

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Metro Court Parking Structure ZONE ATLAS/DRWG. FILE # J-14 / D 105A
DRB#: _____ EPC # _____ WORK ORDER # 653581
LEGAL DESCRIPTION: Lots 1-6 & 10-11, Block N and Lots 1-9 & 13-15, Block K, Mandell Business & Residence Add.
CITY ADDRESS: Northeast corner of 4th Street and Marble Avenue
ENGINEERING FIRM: BPLW CONTACT: Nicole Losack
ADDRESS: 6200 Uptown Blvd., Suite 220 PHONE: 880-9670
OWNER: Metro Court CONTACT: (See Engineer)
ADDRESS: (See Engineer) PHONE: (See Engineer)
ARCHITECT: DCSW CONTACT: Richard Braun
ADDRESS: 6200 Uptown Blvd., Suite 400 PHONE: 881-2759
SURVEYOR: JMA CONTACT: Chuck Cala
ADDRESS: 6010B Midway Park Blvd. PHONE: 345-4250
CONTRACTOR: --- CONTACT: _____
ADDRESS: --- PHONE: _____

TYPE OF SUBMITTAL:

CHECK TYPE OF APPROVAL SOUGHT:

- ☒ DRAINAGE REPORT
☒ DRAINAGE PLAN
☐ CONCEPTUAL GRADING & DRAINAGE PLAN
☐ GRADING PLAN
☐ EROSION CONTROL PLAN
☐ ENGINEER'S CERTIFICATION
☐ OTHER _____

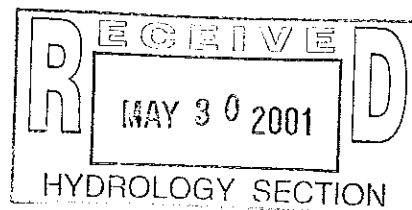
- ☐ SKETCH PLAT APPROVAL
☐ PRELIMINARY PLAT APPROVAL
☐ S. DEV. PLAN FOR SUB'D APPROVAL
☐ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
☐ SECTOR PLAN APPROVAL
☐ FINAL PLAT APPROVAL
☐ FOUNDATION PERMIT APPROVAL
☐ BUILDING PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY APPROVAL
☐ GRADING PERMIT APPROVALS
☐ PAVING PERMIT APPROVAL
☐ S.A.B. DRAINAGE REPORT
☐ DRAINAGE REQUIREMENTS
☒ OTHER SO-19 (SPECIFY)

PRE-DESIGN MEETING:

- ☐ YES
☐ NO
☐ COPY PROVIDED

DATE SUBMITTED: May 25, 2001

BY: Nicole M. Losack

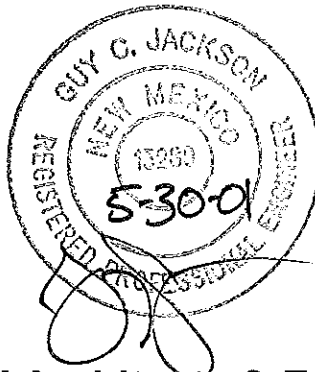


Metro Court Parking Structure

Marble Avenue & 4th Street

Grading and Drainage Plan

(J-14)



BPLW Architects & Engineers

May 25, 2001

The following items pertaining to the Metro Court Parking Structure Drainage Plan are contained herein: 1) Vicinity Map; 2) Flood Hazard Map; 3) Calculations; & 4) Grading Plan

As shown by the Vicinity Map, the site is located on the west side of 4th Street between Marble and Slate Avenues.

Per flood insurance rate map 334 of 825 for Bernalillo County, dated September 20, 1996, the site does not lie within a flood hazard zone area. The nearest flood zone, Zone AO – depth 1, is located one block northeast of the site at the corner of Marble Ave. and 3rd Street.

The grading plan shows existing and proposed spot elevations, the limit and character of existing features not being removed and proposed improvements as well as the continuity between the two. As shown by this plan, the proposed construction consists of a parking garage, two associated entrances, alley improvements, a reconfigured and resurfaced exterior parking lot, and sidewalk improvements.

Existing Conditions:

As shown by the Vicinity Map, the 1.65-acre site contains lots 1-6 & 10-11 of block N and lots 1-9 & 13-15 of block K of the Mandell Business & Residence Addition. This area is currently being re-platted by Jeff Mortensen & Associates. The Property is bounded on the east by 4th Street, on the south by Slate Ave., on the north by Marble Ave., and on the west by private property as well as 5th Street. The majority of the site consists of various structures and an associated asphalt parking lot of which are currently being removed. The existing site drainage is characterized by five basins, which are described as follows:

- Basin EX1, with a developed discharge rate of 0.91cfs, conveys runoff to onto 5th Street by means of a driveway. The existing alley in addition to various on site areas, characterized as Basin EX2 carries its developed runoff of 1.58cfs, onto Slate Avenue, where it crests, and divides the flow along this roadway along the curb and gutter. Additional flow from Basin EX 4 is conveyed to the drop inlet at the southwest corner of Slate and 4th Street. Basin EX5 discharges onto 4th Street, where it is conveyed to a drop inlet at the northwest corner of Slate and 4th Street. The remainder of the site, comprised of the northern portion of the site (Basins EX3 & EX6), discharges onto Marble Avenue and is conveyed to a drop inlet at the southwest corner of Marble Ave. and 4th Street.
- There are no offsite flows entering the site.

The existing site was fully developed and was comprised of various structures, paved parking areas, sidewalk, and a paved alley. Only 0.24 acres of the site were landscaped or pervious area.

Marble Avenue currently has a discharge rate of 1.73 cfs being routed to a drop inlet at the corner of Marble and 4th. Slate Avenue accepts a total rate of 2.07cfs with 0.79 cfs being conveyed west to a drop inlet. The remainder is conveyed east to a drop inlet. Both drop inlets are located along storm drain line that runs along Slate Ave. 4th Street accepts 2.66cfs, which travels south into a drop inlet. 5th Street accepts 0.91cfs, yielding a total runoff of 7.37cfs.

Proposed Conditions:

In the proposed condition, the site will follow the existing drainage patterns as the majority of the site will consist of the proposed structure. The remainder of the site will follow similar drainage patterns to existing conditions.

- The developed runoff from the proposed parking structure will gravity drain via roof drains into two proposed sidewalk culverts located along 4th street (Basin PRO5). The storm water will be combined with the sidewalk discharge (Basin PRO7) and continue down 4th Street to the previously mentioned drop inlet on 4th Street.
- The runoff from the reconfigured, resurfaced parking lot will be conveyed to 5th Street in a similar manner as previously discussed. (Basin PRO1)
- The alley accepts storm water along its length and conveys it to Slate Ave. where it is divided towards each end of the street. (Basin PRO2)
- Developed runoff from the sidewalks will continue to discharge onto the adjacent streets. Basin PRO4 discharges onto Slate Avenue and Basin PRO6 onto Marble Avenue.
- Offsite flows do not enter the site under developed conditions.

In summary, the majority of the site will discharge onto 4th Street due to the proposed parking structure. All sidewalks surrounding the structure will continue to drain into their adjacent streets. The alley will continue to convey flows onto Slate Avenue, and the reconfigured parking lot will discharge, similar to the existing condition, onto 5th Street.

Marble Avenue will accept a total of 0.44 cfs, which will be conveyed via curb and gutter to the east, and into the existing drop inlet. Slate Avenue will accept 0.69cfs entering the street and being conveyed to the drop inlet system. A discharge of 0.26 cfs will be conveyed to the west, and to an existing drop inlet, while the remaining portion will be conveyed to the east with the runoff ultimately running through the existing storm drain piping within Slate. 4th Street will accept 5.22cfs being conveyed to the existing drop inlet and storm drain piping within 4th Street. 5th Street will accept 1.23 cfs, resulting in a total runoff of 7.58cfs.

Conclusions:

The calculations contained in this report analyze the developed conditions for the 100-yr 6-hour rainfall event. The procedure for the 40 acre or smaller basins as established by section 22.2 Hydrology of the Development Process Manual, Volume 2, Design Criteria, Dated January 1993, has been used to quantify the peak rate of discharge and volume of runoff generated. Although a negligible increase in runoff will be generated by the proposed improvements, the existing storm drainage system appears to be adequately sized to handle the slight increase. Historic drainage patterns will remain unaltered with the exception of minor improvements associated with the proposed construction. Due to the similarity between land treatments in the existing and proposed conditions, as well as the existence of storm drain improvements and the fact that this site lies within an infill area, the continued free discharge of runoff is appropriate.

Drainage Summary

Drainage Summary

Project: State of NM Metropolitan Court Parking Structure
 Project Number: 20018
 Date: 04/10/01
 By: Nicole M. Losack

Site Location

Precipitation Zone 2 Per Table A-1 COA DPM Section 22.2

Existing summary

Basin Name	EX1	EX2	EX3	EX4	EX5	EX6	
Soil Treatment (acres)							
Area "A"	0.00	0.00	0.00	0.00	0.00	0.00	
Area "B"	0.00	0.00	0.00	0.00	0.00	0.00	
Area "C"	0.00	0.16	0.07	0.00	0.00	0.01	
Area "D"	0.19	0.23	0.00	0.11	0.57	0.31	
Excess Runoff (acre-feet)							
100yr. 6hr.	0.0340	0.0559	0.0069	0.0186	0.0999	0.0563	acre-ft. 0.2716
10yr. 6hr.	0.0215	0.0328	0.0032	0.0117	0.0631	0.0355	acre-ft.
2yr. 6hr.	0.0127	0.0173	0.0009	0.0069	0.0372	0.0208	acre-ft.
100yr. 24hr.	0.0404	0.0636	0.0069	0.0221	0.1187	0.0668	acre-ft.
Peak Discharge (cfs)							
100 yr.	0.91	1.58	0.23	0.49	2.66	1.50	cfs
10yr.	0.60	1.00	0.12	0.33	1.77	1.00	cfs
2yr.	0.36	0.53	0.04	0.20	1.05	0.59	cfs

Proposed summary

Basin Name	Pro 1	Pro 2	Pro 3	Pro 4	Pro 5	Pro 6	Pro 7	
Soil Treatment (acres)								
Area "A"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Area "B"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Area "C"	0.06	0.03	0.02	0.00	0.00	0.00	0.00	
Area "D"	0.22	0.00	0.09	0.04	0.97	0.08	0.14	
Excess Runoff (acre-feet)								
100yr. 6hr.	0.0448	0.0027	0.0190	0.0065	0.1710	0.0133	0.0254	0.2827
10yr. 6hr.	0.0274	0.0012	0.0116	0.0041	0.1081	0.0084	0.0160	
2yr. 6hr.	0.0154	0.0004	0.0065	0.0024	0.0637	0.0049	0.0095	
100yr. 24hr.	0.0522	0.0027	0.0221	0.0078	0.2033	0.0158	0.0302	
Peak Discharge (cfs)								
100 yr.	1.23	0.09	0.52	0.17	4.55	0.35	0.67	
10yr.	0.80	0.05	0.34	0.12	3.04	0.24	0.45	
2yr.	0.45	0.02	0.19	0.07	1.80	0.14	0.27	

BPLW

Architects and Engineers

PROJECT State of NM Metropolitan Court Parking Structure
 PROJECT NO. 20018.00
 DATE 04/10/01
 BY Nicole M. Losack

DPM Section 22.2 - Hydrology

Part A-Watersheds less than 40 acres.
 January, 1993

INSTRUCTIONS

- * Spread sheet requires three input areas (dark cells):
 Location
 >A.1 Precipitation Zone
 >A.3 Land Treatments
- * Values from the tables are automatically placed using "if" statements.
- * Table values should be checked for correctness for each use.

SUMMARY

Location	EX1		
Precipitation Zone		2	
Land Area		0.19	acres
Excess Precipitation Volume			
>>> 100-year 6-hour (design)		0.03	acre-ft.
10-year 6-hour		0.02	acre-ft.
2-year 6-hour		0.01	acre-ft.
100-year 24-hour		0.04	acre-ft.
Peak Discharge Rates (DPM)			
>>> Q100 (design)		0.91	cfs
Q10		0.60	cfs
Q2		0.36	cfs
Peak Discharge Rates (DPM-Rational Method)			
>>> Q100 (design)		0.90	cfs
Q10		0.60	cfs
Q2		0.36	cfs

CALCULATIONS FOLLOW

INPUT AND CALCULATIONS

LOCATION EX1		
>A.1 PRECIPITATION ZONE (from Table A-1)		2
>A.2 DEPTHS		
(from Table A-2)		
100-YEAR STORM (P60)	2.01	inches
100-YEAR STORM (P360)	2.35	inches
100-YEAR STORM (P1440)	2.75	inches
10-YEAR (P360) (Calculated: $P360 \cdot RPF_{10}$)	1.57	inches
2-YEAR (P360) (Calculated: $P360 \cdot RPF_2$)	1.02	inches
>A.3 LAND TREATMENTS (AI)		
Treatment A	0.00	acres
Treatment B	0.00	acres
Treatment C	0.00	acres
Treatment D	0.19	acres
Total Area	0.19	acres
>A.4 ABSTRACTIONS		See A.5

CALCULATIONS FOLLOW

Existing hyd.

INPUT AND CALCULATIONS (CON'T)

>A.5 EXCESS PRECIPITATION 6 HOUR AND 24 HOUR (Ei)			
from Table A-8			
100-year 6-hour			
Treatment A	0.53	inches	
Treatment B	0.78	inches	
Treatment C	1.13	inches	
Treatment D	2.12	inches	
WEIGHTED E (Sum Ei*Ai/A)	2.12	inches	
VOLUME V100:6h (E*A)	0.03	acre-ft.	
	1,482.17	ft^3	
=====			
10-year 6-hour			
Treatment A	0.13	inches	
Treatment B	0.28	inches	
Treatment C	0.52	inches	
Treatment D	1.34	inches	
WEIGHTED E (Sum Ei*Ai/A)	1.34	inches	
VOLUME V10:6h (E*A)	0.02	acre-ft.	
	936.84	ft^3	
=====			
2-year 6-hour			
Treatment A	0.00	inches	
Treatment B	0.02	inches	
Treatment C	0.15	inches	
Treatment D	0.79	inches	
WEIGHTED E (Sum Ei*Ai/A)	0.79	inches	
VOLUME V2:6h (E*A)	0.01	acre-ft.	
	552.32	ft^3	
=====			
100-year 24-hour			
VOLUME V100:24h			
(V100-6h+Ad*P1440-P360)/12	0.04	acre-ft.	
	1,761.83	ft^3	
=====			

CALCULATIONS FOLLOW

Existing hyd.

INPUT AND CALCULATIONS (CONT)

>A.6 PEAK DISCHARGE RATE FOR SMALL WATERSHEDS (Qi)			
from Table A-9			
100-year			
Treatment A	1.56	cfs/acre	
Treatment B	2.28	cfs/acre	
Treatment C	3.14	cfs/acre	
Treatment D	4.70	cfs/acre	

Q100 (Sum Qi*Ai)	0.91	cfs	
	=====		
10-year			
Treatment A	0.38	cfs/acre	
Treatment B	0.95	cfs/acre	
Treatment C	1.71	cfs/acre	
Treatment D	3.14	cfs/acre	

Q10 (Sum Qi*Ai)	0.60	cfs	
	=====		
2-year			
Treatment A	0.00	cfs/acre	
Treatment B	0.08	cfs/acre	
Treatment C	0.60	cfs/acre	
Treatment D	1.86	cfs/acre	

Q2 (Sum Qi*Ai)	0.36	cfs	
	=====		

CALCULATIONS FOLLOW

Existing hyd.

RATIONAL METHOD

PEAK INTENSITY (in/hr at $t_c=0.2$ hour) from Table A-10			
Peak Intensity (I) 100-year	5.05		
Peak Intensity (I) 10-year	3.41		
Peak Intensity (I) 2-year	2.04		
RATIONAL METHOD COEFFICIENT, C from Table A-11			
100-year			
Treatment A	0.31	cfs/acre	
Treatment B	0.45	cfs/acre	
Treatment C	0.62	cfs/acre	
Treatment D	0.93	cfs/acre	
Q100 (Sum $Q_i \cdot I \cdot A_i$)	0.90	cfs	
10-year			
Treatment A	0.11	cfs/acre	
Treatment B	0.28	cfs/acre	
Treatment C	0.50	cfs/acre	
Treatment D	0.92	cfs/acre	
Q10 (Sum $Q_i \cdot I \cdot A_i$)	0.60	cfs	
2-year			
Treatment A	0.00	cfs/acre	
Treatment B	0.04	cfs/acre	
Treatment C	0.29	cfs/acre	
Treatment D	0.91	cfs/acre	
Q2 (Sum $Q_i \cdot I \cdot A_i$)	0.36	cfs	



BPLW

Architects and Engineers

PROJECT **State of NM Metropolitan Court Parking Structure**
 PROJECT NO. **20018**
 DATE **04/10/01**
 BY **Nicole M. Losack**

DPM Section 22.2 - Hydrology

Part A-Watersheds less than 40 acres.
 January, 1993

INSTRUCTIONS

- * Spread sheet requires three input areas (dark cells):
 Location
 >A.1 Precipitation Zone
 >A.3 Land Treatments
- * Values from the tables are automatically placed using "if" statements.
- * Table values should be checked for correctness for each use.

SUMMARY

Location	Pro 1		
Precipitation Zone		2	
Land Area		0.28	acres
Excess Precipitation Volume			
>>> 100-year 6-hour (design)		0.04	acre-ft.
10-year 6-hour		0.03	acre-ft.
2-year 6-hour		0.02	acre-ft.
100-year 24-hour		0.05	acre-ft.
Peak Discharge Rates (DPM)			
>>> Q100 (design)		1.23	cfs
Q10		0.80	cfs
Q2		0.45	cfs
Peak Discharge Rates (DPM-Rational Method)			
>>> Q100 (design)		1.23	cfs
Q10		0.80	cfs
Q2		0.45	cfs

CALCULATIONS FOLLOW

INPUT AND CALCULATIONS

LOCATION Pro 1		
>A.1 PRECIPITATION ZONE (from Table A-1)	2	
>A.2 DEPTHS		
(from Table A-2)		
100-YEAR STORM (P60)	2.01	inches
100-YEAR STORM (P360)	2.35	inches
100-YEAR STORM (P1440)	2.75	inches
10-YEAR (P360) (Calculated: $P360 \cdot RPF10$)	1.57	inches
2-YEAR (P360) (Calculated: $P360 \cdot RPF2$)	1.02	inches
>A.3 LAND TREATMENTS (AI)		
Treatment A	0.00	acres
Treatment B	0.00	acres
Treatment C	0.06	acres
Treatment D	0.22	acres
Total Area	0.28	acres
	=====	
>A.4 ABSTRACTIONS		See A.5

CALCULATIONS FOLLOW

INPUT AND CALCULATIONS (CON'T)

>A.5 EXCESS PRECIPITATION 6 HOUR AND 24 HOUR (EI)			
from Table A-8			
100-year 6-hour			
Treatment A	0.53	inches	
Treatment B	0.78	inches	
Treatment C	1.13	inches	
Treatment D	2.12	inches	

WEIGHTED E (Sum Ei*Ai/A)	1.92	inches	

VOLUME V100:6h (E*A)	0.04	acre-ft.	
	1,950.07	ft^3	
	=====		
10-year 6-hour			
Treatment A	0.13	inches	
Treatment B	0.28	inches	
Treatment C	0.52	inches	
Treatment D	1.34	inches	

WEIGHTED E (Sum Ei*Ai/A)	1.18	inches	

VOLUME V10:6h (E*A)	0.03	acre-ft.	
	1,193.17	ft^3	
	=====		
2-year 6-hour			
Treatment A	0.00	inches	
Treatment B	0.02	inches	
Treatment C	0.15	inches	
Treatment D	0.79	inches	

WEIGHTED E (Sum Ei*Ai/A)	0.66	inches	

VOLUME V2:6h (E*A)	0.02	acre-ft.	
	671.66	ft^3	
	=====		
100-year 24-hour			
VOLUME V100:24h			
(V100-6h+Ad*P1440-P360)/12)	0.05	acre-ft.	
	2,274.74	ft^3	
	=====		

CALCULATIONS FOLLOW

INPUT AND CALCULATIONS (CON'T)

>A.6 PEAK DISCHARGE RATE FOR SMALL WATERSHEDS (Qi)			
from Table A-9			
100-year			
Treatment A	1.56	cfs/acre	
Treatment B	2.28	cfs/acre	
Treatment C	3.14	cfs/acre	
Treatment D	4.70	cfs/acre	

Q100 (Sum Qi*Ai)	1.23	cfs	
	=====		
10-year			
Treatment A	0.38	cfs/acre	
Treatment B	0.95	cfs/acre	
Treatment C	1.71	cfs/acre	
Treatment D	3.14	cfs/acre	

Q10 (Sum Qi*Ai)	0.80	cfs	
	=====		
2-year			
Treatment A	0.00	cfs/acre	
Treatment B	0.08	cfs/acre	
Treatment C	0.60	cfs/acre	
Treatment D	1.86	cfs/acre	

Q2 (Sum Qi*Ai)	0.45	cfs	
	=====		

CALCULATIONS FOLLOW

RATIONAL METHOD

PEAK INTENSITY (in/hr at $t_c=0.2$ hour) from Table A-10		
Peak Intensity (I) 100-year	5.05	
Peak Intensity (I) 10-year	3.41	
Peak Intensity (I) 2-year	2.04	
RATIONAL METHOD COEFFICIENT, C from Table A-11		
100-year		
Treatment A	0.31	cfs/acre
Treatment B	0.45	cfs/acre
Treatment C	0.62	cfs/acre
Treatment D	0.93	cfs/acre
Q100 (Sum $Q_i \cdot I \cdot A_i$)	1.23	cfs
=====		
10-year		
Treatment A	0.11	cfs/acre
Treatment B	0.28	cfs/acre
Treatment C	0.50	cfs/acre
Treatment D	0.92	cfs/acre
Q10 (Sum $Q_i \cdot I \cdot A_i$)	0.80	cfs
=====		
2-year		
Treatment A	0.00	cfs/acre
Treatment B	0.04	cfs/acre
Treatment C	0.29	cfs/acre
Treatment D	0.91	cfs/acre
Q2 (Sum $Q_i \cdot I \cdot A_i$)	0.45	cfs
=====		