City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

July 13, 1992

Jackie S. McDowell, P.E.
Molzen-Corbin & Associates
2701 Miles Road, SE
Albuquerque, New Mexico 87102

RE: ENGINEER'S CERTIFICATION FOR AIR CARGO CENTER
ENGINEER'S STAMP DATED JUNE 17, 1992

Dear Ms. McDowell:

Based on the information provided, the plan is acceptable for Certificate of Occupancy release.

If you should have any questions, please do not hesitate to call me at 768-2650.

Cordially,

Gilbert Aldaz

Gilbert Aldaz, P.E. & P.S.
Civil Engineer/Hydrology

GA
(wp+2306)

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

April 8, 1991

Jackie McDowell, P.E.
Molzen-Corbin & Associates
2701 Miles Road, SE
Albuquerque, New Mexico 87106

M-16/D024H

RE: DRAINAGE PLAN FOR AIR CARGO CENTER, PHASE I ~~(N-15/D5)~~
ENGINEER'S STAMP DATED MARCH 18, 1991

Dear Ms. McDowell:

Based on the information provided on the referenced submittal received March 19, 1991 the plan is approved for Site Plan and Building Permit. This approval is contingent that Access Road "D", Project No. 4183 be built simultaneously.

An Engineer's Certification per the D.P.M. checklist should be submitted prior to Certificate of Occupancy release. If you should have any questions, please do not hesitate to call me at 768-2650.

Cordially,

Gilbert Aldaz, P.E. & P.S.
Civil Engineer/Hydrology

xc: Roger Green, DRC Chairman
Dennis Parker, City Aviation

GA
wp+2306

FILE COPY

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

March 4, 1991

Jackie McDowell, P.E.
Molzen-Corbin & Associates
2701 Miles Road, SE
Albuquerque, New Mexico 87106

M-16/D024H

RE: DRAINAGE PLAN FOR AIR CARGO CENTER, PHASE I, ~~(N-15/D5)~~
ENGINEER'S STAMP DATED FEBRUARY 19, 1991

Dear Ms. McDowell:

Based on the information provided on the referenced submittal received February 19, 1991 the plan is approved for Phase I. The phase line being the building and the paving east of the Building.

An Engineer's Certification per the D.P.M. checklist should be submitted prior to Certificate of Occupancy release. If you should have any questions, please do not hesitate to call me at 768-2650.

Cordially,

Gilbert Aldaz, P.E. & P.S.
Civil Engineer/Hydrology

xc: Fred Aguirre, City Hydrologist
Dennis Parker, City Aviation

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AIR CARGO CENTER

GRADING AND DRAINAGE PLAN

LOCATION AND EXISTING CONDITION

The site is located on Albuquerque International Airport property, west of Runway 3-21 (Zone Atlas N-15). The proposed building area is currently undeveloped and relatively level in all directions. A recently constructed Air Freight Apron is located southeast of the proposed building. According to Volume II of the A.M.D.S., the site is located in Area 5. No structural improvements were recommended for Area 5, since both the outfalls for Area 5, Tijeras Arroyo, and the South Diversion Channel, "have capacities of such magnitude that the most intense development possible in Area 5 will not have a significant negative impact on them." The City is currently resuming easement negotiations with the land owner between I-25 and the South Diversion Channel (Jack Clifford).

which City Agency?

PROPOSED DEVELOPMENT:

The City is concurrently designing Access Road D, which will connect this project site to Clark Carr Boulevard and University Boulevard, S.E. Proposed drainage improvements for Access Road D include storm sewer inlets near the intersections of Access Road D and University Boulevard and Clark Carr. These two drainage areas will outfall into existing earthen channels which are intercepted by the South Diversion Channel. The storm sewer improvements for Access Road D will be designed to intercept runoff from the Air Cargo Center site parking and landscaping areas. Roof drains for the proposed structure will drain to the Air Freight Apron storm sewer system, which was designed to intercept the roof runoff.

CALCULATIONS:

Area = 10.5 acres

I = 2.2 inches/hour Plate 22.2 D-2

6-hour, 100-year rainfall = 2.3 inches Plate 22.2 D-1

i = 2.2 x 2.3 = 5.06 inches/hour

EXISTING ON-SITE CONDITIONS:

SURFACE TYPE	"C" VALUE	A ACRES	"C" x A	COMP. "C"
Streets, Drives, Walks	0.95	0	0	
Roofs	0.90	0	0	
Lawns & Landscaping	0.25	0	0	
Undeveloped	0.40	10.5	4.20	___
TOTAL		**10.5**	**4.20**	**0.40**

Q(100) = 0.40 x 5.06 x 10.5 = 21.25 cfs
Q(10) = 0.657 x 21.25 = 13.96 cfs
CN = 80 Plate 22.2 C-2
Direct Runoff = 0.8 inches Plate 22.2 C-4
V(100) = 0.8 x 10.5 x 43560 / 12 = 30,492 cu. ft.
V(10) = 0.657 x 30,492 = 20,033 cu. ft.

PROPOSED ON-SITE CONDITIONS (ULTIMATE DEVELOPEMENT):

SURFACE TYPE	"C" VALUE	A ACRES	"C" x A	COMP. "C"
Streets, Drives, Walks	0.95	4.9	4.66	
Roofs	0.90	2.3	2.07	
Lawns & Landscaping	0.25	1.9	0.48	
Undeveloped	0.40	1.4	0.56	___
TOTAL		**10.5**	**7.77**	**0.74**

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

May 2, 1991

Mike Provine, P.E.
Molzen-Corbin & Associates
2701 Miles Road, SE
Albuquerque, New Mexico 87102

M-14/D024H

RE: DRAINAGE REPORT FOR ACCESS ROAD "D" ~~(N-15/D5)~~
ENGINEER'S STAMP DATED APRIL 23, 1991

Dear Mr. Provine:

Based on the information provided on the referenced submittal received April 23,.1991, the report is approved for Work Order, including Preliminary and Final Plat.

If you should have any questions, please do not hesitate to call me at 768-2650.

Cordially,

Gilbert Aldaz, P.E. & P.S.
Civil Engineer/Hydrology

GA
wp+2306

DRAINAGE REPORT
FOR
ACCESS ROAD D

MARCH 1991

PREPARED FOR

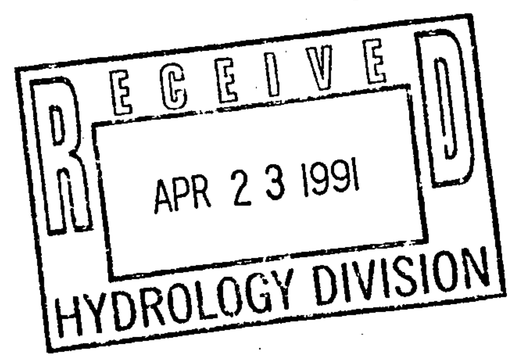
CITY OF ALBUQUERUQE
AVIATION DEPARTMENT

REVISED 4/23/91

Prepared By

MOLZEN-CORBIN & ASSOCIATES
2701 Miles Road, S.E.
Albuquerque, New Mexico 87106
(505) 242-5700

File No. ABQ62-28.X08



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ACCESS ROAD D - DRAINAGE REPORT

I. PURPOSE

The purpose of this report is to provide a drainage and storm sewer analysis for Access Road D at the Albuquerque International Airport. This report and preliminary drainage plan, along with the preliminary plats, are submitted for review and approval.

II. SITE LOCATION AND EXISTING CONDITION

The proposed access road site is located south of Clark Carr Road and east of University Boulevard on City of Albuquerque Zone Atlas Map N-15. Length of the proposed road is approximately 0.73 miles and will generally run north and south. Intersections are planned at University Boulevard and Clark Carr Road.

The existing site is presently undeveloped and ranges from a relatively flat to moderately steep terrain. Adjacent to the site and the new air freight apron, new development is under design for the new air freight handling facilities. The land to the west of the road alignment is owned by the University of New Mexico and no plans are known for development at this time. (Exhibit A)

III. PROPOSED DEVELOPMENT

Access Road D will serve as access to the new air freight facility. The road will be constructed as a two lane collector street with easement available for an additional two lanes in the future. Easement width will be 106 feet at near the ends of the road in the steeper terrain and 86 feet on top in the center section where the terrain is flat. Storm sewer, sanitary sewer and water will be provided in the road, along with provisions for the installation of natural gas and other utilities.

The new road will have standard City of Albuquerque curb and gutter along the east side of the road and median curb and gutter along the west side of the road which, in the future, will become a landscaped median. Temporary asphalt curb will be installed where the future lanes will be constructed.

The proposed storm sewer system will intercept the surface drainage from the air freight facility parking areas and landscaped areas in addition to the runoff from Access Road D. Flows will be split partially to existing structures located at the intersections of Access Road D and University Boulevard and Clark Carr Road. The outfall for both structures will be lined with rip-rap to provide erosion control and flow into existing arroyos which, in turn, discharge into the South Diversion Channel. Ditches with concrete checks will be graded along the road and will discharge into inlets constructed near the intersections with the stormwater routed into the existing structures and arroyos. (Appendix A)

IV. FLOOD ZONE

The proposed alignment does not fall within any flood zones shown on the FEMA maps or in the Albuquerque Master Drainage Study, Vol. 2.

V. EROSION CONTROL

Landscaping is proposed similar to that built on Clark Carr Road. Concrete ditch checks will be constructed in the ditches graded behind the curb line to control erosion. Similar checks have proved to be effective along Clark Carr Road. Offsite flows will be intercepted by the ditches and directed to the existing arroyos for discharge.

For erosion protection of the slopes, seeding will be performed upon completion of the final grading. The following seeding schedule will be specified:

Species	Pure Live Seed Per Acre
Sand proposed	1.0
Giant sand proposed	1.0
Side oats gramma	4.0
Alkali salaton	1.0

Seeding should be done by the drilling method with a depth of 1/4" to 1/2". Fertilizer should not be used in this area and the site mulched with 5000 lbs. per acre of hay crimped into the soil with a serrated disk.

To protect the 2:1 side slope near the intersection of Access Road "D" and Clark Carr Road, a soil erosion control fabric will be installed prior to the seeding operation. This will be necessary to hold the sandy material in the steeper slopes.

VI. DESIGN CRITERIA

Design criteria for the drainage analysis is the Revised Development Process Manual, City of Albuquerque, January, 1991, and Chapter 22 of the Development Process Manual, City of Albuquerque, Volume II, Chapter 22. Appendix A includes the calculations for the drainage report and design for review.

VII. DRAINAGE IMPROVEMENTS

The design scheme for the storm drainage improvements for Access Road "D" include underground storm sewer as well as overland flow. Two systems will transport the

drainage generated from off-site flows from the proposed Air Cargo Center and flows generated in the road easement. One system will transport drainage to the north to a discharge in an existing arroyo, which eventually crosses University Avenue, and discharges into the South Diversion Channel. The second system will transport the drainage to an existing crossing structure at the intersection of Access Road "D" and University Avenue. The discharge of the 48" structure follows the south boundary of the University South Golf Course, and after crossing Interstate 25 reaches the South Diversion Channel.

As stated earlier, concrete ditch checks and landscaping will be included in the construction of Access Road "D" to protect the slopes and ditches adjacent to the new road. The flows in the adjacent ditches will be collected near the intersections of Access Road "D" and Clark Carr Road and University Avenue, and discharged into the storm sewer crossings described above. A layout of the system is included in Appendix A.

A comprehensive drainage master plan is presently being designed. This master plan will include all of the airport property and address runoff at the major discharge point. This master plan will incorporate the area that is under consideration in this report and pursue the data further.

VIII. OFFSITE FLOWS

As mentioned previously, there will be runoff from the proposed Air Cargo Center that has been incorporated into the design of this project. The flows off that site will be overland flows, and will be intercepted into the storm sewer system, prior to encroaching onto the new roadway. These areas are quantified in Appendix A as the Drainage Basins B-1 - B-10.

An additional offsite flow will be encountered at the southeast corner of the intersection of Clark Carr and Access Road D. There is a privately leased parcel of property that presently has runoff into the south bar ditch of Clark Carr. This flow has been routed into the new system via an area drain placed at the southeast corner of the intersection. This line will also be able to convey storm water when the parcel is at its ultimate developed state.

CALCULATED BY _____ DATE _____
CHECKED BY _____ DATE _____
SHEET NO. _____ OF _____

CLIENT _____ PROJECT NO. _____
PROJECT _____
SUBJECT _____

BASIN NO.	TOTAL AREA	LAND TREATMENT D	C	B	A
C1	1.52 ACRES	1.06	0.15	0.15	0.15
C2	6.70 ACRES	4.69	.67	.67	.67
C4	.69 ACRES	.48	.07	.07	.07
C5	.5 ACRES	.35	.05	.05	.05

BASIN C1 100 YR 6 HR STORM (ZONE 2)

$E_A = .48$ $E_B = .72$ $E_C = 1.07$ $E_D = 2.08$

$$E = \frac{.15(.48) + .15(.72) + .15(1.07) + 1.06(2.08)}{1.52}$$

$E = 1.67$ INCHES

$Q_{PA} = 1.40$ $Q_{PB} = 2.17$ $Q_{PC} = 3.02$ $Q_{PD} = 4.70$

$$Q_p = .15(1.40) + .15(2.17) + .15(3.02) + 1.06(4.70)$$

$Q_p = 5.97$ CFS

CALCULATED BY _____ DATE _____
CHECKED BY _____ DATE _____
SHEET NO. _____ OF _____

CLIENT _____ PROJECT NO. _____
PROJECT _____
SUBJECT _____

BASIN C2 100 YR 6 HR STORM (ZONE 2)

$Q_p = .67(1.40) + .67(2.17) + .67(3.02) + 4.69(4.70)$

$Q_p = 26.46$ CFS

BASIN C4 100 YR 6 HR STORM (ZONE 2)

$Q_p = .07(1.04) + .07(2.17) + .07(3.02) + .48(4.70)$

$Q_p = 2.69$ cfs

BASIN C5 100 YR 6 HR STORM (ZONE 2)

$Q_p = .05(1.04) + .05(2.17) + .05(3.02) + .35(4.70)$

$Q_p = 1.96$ cfs

100 YR

BASIN	EXISTING PEAK FLOWS	PROPOSED PEAK FLOWS	DIFFERENCE
C1	2.13 cfs	5.97	3.84
C2	9.38 cfs	26.46	17.08
C4	.97 cfs	2.69	1.72
C5	.70 cfs	1.96	1.26
		TOTAL	23.90 cfs