

G17-02

As constructed
Drainage Report
TRACT B
Board of Education Addition
Candelaria and Adams

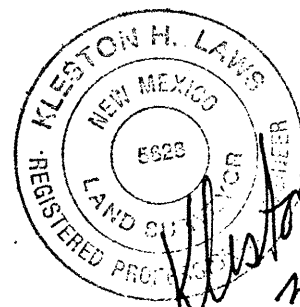
Building Permits Issued
at 3131 and 3299 Adams NE
INCLUDE 3003 ADAMS N.E PER MR LAWS 11-2-81

Apartment Development Co
1909 Carlisle Blvd NE
Albuquerque, N.M. 87110

APPROVED FOR DRAINAGE

11-2-81
DATE

SIGNATURE [Signature] TITLE
ADVISE DRAINAGE INSPECTOR
WHEN GRADING EXECUTED
C.O. RELEASED PER THIS
LETTER OF CERTIFICATION



Kleston H. Laws
30 Oct 81

EXISTING Conditions

The attached letter of approval dated May 13, 1980, was complied with by placing a detailed site grading plan and roof detention methods in the final construction plans.

During the week of October 19, 1981, I made a visual inspection and surveyed field elevation of the construction site.

The south parking lot was graded differently than the plan. The pool area-recreation area were combined and extra parking lot provided. The roofs have twice the drains proposed in the original drainage report and the flow weirs have not been installed.

This report outline drainage conditions as they are currently constructed. The original report address roof detention, pervious, and impervious areas. Each of these areas will be examined for the as constructed project.

Roof Detention:

Each unit has four drains which are $4\frac{1}{2}$ inches wide and 3 inches high.

The flow out of the roof drains depends on the amount of water held on the roof which is dependant on the rainfall rate and the outlet rate. During the intense part of the storm the depth of water on the roof will increase and decrease as the outfall rate is greater than the rainfall rate.

The outfall will be governed by the weir equation $Q = CLH^{3/2}$ and for the $4\frac{1}{4}"$ weir $Q = 1.005 H^{3/2}$ using $C = 2.68$ from King's Handbook. Using the accumulative rainfall curve the total depth vs time is summarized.

Time	Rainfall inches	Feet	Q
10	1"	.083	.024
15	1.15"	.0.10	.032
20	1.3	.108	.036
25	1.4	.117	.040
30	1.6	.133	.049

These outflow rates should be greater than would actually occur since some water should leave the roof during the time of the rainfall

The grading provides for 65 roof drains to flow to Shepard and 75 to Candelaria. Total roof flows vs time are shown below.

Time	Q per drain	TOTAL Roof Flow to: Shepard	Candelaria
10	.024	1.56	1.80
15	.032	2.08	2.40
20	.036	2.34	2.70
25	.040	2.60	3.00
30	.049	3.19	3.68
40	.061	3.97	4.58
50	.067	4.36	5.03

Pervious Area:

The pervious-impervious areas have changed from the original report. A swimming pool was added in the Shepard watershed and the patios were not constructed and less concrete was placed in the courtyards. The pervious areas were graded essentially flat which will cause the time of concentration to lengthen to 30 minutes or a intensity of 3.3 inches per hour. Pervious area draining to Shepard is 1.22 acres and 1.21 acres

drains to Candelaria. Maximum flow contribution is $Q = .15(3.3)(1.22) = .6 \text{ cfs.}$

Impervious Areas.

Impervious areas also changed from original report since parking lots, patios, courtyards, and recreation areas changed. Impervious areas flowing to Shepard are 1.74 acres and 2.32 acres to Candelaria. The following table lists the flow contribution at various times. A C value of .95 was used.

Time	I	TOTAL IMPERVIOUS FLOW TO:	
		Shepard	Candelaria
10	5.5	9.09	12.12
15	4.7	7.77	10.36
20	4.0	6.61	8.82
25	3.7	6.12	8.15
30	3.3	5.45	7.27
40	2.8	4.63	6.17
50	2.4	3.97	5.29

Maximum flows to Shepard and Candelaria are shown in the following table:

Flows to Shepard				
<u>Time</u>	<u>Roof</u>	<u>Pervious</u>	<u>Impervious</u>	<u>Total</u>
10	1.56	.6	9.09	11.25
15	2.08	.6	7.77	10.45
20	2.34	.6	6.61	9.55
25	2.60	.6	6.12	9.32
30	3.19	.6	5.45	9.24
40	3.97	.6	4.63	9.20
50	4.36	.6	3.97	8.93

The flow of the developed area to Shepard in the original report was 10.58

Flows to Candelaria				
<u>Time</u>	<u>Roof</u>	<u>Pervious</u>	<u>Impervious</u>	<u>Total</u>
10	1.80	.6	12.12	14.52
15	2.40	.6	10.36	13.36
20	2.70	.6	8.82	12.12
25	3.00	.6	8.15	11.75
30	3.68	.6	7.27	11.55
40	4.58	.6	6.17	11.36
50	5.03	.6	5.29	10.92

The original report showed 14.4 cfs flowing to Candelaria under developed conditions.

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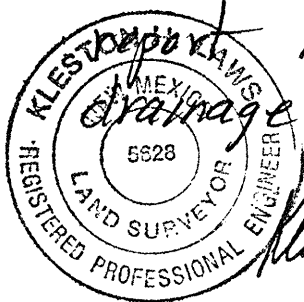
Since the roof and pervious area will not be totally contributing until 20 to 50 minute period the flows from the site will be less than discussed in the original report.

The original report and the site and grading plans had speed bumps in the parking lots to detain and attenuate flows. No figures of storage volume or attenuation were given. Five speed ^{bumps} were placed in the north parking lot. Four speed bumps were placed in the south parking lot, however, the most easterly bump does not effect drainage. The grading of the south parking lot does not provide as much storage as suggested by the plans in the building permit.

I ~~but~~ checked alley grades and cross-sections and they are adequate to carry the flows.

I believe the intent of the original report has been met. I recommend drainage approval of the site as constructed.

Kleston H Laws 30 Oct 81



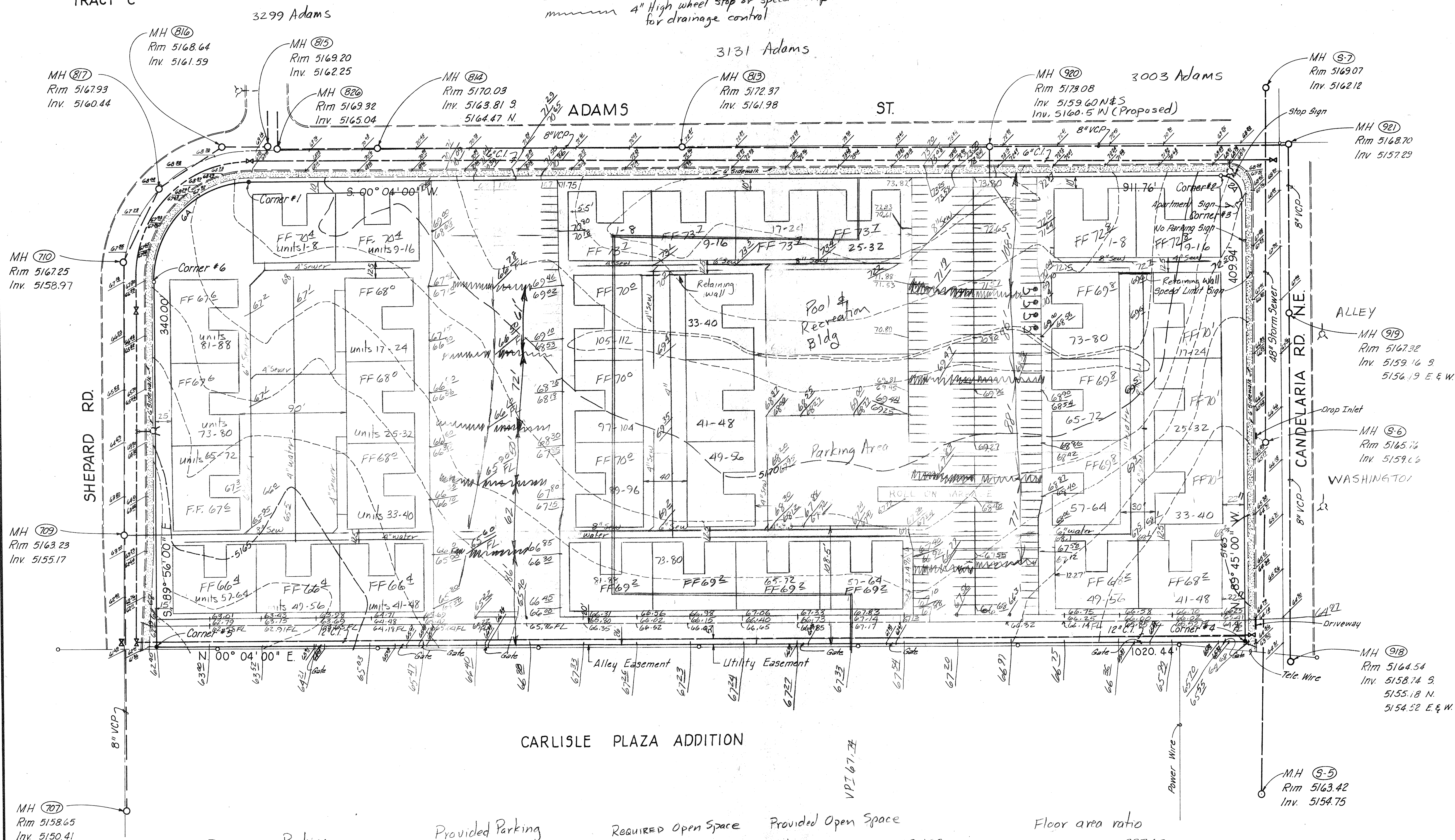
LEGEND

- Existing Sewer
- Existing Water
- Powerline
- Contour
- Found 3/4" Iron Pipe
- Set #5 Rebar
- Curb Elev.
- 4" High wheel stop or speed bump for drainage control

Curve No	Radius	Arc	Chord	Delta	Tangent
GA	90.00'	141.47'	127.28'	90°00'00"	90.00'
2A	2200'	31.48'	28.93'	90°11'00"	20.06'

SCALE: 1"=50'

TRACT 'C'



AS BUILT INFORMATION KEY & NOTES

- FF 67'6" Finish Floor Elevation 67.6
- Elevations shown are actual 'as built' elevations, surveyed during week of October 19, 1981.
- constructed speed bump.
- As built measurements made were to check elevation for compliance with grading and drainage patterns.
- Building and sidewalk locations were not included in as built information.
- Drainage Boundary between Shepard Rd & Candelaria

RECEIVED
NOV 02 1981
ENGINEERING

KESTON H. LAWS
NEW MEXICO
LAND SURVEYOR
5528
20 built 30 Oct 81

Required Parking
140 - 1 B.R. x 1.5 = 210
140 - 2 B.R. x 2.0 = 280
490
Less 10% 49
441

Two percent handicap 9
One quarter small car 110

Provided Parking

441

Required Open Space

140 x 200 = 28000
140 x 250 = 35000
63000

Provided Open Space

Balconies 80 x 280 = 22400
Open areas:
260 (15+100+40+35+20) = 54600
90' radius
10 (160+310+170) 6400

Floor area ratio

3972 x 35 = 277620
435600 = .637

89,760

SITE PLAN

30 October 1981 "AS BUILT"
15 MAY 1980

TOPOGRAPHY MAP
TRACT 'B'
BOARD OF EDUCATION
ADDITION