DS #: 4755

APN: 137-34-219-001

PROJECT: Doral Academy - Summerlin Campus - Phase II Update

SUBMITTAL: 3rd S Supplement

SCANNED BY/DATE:

CHECKED BY/DATE:



| CITY OF LAS VEGAS<br>INTER-OFFICE MEMORANDUM | | | | DATE:<br>September 20, 2016 |
|---|---|---|---|---|
| TO:<br>**Land Development Services**<br>Department of Building & Safety | | | | FROM:<br>Albert Sung, P.E.<br>Flood Control Project Engineer<br>Department of Public Works |
| **SUBJECT:** | Drainage Study for:<br>**Doral Academy – Summerlin Campus – Phase II Update** | | | **COPIES TO:**<br>GCW Engineers & Surveyors |
| **Cross Streets:** | SWC of Alta Drive & Sky Vista Drive | | | CA Las Vegas SVD |
| **File Number:** | F:\Depot\DSMemos\DS4755D.doc | | | Bart Anderson, P.E., DevCo |
| **Parcel Number:** | 137-34-219-001 | | | CCRFCD |
| **Zoning Action:** | CRG-61529 & SUP-61410 | | | |
| **FEMA Flood Zone** | YES | NO | **X** | |
| **Proposed Storm Drain** | YES | NO | **X** | |

| HISTORY | DATE RECEIVED | DATE REVIEWED | COMMENTS | REVIEW FEES | FEES PAID Payment Trn # |
|---|---|---|---|---|---|
| 1st Submittal | 9/30/2015 | 10/20/2015 | Not Approved | $400.00 | 416887: $400 |
| 2nd Submittal | 11/5/2015 | 11/25/2015 | Conditional Approval | $400.00 | 421738: $400 |
| CCRFCD | 1/4/2016 | 1/11/2016 | Concurrence Recv'd | N/C | N/C |
| 3rd Submittal & Supplement | 8/22/2017 & 9/19/2017 | 9/20/2017 | See Comments Below | $100.00 | 489451: $100 |
| | | | **TOTAL FEES (LDDRS):** | **$900.00** | **----** |

## REMARKS:

**3rd Submittal & Supplement: Phase II Update**

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

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

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2. **Sheet C4.1 (Grading Plan I)**: *Collins Engineers Inc.* is proposing to extend a 42"-storm drain in *Alta Drive* westward beyond the subject development's frontage. Coordinate with *Collins Engineers Inc.* for their "*Summerlin Village 24 – Alta Drive Street Improvements*" project and show the proposed storm drain in *Alta Drive* accordingly.
3. **Sheet C4.1 (Grading Plan I)**: Show finished grade elevation at the two corners of the west wall of the structure which must provide positive drainage away from the building.

4. Please provide verification if a 404 Permit is required for this project. The contact information for Army Corps of Engineers is listed below:

   Steven W. Roberts
   Chief, Regulatory Field Office
   US Army Corps of Engineers
   321 North Mall Drive
   Suite L-101
   St. George, UT 84790

   (435) 986-3979 (Office)
   (435) 986-3981 (FAX)
   steven.w.roberts@usace.army.mil

5. Add a note in all pertinent sheets for the construction of all storm drain drop inlets per a newly adopted USDCCA Drawing No. 421 (*Stormwater Quality Management Stamp and Sign Detail*).

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

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**END OF REMARKS**
ays

T/R/S: T20S/R59E/34
AREA K-34

**********
*** FAX TX REPORT ***
**********

TRANSMISSION OK

| | |
|---|---|
| JOB NO. | 0244 |
| DESTINATION ADDRESS | 7028042299 |
| PSWD/SUBADDRESS | |
| DESTINATION ID | |
| ST. TIME | 09/20 08:09 |
| USAGE T | 00'41 |
| PGS. | 2 |
| RESULT | OK |

# CITY OF LAS VEGAS
# INTER-OFFICE MEMORANDUM

**DATE:** September 20, 2016

**TO:**
**Land Development Services**
Department of Building & Safety

**FROM:**
Albert Sung, P.E.
Flood Control Project Engineer
Department of Public Works

**SUBJECT:** Drainage Study for:
**Doral Academy – Summerlin Campus – Phase II Update**

**COPIES TO:**
GCW Engineers & Surveyors
CA Las Vegas SVD
Bart Anderson, P.E., DevCo
CCRFCD

| | | | |
|---|---|---|---|
| **Cross Streets:** | SWC of Alta Drive & Sky Vista Drive | | |
| **File Number:** | F:\Depot\DSMemos\DS4755D.doc | | |
| **Parcel Number:** | 137-34-219-001 | | |
| **Zoning Action:** | CRG-61529 & SUP-61410 | | |
| **FEMA Flood Zone** | YES | NO | X |
| **Proposed Storm Drain** | YES | NO | X |

| HISTORY | DATE RECEIVED | DATE REVIEWED | COMMENTS | REVIEW FEES | FEES PAID Payment Trn # |
|---|---|---|---|---|---|
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| | | | **TOTAL FEES (LDDRS):** | **$900.00** | ---- |

## REMARKS:

**3rd Submittal & Supplement: Phase II Update**

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|---|---|
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# UPDATE TO THE
# TECHNICAL DRAINAGE STUDY
# FOR
# DORAL ACADEMY SUMMERLIN CAMPUS
# (PHASE II)

## 889-002

## August 2017

Prepared For:

CA Las Vegas SVD
3000 Olympic Blvd., Bldg 1, Ste 2120
Santa Monica, CA 90404
Phone: (310) 752-9634
Fax: (310) 555-1212

GCW
ENGINEERS \ SURVEYORS

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL

# DRAINAGE STUDY INFORMATION FORM

Name of Development: Doral Academy Phase II Summerlin Campus Date: August 2017

Location of Development: a) Descriptive (Cross Streets) North/South: Sky Vista Drive

East/West: Suncreek Road

b) Section: 34 Township: 20S Range: 59E

c) APN : 137-34-219-001

Name of Owner: CA Las Vegas SVD

Telephone No.: (310) 752-9634 Fax No.: N/A E-Mail Address: rviramontes@turnerimpact.com

Address: 3000 Olympic Blvd, Bldg 1, ste 2120 Santa Monica, CA 90404

**Contact Person-Name:** Steve Jones, P.E. **Telephone No.:** (702) 804-2000

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

**Firm:** GCW, INC.

**Address:** 1555 S. Rainbow Blvd. Las Vegas, NV 89146

Type of Land Development/Land Disturbance Process:

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

1. Total Owned Land Area: At Site: 16.74 ac Being Developed/Disturbed: 16.74 ac
2. Is a portion or all of the subject property located in a designated FEMA Flood Hazard Area? ☐ **Yes**** ☒ **No**
3. Is the property bordered or crossed by an existing or proposed Clark County Regional Flood Control District Master Planned Facility? ☒ **Yes**** ☐ **No**
4. Proposed type of development (Residential, Commercial, Etc.): Commercial - Private Schools
5. Approximate upstream land area which drains to the subject site: 0 ac
6. Has the site drainage been evaluated in the past? ☒ **YES** ☐ **NO** If yes, please identify documentation: Summerlin Village 24 Conceptual (w/ updates), Summerlin Village 24 Unit 2 Improvements,
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: 36-inch pipe at SE corner of lot
8. Briefly describe your proposed schedule for the subject project: ASAP

PROFESSIONAL ENGINEER-STATE OF NEVADA
STEPHEN M. JONES
EXP. 6-30-19
CIVIL
No. 19638
8/21/2017

Engineer's Seal

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

*New Required Field

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

Local Entity File No.

| Revision | Date |
|---|---|
| | |
| | |
| | |

REFERENCE:

STANDARD FORM 1

| CITY OF LAS VEGAS<br>INTER-OFFICE MEMORANDUM | | | | DATE:<br>January 11, 2016 |
|---|---|---|---|---|
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**END OF REMARKS**
ays

T/R/S: T20S/R59E/34
AREA K-34

# UPDATE TO THE TECHNICAL DRAINAGE STUDY FOR DORAL ACADEMY SUMMERLIN CAMPUS (PHASE II)

## 889-002

## August 2017

Prepared For:

CA Las Vegas SVD
3000 Olympic Blvd., Bldg 1, Ste 2120
Santa Monica, CA 90404
Phone: (310) 752-9634
Fax: (310) 555-1212

Prepared By:

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

GCW
ENGINEERS \ SURVEYORS

889-002

August 21, 2017

Albert Sung, P.E.
City of Las Vegas - Department of Public Works
333 N. Rancho Drive
Las Vegas, NV 89106

**Re: Update to the Technical Drainage Study for Doral Academy Summerlin Campus for Phase II (DS4755C)**

Dear Mr. Sung:

The purpose of this letter is to update the above-referenced project by addressing the Phase II development of the campus, which modifies the high school area of the previous approved improvement plans. Details regarding the drainage pattern modifications are addressed below.

Since the previous approval, the building footprints have been revised. The footprint of the building called out as the High School Gym/ Cafe in the previous submittal, now called out as auditorium, has been extended southwest. To avoid conflict with the previously proposed valley gutter southwest of the building, the gutter has been removed and replaced by the proposed NDOT Type 2 inlet with 12" PVC storm drain. The proposed inlet will intercept 3.6 cfs of the 10.5 total cfs (ON2D (9 cfs) + OND3B (1.5 cfs)). The remaining flow will surface drain between the 2 buildings to inlets downstream. A weir calculation was done showing that 7 cfs can be safely conveyed between the 2 buildings. An updated Figure 9 Developed Condition Drainage Basin Map and all pertinent hydraulic calculations have been included in the appendix.

Cordially,

GCW, INC.

Nelson Baggs, E.I.
Flood Control Division

1555 South Rainbow Boulevard
Las Vegas, Nevada 89146
O 702.804.2000
F 702.804.2299
info@gcwengineering.com
gcwengineering.com

# APPENDIX

# Worksheet for Weir between OND3 Buildings

## Project Description

| | |
|---|---|
| Solve For | Discharge |

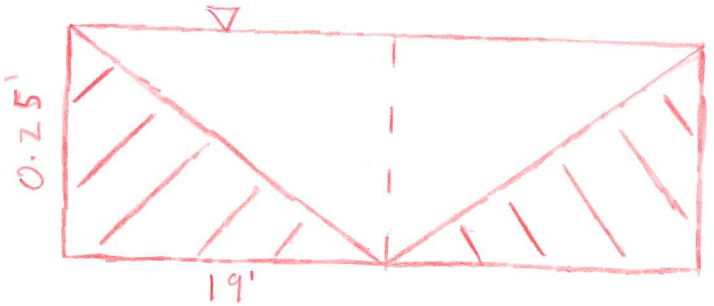
## Input Data

| | | |
|---|---|---|
| Headwater Elevation | 43.90 | ft |
| Crest Elevation | 43.65 | ft |
| Weir Coefficient | 3.00 | US |
| Crest Length | 19.00 | ft |

## Results

| | | |
|---|---|---|
| Discharge | 7.13 | ft³/s |
| Headwater Height Above Crest | 0.25 | ft |
| Flow Area | 4.75 | ft² |
| Velocity | 1.50 | ft/s |
| Wetted Perimeter | 19.50 | ft |
| Top Width | 19.00 | ft |

Weir Calculation done assuming 1/2 of weir




$\frac{7}{2} = 3.5$ cfs ← Due to 1/2 ineffective area

$3.5 \times 2 = \boxed{7 \text{ cfs}}$ ← Accounting for both sides

GCW
ENGINEERS \ SURVEYORS

# Drop Inlet Sizing Calculation

Project Name: Doral Academy Phase II Summerlin Campus
By: NB
Date: 8/17/2017

## Grate Inlet Headwater Depth

NDOT Type 2 w/ 12" PVC

| | | |
|---|---|---|
| **Known:** | | |
| Q= | Flow (cfs) | 3.6 |
| W= | Width of Grate (ft) | 2.5 |
| L= | Length of Grate (ft) | 2.0 |
| D= | Diameter of Circle (in) | |
| Cf= | Clogging Factor (%) | 50 |
| **Weir Conditions:** | | |
| | $Hw=(Q/(Cw*P))^{2/3}$ | |
| Cw= | Weir Coefficient | 3.0 |
| P= | Perimeter of grate (ft) | 9.0 |
| Pc= | Perimeter (w/clogging) (ft) | 4.5 |
| Hw= | Headwater depth (ft) | 0.41 |
| **Orifice Conditions:** | | |
| | $Hw=(Q/(Co*Ac))^2/2*g$ | |
| Co= | Orifice Coefficient | 0.65 |
| Ag= | Grate Area ($ft^2$) | 5.0 |
| Gf= | Grate Opening Factor | 0.67 |
| Ac= | Grate Open Area (w/ clogging) ($ft^2$) | 1.7 |
| Hw= | Headwater depth (ft) | 0.17 |

**Worst Case Scenario Occurs Under Weir Conditions**

**Headwater Depth (ft) = 0.41**

**GRATE FG (43.17) + 2X PONDING DEPTH (0.82) < FF (44.00')**

# Worksheet for 12" PVC Capacity

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Roughness Coefficient | 0.010 | |
| Channel Slope | 2.00 | % |
| Diameter | 1.00 | ft |
| Discharge | 3.60 | ft³/s |

## Results

| | | |
|---|---|---|
| Normal Depth | 0.53 | ft |
| Flow Area | 0.42 | ft² |
| Wetted Perimeter | 1.63 | ft |
| Hydraulic Radius | 0.26 | ft |
| Top Width | 1.00 | ft |
| Critical Depth | 0.81 | ft |
| Percent Full | 52.9 | % |
| Critical Slope | 0.00618 | ft/ft |
| Velocity | 8.54 | ft/s |
| Velocity Head | 1.13 | ft |
| Specific Energy | 1.66 | ft |
| Froude Number | 2.32 | |
| Maximum Discharge | 7.05 | ft³/s |
| Discharge Full | 6.55 | ft³/s |
| Slope Full | 0.00604 | ft/ft |
| Flow Type | SuperCritical | |

## GVF Input Data

| | | |
|---|---|---|
| Downstream Depth | 0.00 | ft |
| Length | 0.00 | ft |
| Number Of Steps | 0 | |

## GVF Output Data

| | | |
|---|---|---|
| Upstream Depth | 0.00 | ft |
| Profile Description | | |
| Profile Headloss | 0.00 | ft |
| Average End Depth Over Rise | 0.00 | % |
| Normal Depth Over Rise | 52.90 | % |
| Downstream Velocity | Infinity | ft/s |

# Worksheet for 12" PVC Capacity

## GVF Output Data

| | | |
|---|---|---|
| Upstream Velocity | Infinity | ft/s |
| Normal Depth | 0.53 | ft |
| Critical Depth | 0.81 | ft |
| Channel Slope | 2.00 | % |
| Critical Slope | 0.00618 | ft/ft |

# Cross Section for 12" PVC Capacity

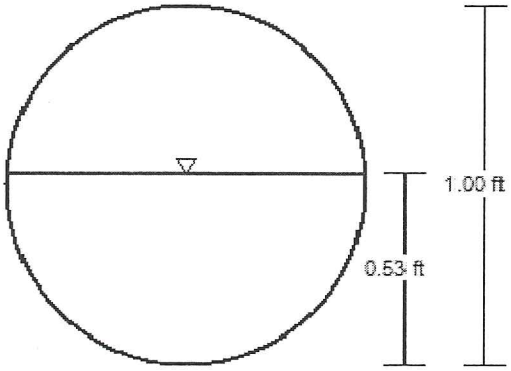
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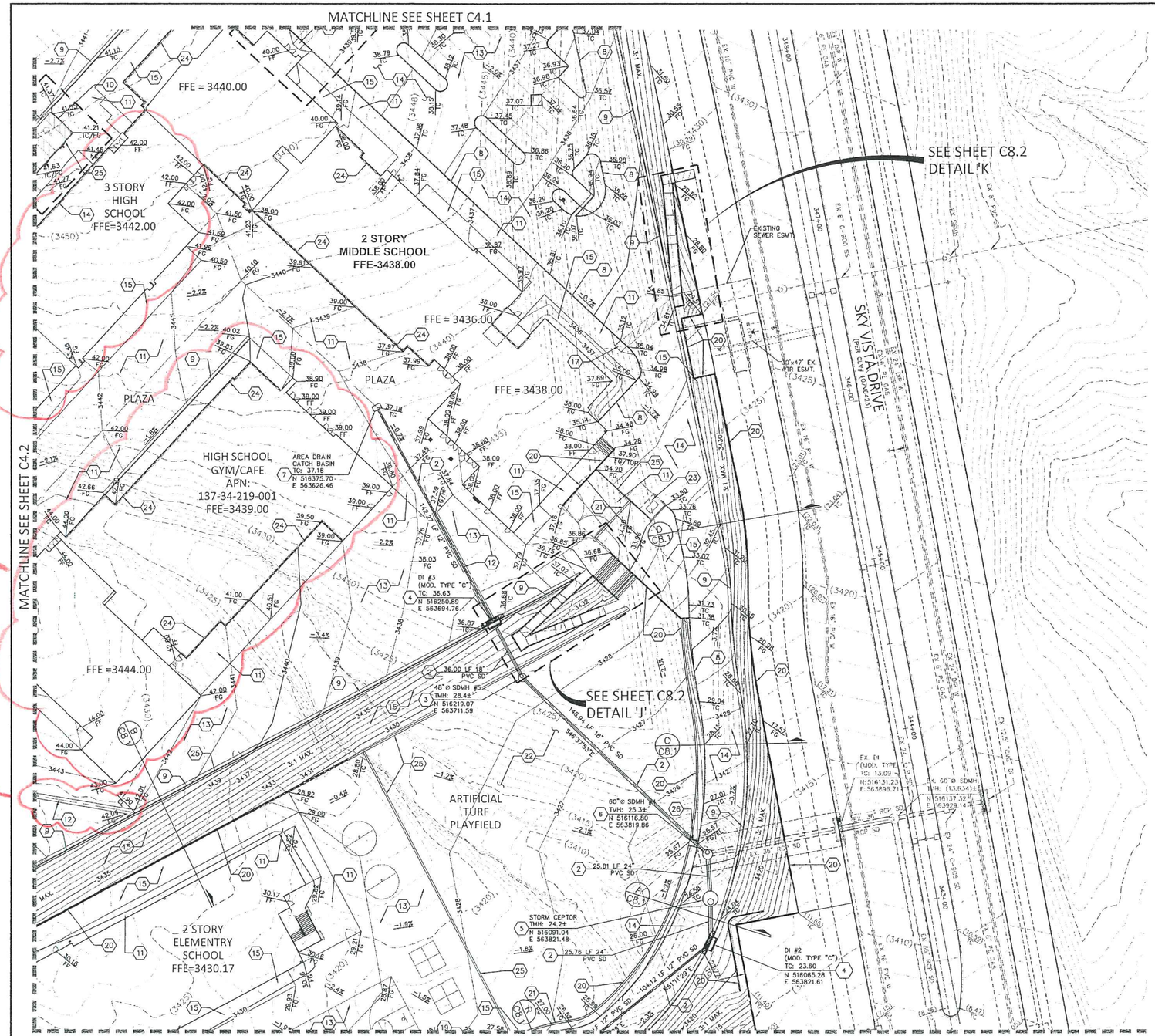
## Input Data

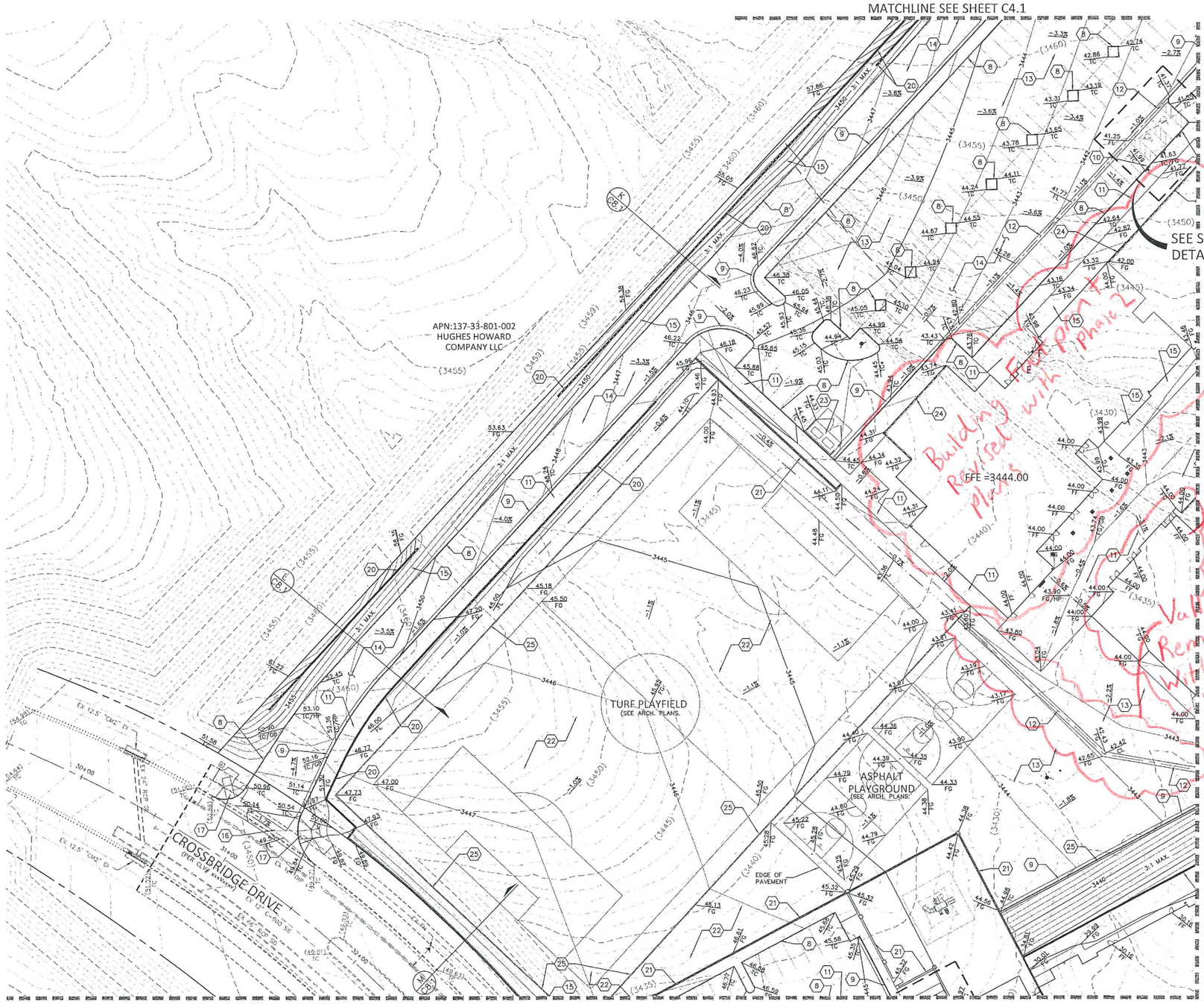
| | | |
|---|---|---|
| Roughness Coefficient | 0.010 | |
| Channel Slope | 2.00 | % |
| Normal Depth | 0.53 | ft |
| Diameter | 1.00 | ft |
| Discharge | 3.60 | $ft^3/s$ |

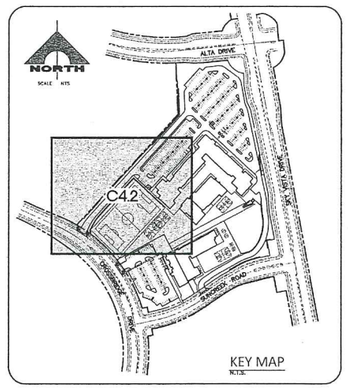
## Cross Section Image




V: 1
H: 1


MATCHLINE SEE SHEET C4.1
MATCHLINE SEE SHEET C4.2
MATCHLINE SEE SHEET C4.5
FFE = 3440.00
3 STORY HIGH SCHOOL FFE=3442.00
2 STORY MIDDLE SCHOOL FFE-3438.00
FFE = 3436.00
FFE = 3438.00
PLAZA
PLAZA
HIGH SCHOOL GYM/CAFE APN: 137-34-219-001 FFE=3439.00
AREA DRAIN CATCH BASIN TG: 37.18 N 516375.70 E 563626.46
FFE =3444.00
2 STORY ELEMENTRY SCHOOL FFE=3430.17
ARTIFICIAL TURF PLAYFIELD
SEE SHEET C8.2 DETAIL 'K'
SEE SHEET C8.2 DETAIL 'J'
EXISTING SEWER ESMT.
SKY VISTA DRIVE
DI #3 (MOD. TYPE "C") TC: 36.63 N 516250.89 E 563694.76
DI #2 (MOD. TYPE "C") TC: 23.60 N 516065.28 E 563821.61
STORM CEPTOR TMH: 24.24 N 516091.04 E 563821.48
60"ø SDMH #1 TMH: 25.34 N 516116.80 E 563819.86
48"ø SDMH #5 TMH: 28.44 N 516219.07 E 563711.59
36.00 LF 18" PVC SD
25.81 LF 24" PVC SD
25.76 LF 24" PVC SD
104.12 LF 12" PVC SD
148.9± LF 18" PVC SD
EX. 60"ø SDMH TMH: (13.63)
N: 516131.23 E: 563896.71
N 516137.32 E 563929.14
EX. 36" RCP SD
EX. 24" C-905 SD
EX. 12" PVC SD
EX. 8" PVC SD
EX. 10"x47" EX. WTR ESMT.
EX. 8" PVC SD
EX. 8" PVC SD
EX. 8" PVC SD




## STORM DRAIN CONSTRUCTION NOTES

| NO. | ITEM |
|---|---|
| 1 | INSTALL DROP INLET TYPE "B" PER USDCCA DWG. NOs. 412 & 421 L=2.5; 1-GRATE |
| 2 | INSTALL 12", 18", 24" ø PVC STORM DRAIN PIPE PER UDACS TRENCH DETAIL PLATE NO. 16 & 17. SEE PLAN/PROFILE FOR SIZE |
| 3 | INSTALL 48"ø TYPE I STORM DRAIN MANHOLE PER USDCCA DWG. NO. 403 |
| 4 | INSTALL DROP INLET MOD TYPE "C" PER USDCCA DWG. NOs. 412.1 & 421. L=7.5; 3-GRATES |
| 5 | INSTALL STC-900 STORMCEPTOR STORM WATER TREATMENT SYSTEM PER RINKER MATERIALS |
| 6 | INSTALL 60"ø TYPE III STORM DRAIN MANHOLE PER USDCCA DWG. NO. 406 |
| 7 | INSTALL 2'x2' CATCH BASIN AREA DRAIN WITH TRAFFIC RATED LID. |

## GRADING CONSTRUCTION NOTES

| NO. | ITEM USDCCA: UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA |
|---|---|
| 8 | INSTALL "A" CURB PER DETAIL 'A' SHEET C8.2 |
| 9 | INSTALL "L" CURB PER USDCCA STD. DWG. 216 |
| 10 | CONSTRUCT CURB TRANSITION 6" TO 0" SLOPE NOT TO EXCEED 1:12 |
| 11 | CONSTRUCT 4" THICK SIDEWALK PER USDCCA STD. DWG. 234 |
| 12 | CONSTRUCT 3' CONCRETE VALLEY GUTTER PER DETAIL 'C' SHEET C8.2 |
| 13 | CONSTRUCT 2" AC PAVEMENT OVER 5" TYPE II AGGREGATE BASE (CAR)PER DETAIL 'F' SHEET C8.3 |
| 14 | CONSTRUCT 3" AC PAVEMENT OVER 5.5" TYPE II AGGREGATE BASE (TRUCK) PER DETAIL 'F' SHEET C8.3 |
| 15 | LANDSCAPE AREA. SEE LANDSCAPE PLANS FOR DETAILS |
| 16 | CONSTRUCT COMMERCIAL DRIVEWAY PER USDCCA NO. 222.1 & 228 |
| 17 | CONSTRUCT ADA RAMP PER USDCCA NO. 235, CASE II |
| 18 | CONSTRUCT SIDEWALK DRAIN PER USDCCA NO. 236 |
| 19 | INSTALL ONSITE COMMERCIAL DRIVEWAY OPTION "A" PER USDCCA DWG. NO. 224. |
| 20 | CONSTRUCT RETAINING WALL. SEE ARCHITECTURAL PLANS FOR FINISH AND STRUCTURAL PLANS FOR TYPE. SEE 1-C6.1 – C8.3 FOR ELEV. |
| 21 | CONSTRUCT DECORATIVE SCREEN FENCE. SEE ARCHITECTURAL PLANS FOR DETAILS |
| 22 | TURF PLAYFIELD, SEE ARCHITECTURAL PLANS FOR DETAILS |
| 23 | TRASH ENCLOSURE SEE ARCHITECTURAL PLANS. |
| 24 | INSTALL PERIMETER SUBGRADE WALL WITH WATERPROOFING PER DETAIL 'P' SHEET C8.2 AND ARCHITECTURAL PLANS |
| 25 | INSTALL 0" CURB FLUSH WITH PAVEMENT PER DETAIL 'C' SHEET C8.2 |
| 26 | INSTALL 4' WIDE CONCRETE FLUME PER DETAIL "D" SHEET C8.2. |

NOTE:

ALL ONSITE STORM DRAIN SYSTEMS AND ASSOCIATED FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY DORAL ACADEMY.

## DRAINAGE CERTIFICATION

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

PAUL F. FRITZ P.E. 16825 DATE

## BASIS OF BEARINGS

NORTH 05°36'32" WEST BEING THE BEARING OF THE WEST LINE OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 33, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M. AS SHOWN IN BOOK 149, PAGE 46 PLATS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

## BENCHMARK

| DESCRIPTION | NAVD 88 DATUM | NAVD 88 DATUM |
|---|---|---|
| CITY OF LAS VEGAS VERTICAL CONTROL POINT "D368", BEING A USC&GS DISC SET IN ROCK SOUTH OF CHARLESTON BLVD & WEST OF DEENTION BASIN. CITY OF LAS VEGAS VERTICAL CONTROL 2008 AND ADJUSTMENT (UPDATED 05/24/2010) BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD'88). | 3246.63 (FEET) | 989.574 (METERS) |

NORTH
SCALE 30 0 30 60 FEET

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811
1-800-227-2600 OR CLARK COUNTY TRAFFIC OPERATIONS 1-702-455-6000

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

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

PROFESSIONAL ENGINEER
STATE OF NEVADA
PAUL F. FRITZ
Exp. 08/30/2017
CIVIL
No. 16825

FOR REVIEW ONLY

| NO. | DESCRIPTION | DATE | REV'D | DATE | ACEN APP | DATE | CGW APP | DATE |
|---|---|---|---|---|---|---|---|---|

PROJECT NO. 889-002
DESIGN:
DRAWN:
CHECK:
PLOT DATE: 11-03-15
PLOT TIME: 14:45:33

GCW
ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com
F:\Projects\889\889-002\DWG\Production\889-002_GC4-1_GRD.dwg
Daniel Lee

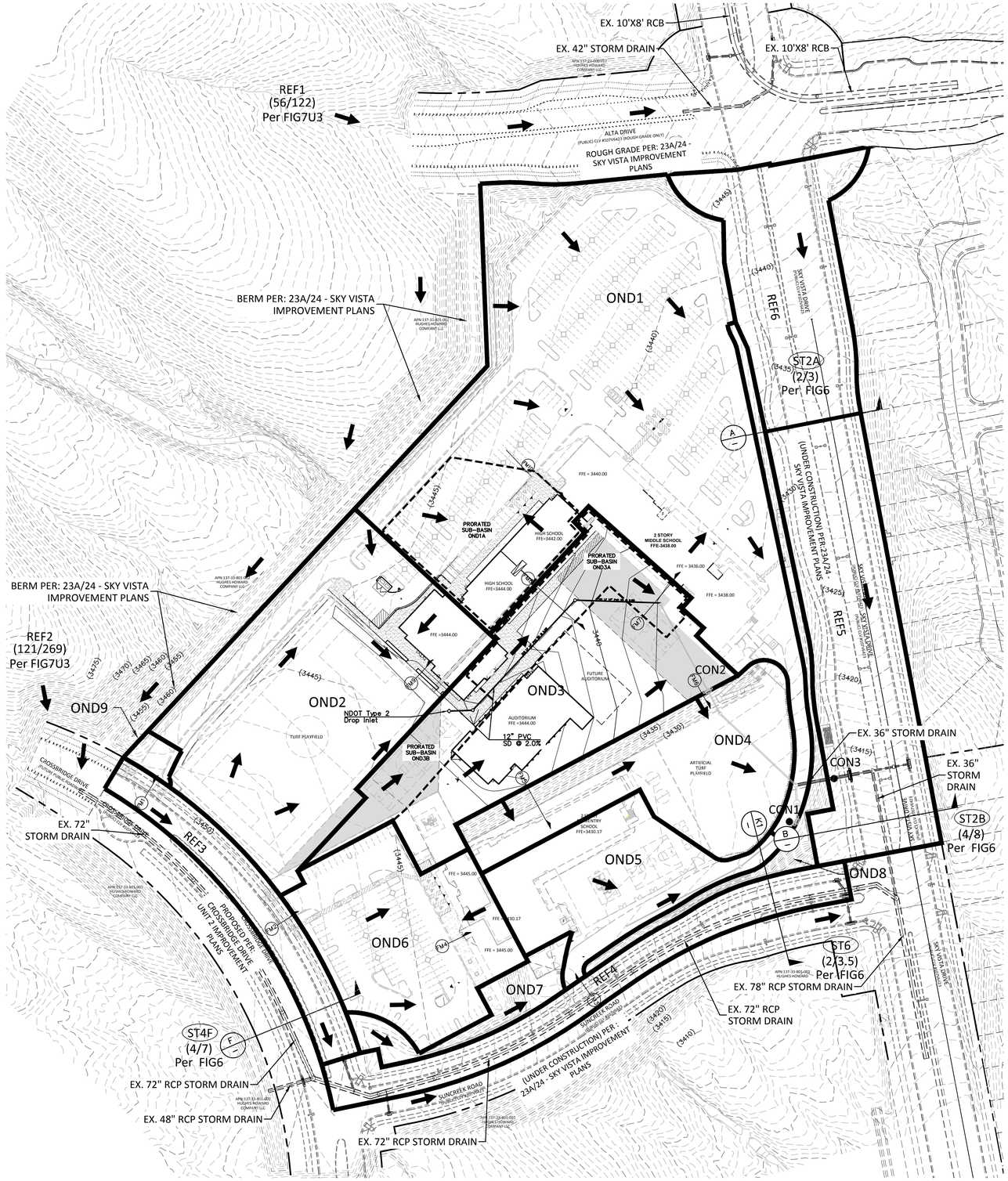
CA LAS VEGAS SVD, LLC

DORAL ACADEMY SUMMERLIN CAMPUS

GRADING PLAN II

DRAWING
C4.2
12 OF 35 SHTS

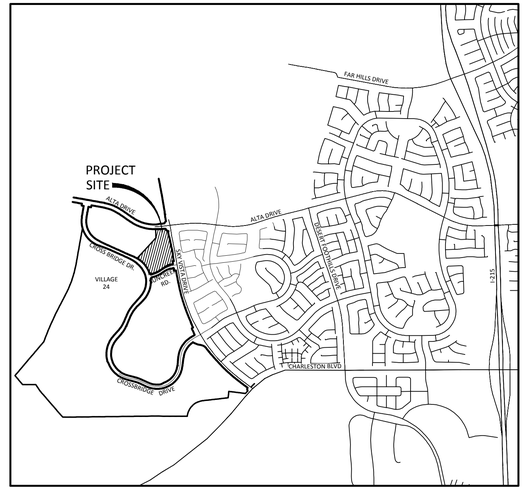
CLV: 00-00000







80 0 40 80
SCALE FEET




| | |
|---|---|
| $Q_{10/100}$ | PEAK 10 YR FLOW / PEAK 100 YR FLOW |
| | DRAINAGE AREA BOUNDARY |
| | DRAINAGE AREA FLOW DIRECTION |
| OND1 | AREA DESIGNATION |
| CP | EXISTING CONCENTRATION POINT |
| CON | PROPOSED CONCENTRATION POINT |
| FM1 | LOCATION OF HYDRAULIC CROSS SECTION |
| A | LOCATION OF REFERENCE CROSS SECTION |

## DRAINAGE AREA SUMMARY TABLE

| BASIN ID | AREA (ACRES) | $Q_{10}$ (CFS) | $Q_{100}$ (CFS) |
|---|---|---|---|
| OND1 | 5.60 | 8 | 17 |
| OND1A | 0.91 | 1 | 3 |
| OND2 | 2.98 | 4 | 9 |
| OND3 | 3.09 | 4 | 10 |
| OND3A | 0.62 | <1 | 2 |
| OND3B | 0.44 | <1 | 1.5 |
| OND4 | 1.55 | 3 | 5 |
| OND5 | 1.14 | 2 | 3 |
| OND6 | 1.52 | 3 | 5 |
| OND7 | 0.35 | 1 | 1 |
| OND8 | 0.44 | 1 | 2 |
| OND9 | 0.08 | <1 | <1 |
| REF1 | – | 56 | 122 |
| REF2 | – | 121 | 269 |
| REF3 | – | 4 | 7 |
| REF4 | – | 2 | 3.5 |
| REF5 | – | 4 | 8 |
| REF6 | – | 2 | 3 |

## CONCENTRATION POINT SUMMARY TABLE

| CONCENTRATION POINT | $Q_{10}$ (CFS) | $Q_{100}$ (CFS) |
|---|---|---|
| CON1 | 11 | 21 |
| CON2 | 8 | 26 |
| CON3 | 26 | 50 |

CON1 = OND1 + OND4 + OND5 + OND7
CON2 = OND2 + OND3
CON3 = TOTAL PIPED DISCHARGE

% COMPLETE

| REV | DATE | DESCRIPTION | DATE | AGEN APP | DATE | GCW APP | DATE: |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

PROJECT NO. 889-002
DESIGN:
DRAWN:
CHECK:
PLOT DATE: 08-18-17
PLOT TIME: 15:57:21

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

F:\Projects\800\889-002\Division\Fctl\Figures\UPV\Fig. 9DV BASIN MAP.dwg
Nelson Boggs

CA LAS VEGAS SVD, LLC

DORAL ACADEMY SUMMERLIN CAMPUS

DEVELOPED CONDITION DRAINAGE BASIN MAP

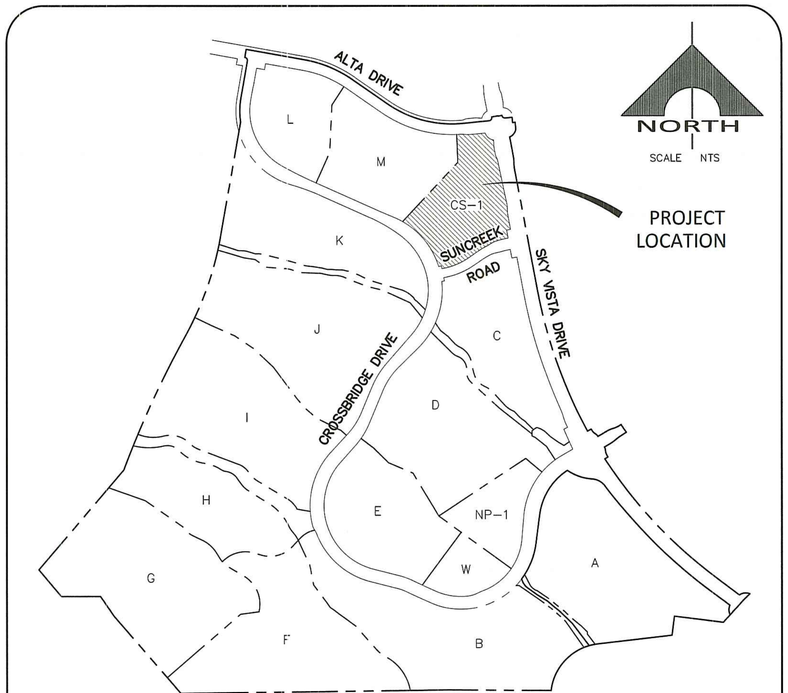
DRAWING
FIG. 9
1 OF 1 SHTS

# IMPROVEMENT PLANS
# FOR
# SUMMERLIN VILLAGE 24
# DORAL ACADEMY PHASE II
# SUMMERLIN CAMPUS

## 581 SKY VISTA DRIVE
## STONEBRIDGE UNIT 2

## APN: 137-34-219-001
## LAS VEGAS, NEVADA 89138

| DRAWING INDEX | | |
|---|---|---|
| NO. | DWG | DESCRIPTION |
| 1 | C1.1 | COVER SHEET |
| 2 | C1.2 | PROJECT DATA |
| 3 | C1.3 | GENERAL NOTES |
| 4 | C4.1 | GRADING PLAN I |
| 5 | C8.1 | DETAIL SHEET I |
| 6 | C8.2 | DETAIL SHEET II |




LOCATION MAP-VILLAGE 24
NOT TO SCALE

NOTE: THIS PROJECT PLAN APPROVAL CONTINGENT ON 123547 VILLAGE 24 CROSSBRIDGE DRIVE UNIT 2 IMPROVEMENT PLAN APPROVAL

**APPROVED FOR CONSTRUCTION**

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES MANAGER
PROJECT NO. _____ DATE: _____
LVVWD APPROVED FIRE FLOW 4000 GPM AT 20 PSI RESIDUAL
SHEETS: C1.1, C1.2, C4.1, C8.1 & C8.2

**LVVWD NOTE:**

LVVWD PROJECT: 124110
HGL REQUEST: OCTOBER 1, 2015
HGL RESPONSE: OCTOBER 12, 2015
WATER NETWORK ANALYSIS APPROVED: DECEMBER 1, 2014

**DRAINAGE CERTIFICATION**

I CERTIFY THAT THE GRADING PLANS ARE IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY DS-4755A ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.

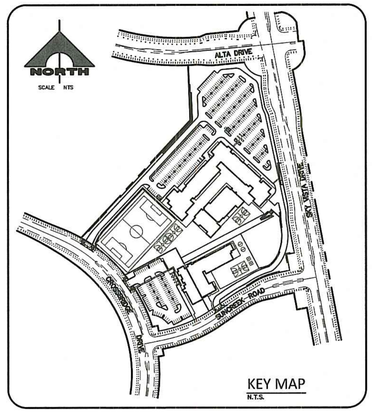
ROY D. CLARK P.E. 8354 DATE

**OWNER/DEVELOPER**

CA LV SVD LLC
3000 OLYMPIC BLVD, BLDG. 1 STE 2120
SANTA MONICA, CA. 90404
CONTACT: BARI COOPER SHERMAN
OFFICE PHONE NO. 310-752-9634

**SUMMERLIN DESIGN REVIEW COMMITTEE**

JULIE CLEAVER DATE
VICE PRESIDENT, PLANNING & DESIGN




| REV# | REV. DESCRIPTION | SHEET(S) | APPD BY | DATE |
|---|---|---|---|---|
| | | | | |

**APPROVALS**

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

ALLEN PAVELKA: PE # 9029 DATE
CITY ENGINEER

LAS VEGAS FIRE & RESCUE DATE

XXXXXX XXXXXX, DIRECTOR, BUILDING AND SAFETY DATE
THIS PLAN CONFORMS TO THE APPLICABLE STANDARDS OF THE PLANNING DEPARTMENT.

**UTILITY/AGENCY APPROVALS**

COX COMMUNICATIONS LAS VEGAS, INC. DATE

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

CENTRAL TELEPHONE CO., DBA CENTURYLINK DATE

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

NV ENERGY DATE

SOUTHWEST GAS CORP. DATE

**BASIS OF BEARINGS**

NORTH 05°36'32" WEST BEING THE BEARING OF THE WEST LINE OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 33, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M. AS SHOWN IN BOOK 149, PAGE 46 PLATS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

**BENCHMARK**

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STATE OF NEVADA — PROFESSIONAL ENGINEER — ROY D. CLARK — Exp. 12/31/2018 — CIVIL — No. 8354 — DATE: 8/12/17

PROJECT NO. 889-002
DESIGN:
DRAWN:
CHECK:
PLOT DATE: 08-18-17
PLOT TIME: 16:18:49


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


F:\Projects\800\889-002\DWG\Production\PHASE-II\P2-889-002_c1.1_COVER.dwg
Daniel Lee

CA LAS VEGAS SVD, LLC

DORAL ACADEMY PHASE II SUMMERLIN CAMPUS

COVER SHEET

DRAWING
C1.1
1 OF 6 SHTS

H: / CLV: 00-00000

## LEGEND

- PROPOSED UTILITIES
- EXISTING UTILITIES
- FUTURE UTILITIES
- SECTION LINE
- EASEMENT LINE
- RIGHT-OF-WAY LINE
- PROPERTY LINE
- CENTERLINE
- 100 YR HYDRAULIC GRADE LINE
- PROPOSED SEWER LINE W/MH
- 16" SS — EXISTING SEWER LINE W/MH
- 4" W — EXISTING WATER LINE & GATE VALVE
- 2" G — EXISTING GAS LINE
- 2-6" E — EXISTING UNDERGROUND ELECTRICAL
- CATV — EXISTING CABLE TV
- EXISTING TELEPHONE
- OHP — EXISTING OVERHEAD AND POWER POLES
- 6" SD — EXISTING STORM DRAIN
- 6" SD — FUTURE STORM DRAIN
- EXISTING SIDEWALK AND RAMP
- VIEW FENCE
- NEW ABANDONED PIPE
- EXISTING ABANDONMENT
- SAWCUT
- CONCRETE ENCASEMENT
- ASPHALT, CURB AND GUTTER REMOVAL
- STUB & PLUG PIPE
- EDGE OF PAVEMENT
- RETAINING WALL
- EX. WATER VALVE

1 / CD1 — DRAWING NUMBER FOR DETAIL W/ REF. TO THE SHEET WHERE IT IS SHOWN

- EXISTING DROP INLET
- PROPOSED DROP INLET
- EXISTING GATE VALVE
- EXISTING POWER POLE
- EXISTING ELEC MARKER
- EXISTING TRAFFIC SIGNAL
- EXISTING FIRE HYDRANT
- EXISTING UTILITY BOX
- EXISTING METER BOX
- 3005 — PROPOSED CONTOUR
- (3005) — EXISTING CONTOUR
- 60.50 TC — SPOT ELEVATION
- (60.50) TC — EXISTING SPOT ELEVATION
- 1.00% — SLOPE
- EXISTING STREET LIGHT (STLT)
- TOP SLOPE / TOE SLOPE — 3:1 SLOPE UNLESS OTHERWISE NOTED ON PLAN
- SITE VISIBILITY ZONE

## ABBREVIATIONS

| | | | | | |
|---|---|---|---|---|---|
| A | AIR | FH | FIRE HYDRANT | R, RAD | RADIAL, RADIUS |
| AC | ASPHALT CONCRETE, ACRE | FL | FLOW LINE | RT | RIGHT |
| ACP | ASBESTOS CEMENT PIPE | FO | FIBER OPTIC | RCB | REINFORCED CONCRETE BOX |
| ADD'L | ADDITIONAL | FRP | FIBERGLASS REINFORCED PLASTIC | RCP | REINFORCED CONCRETE PIPE |
| AP | ANGLE POINT | FS | FINISH SURFACE | RD | ROAD |
| APN | ASSESSOR'S PARCEL NUMBER | FT | FOOT/FEET | RDWY | ROADWAY |
| APPROX | APPROXIMATELY | FTG | FOOTING | REC | RECTANGULAR |
| AASHTO | AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS | FUT | FUTURE | REF | REFERENCE |
| | | G | GAS | REINF | REINFORCED |
| ASTM | AMERICAN SOCIETY FOR TESTING AND MATERIALS | GA | GAGE, GUY ANCHOR | REQD | REQUIRED |
| | | GB | GRADE BREAK | RIM | TOP OF RIM ELEVATION |
| AVE | AVENUE | GND | GROUND | RND | ROUND |
| AVAR | AIR VALVE, AIR RELEASE ASSEMBLY | GRD | GRADE, GROUND | ROW,R/W | RIGHT OF WAY |
| | | H, HGT | HEIGHT | RP | RADIUS POINT |
| AWWA | AMERICAN WATER WORKS ASSOCIATION | HDWL | HEADWALL | RPM | RAISED PAVEMENT MARKERS |
| | | HGL | HYDRAULIC GRADE LINE | RSGV | RESILIENT SEAT GATE VALVE |
| BC | BACK OF CURB | HORIZ | HORIZONTAL | S | SEWER, SOUTH |
| BCR | BEGIN CURB RETURN | HP | HIGH POINT, HIGH PRESSURE | SCH | SCHEDULE |
| BLM | BUREAU OF LAND MANAGEMENT | HPS | HIGH PRESSURE SODIUM | SD | STORM DRAIN |
| BLVD | BOULEVARD | IBC | INTERNATIONAL BUILDING CODE | SDMH | STORM DRAIN MANHOLE |
| BM | BENCHMARK | INV | INVERT | SECT | SECTION |
| BO | BLOW-OFF | INT | INTERIM | SF | SQUARE FOOT/FEET |
| BVCE | BEGIN VERTICAL CURVE ELEVATION | JT | JOINT | SHLDR | SHOULDER |
| BVCS | BEGIN VERTICAL CURVE STATION | L | LENGTH | SHT | SHEET |
| BW | BACK OF SIDEWALK | L, LT | LEFT | SL | STREET LIGHT |
| ℄, ℄ | CENTERLINE | LF | LINEAR FEET | SP | SERVICE POINT |
| C&G | CURB AND GUTTER | LIP | LIP OF GUTTER | SQ | SQUARE |
| CATV | UNDERGROUND CABLE TV | LN | LANE | SR | SEWER RECLAIM MAIN |
| CCBM | CLARK COUNTY BENCH MARK | LP | LIGHT POLE | SS | SANITARY SEWER |
| CCPW | CLARK COUNTY PUBLIC WORKS | LSCP | LANDSCAPE | SSMH | SANITARY SEWER MANHOLE |
| CCTV | CLOSED-CIRCUIT TELEVISION | LVVWD | LAS VEGAS VALLEY WATER DISTRICT | STA | STATION |
| CCWRD | CLARK COUNTY WATER RECLAMATION DISTRICT | MAX | MAXIMUM | ST | STREET |
| | | MH | MANHOLE | STD | STANDARD |
| CFS | CUBIC FEET PER SECOND | MIN | MINIMUM | STL | STEEL |
| CIP | CAPITAL IMPROVEMENTS PROJECT, CORRUGATED IRON PIPE | MLCP | MORTAR LINED AND COATED PIPE | STRUCT | STRUCTURE |
| | | MOD | MODIFY/MODIFIED | SVZ | SIGHT VISIBILITY ZONE |
| CIPM | CURED-IN-PLACE MANHOLE | MON | MONUMENT | SW | SIDEWALK |
| CIPP | CURED-IN-PLACE PIPE | MPH | MILES PER HOUR | SWG | SOUTHWEST GAS |
| CIR | CIRCLE | N | NORTH | T | TELEPHONE OR TOP |
| CLR | CLEAR OR CLEARANCE | NDOT | NEVADA DEPARTMENT OF TRANSPORTATION | TAN | TANGENT |
| CLSM | CONTROLLED LOW STRENGTH MATERIAL | NO | NUMBER | TB | TOP OF BERM |
| | | NOSHA | STATE OF NEVADA OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION | TC | TOP OF CURB |
| CLV | CITY OF LAS VEGAS | | | TCE | TEMPORARY CONSTRUCTION ESMT |
| CMP | CORRUGATED METAL PIPE | NPC | NEVADA POWER COMPANY | TEL,TELE | TELEPHONE |
| CMU | CONCRETE MASONRY UNIT | NTS | NOT TO SCALE | TEMP | TEMPORARY |
| CNLV | CITY OF NORTH LAS VEGAS | OC | ON CENTER | TF | TOP OF FOOTING |
| CO | CLEANOUT | OHC | OVERHEAD COX COMMUNICATION | TG | TOP OF GRATE |
| CONC | CONCRETE | OHP | OVERHEAD POWER LINE | TMH | TOP OF MANHOLE |
| COND | CONDUIT | P | POWER LINE | TOP | TOP OF PIPE |
| CONST | CONSTRUCT OR CONSTRUCTION | PB | PULL BOX | TP | TELEPHONE POLE |
| COORD | COORDINATE | PBS | PLANTMIX BITUMINOUS SURFACE | TRANS | TRANSITION |
| COR | CORNER | PC | POINT OF CURVE, PRESSURE CLASS | TRW | TOP OF RETAINING WALL |
| CPEP | CORRUGATED POLYETHELYNE PIPE | | | TS | TRAFFIC SIGNAL |
| CT | COURT | PCC | POINT OF COMPOUND CURVE | TSW | TOP OF SIDEWALK |
| CY | CUBIC YARD(S) | PE | PROJECT ENGINEER OR POLYETHYLENE | TW | TOP OF WALL |
| Δ | DELTA | | | TYP,(TYP) | TYPICAL |
| DBL | DOUBLE | PED | PEDESTRIAN | UDACS | UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR WATER DISTRIBUTION SYSTEMS (LATEST EDITION) |
| DCS | DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEM (LATEST EDITION) | PGL | PROFILE GRADE LINE | | |
| | | PH | POTHOLE | UG | UNDERGROUND |
| | | PI | POINT OF INTERSECTION | ULT | ULTIMATE |
| DEFL | DEFLECTION | PIP | PROTECT IN PLACE | USD | UNIFORM STD. DRAWINGS FOR PUBLIC WORKS' CONSTRUCTION OFF-SITE IMPROVEMENTS CLARK COUNTY AREA, NEVADA (LATEST EDITION) |
| DIA, ø | DIAMETER | PIV | POST INDICATOR VALVE | | |
| DIP | DUCTILE IRON PIPE | P.L. | PROPERTY LINE | | |
| DIST | DISTANCE | PLCP | POLYURETHANE LINED AND COATED STEEL PIPE | | |
| DR | DRIVE | | | | |
| DS | DOWNSPOUT | PMF | PAVEMENT MARKING FILM | UT | UNDERGROUND TELEPHONE |
| DTL | DETAIL | POB | POINT OF BEGINNING | VAR | VARIABLE/VARIES |
| DW | DRIVEWAY | POC | POINT ON CURVE | VC | VERTICAL CURVE |
| DWG | DRAWING | P.O.C. | POINT OF CONNECTION | VCP | VITRIFIED CLAY PIPE |
| E | EAST | POT | POINT ON TANGENT | VERT | VERTICAL |
| ECR | END CURB RETURN | PP | POWER POLE | VG | VALLEY GUTTER |
| ELE,ELEC | ELECTRICAL | PROP | PROPOSED | VOL | VOLUME |
| ELEV | ELEVATION | PRC | POINT OF REVERSE CURVE | W | WATER, WEST |
| EP, EOP | EDGE OF PAVEMENT | PRVC | POINT OF REVERSE VERTICAL CURVE | W/ | WITH |
| ESMT | EASEMENT | | | WS | WATER SUPPLY |
| EVC | END VERTICAL CURVE | PSI | POUNDS PER SQUARE INCH | WT | WEIGHT |
| EXIST,EX | EXISTING | PT | POINT OF TANGENCY | WTR | WATER |
| EXP | EXPANSION JOINT | P.U.E. | PUBLIC UTILITY EASEMENT | XING | CROSSING |
| FC | FACE OF CURB | PVC | POLYVINYL CHLORIDE | YD | YARD, YARD DRAIN |
| FF, FFE | FINISH FLOOR ELEVATION | PVI | POINT OF VERTICAL INTERSECTION | Z | PRESSURE ZONE |
| FG | FINISH GRADE | PVMT | PAVEMENT | | |
| | | PZ | PRESSURE ZONE | | |

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES MANAGER

PROJECT NO. 124110 DATE:

BASIS OF BEARINGS

NORTH 05°36'32" WEST BEING THE BEARING OF THE WEST LINE OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 33, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M. AS SHOWN IN BOOK 149, PAGE 46 PLATS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

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| CITY OF LAS VEGAS VERTICAL CONTROL POINT "D368", BEING A USC&GS DISC SET IN ROCK SOUTH OF CHARLESTON BLVD & WEST OF DEENTION BASIN. | 3246.63 (FEET) | 989.574 (METERS) |
| CITY OF LAS VEGAS VERTICAL CONTROL 2008 AND ADJUSTMENT (UPDATED 05/24/2010) BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD'88). | | |

ENGINEER, STATE OF NEVADA, PROFESSIONAL, ROY D. CLARK, CIVIL, No. 23554, Exp. 12/31/2018, 5/22/17

| REV | DESCRIPTION | DATE | AGEN APP | DATE | GCW APP | DATE |
|---|---|---|---|---|---|---|
| | | | | | | |

PROJECT NO. 889-002

DESIGN:
DRAWN:
CHECK:

PLOT DATE=08-18-17
PLOT TIME=16:19:55

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

F:\Projects\800\889-002\DWG\Production\PHASE-II\V2-889-002_sC1-1_COV.dwg
Daniel Lee

CA LAS VEGAS SVD, LLC

DORAL ACADEMY PHASE II SUMMERLIN CAMPUS

PROJECT DATA

DRAWING
C1.2
2 OF 6 SHTS

H: / CLV: 00-00000

## CITY OF LAS VEGAS SEWER NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS AND THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS' CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, AS AMENDED. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BE AWARE OF THE CONTENTS OF THE ABOVE SPECIFICATIONS.
2. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM CONSTRUCTION AS PER PLANS. ANY ADDITIONS, DELETIONS, OR CHANGES SHALL FIRST MEET WITH THE APPROVAL OF THE CITY ENGINEERS.
3. CHISEL "S" OR "G" IN CURBS WHERE SEWER OR GAS LATERALS PASS UNDER THE CURB.
4. POLYVINYL (PVC) SEWER PIPE SHALL MEET ASTM D-3034 SDR 35 SPECIFICATIONS, INSTALLED WITH SAND BEDDING AND BACKFILL OF TYPE II AGGREGATE BASE.
5. ALL MANHOLES PAVED IN STREETS EIGHTY (80') FOOT R/W AND LARGER SHALL HAVE CONCRETE COLLARS. STREETS LESS THAN EIGHTY (80') FOOT R/W WILL REQUIRE RETROFIT IF PAVING DOES NOT CONFORM TO CITY STANDARDS AT THE MANHOLE.
6. TEE SADDLES SHALL BE USED TO CONNECT SEWER LATERALS TO EXISTING MAIN LINES UP TO TWELVE INCH (12") DIAMETER. CONNECTIONS TO FIFTEEN INCH (15") OR LARGER MAINS SHALL REQUIRE SPECIAL PROCEDURES. IN LINE "Y" 'S SHALL BE USED ON LINES TWELVE INCHES (12") OR ABOVE.
7. WATER MAINS SHALL BE PROTECTED IN ACCORDANCE WITH LVVWD STANDARDS WHENEVER A SEWER MAIN CROSSES OVER A WATER MAIN OR THE SEWER IS LESS THAN EIGHTEEN INCH (18") UNDER A WATER MAIN.
8. ALL CONTRACTORS INSTALLING SEWER MAINS THAT WILL BE UNDER THE JURISDICTION OF THE CITY OF LAS VEGAS MUST BE STATE OF NEVADA CLASS "A" CONTRACTORS.
9. THE CITY OF LAS VEGAS WILL NOT ACCEPT ANY SEWER MAINS WHICH HAVE A VERTICAL DEFLECTION OF MORE THAN ONE TENTH (0.1) OF A FOOT FROM THE APPROVED CONSTRUCTION PLANS AT ANY LOCATION. SEWER MAINS FOUND TO EXCEED THIS TOLERANCE WILL HAVE TO BE REPAIRED OR REMOVED OR REPLACED TO THE SATISFACTION OF THE CITY ENGINEER PRIOR TO ACCEPTANCE BY THE CITY OF LAS VEGAS.
10. INSTALLATION OF CURVED SEWER REQUIRES THE USE OF C-900 PIPE WHICH ALLOWS FOR PIPE DEFLECTION AT THE JOINTS.

REVISED 04/15/10

## FLOOD ZONE NOTE

NO PORTION OF THE SITE FALLS WITHIN A FEMA DESIGNATED SPECIAL FLOOD HAZARD AREA. SITE LOCATED ON PANEL 32003C2150E, DATED SEPTEMBER 27, 2002, AND PANEL 32003C2145F, DATED NOVEMBER 16, 2011. THIS PANEL SHOWS THAT THE PROJECT IS LOCATED WITHIN A ZONE X AND NOT LOCATED WITHIN A FEMA DESIGNATED 100-YEAR ZONE A OR SPECIAL FLOOD HAZARD AREA.

## DEVIATION FROM STANDARD

NONE

## LAS VEGAS VALLEY WATER DISTRICT
LVVWD PROJECT # 124110

1. NO WORK SHALL BEGIN UNTIL THE WATER PLANS HAVE BEEN APPROVED FOR CONSTRUCTION BY THE LVVWD. FOLLOWING WATER PLAN APPROVAL, NOTICE SHALL BE GIVEN TO THE LVVWD COMMUNICATION SUPPORT CENTER (258-7171) TWO (2) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION. FOR FUTURE INSPECTIONS, NOTICE MUST BE GIVEN BY 2:00 P.M. THE BUSINESS DAY PRIOR TO THE REQUESTED LVVWD INSPECTION. WHEN REQUESTING INSPECTIONS, PLEASE REFER TO THE PROJECT # IDENTIFIED ABOVE.
2. ALL WORK SHALL CONFORM TO LVVWD STANDARD PLATES, DRAWINGS, AND SPECIFICATIONS, AND TO THE 2010 EDITION OF THE UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR POTABLE WATER SYSTEMS (UDACS). THE LATEST EDITION OF UDACS SHALL SUPERSEDE ANY CONFLICTS CONTAINED IN THE APPROVED DRAWINGS AND/OR SPECIFICATIONS.
3. ALL WORK, EXCEPT AS MODIFIED BY THESE PLANS OR BY NOTE 2 ABOVE, SHALL BE DONE IN ACCORDANCE WITH THE MOST RECENT DRAFT OR EDITION OF THE UNIFORM SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFFSITE IMPROVEMENT, CLARK COUNTY AREA.
4. A SINGLE PIPE MATERIAL SHALL BE USED THROUGHOUT THE PROJECT UNLESS OTHERWISE APPROVED BY THE LVVWD.
5. ALL SERVICE LATERALS TWO (2) INCHES IN DIAMETER AND SMALLER SHALL BE TYPE K COPPER TUBING WITH LVVWD APPROVED SERVICE SADDLES.
6. ALL WATER METER BOXES SHALL BE LOCATED OUTSIDE OF DRIVEWAY AREAS.
7. ALL VALVES SHALL BE LOCATED OUTSIDE OF DRIVEWAYS, VALLEY AND CURB GUTTERS.
8. ALL WATER AND STORM DRAIN OR SANITARY SEWER CROSSINGS SHALL CONFORM TO SECTION 2.22 OF THE 2010 EDITION OF THE UDACS
9. ALL WATER FACILITIES SHALL BE FILLED, DISINFECTED, PRESSURE TESTED, FLUSHED, FILLED, AND AN ACCEPTABLE WATER SAMPLE OBTAINED, PRIOR TO CONNECTION TO THE LVVWD DISTRIBUTION SYSTEM.
10. THE CONTRACTOR MUST OBTAIN ALL METERS TWO (2) INCHES AND SMALLER FROM LVVWD CENTRAL STORES, TELEPHONE 258-3152 OR 258-3802, TWO (2) WORKING DAYS PRIOR TO METER PICKUP.
11. ANY INTERRUPTION OF SERVICE MUST BE PERFORMED IN ACCORDANCE WITH UDACS SECTION 3.14.01, AND APPROVED BY THE LVVWD INSPECTION DIVISION PRIOR TO SHUTDOWN. PROPER WRITTEN NOTIFICATION MUST BE GIVEN TO ALL AFFECTED CUSTOMERS.
12. ALL WATER FACILITY CONSTRUCTION MATERIALS USED MUST BE LISTED ON THE LVVWD PRE-APPROVED MATERIALS AND MANUFACTURER'S LISTING FOR NEW FACILITIES, LATEST REVISION, OR SPECIFICALLY APPROVED ON THESE PLANS.
13. TELEPHONE "CALL BEFORE YOU DIG" AT 811 OR 1-800-227-2600
14. THE INSTALLATION OF LAS VEGAS VALLEY WATER DISTRICT (LVVWD) MUNICIPAL WATER FACILITIES WITHIN ALL STREETS IS ASSUMED TO BE IN COMPLIANCE WITH THE UNIFORMED STANDARDS, INCLUDING THE PLACEMENT OF ASPHALT PAVING STREET SURFACES. ANY REPAIR WORK DONE BY THE LVVWD TO THE MUNICIPAL WATER FACILITIES WILL INCLUDE THE PLACEMENT OF AN APPROPRIATELY SIZED ASPHALT REPAIR ON THE STREET SURFACE.

    ANY DECORATIVE PAVING SURFACE WITHIN THE STREET IS THE RESPONSIBILITY OF THE OWNER'S ASSOCIATION, OR THE INDIVIDUAL PROPERTY OWNERS IF NO OWNER'S ASSOCIATION IS IN EXISTENCE, OR THE AGENCY HAVING JURISDICTION. DECORATIVE SURFACE MATERIALS PLACED WITHIN THE TEN FOOT EASEMENT ABUTTING A PUBLIC OR PRIVATE STREET, IF DISTURBED BY THE LVVWD DURING THE REPAIR OR OPERATION OF ITS FACILITIES, WILL BE REPLACED BY LVVWD WITH AN APPROPRIATELY SIZED PLAIN FINISH CONCRETE PATCH. THE LVVWD WILL NOT RESTORE, AND WILL NOT BE RESPONSIBLE FOR THE RESTORATION OF, ANY DECORATIVE PAVING SURFACE WITHIN THE STREET. THE LVVWD WILL NOT ATTEMPT TO MATCH COLOR OR FINISH OF ANY ADJACENT MATERIALS.

### APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES MANAGER
PROJECT NO. 124110 DATE: _____

## CITY OF LAS VEGAS GRADING NOTES

1. IN THE EVENT THAT ANY UNFORESEEN CONDITIONS NOT COVERED BY THESE NOTES ARE ENCOUNTERED DURING GRADING OPERATIONS, THE OWNER/ENGINEER SHALL BE IMMEDIATELY NOTIFIED FOR DIRECTION.
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM ALL NECESSARY CUTS AND FILLS WITHIN THE LIMITS OF THIS PROJECT AND THE RELATED OFF-SITE WORK, SO AS TO GENERATE THE DESIRED SUBGRADE, FINISH GRADES AND SLOPES SHOWN.
3. CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR ALL EXCAVATION. ADEQUATE SHORING SHALL BE DESIGNED AND PROVIDED BY THE CONTRACTOR TO PREVENT UNDERMINING OF ANY ADJACENT FEATURES OR FACILITIES AND/OR CAVING OF THE EXCAVATION.
4. THE CONTRACTOR IS WARNED THAT AN EARTHWORK BALANCE WAS NOT NECESSARILY THE INTENT OF THIS PROJECT. ANY ADDITIONAL MATERIAL REQUIRED OR LEFTOVER MATERIAL FOLLOWING EARTHWORK OPERATIONS BECOMES THE RESPONSIBILITY OF THE CONTRACTOR.
5. THE GRADING CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE OWNER TO PROVIDE FOR THE REQUIREMENTS OF THE PROJECT STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND ASSOCIATED PERMIT.
6. CONTRACTOR SHALL GRADE TO THE LINES AND ELEVATIONS SHOWN ON THE PLANS WITHIN THE FOLLOWING HORIZONTAL AND VERTICAL TOLERANCES AND DEGREES OF COMPACTION, IN THE AREAS INDICATED:

| | HORIZONTAL | VERTICAL | COMPACTION |
|---|---|---|---|
| A. PAVEMENT AREA SUBGRADE | 0.1'± | +0.0' TO -0.1' | SEE SOILS REPORT |
| B. ENGINEERED FILL | 0.5'± | +0.1' TO -0.1' | SEE SOILS REPORT |

    COMPACTION TESTING WILL BE PERFORMED BY THE OWNER OR HIS REPRESENTATIVE. COMPACTION SHALL COMPLY WITH THE REQUIREMENTS OF THE ENGINEER.
7. ALL CUT AND FILL SLOPES SHALL BE PROTECTED UNTIL EFFECTIVE EROSION CONTROL HAS BEEN ESTABLISHED.
8. THE USE OF POTABLE WATER WITHOUT A SPECIAL PERMIT FOR BUILDING OR CONSTRUCTION PURPOSES INCLUDING CONSOLIDATION OF BACKFILL OR DUST CONTROL IS PROHIBITED. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR CONSTRUCTION WATER.
9. THE CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS AND ALL OTHER PUBLIC RIGHT-OF-WAY IN A CLEAN, SAFE AND USABLE CONDITION. ALL SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE PUBLICLY OWNED PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT. ALL ADJACENT PROPERTY, PRIVATE OR PUBLIC SHALL BE MAINTAINED IN A CLEAN, SAFE AND USABLE CONDITION.
10. IN THE EVENT THAT ANY TEMPORARY CONSTRUCTION ITEM IS REQUIRED THAT IS NOT SHOWN ON THESE DRAWINGS, THE OWNER AGREES TO PROVIDE AND INSTALL SUCH ITEM AT HIS OWN EXPENSE AND AT THE DIRECTION OF THE CITY ENGINEER. TEMPORARY CONSTRUCTION INCLUDES DITCHES, BERMS, ROAD SIGNS AND BARRICADES, ETC.

REVISED 4/15/10

## STORMWATER RUNOFF MANAGEMENT

1. THE OWNER, SITE DEVELOPER, CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATE IN, THE PUBLIC RIGHTS OF WAYS OF THE CITY OF LAS VEGAS AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN THE CITY OF LAS VEGAS AND THE LAS VEGAS VALLEY CONSTRUCTION SITE BEST MANAGEMENT PRACTICES MANUAL.
3. TEMPORARY OR PERMANENT STABILIZATION PRACTICES WILL BE INSTALLED ON DISTURBED AREAS AS SOON AS PRACTICABLE AND NO LATER THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. SOME EXCEPTIONS MAY APPLY; REFER TO NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.S.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER ANY ACTUAL RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
5. ACCUMULATED SEDIMENT IN BMPS SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

## CITY OF LAS VEGAS STREETLIGHT NOTES

1. ALL STREET LIGHTING INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE STREET LIGHTING PLANS, THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST REVISION, AND THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST REVISION, AND ANY ADOPTED SPECIAL AREA STANDARDS.
2. NO DEVIATION OF STREET LIGHT, PULL BOX, CONDUITS (ETC.) LOCATIONS SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL OF THE TRAFFIC ENGINEER AND THE CITY ENGINEER.
3. ALL EXISTING STREET LIGHTING SHALL REMAIN OPERATIONAL DURING CONSTRUCTION.
4. ALL STREET LIGHTING CONDUITS STUB SHALL HAVE AT LEAST ONE GREEN #8 THW WIRE INSTALLED, AS TRACER WIRE. WHEN "EMPTY" CONDUIT IS COMPLETELY INSTALLED FROM PB TO PB, IT SHALL HAVE MINIMUM OF 2 #4 AND 1 #8 THW WIRE WITH THE ENDS TAPED OR "SAFE OFF" PRIOR TO FINAL INSPECTION.
5. ANY STRUCTURE SUCH AS BLOCK WALLS, CHAIN LINK FENCES, RETAINING WALLS, ETC., SHALL LEAVE A MINIMUM CLEARANCE IN ACCORDANCE WITH THE USD NO. 320A.
6. AS-BUILT DRAWINGS SHALL BE SUPPLIED TO THE TEFO PRIOR TO ANY PRE-FINAL INSPECTION. THE AS-BUILT DRAWING NEEDS TO BE STAMPED AS-BUILT AND SIGNED BY THE PREPARER.
7. SERVICE POINT SHALL BE COORDINATED WITH NV ENERGY COMPANY, AND WHEREVER POSSIBLE, BE LOCATED NEAR THE CENTER OF THE CIRCUIT. SERVICE POINTS SHALL BE SHOWN ON THE CIVIL PLANS.
8. IT SHALL BE ASSUMED THAT IN THE ABSENCE OF AN EXISTING, WORKABLE CIRCUIT TO ATTACH TO, ALL INSTALLATIONS SHALL REQUIRE A NEW SERVICE FOR OPERATION OF THE CIRCUIT.
9. WHEREVER THERE IS AN OVERHEAD UTILITY THAT MAY CONFLICT WITH THE INSTALLATION OF STREET LIGHTING CIRCUITS AND/OR POLES, THESE CONFLICTS MUST BE RESOLVED BETWEEN THE DEVELOPER AND THE UTILITIES INVOLVED, AT NO EXPENSE TO THE CITY OF LAS VEGAS, BEFORE STREETLIGHT BASES ARE INSTALLED.
10. THE CONTRACTOR SHALL FURNISH COMPLETE SERVICE TO TRANSFORMERS AND CONTROL SYSTEMS IF REQUIRED ON PLANS.
11. THE DEVELOPER/OWNER WILL BE REQUIRED TO SUPPLY POWER TO ALL NEW PUBLIC STREET LIGHTS INSTALLED UNDER THIS DESIGN PRIOR TO BOND RELEASE OR PROJECT COMPLETION. THE DEVELOPER/OWNER WILL BE RESPONSIBLE FOR ALL ITEMS ASSOCIATED WITH THE INSTALLATION, CONSTRUCTION, ENERGIZING, MAINTENANCE AND OPERATIONAL COST OF SAID STREET LIGHTS PRIOR TO PROJECT COMPLETION. REFER TO THE PLAN FOR ANY NEW SERVICE REQUIREMENTS. THE TRANSFER OF OWNERSHIP FROM THE DEVELOPER/OWNER TO THE CITY OF LAS VEGAS FOR ALL NEW PUBLIC STREET LIGHT/S AND/OR SERVICE/S INSTALLED UNDER THIS PLAN WILL BE IN CONJUNCTION WITH THIS PROJECT COMPLETION. COORDINATE ALL MAINTENANCE AND OPERATIONAL TRANSFERS WITH THE CITY OF LAS VEGAS TRAFFIC ENGINEERING DEPARTMENT (TEFO) AT (702) 229-6331.

REVISED 04/15/10

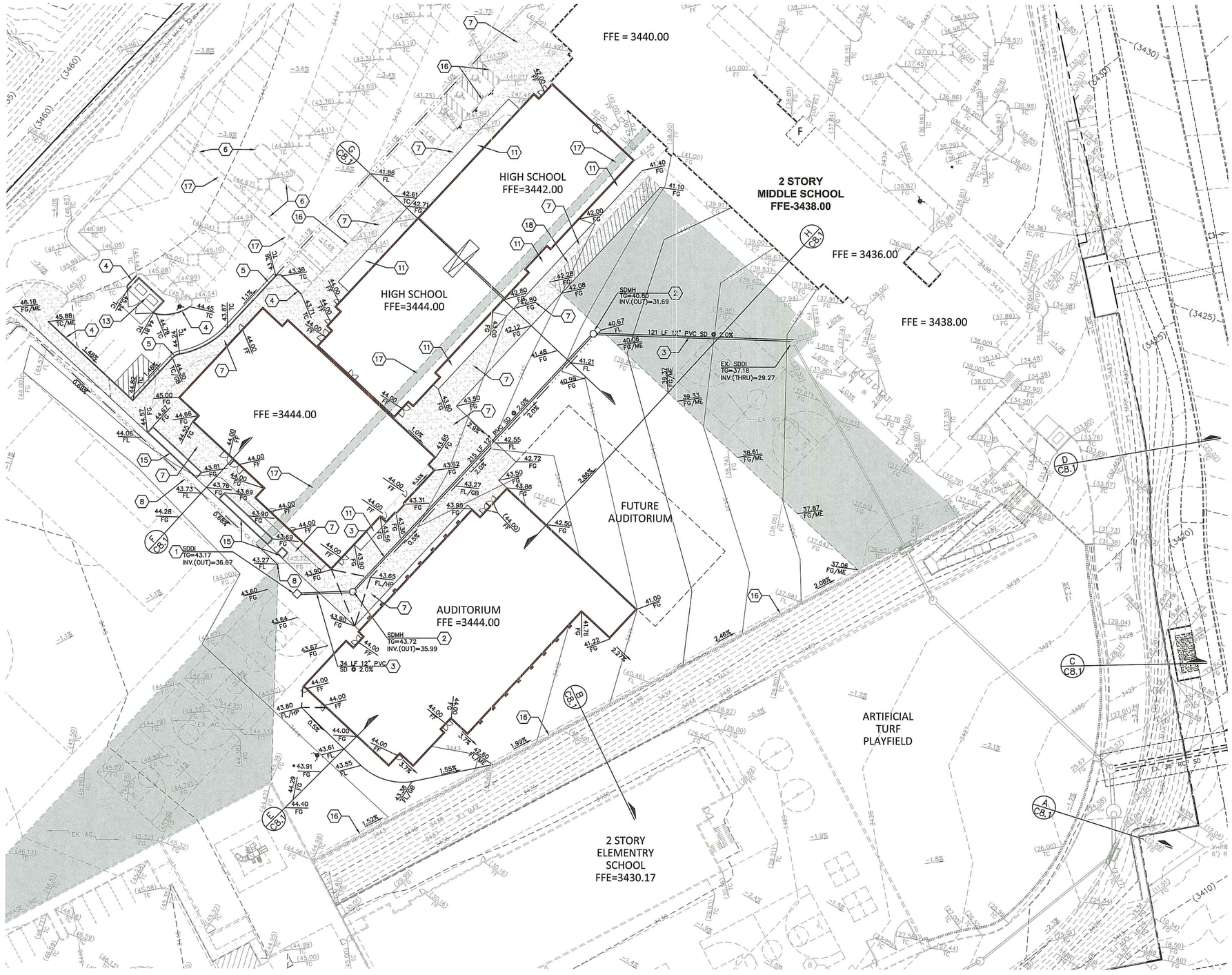
## CITY OF LAS VEGAS TRAFFIC NOTES

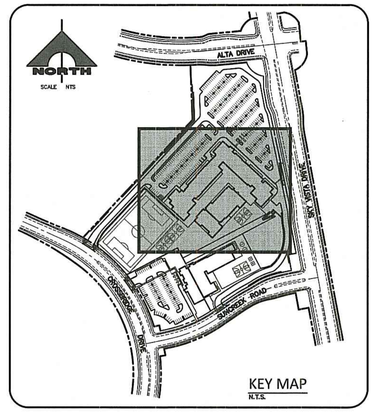
1. ALL CONSTRUCTION SIGNING, BARRICADING, AND TRAFFIC DELINEATION SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST EDITION.
2. THE STREET SIGN CONTRACTOR SHALL OBTAIN STREET NAMES AND BLOCK NUMBERING FROM THE PLANNING DEPARTMENT PRIOR TO CONSTRUCTION.
3. BEFORE ANY WORK IS STARTED IN THE RIGHT-OF-WAY, THE CONTRACTOR SHALL INSTALL ALL ADVANCED WARNING SIGNS FOR THE CONSTRUCTION ZONE. THE CONTRACTOR SHALL INSTALL TEMPORARY STOP SIGNS AT ALL NEW STREET ENCROACHMENTS INTO EXISTING CITY STREETS WHERE WARRANTED IMMEDIATELY AFTER FIRST GRADING WORK IS ACCOMPLISHED, AND SHALL MAINTAIN SAID SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED.
4. WHEN A DESIGNATED "SAFE ROUTE TO SCHOOL" IS ENCROACHED UPON BY A CONSTRUCTION WORK ZONE AND PUBLIC WORKS STAFF IDENTIFIES A NEED FOR STUDENTS TO BE ASSISTED IN THE SAFE CROSSING THROUGH THAT WORK ZONE, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE A QUALIFIED "CROSSING GUARD". THE GUARD SHALL BE PRESENT FOR THE FULL DURATION OF TIME THAT CHILDREN ARE LIKELY TO BE PRESENT.
5. IF THE IMPROVEMENTS NECESSITATE THE OBLITERATION, TEMPORARY OBSTRUCTION, TEMPORARY REMOVAL OR RELOCATION OF ANY EXISTING TRAFFIC PAVEMENT MARKING, SUCH PAVEMENT MARKING SHALL BE RESTORED OR REPLACED WITH LIKE MATERIALS TO THE SATISFACTION OF THE CITY TRAFFIC ENGINEER.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL PERMANENT SIGNS SHOWN ON THE PLANS. ALL NEW SIGNS SHALL BE FABRICATED WITH DIAMOND GRADE VIP CLASS 6 REFLECTIVE SHEETING OR APPROVED EQUAL. ALL NEW TRAFFIC SIGNS, EXCEPT STREET NAME AND SCHOOL SPEED LIMIT SIGNS, SHALL HAVE 3M SERIES 1160 OR APPROVED EQUIVALENT ANTI-GRAFFITI PROTECTIVE OVERLAY FILM; SCHOOL ZONE SIGNS SHALL HAVE 3M SERIES 1150 ANIT-GRAFFITI PROTECTIVE OVERLAY FILM. STREET NAME SIGNS SHALL CONFORM IN THEIR ENTIRETY TO CURRENT CITY STANDARDS. ALL OTHER SIGNS SHALL BE STANDARD SIZE UNLESS OTHERWISE SPECIFIED ON THE PLANS. ALL SIGN POSTS SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENT CITY STANDARDS.
7. WHEN A PROPOSED STREET LIGHT STANDARD IS LOCATED WITHIN FIVE (5') FEET OF ANY PROPOSED SIGN SHOWN ON THE PLANS TO BE MOUNTED ON A SIGNPOST, THE SIGN SHALL BE MOUNTED ON THE STREET LIGHT STANDARD AND THE SIGNPOST SHALL BE ELIMINATED.
8. ALL PERMANENT TRAFFIC CONTROL DEVICES CALLED FOR HEREON SHALL BE IN PLACE AND IN FINAL POSITION PRIOR TO ALLOWING ANY PUBLIC TRAFFIC ONTO THE PORTIONS OF THE ROAD(S) BEING IMPROVED HERE UNDER, REGARDLESS OF THE STATUS OF COMPLETION OF PAVING OR OTHER OFF-SITE IMPROVEMENTS CALLED FOR BY THESE PLANS.
9. STREET SIGNS AND STOP SIGNS SHALL BE INSTALLED PER CITY STANDARD SPECIFICATIONS FOR PLACEMENT OF STREET NAME SIGNS.
10. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY TRAFFIC CONTROL DEVICES AND FLAGGERS TO INSURE THE SAFETY OF THE PUBLIC IN OR AROUND THE WORK AREA. THE CONTRACTOR SHALL HAVE A CERTIFIED ATSSA TRAFFIC CONTROL TECHNICIAN OR IMSA WORK ZONE SAFETY SPECIALIST SET UP, MAINTAIN AND/OR REMOVE ALL TRAFFIC CONTROL DEVICES IN THE CITY OF LAS VEGAS RIGHT-OF-WAY.
11. WORK IN PUBLIC STREETS, ONCE BEGUN, SHALL BE EXPEDITED TO COMPLETION SO AS TO PROVIDE MINIMUM INCONVENIENCE TO ADJACENT PROPERTY OWNERS AND TO THE TRAVELING PUBLIC.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING CITIZENS AREA TRANSIT (C.A.T.) IF THE CONSTRUCTION INTERRUPTS OR RELOCATES A BUS STOP OR HAS AN ADVERSE EFFECT ON BUS SERVICE ON THAT STREET TO ARRANGE FOR TEMPORARY RELOCATION OF STOP.
13. GUARDS SHALL BE OBTAINED BY CONTACTING THE METROPOLITAN POLICE DEPARTMENT SPECIAL EVENTS UNIT (PHONE # 828-3442) WHO WILL PROVIDE OFFICERS PROPERLY TRAINED IN TRAFFIC CONTROL. FEES FOR THE USE OF THESE OFFICERS SHALL BE SET BY METRO AND WILL BE PAID BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR ALL ARRANGEMENTS WITH METRO.
14. ANY WORK WITHIN 300' OF A SIGNALIZED INTERSECTION WILL BE NIGHT WORK, UNLESS OTHERWISE DIRECTED BY THE CITY OF LAS VEGAS TRAFFIC ENGINEER.
15. CONTRACTOR SHALL CONTACT THE TRAFFIC ENGINEERING DIVISION (TRANSPORTATION SECTION) THROUGH THE PROJECT'S OFFSITE INSPECTOR PRIOR TO INITIATING PAVING TO RECEIVE DIRECTION FOR ANY PERMANENT OR TEMPORARY MODIFICATIONS TO THE APPROVED DRAWINGS REGARDING FINAL PAVEMENT TRANSITIONS, MARKINGS AND SIGNING THAT ARE REQUIRED TO MATCH ADJACENT ROADWAY SEGMENTS. THE CONTRACTOR SHALL PROVIDE A DRAWING FOR APPROVAL BY THE TRAFFIC ENGINEERING DIVISION DEPICTING ANY ADJUSTMENTS TO THE FINAL PAVEMENT MARKINGS AND SIGNAGE, WHICH MAY INCLUDE OMITTING, ADDING OR MODIFYING PAVEMENT MARKINGS AND TRAFFIC CONTROL SIGNS SUCH THAT ADEQUATE TRANSITIONS AND LANE TERMINATIONS BETWEEN ADJACENT ROADWAY SEGMENTS ARE CONSTRUCTED.

REVISED 4/15/10

## LAS VEGAS FIRE AND RESCUE GENERAL NOTES

1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE THE CITY OF LAS VEGAS FIRE DEPARTMENT'S ORDINANCE #6325, HYDRANT SPECIFICATIONS, AND HYDRANT INSTALLATION SPECIFICATION.
2. AUTHORIZED FIRE HYDRANTS ARE AS FOLLOWS:
    A. KENNEDY - GUARDIAN MODELS K81A AND K81D
    B. MUELLER - SUPER CENTURION 250 MODEL A-423
    C. CLOW - MEDALLION MODEL F-2546LVD
    D. U.S. PIPE - METROFLOW/M-03
3. A PERMIT IS REQUIRED FROM LAS VEGAS FIRE AND RESCUE FOR THE INSTALLATION OF ON-SITE WATER LINES AND FIRE HYDRANTS. THE PERMIT AND CONTRACTORS MATERIAL TEST CERTIFICATE FOR UNDERGROUND PIPING FORM SHALL BE OBTAINED FROM THE FIRE PROTECTION ENGINEER BEFORE COMMENCEMENT OF WORK. [IFC § 105.7.12]
4. ON ANY RESIDENTIAL OR COMMERCIAL INSTALLATIONS, FIRE HYDRANTS SHALL BE INSTALLED AND FIRE APPARATUS ACCESS ROADS SHALL BE MAINTAINED BEFORE COMMENCEMENT OF ANY COMBUSTIBLE CONSTRUCTION. ALL FIRE HYDRANTS SHALL BE IN GOOD WORKING ORDER AND SHALL BE CAPABLE OF DELIVERING THE REQUIRED FIRE FLOW. [IFC § 3310. § 3312]
5. TO IDENTIFY THE FIRE HYDRANT LOCATIONS, THE CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER LINE OF THE STREET ADJACENT TO THE FIRE HYDRANTS. [IFC § 507.5.7.3]
6. ALL UNDERGROUND INSPECTIONS, PRESSURE AND FLUSH VERIFICATIONS OF ALL FIRE HYDRANTS AND FIRE LINES, SHALL BE CONDUCTED BEFORE COVERING THE LINES. CENTER LOADING IS ACCEPTABLE FOR THE HYDRO TESTS WITH PRIOR FIRE PREVENTION APPROVAL. [IFC § 106.3]
7. ALL ON-SITE UNDERGROUND WATER MAINS AND MATERIALS SHALL BE U.L. LISTED, A.W.W.A. APPROVED AND SHALL BE RATED FOR THE APPROPRIATE WORKING PRESSURE. [IFC § 507.2.1, NFPA 24]
8. PAINTING OF CURBS, FIRE HYDRANTS, PADS, PROTECTION OF FIRE HYDRANTS FROM PHYSICAL DAMAGE, AND ALL OTHER WORK NECESSARY AS REQUIRED PER PLANS SHALL BE COMPLETED BEFORE APPROVAL BY LAS VEGAS FIRE AND RESUCE, FIRE PREVENTION DIVISION. [IFC § 507]
9. PRIVATE FIRE HYDRANTS SHALL BE PAINTED RED. [IFC § 507.5.7.1]
10. PRIOR TO THE FINAL OCCUPANCY, A FLOW TEST SHALL BE WITNESSED BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION TO VERIFY AVAILABILITY OF THE REQUIRED FIRE FLOW. [IFC § 507]
11. FIRE HYDRANTS SPACING SHALL BE: [IFC § C102]
    RESIDENTIAL - 500 FT UNSPRINKLERED; 600 FT SPRINKLERED.
    COMMERCIAL - 300 FT UNSPRINKLERED; 400 FT SPRINKLERED.
12. WHERE NEW WATER MAINS ARE EXTENDED ALONG STREETS OR NEW STREETS ARE INSTALLED WHERE FIRE HYDRANTS ARE NOT NEEDED FOR PROTECTION OF THE STRUCTURES, FIRE HYDRANTS SHALL BE INSTALLED AT A MAXIMUM 1,000 FT SPACING, TO PROVIDE FOR TRANSPORTATION HAZARDS. WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS OR WHO HAVE FOUR OR MORE TRAFFIC LANES AND HAVE A TRAFFIC COUNT OF MORE THAN 30,000 PER DAY, HYDRANTS ARE REQUIRED ON EACH SIDE OF THE STREET SPACED AT 500 FEET ON AN ALTERNATING BASIS. [IFC § c102.8]
13. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN THE RADIUS OF A CUL-DE-SAC OR WITHIN 20 FT OF THE PERIMETER OF THE RADIUS OF THE CUL-DE-SAC.
14. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN 6 FT OF ANY CURB RETURN, DRIVEWAY, POWER POLE, STREETLIGHT OR ANY OTHER OBSTRUCTION. [IFC § C102.12]
15. A MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A ONE-TWO FAMILY DWELLING SHALL NOT EXCEED 300 FT, AS MEASURED BY AN APPROVED ROUTE. [IFC § C102.4]
16. THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A FIRE DEPARTMENT CONNECTION (FDC) SHALL NOT EXCEED 100 FT, AS MEASURED BY AN APPROVED ROUTE. [IFC § C102.7]
17. THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO THE END OF A DEAD-END STREET SHALL NOT EXCEED 200 FT. [IFC § C102.7]
18. TWO SOURCES OF SUPPLY ARE REQUIRED WHENEVER THERE ARE 4 OR MORE FIRE HYDRANTS/SPRINKLER LEAD-INS INSTALLED ON A SINGLE SYSTEM. SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 2 FIRE HYDRANTS CAN BE OUT OF SERVICE DUE TO A BREAK IN A WATER MAIN. [IFC § C104]
19. ALL FIRE APPARATUS ACCESS ROADS SHALL BE PAVED TO PROVIDE ALL-WEATHER DRIVING CAPABILITIES, AND SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF THE FIRE APPARATUS. [IFC § 503.2.3]
20. THE GRADIENT FOR THE FIRE APPARATUS ACCESS ROADS SHALL NOT EXCEED 12% ANGLES OF APPROACH AND ANGLES OF DEPARTURE SHALL NOT EXCEED 6% FOR 25 FT PRIOR TO OR AFTER THE GRADE CHANGE. ADJACENT TO THE STRUCTURES GRADIENT SHALL NOT EXCEED 6% [IFC § 503.2.7, § 503.2.8]
21. THE TURNING RADIUS OF THE FIRE APPARATUS ACCESS ROADS SHALL BE NO LESS THAN 52 FT OUTSIDE AND 28 FT INSIDE TURNING RADIUS. [IFC § 503.2.4]
22. VERTICAL CLEARANCE OF ALL FIRE APPARATUS ACCESS ROADS SHALL NOT BE LESS THAN 13 FT 6 INS. [IFC § 503.2.1]
23. FIRE DEPARTMENT ACCESS ROADS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF NOT LESS THAN 40 FT FLOW LINE TO THE FLOW LINE WITH PARALLEL PARKING PERMITTED ON BOTH SIDES. NOT LESS THAN 23 FT WIDE, FLOW-LINE TO FLOW-LINE, WHERE PARKING IS PERMITTED ONLY ON ONE SIDE OF THE FIRE APPARATUS ACCESS ROAD. NOT LESS THAN 24 FT WIDE, FLOW-LINE TO FLOW-LINE, WHERE NO PARKING IS PERMITTED ON EITHER SIDE. FIRE LANES THROUGH PARKING LOTS SHALL BE NOT LESS THAN 24 FT. [IFC § 503.2.1.1]
24. A FIRE APPARATUS ACCESS ROAD SHALL BE REQUIRED WHEN ANY PORTION OF AN EXTERIOR WALL OF THE FIRST STORY IS LOCATED MORE THAN 150 FT FROM A FIRE DEPARTMENT VEHICLE ACCESS. THIS DISTANCE COULD BE INCREASED TO 250 FT IF THE BUILDING IS SPRINKLERED. [IFC § 503.1.1]
25. APPROVED SECONDARY FIRE APPARATUS ACCESS SHALL BE PROVIDED FOR 100 OR MORE DWELLING UNITS, ROAD(S) WITH DEAD-ENDS OR WITH A SINGLE POINT OF ACCESS IN EXCESS OF 600 FT. COMMERCIAL AND INDUSTRIAL DEVELOPMENTS WHERE BUILDINGS EXCEED 2 STORIES OR 30 FEET IN HEIGHT, OR EXCEEDING 62,000 SQUARE FEET IN




## STORM DRAIN CONSTRUCTION NOTES

| NO. | ITEM |
|---|---|
| 1 | INSTALL NDOT TYPE 2 DROP INLET, (A=2.5') PER NDOT STD. DWG. NO. R-4.2.1. |
| 2 | INSTALL 48"ø TYPE I STORM DRAIN MANHOLE PER USDCCA DWG. NO. 403 |
| 3 | INSTALL 12" PVC STORM DRAIN PIPE PER UDACS TRENCH DETAIL PLATE NO. 16 AND 17. |

## GRADING CONSTRUCTION NOTES

| NO. | ITEM USDCCA: UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA |
|---|---|
| 4 | INSTALL "A" CURB PER DETAIL 'A' SHEET C8.2 |
| 5 | INSTALL "L" CURB PER USDCCA STD. DWG. 216 |
| 6 | EXISTING CURB TO BE REMOVED. |
| 7 | CONSTRUCT 4" THICK SIDEWALK PER USDCCA STD. DWG. 234 |
| 8 | EXISTING 3' CONCRETE VALLEY GUTTER PROTECT IN PLACE, ADJUST EXISTING FLOW LINE INVERT ELEVATION TO MATCH INVERT ELEVATION SHOWN ON PLAN. |
| 9 | CONSTRUCT 2" AC PAVEMENT OVER 5" TYPE II AGGREGATE BASE (CAR)PER DETAIL 'F' SHEET C8.3 |
| 10 | CONSTRUCT 3" AC PAVEMENT OVER 5.5" TYPE II AGGREGATE BASE (TRUCK) PER DETAIL 'F' SHEET C8.3 |
| 11 | LANDSCAPE AREA. SEE LANDSCAPE PLANS FOR DETAILS |
| 12 | TURF PLAYFIELD, SEE ARCHITECTURAL PLANS FOR DETAILS |
| 13 | TRASH ENCLOSURE SEE ARCHITECTURAL PLANS. |
| 14 | CONSTRUCT 8" HEAVY DUTY CONCRETE PAVEMENT OVER 4" TYPE II AGGREGATE BASE (TRUCK) PER DETAIL 'F' SHEET C8.3 |
| 15 | INSTALL PLANTERS SEE ARCHITECTURAL PLANS. |
| 16 | EXISTING CURB, PROTECT IN PLACE. |
| 17 | EXISTING SIDEWALK TO BE REMOVED. |
| 18 | EXISTING ASPHALT AREA WITHIN THE NEW CONCRETE SIDEWALK AREA TO BE REMOVED. |

NOTE:
ALL ONSITE STORM DRAIN SYSTEMS AND ASSOCIATED FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY DORAL ACADEMY.

DRAINAGE CERTIFICATION
I CERTIFY THAT THE GRADING PLANS ARE IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY DS-4755A ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.

ROY D. CLARK P.E. 8354 DATE

BASIS OF BEARINGS
NORTH 05°36'32" WEST BEING THE BEARING OF THE WEST LINE OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 33, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M. AS SHOWN IN BOOK 149, PAGE 46 PLATS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

| DESCRIPTION | NAVD 88 DATUM | NAVD 88 DATUM |
|---|---|---|
| CITY OF LAS VEGAS VERTICAL CONTROL POINT "D368", BEING A USC&GS DISC SET IN ROCK SOUTH OF CHARLESTON BLVD & WEST OF DEENTION BASIN. | 3246.63 (FEET) | 989.574 (METERS) |
| CITY OF LAS VEGAS VERTICAL CONTROL 2008 AND ADJUSTMENT (UPDATED 05/24/2010) BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD'88). | | |

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811 or 1-800-227-2600 and CLARK COUNTY TRAFFIC OPERATIONS 1-702-455-6000

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

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

ENGINEER'S STATE OF NEVADA
ROY D. CLARK
No. 8354
PROFESSIONAL
Exp. 12/31/2019
CIVIL
DATE: 8/22/17

| REV | DATE | DESCRIPTION | DATE | AGEN APP | DATE | GCW APP |
|---|---|---|---|---|---|---|
| | | | | | | |

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DESIGN:
DRAWN:
CHECK:
PLOT DATE: 08-18-17
PLOT TIME: 16:21:24

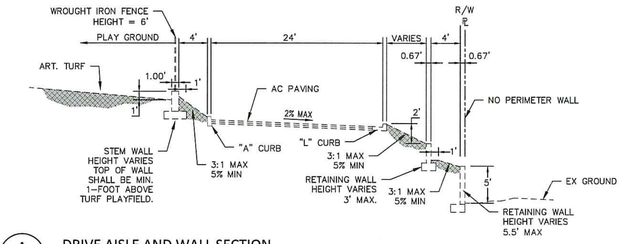
GCW
ENGINEERS & SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

F:\Projects\800\889-002\DWG\Production\PHASE-II\P2-889-002_cC41.dwg
Daniel Lee

CA LAS VEGAS SVD, LLC
DORAL ACADEMY PHASE II SUMMERLIN CAMPUS
GRADING PLAN II

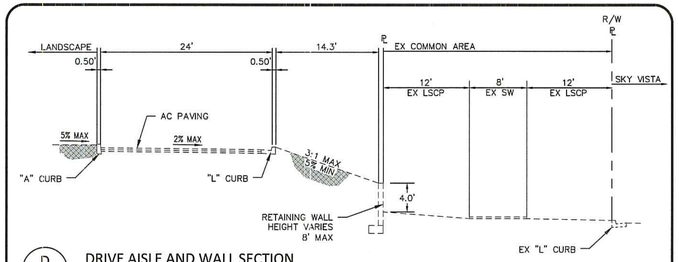
DRAWING
C4.1
4 OF 6 SHTS

H: / CLV: 00-00000



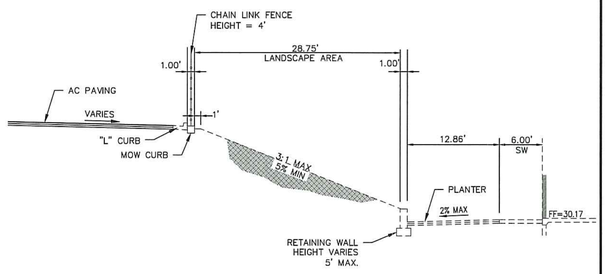

A C4.1 DRIVE AISLE AND WALL SECTION

NOT TO SCALE



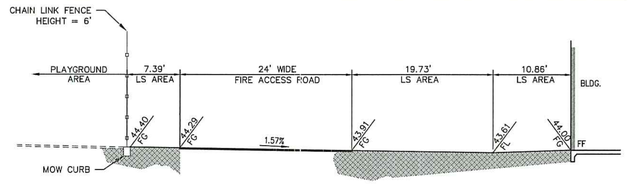

D C4.1 DRIVE AISLE AND WALL SECTION

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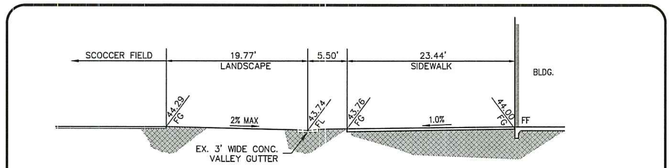

B C4.1 WALL SECTION

NOT TO SCALE



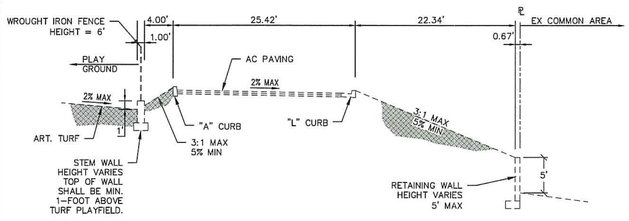

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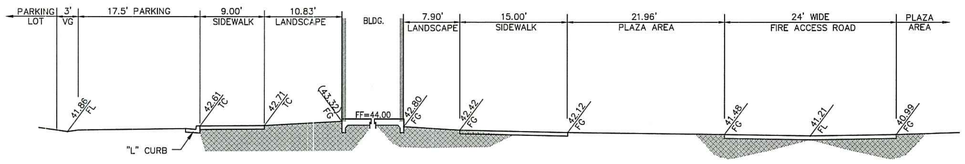

F C4.1 CROSS SECTION

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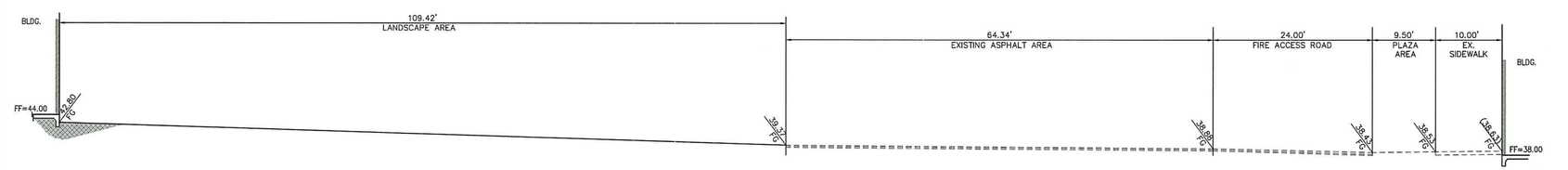

C C4.1 DRIVE AISLE AND WALL SECTION

NOT TO SCALE




G C4.1 CROSS SECTION

NOT TO SCALE




H C4.1 CROSS SECTION

NOT TO SCALE

ENGINEER
STATE OF NEVADA
PROFESSIONAL
ROY D. CLARK
Exp. 12/31/2018
CIVIL
No. 8354
DATE: 12 17

GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
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T: 702.804.2000
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gcwengineering.com

| REV | DATE | DESCRIPTION | DATE | AGEN APP | DATE | GCW APP |
|---|---|---|---|---|---|---|
| | | | | | | |

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Daniel Lee

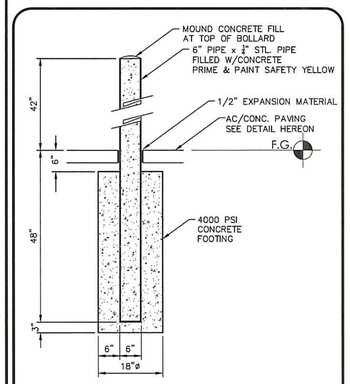
CA LAS VEGAS SVD, LLC

DORAL ACADEMY PHASE II SUMMERLIN CAMPUS

DETAIL SHEET I

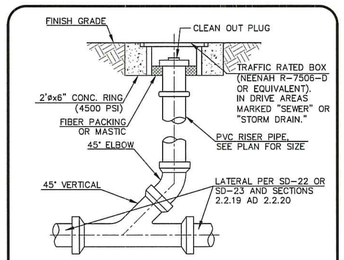
DRAWING
C8.1
5 OF 6 SHTS

H: / CLV: 00-00000



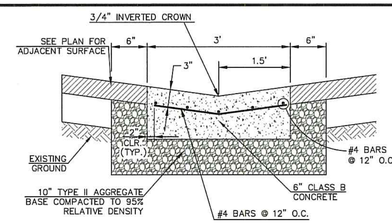

C BOLLARD DETAIL

NOT TO SCALE




F CLEAN OUT DETAIL

NOT TO SCALE




B 3' CONCRETE VALLEY GUTTER

NOT TO SCALE




E WYE (PER STD. DWG. SD-22)

NOT TO SCALE

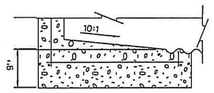
## BILL OF MATERIALS (RCP HDPE CMP)

| PIPE SIZE (INCH) | SINGLE (ONE GRATE) | | | | | DOUBLE (TWO GRATES) | | | | | TRIPLE (THREE GRATES) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | * CONCRETE (CY) | | * REINF. (LB.) | | | * CONCRETE (CY) | | * REINF. (LB.) | | | * CONCRETE (CY) | | * REINF. (LB.) | | |
| | BASE QUAN. (H MIN.) | ADD RATE (CY/FT) | BASE QUAN. (H MIN.) | ADD RATE (LB/FT) | STR STEEL (LB) | BASE QUAN. (H MIN.) | ADD RATE (CY/FT) | BASE QUAN. (H MIN.) | ADD RATE (LB/FT) | STR STEEL (LB) | BASE QUAN. (H MIN.) | ADD RATE (CY/FT) | BASE QUAN. (H MIN.) | ADD RATE (LB/FT) | STR STEEL (LB) |
| ≤15 | 0.71 | 0.19 | 36 | 10 | 211 | 1.06 | 0.26 | 50 | 13 | 397 | 1.41 | 0.33 | 70 | 17 | 583 |
| 18 | 0.89 | 0.20 | 40 | 10 | 306 | 1.31 | 0.28 | 56 | 13 | 574 | 1.72 | 0.35 | 77 | 18 | 842 |
| 24 | 1.08 | 0.22 | 58 | 12 | 349 | 1.56 | 0.30 | 80 | 15 | 652 | 2.04 | 0.37 | 105 | 20 | 956 |
| 30 | 1.28 | 0.24 | 63 | 12 | 390 | 1.83 | 0.31 | 86 | 16 | 729 | 2.38 | 0.39 | 113 | 20 | 1068 |
| 36 | 1.50 | 0.26 | 67 | 13 | 524 | 2.11 | 0.33 | 92 | 16 | 980 | 2.72 | 0.41 | 120 | 21 | 1435 |
| 42 | 1.71 | 0.28 | 90 | 15 | 575 | 2.39 | 0.35 | 120 | 18 | 1073 | 3.07 | 0.43 | 154 | 22 | 1571 |
| 48 | 1.94 | 0.30 | 95 | 15 | 707 | 2.68 | 0.37 | 127 | 18 | 1329 | 3.42 | 0.44 | 163 | 23 | 1951 |

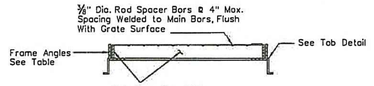
*The Concrete And Reinforcing Quantities Are Based On The H Min. Shown. Increase The Concrete And Reinforcing Base Quantity By The Corresponding Add Rate (Per Foot Of Increased H) If The H Specified Is Larger Than H Min.

## TABLE OF DIMENSIONS (RCP HDPE CMP)

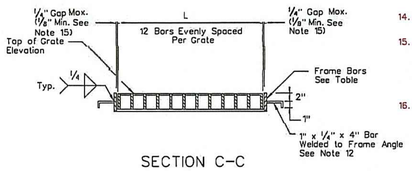
| PIPE SIZE (INCH) | A | H Min. (FT) | MAIN BARS (INCH) | FRAME ANGLES (INCH) | FRAME BARS (INCH) | L (FT) | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | SINGLE GRATE | DOUBLE GRATE | TRIPLE GRATE |
| ≤ 15 | 2' | 2.50 | 3½ X ⅜ | 4 X 3 X ⅜ | 4 X ⅜ | 2' | 4' | 6' |
| 18 | 2' 6" | 3.00 | 4½ X ⅜ | 5 X 3 X ⅜ | 5 X ⅜ | 2' | 4' | 6' |
| 24 | 3' | 3.50 | 4½ X ⅜ | 5 X 3 X ⅜ | 5 X ⅜ | 2' | 4' | 6' |
| 30 | 3' 6" | 4.00 | 4½ X ⅜ | 5 X 3 X ⅜ | 5 X ⅜ | 2' | 4' | 6' |
| 36 | 4' | 4.50 | 5½ X ⅜ | 6 X 3½ X ⅜ | 6 X ⅜ | 2' | 4' | 6' |
| 42 | 4' 6" | 5.00 | 5½ X ⅜ | 6 X 3½ X ⅜ | 6 X ⅜ | 2' | 4' | 6' |
| 48 | 5' | 5.50 | 5½ X ⅜ | 6 X 3½ X ⅜ | 6 X ⅜ | 2' | 4' | 6' |




SECTION B-B



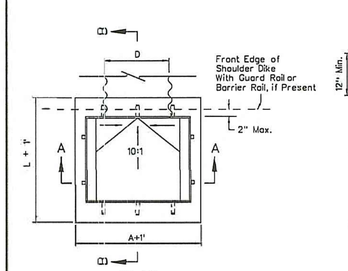

SECTION D-D



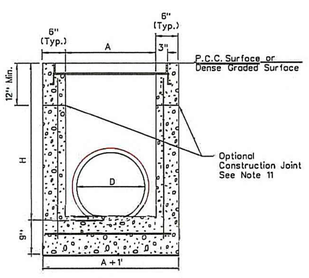

SECTION C-C

## NOTES:

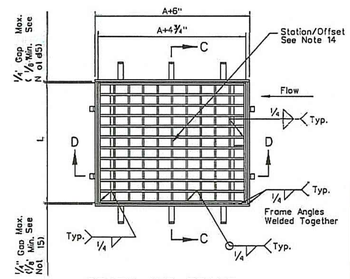
1. All concrete shall be class A or AA.
2. Reinforcing steel shall be No.4 bars with maximum spacing of 18 inch centers, wired tightly at all intersections and embedded 2 inches clear of all concrete surfaces.
3. Exposed edges of concrete shall be chamfered 1 inch.
4. Dimensions may be varied to fit local conditions if ordered by the engineer.
5. Commercial prefabricated gratings approved by the bridge division may be used in lieu of the field-welded grating shown.
6. Extreme low cover situations to be reviewed by hydraulics engineer.
7. Slope catch basin floors 10:1 from all directions toward outlet pipe. If basin is used as a junction, shape flow line(s) to outlet pipe and provide a 10:1 slope to flow line(s).
8. See sheet R-2.9.1 for details if connecting HDPE pipe.
9. A single Type 2 drop inlet shall be constructed unless a double or triple is specified.
10. Single grate configuration shown for clarity. Outside dimensions of each grate shall measure 2 feet by A+4¾".
11. Run rebar continuous thru construction joint. Joint must be a minimum of 3 inches from horizontal bars.
12. Weld one tab on ℄ of grate and remaining two tabs 6 inches from edge of frame. Six tabs per inlet, three tabs on each side
13. Weld tabs 6 inches from edge of frame. Four tabs per grate, two on each side.
14. For multiple grate installations, the station/offset is to the center of the concrete drop inlet structure.
15. Grate is to fit in the frame and be easily removed. If the gap between the grate and frame is greater than ¼" on each side of the grate, the grate and frame shall be removed and reconstructed to the tolerances specified or, with approval of the engineer, a filler strip up to ¼" in thickness may be welded flush to the top of the frame to reduce the gap to a maximum of ¼"
16. Additional pipe penetrations may be placed in any wall. Pipe penetrations are to be to the canter of the structure wall unless specified otherwise.




PLAN




SECTION A-A




GRATE AND FRAME

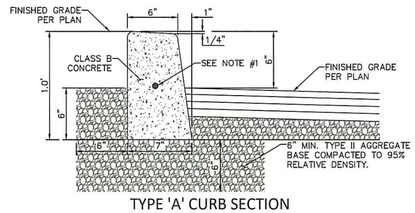
STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

DROP INLET
TYPE 2

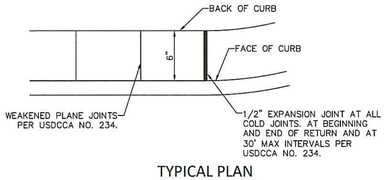
| R-4.2.1 | (609) | Signed Original On File |
|---|---|---|
| ADOPTED 11/20 | REVISED 10/15 | CHIEF HYDRAULICS ENGR. |

H NDOT DROP INLET TYPE 2 DETAIL

NOT TO SCALE




TYPE 'A' CURB SECTION

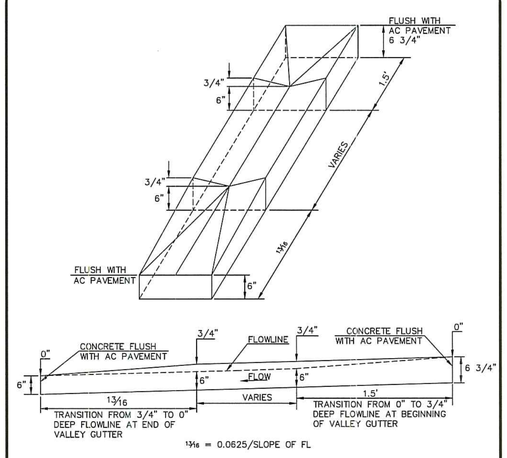



TYPICAL PLAN

NOTES:
1. CONTINUOUS #4 REBAR IN RADIUS OF CURB ONLY.

A TYPE 'A' CURB (ONSITE)

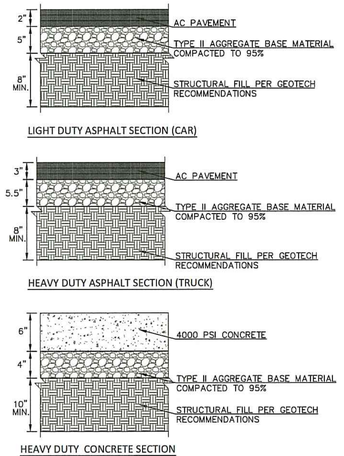
NOT TO SCALE




1 3/16 = 0.0625/SLOPE OF FL

D VALLEY GUTTER TRANSITION

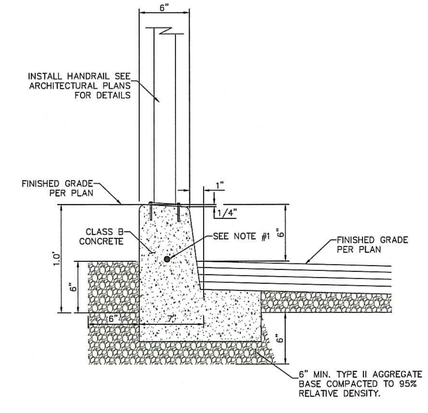
NOT TO SCALE




G PAVING / CONCRETE SECTIONS

NOT TO SCALE

* SEE CURRENT GEOTECHNICAL REPORT FOR ADDITIONAL INFORMATION.




J TYPE "A" CURB WITH DOWN-TURN TOE SECTION

NOT TO SCALE


ENGINEER
STATE OF NEVADA
ROY D. CLARK
Exp. 12/31/2018
CIVIL
No. 8354
PROFESSIONAL
DATE: 5/22/17

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


| REV | DATE | DESCRIPTION | DATE | AGEN APP | DATE | GCW APP |
|---|---|---|---|---|---|---|
| | | | | | | |

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Daniel Lee

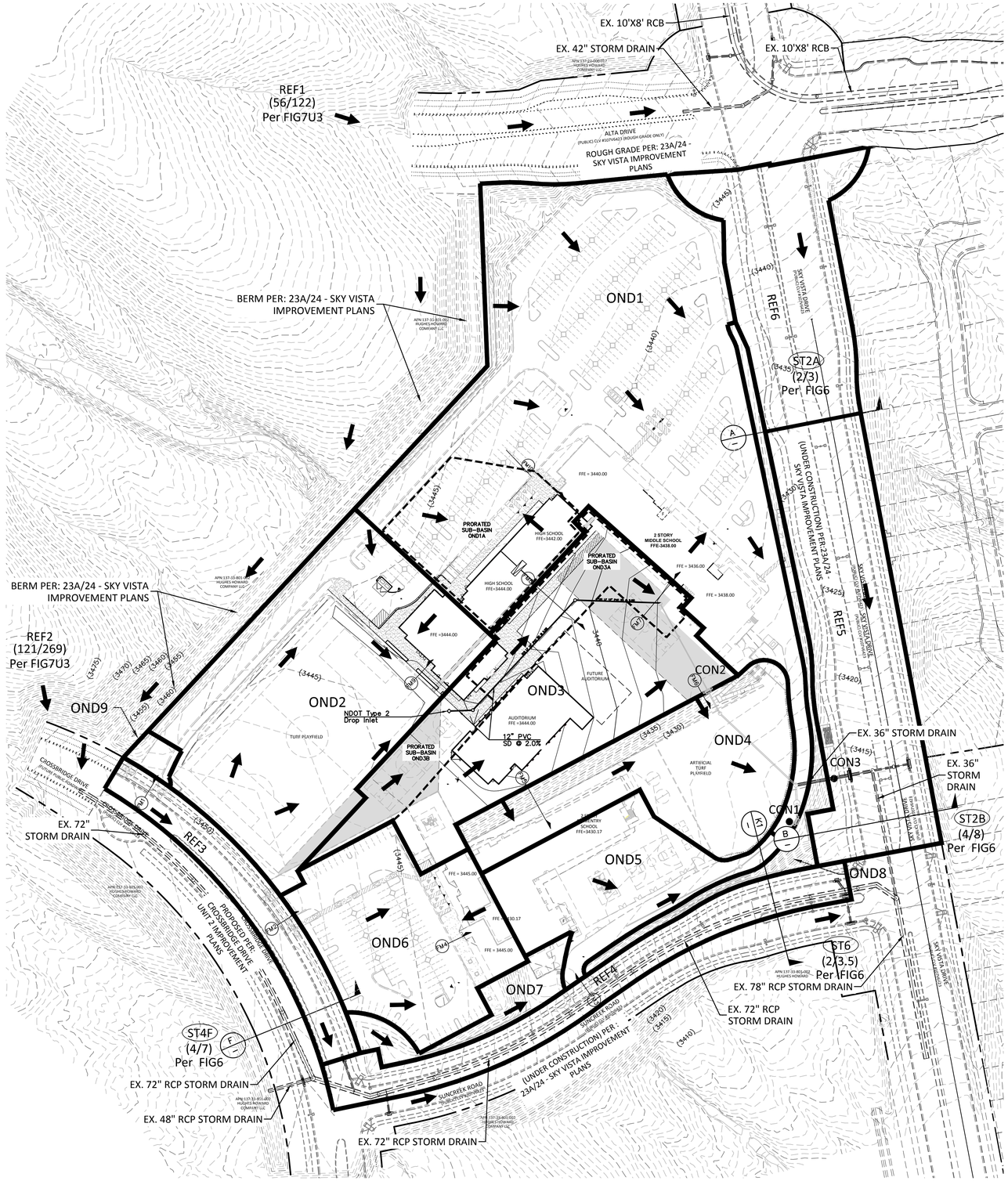
CA LAS VEGAS SVD, LLC

DORAL ACADEMY PHASE II SUMMERLIN CAMPUS

DETAIL SHEET II

DRAWING
C8.2
6 OF 6 SHTS

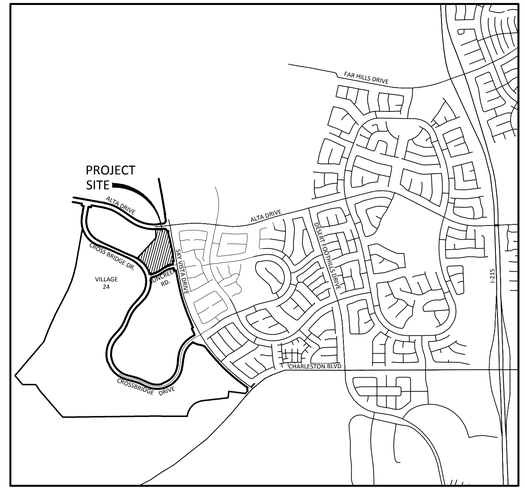
H: / CLV: 00-00000







80 0 40 80
SCALE FEET




| | |
|---|---|
| $Q_{10/100}$ | PEAK 10 YR FLOW / PEAK 100 YR FLOW |
| | DRAINAGE AREA BOUNDARY |
| | DRAINAGE AREA FLOW DIRECTION |
| OND1 | AREA DESIGNATION |
| CP | EXISTING CONCENTRATION POINT |
| CON | PROPOSED CONCENTRATION POINT |
| FM1 | LOCATION OF HYDRAULIC CROSS SECTION |
| A | LOCATION OF REFERENCE CROSS SECTION |

## DRAINAGE AREA SUMMARY TABLE

| BASIN ID | AREA (ACRES) | $Q_{10}$ (CFS) | $Q_{100}$ (CFS) |
|---|---|---|---|
| OND1 | 5.60 | 8 | 17 |
| OND1A | 0.91 | 1 | 3 |
| OND2 | 2.98 | 4 | 9 |
| OND3 | 3.09 | 4 | 10 |
| OND3A | 0.62 | <1 | 2 |
| OND3B | 0.44 | <1 | 1.5 |
| OND4 | 1.55 | 3 | 5 |
| OND5 | 1.14 | 2 | 3 |
| OND6 | 1.52 | 3 | 5 |
| OND7 | 0.35 | 1 | 1 |
| OND8 | 0.44 | 1 | 2 |
| OND9 | 0.08 | <1 | <1 |
| REF1 | – | 56 | 122 |
| REF2 | – | 121 | 269 |
| REF3 | – | 4 | 7 |
| REF4 | – | 2 | 3.5 |
| REF5 | – | 4 | 8 |
| REF6 | – | 2 | 3 |

## CONCENTRATION POINT SUMMARY TABLE

| CONCENTRATION POINT | $Q_{10}$ (CFS) | $Q_{100}$ (CFS) |
|---|---|---|
| CON1 | 11 | 21 |
| CON2 | 8 | 26 |
| CON3 | 26 | 50 |

CON1 = OND1 + OND4 + OND5 + OND7
CON2 = OND2 + OND3
CON3 = TOTAL PIPED DISCHARGE

% COMPLETE

| REV | DATE | DESCRIPTION | DATE | AGEN APP | DATE | GCW APP | DATE: |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

PROJECT NO. 889-002
DESIGN:
DRAWN:
CHECK:
PLOT DATE: 08-18-17
PLOT TIME: 15:57:21

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

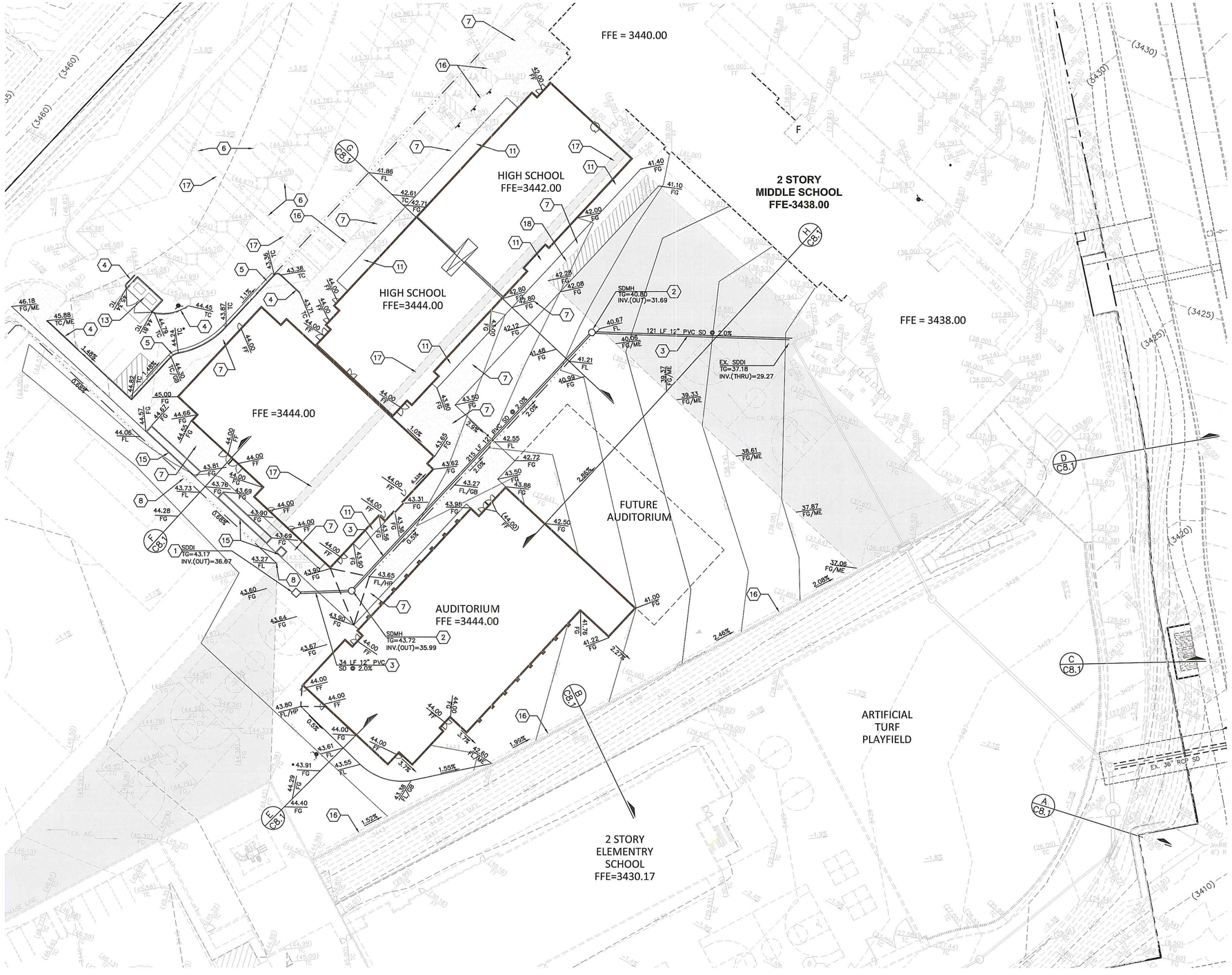
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Nelson Boggs

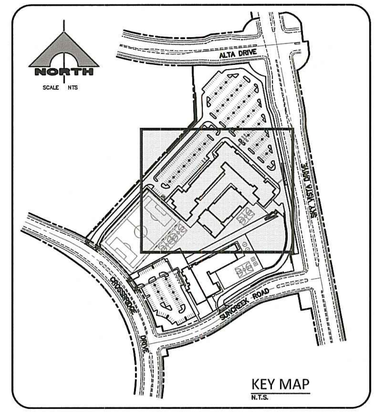
CA LAS VEGAS SVD, LLC

DORAL ACADEMY SUMMERLIN CAMPUS

DEVELOPED CONDITION DRAINAGE BASIN MAP

DRAWING
FIG. 9
1 OF 1 SHTS




## STORM DRAIN CONSTRUCTION NOTES

| NO. | ITEM |
|---|---|
| 1 | INSTALL NDOT TYPE 2 DROP INLET, (A=2.5') PER NDOT STD. DWG. NO. R-4.2.1. |
| 2 | INSTALL 48"ø TYPE I STORM DRAIN MANHOLE PER USDCCA DWG. NO. 403 |
| 3 | INSTALL 12" PVC STORM DRAIN PIPE PER UDACS TRENCH DETAIL PLATE NO. 16 AND 17. |

## GRADING CONSTRUCTION NOTES

| NO. | ITEM USDCCA: UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA |
|---|---|
| 4 | INSTALL "A" CURB PER DETAIL 'A' SHEET C8.2 |
| 5 | INSTALL "L" CURB PER USDCCA STD. DWG. 216 |
| 6 | EXISTING CURB TO BE REMOVED. |
| 7 | CONSTRUCT 4" THICK SIDEWALK PER USDCCA STD. DWG. 234 |
| 8 | EXISTING 3' CONCRETE VALLEY GUTTER PROTECT IN PLACE, ADJUST EXISTING FLOW LINE INVERT ELEVATION TO MATCH INVERT ELEVATION SHOWN ON PLAN. |
| 9 | CONSTRUCT 2" AC PAVEMENT OVER 5" TYPE II AGGREGATE BASE (CAR)PER DETAIL 'F' SHEET C8.3 |
| 10 | CONSTRUCT 3" AC PAVEMENT OVER 5.5" TYPE II AGGREGATE BASE (TRUCK) PER DETAIL 'F' SHEET C8.3 |
| 11 | LANDSCAPE AREA. SEE LANDSCAPE PLANS FOR DETAILS |
| 12 | TURF PLAYFIELD, SEE ARCHITECTURAL PLANS FOR DETAILS |
| 13 | TRASH ENCLOSURE SEE ARCHITECTURAL PLANS. |
| 14 | CONSTRUCT 6" HEAVY DUTY CONCRETE PAVEMENT OVER 4" TYPE II AGGREGATE BASE (TRUCK) PER DETAIL 'F' SHEET C8.3 |
| 15 | INSTALL PLANTERS SEE ARCHITECTURAL PLANS. |
| 16 | EXISTING CURB, PROTECT IN PLACE. |
| 17 | EXISTING SIDEWALK TO BE REMOVED. |
| 18 | EXISTING ASPHALT AREA WITHIN THE NEW CONCRETE SIDEWALK AREA TO BE REMOVED. |

NOTE:

ALL ONSITE STORM DRAIN SYSTEMS AND ASSOCIATED FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY DORAL ACADEMY.

DRAINAGE CERTIFICATION

I CERTIFY THAT THE GRADING PLANS ARE IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY DS-4755A ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.

ROY D. CLARK P.E. 8354 DATE

BASIS OF BEARINGS

NORTH 05°36'32" WEST BEING THE BEARING OF THE WEST LINE OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 33, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M. AS SHOWN IN BOOK 149, PAGE 46 PLATS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

| DESCRIPTION | NAVD 88 DATUM | NAVD 88 DATUM |
|---|---|---|
| CITY OF LAS VEGAS VERTICAL CONTROL POINT "D368", BEING A USC&GS DISC SET IN ROCK SOUTH OF CHARLESTON BLVD & WEST OF DEENTION BASIN. | 3246.63 (FEET) | 989.574 (METERS) |
| CITY OF LAS VEGAS VERTICAL CONTROL 2008 AND ADJUSTMENT (UPDATED 05/24/2010) BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD'88). | | |

NORTH
30 0 30 60
SCALE FEET

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811 or 1-800-227-2600
AND
CLARK COUNTY TRAFFIC OPERATIONS 1-702-455-6000

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

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

ENGINEER: STATE OF NEVADA PROFESSIONAL ROY D. CLARK Exp. 12/31/2018 CIVIL No. 8354
DATE: 4/4/17
FOR REVIEW ONLY

| REV | DATE | DESCRIPTION | DATE | AGEN APP | DATE | GCW APP |
|---|---|---|---|---|---|---|
| | | | | | | |

PROJECT NO. 889-002
DESIGN:
DRAWN:
CHECK:
PLOT DATE: 09-13-17
PLOT TIME: 17:02:53

GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com
F:\Projects\800\889-002\DWG\Production\PHASE-II\P2-889-002_4C4-1_GRD.dwg
Daniel Lee

CA LAS VEGAS SVD, LLC
DORAL ACADEMY
RED ROCK CAMPUS HIGH SCHOOL
GRADING PLAN II

DRAWING
C4.1
4 OF 6 SHTS

H: / CLV: 00-00000