

# CITY OF ALBUQUERQUE

PLANNING DEPARTMENT – Development Review Services



June 8, 2016

Ron Bohannon, PE  
Tierra West, LLC  
5571 Midway Park Pl NE  
Albuquerque, NM 87109

Richard J. Berry, Mayor

**RE: Main Event, Albuquerque Carpenters Training Center (File: G16-D149)  
4040 Pan American Freeway NE 87107  
Grading Plan and Drainage Plan, Engineer's Stamp Date 5-27-2015  
Engineer's Certification Dated 5-27-16 and 6-6-16**

Dear Mr. Bohannon:

Based on the Certification received 5/19/2016, the site is acceptable for a Permanent Certificate of Occupancy by Hydrology.

If you have any questions, you can contact me at 924-3695.

PO Box 1293

Sincerely,

Albuquerque

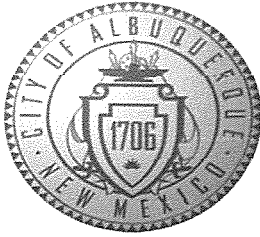
Rita Harmon, P.E.  
Senior Engineer, Planning Dept.  
Development Review Services

New Mexico 87103

[www.cabq.gov](http://www.cabq.gov)

Orig: Drainage file  
c.pdf recipient , Cordova, Camille C.; Miranda, Rachel; Sandoval, Darlene M.; Blocker, Lois

Original Main  
5.27.16 Event



# City of Albuquerque

Planning Department

Development & Building Services Division

## DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: MAIN EVENT ENTERTAINMENT CENTER Building Permit #: City Drainage #:

DRB#: EPC#: Work Order#:

Legal Description: LOTS 2-A AND 2-B SRCC ALBUQUERQUE CARPENTERS TRAINING CENTER

City Address: 4040 PAN AMERICAN FREEWAY NE ALBUQUERQUE NM 87017

Engineering Firm: TIERRA WEST LLC Contact: JONATHAN NISKI

Address: 5571 MIDWAY PARK PLACE NE ALBUQUERQUE NM 87109

Phone#: 505-858-3100 Fax#: 505-858-1118 E-mail: JNISKI@TIERRAWESTLLC.COM

Owner: Contact:

Address:

Phone#: Fax#: E-mail:

Architect: Contact:

Address:

Phone#: Fax#: E-mail:

Other Contact: Contact:

Address:

Phone#: Fax#: E-mail:

Check all that Apply:

### DEPARTMENT:

- ☒ HYDROLOGY/ DRAINAGE  
☐ TRAFFIC/ TRANSPORTATION  
☐ MS4/ EROSION & SEDIMENT CONTROL

### TYPE OF SUBMITTAL:

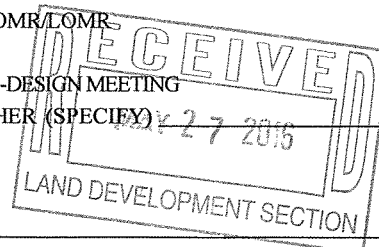
- ☐ ENGINEER/ ARCHITECT CERTIFICATION  
  
☐ CONCEPTUAL G & D PLAN  
☐ GRADING PLAN  
☐ DRAINAGE MASTER PLAN  
☐ DRAINAGE REPORT  
☐ CLOMR/LOMR  
  
☐ TRAFFIC CIRCULATION LAYOUT (TCL)  
☐ TRAFFIC IMPACT STUDY (TIS)  
☐ EROSION & SEDIMENT CONTROL PLAN (ESC)  
  
☐ OTHER (SPECIFY) \_\_\_\_\_

IS THIS A RESUBMITTAL?: ☐ Yes ☐ No

DATE SUBMITTED: 05/27/2016 By: JONATHAN NISKI

### CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

- ☒ BUILDING PERMIT APPROVAL  
☒ CERTIFICATE OF OCCUPANCY  
  
☐ PRELIMINARY PLAT APPROVAL  
☐ SITE PLAN FOR SUB'D APPROVAL  
☐ SITE PLAN FOR BLDG. PERMIT APPROVAL  
☐ FINAL PLAT APPROVAL  
☐ SIA/ RELEASE OF FINANCIAL GUARANTEE  
☐ FOUNDATION PERMIT APPROVAL  
☐ GRADING PERMIT APPROVAL  
☐ SO-19 APPROVAL  
☐ PAVING PERMIT APPROVAL  
☐ GRADING/ PAD CERTIFICATION  
☐ WORK ORDER APPROVAL  
☐ CLOMR/LOMR  
  
☐ PRE-DESIGN MEETING  
☐ OTHER (SPECIFY) \_\_\_\_\_



COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: \_\_\_\_\_



# NOTE

ALL SPOT ELEVATIONS ARE AT FLOWLINE UNLESS OTHERWISE SPECIFIED.

DRAINAGE CERTIFICATION WITH SURVEY WORK DONE BY PROFESSIONAL SURVEYOR

I, RONALD R. BOHANNAN, N.M.P.E. # 7868, OF THE FIRM, TIERRA WEST LLC, HEREBY CERTIFY THAT THIS PROJECT HAS BEEN GRADED AND WILL DRAIN IN SUBSTANTIAL COMPLIANCE WITH AND IN ACCORDANCE WITH THE DESIGN INTENT OF THE APPROVED PLAN DATED 5/26/15. THE RECORD INFORMATION EDITED ONTO THE ORIGINAL DESIGN DOCUMENT HAS BEEN OBTAINED BY BRIAN MARTINEZ, N.M.P.S. # 18378, OF THE FIRM, CARPENTERS SURVEYS, INC.

I FURTHER CERTIFY THAT I HAVE PERSONALLY VISITED THE PROJECT SITE ON 5/16/16 AND HAVE DETERMINED BY VISUAL INSPECTION THAT THE SURVEY DATA PROVIDED IS REPRESENTATIVE OF ACTUAL SITE CONDITIONS AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. THIS CERTIFICATION IS SUBMITTED IN SUPPORT OF A REQUEST FOR PERMANENT CERTIFICATE OF OCCUPANCY.

EXCEPTIONS: NONE TAKEN

THE RECORD INFORMATION PRESENTED HEREON IS NOT NECESSARILY COMPLETE AND INTENDED ONLY TO VERY SUBSTANTIAL COMPLIANCE OF THE GRADING AND DRAINAGE ASPECTS OF THIS PROJECT. THOSE RELYING ON THIS RECORD DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE USING IT.

RONALD R. BOHANNAN, N.M.P.E. # 7868  
DATE 5/16/16  
PROFESSIONAL ENGINEER

(SEAL)

7308

INTERSTATE 25

PIPE 13 EXISTING 24" RCP  
PIPE 14 EXISTING 24" RCP  
PIPE 15 EXISTING 48" RCP  
EXISTING 8" SD MANHOLE RIM=5065.49.82 INV IN=5053.04 INV OUT=5052.94  
NEW RIM=5064.63 INV IN=5053.93 INV OUT=5053.83  
EXISTING 24" RCP STUB 5051.17

INSTALL DROP INLET SINGLE TYPE "D" GRATE=5063.75 INV OUT=5055.40 PER COA STD DWG 2206 CONNECT TO 24" RCP REMOVE EXISTING 24" RCP BACK TO INLET

TOP=61.27  
PUMP=35.22 OUT=58.82  
INSTALL STANDPIPE INLET FL=5062.75 INV OUT=5058.75 SEE DETAIL SHEET C15

PIPE 8 12" PVC @ 1.0%  
1" CURB CUT  
POND 1  
POND 2  
POND 3

LOT 2A FUTURE DEVELOPMENT  
LOT 2B  
FF=5067.70

ROCK PLATING  
TW=5078.75 BW=5072.50  
TW=5077.50 BW=5071.00  
TW=5075.83 BW=5071.00  
TW=5073.00 BW=5071.00  
TW=5076.37 BW=5069.0  
TW=5071.50 BW=5068.50

GRAPHIC SCALE  
50 25 0 25 50  
SCALE: 1"=50'

LEGEND  
CURB & GUTTER  
BOUNDARY LINE  
EASEMENT  
CENTERLINE  
RIGHT-OF-WAY  
BUILDING  
SIDEWALK  
SCREEN WALL  
RETAINING WALL  
CONTOUR MAJOR  
CONTOUR MINOR  
SPOT ELEVATION  
FLOW ARROW  
EXISTING CURB & GUTTER  
EXISTING BOUNDARY LINE  
EXISTING CONTOUR MAJOR  
EXISTING CONTOUR MINOR  
EXISTING SPOT ELEVATION

EROSION CONTROL NOTES  
1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TOPSOIL DISTURBANCE PERMIT PRIOR TO BEGINNING WORK.  
2. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RUN-OFF ON SITE DURING CONSTRUCTION.  
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12" MIN. CURE CUTS AT ISLANDS PROPOSED SITE DRAINAGE  
36" AT POND

PATHWAY A1  
VASSAR DRIVE NE  
VASSAR DRIVE NE

EXISTING SITE DRAINAGE  
THE 6.82 ACRE SITE IS LOCATED AT THE SOUTHEAST CORNER OF PAN AMERICAN FREEWAY AND VASSAR DRIVE NE. THE SITE IS BOUNDED ON THE NORTH AND WEST BY PAN AMERICAN FREEWAY, ON THE EAST BY VASSAR DRIVE NE AND ON THE SOUTH BY AN INDUSTRIAL/MANUFACTURING DEVELOPMENT.

THE SITE IS CURRENTLY VACANT WITH ONE THIRD OF THE PROPERTY BEING A TEMPORARY RETENTION POND FOR THE PATHWAY OFFICE PARK (G16/D114) AND THE REMAINING TWO THIRDS DRAINING FROM EAST TO WEST TO A TEMPORARY DESILTING POND AND STORM SEWER INLET WHERE THE WATER IS THEN CONVEYED BY STORM SEWER AND OPEN CHANNEL TO THE GRIEGOS POND THAT WAS CONSTRUCTED WITH SAD 216.

THERE ARE OFF-SITE FLOWS ENTERING THE POND FROM THE PATHWAY OFFICE PARK DEVELOPMENT AS WELL AS MINIMAL FLOWS FROM THE PAN AMERICAN FREEWAY. THIS SITE IS LOCATED IN A SHADED "X" ZONE AS SHOWN ON FIRM MAP #35001C0138H.

BASED ON THE APPROVED DRAINAGE REPORT FOR THE CARPENTERS TRAINING CENTER (G16/D145) THIS PROJECT MAY DISCHARGE A TOTAL OF 159.55 CFS WHICH TAKES INTO ACCOUNT ALL OF THE STORM WATER ENTERING THE TEMPORARY RETENTION POND AS WELL AS FLOWS FROM INTERSTATE 25. PLEASE SEE THE BASIN MAP ON SHEET C6 FOR ALL OF THE BASINS DRAINING THROUGH THE PIPE UNDER INTERSTATE 25. THE INFORMATION PERTAINING TO THE AMOUNT OF DISCHARGE ALLOWED FROM THIS PARCEL IS DETAILED ON PAGE 12 OF THE CARPENTERS TRAINING CENTER REPORT. ALL OF THE FLOWS WILL PASS THROUGH AN EXISTING 48" RCP UNDER INTERSTATE 25 WHICH HAS A CAPACITY FOR 161 CFS. THIS PIPE DAYLIGHTS INTO A PONDING AREA WEST OF THE INTERSTATE AND EVENTUALLY DRAINS INTO THE GRIEGOS POND.

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THE CARPENTERS TRAINING CENTER REPORT SHOWS A HIGHER FLOW RATE (159.55 CFS) THAN THE SAD 216 REPORT (101 CFS) DUE TO USING THE RAW BASIN DRAINAGE NUMBERS WITHOUT ROUTING THEM ALONG WITH A CHANGE IN THE PERCENTAGE OF LAND TREATMENTS FROM 15% "A", 15% "B", 70% "D" TO 20% "B" AND 80% "D". THE INCREASE IN FLOW PROVIDES A MORE CONSERVATIVE FLOW AMOUNT TO ENSURE ALL OF THE DOWNSTREAM DRAINAGE FACILITIES HAVE CAPACITY FOR THE UPLAND FLOWS AS IDENTIFIED IN SAD 216. THE CHANGE IN LAND TREATMENT NUMBERS DID INCREASE THE VOLUME GENERATED FROM THIS AREA AND THAT IS CAPTURED IN A PONDING AREA BETWEEN INTERSTATE 25 AND YALE BOULEVARD AS DISCUSSED ON PAGE 12 OF THE CARPENTERS TRAINING CENTER DRAINAGE REPORT.

SECTION A-A  
NTS

SECTION B-B  
NTS

EXISTING SIDEWALK EL=5083.48  
EXISTING BACK OF CURB FL=5083.24  
2.0%  
HANDRAIL  
1'-8" MAX  
3  
1  
MAX  
8.61'  
HEADER CURB FL=5069.91

EXISTING SIDEWALK EL=5083.50  
2.0%  
HANDRAIL  
1'-8" MAX  
3  
1  
MAX  
6.61'  
3:1 MAX SLOPE  
HEADER CURB FL=5070.22

FRONTAGE ROAD RIGHT-TURN LANE

SEE C6-A FOR STORM DRAINAGE SYSTEM

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ENGINEER'S SEAL  
RONALD R. BOHANNAN  
N.M.P.E. # 7868

MAIN EVENT  
PAN AM FREEWAY AND VASSAR AV.  
GRADING PLAN  
FOR LOT 2B  
DRAWN BY  
BJF  
DATE  
05/25/16  
2015015\_GRB-INTERIM  
SHEET #  
C5A  
JOB #  
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NTS

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HANDRAIL  
1'-8" MAX  
3  
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8.61'  
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EXISTING SIDEWALK EL=5083.50  
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3  
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6.61'  
3:1 MAX SLOPE  
HEADER CURB FL=5070.22

FRONTAGE ROAD RIGHT-TURN LANE

SEE C6-A FOR STORM DRAINAGE SYSTEM

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ENGINEER'S SEAL  
RONALD R. BOHANNAN  
N.M.P.E. # 7868

MAIN EVENT  
PAN AM FREEWAY AND VASSAR AV.  
GRADING PLAN  
FOR LOT 2B  
DRAWN BY  
BJF  
DATE  
05/25/16  
2015015\_GRB-INTERIM  
SHEET #  
C5A  
JOB #  
2015015

7308

INTERSTATE 25

PIPE 13 EXISTING 24" RCP  
PIPE 14 EXISTING 24" RCP  
PIPE 15 EXISTING 48" RCP  
EXISTING 8" SD MANHOLE RIM=5065.49.82 INV IN=5053.04 INV OUT=5052.94  
NEW RIM=5064.63 INV IN=5053.93 INV OUT=5053.83  
EXISTING 24" RCP STUB 5051.17

INSTALL DROP INLET SINGLE TYPE "D" GRATE=5063.75 INV OUT=5055.40 PER COA STD DWG 2206 CONNECT TO 24" RCP REMOVE EXISTING 24" RCP BACK TO INLET

TOP=61.27  
PUMP=35.22 OUT=58.82  
INSTALL STANDPIPE INLET FL=5062.75 INV OUT=5058.75 SEE DETAIL SHEET C15

PIPE 8 12" PVC @ 1.0%  
1" CURB CUT  
POND 1  
POND 2  
POND 3

LOT 2A FUTURE DEVELOPMENT  
LOT 2B  
FF=5067.70

ROCK PLATING  
TW=5078.75 BW=5072.50  
TW=5077.50 BW=5071.00  
TW=5075.83 BW=5071.00  
TW=5073.00 BW=5071.00  
TW=5076.37 BW=5069.0  
TW=5071.50 BW=5068.50

GRAPHIC SCALE  
50 25 0 25 50  
SCALE: 1"=50'

LEGEND  
CURB & GUTTER  
BOUNDARY LINE  
EASEMENT  
CENTERLINE  
RIGHT-OF-WAY  
BUILDING  
SIDEWALK  
SCREEN WALL  
RETAINING WALL  
CONTOUR MAJOR  
CONTOUR MINOR  
SPOT ELEVATION  
FLOW ARROW  
EXISTING CURB & GUTTER  
EXISTING BOUNDARY LINE  
EXISTING CONTOUR MAJOR  
EXISTING CONTOUR MINOR  
EXISTING SPOT ELEVATION

EROSION CONTROL NOTES  
1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TOPSOIL DISTURBANCE PERMIT PRIOR TO BEGINNING WORK.  
2. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RUN-OFF ON SITE DURING CONSTRUCTION.  
3. CONTRACTOR IS RESPONSIBLE FOR CLEANING ALL SEDIMENT THAT GETS INTO EXISTING RIGHT-OF-WAY.  
4. REPAIR OF DAMAGED FACILITIES AND CLEANUP OF SEDIMENT ACCUMULATIONS ON ADJACENT PROPERTIES AND IN PUBLIC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.  
5. ALL EXPOSED EARTH SURFACES MUST BE PROTECTED FROM WIND AND WATER EROSION PRIOR TO FINAL (CITY) ACCEPTANCE OF ANY PROJECT.

12" MIN. CURE CUTS AT ISLANDS PROPOSED SITE DRAINAGE  
36" AT POND

PATHWAY A1  
VASSAR DRIVE NE  
VASSAR DRIVE NE

EXISTING SITE DRAINAGE  
THE 6.82 ACRE SITE IS LOCATED AT THE SOUTHEAST CORNER OF PAN AMERICAN FREEWAY AND VASSAR DRIVE NE. THE SITE IS BOUNDED ON THE NORTH AND WEST BY PAN AMERICAN FREEWAY, ON THE EAST BY VASSAR DRIVE NE AND ON THE SOUTH BY AN INDUSTRIAL/MANUFACTURING DEVELOPMENT.

THE SITE IS CURRENTLY VACANT WITH ONE THIRD OF THE PROPERTY BEING A TEMPORARY RETENTION POND FOR THE PATHWAY OFFICE PARK (G16/D114) AND THE REMAINING TWO THIRDS DRAINING FROM EAST TO WEST TO A TEMPORARY DESILTING POND AND STORM SEWER INLET WHERE THE WATER IS THEN CONVEYED BY STORM SEWER AND OPEN CHANNEL TO THE GRIEGOS POND THAT WAS CONSTRUCTED WITH SAD 216.

THERE ARE OFF-SITE FLOWS ENTERING THE POND FROM THE PATHWAY OFFICE PARK DEVELOPMENT AS WELL AS MINIMAL FLOWS FROM THE PAN AMERICAN FREEWAY. THIS SITE IS LOCATED IN A SHADED "X" ZONE AS SHOWN ON FIRM MAP #35001C0138H.

BASED ON THE APPROVED DRAINAGE REPORT FOR THE CARPENTERS TRAINING CENTER (G16/D145) THIS PROJECT MAY DISCHARGE A TOTAL OF 159.55 CFS WHICH TAKES INTO ACCOUNT ALL OF THE STORM WATER ENTERING THE TEMPORARY RETENTION POND AS WELL AS FLOWS FROM INTERSTATE 25. PLEASE SEE THE BASIN MAP ON SHEET C6 FOR ALL OF THE BASINS DRAINING THROUGH THE PIPE UNDER INTERSTATE 25. THE INFORMATION PERTAINING TO THE AMOUNT OF DISCHARGE ALLOWED FROM THIS PARCEL IS DETAILED ON PAGE 12 OF THE CARPENTERS TRAINING CENTER REPORT. ALL OF THE FLOWS WILL PASS THROUGH AN EXISTING 48" RCP UNDER INTERSTATE 25 WHICH HAS A CAPACITY FOR 161 CFS. THIS PIPE DAYLIGHTS INTO A PONDING AREA WEST OF THE INTERSTATE AND EVENTUALLY DRAINS INTO THE GRIEGOS POND.

THE TEMPORARY RETENTION POND RECEIVES 24.5 CFS FROM A STORM SEWER THAT RUNS ALONG INTERSTATE 25 AND ANOTHER 93.4 CFS FROM THE STORM SEWER IN VASSAR DRIVE. ONCE A CONNECTION IS MADE BETWEEN THOSE STORM SEWERS AND THE ONE UNDER INTERSTATE 25 THE POND MAY BE RECLAIMED FOR DEVELOPMENT.

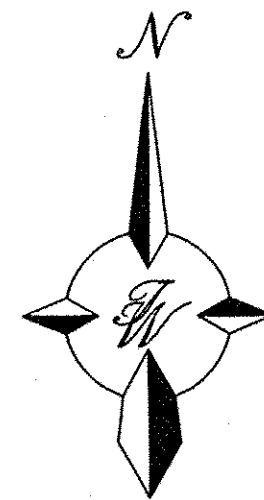
THE CARPENTERS TRAINING CENTER REPORT SHOWS A HIGHER FLOW RATE (159.55 CFS) THAN THE SAD 216 REPORT (101 CFS) DUE TO USING THE RAW BASIN DRAINAGE NUMBERS WITHOUT ROUTING THEM ALONG WITH A CHANGE IN THE PERCENTAGE OF LAND TREATMENTS FROM 15% "A", 15% "B", 70% "D" TO 20% "B" AND 80% "D". THE INCREASE IN FLOW PROVIDES A MORE CONSERVATIVE FLOW AMOUNT TO ENSURE ALL OF THE DOWNSTREAM DRAINAGE FACILITIES HAVE CAPACITY FOR THE UPLAND FLOWS AS IDENTIFIED IN SAD 216. THE CHANGE IN LAND TREATMENT NUMBERS DID INCREASE THE VOLUME GENERATED FROM THIS AREA AND THAT IS CAPTURED IN A PONDING AREA BETWEEN INTERSTATE 25 AND YALE BOULEVARD AS DISCUSSED ON PAGE 12 OF THE CARPENTERS TRAINING CENTER DRAINAGE REPORT.

SECTION A-A  
NTS

SECTION B-B  
NTS

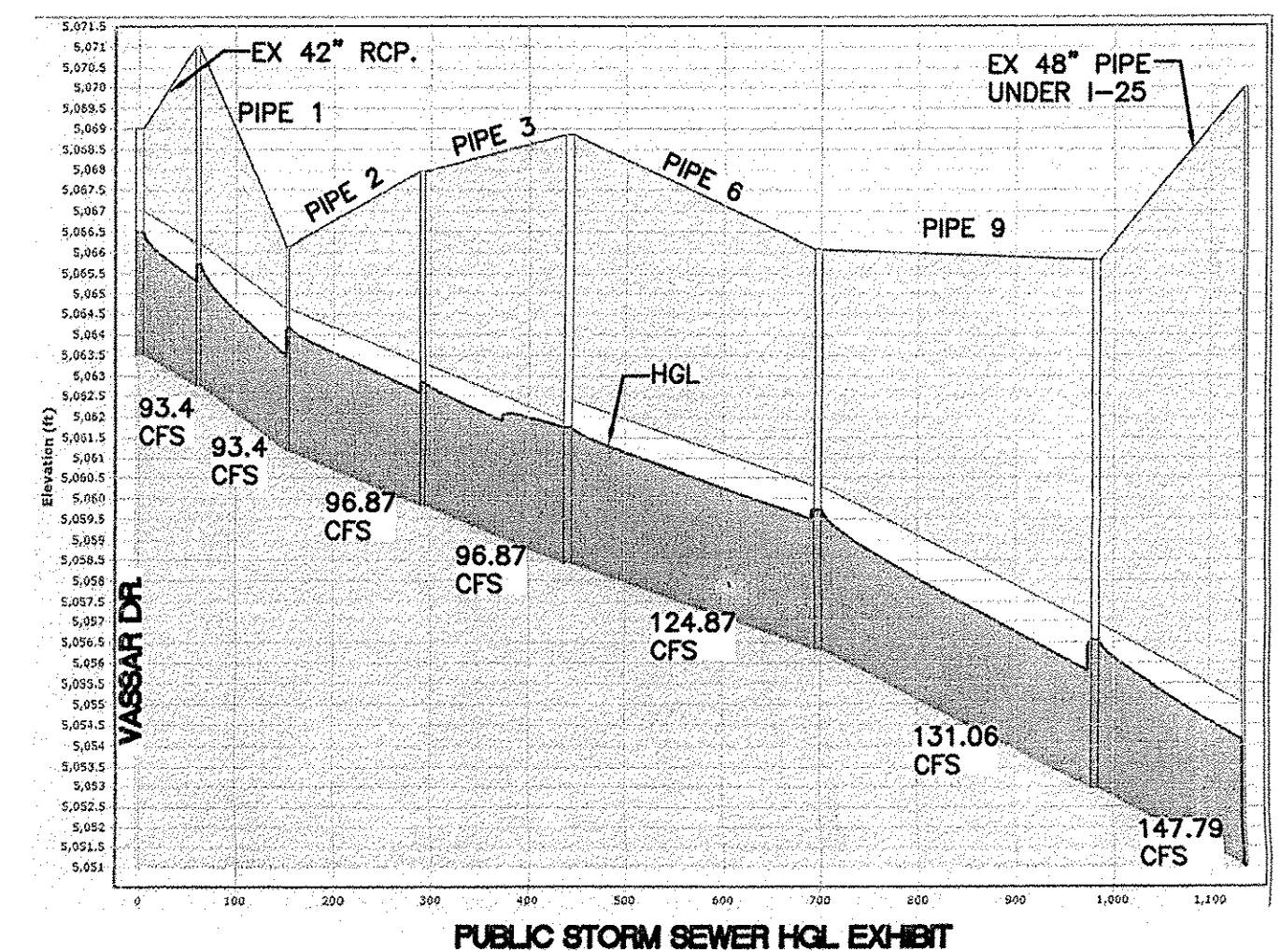
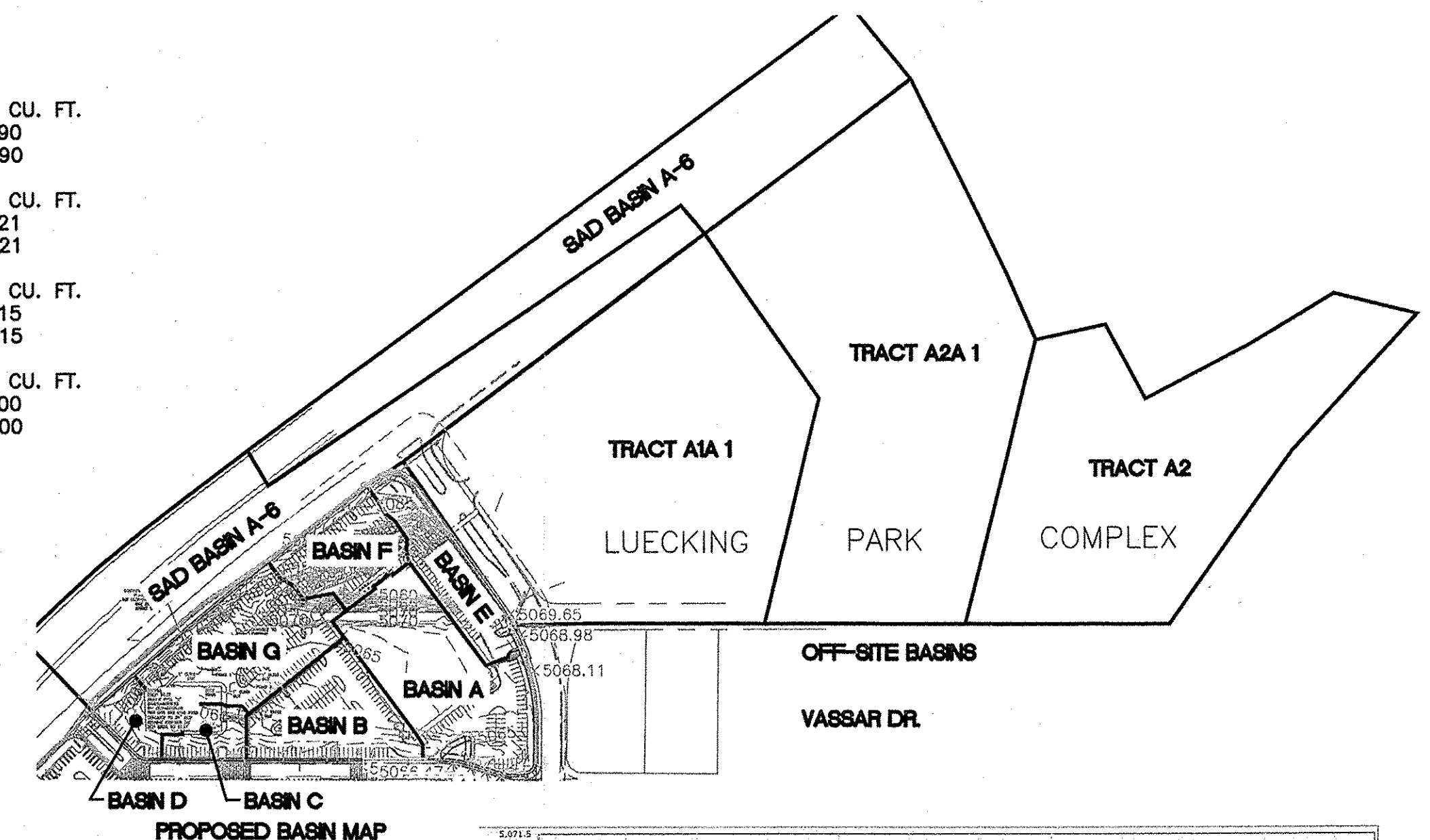
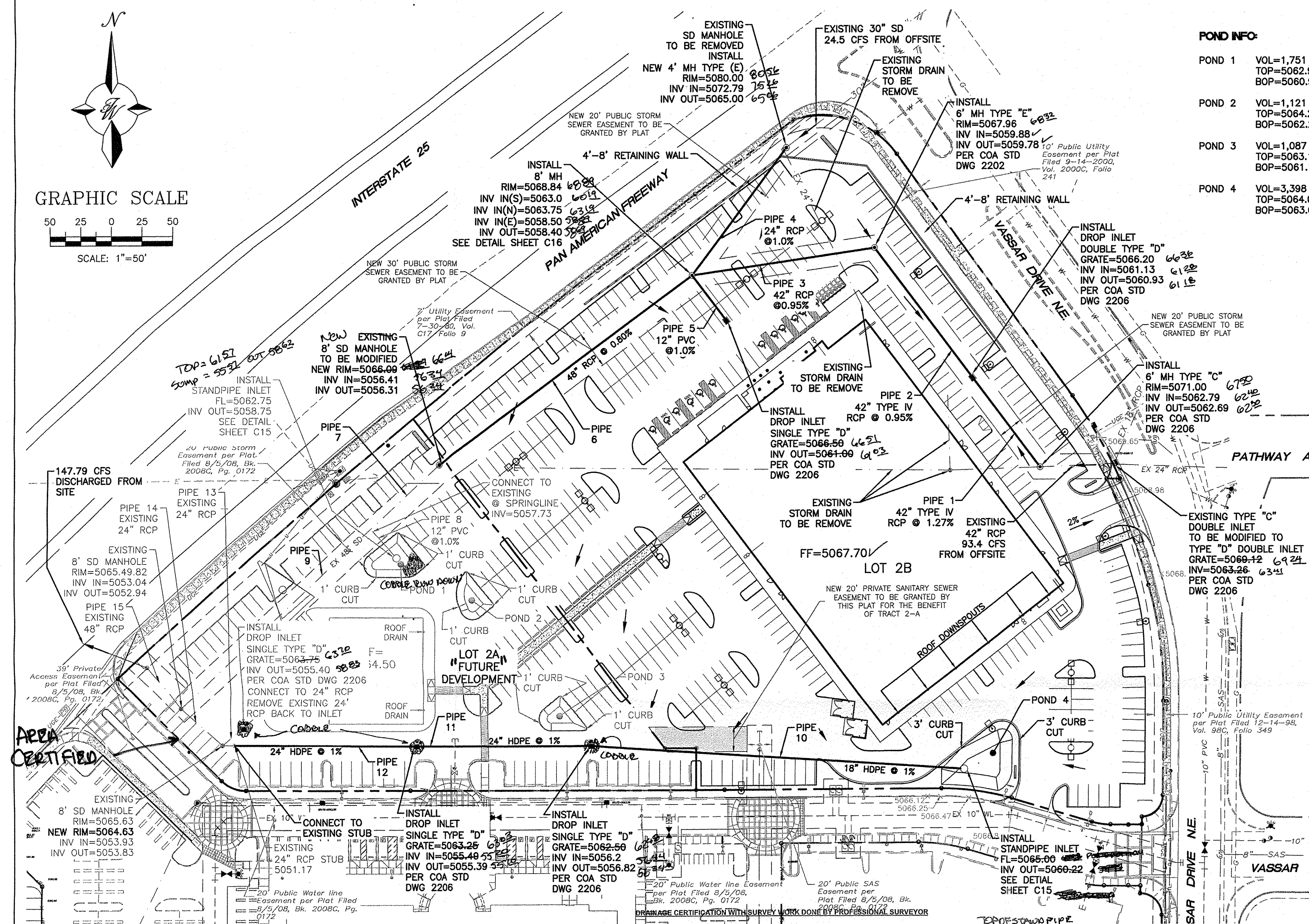
EXISTING SIDEWALK EL=5083.48  
EXISTING BACK OF CURB FL=5083.24  
2.0%  
HANDRAIL  
1'-8" MAX  
3  
1  
MAX  
8.61'  
HEADER CURB FL=5069.91





GRAPHIC SCALE

50 25 0 25 50  
SCALE: 1"=50'



Pipe Capacity						
Pipe	D (in)	Slope (%)	Area (ft²)	R	Q Provided (cfs)	Q Required (cfs)
1	42	1.27	9.62	0.875	113.69	93.40
2	42	0.95	9.62	0.875	98.33	96.87
3	42	0.95	9.62	0.875	98.33	96.87
4	24	1.25	3.14	0.500	25.36	24.50
5	12	1.00	0.79	0.250	3.57	3.44
6	48	0.80	12.57	1.000	128.82	124.81
7	48	1.17	12.57	1.000	155.79	124.81
8	12	3.40	0.79	0.250	6.59	6.25
9	48	1.17	12.57	1.000	155.79	131.06
10	18	1.00	1.77	0.375	10.53	8.62
11	24	1.00	3.14	0.500	22.68	13.73
12	24	1.00	3.14	0.500	22.68	15.27
13	24	6.97	3.14	0.500	59.89	1.46
14	24	1.98	3.14	0.500	31.92	16.73
15	48	2.65	12.57	1.000	234.46	147.79

Manning's Equation:  
 $Q = 1.49/n \cdot A \cdot R^{2/3} \cdot S^{1/2}$

A = Area  
R = D/4  
S = Slope  
n = 0.013

## LEGEND

- CURB & GUTTER
- BOUNDARY LINE
- EASEMENT
- CENTERLINE
- RIGHT-OF-WAY
- BUILDING
- SIDEWALK
- RETAINING WALL
- FLOW ARROW
- EXISTING CURB & GUTTER
- EXISTING BOUNDARY LINE

**CAUTION:**  
ALL EXISTING UTILITIES SHOWN WERE OBTAINED FROM RESEARCH, AS-BUILTS, SURVEYS OR INFORMATION PROVIDED BY OTHERS. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT ALL NECESSARY FIELD INVESTIGATIONS PRIOR TO AND INCLUDING ANY EXCAVATION, TO DETERMINE THE ACTUAL LOCATION OF UTILITIES AND OTHER IMPROVEMENTS, PRIOR TO STARTING THE WORK. ANY CHANGES FROM THIS PLAN SHALL BE COORDINATED WITH AND APPROVED BY THE ENGINEER.

## EROSION CONTROL NOTES:

- CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TOPSOIL DISTURBANCE PERMIT PRIOR TO BEGINNING WORK.
- CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RUN-OFF ON SITE DURING CONSTRUCTION.
- CONTRACTOR IS RESPONSIBLE FOR CLEANING ALL SEDIMENT THAT ENTERS EXISTING RIGHT-OF-WAY.
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## FIRST FLUSH CALCULATIONS:

5.93 ACRES OF IMPERVIOUS AREA = 258,311 SQ. FT.  
258,311 SQ. FT. \* (0.34"/12) = 7,319 CU. FT. = 0.168 AC-FT OF VOLUME REQUIRED TO BE RETAINED ON-SITE.

I, RONALD R. BOHANNAN, NMPE # 7868, OF THE FIRM, TIERRA WEST, LLC, HEREBY CERTIFY THAT THIS PROJECT HAS BEEN GRADED AND WILL DRAIN IN SUBSTANTIAL COMPLIANCE WITH AND IN ACCORDANCE WITH THE DESIGN INTENT OF THE APPROVED PLAN DATED 5/25/16. THE RECORD INFORMATION EDITED ONTO THE ORIGINAL DESIGN DOCUMENT HAS BEEN OBTAINED BY BRIAN MARTINEZ, NMPS # 18375, OF THE FIRM, CARTESIAN SURVEYS, INC.

THE RECORD INFORMATION PRESENTED HEREON IS NOT NECESSARILY COMPLETE AND INTENDED ONLY TO VERY SUBSTANTIAL COMPLIANCE OF THE GRADING AND DRAINAGE ASPECTS OF THIS PROJECT. THOSE RELYING ON THIS RECORD DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE USING IT FOR ANY OTHER PURPOSE.

RONALD R. BOHANNAN, NMPE # 7868

DATE: 5/25/16

Capacity of a Single 'D' Storm Drop Inlet

Capacity of the grate:

L = 40" - 2(2" ends) - 7(1/2" middle bars)

= 32 1/2"

= 2.7083'

W = 25" - 13(1/2" middle bars)

= 18.5"

= 1.54'

Area = 2.7083' x 1.54'

= 4.18 ft²

Effective Area = 4.18 - 4.18 (0.5 sloping factor)

= 2.09 ft² at the grate

Orifice Equation

Q = CA sqrt(2gh)

Q = 0.6 \* 2.09 \* sqrt(2 \* 32.2 \* 0.67)

Q = 8.24 cfs

(SEAL)

On-Site Basins

Basin	Area (sf)	Area (acres)	Treatment A %	Treatment B %	Treatment C %	Treatment D %	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
A	83,352	1.91	0%	0%	0%	0%	0.00	0.92%	1.76	2.013	0.321	8.62
B	49,888	1.15	0%	0%	0%	0%	0.00	0.90%	1.03	1.986	0.190	5.11
C	14,756	0.34	0%	0%	0%	0%	0.00	0.94%	0.32	2.040	0.056	1.54
D	15,034	0.35	0%	0%	0%	0%	0.00	0.81%	0.28	1.865	0.054	1.48
E	36,072	0.83	0%	0%	0%	0%	0.00	0.78%	0.65	1.825	0.126	3.45
F	34,539	0.79	0%	0%	0%	0%	0.00	0.85%	0.67	1.919	0.127	3.44
G	63,131	1.45	0%	0%	0%	0%	0.00	0.84%	1.22	1.906	0.230	6.25

Equations:

Weighted E = Ea \* Aa + Eb \* Ab + Ec \* Ac + Ed \* Ad / (Total Area)

Volume = Weighted E \* Total Area

Flow = Qa \* Aa + Qb \* Ab + Qc \* Ac + Qd \* Ad

Excess Precipitation, E (inches)	Zone 2	100-Year	10-Year
Ea	0.53	0.13	
Eb	0.78	0.28	
Ec	1.13	0.52	
Ed	2.12	1.34	

Peak Discharge (cfs/acre)	Zone 2	100-Year	10-Year
Qa	1.56	0.38	
Qb	2.28	0.95	
Qc	3.14	1.71	
Qd	4.70	3.14	

## Weighted E Method

ENGINEER'S SEAL

RONALD R. BOHANNAN  
NEW MEXICO  
PROFESSIONAL ENGINEER  
7868

RONALD R. BOHANNAN  
P.E. #7868

**MAIN EVENT**  
PAN AM FREEWAY AND VASSAR AV.

**DRAINAGE PLAN - LOT 2B**

TIERRA WEST, LLC  
5571 MIDWAY PARK PLACE NE  
ALBUQUERQUE, NM 87109  
(505) 858-3100  
www.tierrawestllc.com

DRAWN BY  
BJF

DATE  
05/25/16

2015015-GRB-INTERIM

SHEET #  
**C6A**

JOB #  
2015015

Original