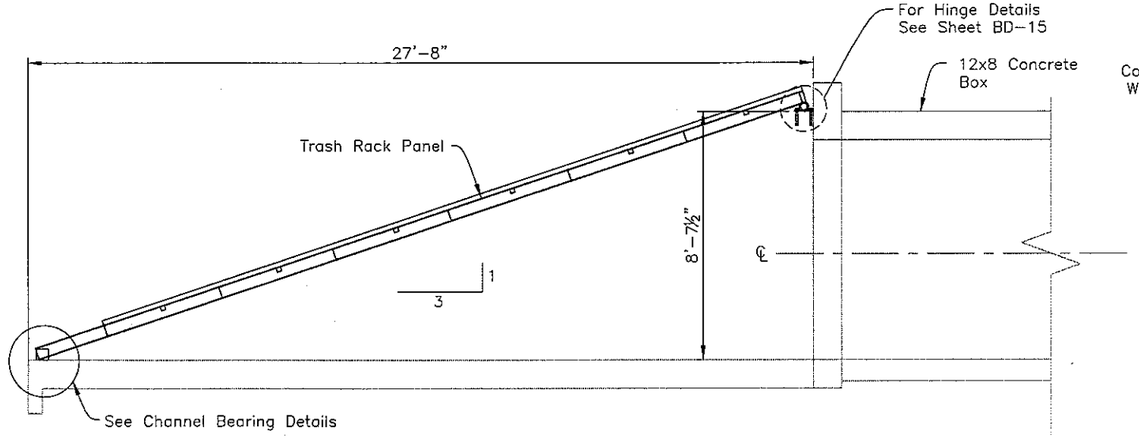
SCALE
HORIZ:
VERT:
FIELD BOOK NONE

SHEET No
BD-13
X
L-

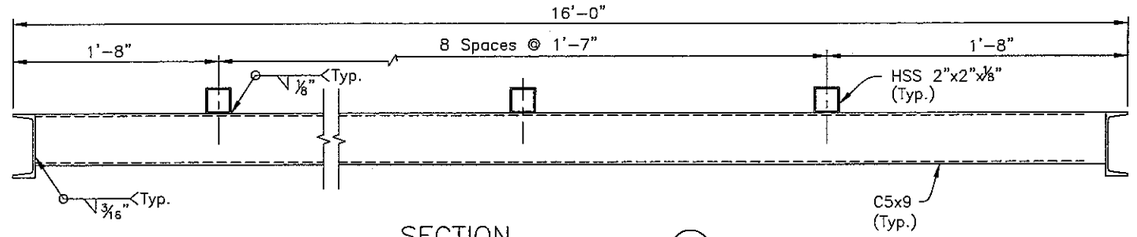
C:\Documents and Settings\aabdo\Desktop\Tropicana Decatur Park\Pre-Final Submittal\Plans\Civil Drawings\4-BD-SHEETS\CADD\04c-013.dwg 02/03/09 8:40am aabdo



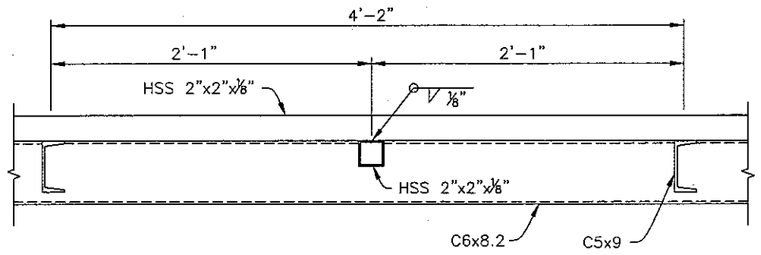
PLAN – TRASH RACK PANEL



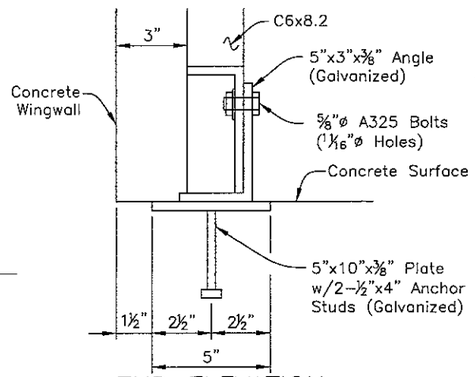
SECTION – TRASH RACK PANEL (A)



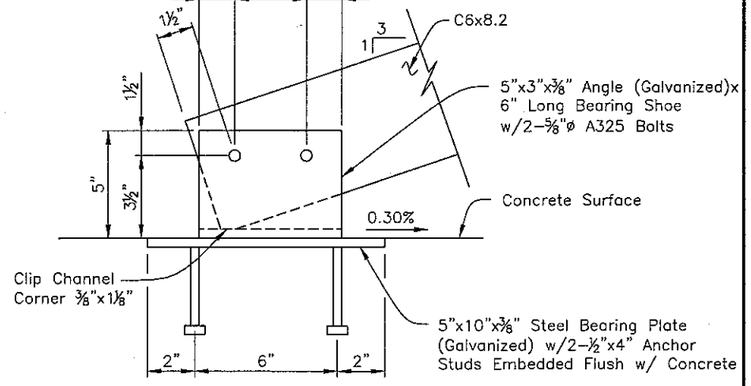
SECTION (1)



SECTION (2)



END ELEVATION



SIDE ELEVATION

TRASH RACK CHANNEL BEARING DETAILS

LEFT BEARING DETAILS SHOWN, RIGHT BEARING SIMILAR

REV No	DATE	DESCRIPTION	APPROVED

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

DRAINAGE DETAILS

TRASH RACK STRUCTURE

CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

PRE-FINAL SUBMITTAL

NOT FOR CONSTRUCTION

FEBRUARY 4, 2009

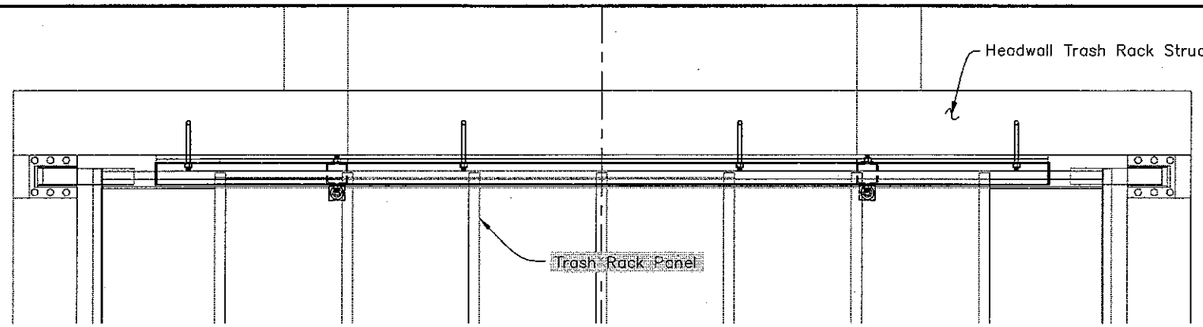
DESIGNED BY: AJH
DRAWN BY: CLG
CHECKED BY: GAA
DATE: FEBRUARY 4, 2009

HDR Engineering, Inc.
7180 POLLOCK DRIVE
SUITE 200
LAS VEGAS, NV 89119
Phone: 702-836-6000
Fax: 702-836-6060

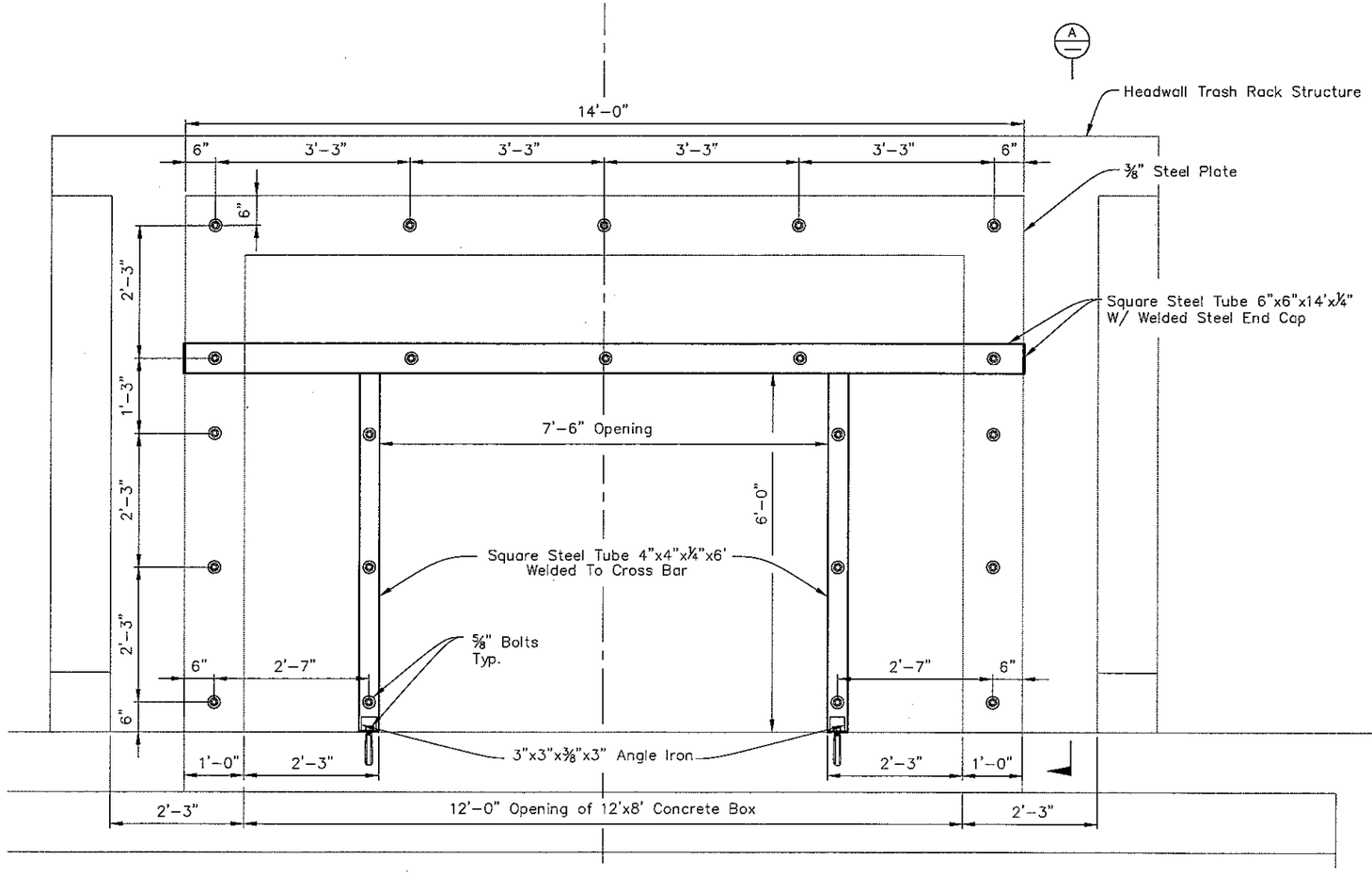
SCALE
HORIZ:
VERT:
FIELD BOOK NONE

SHEET No
BD-14
X
L-

C:\Documents and Settings\rabdo\Desktop\Tropicana Decatur Park\Pre-Final Submittal\Plans\Civil Drawings\4-BD-SHEETS\CADD\04c-014.dwg 02/03/09 8:40am abdo



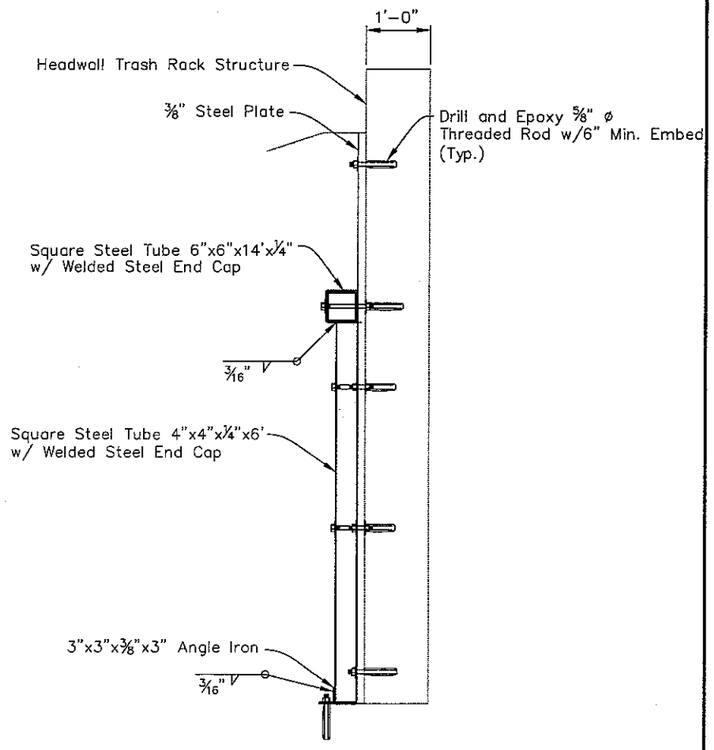
PLAN



ELEVATION

Note:

Bolting Note: Use a washer under the head and nut of all bolts. Bolts, nuts and washers shall conform to ASTM A307, and be galvanized according to ASTM A153, or cadmium plated according to ASTM B766 Type TS.



SECTION A

REV No	DATE	DESCRIPTION	APPROVED

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

DRAINAGE DETAILS
HYDRAULIC ORIFICE STRUCTURE
CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

PRE-FINAL SUBMITTAL
NOT FOR CONSTRUCTION
FEBRUARY 4, 2009

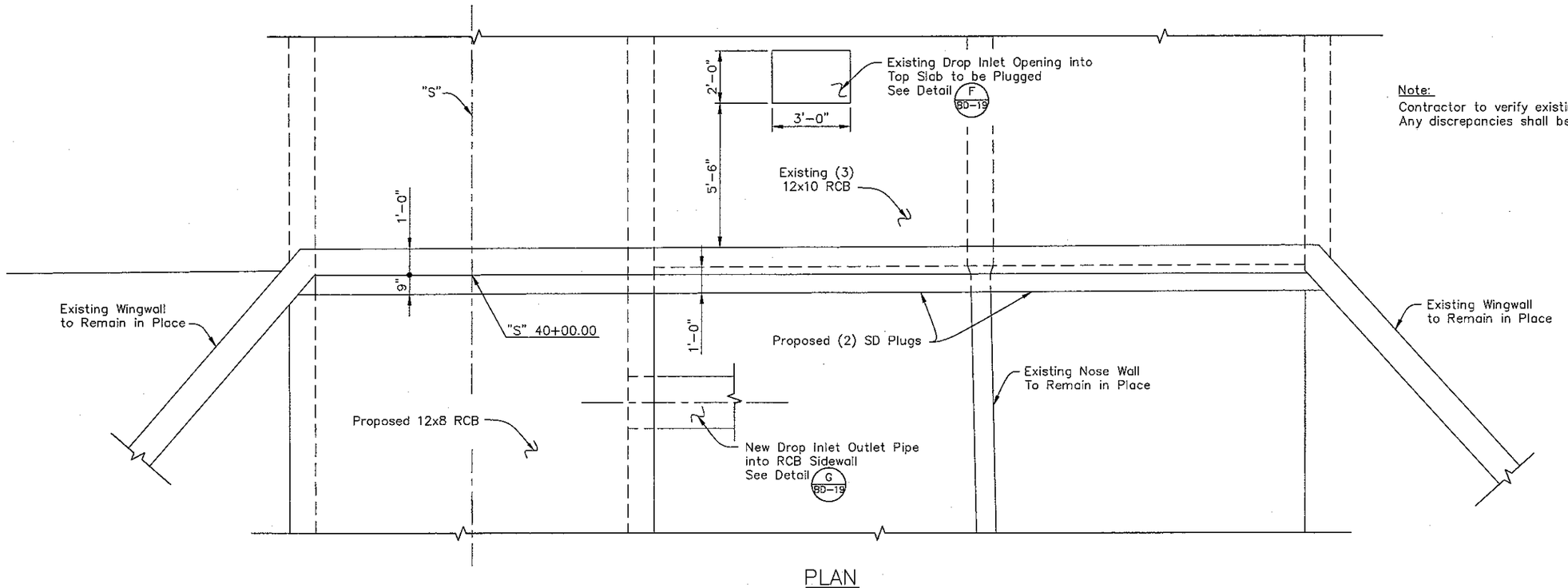
DESIGNED BY: AJH
DRAWN BY: CLG
CHECKED BY: GAA
DATE: FEBRUARY 4, 2009

HDR Engineering, Inc.
7180 POLLOCK DRIVE
SUITE 200
LAS VEGAS, NV 89119
Phone: 702-938-6000
Fax: 702-938-6060

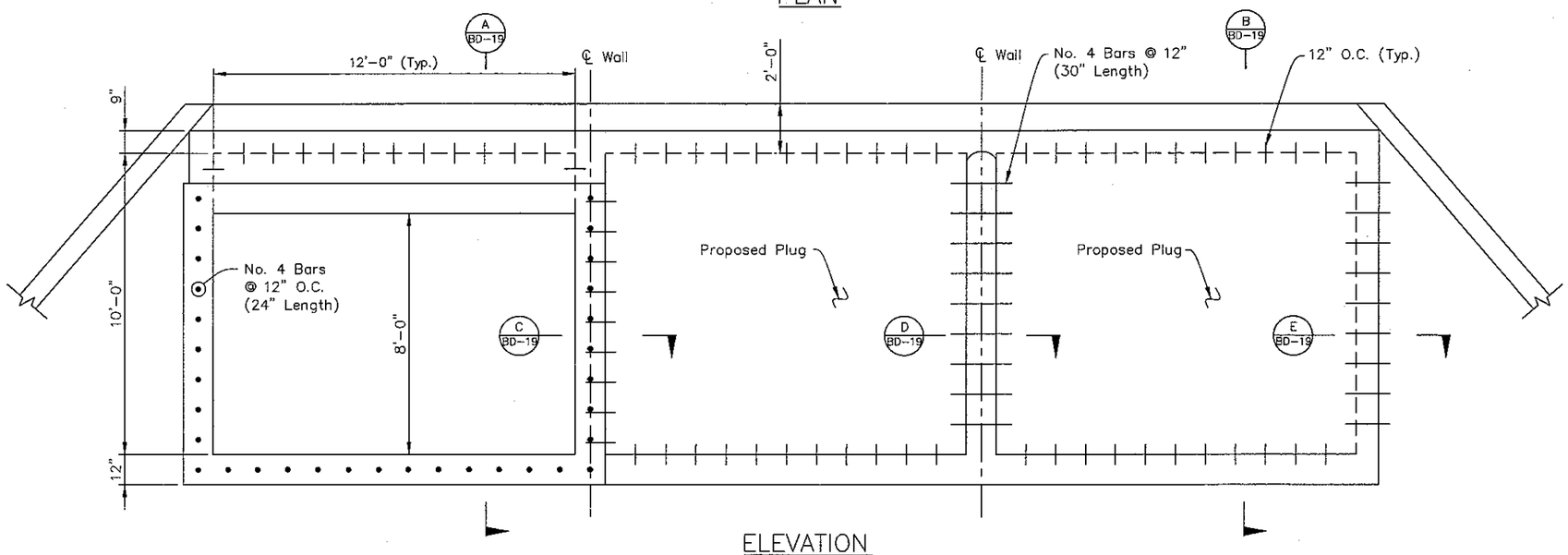
SCALE
HORIZ:
VERT:
FIELD BOOK NONE

SHEET No
BD-16
X
L-

C:\Documents and Settings\aabdo\Desktop\Tropicana Decatur Park\Pre-Final Submittal\Plans\Civil Drawings\4-BD-SHEETS\CADD\04c-016.dwg 02/03/09 8:40am aabdo



PLAN



ELEVATION

Note:
Contractor to verify existing conditions of Drop Inlet to be Plugged
Any discrepancies shall be brought to the attention of the Engineer.

C:\Documents and Settings\cabdo\Desktop\Tropicana Decatur Park\Pre-Final Submittal\Plans\Civil Drawings\14-BD-SHEETS\CADD\04c-018.dwg 02/03/09 8:40am cabdo

REV No	DATE	DESCRIPTION	APPROVED

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

DRAINAGE DETAILS

12x8 RCB CONNECTION AND STORM DRAIN PLUG

CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

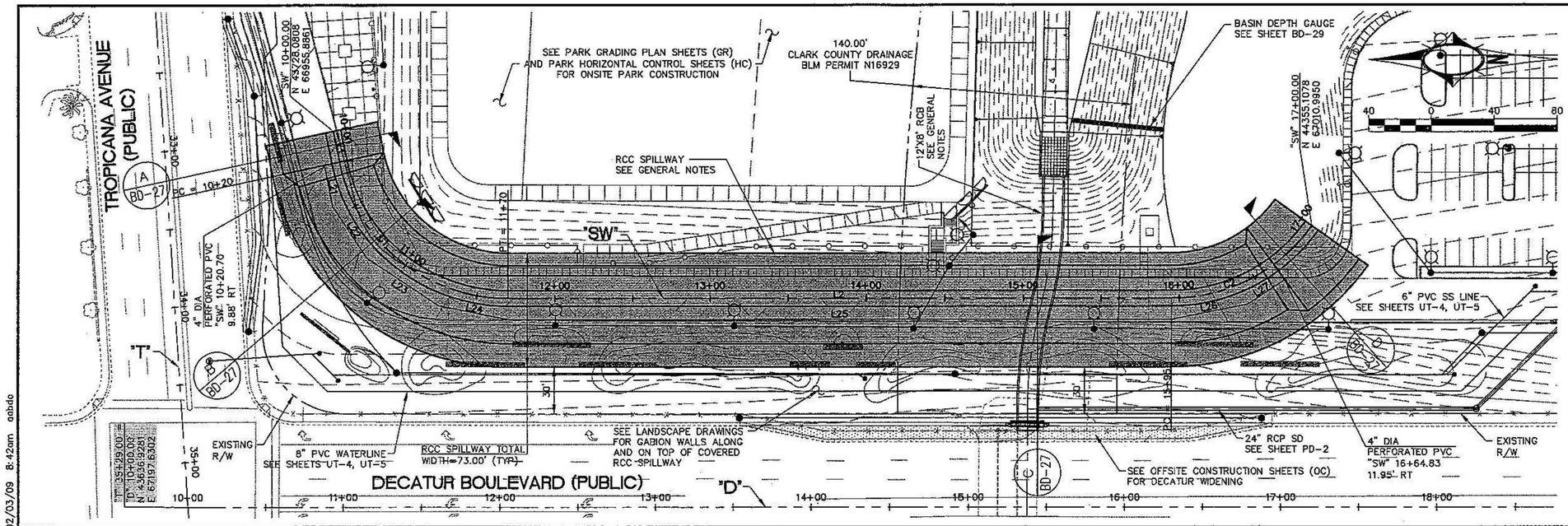
PRE-FINAL SUBMITTAL
NOT FOR CONSTRUCTION
FEBRUARY 4, 2009

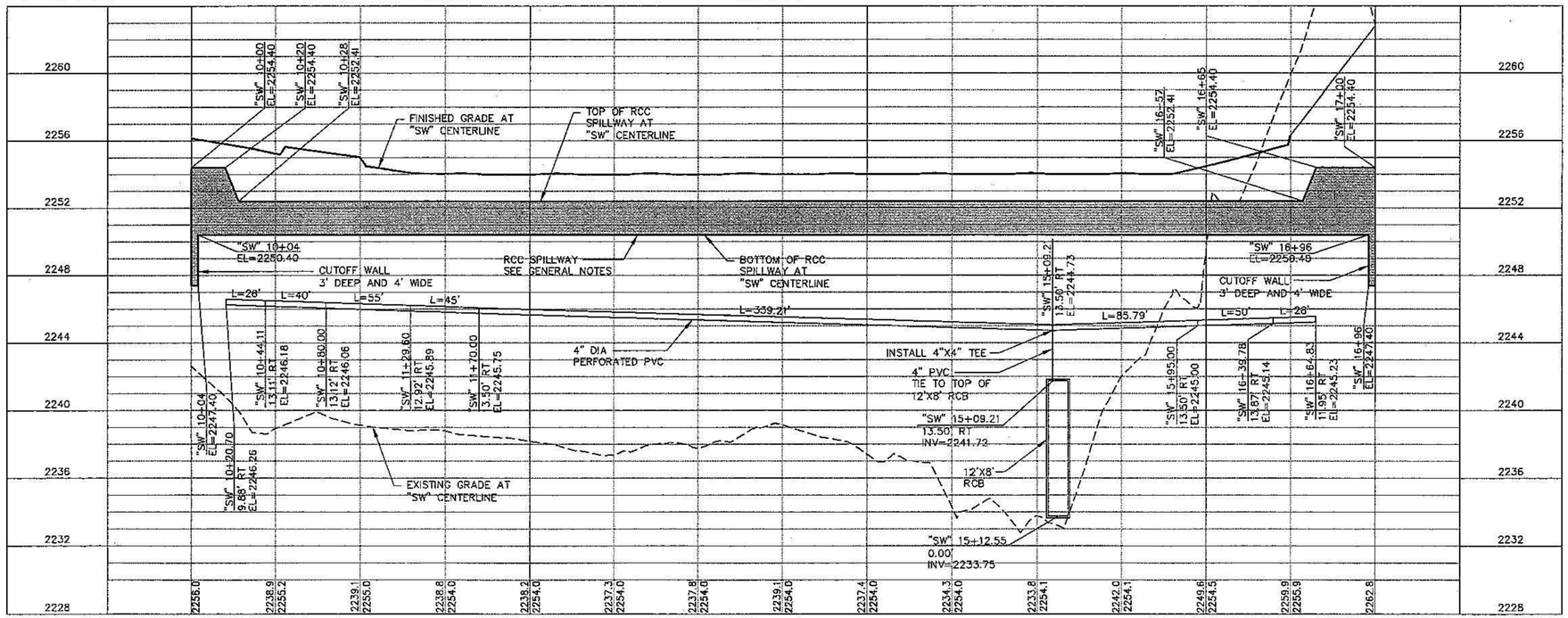
DESIGNED BY: AJH
DRAWN BY: CLG
CHECKED BY: GAA
DATE: FEBRUARY 4, 2009

HDR Engineering, Inc.
7180 POLLOCK DRIVE
SUITE 200
LAS VEGAS, NV 89119
Phone: 702-938-6000
Fax: 702-938-6060

SCALE
HORIZ:
VERT:
FIELD BOOK NONE

SHEET No
BD-18
X
L-





HORIZONTAL CONTROL DATA

SPILLWAY LINE TABLE		
LINE	LENGTH	BEARING
L1	20.00'	N77°38'08"E
L2	425.00'	N00°29'42"W

SPILLWAY CURVE TABLE					
CURVE	DELTA	LENGTH	RADIUS	CHORD BEARING	CHORD
C1	78°07'50"	150.00'	110.00'	N38°34'13"E	138.65'
C2	54°41'29"	105.00'	110.00'	N27°50'27"W	101.06'

4" DIA PERFORATED PVC LINE TABLE		
LINE	LENGTH	BEARING
L21	26.00'	N78°15'18"E
L22	40.00'	N55°45'18"E
L23	55.00'	N33°15'18"E
L24	45.00'	N10°45'18"E
L25	425.00'	N00°29'42"W
L26	50.00'	N11°44'42"W
L27	28.00'	N34°14'42"W

GENERAL NOTES

1. CONTRACTOR SHALL REFER AND COMPLY WITH SPECIAL PROVISIONS.
2. SEE RCC SPILLWAY CROSS SECTIONS ON SHEET BD-27.
3. SEE RCC SPILLWAY DETAILS ON SHEET BD-28.
4. STRUCTURAL FILL AND EMBANKMENT FILL SHALL BE COMPACTED TO 90% PER SPECIAL PROVISIONS SECTION 203.
5. REFER TO "GEOTECHNICAL INVESTIGATION" FOR SITE GEOTECHNICAL INFORMATION AND RECOMMENDATIONS OF LOWER FLAMINGO WASH DETENTION BASIN.
6. SEE BASIN DRAINAGE SHEETS (BD) FOR BASIN DRAINAGE STRUCTURES

Call before you Dig
Avoid cutting underground utility lines. It's easy.
Call 811

Avoid overhead power line contact. It's easy.
Call before you OVERHEAD
1-702-227-2929

REV No	DATE	DESCRIPTION	APPROVED

CLARK COUNTY NEVADA

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

DRAINAGE DETAILS
RCC SPILLWAY - 1 OF 3

CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

PRE-FINAL SUBMITTAL
NOT FOR CONSTRUCTION
FEBRUARY 4, 2009

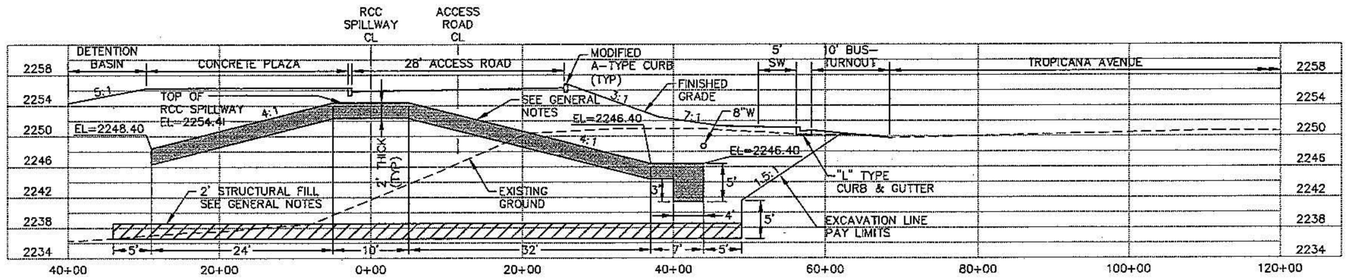
DESIGNED BY:	AEA
DRAWN BY:	AEA
CHECKED BY:	LJT
DATE:	FEBRUARY 4, 2009

HDR Engineering, Inc.
7180 POLLOCK DRIVE
SUITE 200
LAS VEGAS, NV 89119
Phone: 702-938-6000
Fax: 702-938-6060

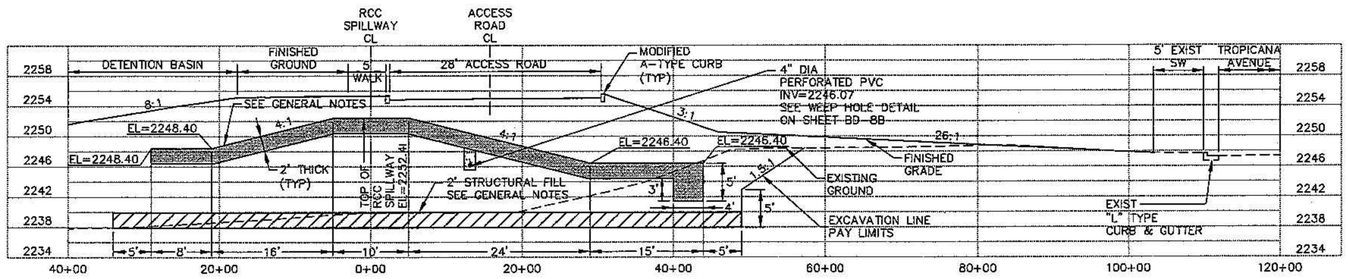
SCALE	1" = 40'
HORIZ:	1" = 40'
VERT:	1" = 4'
FIELD BOOK	NONE

SHEET No
BD-26
X
L-

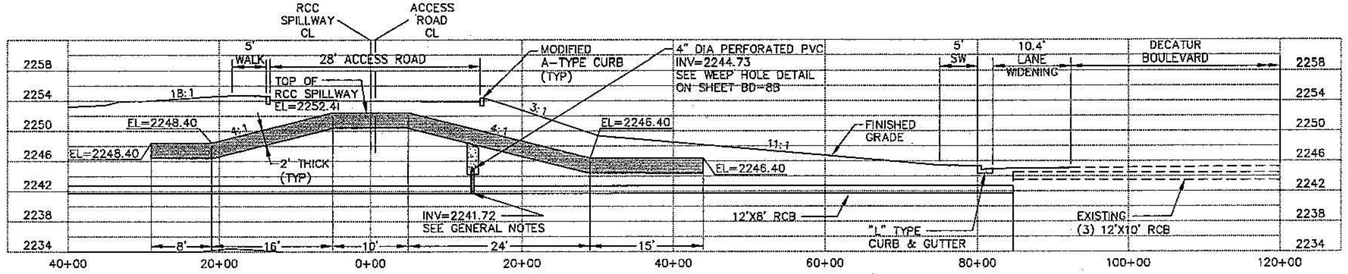
C:\Documents and Settings\cabdo\Desktop\Tropicana Decatur Park\Pre-Final Submittal\Plans\Civil Drawings\4-BD-SHEETS\CADD\04c-026.dwg 02/03/09 8:42am cabdo



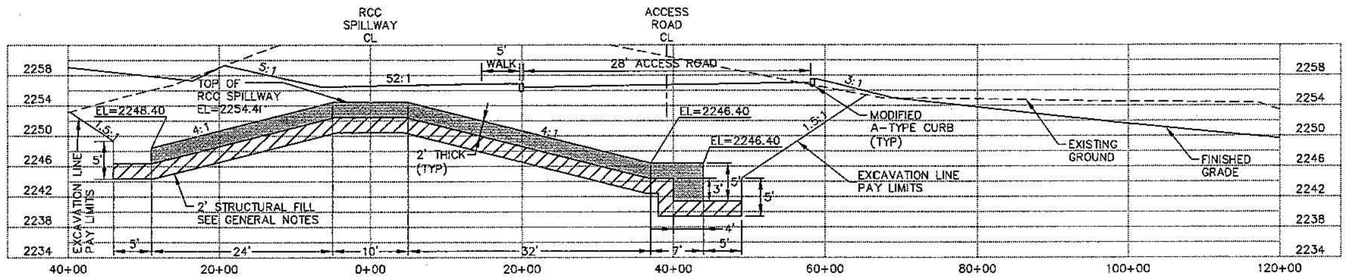
SECTION A
SCALE 1"=10'



SECTION B
SCALE 1"=10'



SECTION C
SCALE 1"=10'



SECTION D
SCALE 1"=10'

10 0 10 20

GENERAL NOTES

1. CONTRACTOR SHALL REFER AND COMPLY WITH SPECIAL PROVISIONS.
2. SEE RCC SPILLWAY PLAN AND PROFILE AND HORIZONTAL CONTROL DATA ON SHEET BD-26.
3. SEE RCC SPILLWAY DETAILS ON SHEET BD-28.
4. TRANSITION SECTIONS FOR RCC SPILLWAY OCCUR BETWEEN "SW" 10+20 TO "SW" 10+28 AND "SW" 16+57 TO "SW" 16+65.
5. STRUCTURAL FILL AND EMBANKMENT FILL SHALL BE COMPACTED TO 90% PER SPECIAL PROVISIONS SECTION 203.
6. CUTOFF WALL SHALL NOT BE CONSTRUCTED 1' EITHER SIDE OF PROPOSED RCB WHERE RCC SPILLWAY IS OVER THE PROPOSED 12'X8' RCB OUTLET STRUCTURE AS SHOWN IN SECTION C ON THIS SHEET.
7. REFER TO "GEOTECHNICAL INVESTIGATION" FOR SITE GEOTECHNICAL INFORMATION AND RECOMMENDATIONS OF LOWER FLAMINGO WASH DETENTION BASIN.
8. AT STATION "SW" 15+09.21 WITH AN OFFSET OF 13.50' RT, THE 4" DIA PERFORATED PVC SHALL BE CONNECTED TO THE TOP OF THE PROPOSED 12'X8' RCB OUTLET STRUCTURE, AS SHOWN IN SECTION C ON THIS SHEET. ALSO, SEE PROFILE VIEW OF 4" PERFORATED PVC PIPE ON SHEET BD-26.

Call before you Dig
Avoid cutting underground utility lines. It's easy.
Call 811

Avoid overhead power line contact. It's easy.
Call before you OVERHEAD
1-702-227-2929

REV No	DATE	DESCRIPTION	APPROVED

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

DRAINAGE DETAILS
RCC SPILLWAY - 2 OF 3

CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

PRE-FINAL SUBMITTAL
NOT FOR CONSTRUCTION
FEBRUARY 4, 2009

DESIGNED BY:	AEA
DRAWN BY:	AEA
CHECKED BY:	LJT
DATE:	FEBRUARY 4, 2009

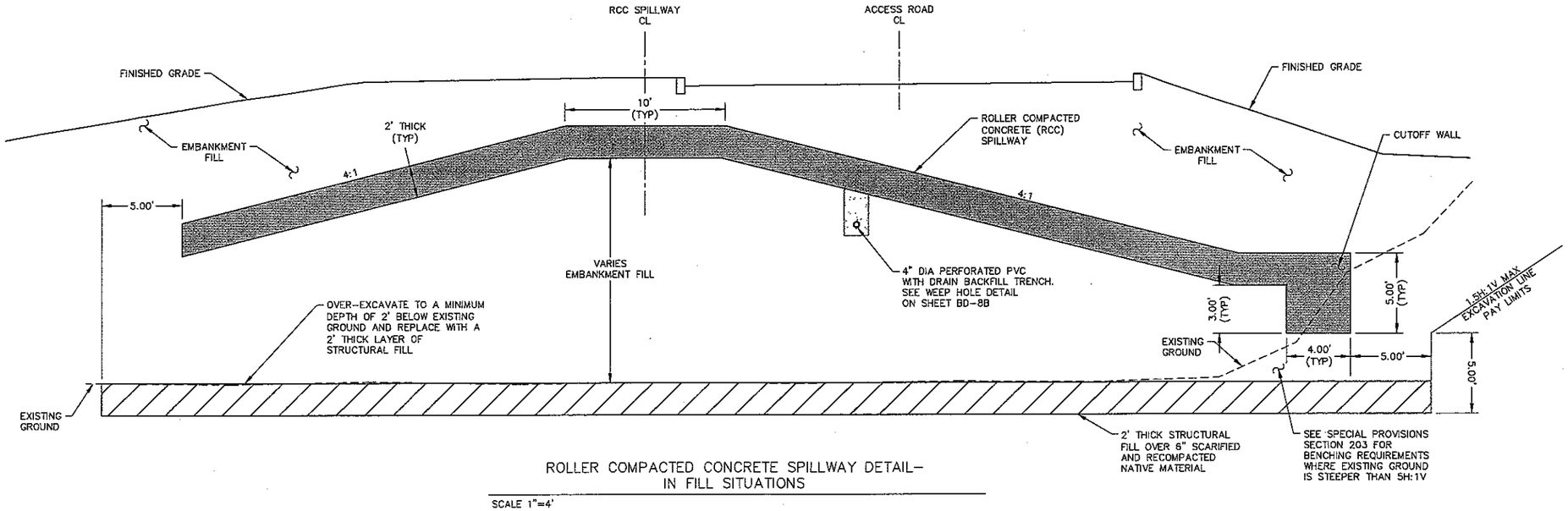
HDR Engineering, Inc.
7180 POLLOCK DRIVE
SUITE 200
LAS VEGAS, NV 89119
Phone: 702-938-6000
Fax: 702-938-6060

SCALE	1" = 10'
HORIZ:	1" = 10'
VERT:	1" = 10'
FIELD BOOK	NONE

SHEET No **BD-27**

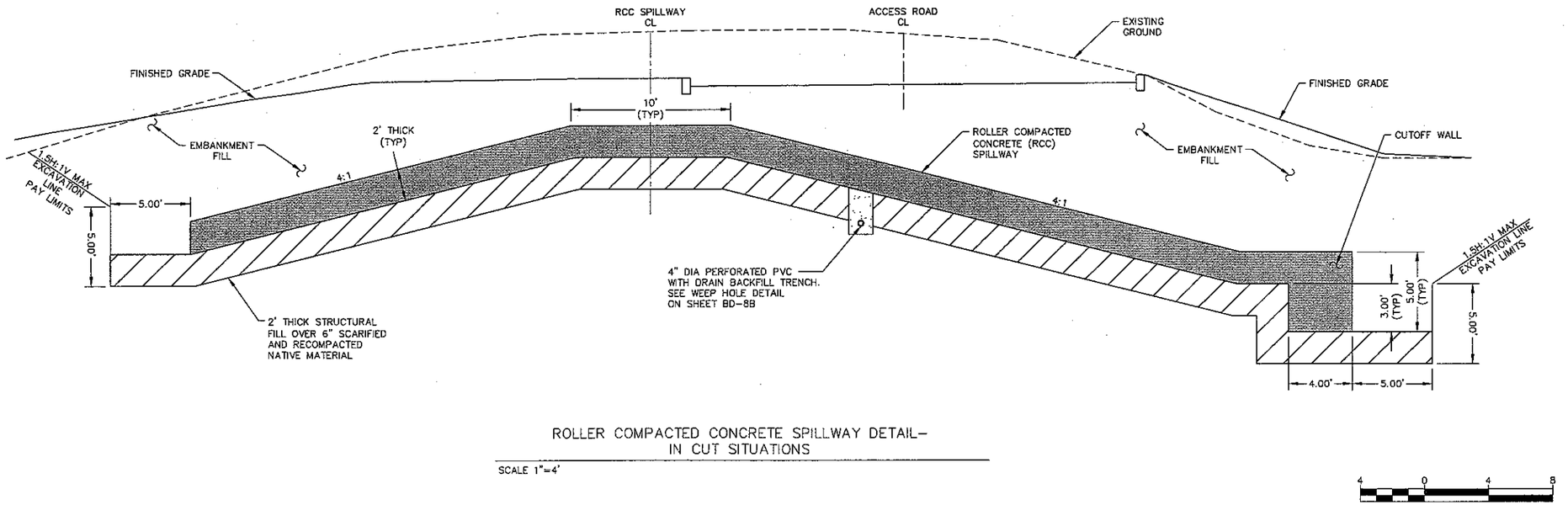
X
L-

C:\Documents and Settings\aabdo\Desktop\Tropicana Decatur Park\Pre-Final Submittal\Plans\Civil Drawings\4-BD-SHEETS\CADD\04c-027.dwg 02/03/09 8:42am aabdo



ROLLER COMPACTED CONCRETE SPILLWAY DETAIL–
IN FILL SITUATIONS

SCALE 1"=4'



ROLLER COMPACTED CONCRETE SPILLWAY DETAIL–
IN CUT SITUATIONS

SCALE 1"=4'

4 0 4 8

GENERAL NOTES

1. CONTRACTOR SHALL REFER AND COMPLY WITH SPECIAL PROVISIONS.
2. SEE RCC SPILLWAY PLAN AND PROFILE AND HORIZONTAL CONTROL DATA ON SHEET BD-26.
3. SEE RCC SPILLWAY CROSS SECTIONS ON SHEET BD-27.
4. TRANSITION SECTIONS FOR RCC SPILLWAY OCCUR BETWEEN "SW" 10+20 TO "SW" 10+28 AND "SW" 16+57 TO "SW" 16+65
5. STRUCTURAL FILL AND EMBANKMENT FILL SHALL BE COMPACTED TO 90% PER SPECIAL PROVISIONS SECTION 203.
6. CUTOFF WALL SHALL NOT BE CONSTRUCTED 1' EITHER SIDE OF PROPOSED RCB WHERE RCC SPILLWAY IS OVER THE PROPOSED 12'X8' RCB OUTLET STRUCTURE AS SHOWN IN SECTION C ON THIS SHEET.
7. REFER TO "GEOTECHNICAL INVESTIGATION" FOR SITE GEOTECHNICAL INFORMATION AND RECOMMENDATIONS OF LOWER FLAMINGO WASH DETENTION BASIN.
8. MORTAR BED SHALL BE PLACED AT ALL CONSTRUCTION JOINTS.

Call before you Dig
Avoid working underground utility lines. It's easy.
Call 811

Avoid overhead power line contact. It's easy.
Call before you OVERHEAD
1-702-227-2929

REV No	DATE	DESCRIPTION	APPROVED

CLARK COUNTY NEVADA

LOWER FLAMINGO DETENTION BASIN AND TROPICANA/DECATUR PARK

DRAINAGE DETAILS
RCC SPILLWAY - 3 OF 3

CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

PRE-FINAL SUBMITTAL
NOT FOR CONSTRUCTION
FEBRUARY 4, 2009

DESIGNED BY: AEA
DRAWN BY: AEA
CHECKED BY: LJT
DATE: FEBRUARY 4, 2009

HDR Engineering, Inc.
7180 POLLOCK DRIVE
SUITE 200
LAS VEGAS, NV 89119
Phone: 702-938-6000
Fax: 702-938-6060

SCALE 1" = 4'
HORIZ: 1" = 4'
VERT: 1" = 4'
FIELD BOOK NONE

SHEET No
BD-28

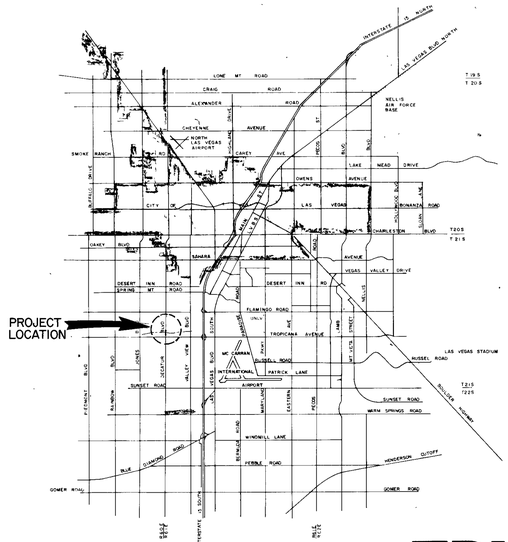
X
L-

C:\Documents and Settings\rabdo\Desktop\Tropicana Decatur Park\Pre-Final Submittal\Plans\Civil Drawings\4-BD-SHEETS\CADD\04c-028.dwg 02/03/09 8:42am rabdo

D.2 Triple 12 foot x 10 foot Reinforced Concrete Box for Flamingo Wash Flood Control Project Phase 1

CLARK COUNTY

DEPARTMENT OF PUBLIC WORKS



Vicinity Map

INDEX OF SHEETS

SHEET NO	DESCRIPTION
1	COVER SHEET
2	CONSTRUCTION PLAN AND PROFILE
3	CHANNEL GRADING PROFILE
4	TYPICAL STREET SECTION AND DROP INLET DETAIL
5	QUANTITIES TYPE I HEADWALL
6	TYPE I HEADWALL
7	RCB DETAIL
8	RCB DETAIL AND GENERAL NOTES

1977

TRIPLE 12' X 10' REINFORCED CONCRETE BOX FOR FLAMINGO WASH FLOOD CONTROL PROJECT PHASE 1

County Administrator

GEORGE F. OGILVIE

County Commissioners

THALIA DONDERO, CHAIRMAN
DAVID CANTER, VICE-CHAIRMAN
SAM BOWLER ROBERT BROADBENT
MANUEL CORTEZ JACK PETITTI DICK RONZONE

Director of Public Works

GEORGE C. MONAHAN

Director of Flood Control

JAMES L. SCHOLL

AGENCY	PLANS REVIEWED BY	DATE OF APPROVAL
CENTRAL TELEPHONE COMPANY		
L.V. VALLEY WATER DISTRICT		
SOUTHWEST GAS COMPANY		
NEVADA POWER COMPANY		
C.C. SANITATION DISTRICT		
C.C. FIRE DEPARTMENT		
REG. STREETS & HWY. COMM.		
NEVADA HIGHWAY DEPARTMENT		

DEPARTMENT OF PUBLIC WORKS	PLANS REVIEWED BY	DATE OF APPROVAL
DIRECTOR OF PUBLIC WORKS		
CHIEF DEPUTY DIRECTOR OF PUBLIC WORKS		
DEPUTY DIRECTOR OF PLANNING & ENGINEERING		
ELECTRICAL DIVISION		
TRAFFIC DIVISION		
FLOOD CONTROL		

REVISIONS					
REVISION NO.	DESCRIPTION	BY	DATE	APPROVAL	DATE

CLARK COUNTY, NEVADA
ENGINEERING DIVISION

COVER SHEET

PROJECT NO.	FLD. BK.	DATES	SCALE HORIZ.
DRAWN BY MDV		Feb. 1977	VERT.
DESIGNED BY			DRAWING NO.
CHECKED BY			L-883
APPROVED BY COUNTY ENGINEER Geo. C. Monahan		3-7-77	SHT. 1 OF 8

U. S. GOV'T. PROPERTY

MESA

1½:1 SLOPE

3" A.C. PAV'T. CONST. TEMP. DETOUR (NIC)

EXCAVATE MESA TO CONSTRUCT BY-PASS ROAD (NIC)

RIP RAP

SKEW ANGLE 90°

3- 12'x10' RCB's

STA. 5+25.00 INTERSECTION FLAMINGO WASH & DECATUR

SAWCUT & MATCH EXISTING

DECATUR BLVD.

50' TYP.

RIP RAP

2" PVC EXTENDED 2' BEYOND C&G, SW, NORTH & SOUTH

WASH

FLAMINGO

TROPICANA AVENUE

STA. 0+00 INT. TROPICANA & DECATUR

LIMITS OF NEW A.C. PAV'T.

N

SCALE: 1" = 40'

43.10 F.G.

42.70 F.G.

42.30 F.G.

44.16 F.G.

46.06 F.G.

47.96 F.G.

BEGIN V.C. 5+02.39 EL. 41.90 F.G.

130' V.C. M.O.= 0.37'

END V.C. 6+32.39 F.G. = 42.88

-0.40%

+1.80%

PROPOSED ℄ GRADE

EXIST. A.C. PAV'T. (℄ DECATUR)

38.67'

P.I. 5+67.39 ELEV. 41.64

LIMITS OF CURB & GUTTER

LIMITS OF CONSTRUCTION

℄ STRUCTURE

℄ TROPICANA AVENUE

50 48 46 44 42 40 38 36 34 32 30

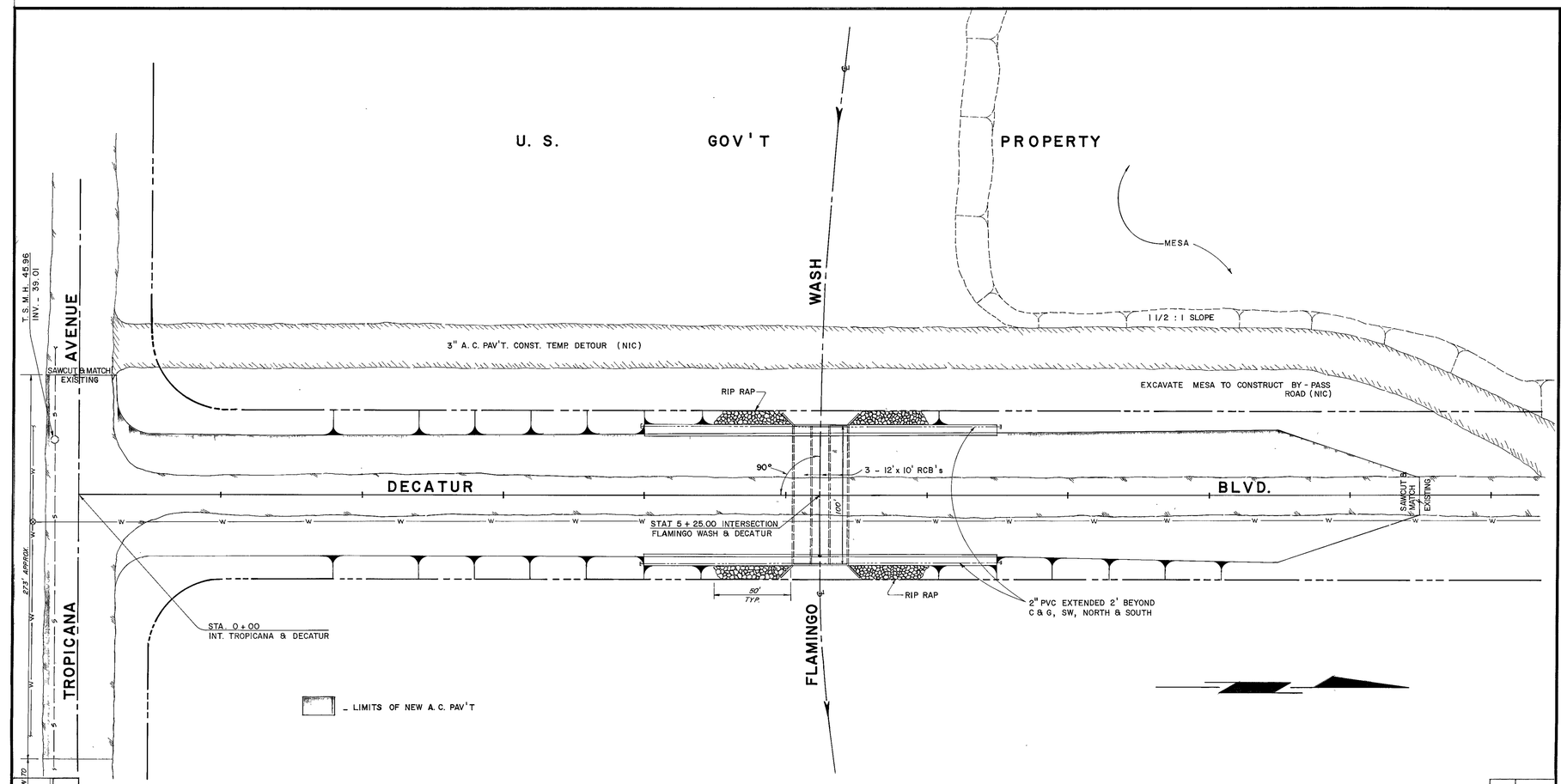
0+00 1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00 10+00

REV. NO.	DATE	DESCRIPTION	APPROVED

CLARK COUNTY, NEVADA
ENGINEERING DIVISION

FLAMINGO WASH AT DECATUR BLVD.
3- 12' x 10' RCB's
CONSTRUCTION PLAN & PROFILE

PROJECT NO.	FLD. BK.	DATES	SCALE HORIZ. 1"=40'
DRAWN BY MDV		FEB. 1977	VERT. 1"=4'
DESIGNED BY BK		FEB. 1977	DRAWING NO.
CHECKED BY			L-883
APPROVED BY COUNTY ENGINEER Lee C. Monahan		3-1-77	SHT. 2 OF 8

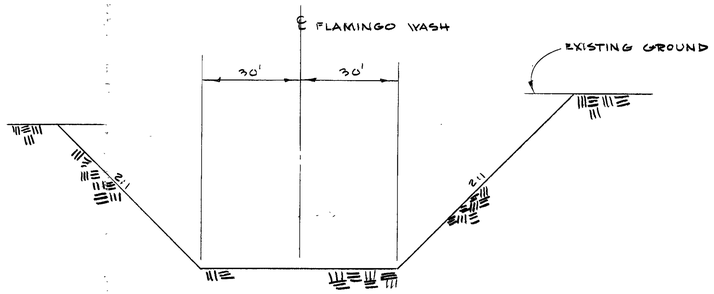


REV.NO.	DATE	DESCRIPTION	APPROVED
01/77	5/20	REVISED GRADE	ps

CLARK COUNTY, NEVADA
ENGINEERING DIVISION

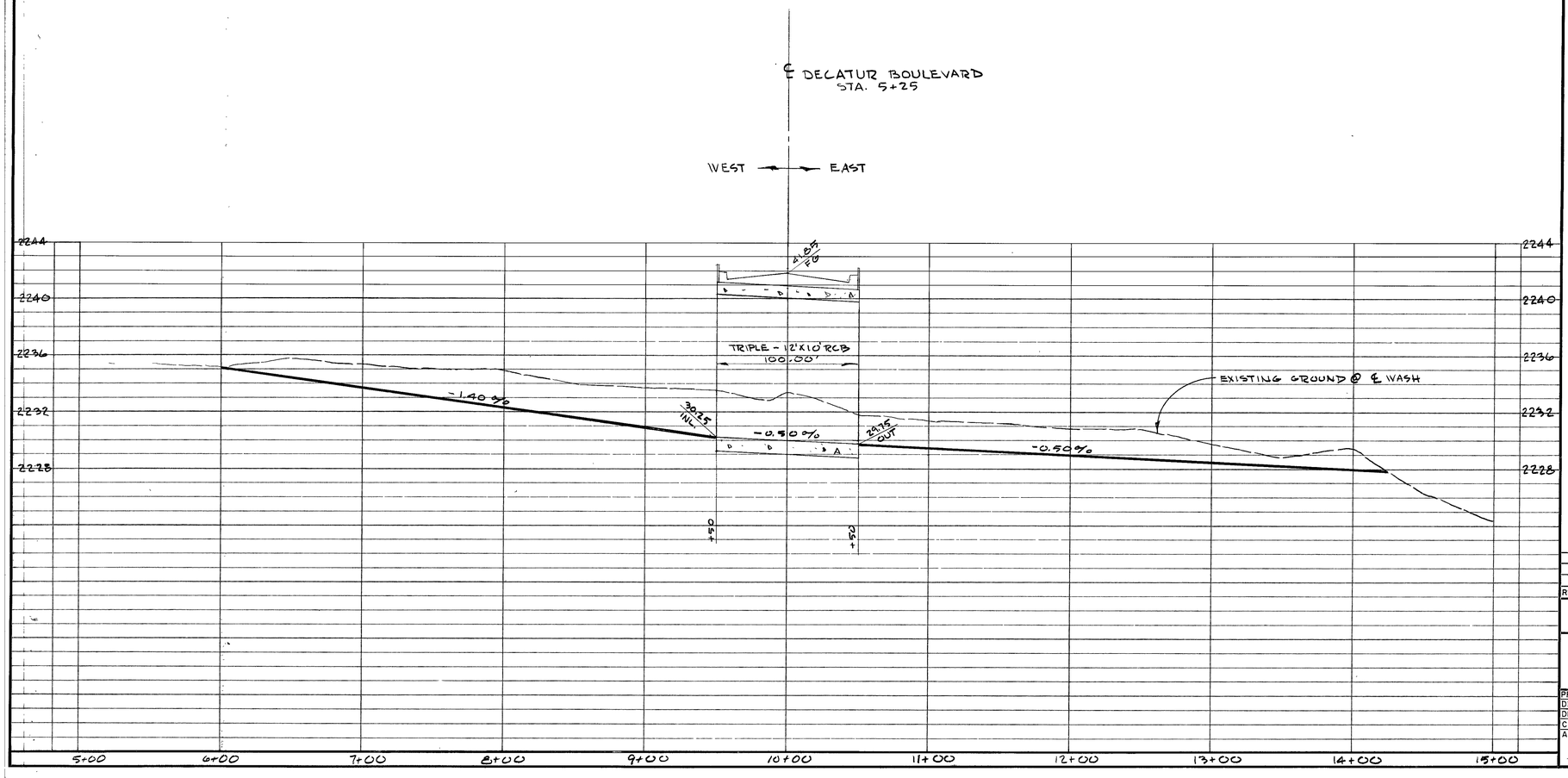
FLAMINGO WASH AT DECATUR BLVD.
3 - 12' x 10' RCB's
CONSTRUCTION PLAN & PROFILE

PROJECT NO.	FLD. BK.	DATES	SCALE HORIZ. 1"=40'
DRAWN BY MDV		FEB. 1977	VERT. 1"= 4'
DESIGNED BY BK		FEB. 1977	DRAWING NO.
CHECKED BY			L-883
APPROVED BY COUNTY ENGINEER		3-7-77	SHT. 2 OF 8



TYPICAL SECTION
FLAMINGO WASH CHANNEL

FLAMINGO WASH PROFILE AT DECATUR BOULEVARD

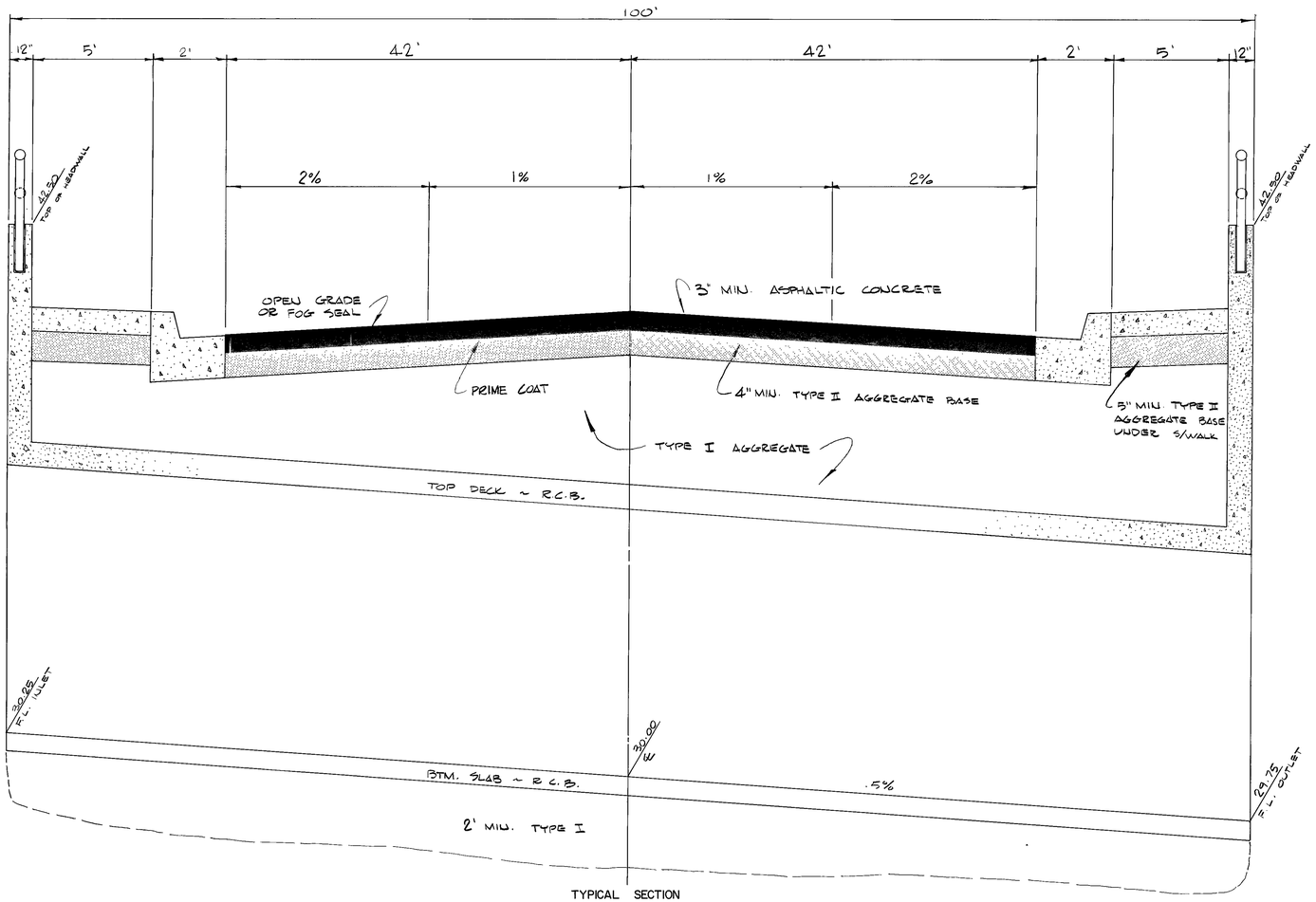


REV. NO.	DATE	DESCRIPTION	APPROVED

CLARK COUNTY, NEVADA
ENGINEERING DIVISION

FLAMINGO WASH CHANNEL
GRADING PLAN
AT
DECATUR BOULEVARD

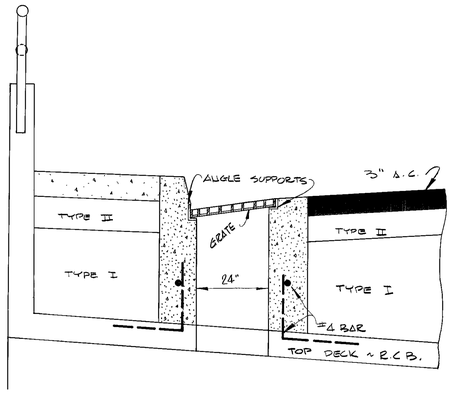
PROJECT NO.	FLD. BK.	DATES	SCALE HORIZ. 1"=40
DRAWN BY J.H		7/5/77	VERT. 1"=4'
DESIGNED BY			DRAWING NO.
CHECKED BY			L-883
APPROVED BY COUNTY ENGINEER			
Geo. C. Monahan		3-7-77	SHT. 3 OF 8



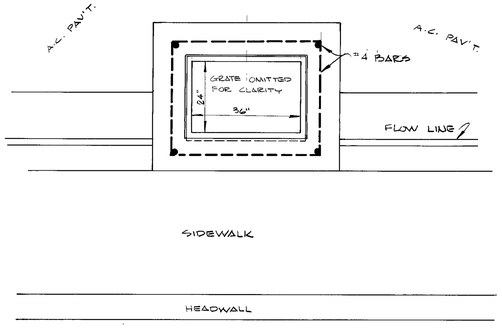
TYPICAL SECTION
OF

DECATUR BLVD.

NOT TO SCALE



SECTION OF
DROP INLET
24" x 36"
NOT TO SCALE



PLAN VIEW
OF
DROP INLET
24" x 36"
NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	APPROVED

CLARK COUNTY, NEVADA
ENGINEERING DIVISION

DETAIL SHEET

PROJECT NO.	FLD. BK.	DATES	SCALE HORIZ. NOT TO VERT. SCALE
DRAWN BY MDV		FEB. 1977	
DESIGNED BY BK		FEB. 1977	DRAWING NO.
CHECKED BY			L-883
APPROVED BY COUNTY ENGINEER Geo. C. Morahan		3-7-77	SHT. 4 OF 8

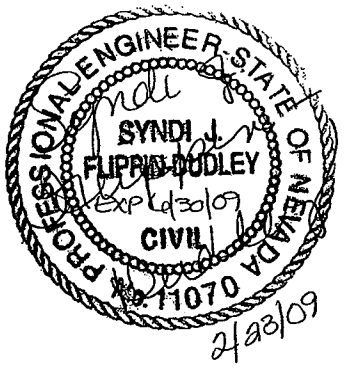
D.3 Improvement Plans for Patina Plaza at Decatur/Tropicana

Patina Plaza at Decatur/Tropicana
Flamingo Wash Storm Drain Improvements

This is to certify as-built conditions for the Flamingo Wash storm drain as depicted on the improvement plans for the Patina Plaza at Decatur/Tropicana, signed and sealed by the design engineer for Summit Engineering Corporation on September 27, 1998. Based on a letter dated September 24, 2002 by Carla J. Pearson, Assistant Director, Department of Development Services, Clark County, Nevada regarding Release #98-11679, the offsite improvements for the subject development were constructed in accordance with the plans on file. The storm drain is in place and functioning.

Syndi J. Flippin-Dudley

Syndi J. Flippin-Dudley, Ph.D., P.E.
Vice President Water Resources
THE Louis Berger Group, INC.



Department of Development Services

500 S Grand Central Pky 1st Fl • PO Box 553530 • Las Vegas NV 89155-3530
(702) 455-3030 • Fax (702) 455-5810

Phil Rosenquist, Director

September 24, 2002

Reliance National Indemnity Company
Leavitt Insurance Agency
823 S. 6th Street
Las Vegas, NV 89101

RELEASE # 98-11679
PROJECT NAME: PATINA PLAZA

The off-site improvements at the subject development have been constructed in accordance with the plans on file in this office. At this time, Clark County Development Services Department accepts the improvements for maintenance and releases the bond.

The developer is responsible should any original or developed defects or failures appear within a period of one year from the date of acceptance of the work by Clark County. The Contractor shall, at his own expense, make good such defects and failures and make all replacements and adjustments required within 30 days after being notified by Clark County to do so. All repairs shall be subject to the approval of the Clark County Development Services Department.

By copy of this letter to the Clark County Maintenance Management Division, the County will assume responsibility for normal maintenance of these improvements. This letter authorizes the release of:

Bond:	P2677997
Dated:	OCTOBER 21, 1999
By:	PSS DECATUR LLC
And:	RELIANCE NATIONAL INDEMNITY COMPANY
Amount:	$ 599,977.84

If you have any questions, call Lola Rivera at 455-4630.

DEPARTMENT OF DEVELOPMENT SERVICES

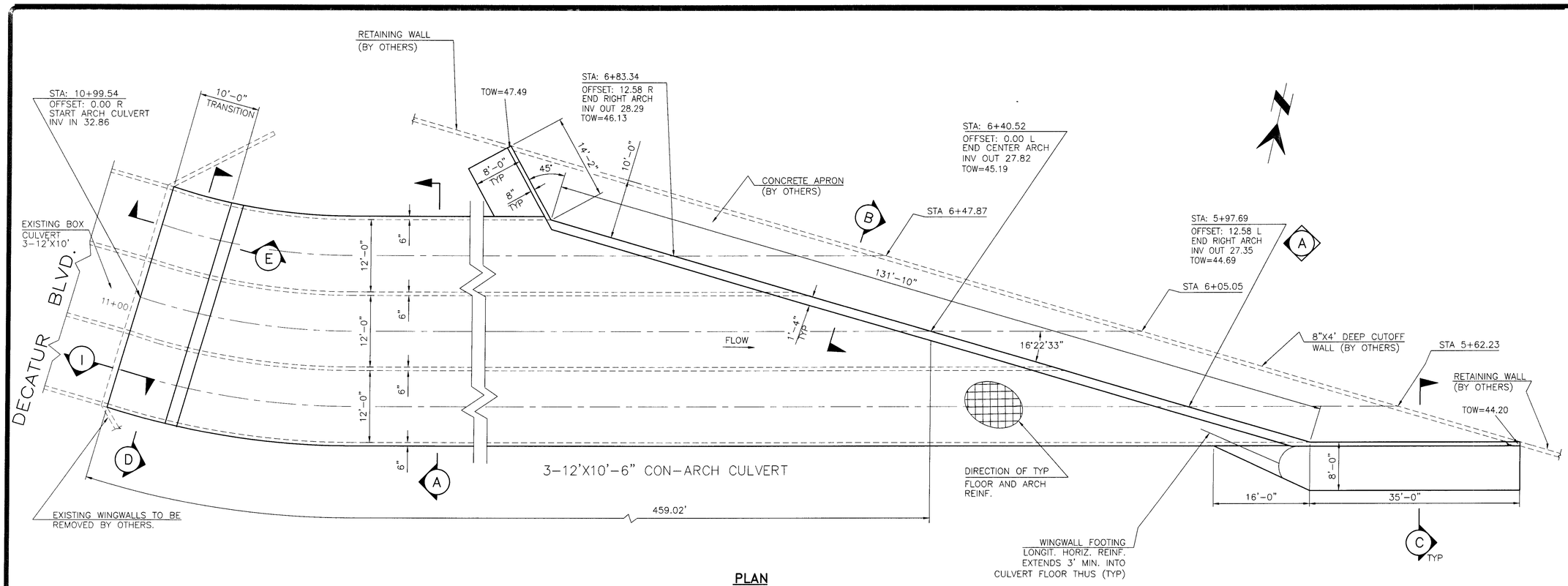
Carla J Pearson

CARLA J. PEARSON
Assistant Director

cc: PSS Decatur LLC
5160 S. Rogers
Las Vegas, NV 89118

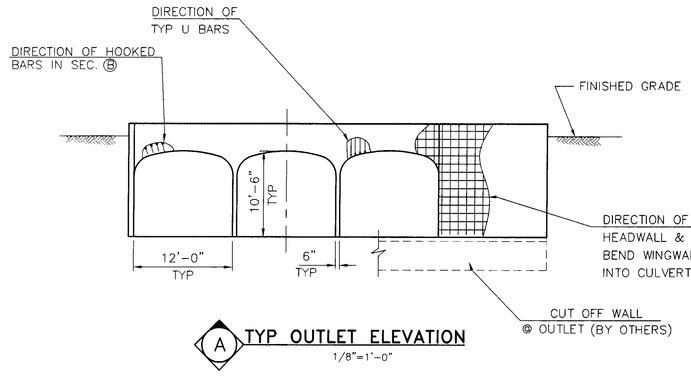
BOARD OF COUNTY COMMISSIONERS
DARIO HERRERA, Chairman • MYRNA WILLIAMS, Vice-Chair
YVONNE ATKINSON GATES • ERIN KENNY • MARY KINCAID-CHAUNCEY • CHIP MAXFIELD • BRUCE L. WOODBURY
THOM REILLY, County Manager

Printed by dlsmith at 2/19/2009 12:23:41 PM

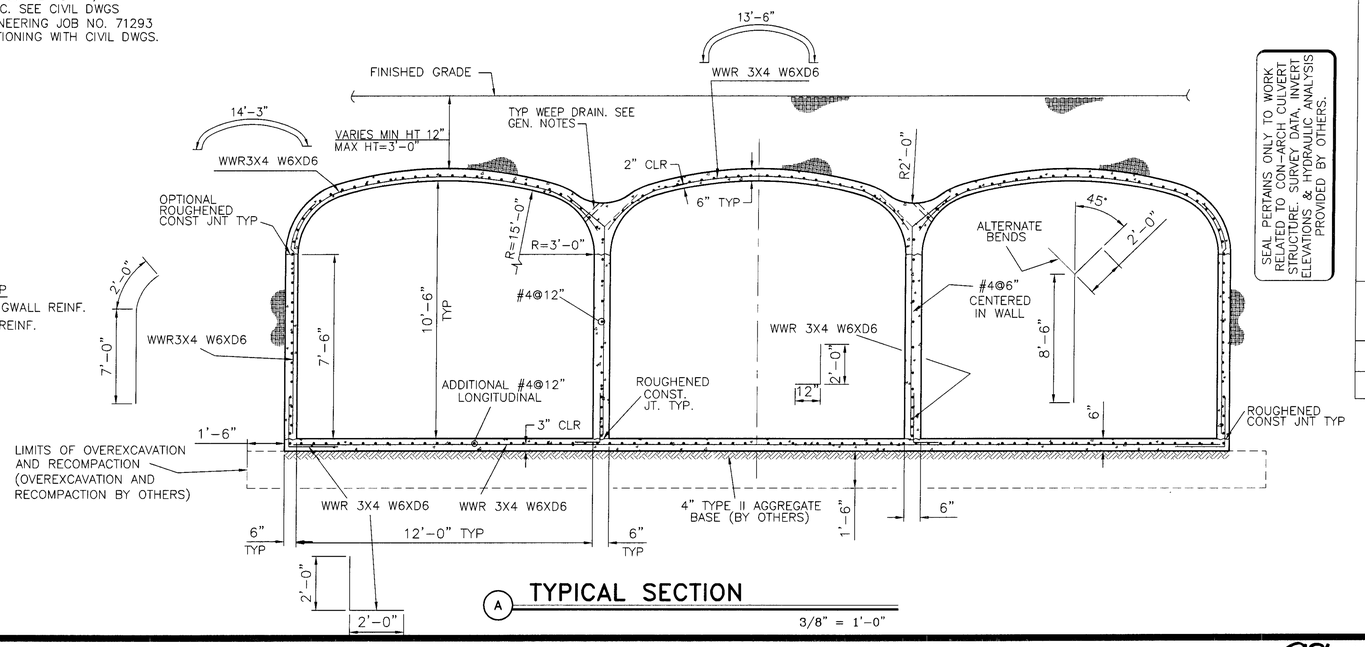


PLAN
1/8"=1'-0"

NOTE:
FOR CENTERLINE SURVEY DATA,
CURVE DATA, ETC. SEE CIVIL DWGS
BY SUMMIT ENGINEERING JOB NO. 71293
VERIFY ALL STATIONING WITH CIVIL DWGS.



A TYP OUTLET ELEVATION
1/8"=1'-0"



A TYPICAL SECTION
3/8" = 1'-0"

SEAL PERTAINS ONLY TO WORK RELATED TO CON-ARCH CULVERT STRUCTURE. SURVEY DATA, INVERT ELEVATIONS & HYDRAULIC ANALYSIS PROVIDED BY OTHERS.

REV	BY	DATE	COMMENT

WATSON ENGINEERING
CONSULTING ENGINEERS
2450 WEST POPPY AVENUE
TUCSON, ARIZONA 85705
PH: (520) 888-6468
FAX: (520) 292-6974

CON-ARCH

NOTICE: These drawings and the information contained herein, are the property of CL Watson Engineering and Con-Arch Consultants and shall not be reproduced or copied in any form without the written permission of Con-Arch Consultants, Arizona. Con-Arch culverts are a proprietary product and require special expertise to design and construct. The unauthorized use of these drawings is strictly prohibited

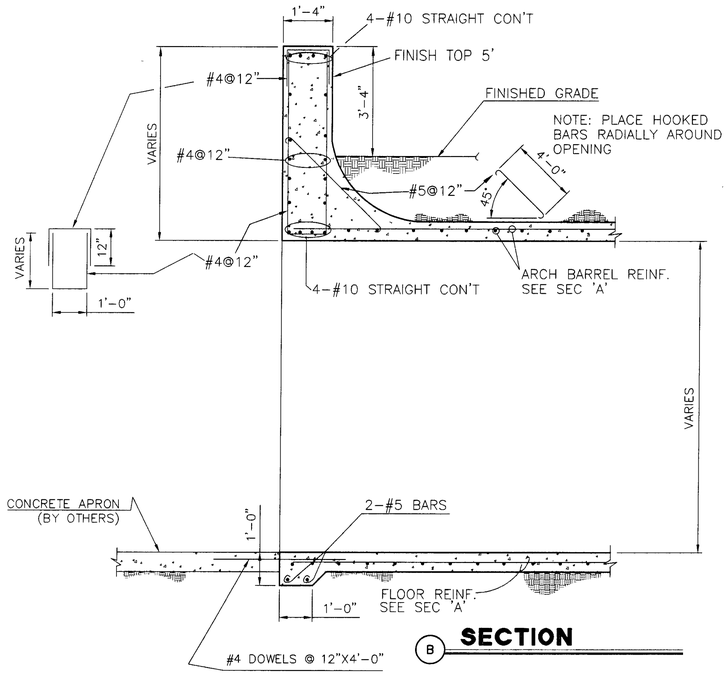
PATINA PLAZA AT DECATUR
ARCH-CULVERT DETAILS

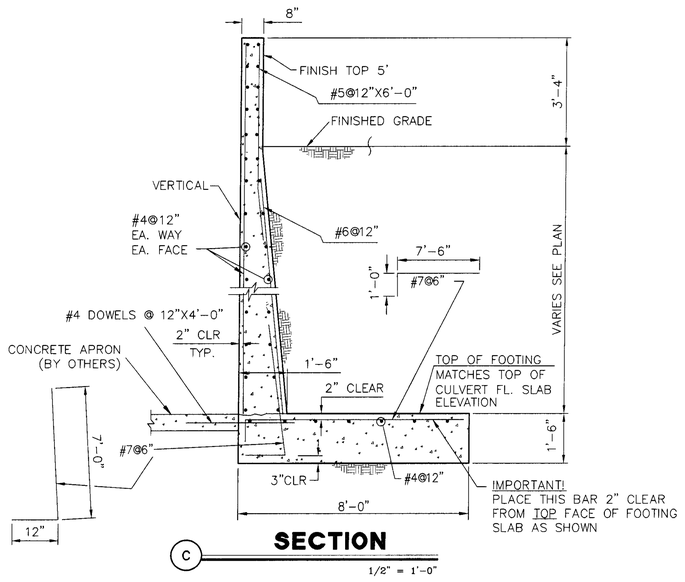
CLARK COUNTY, NEVADA

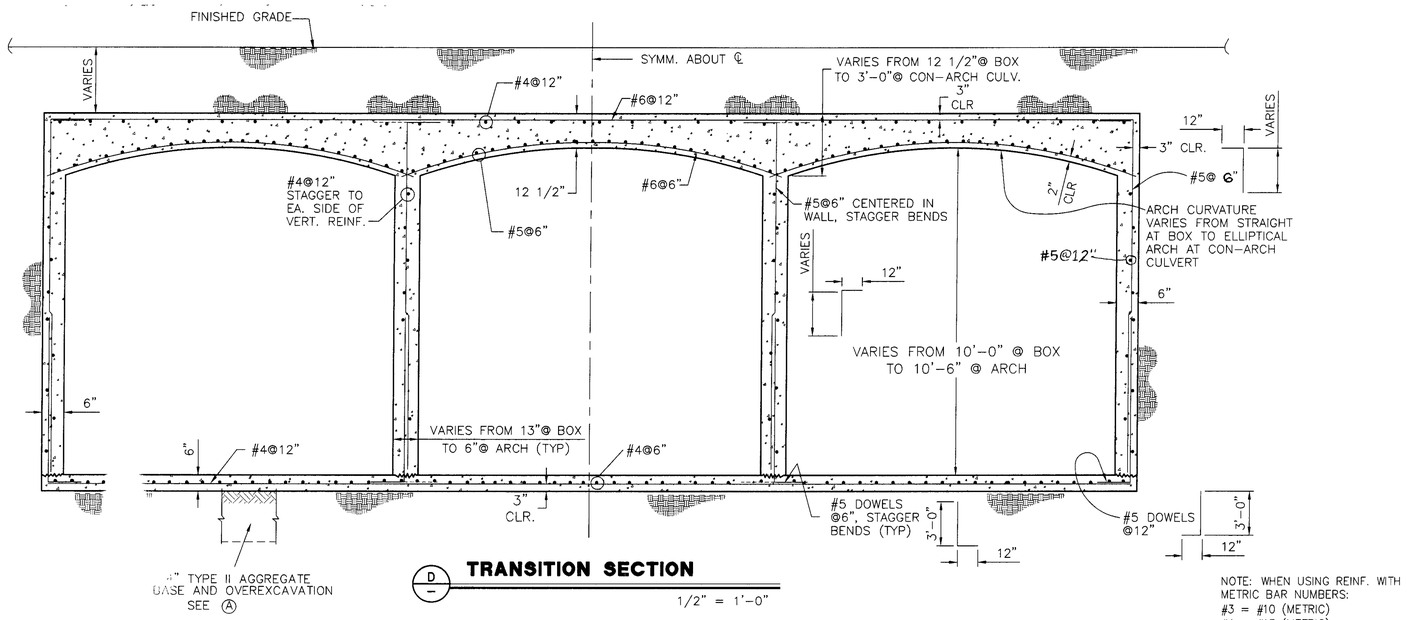
THOMAS A. SACRA III
11/8/99
CIVIL
No. 10039

Dsgn:	TAS
Drwn:	MJC
Rvsd:	5/27/99
Chk:	TAS
Date:	3/31/99
SCALE:	AS NOTED
SHEET NO.	Proj. No.
1 OF 3	98073

99.102701







NOTE: WHEN USING REINF. WITH METRIC BAR NUMBERS:
#3 = #10 (METRIC)
#4 = #13 (METRIC)
#5 = #16 (METRIC)
#6 = #19 (METRIC)

GENERAL NOTES

1.) DESIGN SPECIFICATIONS: AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES," 1996 ED. AND REVISIONS THERETO EXCEPT WHERE NOTED OTHERWISE.

2.) CONSTRUCTION SPECIFICATIONS: NDOT STANDARD SPECIFICATIONS, CURRENT EDITION, EXCEPT WHERE NOTED OTHERWISE.

3.) LOADING CLASS: HS20-44

4.) DEAD LOADS: FOR SELF WEIGHT OF STRUCTURE, REINF. CONCRETE = 150 POUNDS PER CUBIC FOOT (PCF), BACKFILL AROUND STRUCTURE = 120 PCF.

5.) DESIGN METHODOLOGY:

A.) CONCRETE ARCH: DESIGN BASED ON FINITE ELEMENT SOIL-STRUCTURE INTERACTION COMPUTER PROGRAM STUDIES UTILIZING SERVICE LOAD STRESSES. PROGRAM CALCULATES DESIGN MOMENTS FOR ARCH, WALLS, AND SLAB ACTING AS A UNIT WITH SURROUNDING SOIL.

B.) CONCRETE REINFORCING REQUIREMENTS COMPUTED BY THE ULTIMATE STRENGTH DESIGN METHOD.

6.) REINFORCING STEEL:

A.) CONVENTIONAL REINFORCEMENT: ASTM A615 GRADE 60 EXCEPT #3 BARS WHICH MAY BE GRADE 40 OR GRADE 60. MINIMUM COVER 3 INCHES WHERE CONCRETE CAST AGAINST EARTH, 2 INCHES FOR #6 THROUGH #11 OR 1 1/2 INCHES FOR #5 AND SMALLER BARS WHERE CONCRETE SURFACE IS EXPOSED TO EARTH BACKFILL OR WEATHER U. N O. (UNLESS NOTED OTHERWISE).

B.) ALTERNATE WELDED WIRE FABRIC REINFORCEMENT: WELDED DEFORMED WIRE FABRIC, FY = 70,000 PSI MIN., CONFORMING TO AASHTO M 55 OR M 221.

7.) REINFORCING BENDS AND LAPS: BENDS AND HOOKS SHALL CONFORM TO A. C. I. STD. 315-80 U. N. O. BEND DIMENSIONS ARE FROM OUT TO OUT AND LAPS SHALL BE 40 BAR DIAMETERS MINIMUM U. N. O. WELDED WIRE FABRIC LAPS 1'-0" MIN. U. N. O.

8.) CONCRETE AND SHOTCRETE:

A.) SHOTCRETE: FC' = 3,000 PSI @ 28 DAYS MIXED FOR AND PLACED BY THE WET MIX PLACEMENT PROCESS. SEE NO 15 BELOW.

B.) FLOOR CONCRETE: FC' = 4,000 PSI @ 28 DAYS & SHALL BE MODIFIED AA CLASS PURSUANT TO CLARK COUNTY BLUE BOOK STANDARDS.

C.) ALL OTHER CONCRETE: FC' = 3,000 PSI @28 DAYS & SHALL BE MODIFIED AA CLASS PURSUANT TO CLARK COUNTY BLUE BOOK STANDARDS.

9.) WORKMANSHIP: CHAMFER EXPOSED CORNERS 3/4 INCHES U. N. O. FINISH EXPOSED CONCRETE SURFACES PER STANDARD SPECIFICATIONS.

10.) SCALE: DO NOT SCALE DIMENSIONS FROM THE DRAWINGS.

11.) CURING: AFTER SPRAY ON CURING COMPOUND HAS BEEN APPLIED AND SHOTCRETE HAS TAKEN SET TO ALLOW FOOT TRAFFIC, ARCH BARRELS SHALL BE COVERED WITH 6 MIL CLEAR OR BLACK POLYETHYLENE SHEETING SECURED AGAINST WIND UPLIFT. SHEETING SHALL BE LEFT IN PLACE DURING BACKFILLING.

12.) STRIPPING: FORMS MAY BE STRIPPED AFTER A TWELVE HOUR INITIAL SET OR WHEN, IN THE OPINION OF THE ENGINEER, THE SHOTCRETE HAS TAKEN ADEQUATE SET TO ALLOW STRIPPING TO TAKE PLACE. BACKFILLING MAY PROCEED WHEN ARCH SHOTCRETE CYLINDER STRENGTH HAS REACHED F'c=1,500 PSI OR WHEN, IN THE OPINION OF THE ENGINEER, THE ARCH SHOTCRETE HAS TAKEN ADEQUATE SET TO ALLOW BACKFILLING TO PROCEED.

13.) BACKFILLING:

A.) BACKFILL SHALL BE PLACED IN NO GREATER THAN ONE FOOT LIFTS WITH NO GREATER THAN A ONE FOOT DIFFERENTIAL IN BACKFILL HEIGHT TO EACH SIDE OF ANY INDIVIDUAL ARCH. NO EQUIPMENT HEAVIER THAN A RUBBER TIRED THREE YARD CAPACITY FRONT END LOADER IS PERMITTED TO PASS OVER THE STRUCTURE UNTIL THE BACKFILL, AS SPECIFIED, IS COMPLETE IN PLACE. SCRAPERS AND OTHER SUCH HEAVY EQUIPMENT SHALL NOT BE ALLOWED TO PASS OVER THE STRUCTURE UNLESS SPECIFIC PERMISSION IN WRITING IS ISSUED BY THE ENGINEER.

B.) DENSITY: 95% OF STD. PROCTOR MAXIMUM DENSITY AS DETERMINED BY ASTM D-698.

C.) BACKFILL ZONE: THE BACKFILL ZONE SHALL EXTEND OUT TO THE LESSOR OF 1.5 TIMES THE ARCH SPAN FROM THE OUTSIDE EDGE OF THE ARCH OR THE DISTANCE TO THE ADJACENT SLOPED NATIVE MATERIAL. THIS ZONE SHALL EXTEND UPWARD TO THE HEIGHT OF THE PAVEMENT SUBGRADE.

D.) MATERIALS: NATIVE AND IMPORTED GRANULAR SOILS WITH MAXIMUM EXPANSIVE POTENTIALS OF 1.8% AND A MAXIMUM PARTICLE SIZE OF 3".

E.) PROVIDE POSITIVE DRAINAGE (DAYLIGHT) AWAY FROM SITE. REMOVE WATER SOFTENED MATERIAL FROM BENEATH SLABS OR FOOTINGS.

14.) WEEP DRAINS: ONE AND ONE HALF INCH DIAMETER HOLES SHALL BE PLACED IN THE INVERT BETWEEN ARCH BARRELS AT 4 FOOT CENTERS TO DRAIN THE FILL BETWEEN THE ARCH BARRELS. THE HOLES MAY BE EITHER DRILLED INTO THE SHOTCRETE OR PLACED AS 1½" DIA. SCHED. 40 PVC PIPE. AREA AROUND THE INLET TO THE HOLES SHALL BE COVERED WITH FILTER FABRIC EXTENDING AT LEAST ONE FOOT TO EACH SIDE OF EACH HOLE.

15.) SHOTCRETE REQUIREMENTS

SHOTCRETE SHALL COMPLY WITH THE RECOMMENDATIONS OF ACI "GUIDE TO SHOTCRETE." AND THE REQUIREMENTS OF ACI 506.2 "SPECIFICATION FOR MATERIALS, PROPORTIONING, AND APPLICATION OF SHOTCRETE."

PARTICULAR ATTENTION SHALL BE PAID TO THE FOLLOWING PARTS OF THE SHOTCRETE REQUIREMENTS.

A.) WORKER QUALIFICATIONS: WORKERS, INCLUDING FOREMAN, NOZZLEMEN, AND SHOTCRETE PUMP OPERATOR, SHALL BE FULLY QUALIFIED TO PERFORM THE WORK. THE NOZZLEMEN SHALL HAVE HAD A MINIMUM OF TWO YEARS CONTINUOS EXPERIENCE ON SIMILAR STRUCTURAL SHOTCRETE WORK AND SHALL DEMONSTRATE THEIR ABILITY TO SATISFACTORILY PLACE SHOTCRETE IN ACCORDANCE WITH THE RECOMMENDATIONS OF ACI 506.3R "GUIDE TO CERTIFICATION OF SHOTCRETE NOZZLEMEN."

B.) THE CONTRACTOR SHALL SUPPLY FOR REVIEW DOCUMENTATION INCLUDING, BUT NOT LIMITED TO, MATERIAL SPECIFICATIONS, MIX DESIGN, PLACEMENT PROCEDURES, AND FIELD QUALITY CONTROL PROGRAM. A TENTATIVE SHOTCRETE MIX SHALL BE DESIGNED AND TESTED FOR EACH TYPE, SIZE, AND GRADATION OF AGGREGATES; AND FOR EACH CONSISTENCY INTENDED FOR THE USE OF THE PROJECT. BEFORE STARTING SHOTCRETE WORK, AT LEAST ONE TEST PANEL FOR EACH PROPOSED MIX SHALL BE MADE BY EACH SHOTCRETE CREW, USING THE 30 INCH SQUARE PANEL METHOD AND THE PROPOSED EQUIPMENT FOR THE PROJECT. THE PANEL SHALL BE ORIENTED SIMILARLY TO THE STRUCTURE, SHALL CONTAIN THE SAME REINFORCING AS THE STRUCTURE AND SHALL HAVE THE SAME THICKNESS AS THE STRUCTURE. THE PANEL SHALL BE CORED FOR ABSORPTION AND COMPRESSION TESTING AT 14 AND 28 DAYS.

REV	BY	DATE	COMMENT

SEAL PERTAINS ONLY TO WORK RELATED TO CON-ARCH CULVERT STRUCTURE. SURVEY DATA, INVERT ELEVATIONS & HYDRAULIC ANALYSIS PROVIDED BY OTHERS.

WATSON ENGINEERING
CONSULTING ENGINEERS
2450 WEST POPPY AVENUE
TUCSON, ARIZONA 85705
PH: (520) 888-6468
FAX: (520) 292-6974

CON-ARCH

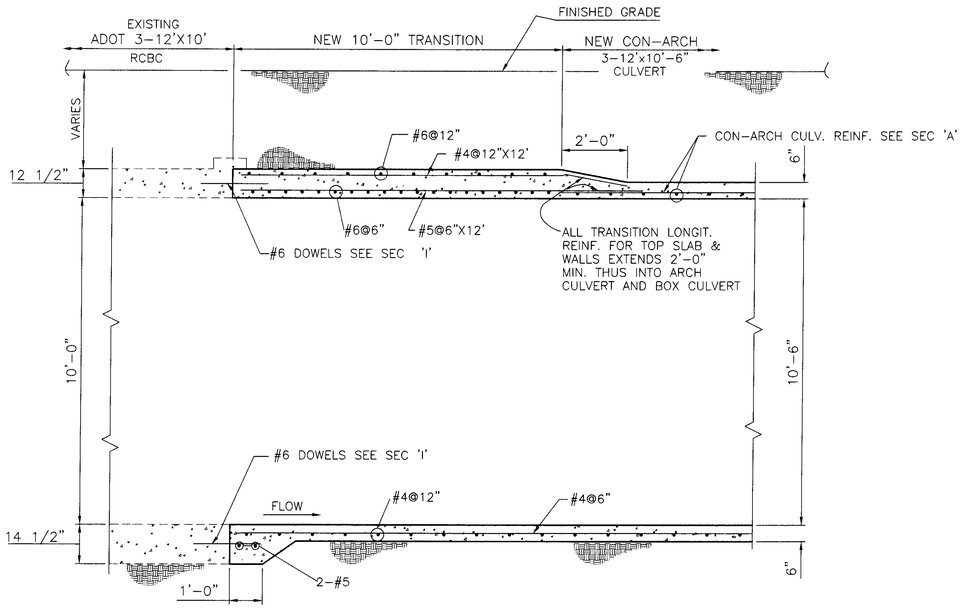
NOTICE: These drawings and the information contained herein are the property of C.I. Ridgeway Construction Company, Tucson, Arizona and Watson Engineering, Tucson, Arizona and are considered proprietary product and require special expertise to design and construct. The unauthorized use of these drawings is strictly prohibited.

PATINA PLAZA AT DECATUR
ARCH-CULVERT DETAILS
CLARK COUNTY, NEVADA

THOMAS A. SAURA III — 11/8/99 — CIVIL — No. 9 — STATE OF NEVADA — REGISTERED PROFESSIONAL ENGINEER

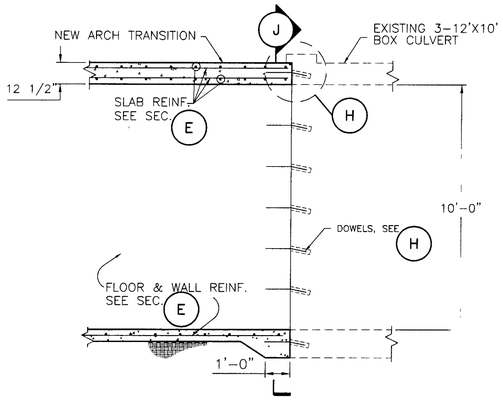
Dsgn:	TAS
Drwn:	MJC
Rvsd:	5/27/99
Chk:	TAS
Date:	3/31/99
SCALE:	AS NOTED
SHEET NO.	Proj. No.
2 OF 3	98073

99102701



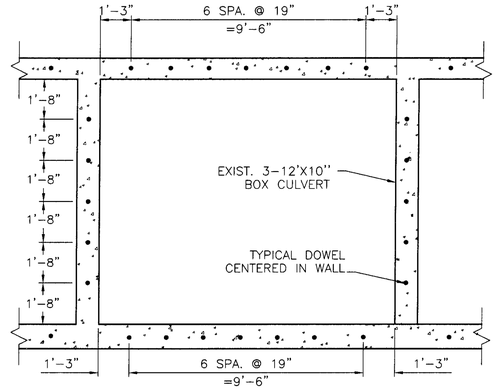
E TRANSITION SECTION AT CROWN

1/2" = 1'–0"



I NEW BOX CULVERT TO EXIST CULV. CONNECTION DETAIL

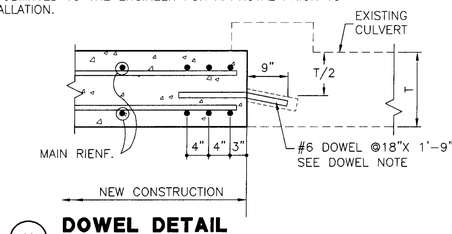
3/8" = 1'–0"



J DOWEL PLACEMENT

3/8" = 1'–0"

DOWEL NOTE:
DRILL 1"ø HOLE, 8" DEEP, FOR #6 DOWEL. EPOXY DOWEL IN HOLE WITH AN APPROVED EPOXY ADHESIVE. EPOXY ANCHORAGE SHALL DEVELOP A TENSILE PULLOUT STRENGTH OF 13 KIPS. DETAILS OF THE ANCHORAGE SYSTEM SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.



H DOWEL DETAIL

1" = 1'–0"

SEAL PERTAINS ONLY TO WORK RELATED TO CON–ARCH CULVERT STRUCTURE. SURVEY DATA, INVERT ELEVATIONS & HYDRAULIC ANALYSIS PROVIDED BY OTHERS.

WATSON ENGINEERING
CONSULTING ENGINEERS
2450 WEST POPPY AVENUE
TUCSON, ARIZONA 85705
PH: (520) 888–6468
FAX: (520) 292–6974

CON–ARCH

NOTICE: These drawings and the information contained herein are the property of C.L. Watson Construction Company, Tucson, Arizona and Watson Engineering, Tucson, Arizona Corporation, and are not to be used in any form or manner to design and construct. The unauthorized use of these drawings is strictly prohibited

PATINA PLAZA AT DECATUR
ARCH–CULVERT DETAILS

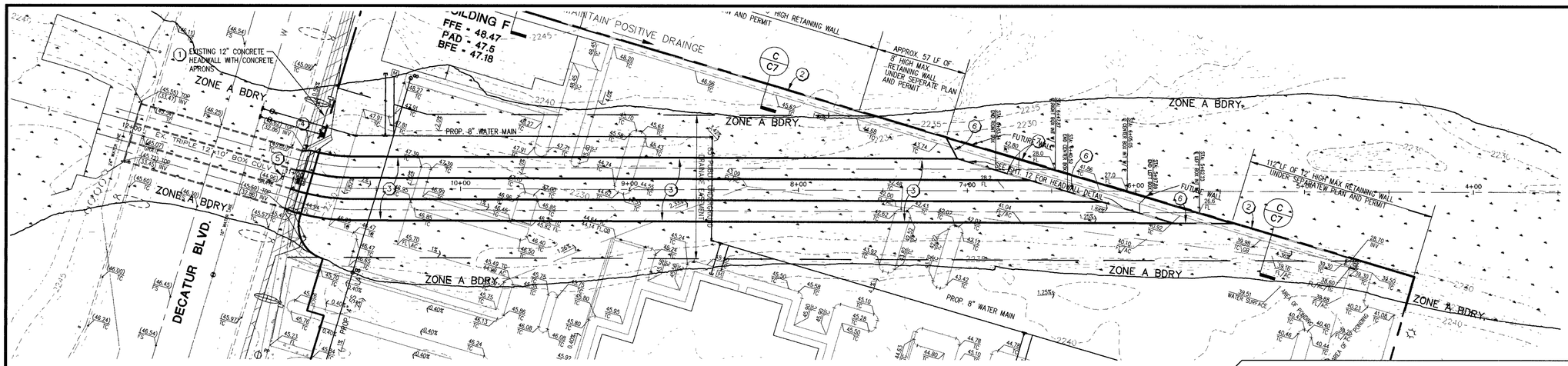
CLARK COUNTY, NEVADA

REV	BY	DATE	COMMENT

THOMAS A. SACHA III
11/8/99
CIVIL
No. 10039
STATE OF NEVADA

Dsgn:	TAS
Drwn:	MJC
Rvsd:	5/27/99
Chk:	TAS
Date:	3/31/99
SCALE:	AS NOTED
SHEET NO.	Proj. No.
3 OF 3	98073

99102701



BENCHMARK:

BM # 7C11 19SW#6; RIVT & SQUARE ALUMINUM PLATE IN TOP OF CURB, EAST SIDE OF DECATUR BLVD. 1300 FT. NORTH OF TROPICANA AVE. IN FRONT OF 1660 DECATUR BLVD.
687.385 (METERS) NAVD88
2255.1956 (FEET) NAVD88

LEGAL DESCRIPTION:

A PORTION OF THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) SECTION 19, TOWNSHIP 21 SOUTH, RANGE 61 WEST, M.D.M.

SAID PARCEL CONTAINS 5.94 ACRES, MORE OR LESS

BASIS OF BEARINGS:

NORTH 00°19'00" WEST, BEING THE WEST LINE OF SAID SW 1/4 OF SECTION 19, TOWNSHIP 21 SOUTH, RANGE 61 EAST, M.D.M. PER FILE 77 OF PARCEL MAPS, PAGE 21, CLARK COUNTY, NEVADA RECORDES'S CUMULATIVE MAP INDEX.

PROPOSED CULVERT PLAN

SCALE: HORZ. 1"=30'

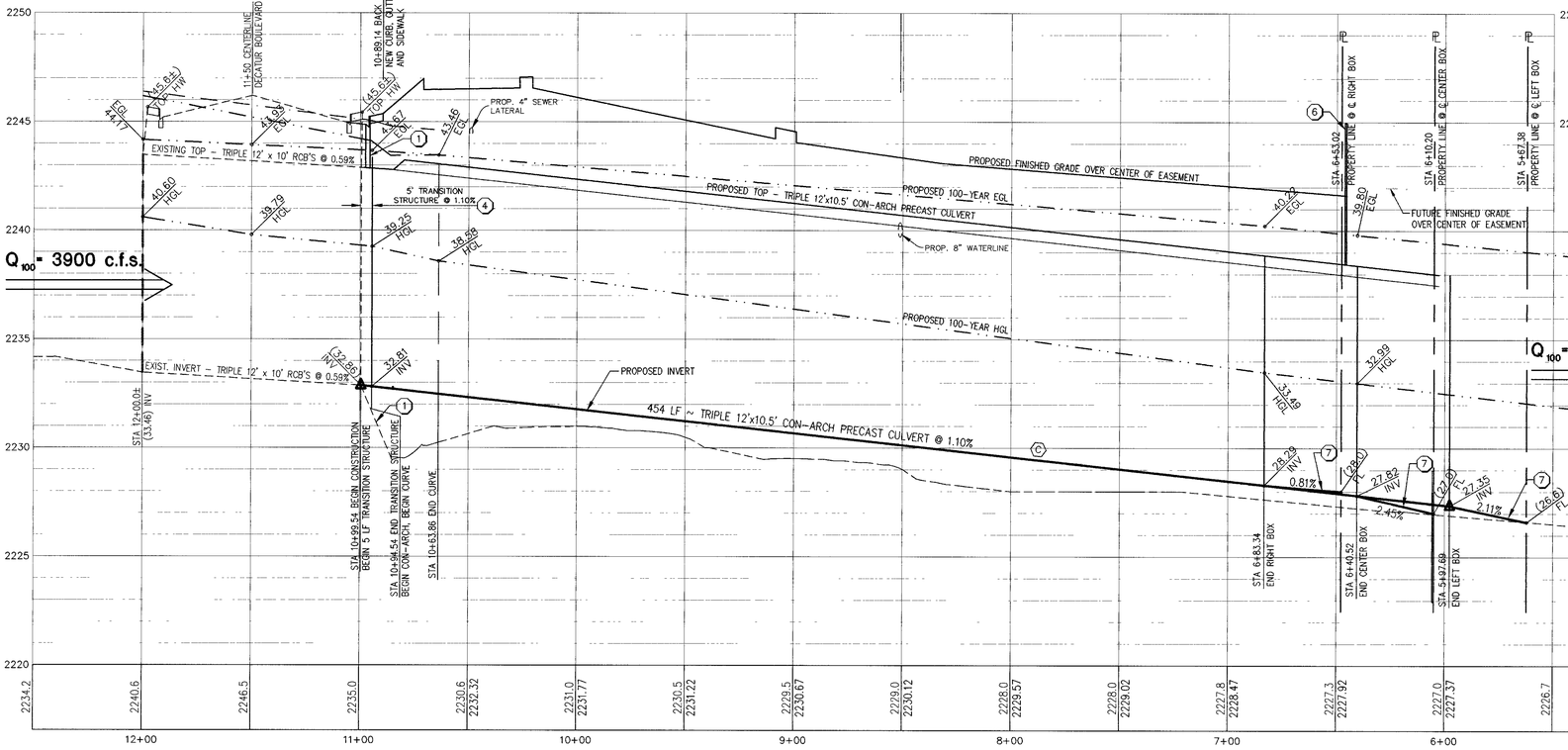
20 0 60 120
30 10 30 90

UTILITY NOTE

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

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

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.
CALL BEFORE YOU DIG OVERHEAD
CALL 1-702-593-6111



PROPOSED CULVERT PROFILE

SCALE: HORZ. 1"=30'
SCALE: VERT. 1"=3'

STORM DRAIN NOTES

		QUANTITIES PRIVATE	QUANTITIES PUBLIC
1.	REMOVE EXISTING HEADWALL, WING WALLS, AND CONCRETE APRON.	0 LF	97 LF
2.	CONSTRUCT RETAINING WALL PER DETAILS , SHEET C7.	470 LF	0 LF
3.	CONSTRUCT TRIPLE 12'x10.5' CON-ARCH PRECAST CONCRETE BOX CULVERT OR EQUIVALENT.	0 LF	680 LF
4.	CONSTRUCT 5 LF OF TRANSITION STRUCTURE FROM TRIPLE BOX CULVERTS TO TRIPLE CONARCH BOX CULVERTS PER DETAIL , SHEET 12. STRUCTURAL CALC'S AND DETAILS FOR TRANSITION STRUCTURE UNDER SEPERATE PLAN AND PERMIT.	0 LF	5 LF
5.	CONSTRUCT 12' TYPE "C" DROP INLET W/3 GRATES PER USD STD. DWG. 413 TO DROP DIRECTLY INTO BOX CULVERT.	0 EA	1 EA
6.	CONSTRUCT HEADWALL AND WING WALLS PER DETAIL , SHEET C12. STRUCTURAL CALC'S AND DETAILS FOR TRANSITION STRUCTURE UNDER SEPERATE PLAN AND PERMIT.	0 LF	183 LF
7.	CONSTRUCT CONCRETE APRON AND VELOCITY REDUCER PER DETAIL , SHEET C12.	0 SF	1,555 SF

CLARK COUNTY
DEPARTMENT OF PUBLIC WORKS
Harry Bowlin 10/27/99

SUMMIT™ ENGINEERING CORPORATION
CONSULTING ENGINEERS AND SURVEYORS
3684 SOUTH HIGHLAND, LAS VEGAS, NEVADA 89103
PHONE: (702) 252-3236 FAX: (702) 252-3347

DESIGNED: T.D.A.
CHECKED: G.R.B.
SCALE HOR. 1"=30' VER. 1"=3'
FILE No. 72093 MARCH 10, 1999

STORM DRAIN PLAN/PROFILE
PATINA PLAZA AT DECATUR/TROPICANA
SANCHEZ FAMILY TRUST
CLARK COUNTY NEVADA

REV.	DATE	DESCRIPTION	BY	APP'D
		FIRST SUBMITTAL		
		SECOND SUBMITTAL		

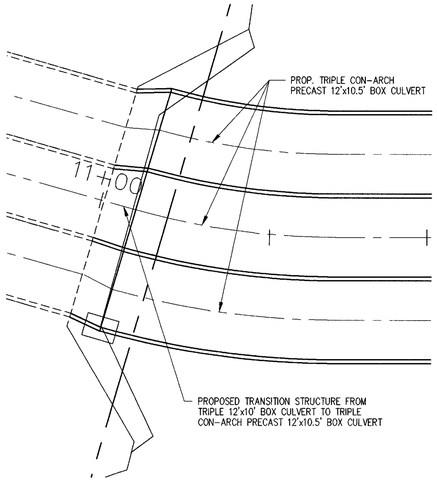
M:\DWGS\72093\93-PRSD.DWG

SEAL
Thomas A. Sanchez 9/27/99
No. 5333 PROFESSIONAL ENGINEER

SHEET C10 OF 12

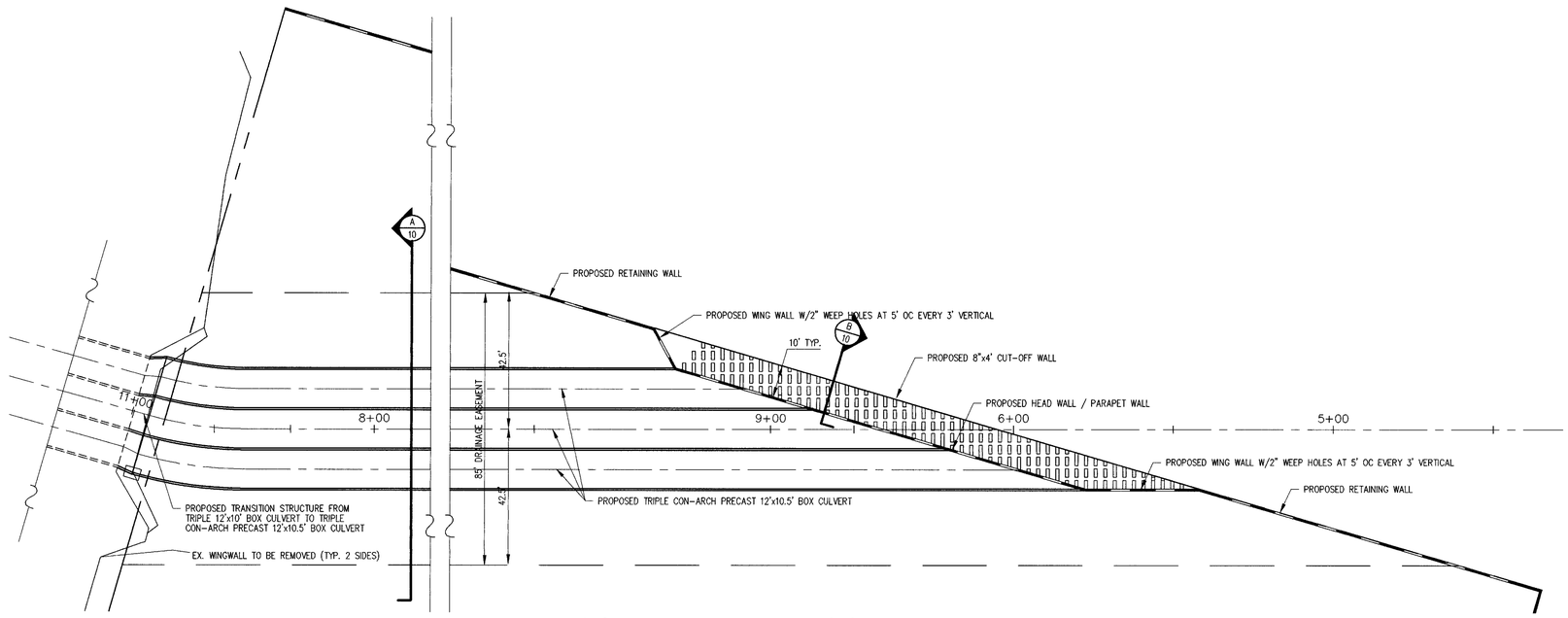
P:\DWGS\J72093\Old-site-SAVE\293-ppsd.dwg Tue Sep 28 09:16:48 1999

99102701



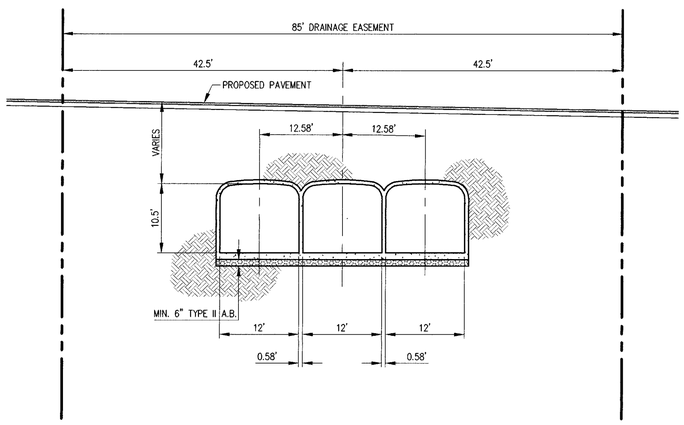
TRANSITION STRUCTURE DETAIL

HORZ. SCALE: 1" = 10'



BOX CULVERT EXTENSION DETAIL

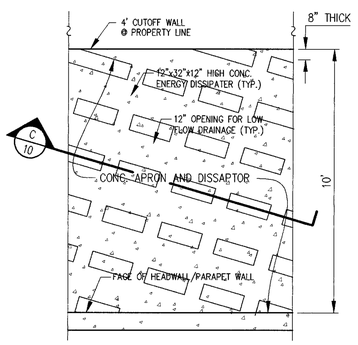
HORZ. SCALE: 1" = 20'



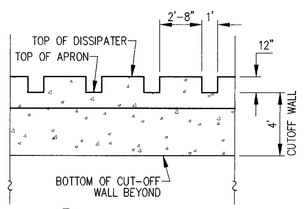
TYPICAL CULVERT SECTION
SEE MANUFACTURERS SPECIFICATIONS

A 10

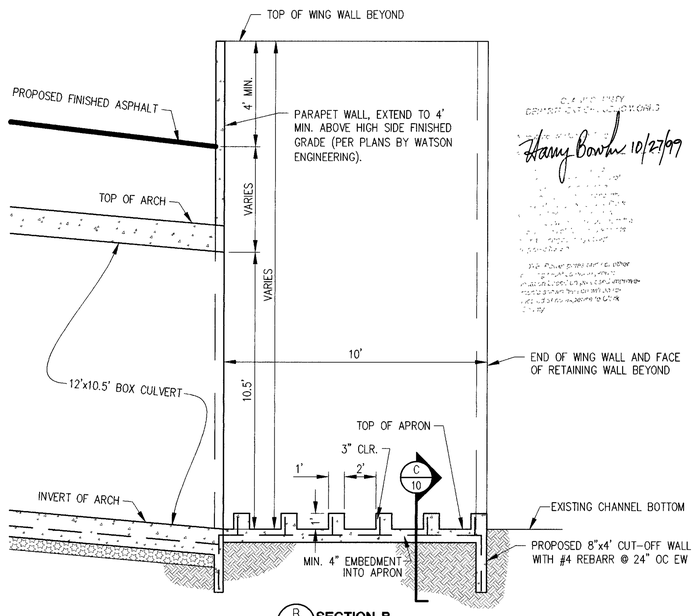
HORZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 20'



SECTION B



C 10 SECTION C



B 10 SECTION B

4' CUT-OFF WALL / VELOCITY REDUCER

B 10 C 10 D 10

NOT TO SCALE

SUMMIT™ ENGINEERING CORPORATION
CONSULTING ENGINEERS AND SURVEYORS
3684 SOUTH HIGHLAND DR. LAS VEGAS, NEVADA 89109
PHONE: (702) 252-3236 FAX: (702) 252-3247

DESIGNED: T.D.A.		
CHECKED: G.R.B.		
SCALE	HOR. N/A	
	VER. N/A	
FILE No. 7293	MARCH 10, 1999	

DETAIL SHEET
PATINA PLAZA AT DECATUR/TROPICANA
SANCHEZ FAMILY TRUST

CLARK COUNTY NEVADA

REV.	DATE	DESCRIPTION	BY	APPD
		FIRST SUBMITTAL		
		SECOND SUBMITTAL		

M:\DWGS\7293\293-det1.dwg Tue Sep 28 09:14:00 1999

SEAL: STATE OF NEVADA — GARY R. BUSBY — 9/27/99 — CIVIL — No. 10394 — PROFESSIONAL ENGINEER

SHEET C12 — 12

99102701

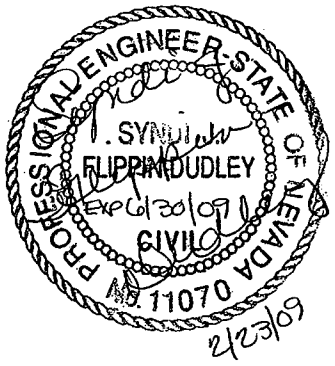
D.4 Improvement Drawings for "The Home Depot" at Tropicana Avenue and Decatur Boulevard

The Home Depot USA – Tropicana/Decatur
Flamingo Wash Storm Drain Improvements

This is to certify as-built conditions for the Flamingo Wash storm drain as depicted on the improvement plans for The Home Depot USA – Tropicana/Decatur, signed and sealed by the design engineer, Andrew J. Hustad with Summit Engineering Corporation, on March 14, 2001. Based on a letter dated May 28, 2002 by M.J. Manning, Director of Public Works for Clark County, Nevada regarding Release #00-39104, the offsite improvements for the subject development were constructed in accordance with the plans on file. The storm drain is in place and functioning.

Syndi J. Flippin-Dudley

Syndi J. Flippin-Dudley, Ph.D., P.E.
Vice President Water Resources
THE Louis Berger Group, INC.



Department of Public Works

500 S Grand Central Pky • PO Box 554000 • Las Vegas NV 89155-4000
(702) 455-6000 • Fax (702) 455-6040

M.J. Manning, Director • E-Mail: mjm@co.clark.nv.us

May 28, 2002

Travelers Casualty and Surety Company of America
One Tower Square
Hartford, CT 06183-6014

RELEASE # **00-39104**
PROJECT NAME: **HOME DEPOT TROPICANA / DECATUR**

The off-site improvements at the subject development have been constructed in accordance with the plans on file in this office. At this time, Clark County Public Works accepts the improvements for maintenance and releases the bond.

The developer is responsible should any original or developed defects or failures appear within a period of one year from the date of acceptance of the work by Clark County. The Contractor shall, at his own expense, make good such defects and failures and make all replacements and adjustments required within 30 days after being notified by Clark County to do so. All repairs shall be subject to the approval of the Clark County Public Works Department.

By copy of this letter to the Clark County Maintenance Management Division, the County will assume responsibility for normal maintenance of these improvements. This letter authorizes the release of:

Bond:	11 S 103551112
Dated:	FEBRUARY 12, 2001
By:	HOME DEPOT U.S.A. INCORPORATED
And:	TRAVELERS CASUALTY & SURETY COMPANY OF AMERICA
Amount:	$164,905.68

If you have any questions, call 455-4630.

Best regards,

M.J. Manning
Director of Public Works

MJM/lmr

cc: Carla J. Pearson, Manager, Community Development
Home Depot U.S.A. Incorporated
3800 W Chapman Avenue
Orange, CA 92868

BOARD OF COUNTY COMMISSIONERS
DARIO HERRERA, Chairman • MYRNA WILLIAMS, Vice-Chair
YVONNE ATKINSON GATES • ERIN KENNY • MARY KINCAID-CHAUNCEY • CHIP MAXFIELD • BRUCE L. WOODBURY
THOM REILLY, County Manager

Printed by dlsmith at 2/19/2009 12:20:04 PM

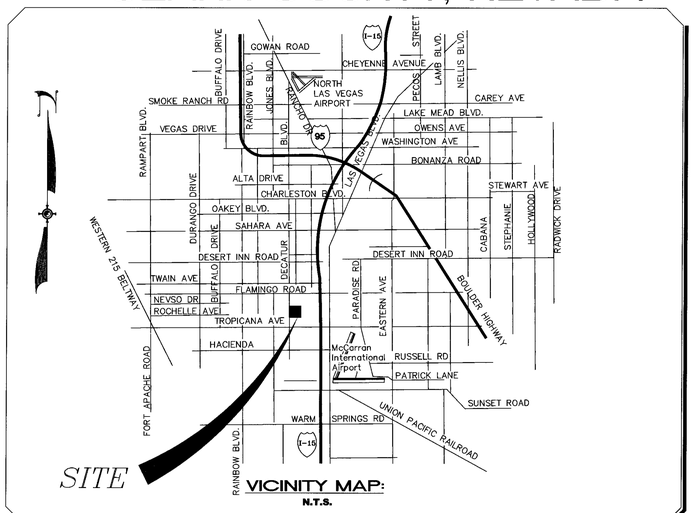
IMPROVEMENT DRAWINGS
FOR
"THE HOME DEPOT"
AT
TROPICANA AVENUE AND DECATUR BOULEVARD
CLARK COUNTY, NEVADA

LEGEND:
PROPOSED - TO BE CONSTRUCTED WITH THESE PLANS

- CENTERLINE
- PROPERTY LINE
- RIGHT OF WAY
- EDGE OF EXISTING PAVEMENT
- EXISTING CONTOUR W/ ELEVATION (1234)
- EXISTING CURB & GUTTER
- EXISTING GRADE (99.99 TC)
- PROPOSED GRADE (99.99 TC)
- FUTURE GRADE [99.99 TC]
- CURVE DATA (C)
- CONSTRUCTION NOTES (9) (A) [9]
- PROPOSED STREET LIGHT
- EXISTING STREET LIGHT
- EXISTING UTILITY STUB
- PROPOSED UTILITY STUB
- EXISTING SEWER MANHOLE (S)
- SEWER CLEAN OUT
- PROPOSED SEWER MANHOLE (S)
- EXISTING STORM DRAIN MANHOLE (D)
- PROPOSED STORM DRAIN MANHOLE (D)
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- FENCE -X-X-X-
- FLOW LINE
- EXISTING BLOCK WALL
- PROPOSED BLOCK WALL
- EXISTING RETAINING WALL
- PROPOSED RETAINING WALL
- PROPOSED ASPHALTIC CONCRETE
- PROPOSED CONCRETE
- SCARP SLOPES
- MONUMENTS FOUND AS NOTED

ABBREVIATIONS:

A.C.P.	ASBESTOS CEMENT PIPE
A.C.	ASPHALTIC CONCRETE
B.C.	BEGIN CURVE
B.V.C.	BEGIN VERTICAL CURVE
B.S.	BACK OF SIDEWALK
C.B.	CATCH BASIN
CL	CENTERLINE
C.M.P.	CORRUGATED METAL PIPE
CONC.	CONCRETE
D.I.	DROP INLET
DET.	DETAIL
E	ELECTRICAL
ELEV.	ELEVATION
E.C.	END OF CURVE
E.V.C.	END OF VERTICAL CURVE
EXIST.	EXISTING
E.G.	EXISTING GRADE
F.F.	FINISHED FLOOR
F.G.	FINISHED GRADE
F.H.	FIRE HYDRANT
FL	FLOW LINE
G	GAS
G.B.	GRADE BREAK
HORIZ.	HORIZONTAL
INT.	INTERSECTION
I.E.	INVERT ELEVATION
LT	LEFT
L	LENGTH
L.F.	LINEAL FEET
M.H.	MANHOLE
P	PAD ELEVATION
PI	POINT OF INTERSECTION
P.R.C.	POINT OF REVERSE CURVATURE
P.O.T.	POINT OF TANGENT
P.V.C.	POLYVINYL CHLORIDE PIPE
(R)	RADIAL
R	RADIUS
REF.	REFERENCE
R.C.P.	REINFORCED CONCRETE PIPE
R.G.	ROUGH PAD ELEVATION
RT	RIGHT
R/W	RIGHT OF WAY
S.S.	SANITARY SEWER
S.W.	SIDEWALK
S	SLOPE
SHT.	SHEET
STA.	STATION
S.D.	STORM DRAIN
T	TANGENT
t	TELEPHONE
T.C.	TOP OF CURB
TYP.	TYPICAL
VERT.	VERTICAL
V.C.	VERTICAL CURVE
V.P.I.	VERTICAL POINT OF INTERSECTION
W	WATER



VICINITY MAP:
N.T.S.

SHEET INDEX:

SHEET C1	COVER SHEET
SHEET C2	NOTES SHEET
SHEET C3	HORIZONTAL CONTROL PLAN SHEET 1
SHEET C4	HORIZONTAL CONTROL PLAN SHEET 2
SHEET C5	ONSITE SIGNAGE PLAN
SHEET C6.	UTILITY PLAN
SHEET C7	GRADING PLAN SHEET 1
SHEET C8	GRADING PLAN SHEET 2
SHEET C9	STORM DRAIN PLAN / PROFILE
SHEET C10	STORM DRAIN DETAILS
SHEET C11.	STORM DRAIN DEMOLITION PLAN
SHEET C12	DECATUR PLAN / PROFILE SHEET
SHEET C13	SIGNAGE AND STRIPING PLAN
SHEET C14	GRADING PLAN DETAIL SHEET 1
SHEET C15	DETAIL SHEET 2
SHEET C16.	DETAIL SHEET 3
SHEET C17.	DETAIL SHEET 4
SHEET C18	DETAIL SHEET 5
SHEET C19.	DETAIL SHEET 6

PROJECT NAME: Home Depot at Tropicana & Decatur
Sheet C1, C2, C6, C7, C8, C10, C14, C19
This project water plan complies with the Las Vegas Valley Water District's technical requirements. However, this water plan is

NOT APPROVED FOR CONSTRUCTION

at this time and this signature does not provide or imply a water commitment.

LVVWD #52 — DATE 03/15/01

FIRE DEPARTMENT APPROVAL

APPROVAL BY THE FIRE DEPARTMENT HAVING JURISDICTION IS REQUIRED PRIOR TO OBTAINING FINAL APPROVAL FROM THE LVVWD.
ESN.012

UTILITY NOTE

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

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

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY
CALL BEFORE YOU DO OVERHEAD
CALL 1-702-593-8111

OWNERS/DEVELOPERS:

THE HOME DEPOT
3800 W. CHAPMAN AVENUE
ORANGE, CALIFORNIA 92868
(714) 940-3549

BASIS OF BEARING:

IS N.00°19'00"W.; BEING THE WEST LINE OF THE SECTION 19, TOWNSHIP 21 SOUTH, RANGE 61 EAST, M.D.B. & M. AND THE CENTER LINE OF DECATUR BOULEVARD

PROJECT BENCHMARK:

2C11 19SWS: RIVET & SQUARE ALUMINUM PLATE IN TOP CURB NORTHEAST CORNER OF TROPICANA AVE. AND DECATUR BLVD. NEAR THE PC OF TROPICANA AVE
ELEVATION = 2247.515 FEET OR 685.044 METERS (NAVD. 88)

LEGAL INFORMATION:

APN 162-19-401-004, 5.16 ACRES
APN 162-19-401-011, 5.94 ACRES
A PORTION OF GOVERNMENT LOT 4, OF SECTION 19, TOWNSHIP 21 SOUTH, RANGE 61 EAST, MDM

PROJECT INFORMATION:

APN 162-19-401-004, 011
SECTION 19, TOWNSHIP 21 SOUTH, RANGE 61 EAST, MDM
GROSS ACRES 11.10
CLARK COUNTY PAC NO. 00-19904 ARCH REVIEW
CLARK COUNTY ZONING PAC NO. 00-29297 NEW STORE
CLARK COUNTY ZONING PAC NO. 00-33225 CIVIL REVIEW
CLARK COUNTY DRAINAGE HTE NO. 00-20338
CLARK COUNTY TRAFFIC HTE NO. 00-18775
CLARK COUNTY FIRE DEPARTMENT C-0321-1-2000
ZONING ACTIONS: ZC-0515-00, UC/VC-0913-95

APPROVALS:

SOUTHWEST GAS CORPORATION — 3-15-01 DATE

NEVADA POWER COMPANY Keith A. Jackson — 3-15-01 DATE

SPRINT TELEPHONE COMPANY — 3.15.01 DATE

COX COMMUNICATIONS, LAS VEGAS, INC — 5/18/01 DATE

LAS VEGAS VALLEY WATER DISTRICT — 5/11/01 DATE

CLARK COUNTY SANITATION DISTRICT — 3/15/01 DATE

CLARK COUNTY FIRE DEPARTMENT — 3/15/01 DATE
APPROVAL OF THESE PLANS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR, OR AN APPROVAL OF, ANY VIOLATION OF ANY OF THE PROVISIONS OF THE STATE OR COUNTY LAWS, FIRE FLOW 4000 GPM AT 20 P.S.I. RESIDUAL.

N/A See Sheets 7,8,9,11 & 12
CLARK COUNTY PUBLIC WORKS — DATE

SUMMIT ENGINEERING CORPORATION
1421 E. SUNSET ROAD, SUITE 17 LAS VEGAS, NEVADA 89119
PHONE (702) 252-3236 FAX (702) 252-3247

DESIGNED: JNW | CHECKED: AGH | SCALE: HOR. N/A, VER. N/A | FILE No. 72125 | 02/02/01

THE HOME DEPOT
COVER SHEET
HOME DEPOT USA - TROPICANA/DECATUR
CLARK COUNTY NEVADA

CLOSED

REV.	DATE	DESCRIPTION	BY	APPD

P:\DWGS\J72125\2COV.dwg

SEAL: PROFESSIONAL ENGINEER — ANDREW J. HUSTAD — No. 12260 — STATE OF NEVADA — CIVIL

SHEET C1 OF 19

ATE 00-39104

CLARK COUNTY GENERAL NOTES:

1) ALL CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" AND "IMPROVEMENT STANDARDS, OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA" (AND ANY APPURTENANT SUPPLEMENTS), AND THE RECOMMENDATIONS IN THE REPORT BY "WESTERN TECHNOLOGIES INC."
"GFA NO. 991050, PROJECT NO. 4120JN044"
"DATED MAY 18, 2000"

2) THE INSPECTION AND TESTING OF SOILS SHALL BE TO CLARK COUNTY STANDARDS.

3) PRIVATE STREETS, CURB AND GUTTER, VALLEY GUTTERS AND DRIVEWAYS REFLECTED ON THESE PLANS ARE TO BE INSPECTED BY A CLARK COUNTY INSPECTOR.

4) POWER POLES AND/OR OTHER EXISTING FACILITIES NOT IN PROPER LOCATION BASED ON PROPOSED IMPROVEMENTS SHOWN HEREON WILL BE RELOCATED AT NO EXPENSE TO THE COUNTY OF CLARK.

5) THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND FEES REQUIRED FOR CONSTRUCTION.

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

7) THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL EXISTING UTILITIES WITHIN THE LIMITS OF CONSTRUCTION, WHETHER OR NOT SAID UTILITIES ARE SHOWN ON THESE PLANS. THIS RESPONSIBILITY INCLUDES CONTACTING UTILITY COMPANIES FOR LOCATIONS OR POT HOLING PRIOR TO CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE CONTRACTOR.

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

9) THE CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITIONS BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE, INGRESS, AND EGRESS TO THE PROJECT.

10) CURB AND GUTTER WITH A GRADE OF LESS THAN 0.40% SHALL BE CONSTRUCTED BY FORMING. EACH JOINT SHALL BE CHECKED FOR GRADE PRIOR TO CONSTRUCTION AND WATER TESTED AS SOON AS POSSIBLE AFTER CONSTRUCTION.

11) FINAL ASPHALTIC CONCRETE PAVEMENT SURFACES SHALL BE ONE-HALF INCH ABOVE THE LIP OF THE GUTTER (INCLUDING OPEN GRADE). PAVEMENT SURFACES SHALL BE FLUSH WITH EDGES OF CROSS GUTTERS.

12) EXACT LOCATION OF ALL SAWCUT LINES SHALL BE DETERMINED IN THE FIELD BY A CLARK COUNTY INSPECTOR.

13) THE CONTRACTOR SHALL MAINTAIN AN ON-GOING PROCESS OF REMOVAL OF ALL SPILLAGE OF EXCAVATION MATERIAL ON ALL PAVED STREETS.

14) WHEELCHAIR RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING NO. 235. EXACT LOCATION OF THE RAMPS SHALL BE DETERMINED IN THE FIELD BY A CLARK COUNTY INSPECTOR.

15) ALL OFF-SITE IMPROVEMENT CONSTRUCTION SHALL CONFORM TO THE UNIFORM STANDARDS SPECIFICATIONS AND STANDARD DRAWINGS CLARK COUNTY AREA AND CLARK COUNTY SUPPLEMENT TO UNIFORM STANDARD DRAWINGS AND AND SPECIFICATIONS, LATEST REVISION.

CLARK COUNTY GRADING NOTES:

1) CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITION BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND INGRESS AND EGRESS TO SAID CONSTRUCTION. EXTENT OF TRANSITIONS TO BE DETERMINED BY THE COUNTY ENGINEER.

2) EXISTING UTILITIES ARE LOCATED ON THE PLANS FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE CONTRACTOR SHALL BEAR FULL RESPONSIBILITY FOR THE UTILITIES NOT SHOWN ON THE PLANS.

3) CONSTRUCTION TO BE PER UNIFORM STANDARD SPECIFICATIONS AND DRAWINGS, CLARK COUNTY AREA, NEVADA.

4) CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND SHALL REPORT ALL DISCREPANCIES TO THE ENGINEER PRIOR TO COMMENCEMENT OF WORK.

5) ALL GRADING AND PAVING SHALL CONFORM TO THE SOILS REPORT PREPARED BY "WESTERN TECHNOLOGIES INC."
"GFA NO. 991050, PROJECT NO. 4120JN044"
"DATED MAY 18, 2000"
AND ANY ADDENDA THERETO.

6) POWER POLES AND/OR OTHER EXISTING FACILITIES NOT IN PROPER LOCATION BASED ON PROPOSED IMPROVEMENTS SHOWN HEREON WILL BE RELOCATED AT NO EXPENSE TO CLARK COUNTY.

CLARK COUNTY SANITATION DISTRICT 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 UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS' CONSTRUCTION OFFSITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, AS AMENDED. IN ALL CASES, THESE STANDARDS SHALL SUPERSEDE THE UNIFORM STANDARD SPECIFICATIONS. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BE AWARE OF THE CONTENTS OF THE ABOVE SPECIFICATION BOOKS.

2) THESE STANDARDS SHALL APPLY TO ALL CONSTRUCTION.

3) SEWER MAINS ONLY TO BE LAID IN SEWER TRENCHES.

4) ALL LATERALS TO BE LAID AT NOT LESS THAN MINIMUM SLOPES AS SHOWN IN THESE STANDARDS.

5) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM CONSTRUCTION AS PER PLANS. ANY ADDITIONS, DELETIONS, OR CHANGES SHALL FIRST MEET WITH THE APPROVAL OF THE CONTROLLING AGENCY.

6) SOILS TESTING SHALL BE IN ACCORDANCE WITH SECTION 3.11 OF THESE STANDARDS.

7) ALL EXFILTRATION, INFILTRATION, AIR TESTING AND TELEVISING OF LINES SHALL BE IN ACCORDANCE WITH THESE STANDARDS.

8) CUT SHEETS MUST BE SUBMITTED TO THE AGENCY BEFORE CONSTRUCTION WILL BE PERMITTED TO START.

9) ALL CONTRACTORS INSTALLING SEWER MAINS THAT WILL BE UNDER THE JURISDICTION OF THE CONTROLLING AGENCY MUST BE CLASS "A" CONTRACTORS.

LAS VEGAS VALLEY WATER DISTRICT NOTES

LVVWD Project # 21828 / 21829

1. NO WORK SHALL BEGIN UNTIL THE WATER PLANS HAVE BEEN RELEASED FOR CONSTRUCTION BY THE LVVWD. FOLLOWING WATER PLAN APPROVAL, 48 HOURS SHALL BE GIVEN TO THE LVVWD COMMUNICATION SUPPORT CENTER (258-7171) PRIOR TO THE START OF CONSTRUCTION. NOTICE MUST BE GIVEN BY 2:00 P.M. THE BUSINESS DAY PRIOR TO A LVVWD INSPECTION.

   WHEN REQUESTING INSPECTIONS, PLEASE REFER TO THE PROJECT # IDENTIFIED ABOVE.

2. ALL WORK SHALL CONFORM TO THE LVVWD'S STANDARD PLATES, DRAWINGS, AND SPECIFICATIONS AND TO THE UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR WATER DISTRIBUTION SYSTEMS (UDACS), LATEST EDITION.

3. ALL WORK, EXCEPT AS MODIFIED BY THESE PLANS OR BY NOTE 2, SHALL BE DONE IN ACCORDANCE WITH THE MOST CURRENT 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 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. THE FOLLOWING REQUIREMENTS MUST BE MET IN THE EVENT A WATER LINE AND SANITARY OR STORM SEWER LINE CROSS:

   A MINIMUM EIGHTEEN (18) INCH VERTICAL SEPARATION (OUTSIDE TO OUTSIDE) MUST BE MAINTAINED WHEN THE WATER LINE IS INSTALLED OVER THE SANITARY OR STORM SEWER LINE. IF THE VERTICAL SEPARATION CANNOT BE MAINTAINED OR THE WATERLINE MUST BE PLACED UNDER THE SANITARY OR STORM SEWER LINE, THE SANITARY OR STORM SEWER LINE MUST BE CONSTRUCTED WITH ONE OF THE FOLLOWING OR, AS SHOWN ON THESE PLANS:

   A. POTABLE WATER SUPPLY QUALITY MATERIAL,
   B. ENCASEMENT, WITH FOUR (4) INCH CONCRETE (MINIMUM)
   C. SLEEVING WITH POTABLE WATER SUPPLY QUALITY PIPE.

   EACH PROVISION MUST EXTEND ALONG THE SANITARY OR STORM SEWER, ON EITHER SIDE OF THE MAIN, A MINIMUM 10 FOOT DISTANCE PERPENDICULAR TO THE WATER MAIN EXTERIOR.

9. WARNING TAPE SHALL BE REQUIRED OVER ALL MAINS, ALL SIX (6) INCH DIAMETER AND LARGER SERVICE LATERALS, AND ANY SERVICE LATERAL NOT INSTALLED PERPENDICULAR TO THE MAIN IN ACCORDANCE WITH STANDARD PLATE NO. 27.

10. ALL WATER FACILITIES SHALL BE FILLED, DISINFECTED, PRESSURE TESTED, FLUSHED, FILLED AND AN ACCEPTABLE WATER SAMPLE OBTAINED, PRIOR TO CONNECTION TO THE LVVWD'S DISTRIBUTION SYSTEM.

11. THE CONTRACTOR MUST OBTAIN ALL METERS TWO (2) INCHES AND SMALLER FROM LVVWD CENTRAL STORES. TELEPHONE 258-3152 FORTY-EIGHT (48) HOURS PRIOR TO PICKUP.

12. CONSTRUCTION MAY INTERRUPT SERVICE, WITH LVVWD APPROVAL AND PROPER NOTIFICATION, BETWEEN THE HOURS OF 10 PM AND 6 AM, SUNDAY THROUGH THURSDAY. CIRCUMSTANCES MAY REQUIRE TEMPORARY SERVICE FEEDS BE INSTALLED, WITHOUT LVVWD REIMBURSEMENT. ANY TEMPORARY SERVICE FEED MUST HAVE PRIOR LVVWD APPROVAL.

13. ALL WATER FACILITY CONSTRUCTION MATERIALS USED MUST BE AS LISTED ON THE LVVWD'S PRE-APPROVED MATERIALS AND MANUFACTURERS LISTING FOR NEW FACILITIES, LATEST REVISION, OR SPECIFICALLY APPROVED ON THESE PLANS.

ESN.019

CLARK COUNTY FIRE DEPARTMENT NOTES:

1) ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE 1997 EDITION OF THE UNIFORM FIRE CODE, AND THE 1995 EDITION OF OF NATIONAL FIRE PROTECTION ASSOCIATION PAMPHLET #24.

2) ON ANY BUILDING CONSTRUCTION, ACCESSIBLE FIRE HYDRANTS SHALL BE INSTALLED BEFORE COMBUSTIBLE MATERIALS ARE DELIVERED TO THE SITE AND CONSTRUCTION COMMENCES. SAID FIRE HYDRANTS SHALL BE IN GOOD WORKING ORDER WITH THE REQUIRED WATER SUPPLY.

3) IF DURING CONSTRUCTION IT BECOMES NECESSARY TO CLOSE ANY CONTROL VALVE OR PLACE A HYDRANT OUT OF SERVICE, THE CLARK COUNTY FIRE DEPARTMENT MUST BE CONTACTED.

4) PAINTING OF CURBS AND/OR STRIPING OF ASPHALT AREAS AND PROTECTION OF HYDRANTS FROM PHYSICAL INJURY PER FIRE HYDRANT INSTALLATION SPECIFICATIONS OF THE FIRE PREVENTION BUREAU.

5) NO FIRE HYDRANT SHALL BE LOCATED WITHIN 25 FEET OF ANY STRUCTURE, OR 5 FEET OF A DRIVEWAY, POWER POLE, LIGHT STANDARD, OR ANY OTHER OBSTRUCTION. FOR WALL, FENCE AND PLANTER LOCATIONS, A PERIMETER AROUND THE HYDRANT MEASURING A MINIMUM OF 3 FEET FROM ITS EXTERIOR SHALL BE MAINTAINED CLEAR OF ALL OBSTRUCTION AT ALL TIMES.

6) AT ALL TIMES DURING CONSTRUCTION SUITABLE EMERGENCY VEHICLE ACCESS ROAD MUST BE MAINTAINED. ROADWAYS MUST BE SMOOTH, COMPACTED AND CAPABLE OF SUPPORTING THE IMPOSED LOADS OF ALL EMERGENCY VEHICLES.

7) PRIOR TO ACCEPTANCE OF ANY FIRE SERVICE MAIN, A SATISFACTORY HYDROSTATIC TEST WITH PIPING JOINTS UNCOVERED MUST BE CONDUCTED. APPROVED PLANS AND A CONTRACTOR'S MATERIALS AND TEST CERTIFICATE MUST BE PROVIDED AT TIME OF INSPECTION.

8) BLUE REFLECTIVE MARKERS MUST BE INSTALLED BEFORE FINAL HYDRANT ACCEPTANCE CAN BE ATTAINED [97 UFC Sec. 901.4.3].

CLARK COUNTY FIRE DEPARTMENT — DATE

APPROVAL OF THESE PLANS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR, OR AN APPROVAL OF, ANY VIOLATION OF ANY OF THE PROVISIONS OF THE STATE OR COUNTY LAWS, FIRE FLOW 4000 GPM AT 20 P.S.I. RESIDUAL.

WATER QUANTITIES (PUBLIC):

2" RPPA PER UDACS 11-A	2 EA
10" DCDA PER UDACS PLATE 20B	2 EA
10" PVC WATER MAIN	113 LF
2" COPPER WL (2" WATER SERVICE PER UDACS PLATE 1-D)	80 LF

AMERICAN DISABILITY ACT:

THIS PROJECT SHALL COMPLY WITH TITLE II OF THE AMERICAN DISABILITY ACT CHAPTER 4, SECT 403, PARA 403.3 OF TITLE II

1. THE RUNNING SLOPE OF WALKING SURFACES SHALL NOT BE STEEPER THAN 1:20 (5%)
2. THE CROSS SLOPE OF WALKING SURFACES SHALL NOT BE STEEPER THAN 1:48 (2%)
3. ALL AREAS, ELEMENTS AND FACILITIES INTENDED FOR PEDESTRIAN ACCESS, CIRCULATION, AND USE THAT ARE CONSTRUCTED, INSTALLED, OR ALTERED IN THE PUBLIC RIGHT-OF-WAY AND WHICH ARE SUBJECT TO TITLE II OF THE ADA SHALL COMPLY WITH SECTION 14 AND WITH PROVISIONS OF 4.1 THROUGH 4.35 THAT ARE NOT OTHERWISE SPECIFIED IN THIS SECTION.

STANDARD SPECIFICATIONS/STANDARD DETAILS:

THE FOLLOWING LISTED DOCUMENTS CONTAIN THE STANDARD SPECIFICATIONS AND STANDARD DETAILS TO BE USED IN THE CONSTRUCTION OF THIS PROJECT. THE CONTRACTOR SHALL MAINTAIN A SET OF THE LISTED DOCUMENTS AT THE PROJECT SITE AT ALL TIMES.

1. SPECIFICATIONS (STANDARD SPECIFICATIONS)
   "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA" (LATEST EDITION).
2. STANDARD DRAWINGS (STD. DWGS.)
   "IMPROVEMENT STANDARDS", DEPARTMENT OF PUBLIC WORKS, CLARK COUNTY, NEVADA (LATEST EDITION).
3. WATER SYSTEM STANDARDS (U.D.A.C.S.)
   "UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR WATER DISTRIBUTION SYSTEMS" (LATEST EDITION).
4. SEWER SYSTEM STANDARDS (D.C.S.)
   "DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS" (LATEST EDITION).
5. SUPPLEMENT TO UNIFORM STANDARD SPECIFICATIONS AND DRAWINGS BY CLARK COUNTY.

PUBLIC WORKS UTILITY NOTES:

1. INSPECTIONS ARE REQUIRED. CALL 24 HOURS IN ADVANCE, 455-4610.
2. PROPER SIGNS, BARRIERS, BARRICADES AND LIGHTS SHALL BE PLACED AND MAINTAINED IN ACCORDANCE WITH THE LATEST "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS".
3. THIS PLAN DOES NOT AUTHORIZE CLOSURE OF ANY ROAD OR STREET.
4. TRAFFIC, SCHOOL, OR STREET SIGNS OF ANY KIND ARE NOT TO BE MOVED FOR ANY REASON WITHOUT FIRST OBTAINING PERMISSION FROM THE DEPARTMENT OF PUBLIC WORKS, TRAFFIC MANAGEMENT DIVISION.
5. ALL WORK AUTHORIZED BY THIS PLAN SHALL CONFORM TO THE "UNIFORM STANDARD SPECIFICATIONS AND STANDARD DRAWINGS, CLARK COUNTY AREA, NEVADA" AND "CLARK COUNTY SUPPLEMENT TO UNIFORM STANDARD DRAWINGS AND SPECIFICATIONS", LATEST REVISION.
6. NO OPEN TRENCH SHALL BE ALLOWED ACROSS ANY STREET OR WITHIN TEN FEET (10') OF ANY TRAVEL-WAY, EXCEPT WHEN WORK IS IN ACTUAL PROGRESS. AREAS COVERED BY ACCEPTABLE STEEL PLATES ARE NOT TO BE CONSTRUED AS A TRENCH. NO OPEN TRENCH PERMITTED IN EXCESS OF 500 FEET OR LENGTH NECESSARY TO ACCOMMODATE PIPE INSTALLATION IN A SINGLE DAY, WHICHEVER IS GREATER.
7. A TEMPORARY PATCH IS TO BE IN PLACE AT THE END OF EACH WORK DAY WHERE THE BACKFILL IN THE TRENCH HAS BEEN COMPLETED AND PRIOR TO OPENING THE WORK AREA BACK TO TRAFFIC AND IS TO BE MAINTAINED BY THE PERMITTEE. A PERMANENT PATCH IS TO BE IN PLACE WITHIN THIRTY (30) DAYS AFTER THE INSTALLATION OF THE TEMPORARY PATCH.
8. COMPACTION TESTS ARE REQUIRED.
9. YOUR PERMIT, APPROVED PLANS, AND BARRICADE PLANS FOR THIS WORK MUST BE ON THE JOB SITE AT ALL TIMES.
10. ALL TRENCH CROSSINGS AND BACKFILL SHALL MEET THE STANDARD SPECIFICATION UNLESS OTHERWISE STATED.

CLARK COUNTY TRAFFIC + ELECTRICAL NOTES:

1. 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.
2. 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 GROUND MOUNTED STOP SIGNS AT ALL NEW STREET ENCROACHMENTS INTO EXISTING COUNTY STREETS IMMEDIATELY AFTER FIRST GRADING WORK IS ACCOMPLISHED, AND SHALL MAINTAIN SAID SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED.
3. ALL CONSTRUCTION SIGNING, BARRICADING AND PAVEMENT MARKINGS SHALL CONFORM TO THE NEVADA WORK ZONE TRAFFIC CONTROL HANDBOOK - 1986 AND TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION.
4. IF THE IMPROVEMENTS NECESSITATE THE OBLITERATION, TEMPORARY OBSTRUCTION, TEMPORARY REMOVAL, OR RELOCATION OF ANY EXISTING TRAFFIC PAVEMENT MARKING, SUCH PAVEMENT MARKING SHALL BE RESTORED OR REPLACED WITH LIKE MATERIALS TO THE SATISFACTION OF THE COUNTY TRAFFIC MANAGER.
5. THE DEVELOPER SHALL BE RESPONSIBLE TO PROVIDE AND INSTALL ALL PERMANENT SIGNS SHOWN ON THE PLANS. STREET NAME SIGNS SHALL CONFORM IN THEIR ENTIRETY TO CLARK COUNTY AREA STANDARDS. ALL OTHER SIGNS SHALL BE STANDARD SIZE UNLESS OTHERWISE SPECIFIED ON THE PLANS. ALL SIGN POSTS SHALL BE INSTALLED IN ACCORDANCE WITH CLARK COUNTY AREA STANDARDS. ALL SIGNS SHALL USE TYPE III SHEETING.
6. IF A PROPOSED STREET LIGHT STANDARD IS FIELD LOCATED TO WITHIN FIVE (5) FEET OF ANY SIGN SHOWN HEREON TO BE MOUNTED ON A SIGN POST, THEN CHANGE SIGN MOUNTING TO ONE ON THE STREETLIGHT STANDARD.
7. PRIOR TO CONSTRUCTION, THE STREET SIGN CONTRACTOR SHALL OBTAIN STREET NAMES AND BLOCK NUMBERING FROM THE CURRENT PLANNING DIVISION OF THE DEPARTMENT OF COMPREHENSIVE PLANNING.
8. ALL TRAFFIC SIGNAL POLE ASSEMBLIES, STEEL PEDESTALS FOR CABINETS, AND STREET LIGHT POLES SHALL BE GALVANIZED PER ASTM A.123.
9. ALL STREET LIGHTING INSTALLATIONS EXCEPT AS NOTED ON THE STREET LIGHTING PLANS SHALL CONFORM TO THE UNIFORM STANDARD DRAWINGS AND THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA LATEST EDITION OF EACH.
10. THE FOLLOWING CLARK COUNTY UNDERGROUND FACILITIES MAY BE LOCATED IN YOUR PROJECT AREA: STREET LIGHTING, TRAFFIC SIGNALS, LAS VEGAS AREA COMPUTER TRAFFIC SYSTEM (LVACTS) INTERCONNECT CABLE. YOU MUST CONTACT CLARK COUNTY TRAFFIC MANAGEMENT DIVISION, OPERATIONS UNIT AT 455-7511 FOR LOCATIONS AT LEAST 48 HOURS PRIOR TO WORKING IN THE AREA. CLARK COUNTY IS NOT A MEMBER OF CALL BEFORE YOU DIG (UNDERGROUND SERVICE ALERT), AND A CALL TO THAT ORGANIZATION DOES NOT RELIEVE YOU OF LIABILITY FOR CLARK COUNTY FACILITIES.
11. LVACTS INTERCONNECT CABLE POLICY IS IN EFFECT. INTERCONNECT CABLE MUST BE MAINTAINED AT ALL TIMES. DEVELOPER/CONTRACTOR SHALL PROVIDE TEMPORARY OVERHEAD INTERCONNECT CABLE, WHILE PERMANENT CABLE IS BEING RELOCATED. TEMPORARY AERIAL INSTALLATION MUST BE ACCEPTABLE TO THE COUNTY TRAFFIC MANAGER AND TO LVACTS. ANY DAMAGE TO THIS CABLE IS DEEMED AN EMERGENCY BY LVACTS, CITY OF LAS VEGAS, CLARK COUNTY AND NDOT AND MUST BE REPAIRED IMMEDIATELY TO LVACTS ACCEPTANCE. $2000 PER DAY DAMAGES MAY BE ASSESSED AFTER 24 HOURS HAS ELAPSED FROM TIME OF BREAK OR DAMAGE.
12. ALL NEW OR REPLACEMENT TRAFFIC SIGNAL LOOPS SHALL BE INSTALLED USING CABLE-IN-DUCT WIRING, SHALL HAVE INDEPENDENT LEAD-IN WIRES FOR EACH LOOP FROM THE CONTROLLER TO THE PULL-BOX, AND EACH LEAD-IN SHALL BE INDIVIDUALLY TAGGED.
13. TRAFFIC SIGNAL PEDESTRIAN HEADS SHALL BE THE INCANDESCENT TYPE.
14. ELECTRICAL POWER SERVICE POINT LOCATION(S) FOR STREET LIGHTING AND TRAFFIC SIGNALS MUST BE INDICATED ON THE PLANS. IF CONNECTING TO AN EXISTING CIRCUIT, INDICATE LOCATION OF EXISTING SERVICE POINT FOR EACH CIRCUIT.
15. WHEN STREET LIGHTS ARE TO BE CONNECTED TO AN EXISTING CIRCUIT, THE ENGINEER MUST CERTIFY THAT THE EXISTING CIRCUIT IS CAPABLE OF HANDLING THE ADDITIONAL CIRCUIT LOAD.
16. CLARK COUNTY RESERVES THE RIGHT TO REJECT STREET LIGHT AND TRAFFIC SIGNAL POLES AND ASSEMBLIES WHICH HAVE A "STRIPED" APPEARANCE.
17. PRIOR TO BEGINNING OF CONSTRUCTION, MODIFICATION, OR RELOCATION OF ANY TRAFFIC SIGNAL SYSTEM, WRITTEN NOTICE SHALL BE SUBMITTED TO THE CLARK COUNTY TRAFFIC MANAGEMENT DIVISION OF THE DATE THAT WORK WILL BEGIN.
18. THREE (3) NORMAL WORKING DAYS PRIOR TO TURN OR COMPLETION OF MODIFICATION(S) TO A TRAFFIC SIGNAL SYSTEM, WRITTEN NOTICE SHALL BE SUBMITTED TO THE CLARK COUNTY TRAFFIC MANAGEMENT DIVISION THAT WORK IS BEING COMPLETED AND THE PROPOSED DATE OF COMPLETION.

APPROVED

LAS VEGAS VALLEY WATER DISTRICT — 5/11/01 DATE

SUMMIT ENGINEERING CORPORATION
1421 E. SUNSET ROAD, SUITE 17 LAS VEGAS, NEVADA 89119
PHONE: (702) 252-3236 FAX: (702) 252-3247

DESIGNED: JNW | CHECKED: AGH | SCALE: HOR. N/A VER. N/A | FILE No. 72125 | 02/02/01

THE HOME DEPOT
NOTES SHEET
HOME DEPOT USA - TROPICANA/DECATUR
CLARK COUNTY NEVADA

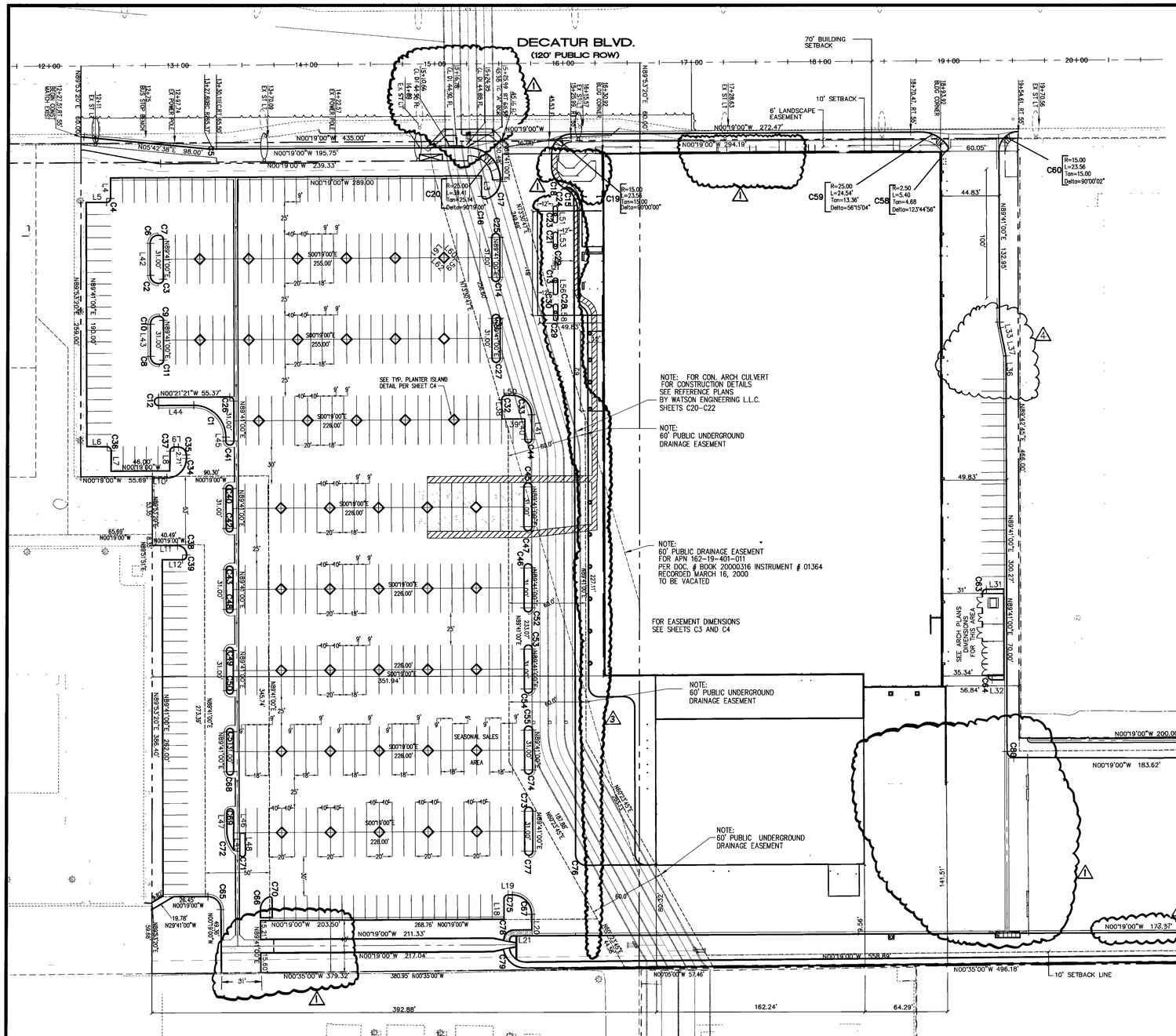
REV	DATE	DESCRIPTION	BY	APPD
1	6/21/01	ADD ADA NOTE	ASH	

P:\DWGS\72125\21828COV.dwg

SEAL OF PROFESSIONAL ENGINEER — STATE OF NEVADA — No. 12910 — ANDREW J. HUSTAD — CIVIL — 5/11/01

SHEET C2 OF 19

00-39104



GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1"=40'

PARKING CALCULATION SUMMARY

BUILDING AREA	
GARDEN CENTER AREA	107,388 SQUARE FEET
NET AREA	23,814 SQUARE FEET
LANDSCAPED AREA	131,202 SQUARE FEET
PARKING REQUIRED BY COUNTY –	41,750 SQUARE FEET

ALL PARKING STALLS ARE 9' X 19' W/ 25' AISLE

SHOPPING CENTER (OVER 100,000 SF) – 3.3/ 1,000 SF

131,202 SF * 3.3/1,000 SF = 433 STALLS

TOTAL STALLS REQUIRED: 433 SPACES

HD PARKING PROVIDED:

CUSTOMER	516 SPACES
OVER FLOW	70 SPACES
TOTAL HD PROVIDED	586 SPACES

HD FRONT FIELD PARKING 516 SPACES

HANDICAPPED STALLS REQUIRED: 9

HOME DEPOT PROVIDED: 12

TOTAL PROVIDED: 12

ZONE EXISTING: PORTION C-2, PORTION UNZONED

ZONE REQUIRED: C-2 GENERAL COMMERCIAL

GENERAL CONTRACTOR'S NOTES:

SITE CONTRACTORS SCOPE OF WORK SHALL INCLUDE ALL CONCRETE HARDSCAPE,FLATWORK,SLABS, ON EXTERIOR OF BUILDING AND GARDEN CENTER. THIS SHALL INCLUDE LUMBER OFF LOAD, DRIVE THRU CANOPY WALKWAY,TRUCK LOADING DOCK AND RAMP, UTILITY/PALLET STORAGE AREA SLAB,TRASH ENCLOSURE SLAB, CONCRETE PADS AT EXTERIOR GARDEN CENTER GATES, ENTRANCE VESTIBULE SLAB, TOOL RENTAL YARD SLAB.

AMERICAN DISABILITY ACT NOTE:

PER CHAPTER 4, SECT 403, PARAGRAPH 403.3 OF TITLE II
THE RUNNING SLOPE OF WALKING SURFACES SHALL NOT BE STEEPER THAN 1:20 (5%)
THE CROSS SLOPE OF WALKING SURFACES SHALL NOT BE STEEPER THAN 1:48 (2%)

UTILITY NOTE

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

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

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY. CALL BEFORE YOU DIG OVERHEAD. CALL 1-702-593-8111

BASIS OF BEARING:

NORTH 00°19'10" WEST
BEING THE WEST LINE OF SECTION 19, TOWNSHIP 21 SOUTH, RANGE 61 EAST, M.D.M.,

PROJECT BENCHMARK:

2C1119SWS
RIVET AND SQUARE PLATE IN TOP OF CURB, NORTHEAST CORNER OF TROPICANA AVE AND DECATUR BLVD. NEAR THE PC OF TROPICANA AVENUE
ELEV **685.044** METERS., **2247.515** FT
NAVD 88.

LEGAL DESCRIPTION:

A PORTION OF GOVERNMENT LOT 4 OF SECTION 19, TOWNSHIP 21 SOUTH, RANGE 61 EAST, M.D.M.

GENERAL NOTES:

1) ALL GRADING AND STRUCTURAL SECTIONS MUST CONFORM TO THE SOILS REPORT PREPARED BY WESTERN TECHNOLOGIES, INC **"GEOTECHNICAL EVALUATION PROPOSED HOME DEPOT RETAIL DEVELOPMENT" (GFA NO. 990150)** DATED MAY 18, 2000 (PROJECT NO. 4120JN044)
2) ADD 2200 FEET TO ALL ELEVATION TAGS TO ACHIEVE TRUE DATUM ELEVATION.

BOX CULVERT CENTERLINE CURVE TABLE

NO.	LENGTH	RADIUS	DELTA	TANGENT
C1	14.11'	50.00'	16°10'13"	7.10'
C2	10.56'	37.42'	16°10'13"	5.32'
C3	17.66'	62.58'	16°10'13"	8.89'
C4	25.09'	50.00'	28°44'52"	12.81'
C5	31.40'	62.58'	28°44'52"	16.04'
C6	18.78'	37.42'	28°44'52"	9.59'

SUMMIT ENGINEERING CORPORATION
1421 E. SUNSET ROAD, SUITE 7, LAS VEGAS, NEVADA 89119
PHONE: (702) 262-3226 FAX: (702) 262-3247

DESIGNED: JNW
CHECKED: AH
SCALE HOR. 1"=40' VER. N/A
FILE No. 72125 03/28/01

THE HOME DEPOT
HORIZONTAL CONTROL PLAN SHEET 1
HOME DEPOT USA - TROPICANA/DECATUR
CLARK COUNTY NEVADA

REV.	DATE	DESCRIPTION	BY	APPD
1	6/8/01	PER ADA NOTE, BLDG DOOR, MOD	AJH	
2		TYPE "C" INLET TURN AROUND		
3		REVISED CURB LINE LENGTH/DISTANCE		
4		REVISE PADS TO DELETE 18" SO		
5	8/29/01	REV TRASH ENCLOSURE	AJH	

P:\DWGS\72125\12504D1.dwg Wed Mar 28 08:21:42 2001 JNW

ANDREW J. HUSTAD No. 12503 CIVIL STATE OF NEVADA PROFESSIONAL ENGINEER

SHEET C3 OF 19

00-39104

PARKING CALCULATION SUMMARY

BUILDING AREA	107,388 SQUARE FEET
GARDEN CENTER AREA	23,814 SQUARE FEET
NET AREA	131,202 SQUARE FEET
LANDSCAPED AREA	41,750 SQUARE FEET

PARKING REQUIRED BY COUNTY –

ALL PARKING STALLS ARE 9' X 19' W/ 25' AISLE

SHOPPING CENTER (OVER 100,000 SF) – 3.3/ 1,000 SF

131,202 SF * 3.3/1,000 SF = 433 STALLS

TOTAL STALLS REQUIRED: 433 SPACES

HD PARKING PROVIDED:

CUSTOMER	516 SPACES
OVER FLOW	70 SPACES
TOTAL HD PROVIDED	586 SPACES

HD FRONT FIELD PARKING 516 SPACES

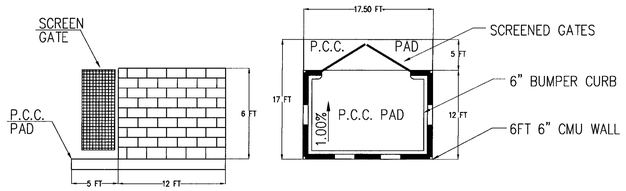
HANDICAPPED STALLS REQUIRED: 9

HOME DEPOT PROVIDED: 12

TOTAL PROVIDED: 12

ZONE EXISTING: PORTION C-2, PORTION UNZONED

ZONE REQUIRED: C-2 GENERAL COMMERCIAL



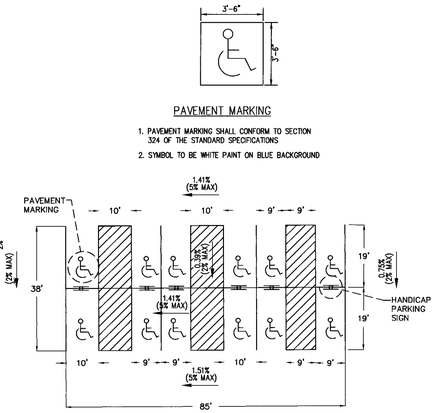
TYPICAL TRASH ENCLOSURE DETAIL
NTS

CURB LINE DATA TABLE

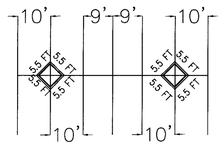
LINE	LENGTH	BEARING
L1	4.47	N34°39'23"E
L2	13.52	N89°41'00"E
L3	16.09	N89°41'00"E
L4	16.00	N89°41'00"E
L5	16.00	N00°19'00"W
L6	16.00	N00°19'00"E
L7	16.01	N89°41'00"W
L8	15.54	N89°41'00"W
L9	3.41	N00°19'00"W
L10	11.14	N00°19'00"E
L11	19.55	N00°19'00"E
L12	15.96	N00°19'00"W
L13	16.00	N00°19'00"W
L14	N/A	–
L15	N/A	–
L16	N/A	–
L17	N/A	–
L18	16.00	N89°41'00"E
L19	6.00	N00°19'00"W
L20	21.20	N89°41'00"E
L21	11.50	N00°19'00"W
L22	N/A	–
L23	N/A	–
L24	N/A	–
L25	N/A	–
L26	N/A	–
L27	N/A	–
L28	N/A	–
L29	N/A	–
L30	N/A	–
L31	13.50	N00°19'00"W
L32	9.15	N00°18'48"W
L33	22.57	N77°57'54"E
~~L34~~	~~14.11~~	~~N65°27'22"W~~
~~L35~~	~~13.50~~	~~N00°19'00"W~~
L36	17.60	N89°41'00"E
L37	11.11	N77°57'54"E
L38	15.00	N89°41'00"E
L39	18.00	N00°19'00"W
L40	16.00	N89°41'00"E
L41	19.00	N89°41'00"E
L42	25.00	N89°41'00"E
L43	25.00	N89°41'00"E
L44	27.37	N00°21'21"W
L45	3.00	N89°41'00"E
L46	28.88	N89°41'00"E
L47	14.22	N89°41'00"E
L48	15.94	N89°41'00"E
L49	15.94	N89°41'00"E
L50	5.00	N00°19'00"W
L51	9.67	N89°41'00"E
L52	9.67	N89°41'00"E
L53	9.67	N89°41'00"E
L54	9.67	N89°41'00"E
L55	9.67	N89°41'00"E
L56	9.67	N89°41'00"E
L57	9.67	N89°41'00"E
L58	9.67	N89°41'00"E
L59	2.83	N45°19'00"W
L60	2.83	N44°41'00"E
L61	2.83	N45°19'00"W
L62	2.83	N44°41'00"E

CURVE TABLE

NO.	LENGTH	RADIUS	DELTA	TANGENT
C1	39.27'	25.00'	90°00'00"	25.00'
C2	9.42'	6.00'	90°00'00"	6.00'
C3	4.71'	3.00'	90°00'00"	3.00'
C4	4.71'	3.00'	90°00'00"	3.00'
C5	2.51'	25.00'	05°45'46"	1.26'
C6	9.42'	6.00'	90°00'00"	6.00'
C7	4.71'	3.00'	90°00'00"	3.00'
C8	9.42'	6.00'	90°00'00"	6.00'
C9	4.71'	3.00'	90°00'00"	3.00'
C10	9.42'	6.00'	90°00'00"	6.00'
C11	4.71'	3.00'	90°00'00"	3.00'
C12	9.42'	3.00'	180°00'00"	N/A
C13	5.24'	1.67'	180°00'00"	N/A
C14	9.42'	3.00'	180°00'00"	N/A
C15	9.90'	18.40'	30°50'17"	5.07'
C16	5.63'	3.00'	107°32'24"	4.09'
C17	18.62'	15.00'	71°07'39"	10.72'
C18	18.57'	18.22'	58°25'03"	10.18'
C19	23.56'	15.00'	90°00'00"	15.00'
C20	39.85'	25.00'	91°19'57"	25.59'
C21	5.24'	1.67'	180°00'00"	N/A
C22	5.24'	1.67'	180°00'00"	N/A
C23	5.24'	1.67'	180°00'00"	N/A
C24	5.24'	1.67'	180°00'00"	N/A
C25	9.42'	3.00'	180°00'00"	N/A
C26	4.71'	3.00'	89°59'49"	3.00'
C27	9.42'	3.00'	180°00'00"	N/A
C28	5.24'	1.67'	180°00'00"	N/A
C29	5.24'	1.67'	180°00'00"	N/A
C30	5.24'	1.67'	180°00'00"	N/A
C31	9.42'	3.00'	180°00'00"	N/A
C32	4.71'	3.00'	90°00'00"	3.00'
C33	23.56'	15.00'	90°00'00"	15.00'
C34	23.73'	15.00'	90°38'39"	15.17'
C35	9.42'	6.00'	90°00'00"	6.00'
C36	4.71'	3.00'	90°00'00"	3.00'
C37	4.68'	3.00'	89°22'00"	2.97'
C38	11.10'	7.00'	90°51'04"	7.10'
C39	4.63'	3.00'	88°30'56"	2.92'
C40	7.85'	2.50'	180°00'00"	N/A
C41	9.42'	3.00'	180°00'00"	N/A
C42	7.85'	2.50'	180°00'00"	N/A
C43	7.85'	2.50'	180°00'00"	N/A
C44	7.85'	2.50'	180°00'00"	N/A
C45	9.42'	3.00'	180°00'00"	N/A
C46	9.42'	3.00'	180°00'00"	N/A
C47	9.42'	3.00'	180°00'00"	N/A
C48	7.85'	2.50'	180°00'00"	N/A
C49	7.85'	2.50'	180°00'00"	N/A
C50	7.85'	2.50'	180°00'00"	N/A
C51	7.85'	2.50'	180°00'00"	N/A
C52	9.42'	3.00'	180°00'00"	N/A
C53	9.42'	3.00'	180°00'00"	N/A
C54	9.42'	3.00'	180°00'00"	N/A
C55	9.42'	3.00'	180°00'00"	N/A
~~C56~~	~~4.71'~~	~~3.00'~~	~~90°00'00"~~	~~3.00'~~
~~C57~~	~~6.51'~~	~~15.00'~~	~~24°51'38"~~	~~3.31'~~
C58	5.40'	2.50'	123°44'56"	4.68'
C59	24.54'	25.00'	56°15'04"	13.36'
C60	23.56'	15.00'	90°00'02"	15.00'
C61	4.09'	20.00'	11°43'06"	2.05'
~~C62~~	~~5.01'~~	~~2.00'~~	~~143°56'46"~~	~~9.05'~~
C63	4.71'	3.00'	90°00'00"	3.00'
C64	4.71'	3.00'	90°00'00"	3.00'
C65	15.63'	10.00'	89°31'58"	9.92'
C66	12.46'	10.00'	71°22'59"	7.18'
C67	23.56'	15.00'	90°00'00"	15.00'
C68	7.85'	2.50'	180°00'00"	N/A
C69	7.85'	2.50'	180°00'00"	N/A
C70	2.96'	1.50'	112°51'19"	2.26'
C71	6.28'	2.00'	180°00'00"	N/A
C72	15.77'	24.00'	37°39'30"	8.18'
C73	9.42'	3.00'	180°00'00"	N/A
C74	9.42'	3.00'	180°00'00"	N/A
C75	4.71'	3.00'	90°00'00"	3.00'
C76	12.57'	8.00'	90°00'00"	8.00'
C77	9.42'	3.00'	180°00'00"	N/A
C78	10.92'	8.00'	78°13'53"	6.51'
C79	3.41'	2.50'	78°13'53"	2.03'
C80	7.81'	5.00'	89°30'07"	4.96'



HANDICAPPED PARKING / SIGN DETAIL
NTS



NOTE ALL DIMENSIONS ARE BC–BC = 5.5'

TYPICAL PLANTER ISLAND DETAIL
NTS

UTILITY NOTE

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

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

AVOID HITTING OVERHEAD POWER LINES. IT'S DEADLY. CALL 1-702-593-8111 BEFORE YOU DIG OVERHEAD

CALL 1-702-593-8111

AMERICAN DISABILITY ACT NOTE:

PER CHAPTER 4, SECT 403, PARAGRAPH 403.3 TITLE II
THE RUNNING SLOPE OF WALKING SURFACES SHALL NOT BE STEEPER THAN 1:20 (5%)
THE CROSS SLOPE OF WALKING SURFACES SHALL NOT BE STEEPER THAN 1:48 (2%)

BASIS OF BEARING:

NORTH 00°19'10" WEST
BEING THE WEST LINE OF SECTION 19, TOWNSHIP 21 SOUTH, RANGE 61 EAST, M.D.M.,

PROJECT BENCHMARK:

2C1119SWS
RIVET AND SQUARE PLATE IN TOP OF CURB, NORTHEAST CORNER OF TROPICANA AVE AND DECATUR BLVD. NEAR THE PC OF TROPICANA AVENUE
ELEV **685.044** METERS., **2247.515** FT
NAVD 88.

LEGAL DESCRIPTION:

A PORTION OF GOVERNMENT LOT 4 OF SECTION 19, TOWNSHIP 21 SOUTH, RANGE 61 EAST, M.D.M.

GENERAL NOTES:

1) ALL GRADING AND STRUCTURAL SECTIONS MUST CONFORM TO THE SOILS REPORT PREPARED BY WESTERN TECHNOLOGIES, INC. **"GEOTECHNICAL EVALUATION PROPOSED HOME DEPOT RETAIL DEVELOPMENT" (GFA NO. 990150)** DATED MAY 18, 2000 (PROJECT NO. 4120JN044)
2) ADD 2200 FEET TO ALL ELEVATION TAGS TO ACHIEVE TRUE DATUM ELEVATION.

SUMMIT ENGINEERING CORPORATION
1421 E. SUNSET ROAD, SUITE 7 / LAS VEGAS, NEVADA 89119
PHONE (702) 252-0288 / FAX (702) 252-0247

DESIGNED: JNW
CHECKED: AH
SCALE HOR. 1"=40' VER. N/A
FILE No. 72265 03/28/01

REV	DATE	DESCRIPTION REF. ADR. NOTE	BY APPD
1	6/27/01		AJH
2	8/29/01	REV CURB & LANE TABLES	AJH

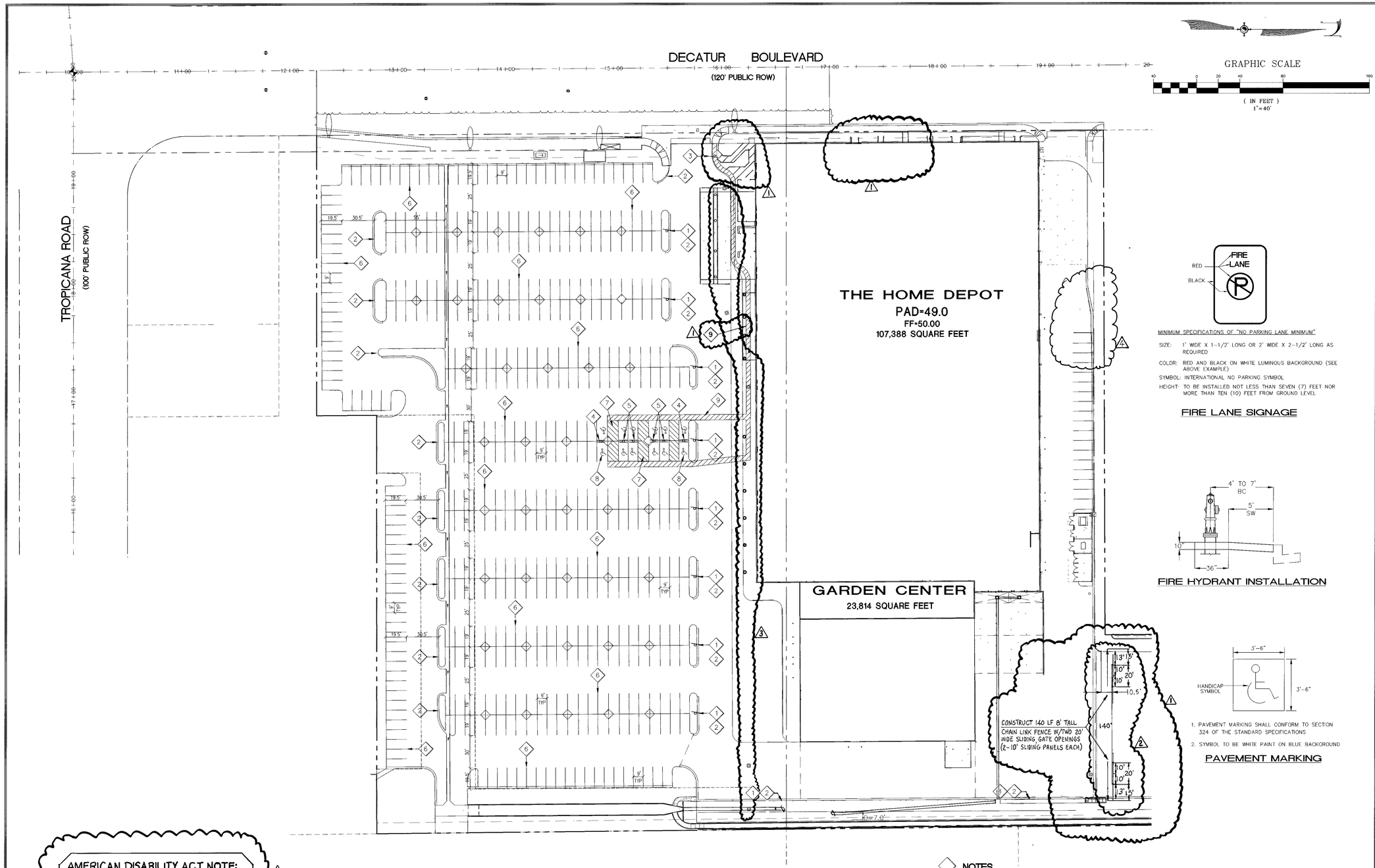
THE HOME DEPOT
HORIZONTAL CONTROL PLAN SHEET 2
HOME DEPOT USA - TROPICANA/DECATUR
CLARK COUNTY NEVADA

SEAL: PROFESSIONAL ENGINEER — ANDREW J. HUSTAD — CIVIL — No. 12393 — STATE OF NEVADA — 3/28/01

SHEET C4 of 19

P:\DWGS\72125\12125HOR1.dwg Wed Mar 28 08:25:14 2001 JNW

00-39104



SUMMIT ENGINEERING CORPORATION
1421 E. SUNSET ROAD, SUITE 7 LAS VEGAS, NEVADA 89119
PHONE (702) 252-3236 FAX (702) 252-3247

DESIGNED: JNW
CHECKED: AH
SCALE HOR. 1"=40'
VER. N/A
FILE No. 72125
03/16/01

THE HOME DEPOT
ONSITE SIGNAGE PLAN
HOME DEPOT USA - TROPICANA/DECATUR
NEVADA
CLARK COUNTY

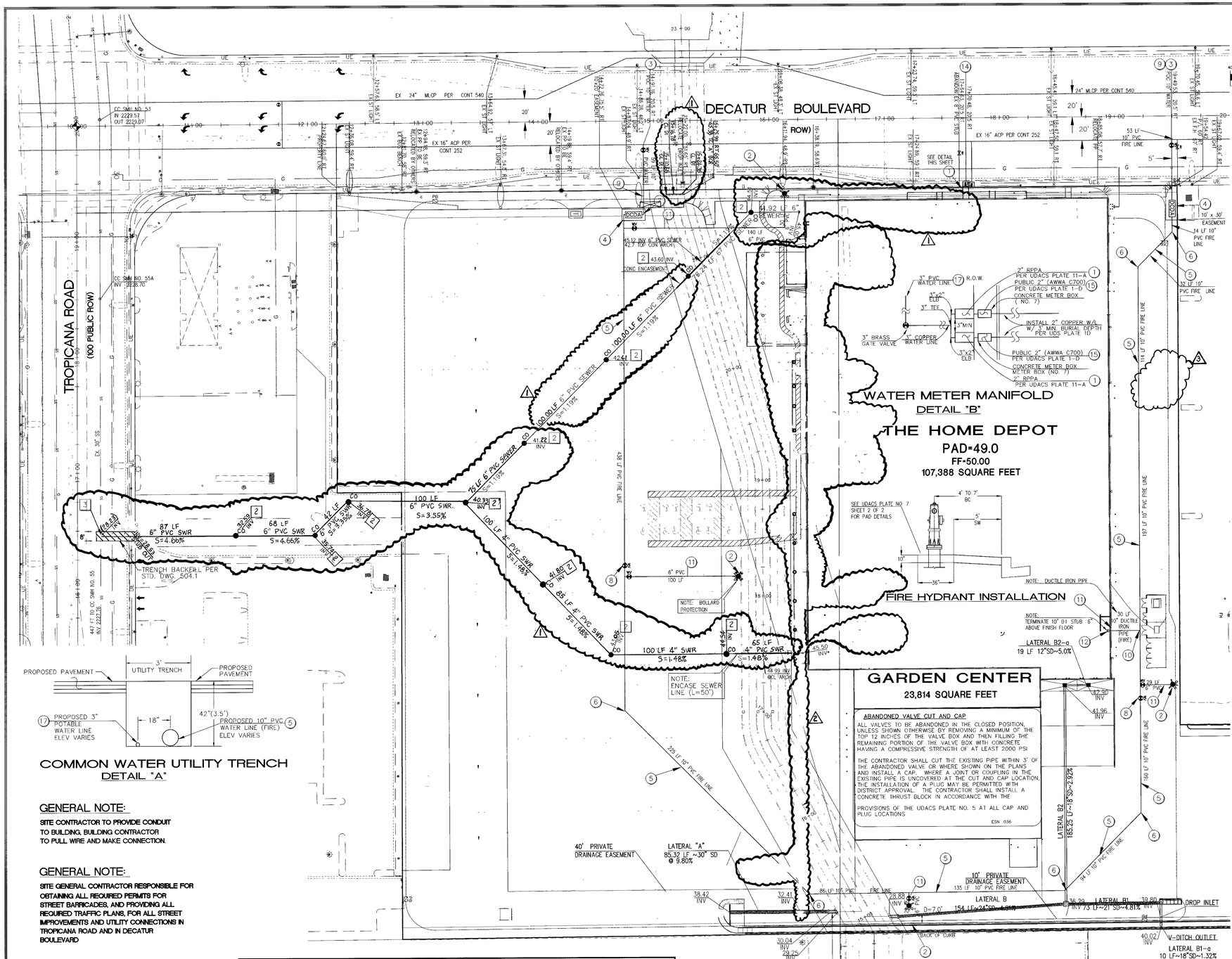
REV	DATE	DESCRIPTION	BY	APP'D
1	21 JUN 01	ADA NOTE, TRUCK TURN AROUND & DOCK ACCESS STRIPING	AJH	
2	8/29/01	RAISED CHAIN LINK FENCE AND NOTE. REVISED PER PLANCHECK #3	AJH	

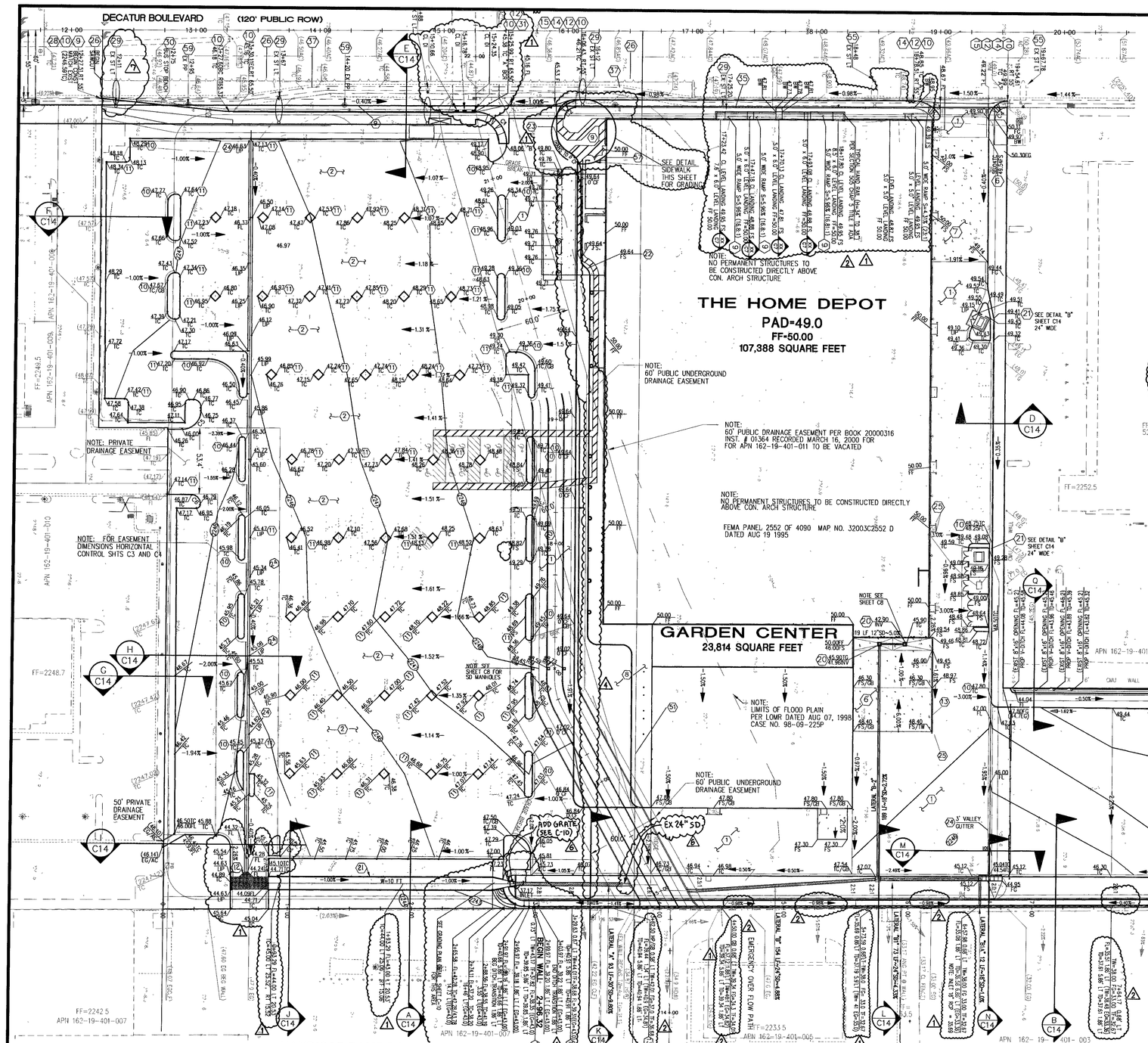
P:\DWG\72125\12525SIGN.dwg

ANDREW J. HUSTAD
CIVIL
No. 12503
STATE OF NEVADA
PROFESSIONAL ENGINEER
SEAL
5/25/01

SHEET C5 OF 19

00-39104


DECATUR BOULEVARD (100' ROW)
TROPICANA ROAD (100' PUBLIC ROW)
CC SMH NO. 53
IN 2229.53
OUT 2229.07
CC SMH NO. 55A
INV 2228.70
CC SMH NO. 55
INV 2227.70
EX 24" MLCP PER CONT 540
EX 16" ACP PER CONT 252
24" MLCP PER CONT 540
EX 30" SS
EX 8" SS
EX 12" W
EX 8" W
EX 6" W
EX 4" W
EX 10" W
EX 16" W
EX 20" W
EX 24" W
EX 8" SD
EX 12" SD
EX 18" SD
EX 24" SD
EX 30" SD
EX 36" SD
EX 42" SD
EX 48" SD
EX 54" SD
EX 60" SD
EX 72" SD
EX 84" SD
EX 96" SD
EX 108" SD
EX 120" SD
EX 132" SD
EX 144" SD
EX 156" SD
EX 168" SD
EX 180" SD
EX 192" SD
EX 204" SD
EX



CLARK COUNTY
DEPARTMENT OF PUBLIC WORKS

Acceptance of plans for filing

BY _____ 7/2/01

Acceptance of these plans for filing shall not be construed to be a permit for or an approval of any violation of any of the provisions of the state or county laws and / or specifications. Clark County shall be held free from damages which may result from the construction of the improvements from the engineering design depicted herein.

NOTE: Power poles and / or other existing facilities not in proper location based on proposed improvements shown hereon will be re-located at no expense to Clark County.

5/16 PDT 7/6/01

B PDT 10/31/01

CLARK COUNTY
DEPARTMENT OF PUBLIC WORKS

TECHNICAL DRAINAGE STUDY FOR UPDATE TO HOME DEPOT AT TROPICANA/DECATUR HAS BEEN APPROVED BY CLARK COUNTY PUBLIC WORKS THIS DATE FEB 23, 2001 HTE NO: 00-31199

GRAPHIC SCALE

40 0 20 40 80 120

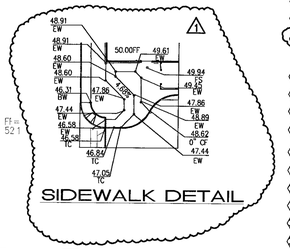
SCALE: 1" = 40'

CONSTRUCTION NOTES

(ALL STANDARD DRAWING REFER TO THE CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS) LATEST EDITION

1. CONSTRUCT 4" AC OVER 8" TYPE II AB PER WESTERN TECHNOLOGIES 4120JN044 (HEAVY TRUCK PAVEMENT)
2. CONSTRUCT 3" AC OVER 8" TYPE II AB PER WESTERN TECHNOLOGIES 4120JN044 (AUTO TRAFFIC / STANDARD PAVEMENT)
3. CONSTRUCT 5" AC OVER 13" TYPE II AB (PER STD DWG 202.10)
4. CONSTRUCT 2" AC OVER 8" TYPE II AB PER WESTERN TECHNOLOGIES 4120JN044 (OFF SITE ACCESS PAVEMENT)
5. CONSTRUCT BLDG SLAB 6" 4000 PSI REINFORCED CONCRETE (WITH BASE PER REFERENCED SOILS REPORT & DEPOT MINIMUM)
6. CONSTRUCT TRUCK SLAB 7" 4000 PSI REINFORCED CONCRETE (WITH BASE PER REFERENCED SOILS REPORT & DEPOT MINIMUM)
7. CONSTRUCT UNLOAD SLAB 6" 4000 PSI REINFORCED CONCRETE (WITH BASE PER REFERENCED SOILS REPORT & DEPOT MINIMUM)
8. CONSTRUCT FRONT/CUSTOMER PICKUP AREA PAVEMENT 6" 4000 PSI REINFORCED CONCRETE (HOME DEPOT MINIMUM)
9. CONSTRUCT CONCRETE 5' SIDEWALK PER STD DWG NO 234 4" THICK REINFORCED CONCRETE (HOME DEPOT MINIMUM)
10. CONSTRUCT "L" TYPE CURB PER STD DWG NO 216
11. CONSTRUCT "A" TYPE ISLAND CURB PER STD DWG NO 219
12. CONSTRUCT 8' CROSS GUTTER PER STD DWG NO 228
13. CONSTRUCT CMU RETAINING WALL (H=3.33' MAX) PER CLARK COUNTY STD B101 DATED 04/06/98 PG 1 OF 1, AND STD B-101 DR B-101-1 DATED 04/06/00 PG 1 OF 2 AND STD B-101-1 DATED 04/06/00 PG 2 OF 2. OPTIONAL MASONRY FENCE NOT INCLUDED IN THIS PROJECT. 4,500 PSI CONCRETE (TYPE V) TO BE USED FOR ALL WALLS AND FOOTINGS
14. CONSTRUCT SIDEWALK RAMP PER STD DWG NO 235 (CASE I) A = B = 8' UNLESS OTHERWISE NOTED
15. CONSTRUCT 40' FC-FC ENTRANCE PER USD STD DWG 225
16. CONSTRUCT MODIFIED TYPE C DROP INLET PER STD DWG 413 AND DETAIL SHEET C-10
17. CONSTRUCT MODIFIED TYPE C DROP INLET PER STD DWG 413 AND DETAIL C SHEET NO C14
18. INSTALL 18" RCP STORM DRAIN PER CLARK COUNTY STANDARD SPECIFICATIONS
19. NOT USED
20. CONSTRUCT TRUCK WELL DRAIN PER DETAIL D SHEET NO C14
21. CONSTRUCT 3FT DEEP "U" CHANNEL WIDTH PER PLAN SEE DETAIL "B" SHEET NO C14
22. CONSTRUCT 0" CURB FACE "A" TYPE CURB
23. CONSTRUCT 0" - 6" CURB FACE TRANSITION L=10 FEET
24. CONSTRUCT 3' WIDE VALLEY GUTTER PER DETAIL "A" SHEET C14
25. INSTALL CONCRETE FILLED STEEL BOLLARD (8" DIA) PER ARCHITECTS PLAN (SECTION 10 A5.1)
26. SAW CUT EXISTING AC PAVEMENT PER PLAN
27. INSTALL 24" RCP STORM DRAIN PER CLARK COUNTY STANDARD SPECIFICATIONS
28. CONSTRUCT BUS TURNOUT PER STD DWG 234.1
29. REMOVE AND ~~RELOCATE~~ STREETLIGHT TO BACK OF SIDEWALK PER STATION SHOWN SEE DETAIL PER SHEET C16 FOR INSTALLATION
30. REMOVE AND SALVAGE BUS STOP PER PLAN
31. REMOVE DROP INLET AND PLUG PER DETAIL SHEET C10
32. INSTALL PRIVATE STORM DRAIN CLEANOUT PER DETAIL "C" SHEET C-14
33. CONSTRUCT 24" INLET WITH HEADWALL PER NDOT xxx
34. CONSTRUCT 3/4" OPEN GRADE OVER 5" MIN AC PAVEMENT OVER 4" MIN APPROVED TYPE II AGGREGATE BASE COURSE OVER PRIME COAT OVER 9" MIN MIN APPROVED TYPE I AGGREGATE BASE PER APPROVED SECTION IN STD DWG 201.1
35. RELOCATE EXIST STREET LIGHT CONDUIT PER PLAN
36. REMOVE EXISTING AC PAVEMENT PER PLAN
37. REMOVE EXISTING CURB AND GUTTER PER PLAN
38. NOT USED
39. NOT USED
40. NOT USED
41. NOT USED
42. NOT USED
43. NOT USED
44. CONSTRUCT 24" RCP STUB OUT SLOPE PER PLAN
45. NOT USED
46. NOT USED
47. ENCASE SEWER LINE PER STD DWG SD-22
48. NOT USED
49. NOT USED
50. NOT USED
51. NOT USED
52. NOT USED
53. NOT USED
54. NOT USED
55. PROTECT IN PLACE
56. CONSTRUCT 3'-4" WIDE U-DITCH PER DETAIL "A" SHEET C14 & "B" SHEET C16
57. CONSTRUCT 6" PRIVATE ROOF DRAIN PER ARCHITECT PLAN
58. NOT USED
59. RELOCATION OF POWER POLES BY OTHERS

SIDEWALK DETAIL



HANDICAP RAMP DATA TABLE

CURVE	SLOPE	GRADE(%) "B" TO "A"	"A" (FT) (MIN)	"B" (FT) (MIN)
C1	+ 0.0667	6.01 TO 7	21.5	4.5
C2	+ 0.0195	-2 TO 2	8.0	8.0
C3	+ 0.0297	2.01 TO 3	7.5	4.5
C4	- 0.003	-2 TO 2	8.0	8.0

RAW EARTHWORK QUANTITIES

APPROXIMATE FILL: 97,600 C.Y.
APPROXIMATE CUT: 7,400 C.Y.
APPROXIMATE NET IMPORT 90,200 C.Y.
THESE QUANTITIES ARE RAW QUANTITIES AND DO NOT REFLECT ANY OVER EXCAVATION
NOTE: IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EARTHWORK QUANTITIES PRIOR TO ANY CONSTRUCTION. SHOULD THE CONTRACTOR DISCOVER ANY DISCREPANCIES, THE CONTRACTOR SHOULD NOTIFY SUMMIT ENGINEERING @ (702) 252-3236 IMMEDIATELY.

PROJECT BENCHMARK:

2C1119SWS
RIVET AND SQUARE PLATE IN TOP OF CURB, NORTHEAST CORNER OF TROPICANA AVE AND DECATUR BLVD. NEAR THE PC OF TROPICANA AVENUE
ELEV 685.044 METERS., 2247.515 FT
NAVD 88.

LEGAL DESCRIPTION:

A PORTION OF GOVERNMENT LOT 4 OF SECTION 16, TOWNSHIP 21 SOUTH, RANGE 61 EAST, M.D.M.

BASIS OF BEARING:

NORTH 00°19'10" WEST
BEING THE WEST LINE OF SECTION 19, TOWNSHIP 21 SOUTH, RANGE 62 EAST, M.D.M.,

CURVE TABLE:

NO.	LENGTH	RADIUS	DELTA	TANGENT
C1	39.27'	25.00'	90°00'13"	25.00'
C2	23.56'	15.00'	90°00'00"	15.00'
C3	24.54'	25.00'	56°15'04"	13.36'
C4	23.56'	15.00'	90°00'02"	15.00'
C5	23.73'	15.00'	90°38'39"	15.17'
C6	23.78'	15.00'	90°51'04"	15.22'

GENERAL NOTES:

1) ALL GRADING AND STRUCTURAL SECTIONS MUST CONFORM TO THE SOILS REPORT PREPARED BY WESTERN TECHNOLOGIES INC. "GEOTECHNICAL EVALUATION PROPOSED HOME DEPOT RETAIL DEVELOPMENT GFA NO. 990150 DATED MAY 18, 2000 (PROJECT NO. 4120JN044)
2) ADD 2200 FEET TO ALL ELEVATION TAGS TO ACHIEVE TRUE DATUM ELEVATION.

UTILITY NOTE

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

Avoid cutting underground utility lines. It's costly.
Call before you Dig
1-800-227-2600
(NEVADA811.COM)

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.
CALL BEFORE YOU EXCAVATE
CALL 1-702-683-8111

REMOVE AND REPLACE LIGHT FIXTURE PAR CC ST DWG
INSTALL SERVICE POINT PER CC ST DWG 10/22/01 AH

SUMMIT ENGINEERING CORPORATION
1421 E. SUNSET ROAD, SUITE 17, LAS VEGAS, NEVADA 89119
PHONE (702) 252-3236 FAX (702) 252-3247

DESIGNED: JNW
CHECKED: -
SCALE HOR. 1"=40' VER. N/A
FILE No. 72265
05/07/01

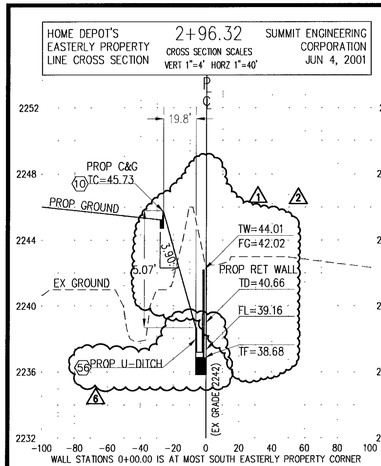
THE HOME DEPOT
GRADING PLAN SHEET 1
HOME DEPOT USA - TROPICANA/DECATUR
CLARK COUNTY NEVADA

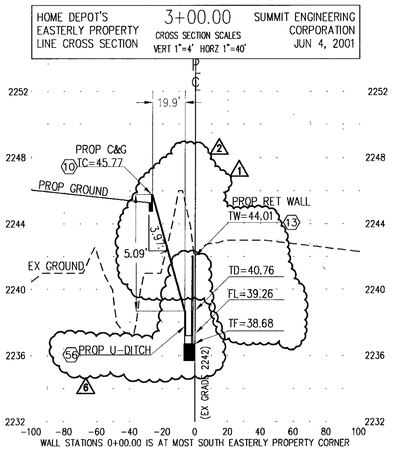
REV	DATE	DESCRIPTION	BY	APPD
1	9/21/01	AGENCY CONST NOTE 13, DMSH DROP INLETS, AND RELOCATE BLDG DOOR, DELETE SCREEN WALL	AH	
2		REVISE WALL GRADES	AH	
3		REVISE END OF WALL AND DITCH GRADES	AH	
4		REVISE DWG TO DELETE 18" SD	AH	
5	7/19/01	REVISED PER CLARK COUNTY COMMENTS	MSH	
6	7/24/01	1ST SUBMITTAL	TJK	

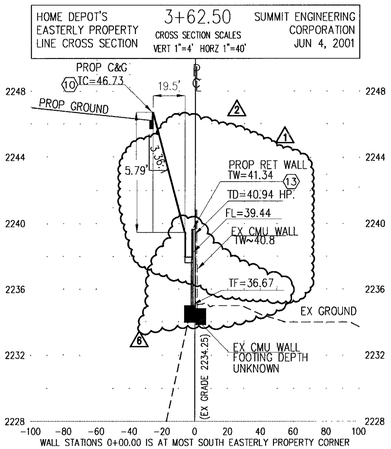
P:\DWGS\72265\STDGRD\1.dwg

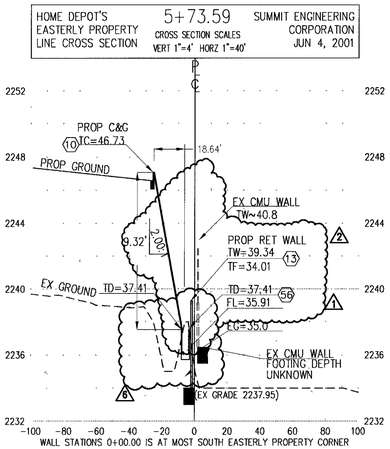
ANDREW J. HUSTAD
CIVIL
No. 12501
STATE OF NEVADA
PROFESSIONAL ENGINEER

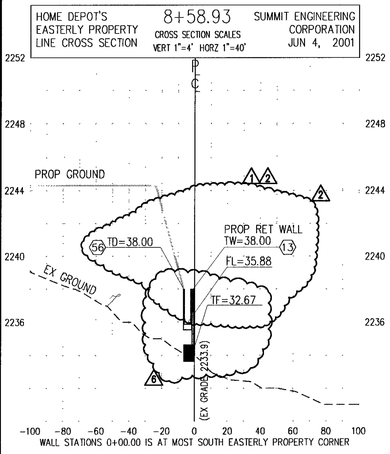
SHEET C7 of 19
6/27/01

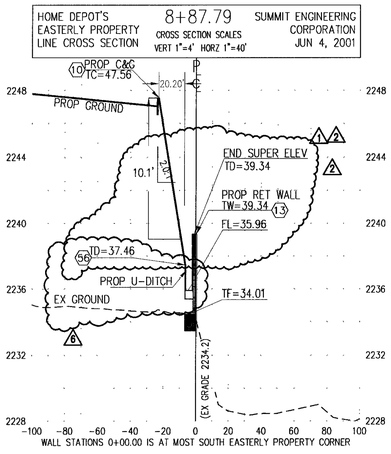


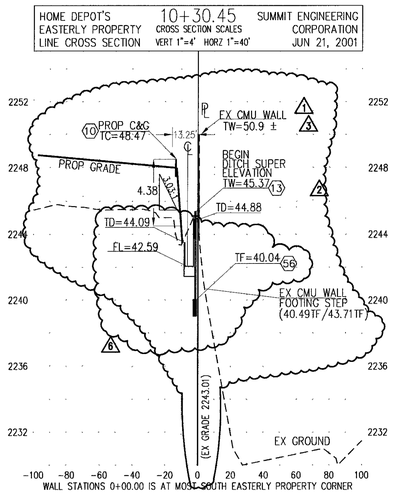


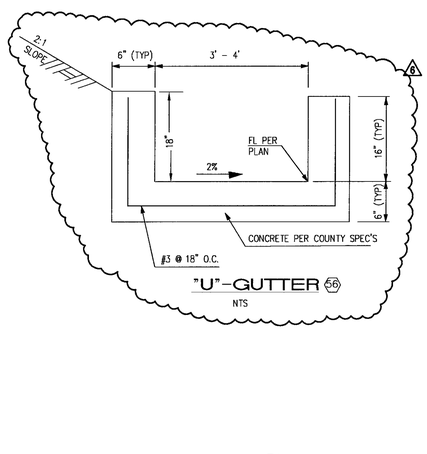


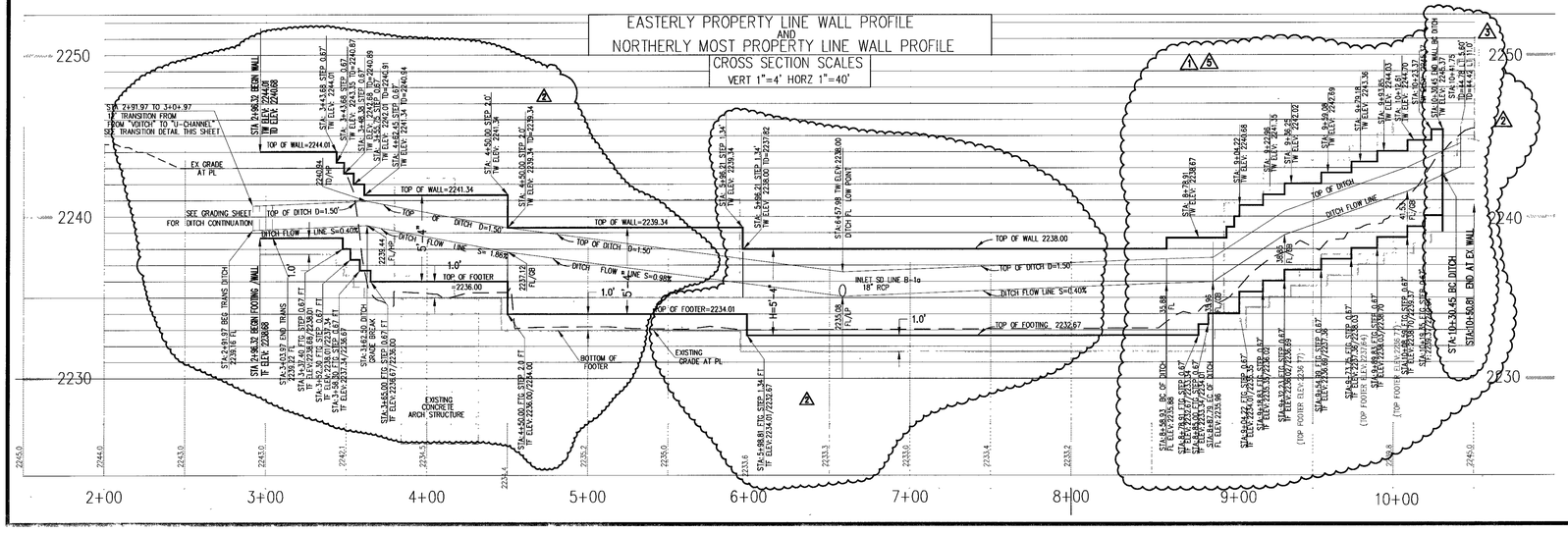


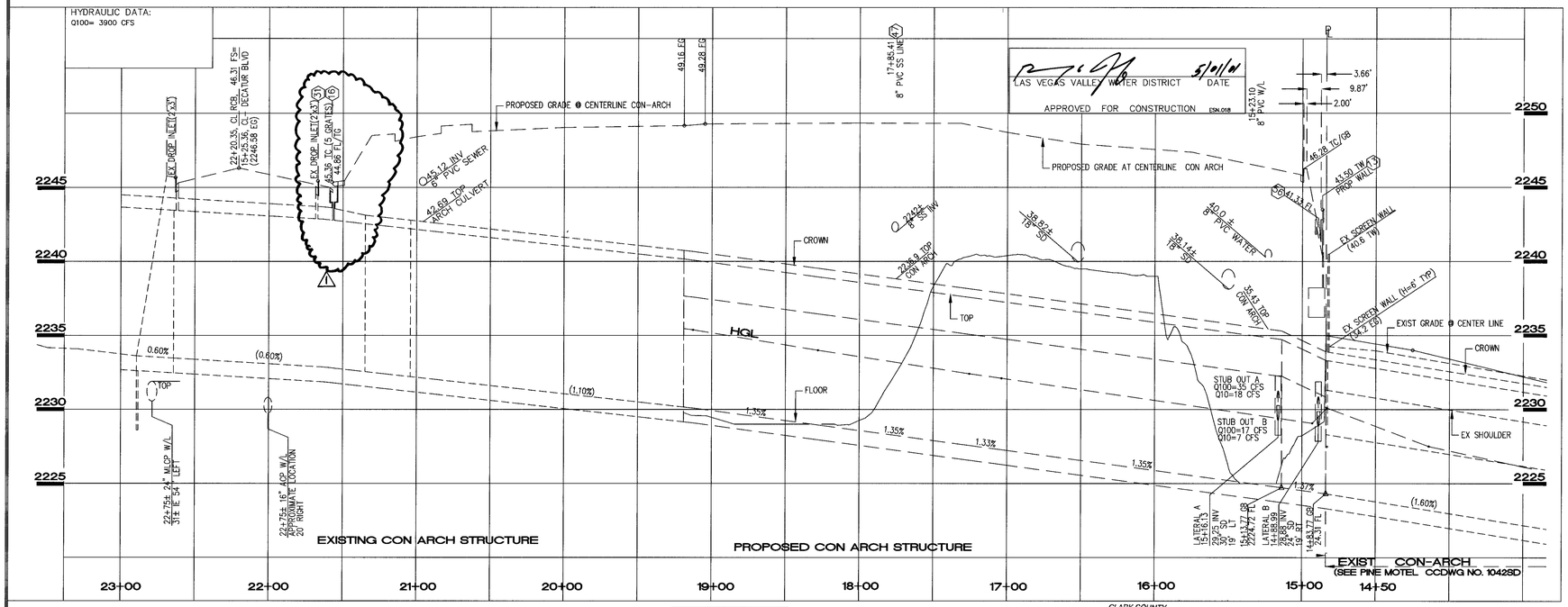









EASTERLY PROPERTY LINE WALL PROFILE
AND
NORTHERLY MOST PROPERTY LINE WALL PROFILE
CROSS SECTION SCALES
VERT 1"=4' HORZ 1"=40'
2250
2240
2230
2+00
3+00
4+00
5+00
6+00
7+00
8+00
9+00
10+00
TOP OF WALL=2244.01
TOP OF WALL=2241.34
TOP OF WALL=2239.34
TOP OF WALL 2238.00
TOP OF DITCH D=1.50
DITCH FLOW LINE S=0.40%
DITCH FLOW LINE S=0.98%
TOP OF FOOTER =2236.00
TOP OF FOOTER=2234.01
TOP OF FOOTING 2232.67
EX GRADE AT PL
EXISTING GRADE AT PL
BOTTOM OF FOOTER
EXISTING CONCRETE ARCH STRUCTURE
INLET SD LINE B-1a 18" RCP
TOP OF DITCH
DITCH FLOW LINE
STA 24+91.97 TO 34+01.97 "U" TRANSITION FROM "DITCH" TO "I"-CHANNEL SEE TRANSITION DETAIL THIS SHEET
SEE GRADING SHEET FOR DITCH CONTINUATION
STA 24+86.20 BEGIN WALL TW ELEV 2244.08
STA 24+86.52 BEGIN FOOTING WALL TF ELEV 2236.68
STA 24+86.67 BEG TRANS DITCH
STA 25+61.91 FL
STA 34+03.97 END TRANS DITCH
STA 34+37.40 FTG STEP 0.67 FT TF ELEV=2238.69/2238.01
STA 34+37.73 FTG STEP 0.67 FT TF ELEV=2237.34/2237.01
STA 34+38.07 FTG STEP 0.67 FT TF ELEV=2236.67/2236.00
STA 34+65.00 FTG STEP 0.67 FT TF ELEV=2236.67/2236.00
STA 34+65.00 FTG STEP 2.0 FT TF ELEV=2236.00/2234.00
STA 34+68.86 FTG STEP 1.34 FT TF ELEV=2234.66/2233.32
STA 34+68.86 FTG STEP 2.0 FT TF ELEV=2234.66/2232.66
STA 44+50.00 STEP 2.0' TW ELEV=2241.34
STA 44+50.00 STEP 2.0' TW ELEV=2239.34
STA 44+56.21 STEP 1.34' TW ELEV=2239.34
STA 44+57.98 TW ELEV=2238.00 DITCH FL LOW POINT
STA 44+65.25 STEP 0.67' TW ELEV=2241.34
STA 44+65.25 STEP 0.67' TW ELEV=2240.67
STA 44+65.25 STEP 0.67' TW ELEV=2240.00
STA 44+65.25 STEP 0.67' TW ELEV=2240.84
STA 44+65.25 STEP 0.67' TW ELEV=2240.91
STA 44+65.25 STEP 0.67' TW ELEV=2240.84
STA 44+65.25 STEP 0.67' TW ELEV=2240.89
STA 44+65.25 STEP 0.67' TW ELEV=2240.86



LAS VEGAS VALLEY WATER DISTRICT — APPROVED FOR CONSTRUCTION — DATE 5/01/01 — ESN.018

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1"=40'

CONSTRUCTION NOTES

(ALL STANDARD DRAWING REFER TO THE CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS) LATEST EDITION

1. CONSTRUCT 4" AC OVER 8" TYPE II AB PER WESTERN TECHNOLOGIES 4120JN044 (HEAVY TRUCK PAVEMENT)
2. CONSTRUCT 3" AC OVER 8" TYPE II AB PER WESTERN TECHNOLOGIES 4120JN044 (AUTO TRAFFIC / STANDARD PAVEMENT)
3. CONSTRUCT 5" AC OVER 13" TYPE II AB (PER STD DWG 202.10)
4. CONSTRUCT 2" AC OVER 8" TYPE II AB PER WESTERN TECHNOLOGIES 4120JN044 (OFF SITE ACCESS PAVEMENT)
5. CONSTRUCT BLDG SLAB 6" 4000 PSI REINFORCED CONCRETE (WITH BASE PER REFERENCED SOILS REPORT & DEPOT MINIMUM)
6. CONSTRUCT TRUCK SLAB 7" 4000 PSI REINFORCED CONCRETE (WITH BASE PER REFERENCED SOILS REPORT & DEPOT MINIMUM)
7. CONSTRUCT UNLOAD SLAB 6" 4000 PSI REINFORCED CONCRETE (WITH BASE PER REFERENCED SOILS REPORT & DEPOT MINIMUM)
8. CONSTRUCT FRONT/CUSTOMER PICKUP AREA PAVEMENT 6" 4000 PSI REINFORCED CONCRETE (HOME DEPOT MINIMUM)
9. CONSTRUCT CONCRETE 5' SIDEWALK PER STD DWG NO 234 4" THICK REINFORCED CONCRETE (HOME DEPOT MINIMUM)
10. CONSTRUCT "L" TYPE CURB PER STD DWG NO 216
11. CONSTRUCT "A" TYPE ISLAND CURB PER STD DWG NO 219
12. CONSTRUCT 8' CROSS GUTTER PER STD DWG NO 226
13. CONSTRUCT CMU RETAINING WALL (H=5.33' MAX) PER CLARK COUNTY STD BLDG DATED 04/06/98 PG 1 OF 1 AND STD B-101 DR B-101-1 DATED 04/06/00 PG 1 OF 2 AND STD B-101-1 DATED 04/06/00 PG 2 OF 2 OPTIONAL MASONRY FENCE NOT INCLUDED IN THIS PROJECT
14. CONSTRUCT SIDEWALK RAMP PER STD DWG NO 235 (CASE I) A = 8' - 6" UNLESS OTHERWISE NOTED
15. CONSTRUCT 40' FC-FC ENTRANCE PER USD STD DWG 225
16. CONSTRUCT MODIFIED TYPE C DROP INLET PER STD DWG 413 AND DETAIL SHEET C-10
17. CONSTRUCT MODIFIED TYPE C DROP INLET PER STD DWG 413 AND DETAIL C SHEET NO C14
18. INSTALL 18" RCP STORM DRAIN PER CLARK COUNTY STANDARD SPECIFICATIONS
19. NOT USED
20. CONSTRUCT TRUCK WELL DRAIN PER DETAIL D SHEET NO C14
21. CONSTRUCT 1FT DEEP "U" CHANNEL WIDTH PER PLAN SEE DETAIL "B" SHEET C14
22. CONSTRUCT 0" CURB FACE "A" TYPE CURB
23. CONSTRUCT 0" - 6" CURB FACE TRANSITION L=10 FEET
24. CONSTRUCT 3' WIDE VALLEY GUTTER PER DETAIL "A" SHEET C14
25. INSTALL CONCRETE FILLED STEEL BOLLARD (8" DIA) PER ARCHITECTS PLAN (SECTION 10 A3.1)
26. SAW CUT EXISTING AC PAVEMENT PER PLAN
27. INSTALL 24" RCP STORM DRAIN PER CLARK COUNTY STANDARD SPECIFICATIONS
28. CONSTRUCT BUS TURNOUT PER STD DWG 234.1
29. REMOVE AND RELOCATE STREETLIGHT TO BACK OF SIDEWALK PER STATION SHOWN SEE DETAIL PER SHEET C16 FOR INSTALLATION
30. REMOVE AND SALVAGE BUS STOP PER PLAN
31. REMOVE DROP INLET AND PLUG PER DETAIL SHEET C10
32. INSTALL PRIVATE STORM DRAIN CLEANOUT PER DETAIL "E" SHEET C-14
33. CONSTRUCT 24" INLET WITH HEADWALL PER NDOT xxx
34. CONSTRUCT 3/4" OPEN GRADE OVER 5" MIN AC PAVEMENT OVER 4" MIN APPROVED TYPE II AGGREGATE BASE COURSE OVER PRIME COAT OVER 9" MIN MIN APPROVED TYPE I AGGREGATE BASE PER APPROVED SECTION IN STD DWG 201.1
35. RELOCATE EXIST STREET LIGHT CONDUIT PER PLAN
36. REMOVE EXISTING AC PAVEMENT PER PLAN
37. REMOVE EXISTING CURB AND GUTTER PER PLAN
38. NOT USED
39. NOT USED
40. NOT USED
41. NOT USED
42. NOT USED
43. NOT USED
44. CONSTRUCT 24" RCP STUB OUT SLOPE PER PLAN
45. NOT USED
46. NOT USED
47. ENCASE SEWER LINE PER STD DWG SD-22
48. NOT USED
49. NOT USED
50. NOT USED
51. NOT USED
52. NOT USED
53. NOT USED
54. NOT USED
55. PROTECT IN PLACE
56. CONSTRUCT 4' WIDE "V=DITCH" PER DETAIL SEE SHEET C10
57. CONSTRUCT 6" PRIVATE ROOF DRAIN PER ARCHITECT PLAN
58. NOT USED
59. RELOCATION OF POWER POLES BY OTHERS

CLARK COUNTY
DEPARTMENT OF PUBLIC WORKS
Acceptance of plans for filing
By: Jack B. Eastman 4/12/01
Acceptance of these plans for filing shall not be construed to be a permit for or approval of any violation of any of the provisions of the building county ordinances. Clark County shall be held harmless from damages which may result from the construction of the improvements depicted hereon.
NOTE: Power poles and / or other existing facilities not in proper location shown on proposed improvements shown hereon will be relocated at no expense to Clark County

SCALE:
HORIZONTAL 1"=40'
VERTICAL 1"=4'

THE HOME DEPOT

PAD=49.0
FF=50.00
107,388 SF

NOTE: LIMITS OF FLOOD PLAIN PER LOMR DATED AUG 07, 1998 CASE NO. 98-09-225P

FEMA PANEL 2552 OF 4090
MAP NO. 32003C2552 G
DATED AUG 19 1995

DIRT PILES

DECATUR BLVD
(120 PUBLIC R.O.W.)

EX- 24" MLCP PER CONT 540
EX- 18" ACP PER CONT 252

SEE SHEET NO. C6 FOR PRIVATE SD DATA

10' MIN

S73°55'47"W 215.85'

S89° 41' 35"E 417.49'

60'

NOTE: 60' PUBLIC DRAINAGE EASEMENT FOR APN 162-19-401-011 TO BE VACATED PER DOC # BOOK-20000316 INSTRUMENT # 01364 RECORDED MARCH 16, 2000

NOTE: 60' PUBLIC UNDERGROUND DRAINAGE EASEMENT

NOTE: 60' PDBSC DRAINAGE EASEMENT DEDICATED PER DOC #

NOTE: 30' PRIVATE DRAINAGE EASEMENT

NOTE: 10' PRIVATE DRAINAGE EASEMENT

NOTE: SEE SHEET C10 FOR CONNECTOR PIPE PROFILES

FEMA PANEL 2552 OF 4090
MAP NO. 32003C2552 G
DATED AUG 19 1995

NOTE: FOR EASEMENT DIMENSIONS SEE SHEETS C3 AND C4

(34.2) EG EX SURFACE

(34.7) ANGLE ST TW WALL
(34.2) EG EX SURFACE

(41.9) EG
ANG PT EXIST FENCE

118°45'57"

SIGNS 20' 35'

UTILITY NOTE

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

Avoid cutting underground utility lines. It's costly.
Call before you Dig
CALL 811

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.
CALL BEFORE YOU DIG OVERHEAD
CALL 1-702-593-8111

BASIS OF BEARING:

NORTH 00°19'10" WEST
BEING THE WEST LINE OF SECTION 19, TOWNSHIP 21 SOUTH, RANGE 61 EAST, M.D.M.,

PROJECT BENCHMARK:

2C1119SWS
RIVET AND SQUARE PLATE IN TOP OF CURB, NORTHEAST CORNER OF TROPICANA AVE AND DECATUR BLVD. NEAR THE PC OF TROPICANA AVENUE
ELEV 685.044 METERS., 2247.515 FT
NAVD 88.

LEGAL DESCRIPTION:

A PORTION OF GOVERNMENT LOT 4 OF SECTION 19, TOWNSHIP 21 SOUTH, RANGE 61 EAST, M.D.M.

GENERAL NOTES:

1) ALL GRADING AND STRUCTURAL SECTIONS MUST CONFORM TO THE SOILS REPORT PREPARED BY WESTERN TECHNOLOGIES INC. "GEOTECHNICAL EVALUATION PROPOSED HOME DEPOT RETAIL DEVELOPMENT, (GFA NO. 990150) DATED MAY 18, 2000, PROJECT NO 4120JN044
2) ADD 2200 FEET TO ALL ELEVATION TAGS TO ACHIEVE TRUE DATUM ELEVATION.

BOX CULVERT CENTERLINE CURVE TABLE

NO.	LENGTH	RADIUS	DELTA	TANGENT
C1	14.11'	50.00'	16°10'13"	7.10'
C2	10.56'	37.42'	16°10'13"	5.32'
C3	17.66'	62.58'	16°10'13"	8.89'
C4	25.09'	50.00'	28°44'52"	12.81'
C5	31.40'	62.58'	28°44'52"	16.04'
C6	18.78'	37.42'	28°44'52"	9.59'

SUMMIT ENGINEERING CORPORATION
1421 E. SUNSET ROAD, SUITE 17 LAS VEGAS, NEVADA 89119
PHONE (702) 252-3286 FAX (702) 252-3247

DESIGNED: JNW
CHECKED: AH
SCALE HOR. 1"=40' VER. 1"=4'
DATE 05/10/01
FILE No. 72125

THE HOME DEPOT
STORM DRAIN PLAN / PROFILE
HOME DEPOT USA - TROPICANA/DECATUR
CLARK COUNTY NEVADA

REV.	DATE	DESCRIPTION	BY	APPD
1	6/21/01	REV PL ACCESS, ADD DI 5795, NOTE A,H		
2		REVISE DWG TO PACIFIC 16"SD		

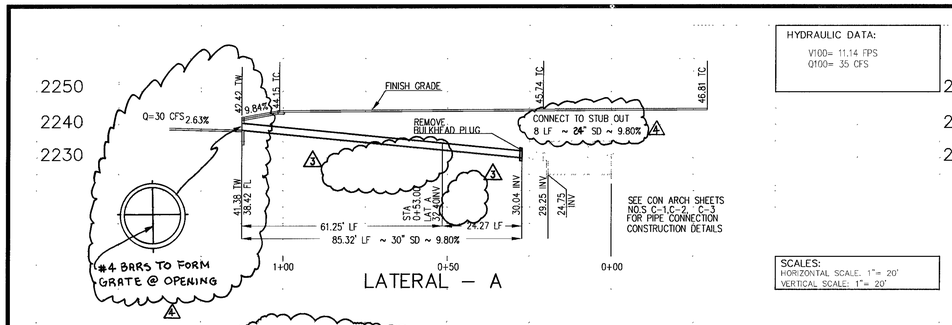
P:\DWGS\72125\72125SDP.DWG

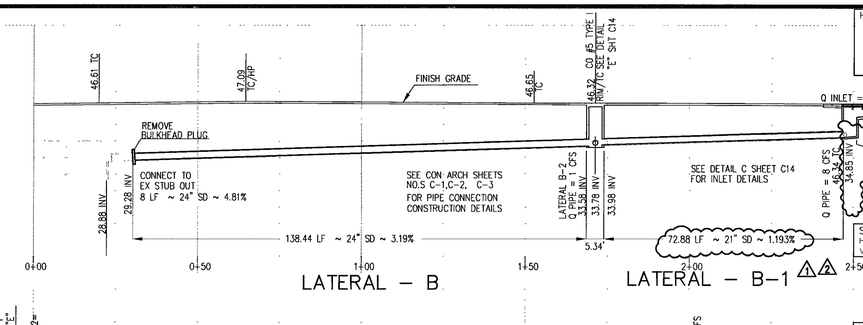
STATE OF NEVADA — ANDREW J. HUSTAD — No. 9857 — CIVIL — REGISTERED PROFESSIONAL ENGINEER — SEAL

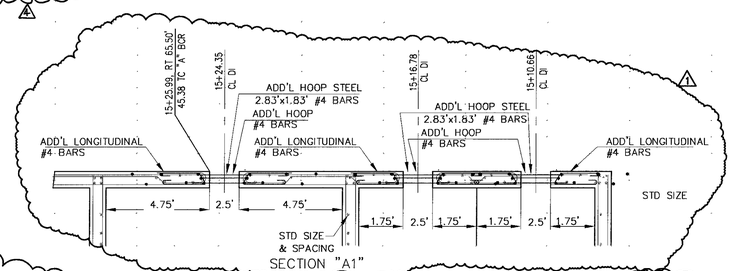
5/10/01

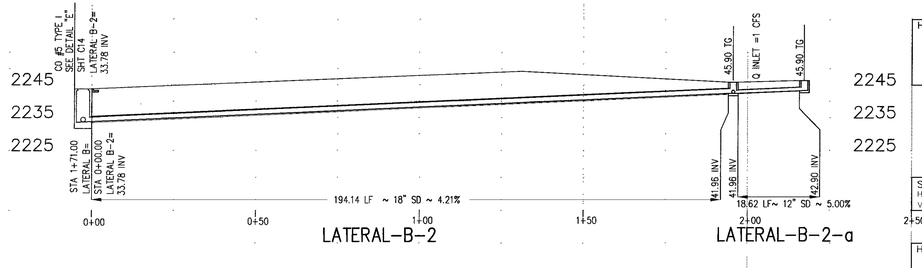
SHEET C9 OF 19

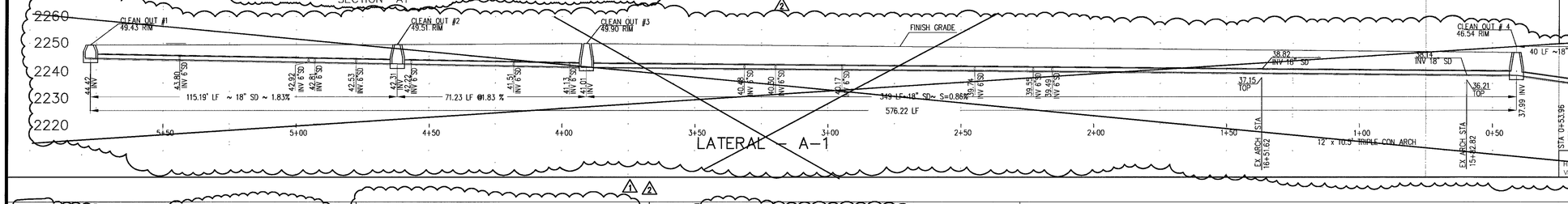
HTE 39104

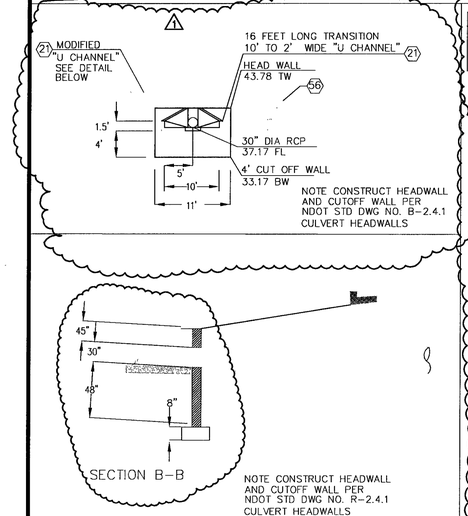












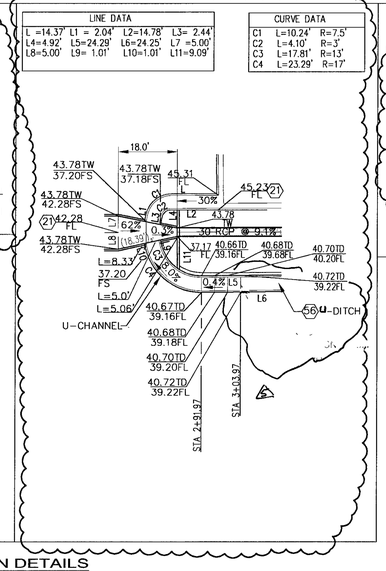
NOTE: SEE SHEET C19 FOR DETAIL NDOT R-2,4.1

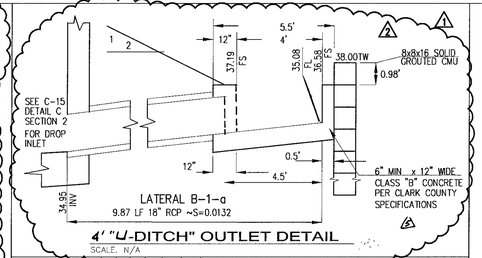
LATERAL "A" INLET CONSTRUCTION DETAILS

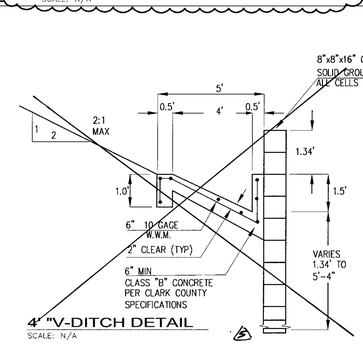
NOT TO SCALE

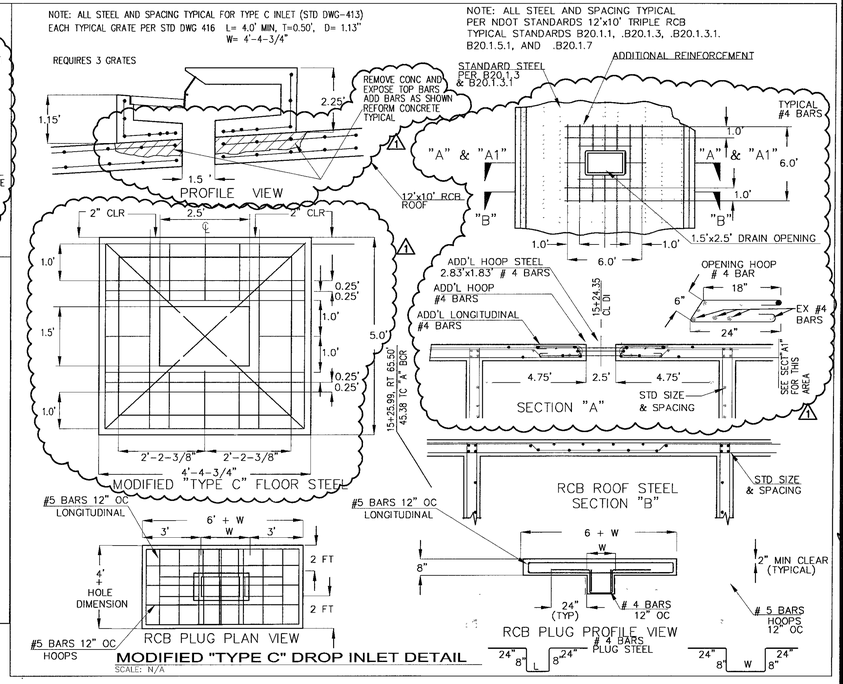
LINE DATA		
L =14.37'	L1 = 2.04'	L2=14.78' L3= 2.44'
L4=4.92'	L5=24.29'	L6=24.25' L7 =5.00'
L8=5.00'	L9= 1.01'	L10=1.01' L11=9.09'

CURVE DATA	
C1	L=10.24' R=7.5'
C2	L=4.10' R=3'
C3	L=17.81' R=13'
C4	L=23.29' R=17'









HYDRAULIC DATA:
V100= 11.14 FPS
Q100= 35 CFS

SCALES:
HORIZONTAL SCALE: 1"= 20'
VERTICAL SCALE: 1"= 20'

HYDRAULIC DATA
V100= 5.41 FPS
Q100= 18 CFS

SCALES:
HORIZONTAL SCALE: 1"= 20'
VERTICAL SCALE: 1"= 20'

HYDRAULIC DATA:
V100= 5.41 FPS
Q100=17 CFS

SCALES:
HORIZONTAL SCALE: 1"= 20'
VERTICAL SCALE: 1"= 20'

HYDRAULIC DATA:
V100=2.83 FPS
Q100= 5 CFS

SCALES:
HORIZONTAL SCALE: 1"= 20'
VERTICAL SCALE: 1"= 20'

SUMMIT ENGINEERING CORPORATION
1421 E. SUNSET ROAD, SUITE 7 LAS VEGAS, NEVADA 89119
PHONE (702) 262-3268 FAX (702) 262-3247

DESIGNED: JHW
CHECKED: AJH
SCALE H/OR. 1"= 20'
V/ER. 1"= 2'
FILE No. 72185
05/07/01

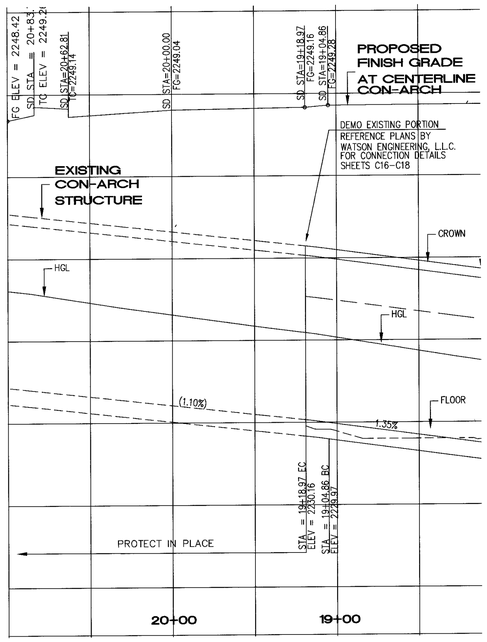
THE HOME DEPOT
STORM DRAIN DETAILS
HOME DEPOT USA - TROPICANA/DECATUR
CLARK COUNTY NEVADA

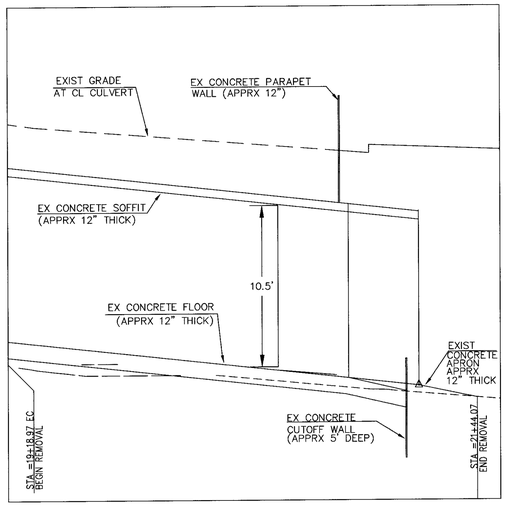
REV	DATE	DESCRIPTION	BY	APP'D
1	6/21/01	REV LATERAL B-1	AJH	AJH
2		REMOVE DWG TO DELETE 18" SD	AJH	AJH
3	7/24/01	REV SD SIZE EX. & 100 #4 BARS	TPA	TPA
4	9/28/01	CHANGE V-DITCH TO U-DITCH	TPA	TPA

P:\DWGS\LV72185\REVISIONS\72185DTL.dwg

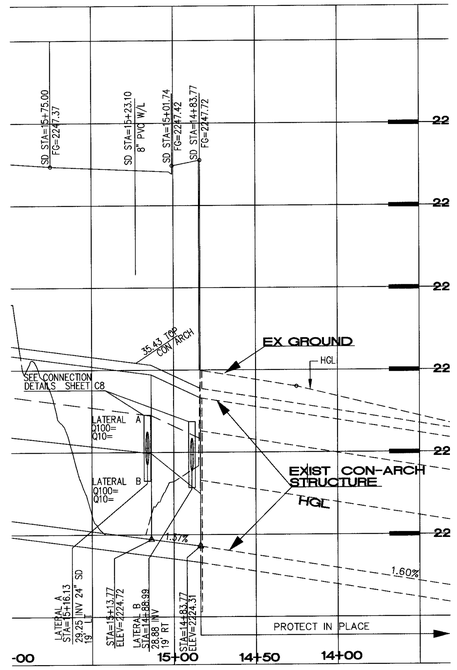
SEAL: STATE OF NEVADA — ANDREW J. HASTAD — CIVIL — No. 13580 — REGISTERED PROFESSIONAL ENGINEER

SHEET C10 OF 19





EXIST BOX CULVERT TO BE REMOVED
FROM STATION 19+18.97 TO STATION 21+44.07



GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1"=40'

DEMOLITION NOTES:

(ALL STANDARD DRAWING REFER TO THE CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS)

40 SAWCUT EXISTING 12'x10' TRIPLE RCB (SEE REFERENCE PLANS BY WATSON L.L.C. SHEETS C16-C18)

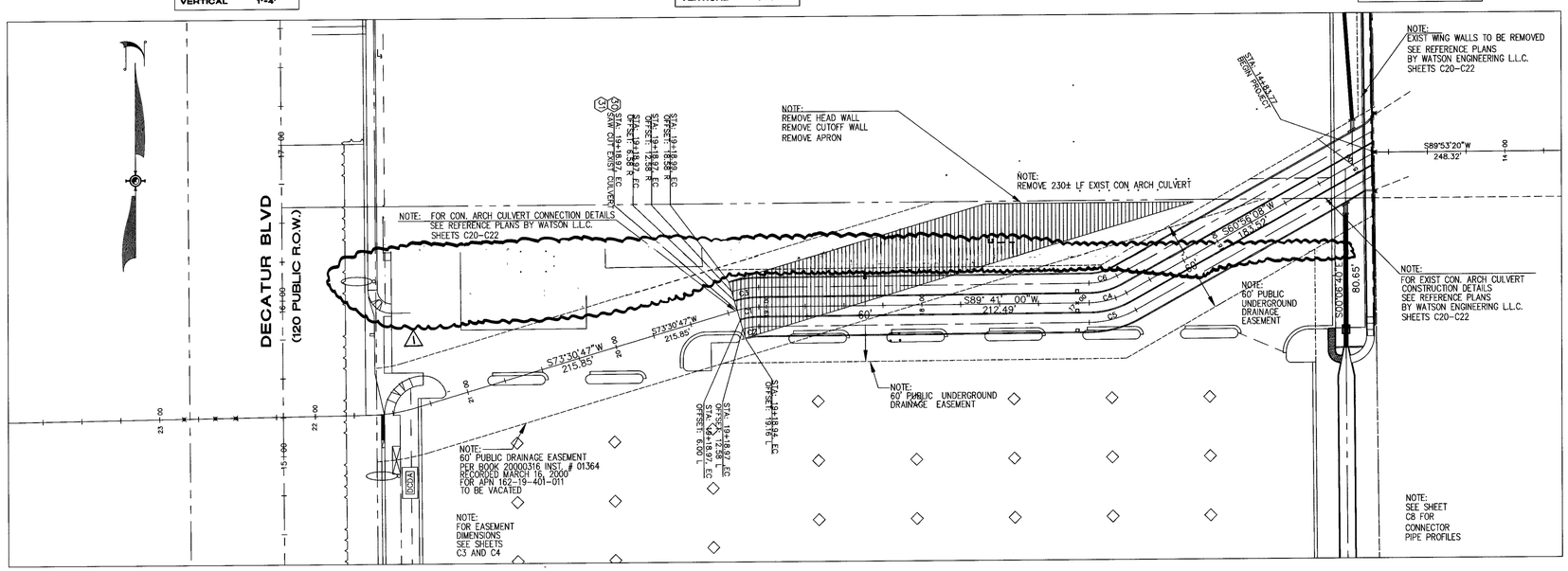
41 EXPOSE AND LEAVE INTACK EXISTING STEEL REINFORCEMENT BARS TO FULL LENGTH (SEE REFERENCE PLANS BY WATSON L.L.C. SHEETS C16-C18)

42 DRILL AND EPOXY DOWELS (SEE REFERENCE PLANS BY WATSON L.L.C. SHEETS C16-C18)

SCALE:
HORIZONTAL 1"=40'
VERTICAL 1"=4'

SCALE:
HORIZONTAL 1"=40'
VERTICAL 1"=4'

SCALE:
HORIZONTAL 1"=40'
VERTICAL 1"=4'



CLARK COUNTY
DEPARTMENT OF PUBLIC WORKS

Accepted for Public Use
By Jack D. Simon 4/17/01
Acceptance of these plans for filing shall not be construed to be a permit for or approval of any violation of any provision of any County law, and for approval of Clark County shall not be held liable for damages which may result from the construction of the improvements from the engineering design contained herein.

NOTE: Power poles and / or other existing facilities not in proper location as set on proposed improvements shown hereon will be relocated at no expense to Clark County

BOX CULVERT CENTERLINE CURVE TABLE

NO.	LENGTH	RADIUS	DELTA	TANGENT
C1	14.11'	50.00'	16°10'13"	7.10'
C2	10.56'	37.42'	16°10'13"	5.32'
C3	17.66'	62.58'	16°10'13"	8.89'
C4	25.09'	50.00'	28°44'52"	12.81'
C5	31.40'	62.58'	28°44'52"	16.04'
C6	18.78'	37.42'	28°44'52"	9.59'

UTILITY NOTE

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

Avoid cutting underground utility lines. It's costly.
Call before you Dig

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY
CALL BEFORE YOU DIG OVERHEAD
CALL 1-702-593-8111

BASIS OF BEARING:

NORTH 00°19'10" WEST
BEING THE WEST LINE OF SECTION 19, TOWNSHIP 21 SOUTH, RANGE 62 EAST, M.D.M.,

PROJECT BENCHMARK:

2C1119SWS
RIVET AND SQUARE PLATE IN TOP OF CURB, NORTHEAST CORNER OF TROPICANA AVE AND DECATUR BLVD. NEAR THE PC OF TROPICANA AVENUE
ELEV 685.044 METERS., 2247.515 FT
NAVD 88.

LEGAL DESCRIPTION:

A PORTION OF GOVERNMENT LOT 4 OF SECTION 16, TOWNSHIP 21 SOUTH, RANGE 61 EAST, M.D.M.

GENERAL NOTES:

1) ALL GRADING AND STRUCTURAL SECTIONS MUST CONFORM TO THE SOILS REPORT PREPARED BY WESTERN TECHNOLOGIES INC. "GEOTECHNICAL EVALUATION PROPOSED HOME DEPOT RETAIL DEVELOPMENT, (GFA NO. 990150) DATED MAY 18, 2000, PROJECT NO 4120JN044
2) ADD 2200 FEET TO ALL ELEVATION TAGS TO ACHIEVE TRUE DATUM ELEVATION.

SUMMIT ENGINEERING CORPORATION
1421 E. SUNSET ROAD, SUITE 7, LAS VEGAS, NEVADA 89119
PHONE (702) 252-0209 FAX (702) 252-0247

DESIGNED: JNW
CHECKED: AJH
SCALE HOR. 1"=40' VER. 1"=4'
DATE 03/19/01
FILE No. 72525

THE HOME DEPOT
STORM DRAIN DEMOLITION PLAN
HOME DEPOT USA - TROPICANA/DECATUR
NEVADA
CLARK COUNTY

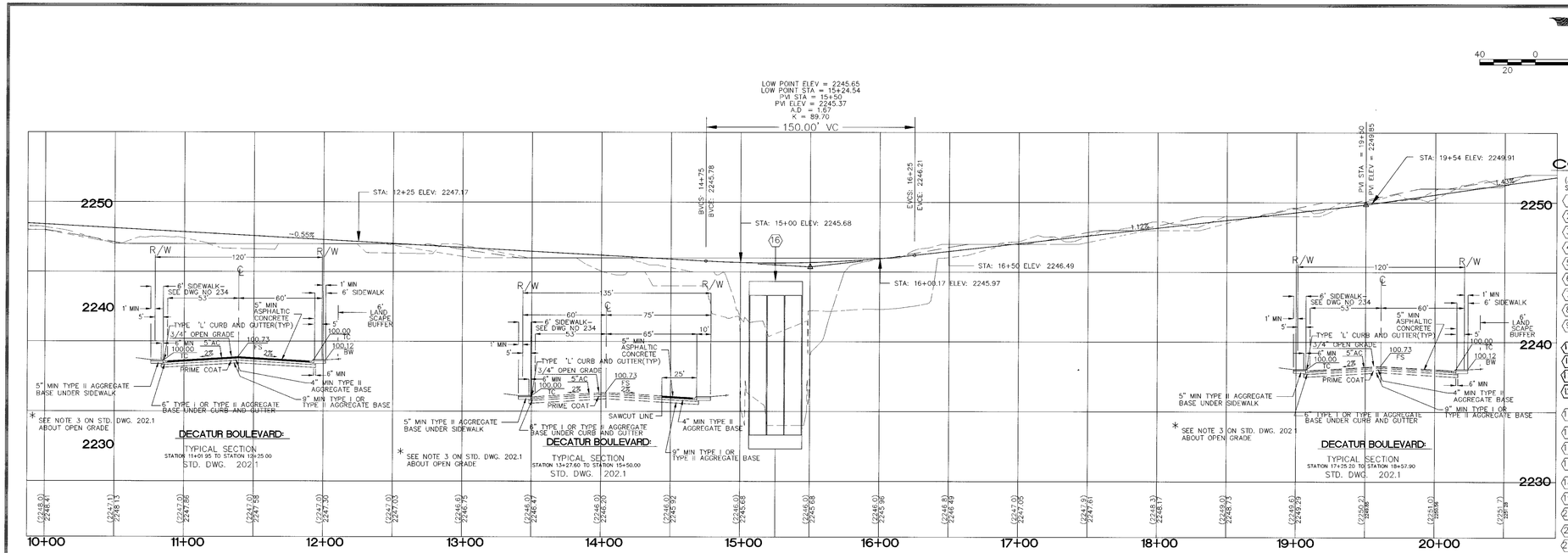
REV.	DATE	DESCRIPTION	BY	APP'D
1	6/21/01	REVISE DWG TO DELETE 18"SD	RJH	

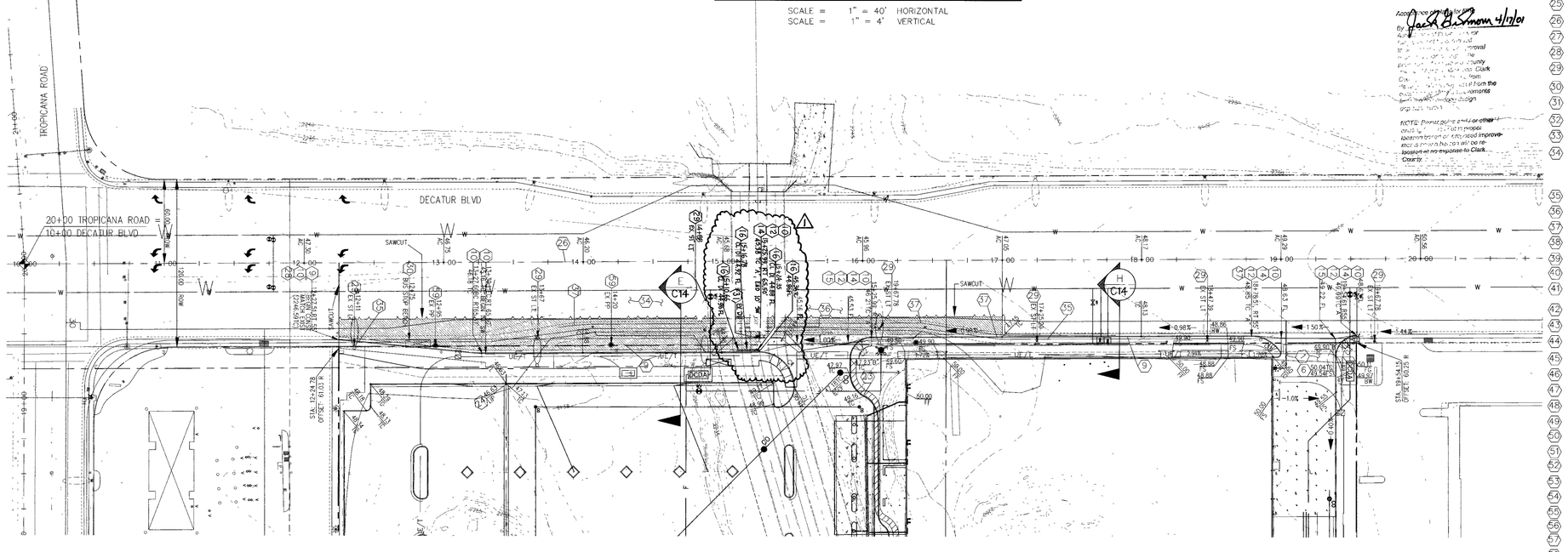
P:\DWG\72525\12525DEMO.DWG

SEALED PROFESSIONAL ENGINEER ANDREW J. HUSTAD CIVIL No. 12535 STATE OF NEVADA
3/19/01

SHEET C11 OF 19

HTE00=39104





DECATUR BLVD

SCALE = 1" = 40' HORIZONTAL
SCALE = 1" = 4' VERTICAL

SCALE: 1" = 40'

CLARK COUNTY
DEPARTMENT OF PUBLIC WORKS

Acceptance granted for Clark County
By: Jack D. Strawn 4/11/01
Approval
County
Clark
from
of the
ments
Design
NOTE: Prior to the start of other work in Clark County right-of-way, all damaged or removed improvements must be repaired or replaced at no expense to Clark County.

CONSTRUCTION NOTES

(ALL STANDARD DRAWING REFER TO THE CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS) LATEST EDITION

1. CONSTRUCT 4" AC OVER 4" TYPE II AB (HEAVY TRUCK PAVEMENT)
2. CONSTRUCT 3" AC OVER 4" TYPE II AB (AUTO TRAFFIC / STANDARD PAVEMENT)
3. CONSTRUCT 5" AC OVER 13" TYPE II AB (PER STD. DWG 202.10)
4. CONSTRUCT 2" AC OVER 4" TYPE II AB (OFF SITE ACCESS PAVEMENT)
5. CONSTRUCT BLDG SLAB. 6" 4000 PSI REINFORCED CONCRETE (WITH BASE PER REFERENCED SOILS REPORT & DEPOT MINIMUM)
6. CONSTRUCT TRUCK SLAB 7" 4000 PSI REINFORCED CONCRETE (WITH BASE PER REFERENCED SOILS REPORT & DEPOT MINIMUM)
7. CONSTRUCT UNLOAD SLAB 6" 4000 PSI REINFORCED CONCRETE (WITH BASE PER REFERENCED SOILS REPORT & DEPOT MINIMUM)
8. CONSTRUCT FRONT/CUSTOMER PICKUP AREA PAVEMENT 6" 4000 PSI REINFORCED CONCRETE (HOME DEPOT MINIMUM)
9. CONSTRUCT CONCRETE 5' SIDEWALK PER STD DWG NO 234. 4" THICK REINFORCED CONCRETE UNLESS OTHERWISE NOTED (HOME DEPOT MINIMUM)
10. CONSTRUCT 7" TYPE CURB PER STD DWG NO 216
11. CONST "A" TYPE ISLAND CURB PER STD DWG NO 219
12. CONSTRUCT B' CROSS GUTTER PER STD DWG NO 226
13. CONST CMU RETAIN. WALL (H=5.33' MAX) PER CLARK CO STD DWG NO 227 PG 1 OF 2 AND STD B-101 PG B-101-1 DATED 04/16/98 FOR 1 OF 1 AND STD B-101-1 DATED 4/6/00 PG 1 OF 2 AND STD B-101-1 DATED 4/6/00 PG 2 OF 2 OPTIONAL MASONRY FENCE NOT INCLUDED IN THIS PRODUCT
14. CONSTRUCT SIDEWALK RAMP PER STD DWG NO 235 (CASE I) A = B = 6' UNLESS OTHERWISE NOTED
15. CONSTRUCT 40' FC-FC ENTRANCE PER UDS STD DWG 225
16. CONSTRUCT MODIFIED TYPE C DROP INLET PER STD DWG 413 WITH 3 GRATES AND MODIFIED TYPE "C" DETAIL SHEET C-12
17. CONSTRUCT MODIFIED TYPE C DROP INLET PER STD DWG 413 AND DETAIL C SHEET NO C14
18. INSTALL 18" RCP STORM DRAIN PER CLARK COUNTY STANDARD SPECIFICATIONS
19. NOT USED
20. CONSTRUCT TRUCK WELL DRAIN PER DETAIL D SHEET NO C14
21. CONSTRUCT 3' WIDE "U"CHANNEL PER DETAIL "B" SHEET NO C14
22. CONSTRUCT 0" CURB FACE "A" TYPE CURB
23. CONSTRUCT 0" – 6" CURB FACE TRANSITION L=10 FEET
24. CONSTRUCT 3' WIDE VALLEY GUTTER PER DETAIL "A" SHEET C14
25. INSTALL CONCRETE FILLED STEEL BOLLARD (8" DIA) PER ARCHITECTS PLAN (SECTION 10 A5.1)
26. SAW CUT EXISTING AC PAVEMENT PER PLAN
27. INSTALL 24" RCP STORM DRAIN PER CLARK COUNTY STANDARD SPECIFICATIONS
28. CONSTRUCT BUS TURNOUT PER STD DWG 234.1
29. REMOVE AND RELOCATE STREETLIGHT TO BACK OF SIDEWALK PER STATION SHOWN
30. REMOVE AND SALVAGE BUS STOP PER PLAN
31. REMOVE DROP INLET ALSO PLUG PER DETAIL SHEET C10
32. INSTALL PRIVATE STORM DRAIN CLEANOUT PER DETAIL 'E' SHEET C-14
33. CONSTRUCT 24" INLET WITH HEADWALL PER NDOT B-2.4.1
34. CONSTRUCT 3/4" OPEN GRADE OVER 5" MIN AC PAVEMENT OVER 4" MIN APPROVED TYPE II AGGREGATE BASE COURSE OVER PRIME COAT OVER 9" MINMIN APPROVED TYPE I AGGREGATE BASE PER APPROVED SECTION IN STD DWG 201.1
35. RELOCATE EXIST STREET LIGHT CONDUIT PER PLAN
36. REMOVE EXISTING AC PAVEMENT PER PLAN
37. REMOVE EXISTING CURB AND GUTTER PER PLAN
38. NOT USED
39. NOT USED
40. NOT USED
41. NOT USED
42. NOT USED
43. NOT USED
44. CONSTRUCT 24" RCP STUB OUT SLOPE PER PLAN
45. NOT USED
46. NOT USED
47. ENCASE SEWER LINE PER STD DWG SD-22
48. NOT USED
49. NOT USED
50. NOT USED
51. NOT USED
52. NOT USED
53. NOT USED
54. NOT USED
55. PROTECT IN PLACE
56. CONSTRUCT 4' WIDE "V=DITCH" PER DETAIL SEE SHEET C10
57. CONSTRUCT 6" PRIVATE ROOF DRAIN PER ARCHITECT PLAN
58. NOT USED
59. RELOCATION OF POWER POLES BY OTHERS

CURVE TABLE:

NO.	LENGTH	RADIUS	DELTA	TANGENT
C1	39.27'	25.00'	90°00'13"	25.00'
C2	23.56'	15.00'	90°00'00	15.00'
C3	24.54'	25.00'	56°15'04"	13.36'
C4	23.56'	15.00'	90°00'02	15.00'

UTILITY NOTE

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY FOR DETERMINING THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION AND FURTHER, IT SHALL BE THE DUTY OF ALL CONTRACTORS AND SUB-CONTRACTORS HEREON THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION

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

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY. CALL BEFORE YOU DIG CALL 1-702-593-8111

RAW EARTHWORK QUANTITIES:

APPROXIMATE FILL; 97,600 C.Y.
APPROXIMATE CUT; 7,400 C.Y.
APPROXIMATE NET IMPORT 90,200 C.Y.

THESE QUANTITIES ARE RAW QUANTITIES AND DO NOT REFLECT ANY OVER EXCAVATION

NOTE: IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EARTHWORK QUANTITIES PRIOR TO ANY CONSTRUCTION. SHOULD THE CONTRACTOR DISCOVER ANY DISCREPANCIES, THE CONTRACTOR SHOULD NOTIFY SUMMIT ENGINEERING @ (702) 252-3236 IMMEDIATELY.

BASIS OF BEARING:

NORTH 00°19'10" WEST
BEING THE WEST LINE OF SECTION 19, TOWNSHIP 21 SOUTH, RANGE 61 EAST, M.D.M.,

PROJECT BENCHMARK:

2C1119SWS
RIVET AND SQUARE PLATE IN TOP OF CURB, NORTHEAST CORNER OF TROPICANA AVE AND DECATUR BLVD. NEAR THE PC OF TROPICANA AVENUE
ELEV 685.044 METERS., 2247.515 FT
NAVD 88.

LEGAL DESCRIPTION:

A PORTION OF GOVERNMENT LOT 4 OF SECTION 19, TOWNSHIP 21 SOUTH, RANGE 61 EAST, M.D.M.

GENERAL NOTES:

1) ALL GRADING AND STRUCTURAL SECTIONS MUST CONFORM TO THE SOILS REPORT PREPARED BY WESTERN TECHNOLOGIES INC., "GEOTECHNICAL EVALUATION PROPOSED HOME DEPOT RETAIL DEVELOPMENT GFA 991050, DATED MAY 18, 2000 (PROJECT NO. 4120JN044)
2) ADD 2200 FEET TO ALL ELEVATION TAGS TO ACHIEVE TRUE DATUM ELEVATION.

SUMMIT ENGINEERING CORPORATION
1421 E. SUNSET ROAD, SUITE 17 LAS VEGAS, NEVADA 89119
PHONE: (702) 252-3236 FAX: (702) 252-3247

DESIGNED: JNW
CHECKED: AH
SCALE HOR. 1"=40'
SCALE VER. 1"=4'
FILE No. 72105
03/19/01

THE HOME DEPOT
DECATUR PLAN / PROFILE SHEET
HOME DEPOT USA - TROPICANA/DECATUR
CLARK COUNTY NEVADA

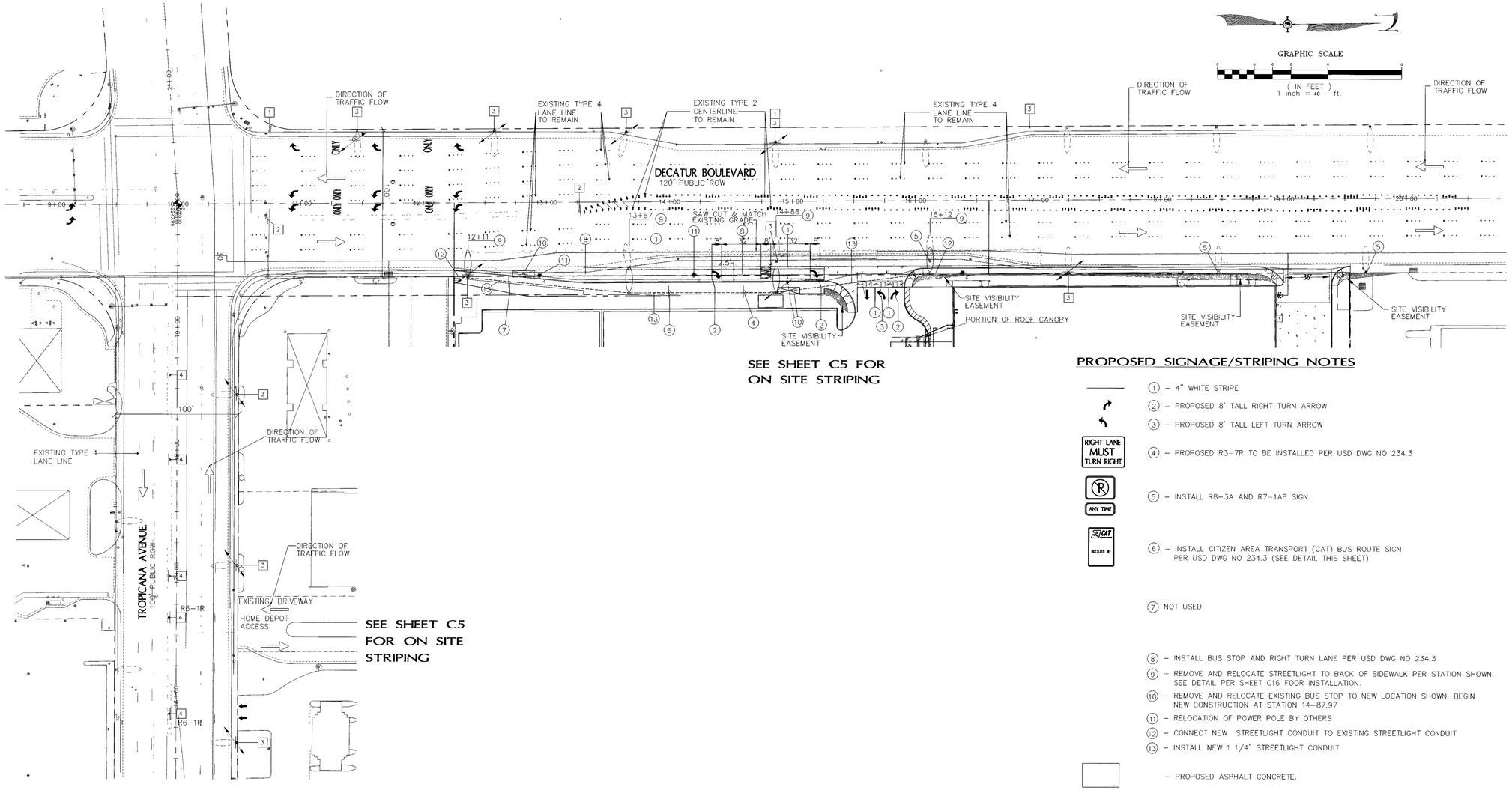
REV.	DATE	DESCRIPTION	BY	APP'D
1	6/21/01	REV PER COMMENTS	AH	

P:\DWGS\72105\72105DRP.dwg

STATE OF NEVADA — ANDREW HUSTAD — 13651 — CIVIL — REGISTERED PROFESSIONAL ENGINEER
SEAL
5/18/01

SHEET C12 OF 19

00-39104



SEE SHEET C5 FOR ON SITE STRIPING

SEE SHEET C5 FOR ON SITE STRIPING

GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft.

PROPOSED SIGNAGE/STRIPING NOTES

- (1) – 4" WHITE STRIPE
- (2) – PROPOSED 8' TALL RIGHT TURN ARROW
- (3) – PROPOSED 8' TALL LEFT TURN ARROW
- (4) – PROPOSED R3-7R TO BE INSTALLED PER USD DWG NO 234.3
- (5) – INSTALL R8-3A AND R7-1AP SIGN
- (6) – INSTALL CITIZEN AREA TRANSPORT (CAT) BUS ROUTE SIGN PER USD DWG NO 234.3 (SEE DETAIL THIS SHEET)
- (7) NOT USED
- (8) – INSTALL BUS STOP AND RIGHT TURN LANE PER USD DWG NO 234.3
- (9) – REMOVE AND RELOCATE STREETLIGHT TO BACK OF SIDEWALK PER STATION SHOWN. SEE DETAIL PER SHEET C16 FOOR INSTALLATION.
- (10) – REMOVE AND RELOCATE EXISTING BUS STOP TO NEW LOCATION SHOWN. BEGIN NEW CONSTRUCTION AT STATION 14+87.97
- (11) – RELOCATION OF POWER POLE BY OTHERS
- (12) – CONNECT NEW STREETLIGHT CONDUIT TO EXISTING STREETLIGHT CONDUIT
- (13) – INSTALL NEW 1 1/4" STREETLIGHT CONDUIT

– PROPOSED ASPHALT CONCRETE.

– DIRECTION OF TRAFFIC FLOW

EXISTING SIGNAGE/STRIPING NOTES

– EXISTING TRAFFIC SIGN MOUNTED ON STREET LIGHT POLE

[1] – EXISTING R3-7R SIGN, PROTECT IN PLACE

[2] – EXISTING R3-7L SIGN, PROTECT IN PLACE

[3] – EXISTING MOUNTED R8-3A AND R7-1AP "NO PARKING SIGN" ON STREET LIGHT POLE OR AS SHOWN

[4] – EXISTING MOUNTED R6-1 SIGN

– EXISTING LANE STRIPE

– EXISTING CENTERLINE

– EXISTING TURN

UTILITY NOTE

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

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

AVOID HITTING OVERHEAD POWER LINES IT'S COSTLY CALL BEFORE YOU DIG OVERHEAD CALL 1-702-593-8111

GENERAL NOTES:

1) STREETLIGHT CLEARANCE FROM OVERHEAD HIGH VOLTAGE POWER LINES SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE (10' CLEARANCE). IF THIS CLEARANCE IS NOT MET, A REDESIGN AND LIGHTING STUDY MUST BE SUBMITTED TO CLARK COUNTY TRAFFIC MANAGEMENT FOR ACCEPTANCE.

2) REFER TO UTILITY PLAN FOR RELOCATION OF STREET LIGHTS.

3) ALL EXISTING SIGNAGE THAT IS ATTACHED TO LIGHT, OR POWER POLES ARE TO REMAIN UPON RELOCATION.

Traffic Management Division
Clark County Public Works
ACCEPTED
By _____ Traffic Management Date 3/30/01

ACCEPTANCE OF THESE PLANS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR OR AN APPROVAL OF ANY VIOLATION OF STATE OR COUNTY LAW SPECIFICATIONS, OR THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

SUMMIT ENGINEERING CORPORATION
1421 E. SUNSET ROAD, SUITE 17 LAS VEGAS, NEVADA 89119
PHONE: (702) 252-3236 FAX: (702) 252-3247

DESIGNED: TGJ
CHECKED: AJH
SCALE HOR. 1"=40' VER. 1"=4'
FILE No. 72125
03/27/01

THE HOME DEPOT
SIGNAGE/STRIPING/STREETLIGHT PLAN
HOME DEPOT USA - TROPICANA/DECATUR
CLARK COUNTY NEVADA

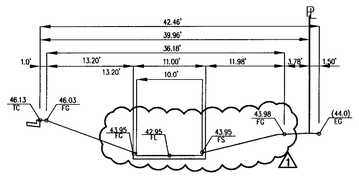
REV.	DATE	DESCRIPTION	BY	APP'D

P:\DWGS\J72125\2525TRAF.DWG

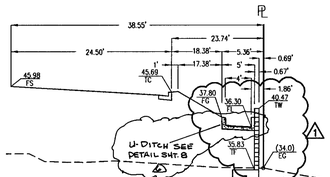
STATE OF NEVADA ANDREW HUSTAD 9140 PROFESSIONAL ENGINEER
3/29/01

SHEET C13 OF 19

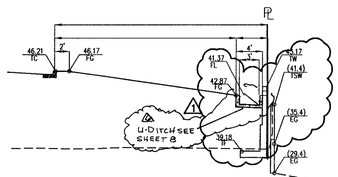
00-39104



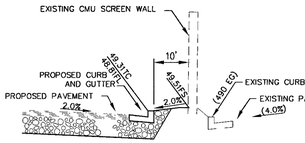
CROSS SECTION "A"
NTS



CROSS SECTION "B"
NTS

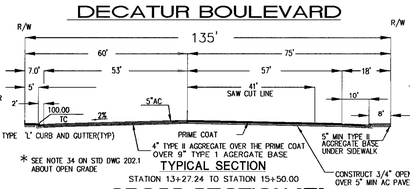


CROSS SECTION "C"
NTS

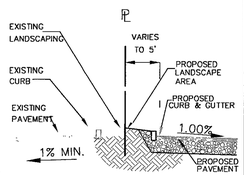


CROSS SECTION "D"
NTS

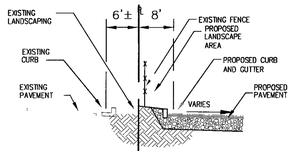
DECATUR BOULEVARD



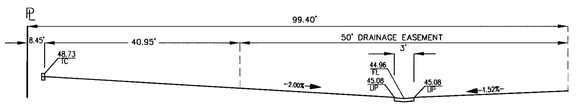
CROSS SECTION "E"
NTS



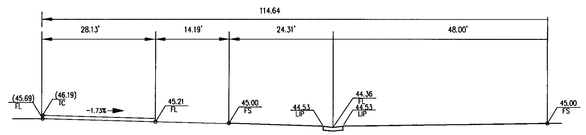
CROSS SECTION "F"
NTS



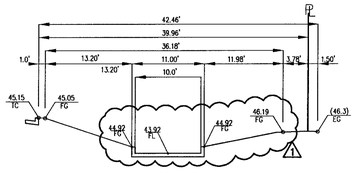
CROSS SECTION "G"
NTS



CROSS SECTION "H"
NTS



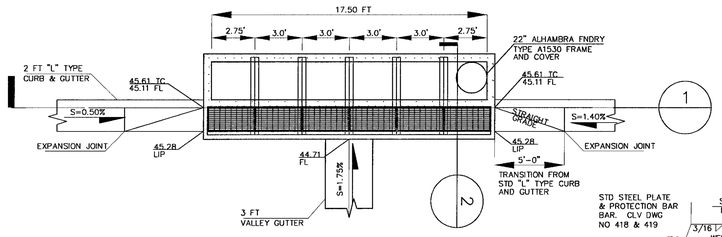
CROSS SECTION "I"
NTS



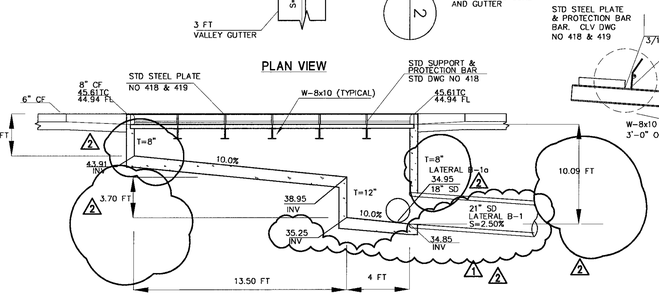
CROSS SECTION "J"
NTS



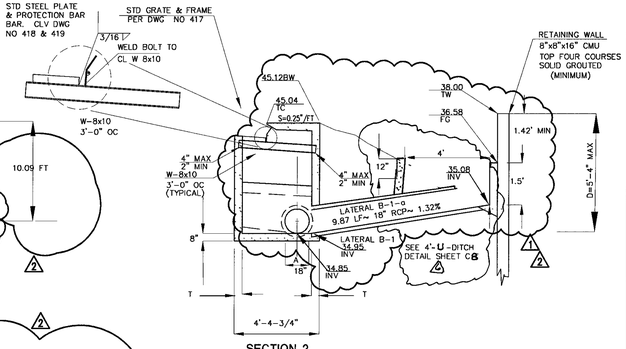
CROSS SECTION "U"
NTS



PLAN VIEW



SECTION 1



SECTION 2

STEEL NOTES*

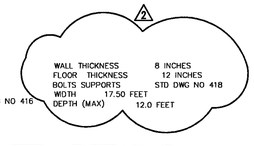
REINFORCEMENT PER STANDARD DROP INLET TYPE "C" USDCCA DWG NO 413

ALL HORIZ REINF #4 BARS 12" OC MAX

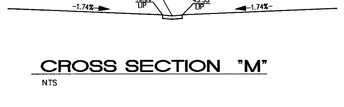
ALL VERT REINF #4 BARS 12" OC MAX

DROP INLET NOTES*

DROP INLET CONCRETE	MODIFIED TYPE "C" STD DWG NO 413 CLASS "D" OR "DA"
GRATE DATA	6- STANADARD 3 FT x 1.56 FT GRATES STANDARD DROP INLET FRAME AND GRATE STD DWG NO 416
BEAM DATA	W- 8 x 10 - 5.0 FEET



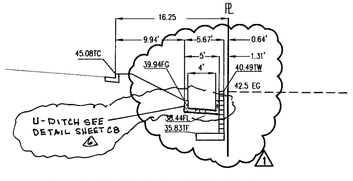
"MODIFIED TYPE "C" INLET" - DETAIL C
NTS



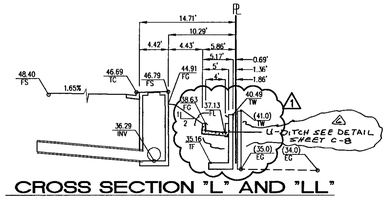
CROSS SECTION "M"
NTS



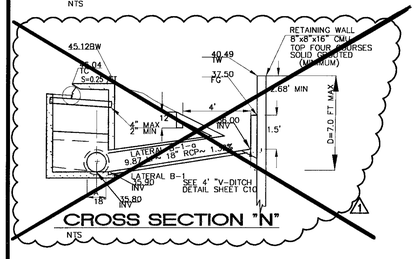
CROSS SECTION "UU"
NTS



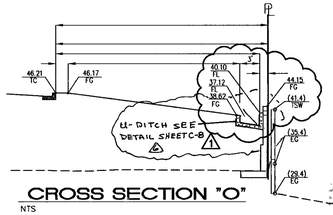
CROSS SECTION "K"
NTS



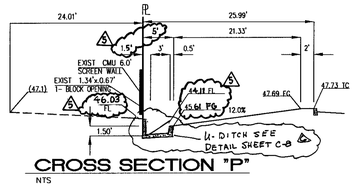
CROSS SECTION "L" AND "LL"
NTS



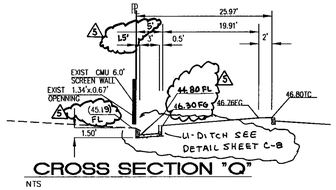
CROSS SECTION "N"
NTS



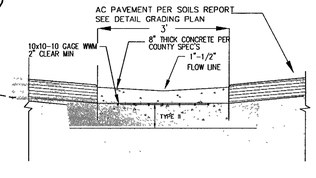
CROSS SECTION "O"
NTS



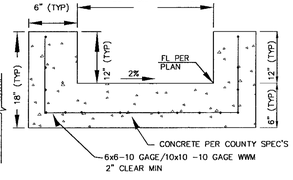
CROSS SECTION "P"
NTS



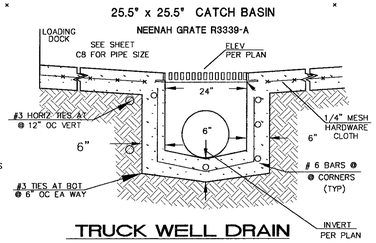
CROSS SECTION "Q"
NTS



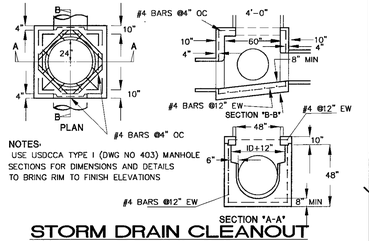
3' VALLEY GUTTER DETAIL "A"
NTS



"U"-GUTTER DETAIL "B"
NTS



TRUCK WELL DRAIN DETAIL "D"
NTS



NOTES:
USE USDCCA TYPE 1 (DWG NO 403) MANHOLE SECTIONS FOR DIMENSIONS AND DETAILS TO BRING RIM TO FINISH ELEVATIONS

STORM DRAIN CLEANOUT DETAIL "E"
NTS USDCCA DWG NO 405

SUMMIT ENGINEERING CORPORATION
1421 E. SUNSET ROAD, SUITE 17 LAS VEGAS, NEVADA 89119
PHONE: (702) 252-3236 FAX: (702) 252-3247

DESIGNED: JNW		
CHECKED: AH	HOR. N/A	
SCALE	VER. N/A	
FILE No. 72126		08/04/01

REV.	DATE	DESCRIPTION	BY	APP'D
	6/21/01	REV SECTIONS	AJH	
1	7/19/01	REVISE INLET DETAIL	AJH	
2	3/12/02	REVISE DITCH SECTIONS CHANGE V-DITCH TO U-DITCH	KSH	

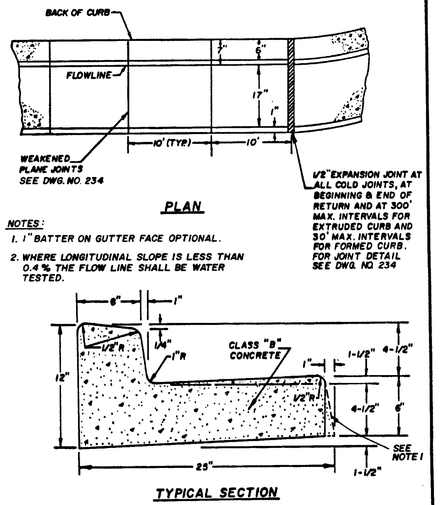
P:\DWGS\72126\2126d10.dwg

THE HOME DEPOT
GRADING PLAN DETAIL SHEET 1
HOME DEPOT USA - TROPICANA/DECATUR
CLARK COUNTY
NEVADA

STATE OF NEVADA — ANDREW J. HASTAD — No. 12455 — PROFESSIONAL ENGINEER — CIVIL

SHEET C14 OF 19

00-29104

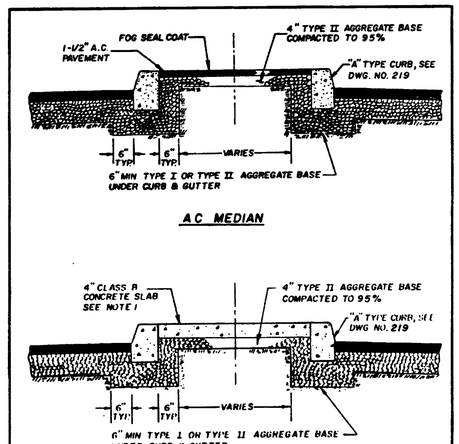


SPECIFICATION REFERENCE	
501	CONCRETE
502	CONCRETE STRUCTURES
707	JOINT MATERIAL

UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA

"L" TYPE CURB AND GUTTER

DATE | DWG NO 216 | PAGE NO. 22

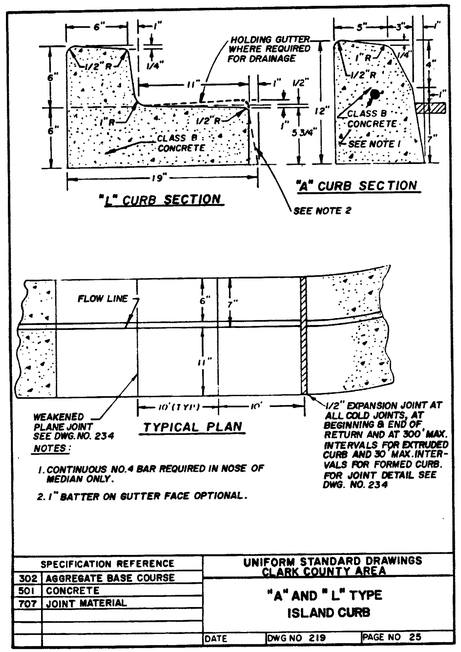


SPECIFICATION REFERENCE	
302	AGGREGATE BASE
501	CONCRETE

UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA

MEDIAN ISLAND TYPICAL SECTION

DATE | DWG NO. 218 | PAGE NO 24

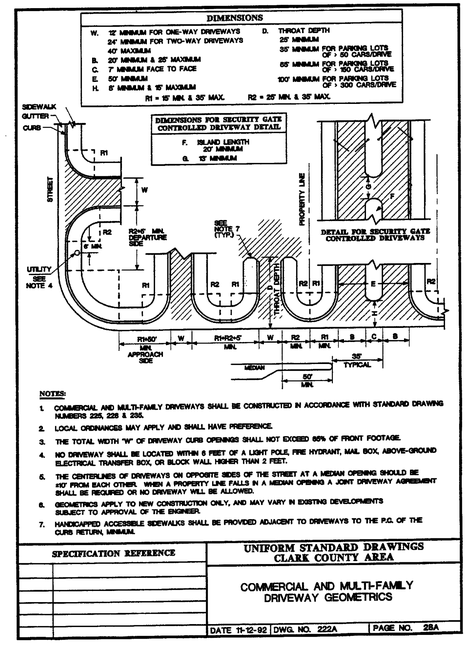


SPECIFICATION REFERENCE	
302	AGGREGATE BASE COURSE
501	CONCRETE
707	JOINT MATERIAL

UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA

"A" AND "L" TYPE ISLAND CURB

DATE | DWG NO 219 | PAGE NO 25



NOTES:

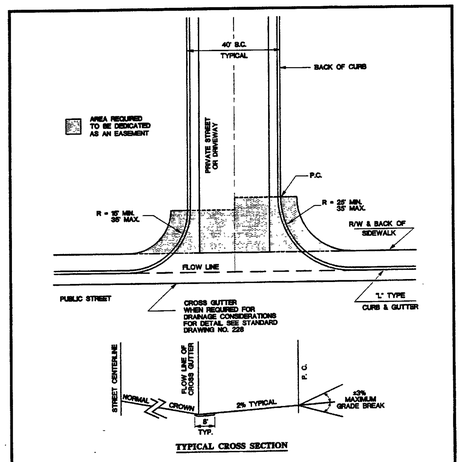
1. COMMERCIAL AND MULTI-FAMILY DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD DRAWING NUMBERS 225, 226 & 235.
2. LOCAL ORDINANCES MAY APPLY AND SHALL HAVE PREFERENCE.
3. THE TOTAL WIDTH "W" OF DRIVEWAY CURB OPENINGS SHALL NOT EXCEED 65% OF FRONT FOOTAGE.
4. NO DRIVEWAY SHALL BE LOCATED WITHIN 6 FEET OF A LIGHT POLE, FIRE HYDRANT, MAIL BOX, ABOVE-GROUND ELECTRICAL TRANSFER BOX, OR BLOCK WALL HIGHER THAN 2 FEET.
5. THE CENTERLINES OF DRIVEWAYS ON OPPOSITE SIDES OF THE STREET AT A MEDIAN OPENING SHOULD BE +0' FROM EACH OTHER. WHEN A PROPERTY LINE FALLS IN A MEDIAN OPENING A JOINT DRIVEWAY AGREEMENT SHALL BE REQUIRED OR NO DRIVEWAY WILL BE ALLOWED.
6. GEOMETRICS APPLY TO NEW CONSTRUCTION ONLY, AND MAY VARY IN EXISTING DEVELOPMENTS
7. HANDICAPPED ACCESSIBLE SIDEWALKS SHALL BE PROVIDED ADJACENT TO DRIVEWAYS TO THE P.C. OF THE CURB RETURN, MINIMUM.

SPECIFICATION REFERENCE	

UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA

COMMERCIAL AND MULTI-FAMILY DRIVEWAY GEOMETRICS

DATE 11-12-92 | DWG. NO. 222A | PAGE NO. 28A



NOTES:

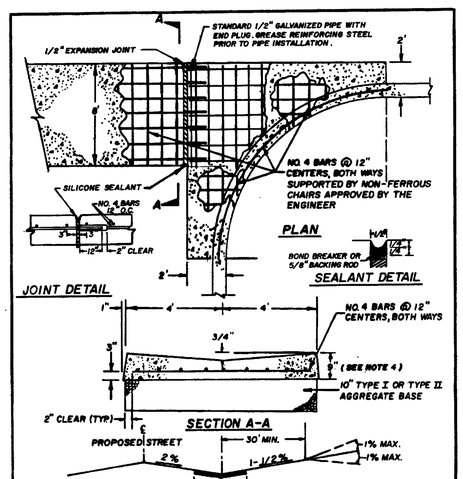
1. SEPARATION OF PEDESTRIAN AND VEHICLE TRAFFIC MUST BE MAINTAINED ON SITE.
2. FOR GRADE CHANGES GREATER THAN 3%, VERTICAL CURVES OF AT LEAST 10 FEET MUST BE USED.
3. WHEELCHAIR RAMPS SHALL BE CONSTRUCTED IN THE CURB RETURN IN ACCORDANCE WITH STANDARD DRAWING NO. 235.

SPECIFICATION REFERENCE	

UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA

COMMERCIAL AND INDUSTRIAL DRIVEWAY (OPTION B) OR PRIVATE STREET ACCESS

DATE 2-11-93 | DWG. NO. 225 | PAGE NO. 31



NOTES:

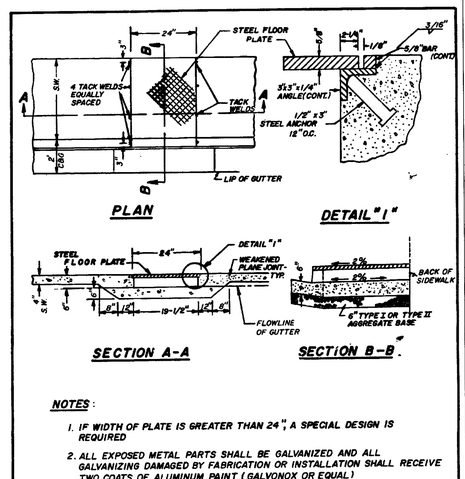
1. ALL CONCRETE SHALL BE CLASS B.
2. FINISHED ASPHALT CONCRETE SURFACE TO BE FLUSH WITH GROSS GUTTER LIP.
3. CONSTRUCTION OF CROSS GUTTER IS NOT ALLOWED ACROSS MAJOR COLLECTOR OR ARTERIAL STREETS.
4. ADJACENT SPANDREL SHALL BE 9" THICK P.C.C.

SPECIFICATION REFERENCE	
302	AGGREGATE BASE
501	CONCRETE
502	CONCRETE STRUCTURES
505	REINFORCING STEEL
707	EXPANSION JOINT MATERIAL
TT-S-00153A	CLASS A SEALANT

UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA

CROSS GUTTER

DATE | DWG NO 228 | PAGE NO. 34



NOTES:

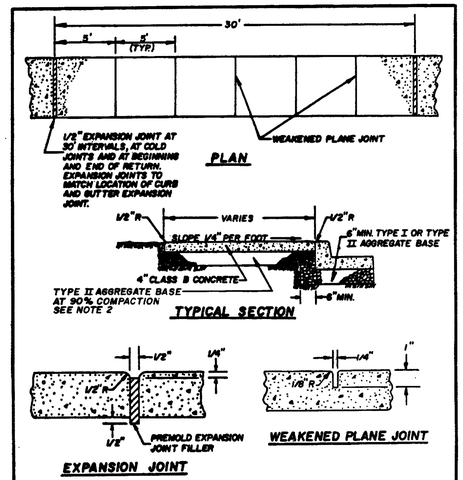
1. IF WIDTH OF PLATE IS GREATER THAN 24", A SPECIAL DESIGN IS REQUIRED
2. ALL EXPOSED METAL PARTS SHALL BE GALVANIZED AND ALL GALVANIZING DAMAGED BY FABRICATION OR INSTALLATION SHALL RECEIVE TWO COATS OF ALUMINUM PAINT (GALVONOX OR EQUAL)

SPECIFICATION REFERENCE	
302	BASE AGGREGATES
501	CONCRETE
710	STRUCTURAL STEEL

UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA

SIDEWALK DRAIN

DATE | DWG NO 236 | PAGE NO. 42



NOTE:

1. ON ALL CURB RETURNS A 1/2" EXPANSION JOINT SHALL BE CONSTRUCTED BETWEEN THE BACK OF CURB AND THE SIDEWALK FOR THE ENTIRE LENGTH OF THE RETURN.
2. THE TYPE II AGGREGATE BASE THICKNESS IS SHOWN ON THE TYPICAL SECTION DRAWINGS 202 - 207.
3. LONGITUDINAL WEAKENED PLANE JOINT REQUIRED AT MIDPOINT OF SIDEWALK 10'OR WIDER.

SPECIFICATION REFERENCE	
302	AGGREGATE BASE
501	CONCRETE
502	CONCRETE STRUCTURES
707	JOINT MATERIAL

UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA

SIDEWALK

DATE | DWG NO 234 | PAGE NO 40

SUMMIT ENGINEERING CORPORATION
1421 E. SUNSET ROAD, SUITE 17 LAS VEGAS, NEVADA 89119
PHONE: (702) 252-3226 FAX: (702) 252-3247

DESIGNED: JNW
CHECKED: AJH
SCALE HOR: N/A
SCALE VER: N/A
FILE No. 72126
03/18/01

THE HOME DEPOT
DETAIL SHEET 2
HOME DEPOT USA - TROPICANA/DECATUR
CLARK COUNTY
NEVADA

REV.	DATE	DESCRIPTION	BY	APP'D

P:\DWGS\72126\2126dtl.dwg

SEAL: STATE OF NEVADA — ANDREW J. HASTAD — No. 10401 — REGISTERED PROFESSIONAL ENGINEER — CIVIL

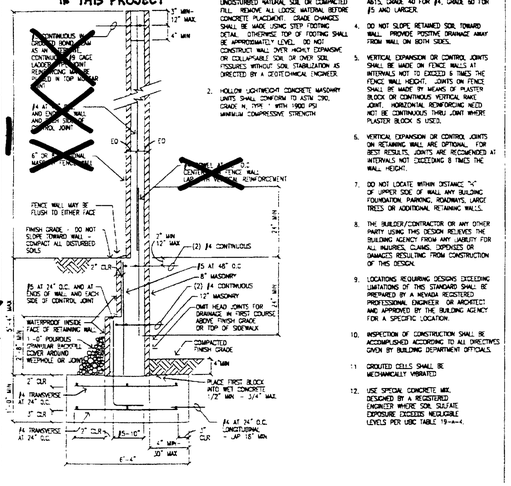
SHEET C15 OF 19

00-39104

5'-4" MAXIMUM HEIGHT RETAINING WALL and OPTIONAL MASONRY FENCE

B-101
04/06/98
Pg. 1 of 1

C:\ACADPRW...\MASONRY\B-101C



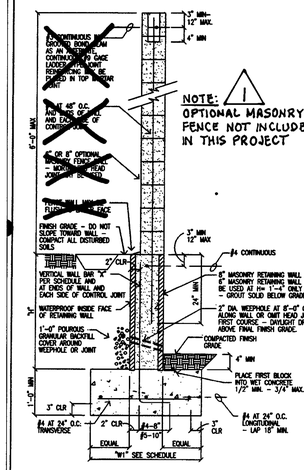
GENERAL NOTES

1. FOOTINGS SHALL BEAR ON COMPETANT UNDISTURBED NATURAL SOIL OR COMPACTED FILL. REMOVE ALL LOOSE MATERIAL BEFORE CONCRETE PLACEMENT. GRADE CHANGES SHALL BE MADE USING STEP FOOTING DETAIL. OTHERWISE TOP OF FOOTING SHALL BE APPROXIMATELY LEVEL. DO NOT CONSTRUCT WALL OVER HIGHLY EXPANSIVE OR COLLAPSABLE SOIL OR OVER SOIL FISSURES WITHOUT SOIL STABILIZATION AS DIRECTED BY A GEOTECHNICAL ENGINEER.
2. HOLLOW LIGHTWEIGHT CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C90, GRADE N, TYPE I WITH 1900 PSI MINIMUM COMPRESSIVE STRENGTH
3. STEEL REINFORCING BARS SHALL BE ASTM A615, GRADE 40 FOR #4, GRADE 60 FOR #5 AND LARGER.
4. DO NOT SLOPE RETAINED SOIL TOWARD WALL. PROVIDE POSITIVE DRAINAGE AWAY FROM WALL ON BOTH SIDES.
5. VERTICAL EXPANSION OR CONTROL JOINTS SHALL BE MADE ON FENCE WALLS AT INTERVALS NOT TO EXCEED 6 TIMES THE FENCE WALL HEIGHT. JOINTS ON FENCE SHALL BE MADE BY MEANS OF PLASTER BLOCK OR CONTINUOUS VERTICAL RAKE JOINT. HORIZONTAL REINFORCING NEED NOT BE CONTINUOUS THRU JOINT WHERE PLASTER BLOCK IS USED.
6. VERTICAL EXPANSION OR CONTROL JOINTS ON RETAINING WALL ARE OPTIONAL. FOR BEST RESULTS, JOINTS ARE RECOMENDED AT INTERVALS NOT EXCEEDING 8 TIMES THE WALL HEIGHT.
7. DO NOT LOCATE WITHIN DISTANCE "X" OF UPPER SIDE OF WALL ANY BUILDING FOUNDATION, PARKING, ROADWAYS, LARGE TREES OR ADDITIONAL RETAINING WALLS.
8. THE BUILDER/CONTRACTOR OR ANY OTHER PARTY USING THIS DESIGN RELIEVES THE BUILDING AGENCY FROM ANY LIABILITY FOR ALL INJURIES, CLAIMS, EXPENSES OR DAMAGES RESULTING FROM CONSTRUCTION OF THIS DESIGN.
9. LOCATIONS REQUIRING DESIGNS EXCEEDING LIMITATIONS OF THIS STANDARD SHALL BE PREPARED BY A NEVADA REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AND APPROVED BY THE BUILDING AGENCY FOR A SPECIFIC LOCATION.
10. INSPECTION OF CONSTRUCTION SHALL BE ACCOMPLISHED ACCORDING TO ALL DIRECTIVES GIVEN BY BUILDING DEPARTMENT OFFICIALS.
11. GROUTED CELLS SHALL BE MECHANICALLY VIBRATED
12. USE SPECIAL CONCRETE MIX, DESIGNED BY A REGISTERED ENGINEER WHERE SOIL SULFATE EXPOSURE EXCEEDS NEGLIGABLE LEVELS PER UBC TABLE 19-A-4.

City of Boulder City	City of Las Vegas	CLARK COUNTY
Building Department 601 California Avenue Boulder City, NV 89005 (702)293-9282	Building and Safety Dept. 731 S. 4th Street Las Vegas, Nevada 89101 (702) 229-6251	Department of Building 500 S. Grand Central Pky. Las Vegas, Nevada 89155-3530 (702)455-3000

STANDARD RETAINING WALL and OPTIONAL MASONRY FENCE

B-101-1
04/6/00
Pg. 1 of 2



GENERAL NOTES

1. FOOTINGS SHALL BEAR ON COMPETANT UNDISTURBED NATURAL SOIL OR COMPACTED FILL. REMOVE ALL LOOSE MATERIAL BEFORE CONCRETE PLACEMENT. GRADE CHANGES SHALL BE MADE USING STEP FOOTING DETAIL. OTHERWISE TOP OF FOOTING SHALL BE APPROXIMATELY LEVEL. DO NOT CONSTRUCT WALL OVER HIGHLY EXPANSIVE OR COLLAPSABLE SOIL OR OVER SOIL FISSURES WITHOUT SOIL STABILIZATION AS DIRECTED BY A GEOTECHNICAL ENGINEER.
2. HOLLOW LIGHTWEIGHT CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C90, GRADE N, TYPE 1 WITH 1900 PSI MINIMUM COMPRESSIVE STRENGTH.
3. STEEL REINFORCING BARS SHALL BE ASTM A615, GRADE 40 FOR #4, GRADE 60 FOR #5 AND LARGER.
4. DO NOT SLOPE RETAINED SOIL TOWARD WALL. PROVIDE POSITIVE DRAINAGE AWAY FROM WALL ON BOTH SIDES.
5. VERTICAL EXPANSION OR CONTROL JOINTS SHALL BE MADE ON FENCE WALLS AT INTERVALS NOT TO EXCEED 6 TIMES THE FENCE WALL HEIGHT. JOINTS ON FENCE SHALL BE MADE BY MEANS OF PLASTER BLOCK OR CONTINUOUS VERTICAL RAKE JOINT. HORIZONTAL REINFORCING NEED NOT BE CONTINUOUS THRU JOINT WHERE PLASTER BLOCK IS USED.
6. VERTICAL EXPANSION OR CONTROL JOINTS ON RETAINING WALL ARE OPTIONAL. FOR BEST RESULTS, JOINTS ARE RECOMENDED AT INTERVALS NOT EXCEEDING 8 TIMES THE WALL HEIGHT.
7. DO NOT LOCATE WITHIN DISTANCE "X" OF UPPER SIDE OF WALL ANY BUILDING FOUNDATION, PARKING, ROADWAYS, LARGE TREES OR ADDITIONAL RETAINING WALLS.
8. THE BUILDER/CONTRACTOR OR ANY OTHER PARTY USING THIS DESIGN RELIEVES THE BUILDING AGENCY FROM ANY LIABILITY FOR ALL INJURIES, CLAIMS, EXPENSES OR DAMAGES RESULTING FROM CONSTRUCTION OF THIS DESIGN.
9. LOCATIONS REQUIRING DESIGNS EXCEEDING LIMITATIONS OF THIS STANDARD SHALL BE PREPARED BY A NEVADA REGISTERED PROFESSIONAL ENGINEER, OR ARCHITECT AND APPROVED BY THE BUILDING AGENCY FOR A SPECIFIC LOCATION.
10. INSPECTION OF CONSTRUCTION SHALL BE ACCOMPLISHED ACCORDING TO ALL DIRECTIVES GIVEN BY BUILDING DEPARTMENT OFFICIALS.

Clark County	City of Las Vegas	City of Boulder City
Department of Building 500 S. Grand Central Pky. Las Vegas, Nevada 89155-3530 (702) 455-3000	Building & Safety Dept. 731 S. 4th Street Las Vegas, Nevada 89101 (702) 229-6016	Building Department 401 California Avenue Boulder City, Nevada 89005 (702) 293-9282

STANDARD RETAINING WALL and OPTIONAL MASONRY FENCE

B-101-2
3/23/00
Pg. 2 of 2

CONCRETE:
CONCRETE SHALL BE A 3,000 MINIMUM, TYPE V CEMENT AND 5 SACK MIX WITH 3,000 PSI 28 DAY STRENGTH. SLUMP SHALL NOT EXCEED 5" FOR HAND PLACEMENT OR 8" FOR PUMP PLACEMENT. SLUMP TOLERANCE SHALL BE +/- 1" FOR SLUMPS UP TO 5" AND +/- 1.5" FOR SLUMPS OVER 5". MAXIMUM AGGREGATE SIZE SHALL BE 1 INCHES. GRADE 60 REINFORCING STEEL.

A GOOD CONCRETE MIXTURE FOR 3,000 PSI IS AS FOLLOWS: 1 PART PORTLAND CEMENT, 2.75 PARTS SAND, 1 PART FLY ASH, 2.75 PARTS GRAVEL, 1.5 GALLONS OF WATER PER SACK OF CEMENT, AND JUST ENOUGH WATER TO MAKE THE MIXTURE "WORK" AND WORKABLE, BUT NOT "SOUPY". THE WATER CONTENT SHOULD NOT BE MORE THAN 7.5 GALLONS PER SACK OF CEMENT FOR THE ABOVE MIX.

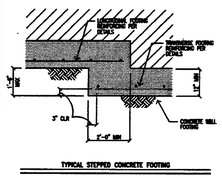
MORTAR:
MORTAR SHALL BE 2000 PSI TYPE S.

A GOOD MORTAR MIXTURE SHOULD BE IN PROPORTION OF 1 PART PORTLAND CEMENT, 1/3 PART LIME (HYDRATED),

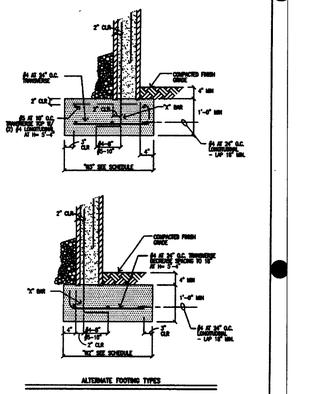
AND 3 PARTS SAND. THE MIXED CONSTENT SHOULD BE ACCORDING TO ABSORPTION AND SUCTION ABILITY TO ASSURE NORMAL FLOW AND SPREADING WITH A TROWEL.

GROUT:
GROUT SHALL BE 2000 PSI.

A GOOD GROUT MIXTURE SHOULD BE COMPOSED BY VOLUME OF 1 PART PORTLAND CEMENT, 2 PARTS SAND, AND 1 PART FLY ASHES. SUFFICIENT WATER SHALL BE ADDED TO PRODUCE CONSISTENCY FOR POURING WITHOUT SEGREGATION.



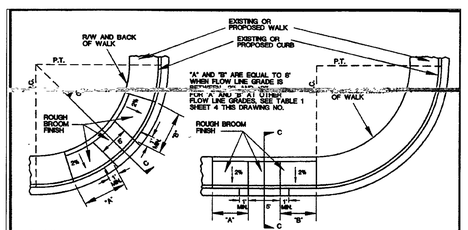
TYPICAL STEPPED CONCRETE FOOTING



ALTERNATE FOOTING TYPES

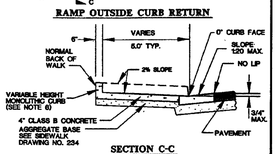
MAXIMUM RETAINING WALL HEIGHT "H"	MINIMUM FOOTING WIDTH "W1"	"W2"	"W3"	VERTICAL WALL BAR "X"
1'-4"	2'-0"	2'-0"	2'-0"	#4 AT 48" O.C.
2'-8"	2'-4"	2'-8"	2'-6"	#4 AT 48" O.C.
4'-0"	3'-0"	3'-4"	3'-4"	#5 AT 48" O.C. OR #4 AT 32" O.C.
5'-4"	3'-4"	5'-0"	5'-0"	#5 AT 16" O.C.

Clark County	City of Las Vegas	City of Boulder City
Department of Building 500 S. Grand Central Pky. Las Vegas, Nevada 89155-3530 (702) 455-3000	Building & Safety Dept. 731 S. 4th Street Las Vegas, Nevada 89101 (702) 229-6016	Building Department 401 California Avenue Boulder City, Nevada 89005 (702) 293-9282

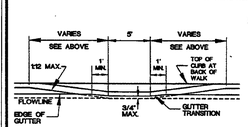


RAMP IN CURB RETURN

RAMP OUTSIDE CURB RETURN



SECTION C-C



PROFILE

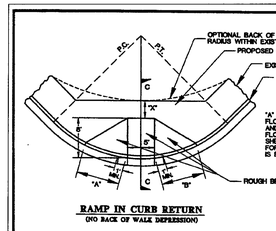
NOTES:
1. SIDEWALK RAMP WITHIN CURB RETURN SHALL BE LOCATED AT THE MIDPOINT OF CURB RETURN UNLESS OTHERWISE APPROVED.
2. SIDEWALK RAMPS OUTSIDE OF THE CURB RETURN SHALL BE LOCATED ADJACENT TO THE RETURN UNLESS OTHERWISE APPROVED.
3. RAMPS SHALL BE CONSTRUCTED WITH A ROUGH BROOM FINISH TRANSVERSE TO THE SLOPE OF THE RAMP.
4. WHEN CONSTRUCTING RAMP WHERE CURB & GUTTER EXISTS, COMPLETELY REMOVE INTERFERING PORTIONS OF EXISTING CURB & GUTTER.
5. DETECTABLE WARNING CONSISTING OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9 IN, A HEIGHT OF NOMINAL 0.2 IN, AND A CENTER-TO-CENTER SPACING OF NOMINAL 2.35 IN. AND CONTRASTING VISUALLY WITH ADJOINING SURFACES MAY BE PLACED ON RAMP EXTENDING THE FULL WIDTH AND DEPTH OF THE RAMP.
6. CURB MAY BE PLACED AND IS PREFERRED BEHIND BACK OF WALK IF SUFFICIENT RIGHT-OF-WAY OR EASEMENTS EXIST AND AS APPROVED BY THE ENGINEER.

SPECIFICATION REFERENCE	
302	AGGREGATE BASE
501	CONCRETE
502	CONCRETE STRUCTURES

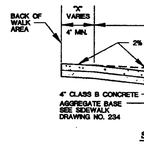
UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA

SIDEWALK RAMP CASE I

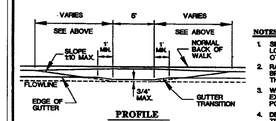
DATE 6-13-96 | DWG. NO. 235 (1 OF 4) | PAGE 41



RAMP IN CURB RETURN
(NO BACK OF WALK DEPRESSION)



SECTION C-C



PROFILE

NOTES:
1. SIDEWALK RAMP WITHIN CURB RETURN SHALL BE LOCATED AT THE MIDPOINT OF CURB RETURN UNLESS OTHERWISE APPROVED.
2. RAMPS SHALL BE CONSTRUCTED WITH A ROUGH BROOM FINISH TRANSVERSE TO THE SLOPE OF THE RAMP.
3. WHEN CONSTRUCTING RAMP WHERE CURB & GUTTER EXISTS, COMPLETELY REMOVE INTERFERING PORTIONS OF EXISTING CURB & GUTTER.
4. DETECTABLE WARNING CONSISTING OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9 IN, A HEIGHT OF NOMINAL 0.2 IN, AND A CENTER-TO-CENTER SPACING OF NOMINAL 2.35 IN. AND CONTRASTING VISUALLY WITH ADJOINING SURFACES MAY BE PLACED ON RAMP EXTENDING THE FULL WIDTH AND DEPTH OF THE RAMP.

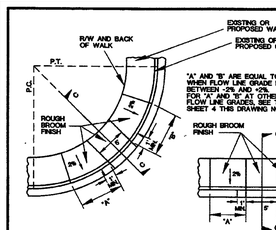
CASE II SHALL BE USED WHERE R/W AND FIELD CONDITIONS PERMIT.

SPECIFICATION REFERENCE	
302	AGGREGATE BASE
501	CONCRETE
502	CONCRETE STRUCTURES

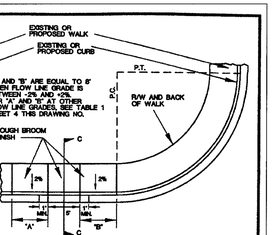
UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA

SIDEWALK RAMP CASE II

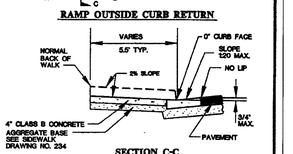
DATE 6-13-96 | DWG. NO. 235 (2 OF 4) | PAGE 41A



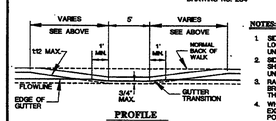
RAMP IN CURB RETURN



RAMP OUTSIDE CURB RETURN



SECTION C-C



PROFILE

NOTES:
1. SIDEWALK RAMP WITHIN CURB RETURN SHALL BE LOCATED AT THE MIDPOINT OF CURB RETURN UNLESS OTHERWISE APPROVED.
2. SIDEWALK RAMPS OUTSIDE OF THE CURB RETURN SHALL BE LOCATED ADJACENT TO THE RETURN UNLESS OTHERWISE APPROVED.
3. RAMPS SHALL BE CONSTRUCTED WITH A ROUGH BROOM FINISH TRANSVERSE TO THE SLOPE OF THE RAMP.
4. WHEN CONSTRUCTING RAMP WHERE CURB & GUTTER EXISTS, COMPLETELY REMOVE INTERFERING PORTIONS OF EXISTING CURB & GUTTER.
5. DETECTABLE WARNING CONSISTING OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9 IN, A HEIGHT OF NOMINAL 0.2 IN, AND A CENTER-TO-CENTER SPACING OF NOMINAL 2.35 IN. AND CONTRASTING VISUALLY WITH ADJOINING SURFACES MAY BE PLACED ON RAMP EXTENDING THE FULL WIDTH AND DEPTH OF THE RAMP.

CASE III TO BE USED FOR AREAS WHERE OBSTRUCTION (I.E. BLOCK WALL) EXISTS AT BACK OF WALK ONLY WHEN APPROVED BY THE ENGINEER.

SPECIFICATION REFERENCE	
302	AGGREGATE BASE
501	CONCRETE
502	CONCRETE STRUCTURES

UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA

SIDEWALK RAMP CASE III

DATE 6-13-96 | DWG. NO. 235 (3 OF 4) | PAGE 41B

GRADE (%) "B" TO "A"	"A" (FT) MIN.	"B" (FT) MIN.
+6 TO -5.01	4.5	21.5
-5 TO -4.01	4.5	15.0
-4 TO -3.01	4.5	12.0
-3 TO -2.01	4.5	9.5
-2 TO 2	6.0	8.0
2.01 TO 3	9.5	4.5
3.01 TO 4	12.0	4.5
4.01 TO 5	15.0	4.5
5.01 TO 6	21.5	4.5

TABLE 1. TRANSITION LENGTHS FOR 1:12 SIDE SLOPES

GRADE (%) "B" TO "A"	"A" (FT) MIN.	"B" (FT) MIN.
-6 TO -5.01	4.0	12.5
-5 TO -4.01	4.0	10.0
-4 TO -3.01	4.0	8.5
-3 TO -2.01	4.0	7.5
-2 TO 2	6.5	6.5
2.01 TO 3	7.5	4.0
3.01 TO 4	8.5	4.0
4.01 TO 5	10.0	4.0
5.01 TO 6	12.5	4.0

TABLE 2. TRANSITION LENGTHS FOR 1:10 SIDE SLOPES

NOTE:
CHARTS APPLY TO CURB WITH 6" CURB FACE.
IF CURB HAS GREATER THAN A 6" CURB FACE, A SPECIAL DESIGN IS REQUIRED.

SPECIFICATION REFERENCE	
302	AGGREGATE BASE
501	CONCRETE
502	CONCRETE STRUCTURES

UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA

SIDEWALK RAMP

DATE 6-13-96 | DWG. NO. 235 (4 OF 4) | PAGE 41C

SUMMIT™ ENGINEERING CORPORATION
1421 E. SUNSET ROAD, SUITE F, LAS VEGAS, NEVADA 89119
PHONE: (702) 262-3336 FAX: (702) 252-3847

DESIGNED: DRB/WOHER
CHECKED: AH
SCALE: HOR. N/A, VER. N/A
FILE NO. 72125
03/16/01

THE HOME DEPOT
DETAIL SHEET 3
HOME DEPOT USA - TROPICANA/DECATUR
CLARK COUNTY
NEVADA

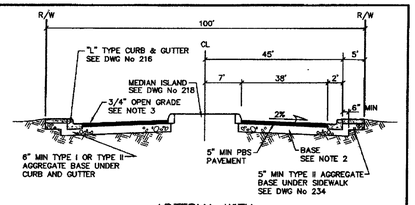
REV.	DATE	DESCRIPTION	BY	APPD
1	6/21/01	R/W WALL DETAIL	AH	

PLOTTED:6/27/01 2:06PM BY: D:\Projects\72125\dwg\72125-3.dwg

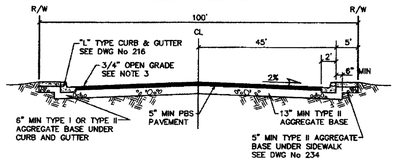
SEAL: PROFESSIONAL ENGINEER STATE OF NEVADA ANDREW J. HUSTAD No. 12518 CIVIL
5/14/01

SHEET C16 OF 19

00-39104



ARTERIAL WITH
MEDIAN ISLAND

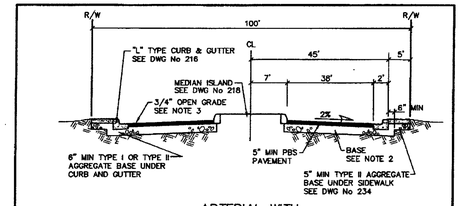


ARTERIAL WITHOUT
MEDIAN ISLAND

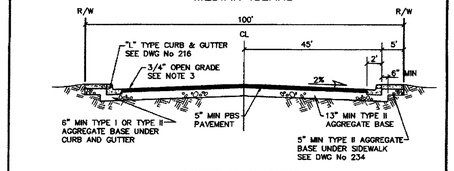
NOTES

1. FINAL PBS PAVEMENT SURFACE (INCLUDING OPEN GRADE) SHALL BE 1/2" MAXIMUM ABOVE LIP OF GUTTER.
2. STRUCTURAL SECTION TO BE DETERMINED BY ENGINEERING ANALYSIS BASED ON A SUBGRADE "R" OR "CBR" VALUE DETERMINED BY SOIL TESTING. IN NO CASE SHALL THE PBS THICKNESS BE LESS THAN THAT SHOWN, NOR SHALL THE BASE BE LESS THAN 3" (ALTERNATE PAVEMENT SURFACE MAY BE ALLOWED).
3. A 3/4" OPEN GRADE MAY BE REQUIRED AS DETERMINED BY THE ENGINEER, OR IF WAIVED, SUBSTITUTED WITH DENSE GRADE PBS.

SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA
302	AGGREGATE BASE	CLARK COUNTY ONLY
401	BITUMINOUS PAVEMENT	ARTERIAL URBAN AREA STREET SECTIONS
403	OPEN GRADE	
501	CONCRETE	
		DATE | DWG No 202.1 | PAGE No



ARTERIAL WITH
MEDIAN ISLAND

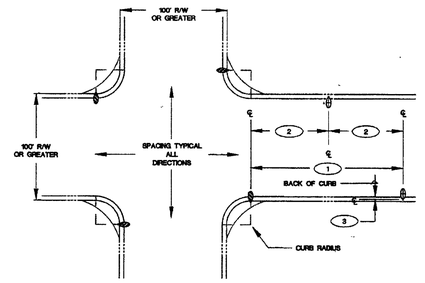


ARTERIAL WITHOUT
MEDIAN ISLAND

NOTES

1. FINAL PBS PAVEMENT SURFACE (INCLUDING OPEN GRADE) SHALL BE 1/2" MAXIMUM ABOVE LIP OF GUTTER.
2. STRUCTURAL SECTION TO BE DETERMINED BY ENGINEERING ANALYSIS BASED ON A SUBGRADE "R" OR "CBR" VALUE DETERMINED BY SOIL TESTING. IN NO CASE SHALL THE PBS THICKNESS BE LESS THAN THAT SHOWN, NOR SHALL THE BASE BE LESS THAN 3" (ALTERNATE PAVEMENT SURFACE MAY BE ALLOWED).
3. A 3/4" OPEN GRADE MAY BE REQUIRED AS DETERMINED BY THE ENGINEER, OR IF WAIVED, SUBSTITUTED WITH DENSE GRADE PBS.

SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA
302	AGGREGATE BASE	CLARK COUNTY ONLY
401	BITUMINOUS PAVEMENT	ARTERIAL URBAN AREA STREET SECTIONS
403	OPEN GRADE	
501	CONCRETE	
		DATE | DWG No 202.1 | PAGE No



NOTES:

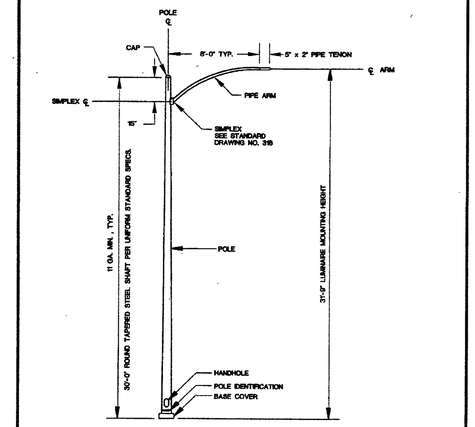
1. SEE GENERAL NOTES STANDARD DRAWING NO. 300.
2. AN APPROVED LIGHTING STUDY PER NOTE 2, STANDARD DRAWING NO. 300 IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET.
3. CITY OF HENDERSON AND BOULDER CITY REQUIRE STREETLIGHTING IN THE MEDIAN FOR RIGHTS-OF-WAY 100 FEET OR GREATER. SEE STANDARD DRAWING NO. 312. IN THE ABSENCE OF A MEDIAN, STREETLIGHT LOCATION SHALL BE THE SAME AS THE OTHER ENTITIES.



4-2-97

POLE LOCATION TABLE		
KEYED NOTE	ENTITY CC CLV NLV MES	END MC
1	100'	(SEE NOTE 3)
2	80'	(SEE NOTE 3)
3	(SEE DRAWING NO. 3320)	N/A

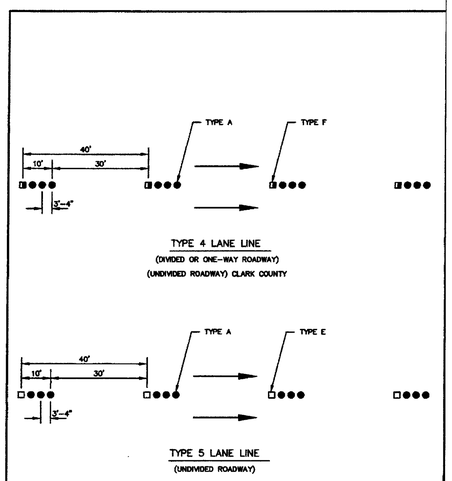
SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA
623	TRAFFIC SIGNALS & STREETLIGHTING	STREETLIGHT LOCATIONS AT INTERSECTIONS 100' OR GREATER/100' OR GREATER RIGHT-OF-WAY
		DATE 12-12-96 | DWG. NO. 301 | PAGE NO. 61



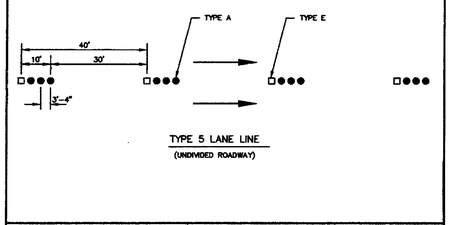
NOTES:

1. SEE GENERAL NOTES STANDARD DRAWING NO. 313.
2. SEE STANDARD DRAWING NO. 319 FOR DETAIL OF POLE BASE.
3. SEE STANDARD DRAWING NO. 318 FOR DETAIL OF POLE CAP.

SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA
506	STEEL STRUCTURES	STREETLIGHT STANDARD WITH 2" PIPE ARM
623	TRAFFIC SIGNALS & STREETLIGHTING	
715	GALVANIZING	
		DATE 12-12-96 | DWG. NO. 314 | PAGE NO. 74

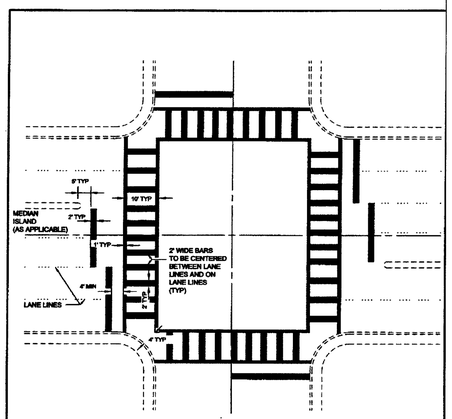


TYPE 4 LANE LINE
(DIVIDED OR ONE-WAY ROADWAY)
(UNDIVIDED ROADWAY) CLARK COUNTY



TYPE 5 LANE LINE
(UNDIVIDED ROADWAY)

SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA
633	PAVEMENT MARKERS	CLARK COUNTY ONLY
		TYPICAL LANE LINE DELINEATION
		DATE | DWG No 244A.1 | PAGE No



TYPICAL CROSSWALK
STRIPING DETAIL

SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA
		CROSSWALK MARKINGS
		DATE | DWG No 254.1 | PAGE No

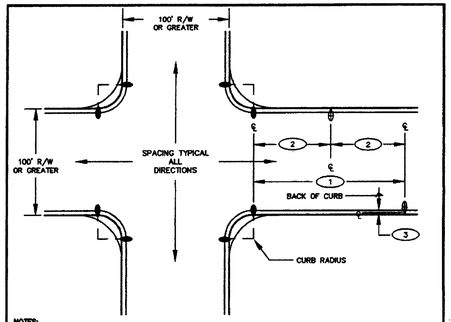
1. INSTALL STREETLIGHT STANDARDS AT INTERSECTIONS INCLUDING "L" AND "T" TYPES, PER STANDARD DRAWINGS 301 THROUGH 310 IN ACCORDANCE WITH THE APPROPRIATE RIGHT-OF-WAY.
2. STREET CLASSIFICATION AND STREETLIGHT STANDARD APPLICATION SHALL BE AS LISTED IN TABLE 1 BELOW. ACTUAL LUMINAIRE WATTAGE AND/OR STREETLIGHT STANDARD SPACING MAY BE VARIED BY THE ENGINEER, WHEN SUPPORTED BY AN APPROVED LIGHTING STUDY IN ACCORDANCE WITH THE IES RECOMMENDED PRACTICE FOR ROADWAY LIGHTING IN ORDER TO MEET CURRENT AND FUTURE TRAFFIC CONTROL NEEDS AND APPROVED BY THE RESPECTIVE AGENCY. AVERAGE LEVELS ARE MAINTAINED LEVELS AT A 0.8 MAINTENANCE FACTOR IN FOOTCANDLES MEASURED HORIZONTALLY AT THE SURFACE.

TABLE 1

CLASSIFICATION	R/W	DWG	LUMINAIRE	AVERAGE IES LIGHTING LEVEL	UNIFORMITY AVG./MIN
MAJOR ARTERIAL	100' OR MORE	----	250W HPS	1.58 FC	3:1
INTERMEDIATE COLLECTOR	80'	----	150W HPS 250W HPS (CLARK COUNTY)	0.84 FC	4:1
LOCAL	60'	----	250W HPS 100W HPS (CLARK COUNTY)	0.38 FC	6:1
RESIDENTIAL	51' OR LESS	----	100W HPS	0.38 FC	6:1

3. NEW STREETLIGHT STANDARD INSTALLED ADJACENT TO OR OPPOSITE FROM EXISTING STREETLIGHTS SHALL MATCH THE EXISTING LOCATION, SPACING, POLE AND LUMINAIRE TYPES UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
4. STREETLIGHT STANDARDS INSTALLED ON 80' OR LESS RIGHT-OF-WAYS MAY BE INSTALLED ON EITHER SIDE OF ROADWAY AS DIRECTED BY THE ENGINEER.
5. TRAFFIC SIGNAL FOUNDATIONS AND ADAPTER PLATES MAY BE REQUIRED AT INTERSECTIONS AS DIRECTED BY THE ENGINEER.
6. AT LEAST ONE STREETLIGHT SHALL BE REQUIRED IN THE BULB SECTION OF A CUL-DE-SAC OR HAMMERHEAD. LOCATION SHALL BE AS REQUIRED BY THE ENGINEER.

SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA
623	TRAFFIC SIGNALS & STREETLIGHTING	STREETLIGHT LOCATION GENERAL NOTES
		DATE | DWG No 300.1 | PAGE No



NOTES:

1. SEE GENERAL NOTES STANDARD DRAWING No 300.
2. AN APPROVED LIGHTING STUDY PER NOTE 2, STANDARD DRAWING No 300, IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET.

POLE LOCATION TABLE	
KEYED NOTE	ENTITY 8
1	120'
2	80'
3	(SEE DRAWING No 3320)

SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA
623	TRAFFIC SIGNALS & STREETLIGHTING	CLARK COUNTY AREA STREETLIGHT LOCATIONS AT INTERSECTIONS 100' OR GREATER/100' OR GREATER RIGHT-OF-WAY
		DATE | DWG No 301.1a | PAGE No

SUMMIT ENGINEERING CORPORATION
1421 E. SUNSET ROAD, SUITE 17 LAS VEGAS, NEVADA 89119
PHONE: (702) 252-3336 FAX: (702) 252-3347

DESIGNED: JNW
CHECKED: AH
SCALE: HOR. N/A VER. N/A
FILE No. 72125
03/19/01

THE HOME DEPOT
DETAIL SHEET 4
HOME DEPOT USA - TROPICANA/DECATUR
CLARK COUNTY
NEVADA

REV.	DATE	DESCRIPTION	BY	APPD

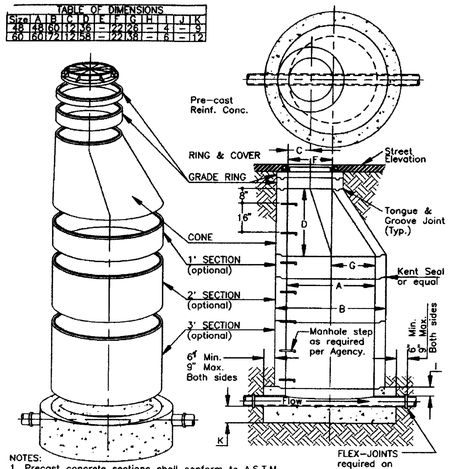
P:\DWGS\JF2125\2125dt03.dwg

PROFESSIONAL ENGINEER STATE OF NEVADA
ANDREW J. HUSTAD
No. 12293
CIVIL
5/19/01

SHEET C17 OF 19

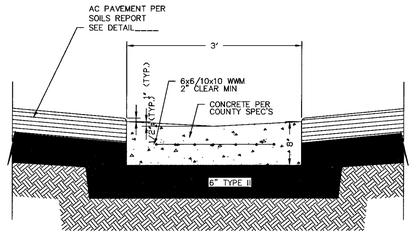
00-39104

TABLE OF DIMENSIONS										
Size	A	B	C	D	E	F	G	H	I	J	K
48"	48"	60"	12"	26"	-	22"	28"	-	8"	-	9"
60"	60"	72"	12"	26"	-	22"	38"	-	8"	-	12"



NOTES:
1. Precast concrete sections shall conform to A.S.T.M. Designation C-478 last amended. All Cement to be Type V.
2. Manhole Bases may be square.
3. All Manhole Steps shall face 180° from outgoing invert when required.
4. Bases shall be 3000# concrete per Section 4.8.2.
5. In unstable soil conditions a second pipe joint is required within 3' of the manhole connection.
6. On five & six foot Dia. manholes the reducer or transition must be placed directly beneath the cone.
7. When Precast Manhole Bases are used or unstable soil conditions are encountered a minimum of 4" of crushed rock will be placed under the manhole base.

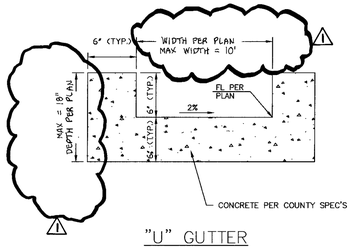
STANDARD ECCENTRIC MANHOLE



3' VALLEY GUTTER

DETAIL "B"

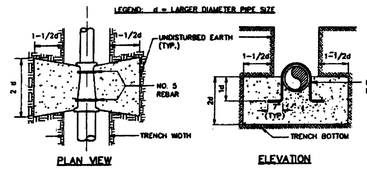
NTS



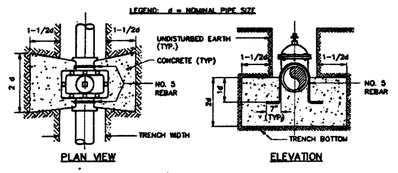
"U" GUTTER

DETAIL "C"

NTS



REDUCERS



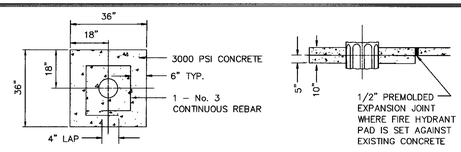
GATE VALVES

NOTES:

ALL CONCRETE SHALL BE 3000 P.S.I. MINIMUM 28 DAYS STRENGTH

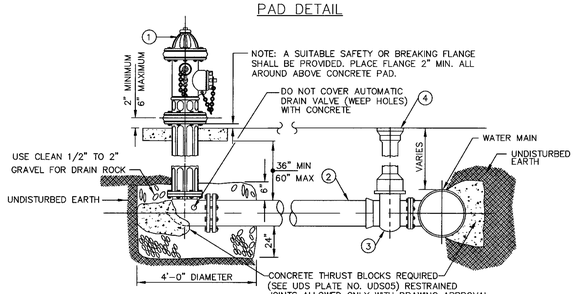
ALL VALVES AND EXPOSED REBAR TO BE COATED AND WRAPPED IN ACCORDANCE WITH SECTION 3, PROTECTIVE COATINGS.

(F) ANCHOR BLOCK DETAILS FOR IN-LINE REDUCERS OR GATE VALVES 6" THROUGH 12" DIAMETER



NOTE: SEE UDS PLATE NO. UDS07-2 FOR FIRE HYDRANT AND FIRE HYDRANT PAD HORIZONTAL LOCATION DETAILS.

PAD DETAIL



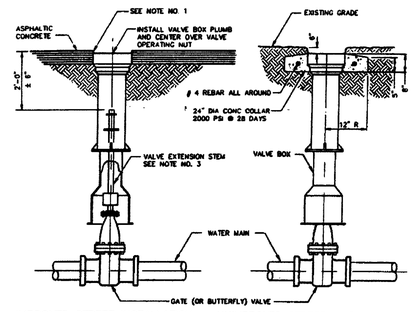
HYDRANT ASSEMBLY DETAIL

LEGEND

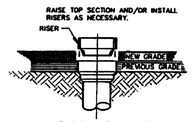
(1) FIRE HYDRANT
(2) 6" DIAMETER LATERAL
(3) 6" RESILIENT SEATED GATE VALVE FLANGED x PUSH ON, OR FLANGED x RING TITE, OR FLANGED x MECHANICAL JOINT.
(4) VALVE BOX INSTALLATION AND ADJUSTMENT (SEE UDS PLATE NO. UDS08).

NOTES:

1. NO HYDRANT SHALL BE LOCATED WITHIN 25 FEET OF ANY STRUCTURE OR 6 FEET OF A DRIVEWAY, POWER POLE, LIGHT STANDARD, OR ANY OTHER OBSTRUCTION. FOR WALLS, FENCE, AND PLANTER LOCATIONS, A PERIMETER AROUND THE HYDRANT MEASURING A MINIMUM OF 3 FEET FROM ITS CENTER SHALL BE MAINTAINED CLEAR OF ALL OBSTRUCTIONS AT ALL TIMES. HYDRANTS MUST BE LOCATED A MINIMUM OF 6 FEET AWAY FROM THE BEGINNING OF A TURNING RADIUS.
2. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE CITY OF LAS VEGAS FIRE DEPARTMENT "HYDRANT SPECIFICATIONS", "HYDRANT INSTALLATION SPECIFICATIONS" AND ORDINANCE NO. 3318, CLARK COUNTY ORDINANCE NO. 1167, NFPA NO. 24 LATEST EDITION AND THE UNIFORM FIRE CODE LATEST EDITION.
3. 6" DIAMETER FIRE HYDRANT LATERAL SHALL BE SAME CLASS AND TYPE OF MATERIAL AS THE DISTRIBUTION MAIN.
4. DUCTILE IRON PIPE TO BE ENCASED WITH EIGHT MILS THICK POLYETHYLENE FILM.



IMPROVED STREET INSTALLATION UNIMPROVED STREET INSTALLATION



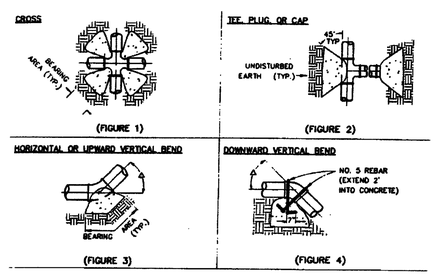
VALVE BOX ADJUSTMENT

NOTES:

1. FINAL RIM ELEVATION TO BE 1/8" TO 1/4" BELOW FINAL STREET GRADE.
2. MORE STRINGENT INSTALLATION REQUIREMENTS MAY BE IMPOSED BY THE ENTITY HAVING THE JURISDICTION OVER THE VALVE BOX INSTALLATION LOCATION.
3. A VALVE EXTENSION STEM SHALL BE PROVIDED WHERE THE DEPTH TO THE OPERATING NUT EXCEEDS FIVE (5) FEET.

THRUST BLOCKS ACCORDING TO DETAIL "F"

(E) VALVE BOX INSTALLATION & ADJUSTMENT

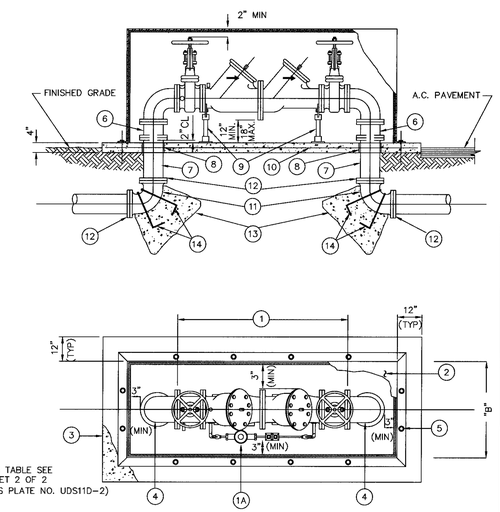


GENERAL NOTES:

COAT AND WRAP ALL METAL SURFACE IN ACCORDANCE WITH SECTION 3, PROTECTIVE COATINGS. ALL CONCRETE SHALL BE 2000 P.S.I. MINIMUM, 28 - DAYS COMPRESSIVE STRENGTH. CONCRETE IS TO BE PLACED IN UNDISTURBED EARTH. TABLE BELOW DENOTES MINIMUM BEARING AREA OR VOLUME OF THRUST BLOCK. SPECIAL DESIGN, BY A MBPE, FOR EACH INSTALLATION IS REQUIRED IF ALLOWABLE SOIL BEARING CAPACITY IS LESS THAN 3000 P.S.F. ALL VERTICAL SURFACES NOT BEARING AGAINST UNDISTURBED EARTH SHALL BE FORMED.

	BEARING AREA IN SQUARE FEET							CONC./CU.YDS.		
PIPE	FIGURE	FIGURE	FIGURE 3, Δ					FIGURE 4, Δ		
I.D.	1	2	90°	45°	22½°	11¼°		45°	22½°	11¼°
4"	2	2	2	1	1	1		1.0	0.5	0.5
6"	2	3	4	2	1	1		1.5	1.0	0.5
8"	3	5	7	4	2	1		2.5	1.5	1.0
10"	4	8	10	6	3	1		4.0	2.5	1.5
12"	5	10	14	8	4	2		5.0	3.0	1.5
16"	10	20	24	12	7	4		8.5	4.5	2.5
18"	12	24	30	16	10	5		11.0	6.0	3.0
20"	14	28	40	20	12	6		14.0	8.0	4.0

(A) THRUST BLOCK INSTALLATION



NOTES:

1. IF PROTECTION BOLLARDS ARE REQUIRED, SEE UDS PLATE NO. UDS23
2. FOR LEGEND SEE SHEET 1 OF 2 (UDS PLATE NO. UDS11D-2)

LEGEND

(1) APPROVED DOUBLE CHECK VALVE ASSEMBLY WITH 3/4" BY-PASS AND OS & Y GATE VALVES SEE SPECIFICATIONS.
(1A) BY - PASS METER
(2) INSULATED ENCLOSURE.
(3) CONCRETE PAD, (3000 PSI @ 28 DAYS) SEE TABLE BELOW
(4) FLG x FLG 90° DUCTILE IRON ELBOW.
(5) 3/8" - 16 NC x 2-3/4" LG "RED HEAD" WEDGE ANCHOR - GALVANIZED.
(6) 4" x 3" DUCTILE IRON FLG CONC REDUCER. (USED ONLY WITH 3" DOUBLE CHECK DETECTOR ASSEMBLY)
(7) FLG x PE DUCTILE IRON PIPE, CLASS 50.
(8) 1/4" EXPANSION JOINT MATERAIL.
(9) ADJUSTABLE PIPE SUPPORT.
(10) WELDED WIRE FABRIC - 4.0 x 4.0 x 1/4" DIA. WIRE.
(11) PUSH - ON OR MJ 90° DUCTILE IRON ELBOW.
(12) DUCTILE IRON FLANGE RESTRAINING ADAPTER.
(13) CONCRETE THRUST BLOCK, SEE UDS PLATE NO. 5
(14) NO. 5 REBAR (WRAP EXPOSED PORTION OF REBAR WITH "SCOTCHRAP" NO. 51 PLASTIC TAPE WITH 1/2 OVERLAP).
(15) 4" MIN. TYPE II AGGREGATE BASE COMPACTED TO 95% COMPACTION

DEVICE SIZE	CONCRETE PAD SIZE-ITEM 3
3"	4" x 48" x 96"
4"	4" x 54" x 114"
6"	4" x 58" x 134"
8"	4" x 64" x 152"
10"	4" x 66" x 197"

5/11/01

LAS VEGAS VALLEY WATER DISTRICT DATE

APPROVED FOR CONSTRUCTION ESN.018

NOT TO SCALE	FILE NAME:	DOUBLE CHECK DETECTOR ASSEMBLY 3" TO 10" ABOVE GROUND INSTALLATION	UDS PLATE NO. 20B SHEET 1 OF 2
	DRAWN BY:		
	CHECKED BY:		

NOT TO SCALE	FILE NAME:	DOUBLE CHECK DETECTOR ASSEMBLY 3" TO 10" ABOVE GROUND INSTALLATION	UDS PLATE NO. 20B SHEET 2 OF 2
	DRAWN BY:		
	CHECKED BY:		

SUMMIT ENGINEERING CORPORATION
1421 E. SUNSET ROAD, SUITE 17 LAS VEGAS, NEVADA 89119
PHONE (702) 252-3236 FAX (702) 252-3247

DESIGNED: JNW			
CHECKED: AJH	HOR. N/A	VER. N/A	03/16/01
SCALE			FILE No. 72125

REV.	DATE	DESCRIPTION	BY	APPD
1	6/21/01	REV'D PER CCRFCD & LVVWD COMMENTS	MJH	

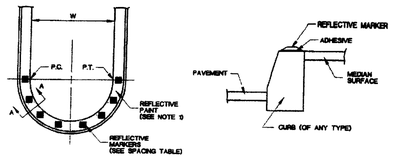
P:\DWGS\72125\72125dtl4.dwg

THE HOME DEPOT
DETAIL SHEET 5
HOME DEPOT USA - TROPICANA/DECATUR
CLARK COUNTY NEVADA

SEAL: PROFESSIONAL ENGINEER STATE OF NEVADA ANDREW J. HUSTAD CIVIL No. 12593 5/11/01

SHEET C18 OF 19

OD-39104



PLAN

SECTION A-A

SPACING TABLE

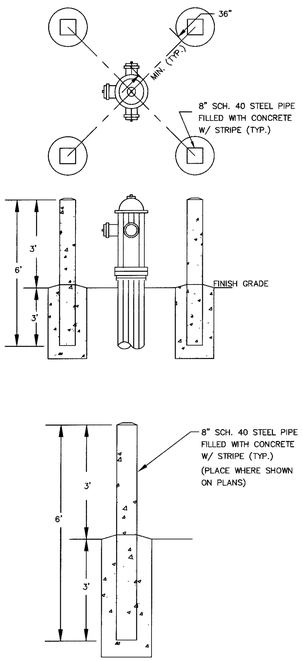
"W"	NUMBER OF REFLECTORS PER MEDIAN NOSE *
1.0' TO 2.0'	3
2.0' TO 3.0'	4
3.0' TO 4.0'	5
4.0' & GREATER	1 EACH FOR EVERY 1.0' OF CURB LENGTH

* 1 MARKER EACH SHALL BE PLACED ON THE P.C. AND THE P.T. OF THE MEDIAN NOSE. ALL OTHERS SPACED EQUALLY BETWEEN P.T. & P.C.

NOTES:

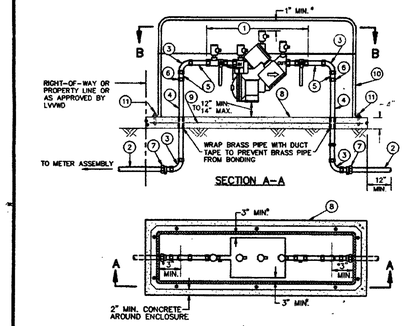
1. ENTIRE MEDIAN SHALL BE PAINTED WITH REFLECTIVE PAINT, OF SAME COLOR AS REFLECTIVE MARKERS, FROM THE MEDIAN NOSE BACK 5 FEET OR TO THE P.C., WHICHEVER IS GREATER.
2. REFLECTIVE PAVEMENT MARKERS USED ON MEDIAN SHALL CONFORM TO STANDARD DRAWING NO. 247.
3. ORIENTATION OF THE REFLECTIVE MARKERS FACES SHALL BE MADE IN THE FIELD TO ENSURE THAT MARKERS ARE AIMED AT APPROACHING VEHICLES TO BEST ADVANTAGE, ESPECIALLY IN HORIZONTALLY CURVED ROAD SECTIONS.

MEDIAN NOSE MARKINGS



BOLLARD DETAILS
NTS
(PLACE WHERE SHOWN ON PLANS)

UNIFORM DESIGN STANDARDS FOR WATER DISTRIBUTION SYSTEMS



NOTE:
RPPA ASSEMBLY INCLUDING ABOVE GRADE PIPING NOT TO BE PAINTED.

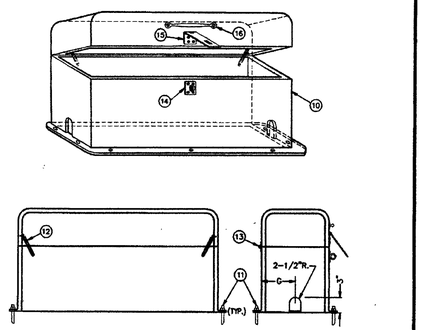
1. APPROVED REDUCED PRESSURE PRINCIPLE ASSEMBLY
2. COPPER TUBING - TYPE "K"
3. BRASS 90° ELBOW - IRON PIPE THREAD
4. BRASS PIPE - STANDARD - T.B.E.
5. BRASS CLOSE NIPPLE
6. BRASS UNION - IRON PIPE THREAD
7. METER COUPLING
8. CONCRETE SLAB - 3000 P.S.I.
9. WELDED WIRE FABRIC - WI.0 x WI.0
10. FIBERGLASS ENCLOSURE - SEE UDS PLATE 11A-2
11. 3/8"-16NC x 2-3/4"LG WEDGE ANCHOR BOLT
12. STAINLESS STEEL HATCH SPRING
13. POLISHED STAINLESS STEEL PIANO HINGE
14. CHROME PLATED ZINC SWIVEL HASP-BOTTOM
15. CHROME PLATED ZINC SWIVEL HASP-TOP
16. CHROME PLATED ZINC HANDLE

INSIDE ENCLOSURE*DIMENSIONS

NOT TO SCALE	FILE NAME: UDS11A-1 / DRAWN BY: BV / CHECKED BY: MCC	BACKFLOW PREVENTION DEVICE REDUCED PRESSURE PRINCIPLE ASSEMBLY 3/4" - 2" DIAMETER	UDS PLATE NO. 11A SHEET 1 OF 2

TASK NO.: 51-78 | Plot @ 11/29/94 | I:\ACAD\DRAWINGS\STR\TUDS11A-1.dwg

UNIFORM DESIGN STANDARDS FOR WATER DISTRIBUTION SYSTEMS

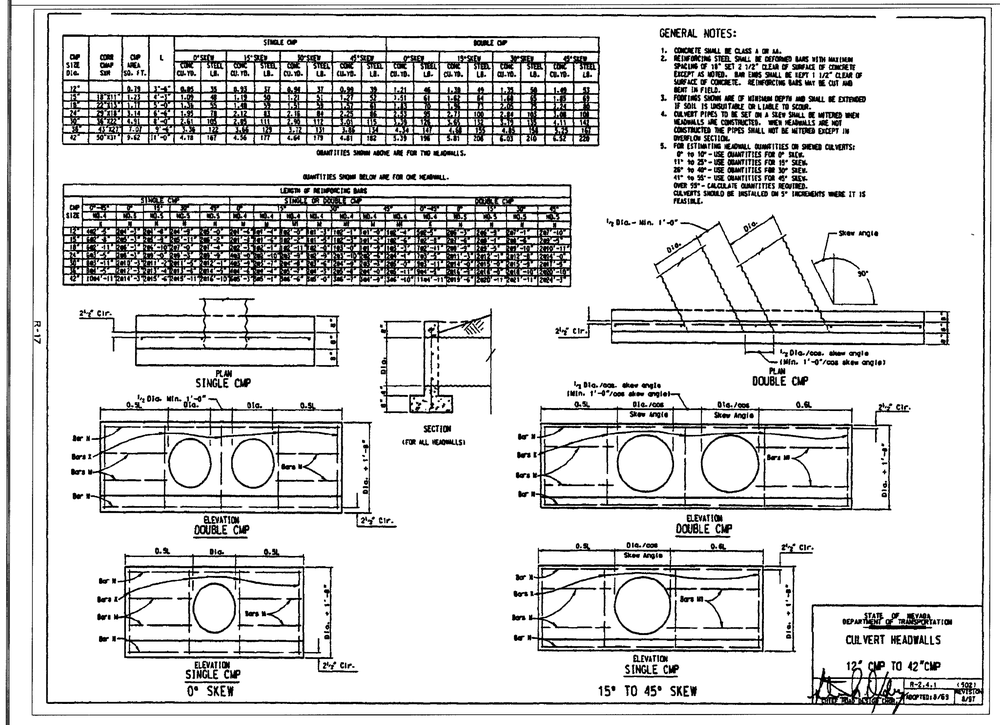


NOTE: FOR LEGEND SEE SHEET 1 OF 2 (UDS PLATE NO. UDS11C-1)

"INDUSTRIAL FIBERGLASS" ENCLOSURE ILLUSTRATED

NOT TO SCALE	FILE NAME: UDS11A-1 / DRAWN BY: B.V. / CHECKED BY: C.M.M.	BACKFLOW PREVENTION DEVICE, REDUCED PRESSURE PRINCIPLE ASSEMBLY 3/4" - 2" DIAMETER	UDS PLATE NO. 11A SHEET 2 OF 2

TASK NO.: 51-77 | 1553 | Plot @ 11/30/94 | I:\ACAD\DRAWINGS\STR\TUDS11A-2.dwg



CMP SIZE Dia.	CORR CMP SIZE	CMP AREA SQ. FT.	L	SINGLE CMP 0°SKEW CONC CU.YD.	0°SKEW STEEL LB.	15°SKEW CONC CU.YD.	15°SKEW STEEL LB.	30°SKEW CONC CU.YD.	30°SKEW STEEL LB.	45°SKEW CONC CU.YD.	45°SKEW STEEL LB.	DOUBLE CMP 0°SKEW CONC CU.YD.	0°SKEW STEEL LB.	15°SKEW CONC CU.YD.	15°SKEW STEEL LB.	30°SKEW CONC CU.YD.	30°SKEW STEEL LB.	45°SKEW CONC CU.YD.	45°SKEW STEEL LB.
12"	15"	0.78	1'-6"	0.85	35	0.93	37	0.98	39	1.21	46	1.38	69	1.50	68	1.69	83	1.89	93
15"	18"X11"	1.23	1'-6"	1.09	48	1.19	52	1.31	57	1.51	61	1.65	93	1.80	97	1.98	109	2.19	120
18"	22"X13"	1.77	1'-6"	1.33	55	1.48	59	1.63	65	1.87	69	1.93	103	2.09	108	2.28	120	2.52	133
24"	29"X18"	3.14	1'-6"	1.57	78	2.12	81	2.35	86	2.63	96	2.72	130	2.84	140	3.08	159	3.38	178
30"	36"X23"	4.90	1'-6"	1.81	105	2.43	111	2.70	117	3.01	115	3.50	175	3.65	178	3.93	198	4.31	218
36"	43"X27"	7.07	1'-6"	2.06	122	2.66	129	3.12	131	3.55	134	4.34	187	4.68	195	4.85	198	5.15	192
42"	50"X31"	9.62	1'-6"	2.18	167	4.54	177	4.64	179	4.81	182	5.39	198	5.81	208	6.03	218	6.34	228

QUANTITIES SHOWN ABOVE ARE FOR TWO HEADWALLS.

QUANTITIES SHOWN BELOW ARE FOR ONE HEADWALL.

LENGTH OF REINFORCING BARS

CMP SIZE	SINGLE CMP 0°-15° 1'	1½'	2'	2½'	3'	SINGLE OR DOUBLE CMP 15°-30° 1'	1½'	2'	2½'	3'	DOUBLE CMP 30°-45° 1'	1½'	2'	2½'	3'
	W1 L1	W2 L2	W3 L3	W4 L4	W5 L5	W1 L1	W2 L2	W3 L3	W4 L4	W5 L5	W1 L1	W2 L2	W3 L3	W4 L4	W5 L5
12"	6#5 5'-3"	6#5 5'-3"	6#5 5'-3"	6#5 5'-3"	6#5 5'-3"	6#5 5'-3"	6#5 5'-3"	6#5 5'-3"	6#5 5'-3"	6#5 5'-3"	6#5 5'-3"	6#5 5'-3"	6#5 5'-3"	6#5 5'-3"	6#5 5'-3"
15"	6#5 5'-9"	6#5 5'-9"	6#5 5'-9"	6#5 5'-9"	6#5 5'-9"	6#5 5'-9"	6#5 5'-9"	6#5 5'-9"	6#5 5'-9"	6#5 5'-9"	6#5 5'-9"	6#5 5'-9"	6#5 5'-9"	6#5 5'-9"	6#5 5'-9"
18"	6#5 6'-3"	6#5 6'-3"	6#5 6'-3"	6#5 6'-3"	6#5 6'-3"	6#5 6'-3"	6#5 6'-3"	6#5 6'-3"	6#5 6'-3"	6#5 6'-3"	6#5 6'-3"	6#5 6'-3"	6#5 6'-3"	6#5 6'-3"	6#5 6'-3"
24"	6#5 7'-3"	6#5 7'-3"	6#5 7'-3"	6#5 7'-3"	6#5 7'-3"	6#5 7'-3"	6#5 7'-3"	6#5 7'-3"	6#5 7'-3"	6#5 7'-3"	6#5 7'-3"	6#5 7'-3"	6#5 7'-3"	6#5 7'-3"	6#5 7'-3"
30"	6#5 8'-3"	6#5 8'-3"	6#5 8'-3"	6#5 8'-3"	6#5 8'-3"	6#5 8'-3"	6#5 8'-3"	6#5 8'-3"	6#5 8'-3"	6#5 8'-3"	6#5 8'-3"	6#5 8'-3"	6#5 8'-3"	6#5 8'-3"	6#5 8'-3"
36"	6#5 9'-3"	6#5 9'-3"	6#5 9'-3"	6#5 9'-3"	6#5 9'-3"	6#5 9'-3"	6#5 9'-3"	6#5 9'-3"	6#5 9'-3"	6#5 9'-3"	6#5 9'-3"	6#5 9'-3"	6#5 9'-3"	6#5 9'-3"	6#5 9'-3"
42"	6#5 10'-3"	6#5 10'-3"	6#5 10'-3"	6#5 10'-3"	6#5 10'-3"	6#5 10'-3"	6#5 10'-3"	6#5 10'-3"	6#5 10'-3"	6#5 10'-3"	6#5 10'-3"	6#5 10'-3"	6#5 10'-3"	6#5 10'-3"	6#5 10'-3"

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT — DATE 5/11/01

R-27

SUMMIT ENGINEERING CORPORATION
1405 E. SUNSET ROAD, SUITE F / LAS VEGAS, NEVADA 89119
PHONE: (702) 252-3038 FAX: (702) 252-3047

DESIGNED: JNW | CHECKED: AJH | SCALE HOR: N/A VER: N/A | FILE No. 72265 | 03/16/01

THE HOME DEPOT
DETAIL SHEET 6
HOME DEPOT USA - TROPICANA/DECATUR
CLARK COUNTY
NEVADA

REV.	DATE	DESCRIPTION	BY	APPD

P:\DWGS\72265\72265DS6.dwg

SEAL: PROFESSIONAL ENGINEER — ANDREW J. HUSTAD — CIVIL — No. 12503 — STATE OF NEVADA

SHEET C19 OF 19

00-39104

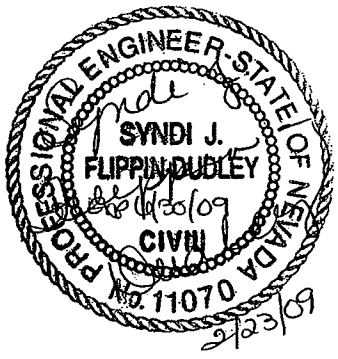
D.5 Improvement plans for Garden Pines Motel

The Garden Pines Motel
Flamingo Wash Storm Drain Improvements
APN 162-19-401-005

This is to certify as-built conditions for the Flamingo Wash storm drain as depicted on the improvement plans for The Garden Pines Motel APN# 162-19-401-005, signed and sealed by the design engineer, James C. Smith with CSA Engineering Services, on March 15, 1998. Based on a letter dated June 6, 2000 by M.J. Manning, Director of Public Works for Clark County, Nevada regarding Release #98-6168, the offsite improvements for the subject development were constructed in accordance with the plans on file. The storm drain is in place and functioning.

Syndi J. Flippin-Dudley

Syndi J. Flippin-Dudley, Ph.D., P.E.
Vice President Water Resources
THE Louis Berger Group, INC.



Department of Public Works

500 S Grand Central Pky • PO Box 554000 • Las Vegas NV 89155-4000
(702) 455-6000 • Fax (702) 455-6040

M.J. Manning, Director • E-Mail: mjm@co.clark.nv.us

June 6, 2000

All Purpose Insurance
1455 E Tropicana
Las Vegas, NV 89119

RELEASE # 98-6168
PROJECT NAME: GARDEN PINES MOTEL

The off-site improvements at the subject development have been constructed in accordance with the plans on file in this office. At this time Clark County Public Works accepts the improvements for maintenance and releases the bond.

The developer is responsible should any original or developed defects or failures appear within a period of one year from the date of acceptance of the work by Clark County. The Contractor shall, at his own expense, make good such defects and failures and make all replacements and adjustments required within 30 days after being notified by Clark County to do so. All repairs shall be subject to the approval of the Clark County Public Works Department.

By copy of this letter to the Clark County Maintenance Management Division, the County will assume responsibility for normal maintenance of these improvements. This letter authorizes the release of:

Bond:	NB3139
Dated:	January 14, 1999
By:	Contractors Bonding and Insurance Company
And:	Ideal Development
Amount:	$ 284,663.00

If you have any questions, call Reggie Narciso at 455-4630.

Best regards,

M. Manning

M. J. Manning
Director of Public Works

/rln

cc: Carla J. Pearson, Manager, Community Development
Maintenance Management Division
Ideal Development

BOARD OF COUNTY COMMISSIONERS
BRUCE L. WOODBURY, Chairman • ERIN KENNY, Vice-Chair
YVONNE ATKINSON GATES • DARIO HERRERA • MARY J. KINCAID • LANCE M. MALONE • MYRNA WILLIAMS
DALE W. ASKEW, County Manager

CIVIL IMPROVEMENT PLANS

GARDEN PINES MOTEL

PORTION SW 1/4 (GOVERNMENT LOT 4) SECTION 19, T. 21 S., R 61 E. M.D.M.
CLARK COUNTY, NEVADA

PROJECT NAME: GARDEN PINES MOTEL

This project water plan complies with the Las Vegas Valley Water District's technical requirements. However, this water plan is NOT APPROVED FOR CONSTRUCTION at this time and this signature does not provide or imply a water commitment.

LVVWD 1-16-98 DATE

STRIPING NOTES:

1. ALL STANDARD PARKING SPACES MEASURE 9 FEET (9') WIDE.
2. ALL STRIPES SHALL BE 4" WIDE, CENTERED ON THE PARKING SPACE DIVIDING LINE.
3. ALL PAINT USED FOR STRIPING SHALL CONFORM TO M.U.T.C.D. SPECIFICATION.
4. CROSSWALKS AT DRIVEWAYS SHALL BE MARKED WITH THERMOPLASTIC MATERIAL.

CLARK COUNTY FIRE DEPARTMENT NOTES:

1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH APPENDIX III-B OF THE CLARK COUNTY CODE.
2. ON ANY BUILDING CONSTRUCTION, ACCESSIBLE FIRE HYDRANTS SHALL BE INSTALLED BEFORE COMBUSTIBLE MATERIALS ARE DELIVERED TO THE SITE AND CONSTRUCTION COMMENCES. SAID FIRE HYDRANTS SHALL BE IN GOOD WORKING ORDER WITH REQUIRED WATER SUPPLY.
3. IF DURING CONSTRUCTION IT BECOMES NECESSARY TO CLOSE ANY CONTROL VALVE OR PLACE A HYDRANT OUT OF SERVICE, THE CLARK COUNTY FIRE DEPARTMENT MUST BE CONTACTED.
4. PAINTING OF CURBS AND/OR STRIPING OF ASPHALT AREAS AND PROTECTION OF HYDRANTS FROM PHYSICAL INJURY PER FIRE INSTALLATION SPECIFICATIONS OF THE CLARK COUNTY CODE.
5. NO FIRE HYDRANT SHALL BE LOCATED WITHIN 25 FEET OF ANY STRUCTURE, OR 6 FEET OF A DRIVEWAY, POWER POLE, LIGHT STANDARD, OR ANY OTHER OBSTRUCTION. FOR WALL, FENCE AND PLANTER LOCATIONS, A PERIMETER AROUND THE HYDRANT MEASURING A MINIMUM OF 3 FEET FROM ITS CENTER SHALL BE MAINTAINED CLEAR OF ALL OBSTRUCTIONS AT ALL TIMES.
6. AT ALL TIMES DURING CONSTRUCTION SUITABLE EMERGENCY VEHICLE ACCESS ROADS MUST BE MAINTAINED. ROADWAYS MUST BE SMOOTH, COMPACTED AND CAPABLE OF SUPPORTING THE IMPOSED LOADS OF ALL EMERGENCY VEHICLES.
7. PRIOR TO ACCEPTANCE OF ANY PRIVATE FIRE SERVICE MAIN, A SATISFACTORY HYDROSTATIC TEST WITH PIPING JOINTS UNCOVERED MUST BE CONDUCTED. APPROVED PLANS AND A CONTRACTOR'S MATERIALS AND TEST CERTIFICATE MUST BE PROVIDED AT TIME OF INSPECTION.
8. BLUE REFLECTIVE MARKERS INSTALLED PER SECTION 13.04.130 (D) OF CLARK COUNTY ORDINANCE #1167, MUST BE PROVIDED BEFORE FINAL HYDRANT ACCEPTANCE CAN BE ATTAINED.

CLARK COUNTY SANITATION GENERAL 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 SPECIFICATION FOR PUBLIC WORKS' CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, AS AMENDED. IN ALL CASES, THESE STANDARDS SHALL SUPERSEDE THE UNIFORM STANDARD SPECIFICATIONS. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BE AWARE OF THE CONTENTS OF THE ABOVE SPECIFICATION BOOKS.
2. THESE STANDARDS SHALL APPLY TO ALL CONSTRUCTION.
3. SEWER MAINS ONLY TO BE LAID IN SEWER TRENCHES.
4. ALL LATERALS TO BE LAID AT NOT LESS THAN MINIMUM SLOPES AS SHOWN IN THESE STANDARDS.
5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM CONSTRUCTION AS PER PLANS. ANY ADDITIONS, DELETIONS, OR CHANGES SHALL FIRST MEET WITH THE APPROVAL OF THE CONTROLLING AGENCY.
6. SOIL TESTING SHALL BE IN ACCORDANCE WITH SECTION 3.11 OF THESE STANDARDS.
7. ALL EXFILTRATION, INFILTRATION, AIR TESTING AND TELEVISING OF LINES SHALL BE IN ACCORDANCE WITH THESE STANDARDS.
8. CUT SHEETS MUST BE SUBMITTED TO THE AGENCY BEFORE CONSTRUCTION WILL BE PERMITTED TO START.
9. ALL CONTRACTORS INSTALLING SEWER MAINS THAT WILL BE UNDER THE JURISDICTION OF THE CONTROLLING AGENCY MUST BE CLASS "A" CONTRACTORS.
10. ALL HOUSE LATERALS TO BE LAID TO MINIMUM 2 PERCENT SLOPE AND SHALL CONFORM TO STANDARDS FOR CONSTRUCTION OF OFFSITE IMPROVEMENTS IN THE CLARK COUNTY AREA.

GENERAL NOTES:

EXACT LOCATION OF ALL SAW-CUT LINES SHALL BE DETERMINED IN THE FIELD BY A CLARK COUNTY INSPECTOR.

WHEELCHAIR RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING NO. 235, CLARK COUNTY AREA STANDARDS. EXACT LOCATION OF THE RAMPS SHALL BE DETERMINED IN THE FIELD BY A CLARK COUNTY INSPECTOR.

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

ALL OFF-SITE IMPROVEMENT CONSTRUCTION SHALL CONFORM TO THE UNIFORM STANDARD SPECIFICATIONS AND STANDARD DRAWINGS CLARK COUNTY AREA NEVADA AND CLARK COUNTY SUPPLEMENT TO UNIFORM STANDARD DRAWINGS AND SPECIFICATIONS, LATEST REVISION.

FINAL ASPHALTIC CONCRETE (AC) PAVEMENT SURFACES SHALL BE ONE-HALF INCH ABOVE THE TIP OF THE GUTTER (INCLUDING OPEN GRADE).

PRIVATE STREETS AND/OR DRIVEWAYS REFLECTED ON THESE PLANS ARE TO BE INSPECTED BY A CLARK COUNTY INSPECTOR.

PAVING NOTES:

1. ALL WORK DONE WITHIN THE PUBLIC RIGHT-OF-WAY AND OUTSIDE FOR THE PROJECT BOUNDARIES REQUIRES A SEPARATE ENCROACHMENT PERMIT ISSUED BY THE CLARK COUNTY DEPARTMENT OF PUBLIC WORKS. TRENCH AND PAVEMENT REPLACEMENT CONDITIONS SHALL BE AS PER THE PERMIT.
2. EXACT LOCATION OF ALL SAW-CUT LINES SHALL BE DETERMINED IN THE FIELD BY A CLARK COUNTY INSPECTOR.
3. WHEELCHAIR RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION ,PER STANDARD DRAWING ON 235 EXACT LOCATION OF THE RAMPS SHALL BE DETERMINED IN THE FIELD BY A CLARK COUNTY INSPECTOR.
4. CURB AND GUTTER WITH A GRADE OF LESS THAN 4/10 OF ONE PERCENT SHALL BE CONSTRUCTED BY FORMING. EACH JOINT SHALL BE CHECKED FOR GRADE PRIOR TO CONSTRUCTION AND WATER TESTED AS SOON AS POSSIBLE AFTER CONSTRUCTION.
5. ALL OFF-SITE IMPROVEMENT CONSTRUCTION SHALL CONFORM TO THE UNIFORM STANDARD SPECIFICATIONS AND IMPROVEMENT DRAWINGS, LATEST REVISION.
6. FINAL ASPHALTIC CONCRETE (AC) PAVEMENT SURFACES SHALL BE ONE-HALF INCH ABOVE THE LIP OF THE GUTTER (INCLUDING OPEN GRADE).
7. PRIVATE STREETS AND/OR DRIVEWAYS REFLECTED ON THESE PLANS ARE TO BE INSPECTED BY A CLARK COUNTY INSPECTOR.
8. ALL WORK PERFORMED OUTSIDE OF THE PROJECT BOUNDARY AND ON PRIVATE PROPERTY SHALL NOT BE PERFORMED UNTIL WRITTEN PERMISSION AND EASEMENT HAVE BEEN OBTAINED FROM THE OFFSITE OWNER.

NOTES TO CONTRACTOR:

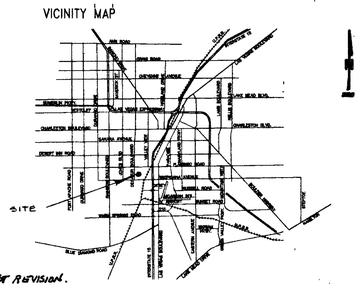
1. A THOROUGH ATTEMPT HAS BEEN MADE TO SHOW THE LOCATIONS OF ALL UNDERGROUND OBSTRUCTIONS AND UTILITY LINES IN THE WORK AREA. HOWEVER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO OBSTRUCTIONS AND UTILITY LINES ENCOUNTERED DURING CONSTRUCTION AND SHALL DETERMINE THE EXACT LOCATION OF UTILITIES IN THE AREA.
2. PRIOR TO BIDDING THE WORK, THE CONTRACTOR SHALL THOROUGHLY SATISFY HIMSELF AS TO THE ACTUAL CONDITIONS AND EARTHWORK QUANTITIES, IF ANY. NO CLAIM SHALL BE MADE AGAINST THE OWNER/DEVELOPER OR ENGINEER FOR ANY EXCESS OR DEFICIENCY THEREIN, ACTUAL OR RELATIVE.
3. NOTHING CONTAINED IN THE CONTRACT DOCUMENTS SHALL CREATE, NOR BE CONSTRUED TO CREATE, ANY CONTRACTUAL RELATIONSHIP BETWEEN THE ENGINEER AND THE CONTRACTOR, OR ANY SUBCONTRACTOR.
4. THE ENGINEER WILL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, OR FOR SAFETY PRECAUTIONS OR PROGRAMS UTILIZED IN CONNECTION WITH THE WORK. THE ENGINEER WILL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
5. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITION BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES, IN ORDER TO PROVIDE FOR PROPER DRAINAGE AND FOR INGRESS AND EGRESS TO SAID CONSTRUCTION.

BENCHMARK:

#30 7C11 SS5W8
RIVET AND SQUARE ALUMINUM PLATE IN THE TOP OF CURB IN THE NORTHWEST CORNER OF TROPICANA AVE. AND CAMERON ST. NEAR THE P.C. OF TROPICANA AVE.

ELEVATION 683.318 METERS
2241.85 FEET (NAVD 88)

VICINITY MAP



SHEET INDEX:

1 COVER SHEET & APPROVALS
2 GRADING PLAN & IMPROVEMENT PLAN
3 MASTER UTILITY PLAN
4 STORM DRAIN (GARDEN PINES MOTEL)
~~5 SPOOL CULVERT~~
~~STRUCTURAL DETAILS (GARDEN PINES MOTEL)~~

WATER-SEWER CROSSING NOTES

THE FOLLOWING ARE THE REQUIREMENTS THAT MUST BE MET WHEN THERE IS A WATER-SEWER CROSSING:

WHEN PROTECTION OF THE WATER LINE IS CONSIDERED. THE MINIMUM VERTICAL DISTANCE OF 18 INCHES MUST BE MAINTAINED WHEN THE WATER LINE IS INSTALLED OVER THE SEWER/STORM LINE. IF THIS DISTANCE CANNOT BE MAINTAINED BECAUSE OF PHYSICAL OBSTRUCTIONS OR THE WATERLINE MUST BE PLACED UNDER THE SEWER/STORM LINE, THE SEWER/STORM LINE MUST BE CONSTRUCTED WITH ANY ONE OF THE FOLLOWING:

A. EXTRA HEAVY CAST IRON OR DUCTILE IRON PIPE.
B. WATER SUPPLY QUALITY MATERIAL.
C. ENCASEMENT WITH 4 INCHES MINIMUM, OF CONCRETE OR SLEEVING WITH WATER QUALITY PIPE.

EACH OF THESE PROVISIONS MUST BE EXTENDED FOR 10 FEET ON EITHER SIDE OF THE WATERLINE AT 90 DEGREES TO THE CROSSING

BASIS OF BEARING:

N 00°33'59" W BEING THE CENTERLINE OF CAMERON ST. AS SHOWN ON FILE 54 PAGE 55 OF CLARK COUNTY RECORDS

LEGEND & ABBREVIATIONS

A.C.	ASPHALTIC CONCRETE
B.C.	BACK OF CURB
BCR	BACK OF CURB RETURN
℄	CENTERLINE
CONC.	CONCRETE
D.I.	DROP INLET
ELEC.	ELECTRIC
E.P.	EDGE OF PAVEMENT
EXIST.	EXISTING
EX.	EXISTING
F.F.	FINISHED FLOOR
F.G.	FINISHED GRADE
F.H.	FIRE HYDRANT
F.L.	FLOWLINE
G.B.	GRADE BREAK
M.H.	MANHOLE
ℙ	PROPERTY LINE
PVMT.	PAVEMENT
R.O.W.	RIGHT-OF-WAY
STA.	STATION
T.C.	TOP OF CURB
V.G.	VALLEY GUTTER

XX.XX' NG — EXISTING SPOT ELEVATION
XX.XX' FG — PROPOSED ELEVATION
DIRECTION OF FLOW
CENTER LINE OF ROADWAY
EXISTING CONTOUR LINE
PROPOSED CONTOUR LINE
PROPERTY LINE
RIGHT-OF-WAY LINE

REGISTERED PROFESSIONAL ENGINEER — STATE OF NEVADA — No. 6331

99020801

1/6/98

98.616B

CLARK COUNTY TRAFFIC NOTES:

1. 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 HEREUNDER, REGARDLESS OF THE STATUS OF COMPLETION OF PAVING OR OTHER OFF-SITE IMPROVEMENTS CALLED FOR BY THESE PLANS.
2. 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 COUNTY STREETS IMMEDIATELY AFTER FIRST GRADING WORK IS ACCOMPLISHED, AND SHALL MAINTAIN SAID SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED.
3. ALL CONSTRUCTION SIGNING, BARRICADING AND TRAFFIC DELINEATION SHALL CONFORM TO THE "NEVADA WORK ZONE TRAFFIC CONTROL HANDBOOK- 1996 AND TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", CURRENT EDITION.
4. IF THE IMPROVEMENTS NECESSITATE THE OBLITERATION, TEMPORARY OBSTRUCTION, TEMPORARY REMOVAL, OR RELOCATION OF ANY EXISTING TRAFFIC PAVEMENT MARKING, SUCH PAVEMENT MARKING SHALL BE RESTORED OR REPLACED WITH LIKE MATERIALS TO THE SATISFACTION OF THE COUNTY TRAFFIC MANAGER.
5. THE DEVELOPER SHALL BE RESPONSIBLE TO PROVIDE AND INSTALL ALL PERMANENT SIGNS SHOWN ON PLANS. STREET NAME SIGNS SHALL CONFORM IN THEIR ENTIRETY TO CLARK COUNTY STANDARDS. ALL OTHER SIGNS SHALL BE STANDARD SIZE UNLESS OTHERWISE SPECIFIED ON THE PLANS. ALL SIGN POSTS SHALL BE INSTALLED IN ACCORDANCE WITH CLARK COUNTY STANDARDS. ALL SIGNS SHALL USE TYPE III SHEETING.
6. IF A PROPOSED STREETLIGHT STANDARD IS FIELD LOCATED TO WITHIN FIVE (5) FEET OF ANY SIGN SHOWN HEREON TO BE MOUNTED ON SIGN POST, THEN CHANGE SIGN MOUNTING TO ONE ON THE STREETLIGHT STANDARD.
7. PRIOR TO CONSTRUCTION, THE STREET SIGN CONTRACTOR SHALL OBTAIN STREET NAMES AND BLOCK NUMBERING FROM THE ZONING DIVISION OF THE DEPARTMENT OF COMPREHENSIVE PLANNING.
8. ALL TRAFFIC POLE ASSEMBLIES, STEEL PEDESTALS FOR CABINETS AND STREETLIGHT POLES SHALL BE GALVANIZED PER ASTM A.123.
9. ALL STREETLIGHTING INSTALLATIONS, EXCEPT AS NOTED ON THE STREET-LIGHTING PLANS, SHALL CONFORM TO THE "IMPROVEMENT STANDARDS, DEPARTMENT OF PUBLIC WORKS, CLARK COUNTY, NEVADA", AND THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEAVDA", LATEST EDITION OF EACH.
10. THE FOLLOWING CLARK COUNTY UNDERGROUND FACILITIES MAY BE LOCATED IN YOUR PROJECT AREA: STREETLIGHTING, TRAFFIC SIGNALS, LAS VEGAS AREA COMPUTER TRAFFIC SYSTEM (LVACTS) INTERCONNECT CABLE. YOU MUST CONTACT CLARK COUNTY TRAFFIC MANAGEMENT DIVISION, OPERATIONS UNIT AT 455-7511 FOR LOCATIONS AT LEAST 48 HOURS PRIOR TO WORKING IN THE AREA. CLARK COUNTY IS NOT A MEMBER OF "CALL BEFORE YOU DIG" (UNDERGROUND SERVICE ALERT), AND A CALL TO THAT ORGANIZATION DOES NOT RELIEVE YOU OF LIABILITY FOR CLARK COUNTY FACILITIES.
11. LVACTS INTERCONNECT CABLE POLICY IS IN EFFECT. INTERCONNECT CABLE MUST BE MAINTAINED AT ALL TIMES. THE DEVELOPER/CONTRACTOR SHALL PROVIDE TEMPORARY OVERHEAD INTERCONNECT CABLE, WHILE PERMANENT CABLE IS BEING RELOCATED. TEMPORARY AERIAL INSTALLATION MUST BE ACCEPTABLE TO THE CLARK COUNTY TRAFFIC MANAGER AND TO LVACTS. ANY DAMAGE TO THIS CABLE IS DEEMED AN EMERGENCY BY LVACTS, THE CITY OF LAS VEGAS, CLARK COUNTY AND N.D.O.T., AND MUST BE REPAIRED IMMEDIATELY TO LVACTS' ACCEPTANCE. $2,500 PER DAY DAMAGES MAY BE ASSESSED AFTER 24 HOURS HAS ELAPSED FROM TIME OF BREAK OR DAMAGE.
12. ALL NEW OR REPLACEMENT TRAFFIC SIGNAL LOOPS SHALL BE INSTALLED USING CABLE-IN-DUCT WIRING, SHALL HAVE INDEPENDENT LEAD-IN WIRES FOR EACH LOOP FROM THE CONTROLLER TO THE PULL BOX, AND EACH LEAD-IN SHALL BE INDIVIDUALLY TAGGED.
13. TRAFFIC SIGNAL PEDESTRIAN HEADS SHALL BE INCANDESCENT TYPE.
14. ELECTRICAL POWER SERVICE POINT LOCATION(S) FOR STREETLIGHTING AND TRAFFIC SIGNALS MUST BE INDICATED ON THE PLANS. IF CONNECTING TO AN EXISTING CIRCUIT, INDICATE LOCATION OF EXISTING SERVICE POINT FOR EACH CIRCUIT.
15. WHEN STREETLIGHTS ARE TO BE CONNECTED TO AN EXISTING CIRCUIT, THE ENGINEER MUST CERTIFY THAT THE EXISTING CIRCUIT IS CAPABLE OF HANDLING THE ADDITIONAL CIRCUIT LOAD
16. CLARK COUNTY RESERVES THE RIGHT TO REJECT STREETLIGHT AND TRAFFIC SIGNAL POLES AND ASSEMBLIES WHICH HAVE A "STRIPED APPEARANCE".
17. PRIOR TO BEGINNING OF CONSTRUCTION, MODIFICATION, OR RELOCATION OF ANY TRAFFIC SIGNAL SYSTEM, WRITTEN NOTICE SHALL BE SUBMITTED TO THE CLARK COUNTY TRAFFIC MANAGEMENT DIVISION OF THE DATE THAT WORK WILL BEGIN.
18. THREE (3) NORMAL WORKING DAYS PRIOR TO TURN-ON OR COMPLETION OF MODIFICATION(S) TO A TRAFFIC SIGNAL SYSTEM, WRITTEN NOTICE SHALL BE SUBMITTED TO THE CLARK COUNTY TRAFFIC MANAGEMENT DIVISION THAT WORK IS BEING COMPLETED AND THE PROPOSED DATE OF COMPLETION.
19. "THIS SET OF PLANS IS CERTIFIED TO CONFORM TO THE REQUIREMENTS OF THE TRAFFIC STUDY ACCEPTANCE LETTER."

1/9
JAMES C. SMITH — DATE
REGISTERED PROFESSIONAL ENGINEER
NEVADA CERTIFICATE No.

LAS VEGAS VALLEY WATER DISTRICT STANDARD NOTES

1. NO WORK SHALL BEGIN UNTIL THE WATER PLANS HAVE BEEN RELEASED FOR CONSTRUCTION BY THE LVVWD. FOLLOWING WATER PLAN APPROVAL, 48 HOUR NOTICE SHALL BE GIVEN TO THE LVVWD COMMUNICATION SUPPORT CENTER (258-7171) PRIOR TO THE START OF CONSTRUCTION. NOTICE MUST BE GIVEN BY 2:00 P.M. THE BUISNESS DAY PRIOR TO A LVVWD INSPECTION.
2. ALL WORK SHALL CONFORM TO LVVWD STANDARD PLATES, DRAWINGS, AND SPECIFICATIONS AND UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR WATER DISTRIBUTION SYSTEMS (UDACS), LATEST EDITION.
3. ALL WORK, EXCEPT AS MODIFIED BY THESE PLANS OR BY NOTE 2, SHALL BE DONE IN ACCORDANCE WITH THE MOST CURRENT 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 COPPER TUBING WITH LVVWD APPROVED SERVICES 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. THE FOLLOWING REQUIREMENTS MUST BE MET IN THE EVENT A WATER LINE AND SANITARY OR STORM SEWER LINE CROSS.
   - A MINIMUM EIGHTEEN (18) INCH VERTICAL SEPERATION (OUTSIDE TO OUTSIDE) MUST BE MAINTAINED WHEN THE WATER LINE IS INSTALLED OVER THE SANITARY OR STORM SEWER LINE. IF THE VERTICAL SEPERATION CANNOT BE MAINTAINED OR THE WATER LINE MUST BE PLACED UNDER THE SANITARY OR STORM SEWER LINE, THE SANITARY OR STORM SEWER LINE MUST BE CONSTRUCTED WITH ONE OF THE FOLLOWING OR, AS SHOWN ON THESE PLANS:
     - A. POTABLE WATER SUPPLY QUALITY MATERIAL.
     - B. ENCASEMENT, WITH FOUR (4) INCH CONCRETE (MINIMUM)
     - C. SLEEVING WITH POTABLE WATER SUPPLY QUALITY PIPE.

   EACH PROVISION MUST EXTEND ALONG THE SANITARY OR STORM SEWER, ON EITHER SIDE OF THE MAIN, A MINIMUM 10 FOOT DISTANCE PERPENDICULAR TO THE WATER MAIN EXTERIOR.
9. WARNING TAPE SHALL BE REQUIRED OVER ALL MAINS, ALL SIX (6) INCH DIAMETER AND LARGER SERVICE LATERALS, AND ANY SERVICE LATERAL NOT INSTALLED PERPENDICULAR TO THE MAIN IN ACCORDANCE WITH STANDARD PLATE NO.27.
10. ALL WATER FACILITIES SHALL BE FILLED, DISINFECTED, PRESSURE TESTED, FLUSHED, FILLED AND AN ACCEPTABLE WATER SAMPLE OBTAINED, PRIOR TO CONNECTION TO THE LVVWD's DISTRIBUTION SYSTEM.
11. THE CONTRACTOR MUST OBTAIN ALL METERS TWO (2) INCHES AND SMALLER FROM LVVWD CENTRAL STORES, TELEPHONE 258-3152 FORTY-EIGHT (48) HOURS PRIOR TO PICKUP.
12. CONSTRUCTION MAY INTERRUPT SERVICE, WITH LVVWD APPROVAL AND PROPER NOTIFICATION, BETWEEN THE HOURS OF 10 PM AND 6 AM, SUNDAY THROUGH THURSDAY. CIRCUMSTANCES MAY REQUIRE TEMPORARY SERVICE. FEEDS BE INSTALLED, WITHOUT LVVWD REIMBURSEMENT. ANY TEMPORARY SERVICE FEED MUST HAVE PRIOR LVVWD APPROVAL.
13. ALL WATER FACILITY CONSTRUCTION MATERIALS USED MUST BE AS LISTED ON THE LVVWD's APPROVED MATERIALS AND MANUFACTURERS LISTING FOR NEW FACILITIES, LATEST REVISION, OR SPECIFICALLY APPROVED ON THESE PLANS.

ABANDOMENT OF EXISTING LATERALS 2" AND SMALLER

THE CONTRACTOR SHALL NOTIFY THE INSPECTION DIVISION AT THE LVVWD (PHONE 702-258-3227) 48 HOURS PRIOR TO THE REQUESTED REMOVAL TIME. THE CONTRACTOR MAY THEN BEGIN REMOVAL PROCEDURES FOR THE AFFECTED 1, 2 OR 2½ AS FOLLOWS:

EXISTING LATERALS THAT ARE TO BE ABANDONED FROM EXISTING WATER MAIN SHALL HAVE THE CORPORATION STOPS TURNED OFF AT THE MAIN, THE LATERAL CUT 3' DOWNSTREAM FROM THE CORPORATION STOP AND AGAIN CUT 6" DOWNSTREAM FROM THE FIRST CUT SO THAT A 6" PIECE OF THE EXISTING LATERAL IS REMOVED. IF THE CORPORATION STOP IS DAMAGED BEYOND REPAIR OR PULLED FROM THE EXISTING WATER MAIN, THE MAIN SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE, IN A MANNER APPROVED BY THE LVVWD CUSTOMER SERVICE (PHONE 258-7171) FOR FURTHER DIRECTION.

ALL TRENCHING & BACK FILL PER APOT REQ.

APPROVALS:

CLARK COUNTY SANITATION DISTRICT — DATE

SIGNATURE ON THESE PLANS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR OR AN APPROVAL OF ANY VIOLATION OF CLARK COUNTY SANITATION DISTRICT RULES, REGULATIONS, OR DESIGN AND CONSTRUCTION STANDARDS. THE APPROVAL OF THESE DRAWINGS DOES NOT GUARANTEE CAPACITYIN THE DISTRICT'S COLLECTION OR TREATMENT SYSTEM.

SEE SHEET 3 OF 4

CLARK COUNTY FIRE DEPARTMENT — DATE

APPROVAL OF THESE PLANS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR, OR AN APPROVAL OF, ANY VIOLATION OF THE PROVSIONS OF THE STATE OR COUNTY LAWS.

FIRE FLOW 1500 G.P.M. AT 20 P.S.I. RESIDUAL

L.V.V.W.D. — DATE

NEVADA POWER COMPANY PETER GASLER 1/7/99 DATE

SOUTHWEST GAS CORPORATION 1/7/99 DATE

NO.	DESCRIPTION	BY	DATE	APPR.
	REVISIONS			

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

C.S.A.
ENGINEERING SERVICES
6160 S. EASTERN SUITE 1
LAS VEGAS, NEVADA 89119
(702) 739-7211

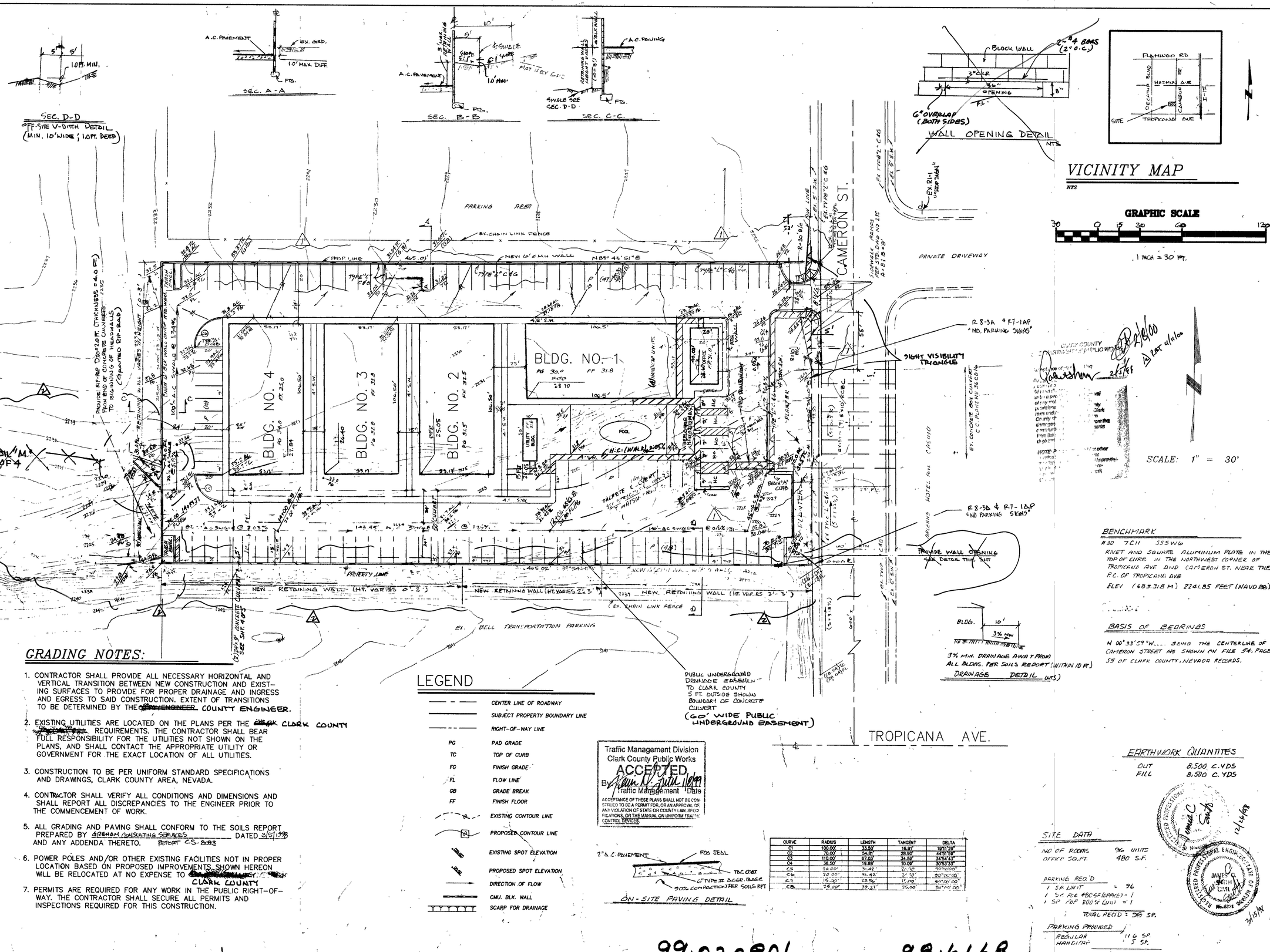
GARDEN PINES MOTEL
APN # 162-19-401-005
CLARK COUNTY NEVADA

COVER SHEET AND APPROVALS

SCALE(H):	1"= 1
SCALE(V):	1"= 1
DES.BY:	JCS
DWN.BY:	DLV
CHK.BY:	
DATE:	02/98
PROJECT NO.	1042
FILE NO.	
SHEET	1 OF 4

CAD FILE NAME: 1042CV PLOT DATE: 03/03/98

SCALE: 1"= 1



GRADING NOTES:

1. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITION BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND INGRESS AND EGRESS TO SAID CONSTRUCTION. EXTENT OF TRANSITIONS TO BE DETERMINED BY THE ~~CITY ENGINEER~~ COUNTY ENGINEER.
2. EXISTING UTILITIES ARE LOCATED ON THE PLANS PER THE ~~CITY OF~~ CLARK COUNTY ~~LAS VEGAS~~ REQUIREMENTS. THE CONTRACTOR SHALL BEAR FULL RESPONSIBILITY FOR THE UTILITIES NOT SHOWN ON THE PLANS, AND SHALL CONTACT THE APPROPRIATE UTILITY OR GOVERNMENT FOR THE EXACT LOCATION OF ALL UTILITIES.
3. CONSTRUCTION TO BE PER UNIFORM STANDARD SPECIFICATIONS AND DRAWINGS, CLARK COUNTY AREA, NEVADA.
4. CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND SHALL REPORT ALL DISCREPANCIES TO THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
5. ALL GRADING AND PAVING SHALL CONFORM TO THE SOILS REPORT PREPARED BY GROUP CONSULTING SERVICES DATED 8/5/1998 AND ANY ADDENDA THERETO. REPORT CS-8093
6. POWER POLES AND/OR OTHER EXISTING FACILITIES NOT IN PROPER LOCATION BASED ON PROPOSED IMPROVEMENTS SHOWN HEREON WILL BE RELOCATED AT NO EXPENSE TO ~~THE CITY OF LAS VEGAS~~ CLARK COUNTY
7. PERMITS ARE REQUIRED FOR ANY WORK IN THE PUBLIC RIGHT-OF-WAY. THE CONTRACTOR SHALL SECURE ALL PERMITS AND INSPECTIONS REQUIRED FOR THIS CONSTRUCTION.

LEGEND

- CENTER LINE OF ROADWAY
- SUBJECT PROPERTY BOUNDARY LINE
- RIGHT-OF-WAY LINE
- PG — PAD GRADE
- TC — TOP OF CURB
- FG — FINISH GRADE
- FL — FLOW LINE
- GB — GRADE BREAK
- FF — FINISH FLOOR
- EXISTING CONTOUR LINE
- PROPOSED CONTOUR LINE
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- DIRECTION OF FLOW
- CMU. BLK. WALL
- SCARP FOR DRAINAGE

Traffic Management Division
Clark County Public Works
ACCEPTED
By _____ 11/8/99
Traffic Management Date
ACCEPTANCE OF THESE PLANS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR, OR AN APPROVAL OF, ANY VIOLATION OF STATE OR COUNTY LAW, SPECIFICATIONS, OR THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

CURVE	RADIUS	LENGTH	TANGENT	DELTA
C1	100.00'	33.50'	16.91'	19°11'29"
C2	70.00'	54.81'	28.90'	44°51'59"
C3	110.00'	67.03'	34.59'	34°54'43"
C4	36.50'	19.88'	10.09'	30°53'33"
C5	20.00'	31.42'	20.00'	90°00'00"
C6	20.00'	31.42'	20.00'	90°00'00"
C7	15.00'	23.56'	15.00'	90°00'00"
C8	25.00'	39.27'	25.00'	90°00'00"

NO.	DESCRIPTION	BY	DATE	APPR.
1	REPOSITIONED ENTRANCE DRIVE, CHANGED H.C. PARKING SPACES, ADDED TREE'S, CHANGED WALL TYPE	HS	2/8/00	
2	ELIMINATED OFF-SITE DRAINAGE W/ D BASIN FOR TROPICANA AVE & ELIMINATE OFF-SITE H.C. RAMP	JCS	3/24/00	

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

C.S.A.
ENGINEERING SERVICES
5160 S. EASTERN, SUITE F
LAS VEGAS, NEVADA 89119
(702) 736-6610 FAX

GARDEN PINE MOTEL
APN# 162-19-401-005
CLARK COUNTY NEVADA

GRADING PLAN

SCALE(H):	1"= 30
SCALE(V):	1"= N/A
DES.BY:	JCS
DWN.BY:	DLV
CHK.BY:	
DATE:	03/98
PROJECT NO.	1042
FILE NO.	1042GR
SHEET	2
OF	4

PLOT DATE: 03/98
CAD FILE NAME: 1042

99-020801
98-6168
98-6168

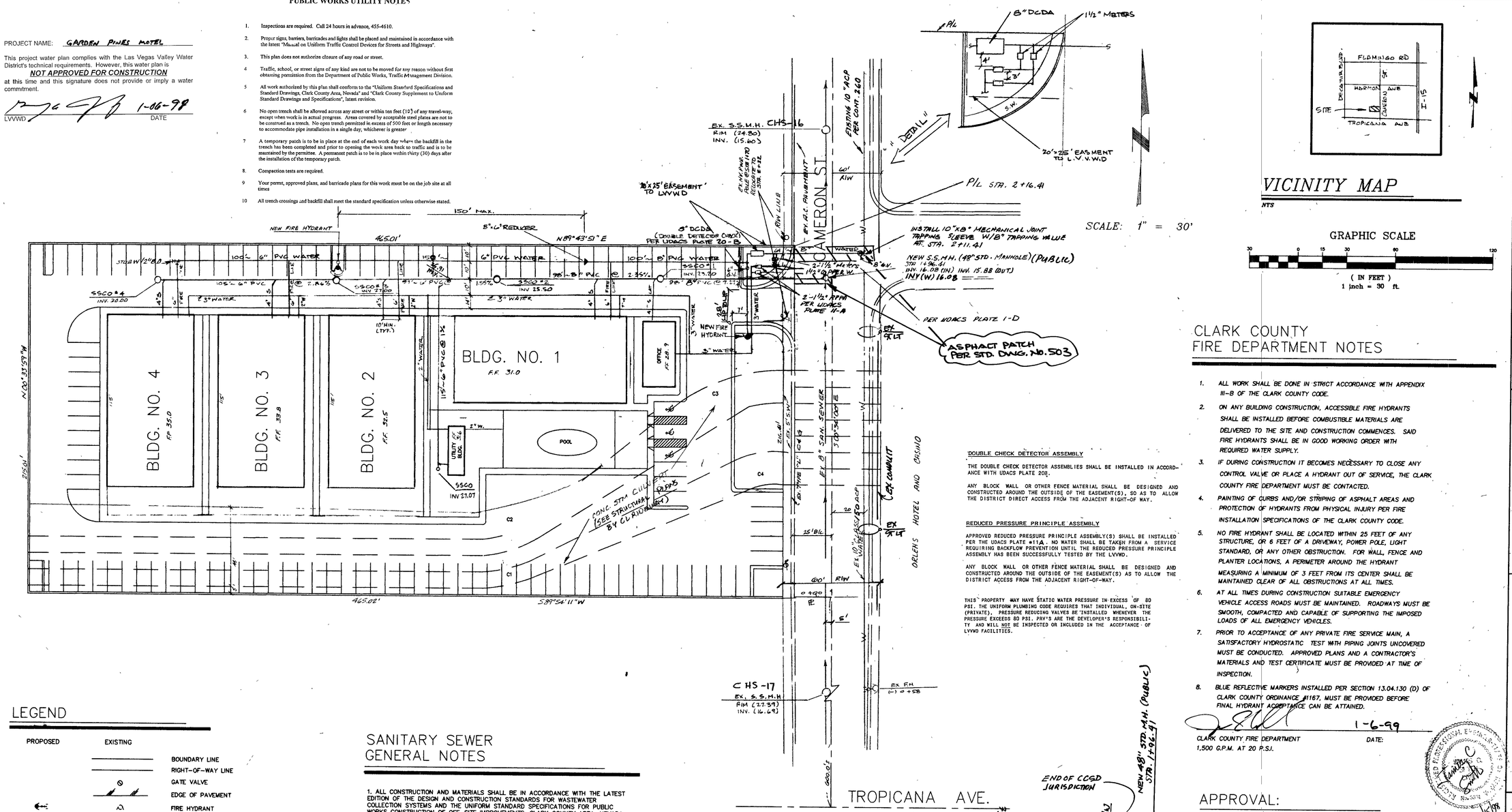
PUBLIC WORKS UTILITY NOTES

1. Inspections are required. Call 24 hours in advance, 455-4610.
2. Proper signs, barriers, barricades and lights shall be placed and maintained in accordance with the latest "Manual on Uniform Traffic Control Devices for Streets and Highways".
3. This plan does not authorize closure of any road or street.
4. Traffic, school, or street signs of any kind are not to be moved for any reason without first obtaining permission from the Department of Public Works, Traffic Management Division.
5. All work authorized by this plan shall conform to the "Uniform Standard Specifications and Standard Drawings, Clark County Area, Nevada" and "Clark County Supplement to Uniform Standard Drawings and Specifications", latest revision.
6. No open trench shall be allowed across any street or within ten feet (10') of any travel-way, except when work is in actual progress. Areas covered by acceptable steel plates are not to be construed as a trench. No open trench permitted in excess of 500 feet or length necessary to accommodate pipe installation in a single day, whichever is greater.
7. A temporary patch is to be in place at the end of each work day where the backfill in the trench has been completed and prior to opening the work area back to traffic and is to be maintained by the permittee. A permanent patch is to be in place within thirty (30) days after the installation of the temporary patch.
8. Compaction tests are required.
9. Your permit, approved plans, and barricade plans for this work must be on the job site at all times
10. All trench crossings and backfill shall meet the standard specification unless otherwise stated.

PROJECT NAME: GARDEN PINES MOTEL

This project water plan complies with the Las Vegas Valley Water District's technical requirements. However, this water plan is NOT APPROVED FOR CONSTRUCTION at this time and this signature does not provide or imply a water commitment.

LVVWD 1-06-98 DATE



DETAIL "A"

VICINITY MAP

NTS

SCALE: 1" = 30'

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

DOUBLE CHECK DETECTOR ASSEMBLY

THE DOUBLE CHECK DETECTOR ASSEMBLIES SHALL BE INSTALLED IN ACCORDANCE WITH UDACS PLATE 20B.

ANY BLOCK WALL OR OTHER FENCE 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.

REDUCED PRESSURE PRINCIPLE ASSEMBLY

APPROVED REDUCED PRESSURE PRINCIPLE ASSEMBLY(S) SHALL BE INSTALLED PER THE UDACS PLATE #11A. NO WATER SHALL BE TAKEN FROM A SERVICE REQUIRING BACKFLOW PREVENTION UNTIL THE REDUCED PRESSURE PRINCIPLE ASSEMBLY HAS BEEN SUCCESSFULLY TESTED BY THE LVVWD.

ANY BLOCK WALL OR OTHER FENCE MATERIAL SHALL BE DESIGNED AND CONSTRUCTED AROUND THE OUTSIDE OF THE EASEMENT(S) AS TO ALLOW THE DISTRICT ACCESS FROM THE ADJACENT RIGHT-OF-WAY.

THIS PROPERTY MAY HAVE STATIC WATER PRESSURE IN EXCESS OF 80 PSI. THE UNIFORM PLUMBING CODE REQUIRES THAT INDIVIDUAL, ON-SITE (PRIVATE), PRESSURE REDUCING VALVES BE INSTALLED WHENEVER THE PRESSURE EXCEEDS 80 PSI. PRV'S ARE THE DEVELOPER'S RESPONSIBILITY AND WILL NOT BE INSPECTED OR INCLUDED IN THE ACCEPTANCE OF LVVWD FACILITIES.

CLARK COUNTY FIRE DEPARTMENT NOTES

1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH APPENDIX III-B OF THE CLARK COUNTY CODE.
2. ON ANY BUILDING CONSTRUCTION, ACCESSIBLE FIRE HYDRANTS SHALL BE INSTALLED BEFORE COMBUSTIBLE MATERIALS ARE DELIVERED TO THE SITE AND CONSTRUCTION COMMENCES. SAID FIRE HYDRANTS SHALL BE IN GOOD WORKING ORDER WITH REQUIRED WATER SUPPLY.
3. IF DURING CONSTRUCTION IT BECOMES NECESSARY TO CLOSE ANY CONTROL VALVE OR PLACE A HYDRANT OUT OF SERVICE, THE CLARK COUNTY FIRE DEPARTMENT MUST BE CONTACTED.
4. PAINTING OF CURBS AND/OR STRIPING OF ASPHALT AREAS AND PROTECTION OF HYDRANTS FROM PHYSICAL INJURY PER FIRE INSTALLATION SPECIFICATIONS OF THE CLARK COUNTY CODE.
5. NO FIRE HYDRANT SHALL BE LOCATED WITHIN 25 FEET OF ANY STRUCTURE, OR 6 FEET OF A DRIVEWAY, POWER POLE, LIGHT STANDARD, OR ANY OTHER OBSTRUCTION. FOR WALL, FENCE AND PLANTER LOCATIONS, A PERIMETER AROUND THE HYDRANT MEASURING A MINIMUM OF 3 FEET FROM ITS CENTER SHALL BE MAINTAINED CLEAR OF ALL OBSTRUCTIONS AT ALL TIMES.
6. AT ALL TIMES DURING CONSTRUCTION SUITABLE EMERGENCY VEHICLE ACCESS ROADS MUST BE MAINTAINED. ROADWAYS MUST BE SMOOTH, COMPACTED AND CAPABLE OF SUPPORTING THE IMPOSED LOADS OF ALL EMERGENCY VEHICLES.
7. PRIOR TO ACCEPTANCE OF ANY PRIVATE FIRE SERVICE MAIN, A SATISFACTORY HYDROSTATIC TEST WITH PIPING JOINTS UNCOVERED MUST BE CONDUCTED. APPROVED PLANS AND A CONTRACTOR'S MATERIALS AND TEST CERTIFICATE MUST BE PROVIDED AT TIME OF INSPECTION.
8. BLUE REFLECTIVE MARKERS INSTALLED PER SECTION 13.04.130 (D) OF CLARK COUNTY ORDINANCE #1167, MUST BE PROVIDED BEFORE FINAL HYDRANT ACCEPTANCE CAN BE ATTAINED.

1-6-99

CLARK COUNTY FIRE DEPARTMENT DATE:
1,500 G.P.M. AT 20 P.S.I.

APPROVAL:

LAS VEGAS VALLEY WATER DISTRICT DATE:

N/A
JAMES A. BELL, P.E. DATE
DEPUTY DIRECTOR OF PUBLIC WORKS/CITY ENGINEER

N/A
CNLV DEVELOPMENT DIVISION DATE

APPROVAL OF THESE PLANS SHALL NOT BE CONTRUED TO BE A PERMIT FOR CONSTRUCTION, A COMMITMENT TO SUPPLY WATER SERVICE OR AN APPROVAL OF ANY VIOLATION OF CNLV WATER SERVICE DISTRICT SERVICE RULES AND REGULATIONS OR DESIGN AND CONSTRUCTION STANDARDS.

ESTIMATED QUANTITIES

1½" WATER METER	2	EA.
1½" RPPA	2	EA.
8" PVC (WATER) (PUBLIC)	57	LF
8" DCDA	1	EA.
8" PVC SEWER PUBLIC	25	LF

LEGEND

PROPOSED	EXISTING	
		BOUNDARY LINE
		RIGHT-OF-WAY LINE
		GATE VALVE
		EDGE OF PAVEMENT
		FIRE HYDRANT
		ST.LIGHT
		CENTER LINE
		SANITARY SEWER MANHOLE
		SEWER LINE
		WATER LINE
		GAS LINE
		POWER POLE
		1" WATER SERV.(COPPER)

CURVE	RADIUS	LENGTH	TANGENT	DELTA
C1	100.00'	33.50'	16.91'	19°11'29"
C2	70.00'	54.81'	28.90'	44°51'59"
C3	110.00'	67.03'	34.59'	34°54'43"
C4	36.50'	19.68'	10.09'	30°53'33"

NOTE

1. A MINIMUM VERTICAL SEPARATION OF EIGHTEEN (18) INCHES IS REQUIRED FOR SEWER AND WATER LINES. IF THIS CONDITION CANNOT BE MET, CONCRETE ENCASE WATER LINE TEN (10) FEET EACH SIDE OF CROSSING OR USE WATER QUALITY PIPE PER SEWER LINE.

SANITARY SEWER GENERAL 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 OF OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, AS AMENDED. IN ALL CASES, THESE STANDARDS SHALL SUPERSEDE THE UNIFORM STANDARD SPECIFICATIONS. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BE AWARE OF THE CONTENTS OF THE ABOVE SPECIFICATION BOOKS.
2. THESE STANDARDS SHALL APPLY TO ALL CONSTRUCTION.
3. SEWER MAINS ONLY TO BE LAID IN SEWER TRENCHES.
4. ALL LATERALS TO BE LAID AT NOT LESS THAN THE MINIMUM SLOPES AS SHOWN IN THESE STANDARDS.
5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM CONSTRUCTION AS PER PLANS. ANY ADDITIONS, DELETIONS, OR CHANGES SHALL FIRST MEET WITH THE APPROVAL OF THE CONTROLLING AGENCY.
6. SOIL TESTING SHALL BE IN ACCORDANCE WITH SECTION 3.11 OF THESE STANDARDS.
7. ALL EXFILTRATION, INFILTRATION AND AIR TESTING OF LINES SHALL BE IN ACCORDANCE WITH THESE STANDARDS.
8. CUT SHEETS MUST BE SUBMITTED TO THE AGENCY BEFORE CONSTRUCTION WILL BE PERMITTED TO START.
9. ALL CONTRACTORS INSTALLING SEWER MAINS THAT WILL BE UNDER THE JURISDICTION OF THE CONTROLLING AGENCY MUST BE CLASS "A" CONTRACTORS.

APPROVAL: (SEWER)

C.C. SANITATION DISTRICT DATE

CLARK COUNTY SANITATION DISTRICT
By: Date: 1/7/99

"Signature on these plans will not be construed to be a permit for or an approval of any violation of Clark County Sanitation District rules, regulations, or design and construction standards. The approval of these drawings does not guarantee capacity in the District's collection or treatment system."

FIRE DEPT. DATA

LARGEST BLDG.	G#3 30.FT
TYPE OF CONSTRUCTION	V
FIRE FLOW REQUIRED	1500 GPM, 20 PSI RESIDUAL
SPRINKLED	BLDS. NO. 1,2,3 & 4

99-020801 OFF-SITE SEWER PROFILE

98-6168

NO.	DESCRIPTION	REVISIONS	BY	DATE	APPR.

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

C.S.A.
ENGINEERING SERVICES
6180 S. EASTERN, SUITE F
LAS VEGAS, NEVADA 89119
(702) 361-1045
(702) 739-7211 FAX

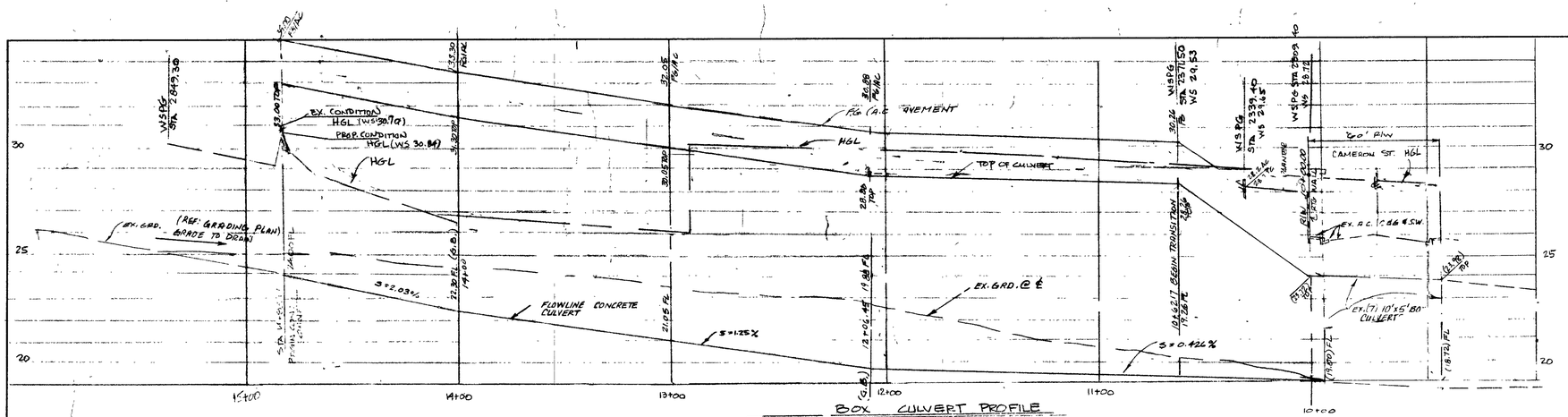
GARDEN PINES MOTEL
APN# 162-19-401-005
CLARK COUNTY NEVADA

UTILITY PLAN

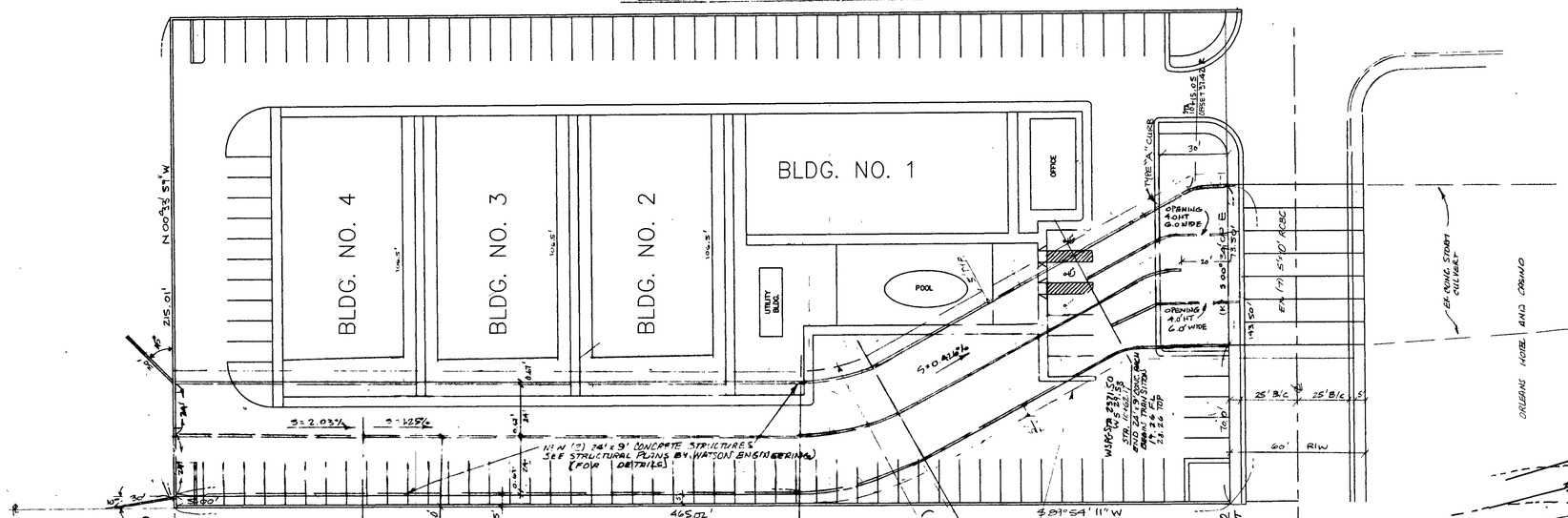
SCALE(H):	1"= 30
SCALE(V):	1"= N/A
DES.BY:	JCS
DWN.BY:	DLV
CHK.BY:	
DATE:	03/98
PROJECT NO.	1042
FILE NO.	1042UT
SHEET	3
OF	4

CAD FILE NAME: 1042 PLOT DATE: 03/98

98-6168

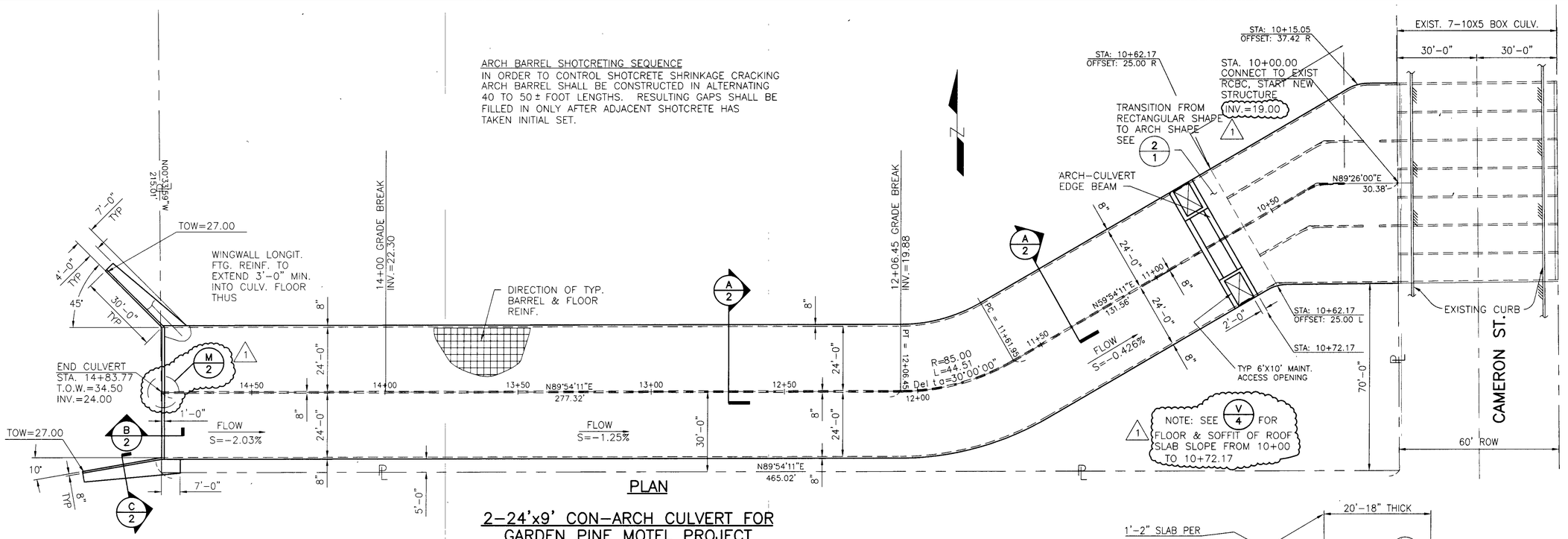


BOX CULVERT PROFILE


BLDG. NO. 1
BLDG. NO. 2
BLDG. NO. 3
BLDG. NO. 4
OFFICE
UTILITY BLDG.
POOL
TYPE "A" CURB
OPENING 4.0HT 6.0WIDE
EX. (7) 5'-0" RCBC
EX. 60" STORM CULVERT
ORLEANS HOME AND ORNAMENTAL
25' B/C
60' R/W
N 00°35' 51" W
215.01'
S 89°54' 11" W
465.02'
S=2.03%
S=1.25%
W1SPG STA 25+71.50 WS 24.53
STA 25+16.00 WS 24.26
W1SPG STA 25+16.00 WS 23.88
W1SPG STA 27+42.17 WS 23.72
W1SPG STA 27+79.00 WS 23.72
W1SPG STA 28+20.00 WS 23.72
(WS 30.84)
(WS 29.99)
(WS 28.72)
14.00' (G.B.) 22.30 FL 24.30 TOP
14.00' (G.B.) 19.88 FL 21.88 TOP
(PT) 12+06.45 (G.B.)
(PC) 11+56.45 (G.B.)
W1SPG STA 14+83.77
END STM. CULVERT 24.00 FL 31.00 TOP
W1SPG STA 27+79.00 WS 23.72
BEGIN NEW CONC. CULVERT 19.40 FL 26.40 TOP
W1SPG STA 28+20.00 WS 23.72
ORIGIN NEW CONC. CULVERT 19.40 FL 26.40 TOP
W1SPG STA 27+42.17 WS 23.72
W1SPG STA 25+16.00 WS 23.88
W1SPG STA 25+71.50 WS 24.53
W1SPG STA 26+03.50 WS 25.12
W1SPG STA 28+20.00 WS 23.72
W1SPG STA 28+60.00 WS 23.72
W1SPG STA 29+00.00 WS 23.72
W1SPG STA 29+40.00 WS 23.72
W1SPG STA 29+80.00 WS 23.72
W1SPG STA 30+20.00 WS 23.72
W1SPG STA 30+60.00 WS 23.72
W1SPG STA 31+00.00 WS 23.72
W1SPG STA 31+40.00 WS 23.72
W1SPG STA 31+80.00 WS 23.72
W1SPG STA 32+20.00 WS 23.72
W1SPG STA 32+60.00 WS 23.72
W1SPG STA 33+00.00 WS 23.72
W1SPG STA 33+40.00 WS 23.72
W1SPG STA 33+80.00 WS 23.72
W1SPG STA

ARCH BARREL SHOTCRETING SEQUENCE

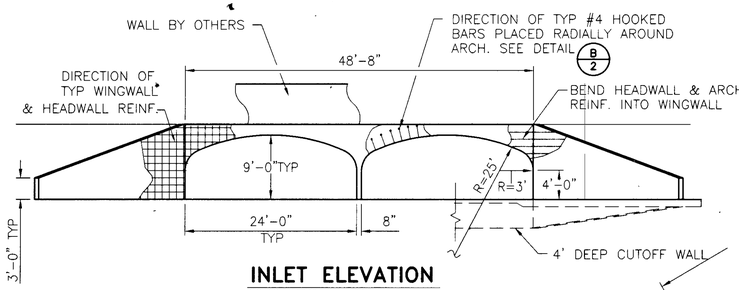
IN ORDER TO CONTROL SHOTCRETE SHRINKAGE CRACKING ARCH BARREL SHALL BE CONSTRUCTED IN ALTERNATING 40 TO 50 ± FOOT LENGTHS. RESULTING GAPS SHALL BE FILLED IN ONLY AFTER ADJACENT SHOTCRETE HAS TAKEN INITIAL SET.



PLAN

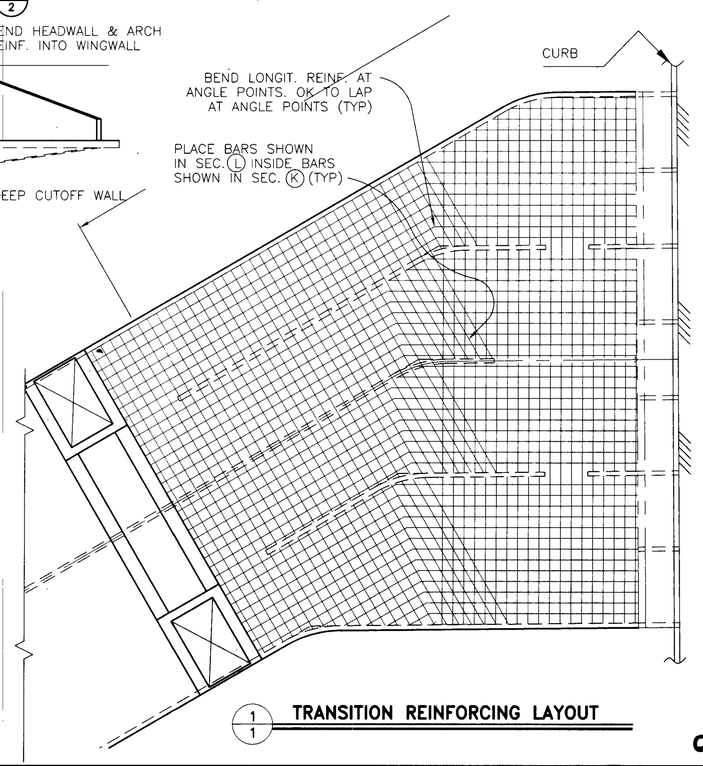
2-24'x9' CON-ARCH CULVERT FOR GARDEN PINE MOTEL PROJECT

SCALE: 1"=20'

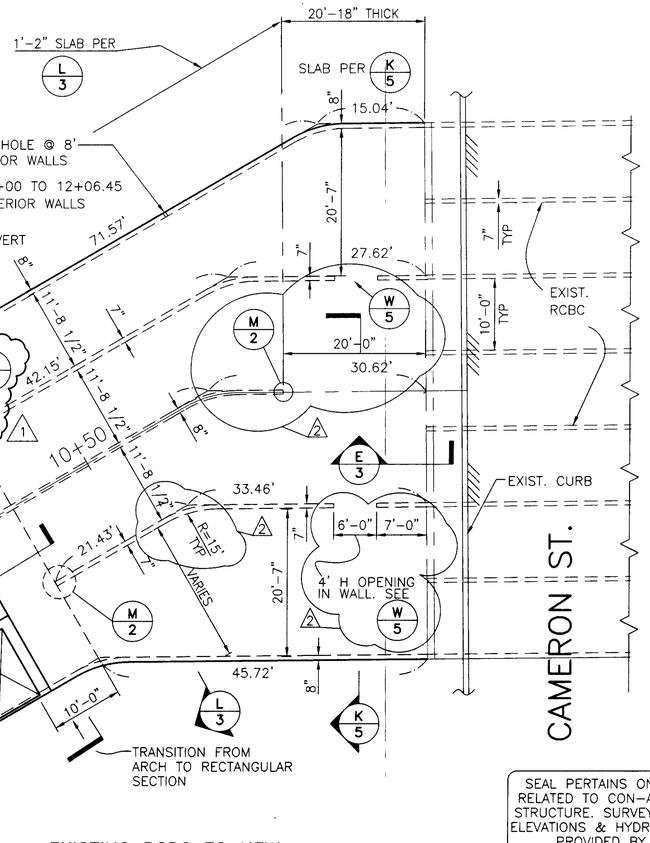


INLET ELEVATION

SCALE: 1"=10'-0"



1/1 **TRANSITION REINFORCING LAYOUT**



2/1 **EXISTING RCBC TO NEW STRUCTURE TRANSITION DETAIL**

1" = 10'

99.02.0801

98.6168

REV	BY	DATE	COMMENT
2	TAS	11/10/98	REVISED TO REFLECT CCRFCD COMMENTS
1	TAS	7/20/98	REVISED TO REFLECT CLARK COUNTY REVIEW COMMENTS

WATSON ENGINEERING
CONSULTING ENGINEERS
2450 WEST POPPY AVENUE
TUCSON, ARIZONA 85705
PH: (520) 888-6468
FAX: (520) 292-6974

CON-ARCH

NOTICE: These drawings and the information contained therein are the property of CL Engineering, Inc. dba Con-Arch Consultants and were prepared exclusively for projects in Arizona. Con-Arch culverts are a proprietary product and require special expertise to design and construct. The unauthorized use of these drawings is strictly prohibited.

GARDEN PINE MOTEL ARCH-CULVERT DETAILS

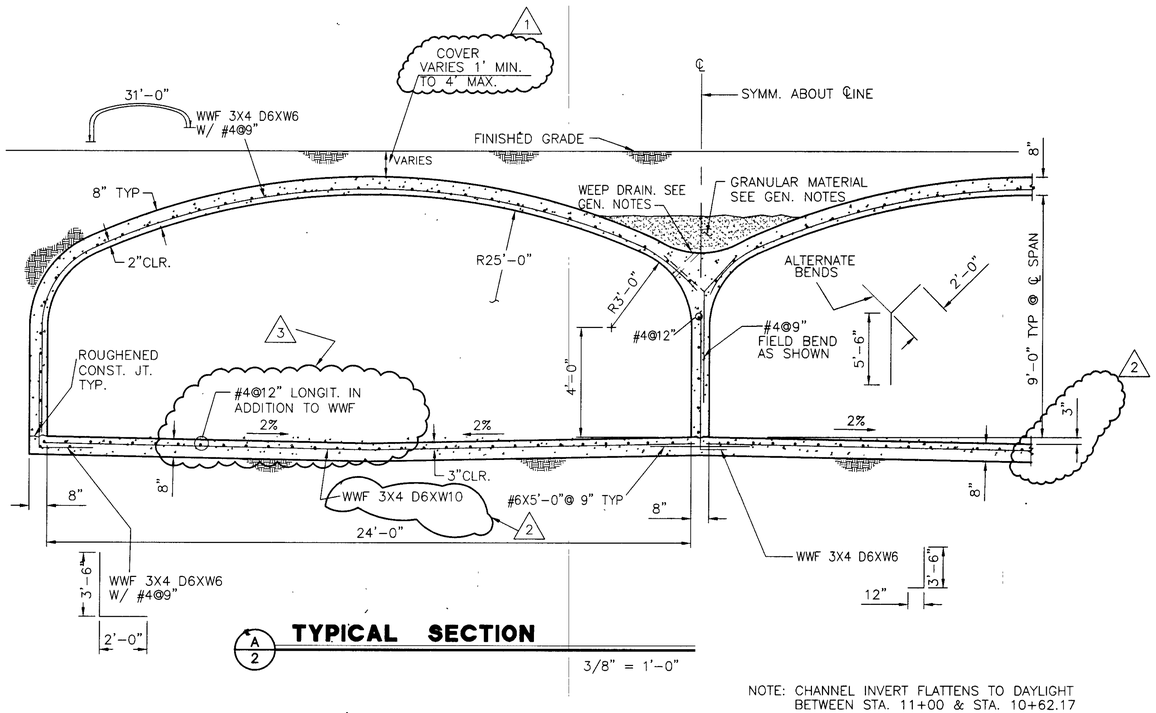
CLARK CO., NEVADA

PROFESSIONAL ENGINEER STATE OF NEVADA
THOMAS A. SACRA III
12/23/98
CIVIL
No. 10039

SEAL PERTAINS ONLY TO WORK RELATED TO CON-ARCH CULVERT STRUCTURE. SURVEY DATA, INVERT ELEVATIONS & HYDRAULIC ANALYSIS PROVIDED BY OTHERS.

Dsgn:	TAS
Drwn:	ALB
Rvsd:	–
Chk:	TAS
Date:	6/8/98
SCALE:	AS NOTED
SHEET NO.	Proj. No.
1 OF 5	98049

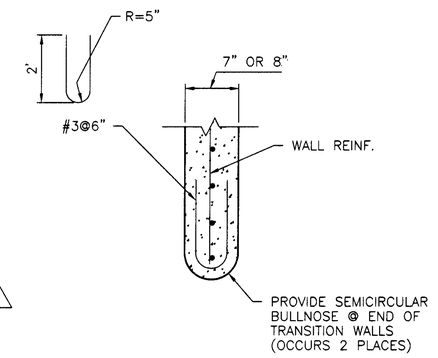
8919-98



A/2 **TYPICAL SECTION**

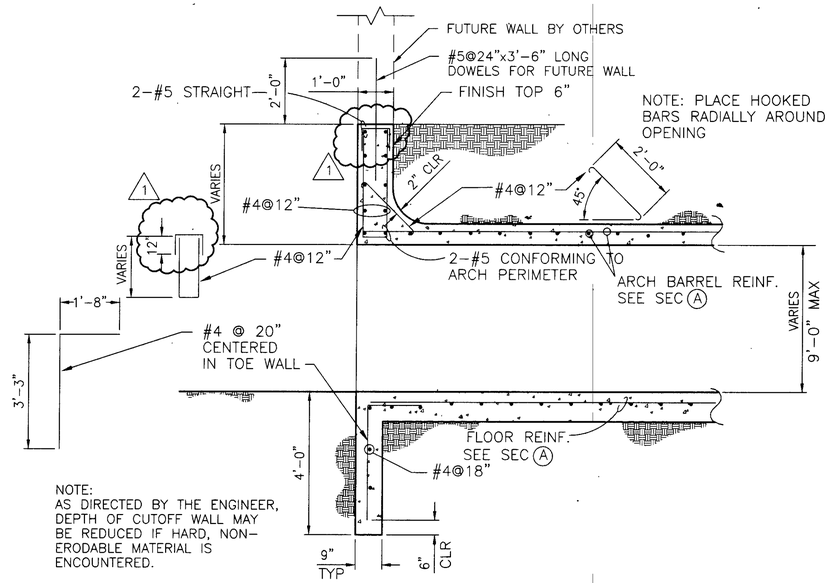
3/8" = 1'-0"

NOTE: CHANNEL INVERT FLATTENS TO DAYLIGHT BETWEEN STA. 11+00 & STA. 10+62.17



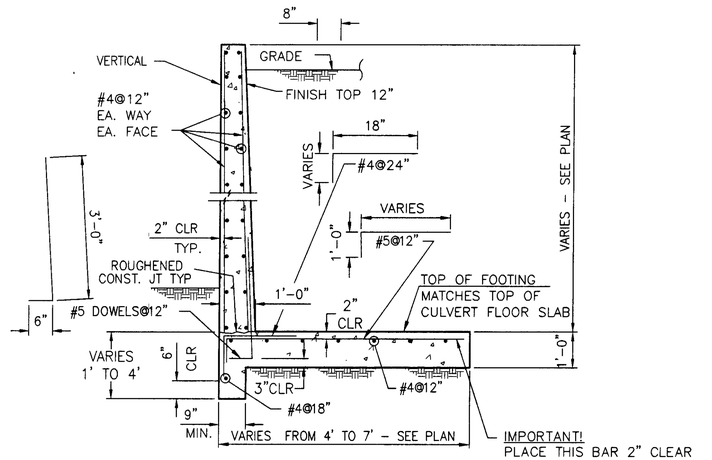
M/2 **END OF WALL BULLNOSE**

NO SCALE



B/2 **TYPICAL SECTION**

1/2" = 1'-0"



C/2 **TYPICAL SECTION**

1/2" = 1'-0"

NOTE: WHEN USING REINF. WITH METRIC BAR NUMBERS:
#3 = #9 (METRIC)
#4 = #13 (METRIC)
#5 = #16 (METRIC)
#6 = #19 (METRIC)

SEAL PERTAINS ONLY TO WORK RELATED TO CON-ARCH CULVERT STRUCTURE. SURVEY DATA, INVERT ELEVATIONS & HYDRAULIC ANALYSIS PROVIDED BY OTHERS.

REV	BY	DATE	COMMENT
3	TAS	12/21/98	REVISION TO REFLECT CCRFCD COMMENTS
2	TAS	11/10/98	REVISION TO REFLECT CCRFCD COMMENTS
1	TAS	7/20/98	REVISION TO REFLECT CLARK COUNTY REVIEW COMMENTS

99-0208.01 98-6168

GENERAL NOTES

1.) DESIGN SPECIFICATIONS: AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES," 1996 ED. AND REVISIONS THERETO EXCEPT WHERE NOTED OTHERWISE.

2.) CONSTRUCTION SPECIFICATIONS: NDOT STANDARD SPECIFICATIONS, CURRENT EDITION, EXCEPT WHERE NOTED OTHERWISE.

3.) LOADING CLASS: HS20-44

4.) DEAD LOADS: FOR SELF WEIGHT OF STRUCTURE, REINF. CONCRETE = 150 POUNDS PER CUBIC FOOT (PCF), BACKFILL AROUND STRUCTURE = 120 PCF.

5.) DESIGN METHODOLOGY:

A.) CONCRETE ARCH: DESIGN BASED ON FINITE ELEMENT SOIL-STRUCTURE INTERACTION COMPUTER PROGRAM STUDIES UTILIZING SERVICE LOAD STRESSES. PROGRAM CALCULATES DESIGN MOMENTS FOR ARCH, WALLS, AND SLAB ACTING AS A UNIT WITH SURROUNDING SOIL.

B.) CONCRETE REINFORCING REQUIREMENTS COMPUTED BY THE ULTIMATE STRENGTH DESIGN METHOD.

6.) REINFORCING STEEL:

A.) CONVENTIONAL REINFORCEMENT: ASTM A615 GRADE 60 EXCEPT #3 BARS WHICH MAY BE GRADE 40 OR GRADE 60. MINIMUM COVER 3 INCHES WHERE CONCRETE CAST AGAINST EARTH, 2 INCHES FOR #6 THROUGH #11 OR 1 1/2 INCHES FOR #5 AND SMALLER BARS WHERE CONCRETE SURFACE IS EXPOSED TO EARTH BACKFILL OR WEATHER U. N O. (UNLESS NOTED OTHERWISE).

B.) ALTERNATE WELDED WIRE FABRIC REINFORCEMENT: WELDED DEFORMED WIRE FABRIC, FY = 70,000 PSI MIN., CONFORMING TO AASHTO M 55 OR M 221.

7.) REINFORCING BENDS AND LAPS: BENDS AND HOOKS SHALL CONFORM TO A. C. I. STD. 315-80 U. N. O. BEND DIMENSIONS ARE FROM OUT TO OUT AND LAPS SHALL BE 40 BAR DIAMETERS MINIMUM U. N. O. WELDED WIRE FABRIC LAPS 1'-0" MIN. U. N. O.

8.) CONCRETE AND SHOTCRETE:

A.) SHOTCRETE: FC' = 3,000 PSI @ 28 DAYS MIXED FOR AND PLACED BY THE WET MIX PLACEMENT PROCESS. SEE NO 16 BELOW.

B.) FLOOR CONCRETE: FC' = 4,000 PSI @ 28 DAYS & SHALL BE MODIFIED AA CLASS PURSUANT TO CLARK COUNTY BLUE BOOK STANDARDS.

C.) ALL OTHER CONCRETE: FC' = 3,000 PSI @28 DAYS & SHALL BE MODIFIED AA CLASS PURSUANT TO CLARK COUNTY BLUE BOOK STANDARDS.

9.) WORKMANSHIP: CHAMFER EXPOSED CORNERS 3/4 INCHES U. N. O. FINISH EXPOSED CONCRETE SURFACES PER STANDARD SPECIFICATIONS.

10.) SCALE: DO NOT SCALE DIMENSIONS FROM THE DRAWINGS.

11.) CURING: AFTER SPRAY ON CURING COMPOUND HAS BEEN APPLIED AND SHOTCRETE HAS TAKEN SET TO ALLOW FOOT TRAFFIC, ARCH BARRELS SHALL BE COVERED WITH 6 MIL CLEAR OR BLACK POLYETHYLENE SHEETING SECURED AGAINST WIND UPLIFT. SHEETING SHALL BE LEFT IN PLACE DURING BACKFILLING.

12.) STRIPPING: FORMS MAY BE STRIPPED AFTER A TWELVE HOUR INITIAL SET OR WHEN, IN THE OPINION OF THE ENGINEER, THE SHOTCRETE HAS TAKEN ADEQUATE SET TO ALLOW STRIPPING TO TAKE PLACE. BACKFILLING MAY PROCEED WHEN ARCH SHOTCRETE CYLINDER STRENGTH HAS REACHED F'c=1,500 PSI OR WHEN, IN THE OPINION OF THE ENGINEER, THE ARCH SHOTCRETE HAS TAKEN ADEQUATE SET TO ALLOW BACKFILLING TO PROCEED.

13.) BACKFILLING:

A.) BACKFILL SHALL BE PLACED IN NO GREATER THAN ONE FOOT LIFTS WITH NO GREATER THAN A ONE FOOT DIFFERENTIAL IN BACKFILL HEIGHT TO EACH SIDE OF ANY INDIVIDUAL ARCH. NO EQUIPMENT HEAVIER THAN A RUBBER TIRED THREE YARD CAPACITY FRONT END LOADER IS PERMITTED TO PASS OVER THE STRUCTURE UNTIL THE BACKFILL, AS SPECIFIED, IS COMPLETE IN PLACE. SCRAPERS AND OTHER SUCH HEAVY EQUIPMENT SHALL NOT BE ALLOWED TO PASS OVER THE STRUCTURE UNLESS SPECIFIC PERMISSION IN WRITING IS ISSUED BY THE ENGINEER.

B.) DENSITY: 95% OF STD. PROCTOR MAXIMUM DENSITY AS DETERMINED BY ASTM D-698.

C.) BACKFILL ZONE: THE BACKFILL ZONE SHALL EXTEND OUT TO THE LESSOR OF 1.5 TIMES THE ARCH SPAN FROM THE OUTSIDE EDGE OF THE ARCH OR THE DISTANCE TO THE ADJACENT SLOPED NATIVE MATERIAL. THIS ZONE SHALL EXTEND UPWARD TO THE HEIGHT OF THE PAVEMENT SUBGRADE.

D.) MATERIALS: NATIVE AND IMPORTED GRANULAR SOILS WITH MAXIMUM EXPANSIVE POTENTIALS OF 1.8% AND A MAXIMUM PARTICLE SIZE OF 3".

E.) PROVIDE POSITIVE DRAINAGE (DAYLIGHT) AWAY FROM SITE. REMOVE WATER SOFTENED MATERIAL FROM BENEATH SLABS OR FOOTINGS.

14.) WEEP DRAINS: ONE AND ONE HALF INCH DIAMETER HOLES SHALL BE PLACED IN THE INVERT BETWEEN ARCH BARRELS AT 4 FOOT CENTERS TO DRAIN THE FILL BETWEEN THE ARCH BARRELS. THE HOLES MAY BE EITHER DRILLED INTO THE SHOTCRETE OR PLACED AS 1½" DIA. SCHED. 40 PVC PIPE. AREA AROUND THE INLET TO THE HOLES SHALL BE COVERED WITH FILTER FABRIC EXTENDING AT LEAST ONE FOOT TO EACH SIDE OF EACH HOLE.

15.) SHOTCRETE REQUIREMENTS

SHOTCRETE SHALL COMPLY WITH THE RECOMMENDATIONS OF ACI "GUIDE TO SHOTCRETE." AND THE REQUIREMENTS OF ACI 506.2 "SPECIFICATION FOR MATERIALS, PROPORTIONING, AND APPLICATION OF SHOTCRETE."

PARTICULAR ATTENTION SHALL BE PAID TO THE FOLLOWING PARTS OF THE SHOTCRETE REQUIREMENTS.

A.) WORKER QUALIFICATIONS: WORKERS, INCLUDING FOREMAN, NOZZLEMEN, AND SHOTCRETE PUMP OPERATOR, SHALL BE FULLY QUALIFIED TO PERFORM THE WORK. THE NOZZLEMEN SHALL HAVE HAD A MINIMUM OF TWO YEARS CONTINUOS EXPERIENCE ON SIMILAR STRUCTURAL SHOTCRETE WORK AND SHALL DEMONSTRATE THEIR ABILITY TO SATISFACTORILY PLACE SHOTCRETE IN ACCORDANCE WITH THE RECOMMENDATIONS OF ACI 506.3R "GUIDE TO CERTIFICATION OF SHOTCRETE NOZZLEMEN."

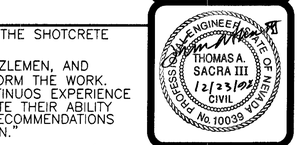
B.) THE CONTRACTOR SHALL SUPPLY FOR REVIEW DOCUMENTATION INCLUDING, BUT NOT LIMITED TO, MATERIAL SPECIFICATIONS, MIX DESIGN, PLACEMENT PROCEDURES, AND FIELD QUALITY CONTROL PROGRAM. A TENTATIVE SHOTCRETE MIX SHALL BE DESIGNED AND TESTED FOR EACH TYPE, SIZE, AND GRADATION OF AGGREGATES; AND FOR EACH CONSISTENCY INTENDED FOR THE USE OF THE PROJECT. BEFORE STARTING SHOTCRETE WORK, AT LEAST ONE TEST PANEL FOR EACH PROPOSED MIX SHALL BE MADE BY EACH SHOTCRETE CREW, USING THE 30 INCH SQUARE PANEL METHOD AND THE PROPOSED EQUIPMENT FOR THE PROJECT. THE PANEL SHALL BE ORIENTED SIMILARLY TO THE STRUCTURE, SHALL CONTAIN THE SAME REINFORCING AS THE STRUCTURE AND SHALL HAVE THE SAME THICKNESS AS THE STRUCTURE. THE PANEL SHALL BE CORED FOR ABSORPTION AND COMPRESSION TESTING AT 14 AND 28 DAYS.

WATSON ENGINEERING
CONSULTING ENGINEERS
2450 WEST POPPY AVENUE
TUCSON, ARIZONA 85705
PH: (520) 888-6468
FAX: (520) 292-6974

CON-ARCH

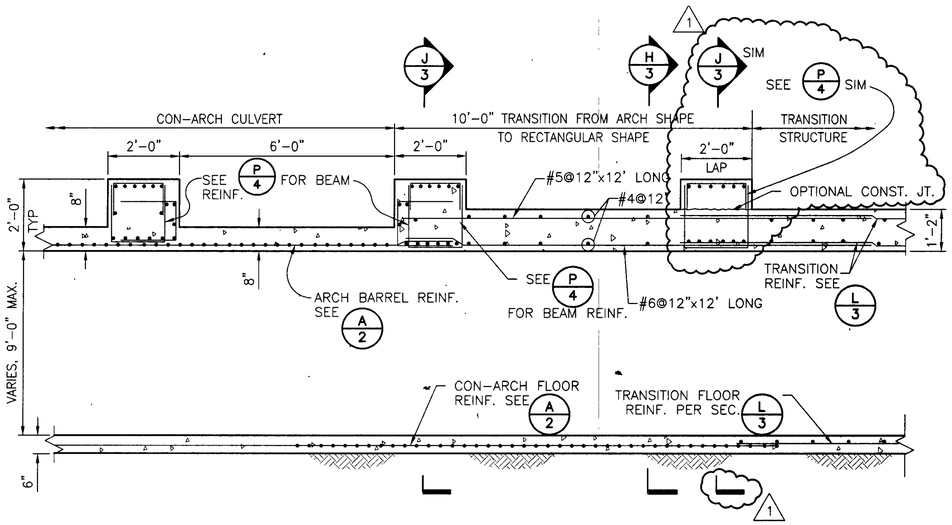
NOTICE - These drawings contain the information contained herein are the property of C.L. Ridgway Construction Corporation, dba Con-Arch Construction, and shall not be used without the written permission of Con-Arch. Con-Arch culverts are a proprietary product and require special expertise to design and construct. The unauthorized use of these drawings is strictly prohibited

GARDEN PINE MOTEL
ARCH-CULVERT DETAILS
CLARK CO., NEVADA



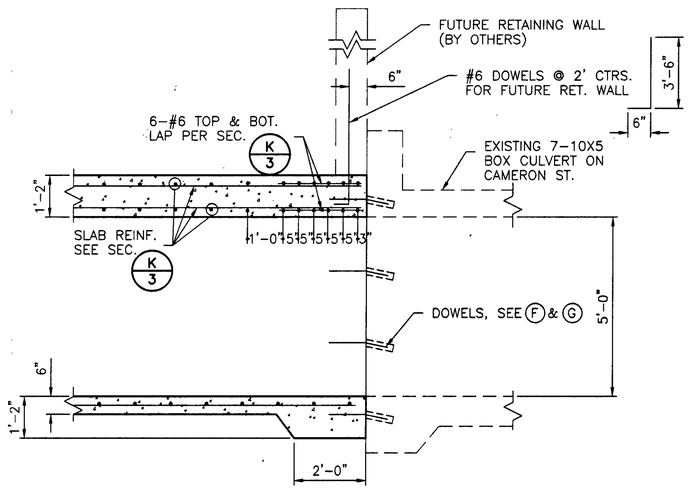
Dsgn:	TAS
Drwn:	ALB
Rvsd:	-
Chk:	TAS
Date:	6/8/98
SCALE:	AS NOTED
SHEET NO.	Proj. No.
2 OF 5	98049

3/19/99



D 3 TRANSITION SECTION

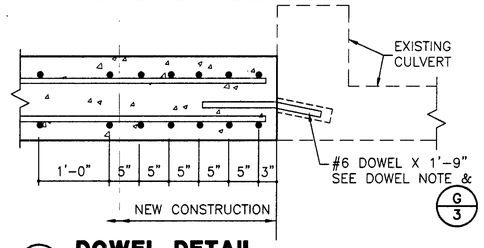
1/2" = 1'–0"



E 3 TRANSITION STRUCTURE TO EXIST. CULV. CONNECTION DETAIL

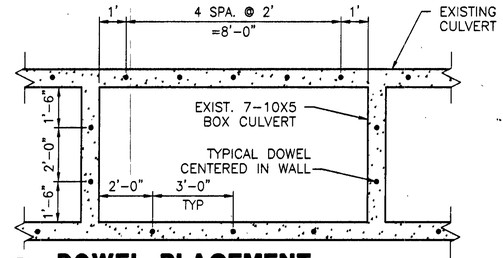
1/2" = 1'–0"

DOWEL NOTE: DRILL 1"ø HOLE, 8" DEEP, FOR #6 DOWEL. EPOXY DOWEL IN HOLE WITH HIHTI HSE 2411 OR APPROVED EQUIVILANT EPOXY ADHESIVE.



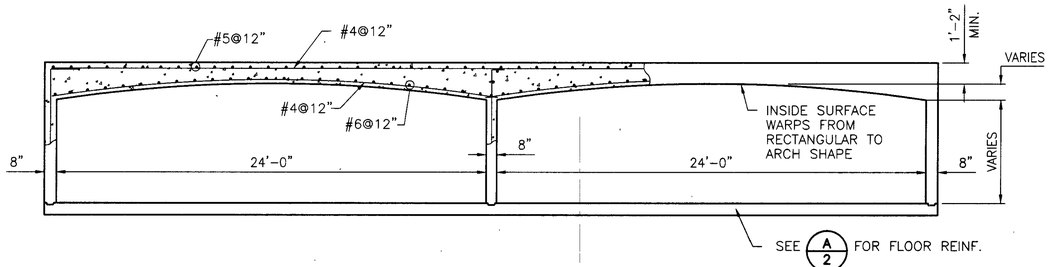
F 3 DOWEL DETAIL

1" = 1'–0"



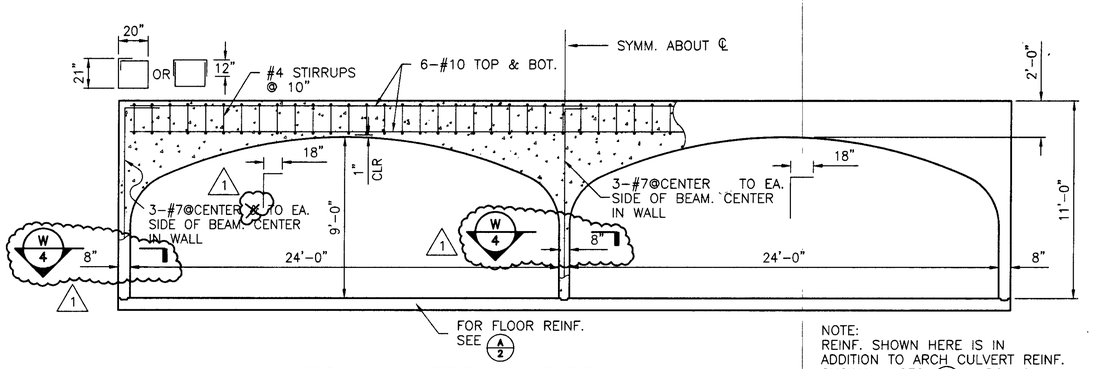
G 3 DOWEL PLACEMENT

3/8" = 1'–0"



H 3 ARCH TO BOX TRANSITION SECTION

1/4" = 1'–0"

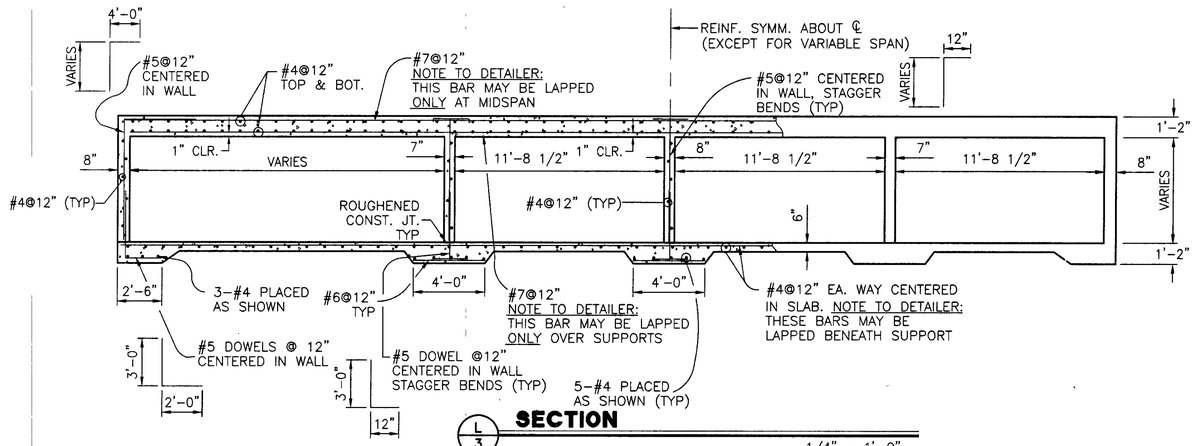


J 3 ARCH CULVERT EDGE BEAM SECTION

1/4" = 1'–0"

NOTE:
REINF. SHOWN HERE IS IN ADDITION TO ARCH CULVERT REINF. SHOWN IN SEC. A 2. ARCH CULV.

REINF. NOT SHOWN FOR CLARITY



L 3 SECTION

1/4" = 1'–0"

SEAL PERTAINS ONLY TO WORK RELATED TO CON–ARCH CULVERT STRUCTURE. SURVEY DATA, INVERT ELEVATIONS & HYDRAULIC ANALYSIS PROVIDED BY OTHERS.

99.020801 98-6168

WATSON ENGINEERING
CONSULTING ENGINEERS
2450 WEST POPPY AVENUE
TUCSON, ARIZONA 85705
PH: (520) 888–6468
FAX: (520) 292–6974

CON–ARCH

NOTICE: These drawings and the information contained herein are the property of C.L. Ridgeway Construction Company, Tucson, Arizona and Watson Engineering, Tucson, Arizona. Con–Arch culverts are a proprietary product and require special expertise to design and construct. The unauthorized use of these drawings is strictly prohibited.

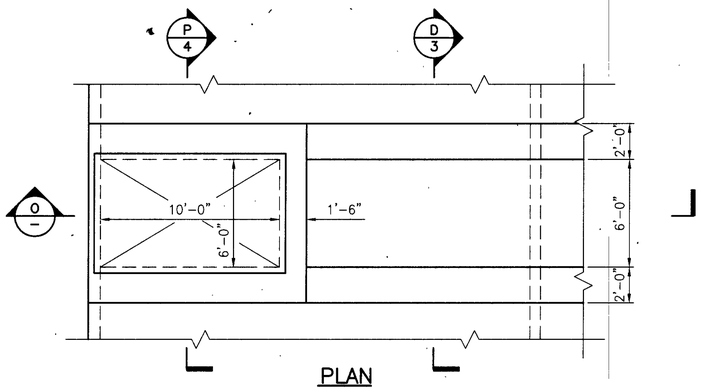
REV	BY	DATE	COMMENT
1	TAS	7/20/98	REVISION TO REFLECT CLARK COUNTY REVIEW COMMENTS

GARDEN PINE MOTEL
ARCH–CULVERT DETAILS
CLARK CO., NEVADA

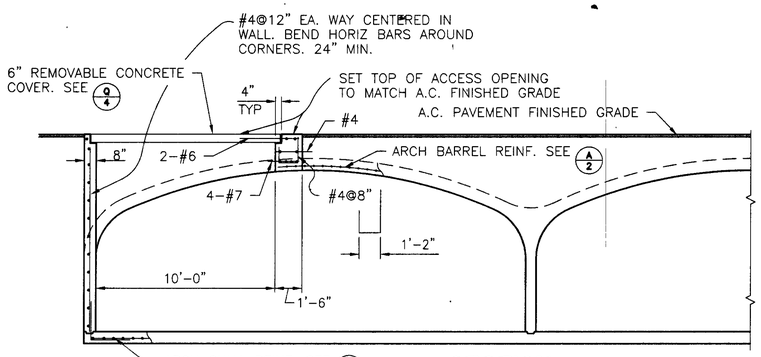
PROFESSIONAL ENGINEER – STATE OF NEVADA – THOMAS A. SACRA III – 11/23/98 – CIVIL – No. 10039 – PROFESSIONAL SEAL

Dsgn:	TAS
Drwn:	ALB
Rvsd:	–
Chk:	TAS
Date:	6/8/98
SCALE:	AS NOTED
SHEET NO.	Proj. No.
3 OF 5	98049

98-6168



PLAN



O/– **SECTION**

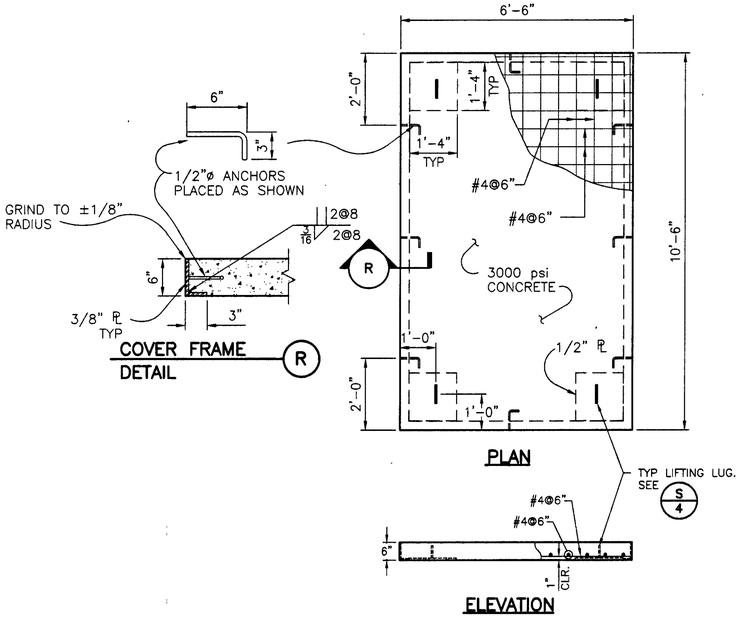
1/4" = 1'-0"

N/4 **ACCESS OPENING DETAIL**

1/4" = 1'-0"

P/4 **SECTION • ACCESS OPENING**

3/4" = 1'-0"

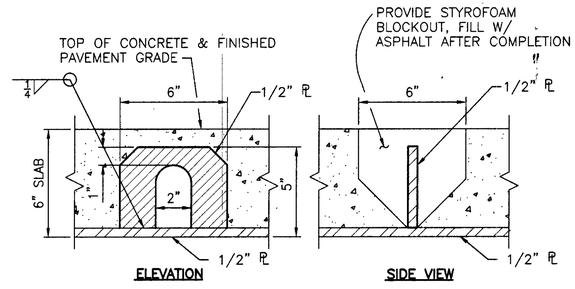


Q/4 **ACCESS COVER DETAIL**

PAINT ALL STEEL ONE SHOP COAT PRIMER 1/2" = 1'-0"

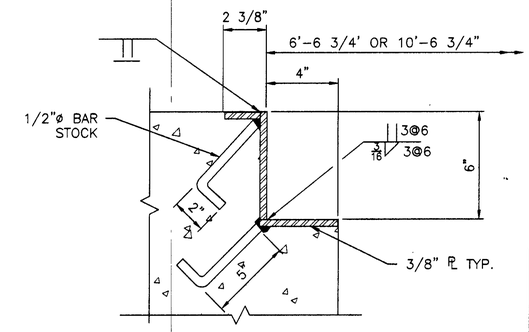
T/4 **ACCESS COVER OUTSIDE FRAME**

PAINT ONE SHOP COAT PRIMER 1/2" = 1'-0"



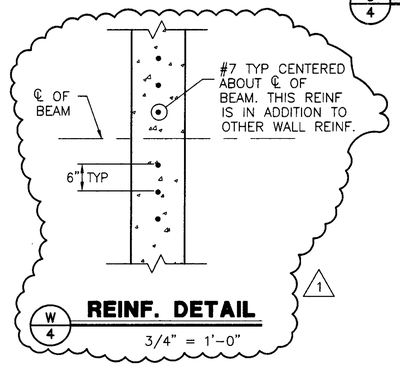
S/4 **LIFTING LUG DETAIL**

3" = 1'-0"



U/4 **OUTSIDE FRAME SECTION**

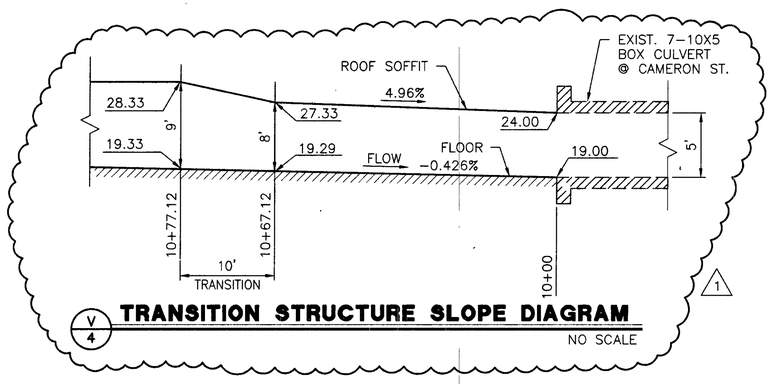
3" = 1'-0"



W/4 **REINF. DETAIL**

3/4" = 1'-0"

SEAL PERTAINS ONLY TO WORK RELATED TO CON-ARCH CULVERT STRUCTURE. SURVEY DATA, INVERT ELEVATIONS & HYDRAULIC ANALYSIS PROVIDED BY OTHERS.



V/4 **TRANSITION STRUCTURE SLOPE DIAGRAM**

NO SCALE

99-020801 98-6168

WATSON ENGINEERING
CONSULTING ENGINEERS
2450 WEST POPPY AVENUE
TUCSON, ARIZONA 85705
PH: (520) 888-6468
FAX: (520) 292-6974

CON-ARCH

NOTICE: These drawings and the information contained herein are the property of C.L. Watson Engineering, Inc. and shall not be used for any purpose whatsoever without the written permission of C.L. Watson Engineering, Inc. Con-Arch culverts are a proprietary product and require a license from Con-Arch Arizona, Inc. to design and construct. The unauthorized use of these drawings is strictly prohibited.

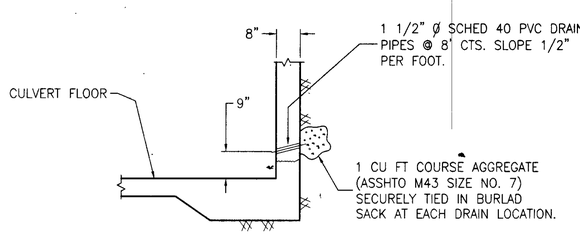
REV	BY	DATE	COMMENT
1	TAS	7/20/98	REVISION TO REFLECT CLARK COUNTY REVIEW COMMENTS

GARDEN PINE MOTEL
ARCH-CULVERT DETAILS
CLARK CO., NEVADA

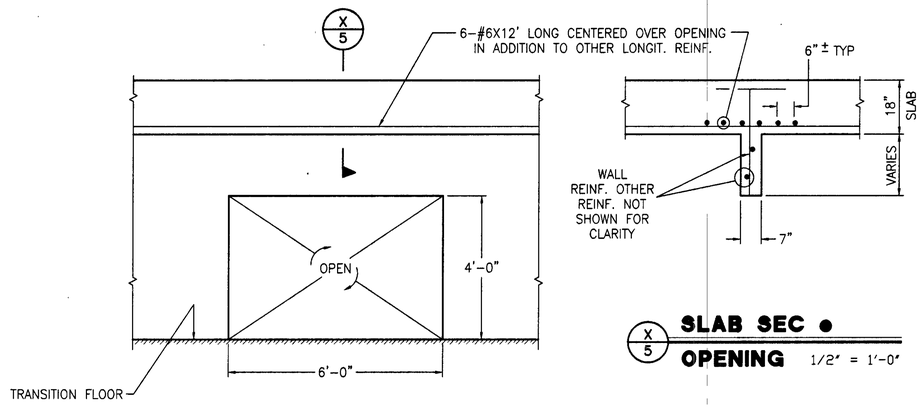


Dsgn:	TAS
Drwn:	ALB
Rvsd:	–
Chk:	TAS
Date:	6/8/98
SCALE:	AS NOTED
SHEET NO.	Proj. No.
8 OF 9	98049

8919-98

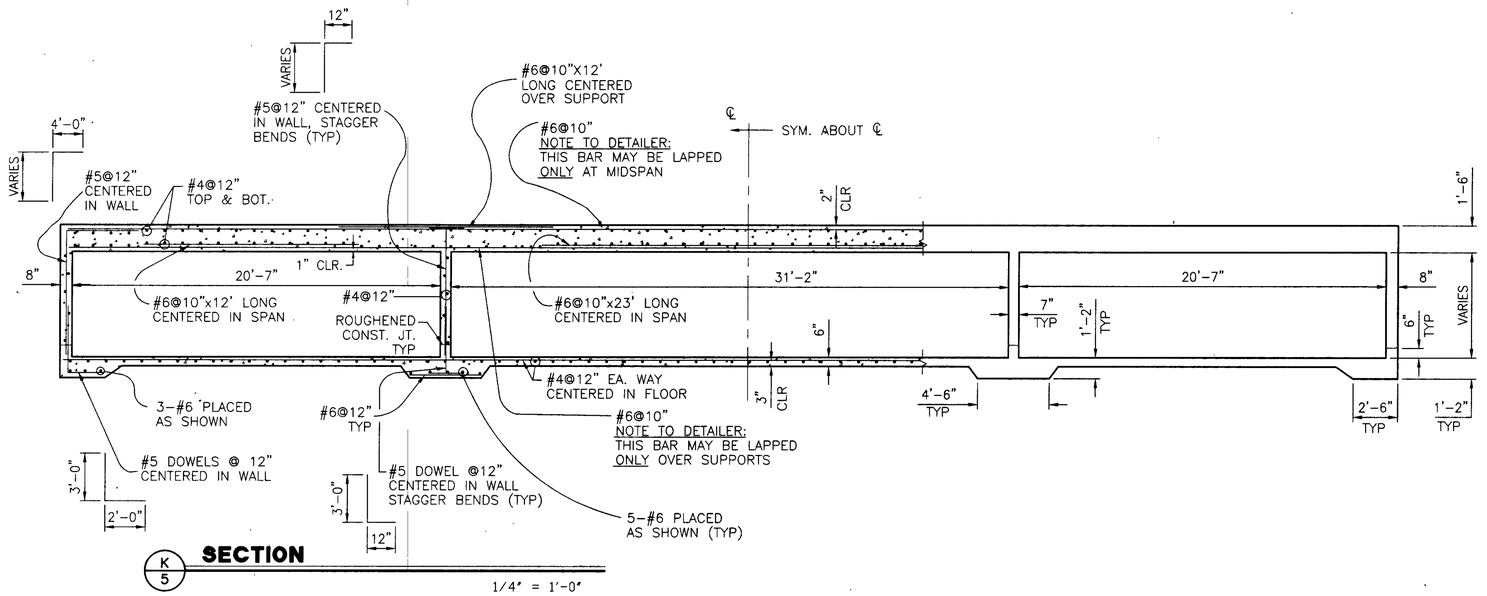


Y/5 **EXTERIOR WALL WEEP HOLE DETAIL** 1/2" = 1'-0"



W/5 **WALL OPENING DETAIL (TWO REQUIRED)** 1/2" = 1'-0"

X/5 **SLAB SEC ● OPENING** 1/2" = 1'-0"



K/5 **SECTION**

1/4" = 1'-0"

WATSON ENGINEERING
CONSULTING ENGINEERS
2450 WEST POPPY AVENUE
TUCSON, ARIZONA 85705
PH: (520) 888-6468
FAX: (520) 292-6974

CON-ARCH

NOTICE: These drawings and the information contained herein are the property of C.L. Ridgeway Construction Company, Tucson, Arizona and Watson Engineering, Tucson, Arizona. Con-Arch culverts are a proprietary product and require special expertise to design and construct. The unauthorized use of these drawings is strictly prohibited.

REV	BY	DATE	COMMENT
1	TAS	7/20/98	REVISION TO REFLECT CLARK COUNTY REVIEW COMMENTS

PROFESSIONAL ENGINEER STATE OF NEVADA
THOMAS A. SACRA III
11/23/98
CIVIL
No. 10039

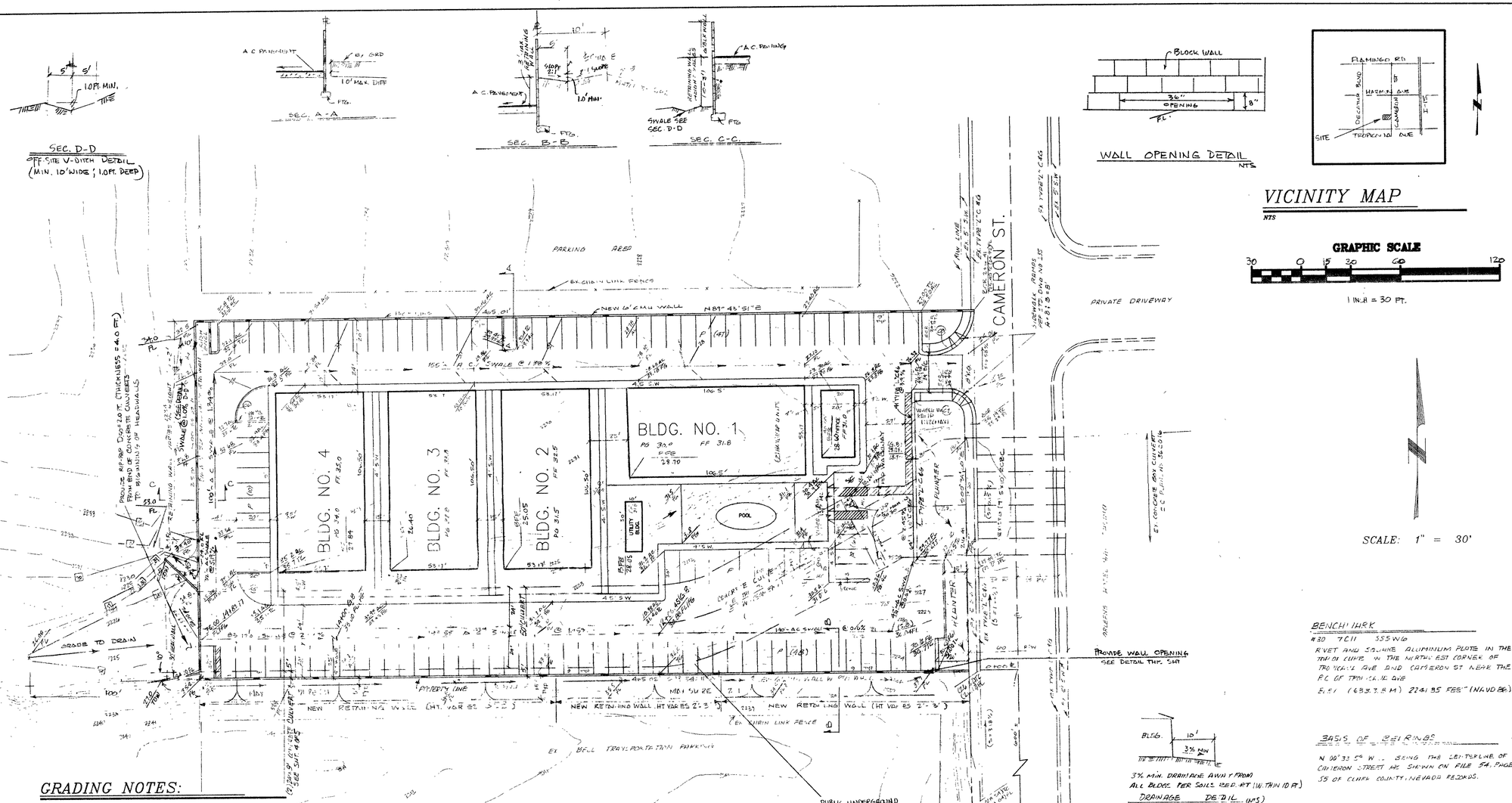
GARDEN PINE MOTEL
ARCH-CULVERT DETAILS
CLARK CO., NEVADA

SEAL PERTAINS ONLY TO WORK RELATED TO CON-ARCH CULVERT STRUCTURE. SURVEY DATA, INVERT ELEVATIONS & HYDRAULIC ANALYSIS PROVIDED BY OTHERS.

Dsgn:	TAS
Drwn:	MJC
Rvsd:	-
Chk:	TAS
Date:	11/11/98
SCALE:	AS NOTED
SHEET NO.	5 OF 5
Proj. No.	98049

99.020801 98.6168

98-6-8

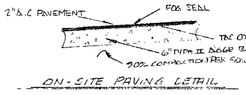


GRADING NOTES:

1. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITION BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND INGRESS AND EGRESS TO SAID CONSTRUCTION. EXTENT OF TRANSITIONS TO BE DETERMINED BY THE CITY ENGINEER.
2. EXISTING UTILITIES ARE LOCATED ON THE PLANS PER THE CITY OF LAS VEGAS REQUIREMENTS. THE CONTRACTOR SHALL BEAR FULL RESPONSIBILITY FOR THE UTILITIES NOT SHOWN ON THE PLANS, AND SHALL CONTACT THE APPROPRIATE UTILITY OR GOVERNMENT FOR THE EXACT LOCATION OF ALL UTILITIES.
3. CONSTRUCTION TO BE PER UNIFORM STANDARD SPECIFICATIONS AND DRAWINGS, CLARK COUNTY AREA, NEVADA.
4. CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND SHALL REPORT ALL DISCREPANCIES TO THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
5. ALL GRADING AND PAVING SHALL CONFORM TO THE SOILS REPORT PREPARED BY GEOMAT CONSULTING SEE NOTES DATED 3/5/1998 AND ANY ADDENDA THERETO. REF NO. GS-3098
6. POWER POLES AND/OR OTHER EXISTING FACILITIES NOT IN PROPER LOCATION BASED ON PROPOSED IMPROVEMENTS SHOWN HEREON WILL BE RELOCATED AT NO EXPENSE TO THE CITY OF LAS VEGAS.
7. PERMITS ARE REQUIRED FOR ANY WORK IN THE PUBLIC RIGHT-OF-WAY. THE CONTRACTOR SHALL SECURE ALL PERMITS AND INSPECTIONS REQUIRED FOR THIS CONSTRUCTION.

LEGEND

——— ———	CENTER LINE OF ROADWAY
———	SUBJECT PROPERTY BOUNDARY LINE
——— - ———	RIGHT-OF-WAY LINE
PG	PAD GRADE
TC	TOP OF CURB
FG	FINISH GRADE
FL	FLOW LINE
GB	GRADE BREAK
FF	FINISH FLOOR
	EXISTING CONTOUR LINE
	PROPOSED CONTOUR LINE
	EXISTING SPOT ELEVATION
	PROPOSED SPOT ELEVATION
	DIRECTION OF FLOW
	CMU. BLK. WALL
	SCARP FOR DRAINAGE



CURVE	RADIUS	LENGTH	TANGENT	DELTA
C1	100.00'	33.50'	16.91'	19°11'29"
C2	70.00'	54.81'	28.90'	44°51'48"
C3	110.00'	67.03'	34.59'	34°54'43"
C4	36.50'	19.68'	10.09'	30°53'33"
C5	50.00'	9.48'	5.00'	10°51'59"
C6	25.00'	21.42'	11.73'	49°05'30"
C7	15.00'	23.56'	15.00'	90°00'00"
C8	39.69'	39.41'	21.40'	56°52'00"

BENCH MARK

#30 7C11 3.5 S.W.G.
RIVET AND SQUARE ALUMINUM PLATE IN THE TANGENT CURVE IN THE NORTHEAST CORNER OF TROPICANA AVE AND CAMERON ST NEAR THE P.C. OF TANGENT AVE
ELEV (683.38 M) 2241.95 FEET (NAVD 88)

BASIS OF BEARINGS

N 00°33'59" W., BEING THE CENTERLINE OF CAMERON STREET AS SHOWN ON FILE 94, PAGE 55 OF CLARK COUNTY, NEVADA RECORDS.

EARTHWORK QUANTITIES

CUT	8,500 C.YDS
FILL	8,500 C.YDS

SITE DATA

GROSS AREA OF PARCEL	9± ACRE
NET AREA OF PARCEL	486 S.F.
PARKING REQ'D	
1 S.P. PER 4 RESIDENT UNITS	
1 S.P. PER 300 S.F. OF OFFICE	
TOTAL REQ'D	SP.
PARKING PROVIDED:	
REGULAR	116 SP.
HANDICAP	5 SP.
TOTAL PROVIDED	121 SP.

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

NO.	DESCRIPTION	REVISIONS	BY	DATE	APPR.

C.S.A.
ENGINEERING SERVICES
5160 S. EASTERN, SUITE F
LAS VEGAS, NEVADA 89119
(702) 739-7211
(702) 739-7211 FAX

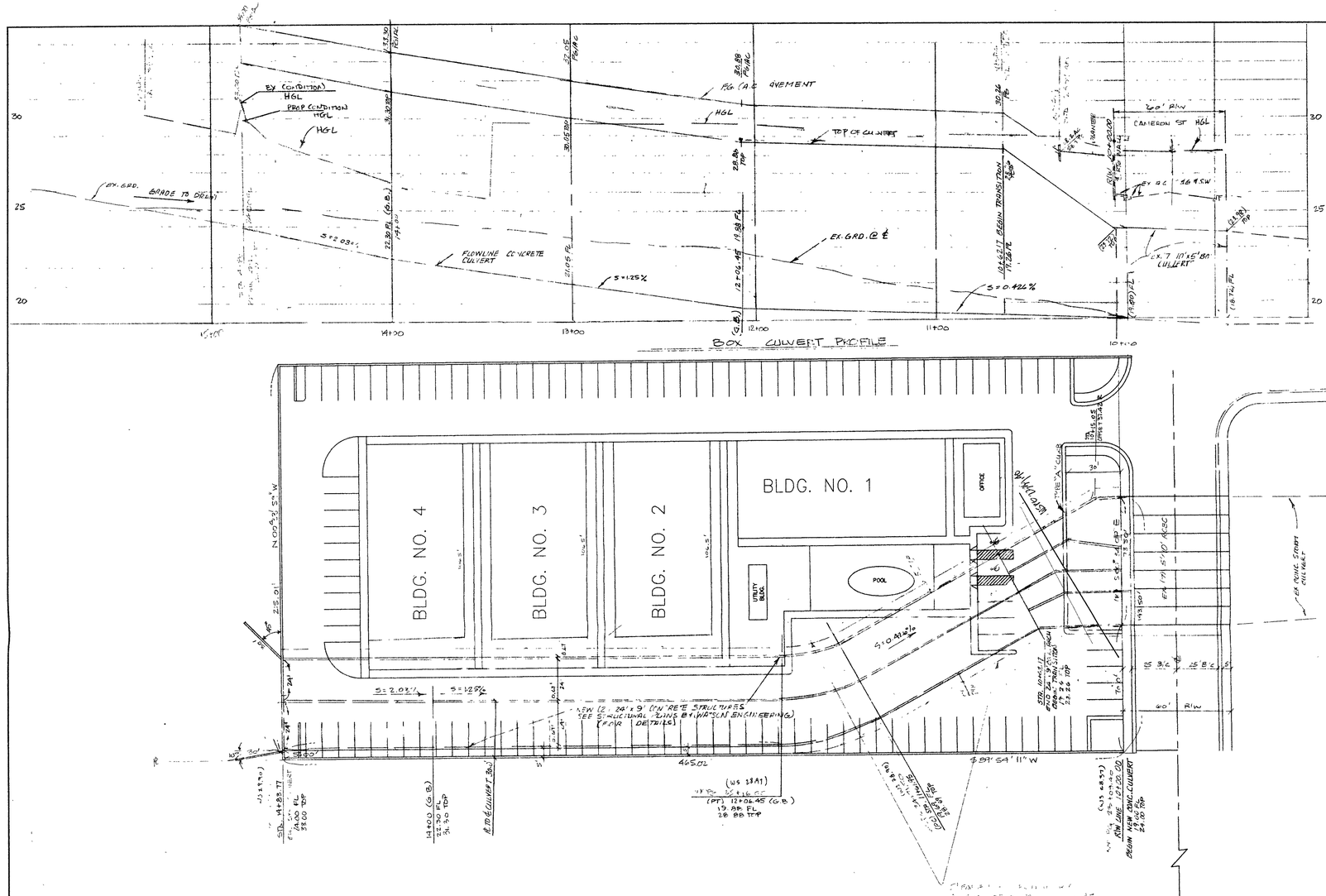
GARDEN PINE MOTEL
APN# 162-19-401-005
CLARK COUNTY NEVADA

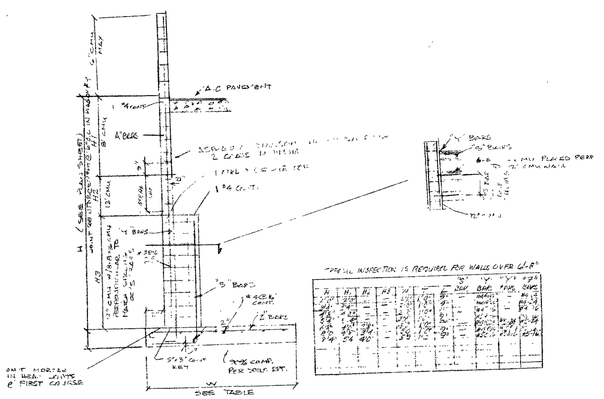
GRADING PLAN

WILLDAN ASSOCIATES
2672-TLD
SEP 28 1998
RECEIVED
LAS VEGAS

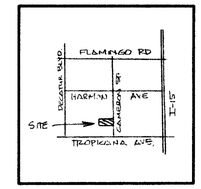
SCALE(H): 1" = 30	
SCALE(V): 1" = N/A	
DES.BY: JCS	
DWN.BY: DLV	
CHK.BY:	
DATE: 03/98	
PROJECT NO. 1042	
FILE NO. 1042GR	
SHEET 2 OF 4	

CAD FILE NAME: 1042 PLOT DATE: 03/98





CURVE	RADIUS	LENGTH	TANGENT	DELTA
C1	100.00'	54.35'	28.13'	31°08'45"
C2	70.00'	54.35'	28.13'	44°29'09"
C3	110.00'	67.89'	34.99'	34°44'43"
C4	36.50'	19.68'	10.09'	30°53'34"



VICINITY MAP

NTS

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft. (H)
= 3 ft (V)

SCALE: 1" = 30'

NO.	DESCRIPTION	BY	DATE	APPR.
	REVISIONS			

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

C.S.A.
ENGINEERING SERVICES
5180 S. EASTERN SUITE F 89119
LAS VEGAS, NEVADA (702) 454-1933
(702) 736-7211 FAX

GARDEN PINE MOTEL
APN# 162-19-401-005
CLARK COUNTY NEVADA

STORM DRAIN PLAN

SCALE(H):	1"= 30
SCALE(V):	1"= N/A
DES.BY:	JCS
DWN.BY:	DLV
CHK.BY:	
DATE:	03/98
PROJECT NO.	1042
FILE NO.	1042SD
SHEET	4
OF	4

CAD FILE NAME: 1042 PLOT DATE: 03/98