DS #: 5287

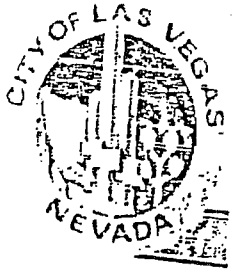
APN: 139-33-305-020

PROJECT: Medical Education Building at Shadow & Pinto

SUBMITTAL: 2nd

SCANNED BY/DATE:

CHECKED BY/DATE:



CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: July 23, 2020
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: **Medical Education Building at Shadow & Pinto**			**COPIES TO:** Poggemeyer Design Group
Cross Streets:	SEC of Shadow Lane & Pinto Lane			Nevada Health & Bioscience Asset
File Number:	F:\Depot\DSMemos\DS5287B.doc			Bart Anderson, P.E., DevCo
Parcel Number:	139-33-305-020			
Zoning Action:	SDR-XXXXX			
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	5/28/2020	6/10/2020	Not Approved	$400.00	3880090: $400
2nd Submittal	7/8/2020	7/22/2020	See Comments Below	$400.00	3910048: $400
			TOTAL FEES (LDDRS):	**$800.00**	----

REMARKS:

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

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

1. **Second Request**: *Provide a copy of the zoning/planning conditions associated with this site (**SDR-XXXXX**) with the next submittal to verify compliance with conditions. Flood Control will not issue conditional approval of the drainage study without the associated zoning/planning conditions (issued by the City Council). Any associated conditions of approval that revise the site drainage parameters will require that the drainage study be revised and resubmitted.*

2. **Second Request**: *The finished floor elevation of the proposed MEB Building is lower than the corresponding street elevations of Shadow Lane and Pinto Lane. Provide a minimum 2'-high stem/flood wall at the back of sidewalk in both perimeter streets for flood protection. Review and revise accordingly.*

   Floodproofing is only a secondary measure for protection. The primary protection is either raise the finished floor elevation to meet the criteria or provide a stem/flood wall.

3. **Second Request**: *The subject project proposed to connect an onsite storm drain system to a local storm drain in Pinto Lane under the City Capital Improvement project of Shadow Lane Improvement Plans (W. Charleston Blvd. to Alta Dr.). Coordinate with Mr. Lyle Wilcox, Engineering Project Manager of the capital improvement project for review and comment. Obtain Mr. Wilcox's approval of the connection prior to the final approval of the subject drainage study.*

4. In the last submittal, a landscape mound has been added along the east boundary of the proposed development. However, per the grading plan and *Detail Sections D/C6.01* and *E/C6.01*, the eastern half of the mound drains to the adjacent property of the east. Either obtain permission from the adjacent owner or provide a swale along the eastern boundary and convey to the north for discharge. Review and resolve in the next submittal.

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

END OF REMARKS
ays

T/R/S: T20S/R61E/33
AREA M-33

Albert Sung

From: Lorraine Linnert
Sent: Wednesday, August 5, 2020 6:04 PM
To: Albert Sung
Cc: Lyle Wilcox; Larry Carroll; Vernon Harkins; Rosa Cortez; Jeremy Leavitt
Subject: DS5287B Coordination with Shadow Lane Improvements and Pinto Lane Storm Drain
Attachments: DS5287B.pdf

Good afternoon Albert,

As required by Item 3 of the Review Comments dated July 23, 2020 for SD5287B for Medical Education building at Shadow & Pinto, Poggemeyer Design Group has coordinated with Capital Project Management and provided all the details for their onsite storm drain system connection to the local storm drain in Pinto Lane. The manhole and lateral will be incorporated into the plans designed with the Shadow Lane Improvement Project by Horrocks Engineers. The improvements will be constructed with the City's Pinto Lane Streetscape Improvement project immediately following the Shadow Lane construction. Both Lyle Wilcox, the Engineering Project Manager for Pinto Lane (x6574) and I have been meeting regularly with the property owner and their consultants to coordinate all aspects of development between their onsite project and our Capital Improvement Projects to ensure the needs are met for the current and future development so there is no need to cut the road in the future once these CIP projects are complete.

Please let me know if you have any questions.

Lorrie Linnert
Engineering Project Manager
Department of Public Works | City Engineering Division
702-229-6738
495 S Main St, 5th Floor | Las Vegas, NV 89101
lasvegasnevada.gov

Your opinion is important! Click here to take a short survey.

REVISED FEE SCHEDULE FOR LVMC TITLE 13 AND CHAPTER 11.50
(ADOPTED PURSUANT TO LVMC 13.40.050)
(Revised April 2004)

FEE DESCRIPTION	FEE AMOUNT
MAP, PLAN & PERMIT-RELATED FEES	**PER ITEM AS STATED**
Final map processing fee (basic)	$100 per map
Additional (per lot) final map processing fee	$10 per lot
Fee for application to deviate from standard (basic)	$250 per application
Additional fee for deviation from standard	$50 per deviation
Plan check fee for initial submittal	1.25% of approved bond estimate (with a $500 minimum for a commercial project or residential subdivision, and a $100 minimum for a single residence)
Plan check fee for any resubmittal to make required corrections if made later than one year following notification or if plans have been substantially redesigned	1.25% of approved bond estimate (with a $500 minimum for a commercial project or residential subdivision, and a $100 minimum for a single residence)
Express civil plan check application fee	$300 per application
Express civil plan check hourly fee	$600 per hour (1 hour minimum)
Plan revision fee	$100 per sheet affected by revisions
Plan replot fee	$200 per sheet (includes associated plan revision fee)
Minor excavation permit fee (for excavations affecting at most one traffic lane or 20 feet longitudinally)	$50 per request
Flood zone determination fee	$20 per determination
INSPECTION FEES	**PER ITEM AS STATED**
Inspection fee (fee for first $25,000 of approved estimate)	3% of approved estimate amount for first $25,000 (with a $150 minimum for a commercial project or residential subdivision, and a $50 minimum for a single residence
Inspection fee (additional fee for approved estimate amount in excess of $25,000, up to $100,000)	2.75% of approved estimate amount in excess of $25,000, up to $100,000)
Inspection fee (additional fee for approved estimate amount in excess of $100,000)	1.5% of approved estimate amount in excess
Reinspection fee	$100 per reinspection
Retest fee	$100 per retest

SPECIAL DOCUMENT FEES	PER ITEM AS STATED
Improvement agreement fee	$100 per agreement
Bond assumption fee	$250 per replacement bond
Bond reduction fee	$150 per reduction
Covenant running with land fee	$150 per application
Encroachment fee	$25 per encroachment
TECHNICAL, STUDIES FEES (INCLUDING WITHOUT LIMITATION DRAINAGE/FLOOD STUDIES, TRAFFIC IMPACT ANALYSIS)	**PER SUBMITTAL OR RESUBMITTAL**
Master technical study review fee	$1000 for master traffic impact analysis, $400 for other
Fee for update/revision/amendment to approved master technical study	$400
Individual technical study review fee	$400 for drainage/flood study; $300 for traffic impact analysis
Fee for update/revision/amendment to approved individual technical study	$100
TRAFFIC BARRICADE-RELATED FEES	**PER ITEM AS STATED**
Traffic barricade plan permit fee	$50 per plan or review
Traffic barricade plan renewal fee	$100 per renewal
Fee for noncompliance with traffic barricade plan (basic)	$100 per day per noncompliance
Fee for noncompliance with traffic barricade plan (additional fee, per unit of equipment)	$10 per unit per day
Fee for placement of traffic barricades by City	Cost as determined by City
RIGHT-OF-WAY CONSTRUCTION-RELATED FEES	**PER ITEM AS STATED**
Fee for failure to obtain permit for work in right-of-way	$100 per day per noncompliance, plus double the plan check fees and inspection fees described above
Fee for failure to comply with permit for work in right-of way	$100 per day per noncompliance
Roadway/sidewalk lane rental (arterial right-of-way)	$100 per lane per cumulative week (calculated using the formula identified by the asterisk below)
Roadway/sidewalk lane rental fee (collector right-of-way)	$75 per lane per cumulative week (calculated using the formula identified by the asterisk below)
Roadway/sidewalk lane rental fee (residential right-of-way)	$50 per lane per cumulative week (calculated using the formula identified by the asterisk below)

*(0.5n(n+1))ab, where n=Number of weeks, a=Land rental fee, b=Number of lanes

POGGEMEYER
DESIGN GROUP

July 3, 2020

Albert Sung, P.E.
Flood Control Project Engineer
City of Las Vegas
Department of Public Works
333 N. Rancho Drive 7th Floor
Las Vegas, NV 89106

RE: Medical Education Building (AT SHADOW LN. & PINTO LN.)
ADDENDUM NO. 1 TO THE TECHNICAL DRAINAGE STUDY
CLV PERMIT NUMBER: DS5287

Dear Mr. Sung:

Enclosed are one copy and one CD containing a PDF version of the Medical Education Building Addendum 1 for your review. All items on the CD match the paper versions bound into the study. The proposed 9.11 +/- acre site is located on the southeast corner of Pinto Lane and Shadow Lane.

If there are any questions or additional information that is necessary, please contact our office at 702.255.8100

Sincerely,

Poggemeyer Design Group, Inc.

Adam Black, P.E.
Project Engineer

Karina Barragan
Designer

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Medical Education Building Date: July 3, 2020

Location of Development: a) Descriptive (Cross Streets) North/South: Shadow Lane

East/West: Pinto Lane

b) Section: 33 Township: 20S Range: 61E

c) APN : 139-33-305-020

Name of Owner: Nevada Health and Bioscience Asset Corp/C.O TSK

Telephone No.: 702.453.3000 Fax No.: E-Mail Address: wkimsey@tska.com

Address: 314 S. Water Street Henderson, NV 89015

Contact Person-Name: Adam Black, P.E. **Telephone No.:** 702-255-8100

* **E-Mail Address:** ablack@poggemeyer.com **Fax No.:** (702) 255-8375

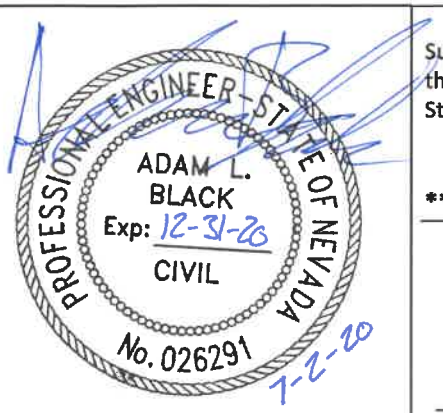
Firm: Poggemeyer Design Group, Inc.

Address: 6960 Smoke Ranch Road, Suite 110, Las Vegas, NV 89128

Type of Land Development/Land Disturbance Process:

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

1. Total Owned Land Area: At Site: 9.11+/- Acres Being Developed/Disturbed: 6.66 +/- Acres
2. Is a portion or all of the subject property located in a designated FEMA Flood Hazard Area? ☐ **Yes**** ☒ **No**
3. Is the property bordered or crossed by an existing or proposed Clark County Regional Flood Control District Master Planned Facility? ☐ **Yes**** ☒ **No**
4. Proposed type of development (Residential, Commercial, Etc.): medical building
5. Approximate upstream land area which drains to the subject site: 70 +/- Acres
6. Has the site drainage been evaluated in the past? ☒ **YES** ☐ **NO** If yes, please identify documentation: Previously the site evaluated under Las Vegas Central Neighborhood Flood Control MPU
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: The site will drain via surface flow to Shadow Lane and Pinto Lane. A portion of the site will drain to a proposed onsite storm drain system.
8. Briefly describe your proposed schedule for the subject project: ASAP



Engineer's Seal

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

*New Required Field

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

Revision	Date

DS5287

Local Entity File No.

REFERENCE:

STANDARD FORM 1

Updated 05/01/2008

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: June 11, 2020
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: **Medical Education Building at Shadow & Pinto**			**COPIES TO:** Poggemeyer Design Group
Cross Streets:	SEC of Shadow Lane & Pinto Lane			Nevada Health & Bioscience Asset
File Number:	F:\Depot\DSMemos\DS5287A.doc			Bart Anderson, P.E., DevCo
Parcel Number:	139-33-305-020			
Zoning Action:	SDR-XXXXX			
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	5/28/2020	6/10/2020	See Comments Below	$400.00	3880090
			TOTAL FEES (LDDRS):	**$400.00**	**----**

REMARKS:

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

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

1. Provide a copy of the zoning/planning conditions associated with this site (**SDR-XXXXX**) with the next submittal to verify compliance with conditions. *Flood Control* will not issue conditional approval of the drainage study without the associated zoning/planning conditions (issued by the *City Council*). Any associated conditions of approval that revise the site drainage parameters will require that the drainage study be revised and resubmitted.

2. Sites with a grade difference of 2 feet above or below existing are required to have approval from the *City Planning and Development Department*. The engineer must submit copies of the grading plans and detail sheet with a letter justifying the grade difference to the *City Planning Department* (229-6301). The engineer must provide Planning approval with the next submittal.

3. The finished floor elevation of the proposed *MEB Building* is lower than the corresponding street elevations of *Shadow Lane* and *Pinto Lane*. Provide a minimum 2'-high stem/flood wall at the back of sidewalk in both perimeter streets for flood protection. Review and revise accordingly.

4. Per **Figure 7 (Developed Condition Basin Map)**, the 100-year flow depth at the driveway entrance in *Pinto Lane* is 0.75'. It appears that the loading ramp on the east side of the building will be inundated once a proposed TC49.80 at the curb return is breached. The first 40' (approx.) of the driveway must be raised to provide a six-inches freeboard to protect the onsite from flood inundation. Address and resolve in the next submittal.

5. The subject project proposed to connect an onsite storm drain system to a local storm drain in *Pinto Lane* under the City Capital Improvement project of *Shadow Lane Improvement Plans (W. Charleston Blvd. to Alta Dr.)*. Coordinate with Mr. Lyle Wilcox, Engineering Project Manager of the capital improvement project for review and comment. Obtain Mr. Wilcox's approval of the connection prior to the final approval of the subject drainage study.

6. *City of Las Vegas* does not allow HDPE pipe in public right-of-ways or public drainage easements. Note that *City of Las Vegas* only allows the use of HDPE storm drain pipes for privately owned and privately maintained storm drain systems which serve and are located exclusively on private properties. Any proposed HDPE storm drain pipes must also meet all design criteria established by the *Clark County Regional Flood Control District* and must be installed per *Clark County Regional Transportation Commission Uniform Standard Drawings and Specifications*.

7. The overall parking lot improvement area is larger than 1 acre. Per ***Section 1500*** of the *Clark County Regional Flood Control District's Hydrologic Criteria and Drainage Design Manual*, the subject improvements must provide for Low Impact Development (LID) measures. Review and address the issue in the next submittal.

8. Provide a note on the grading plans: All Onsite Storm Drains and the Associated Facilities are Privately Owned and to be Privately Maintained by the Property Owner.

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

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

Sample Letter to certify CD.pdf

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

END OF REMARKS
ays

T/R/S: T20S/R61E/33
AREA M-33

TECHNICAL DRAINAGE STUDY
ADDENDUM 1
FOR
MEDICAL EDUCATION BUILDING
(AT SHADOW LN. & PINTO LN.)

(PDG LV20040)

JULY 2, 2020

PREPARED FOR:

TATE SNYDER KIMSEY
314 S. WATER STREET
HENDERSON, NV 89015

PREPARED BY:

POGGEMEYER DESIGN GROUP, INC.
6960 SMOKE RANCH ROAD
SUITE 110
LAS VEGAS, NEVADA 89128

POGGEMEYER
DESIGN GROUP

July 2, 2020

City of Las Vegas
Department of Public Works
333 N. Rancho Drive 7th Floor
Las Vegas, NV 89106

ATTN: **Mr. Albert Sung, P.E.**
Flood Control Project Engineer

RE: **Medical Education Building (AT SHADOW LN. & PINTO LN.)**
ADDENDUM NO. 1 TO THE TECHNICAL DRAINAGE STUDY
CLV PERMIT NUMBER: DS5287
PDG PROJECT NUMBER: LV20040

Dear Mr.Sung:

We have received and incorporated your comments on our technical drainage study submittal for the above-mentioned project. Below are the comments received and our responses thereto:

---

1) Provide a copy of the zoning/planning conditions associated with this site **(SDR-XXXXX)** with the next submittal to verify compliance with conditions. *Flood Control* will not issue conditional approval of the drainage study without the associated zoning/planning conditions (issued by the City Council). Any associated conditions of approval that revise the site drainage parameters will require that the drainage study be revised and resubmitted.

   Response: **Noted. The zoning/planning conditions associated with this site is 78840-SDR1. Please contact Mr. Fred Solis at Zoning and Planning Department with any questions.**

2) Sites with a grade difference of 2 feet above or below existing are required to have approval from the *City Planning and Development Department*. The engineer must submit copies of the grading plans and detail sheet with a letter justifying the grade difference to the *City Planning Department* (229-6301). The engineer must provide Planning approval with the next submittal.

   Response: **Noted. A letter justifying the grade difference between the existing and proposed grade has been submitted to *City Planning and Development Department* for review and approval. Included with the letter are grading plans and detail sheets. Copy of the letter can be found in Appendix C.**

3) The finished floor elevation of the proposed *MEB Building* is lower than the corresponding street elevations of *Shadow Lane* and *Pinto Lane*. Provide a minimum 2'-high stem/flood wall at the back of sidewalk in both perimeter streets for flood protection. Review and revise accordingly/

Response: The building is flood proof 2-ft above the finish floor for flood protection instead of the 2-ft high stem/flood wall. Please refer to the grading plans for review.

4) Per **Figure 7 (Developed Condition Basin Map)**, the 100-year flow depth at the driveway entrance in *Pinto Lane* is 0.75'. It appears that the loading ramp on the east side of the building will be inundated once a proposed TC49.80 at the curb return is breached. The first 40' (approx.) of the driveway must be raised to provide a six-inches freeboard to protect the onsite from flood inundation. Address and resolve in the next submittal.

Response: The driveway entrance on Pinto Lane has been raised to provide six-inches of freeboard to protect the site from flood inundation. Please refer to the grading plan sheets for review.

5) The subject project proposed to connect an onsite storm drain system to a local storm drain in *Pinto Lane* under the City Capital Improvement project of *Shadow Lane Improvement Plans (W. Charleston Blvd. to Alta Dr.)*. Coordinate with Mr. Lyle Wilcox, Engineering Project Manager of the capital improvement project for review and comment. Obtain Mr. Wilcox's approval of the connection prior to the final approval of the subject drainage study.

Response: Noted. PDG is coordinating with Mr. Lyle Wilcox for approval of proposed onsite 24-in RCP connection to the 42-in RCP storm drain in Pinto Lane. Per Mr. Wilcox's request, PDG is also coordinating with VTN Nevada and Horrock.

6) *City of Las Vegas* does not allow HDPE pipe in public rights-of-way or public drainage easements. Note that *City of Las Vegas* only allows the use of HDPE storm drainpipes for privately owned and privately maintained storm drain systems which serve and are located exclusively on private properties. Any proposed HDPE storm drainpipes must also meet all design criteria established by the *Clark County Regional Flood Control District* and must be installed per *Clark County Regional Transportation Commission Uniform Standard Drawings and Specifications*.

Response: Noted. All proposed storm drain system callouts have been revised to RCP.

7) The overall parking lot improvement area is larger than 1 acre. Per **Section 1500** of the *Clark County Regional Flood Control District's Hydrologic Criteria and Drainage Design Manual,* the subject improvements must provide for Low Impact Development (LID) measures. Review and address the issue in the next submittal.

Response: **Per Section 1500 of the HC&DDM, PDG has provided an exhibit showing connected and disconnected areas, to show over 75% treatment of the proposed parking area. Please refer to Figure 9 in Appendix A for review.**

8) Provide a note on the grading plans: All Onsite Storm Drains and the Associated Facilities are Privately Owned and to be Privately Maintained by the Property Owner.

Response: **The note for all onsite storm drains and associated facilities has been added to say *Privately Owned and Privately Maintained by the Property Owner*. Please refer to the grading sheets for review.**

Included are revised plans for your review and approval; please feel free to contact us with any questions at (702) 255-8100.

Respectfully Submitted,

POGGEMEYER DESIGN GROUP, INC.

Adam Black, P.E.
Project Engineer

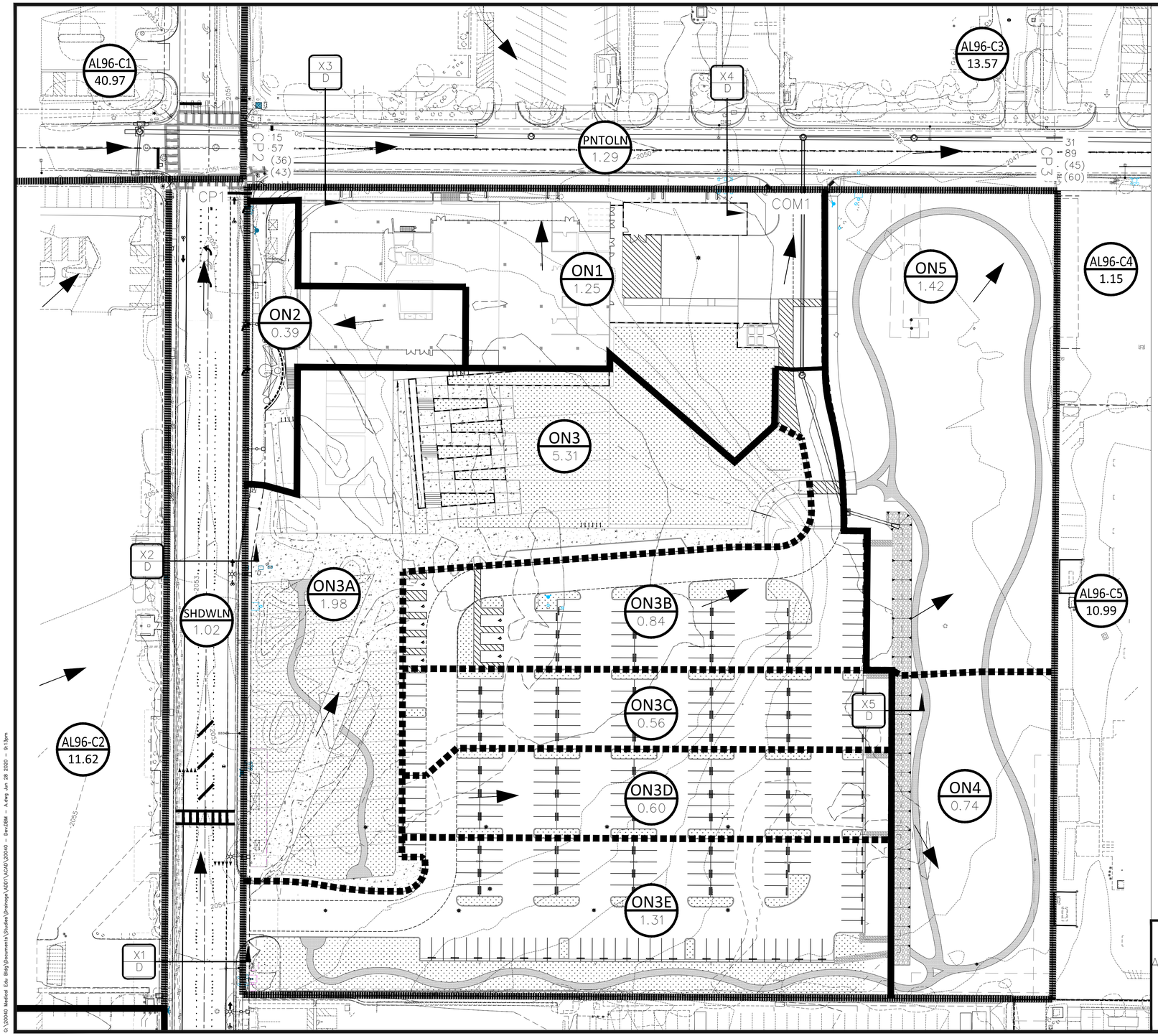
Karina Barragan
Designer

APPENDIX A

HYDROLOGIC ANALYSES

- FIGURES
- CURVE NUMBER CALCULATIONS
- STANDARD FORM 4
- HEC-1 MODEL – DEVELOPED CONDITION

FIGURES



Developed - Onsite & Offsite Flow Rates

Flow Node	Q10 (cfs)	Q100 (cfs)	Remarks
AL96-C1	38	75	Offsite pro-rated basin draining east on Pinto Lane
AL96-C2	11	22	Offsite pro-rated basin draining north on Shadow Lane
SHDWLN	1	2	Shadow Lane draining north towards Pinto Lane
ON2	1	1	Onsite basin draining to Shadow Lane
CP1*	13	25	Combined AL96-C2, SHDWLN and ON2
CP2*	51	100	Combined AL96-C1 and CP1
ON3	9	17	Onsite basin draining to Shadow Lane
ON1	2	4	Onsite basin draining to Shadow Lane
COM1	11	21	Combined onsite basins ON3 and ON1
ON5	1	3	Onsite basin draining to Shadow Lane
AL96-C3	13	25	Offsite basin north of Pinto Lane draining east on Pinto Lane
CP3*	76	149	Combined CP2, AL96-C1X, AL96-C3
AL96-C4	6	11	Offsite basin east of project site draining east on Pinto Lane towards MLK
CP4*	82	160	Combined CP3 and AL96-C4 - Total flow at Pinto Lane and MLK
AL96-C5	10	19	Offsite pro-rated basin draining to MLK
ON4	1	1	Onsite basin draining to MLK
MLK	3	7	Martin Luther King draining north
CP5*	14	27	Combined AL96-C5 and MLK

Note: All offsite basins were pro-rated based upon the Las Vegas Central Neighborhood Flood Control MPU

**Flow algebraically added*

Pro-rated Flow Onsite Basin

Basin	Q10 (cfs)	Q100 (cfs)	Area (ac)	Q10 Unit Flow (cfs/ac)	Q100 Unit Flow (cfs/ac)	Roof Drains Sub-Basin	Area (ac)	Q10 (cfs)	Q100 (cfs)
ON3	9	17	5.31	1.69	3.20	ON3A	1.98	3	6
	9	17	5.31	1.69	3.20	ON3B	0.84	1	3
	9	17	5.31	1.69	3.20	ON3C	0.56	1	2
	9	17	5.31	1.69	3.20	ON3D	0.60	1	2
	9	17	5.31	1.69	3.20	ON3E	1.31	2	4

Developed Depth of Flow Summary - Onsite & Offsite

Section	Slope (%)	Q10/Q100 (cfs)	V10/V100 (fps)	D10/D100 (ft)	DV10/DV100	REMARKS
X1/D	0.60	11/22	2.32/2.3	0.53/0.63	1.2/1.4	Shadow Lane Basin AL96-C2
X2/D	0.43	13/25	1.9/2.14	0.48/0.58	0.9/1.2	Shadow Lane at CP1
X3/D	0.55	15/57	2.18/3.21	0.49/0.7	1.1/2.2	Pinto Lane at CP2 minus facility flow
X4/D	0.94	31/89	3.15/4.55	0.58/0.77	1.8/3.5	Pinto Lane at CP3 minus facility flow
X5/D	2.00	*/11	*/3.27	*/0.82	*/2.7	Parkng lot flow rate



GRAPHIC SCALE

200 0 100 200 400

(IN FEET)
1 inch = 200ft.
(SCALE VALID AT FULL-SIZE, 24X36, ONLY)

LEGEND

ON1 / 2.00	BASIN ID./AREA (AC)
CP1	CONCENTRATION POINT ID
	FLOW PATH
X1 / D	HYDRAULIC SECTION CONDITION
	BASIN BOUNDARY PRORATED BASIN BOUNDARY
10 100 (10) (100)	10-YEAR STREET FLOW 100-YEAR STREET FLOW 10-YEAR FACILITY FLOW 100-YEAR FACILITY

MEDICAL EDUCATION BUILDING
AT SHADOW LANE & PINTO LANE

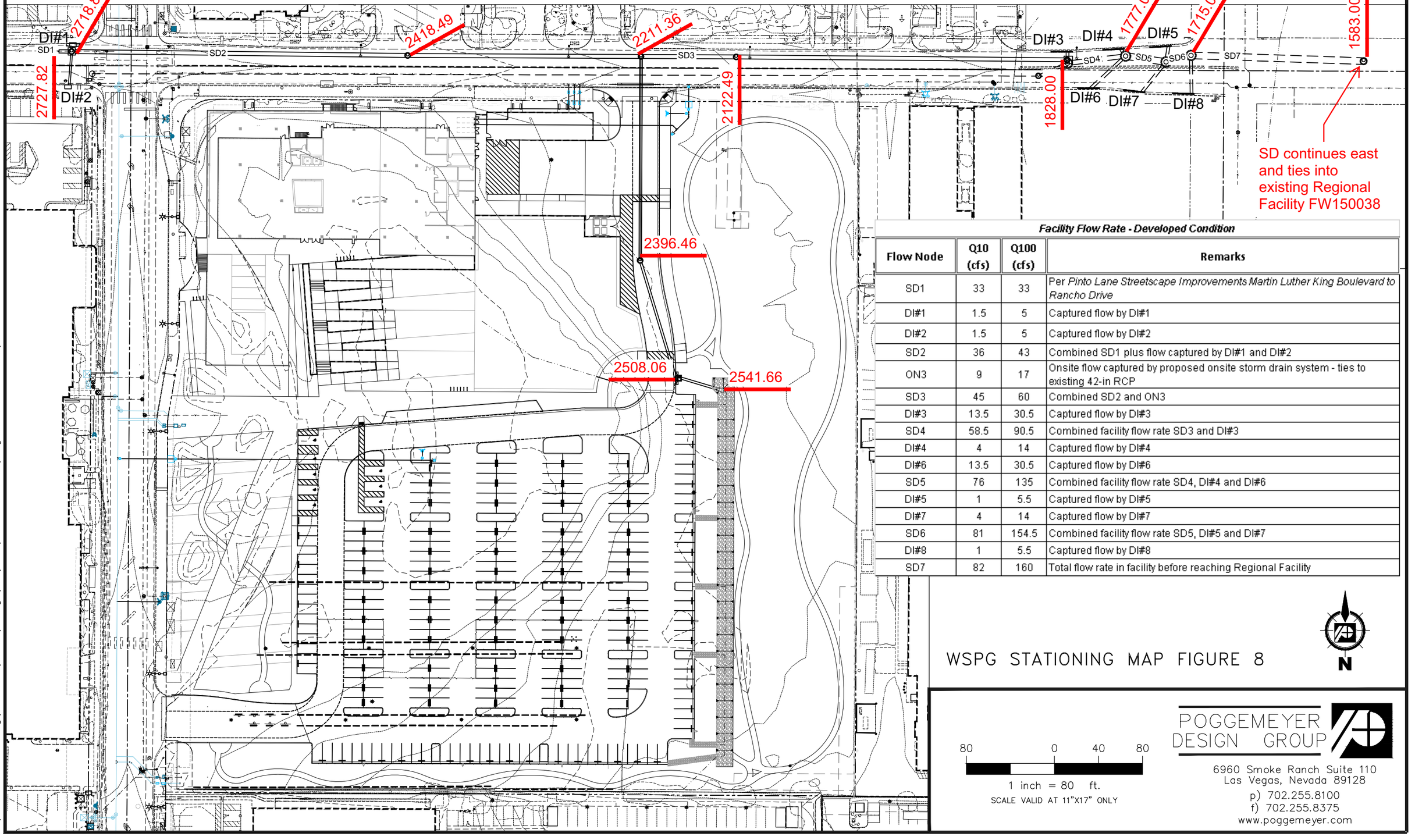
FIGURE 7
DEVELOPED CONDITION
BASIN MAP

POGGEMEYER DESIGN GROUP
6960 Smoke Ranch Suite 110
Las Vegas, Nevada 89128
p) 702.255.8100
f) 702.255.8375
www.poggemeyer.com

G:\20040 Medical Edu. Bldg\Documents\3Studies\3Drainage\4DR1\4CAD\20040 - Dev.DRM - A.dwg Jun 29, 2020 - 9:13pm

MEDICAL EDUCATION BUILDING

LAS VEGAS/CLARK COUNTY, NV



Facility Flow Rate - Developed Condition

Flow Node	Q10 (cfs)	Q100 (cfs)	Remarks
SD1	33	33	Per *Pinto Lane Streetscape Improvements Martin Luther King Boulevard to Rancho Drive*
DI#1	1.5	5	Captured flow by DI#1
DI#2	1.5	5	Captured flow by DI#2
SD2	36	43	Combined SD1 plus flow captured by DI#1 and DI#2
ON3	9	17	Onsite flow captured by proposed onsite storm drain system - ties to existing 42-in RCP
SD3	45	60	Combined SD2 and ON3
DI#3	13.5	30.5	Captured flow by DI#3
SD4	58.5	90.5	Combined facility flow rate SD3 and DI#3
DI#4	4	14	Captured flow by DI#4
DI#6	13.5	30.5	Captured flow by DI#6
SD5	76	135	Combined facility flow rate SD4, DI#4 and DI#6
DI#5	1	5.5	Captured flow by DI#5
DI#7	4	14	Captured flow by DI#7
SD6	81	154.5	Combined facility flow rate SD5, DI#5 and DI#7
DI#8	1	5.5	Captured flow by DI#8
SD7	82	160	Total flow rate in facility before reaching Regional Facility

WSPG STATIONING MAP FIGURE 8

N

80 0 40 80

1 inch = 80 ft.

SCALE VALID AT 11"X17" ONLY

POGGEMEYER DESIGN GROUP

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Las Vegas, Nevada 89128
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G:\20040 Medical Edu Bldg\Documents\Studies\Drainage\TDS\ACAD\FIGB_WSPG STA Map.dwg Jun 28 2020 - 5:39pm



Disconnected (Treated) Area

Connected (Untreated) Area

LID Calculations

Parking Lot Area (ac)	Disconnected Area (ac)	Connected Area (ac)	Treated Area (%)	LID>75%
3.44	3.31	0.13	96.2	YES

N

W E

S

GRAPHIC SCALE

200 0 50 100 200

(IN FEET)
1 inch = 100ft.
(SCALE VALID AT FULL-SIZE, 24X36, ONLY)

LEGEND

ON1 2.00	BASIN ID./AREA (AC)
→	FLOW PATH
	BASIN BOUNDARY
	PRORATED BASIN BOUNDARY

MEDICAL EDUCATION BUILDING
AT SHADOW LANE & PINTO LANE

FIGURE 9

PARKING LOT LOW IMPACT DEVELOPMENT

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G:\20040 Medical Edu. Bldg\Documents\3Studies\2preliminary\AS01\AS-01.dwg Jun 28, 2020 - 8:07pm

CURVE NUMBER CALCULATIONS

Composite Curve Numbers - Developed Condition

SUB-AREA (%)	SOIL TYPE	COVER TYPE	BASIN NAME	HSG (%) A	HSG (%) B	HSG (%) C	HSG (%) D	CN A	CN B	CN C	CN D	AREA (ac)	SUB-AREA (ac)	CN	Composite CN
100	390	Impervious	ON1	0.0	0.0	100.0	0.0	98.0	98.0	98.0	98.0	1.25	1.25	98.0	98.0
			TOTAL										1.25		
SUB-AREA (%)	**SOIL TYPE**	**COVER TYPE**	**BASIN NAME**	**HSG (%) A**	**HSG (%) B**	**HSG (%) C**	**HSG (%) D**	**CN A**	**CN B**	**CN C**	**CN D**	**AREA (ac)**	**SUB-AREA (ac)**	**CN**	**Composite CN**
100	390	Impervious	ON2	0.0	0.0	100.0	0.0	98.0	98.0	98.0	98.0	0.39	0.39	98.0	98.0
			TOTAL										0.39		
SUB-AREA (%)	**SOIL TYPE**	**COVER TYPE**	**BASIN NAME**	**HSG (%) A**	**HSG (%) B**	**HSG (%) C**	**HSG (%) D**	**CN A**	**CN B**	**CN C**	**CN D**	**AREA (ac)**	**SUB-AREA (ac)**	**CN**	**Composite CN**
100	390	Impervious	ON3	0.0	0.0	100.0	0.0	98.0	98.0	98.0	98.0	5.31	5.31	98.0	98.0
			TOTAL										5.31		
SUB-AREA (%)	**SOIL TYPE**	**COVER TYPE**	**BASIN NAME**	**HSG (%) A**	**HSG (%) B**	**HSG (%) C**	**HSG (%) D**	**CN A**	**CN B**	**CN C**	**CN D**	**AREA (ac)**	**SUB-AREA (ac)**	**CN**	**Composite CN**
100	390	Desert Landscape	ON4	0.0	0.0	100.0	0.0	63.0	77.0	85.0	88.0	0.74	0.74	85.0	85.0
			TOTAL										0.74		
SUB-AREA (%)	**SOIL TYPE**	**COVER TYPE**	**BASIN NAME**	**HSG (%) A**	**HSG (%) B**	**HSG (%) C**	**HSG (%) D**	**CN A**	**CN B**	**CN C**	**CN D**	**AREA (ac)**	**SUB-AREA (ac)**	**CN**	**Composite CN**
100	390	Desert Landscape	ON5	0.0	0.0	100.0	0.0	63.0	77.0	85.0	88.0	1.42	1.42	85.0	85.0
			TOTAL										1.42		

STANDARD FORM 4

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

TIME OF CONCENTRATION

poggemeyer design group, inc.

Project

Medical Education Building

EXISTING AND DEVELOPED CONDITION

CALCULATED BY : KB

DATE: 6/29/20

Project No. 20-040

SUB-BASIN DATA						INITIAL / OVERLAND TIME (Ti)			TRAVEL TIME (Tt)					Tc CHECK URBANIZED BASINS		Tc	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)	TOTAL LENGTH Ft (11)	Tc = (L/180)+10 Min (12)	Min (13)	Tlag= 0.6Tc/60 Hours	P10/P100
DEVELOPED CONDITION																		
ON1	**D**	**98.0**	0.9036	1.25	**0.00196**	60.0	2.00	2.17	340	0.54	1.48	2.25	3.82	400	12.2	6.0	**0.060**	1.58/2.77
ON2	**D**	**98.0**	0.9036	0.39	**0.00061**	88.5	2.00	2.64	224	0.50	1.43	2.16	2.61	313	11.7	5.3	**0.053**	1.58/2.77
ON3	**D**	**98.0**	0.9036	5.31	**0.00830**	40.0	1.00	2.24	646	0.50	1.43	2.16	6.96	686	13.8	9.2	**0.092**	1.58/2.77
ON4	**D**	**85.0**	0.7320	0.74	**0.00115**	98.5	1.50	5.74	590	0.37	1.23	1.86	7.59	688	13.8	13.3	**0.133**	1.58/2.77
ON5	**D**	**85.0**	0.7320	1.42	**0.00222**	80.0	1.25	5.50	167	0.90	1.92	2.90	1.45	247	11.4	7.0	**0.070**	1.58/2.77

Tc = Ti + Tt Tlag = 0.6 Tc MF = Multi-Family

Ti = 1.8 (1.1 - K) L^1/2 / S^1/3 Pave = Pavement

K = 0.0132 (CN) - 0.39 SF = Single-Family

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 § 602.1

Existing V2 = 29.4*(S/100)^1/2

Developed V1 = 20.2*(S/100)^1/2 § 602.1

Developed V2 = 30.6*(S/100)^1/2

REFERENCE :

STANDARD FORM 4

HEC-1 MODEL

DEVELOPED CONDITION

```
1****************************************                    ****************************************
 *                                      *                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                    *   U.S. ARMY CORPS OF ENGINEERS       *
 *              JUN   1998              *                    *   HYDROLOGIC ENGINEERING CENTER      *
 *           VERSION 4.1                *                    *         609 SECOND STREET            *
 *                                      *                    *      DAVIS, CALIFORNIA 95616         *
 *  RUN DATE   28JUN20  TIME  15:47:18  *                    *          (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
            1           ID           POGGEMEYER DESIGN GROUP
            2           ID
            3           ID           MEDICAL EDICATION BUILDING
            4           ID
            5           ID             HEC1 FILE: MEBD.DAT
            6           ID           OUTPUT FILE: MEBD.OUT
            7           ID
            8           ID
            9           ID           DEVELOPED CONDITION ONSITE & OFFSITE 10- AND 100-YEAR
           10           ID
           11           ID        ***********************************************************
           12           ID        *       DEPTH-DURATION-FREQUENCY VALUE = 2.77 INCHES    *
           13           ID        *       DEPTH-AREA REDUCTION VALUE = 0.00               *
           14           ID        *       STORM DISTRIBUTION #3                           *
           15           ID        *       ABSTRACTION METHOD: SCS CN                      *
           16           ID        *       HYDROLOGIC METHOD: SCS UH                       *
           17           ID        *       ROUTING METHOD: MUSKINGUM CUNGE                 *
           18           ID        *       RATIO 1 = 10 YEAR EVENT         1.58"           *
           19           ID        *       RATIO 2 = 100 YEAR EVENT        2.77"           *
           20           ID        ***********************************************************
           21           ID
           22           ID
           23           ID
           24           IT       5       0       0     300
           25           IN       5       0       0
           26           IO       5       0       0
           27           JR    PREC    0.57    1.00

           28           KK     ON1
           29           KM   ONSITE BASIN DRAINING TO PINTO LANE
           30           PB    2.77
           31           PC   0.000   0.020   0.057   0.070   0.087   0.108   0.124   0.130   0.130   0.130
           32           PC   0.130   0.130   0.130   0.133   0.140   0.142   0.148   0.158   0.172   0.181
           33           PC   0.190   0.197   0.199   0.200   0.201   0.204   0.214   0.229   0.241   0.249
           34           PC   0.251   0.256   0.270   0.278   0.281   0.283   0.295   0.322   0.352   0.409
           35           PC   0.499   0.590   0.710   0.744   0.781   0.812   0.819   0.835   0.851   0.856
           36           PC   0.860   0.868   0.876   0.888   0.910   0.926   0.937   0.950   0.970   0.976
           37           PC   0.982   0.985   0.987   0.989   0.990   0.993   0.993   0.994   0.995   0.998
           38           PC   0.998   0.999   1.000
           39           BA  .00196
           40           LS       0    98.0
           41           UD   0.060
                        *

           42           KK     ON2
           43           KM   ONSITE BASIN DRAINING TO SHADOW LANE
           44           BA  .00061
           45           LS       0    98.0
           46           UD   0.053
                        *
```

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

             47          KK     ON3
             48          KM   ONSITE BASIN DRAINING TO PINTO LANE
             49          BA  .00830
             50          LS       0    98.0
             51          UD   0.092
                         *
             52          KK     ON4
             53          KM   ONSITE BASIN DRAINING TO MLK
             54          BA  .00115
             55          LS       0    85.0
             56          UD   0.133
                         *
             57          KK     ON5
             58          KM   ONSITE BASIN DRAINING TO MLK
             59          BA  .00222
             60          LS       0    85.0
             61          UD   0.070
                         *
             62          ZZ
1
                 SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

    28         ON1
                 .
                 .
    42           .         ON2
                 .           .
                 .           .
    47           .           .         ON3
                 .           .           .
                 .           .           .
    52           .           .           .         ON4
                 .           .           .           .
                 .           .           .           .
    57           .           .           .           .         ON5

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************                                    ****************************************
 *                                      *                                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                    *    U.S. ARMY CORPS OF ENGINEERS      *
 *               JUN   1998             *                                    *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                                    *          609 SECOND STREET           *
 *                                      *                                    *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   28JUN20  TIME  15:47:18  *                                    *           (916) 756-1104             *
 *                                      *                                    *                                      *
 ****************************************                                    ****************************************



                                   POGGEMEYER DESIGN GROUP

                                   MEDICAL EDICATION BUILDING

                                     HEC1 FILE: MEBD.DAT
                                   OUTPUT FILE: MEBD.OUT


                                   DEVELOPED CONDITION ONSITE & OFFSITE 10- AND 100-YEAR

                                  ********************************************************
                                  *       DEPTH-DURATION-FREQUENCY VALUE = 2.77 INCHES    *
                                  *       DEPTH-AREA REDUCTION VALUE = 0.00               *
                                  *       STORM DISTRIBUTION #3                           *
                                  *       ABSTRACTION METHOD: SCS CN                      *
                                  *       HYDROLOGIC METHOD: SCS UH                       *
                                  *       ROUTING METHOD: MUSKINGUM CUNGE                 *
                                  *       RATIO 1 = 10 YEAR EVENT         1.58"           *
                                  *       RATIO 2 = 100 YEAR EVENT        2.77"           *
                                  ********************************************************



   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
                      .57      1.00
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  RATIO 2
                                                         .57     1.00

 HYDROGRAPH AT
+                    ON1       .00     1   FLOW           2.       4.
                                           TIME         3.50     3.50

 HYDROGRAPH AT
+                    ON2       .00     1   FLOW           1.       1.
                                           TIME         3.50     3.50

 HYDROGRAPH AT
+                    ON3       .01     1   FLOW           9.      17.
                                           TIME         3.50     3.50

 HYDROGRAPH AT
+                    ON4       .00     1   FLOW           1.       1.
                                           TIME         3.58     3.58

 HYDROGRAPH AT
+                    ON5       .00     1   FLOW           1.       3.
                                           TIME         3.50     3.50



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

APPENDIX B

HYDRAULIC ANALYSES

- FLOWMASTER OFFSITE & ONSITE DEPTH OF FLOW CALCS – DEVELOPED CONDITION
- RIPRAP ANALYSIS
- HYDRAULIC TOOLBOX – ONSITE DROP INLET CALCULATION
- HYDRAULIC TOOLBOX – OFFSITE DROP INLET CALCULATIONS
- WSPG MODELS
    - MEB
    - MEBL1

FLOWMASTER OFFSITE & ONSITE DEPTH OF FLOW CALCS – DEVELOPED CONDITION

Cross Section for X3/D Pinto Lane Q10

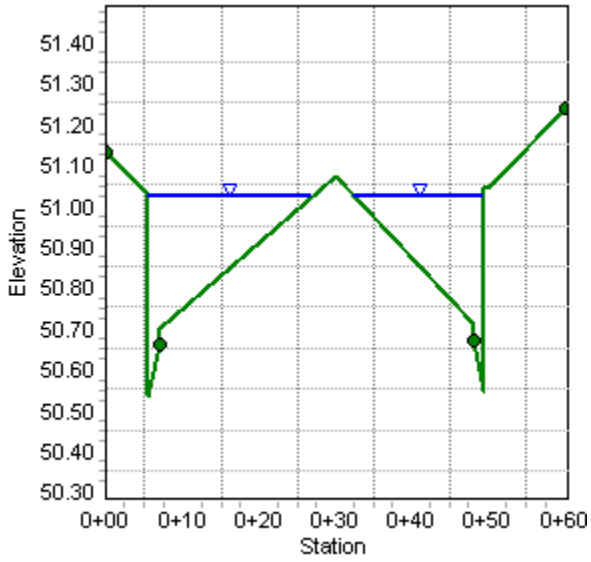
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00550	ft/ft
Normal Depth	0.49	ft
Discharge	15.00	ft³/s

Cross Section Image



Worksheet for X3/D Pinto Lane Q10

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00550	ft/ft
Discharge	15.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	51.13
0+05.00	51.03
0+05.50	51.03
0+05.50	50.53
0+07.00	50.66
0+07.00	50.70
0+30.00	51.07
0+48.00	50.71
0+48.00	50.67
0+49.50	50.54
0+49.50	51.04
0+50.00	51.04
0+60.00	51.24

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 51.13)	(0+07.00, 50.66)	0.013
(0+07.00, 50.66)	(0+48.00, 50.67)	0.016
(0+48.00, 50.67)	(0+60.00, 51.24)	0.013

Options

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

Worksheet for X3/D Pinto Lane Q10

Results

Normal Depth		0.49	ft
Elevation Range	50.53 to 51.24 ft		
Flow Area		6.87	ft²
Wetted Perimeter		39.54	ft
Hydraulic Radius		0.17	ft
Top Width		38.48	ft
Normal Depth		0.49	ft
Critical Depth		0.48	ft
Critical Slope		0.00672	ft/ft
Velocity		2.18	ft/s
Velocity Head		0.07	ft
Specific Energy		0.56	ft
Froude Number		0.91	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.49	ft
Critical Depth	0.48	ft
Channel Slope	0.00550	ft/ft
Critical Slope	0.00672	ft/ft

Messages

Notes

CP2 - (FLOW RATE IN FACILITY)

Cross Section for X3/D Pinto Lane Q100

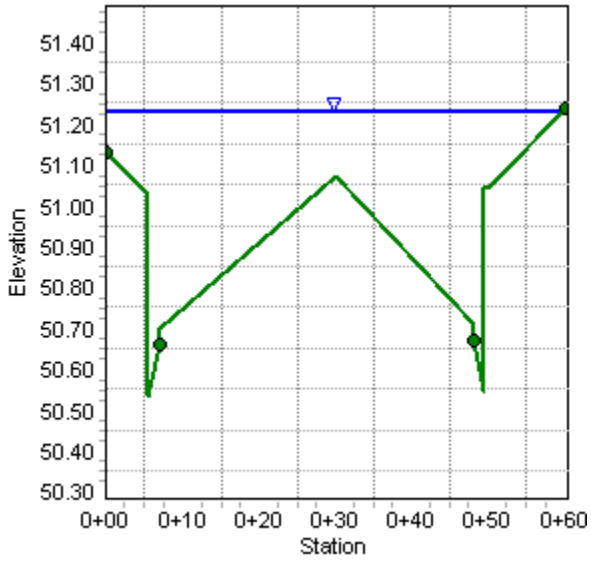
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00550	ft/ft
Normal Depth	0.70	ft
Discharge	57.00	ft³/s

Cross Section Image



Worksheet for X3/D Pinto Lane Q100

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00550	ft/ft
Discharge	57.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	51.13
0+05.00	51.03
0+05.50	51.03
0+05.50	50.53
0+07.00	50.66
0+07.00	50.70
0+30.00	51.07
0+48.00	50.71
0+48.00	50.67
0+49.50	50.54
0+49.50	51.04
0+50.00	51.04
0+60.00	51.24

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 51.13)	(0+07.00, 50.66)	0.013
(0+07.00, 50.66)	(0+48.00, 50.67)	0.016
(0+48.00, 50.67)	(0+60.00, 51.24)	0.013

Options

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

Worksheet for X3/D Pinto Lane Q100

Results

Normal Depth		0.70	ft
Elevation Range	50.53 to 51.24 ft		
Flow Area		17.73	ft²
Wetted Perimeter		60.65	ft
Hydraulic Radius		0.29	ft
Top Width		59.45	ft
Normal Depth		0.70	ft
Critical Depth		0.71	ft
Critical Slope		0.00507	ft/ft
Velocity		3.21	ft/s
Velocity Head		0.16	ft
Specific Energy		0.86	ft
Froude Number		1.04	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.70	ft
Critical Depth	0.71	ft
Channel Slope	0.00550	ft/ft
Critical Slope	0.00507	ft/ft

Messages

Notes

CP2 - (FLOW RATE IN FACILITY)

Cross Section for X4/D PInto Lane Q10

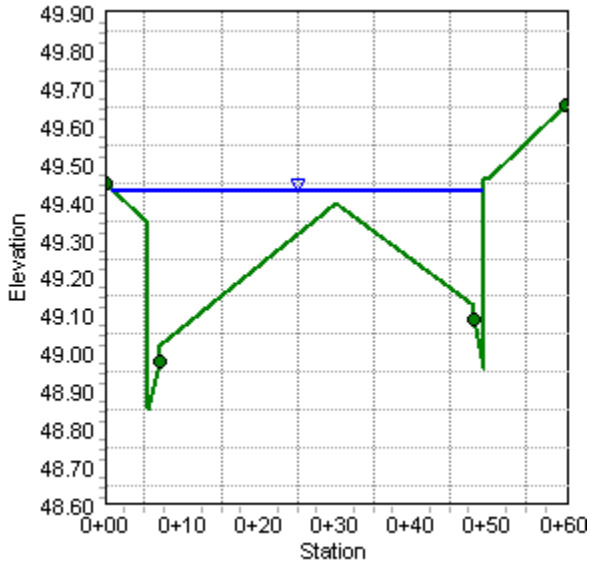
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00940	ft/ft
Normal Depth	0.58	ft
Discharge	31.00	ft³/s

Cross Section Image



Worksheet for X4/D PInto Lane Q10

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00940	ft/ft
Discharge	31.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	49.45
0+05.00	49.35
0+05.50	49.35
0+05.50	48.85
0+07.00	48.98
0+07.00	49.02
0+30.00	49.40
0+48.00	49.13
0+48.00	49.09
0+49.50	48.96
0+49.50	49.46
0+50.00	49.46
0+60.00	49.66

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 49.45)	(0+07.00, 48.98)	0.013
(0+07.00, 48.98)	(0+48.00, 49.09)	0.016
(0+48.00, 49.09)	(0+60.00, 49.66)	0.013

Options

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

Worksheet for X4/D PInto Lane Q10

Results

Normal Depth		0.58	ft
Elevation Range	48.85 to 49.66 ft		
Flow Area		9.84	ft²
Wetted Perimeter		49.81	ft
Hydraulic Radius		0.20	ft
Top Width		48.74	ft
Normal Depth		0.58	ft
Critical Depth		0.62	ft
Critical Slope		0.00592	ft/ft
Velocity		3.15	ft/s
Velocity Head		0.15	ft
Specific Energy		0.74	ft
Froude Number		1.24	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.58	ft
Critical Depth	0.62	ft
Channel Slope	0.00940	ft/ft
Critical Slope	0.00592	ft/ft

Messages

Notes

COM1 + CP2 - (FACILITY FLOW RATE)

Cross Section for X4/D Pinto Lane Q100

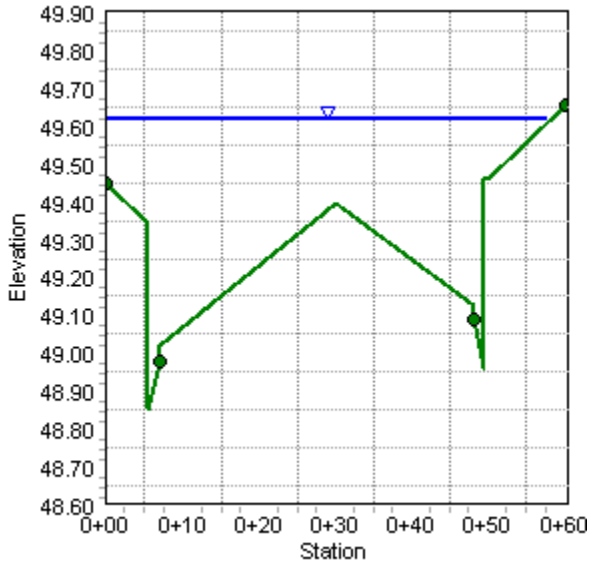
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00940	ft/ft
Normal Depth	0.77	ft
Discharge	89.00	ft³/s

Cross Section Image



Worksheet for X4/D Pinto Lane Q100

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00940	ft/ft
Discharge	89.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	49.45
0+05.00	49.35
0+05.50	49.35
0+05.50	48.85
0+07.00	48.98
0+07.00	49.02
0+30.00	49.40
0+48.00	49.13
0+48.00	49.09
0+49.50	48.96
0+49.50	49.46
0+50.00	49.46
0+60.00	49.66

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 49.45)	(0+07.00, 48.98)	0.013
(0+07.00, 48.98)	(0+48.00, 49.09)	0.016
(0+48.00, 49.09)	(0+60.00, 49.66)	0.013

Options

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

Worksheet for X4/D Pinto Lane Q100

Results

Normal Depth		0.77	ft
Elevation Range	48.85 to 49.66 ft		
Flow Area		19.56	ft²
Wetted Perimeter		59.13	ft
Hydraulic Radius		0.33	ft
Top Width		57.86	ft
Normal Depth		0.77	ft
Critical Depth		0.85	ft
Critical Slope		0.00464	ft/ft
Velocity		4.55	ft/s
Velocity Head		0.32	ft
Specific Energy		1.09	ft
Froude Number		1.38	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.77	ft
Critical Depth	0.85	ft
Channel Slope	0.00940	ft/ft
Critical Slope	0.00464	ft/ft

Messages

Notes

COM1 + CP2 - (FACILITY FLOW RATE)

Cross Section for X5/D - Q100

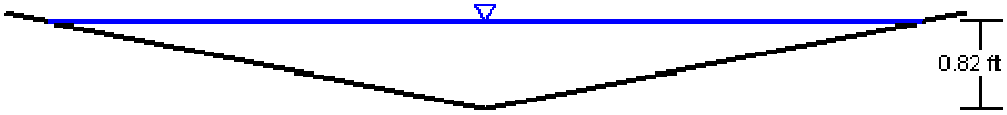
Project Description

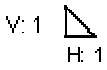
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.035	
Channel Slope	0.02000	ft/ft
Normal Depth	0.82	ft
Left Side Slope	5.00	ft/ft (H:V)
Right Side Slope	5.00	ft/ft (H:V)
Discharge	11.00	ft³/s

Cross Section Image





Worksheet for X5/D - Q100

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.035	
Channel Slope	0.02000	ft/ft
Left Side Slope	5.00	ft/ft (H:V)
Right Side Slope	5.00	ft/ft (H:V)
Discharge	11.00	ft³/s

Results

Normal Depth	0.82	ft
Flow Area	3.36	ft²
Wetted Perimeter	8.36	ft
Hydraulic Radius	0.40	ft
Top Width	8.20	ft
Critical Depth	0.79	ft
Critical Slope	0.02501	ft/ft
Velocity	3.27	ft/s
Velocity Head	0.17	ft
Specific Energy	0.99	ft
Froude Number	0.90	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.82	ft
Critical Depth	0.79	ft
Channel Slope	0.02000	ft/ft
Critical Slope	0.02501	ft/ft

RIPRAP ANALYSIS

Medical Education Building
DITCH
RIPRAP AND ROUGHNESS

These Equations are taken from the *Clark County Regional Flood District Hydrologic Criteria and Drainage Design Manual.*

Roughness Coefficients

The roughness coefficients (n) may be estimated by using:

n = 0.0395*(D50)^(1/6) Eq. 732

D50 = the mean stone size in feet.

Rock Sizing and Lining Dimensions

Riprap lining sizing may be estimated by using:

V = 3*(D50^0.5)*(Ss-1)/(S^0.17) Eq. 734

V = Mean channel velocity in feet per second
S = Longitudinal channel slope in feet per foot
Ss = Specific gravity of rock (Minimum = 2.50)
D50 = Rock size in feet for which 50 percent of the riprap by weight is smaller

Section	V (ft/s)	Ss	S (ft/ft)	D50 (ft)	n	Thickness (ft)
X5/D	4.21	2.5	0.020	0.23	0.031	0.46

The riprap blanket thickness should be at least twice the D50 and should extend up the side slopes at least one foot above the water surface.

Note: D50 sized for 6 inches, with thickness of 12 inches as shown on the enclosed plans.

Cross Section for X5/D - Q100

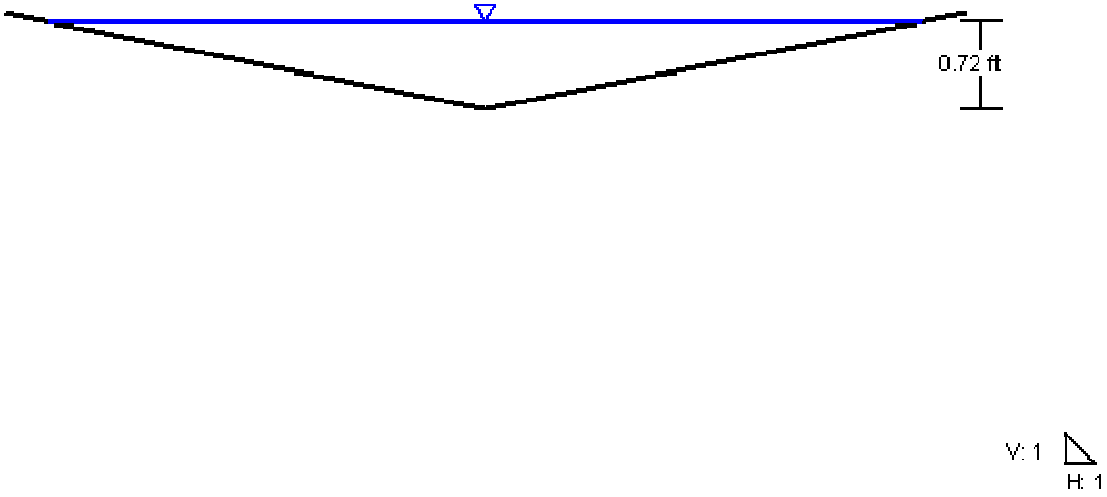
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.025	
Channel Slope	0.02000	ft/ft
Normal Depth	0.72	ft
Left Side Slope	5.00	ft/ft (H:V)
Right Side Slope	5.00	ft/ft (H:V)
Discharge	11.00	ft³/s

Cross Section Image



Worksheet for X5/D - Q100

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.025	
Channel Slope	0.02000	ft/ft
Left Side Slope	5.00	ft/ft (H:V)
Right Side Slope	5.00	ft/ft (H:V)
Discharge	11.00	ft³/s

Results

Normal Depth	0.72	ft
Flow Area	2.61	ft²
Wetted Perimeter	7.37	ft
Hydraulic Radius	0.35	ft
Top Width	7.23	ft
Critical Depth	0.79	ft
Critical Slope	0.01276	ft/ft
Velocity	4.21	ft/s
Velocity Head	0.28	ft
Specific Energy	1.00	ft
Froude Number	1.23	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.72	ft
Critical Depth	0.79	ft
Channel Slope	0.02000	ft/ft
Critical Slope	0.01276	ft/ft

HYDRAULIC TOOLBOX – ONSITE DROP INLET CALCUALTIONS

Hydraulic Analysis Report

Project Data

Project Title: Medical Education Building

Designer:

Project Date: Sunday, June 28, 2020

Project Units: U.S. Customary Units

Notes:

Curb and Gutter Analysis: 4-ft Type A - Onsite DI #1

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0104 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Depressed Gutter Geometry

Cross-Slope of Gutter: 0.0867 ft/ft

Manning's n: 0.0160

Gutter Width: 1.5000 ft

Design Flow: 6.0000 cfs

Gutter Result Parameters

Width of Spread: 13.5364 ft

Gutter Depression: 1.2006 in

Area of Flow: 1.9074 ft^2

Eo (Gutter Flow to Total Flow): 0.3334

Gutter Depth at Curb: 4.4493 in

Inlet Input Parameters

Inlet Location: Inlet in Sag

Percent Clogging: 50.0000 %

Inlet Type: Curb Opening

Length of Inlet: 4.0000 ft

Curb opening height: 6.0000 in

Local Depression: 2.0000 in

Inlet Result Parameters

Perimeter: 6.7000 ft

Effective Perimeter: 3.3500 ft

Area: 2.6667 ft^2

Effective Area: 1.3333 ft^2

Depth at curb face: 1.0347 ft

Computed Width of Spread at Sag: 38.3979 ft

Flow type: Orifice Flow

Efficiency: 1.0000

HYDRAULIC TOOLBOX – OFFSITE DROP INLET ANALYSIS

Hydraulic Analysis Report

Project Data

Project Title: Medical Education Building

Designer:

Project Date: Sunday, May 17, 2020

Project Units: U.S. Customary Units

Notes:

Curb and Gutter Analysis: 5-ft DI#1 Q10

Notes: Flow generated by basin AL96-C1 minus 33-cfs in the storm drain system per VTN CIP project – assumed to divided equally on both sides of the road. To account for 50% clogging factor – the curb opening, and grate was divided in half.

Gutter Input Parameters

Longitudinal Slope of Road: 0.0057 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Depressed Gutter Geometry

Cross-Slope of Gutter: 0.0867 ft/ft

Manning's n: 0.0160

Gutter Width: 1.5000 ft

Design Flow: 2.5000 cfs

Gutter Result Parameters

Width of Spread: 10.6963 ft

Gutter Depression: 1.2006 in

Area of Flow: 1.2191 ft^2

Eo (Gutter Flow to Total Flow): 0.4224

Gutter Depth at Curb: 3.7677 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Sweeper Combo

Grate Type: P - 1-7/8

Grate Width: 1.5000 ft

Grate Length: 1.2500 ft

Length of Inlet: 2.5000 ft

Local Depression: 2.0000 in

Inlet Result Parameters

Intercepted Flow: 1.5469 cfs

Bypass Flow: 0.9531 cfs

Approach Velocity: 1.9402 ft/s

Splash-over Velocity: 6.3519 ft/s

Efficiency: 0.6188

Curb and Gutter Analysis: 5-ft DI#2 Q10

Notes: Flow generated by basin AL96-C1 minus 33-cfs in the storm drain system per VTN CIP project – assumed to divided equally on both sides of the road. To account for 50% clogging factor – the curb opening, and grate was divided in half.

Gutter Input Parameters

Longitudinal Slope of Road: 0.0057 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Depressed Gutter Geometry

Cross-Slope of Gutter: 0.0867 ft/ft

Manning's n: 0.0160

Gutter Width: 1.5000 ft

Design Flow: 2.5000 cfs

Gutter Result Parameters

Width of Spread: 10.6963 ft

Gutter Depression: 1.2006 in

Area of Flow: 1.2191 ft^2

Eo (Gutter Flow to Total Flow): 0.4224

Gutter Depth at Curb: 3.7677 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Sweeper Combo

Grate Type: P - 1-7/8

Grate Width: 1.5000 ft

Grate Length: 1.2500 ft

Length of Inlet: 2.5000 ft

Local Depression: 2.0000 in

Inlet Result Parameters

Intercepted Flow: 1.5469 cfs

Bypass Flow: 0.9531 cfs

Approach Velocity: 1.9402 ft/s

Splash-over Velocity: 6.3519 ft/s

Efficiency: 0.6188

Curb and Gutter Analysis: 20-ft DI DI#3 North Q10

Notes: Flow at CP3 – (flow collected DI#1, DI#2 and onsite basin ON3 tying to 42-in RCP at WSPG station 2211.3 – assumed to divided equally on both sides of the road. To account for 50% clogging factor – the curb opening, and grate was divided in half.

Gutter Input Parameters

Longitudinal Slope of Road: 0.0090 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Depressed Gutter Geometry

Cross-Slope of Gutter: 0.0867 ft/ft

Manning's n: 0.0160

Gutter Width: 1.5000 ft

Design Flow: 18.5000 cfs

Gutter Result Parameters

Width of Spread: 21.6629 ft

Gutter Depression: 1.2006 in

Area of Flow: 4.7679 ft^2

Eo (Gutter Flow to Total Flow): 0.2037

Gutter Depth at Curb: 6.3997 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Sweeper Combo

Grate Type: P - 1-7/8

Grate Width: 1.5000 ft

Grate Length: 8.7500 ft

Length of Inlet: 10.0000 ft

Local Depression: 2.0000 in

Inlet Result Parameters

Intercepted Flow: 13.5458 cfs

Bypass Flow: 4.9542 cfs

Approach Velocity: 3.8165 ft/s

Splash-over Velocity: 25.0290 ft/s

Efficiency: 0.7322

Curb and Gutter Analysis: 20-ft DI DI#4 North Q10

Notes: DI#3 bypass flow. To account for 50% clogging factor – the curb opening, and grate was divided in half.

Gutter Input Parameters

Longitudinal Slope of Road: 0.0090 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Depressed Gutter Geometry

Cross-Slope of Gutter: 0.0867 ft/ft

Manning's n: 0.0160

Gutter Width: 1.5000 ft

Design Flow: 5.0000 cfs

Gutter Result Parameters

Width of Spread: 12.9488 ft

Gutter Depression: 1.2006 in

Area of Flow: 1.7517 ft^2

Eo (Gutter Flow to Total Flow): 0.3489

Gutter Depth at Curb: 4.3083 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Sweeper Combo

Grate Type: P - 1-7/8

Grate Width: 1.5000 ft

Grate Length: 8.7500 ft

Length of Inlet: 10.0000 ft

Local Depression: 2.0000 in

Inlet Result Parameters

Intercepted Flow: 4.3500 cfs

Bypass Flow: 0.6500 cfs

Approach Velocity: 2.7585 ft/s

Splash-over Velocity: 25.0290 ft/s

Efficiency: 0.8700

Curb and Gutter Analysis: 20-ft DI DI#5 North Q10

Notes: DI#4 bypass flow. To account for 50% clogging factor – the curb opening, and grate was divided in half.

Gutter Input Parameters

Longitudinal Slope of Road: 0.0090 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Depressed Gutter Geometry

Cross-Slope of Gutter: 0.0867 ft/ft

Manning's n: 0.0160

Gutter Width: 1.5000 ft

Design Flow: 1.0000 cfs

Gutter Result Parameters

Width of Spread: 6.3867 ft

Gutter Depression: 1.2006 in

Area of Flow: 0.4829 ft^2

Eo (Gutter Flow to Total Flow): 0.6642

Gutter Depth at Curb: 2.7334 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Sweeper Combo

Grate Type: P - 1-7/8

Grate Width: 1.5000 ft

Grate Length: 8.7500 ft

Length of Inlet: 10.0000 ft

Local Depression: 2.0000 in

Inlet Result Parameters

Intercepted Flow: 1.0000 cfs

Bypass Flow: 0.0000 cfs

Approach Velocity: 0.0000 ft/s

Splash-over Velocity: 25.0290 ft/s

Efficiency: 1.0000

Curb and Gutter Analysis: 20-ft DI DI#6 South Q10

Notes: Flow at CP3 – (flow collected DI#1, DI#2 and onsite basin ON3 tying to 42-in RCP at WSPG station 2211.3 – assumed to divided equally on both sides of the road. To account for 50% clogging factor – the curb opening, and grate was divided in half.

Gutter Input Parameters

Longitudinal Slope of Road: 0.0090 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Depressed Gutter Geometry

Cross-Slope of Gutter: 0.0867 ft/ft

Manning's n: 0.0160

Gutter Width: 1.5000 ft

Design Flow: 18.5000 cfs

Gutter Result Parameters

Width of Spread: 21.6629 ft

Gutter Depression: 1.2006 in

Area of Flow: 4.7679 ft^2

Eo (Gutter Flow to Total Flow): 0.2037

Gutter Depth at Curb: 6.3997 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Sweeper Combo

Grate Type: P - 1-7/8

Grate Width: 1.5000 ft

Grate Length: 8.7500 ft

Length of Inlet: 10.0000 ft

Local Depression: 2.0000 in

Inlet Result Parameters

Intercepted Flow: 13.5458 cfs

Bypass Flow: 4.9542 cfs

Approach Velocity: 3.8165 ft/s

Splash-over Velocity: 25.0290 ft/s

Efficiency: 0.7322

Curb and Gutter Analysis: 20-ft DI DI#7 South Q10

Notes: DI#6 bypass flow. To account for 50% clogging factor – the curb opening, and grate was divided in half.

Gutter Input Parameters

Longitudinal Slope of Road: 0.0090 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Depressed Gutter Geometry

Cross-Slope of Gutter: 0.0867 ft/ft

Manning's n: 0.0160

Gutter Width: 1.5000 ft

Design Flow: 5.0000 cfs

Gutter Result Parameters

Width of Spread: 12.9488 ft

Gutter Depression: 1.2006 in

Area of Flow: 1.7517 ft^2

Eo (Gutter Flow to Total Flow): 0.3489

Gutter Depth at Curb: 4.3083 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Sweeper Combo

Grate Type: P - 1-7/8

Grate Width: 1.5000 ft

Grate Length: 8.7500 ft

Length of Inlet: 10.0000 ft

Local Depression: 2.0000 in

Inlet Result Parameters

Intercepted Flow: 4.3500 cfs

Bypass Flow: 0.6500 cfs

Approach Velocity: 2.7585 ft/s

Splash-over Velocity: 25.0290 ft/s

Efficiency: 0.8700

Curb and Gutter Analysis: 20-ft DI DI#8 South Q10

Notes: DI#7 bypass flow. To account for 50% clogging factor – the curb opening, and grate was divided in half.

Gutter Input Parameters

Longitudinal Slope of Road: 0.0090 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Depressed Gutter Geometry

Cross-Slope of Gutter: 0.0867 ft/ft

Manning's n: 0.0160

Gutter Width: 1.5000 ft

Design Flow: 1.0000 cfs

Gutter Result Parameters

Width of Spread: 6.3867 ft

Gutter Depression: 1.2006 in

Area of Flow: 0.4829 ft^2

Eo (Gutter Flow to Total Flow): 0.6642

Gutter Depth at Curb: 2.7334 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Sweeper Combo

Grate Type: P - 1-7/8

Grate Width: 1.5000 ft

Grate Length: 8.7500 ft

Length of Inlet: 10.0000 ft

Local Depression: 2.0000 in

Inlet Result Parameters

Intercepted Flow: 1.0000 cfs

Bypass Flow: 0.0000 cfs

Approach Velocity: 0.0000 ft/s

Splash-over Velocity: 25.0290 ft/s

Efficiency: 1.0000

Selected Profile: FHWA Profile (read-only)

Culvert Assessment Profiles

Culvert Assessment Profile Name: Standard (read-only)

Maximum Excavation Depth: 20 ft

Maximum Shallow Cover: 4 ft

Maximum Small Pipe Size: 36 in

Minimum Manned Entry Size: 48 in

Riprap Classes

Riprap Class Name: CLASS I

Riprap Class Order: 1

The following values are an 'average' of the size fraction range for the selected riprap class.

d100: 12 in

d85: 9 in

d50: 6.5 in

d15: 4.5 in

Riprap Class Name: CLASS II

Riprap Class Order: 2

The following values are an 'average' of the size fraction range for the selected riprap class.

d100: 18 in

d85: 13 in

d50: 9.5 in

d15: 7 in

Riprap Class Name: CLASS III

Riprap Class Order: 3

The following values are an 'average' of the size fraction range for the selected riprap class.

d100: 24 in

d85: 17 in

d50: 12.5 in

d15: 9 in

Riprap Class Name: CLASS IV

Riprap Class Order: 4

The following values are an 'average' of the size fraction range for the selected riprap class.

d100: 30 in

d85: 21 in

d50: 15.5 in

d15: 10.5 in

Riprap Class Name: CLASS V

Riprap Class Order: 5

The following values are an 'average' of the size fraction range for the selected riprap class.

d100: 36 in

d85: 25.5 in

d50: 18.5 in

d15: 13 in

Riprap Class Name: CLASS VI

Riprap Class Order: 6

The following values are an 'average' of the size fraction range for the selected riprap class.

d100: 42 in

d85: 30 in

d50: 21.5 in

d15: 15 in

Riprap Class Name: CLASS VII

Riprap Class Order: 7

The following values are an 'average' of the size fraction range for the selected riprap class.

d100: 49.5 in

d85: 35 in

d50: 25.5 in

d15: 17.5 in

Riprap Class Name: CLASS VIII

Riprap Class Order: 8

The following values are an 'average' of the size fraction range for the selected riprap class.

d100: 60 in

d85: 42.5 in

d50: 31.5 in

d15: 22 in

Riprap Class Name: CLASS IX

Riprap Class Order: 9

The following values are an 'average' of the size fraction range for the selected riprap class.

d100: 72 in

d85: 51 in

d50: 38 in

d15: 26 in

Riprap Class Name: CLASS X

Riprap Class Order: 10

The following values are an 'average' of the size fraction range for the selected riprap class.

d100: 84 in

d85: 59.5 in

d50: 44.5 in

Hydraulic Analysis Report

Project Data

Project Title: Medical Education Building

Designer:

Project Date: Sunday, May 17, 2020

Project Units: U.S. Customary Units

Notes:

Curb and Gutter Analysis: 5-ft DI#1 Q100

Notes: Flow generated by basin AL96-C1 minus 33-cfs in the storm drain system per VTN CIP project – assumed to divided equally on both sides of the road. To account for 50% clogging factor – the curb opening, and grate was divided in half.

Gutter Input Parameters

Longitudinal Slope of Road: 0.0057 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Depressed Gutter Geometry

Cross-Slope of Gutter: 0.0867 ft/ft

Manning's n: 0.0160

Gutter Width: 1.5000 ft

Design Flow: 21.0000 cfs

Gutter Result Parameters

Width of Spread: 24.8289 ft

Gutter Depression: 1.2006 in

Area of Flow: 6.2398 ft^2

Eo (Gutter Flow to Total Flow): 0.1763

Gutter Depth at Curb: 7.1595 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Sweeper Combo

Grate Type: P - 1-7/8

Grate Width: 1.5000 ft

Grate Length: 1.2500 ft

Length of Inlet: 2.5000 ft

Local Depression: 2.0000 in

Inlet Result Parameters

Intercepted Flow: 5.3871 cfs

Bypass Flow: 15.6129 cfs

Approach Velocity: 3.3081 ft/s

Splash-over Velocity: 6.3519 ft/s

Efficiency: 0.2565

Curb and Gutter Analysis: 5-ft DI#2 Q100

Notes: Flow generated by basin AL96-C1 minus 33-cfs in the storm drain system per VTN CIP project – assumed to divided equally on both sides of the road. To account for 50% clogging factor – the curb opening, and grate was divided in half.

Gutter Input Parameters

Longitudinal Slope of Road: 0.0057 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Depressed Gutter Geometry

Cross-Slope of Gutter: 0.0867 ft/ft

Manning's n: 0.0160

Gutter Width: 1.5000 ft

Design Flow: 21.0000 cfs

Gutter Result Parameters

Width of Spread: 24.8289 ft

Gutter Depression: 1.2006 in

Area of Flow: 6.2398 ft^2

Eo (Gutter Flow to Total Flow): 0.1763

Gutter Depth at Curb: 7.1595 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Sweeper Combo

Grate Type: P - 1-7/8

Grate Width: 1.5000 ft

Grate Length: 1.2500 ft

Length of Inlet: 2.5000 ft

Local Depression: 2.0000 in

Inlet Result Parameters

Intercepted Flow: 5.3871 cfs

Bypass Flow: 15.6129 cfs

Approach Velocity: 3.3081 ft/s

Splash-over Velocity: 6.3519 ft/s

Efficiency: 0.2565

Curb and Gutter Analysis: 20-ft DI DI#3 North Q100

Notes: Flow at CP3 – (flow collected DI#1, DI#2 and onsite basin ON3 tying to 42-in RCP at WSPG station 2211.3 – assumed to divided equally on both sides of the road. To account for 50% clogging factor – the curb opening, and grate was divided in half.

Gutter Input Parameters

Longitudinal Slope of Road: 0.0090 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Depressed Gutter Geometry

Cross-Slope of Gutter: 0.0867 ft/ft

Manning's n: 0.0160

Gutter Width: 1.5000 ft

Design Flow: 50.0000 cfs

Gutter Result Parameters

Width of Spread: 31.6793 ft

Gutter Depression: 1.2006 in

Area of Flow: 10.1108 ft^2

Eo (Gutter Flow to Total Flow): 0.1362

Gutter Depth at Curb: 8.8036 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Sweeper Combo

Grate Type: P - 1-7/8

Grate Width: 1.5000 ft

Grate Length: 8.7500 ft

Length of Inlet: 10.0000 ft

Local Depression: 2.0000 in

Inlet Result Parameters

Intercepted Flow: 30.4580 cfs

Bypass Flow: 19.5420 cfs

Approach Velocity: 4.8982 ft/s

Splash-over Velocity: 25.0290 ft/s

Efficiency: 0.6092

Curb and Gutter Analysis: 20-ft DI DI#4 North Q100

Notes: DI#3 bypass flow. To account for 50% clogging factor – the curb opening, and grate was divided in half. .

Gutter Input Parameters

Longitudinal Slope of Road: 0.0090 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Depressed Gutter Geometry

Cross-Slope of Gutter: 0.0867 ft/ft

Manning's n: 0.0160

Gutter Width: 1.5000 ft

Design Flow: 19.5000 cfs

Gutter Result Parameters

Width of Spread: 22.1067 ft

Gutter Depression: 1.2006 in

Area of Flow: 4.9621 ft^2

Eo (Gutter Flow to Total Flow): 0.1994

Gutter Depth at Curb: 6.5062 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Sweeper Combo

Grate Type: P - 1-7/8

Grate Width: 1.5000 ft

Grate Length: 8.7500 ft

Length of Inlet: 10.0000 ft

Local Depression: 2.0000 in

Inlet Result Parameters

Intercepted Flow: 14.1565 cfs

Bypass Flow: 5.3435 cfs

Approach Velocity: 3.8672 ft/s

Splash-over Velocity: 25.0290 ft/s

Efficiency: 0.7260

Curb and Gutter Analysis: 20-ft DI DI#5 North Q100

Notes: DI#4 bypass flow. To account for 50% clogging factor – the curb opening, and grate was divided in half.

Gutter Input Parameters

Longitudinal Slope of Road: 0.0090 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Depressed Gutter Geometry

Cross-Slope of Gutter: 0.0867 ft/ft

Manning's n: 0.0160

Gutter Width: 1.5000 ft

Design Flow: 5.5000 cfs

Gutter Result Parameters

Width of Spread: 13.4565 ft

Gutter Depression: 1.2006 in

Area of Flow: 1.8858 ft^2

Eo (Gutter Flow to Total Flow): 0.3355

Gutter Depth at Curb: 4.4302 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Sweeper Combo

Grate Type: P - 1-7/8

Grate Width: 1.5000 ft

Grate Length: 8.7500 ft

Length of Inlet: 10.0000 ft

Local Depression: 2.0000 in

Inlet Result Parameters

Intercepted Flow: 4.7369 cfs

Bypass Flow: 0.7631 cfs

Approach Velocity: 2.8235 ft/s

Splash-over Velocity: 25.0290 ft/s

Efficiency: 0.8613

Curb and Gutter Analysis: 20-ft DI DI#6 South Q100

Notes: Flow at CP3 – (flow collected DI#1, DI#2 and onsite basin ON3 tying to 42-in RCP at WSPG station 2211.3 – assumed to divided equally on both sides of the road. To account for 50% clogging factor – the curb opening, and grate was divided in half.

Gutter Input Parameters

Longitudinal Slope of Road: 0.0090 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Depressed Gutter Geometry

Cross-Slope of Gutter: 0.0867 ft/ft

Manning's n: 0.0160

Gutter Width: 1.5000 ft

Design Flow: 50.0000 cfs

Gutter Result Parameters

Width of Spread: 31.6793 ft

Gutter Depression: 1.2006 in

Area of Flow: 10.1108 ft^2

Eo (Gutter Flow to Total Flow): 0.1362

Gutter Depth at Curb: 8.8036 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Sweeper Combo

Grate Type: P - 1-7/8

Grate Width: 1.5000 ft

Grate Length: 8.7500 ft

Length of Inlet: 10.0000 ft

Local Depression: 2.0000 in

Inlet Result Parameters

Intercepted Flow: 30.4580 cfs

Bypass Flow: 19.5420 cfs

Approach Velocity: 4.8982 ft/s

Splash-over Velocity: 25.0290 ft/s

Efficiency: 0.6092

Curb and Gutter Analysis: 20-ft DI DI#7 South Q100

Notes: DI#6 bypass flow. To account for 50% clogging factor – the curb opening, and grate was divided in half.

Gutter Input Parameters

Longitudinal Slope of Road: 0.0090 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Depressed Gutter Geometry

Cross-Slope of Gutter: 0.0867 ft/ft

Manning's n: 0.0160

Gutter Width: 1.5000 ft

Design Flow: 19.5000 cfs

Gutter Result Parameters

Width of Spread: 22.1067 ft

Gutter Depression: 1.2006 in

Area of Flow: 4.9621 ft^2

Eo (Gutter Flow to Total Flow): 0.1994

Gutter Depth at Curb: 6.5062 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Sweeper Combo

Grate Type: P - 1-7/8

Grate Width: 1.5000 ft

Grate Length: 8.7500 ft

Length of Inlet: 10.0000 ft

Local Depression: 2.0000 in

Inlet Result Parameters

Intercepted Flow: 14.1565 cfs

Bypass Flow: 5.3435 cfs

Approach Velocity: 3.8672 ft/s

Splash-over Velocity: 25.0290 ft/s

Efficiency: 0.7260

Curb and Gutter Analysis: 20-ft DI DI#8 South Q100

Notes: DI#7 bypass flow. To account for 50% clogging factor – the curb opening, and grate was divided in half.

Gutter Input Parameters

Longitudinal Slope of Road: 0.0090 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Depressed Gutter Geometry

Cross-Slope of Gutter: 0.0867 ft/ft

Manning's n: 0.0160

Gutter Width: 1.5000 ft

Design Flow: 5.5000 cfs

Gutter Result Parameters

Width of Spread: 13.4565 ft

Gutter Depression: 1.2006 in

Area of Flow: 1.8858 ft^2

Eo (Gutter Flow to Total Flow): 0.3355

Gutter Depth at Curb: 4.4302 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Sweeper Combo

Grate Type: P - 1-7/8

Grate Width: 1.5000 ft

Grate Length: 8.7500 ft

Length of Inlet: 10.0000 ft

Local Depression: 2.0000 in

Inlet Result Parameters

Intercepted Flow: 4.7369 cfs

Bypass Flow: 0.7631 cfs

Approach Velocity: 2.8235 ft/s

Splash-over Velocity: 25.0290 ft/s

Efficiency: 0.8613

WSPG MODELS

MEB MODEL

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T1 MEDICAL EDUCATION BUILDING                                                0

T2 DEVELOPED CODNITION 100-YEAR ANALYSIS
T3 TIE TO EXISTING 3: 12-FT BY 10-FT RCB (REGIONAL FACILITY FW150038)

SO   1000.0002026.000  1                          2034.630

R    1575.0002031.100  1      .013                                .000    .000 1

JX   1583.0002031.160  1      .013
R    1707.0002031.530  1      .013                                .000  15.000 1

JX   1715.0002032.200  1  5   .013    5.500         2032.200         57.0         .000
R    1728.0002032.350  1      .013                                .000    .000 1
JX   1736.0002032.550  1  5  5.013    5.500   14.0002032.5502032.550 45.0-45.0    .000
R    1769.0002032.850  1      .013                                .000    .000 1
JX   1777.0002034.500  2  5  5.013   14.000   30.5002034.5002034.500 45.0-45.0    .000
R    1820.0002035.000  2      .013                                .000    .000 1
JX   1828.0002035.420  3  5   .013   30.500         2035.420         90.0         .000
R    2117.4902036.890  3      .013                                .000    .000 1
JX   2122.4902036.990  3      .013
R    2206.3602037.420  3      .013                                .000    .000 1
JX   2211.3602037.420  3  7   .013   17.000         2038.920         -90.0        .000
R    2413.4902038.470  3      .013                                .000    .000 1
JX   2418.4902038.570  3      .013
R    2713.8202040.080  3      .013                                .000    .000 1
JX   2718.8202040.180  4  6  6.013    5.000    5.0002041.9202041.920 90.0-90.0    .000
R    2727.8202040.220  4      .013                                .000    .000 0
SH   2727.8202040.220  4                          2040.220

CD   1  4   1    .000   6.000     .000  .000  .000   .00

CD   2  4   1    .000   4.000     .000  .000  .000   .00
```

```
                                                          MEB
CD    3   4    1     .000    3.500      .000   .000   .000    .00
CD    4   4    1     .000    3.000      .000   .000   .000    .00
CD    5   4    1     .000    2.500      .000   .000   .000    .00
CD    6   4    1     .000    1.500      .000   .000   .000    .00
CD    7   4    1     .000    2.000      .000   .000   .000    .00
Q              33.000    .0
```

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	1	4	1		6.000														
CD	2	4	1		4.000														
CD	3	4	1		3.500														
CD	4	4	1		3.000														
CD	5	4	1		2.500														
CD	6	4	1		1.500														
CD	7	4	1		2.000														

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -
MEDICAL EDUCATION BUILDING

HEADING LINE NO 2 IS -
DEVELOPED CODNITION 100-YEAR ANALYSIS

HEADING LINE NO 3 IS -
TIE TO EXISTING 3: 12-FT BY 10-FT RCB (REGIONAL FACILITY FW150038)

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1000.000	2026.000	1	2034.630

ELEMENT NO 2 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1575.000	2031.100	1	.013	.000	.000	.000	1

ELEMENT NO 3 IS A JUNCTION * * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1583.000	2031.160	1	0	0	.013	.000	.000	.000	.000	.000	.000

RADIUS	ANGLE
.000	.000

ELEMENT NO 4 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1707.000	2031.530	1	.013	.000	.000	15.000	1

ELEMENT NO 5 IS A JUNCTION * * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1715.000	2032.200	1	5	0	.013	5.500	.000	2032.200	.000	57.000	.000

RADIUS	ANGLE
.000	.000

ELEMENT NO 6 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1728.000	2032.350	1	.013	.000	.000	.000	1

ELEMENT NO 7 IS A JUNCTION * * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1736.000	2032.550	1	5	5	.013	5.500	14.000	2032.550	2032.550	45.000	-45.000

RADIUS	ANGLE
.000	.000

ELEMENT NO 8 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1769.000	2032.850	1	.013	.000	.000	.000	1

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 9 IS A JUNCTION * * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1777.000	2034.500	2	5	5	.013	14.000	30.500	2034.500	2034.500	45.000	-45.000

RADIUS	ANGLE
.000	.000

ELEMENT NO 10 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1820.000	2035.000	2	.013	.000	.000	.000	1

ELEMENT NO 11 IS A JUNCTION * * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1828.000	2035.420	3	5	0	.013	30.500	.000	2035.420	.000	90.000	.000

RADIUS	ANGLE
.000	.000

ELEMENT NO 12 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	2117.490	2036.890	3	.013	.000	.000	.000	1

ELEMENT NO 13 IS A JUNCTION * * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	2122.490	2036.990	3	0	0	.013	.000	.000	.000	.000	.000	.000

RADIUS	ANGLE
.000	.000

ELEMENT NO 14 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	2206.360	2037.420	3	.013	.000	.000	.000	1

ELEMENT NO 15 IS A JUNCTION * * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	2211.360	2037.420	3	7	0	.013	17.000	.000	2038.920	.000	-90.000	.000

RADIUS	ANGLE
.000	.000

THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 16 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H

```
                                                                MEB
                          2413.490 2038.470    3               .013                          .000     .000      .000     1
ELEMENT NO  17 IS A JUNCTION          *        *     *     *            *                      *                *
                   U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3        Q4     INVERT-3 INVERT-4  PHI 3  PHI 4
                          2418.490 2038.570    3     0     0   .013      .000      .000       .000      .000    .000     .000
                                                                                              RADIUS    ANGLE
                                                                                                .000    .000
ELEMENT NO  18 IS A REACH             *        *     *
                   U/S DATA   STATION    INVERT  SECT               N                          RADIUS    ANGLE     ANG PT  MAN H
                          2713.820 2040.080    3               .013                            .000     .000      .000     1
ELEMENT NO  19 IS A JUNCTION          *        *     *     *                 *                    *                *
                   U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3        Q4     INVERT-3 INVERT-4  PHI 3  PHI 4
                          2718.820 2040.180    4     6     6   .013     5.000     5.000  2041.920  2041.920  90.000  -90.000
                                                                                              RADIUS    ANGLE
                                                                                                .000    .000
ELEMENT NO  20 IS A REACH             *        *     *
                   U/S DATA   STATION    INVERT  SECT               N                          RADIUS    ANGLE     ANG PT  MAN H
                          2727.820 2040.220    4               .013                            .000     .000      .000     0
ELEMENT NO  21 IS A SYSTEM HEADWORKS                  *                     *
                   U/S DATA   STATION    INVERT  SECT                                 W S ELEV
                          2727.820 2040.220    4                                    2040.220
```

MEDICAL EDUCATION BUILDING
DEVELOPED CODNITION 100-YEAR ANALYSIS
TIE TO EXISTING 3: 12-FT BY 10-FT RCB (REGIONAL FACILITY FW150038)

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	2026.000	8.630	2034.630	160.00	5.66	.50	2035.13	.00	3.44	.00	6.000	.000	.00	1 .0
355.455	.0089					.0014	.50	8.63	.00	2.64	.013	.00	.00	PIPE
1355.455	2029.153	6.000	2035.153	160.00	5.66	.50	2035.65	.00	3.44	.00	6.000	.000	.00	1 .0
67.137	.0089					.0013	.09	6.00	.00	2.64	.013	.00	.00	PIPE
1422.592	2029.748	5.443	2035.191	160.00	5.94	.55	2035.74	.00	3.44	3.48	6.000	.000	.00	1 .0
35.409	.0089					.0013	.05	5.44	.38	2.64	.013	.00	.00	PIPE
1458.001	2030.062	5.120	2035.182	160.00	6.22	.60	2035.78	.00	3.44	4.25	6.000	.000	.00	1 .0
27.552	.0089					.0014	.04	5.12	.45	2.64	.013	.00	.00	PIPE
1485.553	2030.307	4.854	2035.161	160.00	6.53	.66	2035.82	.00	3.44	4.72	6.000	.000	.00	1 .0
22.757	.0089					.0015	.04	4.85	.50	2.64	.013	.00	.00	PIPE
1508.310	2030.508	4.621	2035.130	160.00	6.85	.73	2035.86	.00	3.44	5.05	6.000	.000	.00	1 .0
19.297	.0089					.0017	.03	4.62	.56	2.64	.013	.00	.00	PIPE
1527.607	2030.680	4.410	2035.090	160.00	7.18	.80	2035.89	.00	3.44	5.30	6.000	.000	.00	1 .0
16.072	.0089					.0019	.03	4.41	.62	2.64	.013	.00	.00	PIPE
1543.679	2030.822	4.218	2035.040	160.00	7.53	.88	2035.92	.00	3.44	5.48	6.000	.000	.00	1 .0
13.351	.0089					.0021	.03	4.22	.67	2.64	.013	.00	.00	PIPE
1557.030	2030.941	4.040	2034.981	160.00	7.90	.97	2035.95	.00	3.44	5.63	6.000	.000	.00	1 .0
10.680	.0089					.0024	.03	4.04	.73	2.64	.013	.00	.00	PIPE

MEDICAL EDUCATION BUILDING
DEVELOPED CODNITION 100-YEAR ANALYSIS
TIE TO EXISTING 3: 12-FT BY 10-FT RCB (REGIONAL FACILITY FW150038)

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1567.710	2031.035	3.874	2034.909	160.00	8.29	1.07	2035.98	.00	3.44	5.74	6.000	.000	.00	1 .0
2.697	.0089					.0026	.01	3.87	.80	2.64	.013	.00	.00	PIPE
1570.407	2031.059	3.826	2034.885	160.00	8.41	1.10	2035.98	.00	3.44	5.77	6.000	.000	.00	1 .0
HYDRAULIC JUMP														
1570.407	2031.059	3.085	2034.144	160.00	10.92	1.85	2036.00	.00	3.44	6.00	6.000	.000	.00	1 .0
4.593	.0089					.0051	.02	3.08	1.23	2.64	.013	.00	.00	PIPE
1575.000	2031.100	3.118	2034.218	160.00	10.78	1.80	2036.02	.00	3.44	6.00	6.000	.000	.00	1 .0
JUNCT STR	.0075					.0049	.04	3.12	1.21		.013	.00	.00	PIPE
1583.000	2031.160	3.170	2034.330	160.00	10.56	1.73	2036.06	.00	3.44	5.99	6.000	.000	.00	1 .0
10.033	.0030					.0049	.05	3.17	1.17	3.67	.013	.00	.00	PIPE
1593.033	2031.190	3.123	2034.313	160.00	10.75	1.80	2036.11	.00	3.44	5.99	6.000	.000	.00	1 .0
27.641	.0030					.0053	.15	3.12	1.20	3.67	.013	.00	.00	PIPE
1620.674	2031.272	3.008	2034.281	160.00	11.28	1.98	2036.26	.00	3.44	6.00	6.000	.000	.00	1 .0
28.632	.0030					.0060	.17	3.01	1.29	3.67	.013	.00	.00	PIPE

1649.305	2031.358	2.898	2034.256	160.00	11.83	2.17	2036.43	.00	3.44	6.00	6.000	.000	.00	1	.0		
28.936	.0030					.0069	.20	2.90	1.39	3.67	.013	.00	.00	PIPE			
1678.242	2031.444	2.793	2034.237	160.00	12.41	2.39	2036.63	.00	3.44	5.99	6.000	.000	.00	1	.0		
28.758	.0030					.0078	.22	2.79	1.49	3.67	.013	.00	.00	PIPE			

Program Package Serial Number: 1492

WATER SURFACE PROFILE LISTING Date: 6-28-2020 Time: 6:18:20

MEDICAL EDUCATION BUILDING
DEVELOPED CODNITION 100-YEAR ANALYSIS
TIE TO EXISTING 3: 12-FT BY 10-FT RCB (REGIONAL FACILITY FW150038)

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1707.000	2031.530	2.693	2034.223	160.00	13.01	2.63	2036.85	.00	3.44	5.97	6.000	.000	.00	1	.0		
JUNCT STR	.0837					.0068	.05	2.69	1.60		.013	.00	.00	PIPE			
1715.000	2032.200	3.015	2035.214	154.50	10.86	1.83	2037.05	.00	3.38	6.00	6.000	.000	.00	1	.0		
7.581	.0115					.0049	.04	3.01	1.24	2.41	.013	.00	.00	PIPE			
1722.580	2032.287	3.127	2035.414	154.50	10.37	1.67	2037.08	.00	3.38	5.99	6.000	.000	.00	1	.0		
4.133	.0115					.0044	.02	3.13	1.16	2.41	.013	.00	.00	PIPE			
1726.714	2032.335	3.249	2035.584	154.50	9.88	1.52	2037.10	.00	3.38	5.98	6.000	.000	.00	1	.0		
1.286	.0115					.0038	.00	3.25	1.08	2.41	.013	.00	.00	PIPE			
1728.000	2032.350	3.378	2035.728	154.50	9.42	1.38	2037.11	.00	3.38	5.95	6.000	.000	.00	1	.0		
JUNCT STR	.0250							3.38	1.00		.013	.00	.00	PIPE			
1736.000	2032.550	2.375	2034.925	135.00	12.96	2.61	2037.53	.00	3.15	5.87	6.000	.000	.00	1	.0		
33.000	.0091					.0093	.31	2.38	1.71	2.39	.013	.00	.00	PIPE			
1769.000	2032.850	2.371	2035.221	135.00	12.99	2.62	2037.84	.00	3.15	5.87	6.000	.000	.00	1	.0		
JUNCT STR	.2063					.0089	.07	2.37	1.72		.013	.00	.00	PIPE			
1777.000	2034.500	2.432	2036.932	90.50	11.31	1.99	2038.92	.00	2.88	3.91	4.000	.000	.00	1	.0		
1.142	.0116					.0084	.01	2.43	1.39	2.20	.013	.00	.00	PIPE			
1778.142	2034.513	2.436	2036.949	90.50	11.29	1.98	2038.93	.00	2.88	3.90	4.000	.000	.00	1	.0		
21.603	.0116					.0079	.17	2.44	1.39	2.20	.013	.00	.00	PIPE			

Program Package Serial Number: 1492

WATER SURFACE PROFILE LISTING Date: 6-28-2020 Time: 6:18:20

MEDICAL EDUCATION BUILDING
DEVELOPED CODNITION 100-YEAR ANALYSIS
TIE TO EXISTING 3: 12-FT BY 10-FT RCB (REGIONAL FACILITY FW150038)

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1799.746	2034.765	2.536	2037.301	90.50	10.77	1.80	2039.10	.00	2.88	3.85	4.000	.000	.00	1	.0		
12.101	.0116					.0070	.09	2.54	1.28	2.20	.013	.00	.00	PIPE			
1811.847	2034.905	2.644	2037.549	90.50	10.27	1.64	2039.19	.00	2.88	3.79	4.000	.000	.00	1	.0		
6.280	.0116					.0062	.04	2.64	1.19	2.20	.013	.00	.00	PIPE			
1818.127	2034.978	2.759	2037.737	90.50	9.79	1.49	2039.23	.00	2.88	3.70	4.000	.000	.00	1	.0		
1.873	.0116					.0056	.01	2.76	1.09	2.20	.013	.00	.00	PIPE			
1820.000	2035.000	2.884	2037.884	90.50	9.33	1.35	2039.24	.00	2.88	3.59	4.000	.000	.00	1	.0		
JUNCT STR	.0525					.0044	.04	2.88	1.00		.013	.00	.00	PIPE			
1828.000	2035.420	4.011	2039.431	60.00	6.24	.60	2040.03	.00	2.43	.00	3.500	.000	.00	1	.0		
289.490	.0051					.0036	1.03	4.01	.00	2.45	.013	.00	.00	PIPE			
2117.490	2036.890	3.600	2040.490	60.00	6.24	.60	2041.09	.00	2.43	.00	3.500	.000	.00	1	.0		

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
JUNCT STR	.0200					.0036	.02	3.60	.00		.013	.00	.00	PIPE
2122.490	2036.990	3.518	2040.508	60.00	6.24	.60	2041.11	.00	2.43	.00	3.500	.000	.00	1 .0
14.943	.0051					.0035	.05	3.52	.00	2.44	.013	.00	.00	PIPE
2137.433	2037.067	3.500	2040.567	60.00	6.24	.60	2041.17	.00	2.43	.00	3.500	.000	.00	1 .0
68.927	.0051					.0033	.23	3.50	.00	2.44	.013	.00	.00	PIPE
2206.360	2037.420	3.356	2040.776	60.00	6.32	.62	2041.40	.00	2.43	1.39	3.500	.000	.00	1 .0
JUNCT STR	.0000					.0025	.01	3.36	.43		.013	.00	.00	PIPE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
2211.360	2037.420	3.977	2041.397	43.00	4.47	.31	2041.71	.00	2.04	.00	3.500	.000	.00	1 .0
144.955	.0052					.0018	.26	3.98	.00	1.94	.013	.00	.00	PIPE
2356.315	2038.173	3.500	2041.673	43.00	4.47	.31	2041.98	.00	2.04	.00	3.500	.000	.00	1 .0
57.175	.0052					.0017	.10	3.50	.00	1.94	.013	.00	.00	PIPE
2413.490	2038.470	3.282	2041.752	43.00	4.59	.33	2042.08	.00	2.04	1.69	3.500	.000	.00	1 .0
JUNCT STR	.0200					.0016	.01	3.28	.34		.013	.00	.00	PIPE
2418.490	2038.570	3.175	2041.745	43.00	4.69	.34	2042.09	.00	2.04	2.03	3.500	.000	.00	1 .0
44.598	.0051					.0017	.07	3.18	.39	1.95	.013	.00	.00	PIPE
2463.088	2038.798	2.987	2041.785	43.00	4.92	.38	2042.16	.00	2.04	2.48	3.500	.000	.00	1 .0
35.654	.0051					.0018	.06	2.99	.46	1.95	.013	.00	.00	PIPE
2498.743	2038.980	2.831	2041.811	43.00	5.16	.41	2042.22	.00	2.04	2.75	3.500	.000	.00	1 .0
30.132	.0051					.0020	.06	2.83	.52	1.95	.013	.00	.00	PIPE
2528.874	2039.134	2.695	2041.829	43.00	5.41	.45	2042.28	.00	2.04	2.95	3.500	.000	.00	1 .0
26.504	.0051					.0022	.06	2.70	.58	1.95	.013	.00	.00	PIPE
2555.378	2039.270	2.572	2041.842	43.00	5.67	.50	2042.34	.00	2.04	3.09	3.500	.000	.00	1 .0
23.203	.0051					.0024	.06	2.57	.64	1.95	.013	.00	.00	PIPE
2578.581	2039.388	2.460	2041.849	43.00	5.95	.55	2042.40	.00	2.04	3.20	3.500	.000	.00	1 .0
20.189	.0051					.0027	.06	2.46	.70	1.95	.013	.00	.00	PIPE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
2598.770	2039.492	2.357	2041.849	43.00	6.24	.60	2042.45	.00	2.04	3.28	3.500	.000	.00	1 .0
17.904	.0051					.0031	.05	2.36	.76	1.95	.013	.00	.00	PIPE
2616.674	2039.583	2.260	2041.843	43.00	6.54	.66	2042.51	.00	2.04	3.35	3.500	.000	.00	1 .0
14.816	.0051					.0035	.05	2.26	.82	1.95	.013	.00	.00	PIPE
2631.490	2039.659	2.169	2041.828	43.00	6.86	.73	2042.56	.00	2.04	3.40	3.500	.000	.00	1 .0
4.502	.0051					.0039	.02	2.17	.89	1.95	.013	.00	.00	PIPE
2635.991	2039.682	2.084	2041.766	43.00	7.20	.80	2042.57	.00	2.04	3.44	3.500	.000	.00	1 .0

```
HYDRAULIC JUMP
        |         |       |         |         |              |         |       |       |       |       |       |      |
 2635.991  2039.682   1.949  2041.631    43.00   7.81     .95  2042.58     .00   2.04    3.48   3.500    .000   .00   1   .0
       -|-       -|-     -|-       -|-       -|-     -|-     -|-       -|-     -|-     -|-     -|-     -|-     -|-     -|-
    8.015    .0051                                 .0051      .04    1.95    1.09    1.95    .013      .00   .00  PIPE
        |         |       |         |         |              |         |       |       |       |       |       |      |
 2644.007  2039.723   1.949  2041.672    43.00   7.81     .95  2042.62     .00   2.04    3.48   3.500    .000   .00   1   .0
       -|-       -|-     -|-       -|-       -|-     -|-     -|-       -|-     -|-     -|-     -|-     -|-     -|-     -|-
   55.903    .0051                                 .0051      .28    1.95    1.09    1.95    .013      .00   .00  PIPE
        |         |       |         |         |              |         |       |       |       |       |       |      |
 2699.910  2040.009   1.962  2041.971    43.00   7.74     .93  2042.90     .00   2.04    3.47   3.500    .000   .00   1   .0
       -|-       -|-     -|-       -|-       -|-     -|-     -|-       -|-     -|-     -|-     -|-     -|-     -|-     -|-
   13.910    .0051                                 .0047      .07    1.96    1.08    1.95    .013      .00   .00  PIPE
        |         |       |         |         |              |         |       |       |       |       |       |      |
 2713.820  2040.080   2.042  2042.122    43.00   7.38     .85  2042.97     .00   2.04    3.45   3.500    .000   .00   1   .0
       -|-       -|-     -|-       -|-       -|-     -|-     -|-       -|-     -|-     -|-     -|-     -|-     -|-     -|-
JUNCT STR   .0200                                 .0033      .02    2.04    1.00            .013      .00   .00  PIPE
        |         |       |         |         |              |         |       |       |       |       |       |      |
 2718.820  2040.180   2.728  2042.908    33.00   4.89     .37  2043.28     .00   1.86    1.72   3.000    .000   .00   1   .0
       -|-       -|-     -|-       -|-       -|-     -|-     -|-       -|-     -|-     -|-     -|-     -|-     -|-     -|-
    9.000    .0044                                 .0021      .02    2.73     .44    1.93    .013      .00   .00  PIPE
```


Program Package Serial Number: 1492

WATER SURFACE PROFILE LISTING Date: 6-28-2020 Time: 6:18:20

MEDICAL EDUCATION BUILDING
DEVELOPED CODNITION 100-YEAR ANALYSIS
TIE TO EXISTING 3: 12-FT BY 10-FT RCB (REGIONAL FACILITY FW150038)

```
         | Invert  |  Depth |  Water  |    Q    |  Vel     Vel  |  Energy | Super |Critical|Flow Top|Height/|Base Wt|      |No Wth
 Station |  Elev   |  (FT)  |  Elev   |  (CFS)  | (FPS)    Head |  Grd.El.|  Elev | Depth  | Width  |Dia.-FT|or I.D.|  ZL  |Prs/Pip
       -|-       -|-      -|-       -|-       -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    -|
 L/Elem  |Ch Slope |        |         |         |         SF Ave|    HF   |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR  |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|***** |*******
         |         |        |         |         |               |         |       |        |        |       |       |      |
 2727.820  2040.220   2.703  2042.923    33.00   4.92     .38  2043.30     .00   1.86    1.79   3.000    .000   .00   1   .0
       -|-       -|-     -|-       -|-       -|-     -|-     -|-       -|-     -|-     -|-     -|-     -|-     -|-     -|-
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MEBL1 MODEL

```
T1 MEDICAL EDUCATION BUILDING                                                    0

T2 DEVELOPED CODNITION 100-YEAR ANALYSIS
T3 TIE AT WSPG STATION 2211.36
SO   2211.3602038.920  1                          2041.397
R    2391.4602039.670  1      .013                                .000 -15.000 1
JX   2396.4602039.870  1      .013
R    2503.0602040.310  1      .013                                .000 -15.000 1
R    2504.0602040.311  1      .013                                .000 -15.000 0
R    2505.0602040.312  1      .013                                .000 -15.000 0
R    2506.0602040.313  1      .013                                .000 -11.000 0
JX   2508.0602040.510  1  1   .013    6.000         2040.510      .000          .000
R    2541.6602040.650  1      .013                                .000    .000 0
SH   2541.6602040.650  1                          2040.650
CD   1  4   1    .000   2.000     .000  .000  .000   .00

Q            11.000   .0
```

FILE: MEBL1.WSW W S P G W - EDIT LISTING - Version 14.05 Date: 6-28-2020 Time: 6:19:50

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING PAGE 1

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	1	4	1		2.000														

W S P G W PAGE NO 1

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -
MEDICAL EDUCATION BUILDING

HEADING LINE NO 2 IS -
DEVELOPED CODNITION 100-YEAR ANALYSIS

HEADING LINE NO 3 IS -
TIE AT WSPG STATION 2211.36

W S P G W PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	2211.360	2038.920	1	2041.397

ELEMENT NO 2 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	2391.460	2039.670	1	.013	.000	.000	-15.000	1

ELEMENT NO 3 IS A JUNCTION * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	2396.460	2039.870	1	0	0	.013	.000	.000	.000	.000	.000	.000

RADIUS	ANGLE
.000	.000

ELEMENT NO 4 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	2503.060	2040.310	1	.013	.000	.000	-15.000	1

ELEMENT NO 5 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	2504.060	2040.311	1	.013	.000	.000	-15.000	0

ELEMENT NO 6 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	2505.060	2040.312	1	.013	.000	.000	-15.000	0

ELEMENT NO 7 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	2506.060	2040.313	1	.013	.000	.000	-11.000	0

ELEMENT NO 8 IS A JUNCTION * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	2508.060	2040.510	1	1	0	.013	6.000	.000	2040.510	.000	.000	.000

RADIUS	ANGLE
.000	.000

ELEMENT NO 9 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	2541.660	2040.650	1	.013	.000	.000	.000	0

ELEMENT NO 10 IS A SYSTEM HEADWORKS * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	2541.660	2040.650	1	2040.650

W S P G W PAGE NO 3

WATER SURFACE PROFILE - ELEMENT CARD LISTING

Program Package Serial Number: 1492
WATER SURFACE PROFILE LISTING Date: 6-28-2020 Time: 6:19:54

MEDICAL EDUCATION BUILDING
DEVELOPED CODNITION 100-YEAR ANALYSIS
TIE AT WSPG STATION 2211.36

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
2211.360	2038.920	2.477	2041.397	17.00	5.41	.45	2041.85	.00	1.49	.00	2.000	.000	.00	1 .0
180.100	.0042					.0056	1.02	2.48	.00	2.00	.013	.00	.00	PIPE
2391.460	2039.670	2.789	2042.459	17.00	5.41	.45	2042.91	.00	1.49	.00	2.000	.000	.00	1 .0
JUNCT STR	.0400					.0056	.03	2.79	.00		.013	.00	.00	PIPE
2396.460	2039.870	2.617	2042.487	17.00	5.41	.45	2042.94	.00	1.49	.00	2.000	.000	.00	1 .0
106.600	.0041					.0056	.60	2.62	.00	2.00	.013	.00	.00	PIPE
2503.060	2040.310	2.825	2043.135	17.00	5.41	.45	2043.59	.00	1.49	.00	2.000	.000	.00	1 .0
1.000	.0010					.0056	.01	2.82	.00	2.00	.013	.00	.00	PIPE
2504.060	2040.311	2.852	2043.163	17.00	5.41	.45	2043.62	.00	1.49	.00	2.000	.000	.00	1 .0
1.000	.0010					.0056	.01	2.85	.00	2.00	.013	.00	.00	PIPE
2505.060	2040.312	2.879	2043.191	17.00	5.41	.45	2043.65	.00	1.49	.00	2.000	.000	.00	1 .0
1.000	.0010					.0056	.01	2.88	.00	2.00	.013	.00	.00	PIPE
2506.060	2040.313	2.900	2043.213	17.00	5.41	.45	2043.67	.00	1.49	.00	2.000	.000	.00	1 .0
JUNCT STR	.0985					.0040	.01	2.90	.00		.013	.00	.00	PIPE
2508.060	2040.510	3.127	2043.637	11.00	3.50	.19	2043.83	.00	1.19	.00	2.000	.000	.00	1 .0
33.600	.0042					.0024	.08	3.13	.00	1.30	.013	.00	.00	PIPE
2541.660	2040.650	3.066	2043.716	11.00	3.50	.19	2043.91	.00	1.19	.00	2.000	.000	.00	1 .0

APPENDIX C

- **JUSTIFICATION LETTER OF GRADE DIFFERENCE OF 2 FEET BELOW EXISTING GRADE**

POGGEMEYER
DESIGN GROUP

July 2, 2020

Mr. Fred Solis
City of Las Vegas
Planning and Development Department
333 N. Rancho Drive
Las Vegas, Nevada 89106

Subject: **Request for Allowance of Grade Differential of Two Feet Above or Below Existing Elevations for the Proposed Medical Education Building at Shadow Lane and Pinto Lane – (DS5287A)**

Dear Mr. Fred Solis:

Poggemeyer Design Group has submitted a drainage study to the City of Las Vegas for the above-mentioned project. As part of the City of Las Vegas Drainage Department comments, it has been requested that we receive approval from Planning and Development regarding the grade differential of more than two feet below the existing grades for this project.

The site is bounded by Pinto Lane on the north (a public road), Shadow Lane on the west (a public road), and private developments on the south and east. In order to meet the midrise height requirements, the first floor is approximately six feet below the adjacent Pinto curb elevation. It has been determined that the lowest top of curb elevation is approximately 2050.13. The first-floor elevation has been set at 2044.15. The proposed construction type of the building will be reinforced concrete. There are no doors facing north and west. Windows that face north have been placed approximately four feet above adjacent finish grade.

Your consideration and approval of this request is greatly appreciated. If you have any questions or require additional information, please contact this office at your convenience.

Sincerely,

Poggemeyer Design Group

Vernon R. Harkins, P.E.
Department Manager
Civil Engineering



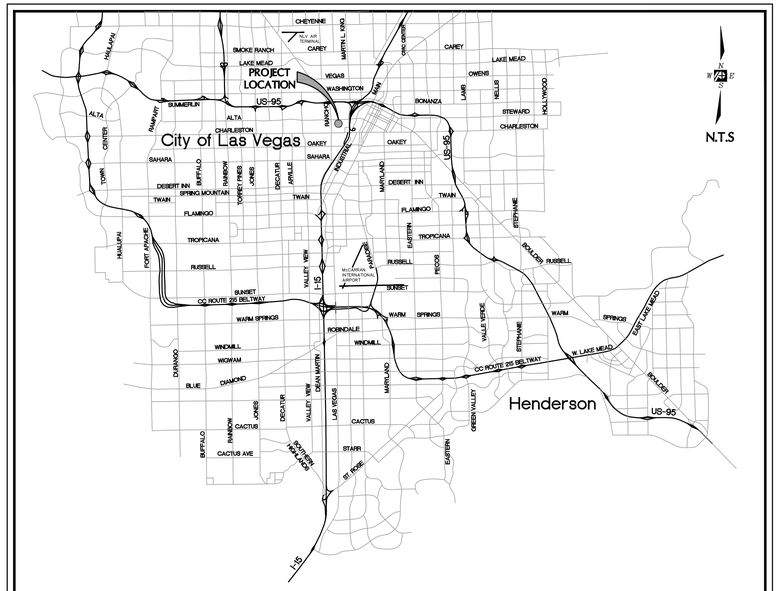
IMPROVEMENT PLANS FOR
FOR
NEVADA HEALTH & BIOSCIENCE ASSET CORPORATION

APN# 139-33-305-020
SHADOW LANE AND PINTO LANE
9.11 ACRES

SHEET INDEX

SHEET #	SHEET NAME	SHEET TITLE
1	C0.00	COVER SHEET
2	C0.01	GENERAL NOTES
3	C0.02	LEGEND, ABBREVIATIONS, & LEGEND
4	C0.03	DEMOLITION CONTROL PLAN
5	C2.00	OVERALL SITE PLAN
6	C2.01	HORIZONTAL & TRAFFIC CONTROL PLAN (1 OF 2)
7	C2.02	HORIZONTAL & TRAFFIC CONTROL PLAN (2 OF 2)
8	C3.00	OVERALL GRADING PLAN
9	C3.01	GRADING PLAN 1 (1 OF 2)
10	C3.02	GRADING PLAN 2 (2 OF 2)
11	C5.00	OVERALL UTILITY PLAN
12	C5.01	UTILITY PLAN 1 (1 OF 2)
13	C5.02	UTILITY PLAN 2 (2 OF 2)
14	C6.01	DETAIL SHEET 1
15	C6.02	DETAIL SHEET 2

VICINITY MAP



OWNER/DEVELOPER

NEVADA HEALTH & BIOSCIENCE
ASSET CORPORATION
HEALTHCARE 1930 VILLAGE
CENTER CIRCLE #3-805
LAS VEGAS, NEVADA 89144

CIVIL ENGINEER

POGGEMEYER DESIGN GROUP, INC.
6960 SMOKE RANCH RD. STE. 110
LAS VEGAS, NV 89128-3204
VERNON HARKINS, PE
PHONE - (702) 255-8100
FAX - (702) 255-8375

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

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

LEGAL DESCRIPTION:

PARCEL I:
BEING A PORTION OF THE SOUTHWEST QUARTER (SW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF SECTION 33 TOWNSHIP 20 SOUTH, RANGE 61 EAST., M.D.B. & M. SAVING AND EXCEPTING THAT PORTION THEREOF A DEDICATED AS EL DORADO AVENUE ON THE MAP OF BUOL'S ADDITION TO LAS VEGAS AS RECORDED IN BOOK 1 OF PLATS, PAGE 29 AND BOUL'S SECOND ADDITION IN BOOK 1 OF PLATS, PAGE 28, CLARK COUNTY NEVADA RECORDS.

AND EXCEPTING THEREFROM THAT PORTION AS CONVEYED TO THE CITY OF LAS VEGAS, A MUNICIPAL CORPORATION BY DEED RECORDED OCTOBER 05, 1944, AS BOOK 36 OF DEEDS PAGE 256, DOCUMENT NO. 187501, OF CLARK COUNTY NEVADA OFFICIAL RECORDS.

ALSO EXCEPTING THEREFROM THAT PORTION AS CONVEYED TO THE CITY OF LAS VEGAS BY RESOLUTION ACCEPTING DEED RECORDED JANUARY 31, 1951 AS BOOK 63 OF DEEDS PAGE 429, DOCUMENT NO. 362473, OF CLARK COUNTY NEVADA OFFICIAL RECORDS.

ALSO EXCEPTION THEREFROM THAT PORTION AS CONVEYED TO THE CITY OF LAS VEGAS, A MUNICIPAL CORPORATION OF THE COUNTY OF CLARK RECORDED MARCH 01, 1972 IN BOOK 211, DOCUMENT NO. 170291, OF CLARK COUNTY NEVADA OFFICIAL RECORDS.

TOGETHER WITH THAT PORTION AS VACATED BY THAT CERTAIN ORDER OF VACATION, RECORDED JULY 23, 1981, IN BOOK 1437 AS DOCUMENT NO. 1396509, OF OFFICIAL RECORDS, THAT WOULD PASS THROUGH BY OPERATION OF LAW.

BASIS OF BEARINGS:

SOUTH 89°47'20" EAST BEING THE SOUTH LINE OF THE SOUTHWEST QUARTER (SW 1/4) OF SECTION 33, TOWNSHIP 20 SOUTH, RANGE 61 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN ON A CERTAIN MAP, FILE 195, PAGE 44 OF SURVEYS, CLARK COUNTY RECORDER'S OFFICE, CLARK COUNTY, NEVADA.

BENCHMARK:
PROJECT DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
CITY OF LAS VEGAS BENCHMARK: 1LV0133SW6 (2008)
NAVD88 ELEVATION: 626.27 METERS (2,054.68 FEET) (2,054.72 FEET PER SURVEY SHOT)
RIVET AND PLATE IN TOP OF CURB EAST SIDE SHADOW LANE 1/4 MILE
NORTH OF CHARLESTON BLVD (OLD SE CORNER OF SHADOW LANE & PALOMINO LANE).

EXISTING UTILITIES NOTE:

EXISTING UTILITY LOCATIONS SHOWN HEREIN ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATIONS. CALL BEFORE YOU DIG: 1 (800) 227-2600

SOILS REPORT:

THE SITE SHALL BE GRADED IN ACCORDANCE WITH THE GEOTECHNICAL REPORTS PREPARED BY:
COMPANY NAME
PROJECT NUMBER
DATED MONTH/DAY/YEAR

FEMA STATEMENT:

ACCORDING TO FEMA, THE SUBJECT PROPERTY IS LOCATED IN ZONE X ON FIRM PANEL 32003C 2170F; MAP REVISED NOVEMBER 16, 2011. AS DESCRIBED BY FEMA, ZONE X IS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

PROJECT INFORMATION:

APN	139-33-305-020
SITE ADDRESS:	625 SHADOW LANE
ACREAGE	9.11
ZONING	T6-UG
NO. OF BLDGS.	1
TOTAL BUILDING AREA:	138,000 SF

EARTHWORK QUANTITIES

CUT QUANTITY = 9,899 CY
FILL QUANTITY = 2,510 CY
EXPORT = 7,390 CY

NOTE:

THESE QUANTITIES ARE AN ESTIMATE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR QUANTITIES FOR BIDDING PURPOSES. QUANTITIES FOR CITY USE ONLY. QUANTITIES DO NOT REFLECT ENTIRE PROJECT SCOPE AND SHOULD NOT BE USED FOR BIDDING OR CONSTRUCTION PURPOSES.

APPROVED FOR CONSTRUCTION

CITY ENGINEER - ALLEN PAVELKA, PE, #9029 — DATE

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

CITY OF LAS VEGAS PLANNING DEPARTMENT — DATE

THIS PLAN MEETS THE APPLICABLE STANDARDS OF THE PLANNING DEPARTMENT.

CENTRAL TELEPHONE COMPANY d/b/a CENTURYLINK — DATE

"THE AFFIXED CENTURY LINK 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 STATUES AND/OR PUBLIC UTILITY COMMISSION RULES AND REGULATIONS."

NV ENERGY - DISTRIBUTION — 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 - TRANSMISSION — DATE

COX COMMUNICATIONS LAS VEGAS, INC. — DATE

SOUTHWEST GAS CORPORATION — SWG UID — DATE

THE DATA CONTAINED HEREIN IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY. SOUTHWEST GAS CORPORATION MAKES NO WARRANTIES AND DOES NOT GUARANTEE THE CORRECTNESS, COMPLETENESS, OR USEFULNESS FOR ANY LOSS OR DAMAGE HOWEVER ARISING FROM THE USE OF OR RELIANCE ON THE DATA PROVIDED. THE FIELD LOCATION AND DEPTH OF ALL SOUTHWEST GAS FACILITIES SHOULD BE VERIFIED.

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. XXXXXX FIRST APPROVED DATE: ____
LVVWD APPROVED FIRE FLOW: TOTAL 2625 GPM/ONSITE 2625 GPM

SHEETS C0.00, C0.01, C0.02, C0.03, C5.00-C5.04

FIRE APPROVED

TOTAL FIRE FLOW: 2625 GPM @ 20 P.S.I. RESIDUAL
CONCURRENT REVIEW BY LOCAL FIRE DEPARTMENT:

SIGNATURE AGENCY DATE

POGGEMEYER DESIGN GROUP
6960 Smoke Ranch Suite 110
Las Vegas, Nevada 89128
p) 702.255.8100
f) 702.255.8375
www.poggemeyer.com

BY | REVISION | DATE

ANY INFORMATION OR DATA ON THIS DRAWING IS NOT INTENDED TO BE SUITABLE FOR REUSE BY ANY PERSON, FIRM OR ANY OTHER ON EXTENSIONS OF THIS PROJECT OR FOR ANY USE ON OTHER PROJECTS. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY THE ENGINEER FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO THE ENGINEER

PROFESSIONAL ENGINEER-STATE OF NEVADA
VERNON R. HARKINS
Exp. 6-30-21
CIVIL
No. 009699
07/06/2020

COVER SHEET
NEVADA HEALTH & BIOSCIENCE ASSET CORPORATION
HEALTHCARE 1930 VILLAGE CENTER CIRCLE #3-805
LAS VEGAS, NEVADA 89144

JOB NUMBER LV-20040
DESIGNED BY MP
DRAWN BY MP
CHECKED BY MP
DATE 07/2020

SHEET NUMBER C0.00
1 of 16

SD SET, 6/05/20

AVOID HITTING UNDERGROUND TRAFFIC SIGNAL SYSTEMS AND STREET LIGHT SYSTEM CONDUITS. IT'S COSTLY
Call before you Underground
1-702-455-7511 CLARK COUNTY TRAFFIC SIGNALS
1-702-432-5300 CITY OF LAS VEGAS TRAFFIC SIGNAL SYSTEM
1-702-676-3000 NEVADA DEPARTMENT OF TRANSPORTATION (N.D.O.T.)

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY
Call before you Overhead
1-702-227-2929 NEVADA POWER ENVIRONMENT AND SAFETY SERVICES DEPARTMENT

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811
1-800-227-2600 OR 811 CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT OPERATIONS
1-702-455-7544

G:\20040 Medical Edu Bldg\Civil\20040-C0.00.dwg Jul 06 2020 - 9:27am

CITY OF LAS VEGAS GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA NEVADA", LATEST ISSUE; THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION, CLARK COUNTY AREA NEVADA", LATEST REVISED EDITION; THE "SUMMERLIN IMPROVEMENT STANDARDS" FOR WORK IN THE SUMMERLIN AREA; AND OTHER APPLICABLE APPROVED STANDARDS ISSUED BY THE CONTROLLING AGENCY; THE UNIFORM BUILDING CODE; AND ALL LOCAL CITY CODES AND ORDINANCES APPLICABLE, EXCEPT AS NOTED ON THIS SHEET AS "DEVIATIONS FROM STANDARDS".
2. THE EXISTENCE AND LOCATION OF ANY OVERHEAD OR UNDERGROUND UTILITY LINES, PIPES, OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A RESEARCH OF THE AVAILABLE RECORDS. EXISTING UTILITIES AS SHOWN FROM CLV PLANS LIBRARY ARE APPROXIMATE AND FOR RECORD PURPOSES. EXISTING UTILITIES ARE LOCATED ON PLANS ONLY FOR THE CONVENIENCE OF THE CONTRACTOR. EXISTING UTILITY SERVICE LATERALS MAY NOT BE SHOWN ON THE PLANS. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, LOCATE ALL UNDERGROUND AND OVERHEAD INTERFERENCE'S WHICH MAY AFFECT HIS OPERATION DURING CONSTRUCTION AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO SAME. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING NEAR OVERHEAD UTILITIES SO AS TO SAFELY PROTECT ALL PERSONNEL AND EQUIPMENT, AND SHALL BE RESPONSIBLE FOR ALL COST AND LIABILITY IN CONNECTION THEREWITH.
3. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING UTILITY LINES, STRUCTURES AND STREET IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE, FROM DAMAGE, AND ALL SUCH IMPROVEMENTS OR STRUCTURES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED SATISFACTORY TO THE CITY ENGINEER AND OWNING UTILITY COMPANY AT THE EXPENSE OF THE CONTRACTOR.
4. ALL CONSTRUCTION SHALL BE AS SHOWN ON THESE PLANS, ANY REVISIONS SHALL HAVE THE PRIOR WRITTEN APPROVAL OF THE CITY ENGINEER.
5. TYPE V CEMENT SHALL BE USED IN ALL OFF-SITE CONCRETE WORK. CONCRETE TO BE 3000 P.S.I. MINIMUM @ 28 DAYS. MIX DESIGNS TO BE APPROVED BY THE QUALITY CONTROL DIVISION, PRIOR TO THE USE ON THE PROJECT.
6. PERMITS ARE REQUIRED FOR ANY WORK IN THE PUBLIC RIGHT-OF-WAY. THE CONTRACTOR SHALL SECURE ALL PERMITS AND INSPECTIONS REQUIRED FOR THIS CONSTRUCTION.
7. EXPANSION JOINTS REQUIRED, MAXIMUM EVERY 300' IN EXTRUDED-TYPE CURB.
8. AC PAVEMENT TO BE 1/2" ABOVE LIP OF ALL GUTTERS AFTER COMPACTION, EXCEPT AT SIDEWALK RAMPS AND CROSS GUTTERS.
9. CURB AND GUTTER FOUND TO BE UNACCEPTABLE TO THE CITY OF LAS VEGAS SHALL BE REMOVED AND REPLACED PER STANDARD DRAWING 216.
10. SIDEWALK RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING 235, CASE I. EXACT LOCATION OF RAMPS MAY BE ADJUSTED IN THE FIELD BY A CITY INSPECTOR.
11. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITIONS BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND FOR INGRESS AND EGRESS TO NEW CONSTRUCTION. THE EXTENT OF TRANSITIONS TO BE AS SHOWN ON PLANS.
12. ALL GRADING WORK SHALL CONFORM TO THE SOILS REPORT AS PREPARED BY GEOTECHNICAL & ENVIRONMENTAL SERVICES PROJECT #2015.3647E1, JUNE 5, 2015 & ADDENDUM, MARCH 22, 2016 APPROVED BY THE CITY ENGINEER, AS SHOWN ON THESE PLANS.
13. EXACT LOCATION OF ALL SAWCUT LINES MAY BE ADJUSTED OR DETERMINED IN THE FIELD BY A CITY OF LAS VEGAS ENGINEER IF LOCATION ON PLANS IS NOT CLEARLY SHOWN, OR EXISTING PAVEMENT CONDITION REQUIRES RELOCATIONS.
14. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT EXISTING PERMANENT SURVEY MONUMENTS. ANY MONUMENTS DISTURBED SHALL BE REPLACED AND ADJUSTED PER AVAILABLE RECORDS IN ACCORDANCE WITH N.R.S.. STATUTE 625.380 & CITY OF LAS VEGAS TITLE 18, APPENDIX D..
15. UTILITY COMPANY METER BOXES, MANHOLE LIDS, VALVE COVERS, ETC., SHALL BE LOCATED OUT OF DRIVEWAYS, DRIVEWAY APRONS, FLOWLINES, AND CROSS GUTTERS UNLESS WRITTEN APPROVAL IS GRANTED BY THE AFFECTED UTILITY COMPANY AND THE CITY ENGINEER.

WALL NOTES:

16. ALL WALLS, NEW OR EXISTING, ARE ONLY SHOWN ON CIVIL PLANS FOR THE PURPOSE OF REVIEWING GRADING RELATIONSHIPS; FLOOD CONTROL AND SIGHT DISTANCE AT INTERSECTIONS. NEW WALLS REQUIRE A SEPARATE PERMIT AND INSPECTION BY THE BUILDING DEPARTMENT.
17. ASPHALT MIX DESIGN MUST BE SUBMITTED AND APPROVED BY THE CITY ENGINEER PRIOR TO THE PLACEMENT OF ASPHALT WITHIN CITY RIGHT OF WAY.
18. CONTRACTOR SHALL ADJUST ALL NEW AND EXISTING INLETS, VALVE BOXES, MANHOLE RIMS, AND SEWER CLEANOUTS, ETC. TO FINISH GRADE AS APPLICABLE WHETHER OR NOT THEY ARE SHOWN ON THE PLANS.
19. MATERIALS, HANDLING AND PLACEMENT OF PORTLAND CEMENT CONCRETE SHALL BE IN ACCORDANCE WITH APPLICABLE SECTIONS OF NDOT AND CLARK COUNTY SPECIFICATIONS (AS APPLICABLE) AND THE PLANS AND DETAILS SHOWN HEREON.
20. WHEN INSTALLING UNDERGROUND FACILITIES THAT REQUIRE UNDERGROUND LOCATING DEVICES SUCH AS MARKER BALLS, LOCATING RIBBON, ETC, THE CONTRACTOR SHALL PROVIDE WRITTEN DOCUMENTATION TO OFFSITE INSPECTION AND TESTING CERTIFYING THAT ALL DEVICES HAVE BEEN PLACED AND VERIFIED TO BE IN GOOD WORKING CONDITION PRIOR TO THE CONSTRUCTION OF ANY ROAD BASE.
21. AFTER HAUNCHING AND PRIOR TO BACKFILL OPERATIONS WHICH WOULD COVER SANITARY SEWER AND STORM DRAIN FACILITIES, CONTRACTOR IS REQUIRED TO SCHEDULE CLV OPEN-TRENCH UTILITY SURVEY INSPECTION FOR DETERMINATION OF FINAL LOCATION COORDINATES, FACILITIES TO BE LOCATED AT A MINIMUM THE HORIZONTAL AND VERTICAL (INVERT) LOCATION OF PUBLIC SEWER MANHOLES, STORM DRAIN MANHOLES AND TRANSITION STRUCTURES, STORM DRAIN LATERALS AT THE CONNECTION TO THE STORM DRAIN MAIN AND AT THE CONNECTION TO A DROP INLET, THE CONNECTION OF SEWER SERVICE LATERALS TO THE SEWER MAIN AND WHERE THE SEWER SERVICE LATERALS EXIT THE PUBLIC RIGHT-OF-WAY, SEWER AND STORM DRAIN MAIN ALIGNMENT, INCLUDING DEFLECTION POINTS. OR (MAY BE USED ONLY ON PROJECTS ASSOCIATED WITH A TENTATIVE MAP CONTAINING 5 LOTS OR MORE) SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S) SHALL BE PROVIDED TO THE CITY AND APPROVED PRIOR TO ACCEPTANCE OF FACILITY VIDEO INSPECTION. THE MAP(S) SHALL INCLUDE THE HORIZONTAL AND VERTICAL (INVERT) LOCATION OF PUBLIC SEWER MANHOLES, STORM DRAIN MANHOLES AND TRANSITION STRUCTURES, STORM DRAIN LATERALS AT THE CONNECTION TO THE STORM DRAIN MAIN AND AT THE CONNECTION TO A DROP INLET, THE CONNECTION OF SEWER SERVICE LATERALS TO THE SEWER MAIN AND WHERE THE SEWER SERVICE LATERALS EXIT THE PUBLIC RIGHT-OF-WAY, SEWER AND STORM DRAIN MAIN ALIGNMENT, INCLUDING DEFLECTION POINTS SHALL BE DESCRIBED BY COORDINATES WHICH SHALL BE BASED ON THE OFFICIAL HORIZONTAL AND VERTICAL CONTROL NETWORKS OF THE CITY OF LAS VEGAS. FINAL LOCATION MAPS MUST BE SEALED AND CERTIFIED BY A NEVADA PROFESSIONAL LAND SURVEYOR TO HAVE POSITIONAL CERTAINTIES OF ± 0.09 METERS (± 0.3 FEET) HORIZONTALLY AND VERTICALLY. A SEPARATE ELECTRONIC COMMA DELIMITED FILE FOR THE SANITARY SEWER AND STORM DRAIN COORDINATES SHALL ALSO ACCOMPANY THE SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S).
22. CCTV VIDEO INSPECTION IS REQUIRED FOR ALL SEWER AND STORM DRAINS. THE CCTV VIDEO INSPECTIONS NEED TO BE PERFORMED PER THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS LATEST EDITION.
23. A SEPARATE BORING PERMIT IS REQUIRED FOR ALL BORING ACTIVITIES.

REVISED 06/04/19

CITY OF LAS VEGAS SEWER NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS AND THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS' CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, AS AMENDED. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BE AWARE OF THE CONTENTS OF THE ABOVE SPECIFICATIONS.
2. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM CONSTRUCTION AS PER PLANS. ANY ADDITIONS, DELETIONS, OR CHANGES SHALL FIRST MEET WITH THE APPROVAL OF THE CITY ENGINEER.
3. CHISEL "S" OR "S"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 WATERMAN 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 SEWERS REQUIRES THE USE OF C-900 PVC PIPE WHICH ALLOWS FOR PIPE DEFLECTION AT THE JOINTS.

REV. DATE 01/13/15

CITY OF LAS VEGAS STREETLIGHT NOTES

1. ALL STREET LIGHTING INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE STREET LIGHTING PLANS, THE "UNIFORM STANDARD SPECIFICATION FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST REVISION (USS), AND THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA" (USD), LATEST REVISION.
2. DESIGN PROFESSIONAL AND CONTRACTOR SHALL VERIFY CITY'S LATEST LED FIXTURE SPECIFICATIONS AND APPROVED FIXTURES PER CLV WEBSITE, UNDER BUILDING AND SAFETY FORMS, PRIOR TO ORDERING MATERIALS.
3. NO DEVIATION OF STREET LIGHT, PULL BOX, CONDUITS (ETC.), LOCATIONS SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL OF THE TRAFFIC AND CITY ENGINEER. ANY DEVIATION FROM THE PLAN LOCATION WILL REQUIRE COMPLIANCE WITH SECTION 623 OF THE USS.
4. ALL EXISTING STREET LIGHTING SHALL REMAIN OPERATIONAL DURING CONSTRUCTION IN ACCORDANCE WITH SECTION 623 G.03.01 OF THE USS.
5. ALL EMPTY CONDUIT SHALL HAVE AT LEAST ONE GREEN NO. #8 AWG WIRE INSTALLED AS TRACER WIRE IN ACCORDANCE WITH SECTION 623 G.02.01 OF THE USS PRIOR TO BACKFILLING AND FINAL INSPECTION.
6. ANY STRUCTURE SUCH AS BLOCK WALLS, CHAIN LINK FENCES, RETAINING WALLS, ETC., SHALL LEAVE A MINIMUM CLEARANCE IN COMPLIANCE WITH USD NO. 320A. WHEN POLE IS INSTALLED BEHIND SIDEWALK, AND SHALL AT NO TIME COMPLETELY ENCLOSE THE STREET LIGHTING POLE.
7. AS-BUILT DRAWINGS SHALL BE SUPPLIED TO THE TRAFFIC ENGINEERING DIVISION PRIOR TO ANY PRE-FINAL INSPECTION. THE AS-BUILT DRAWING NEEDS TO BE STAMPED AS-BUILT AND SIGNED BY THE PREPARER.
8. SERVICE POINTS SHALL BE COORDINATED WITH NV ENERGY, AND WHEREVER POSSIBLE, BE LOCATED NEAR THE CENTER OF THE CIRCUIT. SERVICE POINTS SHALL BE SHOWN ON THE CIVIL PLANS.
9. WHEREVER THERE IS AN OVERHEAD UTILITY THAT MAY CONFLICT WITH THE INSTALLATION OF STREETLIGHTING CIRCUITS AND/OR POLES, THESE CONFLICTS MUST BE RESOLVED BETWEEN THE DEVELOPER AND THE UTILITIES INVOLVED BEFORE STREETLIGHT BASES ARE INSTALLED AT NO EXPENSE TO THE CITY OF LAS VEGAS.
10. THE CONTRACTOR SHALL FURNISH COMPLETE CONDUIT, WIRE, ETC. FROM SERVICE TO TRANSFORMERS AND CONTROL SYSTEMS IF REQUIRED ON THE PLANS.

REV. DATE JUNE 4, 2018 (LD VERSION)

CITY OF LAS VEGAS TRAFFIC NOTES

1. ALL CONSTRUCTION SIGNING, BARRICADING, AND TRAFFIC DELINEATION SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST EDITION.
2. THE STREET SIGN CONTRACTOR SHALL OBTAIN STREET NAMES AND BLOCK NUMBERING FROM THE PLANNING DEPARTMENT PRIOR TO CONSTRUCTION.
3. BEFORE ANY WORK IS STARTED IN THE RIGHT-OF-WAY, THE CONTRACTOR SHALL INSTALL ALL ADVANCE WARNING SIGNS FOR THE CONSTRUCTION ZONE. THE CONTRACTOR SHALL INSTALL TEMPORARY STOP SIGNS AT ALL NEW STREET ENCROACHMENTS INTO EXISTING CITY STREETS WHERE WARRANTED IMMEDIATELY AFTER FIRST GRADING WORK IS ACCOMPLISHED, AND SHALL MAINTAIN SAID SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED.
4. WHEN A DESIGNATED "SUGGESTED 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 TRAFFIC SIGNS SHALL UTILIZE TYPE XI RETROREFLECTIVE SHEETING IN ACCORDANCE WITH CALTRANS 627 AND 716 AND SHALL HAVE AN ANTI-GRAFFITI PROTECTIVE OVERLAY FILM THAT IS A MATCHING COMPONENT TO, AND OF THE SAME MANUFACTURER AS THE REFLECTIVE SHEETING TO WHICH IT IS APPLIED. 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 REGIONAL TRANSPORTATION COMMISSION OF SOUTHERN NEVADA (RTC) IF THE CONSTRUCTION INTERRUPTS OR RELOCATES A BUS STOP OR HAS AN ADVERSE EFFECT ON BUS SERVICE IN THAT STREET TO ARRANGE FOR TEMPORARY RELOCATION OF STOP.
13. GUARDS SHALL BE OBTAINED BY CONTACTING THE METROPOLITAN POLICE DEPARTMENT SPECIAL EVENTS UNIT (PHONE # 828-3442) WHO WILL PROVIDE OFFICERS PROPERLY TRAINED IN TRAFFIC CONTROL. FEES FOR THE USE OF THESE OFFICERS SHALL BE SET BY METRO AND WILL BE PAID BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR ALL ARRANGEMENTS WITH METRO.
14. ANY WORK WITHIN 300' OF A SIGNALIZED INTERSECTION WILL BE NIGHT WORK, UNLESS DIRECTED BY THE CITY OF LAS VEGAS TRAFFIC ENGINEER.
15. THE CONTRACTOR SHALL CONTACT THE TRAFFIC ENGINEERING DIVISION (TRANSPORTATION SECTION) THROUGH THE PROJECT'S OFFSITE INSPECTOR PRIOR TO INITIATING PAVING TO RECEIVE DIRECTION FOR ANY PERMANENT OR TEMPORARY MODIFICATIONS TO THE APPROVED DRAWINGS REGARDING FINAL PAVEMENT TRANSITIONS, MARKINGS AND SIGNING 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 06/04/2018

CITY OF LAS VEGAS GRADING NOTES

1. IN THE EVENT THAT ANY UNFORESEEN CONDITIONS NOT COVERED BY THESE NOTES ARE ENCOUNTERED DURING GRADING OPERATIONS, THE OWNER/ENGINEER SHALL BE IMMEDIATELY NOTIFIED FOR DIRECTION.
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM ALL NECESSARY CUTS AND FILLS WITHIN THE LIMITS OF THIS PROJECT AND THE RELATED OFF-SITE WORK, SO AS TO GENERATE THE DESIRED SUBGRADE, FINISH GRADES AND SLOPES SHOWN.
3. CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR ALL EXCAVATING 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 TO DISPOSE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
5. THE GRADING CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE OWNER TO PROVIDE FOR THE REQUIREMENTS OF THE PROJECT STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND ASSOCIATED PERMIT.
6. CONTRACTOR SHALL GRADE TO THE LINES AND ELEVATIONS SHOWN ON THE PLANS WITHIN THE FOLLOWING HORIZONTAL AND VERTICAL TOLERANCES AND DEGREES OF COMPACTION, IN THE AREAS INDICATED:

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

COMPACTION TESTING WILL BE PERFORMED BY THE OWNER OR HIS REPRESENTATIVE.

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

REV. DATE 04/15/2010

LAS VEGAS VALLEY WATER DISTRICT (LVVWD) STANDARD NOTES

LVVWD PROJECT # _____ (Revised 08/01/2017)

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

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

15. NO LEAD COMPLIANCE NOTE:
TO COMPLY WITH THE FEDERAL SAFE DRINKING WATER ACT, ALL WATER WORKS BRASS PRODUCTS PROPOSED TO BE RELOCATED, OR INSTALLED AS NEW MUST BE INSTALLED WITH THE LEAD FREE APPROVED PRODUCT. THE OLD LEADED PRODUCT MAY NOT BE REUSED.

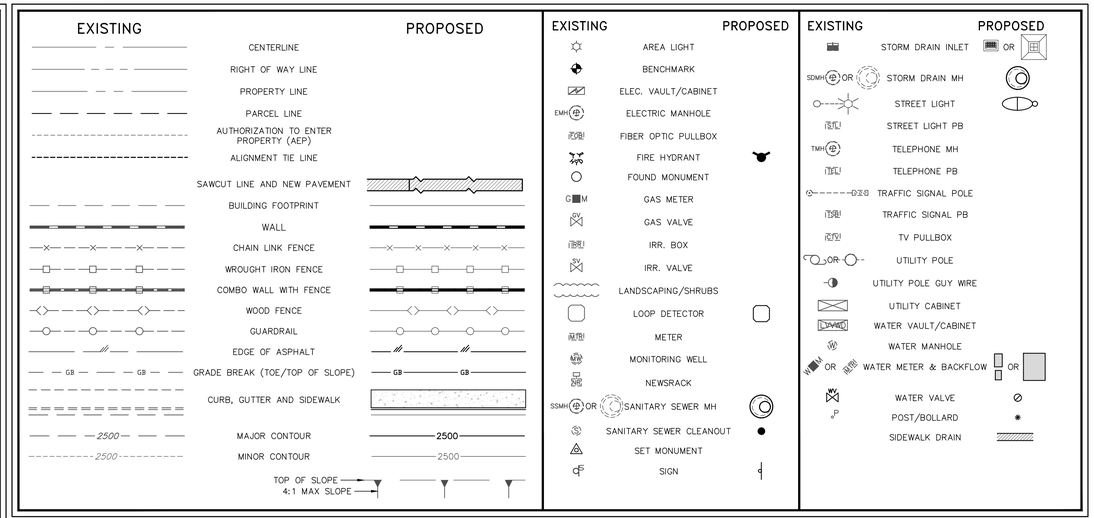
CITY OF LAS VEGAS HYDRANTS AND ACCESS GENERAL NOTES

1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LAS VEGAS FIRE AND RESCUE ADOPTED FIRE CODE ORDINANCE # 6631 FOR HYDRANT SPECIFICATIONS AND HYDRANT INSTALLATION SPECIFICATIONS.
2. ONLY FIRE HYDRANTS THAT ARE ON THE LAS VEGAS VALLEY WATER DISTRICT'S – APPROVED PRODUCTS LIST ARE ALLOWED TO BE INSTALLED.
3. A PERMIT IS REQUIRED 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 § 105.6.15
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 WAT

ABBREVIATIONS

ABAN	ABANDON
AC	ASPHALT CONCRETE
ACP	ASPHALT CONCRETE PAVEMENT
ADA	AMERICANS WITH DISABILITIES ACT
AGG	AGGREGATE
AIP	ABANDON IN PLACE
APPROX	APPROXIMATE
ASS'Y	ASSEMBLY
AV/AR	COMBINATION AIR VALVE ASSEMBLY
AVE	AVENUE
BC	BACK OF CURB
BCR	BACK OF CURB RETURN
BFF	BELOW FINISH FLOOR (ELEVATION)
BLDG	BUILDING
BM	BENCHMARK
BO	BLOW-OFF
BSW	BACK OF SIDEWALK
BTW	BETWEEN
BVC	BEGINNING OF VERTICAL CURVE
℄	CENTERLINE
C&G	CURB AND GUTTER
CATV	CABLE TELEVISION
CC	CLARK COUNTY
CF	CUBIC FEET
CFS	CUBIC FEET PER SECOND
CIP	CAST IN PLACE (CONCRETE)
C.L.	CHAIN LINKED
CL	CENTERLINE
CLR	CLEAR
CLV	CITY OF LAS VEGAS
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CNLV	CITY OF NORTH LAS VEGAS
CNTY	COUNTY
CO	CLEANOUT (SANITARY)
COH	CITY OF HENDERSON
COL	COLUMN
CONC	CONCRETE
CONST	CONSTRUCTION/CONSTRUCT
CONT	CONTINUOUS
COR	CORNER
CSAP	CORRUGATED STEEL ARCH PIPE
CU	CUBIC/COPPER
CY	CUBIC YARD
DCDA	DOUBLE CHECK DETECTOR
DEPT	DEPARTMENT
DG	DECOMPOSED GRANITE
DI	DROP INLET
DIA	DIAMETER
DIAG	DIAGONAL
DOM	DOMESTIC (WATER)
DW	DRIVEWAY
E	ELECTRICAL
EAC	EDGE OF ASPHALT
EG	EXISTING GRADE
EL/ELEV	ELEVATION
EM	ELECTRIC METER
EQ	EQUAL
ESMT	EASEMENT
EP	EDGE OF PAVEMENT
EX/EXIST	EXISTING
EXCL	EXCLUDING
EXT	EXTENSION
FC	FACE OF CURB
FDC	FIRE DEPT CONNECTION
FF	FINISH FLOOR
FFE	FINISH FLOOR ELEVATION
FG	FINISH GRADE
FH	FIRE HYDRANT
FL	FLOWLINE
FND	FOUNDATION
FT	FEET/FOOT
FW	FACE OF WALL
GALV	GALVANIZED
GB	GRADE BREAK
GL	GASLINE
GM	GAS METER
GV	GATE VALVE
HGL	HYDRAULIC GRADE LINE
HORIZ	HORIZONTAL
HP	HIGH POINT/HIGH PRESSURE
INCL	INCLUDING
INT	INTERSECTION
INV	INVERT
LF	LINEAR FEET
LOC	LOCATION
LP	LOW POINT
LT	LEFT
LVVWD	LAS VEGAS VALLEY WATER DISTRICT
MAX	MAXIMUM
ME	MATCH EXISTING
MECH	MECHANICAL(LY)
MH	MANHOLE
MIN	MINIMUM
NDOT	NEVADA DEPARTMENT OF TRANSPORTATION
NTS	NOT TO SCALE
NVE	NEVADA ENERGY
OC	ON CENTER
OH/OVHD	OVERHEAD
P	PROPERTY LINE
P	POWER
PC	POINT OF CURVATURE
PE	POLYETHYLENE
PGL	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
POC	POINT OF CONNECTION
PMF	PAVEMENT MARKING FILM
PP	POWER POLE
PROP	PROPOSED
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
PW	PUBLIC WORKS
PZ	PRESSURE ZONE
R/L	RIGHT & LEFT (OFFSET)
R/W	RIGHT-OF-WAY
R	RADIUS
RC	REINFORCED CONCRETE
RCB	REINFORCED CONCRETE BOX
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDWY	ROADWAY
REF	REFERENCE
RELOC	RELOCATED
REINF	REINFORCED/REINFORCING STEEL
RIM	RIM ELEVATION
RP	RADIUS POINT
RPM	RAISED PAVEMENT MARKER
RT	RIGHT
S	SLOPE
SD	STORM DRAIN
SF	SQUARE FEET
SHDR	SHOULDER
SL	STREETLIGHT
SLV	SLEEVE
SNWA	SOUTHERN NEVADA WATER AUTHORITY
SP	SPECIAL PROVISIONS
SPRK	SPRINKLER (HEAD)
SS	SANITARY SEWER
STA	STATION
STD	STANDARD
STL	STEEL
STLT	STREETLIGHT
STR	STRUCTURAL
SURV	SURVEY
SVC	SERVICE
SW	SIDEWALK
SWG	SOUTHWEST GAS CORPORATION
SY	SQUARE YARD
T	TELEPHONE
t	THICKNESS
TBC	TOP BACK OF CURB
TC	TOP OF CURB
TEMP	TEMPORARY
TFRM	TRANSFORMER
THW	TOP OF HEADWALL
TOF	TOP OF FOOTING
TOS	TOP OF SLAB
TOW	TOP OF WALL
TP	TOP OF PIPE
TRANS	TRANSITION
TS	TRAFFIC SIGNAL
TSI	TRAFFIC SIGNAL INTERCONNECT
TW	TOP OF WALL
TYP	TYPICAL
UG	UNDERGROUND
USD	(CLARK COUNTY AREA) UNIFORM STANDARD DRAWINGS
USS	(CLARK COUNTY AREA) UNIFORM STANDARD SPECIFICATIONS
VAR	VARIES
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL
VG	VALLEY GUTTER
W/	WITH
W	WATER
WL	WATERLINE
WM	WATER METER
X-SEC	CROSS SECTION
YD	YARD

LEGEND



STORM WATER POLLUTION PREVENTION PLAN (S.W.P.P.P.) NOTES

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 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.5.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT AREA 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.

GENERAL CONSTRUCTION NOTES

1. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO PROTECT ALL EXISTING UTILITIES, SURFACES, AND STRUCTURES DURING CONSTRUCTION. ANY EXISTING FEATURES DAMAGED DURING CONSTRUCTION MUST BE REPAIRED IMMEDIATELY (COORDINATING WITH THE OWNING UTILITY AGENCY) AND TO THE OWNERS SATISFACTION AT THE CONTRACTORS EXPENSE.
2. THE ENGINEER DOES NOT WARRANT THE ACCURACY OF THE DIMENSIONS AND ELEVATIONS OF THE EXISTING STRUCTURES SHOWN ON THE DRAWINGS. FIELD MEASUREMENTS OF EXISTING AFFECTED STRUCTURES SHALL BE MADE BY THE CONTRACTOR PRIOR TO CONSTRUCTION. BIDDERS ARE REQUIRED TO VISIT THE SITE TO VERIFY EXISTING CONDITIONS PRIOR TO SUBMITTING BIDS.
3. EXISTING UTILITY LOCATIONS SHOWN HEREIN ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES. NO REPRESENTATION IS MADE TO THE ACCURACY OR COMPLETENESS OF EXISTING UTILITIES AS SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.
4. IN THE CASE OF A CONFLICT ON THE CONTRACT DOCUMENTS OR DRAWINGS, THE MORE STRINGENT REQUIREMENTS SHALL GOVERN. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO NOTIFY THE ENGINEER WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS OR DRAWINGS IMMEDIATELY UPON DISCOVERY.
5. UNLESS NOTED OTHERWISE, IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO OBTAIN ALL PERMITS REQUIRED BY THE IMPROVEMENTS SHOWN ON THE DRAWINGS. THE CONTRACTOR IS TO BECOME FAMILIAR WITH AND COMPLY WITH ALL STATE, FEDERAL, AND LOCAL AGENCIES HAVING JURISDICTION.
6. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO OBTAIN AND COMPLY WITH THE GEOTECHNICAL REPORT PREPARED FOR THIS PROJECT. ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO THE RECOMMENDATIONS SET FORTH IN THE GEOTECHNICAL REPORT. ANY DISCREPANCIES BETWEEN THE CONTRACT DOCUMENTS OR DRAWINGS AND THE GEOTECHNICAL REPORT SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
7. ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO THE CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS (USD) AND UNIFORM STANDARD SPECIFICATIONS (USS). IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO NOTIFY THE ENGINEER IMMEDIATELY OF ANY CONFLICTS OR DEVIATIONS ENCOUNTERED.
8. THE CONTRACTOR IS TO MAINTAIN AND KEEP OPERATIONAL ALL EXISTING ITS INFRASTRUCTURE WITHIN THE CONSTRUCTION LIMITS. IF ANY EXISTING ITS INFRASTRUCTURE IS DAMAGED DUE TO CONSTRUCTION WITHIN THE CONSTRUCTION LIMITS, THE CONTRACTOR SHALL IMMEDIATELY CONTACT MR. JESUS "CHUY" MARMOLEJO (RTC/FAST MANAGER TRAFFIC SYSTEMS MAINTENANCE) AT (702) 604-7078.

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. 136989 FIRST APPROVED DATE: _____

LVVWD APPROVED FIRE FLOW: TOTAL 2875 GPM/ONSITE 2000 GPM

SHEETS C0.00, C0.01, C0.02, C0.03, C5.00-C5.05, C6.02

ESTIMATED QUANTITIES

ROADWAY

DESCRIPTION	PRIVATE	PUBLIC
LIGHT DUTY PAVEMENT	4,550 SY	0 SY
HEAVY DUTY PAVEMENT	6,600 SY	0 SY
6" "A" CURB	3,600 LF	0 LF
8' CONCRETE VALLEY GUTTER	0 SF	575 SF
TYPE II GRAVEL BASE	0 CY	0 CY
EXCAVATION AND EMBANKMENT	0 CY	0 CY
24" "L" TYPE CURB AND GUTTER	1,050 LF	0 LF
4" CONCRETE SIDEWALK	0 SF	0 SF
ADA RAMPS W/TRUNCATED DOMES PER CCAUSD NO. 235.	0 EA	0 EA
2' VALLEY GUTTER	26 LF	0 LF

DRAINAGE ITEMS

DESCRIPTION	PRIVATE	PUBLIC
24" RCP STORM DRAIN	335 LF	0 LF
48" TYPE I SDMH	1 EA	1 EA
48" TYPE "A" DROP INLET	0 EA	1 EA
RCP FLARED END	1 EA	0 EA

WATER

DESCRIPTION	PRIVATE	PUBLIC
8" C-900 PVC	740 LF	61 LF
6" C-900 PVC	220 LF	0 LF
3" SCH. 40 PVC WL	106 LF	0 LF
2" COPPER WL	0 LF	100 LF
FIRE HYDRANT ASSEMBLY W/ 6" GATE VALVE	2 EA	0 EA
2" METER	0 EA	3 EA
2" RPPA	0 EA	3 EA
8" RPDA	0 EA	2 EA

SEWER

DESCRIPTION	PRIVATE	PUBLIC
48" DIA SEWER MANHOLE	2 EA	1 EA
4" C-900 PVC SANITARY SEWER	200 LF	0 LF
8" C-900 PVC SANITARY SEWER	300 LF	0 LF
1,000 GALLON SAND/OIL SEPARATOR	2 EA	0 EA
TRENCH DRAIN	20 LF	0 LF

TRAFFIC & STREET LIGHT

DESCRIPTION	PRIVATE	PUBLIC
STREET SIGNS	0 EA	0 EA
PAVEMENT STRIPING	0 LF	0 LF
BLUE REFLECTIVE PAVEMENT MARKER	0 EA	0 EA
GREEN REFLECTIVE PAVEMENT MARKER	0 EA	0 EA

NOTE:
THESE QUANTITIES ARE AN ESTIMATE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR QUANTITIES FOR BIDDING PURPOSES. QUANTITIES FOR CITY USE ONLY. QUANTITIES DO NOT REFLECT ENTIRE PROJECT SCOPE AND SHOULD NOT BE USED FOR BIDDING OR CONSTRUCTION PURPOSES.

SOUTHWEST GAS CORPORATION GENERAL NOTES

1. IN THE EVENT OF NATURAL GAS EMERGENCIES CALL 911 AND 1-877-860-6020
2. MINIMUM HORIZONTAL AND VERTICAL CLEARANCES BETWEEN NATURAL GAS FACILITIES AND ANY UNDERGROUND UTILITIES AND/OR STRUCTURES, INCLUDING BUT NOT LIMITED TO WATER, SEWER, STORM DRAIN, COMMUNICATIONS, AND ELECTRIC SHALL BE AT LEAST 12-INCHES OR GREATER AS DICTATED BY LOCAL CODES AND STANDARDS.
   a) ANY DEVIATION FROM SPECIFIED MINIMUM CLEARANCES MUST BE APPROVED BY ALL AFFECTED UTILITIES AND/OR MUNICIPALITIES
3. FOR VALVE ADJUSTMENT CONTACT 702-668-6107 48 HOURS PRIOR TO CONSTRUCTION.
4. IN THE EVENT OF A NATURAL GAS CONFLICT WITH PROPOSED UTILITIES AND STRUCTURES CONTACT 702-365-2099.

APPROVALS

CITY OF LAS VEGAS FIRE DEPARTMENT DATE

SOUTHWEST GAS CORPORATION SWG UID DATE

POGGEMEYER DESIGN GROUP
6960 Smoke Ranch Suite 110
Las Vegas, Nevada 89128
p) 702.255.8100
f) 702.255.8375
www.poggemeyer.com

BY	REVISION	DATE

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PROFESSIONAL ENGINEER - STATE OF NEVADA
VERNON R. HARKINS
Exp. 6-30-21
CIVIL
No. 009999
07/06/2020

LEGEND, ABBREVIATIONS, & LEGEND
NEVADA HEALTH & BIOSCIENCE
ASSET CORPORATION
HEALTHCARE 1930 VILLAGE CENTER CIRCLE #3-805
LAS VEGAS, NEVADA 89144

SD SET, 6/05/20

JOB NUMBER	LV-20040
DESIGNED BY	MP
DRAWN BY	MP
CHECKED BY	MP
DATE	07/2020

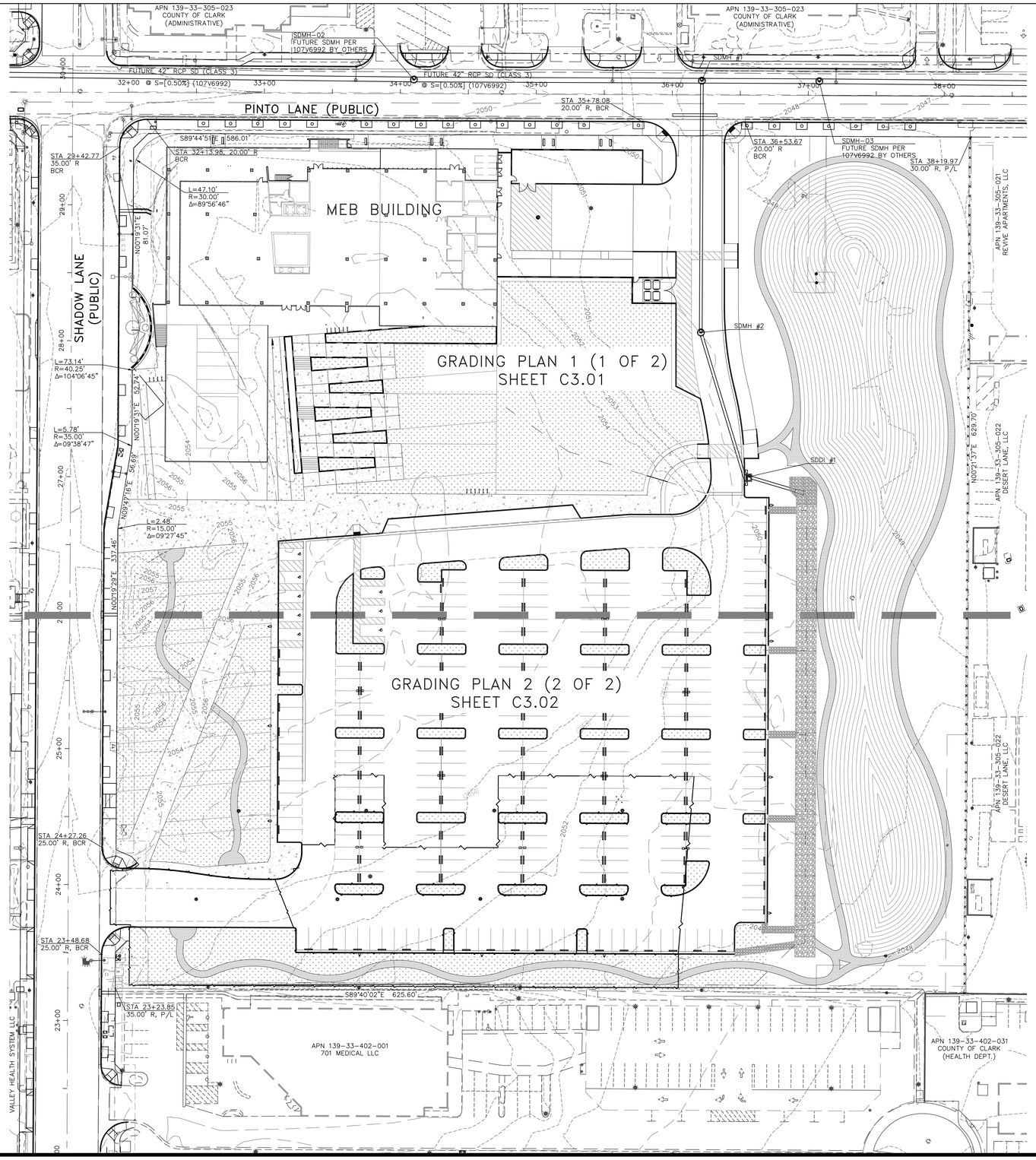
SHEET NUMBER
C0.02
3 of 16

AVOID HITTING UNDERGROUND TRAFFIC SIGNAL SYSTEMS AND STREET LIGHT SYSTEM CONDUITS. IT'S COSTLY
Call before you Underground
1-702-455-7511 CLARK COUNTY PUBLIC WORKS
1-702-432-5300 UNDERGROUND UTILITIES PROTECTION SERVICE
1-702-385-1072 NV DEPARTMENT OF TRANSPORTATION (T.A.S.S.)
AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY
Call before you Overhead
1-702-227-2929 NEVADA POWER ENVIRONMENT AND SAFETY SERVICES DEPARTMENT
Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811
1-800-227-2600 and CLARK COUNTY TRAFFIC OPERATIONS
1-702-455-7544

G:\20040 Medical Edu Bldg\Civil\20040-C0.00.dwg Jul 06 2020 - 9:27am

NOTE:

IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ANY STEPS WITHIN BUILDING AREA.



N
W E
S

GRAPHIC SCALE

40 0 20 40 80

(IN FEET)

1 INCH = 40 ft.

(SCALE VALID AT FULL-SIZE, 24X36, ONLY)

AVOID HITTING UNDERGROUND TRAFFIC SIGNAL SYSTEMS AND STREET LIGHT SYSTEM CONDUITS. IT'S COSTLY

Call before you Underground
1-702-455-7311
CLARK COUNTY TRAFFIC SIGNAL AND SIGNAL SYSTEM
1-702-432-5300
REGIONAL TRANSPORTATION COMMISSION OF SOUTHERN NEVADA

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY

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

Call before you Dig
Avoid cutting underground utility lines. It's costly.
811
1-800-227-2600
AND
CLARK COUNTY DEPARTMENT OF AVIATION
1-702-455-7544

POGGEMEYER DESIGN GROUP
6960 Smoke Ranch Suite 110
Las Vegas, Nevada 89128
p) 702.255.8100
f) 702.255.8375
www.poggemeyer.com

BY	REVISION	DATE

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PROFESSIONAL ENGINEER-STATE OF NEVADA
VERNON R. HARKINS
Exp. 6-30-21
CIVIL
No. 009699
07/06/2020

OVERALL GRADING PLAN

NEVADA HEALTH & BIOSCIENCE
ASSET CORPORATION

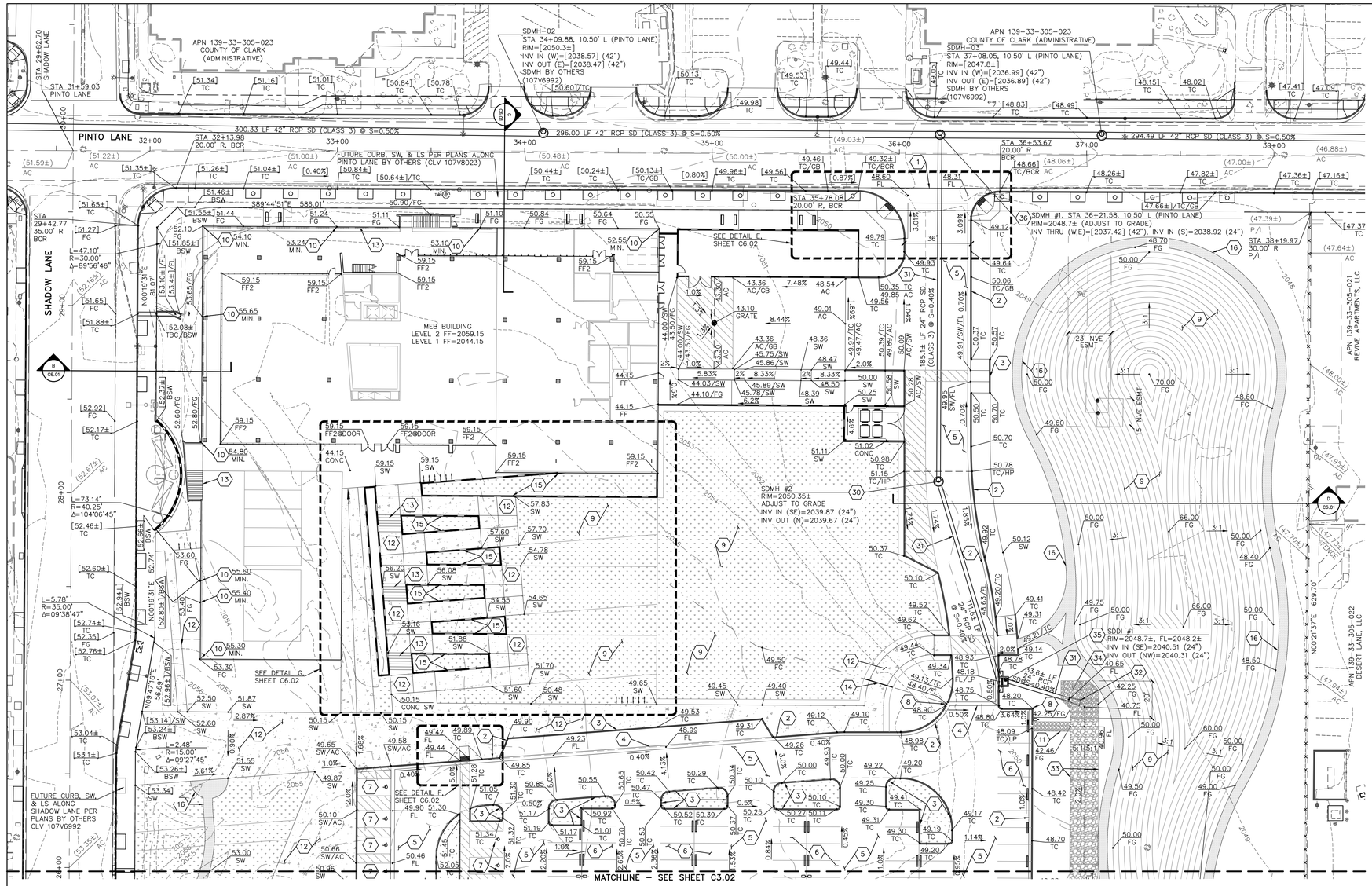
HEALTHCARE 1930 VILLAGE CENTER CIRCLE #3-805
LAS VEGAS, NEVADA 89144

SD SET- 6/05/20

JOB NUMBER	LV-20040
DESIGNED BY	MP
DRAWN BY	MP
CHECKED BY	MP
DATE	07/2020

SHEET NUMBER
C3.00
8 of 16

G:\20040 Medical Edu Bldg\Civil\20040-C3.00.dwg Jul 06 2020 - 9:28am



CONSTRUCTION NOTES

1. CONSTRUCT COMMERCIAL DRIVEWAY PER CCAUSD DWG. NO. 222.1 & 8' VALLEY GUTTER PER CCAUSD NO. 225
2. CONSTRUCT "L" CURB & GUTTER PER CCAUSD DWG. NO. 216 OVER 6" MIN. TYPE II BASE COMPACTED TO 95% MIN.
3. CONSTRUCT "A" TYPE CURB PER DETAIL NO. 2 SHEET C6.01 OVER 6" MIN. TYPE II BASE COMPACTED TO 95% MIN.
4. INSTALL 2' VALLEY GUTTER PER DETAILS NO. 1 ON SHEET C6.01
5. INSTALL HIGH IMPACT A.C. PAVEMENT PER DTL 2, SHT C6.01
6. INSTALL LOW IMPACT A.C. PAVEMENT PER DTL 2, SHT C6.01
7. INSTALL ACCESSIBLE PARKING STALLS PER DETAIL NO. 3 ON SHEET C6.01
8. CONSTRUCT CURB OPENING PER DETAIL NO. 4 SHEET C6.01
9. LANDSCAPE AREA REF. TO ARCH. AND LANDSCAPE PLANS
10. INSTALL WATERPROOFING IN CONCRETE WALL TO AT LEAST 2' ABOVE FINISH GRADE. SEE ARCH. PLANS.
11. INSTALL RIP-RAP. D50=6", T=12". APPROX. 10' WIDE, LENGTH=35'. REFER TO LS PLANS.
12. CONSTRUCT 4" THICK CONCRETE SW. USE 4000 PSI MINIMUM CONC. OVER 6" TYPE 2 AGG. BASE. SEE ARCH PLANS FOR SURFACE TREATMENT AND LAYOUT
13. INSTALL STAIRS. SEE ARCH. PLANS.
14. INSTALL 4" SQUARE STEEL TUBE FOR UNDERSIDEWALK DRAINAGE IN LANDSCAPE AREAS.
15. INSTALL CMU WALLS AS PER ARCH PLANS FOR SWITCHBACK RAMPS.
16. INSTALL DECOMPOSED GRANITE IN TRAILWAY. REFER TO LS PLANS BY OTHERS FOR FURTHER INFORMATION.
17. SAWCUT EXISTING UNLV PARKING LOT AT SAWCUT LINE.
18. PROTECT IN PLACE EXISTING UNLV PARKING LOT ASPHALT.

STORM NOTES

30. INSTALL 48" TYPE 1 SDMH PER CCAUSD NO. 403
31. INSTALL 24" RCP STORM DRAIN PIPE
32. INSTALL RCP FLARED END FOR 24" RCP SD PIPE
33. CONSTRUCT "V" DITCH FOR DRAINAGE. MINIMUM DEPTH=1.5', SIDE SLOPES=5:1, LONGITUDINAL SLOPE=2.0%. INSTALL RIP-RAP ALONG ENTIRE WIDTH AND LENGTH. D50=6", THICKNESS=12".
34. CONSTRUCT GROUTED RIP-RAP AROUND FLARED END AT END OF CHANNEL. RIP-RAP D50=6:, THICKNESS=12".
35. INSTALL 4' WIDE TYPE "A" DROP INLET PER CCAUSD NO. 411 & ADD CONC. STAMP PER CCAUSD NO. 421. CONNECT 24" RCP PIPE TO THE BACK SIDE OF DI & 24" RCP PIPE TO THE OUTLET SIDE FOR DI.
36. CONSTRUCT TYPE III SDMH PER CCAUSD NO. 406.1

NOTE:

OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DISTURBED, DESTROYED, OR OBSCURED DURING CONSTRUCTION

CITY OF LAS VEGAS FIRE DEPARTMENT DATE

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. 136989 FIRST APPROVED DATE: _____
LVVWD APPROVED FIRE FLOW: TOTAL 2875 GPM/ONSITE 2000 GPM

POGGEMEYER DESIGN GROUP
6960 Smoke Ranch Suite 110
Las Vegas, Nevada 89128
p) 702.255.8100
f) 702.255.8375
www.poggemeyer.com

BY | DATE | REVISION

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PROFESSIONAL ENGINEER-STATE OF NEVADA
VERNON R. HARKINS
Exp. 6-30-21
CIVIL
No. 009899
07/06/2020

GRADING PLAN 1 (1 OF 2)
NEVADA HEALTH & BIOSCIENCE ASSET CORPORATION
HEALTHCARE 1930 VILLAGE CENTER CIRCLE #3-805
LAS VEGAS, NEVADA 89144

DRAINAGE NOTE:

ALL ONSITE STORM DRAINS AND THE ASSOCIATED FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY THE PROPERTY OWNER.

BASIS OF BEARINGS:

SOUTH 89°47'20" EAST BEING THE SOUTH LINE OF THE SOUTHWEST QUARTER (SW 1/4) OF SECTION 33, TOWNSHIP 20 SOUTH, RANGE 61 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN ON A CERTAIN MAP, FILE 195, PAGE 44 OF SURVEYS, CLARK COUNTY RECORDER'S OFFICE, CLARK COUNTY, NEVADA.

BENCHMARK:

PROJECT DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
CITY OF LAS VEGAS BENCHMARK: ILV013359W6 (2008)
NAVD88 ELEVATION: 626.27 METERS (2,054.68 FEET) (2,054.72 FEET PER SURVEY SHOT)
RIVET AND PLATE IN TOP OF CURB EAST SIDE SHADOW LANE 1/4 MILE
NORTH OF CHARLESTON BLVD (OLD SE CORNER OF SHADOW LANE & PALOMINO LANE).

SOILS REPORT:

THE SITE SHALL BE GRADED IN ACCORDANCE WITH THE GEOTECHNICAL REPORTS PREPARED BY GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC., PROJECT #XXXXX DATED XX X, 2020 AND UPDATED XX X, 2020.

FEMA STATEMENT:

ACCORDING TO FEMA, THE SUBJECT PROPERTY IS LOCATED IN ZONE X, ON FIRM PANEL XXXXXXX; EFFECTIVE DATE XXX XX, 2020, BASED UPON LATEST LOMR.

GRAPHIC SCALE
30 0 15 30 60
(IN FEET)
1 INCH = 30 ft.
(SCALE VALID AT FULL- SIZE, 24X36, ONLY)

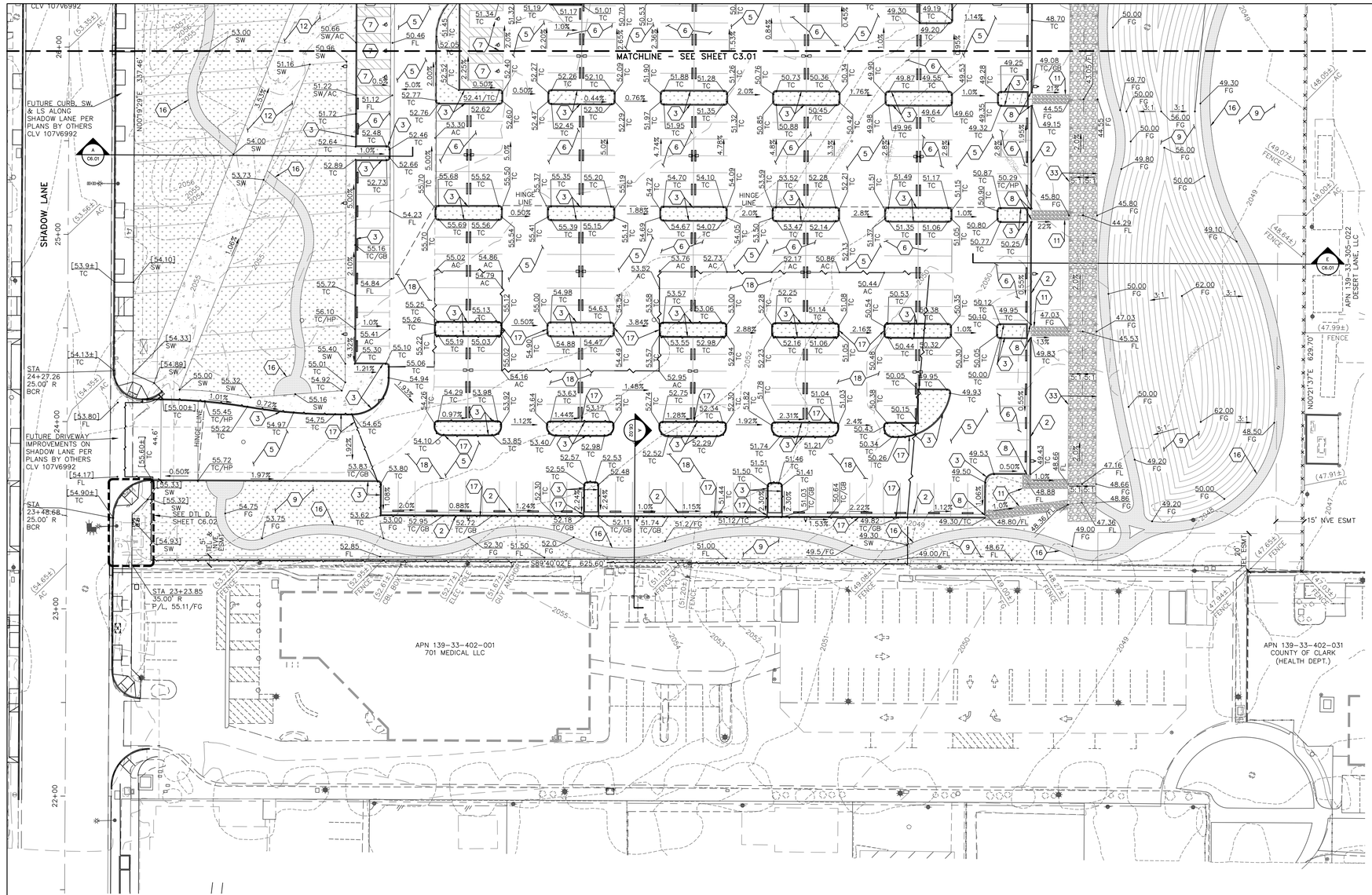
AVOID HITTING UNDERGROUND TRAFFIC SIGNAL SYSTEMS AND STREET LIGHT SYSTEM CONDUITS. IT'S COSTLY
Call before you Underground
1-702-455-7511 CLARK COUNTY PUBLIC WORKS
1-702-432-5300 CITY OF LAS VEGAS PUBLIC WORKS
NV TRANSPORTATION (T.A.S.S.)
AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY
Call before you Overhead
1-702-227-2929 NEVADA POWER ENVIRONMENT AND SAFETY SERVICES DEPARTMENT
Call before you Dig
Avoid cutting underground utility lines. It's costly.
811
1-800-227-2600 NEVADA ONE CALL
CLARK COUNTY TRAFFIC OPERATIONS
1-702-455-7544

JOB NUMBER	LV-20040
DESIGNED BY	MP
DRAWN BY	MP
CHECKED BY	MP
DATE	07/2020

SHEET NUMBER
C3.01
9 of 16

SD SET, 6/05/20

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CONSTRUCTION NOTES

1. CONSTRUCT COMMERCIAL DRIVEWAY PER CCAUSD DWG. NO. 222.1 & 8' VALLEY GUTTER PER CCAUSD NO. 225
2. CONSTRUCT "L" CURB & GUTTER PER CCAUSD DWG. NO. 216 OVER 6" MIN. TYPE II BASE COMPACTED TO 95% MIN.
3. CONSTRUCT "A" TYPE CURB PER DETAIL NO. 2 SHEET C6.01 OVER 6" MIN. TYPE II BASE COMPACTED TO 95% MIN.
4. INSTALL 2' VALLEY GUTTER PER DETAILS NO. 1 ON SHEET C6.01
5. INSTALL HIGH IMPACT A.C. PAVEMENT PER DTL 2, SHT C6.01
6. INSTALL LOW IMPACT A.C. PAVEMENT PER DTL 2, SHT C6.01
7. INSTALL ACCESSIBLE PARKING STALLS PER DETAIL NO. 3 ON SHEET C6.01
8. CONSTRUCT CURB OPENING PER DETAIL NO. 4 SHEET C6.01
9. LANDSCAPE AREA REF. TO ARCH. AND LANDSCAPE PLANS
10. INSTALL WATERPROOFING IN CONCRETE WALL TO AT LEAST 2' ABOVE FINISH GRADE. SEE ARCH. PLANS.
11. INSTALL RIP-RAP. D50=6", T=12". APPROX. 10' WIDE, LENGTH=35'. REFER TO LS PLANS.
12. CONSTRUCT 4" THICK CONCRETE SW. USE 4000 PSI MINIMUM CONC. OVER 6" TYPE 2 AGG. BASE. SEE ARCH PLANS FOR SURFACE TREATMENT AND LAYOUT.
13. INSTALL STAIRS. SEE ARCH. PLANS.
14. INSTALL 4" SQUARE STEEL TUBE FOR UNDERSIDEWALK DRAINAGE IN LANDSCAPE AREAS.
15. INSTALL CMU WALLS AS PER ARCH PLANS FOR SWITCHBACK RAMPS.
16. INSTALL DECOMPOSED GRANITE IN TRAILWAY. REFER TO LS PLANS BY OTHERS FOR FURTHER INFORMATION.
17. SAWCUT EXISTING UNLV PARKING LOT AT SAWCUT LINE.
18. PROTECT IN PLACE EXISTING UNLV PARKING LOT ASPHALT.

STORM NOTES

30. INSTALL 48" TYPE 1 SDMH PER CCAUSD NO. 403
31. INSTALL 24" RCP STORM DRAIN PIPE
32. INSTALL RCP FLARED END FOR 24" RCP SD PIPE
33. CONSTRUCT "V" DITCH FOR DRAINAGE. MINIMUM DEPTH=1.5', SIDE SLOPES=5:1, LONGITUDINAL SLOPE=2.0%. INSTALL RIP-RAP ALONG ENTIRE WIDTH AND LENGTH. D50=6", THICKNESS=12".
34. CONSTRUCT GROUTED RIP-RAP AROUND FLARED END AT END OF CHANNEL. RIP-RAP D50=6:, THICKNESS=12".
35. INSTALL 4' WIDE TYPE "A" DROP INLET PER CCAUSD NO. 411 & ADD CONC. STAMP PER CCAUSD NO. 421. CONNECT 24" RCP PIPE TO THE BACK SIDE OF DI & 24" RCP PIPE TO THE OUTLET SIDE FOR DI.
36. CONSTRUCT TYPE III SDMH PER CCAUSD NO. 406.1

NOTE:

OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DISTURBED, DESTROYED, OR OBSCURED DURING CONSTRUCTION

CITY OF LAS VEGAS FIRE DEPARTMENT DATE

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. 136989 FIRST APPROVED DATE: _____
LVVWD APPROVED FIRE FLOW: TOTAL 2875 GPM/ONSITE 2000 GPM

GRAPHIC SCALE
30 0 15 30 60
(IN FEET)
1 INCH = 30 ft.
(SCALE VALID AT FULL-SIZE, 24X36, ONLY)

DRAINAGE NOTE:

ALL ONSITE STORM DRAINS AND THE ASSOCIATED FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY THE PROPERTY OWNER.

BASIS OF BEARINGS:

SOUTH 89°47'20" EAST BEING THE SOUTH LINE OF THE SOUTHWEST QUARTER (SW 1/4) OF SECTION 33, TOWNSHIP 20 SOUTH, RANGE 61 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN ON A CERTAIN MAP, FILE 195, PAGE 44 OF SURVEYS, CLARK COUNTY RECORDER'S OFFICE, CLARK COUNTY, NEVADA.

BENCHMARK:

PROJECT DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
CITY OF LAS VEGAS BENCHMARK: 1LV01335W6 (2008)
NAVD88 ELEVATION: 626.27 METERS (2,054.68 FEET) (2,054.72 FEET PER SURVEY SHOT)
RIVET AND PLATE IN TOP OF CURB EAST SIDE SHADOW LANE 1/4 MILE NORTH OF CHARLESTON BLVD (OLD SE CORNER OF SHADOW LANE & PALOMINO LANE).

SOILS REPORT:

THE SITE SHALL BE GRADED IN ACCORDANCE WITH THE GEOTECHNICAL REPORTS PREPARED BY GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC., PROJECT #XXXXX DATED XX X, 2020 AND UPDATED XX X, 2020.

FEMA STATEMENT:

 according to FEMA, the subject property is located in zone X, on firm panel XXXXXXX; effective date XXX XX, 2020, based upon latest LOMR.

Avoid hitting underground traffic signal systems and street light system conduits. Call before you Underground 1-702-455-7511 Clark County Public Works 1-702-432-5300 Freeway and Arterial System of Transportation (F.A.S.T.)

Avoid hitting overhead power lines. It's costly. Call before you Overhead 1-702-227-2929 Nevada Power Environment and Safety Services Department

Call before you Dig 811 or 1-800-227-2600 Nevada Blue Stake, Inc. (NBS) and 1-702-455-7944 Clark County Traffic Operations

POGGEMEYER DESIGN GROUP
6960 Smoke Ranch Suite 110
Las Vegas, Nevada 89128
p) 702.255.8100
f) 702.255.8375
www.poggemeyer.com

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PROFESSIONAL ENGINEER-STATE OF NEVADA
VERNON R. HARKINS
Exp. 6-30-21
CIVIL
No. 009898
07/06/2020

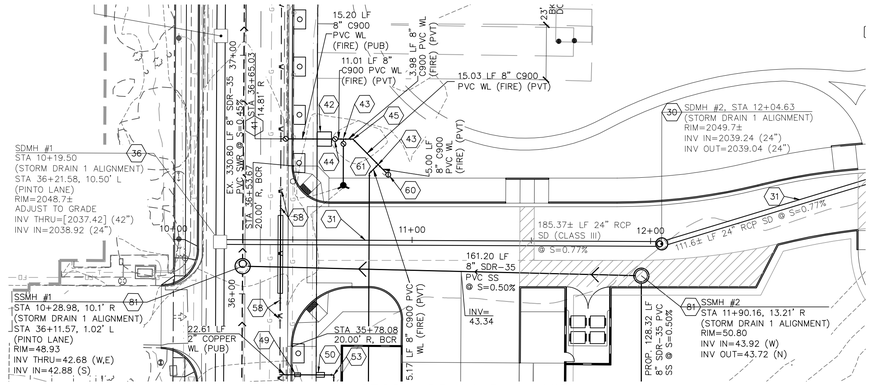
GRADING PLAN 2 (2 OF 2)
NEVADA HEALTH & BIOSCIENCE
ASSET CORPORATION
HEALTHCARE 1930 VILLAGE CENTER CIRCLE #3-805
LAS VEGAS, NEVADA 89144

JOB NUMBER	LV-20040
DESIGNED BY	MP
DRAWN BY	MP
CHECKED BY	MP
DATE	07/2020

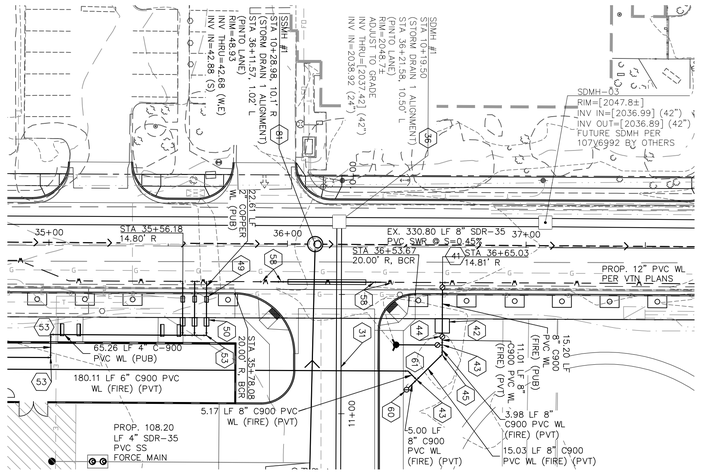
SHEET NUMBER
C3.02
10 of 16

SD SET, 6/05/20

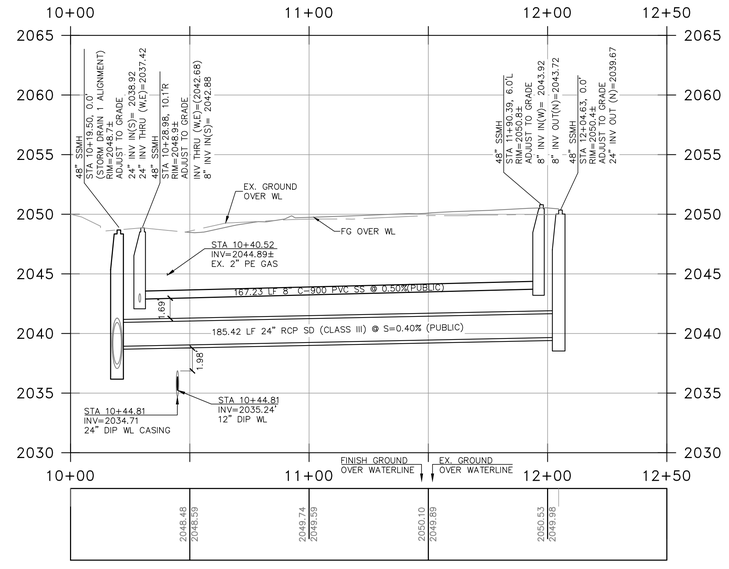
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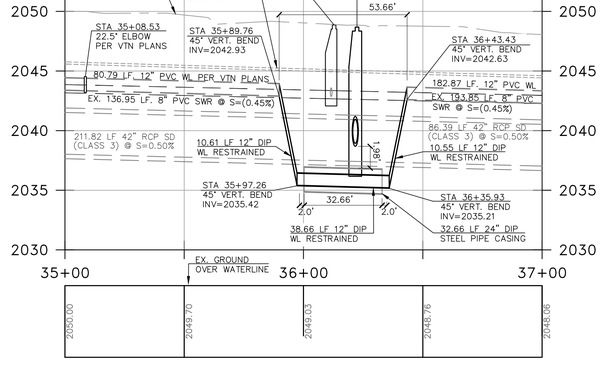
STORM DRAIN PLAN VIEW
STA 10+00 TO 12+50



WATERLINE CROSSING PLAN VIEW
STA 35+00 TO 37+00



STORM DRAIN PROFILE VIEW
STA 10+00 TO 12+50



WATERLINE CROSSING
PROFILE VIEW
STA 35+00 TO 37+00

WATER NOTES

41. INSTALL 8" TAPPING TEE & TAPPING VALVE PER UDACS PLATE NO. 34
42. INSTALL 8" RPDA IN ABOVE GROUND INSULATED ENCLOSURE PER UDACS PLATE NO. 56
43. INSTALL 8" X 6" TEE PER UDACS PLATE NO. 31
44. INSTALL 8" GATE VALVE PER UDACS PLATE NO. 30
45. INSTALL 8" 45° HORIZ. BEND PER UDACS PLT NO. 31
46. INSTALL 8" 22.5° HORIZ. BEND PER UDACS PLT NO. 31
47. INSTALL 8" 90° HORIZ. BEND PER UDACS PLT NO. 31
48. INSTALL FIRE HYDRANT ASSEMBLY W/ 6" GATE VALVE PER UDACS PLATE NO. 40
49. INSTALL 2" METER W/ SERVICE SADDLE & CORPORATE STOP ASSEMBLY PER UDACS PLATE #4
50. INSTALL 2" RPPA IN ABOVE GROUND INSULATED ENCLOSURE PER UDACS PLT #8 & DTL 7, SHT C6.02
51. INSTALL 2" X 4" REDUCER PER UDACS PLATE #30
52. INSTALL 2" HORIZ. 90° ELBOW
53. INSTALL 4" 90° HORIZ. ELBOW PER UDACS PLT NO. 31
54. INSTALL 2" HORIZ. 45° ELBOW
55. FDC–REFER TO MECHANICAL/FIRE SPRINKLER PLANS FOR CONNECTION (PRIVATE)
56. INSTALL 2" TAPPING SADDLE PER UDACS PLATE #4
57. INSTALL 4" TEE PER UDACE PLATE NO. 31
58. INSTALL 8" 45° VERT. BEND PER UDACS PLT NO. 31
59. INSTALL 24" STEEL CASING PER UDACS PLT. #22, #23
60. INSTALL CAP & 2" BLOW OFF VALVE PER UDACS PLT #36
61. INSTALL 6" 45° HORIZ. BEND PER UDACS PLT NO. 31

SEWER NOTES

81. INSTALL STANDARD ECCENTRIC MANHOLE (48" DIA.) PER DCSWCS DWG. NO. SD-1A & SD-1B
82. INSTALL JENSEN PRECAST 1000 GALLON SAND/OIL SEPARATOR
83. IINSTALL JENSEN PRECAST NO. 200 DROP INLET OR EQUIV. WITH SOLID LID UNLESS NOTED OTHERWISE. ADD CONC. STAMP PER CCAUSD DWG. NO. 421.

STORM NOTES

30. INSTALL 48" TYPE 1 SDMH PER CCAUSD NO. 403
31. INSTALL 24" RCP STORM DRAIN PIPE
32. INSTALL RCP FLARED END FOR 24" RCP SD PIPE
33. CONSTRUCT "V" DITCH FOR DRAINAGE. MINIMUM DEPTH=1.5', SIDE SLOPES=5:1, LONGITUDINAL SLOPE=2.0%
34. CONSTRUCT GROUTED RIP AROUND FLARED END AT END OF CHANNEL.
35. INSTALL 4' WIDE TYPE "A" DROP INLET PER CCAUSD NO. 411 & ADD CONC. STAMP PER CCAUSD NO. 421. CONNECT 24" RCP PIPE TO THE BACK SIDE OF DI & 24" RCP PIPE TO THE OUTLET SIDE FOR DI.
36. CONSTRUCT TYPE III SDMH PER CCAUSD NO. 406.1

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BY	DATE	REVISION

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PROFESSIONAL ENGINEER-STATE OF NEVADA
VERNON R. HARKINS
Exp. 6-30-21
CIVIL
No. 009898
07/06/2020

STORM DRAIN PLAN & PROFILE
NEVADA HEALTH & BIOSCIENCE ASSET CORPORATION
HEALTHCARE 1930 VILLAGE CENTER CIRCLE #3-805
LAS VEGAS, NEVADA 89144

TO ENSURE LVVWD ACCESS WITHIN EASEMENT

ALL ABOVE GROUND OBSTRUCTIONS INCLUDING BUT NOT LIMITED TO, LANDSCAPE BOULDERS, FENCES/WALLS (TO INCLUDE NO FOOTINGS), AND SIGNS ARE STRICTLY PROHIBITED WITHIN EASEMENT. INSTALL BOLLARDS PER UDACS PLT 75. EXACT LOCATION TO BE DETERMINED BY LVVWD INSPECTION. WATER MAIN JOINT DEFLECTION, PER UDACS 2.07.01 & 2.07.03.

NOTE:

1. LVVWD CANNOT GUARANTEE WATER TIGHT SHUTDOWN WHERE CONNECTION OR REPAIRS TO EXISTING FACILITIES ARE REQUIRED. THE CONTRACTOR SHALL ENSURE ALL LABOR AND EQUIPMENT IS AVAILABLE TO REMOVE REMAINING WATER. COORDINATION WITH INSPECTION DIVISION MUST TAKE PLACE PRIOR TO ANY TRIAL SHUT DOWN.
2. CONTRACTOR TO INSTALL TEMPORARY SERVICE TO ENSURE PROPER SHUT DOWN IN THE EVENT NO OTHER APPURTENANCES ARE AVAILABLE.
3. PROTECT IN PLACE AND ADJUST LVVWD EXISTING FACILITIES TO FINISHED GRADE PER UDACS. ALL LVVWD FACILITIES SHALL BE ACCESSIBLE AT ALL TIMES.
4. DISPOSAL OF ASBESTOS CEMENT PIPE (ACP) SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE, & FEDERAL REGULATIONS.
5. 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 (PRV) BE INSTALLED WHENEVER THE PRESSURE EXCEEDS 80 PSI. PRV'S ARE THE DEVELOPER'S RESPONSIBILITY, & WILL NOT BE INSPECTED OR INCLUDED IN THE ACCEPTANCE OF LVVWD FACILITIES.

BASIS OF BEARINGS:

SOUTH 89°47'20" EAST BEING THE SOUTH LINE OF THE SOUTHWEST QUARTER (SW 1/4) OF SECTION 33, TOWNSHIP 20 SOUTH, RANGE 61 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN ON A CERTAIN MAP, FILE 195, PAGE 44 OF SURVEYS, CLARK COUNTY RECORDER'S OFFICE, CLARK COUNTY, NEVADA.

BENCHMARK:

PROJECT DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
CITY OF LAS VEGAS BENCHMARK: 1LV013359W6 (2008)
NAVD88 ELEVATION: 626.27 METERS (2,054.68 FEET) (2,054.72 FEET PER SURVEY SHOT)
RIVET AND PLATE IN TOP OF CURB EAST SIDE SHADOW LANE 1/4 MILE
NORTH OF CHARLESTON BLVD (OLD SE CORNER OF SHADOW LANE & PALOMINO LANE).

APPROVED FOR CONSTRUCTION

SOUTHWEST GAS CORPORATION	SWG UID	DATE
CITY OF LAS VEGAS FIRE DEPARTMENT		DATE
LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES		

PROJECT NO. XXXXXX FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW: TOTAL 2625 GPM/ONSITE 2625 GPM

GRAPHIC SCALE
30 0 15 30 60
(IN FEET)
1 INCH = 30 ft.
(SCALE VALID AT FULL-SIZE, 24X36, ONLY)

UTILITIES NOTE:

ALL EXISTING UTILITIES DEPICTED ARE APPROXIMATE AND CONTRACTOR SHALL VERIFY EXACT LOCATION IN FIELD

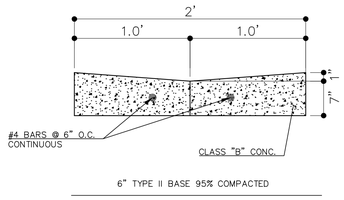
AVOID HITTING UNDERGROUND TRAFFIC SIGNAL SYSTEMS AND STREET LIGHT SYSTEM CONDUCTORS. IT'S COSTLY
Call before you Underground
1-702-455-7511 CLARK COUNTY PUBLIC WORKS
1-702-432-5000 NEVADA DEPARTMENT OF TRANSPORTATION (N.D.O.T.)
AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY
Call before you Overhead
1-702-227-2929 NEVADA POWER ENVIRONMENT AND SAFETY SERVICES DEPARTMENT
Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811
1-800-227-2600 AND CLARK COUNTY TRAFFIC OPERATIONS 1-702-455-7544

JOB NUMBER	LV-20040
DESIGNED BY	MP
DRAWN BY	MP
CHECKED BY	MP
DATE	07/2020

SHEET NUMBER
C4.01
11 of 16

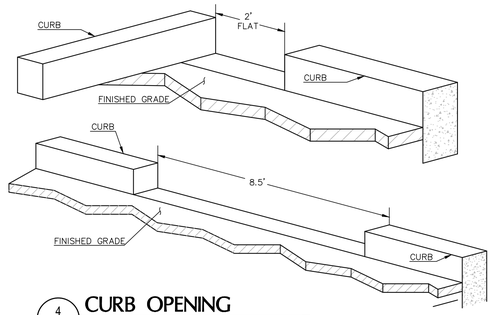
SD SET: 6/09/20

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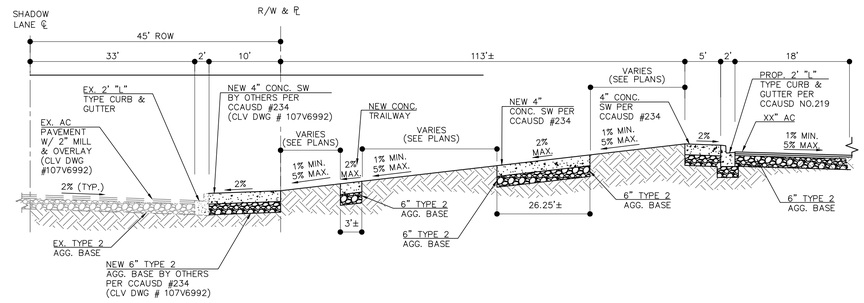
1 C6.01 2' VALLEY GUTTER

SCALE: NOT TO SCALE



4 C6.01 CURB OPENING

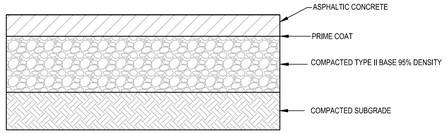
SCALE: NOT TO SCALE



A C6.01 SECTION A

SCALE: NOT TO SCALE

REFER TO GEOTECHNICAL REPORT PROJECT NO. XXXX FROM XXXX



ASPHALT PAVEMENT SECTIONS (AC)			
TYPE	ASPHALTIC CONCRETE (IN.)	TYPE II BASE (IN.)	TYPE I OR TYPE II (IN)
AUTOMOBILE PARKING (ON-SITE)	X.X	X.X	X.X
MAIN CORRIDORS, TRUCK ACCESS, BUS PARKING (ON-SITE)	X.X	X.X	X.X

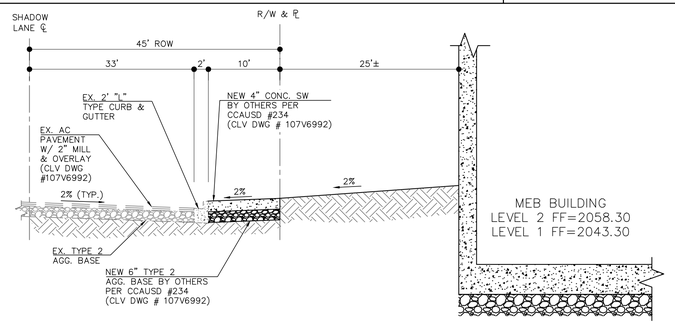
NOTE:

1. ALL AGGREGATE BASES SHALL BE COMPACTED PER COMPANY NAME, PROJECT NO: XXXX, DATE XXXX

*2. PAVEMENT SECTIONS SHALL BE VERIFIED WITH THE FINAL PAVEMENT SECTION RECOMMENDATION REPORT (MPSR) PRIOR TO CONSTRUCTION ACTIVITIES. IF FINAL SECTION IS DIFFERENT, A REVISION TO THE IMPROVEMENT PLANS WILL BE REQUIRED. CONTRACTOR TO PROVIDE ADEQUATE TIME IN CONSTRUCTION SCHEDULE FOR THIS PROCESS.

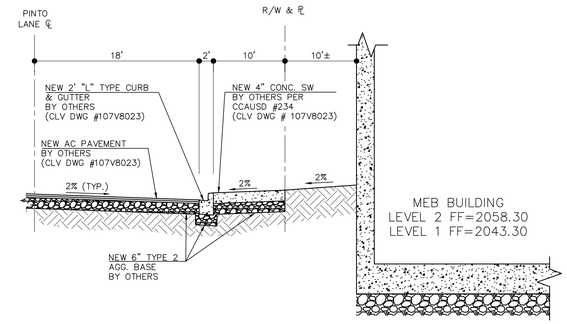
2 C6.01 AC PAVEMENT

SCALE: NOT TO SCALE



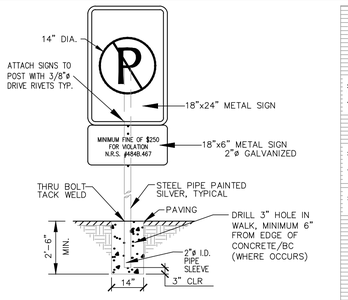
B C6.01 SECTION B

SCALE: NOT TO SCALE



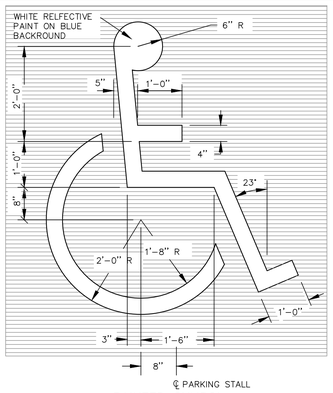
C C6.01 SECTION C

SCALE: NOT TO SCALE

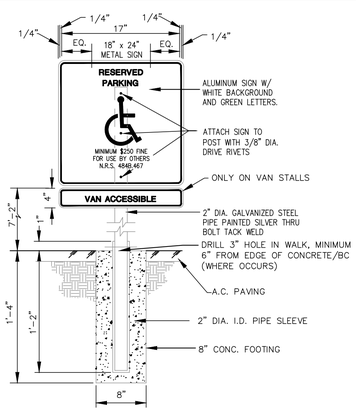


*SIGN LOCATION SHALL BE PER ADA STANDARDS. SIGNS SHALL ALSO BE PLACED SO AS TO PROVIDE A MIN. 3'-0" CLEAR ACCESS AISLE.

NO PARKING SIGN
NTS

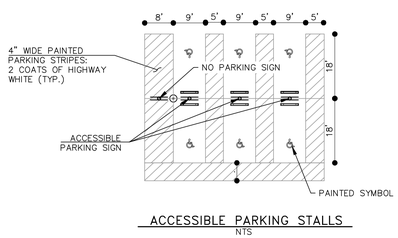


PAINTED SYMBOL
NTS



*SIGN LOCATION SHALL BE PER ADA STANDARDS. SIGNS SHALL ALSO BE PLACED SO AS TO PROVIDE A MIN. 3'-0" CLEAR ACCESS AISLE.

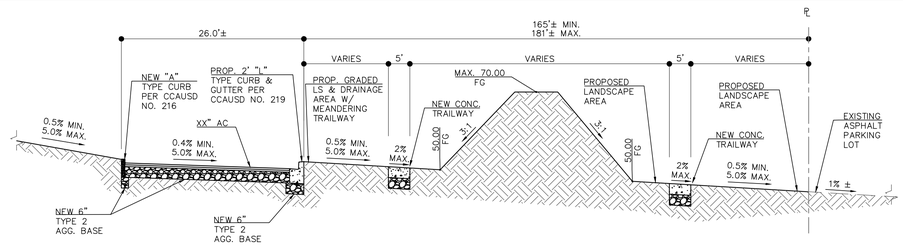
ACCESSIBLE PARKING SIGN
NTS



ACCESSIBLE PARKING STALLS
NTS

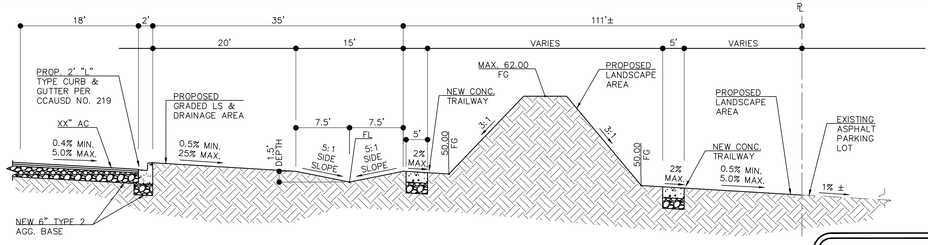
3 C6.01 ACCESSIBLE PARKING STALLS & SIGNAGE

SCALE: NOT TO SCALE



D C6.01 SECTION D

SCALE: NOT TO SCALE



E C6.01 SECTION E

SCALE: NOT TO SCALE

AVOID HITTING UNDERGROUND TRAFFIC SIGNAL SYSTEMS AND STREET LIGHT SYSTEM CONDUCTORS. IT'S COSTLY
Call before you Underground
1-702-455-7511 CLARK COUNTY TRAFFIC SYSTEMS
1-702-492-5000 NEVADA DEPARTMENT OF TRANSPORTATION
AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY
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CLARK COUNTY TRAFFIC OPERATIONS
1-702-455-7544

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VERNON R. HARKINS
Exp. 6-30-21
CIVIL
No. 009699
07/06/2020

DETAIL SHEET 1

NEVADA HEALTH & BIOSCIENCE ASSET CORPORATION

HEALTHCARE 1930 VILLAGE CENTER CIRCLE #3-805

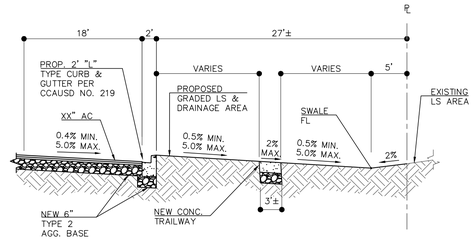
LAS VEGAS, NEVADA 89144

JOB NUMBER	LV-20040
DESIGNED BY	MP
DRAWN BY	MP
CHECKED BY	MP
DATE	07/2020

SHEET NUMBER
C6.01
15 of 16

SO SET, 6/05/20

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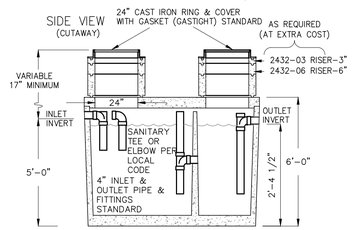


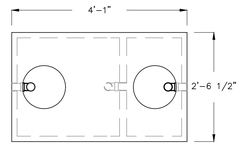
A C6.02 **SECTION A**

SCALE: NOT TO SCALE

1000 GALLON SAND–OIL INTERCEPTOR

MODEL JP1000EE–SO
ACCEPTED BY UPC®





LIQUID CAPACITY: 1,000 GALLONS.

BOX DESIGN LOAD: H–20 TRAFFIC FROM 1' TO 6' OF SOIL COVER.

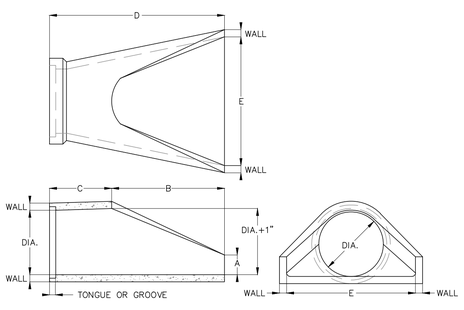
FOR COMPLETE DESIGN AND PRODUCT INFORMATION CONTACT JENSEN PRECAST.

4/6/01
1000SO_JP–v1.dwg
©2001 Jensen Precast

B C6.02 **SECTION B**

SCALE: NOT TO SCALE

JENSEN PRECAST



DIA.	WALL	TONGUE OR GROOVE	WEIGHT	A	B	C	D	E
15"	2–1/4"	1–3/4"	970	6"	27"	46"	73"	30"
18"	2–1/2"	1–3/4"	1340	9"	27"	46"	73"	36"
24"	3"	1–3/4"	1820	9–1/2"	43–1/2"	30"	73–1/2"	48"
30"	4–1/4"	3–7/8"	2400	12"	54"	19–3/4"	73–3/4"	60"
36"	4–3/4"	3–7/8"	5500	15"	63"	34–3/4"	97–3/4"	72"

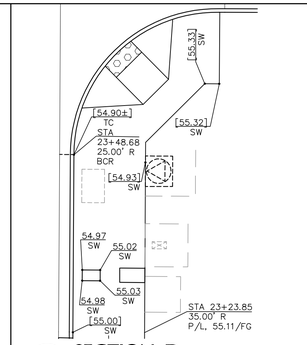
REINFORCED CONCRETE PIPE CONFORMS TO ASTM C–76, ASTM–C–443, AASHTO M–170, AND AASHTO M–198.

FOR COMPLETE DESIGN AND PRODUCT INFORMATION CONTACT JENSEN PRECAST.

JENSEN PRECAST

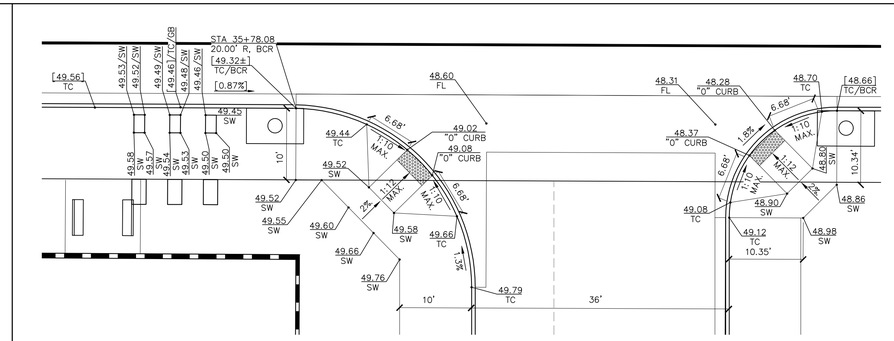
C C6.02 **SECTION C**

SCALE: NOT TO SCALE



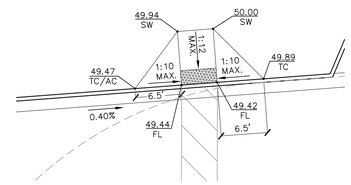
D C6.02 **SECTION D**

SCALE: NOT TO SCALE



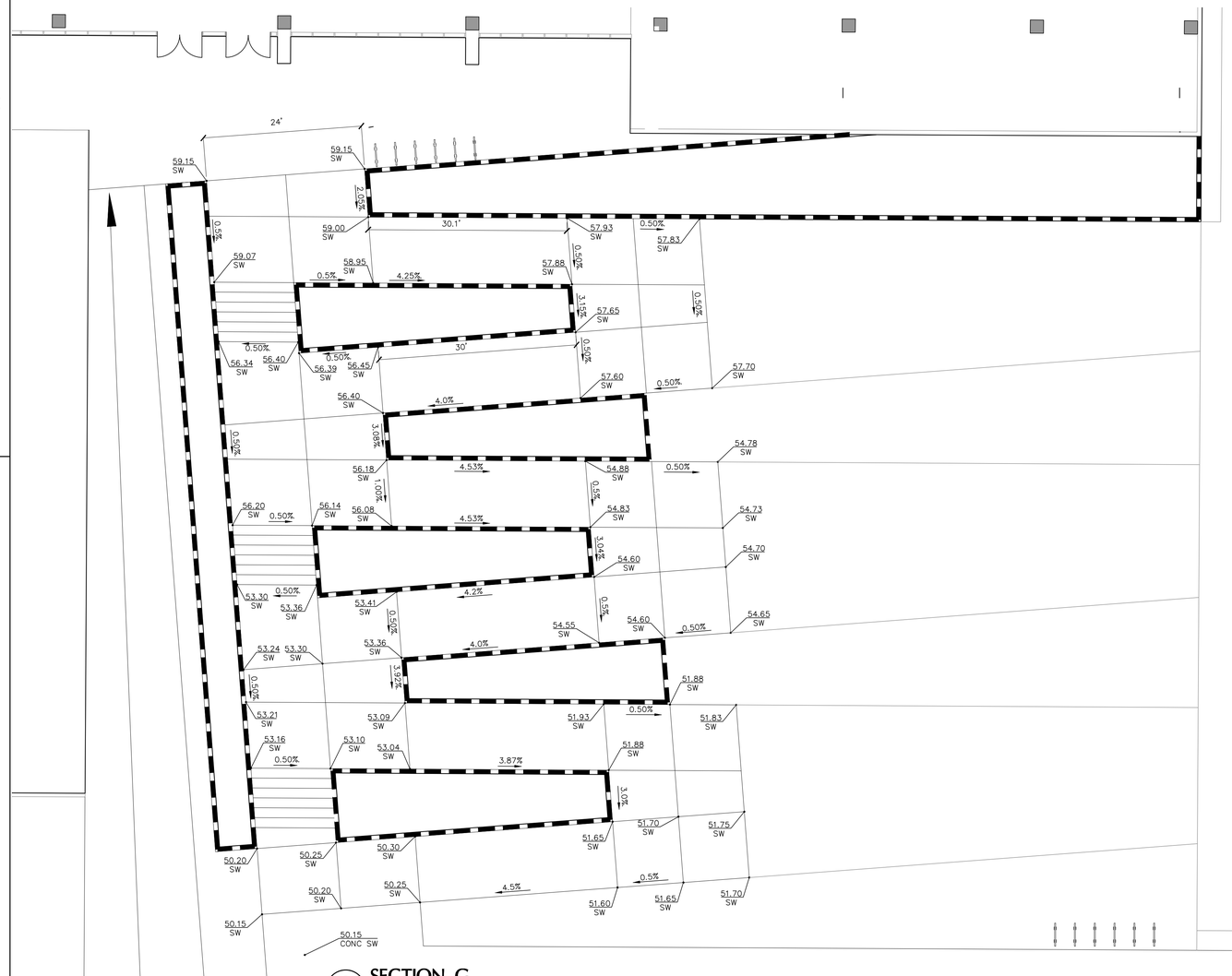
E C6.02 **SECTION E**

SCALE: NOT TO SCALE



F C6.02 **SECTION F**

SCALE: NOT TO SCALE



G C6.02 **SECTION G**

SCALE: NOT TO SCALE

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6960 Smoke Ranch Suite 110
Las Vegas, Nevada 89128
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PROFESSIONAL ENGINEER-STATE OF NEVADA
VERNON R. HARKINS
Exp. 6-30-21
CIVIL
No. 009898
07/06/2020

DETAIL SHEET 2

NEVADA HEALTH & BIOSCIENCE ASSET CORPORATION

HEALTHCARE 1930 VILLAGE CENTER CIRCLE #3-805
LAS VEGAS, NEVADA 89144

SD SET, 6/05/20

JOB NUMBER	LV–20040
DESIGNED BY	MP
DRAWN BY	MP
CHECKED BY	MP
DATE	07/2020

SHEET NUMBER **C6.02**
16 of 16

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Call before you Underground
1–702–455–7511
CLARK COUNTY TRAFFIC SIGNALS
1–702–676–5300
NEVADA DEPARTMENT OF TRANSPORTATION, D.O.T.
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811
1–800–227–3600
CLARK COUNTY TRAFFIC OPERATIONS
1–702–455–7544

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